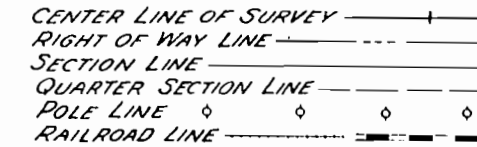


FED. ROAD DIST. NO.	STATE	S.N.F.A.P. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	81-1 (I)	/	

COLORADO STATE HIGHWAY DEPARTMENT

PLAN AND PROFILE OF PROPOSED S.N.-FEDERAL AID PROJECT NO. 81-1 (I) STATE HIGHWAY NO. 20 JEFFERSON COUNTY

CONVENTIONAL SIGNS

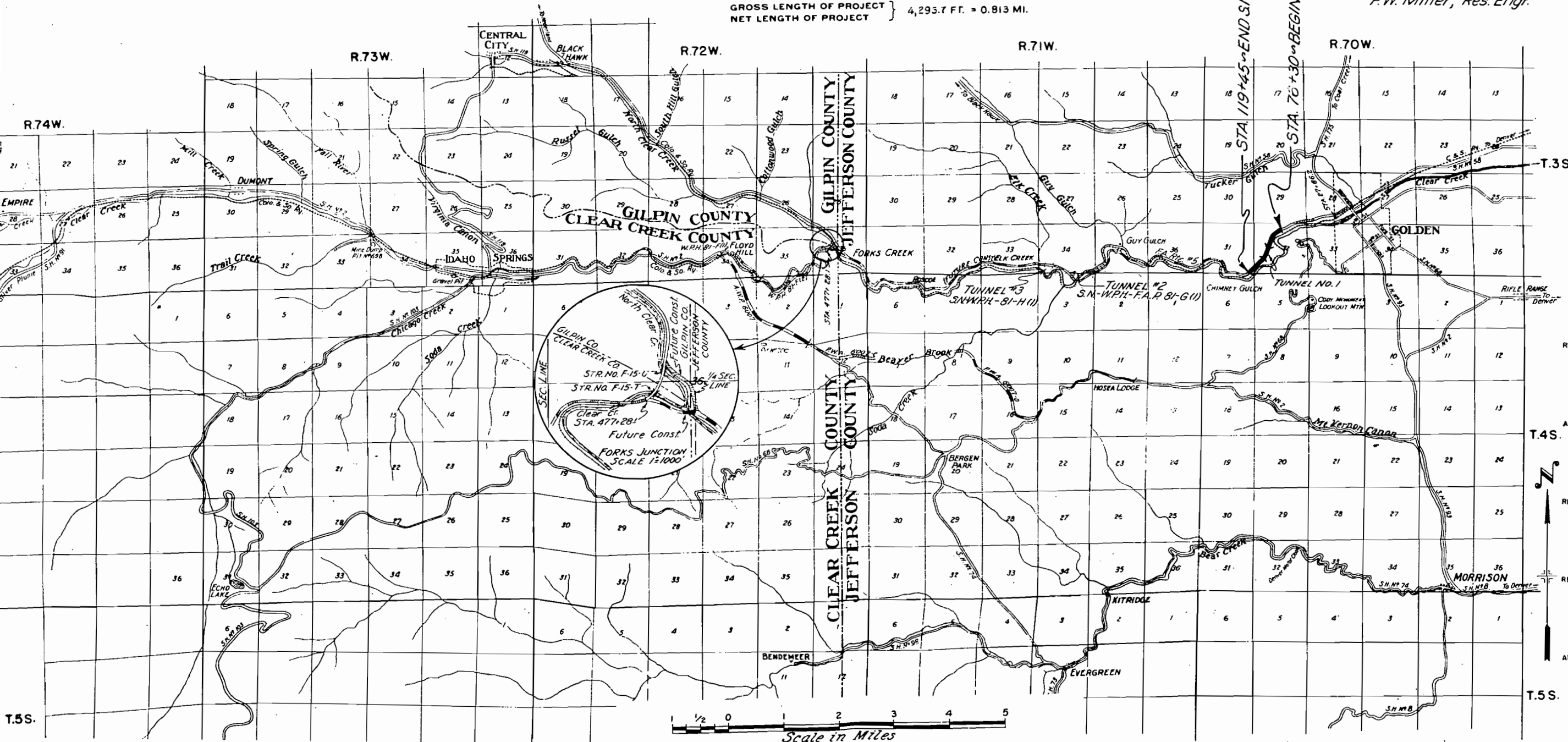


NOTE:
It is recommended that bidders on this project go over the plan details with one of the following field representatives of this department:
D.W. Ormsbee, Constr. Engr. Denver, Colo.
E.E. Montgomery, Div. Engr.
F.W. Miller, Res. Engr.

INDEX OF SHEETS

- | | | |
|-------|---|---------|
| No. 1 | SKETCH MAP AND TITLE SHEET | |
| 2 | TYPICAL SECTION AND SUMMARY OF QUANTITIES | |
| 3 | LIST OF STRUCTURES, R.O.W. MARKERS AND RETAINING WALL DETAILS | |
| 4 & 5 | DETAILS OF 14' X 14' CONCR. BOX CULV. STA. 79+ | |
| 6 | TYPICAL TUNNEL SECTIONS AND DETAILS | |
| 7 | STANDARD HEADWALLS FOR C.M.P. CULVERTS | M-102-F |
| 8 | " METAL PLATE GUARD FENCE | M-21-B |
| 9 | " STRUCTURE YEAR NUMBER MARKING | M-14-A |
| 10 | " METHODS OF SUPERELEVATION AND WIDENING OF CURVES | M-1-B |
| 11 | STANDARD MARKER POSTS | M-7-B |
| 12 | " CONTOUR INTERCEPTING AND DRAINAGE DITCHES | M-107-B |
| 13-14 | PLAN AND PROFILE | |
| 15-35 | CROSS SECTIONS | |

SCALES ON ORIGINAL TRACINGS
ON PLAN, 1 IN. = 100 FT.
ON PROFILE 1 IN. = 100 FT. HORIZONTAL
1 IN. = 20 FT. VERTICAL
GRADE LINE ON PROFILE IS SHOWN AS GRADE OF FINISHED ROAD
GROSS LENGTH OF PROJECT } 4,293.7 FT. = 0.813 MI.
NET LENGTH OF PROJECT }



RECOMMENDED FOR APPROVAL

[Signature]
ASSISTANT ENGINEER
DATE 10/29/41

APPROVED

[Signature]
STATE HIGHWAY ENGINEER

RECOMMENDED FOR APPROVAL

DISTRICT ENGINEER
PUBLIC ROADS ADMINISTRATION
FEDERAL WORKS AGENCY

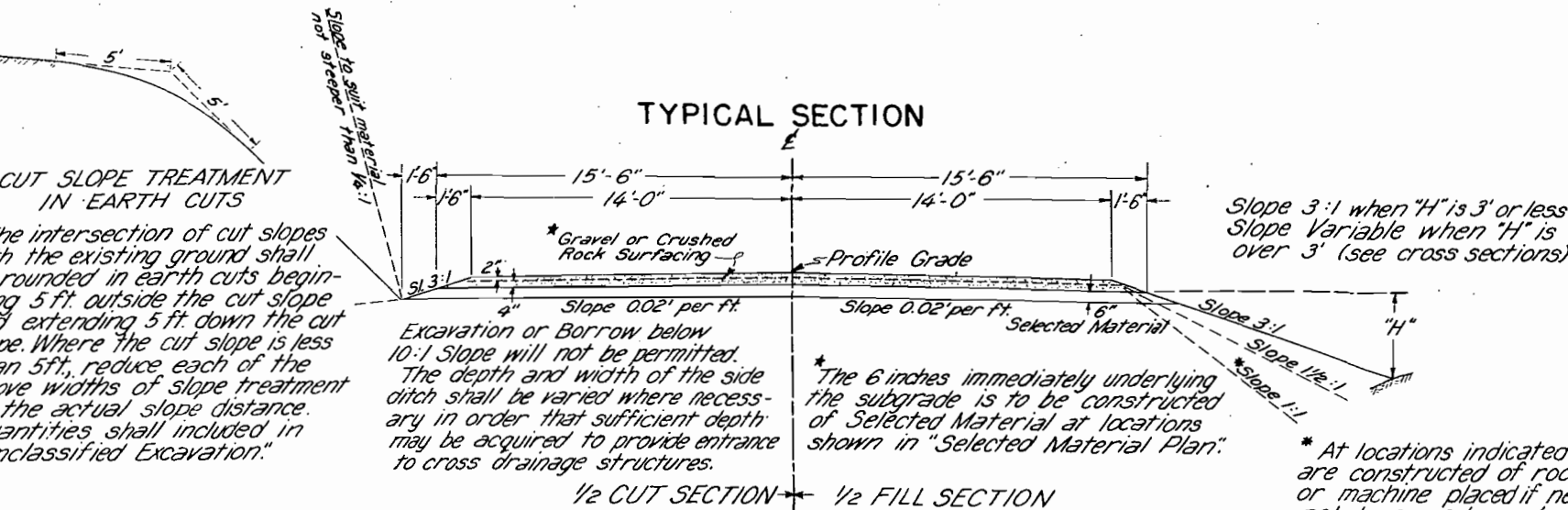
RECOMMENDED FOR APPROVAL

CHIEF, WESTERN REGION
PUBLIC ROADS ADMINISTRATION
FEDERAL WORKS AGENCY

APPROVED

COMMISSIONER
PUBLIC ROADS ADMINISTRATION
FEDERAL WORKS AGENCY

TYPICAL CROSS SECTION OF IMPROVEMENT AND SUMMARY OF QUANTITIES



CUT SLOPE TREATMENT IN EARTH CUTS

At the intersection of cut slopes the existing ground shall be rounded in earth cuts beginning 5 ft. outside the cut slope 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 shall be included in "Unclassified Excavation."

NOTE: GRAVEL SURFACING AND SELECTED MATERIAL WILL BE PLACED UNDER FUTURE CONSTRUCTION.

*6" compacted thickness of Gravel or Crushed Rock Surfacing to be placed in two courses.
Approximate 4" Bottom Course Surfacing to be placed at the rate of 62 tons per 100 lin. ft. of roadway.
Approximate 2" Top Course Surfacing to be placed at the rate of 29 tons per 100 lin. ft. of roadway.

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 preliminary plans are to be considered approximately.

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

All Corrugated Metal Pipe Culverts shall be laid without headwalls unless otherwise noted on the plans.

The ends of the Corrugated Metal Pipe Culverts shall be covered with approximately 6 inches of embankment in such a 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 side approach roads to the Project shall be gravel surfaced with a 4 inch thickness of Top Course "Gravel or Crushed Rock Surfacing" extending approximately 30 ft. from the edge of the highway. Estimated tonnage of "Surfacing Material" required in this operation is shown in the "List of Structures."

Except as otherwise noted on the plans, payment for overhaul will be based on measurement along the centerline of the Project.

The entire project shall be cleared in conformity with the requirements of the Standard Specifications except that such trees or shrubs as the Engineer may designate, shall be left in place and protected from damage during construction operations.

Right of Way Fences, including line posts, shall be constructed approximately 6 inches inside the boundary of the Highway Right of Way as shown on the plans.

* At locations indicated below, where embankments are constructed of rock, fill slopes shall be hand or machine placed if necessary to secure a slope not to exceed one to one (1:1).

Serration of the present ground to stabilize embankment slopes in such areas may also be required.

No extra compensation will be allowed for this work, costs incidental thereto shall be included in original contract prices.

109+ to 113+ 1 to 1 Fill Slopes on Lt.

Intercepting ditches shall be placed on light grades (approx. 1%) 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. This work shall be done in accordance with the methods shown on Standard Sheet No. M-107-B included in the plans. These ditches shall be constructed at locations indicated and as staked by the Engineer.

All curves are to be superelevated and widened as provided for by the Standard Superelevation Sheet except as otherwise noted.

The ends of all cuts shall be flared and backslopes flattened to discharge side ditch drainage away from the base of adjacent fill slopes. The transition of flattened backslopes and ditch shall be constructed in such manner that a uniform appearance of slope and ditch results, and so as to promote the growth of native groundcover.

If excavation operations develop material which will stand on slopes steeper than slope stake lines, the Department reserves the right to change cut slopes during the progress of such excavations.

SUMMARY OF APPROXIMATE QUANTITIES

NO.	ITEM	UNIT	ROADWAY	TUNNEL STA. 99+50 TO 108+20	TOTALS
10a	Clearing and Grubbing the Entire Project	Lump Sum	•		
11a	Removal of Pres. Bridge Sta. 79+	"	•		
11b	Removal of 1 Structure	"	•		
11c	Removing Telegraph Line	"	•		
12a	Removing Fence	Lin. Ft.	1200		1200
13c	Unclassified Excavation	Cu. Yd.	33,000		33,000
13d	Unclassified Ditch Excavation	" "	100		100
13f	Pioneer Tunnel Excavation	" "		2000	2000
14a	Dry Rock Excavation (Struct.)	" "	500		500
14b	Dry Common Excavation (Struct.)	" "	500		500
14c	Wet Rock Excavation (Struct.)	" "	500		500
14d	Wet Common Excavation (Struct.)	" "	500		500
14e	Mechanical Tamping	Per Hr.	500		500
18a	Station Yard Overhaul	Sta. Yd.	48,000		48,000
18b	Yard Mile Overhaul	Yd. Mi.	10		10
42x	Untreated Timber Tunnel Lining	Mft. bm.		38	38
46a	Class "A" Concrete	Cu. Yd.	375		375
47	Reinforcing Steel	Lb.	4,5100		45,100
49	Cement Rubble Masonry	Cu. Yd.	1,357		1,357
53c	24" Corrugated Metal Culvert Pipe	Lin. Ft.	308		308
53e	36" Corrugated Metal Culvert Pipe	" "	72		72
53g	48" Corrugated Metal Culvert Pipe	" "	98		98
75cx	Metal Plate Guard Fence (Beam Type, with Metal Posts)	Lin. Ft.	300		300
81a	Project Markers	Ea.	2		2
81b	Right of Way Markers	"	8		8
144	30* to 40* Steel Rails	Lin. Ft.	1,630		1,630

LIST OF STRUCTURES

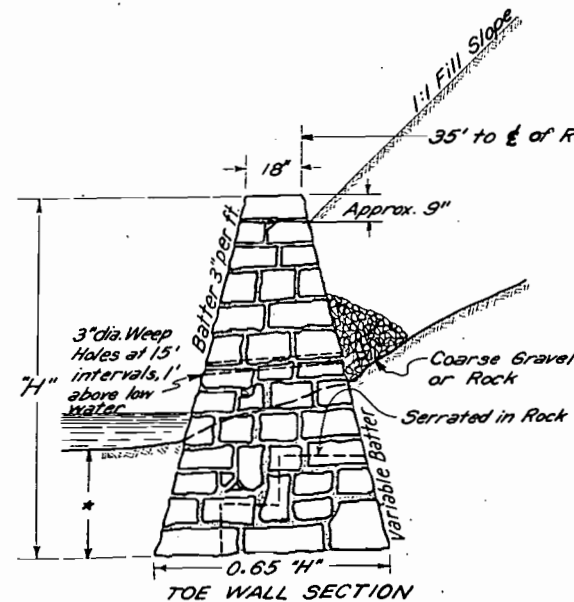
LOCATION	DESCRIPTION	REMOVE STRUCT. NO. KIND	UNCL. EXCAV.	UNCL. DITCH EXCAV.	STRUCTURAL EXCAVATION	CONCRETE	REINF. STEEL	CEMENT RUBBLE MASONRY	CORRUGATED METAL PIPE			MISCELLANEOUS	
			CU. YDS. EXC. EMB.	CU. YDS.	CU. YDS. *		CU. YDS. CL. "A" CL. "B"		LBS.	CU. YDS.	24"		36"
76+30	Project Marker												1 Proj. Marker
79+80 79+ 79+ to 97+ 86+70	Special 14x14' C.B.C. (Det. Sh. 4 & 5) Remove Pres. Bridge, Chan. Exc. Remove Fence C.M.P. Cross Culv. with Intercept. Headwall & Inlet Ditch		100		540		375.0	45,100					1630' - 30" to 40" St. Rails Rem. Pres. Bridge Rem. 1200 lin. ft. Fence
91+ 92+80 93+50 96+25	Remove Timber R.R. Bridge C.M.P. Cross Culv. (H'dwl.) C.M.P. Cross Culv. (H'dwl.) C.M.P. Cross Culv. (H'dwl.)	1-Brdg.		5	15				1.99	78			
99+50 to 108+20 109+70 to 113+70	Pioneer Tunnel (See sh. No. 6) Masonry Toe Wall (See detail this sheet)				500								38 M'bm. Untr. Timber Tunnel Lining @ 1900 Cu. Yds. Tunnel Excav. *
110+80	C.M.P. Cross Culv. with Intercept. H'dwl. & Inlet Ditch			10	25				2.72	72			
115+28 to 118+32 115+00	Masonry Shoulder Wall (See detail this sheet) C.M.P. Cross Culv. with Intercept. H'dwl. & Inlet Ditch				800				790.00				300 lin. ft. Met. Plate Gd. Fence, Met. Posts
119+45	Project Marker			10	25				1.99	42			1 Proj. Marker
TOTALS		1	100	25	1980		375.0	45,100	1,356.59	308	72	98	

R.O.W. MARKERS

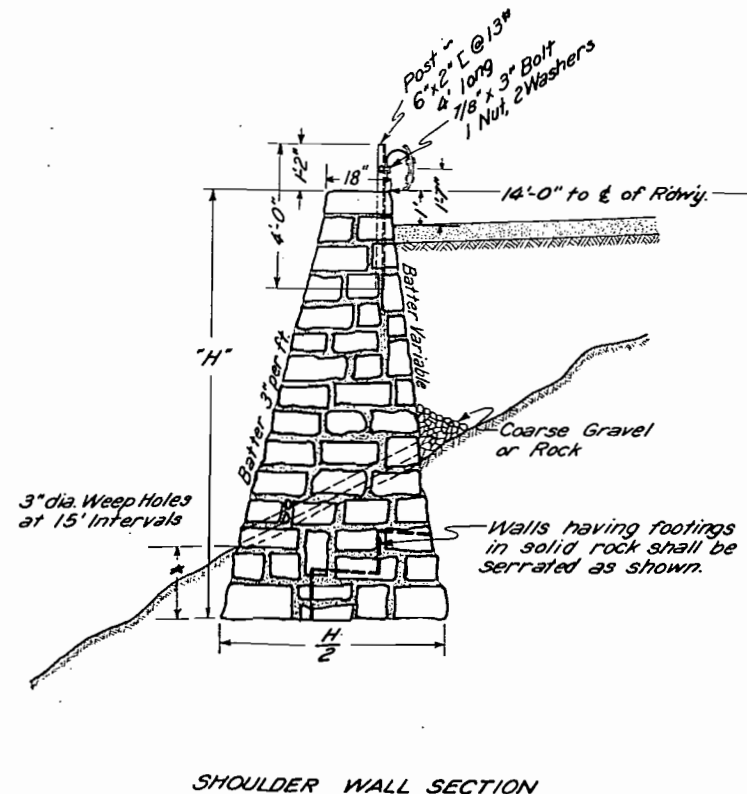
STATION	SIDE	NO.
76+30	Rt. & Lt.	2
78+50	Lt.	1
81+50	"	1
85+00	"	1
98+50	"	1
99+50	"	1
119+45	Rt.	1
TOTAL		8

* Structural Excavation is estimated to be 50% Common and 50% Rock, each of which is estimated to be 50% Dry and 50% Wet.
 † Pioneer Tunnel Excavation.

DETAILS OF RETAINING WALLS



~ NOTE ~
 * Excavation for footings shall be carried to a depth sufficient to insure a firm foundation. Where solid rock is encountered in making the excavation the rock shall be serrated as shown on the "Typical Section."
 † Cost of constructing weep holes is to be included in the unit price bid for "Cement Rubble Masonry."
 ‡ Guard Fence on Masonry Wall Sta. 115+ to 118+ to conform to Std. M-21-B (see sheet No. 8) except for posts, as shown in detail on this sheet.

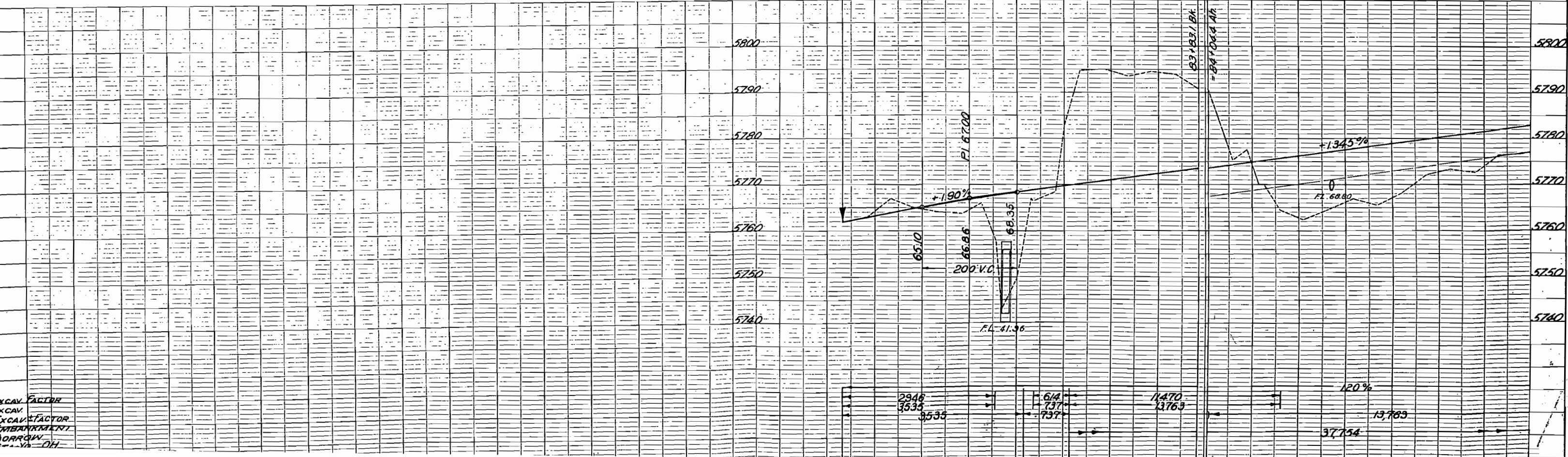
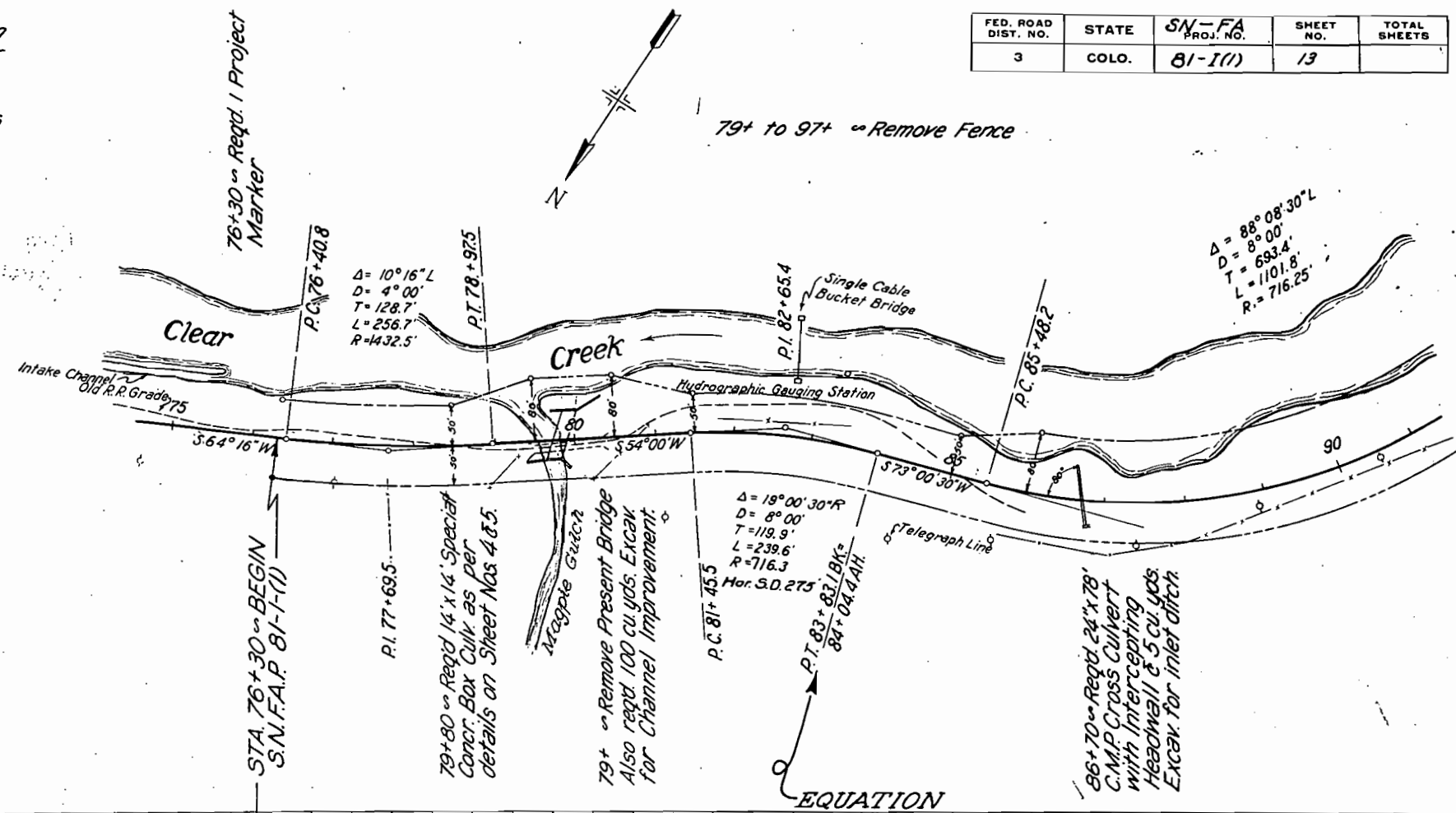


SHOULDER WALL SECTION

NOTE:
 The alignment and grades shown on the plans are subject to modification during construction after approval of the Denver Office.

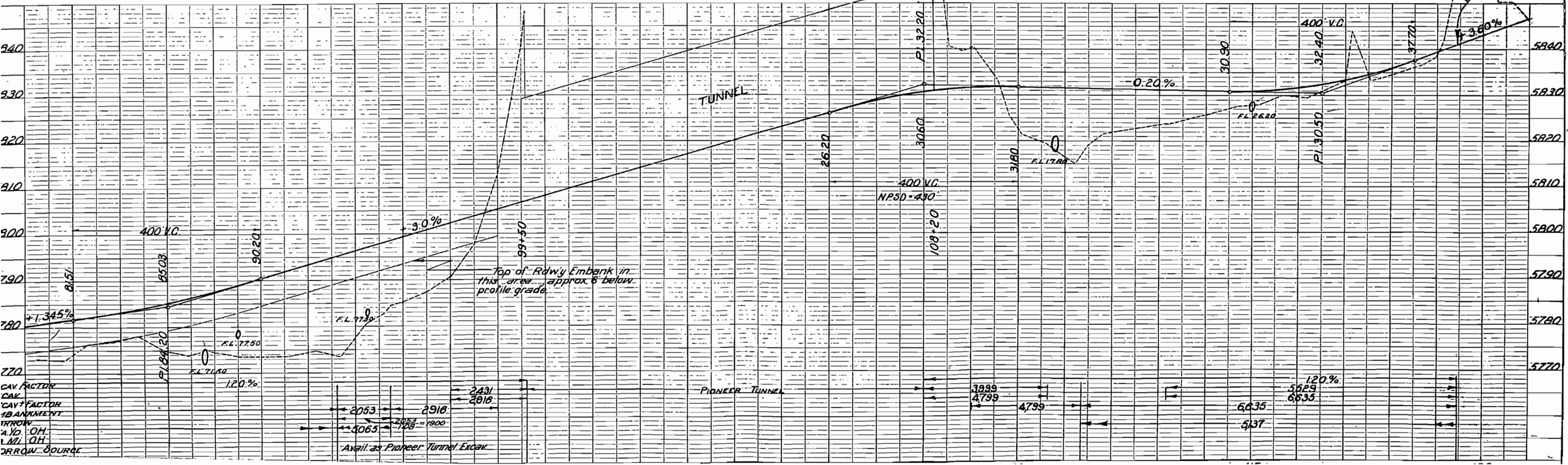
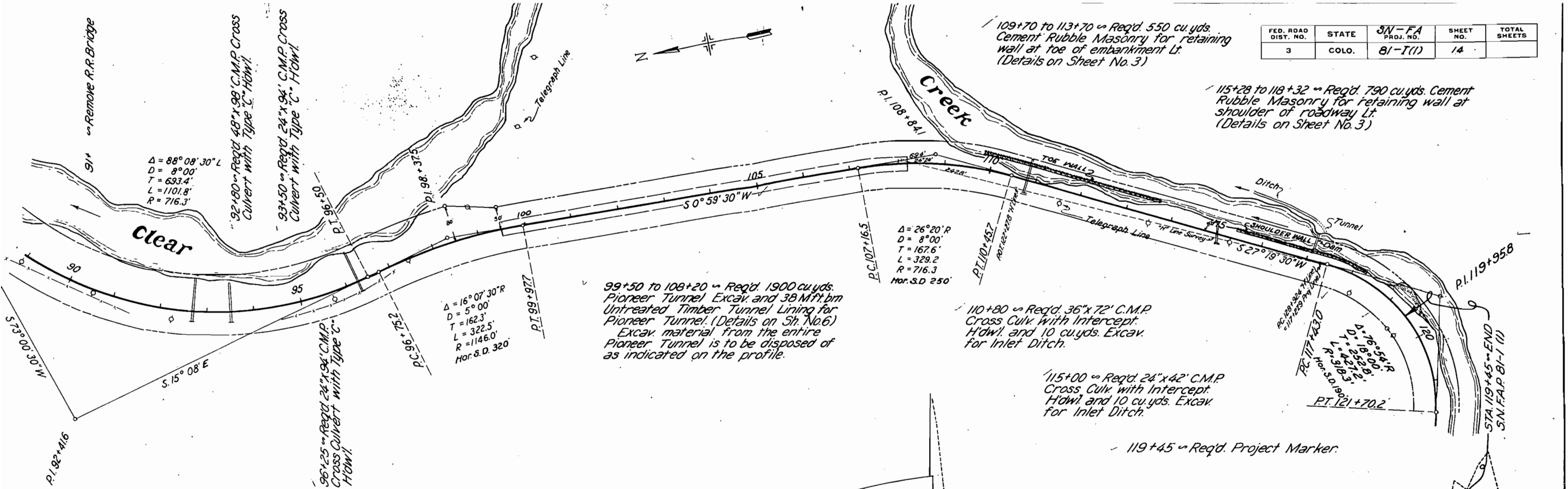
Right of Way Markers and Details of Retaining Walls are shown on Sheet No. 3.

FED. ROAD DIST. NO.	STATE	S.N.-F.A. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	81-1(1)	13	



XCAV. FACTOR
 XCAV.
 XCAV. FACTOR
 REBANKMENT
 BORROW
 OH

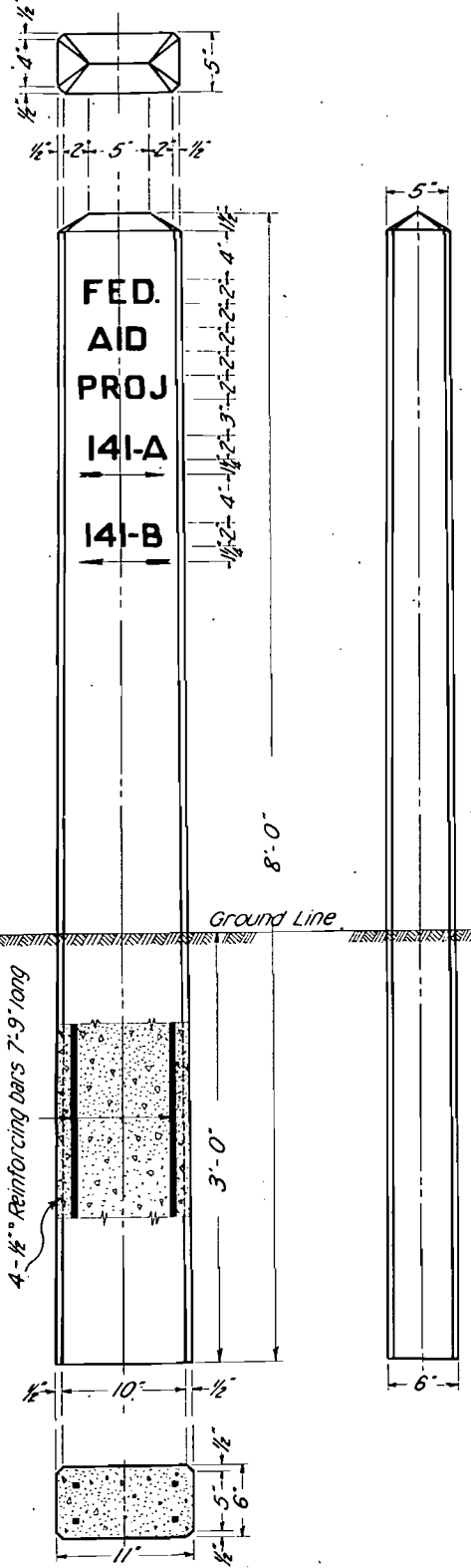
FED. ROAD DIST. NO.	STATE	SN-FA PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	81-1(1)	14	



FED. ROAD DIST. NO.	STATE	S. N. - F. A. P.	SHEET NO.	TOTAL SHEETS
3	COLO.	817 (1)	11	

STANDARD M-7-B

PROJECT MARKER POST ITEM N° 81a



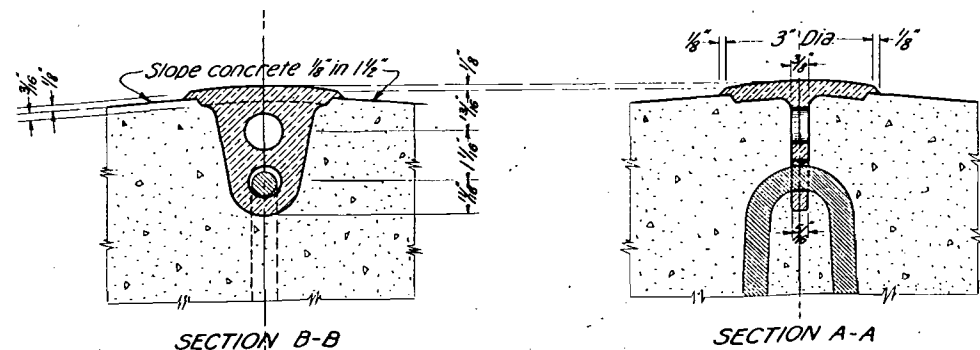
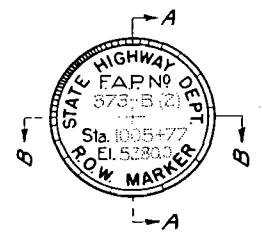
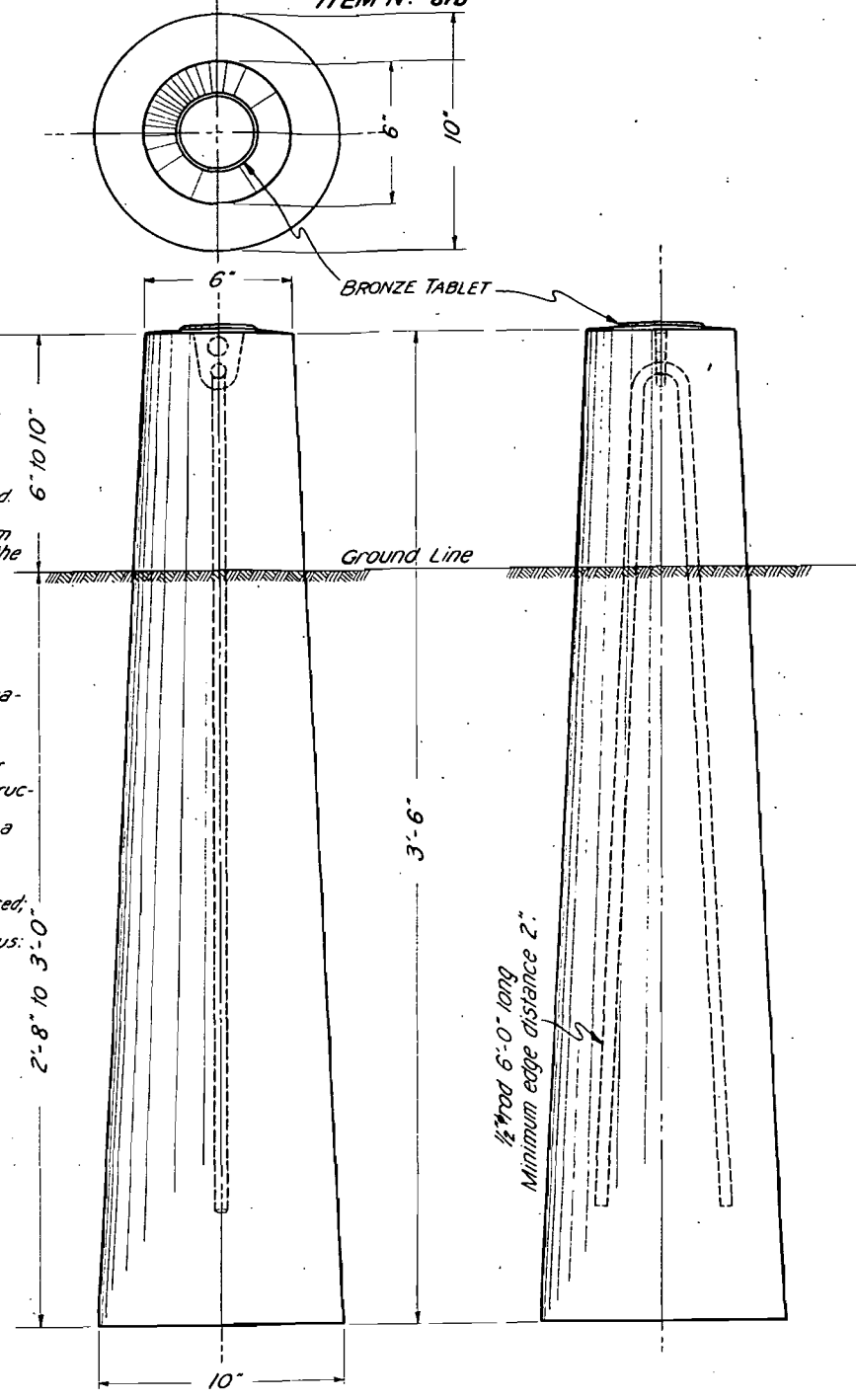
NOTES FOR PROJECT MARKER POSTS

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 1/16 inch.
 Information on the bronze tablet indicated by pin lines is to be stamped in the field by the engineering party after post is placed.
 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.

RIGHT OF WAY MARKER POST ITEM N° 81b



DETAIL OF BRONZE TABLET FOR RIGHT OF WAY MARKER POST

COLORADO STATE HIGHWAY DEPARTMENT
STANDARD MARKER POSTS

Designed by R.E.L. Approved by *John Marshall*
 Made by E.F.S. Date: Apr. 27, 1939
 Checked by R.E.L.