

COLORADO STATE HIGHWAY DEPARTMENT

PLAN AND PROFILE OF PROPOSED A.W. PROJECT NO. 4002 STATE HIGHWAY NO. 6 PROWERS COUNTY

INDEX OF SHEETS

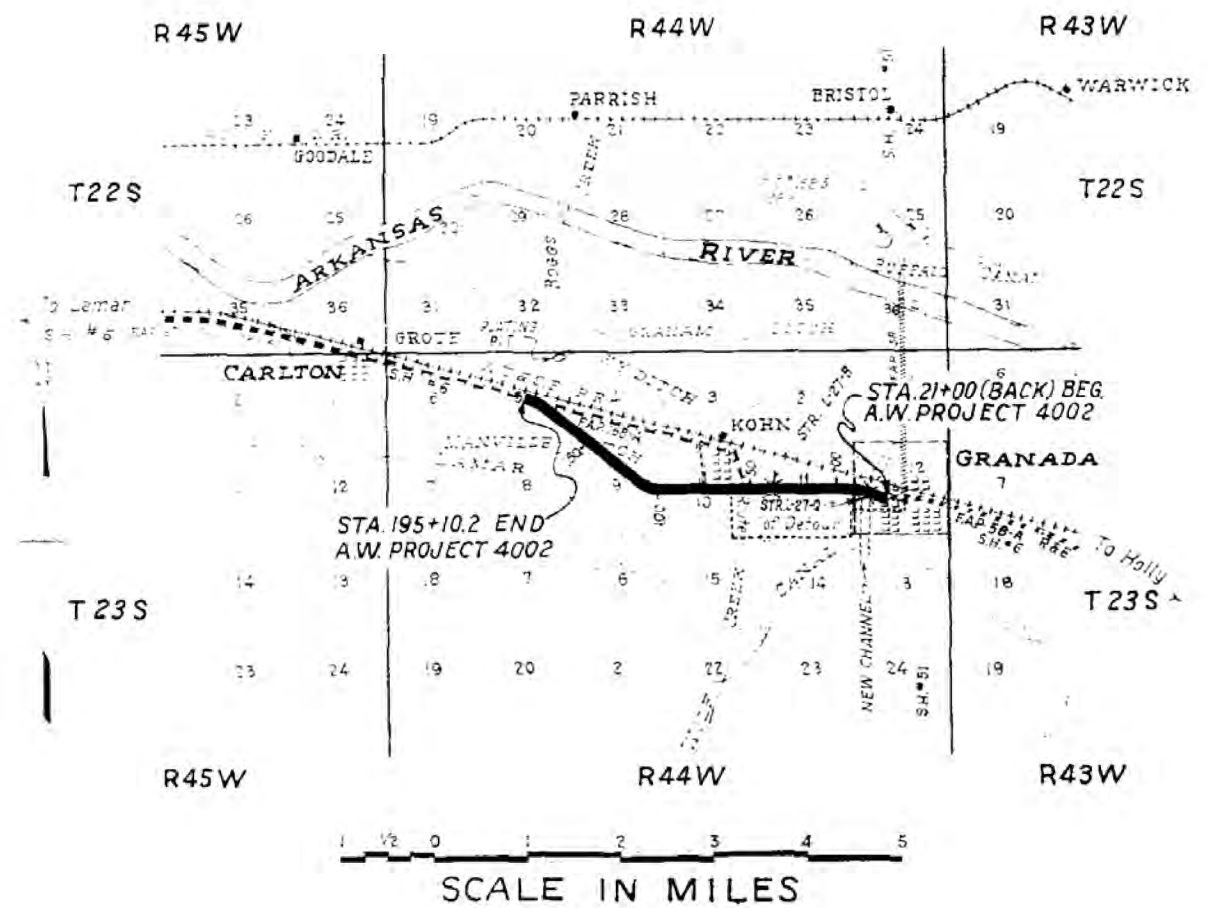
1. Sketch Map and Title Sheet
2. Typical Cross Section and Summary of Quantities
- 3-4. Tabulation of Structures
5. Details of Bridge, Sta. 11+
6. " " " " 37+
7. Standard Concrete Box Culverts M-103-D
8. " Reinforced Concrete Culvert Pipe M-112-A
9. " Headwalls for C.M.P. Culverts M-102-E
10. " Wire Cable Guard Fence M-20-A
11. " Wire Fences with Steel Posts & Marker Posts M-27-A
12. " Structure Number Lettering M-10-A
13. " Method for Superelevation and Widening of Curves M-1-A
14. Typical Side Approach Roads, Roadway Construction Traffic Signs M-2-B
- 15-22. Alignment Plan and Profile
- 23-71. Cross Sections

CONVENTIONAL SIGNS

- Center Line of Survey
- Right of Way Lines
- Township or Range Lines
- Section Lines
- One Quarter Section Lines
- Barbed Wire Fence
- Pole Lines

SCALES 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 LENGTH OF PROJECT 3.27 MILES
NET LENGTH OF PROJECT 3.27 MILES



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

J.D. Bell Division Engineer Pueblo
L.A. Rose Resident Engineer Lamar

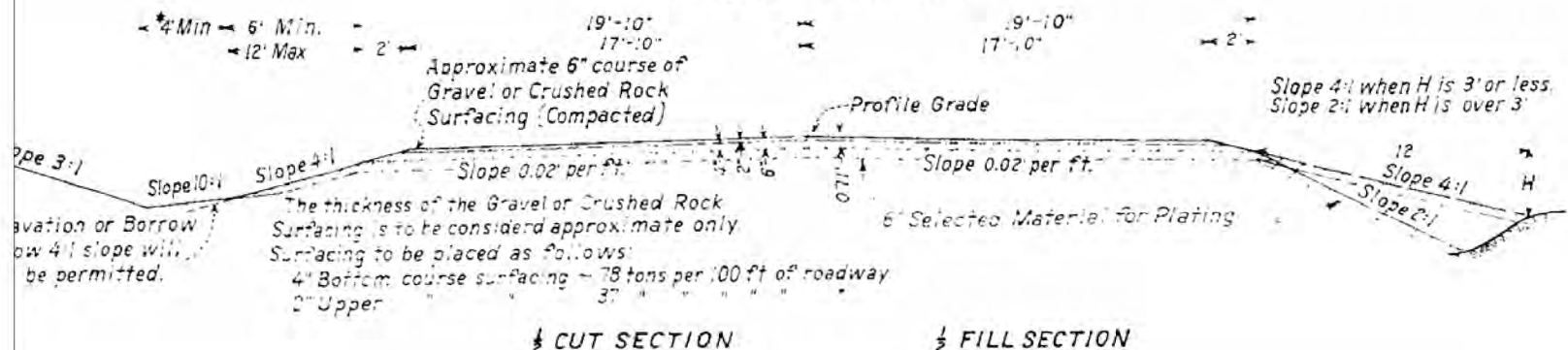
RECOMMENDED FOR ADOPTION 9/2/36

John D. Bell
APPROVED
Chas. D. Vail
STATE HIGHWAY ENGINEER

FED. ROAD DIST. NO.	STATE	A.W. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	4002	2	

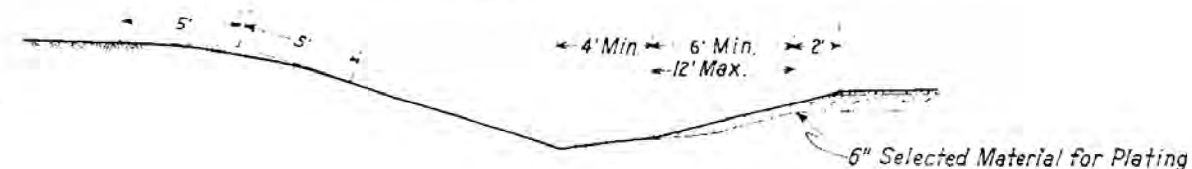
Ditch to be modified between Sta. 0+00 and 34+00 on L_t to avoid interference with trees.

TYPICAL CROSS SECTION OF IMPROVEMENT AND SUMMARY OF QUANTITIES



CUT SLOPE TREATMENT IN EARTH CUTS

The intersection of cut slopes with the existing ground shall be rounded in earth cuts, being 5 ft. outside the slope stake and extending 5 ft. down the cut slope. Where the cut slope is less than 5 ft., reduce each of the above widths of slope treatment to the actual slope distance. Quantities involved in slope treatment shall not be included in Unclassified Excavation.



GENERAL NOTES

This project is to be constructed in conformity with the Standard Specifications of the Colorado State Highway Department, adopted August 1, 1935.

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

All roadway excavation required to construct the project to be obtained as indicated on the plans. Quantities involved beyond the limits of the ditches shown on the Typical Section, when noted on Profile as "Borrow" or on Tabulation of Structures "Embankment", are to be classified and paid for as "Unclassified Excavation".

These quantities are to be taken as part of the original excavation locations indicated on the plans. Slope stakes, and the limits of the Typical Section as shown, are subject to change by the Engineer to meet Embankment requirements actually met in construction.

All curves are to be super-elevated as provided for by the Standard Super-elevation Sheet.

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

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

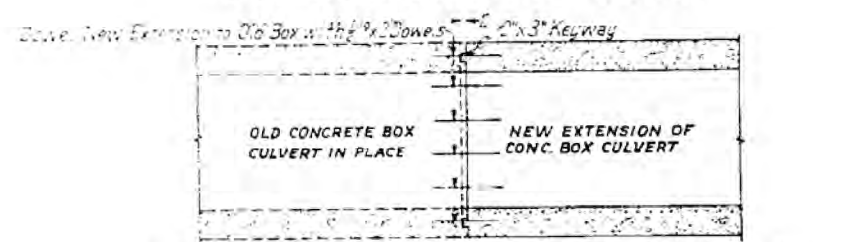
Payment for overhaul will be based on measurement along center line of Project, unless otherwise stated on the plans.

The entire project is to be cleared for the full width of the right-of-way and the cost thereof included in the lump sum bid for "Clearing and Grubbing the Entire Project".

Between Sta. 0+00 and 75+00 (Ahead) the oil processed gravel, curbs, paving in place on the present roadbed shall be removed and placed in stock piles along the side of the road. This material will be removed from stock piles by State Forces. All work in connection with the placing of the oil processed material in the stock piles will be paid for at the unit price bid per ton for salvaging and stockpiling oil processed surfacing.

All side approach roads to the Project shall be gravel surfaced with a thickness of "Gravel or Crushed Rock Surfacing" extending approximately 5 ft. from the edge of the highway. Estimated tonnage of surfacing material required for this operation is shown in List of Structures.

DETAIL OF JOINT FOR CONG. BOX CULVERT EXTENSION



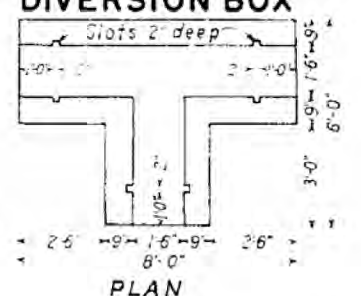
Place one Dowel to each U-Bar shown on Standard Concrete Box Culvert Sheet 17-103-D.

Dowel Bars are to be Grouted in place with a cement grout composed of one part cement and two parts clean well graded sand. The cost of drilling holes, grouting and placing dowels is to be included in payment for Reinforcement Steel.

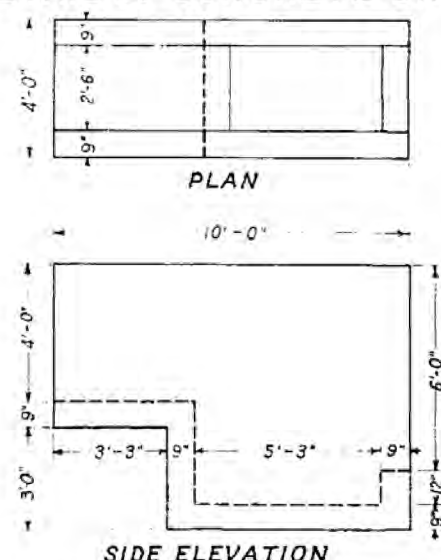
NOTE

The cost of "Removing Headwall and Cutting Keyway" is to be paid for at the contract unit price each.

DETAIL OF CONCRETE DIVERSION BOX



DETAIL OF CONCRETE DROP



SUMMARY OF APPROXIMATE QUANTITIES

NO.	ITEM	UNIT	ROADWAY	BRIDGE STA. 11+	BRIDGE STA. 37+	TOTALS
10a	Clearing & Grubbing Entire Project	Lump Sum	•			•
11a	Removal of Disused Bridge, Sta. 37+	" "	•			•
11b	" " 15 Structures.	" "	•			•
11c	Removing & Resetting Mail Boxes	" "	•			•
11d	" Headwall & Cutting Keyway	Each	2			2
12a	" Fence	Lin. Ft.	11,200			11,200
12b	" & Rebuilding Fence	" "	450			450
13c	Unclassified Excavation	Cu. Yd.	97,000	24,000		121,000
13d	Cut Slope Treatment	Mile	5.3			5.3
14a	Dry Rock Excavation (Structural)	Cu. Yd.	70			70
14b	" Common "	" "	600			600
14c	Wet Rock "	" "	30			30
14d	" Common "	" "	200			200
18a	Station Yard Overhaul	Sta. Yard	570,000			570,000
18b	Yard Mile	Yd. Mi.	30,800			30,800
26a	Gravel or Crushed Rock Surfacing	Ton	24,830			24,830
42a	Untreated Bridge Timber	M. ft. Bm.		2.3	3.7	6.0
42b	Treated "	" "		49.7	87.3	137
43	Asphalt Plank Wearing Surfacing	Sq. Ft.		3335	6003	9338
46a	Class "A" Concrete	Cu. Yd.	449			449
46b	" "B" "	" "	15			15
47	Reinforcing Steel	Lb.	42,300			42,300
53b	18" Corrugated Metal Culvert Pipe	Lin. Ft.	148			148
53c	24" " " " " "	" "	88			88
53d	30" " " " " "	" "	88			88
53e	36" " " " " "	" "	90			90
59	Relaying Pipe	" "	74			74
60a	Treated Timber Piling	" "		2012	2828	4840
60c	Piling Cut-off Treated	" "		10	10	20
61a	Treated Sheet Piling	" "		3392	3392	6784
74	Wire Cable Guard Fence	" "	2136			2136
76c	Barbed Wire Fence with Metal Posts	" "	34,040			34,040
76g	" " Gates	Each	18			18
76h	Driveway	" "	1			1
81a	Project Markers	" "	2			2
81b	Right of Way	" "	34			34
89b	Drain Pipe (Timber Floor)	" "		10	18	28
130	Salvaging & Stockpiling Oil Surfacing	Ton	2600			2600

ALTERNATE BIDS TO BE RECEIVED FOR REINFORCED CONCRETE CULVERT PIPE
As an alternate for items Nos. 53b, 53c, 53d, 53e, shown in the foregoing, the following items, involving reinforced concrete pipe, shall be bid upon.

51b	18" Reinforced Concrete Culvert Pipe	Lin. Ft.	148			148
51c	24" " " " " "	" "	88			88
51d	30" " " " " "	" "	88			88
51e	36" " " " " "	" "	90			90

FORCE ACCOUNT
Obliterating Old Road.
Moving Telephone Line, Sta. 189 to 195
Detour for Project

Lump Sum	•				•
" "	•				•
" "	•				•

FED. ROAD DIST. NO.	STATE	A.W.P.	SHEET NO.	TOTAL SHEETS
3	COLO.	4002	3	

SELECTED MATERIAL FOR PLATING

Selected Material for Plating shall be placed and spread on the road-way and fill slopes approximately 6" loose thickness between Sta 92+00 and Sta 195+10. This Material shall be placed prior to the placing of the Gravel or Crushed Rock Surfacing. The Selected Material for Plating used in this operation shall be classified and paid for as Unclassified Excavation. It is estimated that the Material will be obtained in the vicinity of the pit indicated in the tabulation. The quantities involved in the operation are estimated as follows:

MATERIAL TO BE PLACED	APPROX. QUANTITY REQUIRED	SOURCE OF MATERIAL	OVERHAUL
STA. TO STA.	CU. YDS.		STA. YDS. YD. MI.
92+00 ~ 162+00	8960	From pit 1 mile North of Sta 162+00	98560 12185
162+00 ~ 195+10	4240		46640 4285
195+10 (Approach)	100		1100 134
TOTAL	13300		146300 16604

R.O.W. MARKERS

STATION	SIDE	NO.
21+00 BK.	R&L	2
9+80 BK.	L	1
9+58 BK.	R	1
0+66.2	R&L	2
16+28	R&L	2
37+00	R&L	2
40+00	R&L	2
42+71.5	R&L	2
56+00	L	2
69+84	R&L	2
96+17	R&L	2
127+25	L	1
128+25	R	1
145+94	R	1
146+96	L	1
149+00	R&L	4
161+75	L	1
162+75	R	1
185+48	R	1
187+42	L	1
188+76.5	R	1
195+10.2	L	1
TOTAL		34

TABULATION OF STRUCTURES

STATION	DESCRIPTION	REMOVE STRUCTURE	UNCLASSIFIED		STRUCTURAL EXCAVATION		GRAVEL OR CRUSHED ROCK SURF.	CONCRETE		REINFORCING STEEL	CORRUGATED METAL CULVERT PIPE				RELAYING PIPE	WIRE CABLE GUARD FENCE	Misc.			
			NO.	EXCAV	EMBANK	*		TONS	CU. YDS.		LBS	LIN. FT.								
									CU. YDS.			CLASS	CLASS	18"				24"	30"	36"
21+00 BACK 21+00 BK ~ 75+00 AHD 17+50 BACK	Project Marker & Approach to Project Salvage & Stockpile 2600 tons Oil Surf. Remove 2 Headwalls & Extend 3'x2'x36' Conc. Box Culv to Lt. and 9' Rt. & Inlet.			30			20									1-Project Marker Salv & Stockpile 2600 tons Surf. Remove 2 Hdwls & cut keyways				
13+98 BK ~ 13+11 BK. 11+91.5 BK ~ 13+08 BK	Wire Cable Guard Fence Rt. & Lt. Treated Timber Bridge 5@23' Channel Improvement		5	30			15.1		1292						(287) (287)					
11+89 BK ~ 5+98 BK. 0+50 ~ 36+86 0+50 ~ 2+60	Wire Cable Guard Fence Rt. & Lt. Irrigation Ditches, Rt. Irrigation Ditch Lt.		1500												(591) (591)					
2+40	C.M.P. Side Drain & Road Approach Lt. Remove 24"x14' C.M.P.		65	25	1		10				28									
2+80	C.M.P. Side Drain & Road Approach Lt. Remove 12"x16' C.M.P.			25	1		10				28									
16+23	15'x15' Concrete Diversion Box Rt. Remove Diversion Box Rt.				2			2.1												
16+34	2'x2'x44' Concrete Box Culvert Remove 18'x28' C.M.P. & 2 Headwalls			25			19.1		1926											
16+50	Road Approaches Rt. & Lt. C.M.P. Side Drain in Irrigation Ditch Rt. Relay 15" C.M.P. in Irrigation Ditch on Rt. removed at Sta 16+78			90	1		20				30			28						
16+78	2'x2'x43' Concrete Box Culvert Remove 15'x28' C.M.P. & Relay in Irrig. Ditch on Rt. Sta. 16+50				4															
27+60	C.M.P. Side Drain & Road Approach Rt. C.M.P. Side Drain in Irrig. Ditch 65' Rt. C.M.P. Side Drain in Irrig. Ditch 72' Rt. Remove 2'x2'x16' Timber Box			50	1 3 3		10				30 30									
28+90	C.M.P. Side Drain & Road Approach Lt. Remove 24'x18' C.M.P.			25	1		10				28									
36+86	Concrete Diversion Box Rt. Remove 4'x3'x3' Diversion Box Rt.				2			2.1												
37+00	C.M.P. Cross Culvert & Ditches Remove 36'x32' C.M.P. & 2 Headwalls		20	50			3.0						62							
36+31 ~ 37+26 37+29 ~ 39+37.5	Wire Cable Guard Fence Rt. & Lt. Bridge ~ Treated Timber ~ 9 Spans @ 23' Remove Bridge Channel Improvement					32,831									(95) (95)					
39+40 ~ 40+35 39+60	Wire Cable Guard Fence Rt. & Lt. Relay 36" C.M.P. Cross Culvert from Sta 39+18 & Extend & Inlet													46	(95) (95)					
39+60 ~ 42+70 39+60 ~ 56+00	Irrigation Ditch Lt. Irrigation Ditch Rt.		10 215 560	70			3.0				28									
42+70 ~ 56+40 49+26 49+50	Waste Ditch Along Right-of-way Lt. Remove 30'x90' C.M.P. Siphon C.M.P. Side Drain & Road Approach Lt. Remove 3'x3'x14' Timber Box		130	60	1		10				30									
56+17	C.M.P. Side Drain & Road Approach Lt. Remove 3'x3'x14' Timber Box			60	1		20				30									
56+40 ~ 65+50 65+64 65+80	Irrigation Ditch Lt. Road Approach Lt. 6'x2'x42' Concrete Box Culvert		45	50	20		10	38.4	3225											
66+100 ~ 91+90 68+50 73+27 73+50	Irrigation Ditch Lt. C.M.P. Side Drain & Road Approach Rt. 3'x1'x44' Concrete Box Culv. & Ditches Road Approaches Rt. & Lt.		130	60	1		10			28										
90+00 92+10	3'x1'x46' Concrete Box Culvert 6'x2'x42' Concrete Box Culvert			50	25		20	203	2085											
				30	30			38.4	3225											
97+80 ~ 99+00 97+80 104+00 122+00	Remove 5'x3'x12' Timber Bridge Irrigation Ditch Rt. 2'x2'x47' Concrete Box Culv. & Ditches 5'x4'x45' Concrete Box Culv. & Ditches 5'x4'x42' Concrete Box Culv. & Ditches		80 5 20 40	15 100 125			20.0 45.1 43.3	2028 3677 3498												

CONTINUED ON SHEET NO. 4

FENCING REQUIREMENTS

STATION	SIDE	REMOVE FENCE	REMOVE & REBUILD FENCE	BUILD B. W. FENCE	GATES	
		LIN. FT.	LIN. FT.	LIN. FT.	B.W. NO.	DRIVEWAY NO.
0-66-0-50	L	25				
0-66-49+00	R	4980				
37+20-52+50	L	1540				
49+70-54+00	R	460				
52+50-56+00	R	350				
56+00	X	80				
56+34	X	85				
56+34-68+00	R	1168				
73+20-78+00	R	490				
91+38	X	120				
96+17	X	120				
100+83	X	530				
127+82	X	160				
146+37	X	160				
162+26	X	160				
188+70-192+10	R	350				
192+10-194+50	L	280				
195+00-195+10	L	50				
16+50BK-18+50BK	L		200			
16+50BK-18+50BK	R		200			
36+70-37+20	L		50			
0-66-0-50	L			40		
39+45-56+00	L			1690		
56+34-194+40	L			13680		
0-66-37+20	R			3780		
39+45-67+70	R			2855		
68+10-188+70	R			11930		
16+50	R					1
27+60	R				1	
49+50	L				1	
65+64	L				1	
73+26	R				1	
73+50	L				1	
91+70	L				1	
99+10	L				1	
99+10	R				1	
123+00	L				1	
123+00	R				1	
139+20	L				1	
139+20	R				1	
144+50	L				1	
147+00	R				1	
148+40	L				1	
161+30	L				1	
162+30	R				1	
188+60	L				1	
TOTALS		11106	450	34035	18	1

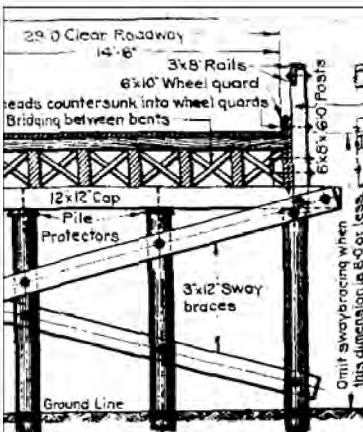
TABULATION OF STRUCTURES CONTINUED FROM SHEET NO.3

STATION	DESCRIPTION	REMOVE STRUCTURE	UNCLASSIFIED		STRUCTURAL EXCAVATION		GRAVEL OR CR. ROCK SURFACING	CONCRETE		REINF. STEEL	CORRUGATED METAL CULVERT PIPE				RELAYING PIPE	WIRE CABLE GUARD FENCE	MISCELLANEOUS			
			No.	EXCAV.	EMBANK.	*		CU. YDS.	TONS		CU. YDS.		LBS.	LIN. FT.						
											CLASS "A"	CLASS "B"		18"				24"	30"	36"
127+38	2'x2'x54' Conc Box Culv & Ditch Change		20		40			22.0	2266											
127+64	Remove Wood Drop Rt.	1																		
127+80	Conc Drop in Irrigation Ditch Rt				3				4.8											
123+00	3'x2'x52' Conc Box Culvert & Ditches		15		50			27.9	2601											
136+38	1.5'x1.5'x48' Conc Box Culv. & Ditch Change		20		35			16.1	1789											
130+00	3'x1'x50' Conc Box Culv.				45			21.6	2235											
162+80	3'x1'x46' Conc Box Culvert & Ditches		5		45			20.3	2085											
173+69	3'x1'x50' Concrete Box Culvert				45			21.6	2235											
	Ditch Change		15																	
179+10	3'x1'x44' Concrete Box Culvert				20			19.6	2010											
	Ditch Change		20																	
180+50-187+50	Irrigation Ditch Rt		40																	
187+50	3'x1'x49' Conc Box Culvert & Ditches		5		40			21.3	2198											
191+46	Remove 15'x18' C.M.P. Culvert (2 Headwalls)	1																		
194+80	C.M.P. Side Drain & Road Approach Lt			50	1		20				32									
	Remove 15'x18' C.M.P. Culvert (2 Headwalls)	1																		
135+10	Project Marker & Approach to Project			400			100									1-Project Marker				
TOTALS			15	2975	975	886		270	4485	150	42277	148	88	88	90	74	2136			

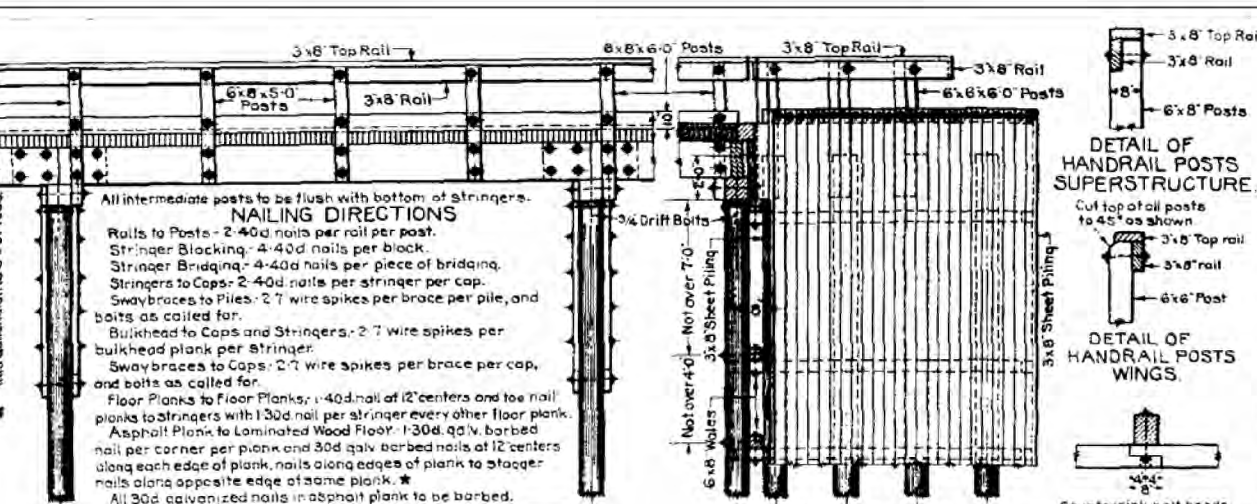
* Structural Excavation is estimated to be 90% Common and 10% Rock; each of which is estimated to be 75% Dry and 25% Wet.

* Included in Profile quantities for payment.

† Connecting bands are to be included in the price bid per linear foot for "Corrugated Metal Culvert Pipe and for "Relaying Pipe."

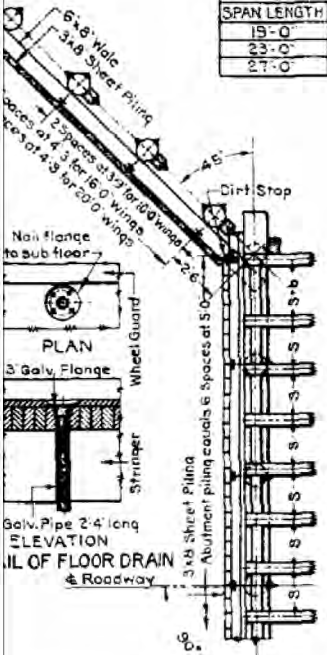


HALF SECTION A-A.
TYPICAL BENT AND SPAN SECTION.

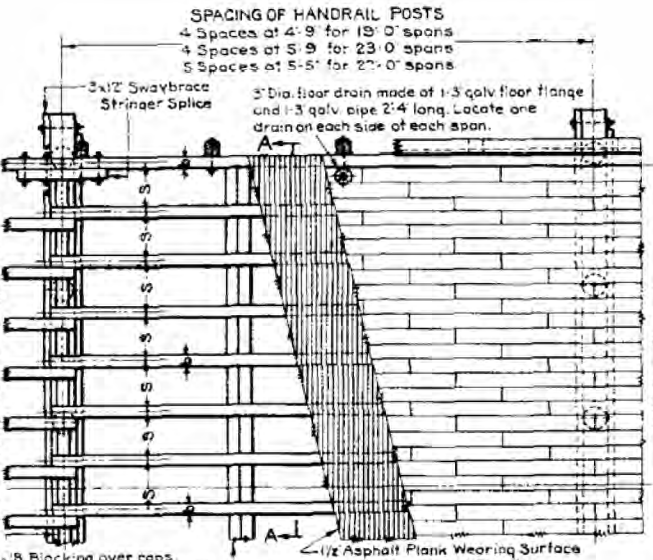


TYPICAL ELEVATION OF SPAN

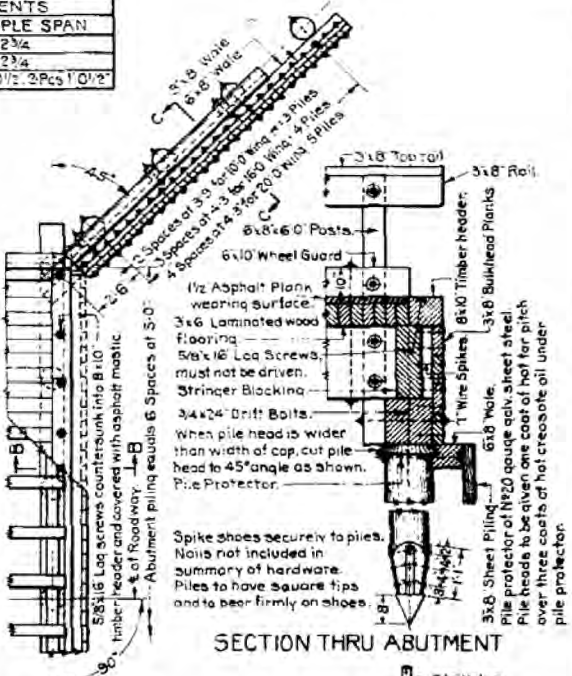
STRINGER SPACING				STRINGER BLOCKING			
SPAN LENGTH	SINGLE SPAN	MULTIPLE SPAN	NUMBER OF STRINGERS	SINGLE SPAN	MULTIPLE SPAN	MULTIPLE SPAN	BENTS
19'-0"	2'-3 3/4"	2'-2 3/4"	14	13 Pcs 1'-9 1/4"	12 Pcs 1'-8 3/4"	12 Pcs 2'-2 3/4"	13 Pcs 1'-2 3/4"
23'-0"	2'-3 3/4"	2'-2 3/4"	14	13 Pcs 1'-9 1/4"	12 Pcs 1'-8 3/4"	12 Pcs 2'-2 3/4"	13 Pcs 1'-2 3/4"
27'-0"	2'-3 3/4"	2'-2 3/4"	14	13 Pcs 1'-9 1/4"	12 Pcs 1'-8 3/4"	12 Pcs 2'-2 3/4"	13 Pcs 1'-2 3/4"



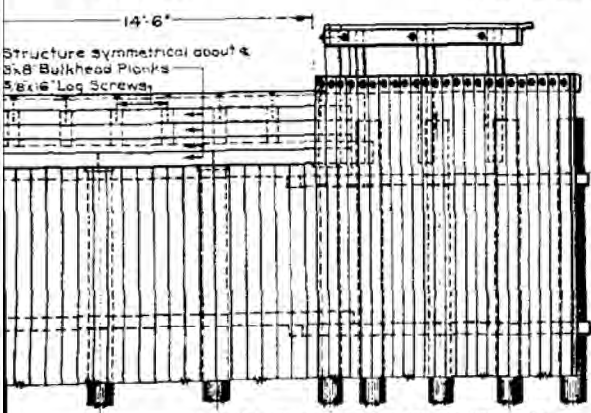
SECTIONAL HALF PLAN OF ABUTMENT



TYPICAL SECTIONAL HALF PLAN OF SPANS



HALF PLAN OF ABUTMENT



HALF END ELEVATION

GENERAL NOTES

All work shall be done according to the standard specifications of The Colorado State Highway Department, Adopted August 1-1935.

All timber and piling to be treated or untreated as shown in bills of material.

All timber and piling shall be dense southern yellow pine or west coast douglas fir.

All caps shall be edged to an even depth before treatment. The ends of all stringers shall be dapped on one edge before treatment to obtain an even depth over caps.

All cut surfaces or bored holes in treated timber or piles shall be thoroughly saturated with hot creosote oil.

All piling supporting caps shall be covered with galvanized pile protectors as specified, all other piling caps shall be saturated with hot creosote oil and covered with a thick layer of heavy asphalt or tar.

Joints in top handrail must be staggered with joints in side rail.

All handrailing and posts above the wheel guards shall be painted white and all handrail posts below the top of wheel guards shall be painted black as specified.

All bolts more than 12 inches long must be threaded not less than 4 inches.

Bolts in the finished structure shall not project more than one half inch beyond the nut.

All bolts must have Std. C.I.O.G. or Malleable Cast Washers under each head and nut.

Bolt lengths are calculated assuming Std. C.I.O.G. washers will be used.

The contractor is cautioned to check bolt lengths before ordering because of variations in thickness of lumber and piling.

The entire exposed surface of all untreated timber shall be painted one coat as specified immediately after the material is delivered to the project.

Before placing handrailing the contact surfacing shall receive the second coat of paint.

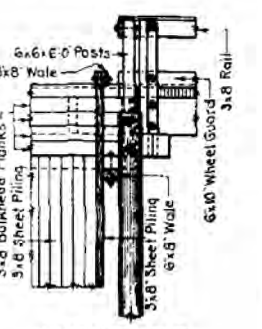
When contractor is permitted to drill holes to facilitate pile driving, these holes must be drilled so piling will stand in vertical position after final driving.

Bed price for asphalt plank shall include galvanized barbed nails.

All hardware to be galvanized. Weights of hardware as shown are for ungalvanized material.

Any necessary blocking for swaybracing shall be treated timber.

PLAN OF PILE SHOE
CAST IRON



SECTION C-C

STANDARD P-117-B-V

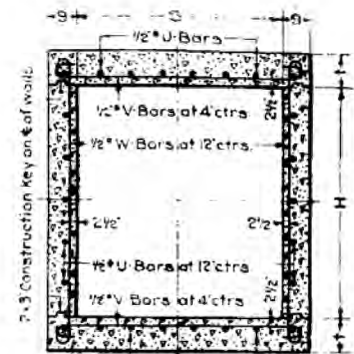
FED. ROAD DIST. NO.	STATE	A.W.F.	SHEET NO.	TOTAL SHEETS
3	COLO.	4002	6	

Revised Oct. 21-1935 A.G.K. Changed to 1935 Specifications.
Revised Dec. 20-1935 A.G.K. Changed handrail post bolts to 3/4" dia.

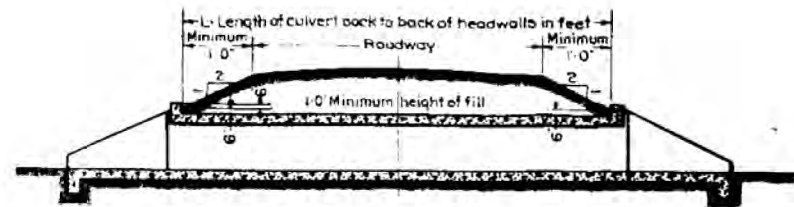
BOLTS AND WASHERS FOR ONE SPAN OF SUPERSTRUCTURE										
LOCATION	SIZE	15'-0" SPAN			23'-0" SPAN			27'-0" SPAN		
		NO.	LENGTH	TOTAL	NO.	LENGTH	TOTAL	NO.	LENGTH	TOTAL
POSTS TO RAILS	3/4"	6	10	7.0 LBS.	6	10	7.0 LBS.	8	10	9.0 LBS.
POSTS TO WHEEL GUARDS	3/4"	6	14	12.7 LBS.	14	14	12.7 LBS.	8	14	17.0 LBS.
POSTS TO STRINGERS	3/4"	12	16	28.5 LBS.	12	16	28.5 LBS.	16	16	40.0 LBS.
WHEEL GUARDS TO STRINGERS	3/4"	6	36	65.0 LBS.	12	36	130.0 LBS.	16	36	200.0 LBS.
TOTAL FOR SPAN			12	12	65.0 LBS.		14	14	200.0 LBS.	

STANDARD M-103-D

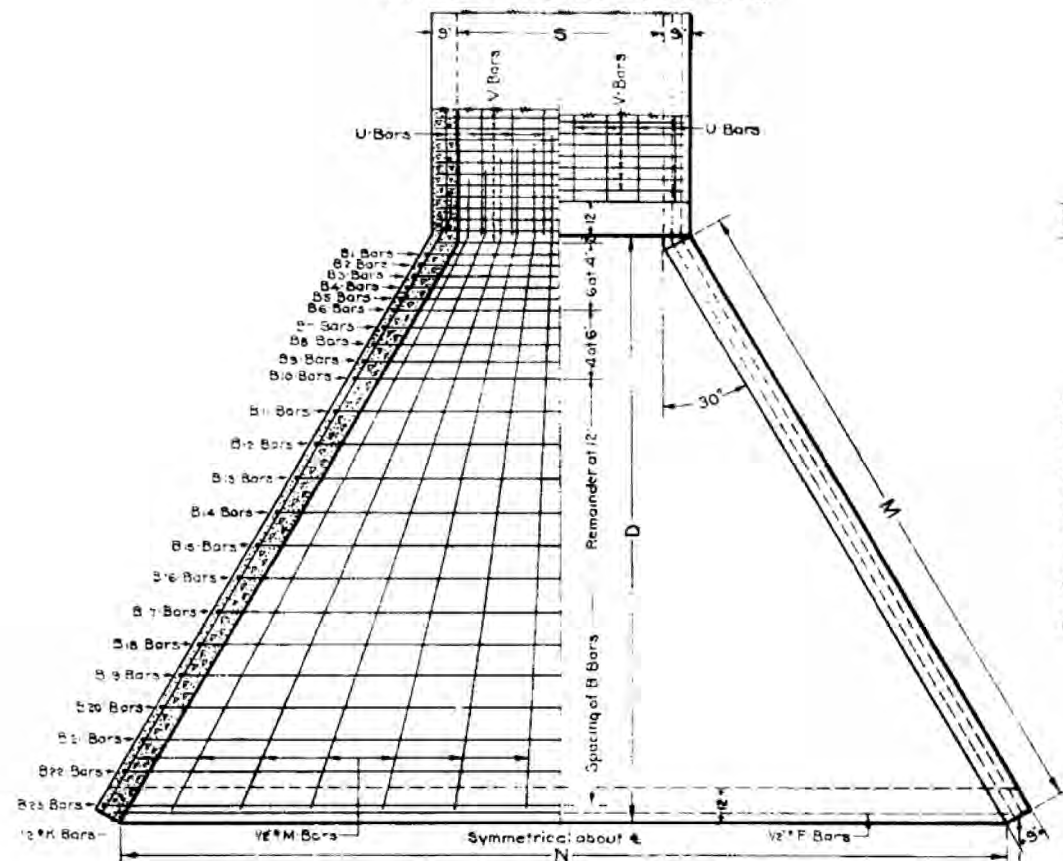
FED. ROAD DIST. NO.	STATE	A.W.P.	SHEET NO.	TOTAL SHEETS
3	COLO.	4002	7	



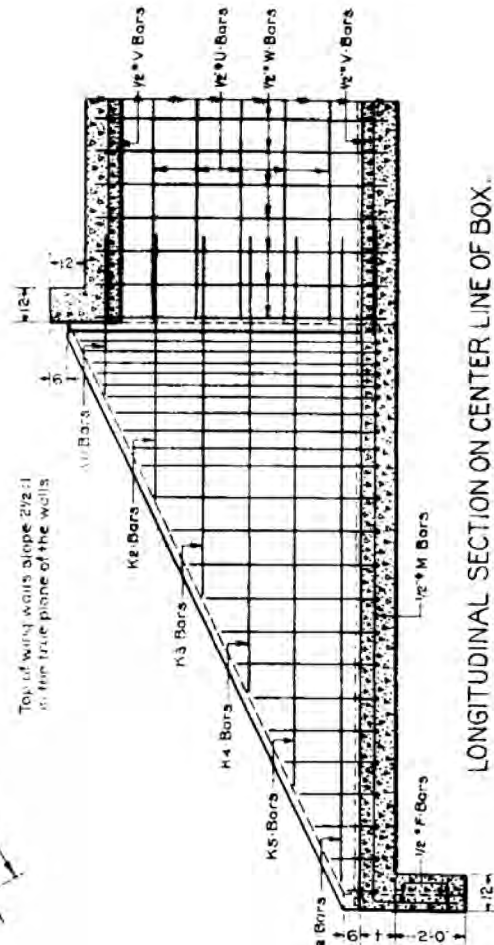
TYPICAL SECTION THRU BOX.



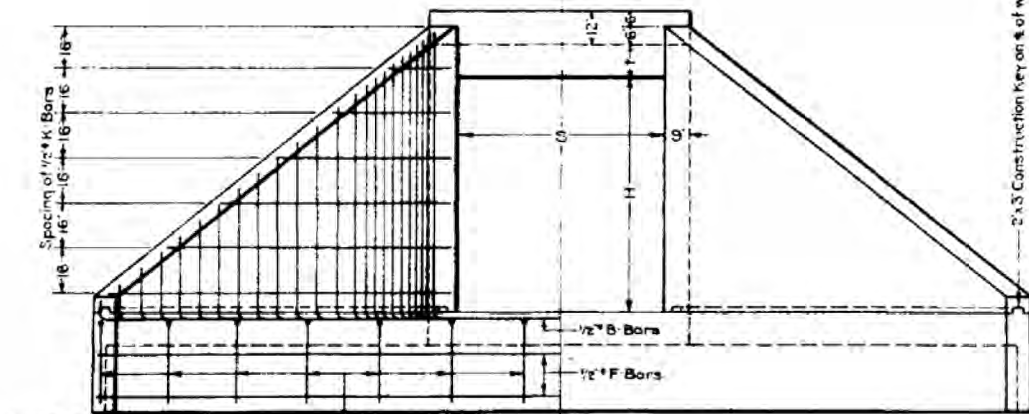
TYPICAL SECTION SHOWING RELATION OF CULVERT TO ROADWAY.



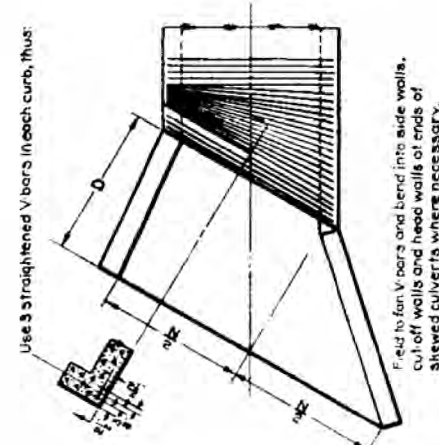
PART PLAN.



LONGITUDINAL SECTION ON CENTER LINE OF BOX.



END VIEW.



PART PLAN FOR SKEWED HEADWALLS.

REINFORCEMENT BAR LIST									
USE BARS FOR	MARK	SIZE	NUMBER	DIMENSION P	DIMENSION Q	TOTAL LENGTH	BENDING DIAGRAM		
All Sizes	V	1/2"	(6W+14)	S+10'	H+10'	S+2'-2"	ALL DIMENSIONS ARE TO 1/4" OF BARS		
-	W	1/2"	(2U+8)	H+10'		H+2'-2"			
-	F	1/2"	4			N+0'-3"			
-	U	1/2"	4			L+1'-8"			
-	K1	1/2"	4		5'-4"	5'-4"			
H+2'-0" or more	K2	1/2"	4		6'-6"	6'-6"			
H+3'-0"	K3	1/2"	4		10'-0"	12'-0"			
H+5'-0"	K4	1/2"	4		13'-4"	15'-4"			
H+6'-0"	K5	1/2"	4		16'-8"	18'-8"			
H+7'-0"	K6	1/2"	4		20'-0"	22'-0"			
All Sizes	B1	1/2"	2	S+1'-6"	H+1'-3"		P=(2+Q)-2'		
-	B2	1/2"	2	S+1'-11"	H+1'-1"				
-	B3	1/2"	2	S+2'-5"	H+0'-11"				
-	B4	1/2"	2	S+2'-8"	H+0'-9"				
-	B5	1/2"	2	S+3'-0"	H+0'-6"				
-	B6	1/2"	2	S+3'-5"	H+0'-3"				
-	B7	1/2"	2	S+4'-0"	H+0'-0"				
-	B8	1/2"	2	S+5'-2"	H+0'-3"				
H+1'-6" or more	B10	1/2"	2	S+5'-5"	H+0'-5"				
H+2'-0"	B11	1/2"	2	S+6'-11"	H+0'-11"				
H+3'-0"	B12	1/2"	2	S+8'-1"	H+1'-4"				
H+3'-0"	B13	1/2"	2	S+9'-5"	H+1'-10"				
H+5'-0"	B14	1/2"	2	S+10'-5"	H+2'-3"				
H+4'-0"	B15	1/2"	2	S+11'-7"	H+2'-3"				
H+4'-0"	B16	1/2"	2	S+12'-9"	H+3'-3"				
H+5'-0"	B17	1/2"	2	S+13'-11"	H+3'-8"				
H+5'-0"	B18	1/2"	2	S+15'-1"	H+4'-2"				
H+6'-0"	B19	1/2"	2	S+16'-3"	H+4'-7"				
H+6'-0"	B20	1/2"	2	S+17'-5"	H+5'-1"				
H+6'-0"	B21	1/2"	2	S+18'-7"	H+5'-6"				
H+7'-0"	B22	1/2"	2	S+19'-9"	H+6'-0"				
H+7'-0"	B23	1/2"	2	S+20'-11"	H+6'-5"				
All Sizes	M	1/2"	(3U+4)	D+3'-0"		D+5'-3"			

* See table of Dimensions and Quantities.

TABLE OF DIMENSIONS AND QUANTITIES													
STEEL QUANTITIES GIVEN BELOW INCLUDE ALLOWANCE FOR OVERRUN OF 1%.													
TOTAL QUANTITIES FOR ONE BOX EQUALS THE QUANTITY FOR TWO HEADWALLS PLUS (L x QUANTITY FOR ONE LINEAL FT. OF BOX)													
SPAN S	HEIGHT H	HEIGHT OF FILL ALLOWED	DIMENSION M	DIMENSION N	DIMENSION D	THICKNESS OF SLAB T	NUMBER OF U-BARS PER BOX	QUANTITIES FOR ONE LINEAL FT. OF BOX	QUANTITIES FOR TWO HEADWALLS	QUANTITIES FOR TWO CUT-OFF WALLS	QUANTITIES FOR TWO CUT-OFF WALLS	QUANTITIES FOR TWO CUT-OFF WALLS	QUANTITIES FOR TWO CUT-OFF WALLS
								CONCRETE CU.YDS.	STEEL LBS.	CONCRETE CU.YDS.	STEEL LBS.	CONCRETE CU.YDS.	STEEL LBS.
1'-6"	1'-6"	29'-6"	5'-6 1/4"	7'-2 1/4"	5'-1 7/8"	8 1/2"	8	0.241	30.6	4.5	320	116.91	4.40
2'-0"	2'-0"	22'-6"	6'-9 1/4"	8'-11 1/4"	6'-2 1/4"	8 1/2"	8	0.233	34.0	6.1	430	153.44	5.18
3'-0"	3'-0"	19'-0"	7'-1"	10'-3 3/4"	6'-6 1/4"	10"	8	0.332	37.5	5.0	360	118.50	4.65
3'-0"	2'-0"	19'-0"	7'-1"	10'-3 3/4"	6'-6 1/4"	10"	10	0.388	40.5	7.7	495	178.11	5.76
3'-0"	3'-0"	19'-0"	9'-7"	12'-9 3/4"	8'-8 1/4"	10"	12	0.444	43.6	11.0	680	250.88	6.87
4'-0"	2'-0"	15'-0"	7'-1"	11'-3 3/4"	6'-6 1/4"	10"	12	0.450	47.0	8.5	565	195.13	6.19
4'-0"	3'-0"	15'-0"	9'-7"	13'-9 3/4"	8'-8 1/4"	10"	14	0.506	50.0	12.0	735	272.24	7.51
4'-0"	4'-0"	15'-0"	12'-1"	16'-3 3/4"	10'-10 1/4"	10"	16	0.562	53.1	16.0	910	359.71	8.42
5'-0"	3'-0"	11'-6"	9'-7"	14'-3 3/4"	8'-8 1/4"	10"	18	0.567	56.6	12.8	835	293.60	7.76
5'-0"	4'-0"	11'-6"	12'-1"	17'-3 3/4"	10'-10 1/4"	10"	18	0.623	59.6	17.1	995	365.43	8.67
5'-0"	5'-0"	11'-6"	14'-7"	19'-3 3/4"	10'-10 1/4"	10"	20	0.675	62.7	21.3	1220	468.07	9.98
6'-0"	2'-0"	10'-0"	7'-4 1/4"	13'-7 1/4"	8'-9 3/4"	11 1/2"	16	0.645	60.0	11.3	705	239.30	7.23
6'-0"	3'-0"	10'-0"	9'-10 1/4"	16'-1 1/4"	8'-11 1/4"	11 1/2"	18	0.699	63.0	15.3	920	325.85	8.34
6'-0"	4'-0"	10'-0"	12'-4 1/4"	18'-7 1/4"	11'-1 1/4"	11 1/2"	20	0.755	66.2	20.1	1090	423.57	9.45
6'-0"	5'-0"	10'-0"	14'-10 1/4"	21'-1 1/4"	13'-3 1/4"	11 1/2"	22	0.810	69.2	25.6	1320	532.02	10.58
6'-0"	6'-0"	10'-0"	17'-4 1/4"	23'-7 1/4"	15'-5 1/4"	11 1/2"	24	0.866	72.3	31.7	1620	651.48	11.67
6'-0"	7'-0"	10'-0"	19'-10 1/4"	26'-1 1/4"	17'-7 1/4"	11 1/2"	26	0.923	75.3	38.5	1900	781.85	12.79

GENERAL NOTES.

- All work shall be done according to the Standard Specifications of the Colorado State Highway Department, Adopted August 1-1935.
- All concrete shall be class 'A'.
- All exposed surfaces shall be rubbed free of form marks.
- All walls shall have forms on both sides.
- Minimum distance between center line of bar and edge of concrete to be 2 1/2".
- All construction joints shall be thoroughly cleaned before fresh concrete is poured.
- Footings in rock shall be poured out to the rock and not formed.
- For culverts required and governing dimensions see sheet N-2.
- All reinforcing bars shall be deformed.
- All reinforcing bars shall be tagged with the station number and letter designation.
- Secondary bars when spliced shall be given a lap of 50 diameters.
- 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 engineer will inspect and determine if redesign is necessary.
- Pour wing footings monolithically with floor of box.
- The use of additional construction joints undesirable, should field conditions require, construction joints may be made on a vertical plane perpendicular to center line of culvert and shall have a 2x3' key.
- This design not to be used when height of fill exceeds the allowable tabulated.
- Supporting soils for all culverts must be composed of firm and uniform material throughout.
- All backfilling in approaches, to and over culverts, shall be laid in layers not exceeding 6 inches in depth and each layer shall be rolled or hand tamped where inaccessible to roller, also moistened when necessary.

LOADING DATA
LL-AASHO Aug. 1928 Class 'A' (H-15)

COLORADO
STATE HIGHWAY DEPARTMENT
CONCRETE BOX CULVERTS

12x12	4x2	5x4	6x4
2x2	4x3	5x5	6x5
3x1	4x4	6x2	6x6
3x2	5x3	6x3	6x7
3x3			

Designed by AGK
Made by AGK
Check Design
Check Detail HES

Approved by P. J. Bailey
Bridge Engineer
Date: Apr. 25, 1936

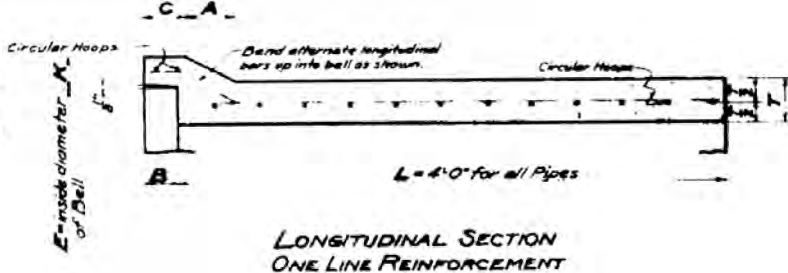
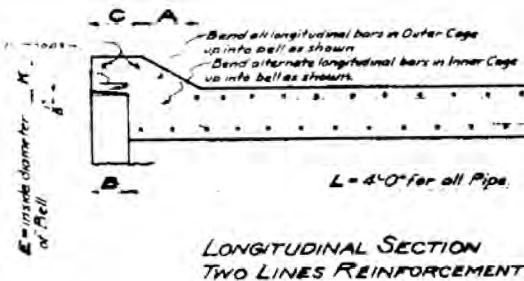
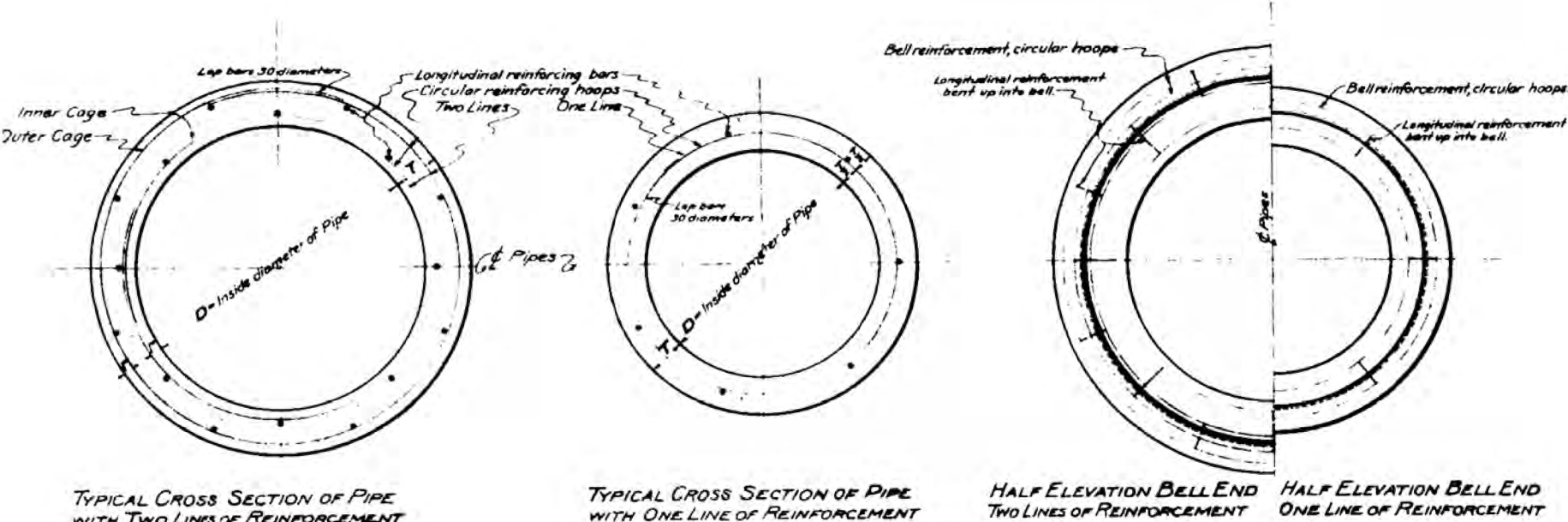
INITIAL	DATE
BY	
BY	
BY	
BY	

STANDARD M-103-D.

STRUCTURE NO.

FED. ROAD DIST. No.	STATE	AW PROJECT No.	SHEET No.	TOTAL SHEETS
3	COLO.	4002	8	

REVISED 3-15-36 WARS DEFENSES BARS
Revised 3-15-36 A.B.A. Changes to 1935 Specifications.



D	T	E	F	A	B	C	K	L	NUMBER OF LINES OF REINFORCEMENT	CIRCULAR HOOPS	LONGITUDINAL REINFORCEMENT				CIRCULAR REINFORCEMENT			
											DESIGN BASED ON BILLET STEEL / INTERMEDIATE & STRUCTURAL STEEL		DESIGN BASED ON COLD DRAWN STEEL WIRE		DESIGN BASED ON COLD DRAWN STEEL WIRE		DESIGN BASED ON COLD DRAWN STEEL WIRE	
INSIDE DIAMETER OF PIPE	THICKNESS OF SHELL	INSIDE DIAMETER OF BELL	OUTSIDE DIAMETER OF BELL	LENGTH OF BELL	DEPTH OF BELL	LENGTH OF BELL	THICKNESS OF BELL	LENGTH OF PIPE			INNER CAGE	OUTER CAGE	INNER CAGE	OUTER CAGE	INNER CAGE	OUTER CAGE	INNER CAGE	OUTER CAGE
15"	2 1/4"	21 1/4"	26"	5'	3"	4'	2 1/4"	4'-0"	1		5-#8 bars		1/2" - 0.21		0.21			
18"	3 1/4"	25"	30"	5'	3"	4'	2 1/4"	4'-0"	1		5-#8 bars		1/2" - 0.26		0.26			
24"	3 3/4"	32 1/4"	38"	5'	3"	4'	3"	4'-0"	1		7-#8 bars		1/2" - 0.37		0.37			
30"	4 1/4"	40 1/4"	47 1/4"	6'	4"	5'	3 1/4"	4'-0"	2		8-#8 bars	8-#8 bars	1/2" - 0.33	1/2" - 0.33	0.33	0.33		
36"	5 1/4"	47 1/4"	55 1/4"	6'	4"	5'	4"	4'-0"	2		10-#8 bars	10-#8 bars	1/2" - 0.40	1/2" - 0.40	0.40	0.40		

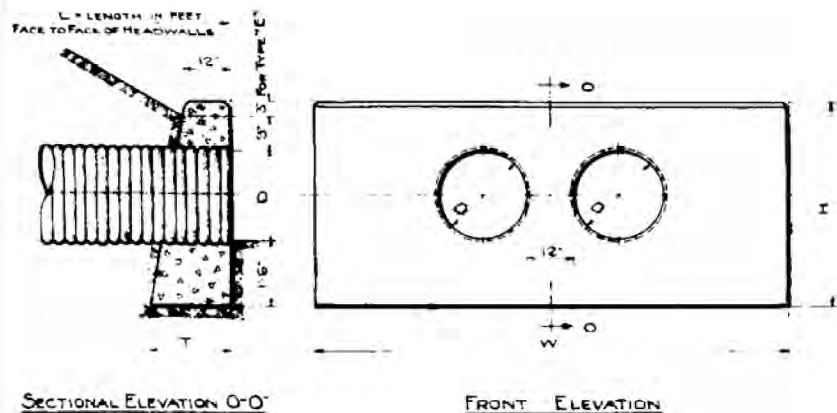
GENERAL NOTES
All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department adopted Aug. 1, 1935.
All concrete shall be class "D" Slump 3" to 6".
All reinforcing bars shall be deformed.
Minimum distance center line of bar to edge of concrete to be 1".
Estimated maximum soil pressure 4000 lbs. per sq. ft.
Pipe designed in accordance with Second Report of the Joint Concrete Culvert Pipe Committee of 1928, Design Table No. III.
All portions of the excavated trench within the lower 120° of pipe circumference which is in suitable material shall be shaped to conform to the bottom of the pipe. Where rock is encountered the trench shall be excavated (6") six inches below the bottom of the pipe and this depth shall be refilled with suitable materials and thoroughly tamped.
The supporting soil for the entire length of the culvert shall be composed of firm and uniform materials throughout.
All joints shall be completely filled with mortar composed of one part Portland Cement and two parts clean hard sand. The joint filling shall be flush with the inside of the pipe.
For sizes and lengths required see sheet No. 2.
Headwalls when designated on sheet No. 2 shall conform to Headwall STANDARD M-112-B.

COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD REINFORCED CONCRETE
CULVERT PIPE

SIZES
15" 18" 24" 30" 36"

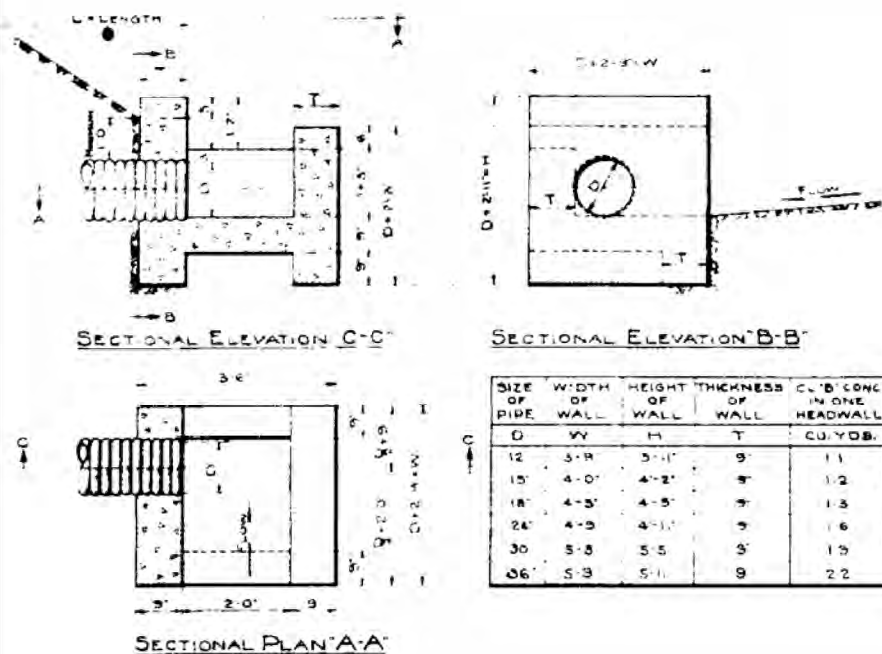
Designed by E.B.B.
Made by E.B.B.
Checked by P.S.B.

Approved by J.P. Bailey
Bridge Engineer
Date: Sept. 14, 1935

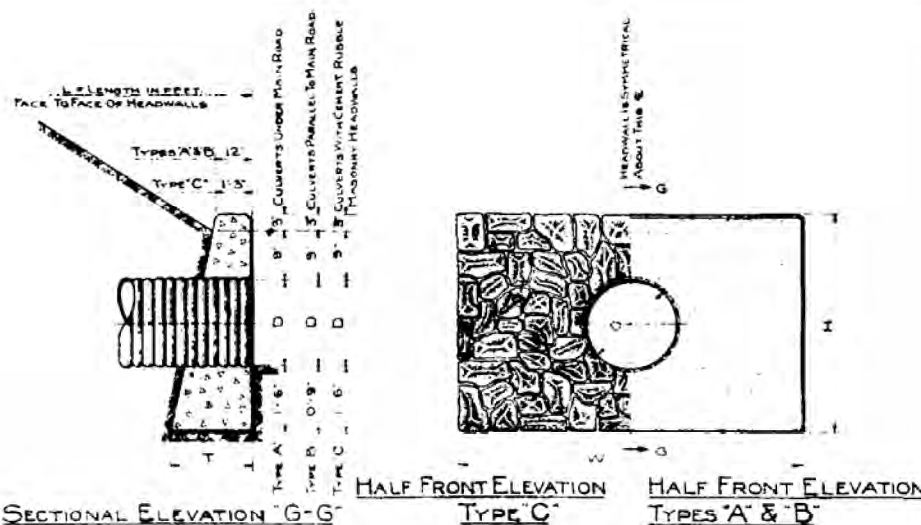


TYPE	D	W	H	T	C.B. CONCRETE FOR 2 HEADWALLS		CORRUGATED METAL PIPE		CEMENT RUBBLE MASONRY
					CU. YDS.	CS. GAGE	24" LIN. FT.	CS. GAGE	
TYPE "C"	12	12	4-0	1-0	10.0	6	240	0	
TYPE "D"	12	12	4-0	1-0	10.0	6	240	0	
TYPE "E"	12	12	4-0	1-0	10.0	6	240	0	

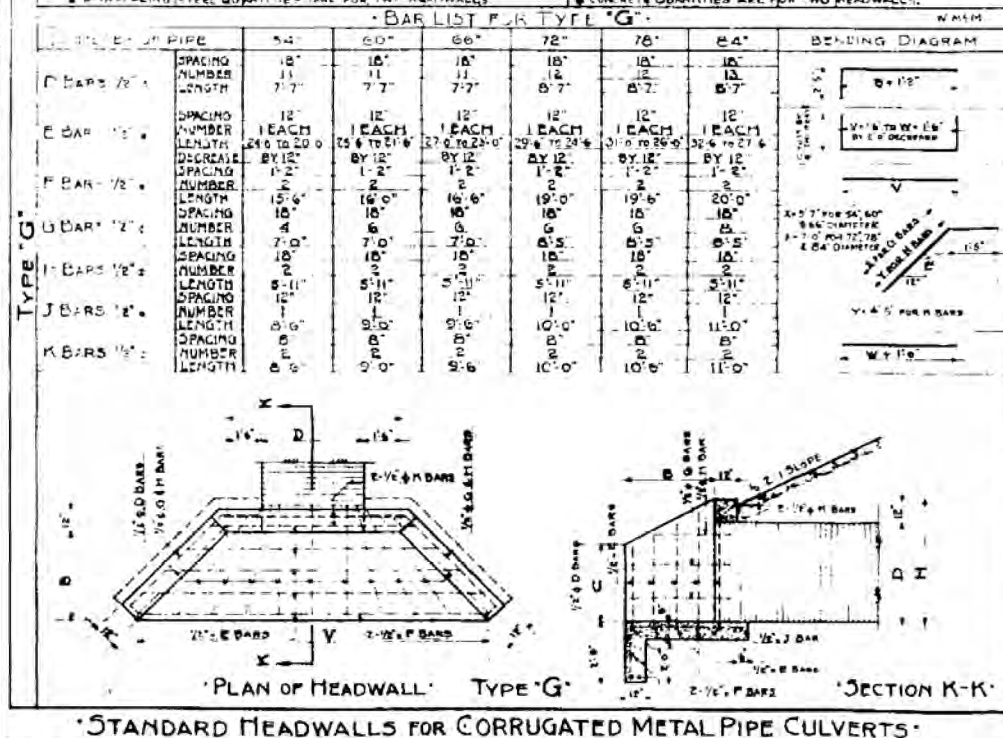
STD. HEADWALLS FOR DOUBLE CORRUGATED METAL PIPE CULVERTS.



INTERCEPTING HEADWALLS.



TYPE	D	W	H	T	C.B. CONCRETE FOR 2 HEADWALLS		CORRUGATED METAL PIPE		CEMENT RUBBLE MASONRY
					CU. YDS.	CS. GAGE	L - LIN. FT.	CS. GAGE	
TYPE "A"	12	12	4-0	1-0	10.0	6	240	0	
TYPE "B"	12	12	4-0	1-0	10.0	6	240	0	
TYPE "C"	12	12	4-0	1-0	10.0	6	240	0	

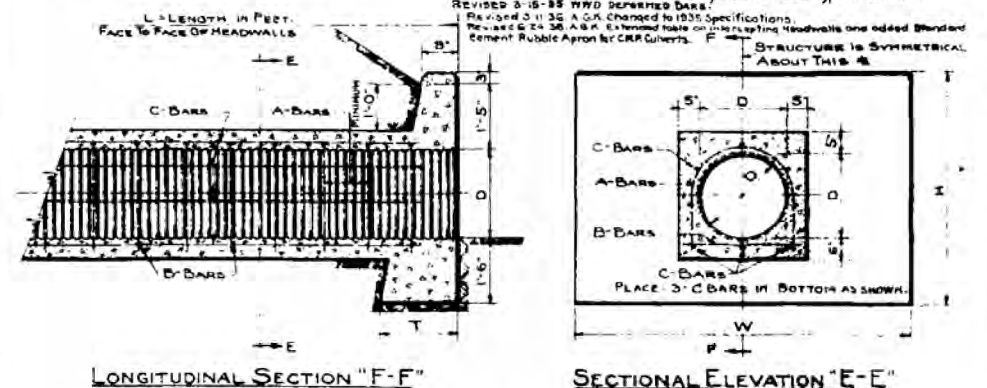


STANDARD HEADWALLS FOR CORRUGATED METAL PIPE CULVERTS.

STANDARD M-102-E

FED. ROAD DIST. NO.	STATE	PLAN NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	4002	9	

Revised 10-24-33 A.C.K. Corrected Gauge on 24" B.36" Type "C" Culverts.
 Revised 3-15-35 W.D. DELETED BARS.
 Revised 3-11-35 A.C.K. changed to 1935 Specifications.
 Revised 6-24-36 A.C.K. Extended table on Intercepting Headwalls and added Standard Cement Rubble Apron for C.M.P. Culverts.



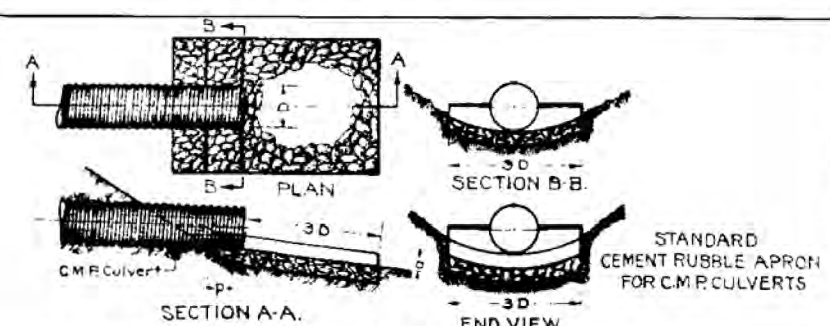
DIAMETER OF PIPE	D	12"	15"	18"	24"	30"	BENDING DIAGRAM
WIDTH OF HEADWALL	W	4'-6"	5'-3"	6'-0"	7'-6"	9'-0"	
HEIGHT OF HEADWALL	H	4'-2"	4'-5"	4'-8"	5'-2"	5'-8"	
WIDTH OF HEADWALL BASE	T	1'-7"	1'-8"	1'-9"	2'-0"	2'-3"	
A-BARS	SPACING	12"	12"	12"	12"	12"	
B-BARS	SPACING	12"	12"	12"	12"	12"	
C-BARS	SPACING	12"	12"	12"	12"	12"	

CONCRETE QUANTITIES SHOWN ABOVE INCLUDE TWO HEADWALLS.
 WHEN L IS 2-4 FT. OR MORE ADD 10 BARS FOR 40 IN. C-BARS.
 WHEN L IS 4-10 FT. OR MORE ADD 4 BARS FOR 40 IN. C-BARS.

SPECIAL NOTES

ALL REINFORCING BARS SHALL BE #8.
 MINIMUM DISTANCE 8" OF BAR TO SURFACE OF CONCRETE SHALL BE 2".
 PIPE SHALL BE THOROUGHLY CLEANED BEFORE INCASING WITH CONCRETE.

INCASED PIPE CULVERTS.



SLOPE	SLOPE															
	1:1	1:1.5	2:1	2.5:1	3:1	4:1	5:1	6:1	7:1	8:1	9:1	10:1	12:1	15:1	20:1	25:1
1:1	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
1:1.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
2:1	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
2.5:1	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
3:1	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
4:1	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
5:1	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
6:1	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
7:1	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
8:1	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
9:1	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
10:1	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
12:1	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
15:1	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
20:1	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
25:1	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5

GENERAL NOTES FOR ALL STRUCTURES

ALL WORK SHALL BE DONE ACCORDING TO THE STANDARD SPECIFICATIONS OF THE COLORADO STATE HIGHWAY DEPARTMENT, ADOPTED AUGUST 1-1935.

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 EXPOSED CORNERS SHALL BE BEVELED TO A 2" FACE.

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 AND LETTER DESIGNATION.

SECONDARY BARS WHEN SPLICED SHALL BE GIVEN A LAP OF 50 DIAMETERS.

MAIN BARS SHALL NOT BE SPLICED.

MINIMUM FINISH OVER TOP OF CULVERTS SHALL BE 10".

WHEN CULVERT IS SKEWED HEADWALLS SHALL BE PLACED PARALLEL TO & OF ROADWAY.

MINIMUM GRADE OF PIPE SHALL BE 1%.

FOR SIZE AND LOCATION OF CULVERTS SEE SHEET NY-2.

FOOTINGS IN ROCK SHALL BE POURED OUT TO THE ROCK AND NOT FORMED.

COLORADO

STATE HIGHWAY DEPARTMENT

STANDARD HEADWALLS

INTERCEPTING HEADWALLS

INCASED METAL PIPE CULVERT WITH HEADWALLS

FOR CORRUGATED METAL PIPE CULVERTS

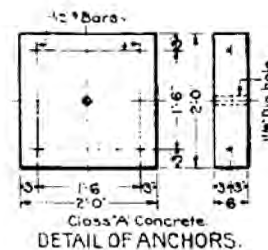
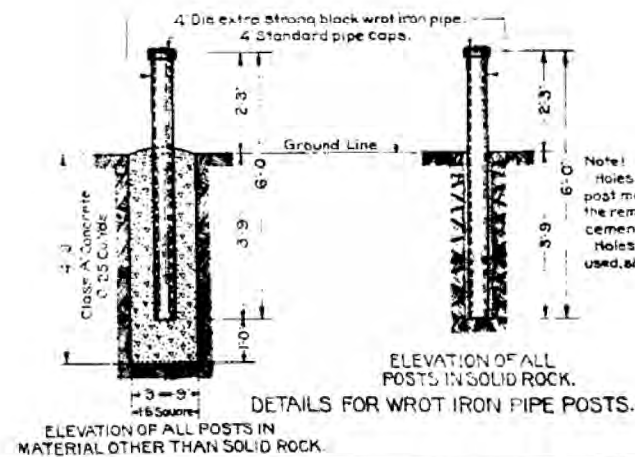
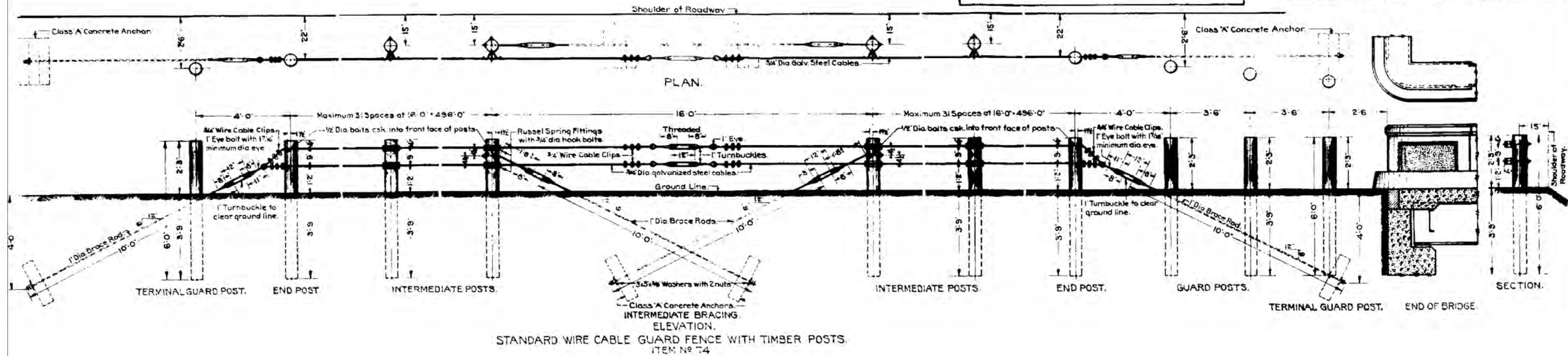
Designed by E. B. B. Approved by E. B. B.

Made by G. A. W. Bridge Engineer

Checked by E. B. B. Date: April 20, 1932.

STANDARD M-20-A

FED. ROAD DIST. NO.	STATE	A.W.P.	SHEET NO.	TOTAL SHEETS
3	COLD.	4002	10	



GENERAL NOTES.

All work shall be done in accordance with the Standard Specifications of The Colorado State Highway Department, adopted August 1, 1935.

The length of guard fence to be paid for and designated on plans shall be measured from terminal guard post to terminal guard post.

When continuous wire cable fence is more than 500 ft in length it shall have intermediate bracing complete with turnbuckles.

All wood posts shall be made from seasoned, straight, sound Lodge Pole Pine, Southern Yellow Pine or West Coast Douglas Fir.

No section of wood posts shall be less than 6" diameter.

All wood posts shall be entirely peeled and shaved, thoroughly seasoned and dry, with square tops and all holes to be drilled 1/8" larger than diameter of bolt or rod before treatment is applied.

All wood posts shall be pressure treated with creosote for the full length of posts, as provided for in the specifications.

All wood posts shall be set and tamped in plumb and firm, to the lines and grades directed by the engineer.

All fittings, cables and hardware shall be hot dip galvanized steel with sizes as noted and located as shown.

Eye bolts shall be welded or drop forged.

Standard galvanized cast iron D.G. or galvanized malleable cast washers shall be used under all bolt heads and nuts coming in contact with wood posts.

Wedge lock fittings or other fittings equivalent to those shown on plans and approved by the engineer may be used in lieu of offset fittings, turnbuckles, eye bolts and clips as shown.

Only one style of offset fittings, turnbuckles, eye bolts and clips may be used on a project.

COLORADO
STATE HIGHWAY DEPARTMENT

STANDARD
WIRE CABLE GUARD FENCE

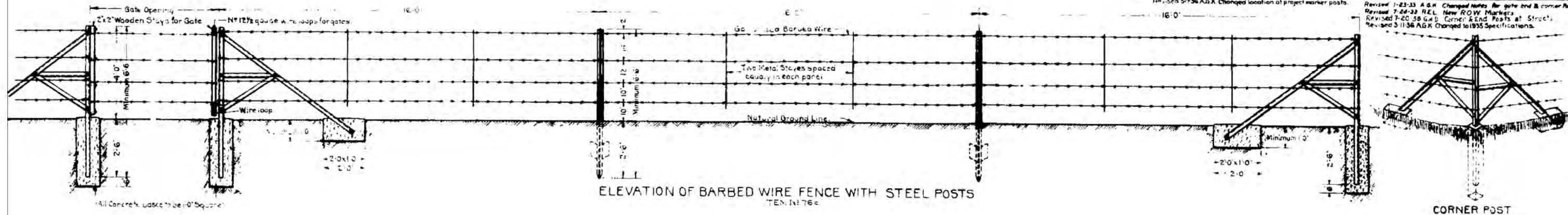
Designed by A.S.K.
Made by A.S.K.
Checked by A.S.K.
Approved by *Ed. G. G.*
Bridge Engineer
Date: *March 1936*

STANDARD M-27-A

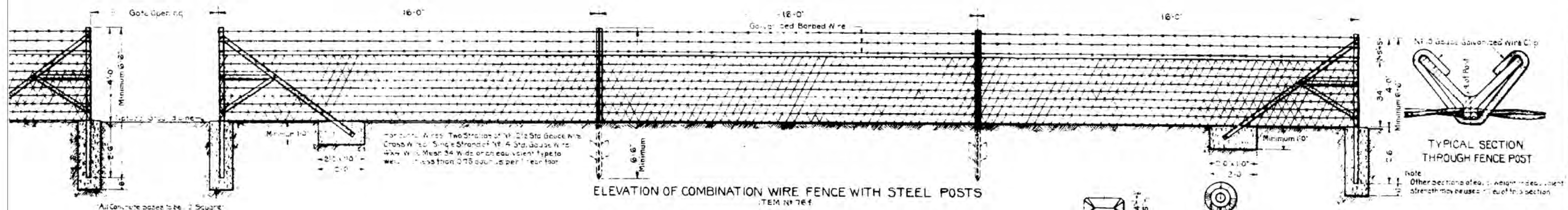
FED. ROAD DIST No	STATE	A.W. PROJ No	SHEET No.	TOTAL SHEETS
3	COLD	4002	11	

Item 5: 5/7/96 A.D.K. Changed location of project marker post

Revised 1-23-33 A.G.K. Changed Notes for gate end & corner Posts.
Revised 7-24-32 R.L. New ROW Markers.
Revised 7-20-38 G.W.D. Corner & End Posts at Street.
Revised 3-11-36 A.G.K. Changed to 1935 Specifications.

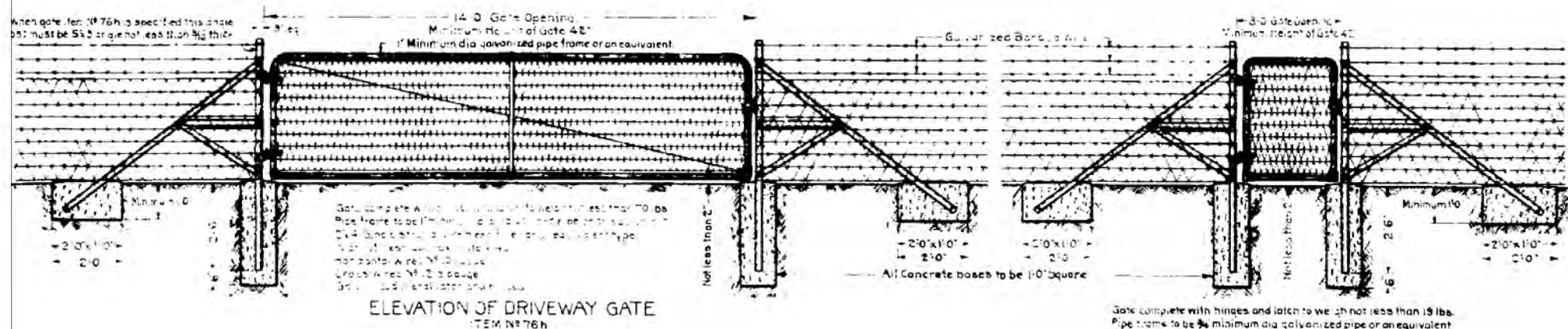


CORNER POST



TYPICAL SECTION
THROUGH FENCE POST

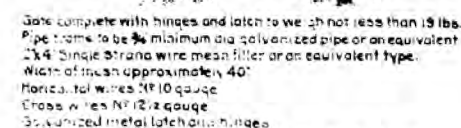
Note
1 Other sections of equal weight and equivalent
2 strength may be used in lieu of this section



ELEVATION OF DRIVEWAY GATE

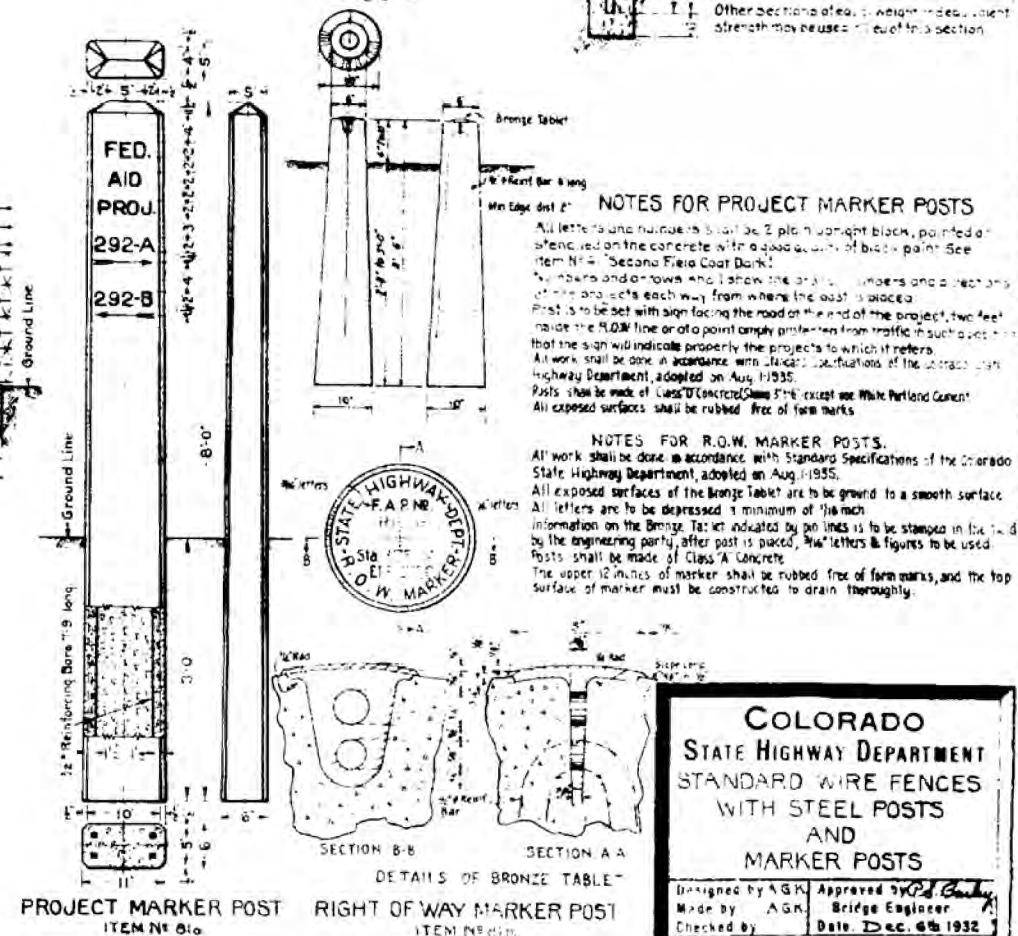
GENERAL NOTES FOR WIRE FENCES

4. Work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department, Revised August 1935.
Barbed wire shall be of standard make, not heavier than No. 12, galvanized and with two point marks spaced not more than 5' apart.
Fence must be galvanized and must be kept free from sharp and pointed objects.
Four Corner Posts and four Endposts shall be used at each structure over 4 x 4 in. size and fence turned in and ended at wings.
5. The posts for structural steel towers shall be not more than 200 lbs. per vertical foot.
6. The corner and endposts shall be secured with a wire or cable to each line post.
7. The posts shall be fitted with an approved waterproof asphalt or mineral paint or hot asphalt.
All corner and endposts including, if used, are for structural steel 3 x 3, 4" diameter, heavy duty less than 3' 6" per vertical foot and one point mark with an approved waterproof asphalt or mineral paint or hot asphalt, except just at supporting driving gate (see No. 76b).
8. All places where intersecting fences are encountered and endposts to be placed with the angle and at right angles to the line of fence.
All buildings or bridges shall be of concrete with ironed tops and shall be placed in the price bid per vertical foot of fence with metal posts.
18' High Barbed wire, the standard corner and endposts in the vertical just at gate for 18' x 24' and



ELEVATION OF WALK GATE

ITEM N° 761



NOTES FOR PROJECT MARKER POSTS

All letters and figures shall be 2 inch height black, pointed or beveled on the ends, set in a space of 1/2 inch paint See item 104 - Second Grade Road Book
Numbers and arrows shall be the same as the numbers and directions of the projects each way from the east side
First 1/2 to be set with sign facing the road on the end of the project, two feet inside the 8.00 line or at a point easily protected from traffic in such cases that the sign will indicate properly the projects to which it refers.
All work shall be done in accordance with stated specifications of the Oregon State Highway Department adopted on Aug. 1935
Posts shall be made of Class D Concrete Spikes 5 1/2 inch x 6 inch White Portland Cement
All exposed surfaces shall be rubbed free of dirt marks

NOTES FOR R.O.W. MARKER POSTS

All work shall be done in accordance with Standard Specifications of the Colorado State Highway Department, adopted on Aug. 1, 1955.

All exposed surfaces of the Brønje Table shall be ground to a smooth surface.

All letters are to be depressed a minimum of 1/16 inch.

Information on the Brønje Table is indicated by pin lines to be stamped in the field by the engineering party, after post is placed. The letters and figures to be used.

Posts shall be made of Class A Concrete.

The upper 12 inches of marker shall be rubbed free of form marks, and the top surface of marker must be constructed to drain thoroughly.

**COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD WIRE FENCES
WITH STEEL POSTS
AND
MARKER POSTS**

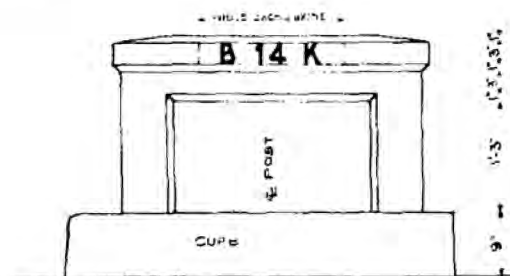
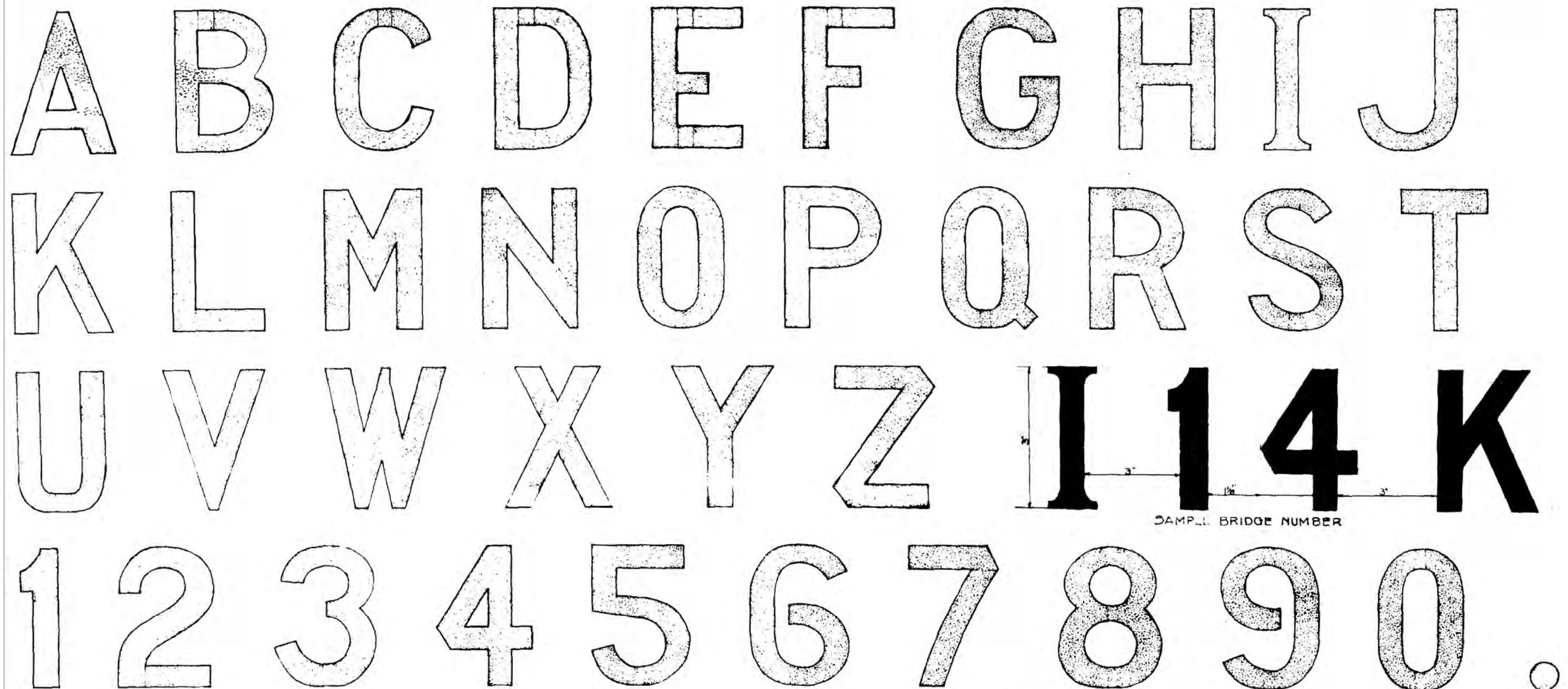
Designed by AGK	Approved by <i>Pd. Bentley</i>
Made by AGK	Bridge Engineer
Checked by	Date. Dec. 6th 1932



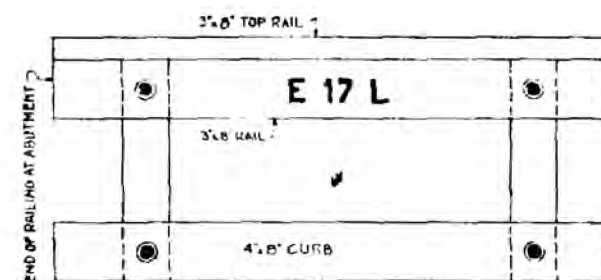
STANDARD M-10-A

FED. ROAD DIST. NO.	STATE	A.W. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	4002	12	

Revised July 1936 AGC Changed to 1935 Specifications



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 AUGUST 1, 1935.

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 THOROUGHLY CLEANED. A PROPER WHITE BACKGROUND SHALL BE PAINTED ON CONCRETE SURFACES. ON TIMBER HANDRAILS THE WHITE PAINT USED ON THE BRIDGE WILL BE SATISFACTORY. ON CONCRETE ENDPOSTS THE DRY CONCRETE SURFACE SHALL BE PROPERLY SIZED BEFORE PLACING THE WHITE 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 "C" 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.

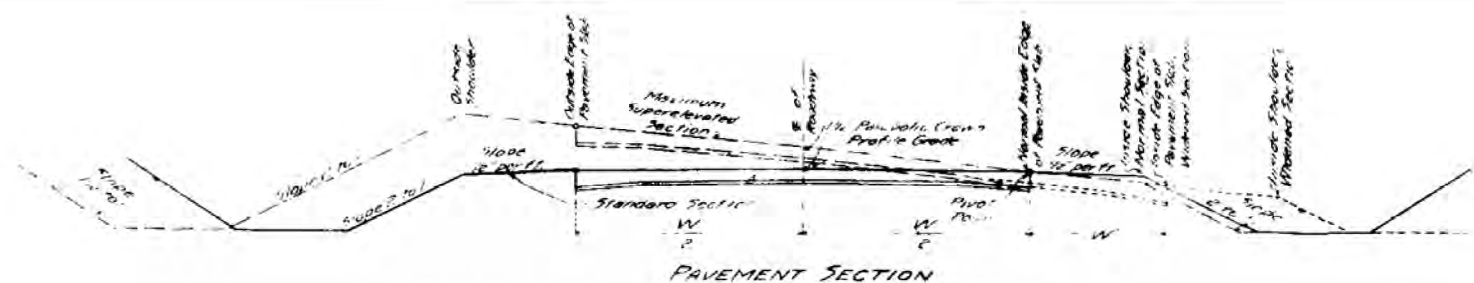
THIS WORK WILL NOT BE PAID FOR AS A SEPARATE ITEM. COMPENSATION SHALL BE INCLUDED IN THE ORIGINAL CONTRACT ITEMS.

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

STANDARD M-1-A

FED. ROAD DIST. No.	STATE	PROJ. No.	SHEET No.	TOTAL SHEETS
3	COLO.	4002	13	

Revised 8-11-54 S.B.L. (200' Length)
Revised 8-31-52 S.B.L.
Revised 2-7-52 S.B.L.
Revised 8-34-54 S.B.L. (Special Cases)
Revised 3-11-56 A.S.D. (S.B.L. Specifications)
Revised 6-9-56 S.B.L. (Notes on Special Cases)

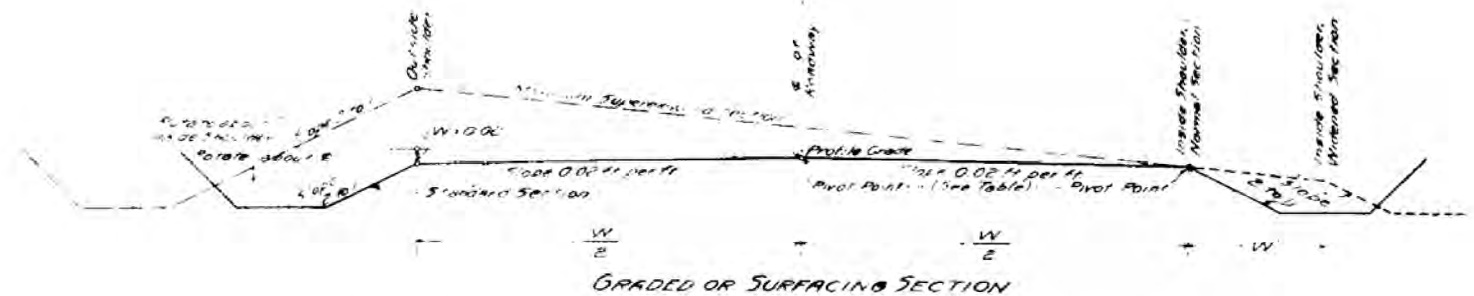


5. SUPERELEVATION AND WIDENING NOTES FOR PAVEMENT SECTION
Curves on projects using the function of section are to be superelevated and widened as indicated in the accompanying drawings and table.
The normal inside edge of the pavement slab is to remain at the standard elevation of 0.125 ft. below the 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 or graph. The section is to be rotated about the normal inside edge of the pavement.
When the degree of curvature exceeds 10, the inside portion of the pavement slab is to be widened from the normal inside edge as per the table below. Curves of 10 or less are not to be widened. The 1/4 parabola cross section is used for curves of 10 and under. The widened section is to have a flat top.

The slope of the shoulder is to conform to the rate per foot width of roadway required except that the inside shoulder shall maintain the standard slope of 0.0417 ft. per foot width until the superlevation rate exceeds this standard slope.
The outside ditch along a superelevated section is to be modified from the standard where a deeper ditch is required to provide drainage.
Details of plans for superelevating and widening are shown on the General Plan for Widening and the Graph of Superlevation Factors.
The subgrade for future pavement is to be constructed to conform to the superlevation and widening requirements for the pavement section.

SUPERELEVATION FACTORS AND OFFSETS FOR WIDENING FOR PAVEMENT SECTION

Distance from B.T.	20 FT.	40 FT.	60 FT.	80 FT.	100 FT. P.C.	120 FT.	140 FT.	160 FT.	180 FT.	200 FT. E.T.	On Curve
Factor	0.02	0.04	0.06	0.08	0.10	0.12	0.14	0.16	0.18	0.20	1.00
Degree of Curve	Rate of Superlevation (in Feet) per Foot Width of Roadway										
2° and Under	0.0004	0.0007	0.0010	0.0013	0.0016	0.0019	0.0022	0.0025	0.0028	0.0031	0.0034
3°	0.0006	0.0010	0.0013	0.0016	0.0019	0.0022	0.0025	0.0028	0.0031	0.0034	0.0037
4°	0.0008	0.0013	0.0016	0.0019	0.0022	0.0025	0.0028	0.0031	0.0034	0.0037	0.0040
5°	0.0010	0.0016	0.0019	0.0022	0.0025	0.0028	0.0031	0.0034	0.0037	0.0040	0.0043
6°	0.0013	0.0020	0.0022	0.0025	0.0028	0.0031	0.0034	0.0037	0.0040	0.0043	0.0046
7°	0.0015	0.0023	0.0025	0.0028	0.0031	0.0034	0.0037	0.0040	0.0043	0.0046	0.0049
8°	0.0017	0.0025	0.0028	0.0031	0.0034	0.0037	0.0040	0.0043	0.0046	0.0049	0.0052
9°	0.0019	0.0027	0.0030	0.0033	0.0036	0.0039	0.0042	0.0045	0.0048	0.0051	0.0054
10° and Over	0.0020	0.0030	0.0033	0.0036	0.0039	0.0042	0.0045	0.0048	0.0051	0.0054	0.0057
Offsets for Widening (in Feet)											
Over 10° Under 15°	0.06	0.24	0.39	0.54	0.69	0.84	0.99	1.14	1.29	1.44	1.59
15° - 20°	0.08	0.32	0.51	0.70	0.89	1.08	1.27	1.46	1.65	1.84	2.03
Over 20°	0.10	0.40	0.63	0.86	1.09	1.32	1.55	1.78	2.01	2.24	2.47

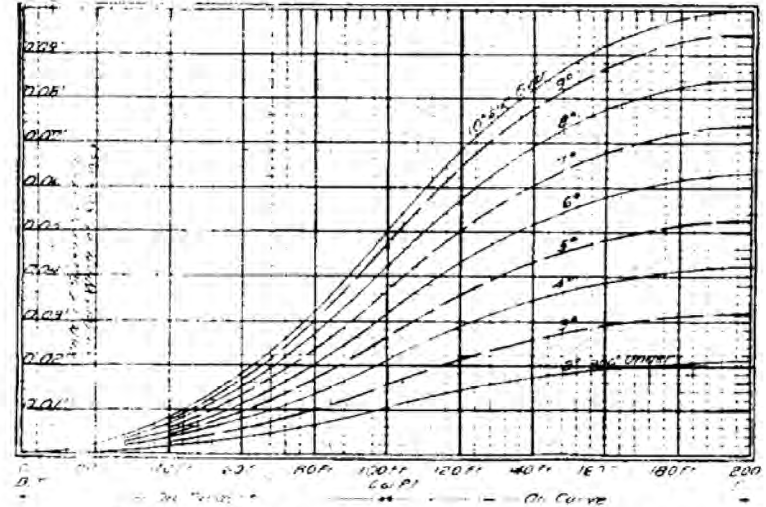


5. SUPERELEVATION AND WIDENING NOTES FOR GRADED OR SURFACING SECTIONS
Curves on projects using the graded or surfacing section are to be superelevated and widened as indicated in the accompanying drawings and table.
The normal inside edge of the pavement slab is to remain at the standard elevation of 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 or graph. The section is to be rotated about the normal inside edge of the pavement.
When the degree of curvature exceeds 10, the inside portion of the pavement slab is to be widened from the normal inside edge as per the table below. Curves of 10 or less are not to be widened. The 1/4 parabola cross section is used for curves of 10 and under. The widened section is to have a flat top.

The slope of the shoulder is to conform to the rate per foot width of roadway required except that the inside shoulder shall maintain the standard slope of 0.0417 ft. per foot width until the superlevation rate exceeds this standard slope.
The outside ditch along a superelevated section is to be modified from the standard where a deeper ditch is required to provide drainage.
Details of plans for superelevating and widening are shown on the General Plan for Widening and the Graph of Superlevation Factors.
The subgrade for future pavement is to be constructed to conform to the superlevation and widening requirements for the pavement section.

SUPERELEVATION FACTORS AND OFFSETS FOR WIDENING FOR GRADED OR SURFACING SECTIONS

Distance from B.T.	20 FT.	40 FT.	60 FT.	80 FT.	100 FT. P.C.	120 FT.	140 FT.	160 FT.	180 FT.	200 FT. E.T.	On Curve
Factor	0.02	0.04	0.06	0.08	0.10	0.12	0.14	0.16	0.18	0.20	1.00
Degree of Curve	Rate of Superlevation (in Feet) per Foot Width of Roadway										
2° and Under	0.0004	0.0007	0.0010	0.0013	0.0016	0.0019	0.0022	0.0025	0.0028	0.0031	0.0034
3°	0.0006	0.0010	0.0013	0.0016	0.0019	0.0022	0.0025	0.0028	0.0031	0.0034	0.0037
4°	0.0008	0.0013	0.0016	0.0019	0.0022	0.0025	0.0028	0.0031	0.0034	0.0037	0.0040
5°	0.0010	0.0016	0.0019	0.0022	0.0025	0.0028	0.0031	0.0034	0.0037	0.0040	0.0043
6°	0.0013	0.0020	0.0022	0.0025	0.0028	0.0031	0.0034	0.0037	0.0040	0.0043	0.0046
7°	0.0015	0.0023	0.0025	0.0028	0.0031	0.0034	0.0037	0.0040	0.0043	0.0046	0.0049
8°	0.0017	0.0025	0.0028	0.0031	0.0034	0.0037	0.0040	0.0043	0.0046	0.0049	0.0052
9°	0.0019	0.0027	0.0030	0.0033	0.0036	0.0039	0.0042	0.0045	0.0048	0.0051	0.0054
10° and Over	0.0020	0.0030	0.0033	0.0036	0.0039	0.0042	0.0045	0.0048	0.0051	0.0054	0.0057
Offsets for Widening (in Feet)											
Over 10° Under 15°	0.06	0.24	0.39	0.54	0.69	0.84	0.99	1.14	1.29	1.44	1.59
15° - 20°	0.08	0.32	0.51	0.70	0.89	1.08	1.27	1.46	1.65	1.84	2.03
Over 20°	0.10	0.40	0.63	0.86	1.09	1.32	1.55	1.78	2.01	2.24	2.47

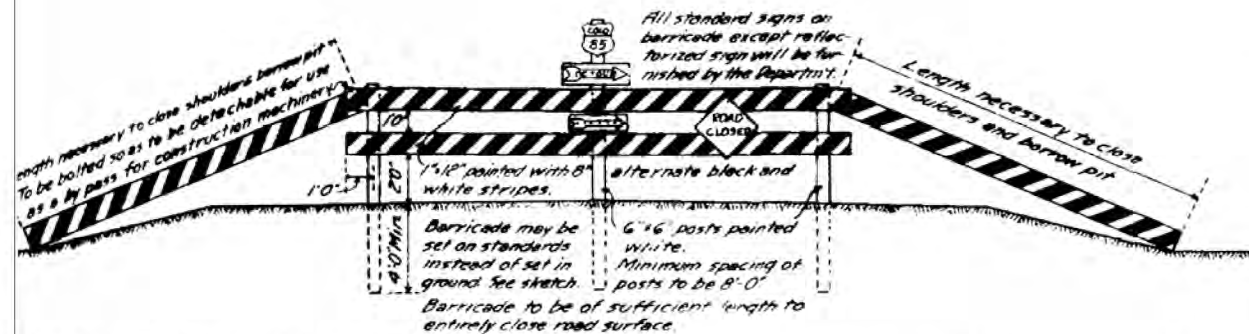


GRAPH OF SUPERELEVATION TRANSITION FACTORS

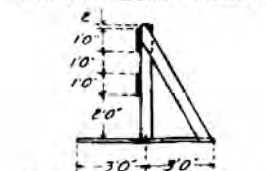
The rate of superlevation on per foot width of roadway to be applied at the outside edge of the pavement slab shall be the outside shoulder of the roadway is computed as follows:
The full superlevation per foot width of roadway rate for a given degree of curvature is:
0.0005 ft. per foot width of roadway per degree of curvature.
The maximum superlevation of 0.10 ft. per foot width, applying to curves of 10° and over, is not to be exceeded.
The graph has been prepared from the rates of superlevation shown in the table above.
When the roadway and curve data fall within the use of the graph, the length of the curve shall be used for the length of the curve. If the length of the curve is less than 200 ft., the rate of superlevation and the widening required for a distance of one-half the length of the curve shall be used. The graph has been prepared from the rates of superlevation shown in the table above.
When the roadway and curve data fall within the use of the graph, the length of the curve shall be used for the length of the curve. If the length of the curve is less than 200 ft., the rate of superlevation and the widening required for a distance of one-half the length of the curve shall be used. The graph has been prepared from the rates of superlevation shown in the table above.
When the roadway and curve data fall within the use of the graph, the length of the curve shall be used for the length of the curve. If the length of the curve is less than 200 ft., the rate of superlevation and the widening required for a distance of one-half the length of the curve shall be used. The graph has been prepared from the rates of superlevation shown in the table above.

COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD METHODS
FOR SUPERELEVATION AND
WIDENING OF CURVES
Designed by E. E. Boyd
Revised by E. E. Boyd
Checked by E. E. Boyd
Jan. Aug. 1932

DETAILS OF PERMANENT BARRICADE



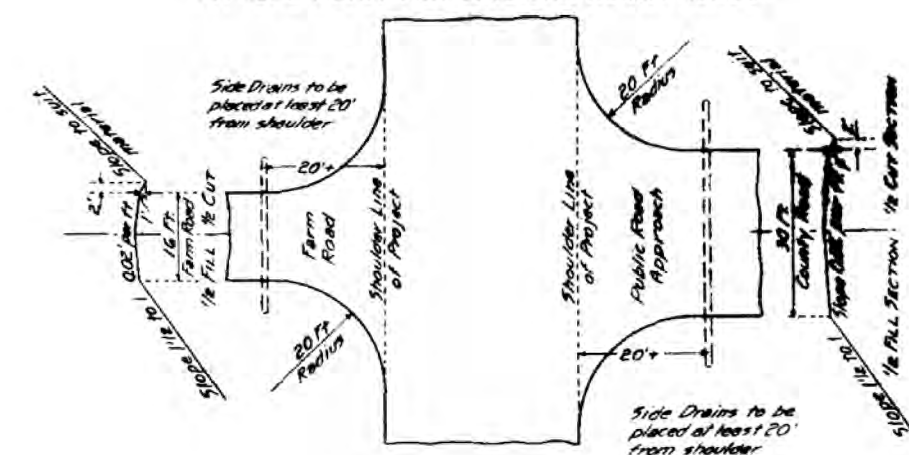
END VIEW OF PORTABLE BARRICADE



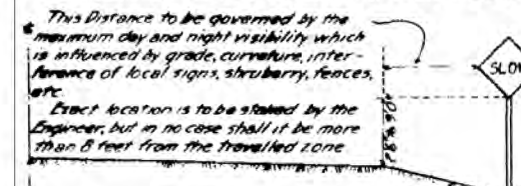
STANDARD M-2-B

FED. ROAD DIST. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	4002	14	17

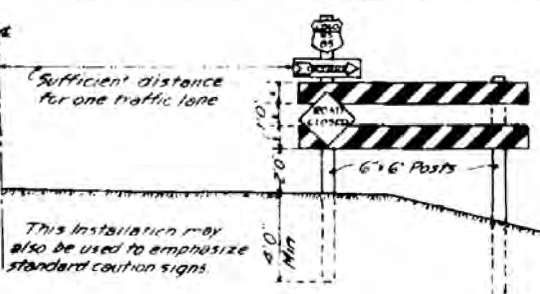
TYPICAL PLAN FOR SIDE APPROACH ROADS



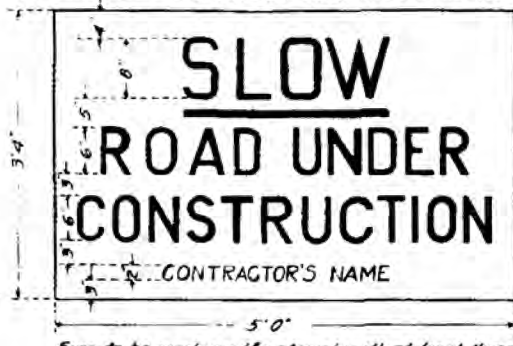
POSITION OF SIGNS RELATIVE ROAD BED



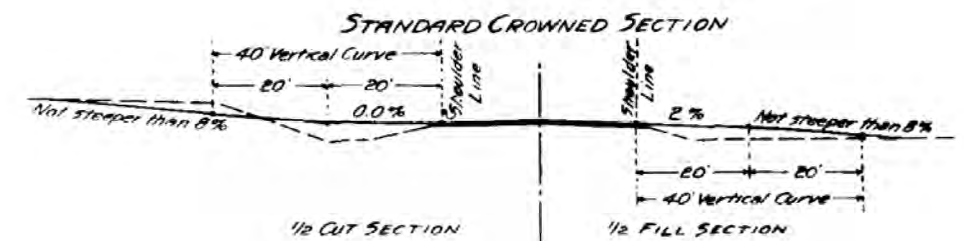
DETAILS OF PARTIAL BARRICADE



DETAILS OF ROAD UNDER CONSTRUCTION SIGN

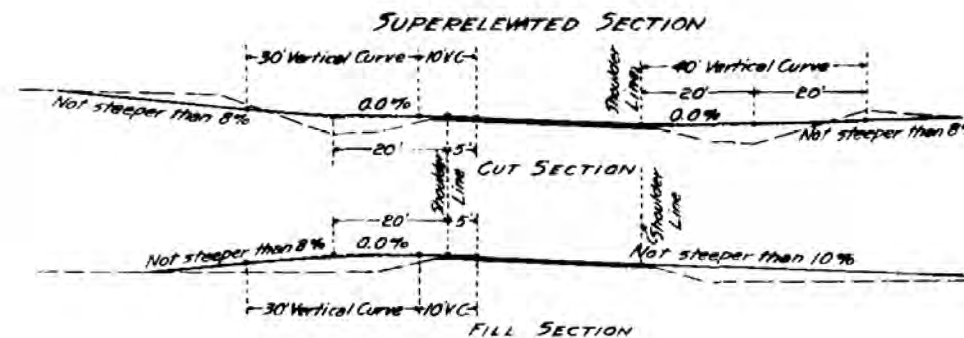


SUGGESTED DETAIL OF REFLECTORIZED ARROW



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 August 1, 1935. 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:

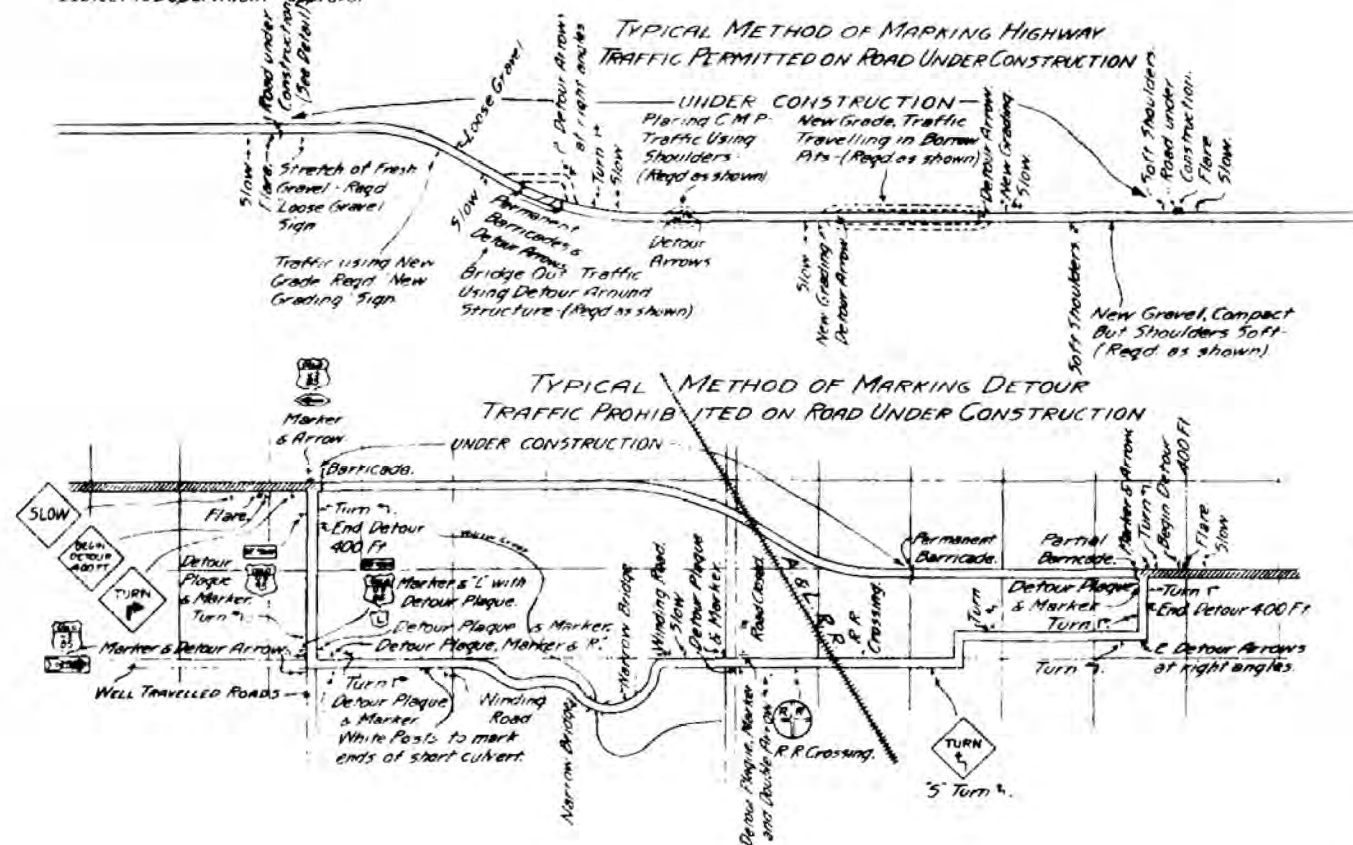
- (1) All barricade material. It shall always be well painted, as per sketch, and well maintained.
- (2) A reflectorized arrow of an approved type for each barricade at the ends of the Project and at other barricades required where traffic is permitted on road under construction.
- (3) "SLOW-ROAD UNDER 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.E.H.
 Made by J.E.H.
 Check J.E.H.
 Sheet J.E.H.

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

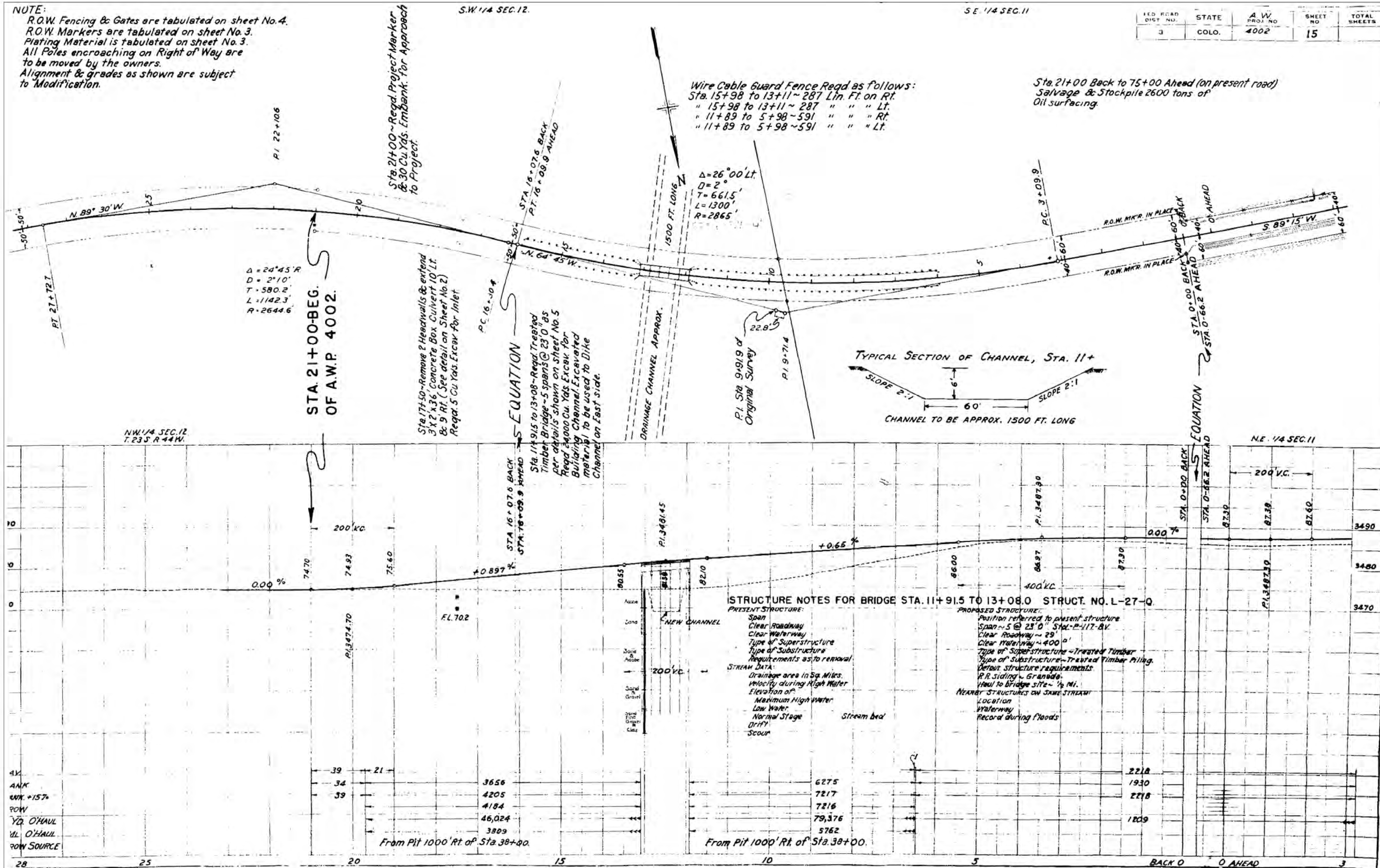


NOTE:
 R.O.W. Fencing & Gates are tabulated on sheet No. 4.
 R.O.W. Markers are tabulated on sheet No. 3.
 Plating Material is tabulated on sheet No. 3.
 All Poles encroaching on Right of Way are to be moved by the owners.
 Alignment & grades as shown are subject to Modification.

S.W. 1/4 SEC. 12.

S.E. 1/4 SEC. 11

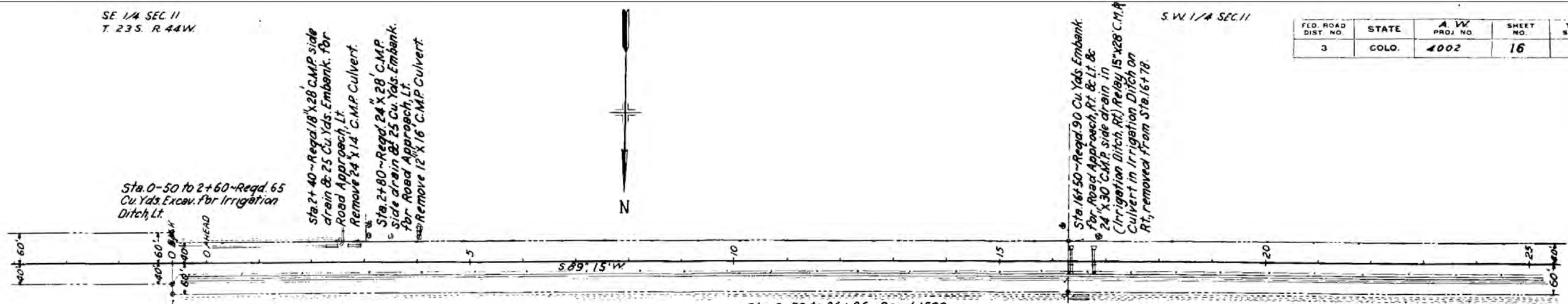
FED. ROAD DIST. NO.	STATE	A.W. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	4002	15	



SE 1/4 SEC. 11
T. 23 S. R. 44 W.

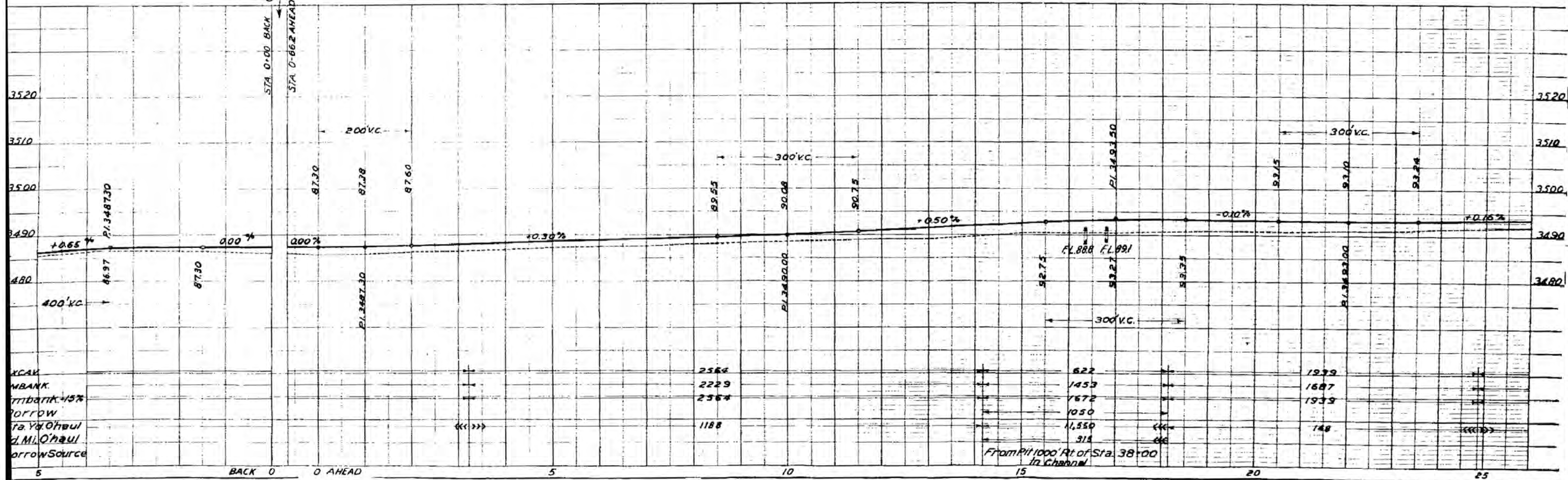
SW 1/4 SEC. 11

FED. ROAD DIST. NO.	STATE	A.W. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	4002	16	



NE 1/4 SEC. 11

NW 1/4 SEC. 11



XCAV
MBANK
EMBANK 15%
BORROW
Ta. Yd. Ohwul
d. M. O'haul
Borrow Source

From PVI 1000' Rt of Sta. 38+00
In Channel

Sta 27+60-Req'd 18'x30' C.M.P. Side
Drain and 50 cu yds Embank. Rt.
Road Approach Rt.
Req'd 24'x30' C.M.P. Side Drain in
Irrigation Ditch 65' Rt. & 18'x30'
C.M.P. Side Drain in Irrigation
Ditch 72' Rt.
Remove 2'x2'x16' Timber Box

Sta 28+90 ~ Req'd. 30' x 28' C.M.P.
Side Drain and 25 cu. yds.
Embank. for Road Approach Lt.
Remove 24' x 18' C.M.P. Culvert.

Sta 36+86 ~ Reg'd Concrete Div. Box
Rt. as per details shown on sheet
No. 2.
Remove 4'x3'x3' Div. Box Rt.

Sta. 37+00 ~ Req'd. 36"x62' C.M.P.
Cross Culv., and 20 cu. yds.
Excav. for Inlet & Outlet
Remove 36"x32' C.M.P. Culv.
& 2 Headwalls.

Sta. 37+29 to 39+37.5 ~ Reg'd.
Treated Timber Bridge ~ 9 spans
@ 23', as per details shown on
sheet No. 6.
Reg'd. 32,831 cu. yds. Excav.
for channel improvement.
Excavated material to be used
in Roadway Embankment.
Remove 70' Timber Bridge

Sta. 39+60 ~ Relay 36" x 46" CMP.
Cross Cully removed at Sta 39+18
and extend 28'.
Req'd. 10 cu yds. Excav. for
Inlet

Sta. 39+60 to 42+70 ~ Req'd.
215 cu. yds. Excav. for Irrigation.
ditch 11'

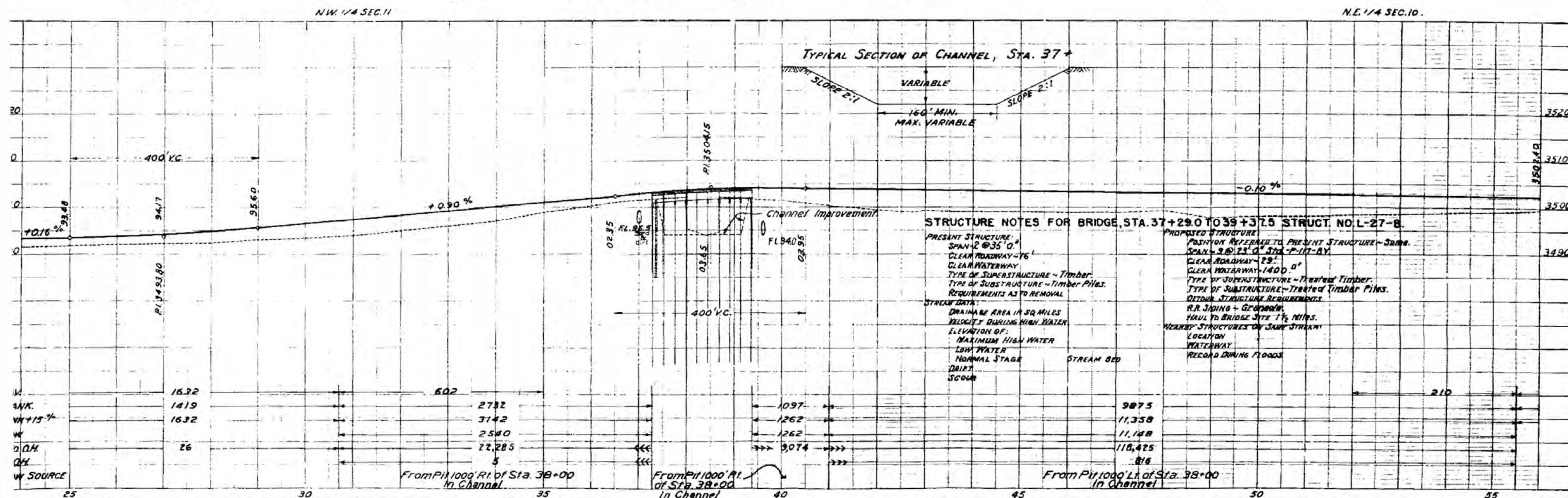
Sta. 42+70 to 56+40 ~ Req'd. 130 cu.
yds. Excav. for Waste Ditch along
Right-of-way Lt.

Sta. 39+60 to 56+00 ~ Req'd.
560 cu. yds. Excav. for irrigation
ditch Rt.

Wire Cable Guard Fence Req'd. as follows:
Sta. 36+31 to 37+26 ~ 95 lin. ft. on Lt.
" 36+31 to 37+26 ~ 95 " " " Rt.
" 39+40 to 40+35 ~ 95 " " " Lt.
" 39+40 to 40+35 ~ 95 " " " Rt.

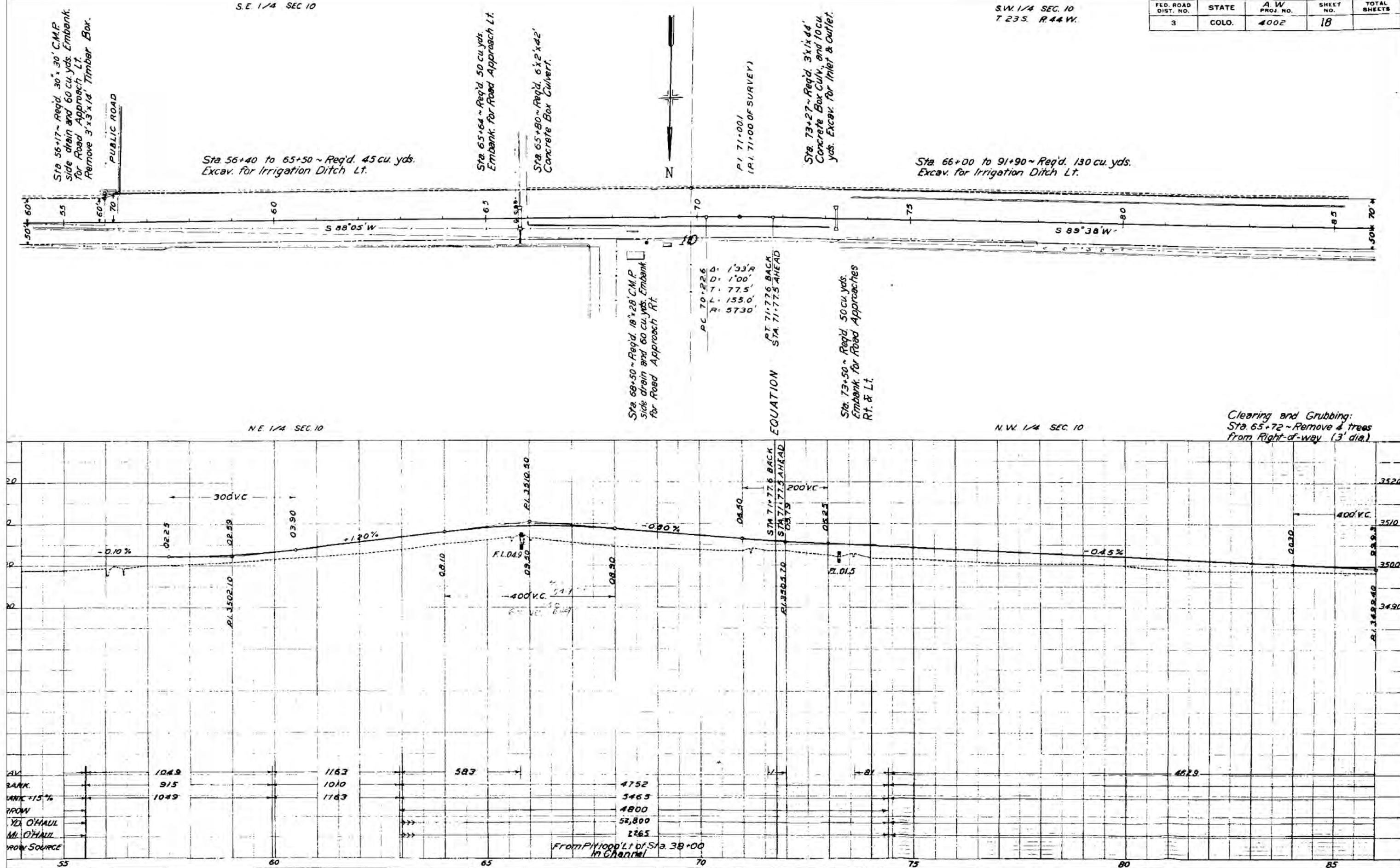
Sta. 49+50 ~ Reg'd. 30"x30" C.M.P.
side drain and 60 cu yds. Embank.
for Road Approach Lt.
Remove 3'x3'x14' Timber Box

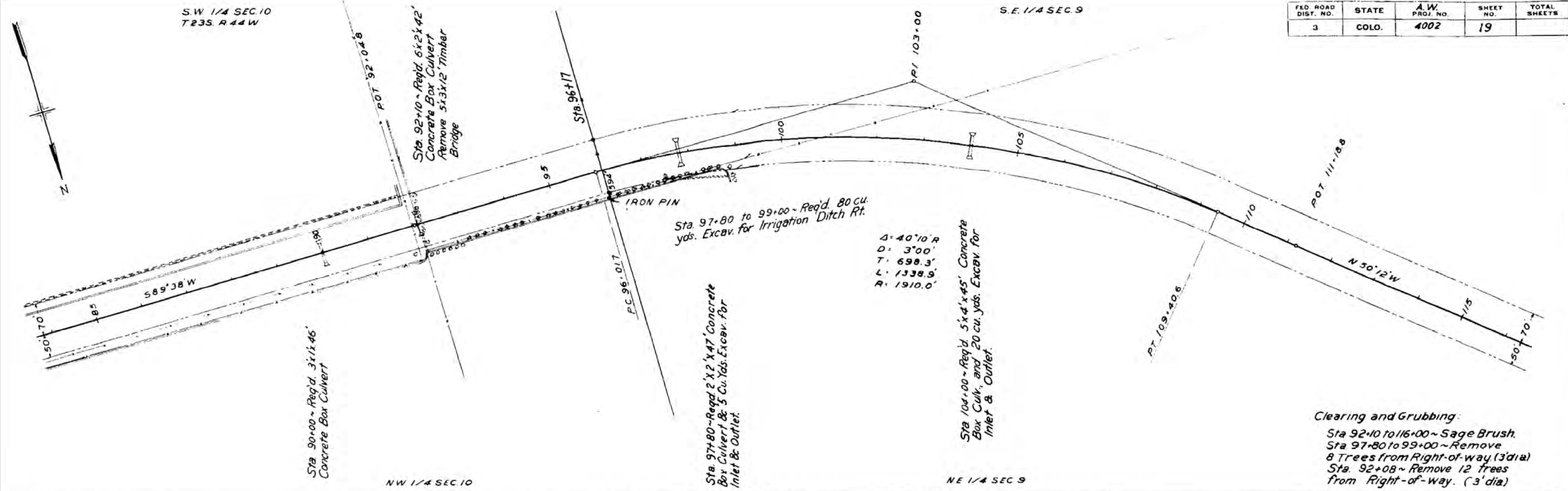
Sta. 49+26 - Remove 30" x 90"
C.M.P. Siphon on Rt.



S.W. 1/4 SEC. 10
T 23 S. R. 44 W.

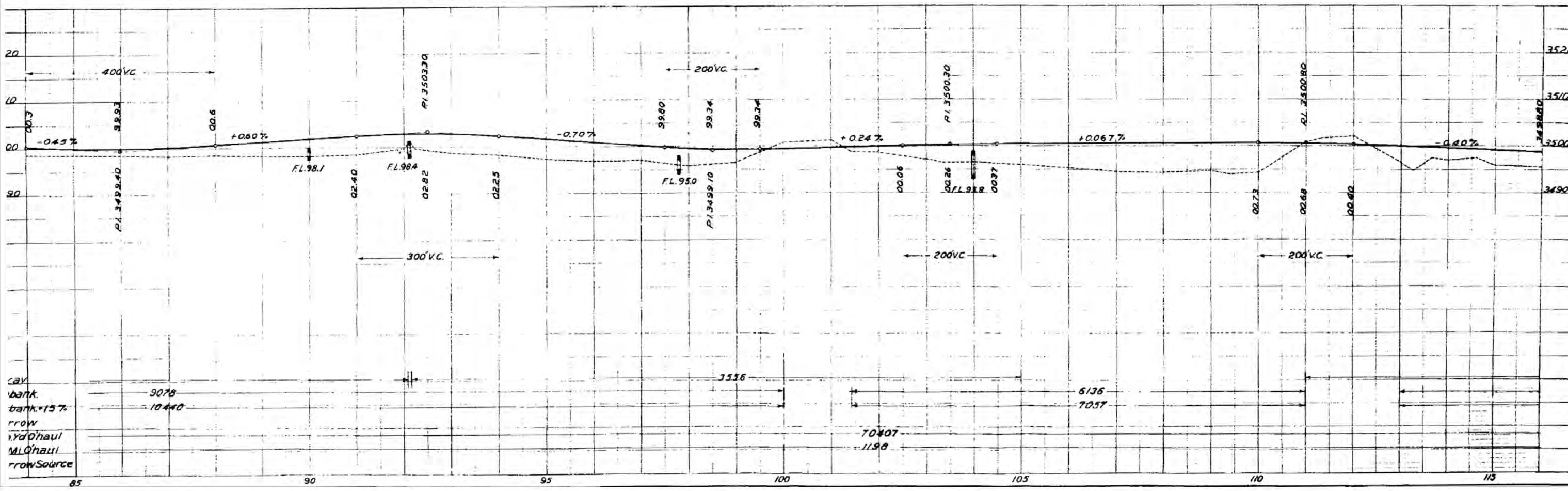
FED. ROAD DIST. NO.	STATE	A. W. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	4002	18	





FED. ROAD DIST. NO.	STATE	A.W. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	4002	19	

Clearing and Grubbing:
 Sta 92+10 to 116+00 ~ Sage Brush.
 Sta 97+80 to 99+00 ~ Remove 8 Trees from Right-of-way (3'dia)
 Sta. 92+08 ~ Remove 12 trees from Right-of-way. (3'dia)

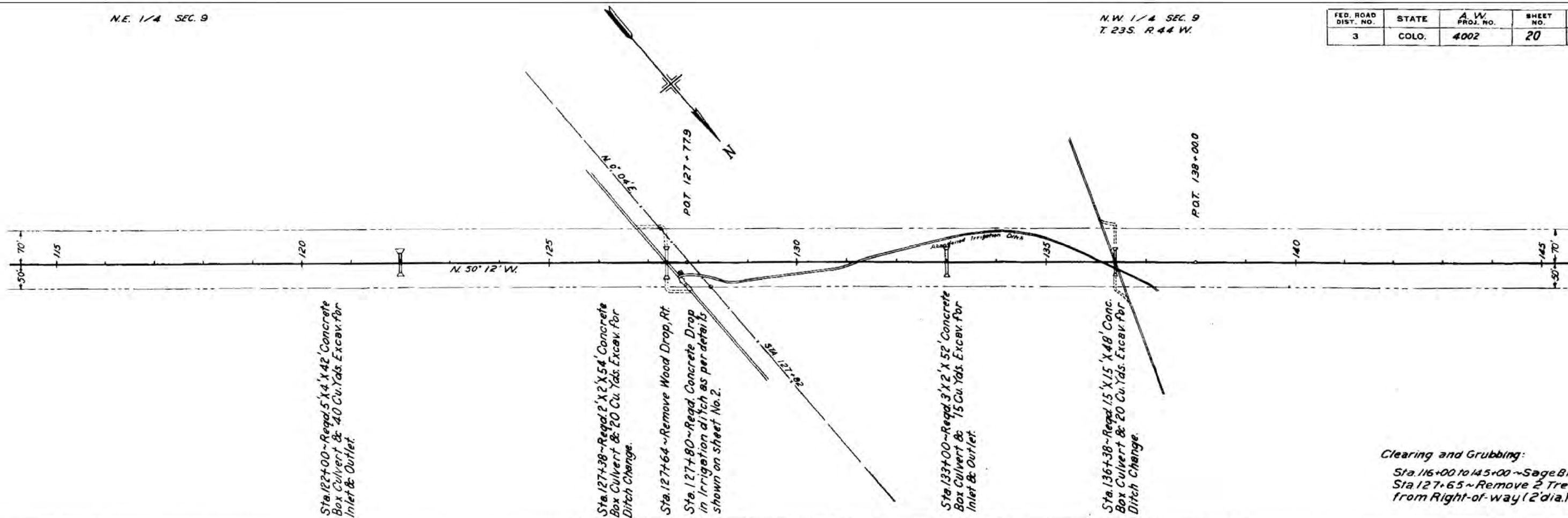


av
 bank.
 bank=15%
 rrow
 yd haul
 M haul
 rrow Source

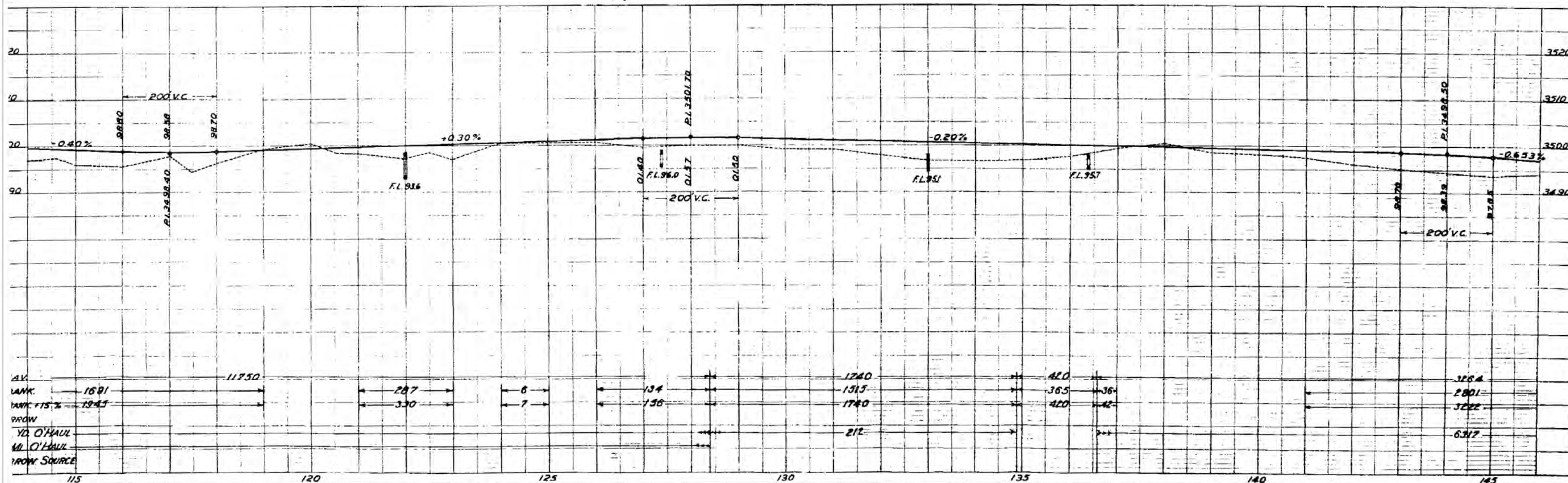
N.E. 1/4 SEC. 9

N.W. 1/4 SEC. 9
T. 23S. R. 44 W.

FED. ROAD DIST. NO.	STATE	A.W. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	4002	20	



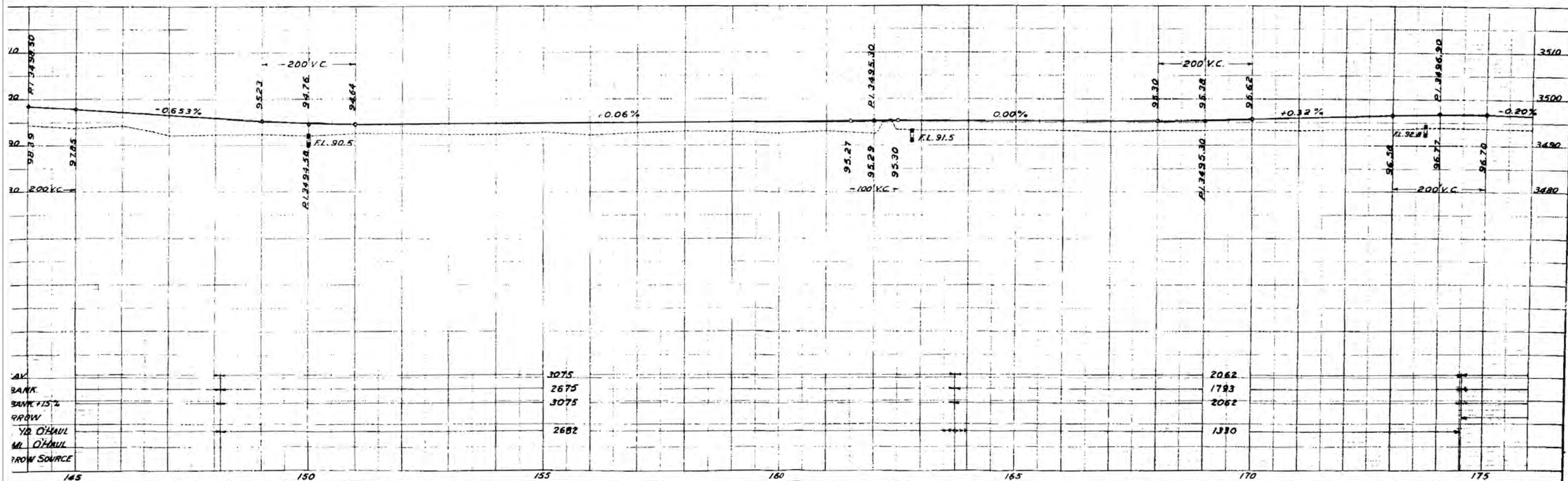
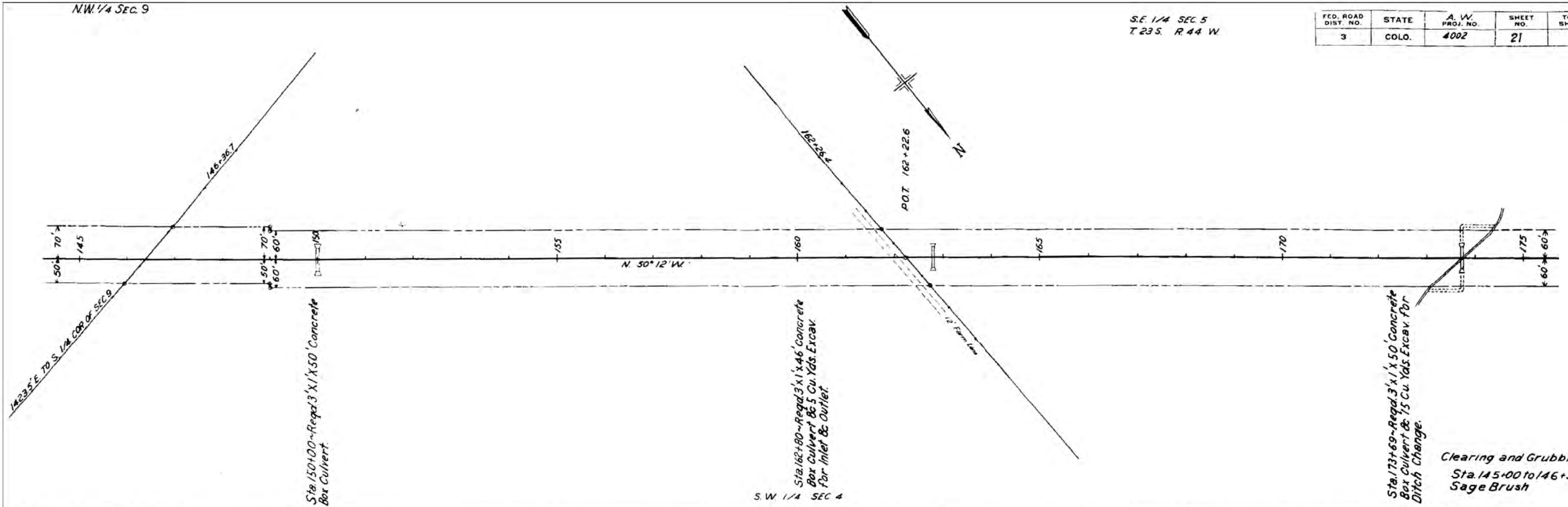
Clearing and Grubbing:
Sta. 116+00 to 145+00 ~ Sage Brush
Sta. 127+65 ~ Remove 2 Trees
from Right-of-way (2'dia.)



NW 1/4 SEC. 9

SE 1/4 SEC. 5
T. 23 S. R. 44 W.

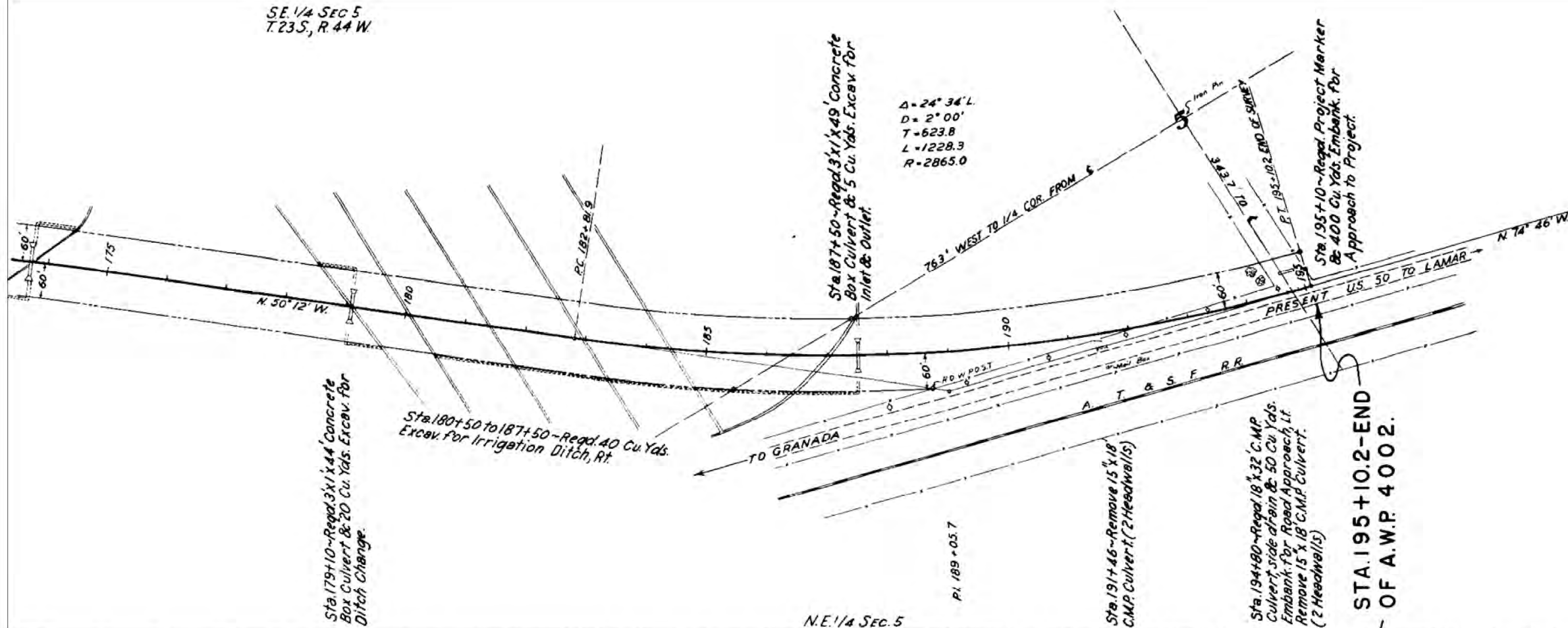
FED. ROAD DIST. NO.	STATE	A. W. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	4002	21	



Clearing and Grubbing:
Sta. 145+00 to 146+36 ~
Sage Brush

SE 1/4 SEC 5
T.23S, R.44W

FED. ROAD DIST. NO.	STATE	A. W. PROJ. NO.	SHEET NO.	T. R.
3	COLO.	4002	22	



N.E. 1/4 SEC. 5

STA. 195+10.2-END
OF A.W.P. 4002.

Clearing and Grubbing:
Sta. 194+23 ~ Remove 1 Tree from Right-of-way (1 dia)
Sta. 194+32 ~ Remove 1 Tree from Right-of-way (1 dia)

