

FED. ROAD DIST. NO.	STATE	P.W.A. PROJ. NO.	SHEET NO.	TOT. SHEET
3	COLO.	6007-D	1	

Rev. 5-13-37, A.P.B. Length

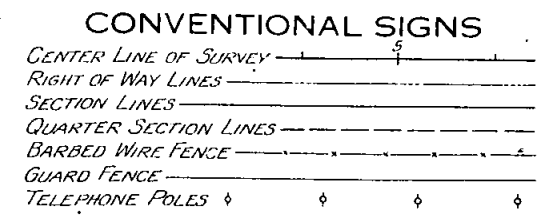
# COLORADO STATE HIGHWAY DEPARTMENT

## PLAN AND PROFILE OF PROPOSED P.W.A. DOCKET COLO. 804-D PROJECT NO. 6007-D STATE HIGHWAY NO. 2 JEFFERSON COUNTY

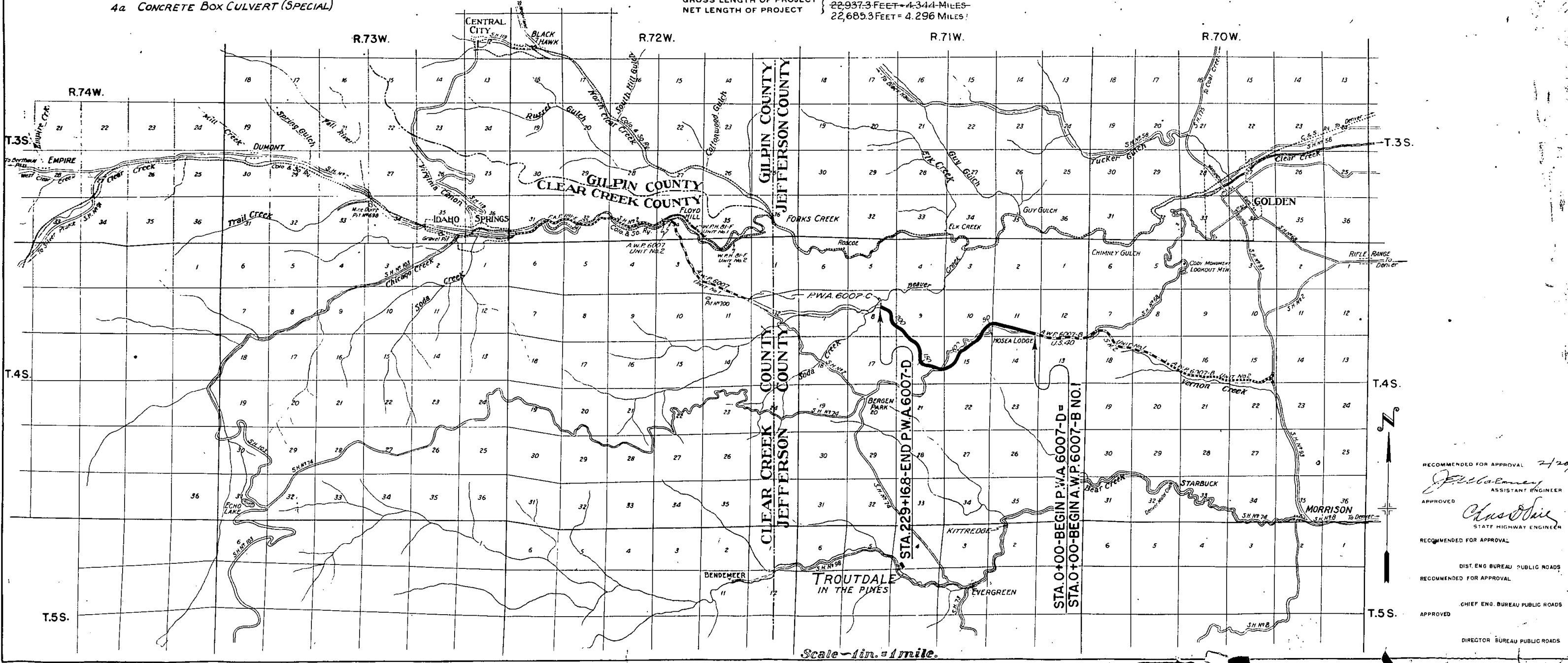
- ### INDEX OF SHEETS
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  3. TABULATION OF STRUCTURES
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  5. CONCRETE BOX CULVERTS
  6. STANDARD HEADWALLS FOR C.M.P. CULVERTS (SPECIAL SHEET)
  7. SEMI-RIGID METAL PLATE GUARD FENCE
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  9. WIRE FENCES (TREATED WOOD POSTS) AND MARKER POSTS
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- M-22-A
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- M-1-A
- M-2-BX

SCALES ON ORIGINAL TRACINGS  
ON PLAN, 1 IN. = 100 FT.  
ON PROFILE 1 IN. = 100 FT. HORIZONTAL  
1 1/2 IN. = 10 FT. VERTICAL  
GRADE LINE ON PROFILE IS SHOWN AS GRADE OF FINISHED ROAD  
GROSS LENGTH OF PROJECT } 22,937.3 FEET = 4.344 MILES  
NET LENGTH OF PROJECT } 22,685.3 FEET = 4.296 MILES



**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 CONSTRUCTION ENGINEER, DENVER, COLORADO  
FRED MILLER RESIDENT ENGINEER, DENVER, COLORADO  
E.E. MONTGOMERY DIVISION ENGINEER, DENVER, COLORADO



Scale - 1 in. = 1 mile.

RECOMMENDED FOR APPROVAL 7/20/37  
*J. H. Calhoun*  
ASSISTANT ENGINEER  
APPROVED  
*Chas. D. White*  
STATE HIGHWAY ENGINEER  
RECOMMENDED FOR APPROVAL  
DIST. ENG. BUREAU PUBLIC ROADS  
RECOMMENDED FOR APPROVAL  
CHIEF ENG. BUREAU PUBLIC ROADS  
APPROVED  
DIRECTOR BUREAU PUBLIC ROADS

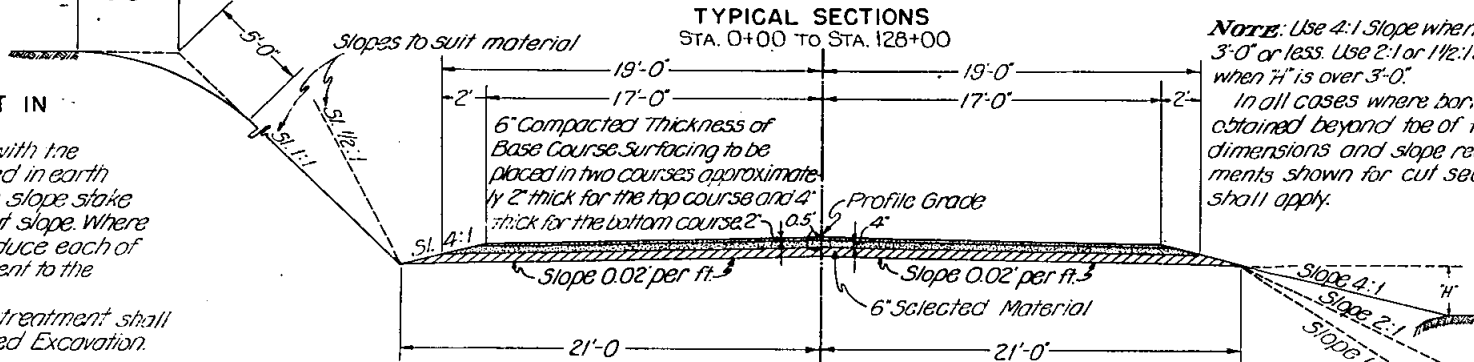
(Rev. 5-13-37, A.P.B. Sum)

# TYPICAL CROSS SECTION OF IMPROVEMENT AND SUMMARY OF QUANTITIES

## CUT SLOPE TREATMENT IN EARTH CUTS

The intersection of cut slopes with the existing ground shall be rounded in earth cuts, beginning 5 ft. outside the slope stake 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 slope treatment shall not be included in Unclassified Excavation.



The thickness of Gravel or Crushed Rock Surfacing is to be considered as approximate only. Surfacing shall be placed as follows:  
 4" Bottom Course at the rate of 75 Tons per 100 Lin. Ft. of Road.  
 2" Top Course at the rate of 35 Tons per 100 Lin. Ft. of Road.

Thruout the entire project the 6" underlying the subgrade as shown on the Typical Sections is to be constructed of Selected Material, which is to be classified and paid for as 'Unclassified Excavation.'

**NOTE:** Use 4:1 Slope when "H" is 3'-0" or less. Use 2:1 or 1 1/2:1 slope when "H" is over 3'-0".  
 In all cases where borrow is obtained beyond toe of fill, the dimensions and slope requirements shown for cut section shall apply.

## DETOUR REQUIREMENTS

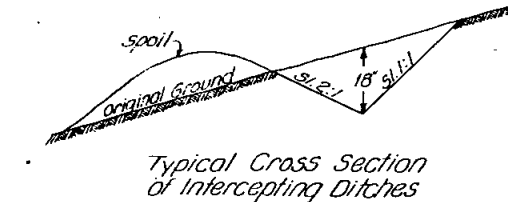
During construction of this project, traffic will use the present traveled roadway. At all places on project where construction encroaches on present road, traffic must be adequately provided for at the contractor's expense. Also the contractor shall, at his own expense, construct and maintain all temporary approaches to and crossings of intersecting roads.

**NOTE:** Throughout this project material in cuts suitable for use as Selected Material in topping fills shall be placed as directed by the Engineer. Actual overhead will be allowed and paid for hauling this material to meet construction requirements.

## SELECTED MATERIAL

Selected Material shall be placed and spread on the subgrade approximately 6 inches thick at the rate of 85 Cu Yds. per 100 lin. ft. of 34 ft. roadway and 77 Cu Yds. per 100 lin. ft. of 30 ft. roadway thruout the entire project. This Selected Material shall be classified and paid for as 'Unclassified Excavation.' It is estimated that the material will be obtained in the vicinity of pits indicated in the tabulation below. The estimated quantities involved in the placing of Selected Material are shown below:

MATERIAL TO BE PLACED	QUANTITY	SOURCE OF MATERIAL	ESTIMATED OVERHAUL	TOTAL
STA. TO STA.	Cu Yds.		STA. YDS.	YD. MI.
34 FT. ROADWAY				
0+00 to 121+75	10430	Pit 500' Rt. Sta. 132	114730	12120
121+75 to 128+00	340	" " " "	4190	
Yl. Appr. to Bergen Pk.	290	" " " "	3070	10
Ye. Appr. to Bergen Pk.	230	" " " "	2260	40
TOTALS 34' Rdwy.	11490		129450	12170
30 FT. ROADWAY				
128+00 to 143+00	1220	Pit 500' Rt. Sta. 132	5540	
143+00 to 143+26	30	" " " "	240	10
143+26 to 143+53	30	Pit 500' Lt. Sta. 15.5	240	10
143+53 to 166+00	1700	" " " "	9330	
166+00 to 229+16.8	4810	" " " "	52830	2840
TOTALS 30' Rdwy.	7290		68180	2860
PROJECT TOTALS	19280		192630	15030



The thickness of Gravel or Crushed Rock Surfacing is to be considered as approximate only. Surfacing shall be placed as follows:  
 4" Bottom Course at the rate of 67 Tons per 100 Lin. Ft. of Road.  
 2" Top Course at the rate of 33 Tons per 100 Lin. Ft. of Road.

## GENERAL NOTES

This Project is to be constructed in accordance with the Standard Specifications of the Colorado State Highway Department adopted August 1, 1935.

All quantities on preliminary plans are to be considered as 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 ditches 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 embankment conditions actually encountered in construction.

All curves are to be super-elevated as provided for by the Standard Super-elevation Sheet included with the plans.

All corrugated metal cross culverts are to be provided with one headwall on the inlet end unless otherwise noted on the plans.

All poles encroaching on construction shall be moved by the owners. Except as otherwise noted on the plans, Overhaul will be paid for as measured along the center line of the Project.

All side approach roads to the Project shall be gravel surfaced with a 4" thickness of Gravel or Crushed Rock Surfacing extending approximately 30 feet from edge of highway. Estimated tonnage of surfacing material required in this operation is shown in List of Structures.

Clearing & Grubbing widths will vary to fit construction requirements. From Sta. 0 to 128 the R.O.W. shall be cleared between cut slope stakes and a line approximately 10 ft. inside fill slope stakes before grading operations commence. After completion of grading the R.O.W. shall be cleared to 8 ft. outside of the cut slopes and to the toe of fills on fill slopes. Trees inside toes of slopes shall be cut off flush with fill slopes after embankments are completed.

From Sta. 128 to the end of project the R.O.W. shall be cleared for the full width on the left side of center line. On the right the R.O.W. shall be cleared to the cut slope stake where roadway is in cuts, and where roadway is in fills shall be cleared to line approximately 10 ft. inside of toe of fill slopes before grading work commences. After grading is completed trees inside of toes of slopes shall be cut off flush with fill slopes and on cuts to a line 8 ft. back of slope. Over the entire project shooting shall be done in such a manner as to avoid damaging timber beyond clearing limits. Excavated material shall be kept within limits of fill slopes and material rolling or extending beyond toe of slopes shall be brought back to toes of slopes by the contractor at his expense.

## 1/2 CUT SECTION - 1/2 FILL SECTION

STA. 128+00 TO STA. 229+16.8 AND BERGEN PARK CONNECTION

## R.O.W. MARKERS

STATION	SIDE	NO.	STATION	SIDE	NO.
15+59	L	1	123+25-0+00 Bergen		
15+95	R	1	1/2 Line Bergen Park		
22+00	ReL	2	Connection	L	1
24+00	ReL	2			
32+00	ReL	2	Totals 34ft. Roadway		50
34+00	ReL	2			
43+00	ReL	4	139+00	R	2
46+34	L	1	144+69.3	L	2
47+40	R	1	147+43	L	1
57+00	ReL	2	143+02	R	1
59+00	ReL	2	149+40	R	1
68+05	L	1	150+54	L	1
68+42	L	1	156+41.3	L	2
69+60	R	1	175+23.4	ReL	4
70+00	R	1	180+65	R	1
77+00 BK-76+02.34	L	2	180+76	R	1
79+00	L	2	181+20	L	1
81+63	R	1	181+25	L	1
83+28	L	1	198+00	L	1
85+00	R	2	198+83	R	1
90+00	R	2	202+46.1	ReL	4
94+96.1	ReL	2	209+66.48-209+16.74	R	2
97+11.1	ReL	2	210+51.4	L	2
106+13.7	L	2	216+88	R	1
110+20	L	1	217+48.7	L	2
117+69	R	1	220+70	L	1
117+00-01+00 Begin			220+36.1	R	2
1/2 Line Bergen Park			229+16.8	R	1
Connection	L	1			
121+30	R	1			
310.47, Line Bergen					
Park Connection	R	1			
4+49.51, Line Bergen					
Park Connection	ReL	2			
110+63	R	1	Totals 30ft. Roadway		35
114+55	R	1			
			Project Totals-		85

STATION	SIDE	REMOVE FENCE LIN. FT.	REMOVE AND REBUILD FENCE LIN. FT.	BUILD BARR. WIRE FENCE LIN. FT.	BUILD COMB. WIRE FENCE LIN. FT.	REMOVE & RESET GATES EA.	GATES - EA.
61+37-62+67	L		160	540			
84+67-89+93	L						
84+77	X	270					
86+20-89+72	R			360			
89+50	R						
89+80	X	160					
110+05-117+00	ReL		790				
Rebuild Fence Lt.	R						
115+85 (Reset Lt.)	R						
BERGEN PARK CONNECTION:							
0+00 1/2 Line-7+02.2	L		720				
TOTALS 34ft. Rdwy							
		430	1670	900		1	1
144+65-149+70	R, L, X	1150					
144+65-158+18	R			1320			
145+63-157+35	L			1270			
146+15	L						
146+90	ReL						1
157+72	X	150					
157.35-189+12	L			3120			
158+18-189+25	R			3100			
188+20	X	110					
219+47	X	320					
TOTALS - 30 ft. Rdwy							
		1730		8810			3
NOTE: Fencing requirements from Sta. 0+00 to 26+ to be constructed by the City of Denver. (Force Account).							
PROJECT TOTALS-		2160	1670	9710		1	1

## SUMMARY OF APPROXIMATE QUANTITIES

No.	DESCRIPTION	UNIT	34 FT. ROADWAY	30 FT. ROADWAY	PROJECT TOTALS
100	Clearing & Grubbing Entire Project	Lump Sum			
101	Clearing & Grubbing Entire Project	Lump Sum			
110	Removal of 5 Structures	Lump Sum			
111	Removing Portions of Golden Water Line	Lin. Ft.	2000		2000
112	Removing & Resetting Signs	Each	1		1
113	Moving & Resetting Wood Picnic Bench, Sta. 166	Lump Sum			
114	Removing Guard Fence	Lin. Ft.	200		200
115	Removing Fence	Lin. Ft.	500	1800	2300
116	Removing & Rebuilding Fence	Lin. Ft.	1700		1700
117	Removing & Resetting Gates	Each	1		1
118	Unclassified Excavation	Cu. Yd.	193,000	107,000	300,000
119	Cut Slope Treatment	Mi.	2.1	1.7	3.8
120	Dry Rock Excavation (Struct)	Cu. Yd.	110	290	400
121	Dry Common Excavation (Struct)	Cu. Yd.	170	430	600
122	Wet Rock Excavation (Struct)	Cu. Yd.	30	80	110
123	Wet Common Excavation (Struct)	Cu. Yd.	50	110	160
124	Station Yard Overhaul	Sta. Yd.	422,000	77,000	499,000
125	Yard Mile Overhaul	Yd. Mi.	13,000	3,000	16,000
126	Gravel or Crushed Rock Surfacing	Ton	15,000	10,500	25,500
460	Class A Concrete	Cu. Yd.	106	376	482
47	Reinforcing Steel	Lb.	3500	26,000	35,500
48	Cement Rubble Masonry	Cu. Yd.	38	51	89
530	15" Corrugated Metal Culvert Pipe	Lin. Ft.	40		40
531	18" Corrugated Metal Culvert Pipe	Lin. Ft.	308	40	348
532	24" Corrugated Metal Culvert Pipe	Lin. Ft.	1002	1402	2404
533	36" Corrugated Metal Culvert Pipe	Lin. Ft.	452	(222)	674
75x	Metal Plate Guard Fence	Lin. Ft.	5720	3480	9200
760	Barbed Wire Fence with Tr. Wooden Posts	Lin. Ft.	1000	9000	10,000
767	Barbed Wire Gates	Each		3	3
767	Driveway Gates	Each	1		1
81a	Project Markers	Each		1	1
81b	Right of Way Markers	Each	50	35	85
FORCE ACCOUNT ITEMS:					
	Removing 230 Lin. Ft. Water Line & replacing with 230 Lin. Ft. 12" Cast Iron Pipe Sta. 19	Lump Sum			
	Removing & Rebuilding 2902 Lin. Ft. Water Line Sta. 69+ to 94+	Lump Sum			
	Move Rest House off R.O.W. Sta. 88+	Lump Sum			
	Removing 150 Lin. Ft. Water Line & replacing with 150 Lin. Ft. 14" Cast Iron Pipe Sta. 105+	Lump Sum			
	Move Chicken House off R.O.W. Sta. 145+	Lump Sum			
	Removing 220 Lin. Ft. Water Line & replacing with 220 Lin. Ft. 14" Cast Iron Pipe Sta. 147+ to 148+	Lump Sum			
	Remove & Rebuild Fence, Sta. 0+00 to 26+	Lump Sum			
	Laying Temporarily 2800 Lin. Ft. 4" Standard Galvanized Pipe, Sta. 69+ to 94+	Lump Sum			
	Move Shed House & Rest House off R.O.W. Sta. 136+	Lump Sum			
	Relaying 9/4" Pipe Line Sta. 136+	Lump Sum			
* (Work by City of Denver Force Account)					
PROJECT TOTALS-					



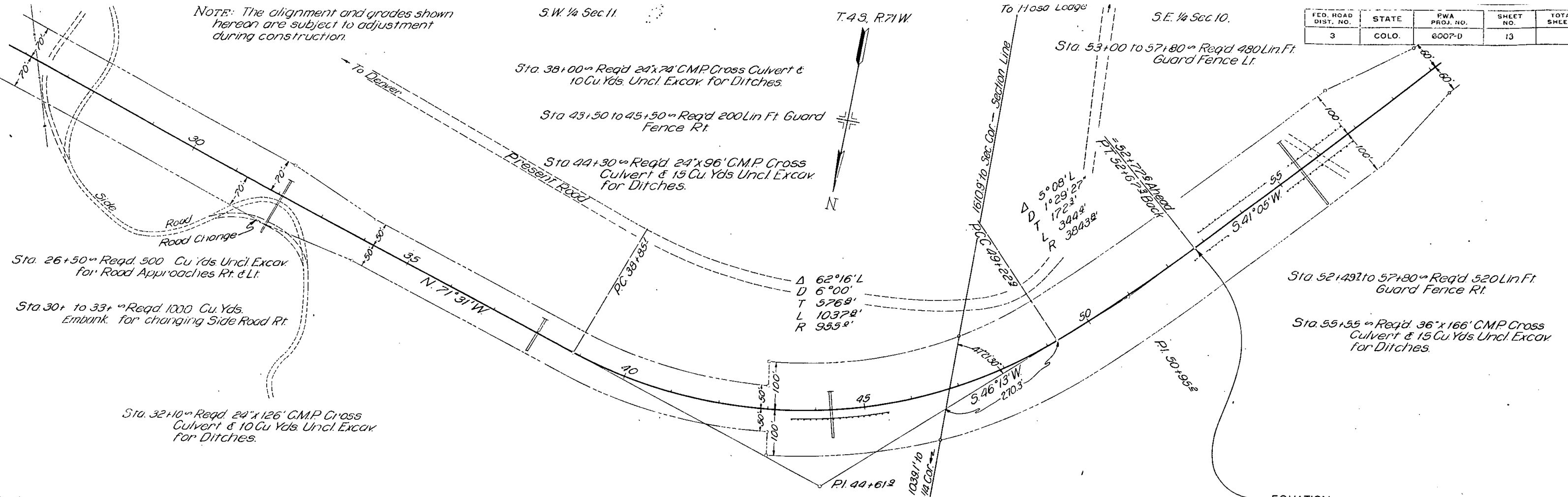
NOTE: The alignment and grades shown hereon are subject to adjustment during construction.

S.W. 1/4 Sec. 11.

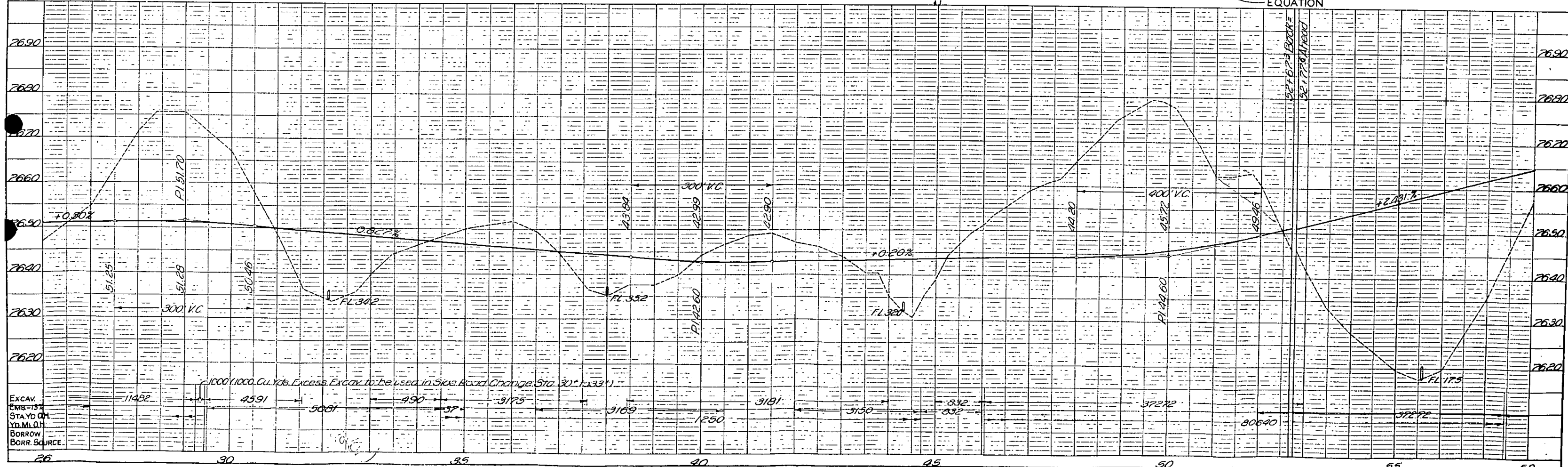
T.4S, R.71W

S.E. 1/4 Sec. 10.

FED. ROAD DIST. NO.	STATE	PWA PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	6007-D	13	



EQUATION



EXCAV.	EMB.	STA. YD. ON	YD. M.D.H.	BORROW	BORR. SOURCE
26					
		30			
		35			
		40			
		45			
		50			
		55			
		58			

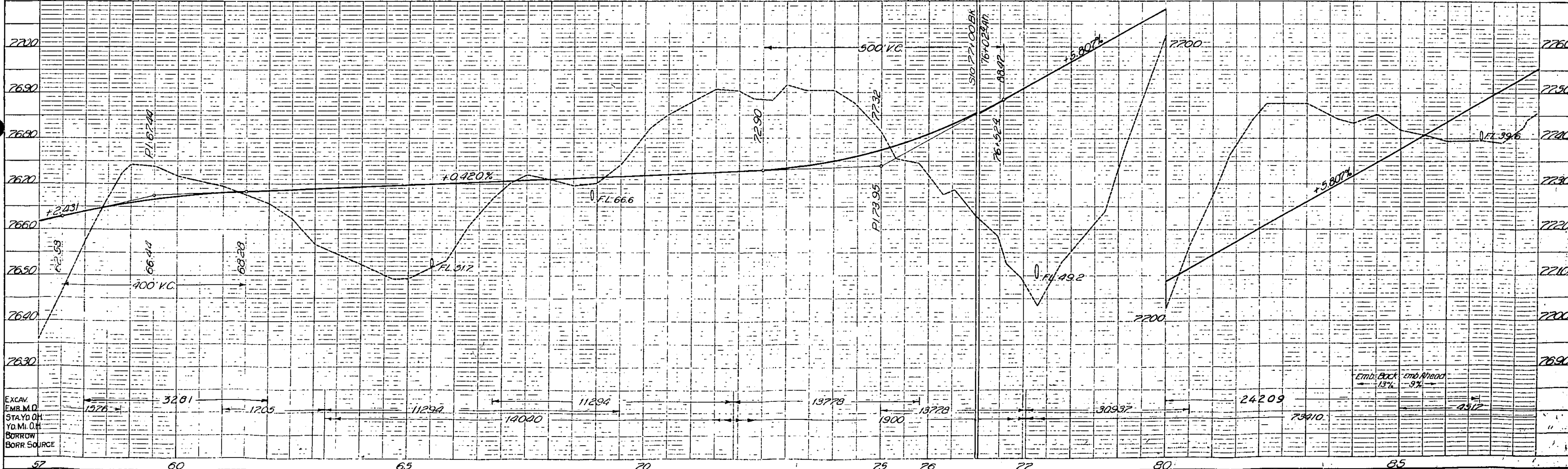
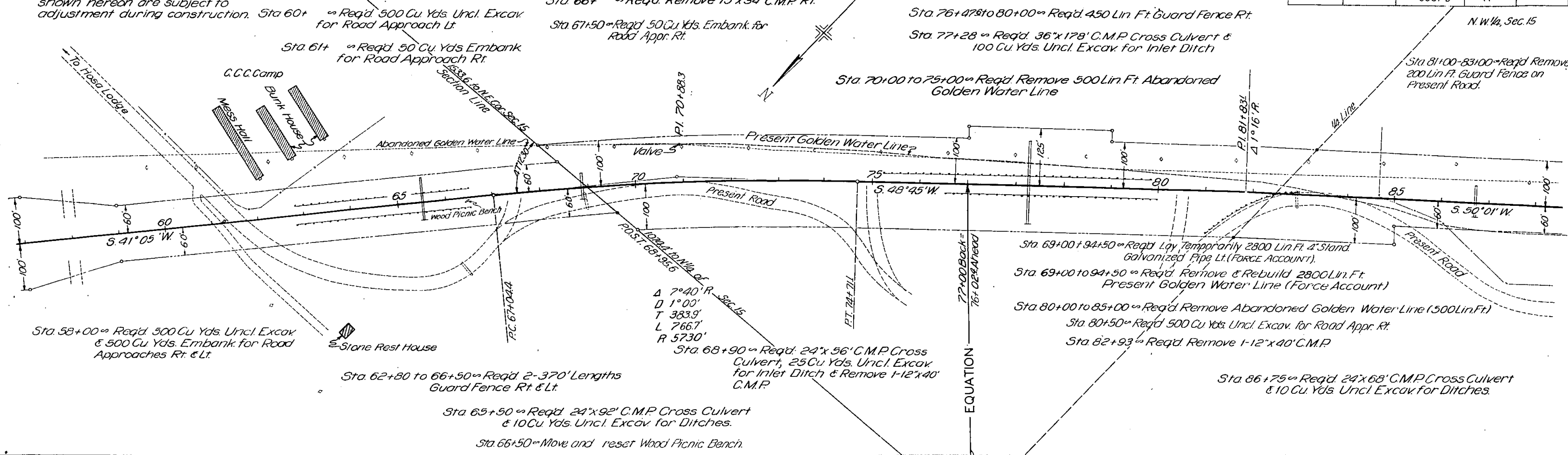
S.E. 1/4 Sec. 10

N.E. 1/4 Sec. 15

T.2S, R.71W

FED. ROAD DIST. NO.	STATE	PWA PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	6007-D	14	

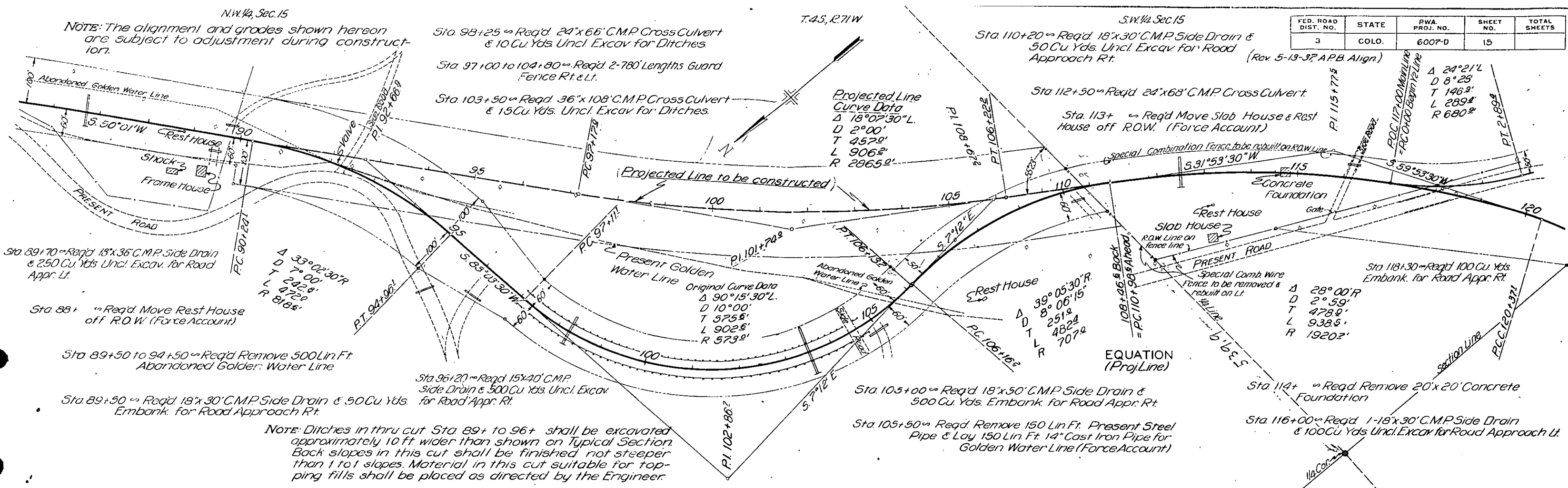
NOTE: The alignment and grades shown hereon are subject to adjustment during construction.



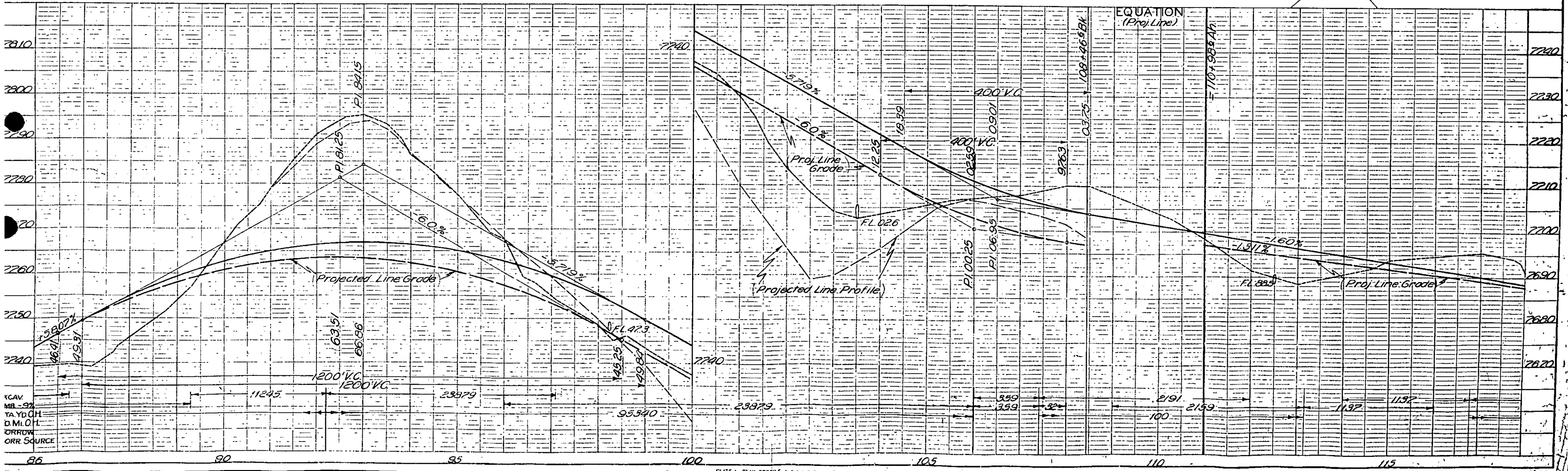
Excav.	Embankment
1526	3281
1705	11292
14000	11294
13778	13778
1900	30937
	24209
	73910
	4512

NOTE: The alignment and grades shown hereon are subject to adjustment during construction.

FED. ROAD DIST. NO.	STATE	PWA PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	6007-D	15	



Note: Ditches in thru cut Sta 89+ to 96+ shall be excavated approximately 10 ft wider than shown on Typical Section. Back slopes in this cut shall be finished not steeper than 1 to 1 slopes. Material in this cut suitable for topping fills shall be placed as directed by the Engineer.

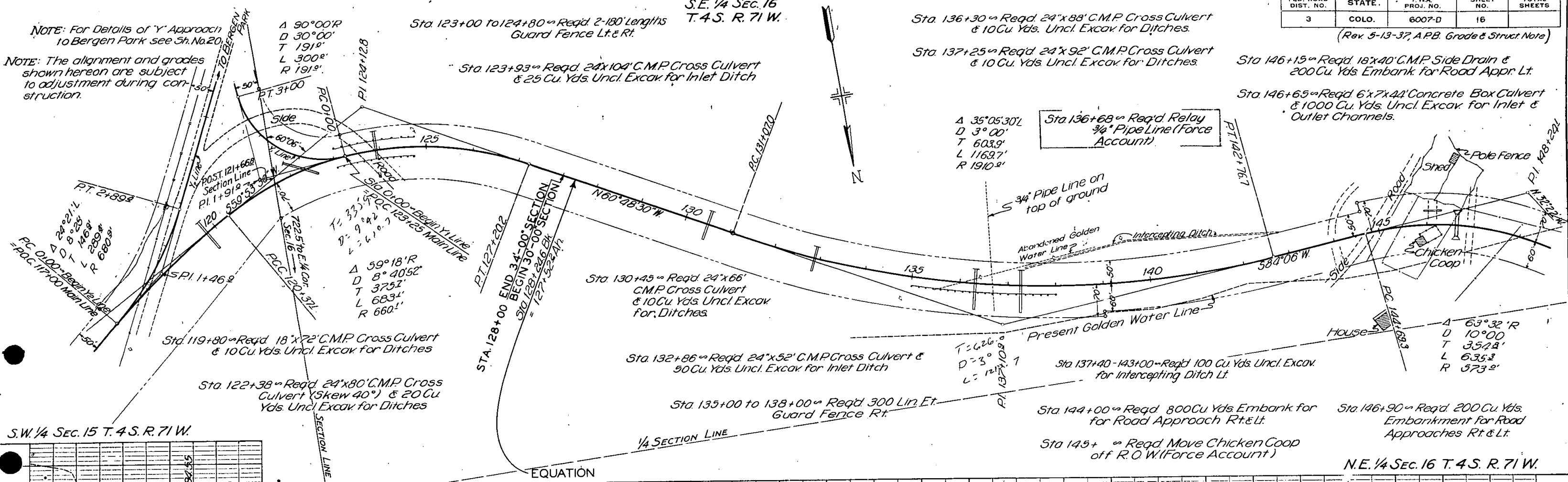


XC AV. MB - 92 TA. YD CH D. MI. O. L. ORROW. ORR. SOURCE

(Rev. 5-13-37, A.P.B. Grade & Struct. Note)

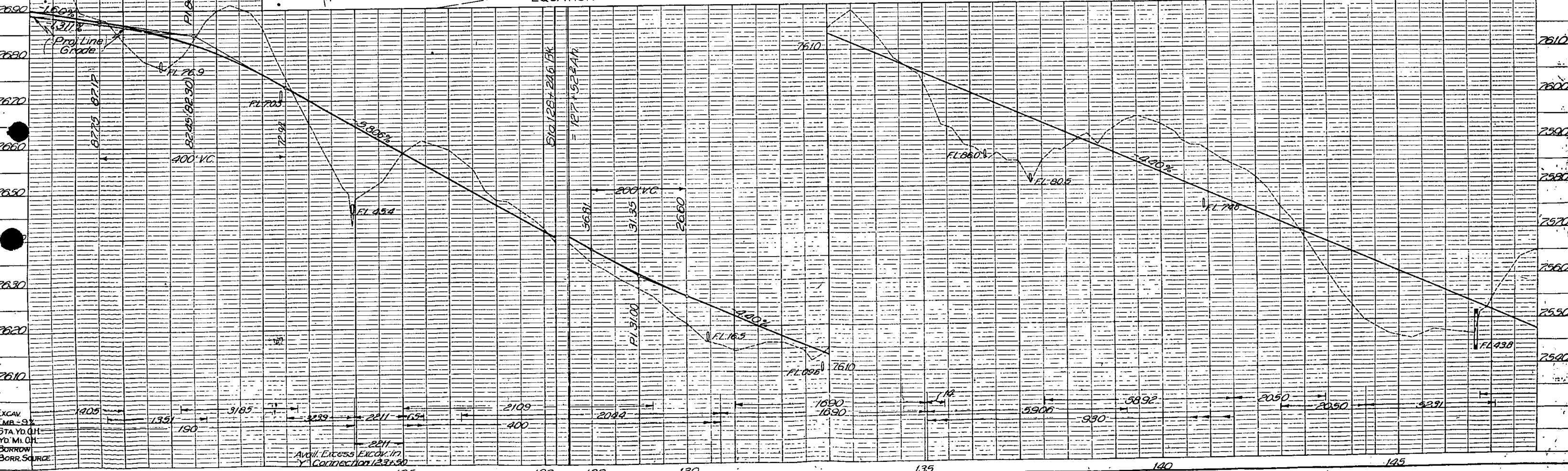
NOTE: For Details of Y Approach to Bergen Park see Sh. No. 20.

NOTE: The alignment and grades shown hereon are subject to adjustment during construction.



S.W. 1/4 Sec. 15 T. 4 S. R. 71 W.

N.E. 1/4 Sec. 16 T. 4 S. R. 71 W.



EXCAV	FMB - 3%	STA. YD. CH.	YD. MI. CH.	BORROW	BORR. SOURCE
1405	1351	190	3185	2239	2211
				400	2044
					1050
					1690
					5906
					930
					5892
					2050
					2050
					5291

AVAIL. EXCESS EXCAV. IN Y CONNECTION 123+00

N.W. 1/4 Sec 16 T.4S, R.71W

FED. ROAD DIST. NO.	STATE	PWA PROJ. NO.	SHEET NO.	TOTAL SHEETS
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Sta. 147+00 to 148+90<sup>m</sup> Req'd Remove 220 Lin. Ft Present Steel Pipe & Lay 220 Lin. Ft. 14" Cast Iron Pipe for Golden Water Line (Force Account)  
 Sta. 150+25<sup>m</sup> Req'd 24'x46' C.M.P. Cross Culvert with Intercepting Headwall & 100 Cu. Yds Uncl. Excav for Inlet & Outlet Ditches.

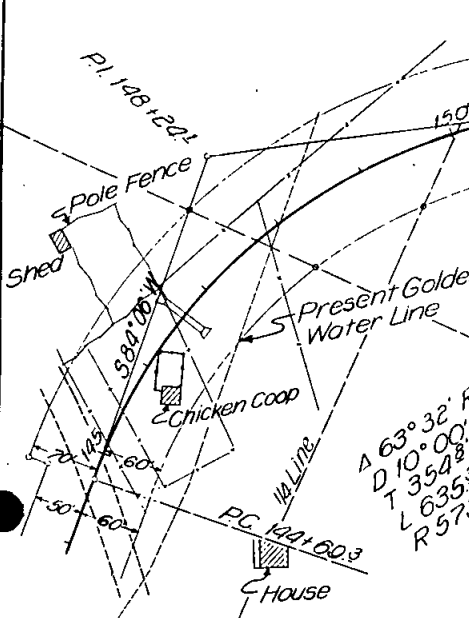
Sta. 155+10<sup>m</sup> Req'd 6'x7'x72' Concrete Box Culvert & 30 Cu. Yds. Uncl. Excav for Inlet & Outlet Channels

Sta. 163+06<sup>m</sup> Req'd 24'x74' C.M.P. Cross Culvert & 10 Cu. Yds Uncl. Excav for Ditches.

Sta. 176+40 to 179+00<sup>m</sup> Req'd 260 Lin. Ft. Guard Fence Lt.

Sta. 176+40 to 179+40<sup>m</sup> Req'd 300 Lin. Ft. Guard Fence Rt.

Sta. 177+70<sup>m</sup> Req'd 36'x128' C.M.P. Cross Culvert & 10 Cu. Yds. Uncl. Excav for Ditches.

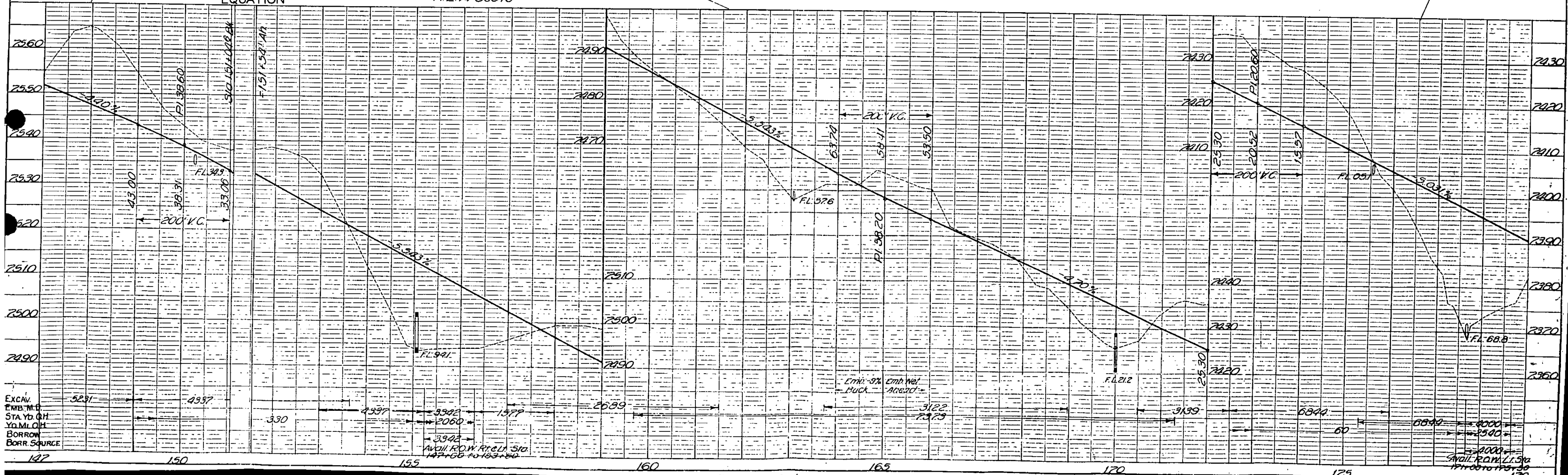


NOTE: The alignment and grades shown hereon are subject to adjustment during construction.

SE 1/4 Sec 16

EQUATION

NE 1/4 Sec 16



FED. ROAD DIST. NO.	STATE	RWA PROJ. NO.	SHEET NO.	TOTAL SHEETS
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(Rev 5-13-37 APB, 51 Struct.)

Sta 178+75 Req'd. 24'x98' C.M.P. Cross Culvert.

NOTE: The alignment and grades shown hereon are subject to adjustment during construction.

Sta 185+45 Req'd. 24'x62' C.M.P. Cross Culvert with Intercepting Headwall & 20 Cu. Yds. Uncl. Excav. for Inlet Ditch

Sta 188+23 Req'd. 24'x56' C.M.P. Cross Culvert with Intercepting Headwall & 20 Cu. Yds. Uncl. Excav. for Inlet Ditch

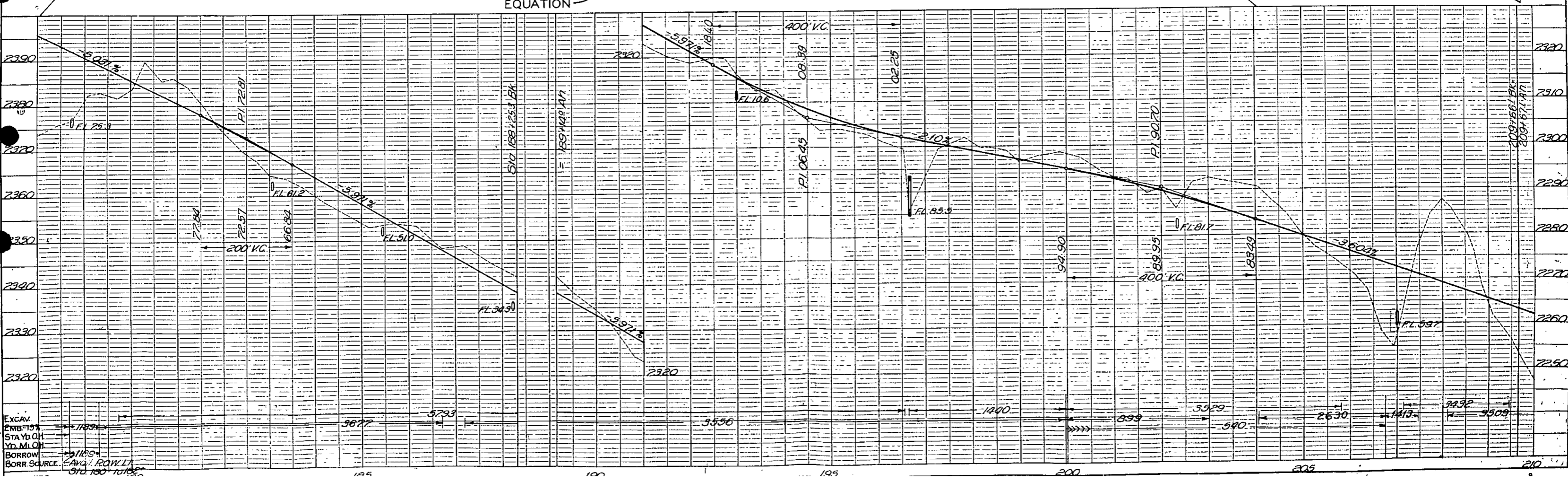
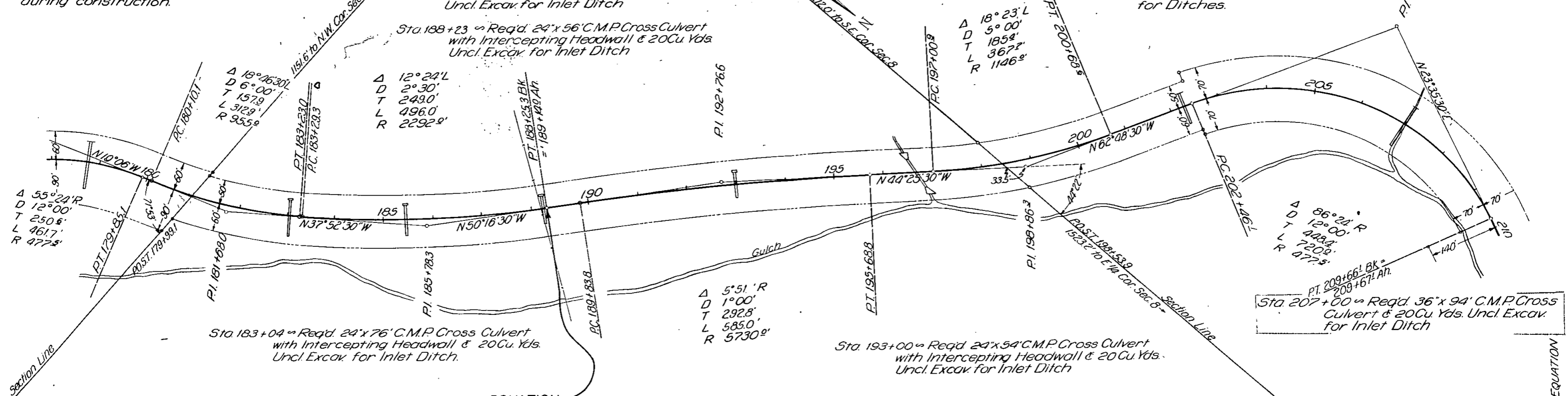
Sta 196+65 Req'd. 6'x7'x72' Concrete Box Culy. (Sk.60') & 300 Cu. Yds. Uncl. Excav. for Inlet & Outlet Channels.

Sta 202+30 Req'd. 24'x68' C.M.P. Cross Culvert & 20 Cu. Yds. Uncl. Excav. for Ditches.

Sta 207+00 Req'd. 36'x94' C.M.P. Cross Culvert & 20 Cu. Yds. Uncl. Excav. for Inlet Ditch

Sta 183+04 Req'd. 24'x76' C.M.P. Cross Culvert with Intercepting Headwall & 20 Cu. Yds. Uncl. Excav. for Inlet Ditch.

Sta 193+00 Req'd. 24'x54' C.M.P. Cross Culvert with Intercepting Headwall & 20 Cu. Yds. Uncl. Excav. for Inlet Ditch



EXCAV. EMB-157  
 STA Yd. 0.1  
 Yd. M. 0.1  
 BORROW SOURCE: AVAL. ROW LT. Sta. 180+101.82

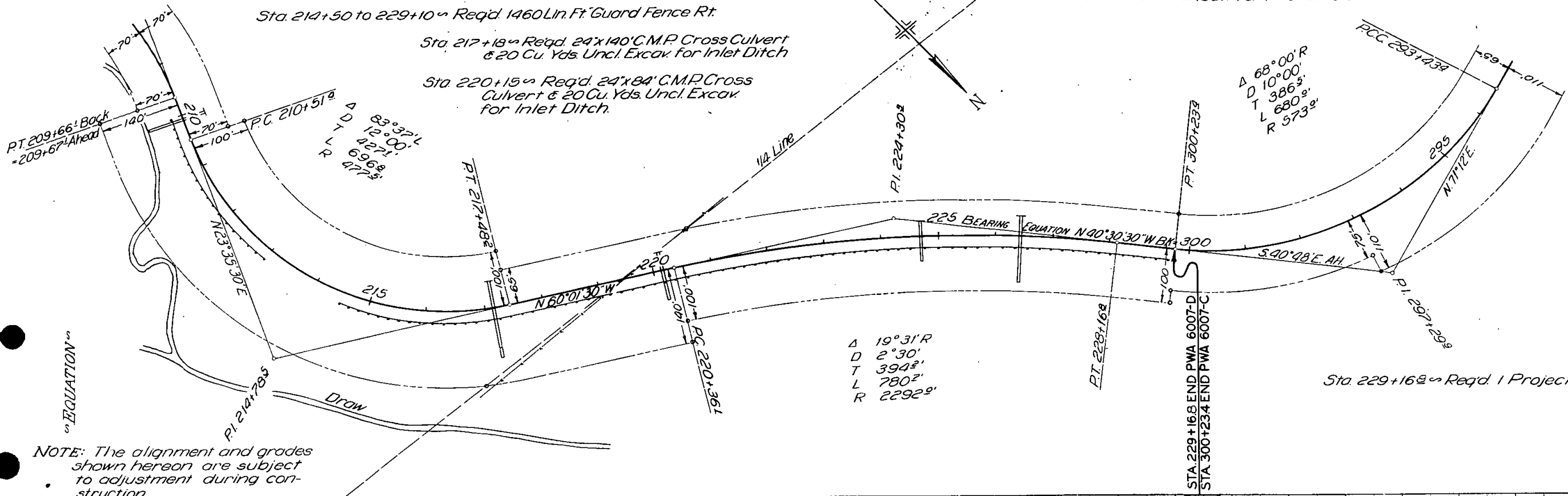
FED. ROAD DIST. NO.	STATE	PWA. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	6007-D	19	

S.E. 1/4 Sec. 8 T.4S, R.71W N.E. 1/4 Sec. 8

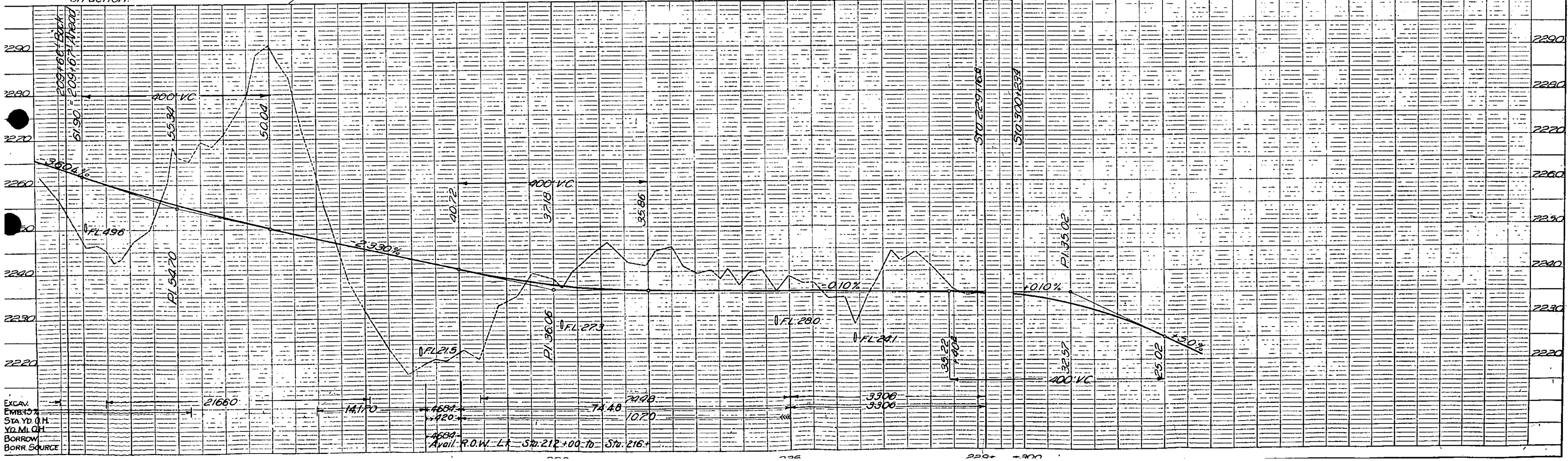
Sta. 210+00 to 213+00 Req'd. 300 Lin. Ft. Guard Fence Rt.  
 Sta. 210+05 Req'd. 24'x104' C.M.P. Cross Culvert & 20 Cu. Yds. Uncl. Excav. for Inlet Ditch  
 Sta. 214+50 to 229+10 Req'd. 1460 Lin. Ft. Guard Fence Rt.

Sta. 224+70 Req'd. 24'x72' C.M.P. Cross Culvert & 20 Cu. Yds. Uncl. Excav. for Inlet Ditch  
 Sta. 226+42 Req'd. 24'x118' C.M.P. Cross Culvert & 20 Cu. Yds. Uncl. Excav. for Inlet Ditch

Sta. 217+18 Req'd. 24'x140' C.M.P. Cross Culvert & 20 Cu. Yds. Uncl. Excav. for Inlet Ditch  
 Sta. 220+15 Req'd. 24'x84' C.M.P. Cross Culvert & 20 Cu. Yds. Uncl. Excav. for Inlet Ditch



NOTE: The alignment and grades shown hereon are subject to adjustment during construction.



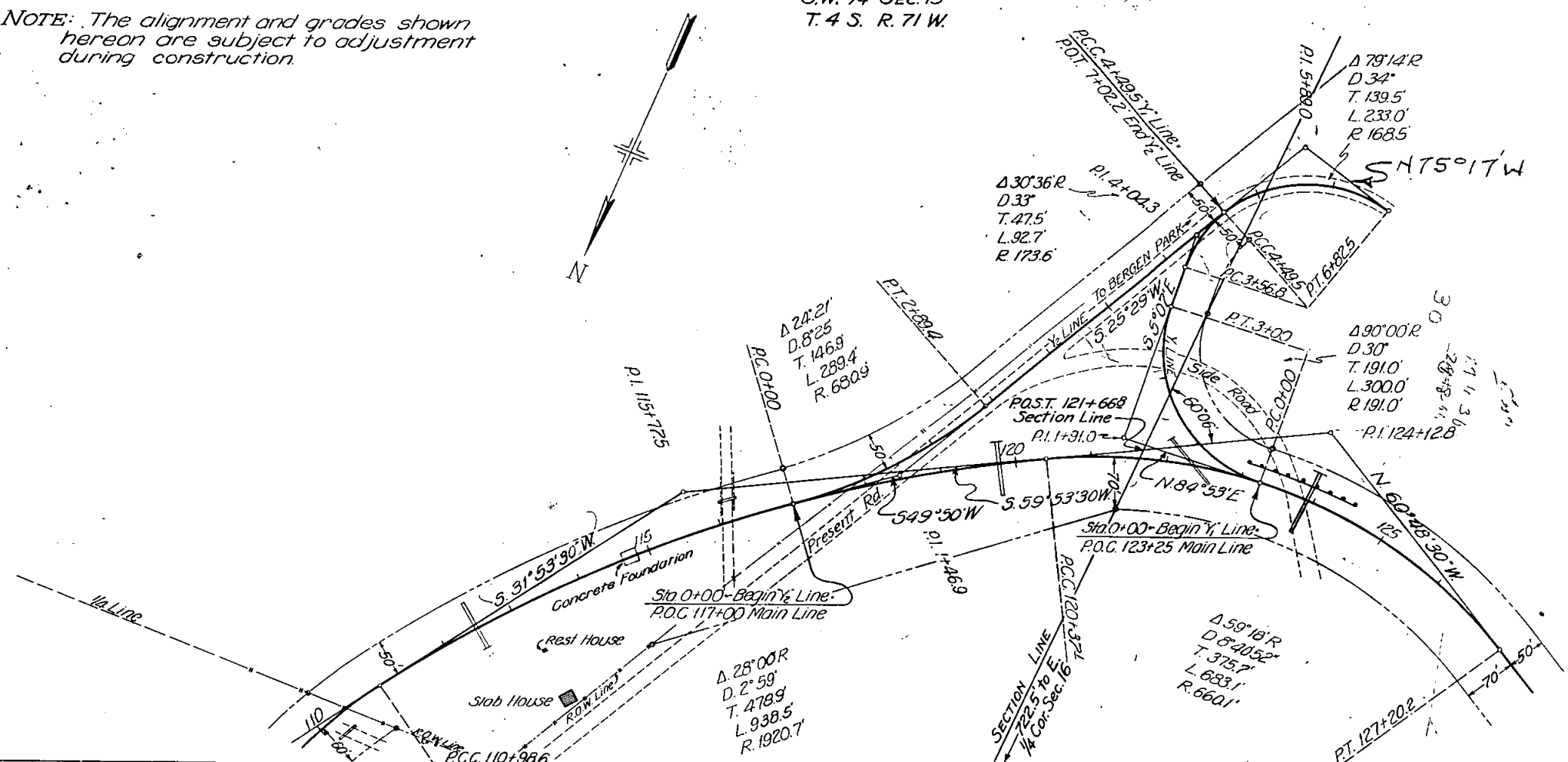
NOTE: The alignment and grades shown hereon are subject to adjustment during construction.

S.W. 1/4 SEC. 15  
T. 4 S. R. 71 W.

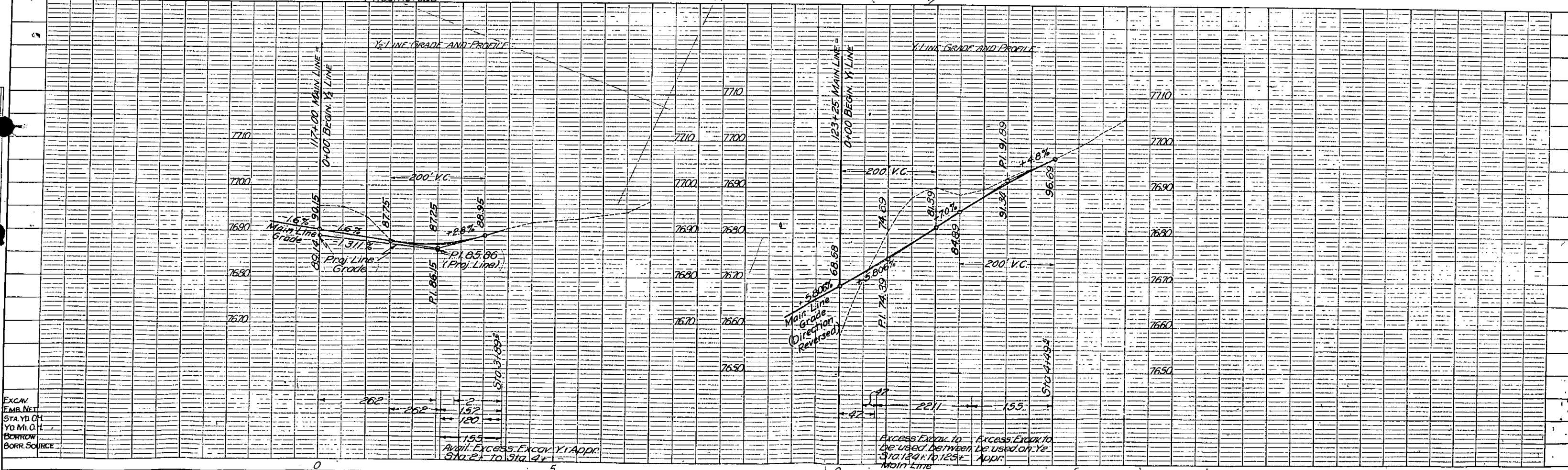
S.E. 1/4 SEC. 16  
T. 4 S. R. 71 W.

FIELD ROAD DIST. NO.	STATE	PWA PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	6007-D	20	

BERGEN PARK CONNECTION  
Rev 5-13-37, APB, 1/2 Line Grade



NOTE: See Sheet No. 2 for Typical Section.



EXCAV.	FMB. NET	STA. YD. O.H.	YD. MI. O.H.	BORROW	BORR. SOURCE

Avail. Excess Exccav. Yr Appr. Sta. 2+ to Sta. 4+  
 Excess Exccav. to be used between Sta. 124+ to 125+  
 Excess Exccav. to be used on Ye Appr.