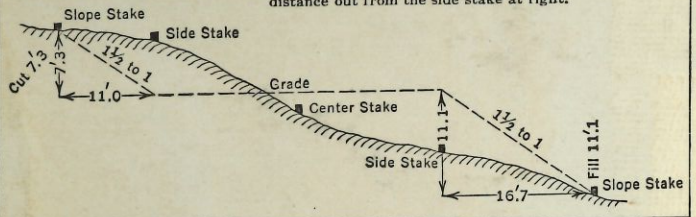
LIME ORE.
1953
Oregon Portland
Cement Co.

DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING

Roadway of any Width. Side Slopes 1½ to 1.

In the figure below: opposite 7 under "Cut or Fill" and under .3 read 11.0, the distance out from the side stake at left. Also, opposite 11 under "Cut or Fill" and under .1 read 16.7, the distance out from the side stake at right.



Cut or Fill	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	Cut or Fill
	Distance out from Side or Shoulder Stake										
0	0.0	0.2	0.3	0.5	0.6	0.8	0.9	1.1	1.2	1.4	0
1	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.7	2.9	1
2	3.0	3.2	3.3	3.5	3.6	3.8	3.9	4.1	4.2	4.4	2
3	4.5	4.7	4.8	5.0	5.1	5.3	5.4	5.6	5.7	5.9	3
4	6.0	6.2	6.3	6.5	6.6	6.8	6.9	7.1	7.2	7.4	4
5	7.5	7.7	7.8	8.0	8.1	8.3	8.4	8.6	8.7	8.9	5
6	9.0	9.2	9.3	9.5	9.6	9.8	9.9	10.1	10.2	10.4	6
7	10.5	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	11.9	7
8	12.0	12.2	12.3	12.5	12.6	12.8	12.9	13.1	13.2	13.4	8
9	13.5	13.7	13.8	14.0	14.1	14.3	14.4	14.6	14.7	14.9	9
10	15.0	15.2	15.3	15.5	15.6	15.8	15.9	16.1	16.2	16.4	10
11	16.5	16.7	16.8	17.0	17.1	17.3	17.4	17.6	17.7	17.9	11
12	18.0	18.2	18.3	18.5	18.6	18.8	18.9	19.1	19.2	19.4	12
13	19.5	19.7	19.8	20.0	20.1	20.3	20.4	20.6	20.7	20.9	13
14	21.0	21.2	21.3	21.5	21.6	21.8	21.9	22.1	22.2	22.4	14
15	22.5	22.7	22.8	23.0	23.1	23.3	23.4	23.6	23.7	23.9	15
16	24.0	24.2	24.3	24.5	24.6	24.8	24.9	25.1	25.2	25.4	16
17	25.5	25.7	25.8	26.0	26.1	26.3	26.4	26.6	26.7	26.9	17
18	27.0	27.2	27.3	27.5	27.6	27.8	27.9	28.1	28.2	28.4	18
19	28.5	28.7	28.8	29.0	29.1	29.3	29.4	29.6	29.7	29.9	19
20	30.0	30.2	30.3	30.5	30.6	30.8	30.9	31.1	31.2	31.4	20
21	31.5	31.7	31.8	32.0	32.1	32.3	32.4	32.6	32.7	32.9	21
22	33.0	33.2	33.3	33.5	33.6	33.8	33.9	34.1	34.2	34.4	22
23	34.5	34.7	34.8	35.0	35.1	35.3	35.4	35.6	35.7	35.9	23
24	36.0	36.2	36.3	36.5	36.6	36.8	36.9	37.1	37.2	37.4	24
25	37.5	37.7	37.8	38.0	38.1	38.3	38.4	38.6	38.7	38.9	25
26	39.0	39.2	39.3	39.5	39.6	39.8	39.9	40.1	40.2	40.4	26
27	40.5	40.7	40.8	41.0	41.1	41.3	41.4	41.6	41.7	41.9	27
28	42.0	42.2	42.3	42.5	42.6	42.8	42.9	43.1	43.2	43.4	28
29	43.5	43.7	43.8	44.0	44.1	44.3	44.4	44.6	44.7	44.9	29
30	45.0	45.2	45.3	45.5	45.6	45.8	45.9	46.1	46.2	46.4	30
31	46.5	46.7	46.8	47.0	47.1	47.3	47.4	47.6	47.7	47.9	31
32	48.0	48.2	48.3	48.5	48.6	48.8	48.9	49.1	49.2	49.4	32
33	49.5	49.7	49.8	50.0	50.1	50.3	50.4	50.6	50.7	50.9	33
34	51.0	51.2	51.3	51.5	51.6	51.8	51.9	52.1	52.2	52.4	34
35	52.5	52.7	52.8	53.0	53.1	53.3	53.4	53.6	53.7	53.9	35
36	54.0	54.2	54.3	54.5	54.6	54.8	54.9	55.1	55.2	55.4	36
37	55.5	55.7	55.8	56.0	56.1	56.3	56.4	56.6	56.7	56.9	37
38	57.0	57.2	57.3	57.5	57.6	57.8	57.9	58.1	58.2	58.4	38
39	58.5	58.7	58.8	59.0	59.1	59.3	59.4	59.6	59.7	59.9	39
40	60.0	60.2	60.3	60.5	60.6	60.8	60.9	61.1	61.2	61.4	40

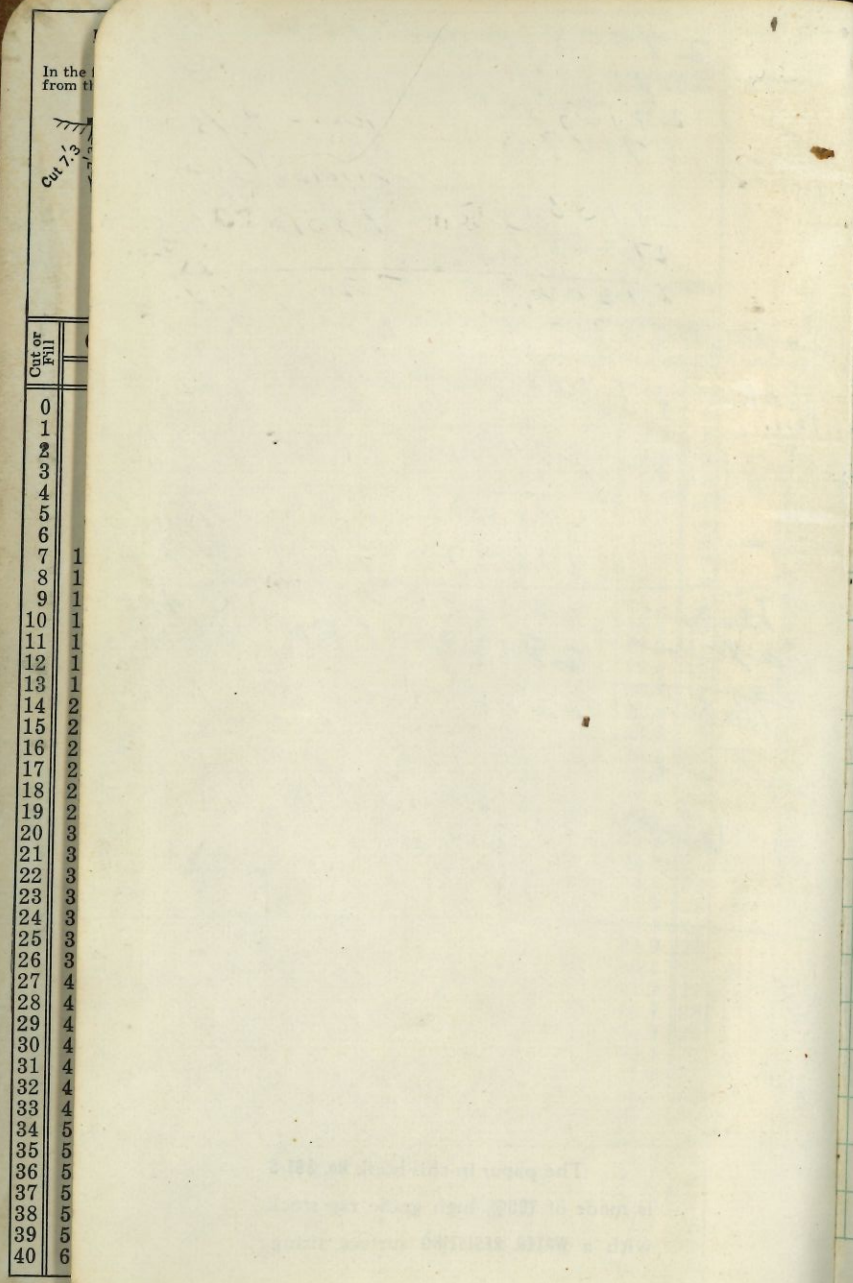
KEUFFEL & ESSER CO., N. Y.

27005.8 Baker 7 AM 8/31/53
27101.4 6:25P 8/31/53
27103.2 7am 9/1/53
27149.6 835a 9/1/53
27153.1 5:15PM 9/1/53
27201.7 630PM 9/1/53
27202.9 7 am 9/2/53
Baker 27305.2 655P 9/2/53
Baker 27401.0 625PM 5/10/53

7)952(136 27499 650PM 9/4/53
7 27508.3 7AM 9/8/53
25 27609.2 7PM 9/8/53
21
Baker 28028.7 7AM 9/14/53
Baker 28123 6PM 9/14/53
Baker 28222.1 6PM 9/15/53
H Line 28273.6
Baker 28320.5 7PM 9/16/53
27005.8
1314.7 1315 mile

45
260

091
041
046



Survey for Oregon Portland Cement Co. Lime Ore

started 8/31/53

Photo H. Anderson

ME Staight

clear day 8/31/53 (1)

Cut or Fill						
0	S82°48½'W	69°37½	-1153.6	-14°54' Top on 11	1077.35	-286.62
1	N13°11½'W	0°00				
2						
3						
4	N84°43'W	109°11½'R	23.6'	-10°20'	1458.43	-265.92
5	N84°43'W	109°11½'R	1495 N	-10°21' Top on 12	1446.91	264.28
6	N13°11½'W	81°41'R		-6°45' Ground		
7			23.6'	-10°20' Top	1458.43	
8	△61.5"			-6°07'		
9	Hi		1165	Btm on 7.	1153.18	-12.34
10						
11	△ Hi = 61.5" to Ground					
12	S85°07½'W	72°06½'L	1175	Shot 7.5 level	1175	
13	N	107°53½'R	758.6	-4°51'	753.18	-63.91
14		107°53½'R				
15	N22°46'W	0°00'		-7°13' To ground		
16			20.4'	+3°36'	1689.62	106.17
17		1	1698.4	+3°34'	1691.95	+105.47
18		107°54'		-7°13'		
19	△	Hi 58½" to 47½"				
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						

Top on 11 to △ Hub 76

$\frac{5232}{5768} \times 2 = 1153.6$

Signals

1691.95
753.18
938.77

23.6' Between Targets 10' apart,

12
$\frac{4524}{7476} \times = 1495.2$

To Signal on Knob 5

24' 1°58' = 5)118'
23.6' = 23.6'

17860
10753
7206

10
2.414
7586

Top on 10. To △ E/side Spring.

To △ on Side Hill E of Spring
on △ on Knob Point

42' = 5)102'
20.4' } Angle between Targets 10' apart

Top on 12
12
3508
8492
16984

107°54'
215 47 = 2)107°53½'

8/31/53
Clear (1)

In the ... from th...

Cut 7.3'

Cut or Fill	
0	
1	
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3	
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37	
38	
39	
40	

=N44°07¾'E 51°09¾
=N89°30¼'E 5°46.75'L
=S84°43'E 0°00'
R on △28

To △E' on Bu He.
To △29
To △ on Crest E of Sec Cor

△29
N89°30¼E Lt 41.2' 185.5'
R 82°22' 34.3
+11°40
Stm on 7. 177.91 +36.73
+13°13' 32.51 +7.63
Stm on 13

To △29 (=S.0°26½'E
2 Sec Cor

62 7/8" = 76 to 75
Fall 0.25' N of 75

△76
FS on Stub on Side Hill E of Sec Cor

8/31/53 Clear

Cut or Fill	
0	
1	
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39	
40	

In the f... from th...

Cut 7.3'...

S 7°57½' E R 5°55'	1186.4	+5°10½' Top on 10	1176.76	+106.60	
S 22°46' E R 40°07½'	24.8'	+7°04' on 5	1388.31	+172.10	
	1416	+7°05' on 12	1394.41	+173.25	
	26'	+6°39' on 5	1333.22	+155.44	
	25.8'	+6°39' Top on 12	1331.91	+155.25	
= S 13°11½' E R 49°41'	1350				
= N 77°12¼' W R 16°40½'					
= S 44°07½' W R 10°00'					
= S 22°46' E R 40°07½'					
= S 62°53½' E 0°00'					
R Δ at E					

8831
9441
18272
1391.36
13

708
5
208

173.2
2
1
171.1

To Δ 30 { 53.32

10
4048
5932 x 2 = 1186.4

5)124 (24.8
10
28

2°09' = 5)129 (25.8
25.8

12
4920
1416 2x 7080

12
5250
6750 x 2 = 1350

} To Δ on Crest of Sec
{ 675 / 5 / 135

To Δ with New Numbers

To Δ 28

To Δ W of Spring

On Side hill E of Spring

	N	E
28	10041.09	14739.11
PE	11213.57	15876.60
	1172.48	1137.49

$\frac{1137.49}{1172.48} = .97015727 = \text{Tan } 44°07.931$
$= 07.56''$

Sine = .6963259 (Calc 1137.51)
Cos = .7177353

33+70.05
3.67.31
30+07.74

21.25 / 35.36	10 011,84	15101.42
Δ 28	10041.09	14739.11
	29.25	362.31

Δ 36+74.47
N 89°30.5' E 98 +4°05' Bt m on 4 97.50 +7.96
Δ 35+77.10
N 89°30.2' E 596 +12°46 Top on 10 569.36 +123.13
R Δ At 34
596 -12°12' Top on 10 Shot Rock

8/31/53 Clear (4)

27°37 / 45°23 / 73°00 / 107°00 / 180°00

$b = \frac{a \sin B}{\sin A} = \frac{1633.58 \times 7118218}{4635538} = 2508.4852$

$C = \frac{a \sin C}{\sin A} = \frac{1633.58 \times 9563048}{4635538} = 3370.0519$

$b = \frac{c \sin B}{\sin C} = \frac{3370.0519 \times 7118218}{9563048} = 2508.4852$

Δ 34
27°37'
3370.0519
N 89°30.5' E
C
73°
107°
2508.4852
562°52.5'
B
N 44°07.5' W
1633.58
Δ 28 (10041.09 – 14739.11

needle reads 69°50' = (20°10 + 30 = 20°50 Var E

Get This Dist. (Rod)

HI = 57.5'

10.4040 / 5960

4 hours Evening PM's 8/31/53

4 ✓ ✓ PM's 9/1/53

2 ✓ ✓ PM's 9/3/53

2 ✓ ✓ PA 9/4/53

---

4 hours PM's Eve PA 10/10/53

8 ✓ PA 10/11/53

8 ✓ dog PA 10/12/53

8 " dog PA 10/13/53

2 " end

8 " PA 14/53

8 hrs PA 15/53

8 hrs PA 16/53

8 hrs PA 10/17/53

Δ 30+07.61

N 89-30 E 3370.05 99996 00867

Δ 28

26/25
35/36

(5)

10070.31 - 18109.03

N 29.22 E 3369.9✓

10041.09 14739.11

10011.84 15101.42

△ 48+70.79

North 1571.0 +6°49 Topaz 12 1548.85 +185.14

△ 33+21.94 HI 4.85

North 442.9 +9°21 Topaz 10 431.21 +71.0

N 85° W 714' Btm on 3

180°24 S5°24'W 253 248.98 -31.59

△ 28+90.73 HI = 5.1

North 770.4 +4°00 Topaz 10 766.63 +53.6

△ 21+24.10 HI 5.0

North 1370 +5°11' Topaz 12 1358.83 +123.3

△ 7+65.43 HI 5.05

North 767.5 +3°04 Topaz 10 765.27 +48.66

N24°58'W 88.2

△ 52+70.1 HI 5.1

95°27 S84°33'E 288 0°15' Btm on 3 288

△ 49+82.1 HI 5.1

N89°30½'E 1383 -13°30' Topaz 12 1307.63 -313.94

N89°30½'E 65 -12°00 Btm on 4 62.19

△ 36+74.47 on Ridge H.I. Rod 5.15 ft. (By New Topo)

9/1/53 Clear & Windy (6)

1571.0 × 7855

12 / 41.95

10 / 5571 / 4429 9736

Range

To 1/4 Cor S 58° = 2641.75

553 / 3 / 253

10 / 2296 / 7704

N50°30'W

T.2 S To Fence NE

12 / 5150 / 6850 ×2 1370

10 / 2325 / 7615

Rock in S. Power Pole

Sec Cor. & Mound Stone in Flat. 25/36 (Needle 20°50' E.

588 / 3 / 288

12 / 5085 / 6915 ×2 13830

Hub on Brow of Hill = 37+66.66

(159) + 10.4 = 26.2

△ 43+76.2

(Targets 11th point?)

26.975 53.95'

West 767 −17°28' 700.27 Chained 701.87

N27°28E −17°21' 699.23 −N18°47

+7°32'

△ 36+76.98 (95) H1 5'

West 969.2 −17°50' 9.5+10.4=19.9 878.29 Double −282.52

(0056213) Top on 10

19.325 3865 on 5° −17°50' (889.47)

(1164) △ 27+98.69 H.I. 4.7

West 151 −15°45' 16.7+10.41=12.08

Btm on 3 139.88 −39.45

(39) △ 26+58.81 HI 5.3 2657.03

West 742.8 −2°00' Top on 12 741.91 −25.92

S 89°08½' W 698.8 −1°35' 698.28 −19.29

26 90 8½'

West −2°00' Top on 12

△ 19+16.9 HI=5'

West 165.2 +0°42' 1651.8

Top on 14 1652 +20.13

△ 2+64.90 HI.=5°

West 59.2 + 5°30' 58.66 +5.65

Btm on 3

△ HI 5 = 2+06.24

270° West 244.5 +23°18' 206.24 +38.83

Btm on 5

△ 52+81.6 H.I. 5°

352°05' N7°55W 414 +5°02' 410.81 +36.18

Btm on 4

△ 48+70.89 HI=49

4388.01

54' 429.75

5) 269.75

53.95

Per Pole 13

To Here 9/11/53

Traverse (7)

9110.5

2840.5

Top on 10

To Top of Hood at Beacon

10 23.25

−767.5

−18.46 Top on 10

9062

2915

3686.14

(chained 888.01)

3°13.25 = 193.25

38.65'

10.00

5.154

4.846

969.2

−18°03' Top on Hub

2798.13

9062

2615

10.41

.139

10.30

9½/53

501

35

1.51

Single 12 4572

7428

−2°00' Top on 12 = 26+15.18

10 30.23 Single

6988

Single Shot 12 3740

Beacon Bears +2°15' Top on Hood

N1°42'W 358.2 Top on Hood

1452 = 2 × 5260

Needle 20° E

3592

3

597

8435

3683

7445

2

7445

24

25

Stand by down

814

4

414

+5E

Coordinates (8)

Sta.	Bearing	Dist	Sine	Cos	N	S	E	W	N+	E+
									10070.31	18109.03
△ 30+07.24										
	N 85° 07' 1/2 E	938.77	.99638	.084985	79.78		935.37			
△ 20+68.97	Set up Hub at N 85°00' E 569.56		+5°51'	Topo 10 = 563.61					9990.53	17173.66
= 85°00'14.2"	S 85°00.24' W	564.26	.996200	.087086		49.14		562.12		
1/4 25/36	If Halfway Between Sec Cprs.								10039.67	17735.78
	N 89° 23.7' E	2634.51	.010562	.999944	27.83		2634.36			
24 25 / 35 36									10011.84	15101.42
	(S 89° 23.6733' W) = S 89° 23.40.7" W	S 526.40	.010562	.999944		55.66 / 48.13		526.87	10059.97	
25 / 36	△ 52+70.2								10067.50	20370.15
	S 84° 33' E	288.0	.99548	.09498		27.35	286.70		10087.32	
△ 49+82.23									10094.85	20083.45
	N 89° 30.5' E	1307.63	.99996	.008585	11.23		1307.58		10076.09	
△ 36+74.60									10083.62	18775.87
	N 89° 30.5' E	97.5	.99996	.008585	0.84	8.31	97.5			
△ 35+77.10									10075.25	18678.37
	N 89° 30.2' E	569.36	.99996	.00867		4.94	569.34			
△ 34 = 430+07.24									10070.31	18109.03
	N 89° 30.2' E	3370.05	.99996	.00867	29.22		3369.92			
△ 28									10041.09	14739.11
	S 89° 30.2' W	540.26	.99996	.00867		4.68		540.29		
△ 29									10045.77	15279.31
	N. 79° 12.2' E	181.09	.98226	.18735	33.93		177.89			
26 25 / 35 36									10011.84	15101.42

25/30
36/31

S 0°30'28.75"E 2642.96 008865 9999607

S 0°30.4793'E

1/4 25/30

0°43'16.8" E 2635.03 0125843 9999208
0°43.2629'

24/19
25/30 52+81.60

N7°55W 410.81 13773 99047

△ 48+70.79

North 1548.85

△ 332.94

North 431.21

1/4 Cor 25/30 S.5°24'W 248.98 09411 99556

△ 28+90.73

North 766.63

△ 21+24.10

North 1358.83

△ 7+65.27

North 765.27

25
36

S 77.68

2642.86 23.43

2634.82/8 33.15

406.89

1548.85

43.21

247.87

766.63

1358.83

765.27

56.58

23.43

10067.50	20370.15
12710.36	20346.72
15345.18	20313.57
14938.29	20370.15
13389.44	20370.15
12710.36	20346.72
12958.23	20370.15
12191.60	20370.15
10832.77	20370.15
10067.50	20370.15

23 | 24
24 | 25

S65°17.2W 195.82 90840 41810

Δ 43

N44°40'W 915 10598 71121

S86°06'W 2440.7 99768 06802

Δ 49+64.69

West 588.65

Δ 43+76.04

West 699.23 700.27

Δ 36+76.81

West 878.29 885.47

Δ 27+98.52

West 139.88

Δ 26+58.64

West 741.91

Δ 19+16.73

West 1916.73

24
25

N89°46'14.1"E 0°3'45.9" 46.235E 0°13.765' 2614.95 00400 9999921

1/4 24/25 at 2614.93 & run 10.46' N

S89°08'W 698.28 99989 01498

Δ 19+16.73

West 1651.83

Δ 2+64.90

West 58.66

Δ 2+06.24

West 206.24

24
25

= S89°52'W

8.88

17788

15328.38 15126.88 (10)

15410.26 15284.56

6508

1660

6432

74350 → 15328.58 15105.38

15345.18 15348.88

58865

15345.18 15937.53

69923

15345.18 16636.76

87829

15345.18 17515.05

139.88

15345.18 17654.93

741.91

15345.18 18396.84

1916.73

15345.18 20313.57

1046 2614.93

15334.72 17698.64

1046

69820

15345.18 18396.84

1651.83

15345.18 20048.67

58.66

15345.18 20107.33

206.24

15345.18 20313.57

△

S89°25'W +7°56'
Topo 10

26+37.49 Intersect N-S Quarter Line (8.8)
=26+32.1 S89°25'W 258.5 Level 258.5 (8.7)

△ 23+73.65 H1 5.1.5 (7.9)
S89°25'W 208.5 +0°06' 208.5
Blm 3

△ 21+65.15 H1 5.2 (7.2)
S89°25'W 588.0 +0°20' 588
Topo 10

△ 15+77.5 H1 5.1 (5.2)
S89°25'W 791.5 -7°18' 779.36
Topo 12

△ 7+97.79 H1 4.95 (2.65)
S89°25'W 349 -1°06' ~~349~~ 348.6
BTM on 5

△ 4+48.73 H1 5.1 (1.49)
S89°25'W 175.0 +1°09' 174.92
BTM on 5

△ 2+74.01 H1.5.0 (0.91)
S89°25'W. 275.0 +10°34' 274.01
BTM on 5
N5°24'E

1/4 25 H1 4.5

continued

Ridge 15

on Ridge East of Cliff

10
3724

9810
+367 (no shot)

East Stradale Hub

Quarter line
5,374 chains

4585
5
1585 Stonewall 0.75

5085
5
708.5

10
7120
5880

9/4/57

one
.0017

one
0058

50

12
4085 (35)
7915

9839
1960

849 59996
5 01942
349

5°

4996
0201

Flag in Fence

9664
1903

71
023

To △ 28+9.0 73

9/4/57

△ 12+54.74					
⊗	S0°24'E	566.5	-4°0' Top on	563.67	+40.6
△ 6+96.07					
	S0°24'E	179	+4°42' Btmon1	177.80	+14.1
△ 5+18.27					
	S0°24'E	385.8	+11°20 Top on 8	370.91	+74.34
	N10°07'E				
△ 1+47.36					
	S0°24'E	157.5	+14°4' Btmon 5°	147.36	+38.67
	N89°08'E				
1/4 24 / 25	Ht 1.3.7 above Sor.				

9950
0707

9933
0817

9614
1927

To Beacon

Needle Reads 2½° white gun S.E. on this Bearing.

To △ 19+16.9

146.51

29
000145
000435

147.36
000435
73680
44208
58944
0641.0160

990
310

10
4335
5665

279
1
179

8
4142
3958

9356
2455

6575
5
1575

21.1
10
31.5
17.5
14.0

315
15.6
15.9

523887
520840
2.97

44°40
Sine 70298 Cos 71121
915 915
643.2 650.8

5815
490
915

To Sec Cor
To Bearing
14 x 60 Stake

523887

9647 Sine 99488 = 144°05'
1846 Cos 1571 = 2 26 = 34.3 Alt = 539.45 W

9499 4996.24
4947
7181 10 3803
6197

653
4 253

continued from page 7

245°30' S65°30' W
1435.9 VE

map corr 65 feet N

+10°10
To Top

△ 43
315°20' N44°40 W 915 -0°14' Elev = 49 91.5
23/25 | 24/25 = 52°08.90 Fall 23.6 3' N 3 Cons.
S86°06' W 253 -10°50' BT mark 244°07 -46.10
266°06'

△ 49+6486 (41.1)
West 6197 -12°56' Top on 10 58865 -153.7
△ 43+76.2 HI 4.9

Chained 608 2-3

9/3/53 clear & windy

other mes

12259.74
4021.11
5280.95
2636.56
2644.39

39+76.94
421
40+19.00
12+59.72
5278.72
2636.56
2642.22

84+17.78
40.05
88+11.76

Δ40+21.11
N0°25½'W 601.5 +11°44' Topon 12 5716.60 119.76

=39+76.94 N0°25½'W 556.0 +11°53' Topon 10 5324.3 112.03

Δ34+44.51 HI=
N0°25½'W 233 +23°02' Bluem 5 1973.3 +839.0

Δ32+47.18 HI=5°5
N0°25'W 243 +27°42' Other 7 1904.9 +100.02

Δ30+56.69 HI 4.7
N0°25'W 465.5 +31°23' Topon 10 3392.6 +206.95

Δ27+17.43 HI 4.5
N0°25½'W 1479 +1°47' Topon 12 1477.52 +46.0

337.45

=23+33.07 N0°25½'W 1101.2 +4°54' Topon 10 1093.16 +93.1

Δ12+39.91 HI=5°
N0°25½'W 1055 Level Other 7 1055

Δ11+34.41 HI=5.0.5
N0°25½'W 1140 +4°00' Topon 12 1134.41 +79.34
N0°26'W

1/4 25/36
H.I. 4.85

57.66
53.43
4.17

N9.73'E
9586
1991

Δ 9576
2015

12
5985
6015

10
4470
5560
42.1

8465
3601

7839
4116

7288
444575

9990
0311

9927
0851

7951
0696

To Δ 12+59.74

7334
5
2333

943
7
243

1/6345
4655

12
4620
7380 = 1479

10
4494
5506 = 1101.2

8055
7
1055

12
6300
540 x 2 = 1140

97598

21786
85
108930
17428.8
1843

2637.49
1326.12
3963.61
3808.57
155.04

28° 37½' W
28° 5½' W

Point 16½ North Z.

N89°37E To △49+12.76

Level Rod 4.2

S77°25W 85.0 Level To Hub 5.05 4.2 85

S30°04'W 116.5 +4°6 Stn on 3.6

N2°37½E

N0°15'W

N3°28½'E

N4°56'E

269°55 S89°55½'W

¼ 26 Φ25 at 52+90.23 N fall

S87°56'W 378.0 -2°10' Top on 8 377.47

△49+12.76 (16.2)

931.0
25.35

1335.2 -15°14' Top on 12 1243.07

(12.6)

-3808.59 S89°25'W 148 -14°18' Stn on 6 1389.7

S2°09'E (148) -14°18' Stn on 6

△36+69.69 (12.2) on Curb

S89°25'W 710.0 +11°31' Top on 12 681.71

△29+87.71 (9.8)

S89°25'W 368.5 +12°5½' Top on 8 350.22

R89°18'

F.S. 0°00

△26+37.49 N8.8

5289.72
2637.49
2652.23
1326.12
663.06
331.53

6675 3 12°30 9532

360°00
87.56
272°04
269°25'
2°39' Sine 046228 Cos 999893

At 52+89.72 N fall
17.45 ft South of ¼ Cor.

37696 = W82.96
49126
5289.72

4765
36
4729
3165

3 Fan Side 2 Root

To Beacon +6.00'

To Flag at Section ½ mile N

To △43 1951 Survey

To △49+64.86 on N Bdy Road

To Hub on N line of 1951 Survey Sine Bur Cos 001305

Stack 10.99' N.

9986
0378

8
4220
3780

12
5324
6676 ÷ 2 = 1335.2

9394 S86°23'W 239.3 -11°22 Top on 12 To Post

12 3975 80.25 x 2

-11°29 Top on 12 S35°23'W 12 3856 8164 x 2 16328 = 1568.14

To ¼ 25 36

9604 9691.5 1951

12 4900 710.0

8 4315 3685

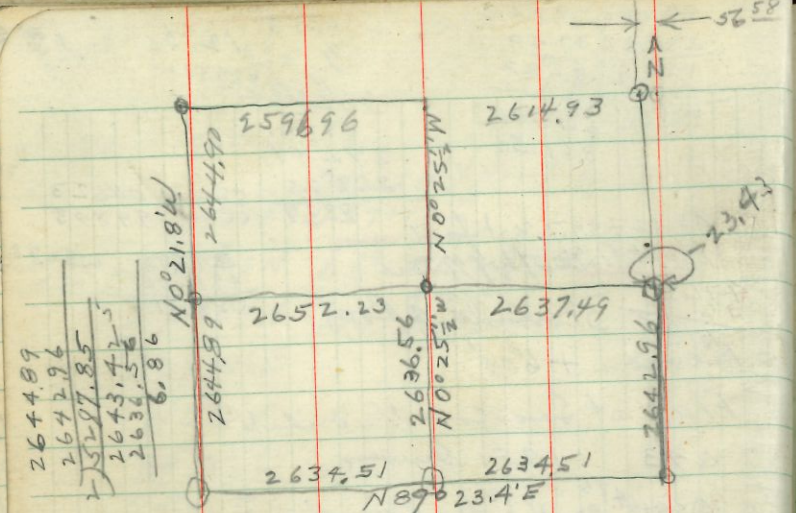
To △29+87.7 on E W Road on

¼ 25 36

continued from Page 11.

Pawnee

Tolleson 9/4/53 Clear - Cool Early, But Hot later on job, some Wind



2644.99
2642.96
5287.95
2643.48
2636.56
6.92

← actual Stadia Readings before Balancing

△ 26+36.56 Center of Sec

Center ¼ Cor

331.5 + 16°54' Bt mon = 303.49

1st Kink South of above

△ 23+33.07

△ 39+63+61 3rd 16th Cor

N89°37'E 0.87 Level

△ 59+63+74

S89°37'W 173 -18°37' Btmon 5 155.17

S89°37'W -18°46 Btmon 6

△ 38+08.57

5515
2
331.5

9155
2781

23330.7
303.49
2636.56

9155
3315
45775
9155
27465
27465
673
303.48825
8981
173
26993
62867
8981
155.1713
155 av
.17

673
3
173

8981
30256

7595
6
1595

8965
3046

1595
5946
9570
6380
14355
12760
142.6870
156.04

T & Hwy 9/19/57

Mowe
appx
MES
Neal McLean

{330M 27662.2
SPM 27709.2
47.0

27609.2, 15 PM
27508.37 air
1009 miles Tadeus
789
309 off the Highway

Marie – 32°
8+805

18+38.78

1786 48

13+05 32

12+63 36

11+92.77

TP 8+90.93

6+96 97

5+18 78

2+88.78

1+46 50

50°25½'E 151 39 + 14°35' = 146 50

N 1/4 Cor 25

52 3 level 52 3

492° – 12°03' 47797 481.16

41.72 – 1°32' 99964 41.70

70.85 level 70.85

498° – 5°23' 495 80 99554

196° – 8°16' 193 96 98961

179.4 +6°34 178 19

379 N +10°58' 372 28 98174

144 67 +10°16' 142 28 98351

696.97

99327

518 27

147.36

46788
1513
774304
29034
6678
483946
6678
146,507,744

330
1485
183.49

32967
185
14967

Using 24°57' found
Will Clear

Channing NBdy
NW¼ Sec 25

Turn Left 89°53' To
FS on ¼ Cor ½ mile 5
26+29.96 26+24.94

Sec 19 24 30 25

Right R 4°04'W 245.7 -908 98732 242.63
Δ 23+88.02 23+82.31

1959.71 426.7 -7°57' 99039 422.60
Δ 19+65.42

192.3 -1°08' 96532 185.63 191.42

Δ 17+74.08
445.3 -13°22' 97291 433.24
Δ 16?/3+40.84
179.5 +26°03' 89841 161.26
Δ 11+79.58
112.9 +113.64 -16°32' 95865 107.87

Δ 10+72.21
436 +13°36' 97196 423.97

Δ 6+48.44
499.6 -21°06' 93295 464.24

Δ 1+84.20
146. -14°53' 96645 141.16

0+43.1
W 43.1 level
N¼ Sec 25

This angle not used

Fairy McDonald
Jim Stout

1.5 NE Flint

18

Clear Water

=0.09 N of True
Line to ¼ Cor

Sec 07.092
Cor 99748 W 24.02

at 26+24.33 26+27.72
17.2 ft S.

17.2

15.61

12.84

Level 52' above

11.63

2) 26+24.33
13+12.16
13+40.84
28.68
25.78
2.90 E

26 29.96
13 14.78
13 40.76
25.78 E
9.1 N

07.092
24.63
2) 17.2
8.6

297
185
112

8.79

7.73

7.03

4.25

1.21

0.09

Move N
East.

4.1
8.6
0.5 South

Plotted 10-1-53

Note: Based on First Random line run West. The True Line West ¼ Cor & Sec Cor bears S 89°51'40.2" W (89°51.669')

N 89 51.7
89°53
179°44.7 = S. 0° 15.3' E

N89°35'E

Mag S 1¼° W

Mag South 50 ft } of pole
NCE #18 Mag South 38 ft } of corner
NE 4x6x10

Mag S 50° E 45 SW Cor } 4x6x10
Mag S 60° E 36 NW cor } Each Hole
at NW cor 16

~~N 1½° E To each Hole~~
~~at NW cor 16~~ Extra Cost,

N 87½° E 36
Mag N 87½° E 24
at NW Cor of 17

Compass on N89°44'E
= 71.
18° 44

9/9/53

To Sight along Sec Line Toward ¼ Cor

= S 18°20' W 44 ft.

Sine 31454 Cos 94924
W. 13.84
S 41.77
2.37
39.40

N. 89°35'E 326
Sine 99997 Cos 00727
E 325.99 N. 2.37
13.84
312.15

45
36
2)81
40.5

7.922588
= Tan 82° 48½'
Sine 99213
Cos 12518.5
314.63 E
39.39 S

To SE Cor of Pit } 4x6x10
To NW cor Pit }

36
2x
2)60
30

27609.2 / 5PM
27508.3 7 am
100.9 miles to do
30.9 off the highway

18 3/4 ow
18 25 3/4
= 52

Mag S7°W 188 } 4x6x10
Mag S7°W 181 }

at NE Cor #20

Mag S64°E 26
21
at SW Cor 19 = NW Cor 12

158 +34° } 4x6x10
Mag N3½°W 146 +34° }
SW Cor 19

Tobin 9/9/57

Mone
Apm
MES
Neal McLean

{330M 27662.2
505PM 27709.2
47.0

7.2
2.2
12.0

Horiz
159.4 Long way N&S } Slope - 32°
153.5 8x805

3129
156.45

564E = 116
18.45
134045'
= 8.45°15'E

Long way E & W Cor

(Unit 1 E ¼ Cor) Long way N & S. 131
Slope +34°
121
82904
2) 252
126

Hour

+ Sec Cor = 26+50.04

△ 25+77.12	75.9	-16°08'	72.91
	478.6	+9°55'	471.35
24+53.13	348.5	+4°25'	347.46
	138 30	-5°	137±
△ 21+05.67			
	498.0	-7°47'	493.41
	220	-32°	186.57
△ 16+12.26			
	38.3	-19°27'	32.51
△ 15+76.15			
	414.7	-10°01'	408.38
△ 11+67.77			
	95.1	-1°37'	95.06
△ 10+72.71			
	252.3	+4°30'	252.01
△ 8+20.70			
	492.80	-5°10'	490.80
6+67.43	344.75	-11°45'	337.53
	276	-14°10'	263
△ 3+29.90			
	133.78	-18°30'	126.87 ✓
△ 2+03.32			
	207.28	-11°37'	203.02 ✓

R 89° 51'

W 1/4 Cor Sec 25

N/S fence is 38' W of cor
Spring about 1 50 ft N

Draw

Wash Channel

Draw

△ Top of Spur Back 45'

-14° 250 -243

Draw

To Knoll

Draw

9/14/53 [illegible] Plotted

Plotted

To Flag on Crest to East.

△13+25.02

4.57 S 4.57

△13+29.59

S 253.25 +13°12' 246.56

△15+76.15

△16+56.275

22.5 22.5

△16+56.50

42.24 N 52.35 −36°13' 42.24

△16+12.26

△19+87.53

3.45 N 3.45

△19+84.08

58.86 S 63.6 −22°15' 58.86

△20+42.94

62.73 S 63.9 −11° 62.73

△21+05.67

△23+18.785

N 2.62½

△23+16.3

S 145.3 −19°30' 136.97

△24+53.13

15 76 15
246.56 97358
13+29.59 25325
13+25.02 486790
4.57 194716
292074
486790
194716
246591350

Set Pipe

.80679
5235
403395
242037
161358
403395
4223545.5

In Swale { Diam 25'S
Spur 75S

.07446
63.6
44676
22338
44676
4,735.56

63.6
4.74
58.86

24513
136.97
2316.16
2318.785
2.625
136.97
134.375

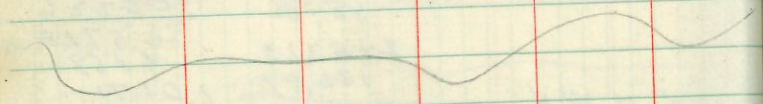
1987.53
1984.08
3.45

63.9
1.17
62.73

.01837
639
16533
5511
11022
1.173843
145.3
.05736
8718
4359
101.71
7265
8334.308
145.3
8.33
136.97

Diam is 14'N
Spur is 27½S.

9/14/57



Δ9+93.76 ±
0 32½ N
0.3 25'
Δ9+93.44
172° N 173 +4°10' 172 ¾
Δ8+20.7

					*
	3	5	2.7	1	
		4	9.5	5	
	4	0	2.2	6	S
9	0.1	4	3.3	1	
9	0.5	4	5.5	7	S
9	0.0	0	0.0	0	—
		5	4	5.5	7 S
9	0.4	5	5.0	5	
9	0.0	0	0.0	0	—
	1.0	0	1.5	2	S
		1	3	8.0	4
	1.1	3	9.5	6	S
		1	5	3.8	8
	1.2	9	3.4	4	S
		4	7	9.2	6
	1.7	7	2.7	0	S
9	0.4	7	9.9	9	
9	2.2	5	2.6	9	S
9	0.0	0	0.0	0	—
	2.2	5	2.6	9	S
		3	7	7.8	1
	2.6	3	0.5	0	*

Turn 90°06'R Tolime S. 90°06'

℄ E S on line E

π on ℄

Checked

By Station The Point 350.32

℄ △ 26+30.49 — 361 — -12°27' .97648 352.70

△ 22+77.29 — 49.55 level — 49.55

△ 22+28.24 — 144.4 +7°03' .99244 143.31

℄ 20+84.93 — 499.1 -24°00' .91355 455.95

△ 16+28.98 — 143.6 +16°00' .96126 138.04

△ 14+90.94 — 161.45 +17°37' .95310 153.88

16 △ 13+37.06 E — 500.5 +16°45' .95757 479.26

△ 8+57.80 E — 491.3 +12°19' .97698 479.94

△ 3+77.81 E — 378.2 +7°33' .99898 377.81

11¼ Sec 25

9/15/53

Andrew McGrath Waddell

$\frac{3263049}{1315.24}$

Studia war

402.25 Chains

648.81 Chains (Studia turnaround at Reserve 681.1 mi Point)

681.7
648.8
32.9

Sec ℄

← Studia Left 138.97

153.88
95.25
1113.13

13+37.06
13+15.24
Set 21.82 ft West of △ 13+37.06 ℄
apx

Sinaia 377.47

500
138
362-8
=361 2

99898
3782
199796
79918
69928
29969
377.8142 36

5200.23
2637.49
2562.74

Plotted

9/15/53

Co 96

△ 26+42.94

24+96.44
23+54.16
21+24.16

19+45.98
17+52.01
14+50.18

13+79.33
41.70

△ & Sec

~~X~~ = ~~11 22.59~~
= 81+25
△ 4+22.59
S

△ 6+09.84
S

△ Crest 8+05.03

△ 13+37.62

			146.50
			372.28
			178.19
			495.80
			70.85
			41.70
491.3	-30°40'	.86015	422.59
395.75	-30°24'	.86251	341.34
210.6	-27°14'	.88915	187.25
210.4	-21°55'	.92773	195.19
543.3	-11°30'	.97997	532.59

Plotted

4+22.59
1+87.25
6+09.84
1+95.19
8+05.03
5+32.60
13+37.63
41.20
13+79.33
70.85
14+50.18
4+95.80
19+45.98
1 78.20
21+24.18
3 72.28
24+96.46
1 46.50
26+42.96

6+60.73 Set pipe

	S				5.74
	N	60	19°18'	.94/38	56.628

6+09.84

△9+91.10 Set pipe

	S				1.27
	N	189.8	+9°22'	187.27	

8+05.03

△13+21.47 Set pipe

	S			16.15	

13+37.62

△16+51.84 Set pipe

					1.54
	S	100.00	-9°30'	98.63	

△16+51.84

△19+82.05

	N			41.59	

△19+45.97

△23+12.57 Set Pipe

					23
	S	42.00	+6°05	41.36	

△23+54.16 →

88.266

105.15 @ 30°23'

431330
86266
431330
862660
90.7086990
1.51

92.22 Cut Neck for Pipe

.98667
189.8
789336
888003
789336
98667
187.269966

42259
330.37
92.22
90.71
1.51

CK	328	-6°35' R 4° 2'
CK	500	-2° 50' R 7° 36'
CK	600	-1° 40' R 5° 13'
Road	680	- 0 - 57' R 1° 45°
Road	585	-1° 40' R 4° 25'
Road	455	-3° 15' R 2° 30'
CK	244	-11° 10' R 48° 24°
"	245	-13° 35' R 75° 50'
"	345	-12° 35' R 120° 30'
"	465	-10° 20' R 145° 53'
Road ↓		
	505	-6° 10' R 121° 20'
	420	-7° R 120° 32'
	300	-9° 4' R 86° 8'
	290	-8° R 21° 5'
	290	-8° 40 R 10° 13'
	292	-7° 4 L 1° 47'

To E¼ Cor 0°00'
& 21+65 ⇒ on E W¼ Line

CK bed in bend near crossing
S " CK 4'
N Bank CK 10'

" 10
" - "
" - "
Shot 9 - 10' S CREEK

Plotted

Intersect Road + Creek

Road	675	-2° 2' R 25° 31'
Road	680	0° 3' L 4° 6'
"	465	-9° 47' R 21° 21'
"	360	-11° 28' R 16° 40'
"	295	-12° 33' R 16° 5'
"	185	-15° 56' R 20° 31'
"	70	-22° 36' R 78° 45'
Creek	N 80	To CK
FS S¼ cor	0° 0'	

△ On Hub Just S of Creek S of ℄

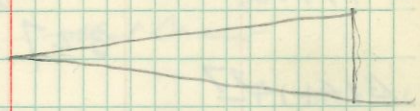
125
7
55

163.0
95.5
675

95.5
63
325
55
1625
1625
7775

3375
3375
37125
74250

25' S CK		"	5
Bottom		"	10
2' " "		"	10
6' " "		"	5
6' " "		Shot	10
20' S CK			



⊼ 23+30.80				
	165.6	-5°23'	.99559	164.92
△ 21+65.88				
	180.55	+2°03'	.99936	180.43
⊼ 19+85.45				
	255.1	+9°-20'	.98769	251.96
△ 17+33.49				
	327	+13°00'	.97437	318.62
△ 14+14.87				
	459.9	-6°39'	.99327	455.91
	398.1	-9°45'	.98556	392.35
13+51.21	354	-12°50'	.97502	345.16
	265	-12°45'	.97534	258.47
	160	-27°	.89101	142.56
△ 9+58.86				
	173.0	-14°27'	.96837	167.53
△ 7+91.33				
	192.6	-8°20'	.98944	190.57
△ 6+00.76				
	270.75	-2°56'	.99829	270.40
△ 3+30.36				
N	330.5	-1°40'	.99958	330.30
	225			

Plunge & Trim Left 89°55'

1/16 BS on 1/4 cor tow

Plotted

9/16/37

PKA

MES and McCormick Gordon Sanction

Needle Ends 20+

Set Drive

on flat Spur

Set Hub

Drive

5 pace

Drive

Drive

330.36	
270.40	
600.76	
190.57	
791.33	
167.53	
958.86	9588
455.91	392.35
1414.87	1351.21
318.62	
1733.49	
251.96	
1985.45	
180.43	
2165.88	
164.92	
2330.80	
113.36	
2444.16	
203.17	
2647.33	2647.33
	2646.49
	.84
	5
	34

185
162
1.39
115
92
69
46
23

2.90
1.05
1.85
.92
.46
.23

330 8 6
.36
.50

661.71
60.76
60.95

99564
61.7 - 7°21'

696948
99564
597384
61.430988
60.95
.48

26+46.83
South
△ 26+47.33
0°16'
△ 24+44.16

△ 23+30.80

27.1 - 20°38' .93585 203.17

116.8 - 13°56' .97058 113.36

0.5

3+30.855 ←
3+30.855
6+61.71 ←
3+30.855
9+92.565 ←
3+30.855
13+23.420 ←
3+30.855
16+54.275 ←
3+30.855
19+85.130 ←
3+30.855
23+15.985 ←
3+30.855
26+46.840 ←

9205
502 - 230
18410
460250
472090
437
3.5

Space 1.05 ft/sec

Pulled

9/16/37

26+46.84
13+23.42
6+61.71
3+30.855

2330.8
2315.99
14.81

17+33.49
16+54.27
79.22
78.03
1.19

97463
80.05 - 12°56
487315
77970400
78.029131 5

1351.21
1323.42
27.79
15
12.79

592.57
958.86
43.71

9/16/37

Blotter

Road

20° N CR on bend - TOP on 12
Culv & Fence Gate

~~Gate~~ R, J -
RB

Top on 12" Road Culv 15 ft from Rd
Bowed W
RJ

Slight Road Ch
Road Crossed Ch
Road

creek 650 - 8° 18' S 62° 1' W
635 - 8° 36' S 70° 31' W
600 - 9° 03' S 72° 33' W
240 - 10° 50' N 64° 30' W
700 - 1° 20' N 40' W
445 - 2° 00' N 13° 40' W
350 - 4° 38' N 13° 47' W
200 - 17° 24' N 61° 25' W
220 - 11° 45 S 56° 45' W

△

Tolles 9/16/53

Photos

35' W Bend ck 25'S Road at Road
Shot 9 Road ck 50'S
Shot 10 Road - ck 25'S
from NW Road in draws
Shot 9 center of gate
Sta W of NW + S Fence

480 -12° 14' R 5° 3'
380 -7° 50' R 96° 48'
470 -6° 56' R 113° 50'
530 -4° 5' R 115° 49'
△ 7S W ¼ Cor 0.00

S89°30'W 36.30 99996 00867

82°48.5
N 83°48'W 1099.35 99213 12518.5

S 85°07.5W 232.68 96638 08498.5

S22°46'E 1396.86 38648 92209

E

N44°07'E 1633.58 696225 71782

28

1677.90

3.14 3623.4

137.62 1090.70

19.77 224.86

1288.03 540.56

1172.62 1137.34

1310.94

1310.24 1677.90

44°07,5
757,5
52005,0

89°30,5
44 07,5
45°23,0

269°30,5

35°960
757,5
352°02,5
269 30,5
8232
5205
45.23
180000

$B = \frac{a \sin B}{\sin A} = \frac{1633.58 \times 71182}{99997} = 1162.8498$

$C = \frac{a \sin C}{\sin A} = \frac{1633.58 \times 78891}{99997} = 1288.7862$

$b = \frac{c \sin b}{\sin C} = \frac{1288.7862 \times 71182}{78891} = 1162.8497$

$b = \frac{a \sin b}{\sin A} = \frac{2508.49 \times 52992}{951635} = 1396.85805$

$c = \frac{a \sin C}{\sin A} = \frac{250849 \times 644235}{951635} = 1698.1901$

$b = \frac{1698.1901 \times 52992}{644235} = 1396.858$

99327
454
893943
496635
397308
455.91093

98556
398.1
98556
788498
887004
295668
392.351436

1315.24
1312.16
3.08

99936
180.55
499680
499680
7994880
99936
180.434480

98769
255.1
98769
493845
493845
197538
251.95797

97437
327
682059
194874
292311
31.861899

97058
1168
776464
582348
97058
97058
113363744

16565
00441
16565
66260
66260
730.51165

16565
73
1649.2

99559
16565
49779.5
49773.54
49773.95
49773.54
995.59
164.919.4835

93585
217.1
93585
655095
93585
187170
203.173035

Chords
2624.33

Station
2614.93

1312.16

2650.04

2646.49

1323.25

661.62

330.81

2642.94

Station 2635.03

795 since

89°55' calc

89°55'

90°05'

1315.24

330.81

661.625

1323.125

89°55'

89°55'

90°05'

Station 2637.49

2630.49

90°06

Station 2636.56

Station 2634.51

Station 2634.51

Station 2644.90

Station 2644.90

Station 2644.90

calc from old survey plans Station

263451
262433
2)525884
262942

23+54.16
23+12.57
41.59
36
.23

21+24.16
17+52.01
16 51.84
100.17
98.13
1.54

26+42.94
5 18.27
21+24.67
99437
452
198874
39 3748
41.3635 41

866
522
106
866)522
866
5600
5396
2040

19+82.205
19+45.97
46.235

13+37.62
13+21.47
16.15

6+09.84
56.63 46073
6+66.47 09.84
6+60.73 50.89
5.74

991.10
805.03
186.07
187.27
1.20

422.57
330.37
92.20

.99869
270.75
499345
659083
679830
199738
270395175

.99958
330.5
499790
29987.40
29987.40
330361.90

96837
173.
290511
677859
96837
167.52801

98944
1926
593664
197888
890496
98944
190.56144

86015
4913
258045
86015
77413.5
344060
422.59169

86251
39575
731255
603757
43125.5
77625.9
25875.3
341.33833325

88915
210.6
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88915.0
177830
187.25
4590

92773
210.4
371082
92.7730
185546
195.194382

.97992
5435
489960
293976
39196.8
48996.0
53.258652.9

533.46
532.59
.87

24+96.44
1+42.28
23+54.16
2 88.72
26 42.94

422.59
341.34
81.25

2642.94
1321.47
660.735
330.3675

19+45.97
1+93.96
17+52.01

4+22.59
1 87.25
6+09.84
1 95.19
8+05.03
5 32.59
13+37.62
13+05.32
26+42.94

330 3675
330.3675
660.7350
330 3675
991.1025
330 3675
1321.4700
330 3675
1651.8375
330.3675
1982.2050
330 3675
2312.5726
330 3675
2642.94 00

13+37.62
41.70
13+79.32
70.85
14+50.17
4 95.80
19+45.97
1+78.19
21+24.16
3+72.28
24+96.44
1+46.50
26+42.94

2650.04
1325.02
662.51
331.25½
8
2650.04

2453.13
2318.785
134.345

2042.94
1987.53
55.41

16+56.275
16+12.1260
44.015

667.43
662.51
4.92

765
44
325

331.25½
331.25½
662.5
331.25½
993.76½
331.25½
1325.020
331.25½
1656.27½
331.25½
1987.530
331.25½
2318.78½
331.25½
2650.04

50
275
225

1576.15
1325.02
251.13

99736
173
299208
698152
99736
172743 28

2+03.03
1+26.87
3+29.90
4 96.8
8+20.70
2+52.01
10+72.71
95.06
11+67.77
4+08.38
15+76.15
36.11
16+12.26
4 93.41
21+05.67
4+71.45
25+77.12
72.91
26+50.03

21+05.67
3 47.46
24+53.13

3+29.90
3+37.53
6+67.43

99594
492.8
796752
199188
896346
398376
490.799232

99703
348.5
498515
79624
39881 2
29910 9
347.4649 55

98506
4786
591036
7880 48
689542
394024
4 71.449716

96062
759
864558
480310
672434
72.911058

94832
13378

758656
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284496
284496
94832
176.866496

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75840
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9996
49980
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792632
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396316
493.41342

97905
34475
489525
685335
391.620
391.620
293715
337.52 74875

490
252
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415
38
1290
330
162
252 80
79
252.01

.98476
414.7
689332
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98476
393904
408.379.972

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383
282879
854344
282879
325.142 19
36.11 4

97952
20728
783616
195904
685664
489040
203.034 8056

133.78
05168
107024
80268
13.378
66890
6,913,504

133.78
6.91
126.87

43.1
141.10
184.20
464.24
64844
42369
1072.13
10737
1179.50
161.76
1340.76
433.24
1774.00
191.42
1965.42
422.60
2388.02
241.94
2629.96

48512
218304
1697920
18,023552

203.02
126.87
329.89

20728
02056
125808
103640
4 14560
4.261208

20728
426
203.02

9+93.765
8+20.70
17+73.065

96645
146
579870
386580
96645
141,101.7

93295
497.4
559770
653065
839655
373180
464.23 5820

97196
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291588
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95865
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95865
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396156
422,599413

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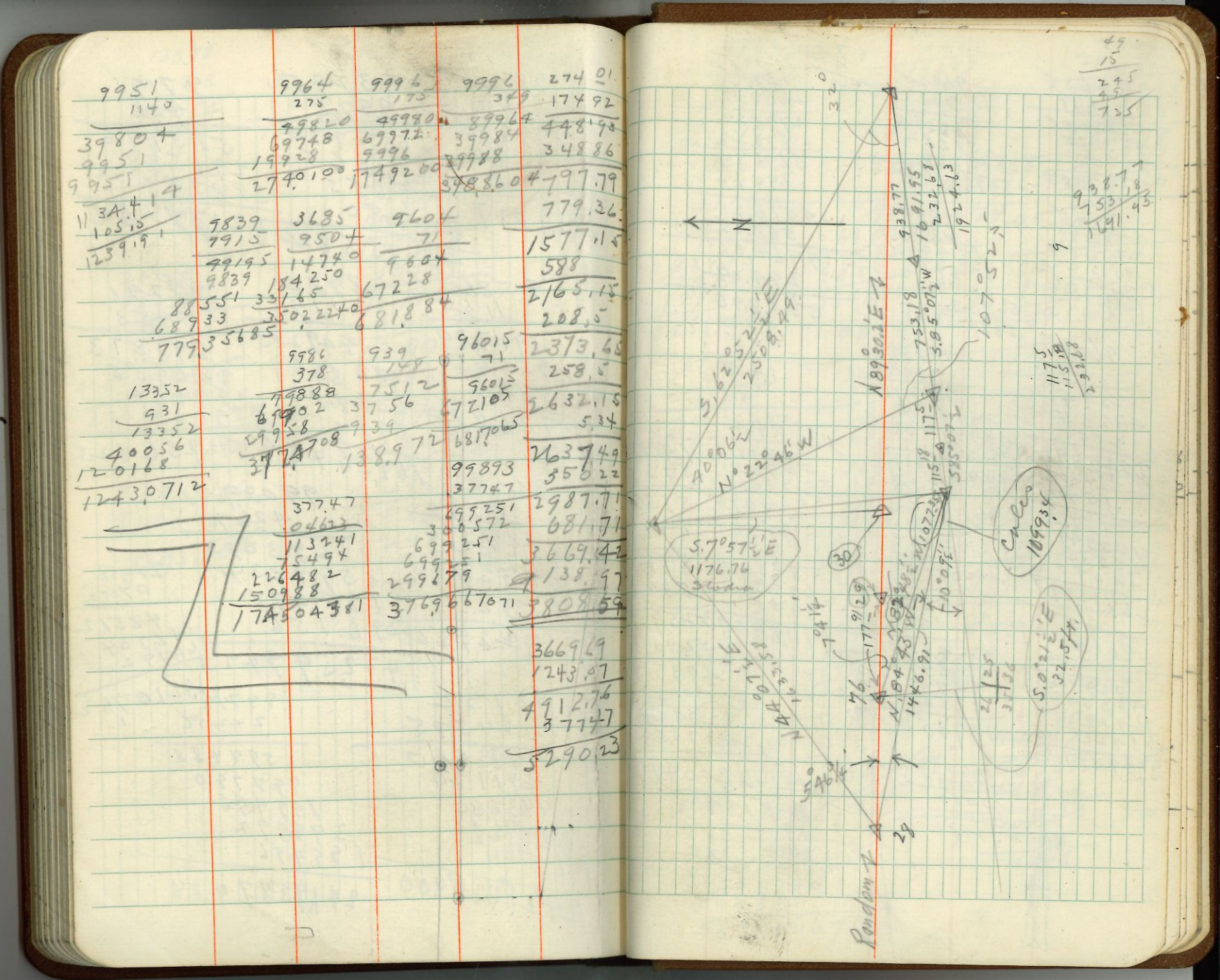

CURVE TABLES.

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HOW TO USE CURVE TABLES.

Table I. contains Tangents and Externals to a 1° curve. Tan. and Ext. to any other radius may be found nearly enough, by dividing the Tan. or Ext. opposite the given Central Angle by the given degree of curve.

To find Deg. of Curve, having the Central Angle and Tangent: Divide Tan. opposite the given Central Angle by the given Tangent.

To find Deg. of Curve, having the Central Angle and External: Divide Ext. opposite the given Central Angle by the given External.

To find Nat. Tan. and Nat. Ex. Sec. for any angle by Table I.: Tan. or Ext. of twice the given angle divided by the radius of a 1° curve will be the Nat. Tan. or Nat. Ex. Sec.

EXAMPLE.

Wanted a Curve with an Ext. of about 12 ft. Angle of Intersection or I. P. = 23° 20′ to the R. at Station 542+72.

Ext. in Tab. I opposite 23° 20′ = 120.87
120.87 ÷ 12 = 10.07. Say a 10° Curve.

Tan. in Tab. I opp. 23° 20′ = 1183.1
1183.1 ÷ 10 = 118.31.

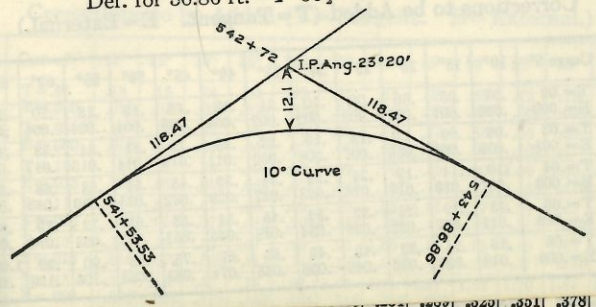
Correction for A. 23° 20′ for a 10° Cur. = 0.16
118.31 + 0.16 = 118.47 = corrected Tangent.

(If corrected Ext. is required find in same way)
Ang. 23° 20′ = 23.33° ÷ 10 = 2.3333 = L. C.

2° 19½′ = def. for sta.	542	I. P. = sta.	542+72
4° 49½′ = " " "	+50	Tan. =	1 .18.47
7° 19½′ = " " "	543	B. C. = sta.	541+53.53
9° 49½′ = " " "	+50	L. C. =	2 .33.33
11° 40′ = " " "	543+ 86.86	E. C. = Sta.	543+86.86

100 − 53.53 = 46.47 × 3′ (def. for 1 ft. of 10° Cur.) = 139.41′ =
2° 19½′ = def. for sta. 542.

Def. for 50 ft. = 2° 30′ for a 10° Curve.
Def. for 36.86 ft. = 1° 50½′ for a 10° Curve.



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