PLANS SURVEY

UPPER AFTON ROAD

From Burns Ave.

To East Co. Line

CO. PROJ. Nº 24-56

RD% Nº 70

Project 24-56

Upper Afton Road
Transit Notes
Sta 0+00 - 98+86.9
6 - Pages

R. B. Austin
A. N. Skoglun
W. Maloney
M. Galvin
} Party

Nov - 1923

Upper Afton Road
From City Limits West
Co. Proj. 24-56

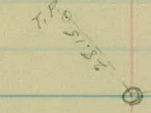
West

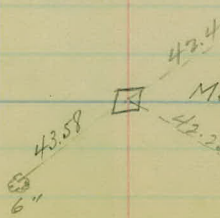
13+09.2 Mont ¼ ¼ cor.

7+33.85 P.O.T.

West

0+00 Mont. City limits


T.P. 5.82
40.35
16"


43.47
Maple 30"
Mont Down 3'
43.58
42.25
6"
6" Elm.

℄

Ang. Lt. Ang. Rt.

35+97.45 P.O.T.

N63°26'W

33+42.47 ✓ E.C.

31+56.3 P.I. 26°.34'

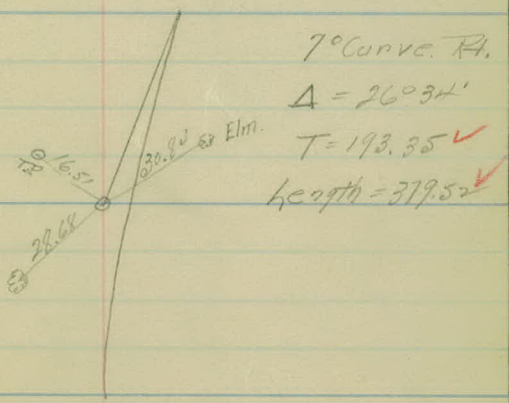
29+62.95 B.C. ✓

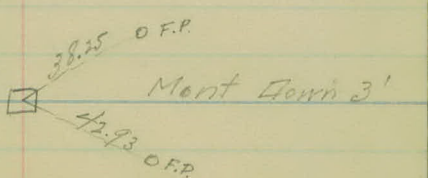
West

26+19.40 Mont. Cen. Sec. 2.

21+00 P.O.T


6" Oak
37.35
9" Oak


7° Curve Rt.
Δ = 26°34'
T = 193.35
Length = 379.52
30.9' to Elm.
16.51
34.68


38.35 O.F.P.
Mont Town 3'
42.93 O.F.P.

℄

Ang. Rt Ang. Rt.

S89°23'W.

54+10.02 E.C.

51+13.16 P.I 30°26'

B.C.

48+00.2 = 48+01.36 Equation Short Sta.

47+18.70 P.O.T.

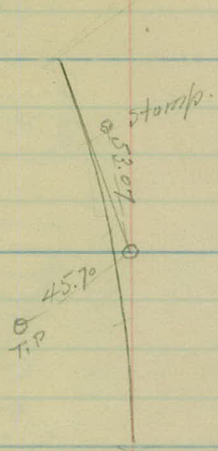
N60°11'W.

44+06.24 E.C.

43+25.0 P.I 3°15'

42+43.74 B.C.

Sta.	Def.
48+01.36	0°00'
49+00	2°28'
+50	3°43' ⊙
50+00	4°58'
51+00	7°28' ⊙
52+00	9°58'
53+00	12°28'
54+00	14°58'
+10.02	15°13'

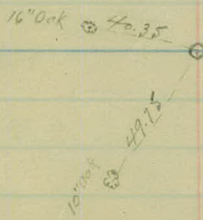


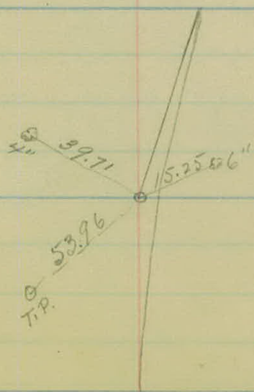
5° Curve Lt.

Δ = 30°26'

T = 311.80 ✓

Length 608.66 ✓





2° Curve Rt.

Δ = 3°15'

T = 81.26 ✓

Length 162.50 ✓

Angle Ang Rt.

N63°43'W

77+78.84 E.C.

76+84.68 P.I. 19°02'

75+88.51 B.C.

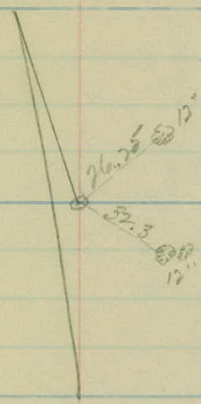
70+14.38 P.O.T

N.44°41'W.

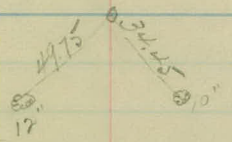
68+16.24 E.C.

62+75.07 P.I 45°56'

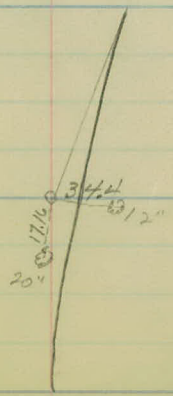
56+67.91 B.C.



10° Curve Lt.
Δ = 19°02'
T = 96.17 ✓
Length = 190.33 ✓



B.C. 56+67.91 - 0°00'
59+25 - 5°06½' ⊙
+75 - 6°08½' ⊙
62+00 - 10°38½' ⊙
+25 - 12°20½' ⊙
64+50 - 15°38½' ⊙
E.C. 68+16.24 - 22°58'



4° Curve Rt.
Δ = 45°56'
T = 607.16 ✓
Length = 1146.33 ✓

Angle Ang. Rt.

N83°43'W

91+19.71 E.C.

90+13.25 P.I. 15°00'

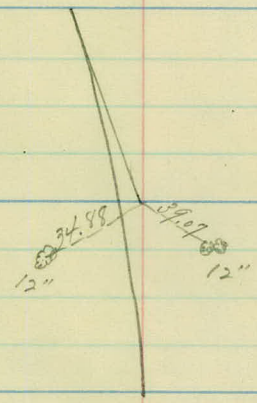
89+05.43 B.C.

N68°43'W.

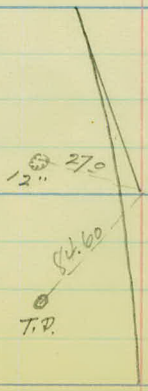
84+96.29 E.C.

84+13.02 P.I 5°00'

83+29.63 B.C.



7° Curve ht.
Δ = 15°00'
Tang = 107.82
Length = 214.28



3° Curve, ht.
Δ = 5°00'
Tang 83.39
Length 166.66

℄

Flag. Lt. Flag. Rt.

S. 89° 35' W.

98+86.2 E.C.

98+14.4 P.I. 45°00'

97+31.7 B.C.

96+62.39 P.I. 83°20'

N. 45° 25' W.

95+99.5 E.C.

94+68.5 P.I. 38°18'

93+26.2 B.C.

Sta. Ahead

97+31.7 = 0°00'

+50 = 2°39'

+75 = 6°16½'

98+00 = 9°54'

+50 = 17°09'

+86.2 = 22°30'

29° Curve Left

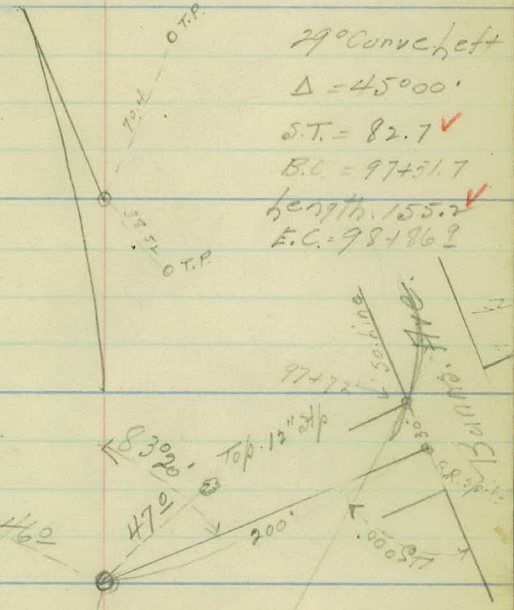
Δ = 45°00'

S.T. = 82.7 ✓

B.C. = 97+51.7

Length 155.2 ✓

E.C. = 98+86.9



Sta. - Ahead

93+76.2 - 0°00'

+50 - 1°41'

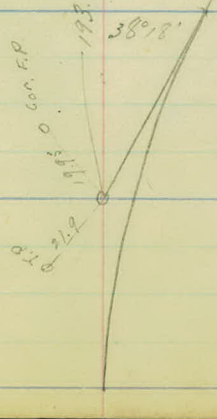
94+00 - 5°21'

+50 - 8°41'

95+00 - 12°21'

+50 - 16°41'

+99.5 - 19°39'



14° Curve Rt

Δ = 38° 18'

S.T. = 142.5 ✓

Length = 273.6 ✓

Project

Upper Afton Road.

Line change Sta. 56+84.9 to 68+64.5

Transit Notes

1-Page.

11-23-23

R.E. Austin
D.N.S. Kedglun
W. Maloney
M. Galvin
} Party

℄

Ang. Lt. Ang. Rt.

68+64.5 E.C. = 68+82.9 on City's line

67+41.7 P.I. 19°52'

66+16.17 B.C.

65+00.35 P.O.T. N64°34'W.

62+63± P.O.T.

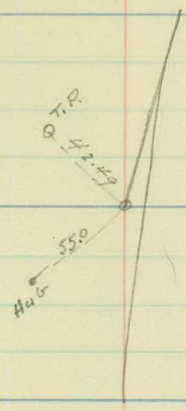
60+10.5 E.C.

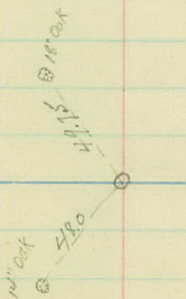
58+50.70 P.I. 26°03

56+84.9 B.C.

Sta.	Def.
66+16.17	0°00'
+50	1°21'
67+00	3°21'
+50	5°21'
68+00	7°21'
+64.5	9°56'

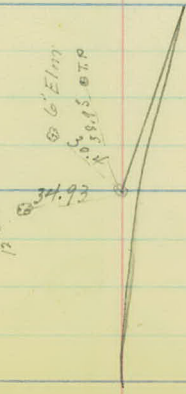
8° Curve Rt.
Δ = 19°52'
S.T. = 125.53 ✓
B.C. = 66+16.17
Length = 248.33 ✓
E.C. 68+64.5





Sta.	Def.
56+84.9	0°00'
57+00	0°36'
+50	2°36'
58+00	4°36'
+50	6°36'
59+00	8°36'
+50	10°36'
60+00	12°36'
+10.5	13°01½'

8° Curve Rt.
Δ = 26°03'
S.T. = 165.81 ✓
B.C. = 56+84.9
Length = 325.6 ✓
E.C. = 60+10.5



Project 24-56

=Topography.=

Sta. 0+00 - 98+86.9

16 Pages.

11-26-23

Cloudy - Cold.

0+00 - 69+00 { Carley, Maloney, Skoog/4th, Galvin.

69+00 - 98+86.9 { Austin, Skoog/4th, Maloney, Galvin.

12-2-23

5+a		old rd. Rt	old rd Lt
5			℄
4			℄
3		02'	
2		03'	
1		04'	
0+00		0.0	

L+	℄	R+
5+89 2 small trees 32'		
5+27 - P.P. 27'		
Fence 39'		Fence 38'
4+55 - P.P. 15'		
Fence 38'		4+18 - 6" oak - 32'
		Fence 34'
3+94 6 small trees		3+93 - 10" tree 38'
3+79 T.R. - 23		3+87 - tree 31'
3+56 tree - 37'		3+48 - 6" tree 26'
3+44 - tree - 36'		3+33 - 6" tree 27'
3+28 - 6" tree - 29'		3+09 - 8" tree - 27'
3+10 - Fence - 32'		3+10 - Fence - 35'
2+92 - P.P. 16'		3+02 - 8" tree - 27'
2+90 - tree 34'		3+00 - 36" tree 16'
1 tree 29'		2+81 - 6" - tree - 27'
2+45 - P.P. - 28'		2+68 - 6" tree 27'
		2+27 - 6" tree 37'
2+24 - 12" tree 24'		End of row of trees
Fence 31'		2+31 - 32' Rt
		Fence 32'
1+64 - P.P. - 16'		
1+07 - P.P. 28'		
0+98 - 12" tree 17'		0+75 - 8" tree 25'
0+43 - P.P. 16'		Fence 32' Rt
0+33 Fence cor. 29' Rt		0+21 begins row of trees 37' Rt
0+00		
Intersection Private Property		

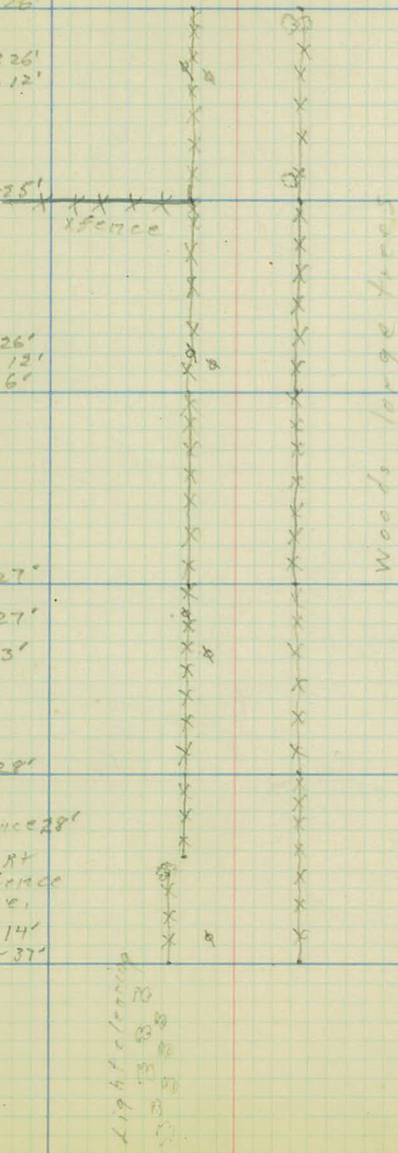
Sta	old rd. Rt	old rd. Lt
11		05'
10		02
9		℄
8		℄
7		℄
6		℄

Lt ℄ Rt

Fence 26' | Fence 31'

10+66 - T.P. 26'
10+65 P.P. 12'

10+95 Twin oak
24" - 22'



10+11 - 24" tree 32'

Fence - 25' | Fence 34'

9+20 - T.P. 26'
9+12 - P.P. 12'
Fence 26' | Fence 31'

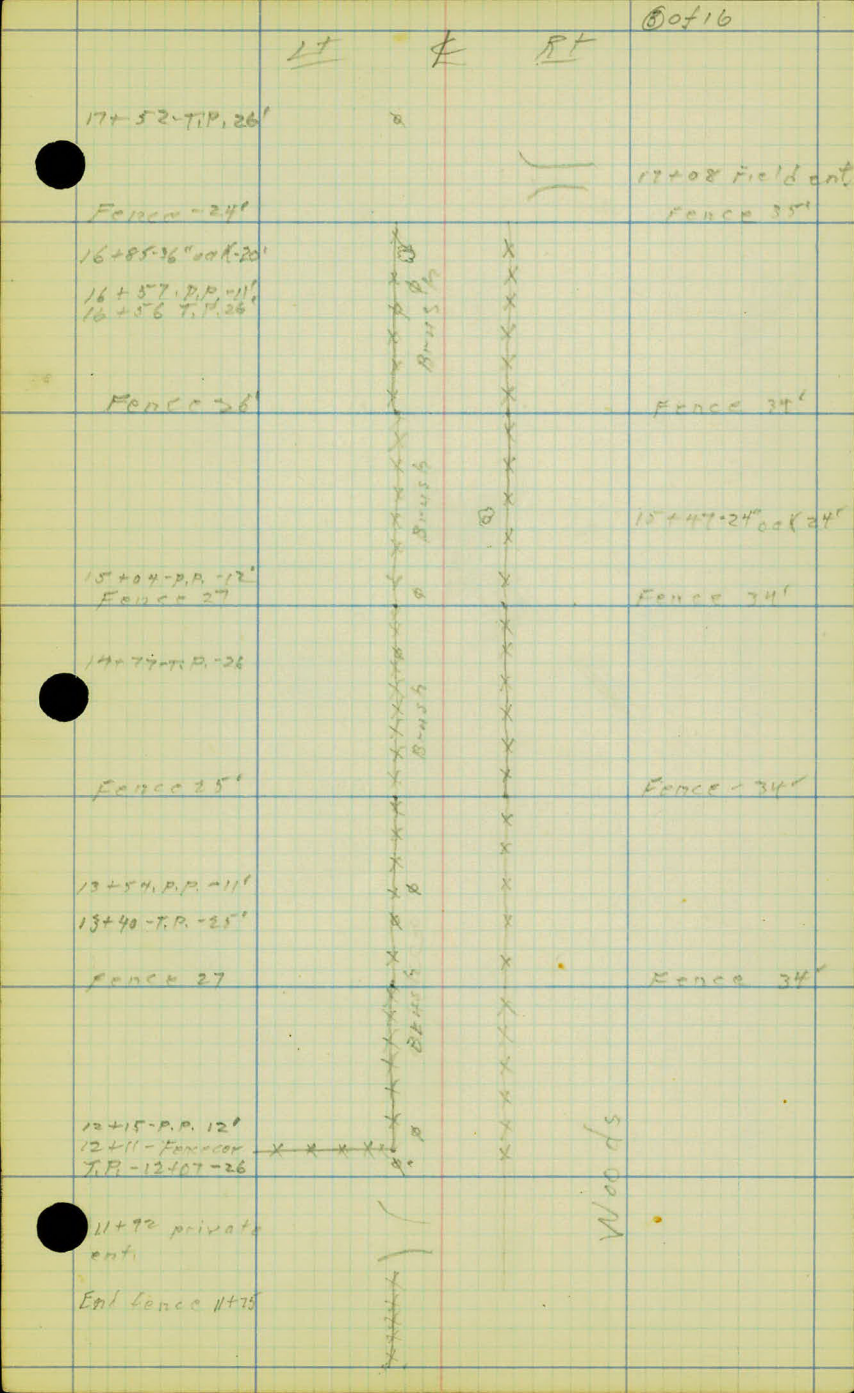
Fence 27' | Fence 31'

7+84 - T.P. 27'
7+61 - P.P. 13'

Fence 28' | Fence 31'

6+69 beg. fence 28'
6+50 38' Rt
End of fence
Large tree.
6+08. P.P. - 14'
Fence - 37' | Fence - 34'

Sta			old rd. Rt	old rd Lt	
17			10'		
16			08'		
15			06'		
14			04'		
13				℄	
12				02'	


Lt
℄
Rt
17+52-T.P. 26'
Fence - 24'
17+08 Field cent.
Fence 35'
16+85-36" oak-20'
16+57-P.P. -11'
16+56 T.P. 26'
Fence 26'
Fence 34'
15+47-24" oak 24'
15+04-P.P. -12'
Fence 27
Fence 34'
14+79-T.P. -26
Fence 25'
Fence - 34'
13+54-P.P. -11'
13+40-T.P. -25'
Fence 27
Fence 34'
12+15-P.P. 12'
12+11-Fence cor
T.P. -12+07-26
Woods
11+92 private ent.
End Fence 11+75

5th		old rd Rt	old rd Lt
23		03'	
22		09'	
21		07'	
20		09'	
19		10'	
18		09'	

Lt & Rt

Fence 25

22+95 T.P. -26'

22+64. P.P. -12'

22+19-5" tree 07'
22+14-7" tree 07'
Fence 23'

21+74-3-6" tree 30
21+61-T.P. 24'
21+56-10" tree 20'.

21+33-tree
21+13-T.P. 12'
21+05-6" tree 20'
Fence -22'

20+87-6" tree 16'
20+82-7" tree 05'
20+61-10" tree 21'
20+55-Twin tree 23'
20+47-10" tree 24'
20+38-10" tree 29'
20+28-10" tree 22'
20+25-T.P. 26
20+13-12" oak 19'
Fence 28'

20+00-12" oak 18'
19+86-12" tree 20'

19+60-P.P. 12'

Fence 22'

18+08-P.P.-11"
Fence 23'

18+00-7" tree 17

17+90 T.P. 32'

Fence 35'

21+47-Tree-21'

Fence -35'

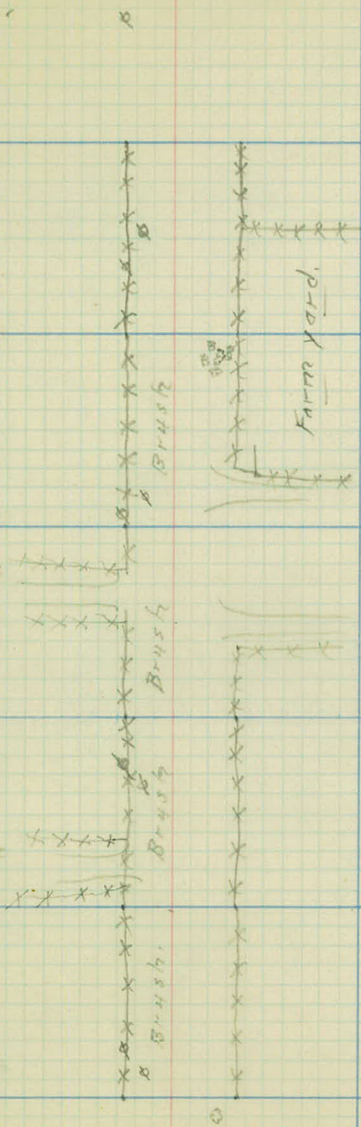
Fence 35'

Fence 30'

Fence 35'

Sta	old rd. Rt	old rd. Lt
29	04'	
28	07'	
27	11'	
26	09'	
25	06'	
24	02'	

Lt ℄ Rt



29+83-T.P. 26'

Fence 26 — Fence 34'

28+69 P.P.-11 — 28+69 X Fence

28+44 T.P. 26'

Fence 26' — Fence 34'

27+90 Bench of trees 34'

2"

27+47 P.P.-11' — 27+15 Beg. fence 35'

27+07 T.P. 27' — 27+07 priv. ent

Fence 26 — Fence

26+54 Farm ent

26+51 priv. ent.

End fence 26+36 - 35'

Fence 27 — Fence 34'

25+73-T.P.-26'

25+65-P.P.-12'

25+27 Field ent

Fence 28' — Fence 34'

24+27 T.P.-26'

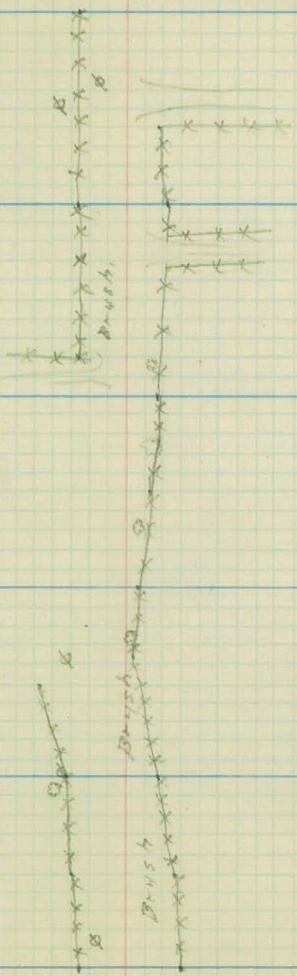
24+13 P.P.-11

Fence 27' — Fence 34'

23+97 - 16" tree 22'

5+a		old rd. Rt	old rd. Lt
35		05'	
34		02'	
33			02'
32			12'
31			10'
30		01'	

Lt ℄ Rt



Fence 37'

34+64 P.P. 11'
34+52 T.P. 33'

Fence 26'

34+62 Priv. Drive
34+40 End fence
19'

Fence 32'

33+71 Cattle guard

33+21 fence 26'
33+06 Cattle drive

33+29 - 8" tree 18'
33+21 - 6" tree 16'
33+17 8" tree 16'
Fence 18'

32+75 - 8" tree 13'
32+50 fence - 12'
32+31 - 7" tree 07'
Fence 05'

31+61 P.P. 31'
31+50 fence - 43'

31+71 10" tree 02'
31+61 fence 01'
31+50 fence 8'

30+02 - T.P. 31'
30+99 Tree - 36

Fence - 19'

30+50 - fence 30'

30+21 - P.P. - 14'
Fence 26'

30+50 fence 27'

Fence 30'

54+0		old rd Rt	old rd. Lt
41			℄
40		03'	
39		06'	
38		0.8'	

Sta 35+75 To sta

Rubble stone ditch 3' wide

37		10'	
36		10'	

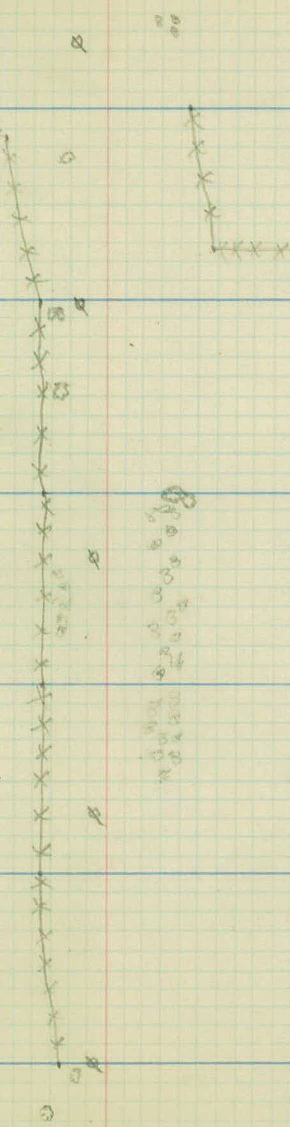
Lt ℄ Rt

41+47 3 small tree 19'

41+37 P.P. 13'

Fence 44'

40+89 End fence 55'
40+85-8" tree 21'



40+39 Beg fence 58'

Fence -37'
39+98 P.P. -13'
39+94-8" tree 28'

39+56 10" tree 28'

Fence 33'

39+08 Triple oak - 39'
39+00 End clearing

38+68-P.P.-09'
38+51-8" tree 30'

38+17 Beg clearing 25' Rt
Fence 34

37+57 Beg high clearing

37+33 P.P-03'

Fence 36'

36+00 P.P. -03'
Fence 25'
35+96-8" tree 15'

35+72-8" tree 27'

Sta	Old rd Rt	Old rd Lt
47	35'	
46	16'	
45		04'
44		14'
43		10'
42		04'

47+60 - P.P. - 27'

Fence ends +03
Fence -05'

46+79 Fence X line

46+63 - 8" oak 07'
46+55 -

46+43 P.P. - 12'

46+29 - 14" oak 21'

46+00 beg. Fence 16

45+93 - Clearing 08'

45+51 Clearing - 19'

45+23 - 13 P - 12'
End Guard Rail 45+10
Guard Rail 16'

End G.R. - 45+10
Guard Rail 9'

44+79 - 8" tree 25'

44+84 - 8" tree 26'

44+12 P.P. 28'
Guard Rail 25'

44+13 - 18" tree 10'
Guard Rail 9'

43+82 Beg. Guard Rail 24'

43+70 Beg. Guard Rail

Fence 113'

42+80 - 10" tree
42+76 P.P. 21'
42+62 - 3 trees 30'
42+43 - 10" tree
42+25 - 3 trees 22'

42+67 wood culvert
6'x6"

41+65 - 10" tree 32'

41+66 priv. ent.

41+60 P.P. - 18'

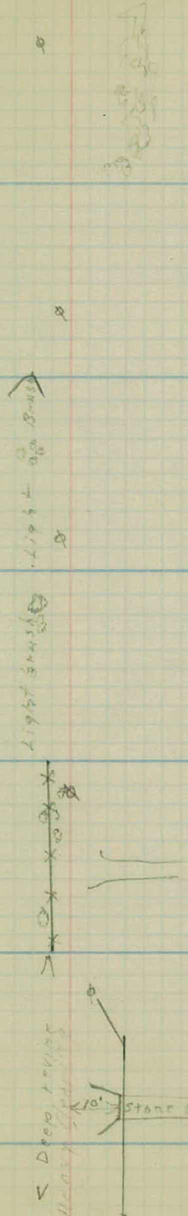
41+60 priv. ent.

Sta		Lt	Rt
53			03'
52			08'
51			109'
50			109'
49			
48			

53+74 - P.P. 17'

53+00 Beg Light clearing brush on Rt out 20' - 15' wide

52+45 P.P - 09'



51+65 - 4s. trees 20

51+12 - P.P - 05'

50+79 - 10 willows 12'
50+71 - 6" tree 16'

End Fence 11'

4'
49+83 - 24" oak - 05'
49+76 - 12" oak - 11'
49+62 - 14" oak 09'

49+89 - P.P. ℄

49+47 Fence at.

49+33 - 14" oak 10'

49+11 - Beg fence 10'

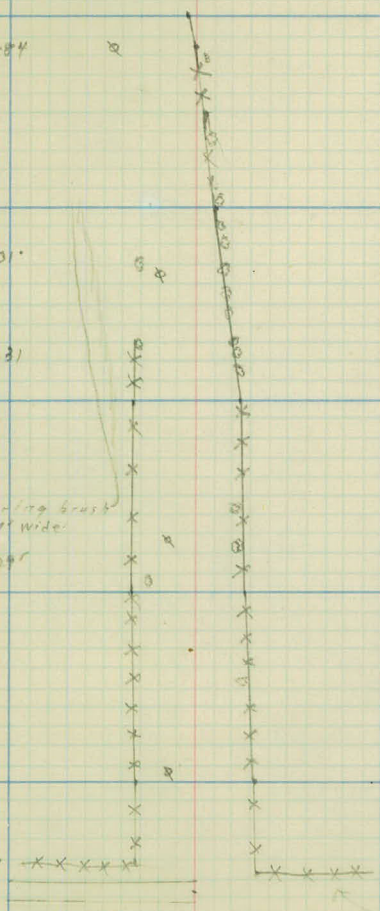
48+78 P.P - 12'
48+75 End G.R 14'

Stone Arch Culvert 48+11

47+64 Beg. G.R. 30'

Sta	Old Rd Lt	Old Rd Rt
59	35'	
+50	22'	
58	11'	
57	℄	
56	℄	
55	℄	
54	℄	

Lt. | ℄ | Rt.



Fence 06'
58+83 - P.P. 43'
Fence XLine +84

58+81-7" tree #1

+50 Fence 06'

58+38-12" tree - 09'
58+02-7" tree 13'
Fence 13'

57+92-7" tree - 19'
57+83-9" tree - 17'
57+69-12" tree 16'

57+70-14" tree 31'
57+65 - P.P. 20

57+32-36" tree 26'
57+27-14" tree 27'
57+18-14" tree 27'
Fence 23'

57+31-12" tree 31'

Fence 29'

56+50 Begin Clearing & brush 17' Lt. 10' wide
56+29 - P.P. - 12'
56+04-9" tree 29'
Fence 34'

56+51-6" oak 24'
56+34-12" oak 25'
Fence 28'

55+52 - 12" tree 28'

55+04 - P.P. - 13'
Fence 32'

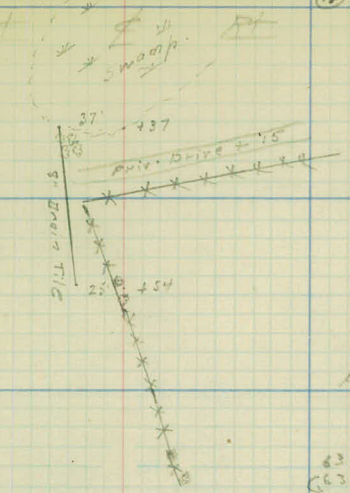
End of Fence 32'

54+51 - Fence 32'
54+41 - Road

54+51 - Fence for 32'

End of brush

Sta.	old rd Lt	old rd. Rt
65	54'	
64	10'	
63		38'
62		60'
61	℄	
60	52'	



65+25 3 trees 36'
Fence XLine +07

64+98 - Fence Cor

64+56 - 6" tree 4'
64+42 - 6" tree 4'
Fence XLine +91

Fence 17'

63+63 - 12" tree 28'
63+57 - 8" tree 33'
Fence 33'

63+33 - 9" tree 33'
63+16 - 12" tree 32'
63+05 - 12" tree 25'

62+87 - 12" tree 04'
62+72 - 12" tree 30'
62+62 - 14" tree 13'.
62+53 - 22" tree 24'

62+39 - 6" tree 24'
62+28 - 10" tree 16'
62+14 - 8" tree 15'

62+97 - MP. 09

62+65 - 14" tree 36'

61+98 - 2 trees 20-30'

61+78 - 15" tree 27'
61+55 Fence XLine

61+25 Pair Drive.
61+08 - MP-12'
Fence 36'

Fence 41'

Fence XLine +35

Fence 14'

60+66 - 6" tree 18'
60+57 - 12" oak - 16'
60+53 - 14" oak 30'

60+30 - 14" tree 28'
60+20 - 8" tree 05'
59+97 - 12" tree 30'

59+93 - 12" tree 24'
59+87 - 12" tree 33'

59+83 - 12" tree - 01'
59+71 - 8" tree - 10'
59+71 Fence 19'

59+43 twin oak 19'

59+19 - 12" tree. 09'

3+0

old rd ℄

old Rd ℄

71 ℄

70 ℄

69 7'

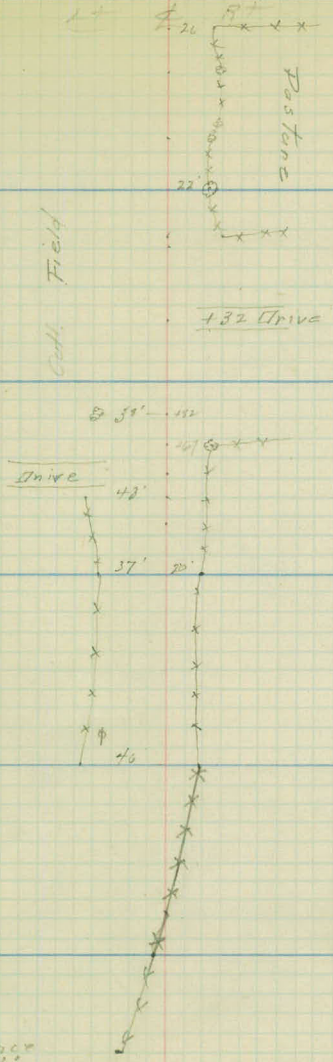
68+64.5 = 68+82.9

68 18'

67 48'

66 77'

+92 Tree 40'
+72 Tree 34'
+56 Tree 83'
+44 Tree 87'
+11 T.P. 25' L
+71 E.P. 19' L
+82 T.P. 82' L
152' L Drive
+41 End Fence
+26 E.P. 21' L
68+29 T.P. -37'
Fence X Line +23
Fence 09'
66+50 Start Fence 26°



72400
+84
+67 Tree 78'
+35 Tree 27'
+25 Tree 24'
+00 Trees Fence 71+00
+77 Beg. Fence
+17 Tree 21' R
+14 Tree 31' R
70+00
+86 Tree 20' R
+83 Tree 17' R
+67 Tree 25' R
+49 Tree 19' R
+25 Tree 19' R
69+00
Fence 18°
67+50 Fence 08°

Old Rd ℄ Old Rd

left Right

78 ℄

77

76 ℄

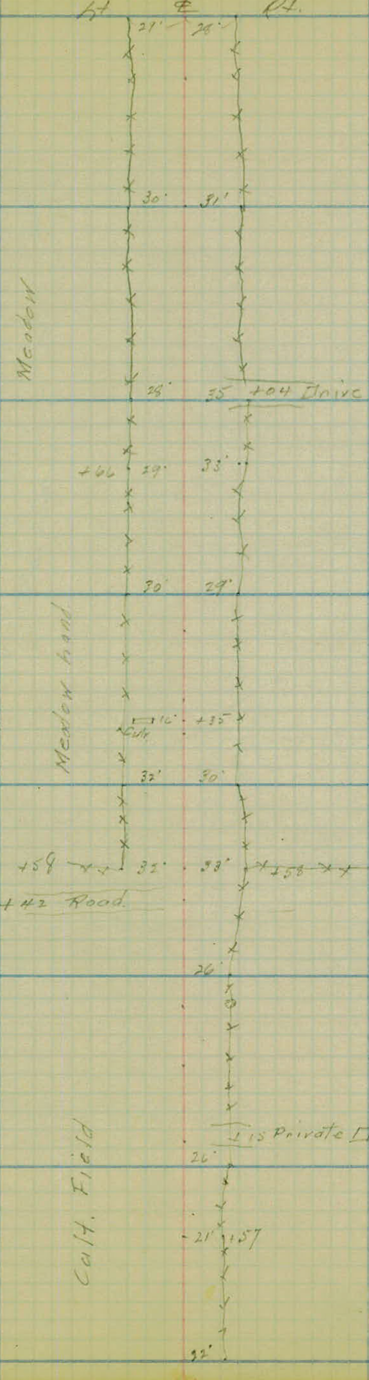
75 ℄

74 ℄

73 ℄

72 ℄

Lt ℄ Rt.



79+00

+69 Tree 27' R

78+00

+98 T.P. 23' L
+80 E.P. 19' L

+98 Tree 31'

77+00

+90 Tree 29'
+69 Tree 38'

+66 T.P. 22'
+48 E.P. 13' L

76+00

+84 Tree 23'
+47 Tr. 30' R

+35 1x1x8' Box Culv.
+27 T.P. 22'
+00 E.P. 16' L

75+00

+64 Tr. 33'

74+00

+83 T.P. 24' L
+85 Tr. & Fence 24'
+54 E.P. 16' L
+23 Tr. 35' L
+03 Hb. Tree 33'

73+00

+80 Tr. 31
+52 T.P. 25' L
+18 Tr. 36' L
+14 Tr. 38' L
+11 E.P. 17' L

72+00

85+00 ℄

84+00 ℄

83+00 ℄

82+00 ℄

81+00 ℄

80+00 ℄

79+00 ℄

86+00

24' 30'

+82 Tree 27'

+36 Tree 27' L

+43 Tree 29' R
+37 Tree 27' R

+25 Drive

+12 Tree 29' R

+00 Tree 28' L 26' 27' 85+00

+70 E.P. 16' L

+58 Tree 27' L
+42 Tree 25' L

+25 Tree 24' L

+29 Tree 23' R
+14 Tree 18' R

+08

24' 28 84+00

Field

Farm Yard

+30 E.P. 16' L

23' 31' 83+00

+79

+42 Tree 22' L

+34 Drive

+27 Tr. 23'

+20 33'

24' 36' 82+00

+85 E.P. 16' L

+36 Tr. 29' L
+34 Tr. 34' L

33' +18 Fence Beg

+09 Drive

+15 E.P. 20' R

+00 Tree 28' L 25' 81+00

198. End Fence

+65 E.P. 16' L

28' 26' 80+00

+95 Tr. 33'

+88

+80 Drive

+70 29' 31'

+61 Drive

27' +55

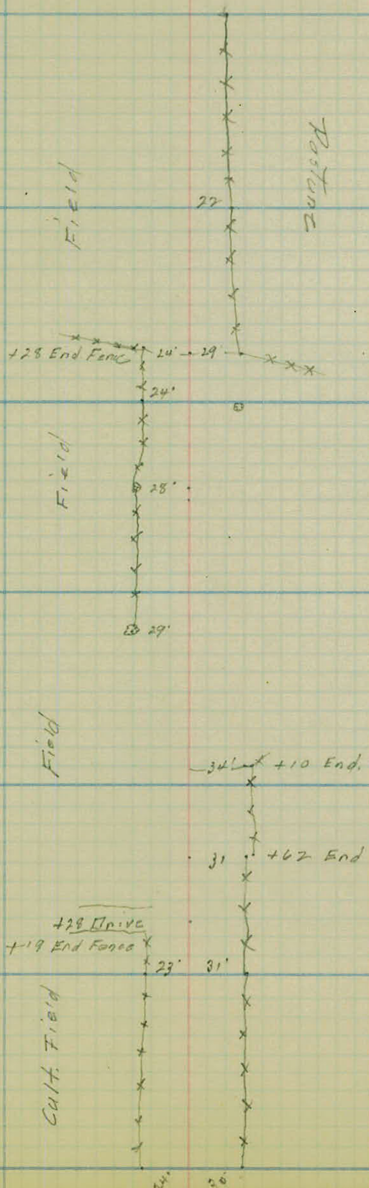
+32 Tr. 23'
+32 E.P. 16'

+14

79+00

29' 28

	Old Road Left	Old Road Right
92+00		4'
91+00	℄	
90+00	℄	
89+00	℄	
88+00	℄	
87+00	℄	
86+00	℄	



92+00

+71 E.P. 18' L
+51 Tree 17' L

91+00

+35 E.P. 13' L
+40 Tree 19' R
+27 Beg. Fence

90+00

+98 Tree 25'
+75 Tr. 26' L
+57 Tr. 28' L
+92 Tree 35' R
+82 Tree 34'
+59 Tree 30' R
+51 Tree 26' R
+15 Tree 26' L
+05 Tree 22' R

89+00

+96 E.P. 14' L
+83 Tree 29' L
+41 Tree 29' L

88+00

+52 E.P. 15' L
+45 Tree 24' L
+19 Tree 25' L
+00 Tree 23'

87+00

+72 Tree 26' L
+60 Tr. 27'
+51 Tr. 27'
+39 Tr. 27'
+29 Tr. 27'
+18 Tree 27' L
+13 E.P. 15' R
+05 Tr. 27'

86+00

	℄ Old Rd Left	℄ Old Rd Right
+86.9 End Project		
99+00		
+25		℄
+50	75'	
+37	78'	
96+00	88'	
+50	72'	
95+00	43	
+50	20'	
94+00	9'	
93+00		3'
92+00		

+75 E.P. 21' R

+05 T.P. 7' L

98+00

+75 So. Line Burns Av.

+31 E.P. 25' L

+29 Fence Cor 43' R

97+00

+91 Fence Xing

+95 Tr. 14' R
+82 Tr. 38' R
+69 Tr. 13' R
+37 E.P. 98' L
+38 Tr. 32' R
+09 Tree 2' L

96+00

+59 Tree 39' L
+57 Tree 22' L
+50 E.P. 87' L
+14 Tree 4' L

95+00

+90 Tree 37' R

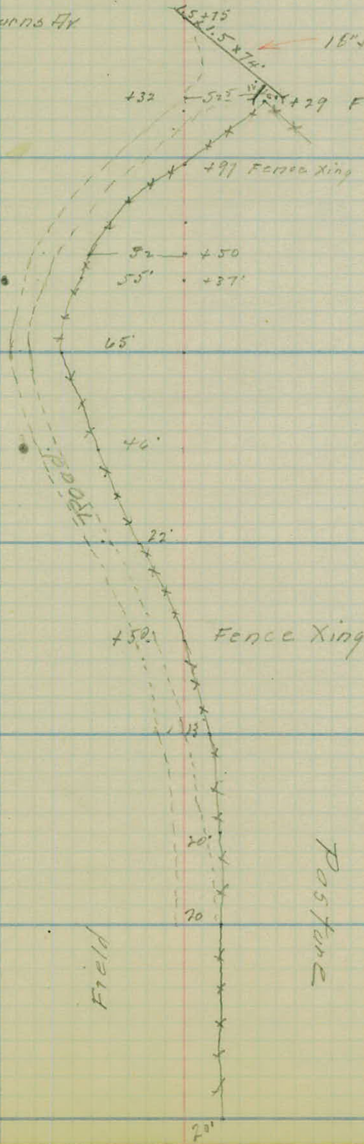
+45 E.P. 32' L

94+00

+14 E.P. 13' L

93+00

92+00



Project 24-56

Upper Afton Road

℄ levels Sta. 0+00 - 50+00
B.M. Check levels 50+00 - 98+869
11 - Pages

R. E. Austin
D. N. Skooglun
W. Maloney
M. Galvin
} Party.

Station.	+	H I	−	Rod	Elev.
B.M.	10.02	227.49			217.47
0 + 00				7.4	220.1
+ 50				7.1	220.4
1 + 00				6.0	221.5
+ 50				4.4	223.1
2 + 00				2.8	224.7
+ 50				0.2	227.3
T.P	11.35	238.71	0.13	227.36	
3 + 00				9.4	229.3
+ 50				7.0	231.7
4 + 00				4.2	234.5
+ 50				1.6	237.1
T.P.	10.92	249.13	0.50	238.21	
5 + 00				9.2	239.9
+ 50				6.3	242.8
6 + 00				4.6	244.5

11-20-23.

53.39
2.87
56.26

Spike 36" Maple 30 Rt. Sta 0+20

Station	+	HI 249.13	−	Rod.	Elev.
6 +50				3.1	246.0
7 +00				3.2	245.9
+50				3.9	245.2
8 +00				5.0	244.1
+50				6.0	243.0
9 +00				6.8	242.3
T.P.	4.07	246.34	6.96	242.27	
+50				4.8	241.5
10 +00				5.7	240.6
+50				6.0	240.3
11 +00				6.0	240.3
+50				5.2	241.1
12 +00				4.7	241.6
+50				4.5	241.8
13 +00				4.6	241.7

Station	+	H.I.	—	Rod.	Elev.
		246.34			
B.M.				4.31	242.03
13 + 50				4.8	241.5
14 + 00				5.5	240.8
+ 50				5.9	240.4
15 + 00				6.5	239.8
+ 50				6.9	239.4
T.P.	5.42	245.09	6.67	239.67	
16 + 00				5.8	239.3
+ 50				5.9	239.2
17 + 00				5.9	239.2
+ 50				5.9	239.2
18 + 00				5.6	239.5
+ 50				5.2	239.9
19 + 00				4.9	240.2
+ 50				4.8	240.3

45.09
5.30
39.79

1/4 1/4 Cor. Mont. 13+09.7

Station	+	H.I.	—	Rod.	Elev.
		245.09			
20+00				5.1	240.0
+50				5.5	239.6
21+00				6.7	238.4
+50				8.7	236.4
22+00				10.8	234.3
T.P.	0.42	234.76	10.75	234.34	
+50				3.8	231.0
23+00				7.5	227.3
+50				11.7	223.1
T.P.	0.35	223.02	12.09	222.67	
24+00				3.7	219.3
+50				7.3	215.7
25+00				10.9	212.1
T.P.	1.04	211.71	12.35	210.67	
+40				2.3	209.4
+50				2.8	208.9

Station	+	H.I.	—	Rod.	Elev.
		211.71			
26+00				5.2	206.3
+50				8.6	203.1
27+00				10.7	201.0
B.M.	0.07	202.67	9.11	202.60	
+50				3.1	199.6
28+00				4.0	198.7
+50				5.1	197.6
29+00				5.8	196.9
+62.95	B.C.			6.5	196.2
30+57.83				6.9	195.8
31+52.71				7.5	195.2
T.P.	8.87	205.09	6.45	196.22	
32+47.89				7.5	197.6
33+42.47	E.C			5.2	199.9
34+00				4.2	200.9
+50				3.1	202.0

T.P. heft Sta. 27+15

Station	+	H.I.	—	Rod.	Elev.
		205.09			
35+00				2.2	202.9
+50				2.4	202.7
36+00				3.2	201.9
+50				5.4	199.7
T.P.	0.41	200.10	5.40	199.69	
37+00				3.1	197.0
B.M.				2.41	(197.69)
+50				6.2	193.9
38+00				9.9	190.2
T.P.	0.31	187.91	12.50	187.60	
+50				1.6	186.3
39+00				5.6	182.3
+50				9.7	178.2
B.M.				10.37	(177.54)
T.P.	0.22	175.77	12.36	175.55	
40+00				1.5	174.3
+50				5.6	170.2

Nail in T.P. left Sta. 37+30

Station	+	H.I.	—	Rod	Elev.
		175.77			
41+00				9.5	166.3
T.P.	1.09	163.97	12.39	162.88	
+50				1.9	162.1
42+00				5.7	158.3
+43.74	B.C.			9.2	154.8
+95.0				13.0	151.0
T.P.	0.13	151.63	12.47	151.50	
43+16.12				3.3	148.3
+50				5.1	146.5
+75				6.9	144.7
44+06.24	E.C.			9.1	142.5
+30				10.5	141.1
+47				11.0	140.6
+62				11.3	140.3
+78				11.8	139.8

On. Sidewalk

On. Sidewalk

Station	+	H.I.	—	Rod.	Elev.
		151.63			
45+20				12.1	139.5
+70				11.9	139.7
B.M.	6.59	147.27	10.95	(140.68)	
46+00				7.9	139.4
+50				5.8	142.0
47+00				4.1	143.2
+35				1.9	145.4
+65				4.1	143.2
+85				10.7	136.6
T.P.	4.95	141.44	10.78	136.49	
48+01.36				12.5	128.9
+20				12.5	128.9
+35				13.1	128.3
+50				2.5	138.9
T.P.	12.78	151.01	2.21	139.23	
+80				9.9	142.1

Nail in T.P. left. Sta. 45+20

Station	+	H.I.	−	Rod	Elev.
		152.01			
49+00				6.0	146.0
+50				3.1	148.9
T.P.			2.00	150.01	
B.M.					
50+00					
+50					
51+00					
+50					
52+00					
+50					
53+00					
+50					
54+10.07	E.C.				
+60					
55+00					

Nail in Stump. Rt. Sta. 49+75

B.M. Check Levels Sta. 50 To 90

Station	+	H.I	−	Rod.	Elev.
T.P.	11.89	161.90			150.01
B.M				8.98	152.92
T.P	11.37	172.92	0.35	161.55	
T.P.	11.64	184.28	0.28	172.64	
B.M				3.99	180.29
T.P.	10.34	194.49	0.13	184.15	
B.M.				2.13	192.36
T.P.	12.86	207.23	0.12	194.37	
B.M.				6.85	200.69
T.P.	11.77	218.88	0.12	207.11	
T.P	11.71	230.40	0.19	218.69	
T.P	11.60	241.87	0.13	230.27	
T.P	2.04	240.69	3.22	238.65	
B.M				1.16	239.53
B.M.	1.31	240.84		239.53	
B.M	2.23	234.06	9.01	231.83	✓
B.M.	1.13	229.14	6.05	228.01	✓
T.P.	0.56	217.14	12.56	216.58	
B.M.				2.97	214.17
T.P	0.65	206.51	11.28	205.86	
T.P	0.95	194.59	12.87	193.64	
B.M.	1.15	191.42		1.32	190.27
T.P.	0.92	180.08	12.16	179.26	
T.P.	0.74	169.69	11.13	168.95	
B.M.	1.32	162.40	8.61	161.08	

Nail in Stump Rt Sta 49+75
T.P. Left Sta. 50+00

Nail in T.P. Left Sta 55+00

Nail in T.P. Left Sta 58+50

Old B.M. 18" Oak Left "

Nail in T.P. Left Sta 69+25

" " " " 69+25

" " " " 73+55

Nail in T.P. Left Sta 77+80

Nail in T.P. Left Sta 80+65

Nail in T.P. Left Sta 86+10

Nail in T.P. Left Sta 95+55

		162.40			
T.P.	1.56	153.78	10.18	152.22	
B.M.				3.76	150.02

Tofs Hyd. N.E. Cor. Burns + Alton Rd. ✓

Project 24-5C

Calverts

Station	
10+85	Recomend Culvert. If new road grade follows close to present Road grade.
29+88	12" C.M.P. Extends 23' Rt + 17.5 Lt. Intake Elev. = 193.76 Invert " = 193.27 - Drains Rt.
42+67	6"x6" Box Culv. Indications of a spring under Road.
65+90	Recomend 15" C.M.P.

~~301~~ —— ~~24" P3~~

19+80 F.E.R.
No Culv. Road ✓

Change 25' C.M's to 24' ✓

✓ 10+80 F.E.R. Pl. 12" x 24' C.M. ✓

✓ 0+00 Road Int. R.
P 18" x 36' C.M. Culv. ✓

3+00 City — 30" Oak Cl & Gr ✓

11+00 " — double 20" Oak Cl ✓

✓ 17+10 F.E.R. Pl. 12" x 24' C.M. ✓

19+00 —— 20+50
Cl. Brush - 16' wide ✓

✓ 25+20 F.E.L. Pl. 15" x 24' ✓

✓ 26+40 F.E.L Pl. 15" x 24' ✓

✓ 26+30 F.E.R. Pl. 15" x 24' ✓

✓ 27+10 F.E.R. Pl. 15" x 24' ✓

Moritz - Real estate - Pioneer Bldg

Sweitzer

N. W. Trust Co.

24-56

W. L. Kidder
@ 1959 Upper Afton Rd

✓ 33+10 F.E.L. ✓
Pl. 12" x 24'

✓ 33+70 F.E.R. ✓
Pl. 12" x 24'

36+00 — 38+00
Gravel Pit. on S. Side Road

41+70 F.E.R. & L ✓
P2. 24" x 24' C.M.
Use P2. Headwalls

36+00 — 43+00
Rubble gutter up - both sides
Include Rubble ditch lining ✓
for standard ditch

✓ 47+00 F.E.R. ✓
Pl. 12" x 24' C.M.

✓ 65+18 F.E.R. ✓
Pl. 12" x 24'

✓ 67+00 F.E.L. ✓
P. 12" x 24'

74+44 Road Int. L.
No curb req.
No ent. on right

79+60 & 79+80
Pl. 12" Pipes

81+10 Pl. 12" Pipe

82+40 Pl. 12" Pipe

85+30 Pl. 12" x 24'

87+30 Pl. 12" x 24'

97+75 Pl. 72"-30" P. 3

24-56

Project 24-56

Levels + X-sections

Sta. 56-69 line change

4 Pages.

℄ Levels + X sections
Line change Sta 56-69

Station	+	H.I.	—	Rod	Elev.
B.M.	10.36	190.65			180.29
56+84.9	BC			5.3	185.4 ✓
57+00				4.9	185.8 ✓
+50				3.4	187.3 ✓
58+00				1.9	188.8 ✓
T.P.	12.49	202.04 ✓	1.10	189.55 ✓	
+50				11.4	190.6 ✓
59+00				3.7	198.3 ✓
T.P.	12.61	213.40 ✓	1.25	200.79 ✓	
+50				4.9	208.5 ✓
T.P.	6.57	218.38 (circled; corrected in red: 35)	1.62	211.78 ✓	
+65				7.5	210.9 ✓
+85				4.9	213.6 ✓
60+00				3.8	214.6 ✓
+15				3.3	215.1 ✓
+40				4.6	213.8 ✓

Lt. ℄ Rt.

Nail in T.P. Left Sta 55+00

-1.7/50.0 -1.3/33.0 -1.8/18.0 -2.0/15.0 -0.3/10.0 | -0.4/7.0 -0.2/10.0 -1.2/18.0 -2.1/25.0 -2.5/50.0

-2.5/50.0 -2.2/32.0 -2.5/17.0 -0.7/13.0 0.0/9.0 | -0.2/7.0 -0.2/10.0 -1.3/14.0 -2.1/24.0 -2.0/50.0

-7.7/50.0 -7.0/35.0 -5.0/23.0 0.0/12.0 | 0.0/6.0 -0.3/10.0 -1.7/14.0 -1.3/24.0 -2.4/50.0

-6.2/50.0 -6.1/43.0 -5.0/36.0 -3.5/28.0 +0.4/20.0 ℄ +0.8/11.0 | -0.3/9.0 -0.9/25.0 -2.0/40.0 -1.5/50.0

-3.5/50.0 -2.5/40.0 0.0/33.0 ℄ +0.8/22.0 +1.5/15.0 | -0.1/7.0 +1.5/26.0 +3.0/50.0

-4.5/50.0 -4.5/43.0 ℄ -4.5/36.0 -5.0/28.0 -5.0/22.0 -5.0/17.0 -3.8/15.0 0.0/11.0 | +1.4/20.0 +1.5/37.0 +2.4/50.0

℄ -11.9/52.0 -12.4/43.0 -12.7/38.0 -5.0/30.0 -2.1/26.0 -0.9/15.0 | +1.4/14.0 +1.1/30.0 +0.5/50.0

-13.6/50.0 -14.3/45.0 -14.2/41.0 -12.5/38.0 -5.0/31.0 -2.3/30.0 -1.1/18.0 | +1.0/14.0 +1.0/35.0 +0.4/50.0

-14.5/50.0 -15.0/46.0 -15.0/42.0 -11.7/36.0 -5.0/30.0 -2.5/29.0 -1.6/17.0 | +0.9/20.0 +0.9/43.0 -0.1/50.0

-14.4/50.0 -15.2/41 -14.1/37 -11.2/31 -3.3/27 -1.1/18.0 | +1.6/18.0 +1.3/36.0 +0.7/50.0

-3.1/50 -14.0/43 -14.0/36 -15.3/33 -11.8/27 -8.0/23 -5.0/18 -1.7/15 | +1.5/15 +1.8/27 +1.0/50

-11.1/37.0 -11.3/27.0 -12.3/22.0 -10.0/16.0 -8.5/13.0 -6.9/10.0 -5.0/6.0 -3.0/3.0 | +3.2/25.0 +3.8/50.0
-11.5/26.0 -12.5/48.0 -11.6/50.0

Station	+	H.I.	−	Rod.	Elev
		218.38			
60 + 42				6.7	211.7
+ 60				11.9	206.5
T.P.	8.35	215.23	11.47	206.88	
+ 62				10.2	205.0
74 + 78				12.3	202.9 / 203.0
+ 93				10.7	204.6
61 + 00	E. Rd.			9.6	205.06
+ 60				10.0	205.3
62 + 00				9.9	206.4
+ 05				5.6	206.06
+ 70				0.1	215.2
T.P.	11.02	225.86	0.39	214.84	
+ 65				7.7	218.2
+ 85				7.7	218.2
63 + 00				5.6	220.3

-4.0	-3.0	-3.9	-3.4	-8.0	-3.1	-4.3	-1.7	+0.1	+3.4	+5.0	+6.5	+8.0	+10	+11
50.0	37.0	36.0	32.0	23.0	15.0	8.0	3.0	5.0	12.0	12.0	13.0	24.0	42.0	50.

0.0	+0.5	0.0	+0.7	+1.5	+1.3	+1.5	+2.2	+5.0	+8.5	+10.0	+13.6	+14.0	
50.0	33.0	28.0	26.0	16.0	7.0	4.0	8.0	10.0	15.0	21.0	44.0	50.0	

-3.0	-2.1	-1.1	-0.5	-0.1	-0.6	-0.8	+2.0	+5.0	+7.9	+9.1			
50.0	26.0	13.0	9.0	12.0	16.0	20.0	27.0	28.0	40.0	50.0			

+2.5	+0.5	-1.		+1.1	+3.5	+1.7	+3.6	+4.0					
50.0	40.0	25.0		13.0	37.0	32.0	46.0	50.0					

+8.9	+5.0	+4.0	+4.3	+0.7	+1.0	+2.9	+5.0	+6.0	+6.3	+4.5	+2.5	+3.7	
50.0	35.0	32.0	17.0	8.0	11.0	17.0	24.0	30.0	36.0	43.0	48.0	50.	

+7.0	+5.0	+1.7		-0.6	+2.1	+2.0	-2.5	-4.5	-3.5				
50.0	32.0	17.0		11.0	24.0	31.0	42.0	47.0	50.0				

+7.2	+5.0	+1.5		-0.2	+0.7	+0.3	-1.7	-2.2	-5.0	-5.0	-4.0		
50.0	35.0	14.0		9.0	13.0	20.0	28.0	35.0	41.0	44.0	50.0		

+6.2	+5.0	+2.2	+0.8	+1.0	+1.5	-0.4	-2.0	-3.0	-3.5	-3.0	-3.5		
50	43	28	11	104	10	24	30	33	36	44	50		

+2.7	+1.5	-1.2	-1.8	+1.8	-0.6	-1.9	-2.7	-5.0	-4.0	-5.0	-5.0		
50	39	19	6	4	10	17	22	29	37	47	50		

Station	+	H.I.	−	Rod	Elev.
		225.89			
63+50				6.4	219.5
+60				6.7	219.2
+80	L. Rd			5.2	220.7
64+00				5.1	220.8
+20				2.2	223.7
T.P.	9.81	235.70	0.17	235.53	
+34				7.7	227.8
+50				5.9	229.6
+75				3.4	232.1
65+00				3.8	231.7
+25				5.2	230.3
+37				8.4	227.1
+50				9.2	226.3
66+00				10.3	225.2

4.

+1.1	+0.0	+0.6	+0.7	
50.0	33.0	11.0	3.0	

4.

-1.3	-0.6	-0.8	-1.4	-0.8	+1.0	+2.0
44.0	6.0	15.0	26.0	33.0	38.1	50.0

+7.7	+6.6	+5.0	+3.0	+0.6	+1.2	+0.7
50.0	36.0	30.0	27.0	22.0	16.0	3.0

0.0	+1.2	+1.1	+0.5	+1.5
4.0	11.0	23.0	39.0	50.0

+2.0	+2.5	+2.5	-0.5	-0.4	-1.0	-2.0
45.0	40.0	37.0	33.0	30.0	17.0	10.0

-2.0	+1.7	+0.9	-0.6
7.0	3.0	15.0	34.0

0.0	-3.2	-4.0	-3.4	-4.1	-5.0	-2.5
46.0	42.0	38.0	34.0	18.0	15.0	5.0

0.0	-0.3	-1.9	-3.0
2.0	11.0	25.0	50.0

-3.1	5.0	-5.8	-5.0	-4.0	-1.3
50.0	47.0	39.0	31.1	29.0	27.0

+0.3	+0.5	+0.2
14.0	32.0	50.0

-0.3	+0.7	-1.2	-3.4	-3.0	-0.2
50.0	45.0	35.0	29.0	14.0	4.0

-0.2	+1.7	+3.7	+5.0	+3.6
5.0	14.0	32.0	40.0	50.0

+2.5	-0.4	-1.2	-0.5
50.0	46.0	32.0	7.0

+2.3	+5.0	+8.4
10.0	24.0	50.0

+5.0	+3.0	+1.7	+0.9
50.0	44.0	37.0	20.0

+0.3	+1.0	+2.5
15.0	34.0	50.0

Station	+	H.I.	−	Rod	Elev.	
		235.58				
66 + 16.7	B.C.			9.9	225.6	
+ 50				7.3	228.2	
T.P.	5.76	241.34	0.05	235.45		
67 + 00				8.5	235.7	
+ 50				4.9	239.3	
+ 93				2.7	241.5	
68 + 00				3.6	240.6	
+ 30				4.9	239.3	
+ 64.5	E.C.			5.3	238.9	
B.M.				4.66	239.58	6912.5

Lt. ℄ Rt.

Lt.	Rt.
+5.0/50.0 +2.2/35.0 +1.0/20.0	0.0/23.0 +0.8/40.0 +1.8/50.0
+7.3/50.0 +6.7/44.0 +5.0/30.0 +3.1/18.0	-0.6/6.0 -1.6/30.0 -2.4/50.0
(℄ Rd) +1.5/50.0 +1.0/32.0 +2.7/28.0 +2.2/19.0	-1.9/17.0 -5.0/35.0 -6.8/50.0
+1.5/50.0 +1.5/48.0 -1.1/42.0 (℄ Rd) -0.5/26.0 -1.2/13.0 +0.9/9.0	-1.1/18.0 -3.1/31.0 -5.0/41.0 -7.2/50.0
+1.0/50.0 +1.3/40.0 -2.9/33.0 (℄ Rd) -2.4/17.0 -2.6/6.0	-0.9/13.0 -5.0/40.0 -7.1/50.0
+3.0/50.0 +3.7/38.0 +0.6/35.0 -1.6/30.0 -1.4/17.0 -1.6/3.0	+2.2/4.0 +1.3/15.0 -0.7/33.0 -4.7/50.0
+6.4/50.0 +6.7/35.0 +5.0/32.0 0.0/24.0 (℄ Rd.) +0.3/12.0	+1.5/4.0 +4.5/9.0 +2.3/28.0 -1.5/50.0
+6.4/50.0 +6.2/45.0 +5.7/35.0 +5.0/30.0 +2.4/26.0 0.0/22.0 (℄ R.) +0.6/8.0	+0.2/2.0 +4.5/10.0 +3.6/21.0 +0.3/50.0

Project 24-56

Appen. Ashton Road.

Levels + X-Sections

Sta. 93+76 - 98+86.9

2 Pages.

Station	+	HI	—	Rod	Elev.
B.M.	5.85	167.03			161.18
— See city book — Page (27)					
93 + 26	B.C.			0.1	166.9
+ 50				0.5	166.2
94 + 00				2.1	164.9
+ 50				4.1	162.9
95 + 00				5.6	161.4
+ 28				5.8	161.2
+ 50				4.8	162.2
+ 60				4.7	162.3
96 + 00				7.3	159.7
+ 50				9.1	157.9
+ 56				9.4	157.6
+ 80				9.7	157.3
T.P.	1.49	155.72	12.80		154.23

Te. Pole. Left 95+85

Lt.					℄ / Rt.					
	+1.0/50.0	+0.2/19.0	+0.3/11.0		+0.2/12.0	−0.7/18.0	−1.4/29.0	−3.5/50.0		
	+1.6/50.0	+0.6/23.0	+0.3/12.0		+0.2/12.0	−0.4/15.0	−0.9/22.0	−2.0/36.0	−3.7/50.0	
+1.5/50.0	+1.1/33.0	+0.1/20.0	℄ Rd. +0.5/6.0		+0.3/3.0	−0.6/12.0	−1.5/27.0	−3.5/50.0		
	+0.0/50.0	+0.9/27.0	+1.0/16.0		−0.2/11.0	−0.7/29.0	−2.0/50.0			
	+1.0/50.0	℄ Rd. +0.9/44.0	+0.8/27.0		0.0/19.0	−0.2/34.0	−0.5/50.0			
+0.3/50.0	+0.2/40.0	+0.8/34.0	+0.6/26.0		+0.4/14.0	+1.1/45.0	0.0/50.0			
	+0.2/50.0	+0.3/30.0	+0.6/17.0		+0.4/17.0	+0.7/31.0	−0.3/35.0	0.0/42.0	+1.2/47.0	+1.7/50.0
		0.0/50.0	0.0/17.0		+1.0/6.0	+2.4/27.0	+2.5/50.0			
−2.1/50.0	−0.8/37.0	+1.0/33.0	0.0/12.0		+1.6/18.0	+2.4/33.0	+2.1/50.0			
−5.0/50.0	−6.5/39.0	−6.3/24.0	−6.3/15.0	−5.0/10.0	+0.6/14.0	+1.5/31.0	+1.6/50.0			

Station	+	H.I	—	Rod.	Elev.
		155.72			
96+90				4.9	150.8
97+00				7.4	148.3
+40				9.1	146.6
+65				10.2	145.5
B.M.				5.59	150.13
T.P.	1.77	145.17	12.32	143.40	
+75				3.8	141.4
+90				6.4	138.8
98+00				3.5	141.7 (147.7)
+50				5.3	139.9
+86.9	E.C.			7.0	138.2

+0.8/50.0 −0.7/30.0 −1.3/15.0 −0.8/10.0 | +1.7/8.0 +4.2/19.0 +5.0/24.0 +6.8/33.0 +6.8/50.0

+2.6/50.0 +3.1/47.0 +2.1/32.0 +1.1/18.0 +0.8/8.0 | +0.9/7.0 +1.5/18.0 +3.0/36.0 +4.0/50.0

−5.0/50.0 +1.0/42.0 +2.1/33.0 +2.4/27.0 +0.8/16.0 +0.7/9.0 | −0.4/10.0 −0.2/21.0 +0.1/38.0 −0.4/50.0

−7.0/50.0 −7.7/40.0 −7.0/39.0 −5.2/23.0 −5.0/19.0 −3.7/10.0 | −0.3/9.0 −1.2/14.0 −1.1/20.0 0.0/30.0 +0.3/50.0

Top. Hyd. Burns Ave + Afton Rd.

+1.0/50.0 −3.5/41.0 −3.4/23.0 −1.5/4.0 | +3.4/7.0 +3.6/12.0 +2.3/17.0 +3.4/30.0 +3.8/50.0

+5.0/50.0 +0.7/42.0 −1.5/31.0 −1.1/20.0 0.0/7.0 | +4.4/6.0 +4.6/11.0 +3.9/16.0 +5.0/28.0 +5.5/46.0 +3.8/50.0

+2.5/50.0 −3.2/47.0 −4.8/35.0 −4.1/14.0 −0.2/7.0 | +0.8/4.0 +0.3/11.0 +1.5/25.0 +1.5/36.0 −1.4/46.0 −1.8/50.0

{ +9.0/55.0
{ +5.0/50.0 +0.5/44.0 −5.0/33.0 −6.0/30.0 −5.0/25.0 −1.5/18.0 0.0/14.0 | +0.2/12.0 +0.7/19.0 −2.1/26.0 −2.0/31.0 +1.1/38.0 +3.1/50.0

+6.0/52.0 0.0/44.0 −5.0/36.0 −6.0/33.0 −5.0/28.0 −1.8/23.0 −0.2/20.0 0.0/10.0 | +0.2/6.0 +0.2/15.0 −0.5/19.0 −3.0/21.0 −2.8/27.0 +1.0/34.0 +4.5/43.0 +4.0/50.0

LATITUDE & DEPARTURE CHART.

Proj. 24-56 From Borns Ave. To E. City Limits

Sta.	Dist.	Deflection L.	Deflection R.	Course	Latitude + N	Latitude - S	Departure + E	Departure - W	Totals Latitude	Totals Departure
0+00										
	3156^{30}			West	0	0		3156.3		
$31+56^{3}$			26°34'						00	-3156.3
	1175^{88}			N.63°26'W.	525.9			1051.7		
$43+25^{0}$			3°15'						+525.9	-4208.0
	787^{12}			N.60°11'W.	391.4			682.9		
$51+13^{16}$		30°26'							+917.3	-4890.9
	752^{48}			S.89°23'W.		8.1		752.4		
$58+50^{70}$									+909.2	-5643.3
	424^{37}			S.89°23'W.		4.6		424.3		
$62+75^{07}$			45°56'						+904.6	-6067.6
	1475^{60}			N.44°41'W.	1049.2			1037.6		
$76+84^{68}$		19°02'							+1953.8	-7105.2
	730^{35}			N.63°43'W.	323.4			654.8		
$84+13^{02}$		5°00'							+2277.2	-7760.0
	600^{35}			N.68°43'W.	217.9			559.4		
$90+13^{25}$		15°00'							+2495.1	-8319.4
	456^{61}			N.83°43'W.	50.0			453.9		
$94+68^{50}$			38°18'						+2545.1	-8773.3
	357^{30}			N.45°25'W.	250.8			254.5		
$98+14^{40}$		45°00'							+2795.9	-9027.8
	82^{70}			S.89°35'W.		0.6		82.7		
$98+86^{90}$									+2795.3	-9110.5
									+909.2	-5643.3
				S.89°23'W.						
$58+50^{70}$			26°03'							
	897^{01}			N.64°34'W.	385.2			810.1		
$67+41^{70}$			19°52'						+1294.4	-6453.4
	125^{53}			N.44°42'W.	89.2			88.3		
$68+64^{50}$									+1383.6	-6541.7

Comp. O.R.V.K. - 12-4-23
Ck. H.D.K.

eln