

W

308

LEVEL 3011

115/12 F

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

Roadway 16 feet wide. Side Slopes 1 on 1.

For Single Track Embankment.

508

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
29	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.

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Made in U. S. A.

Index

Pages

Ret. points on pipe line from
dam to intersec. of Co. road 1-5

Borings in Lindo Lake 7-14

Pipe line profile levels
from sta. 0+00 to sta. 206+50 15-75

Add. levels 76

Profile levels of revised line at Elm
and Sycamore streets. sta 381+00 to 388+60 77-78

D

H

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

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26

27

28

29

30

31

32

33

34

35

36

37

38

39

40

E
to be
of road
examp
30.6 =

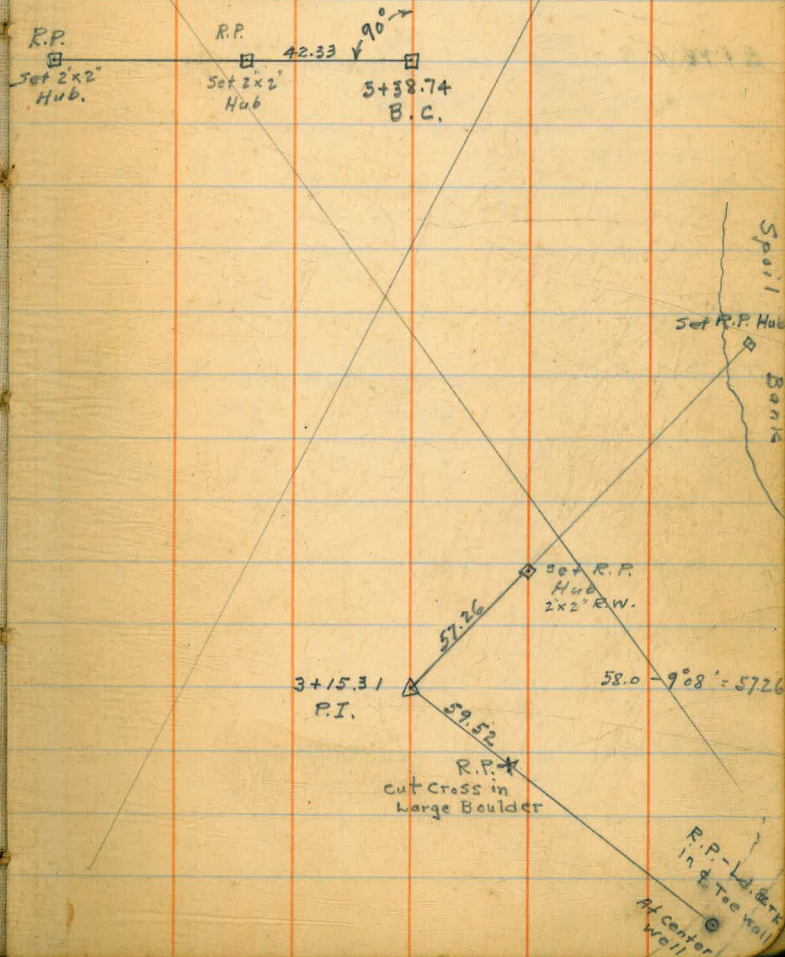
Reference Points for Pipe
Line Survey From Tunnel outlet
Portal to intersection with Co.
Road Survey about 1/4 Mi. East
of City Camp. (See Book #317)

5+38.74 B.C.

Void- Book 502 for alignment
and Reference points

3+15.31 P.I.

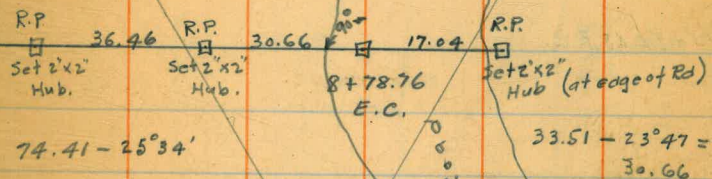
June 20-1935
Simpson
Remmen



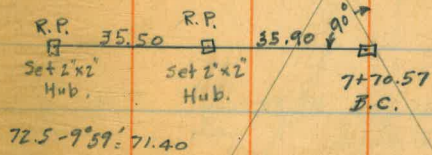
Contd. From Page 1

2

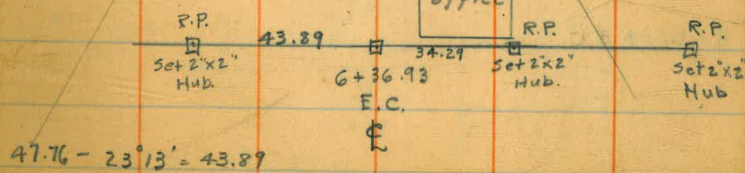
8+78.76 E.C.



7+70.57 B.C.



6+36.93 E.C.



15+54.68 B.C.

11+32.76 E.C.

9+27.34 B.C.

R.P.

Hub.

24.69

90°

15+54.68
B.C.

22.32

R.P.

Hub.

25.00

R.P.

Hub.

R.P.

Hub.

30'

R.P.

Hub.

39.34

11+32.76
E.C.

26.21

R.P.

Hub.

39.91 - 9°41'

R.P.

Hub.

30'

R.P.

Set 2"x2"
Hub.

35.46

9+27.34
B.C.

23.90

R.P.

Hub.

Set 2"x2"
Hub.

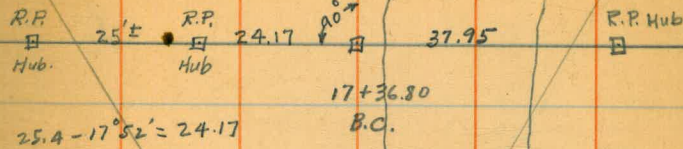
37.65 - 19°37' 35.46

Road

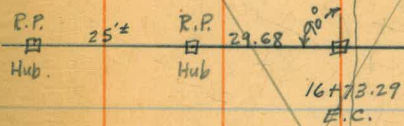
£

Cont'd: From Page 3.

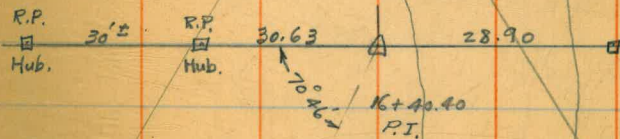
~~17+36.80 B.C.~~



~~16+73.29 E.C.~~



~~16+40.40 P.I.~~



⊕

R.P.
Red Head in
Power Pole

150'±

R.P.

Hub

20.28

△

19.27

R.P.

Hub.

$21.60 - 20^{\circ} 10' = 20.28$

18 + 92.94 E.C.

R.P.

Hub

20'±

R.P.

Hub.

26.88

90'±

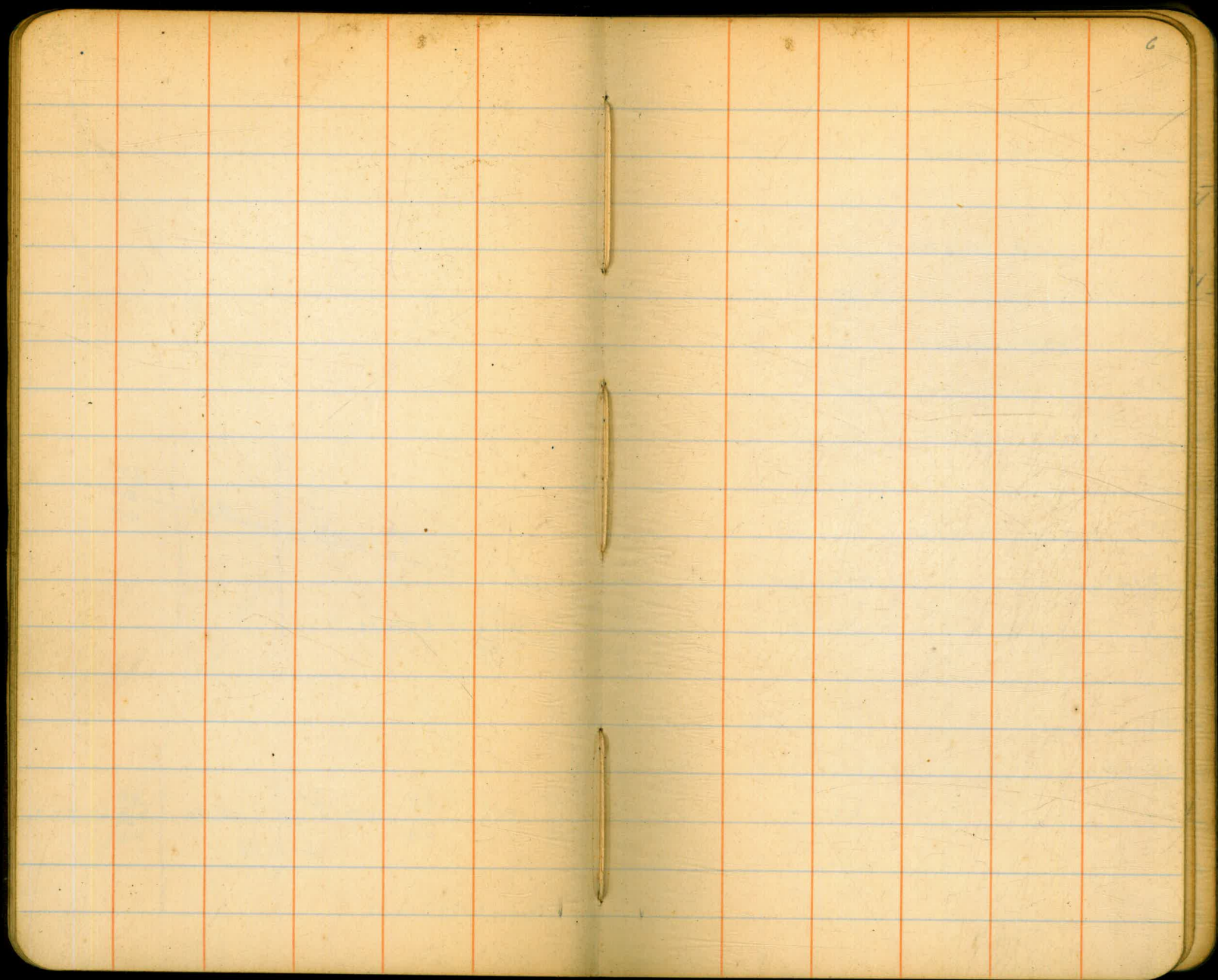
22.90

R.P.

Hub

18 + 92.94
E.C.

$30.0 - 26^{\circ} 23' = 26.88$



7/15/35 hot

Hill - notes
Super - auger
Rammen

7

Borings in Lindo Lake on the pipe location (21' N. of E. Co. road loc.)

B.M. 5.17 405.39 400.22 County B.M. W. of Lakeside

T.P. 0.21 405.18

11.09 416.22

1.14 415.08

1.52 416.60

6.75 409.85

0.35 410.20

12.53 397.67

2.69 400.36

7+45 9.7 390.7

W. side lake crossing

Sample 1 0'-4' black silt & clay.

" 2-4' red clay

" 3 13.3' " "

7+90 10.0 390.4

Center of lake crossing

Sample 1 0'-8' black silt & clay.

" 2 9' red clay

" 3 12' sandy red clay

Note Co. road stationing
used for locating
borings.

400.36

8+35

9.7

390.7

E. side lake crossing

Sample #1 0'-6' black silt & clay

" #2 7' red clay

" #3 15.2' " "

T.P.

1.20

399.16

11.49

410.65

T.P.

12.67

397.98

4.58

402.56

15+90

11.9

390.7

W. side lake crossing

Sample #1 0'-3' black silt & clay

" #2 3'-8' gray clay

" #3 8'-14.5' red sandy material with
some clay content.

16+50

11.9

390.7

Sample #1 0'-1' black silt & clay.

" #2 1'-9' gray clay

" #3 9'-15' red sandy material with
some clay content.

Top El

17+00 390.7

17+50 390.7

18+00 390.7

7/17/35 Loudon notes
Soper - auger
Remmen. "

9

Log.

Top - 7' Gray clay

7- 12' Brownish gray clay
and fine sand.

12-15' Brown clay and
coarse sand.

Top - 1.5' black silt & clay

1.5 - 8.0 gray clay

8.0 - 15' brown clay
with sand.

Top - 1.5' Black silt & clay

1.5' - 8' Gray clay.

8' - 15' brown clay
with sand.

18+50 390.7

Note Appears
to be a lesser
degree of compaction than
borings west.

19+00 390.7

10
Top - 1.5' black silt & clay

1.5 - 8' gray clay.

8' - 15' brown clay & sand

Top to 6.5' gray clay

6.5' + 12' brown-gray
clay & sand.

12' - 15' brown clay
and fine sand.

21+00 390.8

Top - 5.5' black clay

5.5 - 7' brown-gray clay
and sand.

7 - 12' brown clay & sand

12 - 15' brown clay &
coarse sand.

7-12-35

19+50 390.7

390.8
5.5

20+00 390.7 (struck isolated
stone or gravel at
14' - auger would
not pick it up.)

Top - 6' Gray clay
6' - 10' Gray-brown clay
& Sand.

10' - 18' brown clay and
Sand.

18' - 20' brown decomposed
granite with some clay
(Very compact.)

20' - 22' - brown clay &
Sand

Top - 6' gray clay
6' - 9' gray-brown clay
& Sand.

9' - 14' brown clay & sand.

20+50 390.7

Note: struck
clayey gravel
at 13'. Auger would
not pick up sample

21+50 390.9

12
Top to 6' gray clay
6' - 9' gray-brown clay
and sand.

9' - 13' brown clay and
coarse sand

Top - 4' gray clay

4' - 7' gray-brown clay
and sand.

7' - 12' brown clay & sand.

12' - 15' brown clay & sand
& small gravel

22+00 391.0

Top - 4' gray clay
 4' - 5' brown clay & sand.
 5' - 7' gray clay & sand
 7' - 11' brown clay & sand
 11' clayey gravel

22+50 391.4

Top - 3.5' gray clay
 3.5' - 7' brown clay & sand
 7' - 11' brown clay &
 Coarser sand.
 11' - clayey gravel

23+00 $\frac{4}{0.3} = 393.2$

19

Top - 3' dark gray clay.
3 - 11' brown clay & sand.
11' clayey gravel.

Profile Levels
El Capitan Pipe line.

8-6-35 15
Hill
Ladder-level notes
Sober - rod
Remmer tape

5.80

B.M. 11.45 561.75 ✓ 561.69 550.30

T.P. 10.62 570.53 ✓ 1.84 559.91

O-2³⁵ 8.61 561.92 ✓

O+10 9.27 61.26 ✓

Top S. Plange 36" 0.68 69.85 ✓

" N " " 0.65 69.88 ✓

T.P. 3.64 62.43 ✓ 11.74 ✓ 58.79

562.43

2+87²⁴ 6 ✓ 5.80 56.63

T.P 1.57 58.04 ✓ 5.96 56.47

5+66⁶ ✓ 5.96 57.08

5+74⁶ ✓ 7.63 50.41

6+83⁸ ✓ 9.24 48.80

B.M ✓ 7.74 50.30

Water ✓ 9.49 48.55

Sounded below water

548.55 ✓

7+00 ✓ 0.0 548.55

L C RT

548.55 ✓

7+50	7.72	558.04	0.7	547.9 ✓	
	5.97	62.52	1.51	56.53 ✓	
8+00			0.9	47.7	
+50			0.4	48.2 ✓	
9+00			0.4	48.2 ✓	
+50			0.6	48.0 ✓	
10+00			0.7	47.9 ✓	
+31 ³⁸ - L			0.9	47.7	550.70 ✓
+50			1.1	47.5 ✓	50.70 ✓
+90			2.0	46.6 ✓	

↑
Level

✓
-3.0
✓
-3.2

	548.55			
11+00	0.0	48.6 ✓	550.70	
+10	+5.4	54.0 ✓	50.70	
+30		58.2	50.70	
+50			550.70	

Level

Cont'd on page 19

See FB 524
 $\frac{524}{40}$
 $\frac{524}{44}$

H Q RH

18

-2.1

For x-section and slope stakes
 sta 10+85 -

$\frac{+3.3}{6.5}$ +3.3 $\frac{-2.1}{9.0}$

See Book 503 page 26-37

$\frac{+30.0}{15.0}$ $\frac{+24.5}{12.0}$ $\frac{+20.4}{7.0}$ $\frac{+7.5}{4.5}$ ✓ $\frac{+7.5}{2.0}$ $\frac{-17}{17.0}$

Cross-section elevs are + or - from Pipeline grade.

Cross-section
 Dec 26 1935
 Soper - Remmen
 Cross-sections extended
 Jan. 23 1936 Soper - Remmen

	572.66		Grade
14+50	1.5	71.2	563.45 563.31
15+00	3.3	69.4	63.00 62.75
+50	3.4	69.3	62.55 62.19
16+00	3.4	69.3	62.10 61.62
+50	4.6	68.1	61.65 61.06
17+00	5.3	67.4	561.20 560.50
+50	5.3	67.4	61.10 60.90
18+00	4.6	68.1	61.00 61.30
+50	3.7	69.0	60.90 61.70

-0.90%

524
45

534
41

-0.20%

H Q Rt.

14.9	9.3	8.2			
20.0	4.0	2.8	7.8		
9.4	8.2	8.0	6.6		
18.0	5.0	2.8	2.5	6.4	
12.1	9.8	9.3	6.8		
14.0	5.0	2.8	2.3	6.8	
12.5	10.0	9.7	7.2		
14.0	5.0	2.8	2.0	7.2	
15.6	10.9	10.0	7.8	6.6	
15.0	5.0	3.3	2.8	2.6	6.5
					+6.2
					+6.3
					+7.1
					+8.1

Stn. 18+00 - 18+75
 25 boulders - 13 yds

572.66

Grade

Lt \$ Rt

T.P. 1.69 71.00 3.35 69.31

19+00 1.3 69.7 60.80
~~562.70~~

+38 70.2 60.72
~~62.40~~

+50 0.8 70.2 60.70
~~562.50~~

+75 69.0 60.65
~~62.15~~

20+00 3.1 67.9 60.60
~~61.80~~

+25 67.7 60.55
~~61.45~~

+50 2.5 68.5 60.50
~~61.70~~

+60 +5.2 76.2 60.48
~~60.76~~

+65 79.0 60.47
~~60.89~~

+75 +8.3 79.3 60.45
~~60.75~~

+97 +5.0 76.0 60.41
~~60.75~~

21+00 5.1 65.9 60.40

-0.20%

572.66
42
45.22
45.46

19.0	8.9	✓					
14.0	10.0	8.9					
21.9	18.0	12.5	9.5	✓			
18.0	7.0	5.0	2.8	9.5			
23.5	16.0	16.2	14.6	9.7	✓		
17.0	5.0	3.0	2.8	2.0	9.5		
22.3	16.3	8.1	✓				
18.0	4.5	2.8	8.3				
24.6	19.1	14.2	7.1	✓			
20.0	9.5	5.5	2.8	7.1			
30.7	28.0	18.6	17.7	✓			
30.0	9.0	5.0	2.8	9.0	8.0	7.0	
				2.8	7.0		
31.3	26.5	24.6	18.5	18.5	24.5	25.9	5.9
30.0	15.0	5.0	18.5	2.0	2.0	17.0	23.0
29.6	26.8	25.3	18.8	✓			
30.0	19.0	12.0	5.0	18.8	18.8	5.5	
				2.0	22.0		
26.5	18.7	15.9	✓				
30.0	9.0	2.8	15.6	15.1	5.5	5.5	
				2.8	6.0	10.0	
25.2	18.6	15.8	5.5	✓			
30.0	9.0	2.8	2.7	+5.5	5.5	5.0	
				2.8	10.0		

Sta 20+00 - 20+25
11.5. 600/fters 12yds

Sta 20+75 - 21+50
16.5. 600/fters 20yds

Lt. R Rt

Station	Grade	571.00	5.0	66.0	59.30
21+50					59.70
+75					58.75
22+00			4.4	66.6	58.20
+50					57.50
+85					56.33
23+00			7.9	63.1	556.00
T.P.		564	70.71	593	65.07
+50					56.20
24+00			7.3	63.4	56.40
+50					56.60
25+00			6.7	64.0	56.80

$$\frac{13.2}{20.0} \frac{120}{80} \frac{112.6.7}{40.28} \checkmark 6.7$$

$$\frac{13.4}{20.0} \frac{107.74}{30.28} \checkmark 7.4$$

$$\frac{13.9}{20.0} \frac{13.2}{6.0} \frac{11.0}{2.8} \frac{10.5}{1.5} \checkmark 8.4$$

$$\frac{11.7}{18.0} \frac{11.2}{6.0} \frac{10.7}{2.8} \checkmark 10.0 \frac{8.4}{2.8} \frac{8.4}{6.0}$$

$$\frac{8.0}{18.0} \frac{7.6}{6.0} \frac{7.1}{2.8} \checkmark 7.1$$

$$\frac{6.8}{10.0} \checkmark 6.8$$

$$\frac{18.6}{20.0} \frac{13.0}{6.0} \frac{7.0}{3.0} \checkmark 7.0$$

$$\frac{16.9}{19.0} \frac{14.4}{14.0} \frac{6.7}{6.0} \checkmark 6.7$$

$$\frac{7.2}{10.0} \checkmark 7.2$$

Sta. 21+50 - 22+50
32 S. boulders 45 yds

-2.20%

+0.10%

$$\frac{524}{46}$$

$$\frac{534}{43}$$

$$\frac{524}{30}$$

Station	Grade	lt	q	rt
25+50	570.71	6.9	63.8	557.00
+90		65.8		58.32
26+00		4.2	66.5	58.65
BM. 26+25 Oprack	572.59 (572.71)	4.18		
BM. 1.16	73.87			572.71
26+50		4.9	69.0	560.30
+75		3.4	70.5	60.42
27+00		6.0	67.9	60.53
+50		5.8	68.1	60.77
28+00		5.8	68.1	561.00

12.2	10.3	7.5	6.8
200	40	28	7.5

15.0	12.0	11.3	7.9
180	7.0	2.8	2.8

15.7	13.2	12.4	8.7
200	7.0	2.8	2.5

11.6	8.0	7.4	
200	3.5	2.8	7.4

Sta 26+00-26+50
13 yds surface boulders

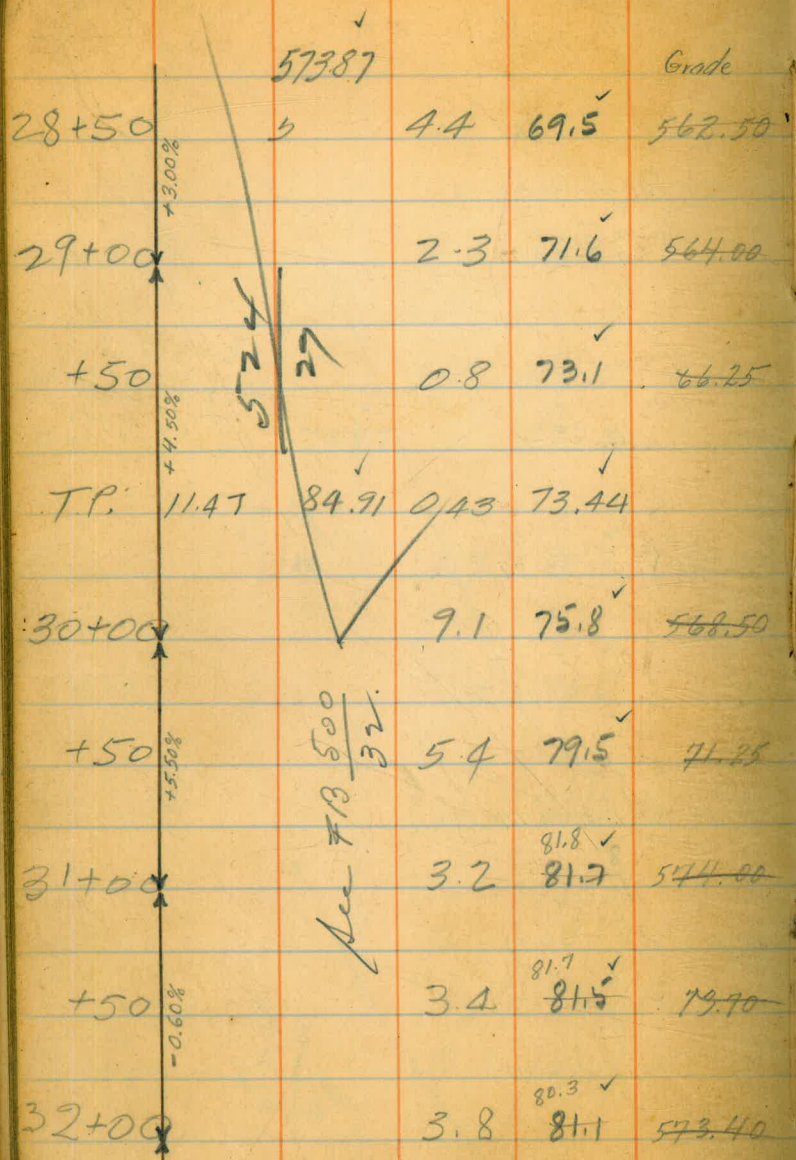
Sta 26+00-26+50
surface bould. yds.

+0.40%
+3.30%

+0.44%

52/9

52/48



Lt	Q	Rt
	7.0	
	7.6	
	6.9	
	7.3	
	8.3	
	7.8	
	8.0	
	6.9	

Note: for elev. corrections sta 31+00 to 35+00
see book 500 page 32

L Q RT

584.91 ✓
 32+50 2.2 79.3 ✓
 82.7 57.97 +7.3

TP 0.21 79.77 5.35 79.56

-2.857%
 33+00 0.8 78.2 ✓
 79.0 70.54 +7.7

+50 3.1 77.0 ✓
 76.7 69.11 +7.9

+75 X
 34+00 4.9 75.9 ✓
 75.2 ✓ 568.40 +7.5
 74.9 66.91 +8.3

+50 7.3 72.7 ✓
 72.5 63.93 +8.8

-5.956%
 35+00 10.2 69.6 ✓
 60.96 +8.6

35+30.02
 35+30.18

TP 3.72 70.64 12.85 67.0 ✓
 86.72

~~508
 Ave Page 76~~
 +50 5.2 66.1 ✓
 65.4 57.98 +8.1

Note for elev. corrections sta.
 35+50 to sta 37+25 see page 76.
 +8.1

see 508
76

			Grade		
36+00	570.64	62.9 61.9	555.00		+7.9
+30		60.7			
+50	70.3	60.2	53.87		+6.6
+95		60.2			
37+00	10.7	57.1	52.13		+7.0
+25	12.5	58.0	52.17		+5.9
+43		54.2			
+50 across river	16.5	54.1	55.60		+2.5
38+00	12.9	57.7	50.67		7.0
+50	10.3	60.3	49.73		10.6
B.M. #4	1.79	568.85	(568.88)		
	1.46	70.34	568.88		

Vertical axis labels: -5.9562, -2.2672, -1.8672

Annotations: in road, across river

	570.34			
39+00	10.5	59.8 ✓	548.80	
+50	13.5	56.8 ✓	477.87	
TP.	1.28	58.56 ✓	13.06 ✓	57.28
40+00	4.7	53.9 ✓	46.93	
+10		54.4 ✓	46.75	
+50	5.1	53.5 ✓	546.00	
+65		50.8 ✓	45.88 45.89	
41+00	8.0	50.6 ✓	45.60 45.62	
+50	8.5	50.1 ✓	45.20 45.25	
42+00	9.4	49.2 ✓	44.80 44.84	

-1.867%

-0.880%

H	Q	R
	11.0	$\frac{9.8}{2.8}$ $\frac{8.7}{6.0}$
	8.9	$\frac{7.4}{2.8}$ $\frac{5.5}{6.0}$
	7.0	$\frac{6.0}{2.8}$ $\frac{4.8}{6.0}$
	7.7	
	7.5	
	$\frac{7.0}{6.0}$ $\frac{6.3}{2.8}$ $\frac{4.1}{2.8}$ $\frac{4.0}{6.0}$	
	$\frac{6.7}{2.0}$ $\frac{6.5}{3.8}$ $\frac{5.0}{2.8}$ $\frac{3.7}{2.8}$ $\frac{3.6}{6.0}$	
	$\frac{6.6}{6.0}$ $\frac{6.4}{2.8}$ $\frac{4.9}{2.8}$ $\frac{3.3}{2.8}$ $\frac{1.8}{6.0}$	
	$\frac{6.7}{6.0}$ $\frac{6.3}{2.8}$ $\frac{3.1}{2.8}$ $\frac{1.6}{6.0}$	

Note for corrected elevs
see page 77 back 509

28

	558.56			
42+35	509 13.0	45.6		
+50 ✓	12.1	49.9 ✓ 46.5	44.40 ✓ 44.49	
+76	12.9	45.7		
+75		50.2	44.20 ✓ 44.30	
+85	8.7	49.9		
43+00 ✓ -0.80%	8.7	49.9 ✓	44.00 ✓ 44.12	
+50	9.3	49.3 ✓	43.60 ✓ 43.74	
44+00	9.6	49.0 ✓	43.20 ✓ 43.36	
+50	12.7	45.9 ✓	42.80 ✓ 42.99	
T.P.	3.86	52.62	9.80	48.76

lt c Rt

16.2 + 6.4 ✓
6.0 2.8 5.5 2.8 9.0 12.0

6.0 ✓
2.8 6.0 2.8

+ 5.9

+ 5.7

5.8 5.8
10.0

5.6 5.6 4.3 ✓
15.0 6.0 2.8 + 3.1 + 1.5 + 1.3 - 2.4 - 4.6
2.8 6.0 14.0 23.0

45+00 X -0.80%

55262

4.2 ✓ 48.4 ✓ 542.40
542.61

$\frac{+6.0}{15.0}$ ✓ 6.0 $\frac{+6.0}{2.0} \frac{+4.9+3.3}{28} \frac{-6.3}{6.0} \frac{-8.0}{21.0} \frac{-8.0}{34.0}$

+50

3.8 ✓ 48.8 ✓ 47.71
42.23

$\frac{+7.1}{15.0}$ ✓ 7.1 $\frac{+7.1}{4.0} \frac{-10.4}{39.0} \frac{-10.4}{38.0}$

46+00

4.3 ✓ 48.3 ✓ 44.03
41.85

$\frac{+7.3}{15.0}$ ✓ 7.3 $\frac{+7.3}{6.0} \frac{-9.3}{32.0} \frac{-10.0}{40.0}$

+50

5.7 ✓ 46.9 ✓ 40.34
41.48

$\frac{+6.6}{15.0}$ ✓ 6.6 $\frac{+6.6}{5.0} \frac{-9.8}{29.0} \frac{-10.3}{35.0}$

47+00 -1.37%

6.5 ✓ 46.1 ✓ 39.66
41.10

$\frac{+6.4}{15.0}$ ✓ 6.4 $\frac{+6.4}{7.0} \frac{-8.7}{25.0} \frac{-9.5}{35.0}$

+50

7.5 ✓ 45.1 ✓ 38.77
40.78

$\frac{6.1}{15.0}$ ✓ 6.1 $\frac{6.1}{6.0} \frac{-8.1}{22.0} \frac{-8.5}{35.0}$

48+00

8.6 ✓ 44.0 ✓ 38.29
40.35

$\frac{5.7}{15.0}$ ✓ 5.7 $\frac{+5.7}{6.0} \frac{-7.2}{26.0} \frac{-8.0}{35.0}$

+50

8.8 ✓ 43.8 ✓ 37.60
39.77

$\frac{6.2}{15.0}$ ✓ 6.2 $\frac{6.2}{8.0} \frac{-4.6}{22.0} \frac{-7.3}{35.0}$

49+00 X

9.3 ✓ 43.3 ✓ 36.92
39.57

$\frac{6.4}{10.0}$ ✓ 6.4 $\frac{6.4}{10.0}$

548.68

53+50

6.0 42.7 ✓
536.02
536.20

54+00

7.4 41.3 ✓
35.92
36.07

+50

6.0 42.7 ✓
35.82
35.99

+75

43.6 35.77

T.P. 1.76 45.35 5.09 43.59

55+00

1.4 44.0 ✓
535.72
535.80

+50

1.7 43.7 ✓
35.04
35.31

55+54.94 E.C. } Equations
55+04.94 E.C. }

Equation

+50

3.1 42.3 ✓
34.36
34.83

56+00

4.7 40.7 ✓
33.68
34.34

+25

40.1 ✓
533.34
534.10

+50

5.6 39.8 ✓
33.00
33.19

+75

40.0 ✓
32.66
33.28

-0.20%

-1.36%

4 5 R4

6.7 ✓
15.0 6.7 6.7 10.8 +0.4
2.0 11.0 23.0

6.4 6.4 6.4 ✓
15.0 2.8 2.0 5.4 3.2 +0.3 0.0
2.2 8.0 25.0

6.9 ✓
15.0 6.9 6.9 0.6 -0.7
2.0 15.0 33.0

7.8 ✓
10.0 7.8 7.8
10.0

+8.3

+8.7

+7.9

7.0 ✓
10.0 7.0 7.0
15.0

10.4 9.7 7.0 ✓
18.0 7.0 2.8 6.8 6.8
15.0

10.1 10.6 8.5 ✓
23.0 10.0 2.8 6.8 6.8
15.0

11.3 9.8 11.0 8.4 ✓
25.0 15.0 10.0 2.8 7.3 6.5 6.4
2.8 6.0

57+00	545.35	7.2	38.7	532.32 537.87
+50		7.9	37.5	31.64 32.05
58+00		8.7	36.7	30.76 31.23
+50		9.4	36.0	30.22 30.41
+75				529.94 530.00
BM. #6		5.65	539.70	(539.69)
TP	4.55	40.97	8.93	536.42
59+00		5.5	35.5	529.60 29.88
+50		5.3	35.7	29.50 29.64
60+00		5.3	35.7	29.40
+50		4.6	36.4	29.08 29.15

-1.36%

-0.20%

-0.646%

$\frac{11.9}{25.0}$	$\frac{11.0}{12.0}$	$\frac{7.0}{2.8}$	5.9	$\frac{5.9}{15.0}$
			5.9	$\frac{5.9}{15.0}$

Note:

Original & profile sta 57+00 - 79+96.10 in F.B. $\frac{524}{3-10}$
 Original & profile sta 80+00 - 119+50.93 in F.B. $\frac{524}{31-43}$
 Changes made (sta 57+00 - 119+50.93)
 by County Road District. H.F.S

540.97

61400

4.1 36.9

✓
~~528.75~~
528.90

+8.2

+50

5.1 35.9

✓
28.43
28.64

+7.5

62+00

6.5 34.5

✓
28.11
28.39

+6.4

+50

7.0 34.0

✓
27.78
28.14

+6.2

63+00

7.4 33.6

✓
~~527.46~~
27.89

+6.1

+25

7.4 33.6

+35

5.4 35.6

+50

5.5 35.5

✓
27.20
27.64

+8.3

+8.5

4.9 36.1

-0.646%

-0.52%

Lt £ Rt

33

64+00	540.97	3.2	37.8	526.94 517.39
+10		1.4	39.6	
T.P.	11.08	51.90	0.15	40.82
+30		19.8	36.1	
+50	-0.52%	15.6	36.3	26.62 27.14
+75		14.0	37.3	
+90		10.4	41.5	
65+00		10.0	41.9	26.42 26.88
+25		19.5	32.4	

Lt. ± Rt.

+10.9

+9.6

+15.5

Lt. ♀ Rt.

65+45	551.90	7.0	44.9	
+50		6.3	45.6	526.16 526.63
T.P.	3.57	53.32	2.15	49.75
+55		5.6	47.7	
66+00	-0.52%	5.8	47.5	25.90 26.38
+25		6.5	46.8	
+50		8.0	45.3	25.64 26.15
T.P.	0.82	43.36	10.78	42.54
67+00		2.1	41.3	25.38 25.88

+19.4

+21.6

	543.36			
67+50		6.4	37.0 ✓	525.12 525.13
+72		6.7	36.7 ✓	
+95	-0.52%	11.8	31.6 ✓	
68+00		12.0	31.4 ✓	24.86 25.28
+50		12.7	30.7 ✓	524.60 25.13
+75				525.00
69+00		12.8	31.1 ✓	24.82 25.24
+50	+0.44%	12.1	31.3 ✓	25.04 25.88
T.P.	5.86	38.62	10.60	32.76
70+00		7.2	31.4 ✓	25.26 26.35

	538.62			
70+50		6.5	32.1	525.48 526.86
71+00		5.7	32.9	25.70 24.39
+50		5.5	33.1	25.92 24.92
72+00		5.1	33.5	26.14 28.45
+50	+0.44%	4.6	34.0	26.36 28.98
73+00		4.0	34.6	26.58 29.51
+50		3.4	35.2	26.80 30.04
74+00		2.4	36.2	527.02 30.57
+50	+2.84%	0.6	38.0	28.44 31.4

538.17

44.08 2.53 38.09

2.50 3.6

538.62

599

44.080.53

38.09

75+00

3.6

40.5

529.86
~~531.64~~

+50

+2.84%

1.6

42.5

31.28
~~32.17~~

76+00

0.9

43.2

532.70

+05

1.0

43.1

+30

8.2

35.9

+50

-1.20%

10.2

33.9

32.10

+65

10.7

33.4

+80

8.6

35.5

Station	Grade	Distance	Height	Value
77+00	-1.20%	9.9	34.2	531.50
+25				531.20
+50		6.9	37.2	530.75
T.P.		6.71	44.25	6.54
				37.54
78+00		4.1	40.2	29.95
+50		3.8	40.5	29.95
79+00	-1.80%	3.9	40.4	28.05
+50		5.9	38.4	27.15
80+00		8.4	35.9	26.25
+50		11.0	33.3	25.35

544.08

L. E R.

39

H Q 71

		544.25			
T.P.	3.66	35.76	12.15	32.10	
81+00	-1.80%		5.2	30.6	524.45
+50			7.2	28.6	23.55 23.70
82+00	X		8.7	27.1	22.65 23.70
+50			9.3	26.5	22.55 23.50
83+00	-0.20%		9.3	26.5	22.45 23.30
+50			8.4	27.4	22.35 23.10
84+00			6.5	29.3	22.25 22.70
+50			6.0	29.8	22.15 22.70

Note: For corrected Elev's
see book 509 page 78

Lt \$ Rt

✓
535.76

85+00

5.4

✓
30.4

522.05

~~522.50~~

+50

5.3

✓
30.5

21.95

~~22.30~~

+66

3.7

✓
32.1

+83

31.7

86+00

4.4

✓
31.4

21.85

~~22.10~~

-0.20%

+25

5.6

✓
30.7

+50

5.6

✓
30.7

21.75

~~21.90~~

+75

5.4

✓
30.4

87+00

6.2

✓
29.6

521.65

~~521.70~~

-5.30%

+50

9.5

✓
26.3

519.00

~~519.34~~

+65

-2.00%

24.8

535.76

87+70

11.0 24.8 ✓

88+00

11.8 24.0 ✓ 518.00
516.99

+50

12.9 22.9 ✓ 17.00
17.18

T.P.

4.34 28.06 12.04 23.72

89+00

5.6 22.8 ✓ 516.00
17.37

+48.34

+50

22.6
5.2 22.9 ✓ 16.25
17.56

90+00

5.0 23.1 ✓ 46.50
17.45

+50

5.1 23.0 ✓ 16.92
17.44

91+00

4.7 23.4 ✓ 17.34
18.13

-2.00%

+0.50%

+0.836%

H . \$ RT

528.06

91+50

4.2 23.9

517.75
~~518.32~~

92+00

3.6 24.5

18.17
~~18.51~~

+50

3.0 25.1

18.57
~~18.70~~

+ 0.836%

T.P.

7.73

32.81

2.98

25.08

93+00

7.2 25.6

19.01
~~19.25~~

+50

6.8 26.0

19.43
~~20.18~~

94+00

6.7 26.1

19.84
~~21.11~~

+50

6.2 26.6

520.26
~~22.64~~

95+00

5.2 27.6

21.70
~~22.97~~

+ 2.88%

13

H L R

	✓	532.81			
95+50			3.4	✓ 29.4	523.14 527.90
96+00			1.8	✓ 31.0	24.58 24.83
+25	X				525.30
T.P.		11.16	43.61	0.36	32.45
+50			10.6	✓ 33.0	25.48
97+00			8.5	✓ 35.1	25.85
+50			6.8	✓ 37.3	26.23
98+00			5.5	✓ 38.1	26.61
+25	X				526.80
+50			3.3	✓ 40.3	26.39
99+00			3.0	✓ 40.6	25.87

+2.88%

+0.75%

-1.65%

✓
75
✓
93
✓
111
✓
115
✓
139
✓
150

H Q RT

543.61

99+50	-1.65%	5.6	38.0	524.74
100+00		8.7	34.9	23.91
+25	X			523.50
+50		11.2	32.4	22.85
T.P.	0.04	31.96	11.69	31.92
101+00		2.5	29.5	21.58
+50		4.7	27.3	20.30
102+00		6.5	25.5	19.02
+50		7.2	24.8	17.75
103+00		8.5	23.5	16.47

133

110

✓
531.96

103+50		9.6	22.4	515.79
104+00		9.8	22.2	13.92
T.P.	3.31	25.30	9.97	21.99
+25		3.8	21.8	
+50		7.5	17.8	12.64
+60		6.2	19.1	
+68		8.4	16.9	
+75				511.35 512.00
105+00		7.8	17.5	10.97 the
+45		5.6	19.7	

See
522
5/38

-1.523%

H £ RA

52530

105+50	6.8	18.5	10.71 11.67
+75			509.53 110.70
106+00	5.7	19.6	509.45 10.35
+40	7.4	17.99	
+50	9.7	15.6	08.68 09.65
T.P	4.07	16.97	12.40
			12.90
+70	5.2	11.8	
+90	0.0	17.0	
107+00	0.0	17.0	07.95 09.95
+50	3.0	14.0	07.16 08.25

-1.523%

See 52
58

	-1.523%	516.97			
108+00			3.6	13.6	506.40 507.55
+25					506.32 507.20
+50			4.6	12.4	06.25 07.11
109+00			5.0	12.0	06.10 06.94
+50			5.6	11.4	05.95 06.74
TP			3.74	13.47	7.24
					09.73
110+00			2.2	11.3	05.80 06.60
+50			3.3	10.2	05.65 06.43
111+00			4.3	09.2	05.50 06.26
+50			4.9	08.6	05.35 06.04

-0.30%

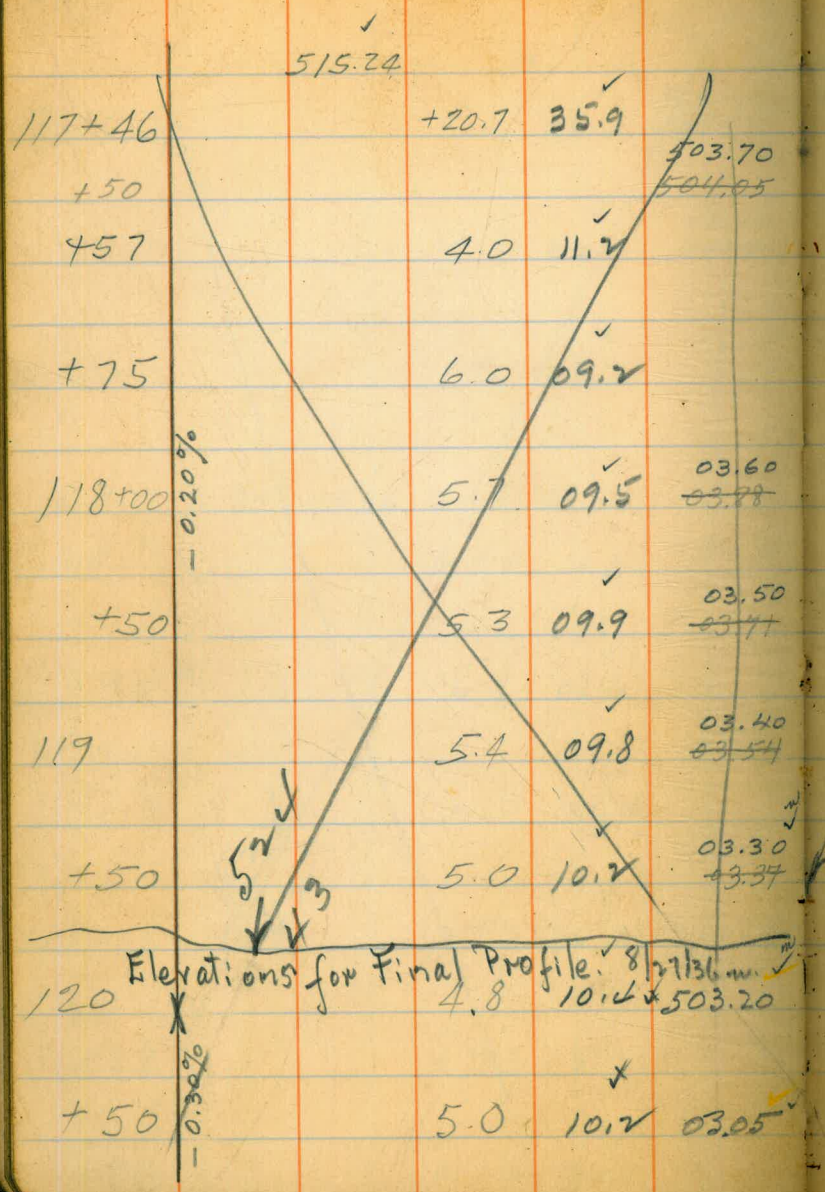
See 524
39

	513.47			
112+00		4.6	08.9	505.20 505.72
+50		5.0	08.5	05.05 05.75
113+00		5.7	07.8	04.90 05.58
+50		6.3	07.2	04.75 05.41
T.P	4.03	10.90	06.60	06.87
114+00		4.0	06.9	04.60 05.24
+50		4.4	06.5	04.45 05.07
115+00		4.5	06.4	04.30 04.90
+50		4.6	06.3	04.15 04.73

- 0.30%

See 524
#1

116+00	X	-0.30%	510.90	4.5	06.4	504.00 504.56
+50				4.8	06.1	03.90 04.09
+60				1.2	09.7	
T.P.	6.99	15.24	26.5	08.25		
BM #12		0.82	14.42	(514.43)		
+90				6.6	08.6	03.80 04.22
117+00		-0.20%				
117+13				+11.3	26.5	
117+13	524 K2			+19.0	34.2	
+28				+22.5	37.7	
+36				+17.0	32.2	



Changes made by County Road District
 sta 57400 - 119+50.93 H.F.S

7.2 See field book 524/43
 7.2

Final Profile Levels

	515.24			530 31	
121		5.9	10.2	502.80	7.3
+50		5.0	10.2	02.75	7.5
122		5.3	09.9	02.60	7.3
+50		5.4	09.8	02.45	7.4
123	-0.30%	6.0	09.2	02.30	6.9
T.P	3.94	12.94	624	09.00	
+50		4.0	08.9	02.15	6.8
124		4.0	08.9	02.00	6.9
+50		4.0	08.9	02.25	7.1

Final Profile Levels

512.94

125	4.1	08.8	501.70	7.1
+50	4.2	08.7	01.55	7.2
126	4.3	08.6	01.40 ³⁹	7.2
+50	5.2	07.7	01.25 ²³	6.5
127	5.6	07.3	01.12 ⁰⁷	6.2
+50	6.0	06.9	00.85 ^{00.85} 00.75	6.0
128	7.0	05.9	00.60 ^{00.60} 00.80	5.9
+50	6.4	06.5	00.35 ^{00.35} 00.65	6.1
129	7.5	05.4	00.10 ^{00.10} 00.50	5.3

-0.30%

-0.50%

X

(Profile on Line change)
Book 506 page 57

✓
512.94

±

1129+50

7.8

05.1

✓
499.85
~~500.35~~

5.2

130

8.8

06.1

✓
99.60
~~100.70~~

4.5

TP

4.96

10.95

6.95

05.99

+50

-0.50%

6.8

06.1

✓
99.35
~~100.05~~

4.7

131

7.0

03.9

✓
99.10
~~99.90~~

4.8

+50

6.9

06.0

✓
98.85
~~99.45~~

5.1

+74.40 B.C.

03.7

~~132~~

~~7.2~~

~~03.7~~

~~6.4 ✓
98.60
99.60~~

~~5.1~~

+50

-0.50%

5.6

05.3

✓
98.57
~~99.45~~

6.8

133

4.9

06.0

✓
98.55
~~99.30~~

7.4

See F.B. 506-57 for final

± Ele. CBH

Void - see ⁵⁰⁶57-65 for original ground H.E.S.

See 506
57.

See F.B. 506
57-64
510.95

55

133 +50	5.1	05.9 ✓ -05.8	498.52 491.5	7.4
134	5.2	05.8 ✓ -05.7	98.50 99.00	7.3
+50	6.3	05.6 ✓ 04.6	98.47 98.25	7.1
135	6.0	05.5 ✓ 04.9	98.45 98.70	7.1
+50	6.3	05.0 ✓ 04.6	98.42 98.55	6.6
136	6.9	05.2 ✓ 04.0	98.40 98.40	6.8
+50	6.3	04.8 ✓ 04.6	98.25	6.5
137	6.8	04.2 ✓ 04.1	98.10	6.1
+50	6.8	04.0 ✓ 04.1	98.95	6.0

-0.05%

-0.30%

Void

54

51

48

44

41

38

See F.B. 506

57-65

56

510.95

±

T.P. 3.70 07.65 7.00 03.95

138

3.6

03.9 ✓

02.1

497.80

✓^m

51

6.1

+50

4.2

03.8 ✓

03.5

97.65

66

6.1

139

4.0

03.4 ✓

03.7

97.50

51

5.9

+50

4.2

03.2 ✓

03.5

97.35

36

5.8

140

4.6

02.9 ✓

03.1

97.20

21

5.7

+50

5.0

02.3 ✓

02.7

97.05

07

5.2

141

5.1

02.2 ✓

02.6

96.90

92

5.3

+50

5.4

02.0 ✓

02.3

96.75

77

5.2

-0.30%

FB. 506
57-65

(Profile on line change)
Book 506 page 57

57

	507.65				
142	6.1	01.6	499.60	62	5.0
+50	6.7	01.3 ✓ 01.0	96.45	47	4.8
143	6.3	01.5 ✓ 01.2	96.30	32	5.2
+50	6.1	01.6	96.75	18	5.5
144 X	6.2	01.5	496.00	09	5.5
T.P.	5.39	06.89	6.15	01.50	
+50	5.4	01.5 ✓	95.95		5.5
145	5.4	01.6 ✓ 01.5	95.90		5.7
+50	5.1	01.8 ✓	95.85		6.0
+65		01.6	95.8		5.8

-0.30%

-0.10%

Sec F.B 506

57-65

506.89

58

~~145-70~~

~~+85~~

~~146~~

~~+10~~

~~+25~~

~~+40~~

~~+50~~

~~147~~

~~+50~~

~~148~~

~~+50~~

~~5.1 01.8~~

~~497.1~~

~~9.0~~

~~96.2~~

~~97.9~~

~~9.4 97.5~~

~~503.3~~

~~3.1 03.8~~

~~3.1 02.6~~

~~03.8~~

~~4.6 02.1~~

~~02.3~~

~~4.9 01.8~~

~~02.0~~

~~5.3 01.6~~

~~5.1 01.7~~

~~01.8~~

95.80

95.77

95.75

95.70

95.65

95.60

95.55

1.3

0.4

7.5

6.8

6.4

6.1

6.0

6.1

F.B. 506
57-65

50689

59

149	54	01.3 ✓ 01.5	95.50	5.8
+50	54	01.5 ✓	95.45	6.0
150	56	01.7 ✓ 01.3	95.40	5.8
+50	58	01.2 ✓ 01.1	95.34	5.9
151	6.0	00.9 ✓	95.28	5.6
T.P.	3.92	05.46	5.35	01.54
+50	4.5	00.8 ✓ 01.0	95.22	5.6
152	4.7	00.7 ✓ 00.8	95.16	5.5
+50	4.7	00.5 ✓ 00.8	95.10	5.4

F.B. 506
57-65

(Profile on time change
Book 506, page 57)

60

505.46

153	4.7	^{00.7} ✓ 00.8	95.94	5.7
+50	4.8	[✓] 00.7	94.98	5.7
154	4.7	^{00.6} ✓ 00.8	94.92	5.7
+50	4.6	[✓] 00.9	94.86	6.0
155	4.3	^{01.1} ✓ 01.2	94.89	6.2
+50	4.4	^{01.2} ✓ 01.1	95.32	5.9
+60		00.3		
156	5.0	[✓] 00.5	95.74	4.8
+97		99.8	96.1	3.7
+42	5.6	99.9		
+15		01.8	96.14	5.7
+50	3.4	^{01.4} ✓ 02.1	96.16	5.2

F.B. 506
57-65

✓
505.46

61

72	11.71	13.70	3.47	01.99		
+67				01.5	✓	96.2
156+70			12.0	01.7	✓	5.3
+78				04.6	✓	96.4
+80			9.2	04.5	✓	8.2
157			8.4	^{05.5} 05.3	✓	96.9
+50			8.9	^{04.7} 04.8	✓	8.9
+62				04.5	✓	See FB 524-47-53
+70			7.2	04.5	✓	
+79				13.7	✓	
+85			10.2	13.9	✓	
158			0.3	^{13.3} 13.4	✓	
+10				09.7	✓	
+50			4.2	^{08.3} 09.5	✓	
+90				01.1	✓	

See F.B. 506
57-65

(Profile on time change
Book 506 page 57)

62

19.5
5.6
13.9

513.70

~~159 12.5 00.8 ✓
01.2~~

~~+10 00.9~~

~~+20 12.8 00.9 ✓~~

~~+35 05.4~~

~~+50 7.6 06.8 ✓
06.1~~

~~+54.35 06.8~~

+75 7.0 06.7 ✓

160 8.7 05.0 ✓

TP 12.55 25.99 026 13.44 ✓

+50 12.3 13.7 ✓

+75 10.5 15.5 ✓

161 6.5 19.5 ✓

19.5
5.6
13.9

	525.99		
161+50	5.8	20.7	
162	5.6	20.4	
+13	4.7	21.3	
T.P.	0.29	13.79	12.49 13.50
B.M.#16	Cor.)	12.72	501.07 (501.09)
	13.81		
+40	8.6	05.7	
+50	8.9	04.9	
163	10.0	03.8	
+50	11.4	02.4	
164	12.4	01.4	

20.4
505.4
14.8

20.4
5.3
15.1

✓
513.81

³⁵
164+50

✓
11.2 02.6

+50

✓
11.2 02.6

165

✓
11.0 02.8

+50

✓
11.0 02.8

166

✓
11.5 02.3

+22

✓
8.6 05.2

+50

✓
7.9 05.9

+88

✓
5.2 08.6

167

✓
6.5 07.3

64

2.9
2.3
7.6

5.2
3.8
7.0

7.3
3.5
3.8

167²⁴+~~50~~

✓
513.81

8.8 05.0 ✓

$\frac{85}{836}$
1.6

T.P. 4.91

✓
20
06.50

12.32

✓
49
01.89

+50

1.7

06.7 ✓

$\frac{67}{33}$
1.2

+65

5.4

01.0 ✓

$\frac{7.0}{2.0}$
3.5

168

5.5

00.9 ✓

$\frac{3.2}{.9}$
3.6

+50

7.8

98.6 ✓

169

7.5

98.9 ✓

+50

7.4

99.0 ✓

170

7.9

98.5 ✓

✓
506.80

170 +50

8.6 97.8 ✓

171

7.9 98.5 ✓

+50

8.0 98.4 ✓

172

11.6 94.8 ✓

+50

12.4 94.0 ✓

173

12.6 93.8 ✓

+50

13.1 93.3 ✓

174

13.6 93.4 ✓

+50

13.2 93.2 ✓

66

$\begin{array}{r} \checkmark \\ 40 \\ 506.80 \end{array}$
175 13.7 92.7[✓]+50 14.2 92.2[✓]+96 14.4 92.0[✓]176 13.3 93.1[✓]+40 0.8 05.6[✓]
 $\begin{array}{r} \checkmark \\ .20 \\ T.P. \quad 2.66 \quad 08.30 \quad 0.86 \quad 05.64 \end{array}$
+50 2.5 05.7[✓]177 2.7 05.5[✓]+50 3.5 04.7[✓]

508.30²⁰

Pipe Grade

178 X

4.4 03.8 491.00 ✓

+50

4.6 03.6 90.31 ✓

+90

4.4 03.8 89.76 ✓

179

5.9 02.3 89.62 ✓

+50

- 1.375%

11.2 97.0 88.94 ✓

180

15.5 92.7 488.25 ✓

+50

18.8 89.4 87.56 ✓

T.P

0.36

98.90
99.00

9.66

98.64 ✓

49890
499.00

181 9.7 89.2 ✓ 486.87

-1.375%

+50 10.5 88.4 ✓ 86.19

182 X 10.0 88.9 ✓ 485.50

+50 9.1 89.8 ✓ 85.05

183 10.4 88.5 ✓ 84.60

+50 10.0 88.9 ✓ 84.15

-0.90%

184 9.6 89.3 ✓ 83.70

+50 10.2 88.7 ✓ 83.25

185 X 9.6 89.3 ✓ 482.80

✓
298.90
499.00

Notes grades from F.B. 515.

185+50		7.6	89.3	482.78 ⁸⁸	6.1	from F.B. 524-53
186		10.0	88.9	82.76 ⁸⁵	6.0	
+50		11.5	87.4	82.74 ⁸²	4.6	
187	-0.04%	11.3	87.6	82.72 ⁸⁰	4.8	
T.P.	5.68	94.12 ⁰⁷	10.56	88.74 ⁸⁴		
+50		7.1	86.9	82.70 ⁷⁷	4.1	
188		7.4	86.6	82.68 ⁷⁵	3.8	
+50		6.0	88.0	82.66 ⁷²	5.3	
189		4.9	89.1	82.64 ⁷⁰	6.4	

$\overset{.04}{494.42}$

189	+50	4.8	89.2 [✓]	82.62 ⁶⁷	6.5
-----	-----	-----	-------------------	---------------------	-----

190		5.3	88.7 [✓]	82.60 ⁶⁴	6.1
-----	--	-----	-------------------	---------------------	-----

+50		4.1	89.9 [✓]	82.59 ⁶²	7.3
-----	--	-----	-------------------	---------------------	-----

191		5.1	88.9 [✓]	82.56 ⁵⁹	6.3
-----	--	-----	-------------------	---------------------	-----

+50	-0.04%	5.0	89.0 [✓]	82.54 ⁵⁷	6.4
-----	--------	-----	-------------------	---------------------	-----

192		4.3	89.7 [✓]	82.52 ⁵⁴	7.2
-----	--	-----	-------------------	---------------------	-----

+50		3.5	90.5 [✓]	82.50 ⁵¹	8.0
-----	--	-----	-------------------	---------------------	-----

TP	6.22	97.30 ^{.20}	3.04	90.98 [✓]	91.08 [✓]
----	------	----------------------	------	--------------------	--------------------

193		6.1	91.1 [✓]	82.48 ⁴⁷	8.6
-----	--	-----	-------------------	---------------------	-----

yellow ✓ is ok from FB 515

✓
20
497.36

193+50

5.5 91.7 ✓

482.46 ✓

9.2

194

-0.04%

5.2 92.0 ✓

82.44 ✓

9.6

+50

5.1 92.1 ✓

82.42⁴¹

9.7

195

X

5.4 91.8 ✓

482.40³⁹

9.4

+50

5.7 91.5 ✓

82.20 ✓

9.3

196

-0.40%

6.1 91.1 ✓

82.00 ✓

9.1

+50

6.0 91.2 ✓

81.80 ✓

9.4

197

6.5 90.7 ✓

81.60 ✓

9.1

+50

7.1 90.1 ✓

81.40 ✓

8.7

198

✓
197.30
.20

7.7

✓
89.5481.²¹20

8.3

T.P.

1.15

✓
91.28
.18

7.17

✓
90.43
.03

+50

-0.40%

2.5

✓
88.781.⁰¹00

7.7

199

3.3

✓
87.981.⁸¹80

6.1

+50

3.9

✓
87.381.⁶¹60

5.7

200 X

4.6

✓
86.6480.⁴¹40

6.2

+50

-0.30%

4.9

✓
86.3

80.25

6.0

201

4.8

✓
86.4

80.10

6.3

+50

5.0

✓
86.2

79.95

6.2

		[✓] 18 491.28				
202			4.5	86.7 [✓]	479.80 [✓]	6.9
+50			3.9	87.3 [✓]	79.65 [✓]	7.6
203			3.9	87.3 [✓]	79.50 [✓]	7.6
+50			4.5	86.7 [✓]	79.35 [✓]	7.3
204	-0.30%		5.1	86.1 [✓]	79.20 [✓]	6.9
T.P.	4.59	[✓] 90 ⁶⁸ 77	5.09	86.78 [✓]		
+50			5.2	85.5 [✓]	79.05 [✓]	6.4
205			5.5	85.2 [✓]	78.90 [✓]	6.3
+50			5.2	85.5 [✓]	78.75 [✓]	6.7

206	-0.30%	490. ⁶⁸ ₇₇	5.1	85.6	478.60	7.0
+50			5.1	85.6	78.45	7.1
Road & Sta 205			4.7	86.0	85.1	
B.M.			3.10	487. ⁵⁸ ₆₇	on Pole # P 173426	So. of Road

Notes from 0+00 to 206+50 reduced.
 Checked and plotted by G.W.G. 8-7-35.

Cont. in Book 509

Sept. 10-35

Profile in front of City Garage

B.M. #4	1.12	570.00	568.88
35+50	4.8	65.2	
36+00	8.1	61.9	
+50	9.5	60.5	
37+00	9.9	60.1	
+25	12.0	58.0	

Dec. 18, 1935

76

Re-profile - Final

B.M.	1.83	581.56	579.73
TP		12.50	569.06
	0.60	569.66	
35+30.1880	1.9	67.8	
+50	3.6	66.1	
36+00	6.8	62.9	
+30	9.0	60.7	
+50	9.2	60.5	
+95	9.5	60.2	
37+00	10.0	59.7	
+25	11.6	58.1	
+32.52 EC.	13.0	56.7	
+43	15.5	54.2	

Profile levels over relocated Pipeline &
Sta 381+00 to 388+60.18 Thru Lindo Park

B.M.	7.54	417.58		410.04
381			0.6	417.0
+50			1.7	15.9
382			3.0	14.6
+50			3.9	13.7
383			4.4	13.2
+32.82			4.7	12.9
+50			5.0	12.6
384			6.1	11.5
+50			8.2	09.4
385			11.3	06.3
T.P.	0.48	405.46	12.60	404.98
+32.80			1.2	04.3
+50			2.1	03.4
386			3.3	02.2
+16			3.5	02.0
+22			4.7	400.8

Void

Soper Dec. 6 1935
Remmen

77

CALCULATION OF EARTHWORK.

HEIGHT

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	.23	.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	1.55	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	3.63	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	2.76	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	1.35	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	8.16	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. $=1.48+.028+.039=1.597$ 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 ($=w$) by the difference between the cuts (or fills) on each side of it ($=h$)'s always subtracting the outer from the inner.

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 $41.9+(20-16)+2$ or 2 ft. added to 41.9 = 43.9. For slopes of 1 on 1 see inside of front cover.