

INDEX OF SHEETS

SHEET NO.

- 1 TITLE PAGE, SKETCH MAP & TABULATION OF LENGTH & DESIGN DATA.
- 2 TYPICAL CROSS SECTION OF IMPROVEMENT GENERAL NOTES, R.O.W. MARKERS & TIMBER GUARD POSTS.
- 3 SUMMARY OF APPROXIMATE QUANTITIES & SUMMARY OF EARTHWORK QUANTITIES.
- 4 SURFACING PLAN, SUB-BASE PLAN & FENCING REQUIREMENTS
- 5-6 LIST OF STRUCTURE QUANTITIES.
- 7 PIT INFORMATION.
- 8 STANDARD METHODS FOR SUPERELEVATION & WIDENING OF CURVES.
- 9 STANDARD SIDE APPROACH ROADS, FLARING, CUT SLOPE TREATMENT & WIDENING AT BRIDGES AND AT CREST OF GRADES.
- 10 STANDARD MARKER POSTS AND BENCH MARKS.
- 11 STANDARD TIMBER GUARD POSTS.
- 12 STANDARD WIRE FENCE WITH METAL POSTS
- 13-14 STANDARD ROADWAY CONSTRUCTION TRAFFIC SIGNS
- 15 STANDARD METHODS OF BACKFILL AROUND STRUCTURES
- 16 STANDARD TYPES OF DITCHES AND CONSTRUCTION METHODS
- 17 REINFORCED CONCRETE CULVERT PIPE AND CONCRETE SEWER PIPE
- 18 STANDARD CORRUGATED METAL PIPE CULVERT HEADWALL
- 19-37 37-40 ALIGNMENT PLAN - PROFILE
- 41-207-208-214 CROSS SECTIONS
- 106 STANDARD LETTERS & FIGURES FOR YEAR NUMBERS AND STRUCTURE NUMBERS

# COLORADO DEPARTMENT OF HIGHWAYS

## PLAN AND PROFILE OF PROPOSED

### FEDERAL AID PROJECT NO. DF 013-1(5) & COLORADO PROJECT NO. C 19-0102-14

#### STATE HIGHWAY NO. 102 YUMA 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, DF 013-1(5) C 19-0102-14 9,577.7 FT. = 1.814 MI.  
NET LENGTH OF PROJECT 83,781.2 FT. = 15.668 MI.

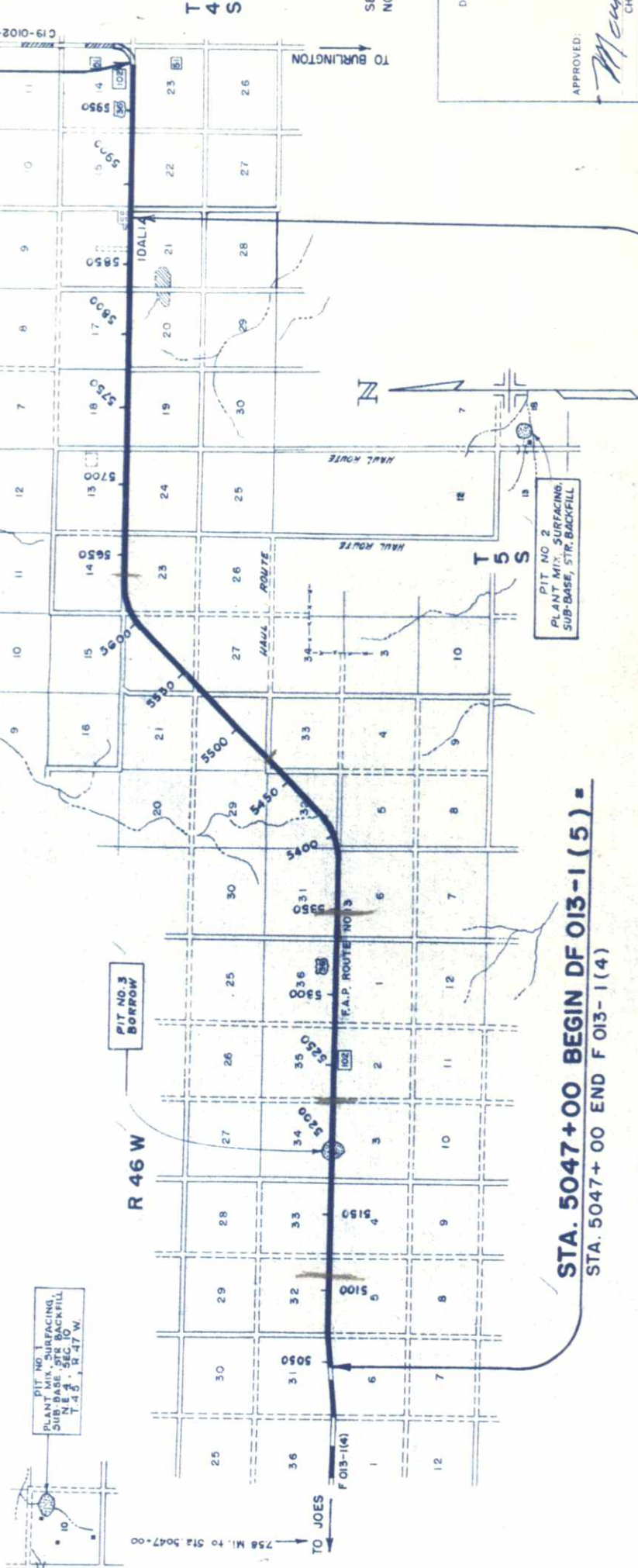
FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	DF 013-1(5) C 19-0102-14	1	1

CONVENTIONAL SIGNS

- CENTER LINE
- RIGHT OF WAY LINE
- COUNTY LINE
- TOWNSHIP OR RANGE LINE
- SECTION LINE
- LAND LINES
- BARBED WIRE FENCE
- COMBINATION WIRE FENCE
- SNOW FENCE
- TELEPHONE & TELEGRAPH LINES
- POWER LINE
- PRESENT ROAD (Plan Sheets)

TABULATION OF LENGTH & DESIGN DATA

STATION	ROADWAY	
	DF 013-1(5) LIN. FT.	C 19-0102-14 LIN. FT.
5047 + 00 Begin DF 013-1(5) = 5047 + 00 End F 013-1(4)	3,830.8	
5085 + 30.8 Bk. = 5085 + 39.1 Ah	25,241.9	
5337 + 81.0 Bk. = 5337 + 80.5 Ah	8,243.1	
5420 + 23.6 Bk. = 5420 + 34.0 Ah	20,970.7	
5630 + 04.7 Bk. = 5630 + 05.3 Ah	25,494.7	
5885 + 00 = End DF 013-1(5) = 5885 + 00 Begin C 19-0102-14		9,577.7
5980 + 77.7 End C 19-0102-14 = 5980 + 77.7 Begin C 19-0102-12		
<b>TOTALS</b>	<b>83,781.2</b>	<b>9,577.7</b>
<b>SUMMARY</b>	<b>LIN. FT.</b>	<b>MILES</b>
Roadway DF 013-1(5)	83,781.2	15.668
Roadway C 19-0102-14	9,577.7	1.814
<b>PROJECT TOTALS</b>	<b>93,358.9</b>	<b>17.682</b>
<b>DESIGN DATA</b>	DF 013-1(5) C 19-0102-14	
Maximum Degree of Curve	2° 00'	4° 00'
Maximum Grade	2.94%	1.94%
Minimum N.P.S.D. - Horizontal	1,150'	990'
Minimum N.P.S.D. - Vertical	720'	750'
Maximum Design Speed	70 M.P.H.	70 M.P.H.



STA. 5047+00 BEGIN DF 013-1(5) =  
STA. 5885+00 END DF 013-1(5) =  
STA. 5885+00 BEGIN C 19-0102-14



APPROVED: *Merle J. ...* DATE: 7-29-58  
CHIEF ENGINEER

COLORADO  
DEPARTMENT OF HIGHWAYS

APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_  
DEPARTMENT OF COMMERCE  
BUREAU OF PUBLIC ROADS

DIVISION ENGINEER

SEE SPECIAL PROVISIONS FOR NOTICE TO BIDDERS.

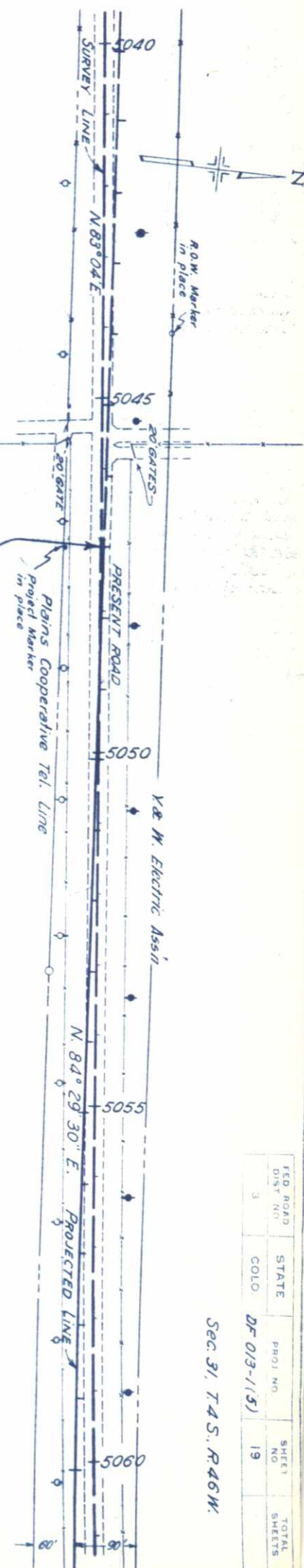
Note:  
Alignment and Grades as shown are subject to modification during construction after approval by the Denver Office.

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. 2, 4.

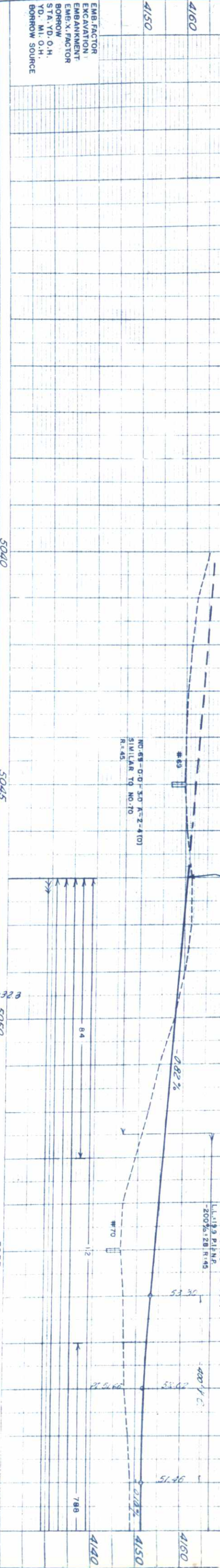
FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	DF 013-1(5)	19	

Sec. 31, T.4S., R.46W.



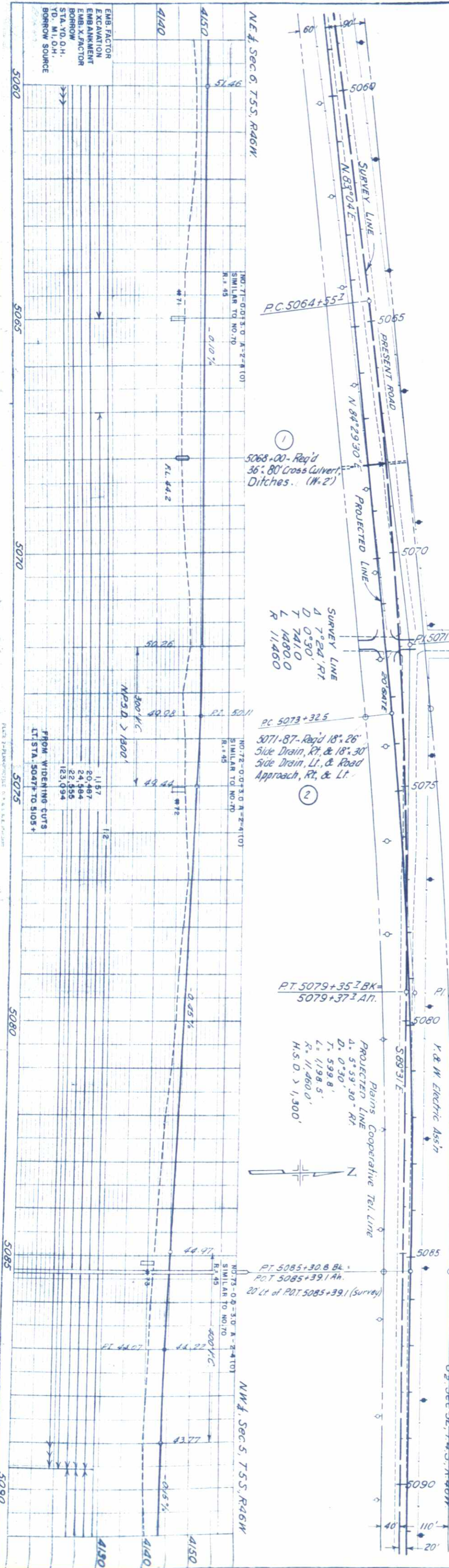
STA. 5047+00 BEGIN DF 013-1(5) = STA. 5047+00 END F 013-1(4)

NE 1/4 Sec. 6, T.5S., R.46W



EMB. FACTOR  
EXCAVATION  
EMBANKMENT  
EMB. X. FACTOR  
BORROW  
STA. YD. O. H.  
YD. MI. O. H.  
BORROW SOURCE

Sec. 31, T.4S., R.46W



EMB. FACTOR  
EXCAVATION  
EMBANKMENT  
EMB. X. FACTOR  
BORROW  
STA. YD. O. H.  
YD. MI. O. H.  
BORROW SOURCE

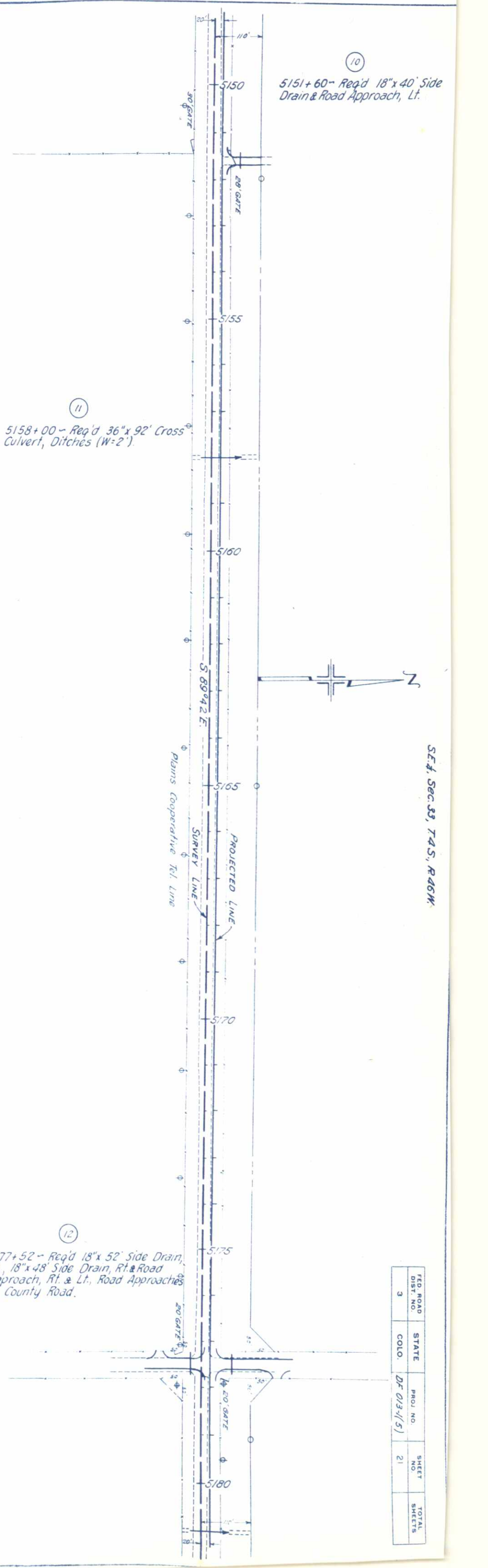
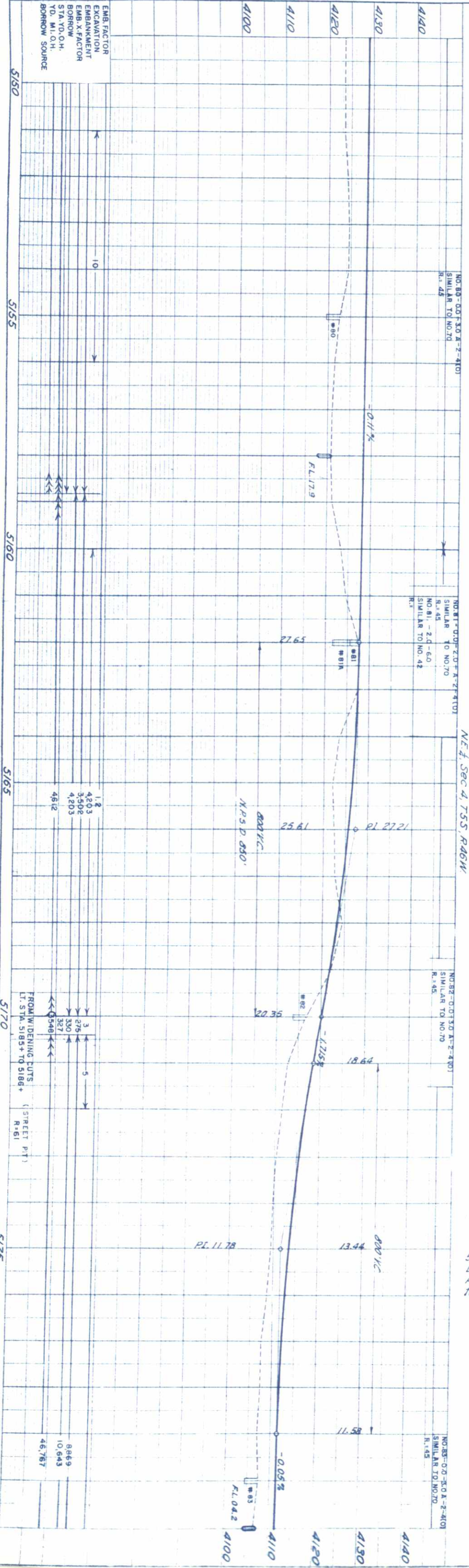
NE 1/4 Sec. 6, T.5S., R.46W

NW 1/4 Sec. 5, T.5S., R.46W

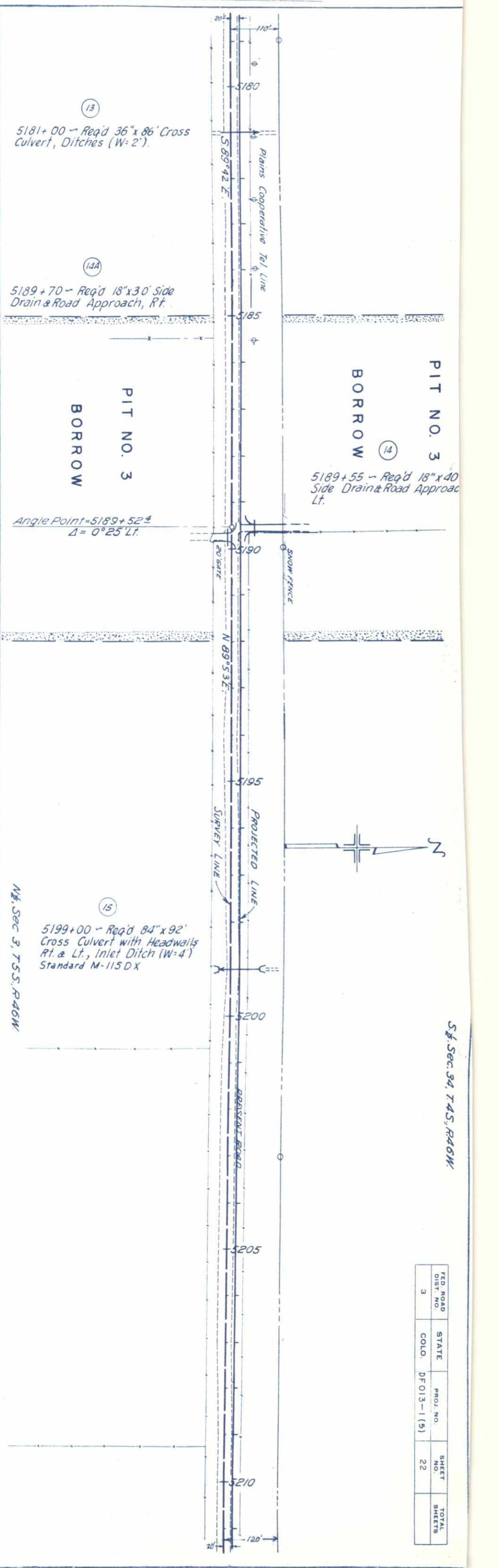
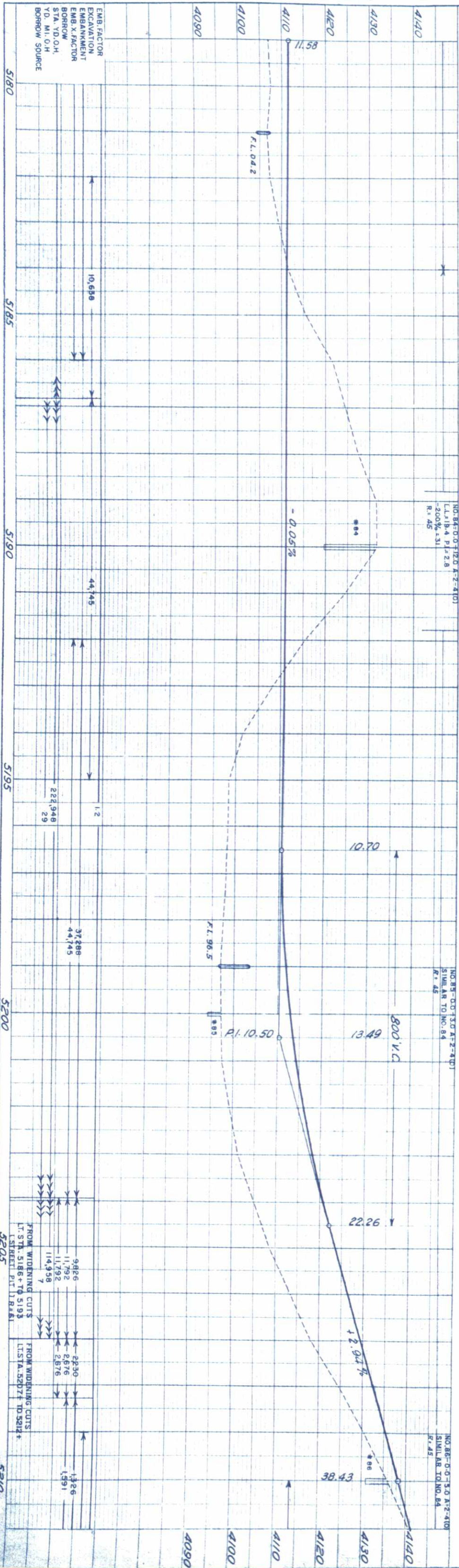
5060 5065 5070 5075 5080 5085 5090

4150 4140 4150 4150





FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	DF 013-115	21	



EMB. FACTOR  
 EXCAVATION  
 EMBANKMENT  
 EMB. X. FACTOR  
 BORROW  
 STA. YD. O.H.  
 YD. M. O.H.  
 BORROW SOURCE

STATION	EMB. FACTOR	EXCAVATION	EMBANKMENT	EMB. X. FACTOR	BORROW	STA. YD. O.H.	YD. M. O.H.	BORROW SOURCE
5180								
5185								
5190								
5195								
5200								
5205								
5210								

PIT NO. 3

BORROW

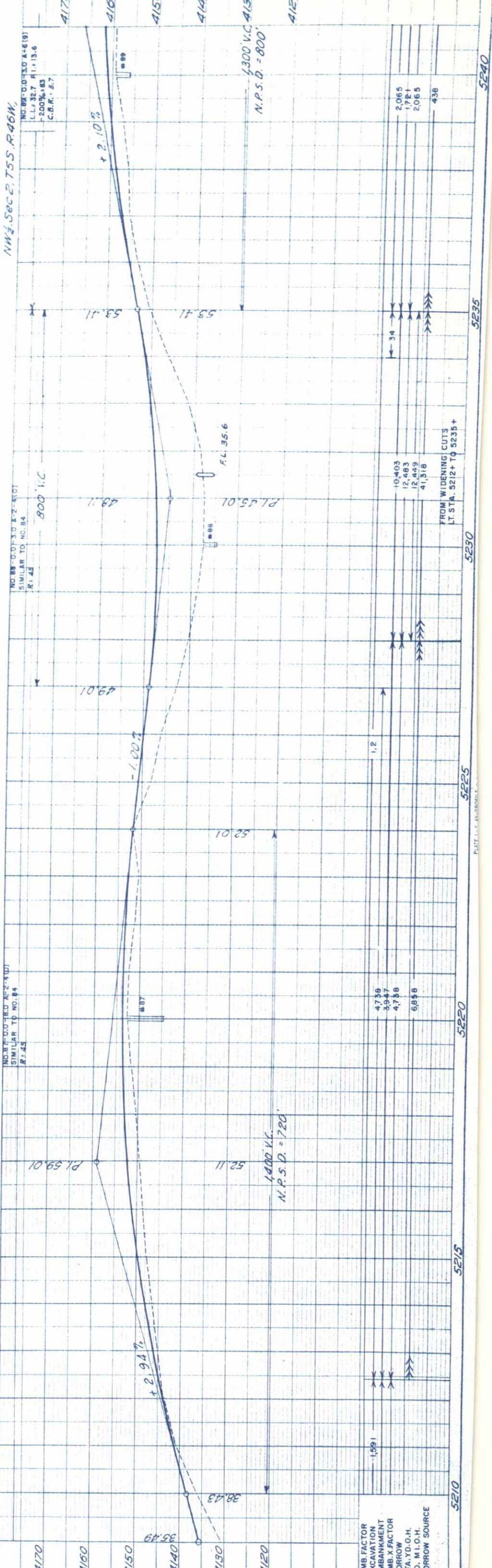
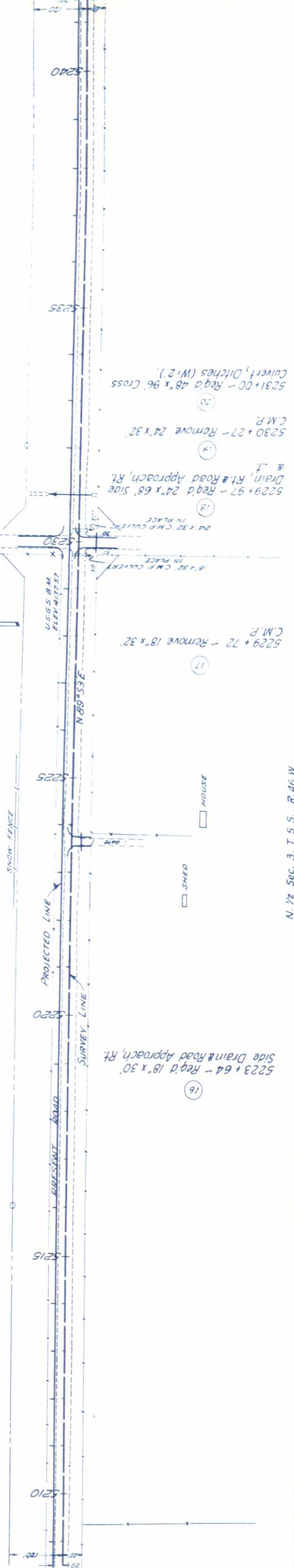
S. Sec. 34, T.4S, R.46W

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	DF013-1(5)	22	

S. 1/2 Sec. 34, T. 4 S., R. 46 W.

S. 1/2 Sec. 35, T. 4 S., R. 46 W.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	DF013-1(5)	23	



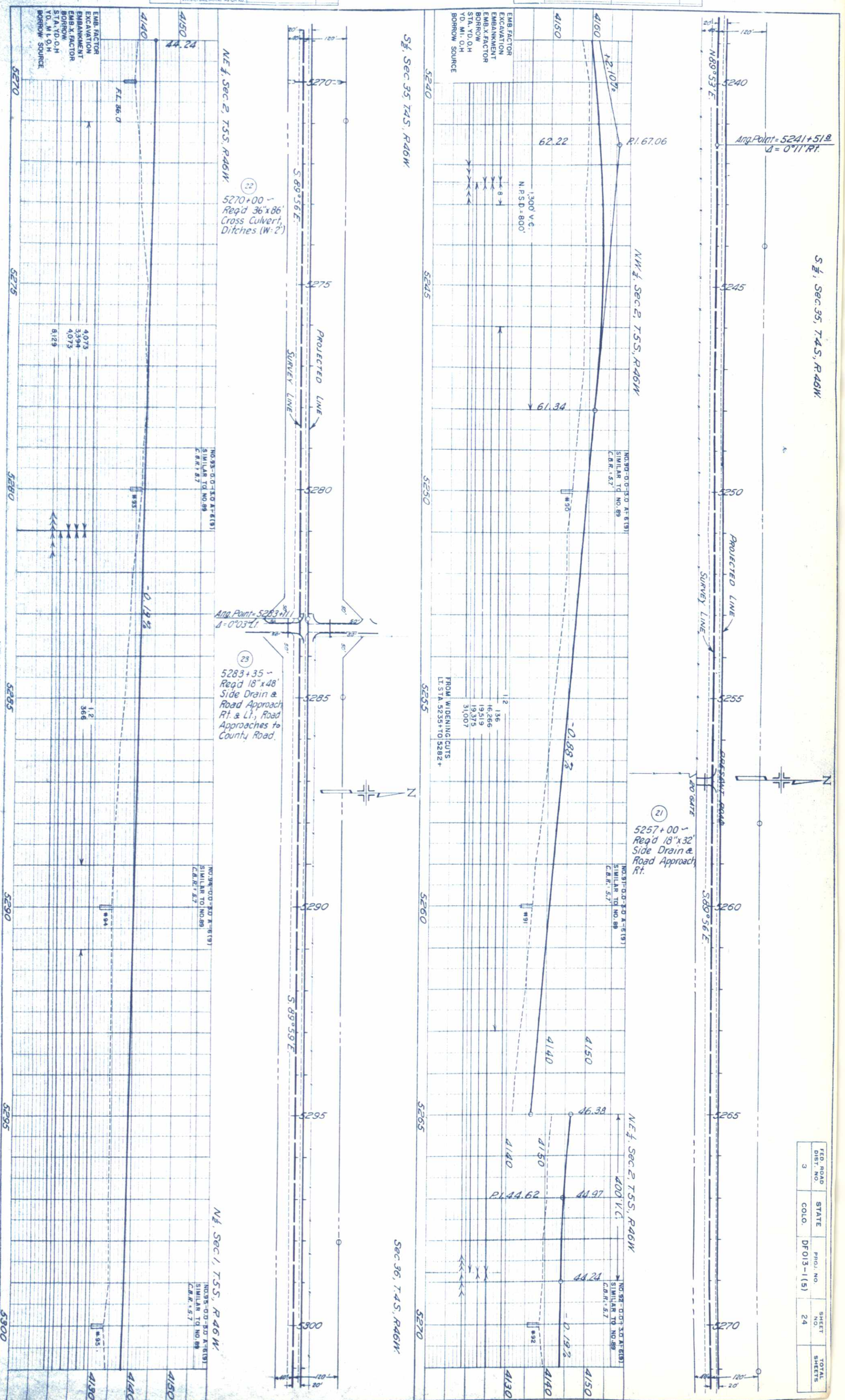
DATE	BY	REVISION

DATE	BY	REVISION

NW 1/4 Sec. 2, T. 5 S., R. 46 W.  
 N. 1/2 Sec. 3, T. 5 S., R. 46 W.  
 5210 5215 5220 5225 5230 5235 5240  
 4170 4160 4150 4140 4130 4120

PROFILE	
SURVEYED	DATE
PLOTTED	
GRADES CHECKED	
BY S.A. NOTED	
NO.	STRUCTURE NOTATIONS CHECKED

PLAN	
SURVEYED	DATE
PLOTTED	
ALIGNMENT CHECKED	
BY S.A. NOTED	
NO.	RT. OF WAY CHECKED



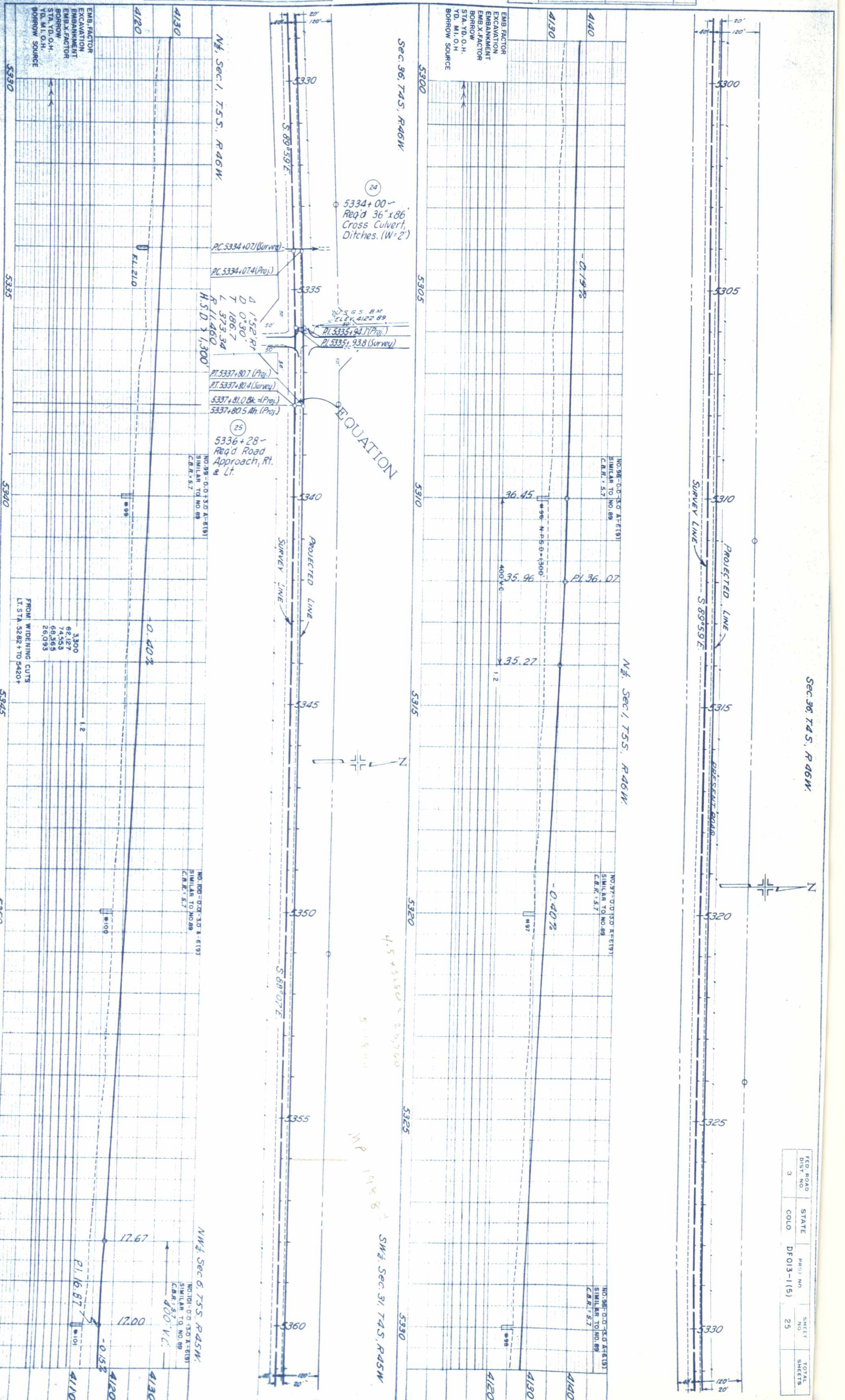
S.E. Sec. 35, T4S, R46W.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	DF013-1(5)	24	

PLAN SHEET PROFILE OF ROAD

PROFILE	
DATE	BY
NOTED	PLOTTED
GRADES CHECKED	ALIGNMENT CHECKED
B.M. NOTED	RT. OF WAY CHECKED
NO.	NO. 2044
STRUCTURE NOTATIONS CHECKED	

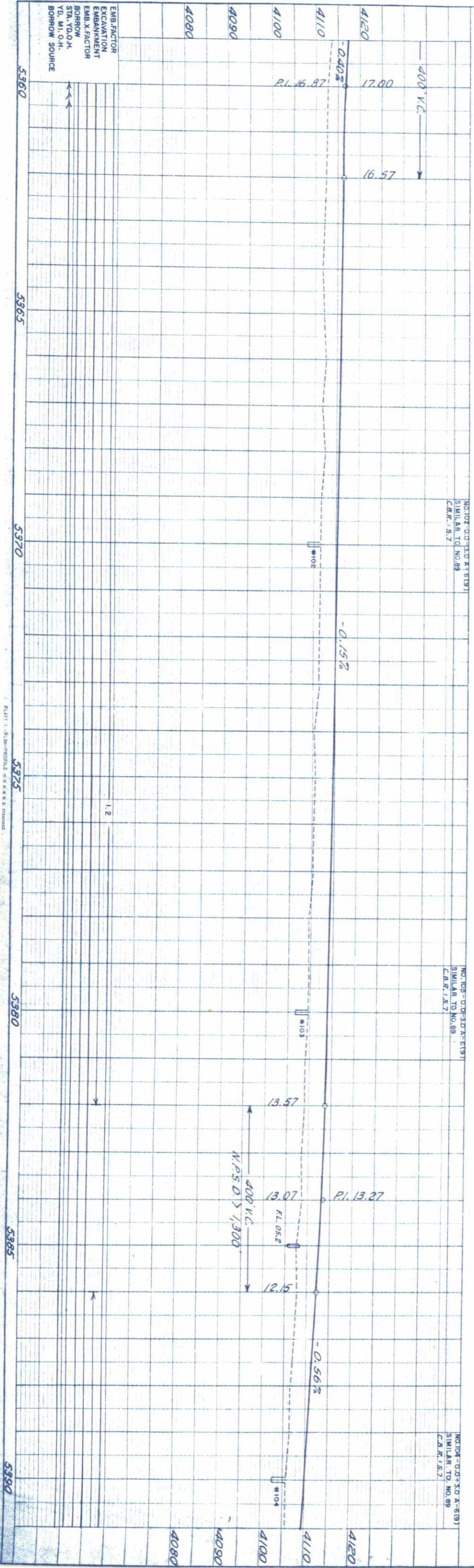
PLAN	
DATE	BY
NOTED	PLOTTED
ALIGNMENT CHECKED	RT. OF WAY CHECKED
NO.	NO. 2044
STRUCTURE NOTATIONS CHECKED	



FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET TOTALS
3	COLO.	DF 013-1(5)	25

PROFILE	SURVEYED
NOTE BOOK	PLOTTED
NO.	LOADS CHECKED
	BY S.S. MOYER
	STRUCTURE NOTATIONS ON AD.

PLAN	SUP. EYED
NO. 20.41	PLOTTED
	ALIGNMENT CHECKED
	BY S.S. MOYER
	RT. OF WAY CHECKED

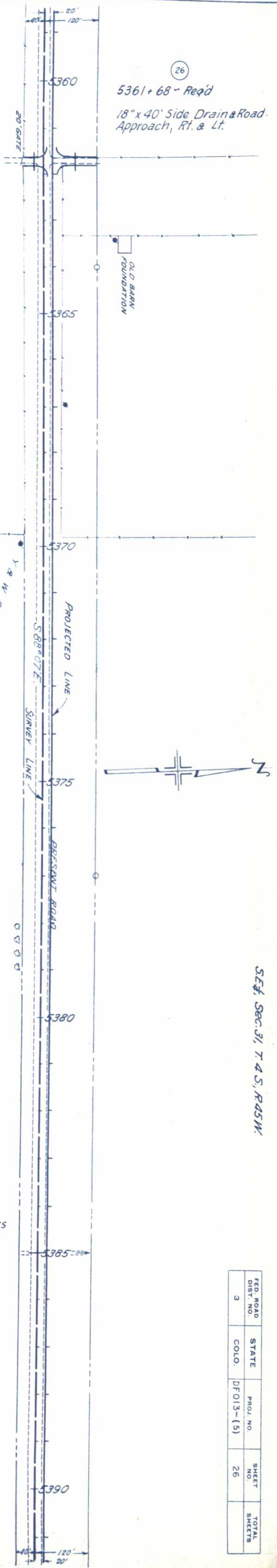


NOTICE - 0-0-30-A-1191  
SIMILAR TO NO. 89  
C.A.R. 1.57

NOTICE - 0-0-30-A-1191  
SIMILAR TO NO. 89  
C.A.R. 1.57

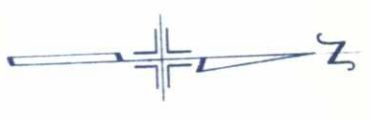
NOTICE - 0-0-30-A-1191  
SIMILAR TO NO. 89  
C.A.R. 1.57

N.E. 1/4, Sec. 6, T.5S., R.45W.



26

5361+68 - Req'd  
18" x 40' Side Drain & Road  
Approach, Rt. & Lt.



S.E. 1/4, Sec. 31, T.4S., R.45W.

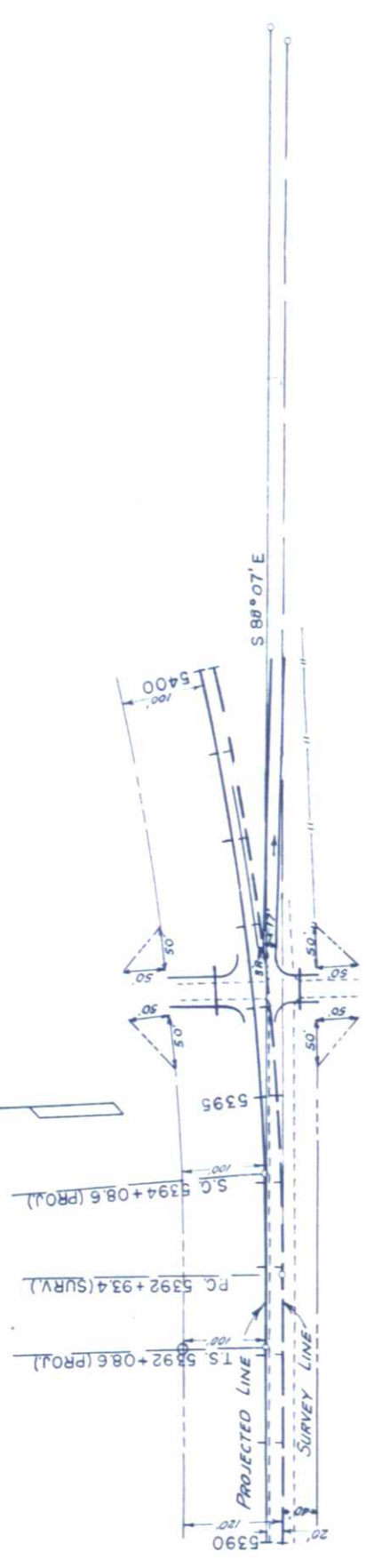
27

5385+00 - Req'd 36" x 80' Cross  
Culvert, Ditches (W=2')

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	DF013-(5)	26	

PLATE 1 - PLAN - PROFILE OF Y & W ELECTRIC ASSN.

SW 1/4 SEC. 32,  
T. 4 S., R. 45 W.



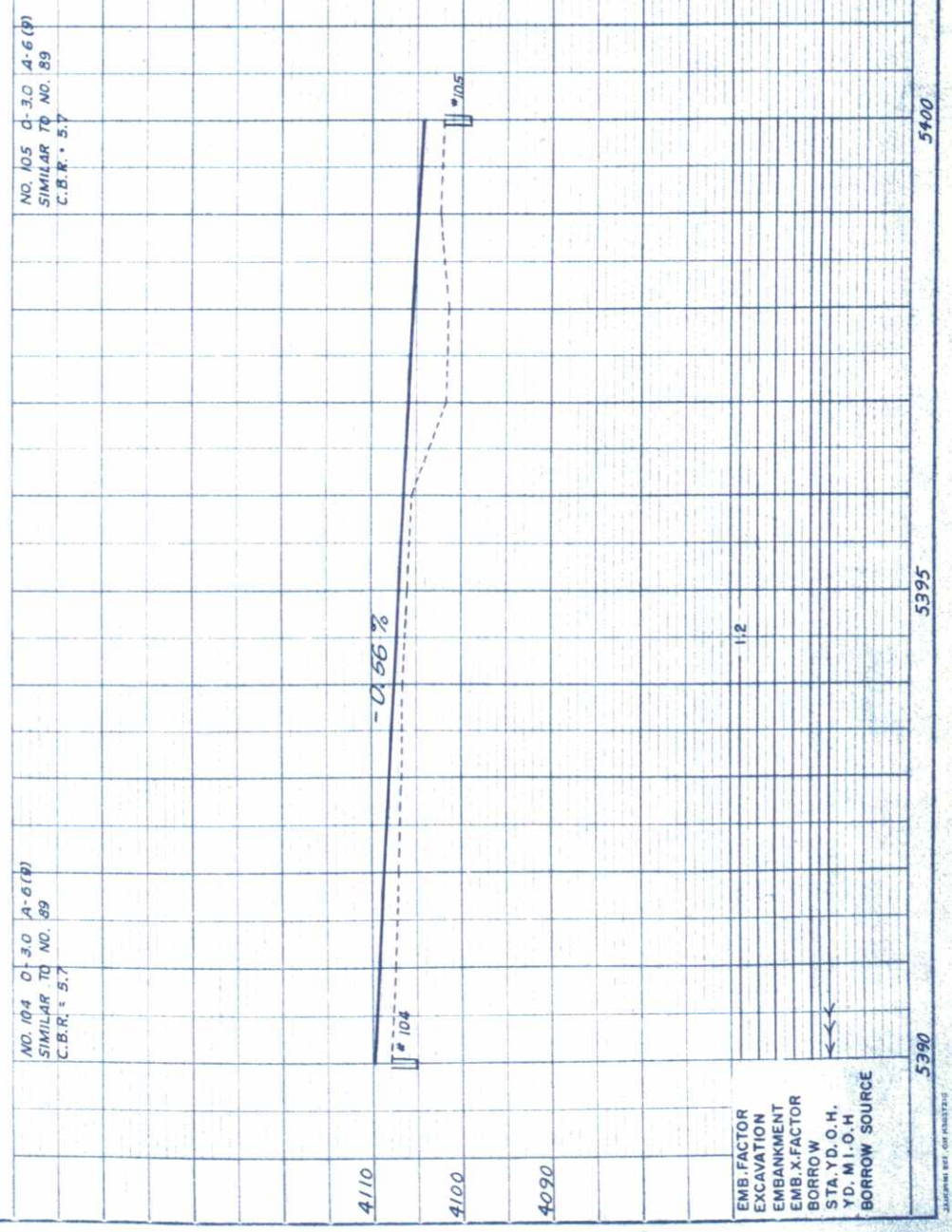
5396+14 - Road  
Drain, Rt. & Road  
Lt. 18" x 30" Side  
18" x 40" Side Drain,  
Approach, Rt. & Lt. (28)

5396+50 - Road  
Approach, Rt. (28A)

FED. ROAD DIST. NO.	9
DATE	COLO.
PROJ. NO.	DF 013-1 (5)
SHEET NO.	27
TOTAL SHEETS	

NO.	20141
DATE	
BY	
DATE	
DATE	
DATE	

NO.	
DATE	
BY	
DATE	
DATE	
DATE	



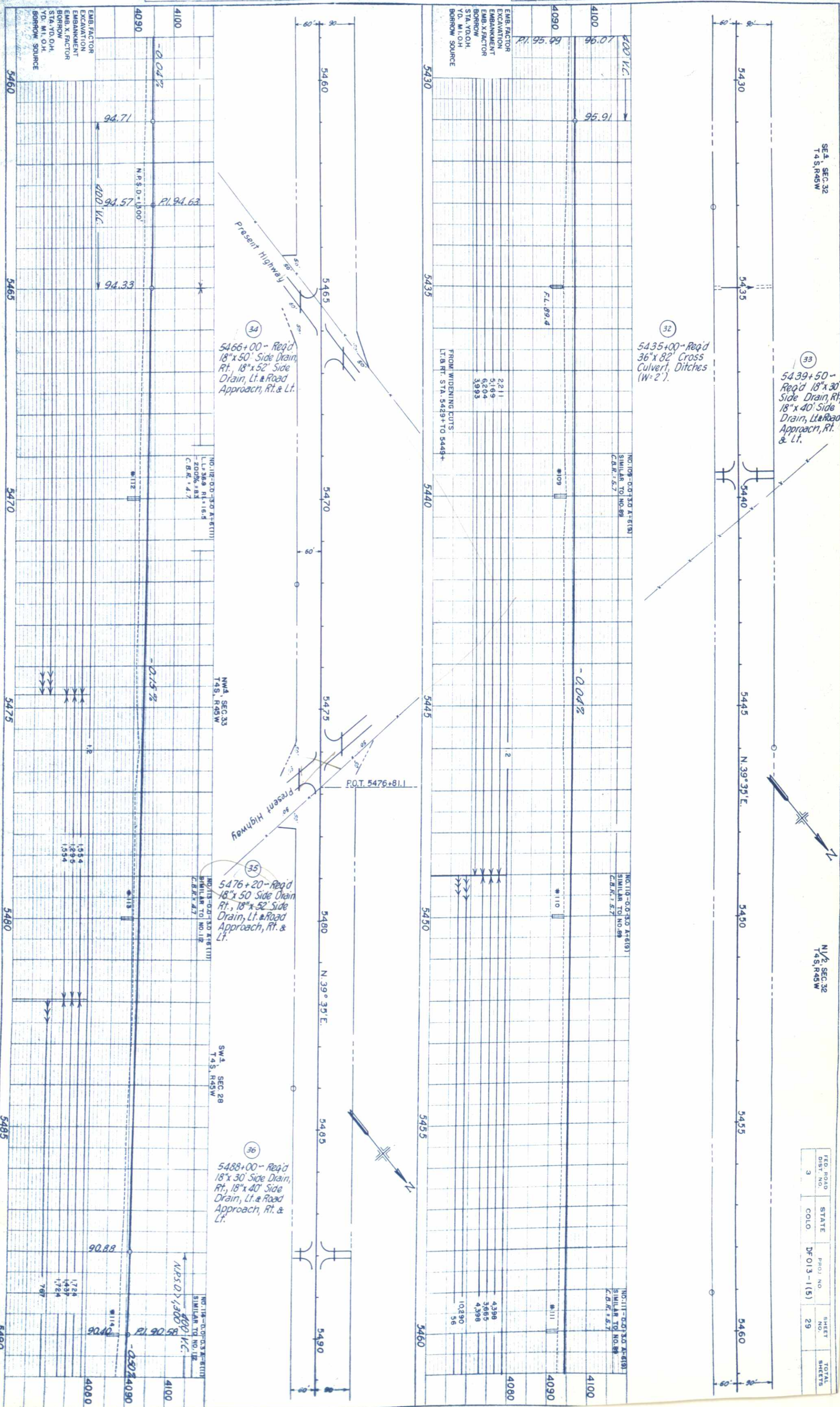
NO. 104 01-30 A-6 (P)  
SIMILAR TO NO. 89  
C.B.R. = 5.7

NO. 105 01-30 A-6 (P)  
SIMILAR TO NO. 89  
C.B.R. = 5.7

EMB. FACTOR  
EXCAVATION  
EMBANKMENT  
EMB. X. FACTOR  
BORROW  
STA. Y.D. O.H.  
Y.D. M.I.O.H.  
BORROW SOURCE

5390 5395 5400

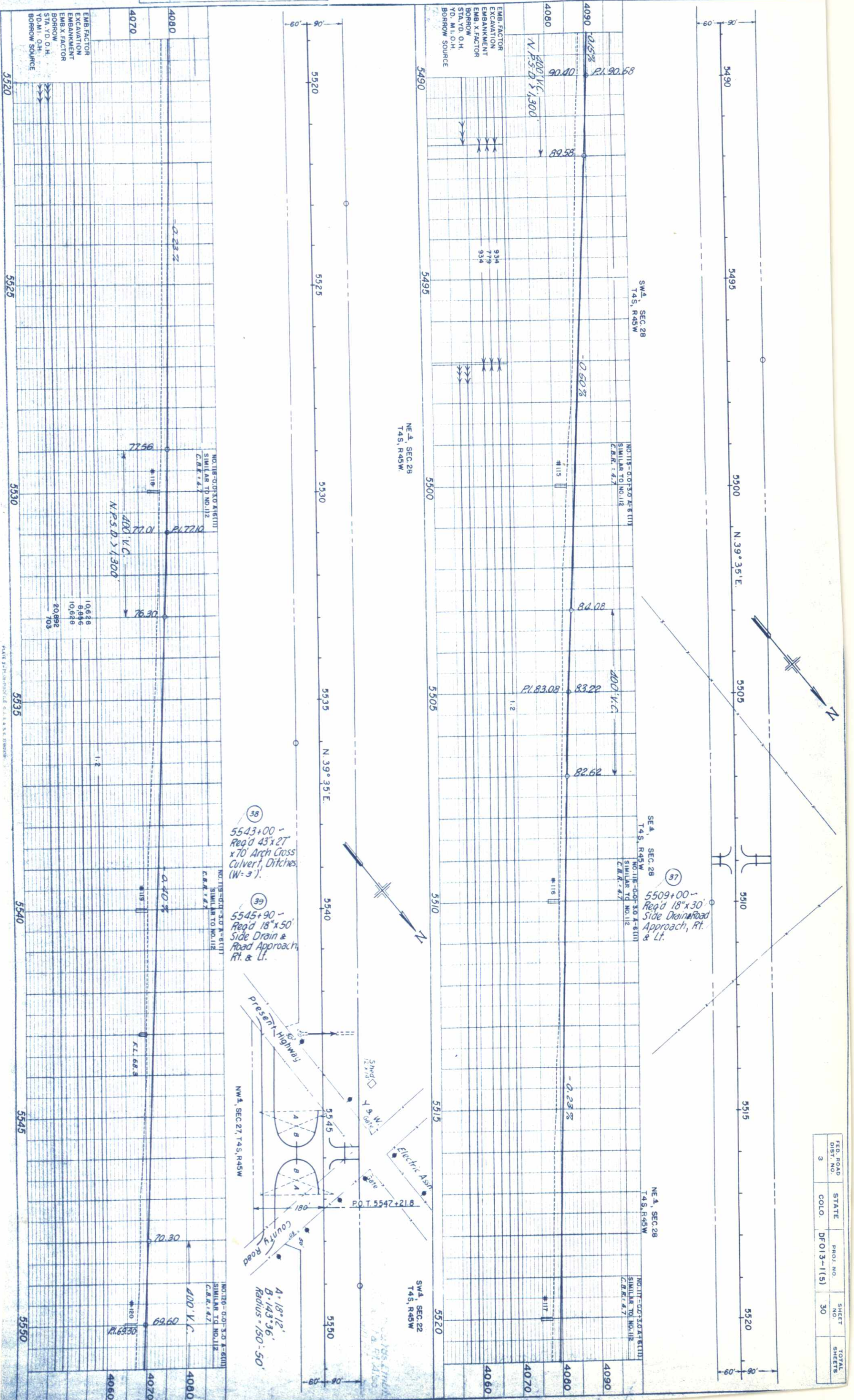




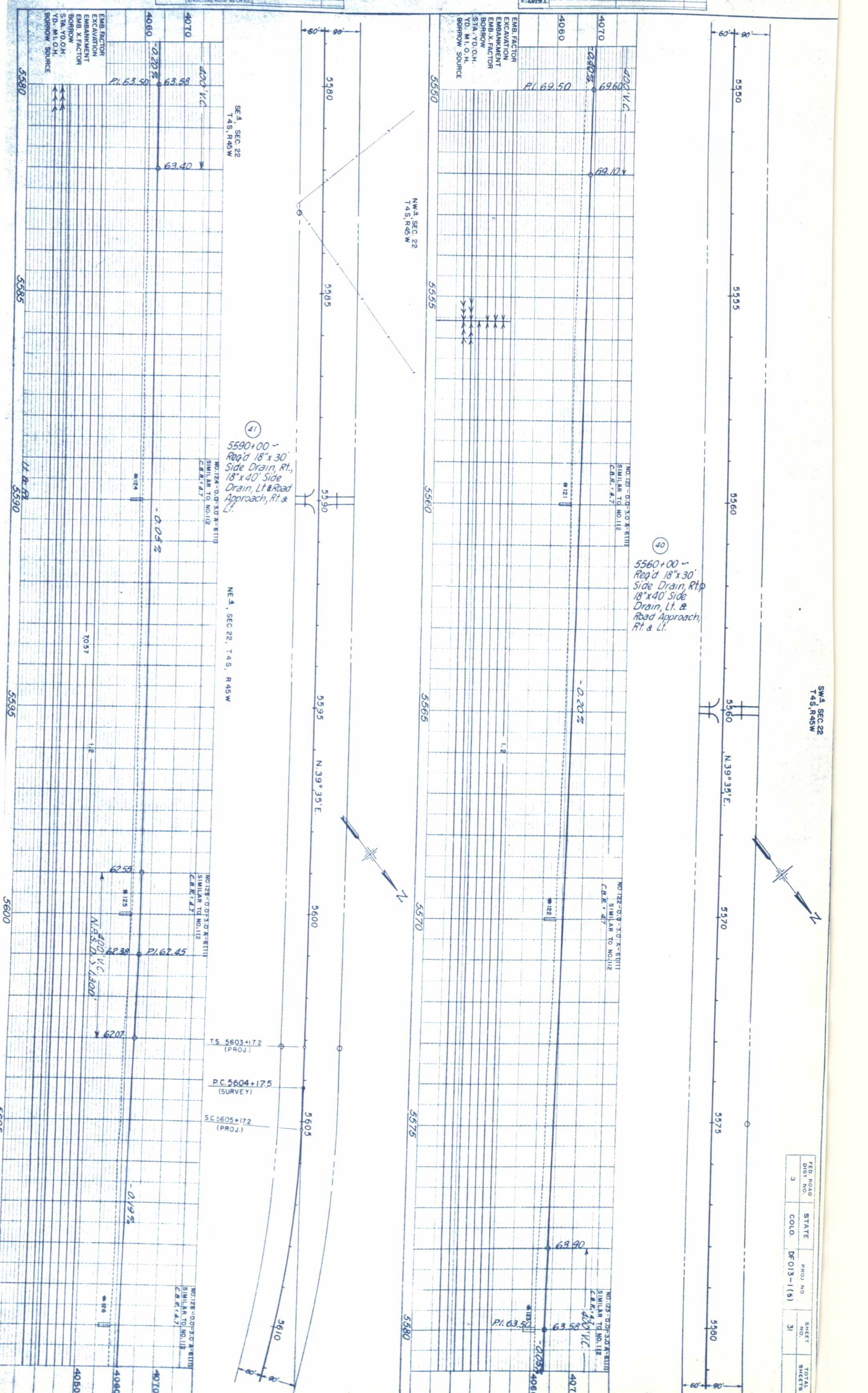
SEC. 32  
T4S, R45W

N1/2 SEC. 32  
T4S, R45W

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	DF 013-1(15)	29	



FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	DF013-1(5)	30	

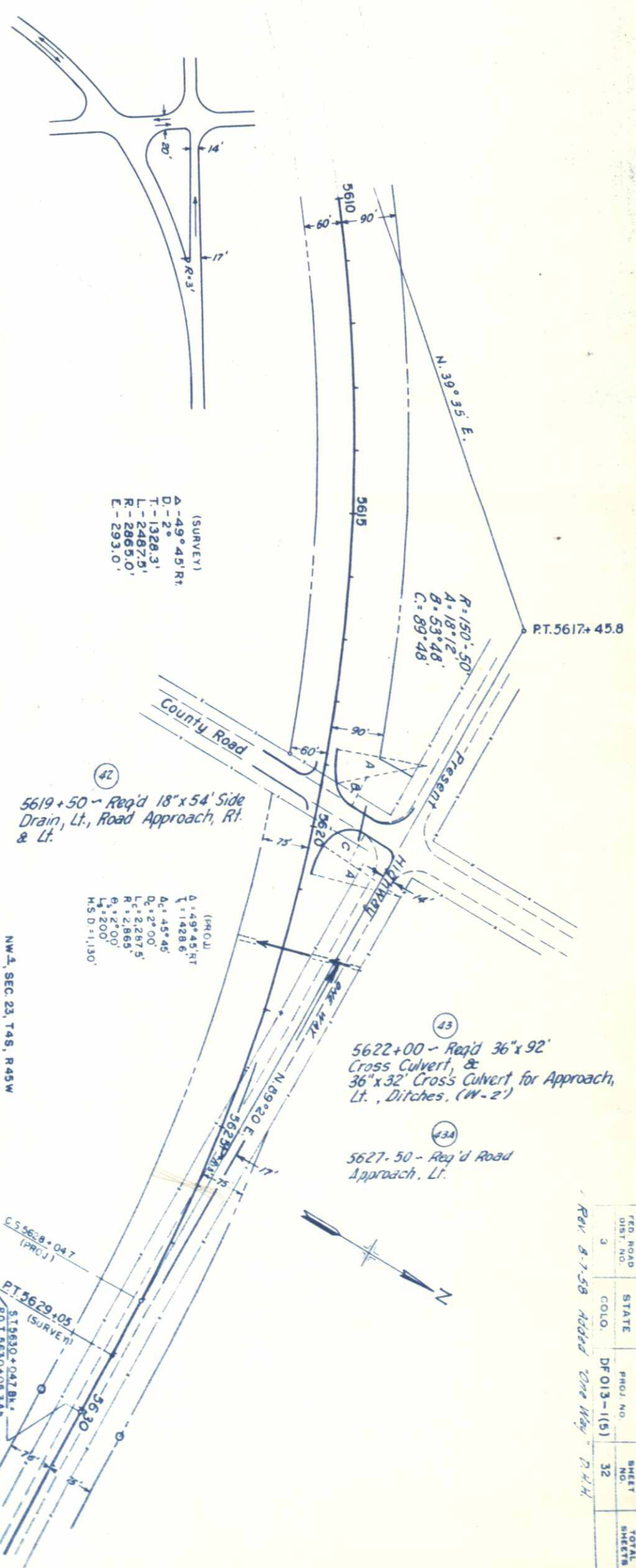
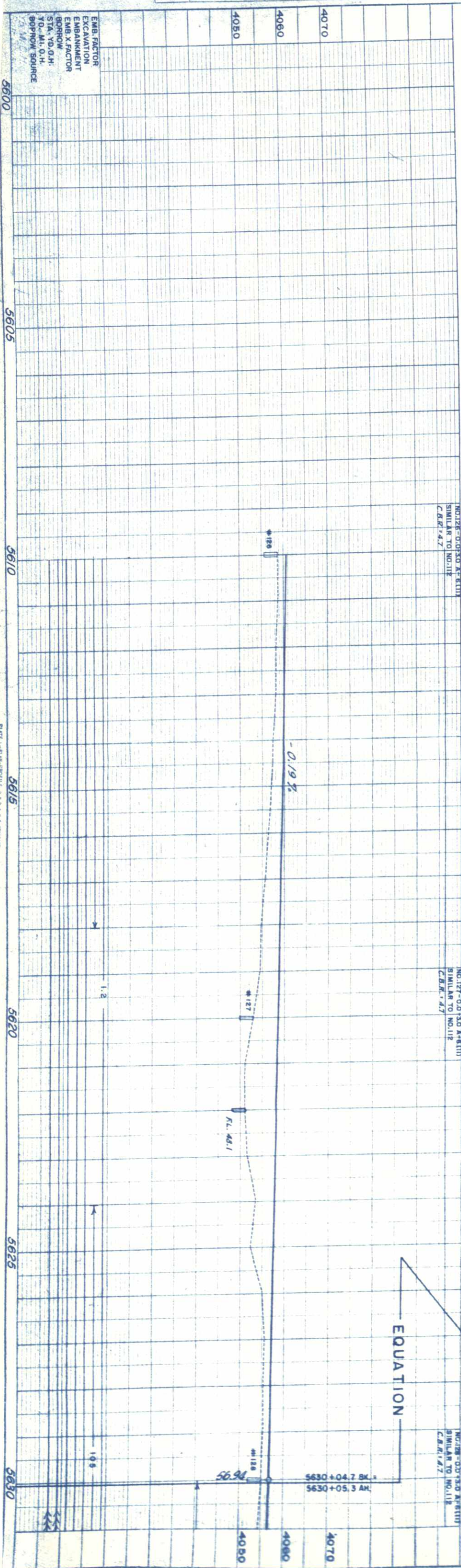


SW 4 SEC. 22  
T4S, R45W

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	DF013-1(5)	31	

PROFILE	
SURVEYED	BY
PLOTTED	DATE
GRADES CHECKED	
S. M. NOTED	
STRUCTURE NOTATIONS CHECKED	

SURVEYED	BY
PLOTTED	DATE
ALIGNMENT CHECKED	
RT. OF WAY CHECKED	



INDICATE - DORSAL AREA (111)  
SIMILAR TO NO. 112  
C.B.R. = 4.7

INDICATE - DORSAL AREA (111)  
SIMILAR TO NO. 112  
C.B.R. = 4.7

INDICATE - DORSAL AREA (111)  
SIMILAR TO NO. 112  
C.B.R. = 4.7

5619+50 - Req'd 18" x 54' Side Drain, Lt., Road Approach, Rt. & Lt.

5622+00 - Req'd 36" x 92' Cross Culvert, & 36" x 32' Cross Culvert for Approach, Lt., Ditches. (W-2')

5627.50 - Req'd Road Approach, Lt.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	DF 013 - (15)	32	

REV. 8-7-58 Added 'One Way' P.H.H.



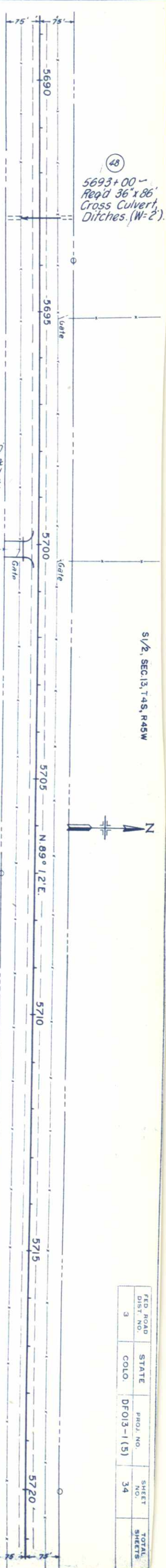
48  
 5693+00 -  
 Req'd 36"x86"  
 Cross Culvert,  
 Ditches. (W-2')

NW 1/4, SEC. 24, T4S, R45W.

NE 1/4, SEC. 24, T4S, R45W

S 1/2, SEC. 13, T4S, R45W

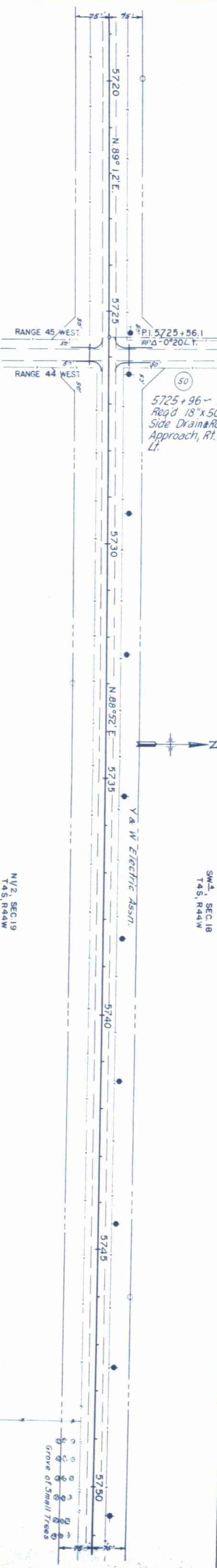
FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	DF013-1(15)	34	



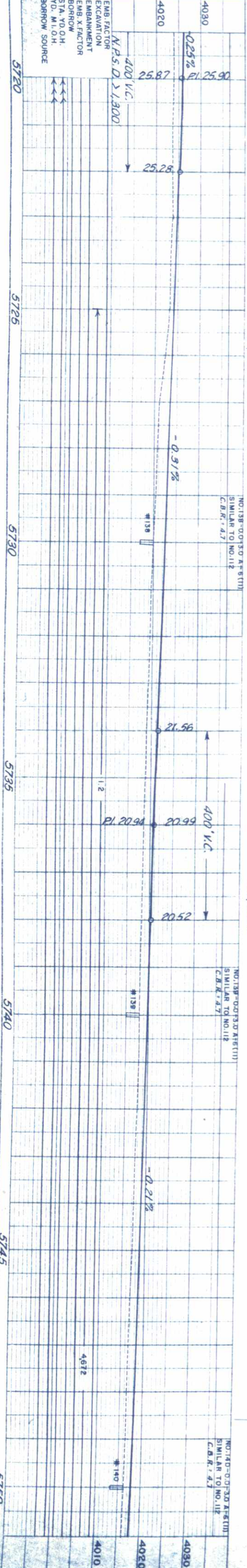
49  
 5700+08 -  
 Req'd 18"x50"  
 Side Drain &  
 Double Road  
 Approach, Rt.

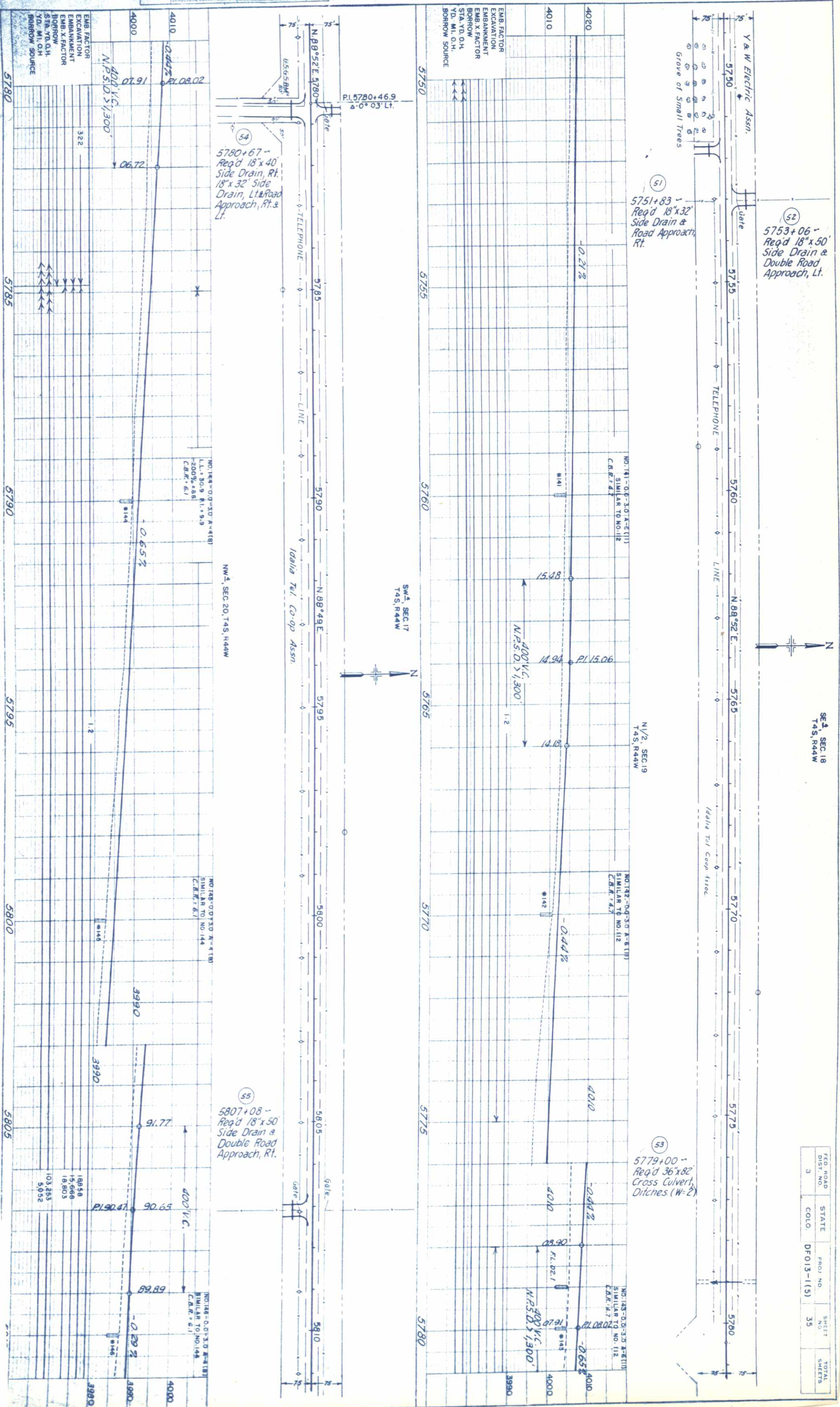


SW 1/4, SEC. 18, T4S, R44W



NW 1/2, SEC. 19, T4S, R44W





52  
 5753+06 -  
 Req'd 18" x 50"  
 Side Drain &  
 Double Road  
 Approach, Lt.

51  
 5751+83 -  
 Req'd 18" x 32"  
 Side Drain &  
 Road Approach,  
 Rt.

54  
 5780+67 -  
 Req'd 18" x 40"  
 Side Drain, Rt.  
 18" x 32" Side  
 Drain, Lt. & Road  
 Approach, Rt. &  
 Lt.

55  
 5807+08 -  
 Req'd 18" x 50"  
 Side Drain &  
 Double Road  
 Approach, Rt.

53  
 5779+00 -  
 Req'd 36" x 82"  
 Cross Culvert,  
 Ditches (W-2)

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	DF013-1(5)	35	

SEC. 18  
 T4S, R44W

1/2, SEC. 19  
 T4S, R44W

SW 1/4, SEC. 17  
 T4S, R44W

NW 1/4, SEC. 20, T4S, R44W

NO. 144 - 0-0-30' X-6' (11)  
 L.L. 30.9 R.L. 9.9  
 C.B.R. 6.1

NO. 144 - 0-0-30' X-6' (11)  
 L.L. 30.9 R.L. 9.9  
 C.B.R. 6.1

NO. 144 - 0-0-30' X-6' (11)  
 L.L. 30.9 R.L. 9.9  
 C.B.R. 6.1

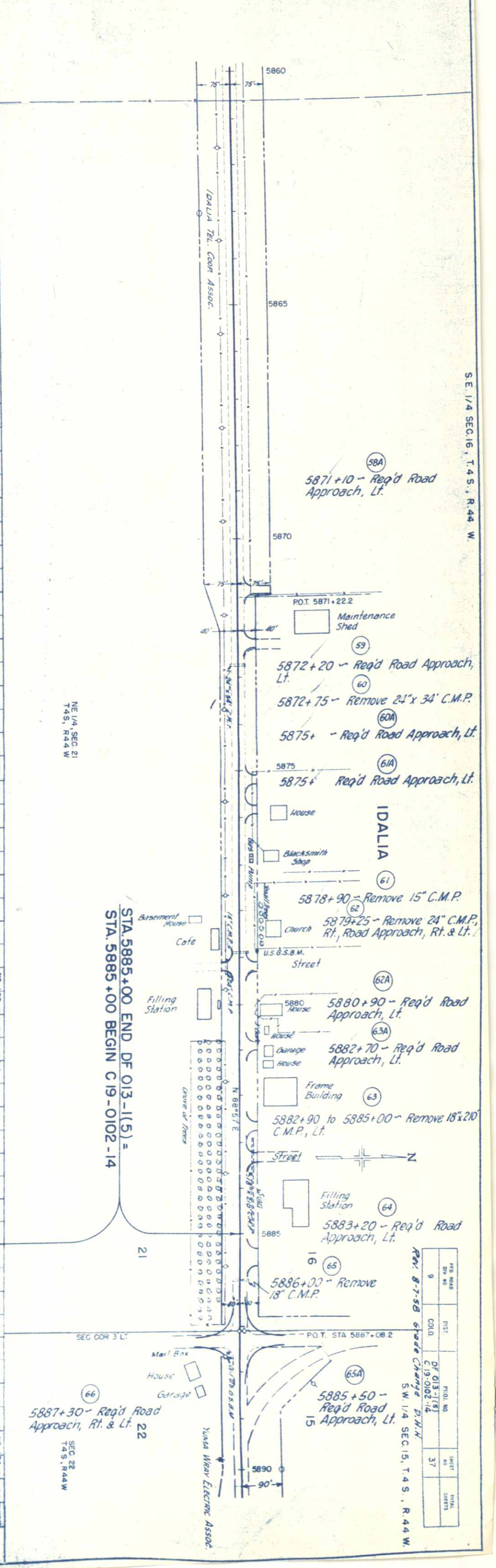
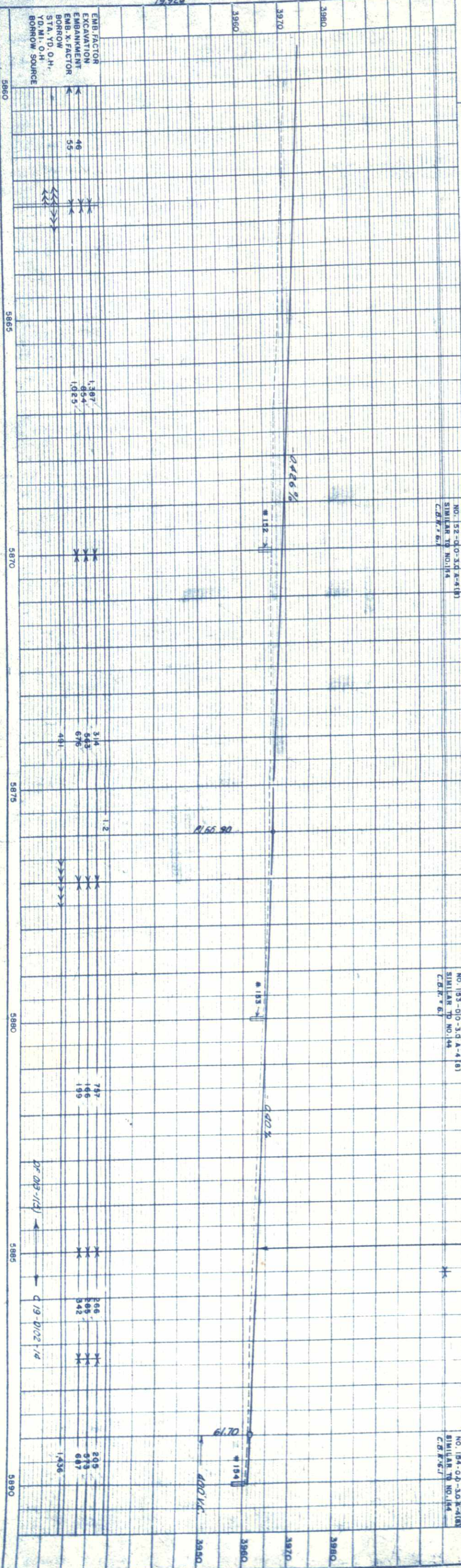
NO. 141 - 0-0-30' X-6' (11)  
 SIMILAR TO NO. 112  
 C.B.R. 4.7

NO. 142 - 0-0-30' X-6' (11)  
 SIMILAR TO NO. 112  
 C.B.R. 4.7

NO. 145 - 0-0-30' X-6' (11)  
 SIMILAR TO NO. 112  
 C.B.R. 4.7







STA. 5885+00 END DF 013-1(5) =  
 STA. 5885+00 BEGIN C19-0102-14

PRO. ROAD	DIS.	PILO. NO.	SHEET	TOTAL
9	COLD	013-1(5)	37	
		C19-0102-14		

Rev. 8-7-58 Grade Change D.M.H.  
 S.W. 1/4 SEC. 15, T.4 S., R.44 W.

S.E. 1/4 SEC. 16, T.4 S., R.44 W.

NE 1/4 SEC. 21  
T.4 S., R.44 W.

SEC. 22  
T.4 S., R.44 W.

NO. 52-00-3.0 A-4(18)  
SIMILAR TO NO. 14  
C.D.R. 6.1

NO. 133-00-3.0 A-4(18)  
SIMILAR TO NO. 14  
C.D.R. 6.1

NO. 134-00-3.0 A-4(18)  
SIMILAR TO NO. 14  
C.D.R. 6.1

EMB. FACTOR  
 EXCAVATION  
 EMBANKMENT  
 EMB. X-FACTOR  
 BORROW  
 STA. YD. O.H.  
 D.M.H. O.H.  
 BORROW SOURCE

46  
55

1.387  
1.624  
1.025

3.14  
5.43  
6.76  
4.91

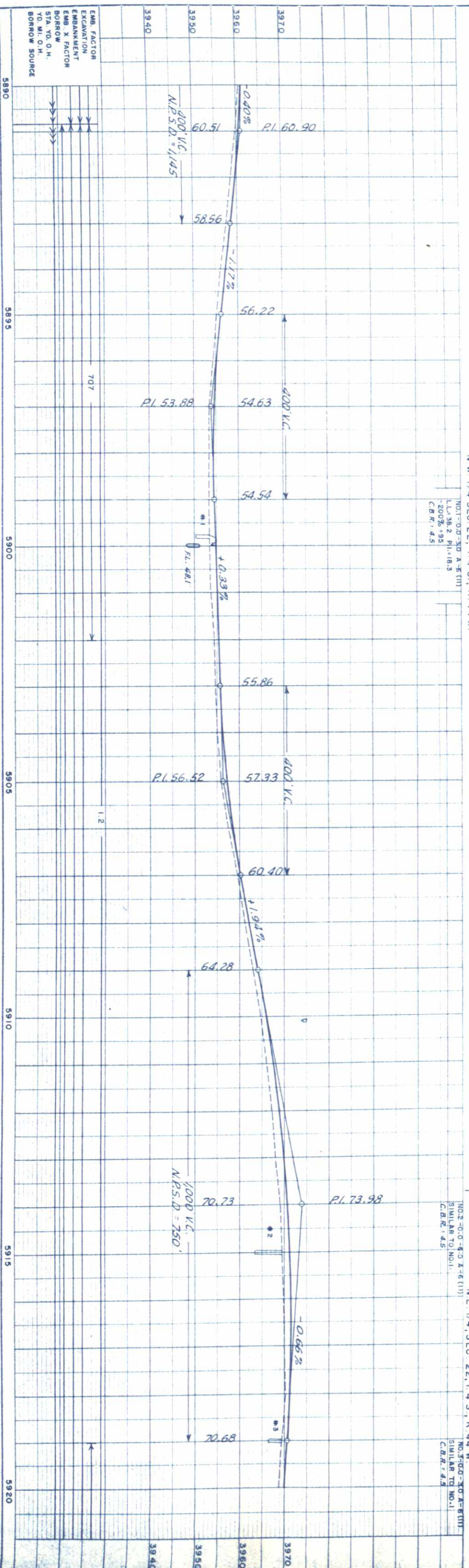
7.97  
1.46  
1.99

2.66  
2.99  
3.42

2.05  
2.13  
2.67  
1.436

3.950  
3.970  
3.980  
3.980

5860  
5865  
5870  
5875  
5880  
5885  
5890



N.W. 1/4 SEC. 22, T. 4 S., R. 44 W.

N.E. 1/4 SEC. 22, T. 4 S., R. 44 W.

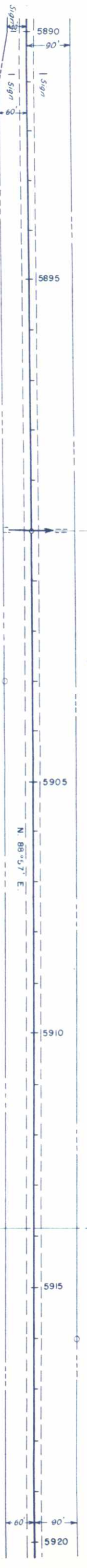
5900+00 ~ Road 36"x88'  
 Cross Culvert, Ditches. (W-2)

NO. 1-00-30 A-F (11)  
 L.L. 38.2 P.I. 18.3  
 C.B.R. 4.5

NO. 2-00-80 A-F (11)  
 SIMILAR TO NO. 1  
 C.B.R. 4.5

NO. 3-00-30 A-F (11)  
 SIMILAR TO NO. 1  
 C.B.R. 4.4

EMB. FACTOR	707
EXCAVATION	
EMBANKMENT	
EMB. X FACTOR	
BORROW	
STA. TO O.H.	
YD. MI. O.H.	
BORROW SOURCE	



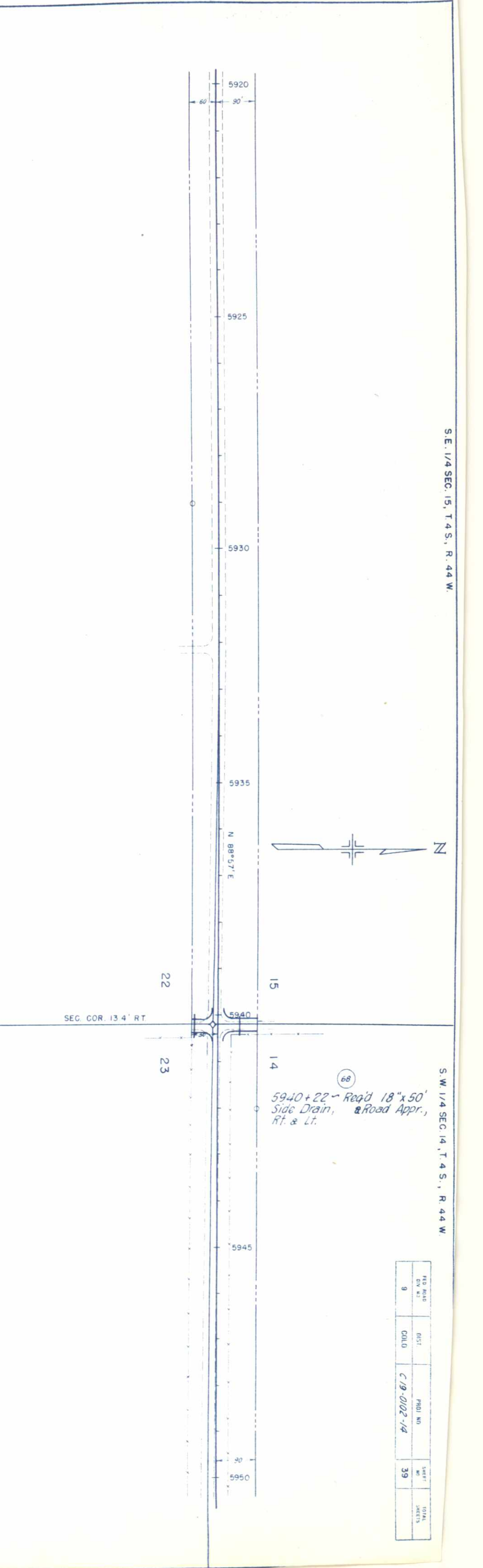
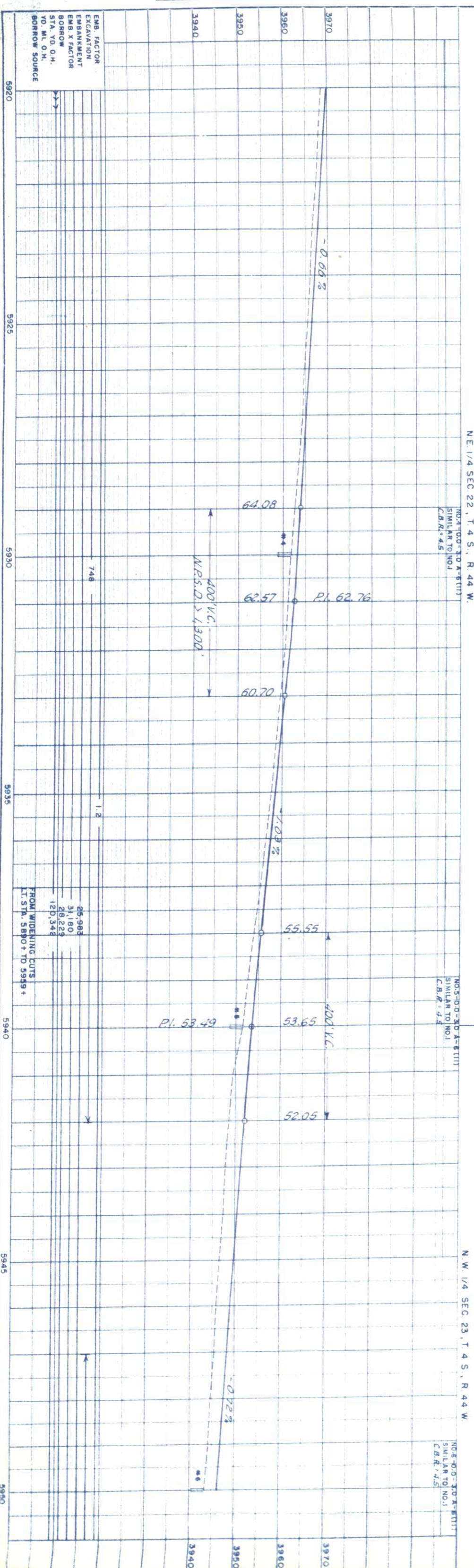
S.W. 1/4 SEC. 15, T. 4 S., R. 44 W.

S.E. 1/4 SEC. 15, T. 4 S., R. 44 W.

FED. ROAD DIST.	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	C 19-0102-14	38	

PROFILE	
SURVEYED	PLOTTED
GRADES CHECKED	NOTED
NO. 19,926	STRUCTURE NOTATIONS CR KD

PLAN	
SURVEYED	PLOTTED
ALIGNMENT CHECKED	RT. OF WAY CHECKED
NOTE BOOK NO. 19,926	



EMB. FACTOR	748
EXCAVATION	1.2
EMBANKMENT	06.983
EMB. X FACTOR	31.180
BORROW	26.629
STA. YD. O.H.	120.348
YD. MI. O.H.	
BORROW SOURCE	

NO. 1-0-0-30 A-8(111)  
SIMILAR TO NO. 1  
C.B.R. 4.5

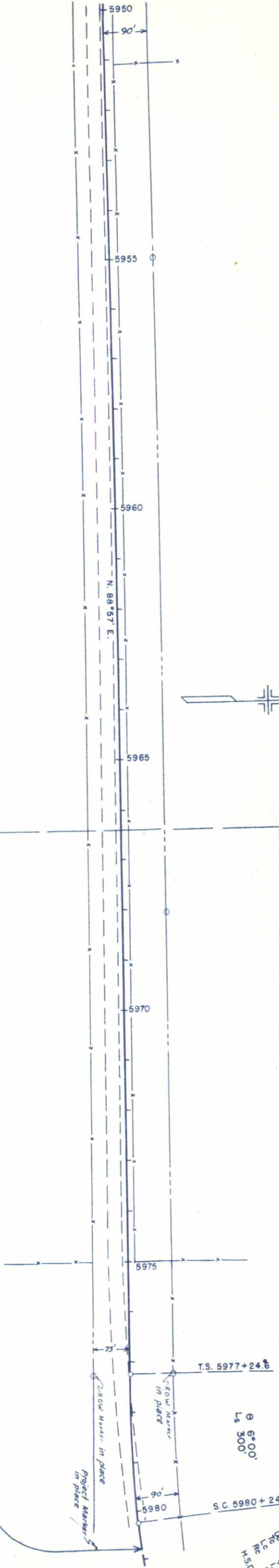
NO. 5-0-0-30 A-8(111)  
SIMILAR TO NO. 1  
C.B.R. 4.5

NO. 5-0-0-30 A-8(111)  
SIMILAR TO NO. 1  
C.B.R. 4.5

REV. NO.	DIST.	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	0010	C-19-0102-14	39	

FILE NO.	DIST.	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	CJLD	C 19-0102-14	40	

90.98  
 180.96  
 270.94  
 360.92  
 450.90  
 540.88  
 630.86  
 720.84  
 810.82  
 900.80  
 990.78  
 1080.76  
 1170.74  
 1260.72  
 1350.70  
 1440.68  
 1530.66  
 1620.64  
 1710.62  
 1800.60  
 1890.58  
 1980.56  
 2070.54  
 2160.52  
 2250.50  
 2340.48  
 2430.46  
 2520.44  
 2610.42  
 2700.40  
 2790.38  
 2880.36  
 2970.34  
 3060.32  
 3150.30  
 3240.28  
 3330.26  
 3420.24  
 3510.22  
 3600.20  
 3690.18  
 3780.16  
 3870.14  
 3960.12  
 4050.10  
 4140.08  
 4230.06  
 4320.04  
 4410.02  
 4500.00  
 4590.00  
 4680.00  
 4770.00  
 4860.00  
 4950.00  
 5040.00  
 5130.00  
 5220.00  
 5310.00  
 5400.00  
 5490.00  
 5580.00  
 5670.00  
 5760.00  
 5850.00  
 5940.00  
 6030.00  
 6120.00  
 6210.00  
 6300.00  
 6390.00  
 6480.00  
 6570.00  
 6660.00  
 6750.00  
 6840.00  
 6930.00  
 7020.00  
 7110.00  
 7200.00  
 7290.00  
 7380.00  
 7470.00  
 7560.00  
 7650.00  
 7740.00  
 7830.00  
 7920.00  
 8010.00  
 8100.00  
 8190.00  
 8280.00  
 8370.00  
 8460.00  
 8550.00  
 8640.00  
 8730.00  
 8820.00  
 8910.00  
 9000.00  
 9090.00  
 9180.00  
 9270.00  
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 9810.00  
 9900.00  
 10000.00

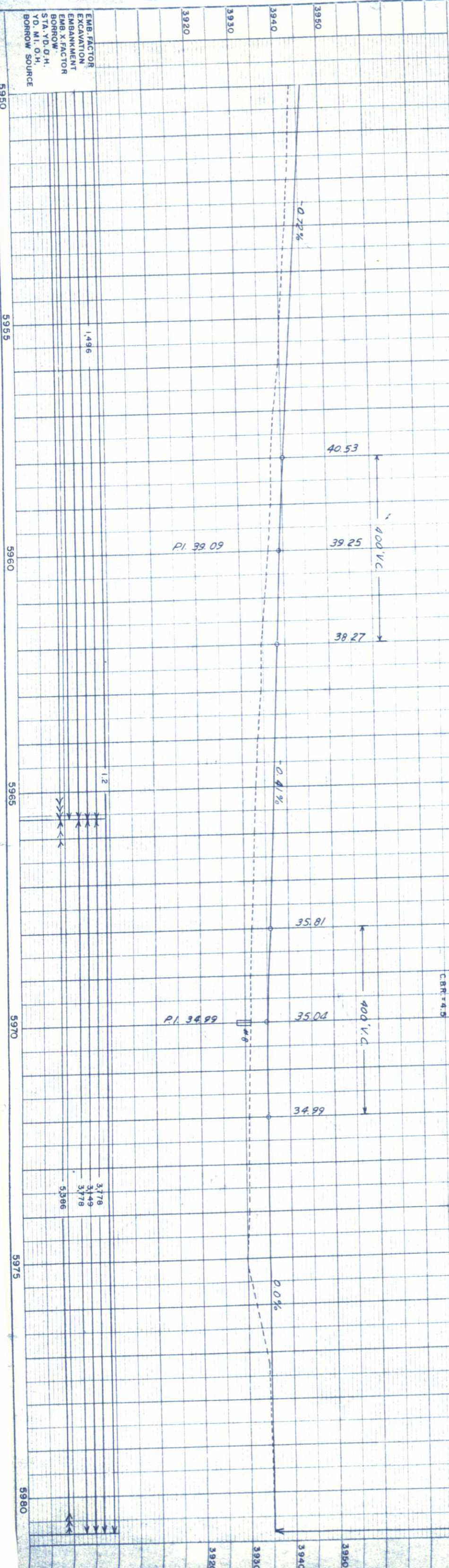


STA. 5980+777 END C19-0102-14 =  
 STA. 5980+777 BEGIN C19-0102-12

N.W. 1/4 SEC. 23, T. 4 S., R. 44 W.

N.E. 1/4 SEC. 23, T. 4 S., R. 44 W.

NO. 8  
 0-50' A-6(11)  
 SIMILAR NO. 1  
 CBR: 45



PROFILE

NO. OF BOOK	NO. OF SHEETS
GRADES CHECKED	STRUCTURE NOTATIONS ON NO.
S. N. NOTED	

NOTE BOOK

PLOTTED	ALIGNED CHECKED
RT. OF WAY CHECKED	

EMB. FACTOR  
 EXCAVATION  
 EMBANKMENT  
 EMB. X FACTOR  
 BORROW  
 STA. YD. O. H.  
 YD. M. O. H.  
 BORROW SOURCE