

284-G

①

Final Grade

Std. 757-40 to 855-127

W 2846

Our Leather Bound Engineers Note Books are carried in the following rulings:

- No. 380 LEVEL BOOK. Left and Right Hand Page the same as Left Hand Page of this Book.
- No. 382 FIELD BOOK. Left Hand Page as in this Book, Right Hand Page 4 x 4 to the inch, Center Line Red.
- No. 384 MINING TRANSIT BOOK. Left Hand Page as in this Book, Right Hand Page 8x8 to the inch, Center Line Red.
- No. 385 FIELD BOOK. Left Hand Page as in this Book, Right Hand Page 8 vertical and 4 horizontal lines to the inch, Center Line Red.

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In ordering Fabri-Hide covered books, add the letter "F" to catalog number.

**THE FREDERICK POST CO.**  
*ENGINEERING and DRAFTING SUPPLIES*  
IRVING PARK STATION  
CHICAGO, ILL.

**MICROFILMED**

**JAN 11 1965**

INDEX

Stay - S.D. and Main Pipe Line.  
Alignment & curve deflections  
at grade break pts.

Stay to Pages 1-11

Final Finish States 23-78

Sta 734+50 to 855+12

Faint, mirrored text from the reverse side of the page, including the words "MICROFILMED" and "JAN 1 1950".

Otago - San Diego 2nd M. Pipeline  
Curve deflections for grade breaks.  
Sta. Dattoe Bear

+75 17°-26'

+50 14°-26'

+25 11°-26'

3 8°-26'

+75 5°-26'

+50 2°-26'

2+29.76 PC.

0+66.82 22°-30'R

S19-14W

0+17.60 90°R

0+00

12/30/29

cloudy

Hill notes

Elliot T

Simpson Ch.

Walton "

1

Sta. D.Hec. Bear.

11+75 9°07'

11+50 7°07'

11+25 5°07'

11+10.3 3°57'

10+80.3 1°33'

10+61.3 P.C.

N77.46W

4+52.68 26-45 P.T.

+50 26°26'

+25 23°26'

4+00 20°26'

Sta. DeHoc Bear.

18+36.57 P.O.T.

58°-06'N

15+20.28 2°-45' PT.

15+00 1°-50'

14+72.00 0°-49'

14+57.06 0°-13'

14+51.53 P.C.

578°-36'N

+27.59 13°-19' PT.

+25 13°-07'

12+00 11°-07'

Sta. Dolloc. Bear.

+15.43 0°45'

32 0°08'

31+96.49 P.C.

27+00 P.O.T.

N87-50W

+16.39 4°02'PT

26 3°23'

+75 2°23'

+50 1°23'

+25 0°23'

25+15.56 P.E.

Sta. De Haas Bear.

47+42.52 P.O.T.

585-09W

37+11.45 1°-03'R

35+44.0 P.O.T.

584-06W

+97.32 1°-02'PT.

+87.50 3°-38'

+75 3°-08'

+50 2°-08'

32+25 1208'



Sta Detloc. Bear

SG4-54W

49 +47.97 10°-07½' P.T.

+44.60 9°-51'

+14.60 7°-27'

49 6°-17'

+75 4°-17'

+65.02 3°-29'

+35.16 1°-06'

48 +21.91 P.C.

37

Sta. Petloc. Bear.

56+53.45 P.O.T.

S54-40W

54 + 73<sup>22</sup> P.T. 5°07'

+ 50 4°11'

54 + 20<sup>04</sup> 2°59'

190<sup>16</sup> 1°48'

+ 75 1°11'

+ 60<sup>49</sup> 0°36'

53 + 45<sup>30</sup> P.C.

Sta. Deflec. Bear

+04.71 0°-05'

70+03.24 P.C.

65+00.00 P.O.T.

S79°-05'W

64+20.70 P.I. 9°-05' R.

62+89.54 P.O.T.

S75°-00'W

58+79.95 10°-10' P.T.

+69.94 9°-22'

+50 7-16

+25 5-16

58 3-16

+75 1-16

57+52.87 P.C.

Sta. Det/oc. Bear.

S59-51W

75+03.06 3°-59' PT.

+80.16 3°-05'

+50.64 1°-53'

+21.15 0°-42'

74+03.48 PC.

+97.13 5°-38' PT.

+94.19 5°-28'

70+64.67 3°-41'

70+34.69 1°-53'

Sta. Dakloc, Bear.

774.74 3-34

759.75 12-19'

81+50.95 P.C.

S48-33W

80+12.33 12-34 R.

S46-59W

78+08.99 6-26 P.T.

783.22 4-53

752.52 3-28'

747.79 2-35'

729.89 1-41'

717.90 0-47'

77401.77 P.C.

83+12.34 PT.

83 22°-20'

+89.85 20°-49'

+60.66 16-26

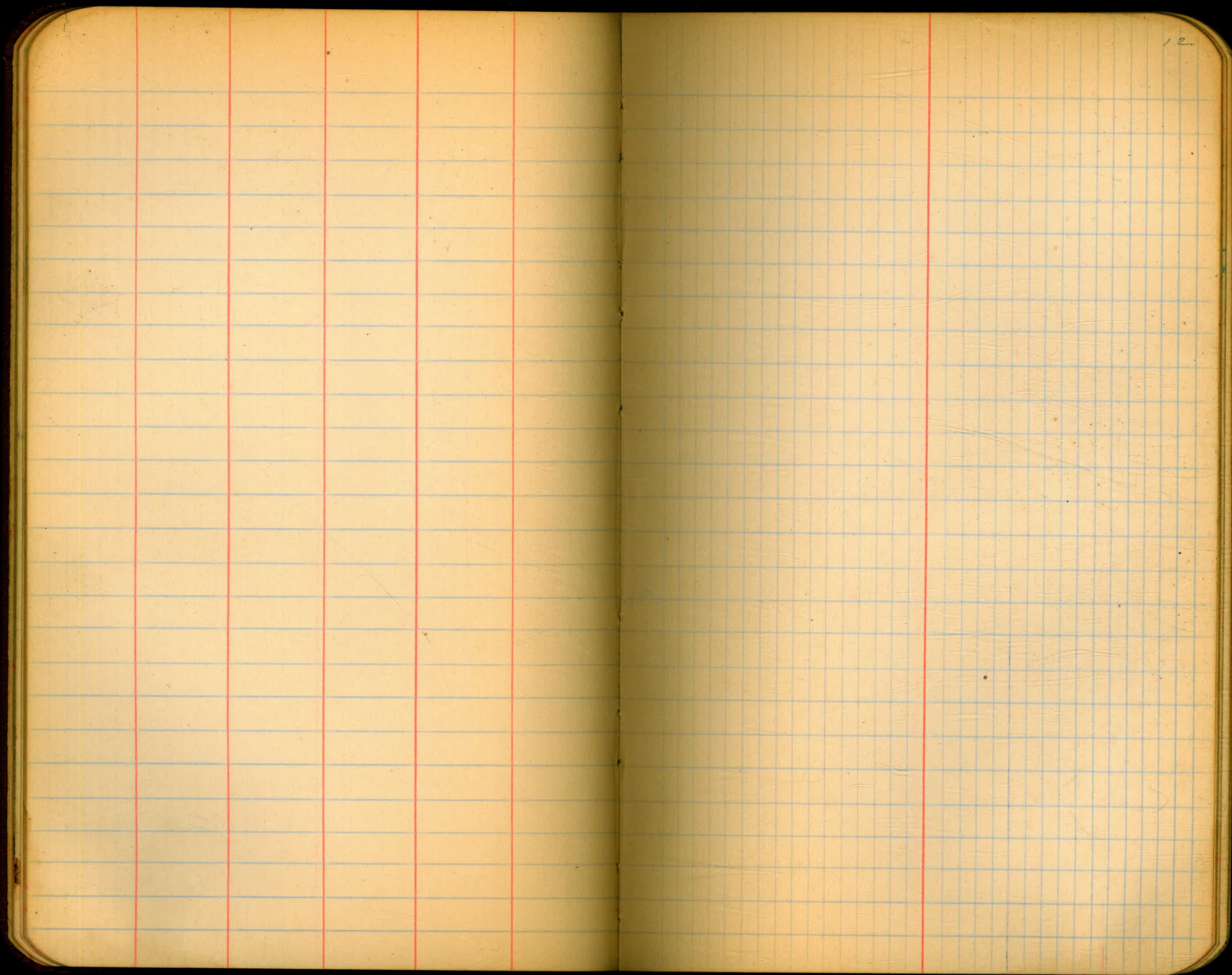
+50 14-50

+25 11-05

82+12.83 10-10

82+04.37 8°-00'

81+89.64 5-48



12





O.R.S.D. 2<sup>nd</sup> main Pipe Line - alignment and Levels for each pier at Trestle #39.

April 4, 1930  
Simpson  
Jacobszoon  
Bailey

clear and warm.

14

B.M. #123

2.51	372.25	12.97	359.28
1.15	360.43	13.06	347.37
1.05	348.42	12.70	335.72
0.76	336.48	12.90	323.58
0.92	324.50	11.85	312.65
1.63	<u>314.28</u>		

369.74

2.66

311.62 Set B.M.

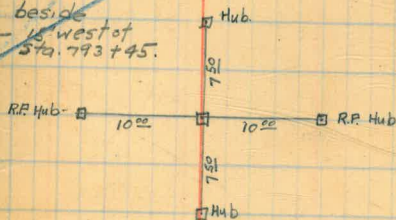
Hub with nail in top beside old mile Post 15 - 15' west of Sta. 793+45.

793+24<sup>o</sup> Pier #3

-6.28

308.00

Set Hub with nail in top to Pipe Line Grade about 6' west of E pier

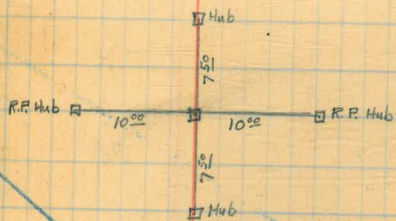


793+09<sup>o</sup> Pier #2

-7.28

307.00

Set Hub with nail in top. 1' Below Pipe Grade El. 307.00 about 6' N.W. of E pier

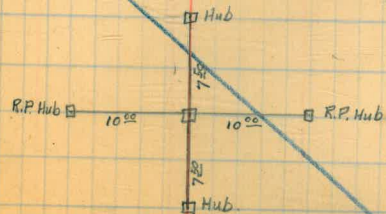


792+94<sup>o</sup> Pier #1

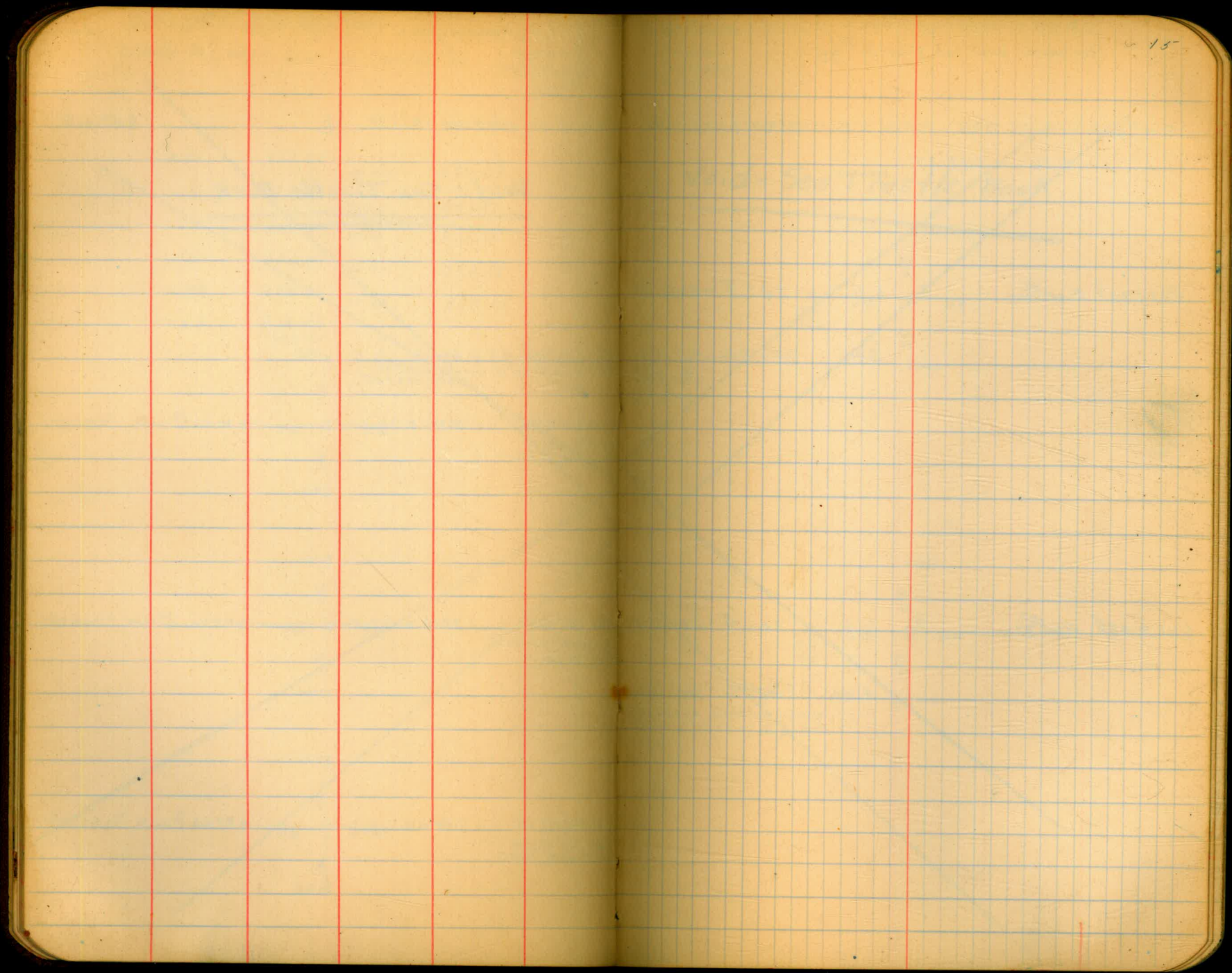
-6.28

308.00

Set Hub with Nail in Top to Pipe Line Grade about 6' west of E pier



Void - See Trestle Book



15

O.R.-S.D. 2<sup>nd</sup> main Pipe line — Alignment and Levels  
for each pier at Trestle # 35

April 4, 1930  
Simpson  
Jacobszoon  
Bailey

clear and warm.

16

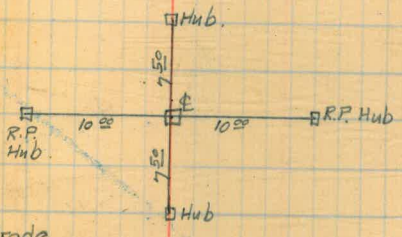
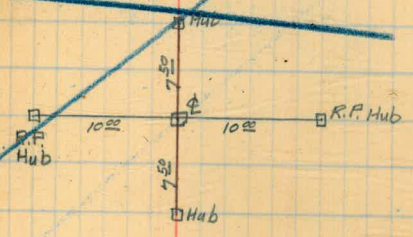
Bolt head N.E. cor. B.O. valve 23' R Sta 621+26

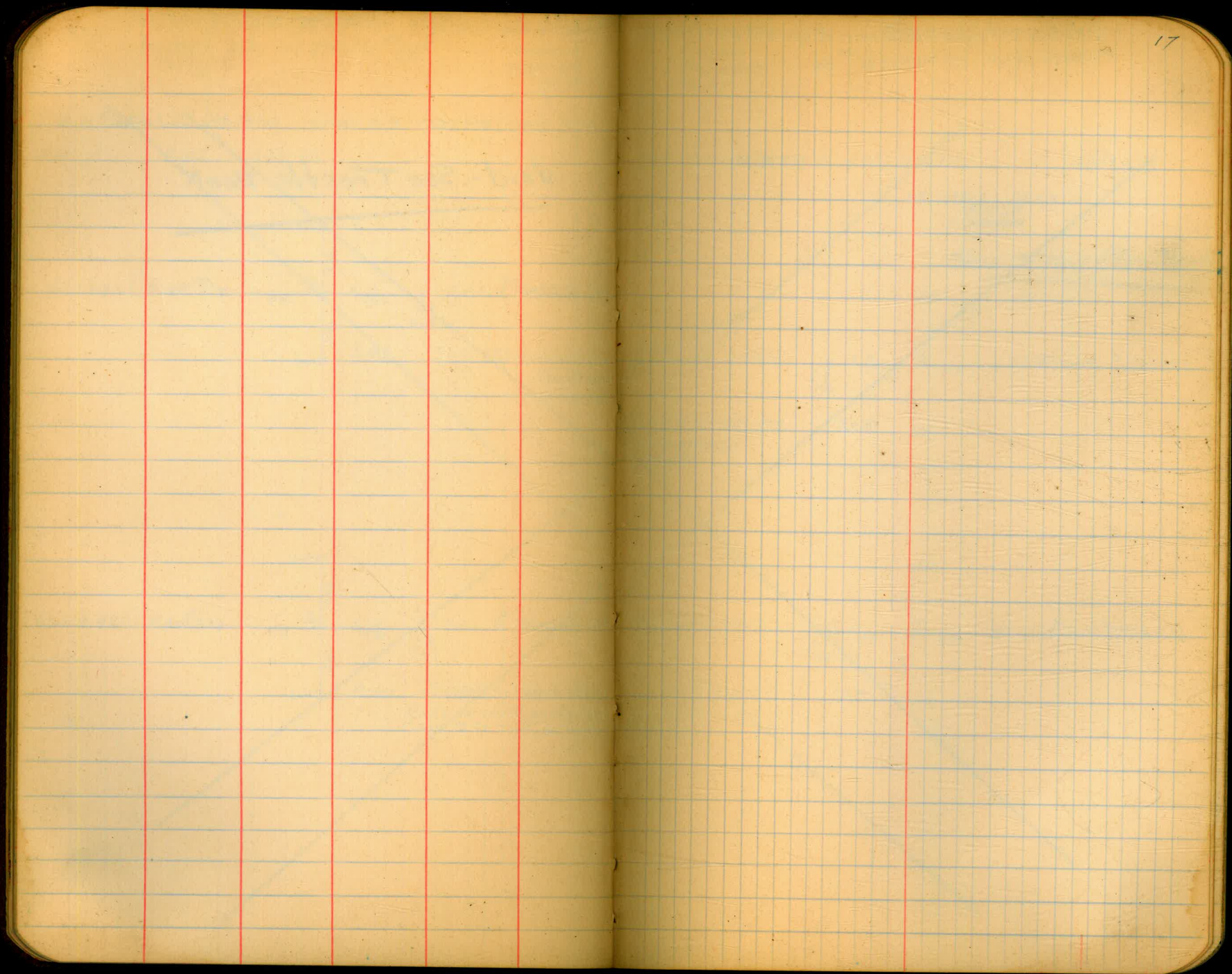
Void - See Trestle Book

B.M. # 101 239.71  
8.56 248.27

621+33<sup>S</sup> Pier #1  
6.5 241.8 = Ground El. of Pier #1  
5.40 242.87 ← Set Hub with nail in top  
to Pipe line grade  
about 6' East of Pier

621+48<sup>S</sup> Pier #2  
6.4 241.9 = Ground El. of Pier #2  
4.40 243.87 Set Hub with nail in top  
1.00 above Pipeline Grade  
about 6' East of Pier





O.R.-S.D. 2<sup>nd</sup> Main Pipe Line - Alignment and Levels  
 on each pier at Trestle # 34

April 4, 1930  
 Simpson  
 Jacobszoon  
 Bailey

clear and warm.

B.M. #100 1.37 380.74 379.37

614+62<sup>o</sup> Pier #1 11.1 369.6 = Ground El. at E Pier #1

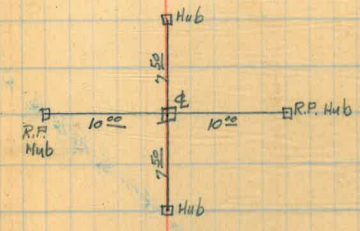
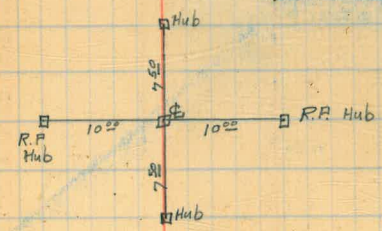
9.08 371.66 - set hub with nail in top  
 1.00 above pipe line grade  
 about 7' E. of E pier

614+77<sup>o</sup> Pier #2 10.8 369.9 = Ground El. at E Pier #2

9.11 371.63 - set hub with nail in top  
 1.00 above pipe line grade at pier.  
 about 7' E. of E pier.

Top of Air valve 33' Rt. of sta. 614+70

Void  
See Trestle Book





O.R.-S.D. 2<sup>nd</sup> Main Pipe Line - Alignment and Levels for Trestle #33

B.M. #99		381.80	
	2.10	383.90	
	3.89	375.31	12.48
611+82° Pier #1			
	9.2	366.1	= Ground El. at $\phi$ pier #2
611+97° Pier #2			
	8.12	367.19	Set Hub with nail in top 4.00' below pipe line grade about 7' East of $\phi$ pier.
612+12° Pier #3			
	7.0	368.3	= Ground El. at $\phi$ pier #3
	4.15	371.16	Set Hub with nail in top to pipe line grade about 7' East of $\phi$ pier.

April, 4, 1930  
Simpson  
Jacobson  
Bailey

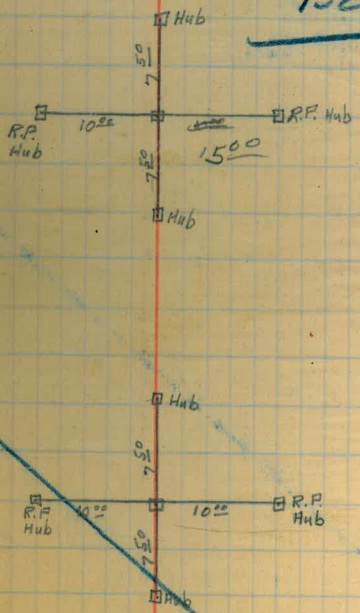
clear and warm.

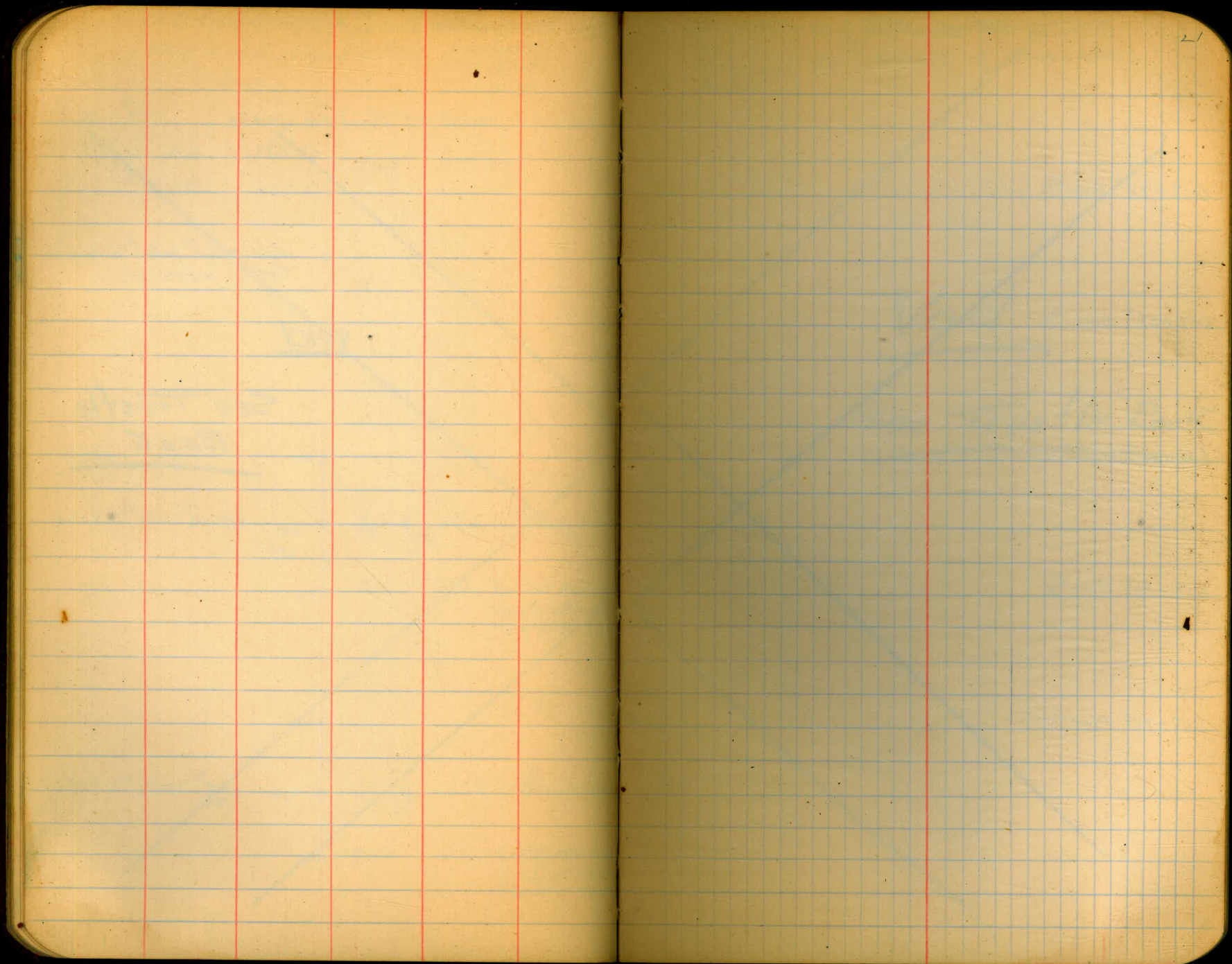
Top of Air Valve 25' Rk. of Sta. 610+85

note: This pier is on curve. not staked.

VOID

See Trestle Book







O.R.S.D. - 2<sup>nd</sup> main Pipe Line - Alignment  
and Levels for Trestle # 32

607+38<sup>0</sup> Pier #1

607+53<sup>0</sup> Pier #2

607+68<sup>0</sup> Pier #3

607+83<sup>0</sup> Pier #4

607+98<sup>0</sup> Pier #5

April 5, 1930

Simpson  
Jacobszoon  
Bailey

clear and warm

22

Void

see Trestle Book

Otay Res. to San Diego  
Finish

April 16 1930

B.M. #130			251.68	
	1.59	253.27		
852+00			2.7 12.04	246.6 241.23
				El. Grade Cut 5'
+10			9.14 12.27	244.13 241.00
T.P.	11.21	263.89	0.59	252.68
				Gr. Cut 3'
+50			9.97 .09	253.92 253.92
+75			1.89	262.00
T.P.	13.05	276.68	0.26	263.63
T.P.	13.06	289.66	0.88	276.60
853+25			7.26	282.40
T.P.	13.10	302.69	0.07	289.59
+50			9.09	293.60
T.P.			0.02	302.67
	12.41	315.08		
853+72 <sup>43</sup>			11.43	303.65
+86 <sup>33</sup>			5.78	309.30
854+00 <sup>59</sup>			1.13	313.95
T.P.	11.99	326.89	0.18	314.90
+15 <sup>14</sup>			9.30	317.59

2nd Main Pipe Line  
Stakes

Elliott 23  
Simpson

Bailey & Remmen

5/8/30 - Reset of Grades

B.M. #130			251.68
	1.94	253.62	
852+00			8.39 - 245.23 = C-4 <sup>2</sup> 4
852+10			6.52 247.10 = C-6 <sup>1</sup> on 10' offset
			8.02 245.60 = C-4 <sup>1</sup> on 4'
T.P.	10.69	264.01	0.30 - 253.32 = grade set
852+50			10.09 253.92 = Grade set
852+75			2.01 262.00 = Grade set
T.P.	11.67	275.52	0.16 - 263.85
853+00			3.32 272.20 = Grade set
T.P.			0.00 - 275.52
	11.88	287.40	
853+25			5.00 - 282.40 = Grade set
T.P.			0.00 - 287.40
	11.42	298.82	
853+50			5.22 - 293.60 set Grade
T.P.	12.42	311.24	0.00 - 298.82
853+72 <sup>43</sup>			7.59 - 303.65 set Grade
853+86 <sup>33</sup>			1.94 - 309.30
T.P.			0.04 - 311.20
	12.76	323.96	
854+00 <sup>59</sup>			10.01 - 313.95 set Grade
854+15 <sup>14</sup>			6.37 - 317.59
854+29 <sup>91</sup>			3.77 - 320.19

	326.89		
854+292 <sup>1</sup>		6.70	320.19
T.P.			
+50		3.90	322.99
T.P.		0.16	326.73
12.02	338.75		
855+03 <sup>49</sup>		8.19	330.56
855+12 <sup>05</sup>		8.17	330.58
T.P.		8.18	330.57
12.98	343.05		
856+00		12.29	330.76
			330.77

5/8/30 - Reset of grades

Simpson  
Reimert

	323.96		
854+50		0.99	-323.04
T.P.		0.95	322.01
10.56	333.57		
854+75		7.03	-326.54
855+03 <sup>49</sup>		3.01	-330.56

checked on grade  
set April 23-30. 0.15

Grade stake on Lantana Drive.

Joe Duermit of City Div. states that it is a +0.22% grade from 855+1205 to 856+00 at which point there is a finish grade stake.

856+00
855+12
<hr/>
.88
.22
<hr/>
176
<hr/>
176
<hr/>
+ .1936
330.58
<hr/>
330.77 ✓

April 18 1930  
 Elliott, Simpson  
 Bailey, Remmen

O. R. to San Diego 2nd Main Pipe Line

B.M. # 129			314.73	
	4.35	319.08		
843+50 offset		5.0	314.1	<sup>6.6</sup> 307.5
844+00 "		5.7	313.4	<sup>5.8</sup> 307.6
+50 "		6.6	312.5	<sup>4.7</sup> 307.8
845+00 "		6.6	312.5	<sup>4.5</sup> 308.0
+50 "		7.8	311.3	<sup>3.2</sup> 308.1
+95 "		10.0	309.1	<sup>4.9</sup> 309.7
846+24 <sup>1</sup>		12.0	307.1	<sup>5.7</sup> 301.4
T.P.		12.73	306.35	
	1.57	307.92		
+54 <sup>2</sup>		3.7	304.2	<sup>8.1</sup> 296.1
+80 <sup>30</sup>		8.7	299.2	<sup>8.7</sup> 290.5
T.P.	1.58	296.88	12.62	295.30
847+10		2.9	294.0	<sup>8.8</sup> 285.2
+40 <sup>3</sup>		7.8	287.1	<sup>5.2</sup> 281.9
+70 <sup>3</sup>		12.1	284.8	<sup>4.1</sup> 280.7
848+50		10.2	286.7	<sup>6.4</sup> 280.3
+75		12.6	284.3	<sup>4.3</sup> 280.0
T.P.		12.54	284.34	
	1.33	285.67		
849+00		5.9	279.8	<sup>6.9</sup> 272.9
T.P.	1.09	274.24	12.52	273.15

Top A.V. R. 843+68'

	274.29			
899+50		11.9	262.3 <sup>3.5</sup>	258.8
T.P.		12.97	261.77	
	0.93	262.20		
+95		9.2	253.0 <sup>7.0</sup>	246.0
851		13.7	248.5 <sup>4.9</sup>	243.6
B.M.		10.54	251.66	251.68
Level on 10' offsets.				
B.M. 129			314.73	
	6.67	321.40		
843+00		6.9	314.5 <sup>7.9</sup>	306.6
842+50		10.4	311.0 <sup>5.3</sup>	305.7
842+00		9.5	311.9 <sup>7.1</sup>	304.8
841+50		8.1	313.2 <sup>5.9</sup>	307.4
841		5.6	315.8 <sup>5.8</sup>	310.0
840+50		3.7	317.7 <sup>5.1</sup>	312.6
+30		2.4	319.0 <sup>5.4</sup>	313.6
840+00		1.8	319.6 <sup>5.6</sup>	314.0
839+70 <sup>L</sup>		4.6	316.8 <sup>4.8</sup>	312.0
B.M. 128 T.P.		1.62	319.78	319.77
	1.36	321.13		
839+50		5.7	315.4 <sup>5.6</sup>	309.8
839		11.4	309.7 <sup>5.3</sup>	304.4
T.P.		12.90	308.23	
	1.08	309.31		
838+698		5.2	304.1 <sup>5.6</sup>	298.5

		309.31			
838+35			9.7	299.6 <sup>4.8</sup>	294.8
838+00			12.0	297.3 <sup>5.3</sup>	292.0
T.P.			12.03	297.28	
	0.09	297.37			
837+55			4.1	293.3 <sup>4.9</sup>	288.4
837+252			6.1	291.3 <sup>6.9</sup>	284.9
836+993			11.6	285.8 <sup>6.9</sup>	278.9
T.P.	0.17	284.68	12.86	284.51	
836+654			5.4	279.3 <sup>8.4</sup>	270.9
836+372					
T.P.	0.74	272.57	12.85	271.83	
836+372			5.5	267.1 <sup>6.5</sup>	260.6
836+203			12.0	260.6 <sup>6.7</sup>	253.9
Set B.M.			13.08	259.99	

Hub + Tack 50' Lt 836 + 21

April 23 1930

Finish Grades

Elliott Notes  
Simpson T  
Bailey + Remmen

28

B.M. #				
B.M. #130				251.68
	1.63	253.31		
852 + 10			12.31	241.00
T.P.			0.27	253.04
	12.29	265.33		
+50			11.41	253.92
+75			3.33	262.00
T.P.			0.06	265.27
	12.67	277.94		
853 + 100 ✓			5.74	272.20
T.P.			0.10	277.84
	12.71	290.55		
853 + 25			8.15	282.40
T.P.			0.09	290.46
	12.71	303.17		
+50			9.57	293.60
T.P.			0.16	303.01
	12.43	315.44		
+72.93			11.79	303.65
+86.33			6.14	309.30
854 + 00.59			1.49	313.95
T.P.			0.18	315.26
	12.37	327.63		
854 + 15.14			10.09	317.59

Checked grade set April 16

327.63

854+2991

7.44 320.19

+50

4.61 323.02

+75

1.09 326.54

T.P.

1.09 326.54

6.97. 333.51

855+03<sup>99</sup>

2.95 330.56

855+1205

330.58



April 23 1930  
Clear-Warm

Elliott Notes  
Simpson T  
Bailey Rod. H.Ch.  
Remmen R.Ch.

Reset of Finish Grades  
Washed out by Rain

Simpson  
Remmen 30

B.M. #130

251.68

850+75

9.24 - 244.13 ✓

1.63 253.31

8.24 245.13 = C1<sup>o</sup>

851+50

10.91 242.90

850+25

8.08 - 245.29 ✓

7.08 - 246.29 C1<sup>o</sup>

851+00

9.76 243.55

849+95

7.37 - 246.00 ✓

5.37 - 248.00 = C2<sup>o</sup>

850+75

2.33 70

8.36 244.95

Set in Bottom

850+40

849+95

7.31 246.00

849+75

1.71 - 251.66 set to grade

T.P.

11.64 264.90

0.11 - 253.26

849+75

1.65 251.66 1<sup>o</sup> Low

849+50

6.16 - 258.74 - set to grade

T.P.

11.84 265.01

0.14 253.17

11.28 - 270.02

849+25

4.20 - 265.82 - set to grade

849+50

6.27 258.74 1<sup>o</sup> Low

T.P.

11.24 - 281.04

0.22 - 269.80

T.P.

11.93 276.76

0.18 264.83

849+00

8.14 - 272.90 ✓

849+25

10.94 265.82 0<sup>3</sup> Low

848+75

1.06 - 279.98 set to grade

848+55<sup>60</sup> E.C.

0.93 - 280.11 ✓

T.P.

11.01 291.13

0.92 - 280.12 ✓

849+00

3.86 272.90 0<sup>4</sup> High

		276.76		
	T.P.	8.14	284.83	0.07 276.69
Z	848+75			4.85 279.98
8	848+55 <sup>60</sup>	EC.		4.72 280.11 0 <sup>50</sup> Low
8	+25			4.51 280.32 0 <sup>25</sup> Low
8	848+00			4.34 280.49 0 <sup>16</sup> High
8	+76 <sup>54</sup>	B.C.		4.18 280.65 0 <sup>5</sup> High
8	847+70 <sup>16</sup>			4.14 280.69 0 <sup>5</sup> High
8	+40 <sup>19</sup>			2.71 281.92 O.K.
	T.P.			2.12 282.71
8	12.04	294.75		9.58 285.17 0 <sup>1</sup> High
8	710 <sup>37</sup>			

Reset of finish grades 5/9/30 31  
Simpson  
Remission

			291.13	
	848+25			10.81 - 280.82 set to grade
	848+00			10.64 - 280.49 set to grade
	847+76 <sup>52</sup>	B.C.		10.48 - 280.65 set to grade
	847+70 <sup>16</sup>			10.44 - 280.69
	847+40 <sup>19</sup>			9.21 - 281.92
	847+10 <sup>37</sup>			8.21 282.92 - set in cut
	846+80 <sup>84</sup>			5.76 - 285.17
	T.P.			0.68 - 290.45 set to grade
	11.96	302.41		0.68 - 290.45
	846+54 <sup>39</sup>			6.30 - 296.11
	846+24 <sup>86</sup>			1.01 - 301.40
	T.P.			1.01 - 301.40
	11.47	312.87		
	845+95 <sup>04</sup>			8.19 - 304.68 set to grade
	T.P.			8.19 304.68
	11.16	315.84		1.12 - 314.72
	B.M. # 129			314.73 Rec.
	1.12	315.85		

294.75

846 + 80<sup>84</sup>

4.30 290.45

T.P.

0.08 294.67

12.91 307.58

846 + 5439

11.47 296.11

+2486

6.18 301.40

845 + 950<sup>8</sup>

2.90 304.68

T.P.

0.28 307.30

12.10 319.40

#  
B.M. 129

4.66 314.74 <sup>Record</sup> 314.73

5/9/30.  
Simpson  
Remmon

Reset of finish grades

5/9/30

32

315.85

845 + 75

9.65 - 306.20 <sup>set to</sup> Grade

845 + 50

7.75 - 308.10 <sup>set to</sup> Grade

845 + 00

7.90 - 307.95 <sup>✓</sup>

844 + 50

8.05 - 307.80 <sup>set to</sup> Grade

844 + 00

8.20 - 307.65 <sup>set to</sup> Grade

T.P.

1.12 - 314.73

2.32

317.05

843 + 50

9.55 - 307.50 <sup>set to</sup> Grade

843 + 00

10.45 - 306.60 <sup>set to</sup> Grade

842 + 50

11.35 - 305.70 <sup>set to</sup> Grade

842 + 00

12.25 - 304.80 <sup>✓</sup>  
11.25 - 305.80 = G.P.

5/4. Ke m  
Side of  
Bank

841 + 50

9.65 - 307.40 <sup>set to</sup> Grade

841 + 00

7.05 - 310.00 <sup>set to</sup> Grade

Continued on Page 35

B.M. #129 314.73

3.03 317.76

845+9504 13.08 304.68

845+75 11.56 306.20

845+50 9.66 308.10

845+25 308.03

845+00 9.81 307.95

844+75 307.88

844+50 9.96 307.80

844+25 307.73

Top Valve Stem of A.V. Sta 843+68

317.76

844+100 10.11 307.65

843 +75 307.58

843 +50 10.26 307.50

843 +25 10.71 307.05

B.M. #129 T.P. 3.03 314.73

2.56 317.29

843+100 10.69 306.60

842+75 11.14 306.15

842+50 11.59 305.70

842+25 305.25

	317.29		
842+00		12.99	304.80
841+75			306.10
841+50		9.89	307.40
841+25			308.70
841+00		7.29	310.00
840+75			311.30
840+50		4.69	312.60
840+30 <sup>2</sup>		3.65	313.64

5/9/30  
Simpson  
Kernmen

Reset Final Grades Continued from Page 32

33

	317.05		
840+50		9.45	312.60 set to grade
840+30 <sup>2</sup>		3.41	313.64 ✓ set to grade
840+00 <sup>04</sup>		3.05	314.00
839+70 <sup>10</sup>		5.08	311.97 = check on previous work
		1.68	253.36
851+50			251.68
		10.96	242.40
		8.96	244.40 = cut 2' Set in Bottom
851+00		9.81	243.55 = check on previous work

317.29

840+00<sup>09</sup> 3.29 314.00

839+70<sup>10</sup> 5.32 311.97

T.P. 5.32 311.97

1.71 313.68

839+50 3.88 309.80

839+25 6.58 307.10

839+00 9.28 304.40

T.P. 12.80 300.88

1.07 301.95

838+67<sup>81</sup> 3.46 298.49

838+35<sup>09</sup> 7.15 294.80

838+00 9.95 292.00

		301.95		
837+75			11.95	290.00
T.P.			12.59	289.36
	1.21	290.57		
837+5497			2.17	288.40
837+2517			5.67	284.90
T.P.			12.71	277.86
	0.97	278.83		
836+9430			+0.05	278.88
836+6537			7.92	270.91
T.P.			12.73	266.10
	0.48	266.58		
836+3719			5.96	260.62
836+2093			12.66	253.92
B.M. T.P.	7.03	266.55	7.03	259.55
T.P.	1.63	255.52	12.66	253.89
835+9277			11.95	243.57
T.P.			12.80	242.72
	0.49	243.21		
835+6391			7.81	235.40

0.70 Low  
offset stake O.K. contractor 2' off Rhangle

Hub 50' Lit. 836+21



243.21

T.P.  
835 + 34.50

11.73 <sup>231.40</sup>  
231.48  
229.47

835 + 04.72

225.82

834 + 75

223.32

834 + 50

221.22

834 + 25

219.12

834 + 12.50

218.07

833 + 75

215.89

833 + 50

214.43

Peg Lt 834 + 80

2.20

233.68

231.48

+15 - 229.57

12.25

241.78

0.26 241.52

12.94

254.46

0.75 253.71 ←

12.56

266.27

0.12 266.15

12.71

278.86

253.71

0.06

253.77

12.86 240.91

0.32

241.23

11 229.48

3.11

232.39

~~249.97~~

0.20

833 + 12<sup>50</sup> 212.24

832 + 50 212.10

832 211.98

831 + 50 211.86

831 211.75

830 + 50 211.63

830 + 00 211.52

829 + 88<sup>06</sup> 211.49

0.20 231.68 231.48  
 21.22  
 10.26

834 + 50 10.46 - 221.22  
 T, R 11.67 220.01  
 5.42 225.43

834 + 12<sup>5</sup> 7.36 - 218.07

833 + 50 11.00 217.43

833 + 12<sup>5</sup> 13.19 - 212.24

T, R 11.74 - 213.69  
 9.36 323.05

833 + 12<sup>5</sup> 10.81 - 212.24

~~833 + 50~~ 8.81 214.24  
 C<sup>20</sup>

832 + 50 10.95 - 212.10  
 8.95 - 214.10  
 C<sup>20</sup>

832 + 00 11.07 - 211.98  
 9.07 - 213.98 = C<sup>20</sup>

831 + 50 11.19 - 211.86  
 T, R 9.19 213.86 = C<sup>20</sup>  
 8.14 - 222.00

831 + 00 8.25 = C<sup>20</sup>  
 10.25 - 211.75

830 + 50 8.37  
 10.37 - 211.63 = C<sup>20</sup>

829 + 88<sup>06</sup> 18.51 - 211.49 = C<sup>20</sup>

829 + 58<sup>08</sup>

7.34

See final X section

7.34 212.66

7.34 214.66 2<sup>nd</sup> cut  
Set in Bottom829 + 28<sup>30</sup>

5.72 o.k.

9.47 216.28

8.47 217.28 = C-1<sup>st</sup> set in  
Bottom

2.43 225.75

828 + 98<sup>91</sup>

9.48 222.32

8.48 223.32 = C-1<sup>st</sup> set in  
Bottom

1.00 331.80

828 + 60

6.51 → 233.76

T.P.

12.95 330.80

828 + 39<sup>71</sup>

0.55 240.27

4.03 239.72

T.P.

0.14 243.75

12.30 243.61

828 + 10<sup>39</sup>

10.07 245.84

827 + 75

7.16 251.75

T.P.

- 0.02 255.91

12.52 255.93

827 + 50

12.51 255.94

↑  
268.45

1.62

253.30

251.68

0.11 — 253.19

12.43

265.62

0.47 265.15

12.26

277.41

0.67 — 276.74

12.31

289.05

$$\begin{array}{r} 216.28 \\ 212.66 \\ \hline 3.62 \end{array}$$

April 26 1930  
Clear Hot.

Elliott  
Simpson  
Bailey  
Remmen

41

827+25

8.33 260.12 set

826+9966

4.10 264.35 set

0.37 268.45

826+6990

T.P.

12.46 268.08 set

826+3992

1.16

280.54

11.17 269.37 set

B.M.#

3.19

282.51

279.38

279.32

offset ok

826+00

7.25 275.25 269.45

11.11 269.43 set

825+75

11.06 269.48 set

825+43<sup>19</sup> E.C.

12.97 269.54

11.00

-0.20%

825+25

12.71 269.60

825+00

12.86 269.65

268.45  
5594  
1251

B.C. 824+662<sup>9</sup> — 0° 0'  
T= 38.19 824+75 — 0° 19'  
825+00 — 1° 19'  
825+25 — 2° 19'  
E.C. 825+43<sup>19</sup> — 3° 03'

282.51

824 + 75		12.81	269.70
824 + 66 <sup>94</sup> B.C		12.79	269.72
824 + 25		12.71	269.80
824 + 00		12.66	269.85
823 + 50		12.56	269.95
823 + 25		11.60	270.91
823 + 00		10.63	271.88
T.P.		10.63	271.88
	9.26	281.14	
822 + 75		8.30	272.84

- 0.20%

- 3.86

April 26, 1980

43

281.14

8 822 + 50 7.33 273.81

8.6100

8 822 + 25 6.37 274.77

8 822 + 00 5.40 275.74

8 821 + 75 4.44 276.70

8 821 + 50 3.47 277.67

8 821 + 150 2.13 279.01  
T.P. 0.16 280.98

13.21 299.19

8 820 + 85 12.13 282.06

8 820 + 50 7.08 287.11

- 3.56%

- 14.40%

April 26 1930

14

294.19

820+25 3.48 290.71

T.P. 0.26 293.93

12.36 306.29

820+00 11.78 294.31

819+75 8.38 297.91

819+50 4.78 301.51

819+25 1.18 305.11

T.P. 1.18 305.11

11.15 316.26

819+00 308.71

818+8987 6.10 310.16

818+6000 3.30 312.96

- 14.90 %

April 26, 1930

316.26

818+30 1.98 314.28

818+00 0.66 315.60

T.P. 0.66 315.60

13.10 328.70

Set B.M. 6.80 321.90

A.V. 817.71

B.M. 3.69 321.96

817+50 10.45 315.20

817+1922 10.70 314.95

816+85 10.97 314.68 C-4<sup>o</sup> side of Bank

11.26 325.65

T.P. 2.92 314.39

816+50 2.91 314.40

816+00 3.31 314.00

815+72.20 3.53 313.78

317.31

Grade Revision Sta 815+14<sup>21</sup> to 818+43<sup>20</sup>

321.96 = B.M. on A.V.

3.56

315.52

818+43<sup>60</sup> 11.62 313.90 set

818+13.53 11.02 - 314.50 set

817+83.78 11.02 - 314.50 set

817+53 11.46 - 314.06 set

817+53 11.89 - 313.63

816+80 12.52 - 313.00

816+33 10.52 315.00 C-2<sup>o</sup> set

875

816+03 12.61 - 312.91 set

12.67 312.85 set

815+74<sup>04</sup> T.P. 12.72 312.80

T.P.

Revision

3.56 - 325.52

321.96 = B.M. A.V.

818+43<sup>28</sup> 11.62 - 313.90

818+13<sup>38</sup> 11.02 - 314.50

817+83<sup>28</sup> 11.02 - 314.50

817+53 11.53 313.99

817+23 12.03 - 313.49 set

816+99 12.52 - 313.00

816+64 12.57 - 312.95

816+33 12.62 - 312.90

816+03 12.67 - 312.85 T.P.

815+74<sup>04</sup> 4.76 317.61

815+44<sup>34</sup> 4.81 312.80

815+14<sup>59</sup> 6.11 311.50

8.64

\* 11.69 317.90  
\* 10.67 317.00

317.61

\*

some as original



April 30 1930

Elliott  
Simpson  
Bailey  
Remmen

815+42<sup>25</sup>

5.29 312.02

+14<sup>59</sup>

0.65

815+00

308.97

9.94 307.37

T.P.

11.72

317.31

0.21 305.59

814+50

3.93 301.87

11.0%

814+14<sup>23</sup>

Elev Grade  
6.79 299.01 298.01

Stake in bottom cut 12, Stake on side of T. Cut 50

813+84<sup>28</sup>

9.44 296.36

7.38

305.80

T.P.

2.60 298.42

813+50

4.68 296.34

813

4.70 296.32

812+50

4.73 296.29

301.02

812+00		4.76	296.26	
811+50		4.79	296.23	
811		4.82	296.20	
810+50		4.84	296.18	
	4.87	301.02		
T.P.		- 11.06	296.15	
810		11.06	296.15	
	+2.44	307.21		
B.M.#126		2.44	304.78	Use 304.77
809+50		11.10	296.12	
809		11.13	296.09	
808+50		11.16	296.06	
		307.22		

3/14/30  
Simpson  
Saper  
Remmen

Clear and warm.  
17

Reset Finish Grades  
Washed out by rain

B.M.#126  
2.21 306.98 304.77

812+50 10.69 - 296.29 = Check  
on Previous  
Work

812+00 10.72 - 296.26 set

811+50 10.75 - 296.23 ✓

811+00 10.78 - 296.20 ✓

810+50 10.80 - 296.18 ✓

810+00 10.83 - 296.15 ✓

809+50 10.86 - 296.12

T.P. 2.21 - 304.77

3.37 308.14

809+00 12.05 - 296.09

808+50 12.08 - 296.06

808+00 12.11 - 296.03  
11.11 - 297.03 = CIP  
Set in  
Bottom

807+65<sup>02</sup> - 12.13 - 296.01

T.P. 11.28 - 296.86

382 300.68

T.P.	+11.20	307.22	- 5.43	296.02	
808+00			5.42	296.03	
807+65 <sup>02</sup>			5.44	296.01	
807+35 <sup>02</sup>			7.18	294.27	
807+00			11.25	290.20	
806+64 <sup>93</sup>			15.32	286.13	
			784		
806+39 <sup>98</sup>			16.05	Elev. 285.40	Grade 284.40
	↑	HI 301.45			
806+00				284.40	
805+65 <sup>02</sup>			9.57	284.40	
805+35 <sup>14</sup>			7.19	286.78	
			7.19	289.78	C-3" in Bank
	3.59	293.97		290.38	

48

			300.68	
807+35 <sup>08</sup>			6.41	294.27
807+00			10.48	290.20
T.P.	0.70	289.93	11.45	289.23
806+64 <sup>93</sup>			3.80	286.13
806+34 <sup>98</sup>			5.53	284.40
			4.53	285.40 = C/P
				Set in Bottom

Set stake cut 12

↑  
 April 30 1930  
 Rain - Cool  
 Elliott  
 Simpson  
 Bailey - Remmen

805+05		T.P. 12.23	290.38
		11.13	291.98
805+100		10.13	292.78 - c.m. bottom
			292.26
	5.46	302.61	
		T.P. → 12.27	297.15
804+75		13.26	296.16
		12.26	297.16 = c-12
804+39.84 ✓		7.75	301.67 set
804+10 ✓		7.58	309.89 set
803+75	3.62	309.42	306.80
803+50			308.20
803+25			309.60
803+00			311.00
802+50			313.80
802+25 ✓			315.20
802+00			317.80

15.63%  
 -  
 -5.6%  
 -10.4%

49

4/26/30

	0.25	307.05	306.80
804+10	2.21	304.84 ✓	
804+39.84	5.38	301.67	
804+75	10.89	296.16	
	T.P.	1.02	295.43
805+05		3.95	291.48
805+35.14		8.65	286.78 set
805+65.02		11.03	284.40
			set c.m. bottom
			set 3rd side of concrete

B.M. #125		343.38
5.82	349.20	
801+75		320.40
801+50		323.00
801+25		325.60
800+66 <sup>2</sup> = 802+21 <sup>2</sup> =	-13.7	334.00 c-15
802+09 <sup>66</sup>	3.5	336.04 c-72
802+00	10.00 1.66	337.77 c-14 c-93
801+75	-6.94	342.26
801+50	-2.46	346.74
+35	+0.24	349.44
801+25		351.23
801+09.42		354.03

-10.4%  
 -17.94%

put on flange of by pass 15' R 800+66

May 2, 1930

Simpson  
Moore  
Remmen

cloudy and cool  
showers.

5/15/30

Simpson  
Moore  
Remmen

0.10

343.48

343.38

800+66<sup>20</sup> =  
802+21<sup>04</sup> =

9.48 - 334.00

T.P.

2.80

335.53

10.75 - 332.73

801+00

6.36 - 329.17

801+25

9.93 - 325.60

T.P.

0.54 - 325.19

10.88 - 324.65

801+41<sup>26</sup>

1.22 - 323.91

801+75

4.79 - 320.40

802+25

9.99 - 315.20

T.P.

1.87

316.00

11.06 - 314.13

802+75

3.60 - 312.40

803+25

6.40 - 309.60

803+75

9.20 - 306.80

804+10

11.16 - 304.84



Finish stakes			
798+40		78.25	350.38
	0.33	368.72	368.39
798+25			349.22
	T.P.	11.39	357.33
	1.30	358.63	
798+00		11.35	347.28
	T.P.	12.60	346.03
	1.39	347.42	
797+75			345.34
797+50	*	4.02	343.40
797+25		7.04	340.38
797+00		10.07	337.35
796+75		13.10	334.32
	T.P.	13.11	334.31
	0.34	334.65	
796+50		3.35	331.30
796+25		6.37	328.28

+7.753%

\*  
+12.1%

Cloudy and cool

May 1, 1930  
Sims/Sort.  
Moore-  
Remmen

B.M. #124 top of Air Valve Rt. 799+98.

			354.02
798+00		6.74	347.28
797+50		10.62	343.40
	T.P.	12.70	341.32
	1.93	343.25	
797+00		5.90	337.35
796+75		8.93	334.32
796+50		11.95	331.30
	T.P.	12.44	330.81
	1.41	332.22	
796+00		6.97	325.25
795+50	T.P.	13.02	319.20
		1.89	321.09
795+00		5.02	316.07
794+50		8.15	312.94
794+00		11.27	309.82
793+71		13.09	308.00
	B.M. = check	9.50	311.59

Finish stakes

May 1, 1930  
 Jimpson  
 Moore  
 Remmen

cloudy and cool

	334.65		
796+00		9.40	325.25
	+ 12.1%		
795+75		12.43	322.22
T.F.		12.44	322.21
795+50	0.95	323.16	
	*	3.96	319.20
795+25			317.64
795+00		7.09	316.07
	+ 6.257%		
794+75			314.51
794+50		10.22	312.94
T.F.		12.10	311.06
794+25	5.39	316.45	311.38
794+00		6.63	309.82
T.F.		4.87	311.58

311.62 check on B.M. 15' west sta. 793+45



793+71<sup>e</sup>

\*

308.00

793+50

308.00

793+25

0.0%

308.00

793+00

308.00

2.12

211.65

=check on B.M. Hub

311.62

2.12

313.74

792+81<sup>e</sup>

\*

308.00

T.F.

1.47

313.77

3.77

10.00

312.30

792+50

-25.0%

2.12  
11.65

6.55

315.75

T.F.

0.36

↑  
322.30

12.80

321.94

792+25

\*

12.74

322.00

792+00

-18.60%

8.09

326.65

791+75

↑  
334.74

3.44

331.30

	0.23	334.74		
T.P.			12.41	334.51
791+50			10.97	335.95
		-18.6%		
791+25 ✓		*	6.32	340.60
791+00			1.96	344.96
		↑		
		346.92		
T.P.	0.12		12.64	346.80
790+75			10.12	349.32
		-17.44%		
790+50			5.76	353.68
790+25				358.04
		↑		
T.P.	0.22	359.44	12.92	359.22
790+09.45 ✓		*	11.39	360.75 ✓
789+79.76 ✓			7.09	365.05
789+49.87 ✓			4.50	367.64
		↑		
		372.14		

789+19 <sup>89</sup> ✓	*	3.64	368.50
+04 <sup>22</sup> 2.40	↑	372.14	369.74 = B.M. 123
789+00			368.39
788+75	3.77	373.51	369.74 = B.M. 123
788+50		5.40	368.25
788+25	T.F.	5.54	367.97
	2.92	370.89	
788+00		2.06	367.83
787+75 ✓	*	3.19	367.70
787+50		3.53	367.36
787+25			367.03

+ 0.55%

+ 1.345%

A.V. 788+98

A.V. 788+98

clear and warm

5/20/30  
5.177 1507  
50/160  
Rattled

789+04<sup>22</sup> E.C. = 10' 0"  
788+75 = 7° 40.75'  
788+50 = 5° 40.75'  
788+25 = 3° 40.75'  
788+00 = 1° 40.75'  
787+79<sup>01</sup> B.C.

370.89

787+00 7.20 366.69

786+75 366.36

786+50 4.87 366.02

786+25 365.68

786+00 5.54 365.35

785+75 365.01

785+50 6.21 364.68

785+15<sup>03</sup> ✓ \* 6.69 364.20

784+85<sup>41</sup> ✓ 8.97 361.92

T.F. - 8.98 361.91

\* 1.345%

361.91

784+50 1.19 363.10

6.08 357.02

784+25

9.56 353.54

784+00

T.F.

+ 13.9430%

13.05 350.05

0.32

350.37

783+75

3.80 346.57

783+50

7.29 343.08

783+25

\*

10.77 339.60

T.F.

8.13

345.87

12.63 337.74

783+00

338.12

+ 5.90%

782+75

9.22 336.65

782+50

335.18

58

782+30<sup>13</sup> ✓  
345.87  
\* 11.87 334.00  
8.87 337.00 = C-3<sup>o</sup> Peg  
5db off

782+00<sup>13</sup> ✓  
\* 11.87 334.00 set to Grade

781+70<sup>14</sup> ✓  
10.98 334.89  
5.9 340.00 = C-5<sup>o</sup> - E

781+40<sup>26</sup> ✓  
8.30 337.57  
3.2 342.7 = C-5<sup>o</sup> - E

781+10<sup>59</sup> ✓  
T.P. 10.74 336.20  
\* 14.18 342.02  
9.7 346.5 = C-4<sup>o</sup> - E

781+00 12.33 343.88

780+85 9.68 346.52

780+75 348.28

780+50 ✓  
\* 8.52 352.68

11.98 T.P. - 3.13 353.07  
365.05

780+25 355.18

17.59%  
-9.99%

1.39 359.07

780+50 6.39 - 352.68

780+85 12.55 - 346.52

T.P. 12.56 - 346.51

2.21 348.72

781+10<sup>59</sup> 6.70 - 342.02

781+40<sup>26</sup> 11.15 337.57

T.P. 12.38 336.34

246 338.80

781+70<sup>14</sup> 3665  
21.5 3.91 - 334.89

782+00<sup>13</sup> 9.81 - 334.00

782+30<sup>13</sup> 9.80 - 334.00

1<sup>5</sup> Low 10' offset out o.k.

780+00		365.05	7.37	357.68
	7.34	T.F. 372.28	0.11	364.94
779+64 <sup>94</sup>			11.10	361.18
779+34 <sup>99</sup>			9.42	362.86
779+16 <sup>79</sup>	1.20		9.17	363.11
779+00	3.38	376.20	12.86	363.34 ✓
778+75			12.52	363.68 ✓
778+50			12.17	364.03 ✓
778+25			11.83	364.37 ✓
778+00			11.49	364.71 ✓
777+75			11.14	365.06 ✓

9.993%

\*

1.373%

367.68  
 10.19  
 377.87  
 5.06  
 372.81

376.20  
 23.11  
 399.31

777+50 ✓  
\* 376.20 10.80 365.40 ✓

777+25 10.78 365.42 ✓

777+00 10.75 365.45 ✓

776+75 10.72 365.48 ✓

776+50 10.70 365.50 ✓

776+25 10.68 365.52

776+00 10.65 365.55

T.P. 3.86 369.40 10.66 365.54

775+75 365.58

775+50 ✓  
\* 3.80 365.60 ✓



	369.40		363.73
775+25			
775+00	0.93	7.53	361.87 set
	369.51		368.58 = B.M. on AV.
774+75 <sup>18</sup>	+ 7.467%	9.50	360.01 <sup>r</sup>
774+37 <sup>50</sup> ✓	* 00%	12.31	357.20
774+07 <sup>50</sup>	* 00%	12.31	357.20
773+75			358.15
773+50	- 2.91%	10.64	358.87
773+25			359.60
773+07 <sup>50</sup> ✓	* 00%	9.40	360.11

5/20/80

772+75	369.51	360.85
772+50	8.09	361.42
772+25		362.00
772+00	6.94	362.57
771+75		363.14
771+50	T.P. → 5.83	5.80 363.71
771+25		364.28
770+95 <sup>19</sup> ✓	* 2.786%	4.56 364.98
770+65 <sup>13</sup> ✓		4.83 364.71



Small Spider

770+35<sup>19</sup> ✓ 369.54  
6.95 362.59

770+05<sup>48</sup> ✓  
0.82 \* 357.75  
T.P. → 10.93 358.61  
→ 12.61 356.93  
769+71<sup>80</sup> 3.74 354.01

769+75<sup>00</sup> +16.6%  
353.55

769+50 ✓ \*  
T.P. → 8.35 349.40  
0.15 345.20 12.70 345.05

769+25<sup>00</sup> 3.27 341.93

769+00 ✓ +29.88%  
T.P. 0.48 \* 332.91  
28.00  
8.91 10.74 334.46  
12.76 332.44

768+75 326.99

768+65<sup>3</sup> ✓ \* 314.00

767+75<sup>0</sup> ✓ \* 0.0% Trestle 324.00

16.6  
2.8  
132.8  
33.2  
964.8

27.68  
16.6  
166.08  
166.08  
276.8  
459.488

0.10 334.56 334.46  
2.4  
16.56

767+50

330.80

767+25

337.60

767+00

344.40

766+75

349.60

766+44

12.81 356.00 set

766+14

7.71 361.10 set

765+84

4.63 364.18 set

765+54

3.61 365.20 set

765+25

3.61 365.20 set

-27.2%

20.8%

vertical curve

0%

2.86  
373.39  
3.59  
368.81

8.17 370.53 = B.M. 119  
365.22

6/2/30

329.51

8.85

333.36

767+75

9.36 329.00

767+50

2.56 330.80

T.P.

12.29 344.59

1.01 332.35

767+25

6.99 - 337.60

767+00

11.87 356.27 T.P.

0.19 344.40

766+75

6.67 - 349.60

766+44

10.81 T.P. 356.81

0.27 356.00

766+14

5.71 - 361.10

A.V. Lt. 764+10

= check: 2.63 364.18

clear and Net.

5/23/30

Simpson

Seper

Remmen

5/23/30  
Simpson  
Soper  
Remmen

368.81

765+00 3.61 365.20 ✓

764+75 3.61 365.20

764+50 3.61 365.20

764+25 3.61 365.20

0.0%

764+00 3.61 365.20

T.F.

7.82

373.04

3.59 365.22

763+75 365.20

763+49<sup>88</sup> =  
763+22<sup>51</sup> 7.84 365.20 ✓

762+95<sup>17</sup> \* 7.84 365.20

762+65<sup>18</sup> ✓

373.04

8.86 364.18 set

762+35<sup>34</sup> ✓

vertical curve

1.63

361.71

T.P. →

11.94 361.10 set

12.96 360.08

762+1986

3.28 358.43

762+05<sup>78</sup> ✓

\*

5.71 356.00

761+75

12.11 349.60

T.P. →

0.29

348.91

13.07 348.62

761+50 ✓

\*

4.51 344.40

761+25

8.51 340.40

0%

761+00

12.51 336.40

12.51 336.40 = T.P.

0.50

+16.0

336.90

760+75

4.50 332.40

760+50 ✓

\*

8.50 328.40

5/23/30  
Simpson  
Soper  
Remmen

Clear and Hot.

~~5/23/30~~

5/27/30  
Simpson  
Soper  
Remmen

T.P.		336.90	12.82	324.08
760+25	0.81	324.89		
			1.59	323.30

760+00			6.69	318.20
--------	--	--	------	--------

759+75			11.79	313.10
--------	--	--	-------	--------

T.P.	0.30	312.20	12.99	311.90
------	------	--------	-------	--------

759+50			4.20	308.00
--------	--	--	------	--------

759+25			9.30	302.90
--------	--	--	------	--------

T.P.	0.03	299.48	12.75	299.45
------	------	--------	-------	--------

759+00				299.34
--------	--	--	--	--------

758+75			3.69	295.79
--------	--	--	------	--------

758+50				292.24
--------	--	--	--	--------

758+25			10.80	288.68
--------	--	--	-------	--------

x 20.4%

x

+ 14.22%

T.F. - 299.48  
 0.76 287.19  
 13.05 286.43

758+00 +14.22% 285.12

757+75 ✓ \* 5.62 281.57

757+50 8.36 278.83

T.F. - 1.26 275.55 12.90 274.29

757+25 11.11 276.08

757+00 2.21 273.34

756+75 +10.97% 270.60

756+50 7.69 267.86 <sup>642</sup>

T.F. - 1.18 263.74 12.99 262.56

756+25 265.11

756+00 ✓ \* 1.37 262.37



755+75		263.74	
+74 <sup>18</sup>			259.46
755+50	+ 11.64%		4.37 259.37
755+24 <sup>93</sup>	*		10.11 253.63
T.P.		251.93	12.91 250.83
754+95 <sup>30</sup>			2.98 248.95
754+66 <sup>15</sup>	Vertical Curve		10.06 241.87
T.P.		249.49	12.79 239.14
754+37 <sup>67</sup>	*		12.04 232.45
			11.04 233.45 = C1° in Bottom
754+00			2.21 242.28 = B.M. on
753+85	+ 5.305%		230.45
753+75			229.66
753+50	*		229.13
			227.80

11.64  
82  
2328.  
9312  
-095448

0.66      343.01  
            310.52  
            12.99  
            2.7  
            5.2

242.35

Guard Post of Bridge

753+25

227.25

753+00

226.70

752+75

226.15

752+50 ✓

225.60

752+25

225.68

752+00 ✓

225.75

751+77<sup>99</sup> ✓

225.82

751+48<sup>01</sup> ✓

227.05

751+18<sup>22</sup> ✓

11.33 230.57

242.10

+ 2.2%

\*

- 0.3%

\*

Vertical curve

6/5/30  
Simpson  
Seber  
Remmen

Σ.34

294.62

11.18

0.76 234.20

754+00

753+50

753+00

752+50

752+00

751+77<sup>99</sup>

751+48

+ 18<sup>22</sup>

242.28 B.M.

233.44

3.75 - 230.45

6.40 - 227.80

7.50 - 226.70

8.60 - 225.60 set 1 cut in bottom

8.45 225.75

8.38 225.82

7.15 227.05

13.63 230.57

748+54<sup>65</sup> ✓  
\* 3.54 320.40

748+25 1.91  
-8.0% 323.94  
T.P. → 1246 322.77  
322.03 ✓

748+24  
11.64 322.85 ✓

747+94<sup>65</sup> ✓  
\* 9.29 325.20 ✓

747+75  
9.29 325.20

747+50  
9.29 325.20

+40<sup>24</sup>  
0.0% 9.29 325.20

747+25  
0.0% 9.29 325.20 ✓

747+00  
9.29 325.20

746+75 ✓  
\* 9.29 325.20

746+50  
-5.76% 7.85 326.64

2.95 334.49  
331.54 = B.M. #

7.41 338.95

331.54 = B.M. A.V.

+ 28<sup>8</sup>

11.07 327.86 <sup>c6<sup>8</sup></sup>

746+25

328.08

12.08

339.94

327.86

746+05

10.71 - 329.23

746+00

329.52

745+60

8.12 - 331.82

5.76  
38.80

745+25

6.10 333.84 = Check

745+75

330.96

-5.76%

745+50

332.40

331.82

745+25

\*

5.11 333.84

T.P.

0.14 338.81

12.11 350.92

745+00

336.62

744+75

11.53 339.39

-11.106%

744+50

342.17

744+25

5.98 344.94

	7.41	338.95	331.54 = B.M. A.V.
+ 28 <sup>8</sup>			11.07 327.86 ✓ c6 <sup>8</sup>
746+25			328.08
746+00			329.52 27 923
745+75			330.96
745+50 ✓			332.40 34 331.82
745+25 ✓			5.11 333.84
T.P.			0.14 338.81
12.11		350.92	
745+00			336.62
744+75			11.53 339.39
744+50 ✓			342.17
744+25			5.98 344.94

576  
3800

-5.76%

\*

-11.106%

12.08	339.94	327.86
746+05		
745+60	10.71 -	329.23
745+25	8.12 -	331.82
	6.10	333.84 = Check

744+00 350.92 347.72

743+75 ✓  
11.37 \* T.P. 0.42 350.50  
361.87

743+50 ✓ 353.88

743+37<sup>64</sup> 6.33 355.54

743+25 ✓  
-13.5% 4.62 357.25

743+00 ✓  
T.P. 1.25 360.62  
0.22 361.65

742+81<sup>01</sup> ✓  
8.20 369.85  
\* 6.66 363.19

742+51<sup>08</sup> ✓  
\* 4.65 365.20

742+25  
12.52 0.0% 377.71  
4.65 365.20  
3.15 374.56  
374.60 = B.M. AV.

742+00 365.20

739+25 352.81 7.16 345.65

+17.8%

739+00 ✓ X 11.61 341.20

1.05 T.P. 341.04

738+75 338.25

738+50 ✓ X 5.74 335.30

+11.80%

738+25 332.35

738+00 ✓ X 11.64 329.40

2.02 T.P. 330.20

737+75 328.02

+5.5%

737+50 ✓ X 3.55 326.65

737+14 ✓ 99' X 5.48 324.72

736+84 ✓  
230.20  
5.85 324.35

736+50  
4.80 325.40

736+25 ✓  
4.11 326.09  
11.78 326.09 = Check of  
326.15

Grade hub sta 736+27 set 6/9/30

736+00 ✓  
10.97 326.90

735+65 ✓  
9.92 327.95

735+35 ✓  
7.90 330.47

735+00 ✓  
2.52 335.35

734+75 ✓  
0.36 337.87  
T.F. 11.97 337.51

734+50 ✓  
9.80 339.68

349.48. See Book #2 For THIS H.T.  
continued in next book.

326.09  
10.32  
336.41  
333.0

6/11/30  
Simpson  
Soper  
Remmen



5/24/30  
Simpson  
Super  
Remmert  
1.36

260.39

259.03

3.88 256.51 = Grade for  
Top of Pier

Grade For Trestle #37 = 256.00

## DIRECTIONS FOR USE OF TABLES

TABLE No. 1.

Distance of slope stake from side or shoulder stake for any width roadway, slope  $1\frac{1}{2}$  to 1. If ground is nearly level, the cut or fill at side stake is located by the double entry method in left column and top row. The number in body

of table in same row and column gives distance from side stake to slope stake. If ground is not

**IMPROVED TABLES**  
**AND**  
**INFORMATION**

TABLE No. 2.

Degree of curve with a given I may be found by dividing tangent (or external), opposite I by given tangent (or external). The distance from a point on the tangent to the curve is very nearly the square of the tangent length divided by twice the radius.

TABLE VI (continued)  
SINES, COSINES, TANGENTS, COTANGENTS (continued)

deg.	sin 0'	tan 0'	sin 10'	tan 10'	sin 20'	tan 20'	sin 30'	tan 30'	sin 40'	tan 40'	sin 50'	tan 50'	deg.
46	7193	1.0355	7214	1.0416	7234	1.0477	7254	1.0533	7274	1.0599	7294	1.0661	43
47	314	.0724	333	.0786	353	.0850	373	.0913	392	.0977	412	.1041	42
48	431	.1106	451	.1171	470	.1237	490	.1303	509	.1369	528	.1436	41
49	547	.1504	566	.1571	585	.1640	604	.1708	623	.1778	642	.1847	40
50	660	1.1918	7679	1.1988	7698	1.2059	7716	1.2131	7735	1.2203	7753	1.2276	39
51	771	2.349	790	.2423	808	.2497	826	.2572	844	.2647	862	.2723	38
52	880	2.799	898	.2876	916	.2954	934	.3032	951	.3111	969	.3190	37
53	986	3.270	8004	.3351	8021	.3452	8039	.3514	8056	.3597	8073	.3680	36
54	8090	.3764	107	.3848	124	.3934	141	.4019	158	.4106	175	.4193	35
55	192	.4281	208	.4370	225	.4460	241	.4550	258	.4641	274	.4733	34
56	290	.4826	307	.4919	323	.5013	339	.5108	355	.5204	371	.5301	33
57	387	.5399	403	.5497	418	.5597	434	.5697	450	.5798	465	.5900	32
58	480	.6003	496	.6107	511	.6212	526	.6319	542	.6426	557	.6534	31
59	572	.6643	587	.6753	601	.6864	615	.6977	631	.7090	646	.7205	30
60	660	1.7321	8675	1.7437	8689	1.7556	8704	1.7675	8718	1.7797	8732	1.7917	29
61	746	.8040	760	.8165	774	.8291	788	.8418	802	.8546	816	.8676	28
62	829	.8807	843	.8940	857	.9074	870	.9210	884	.9347	897	.9486	27
63	910	.9626	923	.9768	936	.9912	949	2.0057	962	2.0204	975	2.0353	26
64	988	2.0503	9001	2.0655	9013	2.0809	9026	.0965	9038	.1123	9051	.1283	25
65	9063	.1445	075	.1609	088	.1775	100	.1943	112	.2113	124	.2286	24
66	135	.2460	147	.2637	159	.2817	171	.2998	182	.3183	194	.3369	23
67	205	.3559	216	.3750	228	.3945	239	.4142	250	.4342	261	.4545	22
68	272	.4751	283	.4960	293	.5172	304	.5386	315	.5605	325	.5826	21
69	336	.6051	346	.6279	356	.6511	367	.6746	377	.6985	387	.7228	20
70	397	2.7475	9407	2.7725	9417	2.7980	9426	2.8239	9436	2.8502	9446	2.8770	19
71	455	.9042	465	.9319	474	.9600	483	.9887	492	3.0178	502	3.0475	18
72	511	3.0777	520	3.1084	528	3.1397	537	3.1716	546	.2041	555	.2371	17
73	563	.2709	572	.3052	580	.3402	588	.3759	596	.4124	605	.4495	16
74	613	.4874	621	.5261	628	.5656	636	.6059	644	.6470	652	.6891	15
75	659	.7321	667	.7760	674	.8208	681	.8657	689	.9136	696	.9617	14
76	703	4.0108	710	4.0611	717	4.1126	724	4.1653	730	4.2193	737	4.2747	13
77	744	.3315	750	.3897	757	.4494	763	.5107	769	.5736	775	.6382	12
78	781	.7046	787	.7729	793	.8430	799	.9152	805	.9894	811	5.0658	11
79	816	.1446	822	5.2257	827	5.3093	833	5.3955	838	5.4845	843	.5764	10
80	848	5.6713	9853	5.7694	9858	5.8708	9863	5.9758	9868	6.0844	9872	6.1970	9
81	877	6.3138	881	6.4348	886	6.5606	890	6.6912	894	.8269	899	.9632	8
82	903	7.1154	907	7.2687	911	7.4287	914	7.5958	918	7.7704	922	7.9530	7
83	925	8.1443	929	8.3450	932	8.5555	936	8.7769	939	9.0098	942	9.2553	6
84	945	9.5144	948	9.7882	951	10.0778	954	10.3855	957	10.7111	959	11.059	5
85	962	11.430	964	11.826	967	12.250	969	12.706	971	13.197	974	13.727	4
86	976	14.300	978	14.924	980	15.605	981	16.350	983	17.169	985	18.075	3
87	986	19.081	988	20.206	989	21.470	990	22.903	992	24.542	993	26.432	2
88	994	28.636	995	31.242	996	34.368	997	38.189	997	42.964	998	49.104	1
89	999	57.290	999	68.750	999	85.940	999	114.58	1.000	171.88	1.000	343.77	0
deg.	60'	60'	50'	50'	40'	40'	30'	30'	20'	30'	10'	10'	deg.
	cos	cot	cos	cot	cos	cot	cos	cot	cos	cot	cos	cot	

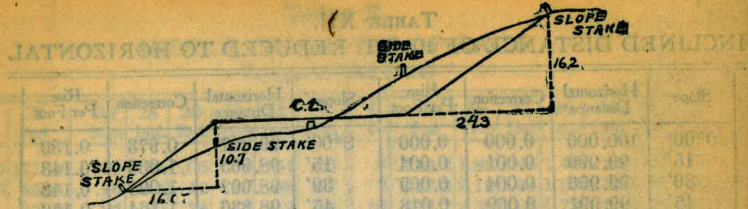
TABLE VII  
RODS IN FEET AND INCHES

Rods	Feet Inches	Rods	Feet Inches	Rods	Feet Inches	Rods	Feet Inches	Rods	Feet Inches
1	16-6	21	346-6	41	676-6	61	1006-6	81	1336-6
2	33-0	22	363-0	42	693-0	62	1023-0	82	1353-0
3	49-6	23	379-6	43	709-6	63	1039-6	83	1369-6
4	66-0	24	396-0	44	726-0	64	1056-0	84	1386-0
5	82-6	25	412-6	45	742-6	65	1072-6	85	1402-6
6	99-0	26	429-0	46	759-0	66	1089-0	86	1419-0
7	115-6	27	445-6	47	775-6	67	1105-6	87	1435-6
8	132-0	28	462-0	48	792-0	68	1122-0	88	1452-0
9	148-6	29	478-6	49	808-6	69	1138-6	89	1468-6
10	165-0	30	495-0	50	825-0	70	1155-0	90	1485-0
11	181-6	31	511-6	51	841-6	71	1171-6	91	1501-6
12	198-0	32	528-0	52	858-0	72	1188-0	92	1518-0
13	214-6	33	544-6	53	874-6	73	1204-6	93	1534-6
14	231-0	34	561-0	54	891-0	74	1221-0	94	1551-0
15	247-6	35	577-6	55	907-6	75	1237-6	95	1567-6
16	264-0	36	594-0	56	924-0	76	1254-0	96	1584-0
17	280-6	37	610-6	57	940-6	77	1270-6	97	1600-6
18	297-0	38	627-0	58	957-0	78	1287-0	98	1617-0
19	313-6	39	643-6	59	973-6	79	1303-6	99	1633-6
20	330-0	40	660-0	60	990-0	80	1320-0	100	1650-0

TABLE VIII  
LINKS IN FEET AND INCHES

Links	Feet Inches	Links	Feet Inches	Links	Feet Inches	Links	Feet Inches	Links	Feet Inches	Links	Feet Inches
1	0-7.92	18	11-10.56	35	23-1.20	52	34-3.84	69	45-6.48	86	56-9.12
2	1-3.84	19	12-6.48	36	23-9.12	53	34-11.76	70	46-2.40	87	57-5.04
3	1-11.76	20	13-2.40	37	24-5.04	54	35-7.68	71	46-10.32	88	58-0.96
4	2-7.68	21	13-10.32	38	25-0.96	55	36-3.60	72	47-6.24	89	58-8.88
5	3-3.60	22	14-6.24	39	25-8.88	56	36-11.52	73	48-2.16	90	59-4.80
6	3-11.52	23	15-2.16	40	26-4.80	57	37-7.44	74	48-10.08	91	60-0.72
7	4-7.44	24	15-10.08	41	27-0.72	58	38-3.36	75	49-6.00	92	60-8.64
8	5-3.36	25	16-6.00	42	27-8.64	59	38-11.28	76	50-1.92	93	61-4.56
9	5-11.28	26	17-1.92	43	28-4.56	60	39-7.20	77	50-9.84	94	62-0.48
10	6-7.20	27	17-9.84	44	29-0.48	61	40-3.12	78	51-5.76	95	62-8.40
11	7-3.12	28	18-5.76	45	29-8.40	62	40-11.04	79	52-1.68	96	63-4.32
12	7-11.04	29	19-1.68	46	30-4.32	63	41-6.96	80	52-9.60	97	64-0.24
13	8-6.96	30	19-9.60	47	31-0.24	64	42-2.88	81	53-5.52	98	64-8.16
14	9-2.88	31	20-5.52	48	31-8.16	65	42-10.80	82	54-1.44	99	65-4.08
15	9-10.80	32	21-1.44	49	32-4.08	66	43-6.72	83	54-9.36	100	66-0.00
16	10-6.72	33	21-9.36	50	33-0.00	67	44-2.64	84	55-5.28	101	66-7.92
17	11-2.64	34	22-5.28	51	33-7.92	68	44-10.56	85	56-1.20	102	67-3.84

419  
2  
0838



**DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING**

SLOPE 1½ TO 1. ROADWAY OF ANY WIDTH.

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	0 00	0 15	0 30	0 45	0 60	0 75	0 90	1 05	1 20	1 35	0
1	1 50	1 65	1 80	1 95	2 10	2 25	2 40	2 55	2 70	2 85	1
2	3 00	3 15	3 30	3 45	3 60	3 75	3 90	4 05	4 20	4 35	2
3	4 50	4 65	4 80	4 95	5 10	5 25	5 40	5 55	5 70	5 85	3
4	6 00	6 15	6 30	6 45	6 60	6 75	6 90	7 05	7 20	7 35	4
5	7 50	7 65	7 80	7 95	8 10	8 25	8 40	8 55	8 70	8 85	5
6	9 00	9 15	9 30	9 45	9 60	9 75	9 90	10 05	10 20	10 35	6
7	10 50	10 65	10 80	10 95	11 10	11 25	11 40	11 55	11 70	11 85	7
8	12 00	12 15	12 30	12 45	12 60	12 75	12 90	13 05	13 20	13 35	8
9	13 50	13 65	13 80	13 95	14 10	14 25	14 40	14 55	14 70	14 85	9
10	15 00	15 15	15 30	15 45	15 60	15 75	15 90	16 05	16 20	16 35	10
11	16 50	16 65	16 80	16 95	17 10	17 25	17 40	17 55	17 70	17 85	11
12	18 00	18 15	18 30	18 45	18 60	18 75	18 90	19 05	19 20	19 35	12
13	19 50	19 65	19 80	19 95	20 10	20 25	20 40	20 55	20 70	20 85	13
14	21 00	21 15	21 30	21 45	21 60	21 75	21 90	22 05	22 20	22 35	14
15	22 50	22 65	22 80	22 95	23 10	23 25	23 40	23 55	23 70	23 85	15
16	24 00	24 15	24 30	24 45	24 60	24 75	24 90	25 05	25 20	25 35	16
17	25 50	25 65	25 80	25 95	26 10	26 25	26 40	26 55	26 70	26 85	17
18	27 00	27 15	27 30	27 45	27 60	27 75	27 90	28 05	28 20	28 35	18
19	28 50	28 65	28 80	28 95	29 10	29 25	29 40	29 55	29 70	29 85	19
20	30 00	30 15	30 30	30 45	30 60	30 75	30 90	31 05	31 20	31 35	20
21	31 50	31 65	31 80	31 95	32 10	32 25	32 40	32 55	32 70	32 85	21
22	33 00	33 15	33 30	33 45	33 60	33 75	33 90	34 05	34 20	34 35	22
23	34 50	34 65	34 80	34 95	35 10	35 25	35 40	35 55	35 70	35 85	23
24	36 00	36 15	36 30	36 45	36 60	36 75	36 90	37 05	37 20	37 35	24
25	37 50	37 65	37 80	37 95	38 10	38 25	38 40	38 55	38 70	38 85	25
26	39 00	39 15	39 30	39 45	39 60	39 75	39 90	40 05	40 20	40 35	26
27	40 50	40 65	40 80	40 95	41 10	41 25	41 40	41 55	41 70	41 85	27
28	42 00	42 15	42 30	42 45	42 60	42 75	42 90	43 05	43 20	43 35	28
29	43 50	43 65	43 80	43 95	44 10	44 25	44 40	44 55	44 70	44 85	29
30	45 00	45 15	45 30	45 45	45 60	45 75	45 90	46 05	46 20	46 35	30
31	46 50	46 65	46 80	46 95	47 10	47 25	47 40	47 55	47 70	47 85	31
32	48 00	48 15	48 30	48 45	48 60	48 75	48 90	49 05	49 20	49 35	32
33	49 50	49 65	49 80	49 95	50 10	50 25	50 40	50 55	50 70	50 85	33
34	51 00	51 15	51 30	51 45	51 60	51 75	51 90	52 05	52 20	52 35	34
35	52 50	52 65	52 80	52 95	53 10	53 25	53 40	53 55	53 70	53 85	35
36	54 00	54 15	54 30	54 45	54 60	54 75	54 90	55 05	55 20	55 35	36
37	55 50	55 65	55 80	55 95	56 10	56 25	56 40	56 55	56 70	56 85	37
38	57 00	57 15	57 30	57 45	57 60	57 75	57 90	58 05	58 20	58 35	38
39	58 50	58 65	58 80	58 95	59 10	59 25	59 40	59 55	59 70	59 85	39
40	60 00	60 15	60 30	60 45	60 60	60 75	60 90	61 05	61 20	61 35	40
41	61 50	61 65	61 80	61 95	62 10	62 25	62 40	62 55	62 70	62 85	41
42	63 00	63 15	63 30	63 45	63 60	63 75	63 90	64 05	64 20	64 35	42
43	64 50	64 65	64 80	64 95	65 10	65 25	65 40	65 55	65 70	65 85	43
44	66 00	66 15	66 30	66 45	66 60	66 75	66 90	67 05	67 20	67 35	44
45	67 50	67 65	67 80	67 95	68 10	68 25	68 40	68 55	68 70	68 85	45
46	69 00	69 15	69 30	69 45	69 60	69 75	69 90	70 05	70 20	70 35	46
47	70 50	70 65	70 80	70 95	71 10	71 25	71 40	71 55	71 70	71 85	47
48	72 00	72 15	72 30	72 45	72 60	72 75	72 90	73 05	73 20	73 35	48
49	73 50	73 65	73 80	73 95	74 10	74 25	74 40	74 55	74 70	74 85	49
50	75 00	75 15	75 30	75 45	75 60	75 75	75 90	76 05	76 20	76 35	50

Computed by L. Leland Locke.

62.50

03.99  
75.00  
28.99

2.33  
4

2.33  
46  
9.32

1165  
332  
10985

.22  
90  
1980  
28.5  
19.09

2.33  
55  
1165  
1165  
1.2815

352  
4714.09

2.33  
6  
1.398

.625  
.23  
1875  
1250

368.39

$$\begin{array}{r} 311.62 \\ - 2.78 \\ \hline 314.90 \\ - 18.51 \\ \hline 589 \end{array}$$

15

110 25

$$\begin{array}{r} 317.37 \\ - 9.74 \\ \hline 327.13 \\ - 24.51 \\ \hline 262 \end{array}$$

500

400

$$\begin{array}{r} 805 + 35.19 \\ 804 + 39.84 \\ \hline \end{array}$$

301.67

286.78

14.89

9530 : 14.89 = 100.1x

$$\begin{array}{r} 18.62 \\ 9530 \overline{) 14890} \\ \underline{9530} \\ 53600 \\ \underline{47650} \\ 59500 \\ \underline{57180} \\ 23200 \\ \underline{19060} \\ 4140 \end{array}$$

235  
229.1

6.6

$$\begin{array}{r} 3.90 \\ 9 \overline{) 1562} \\ \underline{351} \\ 1562 \\ \underline{7810} \\ 4686 \\ \hline 5482.62 \end{array}$$

263.8  
259.40

3.3

4.9

$$\begin{array}{r} 229.7 \\ - 10.2 \\ \hline 239.9 \\ - 4.2 \\ \hline 2357 \end{array}$$

$$\begin{array}{r} 256.55 \\ - 46 \\ \hline 261.15 \\ - 69 \\ \hline 267.55 \\ - 3.75 \\ \hline 263.80 \end{array}$$

$$\begin{array}{r} 8 \\ - 16 \\ \hline 336 \end{array}$$