Old State Road
No 1
See E

DIETZGEN
TRADE MARK

ENGINEERS'
FIELD BOOK
No. 400

EUGENE DIETZGEN CO.

DRAWING MATERIALS, MATHEMATICAL and SURVEYING INSTRUMENTS

Chicago New York San Francisco New Orleans Pittsburg Toronto

Distances from Center of Roadway for Cross-Sectioning
Roadway 16 feet wide. Side Slopes 1 on 1.
For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	[illegible]	8.1	8.2	8.3	8.4	[illegible]	8.6	[illegible]	[illegible]	8.9	0
1	9.0	[illegible]	9.2	9.3	9.4	9.5	9.6	[illegible]	9.8	[illegible]	1
2	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	2
3	11.0	11.1	[illegible]	[illegible]	11.4	11.5	11.6	11.7	11.8	11.9	3
4	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	4
5	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	5
6	14.0	14.1	[illegible]	14.3	14.4	14.5	14.6	14.7	14.8	14.9	6
7	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	7
8	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	8
9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	9
10	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	10
11	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	11
12	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	12
13	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	13
14	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	14
15	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	15
16	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	16
17	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	17
18	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	18
19	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	19
20	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	20
21	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	21
22	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	22
23	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	31.9	23
24	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	24
25	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	25
26	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	26
27	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	27
28	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	36.9	28
29	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	37.9	29
30	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9	30
31	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	31
32	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	40.9	32
33	41.0	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8	41.9	33
34	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	42.9	34
35	43.0	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8	43.9	35
36	44.0	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8	44.9	36
37	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	45.9	37
38	46.0	46.1	46.2	46.3	46.4	46.5	46.6	46.7	46.8	46.9	38
39	47.0	47.1	47.2	47.3	47.4	47.5	47.6	47.7	47.8	47.9	39
40	48.0	48.1	48.2	48.3	48.4	48.5	48.6	48.7	48.8	48.9	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 30.6. For same slopes but other widths of roadbed, correct above figures by one-half difference in width of roadbed; thus in example above, for 20 ft. roadbed distance will be 30.6 + (20 − 16) ÷ 2 or 2 ft. added to 30.6 = 32.6. For slopes of 1 on 1½ see inside of back cover.

Book 39 OVER

Johnsons Corners to South Line East Claridon Road

All stakes 25' offset to Right unless otherwise shown

= Old State Road (Middlefield - Concord Rd) from. Burton-Windsor Road Northerly.

Note
Iron pipes were set at all PI, POT, PC and PT after pavement was laid 1" by 18" set flush with pvt.

S.R. 608 Nly from C.H #14 Pg 1

DURREE Rd relocation Pg 79

5.27 1165.22 1160.45

1154.8 1145.7 1145.A

1159.4

Road south

℄ 50 100 150 200
5.8 10.4 15.5 19.4 21.9

1159.4

0+00 200/4.0 150/3.7 100/3.9 50/4.3 25/5.0 15/5.5 ℄/5.8 17/6.0 25/5.5 50/5.2 100/5.0 150/5.8 200/6.2

0.16 1165.56

11.05 1176.61 1168.0

1+00 28/3.1 21/7.3 15/8.5 13/9.6 10/10.1 7/8.7 ℄/8.6 2/8.9 5/8.5 9/8.5 11/8.7 16/8.2 18/9.3 22/9.2 28/6.8

0.18 1176.43

12.46 1188.89 1177.1

2+00 25/7.6 12/9.6 21/10.5 30/10.0 16/10.3 11/11.5 ℄/11.8 4/12.1 9/12.4 13/12.6 17/13.9 18/13.6 23/9.8 29/9.1

1182.2

2+55 25/4.0 16/6.1 12/8.2 8/6.9 ℄/9.7 10/7.2 13/8.4 16/8.4 18/7.0 25/6.5

1183.7

3+00 26/2.1 18/3.8 13/5.7 12/5.0 ℄/5.2 7/5.0 9/7.3 11/7.2 13/5.4 25/6.3

0.44 1188.45

12.97 1201.42

1189.1

3+97 FL/12.9 ℄/12.3 FL/15.4

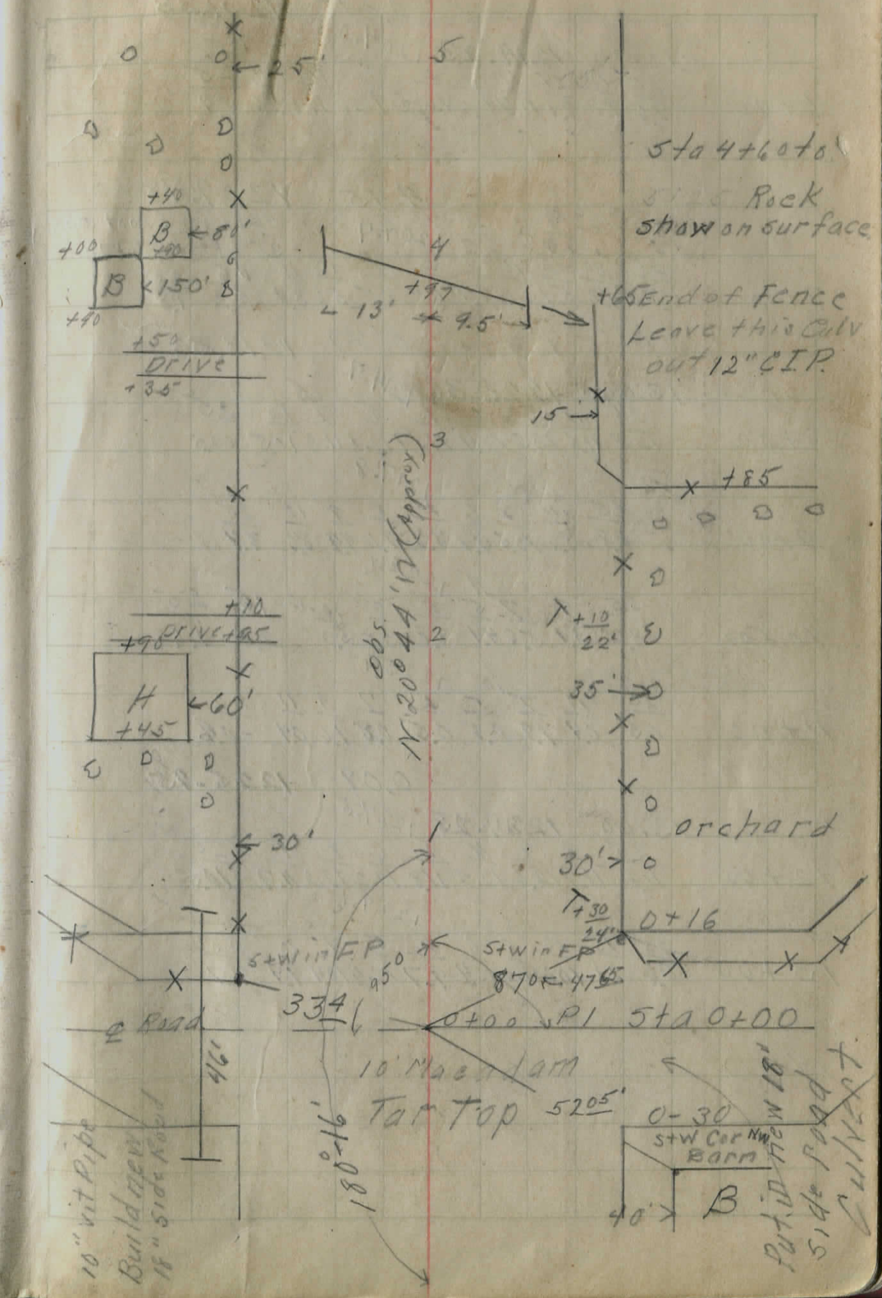
1189.0

4+00 25/11.5 13/10.8 11/12.0 9/12.4 7/12.3 10/13.7 14/12.3 25/12.2

1196.5

5+00 25/3.5 14/4.6 12/6.3 9/5.1 ℄/4.9 10/4.9 11/5.7 13/4.5 25/2.7

BM on N side Stone N.W Cor Barn Sta 0-20



0.09 1201.33

12.90 1214.23 1204.0

6+00 25/9.6 18/9.8 14/9.9 11/11.7 8/11.6 6/10.2 9/10.6 12/11.6 14/9.6 20/8.4

4.45 1209.78

1209.7 Spike in E Root Chestnut 35' Lt. Sta 6+70

7+00 25/4.0 20/4.2 12/5.1 10/6.6 7/4.7 6/4.5 7/4.5 10/5.6 11/3.8 16/2.2 25/1.8

0.87 1213.36

13.00 1226.36 1214.7

8+00 25/12.8 11/11.8 8/13.5 6/12.4 6/11.7 5/12.1 7/11.0 10/10.5 25/10.5

1217.8

9+00 25/8.8 11/8.6 8/10.5 6/9.4 6/8.6 8/9.0 9/9.9 12/8.4 25/6.4

1222.6

10+00 25/3.2 9/3.1 7/5.6 5/4.1 6/3.8 9/3.8 10/5.0 12/2.3 16/1.6 20/1.6

1225.9

11+00 25/0.5 11/0.4 7/1.9 10/0.9 5/0.5 6/0.8 7/1.6 9/0.4 11/-0.6 25/-0.6

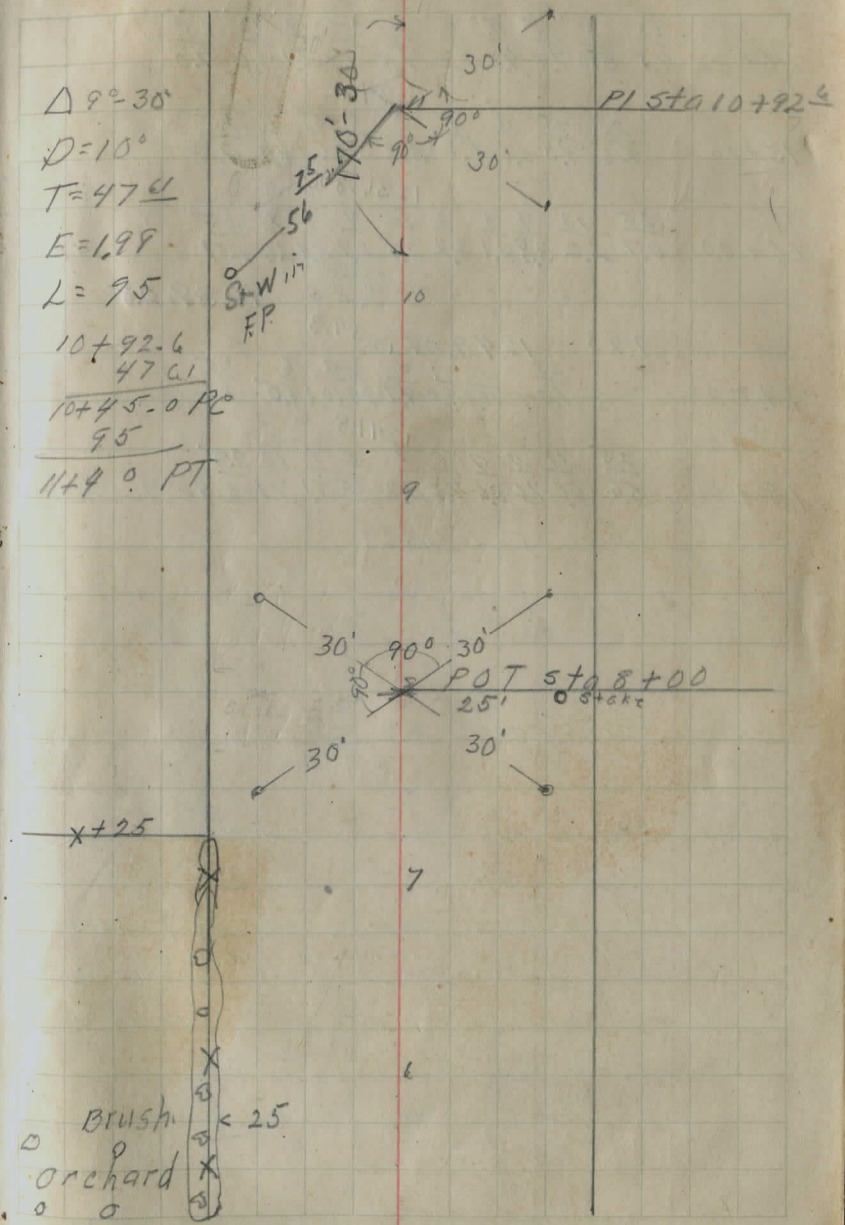
0.08 1226.28

13.00 1239.28 1227.5

12+00 25/11.8 11/11.9 8/12.6 6/12.2 4/11.8 6/12.2 8/12.2 10/11.7 20/10.5

1229.6

13+00 25/8.6 15/9.1 10/10.0 8/11.0 6/10.4 6/9.7 5/10.0 7/10.4 10/9.9 25/9.7



1239.28

1231.5

14+00 — 25/4.5 21/5.0 15/7.4 11/9.2 9/8.2 8/7.8 5/7.7 8/8.7 10/7.4 25/7.0

1234.1

15+00 — 25/4.0 15/4.3 11/6.6 5/5.6 8/5.2 4/5.3 6/5 7/4.9 25/4.8

1236.8

16+00 — 25/0.7 13/2.2 9/3.8 8/3.1 2/2.2 8/2.5 4/2.7 6/3.4 7/2.6 25/1.7

0.20 1239.08

9.93 1249.01 1239.3

17+00 — 25/7.8 12/10.1 9/9.8 8/9.7 24/9.9 6/10.1 9.5 25/8.7

1241.8

18+00 — 25/5.6 18/6.0 11/7.6 9/8.4 6/7.6 8/7.2 5/7.5 8/8.1 10/7.1 25/6.0

17

16

15

14

13

12

1244.2

19+00 — 25 10 8 6 4 4 7 9 25
3.6 5.3 6.3 5.3 4.8 5.4 5.8 4.7 5.0

4.14 1244.87

1245.5

20+00 — 25 10 9 7 6 5 6 25
2.9 3.8 4.5 3.8 3.5 4.0 4.3 4.8

1246.7

21+00 — 25 9 8 6 4 5 7 9 25
3.1 2.6 2.9 2.5 2.3 2.6 3.0 3.0 3.3

2.28 1246.73

11.62 1258.35

1248.5

22+00 — 25 10 8 7 4 6 8 9 14
8.9 9.9 10.6 10.4 9.9 10.3 10.8 10.5 9.5

1250.5

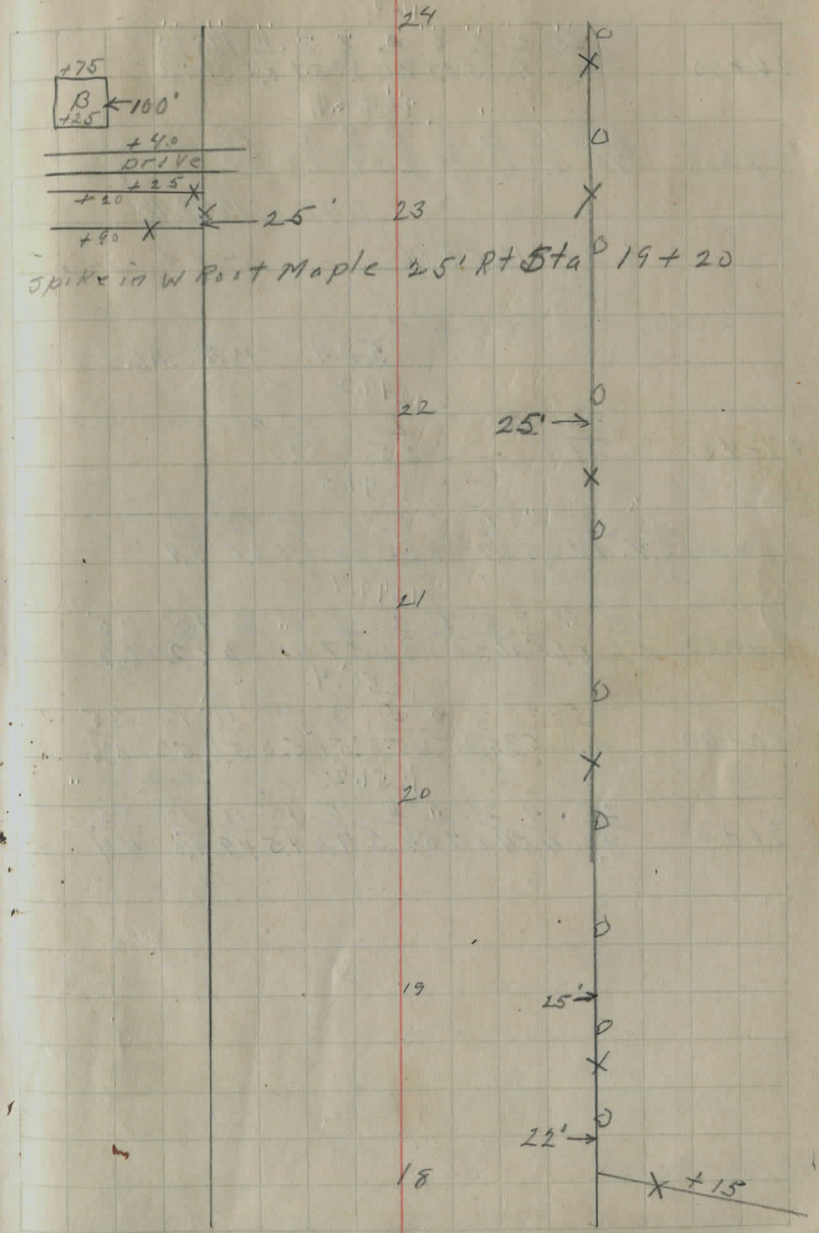
23+00 — 25 12 9 8 4 7 8 14 25
5.6 7.5 8.0 7.8 7.9 8.2 8.3 7.1 6.4

1253.9

24+00 — 25 9 8 6 4 5 8 9 13 25
4.1 5.1 5.3 5.2 4.5 5.2 5.8 5.3 4.8 4.7

1252.1

25+00 — 25 13 8 7 5 4 6 9 10 25
5.6 5.8 6.5 6.9 6.6 6.3 6.6 7.0 6.5 6.1



1258.35

1250.3

26+00 — 25 11 7 6 4 7 8 11 14 25
7.0 8.0 8.5 8.4 8.1 8.3 8.7 8.2 7.7 7.0

1249.4

27+00 — 25 15 8 7 4 7 9 25
7.5 8.7 8.8 8.3 9.0 9.1 9.0 9.0

8.92 1249.43

6.21 1255.66

5.24 1250.42

1249.2

27+43 — Fl. A+25' 4 Fl. A+25'
6.9 6.5 7.9

1249.5

28+00 — 25 20 15 6 5 4 7 9 10 25
5.4 6.4 6.5 6.7 6.4 6.2 6.4 6.7 6.4 7.4

1249.7

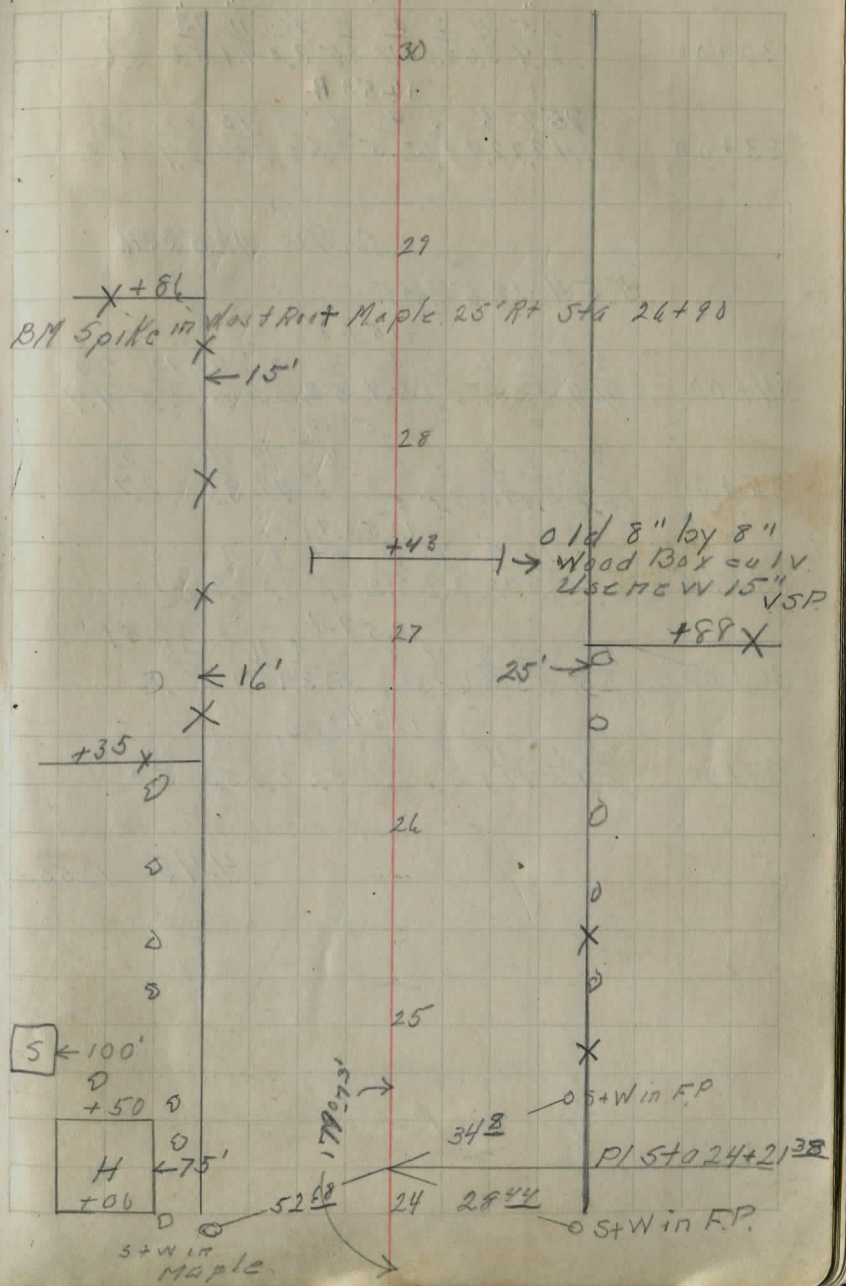
29+00 — 25 21 7 6 5 4 3 5 5 10 25
5.6 5.6 5.9 6.3 6.1 6.0 5.7 6.1 6.3 6.2 6.2

1250.4

30+00 — 25 17 3 2 4 5 9 11 12 25
5.3 5.3 5.6 5.3 5.1 5.3 5.6 5.3 5.6

1251.2

31+00 — 25 4 2 1 4 5 10 11 12 25
3.8 4.5 4.8 4.5 4.5 4.2 4.5 4.9 4.3 4.4



1253.66

1252.0

32+00 — 25/2.4 4/3.6 2/4.0 2/3.7 5/3.5 10/3.8 11/4.1 13/3.6 25/3.6

1253.2

33+00 — 25/1.4 7/2.2 4/2.9 3/2.6 2/2.5 4/2.3 9/2.6 10/3.0 13/2.4 25/1.5

0.90 1254.76

5.54 1260.30

1254.9

34+00 — 25/4.9 8/5.5 6/5.9 4/5.6 4/5.4 3/5.2 5/5.4 9/6.1 12/5.5 25/4.7

1257.0

35+00 — 25/2.9 8/3.6 7/4.0 6/3.7 4/3.3 7/3.5 9/4.1 11/3.6 25/2.7

1258.1

35+75 — 25/2.3 11/2.9 9/3.2 7/2.9 4/2.2 5/2.5 9/3.0 11/2.5 25/1.9

1257.7

36+00 — 25/2.5 10/3.3 9/3.4 7/3.3 4/2.6 6/3.0 9/3.4 11/2.7 25/2.2

1254.8

37+00 — 25/5.4 13/5.7 11/6.1 6/5.9 4/5.5 2/5.5 4/5.9 7/5.3 25/5.0

4.46 1255.84

34

35

34

33

32

31

BM Spike in W Root Maple 23' Lt Sta 37+00

1260.30

1252.8

38+00 25/7.1 15/7.2 13/8.2 11/7.9 8/7.5 3/8.1 11/6.4 25/4.8

1247.4

39+00 25/11.5 18/11.7 15/13.1 13/12.6 7/12.4 4/12.9 9/9.8 25/8.4

12.84 1247.46

0.46 1247.92

1243.5

40+00 25/2.8 19/3.1 15/4.8 14/4.4 1/4.1 4/4.4 4/4.2 8/2.3 25/0.8

1238.5

41+00 25/7.4 17/7.9 14/9.0 6/8.5 2/8.8 8/9.4 9/7.0 25/5.2

1235.1

42+00 25/12.0 14/12.1 12/13.3 13 9/12.7 5/12.4 8/12.8 1-4/13.8 5/12.5 11/11.0 17/10.5 25/8.8

12.48 1235.44

0.49 1235.93 1234.0

42+50 25/2.0 11/1.9 9/2.7 6/2.1 8/1.9 5/2.2 9/3.0 16/0.5 25/0.0

1232.8

43+00 25/5.2 8/3.1 2/3.5 2/3.0 13/2.9 18/3.1 21/3.9 25/2.9

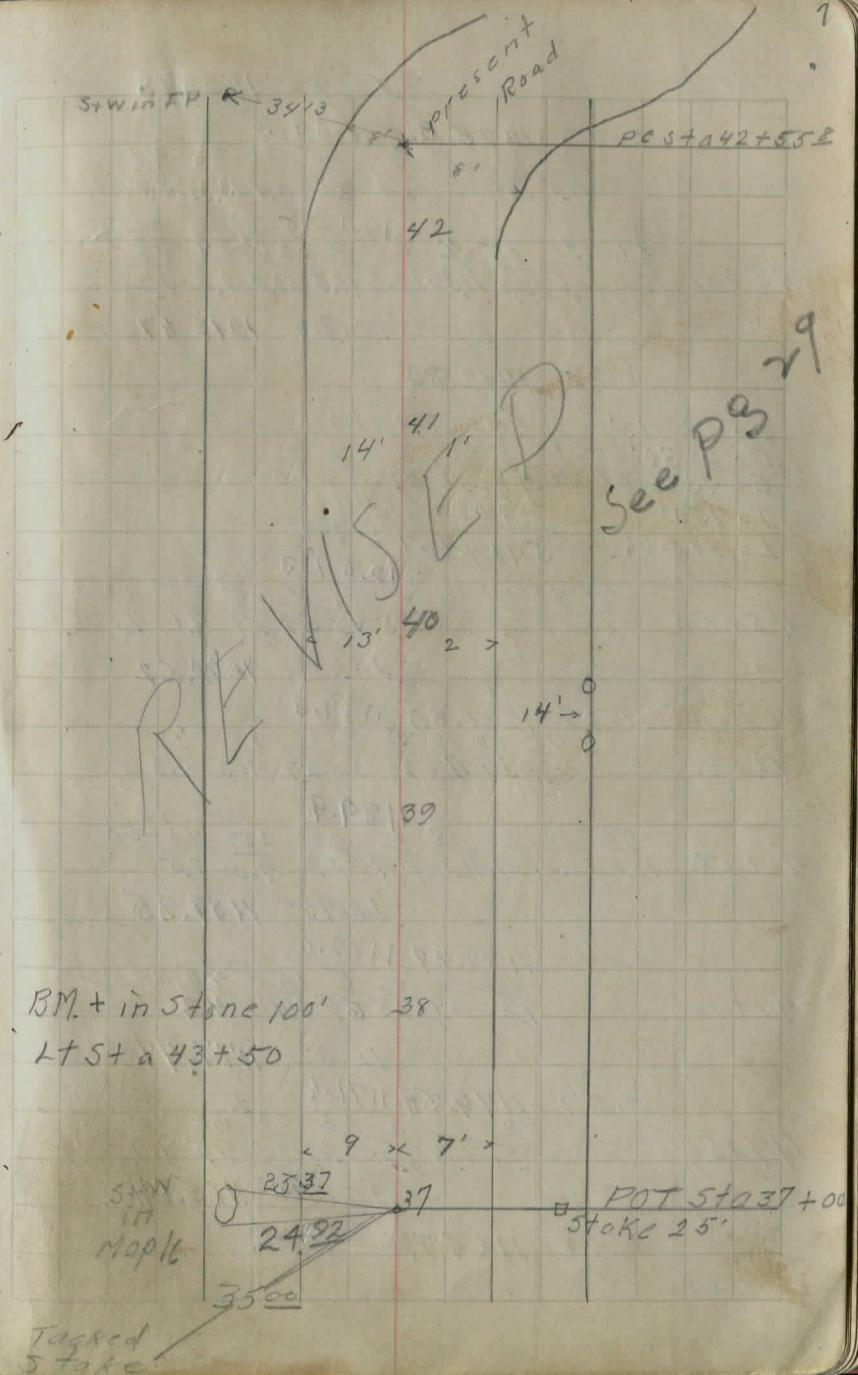
9.47 1226.47

1229.1

43+50 40/9.6 25/9.5 8/6.8 25/5.4 40/5.0

1225.2

44+00 40/15.0 38/15 25/13.1 4/10.7 15/9.4 25/8.8 40/8.2



10.90 1225.03

0-33 1225.36 -1219.3

44+50	43	33	25	E	25	30	35	40	
	10.5	7.4	7.4	C.1	4.6	3.7	3.3	3.3	

1212.8

45+00	51	35	25	14	8	8	26	34	43
	16.0	12.6	12.4	11.9	12.6	10.8	10.9	9.2	9.2

12.69 1212.67

0.13 1212.80

Δ = 22°-13'
D = 2°30'
E = 43.76
T = 450'
L = 888.66

47+05.8
4+50.0
47+55.8 PC
8+88.66
51+44.46 PT

1207.3

45+50	45	39	12	6	2	8	11	15	25	32	40
	9.6	8.4	6.3	7.2	8.5	4.9	5.4	5.1	4.1	4.0	2.5

12.68 1200.02

1.78 1201.80 1199.3

46+00	45	17	12	C	3	20	30	40
	5.4	3.7	4.8	2.5	3.0	2.7	+1.3	-1.3

1189.9

46+50	40	30	20	14	4	20	25	40	-50
	13.2	12.2	13.2	11.9	11.9	8.8	9.0	2.5	

12.45 1189.35

0.14 1189.49 1182.0

47+00	40	6	4	0	15	40	
	5.0	5.4	7.5	6.5	6.4	4.3	

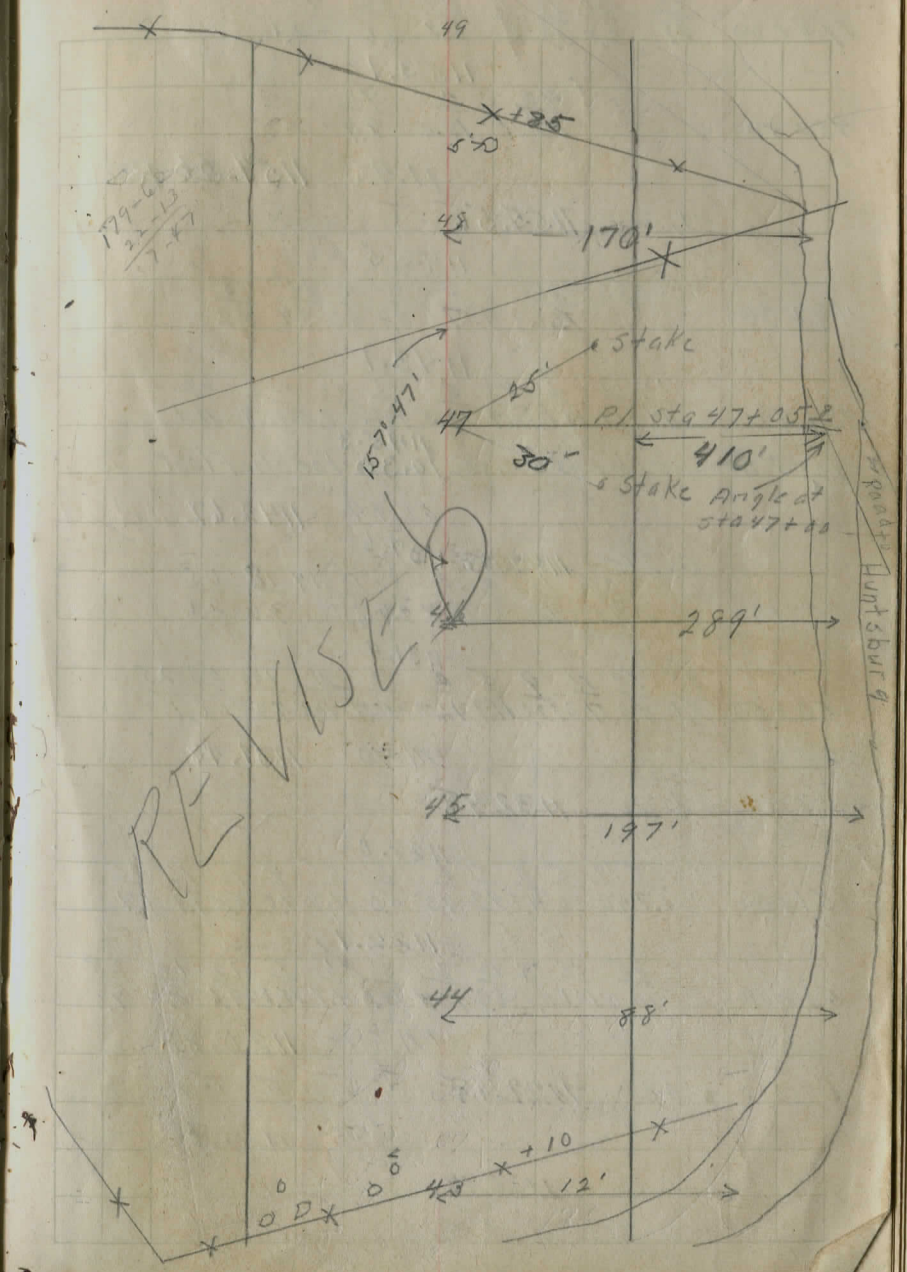
12.02 1177.47

0.07 1177.54 1171.6

47+50	40	23	8	12	25	30	40	
	5.5	6.7	5.9	3.3	3.0	1.5	1.0	

12.50 1165.04

0.68 1165.72



1165.72

1162.9

48+00 40/2.8 30/2.8 18/3.0 10/2.0 ℄/2.8 20/2.6 40/-2.1

1153.1

48+50 40/12.1 ℄/12.6 40/9.4

11.46 1154.26 Rock

1.30 1155.56

1148.5

49+00 25/6.2 ℄/7.1 3/8.9 4/8.6 14/8.4 25/8.2

1143.1

49+50 25/11.4 13/11.9 6/14.1 4/12.7 ℄/12.5 13/12.6 16/13.3 23/13.4 29/11.1

1145.3

10.55 Ground Elev at House 10.30 Porch Floor

12.94 1142.62

0.26 1142.88 1137.6

50+00 25/4.5 14/4.0 3/5.2 ℄/5.3 8/4.9 10-14/5.6 18/3.0 05/2.6

1131.9

50+50 25/8.1 18/9.0 11/11.0 9/12.6 5/11.1 ℄/11.0 9/10.7 11/10.8 14/9.2 23-25/6.6

11.70 1131.18

1.30 1132.48

1128.0

51+00 25/1.7 19/4.0 15/3.0 8/4.7 5/4.3 ℄/4.5 2/5.0 4/4.2 9/4.8 12/3.5 16/1.9 25/0.7

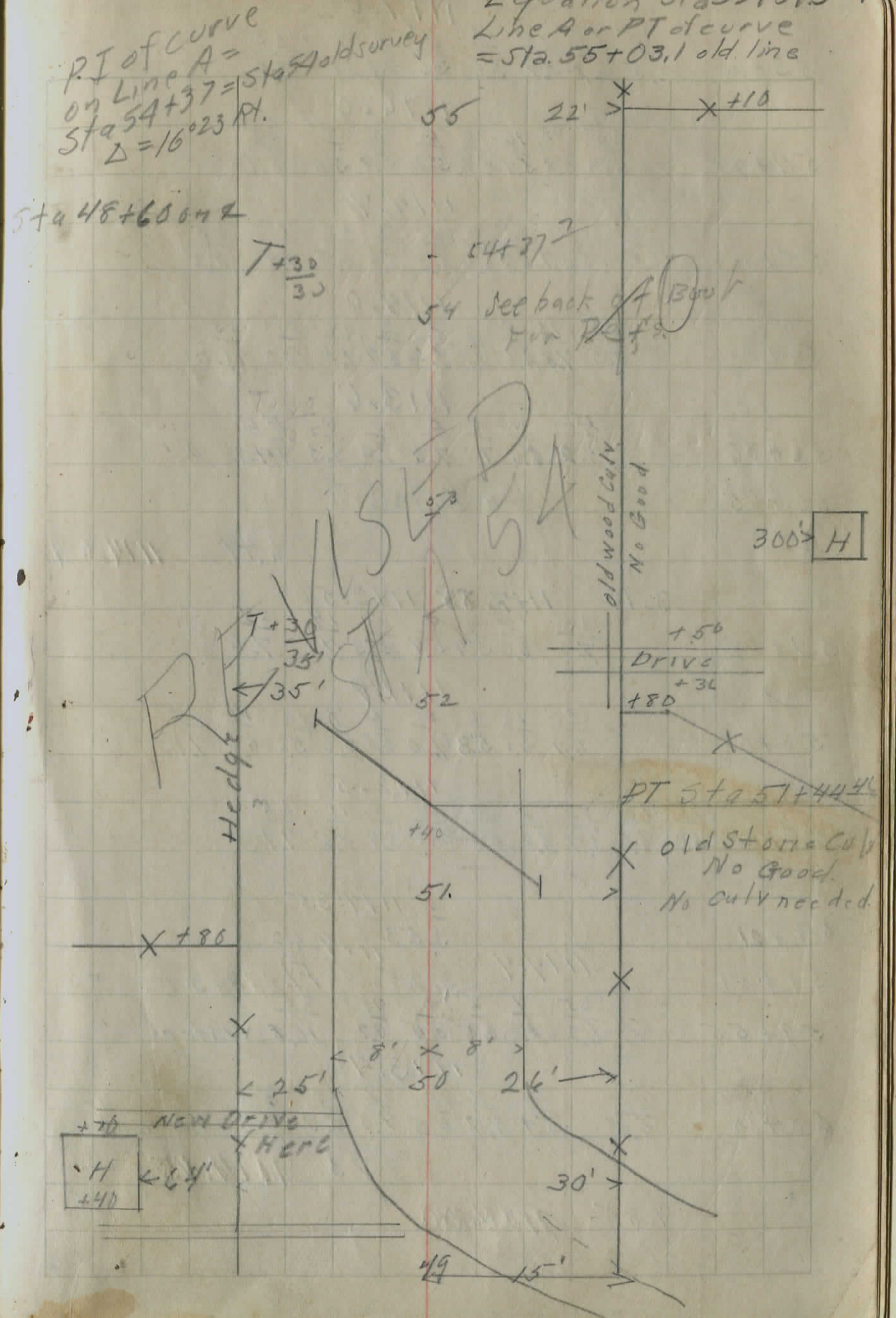
1122.1

52+00 25/10.0 18/10.1 14/11.6 12/10.3 ℄/10.4 3/10.3 6/9.7 9/10.8 12/9.6 19/8.0 25/7.6

11.60 1120.88

0.30 1121.18

Equation Sta 55+39.5
Line A or PT of curve
= Sta. 55+03.1 old line



1121.18

1117.4

25 18 16 13 4 2 4 25
53+00 2.5 2.8 3.9 3.6 3.6 4.0 2.6 3.2

1116.0

25 18 16 12 8 3 4 25
54+00 5.3 5.0 5.4 5.1 5.2 5.9 5.1 6.4

1114.7

25 22 18 15 8 4 3 4 7 25
55+00 6.4 6.5 6.7 6.3 4.0 6.5 7.2 6.5 7.4 8.2

1114.0

25 13 8 6 4 2 10 21 25
56+00 8.5 7.8 6.6 7.1 7.2 6.7 9.1 10.3 11.0

1113.6

FL 8 5 4 5 8 FL
56+36 14.2 6.6 7.3 7.6 7.2 6.5 14.1

6.49 1114.69

3.19 1117.88 1112.5

25 5 3 4 9 14 25
57+00 7.0 6.3 5.4 5.4 5.3 7.2 7.6

1111.9

25 10 6 4 6 7 10 14 25
58+00 6.9 6.1 5.3 6.0 5.6 5.6 5.2 6.6 7.1

1112.5

25 16 12 8 13 4 5 11 25
59+00 6.0 6.0 6.7 6.8 5.0 5.4 5.4 4.6 9.1

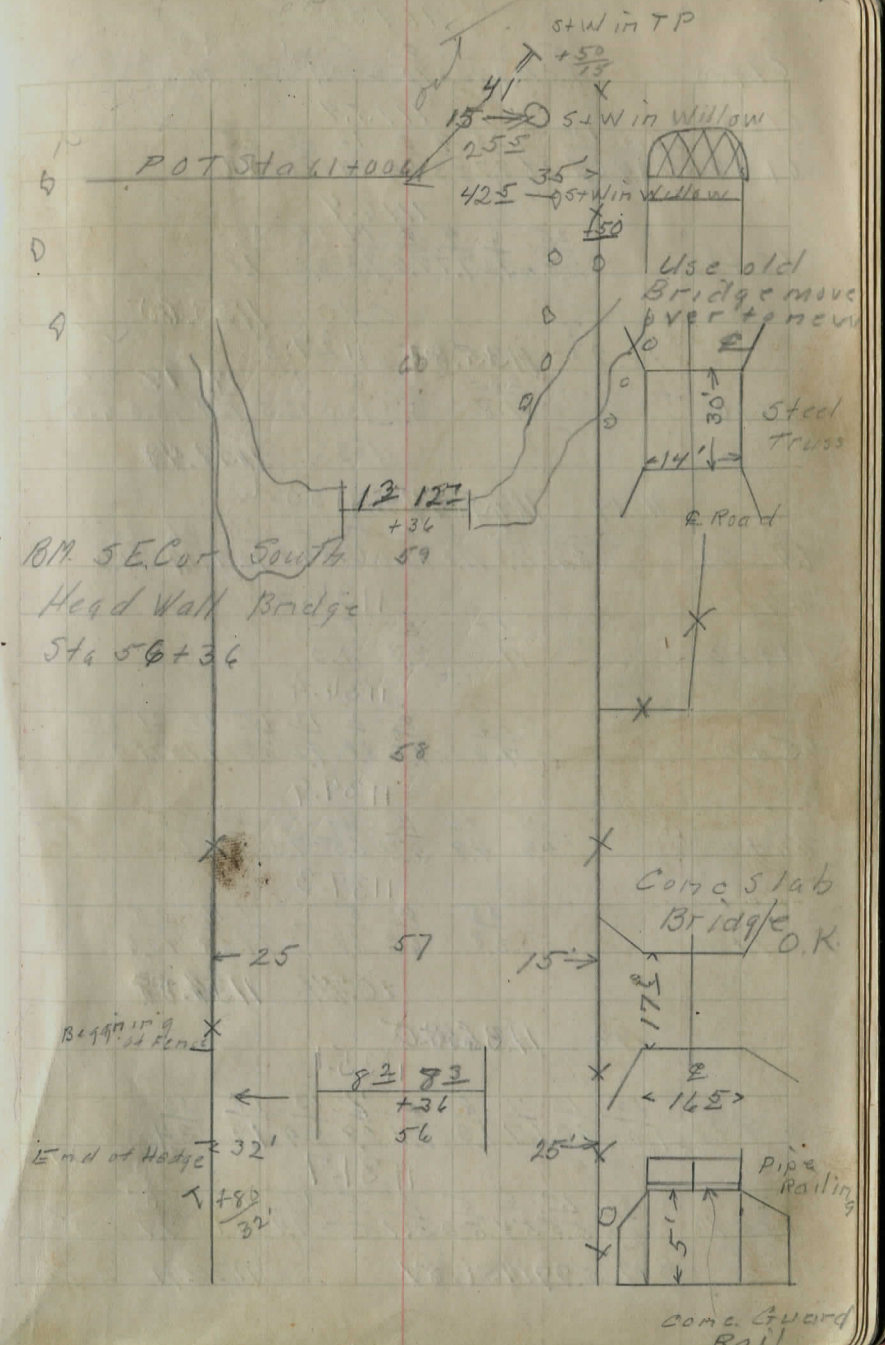
4 1114.35
59+26 3.53 1114.62
59+51 1114.4 3.25 FL 12.3
59+55 25 4 2 4 11 26
4.2 5.0 2.5 3.5 3.7 10.8 water

1113.4

60+00 25 12 7 4 12 13 22 25
4.5 5.9 4.7 4.5 4.3 5.8 7.6 9.0 water

3.73 1114.15

9.85 1124.00



1124.00

1113.8

61+00 — 25 / 11.5 | E / 10.9 | C / 10.3 | 4 / 10.2 | 5 / 10.1 | 12 / 11.0 | 25 / 11.6

1115.4

61+70 — 200 / 0.5 | 150 / 3.4 | 100 / 6.5 | 50 / 8.4 | 25 / 8.7 | 9 / 8.3 | 2 / 8.6 | 16 / 8.4 | 20 / 9.1 | 25 / 8.6

1116.4

62+00 — 25 / 2.8 | 6 / 7.2 | 4 / 7.7 | 2 / 7.6 | 14 / 7.3 | 17 / 8.2 | 25 / 7.8

0.40 1123.60

12.20 1135.80 - 1127.8

63+00 — 25 / 4.8 | 2 / 8.0 | 5 / 13.0 | 7 / 12.5 | 17 / 12.7 | 18 / 13.0 | 25 / 6.6

1.32 1134.48

11.14 1145.62 - 1133.4

64+00 — 25 / 8.9 | C / 12.6 | 2 / 11.8 | 4 / 12.0 | L / 12.3 | 3 / 11.8 | 19 / 12.4 | 21 / 11.9 | 25 / 10.2

1136.3

64+83 — FL / 11.0 | 4 / 9.3 | FL / 11.0

1136.4

65+00 — 25 / 7.8 | 8 / 9.2 | 2 / 8.8 | 13 / 9.2 | 15 / 8.5 | 18 / 9.7 | 21 / 8.9 | 25 / 9.3

1139.9

66+00 — 25 / 4.6 | 10 / 4.9 | 8 / 5.7 | 9 / 6.5 | 13 / 7.3 | 22 / 7.4 | 25 / 6.2

1139.3

67+00 — 25 / 3.8 | 8 / 6.3 | 5 / 6.9 | 6 / 8.0 | 14 / 7.9 | 16 / 6.8 | 25 / 10.6

10.74 1134.88

1.92 1136.80

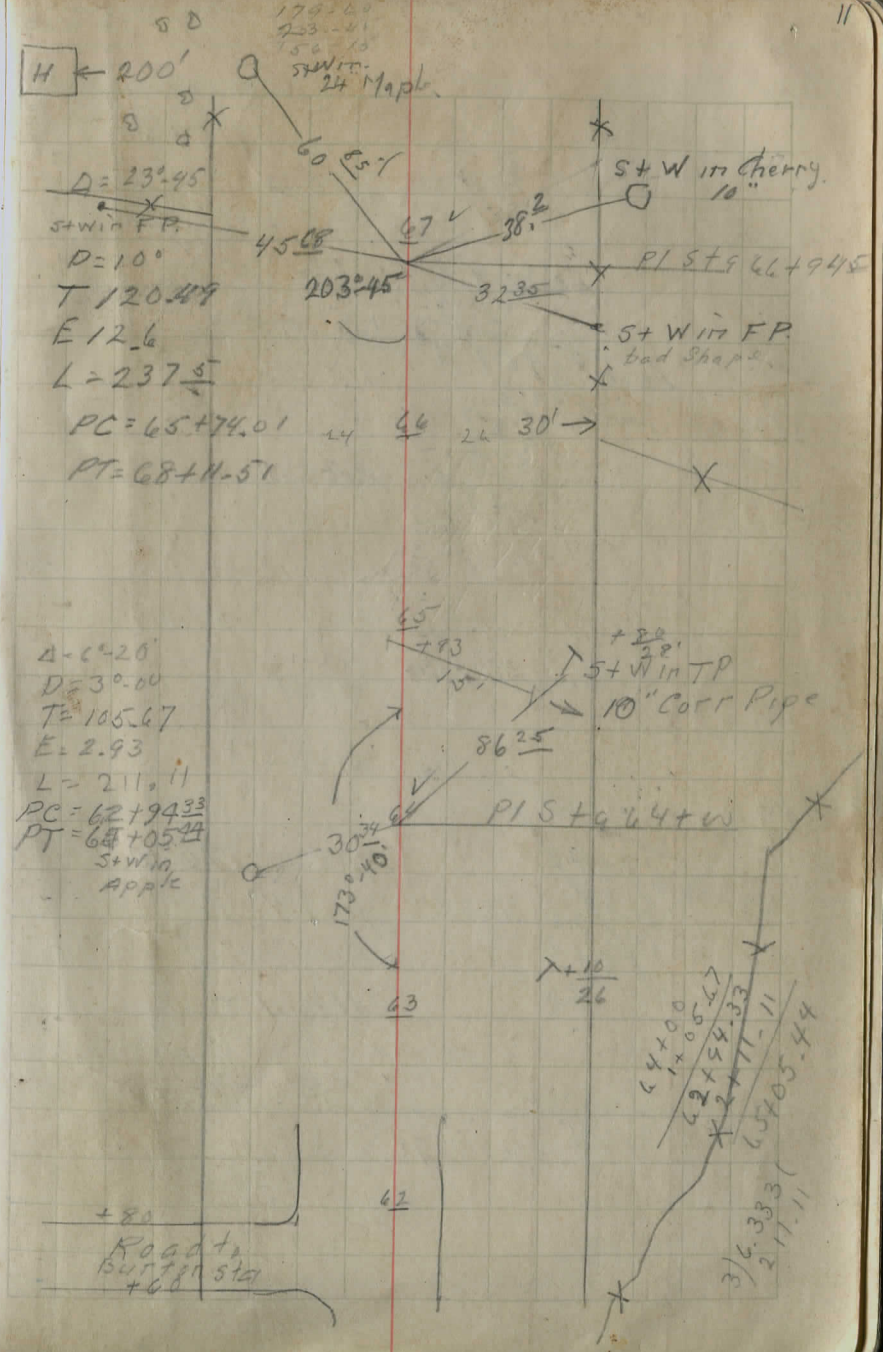
1135.1

68+00 — 25 / 1.0 | 10 / 0.0 | 7 / 1.7 | 6 / 1.3 | 8 / 1.7 | 7 / 2.8 | 13 / 2.9 | 17 / 1.9 | 25 / 3.4

1131.7

68+78 — 25 / 2.0 | 15 / 5.5 | 6 / 5.4 | 5 / 5.0 | 8 / 5.1 | 5 / 5.5 | 13 / 7.4 | 15 / 6.1 | 25 / 7.4

BM 5.99 1130.81 1130.91



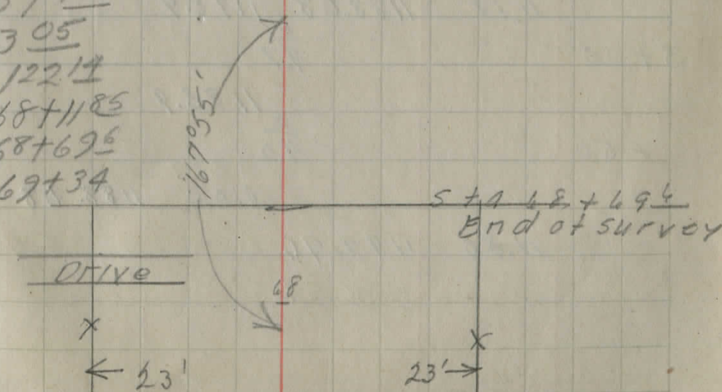
6869.6
38.3
6907.9 — 1.31 miles

5280) 6907.9
528
1627
1584
439

1.30 miles

5280) 68696
5280
15896
15840
560

$\Delta = 12°05'$
$D = 10°30'$
$T = 57.75$
$E = 3.05$
$L = 122.14$
PC = 68+11.85
PI = 68+69.6
PT = 69+34



Levels along Sta 49+00
& Road to 11 42+50

1154.26

	10.76	1165.02	℄ 1148.5	
49+00			16.5	
			1153.1	
+50			℄ 11.9	
			1157.3	
1+00			℄ 7.7	
			1162.1	
+50			℄ 2.9	
			0.23	1164.79
	12.25	1177.04	℄ 1168.0	
2+00			9.0	
			1173.5	
2+50			℄ 3.5	
			0.14	1176.90
	11.18	1188.08	1178.4	
3+00			℄ 9.7	
			1183.9	
+50			℄ 4.2	
			0.00	1188.08
	11.88	1199.96		

1192.0

4+00 E 8.0

1199.8

+50 E 0.2

0.06 1199.90

12.98 1212.88 1203.3

5+00 E 9.4

1207.6

+50 E 5.3

1212.3

6+00 E 0.60

0.00 1212.88

12.83 1225.71 1216.4

6+50 E 9.3

1218.5

7+00 E 7.2

+50 E 4.6 1221.1

1223.6

8+00 E 2.1

1225.7

+50 0.0

0.30 1225.41

10.80 1236.21

		1227.7
9+00	2 / 8.5	
		1229.4
9+50	2 / 6.8	
		1231.3
10+00	2 / 4.9	
		1232.8
10+50	2 / 3.4	
		1234.0
10+93 = Sta 42+50	2 / 2.4	
	9.90	1226.31 1226.47

Check Levels

			BM	
			1130.91	
11.46	1142.37			
		7.09	1135.28	
0.59	1135.87			
		12.60	1123.27	
0.71	1123.98			
		10.65	1113.33	
			4.68	1114.77
		0.30	1119.15	
12.40	1131.55			
		0.25	1131.30	
11.90	1143.20			
		0.05	1143.15	
10.98	1154.13			
		0.47	1153.69	
12.00	1165.69			
			11.31	1154.38
		0.24	1165.45	
12.42	1177.87			
		0.28	1177.59	
12.68	1190.27			
		0.56	1189.71	
12.77	1202.48			

1130.91
1130.06
.85 diff

BM. SW Cor W. Headwall

BMSE Cor. South Headwall Bridge Sta 54+36

Rock Sta 48+60 on ℄

Huntsburg Road

Sta 4+50 on Hill road = 0+00
going up Huntsburg Road

1199.90

11.39 1211.29 1199.8

0+00 2 / 11.4

1205.0

+50 2 / 6.3

1210.8

1+00 2 / 0.5

0.13 1211.16

12.54 1223.70 1216.0

1+50 2 / 7.7

1221.6

2+00 2 / 2.1

0.13 1223.57

12.36 1235.93 1227.1

+50 2 / 8.8

1230.7

3+00 2 / 5.2

1235.2

+50 2 / 0.7

0.22 1235.71

11.82 1247.53

		1238.7	
4+00		8.8	
		1243.7	
+50		5.5	
		0.27	1247.26
	11.97	1259.23	1248.9
5+00		10.3	
		1252.3	
+50		6.9	
		1254.4	
6+00		4.8	
		1256.2	
+50		3.0	
		1258.2	
7+00		1.0	
		1261.2	
+50		-2.0	
		1263.2	
8+00		-4.0	

Hill begins to slope other way.

		0.20	1202.28	
12.55	1214.83			
		0.70	1214.13	
12.43	1226.56			
			0.09 1226.47	BM Cross in Stone 100' Lt Sta 43+50
		0.02	1226.54	
12.15	1238.69			
		0.23	1238.46	
12.93	1251.39			
		0.61	1250.78	
11.20	1261.98			
			6.20 1255.78 ↘	
		8.34	1253.64	BM Spike in W Root Maple 23' Lt Sta 37+40
0.76	1254.40			
			4.06 1250.34	BM Spike in W Root Maple 25' Rt Sta 26+90
~~2.06~~	~~1252.40~~	2.00	1152.40	
0.39	1252.79	~~0.39~~	~~1252.79~~	
~~7.89~~	~~1144.~~	7.89	1244.90	
0.76	1245.66			
			0.80 1244.86	Spike in W Root Maple 25' Rt Sta 19+20
		12.54	1233.12	

		~~1233.12~~	1233.12	
0.00	1233.12			
		11.59	1221.53	
0.20	1221.73			
		12.41	1209.32	
1.20	1210.52			
			0.74	1209.78
		1243	1198.09	
0.59	1198.68			
		12.64	1186.02	
0.15	1186.17			
		12.73	1173.44	
0.05	1173.49			
		13.04	1160.45	

Spike in E Root Cherry 35' Lt Sta 6+70

BM Cobble stone under Barn

Levels on Line A

1226.47

1.65 1226.12

12.67 1215.48

0.58 1216.03

5+45 Cross section 5' Rt of old + Sec.

1208.7

45+50 40/9.0 30/10.2 23/8.4 12/8.8 5/7.3 0/7.3 5/7.4 13/5.7 18/6.1 30/4.6

12.53

0.62 1204.12

1203.5

46 30/4.1 18/4.3 0/0.6 30/-1.0

1194.3

+50 40/14.5 23/11.1 0/9.9 30/8.7

12.69 1191.43

0.59 1192.02

1186.7

47 40/8.6 30/7.3 0/5.3 30/3.6

12.83 1179.19

0.44 1179.63

1178.2

47+50 40/4.5 27/3.1 0/1.4 30/-1.0

1169.2

48 45/14.2 30/9.5 0/10.4 30/10.2 40/12.2

12.56 1167.07

0.02 1167.09

1156.9

48+45 30/10.2 Q/10.2 30/8.1

1154.1

49 30/15.8 Q/13.0 30/10.9

12.95 1154.14

0.21 1154.35

1143.5

50 30/13.3 Q/10.9 33/9.2

11.70 1142.65

1.80 1144.45

1141.2

+50 30/4.5 Q/3.3 30/2.3

1136.6

51 30/7.7 Q/7.9 30/6.2

1134.4

+50 30/21.1 18/11.3 Q/10.1 18/9.5 36/18.5

10.02 1134.43

0.54 1134.97

1134.97

1129.1

52 — 30 / 7.6 — 15 / 5.8 — 0 / 5.9 — 25 / 7.9 — 30 / 8.0

1123.8

+50 — 30 / 11.0 — 0 / 11.2 — 30 / 11.4

12.97 1122.08

3.00 1125.00

1119.5

53 — 30 / 4.9 — 0 / 5.5 — 30 / 5.0

1116.5

54 — 30 / 8.3 — 0 / 8.5 — 30 / 9.3

10.17 1114.83 1114.77

Sta 54 Same as old Line + Ext. to Rt.

54+37 = Line A

29.39
3.6
17634
8877
106.404

7.87
3.6
4722
2361
28.332

167.13
125
42.13' PC

A = 16°-23
D = 8°
T = 103.1
R = 716.78
E 7.38
L = 204.9
Equ = 1.3 ft
to be subtracted from relocation Equation.

PI = sta 61+00

19-46
28
19-18

54+00
1+03.1
52+96.9 PC
2+04.9
55+01.8 PT

~~51+25~~
Def 6° = 100'
" 3° = 50'

100.00
57.87
42.13

1°-46'	=	51+50
4°-46'		51+00
7°-46'		50+50
10°-46'		50+00
13°-46'		49+50
16°-46'		49+00
19°-18'		48+57.87

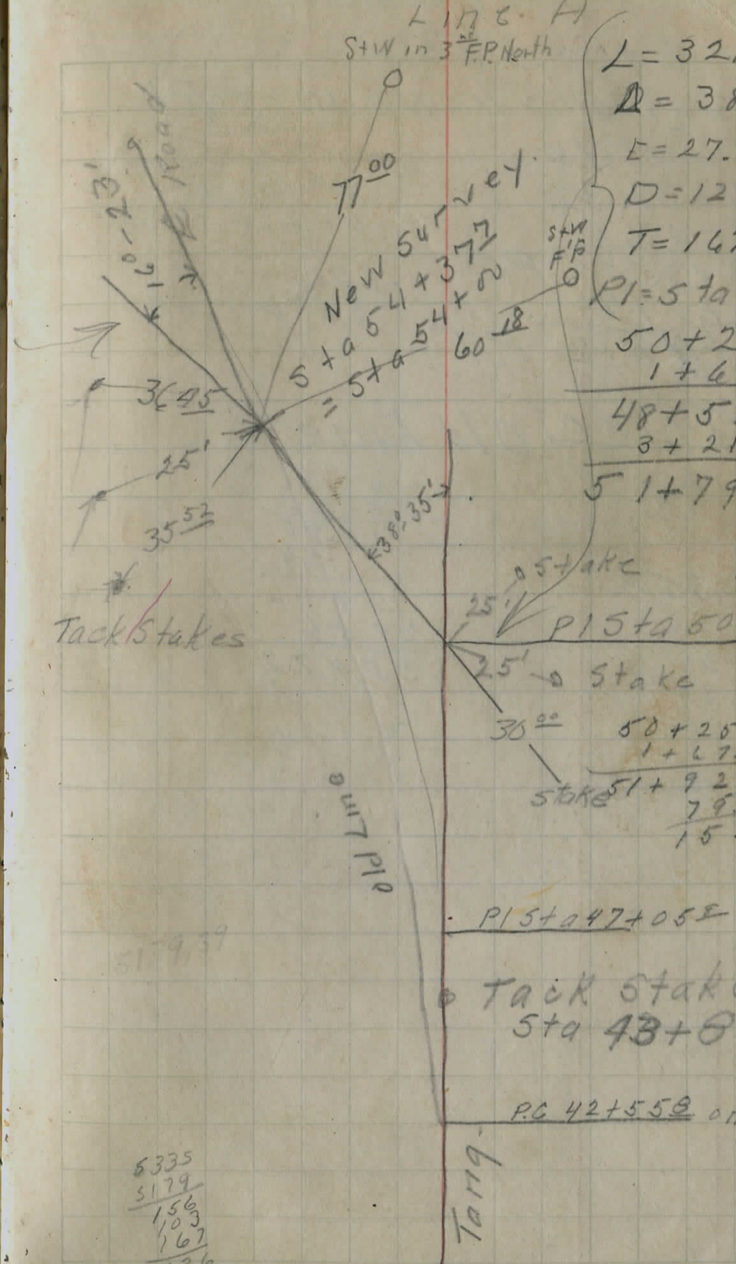
42.13
36
25278
12639
1516.68

28'
3°.28

(60)151.66
132
31

2°-32'

Line A



L = 321.52
Δ = 38°-35'
E = 27.57
D = 12°
T = 167.13
PI = Sta
50+25
1+67.13
48+57.87 PC
3+21.52
51+79.39 PT

67.13
25.00
42.13

50+25
1+67.13
51+92.13
79.39
15.74 Equ.

5335
5179
156
103
167
426

28

$64 + 38^{32} = 64 + 00$

Equ = 38^{32}

Equation Thown in at Pt of Curve

64 + 38.32
1 + 03.1
63 + 35.22 PC
2 + 04.90
65 + 40.12 P.T.
38 32
65 + 01.80 Old Line

8 - 12

8°
4° per 100'
240
2.4' per Ft

50.00
35.22
14.78
24
5912
2956
35.472

.36 min
2.36
4.36
6.36
8.36
24
8.12

1116.05
1.70
1114.35
2.20
1116.55
9.10
1107.45

1.25
1.25
625
250
125
1.5625
7
8)10.9375(1.37
8
29
24
53
1.37
16.4

.75
.75
375
525
5625
7
8)3.9475(1.5
12
40

1.5
1.5
75
15
225
7
8)1575(198
8
77
72
55
12
396
198
23.76

24
8'

7 .172 in

2.50
250
120
50
625
7
8)4375(.5
4

10

6' and 14'

1114.67
2.76
1117.43 HI
9.51
1107.92 El Creek

1106.05
1102.05

1117.43
1115.40
2.03

313
203
1.1

1117.43
1116.05
1.38

23
30
53

15
15
75
15
225

1115.43
1114.47
.96

308
138
1.70

156
218
1248
156
312

.96
1.51
2.18

220) 340.06 (1.51
225
1150
1125
250

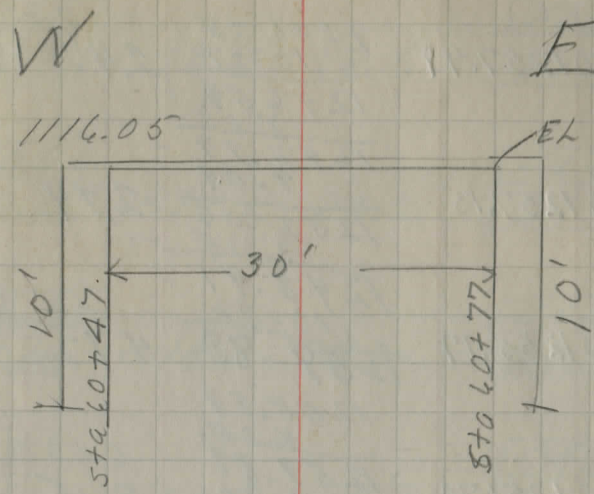
1116.05
1.70
1114.35
2.62
1116.97
1114.30
2.67

1115.40
1.10
1114.30
1.44
1115.74
9.04
1106.70

1115.74
1105.40
10.34

1115.40
1.1
1114.30

New Location Bridge



1114.60
1114.22 = 59+50
12
1114.34 = 60+00
13
1114.47 = 60+50
13
1114.60 = 61+00

1114.47
7
1114.54
1.51
1116.05

1115.40 Elev Bridge

125
125
625
250
125
15625

125
150
2) 218

602
25
582
9
8) 1746 (218
16
14
8
66

Sta. 34 to 0+00 2 Pages back of Sta. 56+00

35+00	1257.48	1236.25 / 10.27 / 1246.52 / 3.55 / 1242.97 / 9.09	2.40
36+00	1257.15	1252.06 / 3.15 / 1248.91 / 10.92	+2.74
37+00	1256.17	1259.83 / 1255.84 / 4.05 / 1259.89 / 2.30 / 1257.59	4.72
38+00	1251.74		6.63 / 8.15
39+00	1248.10		10.27 / 3.96
40+00	1244.96		3.50 / 7.60
41+00	1239.77		8.19 / 6.75

C0.1 19.3	18.3	18.5	F0.1 19.5
C0.5 20.2	19.2	20.0	C1.3 21.0
F0.2 19.2	18.2	19.0	C0.3 20.0
C1.7 21.6	20.6	24.2	C4.1 25.2
C0.8 20.5	19.5	24.5	C4.2 25.5
C0.7 20.0	19.0	23.2	C3.3 24.2
F0.5 20.1	19.1	23.0	C3.5 24.0

	Grade	Rod
		43+50 Cross in Stone Elev. 1226.47
		1126.47
	~150'	1232.95
A2+00	1232.95	3 3
		1236.25
43+00	1224.00	13.0
44+00	1214.00	23.0 33.0
45+00	1204.00	23.95
46+00	1194.00	25.41
47+00	1184.00	
48+00	1174.00	

C3.5 / 24.0	23.0	28.7	C7.4 / 29.7	
C7.1 / 29.0	28.0	30.0	C9.5 / 31.0	
C9.6 / 31.0	30.0	30.0	C14.5 / 31.0	
C9.8 / 31.0	30.0	30.0	C14.4 / 31.0	
C5.3 / 29.0	28.0	30.0	C11.5 / 31.0	
C1.8 / 21.0	20.0	25.0	C5.0 / 26.0	
F4.7 / 22.5	21.5	22.5	F2.6 / 23.5	

Sta 49+40
Top Rock
Elev 1154.26

49+00	1164.00	
50+00	1154.00	
51+00	1144.00	
52+00	1134.00	
53+00	1125.24	
54+00	1118.94	4.87
55+00	1115.10	10.71
56+00		

40'	Side Stake 40'		
F11.9 / 39.0	38.0	33.5	F9.3 / 34.5
F12.8 / 41.0	40.0	29.0	F8.6 / 30.0
F7.8 / 32.5	31.5	27.0	F6.3 / 28.0
F6.5 / 26.0	25.0	26.5	F7.8 / 27.5
F5.1 / 25.0	24.0	24.0	F4.7 / 25.0
F1.8 / 19.0	18.0	19.0	F3.0 / 20.0
F1.0 / 19.0	18.0	16.0	F0.7 / 17.0
19.0	18.0	16.5	17.5

Headwall
1114.67

1257.59
2.38

	1259.97		3.59
34+00	1256.38	7.40	
	1252.57		
		2.20	
33+00	1254.77		4.89
32+00	1253.88		6.09
31+00	1252.58		2.19
30+00	1251.29		3.48
29+00	1250.32		4.45
28+00	1250.00		4.77

F0.7 18.0	17.0	16.8	F0.6 17.8
F0.7 18.0	17.0	16.6	F1.0 17.6
F0.9 18.5	17.3	16.5	F1.3 17.3
F0.5 18.3	17.5	17.2	F1.0 18.2
F0.4 18.3	17.5	18.0	F0.9 19.0
F0.1 19.4	18.4	17.9	F0.7 18.9
F0.1 18.7	17.7	17.5	F1.0 18.5

1254.77
4.40
1250.37

27+00	1250.25	1250.42 7.05 1257.47		4.52	
26+00	1251.00		6.27	6.47	6.27
25+00	1252.00		4.67	5.47	4.97
24+00	1252.45		3.22	5.02	3.82
23+00	1251.40	B.S. 4.86	4.87	6.07	5.37 .7
		F.S. 0.38	H.I. 1252.99	3.49	
22+00	1249.80			3.19	4.19
21+00	1248.20		6.69	4.79	6.99

C0.0 19.5	18.5	18.0	F0.8 19.0
C0.2 19.5	18.5	19.0	C0.2 20.0
C0.8 20.6	19.6	18.9	C0.5 19.9
C1.8 22.0	21.0	21.0	C1.2 22.0
C1.2 20.6	19.6	19.4	C0.7 20.4
F0.3 18.6	17.6	17.6	F1.0 18.6
F1.9 17.3	16.3	16.6	F2.2 17.6

		H.I 1252.99						
20+00	1246.60		4.09	6.39	8.59	E0.7 18.4	17.4	16.6	E2.2 17.6
			B.S 8.06	1244.93	B.M. 1244.87			
		F.S. 0.42	H.I. 1245.29			C0.2 18.6	18.6	17.7	F0.4 18.7
19+00	1244.78		1.31	0.51	1.91			
18+00	1242.38		3.09	2.79	3.09	C0.7 20.7	19.7	18.9	C0.7 19.9
17+00	1240.00		5.29	5.29	5.69	C0.6 19.0	18.0	19.0	C0.6 20.0
16+00	1237.58		8.49	7.79	8.49	C0.3 20.4	19.4	18.7	C0.3 19.7
		F.S. 1.20	B.S 8.49						
		H.I 1238.00				C0.3 20.0	19.0	18.0	F0.2 19.0
15+00	1235.00		3.70	3.00	4.20				
14+00	1232.50		4.60	5.50	6.50	C1.9 22.6	21.5	18.0	C0.0 19.0

H.I.
1238.05

13+00	1230.00	8.40	8.00	7.30
12+00	1227.50	B.S. 11.30	10.50	10.40
		F.S 2.35		
		H.I. 1229.05		
11+00	1225.00	3.75	4.05	3.05
10+00	1222.19	6.56	6.86	5.86
9+00	1218.75	11.80	10.30	10.30
		F.S 0.12	B.S. 12.74	
		1.93	H.I. 1216.43	1209.79
			H.I.	B.M. 1209.78
8+00	1214.69		7.30	2.95
7+00	1210.00		4.35	
			B.S. 9.90	
		F.S 3.94	H.I 1213.28	
		349	1209.79	B.M. 1209.78

C0.6 20.4	19.4	18.0	F.0.3 18.0
C0.2 18.8	18.8	20.3	C1.2 21.3
C1.3 21.0	20.0	21.4	C2.0 22.4
C1.3 21.2	20.2	17.3	C2.5 18.3
F0.5 18.2	17.2	19.2	C1.2 20.2
F0.3 18.8	17.8	20.4	C1.4 21.4
C0.1 19.4	18.4	22.0	C2.4 23.0

F.S. 3.83 B.S. 1.05

3.94 2.64

6+00 1204.62 3.84

11.26 10.10

5+00 1198.50 9.96

F.S. 12.74 B.S. 0.61

5.02 6.52

4+00 1192.00 3.72

10.33 12.33

3+00 1185.09 F.S. 12.79 10.63 B.S. 0.41

4.59 8.29

2+00 1177.35 6.39

F.S. 12.79 B.S. 0.00

1.36 3.26

1+00 1168.79 2.16

F.S. 10.50

0+00 1169.40 BM 1160.45

0+00
B.M. 1160.45
1209.78 1209.74

19+20
1244.87

F0.1 19.4	18.4	19.7	C1.2 20.7
F1.3 17.5	16.5	17.7	F0.2 18.7
F1.3 17.5	16.5	17.7	F2.8 18.7
C0.3 20.8	19.0	16.2	F1.7 17.2
C1.8 21.6	20.6	14.8	F1.9 15.8
C0.8 20.5	19.5	18.0	F1.1 19.0

BM- 1114.67

PC 65+74.01
PT 68+07.6

		Rod 1.49
66+00	1113.73	4.27
57+00	1113.72	4.50 4.28
58+00	1113.85	4.37 4.15
59+00	1114.10	4.12 3.90
60+00	1114.59	3.63 4.74
61+00	1116.79	1.43 2.54
62+00	1120.92	4.59
63+00	1126.76	4.74
64+00	1132.84	7.27
65+00	1137.51	5.03
66+00	1139.37	3.17
67+00	1138.41	4.13
68+00	1134.62	7.92

SW Cor W. Headwall 1130.91

F0.1 / 19.0	18.0	16.5	F2.2 / 17.5
F2.5 / 18.0	17.0	17.0	F3.0 / 18.0
F1.7 / 18.0	17.0	17.0	F2.7 / 18.0
F2.2 / 17.5	16.5	17.0	F2.7 / 18.0
F2.5 / 18.0	17.0	19.0	F3.6 / 20.0
F3.3 / 22.0	21.0	21.0	F3.9 / 22.0
F0.9 / 17.0	16.0	21.5	F3.0 / 22.5
C4.6 / 26.0	25.0	19.5	F0.2 / 20.6
F.4 / 25.0	24.0	19.5	C0.9 / 20.5
C0.3 / 19.5	18.5	17.0	F1.1 / 18.0
C1.9 / 22.0	21.0	17.5	F0.9 / 18.5
C3.6 / 24.5	23.5	18.3	F0.7 / 19.3
C3.8 / 22.0	21.0	17.0	C0.5 / 18.0

	Grade Elev.	H.I	Rod
41	1239.77		
+50	1242.38		
40	1244.46		
+50	1246.28		
39	1248.10	1258.59	10.49
+50	1249.92		8.67
38	1251.74		6.85
+50	1253.56	1258.59	5.03
37+	1255.17	1262.12	6.95
+50	1256.37		5.75
36	1257.15		4.97
+50	1257.53		4.59
35	1257.49		4.63
+50	1257.04		5.08
34	1256.38		5.74
+50	1255.73		6.39
33	1255.08		7.04
+50	1254.43	1262.12	7.69
32	1253.88	1257.02	3.14
+58	1253.23		3.79
31	1252.58		4.44
+50	1251.93		5.09
30	1251.29	1257.02	5.73

B.M. Elev 1255.84 Sta. 37.
6.28
1262.12

	Grade Elev	H.I.	Rod
+50	1250.72	1254.91	4.19
29	1250.32		4.57
+50	1250.08		4.83
28	1250.00		4.91
+50	1250.56	1254.91	4.56
27	1250.25	1256.75	6.50
+58	1250.56		6.19
26	1251.00		5.75
+50	1251.58		5.25
25	1252.00		4.75
+50	1252.34		4.41
24	1252.35		4.40
+50	1252.04		4.71
23	1251.40	1256.75	5.35
+50	1250.60	1251.58	0.98
22	1249.80		1.78
+50	1249.00		2.58
21	1248.20		3.38
+50	1247.40		4.18
20	1246.60		4.98
+50	1245.75		5.83
19	1244.78	1251.58	6.80
+50	1243.70	1247.57	3.87

B.S. 4.19 F.S. 6.30 F.S. 4.49

B.M. Elev. 1250.42 Sta 26+90

B.M. Sta 19+20 Elev. 1244.87

	Grade Elev.	H.I.	ROD
18	1242.50	1247.57	5.07
+50	1241.25		6.32
17	1240.00		7.57
+50	1238.75	1247.57	8.82
16	1237.50	1239.94	2.44
+50	1236.25		3.69
15	1235.00		4.94
+50	1233.75		6.19
14	1232.50		7.44
+50	1231.25	1239.94	8.69
13	1230.00	1234.08	4.08
+50	1228.75		5.33
12	1227.50	1234.08	6.58

5/16/28 Sabin Parks Richey. Whiskin - level

BM. Sta 37+00 Elev. 1255.84

Sta	Grade	H.I	Rod	
	6.95	1262.79		
37+00	1255.17		7.62	
36+50	1256.37		6.42	
36+00	1257.15		5.64	
+50	1257.53		5.26	
35+00	1257.49		5.30	
+50	1257.04		5.75	
34+00	1256.38		6.41	
+50	1255.73		7.06	
33+00	1255.08		7.71	1255.08
	1.06	1256.14		
+50	1254.43		1.71	
32+00	1253.88		2.26	
+50	1253.23		2.91	

Sta	G. Elev	H.I	Rod		
		1256.14			
31+00	1252.58		3.56 ✓		
+50	1251.93		4.21 ✓		
30+00	1251.29		4.85 ✓		
+50	1250.72		5.42 ✓		
29+00	1250.32		5.82 ✓		
+50	1250.08		6.06 ✓		
	6.67	1256.74	6.07	1250.07	
28+00	1250.00		6.74 ✓		
+50	1250.56		6.18 ✓		
27+00	1250.25		6.49 ✓		BM 26+
	6.35	1256.77	6.35	1250.39	1250.42
+50	1250.56		6.21 ✓		
26+00	1251.00		5.77 ✓		

Sta.	G. Elev	H.I.	Rod.	
		1256.77		
+50	1251.50		5.27 ✓	
25+00	1252.00		4.77 ✓	
+50	1252.34		4.43 ✓	1252.34
	3.79	1256.13		
24+00	1252.35		3.78 ✓	
+50	1252.04		4.09 ✓	
23+00	1251.40		4.73 ✓	
+50	1250.60		5.53 ✓	
22+00	1249.80		6.33 ✓	
+50	1249.00		7.13 ✓	
21+00	1248.20		7.93 ✓	
	2.06	1250.24	7.95 ✓	1248.18
+50	1247.40		2.84	

Sta	G. Elev	H.I	Rod		
		1250.24			
20+00	1246.60		3.64 ✓		
+50	1245.75		4.49 ✓		BM 19+20
	5.35	1250.22	5.35	1244.89	1244.87
19+00	1244.78		5.44 ✓		
+50	1243.70		6.52 ✓		
18+00	1242.50		7.72 ✓		
+50	1241.25		8.97 ✓		
17+00	1240.00		10.22 ✓		
	1.39	1241.38	10.23	1239.99	
+50	1238.75		2.63 ✓		
16+00	1237.50		3.88 ✓		
+50	1236.25		5.13 ✓		
15+00	1235.00		6.38 ✓		

Sta.	G. Elev	H. I	Rod		
		1241.38			
14+50	1233.75		7.63 ✓		
14+00	1232.50		8.88 ✓		
+50	1231.25		10.13 ✓	1231.25	T.P.
	0.30	1231.55			
13+00	1230.00		1.55 ✓		
+50	1228.75		2.80 ✓		
12+00	1227.50		4.05 ✓		
+50	1226.25		5.30	5.05 ✓	
11+00	1225.00		6.55	6.05 ✓	
+50	1223.67		7.88	7.63 ✓	
10+00	1222.19		9.36	✓ 1222.20	T.P.
	1.74	1223.94			
+50	1220.55		3.39	✓	

Sta.	G. Elev	H I	Grade Rod		
9+00	1218.75		5.19 ✓		
+50	1216.80		7.14 ✓		
8+00	1214.69		9.25 ✓		
+50	1212.42		11.52 ✓	1212.42	T.P.
	0.85	1213.27			
7+00	1210.00		3.27 ✓		B.M. .94 Chk
	0.55	1210.33	3.53 ✓	1209.74	1209.78
+50	1207.41		2.92 ✓		
6+00	1204.62		5.71 ✓		
+50	1201.66		8.67 ✓		
5+00	1198.50		11.83 ✓	1198.50	T.P
	2.00	1200.50			
+50	1195.25		5.25 ✓		
4+00	1192.00		8.50 ✓	F 0.5	

Sta	G. Elev.	H.I	G. Rod	Elev	B.M.
3+50	1188.65		11.85	F.O.5 ✓	
			12.36	1188.14	T.P.
	0.51	1188.65			
3+00	1185.09		3.56 ✓		
+50	1181.32		7.33 ✓		
2+00	1177.35		11.30 ✓	1177.35	T.P
	0.12	1177.47			
+50	1173.17		4.30 ✓		
1+00	1168.79		8.68 ✓		
			12.96	1164.51	T.P.
	2.76	1167.27			
+50	1164.20		3.07 ✓		BM 4
			6.82	1160.45	1160.45

Rock Sections — 6/20/28 — Richey, Whistler, Parks, Spoon

		B.S.	H.I.	F.S.	
BM 43+50					1226.47
		7.61	1234.08		
		0.26	1221.49	12.85	1221.23
		0.56	1209.45	12.60	1208.89
		3.10	1192.86	12.69	1196.76
			1197.4		
46+00	end →	10 2.9	6 2.6	4 2.5	8 2.5	13 2.7
			1194.9		
46+25		16 4.4	10 3.5	4 5.0	3 4.7
			1191.7		
46+50	not rock →	10 9.3	6 8.3	4 8.2	6 8.7	12 8.7
			1188.9		
46+75	not rock →	15 12.5	7 11.4	4 11.0	4 11.4	13 11.8
		0.44	1187.55	1.75	1187.11
			1184.2		
47+00	not rock →	15 3.7	4 3.4	7 2.9

600

18

800

Cut to ℄ Grade

43+00 – C2.8

44+00 – C2.7

45+00 – C3.5

46+00 – C4.0

46+50 – C1.7

46+75 – C2.3

47+00 – C1.3

47+50 – C0.0

48+00 – F1.7

7/5/28 Richey Parks Spohn

Rock Sections

BM 43+58	0.52	1226.99			1226.47
	0.48	1216.79	10.68	1216.31	
	0.89	1206.79	10.89	1205.90	
	12.55	1207.13	12.21	1194.58	
45+25		8/5.5 1/5.1 ℄ 3/5.2 —			
45+00		11/3.3 ℄ —			
	12.64	1219.08	0.69	1206.44	
44+75		7/12.2 ℄ 4/12.2 ~			
44+50		— 5/9.9 ℄ 4/9.1 —			
44+25		11/7.6 4/7.2 ℄ 4/7.2 7/7.0			
44+00		— 11/5.7 ℄ 2/5.0 3/4.9			
43+75		℄ 5/2.6			
45+00 Slope L.			5.37	1213.71	1203.8

52

Sta 46+00 C 3.3 on ℄
" 46+25 C 4.9 on ledge on R.
C 1.0 to ℄ Grade
" 46+50 C 1.2 on R
" 46+75 C 1.0 on ℄
" 47+00 C 0.6 on ℄

C 1.0 to ℄ Grade

C 1.35 ℄ Grade

C 0.7 to ℄ Grade

C 0.3 to ℄ Grade

C 2.2 to ℄ Grade

→ C 2.8 on Slople

Finished Grade			7/30/28	Richey Parks Spohn	
Sta	Grade	HI	FS		
BM 37+20		1259.45			1255.84
36+50	1256.37		3.08 ✓		
37	1255.17		4.28 ✓		
+50	1253.56		5.89 ✓		
38	1251.74		7.71 ✓		
+50	1249.92		9.53 ✓	C1.0	
39	1248.10		11.35	C1.0	
+50	1246.28	1250.81	4.53 ✓		
40	1244.46		6.35 ✓		
+50	1242.38		8.43 ✓		
41	1239.77		11.04 ✓		
+50	1236.62	1242.43	5.81 ✓	C1.0	
42	1232.25		9.48		
+50					

1255.84
3.61 +
1259.45
10.35 −
1249.10
1.71 +
1250.81
11.04 −
1239.77
2.66 +
1242.43

6975
5716
2.9[illegible]

Finished Grade 7/30/28 Richey Parks Spokane

Sta	Grade	HI	FS	
BM		1121.70		1114.67
55+50 R	1113.98		7.72	Raised .3
L	1114.38		7.32	" .3
55+00 R	1114.97		6.73	" .15
L	1115.87		5.83	" .15
54+50 R	1116.57		5.13	
L	1117.57		4.13	
54+00 R	1118.81		2.89	
L	1119.81		1.89	
53+50 R	1121.64		0.06	
L	1122.29	1128.18	5.89	
53+00 R	1125.11		3.07	
L	1125.26		2.92	

1114.67
703 +
1121.70
1.34 -
1120.36
7.82
1128.18

2818
2159
659

Finished Grade — 7/30/28 — Richey Parks Spohn

Sta	Grade	HI	FS	
BM		111787		111467
56+00	1113.73		4.14	✓
+50	1113.69		4.18	✓
57+00	1113.72		4.15	✓
+50	1113.72		4.15	✓
58+00	1113.85		4.02	✓
+50	1113.97		3.90	✓
59+00	1114.10		3.77	✓
+50	1114.22		3.65	✓
60+00	1114.59		3.28	✓
+50	111543		2.44	✓

1114.67
3.20
1117.87

Finished Grade

8/1/28 Richey Parks Spohn

Sta	Grade	H I	FS		
BM		1142.19			1130.91
68+69.6	1131.41 (Edge Pvt. both sides)		10.78	✓	
68+50	1132.16		10.03	✓ L = C 1.5	
68+11.51 R	1133.92		8.27	✓	
68+11.51 L	1133.92		8.27	✓ C 1.5	
68+00 R	1134.49		7.70	✓	
68+00 L	1134.59		7.60	✓ C 1.5	
67+50 R	1136.74		5.45	✓	
67+50 L	1137.33		4.86	✓	
67+00 R	1138.28		3.91	✓	
67+00 L	1138.87		3.32	✓	
66+50 R	1139.10		3.09	✓	
66+50 L	1139.69		2.50	✓	
66+00 R	1139.24	1141.90	2.66	✓	
66+00 L	1139.69		2.21	✓	
65+50 R	1138.65		3.25	✓	
65+50 L	1138.80		3.10	✓	
65+00	1137.51 (Grade)		4.39	✓	
64+50	1135.53		6.37	✓	
64+00	1132.84		9.06	✓	
63+50	1129.80		12.10	✓	
63+00	1126.76	1130.08	3.22	✓	
62+50	1123.72		6.36	✓	
62+00	1120.92		9.16	✓	
61+50	1118.60		11.48		
	1116.99	1122.31	5.32		

1130.91
11.28 +
1142.19
3.09 −
1139.10
2.80 +
1141.90
12.10 −
1129.80
0.28 +
1130.08
11.48 −
1118.60
3.71 +
1122.31

Finished Grade

8/10/28 Richey Parks Spohn

Sta	Grade	HI	FS	
31+48+60				1154.26
		1175.17		
48+00 R	1173.87		1.30	
℄	1173.87		1.30	
48+50 R	1162.20		5.97	
℄	1168.87		6.30	
48+57.3 R	1158.50		6.67	
℄	1168.11		7.06	
49+00 R	1164.53		10.58	
℄	1163.87		11.30	
49+50 R	1159.64	1165.37	5.73	
℄	1158.87		6.50	
50+00 R	1154.64		10.73	
℄	1153.87		11.50	
50+55 R	1149.64	1155.46	5.82	
℄	1148.87		6.59	F 1.0
51+00 R	1144.64		10.82	
℄	1143.87		11.59	F 1.0
51+50 R	1139.48	1144.27	4.79	
℄	1138.87		5.40	F 1.0
51+79.2 R	1136.32		7.95	
℄	1135.93		8.34	
52+00 R	1134.09		10.18	
℄	1133.87		10.40	
52+56 R	1129.18	1134.84	5.66	
℄	1129.18		5.66	

1154.26
11.92
1166.18
1.02
1165.09
10.08
1175.17
1.30
1163.87
1.50
1165.37
1.50
1153.87

1154.26
11.05
1165.31
11.50
1154.81
1.99
1156.80
12.93
1143.87
1.14
1145.01
11.13
1133.88
0.21
1134.09

1153.80
1.66
1155.46
1.59
1142.87
1.40
1144.27
1.040
1133.87
0.97+
1134.84

8/4/28 Richey Parks Spahn

Sta	Grade	HI	FS	
BM				115426
		117995		
48+00	R 117397		5.98	
	L 117397		5.98	
47+50	117920		0.75	
47+00	118430	119133	7.03	
46+37	119090		0.63	
46+04	119410	120241	8.31	
45+52	119930		3.11	
45+00	120450	121417	9.67	
44+49	120950		4.67	
43+99	121440	122538	10.98	
43+50	121920		6.18	
43+00	122410		1.28	
42+50	122874	123786	9.12	
42+00	113295		4.91	ck
			3.4	

115426
1277
116703
014
116689
1306
117995
075
117920
1213
119133
074
119059
1182
120241
067
120174
1243
121417
101
121316
1222
122538
027
122511
1272
123783
1139
122644

122647
1139
123786

8/10/28 Richey Parks Spohn

Sta	Grade	HI	FS	
42+00	1232.95	1238.46	5.51	
42+50	1228.74		9.72	
43+00	1224.10	1227.25	3.15	+.1
43+50	1219.20		8.05	.00
44+00	1214.30		12.95	+.3
44+49	1209.50	1215.51	6.01	+.2
45+00	1204.50		11.01	
45+50	1199.50	1205.44	5.94	+.7
46+00	1194.50		10.94	
46+50	1189.40	1194.68	5.28	+.3
47+00	1184.30		10.38	
47+50	1179.20	1185.33	6.13	
48+00 R	1173.97		11.36	1172
48+10 L	1173.97			

59

BM. 1226.47
11.99
1238.46
12.57
1225.89
1.36
1227.25
11.95
1215.30
0.21
1215.51
11.01
1204.50
0.94
1205.44
11.28
1194.16
0.52
1194.68
10.38
1184.30
1.03
1185.33
11.32
1174.01

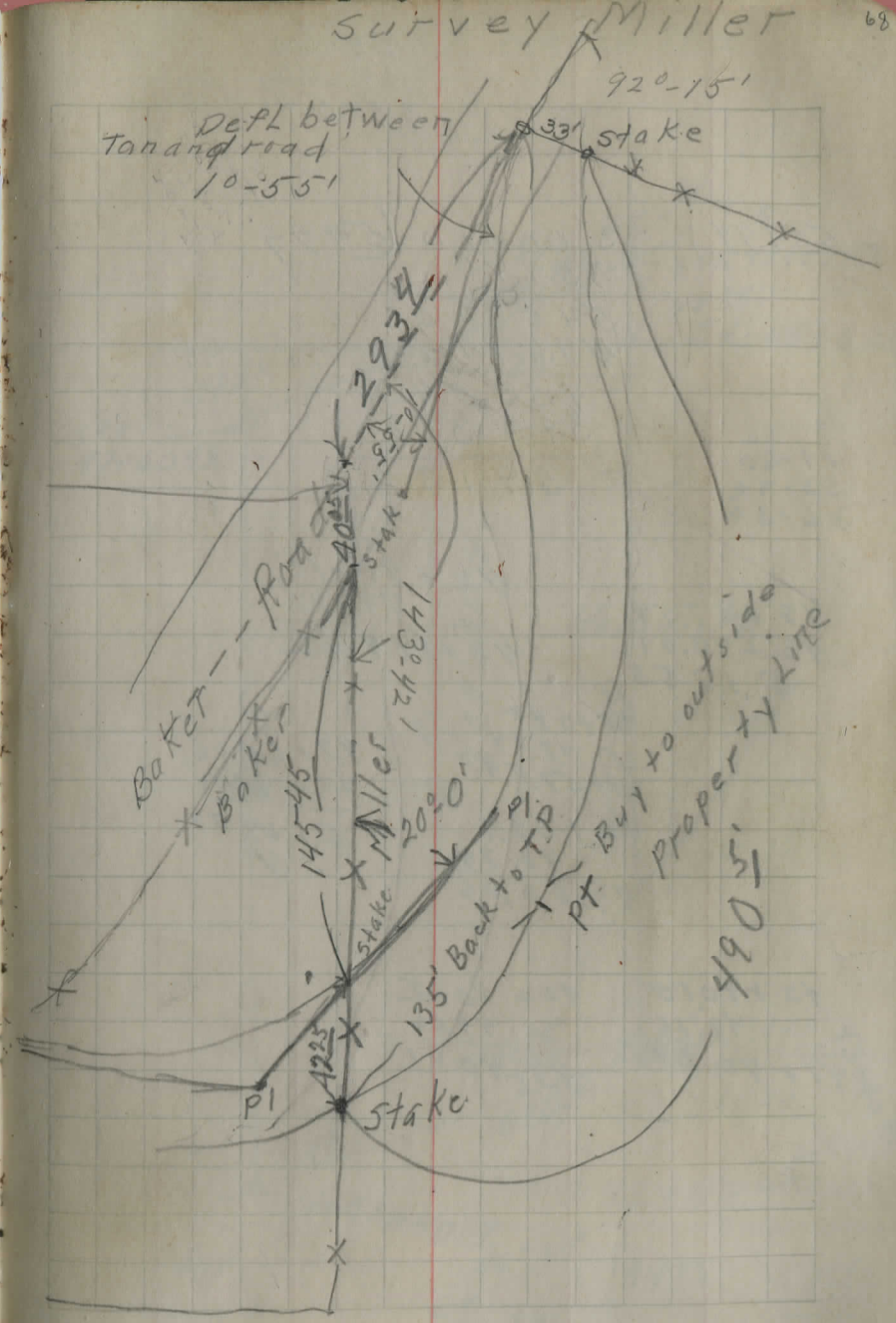
Town Line Bearing N 86°-10' W

100' cords showing road line

100' Defl 2°-30' Lt
100' " 1°-40' Lt
100' " 1°-40' Lt
100' " 9°-40' Lt
this goes to where it crosses road

65' distance from Town Line to fence on outside of curve

Survey Miller



59-60
34-06
55-54

-55194) 33.00000 (59.77
27 5.970
540300
496746
435540
396358
391820

59-60
33-30
56-30

42+90-15
59.77
43+49.92

48+57.54
43+40.01
5.1753

48+08.8
48.74
48+57.54

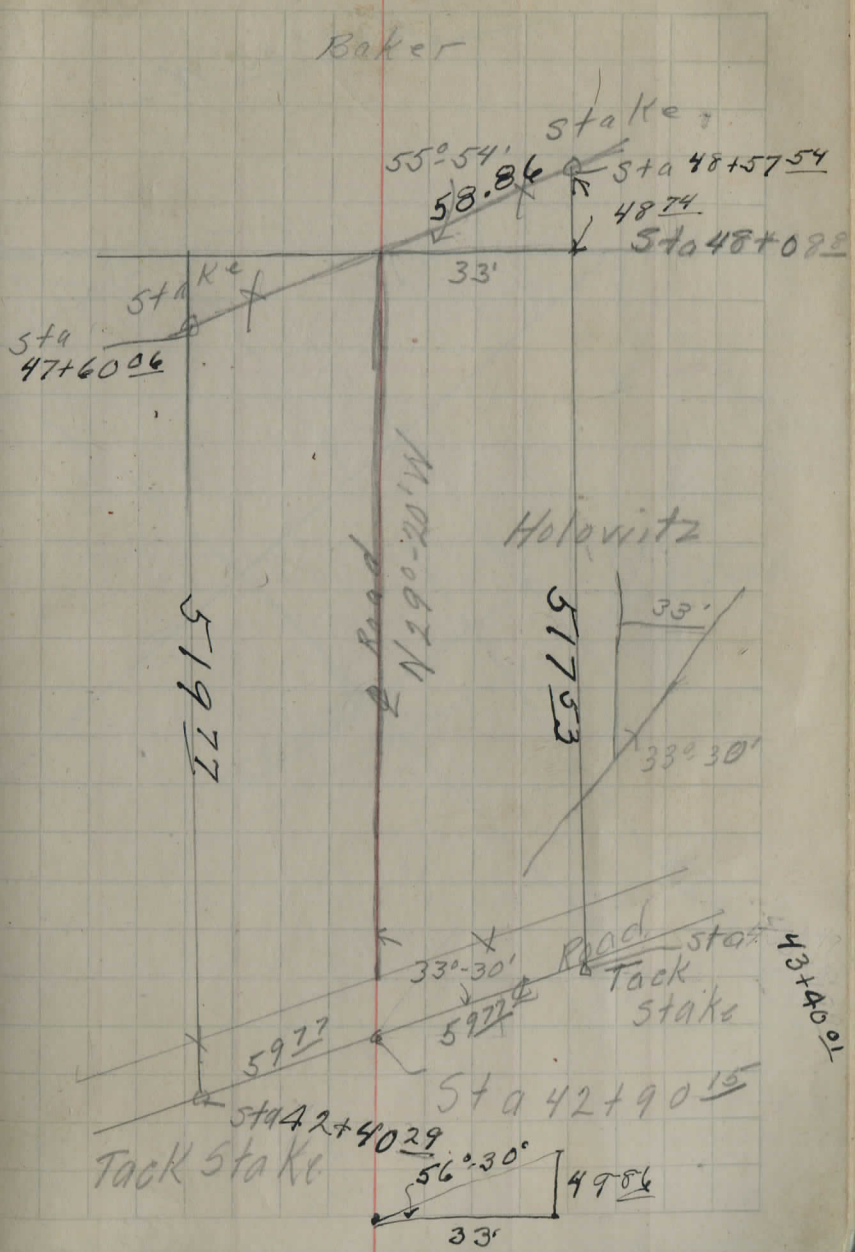
48+08.8
48.74
47+60.06

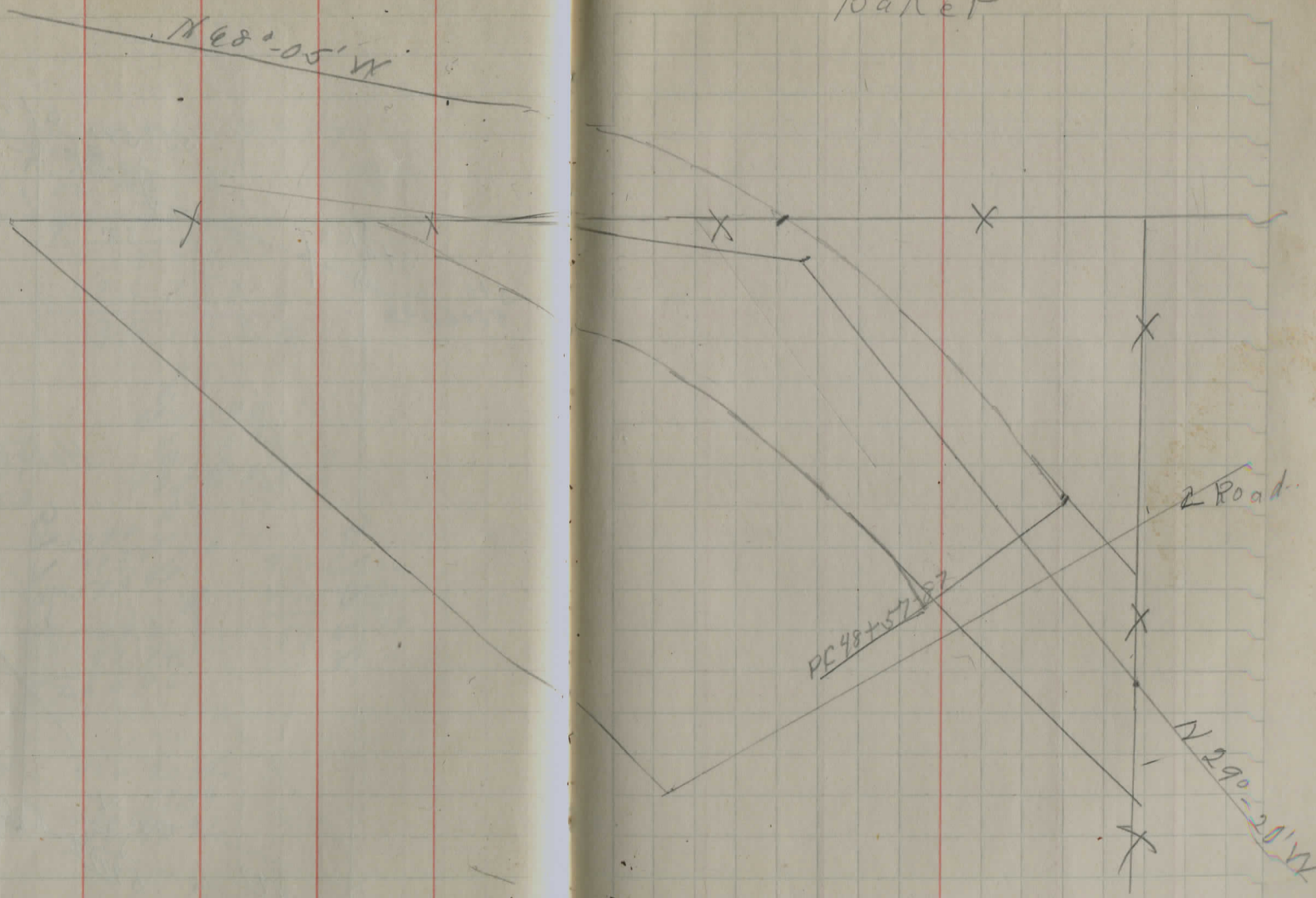
47+60.06
42+40.29
5.1977

42+90.15
42.86
41+40.29

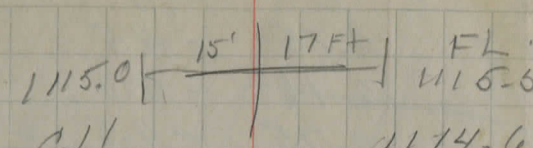
42+90.15
49.86
43+40.01

Survey Holowitz




N 68°-05' W
Baker
2 Road
PC 48+57.8?
N 290°-20' W

Culv sta 41+70



C.L.

1114.67
4.70
1119.37
1115.00
4.37

111

5.9
4.8
1.5

5.4

12.16
4.96
7.20

N 21-02 W.
16
N 20-44 W
9-30
N 30 14 W
47
N 31-01 W
38-35
N 69-36 W
16-23
N 53-13 W

widerning Super

10+00 = 0 - 0
10+50 = 0.75 - .45
11+00 2-16 - 9.0
11+50 0-75 - 4.5
12+00 = 0 - 0 - 0

~~40' 15' = 2~~ 0
2nd = 7°
3

45
.3
135

.30
5

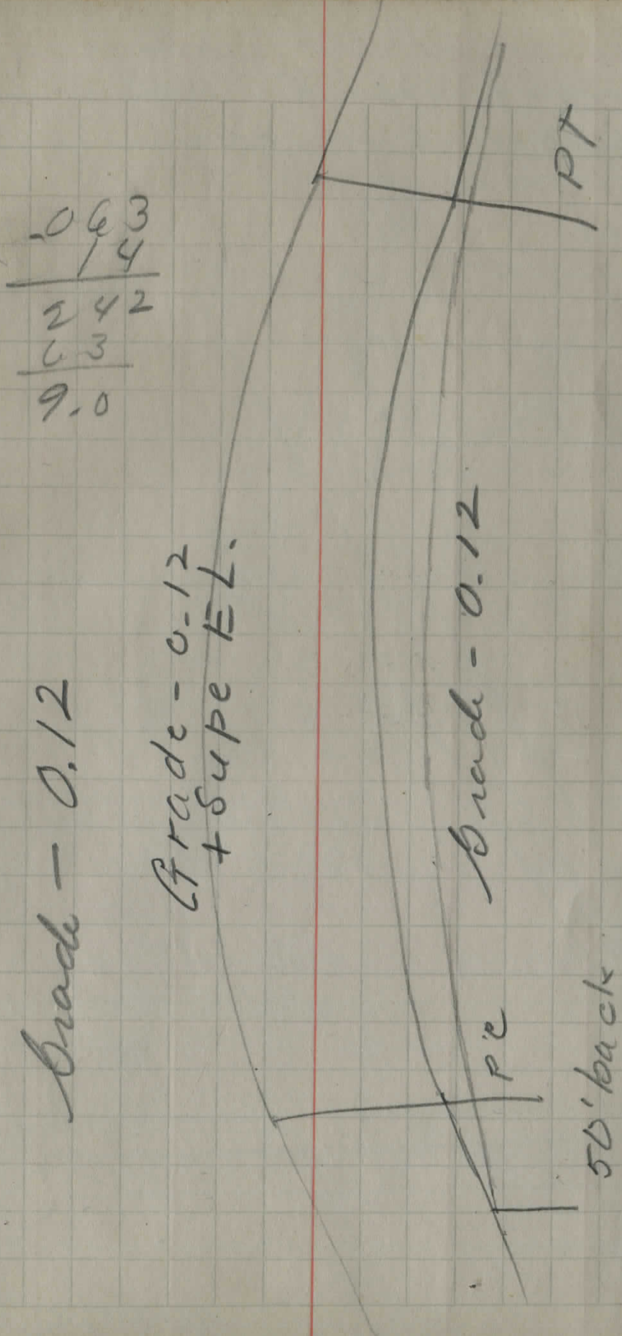
~~2° - 15'~~ 30

~~.300~~

4 - 45 .30 210 7.20

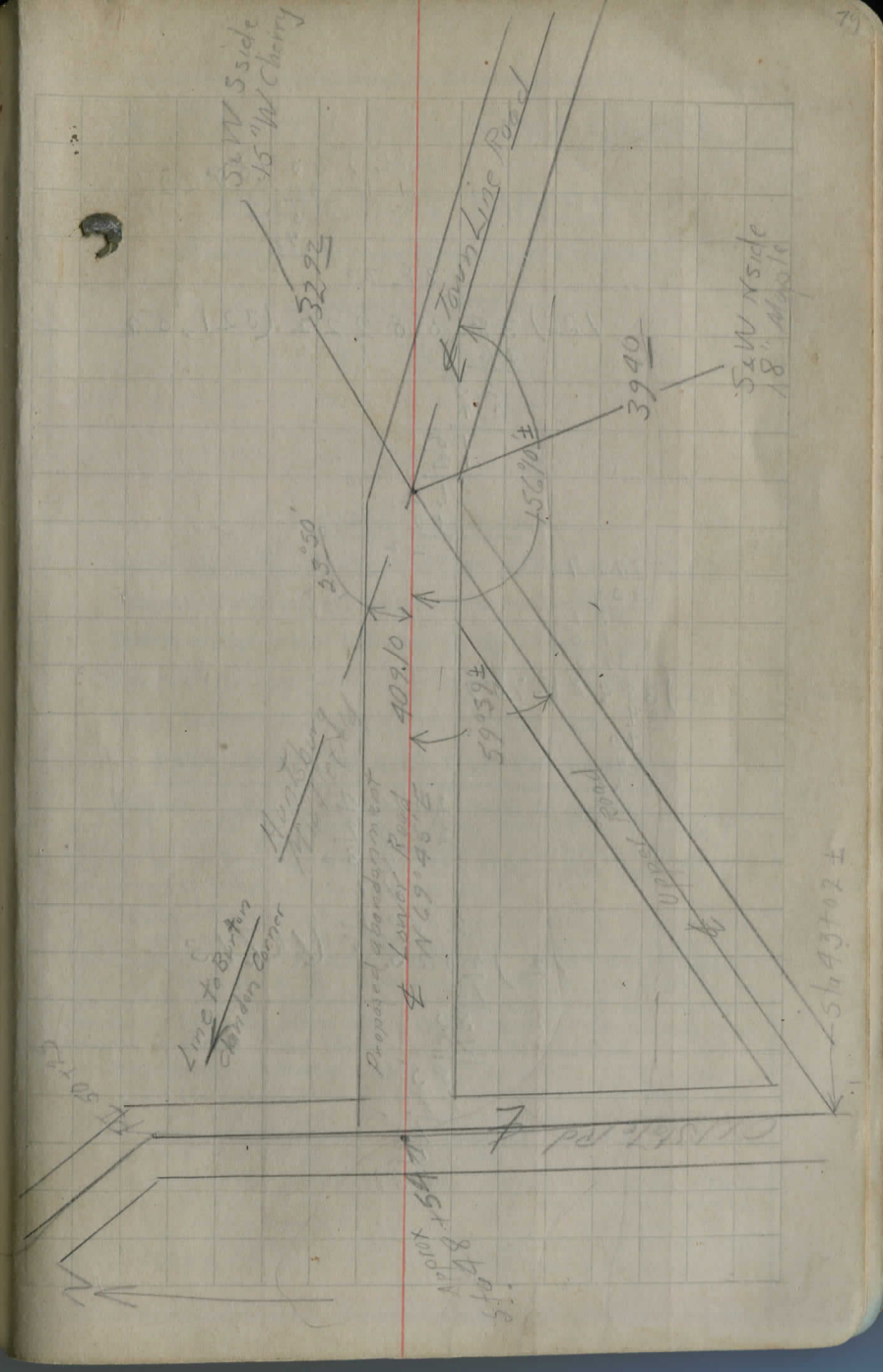
10+50 5' = 15'
11+00 55' = ~~2° 45~~
11+40 105' = ~~4° 45~~

.063
14
242
63
9.0

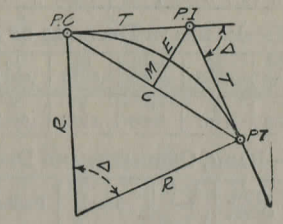


7/5/32

Survey for abandonment of Road in Middlefield Twp. from Darkee Hill Easterly



DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES



CURVE FORMULAS

Radius $=R=\frac{50}{\text{sin. } D/2}$ (1) Degree of Curve $=D$ and sin. $\frac{D}{2}=\frac{50}{R}$ (2)

Tangent $=T=R\tan\frac{\Delta}{2}$ (3) Length of Curve $=L=100\frac{\Delta}{D}$ (4)

Middle ordinate $=M=R(1-\cos.\frac{\Delta}{2})$ (5) $=R\text{vers}\frac{\Delta}{2}$ (6)

External $=E=T\tan\frac{\Delta}{4}$ (7) $=R\div\cos.\frac{\Delta}{2}-R$ (8) $=R\text{exsec}\frac{\Delta}{2}$ (9)

Long Chord $=C=2R\sin.\frac{\Delta}{2}$ (10) $\Delta=$Central Angle

EXPLANATION AND USE OF TABLES

Stations.—Given P. I.=Sta. 161 +60.35 to find Sta. of P. C. and P. T. $\Delta=62°\ 10'$ $D=8°\ 20'$. From Table IV for 1° curve T=3454.1 and $\div 8\frac{1}{3}=414.49$ ft. From Table V correction=.36 or T=414.85 ft. P. C.=Sta. P.I.—T=157 +45.50. Also from (4) L=746.00 and P. T.=Sta. P. C. +L=164 +91.50.

Offsets.—Tangent offsets vary (approximately) directly with D and with square of the distance. Thus tangent offset for Sta. 158 on above curve is 2.16 ft. found as follows. From Table III tangent offset for 100 ft.=7.27 ft. Distance=158—Sta. P. C.=54.50, hence offset=7.27 $(54.50\div 100)^2=2.16$ ft. Also square of any distance divided by twice the radius equals (approximately) the distance from tangent to curve. Thus $(54.50)^2\div(2\times 688.26)=2.16$ ft.

Deflections.—Deflection angle=$\frac{1}{2}$ D for 100 ft., $\frac{1}{4}$ D for 50 ft., etc. For c ft.=(in minutes) .3 x C x D° or=defl. for 1 ft. from Table III x C. For Sta. 158 of above curve=.3 x 54.5 x $8\frac{1}{3}$=136.2′ or 2° 16.2′, or=2.50 x 54.5=136.2′ from Table III. For Sta. 159 deflection angle=2° 16.2′ +8° 20′ ÷2=6° 26.2′, etc.

Externals.—May be found in similar manner to tangents. Thus E for curve above is 91.37. For from Table IV for 1° curve E=960.6 for 8° 20′=960.6 ÷ $8\frac{1}{3}$=91.27 and from Table V correction=.10 or E=91.37 ft. Or suppose $\Delta=32°$ and E is measured and found to be 42 ft. What is D? From Table IV E=230.9 and ÷42=5.5 or D=5° 30′.

6
111 poles to be moved

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

Roadway 16 feet wide. Side Slopes 1 on 1½.

For Single Track Embankment.

H	0	1	2	3	4	5	6	7	8	9	H
0	9.0	9.2	9.3	9.5	9.6	9.8	9.9	10.1	10.2	10.4	0
1	10.5	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	11.9	1
2	11.0	11.2	11.3	11.5	11.6	11.8	11.9	12.1	12.2	12.4	2
3	12.5	12.7	12.8	13.0	13.1	13.3	13.4	13.6	13.7	13.9	3
4	14.0	14.2	14.3	14.5	14.6	14.8	14.9	15.1	15.2	15.4	4
5	15.5	15.7	15.8	16.0	16.1	16.3	16.4	16.6	16.7	16.9	5
6	17.0	17.2	17.3	17.5	17.6	17.8	17.9	18.1	18.2	18.4	6
7	18.5	18.7	18.8	19.0	19.1	19.3	19.4	19.6	19.7	19.9	7
8	20.0	20.2	20.3	20.5	20.6	20.8	20.9	21.1	21.2	21.4	8
9	21.5	21.7	21.8	22.0	22.1	22.3	22.4	22.6	22.7	22.9	9
10	23.0	23.2	23.3	23.5	23.6	23.8	23.9	24.1	24.2	24.4	10
11	24.5	24.7	24.8	25.0	25.1	25.3	25.4	25.6	25.7	25.9	11
12	26.0	26.2	26.3	26.5	26.6	26.8	26.9	27.1	27.2	27.4	12
13	27.5	27.7	27.8	28.0	28.1	28.3	28.4	28.6	28.7	28.9	13
14	29.0	29.2	29.3	29.5	29.6	29.8	29.9	30.1	30.2	30.4	14
15	30.5	30.7	30.8	31.0	31.1	31.3	31.4	31.6	31.7	31.9	15
16	32.0	32.2	32.3	32.5	32.6	32.8	32.9	33.1	33.2	33.4	16
17	33.5	33.7	33.8	34.0	34.1	34.3	34.4	34.6	34.7	34.9	17
18	35.0	35.2	35.3	35.5	35.6	35.8	35.9	36.1	36.2	36.4	18
19	36.5	36.7	36.8	37.0	37.1	37.3	37.4	37.6	37.7	37.9	19
20	38.0	38.2	38.3	38.5	38.6	38.8	38.9	39.1	39.2	39.4	20
21	39.5	39.7	39.8	40.0	40.1	40.3	40.4	40.6	40.7	40.9	21
22	41.0	41.2	41.3	41.5	41.6	41.8	41.9	42.1	42.2	42.4	22
23	42.5	42.7	42.8	43.0	43.1	43.3	43.4	43.6	43.7	43.9	23
24	44.0	44.2	44.3	44.5	44.6	44.8	44.9	45.1	45.2	45.4	24
25	45.5	45.7	45.8	46.0	46.1	46.3	46.4	46.6	46.7	46.9	25
26	47.0	47.2	47.3	47.5	47.6	47.8	47.9	48.1	48.2	48.4	26
27	48.5	48.7	48.8	49.0	49.1	49.3	49.4	49.6	49.7	49.9	27
28	50.0	50.2	50.3	50.5	50.6	50.8	50.9	51.1	51.2	51.4	28
29	51.5	51.7	51.8	52.0	52.1	52.3	52.4	52.6	52.7	52.9	29
30	53.0	53.2	53.3	53.5	53.6	53.8	53.9	54.1	54.2	54.4	30
31	54.5	54.7	54.8	55.0	55.1	55.3	55.4	55.6	55.7	55.9	31
32	56.0	56.2	56.3	56.5	56.6	56.8	56.9	57.1	57.2	57.4	32
33	57.5	57.7	57.8	58.0	58.1	58.3	58.4	58.6	58.7	58.9	33
34	59.0	59.2	59.3	59.5	59.6	59.8	59.9	60.1	60.2	60.4	34
35	60.5	60.7	60.8	61.0	61.1	61.3	61.4	61.6	61.7	61.9	35
36	62.0	62.2	62.3	62.5	62.6	62.8	62.9	63.1	63.2	63.4	36
37	63.5	63.7	63.8	64.0	64.1	64.3	64.4	64.6	64.7	64.9	37
38	65.0	65.2	65.3	65.5	65.6	65.8	65.9	66.1	66.2	66.4	38
39	66.5	66.7	66.8	67.0	67.1	67.3	67.4	67.6	67.7	67.9	39
40	68.0	68.2	68.3	68.5	68.6	68.8	68.9	69.1	69.2	69.4	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 41.9. For same slopes but other widths of roadbed correct above figures by one-half difference in width of roadbed; thus in example above for 20 ft. roadbed distance will be 41.9+(20—16)÷2 or 2 ft. added to 41.9 =43.9. For slopes of 1 on 1 see inside of front cover.

Made in Germany.