FED. ROAD DIST. NO.	STATE	F.A. PROJ. NO.	SHEET NO.
3	COLO.	F 81(13)	1

RIGHT OF WAY

COLORADO
STATE HIGHWAY DEPARTMENT

PLAN AND PROFILE OF PROPOSED
FEDERAL AID PROJ. - NO. F 81 (13)
STATE HIGHWAY NO. 20

JEFFERSON COUNTY
RIGHT OF WAY *(INFORMATION OBTAINED FROM AVAILABLE COUNTY RECORDS)*

SCALES ON ORIGINAL TRACINGS

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

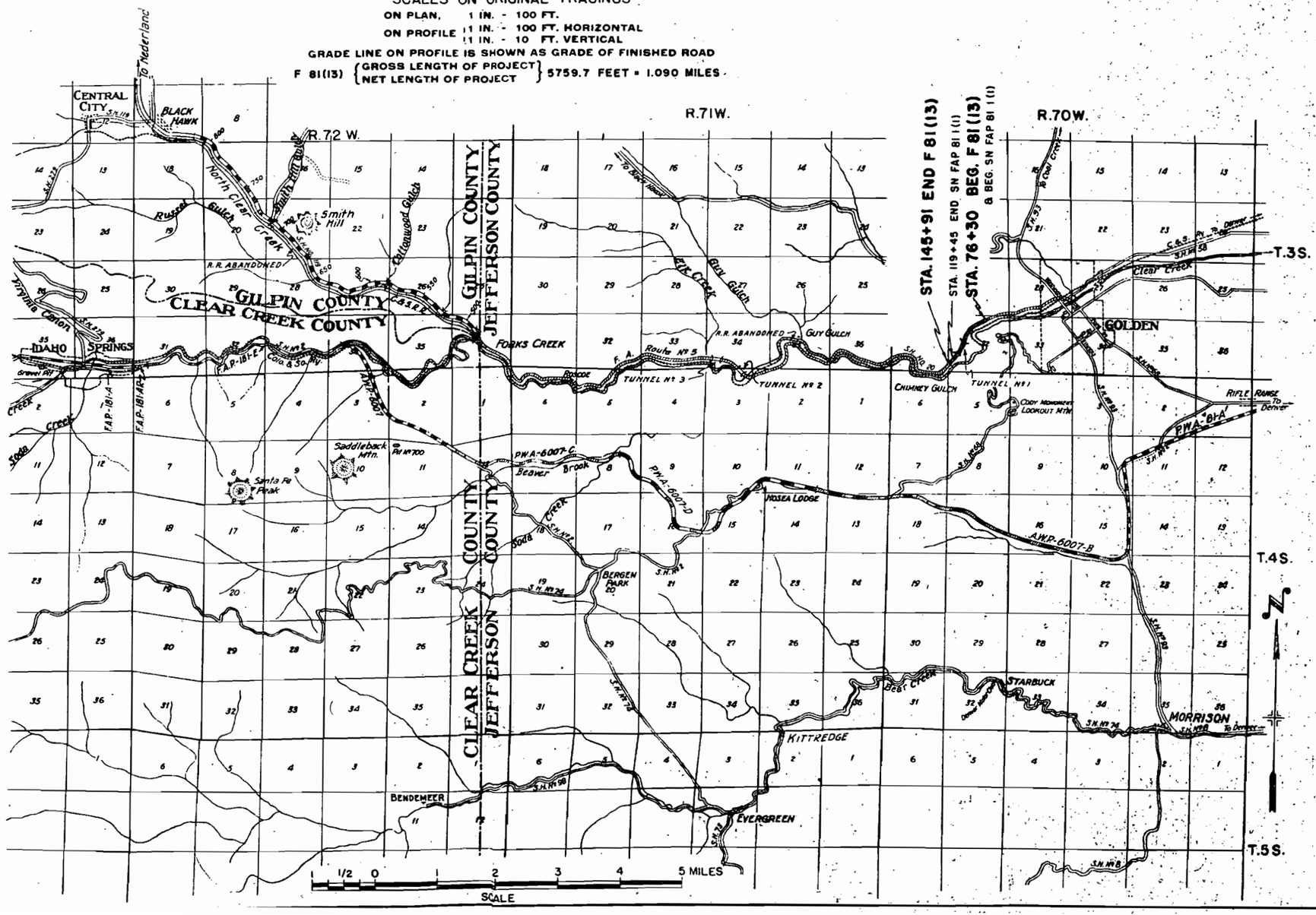
GRADE LINE ON PROFILE IS SHOWN AS GRADE OF FINISHED ROAD

F 81(13) {GROSS LENGTH OF PROJECT / NET LENGTH OF PROJECT} 5759.7 FEET = 1.090 MILES

INDEX OF SHEETS

CONVENTIONAL SIGNS

CENTER LINE OF SURVEY
RIGHT OF WAY LINE
SECTION LINE
ONE-QUARTER SECTION LINE
TOWNSHIP OR RANGE LINE
RAILROAD



Rev. 3-15-47 Acres to be acquired

FED. ROAD DIST. NO	STATE	F.A. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	F 81 (13)	2	

RIGHT OF WAY

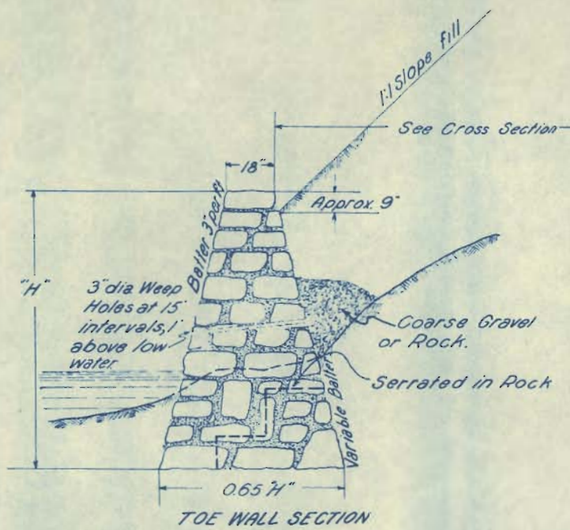
R.O.W. TABULATION OF PROPERTIES IN JEFFERSON COUNTY S.H. No. 20 F 81 (13)

NO.	OWNER	ADDRESS	LOCATION	AREA IN ACRES			ASSESSED VALUATIONS				REMARKS	NO.
				TOTAL LAND	PARCEL	TO BE ACQUIRED	TOTAL LAND	PER ACRE	PARCEL	IMP'S.		
1	ERNEST A. RAMSTETTER	Rt. 1 Box 174 GOLDEN, COLO.	Sec. 32, T. 3 S. R. 70 W.	612 Acres	27.262	27.262	970.00	1.58		None		

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

RIGHT OF WAY

DETAILS OF RETAINING WALLS

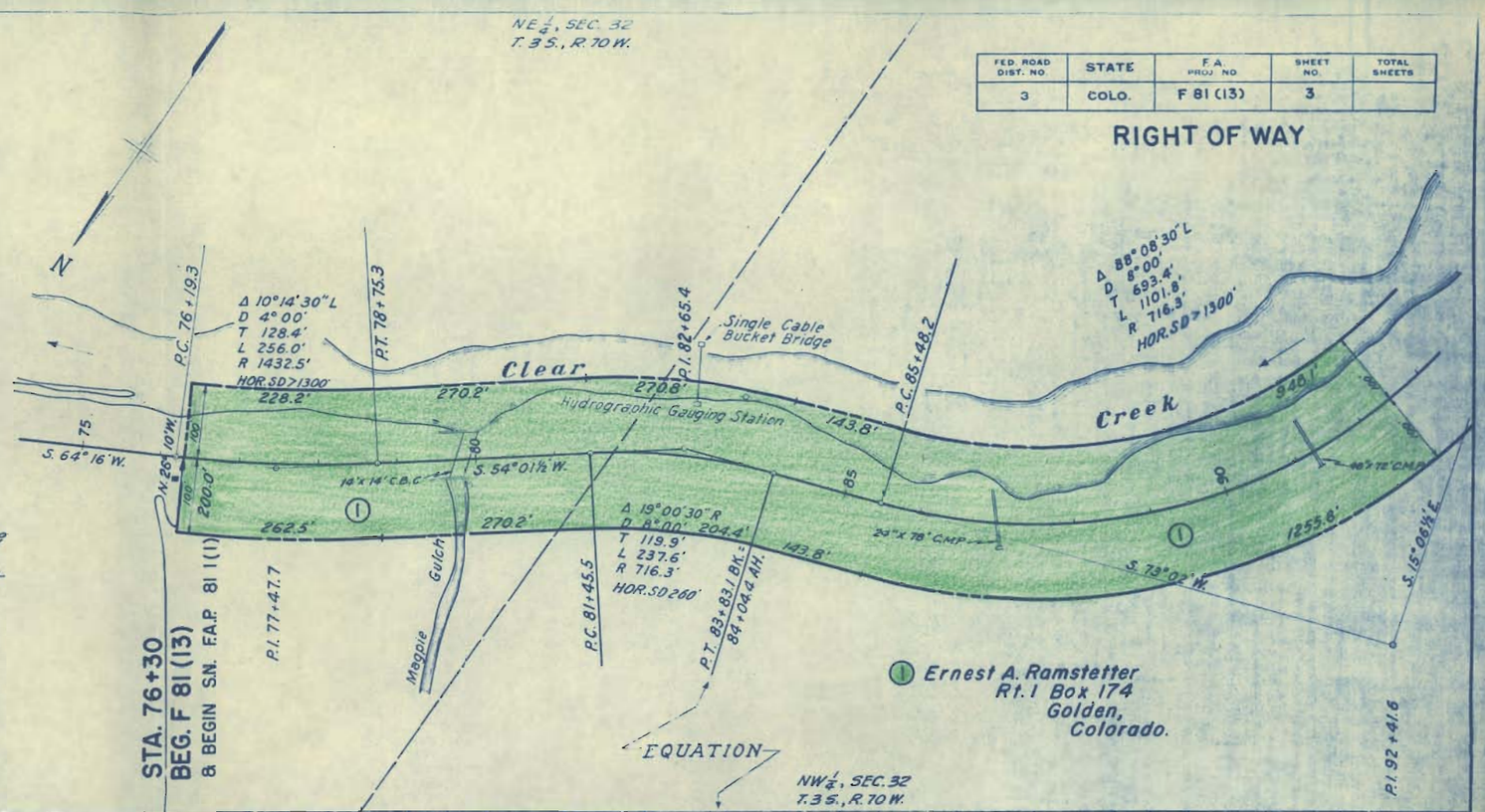


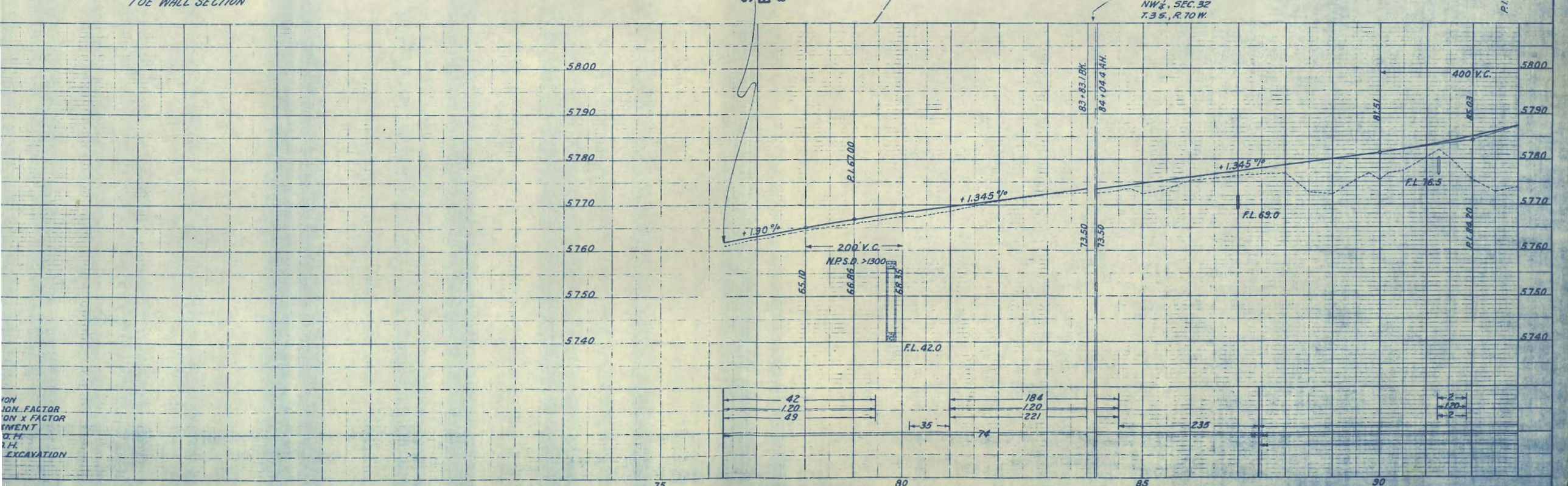
TOE WALL SECTION

~ NOTE ~

Excavation for footing 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."





ION
ION FACTOR
ON x FACTOR
MENT
O.H.
.H.
EXCAVATION

FED ROAD DIST NO	STATE	F.A. PROJ. NO	SHEET NO	TOTAL SHEETS
3	COLO.	F 81 (13)	4	

RIGHT OF WAY

FED. ROAD DIST. NO.	STATE	F.A. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	F 81(13)	5	

RIGHT OF WAY

6000 cu yds excess excav. to widen embank Sta 117+ to 126+

7894 cu. yds excess excav. to widen embank. Sta 154+ to 161+

6342 cu yds excess excav. to widen embank Sta 161+ to 164+

11664 cu. yds excess excav. to widen embank. Sta 164+ to 175+

PLATE 1-PLAN-PROFILE B.P.R. STANDARD

EUGENE DIETZGEN CO. Chicago New York

FED. ROAD DIST. NO	STATE	FA PROJ NO	SHEET NO	TOTAL SHEETS
8	COLO.	F-011(3)	9	

Revised: Tunnel Note & Curve Data at Sta 119+. 4-23-46. H.K.G.

HOR. SD > 1300'
Δ 88°08'30" L.
D 8°00'
T 693.4'
L 1101.8'
R 716.3'

P.T. 96+50

Clear Creek

P.I. 98+37.7

TUNNEL No 1

S. 01° 01½' W.

Sta. 91+25:
48"x72" C.M.P. in place

S. 73° 02' W.

S. 15° 06½' E.

Sta. 93+40:
24"x 94' C.M.P. in place

Sta. 96+57:
24"x94' C.M.P. in place

P.C. 96+75.3

Δ 16° 08' R.
D 5° 00'
T 162.4'
L 322.7'
R 1146.0'
HOR. S.D. 430'

P.T. 99+98.0

Sta. 99+61 to 108+20 ± Reqd.
Tunnel as per Typical Sections
on Sheet No. 3

P.I. 92+41.6

Survey P.T. 108+85.4

Sta. 108+56:
24"x 42" C.M.P. in place

Sta. 109+55 to 113+85:
Cement Rubble Masonry
retaining wall in place

P.I. 109+89.9

113+85 to 114+50 Reqd:
Cement Rubble Masonry
Retaining Wall, Lt.

Survey
Δ 26° 17' 30" R.
D 8° 00'
T 167.3'
L 328.6'
R 716.3'

P.C. 107+18.1

Survey P.T. 110+46.7 Bk =
110+45.7 Ah.

P.T. 110+53.3

Δ 26° 56' 30"
D 8° 00'
T 171.8'
L 337.2'
R 716.3'
HOR. SD. 250'

S 26° 00' W

Sta. 112+30:
36"x 48" C.M.P. in place

112+30 ± Reqd: Extend 36"x48"
CMP Cross Culv. Rt. with 36"x
24" CM Pipe, with a intercepting
Headwall.

Survey P.C. 117+43.0 =
P.C. 117+49.8

Survey
Δ 76° 54'
D 18° 00'
T 252.8'
L 427.2'
R 318.3'

D 76° 13'
D 18° 00'
T 249.7'
L 423.4'
R 318.3'
HOR. SD. 410'

P.T. 121+70.2 Survey
P.T. 121+73.2 Bk =
121+78.7 Ah.

EQUATION

N. 75° 47' W.

P.I. 119+95.8 Survey

P.I. 119+99.5

Ditch

Tunnel

Ditch

TUNNEL No 1

P.I. 92.20

400' V.C.

+3.00%

+13.45%

81.51

85.03

90.20

84.70

F.L. 76.5

F.L. 74.4

F.L. 83.2

P.I. 92.20

F.L. 24.0

20.20

28.00

800' V.C.
N.P.S.D. 610'

0.20%

31.40

F.L. 30.3

P.I. 30.40

400' V.C.

+3.6%

32.40

30.9

32.70

P.I. 121+73.2 Bk

EXCAVATION			
EXCAVATION FACTOR			
EXCAVATION X FACTOR			
EMBANKMENT		19236	
CY. O. H.		69450	
M. O. H.		68	
EXCESS EXC.			

284 Rd.Way	1574 Tunnel	1858
1341 Rd.Way	8893 Tunnel	10234
1137 Rd.Way	1759 Tunnel	2896
2711 Rd.Way	64 Tunnel	2775
2371		2371
600		600

80	20237
120	120
96	24284
	531
149	28637
	1495
	23604

Excess Excavation to be used in widen Embankment

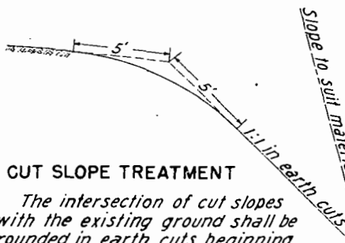
90 95 100 105 110 115 120

PLATE I—PLAN—PROFILE C.P.R.&R.E.

FED. ROAD DIST. NO.	STATE	F.A. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	F-81(13)	2	

Rev. 4-16-46 - J.E.H. - Typical Section

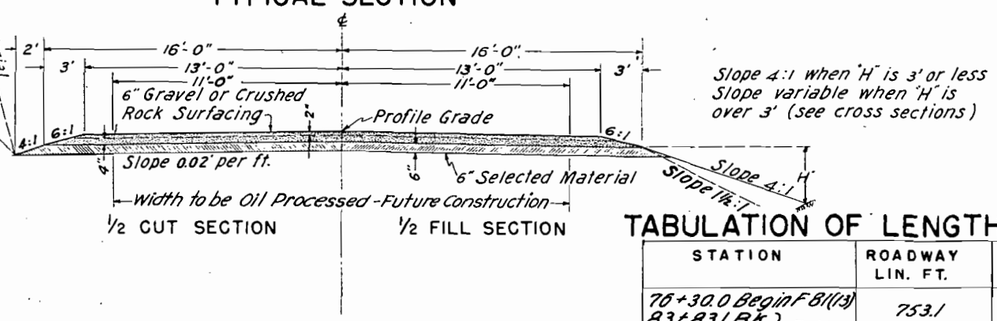
TYPICAL CROSS SECTION OF IMPROVEMENT AND SUMMARY OF QUANTITIES



CUT SLOPE TREATMENT

The intersection of cut slopes with 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 involved in Cut Slope Treatment shall be included in "Unclassified Excavation."

TYPICAL SECTION



Slope 4:1 when "H" is 3' or less
Slope variable when "H" is over 3' (see cross sections)

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

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 approximate only.

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.

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

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

Curves on this Project over 5 degrees shall be provided with the Superelevation shown on the Standard Superelevation sheet for a 5 degree curve.

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 excavation.

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.

The depth and width of the side ditch shall be varied where necessary in order to provide proper drainage and entrance to cross drainage structures.

All Corrugated Metal Pipe Culverts including Arches shall be laid with Metal Aprons on each end unless otherwise noted on the plans.

Approximately 6 inches of embankment material will be used to cover culverts in such a manner that a minimum of pipe shall be exposed in the completed work. This shall be accomplished by warping embankment slopes around and adjacent to the culvert.

TABULATION OF LENGTH & DESIGN DATA

STATION	ROADWAY LIN. FT.	
76+30.0 Begin F.A.P. F 81(13) 83+83.1 Bk. } Eq'n 84+04.4 Ah } Eq'n	753.1	
121+00 = End F.A.P. F 81(13)	3695.6	
TOTALS	4448.7	

SUMMARY	LIN. FT.	MILES
F.A.P. F 81(13) Roadway	4448.7	0.842

DESIGN DATA	
Maximum Degree of Curve	18°00'
Maximum Grade	3.60%
Minimum N.P.S.D. Horizontal	210 Ft.
Minimum N.P.S.D. Vertical	610 Ft.
Maximum Design Speed	30 M.P.H.

SUMMARY OF APPROXIMATE QUANTITIES

NO.	ITEM	UNIT	ROADWAY	TUNNEL STA. 99+61 TO 108+20	TOTALS
10a	Clearing and Grubbing Entire Project	Lump Sum	•		•
13c	Unclassified Excavation	Cu. Yd.	24000		24000
13f	Tunnel Excavation	Cu. Yd.		17,500	17,500
13g	Tunnel Enlargement Excavation	Cu. Yd.		200	200
14a	Dry Rock Excavation (Str.)	Cu. Yd.	120		120
14b	Dry Common Excavation (Str.)	Cu. Yd.	120		120
14c	Wet Rock Excavation (Str.)	Cu. Yd.	120		120
14d	Wet Common Excavation (Str.)	Cu. Yd.	120		120
14e	Mechanical Tamping	Hr.	20		20
18a	Station Yards Overhaul	Sta. Yd.	316000		316000
18b	Yard Mile Overhaul	Yd. Mi.	1800		1800
42x	Untreated Timber Tunnel Lining	M.F.B.M.		81	81
46b	Class "B" Concrete	Cu. Yd.	3		3
46t	Class "A" Concrete (Tunnel)	Cu. Yd.		880	880
46w	Sand for Gunite	Ton		1460	1460
46x	Cement for Gunite	Bbl.		1650	1650
46y	Sand for Grout	Ton		75	75
46z	Cement for Grout	Bbl.		110	110
47	Reinforcing Steel	Lb.		46200	46200
49	Cement Rubble Masonry	Cu. Yd.	240		240
53e	36" Corrugated Metal Culvert Pipe	Lin. Ft.	25		25
81a	Project Marker	Ea.	1		1
89x	Grout Pipe (Tunnel)	Ea.		16	16
	Right of Way	Lum. Sum	•		•

LIST OF STRUCTURES

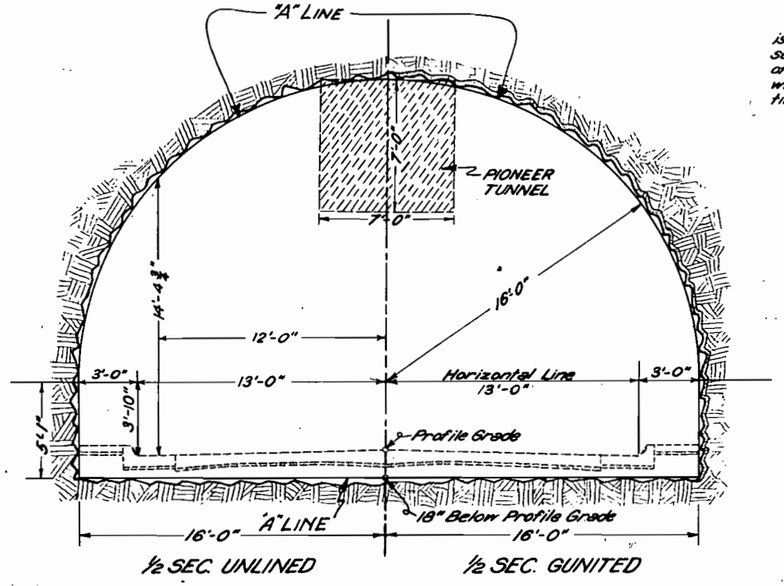
LOCATION	DESCRIPTION	EXCAVATION: TUNNEL (CU. YDS.)	EXCAVATION: TUNNEL ENLARGEMENT (CU. YDS.)	EXCAVATION: UNCL. DITCH (CU. YDS.)	STRUCTURAL EXCAVATION (CU. YDS.)	MECH. TAMPING (HR.)	CONCRETE: CL. "A" TUNNEL (CU. YDS.)	CONCRETE: CLASS "B" (CU. YDS.)	SAND: FOR GUNITE (TONS)	SAND: FOR GROUT (TONS)	CEMENT: FOR GUNITE (BBL.)	CEMENT: FOR GROUT (BBL.)	REINF. STEEL (LBS.)	CORRUGATED METAL CULVERT: PIPE 36" (LIN. FT.)	MISCELLANEOUS
99+61 to 108+20	Tunnel	17,500	200				880		1460	75	1645	110	46200		81 M.F.B.M. Untreated Timber Tunnel Lining 16 Grout Pipes
112+30	Extend 36"x48" CMP Cross Culv. Rt., Intercepting Headwall				30	15		2.72						24+14	
113+85 to 114+50	Cement Rubble Masonry Retaining Wall on Lt.				420										240 cu. yds. Cement Rubble Masonry.
121+00	Project Marker.														1 Project Marker.
	TOTALS	17,500	200		450	15	880	2.72	1460	75	1645	110	46200	25	

• Structural Excavation is estimated to be 50% Common and 50% Rock, each of which is estimated to be 50% Dry and 50% Wet.

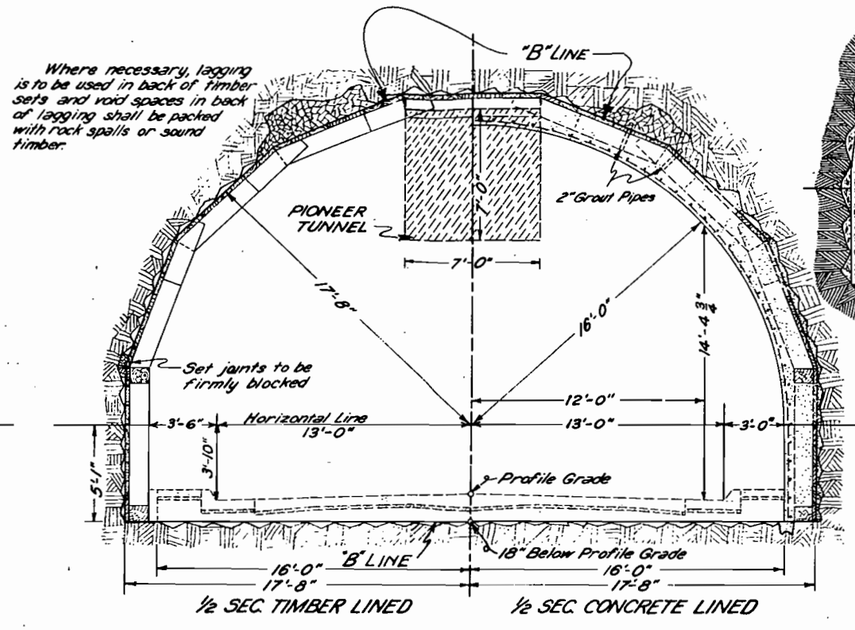
◆ Allowance for Connecting Band.

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

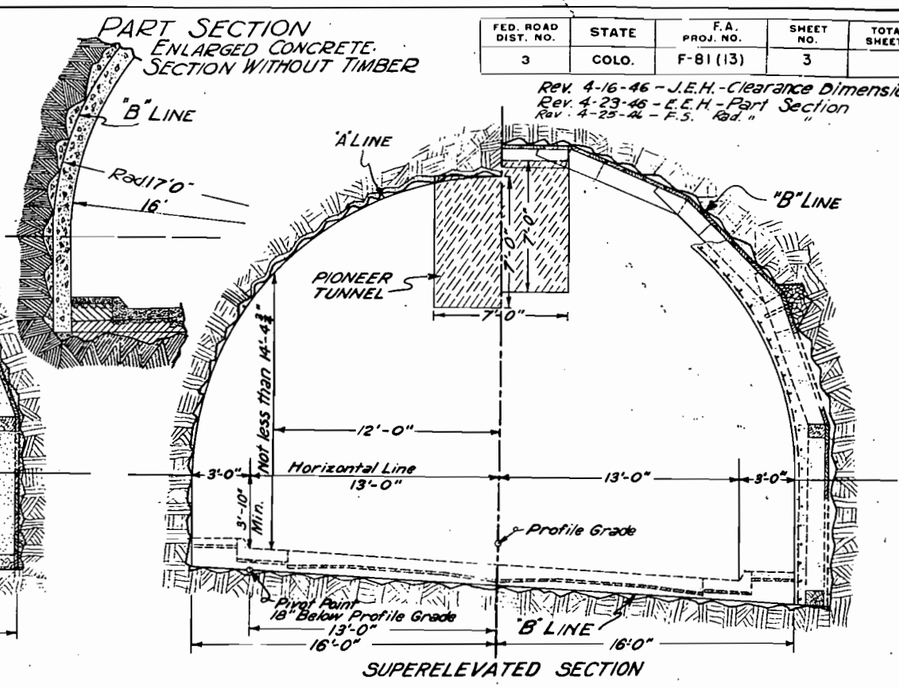
Rev. 4-16-46 - J.E.H. - Clearance Dimensions
Rev. 4-23-46 - J.E.H. - Part Section
Rev. 4-25-46 - F.S. Rad. " "



½ SEC. UNLINED ½ SEC. GUNITED



½ SEC. TIMBER LINED ½ SEC. CONCRETE LINED



SUPERELEVATED SECTION

TYPICAL TUNNEL SECTIONS

GENERAL NOTES

All work shall be done in conformity with Standard Specifications of the Colorado State Highway Department adopted June 1, 1940.

The Contractors attention is directed to the fact that the quantities of certain items involved in the construction of the tunnel bores are subject to material revision as construction progresses. Quantities of items involved in tunnel construction may be materially increased, decreased or entirely eliminated depending on conditions actually encountered.

Typical timbering methods are shown hereon, but the arrangement, spacing and size of members shall be varied to meet construction requirements. Timbering methods for each type of ground encountered must be submitted by the Contractor, for approval by the Department before permanent timbering operations may proceed.

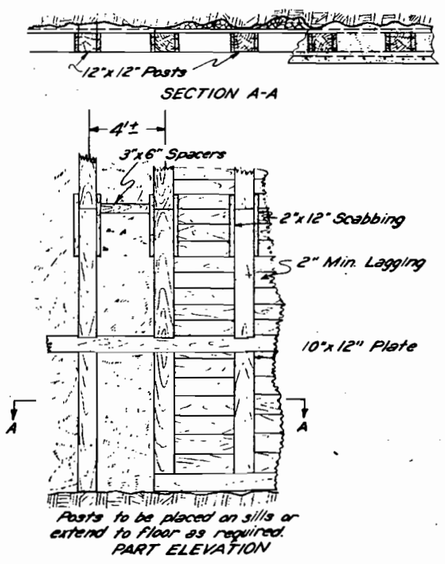
Excavation for tunnels shall be started at the lower end and shall be in accordance with plan details. Portal cuts shall be entirely removed before the beginning of any tunnel excavation opperations.

In concrete lined sections ¾" ϕ reinforcing bars at one(1) ft centers shall be used both longitudinally and on the circumference of the tunnel. Bars shall be placed a minimum of 3 inches from the face of the concrete and where spliced shall be lapped a minimum of 50 diameters. All reinforcing bars shall be deformed.

For purpose of estimating only, the following assumptions are used in arriving at quantities for tunnel Lining:

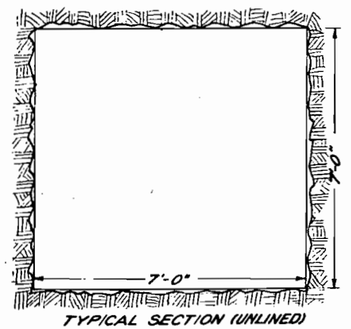
Timber and Concrete Tunnel Lining 220 Lin.ft.
Gunite Lining 639 Lin.ft.

Note:
Curb and Gutter, Sidewalks and Pavement will be placed under future construction.

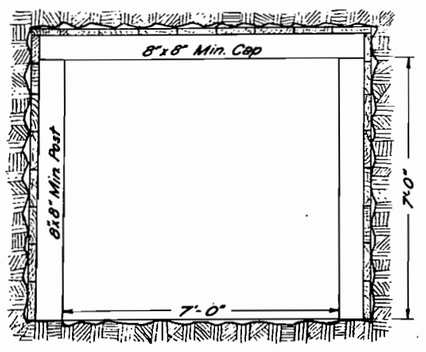


DETAILS OF TUNNEL LINING

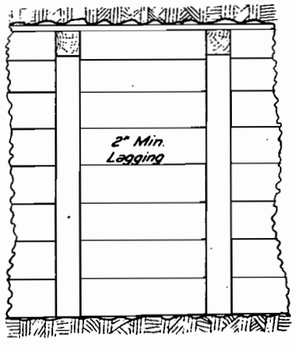
The normal inside shoulder elevation is to remain at the standard elevation of 0.02 feet per foot width of roadway below the profile grade. Minimum Clearance shall be maintained on curves by raising the Horizontal Line of the Tunnel Section a distance sufficient to provide for superelevation of the Roadway.



TYPICAL SECTION (UNLINED)

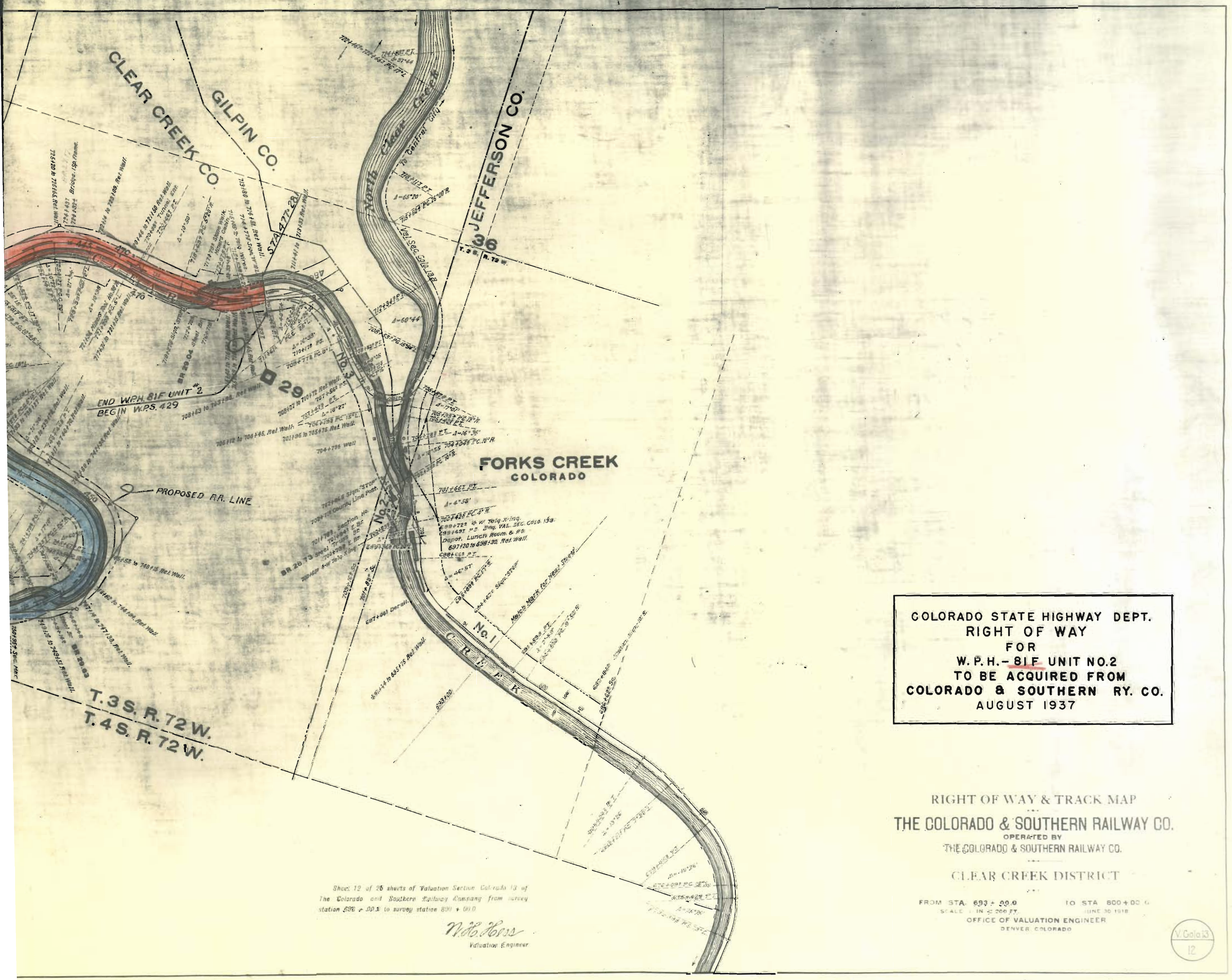


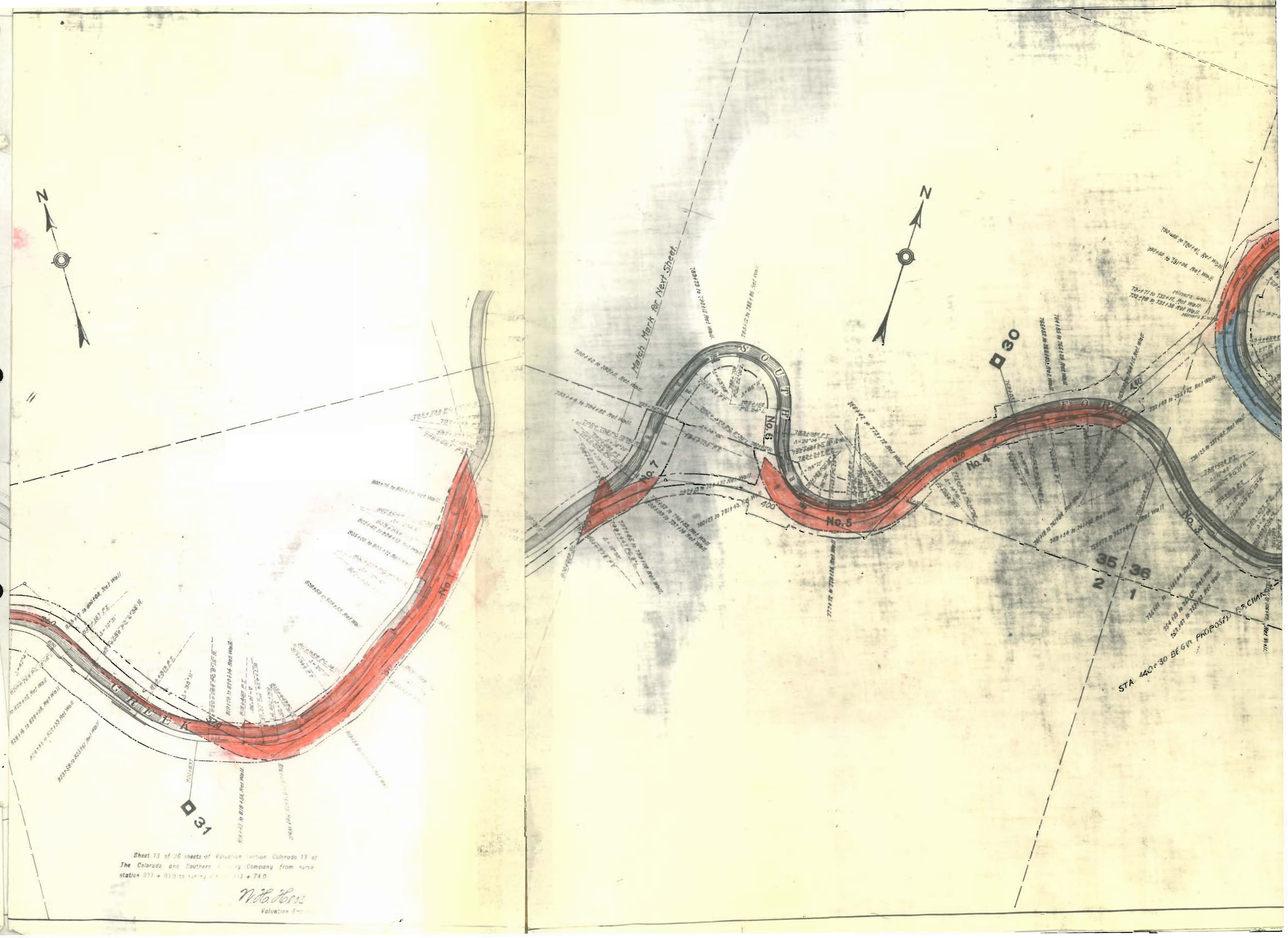
TYPICAL SECTION (LINED)

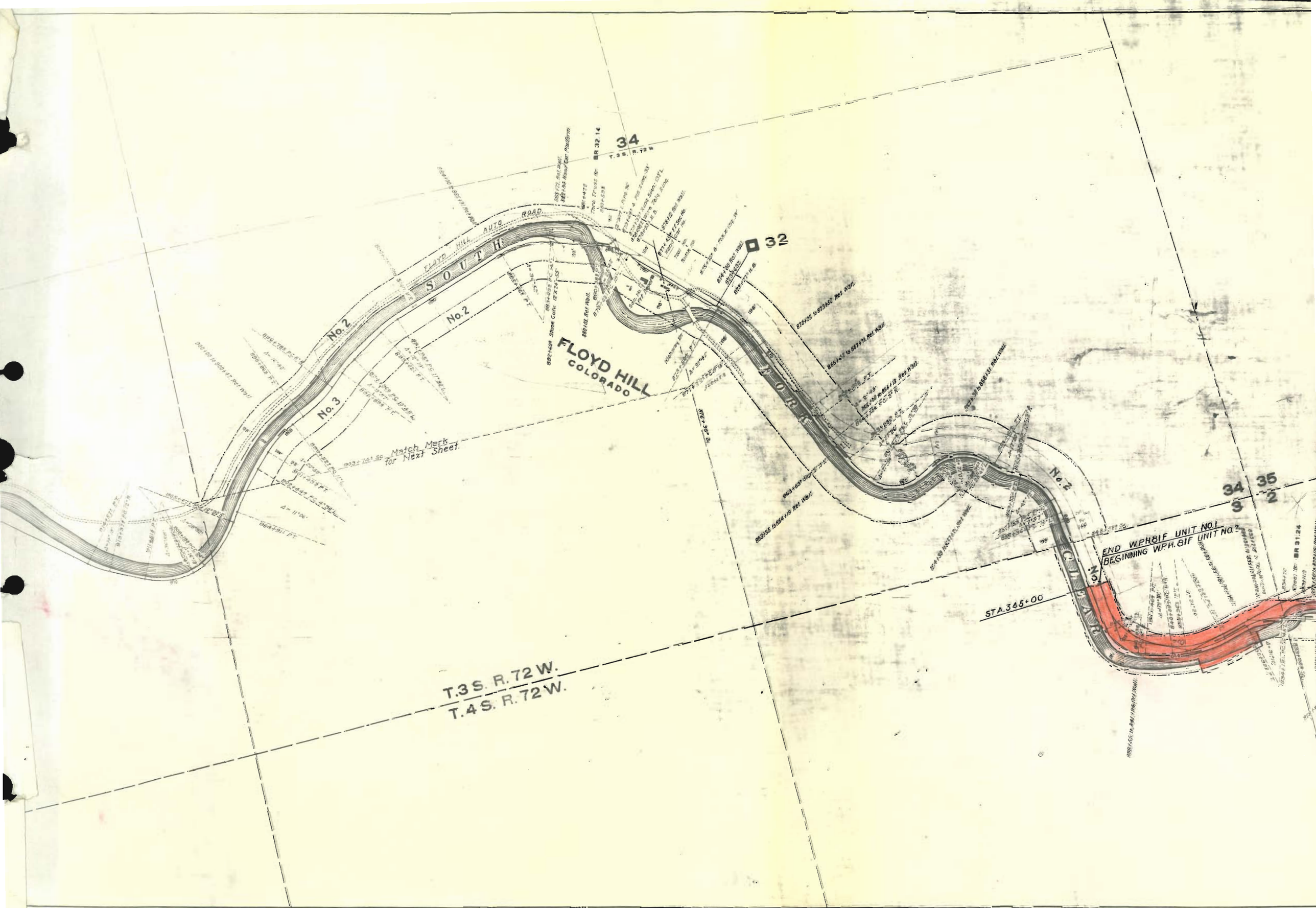


ELEVATION

DETAILS OF PIONEER TUNNEL


CLEAR CREEK CO.
GILPIN CO.
JEFFERSON CO.
North Clear Creek
To Central City
36
T. 2 S. R. 72 W.
29
END W.P.H. 81F UNIT #2
BEGIN W.P.S. 429
FORKS CREEK
COLORADO
PROPOSED R.R. LINE
No. 3
No. 2
No. 1
CREEK
T. 3 S. R. 72 W.
T. 4 S. R. 72 W.
Match Mark for Next Sheet
COLORADO STATE HIGHWAY DEPT.
RIGHT OF WAY
FOR
W. P. H.- 81F UNIT NO.2
TO BE ACQUIRED FROM
COLORADO & SOUTHERN RY. CO.
AUGUST 1937
RIGHT OF WAY & TRACK MAP
THE COLORADO & SOUTHERN RAILWAY CO.
OPERATED BY
THE COLORADO & SOUTHERN RAILWAY CO.
CLEAR CREEK DISTRICT
FROM STA. 693 + 00.0
TO STA. 800 + 00.0
OFFICE OF VALUATION ENGINEER
DENVER, COLORADO
Sheet 12 of 25 sheets of Valuation Section Colorado 13 of The Colorado and Southern Railway Company from survey station 693 + 00.0 to survey station 800 + 00.0
Valuation Engineer
V. Colo. 13
12


N
N
Match Mark for Next Sheet.
SOUTH
FORK
CREEK
No. 1
No. 3
No. 4
No. 5
No. 6
No. 7
30
31
35
36
2
1
400
STA. 440+30 BEGIN PROPOSED R.R. CHAN
Sheet 13 of 26 sheets of Valuation Section Colorado 13 of
The Colorado and Southern Railway Company from survey
station
+ 74.0
N.H. Hess
Valuation


34
T.3S. R.72W.
32
FLOYD HILL AUTO ROAD
SOUTH
No. 2
No. 3
FLOYD HILL
COLORADO
NORTH
No. 2
Match Mark
For Next Sheet
T.3 S. R. 72 W.
T.4 S. R. 72 W.
34
3
35
2
END W.P.H.81F UNIT NO.1
BEGINNING W.P.H.81F UNIT NO.2
STA. 345+00
CLEAR
No. 2