N. Woodland Rd. Sec. A
Russell Twp.

104

FIELD BOOK

1312

PLEASE RETURN TO
GEAUGA COUNTY ENGINEER
COURT HOUSE
CHARDON, O.
PHONE 250-.

Book 104

North Woodland Road - No. 16

Sections B & C

Align. - pg 1-6 Pg 71

Topo - pg 7-13

X-Sections - pg 14-28

Culverts - pg 29-30

Grades - pg 32-54

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FAIRMOUNT RD #16 Sec C & D
Profile & Sect'ns 1950 pgs 57-68

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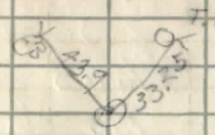
Preliminary Survey of land of L. Williams on Fairmount Rd CH. #16 Sec North Side for proposed addition to Briar Hill & Riverside Cemetery
Pg 70.

(10)

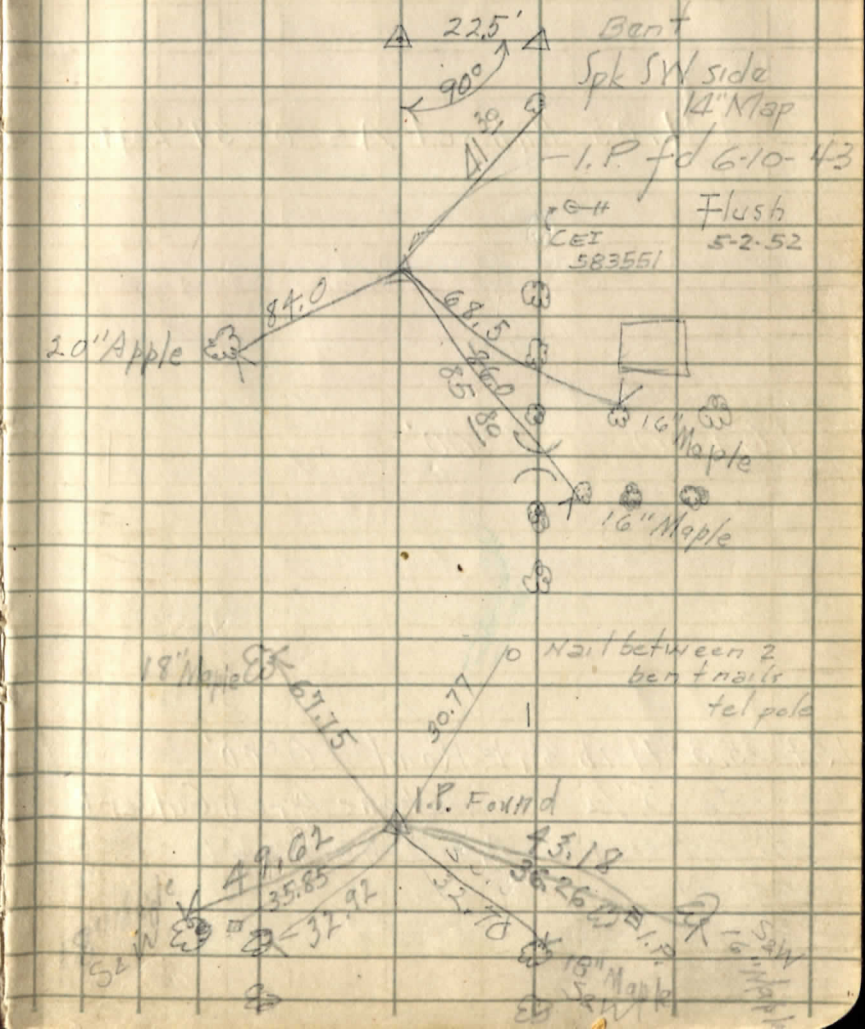
| FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|
| Vol. D, Page 538 Road Records Road Reduced to 45' from Fuller's Mill on Newbury Westerly through Russell Twp. to W. Line of Township. | | | | |
| Vol. D. P. 536, Road Records Wly. from Fullers Mills to W. Line of Russell Twp. | | | | |
| Sg. at Iron pin 20" X 1" | | | | |
| W. | | | 7 ch. | |
| - S. 75° W | | | 2.50 ch | |
| - S 69½° W | | | 7.65 | |
| - S 84½° W | | | 11. ch | |
| - N 53° W | | | 20.44 to S. line Lot 5. | |
| - W | | | 45.74 ch. | |
| - N 69¼° W | | | 7.50 | |
| - S 77½° W | | | 3.50 | |
| - S 78½° W | | | 2.50 | |
| - N 89° W | | | 77.25 | |
| - S 63° W | | | 2.50 | |
| - N 74½° W | | | 3.67 | |
| - W. | | | 61.63 | |
| - N 89½° W | | | 81.64 | |
| - W | | | 11. ch. to brook through Lot 1. | |
| - S 75° W | | | 2.50 | |
| - N 71° W | | | 2. ch to S. line Lot 1. | |

over

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| — N 89½° W | | | | 41.42 ch. | | | | | | | |
| — S 61° E | | | | 10.80 to West Line | | | | | | | |
| of Russell Twp. | | | | | | | | | | | |
| We find that the S. line of | | | | | | | | | | | |
| Lots 1, 2, 3, 4 + 5 is not straight, | | | | | | | | | | | |
| but Angling from Corner to Corner. | | | | | | | | | | | |
| Roydel Burton, Surveyor | | | | | | | | | | | |
| June 14, 1876. | | | | | | | | | | | |

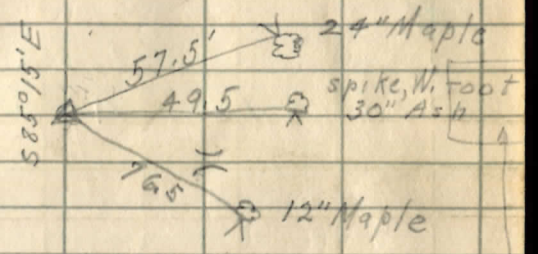


| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Stakes set on Offset of 22.5' from ℄. May 20, 1927, Marks, Grau, D. Parks. | | | | | | | | | | | |
| 12+00 Hub. set | | | | | | | | | | | |
| 10+00 Hub. set | | | | | | | | | | | |
| 0+00 ± N. + S. Road between Huntington Valley Village + Russell Twp. ℄ | | | | | | | | | | | |



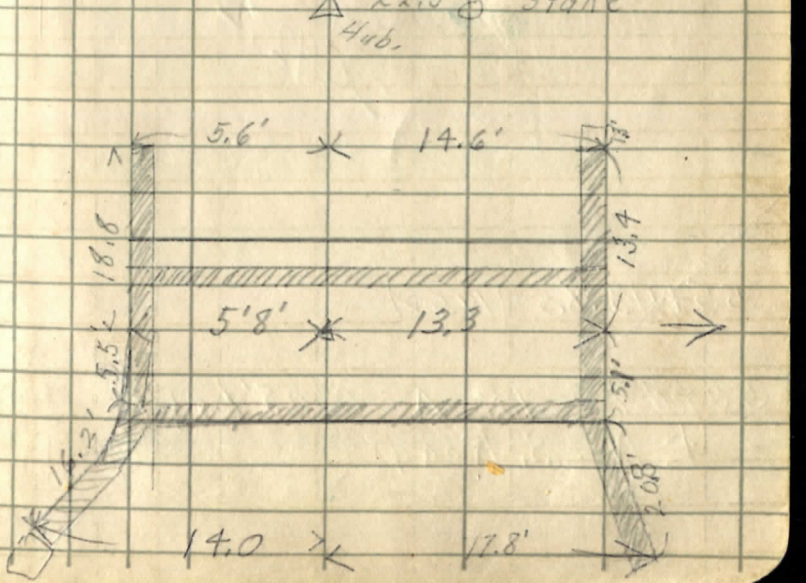
| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39+99.72 | | (1952) | | | | | | | | | | |
| 40+00 Hub. | | | | | 0°00' | | | | | | | |
| 22+41.0 Hub set Δ = 0° 39' Left. | | | | | | | | | | | | |
| 16+00 | | | | | 0°00' | | | | | | | |
| 15+05.3 Hub on ± Road | | | | | 0°00' | | | | | | | |
| 5'1/2 Ft. Stone Arch Culvert | | | | | | | | | | | | |

Pipe & Ref. points fd 6-10-43' Dist notched. Fd Flush May '52




Hub. 45' Hub. R = 20.0' 1° P 22.5 Δ House

See pg 56 for 1916 } Ref 1952 }



10 penny / nail S side 6" evergrn

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|

82+50 Hub set Δ = 0°00'

612.7

I.P. Fd Flush
July '46
See Pg 71

Box 87

89
87
38.0

CHIMNEY

36" Ash

May 27, 1927 - Marks, Grau, Spahn

76+37.3 Old stone Found. Section Corner
Δ = 0°40' Left

76+37.3
55+44
20 92.3

1952
20 92.2

Hub 45' Hub 22.5' Hub 22.5' Stone
90°

See pg 56 for 1946 Ref

55+43.80 (1952)

55+40 I.P. Δ = 0°05' Left
℄ N+S. Road (Corco Rd)

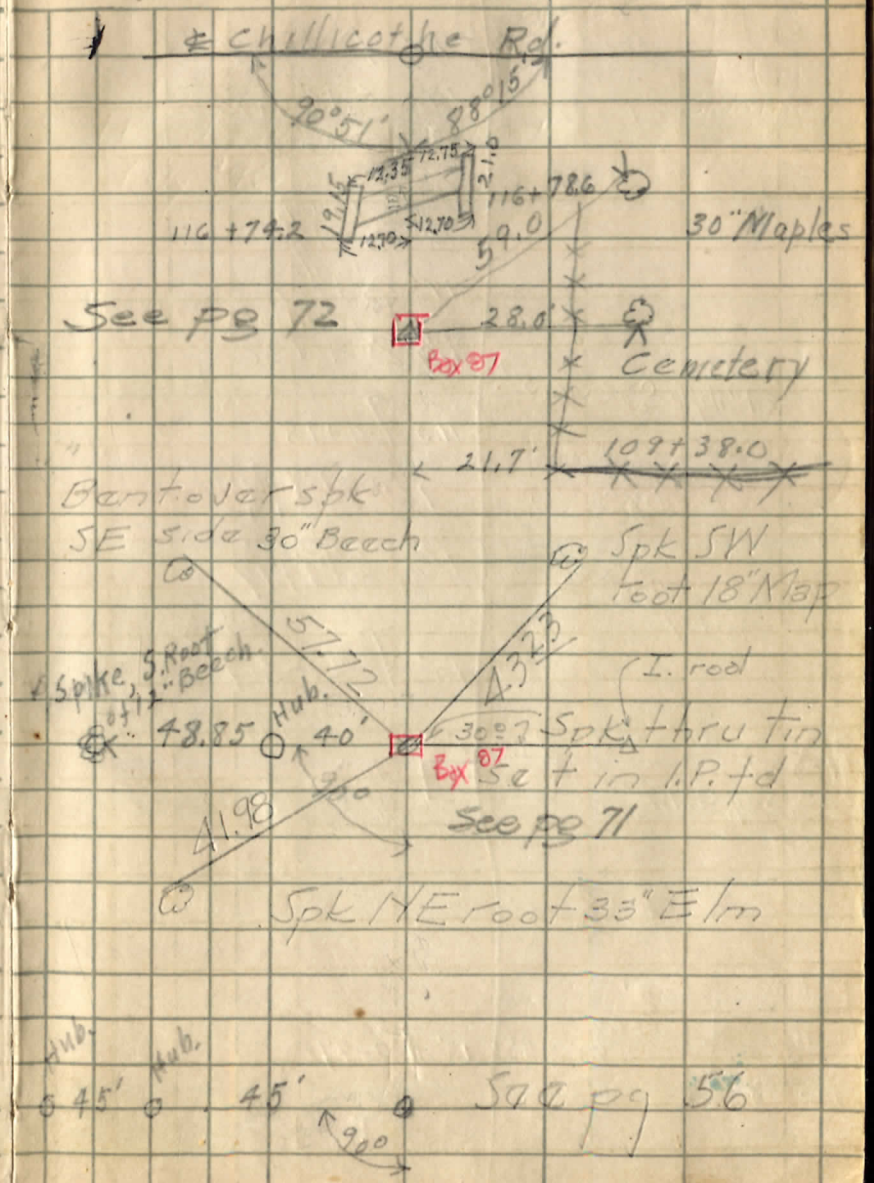
8" Apple Tree
77.3'
74.8'
43.85
33.15

Box 86

Tel. Pole

OK 1946
May '52 see new ref
on Pg 71

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 117+2 | 3.8 | Iron Pipe, ℄ Chillicothe road 2.220 miles) | | | | | | | | | | |
| | 116+0 = I. and tang. approach | | | | | | | | | | | |
| 112+00 Hub set | | | Δ = 0°00' | | | | | | | | | |
| 96+00 - Hub. Set | | | Δ = 0°00' | | | | | | | | | |
| 88+50 Hub. set | | | Δ = 0°00' | | | | | | | | | |

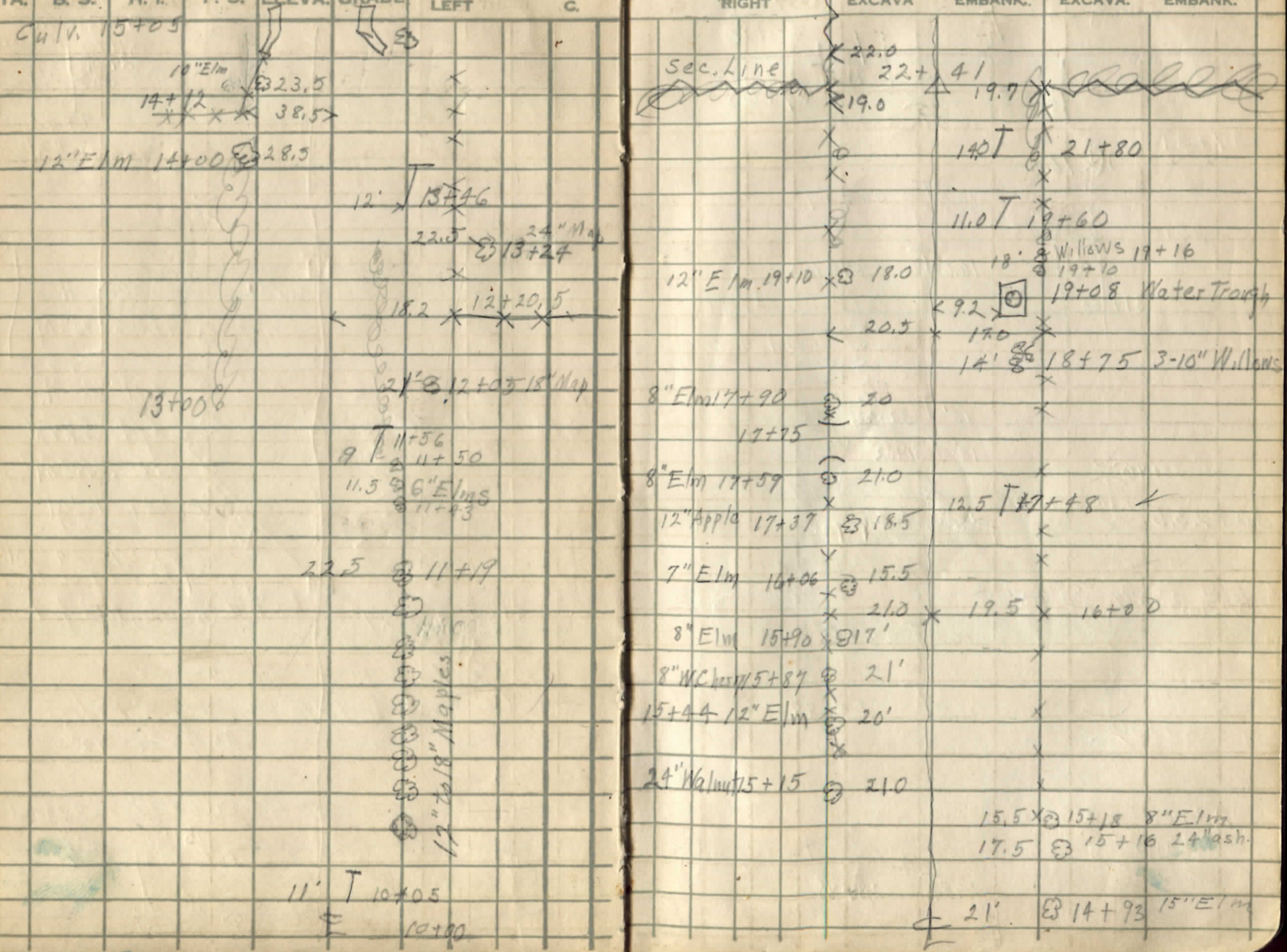


# Topography

May 28, 1927 Marks - Gray, D. 7 Parks

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 10' | 5+97 | | | | | 9+93 12" M. | |
| | | | | 18' | 5+76 | | | | | 9+78 10+00 | |
| | | | | | 5+50 | | | | | 24" M 60' | H |
| | | | | | 5+22 12" M. | | | | | | 9+72 |
| | | | | 18' | 4+96 | | | | | 9+66 12" M | |
| | | | | 17' | 4+67 12" M. | | | | | 9+45 | |
| | | | | | 12" Maple | | | | | | 9+18 |
| | | | | 17.5 | 4+36 | | | | | 80' | H |
| 4+25 24" Maple | | | 30.5' | | | | | 22.5 | | 9+08 12" M | |
| | | | | 11.5 | 4+18 | | | | | | 8+73 |
| | | | | 16' | 15" Maple 3+46 | | | 22' | | 8+91 12" M. | |
| | | | | 16' | 20" 3+17 | | | | | 8+74 24" M. | |
| | | | | | | | | | | 8+56 24" M. | |
| | | | | 13' | 2+47 | | | | | 8+41 10" M. | |
| | | | | | | | | | | 8+27 24" M. | |
| 1+86.5 13" Seq. C.I.P. | | | 14.0 6'0 | | | | 8+05 20" M. 27' | 21.3 | | 8+00 15" Maple | |
| | | | | | | | 7+73 20" M. 26' | | | 7+75 | |
| | | 1+50 6" Maple | 33' | | | | | | | 7+26 12" | |
| 0+82. | | 65' | | | | | | | | | |
| H. | | 0+68 18" M. | 26.5 | 13' | 0+77 | | | 19.5 | | 6+77 12" Maple | |
| 0+60 | | | | | | | | | | 15" 6+51 | |
| | | | | | | | | | | 18" M. 6+27 | |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT C. RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|



| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | C. | RIGHT |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 45+03.7 15" Corr Iron Pipe |
| | | | | | | 40+10 | | |
| | | | | | 39+68 | | | |
| | | | | 120' | | | | |
| | | | | 16.5 T | 38+66 | | | |
| 37+31 | | | | | | | | |
| | | 16 | 16.5 | | | | | |
| | | | | 16.0 T | 36+59 | | | |
| 35+00 | | | 19.5 | | | | | |
| | | | | 16.0 T | 34+63 | | | |
| | | 33+60 | | | | | | |
| | | | | | 33+40 | | | |
| | | | | 15' T | 32+43 | | | |
| | | | | 18' T | 30+32 | | | |
| | | 30+86 | | | | | | |
| 30+23.5 | | 13" Seq. C.I.P. | | | | | | |
| | | | 2'4" | | | | | |
| | | | | 1.2 | 14.8 | | | |
| | | | | | 29+32 | | | |
| | | | | | | | | 44+10 18" Maples 16.5 |
| | | | | | | | | 43+88 |
| 12" Elm + 30" Elms | | 28+77 | 6.5' | | | | | |
| | | | | 16.5 T | 28+11 | | | |
| | | | | | | | | 43+37 14" Maple 43+42 17.5 |
| | | | | | | | | H 70' |
| | | | | | | | | 43+09 |
| | | | | | | | | 30" Sycamore 42+83 26' |
| | | | | 17.5 T | 25+88 | | | |
| | | 25+30 | | | | | | |
| | | | | | | | | 42+75 |
| | | | | | | | | 24" Locust 42+61 27' |
| | | | | | | | | 2- Black Walnuts 42+58 25 27.5 |
| | | | | | | | | 42+47 |
| | | | | | | | | H 42+37 8" Maple 24.5 |
| | | | | | | | | 70' |
| | | | | | | | | 42+19 |
| 24+00 | | | 16' | | | | | |
| Saplings | | | | | | | | |
| | | | | | | | | 18" Sycamore 43+10 23.5 |
| | | | | | | | | 15" Apple 42+98 20 |
| | | | | | | | | 18" Maple 41+88 19.5 |
| | | | | | | | | 10" Walnut 41+70 20.5 |
| | | | | | | | | 15" Apple 41+58 20' |
| | | | | | | | | 18" Apple 41+30 20.5 |
| | | | | 14.5 T | 23+88 | | | |
| | | | | | | | | 19.5 T 40+62 |

| AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|
| 8' → 12.3 | | | |
| | | 43+57 | |
| | | 21.5 24' | |

STA. B. S. H. I. F. S. ELEVA. GRADE CUT OR LEFT C.

FILL RIGHT AREA EXCAVA EMBANK. CUBIC YARDS EXCAVA. EMBANK.

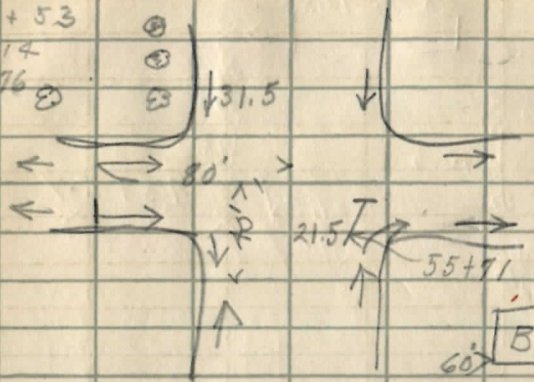
56+94 32.5

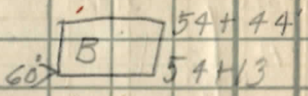
56 + 53

56+14

55+76

31.5





20.0 53+56

22.0 51+47

20.5 49+35

47+20 19.0

23' 47+33

10" Maples

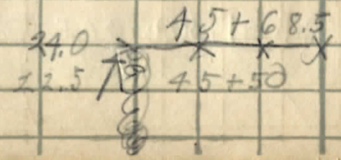
47+04 18.5

45+54 6" Maple 18.5

8" Maple 46+26 19.0

8" Maple 45+96 19.0

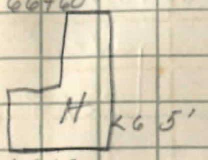
8" Maple 45+80 19.0



67+45 17.0

36" Maple 67+96 24'

66+60



66+20

65+31 17.0

64+53 26.0

24" Hickory

63+40 22.5

63+40 16.5

63+15 22.5

18" Maple

Hall

62+66

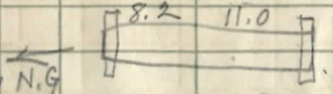
23'

Schraner

61+26 15.0

60+13.5

Small Stone Culv. N.G

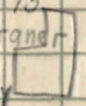


59+25 16.5

17.5 57+90

57+75

Schraner



57+37

57+06

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT | AREA EXCAVA. | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 85+00 | Valley | | 84+00 | | | | | | | |
| | 83+36 | T 13' | | | | | | | | | | |
| | | | | | 83+85 | | | | | | | |
| | | | | | 83+14 | | | | | | | |
| | | | | | 55' | | | | | | | |
| | | | | | 82+85 | | | | | | | |
| | 8" Walnut 82+45 | | 16.5 | | | | | | | | | |
| | | | | | 33.5 @ 82+33 | | | | | | | |
| | 81+55 | T 14.5 | | | | | | | | | | |
| | 80+40 | | | | | | | | | | | |
| | 79+79 | T 14.5 | | | | | | | | | | |
| | 77+73 | T 18.6 | | | | | | | | | | |
| | 76+37.3 | | | | Sec. Line | | | | | | | |
| | 76+33 | | 23.5 | | | | | | | | | |
| | 75+70 | T 19.0 | | | | | | | | | | |
| | 75+00 | 23.0 | | | | | | | | | | |
| | 74+42 | | | | | | | | | | | |
| | 73+48 | T 18.0 | | | | | | | | | | |
| | 73+00 | 20' | | | | | | | | | | |
| | 71+51 | T 18.0 | | | | | | | | | | |
| | 69+49 | T 18' | | | | | | | | | | |
| | 68+84 | 21.0 | | | | | | | | | | |
| | 68+12 | | | | | | | | | | | |

93+60.7'

12" Elm 93+27 @ 19.0

15" W. Cher 92+29 @ 19.5

15" Syc, 92+25 @ 27.5

15" W. Cherry 92+05 @ 15.5

24" Beech 91+65 @ 21'

91+11 24" Maple @ 22.5

90+95 18" Maple @ 19.5

90+67 24" Maple @ 39'

90+48 30" Maple @ 32.5

90+18 30" Maple @ 32.5

88+68 18" W. Cherry @ 15.0

24" W. Cherry 87+98 @ 14.5

87+23.5 1'X1' Stone Sluice Roof

85+71

15" Cherry 85+54 @ 16.0

85+28 18.0

Woods

Edge of Woods

< 13.2' × 14.6' >

22.0 T 93+63

25.5 @ 92+50 15" Apple

20.5' T 91+51

90+67 P.I. 3

15' T 89+35

19.0 T

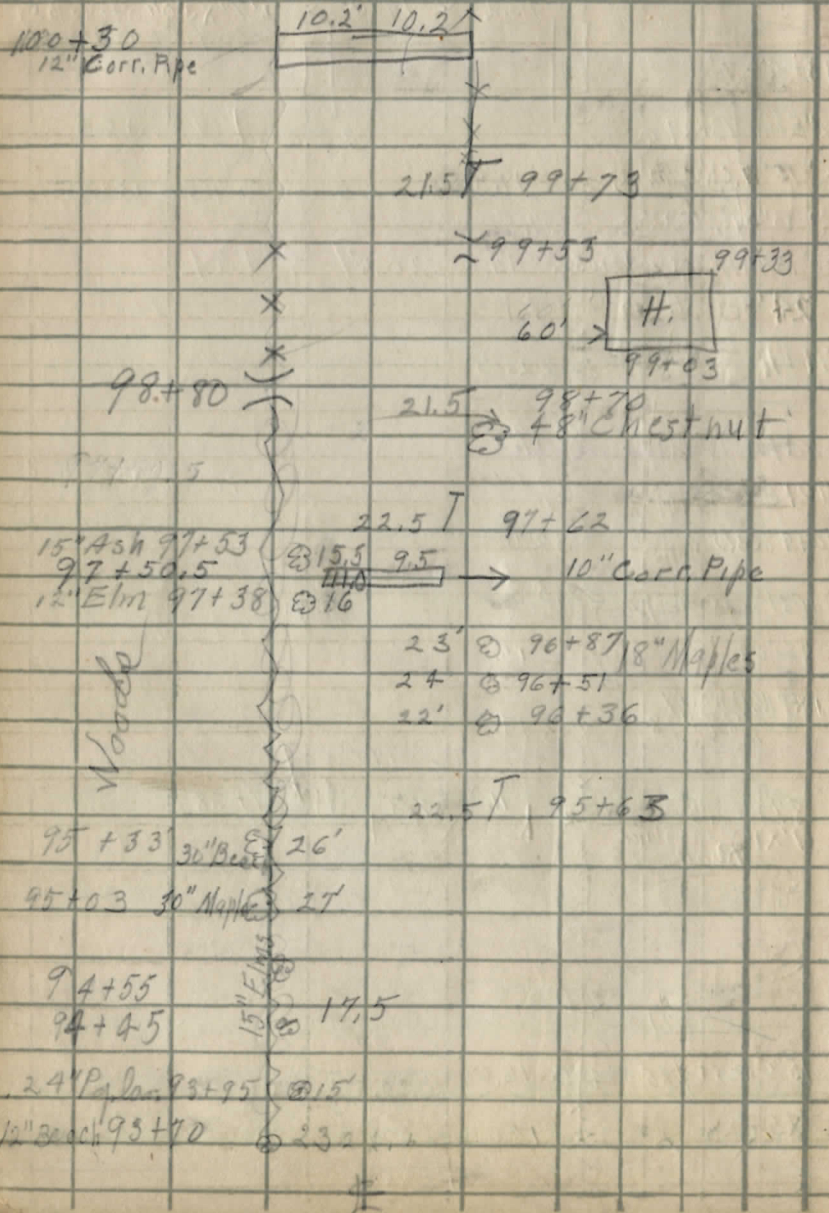
11.0 7.8

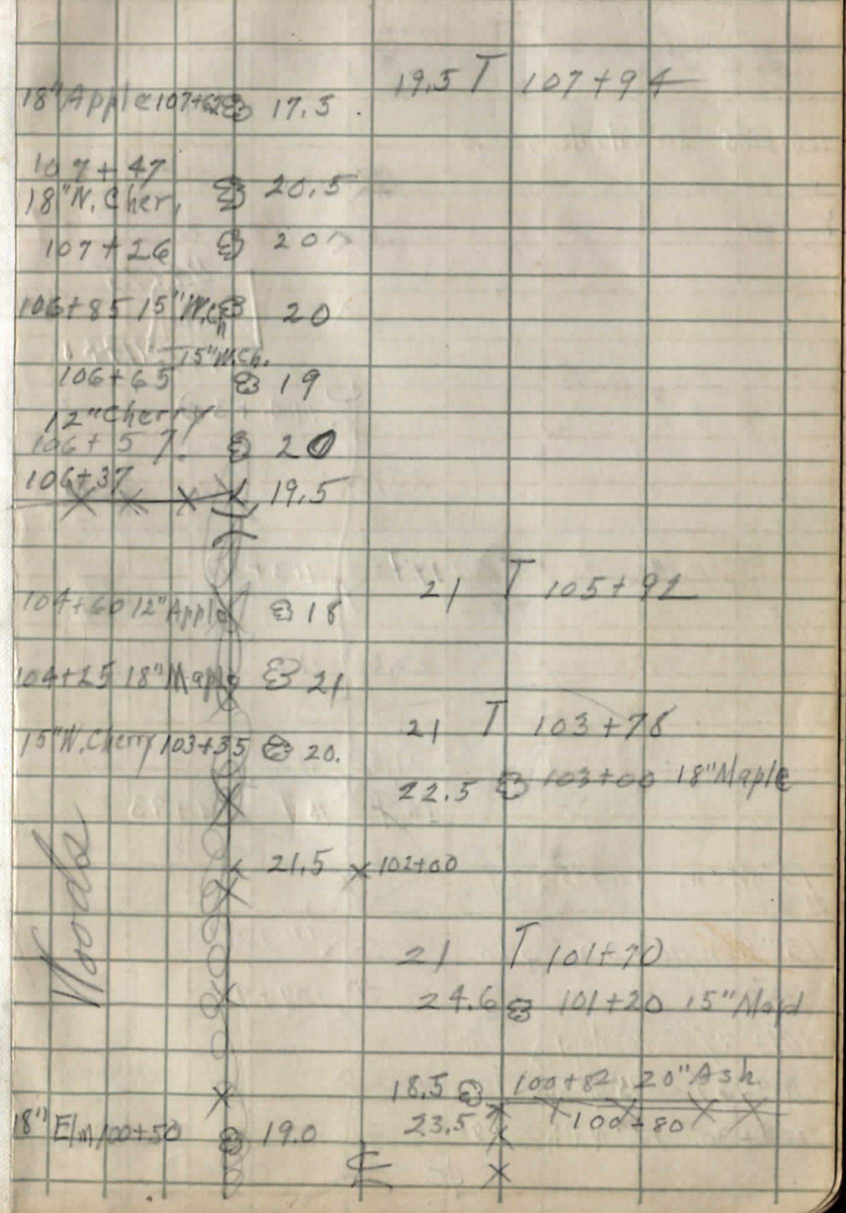
87+38

20.5 T 85+35

2'9" X 3'-0" Stone Box Good Condition

| | | | | | | CUT OR | | FILL | AREA | | CUBIC YARDS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | LEFT | C. | RIGHT | EXCAVA | EMBANK. | EXCAVA. | EMBANK. |





| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL RIGHT | C. | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 115+75 | | 30" Maple ⊖ | 20.5 | | | | | | | | | |
| | | | | 32.8 | 115+00 | | | | | | | |
| | | | | | 114+75 Chapel 114+45 | | | | | | | |
| | | | | | 114+30 | | | | | | | |
| | | | | 25.7 | 114 | | | | | | | |
| | | | | 19.7 | 113+80 | | | | | | | |
| | | | | 23.5 | 113 | | | | | | | |
| | | | | 21.5 | 112 | | | | | | | |
| | | | | 15 T | 111+93 | | | | | | | |
| 15" W. Ch. | | 110+55 ⊖ | 19 | | | | | | | | | |
| 15" W Ch | | 110+35 ⊖ | 18 | | | | | | | | | |
| | | | | | 110+20 | | | | | | | |
| | | | | 19.5 T | 109+95 | | | | | | | |
| 109+87 | | 10" Mapl ⊖ | 17.5 | | | | | | | | | |
| 109+67 | | 15" W Ch ⊖ | 19' | | | | | | | | | |
| 109+30 | | 15" W. Ch ⊖ | 19' | | | | | | | | | |

June 1, 1927. Marks, D. Parks, Ransom Hassel

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8. | 8.11 | 1039.31 | | 1031.20 | | | | | X - N.E. cor. N. Headwall, Culvert W. of Chillicothe | | | R 999 |
| 118+24 | | | 10.8 | 1028.5 | | | | | | | | |
| 117+80 | | | 10.3 | 1029.0 | | | | | | | | |
| 117+59 | | | 11.2 | 1028.1 | | | | | 1029.8 | 1029.4 | 1028.9 | 1028.9 |
| 117+31 | | | 10.25 | 1029.06 | | | | | 9.5/140 | 9.9/50 | 10.1/5 10.4/50 | 10.4/10.0 |
| 117+23.8 | | | 10.12 | 1029.19 | ℄ Chillicothe Road | | | | | | | |
| 117+17 | | | 10.25 | 1029.06 | | | | | | | | |
| 117 | | | 9.0 | 1030.3 | | | | | | | | |
| 116+50 | | | 7.7 | 1031.6 | | | | | 14.0/36 13.4/30 Creek | 12.0/29 7.4/18.5 | 7.7/12 7.7/0 | 7.4/8 8.1/18 7.9/24 8.2/26 8.5/30 10.0/4 6 shed |
| 116 | | | 3.4 | 1035.9 | | 10.7/60 | 11.7/5 14.0/45 13.2/40 | | 8.2/33 5.4/26 3.9/20 2.7/16 3.8/15.5 | 3.4/11.5 3.4/0 3.5/8 4.0/9 | 3.0/11 0.8/17 | +11.0/37 +16.2/42.5 |
| | 10.15 | 1048.97 | 0.49 | 1038.82 | | | | | 2.3/33 3.0/26 3.8/18 4.9/13 | 5.3/11 5.1/9 4.7/0 4.9/4 5.6/8 | 1.6/13 10.0/18 | +4.0/22.5 +6.5/33 Fence |
| 115 | | | 4.7 | 1044.2 | 1044.3 | 6.9/70 | 4.4/60 3.0/50 | | | | | |
| | 10.07 | 1058.77 | 0.27 | 1048.70 | | | | | 8.7/50 7.1/22 7.3/12 | 8.7/10 8.0/8 7.5/0 | 7.7/5 8.3/7 6.1/10 | 3.6/22.5 3.3/25 |
| 114 | | | 7.5 | 1051.3 | | | | | | | | |
| | 10.48 | 1068.61 | 0.64 | 1058.13 | | | | | 11.8/45 10.7/27 11.6/12 12.0/11 13.0/9 | 12.5/7 13.1/0 | 12.4/7 13.0/8 | 11.2/14 8.7/22.5 |
| 113 | | | 12.1 | 1056.5 | | | | | | | | |
| 112 | | | 6.3 | 1062.3 | | | | | 4.7/50 4.1/24 5.1/11 6.9/8 6.7/6 6.3/0 | 6.9/8 | 7.3/9 5.9/10 | 3.8/16 3.5/21.6 |
| 111+30 | | | 3.4 | 1065.2 | | | | | 1.0/50 1.5/20 2.3/10 3.8/8 3.5/6 3.4/0 | 4.0/10 | 3.4/12 | 3.5/21.0 |
| 111 | | | 3.8 | 1064.8 | | | | | 1.0/50 1.7/24 2.3/11 4.1/8 3.8/6 3.8/0 | | 4.4/10 | 4.0/12-20.8 |
| | | | 7.63 | 1060.98 | | | | | Spike in Tel. Pole 19.5' R. 107+94 | | | |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL RIGHT | C. |
|---|---|---|---|---|---|---|---|---|
| T.P. | 6.05 | 1067.03 | | 1060.98 | | | | |
| 110 | | | 5.3 | 1061.7 | | | | |
| 109 | | | 6.3 | 1060.7 | | | | |
| | 3.84 | 1064.82 | | 1060.98 | | | | |
| 108 | Good site for Culvert | | 4.5 | 1060.3 | | | | |
| | 4.07 | 1065.05 | | 1060.98 | | | | |
| 107 | | | 4.6 | 1060.4 | | | | |
| 106+60 | | | 4.3 | 1060.7 | | | | |
| 106 | | | 4.8 | 1060.2 | | | | |
| | 4.88 | 1063.16 | 6.77 | 1058.28 1059.33 | | | | |
| 105 | | | 3.5 | 1059.7 | | | | |
| | 3.68 | 1061.96 | | 1058.28 1058.28 | | | | |
| 104 | | | 5.3 | 1058.7 | 1056.68 | | | |
| | 1.78 | 1060.06 | | 1058.28 | | | | |
| 103 | | | 6.1 | 1057.9 | | | | |
| | 5.01 | 1056.74 | 8.33 | 1051.73 | 1051.69 | | | |
| 102 | | | 5.7 | 1051.5 | | | | |

| FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|
| 1.4/30 1.5/22.5 2.6/17 | 4.4/13 4.9/10 5.8/8 5.3/5 | 4.9/0 | 5.3/12 | 5.0/14 4.6/21 |
| 6.0/30 6.3/22.5 6.9/9 | 7.3/8 6.5/5 | 6.3/0 6.7/11 | 7.3/13 7.3/23 8.2/30 | 11.6/100 (1055.4) |
| 3.9/30 3.9/22.5 4.8/10 | 5.2/8 4.6/5 | 4.5/0 4.8/11 | 5.4/14 5.0/21 | 6.0/30 8.0/100 (1056.8) |
| | | | | 10.5/160 13.0/180 |
| 1.8/30 2.3/22.5 4.1/11 5.4/8 | 4.7/5 | 4.6/0 4.9/10 | 5.4/12 | 4.8/14 4.1/22 4.8/30 |
| 0.5/29 1.2/22 2.4/17 4.1/12 | 5.5/9 4.9/7 | 4.3/0 4.4/9 4.9/11 | 3.7/13 | 2.5/21 2.9/30 |
| 5.1/30 3.4/22.5 5.0/12 | 6.0/9 5.0/6 | 4.8/0 5.4/9 6.3/4 | 5.7/13 4.9/20 | 5.9/30 |
| Tel. Pole R. 103+78 | | | | |
| 1.7/30 2.1/22.5 3.5/16 5.1/12 | 3.8/7 | 3.5/0 4.3/9 5.1/11 | 4.5/19 | 5.9/30 |
| 1.7/30 2.0/22.5 2.8/19 4.5/13 | 6.4/10 5.4/7 | 5.1/0 5.3/8 6.1/10 | 5.0/12 4.2/20 | 5.3/30 |
| 2.0/30 2.2/22.5 2.7/18 6.9/10 | 8.0/9 6.5/6 | 6.1/0 6.6/7 7.1/9 | 5.1/11 3.8/23 | 4.3/30 |
| Temporary T.P. Stake | | | | |
| 4.8/30 4.8/22.5 5.4/13 6.6/11 | 5.5/8 | 5.2/0 5.1/6 6.2/9 | 5.7/11 4.2/20 | 4.6/30 |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT |
|---|---|---|---|---|---|---|---|---|
| | 2.50 | 1054.23 | | 1051.73 | 1051.70 | | | |
| 101 | | | 4.2 | 1050.0 | | | | |
| | | | 5.1 | 1049.1 | | | | |
| 100+30 | 12" Corr. Pipe | | 5.1 | 1049.1 | | | | |
| | 2.16 | 1053.89 | | 1051.73 | ~~1051.70~~ | | | |
| | | | 3.21 | 1050.68 | 1050.65 | | | |
| 100 | | | 4.9 | 1049.0 | ~~1048.96~~ | | | |
| | 3.57 | 1054.25 | | 1050.68 | | | | |
| 99 | | | 4.2 | 1050.1 | | | | |
| | 1.56 | 1052.24 | | 1050.68 | | | | |
| 98 | | | 4.6 | 1047.6 | | | | |
| | | | 4.4 | | | | | |
| 97+58.5 | 10" Corr. | | Pipe | 1047.80 | | | | |
| | 2.19 | 1052.87 | | 1050.68 | | | | |
| 97 | | | 4.6 | 1048.2 | | | | |
| | 2.72 | 1052.40 | 3.19 | 1049.68 | | | | |
| 96 | | | 2.8 | 1049.6 | | | | |
| 95 | | | 1.7 | 1050.7 | | | | |

| FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|
| 3.5/30 3.9/22.5 4.3/18 4.8/12 | 5.4/11 | 4.6/8 4.2/0 | 4.9/8 5.4/10 | 5.1/13 5.6/30 |
| 1047.1 | | 1046.4 | | |
| 6.5/22.5 7.1/10.2 F.L 5.1/8 | 5.1/0 | 5.6/8 7.8/10 | 2 | 9.5/50 12.2/100 ditch |
| | | F.A. | | |
| B.M. set, N. Root 24" Maple, 30' R. Sta. 99+00 | | | | |
| 4.0/30 4.0/22.5 5.9/17 5.9/12 | 6.0/11 | 4.7/7 4.5/0 | 4.9/8 5.4/10 | 4.5/15 4.6/22.5 6.1/30 |
| 3.6/30 3.3/22.5 3.7/13 4.4/9 | 4.7/8 | 4.4/6 4.2/0 | 4.7/8 5.2/11 | 4.4/13 4.2/30 |
| 3.0/22.5 3.9/17 5.3/13 4.6/6 | | 4.6/0 4.8/9 | 5.2/12 | 6.0/30 |
| 1045.8 | | 1045.4 | | |
| 5.3/22.5 6.4/11.0 F.L | 4.3/8 | 4.4/0 4.8/8 | 6.8/9.5 7.5/50 | 9.3/100 omit |
| | | | F.L | |
| 3.8/22.5 5.4/11 4.8/5 | | 4.6/0 5.0/10 | 5.5/12 5.1/15 | 5.3/30 |
| T.P. Stake ½ ft. N. of Tel. Pole, R. 95+63 | | | | |
| 6.3 -1.5 -1.3 0 | | -0.5 -1.0 -0.9 -1.5 | | |
| 3.5/22.5 3.3/15 4.1/10 2.8/5 | 2.8/0 | 3.3/11 3.8/13 | 3.7/14 | 4.3/30 |
| +.9 +0.3 +1.6 +0.1 | | -0.2 -0.5 -0.9 | | |
| 0.8/22.5 2.0/15 3.3/11 1.6/6 | 1.7/0 | 2.0/11 2.2/13 | 2.6/30 | |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL RIGHT | C. |
|---|---|---|---|---|---|---|---|---|
| | 8.41 | 1058.09 | | 1049.68 | | | | |
| 94 | | | | 1052.99 | | | | |
| | 10.77 | 1060.45 | | 1049.68 | | | | |
| 93+60.7 | | | 6.0 | 1054.4 | | | | |
| 93 | | | 2.7 | 1057.7 | | | | |
| | 9.70 | 1070.15 | 0.00 | 1060.45 | | | | |
| 92 | | | 6.0 | 1064.2 | | | | |
| | 11.85 | 1082.00 | 0.00 | 1070.15 | | | | |
| | | | 4.15 | 1077.85 | | | | |
| 91 | | | 10.3 | 1071.7 | | | | |
| | 11.88 | 1089.73 | | 1077.85 | | | | |
| 90 | | | 10.7 | 1079.0 | | | | |
| | 9.29 | 1096.74 | 2.28 | 1087.45 | | | | |
| 89+50 | | | | | | | | |
| 89 | | | 12.7 | 1084.0 | | | | |
| 88 | | | 11.2 | 1085.5 | 1085.54 | | | |
| | | | 11.1 | 1085.6 | | | | |
| 87+23.5 | 1'X1' Stone Sluice | | | 1085.64 | | | | |

| AREA EXCAVA. | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|
| +0.5 | -0.9 | 3.7 - 5.1 - | 5.7 |
| 4.6 / 8 | 5.1 / 6 | 8.8 / 20 | 10.6 / 32 |
| | 5.5 / 13 | | 11.2 / 36 |
| 13.2 / 11 | 6.3 / 11 | 6.6 / 14.6 | 10.3 / 14.0 |
| 5.0 5.9 / 8 7 | 6.0 / 0 | 5.6 5.4 / 9 11 | |
| -.7 -6.1 | +0.9 -0.8 -0.1 | -0.1 -0.4 +0.3 -3.1 - | 4.5 -3.8 |
| 3.5 2.8 / 7 6 | 2.7 / 0 | 2.6 / 7 | 3.1 / 14 |
| 2.4 / 17 | 5.8 / 22 | 7.2 / 34 | 6.5 / 40 |
| 7.1 -.2 | +.3 +1.7 +.6 -1.0 -.5 | -0.1 -0.7 -0.3 +0.9 +1.2 | +1.2 |
| 6.2 / 27 | 5.3 / 22.5 | 6.7 / 12.5 | 6.3 / 14 |
| 4.3 5.2 / 14 8 | 7.0 5.9 / 6.5 5.3 | 6.0 / 0 | 6.1 / 11 |
| | | 5.6 / 16.5 | 4.8 / 22 |
| | | | 4.8 / 33 |

Nail, W. side 30' Elm, 60' L 91+05

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.7 | 5.6 | 6.1 | -1.3 | -0.6 | | -0.3 | -1.6 | -7.4 | +7.3 | | |
| 6.6 / 40 | 4.7 / 22.5 | 4.2 / 16 | 11.6 / 8 | 10.9 / 5 | 10.3 / 0 | 10.6 / 9 | 11.9 / 11 | 2.9 / 23 | 3.0 / 40 | | |

June 2, 1927 Marks, D. Parks, R. Hassel

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| +6.1 | +7.4 | +8.4 | -0.3 | -.6 | -0.8 | | +2.5 | -1.3 | -0.1 | +10.6 | +10.4 |
| 4.6 / 40 | 3.1 / 22.5 | 2.3 / 19 | 11.0 / 7.5 | 12.3 / 6 | 11.5 / 4 | 10.7 / 0 | 11.2 / 10 | 12.0 / 12 | 10.8 / 13 | 0.1 / 28 | 0.3 / 40 |
| 6.9 | 5.6 | 5.2 | 12.0 | | 15.6 | 15.1 | 14.5 | 15.3 | 15.8 | 12.0 | 2.3 | 3.2 |
| 40 | 22.5 | 17.5 | 13 | | 5 | 4 | 0 | 9 | 10 | 17.5 | 28.5 | 40 |
| +3.8 | +4.5 | +5.3 | +0.4 | -.6 | -0.3 | | -0.3 | -1.6 | +6.3 | +6.1 | |
| 8.9 / 30 | 8.2 / 22.5 | 7.4 / 14 | 12.3 / 7 | 13.5 / 5.5 | 13.0 / 4 | 12.7 / 0 | 13.0 / 9 | 14.3 / 11 | 6.4 / 24 | 6.6 / 30 | |
| +0.7 | +2.7 | +0.5 | -.9 | -.7 | -.3 | | -0.5 | -1.0 | -0.1 | +0.4 | |
| 10.5 / 30 | 10.5 / 22.5 | 10.7 / 13 | 11.6 / 8.5 | 11.9 / 7 | 11.5 / 4 | 11.2 / 0 | 11.7 / 9 | 12.2 / 12 | 11.3 / 14 | 10.8 / 30 | |
| 18.5 | 18.1 | 11.6 | 11.4 | | 11.1 | 11.4 | 14.0 | | 12.0 | 12.3 | |
| 50 | 11 | 9 | 6 | | 0 | 7 | 8 | | 30 | 3 (Ditch) | |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT |
|---|---|---|---|---|---|---|---|---|
| | | 1096.74 | 10.7 | 1086. | | | | |
| 87 | | | | 1096.0 | | | | |
| 86 | | | 6.5 | 1090.2 | | | | |
| | 9.97 | 1099.95 | 6.76 | 1089.98 | | | | |
| 85 | | | 10.3 | 1089.6 | | | | |
| 84 | | | 9.5 | 1090.4 | | | | |
| 83 | | | 6.9 | 1093.0 | | | | |
| 82+50 | | | 4.1 | 1095.9 | | | | |
| B.M. | | | 0.65 | 1099.30 | | | | |
| | 2.06 | 1101.36 | | | | | | |
| 82 | | | 4.1 | 1097.2 | | | | |
| 81 | | | 4.3 | 1097.0 | | | | |
| 80 | | | 4.7 | 1096.6 | | | | |
| 79 | | | 4.7 | 1096.6 | | | | |
| 78 | | | 4.8 | 1096.5 | | | | |

| FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|
| -.4 -3.1 -1.1 -0.5 -0.9 | | -0.1 -.8 | 0.0 +8.3 | |
| 14.7 13.8 11.8 11.2 11.1 / 30 22.5 14 7 5 | 10.7 10.8 11.1 / 0 8 10 | | 10.7 10.4 / 11.5 30 | |
| -4.8 +1.1 +0.5 -1.1 -.5 | | -0.9 -2 | 2+1.6 +2.6 +2.8 | |
| 8.3 5.4 6.0 7.6 7.0 / 30 22.5 12 9 7 | 6.5 7.4 8.7 / 0 8 10 | | 4.9 4.0 3.2 / 14 20 30 | |
| -1.7 -1.7 -1.1 -0.9 | | -0.2 -0.9 | 0.0 +0.6 | |
| 12.0 12.0 11.4 10.5 / 30 22.5 10 6 | 10.3 10.5 11.2 / 0 12 13 | | 10.3 9.7 / 15 30 | |
| +1.7 +1.9 -0.2 -0.6 | | 0.0 -0.4 +0.6 +1.0 | | |
| 8.1 8.6 9.7 10.1 / 30 22.5 8 6 | 9.5 9.5 9.9 8.9 8.5 / 0 11 14 16 30 | | | |
| +2.6 +2.5 +2.0 -0.5 -0.1 | | -0.3 +0.2 +1.7 +3.3 | | |
| 4.3 4.4 4.9 7.7 7.0 / 30 22.5 9 5 3 | 6.9 7.2 6.7 5.2 3.6 / 0 11 13 19 30 | | | shrubs |
| +1.9 +2.7 +1.3 -1.1 -0.3 | | -0.4 -0.6 +0.3 +0.9 | | |
| 1.9 2.8 4.2 5.0 4.4 4.1 / 3.2 30-22.5 16 10 6 5 4 0 | 4.5 4.7 3.8 3.1 / 12 14 15 30 | | | |
| R.P. Wall W. Side 30" Ash, 33' R. 82+33 | | | | |
| +0.9 +0.6 +0.9 -1.1 -0.4 | | +0.5 -0.0 -0.1 +0.5 +0.9 | | |
| 3.2 3.1 3.2 5.2 4.5 / 30 22.5 8 6 4 | 4.1 3.6 4.1 / 0 4 12 | | 4.2 3.6 3.2 / 14 16 30 | |
| +0.1 +0.1 -0.3 -0.6 -0.2 | | -0.4 -0.2 -0.4 0.0 0.0 | | |
| 4.1 4.2 4.6 4.9 4.5 / 30 22.5 6 5 4 | 4.3 3.9 4.5 4.7 4.3 / 0 5 13 15 17 | | 4.3 / 30 | |
| -0.9 -0.9 -0.5 -0.5 -0.8 | | +0.2 -0.3 0.0 +0.1 | | |
| 4.9 4.9 5.2 5.5 4.9 / 30 22.5 9 7 4 | 4.7 4.5 5.0 4.7 4.6 / 0 5 13 17 30 | | | |
| +0.3 +0.3 -0.2 -0.7 -0.2 | | +0.3 -0.4 -0.1 -0.1 -0.5 | | |
| 4.4 4.4 4.9 5.4 4.9 / 30 22.5 8 7 4 | 4.7 4.4 5.1 5.3 4.8 5.2 / 0 5 13 14 16 30 | | | |
| +0.6 +0.6 -0.3 -1.0 -0.3 | | +0.2 -0.3 -0.7 -0.2 -0.1 | | |
| 4.2 4.2 5.1 5.8 5.1 / 30 22.5 9 8 4 | 4.8 4.6 5.1 5.5 5.0 4.9 / 0 5 11 14 16 30 | | | |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT |
|---|---|---|---|---|---|---|---|---|
| | | 1101.36 | | | | | | |
| 77 | | | 5.9 | 1095.46 | | | | |
| | 1.60 | 1096.14 | 6.82 | 1094.54 | 1094 | | | |
| 76 | | | 2.2 | 1093.9 | | | | |
| 75 | | | 2.9 | 1093.2 | | | | |
| 74 | | | 4.1 | 1092.0 | | | | |
| 73 | | | 4.9 | 1091.2 | | | | |
| 72 | | | 5.8 | 1090.3 | | | | |
| | 0.63 | 1090.94 | 6.73 | 1089.41 | | | | |
| 71 | | | 1.4 | 1088.6 | | | | |
| 70 | | | 3.5 | 1086.5 | | | | |
| 69 | | | 7.0 | 1083.0 | | | | |
| 68 | | | 9.5 | 1080.5 | | | | |

| FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|
| +0.9 +0.6 7.0 2 - 4.0 - 0.3 | | +0.1 - 0.9 - 0.8 - 0.1 + 0.3 | | |
| 5.0 5.3 5.7 6.9 6.2 | 5.9 | 5.8 | 6.3 6.7 | 6.0 5.6 |
| 30 22.5 11 9 6 | 0 | 3 | 10 12 | 15 30 |
| T. P. Stone Mon. 76+37.3 | | | | |
| +0.9 - 0.4 - 0.3 - 1.3 - 0.9 | | - 0.7 - 1.1 0.0 | | - 0.3 |
| 1.3 1.6 2.5 3.5 3.1 | 2.2 | 2.9 | 3.3 2.2 | 1.5 |
| 30 22.5 14 11 9 7 | 0 | 9 | 10 13 | 30 |
| +0.6 - 0.2 - 0.9 - 0.5 - 1.0 | | - 0.9 - 1.3 - 0.6 - 0.1 | | |
| 2.3 3.1 3.8 3.4 3.9 | 2.9 | 3.8 | 4.2 3.5 | 3.0 |
| 22.5 16 12 10 7 | 0 | 7 | 9 12 | 30 |
| Hedge | | | | |
| - 0.4 - 0.7 - 1.1 - 0.6 | | - 0.4 - 1.1 - 0.9 - 0.5 | | |
| 4.5 4.8 5.2 4.6 | 4.1 | 4.5 | 5.2 5.0 | 4.6 |
| 23 - 17 10 8 5.6 | 0 | 7 | 11 13 | 30 |
| Hedge +0.2 | | | | |
| - 0.6 - 1.1 - 0.5 | | - 0.6 - 1.5 - 0.8 - 0.6 | | |
| 4.7 5.5 6.0 5.4 | 4.9 | 5.5 | 6.4 5.7 | 5.5 |
| 22.5 - 18 11 10 6 | 0 | 7 | 10 12 | 30 |
| Hedge, | | | | |
| +1.2 - 0.6 - 0.8 - 1.0 - 0.7 | | - 0.6 - 1.5 - 0.9 + 0.9 | | |
| 7.0 6.4 6.6 6.8 6.5 | 5.8 | 6.4 | 7.3 6.2 | 4.9 |
| 22.5 15.5 11 10 7 | 0 | 6 | 11 12 | 30 |
| Hedge, | | | | |
| +0.8 +0.9 - 0.4 - 1 - 0.3 | | - 0.5 - 1.6 + 0.2 | | + 0.9 |
| 1.0 0.5 1.8 2.4 1.7 | 1.4 | 1.9 | 3.0 1.2 | 0.5 |
| 22.5 18 12 10.5 7 | 0 | 6 | 10 12 | 30 |
| Hedge | | | | |
| +0.6 - 0.3 - 1.7 - 0.4 | | - 0.5 - 1.5 10.6 + 1.3 | | |
| 3.0 3.8 5.2 3.9 3.5 | 4.0 | 5.0 2.9 | | 2.2 |
| 22.5 - 13 10 9 7 | 0 | 7 10 12 | | 30 |
| 0.1 +0.8 +2.1 +0.1 - 1.1 - 0.6 | | - 0.4 - 1.2 + 1.7 + 2.9 | | |
| 4.9 4.2 4.9 7.9 8.1 | 7.6 | 7.0 7.4 8.2 | 5.3 | 4.1 |
| 23 19 15 9 7 | 6 | 0 7 9 | 12.5 | 30 |
| +0.3 +2.2 +0.8 - 1.3 - 0.5 | | - 0.5 | - 1.1 +0.2 | + 1.0 |
| 7.2 7.3 9.2 14.8 10.0 | 9.5 | 10.0 | 10.6 9.3 | 8.5 |
| 30 22.5 10 8 6 | 0 | 8 | 10 11.5 | 30 |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR LEFT | CUT OR C. |
|---|---|---|---|---|---|---|---|
| | | 1090.04 | | | | | |
| 67 | | | 11.9 | 1078.1 | | | |
| | 1.42 | 1079.66 | 11.80 | 1078.24 | | | |
| 66 | | | 3.4 | 1076.0 | | | |
| 65 | | | 5.6 | 1074 | | | |
| B.M. | | | 4.90 | 1074.76 | | | |
| | → Reset (See pg 55) | | | | | | |
| 64 | | | 7.2 | 1072.2 | 1072.4 | | |
| | 3.64 | 1073.53 | 9.77 | 1069.89 | | | |
| 63 | | | 3.7 | 1070.3 | | | |
| 62 | | | 4.0 | 1069.5 | | | |
| 61 | | | 4.4 | 1069.1 | | | |
| 60+13.5 | | | 4.9 | 1068.6 | | | |
| | → See pg. 55 | | | | | | |
| 60 | | | 5.0 | 1068.2 | | | |
| 59 | | | 5.2 | 1068.3 | | | |

Culvert flow → Nth

| FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|
| +3.1 +2.7 +1.9 0.9 0.4 | | -.04 -.08 -.01 | | .04 |
| 8.8 9.2 10.0 13.2 12.3 11.9 | | 12.3 12.7 12.0 | | 12.3 |
| 30 22.5 13 8 6 0 | | 8 10 12.5 | | 30 |
| +1.3 +2.1 +1.5 -1.0 -.05 | | -.07 -.02 +.01 | | |
| 11 1.3 1.9 4.4 3.9 | 3.4 | 4.1 | 3.6 | 3.3 |
| 30 22.5 17 11.5 8 | 0 | 10 | 13 | 30 |
| +.01 -.04 -1.4 -.07 | | -.02 -2.2 -.4 -.02 | | |
| 5.7 6.0 7.0 6.3 | 5.6 | 5.8 7.8 6.0 | 5.8 | |
| 22.5 11 10 7 | 0 | 8 12 16 | 22.5 | |
| Spike in S.S. 1.0 24" Hickory 26' L. of 64+53 | | | | |
| .09 -.04 -1.5 -.08 | | -1.1 -2.4 -.02 +.02 | | |
| 7.2 7.6 8.7 7.7 | 7.2 | 8.3 9.6 7.4 | 7.0 | |
| 22.5 10 7 5 | 0 | 8 10 15 | 22.5 | |
| +.07 +.04 -.05 -.03 | | -.03 -1.9 -.02 +2.2 +2.4 | | |
| 2.5 2.8 3.7 3.5 | 3.2 | 3.5 4.6 3.4 | 2.0 1.8 | |
| 22.5 14 10 7 | 0 | 8 11 14 | 18 22.5 | |
| +.05 .00 -.04 | | -.05 -.09 -.05 +.1 | | |
| 3.5 4.0 4.4 | 4.0 | 4.5 4.9 4.5 | 3.0 | |
| 22.5 12 10 | 0 | 10 12 15 | 22.5 | |
| -.04 -.02 -.06 | | -.09 -1 -.06 -.07 | | |
| 4.8 4.6 5.0 | 4.4 | 4.8 5.4 5.0 | 5.1 | |
| 22.5 11 10 | 0 | 9 12 15 | 22.5 | |
| 1064.03 1066.7 | | 1066.4 | | |
| 8.6 8.3 7.7 7.2 7.3 4.2 4.9 4.9 | | 4.9 5.0 7.1 | 6.2 5.5 | 5.5 |
| 200 150 100 50 8 7.7 6.5 0 | | 8.5 11 11.5 | 19 20 | 30 |
| -1.2 -.07 -.14 +.09 | | -.01 -.09 -.16 -.07 -.07 | | |
| 6.2 5.7 6.4 4.9 | 5.0 | 5.1 5.9 6.6 | 5.7 5.7 | |
| 22.5 12 11 7 | 0 | 10 14 17 | 18 30 | |
| -.06 -.09 -.08 -.05 | | -.06 -1 -.09 -.07 | | |
| 5.8 5.6 6.0 5.7 | 5.2 | 5.8 6.2 | 5.6 5.9 | |
| 22.5 9 8.5 7 | 0 | 11 13 | 14 30 | |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT |
|---|---|---|---|---|---|---|---|---|
| | | 1073.53 | | | | | | |
| 58 | | | 4.5 | 1068. | | | | |
| | 3.50 | 1074.45 | 2.58 | 1070.95 | | | | |
| 57 | | | 3.5 | 1070.9 | | | | |
| 56+50 | | | 2.7 | 1071.7 | | | | |
| 56 | | | 3.2 | 1071.2 | | | | |
| 55+44 | ℄ N. + S. Road | | 7.8 | 1069.6 | Caves Road | | | |
| 55 | | | 4.3 | 1070.1 | | | | |
| 54 | | | 4.6 | 1069.8 | | | | |
| 53 | | | 4.6 | 1069.8 | | | | |
| 52 | | | 5.8 | 1068.6 | | | | |
| 51 | | | 7.8 | 1066.6 | | | | |
| | 2.02 | 1068.73 | 7.74 | 1066.71 | | | | |
| 50 | | | 3.0 | 1065.73 | | | | |

| FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|
| +2.0 408 -07 -04 | | -05-07 | +04 +06 | |
| 2.5 3.7 5.2 / 22.5 12 8 | 4.9 4.5 5.0 5.2 / 6 0 10 13 | | 4.1 3.9 / 16 30 | |
| Spike, N. Side Tel. pole, 17.5' R. 57+90 | | | | |
| +13 +4 0 | | +03 -06-09 | -01 0 | |
| 2.2 3.1 3.5 / 22.5 14 6 | 3.5 3.2 / 0 4 | | 4.1 4.4 3.6 3.5 / 12 14 15 22.5 | |
| +1.5 +07 -06-03 | | -07 -07-03 | +14 | |
| 1.7 2.5 3.8 3.5 / 22.5 9 7 5 | 3.2 3.9 / 0 11 | | 4.1 3.5 2.8 / 13 15 22.5 | |
| 1072.2 1072.6 1072.8 | 1072.1 1069.6 1069.0 | | 1068.5 1068.0 1068.0 1068.1 | |
| 2.2 1.8 1.6 / 150 100 65 | 2.3 4.8 5.4 / 50 0 50 on Pipe | | 5.9 6.4 6.4 6.3 / 100 150 200 250 | |
| +19 +7 -01 -07 | -02 | | -03 -1.0 +9 | |
| 2.4 3.0 4.4 5.0 / 22.5 13 12 10 | 4.5 4.3 / 8 0 | | 4.6 5.3 4.3 3.4 / 9 13 15 22.5 | |
| 0 -4-08-03 | | | 0 -02-06-03-08 | |
| 4.6 5.0 / 22.5 11 | 5.4 4.9 4.6 / 9 5 0 | | 4.6 4.8 5.2 4.9 3.4 / 2 9 12 14 22.5 | |
| +03 0 -09 -04 | | +04 -05 -09-02 | +03 | |
| 4.3 4.6 5.5 5.0 4.6 / 22.5 10 8 5 0 | 4.4 / 3 | 5.1 5.5 4.8 4.3 / 11 13 15 22.5 | | |
| +03 -02 -1 -13 | | +01 -04 -09-02 | +1 | |
| 5.5 6.0 6.8 6.1 5.8 / 22.5 9 7 4 0 | 5.7 / 4 | 6.2 6.7 6.0 5.7 / 11 13 15 22.5 | | |
| +12 +06-09 -04 | | +0.3 -02 | -07-01+06 | |
| 6.6 7.2 8.7 8.2 7.8 / 22.5 10 8 5 0 | | 7.5 8.0 8.5 7.9 7.2 / 5 12 14 15 22.5 | | |
| -02 -07 -1.2 -04 | | +0 1 -0 3 | -1 1 -0 3 +0 1 | |
| 3.3 3.7 4.2 3.4 3.0 / 22.5 9 7 5 0 | 2.9 / 4 | 3.3 4.1 3.3 2.9 / 10 14 15 22.5 | | |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT |
|---|---|---|---|---|---|---|---|---|
| | | 1068.73 | | | | | | |
| 49 | | | 4.4 | 1064.3 | | | | |
| 48 | | | 6.7 | 1062 | | | | |
| 47 | | | 4.0 | 1057.7 | | | | |
| | 1.02 | 1058.71 | 11.04 | 1057.69 | | | | |
| 46 | | | 3.0 | 1055.7 | | | | |
| 45+08.7 | | 15" Conc. Inv. Pipe | | | | | | |
| | | FL | 6.8 | 1051.91 | | | | |
| | | | 7.0 | 1051.71 | | | | |
| 45 | | | 4.6 | 1054.1 | | | | |
| 44 | | | 4.1 | 1054.6 | | | | |
| | 6.58 | 1061.87 | 3.42 | 1055.29 | | | | |
| | | | 3.57 | 1058.30 | | | | |

| AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|
| -.84 -.03 -1.6 -.04 | +.02 | -.02 -1.2 +06 +.09 | |
| 4.8 4.7 / 6.0 4.8 4.4 / 4.2 / 4.6 5.6 3.8 3.5 | | | |
| 22.5 9 / 7 5 0 / 3.5 | | 10 13 15 22.5 | |
| +.19 +.1 -3.4 -.03 | | -.08 -.20 +.07 +1.7 | |
| 6.3 6.2 / 9.1 7.2 6.7 | | 7.5 8.7 6.0 5.0 | |
| 22.5 12 8 / 4.5 0 | | 10 13 16 22.5 | |
| +1.9 +2.4 +1.8 +.1 -1.5 -.04 | +.03 | -.03 -1.2 +1.1 +2.4 | |
| 9.1 8.1 9.2 / 10.0 12.5 11.4 / 11.0 / 10.7 | | 11.3 12.2 9.9 8.6 | |
| 30 18 14 / 11 7 4 / 0 / 2.5 | | 10 12 15 22.5 | |
| -.09 -.01 -.04 -.06 | | -.04 -.07 -.05 -.03 | |
| 3.9 3.1 / 3.4 3.6 3.0 | | 3.4 3.7 / 3.5 3.3 | |
| 30 17 / 8 5 0 | | 9 13 / 14 22.5 | |
| 1051.9 | | 1051.7 | |
| 6.1 6.4 / 6.8 | | 7.0 7.0 / 8.4 | |
| 200 100 / 8.0, | | 12.3 100 / 200 | |
| -1.4 -1.3 +.01 | | -.04 -1.2 -.05 -1.3 | |
| 6.0 6.1 / 4.5 4.6 | | 5.0 5.8 / 5.1 5.9 | |
| 22.5 9 / 4 0 | | 9 12 / 15 22.5 | |
| +1.5 +.1 -.08 -.1 -.04 | | -.04 -1.3 -.09 -.04 | |
| 2.6 3.1 / 4.9 5.1 4.5 4.1 | | 4.5 5.4 5.0 4.5 | |
| 22.5 13 / 10 8 4 0 | | 11 13.5 15 22.5 | |

W. Root 30" Ash 45' R. 40+10

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | C. | RIGHT |
|---|---|---|---|---|---|---|---|---|
| | 1.39 | 1059.69 | | 1058.30 | | | | |
| 43 | | | 3.6 | 1056. | | | | |
| 42 | | | 2.5 | 1057.1 | | | | |
| 41+60 | | | 1.6 | 1058. | | | | |
| 41 | | | 2.9 | 1056.7 | | | | |
| 40+25 | | | 3.3 | 1056.3 | | | | |
| 40 | | | 4.2 | 1058.4 | | | | |
| 39 | | | 9.9 | 1049.7 | | | | |
| | 1.87 | 1050.02 | 11.54 | 1048.15 | | | | |
| 38 | | | 3.9 | 1046.1 | | | | |
| 37 | | | 6.9 | 1043.1 | | | | |
| 36 | | | 10.4 | 1039.6 | | | | |
| 35+55 | | | 12.9 | 1037.1 | | | | |
| | 0.63 | 1039.20 | 11.45 | 1038.57 | | | | |
| 35 | | | 6.9 | ~~1032.5~~ | 1032.3 | | | |
| | 0.88 | 1028.61 | 11.47 | 1027.73 | | | | |
| 34 | | | 4.2 | 1024.4 | | | | |

| FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|
| B. M., Right 40+10 | | | | |
| +02 -02 -07 +01 | | +01 | -05 -1.2 | -03 -01 |
| 3.4 3.8 4.3 3.5 3.6 | | 3.5 | 4.1 4.8 | 3.9 3.7 |
| 22.5 10 8 4 0 | | 4 | 11.5 15 | 17 22.5 |
| +09 +02 -06 -04 | | +03 | -01 -07 +02 +04 | |
| 1.6 2.3 3.1 2.9 2.5 | | 2.1 | 2.6 3.2 2.3 2.1 | |
| 22.5 8.5 5 3 0 | | 5 | 11 14.5 17 22.5 | |
| +03 -01 -05 -04 | | +04 | -02 -07 +01 +07 | |
| 2.6 3.0 3.7 3.3 2.9 | | 2.5 | 3.1 3.6 2.8 2.1 | |
| 22.5 6 5 3 0 | | 5 | 12 14.5 16 22.5 | |
| -3 -1.4 -4 | | | +.2 -04 -9 -1 +04 | |
| 4.5 4.8 5.6 4.6 4.2 | | | 4.0 4.6 5.1 4.3 3.8 | |
| 22.5 10 6.5 4 0 | | | 2.5 9 11 13 22.5 | |
| +2.7 +2.5 +.02 -07 -03 | | | +02 -.03 +1.0 +3.2 +3.1 | |
| 2.2 2.4 9.7 10.6 10.2 | | 9.9 | 9.7 10.2 10.9 6.7 6.8 | |
| 30 24 8 6 4 | | 6 | 3 10 12 19 22.5-30 | |
| | | +0.3 | -0.4 -1.2 +1.2 +1.5 +1.2 | |
| 2.8 3.3 4.6 4.2 3.9 | | 3.6 | 4.3 5.1 2.7 2.4 2.7 | |
| 30 8 6 4 0 | | 4 | 11 13 18 22.5 30 | |
| 4.3 4.0 6.9 8.2 7.3 | 6.9 | 6.7 | 7.5 8.7 5.5 5.2 30 | |
| 30 12.5 7 6 4 | 0 | 3 | 10.5 12 16 22.5 30 | |
| 7.6 7.6 7.1 12.2 10.5 | 10.4 | | 10.7 11.7 8.7 8.5 8.3 | |
| 30 18 14 7 4 | 0 | | 10 12.5 16 22.5 30 | |
| 0.0 9.0 7.0 6.9 | | 6.6 | 7.9 6.9 6.5 1.7 1.7 | |
| 30 18.5 8 5 0 | | 8 | 11.5 12.5 15 21.5 30 | |
| 1.5 0.7 4.5 4.2 4.0 4.2 | | | 5.3 4.4 2.1 1.9 1.6 | |
| 30 15 11.6 0 4 10 | | | 13 14 18.5 22.5 30.0 | |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT C. RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1028.61 ✓ | | | | | | | | |
| 33 | | | 7.6 | 1121. | | 23 8.3/-8 8.7/6 7.7/4 7.6/0 7.4/5 8.0/10 8.6/12.5 8.1/15 22.5 | | | | |
| 32 | | | 10 | 1018.6 | | 20 11.3/14 10.9/8 10.6/6 10.2/3 10.0/0 9.6/4 10.1/9 10.5/11 9.8/14 22.5 | | | | |
| 31 | | | 11.8 | 1016.8 | | 13.2/20 12.3/6 12.4/5 12.1/3 11.8/0 11.3/3 11.4/10 11.8/11 11.8/14 22.5 | | | | |
| | 5.04 | 1021.68 | 11.97 | 1016.64 | ✓ | 1014.9 1015.3 | | | | |
| 30+23.5 | | 13" Seg. C.I. Pipe | 5.4 | 1016.28 | | Swale 8.8/160 Ditch 8.2/100 7.7/50 6.8/1.2 F.L. 5.4/0 6.4/14.8 F.L. | | | | |
| 30 | | | 5.4 | 1016.2 | | 7.2/23.5 Fence 6.7/9 5.7/2 5.4/0 4.7/6 4.9/13 5.6/16 5.4/17 6.1/22.5 | | | | |
| 29 | | | 2.6 | 1019. | | 8.1/30 6.0/14 2.9/4 2.5/3 2.8/2 2.6/0 2.2/6 2.4/12.5 2.9/15.5 2.4/16.5 2.0/22.5 0.0/30 | | | | |
| | 11.34 | 1033.02 | 0.00 | 1021.68 | ✓ | | | | | |
| 28 | | | 6.8 | 1026.2 | | 14.7/48 8.0/24 4.6/12 8.7/4 6.8/0 6.3/6 6.6/12 7.7/15 2.6/22.5 +3.0/30 +4.0/40 | | | | |
| | 8.22 | 1038.67 | 2.57 | 1030.45 | ✓ | | | | | |
| 27 | | | 7.9 | 1030.7 | | 17.5/48 14.0/29 6.5/7 8.5/3 7.9/0 7.3/6 7.9/13 8.6/16 3.0/23.5 3.0/30 | | | | |
| 26+65 | | | 7.2 | 1031.4 | | | | | | |
| 26 | | | 7.8 | 1030.8 | | 7.8/29 8.1/16 7.7/8 8.4/6 8.3/4 7.8/0 7.4/4 7.8/10 8.4/13.5 7.6/14 7.3/22.5 | | | | |
| | 4.92 | 1034.84 | 8.75 | 1029.92 | ✓ | Spike, N. Side Tel. Pole 14.5'R. 23+88 | | | | |
| 25 | | | 4.1 | 1030.7 | | 4.2/25 4.2/12 4.7/8 5.4/7 4.3/3 4.1/0 3.9/4 4.1/10 4.8/12 4.5/13.5 4.9/22.5 | | | | |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT |
|---|---|---|---|---|---|---|---|---|
| | | 1034.84 | | | | | | |
| 24 | | | 5.4 | 1029.4 | | | | |
| | 1.54 | 1031.46 | | 1029.92 | | | | |
| 23 | | | 4.2 | 1027.2 | | | | |
| | 1.47 | 1031.39 | | 1029.92 | | | | |
| 22 | | | 8.6 | 1022.7 | | | | |
| 21 | | | | | chart | | | |
| | 1.10 | 1021.21 | 11.28 | 1020.11 | | | | |
| 21 | | | 5.8 | 1015.4 | | | | |
| | 1.83 | 1011.09 | 11.95 | 1008.26 | | | | |
| 20 | | | 4 | 1007. | | | | |
| 19 | | | 7.9 | 1003.1 | | | | |
| | 4.35 | 1005.25 | 10.19 | 1000.90 | | | | |
| 18 | | | 4.1 | 1001.1 | | | | |
| 17 | | | 5.7 | 999.5 | | | | |
| 16 | | | 5.3 | 9999 | | | | |
| 15+05.3 | | 5½' | 2.8 Stone | 1002.95 Arch | | | | |
| | | | 5.25 | 1000.00 | | | | |

1031.38
8.4
22.79

| STA. | FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|
| | 2.8 / 24 ; 3.6 / 10.5 | 6.2 / 7 ; 5.6 / 4 ; 5.4 / 0 | 5.2 / 4 | 5.7 / 9 ; 6.2 / 11 ; 5.6 / 13.5 ; 5.3 / 22.5 | |
| | 3.2 / 30 ; 3.2 / 9 ; 5.3 / 6 | 4.6 / 4 ; 4.2 / 0 | | 4.8 / 9 ; 5.4 / 11 ; 4.3 / 12 ; 4.2 / 22.5 ; 4.4 / 30 | |
| | 6.7 / 30 ; 6.0 / 16.5 ; 9.0 / 12.5 | 10.6 / 10 ; 9.1 / 7 ; 8.6 / 0 | | ~~8.6~~ 8.8 / 6 ; 9.9 / 9 ; 4.7 / 16 ; 4.5 / 22.5 ; 4.0 / 30 | |
| | 1021.6 9.8 / 30 | 1022.2 9.2 / 22.5 | | 1022.4 9.0 / 18 | 1022.7 8.7 / 30 |
| | 7.2 / 13 ; 6.3 / 9 | 1015.4 5.8 / 0 | | 6.0 / 4.6 ; 7.1 / 7.5 | |
| | 0.0 / 30 ; 2.4 / 22.5 ; 5.2 / 15 | 4.0 / 11 ; 4.0 / 0 | 3.7 / 4 ; 4.3 / 6.5 | 3.8 / 8 ; 3.7 / 15 ; 2.0 / 17 ; 2.0 / 22.5 ; 2.6 / 30 | |
| | 9.5 / 25 ; 8.5 / 15 | 8.9 / 12 ; 8.5 / 11 ; 7.9 / 0 | | | 10.0 / 24 |
| | 5.0 / 22.5 ; 4.9 / 12 | 4.9 / 9 ; 4.5 / 6 ; 4.1 | | 4.5 / 6 ; 5.0 / 7 ; 4.9 / 7.5 ; 5.0 / 22.5 | |
| | 6.2 / 22.5 ; 6.1 / 13 | 6.1 / 11 ; 5.9 / 7 ; 5.7 / 0 | | 5.7 / 8 ; 6.0 / 12 ; 6.0 / 22.5 | |
| | 6.1 / 22.5 | 6.1 / 12 ; 6.4 / 10 ; 5.6 / 7 ; 5.3 / 5 | | | 6.8 / 22.5 |
| | 990.9 | | | 991.7 | 10.1 / 24 |
| | 14.4 − 9.7 = 4.7 ; 9.7 − 3.6 = 6.1 ; 5.8 | 2.8 | 2.6 − 6.9 = 14.1 ; 13.3 | | 11.6 |

Spike, E root W. Cherry, Left. 15+60

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 100525 | | | | | | | | | | |
| | 10.77 | 1016.02 | 0.00 | 100525 | | | | | | | | |
| 14 | | | 4.6 | 1011.4 | | | | | | | | |
| | 11.53 | 1027.06 | 0.29 | 1015.73 | | | | | | | | |
| 14 | | | | | | | | | | | | |
| 13 | | | 7.0 | 1020.2 | | | | | | | | |
| | 10.76 | 1037.42 | 0.60 | 1026.66 | | | | | | | | |
| 13 | | | | | | | | | | | | |
| 12 | | | 9.6 | 1027.8 | | | | | | | | |
| | 10.56 | 1043.49 | 4.49 | 1032.93 | | | | | | | | |
| 11 | | | 9.9 | 1033.5 | | | | | | | | |
| 10 | | | 6. | 1037.5 | | | | | | | | |
| B.M. | | | 5.55 | 1037.94 | | | | | | | | |
| 9 | | | 10.4 | 1033. | | | | | | | | |
| | 1.73 | 1033.17 | 12.05 | 1031.44 | | | | | | | | |
| 8 | | | 7.0 | 1026.1 | | | | | | | | |
| 7 | | | 12.4 | 1021.7 | 1020.77 | | | | | | | |

1011.4

0.7 / 18 — 5.4 / 6 — 4.5 / 5 — 4.6 / 0

4.6 / 10 — 5.4 / 12

1025.8 — 1.5 / 50

1025.2 — 2.1 / 31.5

1017.7 — 9.6 / 18

1018.7 — 8.6 / 24.5

1017.6 — 9.7 / 40

1020.2

8.4 / 9 — 7.2 / 6 — 7.0 / 0

7.4 / 8. — 8.2 / 10 — 4.3 / 13 — 3.7 / 22.5 — 5.0 / 30

1030.3 — 7.1 / 50

1028.8 — 8.6 / 23

4.4 / 40-28 — 4.9 / 17.5 — N.3 / 10 — 10.1 / 7 — 9.6 / 0 — 10.1 / 7 — 10.6 / 9 — 7.1 / 12.5 — 5.8 / 22.5 — 5.7 / 30

6.9 / 30 — 7.0 / 17.5 — 11.7 / 11 — 10.4 / 7 — 9.9 / 0 — 10.3 / 7 — 10.9 / 9 — 8.3 / 10.5 — 8.1 / 22.5 — 8.5 / 30

3.2 / 30 — 4.9 / 12 — 7.3 / 9 — 6.5 / 6 — 6.0 / 0 — 6.6 / 6 — 7.0 / 9.5 — 6.0 / 12 — 6.2 / 22.5 — 6.6 / 30

R.P. Mail, N.W. side 15" Maple, 40' Right of 9+25.

6.9 / 30 — 7.6 / 12.5 — 11.2 / 9 — 10.7 / 6 — 10.4 / 0 — 10.6 / 5 — 11.2 / 7.5 — 7.9 / 10 — 7.3 / 22.5 — 7.3 / 30

1.6 / 30 — 3.2 / 14.5 — 7.6 / 10 — 7.0 / 9 — 7.0 / 0 — 7.2 / 4 — 7.7 / 6.5 — 4.7 / 7 — 3.2 / 22.5 — 3.1 / 30

8.1 / 30 — 9.4 / 12.5 — 13.1 / 9.5 — 12.5 / 7.5 — 12.4 / 0 — 12.5 / 5 — 13.2 / 6.5 — 10.6 / 9 — 10.7 / 22.5

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1033.17 | | | | | | | | | | |
| | 3.64 | 1025.06 | 11.75 | 1021.42 | | | | | | | | |
| 6 | | | 9.8 | 1015.2 | | | | 2.7 / 30 — 3.8 / 17.5 — 10.7 / 9.5 | 9.8 / 8 | 3.8 / 0 | 10.3 / 7 — 7.0 / 9.5 | 7.3 / 22.5 — 8.3 / 30 |
| | 3.65 | 1016.51 | 12.20 | 1012.86 | | | | | | | | |
| 5 | | | 7.4 | 1009.1 | | | | 1.0 / 30 — 1.8 / 19 — 8.1 / 11 | 7.6 / 9 | 7.4 / 0 — 7.7 / 0 | 8.2 / 8 — 3.8 / 12 | 3.9 / 22.5 — 4.4 / 30 |
| 4 | | | 10.5 | 1006.0 | | | | 8.6 / 22.5 — 8.5 / 17 — 11.6 / 11.5 | 10.8 / 8 | 10.5 / 0 | 11.1 / 6 — 12.0 / 8.5 | 10.0 / 12 — 8.5 / 22.5 |
| | 1.32 | 1007.88 | 9.95 | 1006.56 | | | | | | | | |
| 3 | | | 4.1 | 1003.8 | | | | 5.2 / 22.5 — 4.3 / 14 — 5.0 / 12 | 4.3 / 9 | 4.1 / 0 — 4.6 / 5 | 5.2 / 8 — 4.8 / 9 | 2.6 / 16 — 2.7 / 22.5 |
| 2 | | | 5.8 | 1002.1 | | | | 6.7 / 22.5 — 6.4 / 13 — 5.8 / 12 | 5.8 | | 6.3 / 5 — 7.0 / 6.5 | 6.7 / 8 — 7.4 / 22.5 |
| 1+86.5 | | Culvert | F. FL. | | 82 997.68 / 83 999.58 | | | 999.7 / 8.2 / 14.0 | | 999.6 / 8.3 / 6.0 — 10.1 / 50 | | |
| 1 | | | 3.8 | 1004.1 | | | | 4.6 / 12.5 | 4.1 / 11 | 1004.1 / 3.8 / 0 | 4.2 / 3.5 — 4.8 / 6 | 1.5 / 13 — 2.5 / 22.5 |
| | 7.62 | 1011.45 | 4.05 | 1003.83 | | | | | | | | |
| 1 | | | | | | | | 1010.8 / 9.7 / 3.2 — 1009.5 / 2.0 / 24 | | | | 9.7 / 3.2 — 2.0 / 24 |
| 0+35 | | | 4.2 | 1007.2 | | | | | | | | |
| 0 | | | 4.7 | 1006.7 | | | | 1006.7 / 4.8 / 150 — 1011.1 / 0.4 / 100 — 1011.4 / 0.3 / 97 — +3.2 / 1010.0 / 1.5 / 50 | 0.0 / 4.7 / 0 | −2.5 / 1004.3 / 7.2 / 50 — 1001.0 / 10.5 / 100 | | |
| 0-50 | | | 5.2 | 1006.2 | | | | | | | | |
| 0-100 | | | 5.9 | 1005.5 | | | | | | | | |
| 0-150 | | | 6.1 | 1003.3 | | | | | | | | |
| 0-200 | | | 5.0 | 1006.4 | | | | | | | | |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1011.45 ✓ | | | | | | | | | | |
| 0-217 | | | 5.0 | 1006.4 | | | | | | | | |
| 0-250 | | | 7.2 | 1004.2 | | | | | | | | |
| 0-300 | | | 12.6 | 998.8 | | | | | | | | |
| | | | | | | | | | | | | |
| B.M. | | | 3.05 | 1008.40 ✓ | | | | | | | | |

Spike + Washer, S.E. side 18" Maple 1st tree west of Corner on South side of Road

# CULVERT 5

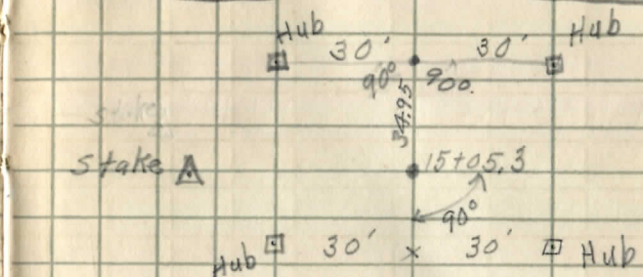
Apr. 10, 1928, N.C. Marks, D. Parks, C. Rand
Fair.

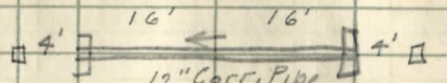


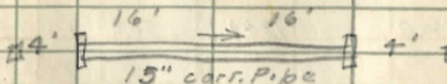
| STA. | B. S. | H. I. | F. S. | ELEVA. Present | GRADE Proposed | CUT OR FILL LEFT | CUT OR FILL RIGHT | C. |
|---|---|---|---|---|---|---|---|---|
| 1+86.5 | 2.6 | 1004.7 | | 1002.1 | 1004.1 | | | F.L. Grade Grade Rod |
| 15+05.3 | | | | | | | | |
| 30+23.5 | 4.2 | 1020.5 | | 1016.3 | 1018.4 | | | F.L. Grade Gr. Rod |
| 45+03 | 4.8 | 1025.9 | | 1054.1 | 1055.1 | | | |
| 60+13.5 | 3.9 | 1072.5 | | 1068.6 | 1069.6 | | | |

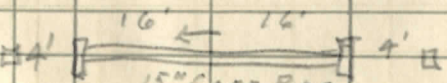
North Side

| STA. | FILL RIGHT | AREA EXCAVA. | AREA EMBANK. |
|---|---|---|---|
| 10+00.00 | 4.70 | | |
| | Cut 2.0 | | |
| 10+14.5 | 6.0 | | |
| | Cut 2.0' | | |
| 10+51.9 | 7.0 | | |
| | Cut 2.0' | | |
| 10+67.0 | 5.5 | | |
| | Cut 1.0' | | |




South Side

| STA. | CUT EXCAVA. | CUT EMBANK. |
|---|---|---|
| 9+99.00 | 5.70 | |
| | Cut 2.0 | |
| 10+15.3 | 5.2 | |
| | Cut 2.0' | |
| 10+51.4 | 7.5 | |
| | Cut 1.5' | |
| 10+67.2 | 5.3 | |
| | Cut 2.0 | |

Stake A

Apr. 11, 1928 W.C. Marks, D. Parks, C. Rand
Fair, Windy

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT |
|---|---|---|---|---|---|---|---|---|
| 87+23.3 | 2.0' | 1087.6 | | 1085.6 | 1087.1 | | | |
| 93+60.7 | | | | | | | | |
| 97+50.5 | 4.4 | 1052.2 | | 1047.8 | 1050.0 | | | |
| 100+30 | 4.9 | 1054.0 | | 1049.1 | 1050.0 | | | |

N. Side

| FILL | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|
| 1083.0 4.6 | 16' | 16' | 4' | 1083.5 4.1 |
| Cut 1.0 | | 15" Corn Pipe | | Cut 2.0' |
| | 27.0' | 28.0' | | |
| | | 28.0' | | |
| | 27.0' | | | |
| 1046.5 5.7 | 16' | 16' | 4' | 1046.0 6.2 |
| Cut 1.5' | | 12" Corr. Pipe | | Cut 1.5' |
| 1047.0 7.0 | 16' | 16' | 4' | 1046.3 7.7 |
| Cut 2.0' | | 12" Corr. Pipe | | Cut 0.0 |

S. Side

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Hub ⊗ 30' ℄ 30' Hub ⊗ (90° 90°) | | | 16+00 |
| 15+53.0 | | | | | | | | | ⊗ 50' 90° ▲ 90° 50' ⊗ | | | |
| | | | | | | | | | ⊗ 30' 30' ⊗ | | | 15+40.25 |
| B.M. | 5.82 | 1005.82 | | 1000.00 | | | | | Spike, E. Root, Wildcherry, Left of 15+60 | | | |
| | | | 12.8 | 993.0 | | | | | Creek Bed, 130' Left (North) | | | |
| | | | 13.0 | 992.8 | | | | | " " 50 Left, (Sta 15+00 | | | |
| | | | 5.3 | 1000.5 | | | | | ℄ Road 15+53 | | | |
| | | | 13.8 | 992.0 | | | | | Creek Bed 100' Right (South) at Sta. 15+30 | | | |
| | | | | | Flow Line | Grade Rod | Cut | | | | | |
| | | | 7.57 | 998.25 | 992.25 | 13.57 | 6.0' | | Top of stake, 50' Right, (South) | | | |
| | | | 7.07 | 998.75 | 992.75 | 13.07 | 6.0' | | Top of stake, 50' Left, (North | | | |

# Grades

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR LEFT | C. |
|---|---|---|---|---|---|---|---|
| B.M | 4.47 | 1012.87 | | 1008.40 | | | |
| 1 | | | | | 1005.00 | 7.87 | |
| 2 | | | | | 1004.00 | 8.87 | |
| 3 | | | | | 1004.50 | 8.37 | |
| T.P. | 12.33 | 1020.10 | 5.10 | 1007.77 | | | |
| 4 | | | | | 1008.00 | 12.10 | |
| 5 | | | | | 1013.00 | 7.10 | |
| T.P | 10.45 | 1028.21 | 2.34 | 1017.76 | | | |
| 6 | | | | | 1018.00 | 10.21 | |
| 7 | | | | | 1023.00 | 5.21 | |
| T.P. | 13.41 | 1040.42 | 1.20 | 1027.01 | | | |
| 8 | | | | | 1028.00 | 12.42 | |
| 9 | | | | | 1033.00 | 7.42 | |
| B.M | | | 2.44 | 1037.98 | | | |
| | 5.12 | 1043.06 | | 1038.94 | Record | | |
| 10 | | | | | 1035.35 | 7.71 | |
| 11 | | | | | 1032.4 | 10.66 | |
| 12 | | | | | 1026.80 | 16.26 | |
| TP | 3.85 | 1032.78 | 14.13 | 1028.93 | | | |
| 13 | | | | | 1021.20 | 11.58 | |
| 14 | | | | | 1015.60 | 17.18 | |
| T.P. | 0.43 | 1016.91 | 1.30 | 1016.48 | | | |
| TP | 2.81 | 1009.92 | 1.80 | 1001.11 | | | |
| BM | | | 4.61 | 999.31 | | | |
| | | | | 1000.00 | Record | | |



Rainy

June 7 1928 D. Parks, R. Hassel, C. Rand

| FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|
| Spike & Washer S.E. Side, 18" Maple, 18" Tree Mat Corner | | | | |
| 2.04 C5.8 33.0 F3.1 | | | 7.82 | C0.1 E4.5 |
| 12.01 20.0 | | | 11.90 | F3.0 19.5 |
| 10.02 F1.7 22.0 | | | 7.53 | C0.8 23.0 |
| Left Slope Stake Sta 4 | | | | |
| 12.33 F0.2 26.0 | | | 11.71 | C0.6 23.5 |
| 4.82 C7.3 28.5 | | | 7.58 | F0.2 23.0 |
| Slope Stake Rt Side Sta 6 | | | | |
| 5.34 C4.9 31.0 | | | 10.45 | F0.8 23.0 |
| 3.41 C1.8 28.5 | | | 5.62 | F0.4 23.6 |
| 8.56 C3.9 29.5 | | | 10.04 | C2.4 27.0 |
| 3.70 C3.7 29.5 | | | 4.05 | C3.4 28.5 |
| R.P. Nail N.W. Side, 15" Maple 40' Rt of Sta. 9+85 | | | | |
| 3.41 C4.3 31.0 | | | 6.42 | C1.3 26.0 |
| 6.87 C3.8 30.5 C5.5 | | | 8.20 | C2.5 E2.0 |
| 10.77 | | | 12.01 | C4.3 35.0 |
| Slope Stake Left of Sta 13 | | | | |
| 3.85 C7.7 37.0 | | | 10.40 | C1.2 27.0 |
| 7.73 C9.5 38.0 | | | 14.65 | C2.5 29.0 |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | C. | RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BM | 5,37 | 1043.31 | | 1037.94 | | | | | | | | |
| 10 | | | | | 1035.35 | 7,96 | | 3.70 | C 4.3 / 31.0 | | 6.28 | C 1.3 / 26.0 |
| 11 | | | | | 1032.4 | 10.91 | | 7.14 | C 3.8 / 30.5 | | 8.99 | C 2.5 / 28.0 |
| 12 | | | | | 1026.80 | 16.51 | | 11.05 | C 5.5 / 34.5 | | 12.26 | C 4.3 / 35.0 |
| TP | 3.97 | 1032.87 | 14.41 | 1028.90 | | | | | | | | |
| 13 | | | | | 1021.20 | 11.67 | | 3.97 | C 7.1 / 37.0 | | 10.53 | C 1.2 / 27.0 |
| 14 | | | | | 1015.60 | 17.27 | | 7.85 | C 9.5 / 38.0 | | 14.78 | C 2.3 / 27.0 |
| TP | 0.36 | 1017.42 | 15.81 | 1017.06 | | | | | | | | |
| TP | 2.97 | 1004.84 | 16.35 | 1001.87 | | | | | | | | |
| | | | 4.76 | 999.28 | | | | | | | | |
| | | | | 1000.00 | Record | | | | | | | |
| | 4.30 | 1004.30 | | 1000.00 | | | | | | | | |
| 16 | | | | | 1004.40 / 999.9 | +0.1 / +4.40 | | Cloudy, Windy | | | | |
| 17 | | | | | 1000.73 / 999.5 | 3.56 / 4.50 | | June 26, 1928 P. Parks, C. Rand, R. Hussel | | | | |
| TP | 7.55 | 1009.29 | 2.56 | 1001.74 | | | | | | | | |
| 18 | | | | | 1000.93 / 1001.1 | 8.36 / 8.16 | | 4.91 | F0.5 F5.0 / 23.0 | | 5.53 | F5.6 / 23.5 |
| 19 | | | | | 1005.0 / 1005.1 | 4.29 / 4.19 | | 4.90 | F0.1 F1.8 / 20.5 | | 5.27 | F1.7 F0.5 / 20.5 |
| 20 | | | | | 1011.00 / 1007.0 | +1.71 / 2.29 | | 8.84 | F0.4 F0.5 / C2.5 / 19.0 | | 9.83 | F1.6 F1.5 / 22.0 |
| | 12.18 | 1020.99 | 0.93 | 1008.81 | | | | 7.22 | F2.9 / 19.0 | | 7.67 | F3.4 / 20.5 |
| | 8.20 | 1027.80 | 0.94 | 1019.60 | | | | 0.31 | F2.0 / 20.5 | | 0.0 | F1.7 / 20.5 |
| 21 | | | | | 1017.00 / 1016.9 | 10.80 / 10.90 | | 5.98 | C 4.8 / 30.5 | | 4.88 | C 5.9 / 31.5 |
| 22 | | | | | 1023.0 / 1022.9 | 4.80 / 4.90 | | 2.64 | C 2.1 / 26.0 | | 0.28 | C 4.5 / 29.0 |
| | 6.37 | 1032.89 | 1.59 | 1026.52 | | | | 3.76 | C 1.1 / 24.0 | | 5.18 | F0.3 / 22.0 |
| 23 | | | | | 1027.72 | 4.82 | | | | | | |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1032.37 | | | | | | | | | | |
| 24 | | | | | 1034.00 | 2,57 | | | | | | |
| | 5,62 | 1036,94 | 1,94 | 1030,63 | | | | | | | | |
| 25 | | | | | 1031,00 | 5,25 | | | | | | |
| 26 | | | | | 1032,00 | 4,25 | | | | | | |
| | 9,06 | 1040,59 | 4,72 | 1031,53 | | | | | | | | |
| 27 | | | | | 1030,30 | 10,29 | | | | | | |
| 28 | | | | | 1025,90 | 14,69 | | | | | | |
| | 1,97 | 1026,89 | 16,47 | 1024,12 | | | | | | | | |
| 29 | | | | | 1021,50 | 4,59 | | | | | | |
| | 4,56 | 1020,84 | 9,81 | 1016,28 | | | | | | | | |
| 30 | | | | | 1018,48 | 2,36 | | | | | | |
| 31 | | | | | 1018,40 | 2,44 | | | | | | |
| | 9,35 | 1027,70 | 3,49 | 1018,35 | | | | | | | | |
| 32 | | | | | 1019,70 | 7,00 | | | | | | |
| 23 | | | | | 1021,84 | 4,86 | | | | | | |
| | 16,15 | 1042,77 | 0,08 | 1026,12 | | | | | | | | |
| 34 | | | | | 1027,00 | 15,77 | | | | | | |
| 35 | | | | | 1033,50 | 9,27 | | | | | | |
| | 9,84 | 1050,91 | 1,70 | 1041,07 | | | | | | | | |
| 36 | | | | | 1039,38 | 11,53 | | | | | | |
| 37 | | | | | 1044,88 | 6,91 | | | | | | |
| 38 | | | | | 1048,00 | 2,91 | | | | | | |
| | 11,94 | 1061,08 | 1,77 | 1049,14 | | | | | | | | |
| 39 | | | | | 1052,00 | 9,08 | | | | | | |

| FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|
| 0,36 | C2,2 / 25,5 | | 2,74 | F0,2 / 22,5 |
| 5,35 | F0,1 / 22,5 | | 6,13 | F0,9 / 22,5 |
| 5,14 | F0,9 / 21,5 | | 4,72 | F0,5 / 22,5 |
| 12,86 | F2,6 / 20,0 | | 4,60 | C5,7 / 32,0 |
| 15,86 | F1,11 / 23,5 | | 3,61 | C11,1 / 40,5 |
| 11,45 | F6,7 / 24,0 | | 6,77 | F1,9 / 21,5 |
| 5,88 | F3,5 / 21,0 | | 4,76 | F2,4 / 20,0 |
| 5,08 | F2,6 / 19,0 | | 4,28 | F1,8 / 21,0 |
| 9,35 | F2,7 / 18,5 | | 8,36 | F1,4 / 22,5 |
| 6,24 | F1,4 / 17,5 | | 6,00 | F1,1 / 21,5 |
| 15,25 | C0,5 / 24,5 | | 15,62 | C0,2 / 28,0 |
| 3,92 | C5,7 / 32,0 | | 4,91 | C4,4 / 30,5 |
| 9,18 | C2,4 / 28,0 | | 8,88 | C2,7 / 27,0 |
| 4,90 | C2,0 / 26,0 | | 5,07 | C1,2 / 25,0 |
| 3,54 | F0,1 / 22,0 | | 3,07 | F0,2 / 24,0 |
| 8,47 | C0,6 / 23,0 | | 8,00 | C1,1 / 24,0 |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1061.08 | | | | | | | | | | |
| 40 | | | | | 1055.31 | 5,77 | | | | | | |
| B.M. | | | 2,61 | 1058,47 | | | | | | | | |
| | 2,61 | 1060,91 | | 1058,30 | Fe cut | | | | | | | |
| 41 | | | | | 1057,25 | 3,66 | | | | | | |
| 1 | 3,06 | 1060,24 | 3,73 | 1057,18 | | | | | | | | |
| 42 | | | | | 1054,81 | 2,43 | | | | | | |
| 43 | | | | | 1057,00 | 3,24 | | | | | | |
| | 2,95 | 1052,91 | 4,28 | 1055,96 | | | | | | | | |
| 44 | | | | | 1055,5 | 3,41 | | | | | | |
| 45 | | | | | 1056,00 | 3,85 | | | | | | |
| | 6,30 | 1061,77 | 3,44 | 1055,47 | | | | | | | | |
| 46 | | | | | 1054,75 | 5,02 | | | | | | |
| | 8,07 | 1067,16 | 2,68 | 1059,09 | | | | | | | | |
| 47 | | | | | 1059,50 | 7,66 | | | | | | |
| 48 | | | | | 1062,25 | 4,91 | | | | | | |
| T.P. | 5,65 | 1070,14 | 2,67 | 1064,49 | | | | | | | | |
| 49 | | | | | 1065,00 | 5,14 | | | | | | |
| 50 | | | | | 1066,45 | 3,69 | | | | | | |
| 51 | | | | | 1067,90 | 2,24 | | | | | | |
| 52 | | | | | 1069,35 | 0,77 | | | | | | |
| T.P. | 5,83 | 1074,66 | 1,31 | 1068,83 | | | | | | | | |
| 53 | | | - | | 1070,40 | 4,26 | | | | | | |
| 54 | | | | | 1070,58 | 3,78 | | | | | | |
| 55 | | | | | 1070,96 | 3,70 | | | | | | |

| FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|
| 5,47 | CO,3 / 22,0 | | 4,79 | C1,0 / 24,5 |
| W, road of 32" Ash 45' Right, Sta 40+10 | | | | |
| 3,58 | CO,1 / 23,0 | | 3,15 | CO,5 / 24,0 |
| 2,04 | CO,7 / 23,0 | | 2,39 | 0,0 / 23,0 |
| 3,68 | FO,4 / 22,0 | | 4,09 | * 8,9 / 21,5 |
| Slope Stake Left Sta 44. | | | | |
| 2,95 | CO,5 / 24,5 | | 4,70 | F1,3 / 21,5 |
| 6,14 | FO,3 / 21,5 | | 6,85 | F2,8 / 22,6 |
| 6,71 | F1,7 / 22,8 | | 6,37 | F1,4 / 22,5 |
| 7,33 | CO,3 / 24,5 | | 6,63 | C1,0 / 24,0 |
| 4,89 | CO,1 / 23,5 | | 2,67 | C2,2 / 26,5 |
| Slope Stake Rt. of Sta 48 | | | | |
| 6,35 | F1,2 / F1,5 | | 4,92 | CO,2 / 24,0 |
| 4,83 | F1,1 / 21,5 | | 4,29 | FO,6 / 20,0 |
| 2,14 | CO,1 / 23,0 | | 2,79 | FO,5 / 21,5 |
| 1,14 | FO,4 / 21,5 | | 1,34 | FO,6 / 22,5 |
| 4,44 | FO,2 / 23,0 | | 4,54 | F0,3 / 22,5 |
| 4,97 | F1,2 / 21,5 | | 5,51 | F1,7 / 21,0 |
| 2,32 | C1,4 / 25,0 | | 3,76 | FO,1 / 24,0 |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL RIGHT | C. | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1074.66 | | | | | | | | | | |
| T.P. | 2.54 | 1076.05 | 1.15 | 1073.51 | | | | | | | | |
| 56 | | | | | 1071.64 | 5.01 | | | | | | |
| 57 | | | | | 1071.12 | 4.93 | | | | | | |
| 58 | | | | | 1070.00 | 6.05 | | | | | | |
| 59 | | | | | 1069.37 | 6.68 | | | | | | |
| | 4.20 | 1074.59 | 6.16 | 1068.87 | | | | | | | | |
| 60 | | | | | 1068.50 | 5.09 | | | | | | |
| 61 | | | | | 1070.50 | 4.09 | | | | | | |
| 62 | | | | | 1070.50 | 4.09 | | | | | | |
| 63 | | | | | 1071.25 | 3.34 | | | | | | |
| 64 | | | | | 1072.50 | 2.09 | | | | | | |
| T.P. | 4.86 | 1077.28 | 2.17 | 1072.48 | | | | | | | | |
| B.M. | | | 2.56 | 1074.72 | | | | | | | | |
| | | | | 1074.76 | Record | | | | | | | |
| | 5.35 | 1080.11 | | 1074.76 | | | | | | | | |
| 65 | | | | | 1074.19 | 5.92 | | | | | | |
| 66 | | | | | 1076.25 | 3.86 | | | | | | |
| T.P. | 7.43 | 1084.56 | 2.98 | 1077.13 | | | | | | | | |
| 67 | | | | | 1078.69 | 5.87 | | | | | | |
| 69 | | | | | 1081.50 | 3.06 | | | | | | |
| | 5.83 | 1087.70 | 2.69 | 1081.87 | | | | | | | | |
| 69 | | | | | 1084.50 | 3.20 | | | | | | |
| | 6.09 | 1090.61 | 2.18 | 1084.52 | | | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | 3.27 | | | C1.7 E5.5 | | | | | | 4.84 | C0.8 24.0 |
| | | 3.62 | | | C1.3 25.5 | | | | | | 4.93 | 0.0 23.0 |
| | | 4.86 | | | C1.2 24.5 | | | | | | 6.27 | F0.2 23.0 |
| | | 8.14 | | | F1.5 21.0 | | | | | | 7.95 | F1.8 22.0 |
| | | | | | | | | | | | | |
| | | 6.81 | | | F1.7 20.5 | | | | | | 6.60 | F1.6 20.0 |
| | | 5.75 | | | F1.7 22.0 | | | | | | 5.23 | F1.8 21.5 |
| | | 4.43 | | | F0.5 22.5 | | | | | | 3.67 | C0.4 23.5 |
| | | 3.34 | | | 0.0 22.5 | | | | | | 2.47 | C0.9 25.5 |
| | | 1.94 | | | C0.2 23.0 | | | | | | 1.73 | C0.4 23.5 |
| | | | | | | | | | | | | |
| Spike, S. Side, 24" Hickory 26' L., Sta 64+55. Fair Width. | | | | | | | | | | | | |
| June 27, 1928, R. Parks; C. Pond, R. Hoss) | | | | | | | | | | | | |
| | | 5.89 | | | 10.0 23.0 | | | | | | 5.99 | F0.1 23.0 |
| | | 1.51 | | | C2.4 26.0 | | | | | | 3.34 | C0.3 23.0 |
| | | | | | | | | | | | | |
| | | 3.12 | | | C2.7 21.5 | | | | | | 6.31 | F0.4 22.0 |
| | | 1.16 | | | C1.4 24.0 | | | | | | 3.12 | F0.5 22.0 |
| | | | | | | | | | | | | |
| | | 1.82 | | | C1.4 24.5 | | | | | | 2.20 | C1.0 24.5 |
| | | | | | | | | | | | | |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1091.61 | | | | | | | | | | |
| 70 | | | | | 1086.60 | 5,01 | | 3,95 | C1 7 / 24,0 | | 3,73 | C1 3 / 25,0 |
| | 6,08 | 1097.69 | 4,20 | 1087.41 | | | | | | | | |
| 71 | | | | | 1088,70 | 4,79 | | 4,14 | C0,6 / 24,0 | | 3,79 | C1,0 / 23,0 |
| | 5,88 | 1095,31 | 4,10 | 1089,49 | | | | | | | | |
| 72 | | | | | 1090,80 | 4,51 | | 5,75 | F1,2 / 23,0 | | 4,10 | C0,4 / 22,0 |
| 73 | | | | | 1092,00 | 3,31 | | 3,78 | F0,5 / 22,5 | | 4,41 | F1,1 / 21,5 |
| | 5,64 | 1096,78 | 4,17 | 1091,14 | | | | | | | | |
| 74 | | | | | 1093,20 | 3,58 | | 4,84 | F1,3 / 21,5 | | 5,07 | F1,5 / 21,0 |
| 75 | | | | | 1094,38 | 2,40 | | 2,66 | F0,3 / 22,0 | | 3,44 | F1,0 / 22,0 |
| | 7,27 | 1101,12 | 3,53 | 1093,85 | | | | | | | | |
| 76 | | | | | 1095,10 | 5,62 | | 5,75 | F0,3 / 22,0 | | 6,10 | F0,5 / 22,0 |
| 77 | | | | | 1096,24 | 4,78 | | 1,71 | 0,0 / 23,0 | | 5,07 | F0,3 / 22,0 |
| 78 | | | | | 1096,90 | 4,12 | | 3,78 | C0,4 / 22,5 | | 4,44 | F0,3 / 22,5 |
| 79 | | | | | 1097,38 | 3,64 | | 3,78 | F0,1 / 22,0 | | 4,14 | F1,0 / 22,0 |
| 80 | | | | | 1097,70 | 3,32 | | 4,28 | F1,0 / 21,0 | | 4,20 | F0,9 / 22,0 |
| | 5,24 | 1102,12 | 4,14 | 1096,38 | | | | | | | | |
| 81 | | | | | 1097,49 | 4,63 | | 1,65 | 0,0 / 22,0 | | 4,87 | F0,2 / 23,5 |
| 82 | | | | | 1096,25 | 5,87 | | 3,58 | C2,3 / 24,0 | | 3,85 | C2,0 / 23,0 |
| B.M. | | | 2,73 | 1099,38 | | | | R.P. N. 1, W. Side a, 30" As 4, 33' R. 4+47, 3.3 BF 4.35 | | | | |
| | | | | 1099,20 | record | | | | | | | |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Fair Work | | | |
| | | | | | | | | | June 28/1922 | D. Roberts, C. Pond, R. Massey | | |
| B.M. | 2.49 | 1101.99 | | 1099.50 | | | | | R.P. Nail in S. side 30" Ash, 33' E. | | 1961, 57 | 82+33 |
| 83 | | | | | 1094.50 | 7.29 | | 6.23 | C1.1 / 23.5 | | 6.18 | C1.1 / 24.5 |
| 84 | | | | | 1090.75 | 9.04 | | 10.41 | E1.6 / 20.5 | | 10.30 | F1.3 / 21.5 |
| | 4.20 | 1094.74 | 11.25 | 1090.54 | | | | | | | | |
| 85 | | | | | 1091.00 | 3.74 | | 6.82 | F3.1 / 14.5 | | 4.80 | F0.6 / 23.0 |
| 86 | | | | | 1089.25 | 5.49 | | 3.06 | C2.4 / 25.0 | | 1.77 | C3.7 / 24.0 |
| 87 | | | | | 1087.50 | 7.24 | | 11.18 | F3.9 / 20.0 | | 8.51 | F1.3 / 21.5 |
| 88 | | | | | 1085.75 | 8.99 | | 8.26 | C0.9 / 23.0 | | 8.85 | C0.1 / 23.5 |
| | 1.04 | 1095.71 | 0.07 | 1094.67 | | | | | | | | |
| 89 | | | | | 1083.92 | 12.49 | | 7.24 | C5.5 / 28.5 | | 5.59 | C7.1 / 35.0 |
| 90 | | | | | 1078.33 | 17.38 | | 9.16 | C3.2 / 30.0 | | 5.82 | C11.6 / 40.0 |
| | 1.40 | 1088.32 | 8.79 | 1086.92 | | | | | | | | |
| 91 | | | | | 1072.17 | 15.65 | | 11.15 | C7.3 / 27.5 | | 7.47 | C7.2 / 33.0 |
| B.M. | | | 10.39 | 1077.93 | | | | Nail W. side 30" Elm 60' E. Sta 91+05 | | | | |
| | 10.37 | 1088.30 | | 1077.85 | Record | | | | | | | |
| | 1.82 | 1078.17 | 11.89 | 1076.35 | | | | | | | | |
| | 1.32 | 1067.62 | 2.37 | 1065.80 | | | | | | | | |
| 92 | | | | | 1067.30 | 0.62 | | 7.84 | F1.2 / 16.5 | | 2.34 | F1.7 / 20.0 |
| 93 | | | | | 1061.33 | 4.29 | | 14.51 | E0.2 / 24.0 | | 11.58 | F5.3 / 20.0 |
| | 3.60 | 1058.05 | 15.08 | 1052.64 | | | | | | | | |
| 94 | | | | | 1055.03 | 2.48 | | 3.86 | F1.7 / 20.0 | | 7.68 | E5.2 / 25.0 |
| 95 | | | | | 1051.42 | 6.73 | | 4.55 | C2.1 / 21.5 | | 6.02 | C0.7 / 20.5 |
| | 1.47 | 1055.60 | 7.06 | 1054.13 | | | | | | | | |
| 96 | | | | | 1050.00 | 5.60 | | 3.69 | C1.9 / 21.5 | | 4.98 | C0.6 / 21.0 |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1055,60 | | | | | | | | | | |
| 97 | | | | | 1050,00 | 5,60 | | | | | | |
| | 6,14 | 1049,96 | 6,78 | 1048,82 | | | | | | | | |
| 98 | | | | | 1050,00 | 4,96 | | | | | | |
| 99 | | | | | 1050,00 | 4,96 | | | | | | |
| | | | 2,34 | 1052,62 | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| B.M. | 4,51 | 1082,36 | | 1077,85 | | | | | | | | |
| | 1,02 | 1070,72 | 12,66 | 1069,70 | | | | | | | | |
| 92 | | | | | 1067,00 | 3,72 | | | | | | |
| | 4,03 | 1061,27 | 13,48 | 1057,24 | | | | | | | | |
| 93 | | | | | 1061,33 | +0,06 | | | | | | |
| | 3,69 | 1056,26 | 8,70 | 1052,57 | | | | | | | | |
| 94 | | | | | 1055,17 | 0,59 | | | | | | |
| 95 | | | | | 1051,42 | 4,84 | | | | | | |
| | 3,91 | 1053,47 | 6,70 | 1049,56 | | | | | | | | |
| 96 | | | | | 1050,00 | 3,47 | | | | | | |
| 97 | | | | | 1050,00 | 3,47 | | | | | | |
| | 4,38 | 1052,85 | 5,00 | 1048,47 | | | | | | | | |
| 98 | | | | | 1050,00 | 2,85 | | | | | | |
| 99 | | | | | 1050,00 | 2,85 | | | | | | |
| | | | 2,20 | 1050,65 | | | | | | | | |
| | | | | 1050,68 | Record | | | | | | | |

| STA. | FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|
| 97 | 4,51 | C1,4 / 21,0 | | 5,47 | 30,1 / 20,5 |
| 98 | 3,82 | C0,1 / 21,0 | | 6,14 | F1,2 / 20,0 |
| 99 | 1,61 | C3,4 / 24,0 | | 2,75 | C2,2 / 24,0 |
| | Showers Windy | | | | |
| | June 29, 1928 D Parks, C. Rand, P. Hasse) | | | | |
| | Nail W side 30" Elm 60'L. Sta 91+05 | | | | |
| 92 | 5,02 | F1,3 / 16,5 | | 5,48 | F1,3 / 20,0 |
| 93 | 14,26 | F10,3 / 29,0 | | 5,29 | F3,4 / 20,0 |
| 94 | 3,92 | F3,3 / 22,0 | | 7,74 | F7,8 / 25,0 |
| 95 | 4,60 | C0,2 / 21,5 | | 6,88 | F1,3 / 20,5 |
| 96 | 3,52 | F0,1 / 21,5 | | 4,81 | F1,3 / 24,0 |
| 97 | 4,38 | F0,9 / 21,8 | | 5,30 | F1,3 / 20,5 |
| 98 | 3,75 | F0,2 / 21,0 | | 5,98 | F3,1 / 20,0 |
| 99 | 1,42 | C1,4 / 24,0 | | 2,60 | C0,3 / 24,0 |
| | N roof, 24" Maple 30' Right, Sta 99+00 | | | | |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR LEFT | C. | FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3,19 | 1053,87 | | 1050,68 | | | | | | | | |
| 100 | | | | | 1050,00 | 3,87 | | 3,76 | F0,1 / 22,5 | | 4,76 | F0,6 / 28,0 |
| 101 | | | | | 1048,75 | 5,12 | | 3,85 | F0,2 / 21,5 | | 5,04 | F1,9 / 21,0 |
| | 8,12 | 1058,94 | 3,05 | 1050,82 | | | | | | | | |
| 102 | | | | | 1053,00 | 5,94 | | 6,85 | F0,9 / 20,5 | | 6,34 | F0,4 / 23,0 |
| 103 | | | | | 1055,73 | 3,21 | | 0,89 | C0,3 / 26,5 | | 2,30 | C0,9 / 26,0 |
| | 6,87 | 1063,28 | 2,55 | 1056,41 | | | | | | | | |
| 104 | | | | | 1057,92 | 5,34 | | 2,82 | C2,5 / 29,5 | | 6,11 | F0,8 / 26,0 |
| 105 | | | | | 1059,57 | 3,69 | | 2,13 | C1,6 / 25,0 | | 5,02 | F1,3 / 22,5 |
| | 6,92 | 1066,85 | 3,33 | 1059,93 | | | | | | | | |
| 106 | | | | | 1060,68 | 6,17 | | 4,62 | C1,6 / 25,3 | | 6,70 | F0,5 / 23,0 |
| 107 | | | | | 1061,85 | 5,00 | | 3,58 | C2,0 / 26,0 | | 5,84 | F0,8 / 23,0 |
| | 4,92 | 1065,25 | 6,52 | 1060,33 | | | | | | | | |
| 108 | | | | | 1061,55 | 3,70 | | 4,15 | F0,5 / 22,5 | | 5,35 | F1,7 / 21,0 |
| 109 | | | | | 1061,95 | 5,30 | | 4,15 | F0,8 / 21,5 | | 5,22 | F1,9 / 18,5 |
| | 4,55 | 1068,17 | 1,63 | 1063,62 | | | | | | | | |
| 110 | | | | | 1063,10 | 5,07 | | 2,30 | C1,8 / 24,5 | | 5,56 | F0,5 / 21,5 |
| TR | 4,94 | 1069,68 | 3,43 | 1064,74 | | | | | | | | |
| 111 | | | | | 1064,50 | 5,18 | | 2,04 | C3,1 / 26,0 | | 4,94 | C0,2 / 19,0 |
| 112 | | | | | 1062,50 | 7,18 | | 4,80 | C2,4 / 26,5 | | 4,34 | C2,8 / 22,5 |
| 113 | | | | | 1057,00 | 12,68 | | 11,95 | C4,7 / 24,5 | | 10,16 | C2,9 / 21,0 |
| | 2,52 | 1059,52 | 4,21 | 1057,00 | | | | | | | | |
| 114 | | | | | 1057,50 | 6,99 | | 6,20 | C0,8 / 24,5 | | 2,54 | C3,6 / 22,0 |
| 115 | | | | | 1046,50 | 13,49 | | 11,81 | C1,7 / 25,0 | | 4,11 | C9,4 / 26,0 |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | C. | RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1057.99 | | | | | | | | | | |
| | 0.55 | 1049.63 | 13.91 | 1048.08 | | | | | | | | |
| 116 | | | | | 1037.00 | 7.63 | | | | | | |
| | | | 13.38 | 1031.25 | | | | | | | | |
| | | | | 1031.20 | record | | | | | | | |
| | | Grade | 3 stakes | | | | | | | | | |
| | 1.66 | 1160.96 | | 1099.30 | | | | | | | | |
| | | | | | | Gr. Rod | | | Rod | Sub-grade Elevation | | |
| 82 | | | | | 1096.25 | 4.71 | | | 4.84 | 1096.22 | | |
| 83 | | | | | 1094.50 | 6.46 | | | 7.13 | 1093.83 | | |
| 84 | | | | | 1092.75 | 8.21 | | | 8.83 | 1092.13 | | |
| 85 | | | | | 1091.00 | 9.96 | | | 10.85 | 1090.21 | | |
| 86 | | | | | 1089.25 | 11.71 | | | 12.05 | 1088.91 | | |
| | 3.34 | 1092.58 | 11.72 | 1088.24 | | | | | | | | |
| 87 | | | | | 1087.50 | 5.08 | | | 5.89 | 1086.69 | | |
| 88 | | | | | 1085.75 | 6.83 | | | 7.10 | 1085.48 | | |
| 89 | | | | | 1083.02 | 9.56 | | | 8.71 | 1083.87 | | |
| 90 | | | | | 1078.33 | 14 3-5 | | | | | | |
| 91 | 3.43 | 1082.76 | 13.25 | 1079.33 | | | | | | | | |
| BM | | | 4.83 | 1077.93 | | | | | | | | |
| | 4.83 | 1082.68 | | 1077.85 | record | | | | | | | |
| 91 | | | | | 1072.67 | 10.01 | | | 10.84 | 1071.84 | | |
| | 0.90 | 1069.40 | 14.18 | 1068.50 | | | | | | | | |
| 92 | | | | | 1067.00 | 2.40 | | | 3.73 | 1065.67 | | |
| 93 | | | | | 1061.33 | 8.07 | | | 8.50 | 1060.90 | | |

9.06 Fl. 4 El. D 4.89 CR. 7 19.5

X- N. E. Cor. N. Headwall Culvert W. of Chillicothe Rd.

July 6, 1928 Marks, D. Parks, Rand + Hassel

R. P. Nail, W. side 36" Ash 3 3' R. 82+33

Nail W. side, 30" Elm 60' Left, 91+05

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1049.40 | | | | | | | | | | |
| 94 | | | | | 1055.67 | 13.73 | | | 14.23 | 1055.17 | | |
| | 2.03 | 1058.13 | 16.30 | 1053.10 | | | | | | | | |
| 95 | | | | | 1054.42 | 3.71 | | | 4.47 | 1050.66 | | |
| B.M. | | | 4.43 | 1050.70 | | | | | | | | |
| | | | | 1054.68 | | record | | | | | | |

N. root 24" Maple 30' R. Sta 99+00

# Finish Grades

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL RIGHT | C. |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Grade Rod | | |
| B.M | 9,73 | 1040,93 | | 1031,20 | | | | |
| 116+50 | | | | | 1033,30 | 7,93 | | |
| 116+00 | | | | | 1037,00 | 3,93 | | |
| B.M. | 1,98 | 1076,74 | | 1074,76 | | | | |
| 64 | | | | | 1072,50 | 4,24 | | |
| 63 | | | | | 1071,25 | 5,49 | | |
| 62 | | | | | 1070,50 | 6,24 | | |
| 61 | | | | | 1070,50 | 6,24 | | |
| 60 | | | | | 1069,50 | 7,24 | | |
| 59 | | | | | 1069,37 | 7,37 | | |
| T.P, | 4,53 | 1075,64 | 5,63 | 1071,11 | | | | |
| 58 | | | | | 1070,00 | 5,64 | | |
| 57 | | | | | 1071,12 | 4,52 | | |
| 56 | | | | | 1071,04 | 4,60 | | |
| T.P, | | | 2,04 | | | | | |

Fair
August 9, 1928 D. Parks C. Rand
X-N.E. Cor, N. Head-wall Culvert W of Chilicothe Rd

Fair
August, 13, 1928 D. Parks, C. Rand, R. Hassel

Spike S. Side 24" Hickory 26' left, Sta. 64+53

| Profile | Profile Grade |
|---|---|
| 4,55 | 1074,19 |
| 6,47 | 1070,22 |
| 7,26 | 1069,48 |
| 7,71 | 1069,03 |
| 8,03 | 1068,71 |
| 7,77 | 1068,97 |
| 6,30 | 1069,34 |
| 5,01 | 1070,63 |
| 5,09 | 1070,55 |

large Stone left of Sta. 55+85

| AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| B.M | 5.84 | 1080.60 | | 1074.76 | | | | | | | |
| 65 | | | | | 1074.19 | 6.41 | | | | | |
| 66 | | | | | 1076.85 | 4.35 | | | | | |
| 67 | | | | | 1078.69 | 1.91 | | | | | |
| T.P | 8.68 | 1087.75 | 1.53 | 1079.07 | | | | | | | |
| 68 | | | | | 1081.50 | 6.25 | | | | | |
| 69 | | | | | 1084.50 | 3.25 | | | | | |
| 70 | | | | | 1086.60 | 1.15 | | | | | |
| | 8.86 | 1095.47 | 1.14 | 1086.61 | | | | | | | |
| 71 | | | | | 1088.70 | 6.77 | | | | | |
| 72 | | | | | 1090.80 | 4.67 | | | | | |
| 73 | | | | | 1092.00 | 3.47 | | | | | |
| 74 | | | | | 1093.80 | 2.27 | | | | | |
| 75 | | | | | 1094.38 | 1.09 | | | | | |
| 76 | | | | | 1095.10 | 0.07 | | | | | |
| | | | 0.03 | | | | | | | | |

Spike S. Side 24" Hickory 26' left Sta 64+53

Sub-Grade

| | |
|---|---|
| 6.72 | 1073.88 |
| 4.81 | 1076.39 |
| 2.27 | 1078.33 |
| 6.73 | 1081.02 |
| 3.85 | 1083.90 |
| 1.29 | 1086.46 |
| 7.64 | 1088.43 |
| 5.38 | 1090.09 |
| 4.46 | 1091.01 |
| 3.48 | 1091.99 |
| 2.26 | 1093.21 |
| 1.25 | 1094.22 |

Slope hub right of Sta 72

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL RIGHT | C. |
|---|---|---|---|---|---|---|---|---|
| B.M. | 1,15 | 1177,00 | | 1077,85 | | | | |
| 90 | | | | | 1078,33 | 0,67 | | |
| 91 | | | | | 1072,67 | 6,33 | | |
| 92 | | | | | 1067,00 | 12,00 | | |
| T.P. | 1,38 | 1068,38 | 1,00 | 1067,00 | | | | |
| 93 | | | | | 1061,53 ~~1061,33~~ | 7,05 | | |
| 94 | | | | | 1056,67 ~~1055,67~~ | 12,71 | | |
| T.P. | 1,66 | 1057,73 | 12,31 | 1056,07 | | | | |
| 95 | | | | | 1051,92 ~~1051,12~~ | 6,31 | | |
| 96 | | | | | 1050,20 1050,00 | 7,73 | | |
| T.P. | | | 8,26 | | | | | |
| B.M. | 2,13 | 1101,43 | | 1099,30 | | | | |
| 83 | | | | | 1094,50 | 6,93 | | |
| 84 | | | | | 1092,75 | 8,68 | | |
| 85 | | | | | 1091,00 | 11,43 | | |
| ~~86~~ | | | | | ~~1089,25~~ | ~~11,18~~ | | |
| | 0,83 | 1091,08 | 11,18 | 1090,25 | | | | |
| 86 | | | | | 1089,25 | 1,83 | | |
| 87 | | | | | 1087,50 | 3,58 | | |
| 88 | | | | | 1085,75 | 5,33 | | |
| 89 | | | | | 1083,92 | 8,06 | | |

Fair Wea[illegible]

Aug. 14, 1928 W. Marks, D. Marks, C. Rand, R. Hasse[illegible]

Nail, W. side, 30" Elm, 60' Left, 91+05

| AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|
| | Sub Grade Elevation | | |
| Rod | | | |
| 7.0 | 1072.00 | | |
| 12.9 | 1066.10 | | |
| Grade Stake left Sta 92 | | | |
| | | Grade Rod Change | |
| 7,2 | 1061.18 | 6.85 | |
| 12,7 | 1055,68 | 12,31 | |
| Grade Stake left Sta 94 | | | |
| 6.4 | 1051.3 | 5,81 | |
| 8,1 | 1049.6 | 7,53 | |

R.P. Nail, W. Side, 30" Ash, 33' Right 82+33

| | | | |
|---|---|---|---|
| 7,5 | 1093,9 | | |
| 9,2 | 1092,2 | | |
| 11,1 | 1090,3 | | |
| 12,5 | 1088,9 | | |
| 4,2 | 1086,8 | | |
| 5,8 | 1085,2 | | |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| B.M. | 3,01 | 1102,31 | | 1099,30 | | | | | | | |
| 82 | | | | | 1096,25 | 6,06 | | | | | |
| 81 | | | | | 1097,49 | 4,82 | | | | | |
| 80 | | | | | 1097,70 | 4,61 | | | | | |
| 79 | | | | | 1097,38 | 4,93 | | | | | |
| 78 | | | | | 1096,90 | 5,41 | | | | | |
| 77 | | | | | 1096,24 | 6,07 | | | | | |
| 76 | | | | | 1095,40 | 6,91 | | | | | |
| | | | 6,93 | | | | | | | | |
| B.M. | 3,18 | 1053,86 | | 1050,68 | | | | | | | |
| 96 | | | | | 1050,20 ~~1050,00~~ | 0,66 ~~3,86~~ | | | | | |
| 97 | | | | | 1050,00 | 3,86 | | | | | |
| 98 | | | | | 1050,00 | 3,86 | | | | | |
| 99 | | | | | 1050,00 | 3,86 | | | | | |
| | 5,17 | 1055,17 | 3,86 | 1050,00 | | | | | | | |
| 100 | | | | | 1050,00 | 5,17 | | | | | |
| 101 | | | | | 1050,75 | 4,42 | | | | | |
| 102 | | | | | 1053,08 | 2,17 | | | | | |
| | 5,94 | 1059,86 | 1,25 | 1053,92 | | | | | | | |
| 103 | | | | | 1055,73 | 4,13 | | | | | |
| 104 | | | | | 1057,92 | 1,94 | | | | | |

RP nail, W. side, 30' Ash 33' Right, 82+83

| | | |
|---|---|---|
| 6,6 | 1095,7 | |
| 5,6 | 1096,7 | |
| 5,6 | 1096,7 | |
| 5,5 | 1096,8 | |
| 5,8 | 1096,5 | |
| 6,9 | 1095,4 | |

Grade stake left Sta 96

Fair Warm

Aug. 16, 1928 D. Parks, C. Rand, R. Hassel

N. root, 24" Maple, 30' Right, 99+00

| | | |
|---|---|---|
| 4,98 | 1048,88 | |
| 4,98 | 1048,88 | |
| 4,52 | 1049,34 | |

Grade Stake Right Sta 99

| | | |
|---|---|---|
| 5,8 | | |
| 5,33 | | |
| 3,5 | | |
| 5,4 | | |
| 8,7 | | |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1059.86 | | | | | | | | | | |
| T.P. | 7.03 | 1066.15 | 2.74 | 1057.12 | | | | | | | | |
| 105 | | | | | 1059.57 | 7.58 | | | | | | |
| 106 | | | | | 1060.68 | 3.47 | | | | | | |
| 107 | | | | | 1061.25 | 2.90 | | | | | | |
| 108 | | | | | 1061.55 | 2.60 | | | | | | |
| 109 | | | | | 1061.25 | 2.90 | | | | | | |
| T.P. | 2.49 | 1066.50 | 0.14 | 1064.01 | | | | | | | | |
| 110 | | | | | 1063.10 | 3.40 | | | | | | |
| 111 | | | | | 1064.50 | 2.00 | | | | | | |
| 111+50 | | | | | 1064.00 | 2.50 | | | | | | |
| 112 | | | | | 1062.50 | 4.00 | | | | | | |
| 112+50 | | | | | 1060.00 | 6.50 | | | | | | |
| 113 | | | | | 1057.00 | 9.50 | | | | | | |
| T.P. | 0.62 | 1054.53 | 12.59 | 1053.91 | | | | | | | | |
| 114 | | | | | 1057.00 | 3.53 | | | | | | |
| 115 | | | | | 1044.50 | 10.03 | | | | | | |
| T.P. | 0.44 | 1042.18 | 12.79 | 1041.74 | | | | | | | | |
| 116 | | | | | 1037.00 | 5.18 | | | | | | |
| 116+50 | | | | | 1033.10 | 9.18 | | | | | | |
| B.M. | | | 10.96 | 1031.22 | | | | | | | | |
| | | | - | 1031.20 | Record | | | | | | | |

Slope Hub Right Sta. 104

5.0
4.3
3.7
3.1
2.5

Grade Stake Rt. Sta 110

3.8
2.5
3.3
4.9
7.0
7.8

3.7
10.5

X = N.E Cor. N. Head-wall culvert W. Chilhowee Road

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Fair Weather Aug. 23, 1928 D. Parks, C. Rand, R. Hassel | | | |
| | | | | | | | | | W. root of 30" Ash, 45' Right Sta. 40+10 | | | |
| | | | | | | | | | Req Sub Grade | Grade | | |
| B.M. | 3.91 | 1062.21 | | 1058.30 | | | | | 7.5 | 1054.71 | | |
| 40 | | | | | 1055.31 | 6.90 | | | 5.5 | 1056.71 | | |
| 41 | | | | | 1057.25 | 4.96 | | | 5.0 | 1157.21 | | |
| 42 | | | | | 1057.81 | 4.40 | | | 6.1 | 1056.11 | | |
| 43 | | | | | 1057.00 | 5.21 | | | 7.8 | 1054.41 | | |
| 44 | | | | | 1055.5 | 6.71 | | | 7.9 | 1054.31 | | |
| 45 | | | | | 1055.04 | 7.15 | | | | | | |
| T.P. | 12.01 | 1067.15 | 7.07 | 1055.14 | | | | | | | | |
| 46 | | | | | 1056.75 | 10.40 | | | 11.4 | 1055.75 | | |
| 47 | | | | | 1059.50 | 7.65 | | | 8.9 | 1058.25 | | |
| 48 | | | | | 1062.25 | 4.90 | | | 5.4 | 1061.75 | | |
| 49 | | | | | 1065.00 | 2.15 | | | 2.9 | 1064.25 | | |
| 50 | | | | | 1066.45 | 0.70 | | | 1.5 | 1065.65 | | |
| TP | 8.58 | 1074.59 | 1.14 | 1066.01 | | | | | | | | |
| 51 | | | | | 1067.80 | 6.69 | | | 7.7 | 1066.89 | | |
| 52 | | | | | 1069.35 | 5.24 | | | 6.0 | 1068.59 | | |
| 53 | | | | | 1070.46 | 4.13 | | | 4.7 | 1069.89 | | |
| 54 | | | | | 1070.88 | 3.71 | | | 4.7 | 1069.89 | | |
| 55 | | | | | 1070.96 | 3.63 | | | 4.4 | 1070.19 | | |
| T.P. | | | 1.02 | 1073.57 | | | | | Large Stone 25" left Sta. 55+80 | | | |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL RIGHT | C. | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Graded | | | | | | |
| B.M. | 1.90 | 1040.20 | | 1038.30 | | | | | | | | |
| T.P. | 1.31 | 1048.83 | 12.28 | 1047.52 | | | | | | | | |
| 36 | | | | | 1039.38 | 9.45 | | | | | | |
| | 4.25 | 1043.46 | 9.62 | 1039.21 | | | | | | | | |
| 35 | | | | | 1033.50 | 9.96 | | | | | | |
| B.M. | 4.12 | 1042.06 | | 1037.94 | | | | | | | | |
| 10 | | | | | 1035.35 | 6.71 | | | | | | |
| BM | 4.07 | 1042.01 | | 1037.94 | | | | | | | | |
| 10 | | | | | 1035.35 | 6.66 | | | | | | |
| 11 | | | | | 1032.4 | 9.61 | | | | | | |
| | 2.11 | 1032.63 | 11.52 | 1030.49 | | | | | | | | |
| 12 | | | | | 1026.80 | 5.80 | | | | | | |
| 13 | | | | | 1021.20 | 11.40 | | | | | | |
| | 0.76 | 1021.96 | 11.40 | 1021.20 | | | | | | | | |
| 14 | | | | | 1015.60 | 6.36 | | | | | | |
| | 1.24 | 1011.12 | 12.08 | 1009.88 | | | | | | | | |
| 15 | | | | | 1010.00 | 1.12 | | | | | | |
| 16 | | | | | 1004.40 | 6.72 | | | | | | |
| B.M. | | | | 9.60 1001.52 | | | | | | | | |
| 17 | | | | | 1000.73 | 10.39 | | | | | | |

Slope line. Stakes
Fair windy
Aug. 28, 1928 D. Parks, C. Rand, E. Hassel
W. root 30" Ash 45' Right, Sta. 40+10

Check grade Stakes & Slope Stakes
Sept. 1, 1928 D. Parks, C. Rand

Grade Stake Rt Sta. 13

12.32 FB 6

N. E. Cor., N. Headwall, 84" Corr. Iron Culvert B. M. Set

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| B.M. | 1.59 | 1059.89 | | 1058.30 | | | | |
| 39 | | | | | 1052.00 5200 | 7.89 | | |
| 38 | | | | | 1048.00 | 11.89 | | |
| T.P. | 1.79 | 1049.79 | 11.89 | 1048.00 | | | | |
| 37 | | | | | 1044.00 | 5.79 | | |
| 36 | | | | | 1039.38 | 10.41 | | |
| T.P. | 2.07 | 1039.42 | 12.44 | 1037.35 | | | | |
| 35 | | | | | 1033.50 | 5.92 | | |
| 34 | | | | | 1027.00 | 12.42 | | |
| | 0.23 | 1027.23 | 12.42 | 1027.00 | | | | |
| 33 | | | | | 1021.84 | 5.39 | | |
| 32 | | | | | 1019.70 | 7.53 | | |
| 31 | | | | | 1018.40 | 8.83 | | |
| 30 | | | | | 1018.48 | 8.75 | | |
| 29 | | | | | 1021.50 | 5.73 | check | |
| T.P. | | | 9.72 | 1017.51 | | | | |

| AREA EXCAVA. | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|
| Sub Grade | | | (R. Hassel) |
| Rod | Grade | D. Parks, E. Rand, R. Hassel | |
| W front 30' Ash | 45 Rt. Sta 30+16 | | |
| 8.9 | | | |
| 12.7 | | | |
| Grade Stake Lt Sta 38 | | | |
| 2.2 | | | |
| 11.0 | | | |
| 4.5 | | | |
| 13.3 | | | |
| Grade Stakes Rt Sta 34 | | | |
| 5.9 | | | |
| 8.3 | | | |
| 9.8 | | | |
| 9.6 | | | |
| X-S.E Cor. N. Headwall - Sta 30+23.5 | | | |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL RIGHT | C. |
|---|---|---|---|---|---|---|---|---|
| B.M. | 3.37 | 1011.77 | | 1008.40 | | | | |
| 0 | | | | | 1006.00 | | 5.77 | |
| 1 | | | | | 1005.00 | | 6.77 | |
| 2 | | | | | 1004.00 | | 7.77 | |
| 3 | | | | | 1003.50 | | 7.27 | |
| 4 | | | | | 1008.00 | | 3.77 | |
| | 12.50 | 1022.62 | 1.65 | 1010.12 | | | | |
| 5 | | | | | 1013.00 | | 9.62 | |
| 6 | | | | | 1018.00 | | 4.62 | |
| | 9.43 | 1031.67 | 0.38 | 1022.24 | | | | |
| 7 | | | | | 1023.00 | | 8.67 | |
| 8 | | | | | 1028.00 | | 3.67 | |
| | 9.19 | 1039.81 | 1.05 | 1030.62 | | | | |
| 9 | | | | | 1033.00 | | 6.81 | |
| B.M. | | | 1.87 | 1037.94 | | | | |
| | 1.21 | 1042.15 | | 1037.94 | record | | | |
| 10 | | | | | 1035.35 | | 6.80 | |
| 11 | | | | | 1032.4 | | 9.75 | |
| | 3.11 | 1035.51 | 9.75 | 1032.40 | | | | |
| 12 | | | | | 1026.80 | | 8.71 | |
| | 1.69 | 1024.73 | +2.47 | 1023.04 | | | | |
| 13 | | | | | 1021.20 | | 3.53 | |
| 14 | | | | | 1015.60 | | 9.13 | |

| AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|
| Fair Warm | | | Corner S. side of road |
| Sept. 8, 1928 D. Parks, C. Rand, R. Hassel | | | |
| (Spike & Washer S.E. side 18" Maple, first tree W. of) | | | |
| Sub Grade Rod Grade | | | |
| 6.1 | | | |
| 7.6 | | | |
| 8.3 | | | |
| 7.8 | | | |
| 4.6 | | | |
| 10.9 | | | |
| 5.7 | | | |
| 9.6 | | | |
| 4.2 | | | |
| 7.3 | | | |
| R. P. Nail, N.W. side 15" Maple 40' Rt. of sta. 9+26 | | | |
| 7.7 | | | |
| 10.5 | | | |
| 9.4 | | | |
| 3.9 | | | |
| 10.6 | | | |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1024.73 | | | | | | | | | | |
| | 2,27 | 1014,23 | 12,77 | 1011,96 | | | | | | | | |
| 15 | | | | | 1010,00 | 4,23 | | | 6.7 | | | |
| B.M. | | | 12,70 | 1001,53 | | | | | | | | |
| | | | | 1001,52 | record | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| B.M. | 9.+2 | 1010.94 | | 1001,52 | | | | | | | | |
| 16 | | | | | 1004,40 | 6,54 | | | 8,4 | | F1.0 7,54 | |
| 17 | | | | | 1000,73 | 10,21 | | | 11.1 | | | |
| 18 | | | | | 1000,93 | 10,01 | | | 10,1 | | | |
| 19 | | | | | 1005,08 | 5,94 | | | 6.9 | | | |
| | 13,09 | 1023,06 | 0,97 | 1009,97 | | | | | | | | |
| 20 | | | | | 1011,00 | 12,06 | | | 13,0 | | | |
| 21 | | | | | 1017,00 | 6,06 | | | 7,0 | | | |
| 22 | | | | | 1023,00 | 0,06 | | | 0,9 | | | |
| T.P. | 12,99 | 1035,96 | 0,07 | 1022,99 | | | | | | | | |
| 23 | | | | | 1027,75 | 8,21 | | | 8,9 | | | |
| 24 | | | | | 1030,00 | 5,96 | | | 6.5 | | | |
| 25 | | | | | 1031,00 | 4,96 | | | 5,3 | | | |
| 26 | | | | | 1032,00 | 3,96 | | | 1,9 | | | |
| 27 | | | | | 1030,30 | 5,66 | | | 4,8 | | | |
| 28 | | | | | 1025,70 | 10,06 | | | 10.9 | | | |
| | 1.57 | 1024,62 | 12,91 | 1023,05 | | | | | | | | |
| 29 | | | | | 1021,50 | 3,12 | | | 3,8 | | | |

N. E. Cor, N Headwall, 84" Corr. iron culvert

Windy Cloudy

Sept. 13, 1928. D. Parks, C. Band, R. Hasse)

N. E. Cor, N. Headwall, 84" corr. iron culvert

7,54 on Rt Side of Road

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1024.62 | | | | | | | | | |
| 30 | | | | | 1018.48 | 6.14 | | 6.7 | | | |
| ℄ P. | | | 7.01 | 1017.61 | | | | | | | |
| | | | | 1017.51 | record | P.P. 66 bottom 9/30/52 | | | | | |
| 9/30/52 | New ℄ surface at P.C. location | | | | | | | | | | |
| | 2.03 | 1103.43 | | 1101.4 | Top N. Hd wall | | | | | | |
| | | | 0.3 | 03.1 | ± 50 ft E of P.C. | | | | | | |
| SEE FB. 173 PAGE 79 | | | 7.9 | 1095.5 | ± 10' E of P.C. creek | | | | | | |
| | | | 6.0 | 97.4 | P.C. | | | | | | |
| | | | 3.3 | 1100.1 | 90' W of P.C. | | | | | | |
| | 9.62 | 1111.02 | | 1101.4 | 117 | | | | | | |
| | | | 4.5 | 06.5 | 117' W of P.C. | | | | | | |
| | | | 4.8 | 06.2 | 160 W of P.C. = | | | | | | |

See further notes ± 173 Pg 79 et seq

Bk

X S.E. Cor. N. Headwall 12" Corr. Pipe Culvert 30+23.5

Fairmont (D) Sta 62+?

Toe of steep slope

Top steeper slope & brush

Grading, Left by O.C. Scott for Road Building Co. to finish.
Oct. 18, 1928

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0+00 | to | 2+08 | B. L. | | 80 | 1 cu. yds. | | | | | | |
| 13+10 | to | 13+40 | R | | 20 | | | | | | | |
| 41 | to | 42 | R. | | 20 | | | | | | | |
| 42+50 | | 44+50 | L | | 50 | | | | | | | |
| 48 | to | 50 | Center | | 30 | | | | | | | |
| 58 | to | 59 | Center | | 20 | | | | | | | |
| 69 | to | 71 | L | | 50 | | | | | | | |
| 88 | to | 87 | Center. | | 60 | | | | | | | |
| 80 | to | 82 | Center | | 30 | | | | | | | |
| 77 | to | 79 | Center | | 20 | | | | | | | |
| 87 | to | 88 | Center. | | 20 | | | | | | | |
| 88 | to | 92 | Both sides | | 40 | | | | | | | |
| 109 | to | 112 | L | | 110 | | | | | | | |
| 110 | to | 117 | Pipe Trench | | 130 | | | | | | | |
| 115 | ± | | Right | | 20 | | | | | | | |
| | | | | | 700 | | | | | | | |

# LEVELS FOR CULV'T
## 60 + 13.5

5-29-46 Pomeroy Thrasher Bell



| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| B.M | 4.17 | 62.47 | | 1058.30 | W root Ash 40 + 10 | | | | | | |
| T.P. | 11.66 | 66.72 | 7.41 | 55.06 | | | | | | | |
| " | 8.78 | 75.07 | 0.43 | 66.29 | | | | | | | |
| " | 3.18 | 74.15 | 4.10 | 70.97 | | | | | | | |
| | | | 4.8 | 69.35 | ℄ Ed ℄ culv't | | | | | | |
| | | | 4.37 | | N.W. ∡ H. Hdwl | | | | | | |
| | | | 7.67 | 66.48 | N. FL | | | | | | |
| | | | 7.36 | 66.79 | S. FL | | | | | | |
| | | | 4.10 | | S Hdwl | | | | | | |
| | | | 8.19 | 65.96 | Top of 4" tile (Field drain | | | | | | |
| | | | 8.2 | | 100' N of N hdwl | | | | | | |
| | | | 8.6 | | 200 " " " " | | | | | | |
| | | | 8.9 | 65.25 | 300 | | | | | | |
| T.P. Stk | | | 7.75 | 66.40 | | | | | | | |
| T.P. Ed | | | 3.62 | 70.53 | | | | | | | |
| T.P. Stk | 3.31 | 69.71 | | 66.40 | | | | | | | |
| | | | 5.8 | 63.9 | 400' " " " " | | | | | | |
| | | | 6.5 | | 500' " " " " | | | | | | |
| | | | 7.7 | | 600 " " " " | | | | | | |
| T.P. Ed | 6.19 | 76.72 | | 70.53 | | | | | | | |
| BM Set | | | 2.79 | 73.93 | | | | | | | |

Note: End of tile ± 3' S of S headwall 4" round tile

Culv't = 15" x 32' Corr. I.P.
Bottom half rusted

See FB 173 Pg 25 for 1956 notes

Spk S root
27" Hick Sta 64+53 26' Rt

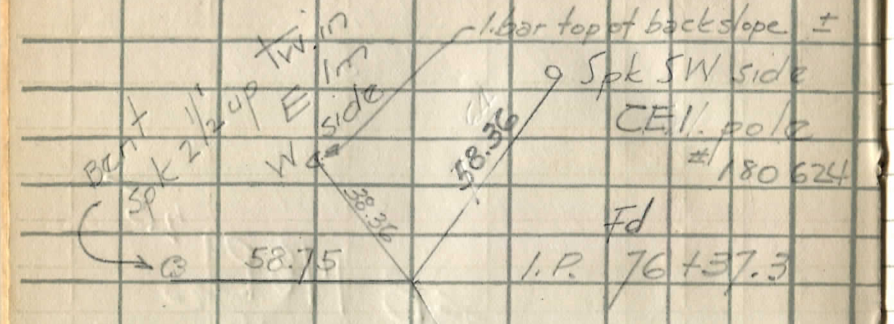
76.72
74.76
1.96

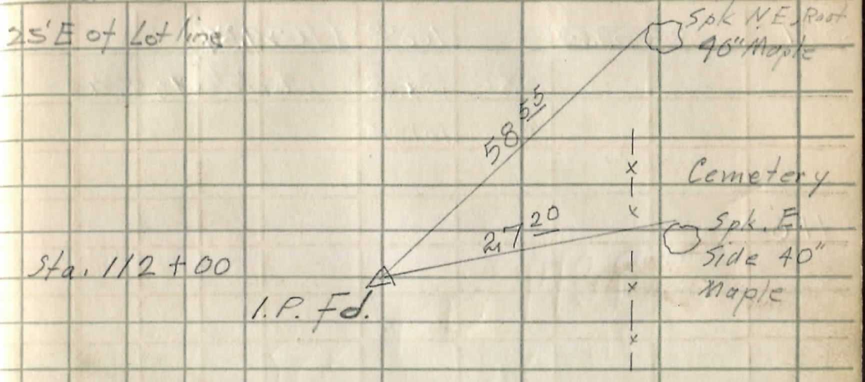
Reref of N. Woodland ℄ How FAIRM'T

#16 Sec A & B

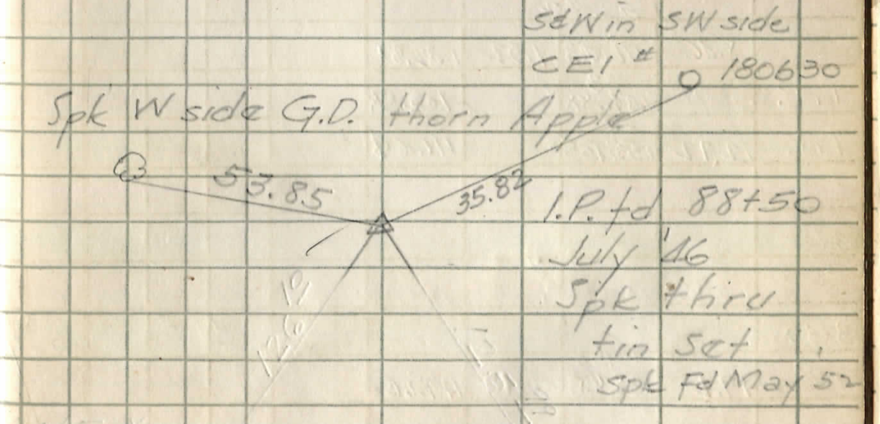
47
11.55

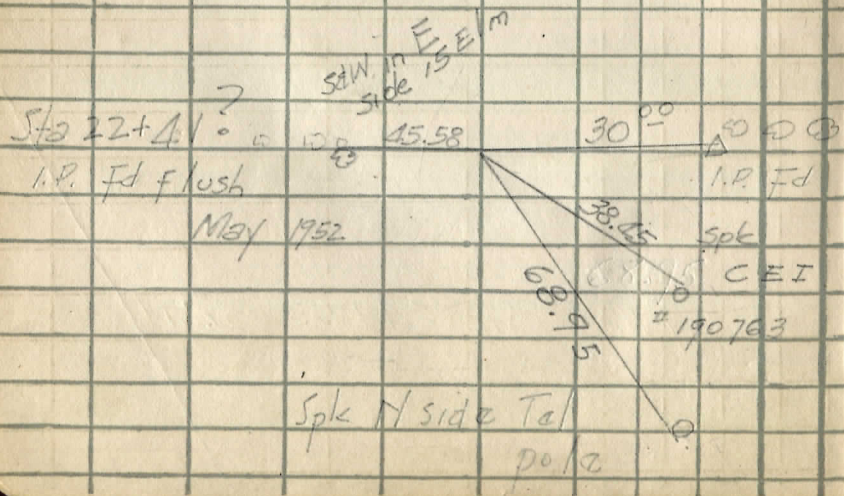
| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | C. | RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|





All points Fd & ref July 46
& May '52





X Sec. FAIRMOUNT RD from SEC. C

#306 E4 6/9/50 J.M. FCP AT J. FORD



| STA. | B. S. + | H. I. | F. S. − | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL RIGHT | C. |
|---|---|---|---|---|---|---|---|---|
| BM | 4.10 | 33.69 | | 100.00 | (1029.59) | | | |
| | | | 0.35 | 33.3 | | | | |
| 1+00 | | | | | | | | |
| 2+00 | | | | | | | | |
| 2+50 | | | | | | | | |
| 3+00 | ← Void → | | | | #1 #2 | | | |
| | | HI #2 | | | | | | |
| TP | 8.46 | 40.63 ✓ | 1.52 | 32.17 ✓ | | | | |
| T.P. | 4.71 | #3 36.88 ✓ | | 32.17 | | | | |
| T.P. | 12.72 | #4 53.35 ✓ | | 40.63 | | | | |
| 3+00 | | | | | | | | |
| 3+50 | | | | | | HIGH ELEVEL 20' N of ℄ | | |
| TP | 19.2 | #5 68.45 ✓ | 4.10 | 49.25 | | | | |
| 4+00 | | | | | | | | |
| TP | 7.38 | #6 72.48 | 3.35 | 65.10 | top | 5+6 (℄) | 4+50 | |
| 4+50 | | | | | | #7 #6 | | |

| FILL RIGHT | | | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA | CUBIC YARDS EMBANK. | |
|---|---|---|---|---|---|---|---|
| NE X Ex. Fwd | | | Hdwall | NE. Quad | St #306 & FM | Fairmount Rd | #16 |
| ℄ E | | | | | | | |
| | | | | | | | |
| | N or Lt | | | ℄ 31.5 | | S or Rt | |
| H.1 | 6.1 | 6.5 | 3.1 | 2.15 3.0 | 6.3 | 6.3 | |
| 40 | 28 | 26 | 15 | 19 | 32 | 50 | |
| | | | | 29.5 | | | |
| | 5.8 | 6.4 | 9.9 | 4.2 5.2 | 6.7 | 6.8 | |
| | 40 | 215 | 14 | 22 | 33 | 50 | |
| | | | | 29.0 | | | |
| | 6.5 | 6.2 | 5.3 | 4.7 5.9 | 7.2 | 6.9 | |
| | 40 | 24 | 13 | 24 | 35 | 60 | |
| 0.1 | | 4.2 | 5.4 | 5.1 4.8 | 5.7 | 6.8 | 7.2 |
| 31 | 20 | 9 | 6.0 | 10 | 25 | 34 | 49 |
| | | | | 28.6 | | | |
| 12" H | 6.7 16.9 | 7.9 | 8.8 | 8.4 8.0 | 8.9 | 9.9 | 10.5 #3 |
| Top 8" | 74' 43 | 15 | 7" | 8 | 26 | 30 | 50 |
| | | | 34 | | | 29.6 | |
| TRUS 1.5 | | 0.5 | | 2.5 9.7 | 7.3 | 8.0 | 10.20 #3 |
| for 45 | | 40 | | 10 | 25 | 42 | 60 |
| | | | | 31.3 31.6 | | | |
| | 6.3 3.1 | | 3.8 | 5.6 5.3 | 5.9 | 9.6 | 9.1 #3 |
| | 62 32 | | 75 | 77 41 | 54 | 64 | 75 |
| | | | | 61.8 | | 32.4 | |
| | 6.7 4.7 | | 4.5 10.7 | 1.3 | 5.0 | 4.5 | 5 7.6 #3 |
| | 60 28 | | 15 | 40 | 32 | 55 | 70 75 |
| | | | | 35 | 43 | | |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR LEFT | C. |
|---|---|---|---|---|---|---|---|
| | | 1036.88 | | | | | |
| 5+00 | | | | | | | |
| 5+50 | | | | | | | |
| 6+00 | | | | | | | |
| T.P. | | | 7.15 | 29.73 | Hub 6+12 on 75' | offset | |
| | 6/19/50 | | | | | | |
| T.P. | | | | 65.10 | | | |
| | 7.40 | 72.50 | | | | | |
| 5+00 | | | | | | | |
| 5+50 | | | | | | | |
| 5+88 | | | | | | | |
| 6+00 | | | | | | | |
| TP | 3.75 | 63.75 | 12.50 | 60.00 | | | |
| 6+50 | | | | | | | |
| TP | 1.40 | 52.06 | 13.09 | 50.66 | | | |
| 6+50 | | | | | | | |
| TP | | | 12.41 | 39.65 | top stk 6+50 | | |
| T.P. | 11.00 | 71.00 | | 60.00 | | | |
| BM | | | 3.22 | 1067.78 | | | |

Hor Lt  Sor Rt

| FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. | |
|---|---|---|---|---|---|
| N M LT. | | | | | |
| | | E. 34.5 30.8 31.7 | | 30.7 31.1 | |
| | | 2.4 6.1 5.2 | | 6.2 5.8 | H 3 |
| | | 49 58 68 | | 75 83 | |
| | | | | 30.0 31.3 | |
| | | | | 6.9 5.6 6.2 | H 1 |
| | | | | 63 75 85 | H 3 |
| | | | 29.5 | 30.6 | |
| | | | 7.4 | 6.3 7.1 | H 2 |
| | | | 32 | 67 90 | H 3 |
| offset | | | | | |
| top 4+50 E | | | | | |
| | 67.2 | 67.7 66.0 61.8 ✓ | | | |
| LEVEL | 5.3 | 4.8 6.5 10.7 | | | |
| 30' MORE | 52 | 16 12 | | | |
| | 69.2 | 67.6 66.5 60.7 ✓ | | | |
| LEVEL | 3.3 | 4.9 6.0 11.8 | | | |
| 25' MORE | 35 | 16 14' | | | |
| | (5+88) | 6.9 65.6 ✓ | | | |
| | 68.8 | 66.0 58.5 ✓ | | | |
| | 4.2 | 6.5 14.0 | | | |
| | 60 | 16 | | | |
| | 60.8 | 59.3 ✓ | | | |
| GRAD. UP N 14 | 2.95 | 4.4 | | | |
| | 60' | 45' | | | |
| | | 36.7 | | | |
| | | 15.33 | | | |

± 30' NW of ℄ Sta 6+0 Spk Sroot 18" Wild Ch

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR LEFT | C. |
|---|---|---|---|---|---|---|---|
| T.P. | 1.32 | 40.97 | | 1039.65 | top | 6+50 | |
| T.P. | 2.64 | 33.15 | 10.46 | 30.51 | | | |
| T.P. | 3.46 | 33.19 | 3.46 | 29.69 | (1029.73) | Hob 6+12 75' OH | |
| 6+50 | | | | | | | |
| 7+0 | | | | | | | |
| 8+0 | | | | | | | |
| T.P. | 7.42 | 35.31 | 5.30 | 27.89 | | | |
| 9+0 | | | | | | | |
| 10+0 | | | | | | | |
| 11+0 | | | | | | | |
| 11+73.3 | WEST END BRIDGE | | | | | | |
| F.L. | | | | | | | |
| | E. END BRIDGE 29+70 | | | | | | |

| FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | 29.2 29.1 | 29.6 | 28.9 27.3 27.3 |
| | | 42 43 | 3.8 4.5 | 6.1 6.1 |
| | | 22 27 | 40 55 | 69 75 |
| | | | T.E. | |
| 30.9 | 28.7 | 28.1 28.7 | 27.4 | 27.7 26.9 |
| 2.5 | 4.7 | 5.3 4.7 | 6.0 | 5.7 6.5 |
| 55 | 18 | 18. | 33 | 36 75 |
| | | T.E. | | |
| 27.6 | 27.6 | 28.2 27.5 | 28.5 | 27.9 27.4 |
| 5.8 | 5.8 | 5.2 5.9 | 4.9 | 3.5 +60 |
| 40 | 10 | 18 | 23 | 29 35 |
| 27.8 | 27.5 | 28.0 27.7 | 28.2 | 27.2 |
| 7.7 | 8.0 | 7.5 7.8 | 7.3 | +8.3 |
| 40 | 10 | 17 | 29 | 35 |
| 28.5 28.3 | 27.8 | 28.6 28.7 | 28.2 | 27.2 29.1 28.1 |
| 7.0 7.2 | 7.7 | 6.9 6.8 | 7.3 | 8.3 6.4 +7.4 |
| 40 13 | 9 10 | +E. 5 17 | 20 21 | 27 35 |
| 28.4 28.3 | 28.8 29.8 | 30.6 30.2 | 28.2 | 27.6 28.2 28.9 |
| 7.1 7.8 | 6.7 5.7 | 4.9 5.3 | 7.3 | 7.9 7.3 6.6 |
| 30 16 | 12 10 | 13 | 18 | 75 30 40 |
| | | 33.1 | | |
| | | 12.3=1023.0 | | |
| | | 2.1 33.2 | | |

Deduct 020

10-6-72 STATIONING BELOW IS VIA AROUND HILL 340+72 THOO NOT TANGENT OVER HILL.

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR LEFT | C. |
|---|---|---|---|---|---|---|---|
| TP | 5.90 | 39.72 | 1.49 | 33.82 | | | |
| 13+00 | | | | | | | |
| 14+00 | | | | | | | |
| 15+00 | | NEST | DRAIN IN S. DITCH | | | | |
| 16+00 | | | | | | | |
| 16+76 | | | | | | | |
| 17+69 | | | | | | | |
| BM | | | 2.25 | 1037.47 | | | |
| BM | 3.20 | 1038.03 | | 1034.83 | | | |
| | | | 8.27 | 1029.76 | | VOID | |
| BM | 3.19 | 53.62 | | 1050.43 | | | |
| T.P. | 0.90 | 44.15 | 10.37 | 43.25 | | | |
| I.P. | 3.02 | 37.99 | 9.18 | 34.97 | | | |
| BM | | | 8.40 | 29.59 | | | |
| BM | | | 3.31 | 34.68 | | | |

N S

| FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|
| 30.6 27.3 | 26.2 33.1 | 33.8 | 33.4 33.5 | |
| 9.1 12.4 | 13.5 6.3 | 5.9 | 6.3 6.2 | |
| ± Level 30 74 | 18' 2' | 5' | 20' 30 | |
| 31.8 32.1 29.1 | 29.1 28.5 28.5 34.3 34.1 | | 33.7 35.7 | 35.7 |
| 7.9 7.6 10.6 | 10.6 11.2 11.2 5.4 ± 5.3 | | 6.0 4.0 | 4.0 |
| 45 30 22 | 15 16 12 6 41 | | 14 21 | 35 |
| 32.8 33.7 30.9 30.9 29.7 | 29.7 34.7 | 35.7 34.6 35.3 | 36.7 | |
| 6.9 6.5 8.8 8.8 10.0 | 10.0 5.0 | ± 4.5 5.1 4.4 | 3.0 | |
| 45 28 23 20 16 | 12 6 | 3 13 19 | 30 | |
| 30.3 34.7 31.7 36.7 | | 36.3 36.9 41.1 42.7 | | |
| 5.4 5.0 8.0 8.0 3.5 | | 3.4 3.8 + 1.4 + 3.0 | | |
| 41 36 29 19 10 | | 6 10 | 21 | |
| | | 8.5 | | |
| | OUTLET | F.L. | | |
| | | 7.8 | | |
| | INLET | F.L. | | |

NE & E End Cove Hdwl Curv. S. Side of Road

NE & NE Curb Ch River Bridge ± 250' S & 306 & Fairmount

NE & E end hdwl NE quad. 306 & Fairmt

Spt SW root 54" maple 54' Rt of Sta. 109+82 Chillicothe Rd

NE < E end hdwl NE quad 306 & Fairmt

NE & NE Curb Ch River Bridge ± 250' S & 306 & Fairmount

Herb 6/20/50
Form

ck back

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR LEFT | | | C. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BM | 1.79 | 39.26 | | 1037.47 | | | | | | | |
| T.P. | 4.26 | 33.33 | 10.19 | 29.07 | | | | | | | |
| T.P. | 2.26 | 33.72 | 1.87 | 31.46 | | | | | | | |
| BM | | | 4.1 | 1029.60 | (1029.59) | | | | | | |
| | | | | | | | | | | | |
| 8/21/50 | | Herb - Art | | | | | | | | | |
| Profile | | | & | | | | | | | | |
| BM | | | | 1037.47 | | | | | | | |
| | 7.75 | 1045.22 | | | | | | | | | |
| 17+00 | | | 6.96 | 38.26 | | | | | | | |
| 18+00 | | | 5.75 | 39.47 | | | | | | | |
| 19+00 | | | 3.88 | 41.34 | | | | | | | |
| 20+00 | | | 1.24 | 43.98 | | | | | | | |
| T.P. | 11.45 | 1055.44 | 1.23 | 1043.99 | | | | | | | |
| 21+00 | | | 8.15 | 47.29 | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| 22+00 | | | | 51.86 | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| T.P. | 12.53 | 1065.97 | 2.00 | 1053.44 | | | | | | | |
| | | | | | | | | | | | |
| 23+00 | | | | 57.88 | | | | | | | |
| | | | | | | | | | | | |
| 23+10 | | | | | | | | | | | |

| FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|
| NE & E end conc. hdwl. | | | | |
| NE & E end hdwl NE quad 306 & CHK. | | | | |
| NE & E end conc. hdwl South side road | | | | |

N 49.9 47.0 E 46.8 44.1 49.7 S 50.8

5.54 / 35.0 easy up drive — 8.38 / 11.0 — 8.15 — 8.62 / 11.0 Berm — 11.25 / 17.0 DITCH — 5.73 / 25.0 — 4.64 / 31.0 easy up cut

54.3 54.0 51.2 51.5 51.3 47.5 52.5 53.6

1.19 / 30.0 — 1.36 / 20.0 — 4.20 / 12.0 DITCH — 3.92 / 10.5 Berm — 3.58 — 4.28 / 10.0 Berm — 7.85 / 15.0 DITCH — 2.86 / 23.5 — 1.82 / 30.0 easy up

41.2 61.1 59.3 57.5 59.5 57.8 57.7 57.3 56.0 57.4 56.8 55.9

1804.97 / 5.0 — 8.72 / 23.0 — 8.52 / 15.0 — 8.50 / 13.0 — 8.21 / 11.0 — 9.0 — 8.09 — 8.34 / 10.0 — 8.74 / 13.0 — 9.95 / 15.0 Ditch — 9.61 / 18.0 — 9.21 / 24.0 — 10.86 / 30.0

D'itch

47.0 Bank
19.0

℄

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | C. | RIGHT |
|---|---|---|---|---|---|---|---|---|
| | | 1065.97 | | | | | | |
| 23+90 | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| 24+00 | | | | 1065.29 | | | | |
| T.P | 6.02 | 1070.98 | 1.01 | 1064.96 | | | | |
| 24+50 | | | | 67.34 | | | | |
| | | | | | | | | |
| | | | | | | | | |
| 25+00 | | | | 65.65 | | | | |
| | | | | | | | | |
| | | | | | | | | |
| 25+90 | | | | 60.96 | | | | |
| T.P | 7.22 | 1067.35 | 10.85 | 1060.13 | | | | |
| 26+15 | | | | 1060.20 | | | | |
| NEW BM SET 1952 | | | | | | | | |
| 26+71 | ±60 S of | Culvert | | 1055.87 | S PK N side most SE'ly | | | |
| culvert | Sta. | | | 59.35 | Willow | | | |
| | | | | | | | | |
| | | | | | | | | |
| 27+00 | | | | 60.07 | | | | |

| FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|
| N | ℄ | | 63.1 S | |
| | | | 2.92 | |
| | | | 19.0 | |
| 66.2 | 66 65.4 64.9 | 65.1 | 64.7 64.1 | 64.2 62.5 |
| -0.25 | 0.00 0.62 1.05 | 0.86 | 1.32 1.93 | 1.10 -0.50 |
| 30.0 | 20.0 12.0 10.0 | 9.0 | 14.5 12.5 | 13.5 30.0 |
| | | | Ditch | |
| | 67.9 67.4 | 67.4 | 66.9 67.5 | 70.3 |
| Level | 3.13 3.61 | 3.56 | 4.06 3.53 | 0.72 |
| Drive | 30.0 14.0 | 11.0 | 13.0 14.0 | 30.0 |
| | | | Ditch | |
| 67.5 | 66.8 65.1 65.4 | 65.6 | 65.4 66.8 | 68.9 71.0 72.1 |
| 3.51 | 4.29 5.97 5.60 | 5.42 | 5.57 4.23 | 2.55 0.0 -1.1 |
| 28.5 | 21.0 16.0 13.0 | 7.0 | 9.0 12.0 | 16.0 17.0 30.0 |
| Barn corner | | | | |
| Std | D.Ditch | | Ditch | |
| | 57.1 60.1 60.8 | 61.0 | 60.7 61.9 | 62.9 64.5 73.7 |
| | 13.86 10.85 10.21 | 9.23 | 10.26 7.19 | 8.05 5.78 -2.7 |
| | 30.0 17.0 16.0 | 4.0 | 7.0 9.0 | 11.5 12.0 26.0 |
| | | | Ditch | |
| | 55.9 59.3 59.8 | 60.1 | 59.8 60.9 | 63.0 |
| | 10.5 8.10 7.58 | 7.30 | 7.90 6.55 | 4.38 Up sharp |
| | 30.0 18.0 15.0 | 9.0 | 13.0 18.0 | 30.0 South |
| | | | Ditch | |
| 50.7 | 57.7 | 58.7 | 50.6 | |
| 16.68 | 9.68 | 8.65 | 16.75 | |
| Flowline | T.B | Top | Flowline | |
| outlet | headwall | headwall | inlet | |
| 56.2 59.0 | 57.7 59.4 | 59.8 59.6 | 55.1 55.7 | |
| 10.47 8.41 | 10.21 8.02 7.60 | 7.75 | 12.29 12.30 | |
| 30.0 24.0 | 21.0 14.5 13.0 | 10.0 | 19.0 30.0 | |
| | D.Ditch | | | |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. |
|---|---|---|---|---|---|---|---|
| | | 1067.35 | | | | | |
| 28+00 | | | | 66.41 | | | |
| T.P. | 11.90 | 1078.56 | 0.69 | 1066.66 | | | |
| T.P. | 11.99 | 1090.50 | 0.05 | 1078.51 | | | |
| 29+00 | | | | 77.00 | | | |
| | | | | | | | |
| | | | | | | | |
| T.P. | 8.42 | 1098.87 | 0.05 | 1090.45 | | | |
| 30+00 | | | | 87.33 | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| 31+00 | | | | 94.31 | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| 32+00 | | | | 1098.02 | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| T.P. | 8.34 | 1106.91 | 0.30 | 1098.57 | | | |
| | | | | | | | |
| 33+00 | | | | 1101.66 | | | |
| | | | | | | | |
| | | | | | | | |
| 33+50 | | | | 1102.71 | | | |

N ℄ S

| FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|
| 66.2 67.2 65.8 / 0.90 0.21 1.45 / 30.0 23.0 10.0 | 65.7 66.3 66.4 / 1.11 1.11 0.97 / 12.0 | 66.1 / 12.5 / 8.0 | 65.7 65.8 / 1.67 1.57 / 10.5 12.5 | 61.8 / 5.9 / 30.0 |
| 85.4 76.5 76.5 76.3 / 5.11 13.96 13.74 14.2 / 33.0 17.0 15.0 14.0 / 9.11 / 30.0 86.4 | 76.9 / 13.61 / 12.0 13.50 | 76.7 / 13.83 / 10.0 | 75.8 86.3 / 14.10 4.23 / 12.0 25.0 ditch | easy down to ditch |
| 97.5 88.1 86.6 / 6.40 10.82 12.25 / 23.0 15.0 13.0 / 5.40 93.5 / 30.0 | 86.0 87.0 / 12.90 11.87 / 12.0 9.0 11.554 | 86.8 / 12.11 / 13.0 | 86.4 93.3 / 12.46 6.57 / 14.5 27.0 ditch | 92.3 / 6.55 / 30.0 |
| 95.4 97.4 / 0.50 1.33 / 30.0 15.0 | 93.3 93.9 / 5.60 5.00 / 11.5 9.5 9.36 | 93.6 / 5.30 / 12.0 | 97.8 96.0 / 2.05 2.9 / 14.5 17.0 | level off |
| 99.7 98.8 97.6 97.0 / -0.8 0.1 1.25 1.85 / 20.0 6.5 14.5 11.0 / 0.2 98.9 / 27.0 | 1097.5 / 1.40 / 9.0 0.95 | 1097.6 / 1.32 / 12.0 | 97.1 98.1 / 1.75 0.80 / 15.0 19.0 | 97.7 / 1.70 / 30.0 |
| 1105.9 01.5 / level at 1.00 5.39 / 21.0 10.5 | 1101.2 / 5.73 / 10.0 5.35 | 1100.9 / 6.01 / 12.5 | 00.5 01.0 / 6.40 5.89 / 17.0 20.0 ditch | 1100.4 / 6.48 / 30.0 |
| 1108.4 02.8 / easy up 1.5 4.10 / 22.0 12.5 | 02.8 1102.4 / 4.14 4.47 / 10.0 9.0 4.20 | 1101.7 / 5.18 5.67 / 15.0 12.5 | 01.2 01.7 01.2 / 5.12 5.98 / 19.0 21.0 | 1100.4 / 6.51 / 30.0 |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. |
|---|---|---|---|---|---|---|---|
| | | 1106.91 | | | | | |
| 34+00 | | | | 1102.24 | | | |
| B.M. | 2.25 | 1103.12 | 6.04 | 1100.87 | Begin 8/22/50 | | |
| 35+00 | | | | 1099.68 | | | |
| | | | Note: This dip is tiled both N & S. Resident says never any trouble | | | | |
| 36+00 | | | | 1098.45 | | | |
| 37+0 | | | 4.8 | 1098.32 | | | |
| 38+0 | | | 4.4 | 1098.72 | | | |
| P. | 7.64 | 1106.76 | 4.00 | 1099.12 | | | |
| 39 | | | 5.8 | 1100.96 | | | |
| 40 | | | 4.5 | 1102.26 | | | |
| + | | culv + | | | | | |
| 41 | | | 4.3 | 1102.46 | | | |
| 42 | | | 2.9 | 03.86 | | | |
| 43 | | | 0.5 | 06.26 | | | |
| P | 11.31 | | 0.65 | 1106.11 | | | |
| 44 | | | 8.4 | 09.02 | | | |
| 45 | | | 5.3 | 12.12 | | | |

N ℄ S

| FILL RIGHT | | | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|
| 06.1 | 02.2 | 02.1 | 1102.2 | 1101.4 | 01.2 | 02.2 | 1101.5 |
| 0.20 / 25.0 | 4.73 / 14.5 | 4.80 / 11.5 | 4.94 / 6.0 | 4.67 | 5.52 / 15.0 | 5.70 / 14.0 | 4.74 / 22.5 | 5.45 / 30.0 |
| Spk SW 12" Catalpa Sta 34+98 30' Lt Nearest to drive | | | | | | | | |
| 1099.8 | | 99.2 | 1099.5 | | | 98.7 | 97.8 | | 98.4 | 98.2 |
| 3.27 / 30.0 | | 3.93 / 12.0 | 3.56 / 9.5 edge cond | 3.44 | | 4.37 / 16.0 | 5.25 / 16.0 | | 4.70 / 20.0 | 4.73 / 30.0 |
| 96.2 | | 97.4 | 97.1 | 1099.5 | | 1097.5 | 96.8 | | 97.4 | 97.3 |
| 6.71 / 30.0 | | 5.65 / 2 10 | 6.02 / 14.0 | 5.60 / 16.0 | 1.57 | 5.64 / 16.0 | 6.26 / 14.0 | | 5.71 / 20.0 | 5.85 / 30.0 |
| 1097.9 | | 1098.4 | 1100.1 | 1102.3 | | 1100.5 | | 1099.2 | | |
| 9.8 | | 8.4 | 6.7 | 1.5 | | 6.27 | | 7.5 | | |
| 100' | | FL | top pipe | | | top pipe | | FL | | |
| Stone 42+97 | | | | | | | | | | |

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR LEFT | C. |
|---|---|---|---|---|---|---|---|
| | | 1117.42 | | | | | |
| 46 | | | 2.1 | 1115.1 | | | |
| T.P. | 9.55 | 1125.91 | 1.06 | 1116.36 | | | |
| 47 | | | 7.9 | 1118.00 | | | |
| 48 | | | 5.2 | 20.7 | | | |
| 49 | | | 1.9 | 24.0 | | | |
| T.P. | 10.79 | 1135.94 | 0.76 | 1125.15 | | | |
| 50 | | | 7.7 | 28.2 | | | |
| 51 | | | 2.5 | 33.4 | | | |
| T.P. | 10.63 | 1145.90 | 0.67 | 1135.27 | | | |
| 52+0 | | | | 38.4 | | | |
| 53+0 | | | | 43.7 | | | |
| $+93^{5}$ NORTHWOOD ROAD | | | | | | | |
| T.P. | 8.53 | 1153.57 | 0.86 | 1145.04 | | | |
| 54+0 | | | | 49.1 | | | |
| BM<br>Set | 4.06 | 1153.76 | 3.87 | 1149.70 | | | |
| 8/24/50 | | | | | | | |
| 55+0 | | | | 46.4 | | | |

N S

| FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|
| | ℄ | | | |

$39.^{4}$ $39.^{1}$ $37.^{6}$ $1137.^{7}$ $1137.^{8}$ $36.^{6}$ $39.^{2}$ $39.^{3}$
6.5 6.8 8.3 8.2 7.5 8.1 9.3 6.7 6.6
30 17 13 12 14 17 20 30

$43.^{6}$ $44.^{0}$ $42.^{6}$ $1143.^{2}$ $43.^{4}$ $41.^{9}$ $43.^{5}$ $43.^{5}$
2.3 1.9 3.3 2.7 2.2 2.5 4.0 2.4 2.4
30 17 12 10 13 17 20 30

$47.^{8}$ $48.^{6}$ $1149.^{1}$ $48.^{7}$ $50.^{5}$ $51.^{5}$
5.8 5.0 4.5 4.5 4.9 3.1 2.1
100' 30 6 14 23 40
in North Wood

Spk N W root 12" Locust E side Northwood Drive ± 150' N of Fairmt

$49.^{2}$ $48.^{9}$ $45.^{3}$ $46.^{1}$ $46.^{6}$ $46.^{1}$ $45.^{6}$ $45.^{8}$ $45.^{8}$ $45.^{3}$
$\frac{4.6}{33.0}$ $\frac{4.9}{18.0}$ $\frac{8.5}{10.0}$ $\frac{7.7}{4.0}$ 7.4 $\frac{7.3}{7.0}$ $\frac{7.7}{15.0}$ $\frac{8.2}{18.2}$ $\frac{8.0}{21.0}$ $\frac{8.0}{30.0}$ $\frac{8.6}{40.0}$

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL RIGHT | CUT OR FILL C. | AREA EXCAVA. | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1153.76 | | | | | | | | | | |
| 56+0 | | | | 42.6 | | | | | | | | |
| T P | 2.47 | 1143.97 | 12.26 | 1141.50 | | | | | | | | |
| 57+0 | | | | 1135.6 | | | | | | | | |
| T.P. | 1.53 | 1132.54 | 12.96 | 1131.01 | | | | | | | | |
| 58+0 | | | | 26.2 | | | | | | | | |
| T.P. | 2.53 | 1124.73 | 10.34 | 1122.20 | | | | | | | | |
| 59+0 | | | | 18.4 | | | | | | | | |
| TP. | 0.39 | 1112.22 | 12.90 | 1111.83 | | | | | | | | |
| 60 | | | | 11.5 | | | | | | | | |
| 61 | | | | 1107.2 | | | | | | | | |
| Clvt +21 | | | | | | | | | | | | |

9/30/57
Pg. 53 ± part Re: location profile

| STA. | FILL RIGHT | AREA EXCAVA. | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|
| | 45.9 | 46.4 41.8 | 1142.8 | 42.3 41.8 | 41.1 43.1 |
| | 7.9 4.0 | 7.7 12.0 19.0 10.5 | 11.2 (11.0 / 6.0) | 11.5 12.0 19.0 23.0 | 12.7 10.7 26.0 30.0 |
| | | | | | level out to 40 |
| 44.5 easy -9.5 40 | 43.0 33.3 up 1.0 10.7 24.0 14.0 | 31.6 35.7 9.4 8.8 1.0 6.0 | 8.4 11 35.7 (8.3 / 6.0) | 35.8 8.2 14.0 | 35.1 34.5 35.1 34.7 8.9 9.5 8.7 9.3 21.5 22.5 24.0 25.6 |
| | | | | 36.4 → 5.6 31.5 | level out to 40 |
| 25.5 7.0 30.0 -13.1 48.0 35.6 | 24.2 25.3 11 27.4 7.3 8.3 7.2 (6.1 / 12.0) 15.5 26.5 up easy out | 26.6 5.9 4.0 6.3 | 25.8 6.7 10.0 | 25.4 25.8 7.5 6.7 18.0 16.0 4.5 31.0 28.0 | 24.9 27.7 7.6 4.8 19.0 24.0 6.1 down 26.0 26.4 out |
| | | | | | 14.9 |
| 23.5 17.2 17.3 17.8 18.0 11 18.4 level 1.2 6.9 7.4 6.9 6.7 (6.3 / 8) 6.3 3.4 27 24 21.5 16 | | | 17.8 17.6 18.6 19.7 6.9 7.1 6.1 5.5 10 11 13 16 | 18.8 18.7 17.8 9.8 5.9 6.0 6.9 8.8 18 22 30 41 | 15.2 |
| 11.3 09.6 08.0 11.1 | 11.4 | 1111.6 | 10.5 09.3 | 08.1 | |
| 0.9 2.6 3.7 1.1 | 0.8 0.7 | (0.6) | 1.7 2.9 | 4.1 | |
| 35. 19 17 11 | 3 | 7 | 19 29 | 50 | |
| 1097.2 1099.3 | 1106.6 | 07.5 | 06.1 04.8 | 03.7 | 1099.9 |
| +15.0 12.9 | 5.6 5.0 9 | (4.7 / 11) | 6.1 7.4 | 8.5 | ±14.3 |
| ± level 33 27 | | | 28 42 | 46 60 | |
| 1100.2 1095.0 | 1107.0 | 1095.2 | | 1101.4 | |
| 11.4 17.2 | 5.2 | 17.6 | | 10.8 | |
| Top hd wall | flow line | flow line | | Top hd wall | |

2350
1951
40

○ = trav ℄

N ℄ S.

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | ℄ | RIGHT |
|---|---|---|---|---|---|---|---|---|
| | | 1112.22 | | | | | | |
| 6240 | | | | 1109.0 | | | | |
| T. D | 10.73 | 1122.50 | 0.45 | 1111.77 | | | | |
| 63 | | | | 16.9 | | | | |
| T. P. | 10.18 | 1132.62 | 0.36 | 1122.14 | | | | |
| 64 | | | | 28.3 | | | | |
| T. P. | 11.00 | 1143.60 | 0.02 | 1132.60 | | | | |
| T. P | 8.45 | 1151.04 | 1.01 | 1142.59 | | | | |
| 65 | | | | 41.1 | | | | |
| +32 | Cuyahoga | | Trail | | | | | |
| T. P. | 9.27 | 1160.23 | 0.08 | 1150.96 | | | | |
| 66 | | | | 52.7 | | | | |
| T P | 9.010 | 1168.23 | 0.50 | 1159.13 | | | | |
| 67 | | | | 60.9 | | | | |
| 68 | | | | 63.5 | | | | |

| AREA EXCAVA. | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|
| 1101.0 02.5 07.5 | 1108.9 07.9 | 08.1 07.6 | 06.1 1106.6 |
| 11.2 9.7 4.6 3.7 | 3.3 4.3 | 4.1 4.6 | 6.1 7.6 |
| 90.0 24.0 13.5 3.2 | 7.0 22.0 | 23.0 31.0 | 47.0 60.0 |
| | | | 16.5 6.0 |
| 15.8 14.7 16.3 16.2 | 1116.6 14.2 14.4 15.3 | | up 16.4 16.2 50 15.1 |
| 6.7 7.8 6.2 6.3 5.6 | 5.9 7.6 8.1 7.2 | | 6.1 6.4 7.4 |
| 30 27 20 12 | 8 18 24 25 | | 29 36 44 |
| 6 a.l 50 26.8 27.8 | 1128.0 27.9 28.3 26.9 23.1 | | |
| up 0.3 3.4 5.8 48 | 4.8 4.6 5.2 4.3 5.7 9.5 level | | |
| 30 19 13.5 12 | 11 16 20 24 43 26.9 | | |
| 40.6 | | | 3.9 & up 46 |
| ← up 44.8 40.5 41.2 40.1 40.6 | 1141.1 40.9 40.2 | | 45.8 16.1 48.5 |
| 3.4 6.2 10.5 10.0 10.9 10.6 9.9 | 9.9 10.1 10.8 | | 5.2 5.9 2.5 |
| 34 21 15 10 7 5.5 | 3 12 15 | | 23 30 40 |
| 51.2 | 45.2 15.1 | | |
| & up 0.0 | 5.8 5.9 | | |
| 95 | 7 | | |
| 57.6 | 1152.3 52.0 | 51.6 | 52.3 56.1 |
| 58.1 54.11 52.5 50.9 52.1 | 7.5 7.9 8.2 8.7 | 7.9 | 3.5 LEVEL |
| 2.7 2.1 5.6 9.7 9.3 8.1 | 10 13 14 17 | | 22 |
| +30 24 18.5 16 13 11 | | | |
| 63.1 63.5 63.7 60.4 59.9 60.4 | 1160.8 60.4 61.8 62.5 | | |
| 5.4 5.2 5.0 8.3 8.8 8.13 7.8 | 7.9 8.3 6.9 6.2 | | |
| 30 25 18 12 10 7.5 | 9 14 20 30 | | LEVEL Yd drive |
| 63.2 64.3 62.5 62.2 1162.5 | 63.2 62.7 61.9 64.3 64.0 | | |
| 5.5 4.4 4.4 6.2 5.8 5.2 5. | 2.5.5 6.0 6.8 4.4 4.7 | | |
| 33 27 19.6 14.5 11 7 | 9 11 13.5 19 30 | | LEV Lawn |

+ −

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR LEFT | C. |
|---|---|---|---|---|---|---|---|
| | | 1168.78 | | | | | |
| 69 | | | | 1167.0 | | | |
| TP. | 1.78 | 1166.08 | 6.83 | 1161.90 | | | |
| 69+96 | | | | | ← | 12" Conc. P. | |
| 70+64 | B.M. | | 4.23 | 1161.85 | | S. Root 4.8' Elm 30' Left | |
| 71 | | | | 1162.1 | | | |
| 72 | | | | 63.8 | | | |
| 73 | | | | 64.3 | | | |
| 73+ | | | | 65.2 | | Mtn Rd | |

N S

| FILL RIGHT | | | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. | |
|---|---|---|---|---|---|---|---|
| | | 61½ | 61⅜ 61⅝ | 1161.7 60.5 | 61.9 62.5 | | |
| Lev Pasture | | 61⅞ 69 74 / 15 18 | 74 / 11.5 7.1 / 8.0 | 6.7 7.0 / 10 8.2 / 14 | 6.8 / 16.5 6.2 / 25 | Lev out | |
| | | | | | | 60.0 6.1 / 36 | Lev 60.0 |
| | | | | | | Fl. Pasture | V.S.B. |
| 59.8 | 58.9 | 59.1 | 58.9 | | 60.5 59.4 | 59.6 | 60.5 |
| 6.3 / 45 | 7.2 / 45 | 7.0 / 30 | 7.2 / 21 | | 5.6 / 19 | 6.7 / 14 | 6.47 / 25 | 5.6 / Pole V.S.B. |
| Bank | Fl. | | Fl. Culv | | Top Fine | Fl. | Fl. Field Drain 12W V.S.B. | |
| | | | 4.0 | | | | |
| | | | 2.9 | | | | |
| | | | 1.8 | | | | |
| | | | | 65.1 65.4 | | | |
| | | | 0.9 | 1.0 / 16 0.7 / 22 | | | |

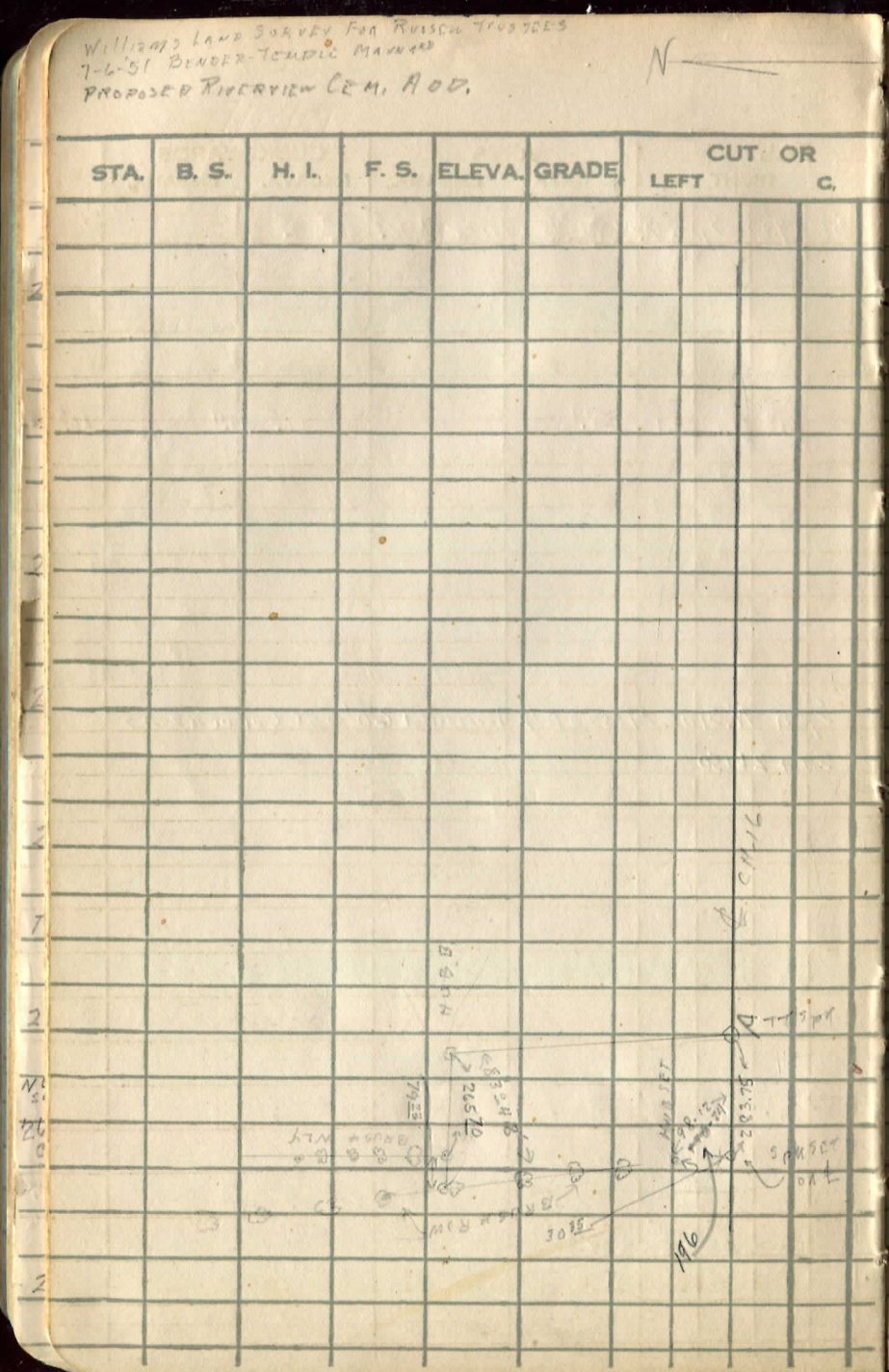
| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL C. | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BM | 6.34 | 1107.21 | | 1100.87 | | | | | | | | |
| TP | 0.74 | 1095.67 | 11.88 | 1095.33 | | | | | | | | |
| TP | 0.35 | 1084.18 | 11.74 | 1083.83 | | | | | | | | |
| 28+50 | | | 1.93 | | | | | | | | | |
| 29+00 | | | 6.6 | | | | | | | | | |
| TP | 0.33 | 1073.72 | 10.79 | 1073.39 | | | | | | | | |
| 28+50 | | | 2.1 | | | | | | | | | |
| TP | | | 10.83 | 1062.89 | | TOP | 27.50 | Mound | | | | |
| BM SET 1952 | | | | 1055.87 | | | | | | | | |

54+98 Spk S.M. 12" Catalpa

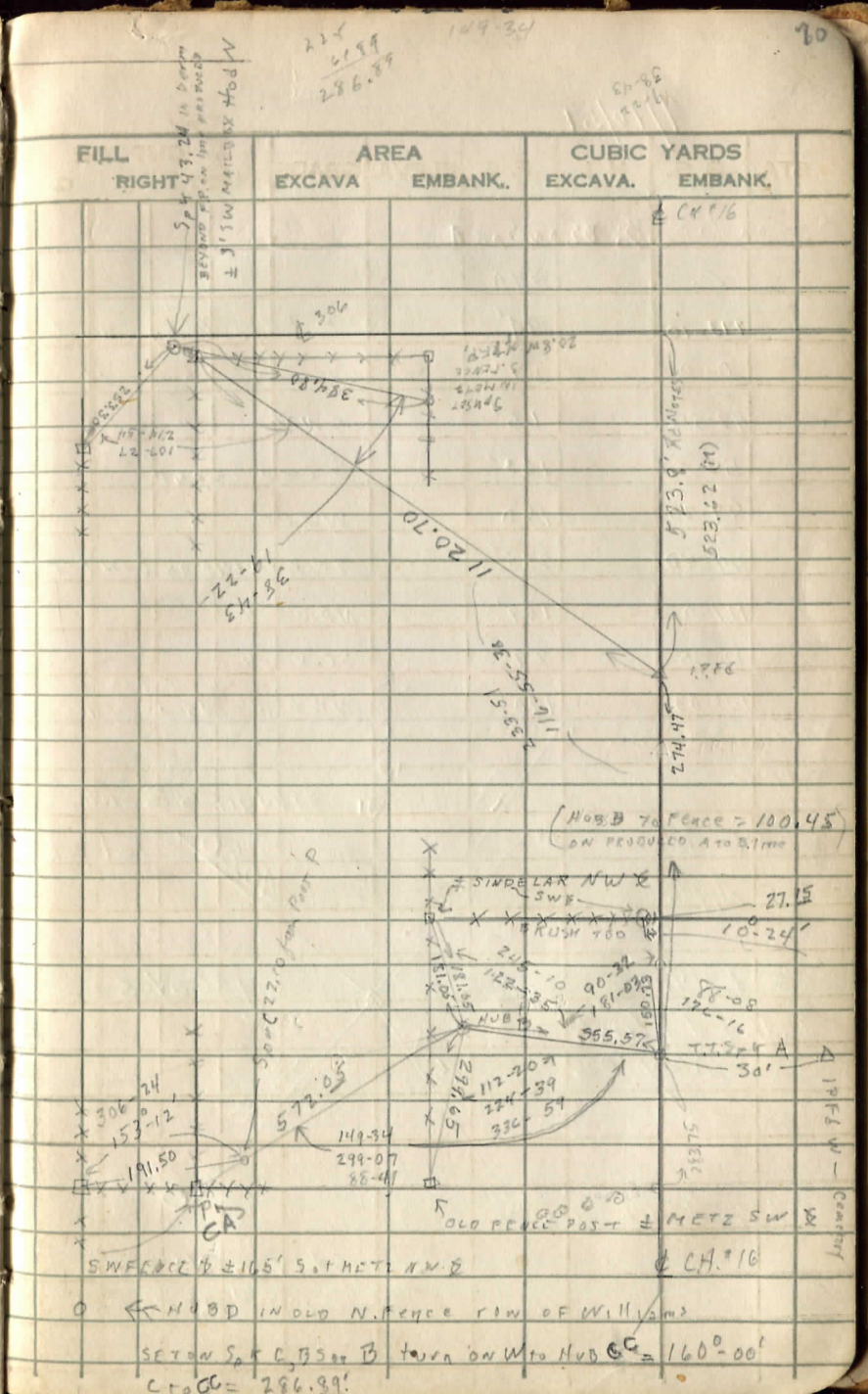
Spk N. Side Most SEly Willow ± 60' S of Culvert at Sta 26+50

Williams Land Survey for Russell Trustees
7-6-51 Bender-Temple Markers
Proposed Riverview Cem. Add.

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR LEFT | C. |
|---|---|---|---|---|---|---|---|



| FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|



℄ Ref FAIRMOUNT RD
May '52

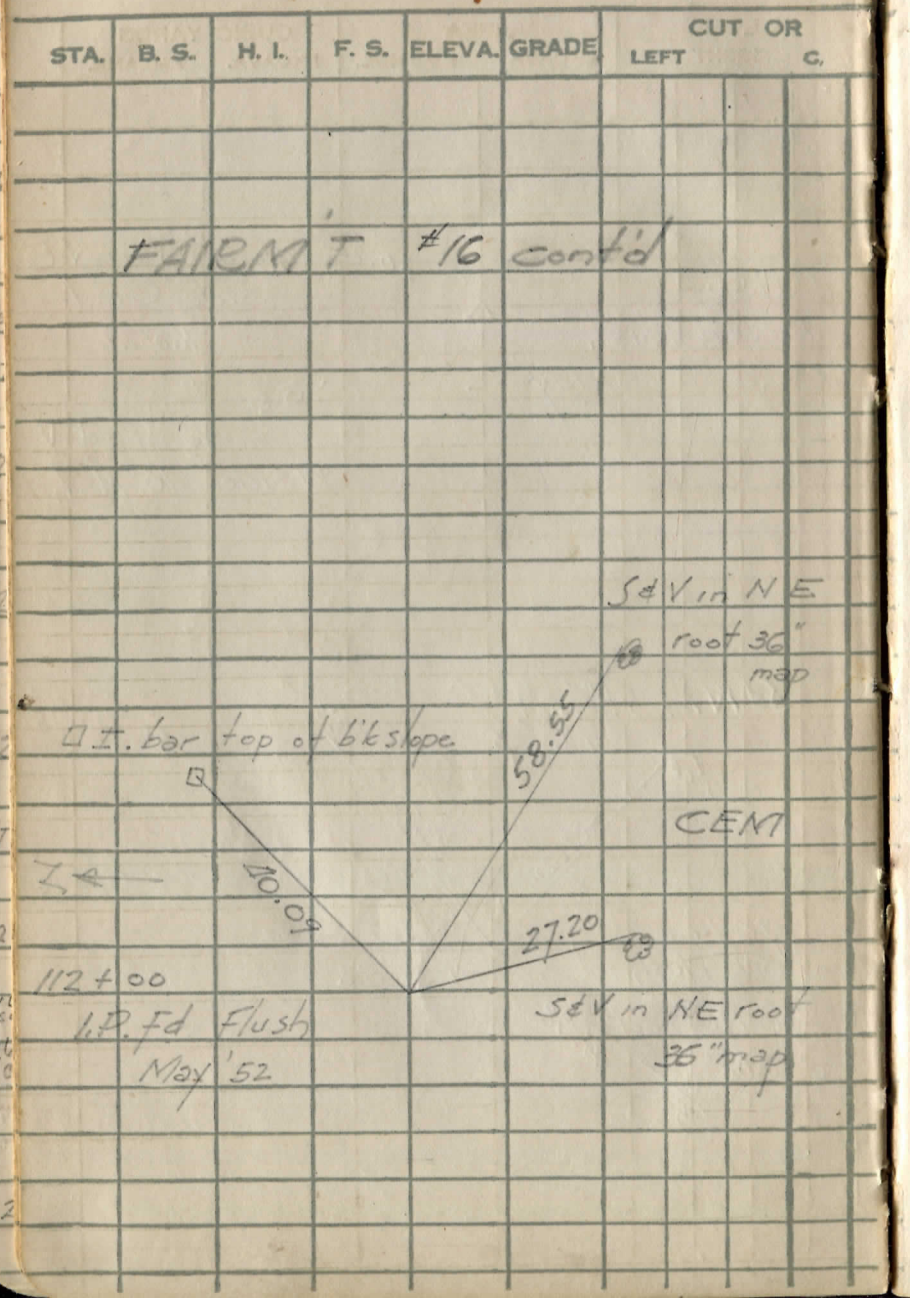
7/10/51

| STA. | B. S. | H. I. | F. S. | ELEVA. | GRADE | CUT OR FILL LEFT | CUT OR FILL RIGHT | AREA EXCAVA | AREA EMBANK. | CUBIC YARDS EXCAVA. | CUBIC YARDS EMBANK. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Set N Mon. | B. B. | | N Spk | | | | | | | | |
| | ℄ | | STA | | | | | | | | |
| | 273-10 | | 44' | | E. Edge Brush & Woods | | | | | | |
| | 0-0 | | 37' | | S " " " | | | | | | |
| | 42-50 | | 65' | | SW ☆ " " | | | | | | |
| | 52-50 | | 133' | | S end Swamp | | | | | | |
| | 87-20 | | 180 | | WEED " | | | | | | |
| | 114-40 | | 255' | | NW ☆ Swamp & E&W Fence | | | | | | |
| | 117-0 | | 159' | | NE ☆ " | | | | | | |
| | 85-20 | | 89' | | SE ☆ " | | | | | | |
| | 148-63 | | 120' | | NW ☆ Woods & E&W Fence | | | | | | |
| Set in SE side Apple | | | | | | | | | | | |
| Spk SE side Cor Apple | | | | | | | | | | | |
| 55 + 44.0 | | | | | | ℄ Caves | | | | | |
| I.P. Fd Flush May '52 | | | | | | | | | | | |
| N | | | | | | | | | | | |
| I bar & nut flush | | | | | | | | | | | |
| | | | | | | | | | | | |

77.2
43.85
35.1
40.80 Tel pole
41.36
Fence
Set in NE side
Set in NW side
CEI # 585956

82+50
I.P. Fd Flush
May '52
30.32
38.9
Set in NE side CEI 180627
Spk & V W side 40" Ash

96+00
Spk Flush Fd
May '52
Spk NE root 36" Elm
41.98
Set in SE root 36" map
49.60
43.73




# IMPROVED TABLES

AND

# INFORMATION

# DIRECTIONS FOR USE OF TABLES

## TABLE No. 1.

Distance of slope stake from side or shoulder stake for any width roadway, slope 1½ to 1. If ground is nearly level, the cut or fill at side stake is located by the double entry method in left column and top row. The number in body of table in same row and column gives distance from side stake to slope stake. If ground is not level estimate the difference in elevation between the side stake and slope stake, lower target by this amount if cut, elevate if fill. Add this amount to cut or fill and find distance in table. Set up rod at this point, and line of sight should cut target. If it does not make the slight adjustment necessary.

## TABLE No. 9.

To find Tangent and External for curve of any other degree, divide by degree of curve and add correction found in column of corrections.

Degree of curve with a given I may be found by dividing tangent, (or external), opposite I by given tangent, (or external).

The distance from a point on the tangent to the curve is very nearly the square of the tangent lenth divided by twice the radius.

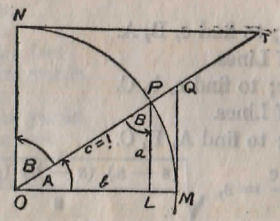



TABLE II

TRIGONOMETRIC FORMULÆ.

$\angle A = \angle MOP \qquad \angle B = \angle PON = \angle OPL$

$R = OB = c = 1$

$$\sin A = \frac{a}{c} = \frac{a}{1} = a = \cos B = LP$$

$$\cos A = \frac{b}{c} = \frac{b}{1} = b = \sin B = OL$$

$$\tan A = \frac{a}{b} = \frac{MQ}{OM} = \frac{MQ}{1} = MQ = \cot B = MQ$$

$$\cot A = \frac{NT}{ON} = \frac{NT}{1} = NT = \tan B = NT$$

$$\sec A = \frac{OQ}{OM} = \frac{OQ}{1} = OQ = \csc B = OQ$$

$$\csc A = \frac{OT}{ON} = \frac{OT}{1} = OT = \sec B = OT$$

$$\text{vers } A = \frac{LM}{OP} = LM = \text{covers } B \#$$

$$\text{covers } A = \frac{OP - LP}{OP} = OP - LP = \text{vers } B$$

$$\text{exsec } A = PQ = \text{coexsec } B$$

$$\text{coexsec } A = PT = \text{exsec } B$$

$$\sin \tfrac{1}{2} A = \sqrt{\frac{1 - \text{Cos } A}{2}} \qquad \cos \tfrac{1}{2} A = \sqrt{\frac{1 + \text{Cos } A}{2}}$$

$$\sin 2A = 2 \sin A \cos A \qquad \cos 2A = \cos^2 A - \sin^2 A$$

$$\text{Law of Lines} \quad \frac{\sin A}{a} = \frac{\sin B}{B} = \frac{\sin C}{C}$$

$$\text{Law of Cosines} \quad c^2 = a^2 + b^2 - 2 ab \cos C$$

$$\text{Law of Tangents} \quad \frac{a+b}{a-b} = \frac{\tan \tfrac{1}{2}(A+B)}{\tan \tfrac{1}{2}(A-B)}$$

## Table II—Continued
## TRIGONOMETRIC FORMULAE (continued)

*In any triangle:*

Given a, b, C; to find c, B, A.

Use Law of Lines.

Given A, B, c; to find a, b, C.

Use Law of Lines.

Given a, b, c; to find A, B, C.

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

$$\cos \tfrac{1}{2} A = \sqrt{\frac{s(s-a)}{bc}}$$

$$\tan \tfrac{1}{2} A = \frac{r}{s-a}$$

$$\tan \tfrac{1}{2} B = \frac{r}{s-b}$$

$$\tan \tfrac{1}{2} C = \frac{r}{s-c}$$

Area of a triangle:

$$\text{Area} = \tfrac{1}{2} ab \sin C$$

$$\text{Area} = \sqrt{s\,(s-a)\,(s-b)\,(s-c)}$$

PRISMOIDAL FORMULA.

$$\text{Vol.} = \frac{h}{6}(B+b+4M)$$

h = altitude; b, B = bases; M = midsection

## Table III
## INCHES AND FRACTIONS OF AN INCH IN DECIMALS OF A FOOT

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1/16 | .0052 | .0885 | .1719 | .2552 | .3385 | .4219 | .5052 | .5885 | .6719 | .7552 | .8385 | .9219 | 1/16 |
| 1/8 | .0104 | .0938 | .1771 | .2604 | .3438 | .4271 | .5104 | .5938 | .6771 | .7604 | .8438 | .9271 | 1/8 |
| 3/16 | .0156 | .0990 | .1823 | .2656 | .3490 | .4323 | .5156 | .5990 | .6823 | .7656 | .8490 | .9323 | 3/16 |
| 1/4 | .0208 | .1042 | .1875 | .2708 | .3542 | .4375 | .5208 | .6042 | .6875 | .7708 | .8542 | .9375 | 1/4 |
| 5/16 | .0260 | .1094 | .1927 | .2760 | .3594 | .4427 | .5260 | .6094 | .6927 | .7760 | .8594 | .9427 | 5/16 |
| 3/8 | .0313 | .1146 | .1979 | .2813 | .3646 | .4479 | .5313 | .6146 | .6979 | .7813 | .8646 | .9479 | 3/8 |
| 7/16 | .0365 | .1198 | .2031 | .2865 | .3698 | .4531 | .5365 | .6198 | .7031 | .7865 | .8698 | .9531 | 7/16 |
| 1/2 | .0417 | .1250 | .2083 | .2917 | .3750 | .4583 | .5417 | .6250 | .7083 | .7917 | .8750 | .9583 | 1/2 |
| 9/16 | .0469 | .1302 | .2135 | .2969 | .3803 | .4635 | .5469 | .6302 | .7135 | .7969 | .8802 | .9635 | 9/16 |
| 5/8 | .0521 | .1354 | .2188 | .3021 | .3854 | .4688 | .5521 | .6354 | .7188 | .8021 | .8854 | 9688 | 5/8 |
| 11/16 | .0573 | .1406 | .2240 | .3073 | .3906 | .4740 | .5573 | .6406 | .7240 | .8073 | .8906 | .9740 | 11/16 |
| 3/4 | .0625 | .1458 | .2292 | .3125 | .3958 | .4792 | .5625 | .6458 | .7292 | .8125 | .8958 | .9792 | 3/4 |
| 13/16 | .0677 | .1510 | .2344 | .3177 | .4010 | .4844 | .5677 | .6510 | .7344 | .8177 | .9010 | .9844 | 13/16 |
| 7/8 | .0729 | .1563 | .2396 | .3229 | .4063 | .4896 | .5729 | .6563 | .7396 | .8229 | .9063 | .9896 | 7/8 |
| 15/16 | .0781 | .1615 | .2448 | .3281 | .4115 | .4948 | .5781 | .6615 | .7448 | .8281 | .9115 | .9948 | 15/16 |
| 1 | .0833 | .1667 | .2500 | .3333 | .4167 | .5000 | .5833 | .6667 | .7500 | .8333 | .9167 | 1.000 | 1 |
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | |

## Table IV
## USEFUL RELATIONS.

| | | |
|---|---|---|
| Lineal feet | ×.00019 | = miles |
| Lineal yards | ×.0006 | = miles |
| Square inches | ×.007 | = square feet |
| Square feet | ×.111 | = square yards |
| Square yards | ×.0002067 | = acres |
| Acres | ×4840 | = square yards |
| Cubic inches | ×.00058 | = cubic feet |
| Cubic feet | ×.03704 | = cubic yards |
| Links | ×.22 | = yards |
| Links | ×.66 | = feet |
| Feet | ×1.5 | = links |

$360° = 21600' = 1296000''$

Radius = arc of 57.2957790°

Arc of 1° (radius = 1) = .017453292

Arc of 1′ (radius = 1) = .000290888

Arc of 1″ (radius = 1) = .000004848

$\pi = 3.141592654$ $\qquad \sqrt{\frac{1}{4}} = 0.564190$

$\frac{\pi}{4} = 0.785398163$ $\qquad \sqrt[3]{\frac{6}{\pi}} = 1.240700982$

$\frac{\pi}{6} = 0.523598776$ $\qquad \pi^2 = 9.869604401$

$\sqrt{\frac{4}{\pi}} = 1.128379167$ $\qquad \frac{1}{\pi^2} = 0.101321184$

$\frac{\pi}{6} = 0.523598776$ $\qquad \sqrt{\pi} = 1.772453851$

$\frac{4.\pi}{3} = 4.188790205$ $\qquad \frac{1}{\pi} = 0.3183099$

Curvature of Earth's surface = about 0.7 feet in 1 mile

Curvature in feet = 0.667 (Dist. in miles)$^2$

Difference between arc and chord length, 0.05 feet in 11½ miles

$$\text{Probable error of a single observation} = 0.6754\sqrt{\frac{M\,v^2}{n-1}}$$

Error in chaining of 0.01 feet in 100 feet:

Due to—

1. Length of tape error of 0.01 feet
2. Alignment. One end 1.4 feet out of line
3. Sag of tape at centre of 0.61 feet.
4. Temperature difference of 15°
5. Difference of pull of 15 lbs.

### STADIA REDUCTION FORMULÆ.

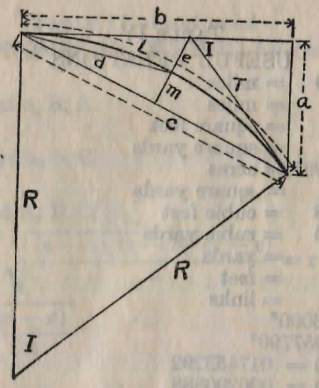
Horizontal Distance = $R - R \sin^2 a + C \cos a$

Vertical Distance = $R\ \frac{1}{2} \sin 2a + C \sin a$

$$R = \text{Reading} \times \frac{\text{distance from Object glass to cross hairs}}{\text{distance between cross hairs}}$$

C = distance from Object glass to cross hairs + distance from Object glass to center of instrument.

a = angle of elevation for mid Reading




## Table V

### CURVE FORMULAE FOR SIMPLE CURVES

Compiled by J. Calvin Locke, C.E.

(1) $c = \sqrt{2Ra}$ (2) $c = \sqrt{a^2+b^2}$

(3) $c = \sqrt{2R\,(R-\sqrt{(R+b)\,(R-b)}} = \sqrt{2R(R-\sqrt{R^2-b^2})}$

(4) $c = 2\sqrt{m\,(2R-m)}$

(5) $c = 2R \sin \frac{1}{2} I$ (6) $c = 2T \cos \frac{1}{2} I$

(7) $e = R \operatorname{exsec} \frac{1}{2} I$

(8) $e = R \tan \frac{1}{2} I \tan \frac{1}{4} I$ (9) $e = T \tan \frac{1}{4} I$

(10) $b = \sqrt{a\,(2R-a)}$

(11) $b = \sqrt{\left(c+\frac{c^2}{2R}\right)\left(c-\frac{c^2}{2R}\right)} = \sqrt{c^2-\frac{c^4}{4R^2}}$

(12) $b = R \sin I$ (13) $b = a \cot \frac{1}{2} I$

(14) $R = \frac{a^2+b^2}{2a} = \frac{c^2}{2a}$ (15) $R = \frac{d^2}{2m} = \frac{c^2+4m^2}{8m}$

(16) $d = \sqrt{R\,(2R-\sqrt{(2R+c)\,(2R-c)}} = \sqrt{R(2R-\sqrt{4R^2-c^2})}$

(17) $d = \sqrt{2Rm}$ (18) $d = 2R \sin \frac{1}{4} I$ (19) $m = \frac{d^2}{2R}$

(20) $m = R \mp \sqrt{\left(R+\frac{c}{2}\right)\left(R-\frac{c}{2}\right)} = R \mp \sqrt{R^2-\frac{c^2}{4}}$

(21) $m = R \operatorname{vers} \frac{1}{2} I$ (22) $m = R \sin \frac{1}{2} I \tan \frac{1}{4} I$ (23) $m = \frac{1}{2} c \tan \frac{1}{4} I$

(24) $a = \frac{c^2}{2R}$ (25) $a = R - \sqrt{(R+b)\,(R-b)} = R - \sqrt{R^2-b^2}$

(26) $a = 2\,R\,(\sin^2 \frac{1}{2} I)^2$ (27) $a = R \operatorname{vers} I$ (28) $a = R \sin I \tan \frac{1}{2}$

(29) $a = b \tan \frac{1}{2} I$ (30) $a = T \sin I$ (31) $T = R \tan \frac{1}{2} I$

(32) $I = \frac{L}{R} \times 57.295780$ (33) $R = \frac{L}{I} \times 57.295780$

(34) $L = IR \times 0.01745329$ (35) $L = \frac{8d-c}{3}$

(36) Area Seg. $= \frac{LR - R^2 \operatorname{Sin} I}{2} = \frac{LR - Rb}{2}$

## Table VI

### SINES, COSINES, TANGENTS, COTANGENTS

| deg. | sin 0′ | tan 0′ | sin 10′ | tan 10′ | sin 20′ | tan 20′ | sin 30′ | tan 30′ | sin 40′ | tan 40′ | sin 50′ | tan 50′ | deg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0000 | 0000 | 0029 | 0029 | 0058 | 0058 | 0087 | 0087 | 0116 | 0116 | 0145 | 0145 | 89 |
| 1 | 175 | 0375 | 0204 | 0204 | 0233 | 0233 | 0262 | 262 | 291 | 291 | 320 | 320 | 88 |
| 2 | 349 | 349 | 378 | 378 | 407 | 407 | 436 | 437 | 465 | 466 | 494 | 495 | 87 |
| 3 | 523 | 524 | 552 | 553 | 581 | 582 | 610 | 612 | 640 | 641 | 669 | 706 | 86 |
| 4 | 698 | 699 | 727 | 729 | 756 | 758 | 785 | 787 | 814 | 816 | 843 | 864 | 85 |
| 5 | 872 | 875 | 901 | 904 | 929 | 934 | 958 | 963 | 987 | 992 | 1016 | 1022 | 84 |
| 6 | 1045 | 1051 | 1074 | 1080 | 1103 | 1110 | 1132 | 1139 | 1161 | 1169 | 190 | 198 | 83 |
| 7 | 219 | 228 | 248 | 257 | 279 | 287 | 305 | 317 | 334 | 346 | 363 | 376 | 82 |
| 8 | 392 | 405 | 421 | 435 | 449 | 465 | 478 | 495 | 507 | 524 | 536 | 554 | 81 |
| 9 | 564 | 584 | 593 | 614 | 622 | 644 | 650 | 673 | 679 | 703 | 708 | 733 | 80 |
| 10 | 736 | 763 | 765 | 793 | 794 | 823 | 822 | 853 | 851 | 883 | 880 | 914 | 79 |
| 11 | 908 | 944 | 937 | 974 | 965 | 2004 | 994 | 2035 | 2022 | 2065 | 2051 | 2095 | 78 |
| 12 | 2079 | 2126 | 2108 | 2156 | 2136 | 186 | 2164 | 217 | 193 | 247 | 221 | 278 | 77 |
| 13 | 250 | 309 | 278 | 339 | 306 | 370 | 334 | 401 | 363 | 432 | 391 | 462 | 76 |
| 14 | 419 | 493 | 447 | 524 | 476 | 555 | 504 | 586 | 532 | 617 | 560 | 648 | 75 |
| 15 | 588 | 679 | 616 | 711 | 644 | 742 | 672 | 773 | 700 | 805 | 728 | 836 | 74 |
| 16 | 756 | 867 | 784 | 899 | 812 | 931 | 840 | 962 | 868 | 994 | 896 | 3026 | 73 |
| 17 | 924 | 3057 | 952 | 3089 | 939 | 3121 | 3007 | 3153 | 3035 | 3185 | 3062 | 217 | 72 |
| 18 | 3090 | 249 | 3118 | 281 | 3145 | 314 | 173 | 346 | 201 | 378 | 228 | 411 | 71 |
| 19 | 256 | 443 | 283 | 476 | 311 | 508 | 338 | 541 | 365 | 574 | 393 | 607 | 70 |
| 20 | 420 | 640 | 448 | 673 | 475 | 706 | 502 | 739 | 529 | 772 | 557 | 805 | 69 |
| 21 | 584 | 839 | 611 | 872 | 638 | 906 | 665 | 939 | 692 | 973 | 719 | 4006 | 68 |
| 22 | 746 | 4040 | 773 | 4074 | 800 | 4108 | 827 | 4142 | 854 | 4176 | 881 | 210 | 67 |
| 23 | 907 | 245 | 934 | 279 | 961 | 314 | 987 | 348 | 4014 | 383 | 4041 | 417 | 66 |
| 24 | 4067 | 452 | 4094 | 487 | 4120 | 522 | 4147 | 557 | 173 | 592 | 200 | 628 | 65 |
| 25 | 226 | 663 | 253 | 699 | 279 | 734 | 305 | 770 | 331 | 806 | 358 | 841 | 64 |
| 26 | 384 | 877 | 410 | 913 | 436 | 950 | 4462 | 986 | 488 | 5022 | 514 | 5059 | 63 |
| 27 | 540 | 5095 | 566 | 5132 | 592 | 5169 | 617 | 5206 | 643 | 243 | 669 | 280 | 62 |
| 28 | 695 | 317 | 720 | 354 | 746 | 392 | 772 | 430 | 797 | 467 | 823 | 505 | 61 |
| 29 | 848 | 543 | 874 | 581 | 899 | 619 | 924 | 658 | 950 | 696 | 975 | 735 | 60 |
| 30 | 5000 | 774 | 5025 | 5812 | 5050 | 851 | 5075 | 890 | 5100 | 930 | 5125 | 969 | 59 |
| 31 | 150 | 6009 | 175 | 6048 | 200 | 6088 | 225 | 6128 | 250 | 6168 | 275 | 6208 | 58 |
| 32 | 299 | 249 | 324 | 289 | 348 | 330 | 5373 | 371 | 398 | 412 | 422 | 453 | 57 |
| 33 | 446 | 494 | 471 | 536 | 495 | 577 | 519 | 619 | 544 | 661 | 568 | 703 | 56 |
| 34 | 592 | 745 | 616 | 787 | 640 | 830 | 664 | 873 | 688 | 916 | 712 | 959 | 55 |
| 35 | 736 | 7002 | 760 | 7046 | 783 | 7089 | 807 | 7133 | 831 | 7177 | 854 | 7221 | 54 |
| 36 | 878 | 265 | 901 | 310 | 925 | 355 | 948 | 400 | 972 | 445 | 995 | 490 | 53 |
| 37 | 6018 | 536 | 6041 | 581 | 6065 | 627 | 6088 | 673 | 6111 | 720 | 6134 | 766 | 52 |
| 38 | 157 | 813 | 180 | 860 | 202 | 907 | 225 | 954 | 248 | 8002 | 271 | 8050 | 51 |
| 39 | 293 | 8098 | 316 | 8146 | 338 | 8195 | 361 | 8243 | 383 | 292 | 406 | 342 | 50 |
| 40 | 428 | 391 | 450 | 441 | 472 | 491 | 494 | 541 | 517 | 591 | 539 | 642 | 49 |
| 41 | 561 | 693 | 583 | 744 | 604 | 796 | 626 | 847 | 648 | 899 | 670 | 952 | 48 |
| 42 | 691 | 9004 | 713 | 9057 | 734 | 9110 | 756 | 9163 | 777 | 9217 | 799 | 9271 | 47 |
| 43 | 820 | 325 | 841 | 380 | 862 | 435 | 884 | 490 | 905 | 545 | 926 | 601 | 46 |
| 44 | 947 | 657 | 967 | 713 | 988 | 770 | 7009 | 827 | 7030 | 884 | 7050 | 942 | 45 |
| 45 | 7071 | 1.0000 | 7092 | 1.0058 | 7112 | 1.0117 | 133 | 1.0176 | 153 | 1.0235 | 173 | 1.0295 | 44 |
| deg. | 60′ cos | 60′ cot | 50′ cos | 50′ cot | 40′ cos | 40′ cot | 30′ cos | 30′ cot | 20′ cos | 20 cot | 10′ cos | 10′ cot | deg. |

TABLE VI (continued)

## SINES, COSINES, TANGENTS, COTANGENTS (continued)

| deg. | sin 0′ | tan 0′ | sin 10′ | tan 10′ | sin 20′ | tan 20′ | sin 30′ | tan 30′ | sin 40′ | tan 40′ | sin 50′ | tan 50′ | deg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 46 | 7193 | 1.0355 | 7214 | 1.0416 | 7234 | 1.0477 | 7254 | 1.0533 | 7274 | 1.0599 | 7294 | 1.0661 | 43 |
| 47 | 314 | .0724 | 333 | .0786 | 353 | .0850 | 373 | .0913 | 392 | .0977 | 412 | .1041 | 42 |
| 48 | 431 | .1106 | 451 | .1171 | 470 | .1237 | 490 | .1303 | 509 | .1369 | 528 | .1436 | 41 |
| 49 | 547 | .1504 | 566 | .1571 | 585 | .1640 | 604 | .1708 | 623 | .1778 | 642 | .1847 | 40 |
| | | | | | | | | | | 1.2203 | | | |
| 50 | 660 | 1.1918 | 7679 | 1.1988 | 7698 | 1.2059 | 7716 | 1.2131 | 7735 | .2647 | 7753 | 1.2276 | 39 |
| 51 | 771 | .2349 | 790 | .2423 | 808 | .2497 | 826 | .2572 | 844 | .3111 | 862 | .2723 | 38 |
| 52 | 880 | .2799 | 898 | .2876 | 916 | .2954 | 934 | .3032 | 951 | .3597 | 969 | .3190 | 37 |
| 53 | 986 | .3270 | 8004 | .3351 | 8021 | .3452 | 8039 | .3514 | 8056 | .4106 | 8073 | .3680 | 36 |
| 54 | 8090 | .3764 | 107 | .3848 | 124 | .3934 | 141 | .4019 | 158 | .4641 | 175 | .4193 | 35 |
| 55 | 192 | .4281 | 208 | .4370 | 225 | .4460 | 241 | .4550 | 258 | .5204 | 274 | .4733 | 34 |
| 56 | 290 | .4826 | 307 | .4919 | 323 | .5013 | 339 | .5108 | 355 | .5798 | 371 | .5301 | 33 |
| 57 | 387 | .5399 | 403 | .5497 | 418 | .5597 | 434 | .5697 | 450 | .6426 | 465 | .5900 | 32 |
| 58 | 480 | .6003 | 496 | .6107 | 511 | .6212 | 526 | .6319 | 542 | .7090 | 557 | .6534 | 31 |
| 59 | 572 | .6643 | 587 | .6753 | 601 | .6864 | 616 | .6977 | 631 | | 646 | .7205 | 30 |
| 60 | 660 | 1.7321 | 8675 | 1.7437 | 8689 | 1.7556 | 8704 | 1.7675 | 8718 | 1.7797 | 8732 | 1.7917 | 29 |
| 61 | 746 | .8040 | 760 | .8165 | 774 | .8291 | 788 | .8418 | 802 | .8546 | 816 | .8676 | 28 |
| 62 | 829 | .8807 | 843 | .8940 | 857 | .9074 | 870 | .9210 | 884 | .9347 | 897 | .9486 | 27 |
| 63 | 910 | .9626 | 923 | .9768 | 936 | .9912 | 949 | 2.0057 | 962 | 2.0204 | 975 | 2.0353 | 26 |
| 64 | 988 | 2.0503 | 9001 | 2 0655 | 9013 | 2 .0809 | 9026 | .0965 | 9038 | .1123 | 9051 | .1283 | 25 |
| 65 | 9063 | .1445 | 075 | .1609 | 088 | .1775 | 100 | .1943 | 112 | .2113 | 124 | .2286 | 24 |
| 66 | 135 | .2460 | 147 | .2637 | 159 | .2817 | 171 | .2998 | 182 | .3183 | 194 | .3369 | 23 |
| 67 | 205 | .3559 | 216 | .3750 | 228 | .3945 | 239 | .4142 | 250 | .4342 | 261 | .4545 | 22 |
| 68 | 272 | .4751 | 283 | .4960 | 293 | .5172 | 304 | .5386 | 315 | .5605 | 325 | .5826 | 21 |
| 69 | 336 | .6051 | 346 | .6279 | 356 | .6511 | 367 | .6746 | 377 | .6985 | 387 | .7228 | 20 |
| 70 | 397 | 2.7475 | 9407 | 2.7725 | 9417 | 2. 7980 | 9426 | 2.8239 | 9436 | 2.8502 | 9446 | 2.8770 | 19 |
| 71 | 455 | .9042 | 465 | .9319 | 474 | . 9600 | 483 | .9887 | 492 | 3.0178 | 502 | 3.0475 | 18 |
| 72 | 511 | 3.0777 | 520 | 3.1084 | 528 | 3 .1397 | 537 | 3.1716 | 546 | .2041 | 555 | .2371 | 17 |
| 73 | 563 | .2709 | 572 | .3052 | 580 | .3402 | 588 | .3759 | 596 | .4124 | 605 | .4495 | 16 |
| 74 | 613 | .4874 | 621 | .5261 | 628 | .5656 | 636 | .6059 | 644 | .6470 | 652 | .6891 | 15 |
| 75 | 659 | .7321 | 667 | .7760 | 674 | .8208 | 681 | .8657 | 689 | .9136 | 696 | .9617 | 14 |
| 76 | 703 | 4.0108 | 710 | 4.0611 | 717 | 4 .1126 | 724 | 4.1653 | 730 | 4.2193 | 737 | 4.2747 | 13 |
| 77 | 744 | .3315 | 750 | .3897 | 757 | .4494 | 763 | .5107 | 769 | .5736 | 775 | .6382 | 12 |
| 78 | 781 | .7046 | 787 | .7729 | 793 | .8430 | 799 | .9152 | 805 | .9894 | 811 | 5.0658 | 11 |
| 79 | 816 | .1446 | 822 | 5.2257 | 827 | 5. 3093 | 833 | 5.3955 | 838 | 5.4845 | 843 | .5764 | 10 |
| 80 | 9848 | 5.6713 | 9853 | 5.7694 | 9858 | 5. 8708 | 9863 | 5.9758 | 9868 | 6.0844 | 9872 | 6.1970 | 9 |
| 81 | 877 | 6.3138 | 881 | 6.4348 | 886 | 6. 5606 | 890 | 6.6912 | 894 | .8269 | 899 | .9682 | 8 |
| 82 | 903 | 7.1154 | 907 | 7.2687 | 911 | 7. 4287 | 914 | 7.5958 | 918 | 7.7704 | 922 | 7.9530 | 7 |
| 83 | 925 | 8.1443 | 929 | 8.3450 | 932 | 8. 5555 | 936 | 8.7769 | 939 | 9.0098 | 942 | 9.2553 | 6 |
| 84 | 945 | 9.5144 | 948 | 9.7882 | 951 | 10.078 | 954 | 10.385 | 957 | 10.711 | 959 | 11.059 | 5 |
| 85 | 962 | 11.430 | 964 | 11.826 | 967 | 12.250 | 969 | 12.706 | 971 | 13.197 | 974 | 13.727 | 4 |
| 86 | 976 | 14.300 | 978 | 14.924 | 980 | 15.605 | 981 | 16.350 | 983 | 17.169 | 985 | 18.075 | 3 |
| 87 | 986 | 19.081 | 988 | 20.206 | 989 | 21.470 | 990 | 22.903 | 992 | 24.542 | 993 | 26.432 | 2 |
| 88 | 994 | 28.636 | 9995 | 31.242 | 9996 | 34.368 | 997 | 38.189 | 997 | 42.964 | 9998 | 49.104 | 1 |
| 89 | 9998 | 57.290 | 9999 | 68.750 | 9999 | 85.940 | 9999 | 114.58 | 1.000 | 171.88 | 1.000 | 343.77 | 0 |
| deg. | 60′ cos | 60′ cot | 50′ cos | 50′ cot | 40′ cos | 40′ cot | 30′ cos | 30′ cot | 20′ cos | 30′ cot | 10′ cos | 10′ cot | deg. |

## TABLE VII

### RODS IN FEET AND INCHES

| Rods | Feet Inches | Rods | Feet Inches | Rods | Feet Inches | Rods | Feet Inches | Rods | Feet Inches |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 16—6 | 21 | 346—6 | 41 | 676—6 | 61 | 1006—6 | 81 | 1336—6 |
| 2 | 33—0 | 22 | 363—0 | 42 | 693—0 | 62 | 1023—0 | 82 | 1353—0 |
| 3 | 49—6 | 23 | 379—6 | 43 | 709—6 | 63 | 1039—6 | 83 | 1369—6 |
| 4 | 66—0 | 24 | 396—0 | 44 | 726—0 | 64 | 1056—0 | 84 | 1386—0 |
| 5 | 82—6 | 25 | 412—6 | 45 | 742—6 | 65 | 1072—6 | 85 | 1402—6 |
| 6 | 99—0 | 26 | 429—0 | 46 | 759—0 | 66 | 1089—0 | 86 | 1419—0 |
| 7 | 115—6 | 27 | 445—6 | 47 | 775—6 | 67 | 1105—6 | 87 | 1435—6 |
| 8 | 132—0 | 28 | 462—0 | 48 | 792—0 | 68 | 1122—0 | 88 | 1452—0 |
| 9 | 148—6 | 29 | 478—6 | 49 | 808—6 | 69 | 1138—6 | 89 | 1468—6 |
| 10 | 165—0 | 30 | 495—0 | 50 | 825—0 | 70 | 1155—0 | 90 | 1485—0 |
| 11 | 181—6 | 31 | 511—6 | 51 | 841—6 | 71 | 1171—6 | 91 | 1501—6 |
| 12 | 198—0 | 32 | 528—0 | 52 | 858—0 | 72 | 1188—0 | 92 | 1518—0 |
| 13 | 214—6 | 33 | 544—6 | 53 | 874—6 | 73 | 1204—6 | 93 | 1534—6 |
| 14 | 231—0 | 34 | 561—0 | 54 | 891—0 | 74 | 1221—0 | 94 | 1551—0 |
| 15 | 247—6 | 35 | 577—6 | 55 | 907—6 | 75 | 1237—6 | 95 | 1567—6 |
| 16 | 264—0 | 36 | 594—0 | 56 | 924—0 | 76 | 1254—0 | 96 | 1584—0 |
| 17 | 280—6 | 37 | 610—6 | 57 | 940—6 | 77 | 1270—6 | 97 | 1600—6 |
| 18 | 297—0 | 38 | 627—0 | 58 | 957—0 | 78 | 1287—0 | 98 | 1617—0 |
| 19 | 313—6 | 39 | 643—6 | 59 | 973—6 | 79 | 1303—6 | 99 | 1633—6 |
| 20 | 330—0 | 40 | 660—0 | 60 | 990—0 | 80 | 1320—0 | 100 | 1650—0 |

## TABLE VIII

### LINKS IN FEET AND INCHES

| Links | Feet Inches | Links | Feet Inches | Links | Feet Inches | Links | Feet Inches | Links | Feet Inches | Links | Feet Inches |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0- 7.92 | 18 | 11-10.56 | 35 | 23- 1.20 | 52 | 34- 3.84 | 69 | 45- 6.48 | 86 | 56- 9.12 |
| 2 | 1- 3.84 | 19 | 12- 6.48 | 36 | 23- 9.12 | 53 | 34-11.76 | 70 | 46- 2.40 | 87 | 57- 5.04 |
| 3 | 1-11.76 | 20 | 13- 2.40 | 37 | 24- 5.04 | 54 | 35- 7.68 | 71 | 46-10.32 | 88 | 58- 0.96 |
| 4 | 2- 7.68 | 21 | 13-10.32 | 38 | 25- 0.96 | 55 | 36- 3.60 | 72 | 47- 6.24 | 89 | 58- 8.88 |
| 5 | 3- 3.60 | 22 | 14- 6.24 | 39 | 25- 8.88 | 56 | 36-11.52 | 73 | 48- 2.16 | 90 | 59- 4.80 |
| 6 | 3-11.52 | 23 | 15- 2.16 | 40 | 26- 4.80 | 57 | 37- 7.44 | 74 | 48-10.08 | 91 | 60- 0.72 |
| 7 | 4- 7.44 | 24 | 15-10.08 | 41 | 27- 0.72 | 58 | 38- 3.36 | 75 | 49- 6.00 | 92 | 60- 8.64 |
| 8 | 5- 3.36 | 25 | 16- 6.00 | 42 | 27- 8.64 | 59 | 38-11.28 | 76 | 50- 1.92 | 93 | 61- 4.56 |
| 9 | 5-11.28 | 26 | 17- 1.92 | 43 | 28- 4.56 | 60 | 39- 7.20 | 77 | 50- 9.84 | 94 | 62- 0.48 |
| 10 | 6- 7.20 | 27 | 17- 9.84 | 44 | 29- 0.48 | 61 | 40- 3.12 | 78 | 51- 5.76 | 95 | 62- 8.40 |
| 11 | 7- 3.12 | 28 | 18- 5.76 | 45 | 29- 8.40 | 62 | 40-11.04 | 79 | 52- 1.68 | 96 | 63- 4.32 |
| 12 | 7-11.04 | 29 | 19- 1.68 | 46 | 30- 4.32 | 63 | 41- 6.96 | 80 | 52- 9.60 | 97 | 64- 0.24 |
| 13 | 8- 6.96 | 30 | 19- 9.60 | 47 | 31- 0.24 | 64 | 42- 2.88 | 81 | 53- 5.52 | 98 | 64- 8.16 |
| 14 | 9- 2.88 | 31 | 20- 5.52 | 48 | 31- 8.16 | 65 | 42-10.80 | 82 | 54- 1.44 | 99 | 65- 4.08 |
| 15 | 9-10.80 | 32 | 21- 1.44 | 49 | 32- 4.08 | 66 | 43- 6.72 | 83 | 54- 9.36 | 100 | 66- .000 |
| 16 | 10- 6.72 | 33 | 21- 9.36 | 50 | 33- 0.00 | 67 | 44- 2.64 | 84 | 55- 5.28 | 101 | 66 -7.92 |
| 17 | 11- 2.64 | 34 | 22- 5.28 | 51 | 33- 7.92 | 68 | 44-10.56 | 85 | 56- 1.20 | 102 | 67- 3.84 |

## TABLE IX. TANGENTS AND EXTERNALS TO A 1° CURVE

| I | T | E | I=10° | I | T | E | I=20° | I | T | E | I=30° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1° | 50.00 | .218 | + | 11° | 551.70 | 26.500 | + | 21° | 1061.9 | 97.577 | + |
| 10′ | 58.34 | .297 | 5° C. | 10′ | 560.11 | 27.313 | 5° C | 10′ | 1070.6 | 99.155 | 5° C |
| 20′ | 66.67 | .388 | T | 20′ | 568.53 | 28.137 | T | 20′ | 1079.2 | 100.75 | T |
| 30′ | 75.01 | .491 | .03 | 30′ | 576.95 | 28.974 | .06 | 30′ | 1087.8 | 102.35 | .10 |
| 40′ | 83.34 | .606 | E | 40′ | 585.36 | 29.824 | E | 40′ | 1096.4 | 103.97 | E |
| 50′ | 91.68 | .733 | | 50′ | 593.79 | 30.686 | | 50′ | 1105.1 | 105.60 | |
| 2° | 100.01 | .873 | .001 | 12° | 602.21 | 31.561 | .006 | 22° | 1113.7 | 107.24 | .013 |
| 10′ | 108.35 | 1.024 | | 10′ | 610.64 | 32.447 | | 10′ | 1122.4 | 108.90 | |
| 20′ | 116.68 | 1.188 | | 20′ | 619.07 | 33.347 | | 20′ | 1131.0 | 110.57 | |
| 30′ | 125.02 | 1.364 | | 30′ | 627.50 | 34.259 | | 30′ | 1139.7 | 112.25 | |
| 40′ | 133.36 | 1.552 | | 40′ | 635.93 | 35.183 | | 40′ | 1148.4 | 113.95 | |
| 50′ | 141.70 | 1.752 | | 50′ | 644.37 | 36.120 | | 50′ | 1157.0 | 115.66 | |
| 3° | 150.04 | 1.964 | 10° C. | 13° | 652.81 | 37.070 | 10° C. | 23° | 1165.7 | 117.38 | 10° C. |
| 10′ | 158.38 | 2.188 | T | 10′ | 661.25 | 38.031 | T | 10′ | 1174.4 | 119.12 | T |
| 20′ | 166.72 | 2.425 | .06 | 20′ | 669.70 | 39.006 | .13 | 20′ | 1183.1 | 120.87 | .19 |
| 30′ | 175.06 | 2.674 | E | 30′ | 678.15 | 39.993 | E | 30′ | 1191.8 | 122.63 | E |
| 40′ | 183.40 | 2.934 | .003 | 40′ | 686.60 | 40.992 | .011 | 40′ | 1200.5 | 124.41 | .025 |
| 50′ | 191.74 | 3.207 | | 50′ | 695.06 | 42.004 | | 50′ | 1209.2 | 126.20 | |
| 4° | 200.08 | 3.492 | | 14° | 703.51 | 43.029 | | 24° | 1217.9 | 128.00 | |
| 10′ | 208.43 | 3.790 | | 10′ | 711.97 | 44.066 | | 10′ | 1226.6 | 129.82 | |
| 20′ | 216.77 | 4.099 | | 20′ | 720.44 | 45.116 | | 20′ | 1235.3 | 131.65 | |
| 30′ | 225.12 | 4.421 | | 30′ | 728.90 | 46.178 | | 30′ | 1244.0 | 133.50 | |
| 40′ | 233.47 | 4.755 | | 40′ | 737.37 | 47.253 | | 40′ | 1252.8 | 135.35 | |
| 50′ | 241.81 | 5.100 | 15° C. | 50′ | 745.85 | 48.341 | 15° C. | 50′ | 1261.5 | 137.23 | 15° C. |
| 5° | 250.16 | 5.459 | T | 15° | 754.32 | 49.441 | T | 25° | 1270.2 | 139.11 | T |
| 10′ | 258.51 | 5.829 | .09 | 10′ | 762.80 | 50.554 | .19 | 10′ | 1279.0 | 141.01 | .29 |
| 20′ | 266.86 | 6.211 | E | 20′ | 771.29 | 51.679 | E | 20′ | 1287.7 | 142.93 | E |
| 30′ | 275.21 | 6.606 | .004 | 30′ | 779.77 | 52.818 | .017 | 30′ | 1296.5 | 144.85 | .038 |
| 40′ | 283.57 | 7.013 | | 40′ | 788.26 | 53.969 | | 40′ | 1305.3 | 146.79 | |
| 50′ | 291.92 | 7.432 | | 50′ | 796.75 | 55.132 | | 50′ | 1314.0 | 148.75 | |
| 6° | 300.28 | 7.863 | | 16° | 805.25 | 56.309 | | 26° | 1322.8 | 150.71 | |
| 10′ | 308.64 | 8.307 | | 10′ | 813.75 | 57.498 | | 10′ | 1331.6 | 152.69 | |
| 20′ | 316.99 | 8.762 | | 20′ | 822.25 | 58.699 | | 20′ | 1340.4 | 154.69 | |
| 30′ | 325.35 | 9.230 | | 30′ | 830.76 | 59.914 | | 30′ | 1349.2 | 156.70 | |
| 40′ | 333.71 | 9.710 | 20° C. | 40′ | 839.27 | 61.141 | 20° C. | 40′ | 1358.0 | 158.72 | 20° C. |
| 50′ | 342.08 | 10.202 | T | 50′ | 847.78 | 62.381 | T | 50′ | 1366.8 | 160.76 | T |
| 7° | 350.44 | 10.707 | .13 | 17° | 856.30 | 63.634 | .26 | 27° | 1375.6 | 162.81 | .39 |
| 10′ | 358.81 | 11.224 | E | 10′ | 864.82 | 64.900 | E | 10′ | 1384.4 | 164.86 | E |
| 20′ | 367.17 | 11.753 | .006 | 20′ | 873.35 | 66.178 | .022 | 20′ | 1393.2 | 166.95 | .051 |
| 30′ | 375.54 | 12.294 | | 30′ | 881.88 | 67.470 | | 30′ | 1402.0 | 169.04 | |
| 40′ | 383.91 | 12.847 | | 40′ | 890.41 | 68.774 | | 40′ | 1410.9 | 171.15 | |
| 50′ | 392.28 | 13.413 | | 50′ | 898.95 | 70.091 | | 50′ | 1419.7 | 173.27 | |
| 8° | 400.66 | 13.991 | | 18° | 907.49 | 71.421 | | 28° | 1428.6 | 175.41 | |
| 10′ | 409.03 | 14.582 | | 10′ | 916.03 | 72.764 | | 10′ | 1437.4 | 177.55 | |
| 20′ | 417.41 | 15.184 | 25° C. | 20′ | 924.58 | 74.119 | 25° C. | 20′ | 1446.3 | 179.72 | 25° C. |
| 30′ | 425.79 | 15.799 | T | 30′ | 933.13 | 75.488 | T | 30′ | 1455.1 | 181.89 | T |
| 40′ | 434.17 | 16.426 | .16 | 40′ | 941.69 | 76.869 | .32 | 40′ | 1464.0 | 184.08 | .49 |
| 50′ | 442.55 | 17.065 | E | 50′ | 950.25 | 78.264 | E | 50′ | 1472.9 | 186.29 | E |
| 9° | 450.93 | 17.717 | .007 | 19° | 958.81 | 79.671 | .028 | 29° | 1481.8 | 188.51 | .065 |
| 10′ | 459.32 | 18.381 | | 10′ | 967.38 | 81.092 | | 10′ | 1490.7 | 190.74 | |
| 20′ | 467.71 | 19.058 | | 20′ | 975.96 | 82.525 | | 20′ | 1499.6 | 192.99 | |
| 30′ | 476.10 | 19.746 | | 30′ | 984.53 | 83.972 | | 30′ | 1508.5 | 195.25 | |
| 40′ | 484.49 | 20.447 | | 40′ | 993.12 | 85.431 | | 40′ | 1517.4 | 197.53 | |
| 50′ | 492.88 | 21.161 | | 50′ | 1001.7 | 86.904 | | 50′ | 1526.3 | 199.82 | |
| 10° | 501.28 | 21.887 | 30° C. | 20° | 1010.3 | 88.389 | 30° C. | 30° | 1535.3 | 202.12 | 30° C. |
| 10′ | 509.68 | 22.624 | T | 10′ | 1018.9 | 89.888 | T | 10′ | 1544.2 | 204.44 | T |
| 20′ | 518.08 | 23.375 | .19 | 20′ | 1027.5 | 91.399 | .39 | 20′ | 1553.1 | 206.77 | .59 |
| 30′ | 526.48 | 24.138 | E | 30′ | 1036.1 | 92.924 | E | 30′ | 1562.1 | 209.12 | E |
| 40′ | 534.89 | 24.913 | .008 | 40′ | 1044.7 | 94.462 | .034 | 40′ | 1571.0 | 211.48 | .078 |
| 50′ | 543.29 | 25.700 | | 50′ | 1053.3 | 96.013 | | 50′ | 1580.0 | 213.86 | |

T = R tan ½ I  E = R exsec ½ I

TABLE IX. TANGENTS AND EXTERNALS TO A 1° CURVE

| I | T | E | I=40° | I | T | E | I=50° | I | T | E | I=60° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 31° | 1589.0 | 216.3 | + | 41° | 2142.2 | 387.4 | + | 51° | 2732.9 | 618.4 | + |
| 10′ | 1598.0 | 218.7 | 5° C. | 10′ | 2151.7 | 390.7 | 5° C. | 10′ | 2743.1 | 622.8 | 5° C. |
| 20′ | 1606.9 | 221.1 | T | 20′ | 2161.2 | 394.1 | T | 20′ | 2753.4 | 627.2 | T |
| 30′ | 1615.9 | 223.5 | .13 | 30′ | 2170.8 | 397.4 | .17 | 30′ | 2763.7 | 631.7 | .21 |
| 40′ | 1624.9 | 226.0 | E | 40′ | 2180.3 | 400.8 | E | 40′ | 2773.9 | 636.2 | E |
| 50′ | 1633.9 | 228.4 | | 50′ | 2189.9 | 404.2 | | 50′ | 2784.2 | 640.7 | |
| 32° | 1643.0 | 230.9 | .023 | 42° | 2199.4 | 407.6 | .037 | 52° | 2794.5 | 645.2 | .056 |
| 10′ | 1652.0 | 233.4 | | 10′ | 2209.0 | 411.1 | | 10′ | 2804.9 | 649.7 | |
| 20 | 1661.0 | 235.9 | | 20′ | 2218.6 | 414.5 | | 20′ | 2815.2 | 654.3 | |
| 30′ | 1670.0 | 238.4 | | 30′ | 2228.1 | 418.0 | | 30′ | 2825.6 | 658.8 | |
| 40′ | 1679.1 | 241.0 | | 40′ | 2237.7 | 421.4 | | 40′ | 2835.9 | 663.4 | |
| 50′ | 1688.1 | 243.5 | | 50′ | 2247.3 | 425.0 | | 50′ | 2846.3 | 668.0 | |
| 33° | 1697.2 | 246.1 | 10° C. | 43° | 2257.0 | 428.5 | 10° C. | 53° | 2856.7 | 672.7 | 10° C. |
| 10′ | 1706.3 | 248.7 | T | 10′ | 2266.6 | 432.0 | T | 10′ | 2867.1 | 677.3 | T |
| 20′ | 1715.3 | 251.3 | .26 | 20′ | 2276.2 | 435.6 | .34 | 20′ | 2877.5 | 682.0 | .42 |
| 30′ | 1724.4 | 253.9 | E | 30′ | 2285.9 | 439.2 | E | 30′ | 2888.0 | 686.7 | E |
| 40′ | 1733.5 | 256.5 | .046 | 40′ | 2295.6 | 442.8 | .075 | 40′ | 2898.4 | 691.4 | .112 |
| 50′ | 1742.6 | 259.1 | | 50 | 2305.2 | 446.4 | | 50′ | 2908.9 | 696.1 | |
| 34° | 1751.7 | 261.8 | | 44° | 2314.9 | 450.0 | | 54° | 2919.4 | 700.9 | |
| 10′ | 1760.8 | 264.5 | | 10′ | 2324.6 | 453.6 | | 10′ | 2929.9 | 705.7 | |
| 20′ | 1770.0 | 267.2 | | 20′ | 2334.3 | 457.3 | | 20′ | 2940.4 | 710.5 | |
| 30′ | 1779.1 | 269.9 | | 30′ | 2344.1 | 461.0 | | 30′ | 2951.0 | 715.3 | |
| 40′ | 1788.2 | 272.6 | | 40′ | 2353.8 | 464.6 | | 40′ | 2961.5 | 720.1 | |
| 50′ | 1797.4 | 275.3 | 15° C. | 50′ | 2363.5 | 468.4 | 15° C. | 50′ | 2972.1 | 725.0 | 15° C. |
| 35° | 1806.6 | 278.1 | T | 45° | 2373.3 | 472.1 | T | 55° | 2982.7 | 729.9 | T |
| 10′ | 1815.7 | 280.8 | .40 | 10′ | 2383.1 | 475.8 | .51 | 10′ | 2993.3 | 734.8 | .63 |
| 20′ | 1824.9 | 283.6 | E | 20′ | 2392.8 | 479.6 | E | 20′ | 3003.9 | 739.7 | E |
| 30′ | 1834.1 | 286.4 | .070 | 30′ | 2402.6 | 483.4 | .116 | 30′ | 3014.5 | 744.6 | .168 |
| 40′ | 1843.3 | 289.2 | | 40′ | 2412.4 | 487.2 | | 40′ | 3025.2 | 749.6 | |
| 50′ | 1852.5 | 292.0 | | 50′ | 2422.3 | 491.0 | | 50′ | 3035.8 | 754.6 | |
| 36° | 1861.7 | 294.9 | | 46° | 2432.1 | 494.8 | | 56° | 3046.5 | 759.6 | |
| 10′ | 1870.9 | 297.7 | | 10′ | 2441.9 | 498.7 | | 10′ | 3057.2 | 764.6 | |
| 20′ | 1880.1 | 300.6 | | 20′ | 2451.8 | 502.5 | | 20′ | 3067.9 | 769.7 | |
| 30′ | 1889.4 | 303.5 | | 30′ | 2461.7 | 506.4 | | 30′ | 3078.7 | 774.7 | |
| 40′ | 1898.6 | 306.4 | 20° C. | 40′ | 2471.5 | 510.3 | 20° C. | 40′ | 3089.4 | 779.8 | 20° C. |
| 50′ | 1907.9 | 309.3 | T | 50′ | 2481.4 | 514.3 | T | 50′ | 3100.2 | 784.9 | T |
| 37° | 1917.1 | 312.2 | .53 | 47° | 2491.3 | 518.2 | .68 | 57° | 3110.9 | 790.1 | .84 |
| 10′ | 1926.4 | 315.2 | E | 10′ | 2501.2 | 522.2 | E | 10′ | 3121.7 | 795.2 | E |
| 20′ | 1935.7 | 318.1 | .093 | 20′ | 2511.2 | 526.1 | .151 | 20′ | 3132.6 | 800.4 | .225 |
| 30′ | 1945.0 | 321.1 | | 30′ | 2521.1 | 530.1 | | 30′ | 3143.4 | 805.6 | |
| 40′ | 1954.3 | 324.1 | | 40′ | 2531.1 | 534.2 | | 40′ | 3154.2 | 810.9 | |
| 50′ | 1963.6 | 327.1 | | 50′ | 2541.0 | 538.2 | | 50′ | 3165.1 | 816.1 | |
| 38° | 1972.9 | 330.2 | | 48° | 2551.0 | 542.2 | | 58° | 3176.0 | 821.4 | |
| 10′ | 1982.2 | 333.2 | | 10′ | 2561.0 | 546.3 | | 10′ | 3186.9 | 826.7 | |
| 20′ | 1991.5 | 336.3 | 25° C. | 20′ | 2571.0 | 550.4 | 25° C. | 20′ | 3197.8 | 832.0 | 25° C. |
| 30′ | 2000.9 | 339.3 | T | 30′ | 2581.0 | 554.5 | T | 30′ | 3208.8 | 837.3 | T |
| 40′ | 2010.2 | 342.4 | .67 | 40′ | 2591.0 | 558.6 | .85 | 40′ | 3219.7 | 842.7 | 1.05 |
| 50′ | 2019.6 | 345.5 | E | 50′ | 2601.1 | 562.8 | E | 50′ | 3230.7 | 848.1 | E |
| 39° | 2029.0 | 348.6 | .117 | 49° | 2611.2 | 566.9 | .189 | 59° | 3241.7 | 853.5 | .283 |
| 10′ | 2038.4 | 351.8 | | 10′ | 2621.2 | 571.1 | | 10′ | 3252.7 | 858.9 | |
| 20′ | 2047.8 | 354.9 | | 20′ | 2631.3 | 575.3 | | 20′ | 3263.7 | 864.3 | |
| 30′ | 2057.2 | 358.1 | | 30′ | 2641.4 | 579.5 | | 30′ | 3274.8 | 869.8 | |
| 40′ | 2066.6 | 361.3 | | 40′ | 2651.5 | 583.8 | | 40′ | 3285.8 | 875.3 | |
| 50′ | 2076.0 | 364.5 | | 50′ | 2661.6 | 588.0 | | 50′ | 3296.9 | 880.8 | |
| 40° | 2085.4 | 367.7 | 30° C. | 50° | 2671.8 | 592.3 | 30° C. | 60° | 3308.0 | 886.4 | 30° C. |
| 10′ | 2094.9 | 371.0 | T | 10′ | 2681.9 | 596.6 | T | 10′ | 3319.1 | 892.0 | T |
| 20′ | 2104.3 | 374.2 | .80 | 20′ | 2692.1 | 600.9 | 1.02 | 20′ | 3330.3 | 897.5 | 1.27 |
| 30′ | 2113.8 | 377.5 | E | 30′ | 2702.3 | 605.3 | E | 30′ | 3341.4 | 903.2 | E |
| 40′ | 2123.3 | 380.8 | .141 | 40′ | 2712.5 | 609.6 | .227 | 40′ | 3352.6 | 908.8 | .340 |
| 50′ | 2132.7 | 384.1 | | 50′ | 2722.7 | 614.0 | | 50′ | 3363.8 | 914.5 | |

T = R tan ½ I  E = R exsec ½ I

## Table X.

### MIDDLE ORDINATES OF RAILS

Length of Rail (feet)

| C ° ′ | R Feet | 30 Inch | 28 Inch | 26 Inch | 24 Inch | 22 Inch | 20 Inch | C ° | R Feet | 30 Inch | 28 Inch | 26 Inch | 24 Inch | 22 Inch | 20 Inch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0–20 | 17189 | .08 | .07 | .06 | .05 | .04 | .03 | 8 | 716.8 | 1.88 | 1.64 | 1.42 | 1.20 | 1.01 | .84 |
| 0–40 | 8594 | .16 | .14 | .12 | .10 | .08 | .07 | 9 | 637.3 | 2.12 | 1.84 | 1.60 | 1.35 | 1.14 | .94 |
| 1–0 | 5730 | .24 | .20 | .18 | .15 | .13 | .10 | 10 | 573.7 | 2.36 | 2.05 | 1.78 | 1.50 | 1.27 | 1.04 |
| 1–20 | 4297 | .31 | .27 | .23 | .20 | .17 | .13 | 11 | 521.7 | 2.59 | 2.26 | 1.95 | 1.65 | 1.39 | 1.15 |
| 1–40 | 3438 | .39 | .34 | .29 | .25 | .21 | .17 | 12 | 478.3 | 3.83 | 2.47 | 2.15 | 1.81 | 1.54 | 1.26 |
| 2–0 | 2865 | .47 | .41 | .35 | .30 | .25 | .20 | 13 | 441.7 | 3.05 | 2.66 | 2.30 | 1.96 | 1.66 | 1.36 |
| 2–20 | 2456 | .55 | .48 | .41 | .35 | .29 | .23 | 14 | 410.3 | 3.30 | 2.87 | 2.48 | 2.10 | 1.78 | 1.46 |
| 2–40 | 2149 | .63 | .55 | .47 | .40 | .33 | .27 | 15 | 383.1 | 3.54 | 3.08 | 2.68 | 2.26 | 1.91 | 1.57 |
| 3–0 | 1910 | .71 | .62 | .53 | .45 | .38 | .31 | 16 | 359.3 | 3.76 | 3.28 | 2.83 | 2.40 | 2.04 | 1.67 |
| 3–20 | 1719 | .78 | .68 | .59 | .50 | .42 | .35 | 17 | 338.3 | 4.00 | 3.48 | 3.02 | 2.57 | 2.16 | 1.78 |
| 3–40 | 1563 | .86 | .75 | .65 | .55 | .46 | .38 | 18 | 319.6 | 4.21 | 3.67 | 3.18 | 2.70 | 2.28 | 1.87 |
| 4–0 | 1433 | .94 | .82 | .71 | .60 | .50 | .42 | 19 | 302.9 | 4.45 | 3.89 | 3.36 | 2.86 | 2.41 | 1.98 |
| 4–20 | 1323 | 1.02 | .89 | .77 | .65 | .55 | .45 | 20 | 287.9 | 4.70 | 4.09 | 3.55 | 3.00 | 2.54 | 2.09 |
| 4–40 | 1228 | 1.10 | .96 | .83 | .70 | .59 | .48 | 22 | 262.0 | 5.16 | 4.44 | 3.84 | 3.30 | 2.80 | 2.29 |
| 5 | 1146 | 1.18 | 1.03 | .89 | .75 | .63 | .52 | 24 | 240.5 | 5.64 | 4.92 | 4.20 | 3.59 | 3.04 | 2.50 |
| 6 | 955.3 | 1.41 | 1.23 | 1.06 | .90 | .76 | .62 | 26 | 222.3 | 6.07 | 5.29 | 4.58 | 3.88 | 3.29 | 2.70 |
| 7 | 819.0 | 1.65 | 1.44 | 1.24 | 1.05 | .89 | .73 | | | | | | | | |

## Table XI.

### SHORT RADIUS CURVES

| Radius Feet | Chord Feet | Central Angle | Deflection Angle | Deflection for 1 Foot |
|---|---|---|---|---|
| 35 | 10 | 16-26 | 8-13 | 49.3 |
| 45 | 10 | 12-46 | 6-23 | 38.3 |
| 50 | 15 | 17-16 | 8-38 | 34.5 |
| 60 | 15 | 14-22 | 7-11 | 28.8 |
| 75 | 15 | 11-30 | 5-45 | 23.0 |
| 100 | 20 | 11-30 | 5-45 | 17.3 |
| 120 | 20 | 9-34 | 4-47 | 14.3 |
| 150 | 20 | 7-39 | 3-49 | 11.5 |
| 190 | 25 | 7-32 | 3-46 | 9.15 |
| 200 | 25 | 7-10 | 3-35 | 8.6 |
| 225 | 25 | 6-25 | 3-12 | 7.7 |
| 240 | 25 | 5-58 | 2-59 | 7.2 |
| 250 | 25 | 5-44 | 2-52 | 6.9 |
| 275 | 25 | 5-12 | 2-36 | 6.2 |
| 288 | 50 | 9-58 | 4-59 | 6.0 |
| 300 | 50 | 9-32 | 4-46 | 5.7 |
| 350 | 50 | 8-12 | 4-06 | 4.9 |
| 376 | 50 | 7-40 | 3-50 | 4.6 |
| 400 | 50 | 7-10 | 3-35 | 4.3 |
| 410 | 50 | 7-00 | 3-30 | 4.2 |

To find length of curve divide angle from P. C. to P. T. by central angle of chord, and multiply by length of chord.

## Table XII.

### INCLINED DISTANCE OF 100 FT. REDUCED TO HORIZONTAL

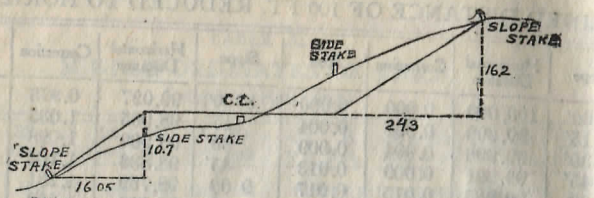
| Slope | Horizontal Distance | Correction | Rise | Slope | Horizontal Distance | Correction | Rise |
|---|---|---|---|---|---|---|---|
| 0°00′ | 100.000 | 0.000 | 0.000 | 8°00′ | 99.027 | 0.973 | 0.139 |
| 15′ | 99.999 | 0.001 | 0.004 | 15′ | 98.965 | 1.035 | 0.143 |
| 30′ | 99.996 | 0.004 | 0.009 | 30′ | 98.902 | 1.098 | 0.148 |
| 45′ | 99.991 | 0.009 | 0.013 | 45′ | 98.836 | 1.164 | 0.152 |
| 1 00 | 99.985 | 0.015 | 0.017 | 9 00 | 98.769 | 1.231 | 0.156 |
| 15 | 99.976 | 0.024 | 0.022 | 15 | 98.700 | 1.300 | 0.161 |
| 30 | 99.966 | 0.034 | 0.026 | 30 | 98.629 | 1.371 | 0.165 |
| 45 | 99.953 | 0.047 | 0.031 | 45 | 98.556 | 1.444 | 0.169 |
| 2 00 | 99.939 | 0.061 | 0.035 | 10 00 | 98.481 | 1.519 | 0.174 |
| 15 | 99.923 | 0.077 | 0.039 | 15 | 98.404 | 1.596 | 0.178 |
| 30 | 99.905 | 0.095 | 0.044 | 30 | 98.325 | 1.675 | 0.182 |
| 45 | 99.885 | 0.115 | 0.048 | 45 | 98.245 | 1.755 | 0.187 |
| 3 00 | 99.863 | 0.137 | 0.052 | 11 00 | 98.163 | 1.837 | 0.191 |
| 15 | 99.839 | 0.161 | 0.057 | 15 | 98.079 | 1.921 | 0.195 |
| 30 | 99.813 | 0.187 | 0.061 | 30 | 97.992 | 2.008 | 0.199 |
| 45 | 99.786 | 0.214 | 0.065 | 45 | 97.905 | 2.095 | 0.204 |
| 4 00 | 99.756 | 0.244 | 0.070 | 12 00 | 97.815 | 2.185 | 0.208 |
| 15 | 99.725 | 0.275 | 0.074 | 15 | 97.723 | 2.277 | 0.212 |
| 30 | 99.692 | 0.308 | 0.078 | 30 | 97.630 | 2.370 | 0.216 |
| 45 | 99.657 | 0.343 | 0.083 | 45 | 97.534 | 2.466 | 0.221 |
| 5 00 | 99.619 | 0.381 | 0.087 | 13 00 | 97.437 | 2.563 | 0.225 |
| 15 | 99.580 | 0.420 | 0.092 | 15 | 97.338 | 2.662 | 0.229 |
| 30 | 99.540 | 0.460 | 0.096 | 30 | 97.237 | 2.763 | 0.233 |
| 45 | 99.497 | 0.503 | 0.100 | 45 | 97.134 | 2.866 | 0.238 |
| 6 00 | 99.452 | 0.548 | 0.105 | 14 00 | 97.030 | 2.970 | 0.242 |
| 15 | 99.406 | 0.594 | 0.109 | 15 | 96.923 | 3.077 | 0.246 |
| 30 | 99.357 | 0.643 | 0.113 | 30 | 96.815 | 3.185 | 0.250 |
| 45 | 99.307 | 0.693 | 0.118 | 45 | 96.705 | 3.295 | 0.255 |
| 7 00 | 99.255 | 0.745 | 0.122 | 15 00 | 96.593 | 3.407 | 0.259 |
| 15 | 99.200 | 0.800 | 0.126 | 15 | 96.479 | 3.521 | 0.263 |
| 30 | 99.144 | 0.856 | 0.131 | 30 | 96.363 | 3.637 | 0.267 |
| 45 | 99.087 | 0.913 | 0.135 | 45 | 96.246 | 3.754 | 0.271 |

For each foot take one one-hundredth of each reading.

## Table XIII.

### MINUTES IN DECIMALS OF A DEGREE.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 30″ | .00833 | 10′ 30″ | .17500 | 20′ 30″ | .34167 | 30′ 10″ | .50833 | 40′ 30″ | .67500 | 50′ 10″ | .84167 |
| 1 00 | .01667 | 11 00 | .18333 | 21 00 | .35000 | 31 00 | .51667 | 41 00 | .68333 | 51 00 | .85000 |
| 30 | .02500 | 30 | .19167 | 30 | .35833 | 30 | .52500 | 30 | .69167 | 30 | .85833 |
| 2 00 | .03333 | 12 00 | .20000 | 22 00 | .36667 | 32 00 | .53333 | 42 00 | .70000 | 52 00 | .86667 |
| 30 | .04167 | 30 | .20833 | 30 | .37500 | 30 | .54167 | 30 | .70833 | 30 | .87500 |
| 3 00 | .05000 | 13 00 | .21667 | 23 00 | .38333 | 33 00 | .55000 | 43 00 | .71667 | 53 00 | .88333 |
| 30 | .05833 | 30 | .22500 | 30 | .39167 | 30 | .55833 | 30 | .72500 | 30 | .89167 |
| 4 00 | .06667 | 14 00 | .23333 | 24 00 | .40000 | 34 00 | .56667 | 44 00 | .73333 | 54 00 | .90000 |
| 30 | .07500 | 30 | .24167 | 30 | .40833 | 30 | .57500 | 30 | .74167 | 30 | .90833 |
| 5 00 | .08333 | 15 00 | .25000 | 25 00 | .41667 | 35 00 | .58333 | 45 00 | .75000 | 55 00 | .91667 |
| 30 | .09167 | 30 | .25833 | 30 | .42500 | 30 | .59167 | 30 | .75833 | 30 | .92500 |
| 6 00 | .10000 | 16 00 | .26667 | 26 00 | .43333 | 36 00 | .60000 | 46 00 | .76667 | 56 00 | .93333 |
| 30 | .10833 | 30 | .27500 | 30 | .44167 | 30 | .60833 | 30 | .77500 | 30 | .94167 |
| 7 00 | .11667 | 17 00 | .28333 | 27 00 | .45000 | 37 00 | .61667 | 47 00 | .78333 | 57 00 | .95000 |
| 30 | .12500 | 30 | .29167 | 30 | .45833 | 30 | .62500 | 30 | .79167 | 30 | .95833 |
| 8 00 | .13333 | 18 00 | .30000 | 28 00 | .46667 | 38 00 | .63333 | 48 00 | .80000 | 58 00 | .96667 |
| 30 | .14167 | 30 | .30833 | 30 | .47500 | 30 | .64167 | 30 | .80833 | 30 | .97500 |
| 9 00 | .15000 | 19 00 | .31667 | 29 00 | .48333 | 39 00 | .65000 | 49 00 | .81667 | 59 00 | .98333 |
| 30 | .15833 | 30 | .32500 | 30 | .49167 | 30 | .65833 | 30 | .82500 | 30 | .99167 |
| 10 00 | .16667 | 20 00 | .33333 | 30 00 | .50000 | 40 00 | .66667 | 50 00 | .83333 | 60 00 | 1.00000 |




## DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING.

SLOPE 1½ TO 1. ROADWAY OF ANY WIDTH.

| | 0 | .1 | .2 | .3 | .4 | .5 | .6 | .7 | .8 | .9 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 00 | 0 15 | 0.30 | 0.45 | 0.60 | 0.75 | 0.90 | 1.05 | 1.20 | 1.35 | 0 |
| 1 | 1.50 | 1 65 | 1 80 | 1.95 | 2.10 | 2.25 | 2.40 | 2.55 | 2.70 | 2.85 | 1 |
| 2 | 3.00 | 3.15 | 3.30 | 3 45 | 3.60 | 3 75 | 3.90 | 4.05 | 4.20 | 4 35 | 2 |
| 3 | 4.50 | 4 65 | 4.80 | 4.95 | 5 10 | 5 25 | 5 40 | 5.55 | 5.70 | 5.85 | 3 |
| 4 | 6.00 | 6 15 | 6.30 | 6.45 | 6.60 | 6.75 | 6.90 | 7.05 | 7.20 | 7.35 | 4 |
| 5 | 7 50 | 7.65 | 7.80 | 7.95 | 8.10 | 8.25 | 8.40 | 8.55 | 8.70 | 8.85 | 5 |
| 6 | 9 00 | 9 15 | 9.30 | 9.45 | 9.60 | 9.75 | 9.90 | 10.05 | 10.20 | 10.35 | 6 |
| 7 | 10.50 | 10 65 | 10.80 | 10.95 | 11.10 | 11.25 | 11.40 | 11.55 | 11 70 | 11.85 | 7 |
| 8 | 12.00 | 12 15 | 12.30 | 12.45 | 12.60 | 12.75 | 12.90 | 13.05 | 13.20 | 13.35 | 8 |
| 9 | 13 50 | 13.65 | 13 80 | 13 95 | 14.10 | 14.25 | 14.40 | 14 55 | 14.70 | 14.85 | 9 |
| 10 | 15.00 | 15 15 | 15 30 | 15 45 | 15.60 | 15.75 | 15.90 | 16.05 | 16.20 | 16 35 | 10 |
| 11 | 16 50 | 16 65 | 16 80 | 16.95 | 17 10 | 17.25 | 17.40 | 17.55 | 17.70 | 17.85 | 11 |
| 12 | 18 00 | 18.15 | 18.30 | 18 45 | 18.60 | 18 75 | 18.90 | 19.05 | 19.20 | 19.35 | 12 |
| 13 | 19 50 | 19 65 | 19,80 | 19.95 | 20.10 | 20.25 | 20 40 | 20.55 | 20.70 | 20.85 | 13 |
| 14 | 21.00 | 21 15 | 21.30 | 21.45 | 21 60 | 21.75 | 21.90 | 22 05 | 22 20 | 22 35 | 14 |
| 15 | 22 50 | 22 65 | 22 80 | 22 95 | 23.10 | 23.25 | 23.40 | 23.55 | 23.70 | 23.85 | 15 |
| 16 | 24.00 | 24 15 | 24 30 | 24 45 | 24 60 | 24.75 | 24 90 | 25 05 | 25.20 | 25.35 | 16 |
| 17 | 25.50 | 25 65 | 25.80 | 25 95 | 26.10 | 26 25 | 26 40 | 26.55 | 26.70 | 26.85 | 17 |
| 18 | 27.00 | 27 15 | 27.30 | 27 45 | 27.60 | 27.75 | 27.90 | 28.05 | 28 20 | 28.35 | 18 |
| 19 | 28 50 | 28 65 | 28 80 | 28.95 | 29.10 | 29.25 | 29.40 | 29.55 | 29.70 | 29.85 | 19 |
| 20 | 30 00 | 30.15 | 30.30 | 30.45 | 30.60 | 30.75 | 30.90 | 31.05 | 31.20 | 31.35 | 20 |
| 21 | 31 50 | 31 65 | 31.80 | 31.95 | 32 10 | 32 25 | 32.40 | 32.55 | 32 70 | 32 85 | 21 |
| 22 | 33 00 | 33 15 | 33 30 | 33 45 | 33.60 | 33 75 | 33.90 | 34.05 | 34.20 | 34.35 | 22 |
| 23 | 34 50 | 34 65 | 34.80 | 34.95 | 35.10 | 35 25 | 35 40 | 35.55 | 35.70 | 35 85 | 23 |
| 24 | 36.00 | 36 15 | 36.30 | 36 45 | 36.60 | 36.75 | 36.90 | 37.05 | 37.20 | 37.35 | 24 |
| 25 | 37.50 | 37.65 | 37 80 | 37.95 | 38.10 | 38.25 | 38.40 | 38.55 | 38.70 | 38.85 | 25 |
| 26 | 39 00 | 39 15 | 39.30 | 39 45 | 39 60 | 39.75 | 39.90 | 40.05 | 40.20 | 40.35 | 26 |
| 27 | 40 50 | 40 65 | 40 80 | 40.95 | 41.10 | 41.25 | 41 40 | 41.55 | 41.70 | 41.85 | 27 |
| 28 | 42 00 | 42 15 | 42.30 | 42.45 | 42.60 | 42 75 | 42.99 | 43.05 | 43.20 | 43.35 | 28 |
| 29 | 43 50 | 43 65 | 43.80 | 43 95 | 44.10 | 44 25 | 44 40 | 44.55 | 44.70 | 44 85 | 29 |
| 30 | 45 00 | 45 15 | 45.30 | 45 45 | 45.60 | 45.75 | 45.90 | 46.05 | 46 20 | 46.35 | 30 |
| 31 | 46.50 | 46.65 | 46.80 | 46 95 | 47.10 | 47.25 | 47.40 | 47.55 | 47.70 | 47.85 | 31 |
| 32 | 48 00 | 48.15 | 48.30 | 48 45 | 48.60 | 48 75 | 48.90 | 49.05 | 49 20 | 49.35 | 32 |
| 33 | 49.50 | 49 65 | 49.80 | 49.95 | 50.10 | 50.25 | 50.40 | 50.55 | 50.70 | 50.85 | 33 |
| 34 | 51 00 | 51.15 | 51.30 | 51.45 | 51.60 | 51.75 | 51.90 | 52.05 | 52.20 | 52.35 | 34 |
| 35 | 52 50 | 52.65 | 52.80 | 52.95 | 53.10 | 53.25 | 53.40 | 53.55 | 53.70 | 53.85 | 35 |
| 36 | 54 00 | 54.15 | 54.30 | 54 45 | 54.60 | 54.75 | 54.90 | 55.05 | 55.20 | 55.35 | 36 |
| 37 | 55.50 | 55 65 | 55.80 | 55.95 | 56.10 | 56.25 | 56.40 | 56.55 | 56.70 | 56.85 | 37 |
| 38 | 57.00 | 57.15 | 57.30 | 57 45 | 57.60 | 57 75 | 57.90 | 58.05 | 58.20 | 58 35 | 38 |
| 39 | 58 50 | 58.65 | 58 80 | 58.95 | 59.10 | 59 25 | 59.40 | 59 55 | 59.70 | 59.85 | 39 |
| 40 | 60 00 | 60 15 | 60 30 | 60 45 | 60 60 | 60.75 | 60 90 | 61.05 | 61 20 | 61.35 | 40 |
| 41 | 61.50 | 61 65 | 61.80 | 61 95 | 62 10 | 62 25 | 62.40 | 62 55 | 62 70 | 62.85 | 41 |
| 42 | 63 00 | 63.15 | 63 30 | 63 45 | 63 60 | 63 75 | 63 90 | 64 05 | 64 20 | 64.35 | 42 |
| 43 | 64.50 | 64 65 | 64 80 | 64.95 | 65.10 | 65 25 | 65 40 | 65.55 | 65.70 | 65.85 | 43 |
| 44 | 66 00 | 66 15 | 66.30 | 66.45 | 66.60 | 66.75 | 66.90 | 67.05 | 67.20 | 67.35 | 44 |
| 45 | 67 50 | 67 65 | 67 80 | 67.95 | 68.10 | 68.25 | 68.40 | 68.55 | 68.70 | 68.85 | 45 |
| 46 | 69 00 | 69 15 | 69 30 | 69.45 | 69.60 | 69.75 | 69.90 | 70.05 | 70.20 | 70.35 | 46 |
| 47 | 70.50 | 70 65 | 70 80 | 70 95 | 71.10 | 71.25 | 71.40 | 71.55 | 71.70 | 71.85 | 47 |
| 48 | 72.00 | 72 15 | 72.30 | 72.45 | 72.60 | 72.75 | 72.90 | 73 05 | 73.20 | 73 35 | 48 |
| 49 | 73 50 | 73 65 | 73.80 | 73.95 | 74.10 | 74.25 | 74.40 | 74.55 | 74.70 | 74.85 | 49 |
| 50 | 75.00 | 75.15 | 75.30 | 75.45 | 75.60 | 75.75 | 75.90 | 76.05 | 76.20 | 76.35 | 50 |

Computed by L. Leland Locke.

1035.51
12.17
1023.01
1.69
1024.70
12.77
1011.93
2.27
1014.20

103

117.23
55
51.79

7636.2
55
2092.2

3999.72
2241
1758.72

28

5543.80
40
1543.80

5543.80
660
4883.80

PLEASE RETURN TO
GEAUGA COUNTY ENGINEER
COURT HOUSE
CHARDON, O.
PHONE 250-X

N

W

E

S


5544
660
4884