

1065

DIETZGEN  
TRADE MARK

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ENGINEERS  
FIELD BOOK

No. 403

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# 1065

## 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.

MICROFILMED

211264

| H  | 0    | .2   | .3   | .5   | .6   | .7   | .8   | .9   | H    |      |    |
|----|------|------|------|------|------|------|------|------|------|------|----|
| 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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Lytton from Rosecrans to Evergreen 1-1

Cañon Rd. To Catalina Blvd 7-27  
Alignment of Cañon Rd 28-34

6/25/19 Gregory Miller Shaw Levels on E of Lytton from Rosecrans to Evergreen

|                                  | 12.15 | 53.90 |      | 41.75 | B.P. SW Lytton |
|----------------------------------|-------|-------|------|-------|----------------|
| W.L. Rosecrans                   |       |       | 120  | 41.9  |                |
| 50' W                            |       |       | 11.0 | 42.9  |                |
| 100 W                            |       |       | 9.4  | 44.5  |                |
| 150' ✓                           |       |       | 7.8  | 46.1  |                |
| 200 ✓                            |       |       | 6.3  | 47.6  |                |
| 250 ✓                            |       |       | 4.7  | 49.2  |                |
| 300 ✓ = E.L. Locust 70' wide     |       |       | 3.0  | 50.9  |                |
| ↳ Locust on Manhole              |       |       | 2.1  | 51.8  |                |
| W.L. Locust                      |       |       | 1.5  | 52.4  |                |
| 50' W                            |       |       | 0.5  | 53.4  |                |
| T.P.                             | 9.34  | 62.90 | 0.34 | 53.56 |                |
| 100' W                           |       |       | 8.4  | 54.5  |                |
| 150' W                           |       |       | 7.2  | 55.7  |                |
| 200' W                           |       |       | 6.0  | 56.9  |                |
| 250' ✓                           |       |       | 4.8  | 58.1  |                |
| 300' ✓ = E.L. Evergreen 70' wide |       |       | 3.4  | 59.5  |                |
| ↳ Evergreen                      |       |       | 2.4  | 60.5  |                |
| W.L. ✓ -                         |       |       | 1.1  | 61.0  |                |

6/25/19 Gregory Miller Shaw Levels on E of Traveled Roadway on Rosecrans St.

|                                | 8.09  | 49.24 |      | 41.75 | B.P. SW Lytton |
|--------------------------------|-------|-------|------|-------|----------------|
| ↳ Lytton                       |       |       | 8.3  | 41.5  |                |
| S.L. Lytton (21' from 16' cb.) |       |       | 8.3  | 41.5  |                |
| 50' So.                        |       |       | 8.0  | 41.8  |                |
| 100 ✓                          |       |       | 7.2  | 42.6  |                |
| 200 ✓ = N.L. Kingsley 70'      |       |       | 5.6  | 44.2  |                |
| ↳ Kingsley                     |       |       | 4.9  | 44.9  |                |
| 3L. ✓                          |       |       | 4.4  | 45.4  |                |
| 100 So.                        |       |       | 3.0  | 46.8  |                |
| 200' - = N.L. James            |       |       | 1.0  | 48.8  |                |
| T.P. 8.09                      | 57.61 |       | 0.22 | 49.52 |                |
| ↳ James                        |       |       | 7.7  | 49.9  |                |
| 3L. ✓ (18' from 16' cb.)       |       |       | 6.9  | 50.7  |                |
| 50' So.                        |       |       | 5.9  | 51.7  |                |
| 100 ✓                          |       |       | 4.9  | 52.4  |                |
| 150' -                         |       |       | 4.1  | 53.5  |                |
| 200' So. = N.L. Ibsen          |       |       | 3.1  | 54.5  |                |
| ↳ Ibsen                        |       |       | 2.1  | 54.9  |                |
| 5L. ✓ (20' from ab.)           |       |       | 3.0  | 54.6  |                |
| 100 So.                        |       |       | 5.1  | 52.5  |                |
| 200' ✓ = N.L. Homer            |       |       | 7.0  | 50.6  |                |
| ↳ Homer                        |       |       | 7.5  | 50.1  |                |
| 3L. ✓ ✓                        |       |       | 8.0  | 49.6  |                |
| 100 So.                        |       |       | 9.7  | 47.9  |                |
| 140' ✓ -                       |       |       | 10.3 | 47.3  |                |
| 200' ✓ = N.L. Goldsmith        |       |       | 10.5 | 47.1  |                |

|                            |       |       |       |                      |
|----------------------------|-------|-------|-------|----------------------|
| ♀ Goldsmith                |       |       | 10.7  | 46.9                 |
| SL. - -                    |       |       | 10.8  | 46.8                 |
| 100' So.                   |       |       | 10.1  | 47.5                 |
| 200' So = NL Freeman 70'   |       |       | 9.1   | 48.5                 |
| T.P.                       | 4.47  | 53.58 | 8.50  | 49.11                |
| ♀ Freeman                  |       |       | 4.2   | 49.4                 |
| SL. ✓ -                    |       |       | 4.0   | 49.6                 |
| 100' So:                   |       |       | 3.1   | 50.2                 |
| 200' ✓ = NL Elliott 70'    |       |       | 2.8   | 50.8                 |
| ♀ Elliott                  |       |       | 2.7   | 50.9                 |
| SL. ✓                      |       |       | 3.0   | 50.6                 |
| 100' So                    |       |       | 4.3   | 49.3                 |
| 200' ✓ = NL Dumas 70'      |       |       | 6.1   | 49.5                 |
| ♀ Dumas                    |       |       | 6.5   | 47.1                 |
| SL Dumas (12' from ♀ Rose) |       |       | 7.1   | 46.5                 |
| 100' So.                   |       |       | 9.0   | 46.6                 |
| 200' ✓ = NL Curtis 70'     |       |       | 10.9  | 42.7                 |
| ♀ Curtis                   |       |       | 11.5  | 42.1                 |
| SL. ✓ ✓                    |       |       | 12.3  | 42.3                 |
| T.P.                       | 12.65 | 53.95 | 12.28 | 41.30                |
| chk B.M.                   |       |       | 9.62  | 44.33 = BP SW Curtis |
| T.P.                       | 0.01  | 41.31 | 12.65 | 41.30                |
| 100' So.                   |       |       | 2.2   | 39.1                 |
| 200' So = NL Browning 70'  |       |       | 4.8   | 36.5                 |
| ♀ Browning                 |       |       | 5.8   | 35.5                 |
| SL. ✓                      |       |       | 6.7   | 34.6                 |

|                          |      |       |       |       |
|--------------------------|------|-------|-------|-------|
| 100' So.                 |      |       | 8.8   | 32.5  |
| 200' So = NL Alcott 70'  |      |       | 11.1  | 30.2  |
| ♀ Alcott                 |      |       | 11.9  | 29.4  |
| SL. ✓                    |      |       | 12.8  | 28.5  |
| T.P.                     | 1.38 | 29.91 | 12.78 | 28.53 |
| 100' So.                 |      |       | 3.0   | 26.9  |
| 200' So = NL Zouch       |      |       | 4.1   | 25.8  |
| ♀ Zouch                  |      |       | 4.2   | 25.7  |
| SL. ✓                    |      |       | 4.4   | 25.5  |
| 100' So.                 |      |       | 5.4   | 24.5  |
| 200' ✓ = NL Yonge 70'    |      |       | 6.6   | 23.3  |
| ♀ Yonge                  |      |       | 7.1   | 22.8  |
| SL. ✓                    |      |       | 7.4   | 22.5  |
| 100' So.                 |      |       | 8.8   | 21.1  |
| 200' ✓ = NL Xenophon     |      |       | 11.0  | 18.9  |
| ♀ X                      |      |       | 11.9  | 18.0  |
| SL. ✓ -                  |      |       | 12.7  | 17.2  |
| T.P.                     | 0.22 | 18.23 | 11.80 | 18.01 |
| 100' So.                 |      |       | 3.4   | 14.8  |
| 200' So = NL Whittier    |      |       | 5.3   | 12.9  |
| ♀ Whittier               |      |       | 5.6   | 12.6  |
| SL. ✓                    |      |       | 5.7   | 12.5  |
| 100' So.                 |      |       | 5.7   | 12.5  |
| 200' ✓ = NL Voltaire 70' |      |       | 5.2   | 13.0  |
| ♀ Voltaire               |      |       | 5.0   | 13.2  |
| SL. ✓                    |      |       | 4.8   | 13.4  |

14. Xenophon  
B.P.

|                             |      |       |       |      |
|-----------------------------|------|-------|-------|------|
| 100' So.                    |      |       | 5.0   | 13.2 |
| 200' ✓ = N.L. Udal          |      |       | 6.7   | 11.5 |
| ↓ Udal                      |      |       | 7.6   | 10.6 |
| SL ✓                        |      |       | 8.5   | 9.7  |
| 100' So.                    |      |       | 11.3  | 6.9  |
| T.P.                        | 4.39 | 9.78  | 12.84 | 5.39 |
| 200' So. = N.L. Tennyson    |      |       | 5.3   | 4.5  |
| ↓ Tennyson                  |      |       | 5.8   | 4.0  |
| SL ✓ ✓                      |      |       | 6.3   | 3.5  |
| 100' So.                    |      |       | 7.2   | 2.6  |
| 200' ✓ = N.L. Sterne        |      |       | 7.3   | 2.5  |
| ↓ Sterne                    |      |       | 7.1   | 2.7  |
| SL ✓                        |      |       | 6.7   | 3.1  |
| 100' So.                    |      |       | 5.7   | 4.1  |
| 200' So. = N.L. Russell 70' |      |       | 4.9   | 4.9  |
| ↓ Russell                   |      |       | 4.8   | 5.0  |
| SL ✓ ✓                      |      |       | 4.8   | 5.0  |
| 100' So.                    |      |       | 4.5   | 5.3  |
| 200' ✓ = N.L. Quimby        |      |       | 4.4   | 5.4  |
| ↓ Quimby                    |      |       | 4.5   | 5.3  |
| SL ✓                        |      |       | 4.5   | 5.3  |
| 100' So.                    |      |       | 4.6   | 5.2  |
| 200' ✓ = N.L. Poe           |      |       | 4.8   | 5.0  |
| T.P.                        | 7.26 | 12.30 | 4.72  | 5.04 |
| ↓ Poe                       |      |       | 7.0   | 5.3  |
| SL ✓                        |      |       | 7.0   | 5.3  |

|                          |      |       |      |                    |          |
|--------------------------|------|-------|------|--------------------|----------|
| 100' So.                 |      |       | 6.7  | 5.6                |          |
| 200' So. = N.L. Oliphant |      |       | 6.2  | 6.1                |          |
| ↓ Oli.                   |      |       | 6.1  | 6.2                |          |
| SL ✓                     |      |       | 6.0  | 6.3                |          |
| 100' So.                 |      |       | 5.3  | 7.0                |          |
| 200' ✓ = N.L. Newell     |      |       | 4.4  | 7.9                |          |
| ↓ Newell                 |      |       | 4.1  | 8.2                |          |
| SL ✓                     |      |       | 3.7  | 8.6                |          |
| 100' So.                 |      |       | 3.0  | 9.3                |          |
| 200' ✓ = N.L. Macaulay   |      |       | 2.4  | 9.9                | on track |
| ↓ Macaulay               |      |       | 2.2  | 10.1               |          |
| SL ✓                     |      |       | 2.3  | 10.0               |          |
| T.P.                     | 15.6 | 11.37 | 2.49 | 7.81               |          |
| 100' So.                 |      |       | 1.7  | 9.7                |          |
| 200' ✓ = N.L. Lowell     |      |       | 2.5  | 8.9                |          |
| ↓ Lowell                 |      |       | 2.8  | 8.6                |          |
| chk B.M.                 |      |       | 3.30 | 8.07 = 34. Lowell. |          |
| SL Lowell                |      |       | 3.1  | 8.3                |          |
| 100' So.                 |      |       | 3.7  | 7.7                |          |
| 200' ✓ = N.L. Keats      |      |       | 4.5  | 6.9                |          |
| ↓ Keats                  |      |       | 4.8  | 6.6                |          |
| SL ✓                     |      |       | 5.1  | 6.3                |          |
| 100' So.                 |      |       | 5.7  | 5.7                |          |
| 200' ✓ = N.L. Jarris     |      |       | 6.4  | 5.0                |          |
| ↓ Jarris                 |      |       | 6.8  | 4.6                |          |
| SL ✓ ✓                   |      |       | 7.3  | 4.1                |          |

|                       |       |       |      |                |
|-----------------------|-------|-------|------|----------------|
| 100' So               |       |       | 8.3  | 3.1            |
| 200' So = NL Ingelow  |       |       | 9.1  | 2.3            |
| T.P.                  | 4.28  | 6.50  | 9.15 | 2.22           |
| ↓ Ingelow             |       |       | 4.3  | 2.2            |
| SoL. ✓                |       |       | 4.4  | 2.1            |
| 100' So.              |       |       | 4.6  | 1.9            |
| 200' So. = NL Hugo.   |       |       | 4.7  | 1.8            |
| ↓ Hugo.               |       |       | 4.7  | 1.8            |
| SoL. ✓                |       |       | 4.7  | 1.8            |
| chk B.M.              |       |       | 4.33 | 2.17 =<br>2.16 |
| 100' So.              |       |       | 4.9  | 1.6            |
| 200' So = NL Goethe   |       |       | 5.1  | 1.4            |
| ↓ Goethe              |       |       | 5.2  | 1.3            |
| SoL. ✓                |       |       | 5.3  | 1.2            |
| 100' So.              |       |       | 5.0  | 1.5            |
| 200' So = NL Fenelon  |       |       | 4.9  | 1.6            |
| ↓ Fenelon             |       |       | 4.7  | 1.8            |
| SoL. ✓                |       |       | 4.3  | 2.2            |
| 100' So.              |       |       | 3.7  | 2.8            |
| T.P.                  | 11.18 | 14.08 | 9.60 | 2.90           |
| 200' So. = NL Emerson |       |       | 10.2 | 2.9            |
| ↓ Emerson             |       |       | 9.7  | 4.4            |
| SoL. ✓ ✓              |       |       | 9.2  | 4.9            |
| chk B.M.              |       |       | 8.33 | 5.75 =<br>5.71 |
| 100' So.              |       |       | 7.5  | 6.6            |
| 200' So = NL Dickens  |       |       | 5.6  | 8.8            |

SPK SW  
Hugo.SW Emerson  
SPK

|                                     |       |       |
|-------------------------------------|-------|-------|
| ↓ Dickens (12' from & Rosierans)    | 5.0   | 9.1   |
| SoL. ✓                              | 4.5   | 9.6   |
| 100' So.                            | 2.7   | 11.4  |
| 200' So. = NL Carleton.             | 1.0   | 13.1  |
| ↓ Carleton                          | 0.2   | 13.9  |
| T.P.                                | 10.18 | 24.17 |
| chk B.M.                            | 9.62  | 14.55 |
| SoL. Carleton                       | 9.8   | 14.4  |
| 100' So.                            | 8.0   | 16.2  |
| 200' So = NL Byron                  | 6.6   | 17.6  |
| ↓ Byron                             | 6.1   | 18.1  |
| SoL. ✓                              | 5.8   | 18.4  |
| 100' So.                            | 5.2   | 19.0  |
| 200' So. = NL Addison 70'           | 4.8   | 19.4  |
| ↓ Addison                           | 4.6   | 19.6  |
| SoL. ✓ ✓                            | 4.6   | 19.6  |
| 100' So.                            | 4.2   | 20.0  |
| 155' So = NL Canon Rd.              | 3.7   | 20.5  |
| T.P.                                | 3.53  | 24.21 |
| SoL. Canon Rd. (9' E of E of Track) | 4.3   | 19.9  |
| 100' So.                            | 4.7   | 19.5  |
| 200' So = NL 1st St.                | 4.9   | 19.3  |
| ↓ 1st St.                           | 4.9   | 19.3  |
| SoL. 1st St.                        | 4.6   | 19.6  |
| 100' So.                            | 3.7   | 20.5  |
| 200' So. = NL 2nd St.               | 4.3   | 21.9  |

SW Carleton

SW BPCanon  
Rd

|                                   |       |       |       |       |
|-----------------------------------|-------|-------|-------|-------|
| L 2nd St.                         |       |       | 1.7   | 22.5  |
| So. L. ✓                          |       |       | 1.4   | 22.8  |
| T.P.                              | 7.93  | 30.76 | 1.38  | 22.83 |
| So. Line Magnetic at L's thereto. |       |       | 8.0   | 22.8  |
| 100' So.                          |       |       | 7.5   | 23.3  |
| 200' So.                          |       |       | 6.5   | 24.3  |
| 300' ✓                            |       |       | 5.5   | 25.3  |
| 400' ✓                            |       |       | 4.7   | 26.1  |
| 500' ✓                            |       |       | 3.8   | 27.0  |
| 533 L - NL Bessemer 60'           |       |       | 3.6   | 27.2  |
| L Bessemer                        |       |       | 3.1   | 27.7  |
| SL. ✓                             |       |       | 2.4   | 28.4  |
| T.P.                              | 11.86 | 39.99 | 2.63  | 28.13 |
| chk B.M.                          |       |       | 12.01 | 27.98 |
| 100' So.                          |       |       | 7.4   | 32.6  |
| 200' ✓                            |       |       | 3.0   | 37.0  |
| T.P.                              | 12.51 | 52.05 | 0.45  | 39.54 |
| 300' So.                          |       |       | 10.7  | 41.4  |
| 400' ✓                            |       |       | 6.2   | 45.9  |
| 500' ✓                            |       |       | 2.5   | 49.6  |
| 504.9 ✓ = NL. PL. 177             |       |       | 2.2   | 49.9  |
| 60' So. of PL.                    |       |       | 0.3   | 51.8  |
| T.P.                              | 1.30  | 52.88 | 0.47  | 51.38 |
| 100' So.                          |       |       | 0.5   | 52.4  |
| 175' So.                          |       |       | 0.7   | 52.2  |
| 150' ✓                            |       |       | 1.2   | 51.7  |

NL Bessemer

|                         |       |       |       |              |
|-------------------------|-------|-------|-------|--------------|
| 175' So.                |       |       | 1.9   | 51.0         |
| 200' ✓                  |       |       | 2.9   | 50.0         |
| 300' ✓                  |       |       | 6.7   | 46.0         |
| 400' ✓                  |       |       | 11.1  | 41.8         |
| T.P.                    | 0.11  | 40.29 | 12.70 | 40.18        |
| 500' So.                |       |       | 2.7   | 37.6         |
| 600' So.                |       |       | 6.6   | 33.7         |
| 661.9 So. = SL. PL. 177 |       |       | 8.6   | 31.7         |
| 35' So. of P.L.         |       |       | 9.3   | 31.0         |
| 70' ✓ - - -             |       |       | 9.3   | 31.0         |
| 100' ✓ - - -            |       |       | 8.8   | 31.5         |
| 150' ✓ - - -            |       |       | 7.6   | 32.7         |
| 200' ✓ - - -            |       |       | 5.9   | 34.4         |
| 300' ✓ ✓ ✓              |       |       | 1.8   | 38.5         |
| T.P.                    | 12.09 | 51.60 | 0.78  | 39.51        |
| 400' ✓ ✓ ✓              |       |       | 9.1   | 42.5         |
| 464.8 = NL. Rogers      |       |       | 6.4   | 45.8         |
| 5L. Rogers              |       |       | 5.1   | 46.5         |
| 50' So.                 |       |       | 2.9   | 48.7         |
| 100' ✓                  |       |       | 0.4   | 51.2         |
| T.P.                    | 12.42 | 63.86 | 0.16  | 51.44        |
| 200' So.                |       |       | 7.7   | 56.2         |
| 200' ✓ = NL. Qualtrough |       |       | 4.2   | 59.7         |
| 300' ✓                  |       |       | 2.7   | 61.2         |
| 5L. Qualt.              |       |       | 1.7   | 62.2         |
| chk B.M.                |       |       | 1.85  | 62.01 = 55.0 |
| 100' So.                |       |       | 1.0   | 62.9         |

55.0 PD

63.86

|                            |      |       |       |         |            |
|----------------------------|------|-------|-------|---------|------------|
| 200' So                    |      |       | 0.3   | 63.6    |            |
| T.P.                       | 2.10 | 65.84 | 0.12  | 63.74   |            |
| 305.4 ✓ = N.L. Perry       | 50'  |       | 1.5   | 64.3    |            |
| 35' So. of N.L.            |      |       | 1.5   | 64.3    |            |
| 50' Lino Perry             |      |       | 1.7   | 64.1    |            |
| 50' So.                    |      |       | 4.0   | 61.8    |            |
| 100' ✓                     |      |       | 6.6   | 57.3    |            |
| 200' ✓                     |      |       | 11.8  | 54.0    |            |
| T.P.                       | 1.16 | 54.75 | 12.25 | 53.59   |            |
| 280' So                    |      |       | 4.7   | 50.1    |            |
| 300' So = N.L. Owens       |      |       | 5.3   | 49.5    | edge parc. |
| 5L Owens.                  |      |       | 6.4   | 48.4    | ✓ -        |
| CHK                        |      |       | 6.74  | 48.01 = | BPSE Owens |
| 100' So.                   |      |       | 8.7   | 46.1    |            |
| 200' ✓                     |      |       | 10.9  | 43.9    |            |
| 300' ✓ = N.L. Nichols      |      |       | 13.0  | 41.8    |            |
| T.P.                       | 0.00 | 41.60 | 13.15 | 41.60 = | BPSE Nich. |
| 5L Nichols                 |      |       | 0.4   | 41.2    |            |
| 100' So.                   |      |       | 1.7   | 39.9    |            |
| 200' ✓                     |      |       | 3.0   | 38.6    |            |
| 300' ✓ = N.L. McCall (50') |      |       | 4.1   | 37.5    | edge parc. |
|                            |      |       | 3.41  | 38.19 = | NN McCall  |
| 5L McCall                  |      |       | 4.6   | 37.0    | edge parc. |
| 100' So.                   |      |       | 5.3   | 36.3    |            |
| 200' ✓                     |      |       | 5.9   | 35.7    |            |
| 300' ✓ = N.L. Lawrence     |      |       | 6.0   | 35.6    | edge parc. |
| 5L Lawrence                |      |       | 6.2   | 35.4    | ✓ ✓        |
| 100' So.                   |      |       | 6.7   | 34.9    |            |

41.60

6

|                           |     |      |            |
|---------------------------|-----|------|------------|
| 200' So.                  | 7.4 | 34.2 |            |
| 300' ✓ = N.L. Kellogg     | 7.5 | 34.1 | edge parc. |
| 5L Kellogg.               | 7.7 | 33.9 | ✓ -        |
| 100' So.                  | 7.1 | 34.5 |            |
| 200' ✓                    | 6.5 | 35.1 |            |
| 453 25 = Reservation Line | 6.1 | 35.5 |            |



6/26/19 Gregory  
Miller  
Shaw

CROSS SECTION of 30' of  
Canon Road for paving  
For Alignment see page 29

31.7

7

1+50

|                                       | 11.04 | 31.71                               | 20.67 | BP 31V Canon Rd + Rosecans |       |     |      |
|---------------------------------------|-------|-------------------------------------|-------|----------------------------|-------|-----|------|
|                                       |       |                                     |       |                            | 18' R | 6.7 | 25.0 |
|                                       |       | 0+00 = C of Canon Rd + Mt. Rosecans |       |                            | 16' ✓ | 7.1 | 24.6 |
| 15' So. of L                          |       | 10.4                                | 21.3  |                            | 15' ✓ | 8.7 | 23.0 |
| 10' ✓                                 |       | 10.2                                | 21.5  |                            | 12' ✓ | 7.0 | 24.7 |
| C                                     |       | 10.0                                | 21.7  |                            | 10' ✓ | 6.9 | 24.8 |
| 10' No. of R                          |       | 10.3                                | 21.4  |                            | C     | 6.5 | 25.2 |
| 15' No. of R.                         |       | 10.6                                | 21.1  |                            | 10' L | 6.5 | 25.2 |
|                                       |       | 0+50                                |       |                            | 15' L | 6.5 | 25.2 |
| 19' R                                 |       | 10.3                                | 21.4  |                            |       |     |      |
| 15' R                                 |       | 10.1                                | 21.6  |                            | 15' L | 5.2 | 26.5 |
| 10' R                                 |       | 9.6                                 | 22.1  |                            | 10' L | 5.4 | 26.5 |
| C                                     |       | 9.3                                 | 22.4  |                            | C     | 5.2 | 26.5 |
| 10' L                                 |       | 9.2                                 | 22.5  |                            | 10' R | 5.4 | 26.3 |
| 15' L                                 |       | 9.3                                 | 22.4  |                            | 11' ✓ | 5.4 | 26.3 |
|                                       |       | 0+81                                |       |                            | 13' ✓ | 6.4 | 25.5 |
| ctr of Cement approach to G L of Ctr. |       | 8.5                                 | 23.2  |                            | 15' ✓ | 6.3 | 25.4 |
|                                       |       | 1+00                                |       |                            | 17' ✓ | 5.3 | 26.4 |
| 15' L                                 |       | 7.8                                 | 23.9  |                            | 20' ✓ | 5.3 | 26.4 |
| 10' ✓                                 |       | 7.8                                 | 23.9  |                            |       |     |      |
| C                                     |       | 7.9                                 | 23.8  |                            |       |     |      |
| 10' R                                 |       | 8.1                                 | 23.6  |                            | 20' R | 4.0 | 27.7 |
| 14' ✓                                 |       | 8.5                                 | 23.2  |                            | 15' R | 3.7 | 28.0 |
| 15' ✓                                 |       | 9.1                                 | 22.6  |                            | 13' ✓ | 4.7 | 27.0 |
| 17' ✓                                 |       | 9.2                                 | 22.5  |                            | 10' ✓ | 4.2 | 27.5 |
| 20' ✓                                 |       | 8.1                                 | 23.6  |                            | C     | 3.7 | 28.0 |
|                                       |       |                                     |       |                            | 10' L | 3.8 | 27.9 |
|                                       |       |                                     |       |                            | 15' L | 3.8 | 27.9 |

2+00

2+50

31.71

Canon

3400

|       |     |      |
|-------|-----|------|
| 15' L | 2.2 | 29.5 |
| 10' L | 2.2 | 29.5 |
| C     | 2.1 | 29.6 |
| 10' R | 2.5 | 29.2 |
| 14' v | 3.1 | 28.6 |
| 15' v | 2.3 | 29.4 |
| 20' - | 2.0 | 29.7 |

3450

|       |       |       |
|-------|-------|-------|
| 15' R | 0.9   | 30.8  |
| 10' v | 0.9   | 30.8  |
| C     | 0.5   | 31.2  |
| 10' L | 0.5   | 31.2  |
| 15' L | 0.5   | 31.2  |
| T.P.  | 11.53 | 43.00 |
|       |       | 0.24  |
|       |       | 31.47 |

4400

|       |      |      |
|-------|------|------|
| 15' L | 10.6 | 32.4 |
| 10' L | 10.6 | 32.4 |
| C     | 10.5 | 32.5 |
| 10' R | 10.9 | 32.1 |
| 15' R | 10.8 | 32.2 |

4450

|       |     |      |
|-------|-----|------|
| 15' R | 9.8 | 33.2 |
| 10' v | 9.4 | 33.6 |
| C     | 9.0 | 34.0 |
| 10' L | 9.1 | 33.9 |

15' L

5400

|       |     |      |
|-------|-----|------|
| 15' L | 8.7 | 34.3 |
| 15' L | 7.5 | 35.5 |
| 10' L | 7.8 | 35.2 |
| C     | 7.6 | 35.4 |
| 10' R | 8.1 | 34.9 |
| 15' R | 7.8 | 35.2 |

5455.64 = P.C.

|       |     |      |
|-------|-----|------|
| 15' R | 5.9 | 37.1 |
| 10' R | 5.8 | 37.2 |
| C     | 5.4 | 37.6 |
| 10' L | 5.4 | 37.6 |
| 15' L | 5.5 | 37.5 |

6400

|       |     |      |
|-------|-----|------|
| 15' L | 3.3 | 39.7 |
| 10' L | 3.6 | 39.4 |
| 9' L  | 4.0 | 39.0 |
| 6' L  | 3.5 | 39.5 |
| C     | 3.6 | 39.6 |
| 10' R | 3.8 | 39.2 |
| 15' R | 4.0 | 39.0 |

6450

|       |     |      |
|-------|-----|------|
| 15' R | 2.0 | 41.0 |
| 10' R | 1.7 | 41.3 |
| C     | 1.4 | 41.6 |
| 10' L | 1.2 | 41.8 |
| 15' L | 1.2 | 41.8 |

| T.P.                  | 12.08 | ✓<br>53.86       | 1.22 | ✓<br>41.78 | 40' robot<br>P.I. 57445 |
|-----------------------|-------|------------------|------|------------|-------------------------|
|                       |       | 7+00             |      |            |                         |
| 15' L                 |       |                  | 8.6  | 45.1       |                         |
| 10' ✓                 |       |                  | 9.1  | 44.8       |                         |
| C                     |       |                  | 9.4  | 44.5       |                         |
| 10' R                 |       |                  | 9.7  | 44.2       |                         |
| 15' R                 |       |                  | 10.1 | 43.8       |                         |
|                       |       | 7+50             |      |            |                         |
| 15' R                 |       |                  | 7.4  | 46.5       |                         |
| 10' R                 |       |                  | 7.0  | 46.9       |                         |
| C                     |       |                  | 6.5  | 47.4       |                         |
| 10' L                 |       |                  | 6.4  | 47.5       |                         |
| 15' L                 |       |                  | 6.3  | 47.6       |                         |
|                       |       | 7+97.16 = P.R.C. |      |            |                         |
| 20.2' L = Top cb.     |       |                  | 3.63 | 50.23      |                         |
| 17.7' L = edge gutter |       |                  | 4.4  | 49.5       |                         |
| 15' L                 |       |                  | 4.3  | 49.6       |                         |
| 10' L                 |       |                  | 4.2  | 49.7       |                         |
| C                     |       |                  | 4.2  | 49.7       |                         |
| 10' R                 |       |                  | 4.5  | 49.4       |                         |
| 15' R                 |       |                  | 4.5  | 49.4       |                         |
|                       |       | 8+19.88 = C.C.   |      |            |                         |
| 15' R                 |       |                  | 3.1  | 50.8       |                         |
| 10' R                 |       |                  | 2.9  | 51.0       |                         |
| C                     |       |                  | 2.9  | 51.0       |                         |
| 10' L                 |       |                  | 2.9  | 51.0       |                         |

| 15' L                 |       |       |  | 3.1            | 50.8  |
|-----------------------|-------|-------|--|----------------|-------|
|                       |       |       |  | 8+42.61 = E.C. |       |
| 18.75' L = Top Cb.    |       |       |  | 1.41           | 52.43 |
| 16.3' L = edge gutter |       |       |  | 2.21           | 51.63 |
| 15' L                 |       |       |  | 2.1            | 51.8  |
| 10' L                 |       |       |  | 1.8            | 52.1  |
| C                     |       |       |  | 1.6            | 52.3  |
| 10' R                 |       |       |  | 1.8            | 52.1  |
| 15' R                 |       |       |  | 1.9            | 52.0  |
| T.P.                  | 11.81 | 65.57 |  | 0.10           | 53.76 |
|                       |       | 9+00  |  |                |       |
| 15' R                 |       |       |  | 10.8           | 54.9  |
| 10' ✓                 |       |       |  | 10.6           | 55.1  |
| C                     |       |       |  | 10.6           | 55.1  |
| 10' L                 |       |       |  | 10.8           | 54.9  |
| 15' L                 |       |       |  | 11.0           | 54.7  |
| 16.3' = edge gutter   |       |       |  | 11.05          | 54.52 |
| 18.8' = Top Curb      |       |       |  | 10.23          | 55.34 |
|                       |       |       |  | 9+50           |       |
| 18.8' L = Top Curb    |       |       |  | 8.13           | 57.44 |
| 16.3' L = edge gutter |       |       |  | 8.90           | 56.67 |
| 15' L                 |       |       |  | 8.9            | 56.9  |
| 10' L                 |       |       |  | 8.7            | 56.9  |
| C                     |       |       |  | 8.6            | 57.0  |
| 10' R                 |       |       |  | 8.7            | 56.9  |
| 15' R                 |       |       |  | 8.9            | 56.7  |

65.57

10400

|                     |      |       |
|---------------------|------|-------|
| 15' R               | 7.4  | 58 2  |
| 10' R               | 7.0  | 58 6  |
| C                   | 6.9  | 58 7  |
| 10' L               | 7.0  | 58 6  |
| 15' L               | 7.1  | 58 5  |
| 16.46 = edge gutter | 7.13 | 58.44 |
| 18.96 = Top Curb    | 6.35 | 59 22 |

234  
Mud  
Willow

10450 = App. E.L. of Evergreen Station

|                       |      |       |
|-----------------------|------|-------|
| 19.04 L = Top Curb    | 5.21 | 60 36 |
| 16.54 L = edge gutter | 5.97 | 59.60 |
| 15' L                 | 5.8  | 59 8  |
| 10' L                 | 5.4  | 60 2  |
| C                     | 5.4  | 60 2  |
| 10' R                 | 5.8  | 59 8  |
| 15' R                 | 6.1  | 59 5  |

11400

|                     |      |       |
|---------------------|------|-------|
| 15' R               | 5.1  | 60 5  |
| 10' R               | 5.3  | 60 3  |
| 4' R                | 4.5  | 61 1  |
| C                   | 4.3  | 61 3  |
| 10' L               | 4.1  | 61 5  |
| 15' L               | 4.5  | 61 7  |
| 16.72 = edge gutter | 4.56 | 61 01 |
| 19.22 = Top Curb    | 3.95 | 61.62 |

66707

10

65.57

11450

|                      |      |       |
|----------------------|------|-------|
| 1930 L = Top Curb    | 2.67 | 62 90 |
| 1680 L = Edge gutter | 3.35 | 62 22 |
| 15' L                | 3.3  | 62 3  |
| 10' L                | 3.0  | 62 6  |
| C                    | 2.9  | 62 7  |
| 8' R                 | 3.3  | 62 3  |
| 10' R                | 3.5  | 61 8  |
| 15' R                | 3.5  | 62 1  |

12400

|                    |      |       |
|--------------------|------|-------|
| 15' R              | 2.5  | 63 1  |
| 10' R              | 2.2  | 63 4  |
| C                  | 1.6  | 64 0  |
| 10' L              | 1.7  | 63 9  |
| 15' L              | 2.0  | 63 6  |
| 1688 = edge gutter | 2.1  | 63 5  |
| 1938 = Top curb    | 1.40 | 64 17 |

12450

|                    |      |       |
|--------------------|------|-------|
| 1946 = Top Curb    | 0.28 | 65 29 |
| 1696 = edge gutter | 0.93 | 64 64 |
| 15' L              | 0.7  | 64 9  |
| 10' L              | 0.3  | 65 3  |
| C                  | 0.3  | 65 3  |
| 10' R              | 0.8  | 64 9  |
| 15' R              | 1.3  | 64 3  |
| T.P. now 99.07     | 0.52 | 65.05 |

77.07

13400

|                       |       |       |
|-----------------------|-------|-------|
| 15'R                  | 11.7  | 65.4  |
| 10'R                  | 11.3  | 65.8  |
| C                     | 10.5  | 66.6  |
| 10'L                  | 10.6  | 66.5  |
| 15'L                  | 11.0  | 66.1  |
| 19.45 L = edge gutter | 11.18 | 65.89 |
| 16.9 L = Top Curb     | 10.53 | 66.44 |

13450

|                       |      |       |
|-----------------------|------|-------|
| 19.60 L = Top Curb    | 9.15 | 67.92 |
| 17.10 L = Edge gutter | 9.85 | 67.22 |
| 15'L                  | 9.5  | 67.6  |
| 10'L                  | 9.0  | 68.1  |
| C                     | 8.8  | 68.3  |
| 10'R                  | 9.6  | 67.5  |
| 15'R                  | 10.3 | 66.8  |

14400

|                       |      |       |
|-----------------------|------|-------|
| 15'R                  | 8.6  | 68.5  |
| 11'R                  | 8.5  | 68.6  |
| 10'R                  | 7.8  | 69.3  |
| C                     | 7.2  | 69.9  |
| 10'L                  | 7.3  | 69.8  |
| 15'L                  | 7.8  | 69.3  |
| 17.15 L = edge gutter | 8.07 | 69.06 |
| 19.65 L = Top Cb      | 7.29 | 69.78 |

77.07

14450

|                       |      |       |
|-----------------------|------|-------|
| 19.97 L = Top Curb    | 5.35 | 71.72 |
| 17.47 L = edge gutter | 6.09 | 70.78 |
| 15'L                  | 5.7  | 71.4  |
| 10'L                  | 5.3  | 71.8  |
| C                     | 5.3  | 71.8  |
| 10'R                  | 6.3  | 70.8  |
| 15'R                  | 6.6  | 70.5  |

15400

|                     |      |       |
|---------------------|------|-------|
| 15'R                | 5.1  | 72.0  |
| 10'R                | 4.5  | 72.6  |
| 2'R                 | 3.5  | 73.6  |
| C                   | 3.1  | 73.7  |
| 10'L                | 3.2  | 73.9  |
| 15'L                | 3.8  | 73.3  |
| 18.57 = edge gutter | 4.12 | 72.95 |
| 20.07 = Top Curb    | 3.36 | 73.71 |

15450

|                       |      |       |
|-----------------------|------|-------|
| 20.65 L = Top Curb    | 1.33 | 75.74 |
| 18.15 L = edge gutter | 1.91 | 75.16 |
| 15'L                  | 1.7  | 75.4  |
| 10'L                  | 1.4  | 75.7  |
| C                     | 1.5  | 75.6  |
| 10'R                  | 2.8  | 74.3  |
| 15'R                  | 3.1  | 74.0  |

77.07

16+00

|                       |      |       |
|-----------------------|------|-------|
| 15' R                 | 1.6  | 75.5  |
| 10' R                 | 1.1  | 76.0  |
| C                     | 0.1  | 77.0  |
| T.P.                  | 10.0 | 86.93 |
| 10' L                 | 9.7  | 77.2  |
| 15' L                 | 9.9  | 77.0  |
| 18.85 L = edge gutter | 10.0 | 76.9  |
| 21.35 L = Top Curb    | 9.30 | 77.6  |

16+50

|                       |      |       |
|-----------------------|------|-------|
| 22.45 L = Top Curb    | 7.31 | 79.59 |
| 19.95 L = edge gutter | 8.10 | 78.83 |
| 15' L                 | 7.9  | 79.0  |
| 10' L                 | 7.9  | 79.0  |
| C                     | 8.2  | 78.7  |
| 10' R                 | 9.2  | 77.7  |
| 15' R                 | 8.5  | 78.4  |

16+70.6 = 276 of Curb

|                              |      |       |
|------------------------------|------|-------|
| 15' R                        | 8.6  | 78.3  |
| 10' R                        | 8.4  | 78.5  |
| C                            | 7.8  | 79.1  |
| 10' L                        | 7.3  | 79.6  |
| 15' L                        | 7.0  | 79.9  |
| 20.8 = edge gutter           | 7.20 | 79.73 |
| 4.3 = Top Curb               | 6.41 | 80.49 |
| 35' L SW of                  | 6.2  | 80.7  |
| 43' L = End of present drain | 13.3 | 73.9  |
| 52' L                        | 13.0 | 80.1  |
| 55' L                        | 6.1  | 80.8  |
| 65' L                        |      |       |

75' L  
65' L  
62' L  
55' L  
51' L  
28' L  
20' L  
15' L

10' L  
C  
10' R  
15' R

15' R  
10' R  
C

10' L  
15' L  
20' L  
23' L  
47' L  
30' L  
28' L  
60' L  
76' L  
65' L  
55' L  
43' L  
33' L  
23' L  
15' L  
10' L  
C

10' R  
15' R

15' R  
10' R  
C  
10' L  
15' L  
20' L  
25' L  
40' L  
43' L  
51' L  
54' L  
65' L

86.93

16+99.64 = PC

17+50

Corner of fence is on this line produced.

18+50

5.6  
6.2  
11.2  
12.4  
5.8  
6.1  
5.1  
6.1

6.6  
7.2  
7.9  
7.6

6.5  
6.7  
6.0  
5.1  
4.9  
2.7  
2.2  
4.2  
1.3  
11.4  
5.0  
4.3  
4.3  
6.6  
4.1  
4.8  
4.7  
4.9  
5.1

5.5  
5.1  
4.7  
4.3  
4.3  
4.5  
3.7  
3.1  
3.1  
5.3  
5.5  
3.6  
4.0

81.3  
80.7  
75.5  
74.5  
81.1  
80.8  
81.5  
80.8

80.9  
80.3  
79.7  
79.0  
79.3  
80.4  
80.2  
80.9  
81.5  
82.0  
82.2  
81.7  
82.1  
75.6  
81.2  
81.2  
82.7  
82.2  
80.3  
82.5  
82.1  
82.2  
82.0  
81.5

18+09.60

12

|      | 86.93              |       |       |      | 97.17 | Canon | 13  |
|------|--------------------|-------|-------|------|-------|-------|-----|
| 55'L |                    | 3.0   | 83.9  |      |       |       |     |
| 45'L |                    | 3.3   | 83.6  |      |       |       |     |
| 43'L |                    | 4.9   | 82.0  |      |       |       |     |
| 35'L | 19+00              | 5.0   | 81.9  | 10'L |       | 10.2  | 870 |
| 32'L |                    | 3.7   | 83.2  | C    |       | 10.1  | 871 |
| 15'L |                    |       |       |      |       |       |     |
| 10'L |                    | 3.5   | 83.4  | 10'R |       | 10.4  | 868 |
| C    |                    | 3.6   | 83.3  | 15'R |       | 11.0  | 852 |
| 10'R |                    | 4.0   | 82.9  |      |       |       |     |
| 15'R |                    | 4.2   | 82.7  | 15'R |       |       |     |
|      | 19+50              |       |       | 10'R |       | 10.5  | 867 |
| 15'R |                    | 3.6   | 83.3  | C    |       | 9.9   | 873 |
| 10'R |                    | 3.3   | 83.6  | 10'L |       | 9.5   | 877 |
| C    |                    | 2.8   | 84.1  | 15'L |       | 9.7   | 875 |
| 10'L |                    | 2.8   | 84.1  |      |       | 9.8   | 874 |
| 15'L |                    | 2.9   | 84.0  |      |       |       |     |
| 20'L | (Draw is at 19+75) | 2.7   | 84.0  | 15'L |       | 9.2   | 880 |
| 33'L |                    | 4.2   | 82.6  | 10'L |       | 8.9   | 883 |
| 42'L |                    | 2.4   | 82.3  | C    |       | 8.8   | 884 |
| 46'L |                    | +1.4  | 82.2  |      |       |       |     |
| 47'L |                    | +0.3  | 83.7  | 10'R |       | 9.2   | 880 |
| 35'L |                    | 3.2   | 83.2  | 15'R |       | 9.5   | 877 |
| 33'L |                    | 2.7   | 84.6  | 19'R |       | 9.3   | 879 |
| 20'L |                    | 2.3   | 84.8  |      |       |       |     |
| 15'L |                    | 2.1   | 85.0  |      |       |       |     |
| 10'R |                    | 1.9   | 85.0  |      |       |       |     |
| 10'R |                    | 2.3   | 84.6  |      |       |       |     |
| 15'R |                    | 2.6   | 84.3  |      |       |       |     |
|      | 20+50              |       |       | 15'R |       | 8.1   | 891 |
| 20'R |                    | 2.0   | 84.9  | 10'R |       | 7.9   | 893 |
| 15'R |                    | 1.8   | 85.1  | C    |       | 7.4   | 898 |
| 10'R |                    | 1.2   | 85.7  | 10'L |       | 7.7   | 895 |
| C    |                    | 0.9   | 86.0  | 15'L |       | 8.0   | 892 |
| 10'L |                    | 1.1   | 85.8  |      |       |       |     |
| 15'L |                    | 1.1   | 85.8  |      |       |       |     |
| TR   | 10.41              | 97.17 | 86.76 |      |       |       |     |
|      | 21+00              | 0.17  | 86.76 | 15'L |       | 6.8   | 904 |
| 15'L |                    | 10.4  | 86.8  | 10'L |       | 6.4   | 908 |

89.17  
6.93  
-2.6

21+23.54 = Δ

21+50

22+00

22+50

9217

|       |     |      |
|-------|-----|------|
| C     | 6.2 | 91.0 |
| 10'R  | 6.4 | 90.8 |
| 15'R  | 6.5 | 90.7 |
| 23+00 |     |      |
| 15'R  | 5.1 | 92.1 |
| 10'R  | 5.1 | 92.1 |
| C     | 4.9 | 92.3 |
| 10'L  | 5.3 | 91.9 |
| 15'L  | 5.6 | 91.6 |

23+50

|      |     |      |
|------|-----|------|
| 15'L | 4.2 | 93.0 |
| 10'L | 4.2 | 93.0 |
| C    | 3.9 | 93.3 |
| 10'R | 3.9 | 93.3 |
| 15'R | 4.1 | 93.1 |

24+00

|      |     |      |
|------|-----|------|
| 15'R | 2.8 | 94.4 |
| 10'R | 2.8 | 94.4 |
| C    | 2.8 | 94.4 |
| 10'L | 3.2 | 94.0 |
| 15'L | 3.3 | 93.9 |

24+50

|      |     |      |
|------|-----|------|
| 15'L | 2.1 | 95.1 |
| 10'L | 1.8 | 95.4 |
| C    | 1.4 | 95.8 |
| 10'R | 1.3 | 95.9 |

97.17

Canon

14

|          |             |            |
|----------|-------------|------------|
| 15'R     | 1.4         | 95.8       |
| 24+83.47 | PC          |            |
| 15'R     | 0.4         | 96.8       |
| 10'R     | 0.3         | 96.9       |
| 4'R      | 0.2         | 97.0       |
| C        | 0.4         | 96.8       |
| 10'L     | 0.9         | 96.3       |
| 15'L     | 1.0         | 96.2       |
| TP       | 1250 109.24 | 0.43 96.74 |

25+10.70 = EC.

|      |      |      |
|------|------|------|
| 15'L | 12.4 | 96.8 |
| 10'L | 12.2 | 97.0 |
| C    | 11.7 | 97.5 |
| 10'R | 11.8 | 97.4 |
| 15'R | 12.0 | 97.2 |

25+50

|      |      |      |
|------|------|------|
| 15'R | 11.1 | 98.1 |
| 10'R | 10.8 | 98.4 |
| C    | 10.6 | 98.6 |
| 10'L | 11.1 | 98.1 |
| 15'L | 11.3 | 97.9 |

26+00

|      |     |      |
|------|-----|------|
| 15'L | 9.9 | 99.3 |
| 10'L | 9.6 | 99.6 |
| C    | 9.4 | 99.8 |
| 10'R | 9.7 | 99.5 |



109.24

15' R.

10.0 99.2

26+50

15' R.

8.7 100.5

10' R

8.6 100.6

C

8.2 101.0

10' L

8.3 100.9

15' L.

8.6 100.6

27+00

15' L.

6.9 102.3

10

6.6 102.6

C

6.7 102.5

7' R

7.0 102.2

10' R

7.4 101.8

15' R

7.5 101.7

27+50

15' R.

5.6 103.6

10' R

5.4 103.8

C

5.1 104.1

10' L

5.0 104.2

15' L

5.2 104.0

28+00

15' L.

3.6 105.6

10' L

3.4 105.8

C

3.3 105.9

10' R

3.9 105.3

12' R

4.2 105.0

109.24

15' R.

4.2 105.0

28+50

15' R

2.5 106.7

10' R

2.0 107.2

C

1.5 107.7

10' L

1.7 107.5

15' L

2.0 107.2

29+00

15' L

0.7 108.5

10' L

0.4 108.8

C

0.0 109.2

10' R.

0.2 109.0

15' R.

0.5 108.7

T.P. 1283

121.73

0.34 108.90 ✓

1015.12  
foot

29+22.48 PC.

15' R.

12.3 109.4

10'

12.0 109.7

C

11.9 109.8

10' L

12.5 109.2

15' L

12.8 108.9

29+50

15' L

12.1 109.6

10' L

11.9 109.8

C

11.4 110.3

10' R

11.3 110.4

15' R.

11.4 110.3

30+00

|       |      |       |
|-------|------|-------|
| 15' R | 9.7  | 112.0 |
| 10' R | 9.8  | 111.9 |
| C     | 10.3 | 111.4 |
| 10' L | 11.0 | 110.7 |
| 15' L | 11.0 | 110.7 |

30+50

|       |      |       |
|-------|------|-------|
| 15' L | 10.0 | 111.7 |
| 10' L | 9.7  | 112.0 |
| C     | 8.9  | 112.9 |
| 10' R | 8.2  | 113.4 |
| 15' R | 8.1  | 113.6 |

31+00

|       |     |       |
|-------|-----|-------|
| 15' R | 6.5 | 115.2 |
| 10' R | 6.5 | 115.2 |
| 10' R | 6.7 | 115.0 |
| C     | 7.4 | 114.3 |
| 10' L | 8.3 | 113.4 |
| 15' L | 8.5 | 113.2 |

31+50

|       |     |       |
|-------|-----|-------|
| 15' L | 6.9 | 114.8 |
| 10' L | 6.2 | 115.5 |
| C     | 5.5 | 115.2 |
| 10' R | 4.8 | 115.9 |
| 15' R | 4.8 | 115.9 |

32+00

|       |     |       |
|-------|-----|-------|
| 15' R | 3.1 | 118.6 |
|-------|-----|-------|

|       |     |       |
|-------|-----|-------|
| 10' R | 3.2 | 118.5 |
| C     | 3.7 | 118.0 |
| 10' L | 4.5 | 117.2 |
| 15' L | 4.7 | 117.0 |

32+50

|       |     |       |
|-------|-----|-------|
| 15' L | 3.3 | 118.4 |
| 10' L | 2.9 | 118.8 |
| C     | 2.3 | 119.4 |
| 10' R | 1.9 | 119.8 |
| 15' R | 1.9 | 119.8 |

33+00

|       |     |       |
|-------|-----|-------|
| 15' R | 0.2 | 121.5 |
| 10' R | 0.3 | 121.6 |
| C     | 0.8 | 120.9 |
| 10' L | 1.6 | 120.1 |
| 15' L | 2.0 | 119.7 |

33+38.13 = P.C.C.

|       |       |        |      |        |                       |
|-------|-------|--------|------|--------|-----------------------|
| TP    | 10.48 | 130.94 | 1.27 | 120.46 | Hub Left<br>OK P.C.C. |
| 15' L |       |        | 10.2 | 120.7  |                       |
| 10' L |       |        | 9.8  | 121.1  |                       |
| C     |       |        | 9.2  | 121.7  |                       |
| 10' R |       |        | 8.7  | 122.2  |                       |
| 15' R |       |        | 8.3  | 122.6  |                       |

34+00

|       |     |       |
|-------|-----|-------|
| 15' R | 6.6 | 124.3 |
| 10' R | 7.2 | 123.8 |

|       |     |       |
|-------|-----|-------|
| C     | 7.7 | 123.3 |
| 10'L  | 8.5 | 122.4 |
| 15'L  | 8.7 | 122.2 |
| 34+50 |     |       |
| 15'L  | 7.9 | 123.0 |
| 10'L  | 7.5 | 123.0 |
| C     | 6.7 | 124.2 |
| 10'R  | 6.3 | 124.6 |
| 15'R  | 5.5 | 125.4 |
| 35+00 |     |       |
| 15'R  | 4.7 | 126.2 |
| 10'R  | 5.2 | 125.7 |
| C     | 5.7 | 125.2 |
| 10'L  | 6.3 | 124.6 |
| 15'L  | 6.7 | 124.2 |
| 35+50 |     |       |
| 15'L  | 5.6 | 125.3 |
| 10'L  | 5.2 | 125.7 |
| C     | 4.5 | 126.4 |
| 10'R  | 3.9 | 127.0 |
| 11'R  | 4.6 | 126.3 |
| 15'R  | 4.8 | 126.1 |
| 36+00 |     |       |
| 17'R  | 4.7 | 126.2 |
| 15'R  | 4.7 | 126.2 |
| 10'R  | 3.7 | 127.2 |
| 9'R   | 3.1 | 127.8 |

|                |       |        |
|----------------|-------|--------|
| C              | 3.6   | 127.3  |
| 10'L           | 4.1   | 126.8  |
| 15'L           | 4.5   | 126.4  |
| 36+50          |       |        |
| 15'L           | 3.4   | 127.5  |
| 10'L           | 3.1   | 127.8  |
| C              | 2.6   | 128.3  |
| 10'R           | 2.1   | 128.8  |
| 14'R           | 3.5   | 127.4  |
| 15'R           | 3.1   | 127.5  |
| 20'R           | 3.6   | 127.3  |
| 36+81.83 = EC. |       |        |
| 25'R           | 0.5   | 130.4  |
| 20'R           | 0.9   | 130.0  |
| 17'R           | 3.1   | 127.8  |
| 15'R           | 3.3   | 127.6  |
| 11'R           | 1.3   | 129.6  |
| 10'R           | 1.4   | 129.5  |
| C              | 1.7   | 130.0  |
| 18'L           | 2.5   | 128.4  |
| 15'L           | 2.9   | 128.0  |
| B.M.           | 11.73 | 130.19 |
| T.P.           | 7.38  | 139.88 |
| 37+02.34 = PC. |       |        |
| 15'L           | 10.5  | 128.4  |
| 10'L           | 10.1  | 128.8  |

H.L.  
A.P.R.  
0136181  
75

|               |     |       |
|---------------|-----|-------|
| C             | 9.5 | 129.4 |
| 10' R         | 9.0 | 129.9 |
| 12' R         | 8.8 | 130.1 |
| 15' R         | 9.9 | 129.0 |
| 16' R = ditch | 9.7 | 129.2 |
| 20' R         | 7.1 | 131.8 |
| 25' R         | 6.9 | 132.0 |

37+50

|               |     |       |
|---------------|-----|-------|
| 25' R         | 6.2 | 132.7 |
| 20' R         | 8.2 | 130.7 |
| 17' R = ditch | 8.2 | 130.7 |
| 15' R         | 7.5 | 131.4 |
| 10' R         | 7.8 | 131.1 |
| C             | 8.3 | 130.6 |
| 10' L         | 9.1 | 129.8 |
| 15' L         | 9.5 | 129.4 |

38+00

|               |     |       |
|---------------|-----|-------|
| 15' L         | 8.5 | 130.4 |
| 10' L         | 8.0 | 130.9 |
| C             | 7.2 | 131.7 |
| 10' R         | 6.5 | 132.4 |
| 15' R         | 6.1 | 132.8 |
| 19' R = ditch | 7.3 | 131.6 |
| 21' R         | 6.8 | 132.1 |

38+50

|               |     |       |
|---------------|-----|-------|
| 21' R         | 5.2 | 133.7 |
| 19' R = ditch | 5.8 | 133.1 |
| 16' R         | 5.0 | 133.9 |
| 15' R         | 5.2 | 133.7 |
| 10' R         | 5.5 | 133.4 |
| C             | 6.1 | 132.8 |
| 10' L         | 7.0 | 131.9 |
| 15' L         | 7.1 | 131.8 |

39+00

|       |     |       |
|-------|-----|-------|
| 15' L | 5.8 | 133.1 |
| 10' L | 5.1 | 133.4 |
| C     | 4.7 | 134.2 |
| 10' R | 4.2 | 134.7 |
| 15' R | 3.9 | 135.0 |
| 17' R | 3.8 | 135.1 |

39+50

|       |     |       |
|-------|-----|-------|
| 17' R | 3.3 | 135.6 |
| 15' R | 3.3 | 135.6 |
| 10' R | 3.3 | 135.6 |
| C     | 3.1 | 135.5 |
| 10' L | 4.0 | 134.9 |
| 15' L | 4.3 | 134.6 |

40+00

|       |     |       |
|-------|-----|-------|
| 15' L | 3.1 | 135.8 |
| 10' L | 4.8 | 136.1 |

138.88

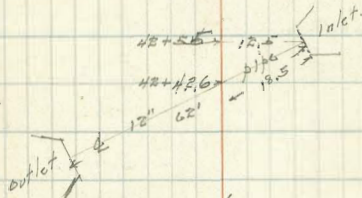
|               |       |        |       |        |
|---------------|-------|--------|-------|--------|
| C             |       | 2.3    | 136.6 |        |
| 10' R         |       | 2.0    | 136.9 |        |
| 15' R         |       | 1.7    | 137.2 |        |
|               | 40+50 |        |       |        |
| 14' R         |       | 0.6    | 138.2 |        |
| 18' R = ditch |       | 1.0    | 137.9 |        |
| 15' R         |       | 0.6    | 137.3 |        |
| 10' R         |       | 0.7    | 138.1 |        |
| C             |       | 1.1    | 137.8 |        |
| 10' L         |       | 1.6    | 137.3 |        |
| 15' L         |       | 1.9    | 137.0 |        |
|               | 41+00 |        |       |        |
| 15' L         |       | 0.6    | 138.3 |        |
| 10' L         |       | 0.3    | 138.6 |        |
| T.P.          | 9.51  | 148.23 | 0.16  | 138.72 |
| C             |       | 9.2    | 139.0 |        |
| 10' R         |       | 8.9    | 139.3 |        |
| 13' R         |       | 8.7    | 139.5 |        |
| 15' R = ditch |       | 9.1    | 139.1 |        |
| 18' R         |       | 8.0    | 140.2 |        |
|               | 41+50 |        |       |        |
| 17' R         |       | 8.0    | 140.2 |        |
| 15' R         |       | 8.3    | 139.9 |        |
| 13' R         |       | 7.6    | 140.4 |        |
| 10' R         |       | 7.7    | 140.5 |        |
| C             |       | 8.0    | 140.2 |        |

148.23

Cannon 19

|               |       |     |       |
|---------------|-------|-----|-------|
| 10' L         |       | 8.4 | 139.8 |
| 15' L         |       | 8.6 | 139.6 |
|               | 42+00 |     |       |
| 15' L         |       | 7.2 | 141.0 |
| 10' L         |       | 7.0 | 141.2 |
| C             |       | 6.8 | 141.4 |
| 10' R         |       | 6.7 | 141.5 |
| 13' R = ditch |       | 7.1 | 141.1 |
| 15' R         |       | 5.9 | 142.3 |
| 40' R         |       | 5.0 | 143.2 |

42+55: inlet of 12" cement pipe + Intake



42+50

|       |       |     |       |
|-------|-------|-----|-------|
| 40' R |       | 4.3 | 143.9 |
| 15' R |       | 5.2 | 143.0 |
| 10' R |       | 5.2 | 143.0 |
| C     |       | 5.1 | 142.8 |
| 10' L |       | 5.3 | 142.9 |
| 15' L |       | 5.5 | 142.7 |
|       | 44+50 |     |       |
| 15' L |       | 5.2 | 142.7 |
| 10' L |       | 5.3 | 142.9 |
| C     |       | 5.4 | 142.8 |

|          |     |                  |
|----------|-----|------------------|
| 10' R    | 5.2 | 43.0             |
| 12' R.   | 5.1 | 42.8             |
| 12.5' R. | 7.1 | 40.8 = flow time |
| 14'      | 5.1 | 42.8             |
| 15'      | 5.3 | 42.9             |
| 20' R.   | 4.1 | 43.8             |

43+60

|                 |     |      |
|-----------------|-----|------|
| 20' R           | 5.1 | 43.1 |
| 19'             | 6.5 | 41.7 |
| 15' R = a ditch | 6.8 | 41.4 |
| 13.5 R          | 6.5 | 41.7 |
| 12'             | 5.3 | 42.9 |
| 10' R           | 5.2 | 43.0 |
| C               | 5.2 | 43.0 |
| 10' L           | 5.2 | 43.0 |
| 15' L           | 5.1 | 42.8 |

43+17.06 = EC.

|               |      |                                |
|---------------|------|--------------------------------|
| 15' L         | 4.1  | 43.8                           |
| 10' L         | 4.2  | 44.0                           |
| C             | 4.0  | 44.2                           |
| 10' R         | 4.3  | 43.9                           |
| 15' R.        | 4.9  | 43.3                           |
| 20' R = ditch | 6.0  | 42.2                           |
| B.M.          | 4.26 | 43.97 = 30' hub R.<br>= at EC. |

43+50

|               |     |      |
|---------------|-----|------|
| 20' R = ditch | 5.1 | 42.8 |
| 18' R.        | 4.3 | 43.9 |
| 15' R         | 4.1 | 44.1 |
| 10' R.        | 3.6 | 44.6 |
| C             | 3.3 | 44.9 |
| 10' L         | 3.1 | 44.8 |
| 15' L         | 3.6 | 44.6 |

44+00

|               |     |      |
|---------------|-----|------|
| 15' L         | 2.7 | 45.5 |
| 10' L         | 2.6 | 45.6 |
| C             | 2.5 | 45.7 |
| 10' R         | 3.0 | 45.2 |
| 15' R         | 3.5 | 44.7 |
| 20' R = ditch | 4.4 | 43.8 |

44+50

|                 |     |      |
|-----------------|-----|------|
| 21.5' R = ditch | 3.7 | 44.5 |
| 15' R           | 2.5 | 45.7 |
| 10' R           | 2.0 | 46.2 |
| C               | 1.8 | 46.4 |
| 10' L           | 1.8 | 46.4 |
| 15' L           | 1.8 | 46.4 |

45+00

|       |     |      |
|-------|-----|------|
| 15' L | 0.7 | 47.5 |
| 10' L | 0.6 | 47.6 |
| C     | 0.7 | 47.5 |

148.23

|                 |       |        |
|-----------------|-------|--------|
| 10' R           | 1.0   | 147.2  |
| 15' R           | 1.1   | 46.8   |
| 20.5' R = ditch | 2.1   | 45.8   |
| T.P.            | 12.68 | 159.79 |

45+50

|               |      |       |
|---------------|------|-------|
| 19' R = ditch | 12.8 | 147.0 |
| 15' R         | 12.3 | 147.5 |
| 10' R         | 11.7 | 148.1 |
| C             | 11.2 | 148.6 |
| 10' L         | 11.1 | 148.7 |
| 15' L         | 11.1 | 48.7  |

16+00

|               |      |       |
|---------------|------|-------|
| 15' L         | 10.0 | 49.8  |
| 10' L         | 9.9  | 49.9  |
| C             | 9.9  | 49.9  |
| 10' R         | 10.1 | 149.4 |
| 15' R         | 11.0 | 48.8  |
| 26' R = ditch | 11.4 | 148.1 |

16+50

|       |     |       |
|-------|-----|-------|
| 20' R | 9.1 | 150.4 |
| 15' R | 9.4 | 50.4  |
| 10' R | 9.1 | 50.7  |
| C     | 8.6 | 51.2  |
| 10' L | 8.5 | 51.3  |
| 15' L | 8.7 | 51.1  |

159.79

21

47+00

|       |     |       |
|-------|-----|-------|
| 15' L | 7.5 | 152.3 |
| 10' L | 7.2 | 52.6  |
| C     | 7.1 | 52.4  |
| 10' R | 7.8 | 52.0  |
| 15' R | 8.2 | 51.6  |
| 20' R | 7.7 | 52.1  |

47+50

|       |     |      |
|-------|-----|------|
| 15' R | 6.2 | 53.6 |
| 10' R | 6.1 | 53.8 |
| C     | 5.7 | 54.1 |
| 10' L | 5.5 | 54.3 |
| 15' L | 5.5 | 54.3 |

48+00

|       |     |      |
|-------|-----|------|
| 15' L | 3.3 | 56.5 |
| 10' L | 3.3 | 56.5 |
| C     | 3.6 | 56.5 |
| 10' R | 4.2 | 55.6 |
| 15' R | 4.3 | 55.5 |

48+50

|       |     |      |
|-------|-----|------|
| 15' R | 1.5 | 58.3 |
| 10' R | 1.1 | 58.4 |
| C     | 1.0 | 58.8 |
| 10' L | 0.9 | 58.7 |
| 15' L | 1.1 | 58.7 |

T.P. 1300 174.26

0.53 159.26

172.26

48+70.06 = PC

|       |       |        |
|-------|-------|--------|
| 15' L | 12.7  | 159.6  |
| 10' L | 12.5  | 159.8  |
| C     | 12.0  | 159.9  |
| 10' R | 12.9  | 159.4  |
| 15' R | 13.0  | 158.3  |
| B.M.  | 10.13 | 162.13 |

49+00

|       |      |       |
|-------|------|-------|
| 15' R | 11.6 | 160.7 |
| 10' R | 11.4 | 160.9 |
| C     | 10.9 | 161.4 |
| 10' L | 10.9 | 161.4 |
| 15' L | 11.0 | 160.3 |

49+50

|       |     |       |
|-------|-----|-------|
| 15' L | 8.4 | 163.8 |
| 10' L | 8.1 | 164.2 |
| C     | 8.3 | 164.0 |
| 10' R | 9.2 | 163.1 |
| 15' R | 8.9 | 163.4 |

50+00

|       |     |       |
|-------|-----|-------|
| 10' R | 3.2 | 169.1 |
| 15' R | 5.7 | 166.6 |
| 12' R | 6.4 | 165.9 |
| 10' R | 6.3 | 166.0 |
| C     | 5.6 | 166.7 |
| 8' L  | 5.0 | 167.1 |

10' L

15' L

15' L

10' L

C

10' R

12' R

15' R

20' R

20' R

15' R

13' R

10' R

C

10' L

15' L

15' L

10' L

C

10' R

15' R

172.26

Canon

22

53

167.0

50

166.7

50+15

48

167.5

45

167.8

50

167.3

5.5

166.8

5.6

166.7

3.8

168.5

2.0

172.3

50+28

3.1

169.2

4.4

167.9

5.0

167.3

4.6

167.7

4.1

168.2

3.8

168.5

4.1

168.2

50+50

2.7

169.6

2.5

169.8

2.8

169.5

3.3

169.0

3.5

168.8

51+00

25.1

25

25

25

25

25

25

25

25

25

25

25

outlet burst hole

50+76.4

elevation low line 169.36

25.1

25

25

25

25

25

25

25

25

25

25



51400

|                          |       |        |
|--------------------------|-------|--------|
| 15' R                    | 0.8   | 171.5  |
| 10' R                    | 2.6   | 171.7  |
| T.P.                     | 11.97 | 182.06 |
| C                        | 11.7  | 172.4  |
| 10' L                    | 11.5  | 172.6  |
| 15' L                    | 11.5  | 172.6  |
| 20' L = shoulder of fill | 11.7  | 172.4  |

51450

|       |      |       |
|-------|------|-------|
| 15' L | 8.6  | 175.5 |
| 10' L | 8.8  | 175.3 |
| C     | 9.9  | 174.8 |
| 10' R | 10.0 | 174.1 |
| 15' R | 10.3 | 173.8 |

52400

|                          |     |       |
|--------------------------|-----|-------|
| 15' R                    | 7.6 | 176.5 |
| 10' R                    | 7.2 | 176.9 |
| C                        | 6.4 | 177.7 |
| 10' L                    | 5.8 | 178.3 |
| 15' L                    | 5.6 | 178.5 |
| 19' L = shoulder of fill | 5.5 | 178.6 |

52450

|         |     |       |
|---------|-----|-------|
| 17.6' L | 4.2 | 181.7 |
| 15' L   | 4.2 | 181.9 |
| 10' L   | 2.7 | 181.4 |
| C       | 3.5 | 180.6 |

|       |     |       |
|-------|-----|-------|
| 10' R | 4.3 | 179.8 |
| 15' R | 4.6 | 179.5 |

52+82.03 P.C.C.

|                          |     |       |
|--------------------------|-----|-------|
| 20' R                    | 2.7 | 181.4 |
| 15' R                    | 3.0 | 181.1 |
| 10' R                    | 2.2 | 181.9 |
| C                        | 1.5 | 182.6 |
| 10' L                    | 0.7 | 83.4  |
| 15' L = shoulder of fill | 0.2 | 83.9  |

|      |       |        |      |        |                        |
|------|-------|--------|------|--------|------------------------|
| B.M. | 11.56 | 194.45 | 1.14 | 182.92 | Hub<br>26' Pol.<br>PCC |
|------|-------|--------|------|--------|------------------------|

53+32.10 = C.C.

|                          |      |       |
|--------------------------|------|-------|
| 30' L                    | 14.5 | 180.0 |
| 26' L                    | 13.6 | 180.9 |
| 15' L                    | 9.1  | 185.4 |
| 12' L = shoulder of fill | 7.9  | 186.6 |
| 10' L                    | 8.0  | 186.5 |
| C                        | 9.2  | 185.3 |
| 10' R                    | 9.9  | 184.6 |
| 15' R                    | 10.3 | 184.2 |

53+82.18 P.R.C.

|                  |     |       |
|------------------|-----|-------|
| 15' R            | 7.5 | 187.0 |
| 10' R            | 7.3 | 187.2 |
| C                | 6.7 | 187.8 |
| 10' L            | 5.7 | 188.8 |
| 13' L            | 5.2 | 189.3 |
| 15' L            | 5.3 | 189.2 |
| 16' L = shoulder | 5.3 | 89.2  |

19448

54+00

|                  |     |       |
|------------------|-----|-------|
| 16' L = shoulder | 4.2 | 190.3 |
| 15' L            | 4.2 | 90.3  |
| 10' L            | 4.8 | 89.7  |
| C                | 5.5 | 89.0  |
| 10' R            | 6.1 | 88.4  |
| 15' R            | 6.2 | 88.1  |
| 20' R            | 6.8 | 87.7  |

54+50

|                  |       |        |
|------------------|-------|--------|
| 20' R            | 2.8   | 191.7  |
| 15' R            | 3.9   | 190.6  |
| 10' R            | 3.2   | 91.3   |
| C                | 2.2   | 92.1   |
| 10' L            | 1.9   | 92.6   |
| 15' L            | 1.3   | 93.2   |
| 19' L = shoulder | 1.1   | 93.4   |
| T.P.             | 12.60 | 206.88 |
|                  | 0.20  | 194.28 |

55+00

|                  |      |       |
|------------------|------|-------|
| 19' L = shoulder | 10.3 | 196.6 |
| 15' L            | 10.6 | 96.3  |
| 10' L            | 11.3 | 95.6  |
| C                | 11.8 | 95.1  |
| 10' R            | 12.5 | 94.4  |
| 12' R            | 13.9 | 193.0 |
| 15' R            | 12.9 | 194.0 |
| 19' R            | 10.9 | 196.0 |

20688

55+50

|                  |      |       |
|------------------|------|-------|
| 20' R            | 9.7  | 197.2 |
| 15' R            | 10.1 | 196.8 |
| 10' R            | 9.6  | 197.3 |
| C                | 8.8  | 198.1 |
| 10' L            | 8.2  | 198.5 |
| 13' L            | 7.7  | 199.2 |
| 15' L            | 7.8  | 199.1 |
| 16' L = shoulder | 7.8  |       |

56+00

|       |     |       |
|-------|-----|-------|
| 15' L | 4.6 | 202.3 |
| 10' L | 5.2 | 201.5 |
| C     | 5.2 | 201.5 |
| 10' R | 6.5 | 200.4 |
| 15' R | 6.8 | 200.1 |
| 17' R | 7.7 | 199.2 |
| 19' R | 7.3 | 199.6 |

56+58.90 = EC

|       |       |        |
|-------|-------|--------|
| 20' R | 3.3   | 203.6  |
| 15' R | 3.1   | 203.8  |
| 10' R | 2.8   | 204.1  |
| C     | 2.3   | 204.6  |
| 10' L | 2.0   | 204.9  |
| 15' L | 1.5   | 205.4  |
| T.P.  | 11.97 | 219.15 |

20707

24

218.15

57+00

|       |      |       |
|-------|------|-------|
| 15' L | 10.3 | 207.9 |
| 10' L | 10.6 | 07.6  |
| C     | 11.2 | 07.0  |
| 10' R | 11.7 | 06.5  |
| 15' R | 12.0 | 06.2  |

57+50

|                          |     |       |
|--------------------------|-----|-------|
| 15' R                    | 8.7 | 09.5  |
| 10' R = ctr present road | 8.1 | 09.8  |
| C                        | 7.9 | 210.3 |
| 10' L                    | 7.8 | 10.4  |
| 15' L                    | 7.6 | 10.6  |

57+94.80 = P.C.

|                          |     |       |
|--------------------------|-----|-------|
| 15' L                    | 4.5 | 213.7 |
| 10' L                    | 4.6 | 13.6  |
| C                        | 4.9 | 13.3  |
| 10' R                    | 5.1 | 13.1  |
| 15' R                    | 5.2 | 13.0  |
| 25' R = ctr present road | 5.5 | 12.6  |

58+25

|       |     |       |
|-------|-----|-------|
| 15' R | 3.6 | 14.6  |
| 20' R | 3.5 | 14.7  |
| C     | 2.9 | 215.3 |
| 10' L | 2.5 | 215.7 |
| 15' L | 2.3 | 215.9 |

218.15

58+50

|       |     |       |
|-------|-----|-------|
| 15' L | 1.1 | 217.1 |
| 10' L | 1.2 | 217.0 |
| C     | 1.4 | 216.5 |
| 10' R | 2.3 | 215.9 |
| 15' R | 2.6 | 215.6 |

58+75.65 = EC

|       |       |        |
|-------|-------|--------|
| 15' R | 1.9   | 216.3  |
| 10' R | 1.4   | 216.8  |
| C     | 0.7   | 217.5  |
| T.P.  | 11.48 | 229.42 |
| 10' L | 11.2  | 218.2  |
| 15' L | 10.8  | 218.6  |

B.M.

10.69 218.73 Hub no. 101  
EC

59+00

|       |      |       |
|-------|------|-------|
| 15' L | 9.7  | 219.7 |
| 10' L | 10.1 | 219.3 |
| C     | 10.7 | 218.7 |
| 10' R | 11.7 | 217.7 |
| 15' R | 12.2 | 217.2 |

59+50

|       |     |       |
|-------|-----|-------|
| 15' R | 7.7 | 221.7 |
| 10' R | 7.3 | 222.1 |
| C     | 6.8 | 222.6 |
| 10' L | 6.3 | 223.1 |
| 15' L | 6.1 | 223.3 |

20707

25

529.42

60+00

|       |     |       |
|-------|-----|-------|
| 15' L | 2.6 | 226.8 |
| 10' L | 2.6 | 226.8 |
| C     | 2.8 | 226.6 |
| 10' R | 3.1 | 226.0 |
| 15' R | 3.6 | 225.8 |

60+50

|       |       |        |
|-------|-------|--------|
| 15' R | 0.0   | 229.4  |
| T.P.  | 12.15 | 241.50 |
| 10' R | 11.9  | 229.6  |
| C     | 11.3  | 230.2  |
| 10' L | 11.2  | 230.3  |
| 15' L | 11.1  | 230.1  |

61+00

|       |     |       |
|-------|-----|-------|
| 15' L | 7.9 | 233.6 |
| 10' L | 7.8 | 233.7 |
| C     | 7.7 | 233.8 |
| 10' R | 8.1 | 233.4 |
| 15' R | 8.1 | 233.4 |

61+50

|       |     |       |
|-------|-----|-------|
| 15' R | 4.8 | 236.7 |
| 10' R | 4.5 | 237.0 |
| C     | 4.1 | 237.4 |
| 10' L | 4.1 | 237.4 |
| 15' L | 4.2 | 237.3 |

29707

26

241.50

62+00

|       |     |       |
|-------|-----|-------|
| 15' L | 0.9 | 240.6 |
| 10' L | 0.8 | 240.7 |
| C     | 0.7 | 240.8 |
| 10' R | 1.0 | 240.5 |
| 15' R | 1.2 | 240.3 |

T.P. 12.73 254.11

62+50

|       |      |       |
|-------|------|-------|
| 15' R | 10.5 | 243.6 |
| 10' R | 10.1 | 243.7 |
| C     | 10.0 | 244.1 |
| 10' L | 10.2 | 243.9 |
| 15' L | 10.1 | 243.7 |

63+00

|       |     |       |
|-------|-----|-------|
| 15' L | 7.0 | 247.1 |
| 10' L | 6.8 | 247.3 |
| C     | 6.7 | 247.4 |
| 10' R | 7.2 | 246.9 |
| 15' R | 7.3 | 246.8 |

63+50

|       |     |       |
|-------|-----|-------|
| 15' R | 4.2 | 249.9 |
| 10' R | 4.1 | 250.0 |
| C     | 3.8 | 250.3 |
| 10' L | 4.0 | 250.1 |
| 15' L | 4.1 | 250.0 |

254.11

64+00

|       |      |        |
|-------|------|--------|
| 15' L | 1.8  | 252.3  |
| 10' L | 1.6  | 252.5  |
| C     | 1.4  | 252.7  |
| 10' R | 1.5  | 252.6  |
| 15' R | 1.6  | 252.5  |
| TP    | 9.26 | 263.32 |
|       | 0.05 | 254.06 |

64+50

|       |     |       |
|-------|-----|-------|
| 15' R | 8.3 | 255.0 |
| 10' R | 8.4 | 254.9 |
| C     | 8.4 | 254.9 |
| 10' L | 8.8 | 254.5 |
| 15' L | 9.1 | 254.2 |

65+00

|       |     |       |
|-------|-----|-------|
| 15' L | 7.2 | 256.1 |
| 10' L | 7.1 | 256.2 |
| C     | 6.5 | 256.8 |
| 10' R | 6.6 | 256.7 |
| 15' R | 6.6 | 256.7 |

65+50

|       |     |       |
|-------|-----|-------|
| 15' R | 5.0 | 258.3 |
| 10' R | 5.0 | 258.3 |
| C     | 4.8 | 258.5 |
| 10' L | 5.2 | 258.1 |
| 15' L | 5.5 | 257.8 |

263.32

27

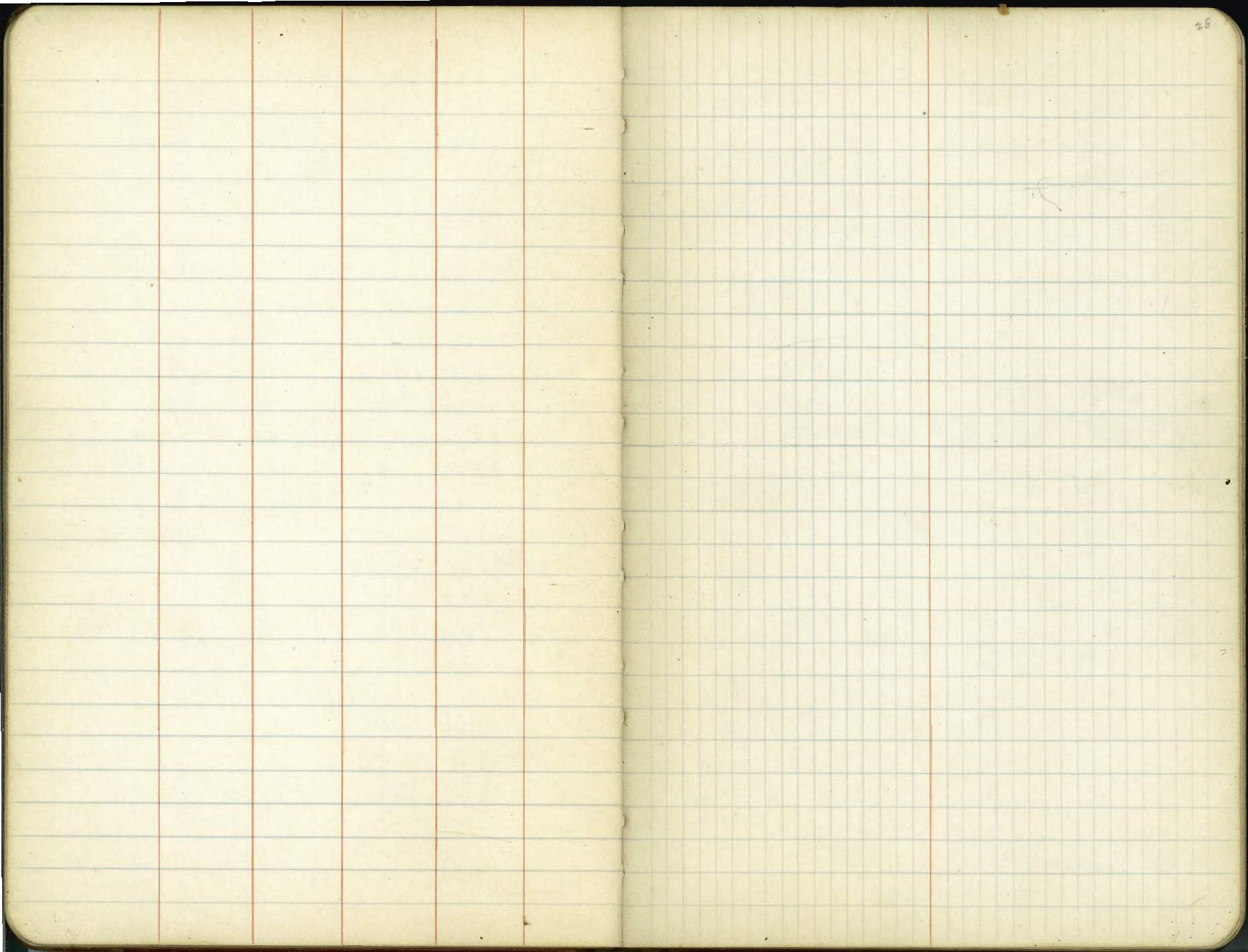
66+00

|       |     |       |
|-------|-----|-------|
| 15' L | 4.0 | 259.2 |
| 10' L | 3.7 | 259.6 |
| C     | 3.6 | 259.7 |
| 10' R | 3.6 | 259.7 |
| 15' R | 3.6 | 259.7 |

66+39.80 = E.L. Catalina Blvd.

|         |     |        |
|---------|-----|--------|
| 15' R   | 2.6 | 260.7  |
| 10' R   | 2.6 | 260.7  |
| C       | 2.5 | 260.8  |
| 10' L   | 2.7 | 260.6  |
| 15' L   | 2.8 | 260.5  |
| Set BM. | 3.6 | 259.68 |

 RR 1/4  
 NE Catalina  
 + Talbot



7/1/19 <sup>6000 ft</sup> <sup>Mile</sup> <sup>Shaw</sup> Alignment of Canyon Road Survey from Rosecrans to Catalina Blvd

8+42.61 = E.C.

$R = 130$   
 $8+20.12 \triangle 20^{\circ}02' L$   $st = 22.96$   
 $cc = 45.45$

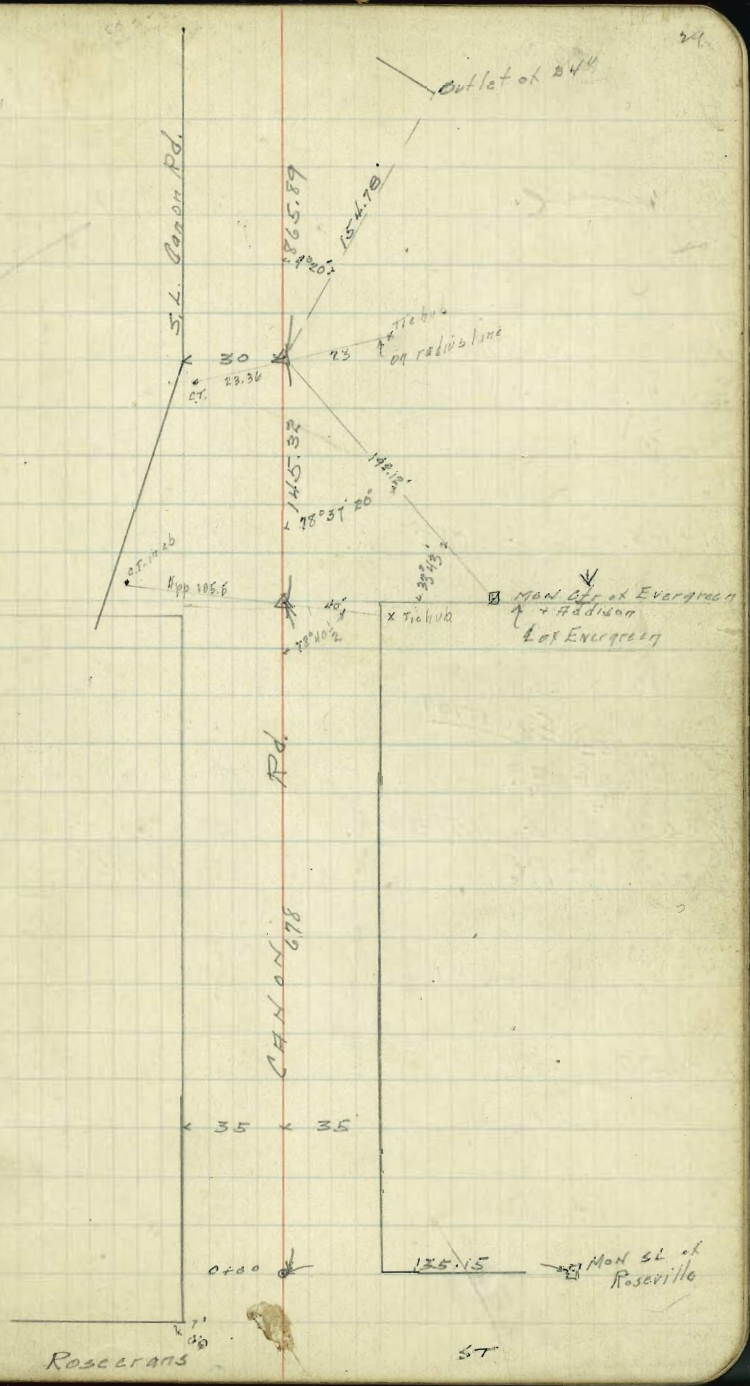
7+97.16 = P.R.C.

$R = 610.96$   
 $(6+78) \triangle 22^{\circ}39' R$   $st = 122.36$   
 $cc = 241.52$

5+55.64 = P.C.

12.56  
 22.86  
 145.32

0+00 = W.L. Rosecrans St



21 + 74.37 @ P.O.T.

68

11 + 43.54 A 7° 28' R.

18 + 07.85 } Equation  
15 + 09.60 } = E.C.

17 + 54.08 Δ 15° 30' R.

16 + 49.64 = P.C.

R = 400

st = 54.44

Ec = 109.96 = 108.21

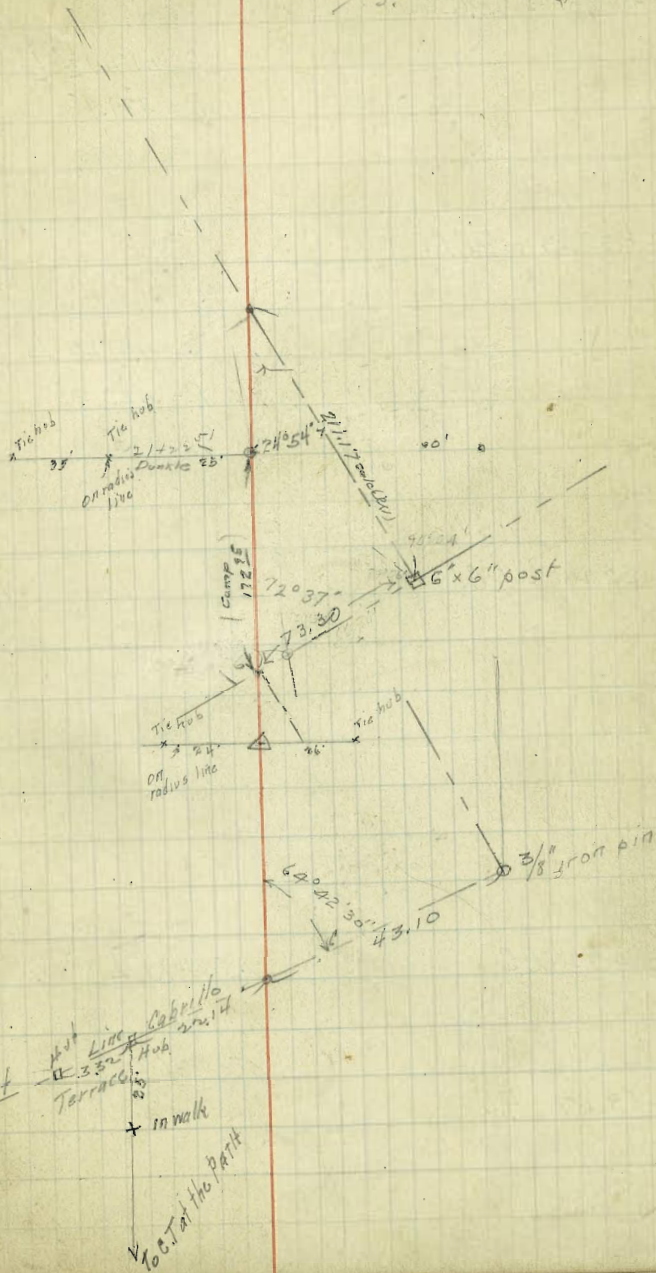
16 + 85.54 @ P.O.T.

31394  
5444  
36838

0092200  
205820

2101  
1195

30







52+82.03 = P.C.

50+77.93  $\Delta$  18°53' R

R = 1250  
st = 207.87  
LC = 411.97

48+70.06 = P.C.

43+17.06 = E.C.

40+24.75  $\Delta$  42°41'30" L

R = 825  
st = 322.41  
L = 614.72

37+02.34 = P.C.

36+81.83 E.C.

SEE BOOK 1009 PAGES 18  
FOR ORIGINAL NOTES.

20' 20'

HUB

20' 26'

553.0

30' 30'

HUB

TieHub  
55'

35'

TieHub

LOMA PARK ADD

25.71

52.2

20.5'

HUB

30'

35'

56 + 58.40 = E.C.

$R = 721.49$

$st = 140.08$

55 + 22.26  $\Delta$  21°58'30" L.

$lc = 276.72$

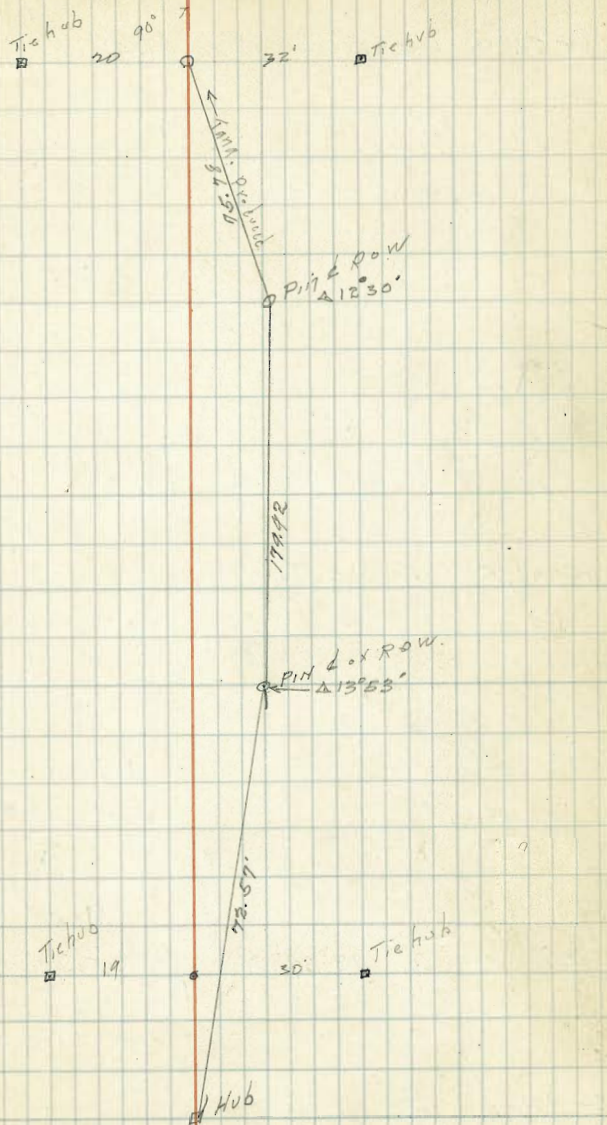
53 + 82.18 P.R.C.

$R = 872.73$

$st = 50.13$

53 + 32.16  $\Delta$  6°34'30" R.

$lc = 100.15$



66+79.80 = d of Catalina Blvd

66+39.80

64+06.5 @ P.O.T.

58+75.65 = EC

58+47.17  $\Delta$  92°39' R.

R=50

st=52.37

lc=80.85

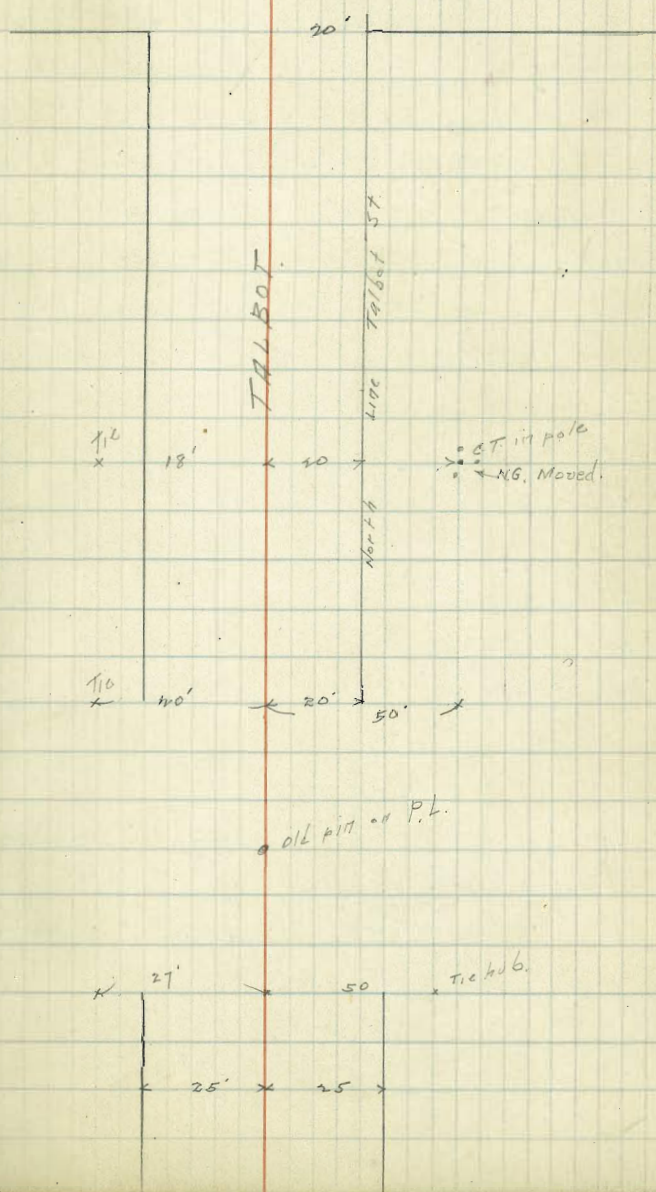
57+94.80 PC.

57+94.80  
52.37  
82.47

34

Mon

CATALINA

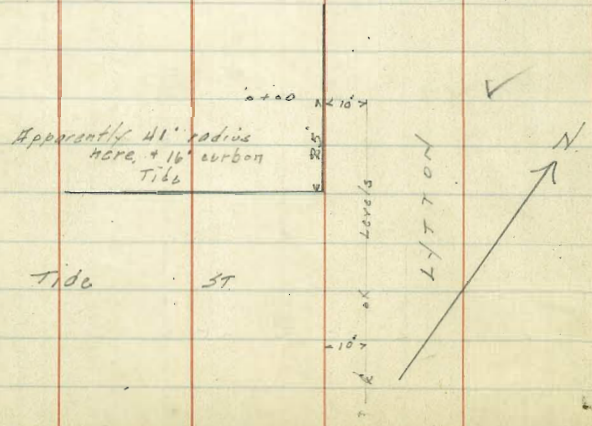


5/21/19 Gregory Miller Shaw

Culvert Levels etc at Tido + Lytton  
Levels taken on Line of Curb of Lytton Produced SE.

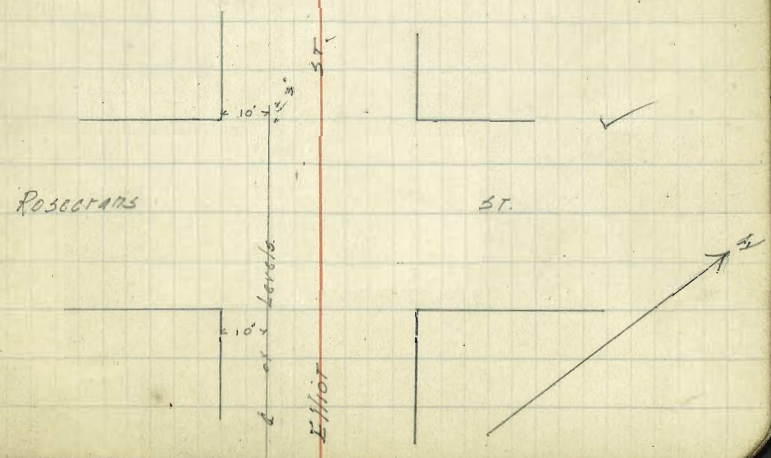
193 B.P. SW + Tide

|                         |      |                     |       |                           |
|-------------------------|------|---------------------|-------|---------------------------|
| on B.M.                 | 1.68 | 43.43               | 41.75 | B.P. SW Lytton + Rose     |
| T.P.                    | 0.99 | 31.56               | 12.86 | 30.57                     |
| T.P.                    | 0.10 | 18.60               | 13.06 | 18.50                     |
| T.P.                    | 0.47 | 7.20                | 11.87 | 6.73                      |
| 0+00 = gutter 25' NW of |      | Line ST on 20' 5.74 | 1.46  | = gutter.                 |
| 0+00                    |      | 4.97                | 2.23  | = Top Cb                  |
| 0+13                    |      | 5.7                 | 1.5   |                           |
| 0+26                    |      | 5.2                 | 2.0   |                           |
| 0+50                    |      | 5.5                 | 1.7   |                           |
| 0+75                    |      | 5.6                 | 1.6   |                           |
| 0+88                    |      | 6.0                 | 1.2   | =                         |
| 0+90                    |      |                     |       | = Hydrant on Cb line prod |
| 1+03                    |      | 5.5                 | 1.7   |                           |
| 1+05                    |      | 9.0                 | -1.8  | = End of trapping         |
| 1+20                    |      | 11.2                | -4.0  | = King wall of big cut    |
| 1+40                    |      | 13.5                | -6.3  | = bottom                  |



Culvert at Rosecrans + Lytton

|  |       |                        |           |
|--|-------|------------------------|-----------|
| 436                                    | 46.1  | 41.75                  |           |
| Elev. low line of outlet of 16"        |       |                        |           |
| iron pipe 40' SE of Rosecrans.         | 11.0  | 35.1                   |           |
| Top Concrete                           | 9.6   | 36.5                   |           |
| 12" Culvert at Elliot + Rosecrans      |       |                        |           |
| 54.4                                   | 49.77 | B.P. Mon 44.33 SW Curb |           |
| TP                                     | 6.58  | 54.77                  |           |
| 0+00 = pt on SW. rd Elliot + Rosecrans | 1.58  | 48.19                  |           |
| 3' West of W. Line Rosecrans           | 3.40  | 51.8                   | = Top Cb. |
| 0+00                                   | 4.30  | 50.5                   | = gutter  |
| 0+19                                   | 4.00  | 50.8                   |           |
| 0+45                                   | 4.2   | 50.6                   |           |
| 0+63 = E rail of track                 | 4.7   | 50.1                   |           |
| 1+00                                   | 5.3   | 49.5                   |           |
| 1+27                                   | 6.4   | 48.4                   |           |
| 1+60                                   | 11.8  | 43.0                   |           |



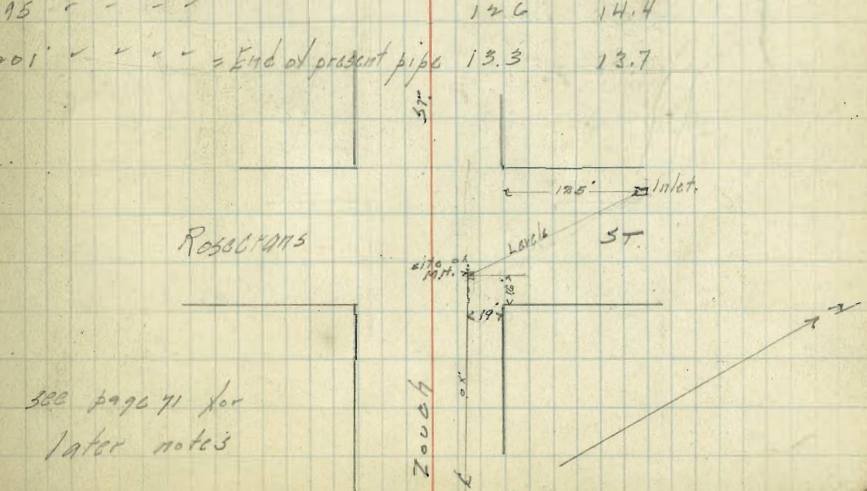
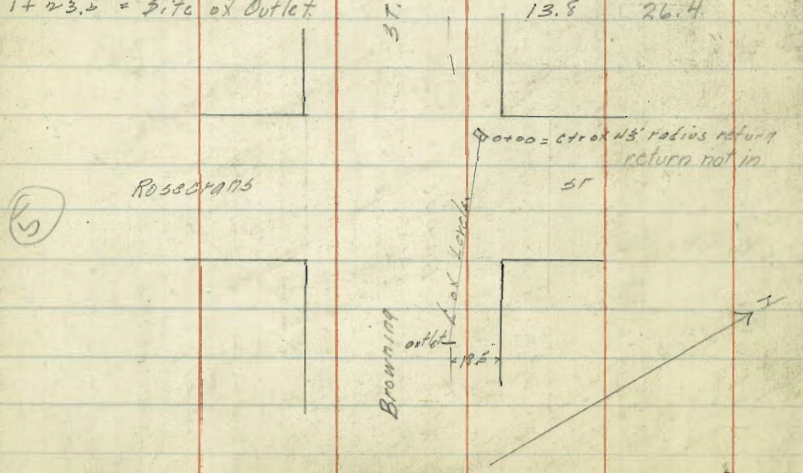


Proposed Pipe at Browning  
+ Rosecrans

Proposed Pipe at  
Zouch + Rosecrans

|  | 1.80 | 46.13 | 44.33 | BP at Curtis |
|--|------|-------|-------|--------------|
| T.P.   | 331  | 40.15 | 29.9  | 36.84        |
| 0+00 = Ctr. of 43' radius Ret. N.W. Cor Browning |      | 2.0   | 38.1  |              |
| +15  |      | 4.2   | 36.0  |              |
| +16  |      | 5.2   | 35.0  |              |
| +18  |      | 5.1   | 35.1  |              |
| +20  |      | 4.0   | 36.2  |              |
| +40  |      | 4.0   | 36.2  |              |
| +56.5 = 50' - a/c                                |      | 4.6   | 35.8  |              |
| +69  |      | 5.9   | 34.3  |              |
| +71  |      | 10.7  | 29.5  |              |
| +74  |      | 10.1  | 30.1  |              |
| +81  |      | 5.6   | 34.6  |              |
| +100   |      | 5.5   | 34.7  |              |
| +106.0   |      | 6.0   | 34.2  |              |
| +117.0   |      | 12.3  | 27.9  |              |
| +123.5 = Site of Outlet                          |      | 13.8  | 26.4  |              |

|   | 1.19 | 38.03 | 36.84 | page<br>T.P. on preceding |
|---|------|-------|-------|---------------------------|
| 0+00 = Pfor N of site Rosecrans 125' No. of Zouch | 10.5 | 27.5  |       |                           |
| +11   | 11.7 | 26.3  |       |                           |
| +13   | 11.9 | 26.1  |       |                           |
| +14   | 10.9 | 27.1  |       |                           |
| +50   | 11.5 | 26.5  |       |                           |
| +100  | 12.4 | 25.8  |       |                           |
| +104.0 = End of Track                             | 12.3 | 25.7  |       |                           |
| T.P.  | 1.64 | 27.04 | 12.63 | 25.40                     |
| +135.0  |      | 2.5   | 24.5  |                           |
| +158.9 = site of M.H.                             |      | 2.8   | 24.2  |                           |
| 16' E of M.H.                                     |      | 3.3   | 23.7  |                           |
| 50' ✓ - - -                                       |      | 5.1   | 21.9  |                           |
| 100' - - -  |      | 7.6   | 19.4  |                           |
| 150' ✓ - - -                                      |      | 10.4  | 16.8  |                           |
| 195' - - -  |      | 12.6  | 14.4  |                           |
| 201' ✓ - - - = End of present pipe                |      | 13.3  | 13.7  |                           |



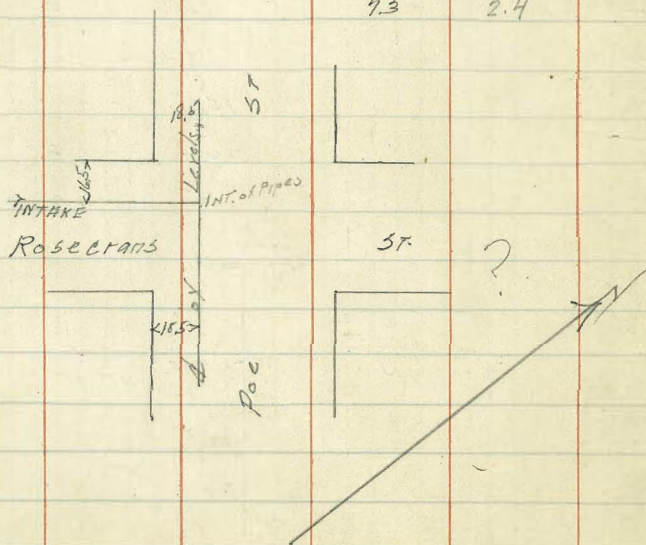




Proposed pipe at  
POE + Rosecrans.

H.S. from 38  
7.89

|                                 |      |      |      |      |
|---------------------------------|------|------|------|------|
| T.P.                            | 4.49 | 9.65 | 2.73 | 5.16 |
| 0+00 =                          |      |      | 3.2  | 6.5  |
| 0+27                            |      |      | 4.4  | 5.3  |
| 0+43.5 = INT. of pipes          |      |      | 4.5  | 5.2  |
| (43.5' 50.0' of v - - = Intake) |      |      | 4.1  | 5.6  |
| 0+49                            |      |      | 5.2  | 4.5  |
| 0+54                            |      |      | 4.5  | 5.2  |
| 0+68                            |      |      | 4.3  | 5.4  |
| 0+82.5 = W. RAIL.               |      |      | 5.5  | 4.2  |
| 1+00                            |      |      | 5.3  | 4.4  |
| 1+30                            |      |      | 6.8  | 2.9  |
| 1+54                            |      |      | 7.3  | 2.4  |



Proposed pipe at  
Macaulay + Rosecrans.

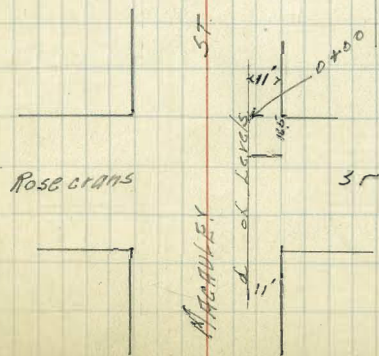
5.86

13.92

8.06

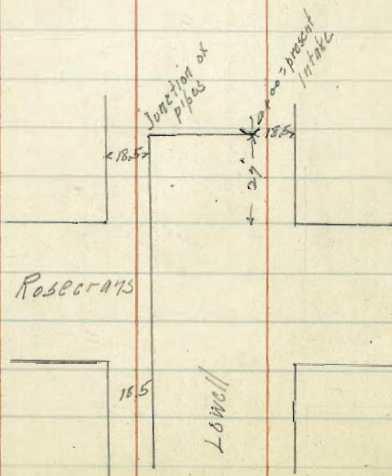
B.P. SW Lowell

|                                   |     |      |             |
|-----------------------------------|-----|------|-------------|
| 30' W of 0+00                     | 4.7 | 9.2  |             |
| 0+00 = Int. of present 12" pipes  | 5.7 | 8.2  | = flow line |
| 0+00                              | 4.4 | 9.5  | = Top pipes |
| 0+10                              | 4.5 | 9.4  |             |
| 0+16 = Int. of 12" + 30' proposed | 3.1 | 10.8 |             |
| (10' W of v - - - - )             | 5.0 | 8.9  |             |
| 0+27 = W. rail of Curve           | 4.0 | 9.9  |             |
| 0+60.2 = E.V. - Tangent.          | 4.1 | 9.8  |             |
| 0+72                              | 4.3 | 9.6  |             |
| 0+97                              | 5.6 | 8.3  | = outlet.   |
| 0+97                              | 8.1 | 5.5  | = flow line |
| 1+00                              | 7.8 | 6.1  |             |
| 1+06                              | 7.1 | 6.8  |             |
| 1+30                              | 7.3 | 6.6  |             |
| 1+50                              | 8.9 | 5.0  |             |
| 1+50                              | 8.8 | 5.1  |             |
| 3+00                              | 9.6 | 4.3  |             |



Proposed Pipe at Lowell St.

|                                   |      |       |      |
|-----------------------------------|------|-------|------|
|                                   | 5.36 | 13.42 | 8.06 |
| 0+00                              |      | 5.0   | 8.4  |
| 0+00                              |      | 3.8   | 9.6  |
| 0+16.5                            |      | 4.3   | 9.1  |
| 0+24                              |      | 4.6   | 8.8  |
| 0+33 = Junction of proposed pipes |      | 5.50  | 7.9  |
| 0+87                              |      | 5.1   | 8.3  |
| 1+13.3 = W rail                   |      | 5.2   | 8.2  |
| 1+24                              |      | 5.4   | 8.0  |
| 1+49                              |      | 6.3   | 7.1  |
| 1+93                              |      | 5.2   | 8.2  |
| 2+33                              |      | 7.4   | 6.0  |
| 2+83                              |      | 8.2   | 5.2  |
| 3+33                              |      | 9.4   | 4.0  |



Location & Levels at Culvert on (Gothic) Rosecrans Garrison

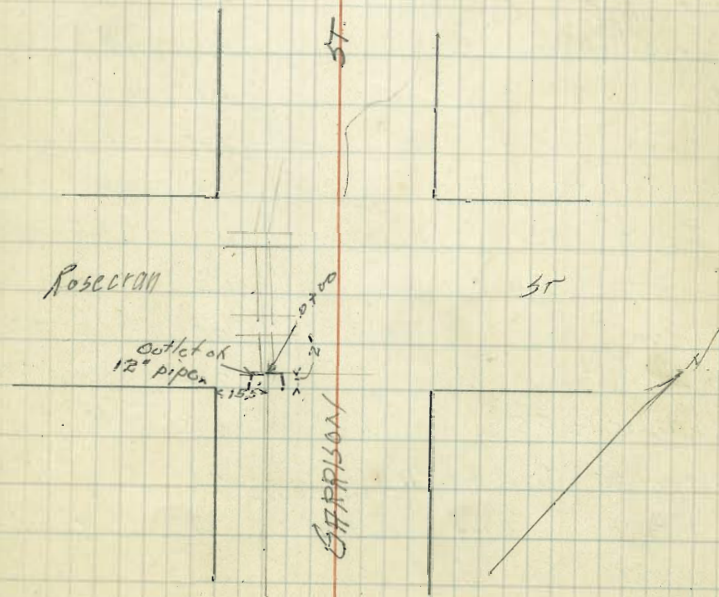
|      |      |      |        |
|------|------|------|--------|
|      | 6.02 | 6.18 | 2.16   |
| 0+00 |      | 8.40 | - 2.22 |
| 0+00 |      | 9.6  | - 3.4  |
| 0+50 |      | 10.0 | - 3.8  |
| 1+00 |      | 10.2 | - 4.2  |
| 1+50 |      | 10.4 | - 4.2  |
| 2+00 |      | 10.6 | - 4.4  |

BM 56K  
SW Hugo.

= flow line

= ground.

above this  
Tide is 0.5  
at 4.30



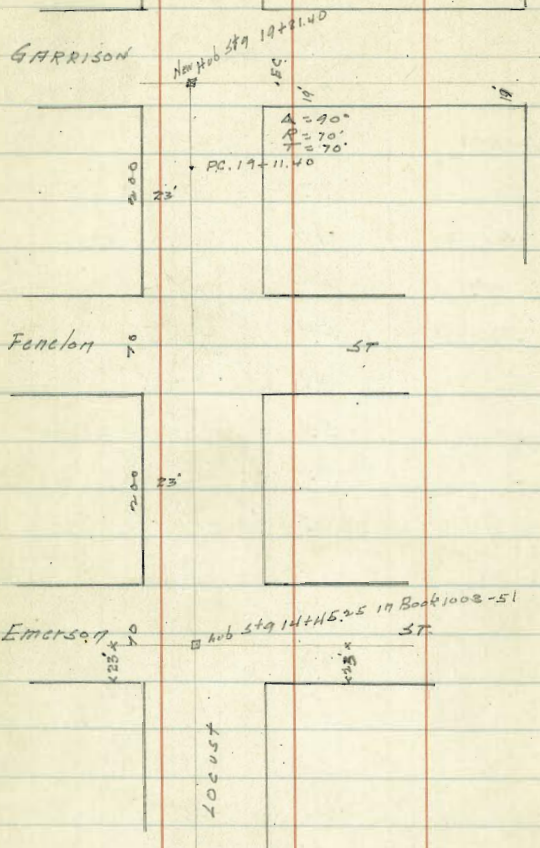
8/22/19 Gregory  
 Continuation of Survey  
 for proposed Storm Drain  
 from Canyon St. Sec book 1003-50

|                                   | 4.69 | 1.7.15 | 12.46 | Hue Sta<br>14+45.25 |
|-----------------------------------|------|--------|-------|---------------------|
| Sta 13+75.25 Book 1003-51         |      | 3.7    | 13.5  |                     |
| 14+45.25                          |      | 4.7    | 12.5  |                     |
| 15                                |      | 5.2    | 12.0  |                     |
| +50                               |      | 5.4    | 11.8  |                     |
| 16                                |      | 5.4    | 11.8  |                     |
| +50                               |      | 5.2    | 12.0  |                     |
| +75                               |      | 4.6    | 12.6  |                     |
| +92.25 = St. Fenelon              |      | 4.9    | 12.3  |                     |
| 17+14. = Top 10" pipe 5.66.       |      | 5.15   | 12.00 |                     |
| 17+43.5 = - 10" - No. 6           |      | 5.15   | 12.00 |                     |
| +62.2 = N.L. Fenelon              |      | 5.0    | 12.2  |                     |
| +64                               |      | 4.6    | 12.6  |                     |
| 18                                |      | 5.0    | 12.2  |                     |
| +50                               |      | 5.4    | 11.8  |                     |
| 19                                |      | 5.9    | 11.3  |                     |
| +11.40 = P.C.                     |      | 6.0    | 11.2  |                     |
| +35                               |      | 6.5    | 10.7  |                     |
| +50                               |      | 5.8    | 11.4  |                     |
| 20                                |      | 7.2    | 10.0  |                     |
| +21.35 = E.C.                     |      | 7.8    | 9.4   |                     |
| +24.35 = Top of Outlet 10" pipe   |      | 7.80   | 9.4   |                     |
| T.P. 0.29 9.64                    |      | 7.80   | 9.35  |                     |
| +24.35 = Flow line Outlet of pipe |      | 1.52   | 8.1   |                     |
| +50                               |      | 1.9    | 7.7   | Top Cem. gutter     |

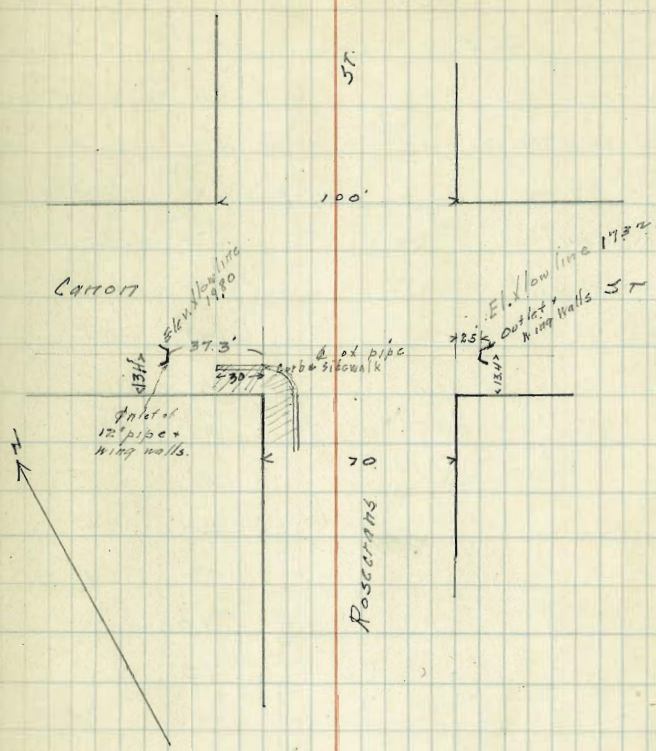
|                                   | 9.64 | 3.3  | 6.3   | ccm. gutter   |
|-----------------------------------|------|------|-------|---|
| 21+00                             |      | 4.9  | 4.7   | ✓ ✓   |
| +50                               |      | 6.4  | 3.2   | ✓ ✓   |
| 22                                |      | 7.1  | 2.5   | Dirt core gutter  |
| +50                               |      | 7.7  | 1.9   |   |
| +98.85 = N.L. Rosecrans           |      | 7.72 | 1.92  |   |
| T.P. 3.36 5.28                    |      | 4.0  | 1.3   |   |
| 23+15.8 = Int. of 24" + 10" pipes |      | 4.2  | 1.1   |   |
| (33' No. of Int.)                 |      | 5.9  | -0.6  |   |
| (39' - - -)                       |      | 3.9  | 1.4   |   |
| (49' - - -)                       |      | 3.9  | 1.4   |   |
| (80' - - -)                       |      | 4.6  | 0.7   |   |
| (6' 50. ✓ ✓)                      |      | 6.7  | -1.4  |   |
| (7.5 ✓ ✓ ✓)                       |      | 3.6  | 1.7   |   |
| (21' ✓ ✓ ✓)                       |      | 3.7  | 1.6   |   |
| (61' ✓ ✓ ✓)                       |      | 3.9  | 1.4   |   |
| 23+28                             |      | 4.0  | 1.3   |   |
| +54.30 = W rail                   |      | 5.0  | 0.3   |   |
| +74                               |      | 6.1  | -0.8  |   |
| +97                               |      | 8.6  | -3.3  |   |
| +98                               |      | 7.50 | -2.22 | = flow line of present 12" sec page 40 for location of outlet |

see sketch next page

Location of proposed  
Storm Drain Emerson  
+ Locust to Rosecrans  
+ Garrison



Location of Pipe at Cannon St  
+ Rosecrans



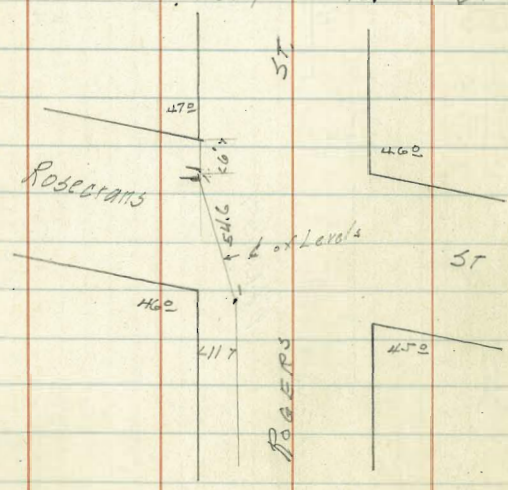


8/22/19

Proposed Pipe at  
ROGERS +  
Rosecrans.

|      |       |      |       |                      |
|------|-------|------|-------|----------------------|
| 0.06 | 62.13 |      | 62.07 | 8P. 5E<br>Qualtrough |
| 0.68 | 54.64 | 8.17 | 53.96 |                      |

|                             |       |      |       |
|-----------------------------|-------|------|-------|
| on cb at 0+00               |       | 7.33 | 47.31 |
| 0+00                        |       | 8.2  | 46.4  |
| 0+04.0                      |       | 7.5  | 46.8  |
| 0+17.0 = W rail             |       | 7.9  | 46.7  |
| T.P. 1.68                   | 48.41 | 7.91 | 46.73 |
| 0+53.                       |       | 3.0  | 45.4  |
| 0+55                        |       | 6.9  | 41.5  |
| 0+67                        |       | 11.2 | 37.2  |
| 0+76 = Line of toe of slope |       | 13.8 | 34.6  |

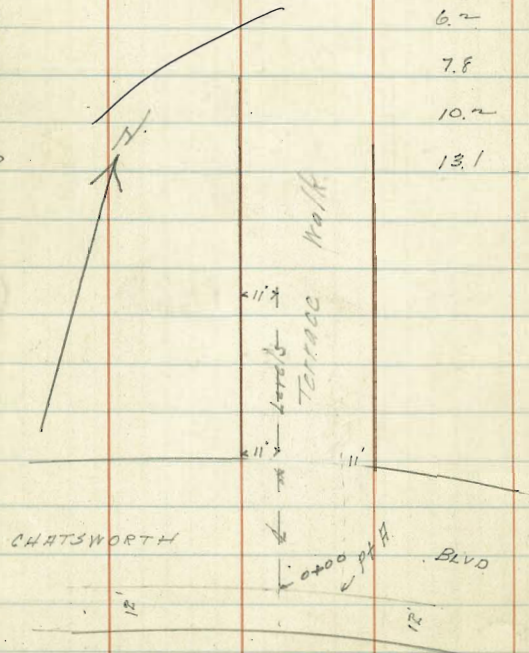


9/12/19 Gregory

Proposed Pipe at  
Chatsworth Blvd  
and Terrace Walk

|                               |      |        |        |        |
|-------------------------------|------|--------|--------|--------|
|                               | 3.30 | 164.88 | 161.58 |        |
| T.P.                          | 0.54 | 152.34 | 130.8  | 151.80 |
| 0+00 = S. Co. of Chatsworth   |      |        | 9.0    | 143.3  |
| (Elev. of Pt 28' E. of 0+00.) |      | (7.1)  |        | 144.9  |
| 0+25                          |      |        | 8.1    | 144.7  |
| 0+35                          |      |        | 8.1    | 144.7  |
| 0+46                          |      |        | 8.7    | 143.6  |
| 0+49                          |      |        | 6.9    | 145.4  |
| 0+59 = N.L. Chatsworth        |      |        | 7.0    | 145.3  |
| 0+60                          |      |        | 6.2    | 146.1  |
| 0+80                          |      |        | 7.8    | 144.5  |
| 1+00                          |      |        | 10.2   | 142.1  |
| 1+20                          |      |        | 13.1   | 139.2  |

B.P. Mast + C. 6' in  
above 200' S  
of 47' 0" T.T.



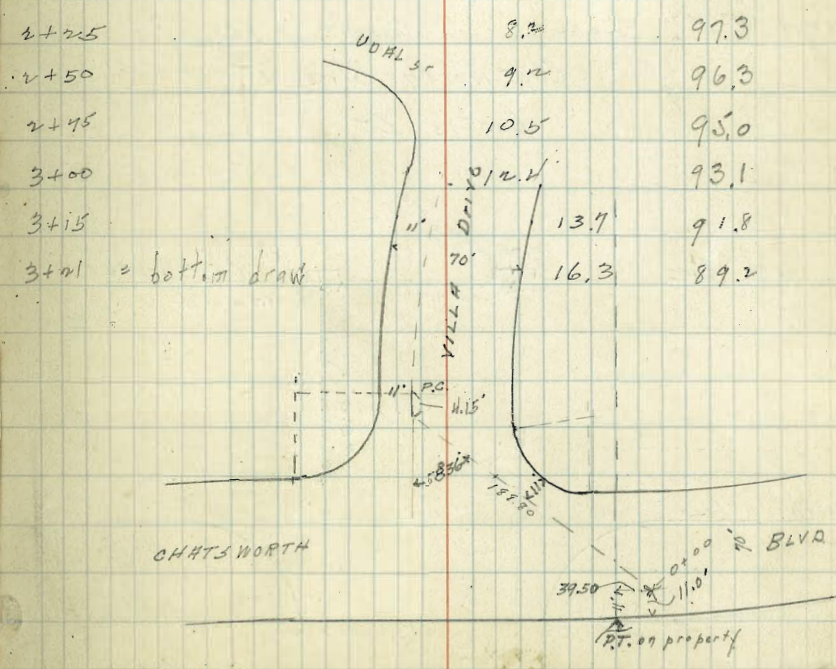
This pipe will only get water from 300' East  
on Chatsworth 12" is large enough

9/12/19 Gregory

Proposed Pipe on  
CHATSWORTH BLVD  
at Villa Drive

45

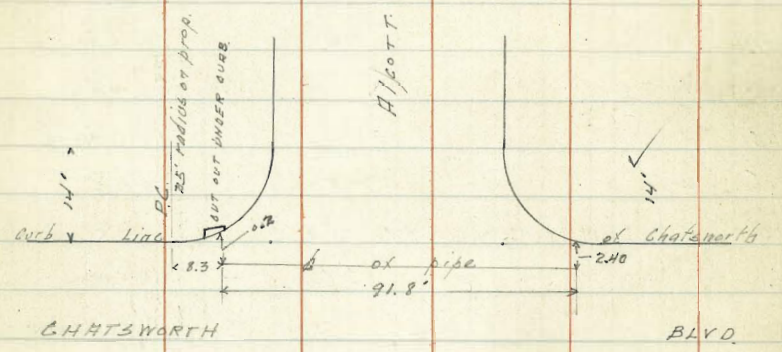
|                    |                               |        |       |                                   |
|--------------------|-------------------------------|--------|-------|-----------------------------------|
| B.M.               | 8.87                          | 105.52 | 96.65 | B.P. SW Tennyson<br>at Chatsworth |
| 0+00               |                               |        | 2.1   | 103.4                             |
| 0+01.0             |                               |        | 2.7   | 102.8                             |
| 0+30               |                               |        | 3.0   | 102.5                             |
| 0+65               |                               |        | 4.3   | 101.2                             |
| 0+85               |                               |        | 5.4   | 100.3                             |
| 1+00               | Catch Basin could be put here |        | 5.3   | 100.4                             |
| 1+30               |                               |        | 5.5   | 100.0                             |
| 1+60               |                               |        | 5.7   | 99.8                              |
| 1+88.80 = Δ pt.    |                               |        | 6.4   | 99.1                              |
| 1+92.95 = P.C.     |                               |        | 6.6   | 98.9                              |
| 2+25               |                               |        | 8.2   | 97.3                              |
| 2+50               |                               |        | 9.2   | 96.3                              |
| 2+95               |                               |        | 10.5  | 95.0                              |
| 3+00               |                               |        | 12.1  | 93.1                              |
| 3+15               |                               |        | 13.7  | 91.8                              |
| 3+21 = bottom draw |                               |        | 16.3  | 89.2                              |



PT. on property

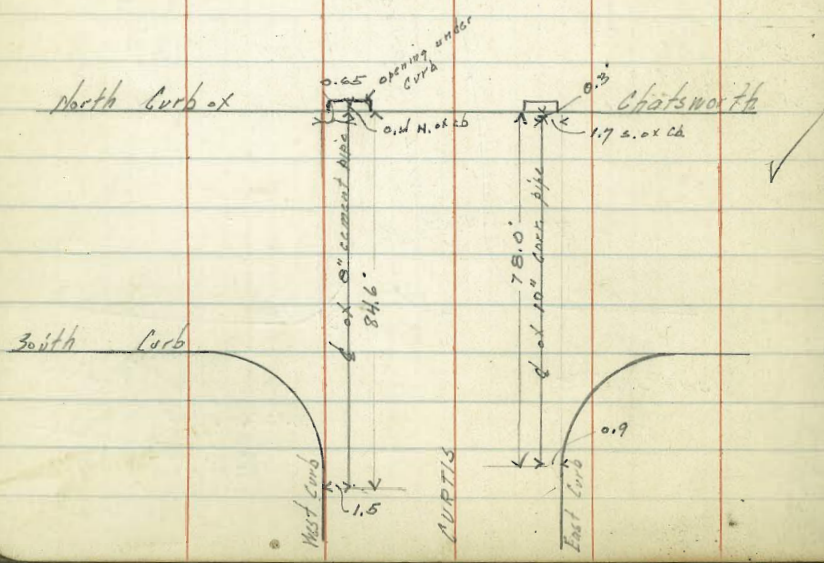
9/12/19 Gregory

Location of Present 8" pipe  
on Chatsworth at  
Alcott St.



9/12/19 Gregory

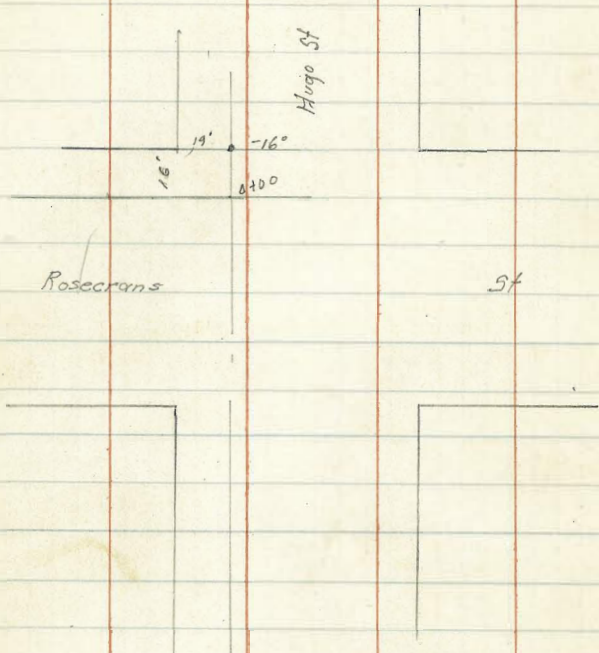
Location of Present pipes on  
Chatsworth Blvd at  
Curtis St





Gregory  
West  
9/25/19

Culverts on Rosecrans.



4.40

H.I.  
6.56

216

BM

-16°

5.0

0+00

5.1

- 14

5.0

+ 5

5.6

+ 30

5.0

+ 44.4

4.9

+ 50

5.1

+ 58

6.1

6.56.56

0+84

6.3

1+50

7.0

2+00

7.5

+ 50

8.0

3+00

8.3

+ 65

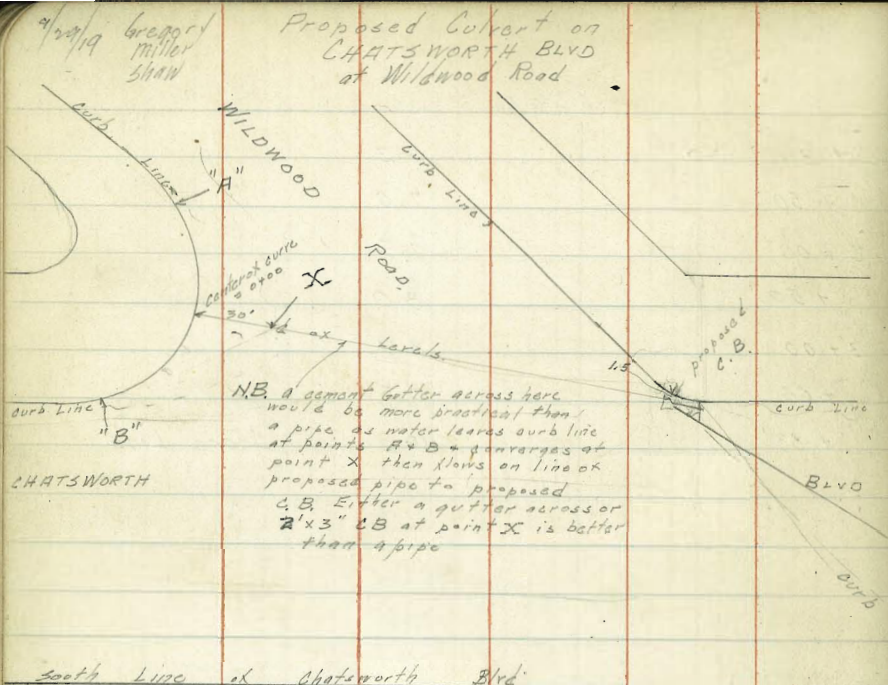
8.3

+ 83

10.3

Shore Line

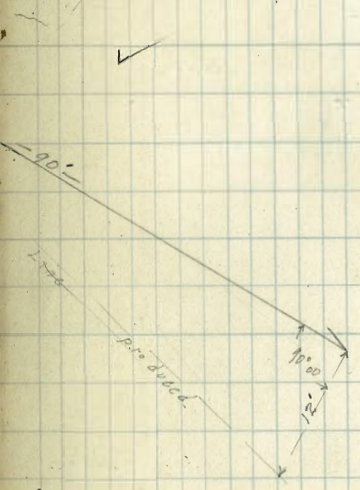
E Rail



|                     |      |       |
|---------------------|------|-------|
| 1+68                | 8.0  | 168.7 |
| 1+75 = Top of slope | 10.6 | 166.1 |

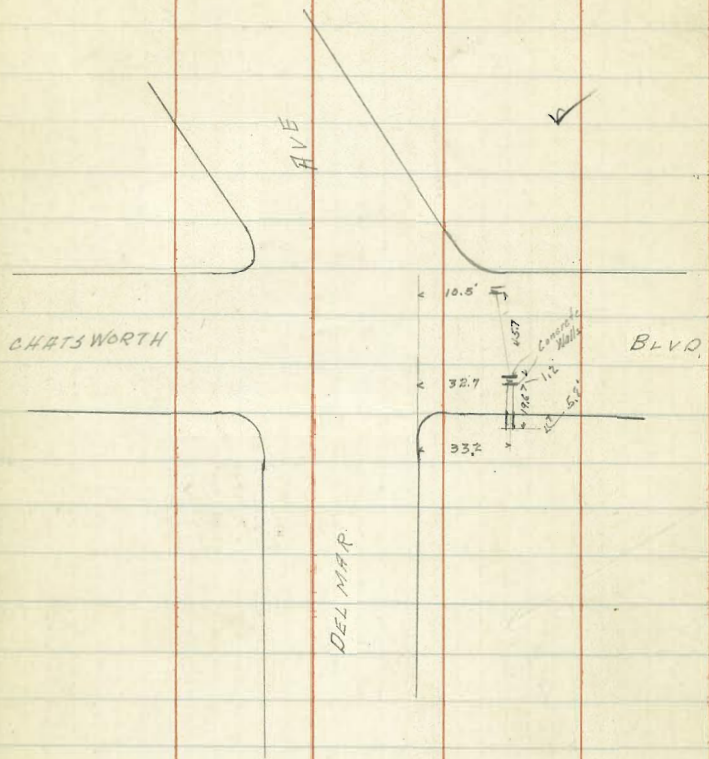
South Line of Chatsworth Blvd

|                   |        |        |                  |
|-------------------|--------|--------|------------------|
| 6.55              | 176.73 | 170.18 | B.M. NE Wildwood |
| 0+00 on curb.     | (3.6)  | 173.1  |                  |
| 0+00 in gutter    | 4.5    | 72.2   |                  |
| 0+11              | 4.9    | 71.8   |                  |
| 0+14              | 4.5    | 72.2   |                  |
| 0+42              | 5.2    | 71.5   |                  |
| 0+67              | 6.5    | 70.2   |                  |
| 0+85.3 = Δ pt.    | 7.5    | 69.2   |                  |
| (0+75.3) on curb. | 6.7    | 70.0   |                  |
| 1+05              | 7.0    | 69.7   |                  |
| 1+28              | 7.4    | 69.3   |                  |
| 1+39              | 8.1    | 68.6   |                  |
| 1+52              | 7.6    | 69.1   |                  |



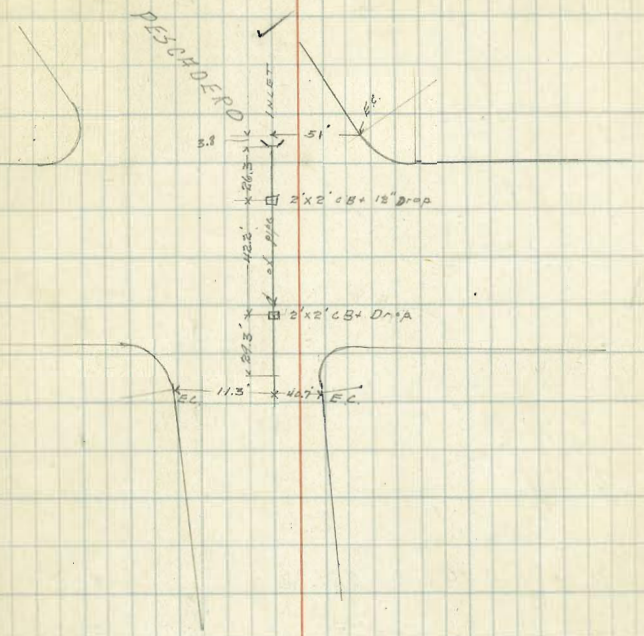
Gregory Miller

Location of Present 6" pipe Vitrified  
at Chatsworth Blvd &  
Del Mar Ave

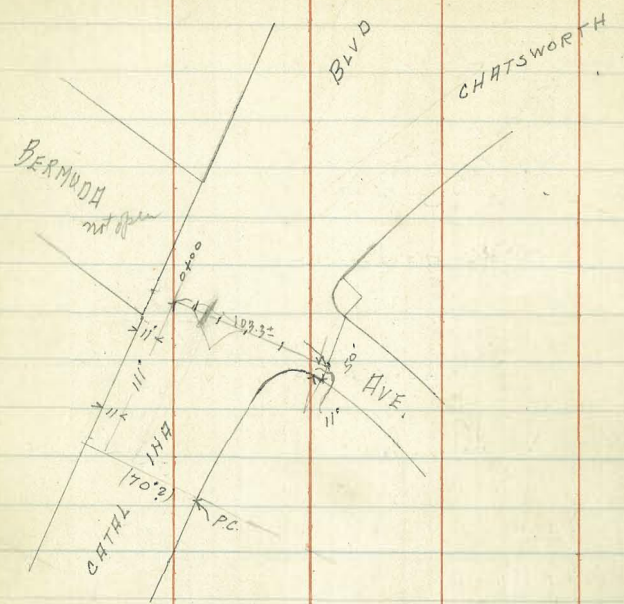


Location of Present 12" cement pipe  
at Chatsworth Pasadena

49



PROPOSED PIPE ON  
CATALINA BLVD  
at Bermuda



| Station               | Offset | Elevation | Notes                                |
|-----------------------|--------|-----------|--------------------------------------|
|                       | 0.96   | 209.96    | 209.96 spk at Catalina + Chartsworth |
| 0+00                  | 2.0    | 208.0     |                                      |
| 0+11                  | 3.7    | 206.3     |                                      |
| 0+12 = present gutter | 4.8    | 205.2     |                                      |
| 0+15                  | 4.4    | 205.6     |                                      |
| 0+48                  | 5.9    | 204.1     |                                      |
| 0+59 = present gutter | 6.9    | 203.1     |                                      |
| 0+62                  | 6.1    | 203.9     |                                      |
| 0+79                  | 6.5    | 203.5     |                                      |
| 1+00                  | 7.8    | 202.2     |                                      |
| 1+20                  | 9.8    | 200.2     |                                      |

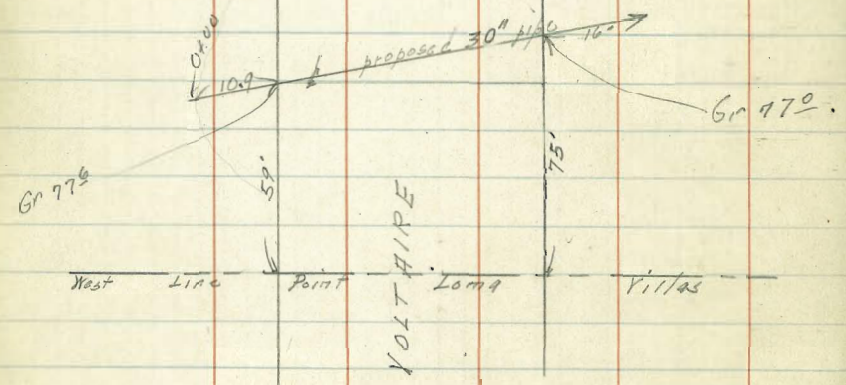
9/29/19

Gregory Miller Shank  
 PROPOSED CULVERT  
 VOLTAIRE ST.  
 Between YILLER ST  
 & Warrington

WARRINGTON

50 ST.

70'



Levels of & proposed 30" pipe on opposite page.

51

|                      |         |       |
|----------------------|---------|-------|
| 103                  | 13.03   | 72.0  |
| 135                  | 64.44 ✓ | 60.09 |
| 0+00 = Top of slope  | 7.8     | 56.6  |
| +10.9                | 7.8     | 56.6  |
| +27.0                | 8.7     | 55.7  |
| +41.0                | 9.0     | 55.4  |
| +57.0                | 8.5     | 55.9  |
| +59                  | 7.1     | 57.3  |
| +71                  | 9.2     | 55.2  |
| +82.7                | 9.8     | 54.6  |
| +98.7 = Top of slope | 11.1    | 53.3  |

9/29/19

Graded  
70, 165  
3440

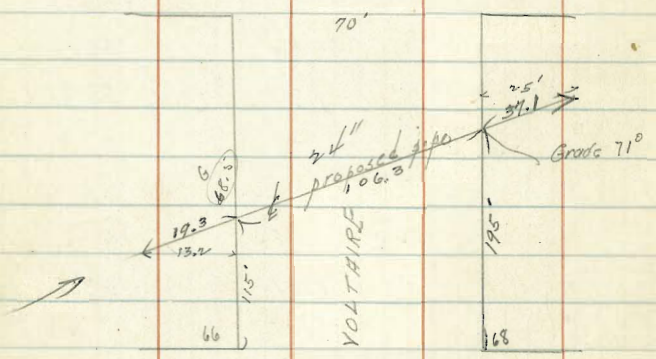
Proposed pipe on  
VOLTAIRE ST  
bet Wells + San Clemente.

1 + 62.7 = Top of slope

7.3

141.3

SAN CLEMENTE



WELLS

ST

|                     |      |       |       |       |                       |
|---------------------|------|-------|-------|-------|-----------------------|
|                     | 4.25 | 71.82 |       | 69.57 | NW Wall<br>+ Voltaire |
|                     | 1.43 | 61.00 | 14.26 | 59.57 |                       |
|                     | 0.92 | 48.62 | 13.30 | 47.70 |                       |
| 0+00 = Top of slope |      |       | 11.5  | 46.1  |                       |
| +19                 |      |       | 2.9   | 45.7  |                       |
| +44                 |      |       | 3.5   | 44.8  |                       |
| +70                 |      |       | 4.5   | 44.2  |                       |
| 1+00                |      |       | 5.6   | 43.0  |                       |
| 1+45.6              |      |       | 6.6   | 42.0  |                       |

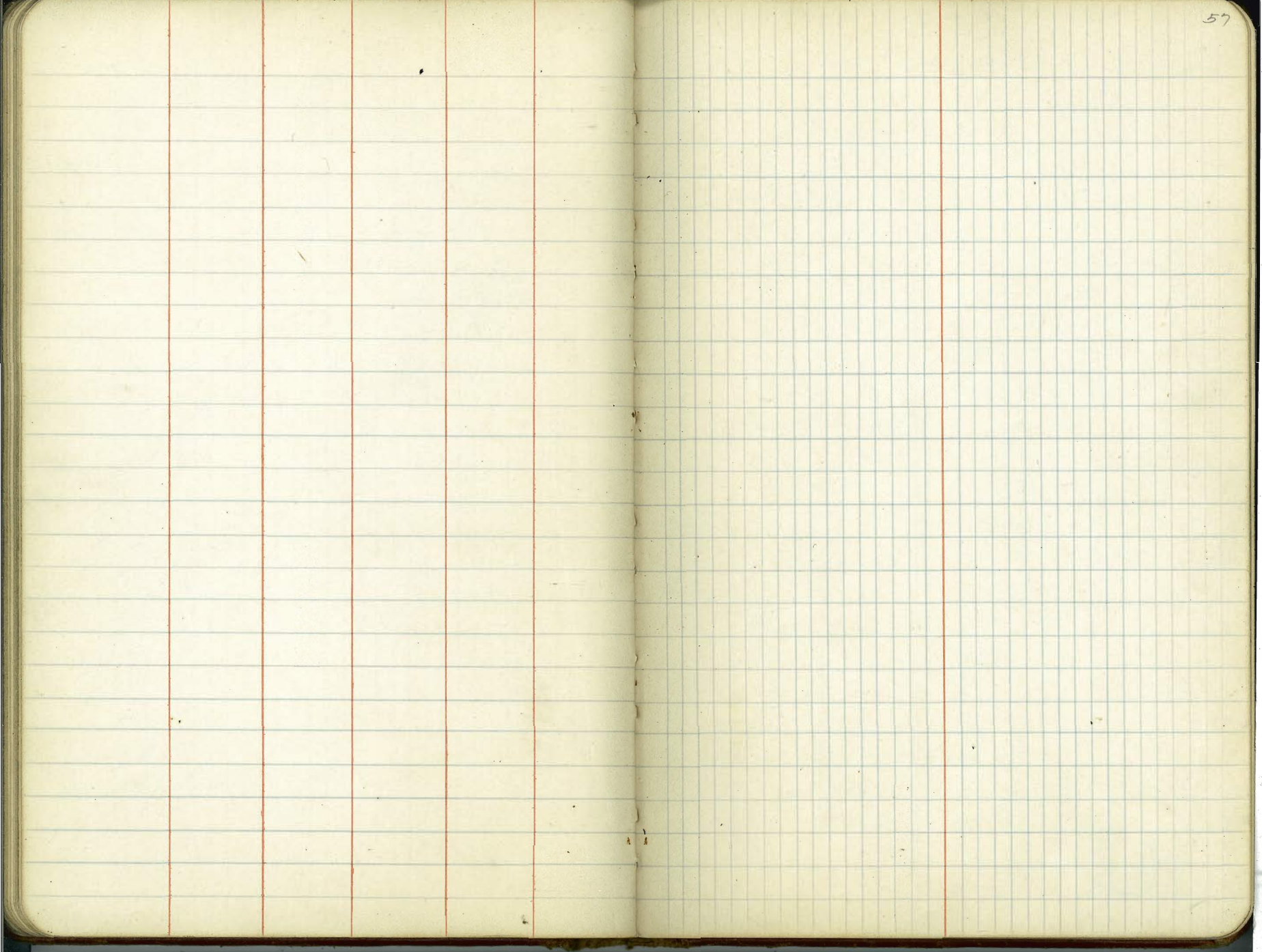












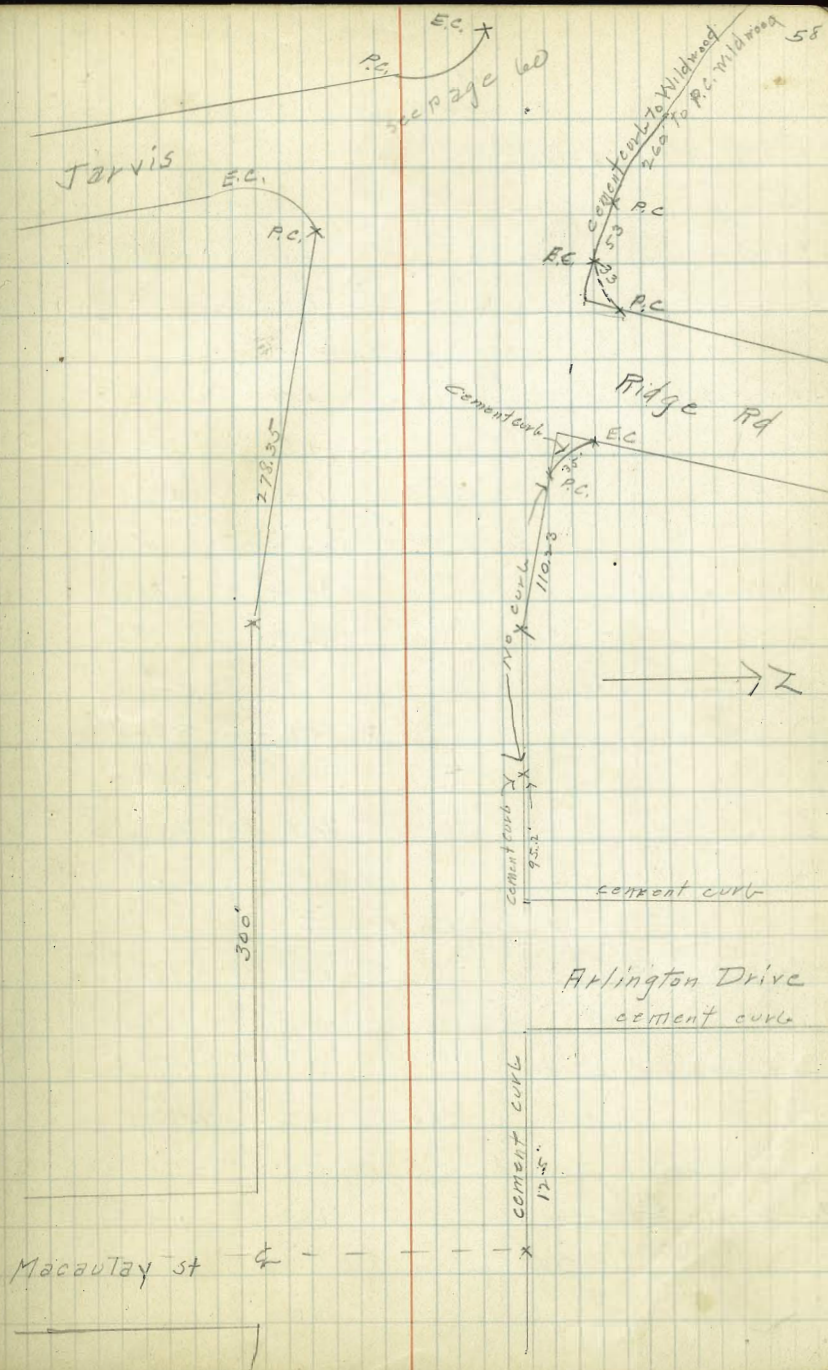
Levels on curb Lines & Chatsworth Blvd from Macaulay To  
Pt Lema Ave

B.M. N.E. brass Ply Arlington & Chatsworth. 133.23

2.36 135.59

& Macaulay produced

|                           |        |        |
|---------------------------|--------|--------|
| N. curb Chatsworth        | 10.43  | 125.1  |
| ¢                         | 10.8   | 124.7  |
| Sou. curb Chatsworth      |        |        |
| 0+0 = W.L. Macaulay       | 9.8    | 125.7  |
| ¢                         | 9.3    | 126.2  |
| 0+50                      | 6.4    | 129.1  |
| ¢                         | 6.2    | 129.3  |
| 1+0                       | 2.9    | 132.6  |
| ¢                         | 2.7    | 132.8  |
| 1+50                      | 0.4    | 135.1  |
| ¢                         | 0.3    | 135.2  |
| E.L. Arlington            |        |        |
| N. curb Chatsworth        | 2.23   | 133.3  |
| ¢                         | 3.1    | 132.4  |
| T.P.                      | 12.75  | 148.08 |
| 0.26                      | 135.33 |        |
| W.L. Arlington            |        |        |
| N. curb                   | 11.40  | 136.6  |
| ¢                         | 11.6   | 136.4  |
| Sou. curb line Chatsworth |        |        |
| 2+0 west of Macaulay      | 10.2   | 137.8  |
| ¢                         | 10.2   | 137.8  |



148.08

500 curb line Chatsworth

|                    |     |       |
|--------------------|-----|-------|
| 2150 W of Macaulay | 6.7 | 141.3 |
| ⊕                  | 6.4 | 141.6 |
| 370 = A            | 2.8 | 145.2 |
| ⊕                  | 2.4 | 145.6 |

N. curb Chatsworth

|  |      |        |
|--|------|--------|
| 95.2 west of Arlington = end cement curb | 4.59 | 143.5  |
| ⊕  | 4.8  | 143.2  |
| T.P. 11.97 159.58                        | 0.47 | 147.61 |

500 curb line Chatsworth

|                    |      |       |
|--------------------|------|-------|
| 3450 W of Macaulay | 10.2 | 149.3 |
| ⊕                  | 10.0 | 149.5 |
| 470                | 6.0  | 153.5 |
| ⊕                  | 5.8  | 153.7 |
| 4450               | 1.8  | 157.7 |
| ⊕                  | 1.7  | 157.8 |

N curb Chatsworth

|                         |      |        |
|-------------------------|------|--------|
| P.C. E of Ridge Rd.     | 4.29 | 155.3  |
| ⊕ Chatsworth            | 4.8  | 154.7  |
| E.C. E. curb Ridge Road | 1.02 | 158.5  |
| T.P. 11.48 170.04       | 1.02 | 158.56 |

|                             |      |       |
|-----------------------------|------|-------|
| P.C. W. curb Ridge road     | 9.63 | 160.4 |
| E.C. N " Chatsworth B Ridge | 8.65 | 161.4 |
| ⊕                           | 9.1  | 160.9 |

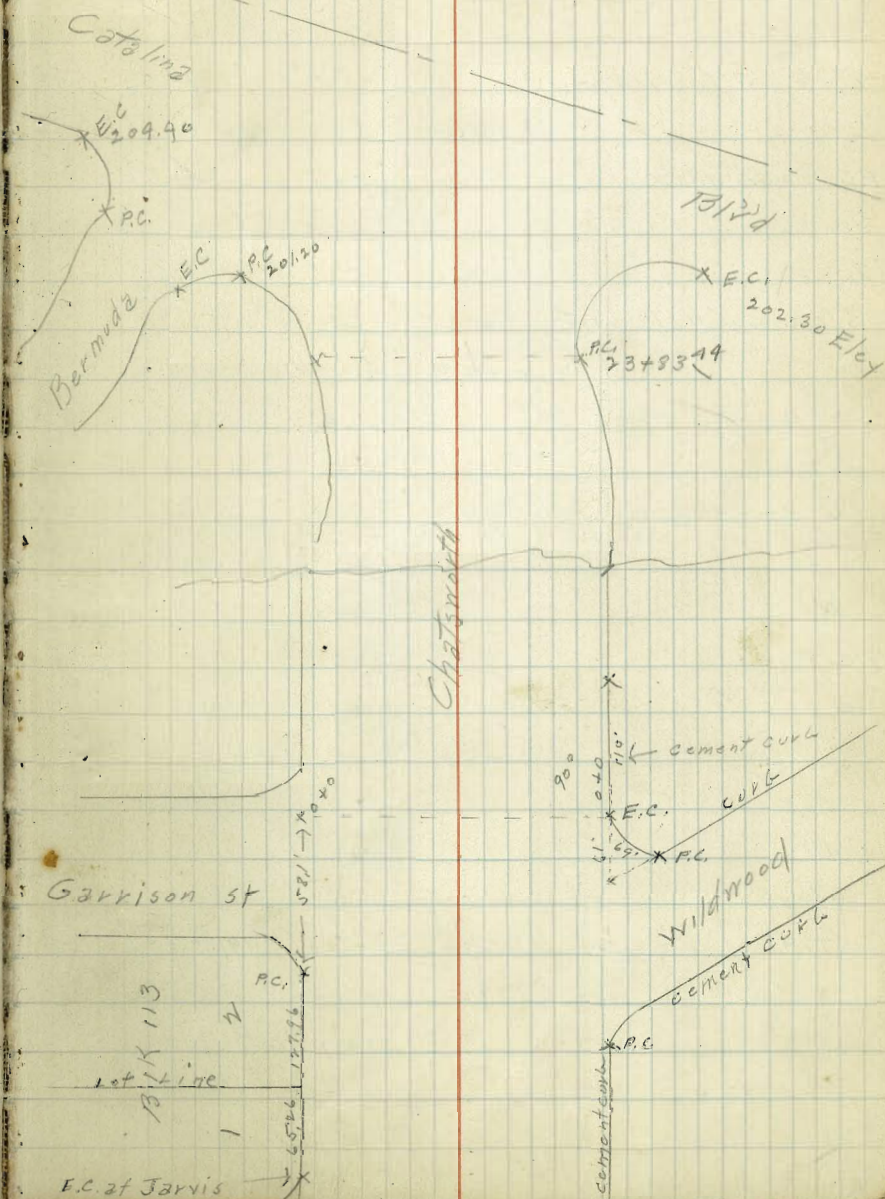
## N. curb Chatsworth

|   |      |       |
|---|------|-------|
| 0+53 w of E.C. at Ridge Rd. = P.C. Chatsworth | 6.02 | 164.0 |
| ⊥   | 5.9  | 164.1 |
| 1+0 curb                                      | 4.2  | 165.8 |
| ⊥   | 4.0  | 166.0 |
| 1+15 Break                                    | 3.67 | 166.4 |
| ⊥   | 3.6  | 166.4 |
| 1+50  | 2.81 | 167.2 |
| ⊥   | 2.8  | 167.2 |
| 2+0   | 1.58 | 168.5 |
| ⊥   | 1.6  | 168.4 |

## Soo. Curb Line Chatsworth

|   |      |        |
|---|------|--------|
| 5+0 w of Macaulay                               | 8.6  | 161.4  |
| ⊥   | 8.6  | 161.4  |
| 5+75  | 7.2  | 162.8  |
| ⊥   | 7.2  | 162.8  |
| 5+50  | 5.9  | 164.1  |
| ⊥   | 5.8  | 164.2  |
| 5+78 <sup>35'</sup> = P.C. E of Jarvis          | 5.2  | 164.8  |
| ⊥   | 4.9  | 165.1  |
| E.C. w. of Jarvis                               | 3.6  | 166.4  |
| ⊥   | 3.2  | 166.8  |
| 65.25' w of E.C. = Lot line bet lots 124 BK 113 | 1.7  | 168.3  |
| ⊥   | 1.8  | 168.2  |
| T.P. 10.25 179.63                               | 1.06 | 168.98 |

PT LOMB AVE



179.63

|                          |                                |        |        |  |
|--------------------------|--------------------------------|--------|--------|--|
| 20'                      |                                |        |        |  |
| P.C. E of Garrison       |                                | 7.7    | 171.9  |  |
| Φ                        |                                | 7.9    | 171.7  |  |
| P.C. E. Wild wood approx |                                | 9.65   | 170.0  |  |
| Φ                        |                                | 9.7    | 169.9  |  |
| P.C. w. curb wild wood   |                                | 5.41   | 174.2  |  |
| E.C.                     |                                | 5.86   | 173.8  |  |
| Φ                        |                                | 5.8    | 173.8  |  |
| S. curb Chats worth      |                                | 5.7    | 173.9  |  |
|                          | 0+50                           |        |        |  |
| S                        |                                | 3.4    | 176.2  |  |
| Φ                        |                                | 3.3    | 176.3  |  |
| N                        |                                | 2.24   | 176.8  |  |
| T.P.                     | 12:33                          | 191.61 | 179.25 |  |
|                          |                                | 0.25   | 179.25 |  |
|                          | 1+10 = end of Cement curb on N |        |        |  |
| N                        |                                | 11.23  | 180.4  |  |
| Φ                        |                                | 11.1   | 180.5  |  |
| S                        |                                | 11.0   | 180.6  |  |
|                          | 2+0                            |        |        |  |
| S                        |                                | 3.6    | 188.0  |  |
| Φ                        |                                | 4.6    | 187.0  |  |
| N                        |                                | 5.3    | 185.3  |  |
| T.P.                     | 12:47                          | 203.84 | 191.37 |  |
|                          |                                | 3+0    |        |  |
| N                        |                                | 10.7   | 193.1  |  |
| Φ                        |                                | 10.0   | 193.8  |  |
| S                        |                                | 9.1    | 194.7  |  |

203.84

170.18

61

|      |       |                                    |        |  |
|------|-------|------------------------------------|--------|--|
|      |       | 4+0                                |        |  |
| S    |       | 4.0                                | 199.8  |  |
| Φ    |       | 4.3                                | 199.5  |  |
| N    |       | 5.5                                | 198.3  |  |
|      |       | 4+50                               |        |  |
| N    |       | 2.7                                | 201.1  |  |
| Φ    |       | 2.2                                | 201.6  |  |
| S    |       | 2.2                                | 201.6  |  |
| T.P. | 11:41 | 214.70                             | 203.29 |  |
|      |       | 5+0                                |        |  |
| S    |       | 10.9                               | 203.8  |  |
| Φ    |       | 10.8                               | 203.9  |  |
| N    |       | 11.5                               | 203.2  |  |
|      |       | 5+50                               |        |  |
| N    |       | 3.8                                | 207.9  |  |
| Φ    |       | 3.6                                | 206.1  |  |
| S    |       | 3.9                                | 205.8  |  |
|      |       | 6+0                                |        |  |
| S    |       | 6.7                                | 208.0  |  |
| Φ    |       | 6.6                                | 207.1  |  |
| N    |       | 6.5                                | 208.2  |  |
|      |       | 6+30 <sup>60</sup> = P.C. Coronado |        |  |
| N    |       | 5.2                                | 209.5  |  |
| Φ    |       | 5.3                                | 209.4  |  |
| S    |       | 5.4                                | 209.3  |  |

214.70

7+0

|   |     |       |
|---|-----|-------|
| S | 2.6 | 212.1 |
| Φ | 2.5 | 12.2  |
| N | 2.3 | 12.4  |

7+50

|   |     |      |
|---|-----|------|
| N | 1.3 | 13.4 |
| Φ | 1.2 | 13.5 |
| S | 1.2 | 13.5 |

8+01<sup>6</sup> = E.C. Coronado

|   |     |      |
|---|-----|------|
| S | 1.4 | 13.3 |
| Φ | 1.1 | 13.6 |
| N | 1.2 | 13.5 |

8+50

|   |     |      |
|---|-----|------|
| N | 1.5 | 13.2 |
| Φ | 1.4 | 13.3 |
| S | 1.7 | 13.0 |

9+0

|   |     |      |
|---|-----|------|
| S | 2.3 | 12.4 |
| Φ | 1.8 | 12.9 |
| N | 1.7 | 13.0 |

9+50

|   |     |      |
|---|-----|------|
| N | 1.8 | 12.9 |
| Φ | 2.1 | 12.6 |
| S | 2.6 | 12.1 |

|      |       |        |      |        |
|------|-------|--------|------|--------|
| T.P. | 10.47 | 222.73 | 2.44 | 212.26 |
|------|-------|--------|------|--------|

222.73

10+0

|   |      |       |
|---|------|-------|
| S | 11.1 | 211.6 |
| Φ | 10.6 | 12.1  |
| N | 10.2 | 12.5  |

7+50

|   |      |      |
|---|------|------|
| N | 10.1 | 12.6 |
| Φ | 10.8 | 11.9 |
| S | 11.4 | 11.3 |

11+03<sup>14</sup> = P.C. Delmar

|     |      |      |
|-----|------|------|
| S   | 10.4 | 12.3 |
| ctr | 10.4 | 12.3 |
| N   | 10.4 | 12.3 |

12+0

|     |     |      |
|-----|-----|------|
| N   | 8.4 | 14.3 |
| ctr | 8.2 | 14.5 |
| S   | 7.7 | 15.0 |

12+77<sup>14</sup> = F.G. Delmar

|   |     |      |
|---|-----|------|
| S | 5.2 | 17.5 |
| Φ | 5.3 | 17.4 |
| N | 6.0 | 16.7 |

13+0

|   |     |      |
|---|-----|------|
| N | 4.9 | 17.8 |
| Φ | 4.5 | 18.2 |
| S | 4.6 | 18.1 |

1140814 62



222.73  
13+25

|   |     |       |
|---|-----|-------|
| S | 3.8 | 218.9 |
| Φ | 3.6 | 19.1  |
| N | 4.0 | 18.7  |

13+50

|   |     |      |
|---|-----|------|
| ✓ | 3.2 | 19.5 |
| Φ | 3.0 | 19.7 |
| S | 3.1 | 19.6 |

13+75

|   |     |      |
|---|-----|------|
| S | 2.7 | 20.0 |
| Φ | 2.5 | 20.2 |
| N | 3.0 | 19.7 |

14+0

|   |     |      |
|---|-----|------|
| N | 3.2 | 19.5 |
| Φ | 2.5 | 20.2 |
| S | 2.5 | 20.2 |

1.10 220.95 2.88 219.85

14+50

|   |     |      |
|---|-----|------|
| S | 1.7 | 19.2 |
| Φ | 2.1 | 18.8 |
| N | 2.8 | 18.1 |

15+0

|   |     |      |
|---|-----|------|
| N | 4.5 | 16.4 |
| Φ | 3.7 | 17.2 |
| S | 3.6 | 17.3 |

220.95  
15+50

|   |     |       |
|---|-----|-------|
| S | 5.2 | 215.7 |
| Φ | 5.7 | 15.2  |
| N | 6.5 | 14.4  |

16+0

|   |     |      |
|---|-----|------|
| ✓ | 8.5 | 12.4 |
| Φ | 7.6 | 12.3 |
| S | 7.0 | 13.9 |

16+50

|   |      |      |
|---|------|------|
| S | 9.2  | 11.7 |
| Φ | 9.6  | 11.3 |
| N | 10.3 | 10.6 |

17+0

|   |      |     |
|---|------|-----|
| N | 12.0 | 8.9 |
| Φ | 11.8 | 9.1 |
| S | 11.9 | 9.0 |

T.P. 0.52 208.64 12.83 208.12

17+50

|   |     |     |
|---|-----|-----|
| S | 2.4 | 6.2 |
| Φ | 2.4 | 6.2 |
| ✓ | 2.4 | 6.2 |

18+0

|   |     |     |
|---|-----|-----|
| N | 5.3 | 3.3 |
| Φ | 5.3 | 3.3 |
| S | 5.8 | 2.8 |

208.64

18+50

|   |     |       |
|---|-----|-------|
| S | 8.8 | 199.8 |
| Φ | 8.3 | 200.3 |
| N | 8.4 | 200.2 |

19+0

|   |      |       |
|---|------|-------|
| N | 11.3 | 197.3 |
| Φ | 11.5 | 197.1 |
| S | 11.8 | 196.8 |

|      |      |        |       |        |
|------|------|--------|-------|--------|
| T.P. | 0.93 | 196.49 | 13.68 | 195.56 |
|------|------|--------|-------|--------|

19+50

|   |     |       |
|---|-----|-------|
| S | 3.1 | 193.3 |
| Φ | 2.5 | 93.9  |
| N | 2.4 | 94.0  |

20+0

|   |     |      |
|---|-----|------|
| N | 5.4 | 91.0 |
| Φ | 5.8 | 90.6 |
| S | 6.1 | 90.3 |

20+50

|   |     |      |
|---|-----|------|
| S | 9.0 | 87.4 |
| Φ | 8.9 | 87.5 |
| N | 8.5 | 87.9 |

21+0

|   |      |      |
|---|------|------|
| N | 10.4 | 86.0 |
| Φ | 11.3 | 85.1 |
| S | 11.3 | 86.1 |

196.49

21+25

|   |      |      |
|---|------|------|
| S | 11.7 | 84.7 |
| Φ | 11.8 | 84.6 |
| N | 11.1 | 85.3 |

21+50

|   |      |      |
|---|------|------|
| N | 11.3 | 85.1 |
| Φ | 12.0 | 84.2 |
| S | 11.9 | 84.5 |

21+75

|   |      |      |
|---|------|------|
| S | 11.6 | 84.8 |
| Φ | 11.6 | 84.8 |
| N | 11.3 | 85.1 |

22+0

|   |      |      |
|---|------|------|
| N | 11.0 | 85.4 |
| Φ | 11.1 | 85.3 |
| S | 11.1 | 85.3 |

22+35<sup>40</sup> = E.C. West sid. Pescadero

|   |     |      |
|---|-----|------|
| S | 9.5 | 86.9 |
| Φ | 9.7 | 86.7 |
| N | 9.0 | 87.4 |

23+0

|   |     |      |
|---|-----|------|
| N | 5.1 | 91.3 |
| Φ | 5.9 | 90.5 |
| S | 5.9 | 90.5 |

196.49

234.40

|      |       |        |       |        |
|------|-------|--------|-------|--------|
| S    |       | 3.2    | 193.2 |        |
| φ    |       | 3.1    | 93.3  |        |
| N    |       | 2.4    | 94.0  |        |
| T.P. | 11.62 | 207.87 | 0.24  | 196.25 |

23+93<sup>44</sup> = P.C. sketch page 60

|   |  |      |      |
|---|--|------|------|
| N |  | 10.8 | 97.0 |
| φ |  | 11.4 | 96.4 |
| S |  | 12.1 | 95.7 |

E.C.

5.6 202.3 Pageto

P.C. E of Bermuda

|   |  |     |       |
|---|--|-----|-------|
| S |  | 6.7 | 201.2 |
| φ |  | 5.8 | 202.0 |

E.C. W of Bermuda

|   |  |     |       |
|---|--|-----|-------|
| N |  | 1.5 | 206.3 |
| φ |  | 2.8 | 205.0 |
| S |  | 3.5 | 204.4 |

0+50 west of E.C.

|      |       |        |       |        |
|------|-------|--------|-------|--------|
| S    |       | 2.0    | 205.8 |        |
| φ    |       | 1.6    | 206.2 |        |
| N    |       | 0.7    | 207.1 |        |
| T.P. | 12.75 | 220.32 | 0.30  | 207.57 |

220.32

1+0 W of E.C.

|   |  |      |       |
|---|--|------|-------|
| N |  | 12.0 | 208.3 |
| φ |  | 12.2 | 208.1 |
| S |  | 12.6 | 207.7 |

1+50

|   |  |     |       |
|---|--|-----|-------|
| S |  | 9.6 | 210.7 |
| φ |  | 9.4 | 10.9  |
| N |  | 8.7 | 11.6  |

2+0

|   |  |     |      |
|---|--|-----|------|
| N |  | 4.9 | 15.4 |
| φ |  | 6.0 | 14.3 |
| S |  | 6.1 | 14.2 |

2+50

|   |  |     |      |
|---|--|-----|------|
| S |  | 2.6 | 17.7 |
| φ |  | 2.4 | 17.9 |
| N |  | 1.6 | 18.7 |

2+66<sup>03</sup> = E.L. Pt. Loma Ave.

|   |  |     |      |
|---|--|-----|------|
| N |  | 0.4 | 19.9 |
| φ |  | 1.4 | 18.9 |
| S |  | 1.2 | 19.1 |

65

3/1/50 Gregor / Moore Miller Curve at Voltaire + Catalina

$\Delta = 25^{\circ} 03' \frac{1}{2}$   
 $\frac{\Delta}{2} = 12^{\circ} 31' 45''$   
 $st = 55.555$   
 $r = 250.0'$

$\frac{22222}{250} = \text{tang of } \frac{\Delta}{2}$   
 $\frac{1111100}{44444} = \text{rad}$   
 $\frac{1111100}{5555500}$

|                   |           |               |
|-------------------|-----------|---------------|
| 50' W. of New EC. | 62.10     | 5.10          |
| ✓ ✓               | EC. 61.58 | 5.02          |
|                   | 61.60     | 5.00          |
|                   | 61.61     | 5.59          |
|                   | 61.63     | Curve divided |
|                   | 61.70     | 5.50          |
|                   | 61.88     | 5.32          |
| New PC            | PC. 62.06 | 5.16          |
| 50' E of ✓ ✓      | 62.56     | 4.64          |

03643  
 250  
 182150  
 7286  
 910450  
 2  
 18.215

Angles on chords =  $2^{\circ} 5' 17.5''$   
 $\checkmark = 18.215$   
 $4^{\circ} 10' 35''$   
 $6' 15' 52.5''$   
 $8' 21' 10''$   
 $10' 46' 27.5''$   
 $12' 31' 45''$

|                       |       |       |             |
|-----------------------|-------|-------|-------------|
| 506                   | 67.20 | 62.14 | 30k SE Cat. |
| 60' W of old EC.      | 2.58  | 64.62 |             |
| 40' - - - -           | 3.08  | 64.12 |             |
| 20' - - - -           | 3.58  | 63.62 |             |
| old EC.               | 4.08  | 63.12 |             |
| 20' E of old EC       | 4.47  | 62.73 |             |
| 40' - - - -           | 4.80  | 62.40 |             |
| 60' - - - -           | 5.06  | 62.14 |             |
| 110' - - - - = NEW EC | 5.55  | 61.65 |             |
| center                | 5.55  | 61.65 |             |

|                 |      |       |
|-----------------|------|-------|
| New PC.         | 5.16 | 62.06 |
| 50' E of New PC | 4.77 | 62.43 |
| 70'             | 4.55 | 62.65 |
| 90'             | 4.32 | 62.87 |
| 110' ✓ = old PC | 4.17 | 63.03 |
| 130'            | 3.98 | 63.22 |

2/1/20 Gregory  
Moore  
Miller

Levels on Dirt Curb  
VOLTAIRE ST  
San Clemente to Mendocino Bolinas

1.13 73.55 72.42 <sup>spt 3E</sup> Vol. + 500C.

M.L. SAN CLEMENTE

|        |     |
|--------|-----|
| N cb   | 2.5 |
| c      | 2.5 |
| S cb   | 2.2 |
| 50' W  |     |
| S cb   | 3.0 |
| c      | 2.9 |
| N cb   | 2.9 |
| 100' W |     |
| N cb   | 3.4 |
| c      | 3.6 |
| S cb   | 3.4 |
| 150' W |     |
| S cb   | 4.6 |
| c      | 4.6 |
| N cb   | 4.6 |
| 200' W |     |
| N cb   | 5.9 |
| c      | 6.1 |
| S cb   | 6.0 |
| 250' W |     |
| S cb   | 7.9 |
| c      | 8.0 |
| N cb   | 8.0 |

300' W

|      |     |
|------|-----|
| N cb | 9.6 |
| c    | 9.6 |
| S cb | 9.6 |

350' W

|      |      |
|------|------|
| S cb | 10.2 |
| c    | 10.4 |
| N cb | 10.3 |

400' W

|      |      |
|------|------|
| N cb | 11.1 |
| c    | 10.9 |
| S cb | 10.7 |

450' W

|      |      |
|------|------|
| S cb | 11.2 |
| c    | 11.4 |
| N cb | 11.9 |

496.4' W = E.L. CATALINA

|      |      |
|------|------|
| N cb | 12.3 |
| c    | 11.6 |
| S cb | 11.6 |

T.P. 819 7034 11.40

SE. CAT  
6215 on spt

M.L. CATALINA

|      |     |
|------|-----|
| S cb | 8.5 |
| c    | 8.6 |
| N cb | 9.2 |

00. = Line at RT L's to Vol. from N.M. cor Vol. + CAT.

|               |     |
|---------------|-----|
| N cb          | 9.2 |
| c             | 8.7 |
| S cb          | 8.6 |
| 50' W. of 00  |     |
| S cb          | 8.1 |
| c             | 8.5 |
| N cb          | 8.5 |
| 100' W. of 00 |     |
| N cb          | 7.6 |
| c             | 7.7 |
| S cb          | 7.4 |
| 150' W        |     |
| S cb          | 6.5 |
| c             | 6.5 |
| N cb          | 6.5 |
| 200' W        |     |
| N cb          | 5.0 |
| c             | 5.0 |
| S cb          | 5.0 |
| 250' W        |     |
| S cb          | 3.5 |
| c             | 3.5 |
| N cb          | 3.3 |

300' W

|  |                        |
|--|------------------------|
| N cb                                     | 1.9                    |
| c  | 2.0                    |
| S cb                                     | 2.0                    |
| 400' W = E.L. MENDOCINO                  |                        |
| TP                                       | 10.40 79.99 0.75 69.59 |
| S cb                                     | 9.6                    |
| c  | 9.9                    |
| N cb                                     | 9.8                    |
| 400' W                                   |                        |
| N cb                                     | 8.3                    |
| c  | 8.2                    |
| S cb                                     | 8.3                    |
| 450' W                                   |                        |
| S cb                                     | 6.4                    |
| c  | 6.4                    |
| N cb                                     | 6.6                    |
| 460' W, 2 pt.                            |                        |
| N cb                                     | 6.1                    |
| c  | 5.9                    |
| S cb                                     | 6.0                    |
| INT. OF CB LINES OF VOLTAIRE + ECB MEND. |                        |
| N cb                                     | 2.9                    |

W. L. MENDOZINO = 0400

|     |     |        |      |       |
|-----|-----|--------|------|-------|
| Ncb |     |        | 1.0  |       |
| c   |     |        | 0.8  |       |
| TP  | 950 | 87.63  | 0.86 | 78.13 |
| Scb |     |        | 9.4  |       |
|     |     | 50° W  |      |       |
| Scb |     |        | 8.2  |       |
| c   |     |        | 8.2  |       |
| Ncb |     |        | 8.1  |       |
|     |     | 100° W |      |       |
| Ncb |     |        | 6.6  |       |
| c   |     |        | 6.6  |       |
| Scb |     |        | 6.7  |       |
|     |     | 150° W |      |       |
| Scb |     |        | 5.3  |       |
| c   |     |        | 5.4  |       |
| Ncb |     |        | 5.6  |       |
|     |     | 200° W |      |       |
| Ncb |     |        | 4.4  |       |
| c   |     |        | 4.3  |       |
| Scb |     |        | 4.3  |       |
|     |     | 250° W |      |       |
| Scb |     |        | 3.0  |       |
| c   |     |        | 3.1  |       |
| Ncb |     |        | 3.3  |       |

|     |      |       |  |      |                    |
|-----|------|-------|--|------|--------------------|
|     |      |       |  |      | 300° W             |
| Ncb |      |       |  |      | 2.2                |
| c   |      |       |  |      | 2.1                |
| Scb |      |       |  |      | 2.1                |
|     |      |       |  |      | 350° W             |
| Scb |      |       |  |      | 1.8                |
| c   |      |       |  |      | 1.8                |
| Ncb |      |       |  |      | 1.7                |
|     |      |       |  |      | 402.8 = EL BOLINAS |
| Ncb |      |       |  |      | 1.5                |
| c   |      |       |  |      | 1.7                |
| Scb |      |       |  |      | 1.5                |
|     | 5.27 | 84.40 |  | 9.50 | 79.13              |
|     |      |       |  | 5.42 | 78.98 = 79         |

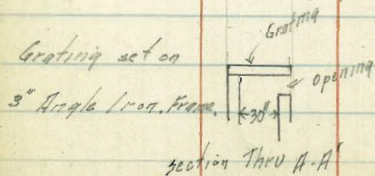
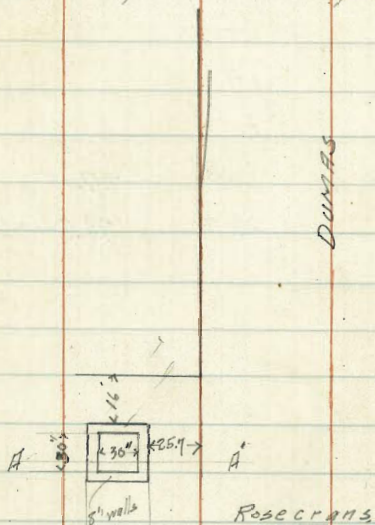
4/10/22  
Gregory  
Moore  
Miller  
Shaw

Elevations on C.B.  
shown below

70

|                                 |     |       |       |                |
|---------------------------------|-----|-------|-------|----------------|
|                                 | 396 | 48.29 | 44.33 | BP 3W<br>Curbs |
| Top of Grating                  |     | 3.68  | 44.61 |                |
| Flow Line of Opening on N. side |     | 4.90  | 43.39 |                |
| Bottom of C.B.                  |     | 7.83  | 40.46 |                |

There is no sure way of locating  
pipe from this C.B. to Gov't Drain  
except to dig it up.





4/10/22 Gregory Levels on proposed Drain  
 Touch + Rosecrans

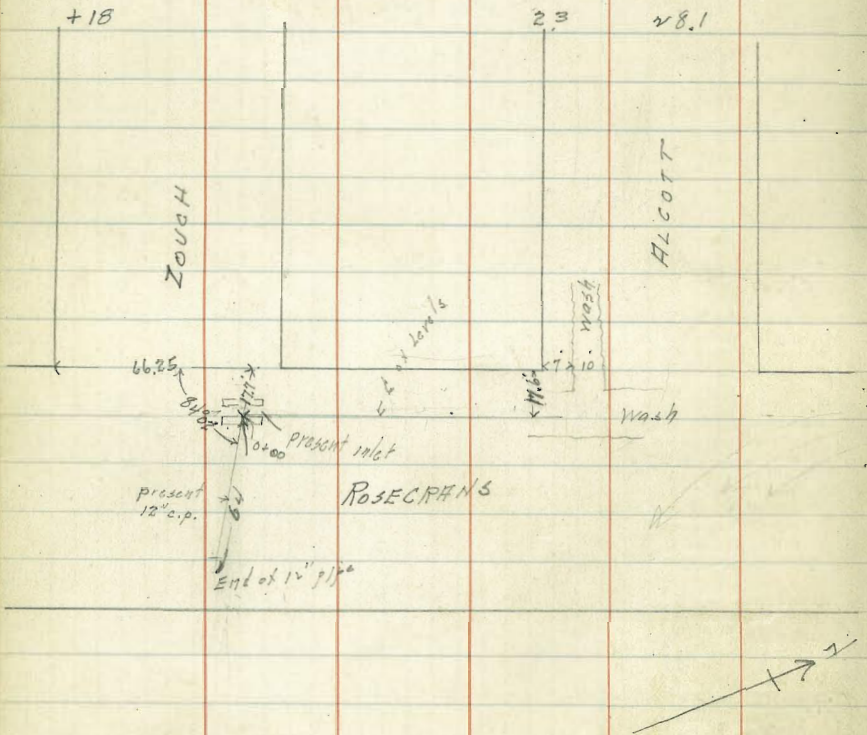
435

108

71

|  | 435 | 30.38 | 26.03 T.P. Top of Inlet. |
|--|-----|-------|--------------------------|
| East End of pipe                           |     | 8.50  | 21.88                    |
| 0+00 = Flow Line Inlet of present 12" pipe |     | 6.53  | 23.85 =                  |
| +50 End of wash                            |     | 5.00  | 25.4                     |
| 1  |     | 4.3   | 26.1                     |
| +50  |     | 3.5   | 26.9                     |
| 2  |     | 2.7   | 27.7                     |
| +15  |     | 2.3   | 28.1                     |

Flow Line Inlet of 18" Culvert 10' S. of N.W. of Whittier is 1.85' below Top of Curb @ N.W. cor. Whittier + Rosecrans. <sup>pk 1095-p 16</sup> 11.97-1.85 = 10.12  
 Flow Line of Outlet 80° E of W. Cb of Rosecrans is 4.80 Lower than Inlet.



4/10/22 Gregory  
Moore  
Miller  
Shaw

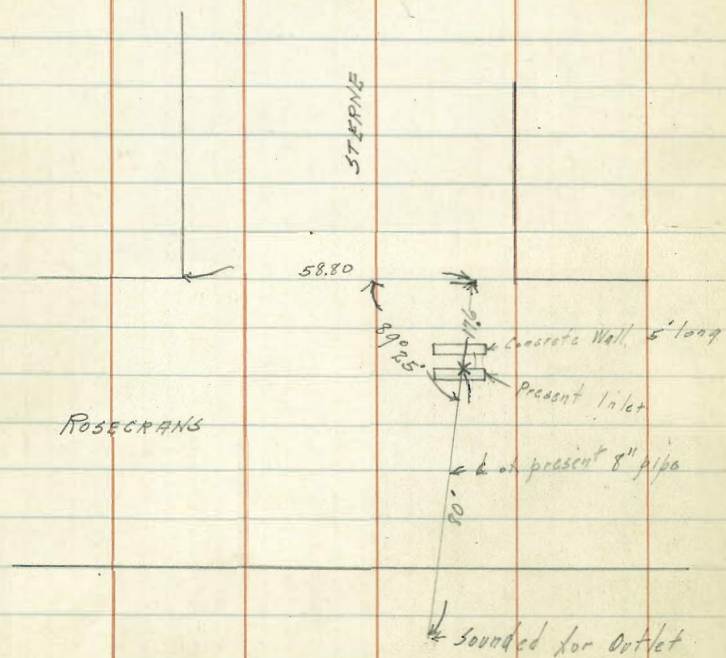
Levels on present 8" C.P.  
Rosecrans + Sterne

588

72

H.S. p 38  
27.34

|                         |        |       |       |       |
|-------------------------|--------|-------|-------|-------|
| TP                      | w. 70  | 17.96 | 12.08 | 15.26 |
| TP                      | 2.30   | 7.62  | 12.64 | 5.32  |
| Elev Flow Line at Inlet |        |       | 7.42  | 0.10  |
| ✓ ✓ ✓ ✓                 | Outlet | 10.35 |       | -2.73 |



W.L. Arizona

SE Ariz  
+ Landis

|             |        |        |
|-------------|--------|--------|
| 9.10        | 9.1    | 285.31 |
| S           | 9.3    | 285.1  |
| cb          | 10.1   | 284.3  |
| (on cement) | (9.58) | 284.8  |
| 1/4         | 10.2   | 284.2  |
| c           | 10.1   | 284.3  |
| 1/4         | 10.2   | 284.2  |
| cb          | 10.3   | 284.1  |
| (on cement) | (9.67) | 284.7  |
| N           | 9.8    | 284.6  |
| N           | 9.7    | 284.7  |
| +1          | 10.4   | 284.0  |
| cb          | 10.8   | 283.6  |
| 1/4         | 10.5   | 283.9  |
| c           | 10.6   | 283.8  |
| 1/4         | 10.4   | 284.0  |
| cb          | 10.4   | 284.0  |
| +7          | 10.4   | 284.0  |
| S           | 9.4    | 285.0  |
| S           | 9.3    | 285.1  |
| cb          | 9.6    | 284.8  |
| 1/4         | 9.6    | 284.8  |
| c           | 9.9    | 284.5  |

40' W

65' W

|                   |      |       |
|-------------------|------|-------|
| 1/4               | 10.1 | 284.3 |
| cb                | 10.2 | 284.2 |
| +9                | 10.0 | 284.4 |
| N                 | 9.5  | 284.9 |
| N                 | 8.8  | 285.6 |
| cb                | 9.0  | 285.4 |
| 1/4               | 9.3  | 285.1 |
| c                 | 9.3  | 285.1 |
| 1/4               | 8.9  | 285.5 |
| cb                | 8.6  | 285.8 |
| S                 | 8.3  | 286.1 |
| S                 | 6.9  | 287.5 |
| cb                | 7.2  | 287.2 |
| 1/4               | 7.8  | 286.6 |
| c                 | 8.1  | 286.3 |
| 1/4               | 8.3  | 286.1 |
| cb                | 8.5  | 285.9 |
| +4                | 8.6  | 285.8 |
| +6                | 7.7  | 286.7 |
| N                 | 7.5  | 286.9 |
| N = E side garage | 5.9  | 288.5 |
| cb                | 6.4  | 288.0 |
| 1/4               | 6.1  | 288.3 |

82' W

100' W

117' W

29441

|     |     |       |
|-----|-----|-------|
| c   | 6.0 | 288.4 |
| 1/4 | 6.1 | 288.3 |
| cb  | 5.7 | 288.7 |
| S   | 5.1 | 289.3 |

128' W

|                      |     |       |
|----------------------|-----|-------|
| S                    | 4.3 | 290.1 |
| cb                   | 4.4 | 290.0 |
| 1/4                  | 4.7 | 289.7 |
| c                    | 4.8 | 289.6 |
| 1/4                  | 4.8 | 289.6 |
| cb                   | 5.3 | 289.1 |
| N = W side of garage | 5.8 | 288.6 |

141' W

|     |     |       |
|-----|-----|-------|
| N   | 3.0 | 291.4 |
| cb  | 3.0 | 291.4 |
| 1/4 | 2.9 | 291.5 |
| c   | 3.1 | 291.3 |
| 1/4 | 3.0 | 291.4 |
| cb  | 3.0 | 291.4 |
| S   | 2.7 | 291.7 |

147' W

|     |     |       |
|-----|-----|-------|
| S   | 1.7 | 292.7 |
| cb  | 1.9 | 292.5 |
| 1/4 | 1.8 | 292.6 |
| c   | 1.1 | 293.3 |
| 1/4 | 0.3 | 294.1 |

Land's

74

|                   |        |        |      |        |
|-------------------|--------|--------|------|--------|
| T.P.              | 11.4/2 | 305.44 | 039  | 294.02 |
| cb                |        |        | 10.8 | 294.6  |
| N = E side garage |        |        | 10.4 | 295.0  |

154' W

|                   |  |  |      |       |
|-------------------|--|--|------|-------|
| N = W side garage |  |  | 10.2 | 295.2 |
| cb                |  |  | 10.3 | 295.1 |
| 1/4               |  |  | 10.6 | 294.8 |
| c                 |  |  | 11.3 | 294.1 |
| 1/4               |  |  | 12.2 | 293.2 |
| cb                |  |  | 12.4 | 293.0 |
| S                 |  |  | 12.0 | 293.4 |

163' W

|     |  |  |      |       |
|-----|--|--|------|-------|
| S   |  |  | 9.4  | 296.0 |
| cb  |  |  | 9.9  | 295.5 |
| 1/4 |  |  | 9.4  | 296.0 |
| c   |  |  | 9.2  | 296.2 |
| 1/4 |  |  | 9.0  | 296.4 |
| +1  |  |  | 10.0 | 295.4 |
| cb  |  |  | 9.8  | 295.6 |
| N   |  |  | 9.8  | 295.6 |

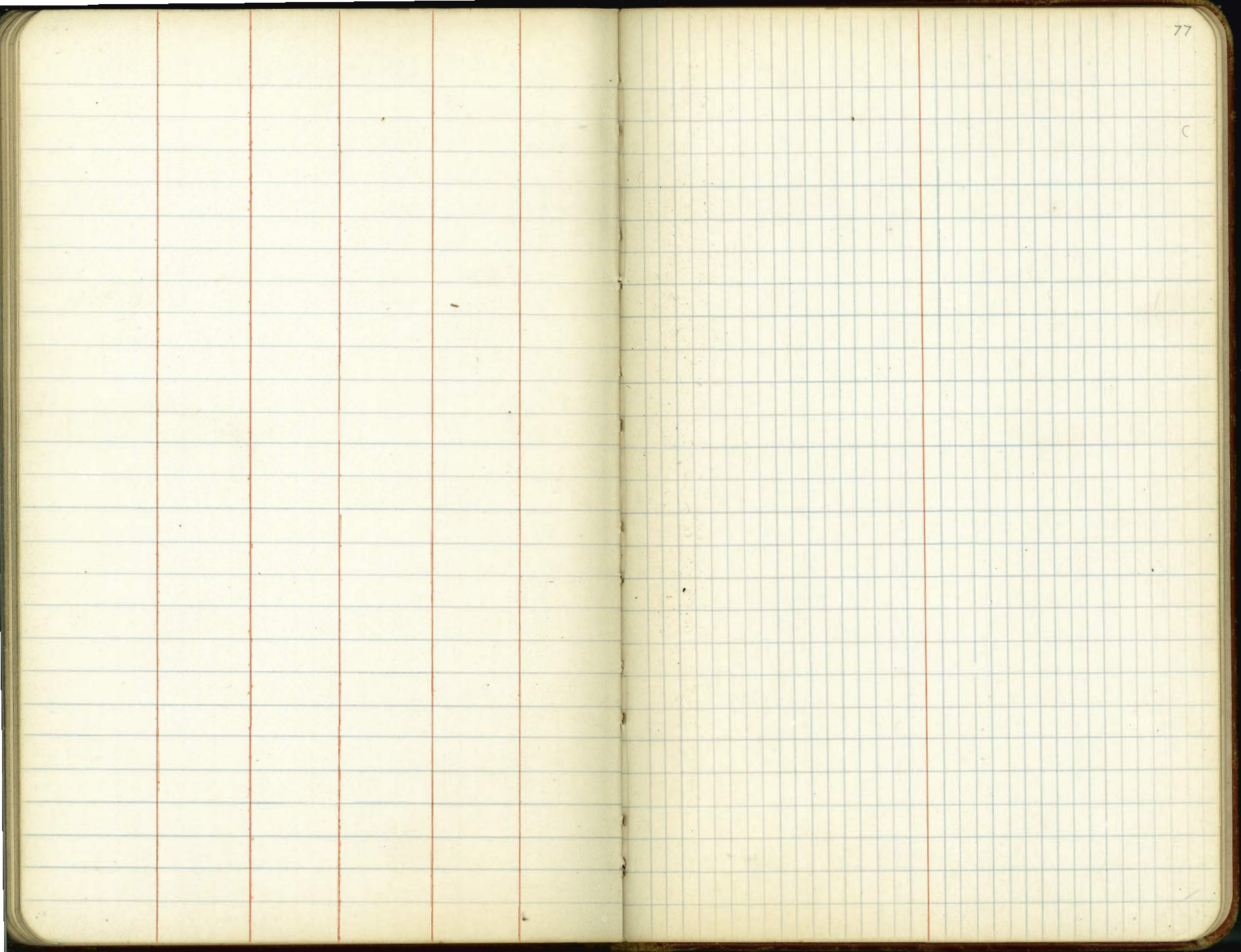
166' W

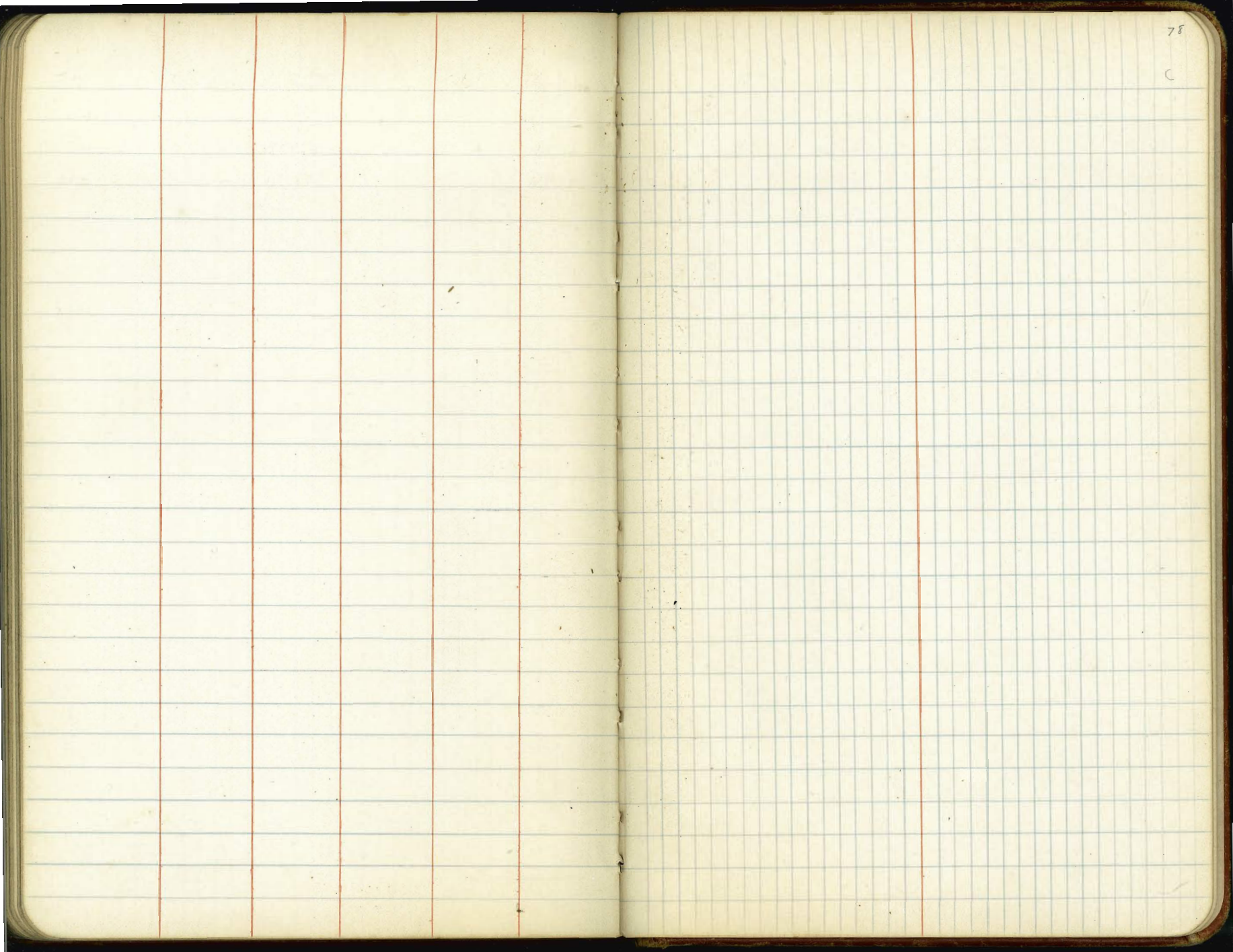
|     |  |  |     |       |
|-----|--|--|-----|-------|
| N   |  |  | 7.6 | 297.8 |
| cb  |  |  | 7.1 | 298.3 |
| 1/4 |  |  | 8.1 | 297.3 |
| c   |  |  | 8.2 | 297.2 |
| 1/4 |  |  | 8.0 | 297.4 |



273 W = E.L. Texas

|             |      |       |           |
|-------------|------|-------|-----------|
| S           | 4.8  | 304.2 |           |
| cb          | 6.14 | 302.9 | on cement |
| 1/4         | 6.0  | 303.0 |           |
| C           | 5.2  | 303.8 |           |
| 1/4         | 4.5  | 304.5 |           |
| cb          | 1.3  | 307.7 |           |
| N           | 2.4  | 306.6 |           |
| on N return | 5.10 | 303.9 |           |







Sept 8-26

| Sta  | Levels down<br>for draft | Fal but | st   | AEB<br>TEK<br>Handlevel |
|------|--------------------------|---------|------|-------------------------|
|      |                          | -       | Elev |                         |
|      | 4.8                      | 14.8    |      |                         |
| 0432 |                          |         | 5.1  |                         |
| 0750 |                          |         | 5.6  |                         |
| TP   |                          |         | 5.60 | 9.20                    |
|      | 2.9                      | 12.1    |      |                         |
| 0473 |                          |         | 4.0  |                         |
| 1+25 |                          |         | 5.0  |                         |
| TP   |                          |         | 6.00 | 6.10                    |
|      | 3.2                      | 9.30    |      |                         |
| 2+00 |                          |         | -5.2 |                         |
| TP   |                          |         | 6.0  | 3.30                    |
|      | 3.1                      | 6.9     |      |                         |
| 2+74 |                          |         | 5.9  |                         |

1900 BM Top of curb stake for return  
 Nly edge of pavement  
 5ly " " "

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

| FOR SUB-CHORDS ADD |     |     |      |      |      |      |      |      |     | Excess of arc per 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  | .01 | .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 | 233.83 | 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. of Curve | LENGTH OF RAILS |      |      |      |      |      |      | Deg. of 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            | .038 | .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 | .323 | .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            | .618            | .545 | .475 | .411 | .348 | .294 | .242 |
| 14            | .312            | .275 | .239 | .207 | .175 | .148 | .122 | 29            | .638            | .564 | .491 | .424 | .361 | .303 | .250 |
| 15            | .334            | .295 | .257 | .223 | .188 | .159 | .131 | 30            | .660            | .583 | .508 | .438 | .374 | .313 | .259 |

SLOPE REDUCTIONS.

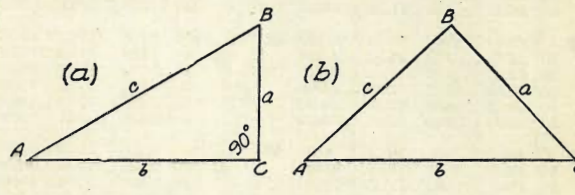
When distances are measured on a slope they may be reduced to the equivalent horizontal distance by the following approximate rule:— subtract from the slope distance the square of the rise divided by twice the slope distance. Thus for a slope distance of 250.3 ft. and a rise of 15 ft. correction=15<sup>2</sup>÷2×250.3=.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 .286×2½ (near enough)=.57 and horizontal distance=248.7—.57=248.13 ft.

22 988  
55  
3543

See fig. (a).

TRIGONOMETRICAL FORMULAS.

- sin.  $A = \frac{a}{c}$
- cos.  $A = \frac{b}{c}$
- tan.  $A = \frac{a}{b}$
- cot.  $A = \frac{b}{a}$
- sec.  $A = \frac{c}{b}$
- cosec.  $A = \frac{c}{a}$



FORMULA FOR SOLVING TRIANGLES.

|              |           |   |
|--------------|-----------|---|
| Given        | Sought.   | Right triangles. See fig. (a).  |
| $a, c$       | $A, B, b$ | $\sin. A = \frac{a}{c}, \cos. B = \frac{a}{c}, b = \sqrt{(c+a)(c-a)}$   |
| $a, b$       | $A, B, c$ | $\tan. A = \frac{a}{b}, \cot. B = \frac{a}{b}, c = \sqrt{a^2+b^2}$  |
| $A, a$       | $B, b, c$ | $B=90^\circ-A, b=a \cot. A, c = \frac{a}{\sin. A}$  |
| $A, b$       | $B, a, c$ | $B=90^\circ-A, a=b \tan. A, c = \frac{b}{\cos. A}$  |
| $A, c$       | $B, a, b$ | $B=90^\circ-A, a=c \sin. A, c=c \cos. A$  |
| 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      | $s = \frac{1}{2}(a+b+c), \text{area} = \sqrt{s(s-a)(s-b)(s-c)}$   |



72  
100  
117  
125  
131  
147  
155  
163  
166  
173  
185  
204  
230  
250  
263  
273

4433  
+ 120  
4553  
- 520  
4033  
+ 0.70  
4103  
- 1173  
2930  
+ 1.08  
3038  
433  
2603

792

69.99

1693  
298  
1375  
3038

379.98  
759.96  
426.92  
607.96  
443.96  
455.96  
227.98  
303.98  
332.98  
732.98

762  
592  
3.67

95  
22 30  
43 30  
25.54  
48.38

2/51-49-30  
25-54-45

38631  
1048  
309098  
104524  
38631  
104524  
40480255

LC=404.83

43698

270  
59  
411

60  
77.0

97  
49

77.25

77.53

11.1  
53.3  
220  
- 21  
36  
51

83  
26  
109  
644  
105  
536  
236  
118  
352  
15  
50

825  
510  
56  
827  
267  
165

1832  
112  
1944

6444  
784  
5664  
206  
103  
309  
424

7.5  
59

716  
707  
56  
827

66.1

682  
461  
221  
111  
332  
15  
482

68

820  
100  
690  
11300  
20901305  
2121200

713  
41.3  
30.0  
45.3  
160

41.3

71.2

30  
45  
60

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

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

| ft | 0    | .1   | .2   | .3   | .4   | .5   | .6   | .7   | .8   | .9   | ft |
|----|------|------|------|------|------|------|------|------|------|------|----|
| 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  $41.9 + (20 - 16) \div 2$  or 2 ft. added to 41.9 = 43.9. For slopes of 1 on 1 see inside of front cover.

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