

1615

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1615

EUGENE DIETZGEN CO.

DRAWING MATERIALS, MATHEMATICAL and SURVEYING INSTRUMENTS

Chicago New York San Francisco New Orleans Pittsburg Toronto

Distances from Center of Roadway for Cross-Sectioning
Roadway 10 feet wide. Side Slopes 1 on 1.
For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	0
1	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	1
2	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	2
3	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	3
4	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	4
5	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	5
6	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	6
7	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	7
8	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	8
9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	9
10	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	10
11	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	11
12	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	12
13	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	13
14	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	14
15	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	15
16	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	16
17	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	17
18	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	18
19	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	19
20	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	20
21	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	21
22	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	22
23	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	31.9	23
24	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	24
25	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	25
26	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	26
27	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	27
28	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	36.9	28
29	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	37.9	29
30	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9	30
31	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	31
32	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	40.9	32
33	41.0	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8	41.9	33
34	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	42.9	34
35	43.0	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8	43.9	35
36	44.0	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8	44.9	36
37	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	45.9	37
38	46.0	46.1	46.2	46.3	46.4	46.5	46.6	46.7	46.8	46.9	38
39	47.0	47.1	47.2	47.3	47.4	47.5	47.6	47.7	47.8	47.9	39
40	48.0	48.1	48.2	48.3	48.4	48.5	48.6	48.7	48.8	48.9	40

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

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CITY ENGINEER

The paper stock of this book is made of a high grade 50% rag paper having a water resisting surface and is sewed with Bing Special Enamel Waterproof Thread.

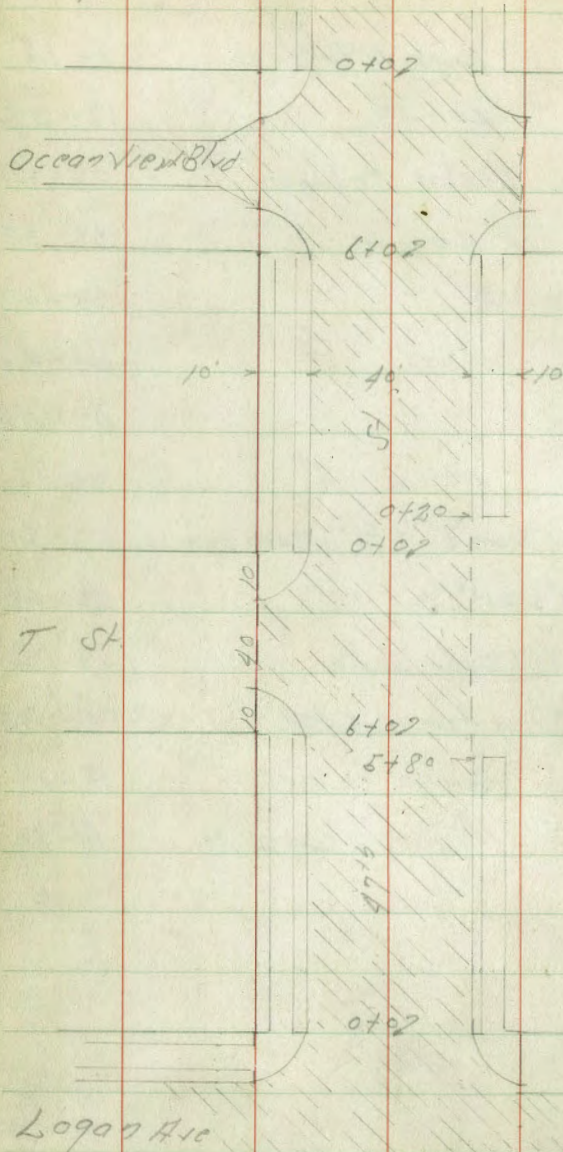
Made in U. S. A.

93430 = 21

47 th St	Logan to Imperial	1-14
Newton	40-43	15-25
43	Keelar to Logan	26-32
Logan	40-41	33-38
22 ND & A		39-43
McKinley School		44-46
Russ Blvd.		47-53
/	Drain	55
Bk. Bet. 20 th & 21 st from 1/2" St. to Switzer Dam		56-61
Int. 1/2" - 21 st St.		62-68
29 th St. O.V. Blvd. South		69-72
v v Marcy Ave. N. 6408'		75-80-743
33 RD St. Grape to Fir		73-74
28 th St. Marcey - 640' N.		75-80

Cross Section 47th St.
Logan Ave to Imperial Ave

Indexed
LM



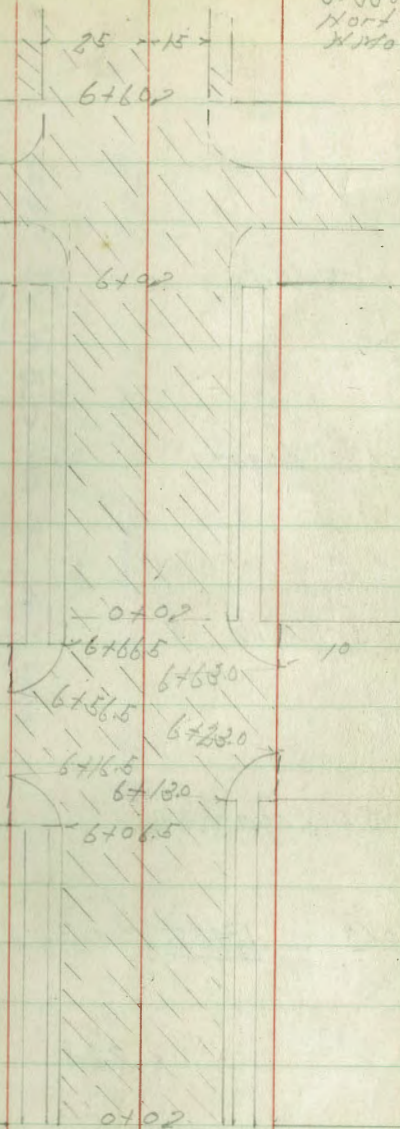
Oct. 1. 41
S. S. 802
Hort Spring
H. Hart

1

Imperial Ave

Franklin Ave

Ocean View Blvd



0-10 = ACb L171

0-30 = 5 L0907

0-50 = 50b L171

0-60 = 5b L0907

TP 3.62 124.62 7.09 121.00

BM 228 125.81

B.M. 0.41 128.09 127.68

Plot, 10-28-41 C.B.H.
" 12-1-41 W.L.O. (Double scale)

SWRP
Tst + 47 1/2

SW Top Hyd
Tst + 47 1/2

Lt = 27

L

Rt = E

2

118.91

5.71
30 = Cb Top

118.16

6.46
30 = gutter

118.27

6.35
30 =

118.51

6.11

118.49

6.13
20

118.22

6.40
30 = gutter

119.01

6.61
30 = Cb Top

118.30

6.38
30

118.27

6.35
20 on Par

118.26

6.36

118.69

6.93
20 on Par

118.75

6.87
30 on Par

118.82

5.86
30 = Cb Top
28.81 / 5.80
30 = Cb Top

118.30

6.38
30

117.78

6.84
30 = gutter

117.92

6.70

117.77

6.85

124.62

4916 St.

2+50

2+0

1+50

1+0

0+50

0+0 = 1/2 Log 2

12462

Lt.

Rt.

Rt.

3

118.92	5.19	119.42	4.65	119.97	4.03	120.59	3.52	121.10	3.98	121.64
5.70	20.00	5.19	20.00	4.65	20.00	4.03	20.00	3.52	3.98	20.00
118.44	5.19	118.93	5.21	119.44	4.62	120.00	4.07	120.55	3.47	121.15
6.18	20.00	5.19	20.00	5.21	20.00	4.62	20.00	4.07	3.47	20.00
118.7	5.21	119.41	4.74	119.88	4.15	120.47	3.58	121.04	3.00	121.62
5.9	20.00	5.21	20.00	4.74	20.00	4.15	20.00	3.58	3.00	20.00
118.44	5.64	118.98	5.12	119.50	4.68	119.94	4.02	120.60	3.41	121.21
6.18	20.00	5.64	20.00	5.12	20.00	4.68	20.00	4.02	3.41	20.00
118.93	5.69	119.49	4.56	120.06	4.13	120.49	3.47	121.15	2.86	121.80
5.69	20.00	5.69	20.00	4.56	20.00	4.13	20.00	3.47	2.86	20.00

12462

5+50

5+0

4+50

4+0

TP 7.71 130.38 1.95 122.67

3+50

3+0

124.62

Red. 10-10-41 (AV)

2.122.29 20.30 20.cb	121.75 2.87 20.Gulf	122.10 2.52	121.63 2.99 20.Gulf	122.22 2.40 20.cb	122.29 1.80 20	122.24 2.38 20	122.71 1.91	122.10 1.91	121.63 2.38 20	122.24 2.38 20	122.81 1.81 20	122.79 2.97 20	123.39 6.99 20	124.02 6.36 20	124.24 6.84 20	123.89 6.49 20	123.87 6.51 20	124.45 6.93 20	124.21 6.42 20	123.96 6.42 20	123.42 6.96 20	123.98 6.40 20	124.06 6.82 20	124.06 6.42 20	125.06 6.91 20	125.07 6.51 20	124.55 6.80 20	125.14 6.91 20
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124.62

130.38

47 2 R1 4

47 1/2 St.

6+0 = N.D. TST.
6+60

6+50 = N.C.B. List

6+30 =

6+10 = S.C.B. List

6+0 = S.H. T Street

5+80 = End Curb on R.H.

130.38

Lt

Rt

5

125.71
4.67
20-Cb

125.19
5.19
20-Gutter

125.60
4.78

125.59
4.99
20-Cb

125.00
5.38
20-Gutter

125.34
5.04
20.00 Par

125.64
4.74

125.40
4.98
20-VI Par

125.61
4.77
20.00 Par

125.73
4.65

125.80
4.58
20-Cb

124.93
5.45
20-Gut

125.27
5.11
20.00 Par

125.65
4.93

125.80
4.58
20-Cb

125.17
5.21
20-Gutter

125.64
4.74

125.16
5.22
20-EH Par

124.96
5.41
20-Gutter

125.52
4.96
20-Cb

130.38

TP 1.59 123.33 8.64 121.74

2750

270

1750

170

0750

0720 = Curb End on Pl.

130.38

Lt

X

Pl

6

8.52
20 121.86

9.03
20 121.35

7.77
20 122.61

8.20
20 122.08

7.57
20 122.86

6.31
20 123.38

6.85
20 124.07

6.32
20 123.73

5.76
20 124.31

5.56
20 124.82

5.48
20 124.90

4.98
20 125.40

9.03
20 121.35

8.42
20 121.76

7.84
20 122.54

7.18
20 123.20

6.54
20 123.84

6.32
20 123.56

6.25
20 124.03

6.32
20 124.38

5.56
20 124.82

5.48
20 124.90

4.98
20 125.40

8.42
20 121.76

7.84
20 122.54

7.18
20 123.20

6.54
20 123.84

6.32
20 123.56

6.25
20 124.03

6.32
20 124.38

5.56
20 124.82

5.48
20 124.90

4.98
20 125.40

9.03
20 121.35

8.42
20 121.76

7.84
20 122.54

7.18
20 123.20

6.54
20 123.84

6.32
20 123.56

6.25
20 124.03

6.32
20 124.38

5.56
20 124.82

5.48
20 124.90

4.98
20 125.40

8.42
20 121.76

7.84
20 122.54

7.18
20 123.20

6.54
20 123.84

6.32
20 123.56

6.25
20 124.03

6.32
20 124.38

5.56
20 124.82

5.48
20 124.90

4.98
20 125.40

130.38

47/55

5750

570

4750

470

3750

370

12333

L

R

Rt

7

109
20 117.24

521
20 117.99

461
20 118.72

384
20 119.49

306
20 120.27

228
20 121.00

664
20 116.69

586
20 117.47

509
20 118.24

439
20 118.94

366
20 119.67

291
20 120.52

523
20 117.10

516
20 117.87

468
20 118.65

393
20 119.40

317
20 120.16

241
20 120.92

568
20 116.65

591
20 117.42

517
20 118.16

442
20 118.91

364
20 119.69

288
20 120.45

510
20 117.21

534
20 117.99

460
20 118.73

387
20 119.46

310
20 120.23

234
20 120.99

12333

0750

070
6760 - N L Ocean View Blvd

6750 - N Cb Lint

6730 - 2

6710 - S Cb Lint

821

6.84 116.49

670 - S L Ocean View Blvd

123.33

Lt

2

Rt

8

114.65

8.68
20

115.56

7.77
20-cb

115.55

7.78
30-cb

115.69

7.64
20

116.45

6.88
30-cb

116.49

6.94
20-cb

114.11

9.22
20

115.02

8.21
20-gutter

115.35

7.98
20

115.85

7.48
20

115.94

7.39
20-gutter

115.98

7.35
20-gutter

114.49

8.84

115.39

7.94

115.54

7.79

115.88

7.45

116.20

7.13

116.35

6.98

114.10

9.23
20

114.90

8.43
20-gutter

115.05

8.28
20

115.43

7.90
20

115.76

7.57
20-gutter

115.91

7.47
20-gutter

114.66

8.67
20

115.49

7.84
20-cb

115.11

8.22
20-gutter

115.65

7.68
20

115.92

7.41
20-gutter

116.44

6.99
20-cb

115.44

7.89
30-cb

116.44

6.88
30-cb

123.33

47th St

2150

210

2150

210

TP 2.06 114.69 10.70 112.63

1450

140

123.33

LH

492
20

456
20

462
20

490
20

495
20

493
20

549
20

501
20

470
20

448
20

496
20

490
20

109.77

110.13

111.06

111.79

112.83

113.80

123.33

5109.65

5109.65

5110.49

5111.21

5112.27

5113.24

5113.63

109.73

110.21

110.94

111.83

112.73

113.63

123.33

5109.28

5109.68

5110.50

5111.32

5112.23

5113.13

5113.76

109.82

110.24

111.04

111.86

112.81

113.76

9

6713 = S.L. Franklin From Fed

67065 = S.L. Franklin From NY

5750

570

4750

470

114.69

L

L

RT

10

5779
20/06
109.00

5777
20/06
108.97

5763
20/06
109.06

5746
20/06
109.23

5729
20/06
109.41

6744
20/06
108.25

6725
20/06
108.44

6710
20/06
108.59

6701
20/06
108.68

6705
20/06
108.88

6737
20/06
108.32

6726
20/06
108.43

6722
20/06
108.87

6709
20/06
109.00

6704
20/06
109.14

6705
20/06
109.34

6727
20/06
108.52

6717
20/06
108.57

6706
20/06
108.63

6703
20/06
108.73

6702
20/06
109.91

6724
20/06
108.95

6715
20/06
108.95

6705
20/06
109.15

6701
20/06
109.31

6702
20/06
109.46

114.69

6763: SC6 From East

6756.5: SC6 Line From W

6743: SC6 From E

6736.5: SC6 From W

6723: SC6 Line From I

6716.5: SC6 Line From NW

114.69

5.99
30-cb
109.37

5.98
30-cb
108.71

5.98
20
108.71

5.18
109.21

5.10894
20

5.109.05
30-cb

5.109.52
30-cb

6.06
30-WY Per
108.63

6.17
20
108.52

5.86
108.83

5.108.81
20

5.109.12
30-FY Per

5.73
30-cb
108.96

5.51
30-cb
108.17

6.53
20
108.16

6.12
108.27

6.20
20
108.51

6.108.68
30-cb

5.70
30-cb
108.99

114.69

270

TP 6.05 117.29 3.45 111.24

1750

140

0750

040 = N.L. Franklin From East
6773

6766.5 = N.L. Franklin From W

114.69

LT

611
20

666
20

616
20

668
20

614
20

4.01
20

4.59
20

4.03
20

4.55
20

4.00
20

4.55
20

5.07
20

4.42
20

5.00
20

4.51
20

4.80
20

5.10
20

4.87
20

5.37
20

4.81
20

5.11
20

5.84
20

5.35
20

5.73
20

5.17
20

5.57
20

5.93
20

5.40
20

5.93
20

5.17
20

110.68

110.10

117.29
110.66

110.14

110.67

110.14

109.62

110.26

109.69

110.18

109.89

109.29

109.82

109.32

109.89

109.47

108.85

109.34

108.96

109.52

109.42

108.76

109.29

108.96

109.52

111.18

110.63

111.13

110.61

111.15

12

114.69

4915 St.

510

4150

4106

3150

310

2150

~~117.36~~

117.29

L1

L2

PL

13

112.64

465
20

112.94

485
20

112.83

446
20

112.58

471
20

112.08

521
20

111.61

568
20=05

112.02

527
20

112.37

492
20

112.28

501
20

112.00

529
20

111.54

525
20

111.08

621
20=5.00

112.53

476

112.80

449

112.80

449

112.42

487

112.03

526

111.58

571

112.15

514
20

112.35

494
20

112.35

494
20

111.94

533
20

111.59

570
20

111.14

615
20=5.00

112.74

455
20

112.85

441
20

112.99

430
20

112.57

478
20

112.07

522
20

111.60

569
20=06

~~117.36~~

117.29

BM 5.12 112.17 JFBP Imperial 49765

6460 - N2 Imperial BM 112.17
11.30
123.47
0.13

6439 - N4 Strip 123.34
11.12
134.46
0.42

6430 - Z BM 134.04
6.87
140.93
3.08
137.90 Z L4T Imperial 4876 13789

6421 - S4 Strip Pav 6.31
30.00 Pav

640 - S6 Imperial 4.83
20.65 Pav

5480 4.86
10-cb

11729

Red. - 10-11-41 (B)

L1

5.30
25-cb

111.04

6.25
30

111.14

6.15
30

110.78

6.31
30.00 Pav

112.46

4.83
20.65 Pav

112.43

4.86
10-cb

111.34

5.95
15-cb
Gutter

111.43

5.86
20

111.47

5.82
20

111.48

5.81
20

111.50

5.79
20

111.91

5.58
15-cb
Gutter

11.84

5.45

112.06

5.23

112.12

5.17

112.05

5.24

111.61

5.68

112.26

5.03

11729

R1

111.93

5.36
15-cb
Gutter

112.75

4.54
20

112.78

4.51
20

112.57

4.72
20

111.66

5.63
20

111.91

5.28
15-cb
Gutter

112.19

5.10
15-cb

112.88

4.41
30

112.91

4.35
30

112.79

4.50
30.00 Pav

112.14

5.15
20-cb Pav

112.43

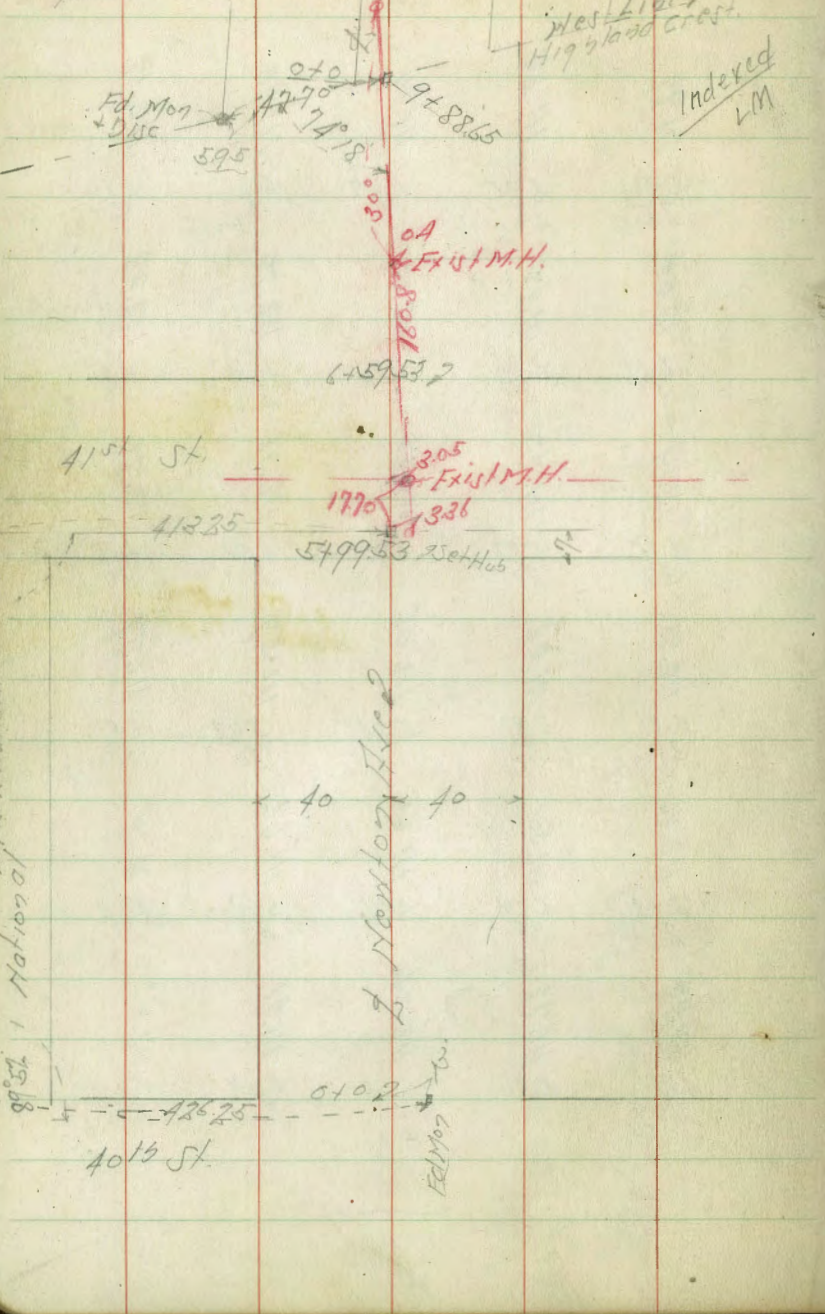
4.86
20-cb

14

Cross Section North on Hwy
40th St to 43rd St.

Oct 2-11
S 5507
Hortberg
W Moore

Indexed
LM



43rd St

Fid Mon

7+21.12

6+21.12

6+06.12

40 - 31 - 25

3+65

181.56

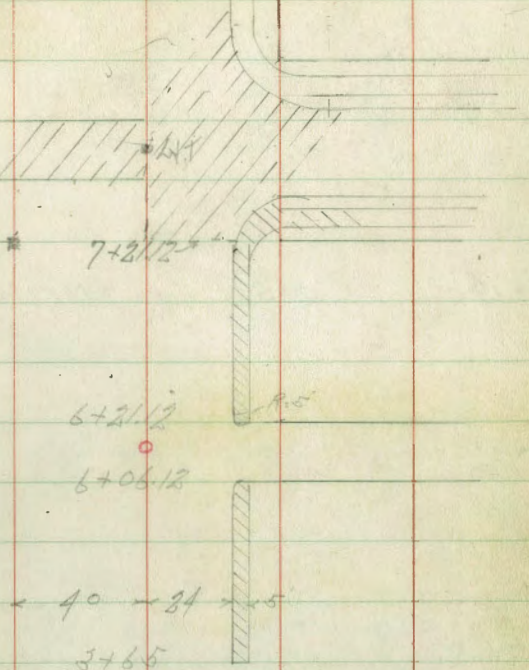
Exist. M.H.

0+0

41.75

Fid Mon
FS 1880

300'



Cross Section New ton Hvd
40th St to 42nd St.

At: N S At: S 16

1+50

$\frac{41.7}{5.1}$	$\frac{41.2}{5.6}$	$\frac{40.2}{6.6}$	$\frac{39.2}{7.1}$	$\frac{38.0}{7.8}$	$\frac{38.6}{8.2}$	$\frac{38.1}{8.7}$
40	20	15		20	40	50

1+19 40.34 to 42.35 Con. Walk on Lt

$\frac{43.17}{3.64}$	$\frac{42.71}{4.10}$
50.09 Walk	40.34 to 42.35 Con. Walk

1+0

$\frac{42.5}{1.0}$	$\frac{42.1}{4.7}$	$\frac{41.1}{5.7}$	$\frac{40.9}{5.9}$	$\frac{40.9}{5.9}$	$\frac{39.7}{7.1}$	$\frac{39.3}{7.5}$
40	20	15		15	40	50

0+50

$\frac{44.6}{2.2}$	$\frac{43.8}{3.0}$	$\frac{42.9}{3.9}$	$\frac{42.1}{4.7}$	$\frac{42.6}{4.2}$	$\frac{41.5}{5.2}$	$\frac{41.0}{5.8}$
40	20	15		15	40	50

BM 2.44 44.87 *Not Fl 40th*
Point of
Newton

$\frac{46.81}{6.0}$	$\frac{45.14}{1.4}$	$\frac{44.9}{1.9}$	$\frac{45.2}{1.6}$	$\frac{44.4}{2.1}$	$\frac{43.5}{3.2}$	$\frac{43.2}{3.6}$
40	30	20		20	40	50

0+0 = E Line 40th St

TP 5.63 46.81 33.39 41.18

46.81

TP 11.36 44.57 8.56 33.21

BM 6.52 41.77 35.25 *HWBP*
Noticed
4/1/54

3750

TP 0.92 3593 11.80 35.01

270

2750

270

1789 40.2 1/2 of 2 = 2 4 Conc Walk or 1/2

1774 39.5 1/2 of 2 = 2 3.5 Conc Walk

4681

Lt.

S

Rt

17

$\frac{327}{5.8}$	$\frac{308}{5.1}$	$\frac{302}{5.7}$	$\frac{299}{6.0}$	$\frac{305}{5.4}$	$\frac{309}{5.0}$	$\frac{308}{5.5}$
70	25	16		20	40	50

35.93

$\frac{328}{7.0}$	$\frac{325}{14.2}$	$\frac{320}{13.8}$	$\frac{331}{13.7}$	$\frac{340}{13.8}$	$\frac{341}{13.7}$	$\frac{339}{12.9}$
50	40	20		70	40	50

$\frac{384}{8.1}$	$\frac{364}{70.4}$	$\frac{361}{70.7}$	$\frac{361}{70.7}$	$\frac{360}{70.8}$	$\frac{369}{70.0}$	$\frac{363}{70.5}$	$\frac{359}{70.9}$
40	29	15		16	25	40	50

$\frac{406}{6.2}$	$\frac{395}{7.3}$	$\frac{387}{8.1}$	$\frac{388}{8.5}$	$\frac{380}{8.8}$	$\frac{376}{9.2}$	$\frac{374}{9.4}$
40	30	20		20	40	50

$\frac{40.99}{5.86}$	$\frac{40.52}{6.24}$
500 Walk	40.2 1/2 Conc Walk

$\frac{3793}{8.88}$	$\frac{3759}{9.22}$
39.5 Conc Walk	500 Walk

4681

6+29.53 = 2.

5+99.53 W.L. 4154

5+50

5+0

4+50

4+0

35.93

Lt

R

Rt

18

$\frac{25.7}{10.1}$	$\frac{25.3}{10.6}$	$\frac{24.9}{11.1}$	$\frac{25.6}{10.3}$	$\frac{25.3}{10.6}$	$\frac{25.7}{10.5}$	$\frac{25.5}{10.4}$	$\frac{25.2}{10.2}$
50	40	30	20		20	40	50

$\frac{25.6}{10.3}$	$\frac{25.5}{10.4}$	$\frac{25.5}{10.4}$	$\frac{25.7}{10.2}$	$\frac{25.5}{10.4}$	$\frac{25.4}{10.5}$	$\frac{25.0}{10.9}$	$\frac{24.8}{11.1}$
50	40	30	20		20	40	50

$\frac{25.4}{10.3}$	$\frac{25.3}{10.6}$	$\frac{25.8}{10.1}$	$\frac{25.8}{10.1}$	$\frac{25.5}{10.4}$	$\frac{26.2}{9.7}$	$\frac{25.4}{10.5}$
50	40	20		20	40	50

$\frac{26.1}{7.8}$	$\frac{26.2}{9.2}$	$\frac{26.2}{9.7}$	$\frac{25.8}{10.1}$	$\frac{26.1}{9.8}$	$\frac{26.1}{9.8}$	$\frac{25.9}{10.0}$
40	20		15	30	40	50

$\frac{34.4}{1.5}$	$\frac{32.7}{3.0}$	$\frac{32.2}{3.7}$	$\frac{28.1}{7.8}$	$\frac{27.7}{8.2}$	$\frac{22.3}{8.6}$	$\frac{22.8}{8.0}$	$\frac{22.8}{8.1}$
40	35	18	13		10	25	40

$\frac{34.6}{1.3}$	$\frac{33.1}{2.8}$	$\frac{32.2}{3.2}$	$\frac{28.8}{7.0}$	$\frac{28.6}{7.3}$	$\frac{28.1}{7.8}$	$\frac{28.5}{7.4}$	$\frac{22.2}{8.2}$	$\frac{22.4}{8.5}$
40	30	20	15		10	25	40	50

35.93

8133 - 1/4 Exposed 8" C.I. Scher Pipe

18.6	19.5	19.4	19.9	21.6	22.0	26.6	26.5
11.8	11.9	12.0	11.5	9.8	9.4	4.8	4.9
60	40	20	20	1.8	2.0	40	50

1/4 Exposed
8" C.I. Scher Pipe
0.25"

8125

19.6	19.6	19.4	22.5	22.5	26.9	26.4	26.2
11.8	11.8	12.0	13.9	13.9	1.5	5.0	5.2
60	40	18	6	6	20	40	50

870

20.6	21.2	20.9	26.6	27.1	27.0	26.6	26.5
10.8	9.7	10.5	4.8	4.3	4.4	4.8	4.9
60	40	25	19	13	20	40	50

TP 3.95 31.42 8.46 27.47

31.42

7150 350 Rt 1/2 - Sly Power Pole

21.5	20.9	26.1	25.5	26.2	26.6	26.2	26.5	26.2
14.4	16.0	9.8	10.1	9.2	9.5	9.0	9.1	9.2
60	48	40	30	20	20	20	40	50

7131 240 Rt 1/2 - Sly 24" Power Tree

710

25.3	25.5	25.2	26.2	26.2	26.2	26.2	26.1
10.4	10.4	10.7	9.7	9.7	9.7	9.7	9.8
50	40	30	30	30	20	40	50

675953 FL 110/4

25.4	25.2	24.8	25.7	25.8	25.9	26.0	25.9
10.5	10.7	11.1	10.2	10.1	10.0	9.9	10.0
60	40	20	20	20	20	40	50

3593

3593

9+49 = Fly Exposed 8" C.I. Sewer Pipe

11.1
11.5-11.4 Exposed
8" C.I. Sewer Pipe

9+40

$\frac{26.6}{9.8}$	$\frac{23}{11.1}$	$\frac{20.2}{11.2}$	$\frac{19.2}{11.7}$	$\frac{20.2}{11.2}$	$\frac{20.4}{11.0}$	$\frac{18.2}{12.7}$
65	40	20		20	40	55

9+0

106
80

$\frac{18.6}{11.8}$	$\frac{19.4}{12.0}$	$\frac{19.1}{12.3}$	$\frac{20.7}{10.7}$	$\frac{17.8}{13.6}$	$\frac{12.1}{14.2}$	$\frac{16.8}{14.6}$	$\frac{16.1}{15.3}$	$\frac{16.1}{15.3}$
40	30	15	7	4		20	40	60

8+90

$\frac{15.9}{15.5}$	$\frac{16.1}{15.3}$	$\frac{16.1}{15.3}$	$\frac{16.2}{15.2}$	$\frac{15.9}{15.5}$	$\frac{15.1}{16.0}$	$\frac{16.6}{14.8}$
60	40	20		20	40	55

8+60

$\frac{12.4}{14.0}$	$\frac{17.1}{14.3}$	$\frac{16.9}{14.6}$	$\frac{16.5}{14.9}$	$\frac{16.4}{15.0}$	$\frac{17.9}{15.5}$	$\frac{17.1}{14.3}$	$\frac{12.1}{14.3}$
60	40	20		10	25	40	50

8+45

$\frac{17.2}{14.2}$	$\frac{18.0}{13.1}$	$\frac{19.1}{13.3}$	$\frac{18.7}{12.7}$	$\frac{19.3}{12.1}$	$\frac{19.5}{11.9}$	$\frac{17.9}{12.5}$	$\frac{18.4}{13.0}$
60	40	20		15	30	40	30

31.42

31.42

1403 382 Pt of L = Sky Power Pole

140

TP 1138 4238 042 31.00

0465

0435

0413

040
948865 - P.L. L100

9460

31.42

41

4

R1

21

<u>307</u>	<u>312</u>	<u>314</u>	<u>338</u>	<u>356</u>	<u>376</u>	<u>314</u>	<u>314</u>	<u>303</u>
117	112	109	86	88	98	110	113	119
50	40	30	21	7		20	40	50

4238

<u>260</u>	<u>269</u>	<u>296</u>	<u>298</u>	<u>293</u>	<u>286</u>	<u>284</u>
54	45	18	15	21	28	30
50	40	20		15	40	50

<u>256</u>	<u>256</u>	<u>262</u>	<u>260</u>	<u>275</u>	<u>269</u>	<u>266</u>
58	58	47	54	39	45	48
50	40	15		15	40	50

<u>255</u>	<u>255</u>	<u>250</u>	<u>262</u>	<u>209</u>	<u>208</u>	<u>207</u>	<u>207</u>
56	56	64	97	105	106	107	107
50	40	18	15		20	40	50

<u>255</u>	<u>220</u>	<u>204</u>	<u>2096</u>	<u>214</u>	<u>201</u>	<u>198</u>
56	94	110	1046	100	113	116
50	40	20	6746	20	40	50

<u>263</u>	<u>207</u>	<u>189</u>	<u>260</u>	<u>210</u>	<u>206</u>	<u>209</u>	<u>187</u>	<u>184</u>
51	109	115	104	104	108	115	129	130
60	40	30	20		20	30	40	55

31.42

2451 345 Rto of 1/2 Sky Power Pole

2450

TP 10.06 64.13 0.06 54.07

2425

270

TP 11.78 54.13 0.03 42.35

1465

1440

4238

55.5	53.8	54.6	54.6	54.3	50.3	57.0	57.2	59.5
86	10.0	9.5	9.5	9.8	10.8	7.1	4.9	4.6
40	35	20	20	20	8.8	14	35	40

64.13

<u>52.5</u>	<u>50.6</u>	<u>50.9</u>	<u>51.8</u>	<u>50.4</u>	<u>44.3</u>	<u>53.2</u>	<u>54.0</u>	<u>52.5</u>
16	5.5	3.2	2.3	3.7	9.8	0.9	10.9	1.3
40	35	20	20	20	9	21	35	40

<u>49.6</u>	<u>47.9</u>	<u>47.5</u>	<u>47.8</u>	<u>46.5</u>	<u>40.6</u>	<u>46.4</u>	<u>45.1</u>
9.5	6.2	6.6	6.3	7.6	10.5	7.7	9.0
40	34	20	20	10	14	18	20

54.13

<u>41.9</u>	<u>42.4</u>	<u>43.2</u>	<u>40.2</u>	<u>39.9</u>	<u>39.9</u>	<u>36.2</u>	<u>38.0</u>	<u>37.5</u>	<u>36.4</u>
0.5	0.0	10.2	2.2	2.5	3.0	5.7	4.1	4.9	6.0
40	25	11	5	20	15	25	30	40	50

<u>38.4</u>	<u>38.8</u>	<u>38.9</u>	<u>36.5</u>	<u>36.5</u>	<u>35.2</u>	<u>34.4</u>	<u>33.4</u>
7.0	3.6	3.5	5.9	5.7	7.7	8.1	9.0
40	25	10	4	4	20	40	25

4238

4150

470

3765 - W End Conc Cbx Walk on Pt

3730

370

2775

64.13

Lt

A

Rt

23

4.1
10 57.9

4.2
10 57.9

4.5
10 57.6

5.1
15 58.7

5.2
14 58.3

5.7
14-cb 57.16

4.0
10 60.1

5.0
10 60.3

4.1
10 60.0

5.6
15 58.5

6.0
15 58.1

6.4
14-cb 57.7

5.78
14-cb 58.35

4.3
10 59.8

4.5
10 59.6

4.8
10 59.8

5.5
15 58.6

6.6
15 57.5

6.25
14-cb 57.88

5.5
10 58.9

5.7
10 60.4

4.5
10 59.0

5.5
10 58.8

4.1
10 60.0

4.8
10 59.3

5.2
10 58.9

8.1
10 56.0

4.1
16 60.0

5.3
16 61.8

4.0
10 63.1

5.2
10 57.9

5.7
10 57.4

5.7
10 58.4

4.9
10 59.2

5.7
10 58.4

9.9
11 59.2

5.1
16 59.0

4.9
13 62.2

4.7
10 62.4

7.0
10 57.1

7.4
13 55.7

7.5
15 56.6

7.7
10 56.4

7.2
10 56.9

7.6
10 56.5

12.0
14 57.1

6.0
14 58.1

7.8
15 61.2

3.8
10 60.9

64.13

6460

IP 7.11 70.43 0.81 6332

6423 - F.L. Alley

6408 - H.L. Alley

5480

5450

540

6413

St.

RT

7.6
10 62.8

7.1
20 63.3

6.3
15 64.1

6.4
15 64.0

6.5
24 63.9

5.7
24-cb 64.67

61.8

62.1

62.8

62.8

62.5

62.2

63.4

63.23

2.3
10

2.0
20

1.5
15

1.6
15

1.9
24

0.9
24-cb

0.9
24-cb

61.4

61.8

62.3

62.0

61.7

62.30

62.40

2.7
10

2.3
20

1.8

2.1
15

2.1
24

1.8
24-cb

1.7
24-cb

59.6

60.4

61.3

61.3

61.7

61.0

60.7

61.40

3.5
10

3.7
20

2.8
15

2.8
10

2.1
24

3.1
15

3.4
24

2.7
24

60.1

60.7

61.0

60.4

59.9

60.5

4.9
10 59.2

4.4
20 59.7

4.0

4.7
15 59.4

4.9
24 59.2

4.3
24-cb 59.81

64.13

811

6.13

64.30

Mon & One
N.Y. Prop Cor
New York 438

7+21/12 = 14.2 438.5

710

70.43

67

*

91

25

60
10

65
10

64.4

62
20

57
10

64.2

64.7

85
10

439

65.4

66.04

48

398
12

65.6

66.45

48
15

328
14

65.6

66.56

48
24 = 90.48

328
14

65.6

328
24 = 66

410
24 = 66.33

67.15

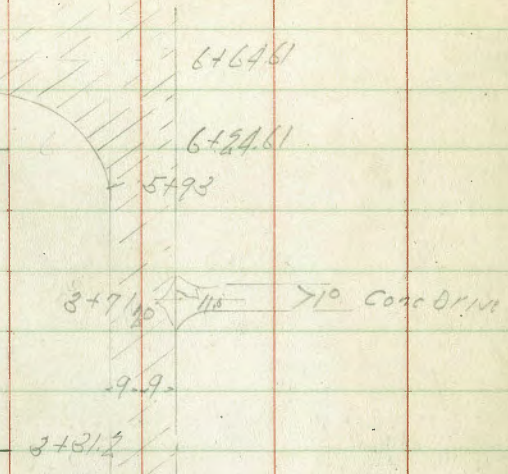
70.43

Cross Section 43rd St.
Keeler Ave to

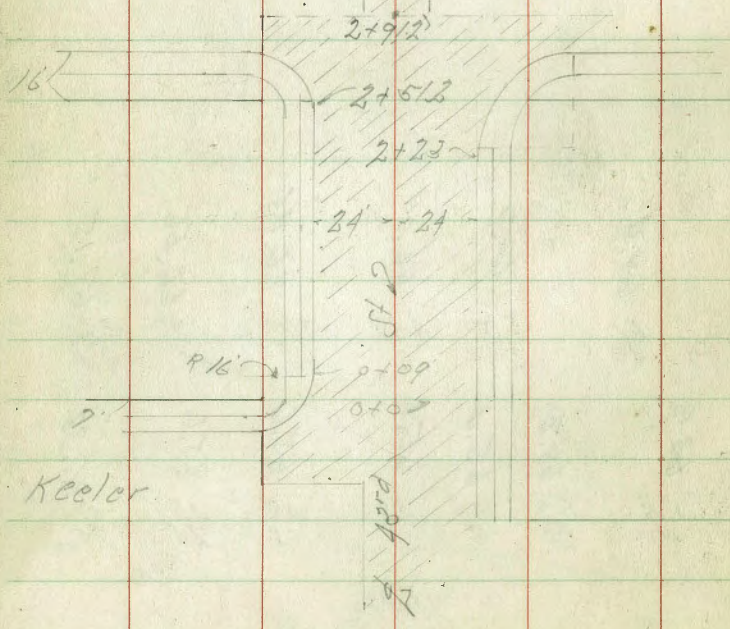
Logan Ave
7+0461

Indexed
VM

National Ave



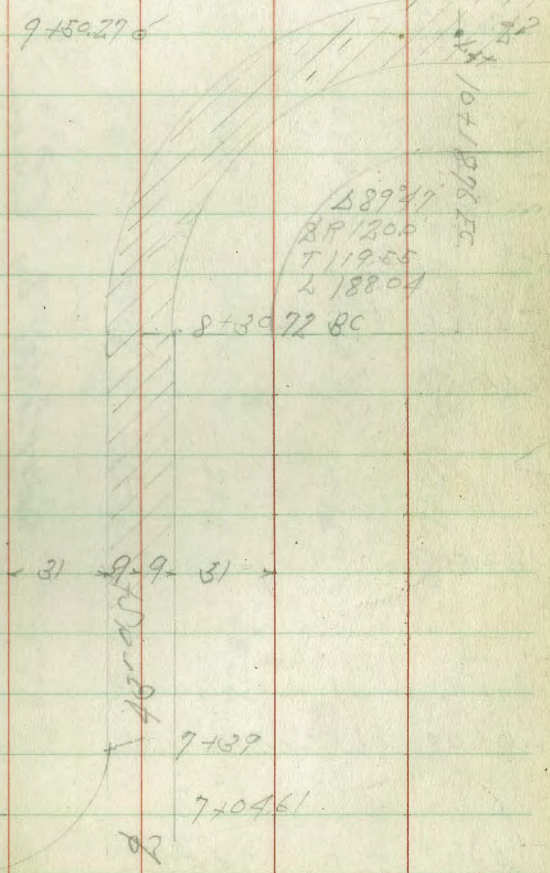
Hexton Ave



Keeler

Oct 41
J. J. Sisson
North 4th
W. Moor

Logan Ave



National Ave

TP 4.53 71.33 7.77 66.80

2+23 = C6 BC 00R1

2+0

1+50

1+0

0+50

0+09 = C6 FC 00 Lt

BM 2.10 74.57

72.47

HXBP
Kochert
43

Red-plotted by Olson

Lt-W

L

Rt-E

27

67.58

6.99
24

68.17

6.40
24

69.22

5.88
24

70.36

4.21
24

71.51

3.06
24

72.46

2.11
24

24.50

2.07

67.08

7.49
24

67.68

6.89
24

68.67

5.90
24

69.77

4.80
24

70.96

3.61
24

71.91

2.66
24

24.50

2.07

67.95

6.66
24

68.48

6.09
24

69.49

5.08
24

70.52

4.05
24

71.57

3.00
24

72.50

2.07

24.50

2.07

68.01

6.56
24

68.46

6.11
24

69.50

5.05
24

70.57

4.02
24

71.58

2.99
24

72.50

2.07

24.50

2.07

67.86

6.71
24

68.32

6.25
24

69.42

5.15
24

70.46

4.11
24

71.45

3.18
24

72.39

2.18
24

24.50

2.18

67.43

7.14
24

67.93

6.64
24

68.89

5.68
24

69.95

4.62
24

71.06

3.51
24

72.00

2.57
24

24.50

2.57

67.98

6.59
24

68.38

6.19
24

69.45

5.11
24

70.54

4.03
24

71.61

2.91
24

72.57

2.00
24

24.50

2.00

2+81 28.0' Lt of 1/2 - 1 1/4 Tol Pole

2+91 = 1/2 Core Drive on Rt

2+50

BM 7.14 64.19

2+312 = N.L. Newton

North West
Newton
43rd St
64.20

2+92 20' Rt of 1/2 - Fly 2 1/2" Palm
28' Rt of 1/2 - Fly Power Pole

2+912 = 1/2

2+672 = S.C.B. Newton

2+512 = S.L. Newton

71.33

64.08
7.25
9.20
63.66
7.67
20
65.53
7.00

64.3 7.0 10	65.1 8.25 15	64.3 7.0 19	64.62 6.71 9	64.68 6.65 10	64.56 6.77 9	64.5 6.8 17	66.6 4.7 10	67.5 3.8 40
64.4 6.9 10	65.3 6.0 25	64.7 6.6 19	65.11 6.24 9	65.28 6.05 10	65.10 6.23 9	64.9 6.4 17	66.8 4.5 20	67.7 3.6 10
65.93 5.10 10	65.61 5.22 24	66.22 5.11 9	68.24 5.09 10	66.05 5.28 9	66.04 5.29 21	66.74 5.29 40	68.48 3.85 39	
67.05 4.28 40-cb	66.46 4.87 40-cb	66.28 5.05 21	67.06 4.21 10	67.03 4.30 10	66.92 4.41 21	66.52 4.21 21	67.66 3.57 40	68.27 3.46 89-90 1/2
66.98 4.35 24-cb	66.50 4.83 21	67.33 4.00 19	67.40 3.93 10	67.25 4.08 10	66.86 4.47 14	67.47 3.86 89-90 1/2	68.67 3.46 55-cb 1/2	67.7 3.46 55-cb 1/2

71.33

TP 4.88 65.71 10.50 60.83

5+50 31.2 R/ of L = 1/4 16 x 1.6 Conc Plaster

5+35 = Conc Wall on Rt

5+24 26.0 R/ of L = Fly Paper Pole

5+22.5 24.3 L/ of L = 1/4 Rebar

5+0

4+64 = 2 3 Conc Steps on Rt

4+50

4+0

7133

117
40

116
26

121
17

124
9

123
12

128
9

117
25

124
35

138
10

61.7

61.4

60.3

60.6

60.7

96
40

99
28

110
18

106
9

106
9

106
9

103
25

90
31

81
40

85
40

87
27

100
18

96
9

91
11

91
9

87
18

76
21

70
40

76
40

76
26

85
17

79
9

82
11

78
9

80
15

81
21

75
40

7133

4

4

Rt

29

7490

7490

810.

8430.72 = B.C. Paving

37.61

846863

37.01

940534

38.21

6538

516/310 48.8

Note Section on Curve Taken Redial

115/40 53.9

97/85 55.7

97/85 55.7

87/80 56.7

84/79 56.89

84/80 56.93

88/80 56.80

88/80 57.4

87/80 57.7

87/80 58.0

81/40 57.3

82/40 57.8

89/36 56.3

78/80 57.6

79/85 57.41

79/80 57.40

81/80 57.26

81/80 57.6

82/80 57.7

82/80 57.6

89/80 56.5

89/80 57.0

72/80 58.2

74/80 57.94

75/80 57.84

78/80 57.40

77/80 58.0

75/80 59.9

77/80 60.7

77/80 57.6

68/80 58.6

66/80 58.67

69/80 58.41

70/80 57.94

70/80 58.2

70/80 60.1

70/80 60.6

66/80 59.8

65/80 60.4

66/80 60.21

67/80 59.65

66/80 58.76

66/80 58.5

66/80 59.1

66/80 60.1

65/80 60.1

46/80 60.8

38/80 61.57

44/80 60.92

53/80 60.02

55/80 59.6

55/80 61.1

55/80 60.6

BM

6.86

35.23

NW 8 P
National
Map
35.25

TP

0.31

42.09

120.2

41.78

TP

0.57

52.80

121.3

33.23

10+18.76 EC

37.60

9+81.16

37.61

9+13.58

6526

60.9

15
40

61.0

11
20

62.4

20
20

64.2

12
20

62.75

26
20

64.14

12
20

62.23

3.12

62.59

1.77

61.36

4.0
21

62.67

2.69
21

60.7

4.7
21

61.8

3.8
21

62.0

3.4
20

62.9

2.5
26

62.5

2.9
40

63.0

2.4
40

65.33

0.03

9-11/100

64.96

0.40

64.21

1.05

105-5/100

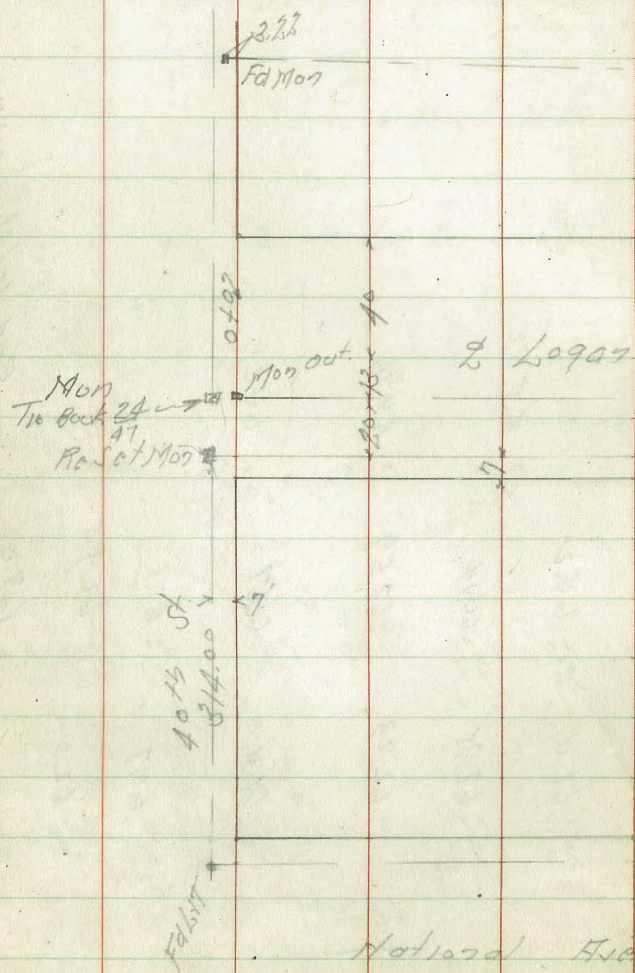
Red. 10/8/41. W.U.O.

Cross Section Logan Ave
4015 to 41st St.

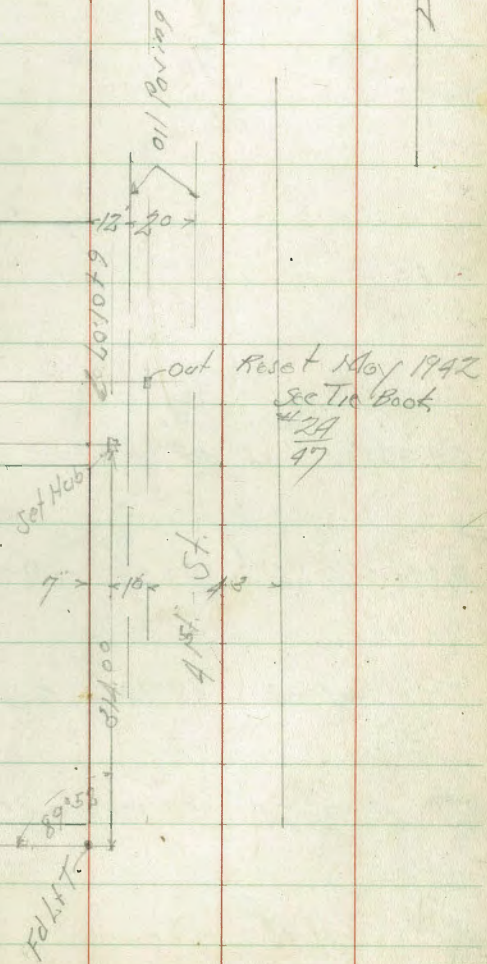
Indexed
LM

Oct. 20-41
S. 18802
Hort 5077
H. 11006

33



Hved



Reduced 10-23-41 C.B.M.
Plotted Profile SB9 11-6-41 S.B.H.

1+0				
0+70				
0+35				
0+0 = F.L. of 40+65 ft.				
BM	7.81	75.09	1.70	67.28
TP	11.33	68.98	0.85	57.65
TP	11.73	58.50	0.40	46.77
BM	11.92	47.17		35.25

SE 1/4 Sec 7
Logan Co
10+65 ft.

N 1/4 Sec 7
National
4+41+65 ft.

68.6 6.5 40	67.6 7.5 40	68.3 6.8	69.6 5.5 20	71.1 4.0 40
72.8 1.2 40	70.4 1.7 40	70.4 1.7	71.3 5.8 20	71.5 5.3 40
73.1 2.0 40	72.5 3.6 20	71.9 5.2	70.7 4.1 20	70.3 4.8 40
74.0 1.1 40	72.5 4.6 40	70.9 4.2	69.2 5.9 20	68.2 6.9 40
		75.09		

3+75

TP 0.59 52.07 12.15 51.48

3+50

3+30 26.59 $\frac{1}{2}$ = Sky Power Pole ✓

TP 0.44 63.63 11.90 63.19

3+0

3+75

75.09

348	387	399	413	432	461	484	510
17.5	12.1	12.2	10.8	8.9	6.0	5.7	1/10
60.44	40	30	13	13	30	30	1/10

52.07

356	428	444	474	513	555	594
280	20.8	19.2	16.2	12.3	8.1	4.2
85	40	50	20	20	20	40

410	471	488	520	569	599	629	629
226	16.1	14.8	11.6	6.9	3.7	1.3	0.7
80	40	30	20	15	15	25	40

63.63

437	503	519	553	607	642	654	662
21.1	24.8	23.2	19.8	14.1	10.9	9.9	8.9
60	40	28	20	14	15	25	40

506	519	520	536	619	636	653	662
24.5	23.2	23.1	21.5	13.8	11.5	9.8	8.9
50	40	30	20	15	10	20	40

75.09

60900410

5425

570

4775

4750

4725

440

5207

Lt.

L

Rt.

37

54.9	51.1	50.2	49.1	47.7	46.9	41.9	38.5	35.0
12.8	7.0	1.9	2.0	1.1	5.2	10.2	13.6	17.1
7.0	2.5	0.0	1.5		1.0	2.5	4.0	5.5

52.1	46.4	44.6	42.5	40.4	38.3	35.9	33.1	30.9
0.0	5.7	7.5	9.6	11.7	13.8	16.2	19.0	21.2
1.0	3.0	2.5	1.5		1.0	2.5	4.0	5.0

40-41
90-91

43.7	42.1	40.4	38.1	35.8	33.7	32.3	31.7	31.4
8.4	10.0	11.7	14.0	16.3	18.4	19.8	20.4	20.7
5.0	4.0	3.0	1.5		1.5	1.0	4.0	5.0

37.5	36.6	35.8	34.1	33.4	32.1	32.1	31.7	33.5
14.6	15.5	16.3	18.0	18.7	20.0	20.0	20.4	18.8
5.0	4.0	3.0	1.5		1.5	2.5	4.0	5.0

33.6	33.3	33.1	32.7	32.3	32.1	33.1	36.1
18.5	18.8	19.0	19.4	19.8	20.0	19.0	16.0
7.0	5.0	4.0	2.0		2.0	4.0	6.0

40-41
90-91

34.4	34.0	35.1	35.4	35.9	38.1	40.5
17.7	17.8	17.0	16.7	16.2	14.0	11.6
7.0	5.0	4.0	4.0		2.0	4.0

40-41
90-91

5207

BM

5.69

35.28

NW 1/4
National 4
1st St
35.28

TP

0.54

40.97

11.64

40.43

6412 = W Edge Oil Paving Approx 20' wide ↓

6403 27' Pt of 2 - Sky Power Pol ↓

6401.07 = W L 41st St

5175

5150

5207

45.9	45.3	44.1	42.4	40.5	38.3	36.3
6.2	6.8	8.0	9.7	11.6	13.8	15.8
50	40	30		20	10	60

44.4	42.5	41.2	39.8	38.9	36.9
7.7	9.6	10.9	12.3	13.2	15.2
40	30		20	10	55

46.0	45.4	44.5	44.6	44.5	43.9	43.1	42.0
6.1	6.7	7.3	7.5	7.6	8.2	9.0	12.1
40	30	20		15	30	40	50

51.2	50.2	49.0	48.3	47.8	47.7	46.5	43.1	39.1
0.9	1.9	3.1	3.8	4.3	4.9	8.1	9.0	13.0
40	35	20		15	25	35	40	35

5207

Bliss
Sommermyer
Beggs
10/31/91

X-Sections of Intersection 22nd + A St
and Levels on floor of Garage. N.W. Cor 22nd
and A

BM	9.2	149.64	145.42	SW.B.P. 22 nd + B.
	3.19	147.39	5.44	144.20

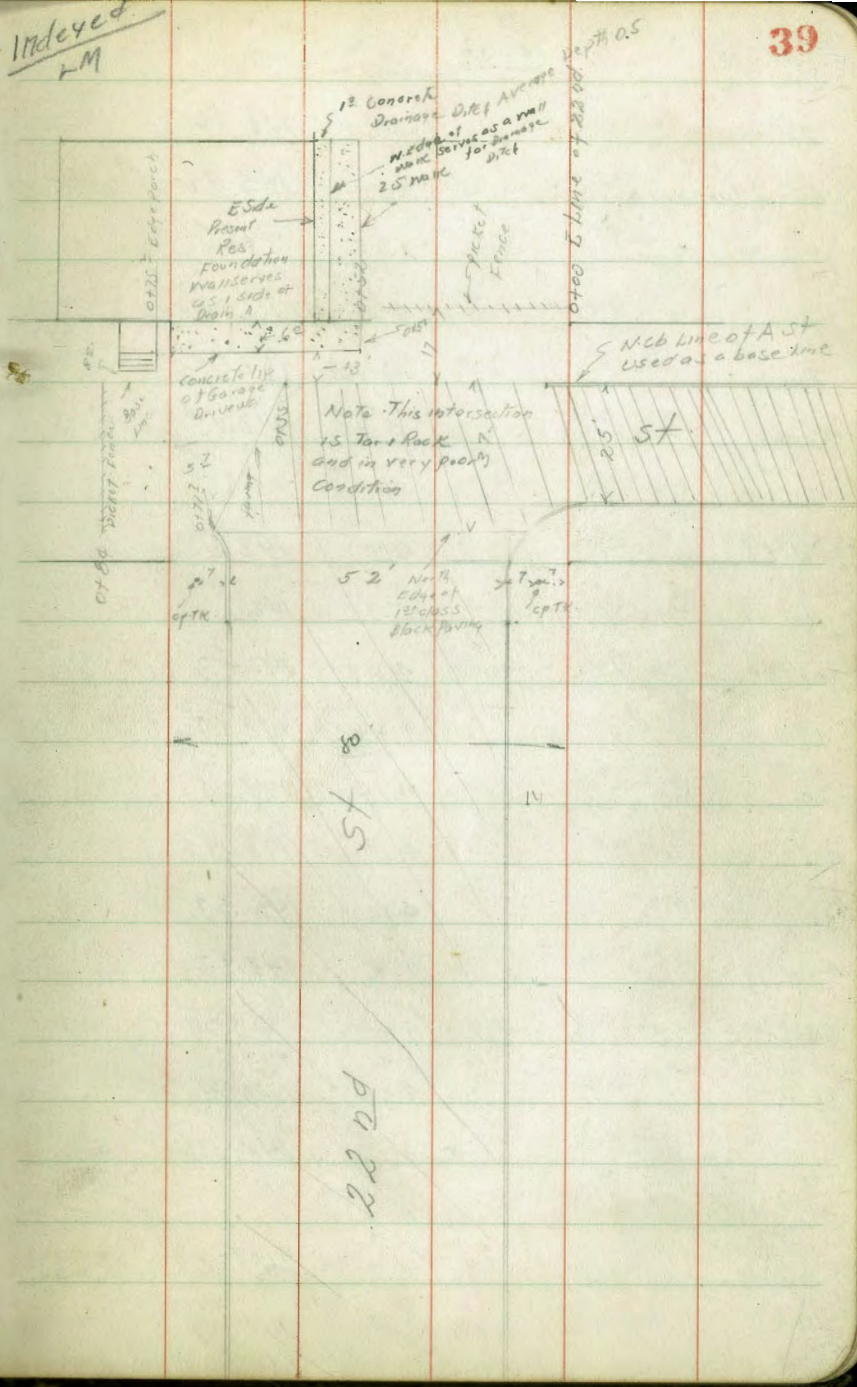
Sec 20' E of the E line of 22nd

N. Topcb	2.60	144.79	144.37
Gutter	3.02	143.37	
5' Lt	2.72	144.67	
12 1/2' Lt & A	2.22	145.17	
20' Lt	2.33	145.06	
25' Lt 5' Gutter	2.57	144.82	
" Topcb	1.66	145.73	
14' E. E line 22 nd = pc Ref on SE Cor			
25' Lt Topcb	1.99	145.40	
" " Gutter	2.82	144.57	
0400			
N. Topcb	4.33	143.06	
Gutter	4.61	142.78	
5' Lt	4.24	143.15	
12 1/2' Lt & A	3.60	143.79	
20' "	3.63	143.76	

Plotted 11/6/91 W.V.O.

Onion Plot 10-10-1946
G.D.H.

Indexed
L.M.



π
14739
0100

25' Lt	3.67	143.72
29.5' Lt. int ex cb Gutter	3.57	143.82
" " Topcb	2.74	144.65
0109 End Cb. on NE Cor.		
Topcb	4.75	142.64
Gutter	4.94	142.45
0114		
7' Rt	4.9	142.5
Ncb Line - Base	5.3	142.1
3' Lt	4.86	142.53
12.5 "	4.32	143.07
20 "	4.14	143.25
25 "	4.11	143.28
35 "	4.12	143.27
45 "	4.16	143.23
55 " E.C. Cb lot SE 12 th A	4.10	143.29
55 " Topcb	3.91	143.98
75 "	4.03	143.36
" Rt Top cb	3.27	144.12
0117		
Edge Paving Baseline	5.71	141.68
10 Rt	6.1	141.29

π
14739

40

17' Rt	6.0	141.14
17.5 "	5.6	141.8
20 "	5.8	141.6
25 "	7.1	140.3
35 Rt	8.5	138.8
5' Lt	5.30	142.09
12.5 Lt	4.79	142.60
20 "	4.51	142.88
25 "	4.43	142.96
35 "	4.29	143.10
45 Lt	4.20	143.19
55 "	4.11	143.28
75 "	3.94	143.45
0140		
Ncb Line A Baseline	6.22	141.17
12' Rt	6.8	140.6
15 "	6.5	140.9
15.5 Rt	6.1	141.3
18 "	6.5	140.9
22 "	7.8	139.6
35 Rt	9.7	137.7

T
14739

0140

5' Lt. of Base line	5.69	141.70
12.5 Lt & A	5.28	142.11
20 "	4.94	142.45
25 " S.C.B. A	4.85	142.54
35 "	4.59	142.80
45 "	4.44	142.95
55 "	4.34	143.05
75 "	4.18	143.21

0148

N.C.B. of A. Base Line	6.58	140.81
13' RT	7.4	140.0
16 "	7.1	140.3
16.5 "	6.7	140.7
22 RT	8.1	139.3
35 "	9.8	137.6
5' Lt	6.05	141.34
12.5 Lt	5.47	141.92
20 "	5.31	142.08
25 "	5.22	142.17
35	4.92	142.47
45	4.71	142.68

T
14739

41

55' Lt	4.66	142.73
75 "	4.48	142.91

0152

N.C.B. line of A	6.71	140.68
4' RT	7.6	139.8
13 " E. Edge Con. Side Walk	8.43	138.96
27 " " " " "	9.30	138.09
35 " " " " "	10.39	137.00

SEPARATE

5' Lt	6.20	141.19
12.5 Lt & A	5.67	141.72
20 "	5.39	142.00
25 "	5.30	142.09
35 "	5.07	142.32
45 "	4.90	142.49
55 "	4.84	142.55
75 "	4.67	142.72

0155

N.C.B. line A. Base line	6.81	140.58
8' RT	8.3	139.1
13 RT edge Driveway	8.60	138.79
13 " Edge. Pav. inverted of Present Drain 12' wide	9.20	138.19

19' Rt	W Edge of Walk	8.90	138.49
27' Rt	invert present Drain	9.83	137.56
" "	W Edge walk	9.40	137.99
35' Rt	invert present Drain	11.07	136.32
" "	W Edge 25 MARK Drain	10.66	136.73
0758 E Side of Garage on N.			
13' Rt	of Base Line on lip of driveway	8.53	138.86
15 "		8.82	138.57
19' Rt	Floor Garage	8.21	139.18
0766			
N. Cb Line of A. Base Line		7.8	139.6
13' Rt	edge driveway	8.49	138.90
15 "		8.61	138.79
19 "	Floor Garage	8.21	139.18
5' Lt	of Base Line	7.4	140.0
12.5		6.9	140.5
20'		6.3	141.1
25		6.1	141.3
35		5.8	141.6
45		5.87	141.52
55		5.84	141.55

Serves as Side wall for present Drain

Sidewalk for present

55' Rt		5.39	142.00
75' Rt		5.61	141.78
" "	Top of Cb	5.18	142.21
0771 2. End. Cb SW Cor 22' of A. See sketch			
37' Rt	of Base Line	6.30	141.09
" "	Top of Cb	5.73	141.66
0773 W. Side Garage on NW. Cor A + 22.00			
13' Rt	of Base Line concrete	8.44	138.95
15 "		8.43	138.96
19 "	" " " " Floor Garage	8.21	139.18
0780			
	Base Line on ground	7.9	140.0
4.5' Rt		8.03	139.36
8' Rt	Bottom step	8.10	139.29
0784			
	Base Line	7.6	139.8
4.5' Rt		8.1	139.3
5' Rt		9.9	138.5
13' Rt		11.4	136.0
12.5' Lt	2.4	7.1	140.3
25 "	"	6.7	140.7

End of Cb on SW Cor

Lip of concrete

34' LT	6.6	140.8
35 "	Bottom Present Drainage Ditch	8.1 139.3
36 "		6.6 140.8
45 "		6.1 141.3
55 "		5.5 141.9
	0785	
N.C.B. line - base	9.4	138.0
15' RT	11.8	135.6
12.5' LT	8.7	138.7
2.5	7.8	139.6
34	6.9	140.5
36 Bottom Present Drainage Ditch	8.6	138.8
38	6.7	140.7
55	5.5	141.9
Check starting BM	1.97	145.42

with the
H. J. J. J.
6-18-46

GRADES for Walk - South end Recreational
Bld on 29th St North of Marcey Ave
N.H. 8.P.
Lapans 29th

Page 75	8.50	76.95	68.45		
TR	2.78	78.41	132 75.63		
	4	wcb	f	Ecb	EL
	7323	7368	7368	7368	7390
	4.48	4.73	4.73	4.73	4.50

29th St. Section

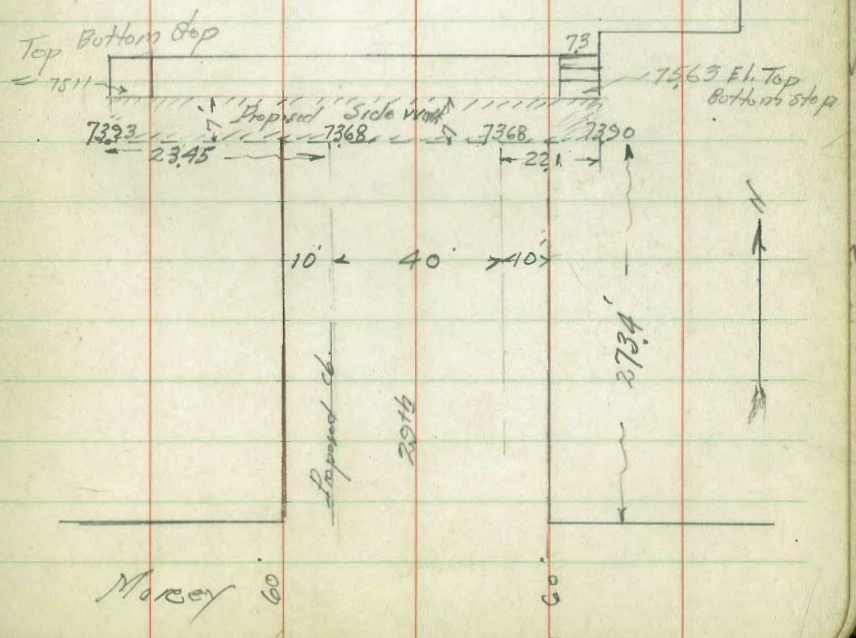
Cont. from P-80
T P-80
85.28

61408

wcb.	4.4	80.9
f	4.4	80.9
Ecb.	4.5	80.8
E	4.5	80.8
f10	4.3	81.0

chk. cut stub 5100 on E 142 83.86
Grid Book 201 83.83

003 diff



Barometer

0+50

0+25

0+10

0+0 = S.L. Redwood

0-10 = Scoble Redwood

TP 361 311.07 828 307.48

BM 295 315.76 313.01

L4T 514
Redwood
McKinley

NW 8.P
Redwood
Felted

Red. 1/26/42 (Di.)
Plotted ✓

305.40	305.5	305.9	305.9	306.4	306.8	307.1	307.5	308.0	308.5
5.69 10-14	5.6	5.2 15	5.2 15	4.6	4.3 7.5	4.0 100	3.6 125	3.1 150	2.6 175

306.46	306.5	306.7	306.9	307.3	307.7	307.8	308.4	309.0
4.63 10-16	4.4	4.1 15	4.0 15	3.8 7.5	3.4 100	3.3 125	2.7 150	2.1 175

307.10	307.2	307.6	307.8	308.2	308.3	308.7	308.6	309.1
4.29 10-16.5	4.2	4.0 15	4.0 15	3.9 7.5	3.8 100	3.4 125	3.5 150	3.0 175

307.45	307.7	307.9	308.1	308.4	308.6	308.7	308.8	309.2
3.8 10-17	3.4 15	3.2 15	3.0 15	2.7 7.5	2.5 100	2.4 125	2.3 150	1.9 175

307.55	307.7	307.98	308.24	308.51	308.68	308.94	309.07
3.54 10-16.5	3.27 15	3.1 15	2.85 7.5	2.58 100	2.41 125	2.25 150	2.08 175

311.09

Barckling

1+75

300.30	301.9	301.9	302.3	302.9	303.3	304.4	305.2	305.9
10.79	9.2	9.2	8.8	8.2	7.8	6.7	5.9	5.2
on wall	13	23	38	75	100	125	150	175

1+50

301.17	302.7	302.9	303.1	303.4	303.9	304.7	305.5	306.1
9.90	8.4	8.2	8.0	7.7	7.2	6.4	5.6	5.0
on wall	15	25	30	75	100	125	150	175

1+25

302.32	303.6	303.8	304.2	304.5	304.7	305.2	305.8	306.5
8.77	7.5	7.3	6.9	6.6	6.4	5.9	5.3	4.6
on wall	15	23	50	75	100	125	150	175

1+0

303.53	304.6	304.6	304.8	305.2	305.5	306.0	306.6	307.1
7.56	6.5	6.5	6.3	5.9	5.6	5.1	4.5	4.0
on wall	15	25	50	75	100	125	150	175

0+70 = 11/4 8" Cobble Wall

31109

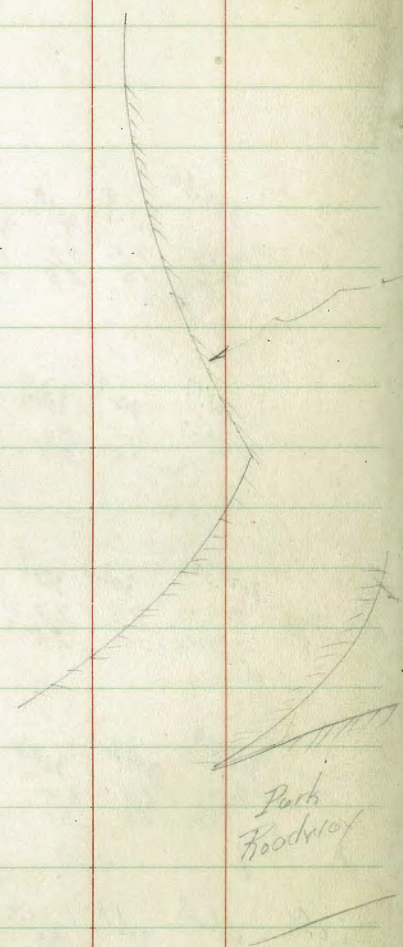
304.56	305.08	305.4	305.3	305.8	306.2	306.6	307.2	308.1
6.53	6.0	5.9	5.8	5.3	4.9	4.5	3.9	3.0
10-cb	on wall	15	25	50	75	100	125	150

31109

Walker
 Weis
 Hurdin
 2-10-42

Cross Section Miss Blvd. 60' wide
 from 18th St., East

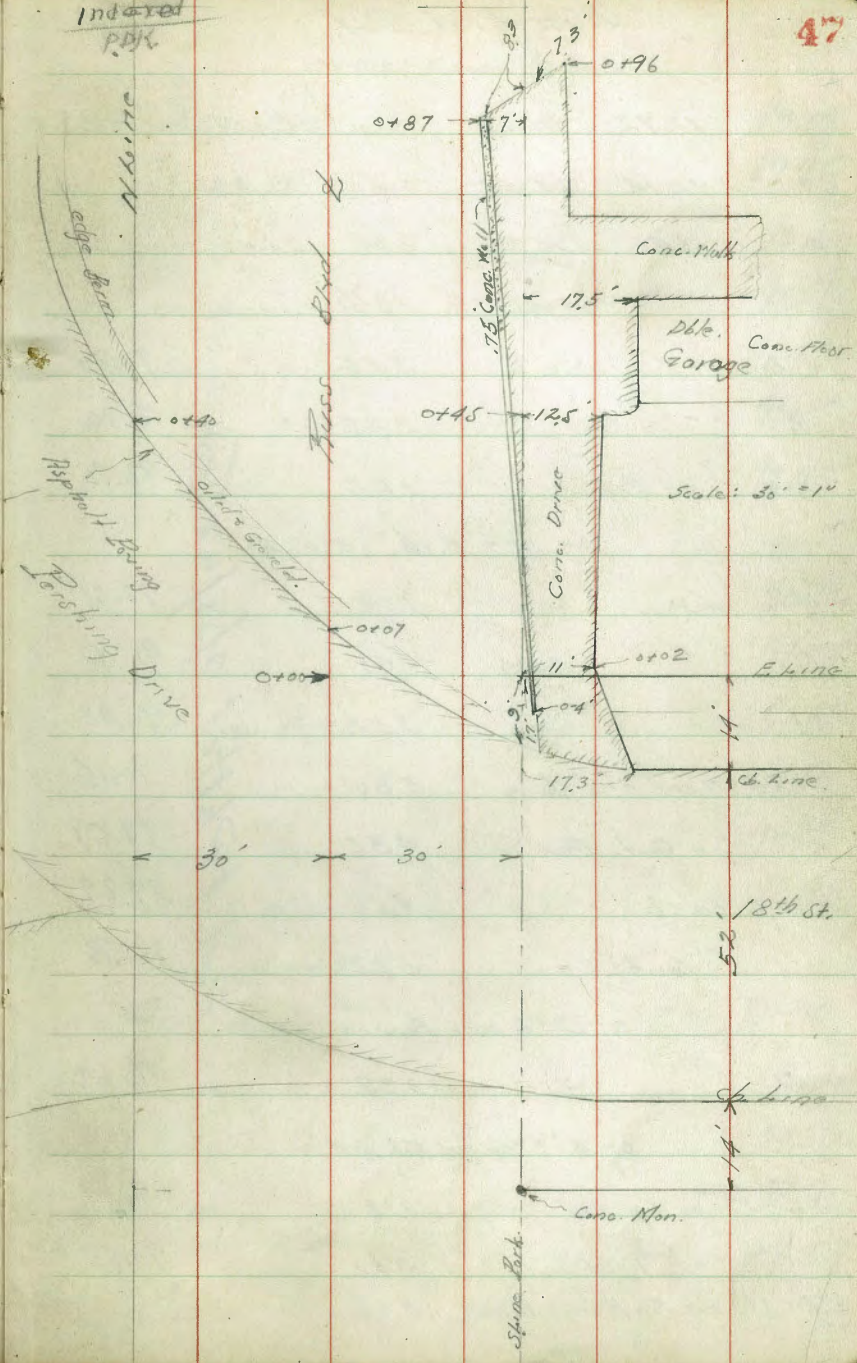
Cont. P-48



Park
Footway

Indexed
 P.D.K.

47



	12.72	80.72		68.07	N.E. EP B-st Mid 18th
T.P.	12.14	92.53	0.40	80.39	
T.P.	3.46	<u>93.25</u>	2.04	90.49	
	0-40' = 18th				
SL	on Pav.	3.25		90.70	
L	" "	2.25		91.70	
N.W.	" oil Pav.	1.22		92.73	
	0-14' = E. cb. 18th				
N.W.	on Pav.	1.34		92.61	
L	" "	2.98		91.47	
SL	" "	3.52		90.43	
+17.3	N end curb	3.80		90.15	
"	on Gut. Pav.	4.36		89.59	
+34.6	on cb.	4.66		89.29	
"	" Gut.	5.22		88.73	
	0-9' = E. edge Pav. on SL				
SL		3.33		90.62	
	0-4' = opp ^W end Red. Wall				
SL	-17' on top Wall	3.18		90.77	
"	" ^{Conc.} Gut. at Wall	3.42		90.53	
SL	-11' on East edge st. walk	3.62		90.33	Bk. in Drive

Red. & Plotted 2/20/42

0+00 = E. line 18th st.

SL	-1.6' = Bk. in Red. Wall	1.85		92.10
"	1.6' on Conc.	4.00		89.95
SL		1.9		92.1
+11	on Beritt	2.99		91.51
+22	= toe " on Pav.	2.58		91.37
L	" " "	2.50		91.45
N.W.	on " "	1.50		92.45
	0+07			
N.W.	on Pav.	1.52		92.36
L	" "	2.40		91.55
18'	on E. edge Beritt	2.20		91.75
+25		2.85		91.10
SL		2.42		91.53
+1	on Conc. Drive	4.97		88.98
	0+40			
SL	-11.7' = S. edge ^{Conc.} Drive	3.85		84.10
SL	on " "	10.74		83.21
+17	= S. edge Red. Wall	10.74		83.21
+17	on " "	5.24		88.71
+6		6.38		87.57

	<u>93.25</u>	Russ Blvd.
L.	6.6	87.4
+3	6.6	87.4
tho	1.4	92.6
+25 = E edge Berms	1.1	92.9
N.L. = E edge ^{Toe} Porch	1.67	92.28
0+45 = Break in Drive on South		
N.L. E edge Berms	1.0	93.0
+4'	1.3	92.7
+25	7.1	86.9
L	6.9	87.1
+22	6.9	87.1
+27 on top Ret Wall	5.69	88.26
+27	11.39	82.56
S.L.	11.50	82.45
+12.5 on Drive	11.85	82.10
0+75		
-6' = S. edge Drive	11.22	82.73
S.L.	11.03	82.92
+5.8' = Toe Wall	10.62	83.33
+5.8 Top "	7.80	86.15
+9	7.8	86.2

	<u>93.25</u>	Russ Blvd.
+11		85.7 ⁴⁹
L		84
12		85.5
N.L.		87.5
+16' = SLY edge Berms	1.0	93.0
0+87 = East end Ret Wall on South		
-20 = SLY edge Berms	1.0	93.0
-8'	6.0	88.0
N.L.	6.8	87.2
+14	8.6	85.4
L	8.8	85.2
+22	9.3	84.7
+23 = top Wall	8.10	85.85
" toe "	9.75	84.20
S.L.	10.0	84.0
+6.8 on S. edge Drive	10.05	83.90
T.P.	8.37	<u>92.90</u> 9.42 84.53
0+96 on South edge Drive ^{8.95} 84.45		
1+00.6 = W edge 10 Garages on South 6.4 Back		
S.L. - 6.4	9.36	83.54
S.L.	8.9	84.0

	<u>32.90</u>	Russ Blvd.	
∫		8.0	84.9
+15		7.8	85.1
N.L.		6.2	86.7
+15		4.0	88.9
1+38 = Garage on Straight Grade to 1400.6			
SL-7 on Garage Floor	9.25		83.61
" -5.2 = toe Conc. Apron	9.21		83.69
1+40			
SL-5.2 on toe Apron	8.95		83.95
SL-7.0 " Garage Floor	8.80		84.10
1+60.8			
SL-5.2 on toe Apron	8.82		84.08
SL-7.0 " Garage Floor	8.66		84.24
1+62.5			
SL-5.2 toe Apron	8.43		84.47
SL-7.0 Garage Floor	8.25		84.65
1+80			
SL-5.2 = Toe Apron	8.31		84.59
SL-7.0 = Garage Floor	8.22		84.68
1+82			
SL-5.2 = Toe Apron	8.08		84.82
SL-7.0	7.91		84.99

	<u>32.90</u>	Russ Blvd.	<u>50</u>
1+99 = E end 10 Garage on South			
SL-5.2 = Toe Apron	8.11		84.79
SL-7.0 = Garage Floor	7.95		84.95
1+50 Yardage			
SL	8.7		84.2
∫	8.2		84.7
+8	6.7		86.2
N	5.5		87.4
+10	4.7		88.2
1+75			
N.L.	4.1		88.8
∫	7.6		85.3
SL	8.3		84.6
2+01 = W edge oil Pav			
SL on oil Pav	7.9		85.0
+20 = N edge oil Pav	6.9		86.0
∫	6.2		86.7
N	2.8		90.1
2+08 = 1/2 Alley Approx.			
N	2.3		90.6

	<u>92.90</u>	Russ Blvd.	
L		5.8	87.1
+10 = N edge oil Pav.		6.7	86.2
+20 on " "		7.0	85.9
SL " " "		7.7	85.2
+30 " " "		10.5	82.4
	2+15		
SL		7.9	85.0
+1 = S. edge oil Pav.		7.6	85.3
+5 on " "		7.1	85.8
+20 " " " "		6.4	86.5
+27		6.0	86.9
L		5.2	87.7
N		2.3	90.6
T.P.	9.12	<u>95.87</u>	6.15 86.75
	2+50 = West edge Dble. Garage on South		
S-1.3 = Garage Floor		8.20	86.97
S+0.4 = Toe Conc. Apron		8.96	86.91
+10 = on oil Pav.		8.69	87.18
+20 = N edge "		8.44	87.43
L		7.2	88.7
N		3.8	92.1

	<u>95.87</u>	Russ Blvd.	51
	2+70 = E end Dble Garage on South		
N		3.6	92.3
L		6.5	89.4
+6		7.2	88.7
+10 = N edge Pav.		8.08	87.79
+20 on " "		8.26	87.61
+26 = S edge "		8.55	87.32
+29.6 = Toe Apron to Garage		8.91	86.96
S+1.3		8.85	87.02
	3+00		
S		8.2	87.7
+3' = S. edge Pav.		8.03	87.84
+10 on " "		7.87	88.00
+20 = N edge "		7.82	88.05
L		6.2	89.7
N		2.8	93.1
	3+25		
N		3.2	92.7
+20		4.5	91.4
L		5.8	90.1
+10 = N edge Pav.		7.70	88.17

	<u>95.87</u>	
+19	7.76	88.11
+28 = S. edge Pav.	7.90	87.97
S	8.03	87.84
+5	8.1	87.8
	3+50	
-5	9.2	86.7
S	8.6	87.3
+4 = S. edge Pav.	8.03	87.84
+13 on "	7.92	87.95
+22 = N " "	7.84	88.03
+24	6.0	89.9
L	5.4	90.5
N	3.6	92.3
	3+80	
N	3.3	92.6
+23	5.2	90.7
L	8.0	87.9
+6 = N edge Pav.	8.89	86.98
+16 on "	7.79	88.08
+26 = S. edge Pav.	9.12	86.75
S	8.6	87.3
+5.5 at Bld. (House)	8.7	87.2

	<u>95.87</u>	Russ Blvd.	52
	3+84		
S-5		8.6	87.3
S		8.6	87.3
+3.5 = S. edge Pav.		9.32	86.52
+14 on "		8.92	86.95
+24 = N " "		9.20	86.67
L		9.1	86.8
N		5.1	89.8
	4+00		
N		5.8	90.1
+15		9.0	86.9
L		10.5	85.4
+5 = N. edge Pav		10.1	85.8
+16 on "		10.0	85.9
+27 " "		10.0	85.9
S-6 " "		9.60	86.27
+4 = Garage Floor		9.50	86.37
	4+06		
S-4 at Garage		9.50	86.37
S		10.00	85.87
+3		10.31	85.56

	<u>95.87</u>	Russ Blvd.	
+14 on Pav.		10.99	85.38
+25 = N. edge Pav		10.65	85.22
L		10.9	85.0
+8		10.3	85.6
+10		7.6	88.3
+20		4.3	91.6
N		3.6	92.3
4+11 = End Paving.			
N		3.7	92.2
+14		4.8	91.1
+18		10.4	85.5
L		11.20	84.67
+5 = N. edge Pav		10.97	84.90
+17 on "		10.80	85.07
+28 S edge "		10.42	85.38
S		10.5	85.4
TP	0.54	91.38	5.03 90.84
TP	1.02	79.96	12.44 78.94
chk. NE BR B-St-18th		11.88	68.08
			68.07 - 817
			001

Completed 2-11-42

Additional		Levels on Curbs & Gutters		53
		20th + B. Street		
		Sketch P-56		
S-14		5.32	75.62	70.23
W-28.3	= Gvt.			8.17 67.45
S-11	P.C. 3' Radius			
W-28.3	on cb.			7.58 68.04
S-14				
W-14.3	on cb.			7.65 67.97
"	" Patch Pav.			6.77 68.85
N-0				
W-28.3	on Gvt.			7.82 67.80
"	" cb.			7.24 68.38
S-14				
W-25'	on cb P.C. 3' Rad.			7.65 67.97
"	" Gvt.			8.27 67.35
N-0				
W-10.6	on cb. at "N" P-36			6.63 68.99
"	" Gvt.			7.20 68.42
W-10.6				
W-64.65	on cb. at "B"			7.77 67.85
"	" Gvt.			8.41 67.21
W-28.3				
W-64.65	on cb.			8.18 67.44
"	" Gvt.			8.85 66.77
W-28.3				
N-10'	on Pav.			7.76 67.86
W-28.3				
N-32'	" "			8.27 67.35
W-10.6				
N-28.3	on Pav.			7.83 67.79
"	" cb.			7.22 67.40
S-14				
W-10.6	on cb.			6.79 68.73
"	" Patch.			6.16 69.46

S.E. of P.
B-20th St.

Brk. in
Paving.

N cb line
B-st.

Ch. Walker
 16 No.
 Hardin
 2-28-42

Location Proposed Drains

And East of 18th St.

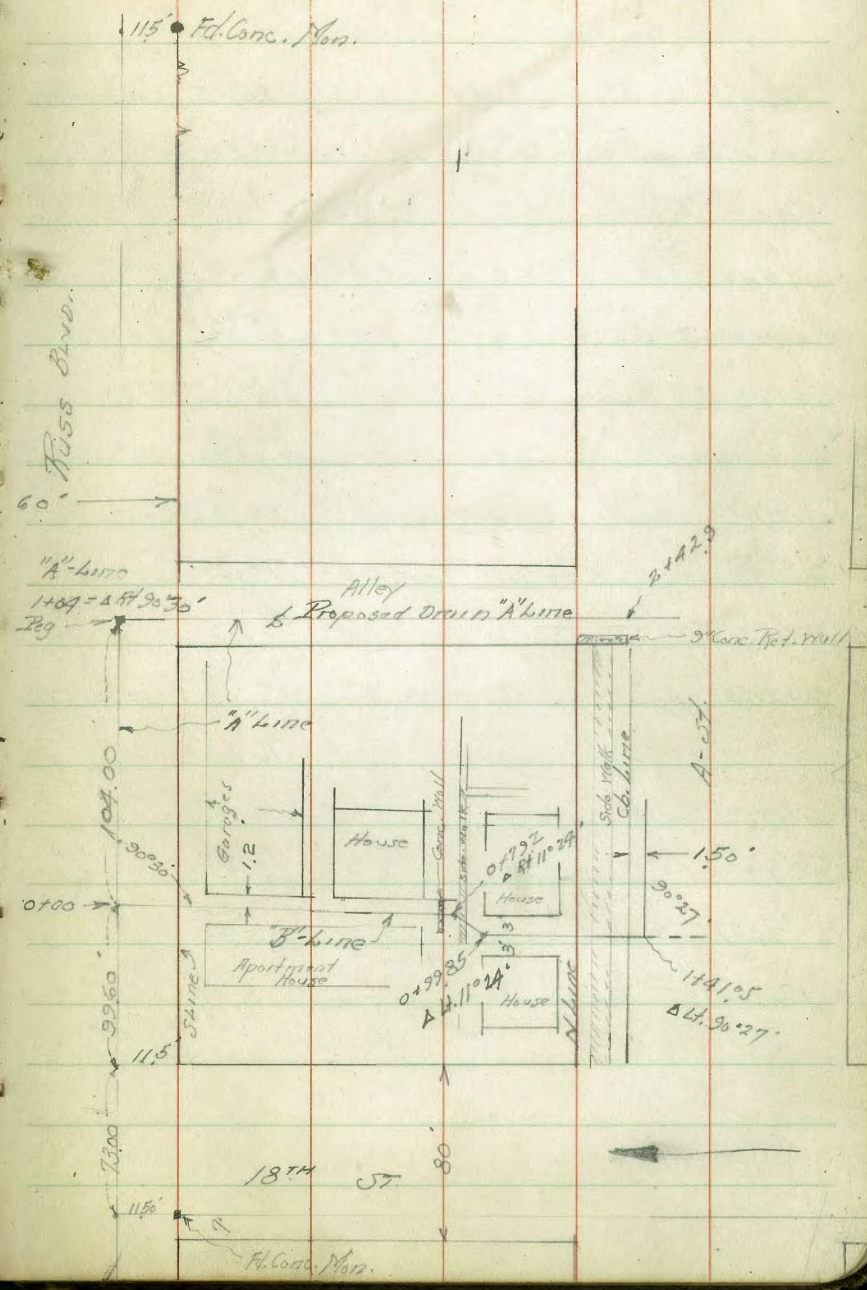
	83.73	85.85
388 "B-Line"		
99.60' East of E.L. 18th		
0+0.0 on Nail	5.9	84.3
+10	5.3	84.4
+19.1 on top Wall	6.97	82.76
	7.78	81.95
+12.1 on Concrete Conc. open Drains		
+20 " " " " "	8.02	81.71
+0.66 " " " " "	9.50	80.73
+75 = Mixed Floor 6" Drain	10.05	79.68
+75.8 = N. face Conc. Wall, Top Wall = 9.3		80.4
" " " " " on top	5.84	83.89
+0.76 in lower	9.1	80.6
+79.2 = Alt. 11° 29'	9.16	80.57
+81.9 = N edge Side Walk	9.20	80.53
+85.8 = " " "	9.34	80.37
0+99.85	9.50	80.23
+42.6	10.0	79.73
+27	10.5	79.2
+80.1 = N edge Walk - A-st.	10.70	79.03
+139.55 = N cb. - A-st.	10.91	78.82

Elev. Top Wall
 0+87 p. 49

Reduced & Plotted 3/2/42 (W)

Cont. on Pt Page 55

78.81 = cb. p. 55
 0.01 = Error



C. Walker
 Wells
 No. 28-92

"A" Line - Levels for Drain
 Location P-54

			Elev. Top Wall
5.39	21.24	85.85	0+87 - P-49
check Apron 1700.6 5-64	7.70	83.54	
0+00 = "A" Line	6.95	84.29	
+50	6.8	85.4	
1+04 = 4 Rt. 90° 30'	5.38	85.86	on slab
+19 on Pav.	6.5	84.7	
+60 on Pav.	2.85	81.39	
T.P. 4.01	82.26	12.99	78.25
2+12 on Pav.	4.05	78.21	
2+25 " "	5.61	76.65	
2+29.5 = opp 9" Conc. Ret Wall	6.27	75.99	Facing 1.8 ft. E. face
" 1.8' Ht. on top "	5.61	76.65	
2+42.9 = End of Wall	9.07	73.19	
1.8' Ht. on Wall	8.83	73.43	
2.6' Ht. " Curb "A" St.	9.30	72.96	
CHK 1+39.55 "A" Line	3.45	78.81	N. cb. H. 1.5
		78.82	6 P-54
		0.01	Error.

"B" Line Cont. from P-54

T.P. 89.73

T.P.	2.25	81.07	10.91	78.82
1+41.95 = 1 Lt. 90° 30'			3.0	78.1
2+100			7.1	74.0
1.5' Lt. on top cb.			6.28	74.79
2+10 = Bk. in 11 cb.			7.6	73.5 on ground
1.5' Lt. on cb.			6.98	74.09
2+46 = End cb. on North side			8.4	72.7
1.5' Lt. on top cb.			8.11	72.96 = 2+42.9 "A" Line
26' Ht. = E. St.			9.2	

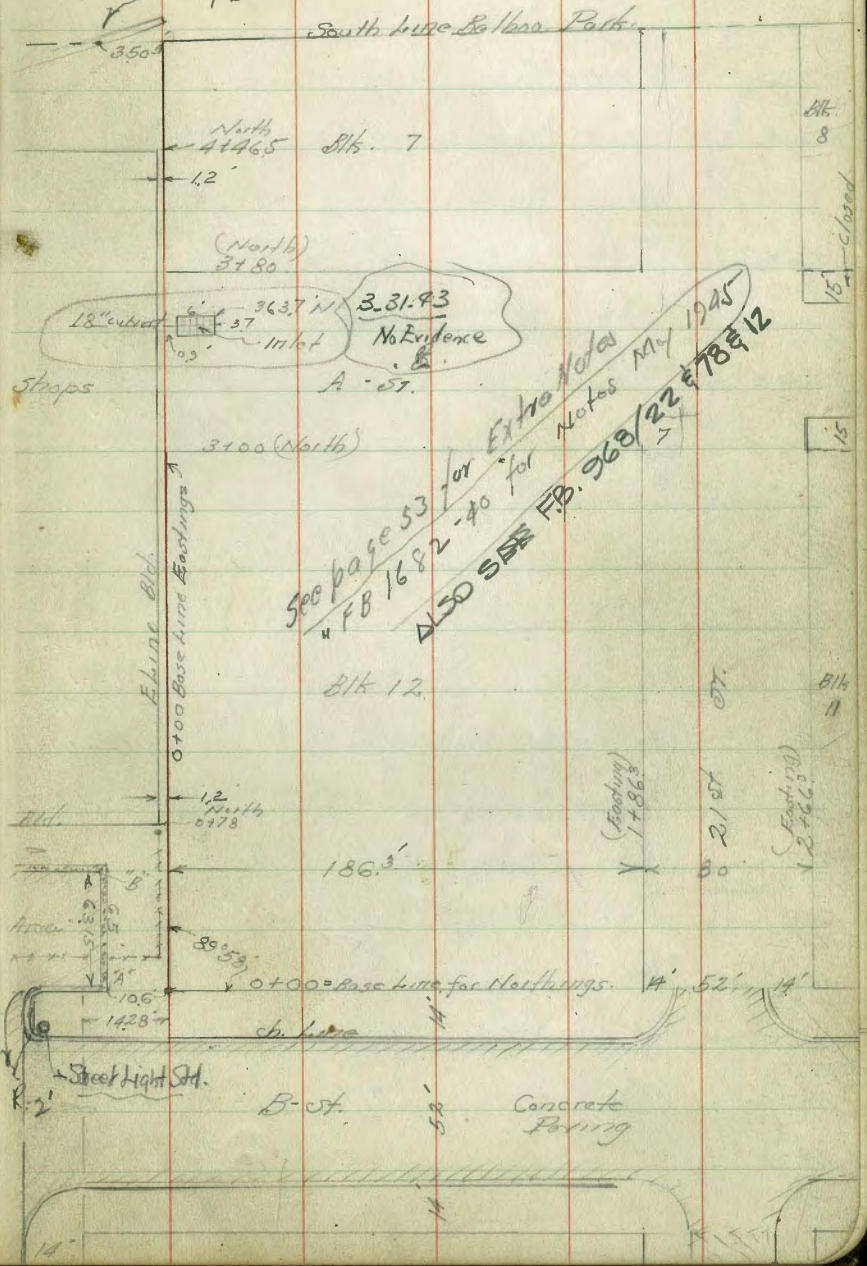
Red. & Plotted 3/1/52

CB Walker
 Walks
 Hydro
 3-20-42

Cross Sections Block
 Bet. 20th & 21st Sts.
 from B-st. to Switzer Dam.

Indexed
 c.s. 16

Fd. Ld. Pl.
 Cf. Ld. Pl.
 FB 968-12



See page 53 for Extra Notes
 " FB 1682-40 for Notes
 ALSO SEE FB. 968/22 & 78 & 12
 May 1945

Concrete Pav

Asphalt Pav

Street Light St.

B-st.

Concrete Paving

20TH

52

Blk. 8

15' closed

15

Blk. 11

(Facing 1486)

21st St

(Facing 19)

1486

12.34 82.57

S 40	L.P.O.			
W 28.3	- E. cb 20TH	13.92	68.65	on Parung
S-14				
W 28.2		14.60	67.97	on cb
"				
N 00		15.20	67.37	" Gut.
W 28.3		14.20	68.37	on cb
"				
N 0		14.65	67.92	" Gut.
W 10.6		13.62	68.95	on cb
"				
S 14		14.22	68.35	on Par.
W 14.3				
S 19		13.8	68.8	on Par.
W 14.3		14.11	68.46	on " Par.
S 40				
W 14.3		13.09	69.48	" "
S 40				
W 0		10.46	72.11	on conc. Par.
S-17.7				
W 0		11.28	71.29	E. B. St. Toe Par.
S-14				
W 0		11.06	71.51	on Par.
N 0				
W 0		10.1	72.5	
N 10				
E 3		9.8	72.8	
W 1.2				
N 10		12.3	70.3	
W 1.2				
N 25		12.6	70.0	
E 3				
N 25		9.7	72.9	
E 3				
N 50		10.2	72.4	

Red. Plot 3/26/42

70.23 SEEP
Bst x 20th82.57

57

W 1.2				
N 50		13.1	69.5	
W 10.6				
N 65		14.73	67.84	on cb.
"				
W 28.3		15.33	67.24	" Par.
N 65		15.14	67.43	on cb
"				
W 2.2		15.80	66.77	" Par.
N 78	} S.E. Cor stops 5 dia.	17.35	65.22	Corr. Foot. city stops.
W 0.1				
N 78	} Sand Conc. Wall	11.48	71.09	
W 0.1				
N 100	on Wall	12.00	70.57	
W 1.2				
N 100		15.7	66.9	
W 0.1				
N 105	Vertical Jog in Conc. Wall	12.00	70.57	
"	on "	13.2	69.4	
W 0.1				
N 113	= Vert. drop in Conc. Wall	13.3	69.3	
W 0.1				
N 113.1	on " "	13.65	68.92	
E 1.0				
N 121	= old Elec. Pole	13.7	68.9	
W 1.2				
N 125		15.7	66.9	
W 0				
N 125	on ground.	13.7	68.9	
W 0.1				
N 115	= Vert. Drop in Conc. Wall	13.7	68.9	
"	" " on " "	15.1	67.5	
W 1.2				
N 159		16.0	66.6	
W 0.1				
N 159	on Wall	15.1	67.5	North end Conc. Wall

W 2.2			
N 175	Floor City steps	17.2	65.4
W 1.2			
N 175	on Wall " "	15.2	67.4
W 0			
N 175		16.2	66.4
W 0			
N 200		16.8	65.8
E 2			
N 248	12" dia Pole	17.0	65.6
W 0			
N 300		17.1	65.5
W 0			
N 350		17.3	65.3
E 0.9			
N 360	Grading Drain Inlet of	17.53	65.04
"	on Floor 18" Culvert	19.48	63.09
W 0			
N 375		17.0	65.6
W 0			
N		16.8	66.6
E 7			
N 419	14" dia Acacia Tree	16.1	66.5

		8257	
S 14			
E 25	Gut Conc. Pav.	5.32	77.25
"			
E 25	Top cb.	4.99	77.58
N 0		5.6	77.0
E 25			
N 10		7.8	74.8
E 25			
N 25		8.6	74.0
E 25			
N 50		8.7	73.9
E 25			
N 75		9.6	73.0
E 25			
N 100		10.8	71.8
E 25			
N 150		13.7	68.9
E 25			
N 200		15.7	66.9
E 50			
S 14	on Gut	+ 0.8	83.4
"	" on cb.	+ 1.15	83.7v
E 50			
N 0		+ 0.8	83.4
E 50			
N 12	Tree slope	5.7	76.9
E 50			
N 50		7.4	75.2
E 50			
N 100		10.0	72.6
E 50			
N 125		11.4	71.2
E 50			
N 150		13.1	69.5
E 50			
N 200		15.5	67.1
E 50			
N 250		16.3	66.3
E 50			
N 300		12.6	70.0

E 75				
N 25		3.3	79.3	
E 87				
N 25		5.0	77.6	
TP	0.04	<u>74.32</u>	82.9	74.28
75 E				
150 N		4.3	70.0	
100 E				
150 N		3.5	70.8	
113 E				
150 N		3.0	71.3	
115 E				
150 N		1.9	72.4	
150 E				
200 N		0.3	74.0	
138 E				
200 N		2.3	72.0	
135 E				
200 N		4.3	70.0	
100 E				
200 N		5.7	68.6	
50 E				
250 N		8.4	65.9	
90 E				
250 N		7.5	66.8	
150 E				
250 N		4.8	69.5	
160 E				
250 N		4.8	69.5	
161 E				
250 N		3.2	71.1	
172				
275 N		3.6	70.7	
171 E				
275 N		4.8	69.5	
153 E				
275 N		5.2	69.1	
148 E				
275 N		6.4	67.9	

100 E				
275 N		7.8	66.5	
75 E				
275 N		8.2	66.1	
23 E				
287 N = 24" dia. Euc Tree		8.7	65.7	
100 E				
300 N		8.0	66.3	
128 E				
288 N } = 30" dia Euc Tree		7.9	66.4	
145 E				
289 N = " " " " " "		7.5	66.8	
162 E				
291 N = 36" " " " "		6.0	68.3	
150 E				
300 N		7.3	67.0	
165 E				
300 N		5.0	69.3	
188 E				
300 N		5.1	69.2	
300 N				
190 E		3.5	70.8	
220 E				
340 N = 1 A-st		3.3	71.0	
200 E				
340 N		4.7	69.6	
186 E = 1/4 21" st				
340 N = 2 A-st		6.5	67.8	
150 E				
340 N		7.5	66.8	
100 E				
340 N		8.2	66.1	
50 E				
340 N		8.2	66.1	
20 E				
377 N = 2" Tree 2' dia.		8.7	65.6	
40 E				
377 N " " " "		8.8	65.5	
100 E				
380 N = 1/4 A-st		8.5	65.8	

150 E		
380 N	7.9	66.4
188 E		
384 N } 36" Date Palm	6.7	67.6
193 E		
380 N } 30" Cypress Tree	6.8	67.5
186 E } N.W. Cor A-2nd		
380 N	7.2	67.1
215 E		
380 N	5.9	68.4
276 E = E 21st		
380 N = NL 21st	5.2	69.1
268 E		
400 N	4.0	70.3
250 E		
400 N	4.5	69.8
226 E = E 21st		
400 N	5.5	68.8
186 E = NL 21st		
400 N	6.8	67.5
181 E		
410 N = E 30" Pepper Tree	6.9	67.4
150 E		
400 N	7.7	66.6
124 E		
396 N } 24" Tree	7.9	66.4
106 E		
400 N	8.4	65.9
50 E		
400 N	8.5	65.8
1.2' W		
446.5 N on Conc Wall city steps	7.0	67.3
3.2' W		
446.5 } N.E. Cor city steps	2.0	65.3
7.5 E		Floor Elev.
419 N } 14" Acacia Tree	7.6	66.7
0 E		
450 N	7.1	67.2
50 E		
450 N	8.2	66.1

100 E		
450 N		8.1
150 E		66.2
450 N		7.5
186 E = NL 21st		66.8
450 N		6.5
226 E = E 21st		67.8
450 N		4.9
266 E = EL 21st		69.4
450 N		3.7
		70.6
T.P.	12.34	83.08
310 E		3.58
450 N		70.74
350 E		10.4
450 N		72.7
310 E		8.3
463 N		74.8
330 E		6.2
465 N		76.9
325 E		8.6
465 N = Top Switzer Dam		74.5
		10.6
		72.5
Notes: Group of 11 Euc Trees 8" dia (Average)		
(278 E to 325 E)		
(463 N to 480 N)		
268 E = EL 21st		
465 N = Top Hill Switzer Dam	15.8	67.3
265 E = EL 21st		
478 N = Top Switzer Dam	2.8	80.3
268 E		
520 N " " "	3.0	80.1
226 E		
463 N = Top slope " "	16.4	66.7
226 E		
484 N = Top Hill " "	3.4	79.7
226 E		
527 N " " " "	3.1	80.0

186 E			
528 N = Top Fill Switzer	Durr 3.2	79.9	
186 E			
490 N = " " "	3.8	79.3	
186 E			
473 N = Toe Fill	" 16.4	66.7	
150 E			
473 N " " "	16.2	66.9	
150 E			
489 N = Top " "	4.2	78.9	
150 E			
527 N " " "	3.6	79.5	
100 E			
525 N " " "	4.2	78.9	
100 E			
492 N " " "	4.5	78.6	
100 E			
473 N = Toe " "	16.6	66.5	
50 E			
485 N = Top Fill	" 16.2	66.2	
50 E			
500 N Top " "	4.9	78.2	
50 E			
525 N " " "	4.3	78.8	
30 E			
520 E on Durr	4.7	78.4	
22 E			
510 N on Durr	4.8	78.3	
0 E			
530 N = N edge Top Durr	7.95	75.63	
0 E			
510 10 Spill Way	8.6	74.5	
0 E			
498 N = Top Durr	5.8	77.3	
0 E			
480 N	15.6	67.5	
350 E			
485 N	3.0	80.1	
350 E			
525 N	2.6	80.5	

366 E			
525 N	2.6	80.5	
366 E			
485 N Top Switzer Durr	3.2	79.9	
366 E			
460 N = Toe Switzer "	7.0	76.1	
350 E			
425 N	4.2	78.9	
356 E			
425 N } = Toe Hull Broken Conc.	2.9	80.2	
357 E			
425 N } Top " " "	+1.3	84.4	
366 E			
425 N	+6.4	89.5	
366 E			
400 N	+10.0	93.1	
356 E			
400 N } Top " " "	+6.5	89.6	
355 E			
400 N } Toe " " "	+3.5	86.6	
350 E			
400 N	+2.0	85.1	
300 E			
400 N	8.5	74.6	
286 E			
400 N	11.7	71.4	
266 E = EL 21st			
400 N	12.6	70.5	
266 E = EL 21st			
380 N = 44 A-st	12.7	70.4	
283 E			
380 N	3.5	73.6	
350 E			
380 N	1.7.7	90.8	
366 E			
380 N	714.5	97.6	
T.P.	7.30	<u>88.98</u>	1.40 81.68
T.P.	1.31	77.76	12.53 76.45
chk. starting 8 M. BP.		7.50	70.26
SF of B-4 2019			70.23
			003

FL 21st + 10 on Per	6.51	120.98
+25 " "	4.73	122.76
North cb line B-st		
-25 on Gut Conc. Per	6.06	121.43
-25 " cb	5.47	122.02
Fl. 21st on Gut " "	9.18	118.31
" " " cb	8.79	118.70
F. cb " Conc "	9.44	118.05
L 21st " " "	10.30	117.19
Wcb " " " "	11.04	116.45
+9 " " " "	11.05	116.44
Wl. " " " "	11.40	116.09
" " cb	10.68	116.81
XL 75 on Conc "	12.31	115.18
+10 " " " "	13.36	114.13
+10 " cb	12.92	114.57
North line B-st		
W.L. 21st	11.2	116.3
W cb " on cb	10.64	116.85
" " " Gut Conc. Per	11.00	116.49
L " " Conc "	9.55	117.94

F. cb on Gut Conc. Per	9.19	118.30
" " " cb	8.82	118.67
FL 21st	7.9	119.6
TP 2.54	<u>126.82</u>	3.41 124.08
A #4 on stake	18.39	108.43
A #3 " "	0.54	126.28
TP 13.01	137.09	2.54 124.08
TP 11.73	147.72	1.10 135.99
chk SWBP B-st	2.27	145.45

(Balance of Survey by Stadia.) $145.42 - 8M$
4.03 Error.

Stadia Topog. Azimuths from South

Note: New Berger Transit with
internal focus and corrections
for instrument constant is not
necessary.

Readings from A 1: Elev = 10748.

Station	Stadia	Azimuth	Vert. A	Horiz. Dist	Elev.
W cb B-st	170	58°49	-8°05	166.7	^{-23.67} 83.8
	163	63°06	-8°26	159.6	^{-23.65} 83.8
W cb "	145	53°02	-6°41	143.0	^{-16.76} 90.7
	138	57°55	-7°16	135.7	^{-17.31} 90.2

Readings from $\Delta 1$ El. 107.48

Cont. from P. 63

Station	Stadia	Azimuth	Vert. Δ	Horiz. Dist	El.
	119'	51°57'	-5°26'	118.0	96.3 -11.12
N.C. B-st	126'	46°42'	-5°03'	125'	96.4 -11.05
" "	109	38°12'	-2°41'	108.8	102.4 -5.10
	98'	43°24'	-2°59'	97.76	102.4 -5.09
	81'	31°44'	+0°36'	80.99	108.4 +2.25
	96'	26°17'	+0°31'	95.99	108.4 +2.87
	73'	10°43'	+6°10'	72.16	115.3 +7.30
N.E. 21st	72'	7°16'	+6°51'	70.98	116.0 +2.53
	74'	335°08'	+8°10'	72.51	117.9 +10.41
N.E. 21st	95'	310°23'	+7°14'	93.52	119.4 +11.87
	110'	304°27'	+7°13'	108.3	121.2 +13.71
N.C. B-st	127'	313°20'	+6°15'	125.5	121.2 +13.73
" "	151'	304°58'	+6°44'	149	125.1 +17.57
	136'	297°30'	+7°17'	133.9	124.6 +17.10
W. edge House on Ground	163'	293°13'	+7°25'	160.4	128.4 +20.86
N.C. B-st	173'	300°07'	+6°58'	170.5	128.3 +20.83
" " "	208'	294°49'	+7°09'	204.9	133.2 +25.68
N.E. Cor House on Ground	175'	283°55'	+4°09'	174.1	120.1 +12.63
	171	277°48'	+3°24'	170.4	117.6 +10.10

107.48

64

Station	Stadia	Az.	Vert. Δ	Horiz. Dist	El.
	130'	278°37'	+2°22'	129.8	112.9 +5.36
	150	285°04'	+3°47'	149.4	117.4 +9.24
	136'	287°21'	+3°05'	135.6	114.8 +7.31
	126'	286°23'	+0°22'	126	108.3 +0.81
	123'	281°10'	+0°33'	123	108.7 +1.18
	102'	284°00'	-1°24'	101.9	105.0 -2.49
	103'	288°51'	-1°45'	102.9	104.3 -3.15
	72'	296°32'	-5°00'	71.45	101.2 -6.25
	70'	292°14'	-5°19'	69.43	101.0 -6.40
	42'	314°42'	-12°50'	40	98.4 -9.09
	47'	318°56'	-11°48'	45	98.1 -9.40
	37'	15°33'	-22°04'	32	94.6 -12.89
	42'	11°27'	-18°37'	37	94.8 -12.70
	66'	48°04'	-17°05'	60	89.0 -18.53
	58'	53°28'	-19°22'	52	89.4 -18.14
	78'	71°43'	-17°08'	71	85.5 -21.95
	90'	73°11'	-17°22'	82	81.9 -25.64
	125'	63°22'	-12°26'	119'	81.2 -26.3
	101'	31°37'	-17°52'	92.5	79.2 -28.3
	73'	82°41'	-16°33'	67	87.6 -19.9

Station	Stadia	Az.	Vert. Δ	Horiz. Dist.	
	44'	80°29'	-14°43'	41'	-10.81 96.7
	8'	63°00'	-12°38'	7.6'	-1.71 105.8
	32'	258°53'	+7°50'	31.4'	+4.32 111.8
	66'	266°48'	+5°05'	65.5'	+5.82 113.3
	68'	254°19'	+9°44'	66.1'	+11.32 118.8
	79'	257°00'	+10°21'	76.5'	+14.0 121.5
	90'	263°09'	+10°18'	87.2'	+15.83 123.3
	110'	268°05'	+9°10'	107.2'	+17.30 124.8
	135'	270°41'	+8°22'	132.2'	+19.43 126.9
	187'	272°12'	+7°34'	183.8'	+24.45 132.0

Readings from Δ^2 Elev. 108.68

	180'	270°57'	+6°09'	178'	+19.77 127.9
SW. Cor	184'	258°56'	+6°14'	181.9'	+19.9 128.6
Garage	187'	252°18'	+6°30'	184.6'	+21.0 129.7
N.W. Cor	192'	246°35'	+6°32'	189.5'	+21.7 130.4
Garage	164'	241°55'	+6°42'	161.8'	+19.0 127.7
	145'	252°08'	+6°49'	143'	+17.1 125.8
	137'	265°31'	+6°51'	136.1'	+16.2 124.9
	79'	252°00'	+8°19'	77.4'	+11.3 120.0
	93'	233°05'	+7°42'	91.3'	+12.4 121.1

Station	Stadia	Az.	Vert. Δ	Horiz. Dist.	
	79'	226°31'	+7°31'	77.7'	+10.3 119.0
	50'	237°14'	+9°51'	48.5'	+8.4 117.1
	42'	237°17'	+9°44'	40.8'	+7.0 115.7
	24'	228°08'	+9°42'	23.3'	+6.0 112.7
	-8'	67°26'	-14°33'	7.5'	-1.9 106.8
	32'	166°37'	-16°07'	29.7'	-2.5 100.2
	53'	184°57'	-10°36'	51'	-9.6 99.1
	97'	193°30'	-5°43'	96'	-7.6 99.1
	128'	192°20'	-8°04'	125.5'	-17.6 90.9
	123'	184°53'	-10°24'	119'	-21.9 86.8
	73'	164°26'	-16°20'	67'	-19.7 89.0
	57'	149°34'	-21°11'	50'	-19.2 89.5
	64'	118°28'	-24°25'	51'	-24.1 84.6
	68'	98°00'	-22°16'	58'	-23.8 84.9
	109'	78°23'	-16°26'	100'	-27.3 79.4
	97'	92°20'	-20°16'	85'	-31.5 77.2
	100'	113°35'	-21°30'	87'	-34.1 74.6
	116'	139°25'	-19°30'	103'	-36.6 72.1
	77'	140°13'	-22°02'	67'	-26.7 82.0

Readings from Δ #2 E1 10868

Cont. from P-65

Station	Stadia	Ang.	Vert. Δ	Horiz. Dist.	Elev.
					-24.7
	120'	153°45'	-17°43'	110'	74.0

READINGS from Δ #3 Elev. = 126.28

	30'	226°06'	+3°46'	29.9	+2.0 128.3
	64'	219°53'	+3°36'	63.8	+4.0 130.3
	87'	222°47'	+3°52'	86.6	+5.9 132.2
	108'	230°10'	+4°44'	107.3	+2.8 135.1
	88'	242°57'	+6°34'	86.9	+10.0 136.3
	56'	248°47'	+6°46'	55.3	+6.6 132.9
	147'	214°43'	-0°25'	147	-1.1 125.2
2' dia Euc. Tree	134'	211°35'	-0°39'	134'	-1.5 124.8
	108'	211°25'	-0°25'	108'	-1.8 125.5
	123'	197°0'	-6°58'	121.3	-14.8 111.5
	72'	193°40'	-9°45'	70'	-12.0 114.3
	46'	183°	-14°24'	43'	-11.1 115.2
	32'	137°50'	-22°18'	25'	-11.2 115.1
	46'	76°30'	-12°39'	44'	-9.8 116.5
	74'	83°78'	-17°23'	68'	-21.1 105.2

READINGS Cont.
from Δ #9 Elev. 126.28

66

Station	Stadia	Ang.	Vert. Δ	Horiz. Dist.	Elev.
					-22.4
	65'	109°23'	-21°52'	56'	103.9
	58'	140°10'	-23°25'	49'	-21.2 105.1
	77'	176°14'	-17°04'	70'	-20.4 105.9
	106'	190°25'	-10°17'	103'	-18.6 107.6
	116'	176°09'	-16°20'	107'	-31.4 94.9
	96'	162°28'	-20°31'	84'	-31.5 94.8
	85'	143°05'	-23°48'	71'	-31.4 94.9
	85'	120°38'	-24°03'	71'	-31.6 94.7
	110'	88°13'	-20°07'	97'	-35.5 90.8
	167'	100°0'	-20°05'	147'	-53.9 72.4
	160'	111°28'	-21°06'	140'	-53.8 72.5
	166'	122°30'	-20°43'	145'	-55.0 71.3
	170'	135°40'	-15°15'	158'	-43.1 83.2
	156'	144°30'	-20°22'	137'	-50.9 75.4
	147'	129°12'	-22°04'	127'	-51.2 75.1
	144'	114°13'	-22°24'	123'	-50.8 75.5
	136'	92°23'	-20°20'	119'	-44.3 82.0
	113'	93°30'	-21°08'	99'	-38.1 88.2
	108'	114°0'	-23°22'	91'	-39.4 86.9

READINGS Cont.

from Δ #3 Elev. 126.28

Station	Stadia	Az.	Vert. Δ	Horiz. Dist.		
	111	127°10'	-23°34'	93'	-10.7	85.6
	123	149°25'	-22°12'	105'	-10.3	86.0
Svt. Cor. Sewer Dept. Stone Room	186	156°08'	-17°50'	168.5	-54.2	72.1
SE " "	164	159°18'	-18°52'	147'	-50.2	76.1
NR " "	176	167°51'	-17°20'	157'	-50.0	76.3
	213	170°31'	-15°40'	197'	-55.5	70.8
	232	179°20'	-13°47'	219'	-53.2	72.5
	154	173°06'	-16°10'	142'	-41.2	85.1
	137	165°27'	-19°10'	122'	-42.5	83.8
	100	164°14'	-20°10'	88'	-32.4	93.9

READINGS from Δ #4 Elev. 108.43

S. Elec Pole	49	294°07'	+14°40'	41	+12.0	120.4
Top Bank of Ditch	50	266°58'	+9°09'	48.8	+7.9	116.3
Bottom "	49	259°52'	+3°43'	49	+3.2	111.6
" "	52	257°17'	+4°10'	51.7	+3.8	112.2
Top Bank	61	249°50'	+7°33'	60	+8.0	116.4
Top "	66	227°23'	+2°10'	66	+2.5	110.9
Bottom Ditch	69	222°41'	-3°05'	68.8	-3.7	104.7

C.B. Walker - Rec. READINGS from Δ #4

Hagard - X
Hurdin - Red. } Balance of Survey
Elev. = 108.43

67

Station	Stadia	Az.	Vert. Δ	Horiz. Dist.		
Bottom Ditch	75	220°03'	-2°28'	75'	-3.2	105.2
Top "	76	217°09'	-0°12'	78'	-0.3	108.1
Top Bank	74	208°11'	-7°22'	72.8'	-9.4	99.0
Bottom Ditch	57	209°55'	-12°06'	64'	-13.7	94.7
" "	60	210°36'	-13°01'	57'	-13.2	95.2
Top Bank	58	213°02'	-10°00'	56'	-9.9	98.5
" "	35	220°00'	-5°12'	34.7'	-3.2	105.2
Bottom Ditch	35	222°48'	-9°18'	34.1	-5.6	102.8
" "	32	224°35'	-10°18'	31	-5.6	102.8
Top "	29	227°58'	-8°52'	28.9'	-2.0	106.4
	18	256°41'	+5°57'	17.8'	+1.9	110.3
	21	309°45'	+16°37'	19'	+5.2	114.2
	31	340°17'	+15°27'	29'	+8.0	116.4
	26	22°37'	+5°58'	25.7	+2.7	111.1
	6	63°35'	-8°22'	6'	-0.9	107.5
	14	198°10'	-11°10'	13.5'	-2.7	105.7
Top Ditch	32	196°35'	-19°09'	28.6'	-1.9	98.5
1' Lt - Bottom Ditch 10' lower, than Above Stat.						
Top Ditch	43	206°32'	-14°10'	40.5'	-10.2	98.2
1' Lt - Bottom Ditch 9' below Above Stat.						

Station	Stadia	Az.	Vert A	Horiz. Dist.		
Top ditch	53'	183°43'	-24°00'	44'	-19.7	89.7
1' South - Bottom ditch 7' below Above stat						
	44'	177°04'	-25°47'	36"	-17.2	91.2
1' North - Bottom ditch 8' below Above stat						
	32'	128°14'	-31°10'	23'	-14.4	94.2
	39'	71°05'	-16°50'	36'	-10.8	97.6
	52'	47°42'	-10°07'	57'	-10.2	98.2
	67'	73°07'	-18°42'	60'	-20.3	88.1
	55'	102°13'	-26°40'	44'	-22.1	86.3
	54'	139°26'	-29°53'	41'	-23.3	85.1
S. Bank ditch.	59'	168°11'	-26°51'	46'	-23.8	84.6
bottom "	65'	172°29'	-29°42'	49'	-22.0	80.4
" "	66'	176°53'	-27°54'	52'	-27.3	81.1
Top "	64'	179°14'	-25°07'	52.5	-24.6	83.8
Top slope	79'	178°20'	-24°55'	65	-30.2	78.2
" "	83'	148°55'	-27°54'	65'	-34.3	74.1
" "	80'	122°08'	-27°43'	63'	-33.0	75.4
	90'	103°22'	-24°26'	74.5'	-34.1	74.3
	105'	94°55'	-21°21'	91'	-35.6	72.8

Station	Stadia	Az.	Vert A			Elev.
	89'	92°18'	-22°35'	76'		76.8
NW Cor Survey Dept Stone	115'	95°15'	-19°35'	102'		72.1
3' Euc Tree	148'	69°59'	-13°54'	139.5'		73.8
Filec. Pole	260'	84°19'	-9°23'	253.2		66.6
check Ground 150' N 100' E	307'	51°25'	-7°05'	302		70.8

SV
SW
SE
N

Cross Section 29th St. S.L. Ocean View Blvd
to 600' South

Notes Reduced & Plotted 5-23-42 C.B.H.

0+50

0+25

0+0 = 600' S of S.L. Ocean View

TP 2.74 90.87 9.81 88.13

BM 0.49 97.94 97.45

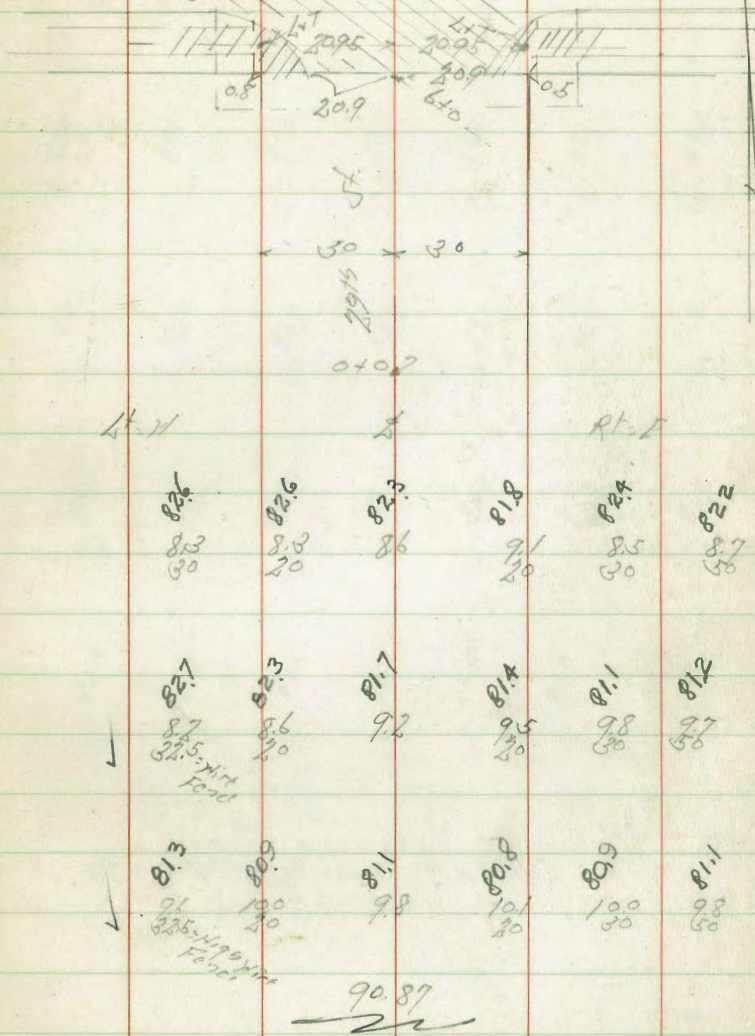
N.A.B.P.
Ocean View
+ 276 S.L.

Indexed
C.S.K.

May 23-42
S. Wood
H. Wood
Hayard

69

Ocean View Blvd.



2.9/57

3+0

2+50

2+0

1+50

1+395

1+6

225 Lt of 2 = 114 High Wire Fence
218 Lt of 2 = 114 Power Path

90.87

Lt

Z

Rt

70

288 1.5	188 2.0	188 2.0	288 2.7	88 2.6	188 2.8	818 3.5
718 3.0	698 3.0	498 3.0	698 3.0	498 3.0	678 3.0	698 3.0
198 1.5	258 3.0	458 3.0	098 1.9	458 3.0	818 3.5	258 3.5
848 1.8	848 3.0	748 3.0	648 6.0	548 6.0	648 6.0	648 6.0
158 1.5	248 3.0	448 3.0	548 6.4	248 6.7	648 6.0	858 6.0
838 7.1	838 7.6	838 7.6	238 7.7	538 7.4	048 6.0	638 6.5

90.87

5780 310 Lt of 1/2 Sky Wire Fence ✓

5750

570

4750

470

TP 9.80 100.03 0.64 90.23

3775 316 Lt of 1/2 Sky Wire Fence ✓

3750

9087

69 909	69 908	69 911	69 920	69 917	69 918	69 916
69 924	69 925	69 929	69 932	69 935	69 930	69 930
69 939	69 940	69 943	69 952	69 949	69 943	69 943
69 955	69 956	69 956	69 964	69 957	69 964	69 964
69 965	69 963	69 964	69 969	69 969	69 968	69 968

100.03

90.87

BM

2.58

9745

NEBP
00099V10V
22975 St
9745

6+14 S. Cb. Line of Occasion View

Return

31 1/2 ft off N4 W. fence
6+0 = S. Occasion View Blvd.

100.03

St.

L

Rt.

9716

2.97
40-cb

9652

2.51
40-cb

9648

2.55
40

9641

3.12

9619

2.94
40

9858

4.17
40-cb

9645

2.58
40-cb

9708

2.95
cb

9649

2.54
Guller

9599

4.04
Guller

9648

2.55
cb

972

2.8
30

9700

2.03
209-cb

9641

2.52
209-Guller

9660

2.37
10

9669

2.94

9643

2.6
10

9607

2.96
209-Guller

9652

2.51
209-cb

970

2.0
30

100.03

Moore
Wasker
Harder Levels on 33rd ST. 80' wide
Reel 20' marks
L-15-44 Grape to Fir

SW B P 144 278.39 276.95 Grape
T.P. Loda 2.73 269.14 11.98 266.21 SW Con 33rd Grape

SL Grape = 0 + 00 = Sky edge of Paved
Intersection
w cb 2.73 266 41

g-T Por 3.52 265 61

C " 3.63 265 51

E g-T " 4.87 264 27

E cb 4.12 264 98

0 + 40

w cb 1.23 267 91

g-T 2.11 267 0

C 2.7 266 4

g-T 3.7 265 4

E cb 3.3 265 8

0 + 80

w cb 1.01 268 13

g-T 1.8 267 3

Indexed
C.S.K.

269.14

c 2.2 266 5

g-T 3.8 265 3

E cb 3.5 265 6

1 + 20

w cb 2.11 267 03

g-T 2.9 266 2

c 3.6 265 5

g-T 5.4 263 7

E cb 4.7 264 4

1 + 50 = END of sdw. on WEST

w cb 3.71 265 43

g-T 4.7 264 4

c 5.4 263 9

g-T 6.7 262 4

E cb 4.4 262 7

+ 3 5.3 263 8

2 + 00

w cb 8.2 260 9

g-T 8.9 260 2

c 9.5 259 6

73

Reduced 6-16-42
 Plotted profile 1221
 See Box 4 1657 Page 62
 for correct levels of all points

g-t	10.2	258.5
E cb	9.8	259.3
+v	9.4	259.7
2440		
w cb	12.7	256.4
g-t	14.0	255.1
C	13.2	255.5
g-t	15.0	254.1
E cb	14.5	254.6
+v	13.8	255.3

T.P. 0.80 257.44 12.52 256.62

3400 wk Fin St.

w cb	7.8	249.6
+4	9.1	248.3
C	8.8	248.6
g-t	9.7	247.7
g-t + 3 ^{top} cb dist	9.2	248.2

3440 & Fin end grading

w cb	10.9	246.5
C	11.4	246.0
E cb	11.3	246.1

T.P. 12.30 267.92 0.80 256.62

T.P. 12.01 278.41 3.52 266.40

check to on 19 8/11 1.45 276.90 276.95

See Book 1657 page 62
for correct Levels
JEB/Bump

76.70

= Hedge existing Black Loring
N.L. - 6.7 = Production cb line on W

E	6.3	70.4
cb. on Pav.	7.26	69.44
L " "	7.23	69.47
W cb " "	7.13	69.57
W	7.05	69.65

0+00 = N.L. Marcey on E

W	6.0	70.7
cb.	5.6	71.1
L	6.4	70.3
cb.	6.6	70.1
E	5.1	71.6
150	5.1	71.6
1+00	4.6	72.1
150	4.3	72.4
2+00	4.9	71.8
150	5.1	71.6
3+01.8	5.2	71.5
4+29.3	5.8	70.9
4+06.5	4.8	71.9
4+85 = top club ground	3.8	72.9

76.70

0+19

485'E	4.7	72.0
406.5'E on Ground	4.2	72.5
406.5'E + Toe of Vents	2.7	74.0
380'E	4.9	71.8
10' North on Bottom Step	3.8	72.9
329.3'E	5.2	71.5
36.6 North on Bottom Step	3.6	73.1
" " " Floor	2.7	74.0
301.8'E	5.2	71.5
228.2'E - SW. Cor Bld. on ground	4.40	72.30
" Toe Vents	2.8	73.9
200'E	4.0	72.7
150'E	3.9	72.8
100'E	4.5	72.2
50'E	4.6	72.1
10'E	5.0	71.7
E.L.	5.9	70.8
cb.	6.2	70.5
E	6.2	70.5
cb.	5.7	71.0
W	5.8	70.9

7670

0+582

W	57	710
cb.	58	709
L	59	708
cb.	59	708
E	56	711
+50	47	720
+100	3.8	729
+150	3.7	730
+205.6 ⁵ NW cor Bld.	3.4	733
" " " "	2.7	74 ⁰ Top Verts
0+80		
244' E at Bld. on ground.	4.1	726
200' E	4.2	725
150' E	4.4	723
100' E	4.7	720
50' E	4.7	720
E	5.7	710
cb.	5.7	710
L	5.8	709
cb.	5.4	713
W	5.4	713

7670

1+045

77

W	5.3	714
cb.	5.2	715
L	5.6	711
cb.	5.5	712
E	5.3	714
+50	4.3	724
+100	3.8	729
+150	3.5	732
+200	3.4	733
T.P.	7.73	81.71 272 73.98
+285.3 = Δ in 8W	7.8	73.9
+306.3 = Wedge Conc. Porch	8.0	73.7 on ground
" " " " "	7.71	74 ⁰⁰ on Conc.
+328.15 E " " "	7.69	74.02
" " " " "	8.3	73.4 ground
+349.9 = Δ in Bld on ground.	8.4	73.3
431 E	8.5	73.7
445 South = NE cor Bld	8.4	73 ³ on ground.
" " " " "	7.6	74 ¹ Top Verts.
485' E	7.5	74.2

81.71

1745

485'E	7.1	74.6
431'E	7.5	74.2
349.4'E = opp Δ in Blvd	8.2	73.5
328.5'E + Edge Park	8.4	73.3
306.3'E "W" "	8.1	73.6
285.3'E opp Δ in Blvd	7.7	74.0
244'E	7.4	74.3
205.6'E opp NW cor Blvd	7.4	74.3
150'E	7.8	73.9
100'E	8.3	73.4
50'E	8.6	73.1
20'E	8.9	72.8
E	10.1	71.6
cb	10.4	71.3
L	10.0	71.2
cb	9.8	71.9
W	9.7	72.0
2100		
W	9.2	72.5
cb	9.2	72.5
L	9.5	72.2

81.71

78

Ecb	9.6	72.1
E	9.7	72.0
150'E	9.2	72.5
1100'E	8.3	73.4
150'E	7.9	73.8
200'E	7.9	73.8
250'E	8.1	73.6
300'E	8.0	73.7
350'E	7.7	74.0
400'E	7.4	74.3
485'E	6.8	74.9
2160 = Marine Club Grounds.		
485'E	5.9	75.8
400'E	5.3	76.4
350'E	5.9	75.8
300'E	5.7	76.0
250'E	5.7	76.0
200'E	5.3	76.4
150'E	5.4	76.3
100'E	6.0	75.7
50'E	7.0	74.7
10'E	7.3	74.4

2460

81.71

E	8.4	73.3
cb.	8.5	73.2
L	8.5	73.2
cb.	8.4	73.3
W	8.1	73.6

3100

W	7.6	74.1
cb.	6.8	74.9
L	7.5	74.2
cb.	7.4	74.3
E	7.1	74.6
H ₁₀	6.4	75.3

3150

-10	4.8	76.9
E	5.6	76.1
cb.	6.2	75.5
L	6.3	75.4
cb.	6.4	75.3
W	6.4	75.3

4100

W	5.0	76.7
cb.	5.0	76.7

81.71

79

L	5.5	76.2
cb.	5.2	76.5
E	4.7	77.0
H ₁₀	3.8	77.9
TP	6.90 85.28	3.33 78.38

4128

-10	7.9	77.4
E	8.2	77.1
cb.	8.5	76.9
L	8.8	76.5
cb.	8.3	77.0
W	8.2	77.1

4150

W	7.8	77.5
cb.	7.6	77.7
L	7.7	77.6
cb.	7.8	77.5
E	7.3	78.0
H ₁₀	6.5	78.8

5100

-10	5.4	79.9
E	6.2	79.1

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TABLE IV.—TANGENTS AND EXTERNALS TO A 1° CURVE.

Central Angle	Tangent	External	Central Angle	Tangent	External	Central Angle	Tangent	External
31°	1589.0	216.3	41°	2142.2	387.4	51°	2732.9	618.4
10'	1598.0	218.7	10'	2151.7	390.7	10'	2743.1	622.8
20	1606.9	221.1	20	2161.2	394.1	20	2753.4	627.2
30	1615.9	223.5	30	2170.8	397.4	30	2763.7	631.7
40	1624.9	226.0	40	2180.3	400.8	40	2773.9	636.2
50	1633.9	228.4	50	2189.9	404.2	50	2784.2	640.7
32	1643.0	230.9	42	2199.4	407.6	52	2794.5	645.2
10	1652.0	233.4	10	2209.0	411.1	10	2804.9	649.7
20	1661.0	235.9	20	2218.6	414.5	20	2815.2	654.3
30	1670.0	238.4	30	2228.1	418.0	30	2825.6	658.8
40	1679.1	241.0	40	2237.7	421.4	40	2835.9	663.4
50	1688.1	243.5	50	2247.3	425.0	50	2846.3	668.0
33	1697.2	246.1	43	2257.0	428.5	53	2856.7	672.7
10	1706.3	248.7	10	2266.6	432.0	10	2867.1	677.3
20	1715.3	251.3	20	2276.2	435.6	20	2877.5	682.0
30	1724.4	253.9	30	2285.9	439.2	30	2888.0	686.7
40	1733.5	256.5	40	2295.6	442.8	40	2898.4	691.4
50	1742.6	259.1	50	2305.2	446.4	50	2908.9	696.1
34	1751.7	261.8	44	2314.9	450.0	54	2919.4	700.9
10	1760.8	264.5	10	2324.6	453.6	10	2929.9	705.7
20	1770.0	267.2	20	2334.3	457.3	20	2940.4	710.5
30	1779.1	269.9	30	2344.1	461.0	30	2951.0	715.3
40	1788.2	272.6	40	2353.8	464.6	40	2961.5	720.1
50	1797.4	275.3	50	2363.5	468.4	50	2972.1	725.0
35	1806.6	278.1	45	2373.3	472.1	55	2982.7	729.9
10	1815.7	280.8	10	2383.1	475.8	10	2993.3	734.8
20	1824.9	283.6	20	2392.8	479.6	20	3003.9	739.7
30	1834.1	286.4	30	2402.6	483.8	30	3014.5	744.6
40	1843.3	289.2	40	2412.4	487.2	40	3025.2	749.6
50	1852.5	292.0	50	2422.3	491.0	50	3035.8	754.6
36	1861.7	294.9	46	2432.1	494.8	56	3046.5	759.6
10	1870.9	297.7	10	2441.9	498.7	10	3057.2	764.6
20	1880.1	300.6	20	2451.8	502.5	20	3067.9	769.7
30	1889.4	303.5	30	2461.7	506.4	30	3078.7	774.7
40	1898.6	306.4	40	2471.5	510.3	40	3089.4	779.8
50	1907.9	309.3	50	2481.4	514.3	50	3100.2	784.9
37	1917.1	312.2	47	2491.3	518.2	57	3110.9	790.1
10	1926.4	315.2	10	2501.2	522.2	10	3121.7	795.2
20	1935.7	318.1	20	2511.2	526.1	20	3132.6	800.4
30	1945.0	321.1	30	2521.1	530.1	30	3143.4	805.6
40	1954.3	324.1	40	2531.1	534.2	40	3154.2	810.9
50	1963.6	327.1	50	2541.0	538.2	50	3165.1	816.1
38	1972.9	330.2	48	2551.0	542.2	58	3176.0	821.4
10	1982.2	333.2	10	2561.0	546.3	10	3186.9	826.7
20	1991.5	336.3	20	2571.0	550.4	20	3197.8	832.0
30	2000.9	339.3	30	2581.0	554.5	30	3208.8	837.3
40	2010.2	342.4	40	2591.0	558.6	40	3219.7	842.7
50	2019.6	345.5	50	2601.1	562.8	50	3230.7	848.1
39	2029.0	348.6	49	2611.2	566.9	59	3241.7	853.5
10	2038.4	351.8	10	2621.2	571.1	10	3252.7	858.9
20	2047.8	354.9	20	2631.3	575.3	20	3263.7	864.3
30	2057.2	358.1	30	2641.4	579.5	30	3274.8	869.8
40	2066.6	361.3	40	2651.5	583.8	40	3285.8	875.3
50	2076.0	364.5	50	2661.6	588.0	50	3296.9	880.8
40	2085.4	367.7	50	2671.8	592.3	60	3308.0	886.4
10	2094.9	371.0	10	2681.9	596.6	10	3319.1	892.0
20	2104.3	374.2	20	2692.1	600.9	20	3330.3	897.5
30	2113.8	377.5	30	2702.3	605.3	30	3341.4	903.2
40	2123.3	380.8	40	2712.5	609.6	40	3352.6	908.8
50	2132.7	384.1	50	2722.7	614.0	50	3363.8	914.5

TABLE IV.—TANGENTS AND EXTERNALS TO A 1° CURVE.

Central Angle	Tangent	External	Central Angle	Tangent	External	Central Angle	Tangent	External
61°	3375.0	920.2	71°	4086.9	1308.2	81°	4893.6	1805.3
10'	3386.3	925.9	10'	4099.5	1315.6	10'	4908.0	1814.7
20	3397.5	931.6	20	4112.1	1322.9	20	4922.5	1824.1
30	3408.8	937.3	30	4124.8	1330.3	30	4937.0	1833.6
40	3420.1	943.1	40	4137.4	1337.7	40	4951.5	1843.1
50	3431.4	948.9	50	4150.1	1345.1	50	4966.1	1852.6
62	3442.7	954.8	72	4162.8	1352.6	82	4980.7	1862.2
10	3454.1	960.6	10	4175.6	1360.1	10	4995.4	1871.8
20	3465.4	966.5	20	4188.5	1367.6	20	5010.0	1881.5
30	3476.8	972.4	30	4201.2	1375.2	30	5024.8	1891.2
40	3488.3	978.3	40	4214.0	1382.8	40	5039.5	1900.9
50	3499.7	984.3	50	4226.8	1390.4	50	5054.3	1910.7
63	3511.1	990.2	73	4239.7	1398.0	83	5069.2	1920.5
10	3522.6	996.2	10	4252.6	1405.7	10	5084.0	1930.4
20	3534.1	1002.3	20	4265.6	1413.5	20	5098.9	1940.3
30	3545.6	1008.3	30	4278.5	1421.2	30	5113.9	1950.3
40	3557.2	1014.4	40	4291.5	1429.0	40	5128.9	1960.2
50	3568.7	1020.5	50	4304.6	1436.8	50	5143.9	1970.3
64	3580.3	1026.6	74	4317.6	1444.6	84	5159.0	1980.4
10	3591.9	1032.8	10	4330.7	1452.5	10	5174.1	1990.5
20	3603.5	1039.0	20	4343.8	1460.4	20	5189.3	2000.6
30	3615.1	1045.2	30	4356.9	1468.4	30	5204.4	2010.8
40	3626.8	1051.4	40	4370.1	1476.4	40	5219.7	2021.1
50	3638.5	1057.7	50	4383.3	1484.4	50	5234.9	2031.4
65	3650.2	1063.9	75	4396.5	1492.4	85	5250.3	2041.7
10	3661.9	1070.2	10	4409.8	1500.5	10	5265.6	2052.1
20	3673.7	1076.6	20	4423.1	1508.6	20	5281.0	2062.5
30	3685.4	1082.9	30	4436.4	1516.7	30	5296.4	2073.0
40	3697.2	1089.3	40	4449.7	1524.9	40	5311.9	2083.5
50	3709.0	1095.7	50	4463.1	1533.1	50	5327.4	2094.1
66	3720.9	1102.2	76	4476.5	1541.4	86	5343.0	2104.7
10	3732.7	1108.6	10	4489.9	1549.7	10	5358.6	2115.3
20	3744.6	1115.1	20	4503.4	1558.0	20	5374.2	2126.0
30	3756.5	1121.7	30	4516.9	1566.3	30	5389.9	2136.7
40	3768.5	1128.2	40	4530.4	1574.7	40	5405.6	2147.5
50	3780.4	1134.8	50	4544.0	1583.1	50	5421.4	2158.4
67	3792.4	1141.4	77	4557.6	1591.6	87	5437.2	2169.2
10	3804.4	1148.0	10	4571.2	1600.1	10	5453.1	2180.2
20	3816.4	1154.7	20	4584.8	1608.6	20	5469.0	2191.1
30	3828.4	1161.3	30	4598.5	1617.1	30	5484.9	2202.2
40	3840.5	1168.1	40	4612.2	1625.7	40	5500.9	2213.2
50	3852.6	1174.8	50	4626.0	1634.4	50	5517.0	2224.3
68	3864.7	1181.6	78	4639.8	1643.0	88	5533.1	2235.5
10	3876.8	1188.4	10	4653.6	1651.7	10	5549.2	2246.7
20	3889.0	1195.2	20	4667.4	1660.5	20	5565.4	2258.0
30	3901.2	1202.0	30	4681.3	1669.2	30	5581.6	2269.3
40	3913.4	1208.9	40	4695.2	1678.1	40	5597.8	2280.6
50	3925.6	1215.8	50	4709.2	1686.9	50	5614.2	2292.0
69	3937.9	1222.7	79	4723.2	1695.8	89	5630.5	2303.5
10	3950.2	1229.7	10	4737.2	1704.7	10	5646.9	2315.0
20	3962.5	1236.7	20	4751.2	1713.7	20	5663.4	2326.6
30	3974.8	1243.7	30	4765.3	1722.7	30	5679.9	2338.2
40	3987.2	1250.8	40	4779.4	1731.7	40	5696.4	2349.8
50	3999.5	1257.9	50	4793.6	1740.8	50	5713.0	2361.5
70	4011.9	1265.0	80	4807.7	1749.9	90	5729.7	2373.3
10	4024.4	1272.1	10	4822.0	1759.0	10	5746.3	2385.1
20	4036.8	1279.3	20	4836.2	1768.2	20	5763.1	2397.0
30	4049.3	1286.5	30	4850.5	1777.4	30	5779.9	2408.9
40	4061.8	1293.6	40	4864.8	1786.7	40	5796.7	2420.9
50	4074.4	1300.9	50	4879.2	1796.0	50	5813.6	2432.9

TABLE VI.—CORRECTIONS FOR SUB-CHORDS AND LONG CHORDS.

FOR SUB-CHORDS ADD										Excess of arc per 100 ft.	LONG CHORDS				
D	10	20	30	40	50	60	70	80	90		D	200	300	400	500
4°	.00	.00	.01	.01	.01	.01	.01	.01	.00	.02	1	199.99	299.97	399.92	499.85
6	.00	.01	.01	.02	.02	.02	.02	.02	.01	.05	2	199.97	299.88	399.70	499.39
8	.01	.02	.02	.03	.03	.03	.03	.03	.02	.08	3	199.93	299.73	399.32	498.63
10	.01	.02	.03	.04	.05	.05	.05	.04	.02	.13	4	199.88	299.51	398.78	497.57
12	.02	.04	.05	.06	.07	.07	.07	.05	.03	.18	5	199.81	299.24	398.10	496.20
14	.02	.05	.07	.08	.09	.10	.09	.07	.04	.25	6	199.73	298.90	397.26	494.53
16	.03	.06	.09	.11	.12	.12	.12	.09	.05	.33	7	199.63	298.51	396.28	492.57
18	.04	.08	.11	.14	.15	.16	.15	.12	.07	.41	8	199.51	298.05	395.14	490.31
20	.05	.10	.14	.17	.19	.20	.18	.15	.09	.51	9	199.38	297.54	393.86	487.75
22	.06	.12	.17	.21	.23	.24	.22	.18	.10	.62	10	199.24	296.96	392.42	484.90
24	.07	.14	.20	.25	.28	.28	.26	.21	.12	.74	12	198.90	296.33	390.74	481.34
26	.09	.17	.24	.29	.32	.33	.31	.25	.15	.86	14	198.51	295.63	388.82	477.05
28	.10	.19	.27	.34	.37	.38	.36	.29	.17	1.00	16	198.05	294.85	386.65	472.05
30	.11	.22	.31	.39	.43	.44	.41	.33	.19	1.15	18	197.54	294.01	384.24	466.34
32	.13	.25	.36	.44	.49	.50	.47	.38	.22	1.31	20	196.96	293.14	381.61	460.31
34	.15	.28	.40	.50	.55	.57	.53	.43	.25	1.48	22	196.32	292.24	378.78	453.93
36	.17	.32	.45	.56	.62	.64	.59	.48	.28	1.66	24	195.63	291.27	375.78	447.28
38	.18	.36	.51	.62	.70	.71	.66	.53	.31	1.86	26	194.87	290.25	372.65	440.38
40	.21	.40	.56	.69	.77	.79	.73	.59	.35	2.06	28	194.04	289.18	369.41	433.24
42	.23	.44	.62	.76	.85	.87	.81	.65	.38	2.28	30	193.18	288.07	366.01	425.87
44	.25	.48	.68	.84	.94	.96	.89	.72	.42	2.50	32	192.25	286.93	362.48	418.28
46	.27	.52	.75	.92	1.02	1.05	.98	.78	.46	2.74	34	191.26	285.77	358.85	410.48
48	.30	.57	.81	1.00	1.12	1.14	1.06	.86	.50	2.99	36	190.21	284.59	355.07	402.38
50	.32	.62	.89	1.09	1.21	1.24	1.15	.93	.55	3.24	38	189.10	283.39	351.17	393.90
52	.35	.67	.96	1.18	1.31	1.35	1.25	1.01	.59	3.52	40	187.94	282.17	347.17	385.05
54	.38	.73	1.04	1.28	1.42	1.46	1.35	1.09	.64	3.80	42	186.72	280.93	342.21	375.85
56	.41	.78	1.12	1.38	1.53	1.57	1.46	1.17	.69	4.09	44	185.44	279.67	337.23	366.28
58	.44	.84	1.20	1.48	1.65	1.69	1.57	1.26	.74	4.40	46	184.10	278.39	332.23	356.35
60	.47	.91	1.29	1.59	1.76	1.81	1.68	1.35	.80	4.72	48	182.71	277.09	327.21	346.07

NOTE.—When a chord of less than 100 ft. is used the corrections given in the above table should be added to the nominal length of chord to get the length which should be used in order that the 100 ft. points will check with those obtained by using the standard 100 ft. chord. Thus in locating a 14° curve by 25 ft. chords measure 25'06" for each chord. Long chords are useful in passing obstacles.

TABLE VII.—MIDDLE ORDINATES FOR RAILS IN FEET.

Deg. of Curve	LENGTH OF RAILS							Deg. of Curve	LENGTH OF RAILS.						
	32	30	28	26	24	22	20		32	30	28	26	24	22	20
1°	.022	.020	.016	.013	.011	.009	.008	16°	.356	.313	.273	.236	.200	.170	.139
2	.045	.038	.034	.029	.025	.021	.017	17	.378	.333	.290	.252	.213	.180	.148
3	.067	.058	.051	.044	.037	.031	.026	18	.400	.351	.306	.265	.225	.190	.156
4	.089	.079	.069	.060	.050	.042	.035	19	.423	.371	.324	.280	.238	.201	.165
5	.112	.099	.086	.074	.063	.053	.044	20	.445	.392	.341	.296	.250	.212	.174
6	.134	.117	.102	.088	.076	.064	.052	21	.466	.410	.357	.309	.262	.222	.182
7	.156	.137	.120	.104	.088	.074	.061	22	.487	.430	.375	.325	.275	.233	.191
8	.179	.158	.137	.119	.100	.085	.070	23	.509	.450	.390	.338	.287	.243	.199
9	.201	.175	.153	.133	.112	.095	.078	24	.531	.469	.408	.354	.299	.253	.208
10	.223	.196	.171	.148	.125	.106	.087	25	.552	.486	.424	.367	.311	.263	.216
11	.245	.216	.188	.163	.139	.117	.096	26	.573	.506	.441	.382	.323	.274	.225
12	.268	.236	.206	.179	.151	.128	.105	27	.594	.524	.457	.396	.335	.284	.233
13	.290	.254	.222	.192	.163	.138	.113	28	.618	.545	.475	.411	.348	.294	.242
14	.312	.275	.239	.207	.175	.148	.122	29	.638	.564	.491	.424	.361	.303	.250
15	.334	.295	.257	.223	.188	.159	.131	30	.660	.583	.508	.438	.374	.313	.259

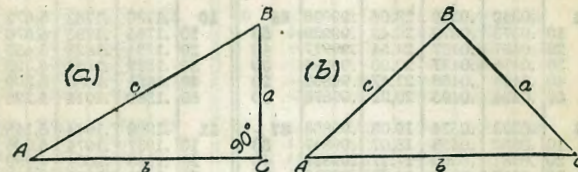
SLOPE REDUCTIONS.

When distances are measured on a slope they may be reduced to the equivalent horizontal distance by the following approximate rule:— subtract from the slope distance the square of the rise divided by twice the slope distance. Thus for a slope distance of 250.3 ft. and a rise of 15 ft. correction= $15^2 \div 2 \times 250.3 = .45$ (by slide rule) or horizontal distance= $250.3 - .45 = 249.85$. When vertical angle= $V. A.$ is measured horizontal distance= $\text{slope distance} - \text{slope distance} (1 - \text{Cos. } V. A.)$. Thus for slope distance of 248.7 ft. and $V. A.$ of $4^\circ 20'$ from Table VIII $\text{Cos} = .99714$ and correction= $1 - .99714 = .00286$ per foot or total of $.286 \times 2\frac{1}{2}$ (near enough) = .57 and horizontal distance= $248.7 - .57 = 248.13$ ft.

See fig. (a).

TRIGONOMETRICAL FORMULAS.

- sin. $A = \frac{a}{c}$
- cos. $A = \frac{b}{c}$
- tan. $A = \frac{a}{b}$
- cot. $A = \frac{b}{a}$
- sec. $A = \frac{c}{b}$
- cosec. $A = \frac{c}{a}$



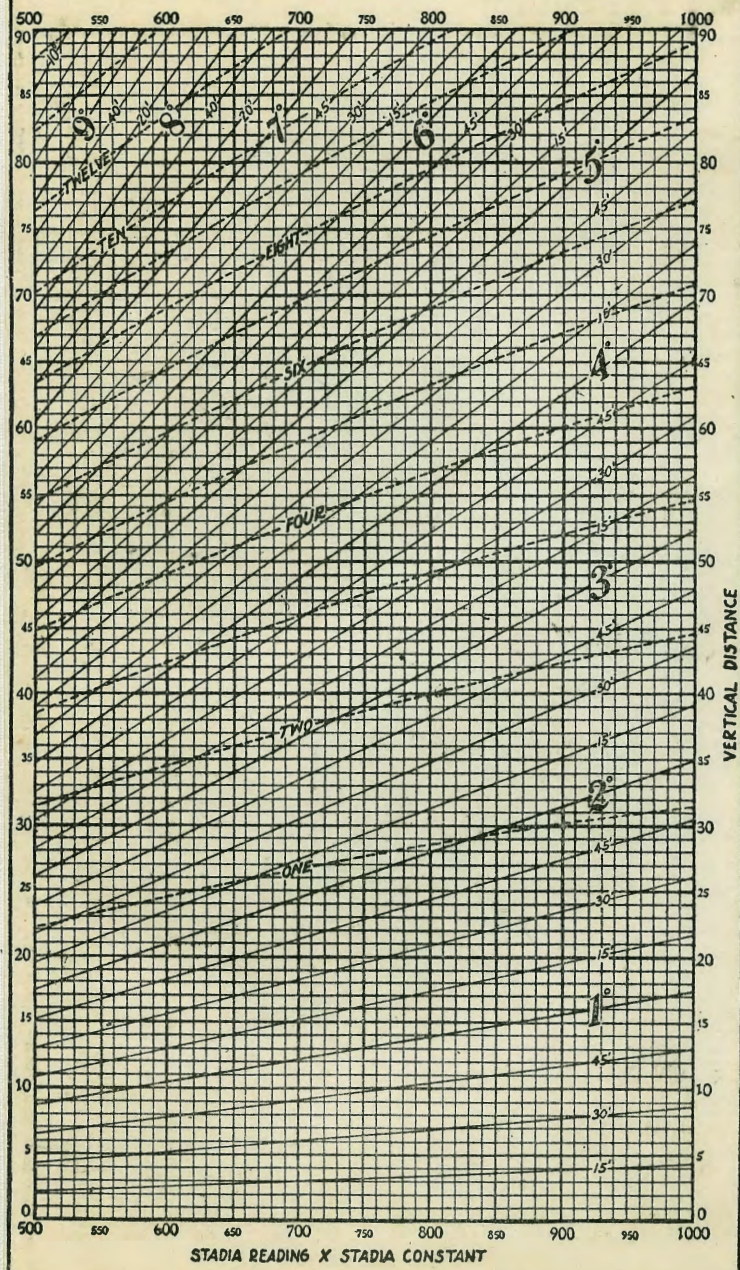
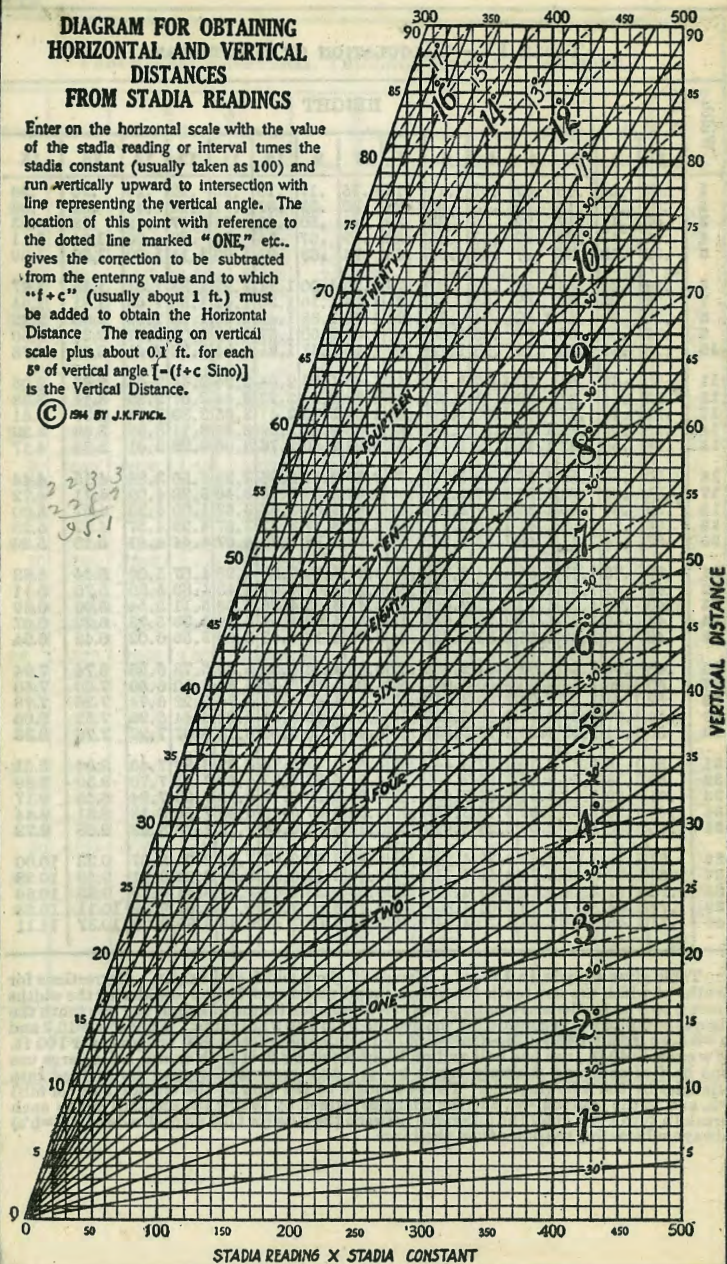
FORMULA FOR SOLVING TRIANGLES.

Given	Sought.	Right triangles. See fig. (a).
a, c	A, B, b	$\sin. A = \frac{a}{c}, \cos. B = \frac{a}{c}, b = \sqrt{(c+a)(c-a)}$
a, b	A, B, c	$\tan. A = \frac{a}{b}, \cot. B = \frac{a}{b}, c = \sqrt{a^2 + b^2}$
A, a	B, b, c	$B = 90^\circ - A, b = a \cot. A, c = \frac{a}{\sin. A}$
A, b	B, a, c	$B = 90^\circ - A, a = b \tan. A, c = \frac{b}{\cos. A}$
A, c	B, a, b	$B = 90^\circ - A, a = c \sin. A, b = c \cos. A$
Given	Sought.	Oblique triangles. See fig. (b).
A, B, a	b	$b = \frac{a \sin. B}{\sin. A}$
A, a, b	B	$\sin. B = \frac{b \sin. A}{a}$
a, b, C	$A - B$	$\tan. \frac{1}{2}(A - B) = \frac{(a - b) \tan. \frac{1}{2}(A + B)}{a + b}$
a, b, c	A	If $s = \frac{1}{2}(a + b + c), \sin. \frac{1}{2}A = \sqrt{\frac{(s-b)(s-c)}{bc}}$
		$\cos. \frac{1}{2}A = \sqrt{\frac{s(s-a)}{bc}}, \tan. \frac{1}{2}A = \sqrt{\frac{(s-b)(s-c)}{s(s-a)}}$
		$\sin. A = \frac{2\sqrt{s(s-a)(s-b)(s-c)}}{bc}$
A, B, C, a	area	$\text{area} = \frac{a^2 \sin. B \sin. C}{2 \sin. A}$
A, b, c	area	$\text{area} = \frac{1}{2} b c \sin. A$
a, b, c	area	$s = \frac{1}{2}(a + b + c), \text{area} = \sqrt{s(s-a)(s-b)(s-c)}$

DIAGRAM FOR OBTAINING HORIZONTAL AND VERTICAL DISTANCES FROM STADIA READINGS

Enter on the horizontal scale with the value of the stadia reading or interval times the stadia constant (usually taken as 100) and run vertically upward to intersection with line representing the vertical angle. The location of this point with reference to the dotted line marked "ONE," etc., gives the correction to be subtracted from the entering value and to which " $f+c$ " (usually about 1 ft.) must be added to obtain the Horizontal Distance. The reading on vertical scale plus about 0.1 ft. for each 5° of vertical angle [$-(f+c) \text{ Sino}$] is the Vertical Distance.

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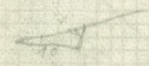


99.4
73.8
173.2

7.21
7.39
8.60

2962 40
1140

2840



9756
40
370240
96280
385120

Enter
of the
stadia
run w
line re
location
the de
gives
from t
+f+c
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of v
is the



NSW B-22nd 14592
SE 20th 7023

350
6
343.6
201
142.6

1800
1172
328.0
73.24

157.2
125
312.8
100

748
500

4065
2282
1783

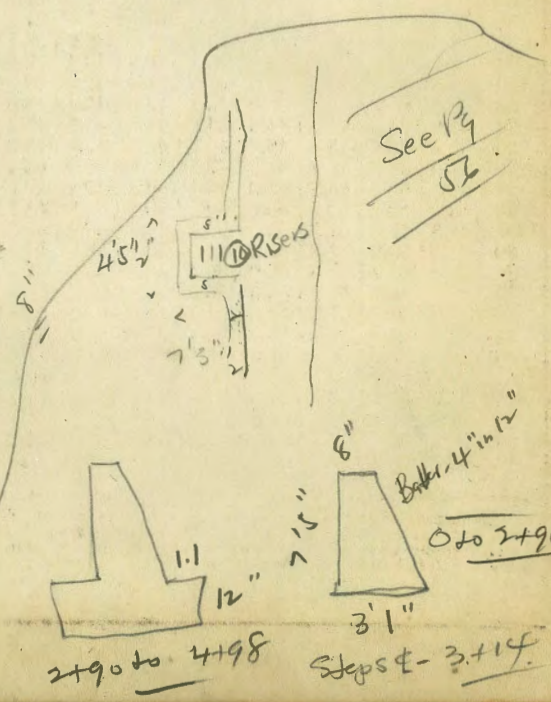
3293
275
1018
2282
73.6

207.57
543.31
115.50
344.50
1360.78
20
1340.78

2282 E
320

7208
539
77.67
428
73.39 700

Bld. & Wall - 31



DISTANCES FROM CENTER OF ROADWAY FOR
CROSS-SECTIONING.

Roadway 16 feet wide. Side Slopes 1 on 1 1/2
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.

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