FED. ROAD DIV. NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	AA-13 UNIT 1	1	

Rev ⇨ 8-21-53 ⇨ Index of Sheets ⇨ J.C.R.

1.Sc.1

COLORADO
DEPARTMENT OF HIGHWAYS

PLAN AND PROFILE OF PROPOSED
FEDERAL AID PROJECT NO. AA-13 UNIT 1
STATE HIGHWAY NO. 93

BOULDER AND JEFFERSON COUNTIES

INDEX OF SHEETS

TABULATION OF LENGTH AND DESIGN DATA

STATION	ROADWAY Lin. Ft.	BRIDGES Lin. Ft.	BRIDGES NO WORK Lin. Ft.	Loading
BOULDER COUNTY				
0+00 BEGIN AA-13 UNIT No.1				
131+94.4 Bk = Equation 132+31.5 Ah	13,194.4			
157-60.5 Bridge	2,849.0	52.5		H-12½-44
158+33.0	58.0			
158+91.0 Bk = Equation 159+00.0 Ah.	979.8			
168+79.8 County Line				
JEFFERSON COUNTY	3,702.6			
205+82.4 Bk.= Equation 208+52.5 Ah.	5,032.5			
258+85 Bridge			43.0	H-18-44
259+28	1,372.0			
273+00 END AA-13 UNIT No.1 = BEG. AA-13 UNIT NO.2				
TOTALS	27,188.3	52.5	43.0	

SUMMARY

	LIN. FT.	MILES
AA-13 UNIT No.1-ROADWAY- BOULDER COUNTY	17,081.2	3.235
AA-13 UNIT No.1-BRIDGES - BOULDER COUNTY	52.5	0.010
AA-13 UNIT No.1-ROADWAY-JEFFERSON COUNTY	10,107.1	1.314
NO WORK SECTION	43.0	0.008
TOTAL AA-13 UNIT No.1-GROSS LENGTH	27,283.8	5.167
TOTAL AA-13 UNIT No.1-NET LENGTH	27,240.8	5.159

DESIGN DATA

MAXIMUM DEGREE OF CURVE	5°00'
MAXIMUM GRADE	7.00%
MINIMUM NPSD - horizontal	465'
MINIMUM NPSD - vertical	460'
MAXIMUM DESIGN SPEED	50 M.P.H.

SCALES OF ORIGINAL TRACINGS

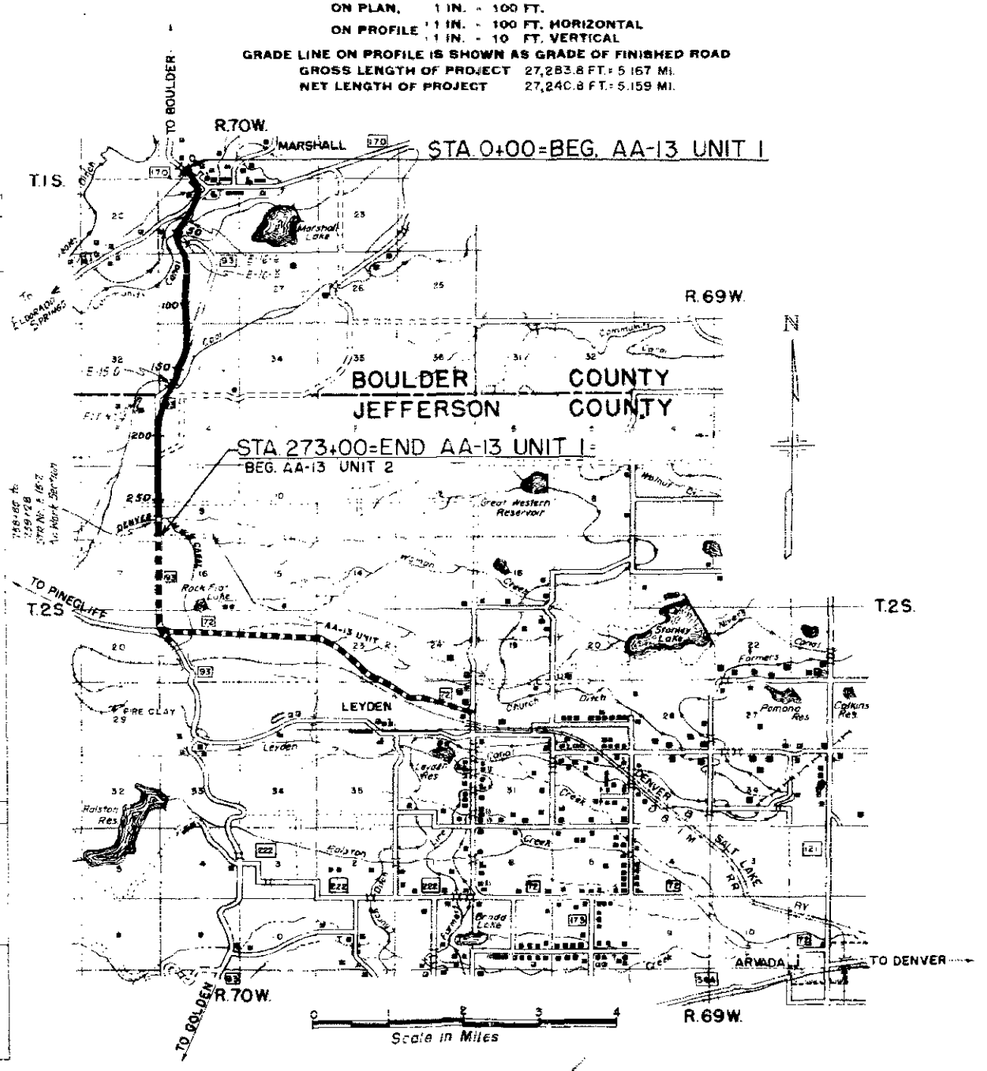
ON PLAN, 1 IN. = 100 FT.

ON PROFILE 1 IN. = 100 FT. HORIZONTAL
1 IN. = 10 FT. VERTICAL

GRADE LINE ON PROFILE IS SHOWN AS GRADE OF FINISHED ROAD

GROSS LENGTH OF PROJECT 27,283.8 FT. = 5.167 Mi.

NET LENGTH OF PROJECT 27,240.8 FT. = 5.159 Mi.



CONVENTIONAL SIGNS

- CENTER LINE OF SURVEY
- RIGHT OF WAY LINE
- COUNTY LINE
- TOWNSHIP OR RANGE LINE
- SECTION LINE
- QUARTER SECTION LINE
- RAILROAD
- BARBED WIRE FENCE
- SNOW FENCE
- TELEPH. & TELEG. LINE
- POWER LINE
- PRESENT ROAD (PLAN SHEETS)

NOTICE TO BIDDERS

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

Glen McEldowney, Construction Engineer, Denver, Colorado.

Paul R. Morley, Resident Engineer, Denver, Colorado.

COLORADO
DEPARTMENT OF HIGHWAYS

APPROVED: Mark V. Watkins JSB 7-3-53
CHIEF ENGINEER DATE

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

APPROVED:
DISTRICT ENGINEER DATE

Rev. 6-7-14-53 J.P.K. Road Approach, Lt. Sta. 5+

FED. ROAD DIST. NO.	DIST.	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	AA-13	21	

UNIT-1

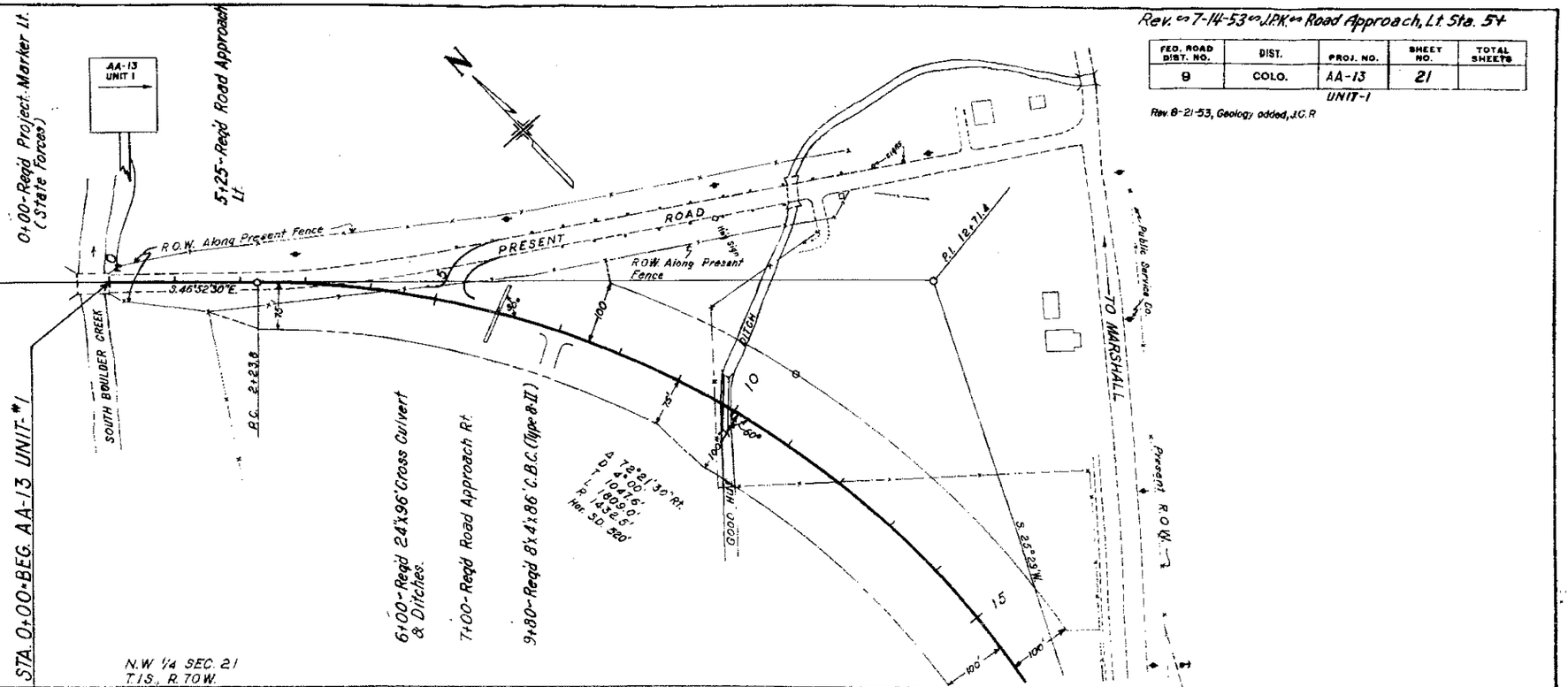
Rev. 8-21-53, Geology added, J.C.R

NOTE:

Alignment and Grades as shown are subject to modification during construction after approval by the Denver Office.

Soil data shown on the plans is obtained from best available testing laboratory information. This information is shown for convenience of the Contractor and the Department does not guarantee the accuracy of these tests. If materials not conforming to the data on plans, are encountered during construction, the grading plan shown on plans, will be modified where necessary to secure dense, stable embankments.

Fencing, R.O.W. Markers, etc., are tabulated on Sheet No. 4.



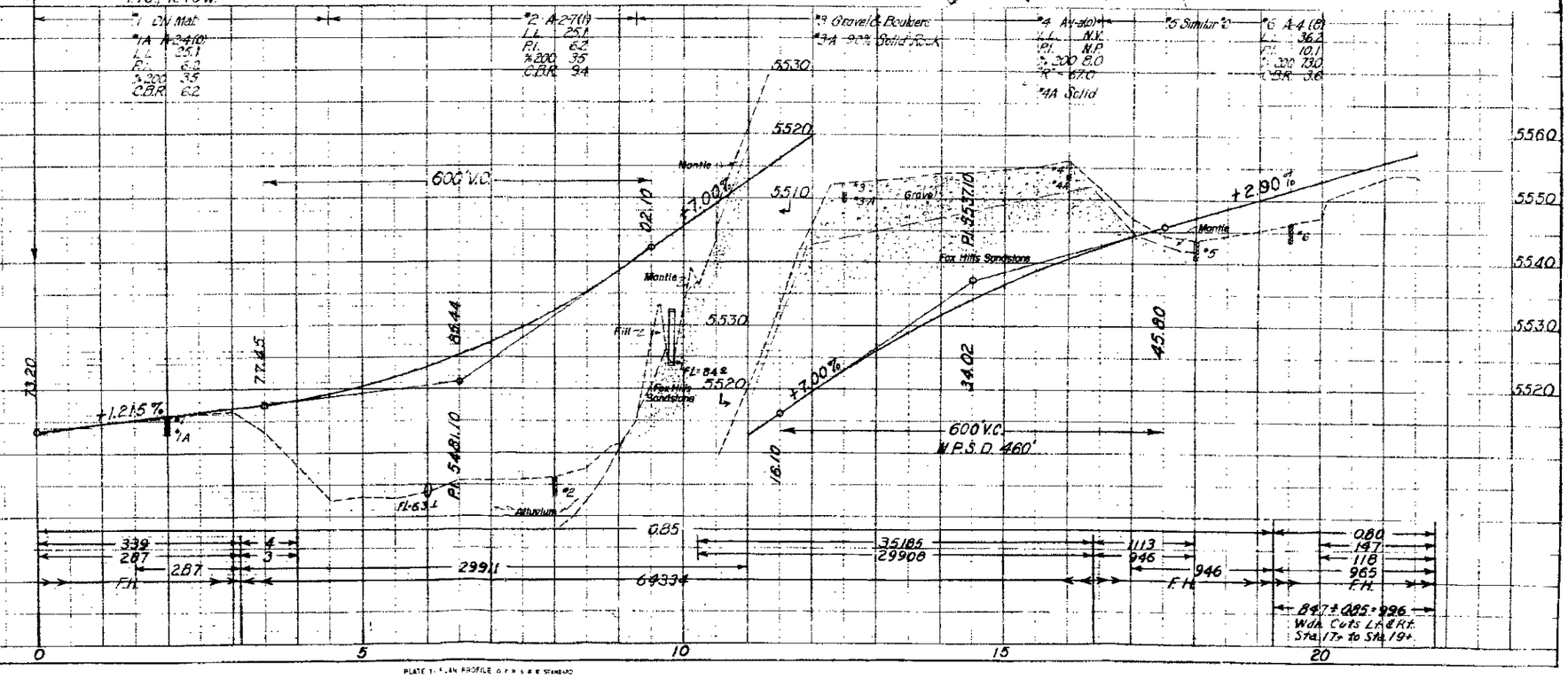
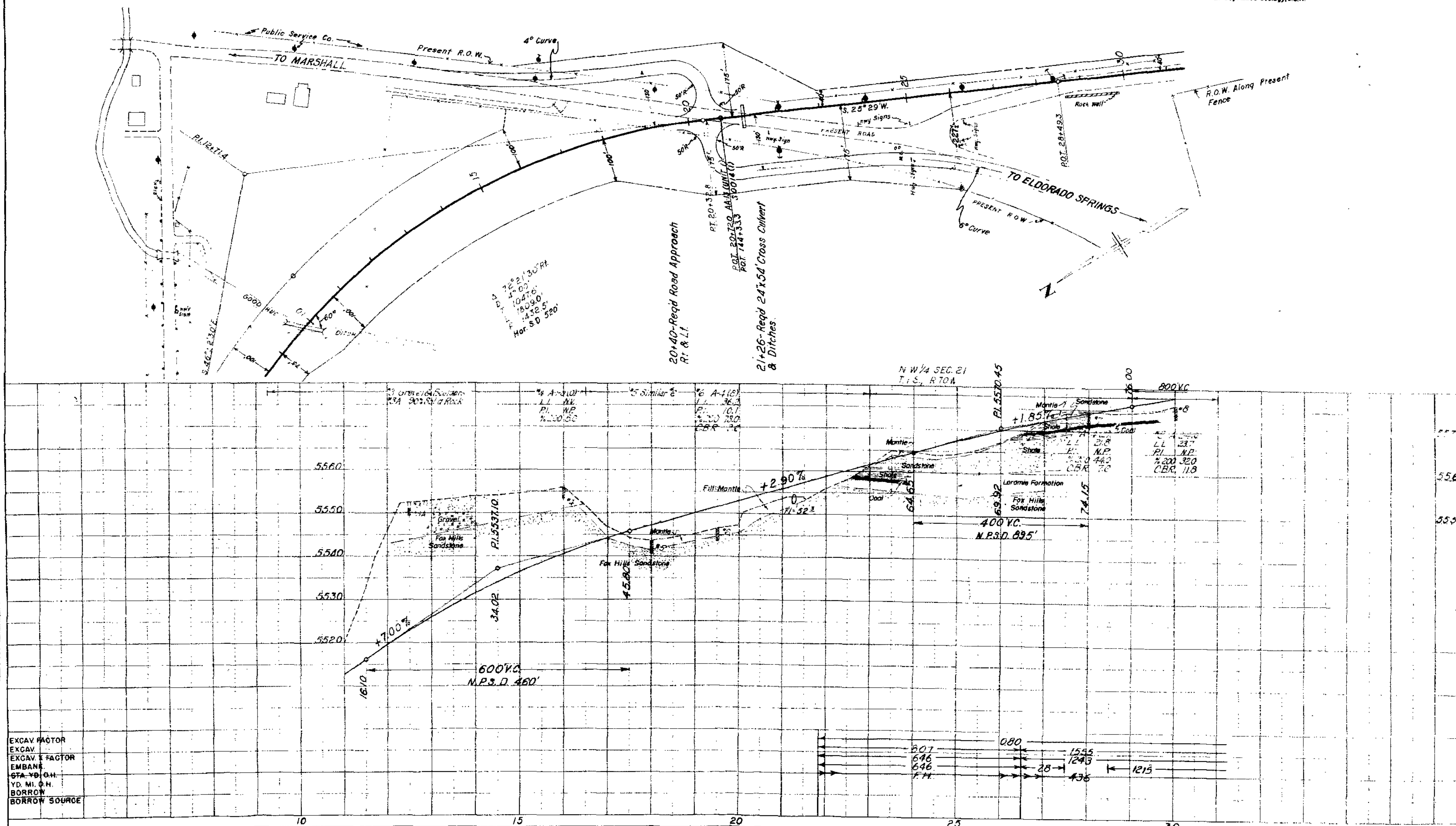


PLATE 1 - PLAN PROFILE STANDARD

FED. ROAD DIST. NO.	DIST.	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	AA-13 UNIT-1	22	

Rev. 8-21-53, Added Geology, J.C.R.



Public Service Co.
Present R.O.W.
TO MARSHALL
4° Curve
S. 25° 29' W.
Hwy Signs
PRESENT ROAD
Rock Wall
P.O.T. 28+49.3
R.O.W. Along Present Fence
TO ELDORADO SPRINGS
PRESENT ROW
6° Curve
P.I. 12+71.4
P.T. 20+32.8
P.O.T. 20+72.0 AA-13(UNIT 1)
P.O.T. 144+33.3 S0014(1)
20+40-Req'd Road Approach Rt. & Lt.
21+26-Req'd 24"x54" Cross Culvert & Ditches
Hor. S.D. 520'
GOOD
DITCH
N.W. 1/4 SEC. 21 T.1 S., R.70 W.
P.I. 5570.45
P.I. 5537.10
+1.85%
+2.90%
+7.00%
800' V.C.
600' V.C.
N.P.S.D. 460'
400' V.C.
N.P.S.D. 895'
Fill: Mantle
Mantle
Sandstone
Shale
Coal
Laramie Formation
Fox Hills Sandstone
Gravel
34.02
45.80
64.65
69.92
74.15
16.10
5560
5550
5540
5530
5520
EXCAV. FACTOR
EXCAV.
EXCAV. X FACTOR
EMBANK.
STA. YD. O.H.
YD. MI. O.H.
BORROW
BORROW SOURCE
0.80
607
646
646
F.H.
1555
1243
28
436
1213
10
15
20
25
30

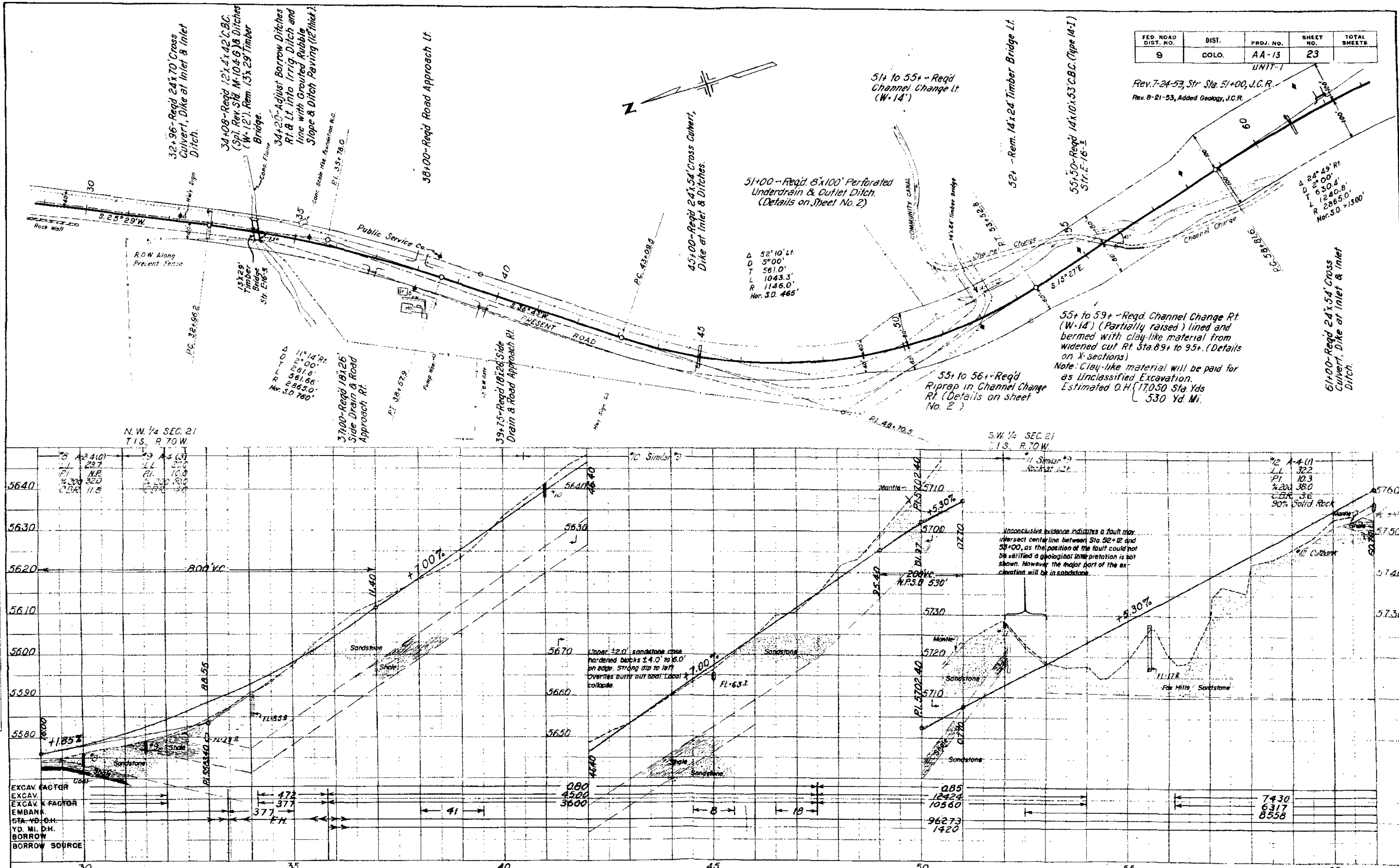
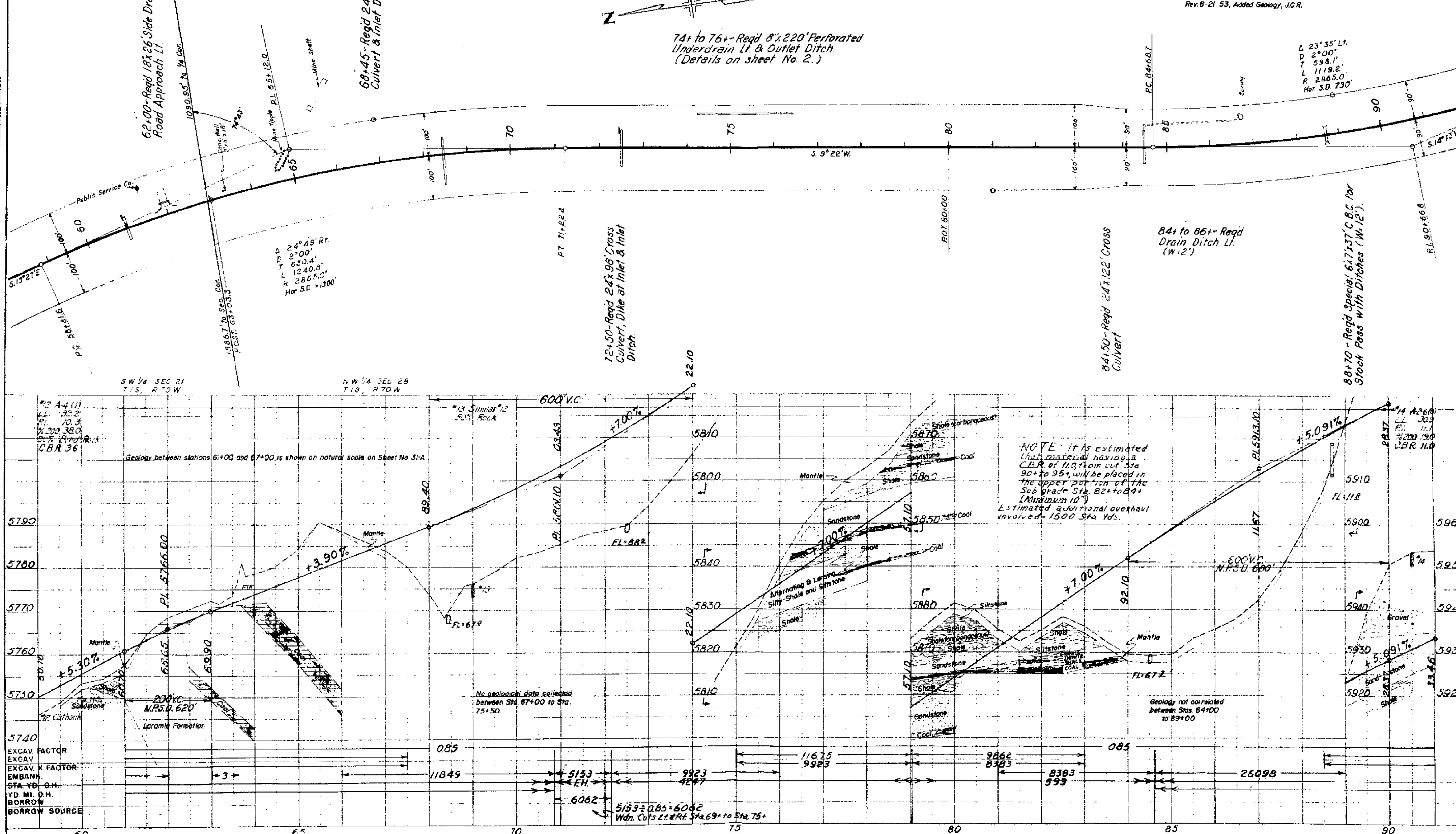


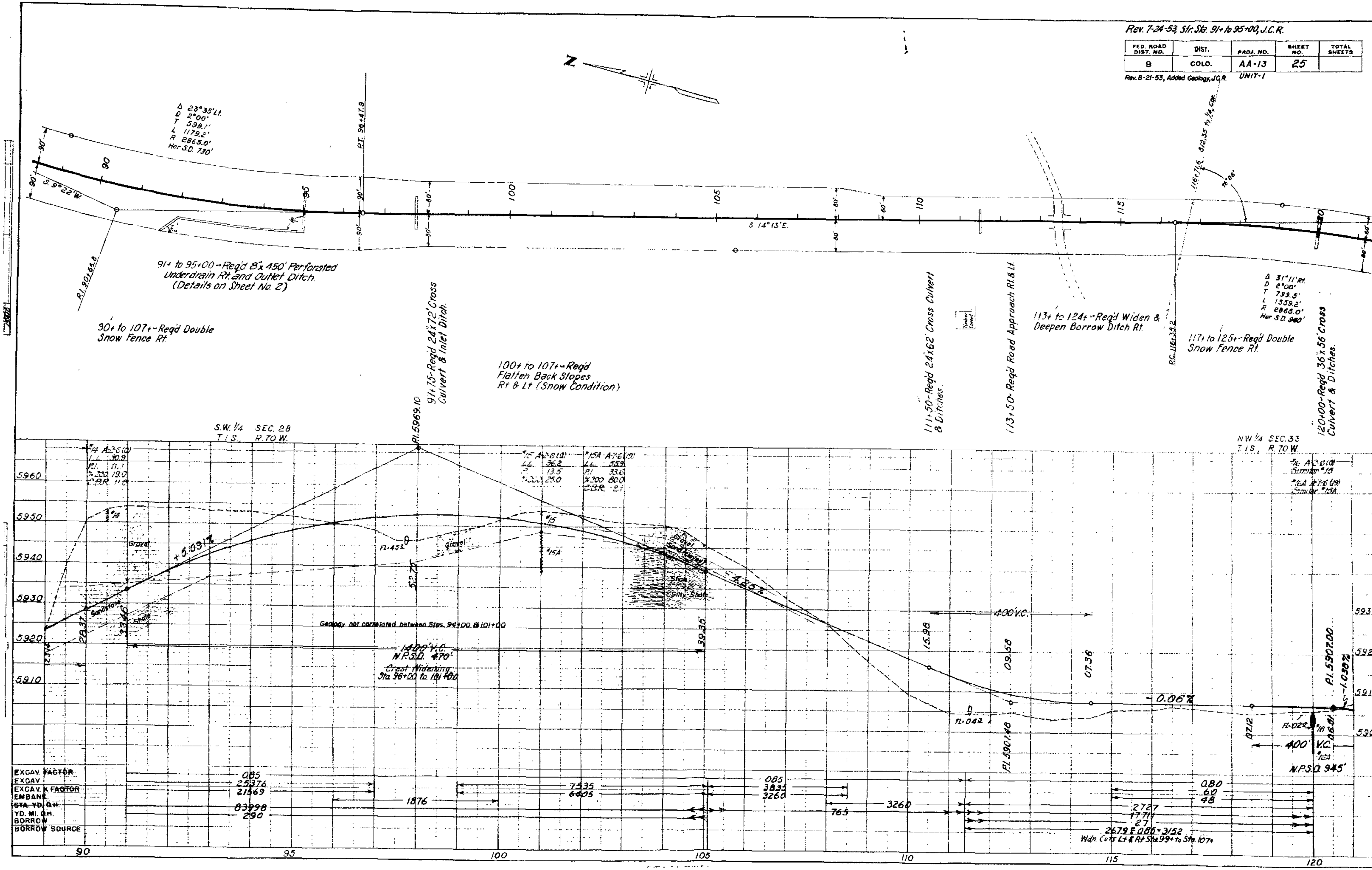
PLATE — PLAN-PROFILE — C.F.R. & K.E. STANDARD

FED. ROAD DIST. NO.	DIST.	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	AA-13	24	

UNIT-1

Rev. 8-21-53, Added Geology, J.C.R.




Rev. 7-24-53, Str. Sta. 91+ to 95+00, J.C.R.
FED. ROAD DIST. NO. 9 | DIST. COLO. | PROJ. NO. AA-13 | SHEET NO. 25 | TOTAL SHEETS
Rev. 8-21-53, Added Geology, J.C.R.
UNIT-1
Z
Δ 23°35' Lt.
D 2°00'
T 598.1'
L 1179.2'
R 2865.0'
Hor S.D. 730'
P.T. 96+47.9
S. 9°22' W.
P.I. 90+66.8
S 14°13' E.
91+ to 95+00 - Req'd 8" x 450' Perforated Underdrain Rt. and Outlet Ditch. (Details on Sheet No. 2)
90+ to 107+ - Req'd Double Snow Fence Rt.
97+75 - Req'd 24" x 72' Cross Culvert & Inlet Ditch.
100+ to 107+ - Req'd Flatten Back Slopes Rt & Lt (Snow Condition)
111+50 - Req'd 24" x 62' Cross Culvert & Ditches.
Timber Caml
113+50 - Req'd Road Approach Rt. & Lt.
113+ to 124+ - Req'd Widen & Deepen Borrow Ditch Rt.
116+71.6, 812.35 to 1/4 Cor.
76°28'
P.C. 116+35.2
117+ to 125+ - Req'd Double Snow Fence Rt.
Δ 31°11' Rt.
D 2°00'
T 799.5'
L 1559.2'
R 2865.0'
Hor S.D. 960'
120+00 - Req'd 36" x 56' Cross Culvert & Ditches.
S.W. 1/4 SEC. 28 T.1S., R.70W.
NW 1/4 SEC. 33 T.1S., R.70W.
P.I. 5969.10
#14 A-2-6(0) L.L. 30.9 P.I. 11.1 %200 19.0 C.B.R. 11.0
#15 A-2-6(0) L.L. 36.2 P.I. 13.5 %200 25.0
#15A A-7-6(19) L.L. 55.9 P.I. 33.6 %200 60.0 C.B.R. 2.1
#16 A-2-6(0) Similar #15
#16A A-7-6(19) Similar #15A
Gravel
Sandstone
Shale
Sand (Clayey)
Silty Shale
+5.091%
-4.25%
-0.06%
-1.038%
Fl. 45±
Fl. 0.43
Fl. 0.29
Geology not correlated between Stas. 94+00 & 101+00
1400' V.C. N.P.S.D. 470'
Crest Widening Sta. 96+00 to 101+00
400' V.C.
400' V.C. N.P.S.D. 945'
P.I. 5901.48
P.I. 5907.00
23.14
28.37
33.46
52.75
39.36
15.98
09.58
07.36
07.12
06.51
5960
5950
5940
5930
5920
5910
5900
EXCAV. FACTOR
EXCAV.
EXCAV. X FACTOR
EMBANK.
STA. YD. O.H.
YD. MI. O.H.
BORROW
BORROW SOURCE
0.85
25376
21569
83998
290
1876
7535
6405
0.85
3835
3260
765
3260
0.80
60
48
2727
17714
27
2679 ± 0.85 = 3152
Wdn. Cuts Lt & Rt Sta. 99+ to Sta. 107+
90
95
100
105
110
115
120

FED. ROAD DIST. NO.	DIST.	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	AA-13	26	

UNIT-1

Rev 8-21-53, Added Geology, J.C.R.

125+00-Reqd 24'x60' Cross Culvert with Metal Apron at Inlet.

125+50-Reqd Road Approach Lt.

126+30-Remove 18'x33' C.M.P. With Headwall Lt.

128+00-Reqd 24'x66' Cross Culvert & Ditches.

131+82-Reqd 24'x58' Cross Culvert & Inlet Ditch. Rem. 18'x32' C.M.P.

Pt. 124+34.7

18'x33' C.M.P. (Masonry Head.)

PRESENT ROAD

S.14°19'E

Δ 31°11' Rt
D 2°00'
T 799.5'
L 1559.2'
R 2865.0'
Hor S.D. 960'

124+ to 127+- Reqd Ditch Change Rt. & Lt. (W-2') (Partially raised Lt.)

EQUATION — Pt. 131+94.4 Bk. = 129+35.5 Ah.

131+10-Reqd Road Approach Rt.

18'x32' C.M.P.

S.16°58'W.

Public Service Co.

135+ to 145+-Reqd Double Snow Fence Rt.

138+ to 143+-Reqd Ditch Change Rt. (W-2')

P.O.T. 140+62

145+20-Rem. 30'x60' Iron Pipe.

145+50-Reqd 48'x80' Cross Culvert & Inlet Ditch. (W-2')

COAL CREEK

40'x60' Iron Pipe

18.8 SE

ROW Along Present Fence

irr. Ditch

N.W.¼ SEC. 33 T.1S., R.70W.

*C A-2-(6)(0) Similar *25

*E A-7-6(19) Similar *164

*F A-6(1) LL 36.2 PI 17.2 #200 45.0 GI 27

*G A-6(7) LL 35.4 PI 15.6 #200 57.0 GI 9.1

*E A-2-7(0) LL 41.4 PI 13.7 #200 14.0

Pl. 5907.00

Pl. 5911.50

Pl. 5896.62

400' V.C.

-0.06%

-1.03%

+1.40%

-1.01%

FL-02²

FL-95²

FL-90²

FL-98²

FL-88²

Gravel

Sandy Shale

Fox Hills Sandstone

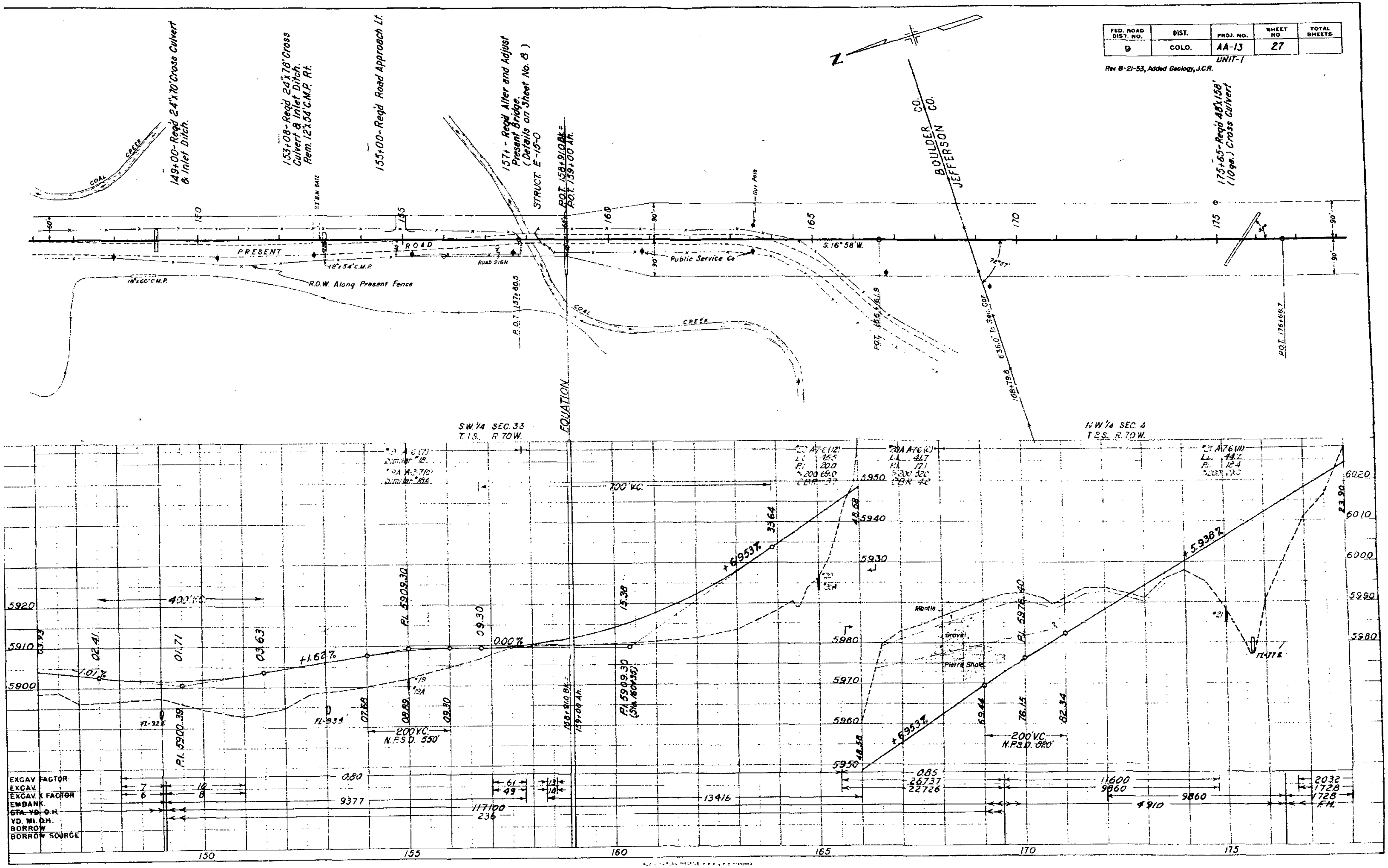
Pierre Shale

600 V.C. MPSD-600'

Crest Widening Sta. 138+50 to 141+50

EXCAV. FACTOR					0.80														0.85				
EXCAV.		1565																					
EXCAV. K FACTOR		1252																					
EMBANK.	4			1248			3331																
STA. YD. O.H.			71			17074									1860				2183			6827	
YD. MI. O.H.															11686				1856			5803	
BORROW							3331	080	4164														5809
BORROW SOURCE							Wdn Cuts At Sta 113+ to Sta 124+																6240

120 125 130 130 135 140 145

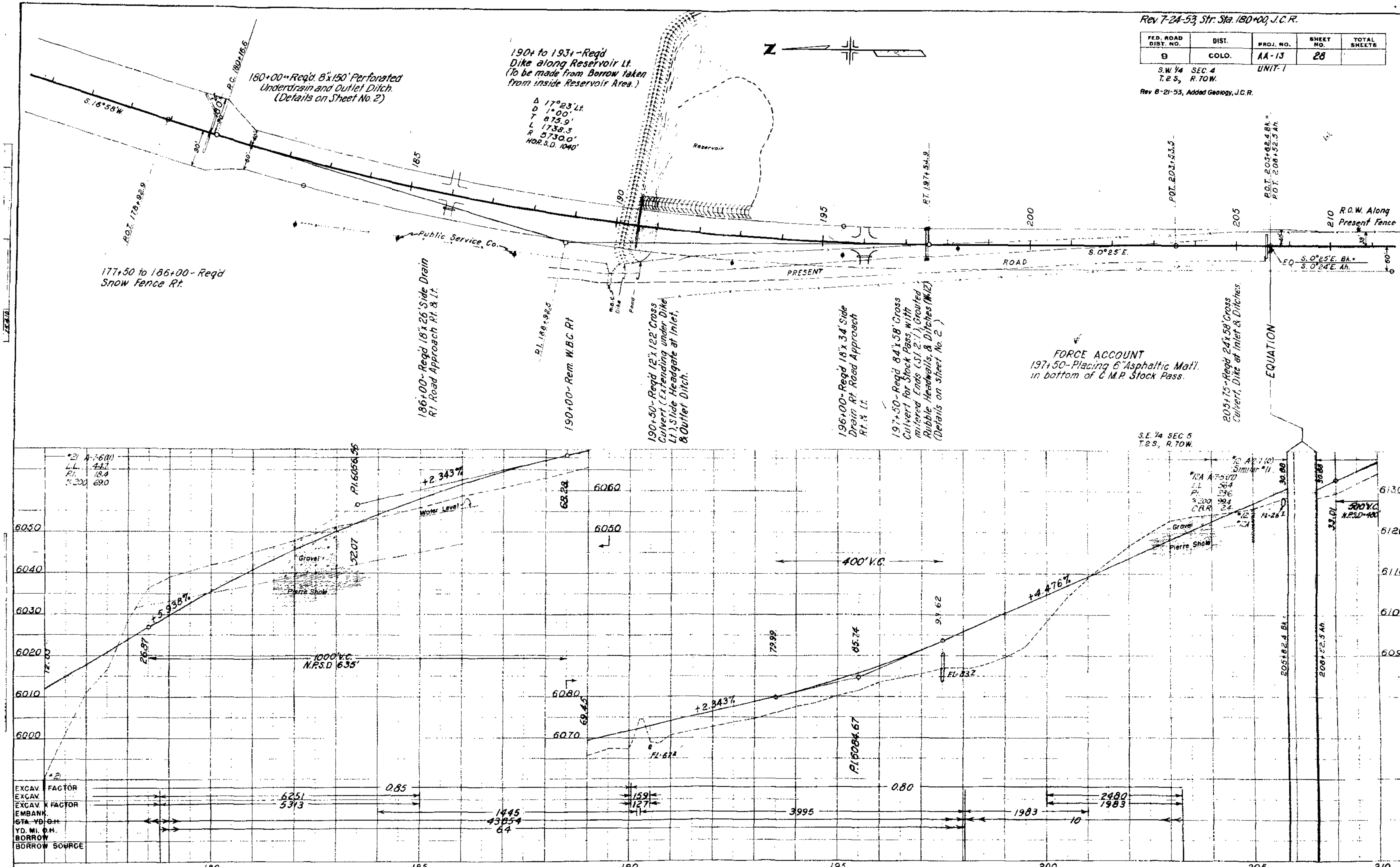

FED. ROAD DIST. NO. 9
DIST. COLO.
PROJ. NO. AA-13
SHEET NO. 27
TOTAL SHEETS
UNIT-1
Rev. 8-21-53, Added Geology, J.C.R.
149+00-Reqd 24"x70' Cross Culvert & Inlet Ditch.
153+08-Reqd 24"x78' Cross Culvert & Inlet Ditch. Rem. 12"x54' C.M.P. Rt.
155+00-Reqd Road Approach Lt.
157± - Reqd Alter and Adjust Present Bridge. (Details on Sheet No. 8) STRUCT. E-15-0
P.O.T. 158+91.0 Bk. = P.O.T. 159+00 Ah.
BOULDER CO.
JEFFERSON CO.
175+65-Reqd 48"x158' (10 ga.) Cross Culvert
COAL CREEK
PRESENT ROAD
R.O.W. Along Present Fence
18"x60' C.M.P.
12"x54' C.M.P.
ROAD SIGN
Public Service Co
Guy Pole
S.16°58'W.
P.O.T. 157+80.5
P.O.T. 166+61.9
636.0' To Sec. Cor.
168+79.8
72°57'
P.O.T. 176+66.7
EQUATION
S.W.¼ SEC. 33 T.1S. R.70W.
N.W.¼ SEC. 4 T.2S. R.70W.
400' V.C.
700' V.C.
200' V.C. N.P.S.D. 550'
200' V.C. N.P.S.D. 820'
-1.01%
+1.62%
0.00%
+6.953%
+5.938%
P.I. 5900.39
P.I. 5909.30
P.I. 5909.30 (Sta. 160+35)
P.I. 5976.40
158+91.0 Bk. = 159+00 Ah.
FL-922
FL-934
FL-77±
Mantle
Gravel
Pierre Shale
5900
5910
5920
5930
5940
5950
5960
5970
5980
5990
6000
6010
6020
EXCAV. FACTOR
EXCAV.
EXCAV. X FACTOR
EMBANK.
STA. YD. O.H.
YD. MI. O.H.
BORROW
BORROW SOURCE
0.80
9377
117100
236
13416
0.85
26737
22726
11600
9860
4910
2032
1728
F.H.
150
155
160
165
170
175

Rev 7-24-53, Str. Sta. 180+00, J.C.R.

FED. ROAD DIST. NO.	DIST.	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	AA-13	28	

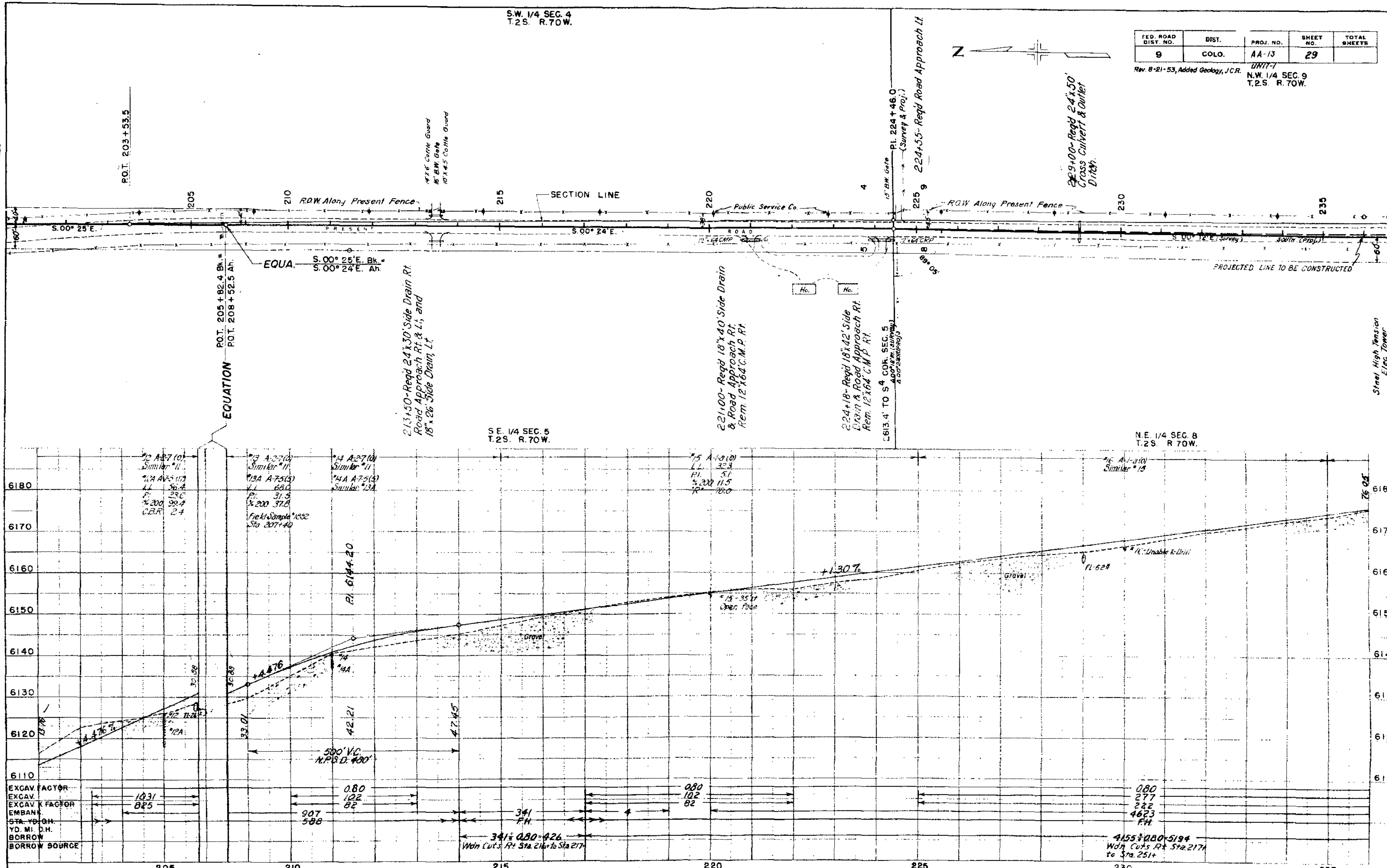
S.W. 1/4 SEC. 4
T. 2 S., R. 70 W.
UNIT-1

Rev 8-21-53, Added Geology, J.C.R.



FED. ROAD DIST. NO.	DIST.	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	AA-13 UNIT-1	29	

Rev. 8-21-53, Added Geology, J.C.R.



FED. ROAD DIST. NO.	DIST.	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	AA-13 UNIT-1	30	

Rev. 8-21-53, Added Geology, J.C.R.

N.W. 1/4 SEC. 9
T. 2 S. R. 70 W.

S.W. 1/4 SEC. 9
T. 2 S. R. 70 W.

N.E. 1/4 SEC. 9
T. 2 S. R. 70 W.

S.E. 1/4 SEC. 9
T. 2 S. R. 70 W.

238+00 - Regd 24' x 54' Cross Culvert & Ditches.

Steel High Tension Elec. Tower

Cattle Guard

SECTION LINE

ROW Along Present Fence

S 00°18'E (Survey)
South (Proj.)

PROJECTED LINE TO BE CONSTRUCTED

251+41 - Regd Road Approach Lt.

NO WORK SECTION

258+20 - Regd Road Approach Lt.

14' BW Gate STA. 258+85

BRIDGE STRUCT. E-15-Z STA. 259+28

Public Service Co.

12'x50' C.M.P. Cross Culv.

261+00 - Regd 18'x26' Side Drain & Road Approach Lt.

S 00°12'E (Survey)
S 00°24'E (Proj.)

DENVER M.W.W. CANAL

245+75 - Regd 18'x26' Side Drain & Road Approach Rt.

12' BW Gate

250+70 - Regd 24'x50' Cross Culvert & Ditches

Fl. 6151+44 (Proj.)

238+50 - Regd Road Approach Rt.

14' BW Gate

10' Wood Gate

259+60 - Regd 18'x28' Side Drain & Road Approach Rt.

262+32 - Regd 24'x56' Cross Culvert Rem. 12'x50' C.M.P.

Fl. 6210.40

+1.30%

+1.00%

+1.80%

+1.20%

Fl. 6183.20

Fl. 6194.20

Fl. 6210.40

Unable to drill

Open face

Gravel

300' V.C.
N.P.S.D. > 1300'

500' V.C.

400' V.C.
N.P.S.D. > 1300'

EXCAV FACTOR			080			080				080			
EXCAV.			210			464		398		11			
EXCAV. K FACTOR			168			370		319		9			
EMBANK.					370			54		274			
STA. YD. O.H.						F.H.				249			
YD. MI. O.H.													
BORROW													
BORROW SOURCE													

6220 6210 6200 6190 6180 6170

235 240 245 250 255 260 265

FED. ROAD DIV. NO.	DIST.	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	AA-13	31	

Rev. 8-21-53, Added Geology, J.C.R UNIT 1 & 2

S.W. 1/4 SEC. 9
T. 2S. R. 70W.

N.W. 1/4 SEC. 16
T. 2S. R. 70W.

N

To Atomic Energy Plant →

Δ 00°02' L (Survey)
Δ 00°10' Rt. (Proj.)

18"ø CMP w/metal flumes

Public Service Co
SECTION LINE

R.O.W. Along Present Fence

Arvada Elec. Co.

R.O.W. Along Present Fence

S. 00°12'E. (Survey)
S. 00°24'E. (Proj.)

S. 00°14' E.

PROJECTED LINE TO BE CONSTRUCTED

60'

CIVIL AERONAUTICS STATION

STA. 273+00 - END UNIT #1
BEG. UNIT #2 on S.H. 93

P.I. 278+41.3
(Survey & Proj.)

2593.2' TO S 4 COR. SEC. 8

S.E. 1/4 SEC. 8
T. 2S. R. 70W.

N.E. 1/4 SEC. 17
T. 2S. R. 70W.

+1.20%

+0.43%

+0.20%

24" CMP

200' V.C.

400' V.C.

Gravel

FACTOR					
X FACTOR	473 F.H.	258 F.H.	080	323	258
O.H.					
O.H.	473-080-591				
SOURCE	Wdn Cuts Rt Sta 260 to Sta 265+				

265 270 275 280 285 290 295

6240 6230 6220 6210

PLATE 1 PLAN PROFILE