

FED. ROAD DIST. NO.	STATE	F.A.S. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	S-107(I)	1	1

Rev. 7-22-46 Add R.A. McCoy, H.O.W.

COLORADO

STATE HIGHWAY DEPARTMENT

PLAN AND PROFILE OF PROPOSED FEDERAL AID SECONDARY PROJECT NO. S-107 (I) STATE HIGHWAY NO. 99 COSTILLA COUNTY

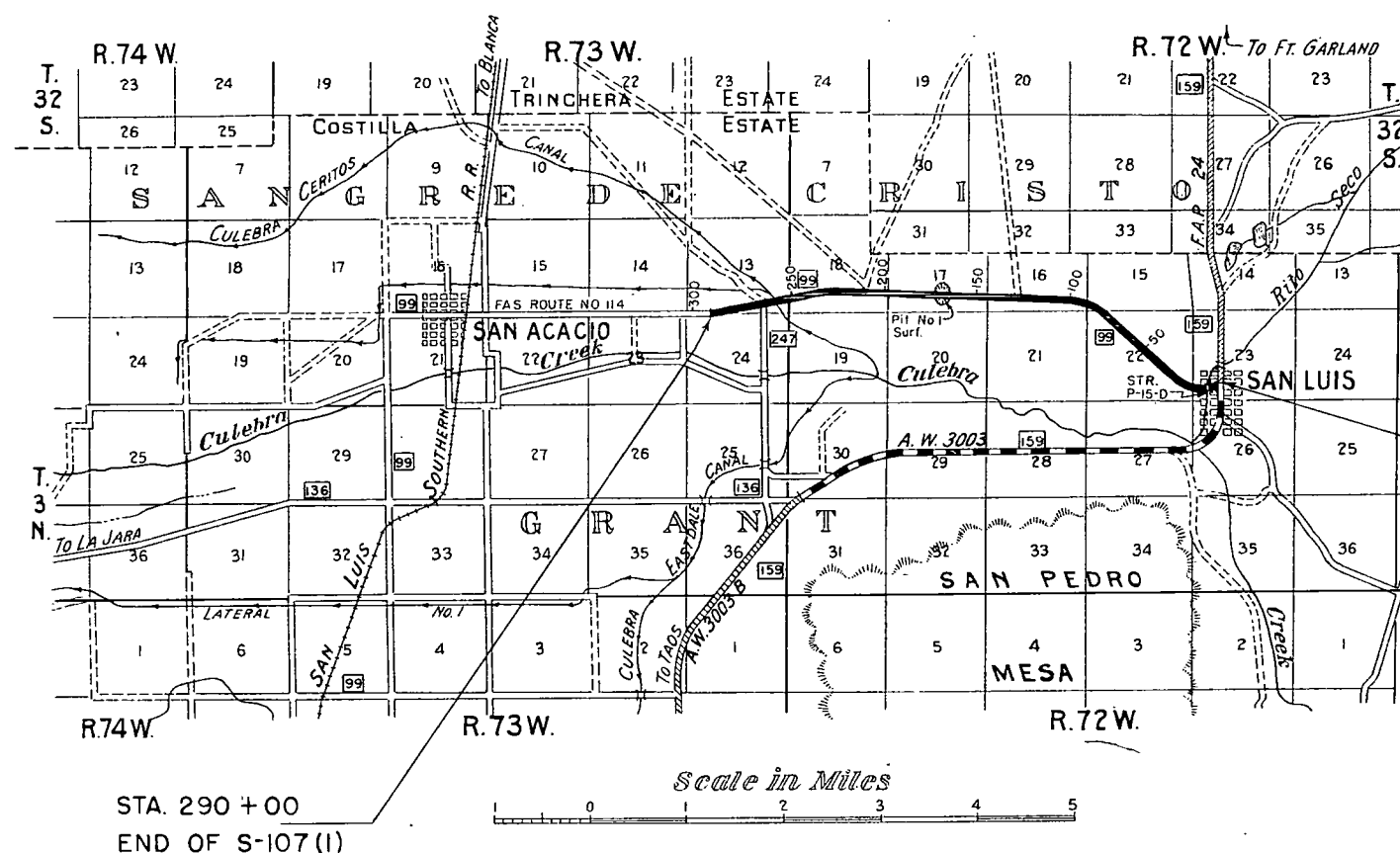
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 - 3A STANDARD MARKER POSTS.
 - 4 STANDARD TYPICAL SIDE APPROACH ROADS, FLARING, CUT SLOPE TREATMENT AND WIDENING AT BRIDGES
 - 5 STANDARD ROADWAY CONSTRUCTION TRAFFIC SIGNS
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M2D

CONVENTIONAL SIGNS

CENTER LINE OF SURVEY _____
 RIGHT OF WAY LINES _____
 ONE QUARTER SECTION LINES _____
 SECTION LINES _____
 TOWNSHIP LINES _____
 BARBED WIRE FENCE _____
 COMBINATION WIRE FENCE _____
 RAILROADS _____
 POLE LINES $\diamond$ $\diamond$ $\diamond$ $\diamond$ $\diamond$

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 } 28,938.2 FEET = 5.480 MILES
 NET LENGTH OF PROJECT }



NOTICE TO BIDDERS

It is recommended that bidders on this Project go over the plan details with the following field representative of this Department.
 W.J. Walsh, Assistant Division Engineer, Durango.
 R.A. McCoy, Resident Engineer, Alamosa.

STA. 0+58
 BEGINNING OF S-107 (I)
 35' WEST OF STA. 10+69.4 OF FAP 24
 11' WEST OF STA. 10+69.4 OF A.W.P. 3003
 EQUALS STA. 0+58 OF S.P. 610-A

RECOMMENDED FOR APPROVAL

James B. Bell
 ASSISTANT ENGINEER
 DATE 6-26-46

APPROVED

W. J. Walsh
 STATE HIGHWAY ENGINEER
 DATE 6-26-46

RECOMMENDED FOR APPROVAL

DISTRICT ENGINEER
 PUBLIC ROADS ADMINISTRATION
 FEDERAL WORKS AGENCY
 DATE

APPROVED

DIVISION ENGINEER
 PUBLIC ROADS ADMINISTRATION
 FEDERAL WORKS AGENCY
 DATE

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TYPICAL CROSS SECTION OF IMPROVEMENT AND SUMMARY OF QUANTITIES

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 curves are to be Superelevated and Widened as provided by the Standard Superelevation sheet included with the plans, except as otherwise noted on plans. In cases where Spiral curves are used the transition from normal crowned section to full Superelevation and widening (where required) shall take place over the full length of the Spiral curve.

The Detour for this Project lies along the present traveled road. At all places on the Project where the new work lies along the present traveled road, the Contractor shall, at his own expense, prosecute construction in such manner that traffic may readily pass over the road.

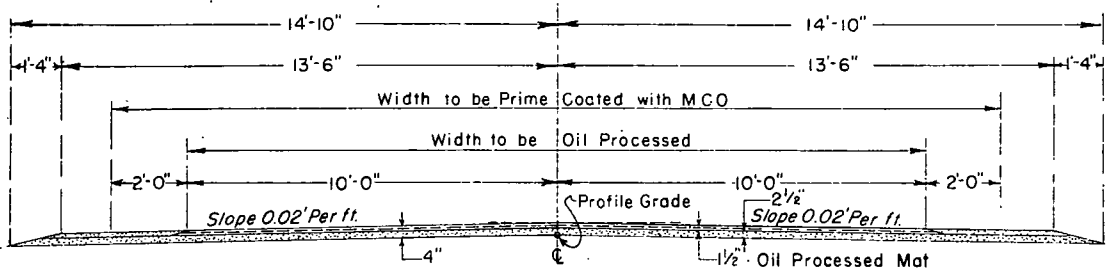
Also, the Contractor shall maintain in safe condition and at his own expense, all temporary approaches to and crossings of intersecting roads.

One Project Marker shall be placed at each end of the Project (Sta. 0+58 and Sta. 290+00.)

Unclassified excavation quantities are estimated for cleaning ditches.

This material is to be disposed of in dikes or to widen roadway shoulders as indicated by Engineer.

TYPICAL SECTION



4" Compacted thickness of Gravel or Crushed Rock Surfacing to be placed in two courses:
Approximate 1 1/2" Top Course Surfacing is to be placed at the rate of 22 Tons per 100 lin. ft. of Roadway.
Approximate 2 1/2" Bottom Course Surfacing is to be placed at the rate of 38 Tons per 100 lin. ft. of Roadway.
Asphaltic Road Material MCO is to be placed over a 24 ft. width of Roadway previous to placing Oil Processed Material. All side Approach roads to the Project shall be Oil Processed approximately to the Right of Way line.
A Seal Coat will be required over the entire Oil Processed area on this Project.

TABULATION OF LENGTH

STATION		ROADWAY
		LINEAR FT.
0 + 58 Beginning of S-107 (I)		1,606.5
16+64.5 Back=		
Equation		
16+68.3 Ahead -		
290+00 End of S-107 (I)		27,331.7
TOTAL		28,938.2
SUMMARY		LIN. FT.
		MILES
Total F.A.S. S-107 (I) Roadway		28,938.2
		5.480
DESIGN DATA		
Maximum Degree of Curve		38°00'
Maximum Grade		4.116%
Minimum N.P.S.D.-horizontal		390'
Minimum N.P.S.D.-vertical		358'
Maximum Design Speed		45 M.P.H.

SUMMARY OF APPROXIMATE QUANTITIES

ITEM NO.	ITEM	UNIT	ROADWAY	ROAD APPROACHES	TOTAL
13 c	Unclassified Excavation	Cu. Yd.	1000		1000
15 x	Wetting Surfacing	M. Gal.	370	20	390
26 a	Gravel or Crushed Rock Surfacing	Ton	17,469	931	18,400
26 c	Overhaul of Surfacing	Ton-Mi.	10,700	600	11,300
30 e	Asphaltic Road Material, RC-3	Gal.	16,200	1200	17,400
30 g	Asphaltic Road Material, MC-0	Gal.	23,200	1500	24,700
30 p	Asphaltic Road Material, SC-3	Gal.	67,700	5100	72,800
31 c	Rolling Surfacing	Hour	430	10	440
31 d	Furnishing Rubber Tired Roller	Lump Sum			
31 x	Road Mix Oil Processing	Sq. Yd.	64,450	4820	69,270
32 b	Stone Screenings	Ton	650	50	700
81 a	Project Markers	Each	2		2
118	Blading, Grading & Compacting Roadway	MIle	5.5	0.5	6.0

SURFACING PLAN

It is estimated that material for Gravel Surfacing for the Project is available in the vicinity of the Pit indicated in the following Tabulation. Estimated quantities involved in this operation are shown below.

Alteration of the Surfacing Plan as here outlined will be allowed only on written permission from the Department.

PLACE REQUIRED		TONS		OVERHAUL	SOURCE OF MATERIAL
STATION TO STATION	AVAILABLE	REQUIRED COURSE		TON MILES	
		BOTTOM	TOP		
0+58 to 117+20	Ample	4432	2566	7729	Pit No. 1, Rt. & Lt. Sta. 168 Sec. 17, T. 3N., R. 72 W.
117+20 to 218+80		3861	2236	F.H.	
218+80 to 290+00		2706	1567	2881	
SUB-TOTALS		10,999	6369	10,610	
Road Approaches Estimated additional to correct base			931	569	Same
		100		62	
TOTALS		11,099	7300	11,241	

NOTES

The soil data shown on the plans is obtained from best available testing laboratory information. This information is shown for the 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, necessary modifications of the grading plan shown on plans, will be made to secure dense, stable embankments.

The Grade line shown on Plan & Profile sheets is the approximate profile Grade as constructed under W.P.A. Projects No. S.P. 610-A & S.P. 610-B.

FED. ROAD DIST. NO.	STATE	F.A.S. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	S-107(I)	6	

SAN LUIS

STA. 0+58 BEGINNING OF S-107(I)
35' WEST OF STA. 10+69.4 OF F.A.P. 24
11' WEST OF STA. 10+69.4 OF A.W.P. 3003
EQUALS STA. 0+58 OF S.P. 610-A

NOTE:-
THE GRADING AND DRAINAGE WORK BETWEEN
STA. 0+58 & 437+00 WAS DONE UNDER SP. 610-A & SP. 610-B

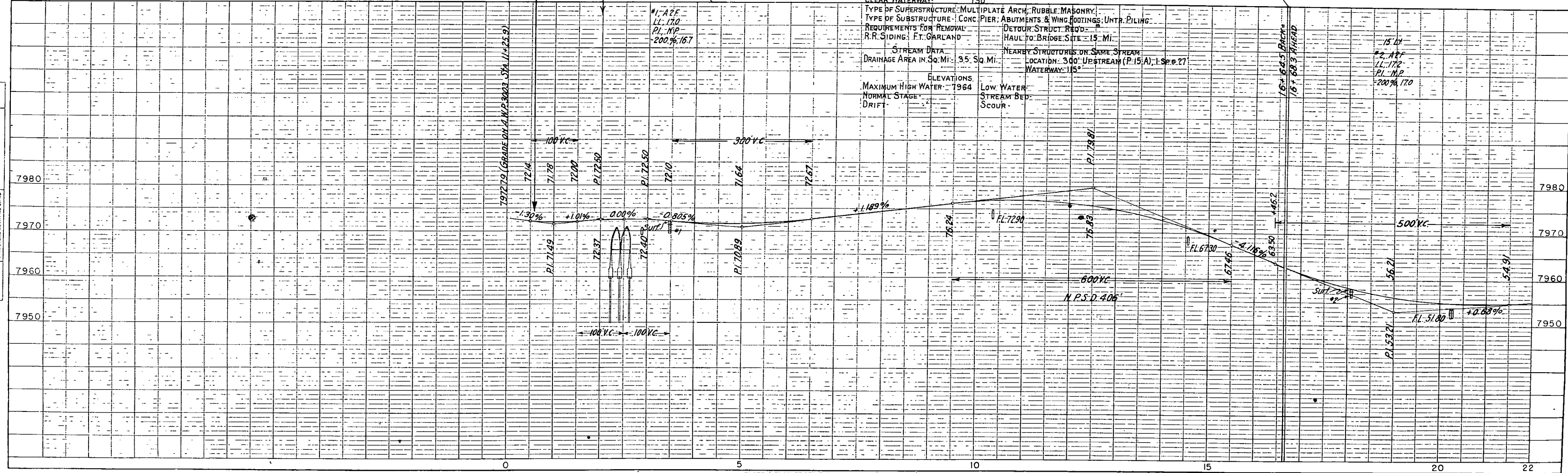
STRUCTURE DATA

STRUCTURE No. P-15-D STATION: 2+22.76 to 2+66.64
STREAM- RITO SECO COUNTY- COSTILLA
SKEW ANGLE- 60° BUILT UNDER S.P. 610A

PRESENT STRUCTURE
SPAN- 2@16'
CLEAR ROADWAY- 30.5'
CLEAR WATERWAY- 130'

TYPE OF SUPERSTRUCTURE: MULTIPLE ARCH, RUBBLE MASONRY.
TYPE OF SUBSTRUCTURE: CONC. PIER, ABUTMENTS & WING FOOTINGS, UNTR. PILING.
REQUIREMENTS FOR REMOVAL: DETOUR STRUCT. REQ'D.
R.R. SIDING: FT. GARLAND HAUL TO BRIDGE SITE- 15 MI.
STREAM DATA: DRAINAGE AREA IN SQ. MI.: 35.5 SQ. MI. NEARBY STRUCTURES ON SAME STREAM: LOCATION: 300' UPSTREAM (P. 15-A), 1 SP. 27' WATERWAY: 115'

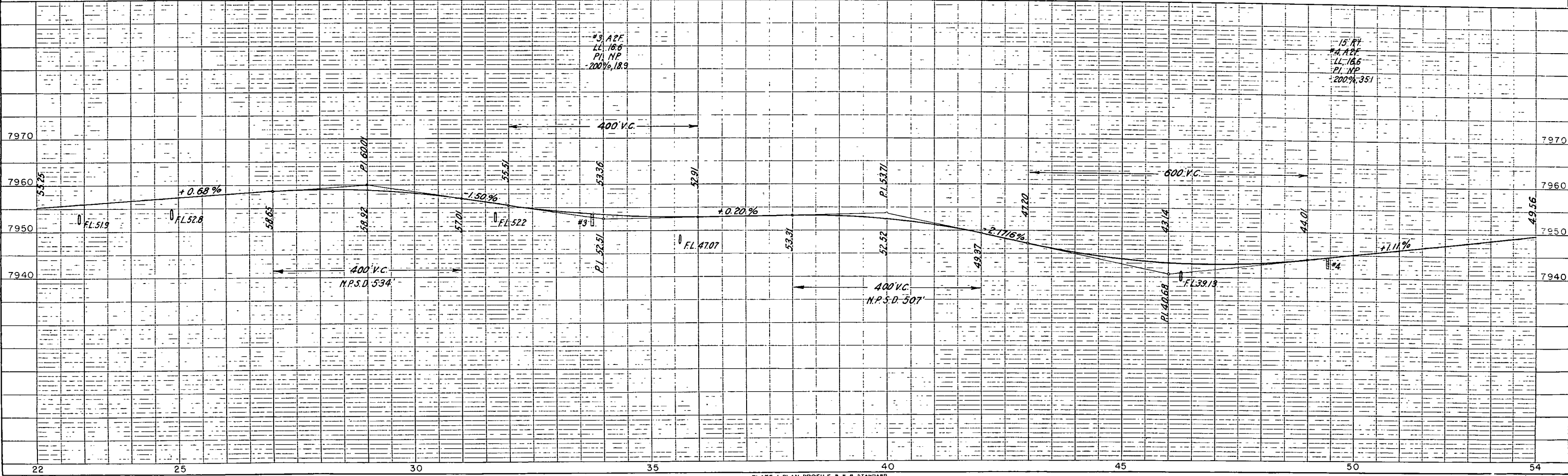
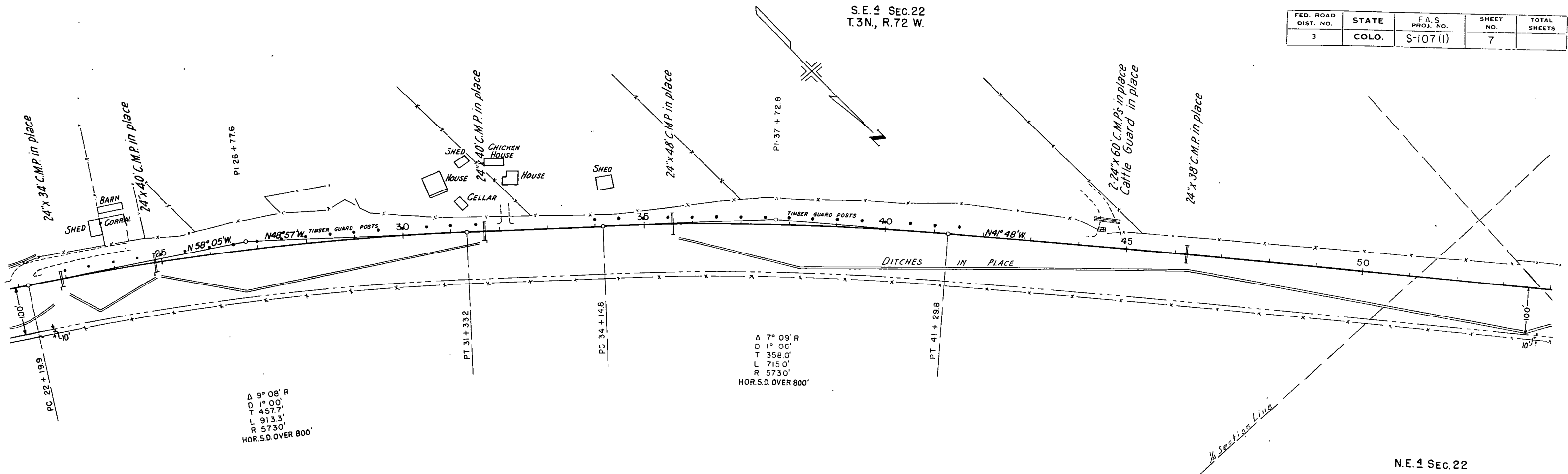
ELEVATIONS
MAXIMUM HIGH WATER- 7964
NORMAL STAGE-
DRIFT-
LOW WATER-
STREAM BED-
SCOUR-



SURVEYED
 PLOTTED
 NOTE BOOK
 NO. 7/417

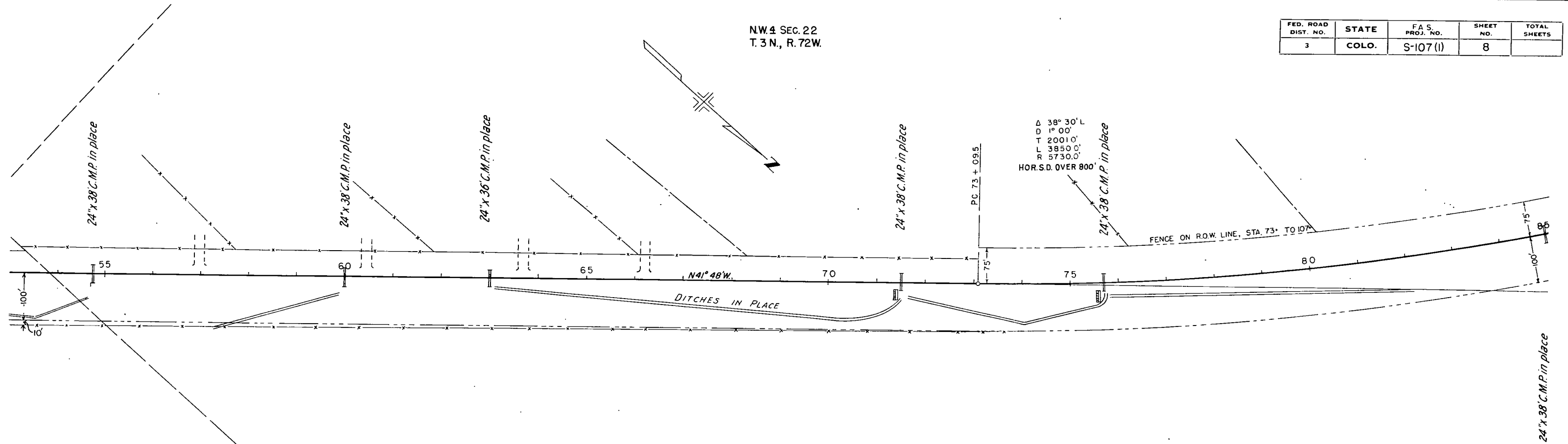
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3	COLO.	S-107 (1)	7	

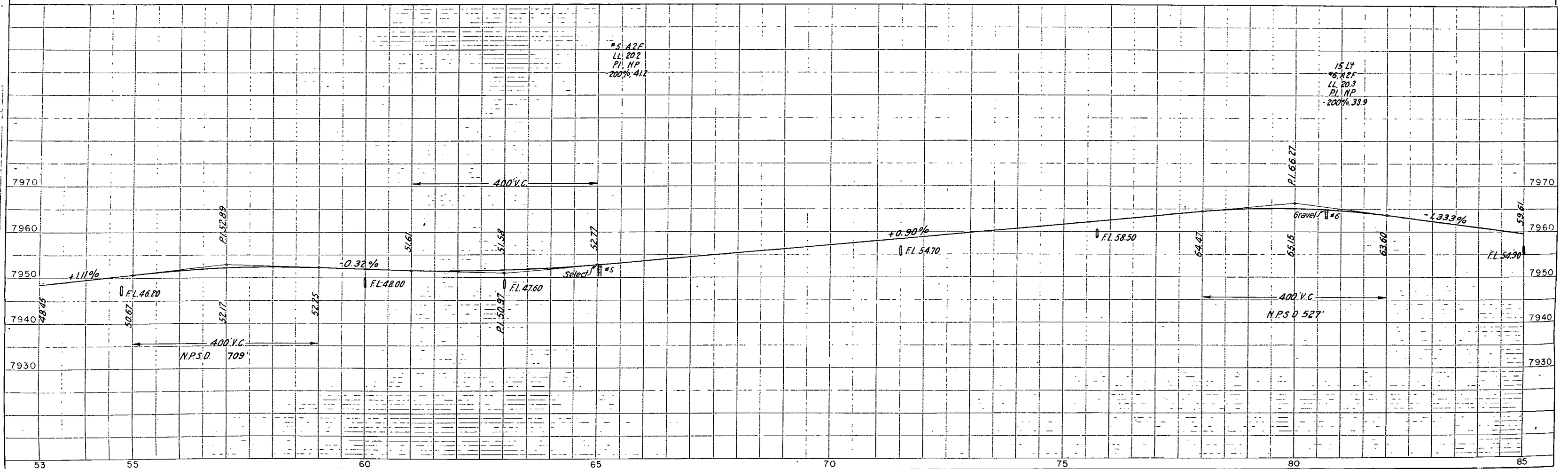


NW 4 SEC. 22
T. 3 N., R. 72 W.

FED. ROAD DIST. NO.	STATE	F.A.S. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	S-107 (I)	8	



N.E. 4 SEC. 22



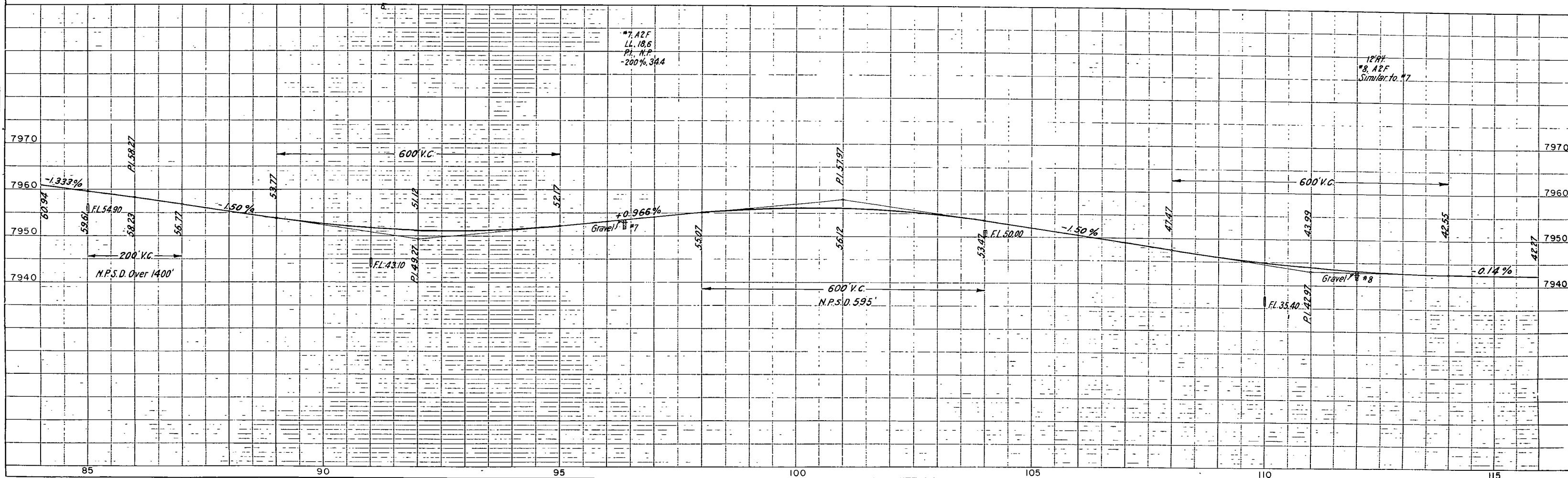
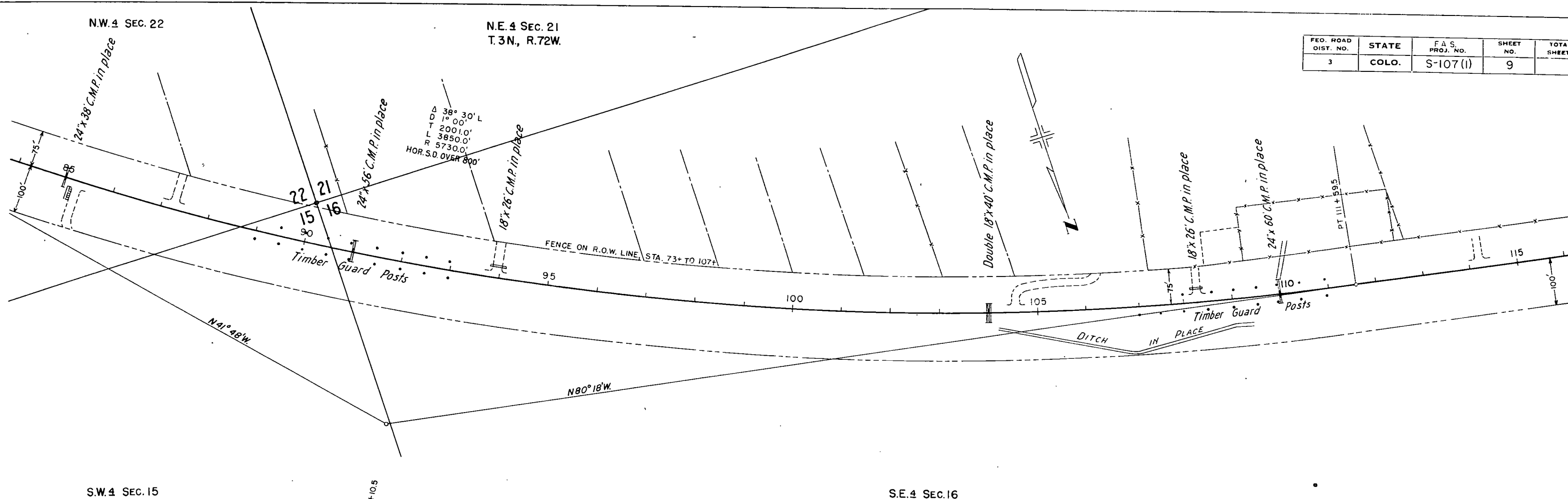
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NOTED
NO. 1417

NOTED
NO. 1417

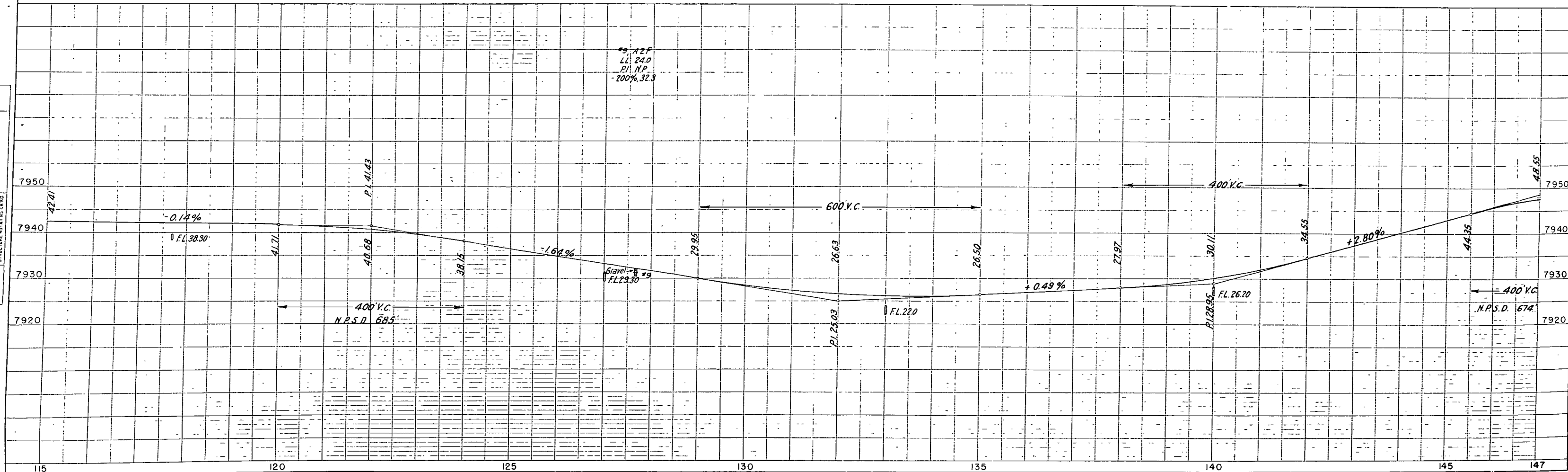
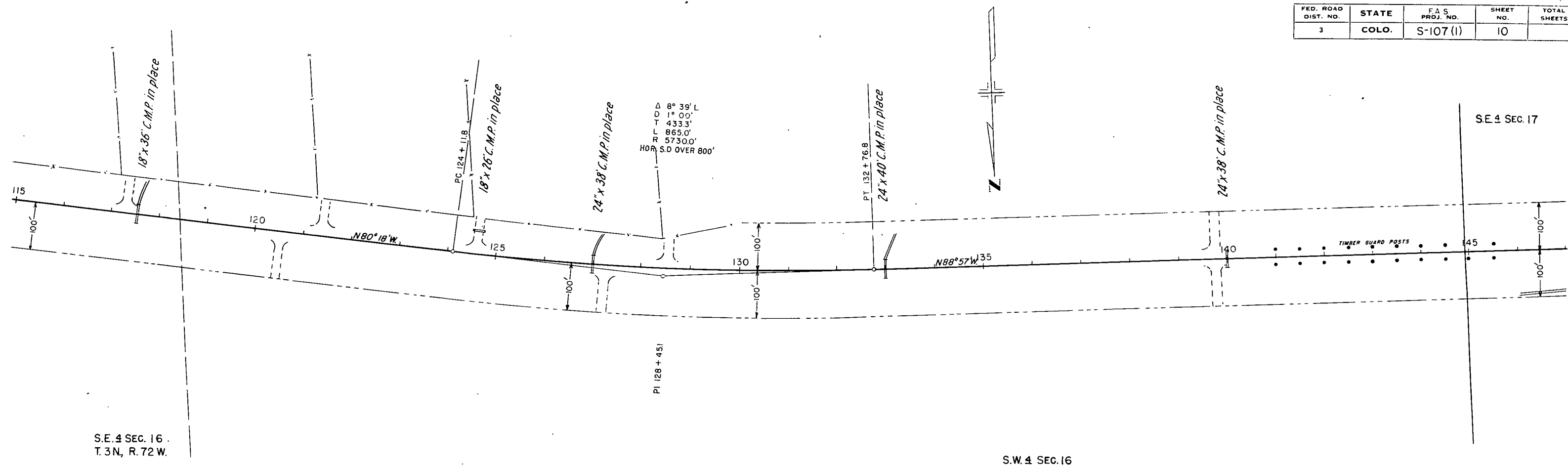
N.W. 1/4 SEC. 22

N.E. 1/4 SEC. 21
T.3N., R.72W.

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3	COLO.	S-107(1)	9	

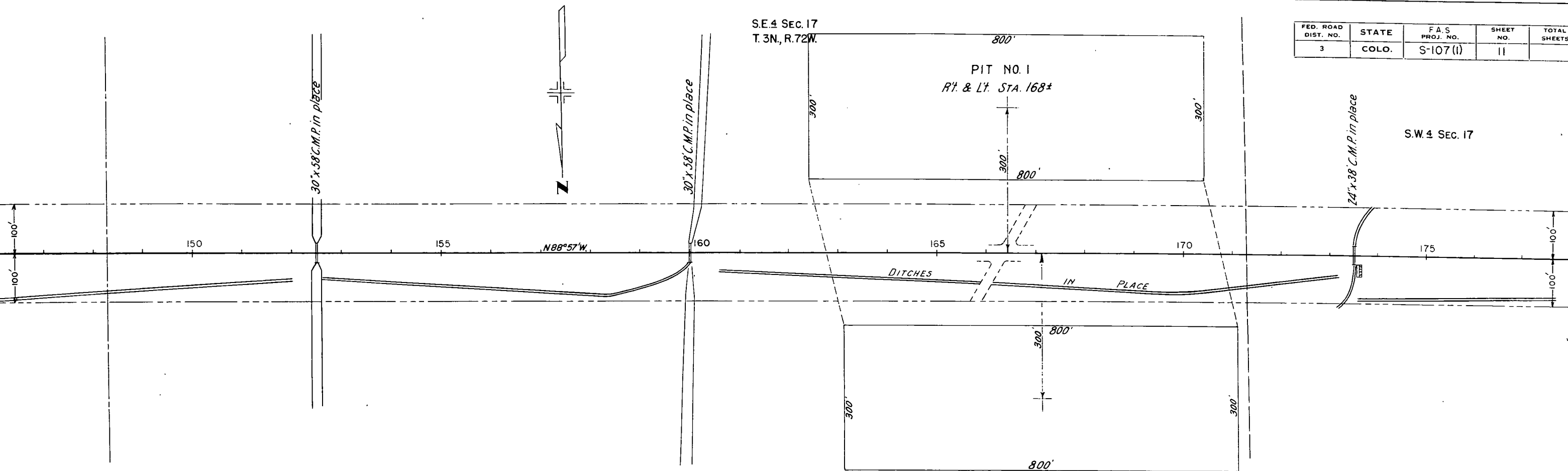


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3	COLO.	S-107(1)	10	

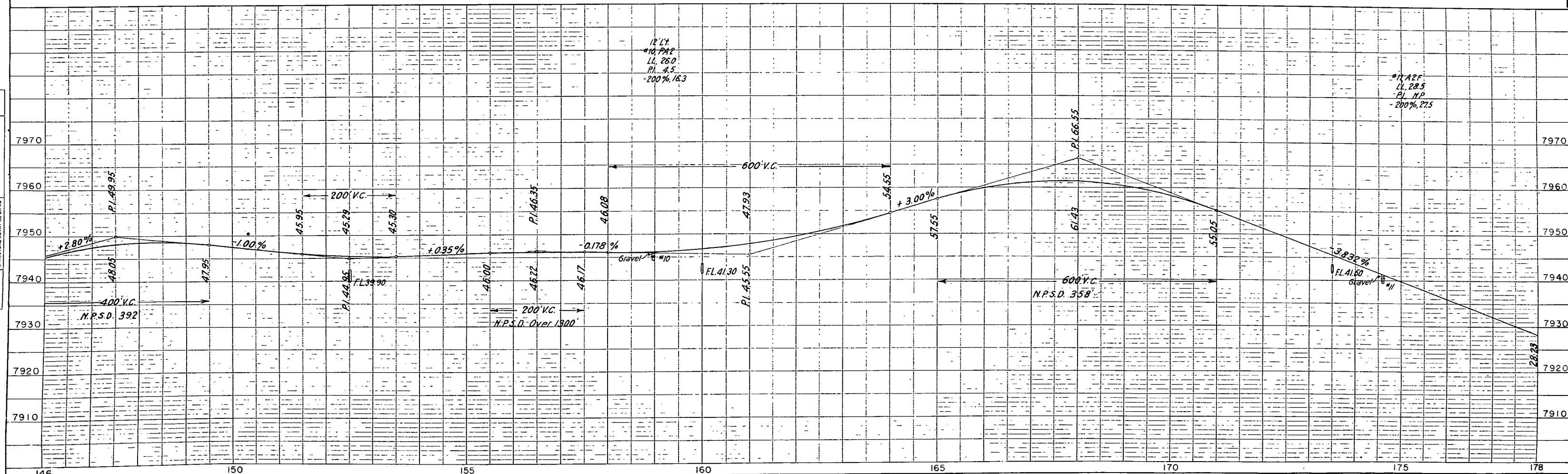


NOTE BOOK
PLANNED
ALIGNED CHECKED
RT. OF WAY CHECKED

NOTE BOOK
GRADES CHECKED
B.M. NOTED
STRUCTURE NOTATIONS OK'D



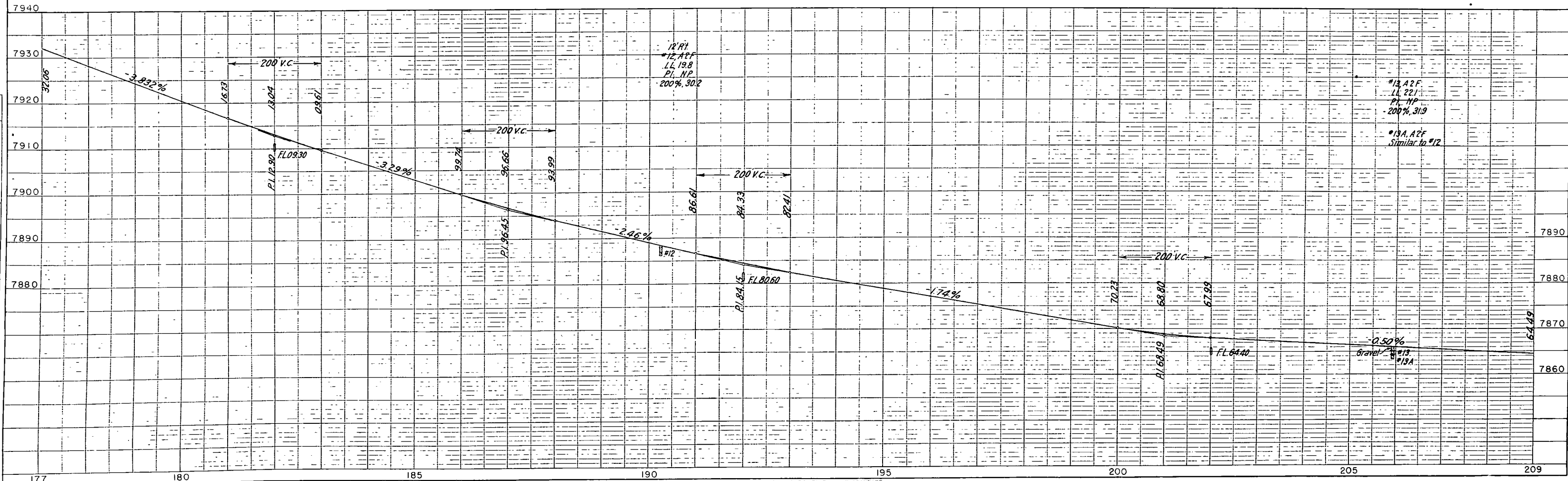
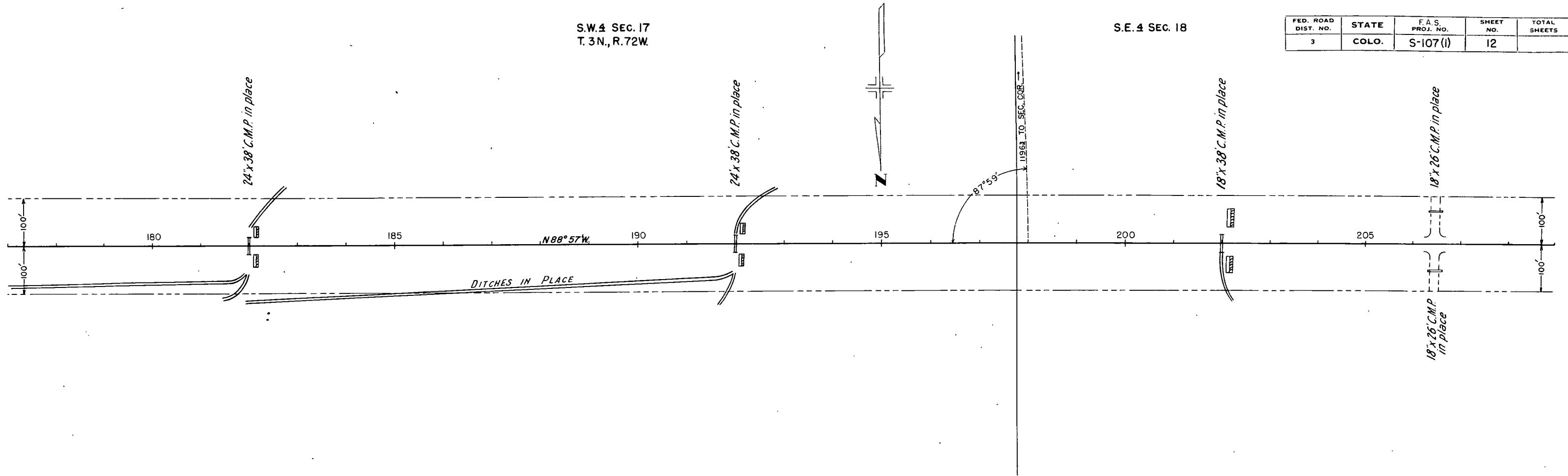
FED. ROAD DIST. NO.	STATE	F.A.S. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	S-107 (I)	11	



S.W. 4 SEC. 17
T. 3 N., R. 72 W.

S.E. 4 SEC. 18

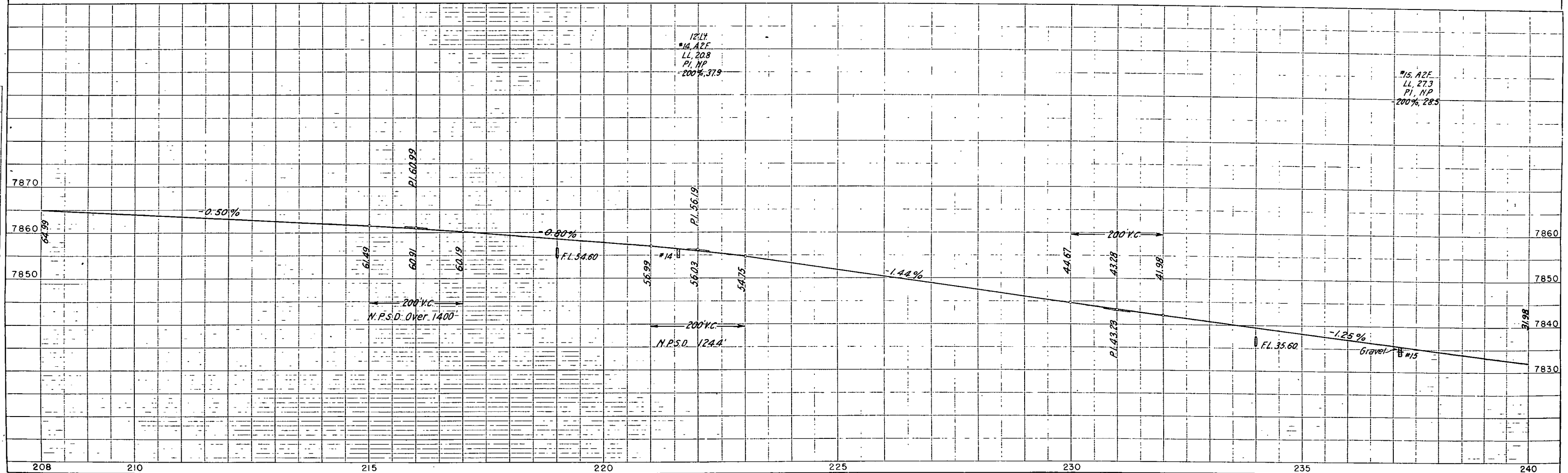
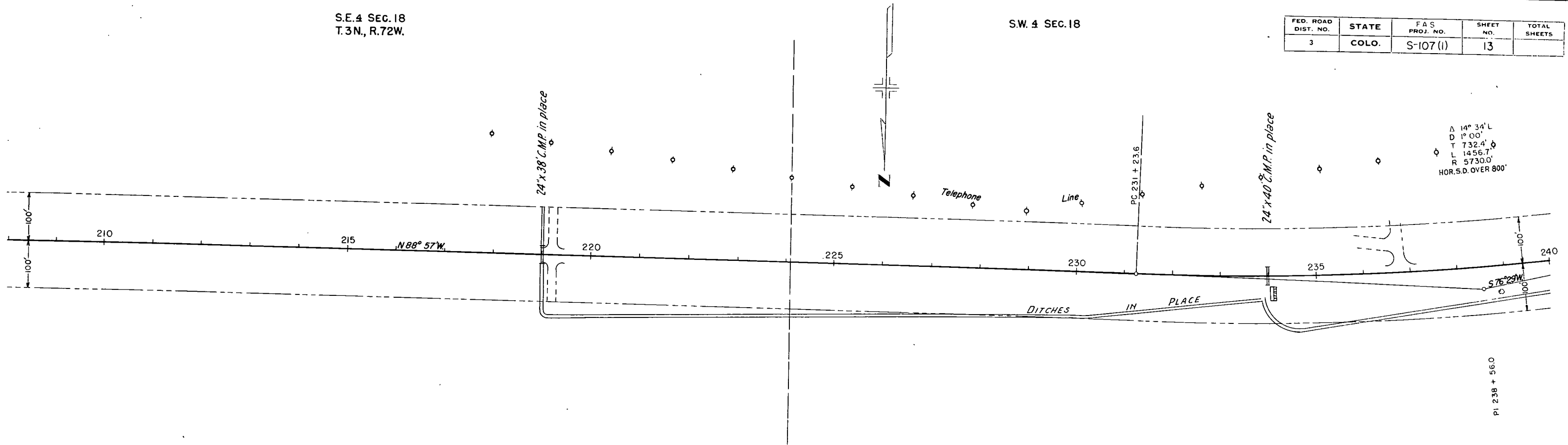
FED. ROAD DIST. NO.	STATE	F.A.S. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	S-107(I)	12	



S.E. 4 SEC. 18
T. 3N., R. 72W.

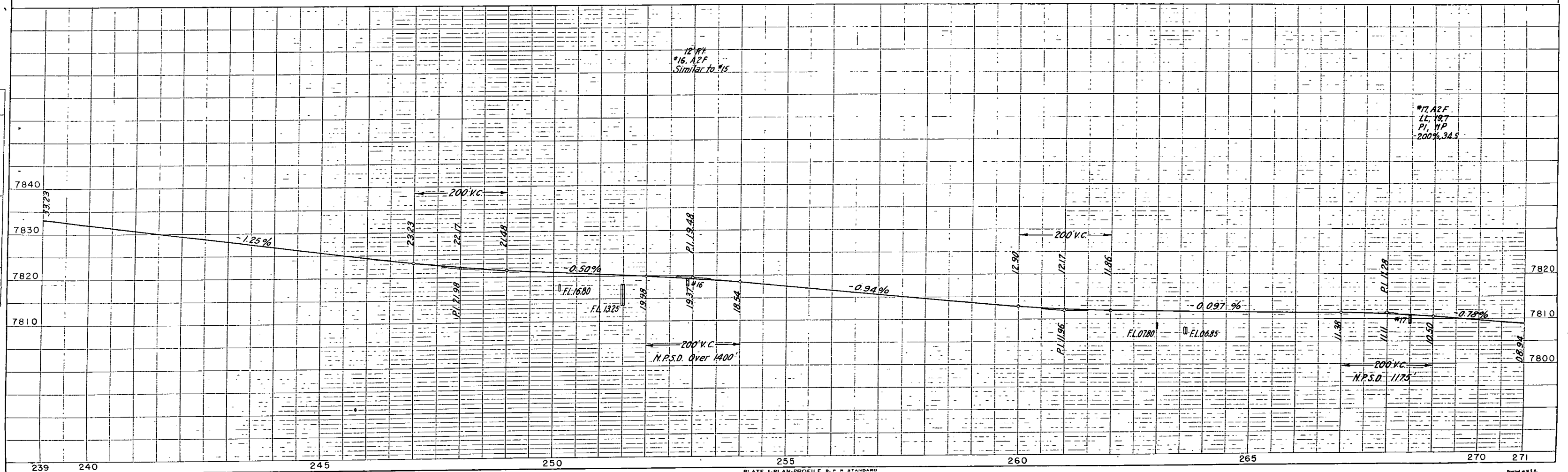
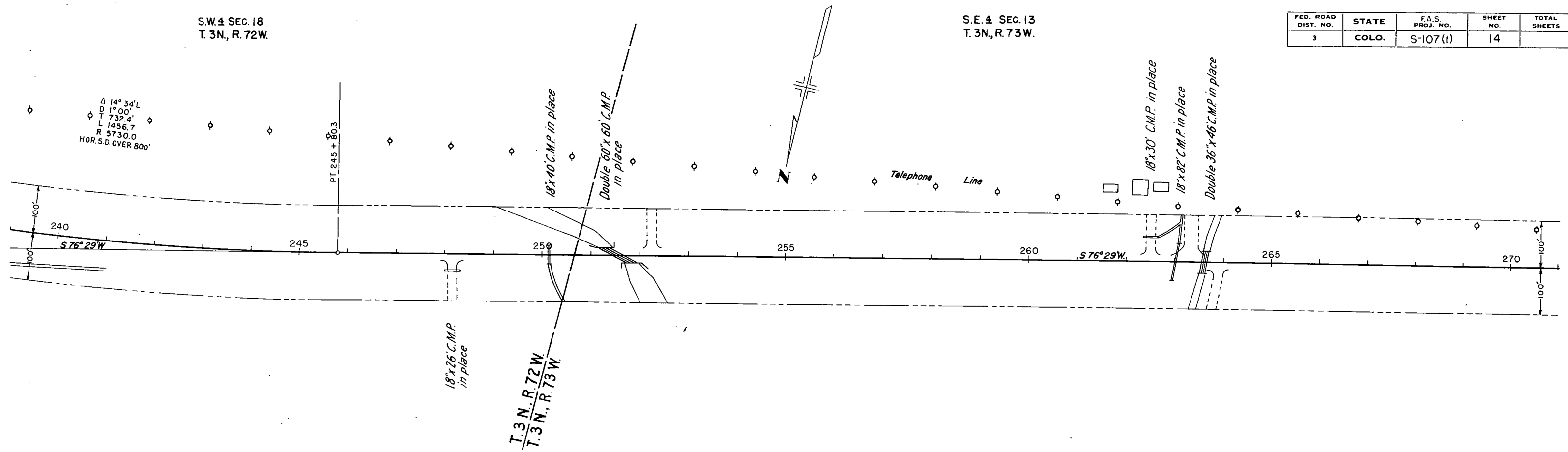
S.W. 4 SEC. 18

FED. ROAD DIST. NO.	STATE	F.A.S. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	S-107 (I)	13	



S.E. 4 SEC. 13
T. 3N., R. 73W.

FED. ROAD DIST. NO.	STATE	F.A.S. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	S-107(1)	14	



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REV. 7-22-46 Add R.A.M.C. RDW

INDEX OF SHEETS

SHEET NO.	
1	TITLE SHEET AND SKETCH MAP
2	TYPICAL SECTION, SUMMARY OF QUANTITIES, TABULATION OF LENGTH OF PROJECT, AND SURFACING PLAN.
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COLORADO

STATE HIGHWAY DEPARTMENT

PLAN AND PROFILE OF PROPOSED FEDERAL AID SECONDARY PROJECT NO. S-107 (I) STATE HIGHWAY NO. 99 COSTILLA COUNTY

CONVENTIONAL SIGNS

CENTER LINE OF SURVEY
RIGHT OF WAY LINES
ONE QUARTER SECTION LINES
SECTION LINES
TOWNSHIP LINES
BARBED WIRE FENCE
COMBINATION WIRE FENCE
RAILROADS
POLE LINES

107.01

SCALES OF ORIGINAL TRACINGS

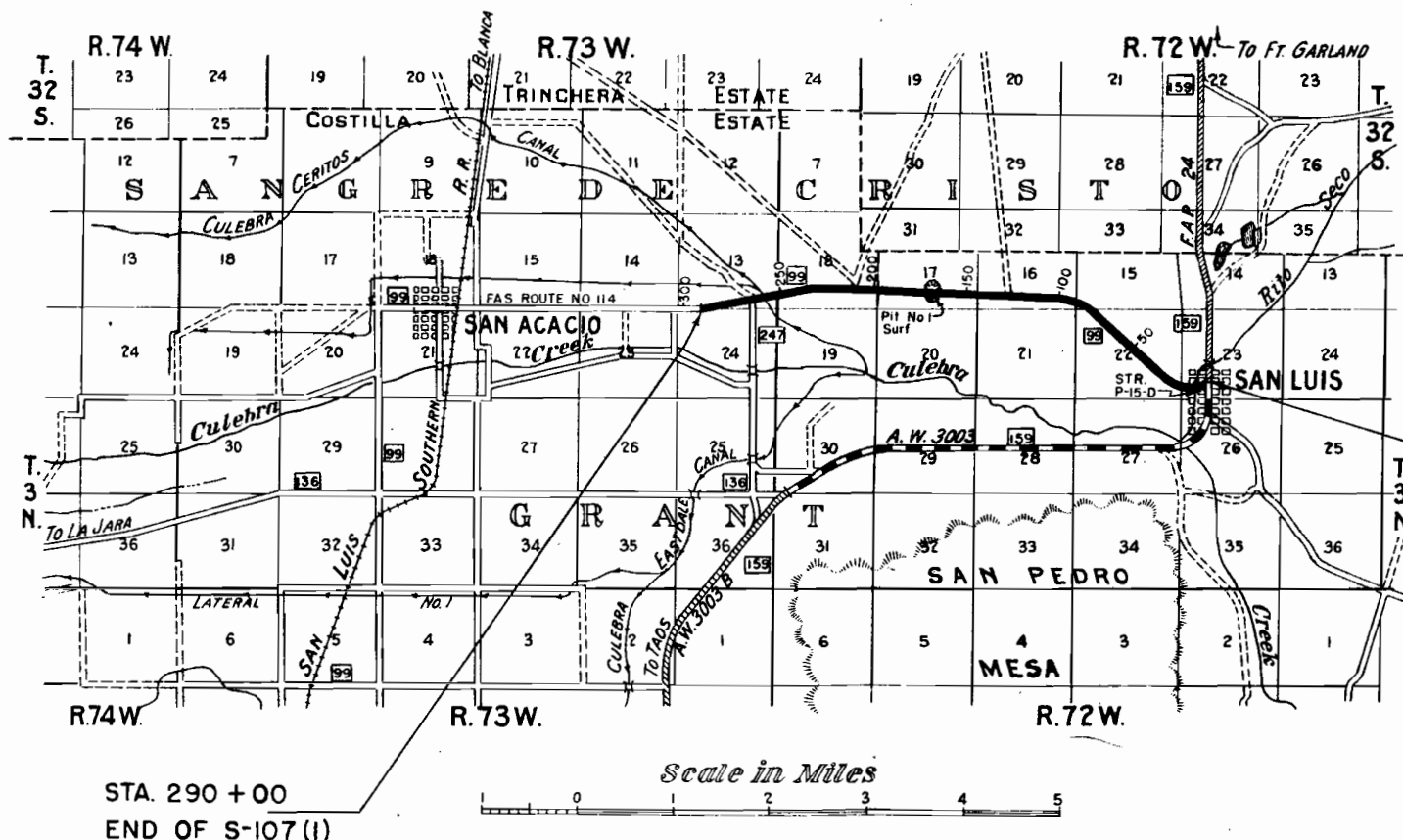
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1 IN. = 10 FT. VERTICAL

GRADE LINE ON PROFILE IS SHOWN AS GRADE OF FINISHED ROAD

GROSS LENGTH OF PROJECT } 28,938.2 FEET = 5.480 MILES
NET LENGTH OF PROJECT }



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R. A. McCoy, Resident Engineer, Alamosa.

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BEGINNING OF S-107 (I)
35' WEST OF STA. 10 + 69.4 OF FAP 24
11' WEST OF STA. 10 + 69.4 OF A.W.P. 3003
EQUALS STA. 0 + 58 OF S.P. 610-A

RECOMMENDED FOR APPROVAL

James B. Buel
DISTRICT ENGINEER
4/26/46

APPROVED

W. J. Walsh
STATE HIGHWAY ENGINEER
6-26-46

RECOMMENDED FOR APPROVAL

DISTRICT ENGINEER
PUBLIC ROADS ADMINISTRATION
FEDERAL WORKS ADMINISTRATION

APPROVED

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GENERAL NOTES

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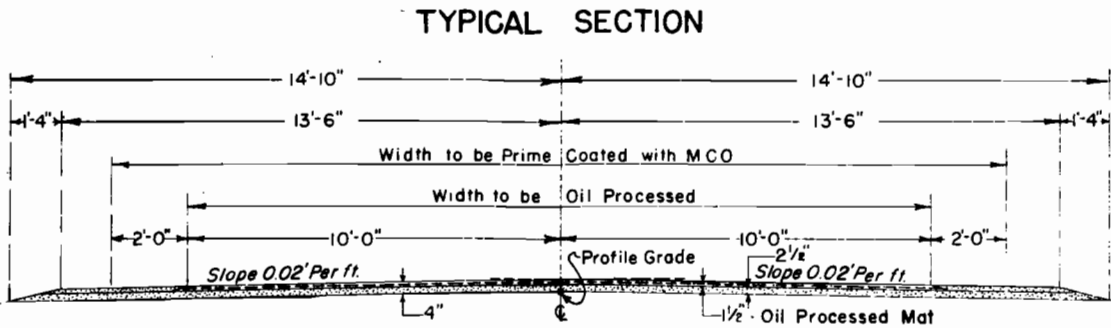
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A Seal Coat will be required over the entire Oil Processed area on this Project.

TABULATION OF LENGTH

STATION	ROADWAY LINEAR FT.
0 + 58 Beginning of S-107 (I)	
16+64.5 Back = Equation	1,606.5
16+68.3 Ahead - Equation	
290+00 End of S-107 (I)	27,331.7
TOTAL	28,938.2
SUMMARY	LIN. FT. MILES
Total F.A.S. S-107 (I) Roadway	28,938.2 5.490
DESIGN DATA	
Maximum Degree of Curve	38°00'
Maximum Grade	4.16%
Minimum N.P.S.D.-horizontal	390'
Minimum N.P.S.D.-vertical	358'
Maximum Design Speed	45 M.P.H.

SUMMARY OF APPROXIMATE QUANTITIES

ITEM NO.	ITEM	UNIT	ROADWAY	ROAD APPROACHES	TOTAL
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31 x	Road Mix Oil Processing	Sq. Yd.	64,450	4820	69,270
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81 a	Project Markers	Each	2		2
118	Blading, Grading & Compacting Roadway	MIle	5.5	0.5	6.0

SURFACING PLAN

It is estimated that material for Gravel Surfacing for the Project is available in the vicinity of the Pit indicated in the following Tabulation.

Estimated quantities involved in this operation are shown below.

Alteration of the Surfacing Plan as here outlined will be allowed only on written permission from the Department.

PLACE REQUIRED	STATION TO STATION	TONS AVAILABLE	TONS REQUIRED		OVERHAUL TON MILES	SOURCE OF MATERIAL
			BOTTOM	TOP		
	0+58 to 117+20	Ample	4432	2566	7729	PIT No. 1, Rt. & Lt. STA. 168 Sec. 17, T. 3 N., R. 72 W.
	117+20 to 218+80		3861	2236	F.H. 2881	
	218+80 to 290+00		2706	1567		
	SUB-TOTALS		10,999	6369	10,610	
	Road Approaches Estimated additional to correct base		100	931	569	Same
				62		
	TOTALS		11,099	7300	11,241	

GENERAL NOTES

Curves on projects using the Sections shown are to be superelevated and widened as indicated in the accompanying drawings and tables.

The normal inside edge of the Pavement slab is to remain of 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. The Section is to be rotated about the normal inside edge of the Pavement, with a $1\frac{1}{2}$ " parabolic crown for curves of 10° and under, and a flat crown for widened Sections.

The normal inside edge of the Graded or Surfaced Section is to remain at the standard elevation of 0.02 ft. per foot width of roadway below the profile grade, or as shown on the Typical Section for the Project. Also, the centerline pivot point is to be used until the superlevation equals 0.02 ft. per foot width of roadway, but when this elevation is exceeded the normal inside shoulder pivot point is to be used.

When the degree of curvature exceeds 10°, the inside edge of the Pavement slab or the inside shoulder of the Graded or Surfaced Section is to be widened from the normal inside edge or shoulder, respectively, as shown by the table and plan or by cross-sections. Curves of 10° or less are not to be widened.

The slope of the shoulders and widened sections shall conform to the rate per foot width of roadway required, except that the inside shoulder of paved sections shall maintain the Typical Section slope until this slope is exceeded by the required superlevation slope.

The outside ditch on superelevated Sections is to be modified, where necessary to provide drainage. Otherwise, this ditch shall conform to normal ditch section shown for Project.

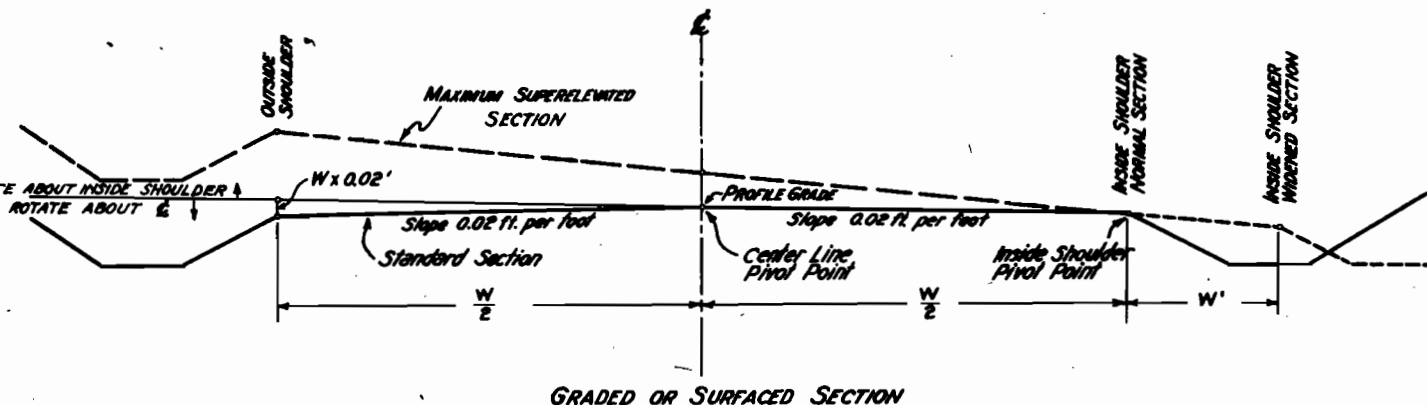
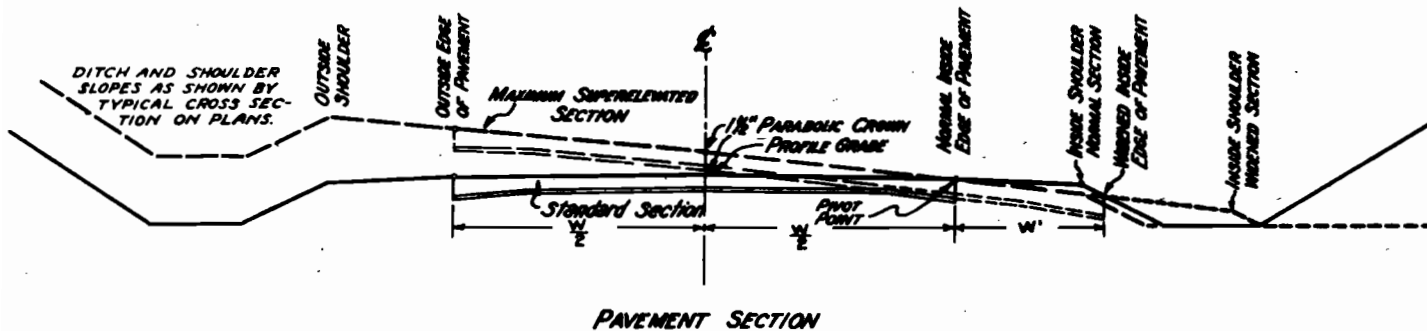
The rate of superlevation per foot width of roadway to be applied at the outside shoulder of the roadway is computed as follows:

The full superlevation per foot width of roadway rate for a given degree of curvature is

$$0.0105 \text{ ft.} \times \text{Degree of Curvature.}$$

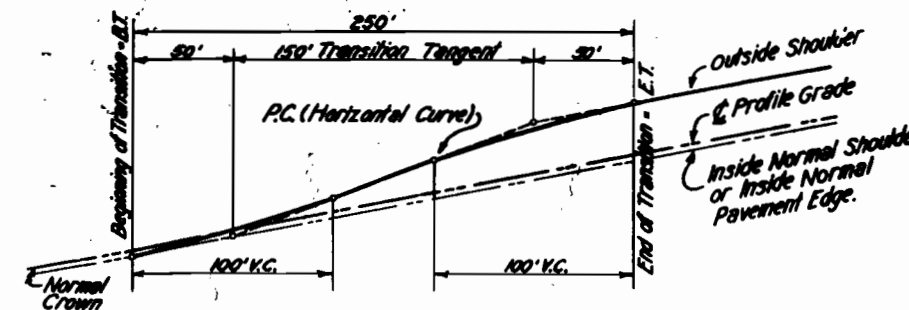
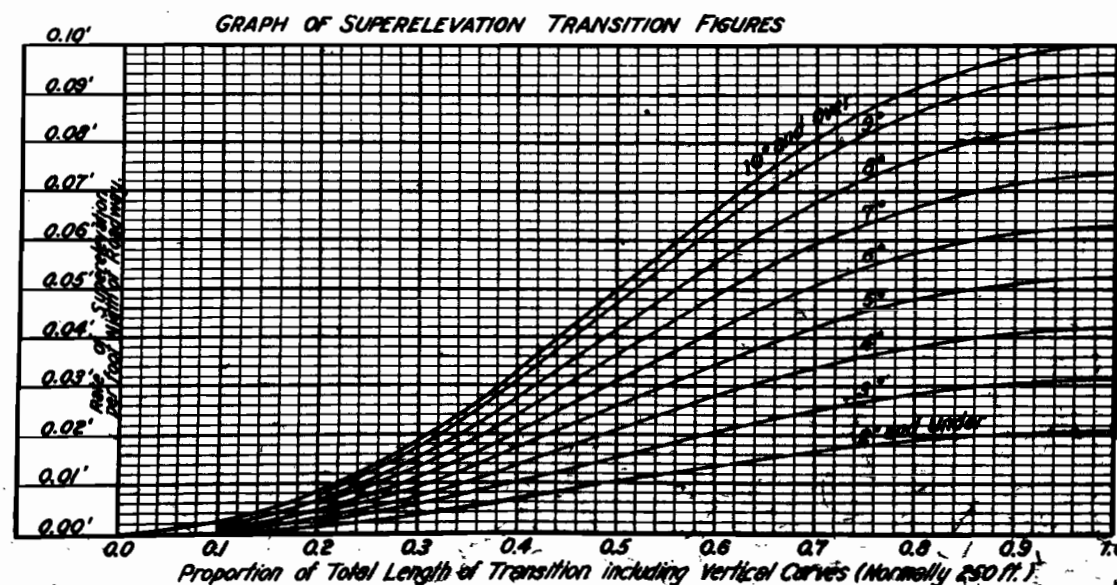
The maximum superlevation of 0.10 ft. per foot width, applying to curves of 10° and over, is not to be exceeded.

Special transition problems not covered by this standard sheet shall be covered by appropriate notes included with curve data on plans.



SUPERELEVATION AND WIDENING TABLES

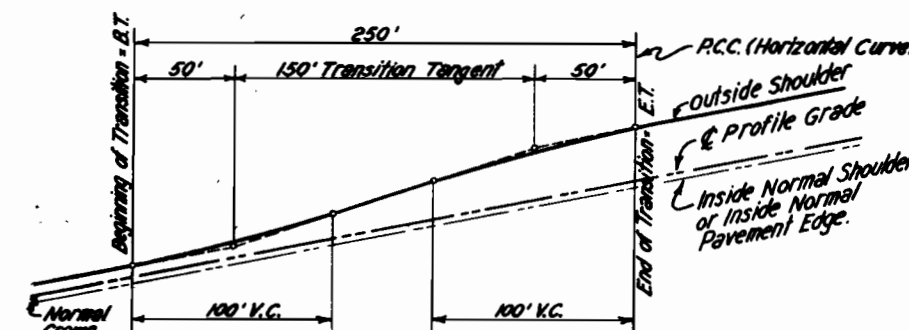
DISTANCE FROM B.T. (FEET)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	MAX. 1.0
Degree of Curvature	RATE OF SUPERELEVATION (IN FEET) PER FOOT WIDTH OF ROADWAY									
2° and Under	0.00044	0.00175	0.00394	0.00700	0.01050	0.01400	0.01706	0.01925	0.02055	0.02100
3°	0.00066	0.00263	0.00591	0.01050	0.01575	0.02100	0.02553	0.02988	0.03384	0.03750
4°	0.00088	0.00350	0.00788	0.01400	0.02100	0.02800	0.03413	0.03950	0.04413	0.04800
5°	0.00109	0.00438	0.00984	0.01750	0.02625	0.03500	0.04266	0.04919	0.05441	0.05925
6°	0.00131	0.00525	0.01181	0.02100	0.03150	0.04200	0.05119	0.05775	0.06269	0.06700
7°	0.00153	0.00613	0.01378	0.02450	0.03675	0.04900	0.05972	0.06738	0.07197	0.07650
8°	0.00175	0.00700	0.01575	0.02800	0.04200	0.05600	0.06825	0.07700	0.08225	0.08700
9°	0.00197	0.00788	0.01772	0.03150	0.04725	0.06300	0.07678	0.08663	0.09253	0.09800
10° and Over	0.00208	0.00833	0.01875	0.03333	0.05000	0.06667	0.08125	0.09186	0.09792	0.10000
OFFSETS FOR WIDENING - W' (IN FEET)										
Over 10° - Under 12°	0.03	0.12	0.27	0.48	0.75	1.08	1.47	1.92	2.43	3.00
12° - " 15°	0.04	0.16	0.36	0.64	1.00	1.44	1.96	2.56	3.24	4.00
15° - " 20°	0.05	0.20	0.45	0.80	1.25	1.80	2.45	3.20	4.05	5.00
20° and Over	0.06	0.24	0.54	0.96	1.50	2.16	2.94	3.84	4.86	6.00



CASE I: SIMPLE CURVE WITH UNLIMITED TANGENT APPROACH

NOTE: CASE I

The transition in this case, from crowned section to superelevated section, shall proceed uniformly by raising the outside shoulder, over a distance of 250 ft. as shown, beginning at a point on the tangent 150 ft. from the end of the curve, and acquiring full superlevation at a point 100 ft. inside the curve.



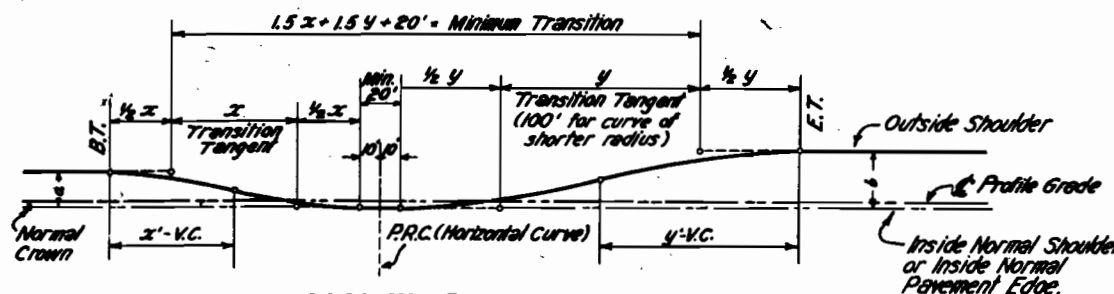
CASE II: COMPOUND CURVE

NOTE: CASE II

Superelevation transitions at the outside ends of compound curves shall be constructed in accordance with rules given under CASE I.

Superelevation transition between the arcs of different radii shall be made as in CASE I, except that the entire transition shall lie within the limits of the curve of the longer radius.

In cases where curves in the same direction have a tangent distance of less than 300 ft. between points of curve, the intervening tangent shall be superelevated an amount equal to that of the curve of greater radius and the transition shall be made as in the case of a true compound curve.



CASE III: REVERSE CURVES

NOTE: CASE III

Transitions between true reverse curves shall be accomplished as shown on the above diagram.

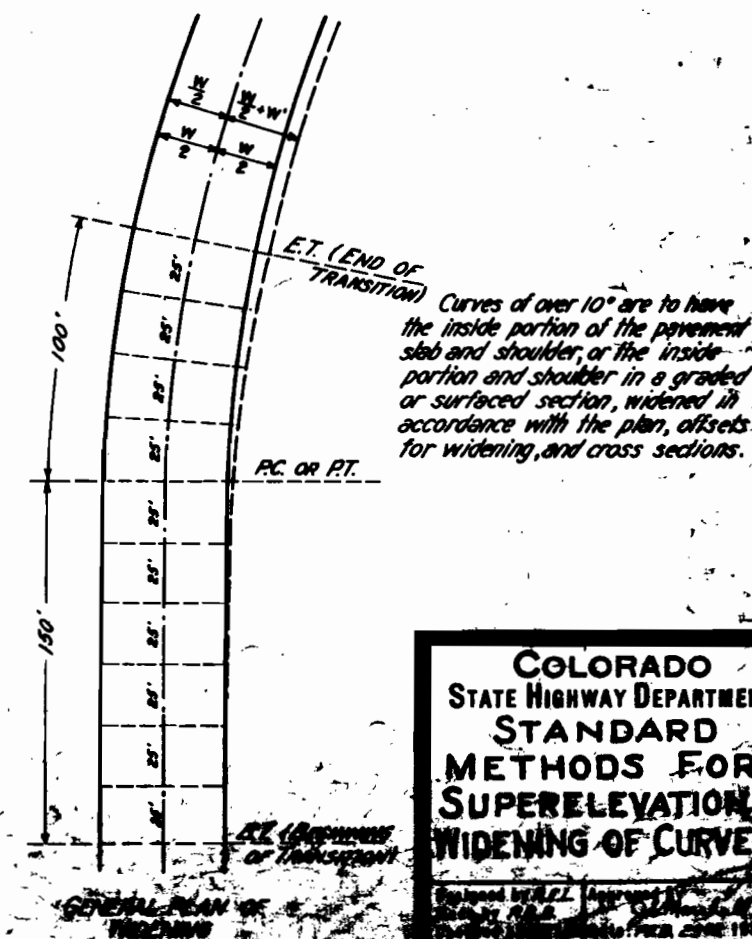
Transition tangents shall be directly proportional to the amount of superlevation of the respective curves.

EXAMPLE: Let a represent the amount of superlevation on 1st curve;

x : : : : transition tangent on 1st

then, $a : b = x : y$

The transition tangent of the curve having the shorter radius shall be set at 100 ft. A normal crowned section 20 ft. long, 10 ft. on each side of the P.R.C. shall be used. In cases where curves in opposite directions are in such proximity that a standard transition can not be had, the practice outlined for true reversing curves shall be used. The total distance between the P.T. of the first curve and the P.C. of the succeeding curve shall be prorated into the transition distance of the respective curves until a maximum of 150 ft. of transition tangent for each curve is achieved.

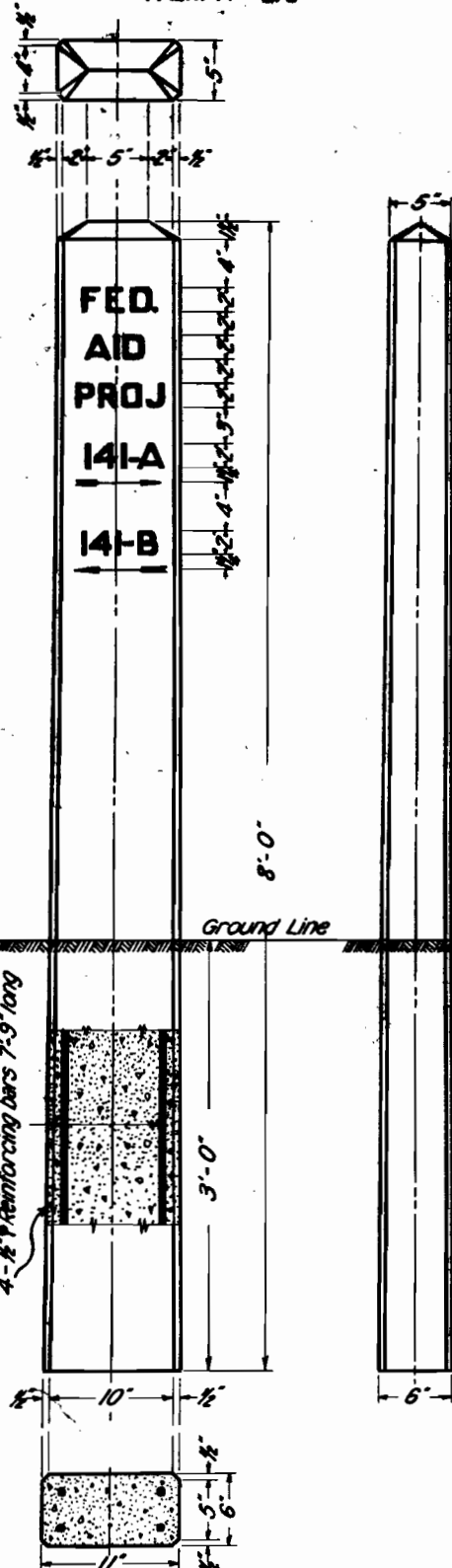


COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD
METHODS FOR
SUPERELEVATION &
WIDENING OF CURVES

Revised by R.E.L. (Approved)
1938 by R.E.L. (Approved)
1940 by R.E.L. (Approved)
1942 by R.E.L. (Approved)

PROJECT MARKER POST

ITEM N° 818

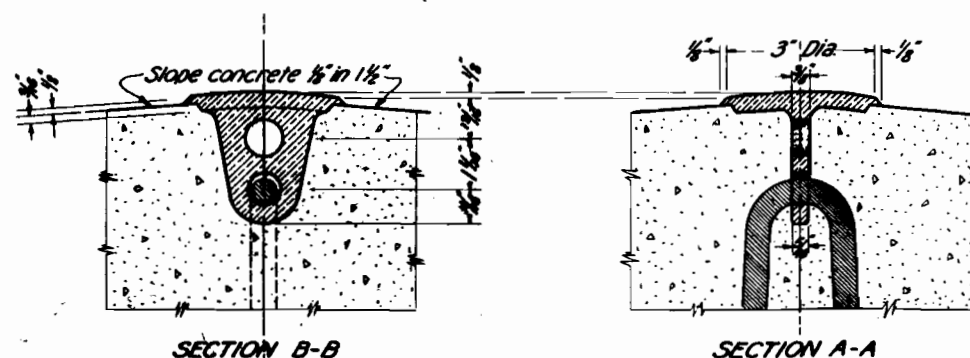


NOTES FOR PROJECT MARKER POSTS

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, numbers and arrows shall be recessed a minimum of 1/4" into the concrete, and painted black with black paint conforming to Item No. 41, "Second Field Coat - Dark" of the specifications.
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

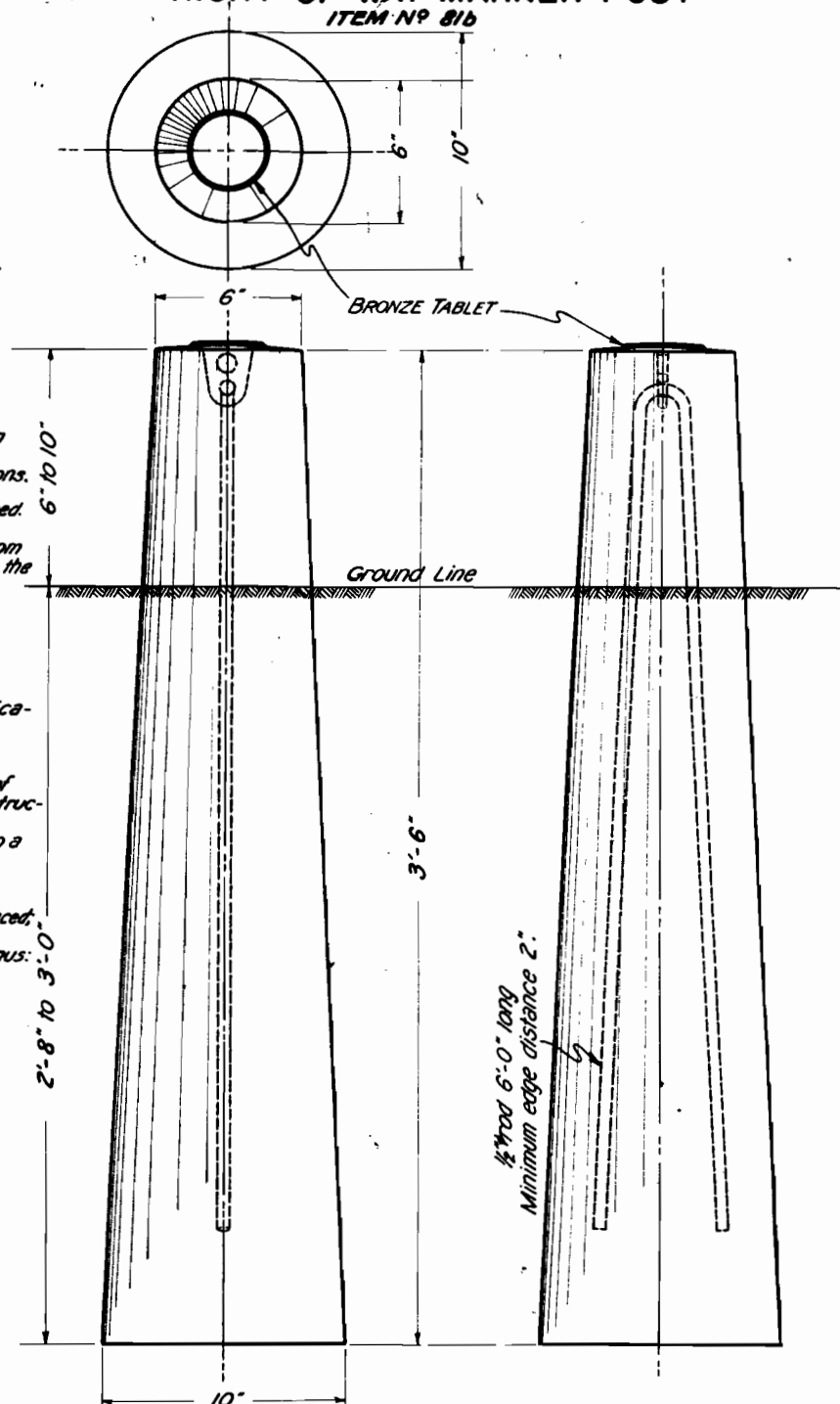
All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department, adopted June 1, 1940.
Posts shall be made of Class "A" Concrete.
The upper 12 inches of marker posts shall be rubbed free of form marks, and the top surface of the post must be constructed 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 1/8 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.
1/8 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.



DETAIL OF BRONZE TABLET
FOR RIGHT OF WAY MARKER POST

RIGHT OF WAY MARKER POST

ITEM N° 818



REVISIONS

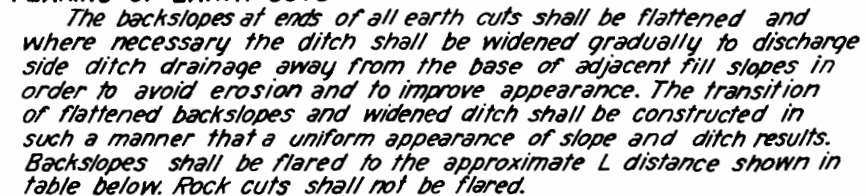
Rev. 6-28-40-A.L.-1940 Specs.
Rev. 1-2-46-C.S.D.-Item 81-8
STANDARD M-7-B
Rev. 8-June-46 P.E.B. 1/2" x 1/2"
Rev. June 10 '46 H.E.M. Bronze Tablet

FED. ROAD DIST. NO.	STATE	FA	SHEET NO.	TOTAL SHEETS
3	COLORADO	S-107(1)	3A	

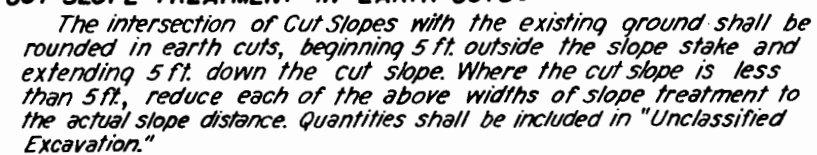
COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD
MARKER POSTS

Designed by R.E.L. Approved by
Made by F.F.S. Checked by R.E.L. Date: Apr. 27, 1946

TYPICAL PLANS FOR SIDE APPROACH ROADS



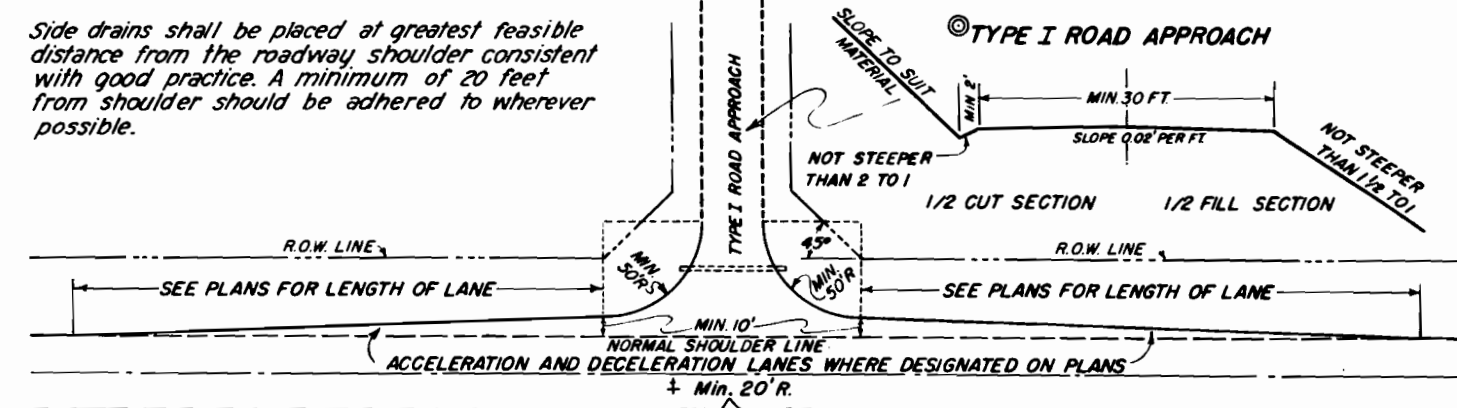
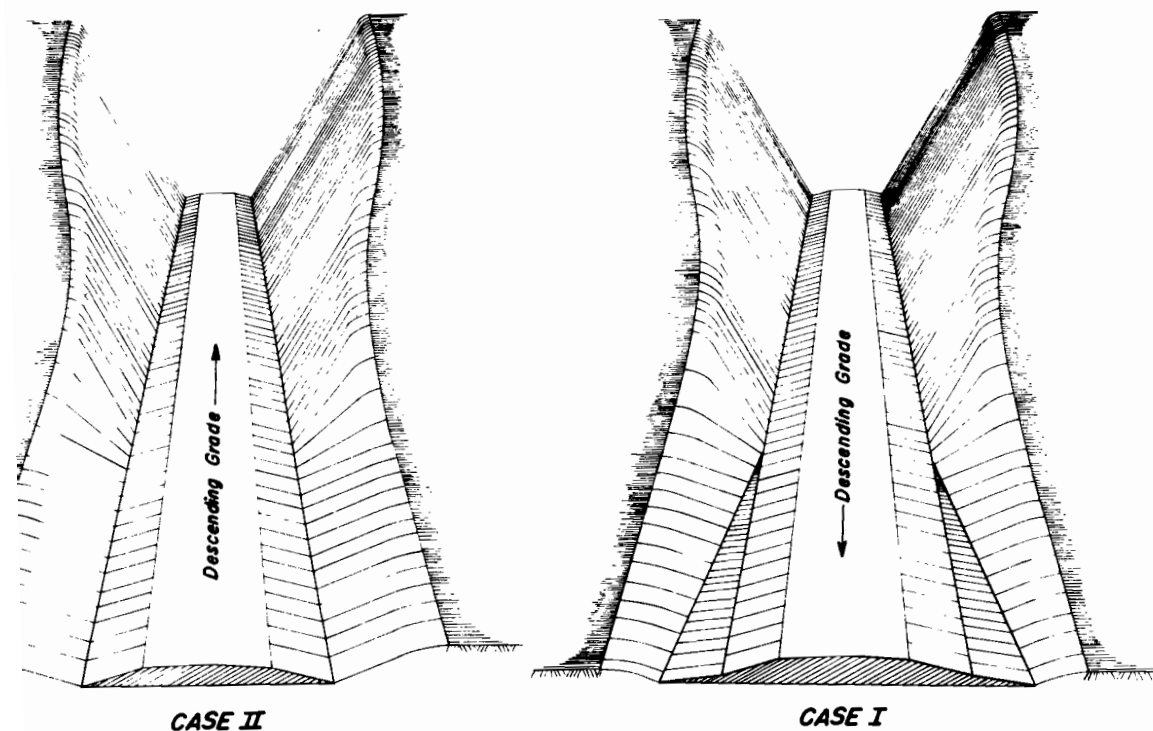
NORMAL SLOPE	CUT H	DISTANCE L
1 To 1	24'	24' ±
1.5 To 1	16'	24' ±
2 To 1	12'	24' ±
3 To 1	8'	24' ±



The diagram shows a dashed line representing the 'Ground Line' and a solid line representing the 'Grade Line'. The 'Grade Line' is a straight line sloping upwards from left to right. The 'Ground Line' is a wavy dashed line that intersects the 'Grade Line' at three points. These intersection points are labeled 'Case I' (at the left and right ends) and 'Case II' (in the middle). The 'Grade Line' is labeled 'Grade Line' in two places. The 'Ground Line' is labeled 'Ground Line' at the right end. The diagram illustrates the relative positions of the center of gravity (G) and the center of buoyancy (B) for different cases of a submerged body.

Roadway Embankment at Bridge Approaches shall be so constructed that the finish point of the subgrade shoulder is a minimum of 2 ft. beyond the outside edge of bridge deck. Where widening of the section is necessary to achieve this result, it shall take place gradually over a distance of 300 ft. This is done to accommodate Guard Fence and/or Guard Posts at Bridge Approaches. (See additional requirements for Guard Fences below.)

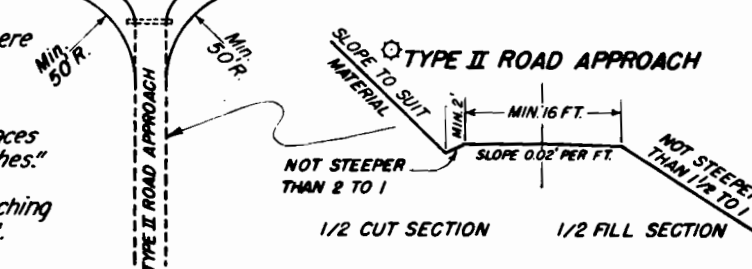
At all locations on the project (except as provided above for bridge approaches) where guard fence is to be constructed and the width of roadbed between finished shoulders is less than 30 feet, the shoulders shall be widened 2 feet to provide additional clearance. Where the finished roadbed is 30 feet or more in width widening will not be required. In all cases guard fences are to be placed along the finish point of roadbed shoulder as shown on guard fence standards.



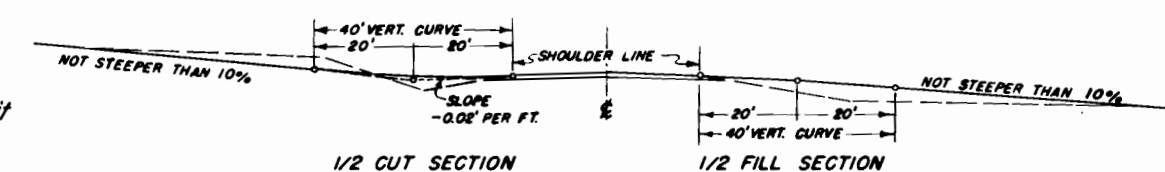
©Type I Road Approaches shall be used only where called for on the plans. Omit acceleration and deceleration lanes unless specifically designated.

☼ *Type II Road Approaches shall be used at all places which are not indicated as "Type I Road Approaches." The width of crowned section shall not be less than the existing crowned width of the approaching road, but in no case shall it be less than 16 feet.*

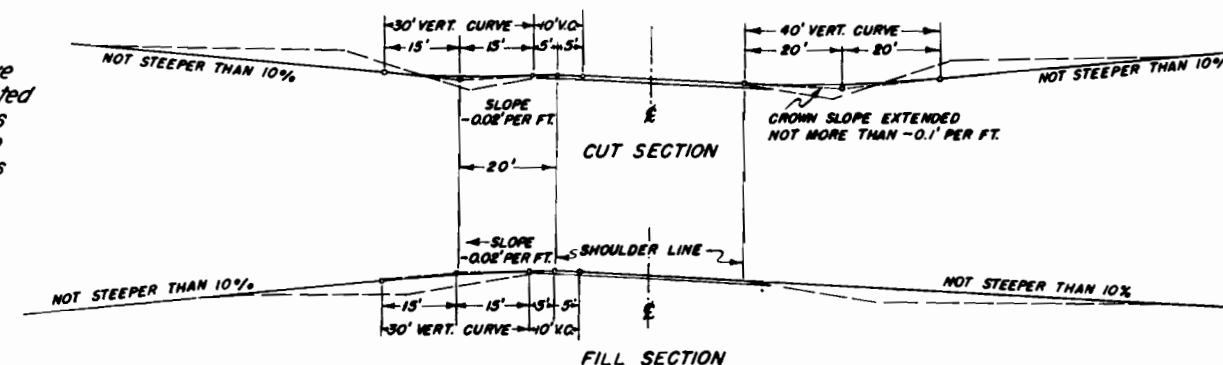
* 20 ft. radii to be used only on private road approaches.



STANDARD CROWNED SECTION



SUPERELEVATED SECTIONS



All work shall be done in accordance with the Standard Specifications of the Colo. State Highway Dept. applicable to the Project.

All side approach roads to the Project shall be gravel surfaced with a 4 inch thickness of "Gravel or Crushed Rock Surfacing" extending approximately to the right of way line. Estimated tonnage and type of material required for this operation are shown in the surfacing plan.

The maximum grades shown are to be the limiting grades for all road approaches. Modifications of grades will be permitted where adherence to the grades as shown would cause damage to property or create other unsatisfactory conditions. Grades less than the maximum shown are to be used wherever feasible.

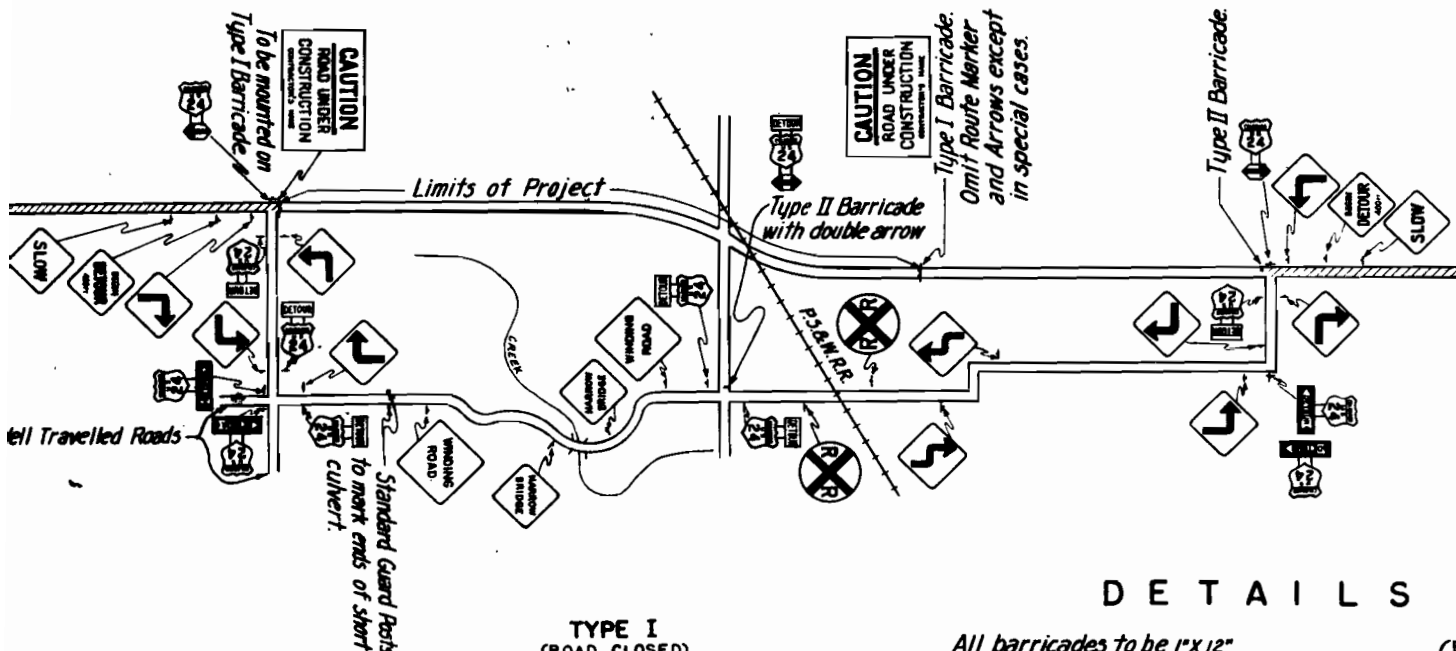
COLORADO
STATE HIGHWAY DEPARTMENT

STANDARD

**SIDE APPROACH ROADS,
FLARING, CUT SLOPE TREATMENT
& WIDENING AT BRIDGES.**

Designed by <i>A.Z.</i> Made by <i>C.R.S.</i> Checked by	Approved by <i>R.E.L.</i> Date <i>Sept. 25 1945</i>
--	--

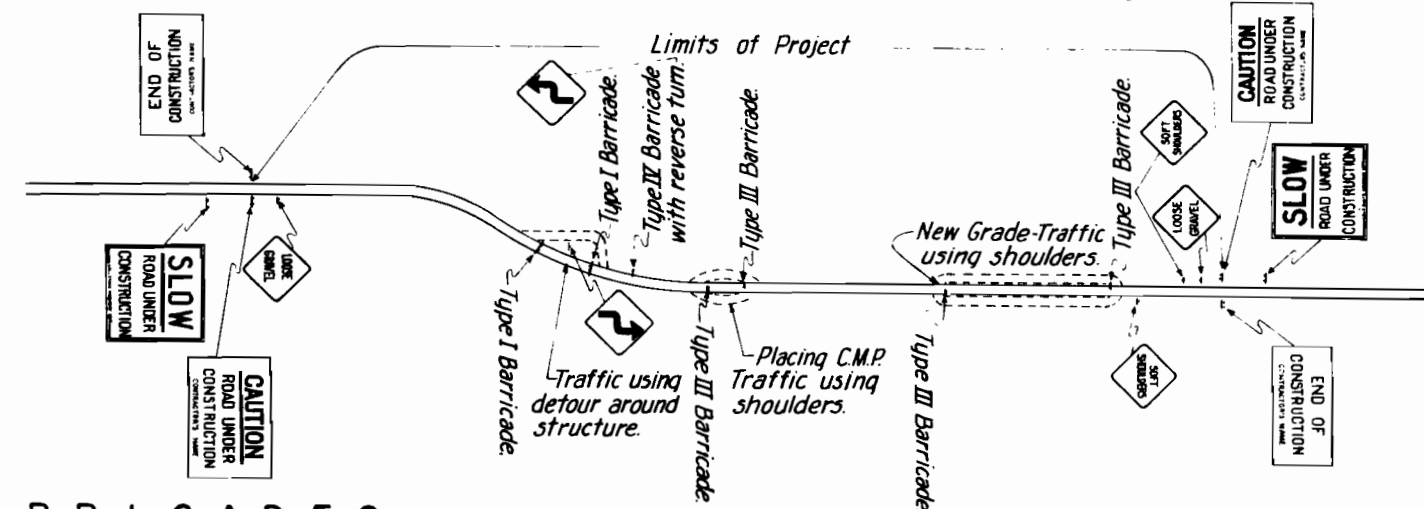
TYPICAL METHOD OF MARKING DETOUR (TRAFFIC PROHIBITED ON ROAD UNDER CONSTRUCTION)



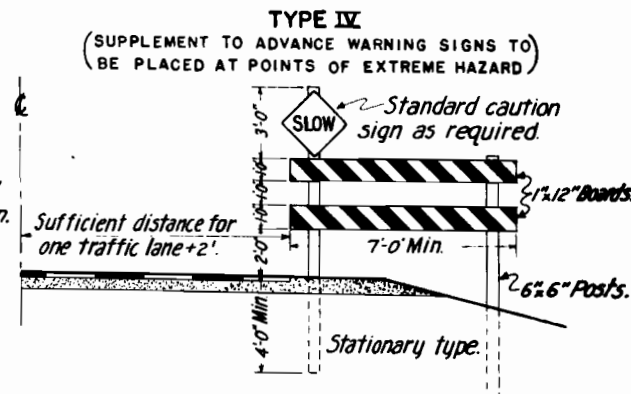
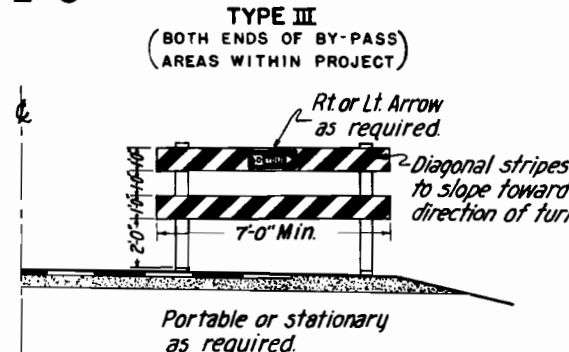
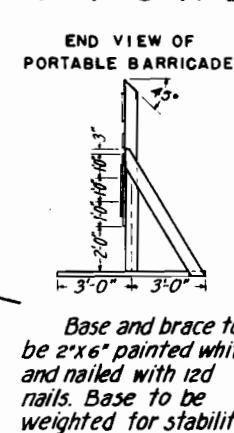
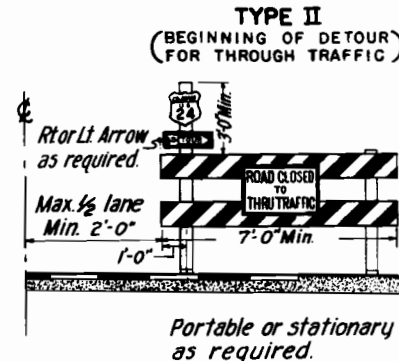
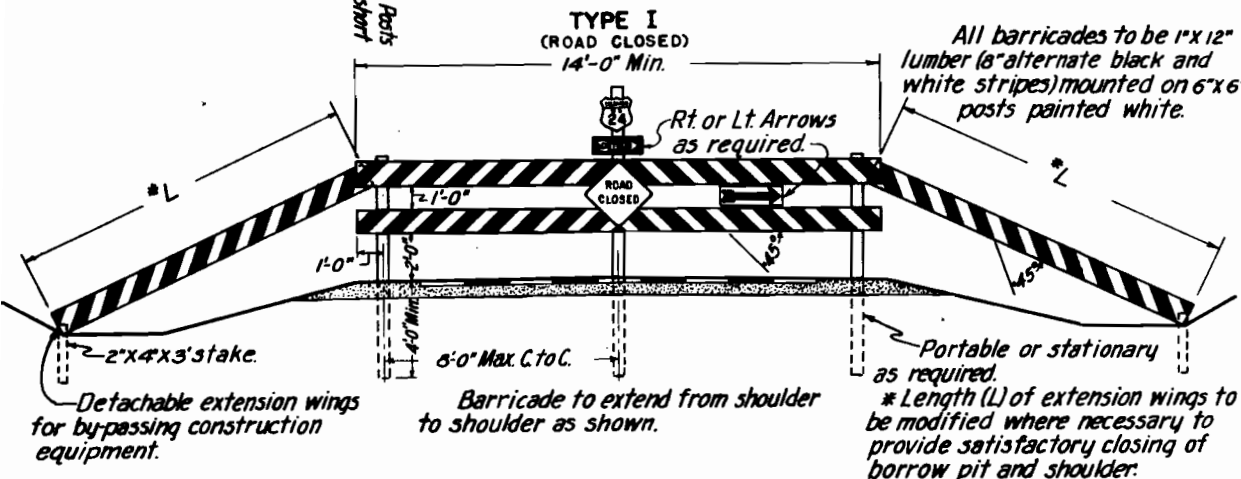
STANDARD M-2-D

FED. ROAD DIST. NO.	STATE	F.A.	SHEET NO.	TOTAL SHEETS
3	COLO.	5-107(1)	5	

TYPICAL METHOD OF MARKING HIGHWAY (TRAFFIC PERMITTED ON ROAD UNDER CONSTRUCTION)



DETAILS OF BARRICADES



GENERAL NOTES

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE COLORADO STATE HIGHWAY DEPARTMENT APPLICABLE TO THE PROJECT. WHERE TRAFFIC IS MAINTAINED THROUGH OR OVER ANY PART OF THE PROJECT THE CONTRACTOR WILL BE REQUIRED TO MARK ALL HAZARDS WITHIN THE LIMITS OF THE PROJECT WITH WELL PAINTED, WELL MAINTAINED BARRICADES AND STANDARD CAUTION SIGNS, WARNING SIGNS, AND DIRECTIONAL TYPE SIGNS. BARRICADES AND SIGNS SHALL BE MOVED, ADDED TO, CHANGED OR REMOVED AS REQUIRED DURING THE PROGRESS OF CONSTRUCTION TO MEET CHANGING CONDITIONS.

THE CONTRACTOR SHALL FURNISH AND INSTALL THE FOLLOWING AS REQUIRED WITHIN THE LIMITS OF THE PROJECT:

1. ALL BARRICADES.
2. APPROVED REFLECTORIZED DIRECTIONAL ARROW FOR EACH TYPE I BARRICADE.
3. "CAUTION-ROAD UNDER CONSTRUCTION (CONTRACTOR'S NAME)" SIGNS - MINIMUM 2.
4. "END OF CONSTRUCTION (CONTRACTOR'S NAME)" SIGNS - MINIMUM 2.
5. STANDARD CAUTION, WARNING AND DIRECTIONAL TYPE SIGNS AS REQUIRED.
6. FLARES OR TORCHES AS FOLLOWS:

A. TYPE I BARRICADES - MINIMUM 3 EACH.

B. TYPE III OR IV BARRICADES - MINIMUM 1 EACH.

C. STANDARD CAUTION OR WARNING SIGNS - MINIMUM 1 EACH.

NOTE: FLARES OR TORCHES SHALL BE OF AN OIL BURNING TYPE APPROVED BY THE STATE OF COLORADO AND SHALL BE PLACED FROM 3 TO 5 FEET AHEAD OF THE SIGN OR OBJECT TO BE ILLUMINATED. IN ALL CASES FLARES OR TORCHES SHALL BE PLACED A SUFFICIENT DISTANCE AWAY, WITHIN THE ABOVE RANGE, TO AVOID DAMAGE TO FACE OF SIGN FROM SMOKE OR FLAME AND SHALL BE KEPT BURNING FROM SUNSET TO SUNRISE.

ALL LUMBER USED IN BARRICADES AND SIGNS SHALL BE SOUND, DURABLE MATERIAL AND SHALL BE KEPT WELL PAINTED WITH NEAT, UNIFORM LETTERS AND SYMBOLS CONFORMING TO STYLE SHOWN FOR THE VARIOUS SIGNS. UNEVEN OR SMEARED LETTERING WILL NOT BE PERMITTED.

WHERE TRAFFIC IS PROHIBITED FROM THE PROJECT, THE DETOUR WILL BE MARKED BY THE DEPARTMENT, EXCEPT THAT TYPE I BARRICADES, COMPLETE WITH NECESSARY ARROWS AND SIGNS, SHALL BE PROVIDED, ERECTED, PAINTED AND MAINTAINED BY THE CONTRACTOR AT BOTH ENDS OF THE PROJECT AND AT ALL INTERSECTING ROADS REQUIRED TO BE LEFT OPEN FOR CROSS TRAFFIC.

US AND/OR STATE ROUTE MARKERS DEEMED NECESSARY FOR GUIDANCE OF TRAFFIC OVER THE PROJECT OR FOR USE ON TYPE I BARRICADES WILL BE FURNISHED BY THE DEPARTMENT TO BE INSTALLED BY THE CONTRACTOR.

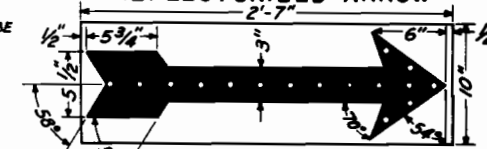
THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL SIGNS FURNISHED HIM BY THE DEPARTMENT AND SHALL RETURN SAME UPON COMPLETION OF THE PROJECT. THE CONTRACTOR WILL BE REQUIRED TO REIMBURSE THE DEPARTMENT FOR ANY SIGNS FURNISHED HIM WHICH HAVE BECOME DAMAGED OR LOST DURING HIS OPERATIONS.

THE TYPICAL METHOD OF MARKING AS SHOWN ILLUSTRATES THE MINIMUM ACCEPTABLE SIGNING PROCEDURE. MODIFICATIONS AND ADDITIONAL REQUIREMENTS WILL BE DETERMINED BY LOCATION, TRAFFIC VOLUME AND OTHER PERTINENT CONDITIONS AFFECTING THE PUBLIC CONVENIENCE AND SAFETY.

ANY SPECIAL SIGNS DEEMED NECESSARY FOR THE GUIDANCE AND PROTECTION OF TRAFFIC OVER THE PROJECT OR DETOUR WILL BE FURNISHED AND INSTALLED BY THE DEPARTMENT.

ALL COSTS INCIDENTAL TO THE FOREGOING REQUIREMENTS WILL NOT BE PAID FOR AS A SEPARATE ITEM BUT SHALL BE INCLUDED IN THE ORIGINAL CONTRACT PRICES FOR THE PROJECT.

DETAILS OF REFLECTORIZED ARROW



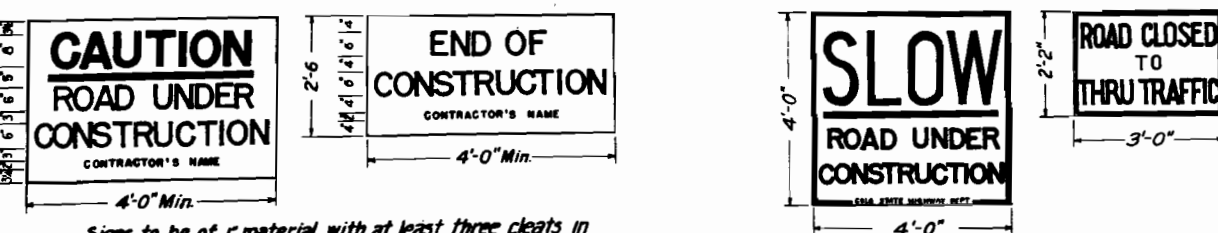
For use on Type I Barricades at ends of project and/or inside of project where needed.

Reflector buttons shall be Signal Service ALA 31 (white crystal) or suitable equivalent. Minimum thickness of lumber to be 1".

Location to be governed by field conditions. Exact location to be staked by the Engineer. In all cases caution signs are to be placed well in advance of hazard, the distance depending on topography, and existing approach speeds.

Sign to be made of 1/4" (min) plywood or #16 gauge (min) metal.

DETAILS OF CONSTRUCTION SIGNS



Above signs to be furnished and installed by the Department where required.

COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD
ROADWAY CONSTRUCTION
TRAFFIC SIGNS

Designed by A.R.P.
Made by B.C.
Checked by
Approved by R.E.L.
Date: Sept. 25 1946

NOTES

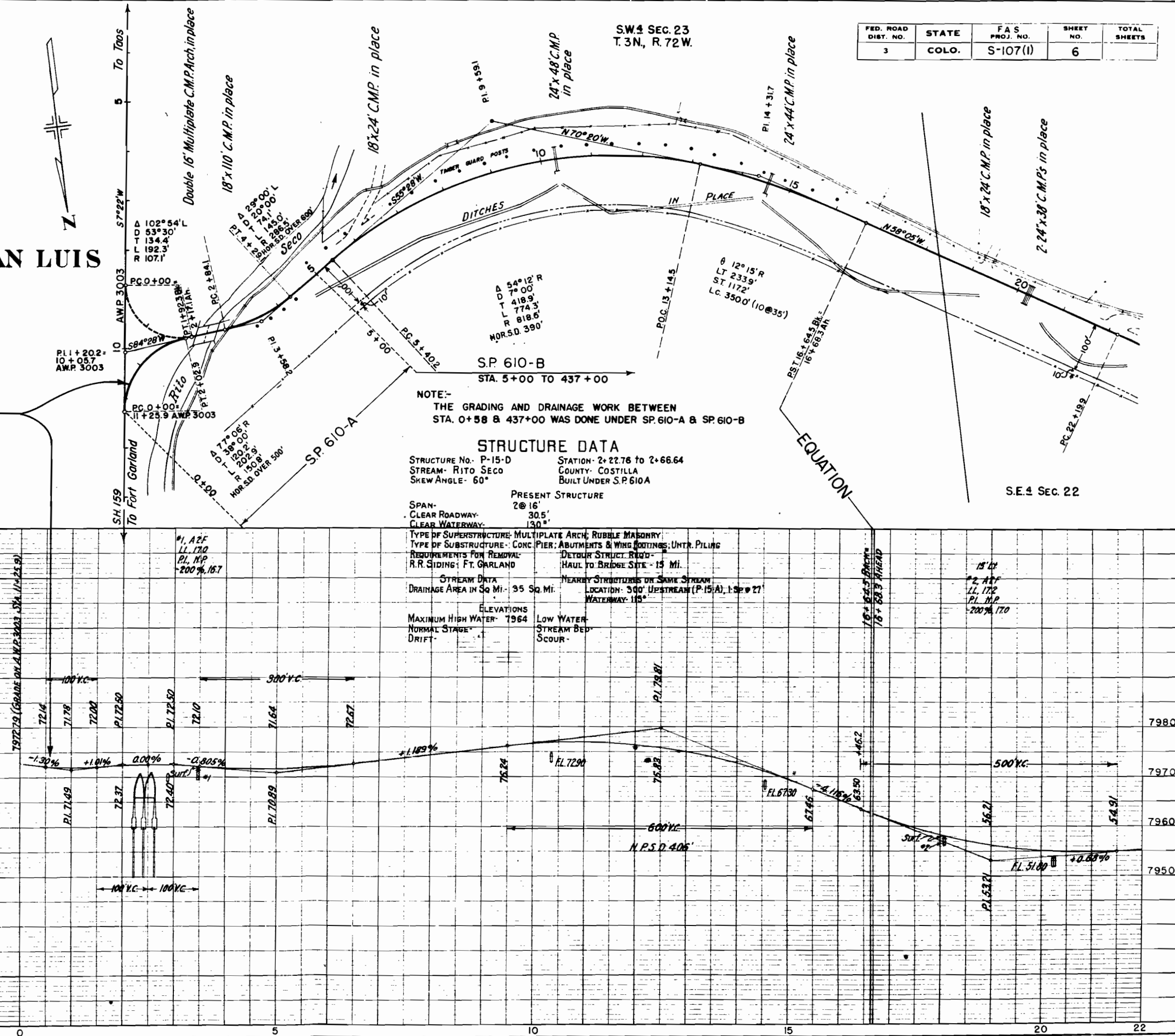
The soil data shown on the plans is obtained from best available testing laboratory information. This information is shown for the convenience of the Contractor and the Department does not guarantee the accuracy of these tests. If materials not conforming to the data on plans are encountered during construction,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

The Grade line shown on Plan & Profile sheets is the approximate profile Grade as constructed under W.P.A. Projects No. S.P.610-A & S.P.610-B.

SAN LUIS

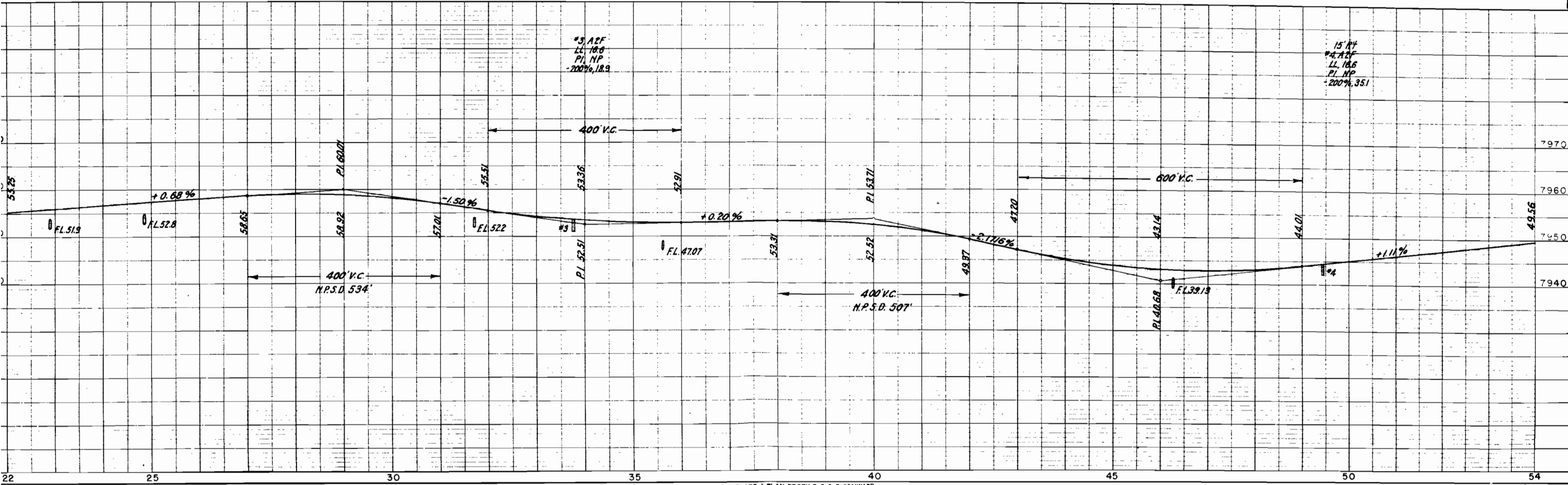
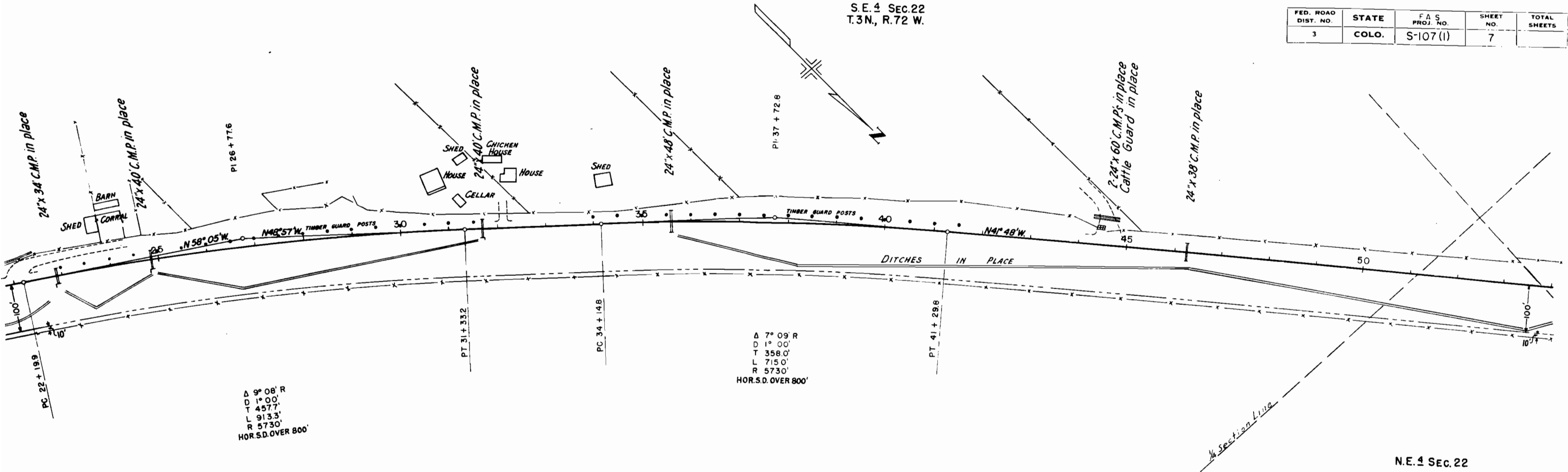
STA. 0+58 BEGINNING OF S-107(1)

35' WEST OF STA. 10+69.4 OF F.A.P. 24
11' WEST OF STA. 10+69.4 OF A.W.P. 3003
EQUALS STA. 0+58 OF S.P. 610-A



S.E. 4 SEC. 22
T.3N., R.72 W.

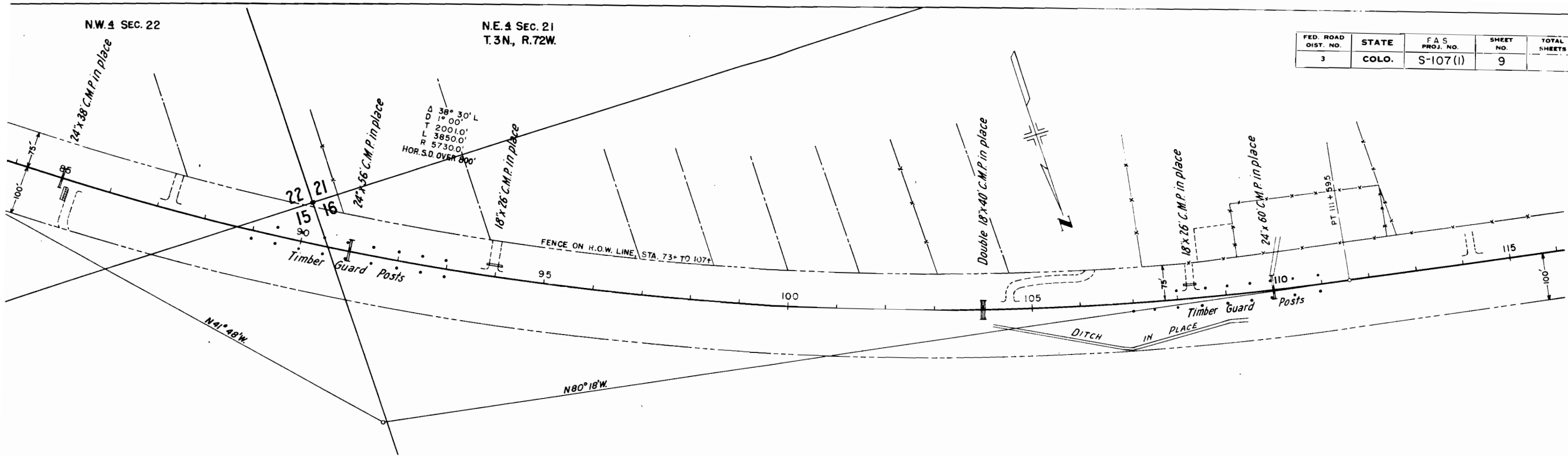
FED. ROAD DIST. NO.	STATE	F.A.S. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	S-107 (I)	7	



N.W. 4 SEC. 22

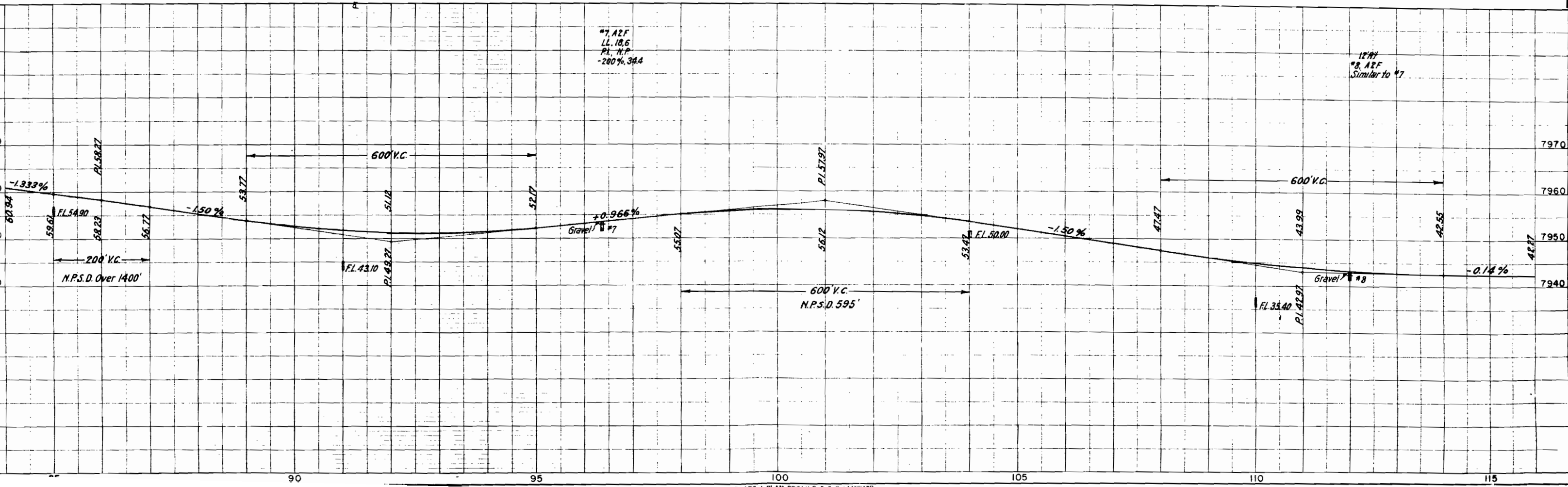
N.E. 4 SEC. 21
T.3N., R.72W.

FED. ROAD DIST. NO.	STATE	F.A.S. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	S-107(1)	9	

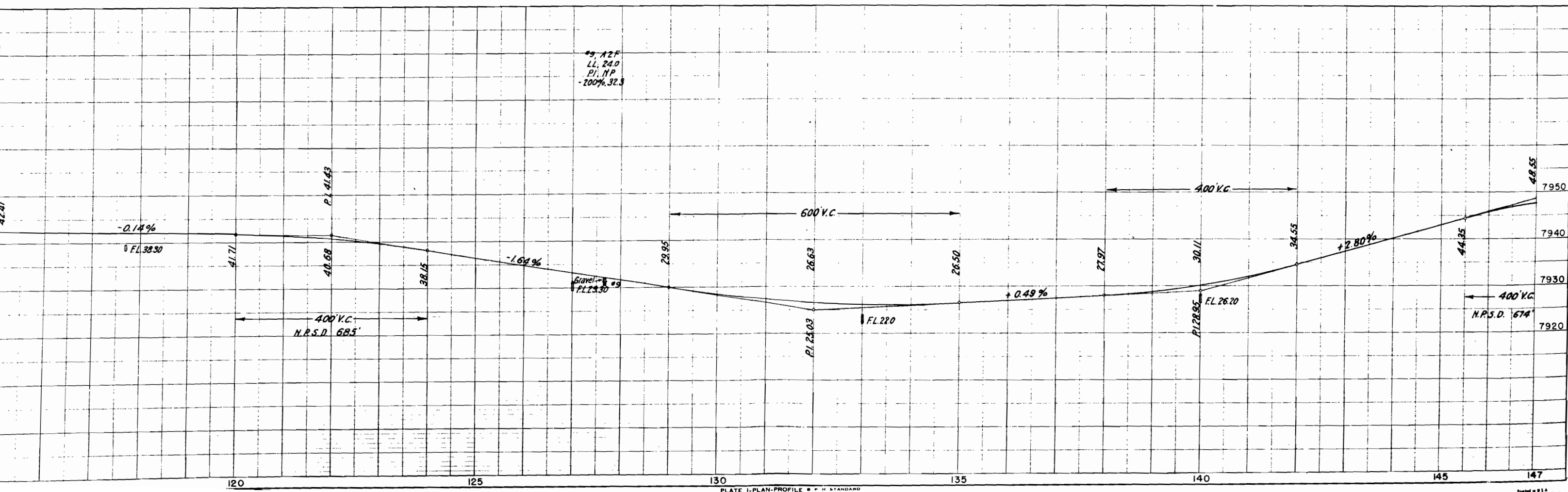
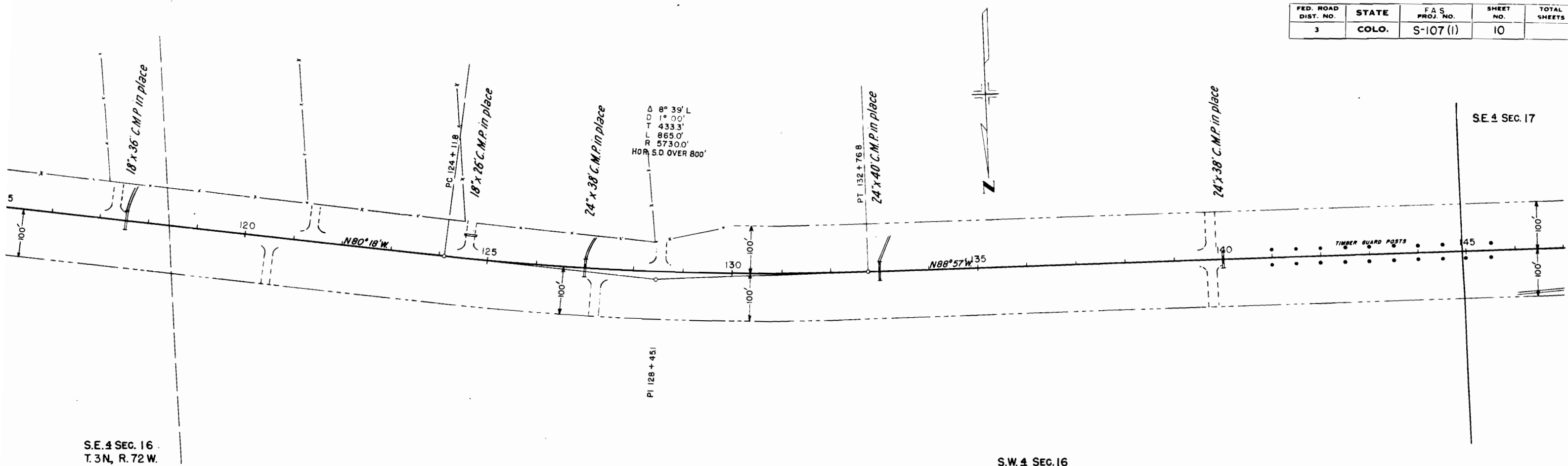


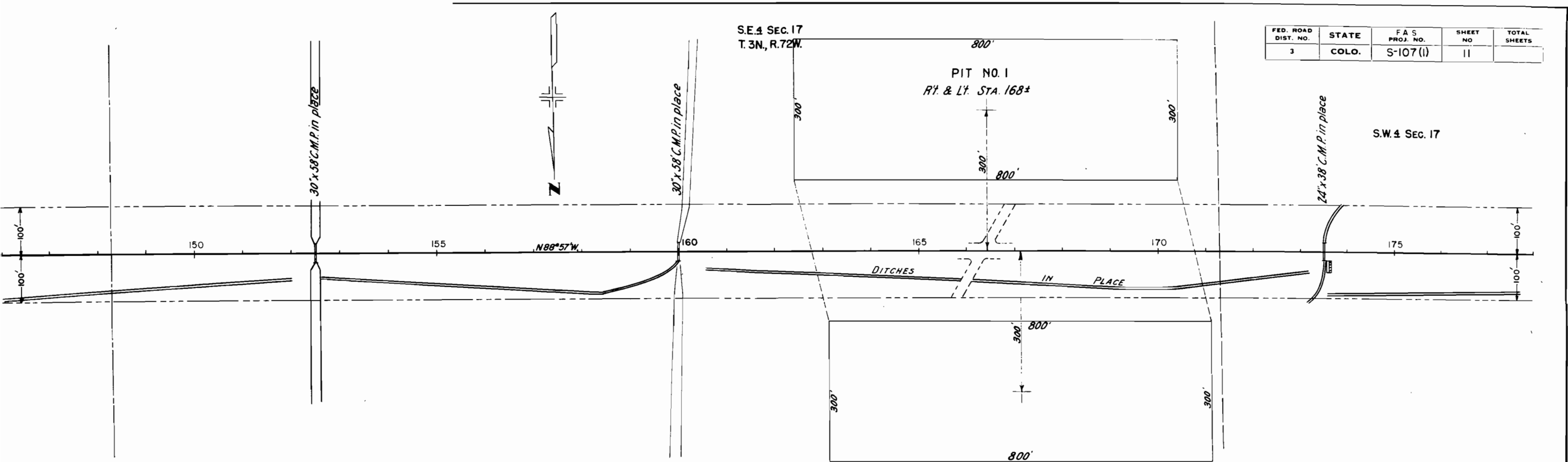
S.W. 4 SEC. 15

S.E. 4 SEC. 16

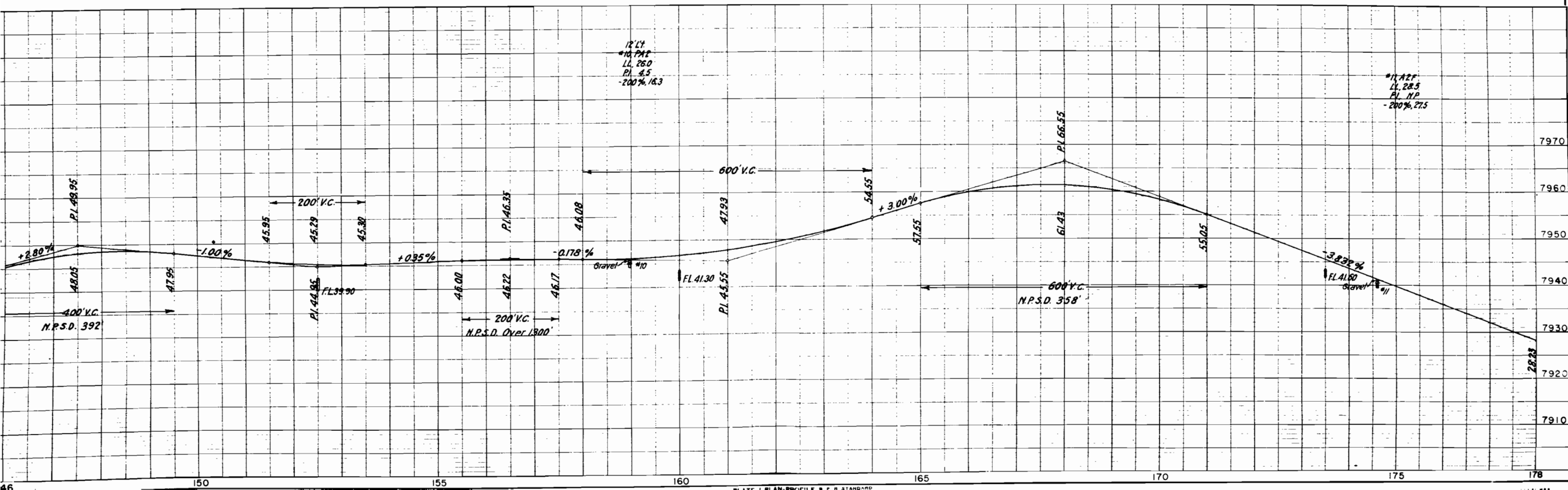


FED. ROAD DIST. NO.	STATE	F.A.S. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	S-107 (I)	10	





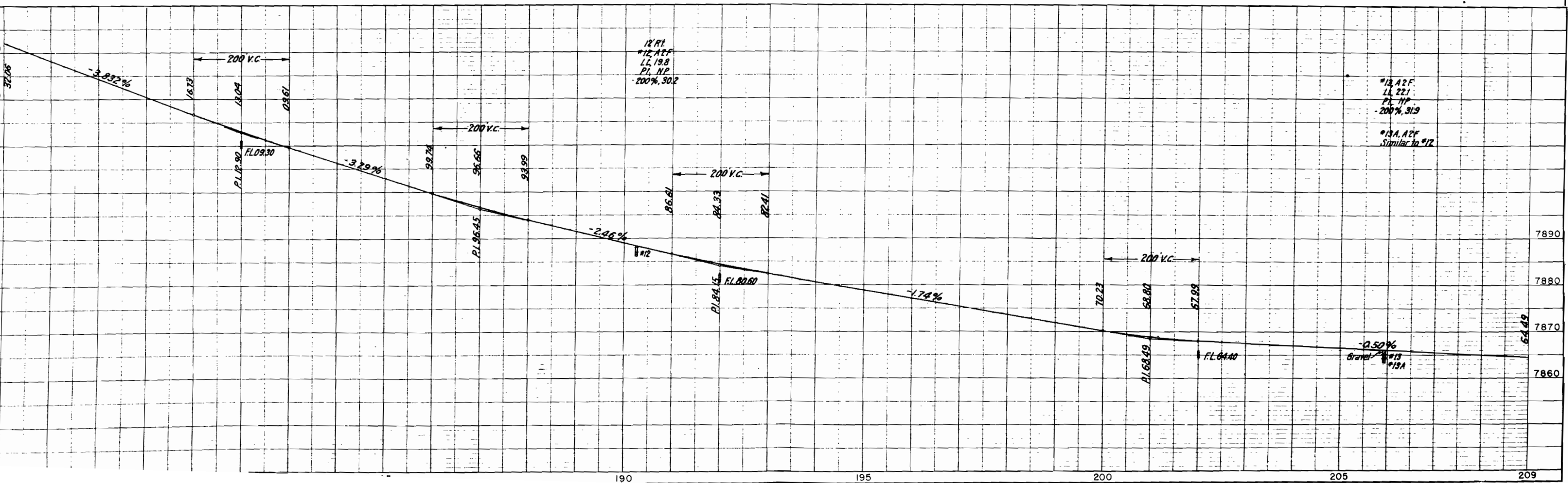
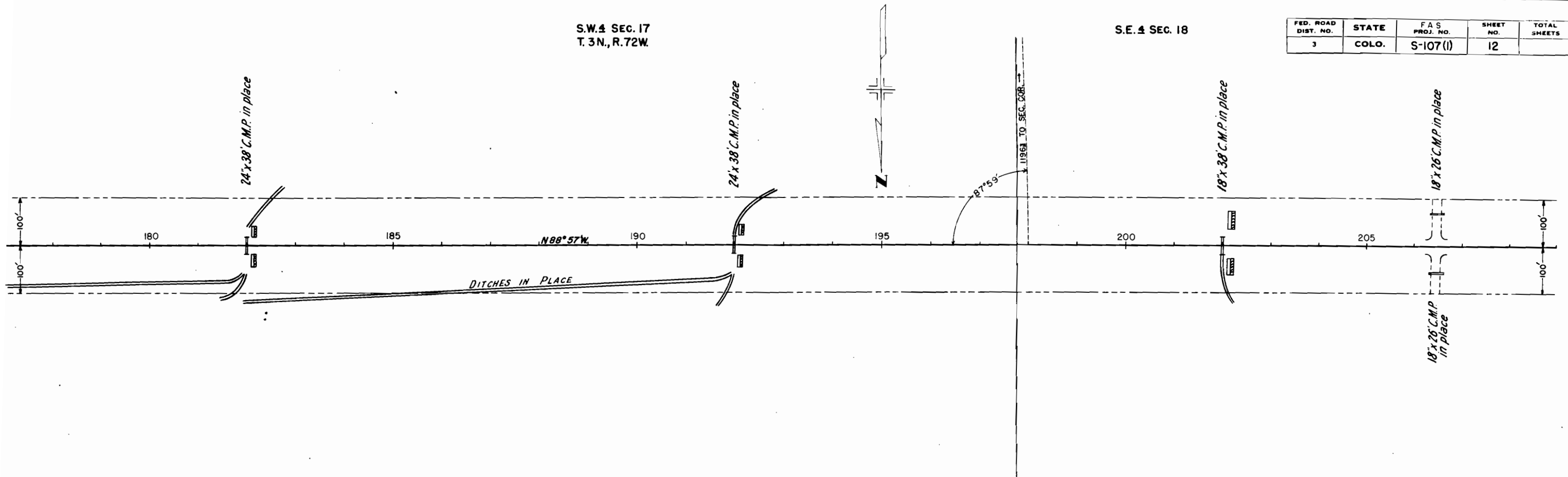
FED. ROAD DIST. NO.	STATE	F.A.S. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	S-107(I)	11	



S.W. 4 SEC. 17
T. 3 N., R. 72 W.

S.E. 4 SEC. 18

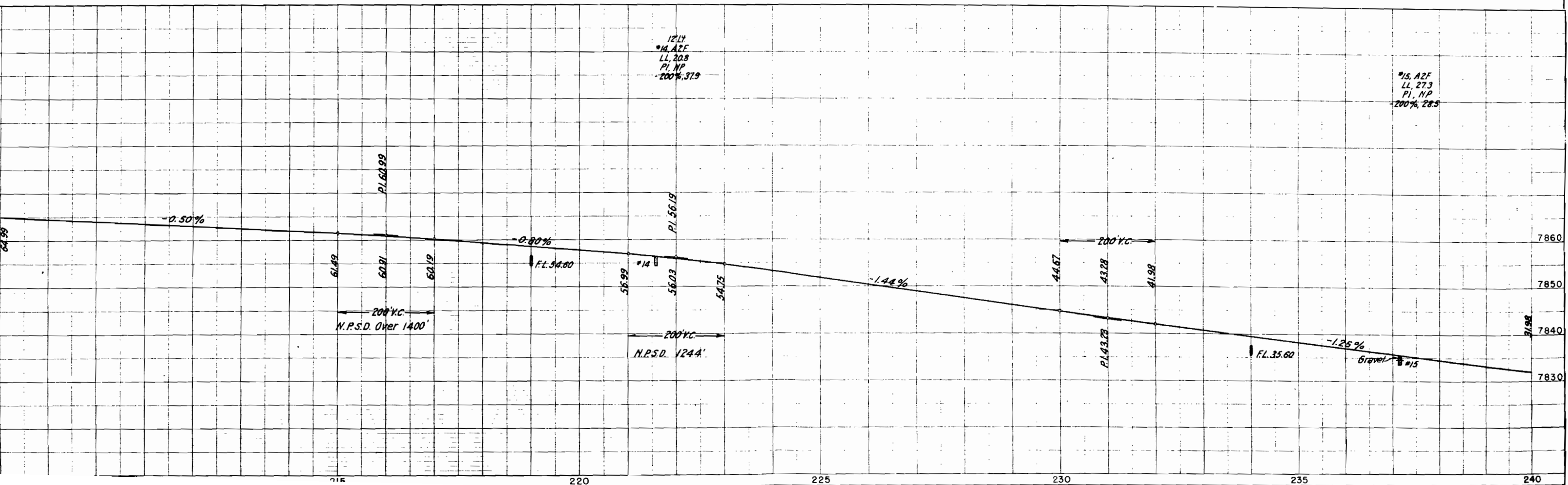
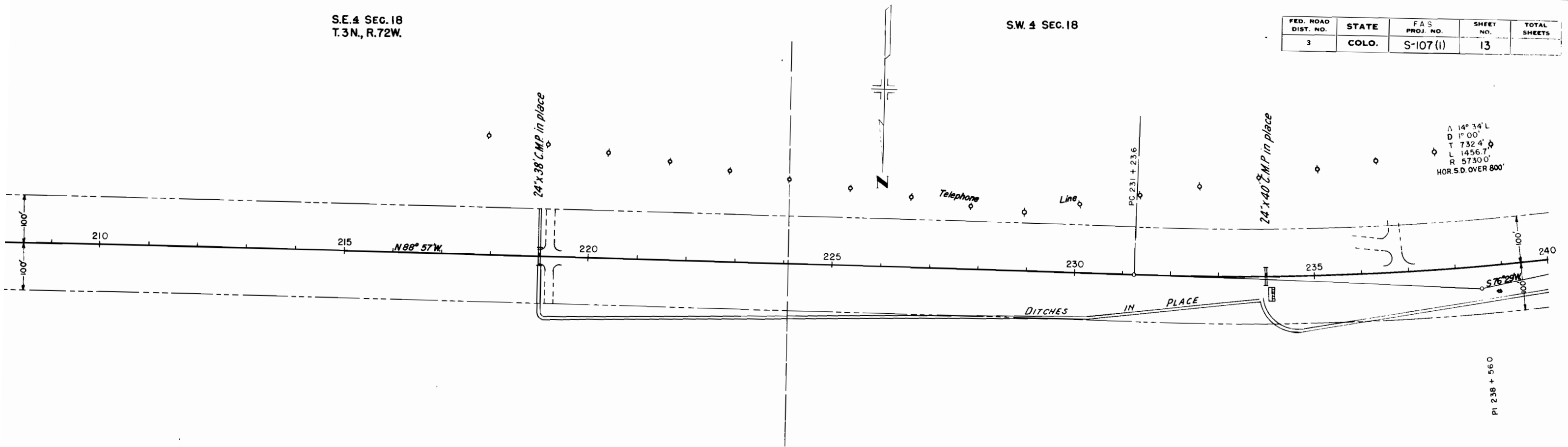
FED. ROAD DIST. NO.	STATE	FAS PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	S-107(I)	12	



S.E. 4 SEC. 18
T.3N., R.72W.

SW. 4 SEC. 18

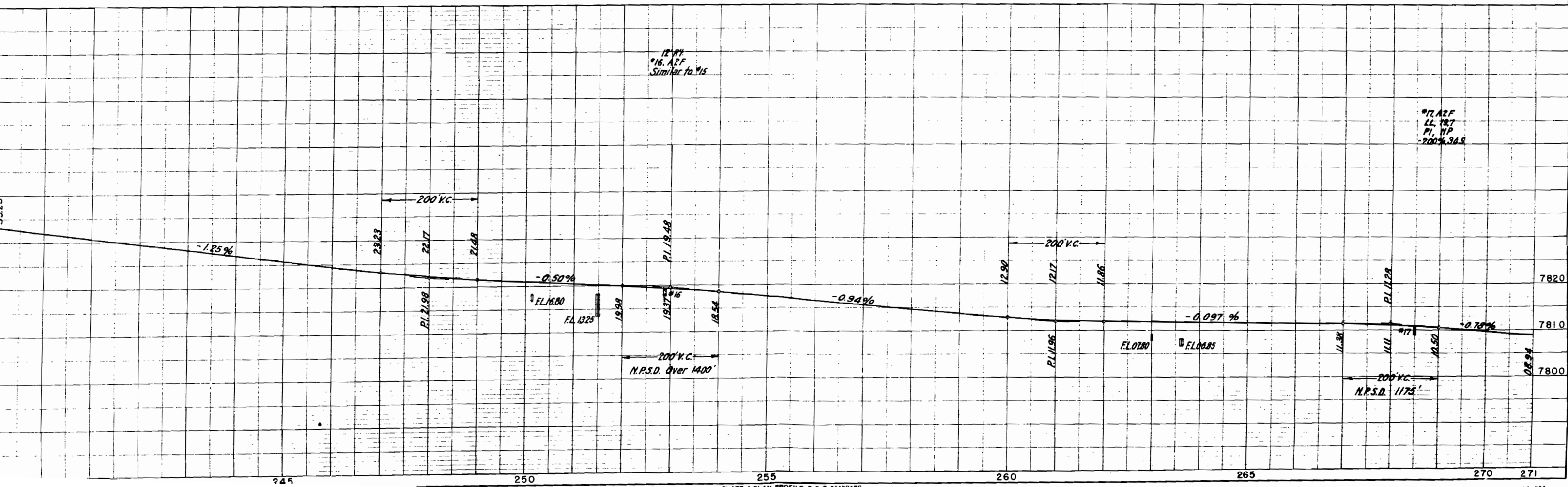
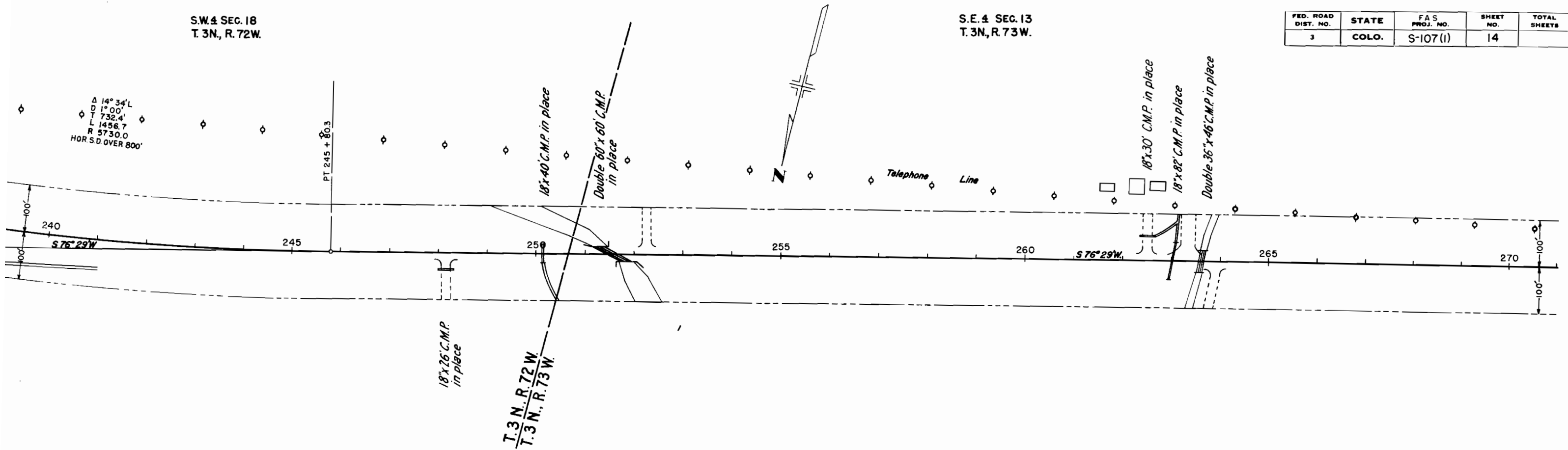
FED. ROAD DIST. NO.	STATE	FAS PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	S-107 (I)	13	



S.W. 1/4 SEC. 18
T. 3N., R. 72W.

S.E. 1/4 SEC. 13
T. 3N., R. 73W.

FED. ROAD DIST. NO.	STATE	F.A.S. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	S-107(1)	14	



N.W.4 SEC. 24
T.3N., R.73W.

FED. ROAD DIST. NO.	STATE	F.A.S. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	S-107(I)	15	

