

Bk. 57 Dr. 16

CARVER AVE.

Topog. & Final X-Sec.,

Sub-grade X-Sec.,

City limits to East Ave.,

S.A.B. 62-544-2)

50-43A

1950

U & E

LEVEL BOOK

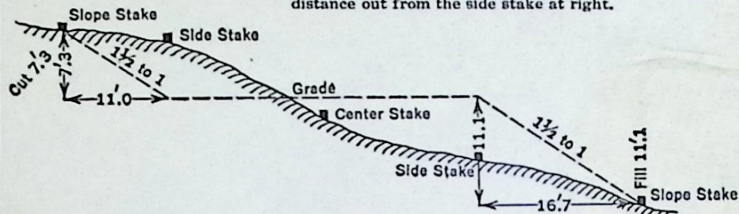
313A

Topog. & Final
X-Sec.

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

INDEX

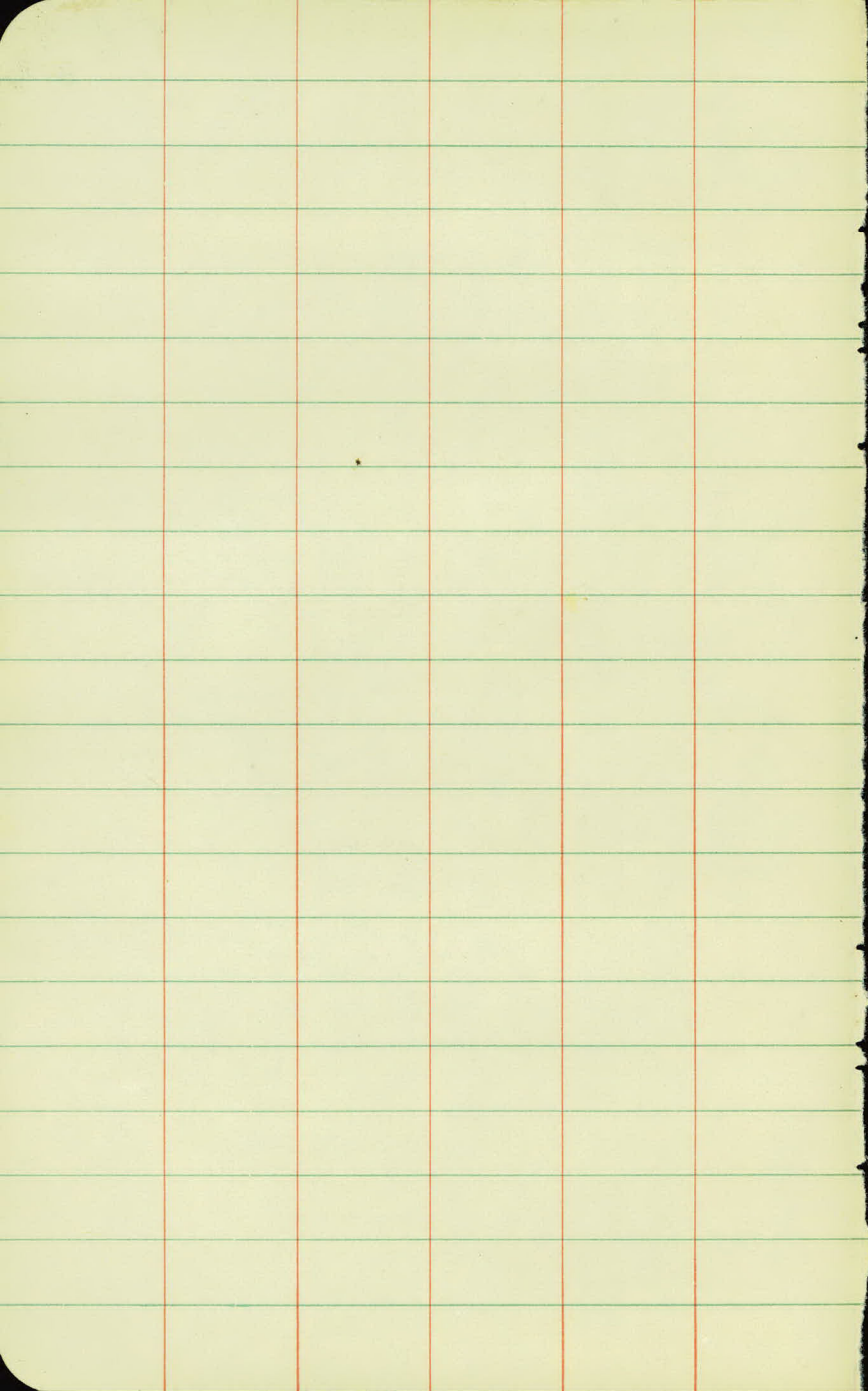
Page

Final X-Sections

1 to 16

Final Topography

20-24



Carver Ave.

73.9 =

22 ft. below

top of present C.B. Ct
of Sta. 0+47

Final X-Sections

Sta	+	π	-	Elev
BM	10.38	868.41		858.03

0+00

+26

+44

+57

1

+50

TP	11.43	879.52	0.32	868.09
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7-31-50
GB MB
AM XR

LT

E

RL 29

Spk in 30" Elm @ 0-35'

56.38
12.03

57.41	57.8	57.46	57.14	57.24	56.71
11.0	10.6	10.95	11.27	11.17	11.70
20	13.8	11	22		28
58.3	58.6	58.4	57.9	57.97	57.8
10.1	9.8	10.02	10.52	10.44	10.63
20	19	11	10.1	10.5	11
58.3	59.6	59.0	58.5	58.52	58.4
10.1	8.8	9.43	9.93	9.89	9.99
23	18	11	10.2	10.5	11
59.8	61.8	61.4	60.9	60.91	60.8
8.6	6.6	7.03	7.52	7.45	7.57
28	16	11	10.3		10.5
64.3	65.6	65.4	64.9	64.90	64.8
4.1	3.8	3.04	3.53	3.51	3.58
19	15	11.0	10.3		10.6
65.3	65.3	65.4	59.6		
3.0	3.1	3.0	3.8		
11	11	15	31		

Sta	+	Δ	-	Elev
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		879.52		
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2+00				
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+50				
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3				
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I.P.	9.94	889.08	0.38	879.14
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3+50				
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BM	6.06	892.79	2.36	886.72	886.73
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BM					
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+75					
-----	--	--	--	--	--

4					
---	--	--	--	--	--

L+

D

R+

3

66.7	69.5	69.5	69.0	69.19	69.1	69.5	69.8	60.5
12.8	10.0	9.99	10.49	10.33	10.46	9.99	9.7	19.0
20	16	11	10.3		10.4	11.1	16	36

70.6	74.0	73.9	73.4	73.7	73.4	73.9	73.9	62.8
8.9	5.5	5.62	6.12	6.05	6.16	5.63	5.1	16.7
19	50	110	10.3		10.4	11.1	16	37

67.5	78.3	78.2	77.7	77.89	77.8	78.3	78.3	65.9
12.0	1.2	12.7	17.7	16.3	17.3	12.5	12	13.6
33	15	11	10.3		10.3	11	15	39

72.0	83.0	83.1	82.6	82.68	82.6	83.1	83.1	70.1
17.1	6.1	5.97	6.48	6.40	6.48	6.00	6.0	19.0
34	16	11	10.3		10.4	11.2	16	41

Spt in 30" Elm Rt @ 4/468

8-2-50

75.4	85.7	85.6	85.1	85.17	85.2	85.7	85.7	73.0
17.4	7.1	6.21	7.70	7.62	7.6	7.10	7.1	19.8
31	16	11	10.3		10.4	11	16	41

81.3	88.7	88.5	88.0	87.99	87.9	88.5	88.4	76.3
11.5	4.1	4.27	4.80	4.80	4.85	4.25	4.4	16.5
30	17	11.0	10.2		10.4	11	15	39

Sta	+	π	-	Elev
-----	---	-------	---	------

		892.79		
--	--	--------	--	--

4 + 25				
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		905.27		
--	--	--------	--	--

T.P.	12.75	904.29	0.27	892.52
------	-------	--------	------	--------

+ 40				
------	--	--	--	--

+ 70				
------	--	--	--	--

+ 79.21				
---------	--	--	--	--

+ 90				
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+ 98.2				
--------	--	--	--	--

Lt

92.25 ✓

0.6
22

91.4 ✓

1.40
11

90.9 ✓

1.89
10.2

90.94 ✓

1.85

90.8 ✓

1.97
10.4

91.3 ✓

1.45
11

91.5 ✓

1.3
15

81.0 ✓

16.8
35

Rt

4

94.5 ✓

10.8
23

93.9 ✓

11.4
20

93.3 ✓

11.97
11

92.8 ✓

12.51
10.3

92.73 ✓

12.54

92.6 ✓

12.63
10.3

93.1 ✓

12.13
11

93.2 ✓

12.1
15

86.6 ✓

18.7
26

99.8 ✓

5.5
24

97.4 ✓

7.9
14

97.1 ✓

8.17
11

96.6 ✓

8.72
10.2

96.52 ✓

8.75

96.41 ✓

8.86
10.2

96.9 ✓

8.38
11.0

97.2 ✓

8.1
19

91.2 ✓

4.1
25

91.6 ✓

3.7
19

98.5 ✓

6.8
14

98.1 ✓

7.18
10.9

97.6 ✓

7.52
10.2

97.7 ✓

7.56
10.3

97.6 ✓

7.65
10.3

98.1 ✓

7.15
11

98.1 ✓

7.2
23

*

99.8 ✓

5.5

99.6 ✓

5.72
11

99.0 ✓

6.23
10.2

99.08 ✓

6.19

99.0 ✓

6.31
10.4

99.5 ✓

5.80
11

99.5 ✓

5.8
25

*

91.0 ✓

4.3
14

90.7 ✓

4.61
11

90.1 ✓

5.18
10.2

90.09 ✓

5.18

90.0 ✓

5.26
10.2

90.5 ✓

4.77
11.0

90.5 ✓

4.8
27

90.8 ✓

4.5
29

Sta	+	π	-	Elev
-----	---	-------	---	------

905.27

904.27

5+03.7

+18.2

+30

T.P.

12.45

917.38

0.34

904.93

~~903.93~~

+43

+54

+73

L+

R+

5

* 3.7 404 453 450
14 11 10.2

4.59 4.11 4.2 3.7
10.4 11.0 28 32

* 03.9 ✓
1.9 2.11 2.60
14 11 10

02.68 ✓
2.59
7.75

02.6 ✓
2.71
10.4

03.1 ✓
2.22 2.5
11 33

05.0 ✓
0.3 0.59 1.07 1.06
14 11 10.2

04.0 ✓
1.23 0.75 0.7 1.2 1.7
10.4 11 21 35 37

17.8.
+0.4 10.9 11. 11.71 11.41
38 14 10.8 10

05.7 ✓
05.77 ✓
11.28 11.27 11.2 11.5
10.3 11 20 37

07.9.
* 9.5 9.8 10.32 10.27
14 10.8 10

07.0 ✓
07.5 ✓
10.42 9.93 9.9 10.1
10.3 11 20 37

09.9 ✓
7.5 7.64 8.15
15 10.8 10

09.41 ✓
7.97 8.13
10.3

09.7 ✓
7.65 7.4
11 20

10.0 ✓
7.5
36

09.9 ✓
7.5
36

Sta

+

π

-

Elev

917.38

6+00

5+90

6+18

6+36.24

4.490

+98.2

5+03.7

8.08.5
27
28

07.7.✓
27
21

11.9
18

05.5.✓

05.4.✓
21

13.4
23

04.0.✓

17.4.✓
0.0
14

17.2.✓
0.23
10.8

16.7.✓
0.73
9.9

16.73.✓
0.65

16.7.✓
0.69
10.3

17.3.✓
0.13
11

17.2.✓
0.2
16

16.7.✓
0.7
21

* 2.1
16

2.28
10.8

2.75
9.9

2.63
14.75.✓

2.62
10.3

2.17
11

1.8
19

1.8
25

15.3.✓
16

15.1.✓
10.8

14.6.✓
9.9

14.75.✓

14.8.✓
10.3

15.2.✓
11

15.6.✓
19

15.6.✓
25

* 4.2
19

5.4
14

5.61
11

6.15
10

5.84
10.3

5.44
11

5.2
21

5.3
32

13.2.✓
19

12.0.✓
14

11.8.✓
11

11.2.✓
10

11.5.✓
10.3

11.9.✓
11

12.2.✓
21

12.1.✓
32

* 4.1
17

4.24
10.8

4.76
10.1

4.69
12.69.✓

4.76
10.3

4.31
11

4.1
21

4.3
28

4.1
13.3.✓

4.24
13.2.✓

4.76
13.6.✓

4.69
12.69.✓

4.76
12.6.✓

4.31
13.1.✓

4.1
13.3.✓

4.3
13.1.✓

RT

6

Sta	+	π	-	Elev
-----	---	-------	---	------

917.38

5 + 18.2

+ 30

T P	11.32	928.29	0.41	916.97
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BM	NE Cor $\rightarrow$	3.56	24.73	924.82
	NW Cor $\rightarrow$	3.61	24.68	924.62

6 + 43.24

T. P	13.61	940.29	16.1	926.68
------	-------	--------	------	--------

5 + 54

+ 73

+ 90

6

✓
13.6

3.8

31

✓
16.0

1.4

34

NE cor

✓
18.2

10.1

15

✓
17.9

10.37

10.9

✓
17.4

10.87

10.1

✓
17.47

10.82

✓
17.4

10.87

10.4

✓
17.9

10.38

11

✓
18.2

10.1

14

✓
17.8

10.5

19

✓
24.3

16.0

50

✓
28.0

12.3

56

✓
30.4

9.9

56

✓
33.8

6.5

56

Sta + T - Elev

940.29

6 + 18

TP 13.50 948.34 5.45 934.84

6 + 25

+36.25

+43.24



BM

5.63

942.71

~~952.71~~

942.71

Lt

E

Rt.

8

35.0 ✓

5.3
5.3

42.0 ✓
6.3

44.1 ✓
4.2
63

64
38.4 ✓
9.9
50

44.7 ✓
3.6
63

39.3 ✓
2.0
45

Spk in P.P.

Sta	+	$\bar{x}$	-	Elev
		925.61		924.72
BM	0.89	925.69		924.70

+24.7

+43

+54

+73

+90

6

+25

+57.48

8-4-50

Lt

E

Rt

9

Top NE cor. Conc. Door Sill #2204 Carver

15.98
15.8

24

13.2
12.4

26

15.0
10.6

29

17.8
7.8

32

20.3
5.3

33

20.5
5.1

31

22.0
16.1

3.6

24

16.0
15.5

9.5

15

10.07
15.54

9.61

10.9

10.12
11

9.9

11

16.0
16.4

9.2

23

16.1
16.1

9.5

38

16.0
16.4

9.2

23

16.1
16.1

9.5

38

16.0
16.4

9.2

23

16.1
16.1

9.5

38

16.0
16.4

9.2

23

16.1
16.1

9.5

38

21.9
19.7

37

19

19.4
19.0

6.19

10.8

19.4
19.0

6.6

10

19.4
19.0

6.6

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10

19.4
19.0

6.6

10

19.4
19.0

6.6

10

19.4
19.0

6.6

10

Sta	+	π	-	Elev
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		925.61		
		925.69		

6+75				
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7				
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		937.90		925.21
T.P.	12.69	934.98	0.40	925.29

+25				
-----	--	--	--	--

+50				
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+75				
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8				
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34.9 ✓	5.2	7.6	28.9 ✓	0.10	20.5 ✓	22.8 ✓	2+
18	19	17	17	18	18	18	18
33.9 ✓	6.4	8.7	26.7 ✓	1.6	24.0 ✓	21.4 ✓	1+
16	17	14	15	15	15	15	15
33.5 ✓	6.81	9.13	26.3 ✓	1.90	23.7 ✓	21.2 ✓	1+
11	10.9	11	11	10.9	10.9	11	11
33.0 ✓	7.30	9.62	25.8 ✓	2.40	23.2 ✓	20.7 ✓	1+
10	10	10	10	10	10	10	10
32.98 ✓	7.19	9.58	25.83 ✓	2.31	23.30 ✓	20.78 ✓	1+
10	10.4	10	11	10	10	10	10
32.9 ✓	6.86	9.23	25.7 ✓	2.45	23.2 ✓	20.6 ✓	1+
10.3	11	11	11	10	10	10	10
33.4 ✓	6.6	8.9	26.3 ✓	1.98	23.6 ✓	21.1 ✓	1+
11	14	14	15.5	11	11	11	11
33.8 ✓	6.5	9.0	26.1 ✓	1.7	23.9 ✓	21.2 ✓	1+
15	18	18	22	18	18	15	15
		10.5	27.4 ✓	1.7	23.9 ✓	21.2 ✓	1+
		23	27	18	18	19	19

Sta	+	π	-	Elev
-----	---	-------	---	------

		937.90 937.98		
--	--	------------------	--	--

8+12				
------	--	--	--	--

+16				
-----	--	--	--	--

+34				
-----	--	--	--	--

T.P.				
------	--	--	--	--

	11.10			
--	-------	--	--	--

		948.92		
--	--	--------	--	--

		948.90		
--	--	--------	--	--

			0.18	
--	--	--	------	--

				937.72
--	--	--	--	--------

				937.80
--	--	--	--	--------

+4585				
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+50				
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+54				
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Reverse
Section

Reverse
Sec.

38.4. ✓ 10.4 17	38.2. ✓ 10.6 14	37.9. ✓ 10.92 11	37.5. ✓ 11.35 10.3	37.2. ✓ 11.60 10.2	36.9. ✓ 11.92 10.1	36.8. ✓ 12.01 10.1	37.3. ✓ 11.49 11	37.7. ✓ 11.1 14	37.8. ✓ 11.0 16
39.1. ✓ 97 19	38.7. ✓ 10.1 16	38.0. ✓ 10.8 14	37.7. ✓ 11.12 11	37.2. ✓ 11.61 10.2	37.2. ✓ 11.60 10	37.1. ✓ 11.68 10	37.7. ✓ 11.16 11	37.9. ✓ 10.9 14	38.2. ✓ 10.6 16
39.5. ✓ 93 19	38.8. ✓ 10.0 17	37.6. ✓ 11.2 14	37.4. ✓ 11.44 11	36.9. ✓ 11.96 10	36.9. ✓ 11.92 10.1	36.8. ✓ 12.01 10.1	37.3. ✓ 11.49 11	37.7. ✓ 11.1 14	37.8. ✓ 11.0 16
36.3. ✓ 1.6 29	36.1. ✓ 1.8 22	36.4. ✓ 1.45 15	36.0. ✓ 1.92 11	36.0. ✓ 1.87 10	36.0. ✓ 1.93 10	36.0. ✓ 1.46 11	36.4. ✓ 1.1 14	36.8. ✓ 1.1 14	36.3. ✓ 1.0.4 16.0
36.0. ✓ 1.9 34	35.3. ✓ 2.6 18	35.1. ✓ 2.8 14	34.9. ✓ 3.01 11	34.4. ✓ 3.49 10	34.7. ✓ 3.43 10.2	34.4. ✓ 2.50 11	34.9. ✓ 2.99 11	35.2. ✓ 2.7 14	36.7. ✓ 1.2 16
35.4. ✓ 2.5 18	34.9. ✓ 3.0 16	34.5. ✓ 3.40 11	34.0. ✓ 3.88 10	34.0. ✓ 3.81 10	34.0. ✓ 3.91 10	34.5. ✓ 3.43 11	34.9. ✓ 3.0 14	36.8. ✓ 1.1 17	

Sta	+	π	-	Elev
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		948.82 948.90		
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+63				
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+75				
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8 +67				
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9				
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+25				
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+50				
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1	2	3	4	5	6	7	8	9	10
43.3 ✓	43.6 ✓	43.8 ✓	43.7 ✓	43.2 ✓	43.1 ✓	43.7 ✓	43.7 ✓	43.7 ✓	43.7 ✓
5.5	5.2	5.0	5.15	5.66	5.69	5.69	5.69	5.69	5.69
28	25	17	11	10.2	10.2	11	15	18	
44.8 ✓	44.6 ✓	42.8 ✓	42.6 ✓	42.1 ✓	42.1 ✓	42.6 ✓	42.6 ✓	42.5 ✓	
40	42	60	6.22	6.72	6.61	6.72	6.23	6.3	
20	18	13	11	10.3	10.3	11	17	24	
42.5 ✓	41.5 ✓	41.2 ✓	39.4 ✓	38.1 ✓	38.6 ✓	38.5 ✓	39.0 ✓	39.2 ✓	
7.3	7.6	9.4	10.74	10.26	10.21	10.32	9.80	9.6	
21	18	15	160	10.3	10.4	11.0	14	17	
42.6 ✓	42.3 ✓	39.9 ✓	39.7 ✓	39.1 ✓	39.1 ✓	39.1 ✓	39.5 ✓	39.8 ✓	
6.2	6.5	8.9	9.16	9.68	9.63	9.75	9.26	9.0	
21	18	14	11	10.4	10.5	11	14	17	
41.8 ✓	40.5 ✓	40.4 ✓	38.9 ✓	38.7 ✓	38.2 ✓	38.7 ✓	38.9 ✓	39.1 ✓	
7.0	8.3	8.4	9.9	10.08	10.59	10.65	9.9	9.7	
22	21	17	14	11	10.3	10.4	15	17	

? should this be reversed
Reversed Section

Reversed Section

Sta	+	π	-	Elev
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948.82

948.90

9+75

10

BM

4.72

952.07

1.45

947.37 947.35

947.45

+10

+33

+39

+50

Sta	+	π	-	Elev
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		952.07		
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10 +54				
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11				
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			?	+20 from H.I. above
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+20				
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	5.30			
--	------	--	--	--

		957.24		
--	--	--------	--	--

			0.13	
--	--	--	------	--

				951.94
--	--	--	--	--------

87-50
GB MB
AM KR

+50				
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+80				
-----	--	--	--	--

12				
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Time	Temp	Wind	Clouds	Pressure	Humidity	Visibility	Remarks
00.00	49.1	3.0	23.6	49.1	48.0	46.1	44.9
00.15	48.0	4.1	20	48.0	46.1	44.9	44.9
00.30	46.1	6.0	16	45.6	45.6	45.6	45.6
00.45	44.9	7.2	14.5	45.6	45.6	45.6	45.6
01.00	44.9	7.2	9	45.7	45.7	45.7	45.7
01.15	45.0	7.1	6.1	46.0	46.0	46.0	46.0
01.30	45.8	6.3	5	45.8	45.8	45.8	45.8
01.45	45.7	6.4	14.5	45.7	45.7	45.7	45.7
02.00	47.0	5.1	16	47.0	47.0	47.0	47.0
02.15	50.0	2.1	21	50.0	50.0	50.0	50.0
02.30	49.7	2.4	20	49.7	49.7	49.7	49.7
02.45	46.3	5.8	9	46.3	46.3	46.3	46.3
03.00	46.2	5.9	14	46.2	46.2	46.2	46.2
03.15	46.8	5.3	16	46.8	46.8	46.8	46.8
03.30	55.1	2.1	22	55.1	55.1	55.1	55.1
03.45	52.4	4.8	18	52.4	52.4	52.4	52.4
04.00	48.1	9.1	15	48.1	48.1	48.1	48.1
04.15	47.9	9.3	10	47.9	47.9	47.9	47.9
04.30	48.2	9.0	9	48.2	48.2	48.2	48.2
04.45	48.9	8.3	8	48.9	48.9	48.9	48.9
05.00	48.7	8.5	15	48.7	48.7	48.7	48.7
05.15	49.0	8.2	15.2	49.0	49.0	49.0	49.0
05.30	47.9	9.3	14	47.9	47.9	47.9	47.9
05.45	48.3	8.9	16	48.3	48.3	48.3	48.3
06.00	48.3	8.9	15.6	48.3	48.3	48.3	48.3

Sta	+	π	-	Elev
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957.24

12 + 30

+ 63

13

+ 25

+ 50

+ 66

PI @ City Limits

41	2.8	54.9.✓	49	53.3.✓	18	4.8	52.4.	18	4.8	52.2.✓	16	5.0	52.5.✓	20	4.7	52.5.✓	23	3.7	53.5.✓
32	3.3	53.9.✓	16	53.1.✓	16	4.8	52.4.	18	4.8	52.2.✓	16	5.0	52.5.✓	18	4.8	52.5.✓	21	3.9	53.3.✓
13	3.4	53.8.✓	14	52.9.✓	15	4.9	52.3.	15	4.9	51.6.✓	14	5.6	50.6.✓	14	4.6	50.6.✓	15	2.4	49.8.✓
8	3.2	54.0.✓	9	53.4.✓	8	4.6	52.6.	8	4.6	51.8.✓	9	5.4	51.8.✓	9	4.6	50.6.✓	9	2.5	49.7.✓
0	3.0	54.2.✓	3	53.9.✓	4	4.4	52.8.✓	4	4.4	52.0.✓	5	5.2	52.0.✓	6	4.3	50.9.✓	23	2.3	49.9.✓
					6	4.4	52.8.✓	6	4.4	52.0.✓									
					14	4.7	52.5.✓	14	4.7	52.1.✓	6	5.1	52.1.✓	5	4.9	50.7.✓			
					16.5	3.9	53.3.	16.5	3.9	51.8.✓	14.3	5.4	51.8.✓	18	4.9	51.7.✓			
					6	3.4	53.8.✓	6	3.4	52.8.✓							15	2.7	49.5.✓
					15	3.5	53.7.✓	15	3.5	52.8.✓	17	4.4	52.8.✓				18	6.9	50.3.✓

Sta	+	π	-	Elev
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		957.24		
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14				
----	--	--	--	--

	+50			
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15				
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BM				
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		2.60	954.64	
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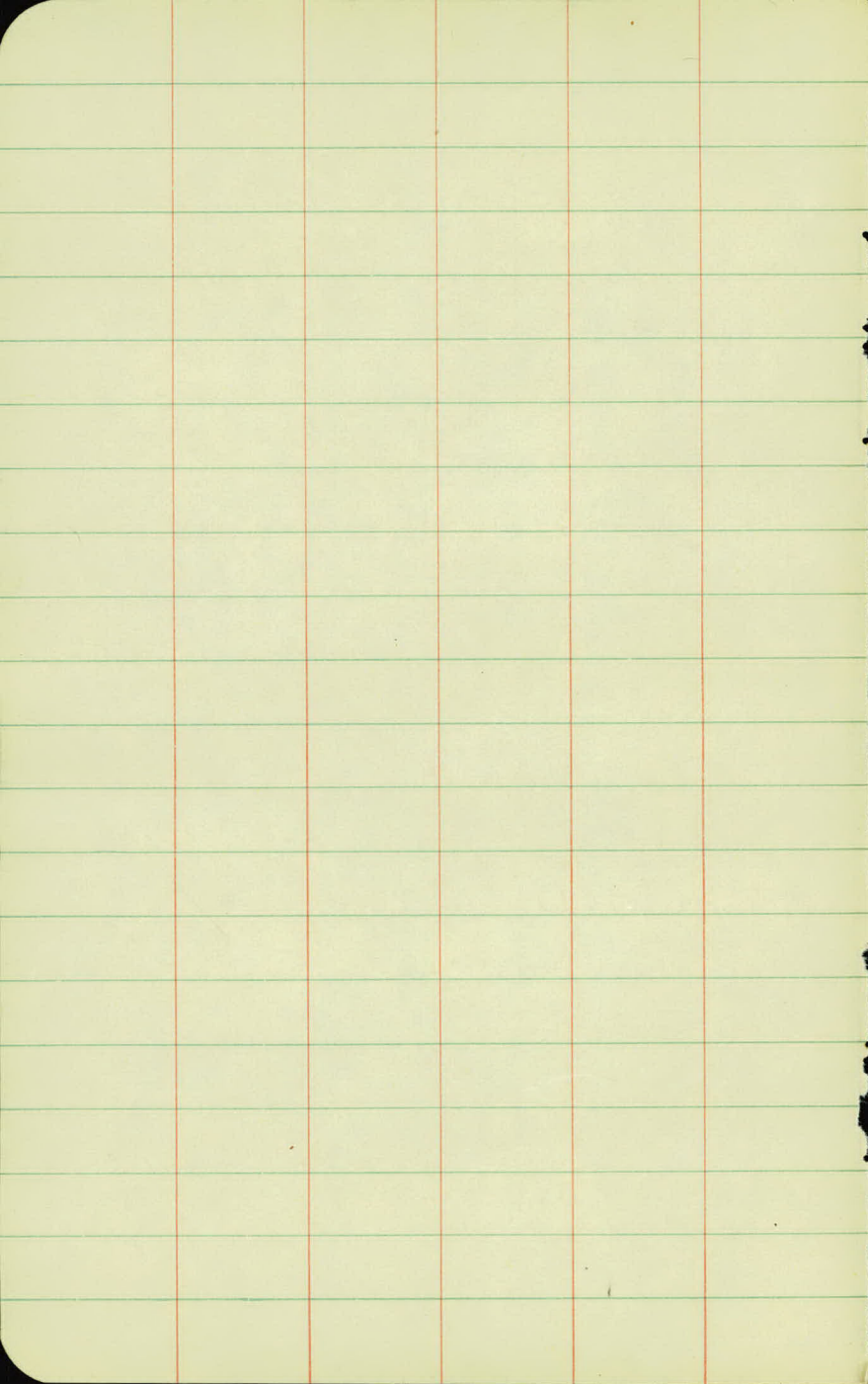
				954.61
--	--	--	--	--------

Lt			P	Rt.
53.3.	54.7.	54.4.	54.7.	
3.9	2.5	2.8	2.5	✓
17	15	11		

54.5.	55.3.	55.2.	55.6.	✓
2.7	1.9	2.0	1.6	
17	15	12		

55.3.	56.4.	56.8.	✓
1.9	0.8	0.4	
16	12		

Sph in PP Lt @ City Limits



Final Topography

8-17-50

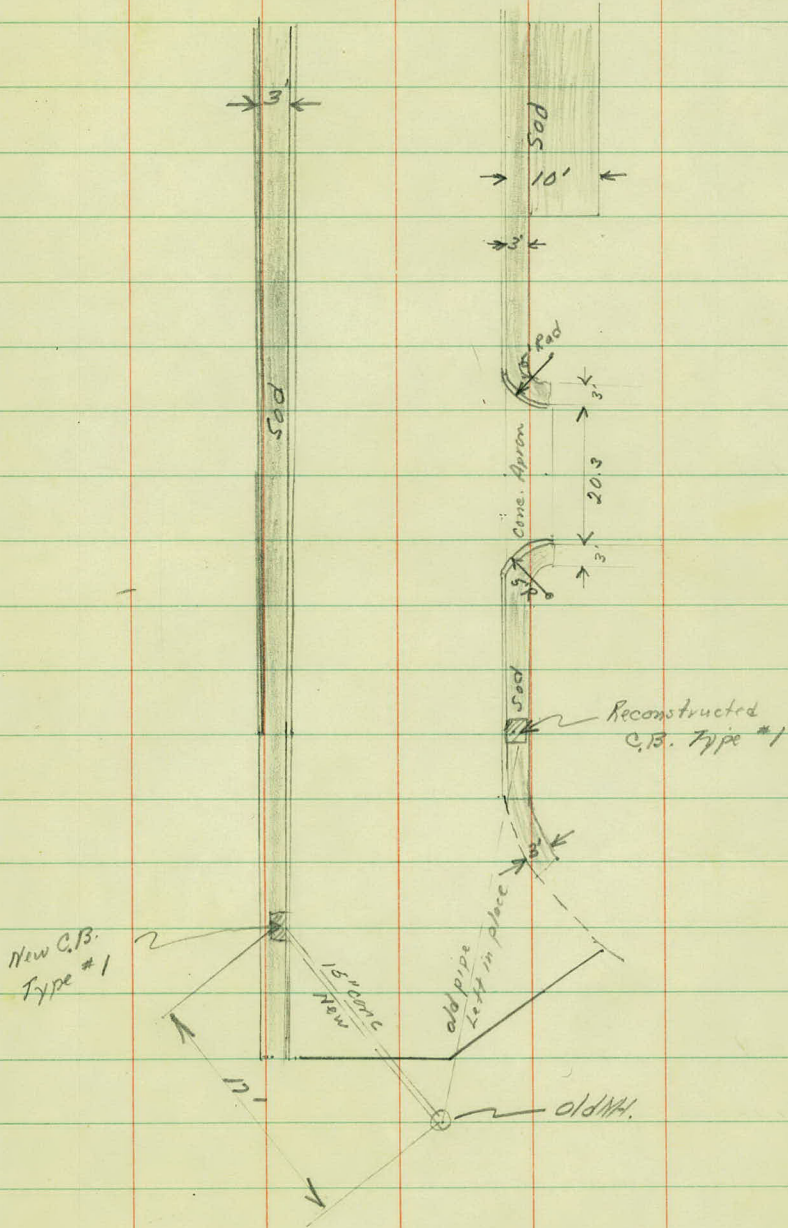
G.B.

M.B.

K.R.

Sta	Lt.	£	Rt
4+80			Sod-11, 14-21'
0+77			£ Ent. 11-15.5
0+46			ctr. C.Bas. -12'
0+43			end Rad. -10.4-11
0+36			Beg Curb - 12.9, Beg Sod
0+30			ctr. New C.Bas. -11.7
0+29			Begin new pave - 21
0+26			A.Pt. new pave - 21 -15
0+24			{ Begin Sod Begin Curb -10.3 Begin New Pavem. 10.3
0+23.5			Begin New Pave 0'±5'
			ctr. MH 4.5

2



Sta

Lt

St

Pl.

8128 ♀ Ent 11-13.5

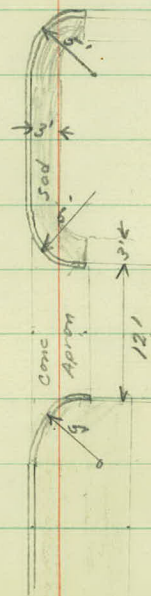
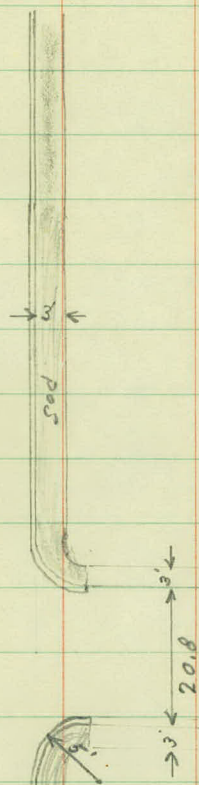
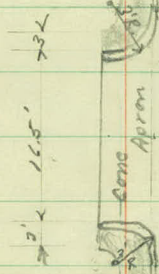
7+28.5

6+29

6+23

~~6+28~~

40



Sta

Lt

¢

Rt.

10+10

C Bas. - 14.8

C. Bas - 15.2

10+06

Beg. Rubble Spillway
end Storm Sewer - 89

10+02

end Header.

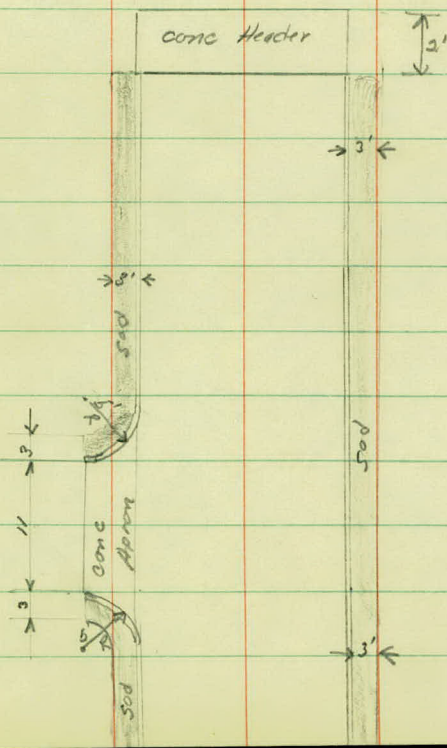
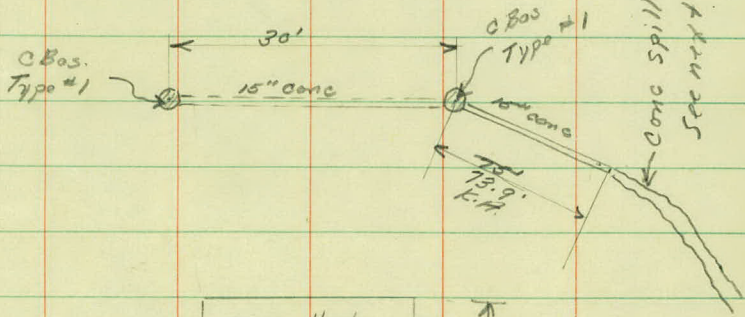
Beg. Header

10+00

end curb & Sod

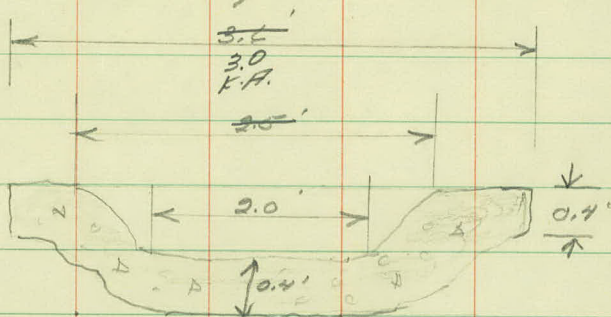
end curb & Sod

8+93.5

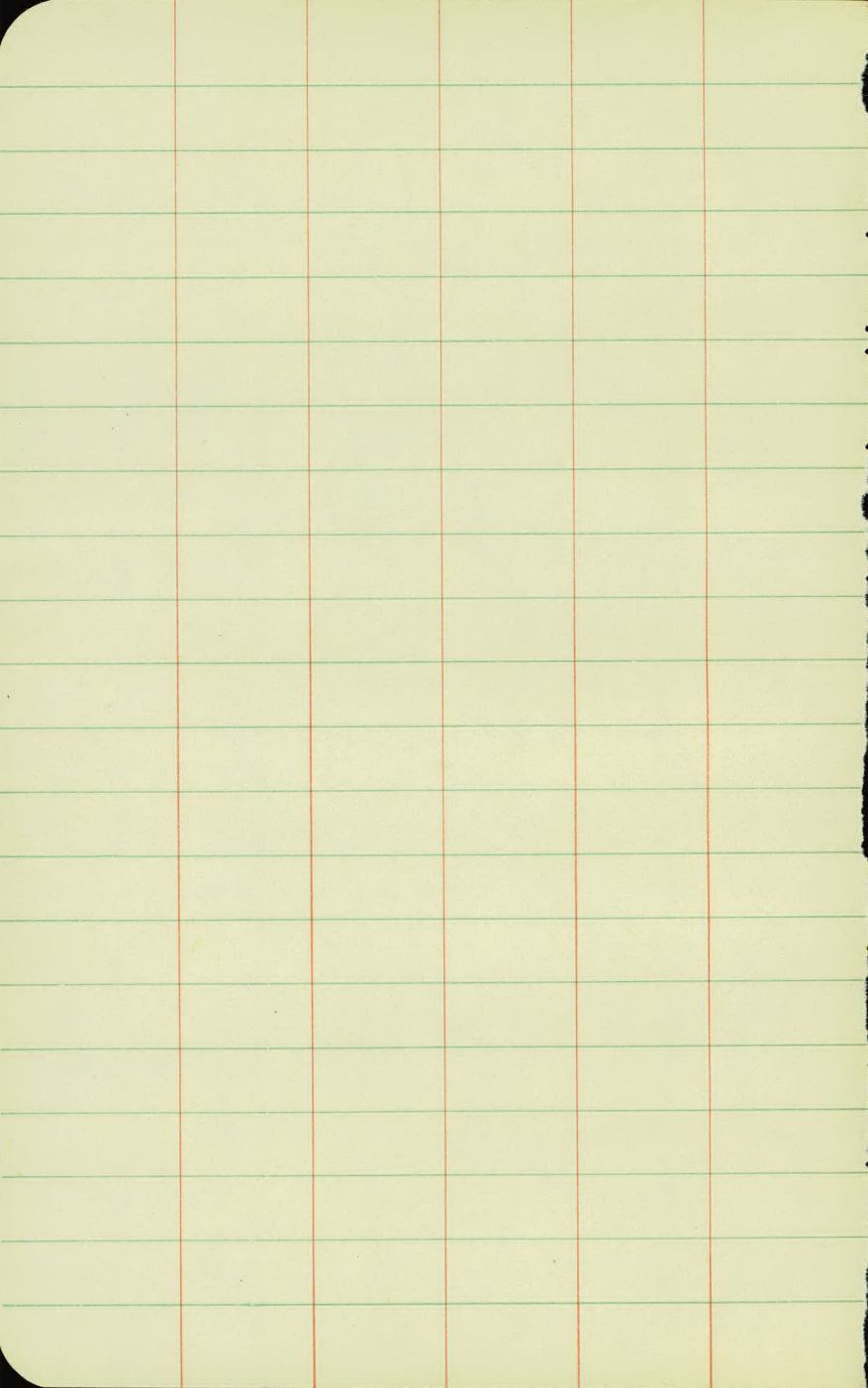


Spillway Rt @ Sta 10+00

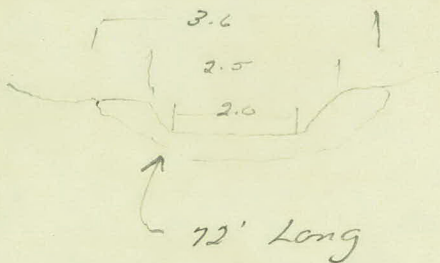
Typical Section
 Conc. Spillway



Total Length = 72'

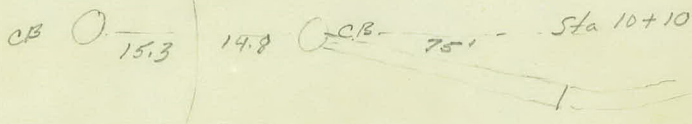


Center @ 10+10

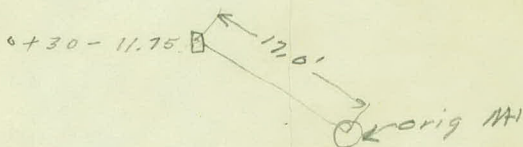


LT

RT



10+46 - 12'



$$\begin{array}{r} 29.24 \\ 4.16 \\ \hline 25.08 \end{array}$$

$$\begin{array}{r} 64.63 \\ 58.25 \\ \hline 122.88 \end{array}$$

$$\begin{array}{r} 05.27 \\ 1.06 \\ \hline 4.21 \\ 4.09 \\ \hline 11 \end{array}$$

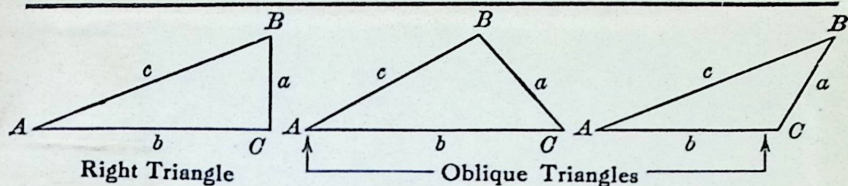
$$\begin{array}{r} 29.24 \\ 4.62 \\ \hline 24.62 \end{array}$$

$$\begin{array}{r} 17.38 \\ 13.21 \\ \hline 4.17 \end{array}$$

$$\begin{array}{r} 16.97 \\ 11.32 \\ \hline 28.29 \\ 3.61 \\ \hline 24.68 \end{array}$$



TRIGONOMETRIC FORMULÆ



Solution of Right Triangles

For Angle A. $\sin = \frac{a}{c}$, $\cos = \frac{b}{c}$, $\tan = \frac{a}{b}$, $\cot = \frac{b}{a}$, $\sec = \frac{c}{b}$, $\operatorname{cosec} = \frac{c}{a}$

Given
 a, b

Required
 A, B, c

$$\tan A = \frac{a}{b} = \cot B, c = \sqrt{a^2 + b^2} = a \sqrt{1 + \frac{b^2}{a^2}}$$

a, c

A, B, b

$$\sin A = \frac{a}{c} = \cos B, b = \sqrt{(c+a)(c-a)} = c \sqrt{1 - \frac{a^2}{c^2}}$$

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

$$B = 90^\circ - A, a = c \sin A, b = c \cos A$$

Solution of Oblique Triangles

Given
 A, B, a

Required
 b, c, C

$$b = \frac{a \sin B}{\sin A}, C = 180^\circ - (A + B), c = \frac{a \sin C}{\sin A}$$

A, a, b

B, c, C

$$\sin B = \frac{b \sin A}{a}, C = 180^\circ - (A + B), c = \frac{a \sin C}{\sin A}$$

a, b, C

A, B, c

$$A + B = 180^\circ - C, \tan \frac{1}{2}(A - B) = \frac{(a - b) \tan \frac{1}{2}(A + B)}{a + b}$$

$$c = \frac{a \sin C}{\sin A}$$

a, b, c

A, B, C

$$s = \frac{a + b + c}{2}, \sin \frac{1}{2}A = \sqrt{\frac{(s - b)(s - c)}{bc}}$$

$$\sin \frac{1}{2}B = \sqrt{\frac{(s - a)(s - c)}{ac}}, C = 180^\circ - (A + B)$$

a, b, c

Area

$$s = \frac{a + b + c}{2}, \text{area} = \sqrt{s(s - a)(s - b)(s - c)}$$

A, b, c

Area

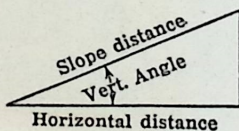
$$\text{area} = \frac{bc \sin A}{2}$$

A, B, C, a

Area

$$\text{area} = \frac{a^2 \sin B \sin C}{2 \sin A}$$

REDUCTION TO HORIZONTAL



Horizontal distance = Slope distance multiplied by the cosine of the vertical angle. Thus: slope distance = 319.4 ft. Vert. angle = $5^\circ 10'$. From Table, Page IX. $\cos 5^\circ 10' = .9959$. Horizontal distance = $319.4 \times .9959 = 318.09$ ft. Horizontal distance also = Slope distance minus slope distance times (1 - cosine of vertical angle) With the same figures as in the preceding example, the following result is obtained. $\cos 5^\circ 10' = .9959$. $1 - .9959 = .0041$. $319.4 \times .0041 = 1.31$. $319.4 - 1.31 = 318.09$ ft.

When the rise is known, the horizontal distance is approximately:—the slope distance less the square of the rise divided by twice the slope distance. Thus: rise = 14 ft., slope distance = 302.6 ft. Horizontal distance = $302.6 - \frac{14 \times 14}{2 \times 302.6} = 302.6 - 0.32 = 302.28$ ft.