

- SHEET NO.
- 1 SKETCH MAP, TITLE PAGE AND TABULATION OF LENGTH & DESIGN DATA.
 - 2 TYPICAL SECTION, SUMMARY OF APPROXIMATE QUANTITIES, TYPICAL SECTION OF TRENCH FOR CMP UNDERDRAIN & GENERAL NOTES.
 - 3 SUB-BASE AND SURFACING PLANS, TIMBER GUARD POSTS, R.O.W. MARKERS AND MATERIAL PIT SKETCHES.
 - 4 LIST OF STRUCTURE QUANTITIES.
 - 5 DETAILS AND LAYOUT OF DRAINAGE TUNNEL.
 - 6 STANDARD METHODS FOR SUPELEVATION & WIDENING OF CURVES. M-1-C
 - 7 STANDARD SIDE APPROACH ROADS, FLARING, CUT SLOPE TREATMENT & WIDENING AT BRIDGES & AT CREST OF GRADES. M-2-EM
 - 8 STANDARD MARKER POSTS AND BENCH MARKS. M-7-C
 - 9 STANDARD TIMBER GUARD POSTS. M-19-D
 - 10 STANDARD METAL PLATE GUARD FENCE (BEAM TYPE). M-21-C
 - 11-12 STANDARD ROADWAY CONSTRUCTION TRAFFIC SIGNS. M-29-B
 - 13 STANDARD HEADWALLS AND APRONS FOR C.M.P. CULVERTS. M-102-H
 - 14 STANDARD TYPES OF DITCHES AND CONSTRUCTION METHODS. M-107-C
 - 15-21 ALIGNMENT PLAN & PROFILE SHEETS.
 - 22 SUMMARY OF EARTHWORK QUANTITIES.
 - 23-225 CROSS-SECTION SHEETS.
 - BA STANDARD LETTERS & FIGURES FOR YEAR NUMBERS & STRUCTURE NUMBERS M-10-B

COLORADO
DEPARTMENT OF HIGHWAYS
PLAN AND PROFILE OF PROPOSED
FEDERAL AID PROJECT NO. BF 019-2(7)
STATE HIGHWAY NO. 19
SAN JUAN COUNTY

SCALES OF ORIGINAL DRAWINGS
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 20,951.2 ft. = 3.968 mi.
NET LENGTH OF PROJECT

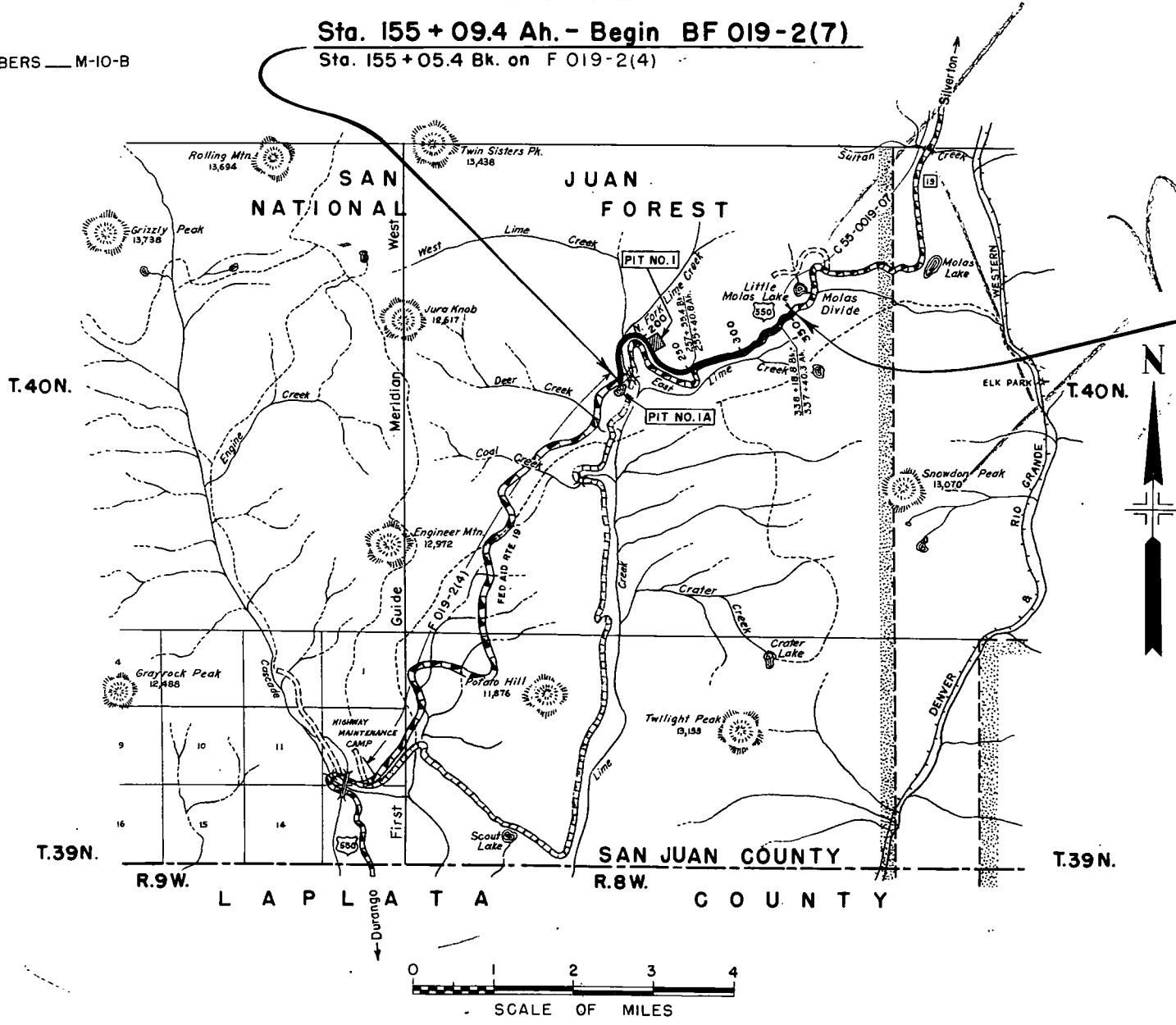
Sta. 155 + 09.4 Ah. - Begin BF 019-2(7)
Sta. 155 + 05.4 Bk. on F 019-2(4)

CONVENTIONAL SIGNS 55.1909
CENTER LINE
RIGHT OF WAY LINE
COUNTY LINE
TOWNSHIP OR RANGE LINE
LAND LINES
RAILROAD

POWER LINE
PRESENT ROAD (Plan Sheets)

TABULATION OF LENGTH & DESIGN DATA

STATION	DESCRIPTION	ROADWAY LIN. FT.
155 + 09.4 Ah. = 155 + 05.4 Bk.	Begin Project BF 019-2(7) = Sta. 155 + 05.4 on F 019-2(4)	10,246.0
257 + 55.4 Bk. = 255 + 40.8 Ah.	Equation	4656.6
301 + 97.4 Bk. = 301 + 98.0 Ah.	Equation	3620.8
338 + 18.8 Bk. = 337 + 40.3 Ah.	Equation	2427.8
361 + 68.1 Bk. = 361 + 64.9 Ah.	End Project BF 019-2(7) = Sta. 361 + 64.9 on C 55-0019-07	
TOTAL		20,951.2
SUMMARY		
Roadway	LIN. FT.	MILES
Total (Gross & Net Length)	20,951.2	3.968
DESIGN DATA		
Maximum Degree of Curve	26°00'	
Maximum Grade	7.50 %	
Minimum N.P.S.D. - horizontal	220 ft.	
Minimum N.P.S.D. - vertical	380 ft.	
Maximum Design Speed	30 MPH	



Sta. 361 + 68.1 Bk. - End BF 019-2(7)
Sta. 361 + 64.9 Ah. on C 55-0019-07

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:
J.L. HUTCHINSON, RESIDENT ENGINEER, DURANGO, COLO.
HOME PHONE - 1554 W
G.F. McNICHOLAS, DISTRICT CONSTRUCTION ENGINEER, DURANGO, COLO.

COLORADO
DEPARTMENT OF HIGHWAYS

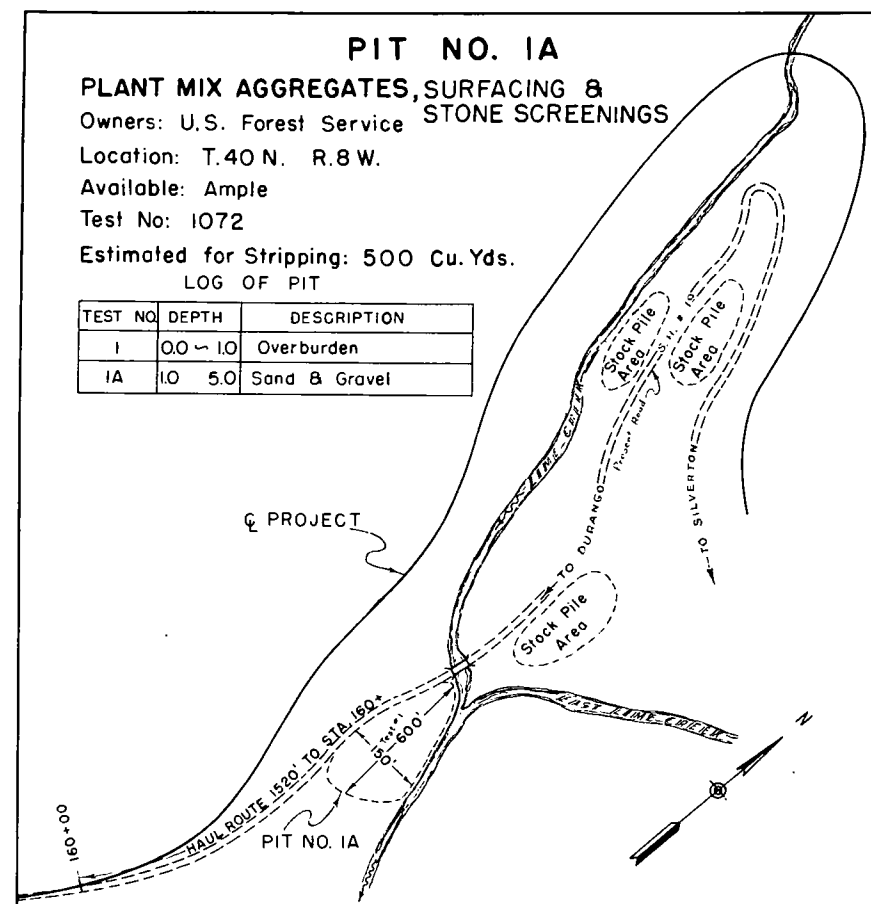
APPROVED: *[Signature]* 6-28-56
DATE

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

APPROVED: _____
DATE

DISTRICT ENGINEER

FEDERAL ROAD DIVISION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	BF 019-2(7)	3	



It is estimated that material for Gravel or Crushed Rock Surfacing and Sub-Base Material for the project is available in the vicinity of the pits indicated in the following tabulations. Estimated quantities involved in these operations are shown below.

Alteration of the Surfacing Plan and/or Sub-Base Material Plan as here outlined will be allowed only on written permission from the Department.

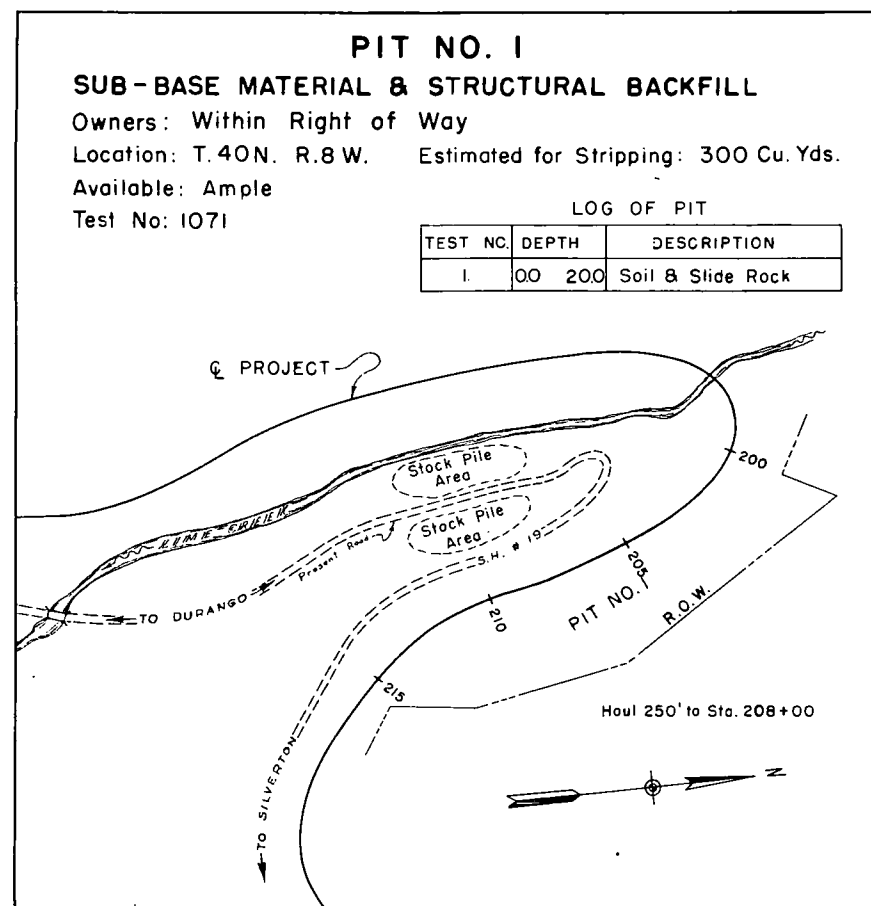
SUB-BASE MATERIAL PLAN

MATERIAL TO BE PLACED	SOURCE	SUB-BASE CLASS 2		TON MILE OVERHAUL
		*THICKNESS IN INCHES	TONS	
155+09.4 Ah. 194+50	PIT NO. 1 Within R.O.W. R = 79±	6 *	4059	2744
194+50 201+00		6 *	670	162
201+00 208+00		6 *	721	83
208+00 245+00		6 *	3811	1517
245+00 252+00		6 *	721	587
252+00 257+55.4 Bk.		6 *	572	534
255+40.8 Ah. 282+00		6 *	2739	3391
282+00 286+00		6 *	412	629
286+00 297+00		6 *	1133	1891
297+00 301+97.4 Bk.		6 *	513	935
301+98.0 Ah. 317+00		6 *	1547	3110
317+00 325+00		18	2528	5633
325+00 338+18.8 Bk.		6 *	1359	3301
337+40.3 Ah. 361+68.1 Bk.		6 *	2501	6961
Estimated for Irregularities			2329	3148
Estimated for Widening			194	263
TOTAL			25,809	34,889

* Leveling Course * Based on Curve E
 * Field Recommendation

TIMBER GUARD POSTS

STATION	SIDE	SPACING	NO. POSTS EACH
160+00 ~ 164+50	Rt.	50'	10
162+20 ~ 162+70	Lt.	50'	2
167+78 ~ 170+28	Rt.	50'	5
168+33		Culvert	2
157+51		Culvert	2
176+00		Culvert	2
180+00 ~ 182+00	Rt.	50'	4
181+50		Culvert	2
186+00		Culvert	2
191+70		Culvert	2
201+73		Culvert	1
208+80	Lt.	Culvert	2
213+50		Culvert	2
217+00		Culvert	2
217+50 ~ 219+50	Rt.	50'	5
224+50 ~ 227+00	Rt.	50'	5
222+00		Culvert	2
225+00		Culvert	2
229+85		Culvert	2
233+80 ~ 235+30	Rt.	50'	3
234+30		Culvert	2
232+00		Culvert	2
237+90 ~ 239+90	Rt.	50'	4
238+40		Culvert	2
241+50		Culvert	2
242+50 ~ 244+50	Rt.	50'	5
252+00		Culvert	2
245+00		Culvert	2
248+70		Culvert	2
253+50		Culvert	2
256+00 ~ 258+50	Rt.	50'	6
256+14	Lt.	Culvert	1
256+50 ~ 259+00	Lt.	50'	6
264+00 ~ 268+00	Rt.	50'	8
266+50		Culvert	2
271+50		Culvert	2
273+50		Culvert	1
277+00		Culvert	2
278+50 ~ 280+50	Rt.	50'	5
281+50		Culvert	2
286+00		Culvert	2
291+00 ~ 295+00	Rt.	50'	9
300+70 ~ 301+20	Lt. & Rt.	50'	4
311+00		Culvert	2
312+00 ~ 313+50	Rt.	50'	4
317+20		Culvert	2
323+70 ~ 327+70	Rt.	50'	9
325+20 ~ 326+70	Lt.	50'	4
331+20 ~ 334+20	Rt.	50'	7
330+70		Culvert	2
342+00 ~ 344+50	Lt. & Rt.	50'	10
343+50		Culvert	2
352+00 ~ 357+00	Rt.	50'	11
353+00 ~ 356+50	Lt.	50'	8
TOTAL			195



SURFACING PLAN

MATERIAL TO BE PLACED	SOURCE	TONS USED		TON MILE OVERHAUL
		PLANT MIXED ASPH. SURF.	BASE COURSE	
155+09.4 Ah. 160+00	PIT NO. 1A	152	300	51
160+00 257+55.4 Bk.		3025	5951	101
255+40.8 Ah. 301+97.4 Bk.		1444	2841	7213
301+98.0 Ah. 338+18.8 Bk.		1123	2209	7322
337+40.3 Ah. 361+68.1 Bk.	U.S. Forest Service			3774
	R = 77	753	1481	2962
From list of Structures				5826
Estimated for Widening		69	33	
Estimated for Ditch Paving		107	130	
TOTAL		6673	12,945	14,561

* For Base Course Only

R.O.W. MARKERS

STATION	NO. REQ'D. LT. & RT.
155+05.4 Bk. ~ 155+09.4 Ah. }	2
301+97.4 Bk. ~ 301+98.0 Ah. }	2
328+78.8	2
343+01.8	2
357+04.8	2
TOTAL	10

LIST OF STRUCTURE QUANTITIES

COLORADO STATE HIGHWAY DEPARTMENT
S.H.D. Form 125
JANUARY 1952

FED. ROAD DIVISION NO.	DISTRICT	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9.	COLO.	BF 019-2(7)	4	

LOCATION	REMOVE STRUCTURE	EXCAVATION			STRUCTURAL EXCAVATION	STRUCTURE BACKFILL	MECH. TAMPING	GRAVEL OR CRUSHED ROCK SURFACING	CEMENT RUBBLE MASONRY	CORRUGATED METAL CULVERT PIPE	METAL PLATE GUARD FENCE (BEAM TYPE)	MISCELLANEOUS	
		CUBIC YARDS			CUBIC YARDS	CUBIC YARDS					LINEAR FEET		
		NO.	UNCL.	EMB.	UNCL. DITCH	CL 1							HOURS
155+05.4 Bk. - 155+09.4 Ah.												1-Project Marker (State Forces)	
157+31		20	5		20	17					52		
162+66			5		10	22					*7		
168+33		160			23	17			1.99		40	Relay 24"x60' CMP	
176+00		195	15		37	20			1.99		50		
181+50		240			17	14					42		
186+00		275			17	14					42		
191+70		135	10		21	16					48		
194+00 To 205+00													
195+00 To 201+00		\$10,882									1100 600		
197+54		265			19	15					46	2,047 Cu. Yds. Tunnel Excavation	
201+73		190			20	17			1.99		40		
208+80		235			27	20			1.99		50		
213+50		55			19	17			1.99		40		
217+00		30			32	22			1.99		54		
222+00		30			20	17			1.99		40		
225+00		20			19	17			1.99		40		
229+85													
232+00		35			28	22			1.99		54		
234+30			5		6	14					42		
238+40		15			21	17			1.99		40		
241+50		40			25	18			1.99		42		
245+00		15			21	18			1.99		42		
248+70			10		26	17					52		
252+00		30		5	30	20			1.99		48		
280+ To 281+		167											
253+50			5		35	20			1.99		48		
256+00			5		14	18					56		
258+00			30		34	49							
266+50		15			18	22					76		
266+97													
271+50		15	5		20	20			1.99		50	Plug Culvert	
277+00			5		7	18					54		
281+ To 292+		1,700											
281+50		15			18	18			1.99		44		
282+34	1												
286+00		60			26	22			1.99		54		
286+ To 287+		15											
296+00					11	24					72	Plug Culvert	
299+80					38	65					100		
301+92													
305+50	1		10		11	23					70		
311+00					440								
313+ To 322+		45		5	22	20			1.99		48	1,000 Lin. Ft. 8" Perforated CMP Underdrain.	
317+20		1,802											
323+ To 325+													
325+00			10		13	33					100	Plug Culvert	
324+65		2,862			12	30					94		
329+ To 333+													
330+70			10										
333+ To 334+				60									
329+30	1		200		3	10		33			30		
334+80			10		12	28					84		
343+50		7,063			11	27					84		
351+ To 356+													
353+01													
Entire Project - Mechanical Tamping							117						
TOTALS	3	26626	260	160	1203	818	117	33	3582		1867	176	1,700

* Includes 1' for Connecting Bond.
§ Overbreak and Subsidence included.

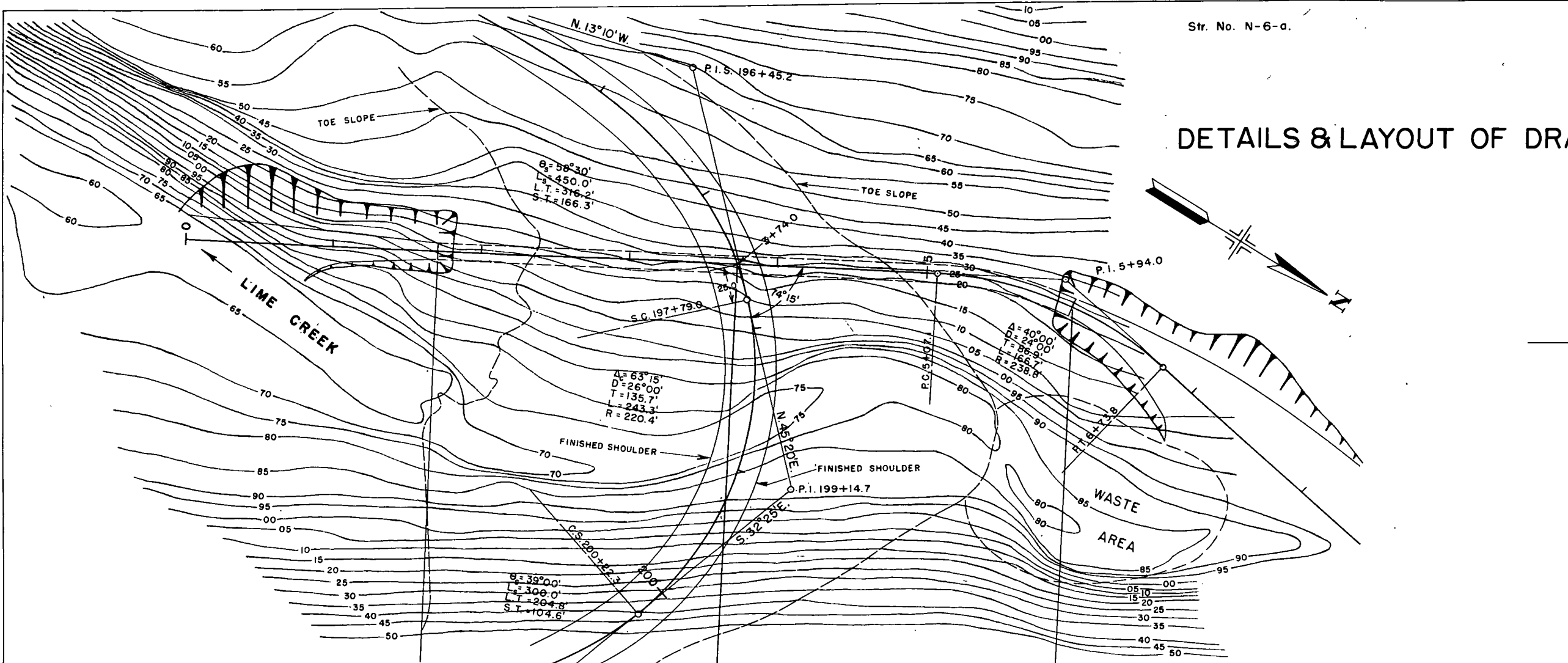
⊕ Included in Roadway Quantities.

⊕ Structural Excavation is estimated to be 80% Rock, and 20% Common, each of which is estimated to be 70% Dry and 30% Wet.

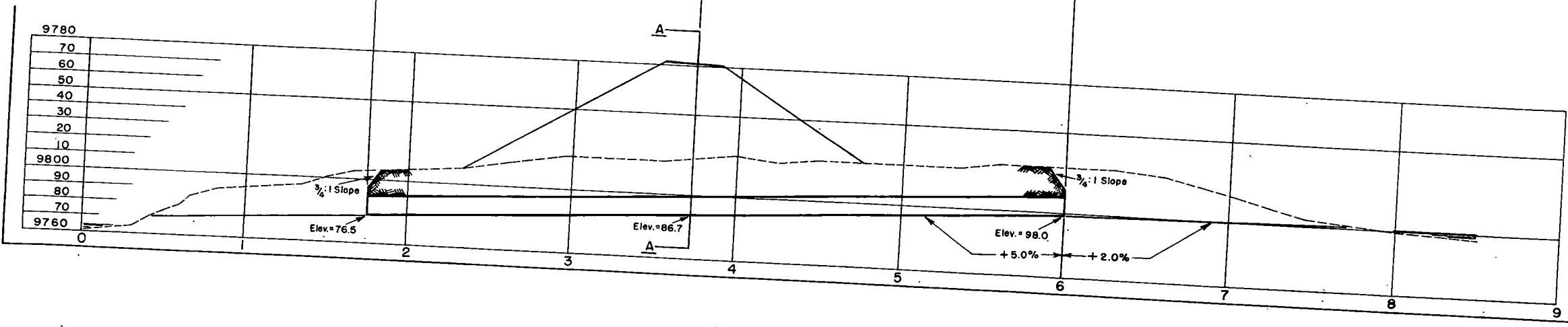
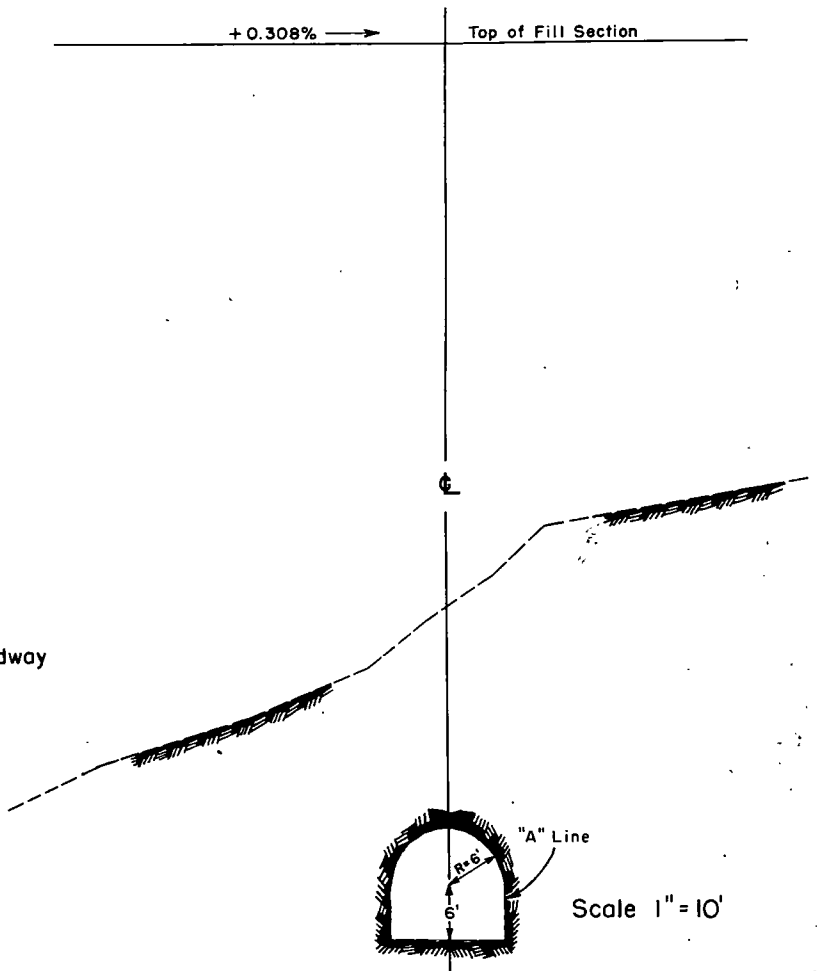
FEDERAL ROAD DIVISION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	BF 019-2(7)	5	

Str. No. N-6-a.

DETAILS & LAYOUT OF DRAINAGE TUNNEL, STA.197+54



NOTE:
Waste tunnel excavation or use in roadway
Fill as directed by Engineer.

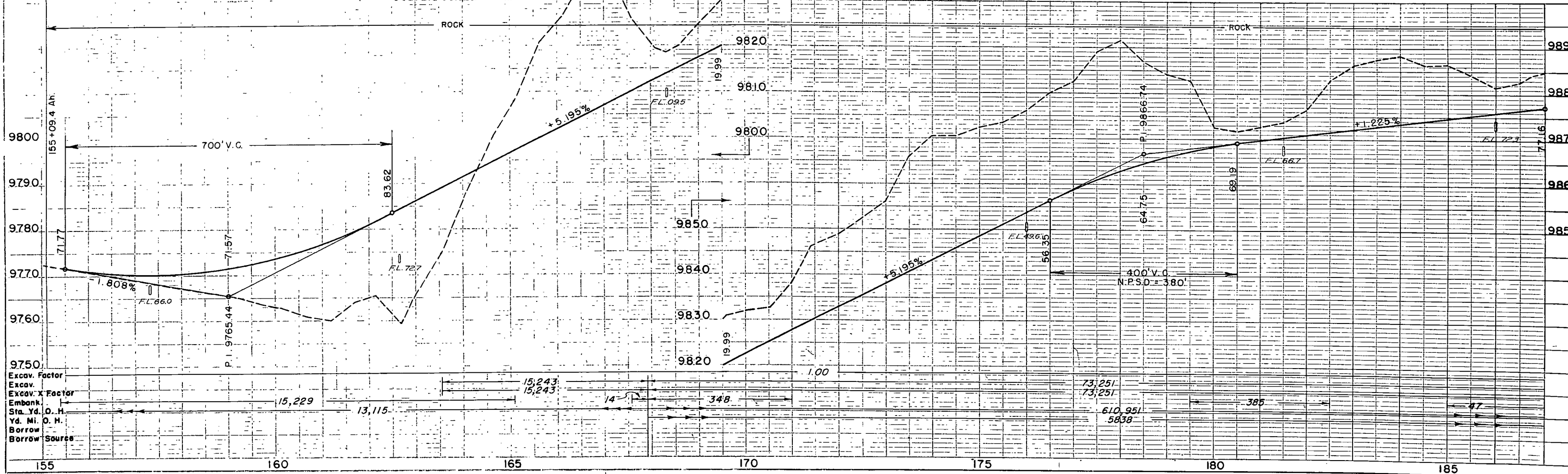
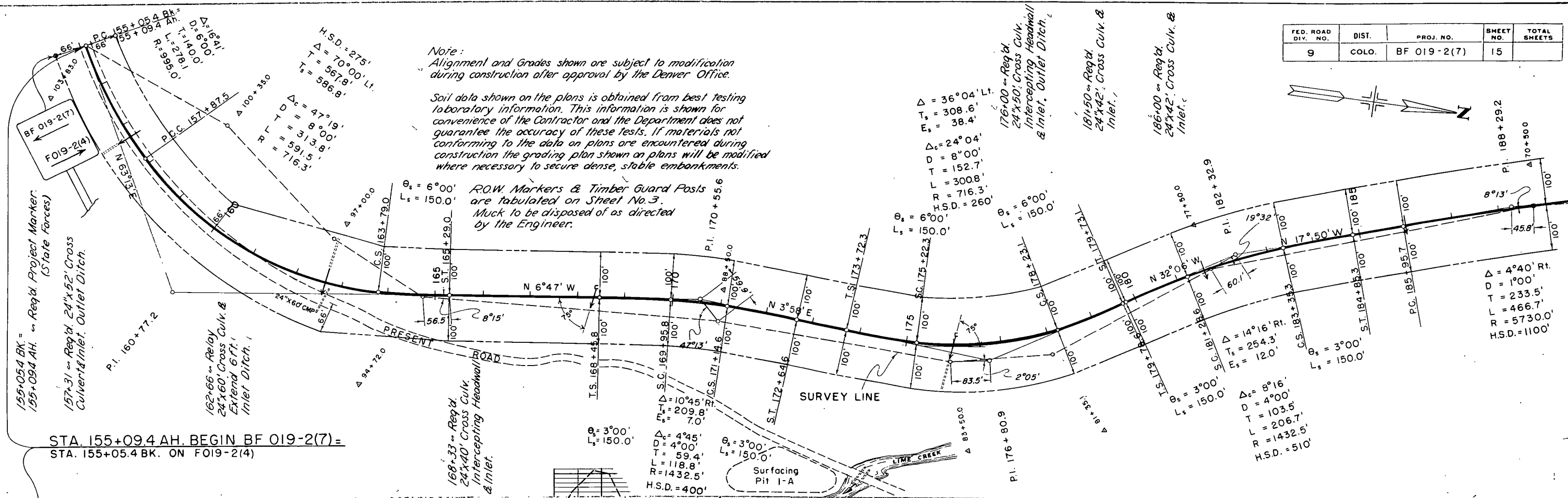


FED. ROAD DIV. NO.	DIST.	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	BF 019-2(7)	15	

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

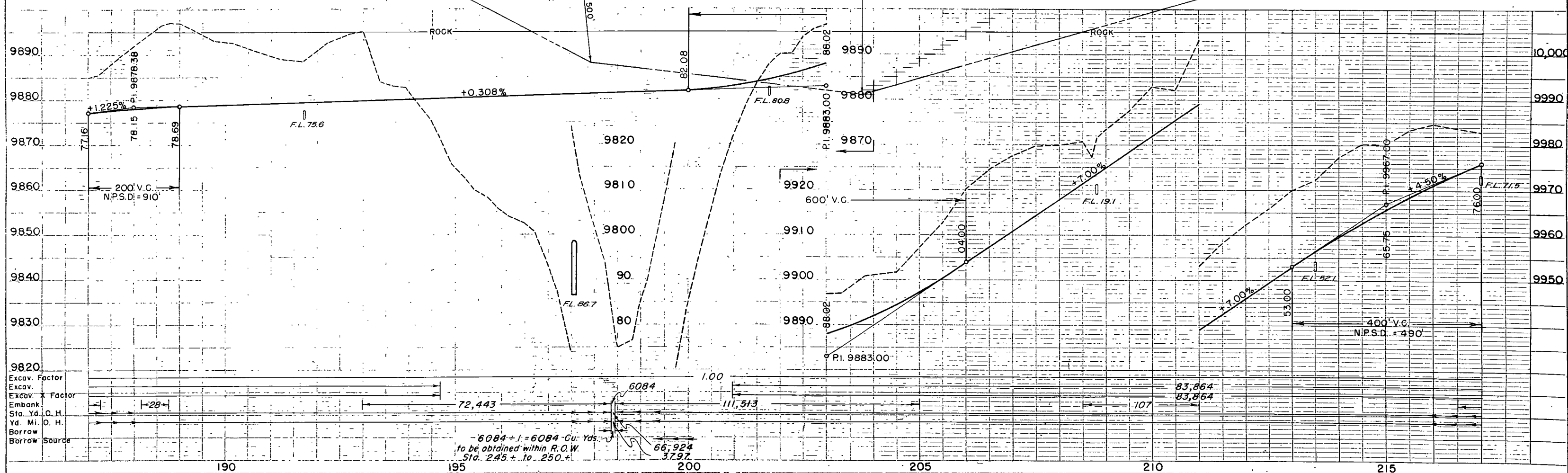
Soil data shown on the plans is obtained from best testing laboratory information. This information is shown for convenience of the Contractor and the Department does not guarantee the accuracy of these tests. If materials not conforming to the data on plans are encountered during construction the grading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

R.O.W. Markers & Timber Guard Posts are tabulated on Sheet No. 3.
Muck to be disposed of as directed by the Engineer.



Excav. Factor
Excav. X Factor
Embank. Sta. Yd. O. H.
Yd. Mi. O. H.
Borrow Sources

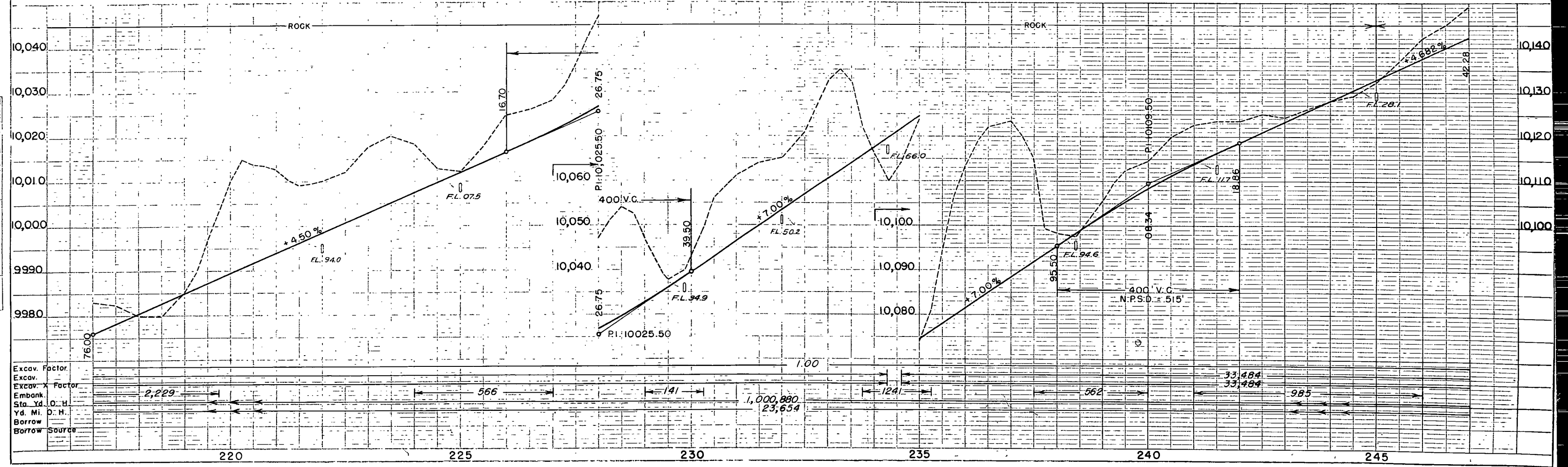
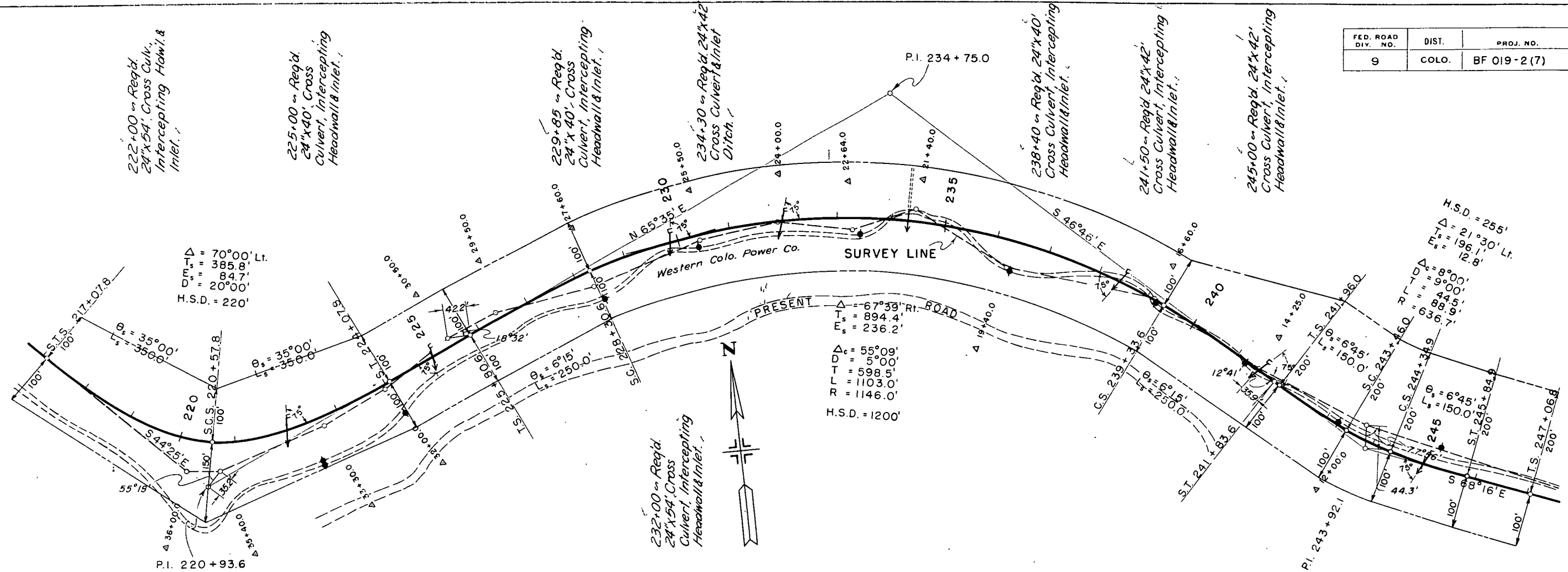
217+00 ~ Req'd. 24"x40' Cross
Culvert, Intercepting Headwall &
Inlet.



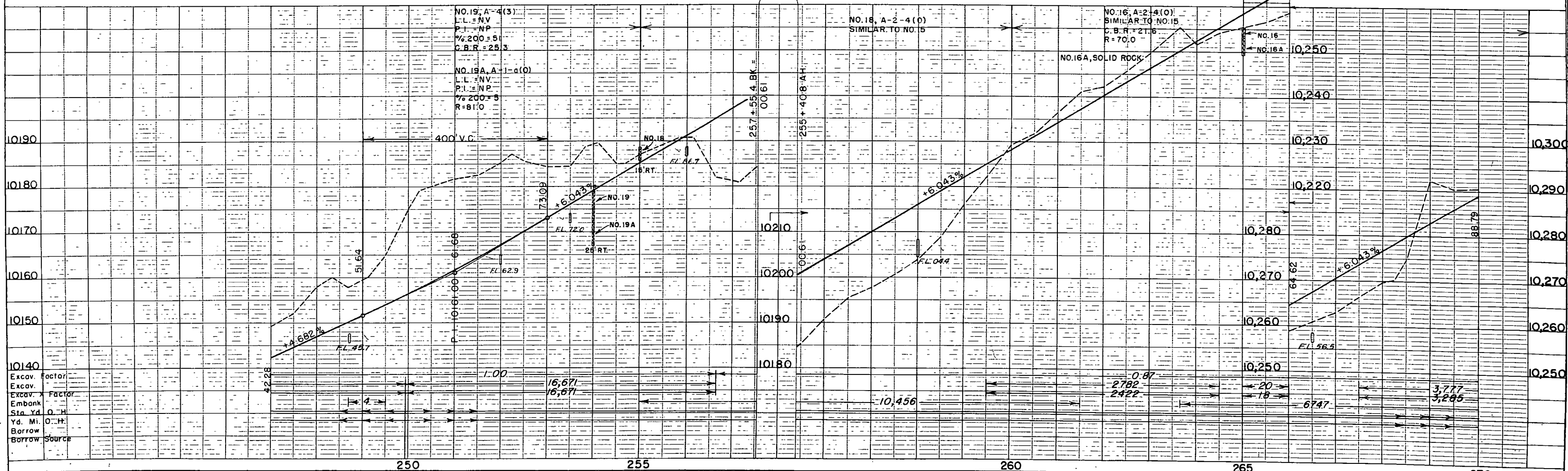
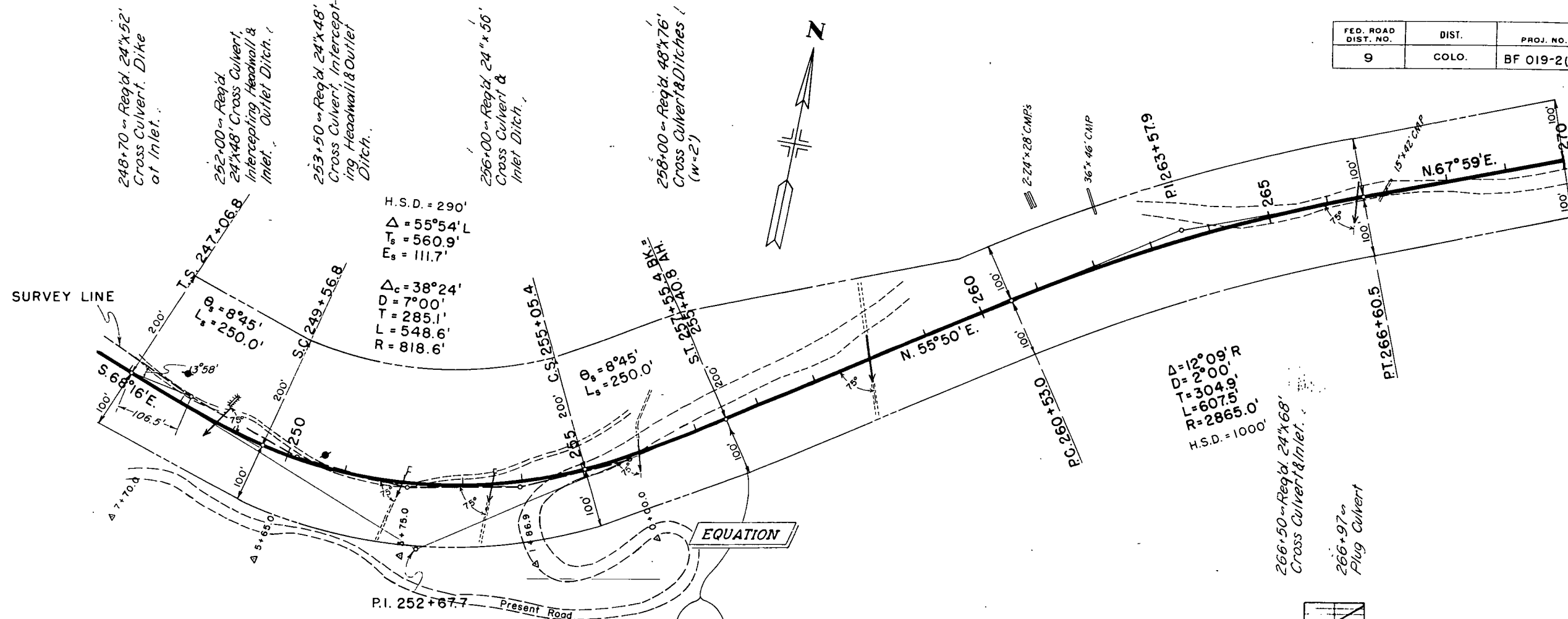
PLAN	DATE	BY	CHKD.
SURVEYED			
PLOTTED			
NOTE BOOK			
NO 19014			

PROFILE	DATE	BY	CHKD.
SURVEYED			
PLOTTED			
NOTE BOOK			
NO 19014			

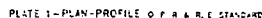
FED. ROAD DIV. NO.	DIST.	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	BF 019-2 (7)	17	



FED. ROAD DIST. NO.	DIST.	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	BF 019-2(7)	18	



PROFILE	BY	DATE
SURVEYED _____		
PLOTTED _____		
NOTE BOOK _____		
GRADES CHECKED _____		
B M'S NOTED _____		
STRUCTURE NOTED AS CH'NO. _____		
NO. _____		





PLAN	SURVEYED	DATE
NOTE BOOK	7/2/52	
ALIGNED CHECKED		
RT. OF WAY CHECKED		
NO. 19015		

PROFILE	SURVEYED	DATE
NOTE BOOK		
GRADES CHECKED		
STRUCTURE NOTATIONS CHKD.		
NO. 19016		
19017		
19018		

FED. ROAD DIST. NO.	DIST.	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	BF 019-2(7)	21	

