

402

"Rite in the Rain."

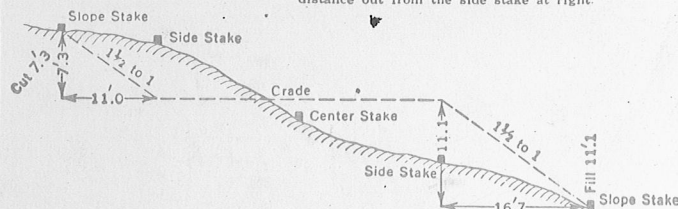
WEATHERPROOF
LEVEL BOOK

No. 310

DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING

Roadway of any Width. Side Slopes $1\frac{1}{2}$ 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	Distance out from Side or Shoulder Stake										Cut or Fill
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
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

6590 12.70

F. B. 402

PLEASE RETURN TO
NORFOLK COUNTY ENG.
DEPT. COURT HOUSE
HIGH ST. DEDHAM, MASS.

326-1600 Ext. 331

4263

8870

81.14

212.47

86.62

43.17

129.79

COUNTY OF NORFOLK
ENGINEERING DEPT.
649 HIGH STREET
DEDHAM, MA 02026

781-461-6128

"Rite in the Rain"
WEATHERPROOF

a product of

J. L. DARLING CORPORATION
TACOMA, WASHINGTON 98421 U.S.A.

LJD 1/402

New Highway University Ave Ext Norwood

Sept 13, 1976

Everett St. E Cont

From N.B. 380 pg. 159

90.44 ✓
X

23 -

Bot. Bk.

on

slope

Top Bk

150	132	100	70	55	33
288	27.7	22.2	15.5	13.7	3.7
61.6	62.7	68.2	74.9	76.7	86.7

23 +

Bot
Bk.Top
Bk

Bot Bk

Top Bk

Top Bk

170	109	85	63	43	35	29	13
30.8	28.8	17.6	3.9	6.1	4.0	1.3	2.2
59.6	61.6	72.8	86.5	84.3	86.4	89.1	88.2

+7.74

97.76 ✓
X

24 -

Bot
slopeTop
slope

150	125	100	70	52	35
37.4	37.4	34.2	22.2	11.0	1.8
60.4	60.4	63.6	75.6	86.8	96.0

EtW	EtW	EtW	EtW	P/c of Fill	Top Bk
20	8	0	4	15	30
4.5	5.3	5.0	4.9	4.9	4.1
85.9	85.1	85.4	85.5	85.5	86.3
				4.5	5.4
				5.0	8.6
				85.4	81.8
					12.5
					16.0
					77.9
					74.4

Dirt Drive

Bot. Bk.

EtW

EtW

EtW

1	1.5	0	2	30	34	47	12
4.5	4.5	4.6	4.7	4.7	5.3	4.8	4.6
85.9	85.9	85.8	85.7	85.7	85.1	85.6	85.8

P/c of Fill

Top Bk

EtW

EtW

EtW

73	81	87	93	97	110	150
4.0	2.6	3.7	3.2	4.2	9.6	14.0
86.4	87.8	86.7	87.2	86.2	80.8	76.4

- 0.42

90.02 ✓

B.M.

Vert. spk 12" Oak

380/66

Bot. Bk.

Top Bk

Dirt Drive

EtW

EtW

EtW

8	3	0	1	5	40	87	104	120
7.5	11.0	11.0	11.0	11.2	12.0	11.3	11.3	11.7
90.3	86.8	86.8	86.8	86.6	85.8	86.5	86.5	86.1

Top Bk

EtW

EtW

140

14.4

86.0

83.4

D.F.F.

LJB
3

402 University Ave Ext

$$\frac{97.76}{\wedge}$$

+ 11.42

$$\frac{98.14}{\wedge}$$

addition / section for corner curve 24.

24 + 3.0

Bot slope

Top slope

150	122	100	72	49	36
37.7	37.7	33.7	25.2	11.2	2.0
60.4	60.4	64.4	72.9	86.9	96.1

Top BK

Bot BK

Dirt Drive

C/Hsc

9	3	0	1	5	19
5.7	11.3	11.4	11.4	11.5	11.2
92.4	86.8	86.7	86.7	86.6	86.9

24 +

Top
slope

Top BK

Bot BK

Dirt Drive

C/Hsc

150	125	90	75	50	35	17	7	2	0	3	9	24
38.0	37.9	31.4	26.4	11.9	3.3	5.6	11.1	11.6	11.7	11.7	11.7	11.0
60.1	60.2	66.7	71.7	86.2	94.8	92.5	87.0	86.5	86.4	86.4	86.4	87.1

24 + 73.45 Everett St. Bk =

(380/134)

86 + 77.07 Everett St. Ahead
University Ave. Ext
$$\frac{0}{12.3}$$

85.8

+ 0.00

$$\frac{89.07}{\wedge}$$
Dirt Cellar
Pl. Elev.
$$\frac{7.2}{81.9}$$

- 9.07

89.07

T.P. R.O.C. Top conc.
Platf. pg. 135

- 0.00

89.07

T.P. Above

LJB
4

New Highway

Sept 1976

- 11.04

86.72

T.P. Top of stake 24 -

 5.11 Elev. = 88.67
 11.8.380 pg. 135

D.F.F.

5/482

Inst.

Tape

Wthr & Temp.

Date

Crew

Inst. #2

Tape #2

Wthr & Temp.

Date

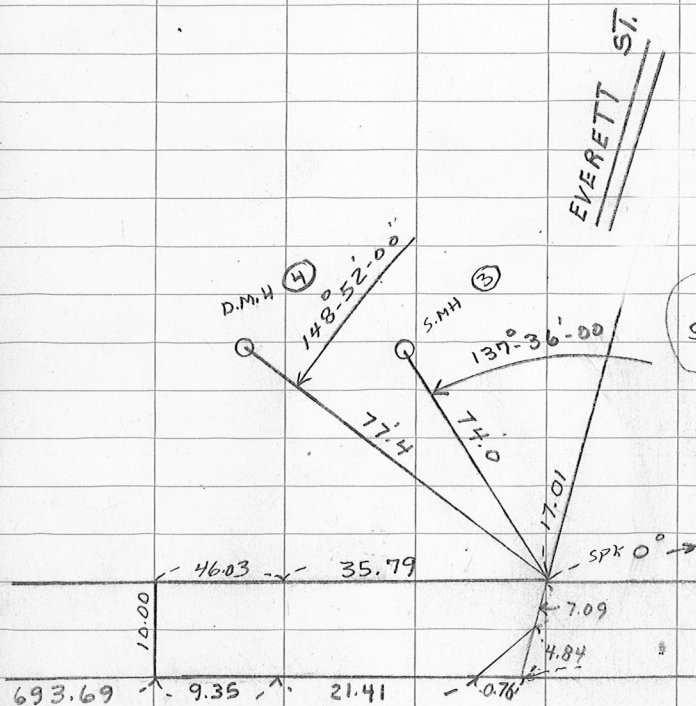
Crew

Cloudy 58°

MAY 83

PRISCO
Genith
Kelly

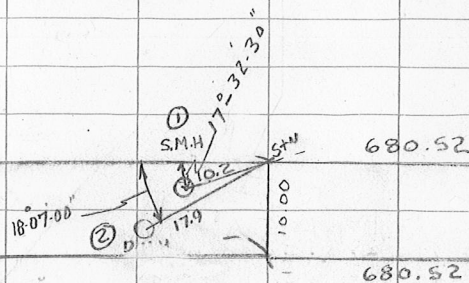
6



SEE NB380 PG 62

RTE #1

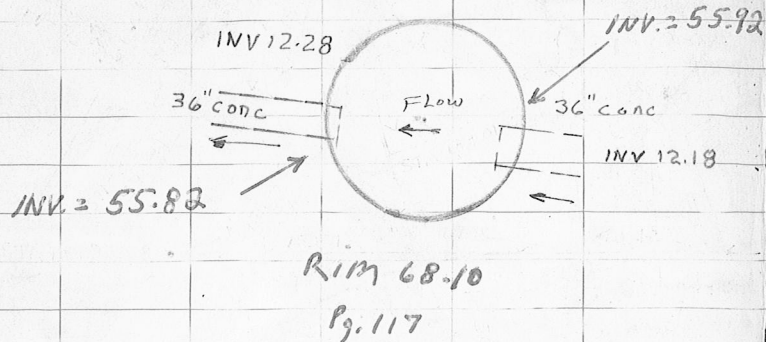
TO WALPOLE



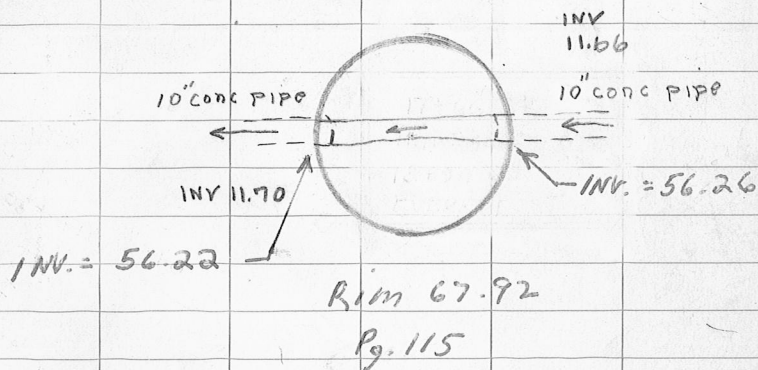
7/402

Inst. Tape Wthr & Temp. Date Crew

D.M.H. #2 PG 5



S.M.H. #1 PG 5



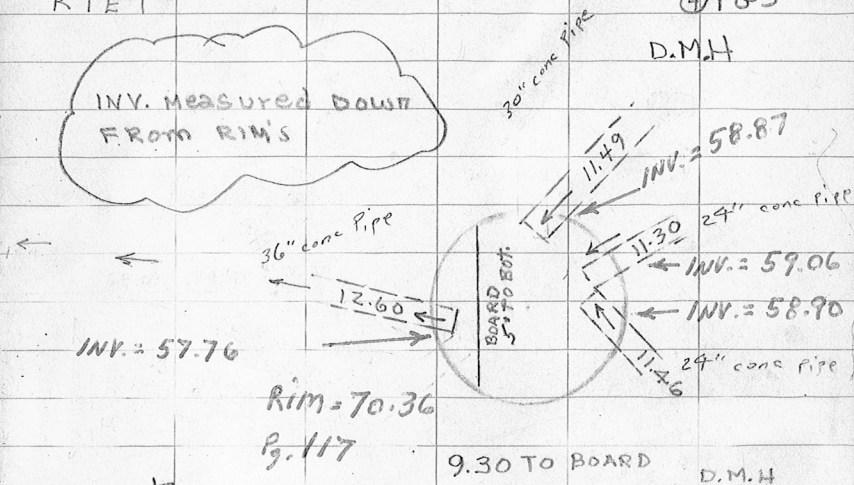
8

Inst. #2 Tape #2 Wthr & Temp. Cloudy 55° Date May 83 Crew PRISCO Genith Kelly

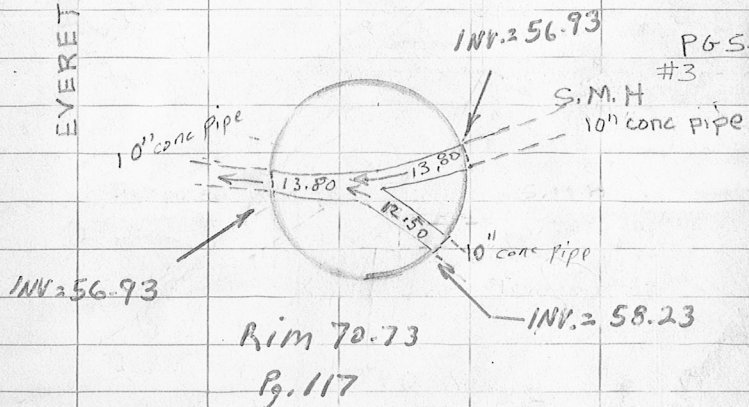
RTE 1

④ PG 5

D.M.H.



EVERETT ST



9/402

Inst.

Tape

Wthr & Temp.

Crew

RTE #1

MEAS DOWN FROM RIM

INV 4.25

C.B.



12" CONC

12" CONC

INV 3.44

INV 4.40

12" CONC PIPE

C.B.



C.B.

D.M.H. @ STA. 30 ± 0 ±
EVERETT ST

10

Inst.

Tape

Wthr & Temp.

Date

Crew

11

/402

Inst.

Tape

Wthr & Temp.

Date

Crew

12

Inst.

Tape

Wthr & Temp.

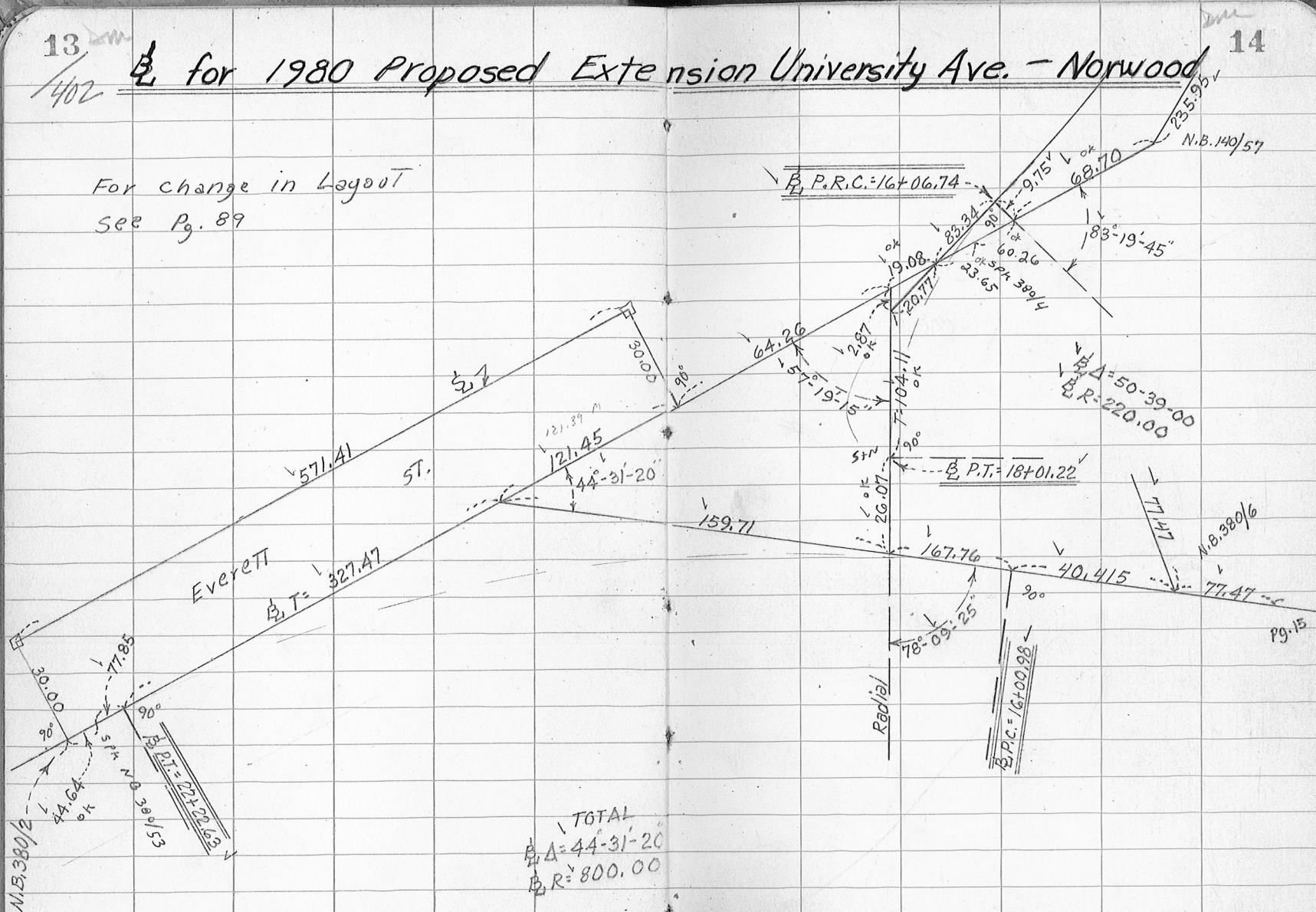
Date

Crew

13.
402 =

2 for 1980 Proposed Extension University Ave. - Norwood

For change in Layout
see Pg. 89

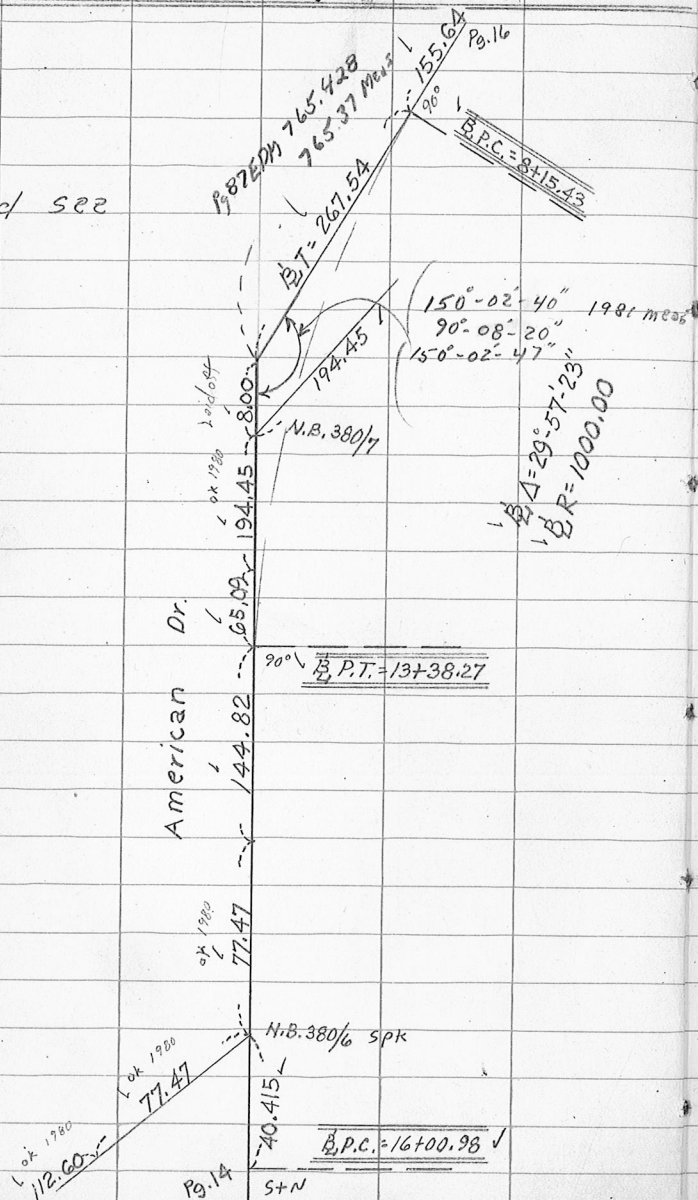


✓ G.F.

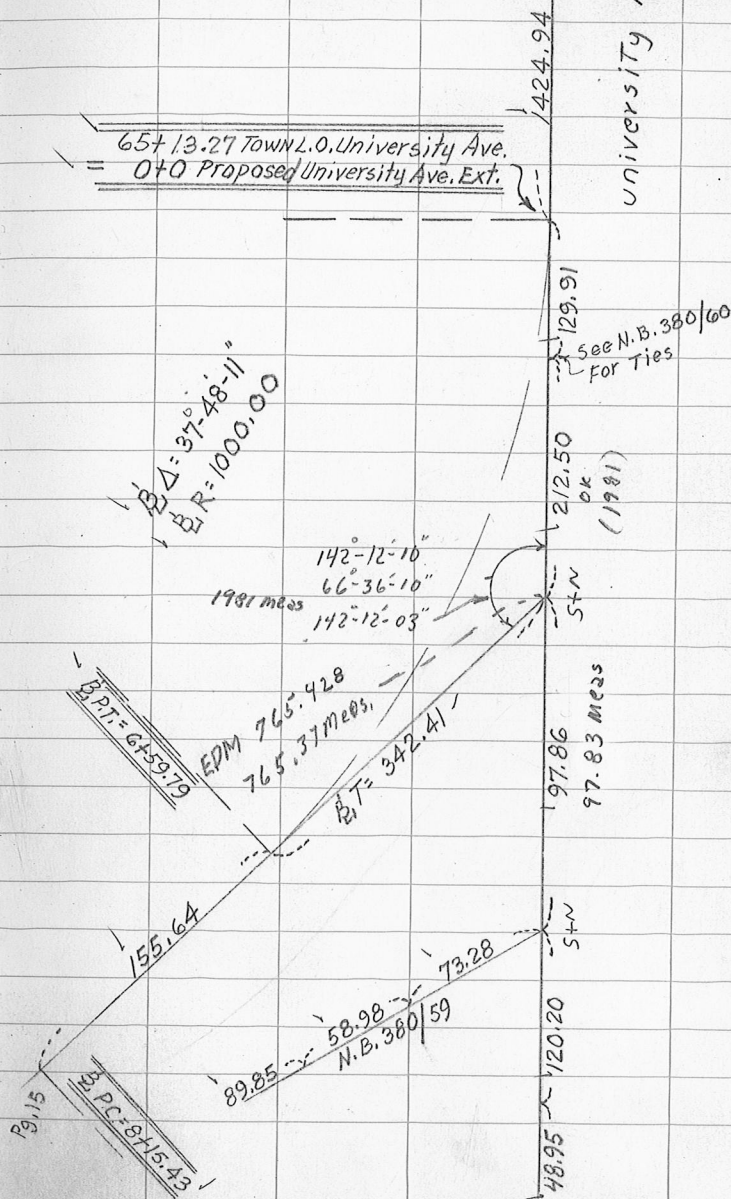
402

Changed see

Pg. 89



university Ave.



17

1402

Inst.

Tape

Wthr & Temp.

Date

Crew

18

Inst.

Tape

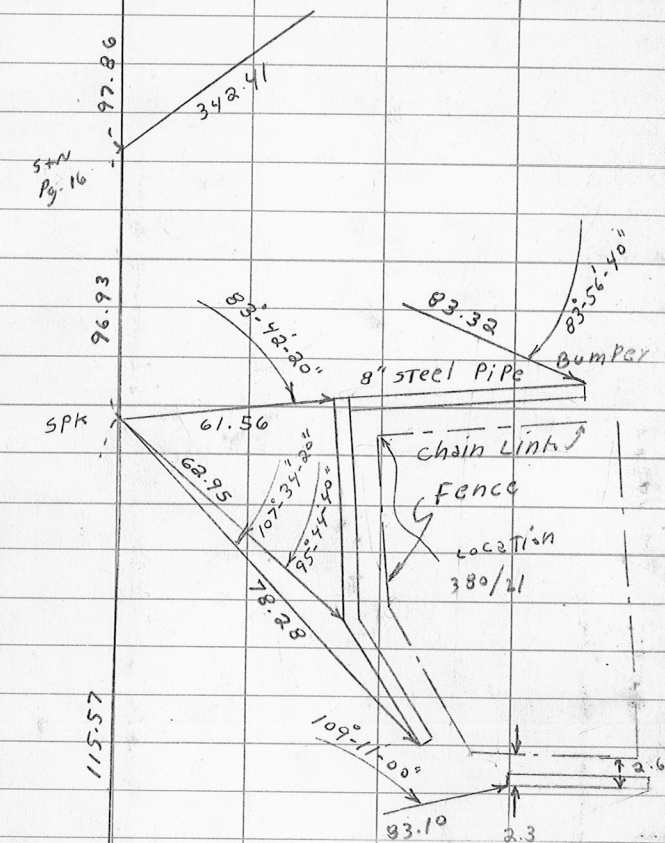
Wthr & Temp.

Date

Crew

19
/402 1980 University Ave EXT.

1980 University Ave. EXT.



S+N
Pg. 16

$$\begin{array}{r} 212.50 \\ 96.93 \\ \hline 115.57 \end{array}$$

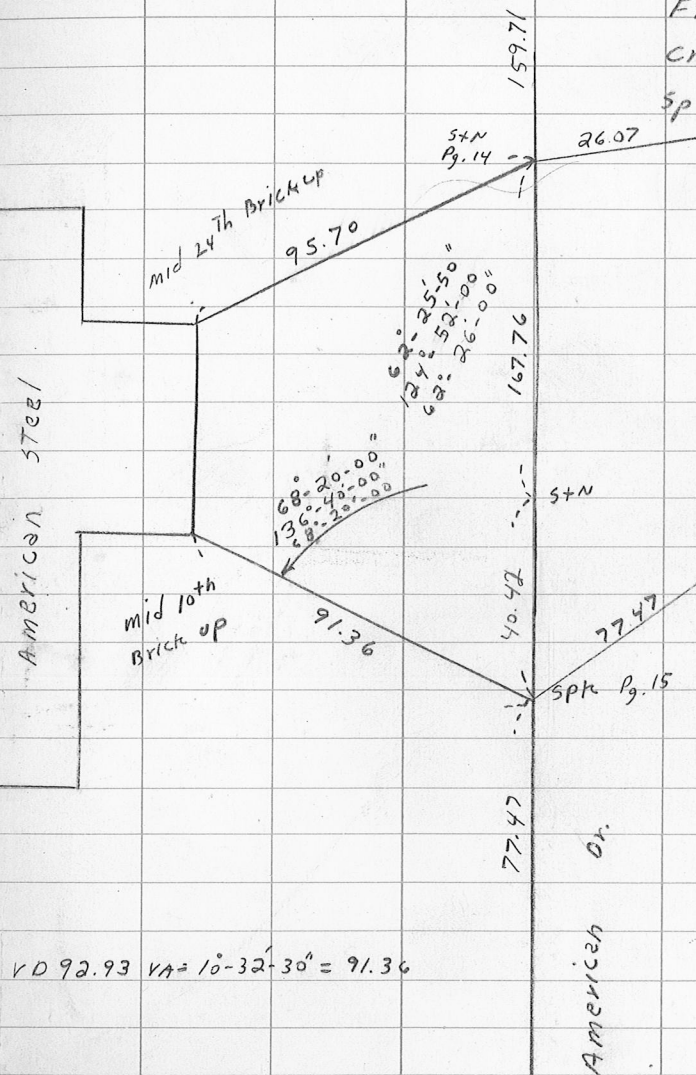
Plotted

Additional Locations

20

2/8/80

Erink
Crowley
Spada



$$VD \ 92.93 \quad VA = 10^\circ - 32' - 30'' = 91.36$$

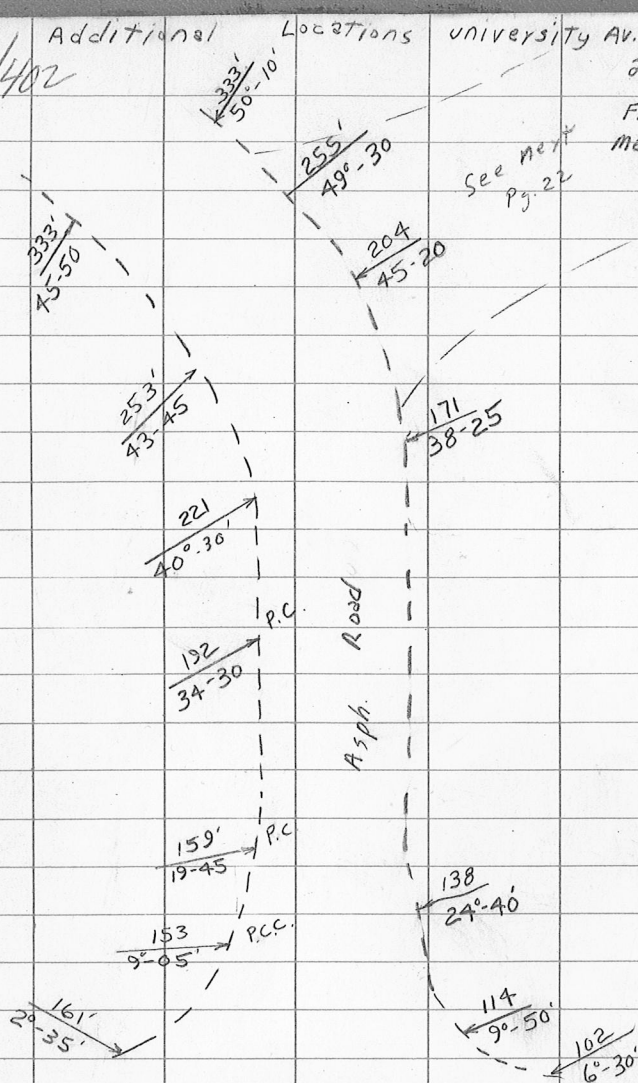
21/402

Additional Locations university Av. EXT.

2/28/80

Frink
Merithew

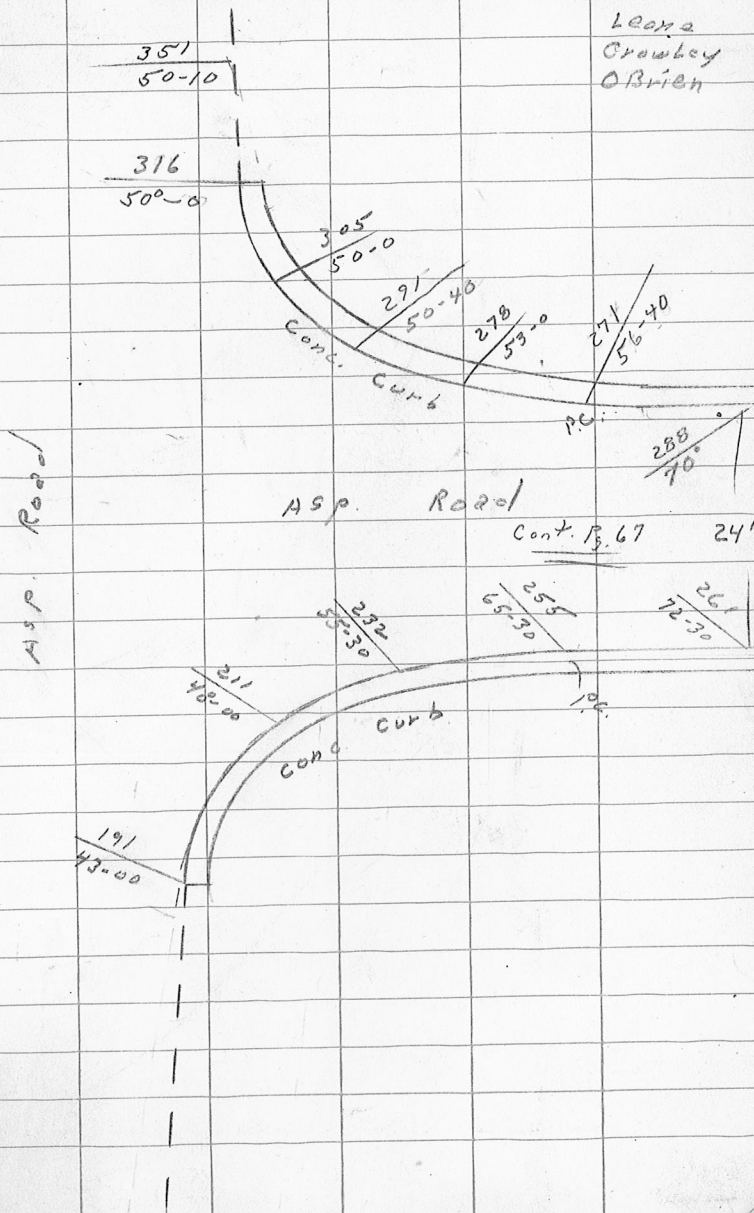
See next
pg. 22



22

3/29/81

Leary
Crowley
O'Brien



23/402

Cross Sections

D

+ .31

66.42

A

VOID 0+0 to 2+0 SEE

0+0

	Bot Slope	Top Slope	ETW	Pin	ETW	
60	30	19	8	3	0	
11.2	10.4	10.0	8.2	7.9	8.0	8.2
55.2	56.0	56.4	58.2	58.5	58.4	58.2
0+50	60	43	22	8	3	0
	10.4	9.6	7.5	6.7	6.8	6.8
	56.0	56.8	58.9	59.7	59.6	59.6

1-

	Bot Slope	Top Slope	ETW	ETW	ETW	
60	40	30	20	10	5	0
9.2	9.0	4.7	5.2	5.4	5.6	5.2
57.2	57.4	61.7	61.2	61.0	60.8	61.2

1+

	Bot Slope	Top Slope	ETW	ETW	ETW	
60	38	30	25	13	8	4
7.9	7.2	2.7	3.6	3.9	3.8	3.6
58.5	59.2	63.7	62.8	62.5	62.6	62.8

+ 10.41

74.02

A

2-

	Bot Slope	Top Slope	Bot Slope	ETW	ETW	ETW	
70	60	54	35	25	20	15	0
13.8	10.5	7.1	5.0	9.5	9.9	9.9	7.8
60.2	63.5	66.9	69.0	64.5	64.1	64.1	66.2

-1.68

University Ave EXT Norwood

24

66.11 B.M. Vert tie spk twin 12" Pine 380/77

N.B. 458 Pg 4-5

	Bot Slope	Top Slope	ETW	ETW	ETW	
2	14.5	18	30	50	60	
8.2	8.2	6.6	6.1	5.0	3.8	
58.2	58.2	59.8	60.3	61.4	62.6	
2	8	19	30	60		
6.7	6.8	4.9	4.4	2.6		
59.4	59.6	61.5	62.0	63.8		
9	12	19	50	43	60	
4.5	3.5	2.4	2.5	1.9	0.5	
61.9	62.9	64.0	63.7	64.5	65.9	
3	15	60				
2.5	0.9	+4.40	+1.40			
63.9	65.5	66.82	67.82			

-281

63.61

T.P.

Stake & Nail

	ETW	ETW	ETW	ETW	ETW	
14	30	40	54	67		
6.4	4.3	5.6	5.6	5.3		
67.6	69.7	68.4	68.4	68.7		

72.34

B.M.

R.R. spk

Root 12" Pine

380/77

plotted

Km

25/402

Cross Sections

+8.40

72.01

A

2+20

M.H. LT

RIM

81

10.69

61.32

0

5.0

67.0

University Ave. Ext. Norwood

26

63.61

T.P. Stake & Nail 17.24

2+

Bot Slope

70

9.6

62.4

50

6.2

65.8

ETW

33

6.3

65.7

30

6.3

65.7

ETW

28

6.3

65.7

ETW

21

6.2

65.8

0

4.9

67.1

ETW

17

3.1

68.9

E

25

2.8

69.2

ETW

30

2.5

69.5

on Gravel
valve site

35

2.2

69.8

59

1.7

70.3

2+67

E Dnt Dr Ask Bk LT

E intersection

150

15.0

57.0

112

12.8

59.2

82

8.2

63.8

50

6.7

65.3

33

6.4

65.6

0

4.9

67.1

3-

Bot Slope

66

9.0

63.0

Top Slope

56

5.6

66.4

ETW

41

6.2

65.8

ETW

36

6.2

65.8

ETW

30

6.1

65.9

0

3.6

68.4

ETW

9

3.5

68.5

E

21

3.4

68.6

ETW

25

3.2

68.8

30

2.0

70.0

50

1.6

70.4

60

1.0

71.0

+9.46

78.46

A

-3.01

69.00 T.P. Top B R.R. SPK 3+50

3+

Bot Slope

70

15.5

63.0

Top Slope

60

12.8

65.7

ETW

42

11.8

66.7

E

36

12.0

66.5

ETW

30

12.0

66.5

ETW

26

9.5

66.5

ETW

0

7.5

69.0

E

7

9.2

69.3

ETW

18

8.5

70.0

ETW

30

6.3

72.2

Top Slope

34

5.4

73.1

50

2.6

75.9

60

1.4

77.1

plotted

✓ dm

27/402
 (D)

Cross Sections

78.46
 X

University Ave Ext. Norwood

28

4-

60	50	ETW 36	30	28	Intersection 18	6	ETW 0
11.7	11.7	11.2	10.9	10.6	9.6	9.1	8.6
66.8	66.8	67.3	67.6	67.9	68.9	69.4	69.9

pit slope	Top slope	30	50	60
9	19	30	50	60
8.0	4.9	4.1	0.5	+0.5
70.5	73.6	74.4	78.0	79.0
			78.0	

4+

60	50	40	30	13	0
11.6	11.0	10.0	9.9	8.3	7.4
66.9	67.5	68.5	68.6	70.2	71.1

op slope	30	50	60
5	30	50	60
6.1	2.4	0.0	+1.2
72.4	76.1	78.5	80.0
			79.7

5-

60	ETW 50	44	ETW 37	30	21	14	0
10.2	8.9	9.2	8.8	8.2	7.5	5.7	3.9
68.3	69.6	69.3	69.7	70.3	71.0	72.8	74.6

30	50	60
+4.0	+2.6	+4.6
78.86	81.1	83.1

5+

60	ETW 53	48	41	Top slope 34	30	18	11	0
7.6	6.9	6.7	6.4	4.5	4.2	3.7	1.6	1.3
70.9	71.6	71.8	72.1	74.0	74.3	74.8	76.9	77.2

Top slope	30	44	50	65
+1.6	+2.0	+1.5	+2.3	
80.1	80.5	80.0	80.8	

+11.05

87.83

-1.68

X

76.78

T.P. Nail in Pole

6-

(See Pg. 31 for left side)

0	30	35	43	60
10.6	9.4	9.2	8.6	6.1
77.2	78.4	78.6	79.2	81.7

6+34 Dirt Dr. Ask Bk. Rt.

Dirt Dr.
 0
 12.2
 75.6

Plotted

✓
 DM

29/402
D

Cross Sections

87.83
Λ

6+

see pg 31
for left side

0
10.9
76.9

on
slope

30	40	50
4.1	1.6	+1.0
83.4	86.2	88.8

see Note Book 455/80
For Revised section

+6.55

93.45
Λ

- 0.93 86.90

T.P. stone

7-

see pg 31
for left sideTop
slope

0	30
10.3	1.9
83.2	91.6

50	60	80
0.7	0.4	0.1
92.8	93.1	93.4

7+

see pg 31
for left sideTop
slope

0	30
10.9	0.9
82.6	92.6

50	60	80
0.7	0.6	0.7
92.8	92.9	92.8

8-

see pg 31
for left sideTop
slope

30	37	50
2.4	0.3	1.3
91.1	93.2	92.2

60	80
1.5	1.1
92.0	92.4

8+

see pg 31

Top
slope

30	50	60
6.8	1.1	1.6
86.7	92.4	91.9

80
1.8
91.7

8+86 Asph Parking Lt pg 33

9-

see pg 33

Net
slope

on slope

on slope

Top
slope

17	30
10.0	7.3
83.5	86.2

50	53	60
1.3	0.2	0.7
92.2	93.3	92.8

80
1.3
92.2

plotted 3/10/80

✓
DM

31/102

Cross Sections

+ 1.34

84.17



6-

ETW	d	ETW				
60	53	47	39	30	16	8
10.2	9.8	9.8	9.6	8.7	8.5	6.5
74.0	74.4	74.4	74.6	75.5	75.7	77.7

6+

60	46	30	21
10.9	10.7	10.1	9.5
73.3	73.5	74.1	74.7

cont. pg 27

OK

d
Dirt Drcont. pg 29
M Ram

6+60 C.B. LT

Rim	
66	0
72.30	5.8
71.07	78.4
Rim	
103	0
12.18	3.5

- 6+75 C.B. LT

72.0	80.7
71.99	

C & D
Dirt RD

7-

ETW	d	ETW	
100	89	89	68
10.0	10.4	10.7	10.2
74.2	73.8	73.5	74.0

ETW

Bot Slope	
30	20
8.8	7.5
75.4	76.7

cont. pg 29

7+

on Curb	on Curb	d	on Curb	on Curb	Bot Slope
100	70	70	48	28	20
10.1	8.2	8.7	7.8	8.1	6.6
74.1	76.0	75.5	76.4	76.7	76.6

cont. pg 29

Asph. Parking

on Curb

on Curb

on Curb

Bot Slope

8-

on Curb	on Curb	d	on Curb	on Curb
100	86	55	55	55
5.8	5.8	6.1	6.6	6.6
78.4	78.4	78.1	77.6	78.4

on Curb	on Curb	on Curb	Bot Slope
36	14	14	0
5.8	6.1	5.7	3.4
78.4	78.1	78.5	80.8

cont. pg 29

Curb Broken

ETW

Bot Slope

8+

on Curb	on Curb	d	on Curb	on Curb
100	70	45	45	45
3.7	3.5	4.0	4.5	4.5
80.5	80.7	80.2	79.7	80.6

on Curb	on Curb	on Curb	Bot Slope
25	4	4	0
3.6	4.0	3.5	3.5
80.6	80.2	80.7	80.7

cont. pg 29

plotted 3/10/80 DM

32

University Ave EXT. Norwood

-10.62

82.83

BM Chiseled Loc. Conc. base of sign

OK 380
7577

33/402

Cross Sections

University Ave EXT. Norwood

34

8+86 Asph. Parking Lt.

84.17

^

9-

100	75	46	ETW	℄	0
2.6	2.4	2.5	38	17	2.4
81.6	81.8	81.7	2.8	2.1	81.8
			81.4	82.1	

ETW	℄	C.Curb	on Curb
37	17	0	4
2.5	1.8	1.8	1.3
81.7	82.4	82.4	82.9

- Cont. pg. 29

+ 9.93

93.64

^

- 0.46 83.71 T.P. Rim C.B.

9+05

@ Conc. w/k Lt

9+05

on Conc. w/k Lt

57	0
11.6	10.8
82.0	82.5
	0
	10.8
	82.5
	82.33

82.8

82.8

9+18 S.M.H Lt.

Rim	0
8.5	0
10.51	10.6
83.13	83.0
Rim	0
15	0
10.51	10.6
83.13	83.0

D.M.H Lt.

9+18

9+23 C.B. Lt

Rim	0
53	0
11.48	10.4
82.16	83.2

9+38 C.B. RT

0
9.9
83.7

Rim
9
9.93
83.71

plotted 3/10/80

✓ dm

35/402

Cross Sections

University Ave Ext. Norwood

36

9+45 C.B. LT

RIM
30.5
10.12
83.52
0
9.6
84.0

on wlk	50	44	29	29	10	0
61	10.7	10.7	9.0	9.6	9.0	9.3
9.24	82.9	82.9	84.6	84.0	84.6	84.3
83.70						
75						
9.8						
83.8						

93.64
 @Curb on Curb

11	11	30	50	60
9.4	8.9	6.9	3.0	0.5
84.2	84.7	86.7	90.6	93.1

10-
BUILDING
#57

on wlk	50	42	30	23	23	3	0	17	17	30	50	60	
81	8.4	8.71	9.6	9.7	6.9	6.6	7.1	6.6	7.1	6.6	5.1	0.0	+2.9
81	85.2	84.93	84.0	83.9	86.7	87.0	86.5	87.0	87.0	86.5	87.0	88.5	93.6
534													
5.11													
88.30													

10+32
conc. wlk
LT.

on wlk	50	42	25	20	20	0	4.8	4.8	5.4	4.8	88.8	88.8	88.2	88.8
82	8.01	8.20	8.46	9.0	8.9	4.8	4.8	5.4	4.8	88.8	88.8	88.2	88.8	88.8
75	85.63	85.44	85.18	84.6	84.7	88.8	88.8	88.2	88.8	88.8	88.8	88.2	88.8	88.8
63														
50														
42														
25														
20														
0														
4.8														
4.8														
5.4														
4.8														
88.8														
88.8														
88.2														
88.8														

10+

60	42	24	18	18	0	21	30	50	60
8.7	8.7	3.9	3.8	4.3	3.8	4.2	2.6	+2.9	+7.2
84.9	84.9	89.7	89.8	89.3	89.8	89.4	91.0	96.5	100.8

+6.40

99.88

-0.16

73.48

I.P.

STAKE & NAIL

Plotted
3/10/80

Am

37/402

\$

Cross Sections

University Ave. Ext.

Norwood

38

92.98

^

11-

	Bot Slope			Top Slope	on Curb	@ Curb			@ Curb	on Curb	Bot Slope
66	55	30		21	16	16	0	4	24	24	32
14.7	14.2	9.8		7.3	7.0	7.5	7.2	7.1	7.5	7.0	6.1
85.2	85.7	90.1		92.6	92.9	92.4	92.7	92.8	92.4	92.9	93.8

see Pg. 41

11+28

Bot Slope
LT

	Bot Slope			Top Slope	on Curb	@ Curb
80	67	36	30	22	15	15
14.5	14.4	10.8	9.1	5.7	5.3	5.8
85.4	85.5	89.1	90.8	94.2	94.6	94.1

S.M.H. RT

11+47

0	Rim
4.3	10.5
95.6	4.18
0	95.70
4.3	Rim
95.6	4.5
	4.20
	95.68

DMH RT

11+49

0	Rim
4.3	4.5
95.6	4.20
	95.68

11+

				on Curb	@ Curb	RTW			@ Curb	on Curb	Bot Slope
106	75	50	30	26	26	15	0	7	25	25	31
6.6	6.4	5.8	4.1	3.8	4.3	4.5	4.2	4.1	4.2	3.7	3.2
93.3	93.5	94.1	95.8	96.1	95.6	95.4	95.7	95.8	95.7	96.2	96.7

see
Pg. 41

11+81

C.B. LT

Rim	
14	0
2.77	2.4
97.11	97.5

Rim

11+81

C.B. RT

0	25.5
2.4	2.80
97.5	97.08

plotted
3/10/80V
DM

39/402

Cross Sections

University Avem Ext. Norwood

40

11+83

Ask ahead Asph. Dr. LT

150	135	100	50	30
3.9	3.9	3.8	3.4	2.8
96.0	96.0	96.1	96.5	97.1

ETW	14	0
2.6	2.3	
97.3	97.6	

11+87 C.B. LT

63	0
3.74	2.0
96.14	97.9

12-

60	50	30
3.2	2.8	1.9
96.7	97.1	98.0

ETW	15	0	2	@ Curb	on Curb	Bot Slope
1.6	1.2	1.1	8	26	26	30
98.3	98.7	98.8	98.3	98.8	99.6	

+ 10.90

109.57

- 1.21

98.67 T.P. RIM M.H.

108

12+18 M.H. LT

M.H.	RIM	0
54	54	
11.5	10.90	9.9
98.1	98.67	99.7

SEEN B448/P674
NEW section, RT.

12+	Asph. Dr	@ Curb	on Curb	100	50	30	22	on Curb	@ Curb	ETW	@ Curb	Bot Slope	on Curb	on Curb
	130	115	115					18	18	0	4	23	23	36
	13.0	13.0	12.5	11.9	9.3	8.4	7.8	7.8	8.3	7.9	7.9	7.7	2.5	2.1
	96.6	96.6	97.1	97.7	100.3	101.2	101.8	101.8	101.3	101.7	101.7	101.4	101.9	107.5

on Curb	@ Curb	ETW	on Curb	on Curb	on Curb	on Curb	on Curb
11.6	11.6	70	70	74	74	80	80
1.7	1.7	1.15	1.15	1.15	1.15	1.15	1.15
107.9	107.9	108.33	108.42	108.91	109.88	110.33	110.41

plotted 100/80

41/402

Cross Section s

+1.57

110.05



11-

Top slope	on Curb	C Curb	ETW Asph. Dr.
64	67	67	80
3.6	3.3	3.8	3.4
106.5	106.8	106.3	106.7

Asph. Dr.

11+

Top slope	on Curb	C Curb	ETW
50	52	52	66
3.3	3.0	3.5	3.0
106.8	107.1	106.6	107.1

ETW
Asph. Dr.

12-

Top slope	on Curb	C Curb	ETW Asph. Dr.
42	44	44	55
3.1	2.8	3.3	2.9
107.0	107.3	106.8	107.2

University Ave Ext Norwood

42

-1.09 108.48 B.M. Chisel Expansion Joint Conc. wlk
BK 380 pg 77

Cont. pg. 37

conc. wlk on
wtk

78	78
2.7	2.25
107.4	107.80

cont. pg. 37

conc. wlk on
wtk

70	70
2.4	2.03
107.7	108.02

Cont. pg. 37

13-

ETW Asph. Dr.	C Curb	on Curb	Bot slope	Top slope	on Curb
114	104	104	100	41 30	19
13.5	13.3	13.2	13.2	7.0 6.3	5.8
96.6	96.8	96.9	96.9	103.1 103.8	104.3

C Curb	ETW	C Curb	on Curb	Top slope	C Curb	on Curb	ETW
19	0	21	21	34	35	35	48
6.3	5.8	6.4	5.9	2.9	2.6	2.9	2.5
103.8	104.3	103.7	104.2	107.2	107.5	107.2	107.6

Bot
slopeconc. wlk on
wtk

61 61

2.1 1.69

108.0 108.36

13+04 D.M.H. LT

R.M.

10 0

13+18 conc. wlk LT pg. 47

5.95 5.6

104.10 104.5

13+41 Edge Parking Lot

ETW Asph.

Parking

ETW	Asph.	Parking
0	20	25
41	4.6	4.0
106.0	105.5	106.1
0	20	25
41	4.6	4.0
106.0	105.5	106.1

13+

ETW	Asph.	Parking
0	20	25
41	4.6	4.0
106.0	105.5	106.1
0	20	25
41	4.6	4.0
106.0	105.5	106.1

ETW	Asph.	Parking
0	20	25
41	4.6	4.0
106.0	105.5	106.1
0	20	25
41	4.6	4.0
106.0	105.5	106.1

Plotted slope

43/402

Cross Sections

13+71.5 S.M.H. Rt.

	R.M.
0	0.5
3.0	3.00
107.1	107.05

13+76 End Parking lot

	ETW
0	21
2.8	3.2
107.3	106.9

13+82 M.H. RT

	R.M.
0	35
2.5	2.77
107.6	107.28

SEE 448/76

14 -

	Bot. type	Top. type	on curb	on curb	ETW
	51	30	25	20	0
on curb	11.4	3.0	1.9	3.2	2.8
60	98.7	107.1	108.2	106.9	107.3
12.0	60	75			1.9
98.1	12.5	12.5			108.2
	97.6	97.6			

14+11 Lt. M.H. See pg 49

+8.31

117.65

14+30 Lt. C.B. See pg 49

14+

see
pg. 49

	Top. type	on curb	on curb
30	25	20	20
8.7	75	7.6	8.1
109.0	110.2	110.1	109.6

+4.14

117.23

University Ave Ext Norwood

44

110.05

Asph.	Parking
25	32
3.0	3.0
107.1	107.1
	50
	2.2
	107.9

on curb	on curb	edge parking	50	60
20	20	25	35	
2.4	1.7	1.8	2.3	1.7
107.7	108.2	108.3	107.8	108.4
				1.4
				108.7

-0.71 109.34 T.P. on stone

ETW	on curb	on curb	Parking Edge	50	60
0	20	20	25	35	
7.6	8.0	7.5	7.6	8.3	8.4
110.1	109.7	110.2	110.1	109.4	109.3
					8.6
					109.1

-4.56 113.09 T.P. L.O.C. Gran. Header C.B.

Plotted
3/10/80↓
S.M.

402

Cross Sections

117.23



	see pg. 49	30	Top slope	on curb	curb	0
15-		7.3	24	19	19	5.5
		110.0	5.6	5.4	5.9	111.7
15+02	D.M.H. Rt. 109.9		111.6	111.8 R.M. 103	111.3	
15+08	D.M.H. Lt.		5.4	8.23		
			111.8	109.00		
15+09	C.B. Lt see pg. 49		6	0		
			5.45	5.3		
Ent. Asph Dr. Rt.			112.78	112.9		
			111.78	111.9		
15+10		0	ETW 22	25	50	
		5.2	5.5	5.5	6.5	
		112.0	111.7	111.7	110.7	

			RIM	
15+35	C.B. Rt		0	27
			4.3	4.55
			112.9	112.68
15+43	Cor. building Rt.	0	9	29
		4.1	3.8	4.2
		113.1	113.4	113.0
				113.5

		RIM	
15+45	C.B. LT	12	0
		4.70	4.1
		112.53	113.1

15+49 DMH Lt. See pg 49

	see pg. 49	30	Top slope	on curb	curb	0	ETW	curb
15+		15	10.5	10.5		0	11	31
		9.9	4.0	4.1	4.5	3.9	3.6	3.9
		107.3	113.2	113.1	112.7	113.3	113.6	113.3

University Ave Ext Norwood 46

	ETW	25	50	75
	21	6.0	6.8	7.5
	111.2	111.2	110.4	109.7

	75	100
	7.2	7.9
	110.0	109.3

	Top slope	Edge Asph. Parking	Parking	Lot	Building Elev.	Floor Elev.
	34	48	75	100	2.10	2.10
	4.0	6.1	7.3	8.0	10.7	10.86
	113.2	111.1	109.9	109.2	108.0	106.6

Asph parking Lot.

	Top slope	Edge Parking	75	100
	35	5.4	7.0	8.1
	4.0	6.3	7.0	8.1

113.7	113.2	110.9	110.2	109.1
-------	-------	-------	-------	-------

Plotted 3/11/80

DM

47/402

P

Cross Sections

117.23

Floor Elev. warehouse Lt.

15+67

see pg. 51

	Top slope	on Curb	@ Curb	
30	10	5	5	0
11.2	3.4	3.2	3.8	3.5
106.0	113.8	114.0	113.4	110.5 113.7

16-

see
pg. 51

	Top slope	on Curb	@ Curb	
30	3	0	9	9
16.2	3.1	2.9	2.1	2.6
101.0	114.1	114.3	115.1	114.6

- 8.75

+ 7.73

106.40

A

Conc. wlk Lt

13+18 ✓

on conc. with	on Curb	@ Curb	Asph. Dr.	@ Curb	on Curb
123	123	123	108	94	94
8.90	9.0	9.4	9.4	9.5	9.0
97.50	97.4	97.0	97.0	96.9	97.4
on 1st stair	on 1st	@ Platf	@ Platf	on Platf	
139	139	140	140	145	
7.74	7.11	7.13	6.54	6.51	
98.66	99.29	99.27	99.86	99.89	

University Ave Ext. Norwood 48

Top slope	on Curb	@ Curb	Top slope	Edge Asph. Parking	on Asph. Parking
34	57	57	64	88	100
1.7	2.0	1.5	1.4	7.2	7.7
115.5	115.2	115.7	115.8	110.0	109.5

108.48 BM Chisel @ expansion Joint Conc. with pg 42

98.67

T.R. RIM M.H. Pg 40

Bot slope	Top slope	on Curb	@ Curb	Top slope
77	36	30	20	20
8.5	2.0	1.8	1.4	1.9
97.9	104.4	104.6	105.0	104.5
105.0	105.0	104.5	105.0	105.0
at Bulling	at Bulling	at Bulling	at Bulling	at Bulling
145	145	145	145	145
6.51	6.51	6.51	6.51	6.51
99.89	99.89	99.89	99.89	99.89

plotted 3/11/80

DMV

49/402

Cross Sections

University Ave Ext. Norwood

50

$$\frac{106.40}{\wedge}$$

14+11

M.H. Lt.

Rim	0
60	
8.58	
97.82	

Cont pg 43

14+30

C.B. Lt.

Rim	0
70	
8.50	
97.90	

Cont. pg 43

14+ Asph. Parking

200	150	100
6.9	7.5	8.1

± TW	@	on	Bot
Asph Dr.	curb	curb	slope
73	60	60	53
8.4	8.2	7.6	7.2

Cont. pg 43

99.5	98.9	98.3	98.0	98.2	98.8	99.2
------	------	------	------	------	------	------

15- Lt.

Asph	± TW	@	on	Bot
Dr.		curb	curb	slope
100	75	60	60	54
7.5	7.9	7.9	7.3	7.0

cont, pg 45

98.9	98.5	98.5	99.1	99.4
------	------	------	------	------

15+09

C.B. Lt.

Rim	0
71	
7.95	
98.45	

Cont. pg 45

15+49

D.M.S. Lt.

Rim	0
109	
7.00	
99.40	

Cont. pg 45

15+ Lt.

Asph	± TW	@	on	Bot
Asph Dr.		curb	curb	slope
100	72	55	55	48
7.2	7.8	7.7	7.2	6.8

Cont. pg 45

99.2	98.6	98.7	99.2	99.6
------	------	------	------	------

plotted
2/11/80✓
DM

Cross Sections

+ 5.62

104.08



15+67 LT.

Floor Elev. warehouse

on conc. Floor	Asph.	Top Asph. Dr.	Curb
128	100	67	51
4.25	4.7	5.4	5.2
99.83	99.4	98.7	98.9

University Ave Ext. Norwood

- 7.74 98.46 T.P. S.E. Cor. C.B.

on curb	Bot slope
51	46
4.7	4.6
99.4	99.5

cont. pg 47

16- LT.

@ Building

84
4.50
5.11
99.58

BK conc. wlk	on Gran. Curb	Gran. Curb	Asph. Dr.	on curb	Bot slope
84	77	73	73	39	35
4.5	4.59	4.61	5.0	5.2	4.3
99.6	99.49	99.47	99.1	98.9	99.5

cont pg 47

+ 10.69

113.74

- 1.03

103.05

T.P.

stone

- 0.65

113.09 T.P. L.O.C. Gran. Header C.B.

1944

+ 10.66

109.12



98.46

T.P. S.E. Cor C.B.

See above

SEE NB 448/122

16 +

@ Bld.	BK conc. wlk	Gran Curb on	Gran Curb @	Asph Dr.
82.5	76	72	72	50
9.7	9.56	9.60	10.0	10.2
99.4	99.56	99.52	99.1	98.9

Asph Curb on	Bot slope	on slope
32	32	30
10.0	9.5	9.5
99.1	99.6	99.6

21

0

10

9.3

6.3

3.0

99.8

102.8

106.1

SEE

NB 448/76

SEE NB 448 PG 122

FOR NEW SECTION

RIGHT SIDE

Plotted

3/11/80

DM

53

1402 X Section

P

16+52 M.H. LT.

Rim

58.5

10.35

98.77

109.12

A

0

6.9

102.2

University Ave Ext Norwood

54

Leone
Crowley
Kelly

16+85

Grass Curb
on

68

e

68

4 ASP
Dr.

48

30

ASP Curb

e

28

28

0

Bot
slope

20

Floor
elev.on
conc.
w/k

9.51

10.0

10.3

10.0

10.0

9.5

9.3

8.3

81

78

99.61

99.1

98.8

99.1

99.1

99.6

99.8

100.8

9.21

9.29

99.91

99.83

17+0

a
BldBK
conc.
w/k

80

73.5

Grass Curb
on

68

68

4 ASP
Dr.

48

on

ASP Parking

30

0

21

21

Bot
slope

31

50

9.3

9.42

9.55

10.1

10.3

10.0

9.5

9.2

8.8

8.1

1.5

99.8

99.70

99.51

99.0

99.8

99.1

99.6

99.9

100.3

101.0

107.6

17+26

conc. w/k
on

100

86

73

Grass Curb
on

62.5

Grass Curb
on

62.5

on ASP

50

30

0

Conc. w/k

9.5

9.28

9.42

9.64

10.1

10.2

10.0

9.7

Ask ahead Lt.

99.6

99.84

99.70

99.48

99.0

98.9

99.1

99.4

17+28 M.H. LT.

Rim

50

0

10.10

9.7

99.02

99.4

Plotted

RG

55
402

X

Section

University

Ave Ext. Norwood

56

Leone
Crowley
Kelly

17+34

C.B. LT

Rim

$$\begin{array}{r} 62 \\ 10.21 \\ \hline 98.91 \end{array}$$

$$\begin{array}{r} 0 \\ 9.7 \\ \hline 99.4 \end{array}$$

109.12



on Grass

Gran Curb
on

on Asp

Asp Curb

Bot
Slope

17+50

100

75

59.5

59.5

50

30

0

2'

2.5

40

70

9.4

9.4

9.58

10.0

10.1

10.0

9.8

9.8

9.2

7.9

0.3

99.7

99.7

99.54

99.1

99.0

99.1

99.3

99.3

99.9

101.2

108.8

Bot
Slope

on Slope

18+0

(LT SIDE
Cont. 458/28)

100

75

50

30

0

25

50

9.3

9.3

8.6

8.0

7.3

4.1

0.3

99.8

99.8

100.5

101.1

101.8

105.0

108.8

UNIVERSITY AVE

18+12.75 =

$$\begin{array}{r} 0 \\ 6.5 \\ \hline 102.6 \end{array}$$

18+55.16

EVERETT ST.

Bot
Slope

18+50

(LT SIDE
Cont. 458/30)

100

75

50

30

21

0

18

50

9.0

8.9

7.9

7.3

6.8

4.7

2.4

0.6

100.1

100.2

101.2

101.8

102.3

104.4

106.7

108.5

SEE NB 448 PG 116 FOR NEW

RIGHT SIDE 19+0

Slope

FTW

FTW

FTW

C

on

Bot

C

19+0

(LT. SIDE
Cont. 458/30)

100

75

50

30

0

10

30

55

68

83

92

96

103

105

9.1

8.5

7.9

6.9

3.9

3.3

2.7

3.1

2.4

2.8

2.4

0.0

3.0

3.0

100.0

100.6

101.2

102.2

105.2

105.8

106.4

106.0

106.7

106.3

106.7

109.1

106.1 on slope

$$\begin{array}{r} 110 \\ 2.0 \\ \hline 107.1 \end{array}$$

(sections Cont. Pg 105)

- 9.32

99.80

T.P. Spk Pole 29A

380/66

Platte/RB

57/402

Inst.	Tape	Wthr & Temp.	Date	Crew
-------	------	--------------	------	------

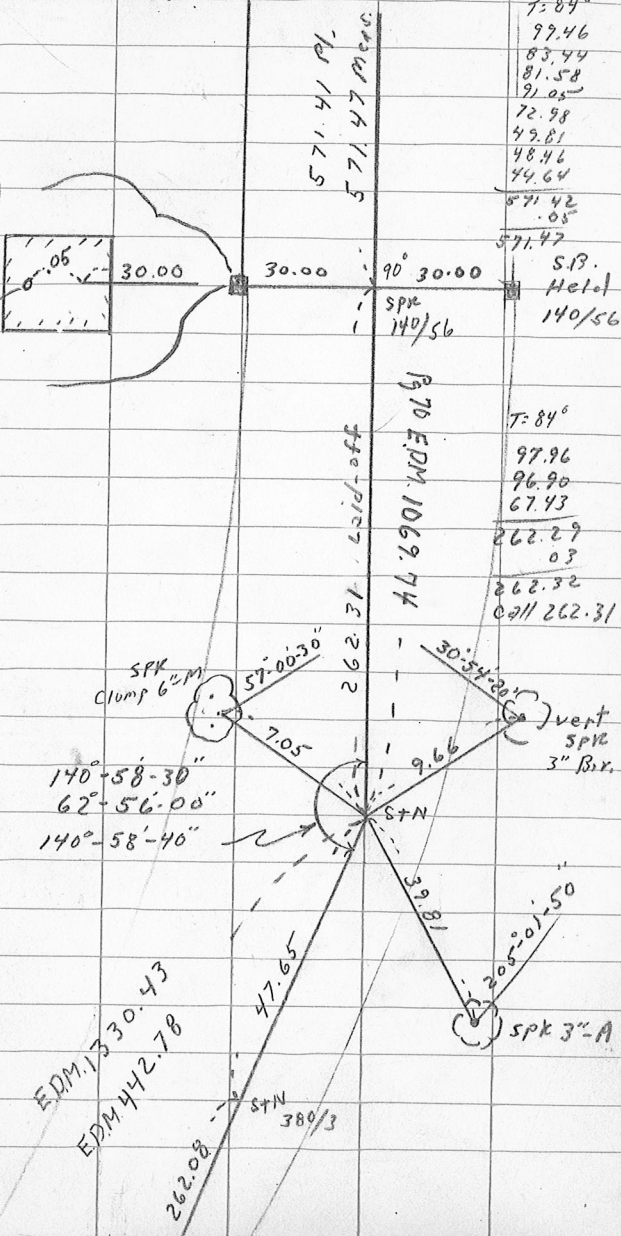
58

Inst.	Tape	Wthr & Temp.	Date	Crew
-------	------	--------------	------	------

61

402 Everett

St.

S.B.
Plugged
&
Drilled
P.H.

Norwood

Layout

62

Aug. 1981

Frink
Leone
M. Marcus
Kelly

T=72°

78.36

81.31

76.28

235.95

.01

235.96

161°-15'-40"

123°-46'-40"

161°-15'-33" Meas.

STN 140/57

235.95

P. & Meas.

EDM 1069.74

T=84°

90.95

38.00

57.36

49.62

275.93

.02

235.95

Note
see 380/4
For American Dt.

S.B.
Held

30.00

SPK

140/56

90°

S.B.

Tipped & Broken

571.41 P.H.

65/402

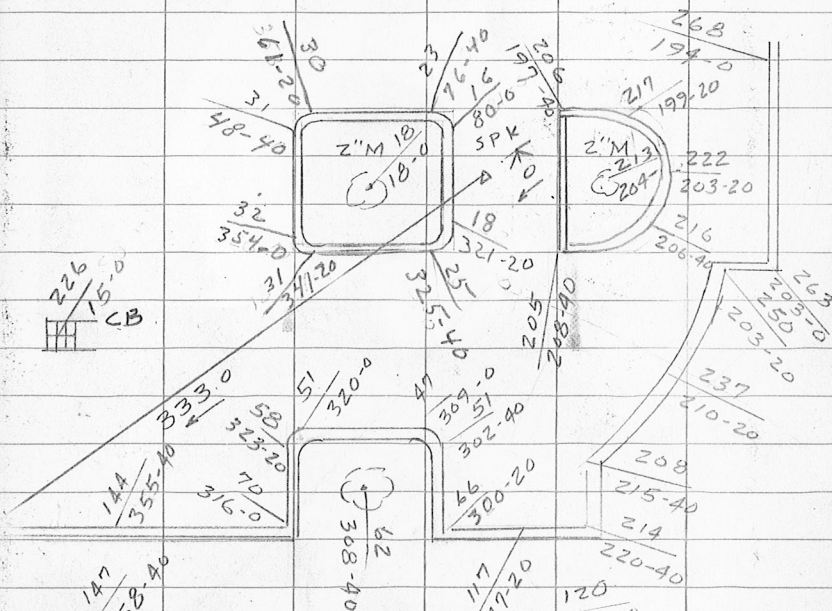
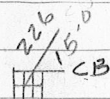
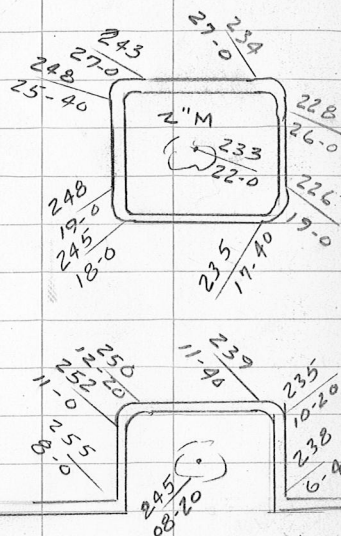
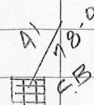
D

Additional Detail

66

Everett St Norwood

See pg 68



147
0 358.40
Light

117
237.20
0 240.0
Light

23+0

Additional Location

ASP PARKING AREA

(From Pg. 22)

conc.	curb
-------	------

Conc. Cup b

p.c

۲۷

S.M.H.

 $0^\circ \leftarrow$

here

Everett

ST.

University Av. EXT Norwood

80.97

See 448/4

10/1/81

Leon
Crowley
DiBona

This pg retaken see pg 66

Rim 4.49
 76.48
 C.B. 329
 142-40

Rm 7.09
73.88

C.B. 130
123-

333.0

conc/ cur h

light post

Cone.	Curb
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50
51	51
52	52
53	53
54	54
55	55
56	56
57	57
58	58
59	59
60	60
61	61
62	62
63	63
64	64
65	65
66	66
67	67
68	68
69	69
70	70
71	71
72	72
73	73
74	74
75	75
76	76
77	77
78	78
79	79
80	80
81	81
82	82
83	83
84	84
85	85
86	86
87	87
88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

416
164-40
light Post

Everett St.

V.A. = $1^{\circ}-30'$

T = 76 Bar. 29.7 P.P.M. 37

offset = 98

w/Filter

Feet

Meters

442.94

135.009

.92

.009

.94

.004

.94

.002

.93

.011

.93

.007

442.933

135.007 X 3.2808333 = 442.935

Cos $1^{\circ}-30'$ X 442.934 = 442.782 Pg. 60V.A. = $0^{\circ}-39'$

T = 76 Bar. 29.7 P.P.M. 37

Offset = 98

w/Filter

Feet

Meters

1330.54

405.538

.53

.541

.52

.545

.51

.547

.50

.539

.49

.531

.52

.526

1330.516

405.540 X 3.2808333 =

1330.509

Cos $0^{\circ}-39'$ X 1330.513 = 1330.427 Pg. 59

Norwood

V.A. = $2^{\circ}-11'$

T = 76 Bar. 29.7 P.P.M. 37 offset = 98 w/Filter

Feet

Meters

1070.51

326.299

.51

.295

.51

.295

.52

.296

.50

.295

.50

.295

1070.508

.296

326.296 X 3.2808333 =

1070.523

Cos $2^{\circ}-11'$ X 1070.515 = 1069.738 Pg. 61

71
402 American Dr. Norwood

P.I. STN to SPK American Dr.

V.A. = $2^{\circ}-21'$

T = 76° Bar 29.7 P.M. 37

offset = 98 w/F. 1/4

Feet	Meters
490.21	149.418
.22	.420
.21	.419
.20	.418
.21	.422
.20	.422
✓ 490.208	✓ 149.420 x 3.2808333 = 490.222

$$\cos. 2^{\circ}-21' \times 490.215 = \boxed{489.803}$$

P.I. STN to STN University AVE.

V.A. = $2^{\circ}-04'$

Info. same as above

Feet	Meters
765.87	233.435
.86	.437
.88	.438
.87	.448
.87	.451
.87	.438
✓ 765.870	✓ 233.441 x 3.2808333 = 765.881

$$\cos. 2^{\circ}-04' \times 765.876 = \boxed{765.378}$$

73/402

PK Spk P.T. STA = 50+88.34 to PC. 66+43.18 STN

VA = 89°-41'-00"

T = 80° Bar. 29.8 P.P.M. 38 W/F

offset 98 W/F

Feet

1554.31

.32

.30

.32

.30

.34

1554.315

meter

473.756

.760

.759

.763

.761

.758

473.760 x 3.2808333 =

1554.328

"Note"
Diff. points used

see Pg. 83 & 84

1554.321 = 1554.297 Pg. 77

P.K. Spk P.T. STA = 50+88.34 to P.I.

VA = 90°-54'-53"

SAME info. as above

Feet

305.77

.70

.70

.71

.70

.70

305.713

meters

93.185

.193

.189

.190

.180

.183

93.187 x 3.2808333 =

305.731

305.722 = 305.683 Pg. 77

74

8/25/81

STN in Gravel PIT > Spk @ P.C.
EVERETT ST

VA. 88-40-46

T = 65°

Bar 30.0

offset 78

P.P.M. + 28

Feet

meters

933.82

284.647

.84

.647

.82

.646

.82

.648

.84

284.648

933.83

933.828

284.647 x 3.2808333 = 933.880

933.854 x sin 88-40-46 = 933.606

Pg. 77

STN in Gravel PIT TO STN @ old P.I.

same data as above

VA = 90-07-16

Feet

meters

839.54

255.900

.52

.908

.52

.901

.53

.902

.54

.903

839.54

255.904

839.535

255.903 x 3.2808333 = 839.575

839.553

Pg. 78

75

UNIVERSITY Ave

Norwood

Tie to State B

8/23/81

D

P.M. Bolt
Hyd651.005 STATE
651.28 E.O.M.

Pg 84

mess
33.63

Hooked

70.60 STATE
70.39 mess

66+43.18

STATE
64+29.28NOTE: see
STATE NB/6014STATE
50+88.34mess
33.62

SPK

Pg 83

Nail Pole 26

305.67 PL + STATE
305.91 E.O.M.

See STATE NB.

0.07 STN
0.13 fndHeld
72.17Held
46.51Nail
pole 23STATE
57+39.845R.R.
spk
(set)
From
STATE
TIESNail pole
#2

Nail 10"m

213.50

STN

380/60
for Ties

213.155 STATE

213.24 E.O.M.

STN
SETFrom
STATE TIES

689.735 STATE

689.70 E.O.M.

Pg 84

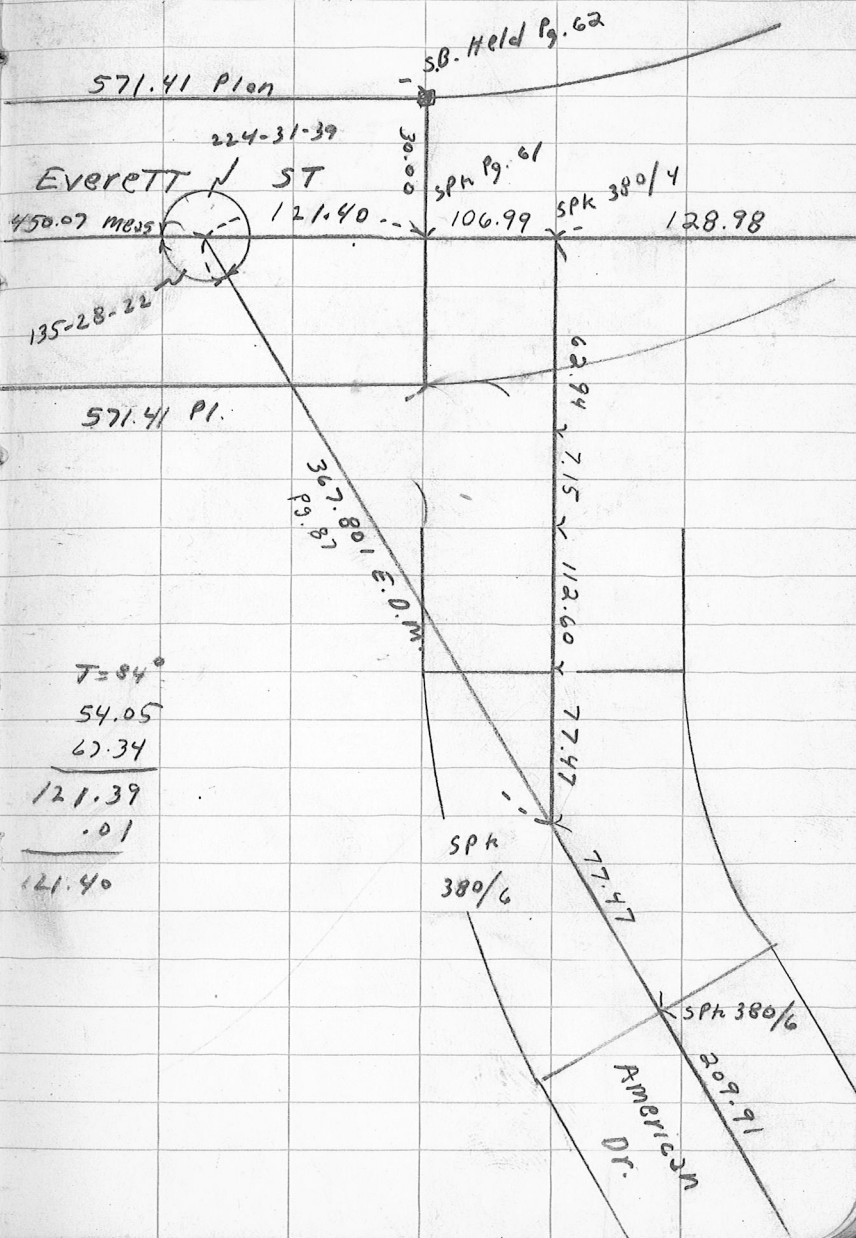
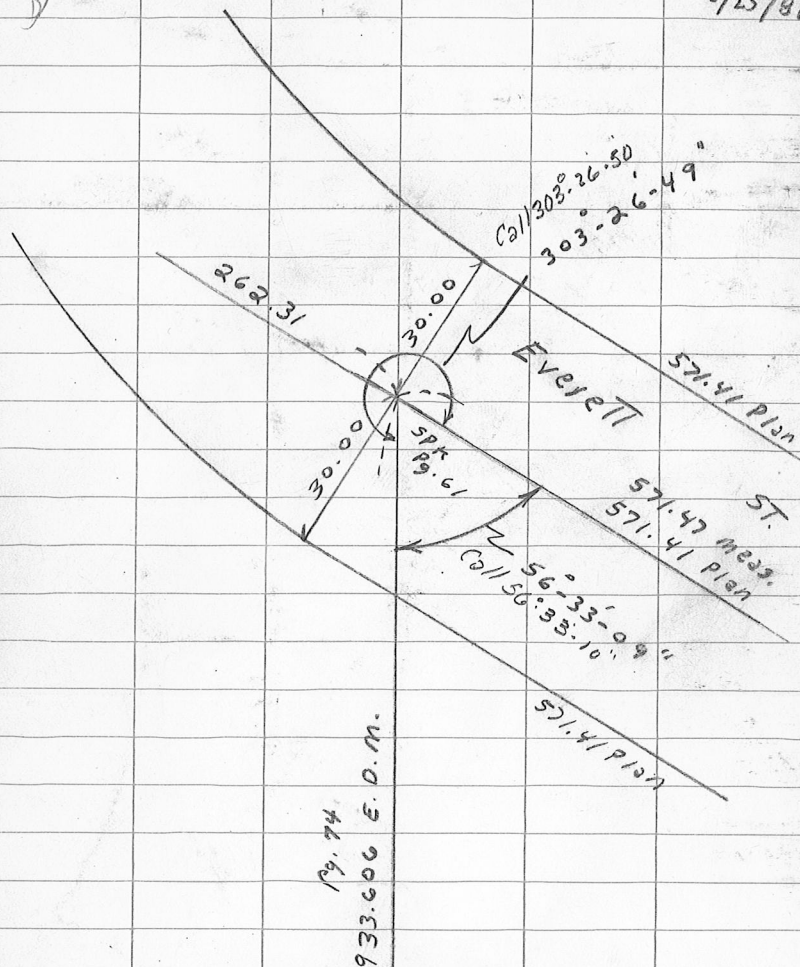
0.06

Nail 3"m

32.55

Looks
Bent651.005 STATE
651.28 E.O.M.

8/25/81



81
/402

82

P.I. STN 380/7 to P.I. STN 380/59

V.A. = $92^{\circ}-26'-35''$ T: 68° Bar. 30.0 P.P.M. 30 offset 98

w/F

Feet

697.94

.93

.96

.97

.97

.95

697.96

697.954

Meters

212.746

.749

.754

.749

.742

.742

212.744

212.746 x 3.2808333 = 697.985

sin $92^{\circ}-26'-35''$ x 697.969 = 697.335 Pg 77

Spk P.T. STA. 50+88.34 to P.I. Spk Pg 75

V.A. = $90^{\circ}-57'-27''$

same info as above

Feet

305.93

.93

.92

.94

.92

.92

.93

.92

305.926

meters

93.275

.262

.260

.258

.266

.256

93.262 x 3.2808333 = 305.977

sin $90^{\circ}-57'-27''$ x 305.951 = 305.908 Pg 75

P.T. spk to R.R. spk on line

V.A. = $90^{\circ}-00'-52''$

same info Pg 83

Feet

651.25

.26

.27

.26

.27

.27

651.263

meters

198.512

.519

.515

.511

.516

.512

198.514

sin $90^{\circ}-00'-52''$ x 651.291 = 651.277

Pg 75

P.T. spk to STN on line

V.A. = $89^{\circ}-49'-23''$

same info Pg 83

Feet

1340.98

.98

.99

.98

.97

1340.980

meters

408.733

.738

.739

.740

.739

.740

408.738 x 3.2808333 =

1341.001

sin $89^{\circ}-49'-23''$ x 1340.991 = 1340.984 Pg 76

SPK PT. STA 50+88.34 to STN P.C. STA 66+43.18

V.A. = $89^{\circ}-38'-28''$

same info Pg. 83

Feet

Meters

1554.25

473.734

.23

.741

.25

.741

.25

.740

.24

.744

.25

.740

1554.245

473.740 $\times 3.2808333 =$

1554.262

Sin $89^{\circ}-38'-28'' \times 1554.254 = \boxed{1554.223}$

Pg. 76

P.C. STN STA 66+43.18 to P.I. SPK Pg. 75

V.A. = $90^{\circ}-27'-48''$ T = 74° BAR 29.9 P.P.M. 35 offset 98

w/F

Feet

Meters

1860.17

566.978

.20

.984

.20

.984

.13

.983

.20

.973

.10

.985

.12

.987

.13

.987

.14

.985

.18

.987

.16

.988

.15

.991

1860.163

566.987 $\times 3.2808333 = 1860.189$

P.C. STN STA 66+43.18 to P.I. STN Pg. 16

V.A. = $89^{\circ}-42'-38''$ T = 74° BAR 29.9 P.P.M. 35 offset 98

w/F

Feet

Meters

212.47

64.770

.49

.772

.49

.775

.47

.771

.48

.775

212.480

64.773 $\times 3.2808333 =$

212.509

Sin $89^{\circ}-42'-38'' \times 212.495 = \boxed{212.492}$ Pg. 77

call 212.50

P.C. STN STA 66+43.18 to P.I. STN 380/59

V.A. = $89^{\circ}-42'-38''$

same info as above

Feet

Meters

310.32

94.582

.32

.591

.32

.589

.32

.592

.33

.585

.32

.588

.32

.588

.31

94.588 $\times 3.2808333 =$

.33

310.327

.34

.32

310.323

Sin $89^{\circ}-42'-38'' \times 310.325 = \boxed{310.321}$

310.321

- 212.492

97.829

87/402

88

PT. SPH American Dr. to EVERETT ST.

8/28/81

T = 82° Bar. = 30.05 P.P. + 38

offset + 98

VA = 91-01-23

Feet

Meters

SIN 91-01-23 x

367.860 = 367.801

367.86

112.126

.86

.126

.86

.127

.86

.126

.83

112.124

.84

.125

.85

.127

.85

.128

.83

.128

367.86

112.129

367.850

112.127

x 3.2808333

367.870

check meas see Pg. 71

Same Dist as Above VA = 92-02-09

Feet

Meters

SIN 92-02-09 x

765.93

233.447

765.912 = 765.428

.91

.445

.88

.447

.92

.461

.89

.461

.91

.444

.92

.453

.91

.440

.92

.451

233.451 x 3.2808333 =

765.91

.457

765.914

765.910

233.456

89

402 B For 1981 Proposed EXT.

NOTE: SEE NO. 448 P. 34-43

T=68°

72.79

63.85

46.42

97.04

62.32

342.42

S+N

P. 77

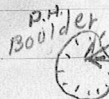
SPK UP 5.5
6" Dr
91°-08'-40"

217°-47'-59"

S+N

P. 77

39.70



66+43.18

S+N

P. 76

65+13.27 UNIVERSITY =
0+00.16 American Dr.

30'

S+N

P. 76

97.83

342.41
OK mens.

D=37°-48'-11"

R=1000.00

91.37

2/15/84

T=42°

95.30

25.92

121.22

.02

121.20

RP in metal guard
R.L.

GAS
GATE'S

99°-05'-20"
198°-10'-40"
99°-05'-20"

90

University Ave. 9/7/81

Leone
Crowley
Kelly

T=70°

85.00

77.89

162.39

D=29°-57'-23"

R=1000.00

T=68°

57.36

60.76

97.39

215.51

267.54

52.03

T=68°

58.78

83.58

142.36

155.48

13.12

Bld.

#59

Cor. Fnd.

UP 1.8

T=70°

50.63

45.70

51.27

147.60

SPK

13+38.27

65.00

SPK 380/6

CUT

M.H.

21-56-40"

162.39

8.00

143.46

110°-40'-40"

147.60

143.46

147.60

147.60

147.60

147.60

147.60

147.60

147.60

147.60

147.60

147.60

147.60

147.60

147.60

147.60

147.60

147.60

147.60

147.60

147.60

147.60

147.60

147.60

147.60

S+N

P. 15

150°-02'-40"

90°-08'-20"

150°-02'-47"

136°-34'-20"

867.54

155.48

155.48

155.48

155.48

155.48

155.48

155.48

155.48

155.48

155.48

155.48

8+15.43

155.48

155.48

155.48

155.48

155.48

155.48

155.48

155.48

155.48

155.48

155.48

155.48

155.48

155.48

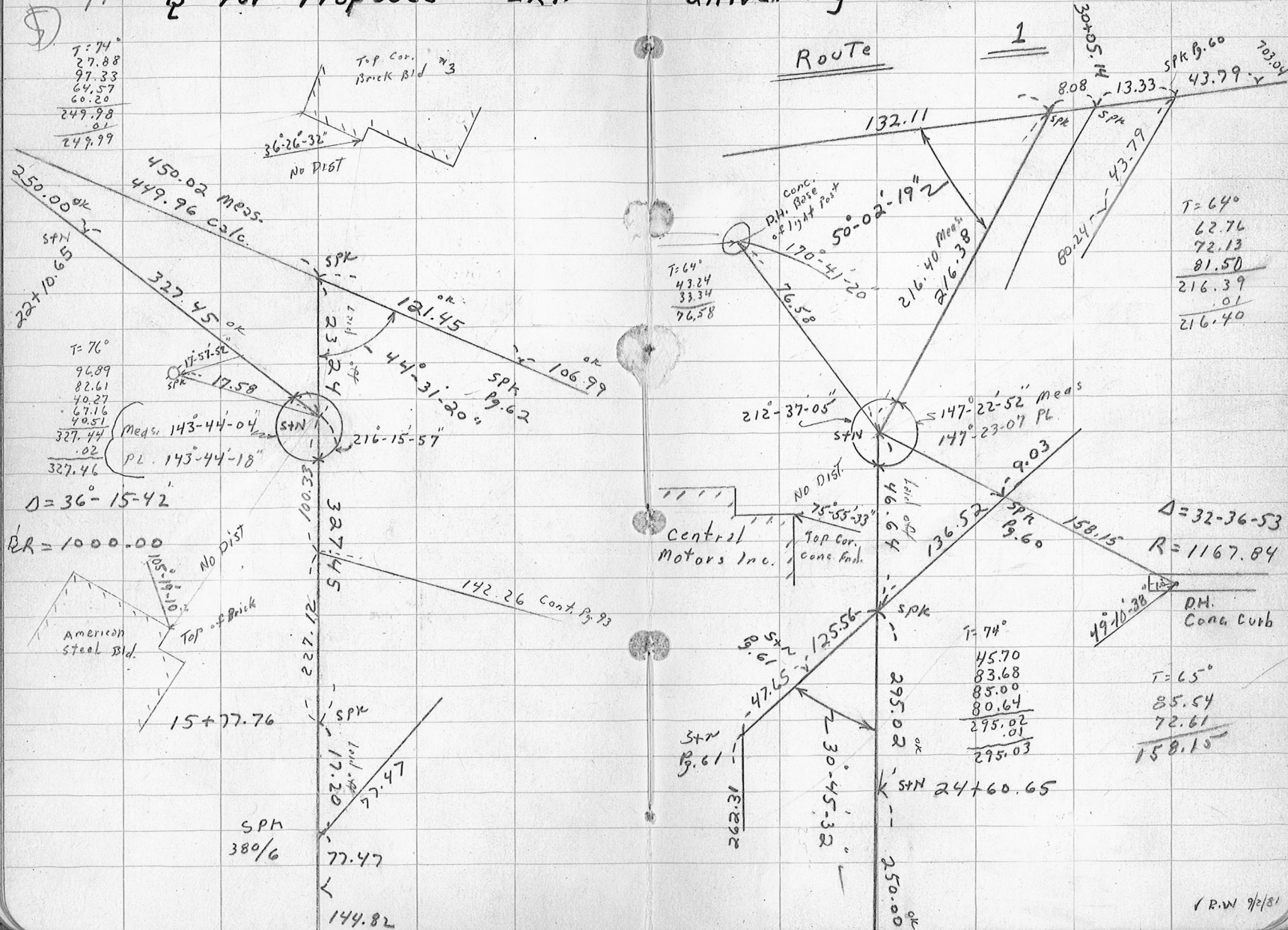
155.48

155.48

155.48

✓ RW. 9/2/81

§ For Proposed EXT. University Ave



✓ R.W. 9/2/81

1402 B

For Proposed Ext

University Ave.

Leone
Crowley
Kelly

$$T=88^\circ$$

$$86.45$$

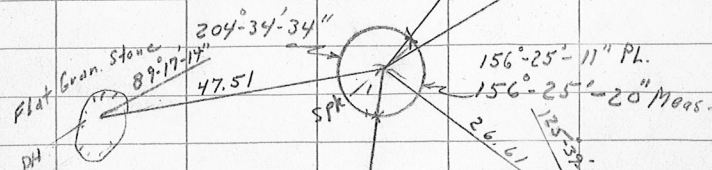
$$58.42$$

$$25.43$$

$$170.30$$

$$.02$$

$$170.32$$



$$T=78^\circ$$

$$92.63$$

$$7.69$$

$$100.32$$

$$.01$$

$$100.33$$

$$23.24$$

$$100.33$$

$$227.12$$

$$STN$$

$$P491$$

$$STN$$

$$P491$$

$$280.6$$

$$234.99$$

$$18+55.16 \text{ Everett St.}$$

$$18+12.75 \text{ American Dr.}$$

$$T=88^\circ$$

$$63.08$$

$$34.24$$

$$44.92$$

$$142.24$$

$$.02$$

$$142.26$$

$$78^\circ-16'-39'' \text{ Meas.}$$

$$78^\circ-16'-32'' \text{ PL.}$$

University Ave.

$$GAR$$

$$74^\circ-09'-48''$$

$$\text{No Dist}$$

$$7^{\text{th}} \text{ Conc. block up}$$

$$R=1430.00$$

$$RR \text{ SPK } 13+05.54$$

$$P9.63$$

$$ok \text{ Meas.}$$

$$50^\circ-23'-57''$$

$$107.09$$

$$3.00$$

$$188^\circ-33'-48''$$

$$28.16$$

$$128.86$$

$$140/57$$

$$STN$$

$$P491$$

$$140/57$$

$$T=235.93$$

$$107.09 \text{ Meas.}$$

$$170.32 \text{ Meas.}$$

$$SPK$$

$$P491$$

$$170.32 \text{ Meas.}$$

$$170.32 \text{ Meas.}$$

$$170.32 \text{ Meas.}$$

$$170.32 \text{ Meas.}$$

$$170.32 \text{ Meas.}$$

$$170.32 \text{ Meas.}$$

$$T=78^\circ$$

$$76.27$$

$$30.81$$

$$107.08$$

$$.01$$

$$107.09$$

$$T=78^\circ$$

$$97.22$$

$$31.62$$

$$128.84$$

$$.01$$

$$128.85$$

$$T=88^\circ$$

$$90.52$$

$$16.56$$

$$107.08$$

$$.01$$

$$107.09$$

$$P.R.C. 15+19.33$$

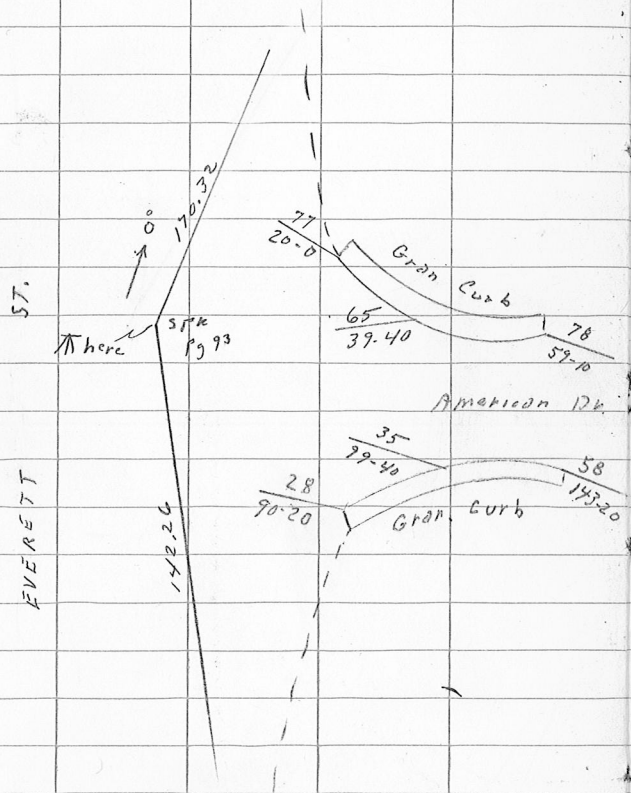
$$B=816.00$$

402

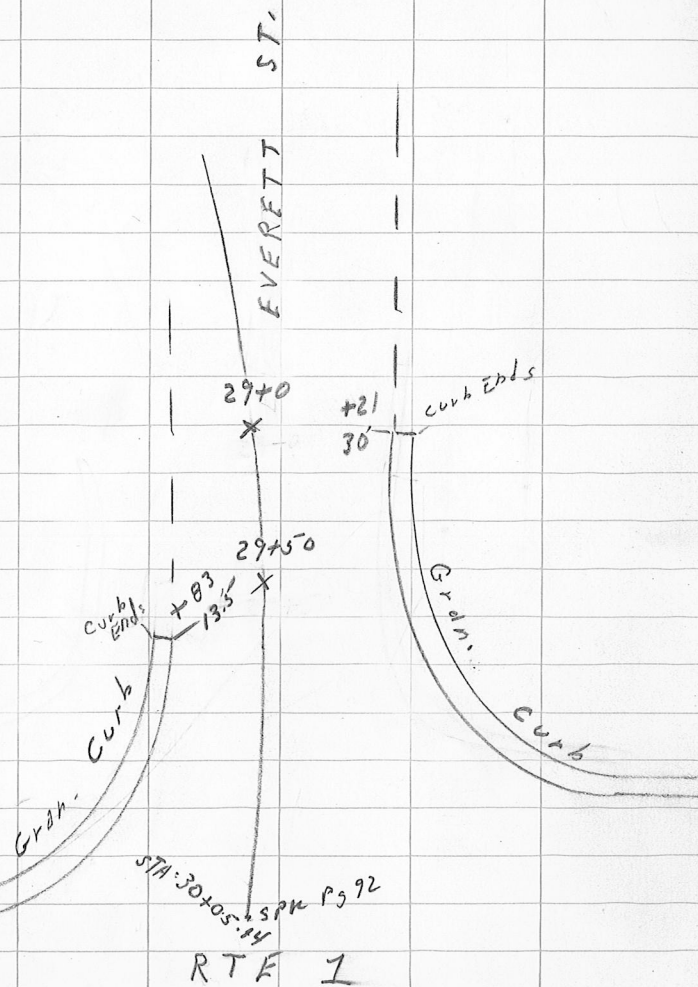
Addition of Detail

Norwood 10/6/8

Leone
Dillis
Crowley
O'Brien



EVERETT ST Norwood



97/402

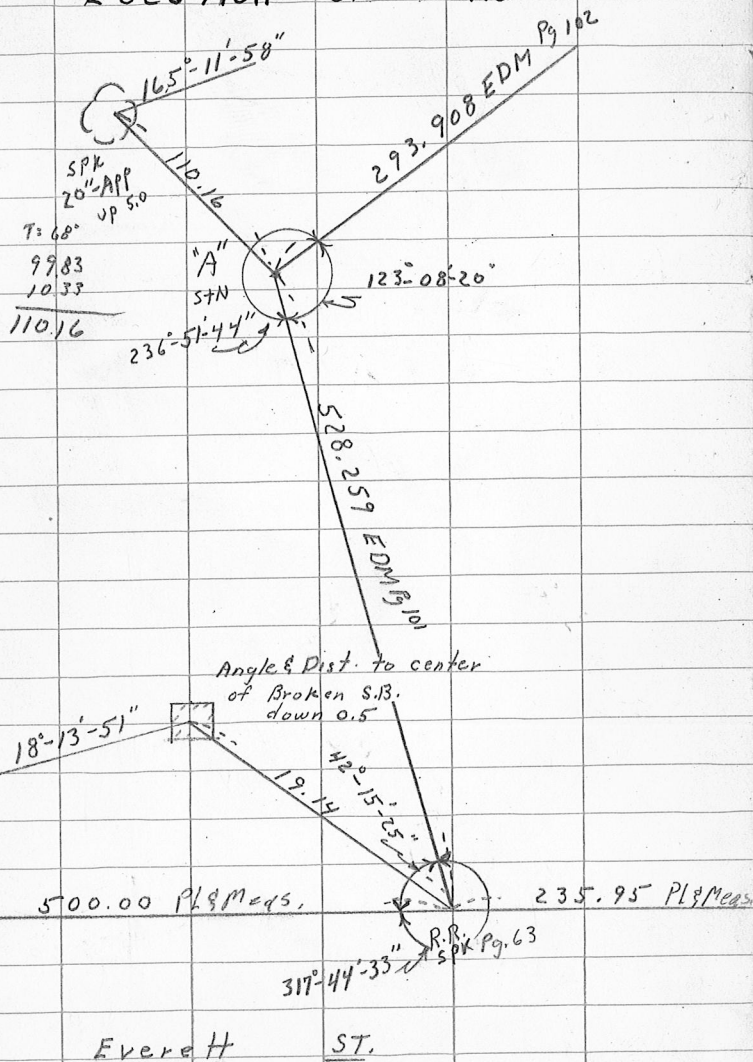
Location of Land Court

Bds

Norwood

9/18/81

98

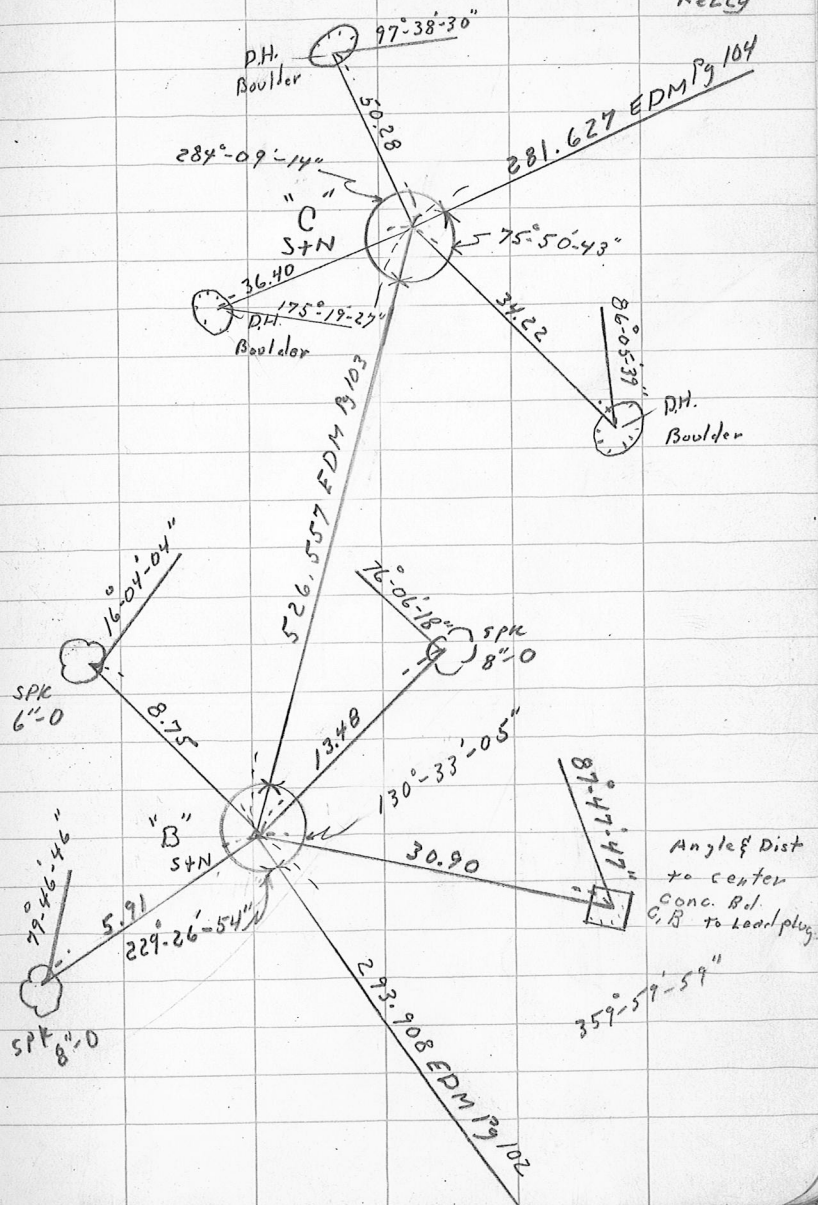
Leone
Crowley
KellyEverettST.

Bds

Norwood

9/18/81

98

Leone
Crowley
Kelly

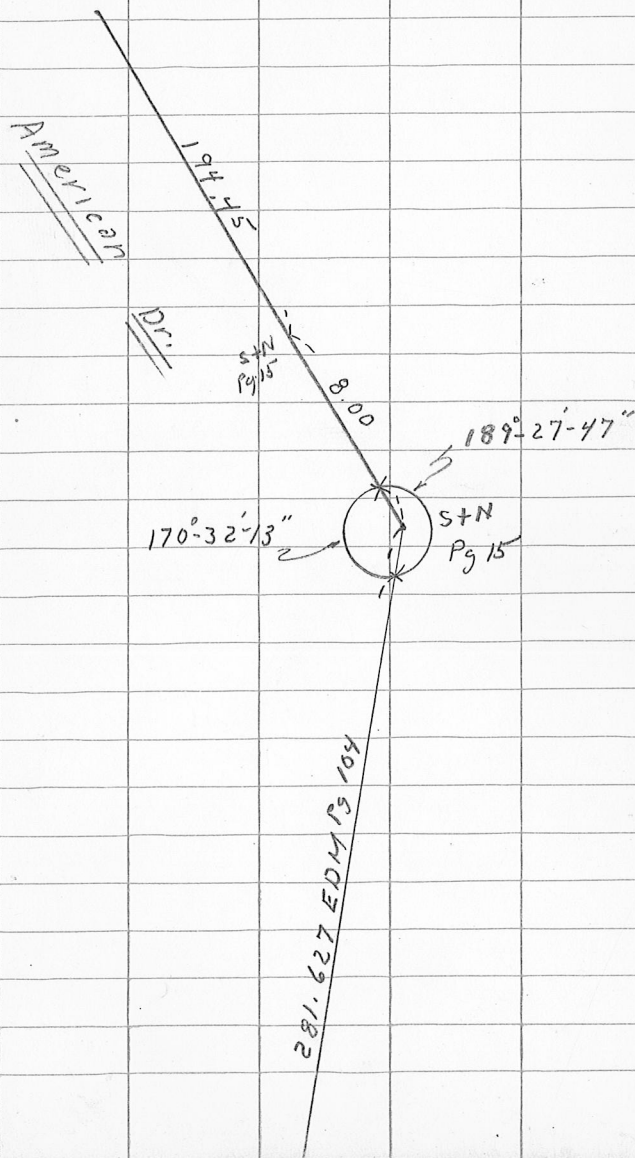
99/402

Location of Land Court

Bds Norwood

9/18/81

100



TRAVERSE

StN "A" to R.R. Spk Everett St.

V.A. = $89^{\circ}35'39''$ T = 64° Bar. 29.9 offset 98

P.P.M. 29 W/F

feet

meters

528.26	161.023
.25	.024
.26	.022
.26	.025
.25	161.022
528.25	161.023 x 3.280833 =
528.255	528.290

Sin $89^{\circ}35'39''$ x 528.272 =

528.259

NORWOOD

StN "A" to StN "B"

V.A. = $88^{\circ}43'08''$ T = 64° Bar. 29.9 offset 98

P.P.M. 29 W/F

Feet

meters

293.99	89.606
.97	.608
.97	.608
.97	.610
293.97	89.610
293.974	89.608 x 3.280833 =

293.989

Sin $88^{\circ}43'08''$ x 293.981 = 293.908

TRAVERSE

S+N "C" to S+N "B"

V.A. = $84^{\circ}35'55''$ T = 64° Bar 29.9 offset 98

P.P.M. 29

w/F

Feet

meters

528.90

161.215

.90

.214

.89

.211

.90

.213

528.90

161.214

528.898

161.213

 $\times 3.2808333 =$

528.913

$$\sin 84^{\circ}35'55'' \times 528.905 = \boxed{526.557}$$

NORWOOD

S+N "C" to S+N American Dr Pg 15

V.A. $89^{\circ}39'45''$ T = 64° Bar 29.9 offset 98

P.P.M. 29

w/F

Feet

meters

281.62

85.847

.62

.845

.63

.844

.63

.843

.62

.843

281.62

85.843

281.623

85.844

 $\times 3.2808333 =$

281.640

$$\sin 89^{\circ}39'45'' \times 281.631 = \boxed{281.627}$$

105

X Sections University Ave.

(Cont. From Pg. 56)

+ 8.38

108.18

19+50

100	75	50	30	20	0
8.6	7.8	6.6	5.2	4.7	4.4
99.6	100.4	101.6	103.0	103.5	103.1

20+0

100	75	50	20	0
8.9	8.5	8.0	7.9	7.6
99.3	99.7	100.2	100.3	100.6
150	130			
12.4	11.4			

95.8 96.8

20+50

125	100	75	50	20	ETW	0	3
12.6	11.8	11.0	10.0	11.0	11.0	10.6	10.5
95.6	96.4	97.2	98.2	97.2	97.2	97.6	97.7

150
13.2
95.0

+ 0.77

100.57

21+0

75	50	30	22.5	11.5	0
7.3	7.0	6.4	6.5	6.1	6.3
93.3	93.6	94.2	94.1	94.5	94.3
100					
7.8					
92.8					

106

Ext. Norwood

99.80 T.P. spk Pole 29A Pg 56

Leone
Crowley
Kelly

ETW	ETW	ETW	@ slope	Top slope	on slope	
20	31.5	45	55	63	67	85 cont. 448/2
4.6	4.6	3.9	4.2	3.8	2.4	5.3
103.6	103.6	104.3	104.0	104.4	105.8	102.9

SEE NB 448 PG. 116 FOR NEW X-SECTION 19+50 RIGHT

ETW	ETW	ETW	@ slope	Top slope	on	
9	21	35	38	45	58	cont. 448/2
7.5	6.9	6.7	6.5	5.0	7.3	
100.7	101.3	101.5	101.7	103.2	100.9	

SEE NB 448 PG. 116 FOR NEW X-SECTION RIGHT

@ slope	Top slope	on	Bot slope	Top slope	on slope	
ETW	ETW	ETW	ETW	ETW	ETW	
16	18	22	26	32	40	cont. 448/2
10.1	9.6	9.6	11.6	10.7	12.9	
48.1	48.6	48.6	46.6	47.5	45.3	

SEE NB 448 PG. 116 FOR NEW X-SECTION RIGHT

- 8.38

99.80 T.P. spk Pole 29A 380/66

Top slope	Bot slope	on slope	Top slope
6	12	20	24
5.5	8.5	9.2	9.2
95.1	92.1	91.4	91.4

cont. 448/2

104.4106
SEE NB 448 PG. 116 FOR NEW X-SECTION
RIGHT

Plotted

RG

107/402

X sections

Everett

ST.

Norwood

108

100.57^v
X

21+50	Top Slope	Arm Cos Gate	ETW	ETW	ETW	Top Slope
70	50	47	36	23	12	4
on slope	10.6	7.6	92.0	91.7	91.3	8.6
80	90.0	91.0	91.37	90.9	91.3	92.0
12.8						
87.8						

on Slope	on Slope
0	13
9.5	12.4
91.1	88.2
	20
	13.5
	87.1

Cont. 448/2

SEE NB 448 PG. 104 FOR
NEW X-SECTION RIGHT

22+0	Top Slope	ETW	ETW	ETW	Top Slope	on Slope
75	68	50	47	34	23	18
86	15.4	13.0	12.2	12.4	12.0	11.9
14.2	85.2	87.6	88.4	88.2	88.6	88.1
86.4						88.7

Cont 448/4

SEE NB 448 PG. 104 FOR
NEW X-SECTION RIGHT22+38 See NB 448/4
See 448/104 + 106
+ 0.9290.99^v
X

22+50

75	61	56	52	ETW
5.8	5.1	4.0	4.8	4.3
85.2	85.9	87.0	86.2	86.7

- 10.50 90.07 TP Stone

SEE NB 448 PG. 104 FOR NEW X-SECTION
RIGHT

ETW	on Slope
32	22
4.7	3.5
86.3	87.5
	17
	1.7
	87.3
	10
	2.4
	88.6
	0
	3.7
	87.3

Cont. 448/4

SEE NB 448 PG. 104
FOR NEW X-SECTION RIGHT

22+56

Dirt Dr	ASK ahead Lt.	# Arc 211 sill
		175
		150
		125
		100
		83
		66
		51
		33
		26
		20
		0
		4.3
		86.7
		84.0
		86.5
		85.8
		85.5
		84.9
		85.6
		85.2
		4.5
		2.0
		89.0
		84.0
		86.7
		88.67
		2.32

				ETW	ETW	ETW	Top Slope	Top Slope		
<u>175</u>	<u>150</u>	<u>125</u>	<u>100</u>	<u>83</u>	<u>66</u>	<u>51</u>	<u>33</u>	<u>26</u>	<u>20</u>	<u>0</u>
4.2	4.6	4.9	5.5	6.1	5.4	5.2	4.5	2.8	2.0	4.3
86.8	86.4	86.1	85.5	84.9	85.6	85.8	86.5	84.0	84.0	86.7

109/402

P

X

Sections Everett

90.99V

N

ST.

Norwood

120

23+0

ETW	ETW	ETW		
75	62	51	42	30
5.4	6.0	5.4	5.3	4.6
85.6	85.0	85.6	85.7	86.4

Top
slope

22	10	0
2.7	3.6	5.6
88.3	87.4	85.4
	(87.4)	

cont. 448/4

SEE NB 448 PG. 106 FOR
NEW X-SECTIONS RT

+ 3.27

91.56

N

- 2.70

88.29

T.P. Hyd spindle 380/66

23+50

ETW	ETW	ETW	on slope		
90	69	58	47	34	30
5.9	6.4	6.1	6.0	4.7	3.4
85.7	85.2	85.5	85.6	86.9	88.2

Top slope			
26	20	0	20
4.5	4.9	8.4	14.0
87.1	86.7	83.2	77.6

cont. 448/4

SEE NB 448 PG. 108
FOR NEW X-SECTIONS
RIGHT

24+0

ETW	ETW	ETW	
100	73	62	52
5.9	5.8	5.5	5.4
85.7	85.8	86.1	86.2

Bot
slopeTop
slopeTop
slopeTop
slope

45	40	36	20	0	16
5.0	3.7	4.9	4.7	9.0	13.4
86.6	87.9	86.7	86.9	82.6	78.2

cont. 448/4

SEE NB 448 PG. 108 FOR NEW
X-SECTIONS RIGHT

24+50

ETW			
100	77	65	55
5.3	5.2	5.1	5.3
86.3	86.4	86.5	86.3

50	35
5.5	4.6
86.1	87.00

20	0
5.6	10.6
86.0	81.0

cont. 448/6

plotted

SEE NB 448 PG. 108 FOR
NEW X-SECTION RIGHTR[✓]

111/402

X Section s Everett

ST.

Norwood

24+55 Dirt Dr. Lt. ASK Back

91.56

on slope

on	Dirt Dr.	100	77	65	55	50	45	43	35	20	0
150	125	5.3	5.2	5.1	5.3	5.4	4.3	2.8	4.3	5.5	10.6
5.6	5.4				86.3	86.2	87.3	88.8	87.3	86.1	81.0
86.0	86.2	86.3	86.4	86.5							

25+0

ETW

ETW

ETW

Bot

TOP
SLOPE

0

on slope

45

38

20

0

cont 448/6

SEE NB 448 PG. 110
FOR NEW X-SECTION
RIGHT

on slope	TOP SLOPE
100	84
7.1	5.6
84.5	86.0

25+50

TOP
SLOPE

ETW

ETW

ETW

0 slope

TOP
SLOPE

0 slope

TOP
SLOPE

20

0

cont 448/6

Dirt slope

92

82

72

58

55

54

50

38

20

0

101

58

5.8

5.7

5.5

5.0

4.2

5.7

6.1

8.1

13.3

7.6

85.8

85.8

85.9

86.1

86.6

87.4

85.9

85.5

83.5

78.3

84.0

+ 2.83

88.63

- 5.76

85.80

T.P.

TACK

Tel.

Pole

26+0

SEE NB 448/85

100

TOP
SLOPE

ETW

ETW

ETW

TOP
SLOPE

on slope

40

20

0

cont 448/6

6.7

81.4

3.1

3.5

3.2

3.5

3.0

3.0

4.7

7.4

13.2

81.4

85.5

85.1

85.4

85.1

85.6

85.6

83.4

81.2

75.4

SEE NB 448 PG. 110
FOR NEW X-SECTIONS RIGHTPlotted
RE

113/402

X Sections

88.63[✓]

Everetts St. Norwood

114

26+50 SEE NB 448/85

100	85
12.6	7.9
76.0	80.7

Top
slope

80	74	73
5.8	5.5	5.9
82.8	83.1	82.7

ETW

ETW ETW

61	50	45
5.6	5.8	4.8
83.0	82.6	83.8

Top
slope

41	20	0
4.8	9.1	15.1
83.8	79.5	73.5

cont 448/6

SEE NB 448 Pg. 110

FOR NEW X-SECTION
RIGHT

See 448/6

for 26+55

26+70

27+0 SEE NB 448/86

80
14.5
74.1

Top
slope

67	61	60
8.5	8.3	8.6
80.1	80.3	80.0

ETW

ETW ETW

46	36	30	24	0
8.0	8.0	7.7	8.7	13.4
80.6	80.6	80.4	79.9	75.2

cont 448/6

SEE NB 448 Pg. 112
FOR NEW X-SECTION
RIGHT

+ 3.45

80.27[✓]

- 11.81

76.82 T.P. Stone

27+18

Bot Slope Rt

ETW ETW ETW

62	55	41	31
0.7	0.9	0.2	0.4
79.6	79.4	80.1	79.9

SEE NEW X-SECTION NB 448 Pg. 112

24	0	24	40	60	75	100
0.3	3.7	4.9	5.6	5.4	5.7	6.1
80.0	76.6	75.4	74.7	74.9	74.6	74.2

27+50 Asp Road R.T.

Asp Back

SEE NEW X-SECTION NB 448 Pg. 112

0	24	50	75	100	125	150
2.1	2.9	4.2	5.0	5.8	6.8	7.5
78.2	77.4	76.1	75.3	74.5	73.5	72.8

Plotted

RGV

115/402

P

X

Sections

	Bot Slope		Top Slope	ETW	ETW
27+50	85	70	55	58	37
SEE NB 448/86	13.3	7.4	1.9	2.4	1.8
	67.0	72.4	78.4	77.4	78.5
(REVISED SEE 448/130)					

28+0

	Bot Slope	on Slope	Top Slope	ETW	ETW
SEE NB 448/86	80	70	60	48	41
	13.7	10.8	7.9	3.7	4.7
	66.6	64.5	72.4	76.6	75.6
(REVISED SEE 448/132) 69.5					

28+43

Asp. Dr. Lt.

Ask back

Bot ASP Dr. Top

100	80	60	40
12.6	11.5	9.1	5.8
67.7	68.8	71.2	74.5

ETW

ETW

ETW

37	24	19	7	0
6.0	5.8	5.5	5.7	5.8
74.3	74.5	74.8	74.6	74.5

100
8.7
71.6

28+50

90	70	55
12.2	10.6	9.3
68.1	69.7	71.0

	ETW	ETW	ETW	ETW
38	35	24	19	4
6.2	6.3	6.0	5.8	5.8
74.1	74.0	74.3	74.5	74.5

0	24	50	75	100
5.9	6.7	8.1	9.1	9.1
74.4	73.6	72.2	71.2	71.2

(72.2)

+ 3.57 77.27

29+0

on
ASPBot
Slopeon
Top Slope

ETW

ETW

ETW

100	75
9.3	9.3
68.0	68.0

54	35	32
8.8	5.1	4.8
68.5	72.2	72.5

30	24	11
5.1	4.7	4.2
72.2	72.6	73.1

0

5

24

50

75

100

4.2	4.2	4.2	5.3	6.0	6.1
73.1	73.1	73.1	72.0	71.3	71.2

29+35

S.M.H. LT.

Rim
10.6
9.35
67.92

5.4
71.9

- 6.57

73.70

T.P. Hyd Spindle 880/66

Plotted
RG

Everett

ST.

Norwood

116

117/402

29+39 P.M.H. Lt

Rim	
99	
9.17	0
68.10	5.5
	71.8

77274
↑

X Sections Everett St. Norwood

118

29+50

Gran Curb			ETW		
on	e				
80	45	45	24	12	0
87	7.49	7.5	6.4	6.1	5.9
68.6	69.80	69.8	70.9	71.2	71.4

ETW	24	50	75	100
12				
6.2	5.7	6.2	6.3	6.3
71.1	71.6	71.1	71.0	71.0

29+54 C.B. Lt.

Rim	0
46	6.6
7.79	71.3
69.48	

e	on	on	e	ETW
	Gran.	Curb		

47	32	32	26	26	4	0
7.4	7.0	6.77	6.64	6.8	6.4	6.4
69.4	70.3	70.50	70.63	70.5	70.4	70.9

29+70

Island Lt

Rim

29+75 S.M.H. Rt

0	64
6.7	6.54
70.6	70.73

Stone Curb

e	on	Header	on	Rim	ETW
		Rk			

29+77 C.B. Lt. & Island Lt.

50	43	43	33	25.5	25.5	25	4	0
7.5	7.5	7.28	6.7	6.5	6.46	6.94	6.7	6.7
69.8	69.8	69.99	70.6	70.8	70.81	70.33	70.6	70.6

29+89 P.M.H. Rt

Rim	0
6.8	6.9
70.5	70.32

on	on	e	Rim	ETW
----	----	---	-----	-----

26	25	24	24	13.5	4	0
7.09	7.0	6.84	7.2	7.25	6.9	6.8
70.18	70.3	70.43	70.10	70.02	70.4	70.5

29+93 M.H. Lt &

Island

40	26
7.2	7.2
70.1	70.1

Gran Curb

30+0

ETW		
24	4	0
7.2	6.9	6.8
70.1	70.4	70.5

e	on				
19	19	24	50	75	100
6.9	6.79	6.2	6.4	6.7	6.8
70.4	70.48	71.1	70.9	70.6	70.5

Plotted

RG

119/402

P

X

Sections

77.27^v

↑

Rim
M.H.

30+11 Gutter Line Rte 1 Lt.

As K Back	100	75	64.5
	8.7	8.0	7.72
	68.6	69.3	69.55

200	150	125
11.2	10.0	9.4
66.1	67.3	67.9

Everett St. Norwood

120

50	25	0
7.5	7.2	6.8
67.8	70.1	70.5

30+11 Gutter Line Rte 1 Rt.

As K Ahead	0	25	50
	6.8	6.5	6.2
	70.5	70.8	71.1

75	100	125	150	200
5.9	5.7	5.5	5.5	5.2
71.4	71.6	71.8	71.8	72.1

30+14 C.B. Rt

	Rim
0	24
6.8	6.96
70.5	70.31

- 2.62 74.65 SPK Pole # 22A 380/66

133.99 L.O.C. Bot. Brick Step 1/2 # 304 140/60

+ 2.74

136.73

↑

Profile

Everett St.

9+0	0	ETW
	7	
	9.9	9.9
	126.8	126.8

9+50

0
8.3
128.4

ETW

8
8.3
128.4

10+0

0
8.0
128.7

ETW

8
7.9
128.8

10+50

ETW
0
8.
7.2
7.0
129.5
129.7

Plotted

RG^v

121/402

X Sections

136.73[✓]
▲

11+0

60	50	30	ETW
5.0	5.1	6.4	7.8
131.7	131.6	130.3	128.9

11+50

60	50	30	ETW
5.3	5.7	7.3	8.3
131.4	131.0	129.4	128.4

12+0

60	50	30	ETW
7.2	7.2	7.8	8.2
129.5	129.5	128.9	128.5

12+22

Bot Slope RT

cont. 448/22	0	ETW	ETW
	8.0	7.6	7.7
	128.7	129.1	129.0

12+40

Top Slope RT	0	ETW	ETW
	7.6	7.2	6.5
Cont. 448/22	129.1	129.5	130.2

Everett St Norwood

123

0	8	ETW	Top slope Bot	30	50	60
7.8	7.7	8.2	7.8	10.6	12.4	12.7
128.9	129.0	128.5	128.9	126.1	124.3	124.0

0	8	ETW	Bot	30	50	60
8.2	8.1	8.4	8.6	10.8	12.1	12.4
128.5	128.6	128.3	128.1	125.9	124.6	124.3

ETW	ETW	Top slope	Bot	30	50	60	RT side cont. 458/34
9	18	21	28	30	50	60	
7.9	8.1	7.5	9.1	9.2	10.0	9.8	
128.8	128.6	129.2	127.6	127.5	126.7	126.9	

20	30	50	60	Right side Cont. 458/34
7.1	7.5	8.2	7.9	
129.6	129.2	128.5	128.8	

30	50	60	RT side Cont. 458/34
6.2	5.3	5.0	
130.5	131.4	131.7	

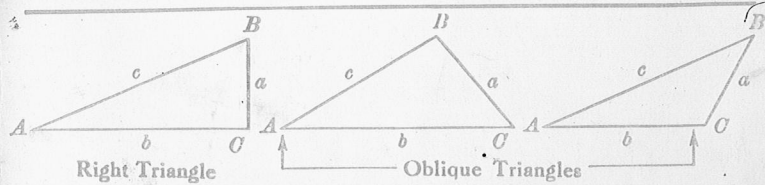
cont 448/8 Plotted
RE[✓]

$$\begin{array}{r} 14. \\ 12.18 \\ 9.14 \\ \hline 202 \end{array}$$

$$\begin{array}{r} 11.66 \\ 10.82 \\ \hline 84 \end{array}$$

$$\begin{array}{r} 11.70 \\ 10.91 \\ \hline 79 \end{array}$$

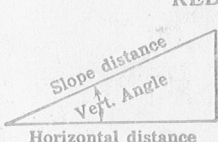
TRIGONOMETRIC FORMULÆ



Solution of Right Triangles	
For Angle A. $\sin = \frac{a}{c}$, $\cos = \frac{b}{c}$, $\tan = \frac{a}{b}$, $\cot = \frac{b}{a}$, $\sec = \frac{c}{b}$, $\csc = \frac{c}{a}$	
Given a, b	Required A, B, c
a, c	A, B, b
A, a	B, b, c
A, b	B, a, c
A, c	B, a, b

Solution of Oblique Triangles	
Given A, B, a	Required b, c, C
A, a, b	B, c, C
a, b, C	A, B, c
a, b, c	A, B, C
a, b, c	Area
A, b, c	Area
A, B, C, a	Area

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 = 302.8 ft. Horizontal distance = $302.8 - \frac{14 \times 14}{2 \times 302.8} = 302.6 - 0.32 = 302.28$ ft.