

COLORADO

STATE HIGHWAY DEPARTMENT

PLAN AND PROFILE OF PROPOSED FEDERAL AID PROJECT NO. 68-G (I) STATE HIGHWAY NO. 291 CHAFFEE COUNTY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	68 G (I)	1	

Revised 9-4-40 A.W.B.

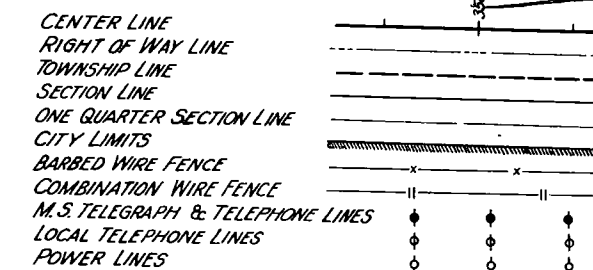
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CONVENTIONAL SIGNS

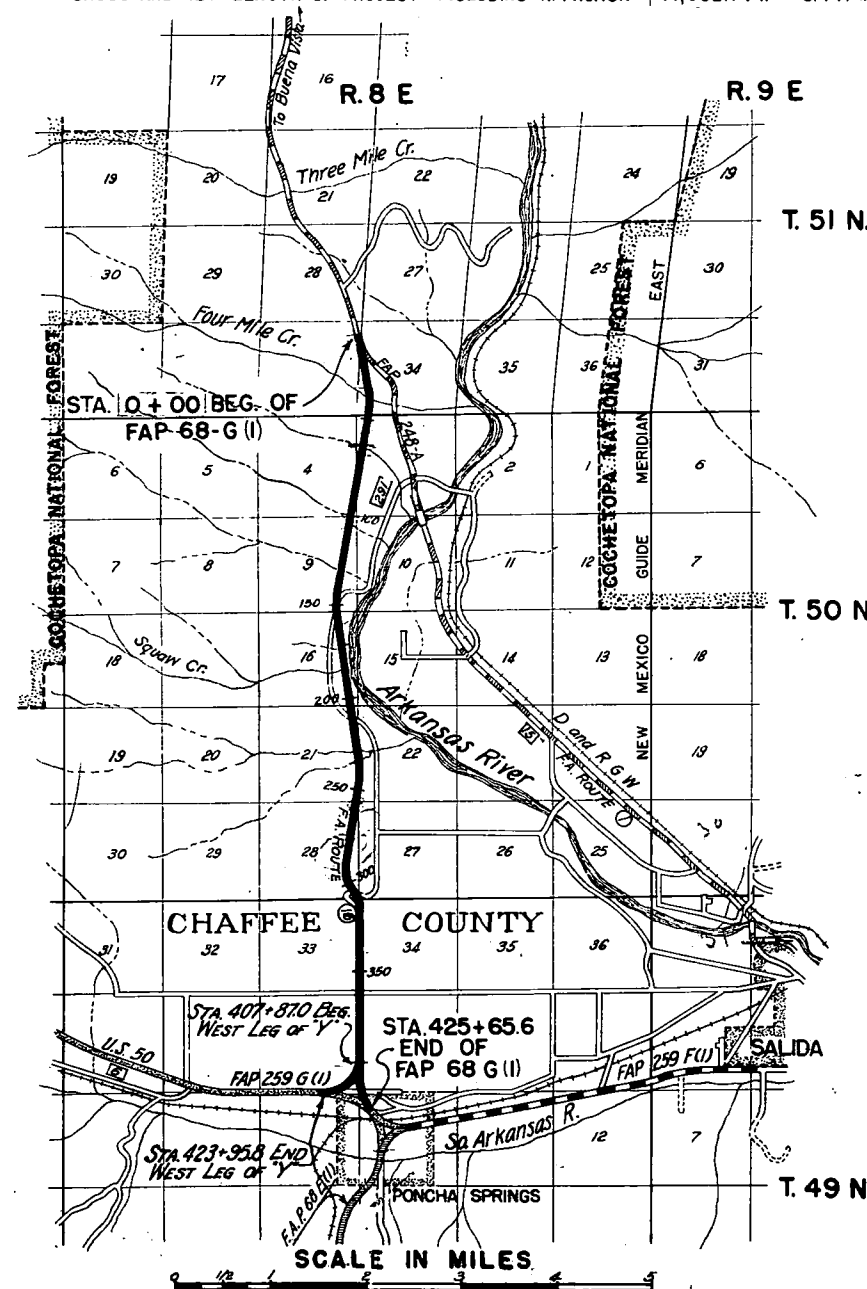


SCALE OF ORIGINAL TRACINGS

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 AND NET LENGTH OF PROJECT EXCLUDING APPROACH 42,993.3 FT. = 8.142 MILES
GROSS AND NET LENGTH OF APPROACH (WEST LEG OF WYE) 1,608.8 FT. = 0.305 MILES
GROSS AND NET LENGTH OF PROJECT INCLUDING APPROACH 44,602.1 FT. = 8.447 MILES



NOTE
It is recommended that bidders on this project go over the plan details with one of the following field representatives of this department:

W. A. Whitney Division Engineer Salida, Colo.
Glen Saper Resident Engineer Salida, Colo.

RECOMMENDED FOR APPROVAL

[Signature]
ASSISTANT ENGINEER
7-27-40

APPROVED

[Signature]
STATE HIGHWAY ENGINEER

RECOMMENDED FOR APPROVAL

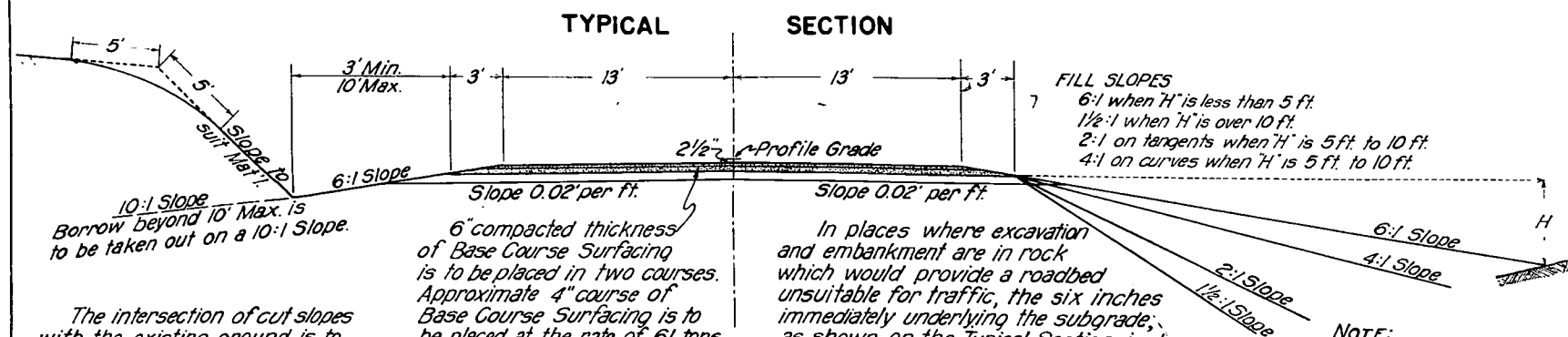
DISTRICT ENGINEER
PUBLIC ROADS ADMINISTRATION
FEDERAL WORKS AGENCY

RECOMMENDED FOR APPROVAL

CHIEF, WESTERN REGION
PUBLIC ROADS ADMINISTRATION
FEDERAL WORKS AGENCY

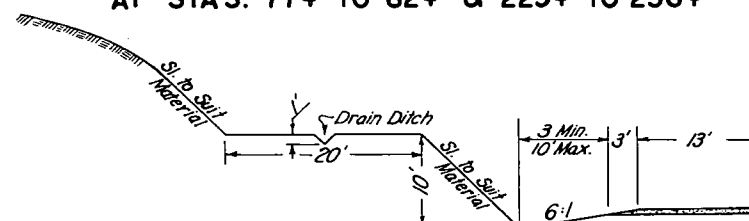
APPROVED

COMMISSIONER
PUBLIC ROADS ADMINISTRATION
FEDERAL WORKS AGENCY



NOTE:
 The area between Sta. 77+ and 85+ is to be stripped approx. 1 ft. and backfilled with selected material which is to be obtained within R.O.W. Rt. of Sta. 67+ to 72+. Quantities involved in this operation are to be classified and paid for as "Unclassified Excavation"

TYPICAL SECTION TO BE USED IN CUTS AT STA'S. 77+ TO 82+ & 229+ TO 236+



The backslopes of cuts at locations indicated above are to be benched to prevent sloughage and erosion. Dimensions and slopes beyond the toe of the 6:1 slope at the inside of the ditch may be varied to meet actual construction requirements.

GENERAL NOTES

This project is to be constructed in conformity with the Standard Specifications of the Colorado State Highway Department adopted June 1, 1940.

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

All curves are to be superelevated in accordance with methods shown on the standard superelevation sheet.

New right of way fences for this project are to be constructed entirely within the right of way as shown on the plans.

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

Headwalls for CMP Culverts shall be placed only where specifically called for by notes on the plans. The ends of corrugated metal pipes which are not provided with headwalls, shall be covered with approximately six inches of embankment material in such manner that a minimum of metal shall be exposed in the completed work. This shall be accomplished by warping embankment slopes around and adjacent to the culvert.

All roadway excavation required to construct the project is to be obtained as indicated on the plans. Quantities involved beyond the limits of the side ditches, as shown on the typical section, either noted as "Borrow" on the plans or as "Embankment" in the list of structures, are to be classified and paid for as "Unclassified Excavation." These quantities are to be stated as part of the original excavation at locations indicated on the plans.

GENERAL NOTES (CONT.)

Any slope stakes beyond the limits of the typical ditches are subject to change by the Engineer to fit embankment requirements actually encountered during construction. All pole lines encroaching on construction are to be moved by their owners.

All side road approaches to the project are to be surfaced with a 4 inch thickness of "Gravel or Crushed Rock Surfacing" extending approximately 30 feet from the edge of the highway surfacing. The estimated quantity of this material is shown in the list of structures.

The present traveled road will be used for traffic during the construction of this project. At all places where construction encroaches on the present traveled roadway the contractor shall, at his own expense, adequately provide for traffic and maintain in safe condition and at his own expense all temporary approaches and crossings of intersecting roads.

Intercepting ditches shall be placed on light grades following the ground contour and, where possible, shall be so constructed that the direction of flow will be away from the roadway in order to spread runoff and thereby avoid erosion.

SUMMARY OF APPROXIMATE QUANTITIES

No.	ITEM	UNIT	ROADWAY			BRIDGES		CBC	C.B.C.	TOTALS
			OUTSIDE CITY LIMITS	INSIDE CITY LIMITS	WEST LEG OF "Y"	STA. 129+	STA. 192+			
10a	Clearing & Grubbing Entire Project	Lump Sum	.	.	.	.	.	.	.	.
11b	Removal of 30 Structures	"	.	.	.	.	.	.	.	.
11d	Removing Buildings, sta. 10+, sta. 149+	"	.	.	.	.	.	.	.	.
12a	Removing Fence	Lin. Ft.	4,400							4,400
12b	Removing & Rebuilding Fence	"	23,600		1,900					25,500
12c	Line Posts (Treated)	Each	280		10					290
13c	Unclassified Excavation	Cu. Yd.	344,400	4,000	10,500		4,000	100		363,000
13d	Unclassified Ditch Excavation	"	4,500		100					4,600
14a	Dry Rock Excavation (Str.)	Cu. Yd.	620		10	10	10	40	5	695
14b	Com.	"	1,855	5	30	100	375	120	245	2,730
14c	Wet Rock	"	210		5	10	10	15	5	255
14d	Com.	"	620	5	10	425	835	40	5	1,940
14e	Mechanical Tamping	per Hr.	625			165	240	55	90	1,175
18a	Station Yard Overhaul	Sta. Yd.	721,000	42,000	87,000					850,000
18b	Yard Mile Overhaul	Yd. Mi.	6,000	400	300					6,700
26a	Gravel or Crushed Rock Surfacing	Ton	38,560	625	14,50			25	40	40,700
26c	Overhaul of Surfacing	Ton Mi.	14,625	590	1,220			15	50	16,500
42a	Untreated Bridge Timber	M ft. bm				0.5	0.4			0.9
42b	Treated Bridge Timber	"						0.2		0.2
44b	Miscellaneous Treated Timber	M ft. bm	0.3							0.3
46a	Class "A" Concrete	Cu. Yd.	784			239	368	288	358	2,037
46b	Class "B" Concrete	"	111							111
46r	Class "A" (Handrails)	"				6	6			12
47	Reinforcing Steel	Lb.	69,800			22,600	39,200	33,400	38,600	203,600
48	Structural Steel	"				42,700	28,600			71,300
53a	15" Corrugated Metal Culvert Pipe	Lin. Ft.	92							92
53b	18" "	"	452							452
53c	24" "	"	3,596	84						3,680
53d	30" "	"	338							338
53e	36" "	"	1,172							1,172
53g	48" "	"	580							580
53k	84" "	"	510							510
55c	24" Corrugated Metal Siphon Pipe	Lin. Ft.	195							195
60a	Treated Timber Piling	"					192			192
60e	Metal Pile Shoes	Each					8			8
63	Grouted Rubble Slope & Ditch Paving (12" thick)	Sq. Yd.	105							105
66	Riprap Enclosed in Wire Netting	Cu. Yd.					57			57
71x	6" Perf. Corr. Metal Pipe Underdrain	Lin. Ft.	1,046							1,046
76a	Barbed Wire Fence with Treated Wooden Posts	Lin. Ft.	48,000							48,000
76d	Combination Wire Fence with Treated Wooden Posts	Lin. Ft.	1,500							1,500
76g	Barbed Wire Gates	Each	49							49
76h	Driveway Gates	"	8							8
81a	Project Markers	"	1		1					2
81b	Right of Way Markers	"	85		1					86
82	16 Ft. Cattle Guards	"	1							1
85c	Trash Guards for 24" Siphon	Each	4							4
89b	Drain Pipe (Conc. Floor 3"x3'6")	"				4	2			6
92	Timber Guard Posts	"	273							273
110c	4" Valve & Valve Box	Each	2							2
110x	4" Metal Drain Pipe	Lin. Ft.	180							180
FORCE ACCOUNT ITEMS										
	Obliterating Old Road	Lump Sum	.	.	.	.	.	.	.	.
	Moving Telephone Lines Sta. 318+ to 323+ & Sta. 394+ to 396+ (Work by Tel. Co. Forces)	"	.	.	.	.	.	.	.	.

LIST OF STRUCTURES

LOCATION	DESCRIPTION	REMOVE STRUCT. No. KIND	EXCAVATION CU. YDS.		STRUCT. EXCAV. CU. YDS.				GRAV. SURF. TONS	CONCRETE CU. YDS.		REINF. STEEL LBS.	CORR. METAL CULVERT PIPE LIN. FT.								SIPHON PIPE LIN. FT.	GR. RUB. SL. PAV. SQ. YDS.	6" PERF. CMP UNDERDRAIN LIN. FT.	MISCELLANEOUS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
			UNCL. DITCH	EMBT.	◎					CL. "A"	CL. "B"		15"	18"	24"	30"	36"	48"	84"																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
0+00 0+20 0+94 2+50	Approach to Project and Proj. Marker Road Appr. & Side Drain Rt. Rem. Sd. Drain C.M.P. Cross Culv. Hdwl. Ditches. Rem. Culv. Road Approach on Lt.	1 - C.M.P. 1 - C.M.P.	* 75 50 * 50	1,000					150 10 20		1.65								30		48																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						

* Designates Quantities to be included in "Unclassified Excavation".

(CONTINUED ON SHEET NO.4)

TIMBER GUARD POSTS

LIST OF STRUCTURES

(CONTINUED FROM SHEET NO.4)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	68-G(1)	5	

 Rev. - Gd. Posts 9-4-40 - H.R.H.
 Rev. - Cattle Pass Sta. 301+9.18-40 A.W.B.

STA. TO STA.	SIDE	SPACING	No.
Out Side City Limits		Sta. 0+00 to 418+94	
32+60	L&R	Minor Structure	2
40+65	L	50'	11
41+00	R	50'	10
69+50	L&R	Minor Structure	2
72+75	L	50'	8
76+10	L	50'	4
76+15	R	50'	3
85+50	R	50'	12
86+00	L	50'	11
108+25	L&R	Minor Structure	2
128+36	L&R	Major Structure	10
129+57	L&R	"	10
150+25	L	50'	3
170+00	R	50'	3
170+40	L	50'	3
191+94	L&R	Major Structure	10
193+04.5	L&R	"	10
220+10	L	50'	4
223+25	L&R	50'	22
236+50	R	50'	4
237+05	L	50'	12
240+50	R	50'	5
272+35	L&R	Minor Structure	2
277+00	R	50'	2
287+50	L&R	Minor Structure	2
291+75	L	50'	5
299+25	L	50'	5
302+75	L	50'	20
303+00	R	50'	10
312+50	L&R	Minor Structure	2
315+45	L	50'	5
316+40	R	50'	3
320+25	R	50'	4
320+35	L	50'	8
384+50	L	50'	5
0+94	L&R	Minor Structure	2
6+00	L&R	"	2
9+50	L&R	"	2
13+75	L	50'	6
13+75	R	50'	9
26+50	L&R	50'	16
Project Total			273

LOCATION	DESCRIPTION	REMOVE STRUCT. No. KIND	EXCAVATION CU. YDS. UNCL. DITCH EMBT.	STRUCT. EXCAV. CU. YDS.	GRAV. SURF. TONS	CONCRETE CU. YDS. CL. 'A' CL. 'B'	REINF. STEEL LBS.	CORR. METAL CULVERT PIPE LIN. FT. 15" 18" 24" 30" 36" 48" 84"	SIPHON PIPE LIN. FT.	GR. RUB. SL. PAV. SQ. YDS.	6" PERF. CMP UNDERDRAIN LIN. FT.	MISCELLANEOUS							
198+50	C.M.P. Cross Culv. with I-Hdwl. and Ditches		100	20		1.65		48											
207+05	C.M.P. Cross Culv. with I-Hdwl. and Ditches		10	15		1.65		46											
210+00	Road Apprs. Lt. & Rt.; C.M.P. Side Drain Rt.			2	40			60											
210+70	C.M.P. Cross Culv. with I-Hdwl. and Ditches		5	5		1.65		56											
215+42	C.M.P. Cross Culv. with Hdwl. (Sk. 70°L), Ditches		75	20		2.25		70											
216+00 to 223+00	Intercepting Ditches on Rt.		75																
219+09	C.M.P. Cross Culv. with I-Hdwl. and Inlet		5	25		1.65		56											
224+80	Dble. C.M.P. Culv., 2-Hdwl., & Chan. Imp'v't.		* 50	160		31.8	1086												
228+	Grouted Rubble Spillway on Rt.										20								
230+82	C.M.P. Culv., Ditches, Inlet Dike & Gr. Rub. Sl. Pkg.		50	25				56			35								
228+ to 235+50	Intercepting Ditch on Rt.		45																
229+00 to 236+50	Intercepting Ditch on Lt.		40																
237+10 to 237+35.4	Type 108-Double 10'x10'x5.9' Conc. Box Culv. (Skew 65°Lt.) & Channel Improvement. Special 10'x10'x8.3' Conc. Box Culv. (Sk. 80°Lt.)			270		250.0	27500												
242+05	C.M.P. Cross Culv. with Hdwl. (Sk. 65°R), Ditches		5	20		1.65		96											
245+00 to 246+60	Intercepting Ditch on Rt.		20																
248+75	Road Approaches Lt. and Rt.		* 200		20														
248+94	C.M.P. Cross Culv. with I-Hdwl. & Ditches		10	10		3.00		60											
249+00 to 255+	Intercepting Ditches Lt. & Rt.		50																
255+60	C.M.P. Cross Culv. (Sk. 60°Rt.), Ditches		10	20				60											
258+40	C.M.P. Cross Culv., 2-Hdwl., (Sk. 60°R), Ditches		150	200		20.0	684		68										
261+75	C.M.P. Cross Culv. (Sk. 50°Rt.) & Ditches		20	20				80											
262+ to 274+	Intercepting Ditches Lt. & Rt.		100																
269+38	C.M.P. Cross Culv. with Intercept. Hdwl., Ditches		20	20		2.00		54											
272+25	C.M.P. Cross Culv. with I-Hdwl. & Ditch Change		30	20		1.65		48											
273+40	C.M.P. Cross Culv. with Hdwl. (Sk. 45°R), Chan. Chg.		50	30		5.00		78											
274+00	Road Approaches Lt. & Rt.		* 50		20														
277+10	C.M.P. Cross Culv. with Hdwl. (Sk. 60°R), Chan. Chg.		250	20	10.0		342		78										
280+25	C.M.P. Cross Culv. (Sk. 60°Rt.) & Ditches		10	30				90											
285+70	C.M.P. Cross Culv. (Sk. 45°Rt.) & Ditches		30	45				86											
287+00	Road Approaches L. & R.			100	20														
287+50	C.M.P. Cross Culv. with Hdwl. (Sk. 45°R), Ditches		20	15		1.65		70											
292+10	C.M.P. Cross Culv. with I-Hdwl.			5		1.65		64											
297+50	C.M.P. Cross Culv. with Hdwl. & Ditch Change		50	20		1.65		50											
298+00	C.M.P. Cross Culv. with Hdwl.					3.00		58											
301+10	& Inlet Ditch and Dike with Gr. Rub. Sl. Pkg.		15	15						10									
302+95	C.M.P. Cross Culv., 2 Headwalls & Inlet		20	35		20.0	684		60										
303+30	C.M.P. Cross Culv. with Hdwl. (Sk. 80°R), Ditches		25	25		1.65		96											
	C.M.P. Cross Culv. with I-Hdwl. & Ditches		10	20		1.65		88											
306+20	C.M.P. Cross Culv. with Hdwl. (Sk. 70°L), Ditches		40	70		5.00		128											
306+	Perforated C.M.P. Underdrain & Outlet Ditch		10	65							200								
309+	Perforated C.M.P. Underdrain & Outlet Ditch		10	65							200								
310+60	C.M.P. Cross Culv. with I-Hdwl.			10		3.00		88											
312+50 to 316+10	Perforated C.M.P. Underdrain on Rt.			115							360								
312+50	C.M.P. Cross Culv. with Intercept. Hdwl. & Inlet		10	50		3.10		50											
316+50	C.M.P. Cross Culv. with Hdwl. (Sk. 60°R), Ditches		10	25		3.00		142											
317+24 to 320+10	Perf. C.M.P. Underdrain & Outlet Ditch on Rt.		25	90							286								
321+00 (Bk.)	C.M.P. Cross Culv. with Hdwl. (Sk. 65°L), Ditches		25	50		5.00		210											
321+44 to 332+	Irrigation Ditch Change on Lt.		150																
318+ to 323+ (Bk.)	Remove Telephone Line From R.O.W.				(Force Acct. - Work by Telephone Co. Forces)														
323+ (Bk.)	Drain Ditch on Rt.		50																
323+50 (Aht.)	Remove Cattle Guard on Rt.	I-Cat. Gd.																	
324+50	Cattle Guard on Rt. (16 ft. Roadway)	I-W.B.C.																	
325+00	Remove 1'x1'x20' Wood Box Culv. on Rt.	I-W.B.C.																	
324+50	Road Approach and Side Drain on Rt.		* 200	5	10			30											
325+40	Remove 2'x1'x28' Wood Box Culv. on Rt.	I-W.B.C.																	
325+55	24'x68' C.M. Siphon & Drain (H=25'Lx6.0'R) & Ditches. Wood Division Box on Lt.		10	75		0.4	260		75										
329+89	Rem. Div. Box on Rt.; Wood Div. Box on Lt.	I-W.B.C.		5															
333+46	Road Approach on Lt.			500	10														
333+75	C.M.P. Cross Culv. (Skew 75°Rt), Ditches, Remove 30'x24' C.M.P. on Rt.	I-C.M.P.	10	10				82											
336+50 to 339+90	Ditch Changes Lt. & Rt.																		
336+50	Double C.M.P. Cross Culv.		120	60				120											
SHEET TOTAL		5	1770	820	1852	120	336.45	52.50	30.556	60	1328	152	484	416	426	75	65	1046	

 *Designates Quantities to be included in "Unclassified Excavation"
 *Selected Backfill Material.

(CONTINUED ON SHEET NO.6)

FENCING

STATION TO STATION	SIDE	REM. FENCE LIN. FT.	REMOVE & RE-BUILD FENCE LIN. FT.	BUILD FENCE LIN. FT.	COMB.
5+50 - 141+30	R			13,590	
6+15 - 140+45	L			13,460	
46+66	X	125			
77+48	X	325			
100+11	X	125			
126+18	X	125			
140+50	X	185			
141+30 - 154+50	R		1,320		
141+35 - 177+10	L		3,675		
176+85 - 207+00	R			3,015	
177+10 - 207+20	L			3,010	
190+05 - 195+	L&X	850			
207+09	X	125			
209+63	X	435			
247+55	X	120			
247+55 - 320+00	L			7,249	
247+55 - 324+44B	X			7,647	
274+35	X	125			
301+15	X	195			
318+90	L&X	520			
320+00B - 321+50A	L		600		
320+06A - 366+01	R		4,628		
321+50A - 366+01	L		4,453		
333+25 - 339+90	L				665
366+62 - 392+45	L		2,583		
366+62 - 393+00	R		1,638		
387+00 - 392+32	R		532		
392+32 - 395+85	R				353
392+45 - 397+00	L				455
395+85 - 406+32	R		1,055		
397+00 - 418+45	L		2,160		
WEST LEG OF WYE					
406+32 - 423+96	R		1,885		
0+00 - 3+00	L		330		
0+00 - 5+50	R		580		
5+65	X	140			
8+40 - 13+05	X	750			
19+90	X	125			
33+50	X	130			
TOTALS - ROADWAY		4,400	23,554	47,971	1,473
TOTALS - WEST LEG OF WYE			1,885		
GRAND TOTALS		4,400	25,439	47,971	1,473

*It is estimated 290 New Line Posts will be required.
280 Outside City Limits.
10 Wye Connection.

GATES

STATION	SIDE	NUMBER	STATION	SIDE	NUMBER
		B.W. DR'WAY			B.W. DR'WAY
40+50	L&R	2	287+00	L	1
50+00	"	2	287+00	R	1
60+00	"	2	297+00	L&R	2
72+00	"	2	305+00	"	2
85+50	"	2	316+00	"	2
92+40	"	2	323+50A	L	1
98+00	"	2	333+46	L	1
112+00	"	2	339+90	"	1
122+00	"	2	363+00	"	1
131+00	"	2	363+00	R	1
141+20	R	1	390+00	"	1
141+40	"	1	410+00	L	1
142+00	L	1	0+20	R	1
155+00	"	1	10+00	R	1
177+00	"	1	10+00	L	1
187+00	L&R	2	25+40	L&R	2
196+50	"	2			
206+90	R	1	WEST LEG OF WYE		
207+00	L	1	415+00	R	1
248+60	L&R	2	TOTALS:		
263+00	"	2	ROADWAY	49	8
274+00	"	2	WEST LEG OF WYE	1	
			GRAND TOTALS	49	9

LIST OF STRUCTURES

(CONTINUED FROM SHEET NO.5)

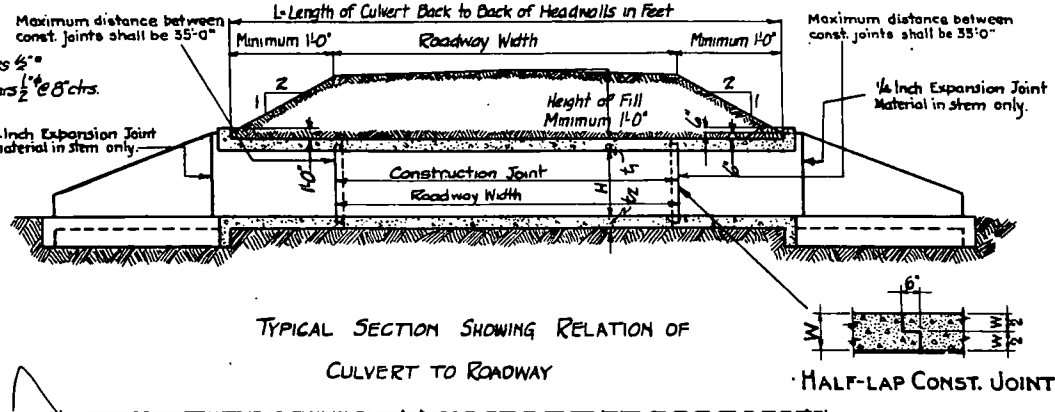
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	68-G(1)	6	

Rev. Fencing, Gates and Struct. List - 9-4-40 - H.R.H.
Rev. Totals - 9-18-40 A.W.B.

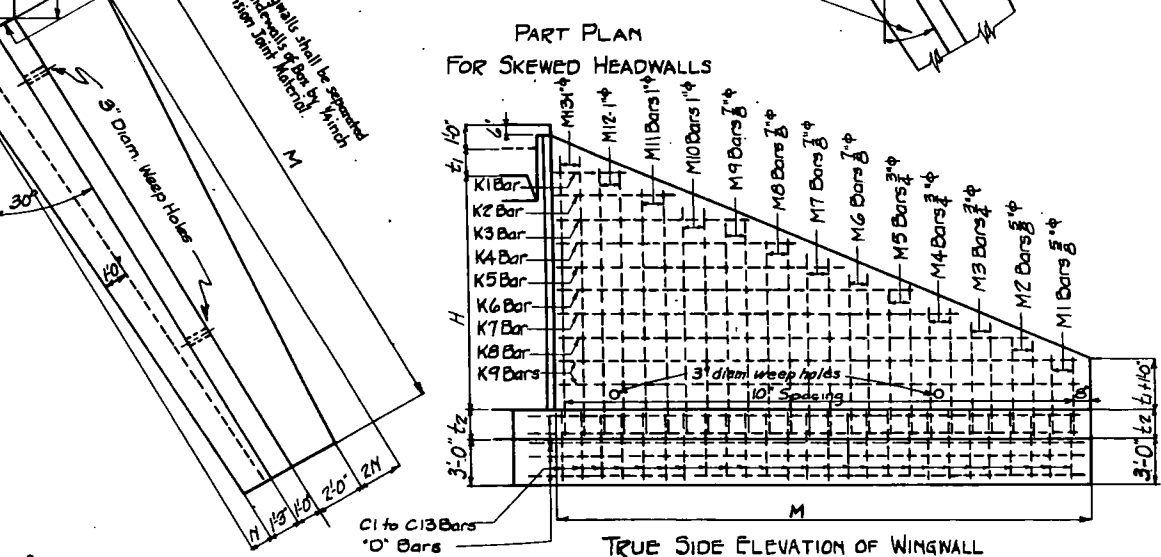
		(CONTINUED FROM SHEET NO.5)													Rev. Totals - 9-18-40 A.W.B.							
LOCATION	DESCRIPTION	REMOVE STRUCT. NO. KIND	EXCAVATION CU. YDS.		STRUCT. EXCAV. CU. YDS.		GRAV. SURF. TONS	CONCRETE CU. YDS.		REINF. STEEL LBS.	CORR. METAL CULVERT PIPE LIN. FT.								SIPHON PIPE LIN. FT.	GR. RUB. SL. PAV. SQ. YDS.	6" PERF. CMP. UNDER LIN. FT.	MISCELLANEOUS
			UNCL. DITCH	EMBT.	°						CL. "A"	CL. "B"	15"	18"	24"	30"	36"	48"				
338+00 339+90 to 360+ 339+90	Remove 3'x1'x16' Wood Box Culv. on Rt. Ditch Change on Lt. Remove 24"x24" C.M.P. on Rt. and Division Box & Flume on Lt.	1-W.B.C. 1-C.M.P. 1-Box 1-Flume	230														24"	12"				
339+70 340+07 342+20 342+00 342+44	Conc. Div. Box & C.M.P. Outlet on Lt. Road Approach & C.M.P. Side Drain on Rt. Road Appr. Side Drain on Lt. Remove Division Box; Conc. Div. Box Lt. Conc. Div. Box on Lt.; Remove Div. Box on Lt.	1-Box 1-Box	* 125	50	10 5 5 5		10 10	2.90 2.90	229 229	20 36	30											11-Bd. ft. Misc. Treat. Timber 11-Bd. ft. Misc. Treat. Timber 11-Bd. ft. Misc. Treat. Timber
354+30	Road Apprs. & C.M.P. Side Drains on Lt. & Rt.			120	2		20				30 30											
365+85	C.M.P. Cross Culv. with 1-Hdwl. & Ditches Remove 24"x27" C.M.P. Culv. on Rt.	1-C.M.P.	25		5				2.25					76								
366+30	Road Apprs. Lt. & Rt.; Side Drain on Rt.			500	5		40							40								
367+30 367+40 369+50 371+60 376+00	C.M.P. Culv. & Ditches; Rem. 12'x16'x20 W.B.C. Rt. Road Approach on Rt. Road Approach on Lt. C.M.P. Cross Culv.; Rem. 12'x21' C.M.P. Culv. Rt. C.M.P. Cross Culvert	1-W.B.C. 1-C.M.P.	50	25 50	5 10 15		10 10							64 72 56								
376+00 to 378+ 377+50	Ditch Changes Lt. & Rt. Road Approach on Lt.		75	10			10															
378+80 378+90	Remove 15'x24' C.M.P. Culv. on Rt. Road Approach and Side Drain on Rt.	1-C.M.P.	* 200		5		10				30											
379+ to 381+ 379+30 380+35 380+80 to 391+ 380+80	Remove loose rock under fence on Rt. Road Approach and Side Drain on Rt. Road Approach and Side Drain on Lt. Ditch Change on Lt. 24'x109' C.M. Siphon & Drain with Outlet		* 35 * 200 * 300 200		5 5		10 10				30 30											2-24" Trash Guards 80 Lin. Ft. 4" Metal Drain Pipe 1-4" Valve and Valve Box
382+ to 384+ 384+85	(H=11.5 Lt. & H=14.5 Rt.); Rem. 12'x30' C.M.P. Rt. Remove loose rock under fence on Lt. Road Approach on Rt.	1-C.M.P.	* 25	600			20		0.4 4.25	260						120						
385+45	C.M.P. Cross Culvert (Skew 80° Rt.)				5									122								
385+58 385+ 385+50	C.M.P. Cross Culvert (Skew 80° Rt.) Remove Double 3'x2'x68' Conc. Box Culv. on Rt. C.M.P. Inlet with Hdwl. & Conc. Div. Box on Lt.; Remove 1'x1'x26' Flume on Lt.	1-CBC 1-Flume			10				0.90	229	36											11-Bd. ft. Misc. Treat. Timber
387+50	Road Appr. & Side Drain with Hdwl. Lt.		200	2			10		1.10		32											
391+39 391+70 391+90 393+36 394+ to 396+	C.M.P. Cross Culv. (Sk. 70° L.); Rem. 2'x5'x20 C.B.C. Rt. Road Approach on Lt. C.M.P. Cross Culv. (Sk. 80° L.); Rem. 2'x6'x24 C.B.C. Rt. C.M.P. Cross Culv. & Ditches; Rem. 24'x18" C.M.P. Lt. Remove Telephone Line From R.O.W.	1-C.B.C. 1-C.B.C. 1-C.M.P.		300	5 5 5		10							68 60 58								
395+35 395+89 395+85 396+80 400+20	C.M.P. Cross Culvert (Sk. 75° Lt.) & Ditches Remove 2'x2'x38' Wood Box Culv. on Lt. C.M.P. Cross Culvert and Ditches Remove 2'x2'x30' Wood Box Culv. on Lt. Road Approach on Lt.	1-W.B.C. 1-W.B.C.	25 15		10 5									72 58								
400+70	C.M.P. Cross Culv. with Intercept. Hdwl. and Ditches; Remove 15'x24' C.M.P. Culv.	1-C.M.P.	50		35				2.00					52								
402+50 412+18 418+60	Road Approach on Lt. C.M.P. Cross Culv. & Inlet; Rem. 18'x34' C.M.P. Culv. Road Approaches Lt. and Rt.	1-C.M.P.	* 130 25		15		10							70								
423+25 425+65.6	C.M.P. Cross Culvert Approach to Project and Proj. Marker			90	5		20							84								1-Project Marker
411+72	C.M.P. Cross Culvert and Inlet		100		45									76								
RDWY SHEET	TOTALS - OUTSIDE CITY	20	710	2000	314		240	16.25	6.25	1,176	92	212	472	76	442		120					
ROADWAY TOTALS	INSIDE CITY LIMITS OF PONCHA SPGS.			90	5		20						84									
Y'CONN. TOTALS	OUTSIDE CITY LIMITS OF PONCHA SPGS.	30	4475	4705	3290		760	783.3	110.40	697.55	92	452	3506	338	1172	580	510	195	105	1046		
PROJECT TOTALS		30	4575	4795	3340		780	783.3	110.40	697.55	92	452	3680	338	1248	580	510	195	105	1046		

*Designates Quantities to be Included in "Unclassified Excavation", Total for Project = 1,890 cu. yds.

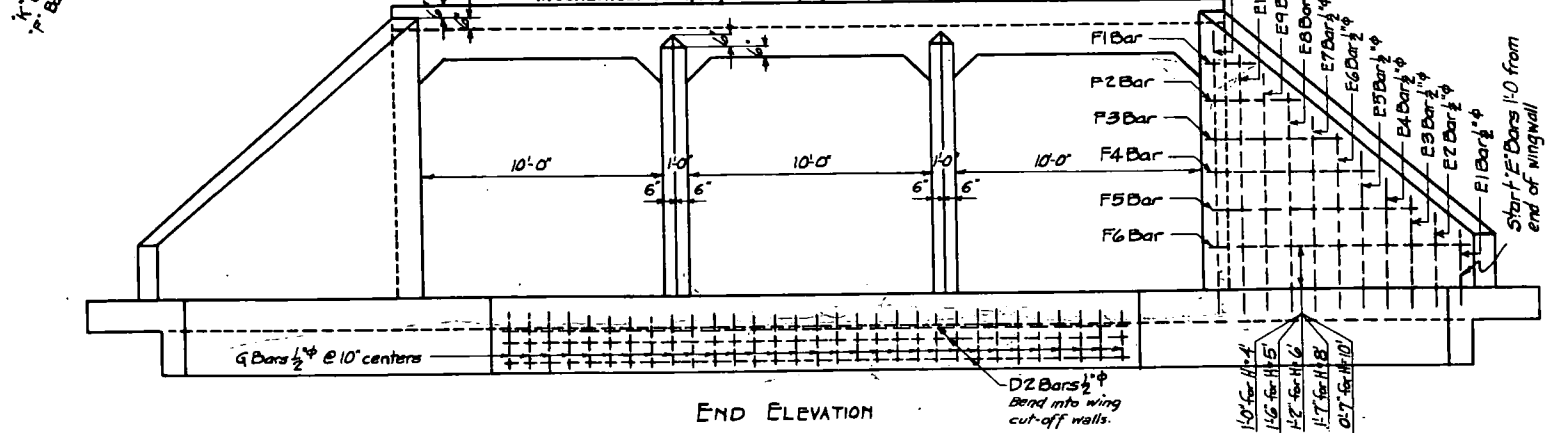
©Structural Excavation is estimated to be 75% Common and 25% Rock; each of which is estimated to be 75% Dry and 25% Wet.



· HALF-LAP CONST. JOINT



TRUE SIDE ELEVATION OF WINGWALL



END ELEVATION

All work shall be done according to the standard specifications of the Colorado State Highway Department. Adopted June 1, 1940

All concrete shall be class A.

Forms for concrete surfaces exposed in the finished work shall be constructed of ship lap or tongue and groove lumber S3S unless faced with panel board.

Footings in rock shall be poured out to the rock and not formed.

All reinforcing bars shall be deformed and tagged with the station number and letter designation. Main bars shall not be spliced.

For culverts required and governing dimensions see sheet No. 2

This design not to be used when height of fill over box exceeds that tabulated as allowable.

Supporting soils for all culverts must be composed of firm and uniform material throughout.

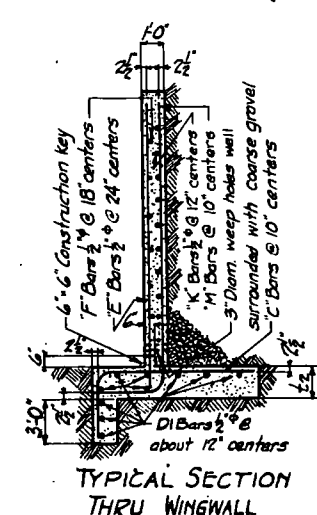
All backfilling to and over culverts shall be laid in layers not exceeding 6 inches in depth and each layer shall be mechanically tamped where inaccessible to roller, also moistened when necessary. See sheet 8 for tamping details.

All construction joints shall be thoroughly cleaned before fresh concrete is poured.

Minimum distance from center line of bars to edge of concrete to be 2 1/2 inches.

All exposed corners shall be beveled to a 2" face.

Mechanical Tamping to comply with that as shown on Sheet No. 8.



TYPICAL SECTION
THRU WINGWALL

MFF

TABLE OF DIMENSIONS AND QUANTITIES													
Steel Quantities given below include allowance of 1% ± for over-run.													
Total Quantities for one Box equals the quantity for two Headwalls plus (L x Quantity for one Lin-ft Box)													
Height of Fill Allowed	TYPE	Inside Span Each Box	Height H	Thickness of Top Slab t ₁	Thickness of Bottom Slab t ₂	Size of V Bars	Size of A3 Bars	Size of A4 Bars	Number of Y Bars Per Box	Length of Wingwall M	Dimension N	Quantities for One Lin Ft. of Box Concrete Cu Yds.	Quantities for Two Headwalls Steel Lbs. Concrete Cu Yds.
6'-0"	10-Y	10'-0"	4'-0"	13"	13"	½" #4	¾" #4	¾" #4	13	8'-0"	4'	3,432	477 235
			5'-0"	13"	13"	½" #4	¾" #4	¾" #4	20	10'-5"	5'	2,580	485 248
			6'-0"	13"	13"	½" #4	¾" #4	¾" #4	26	12'-9"	6'	3,729	495 34.0
			8'-0"	13"	13"	½" #4	¾" #4	¾" #4	34	17'-4"	9'	4,025	512 46.5
			10'-0"	13"	13"	½" #4	¾" #4	¾" #4	40	22'-0"	11'	4,321	537 60.5
10'-0"	10-Z	10'-0"	4'-0"	15"	16"	½" #4	½" #4	¾" #4	13	8'-0"	4'	3,975	481 255
			5'-0"	15"	16"	½" #4	½" #4	¾" #4	20	10'-5"	5'	4,105	488 31.5
			6'-0"	15"	16"	½" #4	½" #4	¾" #4	26	12'-9"	6'	4,253	498 37.0
			8'-0"	15"	16"	½" #4	½" #4	¾" #4	34	17'-4"	9'	4,549	515 51.0
			10'-0"	15"	16"	½" #4	½" #4	¾" #4	40	22'-0"	11'	4,846	558 72.0

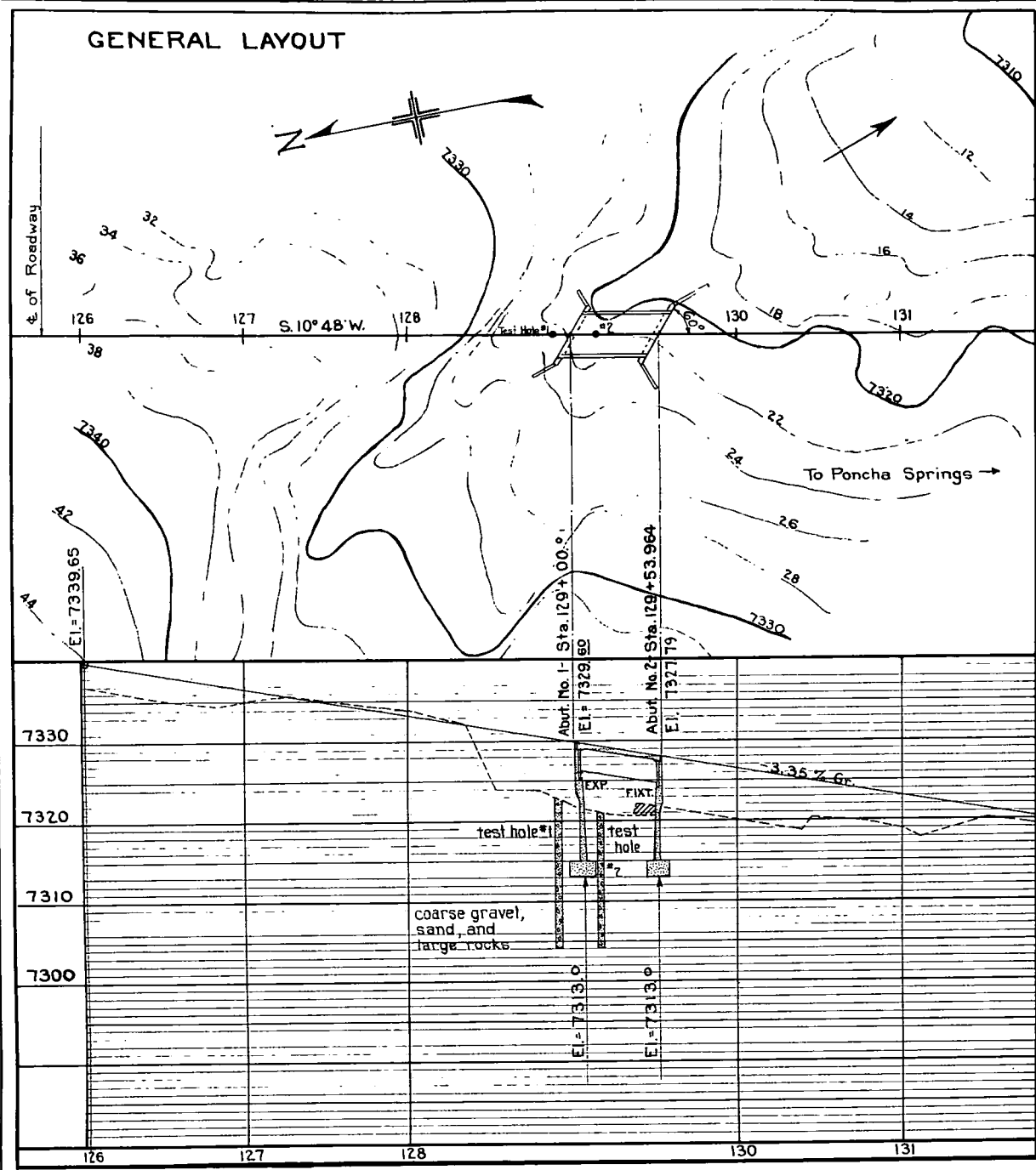
10FT x 4FT - 10FT x 5FT - 10FT x 6FT
10FT x 8FT 10FT x 10FT

Designed by ALC.	Approved by <i>C. D. Bailey</i>
Made by MFM	Bridge Engineer
Check Design MFM	Date: <i>July 1st 1935.</i>
Check Detail	

106

GENERAL LAYOUT

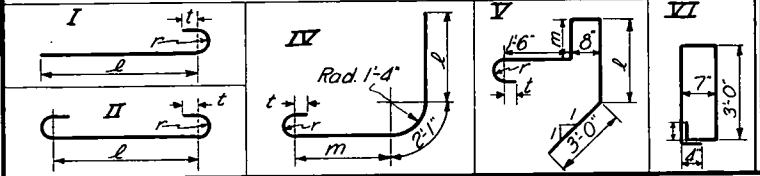
FED. ROAD DIST. NO.	STATE	F.A.P.	SHEET NO.	TOTAL SHEETS
3	COLO.	68 G (1)	9	



ABUTMENT BAR LISTS

ABUTMENT #1										ABUTMENT #2									
Mark	Size	Type	No. Required	Length	ℓ	m	r	t		Mark	Size	Type	No. Required	Length	ℓ	m	r	t	
F1	3/4"	I	41	7'-1"	6'-1"		3"	2 1/2"		H8	1/2"	VI	6	7'-10"					
F2	3/8"	I	27	6'-5"	5'-7"		2 1/2"	2"		H9	1/2"	Str.	3	1'-10"					
F3	1/2"	Str.	16	22'-6"						H10	1/2"	Str.	3	1'-3"					
F4	3/8"	I	6	6'-3"	5'-1"		3 1/2"	3"		H11	1/2"	Str.	3	1'-9"					
F5	3/8"	I		4'-10"	4'-0"			2 1/2"	2"	H12	1/2"	Str.	3	2'-3"					
F6	3/8"	I		2 Each	by 1/4"	by 1/4"				L1	1/2"	Str.	6	24'-2"	Field	Bend			
F14					to 5'-9"	to 4'-11"				L2	1/2"	Str.	6	23'-2"					
F15					5'-10"	5'-0"				L3	1/2"	Str.	8	22'-0"					
F19	3/8"	I		2 Each	by 1"	by 1"		2 1/2"	2"	L4	1/2"	Str.		9'-6"					
F20					to 5'-6"	to 4'-8"				L5				8'-9"					
F21	3/8"	I		2 Each	by 1"	by 1"		2 1/2"	2"	Fo	1/2"	Str.		1 Each	by 1'-11"				
F28					to 4'-8"	to 3'-10"				L8				to 2'-6"					
F29					5'-0"	3'-4"				L9	1/2"	Str.		10	15'-9"				
F29	3/8"	II		2 Each	by 2"	by 2"		2 1/2"	2"	L10				25'-6"					
F37					to 3'-8"	to 2'-0"				Fo	1/2"	Str.		1 Each	by 3'-6"				
F38					4'-8"	3'-0"				L16				to 4'-6"					
F40	3/8"	II	2 Each		by 3 1/2"	by 3 1/2"		2 1/2"	2"	L17	1/2"	Str.	12	16'-8"					
F42					to 5'-10"	to 4'-2"				L18	1/2"	Str.	1	11'-6"					
F43					5'-0"	4'-2"				L19	1/2"	Str.	1	7'-0"					
F46	3/8"	I	2 Each		by 2"	by 2"		2 1/2"	2"	L20	1/2"	Str.	7	18'-8"					
F47					to 5'-6"	to 4'-8"				L21				16'-8"					
F47					6'-4"	5'-4"				Fo	1/2"	Str.	1 Each	by 2'-5"					
F51	3/4"	I	2 Each		by 2"	by 2"		3"	2 1/2"	L27				to 2'-2"					
F51					to 7'-0"	to 6'-0"				P1	1/2"	II		39	12'-2"	3'-9"	2'-7"	2"	2"
F52	3/8"	I	16		6'-3"	5'-5"		2 1/2"	2"	P2	1/2"	Str.	16	12	20'-0"				
F53	3/8"	I	16		6'-0"	5'-2"		2 1/2"	2"	P3	1/2"	Str.	16	12	4'-2"				
G1	1/2"	Str.	1		28'-0"	Field	Bend			P4	3/8"	I	3	3	5'-11"	5'-1"		2 1/2"	2"
G2	1/2"	Str.	1		26'-6"					P5	1/2"	Str.	4	4	2'-0"				
G3	1/2"	Str.	2		25'-0"					P6	1/2"	I	39		14'-10"	4'-11"	4'-1"	2"	2"
G4	1/2"	Str.	1		26'-0"					P7	1/2"	I	3		6'-6"	5'-10"		2"	2"
G5	1/2"	Str.	1		24'-9"					S1	3/8"	IV	33	33	13'-1"	8'-10"	1'-0"	3 1/2"	3"
G6	1/2"	Str.	2		24'-3"					S2	3/8"	IV	32	32	11'-2"	6'-0"	1'-11"	3 1/2"	3"
G7	1/2"	Str.	6		15'-0"					S3	3/8"	IV	30	30	10'-0"	4'-2"	2'-7"	3 1/2"	3"
G8	1/2"	Str.	8		18'-6"					S4	3/8"	IV	3		8'-8"	3'-8"	1'-9"	3 1/2"	3"
G9	1/2"	Str.	3		10'-0"					S5	3/8"	IV	3		11'-0"	6'-1"	1'-8"	3 1/2"	3"
G10	1/2"	Str.	9		19'-0"					S6	3/8"	IV	2		17'-9"	13'-6"	1'-0"	3 1/2"	3"
G11	1/2"	Str.	2		12'-0"					S7	3/4"	IV	3		7'-0"	2'-7"	1'-4"	3"	2 1/2"
G12	1/2"	Str.	8		20'-0"					S8	3/4"	IV	3		9'-5"	5'-1"	1'-3"	3"	2 1/2"
G13	1/2"	Str.	3		7'-0"					S9	3/8"	IV	2		16'-7"	12'-4"	1'-0"	3 1/2"	3"
										S10	3/4"	IV	3		14'-10"	10'-9"	1'-0"	3"	2 1/2"
										S11	3/8"	IV	3		6'-0"	2'-2"	11"	2 1/2"	2"
										S12	3/8"	IV	3		7'-7"	4'-0"	8"	2 1/2"	2"

BENDING DIAGRAMS



BAR SUMMARY ABUT #1 AOC

308 Lin. Ft. of 1/2" Bars @ 2.670 #/ft. = 823 Lbs.
1295 - - - 3/4" - @ 2.044 - = 2647 "
451 - - - 3/8" - @ 1.502 - = 678 "
634 - - - 3/8" - @ 1.043 - = 661 "
647 - - - 1/2" - @ 0.850 - = 550 "
2259 - - - 1/2" - @ 0.668 - = 1509 "
Plus 1% Overrun = 72 "
Total = 6940 Lbs.

BAR SUMMARY ABUT #2 AOC

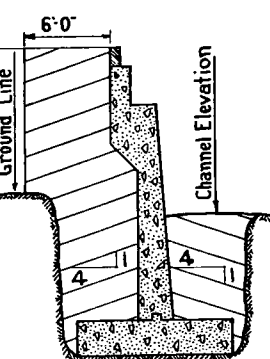
1330 Lin. Ft. of 3/8" Bars @ 2.044 #/ft. = 2719 Lbs.
509 - - - 3/4" - @ 1.502 - = 765 "
682 - - - 3/8" - @ 1.043 - = 711 "
544 - - - 1/2" - @ 0.850 - = 462 "
2093 - - - 1/2" - @ 0.668 - = 1398 "
Plus 1% Overrun = 65 "
Total = 6120 Lbs.

REFERENCE DRAWINGS:
Sheet No. 9 General Layout, Summary of Quantities, Abutment Bar Lists.
Sheet No. 10 Details of Abutment No. 1.
Sheet No. 11 Details of Abutment No. 2.
Sheet No. 12 Details of Superstructure

SUMMARY OF QUANTITIES FOR THE ENTIRE STRUCTURE

ITEM No.	DESCRIPTION	UNIT	ABUT. No.1	SUPERSTR.	ABUT. No.2	TOTAL
14a	Dry Rock Structural Excavation	Cu. Yd.	10			10
14b	Dry Common	Cu. Yd.	70		30	100
14c*	Wet Rock	Cu. Yd.			10	10
14d*	Wet Common	Cu. Yd.	225		200	425
14e	Mechanical Tamping	Hour	85		80	165
42a	Untreated Bridge Timber	M.Ft.b.m.	0.216		0.216	0.432
46a	Class 'A' Concrete	Cu. Yd.	97	56	86	239
46r	Class 'A' Concrete - Handrails	Cu. Yd.	0.33	5.24	0.33	5.9
47	Reinforcing Steel - (Includes 1% Overrun)	Lb.	6940	9470	6120	22,530
48	Structural Steel - (Includes 1 1/2% Overrun)	Lb.		42,630		42,630
89b	3"x3'-6" Galv. Drain Pipe (Concrete Floor)	Each		4		4
	*No. 16 Ga. Galv. Sheet Metal	Lbs.		277		277
	*1/4" Expansion Joint Material	Sq. Ft.	32		25.5	57.5
	*1/2"	Sq. Ft.	6.5		7	13.5
	*3/4"	Sq. Ft.		37		37

* Wet Line Assumed at Elev. 7321.0
* To Be Included in the Unit Bid Price of Class 'A' Concrete



Contractor's Attention is Called to Specifications Covering Mechanical Tamping. Especial Care Must Be Used to Prevent Deflection of Wall by Wedging Action. Earth Shall Be Placed in 6' Layers, Sloping up to Wall on a Minimum Slope of 4:1. Mechanical Tamping of Each Layer Shall Start Along Wall and Continue Away From Wall. Below the Channel Elevation Mechanical Tamping Shall Be Done Uniformly on Both Sides. Above the Original Ground Line Mechanical Tamping Shall Be Done to a Distance of Six Feet from the Wall. Rolling Equipment Shall Not Be Used Within Six Feet of Walls.

GENERAL NOTES

ALL WORK SHALL BE DONE ACCORDING TO THE STANDARD SPECIFICATIONS OF THE COLORADO STATE HIGHWAY DEPARTMENT, ADOPTED JUNE 1, 1940.
ALL CONCRETE SHALL BE CLASS "A."
FORMS FOR CONCRETE SURFACES EXPOSED IN THE FINISHED WORK SHALL BE CONSTRUCTED OF SHIPLAP OR TONGUE AND GROOVE LUMBER S3S UNLESS FACED WITH PANEL BOARD.
CONCRETE GIRDERS, FLOOR SLABS AND CURB SHALL BE POURED MONOLITHICALLY. FOOTINGS IN ROCK SHALL BE POURED OUT TO THE ROCK AND NOT FORMED.
ALL REINFORCING BARS SHALL BE DEFORMED AND TAGGED WITH THE STATION NUMBER AND LETTER DESIGNATION. MAIN BARS SHALL NOT BE SPLICED.
SOUNDINGS AND DEPTH OF FOOTINGS SHOWN ARE ACCORDING TO THE BEST AVAILABLE DATA. IF ESSENTIALLY DIFFERENT CONDITIONS ARE ENCOUNTERED THE BRIDGE ENGINEER WILL INSPECT AND DETERMINE IF REDESIGN IS NECESSARY.
ALL RIVETS TO BE 3/4" DIA. ALL RIVETS TO BE POWER DRIVEN.
ALL HANDRAILS MUST BE BUILT TO TRUE ALIGNMENT AND GRADE.
ALL STRUCTURAL STEEL SHALL BE GIVEN TWO FIELD COATS OF ALUMINUM PAINT.

LOADING DATA.
LIVE LOAD - A. A. S. H. O. 1935 CLASS A. (H-15)
DEAD LOAD - ASSUMES 15 LBS. PER SQ. FT. ADDITIONAL WEARING SURFACE WHICH INCLUDES THE 1/2" INCH CONCRETE MONOLITHIC WEARING SURFACE SHOWN.

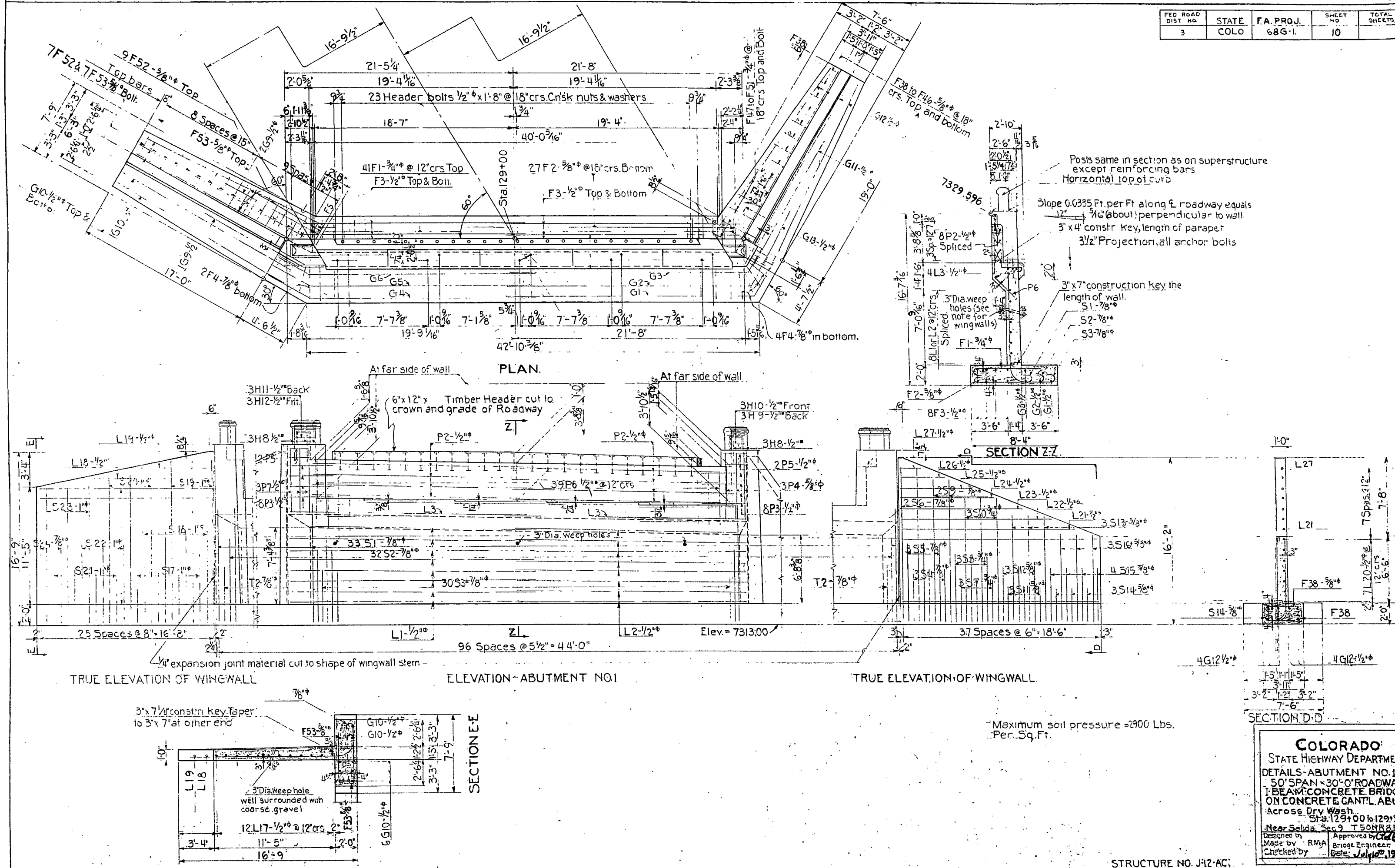
DESIGNING DATA.
A.A.S.H.O. 1935 EXCEPT CONCRETE UNIT STRESSES PROPORTIONAL TO 2500 LBS. PER SQ. INCH
ULTIMATE COMPRESSIVE STRENGTH AT 28 DAYS

COLORADO
STATE HIGHWAY DEPARTMENT
GENERAL NOTES, GENERAL LAYOUT,
SUMMARY OF QUANTITIES,
ABUTMENT BAR LISTS

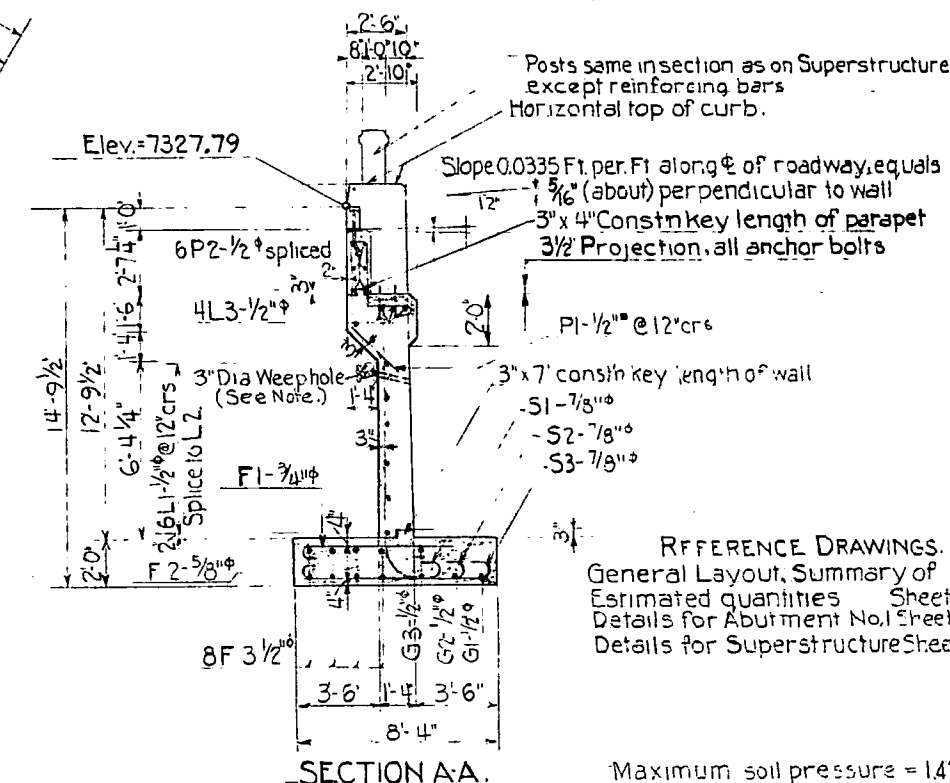
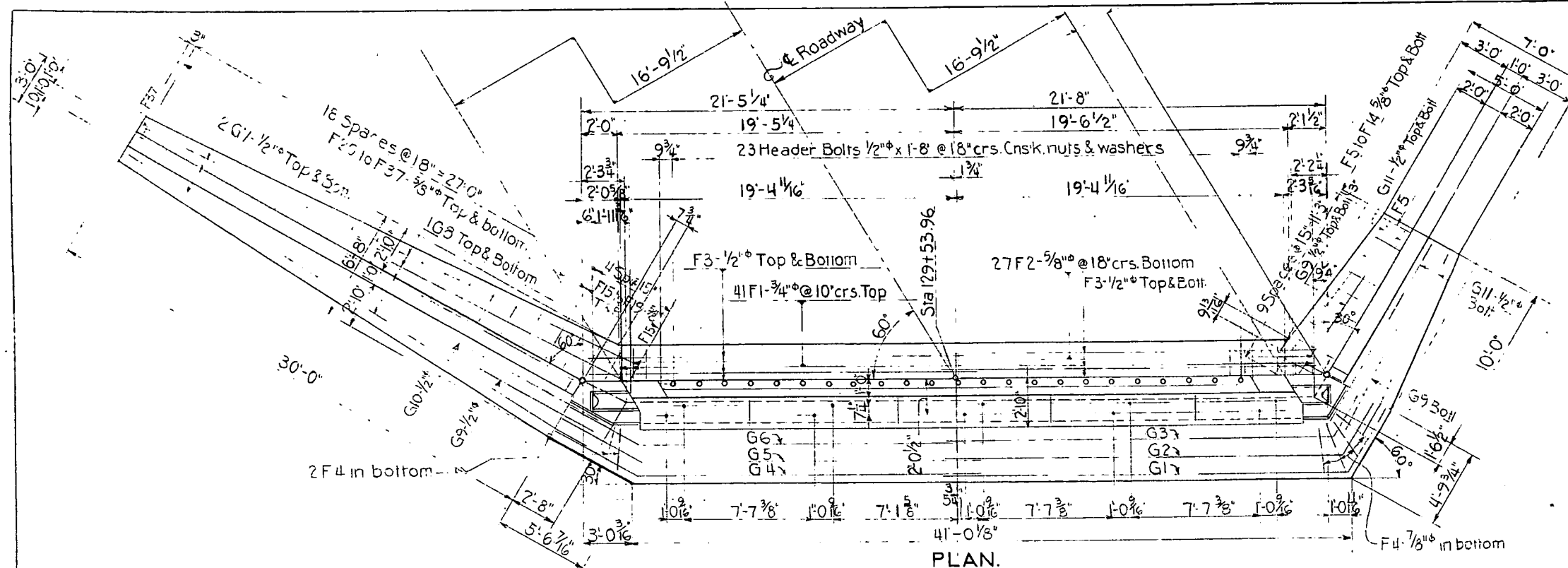
Across A Dry Wash
Sta. 129+00 to 129+53.964
Near Browns Canon, Sec. 9, T. 50N. R. 8E.

Designed by P.D.W.
Made by Bridge Engineer
Checked by Date: July 10, 1940

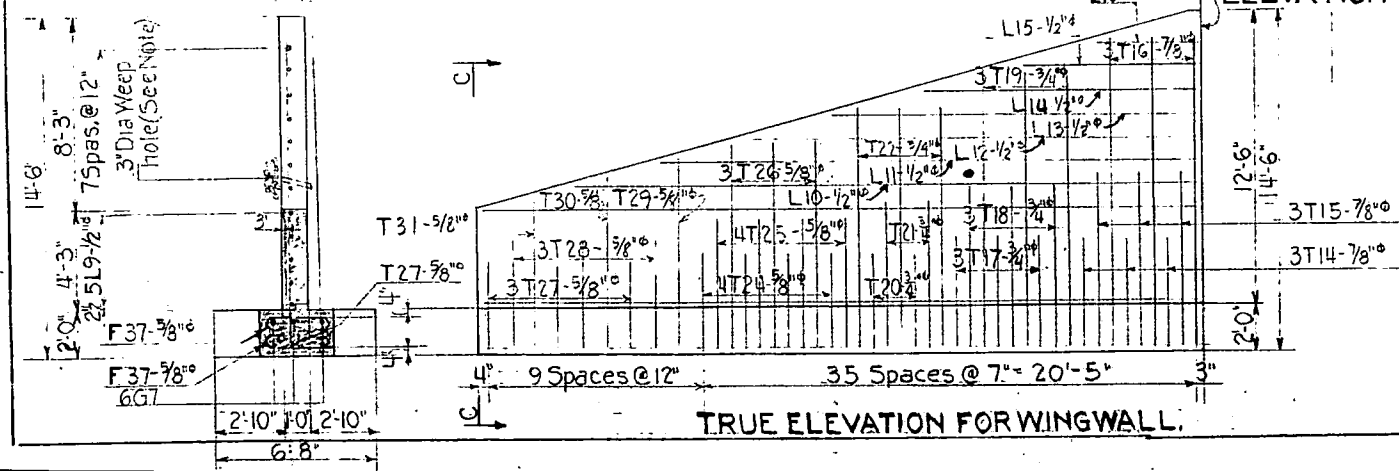
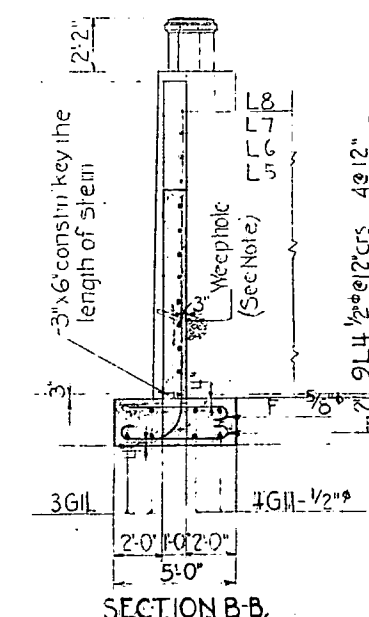
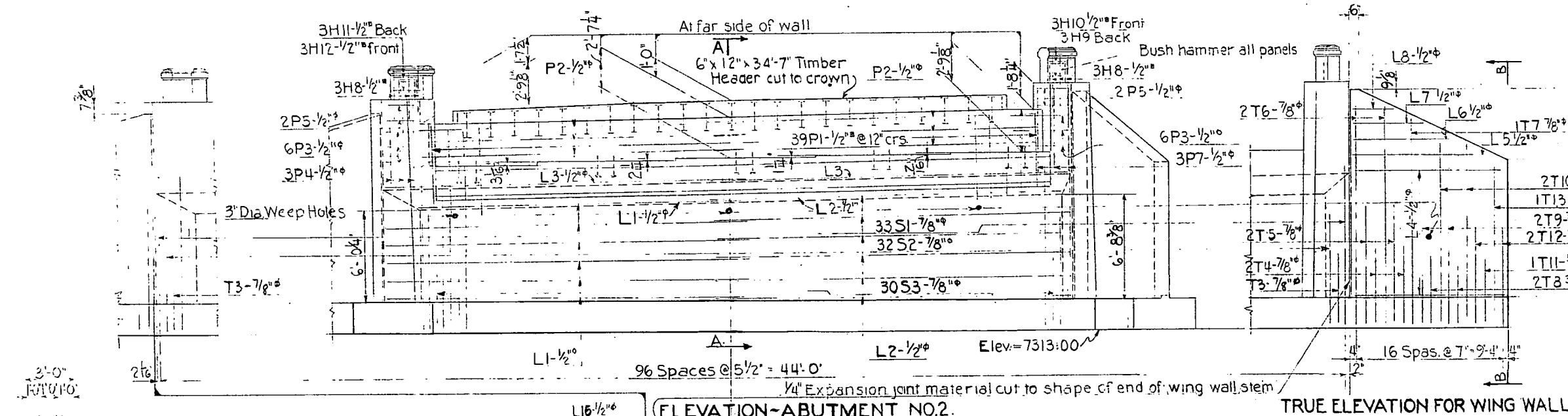
FED. ROAD DIST. NO.	STATE	F.A. PROJ.	SHEET NO.	TOTAL SHEETS.
3	COLO.	68G-1.	10	



FED. ROAD DIST. NO.	STATE	F.A. PROJ.	SHEET NO.	TOTAL SHEETS
3	COLO.	68G.(1)	11	



Maximum soil pressure = 1.42 Tons
Per. Sq. Ft.



Note 1: 3" Diam. weep holes to be well surrounded with coarse gravel.
Maximum soil pressure = 2800 Lbs. Per. Sq. Ft.

COLORADO
STATE HIGHWAY DEPARTMENT

DETAILS-ABUTMENT NO. 2
50' SPAN x 30'-0" ROADWAY
I-BEAM CONCRETE BRIDGE
ON CONCRETE CANT'L. ABUTS

Across Dry Wash

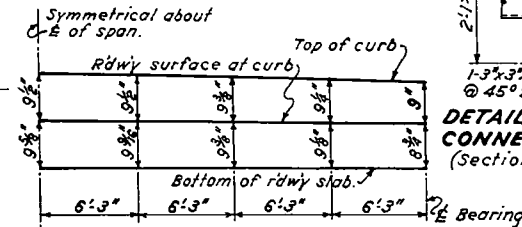
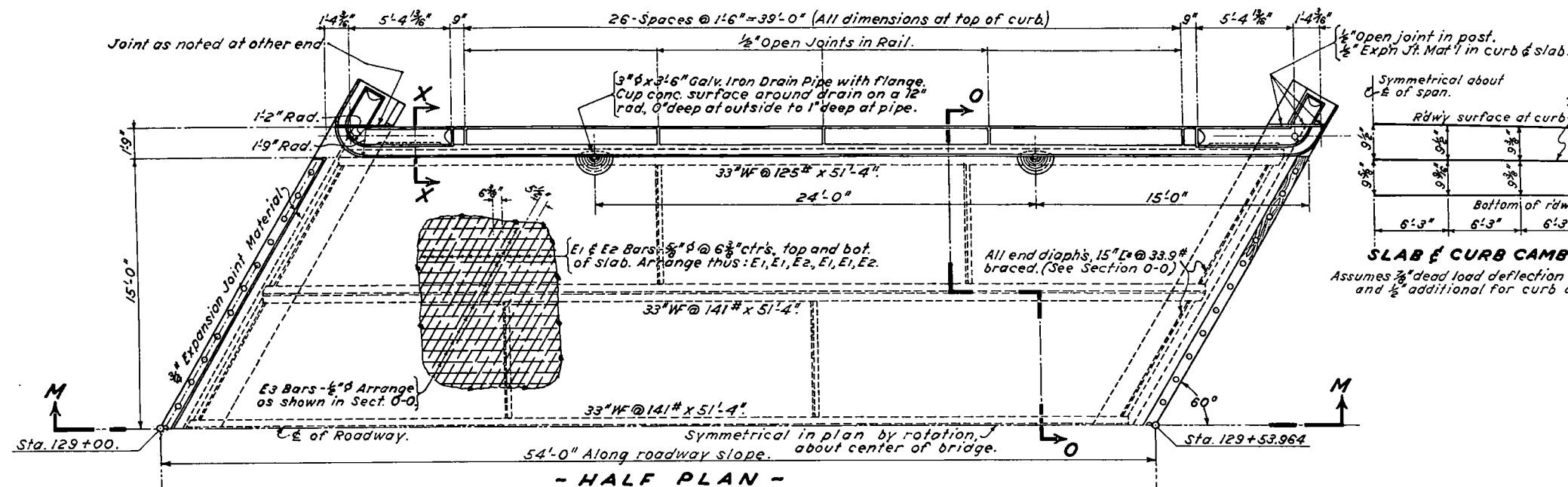
Sta 129+00 to 129+53.9

Near Salida ~~See ATSON 885~~

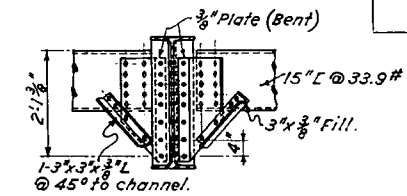
Designed by RMA	Approved by C. L. G.
Made by RMA	Bridge Engineer
Checked by AOC & PDM	Date July 10, 1941

STRUCTURE NO. J-12A-C

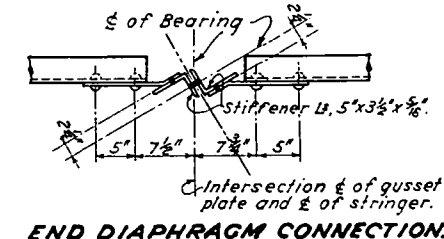
FED. ROAD DIST. NO.	STATE	F.A.P.	SHEET NO.	TOTAL SHEETS
3	COLO.	68-C (1)	12	



SLAB & CURB CAMBER DIAGRAM.
Assumes $\frac{3}{8}$ " dead load deflection for roadway slab
and $\frac{1}{2}$ " additional for curb and handrailing.



**DETAIL OF END DIAPHRAGM & BRACE
CONNECTION AT INTERIOR STRINGER.**
(Section taken perpendicular to stringer)



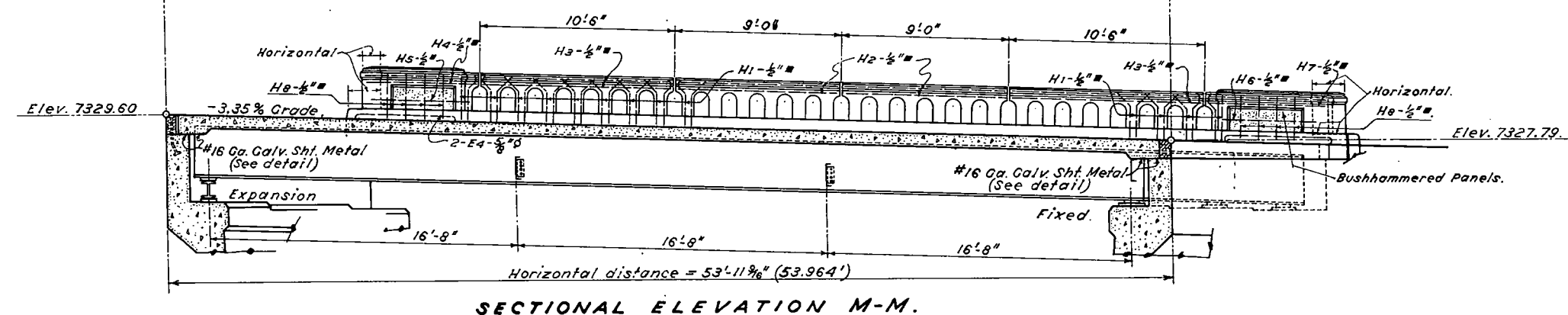
END DIAPHRAGM CONNECTION.

BAR LIST FOR SUPERSTRUCTURE. ✓ H.D.N.

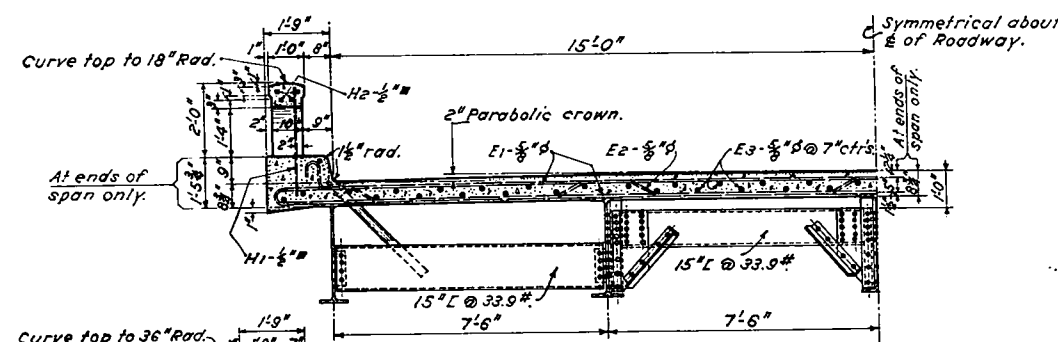
Mark	Size	Nº	Req.	Length
E 1	$\frac{5}{8}" \phi$	134		39'-3"
E 2	$\frac{5}{8}" \phi$	33		39'-9 $\frac{1}{2}"$
E 3	$\frac{1}{2}" \phi$	92		27'-5"
E 4	$\frac{5}{8}" \phi$	8		6'-8"
H 1	$\frac{1}{2}" \square$	56		6'-4"
H 2	$\frac{1}{2}" \square$	16		8'-8"
H 3	$\frac{1}{2}" \square$	16		10'-2"
H 4	$\frac{1}{2}" \square$	8		5'-10"
H 5	$\frac{1}{2}" \square$	4		5'-1"
H 6	$\frac{1}{2}" \square$	4		5'-3"
H 7	$\frac{1}{2}" \square$	8		6'-0"
H 8	$\frac{1}{2}" \square$	16		7'-10"

BENDING DIAGRAMS.

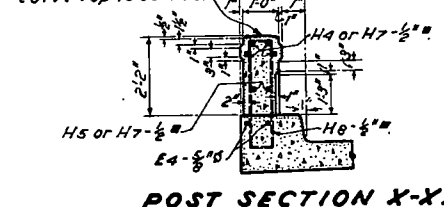
STRAIGHT BARS.



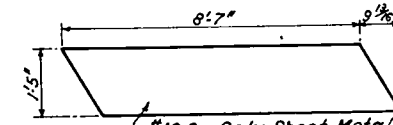
SECTIONAL ELEVATION M-M.



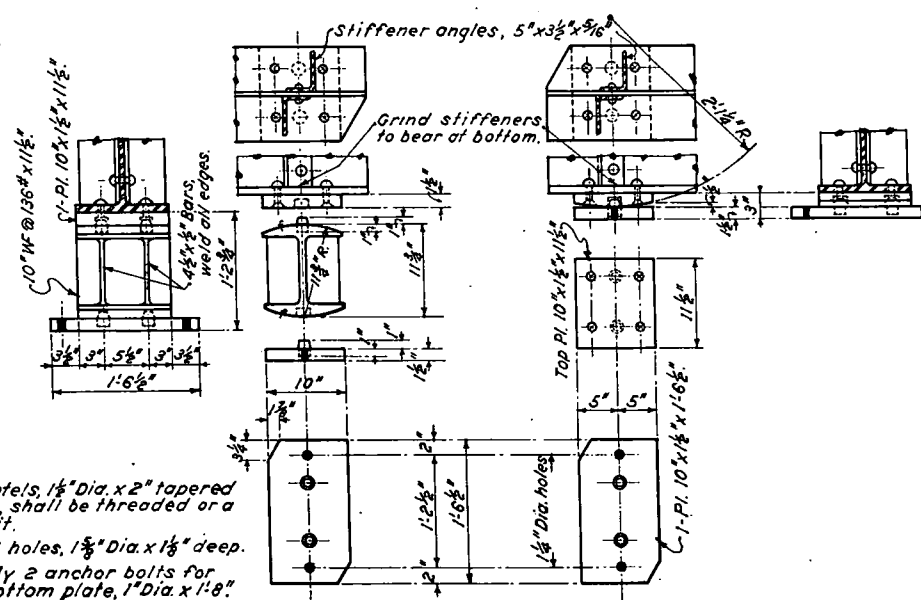
SECTION O-O.



POST SECTION X-X.



DETAIL SHEET METAL STRIP
8- Required.



**EXPANSION BEARING
5-Required.**

FIXED BEARING
5-Required.

Reference Drawings:-
For List, See Sheet No 9

GENERAL NOTES

ALL WORK SHALL BE DONE ACCORDING TO THE STANDARD SPECIFICATIONS OF THE COLORADO STATE HIGHWAY DEPARTMENT, ADOPTED JUNE 1, 1940.

ALL CONCRETE SHALL BE CLASS "A."

FORMS FOR CONCRETE SURFACES EXPOSED IN THE FINISHED WORK SHALL BE CONSTRUCTED OF SHIPLAP OR TONGUE AND GROOVE LUMBER S3S UNLESS FACED WITH PANEL BOARD.

CONCRETE GIRDERS, FLOOR SLABS AND CURB SHALL BE POURED MONOLITHICALLY. FOOTINGS IN ROCK SHALL BE POURED OUT TO THE ROCK AND NOT FORMED.

ALL REINFORCING BARS SHALL BE DEFORMED AND TAGGED WITH THE STATION NUMBER AND LETTER DESIGNATION. MINORS SHALL NOT BE SPICED.

CONDITION AND DEPTH OF FOOTINGS SHOWN ARE ACCORDING TO THE BEST AVAILABLE DATA. IF ESSENTIALLY DIFFERENT CONDITIONS ARE ENCOUNTERED THE BRIDGE ENGINEER WILL INSPECT AND DETERMINE IF REDESIGN IS NECESSARY.

ALL RIVETS TO BE $\frac{3}{4}$ " DIA. ALL RIVETS TO BE POWER DRIVEN.

LOADING DATA.
LIVE LOAD = A. S. H. O. 1935 CLASS A, 'H-15'
DEAD LOAD = ASSUMES 15 LBS. PER SQ. FT. ADDITIONAL WEARING SURFACE WHICH INCLUDES THE 3/4 INCH CONCRETE MONOLITHIC WEARING SURFACE SHOWN.

DESIGNING DATA.
A.A.S.H.O. 1935 EXCEPT CONCRETE UNIT STRESSES PROPORTIONAL TO 2500 LBS. PER SQ. IN.
ULTIMATE COMPRESSIVE STRENGTH AT 28 DAYS.

COLORADO
STATE HIGHWAY DEPARTMENT
50' SPAN X 30' ROADWAY
I-BEAM CONCRETE BRIDGE
ON CLOSED CONC. ABUTMENTS
DETAILS OF SUPERSTRUCTURE
Across DRY WASH.
Sta. 129+00 to 129+53.96
Near SALIDA Sec. 9 T. 50N R. 9E

Designed by <u>RMA</u>	Approved by <u>P. J. Gish</u>
Made by <u>JAV</u>	Bridge Engineer
Checked by <u>ADN</u>	Date: <u>July 16th, 1940.</u>

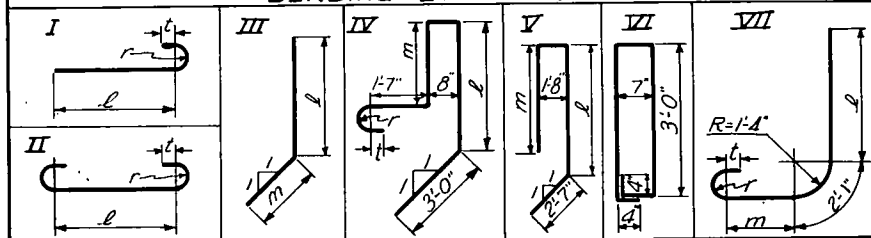
STRUCTURE NO. J-12-AC.

V P D W

BAR LIST FOR ABUTMENT #2

Item No.	Description	Unit	Abut. No.1	Super-structure	Abut. No.2	Rock Filled Wire Basket	Total
14a	Dry Rock Excavation (Str.)	Cu. Yd.	5		5		10
14b	Dry Common Excavation (Str.)	Cu. Yd.	210		140	25	375
14c	Wet Rock Excavation (Str.)	Cu. Yd.	5		5		10
14d	Wet Common Excavation (Str.)	Cu. Yd.	310		470	55	835
14e	Mechanical Tamping	Per Hr.	90		150		240
42a	Untreated Bridge Timber	M Ft. Bm	0.180		0.180		0.360
42b	Treated Bridge Timber	M Ft. Bm.				0.112	0.112
46a	Class 'A' Concrete	Cu. Yd.	142	4.4	182		368
46r	Class 'A' Concrete - Handrail	Cu. Yd.	0.4	4.4	0.4		5.2
47	Reinforcing Steel (Includes 1% Overrun)	Lb.	13,700	7,300	18,120		39,120
48	Structural Steel (Includes 1½% Overrun)	Lb.			28,600		28,600
60a	Treated Timber Piling	Lin. Ft.				192	192
60e	Metal Pile Shoes	Each				8	8
66	Riprap Enclosed in Wire Net	Cu. Yd.				57	57
89b	Drain Pipe 3"Ø x 3'-6"	Each		2			2
o	½" Expansion Joint Material	Sq. Ft.		45			45
o	¼" Expansion Joint Material	Sq. Ft.	65		75		140
o	#16Ga. Galvanized Sheet Metal	Lb.		235			235
*	#9 Galvanized Wire	Lin. Ft.				2600	2600
*	Wire Netting	Sq. Ft.				2870	2870
Δ	Hardware	Lb.				30	30

BENDING DIAGRAMS



BAR SUMMARY ABUTMENT#2 ✓A.D.N.

REFERENCE DRAWINGS:

Sheet No. 13 General Layout Summary of Quantities, &
Abutment Bar Lists.
Sheet No. 14 Details of Abutment #1.
Sheet No. 15 Details of Abutment #2.
Sheet No. 16 Details of Rock Filled Basket.
Sheet No. 17 Details of Superstructure.
Sheet No. 9 Details and Notes on mechanical ramping.

GENERAL NOTES

GENERAL NOTES

ALL WORK SHALL BE DONE ACCORDING TO THE STANDARD SPECIFICATIONS OF THE COLORADO STATE HIGHWAY DEPARTMENT.

ALL CONCRETE SHALL BE CLASS "A."

FORMS FOR CONCRETE SURFACES EXPOSED IN THE FINISHED WORK SHALL BE CONSTRUCTED OF SHIPLAP OR TONGUE AND GROOVE LUMBER S3S UNLESS FACED WITH PANEL BOARD.

CONCRETE GIRDERS, FLOOR SLABS AND CURB SHALL BE POURED MONOLITHICALLY. FOOTINGS IN ROCK SHALL BE POURED OUT TO THE ROCK AND NOT FORMED.

ALL REINFORCING BARS SHALL BE DEFORMED AND TAGGED WITH THE STATION NUMBER AND LETTER DESIGNATION. MAIN BARS SHALL NOT BE SPLICED.

SOUNDINGS AND DEPTH OF FOOTINGS SHOWN ARE ACCORDING TO THE BEST AVAILABLE DATA, IF ESSENTIALLY DIFFERENT CONDITIONS ARE ENCOUNTERED THE BRIDGE ENGINEER WILL INSPECT AND DETERMINE IF REDESIGN IS NECESSARY.

ALL RIVETS TO BE $\frac{1}{2}$ " DIA. ALL RIVETS TO BE POWER DRIVEN.

HANDRAILS MUST BE BUILT TO TRUE ALIGNMENT AND GRADE.

ALL STRUCTURAL STEEL SHALL BE GIVEN TWO FIELD COATS OF ALUMINUM PAINT.

LOADING DATA.
LIVE LOAD - A. A. S. H. O. 1935 CLASS A. (4-16)
DEAD LOAD - ASSUMES 15 LBS. PER SQ. FT. ADDITIONAL
AL WEARING SURFACE WHICH INCLUDES THE ¼ INCH
CONCRETE MONOLITHIC WEARING SURFACE SHOWN.

DESIGNING DATA.
A. A. S. H. O. 1935 EXPOSED CONCRETE UNIT STRESSES
PROPORTIONAL TO 2500 LBS. PER SQ. IN. ULTIMATE
COMPRESSIVE STRENGTH AT 28 DAYS.

COLORADO
STATE HIGHWAY DEPARTMENT
1-40 FT. CONC. & I-BEAM SPAN
30'-0" ROADWAY 90° SKEW
GENERAL LAYOUT
SUMMARY OF QUANTITIES
ABUTMENT BAR LISTS

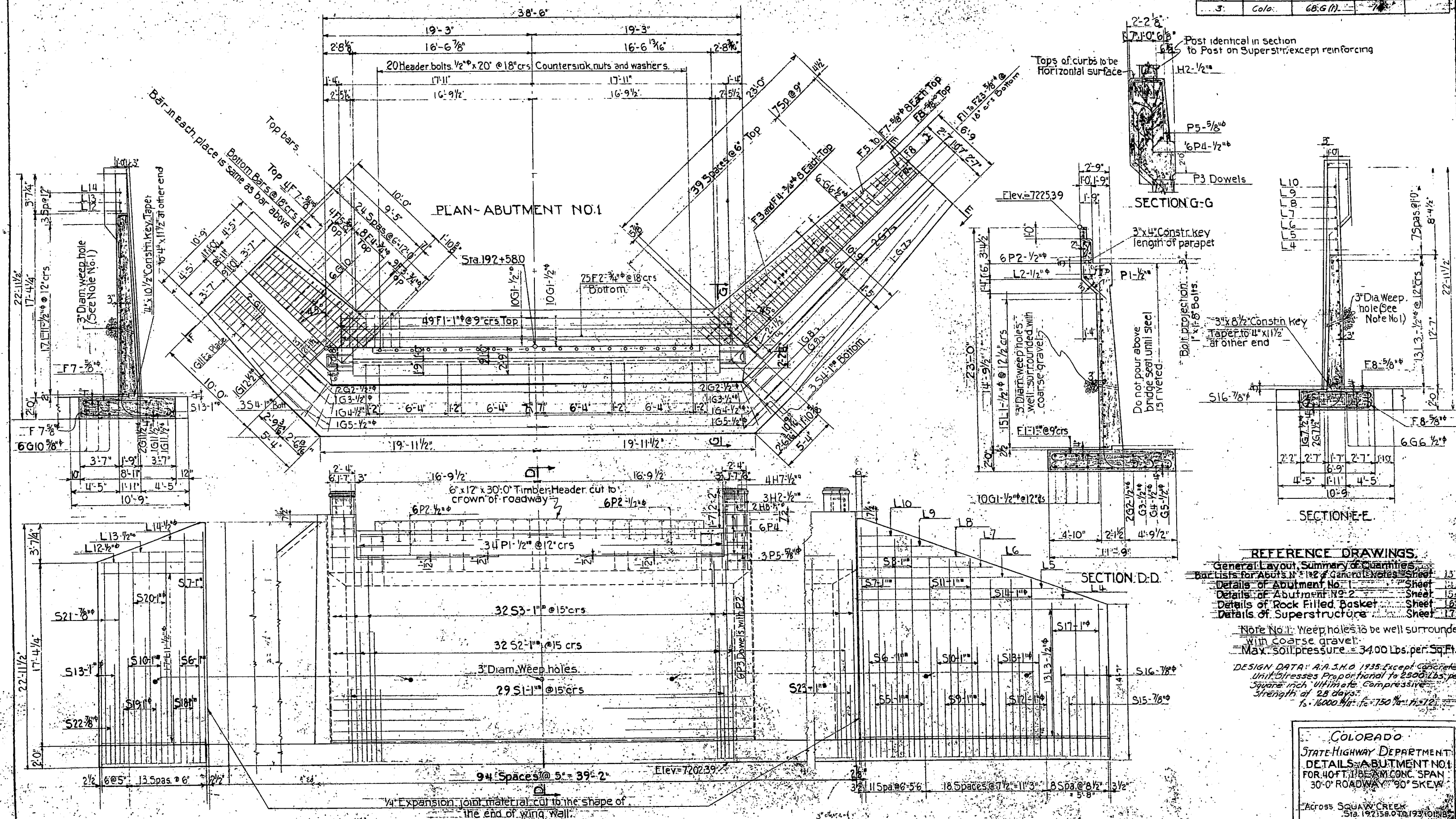
ACROSS SQUAW CREEK

Sta. 192+5.80 to 193+01.48
Near Salida, P.M. Sec. 16 T. 50N. R. 5E

Designed by R.M.A.	Approved by G.J. Bailey
Made by A.O.C.	Bridge Engineer
Checked by	Date: July 10, 1940.

STRUCTURE NO. J-12-AB

FED. ROAD DIST. NO.	STATE	F.R.P.	SHEET NO.	TOTAL SHEETS
3	Colo.	68.6 (1)	1	



REFERENCE DRAWINGS.

General Layout, Summary of Quantities	Sheet	13
Bar Lists for Abutts No 1 & 2	General Notes	Sheet
Details of Abutment No 1	Sheet	14
Details of Abutment No 2	Sheet	15
Details of Rock Filled Basket	Sheet	16
Details of Superstructure	Sheet	17

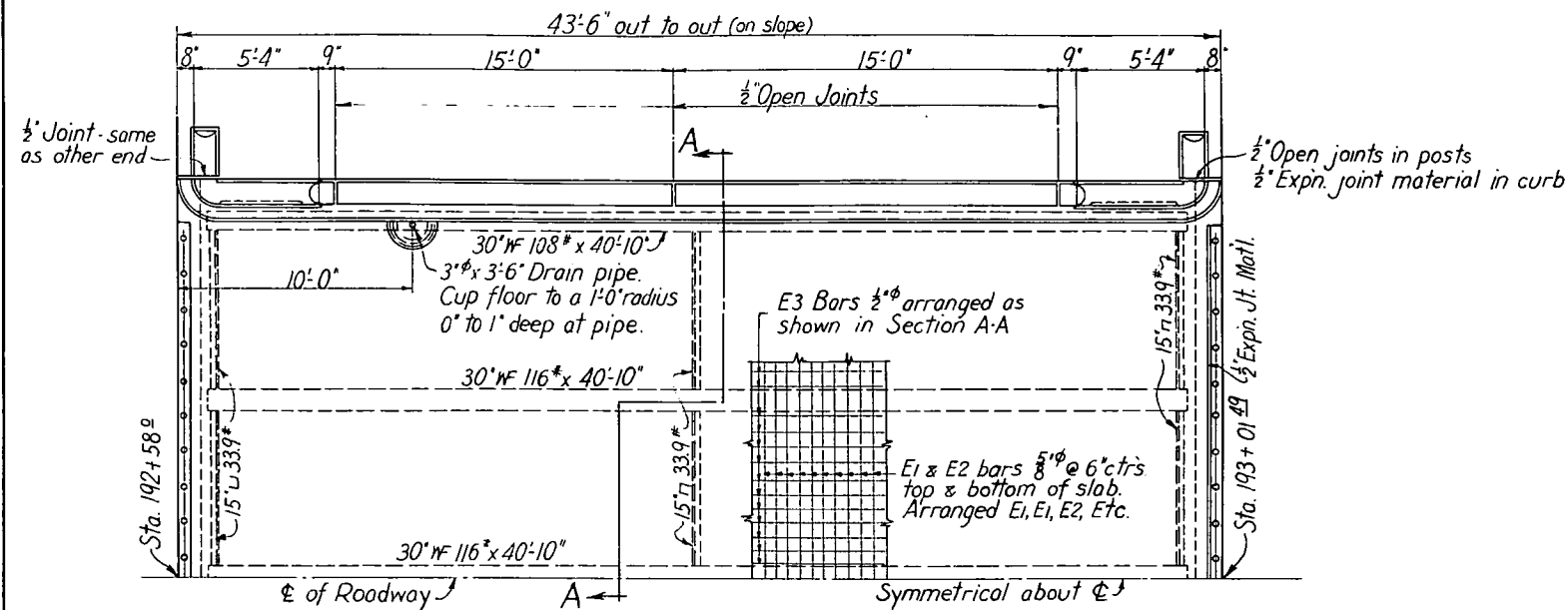
Note No. 1: Weep holes to be well surrounded with coarse gravel.
Max. soil pressure = 34.00 Lbs. per Sq. Ft.

DESIGN DATA: A.A.S.H.O. 1935. Except Concrete
Unit Stresses Proportional to 2500 Lbs. per
Square inch Ultimate Compressive
Strength at 28 days:
 $f_s = 16000 \text{ psi}$; $f_c = 750 \text{ psi}$; $f_t = 12$

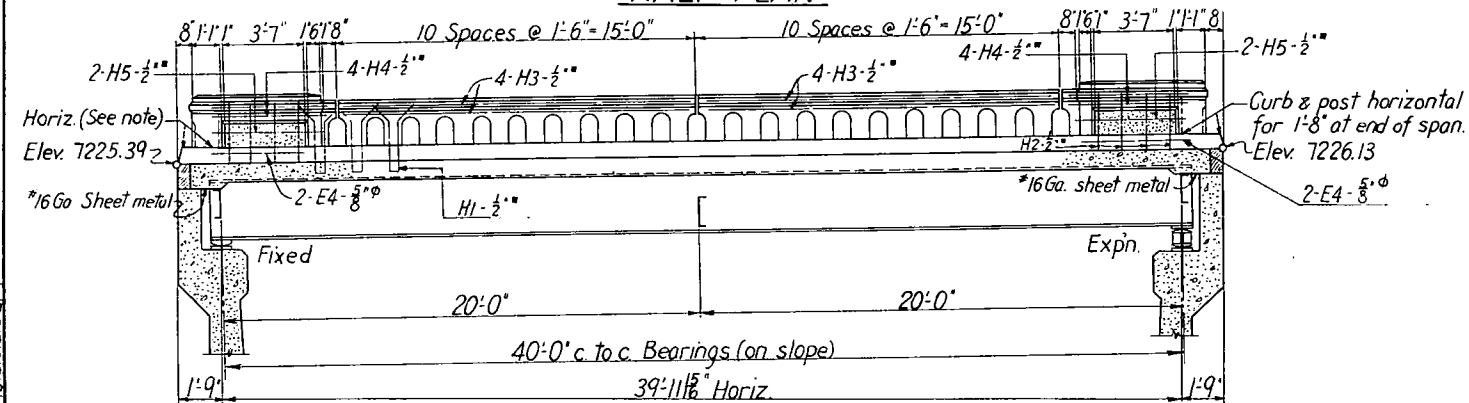
COLORADO
STATE HIGHWAY DEPARTMENT
DETAILS ABUTMENT NO. 1
FOR 40 FT. 1 BEAM CONC. SPAN
30'-0" ROADWAY 90° SKEW
ACROSS SQUAW CREEK
Sta. 192+58.074, 193+10.118
Near Salida Sec. 13, T. 19 N., R. 1 E.
Designed by RMA Approved by C. C. Bost
Made by RMA Bridge Engineer
Checked by BOW Date 10/16/1940

STRUCTURE J-12-A

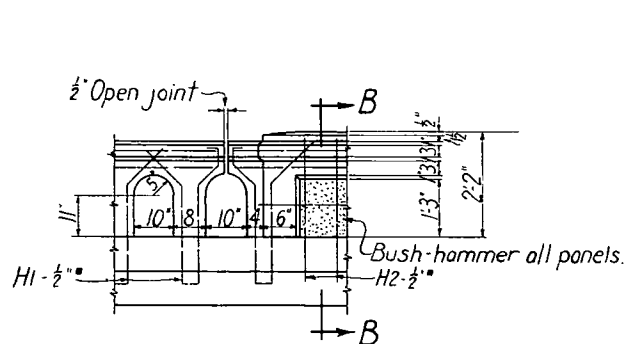
FED. ROAD DIST. NO.	STATE	F.A.P.	SHEET NO.	TOTAL SHEETS
3	COLO.	68G(1)	17	



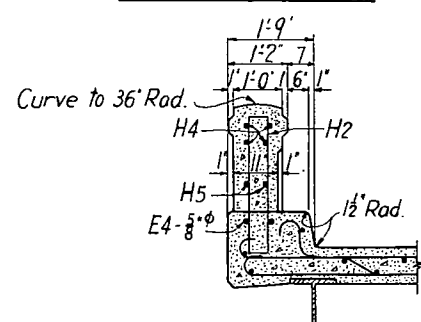
HALF PLAN



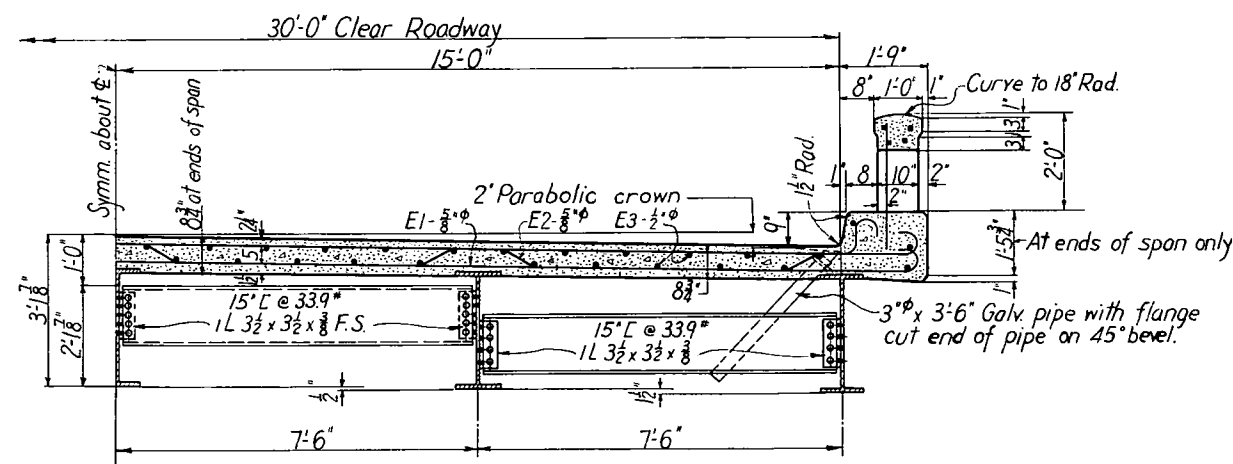
SECTION ON E ROADWAY



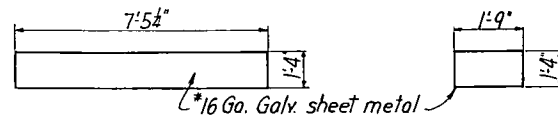
RAILING DETAIL



SECTION-B-B



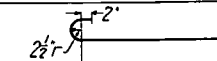
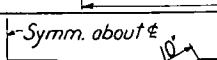
SECTION-A.A

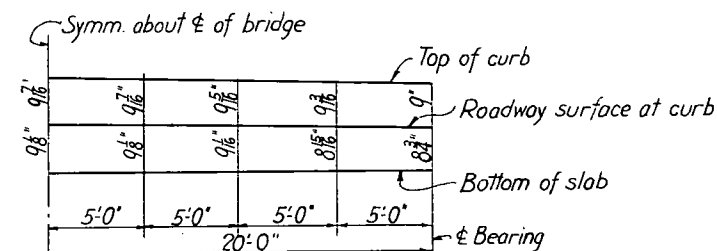


8 REQUIRED

4 REQUIRED

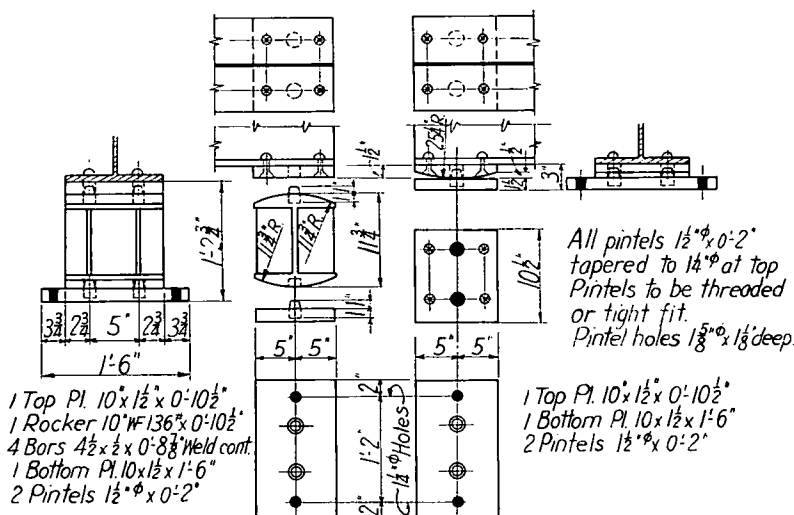
To be used on parapet wall bet. header & 15" C

BAR LIST FOR SUPERSTRUCTURE					WORKMANSHIP
MARK	SIZE	REQD	LENGTH	BENDING DIAGRAMS - Dimensions are to c. of bar	
E1	$\frac{5}{8}"\phi$	114	34'-4"		
E2	$\frac{5}{8}"\phi$	28	34'-0 1/2"		
E3	$\frac{1}{2}"\phi$	100	22'-0"	Straight	
H1	$\frac{1}{2}"\square$	44	6'-4"		
H2	$\frac{1}{2}"\square$	16	7'-10"		
H3	$\frac{1}{2}"\square$	16	14'-8"		
H4	$\frac{1}{2}"\square$	16	4'-7"		
H5	$\frac{1}{2}"\square$	8	4'-2"		
E4	$\frac{5}{8}"\phi$	8	6'-4"		E4



SLAB AND CURB CAMBER DIAGRAM

Assumes $\frac{3}{8}$ " dead load deflection for roadway slab and $\frac{1}{16}$ " additional for curb and railing.



EXP'N. BEARING-5 REQ'D.

FIXED BEARING - 5 REQ'D.

20 Anchor Bolts 1" ϕ x 1'-8" Hex. Nut

REFERENCE DRAWINGS

For General Layout, Sum. of Quants., Abut. Bar Lists & Mech.
Tamping Detail, See Sheet No 13.
For Details of Abut. No 1 See Sheet No 14
" " " " 2 " " 15
" " " " Rock filled wire basket bulkhead See Sheet No 16

LOADING DATA.
LIVE LOAD—A. A. S. H. O. 1935 CLASS A. (H-18)
DEAD LOAD—ASSUMES 15 LBS. PER SQ. FT. ADDITIONAL WEARING SURFACE WHICH INCLUDES THE 3/4 INCH CONCRETE MONOLITHIC WEARING SURFACE SHOWN.

DESIGNING DATA.
A.A.S.H.O. 1935 EXCEPT CONCRETE UNIT STRESSES
PROPORTIONAL TO 2500 LB. PER SQUARE INCH.
ULTIMATE COMPRESSIVE STRENGTH AT 28 DAY.
 f_3 , 16000 $\frac{\text{lb}}{\text{in}^2}$ f_c , 750 $\frac{\text{lb}}{\text{in}^2}$ n = 12

COLORADO
STATE HIGHWAY DEPARTMENT
ONE 40' CONC. I BEAM SPAN
30' ROADWAY - 90° SKEW
DETAILS OF SUPERSTRUCTURE

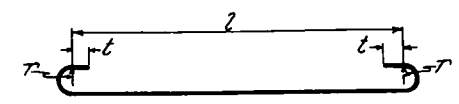
Across SQUAW CREEK
Sta. 192+58 to 193+01.49
Near SALIDA Sec. 16 T. 50N. R. 8E

Designed by <u>R.M.A.</u>	Approved by <u>P.D. Bishop</u>
Made by <u>W.M.M.</u>	Bridge Engineer
Checked by <u>W.M.M.</u>	Date: <u>July 10th, 1940.</u>

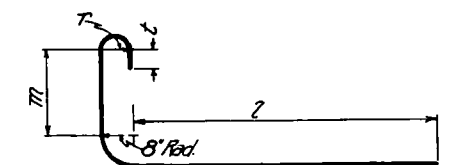
STRUCTURE NO. J-12-AB.

F.I.D. ROAD DIST. NO.	STATE	F.A.P.	SHEET NO.	TOTAL SHEETS
3	COLO.	68 G (1)	18	

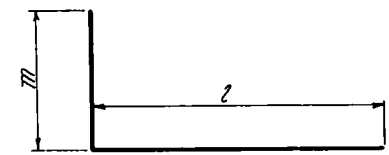
BENDING DIAGRAMS FOR C.B.C. BAR LISTS



TYPE I

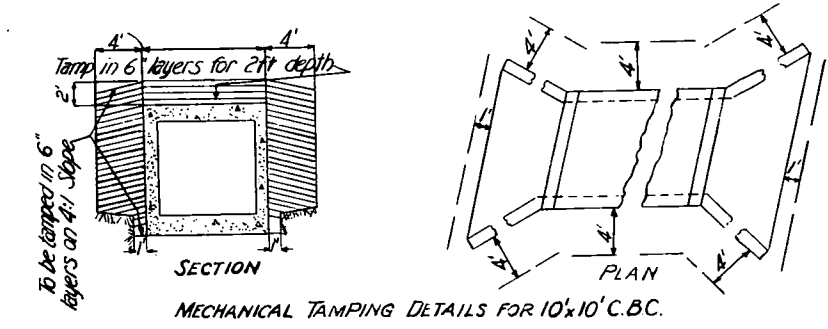


TYPE II



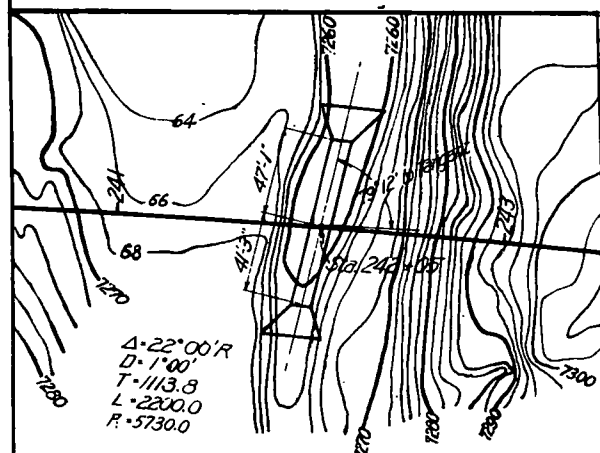
TYPE III

SUMMARY OF QUANTITIES FOR C.B.C. AS SHOWN BELOW			STA. 242+05			
ITEM	DESCRIPTION	UNIT	INLET	OUTLET	TOTAL	
14	STRUCTURAL EXCAVATION	CU. YD.	150	60	60	270
14e	MECHANICAL TAMPING	HOURS	112	13	15	140
46a	CLASS "A" CONCRETE	CU. YD.	190	28	32	250
47	REINFORCING STEEL	LB.	24360	1510	1630	27500



REFERENCE DRAWINGS
For 10x10 C.B.C. Sta 242+05 See Sheet No 19
For General Notes " " " 20

B.M. 71-40
A.D. 72-40



BAR LIST FOR 10x10x88-4" C.B.C. AT STA. 242+05									
MARK	SIZE	NO.	REQ.	LENGTH	2	m	r	t	TYPE
A1	1"	263	13'-6"	10'-10"				4"	I
A2	1/2"	232	13'-3"	10'-11"				3 1/2"	I
A3	3/4"	120	13'-0"	11'-0"				3"	I
A4	5/8"	37	12'-9"	11'-1"				2 1/2"	I
A5	1/2"	330	19'-8"						Str.
B1	5/8"	2	13'-8"	11'-1"				0'-8 1/2"	II
B12	5/8"	2	11'-10"	9'-3"				0'-8 1/2"	II
B13	5/8"	2	11'-6"	8'-11"				0'-8 1/2"	II
B17	5/8"	2	10'-6"	7'-11"				0'-8 1/2"	II
B18	5/8"	2	10'-0"	7'-5"				0'-8 1/2"	II
B24	5/8"	2	8'-0"	5'-5"				0'-8 1/2"	II
B25	5/8"	1	7'-8"	5'-1"				0'-8 1/2"	II
B28	5/8"	1	6'-8"	4'-1"				0'-8 1/2"	II
B29	1/2"	5	20'-4"						Str.
B30	1/2"	1	19'-0"						Str.
B36	1/2"	1	2'-0"						Str.
B37	1/2"	6	16'-4"						Str.
B38	1/2"	1	15'-9"						Str.
B43	1/2"	1	1'-7"						Str.
B44	1/2"	2	11'-9"						Str.
B54	1/2"	2	18'-0"						Str.
B55	1/2"	2	19'-0"						Str.
B58	1/2"	2	21'-9"						Str.
B59	1/2"	2	23'-0"						Str.
B63	1/2"	2	27'-8"						Str.
B64	1/2"	1	28'-10"						Str.
B65	1/2"	1	30'-0"						Str.
B66	1/2"	10	27'-3"	22'-9"	4'-6"				III
B67	1/2"	10	23'-6"	19'-0"	4'-6"				III
B68	1/2"	5	29'-0"						Str.

SUMMARY
3551 LIN. FT. 1" @ 2670 LBS. = 9481 LBS.
3074 " 1/2" @ 2044 " = 6283 "
1560 " 3/4" @ 1502 " = 2343 "
1630 " 5/8" @ 1043 " = 1700 "
7292 " 1/2" @ 850 " = 6198 "
1831 " 1/2" @ 668 " = 1223 "
Plus 1% ± OVERRUN = 272 "
TOTAL 27500 LBS.

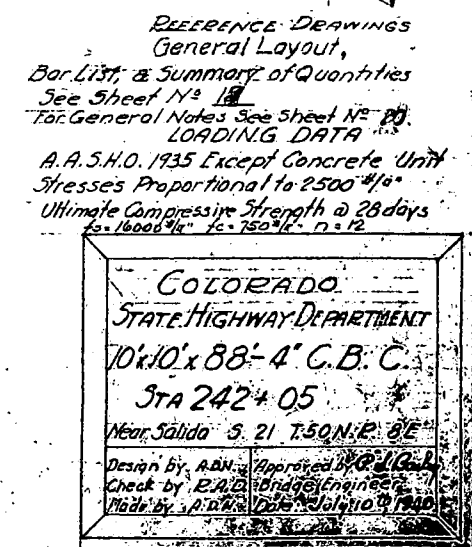
GENERAL LAYOUT
Section on E. of Roadway Sta. 242+05

STRUCTURE NO.

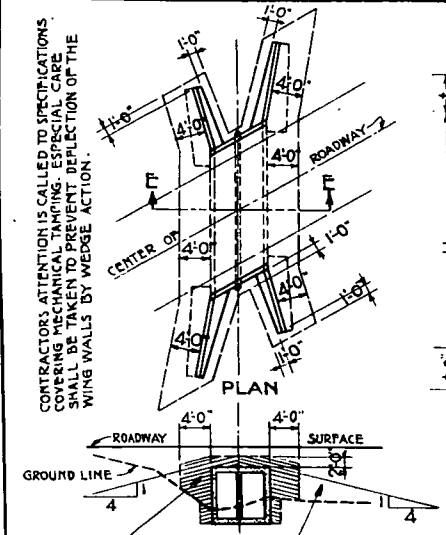
COLORADO
STATE HIGHWAY DEPARTMENT
GENERAL LAYOUTS, BAR LISTS, &
SUMMARY OF QUANTITIES FOR
SPECIAL 10x10 C.B.C.

Across DRY WASH
Sta. 242+05
Mean SP Details Sec. T R

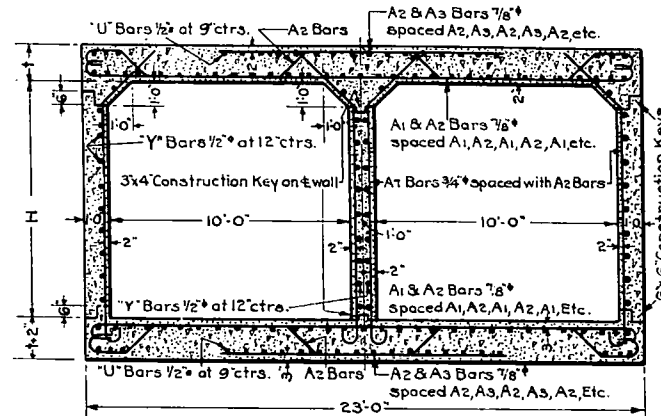
Designed by A.D.M. Approved by B.D. Bailey
Made by C.B.M. Bridge Engineer
Checked by Date: July 10, 1940.



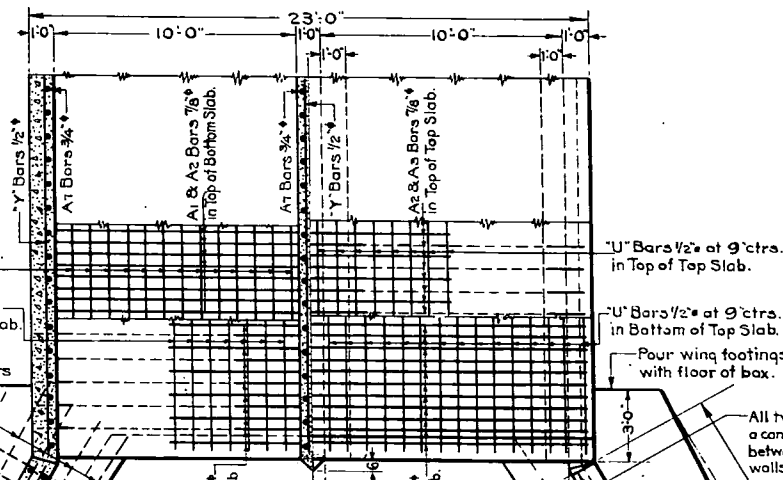
CONTRACTOR'S ATTENTION IS CALLED TO SPECIFICATIONS COVERING MECHANICAL TAMPING. SPECIAL CARE SHALL BE TAKEN TO PREVENT DEFLECTION OF THE WING WALLS BY WEDGE ACTION.



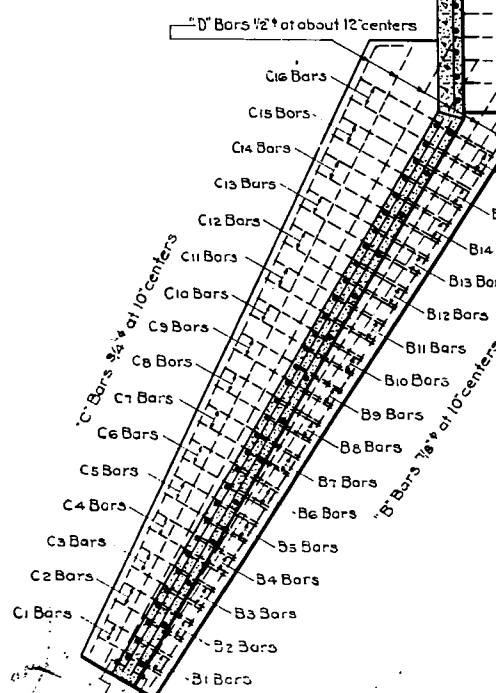
SECTION TO BE MECHANICALLY TAMPED
SECTION E-E
MECHANICALLY TAMPED BACKFILL



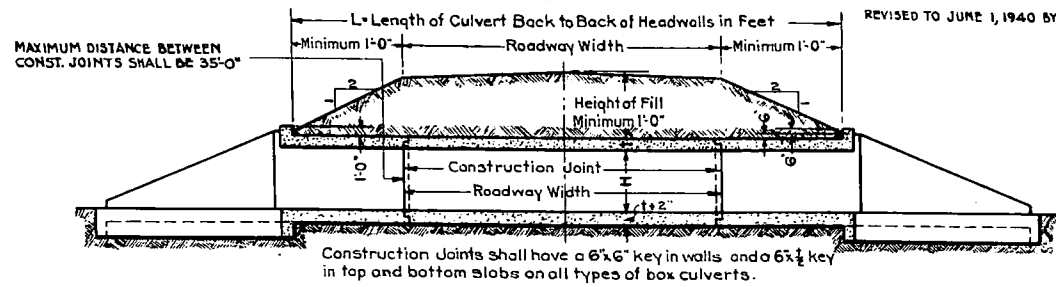
TYPICAL SECTION THRU BOX



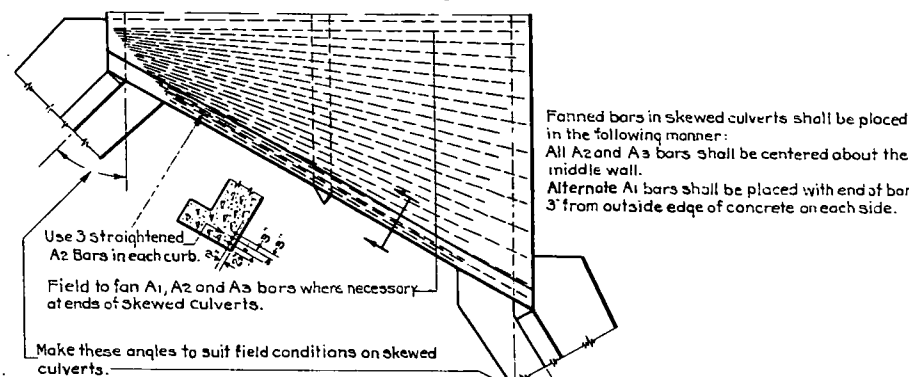
PART PLAN



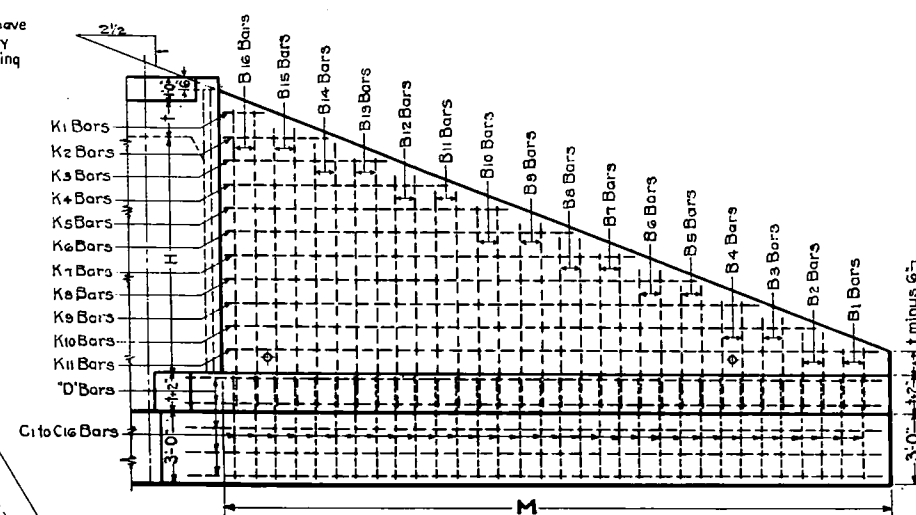
END ELEVATION



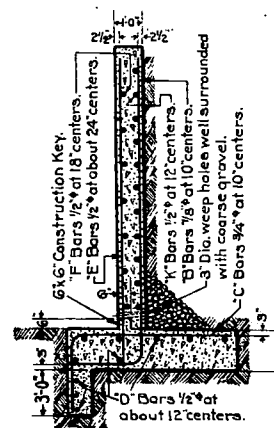
TYPICAL SECTION SHOWING RELATION OF CULVERT TO ROADWAY



PART PLAN FOR SKEWED HEADWALLS



TRUE SIDE ELEVATION OF WINGWALL

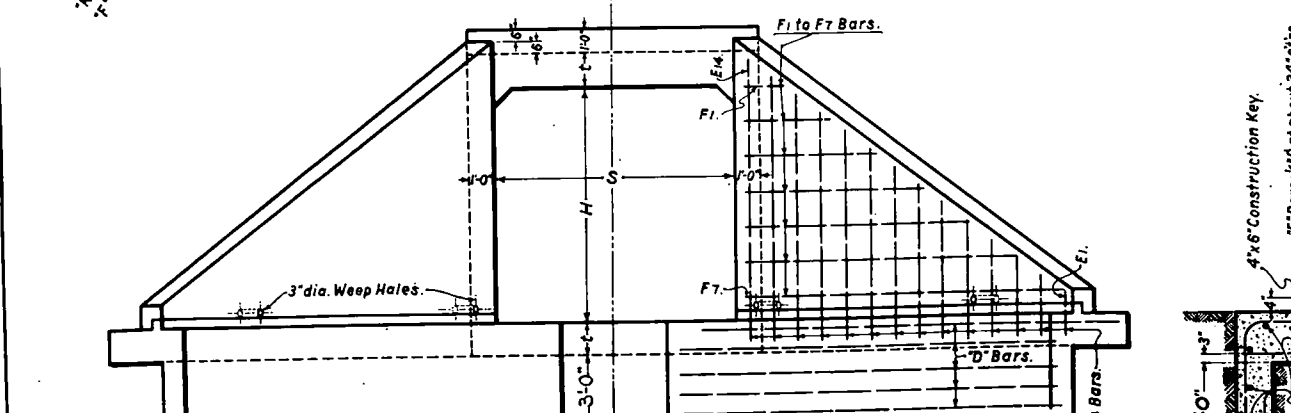


TYPICAL SECTION THRU WINGWALL

TABLE OF DIMENSIONS AND QUANTITIES											
STEEL QUANTITIES GIVEN BELOW INCLUDE ALLOWANCE OF 1% FOR OVERRUN											
TOTAL QUANTITIES FOR ONE BOX EQUALS THE QUANTITY FOR TWO HEADWALLS PLUS (L-LENGTH) FOR ONE LIN. FT. BOX											
HEIGHT OF FILL ALLOWED	TYPE	INSIDE SPAN EACH BOX	HEIGHT H	THICKNESS OF SLAB	SPACING OF BARS A	NUMBER OF Y BARS WINGWALL PER BOX	LENGTH OF M	DIMENSION N	QUANTITIES FOR ONE LIN. FT. BOX	QUANTITIES FOR TWO HEADWALLS	QUANTITIES FOR ONE LIN. FT. BOX
									CONCRETE CUYD.	STEEL LBS.	CONCRETE CUYD.
4'-0"	10-A	10'-0"	4'-0"	13"	8"	12	12'-6"	7'	2,503	324	30.5
			5'-0"	13"	8"	16	15'-0"	8'	2,614	331	36.5
			6'-0"	13"	8"	20	17'-6"	9'	2,725	338	43.0
			8'-0"	13"	8"	28	22'-6"	10'	2,948	352	51.0
10'-0"	10-B	10'-0"	10'-0"	13"	8"	36	27'-6"	12'	3,170	367	73.0
			4'-0"	15"	6"	12	12'-6"	7'	2,793	398	33.0
			5'-0"	15"	6"	16	15'-0"	8'	2,904	408	39.5
			6'-0"	15"	6"	20	17'-6"	9'	3,015	417	46.0
15'-0"	10-C	10'-0"	8'-0"	15"	6"	28	22'-6"	10'	3,237	435	61.5
			10'-0"	15"	6"	36	27'-6"	12'	3,460	451	83.6
			4'-0"	18"	5"	12	12'-6"	7'	3,219	460	36.5
			5'-0"	18"	5"	16	15'-0"	8'	3,330	470	43.0
			6'-0"	18"	5"	20	17'-6"	9'	3,441	480	50.5
			8'-0"	18"	5"	28	22'-6"	10'	3,663	500	67.5
			10'-0"	18"	5"	36	27'-6"	12'	3,885	520	85.5

COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD DOUBLE
CONCRETE BOX CULVERT
10FTx4 FT. 10FTx6 FT. 10FTx8 FT.
10FTx5 FT. 10FTx10 FT.
Designed by A.G.K. Approved by C.D. B. Bridge Engineer
Made by A.G.K. Checked by O.W.C. Date: July 25, 1933

Ground Line



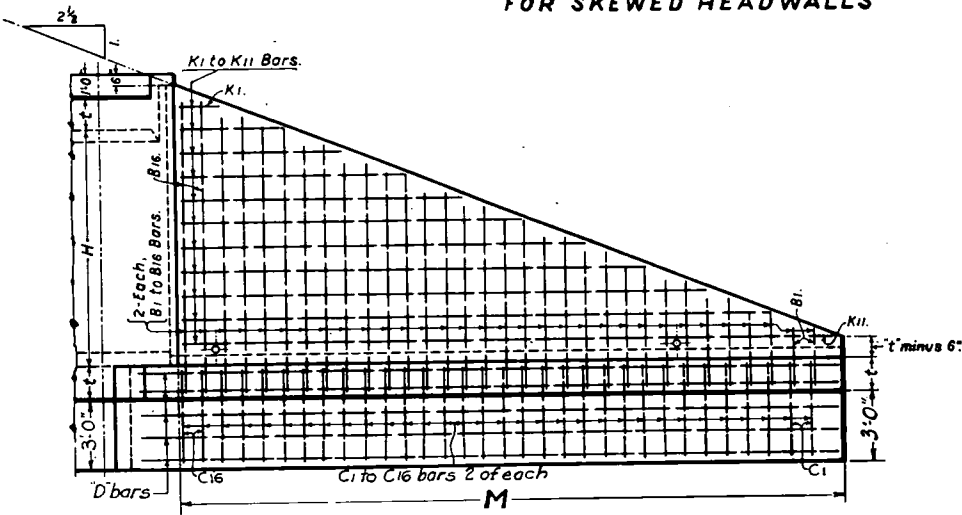
**TYPICAL SECTION
THRU WINGWALL**



Use 3 straightened V-bars in each curb as shown.

Make these angles to suit field conditions

TRUE SIDE ELEVATION OF WINGWALL



STEEL QUANTITIES GIVEN BELOW INCLUDE ALLOWANCE OF 1% ± FOR OVERRUN.
TOTAL QUANTITIES FOR ONE BOX EQUALS THE QUANTITY FOR TWO HEADWALLS PLUS (L x QUANTITY FOR ONE LINEAL FOOT OF BOX)

HEIGHT OF FILL ALLOWED	TYPE	SPAN -S-	HEIGHT -H-	THICKNESS OF SLAB -T-	SPACING OF BARS -V-	SIZE OF BARS -W-	SPACING OF BARS -U-	NUMBER OF U-BARS PER BOX	NUMBER OF Y-BARS PER BOX	LENGTH OF WINGWALL -M-	DIMENSION -N-	QUANTITIES FOR ONE LIN. FT. OF BOX		QUANTITIES FOR TWO HEADWALLS.	
												CONCRETE CU. YD.	STEEL LB.	CONCRETE CU. YD.	STEEL LB.
11'-6"		5'-0"	7'-0"	10"	4"	½"	12"	8	16	20'-0"	10"	0.960	80	35.3	3260
			3'-0"	11½"	5½"	½"	10"	18	8	10'-0"	6"	0.941	103	17.5	1465
			4'-0"	11½"	5½"	½"	10"	18	10	12'-6"	7"	1.016	106	22.5	1815
7'-0"	8 I	8'-0"	5'-0"	11½"	5½"	½"	10"	18	12	15'-0"	8"	1.090	109	27.0	2300
			6'-0"	11½"	5½"	½"	10"	18	14	17'-6"	9"	1.164	112	36.2	3015
			8'-0"	11½"	5½"	½"	10"	18	18	22'-6"	1'-0"	1.318	122	48.9	4370
			4'-0"	12½"	5"	½"	9"	20	10	12'-6"	7"	1.078	116	23.5	1850
8'-6"	8 II	8'-0"	5'-0"	12½"	5"	½"	9"	20	12	15'-0"	8"	1.152	119	27.5	2340
			6'-0"	12½"	5"	½"	9"	20	14	17'-6"	9"	1.226	122	34.0	2880
			8'-0"	12½"	5"	½"	9"	20	18	22'-6"	1'-0"	1.374	133	47.0	4190
			4'-0"	13½"	4½"	½"	8"	22	10	12'-6"	7"	1.140	128	24.0	1910
10'-6"	8 III	8'-0"	5'-0"	13½"	4½"	½"	8"	22	12	15'-0"	8"	1.214	132	29.5	2415
			6'-0"	13½"	4½"	½"	8"	22	14	17'-6"	9"	1.288	135	35.5	2965
			8'-0"	13½"	4½"	½"	8"	22	18	22'-6"	1'-0"	1.436	146	48.5	4290
			3'-0"	13"	5"	½"	9½"	24	8	10'-0"	6"	1.194	131	18.5	1530
4'-0"	10 I	10'-0"	4'-0"	13"	5"	½"	9½"	24	10	12'-6"	7"	1.269	134	24.0	1890
			6'-0"	13"	5"	½"	9½"	24	14	17'-6"	9"	1.417	140	35.5	2935
			8'-0"	13"	5"	½"	9½"	24	18	22'-6"	1'-0"	1.566	145	48.5	4250
			10'-0"	13"	5"	½"	9½"	24	22	27'-6"	1'-2"	1.714	162	68.8	5905
			4'-0"	14"	4½"	½"	8"	28	10	12'-6"	7"	1.343	149	25.0	1965
6'-0"	10 II	10'-0"	6'-0"	14"	4½"	½"	8"	28	14	17'-6"	9"	1.461	156	37.5	3025
			8'-0"	14"	4½"	½"	8"	28	18	22'-6"	1'-0"	1.640	162	51.0	4350
			10'-0"	14"	4½"	½"	8"	28	22	27'-6"	1'-2"	1.788	181	66.0	5650
			4'-0"	15½"	4"	½"	7½"	30	10	12'-6"	7"	1.454	166	27.0	2055
9'-0"	10 III	10'-0"	6'-0"	15½"	4"	½"	7½"	30	14	17'-6"	9"	1.603	173	39.5	3125
			8'-0"	15½"	4"	½"	7½"	30	18	22'-6"	1'-0"	1.751	180	54.0	4475
			10'-0"	15½"	4"	½"	7½"	30	22	27'-6"	1'-2"	1.899	201	69.5	5795
			4'-0"	17"	3½"	½"	6½"	36	10	12'-6"	7"	1.566	190	29.0	2145
12'-0"	10 IV	10'-0"	6'-0"	17"	3½"	½"	6½"	36	14	17'-6"	9"	1.714	198	42.0	3240
			8'-0"	17"	3½"	½"	6½"	36	18	22'-6"	1'-0"	1.862	212	57.0	4810
			10'-0"	17"	3½"	½"	6½"	36	22	27'-6"	1'-2"	2.010	249	73.5	5955

ALL WORK SHALL BE DONE ACCORDING TO THE STANDARD SPECIFICATIONS OF THE COLORADO STATE HIGHWAY DEPARTMENT, ADOPTED JUNE 1, 1940.

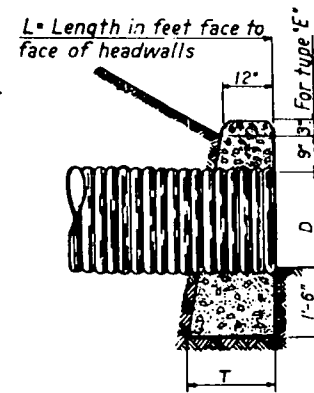
ALL CONCRETE SHALL BE CLASS "A".
ALL WALLS SHALL HAVE FORMS ON BOTH SIDES.
ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED BEFORE FRESH CONCRETE IS POURED.
ALL BARS SHALL BE DEFORMED.
MINIMUM DISTANCE FROM CENTERLINE OF BARS TO EDGE OF CONCRETE TO BE 2 INCHES.
SECONDARY BARS WHEN SPLICED SHALL BE GIVEN A LAP OF 50 DIAMETERS.
FOR CULVERTS REQUIRED AND GOVERNING DIMENSIONS SEE SHEET NO 2.
ALL REINFORCING BARS SHALL BE TAGGED WITH THE STATION NUMBER AND LETTER DESIGNATION.
THIS DESIGN NOT TO BE USED WHEN HEIGHT OF FILL OVER BOX EXCEEDS THAT TABULATED AS ALLOWABLE.
POUR WING FOOTINGS MONOLITHICALLY WITH FLOOR OF BOX.
POUR WINGS INDEPENDENT OF SIDES OF BOX.
IF THE USE OF ADDITIONAL CONSTRUCTION JOINTS UNDESIRABLE, SHOULD FIELD CONSTRUCTION JOINTS BE REQUIRED, CONSTRUCTION JOINTS MAY BE MADE ON A VERTICAL PLANE PERPENDICULAR TO CENTERLINE OF CULVERT, AND SHALL HAVE KEYS AS SHOWN, SUPPORTING SOILS FOR ALL CULVERTS MUST BE COMPOSED OF FIRM AND UNIFORM MATERIAL THROUGHOUT.
ALL BACKFILLING TO AND OVER CULVERTS SHALL BE LAID IN LAYERS NOT EXCEEDING SIX INCHES THICK, EACH LAYER SHALL BE COMPACTED IN ACCORDANCE WITH THE ILLUSTRATION FOR MECHANICALLY TAMPOED BACKFILL SHOWN ON THIS DRAWING.
CLASS "A" CONCRETE SHALL BE CLASS "A" OR "B" OR "C" OR "D" OR "E" OR "F" OR "G" OR "H" OR "I" OR "J" OR "K" OR "L" OR "M" OR "N" OR "O" OR "P" OR "Q" OR "R" OR "S" OR "T" OR "U" OR "V" OR "W" OR "X" OR "Y" OR "Z" OR "AA" OR "AB" OR "AC" OR "AD" OR "AE" OR "AF" OR "AG" OR "AH" OR "AI" OR "AJ" OR "AK" OR "AL" OR "AM" OR "AN" OR "AO" OR "AP" OR "AQ" OR "AR" OR "AS" OR "AT" OR "AU" OR "AV" OR "AW" OR "AX" OR "AY" OR "AZ" OR "BA" OR "BB" OR "BC" OR "BD" OR "BE" OR "BF" OR "BG" OR "BH" OR "BI" OR "BJ" OR "BK" OR "BL" OR "BM" OR "BN" OR "BO" OR "BP" OR "BQ" OR "BR" OR "BS" OR "BT" OR "BU" OR "BV" OR "BW" OR "BX" OR "BY" OR "BZ" OR "CA" OR "CB" OR "CC" OR "CD" OR "CE" OR "CF" OR "CG" OR "CH" OR "CI" OR "CJ" OR "CK" OR "CL" OR "CM" OR "CN" OR "CO" OR "CP" OR "CQ" OR "CR" OR "CS" OR "CT" OR "CU" OR "CV" OR "CW" OR "CX" OR "CY" OR "CZ" OR "DA" OR "DB" OR "DC" OR "DD" OR "DE" OR "DF" OR "DG" OR "DH" OR "DI" OR "DJ" OR "DK" OR "DL" OR "DM" OR "DN" OR "DO" OR "DP" OR "DQ" OR "DR" OR "DS" OR "DT" OR 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"SF" OR "SG" OR "SH" OR "SI" OR "SJ" OR "SK" OR "SL" OR "SM" OR "SN" OR "SO" OR "SP" OR "SQ" OR "SR" OR "SS" OR "ST" OR "SU" OR "SV" OR "SW" OR "SX" OR "SY" OR "SZ" OR "TA" OR "TB" OR "TC" OR "TD" OR "TE" OR "TF" OR "TG" OR "TH" OR "TI" OR "TJ" OR "TK" OR "TL" OR "TM" OR "TN" OR "TO" OR "TP" OR "TQ" OR "TR" OR "TS" OR "TT" OR "TU" OR "TV" OR "TW" OR "TX" OR "TY" OR "TZ" OR "UA" OR "UB" OR "UC" OR "UD" OR "UE" OR "UF" OR "UG" OR "UH" OR "UI" OR "UJ" OR "UK" OR "UL" OR "UM" OR "UN" OR "UO" OR "UP" OR "UQ" OR "UR" OR "US" OR "UT" OR "UU" OR "UV" OR "UW" OR "UX" OR "UY" OR "UZ" OR "VA" OR "VB" OR "VC" OR "VD" OR "VE" OR "VF" OR "VG" OR "VH" OR "VI" OR "VJ" OR "VK" OR "VL" OR "VM" OR "VN" OR "VO" OR "VP" OR "VQ" OR "VR" OR "VS" OR "VT" OR "VU" OR "VV" OR "VW" OR "VX" OR "VY" OR "VZ" OR "WA" OR "WB" OR "WC" OR "WD" OR "WE" OR "WF" OR "WG" OR "WH" OR "WI" OR "WJ" OR "WK" OR "WL" OR "WM" OR "WN" OR "WO" OR "WP" OR "WQ" OR "WR" OR "WS" OR "WT" OR "WU" OR "WV" OR "WW" OR "WX" OR "WY" OR "WZ" OR "XA" OR "XB" OR "XC" OR "XD" OR "XE" OR "XF" OR "XG" OR "XH" OR "XI" OR "XJ" OR "XK" OR "XL" OR "XM" OR "XN" OR "XO" OR "XP" OR "XQ" OR "XR" OR "XS" OR "XT" OR "XU" OR "XV" OR "XW" OR "XX" OR "XY" OR "XZ" OR "YA" OR "YB" OR "YC" OR "YD" OR "YE" OR "YF" OR "YG" OR "YH" OR "YI" OR "YJ" OR "YK" OR "YL" OR "YM" OR "YN" OR "YO" OR "YP" OR "YQ" OR "YR" OR "YS" OR "YT" OR "YU" OR "YV" OR "YW" OR "YX" OR "YY" OR "YZ" OR "ZA" OR "ZB" OR "ZC" OR "ZD" OR "ZE" OR "ZF" OR "ZG" OR "ZH" OR "ZI" OR "ZJ" OR "ZK" OR "ZL" OR "ZM" OR "ZN" OR "ZO" OR "ZP" OR "ZQ" OR "ZR" OR "ZS" OR "ZT" OR "ZU" OR "ZV" OR "ZW" OR "ZX" OR "ZY" OR "ZZ" OR "AA" OR "AB" OR "AC" OR "AD" OR "AE" OR "AF" OR "AG" OR "AH" OR "AI" OR "AJ" OR "AK" OR "AL" OR "AM" OR "AN" OR "AO" OR "AP" OR "AQ" OR "AR" OR "AS" OR "AT" OR "AU" OR "AV" OR "AW" OR "AX" OR "AY" OR "AZ" OR "BA" OR "BB" OR "BC" OR "BD" OR "BE" OR "BF" OR "BG" OR "BH" OR "BI" OR "BJ" OR "BK" OR "BL" OR "BM" OR "BN" OR "BO" OR "BP" OR "BQ" OR "BR" OR "BS" OR "BT" OR "BU" OR "BV" OR "BW" OR "BX" OR "BY" OR "BZ" OR "CA" OR "CB" OR "CC" OR "CD" OR "CE" OR "CF" OR "CG" OR "CH" OR "CI" OR "CJ" OR "CK" OR "CL" OR "CM" OR "CN" OR "CO" OR "CP" OR "CQ" OR "CR" OR "CS" OR "CT" OR "CU" OR "CV" OR "CW" OR "CX" OR "CY" OR "CZ" OR "DA" OR "DB" OR "DC" OR "DD" OR "DE" OR "DF" OR "DG" OR "DH" OR "DI" OR "DJ" OR "DK" OR "DL" OR "DM" OR "DN" OR "DO" OR "DP" OR "DQ" OR "DR" OR "DS" OR "DT" OR "DU" OR "DV" OR "DW" OR "DX" OR "DY" OR "DZ" OR "EA" OR "EB" OR "EC" OR "ED" OR "EE" OR "EF" OR "EG" OR "EH" OR "EI" OR "EJ" OR "EK" OR "EL" OR "EM" OR "EN" OR "EO" OR "EP" OR "EQ" OR "ER" OR "ES" OR "ET" OR "EU" OR "EV" OR "EW" OR "EX" OR "EY" OR "EZ" OR "FA" OR "FB" OR "FC" OR "FD" OR "FE" OR "FF" OR "FG" OR "FH" OR "FI" OR "FJ" OR "FK" OR "FL" OR "FM" OR "FN" OR "FO" OR "FP" OR "FQ" OR "FR" OR "FS" OR "FT" OR "FU" OR "FV" OR "FW" OR "FX" OR "FY" OR "FZ" OR "GA" OR "GB" OR "GC" OR "GD" OR "GE" OR "GF" OR "GG" OR "GH" OR "GI" OR "GJ" OR "GK" OR "GL" OR "GM" OR "GN" OR "GO" OR "GP" OR "GQ" OR "GR" OR "GS" OR "GT" OR "GU" OR "GV" OR "GW" OR "GX" OR "GY" OR "GZ" OR "HA" OR "HB" OR "HC" OR "HD" OR "HE" OR "HF" OR "HG" OR "HH" OR "HI" OR "HJ" OR

CONCRETE BOX CULVERT.
 8 FT. x 3 FT. 5 FT. x 7 FT. 10 FT. x 6 FT.
 8 FT. x 4 FT. 8 FT. x 8 FT. 10 FT. x 8 FT.
 8 FT. x 5 FT. 10 FT. x 3 FT. 10 FT. x 10 FT.
 8 FT. x 6 FT. 10 FT. x 4 FT.

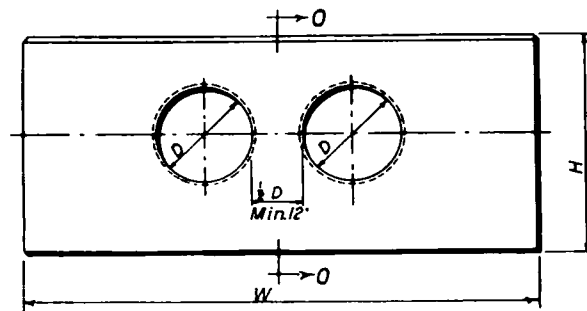
Across _____ Sta. _____

Near _____	Sec. _____	T. _____	R. _____
Designed by A.G.K.	Approved by <i>C.D. Baird</i>		
Made by J.A.V.	Bridge Engineer		
Checked by R.A.D.	Date: <i>Sept. 16, 1933</i>		





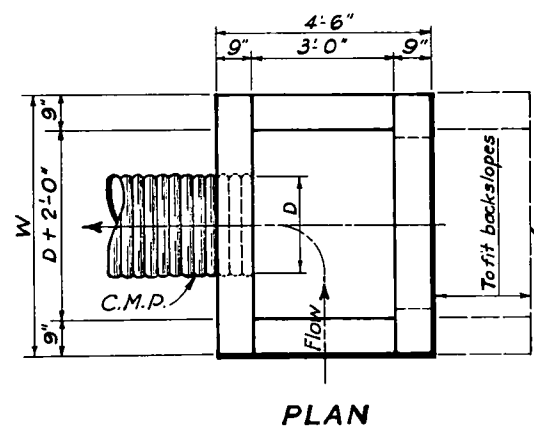
SECTIONAL ELEV. 0-0



FRONT ELEVATION

TYPE	D	W	H	T	CL. B CONCRETE FOR 2 HEADWALLS		CORRUGATED METAL PIPE		CEMENT RUBBLE MASONRY
					CU. YDS.	2x LIN. FT.	16 GAGE	2x LIN. FT.	
TYPE E	15	7-6	3-9	1-6	2.4	2x 12	16	2x 12	DO
	18	8-6	4-0	1-7	3.0	2x 12	18	2x 12	DO
	24	10-6	4-6	1-10	4.4	2x 12	24	2x 12	DO
	30	12-6	5-0	1-10	6.1	2x 12	30	2x 12	DO
	36	13-0	5-6	1-10	8.1	2x 12	36	2x 12	DO
TYPE F	42	17-3	6-0	2-5	10.8	2x 12	42	2x 12	DO
	48	19-6	6-6	2-7	13.6	2x 12	48	2x 12	DO

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

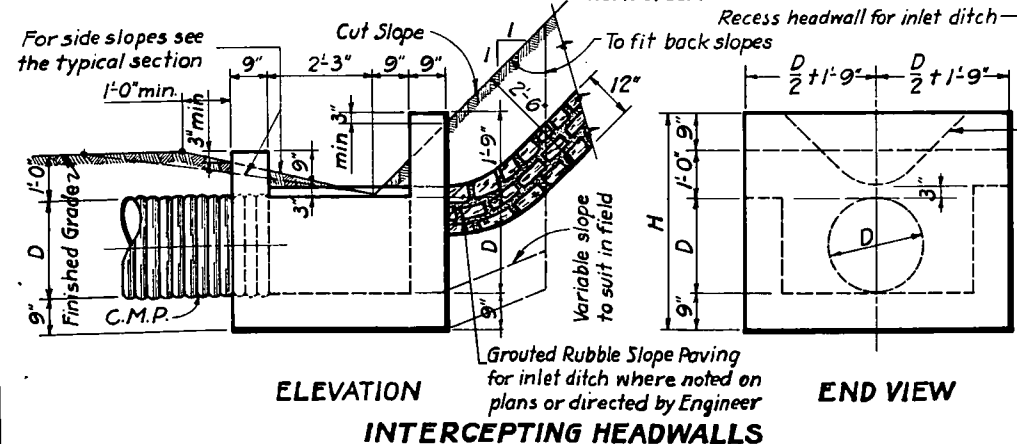


PLAN

QUANTITIES OF CLASS "B" CONCRETE OR CEMENT RUBBLE MASONRY

SIZE OF PIPE	WIDTH OF WALL	HEIGHT OF WALL	QUANTITIES IN ONE HEADWALL
D	W	H	CU. YDS.
12"	4-6"	3-6"	1.33
15"	4-9"	3-9"	1.48
18"	5-0"	4-0"	1.64
24"	5-6"	4-6"	1.99
30"	6-0"	5-0"	2.34
36"	6-6"	5-6"	2.72

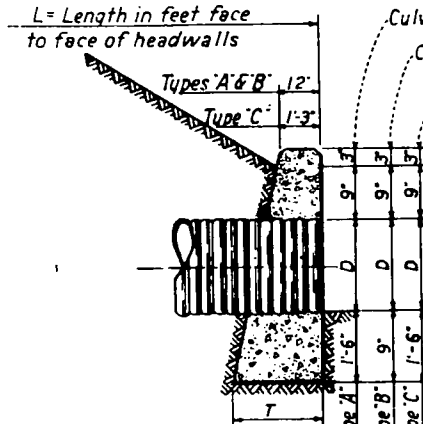
NOTE: Backwall to be eliminated and end walls connected to back slope where ordered by the Engineer. Floor slab is to be extended with side walls if in common material and is to be omitted when inlet is in rock. Actual quantities involved in such operation shall be allowed and paid for. Increases in plan quantities must be covered by work order.



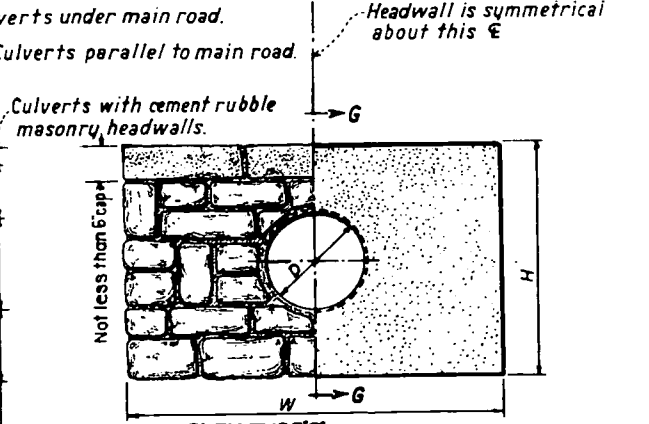
ELEVATION

END VIEW

INTERCEPTING HEADWALLS



SECTIONAL ELEV. G-G

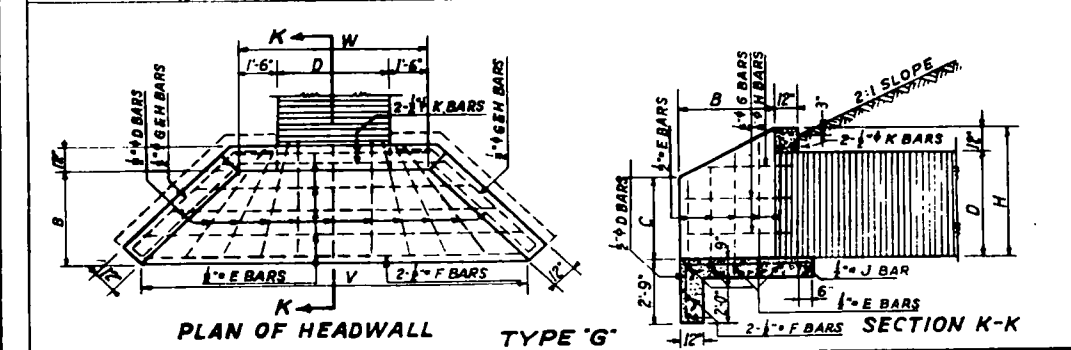


HALF FRONT ELEV. TYPE C

HALF FRONT ELEV. TYPE A & B

TYPE	D	W	H	T	CL. B CONCRETE FOR 2 HEADWALLS		CORRUGATED METAL PIPE		CEMENT RUBBLE MASONRY
					CU. YDS.	2x LIN. FT.	16 GAGE	2x LIN. FT.	
TYPE A	12	4-6	3-6	1-5	1.4	2x 12	16	2x 12	DO
	15	4-9	3-9	1-6	1.8	2x 12	18	2x 12	DO
	18	5-0	4-0	1-7	2.2	2x 12	24	2x 12	DO
	24	5-6	4-6	1-10	3.3	2x 12	30	2x 12	DO
	30	6-0	5-0	1-10	4.4	2x 12	36	2x 12	DO
TYPE B	42	17-3	6-0	2-5	10.8	2x 12	42	2x 12	DO
	48	19-6	6-6	2-7	13.6	2x 12	48	2x 12	DO

DIAMETER OF PIPE	54"	60"	66"	72"	78"	84"	BENDING DIAGRAM
D BARS 1/2"	SPACING 18"	18"	18"	18"	18"	18"	
E BARS 1/2"	SPACING 12"	12"	12"	12"	12"	12"	
F BARS 1/2"	SPACING 12"	12"	12"	12"	12"	12"	
G BARS 1/2"	SPACING 12"	12"	12"	12"	12"	12"	
H BARS 1/2"	SPACING 12"	12"	12"	12"	12"	12"	
J BARS 1/2"	SPACING 12"	12"	12"	12"	12"	12"	
K BARS 1/2"	SPACING 12"	12"	12"	12"	12"	12"	
	SPACING 12"	12"	12"	12"	12"	12"	



PLAN OF HEADWALL

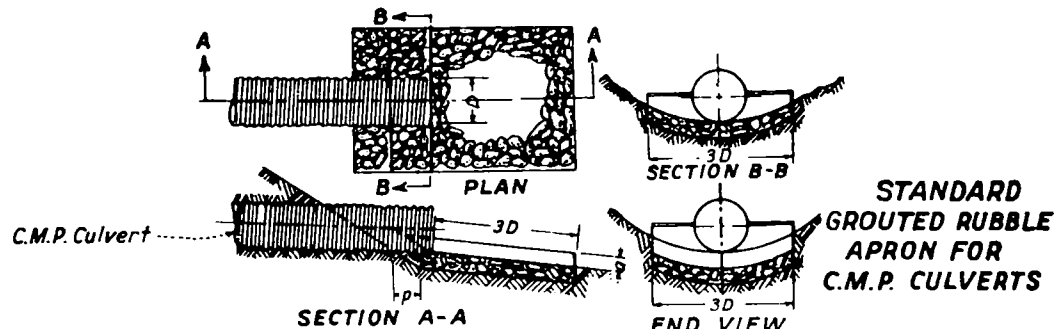
TYPE G

SECTION K-K

STD. HEADWALLS FOR CORRUGATED METAL PIPE CULVERTS

STANDARD M-102-F

FED. ROAD DIST. NO.	STATE	FAP	SHEET NO.	TOTAL SHEETS
3	COLO.	6860	23	



SECTION A-A

END VIEW

FILL SLOPE	D	15"	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"
1 1/2:1	2-0"	3	4	6	9	12	17	21	27	33	39	46	54	62
2:1	2-0"	3	4	7	11	15	20	25	31	36	43	50	57	66
3:1	2-0"	3	4	7	11	15	20	25	31	36	43	50	57	66
4:1	2-0"	3	4	7	11	15	20	25	31	36	43	50	57	66

NOTE: Mechanical Tamping as provided under Item 14 of the specifications shall be applied over such areas as shown on the plans or as ordered by the Engineer.

GENERAL NOTES FOR ALL STRUCTURES
 All work shall be done according to the standard specifications of the Colorado State Highway Department, adopted June 1-1940.
 All concrete shall be class "A" except types A & B, which shall be class "B".
 All exposed surfaces shall be rubbed free of form marks.
 All construction joints shall be thoroughly cleaned before fresh concrete is poured.
 All walls shall have forms on both sides.
 All reinforcing bars shall be deformed.
 All reinforcing bars shall be tagged with the station number & letter designation.
 Secondary bars when spliced shall be given a lap of 50 diameters.
 Main bars shall not be spliced.
 Minimum fill over top of culverts shall be 1'-0".
 When culvert is skewed, headwalls shall be placed parallel to centerline of roadway.
 Minimum grade of pipe shall be 1%.
 For size and location of culverts see sheet No. 2.
 Footings in rock shall be poured out to the rock and not formed.

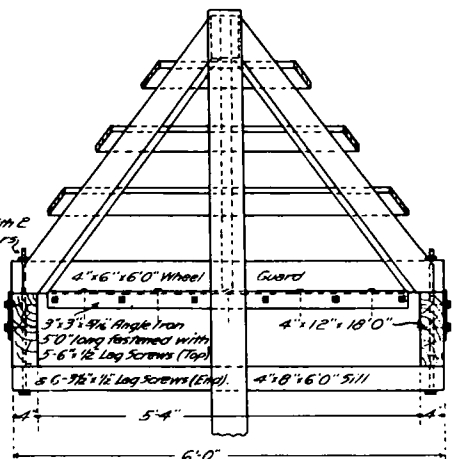
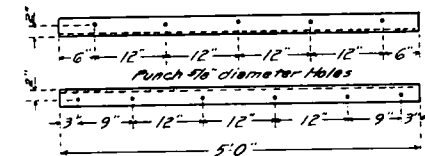
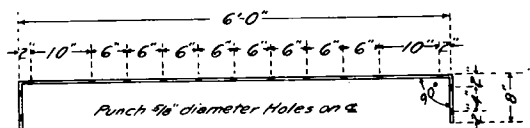
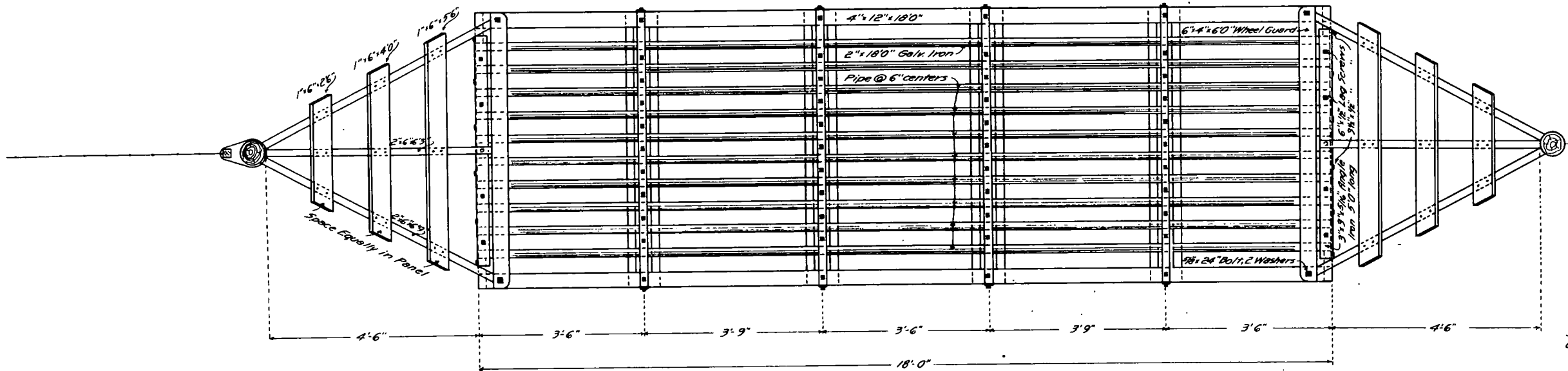
COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD HEADWALLS
INTERCEPTING HEADWALLS
GROUTED RUBBLE APRONS
FOR C.M.P. CULVERTS

Designed by GND
 Made by L.S.-A.V.R.
 Checked GND-WMM

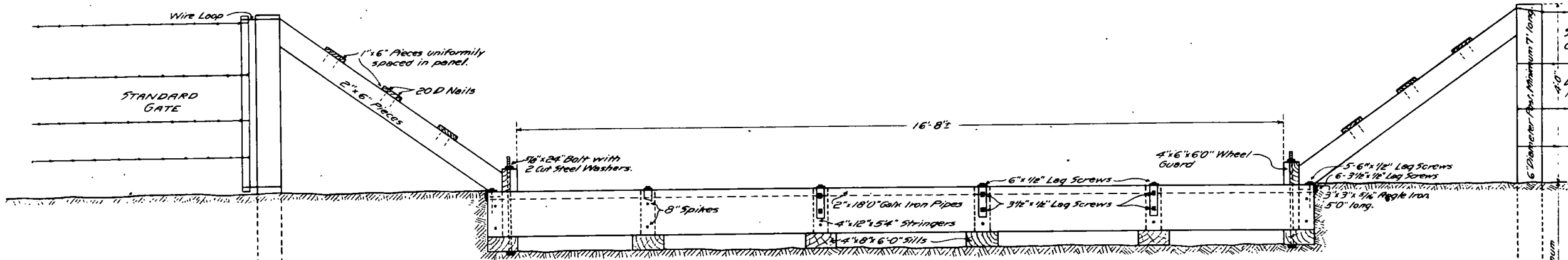
Approved by J.D. Bailey
 Bridge Engineer
 Date: April 27, 1937.

FED. ROAD DIST. No.	STATE	PROJ. No.	SHEET No.	TOTAL SHEETS
3	COLO.	68601	25	

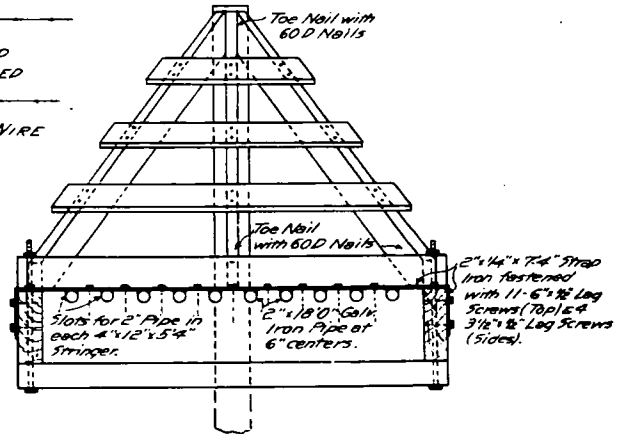
Revised 3-14-36 W.H.L. (1935 Specifications).
Revised 6-1-37 A.G.K. Changed to 1937 Specifications.
Revised 6-29-40 A.Z.-1940 Specs.



END ELEVATION



SIDE ELEVATION



SECTIONAL ELEVATION

BILL OF MATERIALS FOR ONE COMPLETE CATTLE GUARD

2	Pieces	1" x 6" x 2'-6"	Miscellaneous Treated Timber.
2	"	1" x 6" x 4'-0"	"
2	"	1" x 6" x 5'-6"	"
2	"	2" x 6" x 6'-9"	"
2	"	2" x 6" x 8'-3"	"
2	"	4" x 6" x 6'-0"	"
2	"	4" x 8" x 6'-0"	"
2	"	4" x 12" x 5'-4"	"
2	"	4" x 12" x 18'-0"	"
2	"	6" diameter x 7'-0" Posts	"
2	"	3" x 3" x 5/16" x 5'-0" Angle Iron - See Detail for Punching.	"
2	"	2" x 1/4" x 7'-4" Strap Iron - See Detail for Punching & Bending.	"
54	"	6" x 1/2" Log Screw (18 lbs.)	"
20	"	3/16" x 1/2" " (6 lbs.)	"
4	"	3/8" x 24" Bolts (10 lbs.)	"
8	"	Cut Steel Washers for 3/8" Bolts (1 lb.)	"
10	"	2" Galvanized Pipe 18'-0" long.	"
2	Lbs.	20 D Nails	"
2	"	60 D	"
7	"	8" Spikes	"

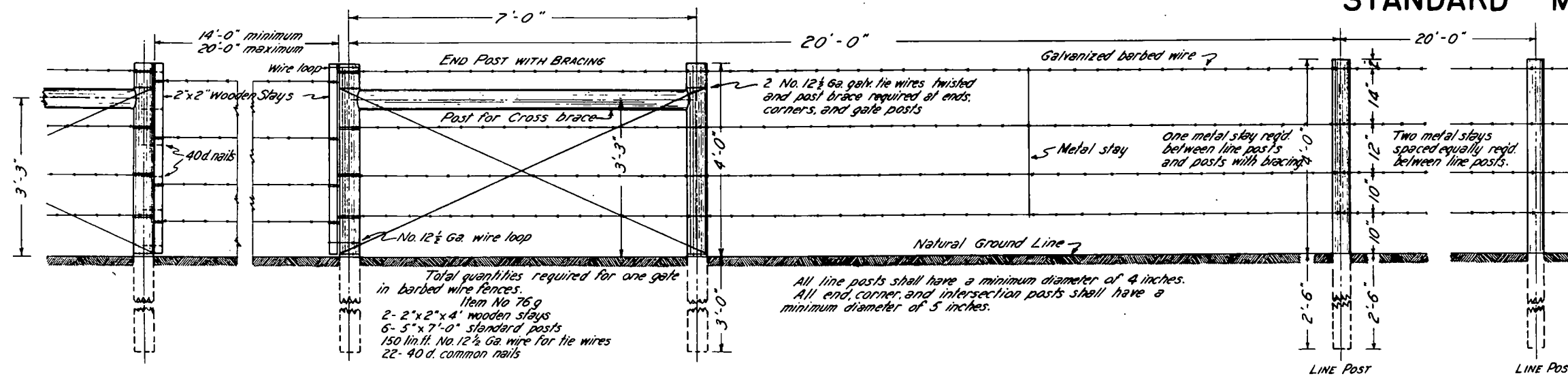
GENERAL NOTES

All work shall be done in accordance with the Standard Specifications of the COLORADO STATE HIGHWAY DEPARTMENT adopted June 1-1940.
All quantities are to be considered approximate only.
All timber shall fulfill the Specifications for Item 44-Timber Structures except Bridges, and shall be treated.
All hardware to be galvanized except angle irons, which shall be painted 2 coats "field coat-dark" as per specifications Item 41.

Holes for log screws shall be subdrilled to 3/16" diameter.

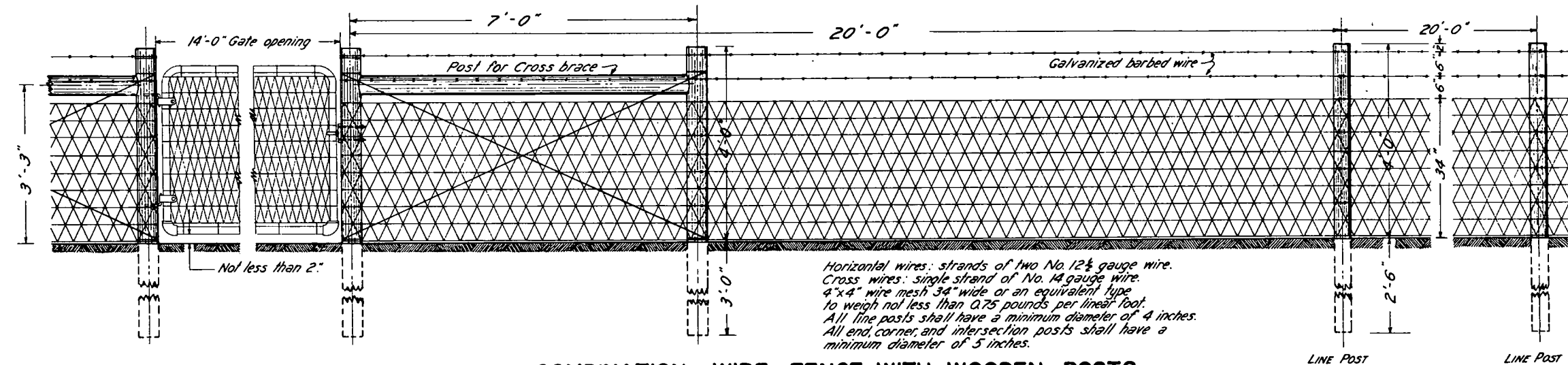
COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD
CATTLE GUARD
16 FT. ROADWAY

Designed by S.B.L. Approved by Bridge Engineer
Made by S.B.L. Date: 193
Checked by



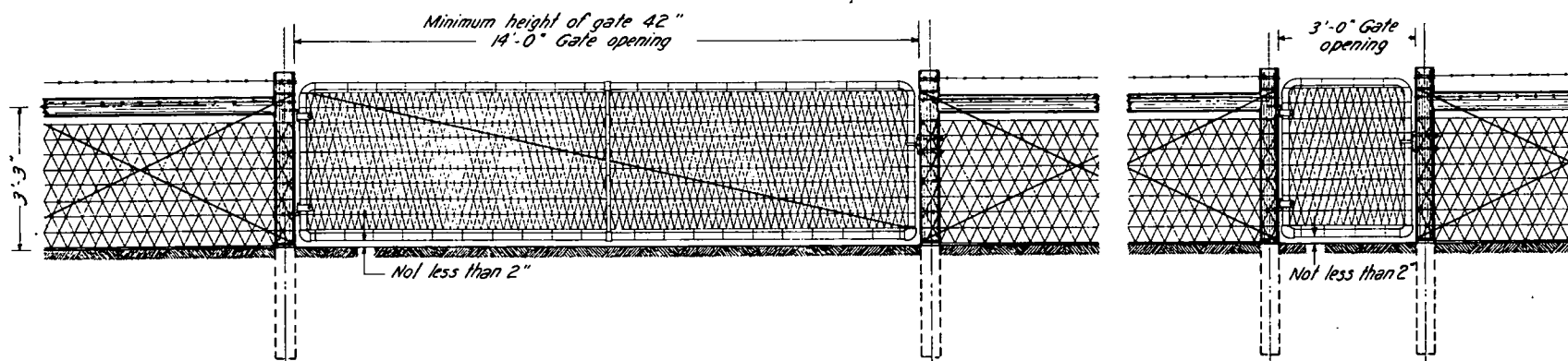
BARBED WIRE FENCE WITH WOODEN POSTS

Item No. 76 a



COMBINATION WIRE FENCE WITH WOODEN POSTS

Item No. 76 d



DRIVEWAY GATE

Item No. 76 h

Gate complete with hinges and latch to weigh not less than 70 lbs.
2'x4' single strand wire mesh filler or an equivalent type.
Width of mesh approximately 40 inches.
Horizontal wires No. 10 gauge.
Cross wires No. 12 1/2 gauge.
Galvanized metal latch and hinges.
Minimum 1" dia. galv. pipe frame or an equivalent.

WALK GATE

Item No. 76 i

Gate complete with hinges and latch to weigh not less than 19 pounds.
2'x4' single strand wire mesh filler or an equivalent.
Width of mesh approximately 40 inches.
Horizontal wires No. 10 gauge.
Cross wires No. 12 1/2 gauge.
Galvanized metal latch and hinges.
Minimum 1/2" dia. galv. pipe frame or an equivalent.

FENCE INTERSECTION WITH BRACING

FENCE TREATMENT AT STRUCTURES
(TO BE USED AT STRUCTURES 4'x4' AND OVER)

GENERAL NOTES

All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department, adopted June 1, 1940.
Barbed wire shall be of standard make, not lighter than No. 12 1/2 gauge, galvanized with two point barb spaced not more than five inches apart.
Wire mesh must be galvanized and not lighter than shown and noted on this plan.

Wire mesh used in driveway gates shall be painted with an approved water-proof asphalt or mineral paint.
Staples shall be at least 1 1/2" long, made of No. 9 ga. wire base galvanized, 8 staples required per post for barbed wire fence and 14 staples per post for combination wire fence.

Cross braces to be securely nailed with four 40d. nails at each post.
End post with bracing to be used at all gates and fence ends.
Corner post with bracing to be used at all corners and angles in fences.
Fence intersection with bracing to be used at all intersecting fences.
At all structures of 4'x4' or over the fence shall be ended at eye-bolts in the wings of the structure. Where the type of construction prohibits the use of eye-bolts, an end post with bracing shall be used.

Eye-bolts are to be made from 1/2" round iron bars with a minimum of 6" of body length embedded in the concrete and a minimum of 1" inside eye diameter.

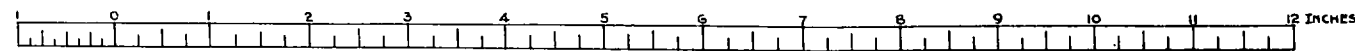
All wooden posts shall be made from seasoned, straight, sound Lodgepole Pine or Southern Yellow Pine, to be peeled and tops to be sawed off square before pressure treatment.

All posts shall be pressure treated with creosote in conformity with requirements given in the Specifications.

End post with bracing shall conform to details shown above. (Three posts req'd.)
Corner post with bracing shall consist of two end posts with bracing except that the post at the intersection of the two fence lines shall be common to both lines. (Five posts required.)
Fence intersection with bracing shall consist of three end posts with bracing except that the post at the intersection of the three fence lines shall be common to all three lines. (Seven posts req'd.)

COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD
WIRE FENCES
TREATED
WOODEN POSTS

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



SCALE OF LETTERING

STANDARD M-10-A

FED. ROAD DIST. NO.	STATE	Fed Aid PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	686(1)	28	

Revised 3-11-1936 AGK. Changed to 1935 Specifications.
Revised 6-1-40 G.H.D. Changed to 1940 Specifications.

A B C D E F G H I J

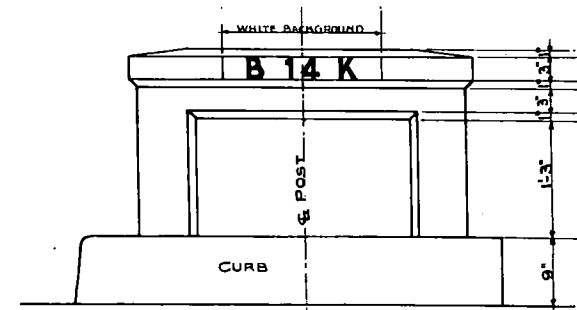
K L M N O P Q R S T

U V W X Y Z

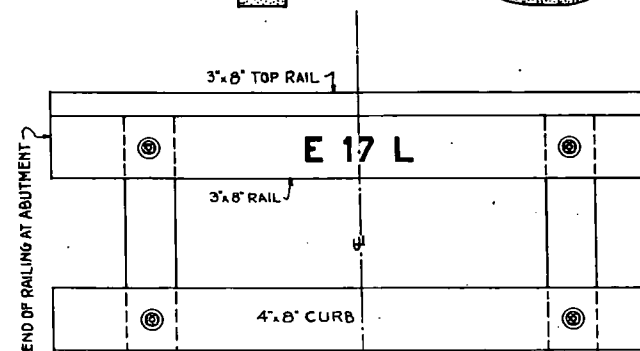
I 1 4 K

SAMPLE BRIDGE NUMBER

1 2 3 4 5 6 7 8 9 0 .



TYPICAL CONCRETE ENDPOST.



TYPICAL TIMBER WING

GENERAL NOTES

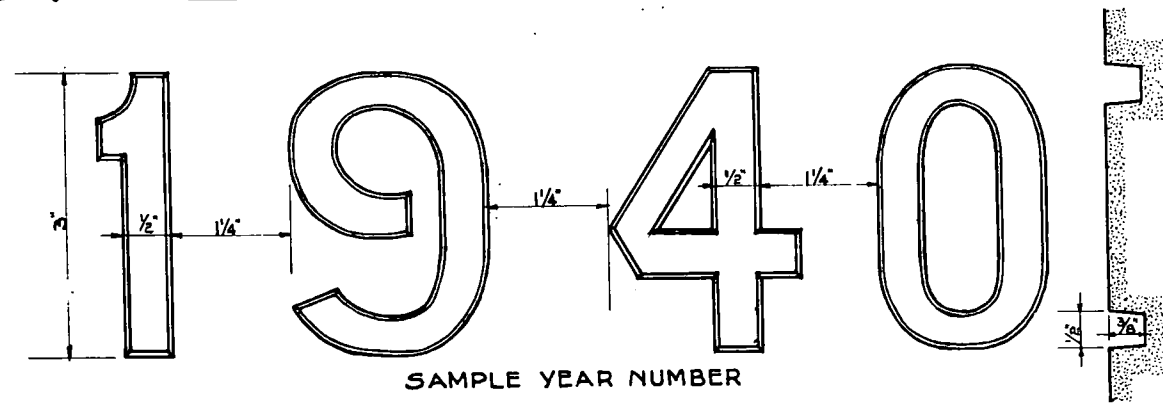
ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE COLORADO STATE HIGHWAY DEPARTMENT ADOPTED JUNE 1-1940.
THE STRUCTURE NUMBER SHALL BE STENCILED ON THE RIGHT HAND SIDE OF EACH BRIDGE, END AS SHOWN ON THIS STANDARD AND AS SPECIFIED.
THE CORRECT NUMBER FOR EACH BRIDGE IS SHOWN IN THE LOWER RIGHT HAND CORNER OF THE DETAIL SHEETS FOR THAT PARTICULAR BRIDGE.
THE SIZE, SHAPE AND SPACING OF THE LETTERS AND FIGURES SHALL BE IDENTICAL WITH THE FULL SIZE SHOWN ON THIS SHEET. ADDITIONAL COPIES OF THIS FULL SIZE SHEET CAN BE OBTAINED FROM THE DEPARTMENT WITHOUT CHARGE.
BEFORE STENCILING THE NUMBER ON THE BRIDGE, THE SURFACE MUST BE THOROLY CLEANED. A PROPER WHITE BACKGROUND SHALL BE PAINTED ON CONCRETE SURFACES. ON TIMBER HANDRAILS THE WHITE PAINT USED ON THE BRIDGE WILL BE SATISFACTORY. ON CONCRETE ENDPOSTS THE DRY CONCRETE SURFACE SHALL BE PROPERLY SIZED BEFORE PLACING THE WHITE RECTANGLE, UNLESS AN APPROVED WHITE CONCRETE PAINT IS USED.
TWO COATS OF ACCEPTABLE WHITE PAINT SHALL BE APPLIED TO THE CONCRETE IN A NEAT RECTANGULAR SHAPE AND EXTEND THREE INCHES BEYOND THE LIMITS OF THE STRUCTURE NUMBER.
AFTER THIS WHITE BACKGROUND HAS DRIED SUFFICIENTLY, THE CORRECT STRUCTURE NUMBER SHALL BE CAREFULLY STENCILED ON IT WITH TWO COATS OF STANDARD "SECOND FIELD COAT DARK" AS SPECIFIED UNDER ITEM 41 "STEEL BRIDGES. THE BRACES OF THE STENCILED LETTERS AND FIGURES SHALL BE CAREFULLY FILLED IN BY HAND TO MAKE SOLID FIGURES. SUFFICIENT TIME BETWEEN SUCCESSIVE COATS SHALL BE ALLOWED TO PERMIT THE PRECEDING COAT TO DRY.
THIS WORK WILL NOT BE PAID FOR AS A SEPERATE ITEM. COMPENSATION SHALL BE INCLUDED IN THE ORIGINAL CONTRACT ITEMS.

COLORADO			
STATE HIGHWAY DEPARTMENT			
STANDARD STRUCTURE			
NUMBER LETTERING.			
Across	Sta.	Sec.	T. R.
Designed by G.H.D.	Approved by <i>Pd Bailey</i>		
Made by G.H.D.	Bridge Engineer		
Check Design	Date: Feb. 6th 1935.		
Check Detail			



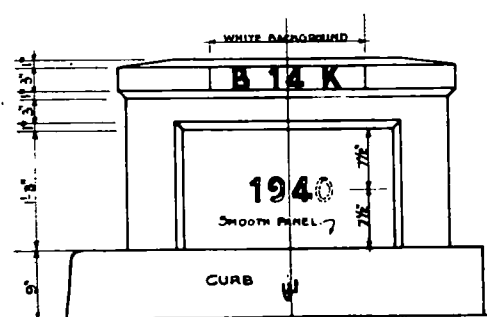
STANDARD M-14-A

FED. ROAD DIST. NO.	STATE	Proj. No.	SHEET NO.	TOTAL SHEETS
3	COLO.	6860	29	

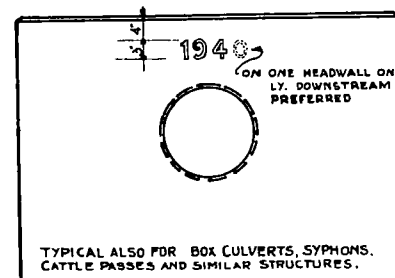


SAMPLE YEAR NUMBER

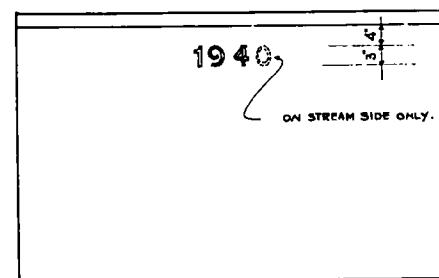
SECTION



TYPICAL CONCRETE ENDPOST



TYPICAL CULVERT HEADWALL



TYPICAL RETAINING WALL

GENERAL NOTES

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE COLORADO STATE HIGHWAY DEPARTMENT, ADOPTED JUNE 1, 1940.
THE SIZE, SHAPE AND SPACING OF THE NUMBERS SHALL BE IDENTICAL WITH THE FULL SIZE SHOWN ON THIS SHEET. ADDITIONAL COPIES OF THIS FULL SIZE SHEET CAN BE OBTAINED FROM THE DEPARTMENT WITHOUT CHARGE.
THIS WORK WILL NOT BE PAID FOR AS A SEPARATE ITEM. COMPENSATION SHALL BE INCLUDED IN THE ORIGINAL CONTRACT ITEMS.
THE YEAR NUMBER SHALL BE RECESSED INTO THE PANEL OF THE ENDPOST AT THE RIGHT HAND SIDE OF EACH BRIDGE-END AND INTO THE FACE OF THE DOWNSTREAM HEADWALL OF CULVERTS, SYPHONS, RETAINING WALLS ETC. A MINIMUM OF 3/8" AS SHOWN.
THE YEAR NUMBER FOR EACH STRUCTURE SHALL CORRESPOND WITH THE PARTICULAR YEAR IN WHICH THE CONCRETE IS POURED.
NUMBERS TO BE MADE OF WOOD, METAL OR ANY OTHER SUITABLE MATERIAL AND ATTACHED TO THE FORMS BEFORE CONCRETE IS POURED.

COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD STRUCTURE
YEAR NUMBER MARKING.

Designed by G.H.D.
Made by G.H.D.
Check Design
Check Detail

Approved by *Ed Bailey*
Bridge Engineer
Date: June 1st, 1940.

STRUCTURE NO.

GENERAL NOTES

Curves on projects using the Sections shown are to be superelevated and widened as indicated in the accompanying drawings and tables.

The normal inside edge of the Pavement slab is to remain at the standard elevation of 0.125 ft. below the profile grade, and the outside edge of the slab is to be superelevated at the rate per foot width of roadway given in the table. The Section is to be rotated about the normal inside edge of the Pavement, with a $1\frac{1}{2}$ " parabolic crown for curves of 10° and under, and a flat crown for widened Sections.

The normal inside edge of the Graded or Surfaced Section is to remain at the standard elevation of 0.02 ft. per foot width of roadway below the profile grade, or as shown on the Typical Section for the Project. Also, the center-line pivot point is to be used until the superelevation equals 0.02 ft. per foot width of roadway, but when this elevation is exceeded the normal inside shoulder pivot point is to be used.

When the degree of curvature exceeds 10° , the inside edge of the Pavement slab or the inside shoulder of the Graded or Surfaced Section is to be widened from the normal inside edge or shoulder, respectively, as shown by the table and plan or by cross-sections. Curves of 10° or less are not to be widened.

The slope of the shoulders and widened sections shall conform to the rate per foot width of roadway required, except that the inside shoulder of paved sections shall maintain the Typical Section slope until this slope is exceeded by the required superelevation slope.

The outside ditch on superelevated Sections is to be modified, where necessary to provide drainage. Otherwise, this ditch shall conform to normal ditch section shown for Project.

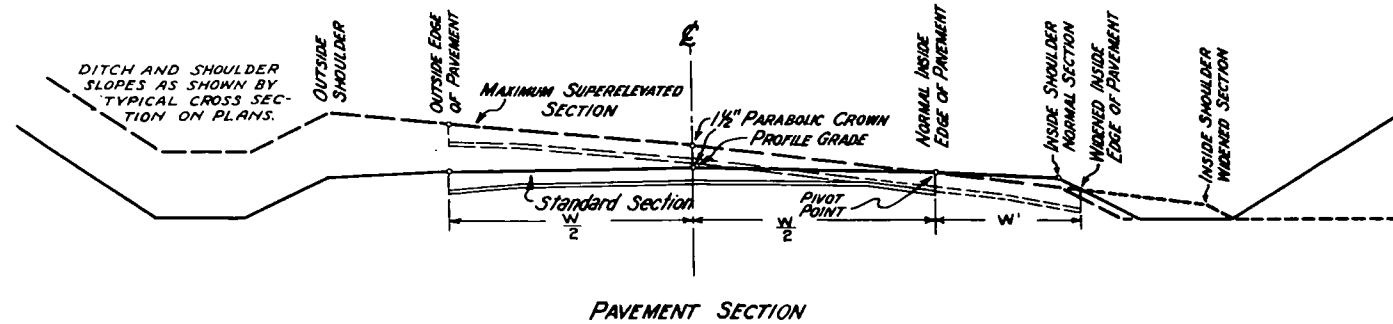
The rate of superelevation per foot width of roadway to be applied at the outside shoulder of the roadway is computed as follows:

The full superelevation per foot width of roadway rate for a given degree of curvature is

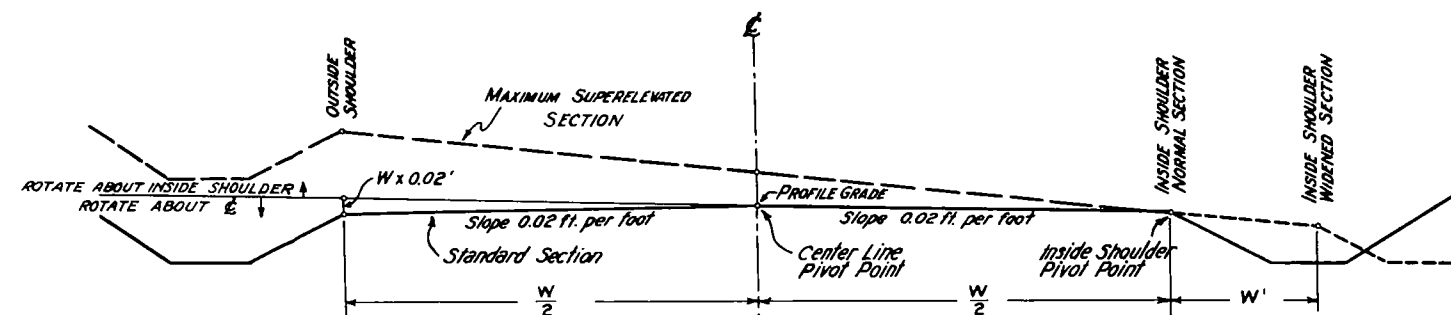
$$0.0105 \text{ ft.} \times \text{Degree of Curvature.}$$

The maximum superelevation of 0.10 ft per foot width, applying to curves of 10° and over, is not to be exceeded.

Special transition problems not covered by this standard sheet shall be covered by appropriate notes included with curve data on plans.



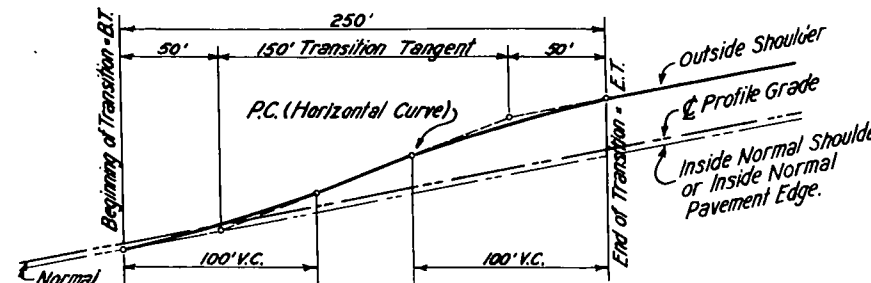
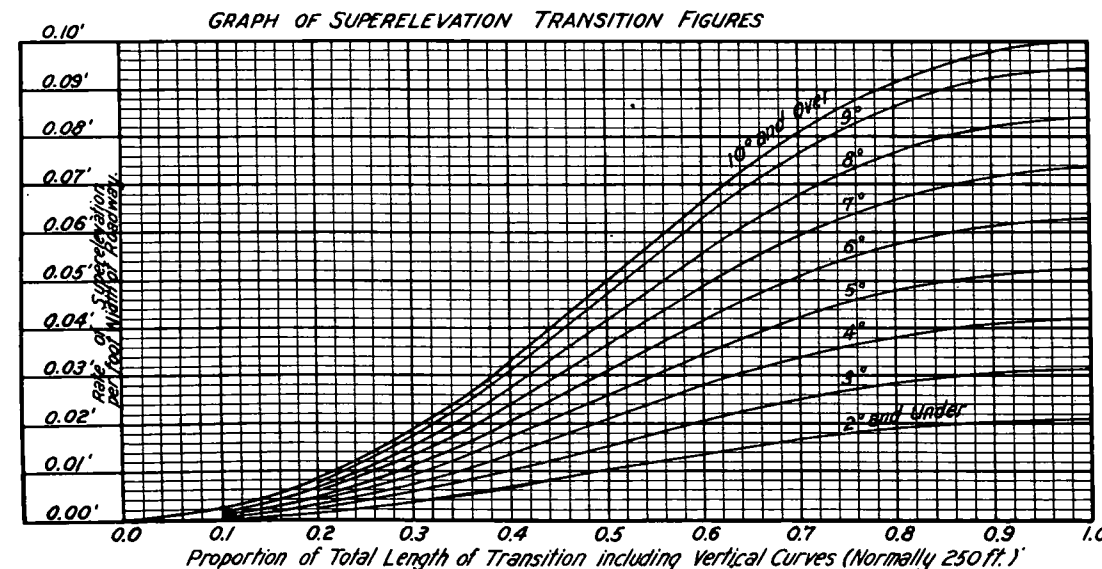
PAVEMENT SECTION



GRADED OR SURFACED SECTION

SUPERELEVATION AND WIDENING TABLES

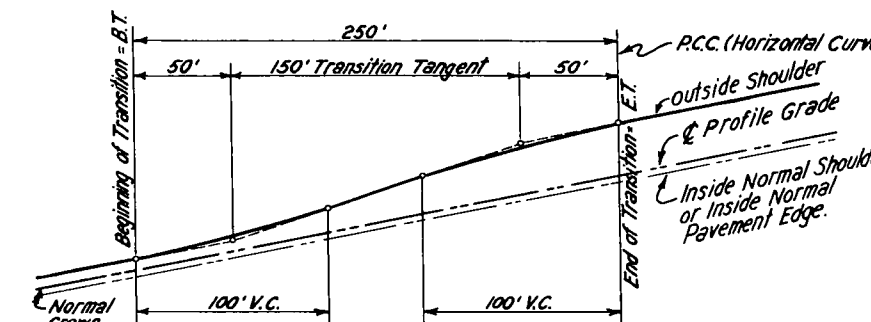
DISTANCE FROM B.T. (PROPORTION)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	MAX. 1.0
Degree of Curvature	RATE OF SUPERELEVATION (IN FEET) PER FOOT WIDTH OF ROADWAY									
2° and Under	0.00044	0.00175	0.00394	0.00700	0.01050	0.01400	0.01706	0.01925	0.02056	0.02100
3°	0.00066	0.00263	0.00591	0.01050	0.01575	0.02100	0.02559	0.02888	0.03084	0.03150
4°	0.00088	0.00350	0.00788	0.01400	0.02100	0.02800	0.03413	0.03850	0.04113	0.04200
5°	0.00109	0.00438	0.00984	0.01750	0.02625	0.03500	0.04266	0.04819	0.05141	0.05250
6°	0.00131	0.00525	0.01181	0.02100	0.03150	0.04200	0.05119	0.05775	0.06169	0.06300
7°	0.00153	0.00613	0.01378	0.02450	0.03675	0.04900	0.05972	0.06738	0.07197	0.07350
8°	0.00175	0.00700	0.01575	0.02800	0.04200	0.05600	0.06825	0.07700	0.08225	0.08400
9°	0.00197	0.00788	0.01772	0.03150	0.04725	0.06300	0.07678	0.08663	0.09253	0.09450
10° and Over	0.00208	0.00833	0.01875	0.03333	0.05000	0.06667	0.08125	0.09166	0.09792	0.10000
	OFFSETS FOR WIDENING - W' - (IN FEET)									
Over 10° - Under 12°	0.03	0.12	0.27	0.48	0.75	1.08	1.47	1.92	2.43	3.00
12° - " 15°	0.04	0.16	0.36	0.64	1.00	1.44	1.96	2.56	3.24	4.00
15° - " 20°	0.05	0.20	0.45	0.80	1.25	1.80	2.45	3.20	4.05	5.00
20° and Over	0.06	0.24	0.54	0.96	1.50	2.16	2.94	3.84	4.86	6.00



CASE I: SIMPLE CURVE WITH UNLIMITED TANGENT APPROACH

NOTE: CASE I

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



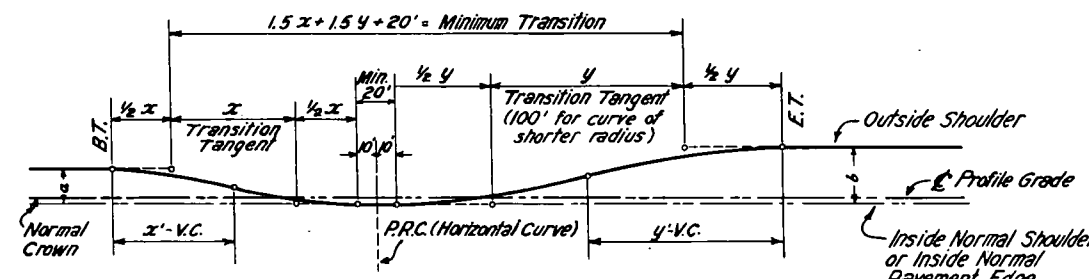
CASE II: COMPOUND CURVE

NOTE: CASE II

Superelevation transitions at the outside ends of compound curves shall be constructed in accordance with rules given under CASE I.

Superelevation transition between the arcs of different radii shall be made as in CASE I, except that the entire transition shall lie within the limits of the curve of the longer radius.

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



CASE III: REVERSE CURVES

NOTE: CASE III

Transitions between true reverse curves shall be accomplished as shown on the above diagram.

Transition tangents shall be directly proportional to the amount of superelevation of the respective curves.

EXAMPLE: Let a represent the amount of superelevation on 1st curve;

" b " " " " 2nd " ;

" x " " " " transition tangent on 1st " ;

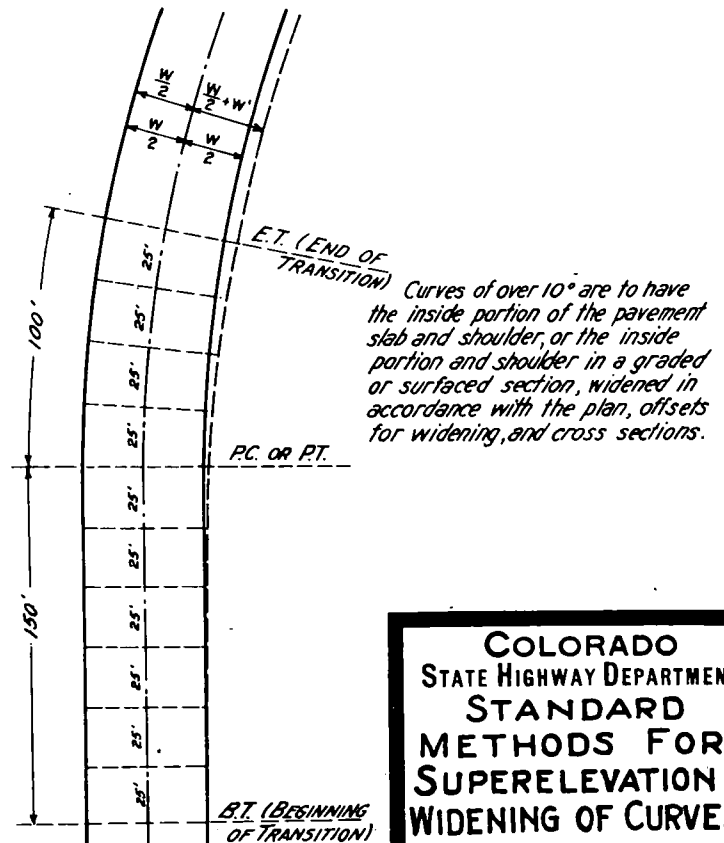
" y " " " " " 2nd " ;

then, $a:b = x:y$.

The transition tangent of the curve having the shorter radius shall be set at 100 ft. A normal crowned section 20 ft. long, 10 ft. on each side of the P.C. shall be used.

In cases where curves in opposite directions are in such proximity that a standard transition can not be had, the practice outlined for true reversing curves shall be used.

The total distance between the P.T. of the first curve and the P.C. of the succeeding curve shall be prorated into the transition distance of the respective curves until a maximum of 150 ft. of transition distance for each curve is achieved.



GENERAL PLAN OF WIDENING

COLORADO STATE HIGHWAY DEPARTMENT STANDARD METHODS FOR SUPERELEVATION & WIDENING OF CURVES

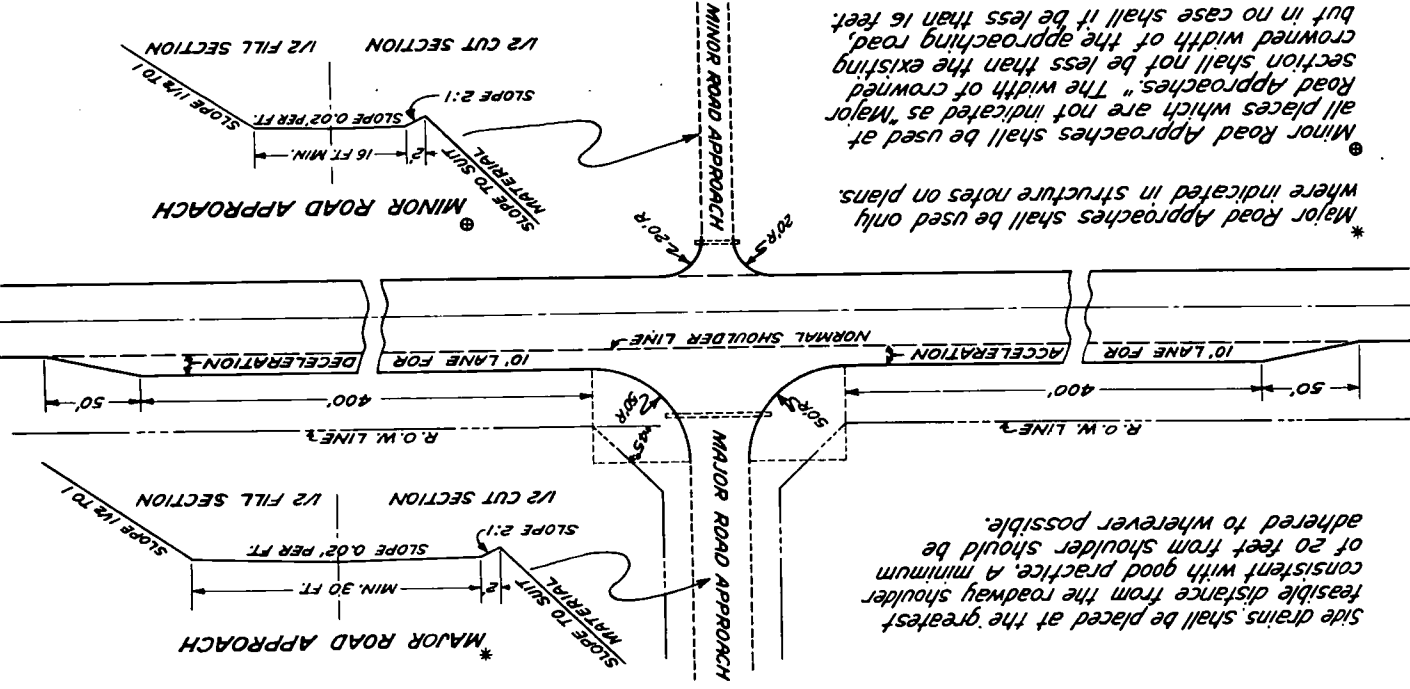
Designed by R.E.L. Approved by J. Marshall
 Made by P.B.B.
 Checked by P.B.B. Date: FEB. 29 1937

FEED ROAD	STATE	PROJ NO.	SHEET NO.	TOTAL SHEETS
DIST NO.				
3	COLO.	6660	31	

STANDARD
M-2-B

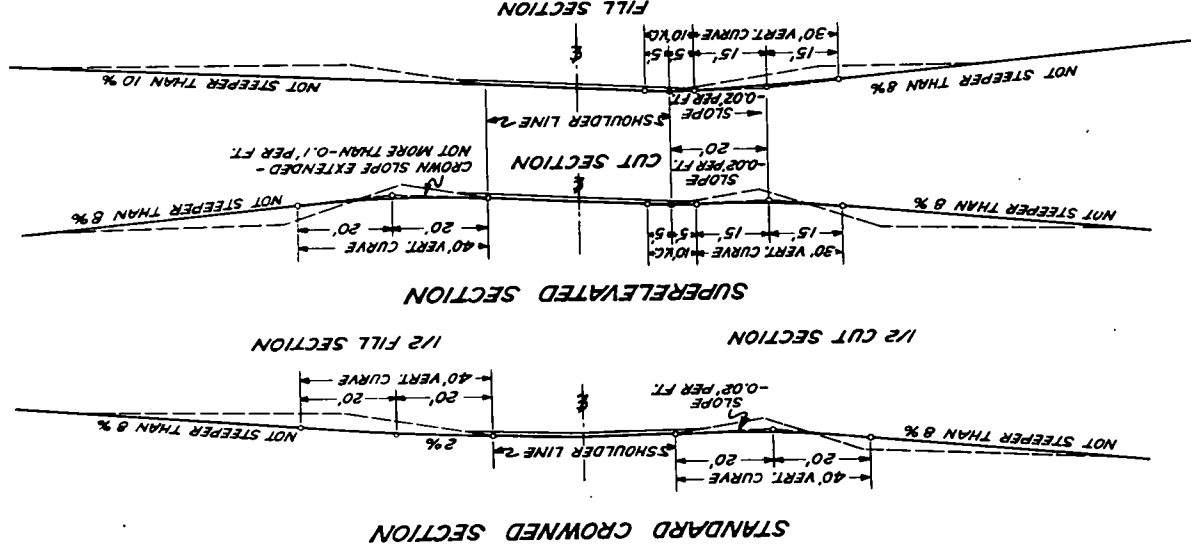
TYPICAL PLANS FOR SIDE APPROACH ROADS

Revised 12-1-39 A.Z. changed typical plans for side approach roads.
Revised 2-19-40 A.Z. changed takeoff grades for side approach roads.
Rev. 6-28-40 A.Z.-1940 Specs.



* Major Road Approaches shall be used only where indicated in structure notes on plans.

⑥ Minor Road Approaches shall be used at all places which are not indicated as "Major Road Approaches." The width of crowned section shall not be less than the existing crowned width of the approaching road, but in no case shall it be less than 16 feet.



GENERAL NOTES FOR BROADWAY CONSTRUCTION TRAFFIC SIGNS

All Work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department adopted June 1-1940.
Whenever traffic is permitted on a road while under construction, the Contractor shall at all times adequately and appropriately mark any
and all hazards on the project with standard directional signs, standard caution and warning signs. The Contractor shall also
mark with standard directional signs any places where the direction of the flow of traffic is not plain.
In addition, the Contractor shall place standard barricades at either end of the work area, and the barricades at either

Whenever traffic is prohibited from a project under construction, the contractor shall maintain the project with adequate signs and barricades. All signs and barricades shall be immediately moved, added to, removed, or changed to appropriately mark the project as it is changed, corrected, or changed by construction progress.

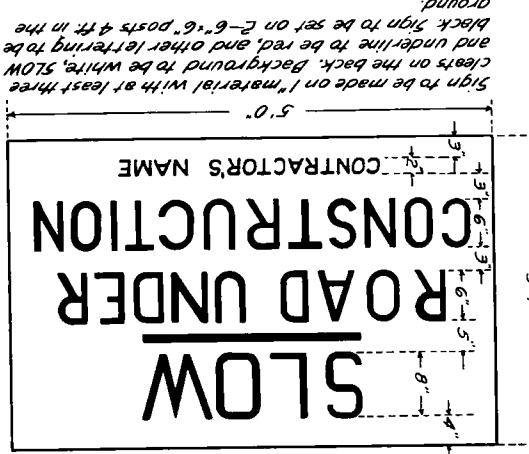
- (1) All barricade material, if shell, always be well painted, as per sketch, and well maintained. The Contractor shall furnish.
- (2) A reflected arrow of an approved type for each barricade at the ends of the project, and at other barricades under construction.

- (3) SLOW ROAD UNDER CONSTRUCTION signs as required
- (4) Any special signs the Department may deem necessary for the protection of traffic over the Project
- (5) At least three (3) flares or torches for each barricade and other flares to illuminate such signs as are called for

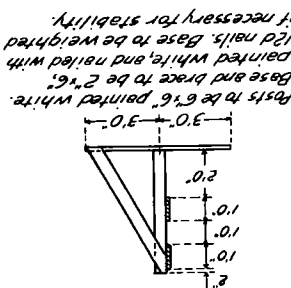
On these plans, or as the Department may direct, flags or torches shall be placed between 3 and 5 feet ahead of the sign or object to be illuminated, and shall be kept burning from sunset to sunrise.

COLORADO STATE HIGHWAY DEPARTMENT TYPICAL SIDE APPROACH ROADS ROADWAY CONSTRUCTION TRAFFIC SIGNS	Designed by K.A.K.	Approved by J.S.M.
	Made by S.B.K.	Check + J.S.M. Check K.A.K.

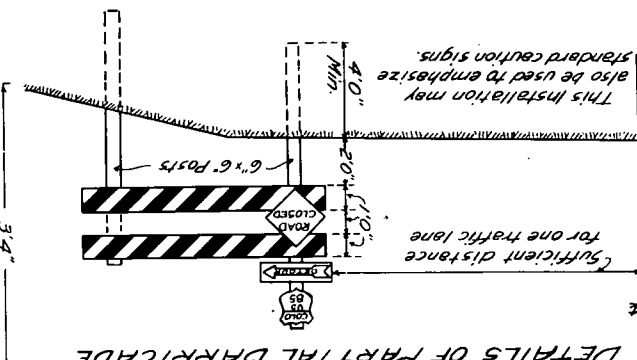
Date: May 20, 1995



DETAILS OF ROAD UNDER CONSTRUCTION

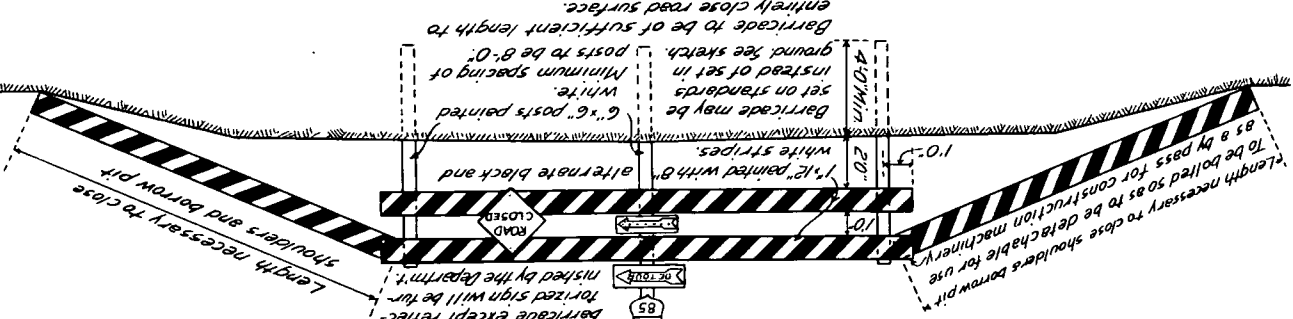


END VIEW OF
PORTABLE BARRICADE

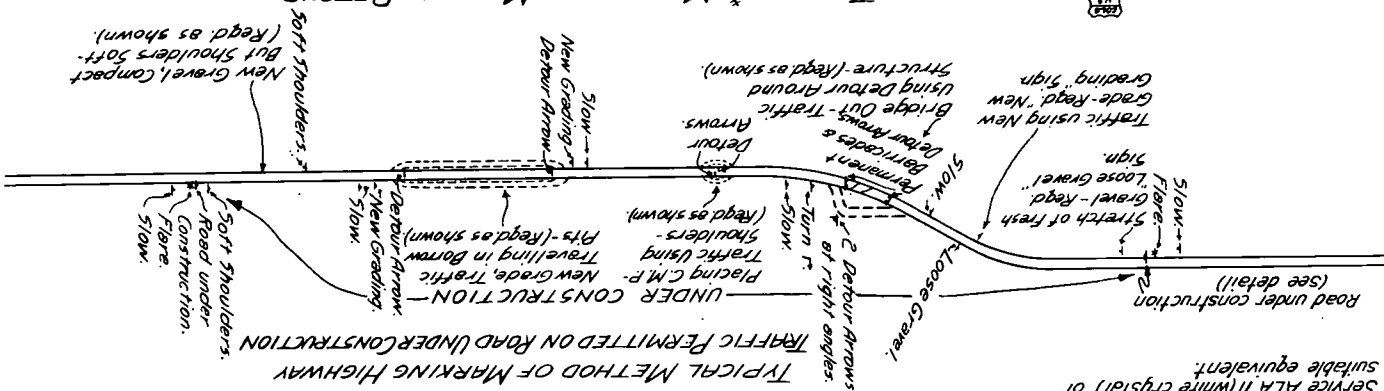


DETAILS OF PARTIAL BARRICADE

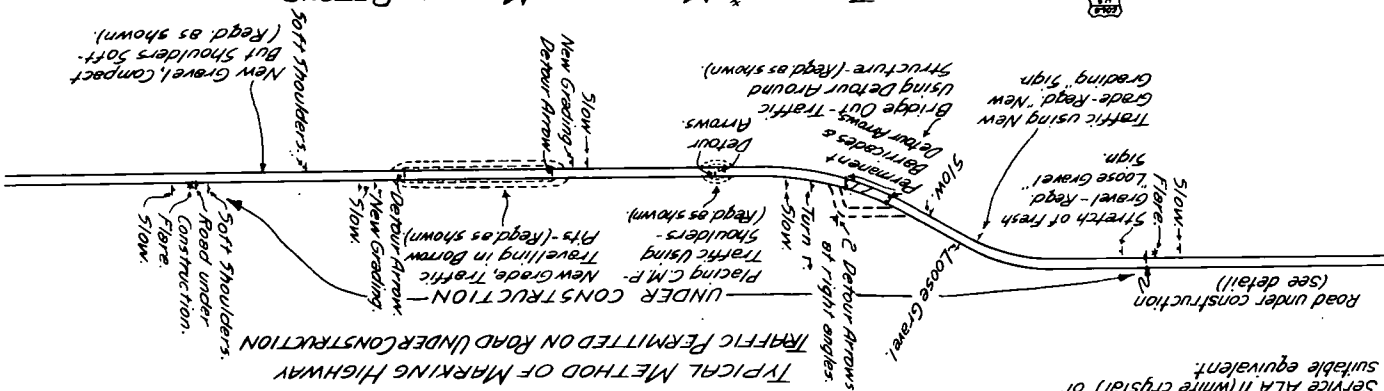
POSITION OF SIGNS RELATIVE TO ROADBED



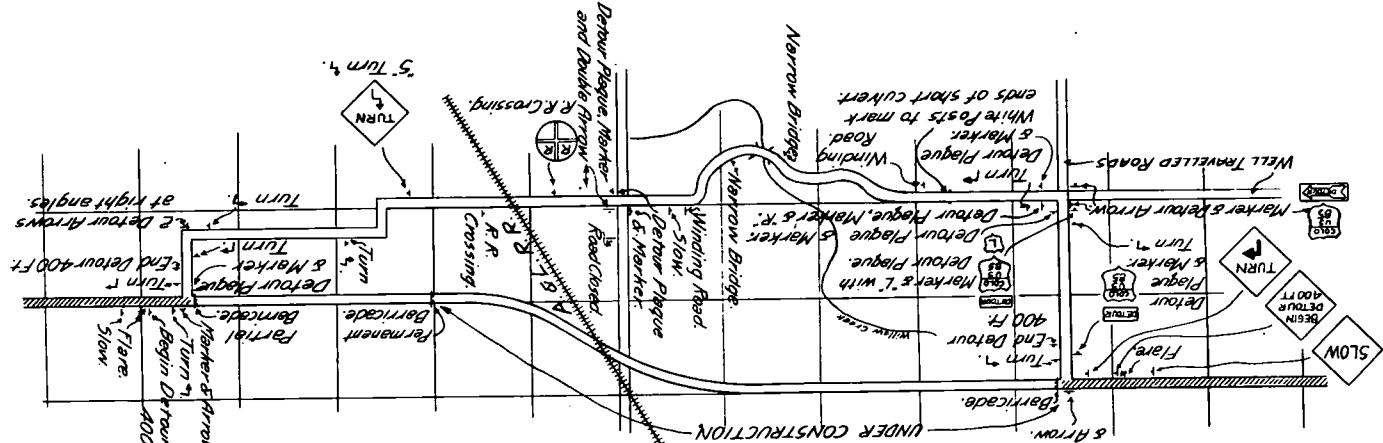
DETAILS OF PERMANENT BARRICADE



TYPICAL METHOD OF MARKING HIGHWAY

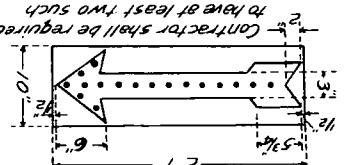


TRAFFIC PROHIBITED ON ROAD UNDER CONSTRUCTION



TRAFFIC PROHIBITED ON ROAD UNDER CONSTRUCTION

the ends of each project.
Reflector Buttons and Sign shall be subject to Department approval. Reflector Buttons shall be Signal Service ALA II (white crystal) or suitable equivalent.



SUGGESTED DETAIL
OF REFLECTORIZED ARROW

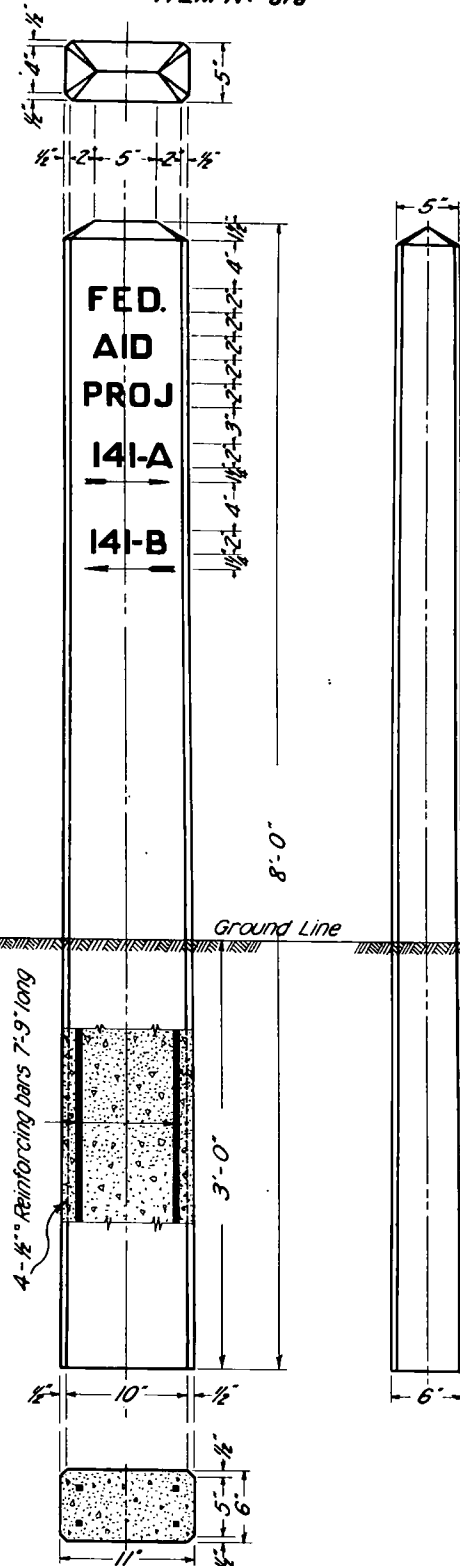
This distance to be governed by which maximum day and night visibility which is influenced by grade, curvature, interference of local signs, shrubbery, fences, etc.

Exact location is to be stated by the Engineer, but in no case shall it be more than 8 feet from the travelled zone.

FED. ROAD DIST. NO.	STATE	FAP	SHEET NO.	TOTAL SHEETS
3	COLO.	686(1)	32	

PROJECT MARKER POST
ITEM N° 818

RIGHT OF WAY MARKER POST
ITEM N° 816

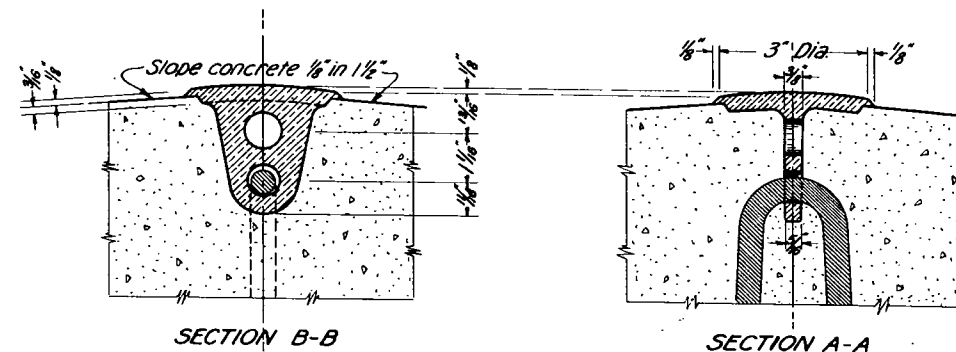
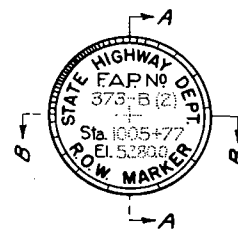


NOTES FOR PROJECT MARKER POSTS

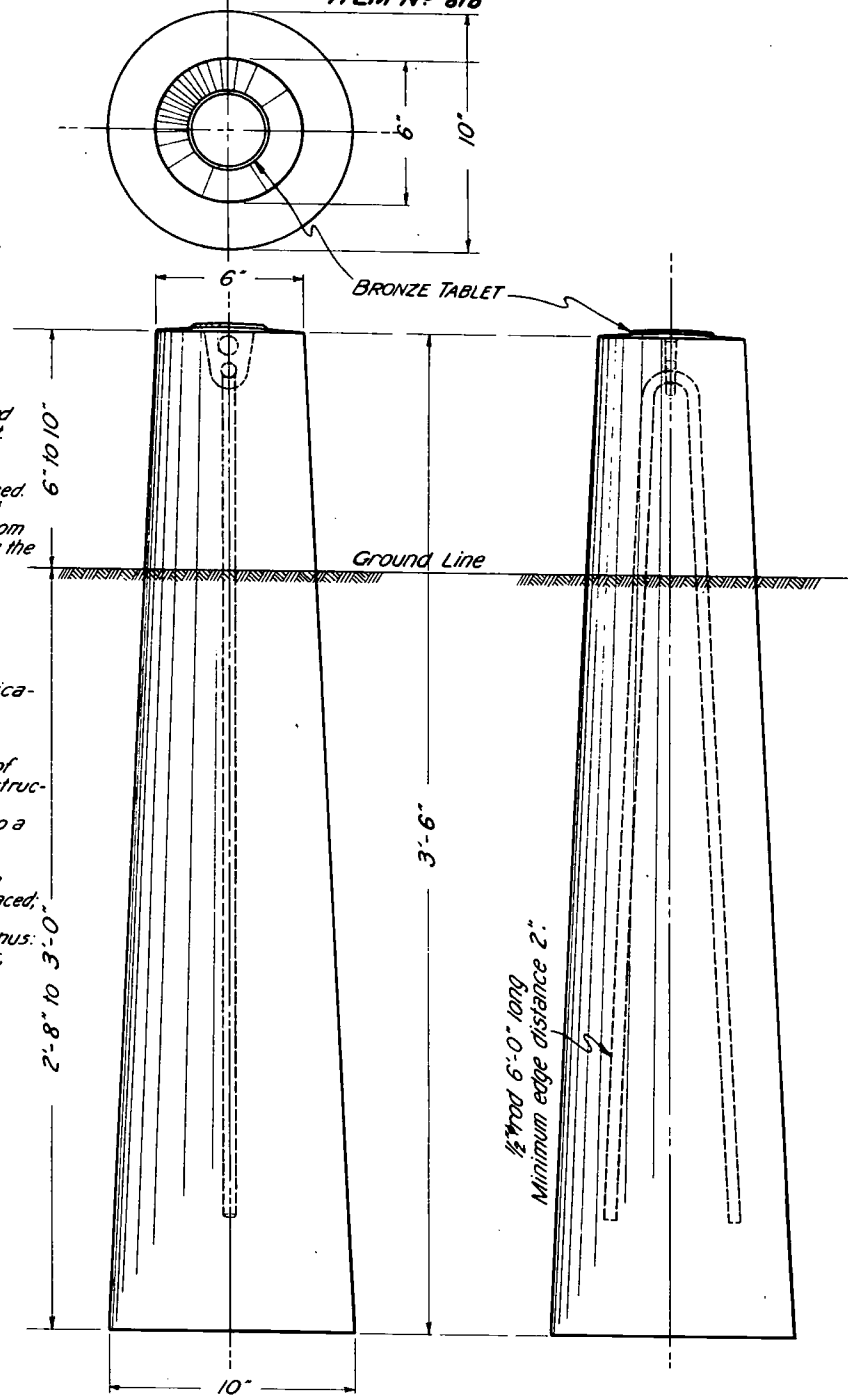
All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department, adopted June 1, 1940.
Posts shall be made of Class "A" concrete, except use White Portland Cement.
All exposed surfaces shall be rubbed free of form marks.
All letters and numbers shall be 2" plain upright black, painted or stenciled on the concrete with a good quality of black paint. See item N° 41, "Second Field Coat - Dark".
Numbers and arrows shall show the proper numbers and directions of the projects each way from where the post is placed.
Post to be set with sign facing the road at the end of the project, two feet inside the R.O.W. line or at a point amply protected from traffic in such a position that the sign will indicate properly the projects to which it refers.

NOTES FOR R.O.W. MARKER POSTS

All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department, adopted June 1, 1940.
Posts shall be made of Class "A" concrete.
The upper 12 inches of marker posts shall be rubbed free of form marks, and the top surface of the post must be constructed to drain thoroughly.
All exposed surfaces of the bronze tablet are to be ground to a smooth surface.
All letters are to be depressed a minimum of 1/8 inch.
Information on the bronze tablet indicated by pin lines is to be stamped in the field by the engineering party after post is placed.
3/16 inch letters and figures to be used.
Project designations on tablets shall be properly shown. Thus: "F.A.P.N°" for Federal Aid Projects, "S.P.N°" for State Projects, "P.W.A. N°" for P.W.A. Projects, etc.



DETAIL OF BRONZE TABLET FOR RIGHT OF WAY MARKER POST



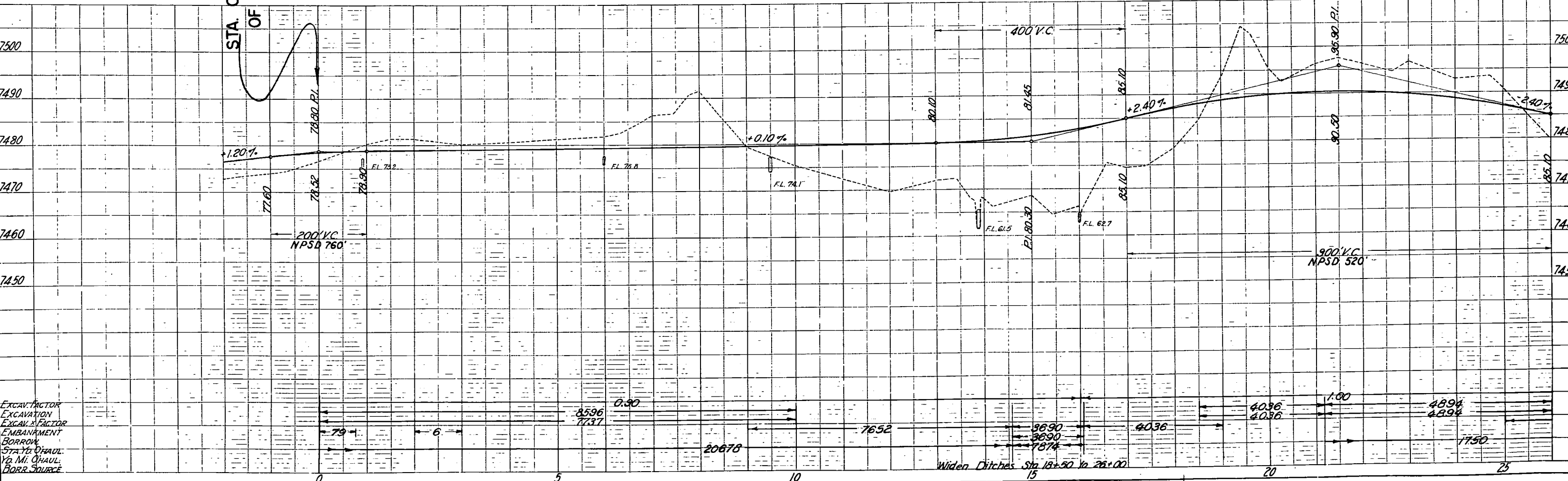
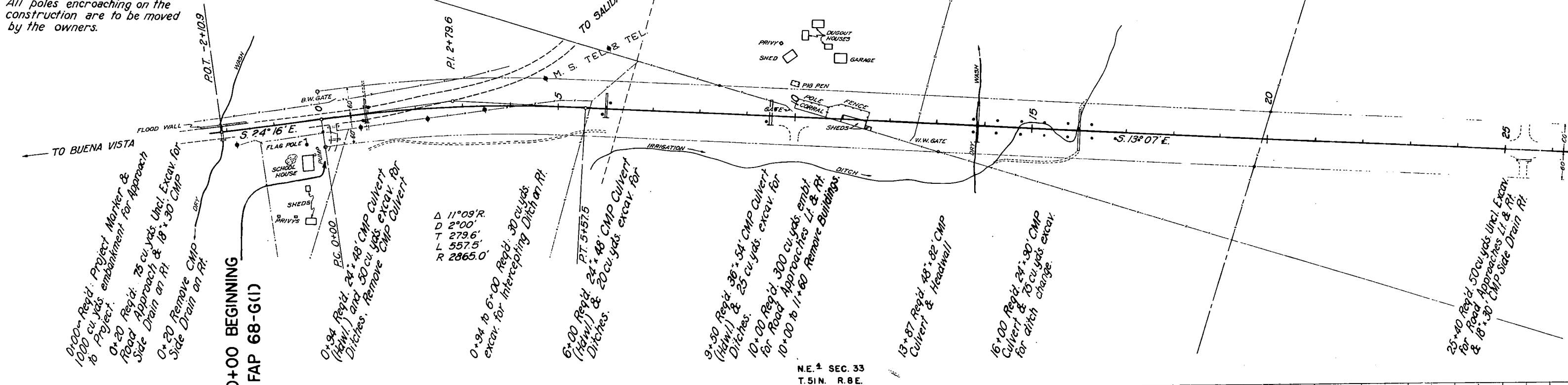
NOTE
 Alignment and Grades shown on the plans are subject to modification during construction, after approval by the Denver Office.
 Right of Way Markers are tabulated on sheet No. 4, Guard Posts on sheet No. 5, and Fencing Requirements and Gates on sheet No. 6.

All poles encroaching on the construction are to be moved by the owners.

N.W. 1 SEC. 34
 T. 51 N. R. 8 E.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	68-G(11)	33	

Rev. 9-4-40-a.p.b. (Profile Data)
 S.W. 1 SEC. 34
 T. 51 N. R. 8 E.



EXCAV. FACTOR
 EXCAVATION
 EXCAV. FACTOR
 EMBANKMENT
 BORROW
 STA. TO CHAUL
 YD. MI. CHAUL
 BORR. SOURCE

DETAIL OF CHANNEL CHANGE, STA. 58+20

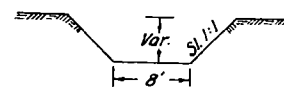
N.W. 1/4 SEC. 3
T. 50N. R. 8E.

S.W. 1/4 SEC. 3
T. 50N. R. 8E.

FED. ROAD DIST. NO.	STATE	F.A. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	68-6 (1)	35	

Rev. 9-4-40 -apb. (Profile Data)

Excavation required for channel change to be regarded as "Uncl. Ditch Excavation." Structural Excavation to be measured between the typical section of the channel change and the bottom of footings as excavated.



SEC. 3
SEC. 4

58+20 Req'd: Modified Standard 8'x8'x40' Conc Box Culvert Type 81 (Skew 80°) as per details on Sheet no. 2. & 500 cu yds excav. for Channel Change. Excavated material to be used to fill old channel.

N.E. 1/4 SEC. 4
T. 50N. R. 8E.

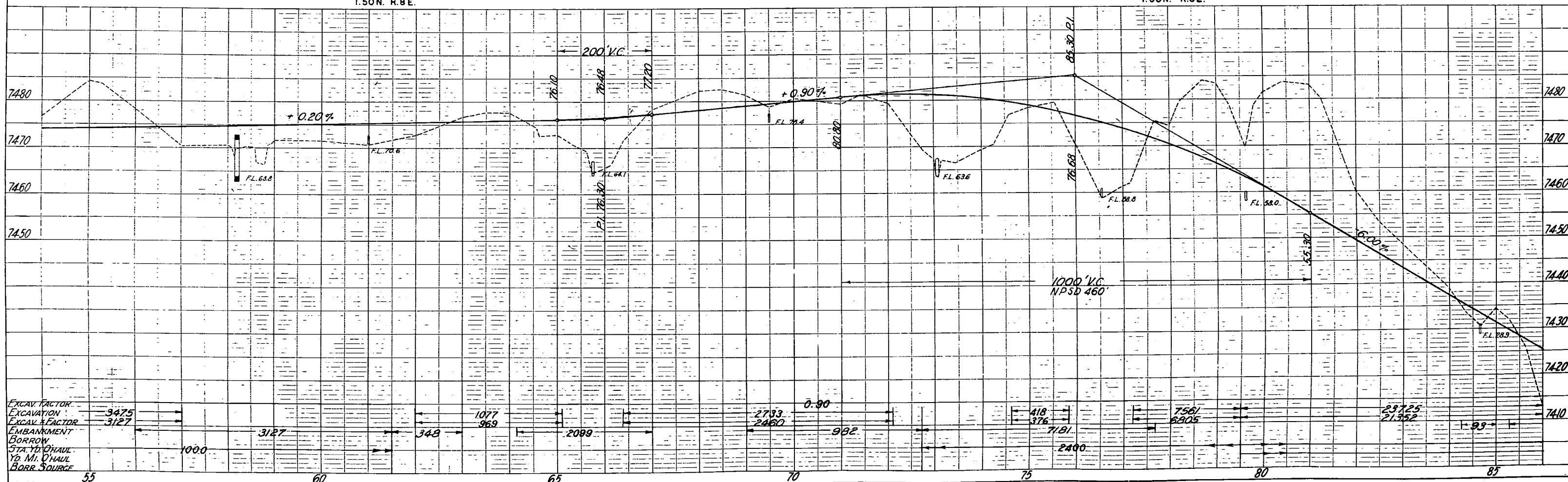
61+00 Req'd: 24'x70' CMP Culvert
65+85 Req'd: 36'x64' CMP Culvert & Headwall.
69+50 Req'd: 24'x54' CMP Culvert (Hawl.) & 5 cu yds. excav. for ditches.

73+08 Req'd: 48'x82' CMP Culvert, Skew 70° Lt. (Hawl.) & 50 cu yds. excav. for ditches.

76+55 Req'd: 24'x78' CMP Culvert (Hawl.) & 10 cu yds. excav. for ditches.

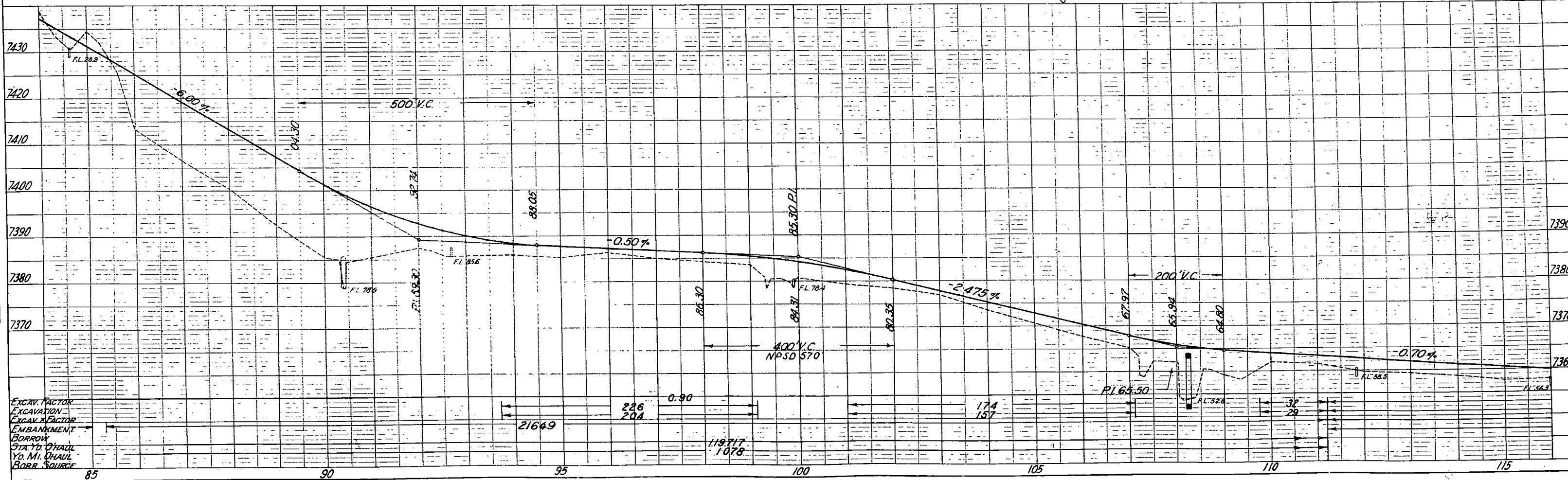
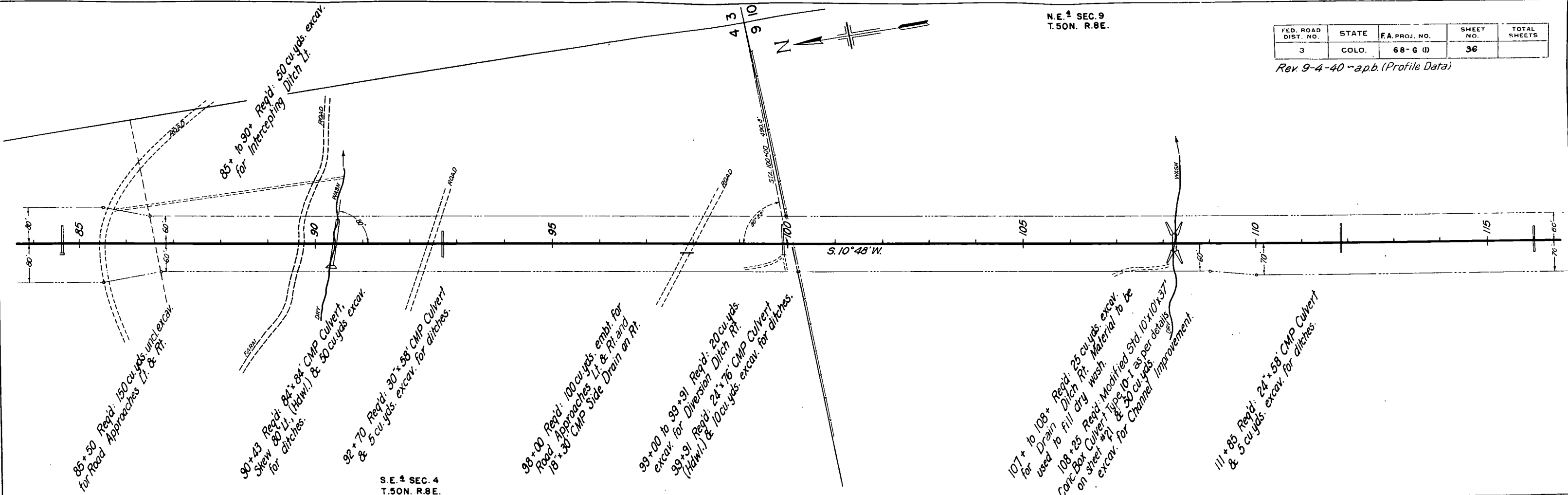
78+25 to 82+00 Req'd: 20 cu yds. excav. for Intersecting Ditch Lt.
78+75 to 82+25 Req'd: 25 cu yds. excav. for Intersecting Ditch Rt.
79+62 Req'd: 24'x54' CMP Culvert, Rub. Slope Paving 1' thick & 100 cu yds. excav. for ditches.

84+65 Req'd: 24'x54' CMP Culvert (Intersecting Headwall) & 5 cu yds. excav. for ditches.



PLAN	SURVEYED	DATE
NOTE BOOK	PLOTTED	BY
NO.	ALIGNMENT CHECKED	
	RT. OF WAY CHECKED	

PROFILE	SURVEYED	DATE
NOTE BOOK	PLOTTED	BY
NO.	VERT. DATA NOTED	
	STRUCTURE NOTATIONS CHECKED	



N.E. 1/4 SEC. 9
T. 50N. R. 8E.

S.E. 1/4 SEC. 9
T. 50N. R. 8E.

FED. ROAD DIST. NO.	STATE	F.A. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	68-G W	37	

Rev. 9-4-40 map.b. (Profile Data)

DATE	BY	REVISION

PLAN

NOTES:
1. SURVEYED BY: [blank]
2. PLOTTED BY: [blank]
3. CHECKED BY: [blank]
4. DATE: [blank]
5. SCALE: [blank]
6. UNIT: [blank]
7. OF WAY CHANGED: [blank]

DATE	BY	REVISION

PROFILE

NOTES:
1. SURVEYED BY: [blank]
2. PLOTTED BY: [blank]
3. CHECKED BY: [blank]
4. DATE: [blank]
5. SCALE: [blank]
6. UNIT: [blank]
7. OF WAY CHANGED: [blank]

116+00 Req'd: 24" x 52' CMP Culvert & 10 cu yds. excav. for Ditches.

120+48 Req'd: 24" x 58' CMP Culvert & 5 cu yds. excav. for Inlet.

122+00 Req'd: 50 cu yds. emb't. for Road Approaches L. & Rt. 18' x 30' CMP Side Drain on Rt.

124+75 Req'd: 24" x 92' CMP Culvert 45 skew Lt. (Headwall) & 5 cu yds. excav. for Ditches.

129+00 to 129+54 Req'd: Bridge Details on Sheet nos. 9, 10, 11, 12

135+60 Req'd: 24" x 58' CMP Culvert & 10 cu yds. excav. for Inlet.

135+60 to 140+60 Req'd: 60 cu yds. excav. for Ditch Change Rt.

136+00 Req'd: 24" x 74' CMP Culvert.

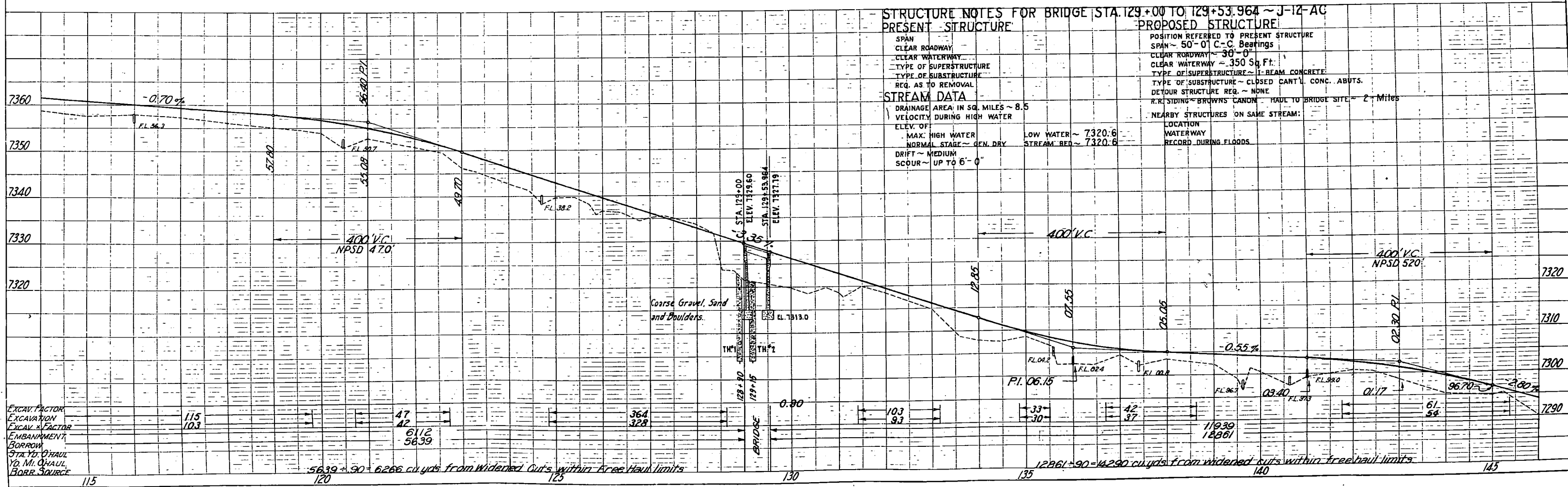
137+40 Req'd: 30" x 52' CMP Culvert (Headwall) & 10 cu yds. excav. for Inlet.

139+62 Req'd: 24" x 74' CMP Culvert (Headwall) & 10 cu yds. excav. for Ditches.

140+63 Req'd: 24" x 68' CMP Culvert (Headwall) & 10 cu yds. excav. for Ditches.

141+00 Req'd: 24" x 92' CMP Culvert skew 45 Lt. & 10 cu yds. excav. for Ditches.

141+35 Remove 15' x 32' CMP Side Drain Lt. 141+40 Req'd: 75 cu yds. emb't. for Road Approaches Lt. & Rt.



S.E. 1 SEC. 9
T.50N. R.8E.

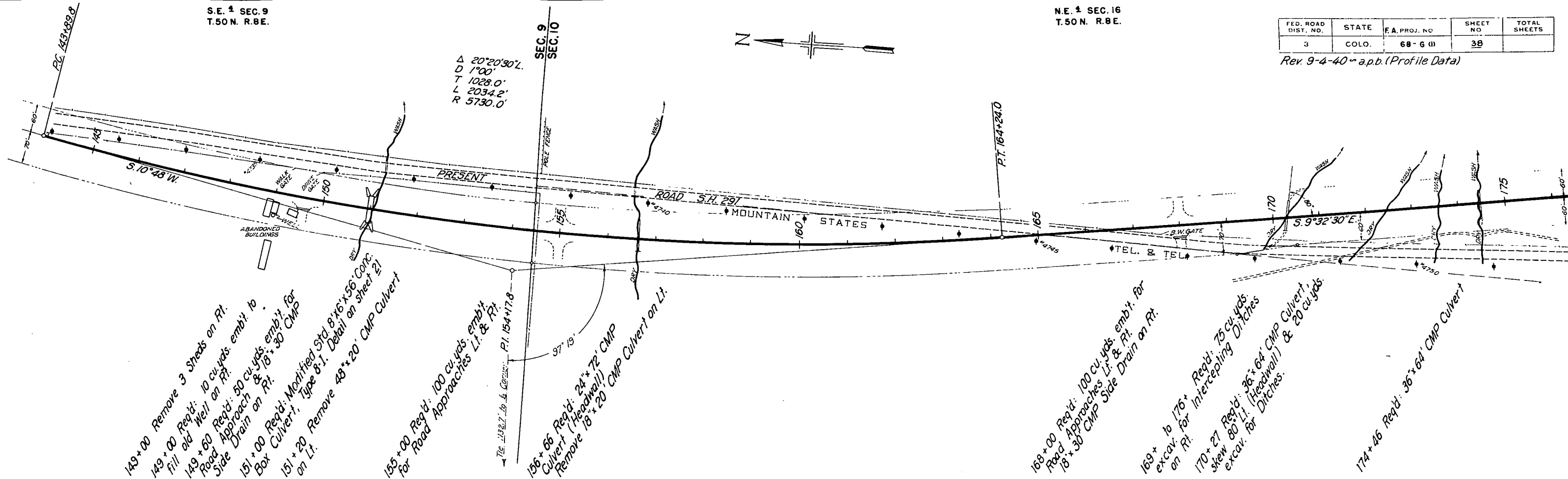
N.E. 1 SEC. 16
T.50N. R.8E.

FED. ROAD DIST. NO.	STATE	F.A. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	68-6 (I)	38	

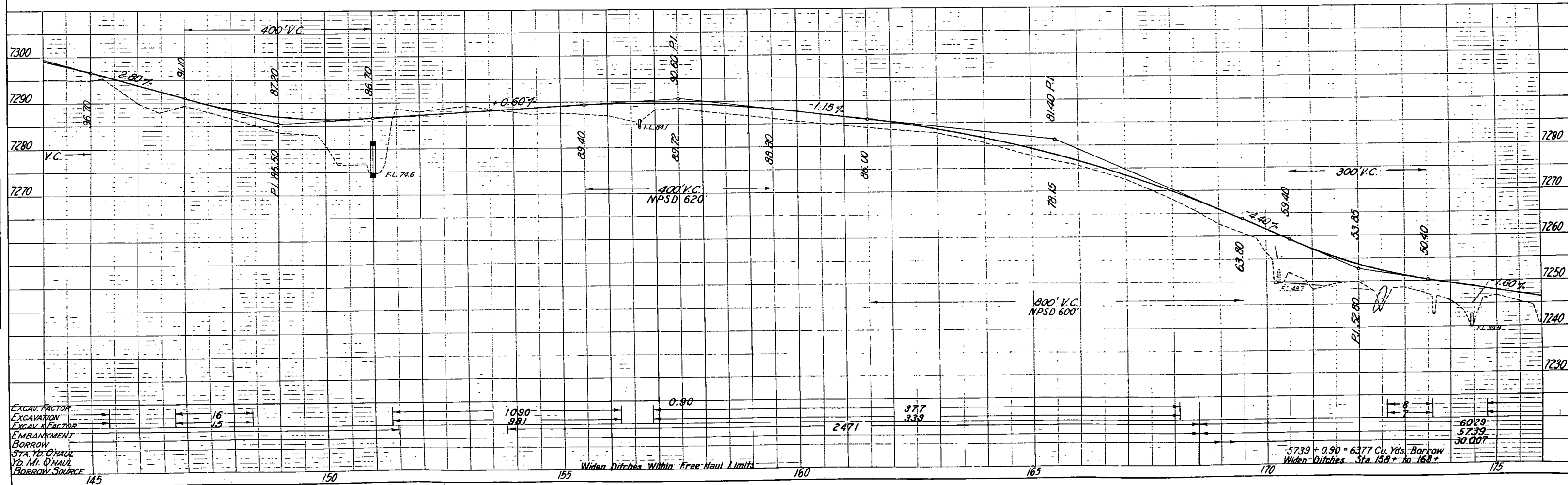
Rev. 9-4-40 a.p.b. (Profile Data)



PLAN	DATE
SURVEYED	
PLOTTED	
NOTE BOOK	
NO.	



PROFILE	DATE
SURVEYED	
PLOTTED	
NOTE BOOK	
NO.	



EXCAV. FACTOR
EXCAVATION
EXCAV. FACTOR
EMBANKMENT
BORROW
STA. YD. CHAUL
YD. MI. CHAUL
BORROW SOURCE

Widen Ditches Within Free Haul Limits

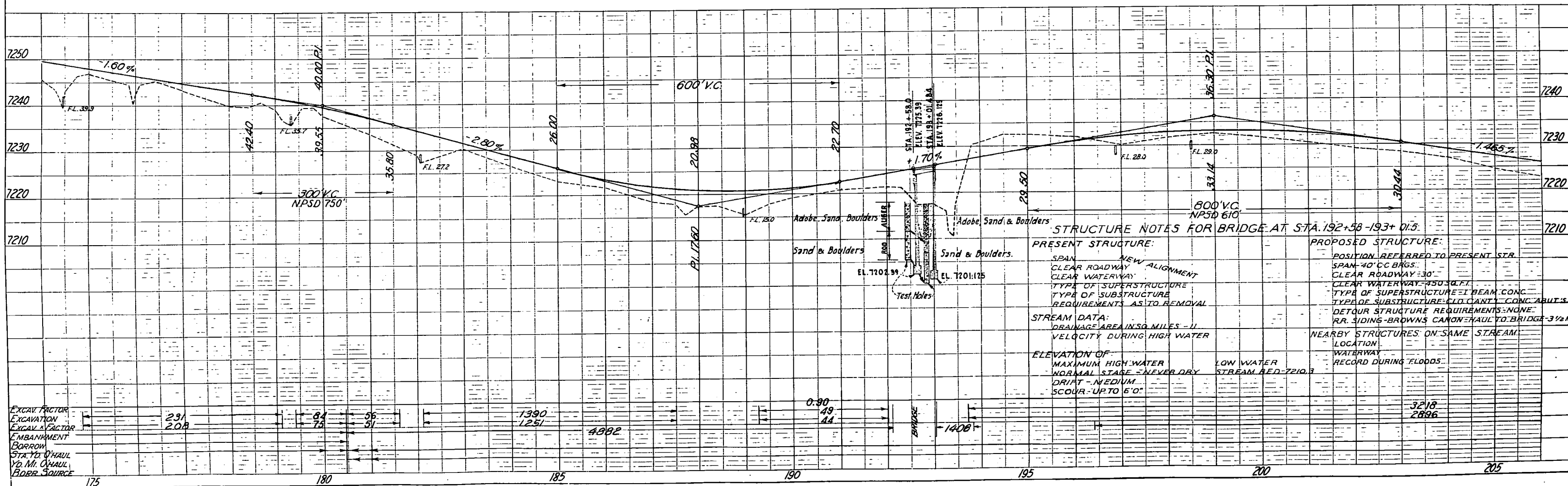
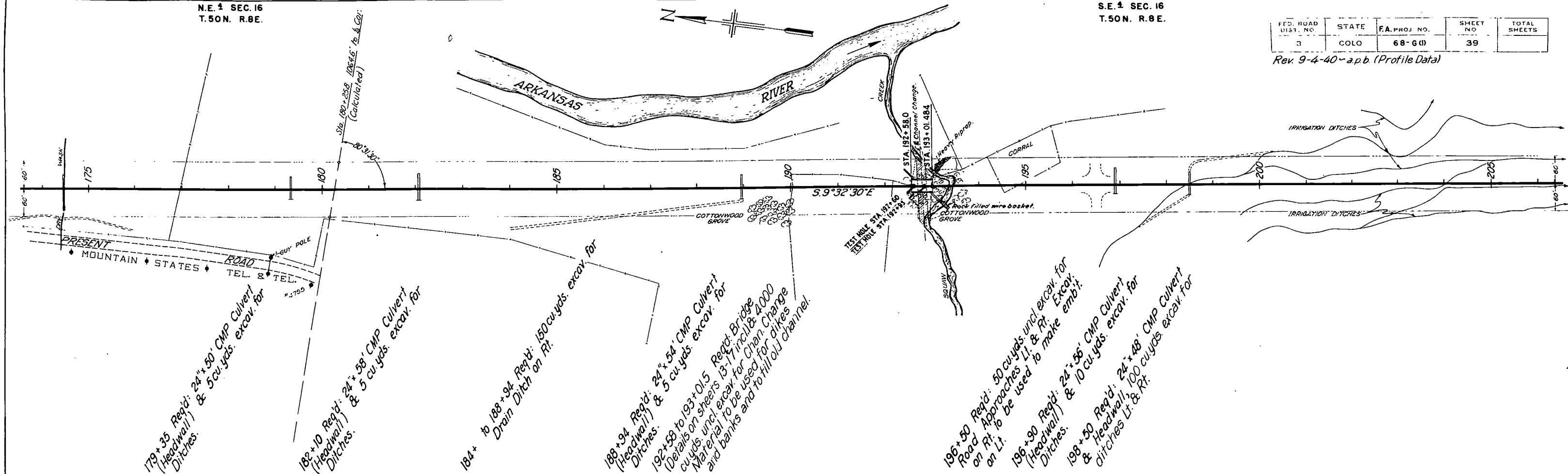
5739 + 0.90 = 6377 Cu. Yds. Borrow
Widen Ditches Sta. 158+ to 168+

N.E. 1 SEC. 16
T. 50N. R. 8E.

S.E. 1 SEC. 16
T. 50N. R. 8E.

FED. ROAD DIST. NO.	STATE	F.A. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	68-6(1)	39	

Rev. 9-4-40-a.p.b. (Profile Data)

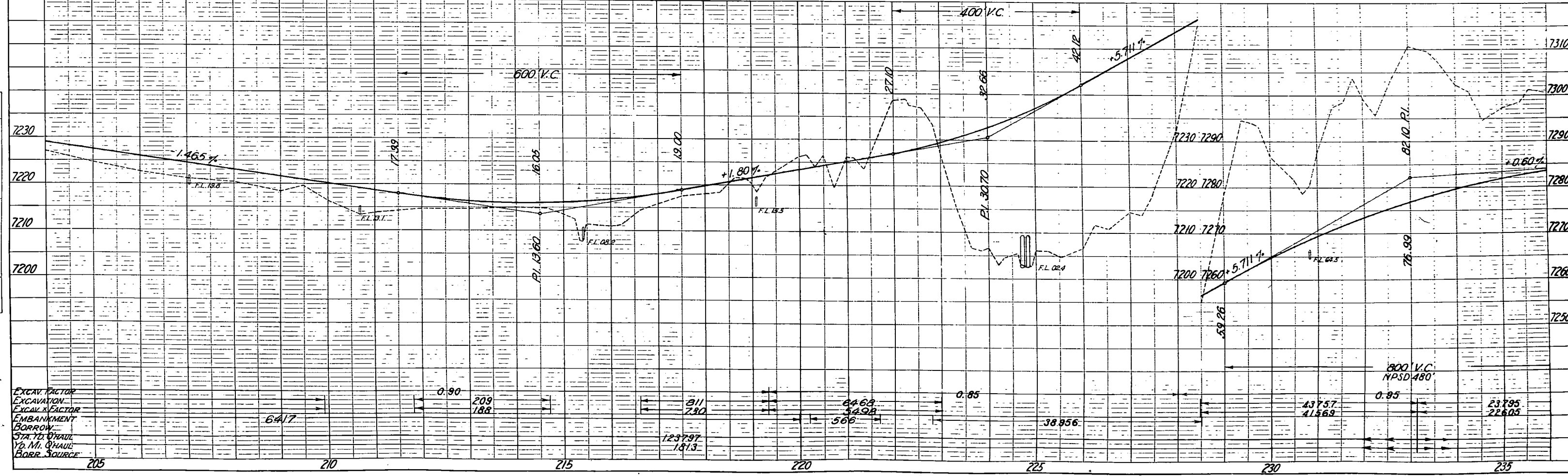
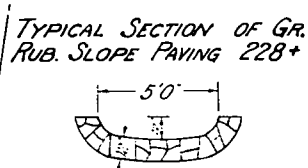
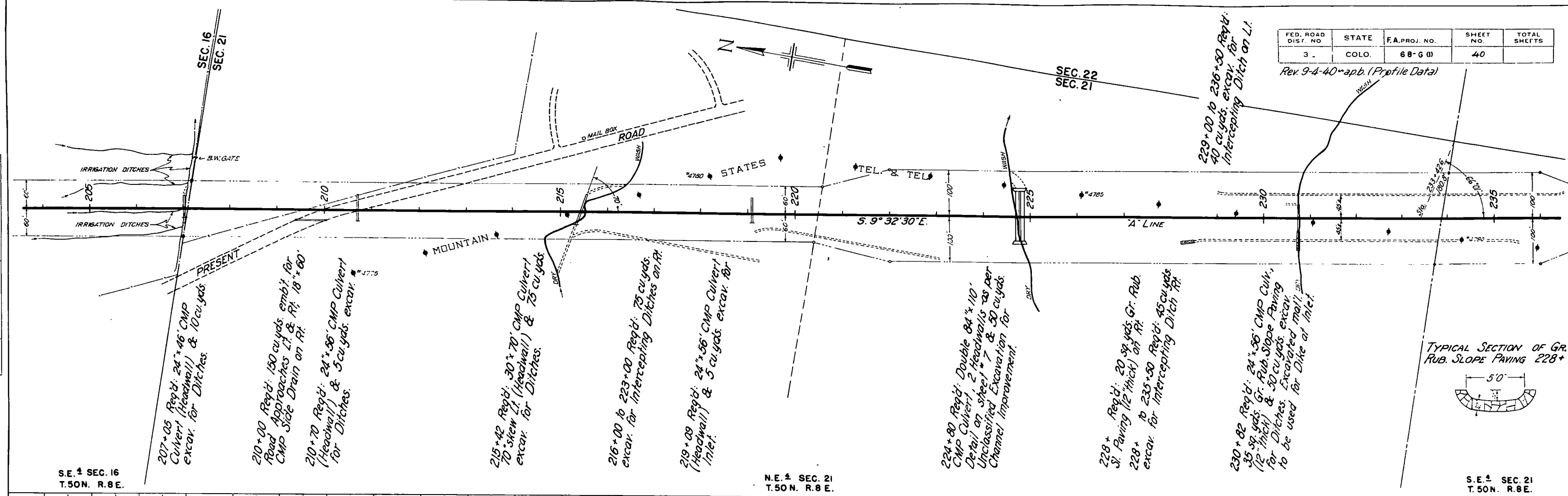


PLAN	SURVEYED	DATE
NOTE BOOK	PLotted	
NO.	BY	

PROFILE	SURVEYED	DATE
NOTE BOOK	PLotted	
NO.	BY	

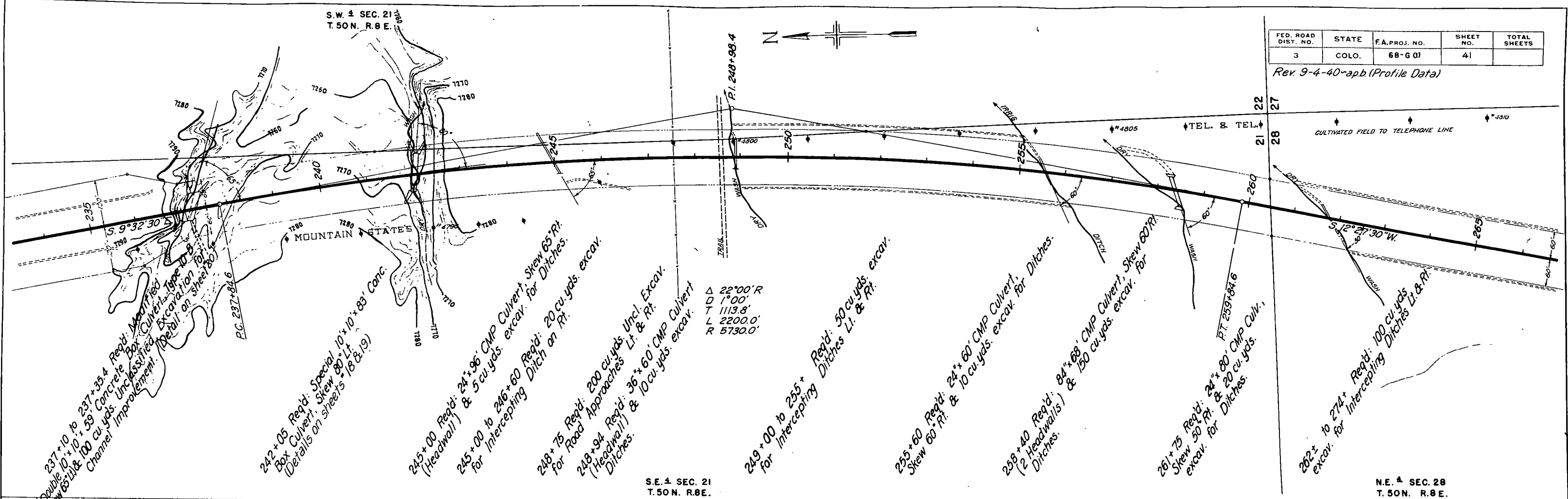
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3	COLO.	68-60	40	

Rev. 9-4-40 apb. (Profile Data)



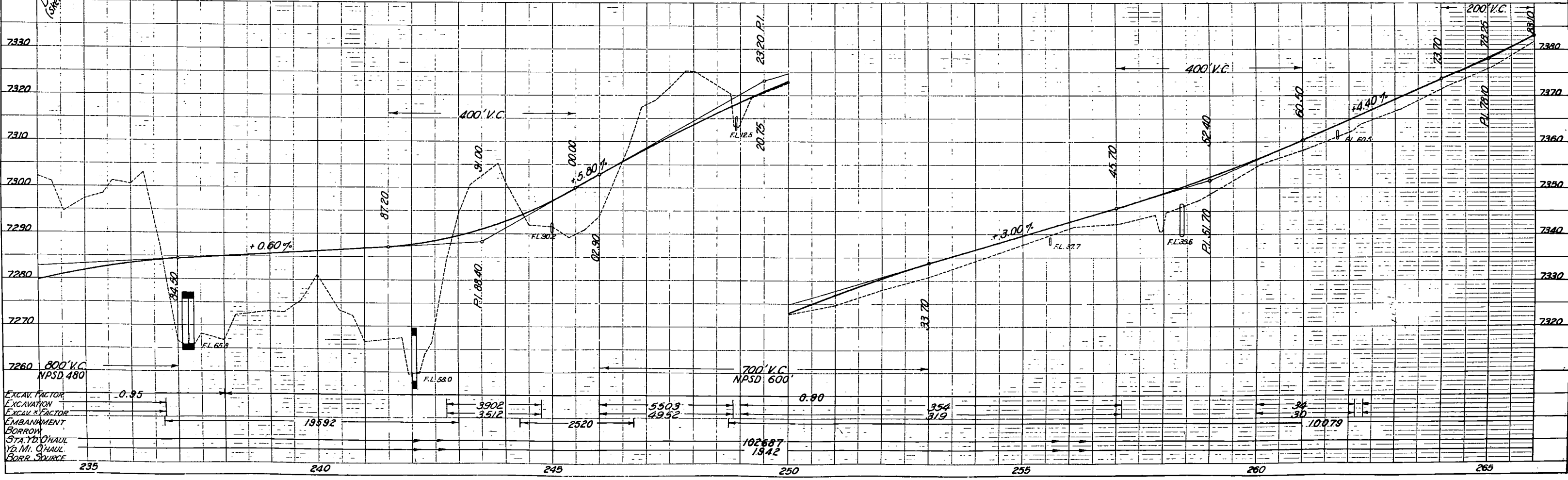
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SURVEYED	
NOTED	
NO.	

PROFILE	DATE
SURVEYED	
NOTED	
NO.	



FED. ROAD DIST. NO.	STATE	F.A. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	68-G 01	41	

Rev. 9-4-40-apb (Profile Data)



N.E. 1 SEC. 28
T. 50 N. R. 8 E.

DETAIL OF CHANNEL CHANGE, STA. 277+10



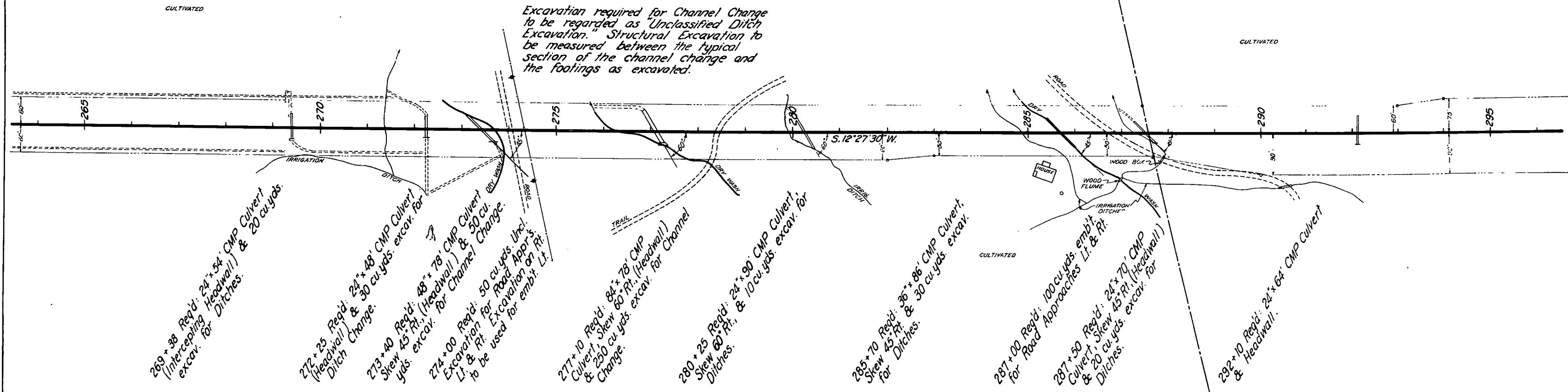
Excavation required for Channel Change to be regarded as "Unclassified Ditch Excavation." Structural Excavation to be measured between the typical section of the channel change and the footings as excavated.

S.E. 1 SEC. 28
T. 50 N. R. 8 E.

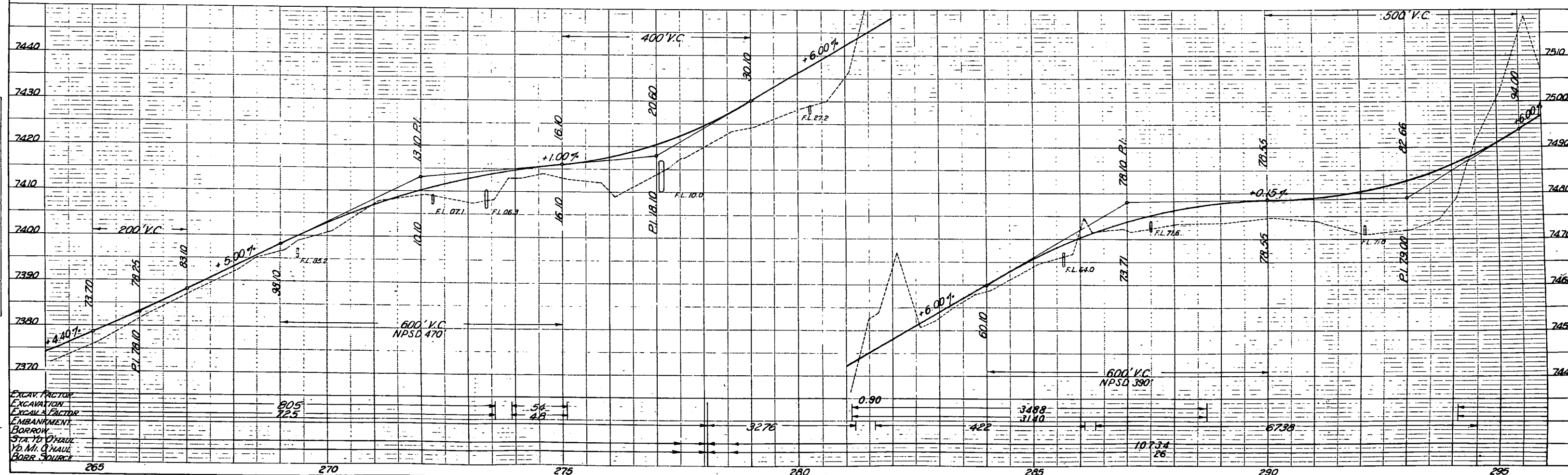
FED. ROAD DIST. NO.	STATE	F.A. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	68-G (1)	42	

Rev. 9-4-40 - app. (Profile Data)

PLAN	SURVEYED	BY	DATE
NOTE BOOK	PLOTTED		
NO.	ALIGNMENT CHECKED		
	RT. OF WAY CHECKED		



PROFILE	SURVEYED	BY	DATE
NOTE BOOK	PLOTTED		
NO.	GRADES CHECKED		
	B M 1 NOTED		
	STRUCTURE NOTATIONS CH'D		



PLAN
NOTE 1
NO.

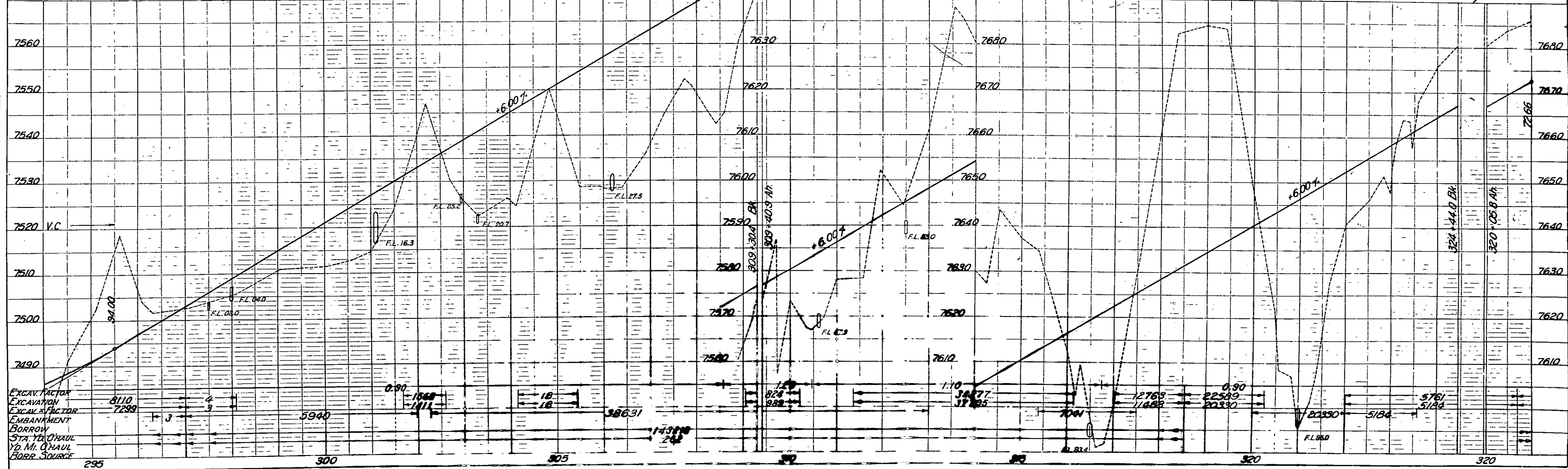
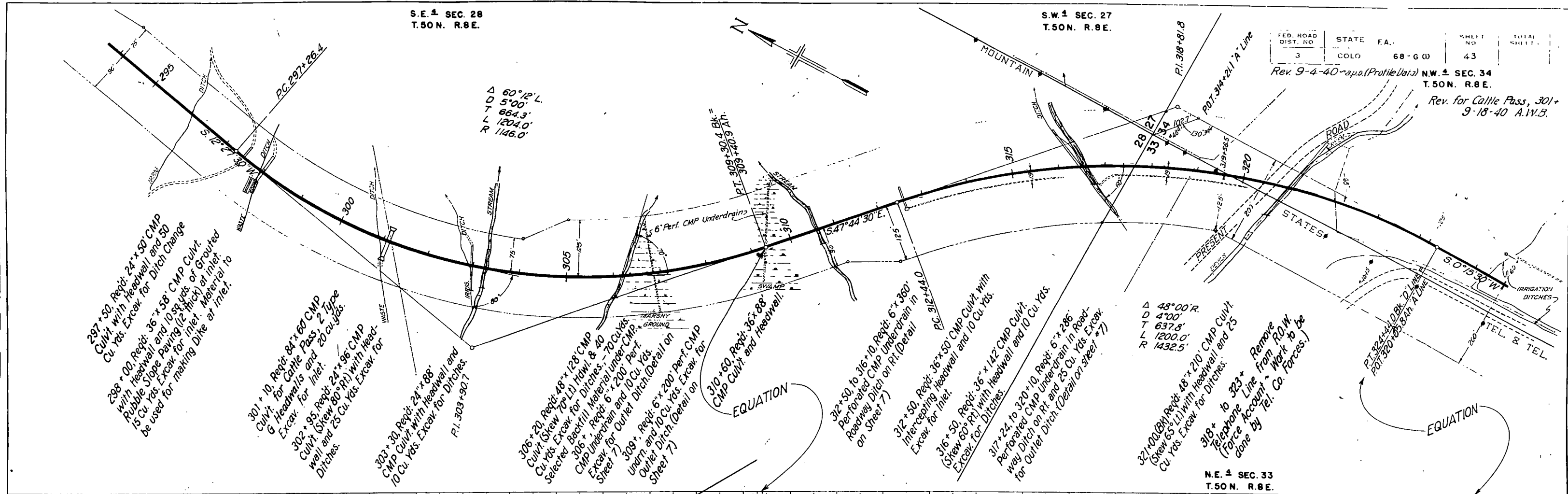
PROFILE
DATE
BY
NO.

EXCAV. FACTOR
EXCAVATION
EXCAV. FACTOR
EMBANKMENT
BORROW
STA. 100 CHAUL
100 MI. CHAUL
BORR. SOURCE

S.E. 1 SEC. 28
T.50N. R.8E.

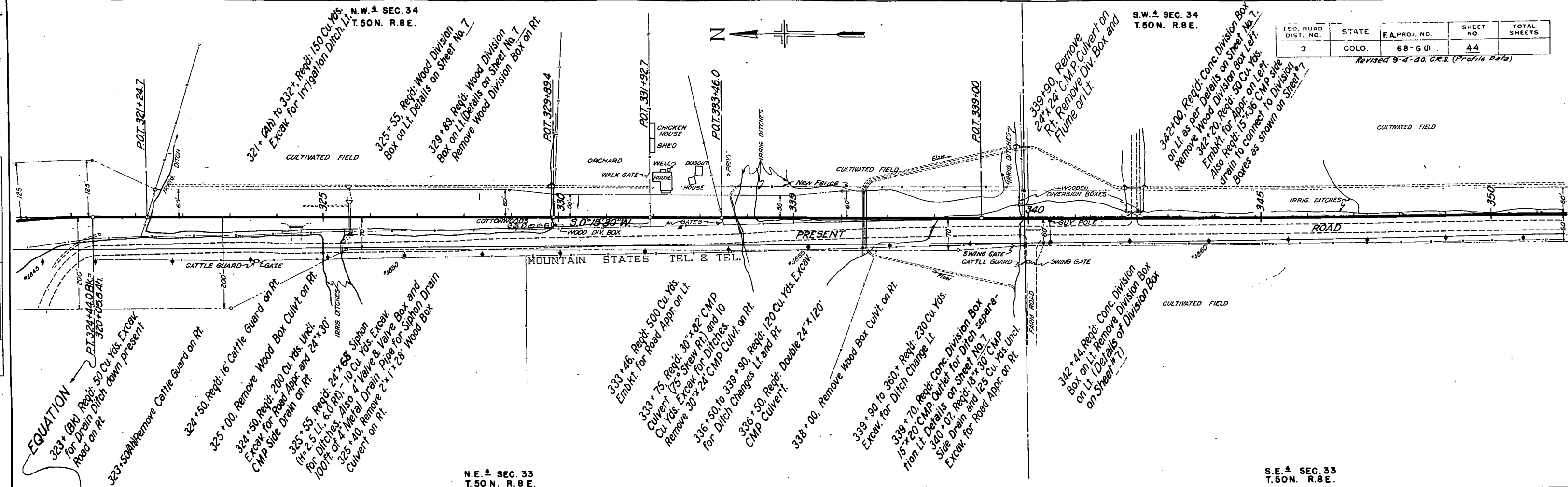
S.W. 1 SEC. 27
T.50N. R.8E.

FED. ROAD DIST. NO. 3
STATE COLO. F.A. 68-G (1)
SHEET NO. 43
TOTAL SHEETS
Rev. 9-4-40 (Profile) N.W. 1 SEC. 34
T.50N. R.8E.
Rev. for Cattle Pass, 301+
9-18-40 A.W.B.



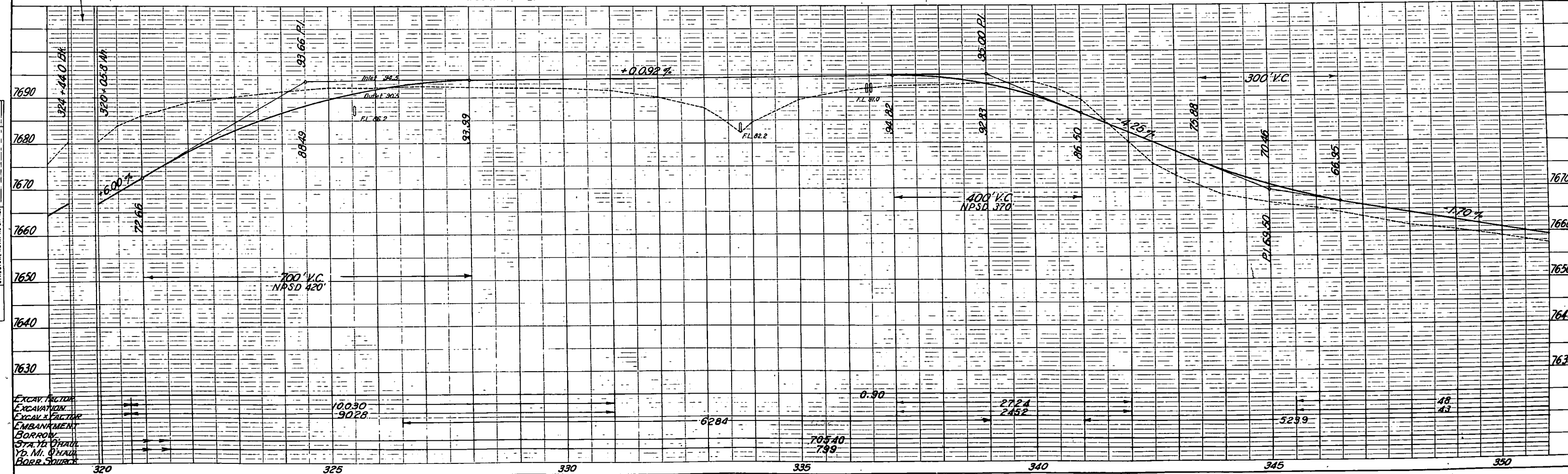
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SURVEYED	
PLOTTED	
NOTE BOOK	
ALPHABET CHECKED	
NO.	

PROFILE	DATE
SURVEYED	
PLOTTED	
NOTE BOOK	
GRADE CHECKED	
STRUCTURE NOTATIONS CH. NO.	



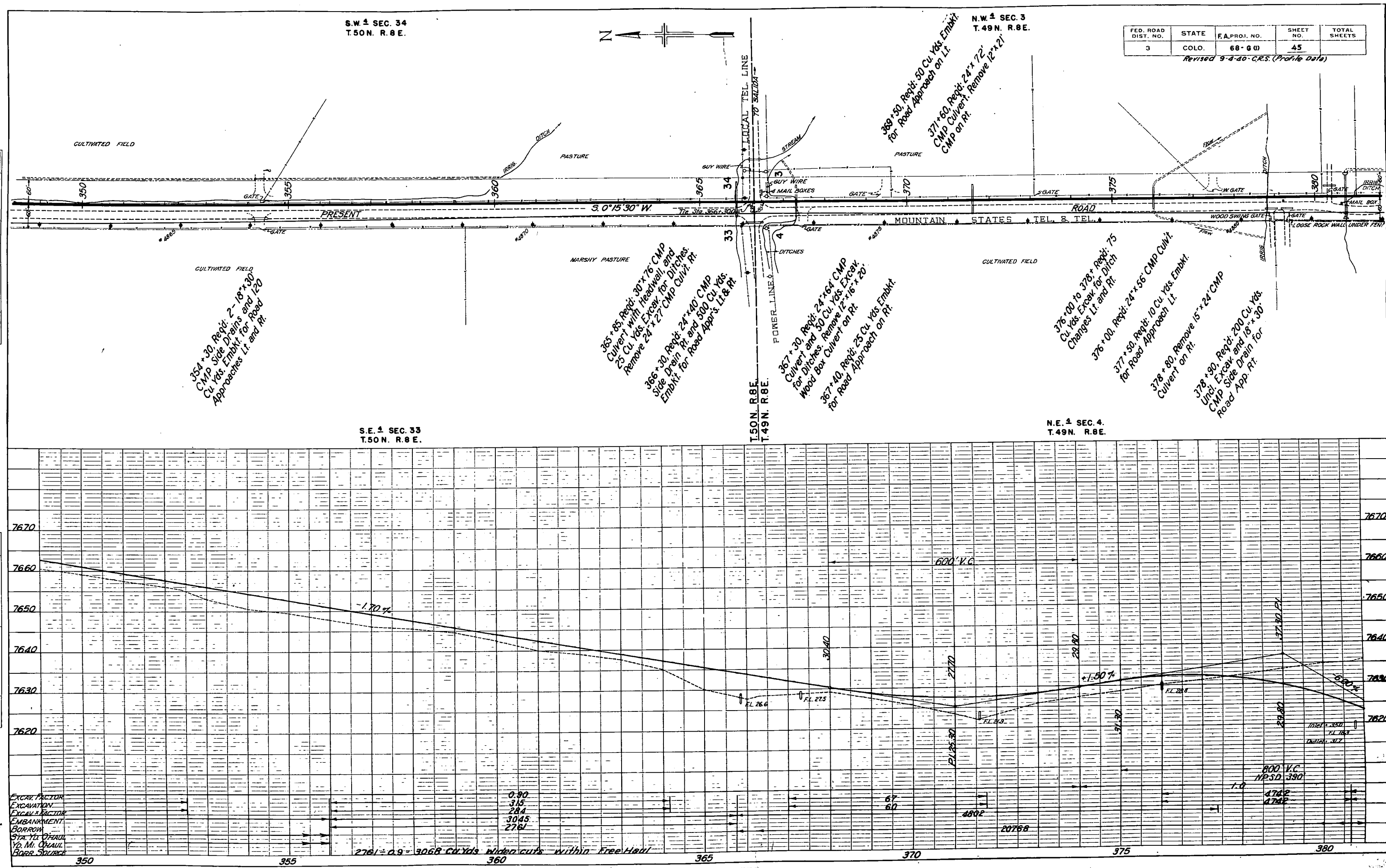
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3	COLO.	68-GU	44	

Revised 9-4-40, C.R.S. (Profile Data)



PLAN	SURVEYED	DATE
	PLOTTED	
	NOTE BOOK GRIDS CHECKED	
	RT. OF WAY CHECKED	
	NO.	

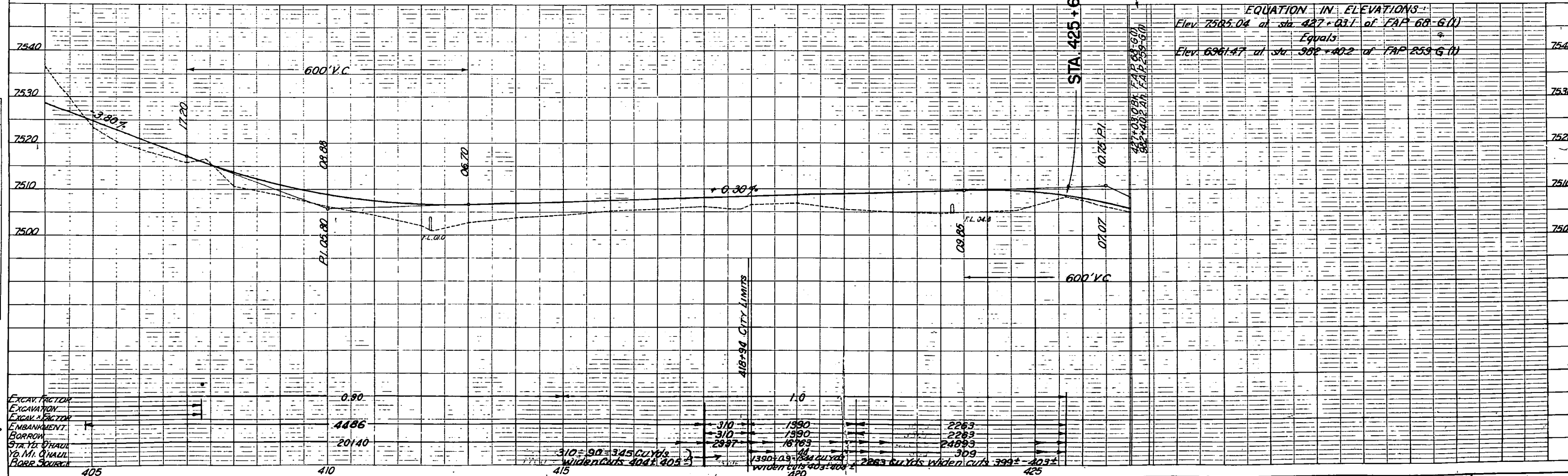
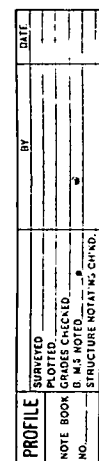
PROFILE	SURVEYED	DATE
	PLOTTED	
	NOTE BOOK GRIDS CHECKED	
	RT. OF WAY CHECKED	
	NO.	



FED. ROAD DIST. NO.	STATE	F.A. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	68-60	45	

Revised 9-4-40-C.R.S. (Profile Data)

Revised 9-4-40 C.I.S (Profile Data

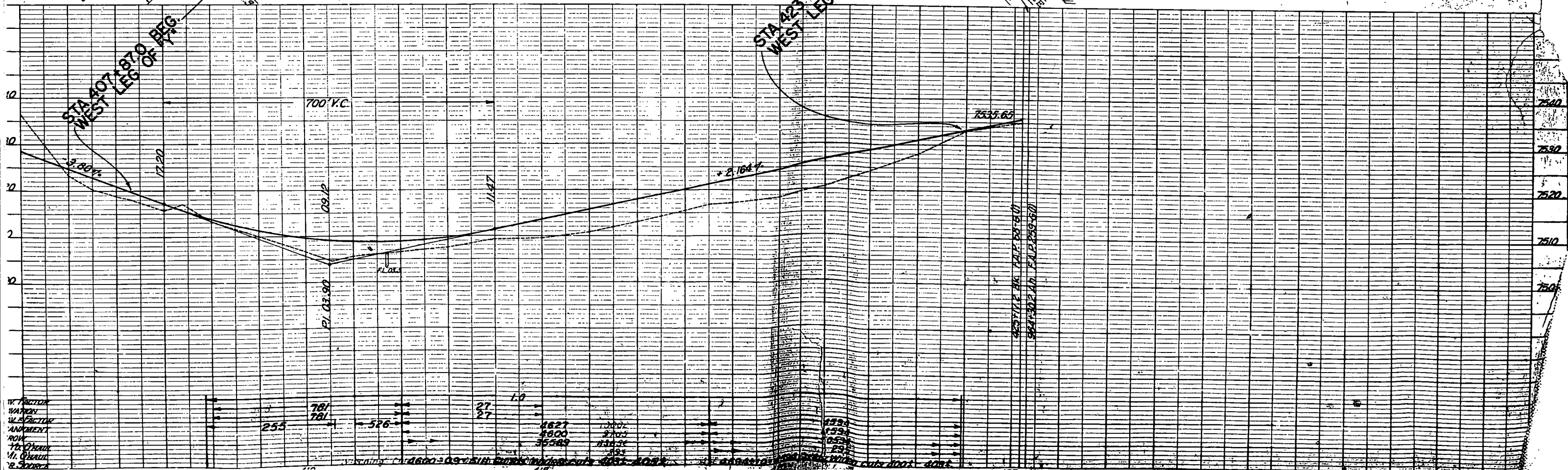
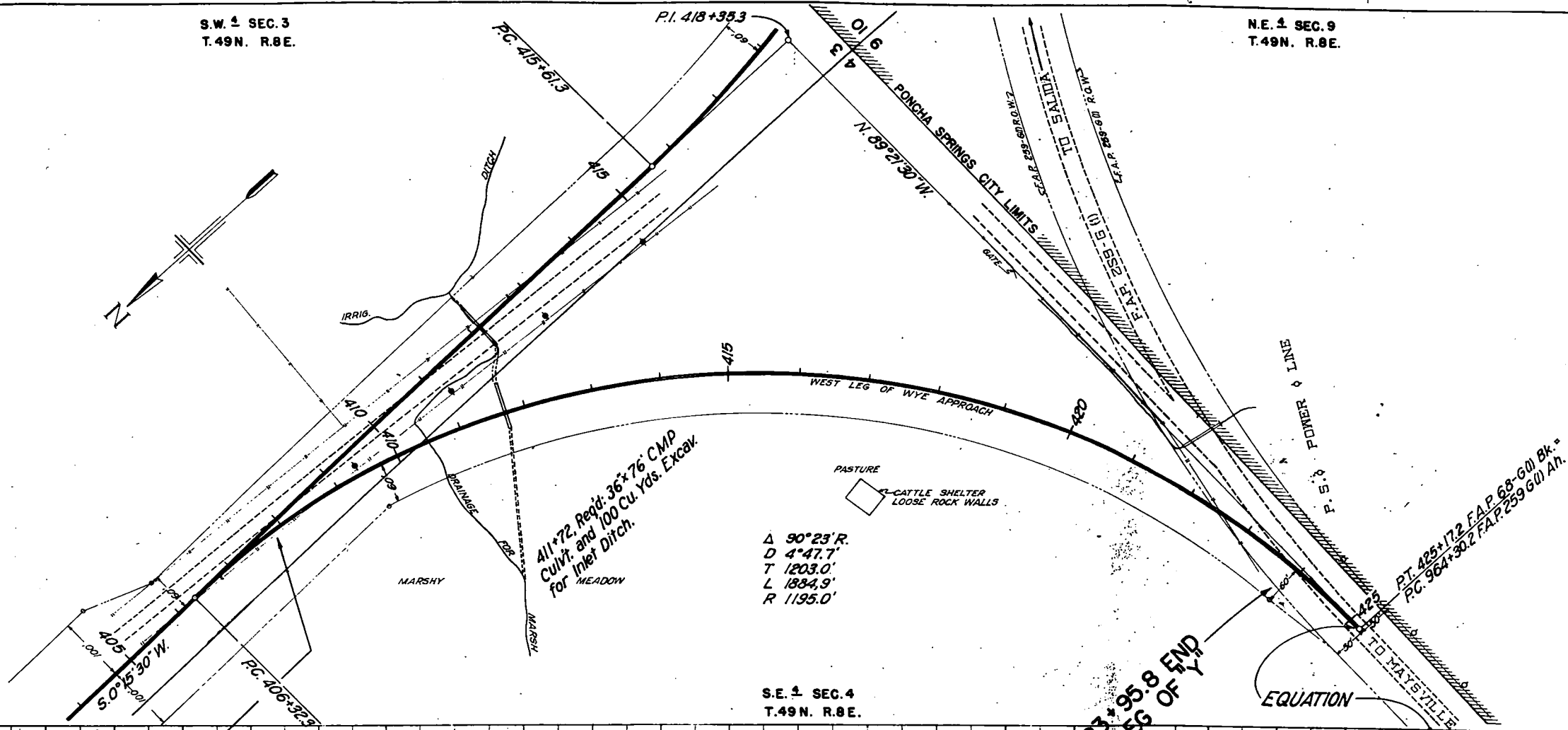


S.W. 1/4 SEC. 3
T.49N. R.8E.

N.E. 1/4 SEC. 9
T.49N. R.8E.

FED. ROAD DIST. NO.	STATE	F.A.P.R.
3	COLO.	68

Revised 9-4-40



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	68 G (I)	1	1

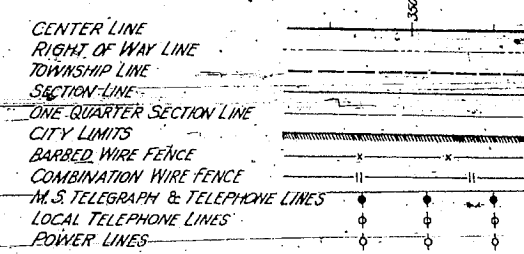
Revised 3-4-40 A.W.B.
Revised as Constructed 5-1-42 T.L.K.

INDEX OF SHEETS

SHEET NO. 1	TITLE SHEET.
2	TYPICAL SECTION, SUMMARY OF QUANTITIES & GENERAL NOTES.
3-6	LIST OF STRUCTURES, INTERCEPTING DITCHES, FENCING, GATES & GUARD POSTS.
7	SURFACING PLAN, HEADWALLS FOR DBL. 84" C.M.P. CULVERT, DETAILS OF DIVISION BOXES & C.M.P. UNDERDRAIN.
8	TRIPLE CONC. BOX CULVERT, STA. 28+ (MOD. STD.) M-11-A.
9-12	DETAIL OF BRIDGE, STA. 129+.
13-17	DETAIL OF BRIDGE, STA. 192+.
18-19	DETAIL OF SPECIAL CONC. BOX CULVERT, STA. 242+.
20	MODIFIED STANDARD DOUBLE CONCRETE BOX CULVERT.
21	" " CONCRETE BOX CULVERT.
22	" " " " " "
23	" " " " " "
24	STANDARD HEADWALLS FOR C.M.P. CULVERTS.
25	SIPHON CORR. GALV. IRON PIPE WITH CONCRETE INLET & OUTLET BOXES.
26	STANDARD CATTLE GUARD 16 FT. ROADWAY.
27	TIMBER GUARD POSTS.
28	WIRE FENCES (TREATED WOODEN POSTS).
29	STRUCTURE NUMBER LETTERING.
30	STRUCTURE YEAR NUMBER MARKING.
31	METHODS FOR SUPERELEVATION AND WIDENING OF CURVES.
32	TYPICAL SIDE APPROACH ROADS - ROADWAY CONSTRUCTION.
33-48	TRAFFIC SIGNS.
49-158	STANDARD MARKER POST.
	PLAN & PROFILE SHEETS.
	CROSS SECTION SHEETS.

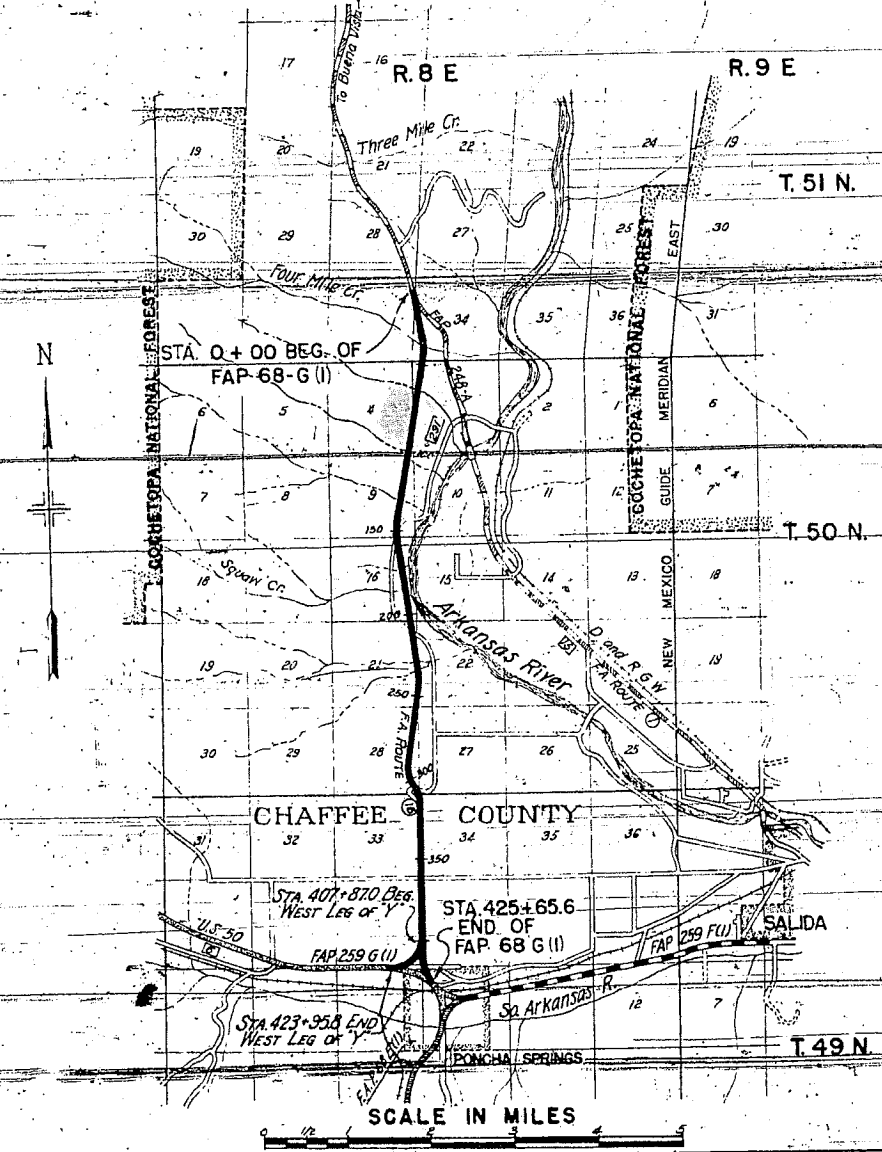
COLORADO STATE HIGHWAY DEPARTMENT PLAN AND PROFILE OF PROPOSED FEDERAL AID PROJECT NO. 68-G (I) STATE HIGHWAY NO. 291 CHAFFEE COUNTY AS CONSTRUCTED

CONVENTIONAL SIGNS



SCALE OF ORIGINAL TRACINGS
ON PLAN, 1" = 100 FT.
ON PROFILE 1" = 100 FT. HORIZONTAL
1" = 10' FT. VERTICAL
GRADE LINE ON PROFILE IS SHOWN AS GRADE OF FINISHED ROAD
GROSS AND NET LENGTH OF PROJECT EXCLUDING APPROACH 42,986.2 FT. = 8.143 MILES
GROSS AND NET LENGTH OF APPROACH (WEST LEG OF WYE) 1,608.8 FT. = 0.305 MILES
GROSS AND NET LENGTH OF PROJECT INCLUDING APPROACH 44,595.0 FT. = 8.447 MILES

NOTE
Bidders on this Project went over the plan details with one of the following field representatives of this department.
W.A. Whitney Division Engineer, Salida, Colo.
H.N. Johnson Resident Engineer, Salida, Colo.



RECOMMENDED FOR APPROVAL

[Signature]
ASSISTANT ENGINEER
7-27-40

APPROVED

[Signature]
STATE HIGHWAY ENGINEER

RECOMMENDED FOR APPROVAL

DISTRICT ENGINEER
PUBLIC ROADS ADMINISTRATION
FEDERAL WORKS AGENCY

RECOMMENDED FOR APPROVAL

CHIEF, WESTERN REGION
PUBLIC ROADS ADMINISTRATION
FEDERAL WORKS AGENCY

APPROVED

COMMISSIONER
PUBLIC ROADS ADMINISTRATION
FEDERAL WORKS AGENCY

RIGHT OF WAY MARKERS

Station	Left	Right	Station	Left	Right
46+50	60'-1		293+00	60'-1	
46+73	60'-1		294+00	75'-1	
67+36	60'-1		304+00	75'-1	
72+98	60'-1		305+00	125'-1	
73+21	60'-1		311+00		90'-1
73+53	60'-1		312+00	125'-1	
74+50	80'-1		316+94	125'-1	
74+74	80'-1		317+06	125'-1	
85+50	80'-1		318+20	125'-1	
86+48	60'-1		319+56.5	125'-1	
86+71	60'-1		324+44.5	125'-1	
99+98	60'-1		320+05.8	125'-1	
100+21	60'-1		321+43	60'-1	
109+00	60'-1		323+00		200'-1
110+00	70'-1		325+50		70'-1
127+21	60'-1		329+00	60'-1	
127+46	70'-1		330+00	50'-1	
154+57	70'-1		335+00	50'-1	
169+17	70'-1		336+00	60'-1	
170+50	60'-1		338+50	70'-1	
180+16	60'-1		339+86	60'-1	60'-1
180+36	60'-1		366+02.3	60'-1	60'-1
206+94	60'-1		392+47	60'-1	60'-1
207+15	60'-1		399+00	60'-1	60'-1
220+36	60'-1		400+00	100'-1	100'-1
220+57	60'-1		405+00	100'-1	
222+00	100'-1	100'-1	406+00	60'-1	
233+75	100'-1	100'-1	418+94	60'-1	
234+09	100'-1		0+00	60'-1	60'-1
236+00	100'-1	100'-1	8+39	60'-1	
237+00	60'-1	60'-1	13+06		60'-1
241+27	60'-1		19+72		60'-1
253+16	60'-1		29+24.7	60'-1	
260+43	60'-1		36+65.5	105'-1	
260+70	60'-1		INSIDE CITY LIMITS		
282+00	60'-1		425+65.6	60'-1	
283+00	50'-1		WEST LEG OF 'Y'		
287+58	60'-1		409+50.8	60'-1	
287+80.7	50'-1		423+95.2	60'-1	
290+00	90'-1				2

TOTALS
OUTSIDE CITY LIMITS 85
INSIDE CITY LIMITS 1
"Y" CONNECTION 2
PROJECT TOTALS 88

LIST OF STRUCTURES

(CONTINUED FROM SHEET NO.3)

Revised as Constructed 5-28-42 T.L.K.

REV. 9-4-40-H.R.H.
REV. 11-1-40-H.R.H.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	68-G(1)	4	

CONTINUED FROM SHEET NO. 3																							
LOCATION	DESCRIPTION	REMOVE STRUCT. NO. KIND	EXCAVATION		STRUCT. EXCAV.		GRAV. SURF. TONS	CONCRETE		REINF. STEEL LBS.	CORR. METAL CULVERT PIPE								SIPHON PIPE LIN. FT.	GR. RUB. Sq. Yds.	6" PERF. CMP UNDER LIN. FT.	EMB'T.	MISCELLANEOUS
			CU. YDS. UNCL. DITCH	CU. YDS. UNCL. EXCAV.	CU. YDS. DRY WET COM. COM.	CL. A		CL. B	15		18	24	30	36	48	84							
49+45 59+91 127+88 40+65	Road Approach Lt. Road Approach Lt. Road Approach Lt. Road Approach on Lt.			6.6 2.9 48.1			8.6 14.5 10.0 9.5									106.8 24	12		2.6 19.1 40.0 157.6				
40+50 41+54	Road Approach on Rt. C.M.P. Cross Culvert			19.8		7.1	14.8							86					112.8				
44+23 46+36 130+50 134+88	6'x7'x57" Concrete Box Culv. & Ditches C.M.P. Cross Culvert (Sk. 70' Lt.), Ditches Dike Lt. C.M.P. under ditch Lt.			213.3 45.5	1868 163		85.42		7345					56						Mech. Tamping 97 Hrs.			
52+83 58+15 59+88	C.M.P. Cross Culv. with I-Hdwl. & Ditches Type 81- 8'x8'x40' C.B.C. (Sk. 80' Lt.) (Modif.) Chan. Change Road Approach on Rt.		1.3	1000.2	1620		101.62		1.65 9250					14 64					8.9	Mech. Tamping 84 Hrs.			
65+95 69+50 73+08 76+75 71+92	C.M.P. Cross Culvert with I-Hdwl. C.M.P. Cross Culv. with I-Hdwl. & Ditches C.M.P. Cross Culv. with I-Hdwl. (Sk. 67' Lt.) Ditches C.M.P. Cross Culv. with I-Hdwl. & Ditches Road Approaches Rt. and Lt.			8.7 28.6 633 11.1			3.00 1.65 5.00 1.65						64										
74+35 79+45	C.M.P. Cross Culv. Dike & Conn. Band C.M.P. Cross Culv. with Intercept. Hdwl. and Gr. Rubble Slope Paving & Ditches.			9.2 30.5 22.9			18.2		2.00					80 54				23.1 48.8	*1-24" Connecting Band				
84+60 84+60	Gr. Rubble Slope & Ditch Paving C.M.P. Cross Culv. Intercept. Hdwl. & Inlet			10.6 17.9			2.00							54									
137+56 140+63 90+35	C.M.P. under ditch Lt. C.M.P. under ditch Lt. C.M.P. Cross Culv. with Hdwl. (Sk. 80' Lt.) Inlet			3.8 0.2			7.00		3.22					24					(36"x24" Salvaged C.M.P.)				
92+50 98+00	C.M.P. Cross Culvert and Ditches Road Apprs. Lt. & Rt. Side Drain on Rt.		6.2	9.1 4.7			28.7					30		58					59.4				
98+00 99+35 175+90 108+25 176+07	Cattle Guard on Lt. C.M.P. Cross Culv. with I-Hdwl. (Sk. 53' Lt.) C.M.P. Cross Culvert with I-Hdwl. 10'x10'x37' C.B.C. & Channel Improvement Road Approach Rt.			12.6 22.1 227.6 43.8			132.2		1.65 1.65 11799					76 56					95.6				
111+60 116+00 120+48 124+57 124+67.5	C.M.P. Cross Culvert, Ditches & Dike Rt. C.M.P. Cross Culvert, Ditches & Dike Rt. C.M.P. Cross Culvert, Inlet & Dike Rt. Road Approach on Rt. C.M.P. Cross Culv. with I-Hdwl. (Sk. 48' Lt.)			14.7 12.6 4.6 9.1	17.3 20.0 6.6		9.1		1.65					58 52 58 92				27.8 25.0 16.5 124.3					
129+00 to 129+54 134+10 134+55 to 141+95	Bridge C.M.P. Cross Culvert, I-Hdwl. & Dike Rt. Raised Irrigation Ditch on Lt.			17.0		(See Summary of Quantities)			1.65					68					27.5				
136+10 137+50	C.M.P. Cross Culv. I-Hdwl. Dike & Outlet C.M.P. Cross Culv. I-Hdwl. Dike & Ditches		58.6 10.5 7.3	24.8 22.5					1.65 2.25					74 52					1559.3 37.4 30.3				
136+04 139+62 140+63 141+00 141+35	C.M.P. Culv. under Raised Ditch on Lt. C.M.P. Cross Culv. with I-Hdwl. & Ditch C.M.P. Cross Culv. with I-Hdwl. & Ditch Road Appr. & Side Drain on Lt. Removed 15"x32" C.M.P. on Lt.		2.8 2.8	7.6 17.6 8.6 2.2			14.6		1.65 1.65				24 114 74						*1-24" Connecting Band				
141+22 149+00 177+00	Road Appr. on Rt. Removed 3-Sheds & Filled Old Well Rt. Road Approach Lt.	1-Culv.				9.0													67.6 10.6	Removed 3-Sheds			
189+30 151+00 151+20 156+50 154+75 156+66 194+09	Road Approach & Side Drain Rt. Type 81- 8'x6'x56" Conc. Box Culv. (Modif.) Removed 48"x20" C.M.P. on Lt. C.M.P. Cross Culv. I-Hdwl. & Dike Rt. Road Approach on Rt. Removed 18"x20" C.M.P. on Lt. Road Approach & Side Drain Rt.			7.6 2.6 1173 8.5		10.2 9.6	101.38		9287			30							20.8 62.8	Mech. Tamping 90 Hrs.			
167+27 171+00 174+46 179+29 182+70	Road Appr. & Side Drain on Lt. C.M.P. Cross Culv. with Hdwl. (Sk. 80' Lt.) Ditches C.M.P. Cross Culvert with I-Hdwl. C.M.P. Cross Culv. with I-Hdwl. C.M.P. Cross Culv. with I-Hdwl. & Dike Rt.	1-Culv.		96.5		15.2			1.65				72						38.0 54.5	(Salvaged C.M.P.)			
211+17 188+94	Road Approach Lt. C.M.P. Cross Culv. with I-Hdwl. & Conn. Band					20.0						30							38.4				
261+15 to 272+36 192+58 to 193+01.5 196+50 196+90	Irrigation Ditch Lt. Bridge and Channel Change Road Approach on Lt. C.M.P. Cross Culv. with I-Hdwl. & Ditch			1.5 10.2										64 64					15.1 104.8	*1-24" Connecting Band			
SHEET TOTALS		3	551.5	2355.3	1347.6	280.7	430.62	45.00	38023	120	1601	110	192	82	84	5396		3588.8					

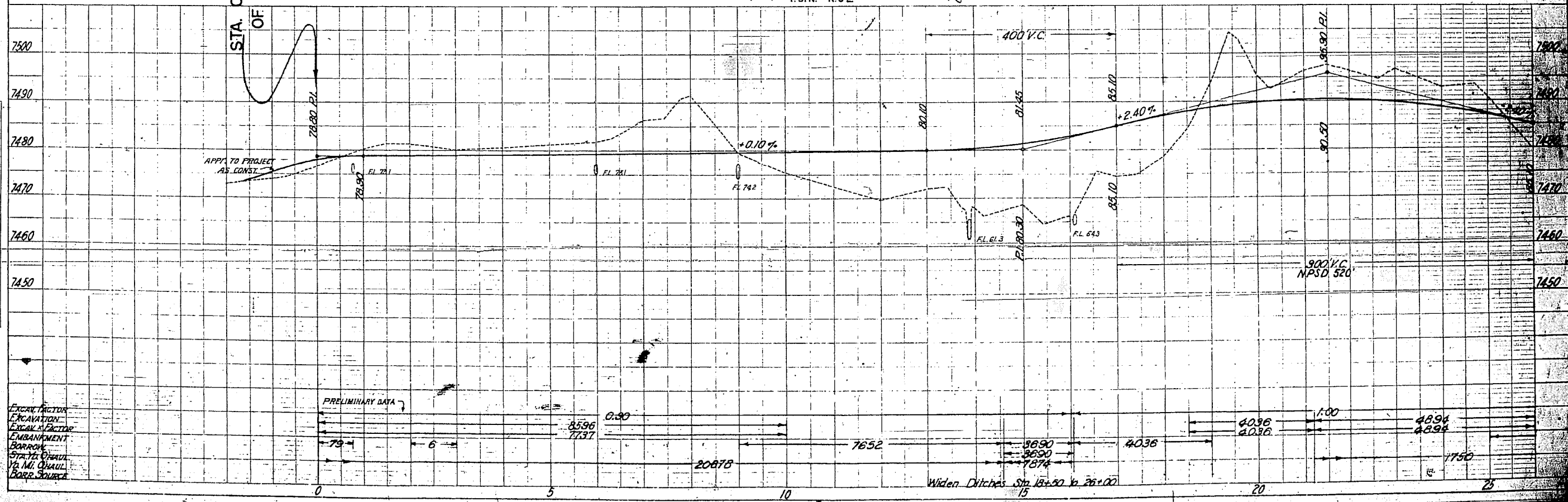
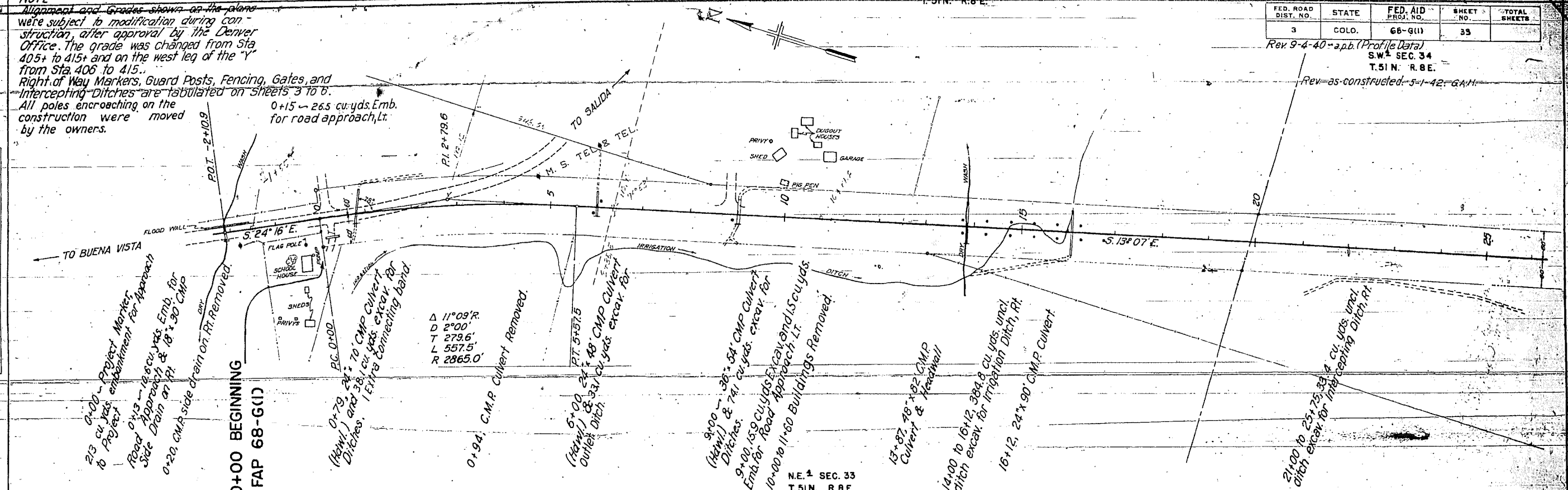
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(CONTINUED ON SHEET NO.5)

~~Rev as constructed 5-1-42 GAH~~

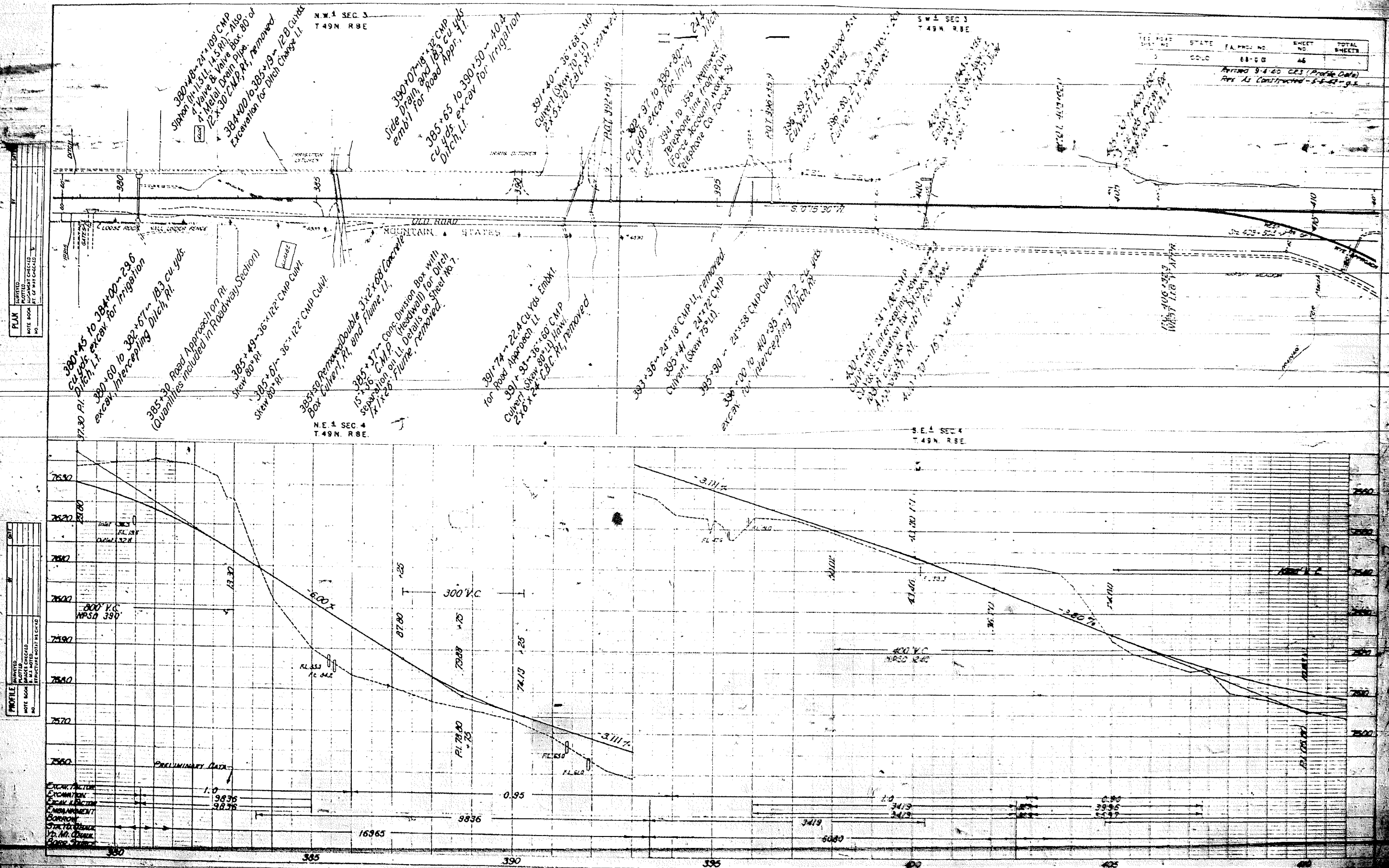
NOTE
Alignment and Grades shown on the plans were subject to modification during construction, after approval by the Denver Office. The grade was changed from Sta 405+ to 415+ and on the west leg of the "Y" from Sta. 406 to 415.
Right-of-Way Markers, Guard Posts, Fencing, Gates, and Intercepting Ditches are tabulated on sheets 3 to 6.
All poles encroaching on the construction were moved by the owners.

NO.	NOTE BOOK	STARTED	PLOTTED	ALIGNMENT CHECKED	PT. OF WAY COMPLETED

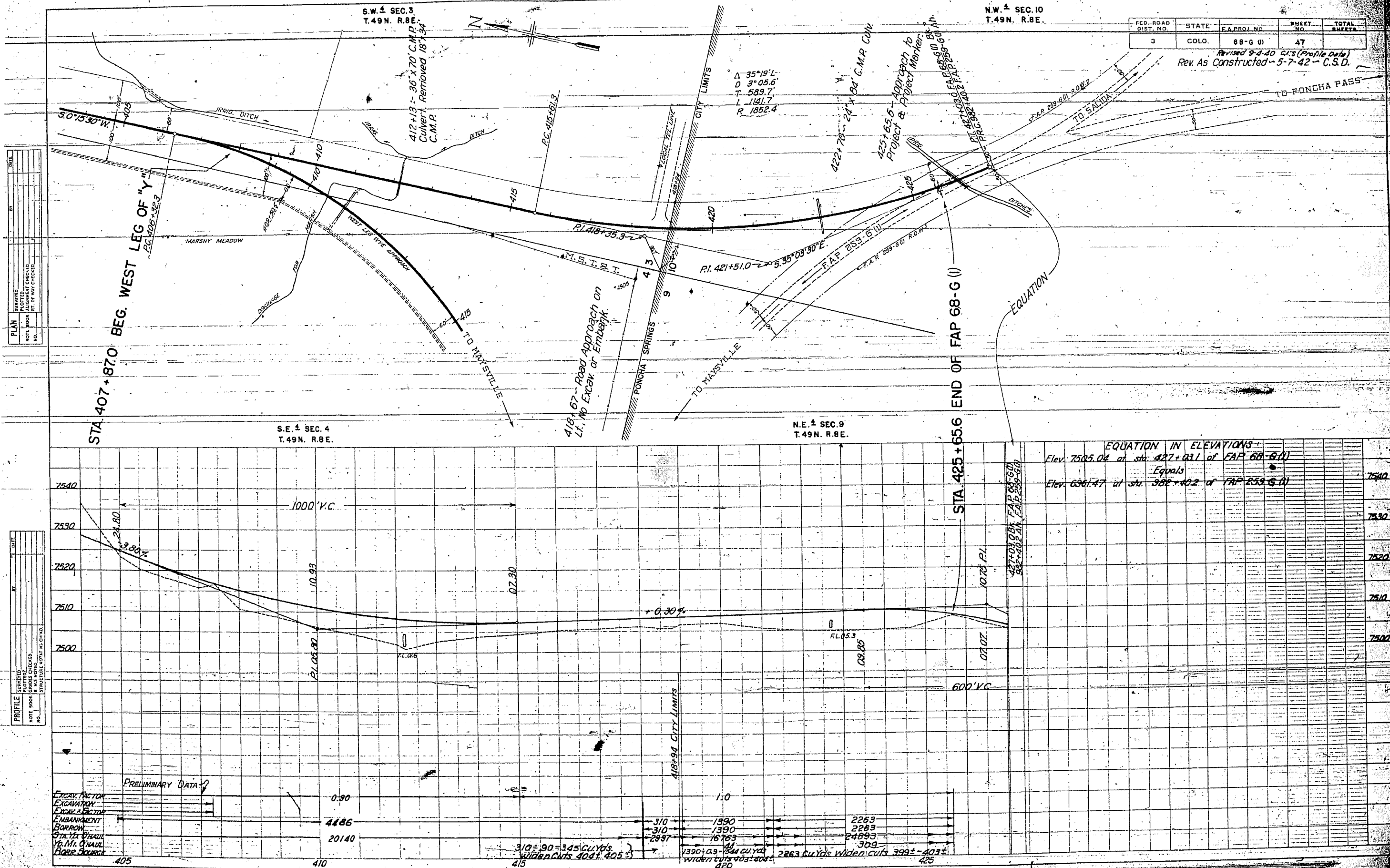


EXCAV. FACTOR
EXCAVATION
EXCAV. FACTOR
EMBANKMENT
BORROW
STA. 1/2 CHAUL
1/2 MI. CHAUL
BORR. SOURCE

PLAT: - I L A N - P R E F I L E O. P. M. & D. E. STANDARD



PROFILE	BY	DATE
SURVEILED		
PLOTTED		
NOTE BOOK		
GAIDIES CHECKED		
B. M. NOTED		
NO		
EXT. MAPS LOCATED BY CAMPERS		



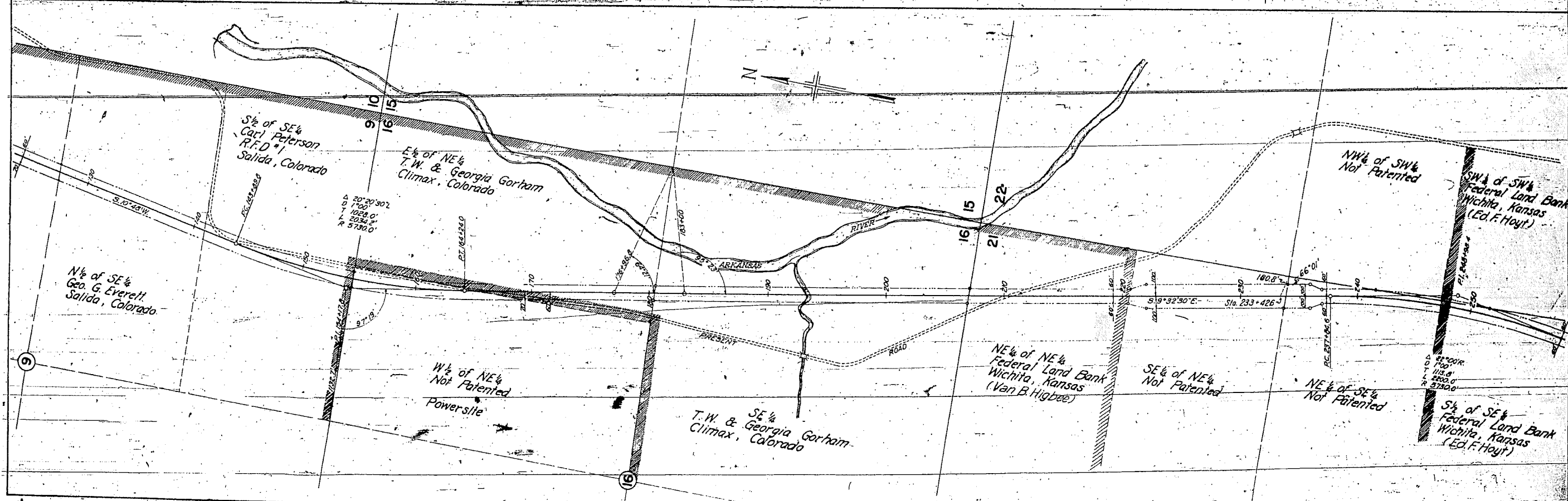
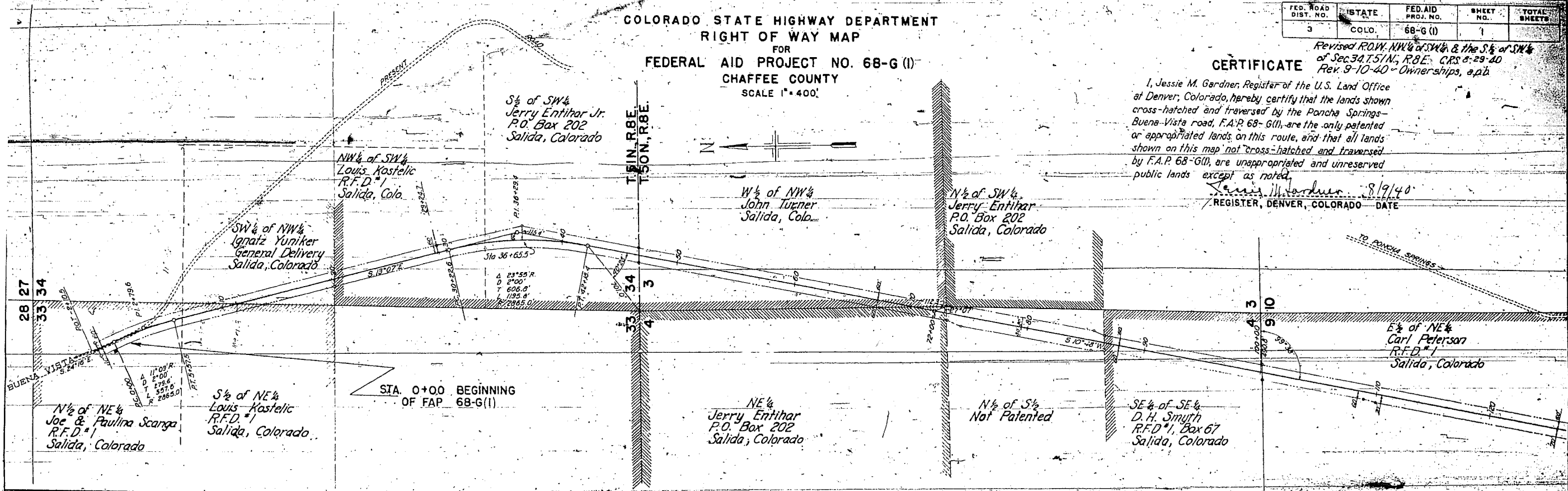
COLORADO STATE HIGHWAY DEPARTMENT
RIGHT OF WAY MAP
FOR
FEDERAL AID PROJECT NO. 68-G (I)
CHAFFEE COUNTY
SCALE 1"=400'

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	68-G (I)	1	

CERTIFICATE

I, Jessie M. Gardner, Register of the U.S. Land Office at Denver, Colorado, hereby certify that the lands shown cross-hatched and traversed by the Poncha Springs-Buena-Vista road, F.A.P. 68-G (I), are the only patented or appropriated lands on this route, and that all lands shown on this map not cross-hatched and traversed by F.A.P. 68-G (I), are unappropriated and unreserved public lands except as noted.

Jessie M. Gardner 8/9/40
REGISTER, DENVER, COLORADO DATE



COLORADO STATE HIGHWAY DEPARTMENT
RIGHT OF WAY MAP

FOR
FEDERAL AID PROJECT NO. 68-G (I)
CHAFFEE COUNTY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
3	COLO.	68-G (I)	2

Revised Owner 9-10-40-CRS

3/4 of NW 1/4 + 11.0 Acres in NW 1/4 of NW 1/4 Mary Predovitch Salida, Colorado

SW 1/4 Mary Predovitch R.F.D. #1, Box 36 Salida, Colorado

W 1/2 of NW 1/4 Gill Post Salida, Star Route Salida, Colorado

SCALE 1" = 400'

NW 1/4 of NW 1/4 Fred Post 11.0 Acres

NE 1/4 Mary J. Spence R.F.D. #1 Box 38 Salida, Colorado

SE 1/4 Albert & Elen Anderson R.F.D. #1 Salida, Colorado

N 1/2 of NE 1/4 Gill Post Salida Star Route Salida, Colorado

S 1/2 of NE 1/4 Lester & Lucile Oldfield Pancha Springs Colorado [except Co. Tract]

N 1/2 of NE 1/4 Federal Land Bank Wichita, Kansas (Ed. F. Hoyt)

SE 1/4 of NE 1/4 Mearl P. Brown R.F.D. #1, Box 58

SE 1/4 Willis A. Brown Salida, Colorado



SW 1/4 Mrs. Edward O'Hara R.F.D. #1, Box 34 Salida, Colorado

NW 1/4 of NW 1/4 Poncha Hot Springs Co. 450 Equitable Bldg. Denver, Colorado

STA. 425+65.6
END F.A.P. 68-G (I)

NE 1/4 of NE 1/4 Poncha Hot Springs Co. 450 Equitable Bldg. Denver, Colorado

STA. 423+95.8
END WEST LEG WYE

STA. 407+87.0
BEGIN WEST LEG WYE

SE 1/4 Ines L. Saunders 1837 Pine St. Boulder, Colorado

PT. 423+172 BK. E.A.P. 68-G (I)
PC. 984+188 AN. E.A.P. 68-G (I)

MAYSVILLE

TO PONCHA PASS

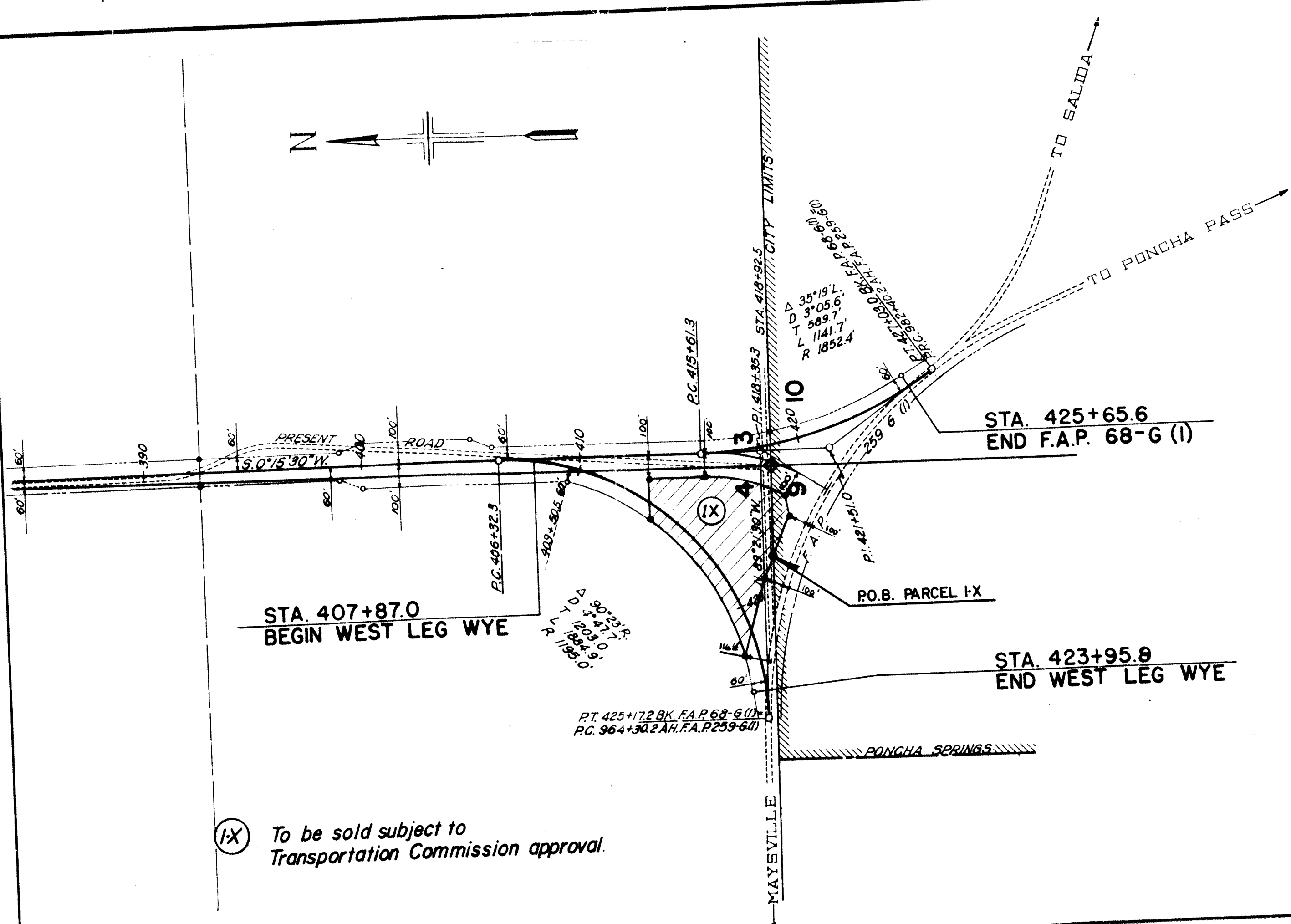
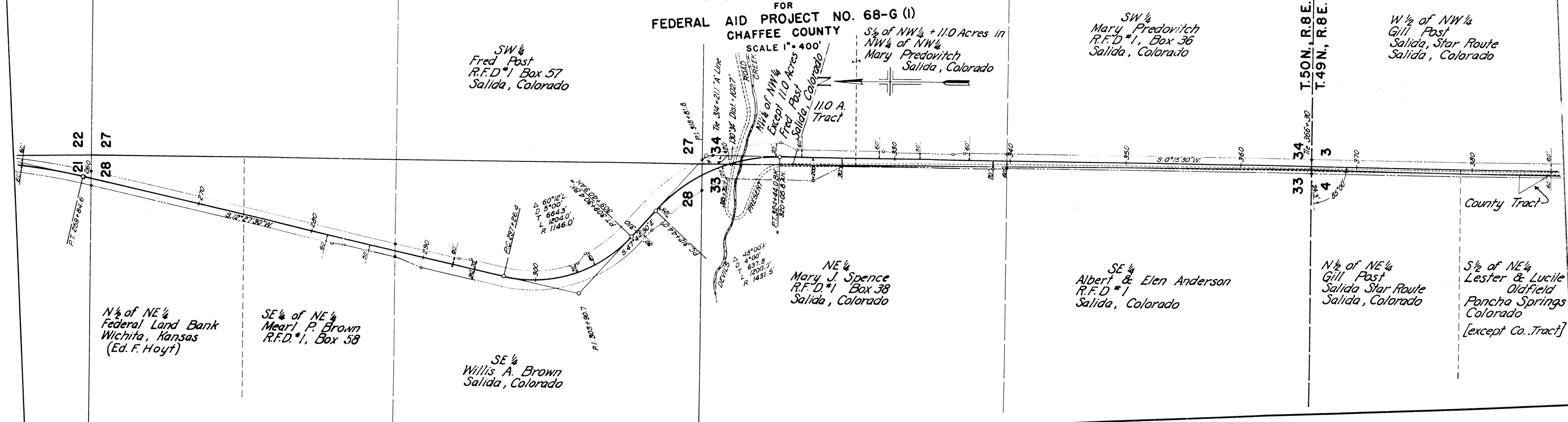
TO SALIDA

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	68-G (I)	2	

Revised Owner C.R.S. 9-10-40
Created Parcel 1-X 6-3-92

COLORADO STATE HIGHWAY DEPARTMENT
RIGHT OF WAY MAP
FOR
FEDERAL AID PROJECT NO. 68-G (I)
CHAFFEE COUNTY

SCALE 1" = 400'

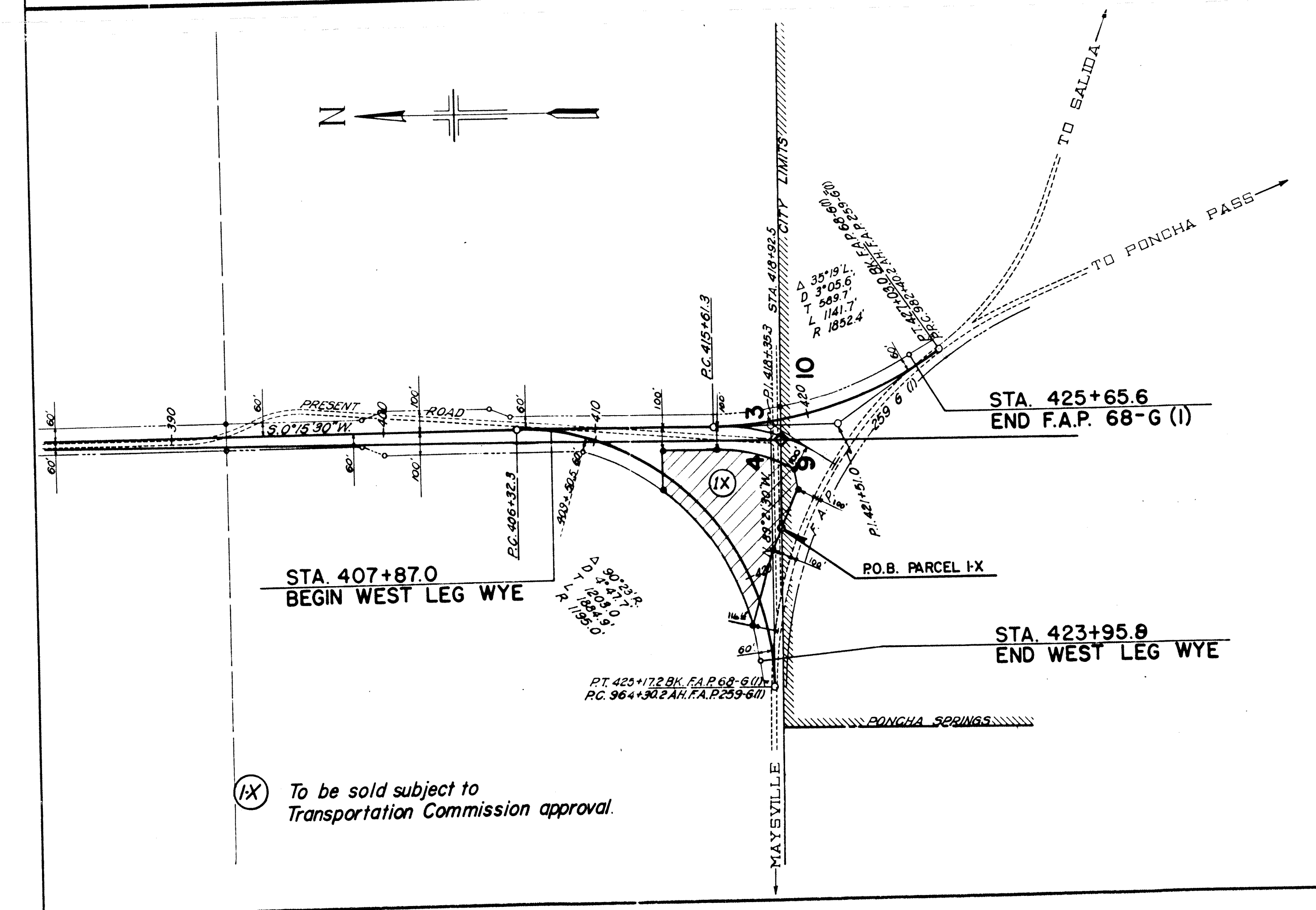
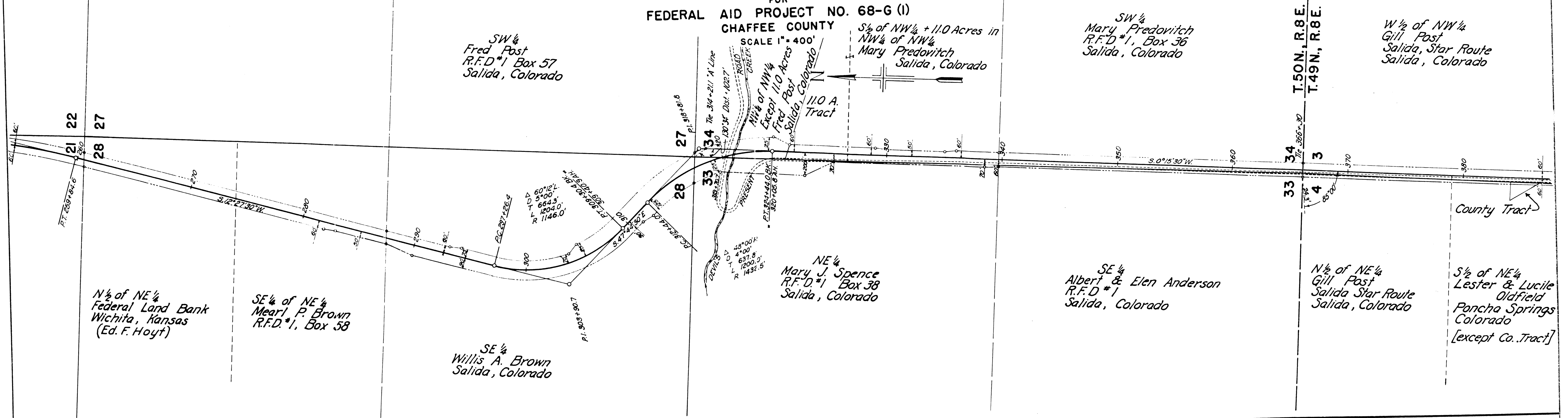


1-X To be sold subject to Transportation Commission approval.

**COLORADO STATE HIGHWAY DEPARTMENT
RIGHT OF WAY MAP
FOR
FEDERAL AID PROJECT NO. 68-G (I)
CHAFFEE COUNTY**

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	68-G (I)	2	

*Revised Owner C.R.S. 9-10-40
Created Parcel I-X 6-3-92*



(IX) To be sold subject to
Transportation Commission approval.

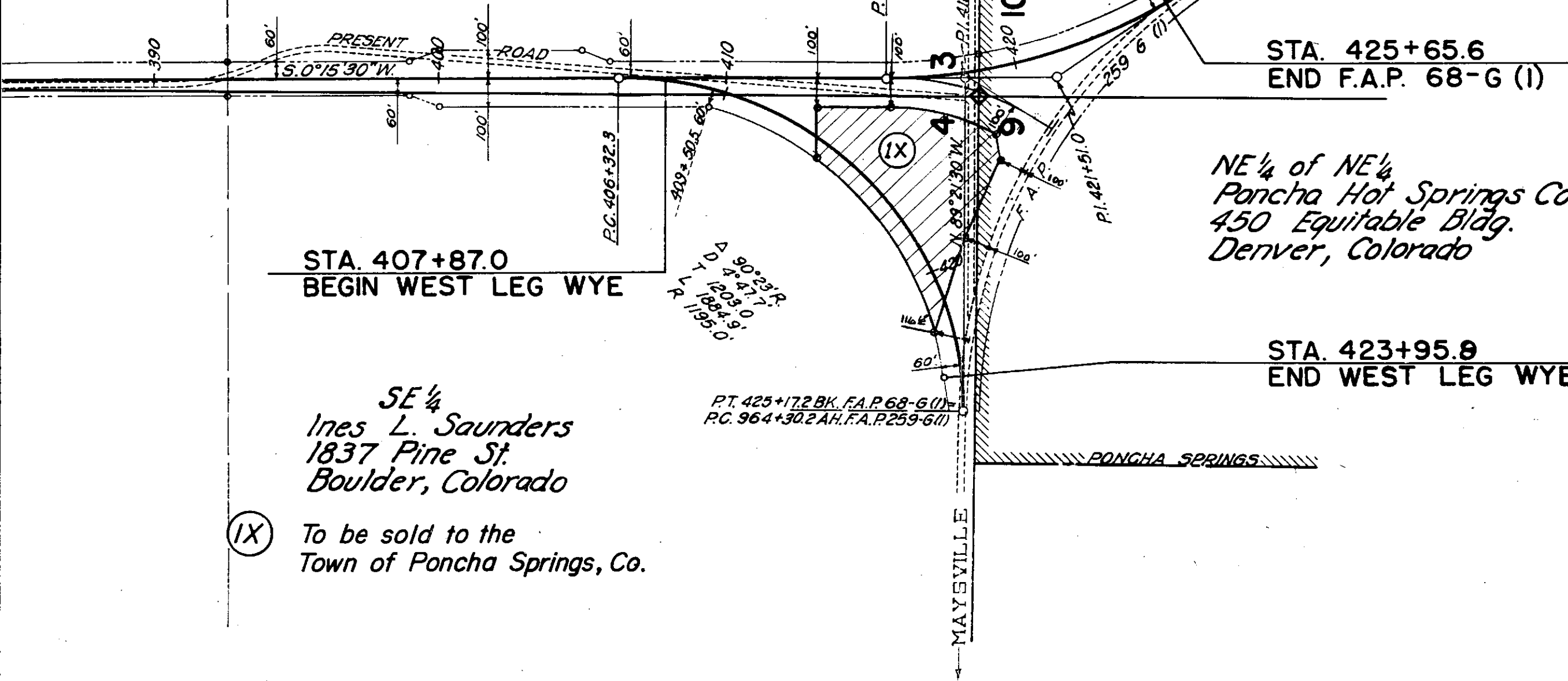


SW $\frac{1}{4}$
Mrs. Edward O'Hara
R.F.D #1, Box 34
Salida, Colorado

Poncha Hot Springs Co.
450 Equitable Bldg.
Denver, Colorado.

TO SALIDA

TO PONCHA PASS



STA. 425+65.6
END F.A.P. 68-G (I)

NE $\frac{1}{4}$ of NE $\frac{1}{4}$
Poncha Hot Springs Co.
450 Equitable Bldg.
Denver, Colorado

STA. 423+95.8
END WEST LEG WYE

SE $\frac{1}{4}$
Ines L. Saunders
1837 Pine St.
Boulder, Colorado

(IX) To be sold to the
Town of Poncha Springs, Co.

P.T. 425+17.2 BK. F.A.P. 68-G (I)
P.C. 964+30.2 AH. F.A.P. 259-G (I)

35°19' L.
D 3°05.6'
T 589.7'
L 1141.7'
R 1852.4'

90°23' R.
D 4°47' 7.0"
T 1203.0'
L 1883.0'
P.L. 1195.0'

P.C. 415+61.3

P.I. 418+35.3

MAYSVILLE

PONCHA SPRINGS

INDEX OF SHEETS	
SHEET NO.	1 TITLE SHEET
	2 TYPICAL SECTION, SUMMARY OF QUANTITIES, & GENERAL NOTES
	3 STANDARD METHODS FOR SUPERELEVATION AND WIDENING OF CURVES
	4 TYPICAL SIDE APPROACH ROADS - ROADWAY CONSTRUCTION TRAFFIC SIGNS
	M-1-B
	M-2-B

COLORADO

STATE HIGHWAY DEPARTMENT

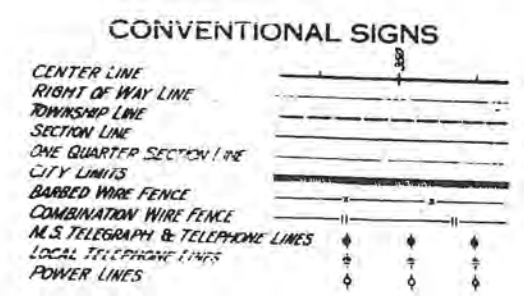
PLAN AND PROFILE OF PROPOSED

FEDERAL AID PROJECT NO. 68-G (2)

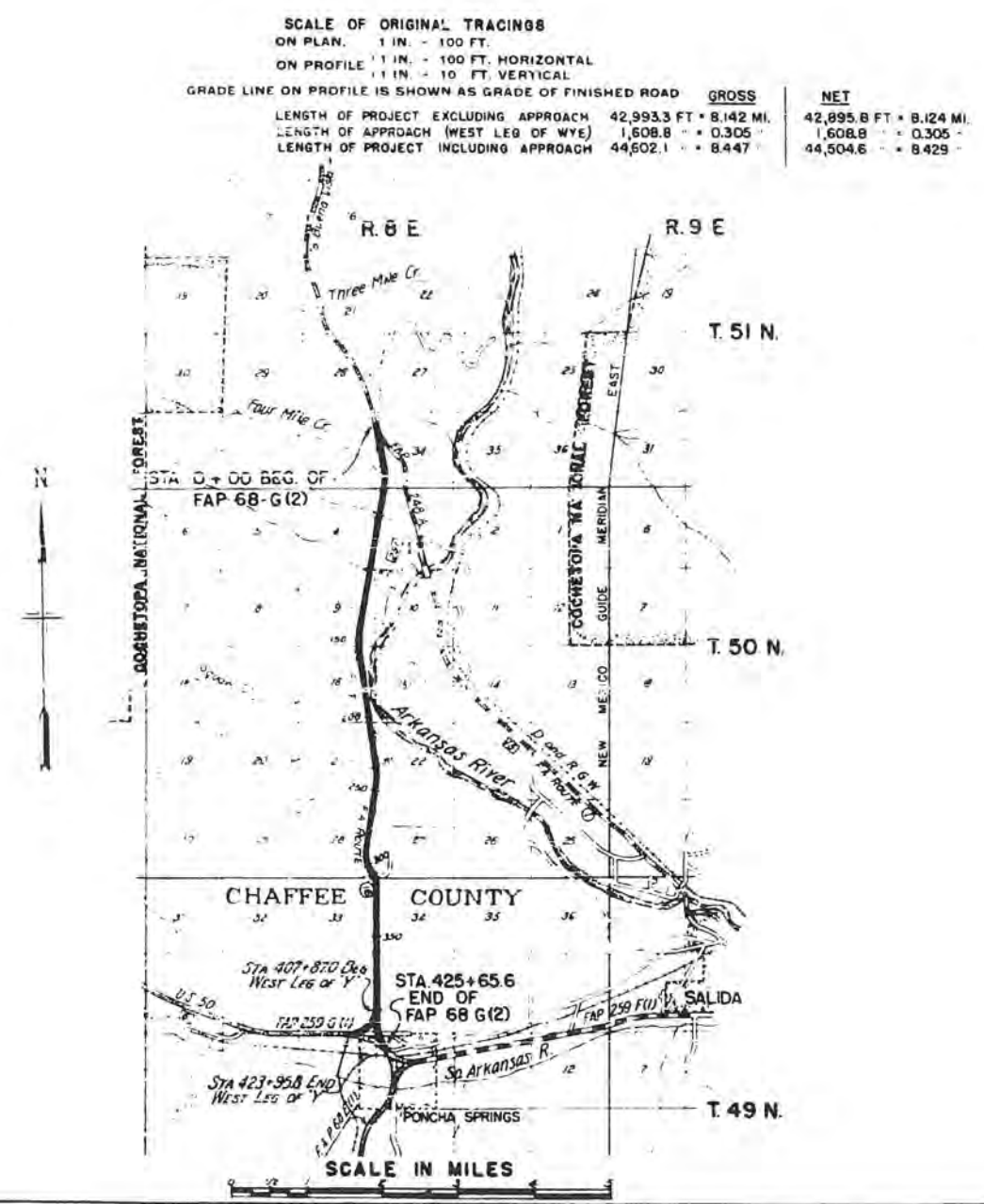
STATE HIGHWAY NO. 291

CHAFFEE COUNTY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLORADO	68-G (2)	1	



STA. to STA.	ROADWAY			G.B.C.S.
	OUTSIDE OF CITY LIMITS	INSIDE OF CITY LIMITS	WEST LEG OF "Y"	
0+00 to 27+83	2,783.0'			
C.B.C.				
27+83 to 28+17				34.0'
27+18 to 129+00	10,083.0'			
Str. J-12-AC	Omitted from the Project			
129+00 to 129+54				
129+54 to 132+58	6,304.0'			
Str. J-12-AB	Omitted from the Project			
132+58 to 193+01.5				
193+01.5 to 237+10	4,408.5'			
C.B.C.				
237+10 to 237+35.4				25.4'
237+35.4 to 309+30.4	7,195.0'			
Equation				
309+40.9 to 324+44.0	1,507.1'			
Equation				
320+05.8 to 418+94.0	9,888.2'			
418+94.0 to 423+95.8		671.6'		
			1,608.8'	
TOTAL	42,164.8' (7.985 MI.)	671.6' (0.127 MI.)	1,608.8' (0.305 MI.)	59.4' (0.112 MI.)



NOTE
It is recommended that bidders on this project go over the plan details with one of the following field representatives of this department:

W. A. Whitney Division Engineer Salida, Colo.
Glen Soper Resident Engineer Salida, Colo.

RECOMMENDED FOR APPROVAL

DISTRICT ENGINEER
PUBLIC ROADS ADMINISTRATION
FEDERAL WORKS AGENCY

APPROVED

STATE HIGHWAY ENGINEER

RECOMMENDED FOR APPROVAL

DISTRICT ENGINEER
PUBLIC ROADS ADMINISTRATION
FEDERAL WORKS AGENCY

RECOMMENDED FOR APPROVAL

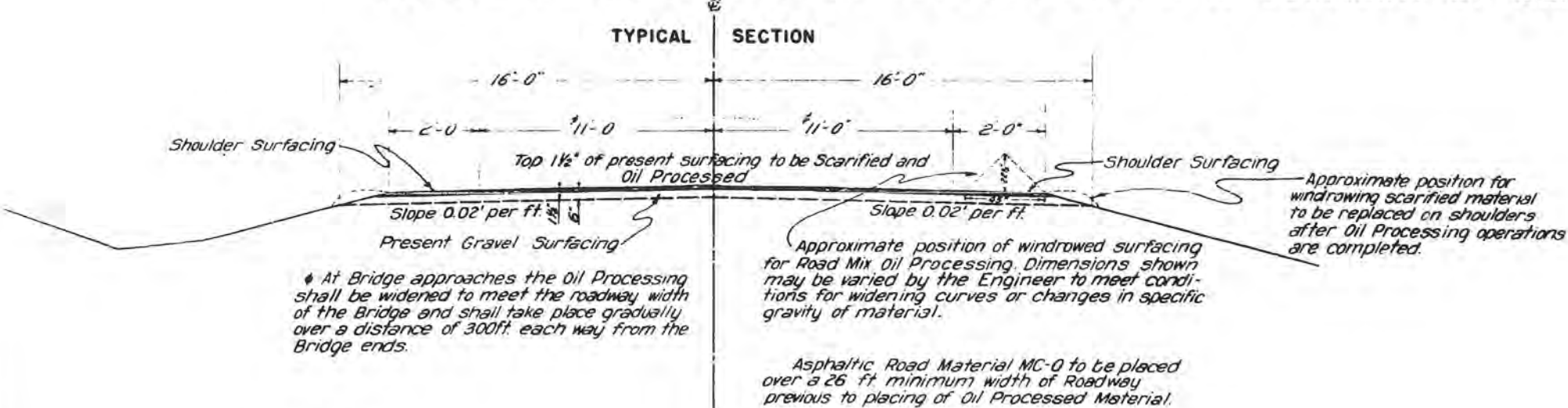
DISTRICT ENGINEER
PUBLIC ROADS ADMINISTRATION
FEDERAL WORKS AGENCY

APPROVED

DISTRICT ENGINEER
PUBLIC ROADS ADMINISTRATION
FEDERAL WORKS AGENCY

FED. ROAD DIST. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
3	COLD.	68-5(2)	2	

TYPICAL CROSS SECTION OF IMPROVEMENT AND SUMMARY OF QUANTITIES



GENERAL NOTES

This Project is to be constructed in conformity with the Standard Specifications of the Colorado State Highway Department, adopted on June 1, 1940.

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

All curves are to be superelevated and widened as provided for by the Standard Superelevation Sheet included with these plans.

All side approach roads to the Project shall be Oil Processed a distance of approximately 20 ft. from the edge of the Highway. Estimated quantities involved in this operation are as follows:

ITEM	UNIT	TOTAL
Asphaltic Road Material RC-4	Gal.	650
" " " MC-0	"	850
" " " SC-3	"	2,900
Road Mix Oil Processing	Sq. Yd.	2,570
Stone Screening	Tons	35
Scarify, Windrow, & Compact Surfacing	Sq. Yd.	2,800

SUMMARY OF APPROXIMATE QUANTITIES

ITEM	DESCRIPTION	UNIT	ROADWAY			C.B.C. STA. 27+	C.B.C. STA. 237+	TOTAL
			OUTSIDE OF CITY LIMITS	INSIDE OF CITY LIMITS	WEST LEG OF Y			
30 e	Asphaltic Road Material RC-4	Gal.	26,600	450	1,000	30	20	28,100
30 g	" " " MC-0	"	37,630	600	1,400	40	30	39,700
30 p	" " " SC-3	"	119,000	1,900	4,420	100	80	125,500
31 x	Road Mix Oil Processing	Sq. Yd.	106,240	1,650	3,950	90	70	112,000
32 b	Stone Screenings	Tons	1,340	25	55	5	5	1,430
101	Scarify, Windrow, & Compact Surfacing	Sq. Yd.	125,220	1,950	4,650	100	80	132,000

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

Rev. 11-2-38 P.B.B. Widening Transition

GENERAL NOTES

Curves on projects using the Sections shown are to be superelevated and widened as indicated in the accompanying drawings and tables.

The normal inside edge of the Pavement slab is to remain at the standard elevation of 0.125 ft below the profile grade, and the outside edge of the slab is to be super-elevated at the rate per foot width of roadway given in the Table. The Section is to be rotated about the normal inside edge of the Pavement, with a 1% parabolic crown for curves of 10° and under, and a flat crown for widened Sections.

The normal inside edge of the Graded or Surfaced Section is to remain at the standard elevation of 0.02 ft per foot width of roadway below the profile grade; or as shown on the Typical Section for the Project. Also, the centerline pivot point is to be used until the superelevation equals 0.02 ft per foot width of roadway, but when this elevation is exceeded the normal inside shoulder pivot point is to be used.

When the degree of curvature exceeds 10°, the inside edge of the Pavement slab or the inside shoulder of the Graded or Surfaced Section is to be widened from the normal inside edge or shoulder, respectively, as shown by the table and plan or by cross-sections. Curves of 10° or less are not to be widened.

The slope of the shoulders and widened sections shall conform to the rate per foot width of roadway required, except that the inside shoulder of paved sections shall maintain the Typical Section slope until this slope is exceeded by the required superelevation slope.

The outside ditch on super-elevated sections is to be modified, where necessary to provide drainage. Otherwise, this ditch shall conform to normal ditch section shown for Project.

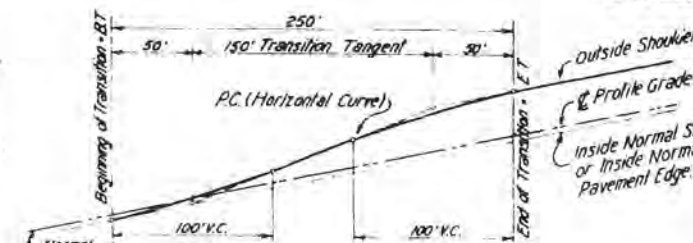
The rate of super-elevation per foot width of roadway to be applied at the outside shoulder of the roadway is computed as follows:

The full superelevation per foot width of roadway rate for a given degree of curvature is

$$0.0105 \text{ ft} \times \text{Degree of Curvature}$$

The maximum superelevation of 0.10 ft per foot width, applying to curves of 10° and over, is not to be exceeded.

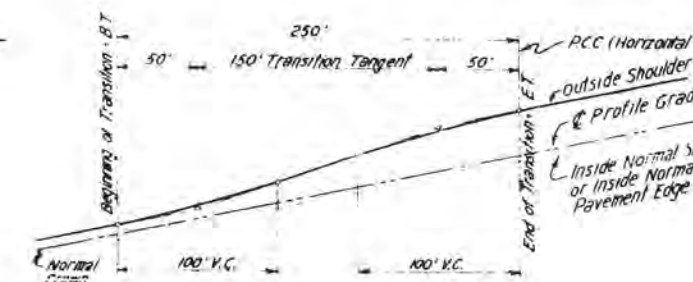
Special transition problems not covered by this standard sheet shall be covered by appropriate notes included with curve data on plans.



CASE 1: SIMPLE CURVE WITH UNLIMITED TANGENT APPROACH

NOTE CASE I

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



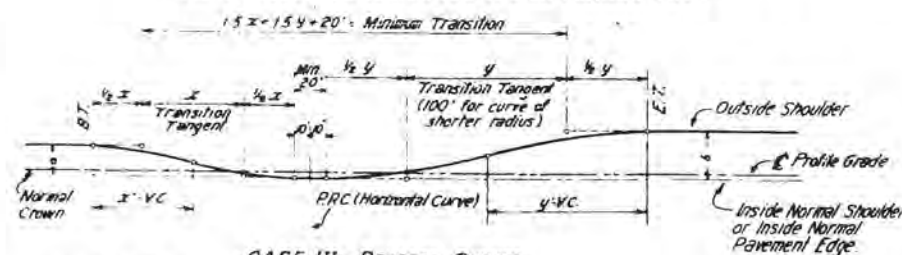
CASE II: COMPOUND CURVE

NOTE CASE II

Superelevation transitions at the outside ends of compound curves shall be constructed in accordance with rules given under CASE 1.

Superelevation transition between the arcs of different radii shall be made as in CASE 1, except that the entire transition shall lie within the limits of the curve of the longer radius.

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



CASE III - REVERSE CURVES

NOTE - CASE III

Transitions between true reverse curves shall be accomplished as shown on the above diagram.

Transition tangents shall be directly proportional to the amount of superelevation of the respective curves.

EXAMPLE: Let α represent the amount of superelevation on 1st curve;

" b " " " " " " " 2nd "

- I - transition tangent on 1st
- II - transition tangent on 2nd

then, $a \cdot b = x \cdot y$.

The transition tangent of the curve having the shorter radius shall be set

A normal crowned section 20 ft. long, 10 ft. on each side of the P.R.C. shall be

In cases where curves in opposite directions are in such proximity that a standard transition can not be had, the practice outlined for true reversing curves shall be used.

The total distance between the P.T. of the first curve and the P.C. of the succeeding curve shall be prorated into the transition distance of the respective curves until

ing curve shall be tapered into the transition distance of the respective curves until a maximum of 150 ft. of transition tangent for each curve is achieved.

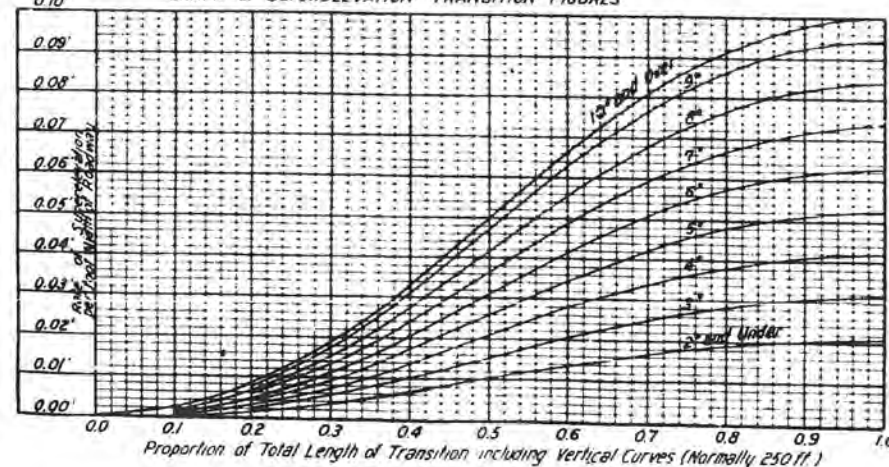


GENERAL PLAN OF
WIDENING

(7) Curves of over 100' are to have the inside portion of the pavement slab and shoulder, or the inside portion and shoulder in a graded or surfaced section, widened in accordance with the plan, offsets for widening, and cross sections.

SUPERELEVATION AND WIDENING TABLES											
DISTANCE FROM B.Y. (FEET OR METERS)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	MAX 1.0	
Degree of Curvature	RATE OF SUPERELEVATION (IN FEET) PER FOOT WIDTH OF ROADWAY										
2° and Under	0.00044	0.00175	0.00398	0.00700	0.01050	0.01400	0.01706	0.01925	0.02056	0.02100	
3°	0.00066	0.00263	0.00591	0.01050	0.01575	0.02100	0.02539	0.02888	0.03084	0.03150	
4°	0.00088	0.00350	0.00788	0.01400	0.02100	0.02800	0.03413	0.03850	0.04113	0.04200	
5°	0.00109	0.00438	0.00984	0.01750	0.02625	0.03500	0.04266	0.04813	0.05141	0.05250	
6°	0.00131	0.00525	0.01181	0.02100	0.03150	0.04200	0.05119	0.05775	0.06169	0.06300	
7°	0.00153	0.00613	0.01378	0.02450	0.03675	0.04900	0.05972	0.06738	0.07197	0.07350	
8°	0.00175	0.00700	0.01575	0.02800	0.04200	0.05600	0.06825	0.07700	0.08225	0.08400	
9°	0.00197	0.00788	0.01772	0.03150	0.04725	0.06300	0.07678	0.08663	0.09253	0.09450	
10° and Over	0.00208	0.00833	0.01875	0.03333	0.05000	0.06667	0.08125	0.09166	0.09792	0.10000	
	OFFSETS FOR WIDENING - W' (IN FEET)										
Over 10° - Under 12°	0.03	0.12	0.27	0.48	0.75	1.08	1.47	1.92	2.43	3.00	
12° - " 15°	0.04	0.16	0.36	0.64	1.00	1.44	1.96	2.56	3.24	4.00	
15° - " 20°	0.05	0.20	0.45	0.80	1.25	1.80	2.45	3.20	4.05	5.00	
20° and Over	0.06	0.24	0.54	0.96	1.50	2.16	2.94	3.84	4.86	6.00	

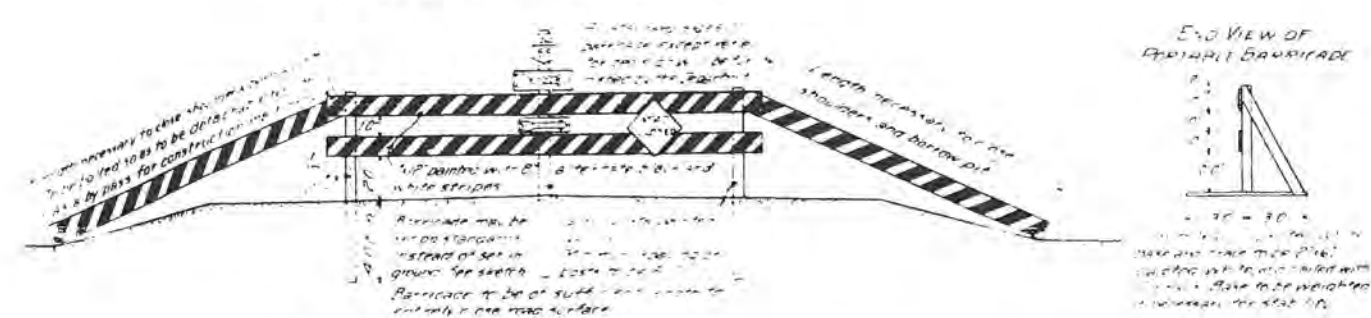
GRAPH OF SUPERELEVATION TRANSITION FIGURES



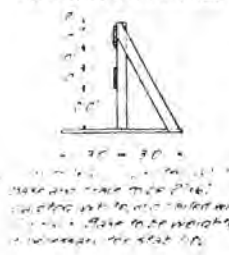
**COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD
METHODS FOR
SUPERELEVATION &
WIDENING OF CURVES**

Designed by REL	Approved by J. Marshall
Made by ABB	Date FEB 23RD 1937
Checked by ESL	

DETAILS OF PERMANENT BARRICADE



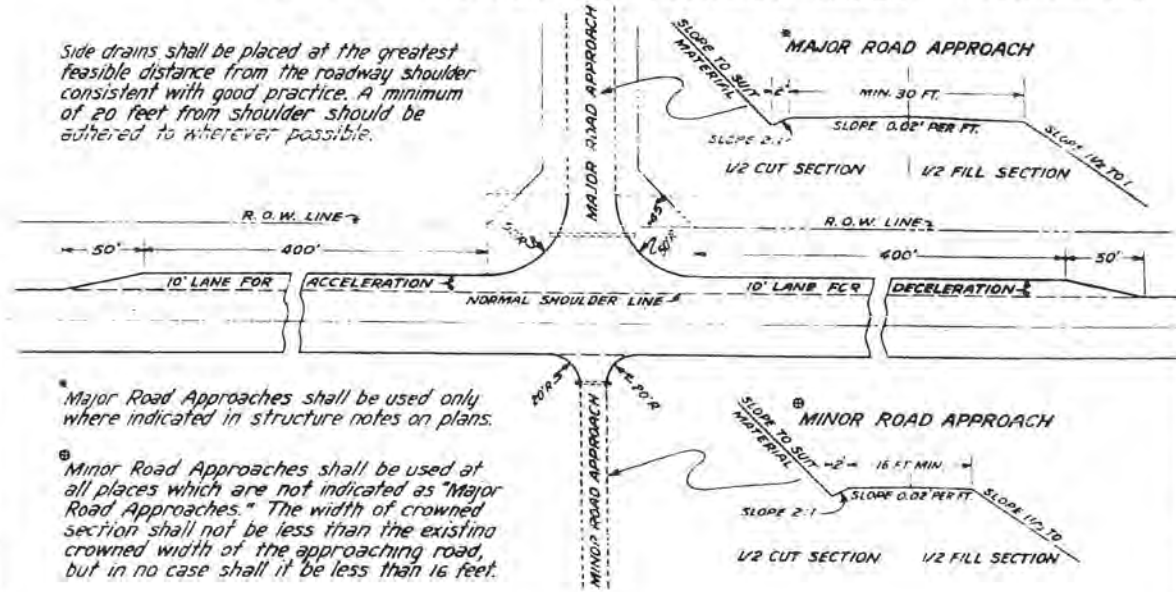
END VIEW OF PERMANENT BARRICADE



STANDARD M-2-B

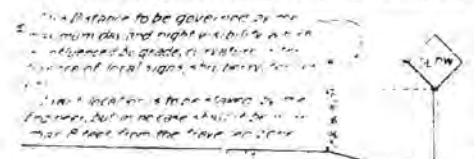
FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.			

TYPICAL PLANS FOR SIDE APPROACH ROADS



Side drains shall be placed at the greatest feasible distance from the roadway shoulder consistent with good practice. A minimum of 20 feet from shoulder should be adhered to wherever possible.

POSITION OF SIGNS RELATIVE TO ROADBED

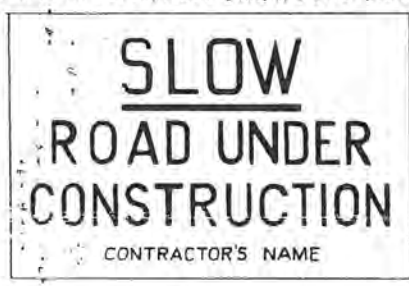


BARRICADES TO BE PLACED AS CONSTRUCTION PROCEEDS

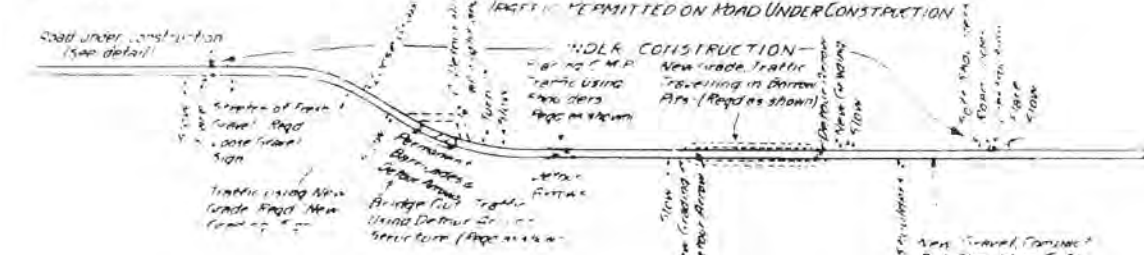
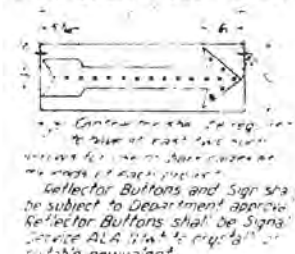
DETAILS OF PARTIAL BARRICADE



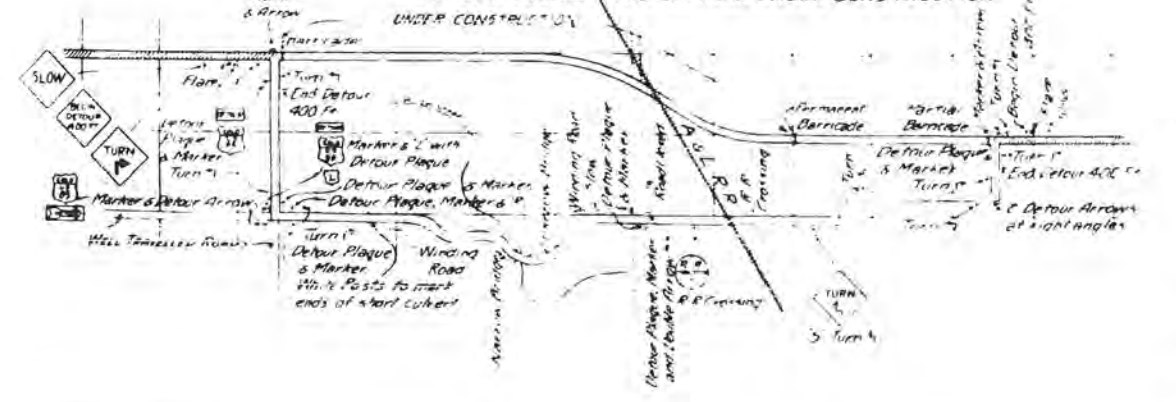
DETAILS OF ROAD UNDER CONSTRUCTION SIGN



SUGGESTED DETAIL OF REFLECTORIZED ARROW



TYPICAL METHOD OF MARKING DETOUR TRAFFIC PROHIBITED ON ROAD UNDER CONSTRUCTION



GENERAL NOTES ON APPROACHES:
The maximum grades shown are to be the limiting grades for all except extreme cases.
When the length of the approach as determined by the intersection of these grades with the natural ground is such as to damage the property so served, or cause unreasonable conditions, the grades may be modified.
In such cases, methods used, and maximum grades shall be as indicated on the plans, or provided by work order.

GENERAL NOTES FOR ROADWAY CONSTRUCTION TRAFFIC SIGNS

- All Work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department adopted June 1, 1940.
- Whenever traffic is permitted on a road while under construction, the Contractor shall at all times adequately and appropriately mark any and all hazards on the Project with well painted, well maintained barricades, and standard caution and warning signs. The Contractor shall also mark with standard directional signs any places where the direction of the flow of traffic is not plain.
- Whenever traffic is prohibited from a Project under construction, the Detour will be marked by the Department and the barricades at either end of the Project shall be erected and maintained by the Contractor.
- All signs and barricades shall be immediately moved, added to, removed, or changed to appropriately mark hazards, or conditions altered, corrected, or changed by construction progress.
- The Contractor shall furnish:
 - (1) All barricade material. It shall always be well painted as per sketch and well maintained.
 - (2) A reflectORIZED arrow of an approved type for each barricade at the ends of the Project, and at other barricades required where traffic is permitted on road under construction.
 - (3) "SLOW ROAD UNDER CONSTRUCTION" signs as required.
 - (4) Any special signs the Department may deem necessary for the protection of traffic over the Project.
 - (5) At least three (3) flares or torches for each barricade, and other flares to illuminate such signs as are called for on these plans, or as the Department may direct.
- Flares or torches shall be placed between 3 and 5 feet ahead of the sign or object to be illuminated, and shall be kept burning from sunset to sunrise.
- Costs of all of the foregoing materials and work by the Contractor shall be included in the original contract prices for the Project.
- The Highway Department will furnish all standard signs not required to be furnished by the Contractor.

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

Designed by J.B.M.
 Made by J.B.M.
 Check J.S.M.
 Check K.A.K.

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