

ORANGE TWP  
*Eagle Center Road.*

DIETZGEN  
TRADE MARK

---

ENGINEERS'  
FIELD BOOK  
No. 404.

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16

## EUGENE DIETZGEN CO.

DRAWING MATERIALS, MATHEMATICAL and  
SURVEYING INSTRUMENTS

Chicago New York San Francisco New Orleans Pittsburg Toronto

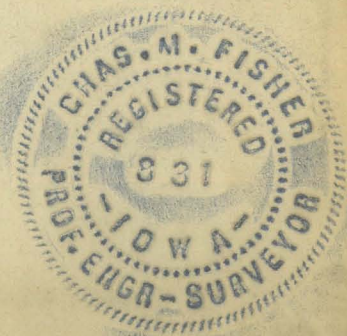
Distances from Center of Roadway for Cross-Sectioning  
Roadway 16 feet wide. Side Slopes 1 on 1.  
For Single Track Embankment.

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

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

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*Preliminary Survey Notes*  
on  
*Eagle Center Road.*





D = 8°

25+50 2°  
26 4°  
26+50 6°  
27 8°  
27+47.5 9° 54'  
27+50 6'  
28 2° 6'  
28+50 4° 6'  
29 6° 6'  
29+50 8° 6'  
29+95 9° 54'

Entered 1922 *CPSH*

2.5  
120  
45  
6

9 54  
8 6  
70 48

108  
46  
120

Eagle Center Road  
Orange Twp.

{ Center Line Notes Sta 0 to 29+95  
{ Cross Section Sta 0+00 to 315+00

1-3

5-47



Defl.

5+23 Fence W  
4+40.3 P.T. 5° 31'

4 4° 29'

3+58 Fence E

3+50 3° 14'

3 1° 59'

2+50 0° 44'

D = 5° 0'

Δ = 11° 2' Left

2+20.7 P.R.C. 5° 31'

2 5° 0'

1+50 3° 45'

1 2° 30'

0+50 1° 15'

+38.5 Fence E

T = 10.13

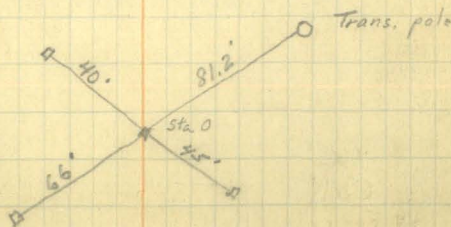
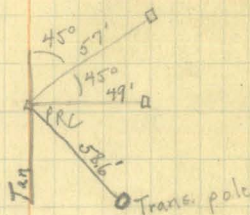
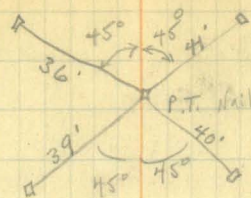
D = 5° 0'

Right.

0 P.C. Δ = 11° 2'

Potatoes

Barn yard





|         |       |
|---------|-------|
| 26 + 50 | 6° 0' |
|---------|-------|

25 + 50      2° 0'      T =

$$T =$$
$$D = 8^{\circ} 0'$$

25 P.C.  $A = 19^{\circ}48'$  L

21 + 78 Field gate E

21+41 Fence W

20

|    |          |
|----|----------|
| 15 | $\Delta$ |
|----|----------|

14 + 75 Fence W

+ 46 Fence F

11 12 13 14

|      |         |
|------|---------|
| 9+37 | Fence W |
|------|---------|

|      |       |     |                   |              |
|------|-------|-----|-------------------|--------------|
| 8+50 | Cul   | E ← | Conc. 3X3 X 18.33 | Str of E Rod |
| 8+47 | Fence | E   |                   |              |
| 678  |       |     |                   |              |

Cul  
Fence

29+95 P.T. 9° 54'

29+50 8° 6'

29 6° 6'

28+50 4° 6'

28+00 2° 6'

27+50 0° 6'

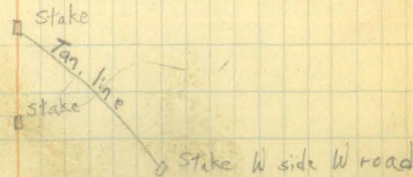
27+47.5 P.R.C. 9° 54'

T = 140'

D = 8° 0'

Δ = 19° - 48'

27 8° 0'







Sta. + B.S. H.I. F.S. Elev

152  
30

+ 40. Barn Gate S.

3

2+25 Field Gate N.  
Barn Gate S.

2

1

+ 33

0

152 380 332 223  
30 30 25 22  
198.7 197.4 196.9 197.5

316 445 445 416  
36 30 23 16  
197.1 195.8 195.8 196.1

403  
36  
196.2

500 430  
29 8  
195.2 195.9

385 412  
34 27  
196.4 196.1  
N. Side

368  
8  
196.6

334  
196.9

470  
195.5

462  
195.6

407  
196.2

300  
19  
197.2

474  
26  
195.5

572  
13  
194.5

419  
6  
196.1

542  
21  
194.8

548  
16  
194.8  
S. Side

535  
25  
194.9

552 580  
33 18  
194.7 194.4

670  
16  
193.5

570  
16  
194.5

546  
194.8

27  
4.90  
195.5

28  
6.18  
194.1

274 282  
33 17  
197.5 197.4

395  
15  
196.3

320  
10  
197.0

263  
197.6

15  
3.54  
196.7

18  
2.70  
197.5

28  
1.20  
199.0

311 441  
33 24  
197.1 196.1

410  
13  
196.1

468  
13  
195.6

376  
8  
196.5

335  
197.9

18  
3.77  
196.5

29  
2.33  
199.7

29  
2.33  
199.7

448 415  
39 24  
195.8 196.1

415  
24  
196.1

384  
196.4

N. side

38  
3.49  
196.8

S. Side

Road West  
from Sta. O.

3

2

1

+ 33

0

B.M. 1 0.42 200.25 199.83



4

+50

3

T.P.

3.43 191.58 12.10 188.45

+50

P.R.C. +20.7

2

+60 End of trees E side of new E

+50

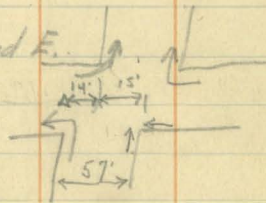
1

+50

+38

Fence S. side Road E.

0



+33

0

Road N.  
from  
Sta 0

200.25

|       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 27    | 23    | 17    | 13    | 5.00  | 13    | 12    | 23    | 30    |
| 4.30  | 6.00  | 9.50  | 5.50  | 5.00  | 6.18  | 7.50  | 5.50  | 4.00  |
| 187.2 | 185.5 | 184.0 | 185.7 | 186.5 | 185.4 | 183.7 | 185.7 | 187.5 |
| 30    | 24    | 20    | 14    | 9     | 3     | 16    | 21    | 27    |
| 3.10  | 3.10  | 4.30  | 5.90  | 4.10  | 3.30  | 4.30  | 6.30  | 3.90  |
| 188.4 | 188.4 | 187.2 | 185.6 | 187.4 | 188.2 | 187.2 | 185.2 | 187.6 |
| 30    | 22    | 16    | 9     | 5     | 8     | 22    | 26    | 33    |
| 2.10  | 2.10  | 1.60  | 1.20  | 2.60  | 1.70  | 2.60  | 4.40  | 1.70  |
| 189.4 | 189.4 | 189.9 | 189.1 | 187.2 | 188.9 | 189.3 | 189.8 | 189.8 |
| 30    | 15    | 13    | 9     | 2     | 2     | 15    | 30    | 34    |
| 9.50  | 9.30  | 8.90  | 9.80  | 11.40 | 10.50 | 9.70  | 8.50  | 9.80  |
| 190.7 | 190.9 | 191.3 | 190.4 | 188.8 | 189.7 | 190.5 | 191.4 | 190.4 |
| 20    | 9     | 8     | 5     | 8     | 35    | 36    | 40    | 47    |
| 8.90  | 8.70  | 8.20  | 9.90  | 10.20 | 8.90  | 8.00  | 9.10  | 10.70 |
| 191.3 | 191.5 | 192.0 | 190.3 | 189.5 | 191.3 | 192.2 | 191.1 | 189.5 |
| 25    | 12    | 12    | 10    | 18    | 24    | 31    | 39    | 49    |
| 8.60  | 8.40  | 8.50  | 10.10 | 8.30  | 7.60  | 8.50  | 10.40 | 7.20  |
| 191.6 | 191.8 | 191.4 | 190.1 | 191.9 | 192.6 | 191.7 | 189.8 | 191.0 |
| 30    | 10    | 7     | 4     | 8     | 14    | 19    | 32    | 46    |
| 8.10  | 7.70  | 7.30  | 7.20  | 7.50  | 8.50  | 7.70  | 6.40  | 7.00  |
| 192.1 | 192.5 | 192.9 | 193.0 | 192.7 | 191.7 | 193.8 | 192.7 | 191.2 |
| 33    | 15    | 10    | 10    | 13    | 20    | 23    | 27    | 31    |
| 7.40  | 6.90  | 6.70  | 6.30  | 6.40  | 7.70  | 6.30  | 5.30  | 6.30  |
| 192.8 | 193.3 | 193.5 | 193.9 | 193.8 | 192.5 | 193.9 | 194.9 | 193.9 |
| 65    | 58    | 57    | 38    | 25    | 20    | 18    | 13    | 13    |
| 4.70  | 2.00  | 5.70  | 4.70  | 5.30  | 6.30  | 5.70  | 5.30  | 5.70  |
| 195.5 | 193.2 | 194.5 | 195.5 | 194.9 | 193.9 | 194.5 | 194.7 | 194.3 |
| 30    | 13    | 12    | 12    | 12    | 12    | 12    | 12    | 12    |
| 3.90  | 5.30  | 5.90  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  |
| 196.1 | 196.1 | 195.9 | 196.1 | 196.1 | 196.1 | 196.1 | 196.1 | 196.1 |

30  
3.90  
196.1

3.34  
196.9  
197.0

27  
3.50  
196.1

West Side

E



B.S. H.I. F.S.

8

|                   |                   |                   |                   |                   |                   |                   |                   |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| $\frac{28}{6.40}$ | $\frac{23}{6.20}$ | $\frac{19}{7.20}$ | $\frac{12}{5.50}$ | $\frac{10}{5.50}$ | $\frac{16}{7.50}$ | $\frac{23}{5.90}$ | $\frac{29}{5.00}$ |
| 175.3             | 175.5             | 174.4             | 176.2             | 176.8             | 176.2             | 174.2             | 176.3             |

7+54

|                   |                  |
|-------------------|------------------|
| $\frac{10}{4.80}$ | $\frac{8}{5.20}$ |
| 176.9             | 176.6            |

7+50

|                   |                   |                  |                   |
|-------------------|-------------------|------------------|-------------------|
| $\frac{12}{8.50}$ | $\frac{10}{5.00}$ | $\frac{8}{5.00}$ | $\frac{12}{8.40}$ |
| 173.2             | 176.7             | 176.7            | 173.3             |

7+45

|                   |                  |
|-------------------|------------------|
| $\frac{11}{5.30}$ | $\frac{8}{5.30}$ |
| 176.4             | 176.4            |

BM. 3 4.80  
 BM. 2 4.06 181.74

176.98 } Culvert at  
 177.68 } Sta 8+63  
 Center E. Headwall  
 Center W. Headwall

#1  
BM Tel pole

0.72 199.83 ✓

T.P. 10.45 200.55 1.85 190.10

T.P. 10.75 191.95 1.68 181.20

BM. 3 Center E. headwall 5.95 176.93

BM. 2 Center W. headwall 5.20 177.68

Culvert at  
Sta 8+50

7

T.P. 2.65 182.88 11.35 180.23

6

5

P.T. + 403

191.58

|                   |                   |                   |                   |                      |                   |                   |                   |                   |
|-------------------|-------------------|-------------------|-------------------|----------------------|-------------------|-------------------|-------------------|-------------------|
| $\frac{27}{7.30}$ | $\frac{24}{7.30}$ | $\frac{19}{7.50}$ | $\frac{14}{6.50}$ | $\frac{5.80}{177.0}$ | $\frac{11}{6.30}$ | $\frac{14}{7.60}$ | $\frac{19}{7.60}$ | $\frac{30}{8.00}$ |
| 175.5             | 175.5             | 175.0             | 176.3             | 177.0                | 176.5             | 175.2             | 175.2             | 175.8             |

|                   |                   |                   |                   |                   |                      |                   |                   |                   |                   |                   |
|-------------------|-------------------|-------------------|-------------------|-------------------|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| $\frac{28}{5.50}$ | $\frac{25}{5.50}$ | $\frac{21}{6.20}$ | $\frac{18}{6.20}$ | $\frac{15}{5.30}$ | $\frac{4.50}{177.3}$ | $\frac{12}{5.20}$ | $\frac{15}{6.30}$ | $\frac{20}{6.30}$ | $\frac{24}{5.40}$ | $\frac{30}{5.30}$ |
| 177.3             | 177.3             | 176.6             | 176.6             | 177.5             | 178.3                | 177.6             | 176.5             | 176.5             | 177.4             | 177.5             |

|                    |                       |                       |                       |                       |                    |                    |                    |                    |
|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|--------------------|--------------------|--------------------|--------------------|
| $\frac{22}{11.20}$ | $\frac{12.20}{179.3}$ | $\frac{10.20}{180.3}$ | $\frac{11.80}{179.7}$ | $\frac{11.10}{180.4}$ | $\frac{13}{179.5}$ | $\frac{18}{178.1}$ | $\frac{25}{179.8}$ | $\frac{30}{180.5}$ |
| 180.3              | 179.3                 | 180.3                 | 179.7                 | 180.4                 | 179.5              | 178.1              | 179.8              | 180.5              |

|                   |                   |                    |                   |                      |                   |                    |                   |                   |
|-------------------|-------------------|--------------------|-------------------|----------------------|-------------------|--------------------|-------------------|-------------------|
| $\frac{28}{7.60}$ | $\frac{24}{9.10}$ | $\frac{18}{10.40}$ | $\frac{13}{9.00}$ | $\frac{8.40}{183.9}$ | $\frac{13}{9.40}$ | $\frac{18}{11.00}$ | $\frac{24}{8.50}$ | $\frac{31}{7.10}$ |
| 183.9             | 182.4             | 181.1              | 182.5             | 183.1                | 182.1             | 180.5              | 182.7             | 184.4             |

|                   |                   |                   |                   |                      |                   |                   |                   |                   |
|-------------------|-------------------|-------------------|-------------------|----------------------|-------------------|-------------------|-------------------|-------------------|
| $\frac{28}{5.70}$ | $\frac{23}{7.20}$ | $\frac{18}{8.60}$ | $\frac{13}{7.20}$ | $\frac{6.50}{185.0}$ | $\frac{12}{7.40}$ | $\frac{17}{9.20}$ | $\frac{23}{6.90}$ | $\frac{30}{5.20}$ |
| 185.8             | 184.3             | 182.9             | 184.3             | 185.0                | 184.1             | 182.3             | 184.6             | 186.3             |



3.35

193.58 2.43

190.23

W. Side

20

|       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 30    | 27    | 21    | 16    | 0.50  | 12    | 17    | 24    | 30    |
| 0.60  | 1.50  | 3.30  | 1.50  |       | 1.30  | 2.90  | 1.10  | 0.10  |
| 192.0 | 191.4 | 189.3 | 191.1 | 192.1 | 191.3 | 189.7 | 191.6 | 192.5 |

19

|       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 30    | 28    | 21    | 17    | 2.60  | 11    | 16    | 22    | 29    |
| 3.40  | 3.40  | 5.20  | 3.50  |       | 3.30  | 4.70  | 2.80  | 1.20  |
| 189.2 | 189.2 | 187.4 | 189.1 | 190.0 | 189.3 | 187.9 | 189.8 | 191.4 |

18

|       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 31    | 28    | 23    | 17    | 4.30  | 11    | 17    | 23    | 28    |
| 5.80  | 5.80  | 6.90  | 5.40  |       | 5.10  | 6.20  | 4.50  | 3.20  |
| 186.8 | 186.8 | 185.7 | 187.2 | 186.3 | 187.5 | 186.4 | 188.1 | 187.4 |

17

|       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 31    | 26    | 23    | 17    | 5.20  | 13    | 17    | 23    | 28    |
| 6.40  | 6.60  | 2.40  | 6     |       | 5.60  | 6.60  | 5.40  | 4.30  |
| 186.2 | 186.0 | 185.2 | 186.6 | 187.4 | 187.0 | 186.0 | 187.2 | 189.3 |

16

|       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 30    | 27    | 21    | 15    | 4.80  | 12    | 18    | 24    | 26    |
| 6.60  | 6.20  | 2.40  | 5.80  |       | 5.30  | 6.60  | 4.90  | 3.90  |
| 186.6 | 186.4 | 185.2 | 186.8 | 187.8 | 187.3 | 186.0 | 187.7 | 188.7 |

15

|       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 29    | 26    | 21    | 15    | 5.20  | 10    | 17    | 23    | 24    |
| 5.70  | 5.20  | 7.20  | 5.20  |       | 5.00  | 6.80  | 4.20  | 3.20  |
| 187.5 | 187.4 | 185.4 | 187.4 | 188.2 | 187.6 | 185.8 | 186.4 | 189.4 |

T.P.

5.04 192.66 0.55 187.62

14

13

|       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 29    | 26    | 20    | 15    | 1.70  | 11    | 16    | 22    | 29    |
| 1.70  | 1.80  | 4.50  | 2.40  |       | 3.50  | 4.20  | 1.30  | 2.0   |
| 186.4 | 186.3 | 183.6 | 185.7 | 186.4 | 185.6 | 183.9 | 186.8 | 186.1 |

12

|       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 29    | 22    | 21    | 15    | 4.30  | 10    | 16    | 27    | 29    |
| 4.10  | 5.10  | 7.20  | 5.10  |       | 5.00  | 6.50  | 3.50  | 2.70  |
| 193.7 | 183.0 | 180.9 | 183.0 | 183.8 | 183.1 | 181.6 | 184.6 | 185.4 |

11

|       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 29    | 26    | 21    | 15    | 6.10  | 13    | 18    | 24    | 29    |
| 7.10  | 7.50  | 9.00  | 6.90  |       | 6.70  | 8.40  | 6.60  | 5.40  |
| 180.7 | 180.3 | 179.1 | 181.2 | 182.0 | 181.4 | 179.7 | 181.5 | 182.7 |

T.P.

9.50 188.17 3.07 178.67

10

|       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 29    | 26    | 20    | 14    | 1.20  | 12    | 17    | 24    | 29    |
| 2.10  | 2.50  | 4.10  | 3.10  |       | 3.10  | 3.50  | 1.60  | 0.10  |
| 179.6 | 179.2 | 177.6 | 179.6 | 180.5 | 179.6 | 178.2 | 180.7 | 181.6 |

9

|       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 29    | 26    | 20    | 15    | 3.50  | 12    | 17    | 22    | 28    |
| 3.30  | 3.80  | 5.80  | 4.20  |       | 4.40  | 6.00  | 3.90  | 1.20  |
| 178.4 | 177.9 | 175.9 | 177.5 | 178.2 | 177.3 | 175.7 | 177.8 | 180.5 |

181.74



3.65 176.25 10.94 172.60

28

+47.6

27

450

26

+50

F.C. 25

1.67 183.54 11.91 181.87

24

23

22

+86

+66 N. end of culvert. E side of road

21

193.58

|       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 30    | 15    | 15    | 30 F  | 34    | 38    | 44    | 50    | 56    |
| 10.40 | 11.30 | 11.20 | 11.50 | 11.10 | 10.90 | 11.00 | 9.50  | 9.30  |
| 173.1 | 172.7 | 172.3 | 172.0 | 172.5 | 172.6 | 171.6 | 173.5 | 174.0 |
| 30    | 15    | 11    | 18    | 24    | 30    | 36    | 42    | 48    |
| 9.30  | 9.30  | 9.60  | 9.50  | 10.70 | 9.10  | 8.10  | 9.10  | 10.90 |
| 174.2 | 174.2 | 173.9 | 174.0 | 172.8 | 174.5 | 175.4 | 174.5 | 172.6 |
| 40    | 13    | 4 F   | 5     | 11    | 23    | 36    | 41    | 48    |
| 5.50  | 7.70  | 7.60  | 5.40  | 5.90  | 7.90  | 8.30  | 10.20 | 8.10  |
| 175.0 | 175.8 | 175.9 | 175.1 | 173.6 | 175.6 | 176.2 | 175.2 | 173.3 |
| 30    | 17 F  | 13    | 9     | 2     | 12    | 23    | 29    | 36    |
| 6.0   | 6.10  | 6.60  | 8.90  | 7.10  | 6.90  | 6.20  | 7.10  | 7.20  |
| 125.8 | 125.7 | 127.4 | 126.9 | 124.6 | 126.4 | 127.3 | 126.4 | 124.3 |
| 30    | 24    | 21 F  | 14    | 10    | 15    | 21    | 26    | 32    |
| 4.70  | 4.70  | 5.40  | 8.80  | 6.10  | 5.20  | 6.10  | 8.30  | 6.30  |
| 178.3 | 178.8 | 178.1 | 175.9 | 177.5 | 178.3 | 177.4 | 175.2 | 177.2 |
| 29    | 25    | 19    | 14    | 11    | 17    | 22    | 29    | 29    |
| 3.30  | 4.10  | 6.40  | 4.60  | 4.10  | 4.90  | 7.10  | 5.40  | 4.10  |
| 180.5 | 179.4 | 177.1 | 178.9 | 179.5 | 178.6 | 176.5 | 178.1 | 179.4 |
| 31    | 26    | 20    | 15    | 10    | 15    | 22    | 28    | 28    |
| 2.10  | 3.70  | 5.20  | 5.60  | 2.80  | 3.70  | 5.70  | 3.80  | 2.70  |
| 181.5 | 180.8 | 179.3 | 179.9 | 180.7 | 179.8 | 177.8 | 180.2 | 180.8 |
| 31    | 27    | 20    | 16    | 11    | 16    | 21    | 28    | 28    |
| 9.10  | 10.20 | 15.80 | 11.10 | 10.40 | 11.40 | 13.20 | 11.90 | 10.40 |
| 184.4 | 183.5 | 179.7 | 182.5 | 183.1 | 182.1 | 180.3 | 181.6 | 183.1 |
| 31    | 26    | 20    | 15    | 10    | 16    | 21    | 28    | 28    |
| 6.40  | 7.50  | 10.10 | 5.40  | 7.70  | 8.50  | 10.50 | 7.20  | 7.70  |
| 187.1 | 186.0 | 185.4 | 185.1 | 185.8 | 185.0 | 183.0 | 184.3 | 185.8 |
| 30    | 27    | 20    | 15    | 10    | 17    | 24    | 29    | 29    |
| 3.50  | 4.40  | 7.10  | 5.30  | 4.90  | 6.10  | 7.50  | 5.90  | 4.90  |
| 190.0 | 189.1 | 186.5 | 188.2 | 188.6 | 187.5 | 185.7 | 187.7 | 188.6 |
| 30    | 26    | 20    | 15    | 11    | 17    | 24    | 30    | 30    |
| 3.00  | 4.90  | 6.30  | 4.90  | 4.50  | 5.50  | 7.40  | 5.20  | 4.20  |
| 190.4 | 188.8 | 187.2 | 188.6 | 189.0 | 188.0 | 186.1 | 188.3 | 188.8 |
| 30    | 28    | 20    | 16    | 10    | 17    | 23    | 30    | 30    |
| 2.90  | 4.50  | 5.60  | 4.40  | 3.90  | 4.90  | 6.90  | 5.80  | 4.10  |
| 190.6 | 189.0 | 187.9 | 189.1 | 189.6 | 188.6 | 186.6 | 188.2 | 189.5 |
| 30    | 27    | 21    | 15    | 11    | 17    | 23    | 30    | 30    |
| 1.70  | 2.10  | 4.70  | 2.70  | 2.20  | 3.10  | 5.10  | 3.10  | 1.90  |
| 191.8 | 191.4 | 188.8 | 190.8 | 191.3 | 190.6 | 188.5 | 190.4 | 191.6 |



28+27 Drain Tile 17696  
3.16

173.80

35+63 N. end of culvert. W. Side.

35+54 N. end of culvert. E. side.

35

T.P. 0.37 173.76 2.86 173.39

34

33

32

31

30+97

B.M. 4 2.45 173.80

P.T. 30+50 Iron cul. 30'x12"

30

29+50

29

28+50

176.25

W. Side.

10

30  
5.5 F

|       |       |            |       |       |            |       |           |       |       |       |       |
|-------|-------|------------|-------|-------|------------|-------|-----------|-------|-------|-------|-------|
| 27    | 21    | 13         | 35.0  | 12    | 18 F. line | 23    | 34        |       |       |       |       |
| 4.40  | 4.90  | 4.30       | 4.20  | 5.30  | 3.70       | 1.70  |           |       |       |       |       |
| 169.3 | 168.8 | 169.3      | 170.2 | 169.5 | 168.4      | 170.0 | 172.0     |       |       |       |       |
| 27    | 23    | 17 F. line | 12    | 3.10  | 14         | 17    | 24        | 34    |       |       |       |
| 3.40  | 4.10  | 5.60       | 4.1   | 3.90  | 4.80       | 2.10  | 1.50      |       |       |       |       |
| 170.3 | 169.6 | 169.1      | 169.7 | 170.6 | 169.8      | 168.9 | 171.6     | 172.4 |       |       |       |
| 28    | 25    | 18         | 14    | 1.10  | 12         | 17    | 23        | 34    |       |       |       |
| 1.10  | 1     | 3.         | 2.    | 1.10  | 1.80       | 2.90  | 2.40      | 0.01  |       |       |       |
| 172.6 | 172.7 | 170.7      | 171.7 | 172.6 | 171.9      | 170.8 | 173.3     | 176.2 |       |       |       |
| 29    | 24    | 18         | 13    | 1.60  | 12         | 21    | 24        | 30    |       |       |       |
| 3.2   | 2.90  | 4.70       | 2.90  | 1.60  | 2.10       | 2.70  | 1.40      |       |       |       |       |
| 173.2 | 173.3 | 171.5      | 173.3 | 174.6 | 174.1      | 173.5 | 174.4     |       |       |       |       |
| 29    | 24    | 18         | 12    | 3.40  | 13         | 18    | 25        | 33    |       |       |       |
| 5.00  | 4.90  | 6.50       | 4.42  | 3.40  | 3.80       | 5.20  | 3.00      | 3.80  |       |       |       |
| 171.2 | 171.3 | 169.7      | 171.8 | 172.8 | 172.4      | 171.0 | 173.2     | 173.7 |       |       |       |
| 27    | 24    | 18         | 12    | 5.30  | 7          | 15    | 21        | 28    | 36    |       |       |
| 7.    | 7.    | 8.20       | 6.32  | 5.30  | 5.20       | 5.50  | 6.70      | 5.60  | 3.30  |       |       |
| 169.2 | 169.2 | 168.0      | 169.9 | 170.9 | 171.0      | 171.7 | 169.3     | 170.6 | 172.9 |       |       |
| 30    | 24    | 19         | 12    | 7     | 7          | 16    | 22        | 28    | 35    |       |       |
| 8.40  | 7.80  | 8.20       | 8.70  | 6.30  | 5.90       | 6.40  | 2.70      | 5.90  | 5.30  |       |       |
| 167.8 | 168.4 | 168.0      | 167.5 | 169.9 | 170.0      | 170.3 | 169.8     | 168.5 | 170.3 | 170.9 |       |
| 28    | 14    | 10 F. line | 6     | 16    | 20         | 22    | 28        | 36    |       |       |       |
| 7.60  | 8.60  | 8.60       | 6.40  | 5.90  | 5.90       | 6.30  | 8 F. line | 7.90  | 5.90  | 5.30  |       |
| 168.6 | 167.6 | 167.6      | 167.8 | 170.3 | 170.3      | 169.9 | 168.4     | 168.3 | 170.3 | 170.9 |       |
| 30    | 25    | 11         | 4     | 12    | 21         | 26    | 30        | 36    |       |       |       |
| 9.    | 8.40  | 8.10       | 8.70  | 6.50  | 5.60       | 6.30  | 7.70      | 6.30  | 5.20  |       |       |
| 167.2 | 167.8 | 168.1      | 168.1 | 169.7 | 170.6      | 169.9 | 168.5     | 169.9 | 171.0 |       |       |
| 47    | 28    | 15 F       | 10    | 4     | 10         | 14    | 24        | 35    | 38    | 43    |       |
| 8.60  | 8.    | 7.50       | 7.50  | 7.70  | 7.60       | 7.60  | 5.90      | 5.70  | 5.60  | 5.60  |       |
| 167.6 | 168.2 | 168.7      | 168.7 | 169.5 | 168.6      | 168.6 | 170.3     | 171.1 | 170.6 | 169.8 | 170.6 |
| 38    | 19    | 6.50       | 10 F  | 12    | 14         | 24    | 35        | 38    | 43    |       |       |
| 7.80  | 7.    | 6.50       | 6.    | 5.90  | 7.20       | 7.10  | 4.80      | 4.80  | 4.80  | 4.80  |       |
| 168.4 | 169.2 | 169.7      | 170.2 | 170.3 | 170.3      | 169.0 | 169.1     | 171.4 | 172.0 | 171.3 |       |
| 35    | 15    | 5.70       | 17    | 34 F  | 40         | 48    | 48        | 48    | 48    | 48    |       |
| 6.70  | 6.30  | 5.70       | 5.30  | 4.30  | 6.50       | 4.30  | 4.30      | 4.30  | 4.30  | 4.30  |       |
| 169.5 | 169.9 | 170.5      | 170.7 | 171.4 | 169.7      | 171.9 | 171.9     | 171.9 | 171.9 | 171.9 |       |
| 42    | 25    | 15         | 15    | 23    | 42 F       |       |           |       |       |       |       |
| 4.50  | 5.10  | 4.70       | 5.    | 5.    | 4.10       |       |           |       |       |       |       |
| 171.7 | 171.1 | 171.5      | 171.2 | 171.2 | 172.1      |       |           |       |       |       |       |



$$\begin{array}{r} 29 \\ 7.80 \end{array} \begin{array}{r} 22 \\ 6.20 \end{array} \begin{array}{r} 16 \\ 6.80 \end{array} \begin{array}{r} 10 \\ 5.80 \end{array} \begin{array}{r} 4160 \\ 490 \end{array} \begin{array}{r} 10 \\ 5.30 \end{array} \begin{array}{r} 12 \\ 6.50 \end{array} \begin{array}{r} 25 \\ 8.60 \end{array} \begin{array}{r} 29 \\ 8.10 \end{array}$$

$$\begin{array}{r} 157.1 \\ 152.9 \end{array} \begin{array}{r} 152.2 \\ 152.6 \end{array} \begin{array}{r} 151.5 \\ 152.1 \end{array} \begin{array}{r} 152.5 \\ 153.7 \end{array} \begin{array}{r} 153.4 \\ 154.5 \end{array} \begin{array}{r} 153.0 \\ 154.0 \end{array} \begin{array}{r} 151.8 \\ 152.9 \end{array} \begin{array}{r} 152.7 \\ 153.4 \end{array} \begin{array}{r} 153.2 \\ 153.6 \end{array}$$

$$\begin{array}{r} 28 \\ 8.50 \end{array} \begin{array}{r} 25 \\ 8.40 \end{array} \begin{array}{r} 18 \\ 10.70 \end{array} \begin{array}{r} 13 \\ 9.20 \end{array} \begin{array}{r} 790 \\ 790 \end{array} \begin{array}{r} 14 \\ 8.60 \end{array} \begin{array}{r} 19 \\ 10.20 \end{array} \begin{array}{r} 26 \\ 8.90 \end{array} \begin{array}{r} 30 \\ 8.30 \end{array}$$

$$\begin{array}{r} 155.6 \\ 155.1 \end{array} \begin{array}{r} 155.1 \\ 155.4 \end{array} \begin{array}{r} 153.4 \\ 155.4 \end{array} \begin{array}{r} 155.4 \\ 156.2 \end{array} \begin{array}{r} 155.5 \\ 156.7 \end{array} \begin{array}{r} 153.9 \\ 155.2 \end{array} \begin{array}{r} 155.2 \\ 155.8 \end{array} \begin{array}{r} 155.8 \\ 156.2 \end{array} \begin{array}{r} 155.8 \\ 156.2 \end{array}$$

$$\begin{array}{r} 29 \\ 7.20 \end{array} \begin{array}{r} 24 \\ 7.40 \end{array} \begin{array}{r} 19 \\ 8.60 \end{array} \begin{array}{r} 14 \\ 7.20 \end{array} \begin{array}{r} 6. \\ 6. \\ \end{array} \begin{array}{r} 13 \\ 6.50 \end{array} \begin{array}{r} 18 \\ 8.30 \end{array} \begin{array}{r} 25 \\ 6.60 \end{array} \begin{array}{r} 30 \\ 6.30 \end{array}$$

$$\begin{array}{r} 157.1 \\ 157.1 \end{array} \begin{array}{r} 156.7 \\ 156.7 \end{array} \begin{array}{r} 155.5 \\ 155.5 \end{array} \begin{array}{r} 157.1 \\ 157.1 \end{array} \begin{array}{r} 158.1 \\ 158.1 \end{array} \begin{array}{r} 157.6 \\ 157.6 \end{array} \begin{array}{r} 155.8 \\ 155.8 \end{array} \begin{array}{r} 157.5 \\ 157.5 \end{array} \begin{array}{r} 157.9 \\ 157.9 \end{array}$$

$$\begin{array}{r} 29 \\ 5.40 \end{array} \begin{array}{r} 24 \\ 4.90 \end{array} \begin{array}{r} 18 \\ 6.30 \end{array} \begin{array}{r} 12 \\ 4.40 \end{array} \begin{array}{r} 3.30 \\ 3.30 \end{array} \begin{array}{r} 13 \\ 4.30 \end{array} \begin{array}{r} 17 \\ 5.50 \end{array} \begin{array}{r} 24 \\ 5.70 \end{array} \begin{array}{r} 31 \\ 5.40 \end{array}$$

$$\begin{array}{r} 158.7 \\ 158.7 \end{array} \begin{array}{r} 159.2 \\ 159.2 \end{array} \begin{array}{r} 157.8 \\ 157.8 \end{array} \begin{array}{r} 159.7 \\ 159.7 \end{array} \begin{array}{r} 160.8 \\ 160.8 \end{array} \begin{array}{r} 159.8 \\ 159.8 \end{array} \begin{array}{r} 158.3 \\ 158.3 \end{array} \begin{array}{r} 160.4 \\ 160.4 \end{array} \begin{array}{r} 161.7 \\ 161.7 \end{array}$$

$$\begin{array}{r} 28 \\ 9.30 \end{array} \begin{array}{r} 24 \\ 9.90 \end{array} \begin{array}{r} 18 \\ 12.40 \end{array} \begin{array}{r} 13 \\ 10.70 \end{array} \begin{array}{r} 9.60 \\ 9.60 \end{array} \begin{array}{r} 12 \\ 10.10 \end{array} \begin{array}{r} 18 \\ 11.70 \end{array} \begin{array}{r} 24 \\ 9.30 \end{array} \begin{array}{r} 33 \\ 6.80 \end{array}$$

$$\begin{array}{r} 164.4 \\ 163.8 \end{array} \begin{array}{r} 163.8 \\ 161.3 \end{array} \begin{array}{r} 161.3 \\ 163.0 \end{array} \begin{array}{r} 163.0 \\ 164.1 \end{array} \begin{array}{r} 164.1 \\ 163.6 \end{array} \begin{array}{r} 163.6 \\ 162.0 \end{array} \begin{array}{r} 162.0 \\ 164.4 \end{array} \begin{array}{r} 164.4 \\ 166.9 \end{array} \begin{array}{r} 166.9 \\ 166.9 \end{array}$$

$$\begin{array}{r} 22 \\ 5.20 \end{array} \begin{array}{r} 24 \\ 5.30 \end{array} \begin{array}{r} 16 \\ 7.50 \end{array} \begin{array}{r} 13 \\ 6.40 \end{array} \begin{array}{r} 5.0 \\ 5.0 \end{array} \begin{array}{r} 11 \\ 5.90 \end{array} \begin{array}{r} 12 \\ 7.50 \end{array} \begin{array}{r} 24 \\ 4.90 \end{array} \begin{array}{r} 34 \\ 4.50 \end{array}$$

$$\begin{array}{r} 168.5 \\ 168.4 \end{array} \begin{array}{r} 168.4 \\ 166.2 \end{array} \begin{array}{r} 166.2 \\ 167.3 \end{array} \begin{array}{r} 167.3 \\ 168.7 \end{array} \begin{array}{r} 168.7 \\ 167.8 \end{array} \begin{array}{r} 167.8 \\ 166.2 \end{array} \begin{array}{r} 166.2 \\ 168.8 \end{array} \begin{array}{r} 168.8 \\ 169.2 \end{array} \begin{array}{r} 169.2 \\ 169.2 \end{array}$$

$$\begin{array}{r} 28 \\ 4.30 \end{array} \begin{array}{r} 22 \\ 5.20 \end{array} \begin{array}{r} 17 \\ 7.20 \end{array} \begin{array}{r} 13 \\ 5.50 \end{array} \begin{array}{r} 4.40 \\ 4.40 \end{array} \begin{array}{r} 12 \\ 5.30 \end{array} \begin{array}{r} 12 \\ 6.50 \end{array} \begin{array}{r} 24 \\ 4.50 \end{array} \begin{array}{r} 34 \\ 4.50 \end{array}$$

$$\begin{array}{r} 169.4 \\ 168.5 \end{array} \begin{array}{r} 168.5 \\ 166.7 \end{array} \begin{array}{r} 166.7 \\ 168.2 \end{array} \begin{array}{r} 168.2 \\ 169.3 \end{array} \begin{array}{r} 169.3 \\ 168.4 \end{array} \begin{array}{r} 168.4 \\ 167.2 \end{array} \begin{array}{r} 167.2 \\ 169.2 \end{array} \begin{array}{r} 169.2 \\ 169.2 \end{array} \begin{array}{r} 169.2 \\ 169.2 \end{array}$$

$$\begin{array}{r} 26 \\ 4.70 \end{array} \begin{array}{r} 22 \\ 4.90 \end{array} \begin{array}{r} 17 \\ 6.30 \end{array} \begin{array}{r} 12 \\ 4.80 \end{array} \begin{array}{r} 3.70 \\ 3.70 \end{array} \begin{array}{r} 11 \\ 4.70 \end{array} \begin{array}{r} 22 \\ 4.10 \end{array} \begin{array}{r} 34 \\ 3.30 \end{array} \begin{array}{r} 34 \\ 3.30 \end{array}$$

$$\begin{array}{r} 169.0 \\ 168.8 \end{array} \begin{array}{r} 168.8 \\ 167.4 \end{array} \begin{array}{r} 167.4 \\ 168.9 \end{array} \begin{array}{r} 168.9 \\ 170.0 \end{array} \begin{array}{r} 170.0 \\ 169.0 \end{array} \begin{array}{r} 169.0 \\ 169.6 \end{array} \begin{array}{r} 169.6 \\ 170.4 \end{array} \begin{array}{r} 170.4 \\ 170.4 \end{array} \begin{array}{r} 170.4 \\ 170.4 \end{array}$$



BM 5 12.31 171.04 0.95 158.73  
4.70 159.68 5.00 154.98

Road W.

(43+34)

T.P.

Road E.

(43+34)

43+34 & X Roads E+W  
158.36

Center E. headwall Sta 42+80

Side  
S. Side  
S. Side

S. Side  
S. Side  
S. Side  
S. Side  
S. Side  
S. Side

W side

W side



+43 Sand Bridge

+26 Center bridge

+10 N. end bridge

45

+50

44

43+61 S. side X Roads

BM. 5 4.73 159.70

154.97

BM 3

|       |        |      |        |
|-------|--------|------|--------|
|       |        | 6.45 | 176.97 |
| 2.26  | 183.42 | 8.75 | 181.16 |
| 1.89  | 189.91 | 6.25 | 188.42 |
| 3.74  | 194.27 | 0.36 | 190.53 |
| 11.15 | 190.89 | 0.65 | 179.74 |
| 6.54  | 186.39 | 4.32 | 178.85 |
| 9.54  | 178.17 | 0.41 | 170.63 |
|       | 171.04 |      |        |

|       |       |       |       |       |       |       |        |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|
| 27    | 23    | 15    | 9     | 8     |       | 8     | 9      | 17    | 21    | 29    |
| 8.20  | 8.    | 8.60  | 9.50  | 4.80  | 4.90  | 5.20  | 10.50  | 12    | 9.20  | 8.60  |
| 151.5 | 151.7 | 151.1 | 150.2 | 154.9 | 154.8 | 154.5 | 149.2  | 147.7 | 150.5 | 151.1 |
| 29    | 24    | 21    | 10    | 9     |       | 6     | 7 Fine | 16    | 20    | 28    |
| 8.    | 8.40  | 9.60  | 10.20 | 7.80  | 4.70  | 5.1   | 12.    | 10.0  | 8.20  | 8.10  |
| 151.7 | 151.3 | 150.1 | 149.5 | 154.9 | 155.0 | 154.7 | 147.7  | 149.6 | 151.5 | 151.6 |
|       |       |       | 10.51 | 5.    | 4.90  | 4.90  | 11.20  |       |       |       |
|       |       |       | 148.0 | 154.7 | 154.8 | 154.8 | 148.5  |       |       |       |
| 29    | 19    | 13    | 9     |       |       | 5.30  | 5.6    | 19    | 25    | 29    |
| 10.   | 11.   | 6     | 5.30  | 5.30  | 5.30  | 5.30  | 8.80   | 8.70  | 7.70  |       |
| 149.7 | 148.7 | 153.7 | 154.4 | 154.4 | 154.4 | 154.5 | 149.9  | 151.6 | 152.0 |       |
| 30    | 26    | 17    | 10    |       |       | 7.20  | 11     | 18    | 24    | 32    |
| 8.80  | 9.    | 10.   | 8.20  | 7.20  | 7.20  | 7.20  | 9.30   | 8.20  | 7.60  |       |
| 150.9 | 150.7 | 149.7 | 151.5 | 152.5 | 152.5 | 152.0 | 150.4  | 151.5 | 152.1 |       |
| 29    | 31    | 16    | 11    |       |       | 7.40  | 13     | 19    | 35    | 32    |
| 8.70  | 9.60  | 10.   | 8.    | 7.40  | 8.    | 8.    | 9.70   | 7.60  | 7.60  |       |
| 151.6 | 150.1 | 149.7 | 151.7 | 152.3 | 151.7 | 151.7 | 150.6  | 152.1 | 152.6 |       |
| 29    | 22    | 16    | 11    |       |       | 6.90  | 13     | 18    | 33    | 39    |
| 7.70  | 8.    | 8.40  | 7.40  | 6.90  | 7.50  | 8.30  | 7.20   | 7.20  | 6.80  |       |
| 152.0 | 151.7 | 151.3 | 152.3 | 152.8 | 152.2 | 151.4 | 152.5  | 152.9 |       |       |

Center E headwall Sta 42+80

Center E. headwall Sta 8+50



56 0.64 175.62 6.51 174.98

55

54

53

52 10.61 181.49 1.57 170.88

51

50 11.23 172.45 0.38 161.22

49

48

+50 9.99 161.60 8.09 151.61

47

+50

+46

159.70

33 22 16 12 12 18 25 32  
2.30 4.20 5.90 4.80 3.90 4.60 6.30 2.50 2.70  
173.3 171.4 169.7 170.8 171.7 171.0 169.3 173.1 173.1

31 22 16 12 12 12 23  
3.60 5.20 6.80 5.90 4.90 5.90 7.30 4.40  
177.8 176.2 174.6 175.5 176.5 175.5 174.1 177.0

32 24 17 12 11 15 22  
2.00 2.30 4.60 3.40 2.80 3.50 4.70 3.50  
179.4 179.1 176.8 178.0 178.6 177.9 176.7 178.1

31 23 17 13 13 16 32  
5.50 3.70 6.10 5.20 4.40 5.30 6.60 4.40  
179.1 177.7 175.3 176.2 177.0 176.1 174.8 177.0

31 24 18 13 12 16 27 26  
6.00 7.00 9.50 8.10 7.50 8.60 9.20 7.40 7.30  
175.4 174.4 171.9 173.3 173.9 172.8 171.6 174.0 174.1

30 24 18 14 12 16 22 27  
0.90 2.60 3.40 3.80 3.10 4.30 5.30 2.80 2.70  
171.5 169.8 167.0 168.6 169.3 168.1 167.1 169.6 169.7

30 24 19 15 12 15 23 27  
4.50 7.80 11.40 9.60 8.80 9.50 11.70 8.70 8.30  
158.1 164.6 161.0 162.8 163.6 162.6 160.7 164.3 164.1

29 23 18 13 11 20 24 27  
1.40 2.80 6.00 4.20 3.60 4.60 6.50 5.50 5.30  
160.2 159.8 155.6 157.4 158.0 157.0 155.1 156.1 156.3

27 24 20 16 10 6 15 23 27  
7.20 7.50 8.30 7.20 7.00 7.30 8.50 9.50  
154.4 154.1 153.3 154.4 154.6 154.5 153.8 152.1 152.1

27 23 31 18 11 2 7 29  
8.00 8.20 9.00 8.40 8.00 8.20 8.30 12.50 9.90  
153.5 153.4 152.6 153.2 153.6 153.4 153.3 149.1 151.7

28 25 23 18 12 3 9 30  
6.50 7.00 7.60 6.80 6.40 6.40 6.50 10.70 8.00  
153.2 152.7 152.1 152.9 153.3 153.3 153.2 149.0 151.7

28 26 23 19 11 4 13 20 29  
7.10 7.20 8.20 7.00 6.50 6.50 6.80 11.20 9.00  
152.6 152.5 151.5 152.7 153.4 153.2 152.9 148.5 150.7

32 34 24 18 8 5 15 26 29  
7.60 7.60 8.20 6.70 6.10 6.30 6.50 12.20 10.50  
152.1 152.1 151.5 153.0 153.6 153.4 153.2 147.5 149.2



63 5.67 171.96 6.27 166.29

62

61

60

Sta. 59

BM 8 5.47 172.56 167.09

4.68 154.99

6.54 159.67 11.96 152.13

0.53 165.09 11.96 164.56

0.77 176.52 4.97 175.75

11.85 180.72 2.70 168.87

58

BM 8 4.48 171.57 8.53 167.09

BM 7 8.14 167.48

+ 67 E of Conc. Culv. slightly skew

57

+ 54 N end Culv. W side 28'

+ 45 N. end of cut. E Side. 20'

175.62

32 26 19 19 4.80 12 19 25 29  
47.0 5. 6.90 5.60 4.80 6.20 8.30 6.30 6.60  
169.4 167.5 165.6 166.9 167.7 166.3 164.2 166.0 165.9

32 25 18 14 5. 11 18 24 29  
5. 5.80 7. 5.60 5. 6. 8.40 6.60 7.  
167.5 166.7 165.5 166.9 167.5 166.5 164.1 165.9 165.5

32 25 17 19 5.10 11 18 24 27  
42.0 5.70 7.20 5.60 5.10 6.10 8.20 6.80 7.  
168.3 166.8 165.3 166.9 167.4 166.4 164.3 165.7 165.5

31 22 16 11 4.80 12 13 25 28  
3. 4.20 6.50 5.30 4.80 5.80 7.80 6.30 6.60  
169.5 168.3 166.0 167.2 167.7 166.7 164.7 166.2 165.9

32 24 17 12 6. 10 14 23 28  
5.20 6.10 7.40 6.40 6. 6.90 8.90 7.40 7.90  
167.3 166.4 165.1 166.1 166.5 165.6 163.6 165.1 165.2

Center W headwall Sta 57+77

35 25 21 14 5.60 9 17 23 24  
5.70 6.30 7.70 5.90 5.60 6.20 8.50 7.70 8.40  
165.8 165.2 163.8 165.6 165.4 165.3 163.0 163.8 163.1

Center W. headwall

Center E. headwall Sta. 57+77

3 28 24 17 8 9 F. line 17 25  
20 10.70 11.80 12.40 7.40 9.40 9.70 7.3 13. 13.50  
164.9 163.8 163.2 166.2 166.2 165.9 162.6 162.6 162.1

32 25 19 13 7.60 10 17 24 28  
8.20 8.40 7.60 8.30 7.60 8.50 10.20 9.20 9.20  
167.4 167.2 166.0 167.3 168.0 167.1 165.4 166.4 166.4



+25 + 35 Drive West

73

BM 10 2.30 170.39  
 BM 9 2.12 170.57  
 71+94 +4  $\frac{1}{2}$  of Cone. Box Calv Nail 10° 15' Left  
 4.5 x 7 x 24.66

72

71

70

6.51 172.69 5.78 166.18

69

68

67

66

65

64.

171.96

Center W head wall

" E "

4.50 9 27  
 168.1 167.1 168.0  
 33 29 25 13 470 9 15 22 26  
 6.20 6.40 7.50 5.30 166.4 166.2 165.1 167.3 167.9 167.2 165.2 166.8 167.6

33 28 17 15 390 9 11 22 27  
 6.50 7.1 8.80 3.80 166.1 165.6 163.8 163.8 163.7 163.8 163.5 166.2 165.6  
 33 27 16 14 4 9 11 22 27  
 6.50 7.1 9.10 3.70 166.1 165.5 163.5 163.3 163.3 166.1 165.4  
 31 26 20 15 6 13 19 25  
 6.20 6.60 8.40 6.70 166.4 166.0 164.2 165.9 166.3 165.9 162.4 165.7 165.4  
 34 32 21 15 5 13 21 25  
 5.70 5.80 6.60 6.40 166.9 166.8 166.0 166.2 166.6 166.8 163.8 164.3 165.3  
 32 27 21 16 5 12 18 23 28  
 4.90 5.90 7.20 5.60 167.0 166.0 164.7 166.3 166.7 165.7 163.6 165.3 165.1  
 33 22 21 19 5 12 19 24 29  
 4.60 5.70 7.50 6.1 5.40 6.40 8.1 7.1 7.40  
 167.3 166.2 164.4 165.9 166.5 165.5 163.9 164.9 164.5  
 32 22 21 17 5 13 19 24 29  
 4.20 5.70 7.30 6.1 5.30 6.30 7.90 6.60 7.20  
 167.7 166.2 164.6 165.9 166.6 165.6 164.0 165.3 164.7  
 32 25 20 16 5 13 18 24 29  
 3.10 4.70 6.80 5.50 5.60 6.20 8.1 6.30 6.70  
 168.8 167.2 165.1 166.4 166.9 165.7 163.9 165.6 166.2  
 31 26 20 14 5 12 19 24 29  
 3.1 4.20 6.60 5.1 4.60 5.90 7.70 6.10 6.40  
 168.9 167.7 165.3 166.9 167.3 166.1 164.2 165.8 165.5  
 31 26 20 14 5 12 19 24 29  
 2.40 4.80 6.10 7.80 4.20 5.70 7.70 5.60 5.70  
 169.5 167.1 165.8 167.1 167.7 166.2 164.2 166.3 166.2



5.60 181.10 2.85 175.60

84

83

B.M. 11

+ 43

Center of Conc. Box Culv. Nail Turn 0° 34' 15"

Center E  
headwall

1.23

177.12

82

81

80

+ 40

+ 50

5.35 178.35 2.86 173.00  
Driveway West.

79

78

77

76

75

74

8.80 175.86 5.63 167.06

172.69

|       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 36    | 26    | 20    | 16    |       | 9     | 18    | 23    | 27    |
| 3.80  | 3.80  | 3.60  | 4.10  | 3.60  | 4.80  | 6.50  | 5.30  | 5.70  |
| 174.5 | 174.5 | 172.1 | 174.1 | 174.7 | 173.5 | 171.8 | 173.0 | 173.2 |
| 34    | 20    | 20    | 15    | 7     | 6     | 64    | 20    | 25    |
| 6.1   | 5.50  | 6.1   | 4.90  | 4.70  | 4.40  | 5.10  | 6.70  | 5.70  |
| 172.3 | 172.8 | 172.3 | 173.4 | 174.2 | 173.9 | 173.2 | 171.6 | 172.6 |
| 34    | 30    | 25    | 16    | 15    | 3     | 4     | 11    | 12    |
| 6.40  | 6.20  | 6.70  | 8.50  | 3.50  | 3.70  | 8.30  | 6.90  | 6.40  |
| 171.9 | 172.1 | 171.6 | 169.8 | 174.8 | 174.6 | 175.3 | 170.0 | 171.4 |
| 33    | 26    | 21    | 14    | 7     | 8     | 18    | 23    | 27    |
| 6.20  | 6.40  | 7.60  | 5.40  | 4.30  | 4.60  | 5.10  | 5.50  | 5.40  |
| 172.1 | 171.9 | 170.7 | 172.9 | 173.8 | 173.7 | 173.2 | 171.3 | 172.8 |
| 33    | 25    | 20    | 15    |       | 12    | 18    | 23    | 28    |
| 6.80  | 6.80  | 8.10  | 6.1   | 5.10  | 5.80  | 8.50  | 5.60  | 5.60  |
| 172.0 | 171.5 | 170.2 | 172.3 | 173.2 | 172.5 | 170.8 | 172.7 | 172.8 |
| 34    | 27    | 21    | 15    |       | 10    | 14    | 21    | 27    |
| 6.60  | 7.1   | 8.40  | 6.30  | 5.60  | 6.60  | 7.60  | 6.30  | 6.1   |
| 171.7 | 171.3 | 169.9 | 172.0 | 172.7 | 171.9 | 170.7 | 172.0 | 172.3 |
|       |       |       |       | 2.90  | 3     | 2.70  |       |       |
|       |       |       |       | 172.9 | 172.8 | 173.1 |       |       |
| 33    | 25    | 20    | 14    |       | 9     | 14    | 19    | 27    |
| 4.60  | 4.30  | 6.50  | 4.10  | 3.1   | 3.80  | 5.80  | 7.1   | 3     |
| 171.2 | 171.5 | 169.3 | 171.7 | 172.8 | 172.0 | 170.0 | 171.8 | 172.8 |
| 33    | 30    | 21    | 16    |       | 10    | 14    | 20    | 25    |
| 4.50  | 5.20  | 7.60  | 4.90  | 3.80  | 4.50  | 6.80  | 3.90  | 4.70  |
| 171.0 | 170.6 | 168.2 | 170.9 | 172.0 | 171.0 | 169.0 | 171.9 | 173.1 |
| 33    | 27    | 23    | 17    |       | 8     | 18    | 20    | 27    |
| 6.20  | 6.50  | 8.1   | 6.1   | 4.80  | 5.50  | 7.50  | 4.90  | 2.90  |
| 169.6 | 169.3 | 167.8 | 169.8 | 171.0 | 170.3 | 168.3 | 170.9 | 172.9 |
| 35    | 26    | 21    | 16    |       | 9     | 15    | 21    | 27    |
| 6.90  | 7.40  | 8.90  | 6.40  | 5.50  | 6.40  | 8.60  | 5.80  | 4.30  |
| 169.9 | 168.4 | 166.9 | 169.4 | 170.3 | 169.4 | 167.2 | 170.6 | 171.6 |
| 35    | 31    | 22    | 15    |       | 9     | 14    | 21    | 27    |
| 7.70  | 7.50  | 9.60  | 7.30  | 6.30  | 7.20  | 9.30  | 6.50  | 4.50  |
| 168.7 | 168.3 | 166.2 | 168.5 | 169.5 | 168.6 | 166.5 | 169.3 | 171.3 |
| 34    | 26    | 20    | 15    |       | 9     | 13    | 19    | 27    |
| 5.40  | 6.1   | 6.80  | 5.30  | 4.30  | 4.90  | 6.10  | 4.40  | 3.30  |
| 167.2 | 166.6 | 165.8 | 167.3 | 168.3 | 167.7 | 166.5 | 167.8 | 169.3 |



96

95

94

93

92

91

90

89

(47) +57

88

87

86

85

11.29 197.90 1.47 186.61

10.79 188.08 3.81 177.29

Driveway East.

181.10

|                            |                             |                             |                             |                          |                             |                             |                             |                             |
|----------------------------|-----------------------------|-----------------------------|-----------------------------|--------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <u>32</u><br>3.70<br>94.2  | <u>26</u><br>3.70<br>192.8  | <u>19</u><br>6.20<br>191.7  | <u>13</u><br>3.20<br>192.7  | <u>4.60</u><br>193.3     | <u>11</u><br>5.30<br>192.6  | <u>20</u><br>7.60<br>190.3  | <u>26</u><br>5.90<br>192.0  | <u>30</u><br>6.<br>191.9    |
| <u>32</u><br>3.<br>194.9   | <u>24</u><br>4.50<br>193.4  | <u>19</u><br>6.60<br>191.3  | <u>14</u><br>5.<br>192.9    | <u>4.20</u><br>193.7     | <u>13</u><br>5.40<br>192.5  | <u>19</u><br>7.30<br>191.6  | <u>25</u><br>5.50<br>192.4  | <u>29</u><br>3.30<br>192.6  |
| <u>34</u><br>1.50<br>196.4 | <u>25</u><br>4.40<br>193.5  | <u>19</u><br>6.90<br>192.0  | <u>14</u><br>3.90<br>194.0  | <u>3.</u><br>194.9       | <u>13</u><br>4.40<br>193.5  | <u>18</u><br>5.90<br>192.0  | <u>24</u><br>4.<br>193.9    | <u>30</u><br>3.90<br>194.0  |
| <u>35</u><br>3.30<br>194.6 | <u>29</u><br>6.30<br>191.6  | <u>25</u><br>7.<br>190.9    | <u>20</u><br>9.40<br>188.5  | <u>14</u><br>7.<br>190.9 | <u>6.</u><br>191.9          | <u>13</u><br>7.10<br>190.8  | <u>17</u><br>8.<br>188.9    | <u>23</u><br>5.<br>192.9    |
| <u>35</u><br>0.60<br>187.4 | <u>23</u><br>3.10<br>184.9  | <u>18</u><br>4.40<br>183.6  | <u>14</u><br>2.50<br>185.5  | <u>1.5</u><br>186.5      | <u>12</u><br>2.50<br>185.5  | <u>17</u><br>4.30<br>183.7  | <u>23</u><br>1.<br>187.0    | <u>28</u><br>0.10<br>187.9  |
| <u>34</u><br>5.30<br>182.7 | <u>24</u><br>6.40<br>181.6  | <u>18</u><br>7.20<br>180.8  | <u>13</u><br>6.<br>182.0    | <u>5.</u><br>183.0       | <u>13</u><br>6.<br>182.0    | <u>18</u><br>7.60<br>180.4  | <u>25</u><br>5.90<br>182.1  | <u>28</u><br>5.90<br>182.1  |
| <u>34</u><br>8.<br>180.0   | <u>25</u><br>8.50<br>179.5  | <u>19</u><br>9.70<br>178.3  | <u>15</u><br>8.50<br>179.5  | <u>7.40</u><br>180.6     | <u>13</u><br>8.40<br>179.6  | <u>19</u><br>10.30<br>177.7 | <u>25</u><br>8.90<br>179.1  | <u>30</u><br>8.90<br>179.1  |
| <u>34</u><br>9.70<br>178.3 | <u>25</u><br>10.10<br>177.9 | <u>20</u><br>11.10<br>176.9 | <u>16</u><br>10.10<br>177.9 | <u>9.10</u><br>178.9     | <u>13</u><br>10.30<br>177.8 | <u>19</u><br>12.<br>176.0   | <u>21</u><br>10.60<br>177.4 | <u>22</u><br>10.60<br>177.4 |
| <u>37</u><br>3.30<br>177.8 | <u>22</u><br>3.70<br>177.4  | <u>20</u><br>4.10<br>177.0  | <u>13</u><br>3.60<br>177.5  | <u>3.</u><br>178.1       |                             |                             |                             |                             |
| <u>35</u><br>4.<br>177.1   | <u>23</u><br>4.40<br>176.7  | <u>18</u><br>5.90<br>175.2  | <u>14</u><br>4.60<br>176.5  | <u>3.80</u><br>177.3     | <u>12</u><br>4.70<br>176.4  | <u>13</u><br>6.50<br>174.6  | <u>24</u><br>4.90<br>176.2  | <u>28</u><br>5.20<br>175.9  |
| <u>35</u><br>5.<br>176.1   | <u>26</u><br>5.40<br>175.7  | <u>20</u><br>6.50<br>174.6  | <u>14</u><br>5.20<br>175.9  | <u>4.70</u><br>176.4     | <u>12</u><br>5.70<br>175.4  | <u>16</u><br>7.50<br>173.6  | <u>25</u><br>5.50<br>175.6  |                             |
| <u>38</u><br>5.40<br>175.7 | <u>28</u><br>5.70<br>175.4  | <u>22</u><br>7.00<br>174.0  | <u>12</u><br>5.30<br>175.3  | <u>5.30</u><br>175.8     | <u>13</u><br>6.30<br>174.6  | <u>18</u><br>8.40<br>172.7  | <u>24</u><br>6.60<br>174.5  | <u>27</u><br>6.60<br>174.5  |
| <u>37</u><br>5.60<br>175.5 | <u>28</u><br>6.10<br>175.0  | <u>22</u><br>7.70<br>173.4  | <u>12</u><br>5.30<br>175.3  | <u>5.70</u><br>175.4     | <u>13</u><br>7.10<br>174.0  | <u>18</u><br>8.<br>172.1    | <u>24</u><br>7.70<br>173.4  | <u>27</u><br>6.70<br>174.4  |



|        |       |        |       |          |                                    |
|--------|-------|--------|-------|----------|------------------------------------|
| BM 12  |       |        | 2.37  | 196.02   | Top Conc. post NW cor Sta 96+17    |
|        | 11.13 | 198.39 | 0.69  | 187.26 ✓ |                                    |
|        | 11.50 | 187.95 | 3.95  | 176.45   |                                    |
| BM 11  | 3.60  | 180.40 | 0.74  | 176.80   | Enter E. Headwall Sta 82+43        |
|        | 9.46  | 179.54 | 5.93  | 168.08   |                                    |
| BM 9   | 3.79  | 174.01 | 1.27  | 170.22   | Enter E. Headwall Sta. 72+4        |
|        | 6.85  | 171.49 | 7.14  | 164.64   |                                    |
|        | 4.62  | 171.78 | 4.87  | 167.16   |                                    |
| BM 8   | 4.94  | 172.03 | 3     | 167.09   | Enter E. Headwall Sta 57+77        |
| BM 7   |       |        | 4.93  | 167.50   | BM CULV. 57+77                     |
|        | 4.98  | 172.43 | 4.78  | 167.45   |                                    |
|        | 5.22  | 172.23 | 4.98  | 167.01   | ✓                                  |
| BM. 9  | 1.37  | 171.99 | 3.17  | 170.62   | BM CULV. 72+4                      |
|        | 3.68  | 173.79 | 7.90  | 170.11   | ✓                                  |
| BM. 11 | 0.83  | 178.01 | 3.35  | 177.18   | ✓                                  |
|        | 3.74  | 180.53 | 10.76 | 176.79   | ✓                                  |
|        | 0.93  | 187.55 | 11.28 | 186.62   |                                    |
| BM. 12 |       |        | 1.56  | 196.34   | Center Conc. post NW cor Sta 96+17 |
|        |       | 197.90 |       |          |                                    |



96 + 17 Northline X Roads E &amp; W.

|        |      |        |        |
|--------|------|--------|--------|
| BM. 12 | 1.91 | 196.93 | 195.02 |
|--------|------|--------|--------|

Road West

4

3

2

1

0

|        |      |        |        |
|--------|------|--------|--------|
| BM. 12 | 1.89 | 196.91 | 195.02 |
|--------|------|--------|--------|

Road East

4

3

2

1

0

|        |      |        |        |
|--------|------|--------|--------|
| BM. 12 | 8.73 | 203.75 | 195.02 |
|--------|------|--------|--------|

|                   |                   |                   |                   |                   |                   |                   |                   |                   |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| $\frac{31}{4.40}$ | $\frac{26}{5.40}$ | $\frac{19}{6.40}$ | $\frac{11}{5.30}$ | $\frac{12}{4.90}$ | $\frac{20}{5.80}$ | $\frac{26}{7.80}$ | $\frac{28}{6.20}$ | $\frac{25}{6.40}$ |
| <del>192.5</del>  | <del>191.5</del>  | <del>190.8</del>  | <del>191.6</del>  | <del>192.0</del>  | <del>191.1</del>  | <del>189.1</del>  | <del>190.7</del>  | <del>190.8</del>  |

Cont. Fence Post NW corner

South Side

|                   |                    |                   |                  |                   |                    |                    |                    |
|-------------------|--------------------|-------------------|------------------|-------------------|--------------------|--------------------|--------------------|
| $\frac{22}{3.80}$ | $\frac{15}{5.80}$  | $\frac{11}{6.60}$ | $\frac{5}{5.40}$ | $\frac{10}{5.30}$ | $\frac{15}{7.00}$  | $\frac{18}{6.50}$  | $\frac{22}{5.50}$  |
| <del>193.1</del>  | <del>191.1</del>   | <del>190.3</del>  | <del>191.5</del> | <del>191.7</del>  | <del>191.6</del>   | <del>189.9</del>   | <del>191.4</del>   |
| $\frac{20}{7.40}$ | $\frac{15}{8.40}$  | $\frac{11}{9.20}$ | $\frac{4}{8.50}$ | $\frac{11}{8.50}$ | $\frac{17}{9.50}$  | $\frac{19}{9.20}$  | $\frac{22}{8.70}$  |
| <del>189.5</del>  | <del>188.5</del>   | <del>187.6</del>  | <del>188.3</del> | <del>188.5</del>  | <del>188.4</del>   | <del>187.2</del>   | <del>187.7</del>   |
| $\frac{20}{9.70}$ | $\frac{12}{10.00}$ | $\frac{9}{10.80}$ | $\frac{5}{9.50}$ | $\frac{10}{9.40}$ | $\frac{17}{10.80}$ | $\frac{20}{10.30}$ | $\frac{22}{10.40}$ |
| <del>187.2</del>  | <del>186.9</del>   | <del>186.1</del>  | <del>187.4</del> | <del>187.5</del>  | <del>187.5</del>   | <del>186.1</del>   | <del>186.5</del>   |
| $\frac{20}{9.00}$ | $\frac{15}{8.80}$  | $\frac{11}{9.70}$ | $\frac{6}{8.90}$ | $\frac{12}{8.80}$ | $\frac{17}{9.00}$  | $\frac{22}{8.90}$  | $\frac{24}{8.30}$  |
| <del>187.9</del>  | <del>188.1</del>   | <del>187.2</del>  | <del>188.0</del> | <del>188.1</del>  | <del>187.9</del>   | <del>187.0</del>   | <del>188.6</del>   |

Cont. Fence Post NW cor X Roads

S. Side

|                   |                   |                    |                    |                    |                   |                    |                   |                   |
|-------------------|-------------------|--------------------|--------------------|--------------------|-------------------|--------------------|-------------------|-------------------|
| $\frac{24}{2.40}$ | $\frac{21}{3.40}$ | $\frac{18}{4.80}$  | $\frac{11}{3.30}$  | $\frac{8}{2.50}$   | $\frac{15}{3.80}$ | $\frac{15}{4.10}$  | $\frac{22}{3.60}$ | $\frac{22}{2.30}$ |
| <del>201.3</del>  | <del>200.3</del>  | <del>198.9</del>   | <del>200.4</del>   | <del>201.2</del>   | <del>200.9</del>  | <del>199.6</del>   | <del>201.1</del>  | <del>200.4</del>  |
| $\frac{24}{4.10}$ | $\frac{20}{4.90}$ | $\frac{15}{6.20}$  | $\frac{11}{2.50}$  | $\frac{14}{4.30}$  | $\frac{9}{4.70}$  | $\frac{14}{5.70}$  | $\frac{18}{3.60}$ | $\frac{22}{8.50}$ |
| <del>199.6</del>  | <del>198.8</del>  | <del>197.5</del>   | <del>199.2</del>   | <del>199.4</del>   | <del>199.0</del>  | <del>198.0</del>   | <del>200.1</del>  | <del>200.2</del>  |
| $\frac{24}{6.20}$ | $\frac{19}{6.90}$ | $\frac{18}{8.40}$  | $\frac{12}{7.50}$  | $\frac{10}{7.20}$  | $\frac{10}{7.60}$ | $\frac{13}{8.30}$  | $\frac{19}{5.80}$ | $\frac{22}{5.70}$ |
| <del>197.5</del>  | <del>196.8</del>  | <del>195.3</del>   | <del>196.2</del>   | <del>196.5</del>   | <del>196.1</del>  | <del>195.4</del>   | <del>197.9</del>  | <del>198.0</del>  |
| $\frac{23}{9.40}$ | $\frac{19}{9.70}$ | $\frac{16}{11.50}$ | $\frac{11}{10.30}$ | $\frac{11}{10.20}$ | $\frac{9}{10.50}$ | $\frac{14}{11.70}$ | $\frac{18}{9.50}$ | $\frac{20}{9.60}$ |
| <del>194.3</del>  | <del>194.0</del>  | <del>192.2</del>   | <del>193.4</del>   | <del>193.5</del>   | <del>193.2</del>  | <del>192.0</del>   | <del>194.2</del>  | <del>194.2</del>  |



106

105

10.90 215.45 1.35 204.55

104

103

102

101

9.85 205.90 0.88 196.05

100

99

98

+17 +26 corch Culvert

97

+65 Southline X Roads

+32 +H2 4 X Roads

196.93

|       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 32    | 27    | 20    | 17    | 11    | 16    | 22    | 26    |
| 5.90  | 6.80  | 8.50  | 7.10  | 6.10  | 6.60  | 8.40  | 5.70  |
| 209.5 | 206.6 | 206.9 | 206.3 | 209.3 | 208.8 | 207.4 | 209.5 |
| 32    | 27    | 20    | 17    | 12    | 16    | 22    | 27    |
| 8.50  | 7.10  | 10.80 | 9.40  | 8.40  | 8.90  | 10.20 | 7.80  |
| 206.9 | 206.3 | 204.6 | 206.0 | 207.0 | 206.5 | 205.2 | 207.6 |
| 32    | 27    | 20    | 17    | 13    | 16    | 21    | 27    |
| 0.80  | 1.10  | 3.70  | 2.30  | 1.20  | 2.1   | 3.10  | 0.60  |
| 205.1 | 204.8 | 202.2 | 203.6 | 204.7 | 203.9 | 202.8 | 205.3 |
| 32    | 26    | 19    | 16    | 13    | 17    | 24    | 28    |
| 3.9   | 3.70  | 6.1   | 4.5   | 23.60 | 4.40  | 5.90  | 5.40  |
| 202.9 | 202.2 | 199.9 | 201.4 | 202.3 | 201.5 | 200.0 | 202.5 |
| 32    | 26    | 19    | 16    | 13    | 17    | 24    | 29    |
| 5.70  | 6.30  | 8.90  | 7.40  | 6.30  | 7.20  | 8.80  | 6.10  |
| 200.2 | 199.6 | 197.0 | 198.5 | 199.6 | 198.7 | 197.1 | 199.8 |
| 32    | 25    | 19    | 15    | 13    | 17    | 23    | 29    |
| 8.60  | 9.20  | 7.60  | 10.1  | 8.90  | 9.80  | 11.30 | 9.30  |
| 197.3 | 196.7 | 198.3 | 195.9 | 197.0 | 196.1 | 194.6 | 196.6 |
| 32    | 26    | 20    | 15    | 13    | 17    | 23    | 29    |
| 1.90  | 2.60  | 4.40  | 3.1   | 2.50  | 3.20  | 4.50  | 2.70  |
| 195.0 | 194.3 | 192.5 | 193.9 | 194.6 | 193.7 | 192.4 | 194.2 |
| 32    | 26    | 21    | 18    | 12    | 18    | 24    | 29    |
| 4.30  | 4.90  | 5.80  | 4.80  | 4.1   | 4.90  | 6.1   | 4.80  |
| 192.7 | 192.0 | 191.1 | 192.1 | 192.9 | 192.0 | 190.9 | 192.1 |
| 31    | 25    | 20    | 14    | 12    | 19    | 24    | 29    |
| 6.20  | 6.20  | 6.90  | 5.80  | 5     | 5.90  | 7.30  | 6.40  |
| 190.7 | 190.7 | 190.0 | 191.1 | 191.9 | 191.0 | 189.6 | 190.5 |
| 32    | 27    | 23    | 15    | 9     | 10    | 18    | 23    |
| 6.80  | 7.30  | 7.70  | 8.50  | 4.90  | 5.0   | 8.20  | 8.10  |
| 190.1 | 189.6 | 189.2 | 188.9 | 192.0 | 191.9 | 188.7 | 188.8 |
| 31    | 27    | 22    | 14    | 9     | 20    | 25    | 29    |
| 6.20  | 6.30  | 7.20  | 5.60  | 5.10  | 5.70  | 8.20  | 7.20  |
| 190.7 | 190.6 | 189.7 | 191.3 | 191.8 | 191.2 | 188.7 | 189.7 |
| 32    | 29    | 23    | 17    | 12    | 21    | 28    | 29    |
| 4.90  | 6.30  | 6.20  | 5.40  | 5.10  | 6.30  | 7.60  | 9.1   |
| 192.0 | 190.6 | 191.7 | 191.5 | 191.8 | 190.4 | 189.3 | 187.9 |
| 32    | 22    | 19    | 14    | 12    | 30    | 28    | 29    |
| 5.10  | 5.20  | 5.10  | 6.80  | 7.50  | 190.1 | 189.4 |       |
| 191.8 | 191.7 | 191.8 | 190.1 | 189.4 |       |       |       |



118

9.55 235.07 1.57 225.52

+14

Driveway West.

117

116

115

114

12.25 227.09 1.69 214.84

113

112

111

110

109

Driveway East

3.38 216.53 2.30 213.15

108

107

215H5

|             |            |             |             |             |             |             |             |
|-------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 29<br>6.1   | 25<br>6.80 | 18<br>8.60  | 14<br>7.40  | 13<br>6.40  | 17<br>5.70  | 24<br>4.80  | 30<br>4.50  |
| 229.0       | 228.2      | 226.4       | 227.6       | 228.6       | 228.3       | 227.6       | 230.2       |
|             |            |             |             | 1.80        | 2.20        | 2.50        |             |
|             |            |             |             | 225.2       | 224.8       | 225.0       |             |
| 29<br>1.50  | 24<br>2.10 | 18<br>4.50  | 14<br>3.10  | 12<br>2.10  | 16<br>3.80  | 23<br>1.20  | 28<br>0.20  |
| 225.5       | 224.9      | 222.8       | 223.9       | 224.9       | 224.4       | 223.2       | 225.8       |
|             |            |             |             |             |             |             | 226.8       |
| 30<br>5.70  | 24<br>6.1  | 18<br>7.70  | 14<br>6.70  | 12<br>5.70  | 16<br>6.70  | 22<br>4.90  | 25<br>4.50  |
| 221.3       | 221.0      | 219.3       | 220.3       | 221.3       | 220.9       | 220.1       | 222.1       |
|             |            |             |             |             |             |             | 222.5       |
| 31<br>8.80  | 26<br>7.10 | 19<br>10.40 | 16<br>9.40  | 12<br>8.60  | 17<br>10.20 | 29<br>7.90  | 25<br>7.90  |
| 218.2       | 217.9      | 216.6       | 217.6       | 218.4       | 218.0       | 216.8       | 219.1       |
|             |            |             |             |             |             |             | 219.1       |
| 31<br>11.10 | 26<br>1.2  | 20<br>13.30 | 16<br>12.20 | 15<br>11.60 | 17<br>13.10 | 24<br>10.40 | 29<br>10.10 |
| 215.9       | 215.0      | 213.7       | 214.8       | 215.8       | 215.4       | 214.0       | 216.6       |
|             |            |             |             |             |             |             | 216.9       |
| 32<br>2.70  | 25<br>3.60 | 19<br>4.50  | 15<br>3.40  | 12<br>2.40  | 17<br>4.80  | 24<br>2.50  | 30<br>2.10  |
| 213.8       | 212.9      | 212.3       | 213.2       | 214.1       | 213.4       | 211.6       | 214.4       |
|             |            |             |             |             |             |             |             |
| 32<br>4.60  | 26<br>4.50 | 20<br>5.70  | 15<br>4.60  | 12<br>4.00  | 18<br>6.00  | 23<br>5.00  | 28<br>4.50  |
| 211.9       | 211.7      | 210.8       | 211.9       | 212.5       | 212.0       | 210.5       | 211.5       |
|             |            |             |             |             |             |             | 212.0       |
| 32<br>5.50  | 26<br>5.60 | 20<br>6.40  | 18<br>5.00  | 14<br>4.60  | 10<br>5.20  | 18<br>6.90  | 23<br>6.30  |
| 211.0       | 210.9      | 210.1       | 211.5       | 211.9       | 211.3       | 209.6       | 210.2       |
|             |            |             |             |             |             |             | 210.2       |
| 32<br>4.70  | 26<br>5.60 | 20<br>6.70  | 14<br>5.30  | 11<br>4.70  | 17<br>7.30  | 23<br>6.30  | 28<br>6.20  |
| 211.8       | 210.9      | 209.8       | 211.2       | 211.8       | 210.9       | 209.2       | 210.2       |
|             |            |             |             |             |             |             | 210.3       |
| 32<br>3.40  | 25<br>3.50 | 19<br>3.70  | 14<br>3.50  | 11<br>3.30  | 17<br>3.90  | 23<br>3.70  | 28<br>3.90  |
| 213.1       | 213.0      | 212.8       | 213.0       | 213.2       | 212.6       | 210.8       | 212.8       |
|             |            |             |             |             |             |             | 212.6       |
| 32<br>1.80  | 26<br>3.4  | 22<br>4.20  | 16<br>3.60  | 13<br>2.50  | 16<br>4.1   | 23<br>1.80  | 28<br>1.80  |
| 213.6       | 212.4      | 211.2       | 212.8       | 213.7       | 212.9       | 211.4       | 213.6       |
|             |            |             |             |             |             |             | 213.6       |
| 32<br>9.70  | 27<br>4.30 | 20<br>5.30  | 16<br>4.50  | 11<br>3.60  | 16<br>5.40  | 23<br>3.1   | 28<br>2.80  |
| 211.7       | 211.1      | 209.5       | 210.9       | 211.8       | 211.4       | 210.0       | 212.4       |
|             |            |             |             |             |             |             | 213.1       |



11.72 224.20 3.64 212.48

129

128

+79 Culv. Iron

127

126

125

1.33 216.12 11.79 214.79

124

123

BM 133 1.35 225.23

122

0.38 226.58 8.87 226.20

121

120

119

Driveway West

225.07

|       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 30    | 24    | 19    | 14    | 390   | 13    | 19    | 26    | 28    |
| 6.10  | 6.1   | 6.70  | 4.90  | 4.30  | 4.30  | 5.80  | 4.50  | 4.30  |
| 210.0 | 210.1 | 209.4 | 211.2 | 212.4 | 211.8 | 210.3 | 211.6 | 211.8 |
| 28    | 23    | 18    | 11    | 212.4 | 11    | 19    | 25    | 28    |
| 6.30  | 6.70  | 7.30  | 8.30  | 4.40  | 4.80  | 6.40  | 5.20  | 4.40  |
| 209.8 | 209.4 | 208.8 | 210.8 | 211.7 | 211.3 | 209.7 | 210.9 | 211.7 |
| 28    | 24    | 19    | 10    | 211.7 | 10    | 11    | 19    | 25    |
| 6.10  | 6.80  | 7.20  | 5.20  | 4.40  | 4.70  | 6.80  | 6.20  | 4.90  |
| 210.0 | 209.3 | 208.9 | 210.9 | 211.7 | 211.4 | 209.2 | 209.9 | 211.2 |
| 27    | 24    | 18    | 12    | 211.7 | 14    | 19    | 25    | 27    |
| 6.20  | 6.40  | 6.90  | 5.60  | 4.50  | 4.90  | 6.40  | 5.10  | 4.40  |
| 209.9 | 209.7 | 209.2 | 210.5 | 211.6 | 211.2 | 209.7 | 211.0 | 211.7 |
| 27    | 24    | 19    | 14    | 211.6 | 14    | 20    | 26    | 27    |
| 5.70  | 5.40  | 6.50  | 5.1   | 3.80  | 4.40  | 5.80  | 4.50  | 3.40  |
| 210.4 | 210.2 | 209.6 | 211.1 | 212.3 | 211.7 | 210.3 | 211.6 | 212.7 |
| 29    | 26    | 20    | 14    | 212.3 | 12    | 19    | 26    | 29    |
| 4.60  | 4.60  | 5.30  | 5.60  | 2.60  | 3.1   | 4.70  | 3.20  | 2.70  |
| 211.5 | 211.5 | 210.8 | 212.5 | 213.5 | 213.1 | 211.4 | 212.9 | 213.4 |
| 29    | 25    | 18    | 13    | 213.5 | 14    | 18    | 25    | 29    |
| 12.80 | 12.50 | 13.30 | 12.50 | 11.30 | 11.90 | 13.10 | 11.30 | 10.60 |
| 214.2 | 214.0 | 213.2 | 214.4 | 215.2 | 214.6 | 213.4 | 215.2 | 215.9 |
| 30    | 25    | 17    | 13    | 215.2 | 13    | 17    | 23    | 26    |
| 7.80  | 8.60  | 9.40  | 9.20  | 8.60  | 9.30  | 10.50 | 7.80  | 6.90  |
| 218.7 | 217.9 | 216.7 | 217.3 | 217.9 | 217.2 | 216.0 | 218.7 | 219.6 |

Round Corner Fence Post, Sta 122 + 88

|       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 30    | 23    | 17    | 14    | 12    | 12    | 23    | 26    | 30    |
| 4.30  | 3.90  | 6.80  | 5.40  | 4.50  | 5.20  | 6.60  | 5.50  | 2.90  |
| 224.2 | 222.6 | 219.7 | 221.1 | 222.0 | 221.3 | 219.9 | 223.0 | 223.6 |
| 29    | 23    | 17    | 14    | 12    | 12    | 19    | 23    | 29    |
| 6.90  | 8.50  | 10.50 | 9.60  | 8.60  | 9.30  | 10.90 | 8.50  | 8.1   |
| 228.1 | 226.5 | 224.5 | 225.4 | 226.4 | 225.7 | 224.1 | 226.5 | 227.0 |
| 29    | 23    | 17    | 14    | 14    | 14    | 13    | 25    | 29    |
| 3.70  | 4.40  | 6.50  | 5.60  | 4.90  | 6     | 7     | 5.70  | 5.70  |
| 231.3 | 230.6 | 228.5 | 229.4 | 230.1 | 229.0 | 228.8 | 229.3 | 229.3 |
| 29    | 24    | 17    | 14    | 16    | 16    | 19    | 25    | 30    |
| 5.70  | 4.40  | 6     | 5.20  | 4.20  | 4.80  | 5.10  | 4.70  | 4.50  |
| 231.3 | 230.6 | 229.0 | 229.8 | 230.8 | 230.2 | 229.9 | 230.3 | 230.5 |



140

139

138

0.69 209.99 10.25 209.30

137

BM 14 BM Conc. Post. 1.60 21.795

136

0.73 219.55 11.08 218.82

135

134

+88 Driveway East

133 Drive West

+80

132

6.09 229.90 0.39 223.81

131

130

224.20

$\frac{26}{7.10} \frac{18}{7.90} \frac{12}{6.60} \frac{14}{5.50} \frac{14}{6.30} \frac{18}{7.30} \frac{24}{6.60} \frac{32}{6.30}$   
 $\frac{25}{5.50} \frac{22}{6.00} \frac{17}{6.90} \frac{12}{5.20} \frac{14}{4.20} \frac{14}{5.00} \frac{18}{6.40} \frac{26}{4.80} \frac{32}{5.00}$   
 $\frac{25}{2.80} \frac{23}{4.00} \frac{18}{4.80} \frac{12}{3.40} \frac{14}{2.40} \frac{14}{3.00} \frac{18}{4.60} \frac{26}{2.80} \frac{32}{2.60}$   
 $\frac{24}{10.00} \frac{22}{10.90} \frac{17}{11.70} \frac{12}{10.40} \frac{14}{9.50} \frac{14}{10.00} \frac{18}{11.30} \frac{26}{9.60} \frac{32}{9.50}$   
 Wind Corner Post Sta 136 + 14

$\frac{24}{6.70} \frac{22}{7.40} \frac{17}{8.90} \frac{12}{7.10} \frac{14}{6.20} \frac{14}{6.80} \frac{18}{6.60} \frac{25}{6.30}$   
 $\frac{28}{12.00} \frac{23}{12.00} \frac{16}{14.50} \frac{11}{13.00} \frac{14}{12.40} \frac{14}{12.90} \frac{18}{14.00} \frac{24}{10.40} \frac{27}{9.50}$   
 $\frac{22}{4.50} \frac{22}{5.40} \frac{16}{7.80} \frac{12}{6.90} \frac{14}{6.60} \frac{18}{7.40} \frac{18}{8.60} \frac{24}{5.50} \frac{28}{4.50}$   
 $\frac{22}{25.4} \frac{22}{24.5} \frac{16}{22.1} \frac{12}{22.3} \frac{14}{22.3} \frac{18}{22.5} \frac{24}{22.1} \frac{28}{22.4} \frac{32}{22.5}$   
 $\frac{22}{22.4} \frac{18}{22.4} \frac{14}{22.4} \frac{12}{22.4} \frac{14}{22.4} \frac{18}{22.4} \frac{24}{22.4} \frac{28}{22.4} \frac{32}{22.4}$

$\frac{22}{1.60} \frac{18}{3.90} \frac{14}{3.00} \frac{12}{2.20} \frac{14}{2.60} \frac{18}{2.40} \frac{24}{2.20}$   
 $\frac{28}{22.8} \frac{25}{22.7} \frac{18}{22.6} \frac{13}{22.6} \frac{14}{22.7} \frac{18}{22.7} \frac{24}{22.7} \frac{28}{22.7} \frac{32}{22.7}$   
 $\frac{22}{22.8} \frac{25}{22.7} \frac{18}{22.6} \frac{13}{22.6} \frac{14}{22.7} \frac{18}{22.7} \frac{24}{22.7} \frac{28}{22.7} \frac{32}{22.7}$   
 $\frac{22}{22.8} \frac{25}{22.7} \frac{18}{22.6} \frac{13}{22.6} \frac{14}{22.7} \frac{18}{22.7} \frac{24}{22.7} \frac{28}{22.7} \frac{32}{22.7}$

$\frac{22}{22.8} \frac{25}{22.7} \frac{18}{22.6} \frac{13}{22.6} \frac{14}{22.7} \frac{18}{22.7} \frac{24}{22.7} \frac{28}{22.7} \frac{32}{22.7}$   
 $\frac{22}{22.8} \frac{25}{22.7} \frac{18}{22.6} \frac{13}{22.6} \frac{14}{22.7} \frac{18}{22.7} \frac{24}{22.7} \frac{28}{22.7} \frac{32}{22.7}$   
 $\frac{22}{22.8} \frac{25}{22.7} \frac{18}{22.6} \frac{13}{22.6} \frac{14}{22.7} \frac{18}{22.7} \frac{24}{22.7} \frac{28}{22.7} \frac{32}{22.7}$   
 $\frac{22}{22.8} \frac{25}{22.7} \frac{18}{22.6} \frac{13}{22.6} \frac{14}{22.7} \frac{18}{22.7} \frac{24}{22.7} \frac{28}{22.7} \frac{32}{22.7}$



149

148

147

~~147~~

B.M. 16 BM 2.84 210.58 4.45 207.74  
+91

146

145

+41

144

143

142

BM 15 6.79 212.19 4.59 205.40

+26 Conc. Box Culv.

141

209.99

W. Side.

25

|                            |                            |                            |                            |                            |                            |                            |                            |
|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| <u>29</u><br>3.90<br>206.6 | <u>25</u><br>4.1<br>206.3  | <u>19</u><br>3.30<br>205.7 | <u>13</u><br>3.80<br>206.7 | <u>15</u><br>3.30<br>207.7 | <u>18</u><br>4.50<br>206.0 | <u>25</u><br>2.60<br>207.9 | <u>32</u><br>3.40<br>208.1 |
| <u>25</u><br>5.90<br>204.6 | <u>20</u><br>2.10<br>203.4 | <u>15</u><br>3.30<br>205.7 | <u>10</u><br>4.20<br>206.3 | <u>15</u><br>4.60<br>206.9 | <u>20</u><br>5.60<br>204.9 | <u>25</u><br>4.40<br>206.1 | <u>32</u><br>4.10<br>206.5 |
| <u>27</u><br>6.1<br>204.5  | <u>11</u><br>7.1<br>203.5  | <u>11</u><br>4.40<br>206.1 | <u>11</u><br>4.70<br>205.8 | <u>11</u><br>6.40<br>204.1 | <u>21</u><br>4.50<br>206.0 | <u>29</u><br>4.10<br>206.4 | <u>32</u><br>4.10<br>206.4 |

M. Center West Headwall

|                             |                             |                                  |                            |                            |                            |                                  |                            |                            |
|-----------------------------|-----------------------------|----------------------------------|----------------------------|----------------------------|----------------------------|----------------------------------|----------------------------|----------------------------|
| <u>28</u><br>9.60<br>202.5  | <u>21</u><br>9.10<br>203.0  | <u>12 F11nc</u><br>9.20<br>202.9 | <u>11</u><br>6.30<br>205.8 | <u>11</u><br>6.30<br>206.1 | <u>12</u><br>5.80<br>206.3 | <u>18 F11nc</u><br>8.40<br>203.7 | <u>22</u><br>4.10<br>206.0 | <u>32</u><br>8.80<br>206.3 |
| <u>28</u><br>7.80<br>204.3  | <u>24</u><br>8.30<br>203.8  | <u>19</u><br>9.10<br>203.1       | <u>13</u><br>5.40<br>204.7 | <u>13</u><br>6.50<br>205.6 | <u>13</u><br>7.10<br>205.1 | <u>18</u><br>8.30<br>203.6       | <u>25</u><br>5.40<br>206.7 | <u>32</u><br>3.20<br>206.9 |
| <u>28</u><br>5.40<br>206.7  | <u>24</u><br>5.90<br>206.2  | <u>13</u><br>7.80<br>204.3       | <u>13</u><br>6.40<br>205.7 | <u>13</u><br>5.40<br>206.7 | <u>13</u><br>6.50<br>205.6 | <u>17</u><br>7.80<br>204.3       | <u>24</u><br>4.90<br>207.2 | <u>32</u><br>4.10<br>208.0 |
| <u>28</u><br>4.70<br>207.4  | <u>22</u><br>5.20<br>206.9  | <u>18</u><br>6.70<br>205.4       | <u>14</u><br>5.30<br>206.8 | <u>14</u><br>4.20<br>207.9 | <u>13</u><br>5.40<br>206.7 | <u>18</u><br>7.10<br>205.1       | <u>24</u><br>3.50<br>208.6 | <u>32</u><br>3.20<br>208.9 |
| <u>25</u><br>5.1<br>207.1   | <u>35</u><br>5.1<br>207.1   | <u>13</u><br>7.1<br>205.1        | <u>15</u><br>5.80<br>206.3 | <u>15</u><br>6.30<br>205.8 | <u>13</u><br>5.80<br>206.3 | <u>17</u><br>7.30<br>204.8       | <u>24</u><br>3.40<br>208.7 | <u>32</u><br>3.70<br>209.4 |
| <u>28</u><br>8.40<br>203.7  | <u>18</u><br>9.60<br>202.5  | <u>13</u><br>8.10<br>204.1       | <u>13</u><br>7.80<br>204.8 | <u>12</u><br>7.90<br>204.2 | <u>12</u><br>7.90<br>204.2 | <u>12</u><br>7.90<br>204.2       | <u>24</u><br>6.00<br>205.6 | <u>32</u><br>6.10<br>206.1 |
| <u>28</u><br>10.40<br>201.7 | <u>19</u><br>10.60<br>201.5 | <u>13</u><br>7.30<br>202.8       | <u>13</u><br>8.50<br>203.6 | <u>12</u><br>9.10<br>203.0 | <u>12</u><br>9.10<br>203.0 | <u>24</u><br>8.20<br>201.5       | <u>32</u><br>7.70<br>203.9 | <u>32</u><br>7.70<br>204.4 |

Center West Headwall Sta 141+26

|                            |                            |                                  |                            |                            |                            |                                  |                            |                            |                            |
|----------------------------|----------------------------|----------------------------------|----------------------------|----------------------------|----------------------------|----------------------------------|----------------------------|----------------------------|----------------------------|
| <u>25</u><br>7.30<br>200.6 | <u>19</u><br>8.30<br>201.1 | <u>13 F11nc</u><br>9.20<br>200.7 | <u>12</u><br>6.30<br>203.6 | <u>12</u><br>5.40<br>204.1 | <u>12</u><br>6.30<br>203.7 | <u>13 F11nc</u><br>7.10<br>200.9 | <u>20</u><br>8.20<br>201.7 | <u>25</u><br>6.30<br>203.4 | <u>30</u><br>6.10<br>203.8 |
| <u>35</u><br>7.20<br>202.7 | <u>19</u><br>8.70<br>201.2 | <u>13</u><br>7.10<br>202.8       | <u>13</u><br>5.90<br>204.0 | <u>13</u><br>6.80<br>203.1 | <u>19</u><br>7.80<br>202.1 | <u>25</u><br>7.10<br>202.8       | <u>32</u><br>6.40<br>203.5 |                            |                            |



~~152~~

B.M. 18

151.

150

|     |                   |
|-----|-------------------|
| +60 | Center Core Cult. |
|-----|-------------------|

 $5\frac{1}{2} 149 + 12$ 

Fence N. side x Roads

BM 17

8.75 219.31

210.56

B. M. 12

1.78 195.06 ✓

|      |        |      |        |
|------|--------|------|--------|
| 2.87 | 196.84 | 9.58 | 193.97 |
|------|--------|------|--------|

|      |        |       |        |
|------|--------|-------|--------|
| 0.93 | 203.55 | 11.63 | 202.62 |
|------|--------|-------|--------|

1.66 214.25 4.66 212.59

1.29 217.25 10.07 215.96

|      |        |      |        |
|------|--------|------|--------|
| 0.51 | 226.03 | 6.94 | 225.52 |
|------|--------|------|--------|

8.92 239.46 0.50 223.54

|       |        |      |        |
|-------|--------|------|--------|
| 12.05 | 224.04 | 7.60 | 211.99 |
|-------|--------|------|--------|

|      |        |       |        |
|------|--------|-------|--------|
| 0.81 | 219.59 | 10.61 | 218.78 |
|------|--------|-------|--------|

|      |        |      |        |
|------|--------|------|--------|
| 5.95 | 229.39 | 0.14 | 223.44 |
|------|--------|------|--------|

|       |        |      |        |
|-------|--------|------|--------|
| 12.01 | 223.58 | 0.48 | 211.57 |
|-------|--------|------|--------|

|      |        |      |       |
|------|--------|------|-------|
| 6.62 | 212.05 | 7.46 | 20543 |
|------|--------|------|-------|

|      |        |     |        |
|------|--------|-----|--------|
| 5.15 | 212.89 | 284 | 207.74 |
|------|--------|-----|--------|

|      |        |
|------|--------|
| 0.02 | 210.56 |
|------|--------|

210.58

Elev Bottom <sup>steps</sup> 18' long  
Step to School

2.87 216.44

BM. Top Corner etc Post Sta 96+17

From Culr. West of RH Light

Center West Headwall Sta. 141+26

Cent Headwall West 146 + 91

Center Headwall SE cor X Roads

$\frac{34}{7}$   $\frac{24}{6.8}$   $\frac{17}{8.8}$   $\frac{14}{7.7}$   $\frac{13}{6.7}$   $\frac{17}{8.4}$   $\frac{23}{5.3}$   $\frac{32}{2.8}$   
 $\frac{2}{12.3}$   $\frac{2}{12.5}$   $\frac{2}{10.5}$   $\frac{2}{11.6}$   $\frac{2}{12.6}$   $\frac{2}{12.7}$   $\frac{2}{10.9}$   $\frac{2}{14.0}$   $\frac{2}{16.5}$   
 $\frac{26}{10.1}$   $\frac{20}{10.7}$   $\frac{16}{11.7}$   $\frac{11}{10.3}$   $\frac{9}{9.8}$   $\frac{13}{10.1}$   $\frac{19}{10.5}$   $\frac{24}{9}$   $\frac{23}{7.7}$   
 $\frac{2}{20.2}$   $\frac{2}{208.6}$   $\frac{2}{207.6}$   $\frac{2}{209.1}$   $\frac{2}{210.1}$   $\frac{2}{209.3}$   $\frac{2}{208.8}$   $\frac{2}{210.3}$   $\frac{2}{211.6}$   
 $\frac{24}{11.8}$   $\frac{21}{13.6}$   $\frac{16}{15.1}$   $\frac{15}{10.9}$   $\frac{9}{9.6}$   $\frac{15}{9.7}$   $\frac{16}{12.6}$   $\frac{22}{11.7}$   $\frac{26}{10.3}$   $\frac{31}{9.7}$   
 $\frac{2}{20.5}$   $\frac{2}{206.3}$   $\frac{2}{206.2}$   $\frac{2}{209.1}$   $\frac{2}{209.7}$   $\frac{2}{209.6}$   $\frac{2}{206.7}$   $\frac{2}{207.6}$   $\frac{2}{209.0}$   $\frac{2}{209.6}$   
 $\frac{38}{12.3}$   $\frac{23}{13.2}$   $\frac{16}{13.5}$   $\frac{10}{12.3}$   $\frac{11}{11.3}$   $\frac{6}{11.5}$   $\frac{21}{12.7}$   $\frac{26}{11.2}$   $\frac{35}{11.4}$   
 $\frac{2}{206.8}$   $\frac{2}{206.6}$   $\frac{2}{205.8}$   $\frac{2}{207.9}$   $\frac{2}{208.0}$   $\frac{2}{207.8}$   $\frac{2}{206.6}$   $\frac{2}{209.1}$   $\frac{2}{207.9}$   
 Headwall SE Cor XLRoad



North side

| Culv. |       |       |       |       |       |       |       |       |   |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|---|
| 31    | 21    | 19    | 17    | 15    | 13    | 11    | 9     | 7     | 5 |
| 3     | 1     | 4     | 2     | 2     | 3     | 3     | 1     | 1     | 2 |
| 218.8 | 218.0 | 214.3 | 217.0 | 216.9 | 216.1 | 215.4 | 218.1 | 218.1 |   |
| 32    | 21    | 12    | 12    | 2.9   | 3.5   | 13    | 16    | 24    |   |
| 1.2   | 1.9   | 2.5   | 2.9   | 3.5   | 4.2   | 1.7   | 1.6   |       |   |
| 217.9 | 217.2 | 216.6 | 216.2 | 215.3 | 214.9 | 217.4 | 217.5 |       |   |
| 29    | 28    | 19    | 14    | 13    | 16    | 18    | 25    |       |   |
| 4     | 4.5   | 7.9   | 6     | 6.6   | 7     | 5.4   | 5.7   |       |   |
| 215.1 | 214.6 | 211.2 | 213.1 | 213.6 | 212.5 | 212.1 | 213.7 |       |   |
| 28    | 22    | 19    | 13    | 13    | 17    | 20    | 24    |       |   |
| 7.5   | 7.2   | 9.4   | 8.8   | 8.5   | 9.7   | 10.4  | 9.1   |       |   |
| 211.6 | 211.4 | 209.7 | 210.3 | 210.6 | 209.4 | 208.7 | 210.0 |       |   |
|       |       |       |       |       |       |       |       |       |   |

North side

|       |       |       |       |       |       |       |       |       |  |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| 22    | 22    | 17    | 14    | 13    | 18    | 21    | 25    |       |  |
| 11.8  | 13    | 13.3  | 12.5  | 11.5  | 12.8  | 14.8  | 13.6  | 12.9  |  |
| 202.1 | 201.9 | 200.6 | 201.4 | 202.4 | 201.1 | 199.8 | 200.3 | 201.0 |  |
| 27    | 20    | 17    | 13    | 13    | 15    | 22    | 25    |       |  |
| 10.7  | 11.2  | 12.1  | 11.4  | 10.5  | 11.5  | 12.7  | 11.2  | 11.1  |  |
| 203.2 | 202.7 | 201.8 | 202.5 | 203.4 | 202.4 | 201.2 | 202.7 | 202.8 |  |
| 27    | 21    | 17    | 13    | 12    | 15    | 18    | 24    |       |  |
| 7.9   | 8.6   | 10.5  | 9.4   | 8.6   | 9.6   | 10.1  | 8.2   | 8.9   |  |
| 206.0 | 204.3 | 203.4 | 204.5 | 205.3 | 204.3 | 203.8 | 205.2 | 205.0 |  |

3

+85 Drive South 45  
~~East~~ 2X10X Culv

← E

2

1

0 Cont &amp; Main Road

B.M. 17 8.54 219.10

210.56

X

3

2

1

0 &amp; Main Road

B.M. 17 3.43 213.99 ~~3.43~~ 210.56

Road West

Road East



158+40 Drive West  
0.79 209.88 11.26 209.09

158

157+51 Driveways East + West.

157

156+19 Drive West

156

155

4.03 220.25 8.43 216.32

154+17 Drive East

154

153+36 Drive West

153

152

B.M. 19 2.98 221.77

B.M. 18 8.31 224.75 216.44

$\frac{1.6}{208.2}$   $\frac{12}{207.7}$   $\frac{18}{208.2}$   $\frac{27}{208.7}$

$\frac{27}{210.6}$   $\frac{20}{209.4}$   $\frac{16}{207.7}$   $\frac{13}{209.0}$   $\frac{10.6}{209.7}$   $\frac{12}{208.8}$   $\frac{17}{207.3}$   $\frac{23}{210.3}$   $\frac{28}{211.8}$

$\frac{31}{212.3}$   $\frac{23}{211.8}$   $\frac{16}{211.7}$   $\frac{12}{211.5}$   $\frac{8.5}{211.8}$   $\frac{13}{211.2}$   $\frac{18}{211.7}$   $\frac{35}{212.8}$

$\frac{25}{213.7}$   $\frac{19}{212.3}$   $\frac{17}{211.0}$   $\frac{11}{213.0}$   $\frac{7.7}{213.6}$   $\frac{12}{212.6}$   $\frac{12}{210.7}$   $\frac{24}{213.5}$   $\frac{27}{216.4}$

$\frac{5.3}{215.0}$   $\frac{12}{214.7}$   $\frac{31}{215.0}$   $\frac{32}{215.8}$

$\frac{28}{213.3}$   $\frac{20}{213.6}$   $\frac{18}{212.7}$   $\frac{14}{214.3}$   $\frac{5}{215.3}$   $\frac{13}{214.6}$   $\frac{20}{213.3}$   $\frac{29}{216.8}$

$\frac{27}{215.0}$   $\frac{20}{215.0}$   $\frac{17}{214.0}$   $\frac{12}{215.7}$   $\frac{3.7}{216.6}$   $\frac{12}{216.0}$   $\frac{18}{214.3}$   $\frac{23}{214.8}$   $\frac{31}{216.3}$

$\frac{28}{218.4}$   $\frac{12}{217.8}$   $\frac{12}{217.8}$   $\frac{6.6}{218.1}$

$\frac{20}{219.6}$   $\frac{21}{218.8}$   $\frac{16}{217.1}$   $\frac{12}{217.7}$   $\frac{6.1}{218.6}$   $\frac{15}{217.8}$   $\frac{18}{217.0}$   $\frac{25}{220.3}$   $\frac{30}{220.6}$

$\frac{27}{220.3}$   $\frac{23}{219.4}$   $\frac{18}{217.7}$   $\frac{12}{218.9}$   $\frac{5.2}{219.5}$   $\frac{14}{219.7}$   $\frac{24}{220.7}$   $\frac{33}{219.7}$   $\frac{36}{221.1}$  Con. Walk

$\frac{25}{221.3}$   $\frac{22}{221.5}$   $\frac{17}{219.4}$   $\frac{12}{220.1}$   $\frac{3.7}{221.0}$   $\frac{15}{220.3}$   $\frac{19}{219.9}$   $\frac{25}{221.6}$   $\frac{31}{222.6}$

$\frac{38}{221.8}$   $\frac{23}{221.8}$   $\frac{17}{215.9}$   $\frac{13}{216.8}$   $\frac{7.1}{217.6}$   $\frac{14}{217.1}$   $\frac{17}{215.9}$   $\frac{23}{218.6}$   $\frac{31}{220.5}$

1st Center Top Step

1st Center Bottom Step



165

164+68 Fence East

164+21 South end of Culvert

184

163+87 North end  
50x10 x4 Concrete Ea. Side Road  
20x22 waterway



163

162+67 Drive West.

162

2.46 200.89 12.25 197.63

161+25 Drive East.

161

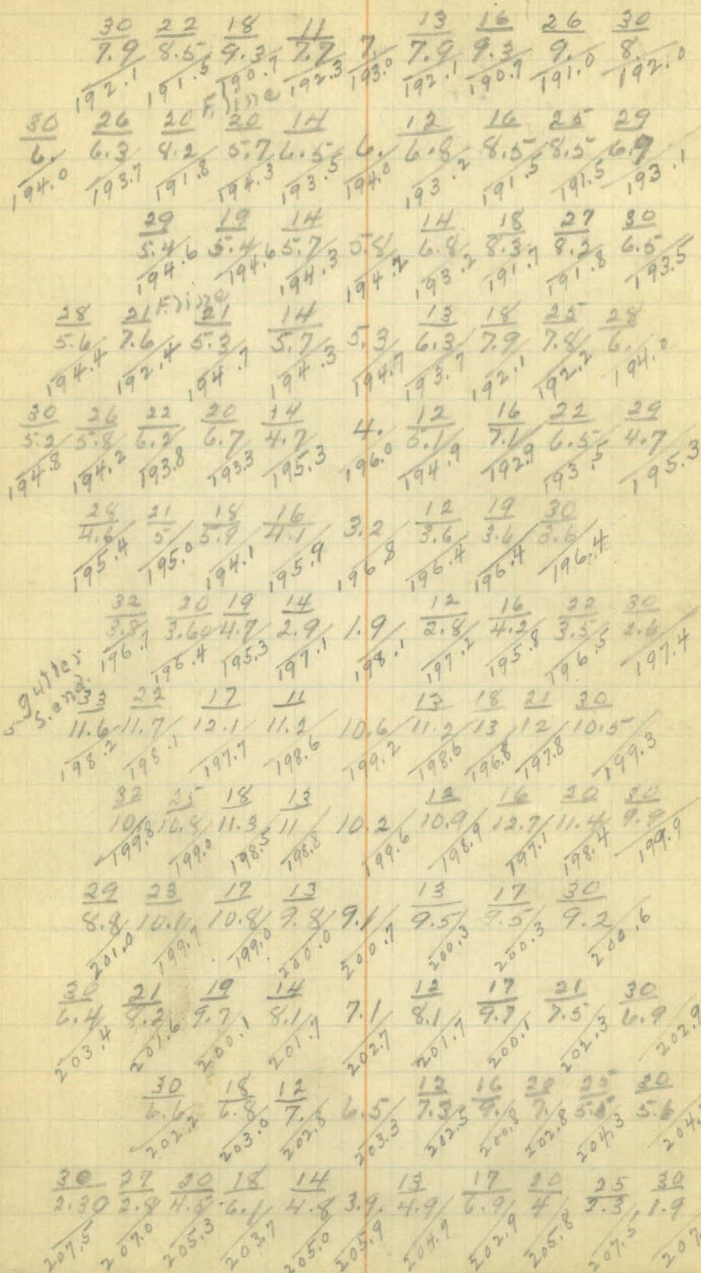
160+64 Drive West.

160

159+77 Drive East.

159

209.88





+90 Fence E+W

+26 Gate to Fields E+W

\* +10 1.14 193.80 7.37 191.66

+72

+83 Shed West Side

+65 Barn East Side Drive W.

+35  
171 Fence East

+75 Drive West

+65 Fence West

170

+70 Fence West

169

+88 Fence West

168

B.M. 21 5.42

+49 Conc Culv 26 X 15.75 X 5.5  
51 X 37 Waterway

B.M. 20 4.95 199.03 6.01 194.08

167

+48 Fence East

+5 Fence East

166

+36 Drive East 20 X 1 Iron Culv

165 + 35 Fence East

200.09

|                       |                       |                        |                       |                       |                       |                       |                        |                         |
|-----------------------|-----------------------|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|-------------------------|
| <del>57</del><br>59   | <del>22</del><br>51.8 | <del>16</del><br>7.6   | <del>12</del><br>7.1  | <del>6.4</del>        | <del>12</del><br>7.3  | <del>18</del><br>8.2  | <del>22</del><br>7.    | <del>30</del><br>3.8    |
| 193.1                 | 193.2                 | 191.4                  | 191.9                 | 192.6                 | 191.1                 | 190.6                 | 192.0                  | 193.2                   |
| <del>28</del><br>4.9  | <del>23</del><br>4.3  | <del>17</del><br>6.1   | <del>13</del><br>5    | <del>5.8</del><br>4.2 | <del>14</del><br>4.5  | <del>18</del><br>5.7  | <del>31</del><br>2.5   | <del>192.7</del><br>3.2 |
| 194.1                 | 194.1                 | 192.9                  | 194.0                 | 194.8                 | 194.1                 | 193.3                 | 195.3                  | 195.6                   |
| <del>17</del><br>5.3  | <del>18</del><br>5.2  | <del>12</del><br>4.7   | <del>4.</del>         | <del>13</del><br>4.5  | <del>19</del><br>4.6  | <del>28</del><br>4.9  | <del>31</del><br>4.9   | <del>194.7</del>        |
| 193.7                 | 193.8                 | 194.3                  | 195.0                 | 194.5                 | 194.4                 | 194.7                 | 194.7                  | 194.7                   |
| <del>31</del><br>5.8  | <del>24</del><br>5.9  | <del>19</del><br>6.8   | <del>14</del><br>5.3  | <del>4.4</del>        | <del>12</del><br>4.9  | <del>16</del><br>6.   | <del>22</del><br>3.7   | <del>31</del><br>3.1    |
| 193.2                 | 193.1                 | 192.2                  | 193.7                 | 194.6                 | 194.1                 | 193.0                 | 196.3                  | 195.9                   |
| <del>32</del><br>7.2  | <del>24</del><br>8.4  | <del>19</del><br>7.2   | <del>15</del><br>7.2  | <del>6</del>          | <del>11</del><br>6.6  | <del>16</del><br>8.2  | <del>21</del><br>6.5   | <del>29</del><br>5.4    |
| 191.5                 | 190.6                 | 190.0                  | 191.8                 | 192.0                 | 192.4                 | 190.8                 | 192.5                  | 193.6                   |
| <del>32</del><br>9.2  | <del>24</del><br>9.1  | <del>17</del><br>9.4   | <del>12</del><br>7.6  | <del>6.7</del>        | <del>12</del><br>7.2  | <del>17</del><br>8.9  | <del>23</del><br>7.9   | <del>31</del><br>6.6    |
| 189.8                 | 189.9                 | 189.6                  | 191.4                 | 192.3                 | 191.7                 | 190.1                 | 191.1                  | 192.4                   |
| <del>32</del><br>7.6  | <del>25</del><br>7.6  | <del>20</del><br>11.30 | <del>13</del><br>11.2 | <del>12</del><br>6.8  | <del>14</del><br>6.30 | <del>15</del><br>6.40 | <del>20</del><br>10.50 | <del>24</del><br>7.8    |
| 199.4                 | 189.4                 | 187.7                  | 187.8                 | 192.2                 | 192.7                 | 192.6                 | 188.5                  | 189.0                   |
| <del>30</del><br>10.1 | <del>27</del><br>10.1 | <del>23</del><br>11.3  | <del>15</del><br>7.7  | <del>7.7</del>        | <del>10</del><br>3.5  | <del>16</del><br>10.3 | <del>24</del><br>10.1  | <del>28</del><br>8.9    |
| 189.9                 | 189.9                 | 188.7                  | 191.0                 | 192.3                 | 191.5                 | 189.7                 | 189.9                  | 191.1                   |
| <del>30</del><br>9.7  | <del>24</del><br>10.2 | <del>17</del><br>10.5  | <del>14</del><br>8.8  | <del>7.8</del>        | <del>11</del><br>8.7  | <del>15</del><br>10.  | <del>25</del><br>9.7   | <del>28</del><br>8.8    |
| 190.3                 | 189.8                 | 189.5                  | 190.2                 | 192.2                 | 191.3                 | 190.0                 | 190.3                  | 191.2                   |
| <del>30</del><br>9.   | <del>18</del><br>8.9  | <del>13</del><br>7.9   | <del>12</del><br>7.3  | <del>11</del><br>8.2  | <del>15</del><br>9.5  | <del>24</del><br>9.5  | <del>30</del><br>8.2   | <del>191.8</del>        |
| 191.0                 | 191.7                 | 192.1                  | 192.7                 | 191.8                 | 190.5                 | 190.5                 | 191.8                  | 191.8                   |



Elev

182

+15 Fence E. Gate to Field E. 20x1 Iron Culv  
 8.17 190.66 2.54 182.49

181

180

179

178

BM 22

3.58 181.45

+86 Stake Cent Canal Box Culv. 24x18.5x6x5  
 444 Waterway

177

176

+82 Fence E+W

2.61 185.03 11.38 182.42

175

174

173

193.80

|                    |                    |                    |                    |              |                    |                    |                    |                    |
|--------------------|--------------------|--------------------|--------------------|--------------|--------------------|--------------------|--------------------|--------------------|
| 23<br>7.5<br>185.1 | 21<br>6.7<br>183.9 | 16<br>7.9<br>182.7 | 13<br>6.9<br>183.7 | 5.9<br>184.7 | 12<br>6.9<br>183.7 | 18<br>7.9<br>181.6 | 24<br>7.9<br>183.6 | 28<br>6.4<br>184.2 |
|--------------------|--------------------|--------------------|--------------------|--------------|--------------------|--------------------|--------------------|--------------------|

|                    |                    |                    |              |
|--------------------|--------------------|--------------------|--------------|
| 24<br>8.2<br>182.4 | 18<br>8.5<br>182.1 | 13<br>8.4<br>182.2 | 7.9<br>182.7 |
|--------------------|--------------------|--------------------|--------------|

|                    |                    |                    |                    |              |                    |                    |                    |                    |
|--------------------|--------------------|--------------------|--------------------|--------------|--------------------|--------------------|--------------------|--------------------|
| 31<br>2.7<br>183.0 | 26<br>2.7<br>182.3 | 18<br>3.8<br>182.2 | 13<br>3.0<br>182.0 | 2.4<br>182.5 | 12<br>3.4<br>181.6 | 17<br>5.3<br>179.5 | 24<br>3.8<br>182.1 | 28<br>2.7<br>182.3 |
|--------------------|--------------------|--------------------|--------------------|--------------|--------------------|--------------------|--------------------|--------------------|

|                    |                    |                    |                    |              |                    |                    |                    |                    |
|--------------------|--------------------|--------------------|--------------------|--------------|--------------------|--------------------|--------------------|--------------------|
| 30<br>4.4<br>180.6 | 25<br>4.3<br>180.7 | 18<br>6.5<br>178.5 | 14<br>5.1<br>179.9 | 4.1<br>180.9 | 13<br>5.0<br>180.5 | 18<br>6.4<br>178.6 | 23<br>5.3<br>179.7 | 28<br>4.2<br>180.5 |
|--------------------|--------------------|--------------------|--------------------|--------------|--------------------|--------------------|--------------------|--------------------|

|                    |                    |                    |                    |              |                    |                    |                    |                    |
|--------------------|--------------------|--------------------|--------------------|--------------|--------------------|--------------------|--------------------|--------------------|
| 31<br>6.1<br>178.9 | 25<br>5.8<br>179.2 | 20<br>7.1<br>177.9 | 14<br>6.3<br>178.8 | 5.0<br>180.0 | 12<br>6.0<br>179.0 | 18<br>2.9<br>177.7 | 24<br>6.4<br>175.6 | 27<br>5.8<br>179.2 |
|--------------------|--------------------|--------------------|--------------------|--------------|--------------------|--------------------|--------------------|--------------------|

|                    |                    |                    |                    |              |                   |                    |                    |
|--------------------|--------------------|--------------------|--------------------|--------------|-------------------|--------------------|--------------------|
| 32<br>8.7<br>176.3 | 26<br>7.6<br>177.4 | 20<br>8.3<br>176.7 | 12<br>5.6<br>179.4 | 4.9<br>180.1 | 9<br>5.8<br>179.2 | 18<br>8.7<br>176.3 | 23<br>7.1<br>177.9 |
|--------------------|--------------------|--------------------|--------------------|--------------|-------------------|--------------------|--------------------|

Center W. Hedgway

|                    |                    |                     |                    |              |                    |                     |                    |                    |
|--------------------|--------------------|---------------------|--------------------|--------------|--------------------|---------------------|--------------------|--------------------|
| 32<br>9.6<br>175.4 | 24<br>8.3<br>175.7 | 18<br>10.3<br>174.7 | 12<br>5.0<br>180.3 | 4.7<br>180.3 | 12<br>4.7<br>180.1 | 13<br>10.1<br>174.9 | 21<br>9.4<br>175.6 | 26<br>8.7<br>176.3 |
|--------------------|--------------------|---------------------|--------------------|--------------|--------------------|---------------------|--------------------|--------------------|

|                    |                    |                    |                    |              |                    |                    |                    |                    |
|--------------------|--------------------|--------------------|--------------------|--------------|--------------------|--------------------|--------------------|--------------------|
| 31<br>6.0<br>179.0 | 25<br>6.8<br>178.7 | 20<br>7.7<br>177.3 | 14<br>5.4<br>179.6 | 4.5<br>180.5 | 11<br>5.3<br>179.7 | 16<br>7.0<br>178.0 | 23<br>6.2<br>178.8 | 26<br>5.3<br>179.7 |
|--------------------|--------------------|--------------------|--------------------|--------------|--------------------|--------------------|--------------------|--------------------|

|                    |                    |                    |                    |              |                    |                    |                    |                    |
|--------------------|--------------------|--------------------|--------------------|--------------|--------------------|--------------------|--------------------|--------------------|
| 31<br>5.2<br>181.8 | 25<br>5.6<br>181.4 | 18<br>6.4<br>178.6 | 14<br>4.2<br>180.8 | 3.4<br>181.6 | 13<br>4.3<br>180.7 | 18<br>6.6<br>178.4 | 25<br>4.1<br>180.9 | 29<br>3.0<br>182.0 |
|--------------------|--------------------|--------------------|--------------------|--------------|--------------------|--------------------|--------------------|--------------------|

|                     |                    |                     |                     |              |                     |                     |                     |                     |
|---------------------|--------------------|---------------------|---------------------|--------------|---------------------|---------------------|---------------------|---------------------|
| 31<br>10.0<br>183.8 | 25<br>9.3<br>184.5 | 19<br>12.6<br>181.2 | 15<br>10.6<br>183.2 | 9.4<br>184.4 | 12<br>10.3<br>183.5 | 17<br>12.2<br>181.6 | 24<br>10.4<br>183.4 | 30<br>10.0<br>183.8 |
|---------------------|--------------------|---------------------|---------------------|--------------|---------------------|---------------------|---------------------|---------------------|

|                    |                    |                    |                    |              |                    |                    |                    |                    |
|--------------------|--------------------|--------------------|--------------------|--------------|--------------------|--------------------|--------------------|--------------------|
| 31<br>6.6<br>187.2 | 24<br>6.1<br>187.7 | 18<br>7.8<br>184.5 | 14<br>7.4<br>186.4 | 6.4<br>187.4 | 13<br>7.2<br>186.6 | 17<br>9.0<br>184.8 | 24<br>7.3<br>186.5 | 30<br>6.2<br>187.6 |
|--------------------|--------------------|--------------------|--------------------|--------------|--------------------|--------------------|--------------------|--------------------|

|                    |                    |                    |                    |              |                    |                    |                    |                    |
|--------------------|--------------------|--------------------|--------------------|--------------|--------------------|--------------------|--------------------|--------------------|
| 32<br>3.2<br>190.5 | 24<br>2.6<br>190.7 | 19<br>5.3<br>188.3 | 14<br>3.3<br>189.9 | 2.7<br>191.1 | 11<br>3.5<br>190.3 | 17<br>5.2<br>188.6 | 22<br>3.8<br>190.5 | 31<br>2.6<br>191.2 |
|--------------------|--------------------|--------------------|--------------------|--------------|--------------------|--------------------|--------------------|--------------------|



192 + 64

7.92 212.79 1.96 204.87

192

191

190

+ 18 Fence West

189

188

9.57 206.83 1.05 197.26

187

+ 51 Stake

+ 118 Fence West

+ 43 Gate West to Field 2001 Iron Ch/V.

186

185

11.08 198.31 3.43 187.23

184

183

190.66

|                           |                           |                            |                           |                           |                           |                            |                           |                           |                           |
|---------------------------|---------------------------|----------------------------|---------------------------|---------------------------|---------------------------|----------------------------|---------------------------|---------------------------|---------------------------|
| <u>27</u><br>2.1<br>204.7 | <u>24</u><br>2.2<br>204.6 | <u>18</u><br>4.6<br>202.2  | <u>15</u><br>3.3<br>203.5 | <u>2</u><br>2.2<br>204.6  | <u>11</u><br>3.1<br>203.7 | <u>16</u><br>4.5<br>202.8  | <u>19</u><br>3.3<br>203.5 | <u>23</u><br>3.1<br>203.6 | <u>24</u><br>2.7<br>204.1 |
| <u>27</u><br>4.5<br>202.3 | <u>25</u><br>4.5<br>202.3 | <u>18</u><br>6.8<br>200.0  | <u>14</u><br>5.3<br>201.5 | <u>4</u><br>4.3<br>202.5  | <u>11</u><br>5.1<br>201.8 | <u>15</u><br>6.8<br>200.8  | <u>21</u><br>5.4<br>201.4 | <u>24</u><br>4.9<br>201.9 |                           |
| <u>27</u><br>6.5<br>200.3 | <u>24</u><br>6.6<br>200.2 | <u>18</u><br>8.4<br>198.4  | <u>13</u><br>6.6<br>200.1 | <u>5</u><br>5.8<br>201.0  | <u>10</u><br>6.3<br>200.5 | <u>17</u><br>8.1<br>198.7  | <u>22</u><br>6.6<br>200.2 | <u>25</u><br>6.4<br>200.4 |                           |
| <u>26</u><br>7.8<br>199.0 | <u>24</u><br>7.6<br>199.2 | <u>18</u><br>10.1<br>196.8 | <u>13</u><br>7.7<br>199.1 | <u>6</u><br>6.7<br>200.1  | <u>11</u><br>7.4<br>199.4 | <u>16</u><br>9.6<br>197.2  | <u>21</u><br>8.1<br>198.7 | <u>25</u><br>7.1<br>199.7 |                           |
| <u>26</u><br>9.4<br>197.4 | <u>28</u><br>9.6<br>197.2 | <u>21</u><br>11.5<br>194.5 | <u>18</u><br>9.7<br>197.1 | <u>13</u><br>8.5<br>198.3 | <u>11</u><br>9.3<br>197.5 | <u>16</u><br>11.4<br>195.4 | <u>22</u><br>9.9<br>197.5 | <u>26</u><br>9.3<br>197.5 |                           |
| <u>26</u><br>9.5<br>194.5 | <u>22</u><br>3.5<br>194.8 | <u>17</u><br>5.1<br>193.2  | <u>14</u><br>3.6<br>194.7 | <u>2</u><br>2.3<br>196.0  | <u>11</u><br>3.1<br>195.2 | <u>17</u><br>4.9<br>193.6  | <u>23</u><br>5.1<br>195.3 | <u>27</u><br>2.2<br>196.1 |                           |

|                            |                           |                            |                           |                           |                           |                            |                           |                           |  |
|----------------------------|---------------------------|----------------------------|---------------------------|---------------------------|---------------------------|----------------------------|---------------------------|---------------------------|--|
| <u>24</u><br>5.5<br>192.8  | <u>21</u><br>5.3<br>193.3 | <u>15</u><br>6.8<br>191.5  | <u>12</u><br>5.7<br>192.6 | <u>4</u><br>4.5<br>193.8  | <u>12</u><br>5.3<br>193.0 | <u>18</u><br>7.1<br>191.2  | <u>25</u><br>5.1<br>193.3 | <u>28</u><br>4.1<br>194.3 |  |
| <u>26</u><br>11.8<br>186.5 | <u>22</u><br>7.7<br>190.6 | <u>16</u><br>10.2<br>188.1 | <u>12</u><br>8.5<br>189.8 | <u>7</u><br>7.4<br>190.9  | <u>14</u><br>8.9<br>190.0 | <u>18</u><br>10.3<br>183.3 | <u>23</u><br>8.6<br>189.7 | <u>28</u><br>7.3<br>191.0 |  |
| <u>26</u><br>1.7<br>188.9  | <u>25</u><br>1.7<br>188.9 | <u>20</u><br>2.5<br>187.8  | <u>16</u><br>4.5<br>185.7 | <u>12</u><br>3.0<br>187.4 | <u>13</u><br>7.8<br>186.8 | <u>18</u><br>9.6<br>183.0  | <u>23</u><br>7.4<br>186.2 | <u>25</u><br>3.1<br>188.5 |  |
| <u>26</u><br>3.7<br>186.9  | <u>22</u><br>3.7<br>186.9 | <u>16</u><br>4.8<br>183.8  | <u>13</u><br>5.3<br>185.3 | <u>4</u><br>4.2<br>186.4  | <u>14</u><br>3.2<br>185.4 | <u>18</u><br>7.2<br>183.4  | <u>24</u><br>5.1<br>185.6 | <u>28</u><br>4.3<br>186.3 |  |



201

200

2.38 194.17 8.57 191.79

199

198

197

+ 29 Fence W

0.95 200.36 10.94 199.41

196

B.M. 24 2.11 210.35 12.11 208.24

+ 60 from Culv. W. 20x1

+ 14 from Culv. W. 20x1

195

194

+ 88 Drive West

+

+ 72

B.M. 23

204.45 208.24

193

212.79

|                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 28<br>2.7<br>191.2 | 25<br>3.<br>191.1  | 23<br>3.9<br>190.2 | 19<br>5.1<br>189.0 | 14<br>4.1<br>190.0 | 11<br>3.6<br>190.5 | 12<br>4.4<br>189.7 | 21<br>5.5<br>188.6 | 29<br>4.9<br>189.2 | 29<br>5.3<br>188.8 |
| 28<br>1.5<br>192.6 | 24<br>2.3<br>191.8 | 19<br>4.2<br>189.9 | 15<br>3.3<br>190.8 | 15<br>2.5<br>191.6 | 13<br>2.5<br>190.6 | 16<br>4.7<br>189.4 | 22<br>4.2<br>189.9 | 28<br>4.6<br>189.5 |                    |
| 27<br>6.2<br>194.1 | 25<br>6.4<br>193.9 | 23<br>7.5<br>192.8 | 18<br>9.2<br>191.1 | 14<br>8.2<br>192.1 | 13<br>7.6<br>192.7 | 16<br>8.7<br>191.6 | 16<br>9.7<br>190.6 | 23<br>8.5<br>191.8 | 30<br>9.<br>191.3  |
| 28<br>3.2<br>197.1 | 24<br>5.8<br>196.5 | 23<br>4.8<br>195.5 | 18<br>7.3<br>193.0 | 14<br>6.1<br>194.2 | 11<br>5.3<br>195.0 | 16<br>6.3<br>194.0 | 22<br>7.8<br>192.5 | 30<br>5.2<br>195.1 | 30<br>5.7<br>194.6 |
| 28<br>0.5<br>199.8 | 25<br>7.<br>199.3  | 19<br>4.2<br>196.1 | 15<br>3.2<br>197.1 | 15<br>2.4<br>197.9 | 18<br>3.6<br>196.7 | 16<br>5.2<br>195.1 | 23<br>3.3<br>197.0 | 30<br>2.7<br>197.6 |                    |

|                    |                    |                    |                     |                     |                     |                     |                     |                     |  |
|--------------------|--------------------|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|--|
| 27<br>6.6<br>203.7 | 24<br>7.2<br>203.1 | 18<br>11.<br>199.3 | 14<br>9.8<br>200.5  | 14<br>9.1<br>201.2  | 12<br>10.6<br>200.4 | 18<br>11.3<br>199.0 | 20<br>10.5<br>200.3 | 31<br>8.9<br>201.4  |  |
| 28<br>7.2<br>205.5 | 26<br>7.2<br>205.5 | 22<br>7.8<br>204.9 | 16<br>11.6<br>204.1 | 13<br>10.6<br>202.1 | 11<br>9.80<br>202.9 | 12<br>10.6<br>202.1 | 12<br>10.5<br>202.2 | 29<br>10.4<br>202.3 |  |
| 28<br>4.7<br>208.0 | 23<br>6.<br>206.7  | 17<br>9.1<br>203.6 | 14<br>8.3<br>204.4  | 14<br>7.6<br>205.1  | 11<br>8.5<br>204.2  | 16<br>9.9<br>202.8  | 21<br>8.9<br>204.4  | 28<br>8.8<br>204.4  |  |
| 28<br>3.5<br>210.2 | 23<br>2.7<br>210.0 | 17<br>6.<br>206.7  | 12<br>4.9<br>207.8  | 14<br>4.<br>208.7   | 10<br>5.<br>207.7   | 15<br>5.9<br>206.8  | 19<br>5.3<br>207.4  | 28<br>4.7<br>208.0  |  |
| 28<br>2.4<br>210.3 | 22<br>3.<br>209.7  | 21<br>3.9<br>204.8 | 16<br>5.9<br>206.8  | 12<br>4.7<br>208.0  | 15<br>3.8<br>208.9  | 15<br>4.6<br>208.1  | 25<br>4.6<br>208.1  |                     |  |

Fence West Stake in Road

B.M. Same east corner carriage block

|                    |                    |                    |                    |                    |                    |                    |                    |                    |  |
|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--|
| 27<br>4.7<br>208.8 | 23<br>6.2<br>207.5 | 18<br>7.2<br>205.5 | 15<br>6.2<br>206.5 | 15<br>5.5<br>207.2 | 13<br>5.2<br>206.5 | 18<br>6.3<br>206.4 | 22<br>5.1<br>207.6 | 32<br>4.9<br>207.5 |  |
|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--|



Road West

3

2

1

0

Main Road

|                     |                     |                     |                     |                     |                     |                     |                     |                     |
|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| $\frac{27}{8.9}$    | $\frac{19}{9.3}$    | $\frac{16}{10.8}$   | $\frac{11}{9.6}$    | $\frac{8.9}{185.2}$ | $\frac{12}{9.5}$    | $\frac{19}{11.1}$   | $\frac{22}{10.6}$   | $\frac{29}{8.8}$    |
| $\frac{202.7}{26}$  | $\frac{202.3}{19}$  | $\frac{200.8}{16}$  | $\frac{202.0}{10}$  | $\frac{185.2}{7.2}$ | $\frac{202.1}{12}$  | $\frac{200.5}{18}$  | $\frac{201.6}{21}$  | $\frac{202.8}{27}$  |
| $\frac{204.1}{28}$  | $\frac{203.6}{20}$  | $\frac{202.9}{17}$  | $\frac{203.6}{12}$  | $\frac{186.9}{6.1}$ | $\frac{203.8}{19}$  | $\frac{202.7}{19}$  | $\frac{203.8}{21}$  | $\frac{204.5}{26}$  |
| $\frac{205.3}{6.3}$ | $\frac{205.0}{6.6}$ | $\frac{204.1}{7.5}$ | $\frac{204.8}{6.8}$ | $\frac{188.0}{6.1}$ | $\frac{205.0}{6.6}$ | $\frac{203.5}{8.1}$ | $\frac{204.1}{7.5}$ | $\frac{204.8}{6.8}$ |

North Side

|                     |                     |                     |                     |                     |                     |                     |                     |
|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| $\frac{25}{1.1}$    | $\frac{19}{1.1}$    | $\frac{18}{2.1}$    | $\frac{15}{1.5}$    | $\frac{1.2}{192.9}$ | $\frac{11}{1.8}$    | $\frac{17}{2.0}$    | $\frac{22}{1.5}$    |
| $\frac{210.5}{25}$  | $\frac{210.3}{20}$  | $\frac{209.5}{17}$  | $\frac{210.3}{14}$  | $\frac{192.9}{2.8}$ | $\frac{209.8}{13}$  | $\frac{209.6}{16}$  | $\frac{210.1}{19}$  |
| $\frac{210.4}{1.2}$ | $\frac{208.9}{2.2}$ | $\frac{208.0}{3.6}$ | $\frac{208.8}{2.8}$ | $\frac{191.3}{3.3}$ | $\frac{208.3}{4.0}$ | $\frac{207.6}{2.9}$ | $\frac{208.7}{2.3}$ |
| $\frac{208.9}{2.7}$ | $\frac{207.7}{3.9}$ | $\frac{206.6}{5.0}$ | $\frac{207.5}{4.1}$ | $\frac{190.1}{4.0}$ | $\frac{207.0}{4.6}$ | $\frac{206.6}{5.0}$ | $\frac{207.4}{4.2}$ |

Road East

3

2

1

0

Main Road.

BM. 25 0.73 194.13

193.40

Top Corner Post NW cor.

BM.

3.45 208.24

✓ E. cor Carriage Step.

8.57 211.69 1.45 203.12

12.11 204.57 1.71 192.46

BM 25 0.77 193.40

Top Corner Post NW cor.

202

194.17

|                    |                    |                    |                    |                     |                     |                     |                     |                     |
|--------------------|--------------------|--------------------|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| $\frac{29}{3.2}$   | $\frac{28}{4.5}$   | $\frac{19}{5.7}$   | $\frac{14}{5.1}$   | $\frac{4.5}{189.0}$ | $\frac{11}{5.3}$    | $\frac{13}{6.1}$    | $\frac{23}{5.8}$    | $\frac{29}{5.6}$    |
| $\frac{190.9}{29}$ | $\frac{189.6}{28}$ | $\frac{188.4}{19}$ | $\frac{189.0}{14}$ | $\frac{189.6}{4.5}$ | $\frac{188.5}{5.3}$ | $\frac{188.1}{6.1}$ | $\frac{188.3}{5.8}$ | $\frac{188.3}{5.6}$ |



+29 Gate E  
+14 Fence F  
+4 Fence W

209

+14 Fence F.

208

+47 Drive E. 20x1 Iron only

207

+49 Fence E.

206

BM 26 2.48 190.34 6.27 187.86

+27 24x11 x4.5 Conc Box Culv.  
24x24" Waterway

W →

205

204

203

+56 Fences E &amp; W S. side X Roads Gate to field W.

202+27 2 X Roads 24x1 Iron Culv. E side Road.

BM 25 0.73 194.13 193.40

|       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 29    | 24    | 18    | 12    | 13    | 17    | 24    | 29    |
| 4.2   | 4.5   | 6.7   | 5.2   | 4.9   | 6.2   | 7.1   | 5.9   |
| 186.1 | 185.8 | 183.6 | 185.1 | 185.4 | 184.1 | 183.2 | 184.6 |
| 30    | 27    | 18    | 14    | 12    | 17    | 23    | 29    |
| 3.6   | 3.9   | 5.6   | 4.6   | 4.3   | 5.4   | 6.7   | 5.0   |
| 186.7 | 186.4 | 184.7 | 185.7 | 186.0 | 184.9 | 183.6 | 185.3 |
| 27    | 18    | 13    | 12    | 12    | 17    | 23    | 28    |
| 4.0   | 4.1   | 4.0   | 3.8   | 5.0   | 6.2   | 4.5   | 4.8   |
| 186.3 | 186.2 | 186.3 | 186.5 | 185.3 | 184.1 | 185.8 | 185.5 |
| 24    | 25    | 18    | 13    | 12    | 17    | 23    | 20    |
| 3.5   | 3.5   | 5.6   | 4.5   | 3.8   | 4.8   | 6.1   | 4.4   |
| 186.8 | 186.8 | 184.7 | 185.8 | 186.5 | 185.5 | 184.2 | 186.1 |
| 28    | 25    | 18    | 15    | 12    | 16    | 23    | 28    |
| 4.9   | 4.9   | 6.6   | 5.2   | 4.7   | 5.4   | 6.8   | 4.6   |
| 185.4 | 185.4 | 183.7 | 185.1 | 185.6 | 184.9 | 183.5 | 185.7 |
| 25    | 24    | 18    | 15    | 12    | 16    | 23    | 28    |
| 9.1   | 9.1   | 10.3  | 10.7  | 7.7   | 7.9   | 11.0  | 10.6  |
| 185.0 | 185.0 | 183.8 | 183.4 | 186.4 | 186.2 | 183.1 | 183.5 |
| 28    | 25    | 19    | 14    | 12    | 19    | 24    | 29    |
| 8.3   | 8.8   | 10.0  | 8.6   | 8.1   | 8.8   | 10.1  | 9.5   |
| 185.3 | 185.3 | 184.1 | 185.5 | 186.0 | 185.3 | 184.0 | 184.6 |
| 28    | 24    | 19    | 15    | 13    | 18    | 23    | 29    |
| 7.4   | 7.4   | 9.5   | 8.3   | 7.5   | 8.4   | 9.5   | 7.5   |
| 186.7 | 186.7 | 184.6 | 185.8 | 186.6 | 185.7 | 184.6 | 186.6 |
| 29    | 24    | 18    | 13    | 12    | 17    | 21    | 28    |
| 5.8   | 5.9   | 8.5   | 6.7   | 6.2   | 7.0   | 8.1   | 6.1   |
| 186.3 | 186.2 | 185.6 | 187.4 | 187.9 | 187.1 | 186.0 | 188.0 |
| 29    | 24    | 18    | 13    | 12    | 17    | 21    | 28    |
| 5.2   | 5.9   | 6.8   | 5.8   | 5.6   | 6.2   | 6.6   | 6.0   |
| 188.9 | 188.2 | 187.3 | 188.3 | 188.5 | 187.9 | 187.5 | 188.1 |
| 29    | 19    | 14    | 12    | 18    | 21    | 28    |       |
| 4.5   | 4.7   | 4.9   | 5.0   | 5.4   | 5.5   | 5.7   |       |
| 189.6 | 189.4 | 189.2 | 189.1 | 188.7 | 188.6 | 188.4 |       |

W. end E. Headway



220

219

218

217

216

2.05 176.29 10.97 174.24

+ 62 Gates E & W 30x1 Iron Culv. W & E

+ 63 Fence E & W

215

214

213

212

+ 95 Gate W. 20x1 Iron Culv.

+ 81 Fence W

+ 46 Fence E.

211

1.61 185.21 6.74 183.60

210

180.34

|       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 30    | 23    | 19    | 14    |       | 14    | 19    | 25    | 30    |
| 74    | 76    | 83    | 74    | 6.7   | 5.6   | 5.6   | 7.4   | 8.8   |
| 168.3 | 168.6 | 167.9 | 168.8 | 169.5 | 168.6 | 167.6 | 168.8 | 168.4 |
| 30    | 25    | 19    | 14    |       | 13    | 17    | 23    | 30    |
| 5.4   | 5.8   | 7.7   | 6.1   | 5.4   | 6.2   | 7.7   | 4.8   | 5.2   |
| 170.8 | 170.4 | 168.5 | 170.1 | 170.8 | 170.0 | 168.5 | 171.4 | 171.0 |
| 29    | 24    | 12    | 12    |       | 13    | 17    | 25    | 30    |
| 4.2   | 4.3   | 6.3   | 4.7   | 3.9   | 4.8   | 6.2   | 4.2   | 4.6   |
| 172.0 | 171.6 | 169.9 | 171.5 | 172.3 | 171.4 | 170.0 | 172.0 | 171.6 |
| 30    | 25    | 18    | 14    |       | 12    | 17    | 23    | 29    |
| 2.4   | 2.8   | 5.4   | 3.9   | 3.0   | 3.8   | 5.0   | 3.2   | 3.4   |
| 173.8 | 173.4 | 170.8 | 172.3 | 173.2 | 172.4 | 171.2 | 173.0 | 172.8 |
| 29    | 24    | 18    | 13    |       | 12    | 18    | 24    | 29    |
| 1.0   | 1.7   | 4.3   | 2.6   | 2.0   | 2.7   | 4.8   | 3.5   | 2.6   |
| 175.2 | 174.5 | 171.9 | 173.6 | 174.2 | 173.5 | 172.7 | 173.7 | 173.7 |
| 30    | 26    | 18    | 13    |       | 12    | 18    | 24    | 30    |
| 9.9   | 10.4  | 11.1  | 10.8  | 14.5  | 11.0  | 11.4  | 11.3  | 11.4  |
| 175.3 | 174.8 | 174.1 | 174.4 | 174.7 | 174.2 | 173.8 | 173.9 | 173.8 |
| 30    | 25    | 18    | 13    |       | 12    | 18    | 21    | 30    |
| 9.0   | 9.5   | 11.3  | 10.2  | 9.6   | 10.3  | 11.7  | 14.0  | 10.3  |
| 176.2 | 175.7 | 173.9 | 175.2 | 175.6 | 174.9 | 173.5 | 175.2 | 174.9 |
| 30    | 24    | 18    | 13    |       | 14    | 18    | 26    | 30    |
| 7.5   | 8.1   | 10.1  | 8.6   | 7.8   | 8.7   | 10.1  | 8.4   | 8.3   |
| 177.7 | 177.1 | 175.1 | 176.6 | 177.4 | 176.5 | 175.1 | 177.2 | 176.9 |
| 29    | 24    | 18    | 14    |       | 12    | 19    | 25    | 30    |
| 5.5   | 6.0   | 8.9   | 6.7   | 5.9   | 6.8   | 8.4   | 5.9   | 6.3   |
| 179.7 | 179.2 | 176.9 | 178.5 | 179.3 | 178.4 | 176.8 | 179.3 | 178.9 |
| 28    | 23    | 16    | 11    |       | 12    | 19    | 26    | 30    |
| 3.0   | 3.5   | 5.7   | 4.3   | 3.6   | 4.4   | 4.5   | 4.2   | 4.0   |
| 182.2 | 181.7 | 179.5 | 180.9 | 181.6 | 180.8 | 180.7 | 181.0 | 181.2 |

|       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 29    | 23    | 17    | 12    |       | 13    | 18    | 25    | 31    |
| 1.0   | 1.5   | 3.8   | 2.4   | 1.5   | 2.5   | 4.0   | 1.3   | 1.7   |
| 184.2 | 183.7 | 181.4 | 182.8 | 183.7 | 182.7 | 181.2 | 183.9 | 183.5 |
| 29    | 24    | 12    | 12    |       | 12    | 18    | 24    | 30    |
| 5.4   | 5.7   | 7.7   | 5.9   | 5.6   | 6.5   | 8.0   | 6.0   | 6.3   |
| 184.9 | 184.6 | 182.6 | 184.4 | 184.7 | 183.8 | 182.3 | 184.3 | 184.0 |



231

230

229 2.60 164.46 10.04 161.86

+ 96 Gate E. 20X1 Iron Culv.

+ 74 Fences E &amp; W 1/2 Sec

228

227

226

225

224

223

222

2 4.47 171.90 8.86 167.43

+ 93 Gate E. 20X1 Iron Culv.

+ 86 Fence E

221

176.29

|                  |                  |                  |                  |                  |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| $\frac{32}{3.6}$ | $\frac{25}{3.7}$ | $\frac{19}{4.2}$ | $\frac{14}{4.2}$ | $\frac{13}{3.2}$ | $\frac{13}{4.0}$ | $\frac{19}{5.8}$ | $\frac{25}{4.1}$ | $\frac{29}{4.2}$ |
| 160.8            | 160.7            | 158.2            | 160.2            | 161.2            | 160.4            | 158.6            | 160.3            | 160.2            |
| $\frac{30}{3.0}$ | $\frac{26}{2.5}$ | $\frac{19}{5.3}$ | $\frac{14}{2.9}$ | $\frac{13}{2.0}$ | $\frac{13}{2.9}$ | $\frac{19}{4.7}$ | $\frac{25}{3.3}$ | $\frac{29}{2.1}$ |
| 161.4            | 160.9            | 159.1            | 161.5            | 162.4            | 161.5            | 159.7            | 162.1            | 162.3            |

|                  |                  |                  |                  |                  |                  |                   |                  |                  |
|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|
| $\frac{31}{2.5}$ | $\frac{27}{9.2}$ | $\frac{20}{9.8}$ | $\frac{12}{8.9}$ | $\frac{14}{8.2}$ | $\frac{14}{9.2}$ | $\frac{19}{10.9}$ | $\frac{25}{8.7}$ | $\frac{29}{7.4}$ |
| 163.4            | 162.7            | 162.1            | 163.0            | 163.7            | 162.7            | 161.0             | 163.2            | 164.5            |

|                  |                  |                   |                  |                  |                  |                  |                  |                  |
|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| $\frac{30}{6.0}$ | $\frac{26}{8.3}$ | $\frac{19}{12.0}$ | $\frac{14}{8.1}$ | $\frac{14}{7.2}$ | $\frac{14}{7.9}$ | $\frac{19}{9.4}$ | $\frac{24}{7.4}$ | $\frac{30}{5.8}$ |
| 165.4            | 163.6            | 161.9             | 163.8            | 164.7            | 164.0            | 162.5            | 164.5            | 166.1            |

|                  |                  |                  |                  |                  |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| $\frac{30}{5.1}$ | $\frac{26}{7.5}$ | $\frac{20}{8.3}$ | $\frac{13}{6.7}$ | $\frac{13}{5.9}$ | $\frac{13}{6.8}$ | $\frac{17}{7.8}$ | $\frac{24}{4.6}$ | $\frac{30}{4.9}$ |
| 166.8            | 164.4            | 163.3            | 165.2            | 166.0            | 165.1            | 164.1            | 167.3            | 167.0            |

|                  |                  |                  |                  |                  |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| $\frac{30}{4.3}$ | $\frac{26}{6.5}$ | $\frac{20}{7.6}$ | $\frac{13}{5.4}$ | $\frac{14}{4.8}$ | $\frac{14}{5.2}$ | $\frac{18}{6.9}$ | $\frac{25}{4.1}$ | $\frac{30}{4.4}$ |
| 167.6            | 165.4            | 164.3            | 166.5            | 167.1            | 166.2            | 165.0            | 167.8            | 167.5            |

|                  |                  |                  |                  |                  |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| $\frac{30}{4.4}$ | $\frac{25}{6.1}$ | $\frac{19}{7.0}$ | $\frac{13}{4.8}$ | $\frac{13}{4.1}$ | $\frac{13}{5.2}$ | $\frac{18}{6.4}$ | $\frac{25}{3.9}$ | $\frac{30}{4.1}$ |
| 167.5            | 165.8            | 164.9            | 167.1            | 167.8            | 166.7            | 165.6            | 168.2            | 167.8            |

|                  |                  |                  |                  |                  |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| $\frac{30}{3.9}$ | $\frac{24}{5.1}$ | $\frac{19}{6.2}$ | $\frac{14}{4.5}$ | $\frac{14}{3.7}$ | $\frac{12}{4.6}$ | $\frac{18}{6.0}$ | $\frac{24}{3.8}$ | $\frac{30}{4.1}$ |
| 168.0            | 166.8            | 165.7            | 167.6            | 168.2            | 167.3            | 165.9            | 168.1            | 167.8            |

|                  |                  |                  |                  |                  |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| $\frac{30}{3.0}$ | $\frac{23}{4.6}$ | $\frac{19}{5.7}$ | $\frac{14}{4.2}$ | $\frac{11}{3.5}$ | $\frac{11}{4.2}$ | $\frac{18}{5.6}$ | $\frac{24}{3.6}$ | $\frac{30}{3.9}$ |
| 168.9            | 167.3            | 166.2            | 167.7            | 168.4            | 167.7            | 166.3            | 168.3            | 168.0            |

|                  |                  |                  |                  |                  |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| $\frac{30}{2.1}$ | $\frac{23}{2.6}$ | $\frac{19}{8.5}$ | $\frac{14}{8.4}$ | $\frac{13}{7.6}$ | $\frac{13}{8.2}$ | $\frac{19}{9.7}$ | $\frac{24}{8.7}$ | $\frac{29}{8.8}$ |
| 166.1            | 167.6            | 167.5            | 167.8            | 168.6            | 167.6            | 166.5            | 167.5            | 167.4            |

|                  |                  |                  |                  |                  |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| $\frac{30}{2.0}$ | $\frac{23}{2.5}$ | $\frac{19}{8.7}$ | $\frac{14}{8.3}$ | $\frac{13}{7.6}$ | $\frac{13}{8.6}$ | $\frac{19}{9.7}$ | $\frac{24}{8.6}$ | $\frac{29}{8.6}$ |
| 168.2            | 167.7            | 167.5            | 167.9            | 168.6            | 167.6            | 166.5            | 167.6            | 167.6            |

|                  |                  |                  |                  |                  |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| $\frac{29}{7.5}$ | $\frac{23}{8.0}$ | $\frac{18}{9.0}$ | $\frac{13}{2.7}$ | $\frac{13}{7.2}$ | $\frac{14}{5.3}$ | $\frac{19}{9.3}$ | $\frac{25}{8.2}$ | $\frac{30}{8.4}$ |
| 168.7            | 168.0            | 167.2            | 168.5            | 169.0            | 167.9            | 166.9            | 168.0            | 167.8            |



244

243

242

+ 76 Force E. 3.91 159.51 5.37 155.60

241

240

239

238

237

236

4.53 160.97 8.02 156.44

235

234

233

232

164.46

|                           |                           |                           |                           |                            |                           |                           |                           |                           |
|---------------------------|---------------------------|---------------------------|---------------------------|----------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| $\frac{29}{4.7}$<br>154.8 | $\frac{24}{4.6}$<br>154.9 | $\frac{18}{4.5}$<br>153.0 | $\frac{13}{5.5}$<br>154.0 | $\frac{4.6}{4.6}$<br>154.9 | $\frac{12}{5.5}$<br>154.0 | $\frac{17}{7.6}$<br>151.9 | $\frac{20}{4.3}$<br>155.2 | $\frac{28}{5.2}$<br>154.3 |
| $\frac{30}{4.0}$<br>155.5 | $\frac{24}{4.2}$<br>155.3 | $\frac{18}{6.3}$<br>153.2 | $\frac{12}{5.2}$<br>154.3 | $\frac{4.3}{4.3}$<br>155.2 | $\frac{12}{5.3}$<br>154.4 | $\frac{17}{7.3}$<br>152.2 | $\frac{24}{4.3}$<br>155.2 | $\frac{28}{4.0}$<br>155.4 |
| $\frac{29}{9.0}$<br>155.0 | $\frac{24}{4.5}$<br>155.0 | $\frac{18}{6.0}$<br>153.5 | $\frac{12}{4.8}$<br>154.7 | $\frac{4.2}{4.2}$<br>155.3 | $\frac{12}{5.1}$<br>154.4 | $\frac{19}{7.0}$<br>152.5 | $\frac{20}{4.5}$<br>155.0 | $\frac{30}{4.6}$<br>154.9 |
| $\frac{28}{5.8}$<br>155.1 | $\frac{23}{5.8}$<br>155.1 | $\frac{17}{7.2}$<br>153.1 | $\frac{12}{6.0}$<br>154.9 | $\frac{9.2}{9.2}$<br>155.7 | $\frac{14}{6.2}$<br>154.7 | $\frac{19}{8.0}$<br>152.9 | $\frac{20}{6.0}$<br>154.9 | $\frac{30}{6.0}$<br>154.9 |
| $\frac{29}{5.6}$<br>155.3 | $\frac{23}{5.5}$<br>155.4 | $\frac{17}{7.0}$<br>153.4 | $\frac{12}{5.9}$<br>155.0 | $\frac{5.0}{5.0}$<br>155.9 | $\frac{14}{6.2}$<br>154.7 | $\frac{19}{7.9}$<br>153.0 | $\frac{24}{5.9}$<br>155.0 | $\frac{30}{5.5}$<br>155.4 |
| $\frac{28}{5.3}$<br>155.6 | $\frac{24}{5.2}$<br>155.7 | $\frac{18}{6.0}$<br>154.4 | $\frac{12}{5.4}$<br>155.5 | $\frac{5.0}{5.0}$<br>155.9 | $\frac{13}{6.0}$<br>154.9 | $\frac{18}{7.6}$<br>153.3 | $\frac{24}{5.6}$<br>155.5 | $\frac{30}{5.3}$<br>155.6 |
| $\frac{28}{5.0}$<br>155.9 | $\frac{24}{5.0}$<br>155.9 | $\frac{19}{6.2}$<br>154.7 | $\frac{13}{9.2}$<br>155.7 | $\frac{9.4}{9.4}$<br>156.5 | $\frac{12}{5.5}$<br>155.4 | $\frac{18}{7.2}$<br>153.6 | $\frac{23}{5.6}$<br>155.3 | $\frac{30}{5.2}$<br>155.6 |
| $\frac{30}{4.7}$<br>156.2 | $\frac{24}{4.5}$<br>156.4 | $\frac{19}{5.7}$<br>156.2 | $\frac{14}{4.9}$<br>156.0 | $\frac{4.0}{4.0}$<br>156.9 | $\frac{12}{5.0}$<br>155.9 | $\frac{19}{7.1}$<br>153.8 | $\frac{23}{5.9}$<br>155.0 | $\frac{29}{5.1}$<br>155.8 |
| $\frac{29}{4.1}$<br>156.8 | $\frac{24}{4.0}$<br>156.9 | $\frac{19}{5.2}$<br>155.6 | $\frac{14}{4.6}$<br>156.3 | $\frac{3.4}{3.4}$<br>157.5 | $\frac{12}{4.3}$<br>156.6 | $\frac{18}{6.2}$<br>154.7 | $\frac{24}{4.5}$<br>156.4 | $\frac{30}{5.0}$<br>155.9 |
| $\frac{30}{6.6}$<br>157.8 | $\frac{25}{6.9}$<br>157.5 | $\frac{20}{8.1}$<br>156.0 | $\frac{14}{7.3}$<br>157.1 | $\frac{6.3}{6.3}$<br>158.1 | $\frac{14}{7.2}$<br>157.2 | $\frac{19}{8.9}$<br>155.5 | $\frac{25}{7.4}$<br>157.0 | $\frac{30}{7.6}$<br>156.8 |
| $\frac{30}{6.5}$<br>157.9 | $\frac{25}{6.3}$<br>158.1 | $\frac{19}{8.1}$<br>156.3 | $\frac{14}{6.6}$<br>157.8 | $\frac{5.6}{5.6}$<br>158.8 | $\frac{13}{6.7}$<br>157.9 | $\frac{18}{8.2}$<br>156.2 | $\frac{24}{6.9}$<br>157.5 | $\frac{29}{6.7}$<br>157.7 |
| $\frac{30}{5.8}$<br>158.6 | $\frac{25}{5.6}$<br>158.8 | $\frac{19}{7.2}$<br>156.6 | $\frac{14}{5.9}$<br>158.5 | $\frac{5.1}{5.1}$<br>159.3 | $\frac{12}{5.9}$<br>158.5 | $\frac{18}{7.5}$<br>156.9 | $\frac{24}{6.0}$<br>158.8 | $\frac{29}{6.2}$<br>158.2 |
| $\frac{30}{4.6}$<br>159.8 | $\frac{24}{4.7}$<br>159.7 | $\frac{21}{6.9}$<br>157.5 | $\frac{10}{5.0}$<br>159.4 | $\frac{4.0}{4.0}$<br>160.4 | $\frac{12}{5.1}$<br>159.3 | $\frac{18}{6.7}$<br>157.7 | $\frac{24}{4.6}$<br>159.8 | $\frac{29}{5.0}$<br>159.4 |



5.57 164.84 2.88 159.27

253

+ 71 Fence E

+ 30 Fence W

252

+ 66 Fence W

251

250

8.58 162.15 5.29 153.57

249

248

+ 52 Fence W

+ 44 Gate W 20x1 Iron Chlv.

247

1.85 158.86 2.50 157.01

+ 76 S. Side Bridge

B.M. 27

2.50 157.01

Center Wheel  
East Side

+ 60 N. Side Bridge Nail

246

245

159.57

|                  |                  |                  |                  |                   |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|
| $\frac{31}{4.0}$ | $\frac{22}{3.6}$ | $\frac{17}{4.6}$ | $\frac{12}{3.3}$ | $\frac{2.2}{2.2}$ | $\frac{12}{2.6}$ | $\frac{14}{3.4}$ | $\frac{23}{1.4}$ | $\frac{29}{1.3}$ |
| 158.1            | 156.5            | 157.5            | 158.8            | 159.9             | 159.5            | 158.7            | 160.7            | 160.8            |

|                  |                  |                  |                  |                   |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|
| $\frac{31}{3.9}$ | $\frac{24}{2.8}$ | $\frac{18}{6.0}$ | $\frac{12}{4.3}$ | $\frac{3.4}{3.4}$ | $\frac{12}{4.0}$ | $\frac{14}{5.0}$ | $\frac{23}{2.4}$ | $\frac{29}{2.0}$ |
| 158.2            | 158.3            | 156.1            | 157.8            | 158.7             | 158.1            | 157.1            | 159.7            | 160.1            |

|                  |                  |                  |                  |                   |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|
| $\frac{31}{5.2}$ | $\frac{25}{5.6}$ | $\frac{19}{7.2}$ | $\frac{14}{5.5}$ | $\frac{4.5}{4.5}$ | $\frac{11}{5.1}$ | $\frac{17}{6.4}$ | $\frac{21}{5.0}$ | $\frac{28}{3.5}$ |
| 156.9            | 156.5            | 154.9            | 156.4            | 157.6             | 157.0            | 155.7            | 157.1            | 158.6            |

|                  |                  |                  |                  |                   |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|
| $\frac{32}{6.1}$ | $\frac{23}{6.4}$ | $\frac{18}{7.6}$ | $\frac{13}{6.3}$ | $\frac{5.2}{5.2}$ | $\frac{10}{5.7}$ | $\frac{16}{7.3}$ | $\frac{24}{5.7}$ | $\frac{30}{4.0}$ |
| 156.0            | 155.7            | 154.2            | 155.8            | 156.9             | 156.4            | 154.8            | 156.7            | 158.1            |

|                  |                  |                  |                  |                   |                  |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|------------------|
| $\frac{31}{3.4}$ | $\frac{26}{3.2}$ | $\frac{19}{5.9}$ | $\frac{11}{3.7}$ | $\frac{2.9}{2.9}$ | $\frac{12}{3.3}$ | $\frac{19}{5.1}$ | $\frac{23}{3.4}$ | $\frac{27}{2.1}$ | $\frac{10}{1.5}$ |
| 155.4            | 155.6            | 152.9            | 155.1            | 155.9             | 155.5            | 153.7            | 155.4            | 156.7            | 157.3            |

|                  |                  |                  |                  |                   |                  |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|------------------|
| $\frac{31}{7.5}$ | $\frac{25}{5.7}$ | $\frac{18}{6.9}$ | $\frac{12}{5.2}$ | $\frac{4.5}{4.5}$ | $\frac{12}{4.8}$ | $\frac{19}{6.5}$ | $\frac{25}{4.7}$ | $\frac{26}{3.4}$ | $\frac{30}{2.7}$ |
| 151.3            | 153.1            | 151.9            | 153.6            | 154.3             | 154.0            | 152.3            | 154.1            | 156.4            | 156.1            |

|                  |                  |                  |                  |                   |                  |                  |                  |
|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|
| $\frac{28}{4.6}$ | $\frac{25}{6.0}$ | $\frac{17}{6.9}$ | $\frac{10}{5.0}$ | $\frac{4.5}{4.5}$ | $\frac{10}{5.0}$ | $\frac{20}{6.7}$ | $\frac{28}{5.6}$ |
| 152.4            | 152.8            | 151.9            | 153.8            | 154.3             | 153.8            | 153.1            | 153.3            |

|                  |                  |                  |                 |                   |                 |                  |                  |
|------------------|------------------|------------------|-----------------|-------------------|-----------------|------------------|------------------|
| $\frac{29}{6.7}$ | $\frac{25}{5.9}$ | $\frac{18}{6.6}$ | $\frac{8}{3.4}$ | $\frac{2.9}{2.9}$ | $\frac{8}{3.4}$ | $\frac{23}{7.3}$ | $\frac{28}{5.6}$ |
| 152.1            | 152.9            | 152.2            | 155.4           | 155.9             | 155.4           | 151.5            | 153.2            |

|                   |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
|-------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| $\frac{30}{10.4}$ | $\frac{27}{9.3}$ | $\frac{21}{9.0}$ | $\frac{11}{9.5}$ | $\frac{13}{9.0}$ | $\frac{28}{9.6}$ | $\frac{26}{9.6}$ | $\frac{10}{9.3}$ | $\frac{19}{7.5}$ | $\frac{22}{6.6}$ | $\frac{27}{6.9}$ |
| 149.1             | 150.2            | 150.5            | 150.6            | 150.4            | 150.7            | 150.6            | 150.2            | 152.0            | 152.9            | 152.6            |

|                  |                  |                  |                  |                 |                  |                   |                  |                  |
|------------------|------------------|------------------|------------------|-----------------|------------------|-------------------|------------------|------------------|
| $\frac{31}{7.4}$ | $\frac{27}{7.3}$ | $\frac{18}{6.7}$ | $\frac{10}{7.3}$ | $\frac{9}{2.8}$ | $\frac{10}{2.8}$ | $\frac{12}{10.5}$ | $\frac{20}{7.7}$ | $\frac{27}{7.7}$ |
| 152.1            | 152.1            | 152.8            | 152.2            | 156.7           | 156.8            | 156.7             | 149.0            | 151.8            |

|                  |                  |                  |                  |                   |                 |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|-------------------|-----------------|------------------|------------------|------------------|------------------|
| $\frac{30}{6.5}$ | $\frac{22}{6.6}$ | $\frac{15}{6.9}$ | $\frac{11}{5.4}$ | $\frac{4.6}{4.6}$ | $\frac{9}{5.2}$ | $\frac{16}{7.4}$ | $\frac{18}{9.0}$ | $\frac{22}{6.7}$ | $\frac{26}{6.8}$ |
| 153.0            | 152.9            | 152.6            | 154.1            | 154.9             | 154.3           | 152.1            | 150.5            | 152.8            | 152.7            |

|                  |                  |                  |                  |                   |                  |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|------------------|
| $\frac{29}{5.8}$ | $\frac{23}{5.6}$ | $\frac{12}{6.8}$ | $\frac{13}{5.7}$ | $\frac{5.0}{5.0}$ | $\frac{14}{5.9}$ | $\frac{19}{7.7}$ | $\frac{24}{7.9}$ | $\frac{26}{6.3}$ | $\frac{31}{5.7}$ |
| 153.7            | 153.9            | 152.7            | 153.8            | 154.5             | 153.6            | 151.8            | 151.6            | 153.2            | 153.8            |



Road West

1

0  $\angle$  Main Road

3

2

1

0  $\angle$  Main Road

BM. 29 2.73 164.83 162.10

+71 Center 24X11X4.5 Conc Culv

+46 Fences E &amp; W S. Side X Roads

255

BM. 28 2.74 162.10

+95.  $\angle$  Conc Box Culv. 24X14X4.5  
34 X 24 Waterway

+86 Fence E &amp; W N. side X Roads

+26 Fence IN

254 Drive W.

+86 Shed E. side

164.84

West side

|                  |                  |                  |                 |       |                 |                  |                  |                  |
|------------------|------------------|------------------|-----------------|-------|-----------------|------------------|------------------|------------------|
| $\frac{46}{4.3}$ | $\frac{20}{4.3}$ | $\frac{16}{5.0}$ | $\frac{8}{3.8}$ | 3.8   | $\frac{9}{3.8}$ | $\frac{15}{4.8}$ | $\frac{21}{3.4}$ | $\frac{24}{3.8}$ |
| 160.5            | 160.5            | 159.8            | 161.0           | 161.0 | 161.0           | 160.0            | 161.4            | 161.0            |

|                   |                   |                   |                  |       |                   |                   |                   |                   |
|-------------------|-------------------|-------------------|------------------|-------|-------------------|-------------------|-------------------|-------------------|
| $\frac{22}{12.1}$ | $\frac{16}{12.5}$ | $\frac{13}{13.5}$ | $\frac{7}{11.7}$ | 11.6  | $\frac{10}{11.8}$ | $\frac{16}{13.7}$ | $\frac{18}{12.5}$ | $\frac{25}{12.3}$ |
| 152.7             | 152.3             | 151.3             | 153.1            | 153.2 | 153.0             | 151.1             | 152.3             | 152.5             |
| $\frac{24}{10.4}$ | $\frac{15}{10.6}$ | $\frac{11}{11.7}$ | $\frac{6}{10.6}$ | 10.4  | $\frac{10}{10.6}$ | $\frac{16}{11.7}$ | $\frac{18}{10.6}$ | $\frac{25}{10.4}$ |
| 154.4             | 154.2             | 153.1             | 154.2            | 154.4 | 154.2             | 153.1             | 154.2             | 154.4             |

|                  |                 |                   |                |       |                  |                  |                  |                  |
|------------------|-----------------|-------------------|----------------|-------|------------------|------------------|------------------|------------------|
| $\frac{24}{8.6}$ | $\frac{20}{9.}$ | $\frac{14}{10.1}$ | $\frac{8}{9.}$ | 8.90  | $\frac{9}{8.80}$ | $\frac{16}{9.9}$ | $\frac{22}{8.9}$ | $\frac{25}{8.9}$ |
| 156.2            | 155.8           | 154.7             | 155.8          | 155.9 | 156.0            | 154.9            | 155.9            | 156.6            |

in Nail in Center W. Headwall N. side X Roads

|                  |                  |                  |                  |       |                  |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|-------|------------------|------------------|------------------|------------------|------------------|
| $\frac{25}{6.2}$ | $\frac{19}{5.0}$ | $\frac{14}{2.9}$ | $\frac{12}{4.5}$ | 4.3   | $\frac{12}{4.1}$ | $\frac{13}{7.2}$ | $\frac{19}{6.9}$ | $\frac{24}{6.5}$ | $\frac{27}{4.5}$ |
| 158.6            | 156.8            | 156.9            | 160.1            | 160.5 | 160.7            | 159.6            | 157.9            | 158.3            | 160.3            |

|                  |                  |                  |                  |       |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|-------|------------------|------------------|------------------|------------------|
| $\frac{27}{6.2}$ | $\frac{23}{6.2}$ | $\frac{18}{6.3}$ | $\frac{11}{5.6}$ | 4.8   | $\frac{12}{4.8}$ | $\frac{18}{5.3}$ | $\frac{20}{5.0}$ | $\frac{29}{4.8}$ |
| 158.6            | 158.6            | 158.5            | 159.2            | 160.0 | 160.0            | 159.5            | 159.8            | 160.0            |



+ 62 Drive W. 20 X 1 Iron Culv.

261

+ 92 Fence W

+ 6 Fence W

260

259

258

+ 61 Fence W

257

256

+ 71 Center 24 X 11 X 4.5 Conc. Culv.

+ 46 Fences E &amp; W S. side X Roads.

255

OK

OK

OK

OK

OK

OK

OK

OK

OK

OK

|       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 27    | 24    | 22    | 16    | 10    | 14    | 20    | 28    | 34    |
| 3.4   | 4.2   | 5.3   | 6.9   | 8.3   | 4.4   | 4.9   | 4.4   | 4.9   |
| 156.5 | 155.7 | 154.7 | 153.0 | 154.7 | 155.5 | 155.1 | 155.5 | 156.6 |
| 28    | 26    | 23    | 18    | 14    | 13    | 19    | 25    | 31    |
| 1.3   | 1.8   | 2.7   | 7.6   | 3.1   | 2.1   | 5.4   | 3.3   | 0.4   |
| 158.6 | 158.1 | 157.2 | 155.3 | 156.8 | 157.8 | 157.5 | 156.6 | 159.5 |

|       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 29    | 26    | 23    | 17    | 12    | 13    | 18    | 24    | 30    |
| 5.1   | 5.6   | 5.6   | 7.5   | 5.9   | 4.3   | 5.7   | 6.1   | 3.8   |
| 160.2 | 160.6 | 159.7 | 157.8 | 159.8 | 161.0 | 160.3 | 161.3 | 161.5 |

|       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 29    | 24    | 19    | 18    | 12    | 17    | 28    | 30    |
| 5.5   | 5.9   | 7.3   | 5.7   | 4.6   | 5.7   | 6.6   | 4.3   |
| 159.8 | 159.4 | 158.0 | 159.6 | 160.7 | 160.3 | 158.8 | 161.0 |

|       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 28    | 24    | 18    | 13    | 13    | 17    | 24    | 30    |
| 5.8   | 6.2   | 7.5   | 6.1   | 5.1   | 5.7   | 6.8   | 5.3   |
| 159.5 | 159.1 | 157.8 | 159.2 | 160.2 | 159.6 | 158.4 | 160.1 |

|       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 29    | 24    | 19    | 12    | 13    | 18    | 24    | 30    |
| 5.3   | 6.1   | 7.5   | 6.1   | 5.7   | 7.1   | 5.8   | 4.3   |
| 160.1 | 159.5 | 157.8 | 159.3 | 160.3 | 159.6 | 158.2 | 160.0 |

|       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 30    | 26    | 20    | 12    | 11    | 18    | 22    | 20    |
| 7.3   | 7.2   | 8.3   | 6.1   | 5.5   | 5.9   | 7.2   | 6.1   |
| 158.3 | 158.1 | 157.1 | 159.2 | 159.8 | 159.4 | 158.1 | 159.2 |

|       |       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 29    | 25    | 20    | 14.5  | 11.3  | 11    | 12.5  | 17    | 23    | 29    |
| 7.2   | 7.1   | 8.3   | 8.4   | 3.2   | 4.9   | 7.8   | 7.3   | 6.2   | 3.6   |
| 158.1 | 159.4 | 157.0 | 156.9 | 160.1 | 160.4 | 160.5 | 159.4 | 158.1 | 159.1 |

|       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 30    | 26    | 20    | 11    | 12    | 20    | 25    | 24    |
| 8.4   | 8.4   | 7.6   | 6.2   | 5.3   | 5.1   | 6.5   | 5.8   |
| 156.9 | 156.9 | 157.7 | 159.1 | 160.0 | 159.9 | 158.8 | 159.5 |

OK

Rail Center W. Headend / Sta 254+95

|       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 54    | 18    | 15    | 8     | 9     | 15    | 18    | 25    |
| 1.9   | 3.0   | 3.6   | 2.5   | 2.7   | 4.6   | 3.6   | 3.3   |
| 162.9 | 161.8 | 161.2 | 162.3 | 162.1 | 161.9 | 160.2 | 161.2 |

|       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 26    | 21    | 16    | 9     | 9     | 16    | 20    | 23    |
| 1.7   | 2.1   | 2.3   | 1.3   | 1.1   | 2.1   | 1.0   | 1.4   |
| 163.1 | 162.7 | 162.5 | 163.5 | 163.7 | 163.3 | 163.4 | 163.4 |

B.M. 29 3.20 165.30 162.10

3



X 271

Y 270

10.60 165.96 3.13 155.36

269

+69 Fence S.W.

+37 Drives Gate W. 20x1 Iron Culv.

268

6.95 158.49 4.15 151.54

267

266

265

+93 Fence E 3.13 155.69 7.43 152.56

+20 20x16 x 6 Mold Bridge 34" Handrail

264

+54 Fence W

+12 Gate E 20x1 Iron Culv.

263

262

159.99

|       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 31    | 25    | 20    | 16    | 13    | 18    | 24    | 30    |
| 6.5   | 7.6   | 7.6   | 8.1   | 7.5   | 8.3   | 9.4   | 7.2   |
| 159.4 | 158.3 | 156.3 | 157.8 | 158.4 | 157.6 | 156.0 | 158.7 |
| 30    | 24    | 19    | 14    | 14    | 19    | 25    | 30    |
| 10.7  | 11.3  | 12.7  | 10.9  | 10.3  | 11.3  | 12.9  | 11.5  |
| 155.2 | 154.6 | 153.2 | 155.2 | 155.6 | 154.6 | 153.2 | 154.4 |
| 56    | 24    | 19    | 14    | 14    | 20    | 25    | 31    |
| 5.4   | 6.4   | 7.1   | 5.2   | 4.7   | 5.4   | 6.3   | 6.2   |
| 153.0 | 152.4 | 151.3 | 153.2 | 153.7 | 153.0 | 151.2 | 152.2 |

|       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 29    | 23    | 18    | 13    | 16    | 21    | 27    | 31    |
| 8.1   | 7.4   | 8.1   | 6.8   | 6.2   | 7.1   | 8.0   | 7.6   |
| 151.3 | 151.0 | 150.4 | 151.6 | 152.2 | 151.3 | 150.0 | 150.8 |
| 28    | 23    | 19    | 13    | 15    | 21    | 26    | 31    |
| 5.4   | 5.4   | 5.9   | 7.9   | 4.1   | 5.3   | 6.5   | 5.5   |
| 150.2 | 150.2 | 149.7 | 150.7 | 151.5 | 150.3 | 149.1 | 150.1 |

|       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 27    | 23    | 18    | 13    | 15    | 19    | 26    | 30    |
| 5.4   | 5.9   | 6.5   | 5.7   | 4.8   | 5.9   | 7.0   | 5.9   |
| 150.2 | 149.7 | 149.1 | 149.9 | 150.8 | 149.7 | 148.6 | 149.7 |
| 26    | 23    | 19    | 15    | 16    | 17    | 22    | 25    |
| 6.2   | 6.1   | 6.3   | 6.8   | 5.9   | 4.9   | 5.7   | 7.2   |
| 149.4 | 149.5 | 149.3 | 148.8 | 149.7 | 150.7 | 149.9 | 148.4 |

|       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 21    | 16    | 10    | 8     | 8     | 9     | 10    | 20    |
| 13.3  | 13.3  | 13.6  | 7.6   | 7.5   | 7.5   | 13.5  | 14.3  |
| 146.6 | 146.6 | 146.3 | 152.3 | 152.4 | 152.4 | 146.4 | 145.6 |
| 26    | 20    | 16    | 8     | 7     | 16    | 22    | 31    |
| 11.3  | 10.6  | 11.8  | 8.3   | 7.9   | 8.3   | 11.4  | 11.4  |
| 148.6 | 149.3 | 148.1 | 151.6 | 152.0 | 151.7 | 148.5 | 148.5 |

|       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 22    | 24    | 21    | 16    | 12    | 14    | 21    | 27    |
| 8.4   | 8.5   | 9.1   | 10.1  | 8.6   | 7.9   | 8.2   | 10.1  |
| 151.5 | 151.4 | 150.8 | 149.9 | 151.3 | 152.0 | 151.7 | 149.9 |
| 17    | 24    | 21    | 16    | 11    | 14    | 21    | 27    |
| 5.1   | 5.6   | 6.3   | 7.9   | 6.5   | 5.7   | 6.4   | 7.7   |
| 154.8 | 154.3 | 153.6 | 152.0 | 153.4 | 154.2 | 153.9 | 152.2 |

|       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 21    | 24    | 21    | 16    | 11    | 14    | 21    | 27    |
| 5.1   | 5.6   | 6.3   | 7.9   | 6.5   | 5.7   | 6.4   | 7.7   |
| 154.8 | 154.3 | 153.6 | 152.0 | 153.4 | 154.2 | 153.9 | 152.2 |
| 21    | 24    | 21    | 16    | 11    | 14    | 21    | 27    |
| 5.1   | 5.6   | 6.3   | 7.9   | 6.5   | 5.7   | 6.4   | 7.7   |
| 154.8 | 154.3 | 153.6 | 152.0 | 153.4 | 154.2 | 153.9 | 152.2 |



X-Sections (-) to be plotted.

W. Side

43

1.11 179.53 7.19 178.42

213

OK

282

OK

281

OK

10.37 185.61 4.30 175.24

280

OK

279

01

OK

X 278

X 277

+23 Drives Gate E. 20x1 Iron Culv.

7.57 179.54 0.28 171.97

276

X 275

X 449 Fence E.

274

V 8.41 172.25 2.12 163.84

273

X 272

165.96

|       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 31    | 26    | 19    | 14    | 13    | 17    | 23    | 29    |
| 3.7   | 3.8   | 5.7   | 4.7   | 4.6   | 5.5   | 6.6   | 3.8   |
| 181.9 | 181.8 | 179.9 | 180.9 | 180.0 | 179.0 | 181.1 | 181.8 |
| 29    | 24    | 19    | 14    | 13    | 18    | 24    | 30    |
| 2.2   | 2.6   | 3.8   | 2.6   | 1.6   | 2.7   | 4.6   | 2.2   |
| 183.4 | 183.6 | 181.8 | 183.0 | 184.0 | 182.9 | 181.6 | 183.4 |
| 31    | 28    | 24    | 18    | 13    | 15    | 19    | 25    |
| 3.8   | 4.2   | 4.8   | 6.6   | 4.7   | 3.9   | 4.9   | 6.2   |
| 181.8 | 181.4 | 180.8 | 179.0 | 180.9 | 181.7 | 180.7 | 179.4 |
| 31    | 25    | 20    | 15    | 13    | 15    | 24    | 27    |
| 4.0   | 2.0   | 3.5   | 1.8   | 1.0   | 2.0   | 3.2   | 1.8   |
| 178.5 | 177.5 | 176.0 | 177.7 | 178.5 | 177.5 | 176.3 | 177.7 |
| 30    | 25    | 20    | 15    | 13    | 18    | 21    | 30    |
| 3.9   | 4.5   | 3.5   | 4.2   | 3.4   | 4.3   | 5.9   | 4.5   |
| 175.6 | 174.8 | 174.0 | 175.3 | 176.1 | 175.2 | 173.6 | 175.0 |
| 31    | 26    | 19    | 15    | 13    | 18    | 23    | 30    |
| 4.3   | 4.9   | 6.5   | 5.2   | 4.6   | 4.0   | 7.5   | 6.4   |
| 175.2 | 174.6 | 172.8 | 174.3 | 174.9 | 173.5 | 172.0 | 173.1 |
| 30    | 26    | 19    | 15    | 13    | 18    | 25    | 29    |
| 4.9   | 5.4   | 2.7   | 6.6   | 6.1   | 7.3   | 8.2   | 2.2   |
| 174.6 | 174.1 | 171.8 | 172.9 | 173.4 | 172.2 | 170.8 | 172.3 |
| 30    | 25    | 20    | 14    | 13    | 19    | 29    | 30    |
| 6.6   | 6.9   | 7.2   | 7.4   | 7.6   | 8.4   | 9.9   | 8.6   |
| 172.9 | 172.6 | 172.3 | 172.1 | 171.9 | 171.1 | 169.6 | 170.9 |
| 31    | 27    | 21    | 15    | 14    | 18    | 25    | 30    |
| 4.1   | 4.4   | 2.1   | 6.6   | 6.6   | 1.6   | 3.1   | 1.7   |
| 172.1 | 171.8 | 170.2 | 171.6 | 171.6 | 170.6 | 169.2 | 170.5 |
| 30    | 26    | 20    | 14    | 13    | 18    | 23    | 29    |
| 1.5   | 2.3   | 4.6   | 3.1   | 2.5   | 3.5   | 5.1   | 3.2   |
| 170.7 | 169.7 | 169.6 | 169.1 | 169.7 | 168.7 | 167.2 | 169.0 |
| 29    | 24    | 19    | 14    | 14    | 18    | 23    | 30    |
| 3.7   | 5.2   | 7.2   | 5.5   | 4.9   | 6.4   | 7.4   | 5.2   |
| 168.5 | 167.0 | 165.0 | 166.7 | 167.3 | 166.4 | 164.8 | 167.0 |
| 29    | 26    | 20    | 15    | 13    | 18    | 24    | 30    |
| 0.4   | 1.3   | 3.3   | 1.4   | 1.9   | 2.1   | 3.5   | 1.6   |
| 165.5 | 164.6 | 162.6 | 164.5 | 165.0 | 163.9 | 162.4 | 164.8 |
| 29    | 26    | 19    | 15    | 13    | 18    | 24    | 30    |
| 3.4   | 4.2   | 6.1   | 4.3   | 3.7   | 4.6   | 5.8   | 3.8   |
| 162.5 | 161.7 | 159.9 | 161.6 | 162.2 | 161.3 | 160.1 | 161.8 |



293

292

291

+95

Conc. Cuir.

5.69 166.57 8.69 160.88

290

289

288

+64

Drive West

287

2.34 169.57 12.30 167.23

286

285

285

284 Drive E.

179.53

|                  |                  |                  |                  |                  |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| $\frac{28}{7.1}$ | $\frac{22}{7.8}$ | $\frac{18}{8.2}$ | $\frac{12}{6.4}$ | $\frac{10}{5.5}$ | $\frac{10}{6.2}$ | $\frac{10}{7.3}$ | $\frac{25}{5.6}$ | $\frac{21}{4.2}$ |
| 159.5            | 158.7            | 158.3            | 160.1            | 161.0            | 160.3            | 159.2            | 160.9            | 162.3            |
| $\frac{28}{8.7}$ | $\frac{20}{9.1}$ | $\frac{18}{9.5}$ | $\frac{13}{7.9}$ | $\frac{7}{7.6}$  | $\frac{12}{8.7}$ | $\frac{19}{7.4}$ | $\frac{20}{7.7}$ | $\frac{20}{7.7}$ |
| 157.8            | 157.4            | 157.0            | 158.6            | 159.5            | 158.9            | 157.8            | 159.1            | 159.5            |

|                   |                   |                   |                   |                  |                   |                   |                  |                  |                  |                  |                  |                  |
|-------------------|-------------------|-------------------|-------------------|------------------|-------------------|-------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| $\frac{30}{7.1}$  | $\frac{25}{9.5}$  | $\frac{10}{9.3}$  | $\frac{16}{9.6}$  | $\frac{11}{9.8}$ | $\frac{11}{10.1}$ | $\frac{6}{6.4}$   | $\frac{6}{6.2}$  | $\frac{7}{10.3}$ | $\frac{13}{9.5}$ | $\frac{17}{9.5}$ | $\frac{24}{9.2}$ | $\frac{29}{7.5}$ |
| 157.4             | 157.0             | 157.2             | 156.9             | 156.7            | 160.1             | 160.1             | 160.3            | 156.3            | 157.0            | 157.0            | 158.3            | 159.0            |
| $\frac{29}{10.3}$ | $\frac{25}{10.3}$ | $\frac{18}{11.5}$ | $\frac{13}{10.1}$ | $\frac{13}{9.4}$ | $\frac{11}{10.3}$ | $\frac{16}{11.4}$ | $\frac{24}{9.9}$ | $\frac{29}{9.5}$ |                  |                  |                  |                  |
| 159.2             | 159.2             | 158.0             | 159.4             | 160.1            | 159.2             | 158.1             | 159.6            | 160.0            |                  |                  |                  |                  |

|                  |                  |                   |                  |                   |                  |                   |                  |                  |
|------------------|------------------|-------------------|------------------|-------------------|------------------|-------------------|------------------|------------------|
| $\frac{28}{9.6}$ | $\frac{24}{9.9}$ | $\frac{18}{10.3}$ | $\frac{13}{8.7}$ | $\frac{14}{7.9}$  | $\frac{14}{9.1}$ | $\frac{18}{10.2}$ | $\frac{24}{8.7}$ | $\frac{29}{8.6}$ |
| 160.0            | 159.6            | 159.2             | 160.8            | 161.6             | 160.3            | 159.3             | 160.8            | 160.9            |
| $\frac{29}{5.8}$ | $\frac{24}{6.5}$ | $\frac{17}{8.1}$  | $\frac{12}{6.5}$ | $\frac{5.8}{5.8}$ | $\frac{14}{6.8}$ | $\frac{19}{5.4}$  | $\frac{24}{6.4}$ | $\frac{30}{6.3}$ |
| 163.7            | 163.0            | 161.4             | 163.0            | 163.7             | 162.7            | 161.1             | 163.1            | 163.2            |

|                  |                  |                  |                  |                   |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|
| $\frac{29}{5.8}$ | $\frac{24}{6.5}$ | $\frac{17}{8.1}$ | $\frac{12}{6.5}$ | $\frac{5.8}{5.8}$ | $\frac{14}{6.8}$ | $\frac{19}{5.4}$ | $\frac{24}{6.4}$ | $\frac{30}{6.3}$ |
| 163.7            | 163.0            | 161.4            | 163.0            | 163.7             | 162.7            | 161.1            | 163.1            | 163.2            |
| $\frac{29}{5.8}$ | $\frac{24}{6.5}$ | $\frac{17}{8.1}$ | $\frac{12}{6.5}$ | $\frac{5.8}{5.8}$ | $\frac{14}{6.8}$ | $\frac{19}{5.4}$ | $\frac{24}{6.4}$ | $\frac{30}{6.3}$ |
| 163.7            | 163.0            | 161.4            | 163.0            | 163.7             | 162.7            | 161.1            | 163.1            | 163.2            |

|                  |                  |                  |                  |                   |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|
| $\frac{29}{5.8}$ | $\frac{24}{6.5}$ | $\frac{17}{8.1}$ | $\frac{12}{6.5}$ | $\frac{5.8}{5.8}$ | $\frac{14}{6.8}$ | $\frac{19}{5.4}$ | $\frac{24}{6.4}$ | $\frac{30}{6.3}$ |
| 163.7            | 163.0            | 161.4            | 163.0            | 163.7             | 162.7            | 161.1            | 163.1            | 163.2            |
| $\frac{29}{5.8}$ | $\frac{24}{6.5}$ | $\frac{17}{8.1}$ | $\frac{12}{6.5}$ | $\frac{5.8}{5.8}$ | $\frac{14}{6.8}$ | $\frac{19}{5.4}$ | $\frac{24}{6.4}$ | $\frac{30}{6.3}$ |
| 163.7            | 163.0            | 161.4            | 163.0            | 163.7             | 162.7            | 161.1            | 163.1            | 163.2            |

|                  |                  |                  |                  |                   |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|
| $\frac{29}{5.8}$ | $\frac{24}{6.5}$ | $\frac{17}{8.1}$ | $\frac{12}{6.5}$ | $\frac{5.8}{5.8}$ | $\frac{14}{6.8}$ | $\frac{19}{5.4}$ | $\frac{24}{6.4}$ | $\frac{30}{6.3}$ |
| 163.7            | 163.0            | 161.4            | 163.0            | 163.7             | 162.7            | 161.1            | 163.1            | 163.2            |
| $\frac{29}{5.8}$ | $\frac{24}{6.5}$ | $\frac{17}{8.1}$ | $\frac{12}{6.5}$ | $\frac{5.8}{5.8}$ | $\frac{14}{6.8}$ | $\frac{19}{5.4}$ | $\frac{24}{6.4}$ | $\frac{30}{6.3}$ |
| 163.7            | 163.0            | 161.4            | 163.0            | 163.7             | 162.7            | 161.1            | 163.1            | 163.2            |

|                  |                  |                  |                  |                   |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|
| $\frac{30}{3.3}$ | $\frac{23}{3.5}$ | $\frac{18}{5.7}$ | $\frac{12}{7.1}$ | $\frac{3.3}{3.3}$ | $\frac{13}{7.4}$ | $\frac{18}{5.8}$ | $\frac{24}{4.1}$ | $\frac{30}{3.6}$ |
| 166.2            | 166.0            | 163.8            | 165.5            | 166.2             | 165.1            | 163.7            | 165.4            | 165.9            |
| $\frac{30}{3.3}$ | $\frac{23}{3.5}$ | $\frac{18}{5.7}$ | $\frac{12}{7.1}$ | $\frac{3.3}{3.3}$ | $\frac{13}{7.4}$ | $\frac{18}{5.8}$ | $\frac{24}{4.1}$ | $\frac{30}{3.6}$ |
| 166.2            | 166.0            | 163.8            | 165.5            | 166.2             | 165.1            | 163.7            | 165.4            | 165.9            |

|                  |                  |                  |                  |                   |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|
| $\frac{30}{3.3}$ | $\frac{23}{3.5}$ | $\frac{18}{5.7}$ | $\frac{12}{7.1}$ | $\frac{3.3}{3.3}$ | $\frac{13}{7.4}$ | $\frac{18}{5.8}$ | $\frac{24}{4.1}$ | $\frac{30}{3.6}$ |
| 166.2            | 166.0            | 163.8            | 165.5            | 166.2             | 165.1            | 163.7            | 165.4            | 165.9            |
| $\frac{30}{3.3}$ | $\frac{23}{3.5}$ | $\frac{18}{5.7}$ | $\frac{12}{7.1}$ | $\frac{3.3}{3.3}$ | $\frac{13}{7.4}$ | $\frac{18}{5.8}$ | $\frac{24}{4.1}$ | $\frac{30}{3.6}$ |
| 166.2            | 166.0            | 163.8            | 165.5            | 166.2             | 165.1            | 163.7            | 165.4            | 165.9            |

|                  |                  |                  |                  |                   |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|
| $\frac{30}{3.5}$ | $\frac{26}{3.7}$ | $\frac{22}{3.5}$ | $\frac{14}{8.1}$ | $\frac{7.6}{7.6}$ | $\frac{12}{8.4}$ | $\frac{16}{9.7}$ | $\frac{23}{7.6}$ | $\frac{29}{7.6}$ |
| 171.0            | 170.8            | 170.0            | 171.5            | 171.9             | 171.1            | 169.8            | 171.9            | 171.9            |
| $\frac{30}{3.5}$ | $\frac{26}{3.7}$ | $\frac{22}{3.5}$ | $\frac{14}{8.1}$ | $\frac{7.6}{7.6}$ | $\frac{12}{8.4}$ | $\frac{16}{9.7}$ | $\frac{23}{7.6}$ | $\frac{29}{7.6}$ |
| 171.0            | 170.8            | 170.0            | 171.5            | 171.9             | 171.1            | 169.8            | 171.9            | 171.9            |

|                  |                  |                  |                  |                   |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|
| $\frac{31}{3.5}$ | $\frac{29}{3.9}$ | $\frac{20}{4.2}$ | $\frac{14}{3.9}$ | $\frac{3.4}{3.4}$ | $\frac{13}{4.4}$ | $\frac{16}{5.5}$ | $\frac{23}{3.5}$ | $\frac{29}{2.9}$ |
| 176.0            | 175.6            | 175.3            | 175.6            | 176.1             | 175.1            | 174.0            | 176.0            | 176.8            |
| $\frac{31}{3.5}$ | $\frac{29}{3.9}$ | $\frac{20}{4.2}$ | $\frac{14}{3.9}$ | $\frac{3.4}{3.4}$ | $\frac{13}{4.4}$ | $\frac{16}{5.5}$ | $\frac{23}{3.5}$ | $\frac{29}{2.9}$ |
| 176.0            | 175.6            | 175.3            | 175.6            | 176.1             | 175.1            | 174.0            | 176.0            | 176.8            |



45

~~O/C~~

OK

57.5

164.20. 6.7

OK

~~bk~~

01

OK

~~OK~~

OK

~~OK~~

~~18~~

---

65

166.57

Handwritten calculations on lined paper, showing a series of arithmetic operations, likely a long division or a sequence of subtractions. The calculations are organized into columns and rows, with numbers written in ink. The numbers are often underlined, and some are crossed out. The calculations involve numbers ranging from 1 to 30, with some numbers appearing multiple times. The final result of the calculations is 163.8.



X-Sections (—) to be plotted

W. Side

46

312

311

310

309

11.69 185.60 4.43 173.91

9.43 178.34 1.72 168.91

10.58 170.63 4.03 160.05

B.M. #30 6.97 164.08 157.11

(100) + 16

308

307

306

305

304

163.99

|                                          |                                          |                                          |                                          |                                           |                                           |                                           |                                          |                                          |
|------------------------------------------|------------------------------------------|------------------------------------------|------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|------------------------------------------|------------------------------------------|
| <del>30</del><br><del>29</del><br>182.7  | <del>26</del><br><del>3.0</del><br>182.6 | <del>19</del><br><del>5.5</del><br>180.1 | <del>14</del><br><del>3.3</del><br>182.3 | <del>2.8</del><br><del>3.2</del><br>182.8 | <del>13</del><br><del>4.8</del><br>182.1  | <del>1.7</del><br><del>4.8</del><br>180.8 | <del>24</del><br><del>3.8</del><br>181.6 | <del>29</del><br><del>1.8</del><br>183.8 |
| <del>30</del><br><del>5.5</del><br>180.1 | <del>25</del><br><del>7.1</del><br>175.5 | <del>20</del><br><del>9.7</del><br>175.9 | <del>13</del><br><del>7.7</del><br>177.9 | <del>7.1</del><br><del>2.9</del><br>178.5 | <del>13</del><br><del>9.7</del><br>179.1  | <del>18</del><br><del>7.6</del><br>175.9  | <del>23</del><br><del>5.7</del><br>178.0 | <del>30</del><br><del>1.9</del><br>179.9 |
| <del>30</del><br><del>29</del><br>175.4  | <del>26</del><br><del>4.2</del><br>174.1 | <del>19</del><br><del>6.0</del><br>172.5 | <del>13</del><br><del>4.7</del><br>173.6 | <del>4.0</del><br><del>5.0</del><br>174.6 | <del>13</del><br><del>6.4</del><br>173.3  | <del>1.7</del><br><del>4.3</del><br>171.9 | <del>23</del><br><del>4.3</del><br>174.0 | <del>30</del><br><del>2.7</del><br>175.6 |
| <del>33</del><br><del>71</del><br>171.2  | <del>29</del><br><del>7.1</del><br>170.2 | <del>23</del><br><del>9.9</del><br>168.4 | <del>14</del><br><del>8.0</del><br>170.3 | <del>8.2</del><br><del>8.6</del><br>170.1 | <del>11</del><br><del>10.0</del><br>169.1 | <del>17</del><br><del>8.2</del><br>168.3  | <del>20</del><br><del>7.3</del><br>170.1 | <del>26</del><br><del>1.0</del><br>171.0 |

|                                          |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                          |                                          |
|------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|------------------------------------------|------------------------------------------|
| <del>42</del><br><del>5.5</del><br>168.2 | <del>35</del><br><del>5.3</del><br>168.2  | <del>27</del><br><del>5.6</del><br>168.1  | <del>20</del><br><del>8.8</del><br>164.9  | <del>15</del><br><del>7.1</del><br>166.6  | <del>11</del><br><del>6.6</del><br>167.1  | <del>14</del><br><del>5.6</del><br>166.4  | <del>16</del><br><del>6.7</del><br>167.0  | <del>19</del><br><del>6.2</del><br>167.0 | <del>26</del><br><del>5.8</del><br>167.9 |
| <del>29</del><br><del>6.6</del><br>167.1 | <del>26</del><br><del>6.8</del><br>166.9  | <del>19</del><br><del>7.6</del><br>164.1  | <del>14</del><br><del>7.7</del><br>166.0  | <del>11</del><br><del>7.1</del><br>166.6  | <del>11</del><br><del>9.2</del><br>166.0  | <del>15</del><br><del>9.2</del><br>164.7  | <del>18</del><br><del>6.3</del><br>166.3  | <del>24</del><br><del>6.1</del><br>167.6 | <del>32</del><br><del>3.2</del><br>167.6 |
| <del>29</del><br><del>9.2</del><br>164.2 | <del>25</del><br><del>11.1</del><br>162.6 | <del>19</del><br><del>12.6</del><br>161.1 | <del>13</del><br><del>10.9</del><br>162.8 | <del>13</del><br><del>10.1</del><br>163.6 | <del>13</del><br><del>10.8</del><br>162.9 | <del>20</del><br><del>11.0</del><br>161.0 | <del>26</del><br><del>11.1</del><br>162.7 | <del>32</del><br><del>9.3</del><br>163.9 | <del>32</del><br><del>3.2</del><br>163.9 |
| <del>31</del><br><del>2.3</del><br>161.4 | <del>20</del><br><del>3.3</del><br>160.0  | <del>20</del><br><del>5.4</del><br>158.5  | <del>15</del><br><del>3.9</del><br>160.0  | <del>15</del><br><del>3.9</del><br>160.9  | <del>12</del><br><del>3.2</del><br>160.2  | <del>18</del><br><del>3.4</del><br>158.5  | <del>24</del><br><del>3.1</del><br>159.8  | <del>31</del><br><del>3.2</del><br>160.7 | <del>31</del><br><del>3.2</del><br>160.7 |
| <del>31</del><br><del>5.0</del><br>158.0 | <del>24</del><br><del>6.3</del><br>157.8  | <del>18</del><br><del>6.3</del><br>157.6  | <del>15</del><br><del>6.3</del><br>157.7  | <del>15</del><br><del>6.1</del><br>157.9  | <del>15</del><br><del>6.1</del><br>156.8  | <del>26</del><br><del>6.1</del><br>157.9  | <del>31</del><br><del>5.3</del><br>158.1  | <del>31</del><br><del>5.3</del><br>158.1 | <del>31</del><br><del>5.3</del><br>158.1 |
| <del>32</del><br><del>8.2</del><br>155.7 | <del>24</del><br><del>8.2</del><br>156.0  | <del>18</del><br><del>8.2</del><br>155.8  | <del>15</del><br><del>8.2</del><br>156.3  | <del>15</del><br><del>8.2</del><br>157.0  | <del>21</del><br><del>8.3</del><br>156.1  | <del>27</del><br><del>8.5</del><br>155.2  | <del>32</del><br><del>8.5</del><br>155.4  | <del>32</del><br><del>8.5</del><br>155.3 | <del>32</del><br><del>8.5</del><br>155.3 |



0.86 193.40

315

314

313

10.59 194.26 1.93 188.67 187.53  
185.60

Bill in pole Waidetap of hill

|                                 |                                 |                                  |                                 |       |                                 |                                 |                                 |                                 |
|---------------------------------|---------------------------------|----------------------------------|---------------------------------|-------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| <del>30</del><br><del>31</del>  | <del>27</del><br><del>4.2</del> | <del>21</del><br><del>5.2</del>  | <del>12</del><br><del>3.8</del> | 3.2   | <del>12</del><br><del>4.3</del> | <del>15</del><br><del>4.3</del> | <del>23</del><br><del>4.2</del> | <del>28</del><br><del>3.8</del> |
| 191.1                           | 190.0                           | 188.4                            | 190.4                           | 191.0 | 189.9                           | 189.9                           | 189.9                           | 190.4                           |
| <del>29</del><br><del>4.8</del> | <del>26</del><br><del>5.2</del> | <del>19</del><br><del>7.5</del>  | <del>12</del><br><del>5.5</del> | 4.8   | <del>12</del><br><del>5.9</del> | <del>16</del><br><del>7.2</del> | <del>23</del><br><del>6.2</del> | <del>29</del><br><del>4.9</del> |
| 189.9                           | 189.0                           | 186.7                            | 188.7                           | 189.4 | 188.3                           | 186.8                           | 186.0                           | 189.3                           |
| <del>30</del><br><del>6.8</del> | <del>26</del><br><del>7.2</del> | <del>19</del><br><del>10.1</del> | <del>12</del><br><del>8.0</del> | 7.7   | <del>13</del><br><del>8.9</del> | <del>17</del><br><del>9.9</del> | <del>22</del><br><del>7.9</del> | <del>29</del><br><del>7.3</del> |
| 187.8                           | 187.0                           | 184.1                            | 186.2                           | 186.5 | 185.8                           | 184.3                           | 185.3                           | 186.9                           |















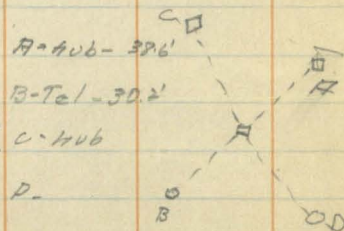




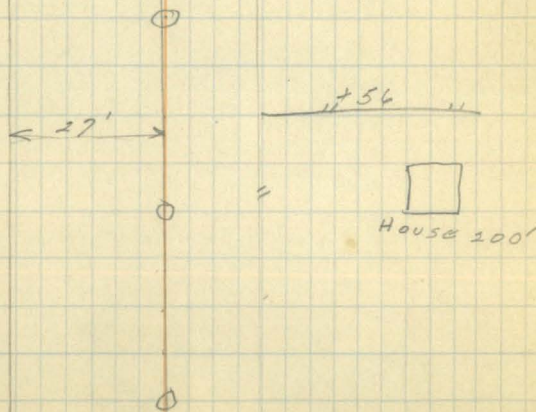
2 13

2 12

+49.6 P.I. 40°12' R. C. Hub



2 11

























|        |        |
|--------|--------|
| #25    | 205.27 |
| #24    | 193.76 |
| #23    | 178.69 |
| #22    | 175.57 |
| #21    | 155.12 |
| #20    | 158.79 |
| #19    | 170.97 |
| #18    | 155.00 |
| #17    | 174.72 |
| #16    | 189.59 |
| #15    | 217.36 |
| BM #14 | 195.16 |
| BM #13 | 192.41 |
| BM #12 | 207.96 |
| BM #11 | 205.60 |
| BM #10 | 214.63 |
| BM #9  | 233.16 |
| BM #8  | 193.27 |
| BM #7  | 177.22 |
| BM #6  | 169.19 |
| BM #5  | 166.61 |
| BM #4  | 154.47 |
| BM #3  | 154.84 |
| BM #2  | 176.82 |
| BM #1  | 195.00 |

|                                                  |                                                        |
|--------------------------------------------------|--------------------------------------------------------|
| 363+57                                           | NE cor Corner Foundation of School                     |
| 354+23                                           | 4 E. Wing                                              |
| 348+30                                           | 4 E. Wing                                              |
| 327                                              | 4 E. Wing                                              |
| 302+60                                           | 4 E. Wing                                              |
| 290+90                                           | 4 E. Wing                                              |
| 276+05                                           | On 4 N. Headrail                                       |
| 246+70                                           | On Corner Wheel Guard at C. of Brg. E. side at Upright |
| 215+53                                           | Root Cottonwood L. stump                               |
| 202+20                                           | S. Maple SE cor                                        |
| 193+08                                           | On S.E. cor Carriage Block                             |
| 186+79                                           | Cottonwood Left. Side of three                         |
| 167+42                                           | On S. end E. Headwall                                  |
| 149+53                                           | On Root Soft Maple S.E. cor                            |
| 139+57                                           | On Cottonwood L.                                       |
| 124                                              | Nail in Pole L.                                        |
| 118+96                                           | Drive R.                                               |
| 97+18                                            | S. end N. Headwall                                     |
| 82                                               | 4 E. Headwall                                          |
| 71                                               | 4 E. Headwall                                          |
| 57+69                                            | 4 E. Headwall                                          |
| 45+01                                            | N. End E. Handrail                                     |
| 42+75                                            | 4 E. Headwall                                          |
| 8+50-9+36                                        |                                                        |
| On Root Soft Maple SE. cor X Road's Wilco Limits |                                                        |

Note Sta 308+16 = Sta  
0+00 on Wilco Eagle Center  
Project thru Eagle Twp



|    |     |       |     |        |
|----|-----|-------|-----|--------|
|    | 2.5 | 104.1 | 1.6 | 101.6  |
| BM | 3.2 | 103.2 |     | 100.00 |

|        |        |
|--------|--------|
| #35    | 217.57 |
| #34    | 204.37 |
| #33    | 216.32 |
| #32    | 200.14 |
| #31    | 181.23 |
| #30    | 173.13 |
| #29    | 149.17 |
| #28    | 185.12 |
| #27    | 160.69 |
| BM #26 | 144.54 |

|        |                                         |
|--------|-----------------------------------------|
| 626+45 | Cottonwood R.                           |
| 589+86 | Pale L.                                 |
| 583+47 | On SE. cor Foundation of House          |
| 577+23 | Q E. Wing                               |
| 552    | Q E. end Culvert                        |
| 538+87 | Root S. Maple str R.                    |
| 528+70 | Q E. Headwall = Sta 220+07.3 Eagle Trup |
| 487+42 | Q E. Wing                               |
| 436+76 | Q E. Wing                               |
| 415+37 | On Q. N. Wing Conc. Culv.               |

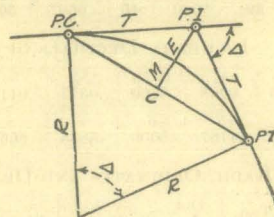
538 87  
 308 11  
 71  
 730  
 528+70  
 48 7 42  
 41+28  
 220  
 41  
 179

59



$$\begin{array}{r}
 152.4 \\
 3.11 \\
 \hline
 155.51 \\
 11.0 \\
 \hline
 166.51 \\
 60.59 \\
 \hline
 227.10 \\
 14.8 \\
 \hline
 241.90 \\
 17.53 \\
 \hline
 259.43 \\
 6.46 \\
 \hline
 265.89 \\
 12.01 \\
 \hline
 277.90 \\
 2.18 \\
 \hline
 280.08 \\
 1.11 \\
 \hline
 281.19 \\
 3.81 \\
 \hline
 285.00 \\
 5.16 \\
 \hline
 290.16 \\
 6.61 \\
 \hline
 296.77 \\
 6.22 \\
 \hline
 302.99
 \end{array}$$

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Radius= $R = \frac{50}{\sin. D/2}$  (1) Degree of Curve= $D$  and  $\sin. \frac{D}{2} = \frac{50}{R}$  (2)

$$\text{Tangent} = T = R \tan \frac{\Delta}{2} \quad (3) \quad \text{Length of Curve} = L = 100 \frac{\Delta}{B} \quad (4)$$

$$\text{Middle ordinate} = M = R(1 - \cos. \frac{\Delta}{2}) \quad (5) = R \text{vers } \frac{\Delta}{2} \quad (6)$$

$$\text{External} = E = T \tan \frac{\Delta}{4} \quad (7) = R \div \cos \frac{\Delta}{2} - R \quad (8) = R \sec \frac{\Delta}{2} \quad (9)$$

Long Chord =  $C = 2 R \sin. \frac{\Delta}{2}$  (10)  $\Delta$  = Central Angle

## EXPLANATION AND USE OF TABLES

**Stations.**—Given P. I.=Sta. 161+60.35 to find Sta. of P. C. and P. T.  $\Delta=62^{\circ} 10'$   $D=8^{\circ} 20'$ . From Table IV for  $1^{\circ}$  curve  $T=3454.1$  and  $+8\frac{1}{8}=414.49$  ft. From Table V correction=.36 or  $T=414.85$  ft. P. C.=Sta. P. I.— $T=157+45.50$ . Also from (4)  $L=746.00$  and P. T.=Sta. P. C.+ $L=164+91.50$ .

**Offsets.**—Tangent offsets vary (approximately) directly with D and with square of the distance. Thus tangent offset for Sta. 158 on above curve is 2.16 ft. found as follows. From Table III tangent offset for 100 ft.=7.27 ft. Distance=158—Sta. P. C.=54.50, hence offset=7.27  $(54.50 \div 100)^2$ =2.16 ft. Also square of any distance divided by twice the radius equals (approximately) the distance from tangent to curve. Thus  $(54.50)^2 \div (2 \times 688.26)$ =2.16 ft.

**Deflections.**—Deflection angle= $\frac{1}{2}$  D for 100 ft.,  $\frac{1}{4}$  D for 50 ft., etc. For c ft.=(in minutes)  $.3 \times C \times D^{\circ}$  or=defl. for 1 ft. from Table III  $\times C$ . For Sta. 158 of above curve= $.3 \times 54.5 \times 8\frac{1}{2}$ =136.2' or  $2^{\circ} 16.2'$ , or=2.50  $\times 54.5$ =136.2' from Table III. For Sta. 159 deflection angle= $2^{\circ} 16.2' + 8^{\circ} 20' \div 2$ = $6^{\circ} 26.2'$ , etc.

**Externals.**—May be found in similar manner to tangents. Thus E for curve above is 115.37 For from Table IV for 1° curve E=960.6 for 8° 20'=960.6 ÷ 8½=115.37 and from Table V correction=.10 or E=115.37 Or suppose Δ=32° and E is measured and found to be 42 ft. What is D? From Table IV E=230.9 and ÷ 42=5.5 or D=5° 30'.



TABLE I.—MINUTES IN DECIMALS OF A DEGREE.

|    |       |     |       |     |       |     |       |     |       |     |        |
|----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|--------|
| 1' | .0167 | 11' | .1833 | 21' | .3500 | 31' | .5167 | 41' | .6833 | 51' | .8500  |
| 2  | .0333 | 12  | .2000 | 22  | .3667 | 32  | .5333 | 42  | .7000 | 52  | .8667  |
| 3  | .0500 | 13  | .2167 | 23  | .3833 | 33  | .5500 | 43  | .7167 | 53  | .8833  |
| 4  | .0667 | 14  | .2333 | 24  | .4000 | 34  | .5667 | 44  | .7333 | 54  | .9000  |
| 5  | .0833 | 15  | .2500 | 25  | .4167 | 35  | .5833 | 45  | .7500 | 55  | .9167  |
| 6  | .1000 | 16  | .2667 | 26  | .4333 | 36  | .6000 | 46  | .7667 | 56  | .9333  |
| 7  | .1167 | 17  | .2833 | 27  | .4500 | 37  | .6167 | 47  | .7833 | 57  | .9500  |
| 8  | .1333 | 18  | .3000 | 28  | .4667 | 38  | .6333 | 48  | .8000 | 58  | .9667  |
| 9  | .1500 | 19  | .3167 | 29  | .4833 | 39  | .6500 | 49  | .8167 | 59  | .9833  |
| 10 | .1667 | 20  | .3333 | 30  | .5000 | 40  | .6667 | 50  | .8333 | 60  | 1.0000 |

TABLE II.—INCHES IN DECIMALS OF A FOOT.

|       |       |       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1-16  | 3-32  | 1/4   | 3-16  | 1/2   | 5-16  | 3/8   | 1/2   | 5/8   | 3/4   | 7/8   |
| .0052 | .0078 | .0104 | .0156 | .0208 | .0260 | .0313 | .0417 | .0521 | .0625 | .0729 |
| 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    |
| .0833 | .1667 | .2500 | .3333 | .4167 | .5000 | .5833 | .6667 | .7500 | .8333 | .9167 |

TABLE III.—RADI, ORDINATES AND DEFLECTIONS.

| Deg.   | Radius  | Mid. Ord. | Tan. Offset | Def. for 1 Foot | Deg. | Radius | Mid. Ord. | Tan. Offset | Def. for 1 Foot |
|--------|---------|-----------|-------------|-----------------|------|--------|-----------|-------------|-----------------|
| 0° 10' | 34377.5 | .036      | .145        | 0.05'           | 7°   | 819.02 | 1.528     | 6.105       | 2.10'           |
| 20     | 17188.8 | .073      | .291        | 0.10            | 20'  | 781.84 | 1.600     | 6.395       | 2.20            |
| 30     | 11459.2 | .109      | .436        | 0.15            | 30   | 764.49 | 1.637     | 6.547       | 2.25            |
| 40     | 8594.42 | .145      | .582        | 0.20            | 40   | 747.89 | 1.673     | 6.685       | 2.30            |
| 50     | 6875.55 | .182      | .727        | 0.25            |      |        |           |             |                 |
| 1      | 5729.65 | .218      | .873        | 0.30            | 8    | 716.78 | 1.746     | 6.976       | 2.40            |
| 10     | 4911.15 | .255      | 1.018       | 0.35            | 20   | 688.16 | 1.819     | 7.266       | 2.50            |
| 20     | 4297.28 | .291      | 1.164       | 0.40            | 30   | 674.69 | 1.855     | 7.411       | 2.55            |
| 30     | 3819.83 | .327      | 1.309       | 0.45            | 40   | 661.74 | 1.892     | 7.556       | 2.60            |
| 40     | 3437.87 | .364      | 1.454       | 0.50            | 9    | 637.28 | 1.965     | 7.846       | 2.70            |
| 50     | 3125.36 | .400      | 1.600       | 0.55            | 20   | 614.56 | 2.037     | 8.136       | 2.80            |
|        |         |           |             |                 | 30   | 603.80 | 2.074     | 8.281       | 2.85            |
| 2      | 2864.93 | .436      | 1.745       | 0.60            | 40   | 593.42 | 2.110     | 8.426       | 2.90            |
| 10     | 2644.58 | .473      | 1.891       | 0.65            |      |        |           |             |                 |
| 20     | 2455.70 | .509      | 2.036       | 0.70            | 10   | 573.69 | 2.183     | 8.716       | 3.00            |
| 30     | 2292.01 | .545      | 2.181       | 0.75            | 30   | 546.44 | 2.292     | 9.150       | 3.15            |
| 40     | 2148.79 | .582      | 2.327       | 0.80            | 11   | 521.67 | 2.402     | 9.585       | 3.30            |
| 50     | 2022.41 | .618      | 2.472       | 0.85            | 30   | 499.06 | 2.511     | 10.02       | 3.45            |
| 3      | 1910.08 | .655      | 2.618       | 0.90            | 12   | 478.34 | 2.620     | 10.45       | 3.60            |
| 10     | 1809.57 | .691      | 2.763       | 0.95            | 30   | 459.28 | 2.730     | 10.89       | 3.75            |
| 20     | 1719.12 | .727      | 2.908       | 1.00            | 13   | 441.68 | 2.839     | 11.32       | 3.90            |
| 30     | 1637.28 | .764      | 3.054       | 1.05            | 30   | 425.40 | 2.949     | 11.75       | 4.05            |
| 40     | 1562.88 | .800      | 3.199       | 1.10            | 14   | 410.28 | 3.058     | 12.18       | 4.20            |
| 50     | 1494.95 | .836      | 3.345       | 1.15            | 30   | 396.20 | 3.168     | 12.62       | 4.35            |
| 4      | 1432.69 | .873      | 3.490       | 1.20            | 15   | 383.07 | 3.277     | 13.05       | 4.50            |
| 10     | 1375.40 | .909      | 3.635       | 1.25            | 30   | 370.78 | 3.387     | 13.49       | 4.65            |
| 20     | 1322.53 | .945      | 3.718       | 1.30            | 16   | 359.27 | 3.496     | 13.92       | 4.80            |
| 30     | 1273.57 | .982      | 3.926       | 1.35            | 30   | 348.45 | 3.606     | 14.35       | 4.95            |
| 40     | 1228.11 | 1.018     | 4.071       | 1.40            | 17   | 338.27 | 3.716     | 14.78       | 5.10            |
| 50     | 1185.78 | 1.055     | 4.217       | 1.45            | 18   | 319.62 | 3.935     | 15.64       | 5.40            |
|        |         |           |             |                 | 19   | 302.94 | 4.155     | 16.51       | 5.70            |
| 5      | 1146.28 | 1.091     | 4.362       | 1.50            | 20   | 287.94 | 4.374     | 17.37       | 6.00            |
| 10     | 1109.33 | 1.127     | 4.507       | 1.55            | 21   | 274.37 | 4.594     | 18.22       | 6.30            |
| 20     | 1074.68 | 1.164     | 4.653       | 1.60            | 22   | 262.04 | 4.814     | 19.08       | 6.60            |
| 30     | 1042.14 | 1.200     | 4.798       | 1.65            | 23   | 250.79 | 5.035     | 19.94       | 6.90            |
| 40     | 1011.51 | 1.237     | 4.943       | 1.70            | 24   | 240.49 | 5.255     | 20.79       | 7.20            |
| 50     | 982.64  | 1.273     | 5.088       | 1.75            |      |        |           |             |                 |
| 6      | 955.37  | 1.309     | 5.234       | 1.80            | 25   | 231.01 | 5.476     | 21.64       | 7.50            |
| 10     | 929.57  | 1.346     | 5.379       | 1.85            | 26   | 222.27 | 5.697     | 22.50       | 7.80            |
| 20     | 905.13  | 1.382     | 5.524       | 1.90            | 27   | 214.18 | 5.918     | 23.35       | 8.10            |
| 30     | 881.95  | 1.418     | 5.669       | 1.95            | 28   | 206.68 | 6.139     | 24.19       | 8.40            |
| 40     | 859.92  | 1.455     | 5.814       | 2.00            | 29   | 199.70 | 6.360     | 25.04       | 8.70            |
|        |         |           |             |                 | 30   | 193.18 | 6.583     | 25.88       | 9.00            |

Note. Chord Deflection=2 times tangent deflection.

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

| Central Angle | Tangent | External | Central Angle | Tangent | External | Central Angle | Tangent | External |
|---------------|---------|----------|---------------|---------|----------|---------------|---------|----------|
| 1°            | 50.00   | .22      | 11°           | 551.70  | 26.50    | 21°           | 1061.9  | 97.57    |
| 10'           | 58.34   | .30      | 10'           | 560.11  | 27.31    | 10'           | 1070.6  | 99.16    |
| 20            | 66.67   | .39      | 20            | 568.53  | 28.14    | 20            | 1079.2  | 100.75   |
| 30            | 75.01   | .49      | 30            | 576.95  | 28.97    | 30            | 1087.8  | 102.35   |
| 40            | 83.34   | .61      | 40            | 585.36  | 29.82    | 40            | 1096.4  | 103.97   |
| 50            | 91.68   | .73      | 50            | 593.79  | 30.68    | 50            | 1105.1  | 105.60   |
| 2             | 100.01  | .87      | 12            | 602.21  | 31.56    | 22            | 1113.7  | 107.24   |
| 10            | 108.35  | 1.02     | 10            | 610.64  | 32.45    | 10            | 1122.4  | 108.90   |
| 20            | 116.68  | 1.19     | 20            | 619.07  | 33.35    | 20            | 1131.0  | 110.57   |
| 30            | 125.02  | 1.36     | 30            | 627.50  | 34.26    | 30            | 1139.7  | 112.25   |
| 40            | 133.36  | 1.55     | 40            | 635.93  | 35.18    | 40            | 1148.4  | 113.95   |
| 50            | 141.70  | 1.75     | 50            | 644.37  | 36.12    | 50            | 1157.0  | 115.66   |
| 3             | 150.04  | 1.96     | 13            | 652.81  | 37.07    | 23            | 1165.7  | 117.38   |
| 10            | 158.38  | 2.19     | 10            | 661.25  | 38.08    | 10            | 1174.4  | 119.12   |
| 20            | 166.72  | 2.43     | 20            | 669.70  | 39.01    | 20            | 1183.1  | 120.87   |
| 30            | 175.06  | 2.67     | 30            | 678.15  | 39.99    | 30            | 1191.8  | 122.63   |
| 40            | 183.40  | 2.93     | 40            | 686.60  | 40.99    | 40            | 1200.5  | 124.41   |
| 50            | 191.74  | 3.21     | 50            | 695.06  | 42.00    | 50            | 1209.2  | 126.20   |
| 4             | 200.08  | 3.49     | 14            | 703.51  | 43.03    | 24            | 1217.9  | 128.00   |
| 10            | 208.43  | 3.79     | 10            | 711.97  | 44.07    | 10            | 1226.6  | 129.82   |
| 20            | 216.77  | 4.10     | 20            | 720.44  | 45.12    | 20            | 1235.3  | 131.65   |
| 30            | 225.12  | 4.42     | 30            | 728.90  | 46.18    | 30            | 1244.0  | 133.50   |
| 40            | 233.47  | 4.76     | 40            | 737.37  | 47.25    | 40            | 1252.8  | 135.35   |
| 50            | 241.81  | 5.10     | 50            | 745.85  | 48.34    | 50            | 1261.5  | 137.23   |
| 5             | 250.16  | 5.46     | 15            | 754.32  | 49.44    | 25            | 1270.2  | 139.11   |
| 10            | 258.51  | 5.88     | 10            | 762.80  | 50.55    | 10            | 1279.0  | 141.01   |
| 20            | 266.86  | 6.21     | 20            | 771.29  | 51.68    | 20            | 1287.7  | 142.93   |
| 30            | 275.21  | 6.61     | 30            | 779.77  | 52.89    | 30            | 1296.5  | 144.85   |
| 40            | 283.57  | 7.01     | 40            | 788.26  | 53.97    | 40            | 1305.3  | 146.79   |
| 50            | 291.92  | 7.43     | 50            | 796.75  | 55.13    | 50            | 1314.0  | 148.75   |
| 6             | 300.28  | 7.86     | 16            | 805.25  | 56.31    | 26            | 1322.8  | 150.71   |
| 10            | 308.64  | 8.31     | 10            | 813.75  | 57.50    | 10            | 1331.6  | 152.69   |
| 20            | 316.99  | 8.76     | 20            | 822.25  | 58.70    | 20            | 1340.4  | 154.69   |
| 30            | 325.35  | 9.23     | 30            | 830.76  | 59.91    | 30            | 1349.2  | 156.70   |
| 40            | 333.71  | 9.71     | 40            | 839.27  | 61.14    | 40            | 1358.0  | 158.72   |
| 50            | 342.08  | 10.20    | 50            | 847.78  | 62.38    | 50            | 1366.8  | 160.76   |
| 7             | 350.44  | 10.71    | 17            | 856.30  | 63.63    | 27            | 1375.6  | 162.81   |
| 10            | 358.81  | 11.22    | 10            | 864.82  | 64.90    | 10            | 1384.4  | 164.86   |
| 20            | 367.17  | 11.75    | 20            | 873.35  | 66.18    | 20            | 1393.2  | 166.95   |
| 30            | 375.54  | 12.29    | 30            | 881.88  | 67.47    | 30            | 1402.0  | 169.04   |
| 40            | 383.91  | 12.85    | 40            | 890.41  | 68.77    | 40            | 1410.9  | 171.15   |
| 50            | 392.28  | 13.41    | 50            | 898.95  | 70.09    | 50            | 1419.7  | 173.27   |
| 8             | 400.66  | 13.99    | 18            | 907.49  | 71.42    | 28            | 1428.6  | 175.41   |
| 10            | 409.03  | 14.58    | 10            | 916.03  | 72.76    | 10            | 1437.4  | 177.55   |
| 20            | 417.41  | 15.18    | 20            | 924.58  | 74.12    | 20            | 1446.3  | 179.72   |
| 30            | 425.79  | 15.80    | 30            | 933.13  | 75.49    | 30            | 1455.1  | 181.89   |
| 40            | 434.17  | 16.43    | 40            | 941.69  | 76.86    | 40            | 1464.0  | 184.08   |
| 50            | 442.55  | 17.07    | 50            | 950.25  | 78.26    | 50            | 1472.9  | 186.29   |
| 9             | 450.93  | 17.72    | 19            | 958.81  | 79.67    | 29            | 1481.8  | 188.51   |
| 10            | 459.32  | 18.38    | 10            | 967.38  | 81.09    | 10            | 1490.7  | 190.74   |
| 20            | 467.71  | 19.06    | 20            | 975.96  | 82.53    | 20            | 1499.6  | 192.99   |
| 30            | 476.10  | 19.75    | 30            | 984.53  | 83.97    | 30            | 1508.5  | 195.25   |
| 40            | 484.49  | 20.45    | 40            | 993.12  | 85.43    | 40            | 1517.4  | 197.53   |
| 50            | 492.88  | 21.16    | 50            | 1001.7  | 86.90    | 50            | 1526.3  | 199.82   |
| 10            | 501.28  | 21.89    | 20            | 1010.3  | 88.39    | 30            | 1535.3  | 202.12   |
| 10            | 509.68  | 22.62    | 10            | 1018.9  | 89.89    | 10            | 1544.2  | 204.44   |
| 20            | 518.08  | 23.38    | 20            | 1027.5  | 91.40    | 20            | 1553.1  | 206.77   |
| 30            | 526.48  | 24.14    | 30            | 1036.1  | 92.92    | 30            | 1562.1  | 209.12   |
| 40            | 534.89  | 24.91    | 40            | 1044.7  | 94.46    | 40            | 1571.0  | 211.48   |
| 50            | 543.29  | 25.70    | 50            | 1053.3  | 96.01    | 50            | 1580.0  | 213.86   |



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

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

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

| Central Angle | Tangent | External | Central Angle | Tangent | External | Central Angle | Tangent | External |
|---------------|---------|----------|---------------|---------|----------|---------------|---------|----------|
| 61°           | 3375.0  | 920.2    | 71°           | 4086.9  | 1308.2   | 81°           | 4893.6  | 1805.3   |
| 10'           | 3386.3  | 925.9    | 10'           | 4099.5  | 1315.6   | 10'           | 4908.0  | 1814.7   |
| 20            | 3397.5  | 931.6    | 20            | 4112.1  | 1322.9   | 20            | 4922.5  | 1824.1   |
| 30            | 3408.8  | 937.3    | 30            | 4124.8  | 1330.3   | 30            | 4937.0  | 1833.6   |
| 40            | 3420.1  | 943.1    | 40            | 4137.4  | 1337.7   | 40            | 4951.5  | 1843.1   |
| 50            | 3431.4  | 948.9    | 50            | 4150.1  | 1345.1   | 50            | 4966.1  | 1852.6   |
| 62°           | 3442.7  | 954.8    | 72°           | 4162.8  | 1352.6   | 82°           | 4980.7  | 1862.2   |
| 10            | 3454.1  | 960.6    | 10            | 4175.6  | 1360.1   | 10            | 4995.4  | 1871.8   |
| 20            | 3465.4  | 966.5    | 20            | 4188.5  | 1367.6   | 20            | 5010.0  | 1881.5   |
| 30            | 3476.8  | 972.4    | 30            | 4201.2  | 1375.2   | 30            | 5024.8  | 1891.2   |
| 40            | 3488.3  | 978.3    | 40            | 4214.0  | 1382.8   | 40            | 5039.5  | 1900.9   |
| 50            | 3499.7  | 984.3    | 50            | 4226.8  | 1390.4   | 50            | 5054.3  | 1910.7   |
| 63°           | 3511.1  | 990.2    | 73°           | 4239.7  | 1398.0   | 83°           | 5069.2  | 1920.5   |
| 10            | 3522.6  | 996.2    | 10            | 4252.6  | 1405.7   | 10            | 5084.0  | 1930.4   |
| 20            | 3534.1  | 1002.3   | 20            | 4265.6  | 1413.5   | 20            | 5099.0  | 1940.3   |
| 30            | 3545.6  | 1008.3   | 30            | 4278.5  | 1421.2   | 30            | 5113.9  | 1950.3   |
| 40            | 3557.2  | 1014.4   | 40            | 4291.5  | 1429.0   | 40            | 5128.9  | 1960.2   |
| 50            | 3568.7  | 1020.5   | 50            | 4304.6  | 1436.8   | 50            | 5143.9  | 1970.3   |
| 64°           | 3580.3  | 1026.6   | 74°           | 4317.6  | 1444.6   | 84°           | 5159.0  | 1980.4   |
| 10            | 3591.9  | 1032.8   | 10            | 4330.7  | 1452.5   | 10            | 5174.1  | 1990.5   |
| 20            | 3603.5  | 1039.0   | 20            | 4343.8  | 1460.4   | 20            | 5189.3  | 2000.6   |
| 30            | 3615.1  | 1045.2   | 30            | 4356.9  | 1468.4   | 30            | 5204.4  | 2010.8   |
| 40            | 3626.8  | 1051.4   | 40            | 4370.1  | 1476.4   | 40            | 5219.7  | 2021.1   |
| 50            | 3638.5  | 1057.7   | 50            | 4383.3  | 1484.4   | 50            | 5234.9  | 2031.4   |
| 65°           | 3650.2  | 1063.9   | 75°           | 4396.5  | 1492.4   | 85°           | 5250.3  | 2041.7   |
| 10            | 3661.9  | 1070.2   | 10            | 4409.8  | 1500.5   | 10            | 5265.6  | 2052.1   |
| 20            | 3673.7  | 1076.6   | 20            | 4423.1  | 1508.6   | 20            | 5281.0  | 2062.5   |
| 30            | 3685.4  | 1082.9   | 30            | 4436.4  | 1516.7   | 30            | 5296.4  | 2073.0   |
| 40            | 3697.2  | 1089.3   | 40            | 4449.7  | 1524.9   | 40            | 5311.9  | 2083.5   |
| 50            | 3709.0  | 1095.7   | 50            | 4463.1  | 1533.1   | 50            | 5327.4  | 2094.1   |
| 66°           | 3720.9  | 1102.2   | 76°           | 4476.5  | 1541.4   | 86°           | 5343.0  | 2104.7   |
| 10            | 3732.7  | 1108.6   | 10            | 4489.9  | 1549.7   | 10            | 5358.6  | 2115.3   |
| 20            | 3744.6  | 1115.1   | 20            | 4503.4  | 1558.0   | 20            | 5374.2  | 2126.0   |
| 30            | 3756.5  | 1121.7   | 30            | 4516.9  | 1566.3   | 30            | 5389.9  | 2136.7   |
| 40            | 3768.5  | 1128.2   | 40            | 4530.4  | 1574.7   | 40            | 5405.6  | 2147.5   |
| 50            | 3780.4  | 1134.8   | 50            | 4544.0  | 1583.1   | 50            | 5421.4  | 2158.4   |
| 67°           | 3792.4  | 1141.4   | 77°           | 4557.6  | 1591.6   | 87°           | 5437.2  | 2169.2   |
| 10            | 3804.4  | 1148.0   | 10            | 4571.2  | 1600.1   | 10            | 5453.1  | 2180.2   |
| 20            | 3816.4  | 1154.7   | 20            | 4584.8  | 1608.6   | 20            | 5469.0  | 2191.1   |
| 30            | 3828.4  | 1161.3   | 30            | 4598.5  | 1617.1   | 30            | 5484.9  | 2202.2   |
| 40            | 3840.5  | 1168.1   | 40            | 4612.2  | 1625.7   | 40            | 5500.9  | 2213.2   |
| 50            | 3852.6  | 1174.8   | 50            | 4626.0  | 1634.4   | 50            | 5517.0  | 2224.3   |
| 68°           | 3864.7  | 1181.6   | 78°           | 4639.8  | 1643.0   | 88°           | 5533.1  | 2235.5   |
| 10            | 3876.8  | 1188.4   | 10            | 4653.6  | 1651.7   | 10            | 5549.2  | 2246.7   |
| 20            | 3889.0  | 1195.2   | 20            | 4667.4  | 1660.5   | 20            | 5565.4  | 2258.0   |
| 30            | 3901.2  | 1202.0   | 30            | 4681.3  | 1669.2   | 30            | 5581.6  | 2269.3   |
| 40            | 3913.4  | 1208.9   | 40            | 4695.2  | 1678.1   | 40            | 5597.8  | 2280.6   |
| 50            | 3925.6  | 1215.8   | 50            | 4709.2  | 1686.9   | 50            | 5614.2  | 2292.0   |
| 69°           | 3937.9  | 1222.7   | 79°           | 4723.2  | 1695.8   | 89°           | 5630.5  | 2303.5   |
| 10            | 3950.2  | 1229.7   | 10            | 4737.2  | 1704.7   | 10            | 5646.9  | 2315.0   |
| 20            | 3962.5  | 1236.7   | 20            | 4751.2  | 1713.7   | 20            | 5663.4  | 2326.6   |
| 30            | 3974.8  | 1243.7   | 30            | 4765.3  | 1722.7   | 30            | 5679.9  | 2338.2   |
| 40            | 3987.2  | 1250.8   | 40            | 4779.4  | 1731.7   | 40            | 5696.4  | 2349.8   |
| 50            | 3999.5  | 1257.9   | 50            | 4793.6  | 1740.8   | 50            | 5713.0  | 2361.5   |
| 70°           | 4011.9  | 1265.0   | 80°           | 4807.7  | 1749.9   | 90°           | 5729.7  | 2373.3   |
| 10            | 4024.4  | 1272.1   | 10            | 4822.0  | 1759.0   | 10            | 5746.3  | 2385.1   |
| 20            | 4036.8  | 1279.3   | 20            | 4836.2  | 1768.2   | 20            | 5763.1  | 2397.0   |
| 30            | 4049.3  | 1286.5   | 30            | 4850.5  | 1777.4   | 30            | 5779.9  | 2408.9   |
| 40            | 4061.8  | 1293.6   | 40            | 4864.8  | 1786.7   | 40            | 5796.7  | 2420.9   |
| 50            | 4074.4  | 1300.9   | 50            | 4879.2  | 1796.0   | 50            | 5813.6  | 2432.9   |



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

| Central Angle | Tangent | External | Central Angle | Tangent | External | Central Angle | Tangent | External |
|---------------|---------|----------|---------------|---------|----------|---------------|---------|----------|
| 91°           | 5830.5  | 2444.9   | 101°          | 6950.6  | 3278.1   | 111°          | 8336.7  | 4386.1   |
| 10'           | 5847.5  | 2457.1   | 10'           | 6971.3  | 3294.1   | 10'           | 8362.7  | 4407.6   |
| 20            | 5864.6  | 2469.3   | 20            | 6992.0  | 3310.1   | 20            | 8388.9  | 4429.2   |
| 30            | 5881.7  | 2481.5   | 30            | 7012.7  | 3326.1   | 30            | 8415.1  | 4450.9   |
| 40            | 5898.8  | 2493.8   | 40            | 7033.6  | 3342.3   | 40            | 8441.5  | 4472.7   |
| 50            | 5916.0  | 2506.1   | 50            | 7054.5  | 3358.5   | 50            | 8468.0  | 4494.6   |
| 92            | 5933.2  | 2518.5   | 102           | 7075.5  | 3374.9   | 112           | 8494.6  | 4516.6   |
| 10            | 5950.5  | 2531.0   | 10            | 7096.6  | 3391.2   | 10            | 8521.3  | 4538.8   |
| 20            | 5967.9  | 2543.5   | 20            | 7117.8  | 3407.7   | 20            | 8548.1  | 4561.1   |
| 30            | 5985.3  | 2556.0   | 30            | 7139.0  | 3424.3   | 30            | 8575.0  | 4583.4   |
| 40            | 6002.7  | 2568.6   | 40            | 7160.3  | 3440.9   | 40            | 8602.1  | 4606.0   |
| 50            | 6020.2  | 2581.3   | 50            | 7181.7  | 3457.6   | 50            | 8629.3  | 4628.6   |
| 93            | 6037.8  | 2594.0   | 103           | 7203.2  | 3474.4   | 113           | 8656.6  | 4651.3   |
| 10            | 6055.4  | 2606.8   | 10            | 7224.7  | 3491.3   | 10            | 8684.0  | 4674.2   |
| 20            | 6073.1  | 2619.7   | 20            | 7246.3  | 3508.2   | 20            | 8711.5  | 4697.2   |
| 30            | 6090.8  | 2632.6   | 30            | 7268.0  | 3525.2   | 30            | 8739.2  | 4720.3   |
| 40            | 6108.6  | 2645.5   | 40            | 7289.8  | 3542.4   | 40            | 8767.0  | 4743.6   |
| 50            | 6126.4  | 2658.5   | 50            | 7311.7  | 3559.6   | 50            | 8794.9  | 4766.9   |
| 94            | 6144.3  | 2671.6   | 104           | 7333.6  | 3576.8   | 114           | 8822.9  | 4790.4   |
| 10            | 6162.6  | 2684.7   | 10            | 7355.6  | 3594.2   | 10            | 8851.0  | 4814.1   |
| 20            | 6180.2  | 2697.9   | 20            | 7377.8  | 3611.7   | 20            | 8879.3  | 4837.8   |
| 30            | 6198.3  | 2711.2   | 30            | 7399.9  | 3629.2   | 30            | 8907.7  | 4861.7   |
| 40            | 6216.4  | 2724.5   | 40            | 7422.2  | 3646.8   | 40            | 8936.3  | 4885.7   |
| 50            | 6234.6  | 2737.9   | 50            | 7444.6  | 3664.5   | 50            | 8965.0  | 4909.9   |
| 95            | 6252.8  | 2751.3   | 105           | 7467.0  | 3682.3   | 115           | 8993.8  | 4934.1   |
| 10            | 6271.1  | 2764.8   | 10            | 7489.6  | 3700.2   | 10            | 9022.7  | 4958.6   |
| 20            | 6289.4  | 2778.3   | 20            | 7512.2  | 3718.2   | 20            | 9051.7  | 4983.1   |
| 30            | 6307.9  | 2792.0   | 30            | 7534.9  | 3736.2   | 30            | 9080.9  | 5007.8   |
| 40            | 6326.3  | 2805.6   | 40            | 7557.7  | 3754.4   | 40            | 9110.3  | 5032.6   |
| 50            | 6344.8  | 2819.4   | 50            | 7580.5  | 3772.6   | 50            | 9139.8  | 5057.6   |
| 96            | 6363.4  | 2833.2   | 106           | 7603.5  | 3791.0   | 116           | 9169.4  | 5082.7   |
| 10            | 6382.1  | 2847.0   | 10            | 7626.6  | 3809.4   | 10            | 9199.1  | 5107.9   |
| 20            | 6400.8  | 2861.0   | 20            | 7649.7  | 3827.9   | 20            | 9229.0  | 5133.3   |
| 30            | 6419.5  | 2875.0   | 30            | 7672.9  | 3846.5   | 30            | 9259.0  | 5158.8   |
| 40            | 6438.4  | 2889.0   | 40            | 7696.3  | 3865.2   | 40            | 9289.2  | 5184.5   |
| 50            | 6457.3  | 2903.1   | 50            | 7719.7  | 3884.0   | 50            | 9319.5  | 5210.3   |
| 97            | 6476.2  | 2917.3   | 107           | 7743.2  | 3902.9   | 117           | 9349.9  | 5236.2   |
| 10            | 6495.2  | 2931.6   | 10            | 7766.8  | 3921.9   | 10            | 9380.5  | 5262.3   |
| 20            | 6514.3  | 2945.9   | 20            | 7790.5  | 3940.9   | 20            | 9411.3  | 5288.6   |
| 30            | 6533.4  | 2960.3   | 30            | 7814.3  | 3960.1   | 30            | 9442.2  | 5315.0   |
| 40            | 6552.6  | 2974.7   | 40            | 7838.1  | 3979.4   | 40            | 9473.2  | 5341.5   |
| 50            | 6571.9  | 2989.2   | 50            | 7862.1  | 3998.7   | 50            | 9504.4  | 5368.2   |
| 98            | 6591.2  | 3003.8   | 108           | 7886.2  | 4018.2   | 118           | 9535.7  | 5395.1   |
| 10            | 6610.6  | 3018.4   | 10            | 7910.4  | 4037.8   | 10            | 9567.2  | 5422.1   |
| 20            | 6630.1  | 3033.1   | 20            | 7934.6  | 4057.4   | 20            | 9598.9  | 5449.2   |
| 30            | 6649.6  | 3047.9   | 30            | 7959.0  | 4077.2   | 30            | 9630.7  | 5476.5   |
| 40            | 6669.2  | 3062.8   | 40            | 7983.5  | 4097.1   | 40            | 9662.6  | 5504.0   |
| 50            | 6688.8  | 3077.7   | 50            | 8008.0  | 4117.0   | 50            | 9694.7  | 5531.7   |
| 99            | 6708.6  | 3092.7   | 109           | 8032.7  | 4137.1   | 119           | 9727.0  | 5559.4   |
| 10            | 6728.4  | 3107.7   | 10            | 8057.4  | 4157.3   | 10            | 9759.4  | 5587.4   |
| 20            | 6748.2  | 3122.9   | 20            | 8082.3  | 4177.5   | 20            | 9792.0  | 5615.5   |
| 30            | 6768.1  | 3138.1   | 30            | 8107.3  | 4197.9   | 30            | 9824.8  | 5643.8   |
| 40            | 6788.1  | 3153.3   | 40            | 8132.3  | 4218.4   | 40            | 9857.7  | 5672.3   |
| 50            | 6808.2  | 3168.7   | 50            | 8157.5  | 4239.0   | 50            | 9890.8  | 5700.9   |
| 100           | 6828.3  | 3184.1   | 110           | 8182.8  | 4259.7   | 120           | 9924.0  | 5729.7   |
| 10            | 6848.5  | 3199.6   | 10            | 8208.2  | 4280.5   | 10            | 9957.5  | 5758.6   |
| 20            | 6868.8  | 3215.1   | 20            | 8233.7  | 4301.4   | 20            | 9991.0  | 5787.7   |
| 30            | 6889.2  | 3230.8   | 30            | 8259.3  | 4322.4   | 30            | 10025.0 | 5817.0   |
| 40            | 6909.6  | 3246.5   | 40            | 8285.0  | 4343.6   | 40            | 10059.0 | 5846.5   |
| 50            | 6930.1  | 3262.3   | 50            | 8310.8  | 4364.8   | 50            | 10093.0 | 5876.1   |

TABLE V.—CORRECTIONS FOR TANGENTS AND EXTERNALS.

These corrections are to be added to the approximate values, found by dividing the tangent, or external, for a 1° curve (Table IV) by the degree of curve, in order to obtain the true tangents, or externals. Intermediate values may be obtained by interpolation.

## FOR TANGENTS ADD

| Central Angle | DEGREE OF CURVE |      |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
|               | 5°              | 10°  | 15°  | 20°  | 25°  | 30°  | 35°  | 40°  | 45°  | 50°  | 55°  | 60°  | 65°  | 70°  |
| 10°           | .03             | .06  | .09  | .13  | .16  | .19  | .22  | .25  | .28  | .31  | .34  | .38  | .42  | .46  |
| 15°           | .04             | .10  | .14  | .19  | .24  | .29  | .34  | .39  | .45  | .51  | .58  | .65  | .73  | .81  |
| 20°           | .06             | .13  | .19  | .26  | .32  | .39  | .45  | .51  | .58  | .65  | .73  | .81  | .89  | .97  |
| 25°           | .08             | .16  | .24  | .33  | .40  | .49  | .58  | .67  | .75  | .83  | .90  | .99  | 1.06 | 1.14 |
| 30°           | .10             | .19  | .29  | .39  | .49  | .59  | .69  | .79  | .89  | .99  | 1.09 | 1.20 | 1.29 | 1.39 |
| 35°           | .11             | .22  | .34  | .47  | .58  | .69  | .81  | .92  | 1.04 | 1.20 | 1.42 | 1.54 | 1.66 | 1.78 |
| 40°           | .13             | .26  | .40  | .53  | .67  | .80  | .93  | 1.06 | 1.20 | 1.34 | 1.49 | 1.64 | 1.79 | 1.94 |
| 45°           | .15             | .30  | .44  | .60  | .76  | .91  | 1.06 | 1.21 | 1.37 | 1.52 | 1.70 | 1.87 | 2.04 | 2.21 |
| 50°           | .17             | .34  | .51  | .68  | .85  | 1.02 | 1.19 | 1.36 | 1.54 | 1.72 | 1.91 | 2.10 | 2.29 | 2.48 |
| 55°           | .19             | .38  | .57  | .76  | .95  | 1.14 | 1.32 | 1.52 | 1.72 | 1.92 | 2.14 | 2.35 | 2.56 | 2.77 |
| 60°           | .21             | .42  | .63  | .84  | 1.05 | 1.27 | 1.49 | 1.71 | 1.94 | 2.17 | 2.38 | 2.60 | 2.83 | 3.07 |
| 65°           | .23             | .46  | .69  | .93  | 1.16 | 1.40 | 1.64 | 1.88 | 2.13 | 2.38 | 2.63 | 2.88 | 3.13 | 3.39 |
| 70°           | .25             | .51  | .76  | 1.02 | 1.28 | 1.54 | 1.80 | 2.06 | 2.33 | 2.60 | 2.88 | 3.16 | 3.44 | 3.72 |
| 75°           | .27             | .56  | .83  | 1.12 | 1.40 | 1.69 | 1.98 | 2.27 | 2.57 | 2.87 | 3.16 | 3.47 | 3.78 | 4.09 |
| 80°           | .30             | .61  | .91  | 1.22 | 1.53 | 1.84 | 2.15 | 2.46 | 2.78 | 3.10 | 3.44 | 3.78 | 4.12 | 4.46 |
| 85°           | .33             | .66  | 1.00 | 1.33 | 1.68 | 2.02 | 2.36 | 2.70 | 3.05 | 3.40 | 3.77 | 4.14 | 4.55 | 4.89 |
| 90°           | .36             | .72  | 1.09 | 1.45 | 1.83 | 2.20 | 2.57 | 2.94 | 3.32 | 3.70 | 4.10 | 4.50 | 4.91 | 5.32 |
| 95°           | .39             | .79  | 1.19 | 1.55 | 2.00 | 2.40 | 2.80 | 3.20 | 3.61 | 4.02 | 4.40 | 4.98 | 5.38 | 5.83 |
| 100°          | .43             | .86  | 1.30 | 1.74 | 2.18 | 2.62 | 3.06 | 3.50 | 3.95 | 4.40 | 4.88 | 5.37 | 5.85 | 6.34 |
| 110°          | .51             | 1.03 | 1.56 | 2.08 | 2.61 | 3.14 | 3.67 | 4.21 | 4.76 | 5.31 | 5.86 | 6.43 | 7.01 | 7.60 |
| 120°          | .62             | 1.25 | 1.93 | 2.52 | 3.16 | 3.81 | 4.45 | 5.11 | 5.77 | 6.44 | 7.12 | 7.80 | 8.50 | 9.22 |

## FOR EXTERNALS ADD

| Central Angle | DEGREE OF CURVE |      |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
|               | 5°              | 10°  | 15°  | 20°  | 25°  | 30°  | 35°  | 40°  | 45°  | 50°  | 55°  | 60°  | 65°  | 70°  |
| 10°           | .001            | .003 | .004 | .006 | .007 | .008 | .009 | .011 | .012 | .014 | .015 | .017 | .018 | .020 |
| 15°           | .003            | .007 | .010 | .014 | .018 | .023 | .027 | .032 | .036 | .039 | .043 | .047 | .051 | .055 |
| 20°           | .006            | .011 | .017 | .022 | .028 | .034 | .038 | .045 | .051 | .057 | .063 | .070 | .076 | .083 |
| 25°           | .009            | .018 | .027 | .036 | .046 | .056 | .065 | .074 | .083 | .093 | .106 | .120 | .127 | .135 |
| 30°           | .013            | .025 | .038 | .051 | .065 | .078 | .090 | .103 | .116 | .129 | .149 | .170 | .179 | .188 |
| 35°           | .018            | .035 | .054 | .072 | .086 | .109 | .131 | .153 | .175 | .197 | .213 | .230 | .247 | .264 |
| 40°           | .023            | .046 | .070 | .093 | .117 | .141 | .172 | .203 | .234 | .265 | .277 | .299 | .315 | .341 |
| 45°           | .030            | .060 | .093 | .119 | .153 | .184 | .216 | .254 | .289 | .325 | .351 | .378 | .411 | .445 |
| 50°           | .037            | .075 | .116 | .151 | .189 | .227 | .266 | .305 | .345 | .384 | .425 | .467 | .508 | .550 |
| 55°           | .046            | .093 | .142 | .188 | .236 | .283 | .332 | .381 | .420 | .479 | .530 | .582 | .641 | .700 |
| 60°           | .056            | .112 | .168 | .225 | .283 | .340 | .398 | .457 | .516 | .575 | .636 | .697 | .774 | .851 |
| 65°           | .067            | .135 | .204 | .273 | .343 | .412 | .483 | .554 | .625 | .697 | .771 | .845 | .922 | 1.01 |
| 70°           | .080            | .159 | .240 | .321 | .403 | .485 | .568 | .652 | .735 | .819 | .906 | .994 | 1.08 | 1.17 |
| 75°           | .095            | .182 | .266 | .353 | .440 | .528 | .617 | .707 | .797 | .887 | .977 | 1.07 | 1.18 | 1.29 |
| 80°           | .110            | .220 | .332 | .445 | .558 | .671 | .787 | .903 | 1.02 | 1.13 | 1.25 | 1.38 | 1.50 | 1.62 |
| 85°           | .128            | .259 | .391 | .524 | .657 | .790 | .926 | 1.06 | 1.20 | 1.34 | 1.47 | 1.62 | 1.76 | 1.91 |
| 90°           | .149            | .299 | .450 | .603 | .756 | .910 | 1.07 | 1.22 | 1.38 | 1.54 | 1.70 | 1.87 | 2.03 | 2.20 |
| 95°           | .174            | .350 | .522 | .706 | .885 | 1.06 | 1.25 | 1.43 | 1.62 | 1.80 | 1.99 | 2.18 | 2.38 | 2.58 |
| 100°          | .200            | .401 | .604 | .809 | 1.01 | 1.22 | 1.43 | 1.64 | 1.85 | 2.06 | 2.28 | 2.50 | 2.73 | 2.96 |
| 110°          | .268            | .536 | .806 | 1.08 | 1.35 | 1.63 | 1.91 | 2.20 | 2.48 | 2.76 | 3.05 | 3.35 | 3.66 | 3.96 |
| 120°          | .360            | .721 | 1.08 | 1.45 | 1.82 | 2.19 | 2.57 | 2.95 | 3.33 | 3.72 | 4.11 | 4.50 | 4.91 | 5.32 |



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

| FOR SUB-CHORDS ADD |     |     |      |      |      |      |      |      |     | Excess<br>of arc<br>per<br>100 ft. | LONG CHORDS |        |        |        |        |
|--------------------|-----|-----|------|------|------|------|------|------|-----|------------------------------------|-------------|--------|--------|--------|--------|
| D                  | 10  | 20  | 30   | 40   | 50   | 60   | 70   | 80   | 90  |                                    | D           | 200    | 300    | 400    | 500    |
| 4°                 | .00 | .00 | .01  | .01  | .01  | .01  | .01  | .01  | .00 | .02                                | 1           | 199.99 | 299.97 | 399.92 | 499.85 |
| 6                  | .00 | .01 | .01  | .02  | .02  | .02  | .02  | .01  | .01 | .05                                | 2           | 199.97 | 299.88 | 399.70 | 499.39 |
| 8                  | .01 | .02 | .02  | .03  | .03  | .03  | .03  | .02  | .01 | .08                                | 3           | 199.93 | 299.73 | 399.32 | 498.63 |
| 10                 | .01 | .02 | .03  | .04  | .05  | .05  | .05  | .04  | .02 | .13                                | 4           | 199.88 | 299.51 | 398.78 | 497.57 |
| 12                 | .02 | .04 | .05  | .06  | .07  | .07  | .07  | .05  | .03 | .18                                | 5           | 199.81 | 299.24 | 398.10 | 496.20 |
| 14                 | .02 | .05 | .07  | .08  | .09  | .10  | .09  | .07  | .04 | .25                                | 6           | 199.73 | 298.90 | 397.26 | 494.53 |
| 16                 | .03 | .06 | .09  | .11  | .12  | .12  | .12  | .09  | .05 | .33                                | 7           | 199.63 | 298.51 | 396.28 | 492.57 |
| 18                 | .04 | .08 | .11  | .14  | .15  | .16  | .15  | .12  | .07 | .41                                | 8           | 199.51 | 298.05 | 395.14 | 490.31 |
| 20                 | .05 | .10 | .14  | .17  | .19  | .20  | .18  | .15  | .09 | .51                                | 9           | 199.38 | 297.54 | 393.86 | 487.75 |
| 22                 | .06 | .12 | .17  | .21  | .23  | .24  | .22  | .18  | .10 | .62                                | 10          | 199.24 | 296.96 | 392.42 | 484.90 |
| 24                 | .07 | .14 | .20  | .25  | .28  | .28  | .26  | .21  | .12 | .74                                | 12          | 198.90 | 295.63 | 389.12 | 478.34 |
| 26                 | .09 | .17 | .24  | .29  | .32  | .33  | .31  | .25  | .15 | .86                                | 14          | 198.51 | 294.06 | 385.22 | 470.65 |
| 28                 | .10 | .19 | .27  | .34  | .37  | .38  | .36  | .29  | .17 | 1.00                               | 16          | 198.05 | 292.25 | 380.76 | 461.86 |
| 30                 | .11 | .22 | .31  | .39  | .43  | .44  | .41  | .33  | .19 | 1.15                               | 18          | 197.54 | 290.21 | 375.74 | 452.02 |
| 32                 | .13 | .25 | .36  | .44  | .49  | .50  | .47  | .38  | .22 | 1.31                               | 20          | 196.96 | 287.94 | 370.17 | 441.15 |
| 34                 | .15 | .28 | .40  | .50  | .55  | .57  | .53  | .43  | .25 | 1.48                               | 22          | 196.32 | 285.44 | 364.06 | 429.30 |
| 36                 | .17 | .32 | .45  | .56  | .62  | .64  | .59  | .48  | .28 | 1.66                               | 24          | 195.63 | 282.71 | 357.43 | 416.53 |
| 38                 | .18 | .36 | .51  | .62  | .70  | .71  | .66  | .53  | .31 | 1.86                               | 26          | 194.87 | 279.76 | 350.30 | 402.89 |
| 40                 | .21 | .40 | .56  | .69  | .77  | .79  | .73  | .59  | .35 | 2.06                               | 28          | 194.06 | 276.59 | 342.69 | 388.43 |
| 42                 | .23 | .44 | .62  | .76  | .85  | .87  | .81  | .65  | .38 | 2.28                               | 30          | 193.18 | 273.20 | 334.61 | 373.20 |
| 44                 | .25 | .48 | .68  | .84  | .94  | .96  | .89  | .72  | .42 | 2.50                               | 32          | 192.25 | 269.61 | 326.08 | 357.28 |
| 46                 | .27 | .52 | .75  | .92  | 1.02 | 1.05 | .98  | .78  | .46 | 2.74                               | 34          | 191.26 | 265.81 | 317.12 | 340.73 |
| 48                 | .30 | .57 | .81  | 1.00 | 1.12 | 1.14 | 1.06 | .86  | .50 | 2.99                               | 36          | 190.21 | 261.80 | 307.77 | 323.61 |
| 50                 | .32 | .62 | .89  | 1.09 | 1.21 | 1.24 | 1.15 | .93  | .55 | 3.24                               | 38          | 189.10 | 257.60 | 298.03 | 305.99 |
| 52                 | .35 | .67 | .96  | 1.18 | 1.31 | 1.35 | 1.25 | 1.01 | .59 | 3.52                               | 40          | 187.94 | 253.21 | 287.94 | 287.94 |
| 54                 | .38 | .73 | 1.04 | 1.28 | 1.42 | 1.46 | 1.35 | 1.09 | .64 | 3.80                               | 42          | 186.72 | 248.63 | 277.51 | 269.54 |
| 56                 | .41 | .78 | 1.12 | 1.38 | 1.53 | 1.57 | 1.46 | 1.17 | .69 | 4.09                               | 44          | 185.44 | 243.87 | 266.78 | 250.85 |
| 58                 | .44 | .84 | 1.20 | 1.48 | 1.65 | 1.69 | 1.57 | 1.26 | .74 | 4.40                               | 46          | 184.10 | 239.93 | 255.78 | 231.95 |
| 60                 | .47 | .91 | 1.29 | 1.59 | 1.76 | 1.81 | 1.68 | 1.35 | .80 | 4.72                               | 48          | 182.71 | 235.83 | 244.51 | 212.92 |

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

TABLE VII.—MIDDLE ORDINATES FOR RAILS IN FEET.

| Deg.<br>of<br>Curve | LENGTH OF RAILS |      |      |      |      |      |      | Deg.<br>of<br>Curve | LENGTH OF RAILS |      |      |      |      |      |      |
|---------------------|-----------------|------|------|------|------|------|------|---------------------|-----------------|------|------|------|------|------|------|
|                     | 32              | 30   | 28   | 26   | 24   | 22   | 20   |                     | 32              | 30   | 28   | 26   | 24   | 22   | 20   |
| 1°                  | .022            | .020 | .016 | .013 | .011 | .009 | .008 | 16°                 | .356            | .313 | .273 | .236 | .200 | .170 | .139 |
| 2                   | .045            | .038 | .034 | .029 | .025 | .021 | .017 | 17                  | .378            | .333 | .290 | .252 | .213 | .180 | .148 |
| 3                   | .037            | .058 | .051 | .044 | .037 | .031 | .026 | 18                  | .400            | .351 | .306 | .265 | .225 | .190 | .156 |
| 4                   | .089            | .079 | .069 | .060 | .050 | .042 | .035 | 19                  | .423            | .371 | .324 | .280 | .238 | .201 | .165 |
| 5                   | .112            | .099 | .086 | .074 | .063 | .053 | .044 | 20                  | .445            | .392 | .341 | .296 | .250 | .212 | .174 |
| 6                   | .134            | .117 | .102 | .088 | .076 | .064 | .052 | 21                  | .466            | .410 | .357 | .309 | .262 | .222 | .182 |
| 7                   | .156            | .137 | .120 | .104 | .088 | .074 | .061 | 22                  | .487            | .430 | .375 | .325 | .275 | .233 | .191 |
| 8                   | .179            | .158 | .137 | .119 | .100 | .085 | .070 | 23                  | .509            | .450 | .390 | .338 | .287 | .243 | .199 |
| 9                   | .201            | .175 | .153 | .133 | .112 | .095 | .078 | 24                  | .531            | .469 | .408 | .354 | .299 | .253 | .208 |
| 10                  | .223            | .196 | .171 | .148 | .125 | .106 | .087 | 25                  | .552            | .486 | .424 | .367 | .311 | .263 | .216 |
| 11                  | .245            | .216 | .188 | .163 | .139 | .117 | .096 | 26                  | .573            | .506 | .441 | .382 | .325 | .274 | .225 |
| 12                  | .268            | .236 | .206 | .179 | .151 | .128 | .105 | 27                  | .594            | .524 | .457 | .396 | .335 | .284 | .233 |
| 13                  | .290            | .254 | .222 | .192 | .163 | .138 | .113 | 28                  | .615            | .545 | .475 | .411 | .348 | .294 | .242 |
| 14                  | .312            | .275 | .239 | .207 | .175 | .148 | .122 | 29                  | .635            | .564 | .491 | .424 | .361 | .303 | .250 |
| 15                  | .334            | .295 | .257 | .223 | .188 | .159 | .131 | 30                  | .660            | .583 | .508 | .438 | .374 | .313 | .259 |

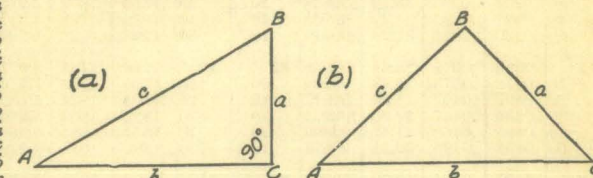
## SLOPE REDUCTIONS.

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

See fig. (a).

## TRIGONOMETRICAL FORMULAS.

$$\begin{aligned}\sin. & A = \frac{a}{c} \\ \cos. & A = \frac{b}{c} \\ \tan. & A = \frac{a}{b} \\ \cot. & A = \frac{b}{a} \\ \sec. & A = \frac{c}{b} \\ \csc. & A = \frac{c}{a}\end{aligned}$$



## FORMULA FOR SOLVING TRIANGLES.

| Given  | Sought.   | Right triangles. See fig. (a).                                        |
|--------|-----------|-----------------------------------------------------------------------|
| $a, c$ | $A, B, b$ | $\sin. A = \frac{a}{c}, \cos. B = \frac{b}{c}, b = \sqrt{(c+a)(c-a)}$ |
| $a, b$ | $A, B, c$ | $\tan. A = \frac{a}{b}, \cot. B = \frac{a}{b}, c = \sqrt{a^2 + b^2}$  |
| $A, a$ | $B, b, c$ | $B = 90^\circ - A, b = a \cot. A, c = \frac{a}{\sin. A}$              |
| $A, b$ | $B, a, c$ | $B = 90^\circ - A, a = b \tan. A, c = \frac{b}{\cos. A}$              |
| $A, c$ | $B, a, b$ | $B = 90^\circ - A, a = c \sin. A, c = c \cos. A$                      |

| Given        | Sought. | Oblique triangles. See fig. (b).                                                                                                                                                                                                                                                                    |
|--------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $A, B, a$    | $b$     | $b = \frac{a \sin. B}{\sin. A}$                                                                                                                                                                                                                                                                     |
| $A, a, b$    | $B$     | $\sin. B = \frac{b \sin. A}{a}$                                                                                                                                                                                                                                                                     |
| $a, b, C$    | $A - B$ | $\tan. \frac{1}{2}(A-B) = \frac{(a-b) \tan. \frac{1}{2}(A+B)}{a+b}$                                                                                                                                                                                                                                 |
| $a, b, c$    | $A$     | $\left\{ \begin{aligned} \text{If } s = \frac{1}{2}(a+b+c), \sin. \frac{1}{2} A &= \sqrt{\frac{(s-b)(s-c)}{bc}} \\ \cos. \frac{1}{2} A &= \sqrt{\frac{s(s-a)}{bc}}, \tan. \frac{1}{2} A = \sqrt{\frac{(s-b)(s-c)}{s(s-a)}} \\ \sin. A &= \frac{2\sqrt{s(s-a)(s-b)(s-c)}}{bc} \end{aligned} \right.$ |
| $A, B, C, a$ | area    | $\text{area} = \frac{a^2 \sin. B \sin. C}{2 \sin. A}$                                                                                                                                                                                                                                               |
| $A, b, c$    | area    | $\text{area} = \frac{1}{2} bc \sin. A$                                                                                                                                                                                                                                                              |
| $a, b, c$    | area    | $s = \frac{1}{2}(a+b+c), \text{area} = \sqrt{s(s-a)(s-b)(s-c)}$                                                                                                                                                                                                                                     |



TABLE VIII.—NATURAL TRIGONOMETRICAL FUNCTIONS.

| Angle | Sine.  | Tan.  | Cotg. | Cosin. |        | Angle | Sine.  | Tan.  | Cotg. | Cosin. |        |
|-------|--------|-------|-------|--------|--------|-------|--------|-------|-------|--------|--------|
| °     | '      |       |       |        |        | °     | '      |       |       |        |        |
| 0     | 0      | 0     | 00    | 1      | 90     | 8     | .1392  | .1405 | 7.115 | .99027 | 82     |
| 10    | .0029  | .0029 | 343.8 | I      | 50     | 10    | .1421  | .1435 | 6.968 | .98986 | 50     |
| 20    | .0058  | .0058 | 171.9 | .99998 | 40     | 20    | .1449  | .1465 | 6.827 | .98944 | 40     |
| 30    | .0087  | .0087 | 114.6 | .99996 | 30     | 30    | .1478  | .1495 | 6.691 | .98902 | 30     |
| 40    | .0116  | .0116 | 85.94 | .99993 | 20     | 40    | .1507  | .1524 | 6.561 | .98858 | 20     |
| 50    | .0145  | .0145 | 68.75 | .99989 | 10     | 50    | .1536  | .1554 | 6.435 | .98814 | 10     |
| 1     | .0175  | .0175 | 57.29 | .99985 | 89     | 9     | .1564  | .1584 | 6.314 | .98769 | 81     |
| 10    | .0204  | .0204 | 49.10 | .99979 | 50     | 10    | .1593  | .1614 | 6.197 | .98723 | 50     |
| 20    | .0233  | .0233 | 42.96 | .99973 | 40     | 20    | .1622  | .1644 | 6.084 | .98676 | 40     |
| 30    | .0262  | .0262 | 38.19 | .99966 | 30     | 30    | .1650  | .1673 | 5.976 | .98629 | 30     |
| 40    | .0291  | .0291 | 34.37 | .99958 | 20     | 40    | .1679  | .1703 | 5.871 | .98580 | 20     |
| 50    | .0320  | .0320 | 31.24 | .99949 | 10     | 50    | .1708  | .1733 | 5.769 | .98531 | 10     |
| 2     | .0349  | .0349 | 28.64 | .99939 | 88     | 10    | .1736  | .1763 | 5.671 | .98481 | 80     |
| 10    | .0378  | .0378 | 26.43 | .99929 | 50     | 10    | .1765  | .1793 | 5.576 | .98430 | 50     |
| 20    | .0407  | .0407 | 24.54 | .99917 | 40     | 20    | .1794  | .1823 | 5.485 | .98378 | 40     |
| 30    | .0436  | .0437 | 22.90 | .99905 | 30     | 30    | .1822  | .1853 | 5.396 | .98325 | 30     |
| 40    | .0465  | .0466 | 21.47 | .99892 | 20     | 40    | .1851  | .1883 | 5.309 | .98272 | 20     |
| 50    | .0494  | .0495 | 20.21 | .99878 | 10     | 50    | .1880  | .1914 | 5.226 | .98218 | 10     |
| 3     | .0523  | .0524 | 19.08 | .99863 | 87     | 11    | .1908  | .1944 | 5.145 | .98163 | 79     |
| 10    | .0552  | .0553 | 18.07 | .99847 | 50     | 10    | .1937  | .1974 | 5.066 | .98107 | 50     |
| 20    | .0581  | .0582 | 17.17 | .99831 | 40     | 20    | .1965  | .2004 | 4.989 | .98050 | 40     |
| 30    | .0610  | .0612 | 16.35 | .99813 | 30     | 30    | .1994  | .2035 | 4.915 | .97992 | 30     |
| 40    | .0640  | .0641 | 15.60 | .99795 | 20     | 40    | .2022  | .2065 | 4.843 | .97934 | 20     |
| 50    | .0669  | .0670 | 14.92 | .99776 | 10     | 50    | .2051  | .2095 | 4.773 | .97875 | 10     |
| 4     | .0698  | .0699 | 14.30 | .99756 | 86     | 12    | .2079  | .2126 | 4.705 | .97815 | 78     |
| 10    | .0727  | .0729 | 13.73 | .99736 | 50     | 10    | .2108  | .2156 | 4.638 | .97754 | 50     |
| 20    | .0756  | .0758 | 13.20 | .99714 | 40     | 20    | .2136  | .2186 | 4.574 | .97692 | 40     |
| 30    | .0785  | .0787 | 12.71 | .99692 | 30     | 30    | .2164  | .2217 | 4.511 | .97630 | 30     |
| 40    | .0814  | .0816 | 12.25 | .99668 | 20     | 40    | .2193  | .2247 | 4.449 | .97566 | 20     |
| 50    | .0843  | .0846 | 11.83 | .99644 | 10     | 50    | .2221  | .2275 | 4.390 | .97502 | 10     |
| 5     | .0872  | .0875 | 11.43 | .99619 | 85     | 13    | .2250  | .2309 | 4.331 | .97437 | 77     |
| 10    | .0901  | .0904 | 11.06 | .99594 | 50     | 10    | .2278  | .2339 | 4.275 | .97371 | 50     |
| 20    | .0929  | .0934 | 10.71 | .99567 | 40     | 20    | .2306  | .2370 | 4.219 | .97304 | 40     |
| 30    | .0958  | .0963 | 10.39 | .99540 | 30     | 30    | .2334  | .2401 | 4.165 | .97237 | 30     |
| 40    | .0987  | .0992 | 10.08 | .99511 | 20     | 40    | .2363  | .2432 | 4.113 | .97169 | 20     |
| 50    | .1016  | .1022 | 9.788 | .99482 | 10     | 50    | .2391  | .2462 | 4.061 | .97100 | 10     |
| 6     | .1045  | .1051 | 9.514 | .99452 | 84     | 14    | .2419  | .2493 | 4.011 | .97030 | 76     |
| 10    | .1074  | .1080 | 9.255 | .99421 | 50     | 10    | .2447  | .2524 | 3.962 | .96959 | 50     |
| 20    | .1103  | .1110 | 9.010 | .99390 | 40     | 20    | .2476  | .2555 | 3.914 | .96887 | 40     |
| 30    | .1132  | .1139 | 8.777 | .99357 | 30     | 30    | .2504  | .2586 | 3.867 | .96815 | 30     |
| 40    | .1161  | .1169 | 8.556 | .99324 | 20     | 40    | .2532  | .2617 | 3.821 | .96742 | 20     |
| 50    | .1190  | .1198 | 8.345 | .99290 | 10     | 50    | .2560  | .2648 | 3.776 | .96667 | 10     |
| 7     | .1219  | .1228 | 8.144 | .99255 | 83     | 15    | .2588  | .2679 | 3.732 | .96593 | 75     |
| 10    | .1248  | .1257 | 7.953 | .99219 | 50     | 10    | .2616  | .2711 | 3.689 | .96517 | 50     |
| 20    | .1276  | .1287 | 7.770 | .99182 | 40     | 20    | .2644  | .2742 | 3.647 | .96440 | 40     |
| 30    | .1305  | .1317 | 7.596 | .99144 | 30     | 30    | .2672  | .2773 | 3.606 | .96363 | 30     |
| 40    | .1334  | .1346 | 7.429 | .99106 | 20     | 40    | .2700  | .2805 | 3.566 | .96285 | 20     |
| 50    | .1363  | .1376 | 7.269 | .99067 | 10     | 50    | .2728  | .2836 | 3.526 | .96206 | 10     |
|       |        |       |       |        | 82     |       |        |       |       |        | 74     |
|       | Cosin. | Cotg. | Tan.  | Sine.  | Angle. |       | Cosin. | Cotg. | Tan.  | Sine.  | Angle. |

TABLE VIII.—NATURAL TRIGONOMETRICAL FUNCTIONS.

| Angle | Sine.  | Tan.  | Cotg. | Cosin. |        | Angle | Sine.  | Tan.  | Cotg. | Cosin. |        |
|-------|--------|-------|-------|--------|--------|-------|--------|-------|-------|--------|--------|
| °     | '      |       |       |        |        | °     | '      |       |       |        |        |
| 16    | .2756  | .2867 | 3.487 | .96126 | 74     | 24    | .4067  | .4452 | 2.246 | .91355 | 66     |
| 10    | .2784  | .2899 | 3.450 | .96046 | 50     | 10    | .4094  | .4487 | 2.229 | .91236 | 50     |
| 20    | .2812  | .2931 | 3.412 | .95964 | 40     | 20    | .4120  | .4522 | 2.211 | .91116 | 40     |
| 30    | .2840  | .2962 | 3.376 | .95882 | 30     | 30    | .4147  | .4557 | 2.194 | .90996 | 30     |
| 40    | .2868  | .2994 | 3.340 | .95799 | 20     | 40    | .4173  | .4592 | 2.177 | .90875 | 20     |
| 50    | .2896  | .3026 | 3.305 | .95715 | 10     | 50    | .4200  | .4628 | 2.161 | .90753 | 10     |
| 17    | .2924  | .3057 | 3.271 | .95615 | 73     | 25    | .4226  | .4663 | 2.145 | .90631 | 65     |
| 10    | .2952  | .3089 | 3.237 | .95545 | 50     | 10    | .4253  | .4699 | 2.128 | .90507 | 50     |
| 20    | .2979  | .3121 | 3.204 | .95459 | 40     | 20    | .4279  | .4734 | 2.112 | .90383 | 40     |
| 30    | .3007  | .3153 | 3.172 | .95372 | 30     | 30    | .4305  | .4770 | 2.097 | .90259 | 30     |
| 40    | .3035  | .3185 | 3.140 | .95284 | 20     | 40    | .4331  | .4806 | 2.081 | .90133 | 20     |
| 50    | .3062  | .3217 | 3.108 | .95195 | 10     | 50    | .4358  | .4841 | 2.066 | .90007 | 10     |
| 18    | .3090  | .3249 | 3.078 | .95106 | 72     | 26    | .4384  | .4877 | 2.050 | .89879 | 64     |
| 10    | .3118  | .3281 | 3.048 | .95015 | 50     | 10    | .4410  | .4913 | 2.035 | .89752 | 50     |
| 20    | .3145  | .3314 | 3.018 | .94924 | 40     | 20    | .4436  | .4950 | 2.020 | .89623 | 40     |
| 30    | .3173  | .3346 | 2.989 | .94832 | 30     | 30    | .4462  | .4986 | 2.006 | .89493 | 30     |
| 40    | .3201  | .3378 | 2.960 | .94740 | 20     | 40    | .4488  | .5022 | 1.991 | .89363 | 20     |
| 50    | .3228  | .3411 | 2.932 | .94646 | 10     | 50    | .4514  | .5059 | 1.977 | .89232 | 10     |
| 19    | .3256  | .3443 | 2.904 | .94552 | 71     | 27    | .4540  | .5095 | 1.963 | .89101 | 63     |
| 10    | .3283  | .3476 | 2.877 | .94457 | 50     | 10    | .4566  | .5132 | 1.949 | .88968 | 50     |
| 20    | .3311  | .3508 | 2.850 | .94361 | 40     | 20    | .4592  | .5169 | 1.935 | .88835 | 40     |
| 30    | .3338  | .3541 | 2.824 | .94264 | 30     | 30    | .4617  | .5206 | 1.921 | .88701 | 30     |
| 40    | .3365  | .3574 | 2.798 | .94167 | 20     | 40    | .4643  | .5243 | 1.907 | .88566 | 20     |
| 50    | .3393  | .3607 | 2.773 | .94068 | 10     | 50    | .4669  | .5280 | 1.894 | .88431 | 10     |
| 20    | .3420  | .3640 | 2.747 | .93969 | 70     | 28    | .4695  | .5317 | 1.881 | .88295 | 62     |
| 10    | .3448  | .3673 | 2.723 | .93869 | 50     | 10    | .4720  | .5354 | 1.868 | .88158 | 50     |
| 20    | .3475  | .3706 | 2.699 | .93769 | 40     | 20    | .4746  | .5392 | 1.855 | .88020 | 40     |
| 30    | .3502  | .3739 | 2.675 | .93667 | 30     | 30    | .4772  | .5430 | 1.842 | .87882 | 30     |
| 40    | .3529  | .3772 | 2.651 | .93565 | 20     | 40    | .4797  | .5467 | 1.829 | .87743 | 20     |
| 50    | .3557  | .3805 | 2.628 | .93462 | 10     | 50    | .4823  | .5505 | 1.816 | .87603 | 10     |
| 21    | .3584  | .3839 | 2.605 | .93358 | 69     | 29    | .4848  | .5543 | 1.804 | .87462 | 61     |
| 10    | .3611  | .3872 | 2.583 | .93253 | 50     | 10    | .4874  | .5581 | 1.792 | .87321 | 50     |
| 20    | .3638  | .3906 | 2.560 | .93148 | 40     | 20    | .4899  | .5619 | 1.780 | .87178 | 40     |
| 30    | .3665  | .3939 | 2.539 | .93042 | 30     | 30    | .4924  | .5658 | 1.767 | .87036 | 30     |
| 40    | .3692  | .3973 | 2.517 | .92935 | 20     | 40    | .4950  | .5696 | 1.756 | .86892 | 20     |
| 50    | .3719  | .4006 | 2.496 | .92827 | 10     | 50    | .4975  | .5735 | 1.744 | .86748 | 10     |
| 22    | .3746  | .4040 | 2.475 | .92718 | 68     | 30    | .5000  | .5774 | 1.732 | .86603 | 60     |
| 10    | .3773  | .4074 | 2.455 | .92609 | 50     | 10    | .5025  | .5812 | 1.720 | .86457 | 50     |
| 20    | .3800  | .4108 | 2.434 | .92499 | 40     | 20    | .5050  | .5851 | 1.709 | .86310 | 40     |
| 30    | .3827  | .4142 | 2.414 | .92388 | 30     | 30    | .5075  | .5890 | 1.698 | .86163 | 30     |
| 40    | .3854  | .4176 | 2.394 | .92276 | 20     | 40    | .5100  | .5930 | 1.686 | .86015 | 20     |
| 50    | .3881  | .4210 | 2.375 | .92164 | 10     | 50    | .5125  | .5969 | 1.675 | .85866 | 10     |
| 23    | .3907  | .4245 | 2.356 | .92050 | 67     | 31    | .5150  | .6009 | 1.664 | .85717 | 59     |
| 10    | .3934  | .4279 | 2.337 | .91936 | 50     | 10    | .5175  | .6048 | 1.653 | .85567 | 50     |
| 20    | .3961  | .4314 | 2.318 | .91822 | 40     | 20    | .5200  | .6088 | 1.643 | .85416 | 40     |
| 30    | .3987  | .4348 | 2.300 | .91706 | 30     | 30    | .5225  | .6128 | 1.632 | .85264 | 30     |
| 40    | .4014  | .4383 | 2.282 | .91590 | 20     | 40    | .5250  | .6168 | 1.622 | .85112 | 20     |
| 50    | .4041  | .4417 | 2.264 | .91472 | 10     | 50    | .5275  | .6208 | 1.611 | .84959 | 10     |
|       |        |       |       |        | 66     |       |        |       |       |        | 58     |
|       | Cosin. | Cotg. | Tan.  | Sine.  | Angle. |       | Cosin. | Cotg. | Tan.  | Sine.  | Angle. |



TABLE VIII.—NATURAL TRIGONOMETRICAL FUNCTIONS.

| Angle | Sine. | Tan.  | Cotg. | Cosin. | Angle | Sine. | Tan.  | Cotg.  | Cosin. |
|-------|-------|-------|-------|--------|-------|-------|-------|--------|--------|
| °     |       |       |       |        | °     |       |       |        |        |
| 32    | .5299 | .6249 | 1.600 | .84805 | 58    | .30   | .6225 | .7954  | 1.257  |
| 10    | .5324 | .6289 | 1.590 | .84650 | 50    | 40    | .6248 | .8002  | 1.250  |
| 20    | .5348 | .6330 | 1.580 | .84495 | 40    | 50    | .6271 | .8050  | 1.242  |
| 30    | .5373 | .6371 | 1.570 | .84339 | 30    |       |       |        |        |
| 40    | .5398 | .6412 | 1.560 | .84182 | 20    |       |       |        |        |
| 50    | .5422 | .6453 | 1.550 | .84025 | 10    |       |       |        |        |
| 33    | .5446 | .6494 | 1.540 | .83867 | 57    | 39    | .6293 | .8098  | 1.235  |
| 10    | .5471 | .6536 | 1.530 | .83708 | 50    | 10    | .6316 | .8146  | 1.228  |
| 20    | .5495 | .6577 | 1.520 | .83549 | 40    | 20    | .6338 | .8195  | 1.220  |
| 30    | .5519 | .6619 | 1.511 | .83389 | 30    | 30    | .6361 | .8243  | 1.213  |
| 40    | .5544 | .6661 | 1.501 | .83228 | 20    | 40    | .6383 | .8292  | 1.206  |
| 50    | .5568 | .6703 | 1.492 | .83066 | 10    | 50    | .6406 | .8342  | 1.199  |
| 34    | .5592 | .6745 | 1.483 | .82904 | 56    | 40    | .6428 | .8391  | 1.192  |
| 10    | .5616 | .6787 | 1.473 | .82741 | 50    | 10    | .6450 | .8441  | 1.185  |
| 20    | .5640 | .6830 | 1.464 | .82577 | 40    | 20    | .6472 | .8491  | 1.178  |
| 30    | .5664 | .6873 | 1.455 | .82413 | 30    | 30    | .6494 | .8541  | 1.171  |
| 40    | .5688 | .6916 | 1.446 | .82248 | 20    | 40    | .6517 | .8591  | 1.164  |
| 50    | .5712 | .6959 | 1.437 | .82082 | 10    | 50    | .6539 | .8642  | 1.157  |
| 35    | .5736 | .7002 | 1.428 | .81915 | 55    | 41    | .6561 | .8693  | 1.150  |
| 10    | .5760 | .7046 | 1.419 | .81748 | 50    | 10    | .6583 | .8744  | 1.144  |
| 20    | .5783 | .7089 | 1.411 | .81580 | 40    | 20    | .6604 | .8796  | 1.137  |
| 30    | .5807 | .7133 | 1.402 | .81412 | 30    | 30    | .6626 | .8847  | 1.130  |
| 40    | .5831 | .7177 | 1.393 | .81242 | 20    | 40    | .6648 | .8899  | 1.124  |
| 50    | .5854 | .7221 | 1.385 | .81072 | 10    | 50    | .6670 | .8952  | 1.117  |
| 36    | .5878 | .7265 | 1.376 | .80902 | 54    | 42    | .6691 | .9004  | 1.111  |
| 10    | .5901 | .7310 | 1.368 | .80730 | 50    | 10    | .6713 | .9057  | 1.104  |
| 20    | .5925 | .7355 | 1.360 | .80558 | 40    | 20    | .6734 | .9110  | 1.098  |
| 30    | .5948 | .7400 | 1.351 | .80386 | 30    | 30    | .6756 | .9163  | 1.091  |
| 40    | .5972 | .7445 | 1.343 | .80212 | 20    | 40    | .6777 | .9217  | 1.085  |
| 50    | .5995 | .7490 | 1.335 | .80038 | 10    | 50    | .6799 | .9271  | 1.079  |
| 37    | .6018 | .7536 | 1.327 | .79864 | 53    | 43    | .6820 | .9325  | 1.072  |
| 10    | .6041 | .7581 | 1.319 | .79688 | 50    | 10    | .6841 | .9380  | 1.066  |
| 20    | .6065 | .7627 | 1.311 | .79512 | 40    | 20    | .6862 | .9435  | 1.060  |
| 30    | .6088 | .7673 | 1.303 | .79335 | 30    | 30    | .6884 | .9490  | 1.054  |
| 40    | .6111 | .7720 | 1.295 | .79158 | 20    | 40    | .6905 | .9545  | 1.048  |
| 50    | .6134 | .7766 | 1.288 | .78980 | 10    | 50    | .6926 | .9601  | 1.042  |
| 38    | .6157 | .7813 | 1.280 | .78801 | 52    | 44    | .6947 | .9657  | 1.036  |
| 10    | .6180 | .7860 | 1.272 | .78622 | 50    | 10    | .6967 | .9713  | 1.030  |
| 20    | .6202 | .7907 | 1.265 | .78442 | 40    | 20    | .6988 | .9770  | 1.024  |
|       |       |       |       |        | 30    | 30    | .7009 | .9827  | 1.018  |
|       |       |       |       |        | 20    | 40    | .7030 | .9884  | 1.012  |
|       |       |       |       |        | 10    | 50    | .7050 | .9942  | 1.006  |
|       |       |       |       |        |       |       | .7071 | 1.     | 1.     |
|       |       |       |       |        |       |       |       | .70711 | 45     |

TABLE IX.—CALCULATION OF EARTHWORK.

| Width | HEIGHT |      |      |      |      |      |      |      |      |      |      |      |      |       |       |
|-------|--------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|
|       | 1      | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14    | 15    |
| 1     | .02    | .04  | .06  | .07  | .09  | .11  | .13  | .15  | .17  | .18  | .20  | .22  | .24  | .26   | .28   |
| 2     | .04    | .07  | .11  | .15  | .18  | .22  | .26  | .30  | .33  | .37  | .41  | .44  | .48  | .52   | .56   |
| 3     | .06    | .11  | .17  | .22  | .28  | .33  | .39  | .44  | .50  | .56  | .61  | .67  | .72  | .78   | .83   |
| 4     | .07    | .15  | .22  | .30  | .37  | .44  | .52  | .59  | .67  | .74  | .81  | .89  | .96  | 1.04  | 1.11  |
| 5     | .09    | .19  | .28  | .37  | .46  | .56  | .65  | .74  | .83  | .93  | 1.02 | 1.11 | 1.20 | 1.30  | 1.39  |
| 6     | .11    | .22  | .33  | .44  | .56  | .67  | .78  | .89  | 1.00 | 1.11 | 1.22 | 1.33 | 1.44 | 1.55  | 1.67  |
| 7     | .13    | .26  | .39  | .52  | .65  | .78  | .91  | 1.04 | 1.16 | 1.30 | 1.42 | 1.55 | 1.68 | 1.81  | 1.94  |
| 8     | .15    | .30  | .44  | .59  | .74  | .89  | 1.04 | 1.19 | 1.33 | 1.48 | 1.63 | 1.78 | 1.92 | 2.08  | 2.22  |
| 9     | .17    | .33  | .50  | .67  | .83  | 1.00 | 1.17 | 1.33 | 1.50 | 1.67 | 1.83 | 2.00 | 2.17 | 2.33  | 2.50  |
| 10    | .18    | .37  | .56  | .74  | .93  | 1.11 | 1.30 | 1.48 | 1.67 | 1.85 | 2.04 | 2.22 | 2.41 | 2.59  | 2.78  |
| 11    | .20    | .41  | .61  | .82  | 1.02 | 1.22 | 1.43 | 1.63 | 1.83 | 2.04 | 2.24 | 2.44 | 2.65 | 2.85  | 3.06  |
| 12    | .22    | .44  | .67  | .89  | 1.11 | 1.33 | 1.56 | 1.78 | 2.00 | 2.22 | 2.44 | 2.67 | 2.89 | 3.11  | 3.33  |
| 13    | .24    | .48  | .72  | .96  | 1.20 | 1.44 | 1.68 | 1.92 | 2.16 | 2.41 | 2.65 | 2.89 | 3.13 | 3.37  | 3.61  |
| 14    | .26    | .52  | .78  | 1.04 | 1.30 | 1.55 | 1.81 | 2.08 | 2.33 | 2.59 | 2.85 | 3.11 | 3.37 | 3.63  | 3.89  |
| 15    | .28    | .56  | .83  | 1.11 | 1.39 | 1.67 | 1.94 | 2.22 | 2.50 | 2.78 | 3.06 | 3.33 | 3.61 | 3.89  | 4.17  |
| 16    | .30    | .59  | .89  | 1.18 | 1.48 | 1.78 | 2.07 | 2.37 | 2.67 | 2.96 | 3.26 | 3.56 | 3.85 | 4.15  | 4.44  |
| 17    | .31    | .63  | .94  | 1.26 | 1.57 | 1.89 | 2.20 | 2.52 | 2.83 | 3.15 | 3.46 | 3.78 | 4.09 | 4.41  | 4.72  |
| 18    | .33    | .67  | 1.00 | 1.33 | 1.67 | 2.00 | 2.33 | 2.67 | 3.00 | 3.33 | 3.67 | 4.00 | 4.33 | 4.67  | 5.00  |
| 19    | .35    | .70  | 1.06 | 1.41 | 1.76 | 2.11 | 2.46 | 2.82 | 3.17 | 3.52 | 3.87 | 4.22 | 4.57 | 4.92  | 5.28  |
| 20    | .37    | .74  | 1.11 | 1.48 | 1.85 | 2.22 | 2.59 | 2.96 | 3.33 | 3.70 | 4.07 | 4.44 | 4.81 | 5.18  | 5.56  |
| 21    | .39    | .78  | 1.17 | 1.55 | 1.94 | 2.33 | 2.72 | 3.11 | 3.50 | 3.89 | 4.28 | 4.67 | 5.06 | 5.44  | 5.83  |
| 22    | .41    | .81  | 1.22 | 1.63 | 2.04 | 2.44 | 2.85 | 3.26 | 3.67 | 4.07 | 4.48 | 4.89 | 5.30 | 5.70  | 6.11  |
| 23    | .43    | .85  | 1.28 | 1.70 | 2.13 | 2.56 | 2.98 | 3.41 | 3.83 | 4.26 | 4.68 | 5.11 | 5.54 | 5.96  | 6.39  |
| 24    | .44    | .89  | 1.33 | 1.78 | 2.22 | 2.67 | 3.11 | 3.56 | 4.00 | 4.44 | 4.89 | 5.33 | 5.78 | 6.22  | 6.67  |
| 25    | .46    | .92  | 1.39 | 1.85 | 2.31 | 2.78 | 3.24 | 3.70 | 4.17 | 4.63 | 5.09 | 5.56 | 6.02 | 6.48  | 6.94  |
| 26    | .48    | .96  | 1.44 | 1.92 | 2.41 | 2.89 | 3.37 | 3.85 | 4.33 | 4.82 | 5.30 | 5.78 | 6.26 | 6.74  | 7.24  |
| 27    | .50    | 1.00 | 1.50 | 2.00 | 2.50 | 3.00 | 3.50 | 4.00 | 4.50 | 5.00 | 5.50 | 6.00 | 6.50 | 7.00  | 7.50  |
| 28    | .52    | 1.04 | 1.55 | 2.07 | 2.59 | 3.11 | 3.63 | 4.15 | 4.67 | 5.18 | 5.70 | 6.22 | 6.74 | 7.26  | 7.78  |
| 29    | .54    | 1.07 | 1.61 | 2.15 | 2.68 | 3.22 | 3.76 | 4.30 | 4.83 | 5.37 | 5.91 | 6.44 | 6.98 | 7.52  | 8.06  |
| 30    | .56    | 1.11 | 1.67 | 2.22 | 2.78 | 3.33 | 3.89 | 4.44 | 5.00 | 5.55 | 6.11 | 6.67 | 7.22 | 7.78  | 8.33  |
| 31    | .57    | 1.15 | 1.72 | 2.30 | 2.87 | 3.44 | 4.02 | 4.59 | 5.17 | 5.74 | 6.32 | 6.89 | 7.46 | 8.04  | 8.61  |
| 32    | .59    | 1.18 | 1.78 | 2.37 | 2.96 | 3.56 | 4.15 | 4.74 | 5.33 | 5.92 | 6.52 | 7.11 | 7.70 | 8.30  | 8.89  |
| 33    | .61    | 1.22 | 1.83 | 2.44 | 3.05 | 3.67 | 4.28 | 4.89 | 5.50 | 6.11 | 6.72 | 7.33 | 7.94 | 8.55  | 9.17  |
| 34    | .63    | 1.26 | 1.89 | 2.52 | 3.15 | 3.78 | 4.40 | 5.04 | 5.67 | 6.29 | 6.93 | 7.56 | 8.18 | 8.81  | 9.44  |
| 35    | .65    | 1.30 | 1.94 | 2.59 | 3.24 | 3.89 | 4.53 | 5.18 | 5.83 | 6.48 | 7.13 | 7.78 | 8.42 | 9.08  | 9.72  |
| 36    | .67    | 1.33 | 2.00 | 2.67 | 3.33 | 4.00 | 4.66 | 5.33 | 6.00 | 6.67 | 7.33 | 8.00 | 8.67 | 9.33  | 10.00 |
| 37    | .68    | 1.37 | 2.06 | 2.74 | 3.42 | 4.11 | 4.79 | 5.48 | 6.17 | 6.85 | 7.54 | 8.22 | 8.91 | 9.59  | 10.28 |
| 38    | .70    | 1.41 | 2.11 | 2.82 | 3.52 | 4.22 | 4.92 | 5.63 | 6.33 | 7.03 | 7.74 | 8.44 | 9.15 | 9.85  | 10.56 |
| 39    | .72    | 1.44 | 2.17 | 2.89 | 3.61 | 4.33 | 5.05 | 5.78 | 6.50 | 7.22 | 7.95 | 8.67 | 9.39 | 10.11 | 10.83 |
| 40    | .74    | 1.48 | 2.22 | 2.96 | 3.70 | 4.44 | 5.18 | 5.92 | 6.67 | 7.41 | 8.15 | 8.89 | 9.63 | 10.37 | 11.11 |

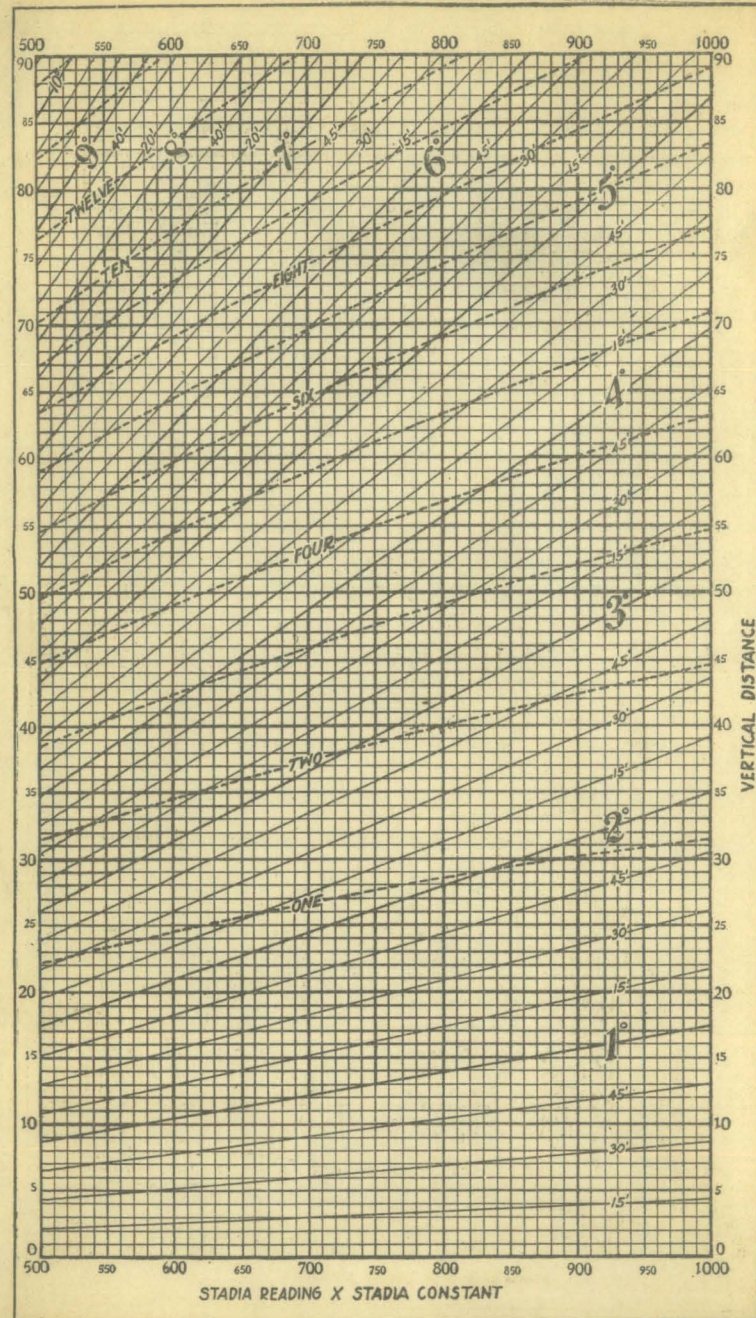
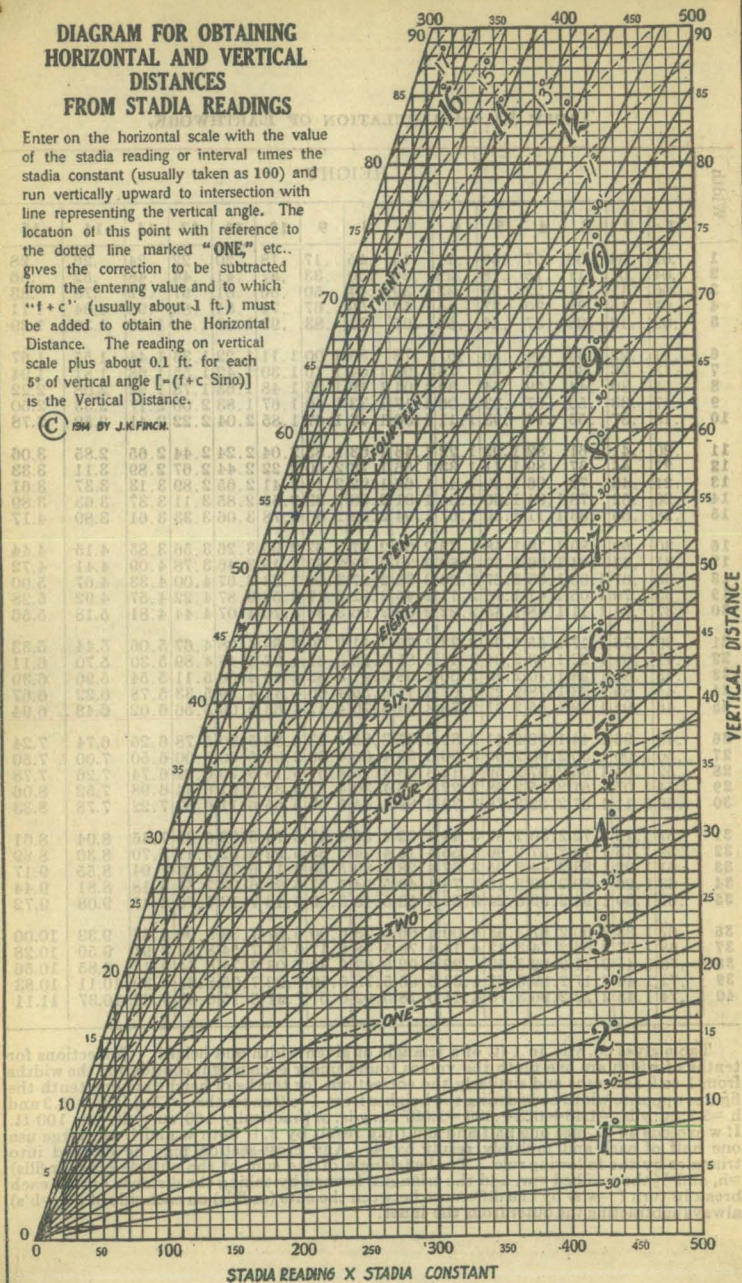
Table gives cu. yds. in 1 ft. of a triangle of given width and height. Corrections for tenths of width are one tenth the values found under each height considering the widths from 1 to 9 as tenths and similarly the corrections for tenths of height are one tenth the figures opposite width considering the heights from 1 to 9 as tenths. Thus if  $w=16.2$  and  $h=5.3$ , cu. yds.  $=1.48+.028+.089=1.597$  cu. yds. or practically 160 cu. yds. per 100 ft. If  $w$  exceeds 40 ft., use one half and multiply result by 2, if both  $w$  and  $h$  are large use one half of each and multiply result by 4. Any cross-section may be divided into triangles by the following rule. To the triangle of the sum of the outside cuts (or fills)  $=h$ , and  $\frac{1}{2}$  the roadbed  $=w$ , add the triangles formed by taking the distance out to each break in turn ( $=w$ 's) by the difference between the cuts (or fills) on each side of it ( $=h$ 's) always subtracting the outer from the inner.



# DIAGRAM FOR OBTAINING HORIZONTAL AND VERTICAL DISTANCES FROM STADIA READINGS

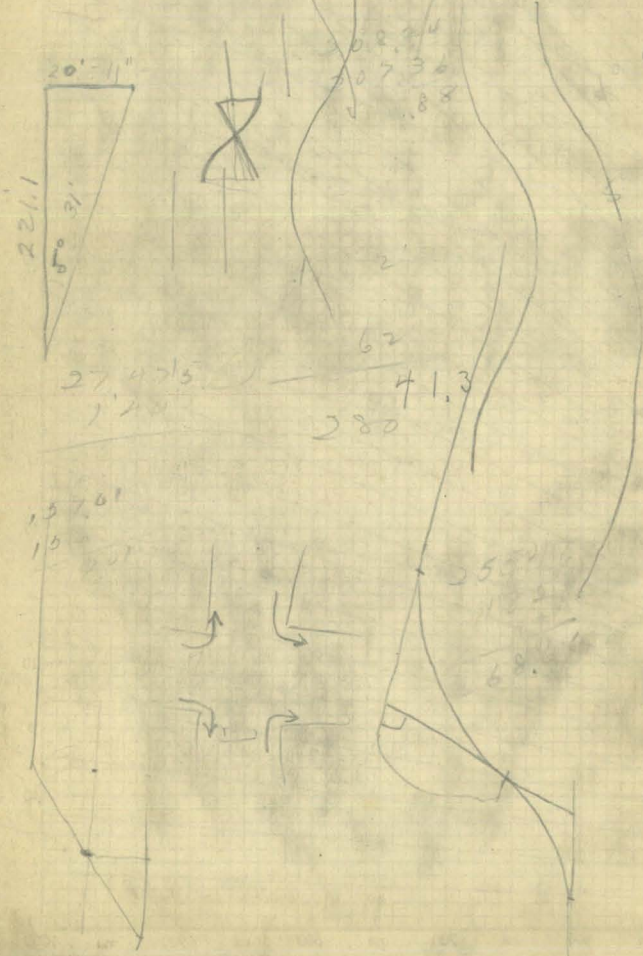
Enter on the horizontal scale with the value of the stadia reading or interval times the stadia constant (usually taken as 100) and run vertically upward to intersection with line representing the vertical angle. The location of this point with reference to the dotted line marked "ONE," etc., gives the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

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194.25  
 6.55  
 188.35  
 1.89  
 181.16  
 2.26  
 183.43  
 6.46  
 176.97



40° 7' 80° 8'  
 60° 31' 26.5  
 40° 4.5  
 10736.50  
 255  
 55.61  
 154.92  
 26.5  
 2.5  
 5 31  
 5 69  
 10 20  
 38 6.5  
 6.0  
 193.58  
 11.71  
 781.85  
 16  
 10 11  
 3 5  
 176.35  
 12.45  
 73.80  
 174.25  
 2.86  
 173.39  
 37  
 173.14  
 11.47  
 1 12.29  
 1.87  
 1 14.13  
 7.94  
 154.19  
 100° 6'  
 11° 2'  
 0 24'  
 158.36  
 732  
 150.99  
 892  
 109.98  
 5.00  
 154.98  
 11.20  
 159.68  
 95  
 158.73  
 1231  
 171.04  
 41  
 170.63  
 764  
 178.15  
 158.15  
 43.5  
 133.8  
 654  
 180.39  
 65  
 179.74  
 111.15  
 170.89  
 36  
 170.53  
 354  
 174.05



# DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

Roadway 16 feet wide. Side Slopes 1 on 1 1/2.  
For Single Track Embankment.

| H  | 0    | .1   | .2   | .3   | .4   | .5   | .6   | .7   | .8   | .9   | H  |
|----|------|------|------|------|------|------|------|------|------|------|----|
| 0  | 8.0  | 8.2  | 8.3  | 8.5  | 8.6  | 8.8  | 8.9  | 9.1  | 9.2  | 9.4  | 0  |
| 1  | 9.5  | 9.7  | 9.8  | 10.0 | 10.1 | 10.3 | 10.4 | 10.6 | 10.7 | 10.9 | 1  |
| 2  | 11.0 | 11.2 | 11.3 | 11.5 | 11.6 | 11.8 | 11.9 | 12.1 | 12.2 | 12.4 | 2  |
| 3  | 12.5 | 12.7 | 12.8 | 13.0 | 13.1 | 13.3 | 13.4 | 13.6 | 13.7 | 13.9 | 3  |
| 4  | 14.0 | 14.2 | 14.3 | 14.5 | 14.6 | 14.8 | 14.9 | 15.1 | 15.2 | 15.4 | 4  |
| 5  | 15.5 | 15.7 | 15.8 | 16.0 | 16.1 | 16.3 | 16.4 | 16.6 | 16.7 | 16.9 | 5  |
| 6  | 17.0 | 17.2 | 17.3 | 17.5 | 17.6 | 17.8 | 17.9 | 18.1 | 18.2 | 18.4 | 6  |
| 7  | 18.5 | 18.7 | 18.8 | 19.0 | 19.1 | 19.3 | 19.4 | 19.6 | 19.7 | 19.9 | 7  |
| 8  | 20.0 | 20.2 | 20.3 | 20.5 | 20.6 | 20.8 | 20.9 | 21.1 | 21.2 | 21.4 | 8  |
| 9  | 21.5 | 21.7 | 21.8 | 22.0 | 22.1 | 22.3 | 22.4 | 22.6 | 22.7 | 22.9 | 9  |
| 10 | 23.0 | 23.2 | 23.3 | 23.5 | 23.6 | 23.8 | 23.9 | 24.1 | 24.2 | 24.4 | 10 |
| 11 | 24.5 | 24.7 | 24.8 | 25.0 | 25.1 | 25.3 | 25.4 | 25.6 | 25.7 | 25.9 | 11 |
| 12 | 26.0 | 26.2 | 26.3 | 26.5 | 26.6 | 26.8 | 26.9 | 27.1 | 27.2 | 27.4 | 12 |
| 13 | 27.5 | 27.7 | 27.8 | 28.0 | 28.1 | 28.3 | 28.4 | 28.6 | 28.7 | 28.9 | 13 |
| 14 | 29.0 | 29.2 | 29.3 | 29.5 | 29.6 | 29.8 | 29.9 | 30.1 | 30.2 | 30.4 | 14 |
| 15 | 30.5 | 30.7 | 30.8 | 31.0 | 31.1 | 31.3 | 31.4 | 31.6 | 31.7 | 31.9 | 15 |
| 16 | 32.0 | 32.2 | 32.3 | 32.5 | 32.6 | 32.8 | 32.9 | 33.1 | 33.2 | 33.4 | 16 |
| 17 | 33.5 | 33.7 | 33.8 | 34.0 | 34.1 | 34.3 | 34.4 | 34.6 | 34.7 | 34.9 | 17 |
| 18 | 35.0 | 35.2 | 35.3 | 35.5 | 35.6 | 35.8 | 35.9 | 36.1 | 36.2 | 36.4 | 18 |
| 19 | 36.5 | 36.7 | 36.8 | 37.0 | 37.1 | 37.3 | 37.4 | 37.6 | 37.7 | 37.9 | 19 |
| 20 | 38.0 | 38.2 | 38.3 | 38.5 | 38.6 | 38.8 | 38.9 | 39.1 | 39.2 | 39.4 | 20 |
| 21 | 39.5 | 39.7 | 39.8 | 40.0 | 40.1 | 40.3 | 40.4 | 40.6 | 40.7 | 40.9 | 21 |
| 22 | 41.0 | 41.2 | 41.3 | 41.5 | 41.6 | 41.8 | 41.9 | 42.1 | 42.2 | 42.4 | 22 |
| 23 | 42.5 | 42.7 | 42.8 | 43.0 | 43.1 | 43.3 | 43.4 | 43.6 | 43.7 | 43.9 | 23 |
| 24 | 44.0 | 44.2 | 44.3 | 44.5 | 44.6 | 44.8 | 44.9 | 45.1 | 45.2 | 45.4 | 24 |
| 25 | 45.5 | 45.7 | 45.8 | 46.0 | 46.1 | 46.3 | 46.4 | 46.6 | 46.7 | 46.9 | 25 |
| 26 | 47.0 | 47.2 | 47.3 | 47.5 | 47.6 | 47.8 | 47.9 | 48.1 | 48.2 | 48.4 | 26 |
| 27 | 48.5 | 48.7 | 48.8 | 49.0 | 49.1 | 49.3 | 49.4 | 49.6 | 49.7 | 49.9 | 27 |
| 28 | 50.0 | 50.2 | 50.3 | 50.5 | 50.6 | 50.8 | 50.9 | 51.1 | 51.2 | 51.4 | 28 |
| 29 | 51.5 | 51.7 | 51.8 | 52.0 | 52.1 | 52.3 | 52.4 | 52.6 | 52.7 | 52.9 | 29 |
| 30 | 53.0 | 53.2 | 53.3 | 53.5 | 53.6 | 53.8 | 53.9 | 54.1 | 54.2 | 54.4 | 30 |
| 31 | 54.5 | 54.7 | 54.8 | 55.0 | 55.1 | 55.3 | 55.4 | 55.6 | 55.7 | 55.9 | 31 |
| 32 | 56.0 | 56.2 | 56.3 | 56.5 | 56.6 | 56.8 | 56.9 | 57.1 | 57.2 | 57.4 | 32 |
| 33 | 57.5 | 57.7 | 57.8 | 58.0 | 58.1 | 58.3 | 58.4 | 58.6 | 58.7 | 58.9 | 33 |
| 34 | 59.0 | 59.2 | 59.3 | 59.5 | 59.6 | 59.8 | 59.9 | 60.1 | 60.2 | 60.4 | 34 |
| 35 | 60.5 | 60.7 | 60.8 | 61.0 | 61.1 | 61.3 | 61.4 | 61.6 | 61.7 | 61.9 | 35 |
| 36 | 62.0 | 62.2 | 62.3 | 62.5 | 62.6 | 62.8 | 62.9 | 63.1 | 63.2 | 63.4 | 36 |
| 37 | 63.5 | 63.7 | 63.8 | 64.0 | 64.1 | 64.3 | 64.4 | 64.6 | 64.7 | 64.9 | 37 |
| 38 | 65.0 | 65.2 | 65.3 | 65.5 | 65.6 | 65.8 | 65.9 | 66.1 | 66.2 | 66.4 | 38 |
| 39 | 66.5 | 66.7 | 66.8 | 67.0 | 67.1 | 67.3 | 67.4 | 67.6 | 67.7 | 67.9 | 39 |
| 40 | 68.0 | 68.2 | 68.3 | 68.5 | 68.6 | 68.8 | 68.9 | 69.1 | 69.2 | 69.4 | 40 |

**Example**—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 41.9. For same slopes but other widths of roadbed correct above figures by one-half difference in width of roadbed; thus in example above for 20 ft. roadbed distance will be 41.9 + (20—16) \* 2 or 2 ft. added to 41.9 = 43.9. For slopes of 1 on 1 see inside of front cover.