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Book #17-A, Dr. 11

ENGINEERS
LEVEL BOOK
No. 10410

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	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	0
1	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	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	11.2	11.3	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	14.2	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

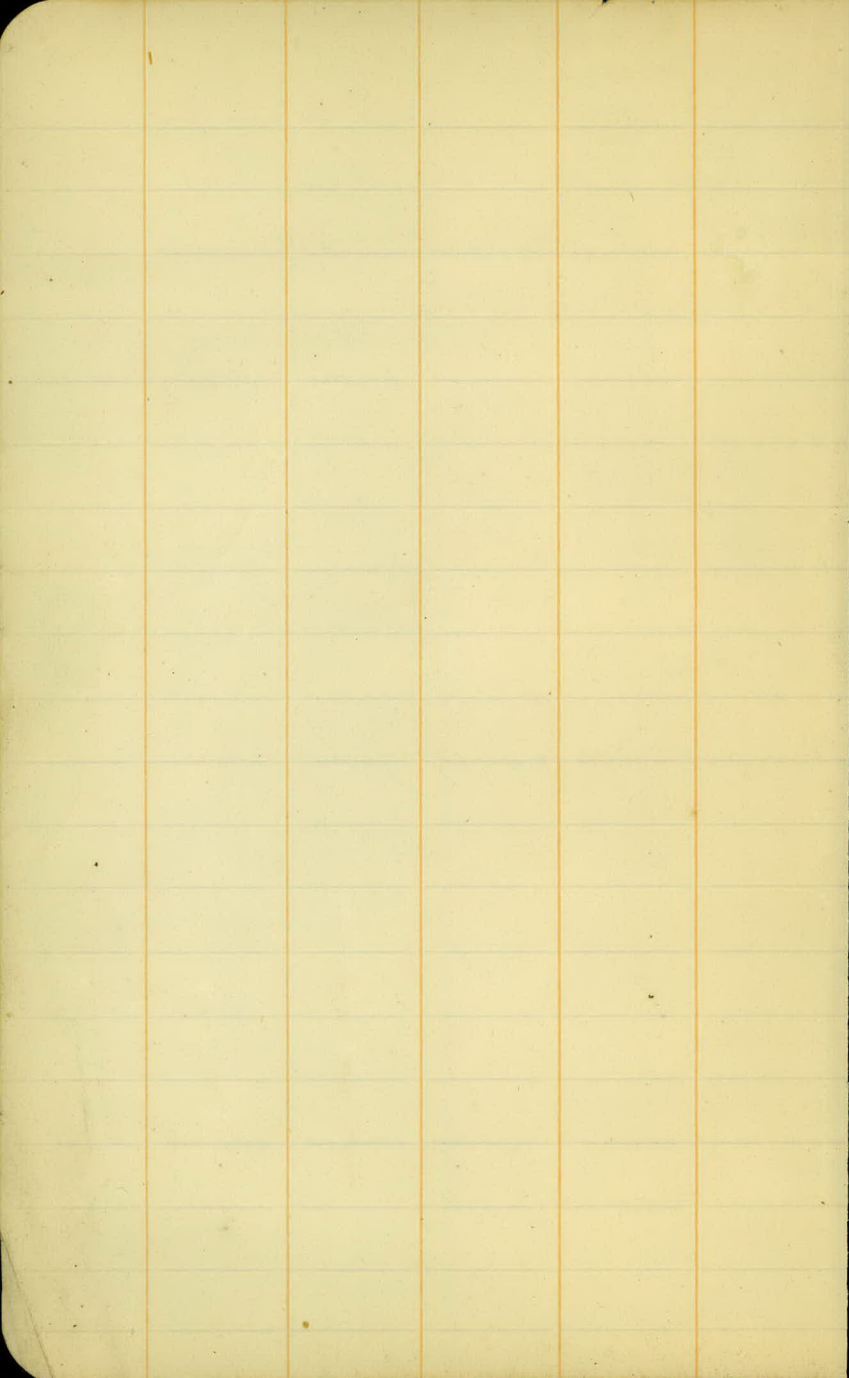
Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 30.6. For same slopes but other widths of roadbed, correct above figures by one-half difference in width of roadbed; thus in example above, for 20 ft. roadbed distance will be $30.6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

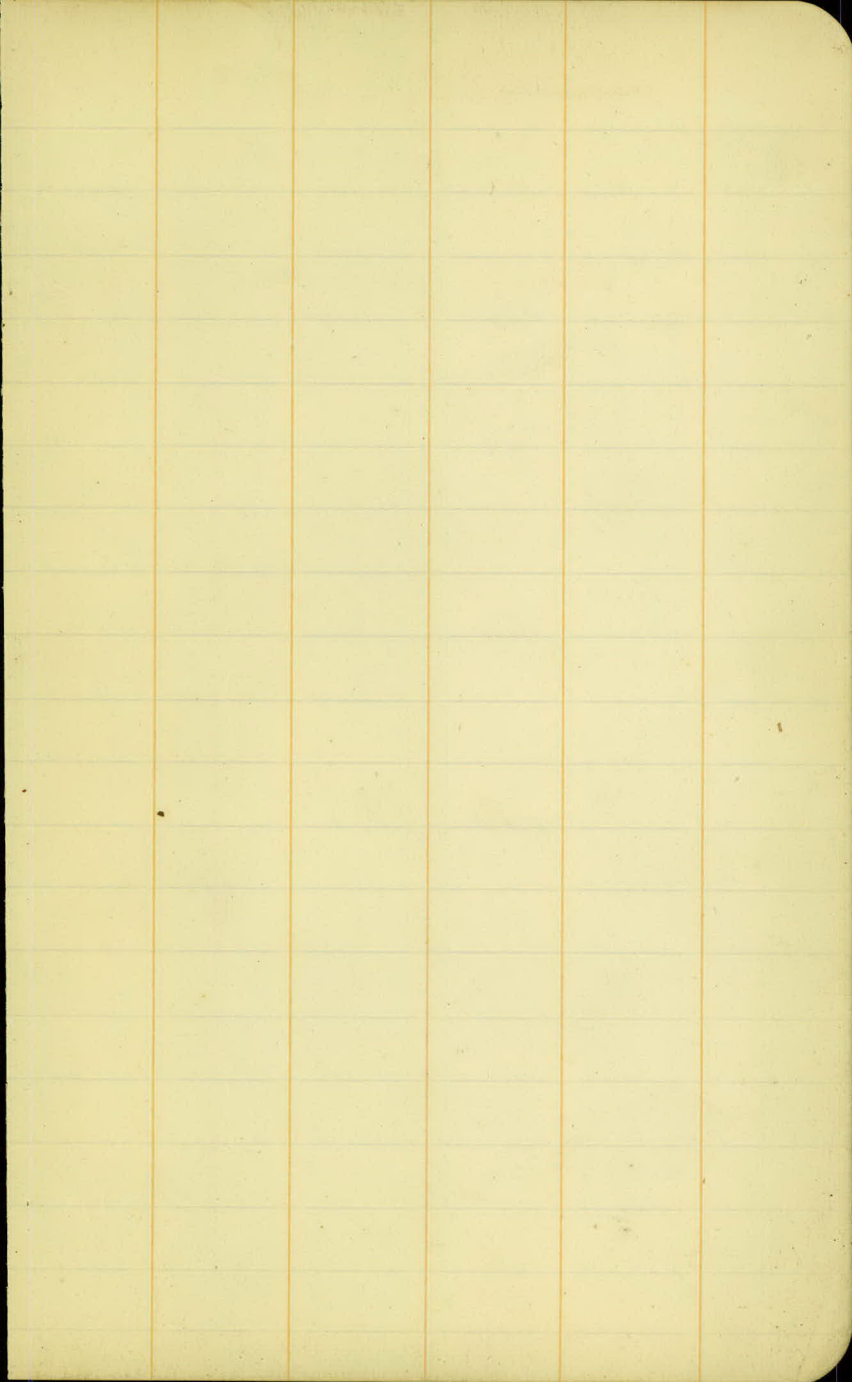
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11.506
905.71

711.51
76
912.27
05.71
6.56

15.116
12.21
994.20





Sta	+	Σ	-	Grade	Ground
BM.	9.68	960.88		951.20	
○				56.2	56.2
+26				55.3	55.6
+32				55.1	57.8
+60				54.0	55.1
1 +00				52.7	51.2
+50				51.2	49.2
2				50.0	47.6
○	3.72	952.02	12.58	948.30	
+50				49.0	47.2

$$\begin{array}{r} 951.20 \\ 2.26 \\ \hline 956.267 \end{array}$$

$$\begin{array}{r} 951.20 \\ 5.37 \\ \hline 956.57 \end{array}$$

SpK in 30' Cottonwood 160' Lt Sta 0+40

Grd Rod

$$\begin{array}{r} 5.2 \\ 50 \end{array} \quad 4.7 \quad \begin{array}{r} 4.1 \\ 50 \end{array}$$

4.7

$$\begin{array}{r} 5.5 \\ 50 \end{array} \quad \begin{array}{r} 5.2 \\ 22 \end{array} \quad 5.3 \quad \begin{array}{r} 5.8 \\ 4.12 \end{array} \quad \begin{array}{r} 5.2 \\ 16 \end{array} \quad \begin{array}{r} 4.2 \\ 50 \end{array}$$

5.6
7.1

$$\begin{array}{r} 4.5 \\ 40 \end{array} \quad \begin{array}{r} DC. 3.1 \\ 4.2 \\ \hline 35.4 \end{array} \quad \begin{array}{r} 3.4 \\ 15 \end{array} \quad \begin{array}{r} C. 2.7 \\ 3.1 \\ \hline 0 \end{array} \quad \begin{array}{r} 6.1 \\ 3 \end{array} \quad \begin{array}{r} 6.1 \\ 12 \end{array} \quad \begin{array}{r} 2.6 \\ 18 \end{array} \quad \begin{array}{r} DC. 6.3 \\ 1.0 \\ \hline 48.2 \end{array} \quad \begin{array}{r} 1.0 \\ 55 \end{array} \quad 5.8 \\ 7.3 \end{array}$$

$$\begin{array}{r} 6.7 \\ 40 \end{array} \quad \begin{array}{r} DC. 2.2 \\ 6.2 \\ \hline 31.8 \end{array} \quad \begin{array}{r} 5.5 \\ 14 \end{array} \quad \begin{array}{r} C. 1.1 \\ 5.8 \\ \hline 0 \end{array} \quad \begin{array}{r} 7.9 \\ 4 \end{array} \quad \begin{array}{r} 8.1 \\ 10 \end{array} \quad \begin{array}{r} 6.1 \\ 13 \end{array} \quad \begin{array}{r} DC. 3.0 \\ 5.4 \\ \hline 35.0 \end{array} \quad \begin{array}{r} 5.3 \\ 45 \end{array} \quad 6.9 \\ 8.4 \end{array}$$

$$\begin{array}{r} F2.5 \\ 10.7 \\ \hline 23.0 \end{array} \quad \begin{array}{r} 10.2 \\ 11 \end{array} \quad \begin{array}{r} F1.6 \\ 9.8 \\ \hline 0 \end{array} \quad \begin{array}{r} 10.0 \\ 9 \end{array} \quad \begin{array}{r} 9.0 \\ 12 \end{array} \quad \begin{array}{r} DC. 0.9 \\ 8.3 \\ \hline 31.0 \end{array} \quad \begin{array}{r} 8.9 \\ 40 \end{array} \quad 8.2 \\ 9.7 \end{array}$$

$$\begin{array}{r} 12.0 \\ 40 \end{array} \quad \begin{array}{r} F2.4 \\ 12.1 \\ \hline 22.6 \end{array} \quad \begin{array}{r} 12.0 \\ 16 \end{array} \quad \begin{array}{r} F2.2 \\ 11.9 \\ \hline 0 \end{array} \quad \begin{array}{r} 11.6 \\ 12 \end{array} \quad \begin{array}{r} F2.1 \\ 11.8 \\ \hline 21.4 \end{array} \quad \begin{array}{r} 12.0 \\ 33 \end{array} \quad L.O. \quad 9.7 \\ 11.2 \end{array}$$

$$\begin{array}{r} 12.7 \\ 40 \end{array} \quad \begin{array}{r} F2.5 \\ 13.4 \\ \hline 23.4 \end{array} \quad \begin{array}{r} 13.5 \\ 10 \end{array} \quad \begin{array}{r} F2.4 \\ 13.3 \\ \hline 0 \end{array} \quad \begin{array}{r} 13.0 \\ 12 \end{array} \quad \begin{array}{r} F2.8 \\ 13.7 \\ \hline 24.2 \end{array} \quad \begin{array}{r} 14.0 \\ 40 \end{array} \quad 10.9 \\ 12.4 \end{array}$$

$$\begin{array}{r} DC. 0.8 \\ 3.7 \\ \hline 31.0 \end{array} \quad \begin{array}{r} 4.4 \\ 14 \end{array} \quad \begin{array}{r} F1.7 \\ 4.7 \\ \hline 0 \end{array} \quad \begin{array}{r} 4.7 \\ 10 \end{array} \quad \begin{array}{r} F2.5 \\ 5.5 \\ \hline 23.0 \end{array} \quad \begin{array}{r} 6.0 \\ 40 \end{array} \quad 3.0 \\ 4.5 \end{array}$$

Sta

+

K

-

Grade

952.02

3

48.1 46.2

+50

47.6 46.0

4

47.2 45.8

+50

47.0 46.6

+80

47.0 47.6

5

46.9 47.7

+50

46.9 48.6

6

46.8 48.9

+50

46.6 48.2

950.23

950.23
956.57
969.67
946.900

48.4

946.90
3.55
950.45

8.47-09
8.38

4.7
40

DC.0.7
5.2
31.0

6.4
15

F.1.8
5.7
0

5.8
9

F.3.8
7.7
28.2

8.0
40

3.9
5.4

5.7
40

DC.0.3
6.0
31.0

6.5
19

F.1.7
6.1
0

6.1
10

F.3.6
8.0
27.4

8.0
40

4.4
5.9

9.37-09
9.28

7.8
40

F.3.0
7.8
25.0

7.0
8

F.1.7
6.5
0

5.7
11

DC.0.7
5.6
31.0

5.6
40

4.8
6.3

9.57-05
9.52

F.2.3
7.3
22.2

7.2
18

F.0.5
5.5
0

4.7
15

DC.2.2
4.3
31.8

4.3
40

5.0
6.5

9.67-0

5.1
40

P.C.1.5
5.0
31.0

4.6
11

C.0.9
4.2
0

4.0
13

DC.2.9
3.7
34.6

3.5
40

5.1
6.6

9.35

4.1
40

DC.2.5
4.1
33.0

3.8
17

C.1.7
3.4
0

3.6
16

DC.3.4
3.2
36.6

3.2
50

5.1
6.6

9.65

3.8
50

DC.3.2
3.5
35.8

3.4
4

C.2.1
3.1
0

3.5
11

DC.3.3
3.4
36.2

3.3
50

5.2
6.7

9.85

3.8
50

DC.3.1
3.8
35.4

4.2
6

C.1.6
3.8
0

4.5
11

DC.2.2
4.7
31.8

4.7
40

5.4
6.9

Sta	+	Δ	-	Grade	Grd
		952.02			
7				46.5	47.1
+50				46.2	46.0
+80				46.1	45.5
8				46.0	46.1
0	4.02	950.64	5.40	46.62	
+50				45.8	46.0
9				45.5	45.6
+50				45.2	46.0
10-				45.0	43.9
+50				44.8	42.5

950.23

950.45

33.95

$$\frac{4.9}{40}$$

$$\frac{DC.2.1}{4.9} \\ \frac{31.4}{0}$$

$$\frac{5.3}{13}$$

$$\frac{C.0.6}{4.9} \\ \frac{0}{0}$$

$$\frac{5.3}{11}$$

$$\frac{DC.1.1}{5.9} \\ \frac{31.0}{0}$$

$$\frac{6.0}{40}$$

$$\frac{5.5}{7.0}$$

370-420

$$\frac{6.6}{40}$$

$$\frac{DC.0.7}{6.6} \\ \frac{31.0}{0}$$

$$\frac{6.4}{5}$$

$$\frac{F0.2}{6.0} \\ \frac{0}{0}$$

$$\frac{6.2}{14}$$

$$\frac{DC.1.1}{6.2} \\ \frac{31.0}{0}$$

$$\frac{6.2}{40}$$

$$\frac{5.8}{1.3}$$

$$\frac{8.1}{40}$$

$$\frac{7.8}{25}$$

$$\frac{7.1}{5}$$

$$\frac{6.6}{0}$$

$$\frac{6.0}{3}$$

$$\frac{6.2}{13}$$

$$\frac{6.2}{40}$$

950.001

4.0

$$\frac{DC.0.0}{7.5} \\ \frac{24.5}{0}$$

$$\frac{6.6}{6}$$

$$\frac{C.0.1}{5.9} \\ \frac{0}{0}$$

$$\frac{6.2}{12}$$

$$\frac{DC.1.3}{6.2} \\ \frac{31.0}{0}$$

$$\frac{6.2}{40}$$

$$\frac{6.0}{1.5}$$

$$\frac{4.6}{40} \frac{DC.1.6}{4.7} \\ \frac{31.0}{0}$$

$$\frac{5.1}{12}$$

$$\frac{0.0}{4.8} \\ \frac{0}{0}$$

$$\frac{5.0}{11}$$

$$\frac{5.4}{19} \frac{DC.1.2}{5.1} \\ \frac{31.0}{0}$$

$$\frac{5.3}{40}$$

$$\frac{4.8}{6.3}$$

4.55-05

$$\frac{5.6}{40}$$

$$\frac{DC.1.0}{5.6} \\ \frac{31.0}{0}$$

$$\frac{5.4}{8}$$

$$\frac{F0.1}{5.2} \\ \frac{0}{0}$$

$$\frac{5.4}{12}$$

$$\frac{DC.0.8}{5.8} \\ \frac{31.0}{0}$$

$$\frac{6.1}{40}$$

$$\frac{5.1}{6.6}$$

4.80

$$\frac{5.5}{40}$$

$$\frac{DC.1.6}{5.3} \\ \frac{31.0}{0}$$

$$\frac{5.0}{4}$$

$$\frac{C.0.8}{4.6} \\ \frac{0}{0}$$

$$\frac{5.7}{13}$$

$$\frac{6.3}{17} \frac{DC.0.2}{6.7} \\ \frac{31.0}{0}$$

$$\frac{7.0}{40}$$

$$\frac{5.4}{6.9}$$

5.00

$$\frac{7.0}{40}$$

$$\frac{DC.0.1}{7.0} \\ \frac{31.0}{0}$$

$$\frac{7.1}{9}$$

$$\frac{F1.0}{6.6} \\ \frac{0}{0}$$

$$\frac{7.5}{17}$$

$$\frac{F1.9}{7.5} \\ \frac{20.6}{0}$$

$$\frac{7.6}{40}$$

$$\frac{5.6}{7.1}$$

5.20-12

$$\frac{8.3}{40}$$

$$\frac{F2.3}{8.1} \\ \frac{22.2}{0}$$

$$\frac{8.1}{17}$$

$$\frac{F2.3}{8.1} \\ \frac{0}{0}$$

$$\frac{7.7}{18}$$

$$\frac{F2.4}{8.2} \\ \frac{22.6}{0}$$

$$\frac{8.3}{40}$$

$$\frac{5.8}{0}$$

Sta	+	π	-	Grade	Grd
B.M.			5.33		
BM	3.96	949.21	5.33	945.25	
11				44.5	43.1
+45				44.3	43.7
12				44.0	41.1
+50				43.7	40.9
13				43.5	41.3
BM				945.25	
+50				43.2	42.5
14				42.6	43.7
+50				42.0	44.0
15				41.4	45.9

950.23
674
943.49
3.48
946.97
37

13+08 Tel Pole
23' Lt

520

945.35
131
946.86 K

540
5.37

$\frac{6.6}{40}$

DC.00
 $\frac{6.2}{27.7}$

F1.4
 $\frac{6.1}{0}$

$\frac{6.2}{18}$

F1.5
 $\frac{6.2}{19.0}$

$\frac{6.6}{40}$

4.7
6.2

560
556

$\frac{7.3}{40}$

DC.00
 $\frac{6.4}{27.0}$

$\frac{5.8}{18}$

F0.8
 $\frac{5.7}{0}$

$\frac{5.8}{17}$

DC.00
 $\frac{6.4}{31.0}$

$\frac{6.6}{40}$

4.9
6.4

590.16
5.76

$\frac{7.7}{40}$

F2.5
 $\frac{7.7}{23.0}$

$\frac{7.7}{20}$

F3.2
 $\frac{8.4}{0}$

F3.4
 $\frac{8.6}{26.6}$

$\frac{8.4}{40}$

5.2
6.7

620
6.05

$\frac{7.2}{40}$

F1.9
 $\frac{7.4}{20.6}$

F2.1
 $\frac{8.4}{0}$

F3.1
 $\frac{8.6}{25.4}$

$\frac{8.2}{40}$

5.5
7.0

640
6.20

$\frac{7.2}{40}$

DC.0.3
 $\frac{6.9}{31.0}$

F2.1
 $\frac{7.8}{0}$

F2.5
 $\frac{8.2}{23.0}$

$\frac{8.1}{40}$

5.7
7.2

SpK in 48" Cottonwood 200' Lt Sta 13+14

670
6.65

$\frac{7.2}{40}$

DC.0.6
 $\frac{6.9}{31.0}$

F0.7
 $\frac{6.7}{0}$

DC.0.9
 $\frac{6.6}{31.0}$

6.0
7.5

43.83 K

123

$\frac{6.4}{40}$

DC.1.9
 $\frac{6.2}{31.0}$

C1.0
 $\frac{5.6}{0}$

DC.3.0
 $\frac{5.1}{31.0}$

$\frac{4.9}{40}$

6.6
8.1

183

$\frac{4.8}{40}$

DC.3.9
 $\frac{4.8}{31.0}$

$\frac{5.0}{21}$

C2.1
 $\frac{5.1}{0}$

$\frac{4.8}{20}$

DC.4.4
 $\frac{4.3}{31.8}$

$\frac{3.9}{40}$

7.2
8.7

243

$\frac{3.8}{40}$

DC.5.8
 $\frac{3.5}{34.6}$

$\frac{3.2}{22}$

C4.4
 $\frac{3.1}{0}$

$\frac{3.2}{19}$

DC.6.4
 $\frac{2.9}{35.9}$

$\frac{3.2}{45}$

7.8
9.3

Sta	+	π	-	Grade	Grd.
		949.21			

15 + 30				40.9	46.9
+50				40.6	
+70				40.3	45.3

16				39.7	44.0
+50				38.7	40.6

17				37.6	37.6
+30				36.8	38.6

18	1.05	938.22	12.04	937.17	
+60				36.3	35.6

18				35.4	32.6
----	--	--	--	------	------

946.86

937.42
43.53 T
8.52

3 3.31
3 3.17
38.53 T

0 5.40 18400

2.93

3.6
50

DC.6.7
3.1
36.4

2.3
15

6.6.0
2.3
0

2.16
19

DC.6.8
3.0
36.6

4.0
50

8.3
9.8

3.53

5.0
40

DC.5.7
4.7
34.4

4.0
19

6.4.9
4.0
0

4.6
17

DC.5.4
5.0
33.8

5.6
40

8.9
10.4

4.13

6.2
40

DC.5.2
5.8
33.4

5.2
15

6.4.3
5.2
0

6.4
22

DC.4.1
6.9
31.2

7.2
40

9.5
11.0

5.13

8.4
40

DC.4.1
7.9
31.2

8.0
17

6.1.8
8.7
0

9.8
15

DC.1.3
10.7
31.0

11.5
40

10.5
12.0

6.23
6.16

10.7
40

DC.2.6
10.5
31.0

10.7
22

FO.1
11.7
0

DC.0.9
13.1
28.6

14.0
40

11.6
13.1

7.03
6.98

12.9
40

DC.1.4
12.5
31.0

12.4
21

FO.1
12.5
0

12.8
14

DC.0.3
13.6
31.0

14.2
40

12.4
13.9

7.53
7.43

4.7
40

F1.9
3.8
20.6

FO.7
2.6
0

1.8
20

DC.1.3
2.1
31.0

2.7
40

1.9
3.4

3.14

6.4
40

F3.5
6.4
27.0

6.3
15

F2.8
5.6
0

4.9
17

F2.0
4.8
21.0

5.4
40

2.8
4.3

Sta	+	π	-	Grade	Ground
		938.22			
18+50				34.3	30.8
19				33.2	30.4
+50				32.1	29.9
+89				31.2	29.2
20				31.0	27.5
+16				30.6	24.9
+70				29.4	29.7
21				28.7	29.5
B.M.	447	933.83	8.86	929.36	
+50				27.4	27.4

9.2

$$\begin{array}{r} 928.36 \\ + 3.57 \\ \hline 932.93 \end{array}$$

$$\begin{array}{r} 921.96 \\ 8.06 \\ \hline \end{array}$$

$$\begin{array}{r} 27.47 \\ 2.52 \\ \hline 29.99 \end{array}$$

$$\begin{array}{r} 937.42 \\ 38.55 \\ 11.06 \\ \hline 27.47 \end{array}$$

$$\begin{array}{r} 4.23 \\ 405 \end{array}$$

$$\begin{array}{r} 7.4 \\ 40 \\ \hline \end{array}$$

$$\begin{array}{r} 7.4 \\ 15 \\ \hline \end{array}$$

$$\begin{array}{r} F3.6 \\ 7.5 \\ \hline 27.4 \end{array}$$

$$\begin{array}{r} 7.2 \\ 15 \\ \hline \end{array}$$

$$\begin{array}{r} F3.9 \\ 7.8 \\ \hline 28.6 \end{array}$$

$$\begin{array}{r} 9.2 \\ 40 \\ \hline \end{array}$$

3.9

$$\begin{array}{r} 5.33 \\ 5.19 \end{array}$$

$$\begin{array}{r} 8.7 \\ 40 \\ \hline \end{array}$$

$$\begin{array}{r} F3.7 \\ 8.7 \\ \hline 27.8 \end{array}$$

$$\begin{array}{r} 8.4 \\ 15 \\ \hline \end{array}$$

$$\begin{array}{r} F2.8 \\ 7.8 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 7.7 \\ 18 \\ \hline \end{array}$$

$$\begin{array}{r} F3.7 \\ 8.7 \\ \hline 27.8 \end{array}$$

$$\begin{array}{r} 10.7 \\ 40 \\ \hline \end{array}$$

5.0

$$\begin{array}{r} 36.43 \\ 36.31 \end{array}$$

$$\begin{array}{r} 9.2 \\ 40 \\ \hline \end{array}$$

$$\begin{array}{r} F2.7 \\ 8.8 \\ \hline 23.8 \end{array}$$

$$\begin{array}{r} 8.6 \\ 19 \\ \hline \end{array}$$

$$\begin{array}{r} F2.3 \\ 8.4 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 8.8 \\ 15 \\ \hline \end{array}$$

$$\begin{array}{r} F4.4 \\ 10.5 \\ \hline 30.6 \end{array}$$

$$\begin{array}{r} 12.4 \\ 40 \\ \hline \end{array}$$

6.1

$$\begin{array}{r} 10.7 \\ 40 \\ \hline \end{array}$$

$$\begin{array}{r} 9.7 \\ 18 \\ \hline \end{array}$$

$$\begin{array}{r} 9.0 \\ 0 \\ \hline \end{array}$$

$$\begin{array}{r} 9.0 \\ 14 \\ \hline \end{array}$$

$$\begin{array}{r} 12.2 \\ 40 \\ \hline \end{array}$$

7.0

$$\begin{array}{r} 758 \\ 18 \\ \hline 7.35 \end{array}$$

$$\begin{array}{r} 7.8 \\ 40 \\ \hline \end{array}$$

$$\begin{array}{r} F4.1 \\ 11.3 \\ \hline 29.4 \end{array}$$

$$\begin{array}{r} 11.2 \\ 18 \\ \hline \end{array}$$

$$\begin{array}{r} F3.6 \\ 10.8 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 10.7 \\ 14 \\ \hline \end{array}$$

$$\begin{array}{r} F4.0 \\ 11.2 \\ \hline 29.0 \end{array}$$

$$\begin{array}{r} 12.8 \\ 40 \\ \hline \end{array}$$

7.2

$$\begin{array}{r} 11.7 \\ 40 \\ \hline \end{array}$$

$$\begin{array}{r} F4.7 \\ 12.3 \\ \hline 31.8 \end{array}$$

$$\begin{array}{r} 12.5 \\ 20 \\ \hline \end{array}$$

$$\begin{array}{r} F5.7 \\ 13.3 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 13.9 \\ 13 \\ \hline \end{array}$$

$$\begin{array}{r} F6.6 \\ 14.2 \\ \hline 34.4 \end{array}$$

$$\begin{array}{r} 15.1 \\ 50 \\ \hline \end{array}$$

7.4

$$\begin{array}{r} 10.1 \\ 40 \\ \hline \end{array}$$

$$\begin{array}{r} DC.0.7 \\ 9.6 \\ \hline 31.0 \end{array}$$

$$\begin{array}{r} 9.0 \\ 21 \\ \hline \end{array}$$

$$\begin{array}{r} C.0.3 \\ 8.5 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 9.4 \\ 14 \\ \hline \end{array}$$

$$\begin{array}{r} DC.0.0 \\ 10.3 \\ \hline 21.4 \end{array}$$

$$\begin{array}{r} 12.8 \\ 40 \\ \hline \end{array}$$

8.8

10.3

$$\begin{array}{r} 9.1 \\ 40 \\ \hline \end{array}$$

$$\begin{array}{r} DC.0.2 \\ 10.8 \\ \hline 31.0 \end{array}$$

$$\begin{array}{r} 10.8 \\ 25 \\ \hline \end{array}$$

$$\begin{array}{r} C.0.8 \\ 8.7 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 9.1 \\ 14 \\ \hline \end{array}$$

$$\begin{array}{r} DC.0.2 \\ 10.8 \\ \hline 31.0 \end{array}$$

$$\begin{array}{r} 13.4 \\ 50 \\ \hline \end{array}$$

9.5

11.0

OK in top Oak St 55' Lt. Sta 19+42

$$\begin{array}{r} 10.8 \\ 5.11.13 \\ 11.08 \end{array}$$

$$\begin{array}{r} 6.9 \\ 40 \\ \hline \end{array}$$

$$\begin{array}{r} DC.1.0 \\ 6.9 \\ \hline 31.0 \end{array}$$

$$\begin{array}{r} 6.9 \\ 17 \\ \hline \end{array}$$

$$\begin{array}{r} C.0.5 \\ 6.5 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 6.4 \\ 20 \\ \hline \end{array}$$

$$\begin{array}{r} DC.1.0 \\ 6.9 \\ \hline 31.0 \end{array}$$

$$\begin{array}{r} 7.4 \\ 40 \\ \hline \end{array}$$

6.4

7.9

Sta.	+	π	-	Grade	Ground
		933.83			
22				26.0	25.4
+50				24.4	24.6
23				22.6	25.0
+22				21.8	25.8
+70				20.0	22.5
①	1.04	921.98	12.89	920.94	
24				18.8	20.4
+50				16.6	18.4
25				14.3	13.2
+40				12.4	09.0

$$\begin{array}{r} \pi 932.73 \\ 10.29 \\ \hline 922.64 \\ 1.56 \\ \hline 924.20 \end{array}$$

$$\begin{array}{r} 29.99 \pi \\ 13.39 \\ \hline 16.60 \odot \text{Sta } 24+50 \\ 16.94 \\ \hline 17.54 \pi \end{array}$$

$$\begin{array}{r} 4.2 - 399 \\ 394 \\ \hline \end{array}$$

$$\frac{8.4}{40}$$

$$\begin{array}{r} DC.0.9 \\ 8.4 \\ \hline 31.0 \end{array}$$

$$\frac{8.6}{20}$$

$$\begin{array}{r} FO.7 \\ 8.5 \\ \hline 0 \end{array}$$

$$\frac{8.3}{22}$$

$$\begin{array}{r} DC.1.1 \\ 8.2 \\ \hline 31.0 \end{array}$$

$$\frac{8.3}{40}$$

$$\begin{array}{r} 7.8 \\ 9.3 \end{array}$$

$$\begin{array}{r} 5.5 - 5.59 \\ 40 \end{array}$$

$$\frac{8.8}{40}$$

$$\begin{array}{r} DC.0.4 \\ 9.0 \\ \hline 31.0 \end{array}$$

$$\frac{9.0}{20}$$

$$\begin{array}{r} CO.2 \\ 9.2 \\ \hline 0 \end{array}$$

$$\frac{9.6}{18}$$

$$\begin{array}{r} DC.0.7 \\ 9.8 \\ \hline 31.0 \end{array}$$

$$\frac{9.8}{40}$$

$$\begin{array}{r} 9.4 \\ 10.5 \end{array}$$

$$\begin{array}{r} 7.4 - 7.39 \\ 45 \end{array}$$

$$\frac{9.7}{45}$$

$$\begin{array}{r} DC.3.4 \\ 9.8 \\ \hline 36.6 \end{array}$$

$$\frac{9.0}{20}$$

$$\begin{array}{r} C.2.4 \\ 8.8 \\ \hline 1.0 \end{array}$$

$$\frac{8.8}{18}$$

$$\begin{array}{r} DC.3.7 \\ 9.0 \\ \hline 37.8 \end{array}$$

$$\frac{9.0}{45}$$

$$\begin{array}{r} 11.2 \\ 12.7 \end{array}$$

$$\begin{array}{r} 9.6 \\ 45 \end{array}$$

$$\frac{9.6}{45}$$

$$\begin{array}{r} DC.4.2 \\ 9.3 \\ \hline 39.8 \end{array}$$

$$\frac{8.5}{19}$$

$$\begin{array}{r} C.4.0 \\ 8.0 \\ \hline 0 \end{array}$$

$$\frac{8.0}{18}$$

$$\begin{array}{r} DC.5.3 \\ 8.2 \\ \hline 44.2 \end{array}$$

$$\frac{8.3}{50}$$

$$\begin{array}{r} 12.0 \\ 13.5 \end{array}$$

$$\pi 924.20$$

$$\begin{array}{r} 10.2 - 9.99 \\ 45 \end{array}$$

$$\frac{12.0}{45}$$

$$\begin{array}{r} DC.3.5 \\ 11.8 \\ \hline 37.0 \end{array}$$

$$\frac{11.8}{25}$$

$$\begin{array}{r} C.2.4 \\ 11.4 \\ \hline 0 \end{array}$$

$$\frac{11.5}{25}$$

$$\begin{array}{r} DC.3.5 \\ 11.8 \\ \hline 37.0 \end{array}$$

$$\frac{11.8}{45}$$

$$\begin{array}{r} 13.8 \\ 15.3 \end{array}$$

$$\begin{array}{r} 11.3 - 11.19 \\ 45 \end{array}$$

$$\frac{2.3}{45}$$

$$\begin{array}{r} DC.2.6 \\ 2.1 \\ \hline 33.4 \end{array}$$

$$\frac{1.6}{21}$$

$$\begin{array}{r} C.1.7 \\ 1.5 \\ \hline 0 \end{array}$$

$$\frac{1.6}{24}$$

$$\begin{array}{r} DC.3.1 \\ 1.6 \\ \hline 35.4 \end{array}$$

$$\frac{1.6}{45}$$

$$\begin{array}{r} 3.3 \\ 4.7 \end{array}$$

$$\begin{array}{r} 13.3 - 13.39 \\ 45 \end{array}$$

$$\frac{4.1}{45}$$

$$\begin{array}{r} DC.3.9 \\ 3.9 \\ \hline 35.0 \end{array}$$

$$\frac{3.6}{21}$$

$$\begin{array}{r} C.1.9 \\ 3.5 \\ \hline 0 \end{array}$$

$$\frac{3.5}{25}$$

$$\begin{array}{r} DC.3.2 \\ 3.7 \\ \hline 35.8 \end{array}$$

$$\frac{3.9}{45}$$

$$\begin{array}{r} 5.4 \\ 6.9 \end{array}$$

$$\begin{array}{r} 2.8 - 3.24 \\ 3.19 \end{array}$$

$$\frac{7.8}{40}$$

$$\begin{array}{r} DC.1.1 \\ 8.1 \\ \hline 31.0 \end{array}$$

$$\frac{8.4}{19}$$

$$\begin{array}{r} FI.1 \\ 8.8 \\ \hline 0 \end{array}$$

$$\frac{10.2}{40}$$

$$\begin{array}{r} FI.9 \\ 9.6 \\ \hline 20.6 \end{array}$$

$$\frac{10.2}{40}$$

$$\begin{array}{r} 7.7 \\ 9.2 \end{array}$$

$$\begin{array}{r} A.7 - 5.14 \\ 4.98 \end{array}$$

$$\frac{11.4}{40}$$

$$\begin{array}{r} F2.5 \\ 12.1 \\ \hline 23.0 \end{array}$$

$$\frac{12.2}{19}$$

$$\begin{array}{r} F3.3 \\ 12.9 \\ \hline 0 \end{array}$$

$$\frac{13.3}{19}$$

$$\begin{array}{r} FA.2 \\ 13.8 \\ \hline 29.8 \end{array}$$

$$\frac{14.6}{40}$$

$$\begin{array}{r} 9.6 \\ 11.1 \end{array}$$

Sta	+	IK	-	Grade	Ground
		921.98			
⊙	3.11	912.66	12.43	909.55	
25+70				10.9	04.8
26				09.4	04.0
+32				03.5	03.5
B.M.			6.89	905.71	905.71

17.54

$$\begin{array}{r}
 6.7 \\
 6.64 \\
 \hline
 6.34
 \end{array}
 \quad
 \begin{array}{r}
 6.0 \\
 \hline
 40
 \end{array}
 \quad
 \begin{array}{r}
 F4.7 \\
 6.5 \\
 \hline
 31.8
 \end{array}
 \quad
 \begin{array}{r}
 7.2 \\
 \hline
 19
 \end{array}
 \quad
 \begin{array}{r}
 F6.0 \\
 7.8 \\
 \hline
 0
 \end{array}
 \quad
 \begin{array}{r}
 8.1 \\
 \hline
 22
 \end{array}
 \quad
 \begin{array}{r}
 F6.3 \\
 8.1 \\
 \hline
 38.2
 \end{array}
 \quad
 \begin{array}{r}
 8.1 \\
 \hline
 50
 \end{array}
 \quad
 1.8$$

$$\begin{array}{r}
 8.1 \\
 8.14 \\
 \hline
 26 \\
 \hline
 7.88
 \end{array}
 \quad
 \begin{array}{r}
 7.8 \\
 \hline
 46
 \end{array}
 \quad
 \begin{array}{r}
 F4.9 \\
 8.2 \\
 \hline
 32.6
 \end{array}
 \quad
 \begin{array}{r}
 8.4 \\
 \hline
 19
 \end{array}
 \quad
 \begin{array}{r}
 F5.2 \\
 8.5 \\
 \hline
 0
 \end{array}
 \quad
 \begin{array}{r}
 8.5 \\
 \hline
 17
 \end{array}
 \quad
 \begin{array}{r}
 F5.2 \\
 8.5 \\
 \hline
 33.8
 \end{array}
 \quad
 \begin{array}{r}
 8.5 \\
 \hline
 40
 \end{array}
 \quad
 3.3$$

9.1

SpK in 10" Willow 35' Lt Sta 26+43 El. 905.71

X-Sections Pot Hole Lt

Sta	+	π	-
-----	---	-------	---

B.M.			
------	--	--	--

3.12	948.37	
------	--------	--

7+39	So Basement Line
------	------------------

+40	Inside Basement So End
-----	------------------------

+53	Ctr. Basement
-----	---------------

+66	Inside Basement No End
-----	------------------------

+67	No Basement Line
-----	------------------

+77	
-----	--

£

Spk in 48" Cottonwood 200' L + Sta Sta. 13+14 E1.94525

W Basement Line Prod

$\frac{2.0}{136}$	$\frac{2.2}{125}$	$\frac{2.8}{100}$	$\frac{2.6}{84-50}$	$\frac{2.8}{31}$
-------------------	-------------------	-------------------	---------------------	------------------

Non E. Basement Line Produced

$\frac{2.0}{130}$	$\frac{2.2}{124}$	$\frac{3.0}{110}$	$\frac{7.1}{109}$	$\frac{7.2}{85}$	$\frac{2.9}{84}$	$\frac{2.5}{57}$	$\frac{2.4}{31}$
-------------------	-------------------	-------------------	-------------------	------------------	------------------	------------------	------------------

in Basement

$\frac{2.0}{130}$	$\frac{2.2}{124}$	$\frac{3.3}{112}$	$\frac{7.8}{100-93}$	$\frac{6.9}{85}$	$\frac{3.4}{81}$	$\frac{3.0}{57}$	$\frac{3.3}{31}$
-------------------	-------------------	-------------------	----------------------	------------------	------------------	------------------	------------------

Top Fdn

$\frac{1.9}{132}$	$\frac{2.1}{125}$	$\frac{1.9}{118}$	$\frac{7.3}{118}$	$\frac{7.5}{100}$	$\frac{6.9}{85}$	$\frac{3.7}{78}$	$\frac{2.1}{69}$	$\frac{3.2}{54}$	$\frac{3.7}{31}$
-------------------	-------------------	-------------------	-------------------	-------------------	------------------	------------------	------------------	------------------	------------------

$\frac{1.9}{132}$	$\frac{2.1}{123}$	$\frac{3.6}{110}$	$\frac{3.2}{102}$	$\frac{3.5}{100}$	$\frac{3.7}{84}$	$\frac{2.4}{71}$	$\frac{3.8}{46}$	$\frac{4.0}{31}$
-------------------	-------------------	-------------------	-------------------	-------------------	------------------	------------------	------------------	------------------

$\frac{1.7}{134}$	$\frac{2.3}{110}$	$\frac{2.5}{100}$	$\frac{3.2}{86}$	$\frac{4.2}{62}$	$\frac{4.7}{31}$
-------------------	-------------------	-------------------	------------------	------------------	------------------

7+88

Ctr Pot Hole

8

+14

+50

3+75

24" S.C. X Culv

12+00

24" S.C. X Culv

4.3

4

$$\begin{array}{r} 1.7 \\ 134 \end{array} \quad \begin{array}{r} 3.9 \\ 100 \end{array} \quad \begin{array}{r} 5.1 \\ 63 \end{array} \quad \begin{array}{r} 4.3 \\ 31 \end{array}$$

$$\begin{array}{r} 1.8 \\ 134 \end{array} \quad \begin{array}{r} 3.9 \\ 100 \end{array} \quad \begin{array}{r} 4.9 \\ 77 \end{array} \quad \begin{array}{r} 4.7 \\ 50 \end{array} \quad \begin{array}{r} 4.1 \\ 31 \end{array} \quad 44.3$$

$$\begin{array}{r} 1.7 \\ 136 \end{array} \quad \begin{array}{r} 2.5 \\ 100 \end{array} \quad \begin{array}{r} 3.0 \\ 88 \end{array} \quad \begin{array}{r} 4.1 \\ 56 \end{array} \quad \begin{array}{r} 3.6 \\ 31 \end{array}$$

$$\begin{array}{r} 3.3 \\ 135 \end{array} \quad \begin{array}{r} 3.2 \\ 100 \end{array} \quad \begin{array}{r} 2.4 \\ 82 \end{array} \quad \begin{array}{r} 2.2 \\ 62 \end{array} \quad \begin{array}{r} 2.4 \\ 31 \end{array}$$

Inlet 4.53

Outlet = 4.72

Pot Hole = 4.83 on Rt

Outlet 8.77

Inlet = 8.42

Pot Hole on Lt 9.80

Pot Hole on Rt. = 8.00

Monthly Progress - June 26-1935

Sta	to Sta	Exc.	
0+00	1+50	200	.16
4+00	10+00	1000	
13+00	17+50	1500	
20+50	25+50	<u>475</u>	
		3175	.16

Monthly Progress Estimate

F.C. Cleveland - Contr. 6/26/35.

Excavation Earth	3175 cu. yd. @ 16¢	\$508.00
Install 24" S.C. culv.	162 L.F. " 25¢	40.50
Remove Old culv.		<u>10.00</u>
		558.50
	Less 15%	<u>83.78</u>
		\$ 474.72

Due F.C. Cleveland this Estimate
(\$474.72).

Culverts

Sta.

3+75

Imp. 24" x 48' S.C. Culvert

12+00

Imp. 24" x 48' S.C. Culvert

20+16

Imp. 24" x 66' S.C. Culvert

Remove old

$$\begin{array}{r} 513 \\ 45.25 \\ \hline 50.38 \end{array}$$

Stakes for Drainage Lt. Sta. 8+00 to 10+00

Fill Grade Max. Sec Grade Dt. Grad

Σ 50.38

Diff.

7+88

44.0 - 44.2

90'

46.1

8+00

43.9 - 44.2

96'

46.0

43.8

2.2 = 88

8+14

46.0

43.8

22.

+50

45.8

43.7

2.1

9

45.5

43.6

+50

45.2

43.5

10

45.0

43.5

Fill Gr. Rod Dt. Gr. Rod

4.28

$$\frac{6.38}{32}$$

$$\frac{6.38}{95}$$

4.38

6.58

$$\frac{5.9}{26}$$

$$\frac{D.C. 0.5}{6.1} \\ \hline 31.0$$

$$\frac{6.65}{48}$$

$$\frac{6.64}{72}$$

$$\frac{6.18}{94}$$

4.38

6.58

4.58

6.78

$$\frac{4.4}{0}$$

$$\frac{4.7}{13}$$

$$\frac{5.7}{19-23}$$

$$\frac{D.C. 2.3}{4.4} \\ \hline 34.6$$

6.8

$$\frac{4.8}{0}$$

$$\frac{5.0}{13}$$

$$\frac{6.2}{19}$$

$$\frac{6.3}{24}$$

$$\frac{5.6}{30}$$

$$\frac{5.7}{D.C. 1.1} \\ \hline 31.0$$

6.9

$$\frac{4.9}{0}$$

$$\frac{5.1}{13}$$

$$\frac{6.4}{21}$$

$$\frac{6.5}{25}$$

$$\frac{D.C. 1.7}{52} \\ \hline 31.0$$

8/27/35

Windy —

Final X-Sections

Sta	+	⌈	—	Elev.
B.M.	8.91	⁹ 860.11		951.20
0		Co. Rd B		⁹ 856.2
+26				⁹ 855.6
+32				
+60				
1				
+50				
2				
+50				

$$\frac{5.0}{100} \frac{4.4}{50} \quad 3.9 \quad \frac{3.3}{50} \frac{3.1}{100}$$

$$\frac{4.5}{50} \frac{3.6}{35} \frac{4.7}{30} \frac{5.0}{26} \frac{4.4}{19} \frac{4.3}{14} \quad \textcircled{4.8} \quad 4.5 \quad \frac{4.4}{19} \quad \frac{4.5}{22} \quad \frac{5.2}{28} \quad \frac{5.0}{34} \quad \frac{3.4}{42} \quad \frac{3.5}{50}$$

$$\frac{4.4}{50} \frac{3.5}{34} \quad \frac{5.1}{26} \frac{4.0}{15} \quad \textcircled{5.0} \quad 4.7 \quad \frac{5.0}{18} \quad \frac{6.2}{26} \quad \frac{6.1}{32} \quad \frac{0.8}{47} \quad \frac{0.5}{50} \quad \frac{0.0}{64}$$

$$\frac{6.6}{50} \frac{5.6}{31} \quad \frac{7.5}{24} \frac{5.8}{13} \quad \textcircled{6.1} \quad 5.8 \quad \frac{5.9}{11} \quad \frac{7.7}{19} \quad \frac{7.9}{24} \quad \frac{4.2}{36} \quad \frac{4.1}{50}$$

$$\frac{11.0}{50} \frac{10.0}{23} \frac{7.2}{13} \quad \textcircled{7.4} \quad 7.0 \quad \frac{7.1}{11} \quad \frac{8.4}{18} \quad \frac{8.6}{23} \quad \frac{8.0}{32-50}$$

$$30 - \frac{11.2}{22} \frac{8.5}{11} \quad \textcircled{8.9} \quad 8.4 \quad \frac{8.5}{12} \quad \frac{10.8}{21} \quad \frac{11.0}{50}$$

$$\frac{11.9}{33} \quad \frac{12.4}{42} \quad \frac{9.9}{13} \quad \textcircled{10.1} \quad 9.7 \quad \frac{9.7}{12} \quad \frac{12.9}{23} \quad \frac{13.2}{34}$$

SE FL. Side Dr. in
1243

NE 1257

$$\frac{12.1}{40} \frac{11.8}{32} \quad \frac{12.9}{27} \quad \frac{12.9}{21} \frac{10.8}{12} \quad \textcircled{11.1} \quad 10.9 \quad \frac{10.9}{12} \quad \frac{13.3}{20} \quad \frac{13.7}{31}$$

6

476

⁹
~~860.11~~

⁹
~~852.04~~

1283

⁹
~~847.28~~

3

+50

24" x SC. x Culv

4

+50

+80

5

+50

$$\frac{5.6}{29} \quad \frac{5.4}{20} \quad \frac{3.8}{12} \quad \textcircled{3.9} \quad 3.5 \quad \frac{4.0}{12} \quad \frac{7.4}{24} \quad \frac{7.8}{32}$$

$$\frac{6.7}{28} \quad \frac{6.4}{22} \quad \frac{4.3}{12} \quad \textcircled{4.4} \quad 4.3 \quad \frac{7.7}{25} \quad \frac{8.1}{38}$$

FL 8.03

FL 8.24

$$8.0 \quad \frac{7.4}{23} \quad \frac{4.6}{12} \quad \textcircled{4.8} \quad 4.4 \quad \frac{4.6}{12} \quad \frac{6.4}{20} \quad \frac{6.7}{24} \quad \frac{5.7}{31-39}$$

$$\frac{7.5}{34} \quad \frac{7.0}{23} \quad \frac{4.9}{13} \quad \textcircled{5.0} \quad 4.6 \quad \frac{5.0}{12} \quad \frac{6.4}{18} \quad \frac{6.2}{24} \quad \frac{4.3}{32} \quad \frac{4.1}{44}$$

$$\frac{7.1}{35} \quad \frac{6.5}{20} \quad \frac{5.0}{13} \quad \textcircled{5.0} \quad 4.8 \quad \frac{5.0}{13} \quad \frac{6.1}{18} \quad \frac{6.2}{24} \quad \frac{3.7}{34} \quad \frac{3.6}{45}$$

$$\frac{5.2}{41} \quad \frac{5.1}{32} \quad \frac{6.5}{24} \quad \frac{6.7}{22} \quad \frac{6.2}{18} \quad \frac{5.1}{13} \quad \textcircled{5.1} \quad 4.8 \quad \frac{4.9}{13} \quad \frac{6.3}{20} \quad \frac{6.2}{25} \quad \frac{3.5}{36} \quad \frac{3.4}{44}$$

$$\frac{4.1}{46} \quad \frac{4.0}{36} \quad \frac{6.4}{24} \quad \frac{6.6}{21} \quad \frac{6.3}{17} \quad \frac{5.1}{13} \quad \textcircled{5.1} \quad 4.9 \quad \frac{5.0}{13} \quad \frac{6.2}{20} \quad \frac{6.0}{24} \quad \frac{3.2}{38} \quad \frac{3.3}{47}$$

9
852.04

6

+50

7

+50

+80

①

372

9
849.85

5.91

9
846.13

8

+50

$$\begin{array}{ccccccc} \frac{4.0}{48} & \frac{3.7}{37} & \frac{6.4}{23-19} & \frac{5.1}{12} & \textcircled{5.2} & \frac{5.2}{13} & \frac{6.6}{19-23} & \frac{3.4}{36} & \frac{3.3}{44} \end{array}$$

$$\begin{array}{ccccccc} \frac{3.7}{47} & \frac{3.6}{39} & \frac{6.3}{24} & \frac{6.4}{19} & \frac{5.1}{13} & \textcircled{5.4} & \frac{5.0}{13} & \frac{5.4}{13} & \frac{7.0}{20-23} & \frac{4.7}{33} & \frac{4.9}{43} \end{array}$$

$$\begin{array}{ccccccc} \frac{5.1}{42} & \frac{5.2}{34} & \frac{6.8}{22} & \frac{6.7}{19} & \frac{5.5}{13} & \textcircled{5.5} & \frac{5.5}{13} & \frac{7.1}{20-24} & \frac{5.7}{32} & \frac{6.0}{42} \end{array}$$

F.L. 7p4 5E.
7.12

$$\begin{array}{ccccccc} \frac{7.1}{40} & \frac{7.2}{31} & \frac{7.4}{27} & \frac{7.1}{19} & \frac{5.9}{13} & \textcircled{5.8} & \frac{5.9}{13} & \frac{7.3}{19} & \frac{7.2}{24} & \frac{6.1}{31} & \frac{6.3}{38} \end{array}$$

$$\begin{array}{ccccccc} \frac{7.9}{72} & \frac{7.6}{45} & \frac{7.3}{30} & \frac{7.6}{25-20} & \frac{6.1}{13} & \textcircled{5.9} & \frac{5.8}{13} & \frac{6.1}{13} & \frac{7.4}{20} & \frac{7.6}{23} & \frac{6.2}{30} & \frac{6.3}{41} \end{array}$$

$$\begin{array}{ccccccc} \frac{5.8}{94} & \frac{5.8}{70} & \frac{5.5}{50} & \frac{5.1}{30} & \frac{5.6}{25} & \frac{5.3}{20} & \frac{3.9}{13} & \textcircled{3.9} & \frac{3.7}{13} & \frac{3.9}{13} & \frac{5.2}{20-23} & \frac{4.0}{31} & \frac{4.1}{40} \end{array}$$

$$\begin{array}{ccccccc} \frac{3.6}{45} & \frac{3.8}{34} & \frac{5.6}{20-21} & \frac{3.1}{13} & \frac{3.8}{13} & \textcircled{4.1} & \frac{4.2}{13} & \frac{5.4}{20} & \frac{5.5}{25} & \frac{4.4}{31} & \frac{4.6}{44} \end{array}$$

9
849.85

9

+50

10

+50

11

+45

12

+50

$$\begin{array}{cccccccccc}
 & 4.9 & 6.1 & 6.0 & 4.3 & & 4.3 & 5.6 & 5.7 & 5.0 & 5.2 \\
 41-32 & \frac{25}{25} & 21 & \frac{13}{13} & 4.2 & \frac{13}{13} & 20 & 26 & 32 & 41
 \end{array}$$

$$\begin{array}{cccccccc}
 & 4.7 & 6.0 & 5.9 & 4.5 & & 4.5 & 5.9 \\
 41-32 & \frac{25}{25} & 22 & 13 & 4.4 & \frac{13}{13} & 20 & -32
 \end{array}$$

FL 6.36 SE.
6.98 NE

$$\begin{array}{cccccccc}
 & 6.2 & 6.5 & 6.3 & 4.7 & & 4.9 & 6.6 & 6.9 \\
 39 & \frac{24}{24} & 20 & 13 & 4.8 & \frac{13}{13} & 20 & 34
 \end{array}$$

$$\begin{array}{cccccccc}
 & 7.5 & 7.0 & 5.0 & & & 4.9 & 6.9 & 7.5 \\
 32 & \frac{10}{10} & 13 & 4.9 & \frac{13}{13} & 21 & 34
 \end{array}$$

$$\begin{array}{cccccccc}
 & 7.0 & 6.8 & 5.2 & & & 5.1 & 6.7 & 7.2 \\
 35-26 & \frac{19}{19} & 13 & 4.9 & \frac{13}{13} & 20 & 39
 \end{array}$$

$$\begin{array}{cccccccccc}
 & 7.9 & 6.8 & & 7.1 & 5.2 & & 5.2 & 7.5 & 7.3 & 6.9 & 7.2 \\
 37 & \frac{26}{26} & 24-19 & 13 & 5.0 & \frac{13}{13} & 22 & 28 & 31 & 38
 \end{array}$$

$$\begin{array}{cccccc}
 & 8.3 & 8.4 & 5.6 & & 5.6 & 9.0 \\
 36 & \frac{22}{22} & 13 & 5.5 & \frac{13}{13} & 25-38
 \end{array}$$

FL 10.04

FL 9.78

$$\begin{array}{cccccc}
 & 7.6 & 8.1 & 7.9 & 5.9 & & 6.0 & 9.3 & 8.9 \\
 38-31 & \frac{29}{29} & 21 & 13 & 5.7 & \frac{13}{13} & 25 & 35
 \end{array}$$

9 ✓
849.85

13

B.M.

1.52

9 ✓
846.87

4.50

9 ✓
845.35

845.25

+50

14

+50

15

+30

+70

16

○

3.77

9 ✓
840.67

9.97

9 ✓
836.90

$$\begin{array}{r} 7.8 \\ 40 \end{array} \quad \begin{array}{r} 7.5 \\ 31 \end{array} \quad 29-21 \quad \begin{array}{r} 7.9 \\ 13 \end{array} \quad \begin{array}{r} 6.3 \\ 13 \end{array} \quad \textcircled{6.4} \quad \begin{array}{r} 6.1 \\ 13 \end{array} \quad \begin{array}{r} 8.6 \\ 22 \end{array} \quad \begin{array}{r} 8.7 \\ 32 \end{array}$$

SpKin 48' Cottonwood 200' Lt Sta. 13+14

$$\begin{array}{r} 4.9 \\ 40 \end{array} \quad \begin{array}{r} 4.6 \\ 29 \end{array} \quad \begin{array}{r} 5.0 \\ 24 \end{array} \quad \begin{array}{r} 5.1 \\ 22 \end{array} \quad \begin{array}{r} 4.9 \\ 21 \end{array} \quad \begin{array}{r} 3.6 \\ 13 \end{array} \quad \begin{array}{r} 3.7 \\ 3.4 \end{array} \quad \begin{array}{r} 3.5 \\ 13 \end{array} \quad \begin{array}{r} 4.9 \\ 19 \end{array} \quad \begin{array}{r} 5.2 \\ 22 \end{array} \quad \begin{array}{r} 4.9 \\ 25 \end{array} \quad \begin{array}{r} 4.3 \\ 31 \end{array} \quad \begin{array}{r} 3.9 \\ 34 \end{array} \quad \begin{array}{r} 4.0 \\ 45 \end{array}$$

$$\begin{array}{r} 3.9 \\ 43 \end{array} \quad \begin{array}{r} 3.8 \\ 32 \end{array} \quad \begin{array}{r} 5.4 \\ 24 \end{array} \quad \begin{array}{r} 5.1 \\ 20 \end{array} \quad \begin{array}{r} 4.0 \\ 13 \end{array} \quad \begin{array}{r} 4.3 \\ 3.4 \end{array} \quad \begin{array}{r} 4.0 \\ 13 \end{array} \quad \begin{array}{r} 5.4 \\ 20-23 \end{array} \quad \begin{array}{r} 2.7 \\ 34 \end{array} \quad \begin{array}{r} 2.5 \\ 42 \end{array}$$

$$\begin{array}{r} 2.3 \\ 41 \end{array} \quad \begin{array}{r} 2.6 \\ 31 \end{array} \quad 24-20 \quad \begin{array}{r} 6.0 \\ 4.7 \\ 13 \end{array} \quad \begin{array}{r} 4.9 \\ 4.7 \end{array} \quad \begin{array}{r} 4.8 \\ 13 \end{array} \quad \begin{array}{r} 6.2 \\ 20 \end{array} \quad \begin{array}{r} 6.1 \\ 23 \end{array} \quad \begin{array}{r} 1.9 \\ 31 \end{array} \quad \begin{array}{r} 1.4 \\ 40 \end{array}$$

$$\begin{array}{r} 1.3 \\ 44 \end{array} \quad \begin{array}{r} 1.1 \\ 34 \end{array} \quad \begin{array}{r} 6.6 \\ 23-20 \end{array} \quad \begin{array}{r} 6.3 \\ 18 \end{array} \quad \begin{array}{r} 5.3 \\ 12.5 \end{array} \quad \begin{array}{r} 5.4 \\ 5.4 \end{array} \quad \begin{array}{r} 5.5 \\ 12.5 \end{array} \quad \begin{array}{r} 6.4 \\ 17 \end{array} \quad \begin{array}{r} 6.7 \\ 20 \end{array} \quad \begin{array}{r} 6.6 \\ 23 \end{array} \quad \begin{array}{r} 6.4 \\ 36 \end{array} \quad \begin{array}{r} 0.3 \\ 46 \end{array}$$

$$\begin{array}{r} 1.2 \\ 47 \end{array} \quad \begin{array}{r} 0.6 \\ 37 \end{array} \quad 23-19 \quad \begin{array}{r} 6.9 \\ 5.8 \\ 13 \end{array} \quad \begin{array}{r} 5.9 \\ 13 \end{array} \quad \begin{array}{r} 5.1 \\ 13 \end{array} \quad \begin{array}{r} 7.0 \\ 18 \end{array} \quad \begin{array}{r} 7.2 \\ 20 \end{array} \quad \begin{array}{r} 6.9 \\ 23 \end{array} \quad \begin{array}{r} 0.8 \\ 37 \end{array} \quad \begin{array}{r} 0.5 \\ 48 \end{array}$$

$$\begin{array}{r} 3.1 \\ 47 \end{array} \quad \begin{array}{r} 2.4 \\ 35 \end{array} \quad \begin{array}{r} 7.4 \\ 22 \end{array} \quad \begin{array}{r} 7.2 \\ 19 \end{array} \quad \begin{array}{r} 6.4 \\ 13 \end{array} \quad \begin{array}{r} 6.6 \\ 6.2 \end{array} \quad \begin{array}{r} 6.3 \\ 13 \end{array} \quad \begin{array}{r} 7.7 \\ 19 \end{array} \quad \begin{array}{r} 7.8 \\ 20 \end{array} \quad \begin{array}{r} 7.5 \\ 23 \end{array} \quad \begin{array}{r} 2.6 \\ 33 \end{array} \quad \begin{array}{r} 3.2 \\ 43 \end{array}$$

$$\begin{array}{r} 4.0 \\ 45 \end{array} \quad \begin{array}{r} 3.7 \\ 35 \end{array} \quad \begin{array}{r} 8.0 \\ 22 \end{array} \quad \begin{array}{r} 7.9 \\ 18 \end{array} \quad \begin{array}{r} 6.9 \\ 13 \end{array} \quad \begin{array}{r} 1.2 \\ 6.1 \end{array} \quad \begin{array}{r} 6.9 \\ 13 \end{array} \quad \begin{array}{r} 8.0 \\ 18 \end{array} \quad \begin{array}{r} 8.2 \\ 20-22 \end{array} \quad \begin{array}{r} 4.7 \\ 31 \end{array} \quad \begin{array}{r} 5.0 \\ 40 \end{array}$$

9
840.67

16

+50

17

+30

+60

18

+50



19



$$\begin{array}{r} \frac{+0.3}{44} \quad \frac{00}{33} \quad \frac{2.7}{24-18} \quad \frac{1.7}{13} \quad \frac{2.0}{1.7} \quad \frac{1.7}{13} \quad \frac{2.1}{19} \quad \frac{3.2}{23} \quad \frac{2.9}{27} \quad \frac{1.9}{32} \quad \frac{2.3}{39} \end{array}$$

$$\begin{array}{r} \frac{1.7}{44} \quad \frac{1.9}{33} \quad \frac{4.0}{24} \quad \frac{4.3}{21} \quad \frac{4.2}{20} \quad \frac{2.8}{13} \quad \frac{3.1}{2.7} \quad \frac{2.7}{13} \quad \frac{4.7}{21-36} \end{array}$$

$$\begin{array}{r} \frac{4.0}{44-33} \quad \frac{5.0}{26} \quad \frac{4.8}{20} \quad \frac{3.5}{13} \quad \frac{3.9}{3.4} \quad \frac{3.5}{13} \quad \frac{5.2}{21} \quad \frac{5.4}{28} \quad \frac{5.0}{32} \quad \frac{5.7}{40} \end{array}$$

FL. 5.095E
592

$$\begin{array}{r} \frac{6.6}{31} \quad \frac{6.2}{26} \quad \frac{4.0}{13} \quad \frac{4.4}{5.1} \quad \frac{4.0}{13} \quad \frac{5.3}{26} \quad \frac{5.7}{23} \quad \frac{5.6}{26} \quad \frac{4.5}{31} \quad \frac{5.1}{40} \end{array}$$

$$\begin{array}{r} \frac{8.8}{37} \quad \frac{8.6}{26} \quad \frac{4.8}{13} \quad \frac{5.3}{4.6} \quad \frac{4.7}{13} \quad \frac{7.0}{23} \quad \frac{7.6}{38} \end{array}$$

$$\begin{array}{r} \frac{9.6}{37} \quad \frac{9.5}{26} \quad \frac{5.9}{13} \quad \frac{6.4}{5.6} \quad \frac{5.7}{13} \quad \frac{10.1}{28} \quad \frac{11.4}{39} \end{array}$$

$$\begin{array}{r} \frac{11.0}{35-27} \quad \frac{7.0}{13} \quad \frac{7.5}{6.8} \quad \frac{6.9}{13} \quad \frac{11.2}{28} \quad \frac{12.8}{39} \end{array}$$

9
840.67

19+50

BM

11.27

940.67
~~840.67~~

11.27

9
~~829.40~~

929.36

+89

20

○

3.17

931.30
831.26

12.54

928.13
~~828.09~~

+16

24"X 5C.

+70

21

+50

22

19-42
929.36

$$\begin{array}{ccccccc} \frac{7.5}{34} & \frac{11.2}{23} & \frac{8.2}{13} & \frac{8.6}{7.9} & \frac{6.2}{13} & \frac{12.5}{28} & \frac{15.0}{39} \end{array}$$

$$\begin{array}{ccccccc} \frac{12.7}{34} & \frac{12.3}{25} & \frac{8.9}{13} & \frac{9.5}{8.8} & \frac{9.0}{13} & \frac{12.5}{26} & \frac{14.2}{37} \end{array}$$

$$\begin{array}{ccccccc} \frac{14.0}{38} & \frac{13.5}{28} & \frac{9.2}{13} & \frac{9.7}{9.0} & \frac{9.3}{13} & \frac{13.3}{28} & \frac{14.5}{38} \end{array}$$

$$\text{FL. 5.44} \quad \begin{array}{ccccccc} \frac{5.0}{38-30} & \frac{0.2}{13} & \frac{0.7}{0.1} & \frac{0.3}{13} & \frac{6.4}{36} & \frac{7.2}{44} & \text{FL. 6.96} \end{array}$$

$$\begin{array}{ccccccc} \frac{2.8}{32} & \frac{2.1}{20} & \frac{1.5}{13} & \frac{1.9}{1.6} & \frac{1.8}{13} & \frac{3.7}{23} & \frac{4.9}{35} \end{array}$$

$$\begin{array}{ccccccc} \frac{2.1}{40} & \frac{1.9}{31} & \frac{3.4}{27} & \frac{3.5}{23} & \frac{3.3}{18} & \frac{2.3}{13} & \frac{2.6}{2.3} & \frac{2.4}{13} & \frac{3.8}{19} & \frac{4.0}{23} & \frac{3.8}{31} & \frac{4.6}{37} \end{array}$$

$$\begin{array}{ccccccc} \frac{4.1}{40} & \frac{4.2}{31} & \frac{5.1}{27} & \frac{5.3}{23} & \frac{5.1}{19} & \frac{3.8}{13} & \frac{3.9}{3.8} & \frac{3.7}{13} & \frac{5.4}{20-24} & \frac{4.3}{31} & \frac{5.0}{42} \end{array}$$

$$\begin{array}{ccccccc} \frac{5.1}{41} & \frac{5.4}{31} & \frac{7.1}{26} & \frac{6.7}{20} & \frac{5.2}{13} & \frac{5.3}{5.2} & \frac{5.2}{13} & \frac{6.7}{19} & \frac{7.1}{23} & \frac{6.8}{26} & \frac{5.6}{31-38} \end{array}$$

9
831.26

22 +50

23

+22

+70

1.82

920.62
~~820.58~~

12.50

918.80
~~818.76~~

24

+50

25

+40

$$\frac{6.0}{40} \quad \frac{7.4}{30} \quad \frac{7.8}{23} \quad \frac{7.7}{19} \quad \frac{6.7}{13} \quad \frac{6.9}{6.7} \quad \frac{6.7}{13} \quad \frac{8.3}{19} \quad \frac{8.5}{24} \quad \frac{7.2}{31-39}$$

$$\frac{7.1}{43} \quad \frac{6.8}{36} \quad \frac{9.7}{23-19} \quad \frac{8.4}{13} \quad \frac{8.7}{8.6} \quad \frac{8.6}{13} \quad \frac{10.0}{20} \quad \frac{10.2}{24} \quad \frac{6.4}{39} \quad \frac{6.2}{47}$$

$$\frac{6.9}{46} \quad \frac{7.0}{38} \quad \frac{10.4}{24} \quad \frac{10.6}{20} \quad \frac{9.2}{13} \quad \frac{9.5}{9.4} \quad \frac{9.5}{13} \quad \frac{10.8}{20} \quad \frac{10.6}{24} \quad \frac{5.8}{42} \quad \frac{5.7}{49}$$

$$\frac{9.6}{46} \quad \frac{9.5}{36} \quad \frac{12.4}{23} \quad \frac{12.7}{19} \quad \frac{11.3}{13} \quad \frac{11.3}{11.3} \quad \frac{11.4}{13} \quad \frac{12.8}{19} \quad \frac{13.0}{24} \quad \frac{9.3}{37-46}$$

$$\frac{0.9}{43} \quad \frac{0.7}{34} \quad \frac{3.3}{23-19} \quad \frac{1.8}{13} \quad \frac{1.8}{1.8} \quad \frac{1.8}{13} \quad \frac{3.6}{20} \quad \frac{2.4}{25} \quad \frac{0.4}{35-45}$$

$$\frac{2.7}{44} \quad \frac{2.6}{34} \quad \frac{5.1}{23-19} \quad \frac{3.8}{13} \quad \frac{4.0}{3.9} \quad \frac{4.0}{13} \quad \frac{5.5}{20} \quad \frac{5.7}{24} \quad \frac{2.5}{36} \quad \frac{2.4}{43}$$

$$\frac{6.3}{45} \quad \frac{6.6}{32} \quad \frac{7.4}{24} \quad \frac{7.5}{20} \quad \frac{6.0}{13} \quad \frac{6.3}{6.0} \quad \frac{6.1}{13} \quad \frac{8.5}{21} \quad \frac{8.3}{25} \quad \frac{8.6}{36}$$

$$\frac{10.4}{37} \quad \frac{10.3}{22} \quad \frac{8.0}{13} \quad \frac{8.2}{7.9} \quad \frac{8.0}{13} \quad \frac{12.0}{26} \quad \frac{12.4}{40}$$

920.62
~~820.58~~

.63
913.59

9.65

910.97
~~810.93~~

①

2.66

25 +70

26

+22

+32

+35

00 Fill

B.M.

7.85

905.74

905.71

13.63
905.71
1.92

$\frac{5.8}{41}$ $\frac{6.8}{29}$ $\frac{2.4}{13}$ $\frac{2.7}{2.5}$ $\frac{2.6}{12}$ $\frac{7.5}{31}$ $\frac{8.6}{36}$ $\frac{8.9}{49}$

$\frac{7.5}{44}$ $\frac{8.1}{49}$ $\frac{8.0}{42}$ $\frac{5.3}{31}$ $\frac{4.2}{13}$ $\frac{4.2}{4.1}$ $\frac{4.3}{13}$ $\frac{9.1}{32}$ $\frac{9.6}{45}$

$\frac{9.0}{96}$ $\frac{9.1}{89}$ $\frac{8.5}{84}$ $\frac{8.8}{45}$ $75 - 13$ 5.9 5.7 $\frac{5.8}{13}$ $\frac{9.6}{25}$ $\frac{10.1}{32}$

$\frac{8.8}{59}$ $\frac{9.3}{45}$ $\frac{9.3}{20}$ 8.4 $\frac{9.6}{11}$ $\frac{10.1}{21}$

9.6

Spk in Willow end project.

Farm Ent & Culv Measurement

20+80

Field Ent R/L

20 X 16

24" S.C. Culv. 66' long

17+45

Field Ent Lt.

12+00

24" X 48" S.C.

11+14

Farm Ent Rt.

10+00

Field Ent Lt

66
48
48
—
16²

7+18

Farm Ent. Lt

2+11

Field Ent Lt

3+75

24" X S.C. Culv

Enton Lt $13' \times 12' \times 1' = 6 \text{ Cy.}$ No Colvs

Enton Rt $13' \times 12' \times 1' = 6 \text{ Cy.}$ No Colvs

$20 + 16 \text{ Colv}$
 $\text{Lt. } 30 - 36 \text{ Rt}$

Inp. $15' \times 20' \text{ CM} - 20' \text{ Lt.}$

Ent $14' \times 14' \times 1' = 7 \text{ Cy.}$

400 Colv
 $24 - 24' \text{ Rt.}$

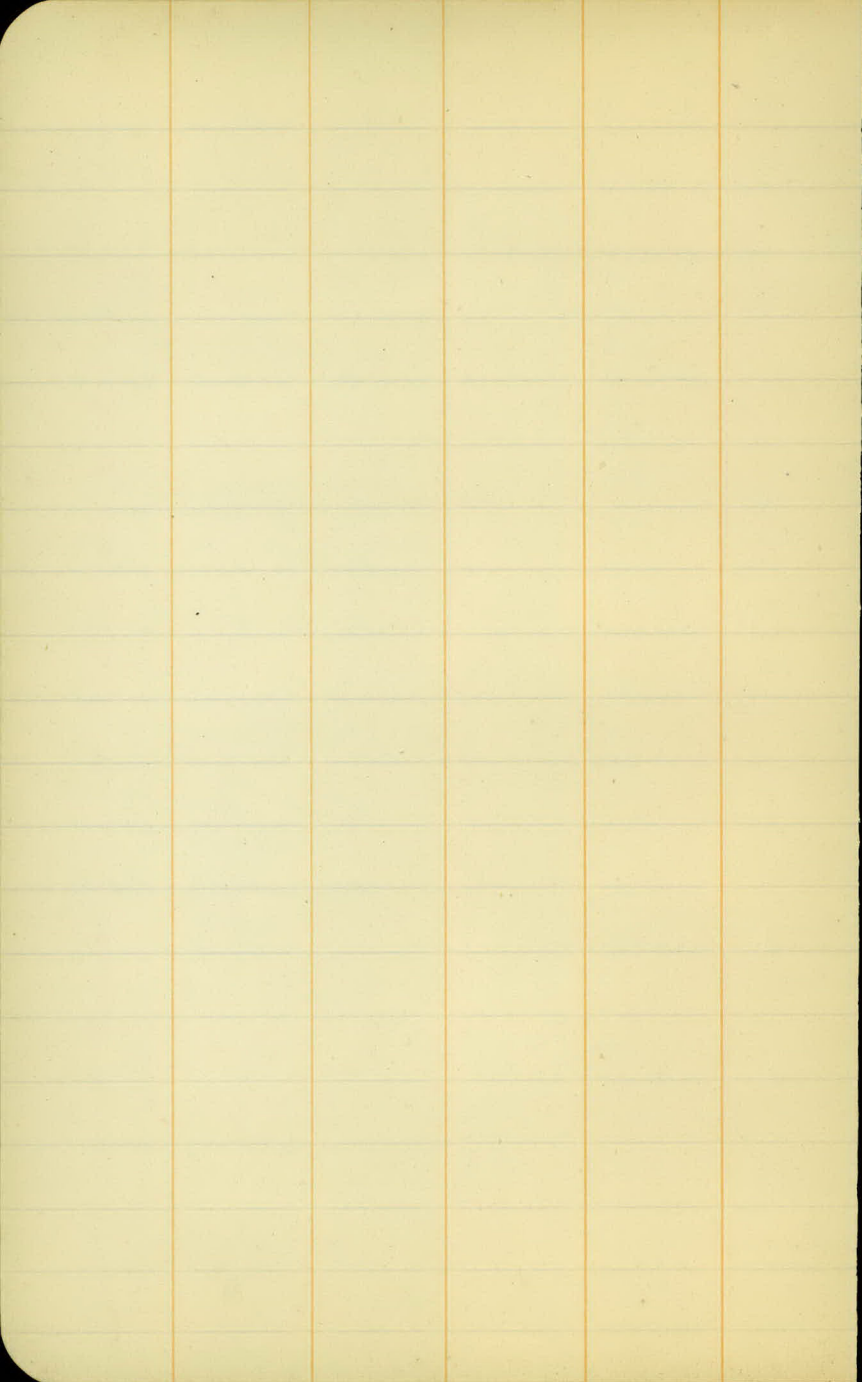
No Colv — $13' \times 21' \times 1.2 = 12 \text{ Cy.}$

Inp $15' \times 20' \text{ CM} - 21' \text{ Lt} - 12' \times 18' \times 1.2 = 8 \text{ Cy.}$

Inp $15' \times 20' \text{ CM} - 21' \text{ Lt} - 13' \times 16' \times 1' = 8 \text{ Cy.}$

Inp $15' \times 20' \text{ CM} - 24' \text{ Lt.} - 13' \times 16' \times 1.3 = 10 \text{ Cy.}$

475 Colv
 $24' - 24' \text{ Rt}$



465
45.25
49.90

4.45
46.900
310
50.00

Red. C
4.75 ✓ 8 558.50
4.20 12 8 83.78

43.3 P+Hole 474.72

951.20 B.M. 9 (162
5.05
956.25 40.5
9.35

4990
6.67
43.23 0 Sta 13+50
945.25 B.M.

508.00
40.50
10.00

558.50
15

43.23
60
43.83K

279250
55850

83.7750

9.17
29.36
38.53

TABLE IX.—CALCULATION OF EARTHWORK.

Width	HEIGHT														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	.02	.04	.06	.07	.09	.11	.13	.15	.17	.18	.20	.22	.24	.26	.28
2	.04	.07	.11	.15	.18	.22	.26	.30	.33	.37	.41	.44	.48	.52	.56
3	.06	.11	.17	.22	.28	.33	.39	.44	.50	.56	.61	.67	.72	.78	.83
4	.07	.15	.22	.30	.37	.44	.52	.59	.67	.74	.81	.89	.96	1.04	1.11
5	.09	.19	.28	.37	.46	.56	.65	.74	.83	.93	1.02	1.11	1.20	1.30	1.39
6	.11	.22	.33	.44	.56	.67	.78	.89	1.00	1.11	1.22	1.33	1.44	1.55	1.67
7	.13	.26	.39	.52	.65	.78	.91	1.04	1.16	1.30	1.42	1.55	1.68	1.81	1.94
8	.15	.30	.44	.59	.74	.89	1.04	1.19	1.33	1.48	1.63	1.78	1.92	2.08	2.22
9	.17	.33	.50	.67	.83	1.00	1.17	1.33	1.50	1.67	1.83	2.00	2.17	2.33	2.50
10	.18	.37	.56	.74	.93	1.11	1.30	1.48	1.67	1.85	2.04	2.22	2.41	2.59	2.78
11	.20	.41	.61	.82	1.02	1.22	1.43	1.63	1.83	2.04	2.24	2.44	2.65	2.85	3.06
12	.22	.44	.67	.89	1.11	1.33	1.56	1.78	2.00	2.22	2.44	2.67	2.89	3.11	3.33
13	.24	.48	.72	.96	1.20	1.44	1.68	1.92	2.16	2.41	2.65	2.89	3.13	3.37	3.61
14	.26	.52	.78	1.04	1.30	1.55	1.81	2.08	2.33	2.59	2.85	3.11	3.37	3.65	3.89
15	.28	.56	.83	1.11	1.39	1.67	1.94	2.22	2.50	2.78	3.06	3.33	3.61	3.89	4.17
16	.30	.59	.89	1.18	1.48	1.78	2.07	2.37	2.67	2.96	3.26	3.56	3.85	4.15	4.44
17	.31	.63	.94	1.26	1.57	1.89	2.20	2.52	2.83	3.15	3.46	3.78	4.09	4.41	4.72
18	.33	.67	1.00	1.33	1.67	2.00	2.33	2.67	3.00	3.33	3.67	4.00	4.33	4.67	5.00
19	.35	.70	1.06	1.41	1.76	2.11	2.46	2.82	3.17	3.52	3.87	4.22	4.57	4.92	5.28
20	.37	.74	1.11	1.48	1.85	2.22	2.59	2.96	3.33	3.70	4.07	4.44	4.81	5.18	5.56
21	.39	.78	1.17	1.55	1.94	2.33	2.72	3.11	3.50	3.89	4.28	4.67	5.06	5.44	5.83
22	.41	.81	1.22	1.63	2.04	2.44	2.85	3.26	3.67	4.07	4.48	4.89	5.30	5.70	6.11
23	.43	.85	1.28	1.70	2.13	2.56	2.98	3.41	3.83	4.26	4.68	5.11	5.54	5.96	6.39
24	.44	.89	1.33	1.78	2.22	2.67	3.11	3.56	4.00	4.44	4.89	5.33	5.78	6.22	6.67
25	.46	.92	1.39	1.85	2.31	2.78	3.24	3.70	4.17	4.63	5.09	5.56	6.02	6.48	6.94
26	.48	.96	1.44	1.92	2.41	2.89	3.37	3.85	4.33	4.82	5.30	5.78	6.26	6.74	7.24
27	.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
28	.52	1.04	1.55	2.07	2.59	3.11	3.63	4.15	4.67	5.18	5.70	6.22	6.74	7.26	7.78
29	.54	1.07	1.61	2.15	2.68	3.22	3.76	4.30	4.83	5.37	5.91	6.44	6.98	7.52	8.06
30	.56	1.11	1.67	2.22	2.78	3.33	3.89	4.44	5.00	5.55	6.11	6.67	7.22	7.78	8.33
31	.57	1.15	1.72	2.30	2.87	3.44	4.02	4.59	5.17	5.74	6.32	6.89	7.46	8.04	8.61
32	.59	1.18	1.78	2.37	2.96	3.56	4.15	4.74	5.33	5.92	6.52	7.11	7.70	8.30	8.89
33	.61	1.22	1.83	2.44	3.05	3.67	4.28	4.89	5.50	6.11	6.72	7.33	7.94	8.55	9.17
34	.63	1.26	1.89	2.52	3.15	3.78	4.40	5.04	5.67	6.29	6.93	7.56	8.18	8.81	9.44
35	.65	1.30	1.94	2.59	3.24	3.89	4.53	5.18	5.83	6.48	7.13	7.78	8.42	9.08	9.72
36	.67	1.33	2.00	2.67	3.33	4.00	4.66	5.33	6.00	6.67	7.33	8.00	8.67	9.33	10.00
37	.68	1.37	2.06	2.74	3.42	4.11	4.79	5.48	6.17	6.85	7.54	8.22	8.91	9.59	10.28
38	.70	1.41	2.11	2.82	3.52	4.22	4.92	5.63	6.33	7.03	7.74	8.44	9.15	9.85	10.56
39	.72	1.44	2.17	2.89	3.61	4.33	5.05	5.78	6.50	7.22	7.95	8.67	9.39	10.11	10.83
40	.74	1.48	2.22	2.96	3.70	4.44	5.18	5.92	6.67	7.41	8.15	8.89	9.63	10.37	11.11

Table gives cu. yds. in 1 ft. of a triangle of given width and height. Corrections for tenths of width are one tenth the values found under each height considering the widths from 1 to 9 as tenths and similarly the corrections for tenths of height are one tenth the figures opposite width considering the heights from 1 to 9 as tenths. Thus if $w = 16.2$ and $h = 5.3$, cu. yds. $= 1.48 + .028 + .089 = 1.597$ cu. yds. or practically 160 cu. yds. per 100 ft. If w exceeds 40 ft., use one half and multiply result by 2, if both w and h are large use one half of each and multiply result by 4. Any cross-section may be divided into triangles by the following rule. To the triangle of the sum of the outside cuts (or fills) $= h$, and $\frac{1}{2}$ the roadbed $= w$, add the triangles formed by taking the distance out to each break in turn ($= w$'s) by the difference between the cuts (or fills) on each side of it ($= h$'s) always subtracting the outer from the inner.

17.3
25.21
11.83

96
66
162

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	8.0	8.2	8.3	8.5	8.6	8.8	8.9	9.1	9.2	9.4	0
1	9.5	9.7	9.8	10.0	10.1	10.3	10.4	10.6	10.7	10.9	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 $41.9 + (20 - 16) \div 2$ or 2 ft. added to 41.9 = 43.9. For slopes of 1 on 1 see inside of front cover.