

1062

F.B. 1062

DELAGEN
MADE IN

ENGINEERS

FIELD BOOK

No. 403

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.

H	0	.1	.2	.3	.4	.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 1½ see inside of back cover.

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1062

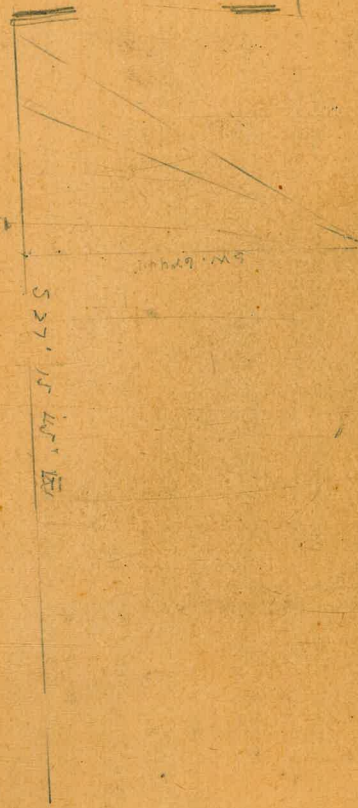
1064

17.13

San Francisco New York

Mrs. Lampen

See FB 1061 and 1067



100.29

at
100.00

100.00

100.00

100.00

100.00

100.00

100.00

100.00

100.00

100.00

100.00

100.00

100.00

100.00

100.00

100.00

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Survey of Easterly Boundary Line of Pueblo of San Diego from A Sereno to to a Mission Valley	1-40
Survey P.L. 1184	41-
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" P.L. 1218	45
Survey of Water Line from Booster Pump Camp Kearney to P.L. 1189	46 -

Survey P.L. 1218

45

12+73.4
 110.0
 13+83.4
 31.5
 14+14.9
 25.4
 15+00.3

15+00.30

14+14.90 Int New fence Δ 49° 58' 17"

13+83.4 Pot

12+73.4

Δ 32° 48' 17"

7+43°

Δ

Old Fence continues
 Ahead 339 on this side.

0.8
 Lath Hub

Nil

Williams
Dunkle
Evans
Folke

July 10 1919

City Line from Sorrento A. South to A Mission Valley

11 +00.47 P. of

10 +04.21 P. of

9

8 +08.45 P. of

7

6

5

4

3

2

1

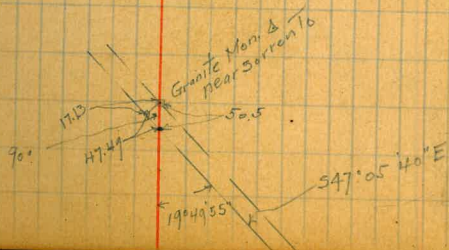
0+00 =
226 + 29.83 from
Rel May

499.45	99889	2-42 V.
270.00	49945	700
39.00	37881	11-49 V
808.45	195763	200
145.76	76261	15-43 V
1004.21		100
96.86	96479	15-15
1120.47	48240	500
432.40		1100.47
170.00		11x14 Hub
17452.57		

10+04.21
11x14 Hub

8+08.45
Set 11x14 Hub

S. 27° 15' 40" E



24 +00.68 Pot

23

+50.68 Pot.

22

21

20

19

18

+52.87 Pot.

17

16

15

14

+90.22

Int. N. Line RL 1353 Produced East to Int City Line

13

12

17+52.87
 497.81
 23+50.68
 150.00
 2400.66
 309.14
 27+09.82
 496.87
 65.00
 3267.167
 221.00
 3492.64
 426.92
 3919.61

99562 500
 497.81 500
 99721 417
 310 310
 99721
 299163 22+00.68
 309.13 1" x 1" Hub.

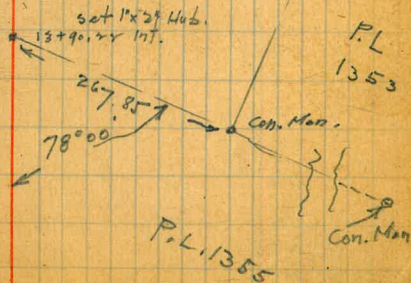
99307 6445
 396 396
 595822
 893763
 297921
 39325572

99374 6425
 49687 500

22+50.68
 1" x 1" Hub.

17+52.87
 1" x 1" Hub.

76
 5270.5' 45" E



37
36
35
34
33
32
31
30
29
28
27
26
25

+92.69

Pot.

+71.69

Pot.

+04.12

Int. P.L. 1355 South Line

+09.32

Pot.

27+09.82
393.26
51203.08
1.02
51+04.12

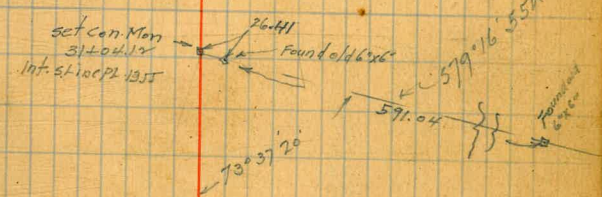
34+92.69
350.40
38025.09

7747 1305
438 438
7776
24241
38938
4229182

73°37'20" 3
16.93 104274

34+92.69
1"X1" hub

32+71.69
1"X1"



27+09.82
1"X1"

S 27° 15' 45" E

PL 1355

50
49
48
47
46
45
44
43
42
41
40
39
38

+92.07 P.O.F.

+04.07 Ch. (Cal. 46031)
+32.86 Int. P.L. 1318 + P.L. 1319

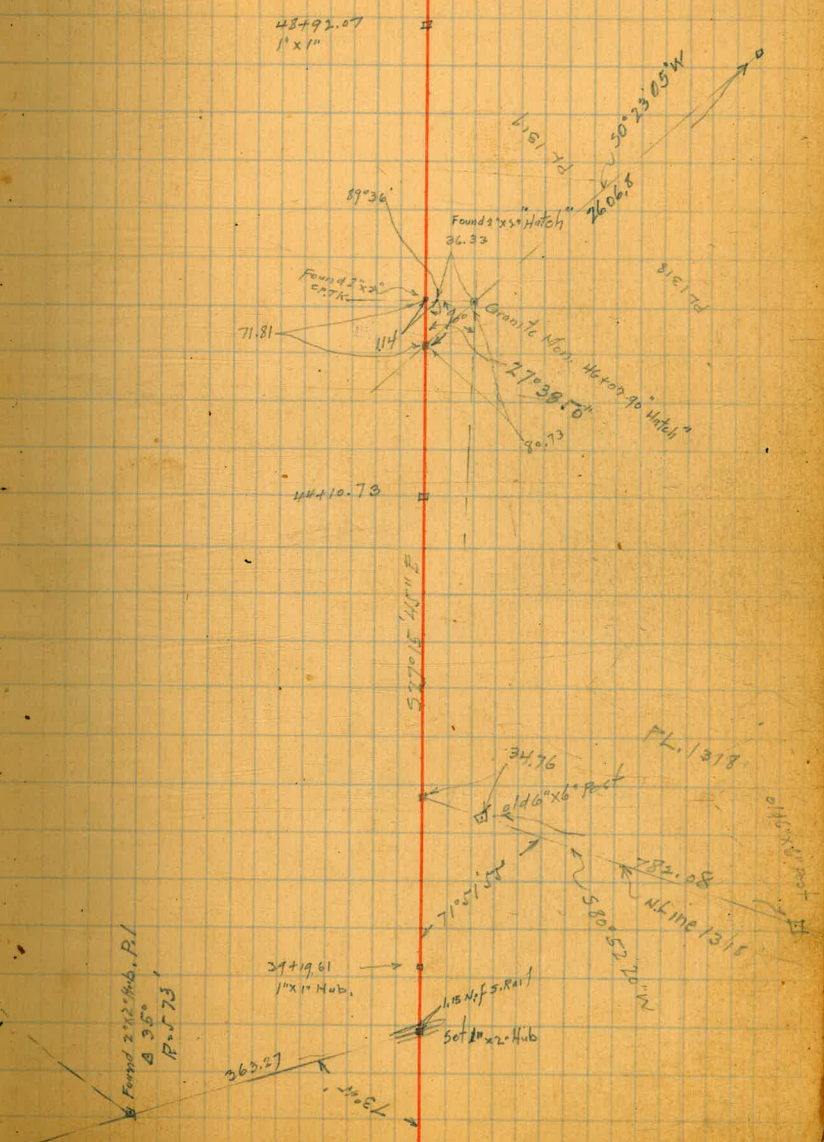
+10.73 P.O.F.

+74.79 Int. N.L. P.L. 1318

+19.61 P.O.F. on Hill South of Santo Fe
+43.09 Int semi Tang Santo Fe

Set Com. Men.

39+19.61 491.12 4410.73 193.54 46104.07 71.81 44732.25	46+04.07 288.76 4892.07	49758 5014 22 790 896292 199176 288800	98223 49112 7029 195.07 99148 4 195.6 495740 89232 99148 1933860
--	-------------------------------	--	---



63
62
61
60
59
58
57
56
55
54
53
52
51

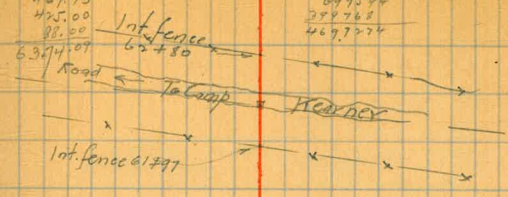
+38.59 set Hub & Comp Near X Road (Center between fences.)

+41.36 Ref. 17' South of Pole #90133

43+99.07
4 29.29
5 3091.34
469.73
425.00
88.00
6374.07

79883°03
499.29 500
39942 61°57
117 470
697574
277768
4677774

604700 132.00
1735.50 35.50
6238.77
47.50
7200
136.48



527° 15' 40" E

Reset with Con. Men
5341.36
1"x1"
17°
Pole #90133

Needs
Men #3

63+74.09	79448	6008
4 97.14	47714	500
68+71.23	77446	11038
3 13.43	32	320
71.84.66	175874	
	293838	
	3134274	

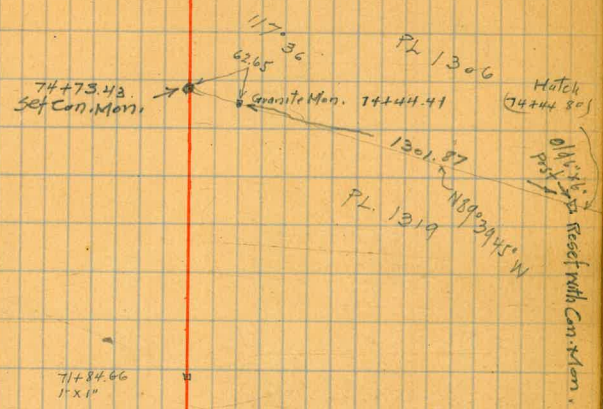
76
75
74
73
72
71
70
69
68
67
66
65
64
63

+73.43

+84.66 P.o.t.

+71.23 P.o.t.

+74.09 P.o.t.



71+84.66
11x11

68+71.23
11x11 H&B

S 27° 15' 40" E

63+74.09
11x11

89

88

87

86

+81.0 P.O.T.

85

84

83

82

81

80

79

78

+41.0

77

74 74.66
 4 99.93
 78284.59 Nail
 56.40
 77441.00
 0.01
 77441.00
 1 77.00 1.17
 50.000 "
 1 42.00 "
 85.1 1.00 "
 1 44.00 0.74
 5 50.00 "
 30.00 "
 60.00 "
 75.00 "
 170.40
 7580.40

7996 0.58
 7993 5.00
 1 99.04 5.06
 1 2.12 2.12
 7993 2.12
 99.04
 1993.08
 211.6048

177
 02.65
 117.36
 352.48
 117.36

7744
 3.8887971
 6.3928981
 10.2816952
 1.9129
 1.91
 76484.59
 211.16
 74673.43

85+81.0
"X" - 0

85+77 Look for Ex Mission Coy

527° 15' 40" E

Set Com Mon. 7741

1.91 East from Sta. 4 Random

102
101
100
99
98
97
96
95
94
93
92
91
90

+ 80.40 Pof.

10780.40
500.00
147.71
1.40

10229.51

231

9580.43, 9813886
6.2928981
10.3742817
2.36717

Set Com. Mon. 15 + 80.40
1" X 1" Hub. 2.368
Random Line & Hub. # 5

527° 15' 45" E

102 115
 101 114
 100 113
 99 112
 98 111 +16.40
 97 110
 96 109
 95 108
 94 107
 93 106
 92 105
 91 104
 90 103
 102 +29.51

Ref.

+50.48 Int PL Line Random
 +48.43 Int PL. ii Corrected

Int. N.S. Line between P.L. 1305 & P.L. 1304

102+29.51
 2 20.97
 104+50.48
 2.05
 104+48.43
 1 00.00 level
 105+48.43
 4 29.91
 68.05
 114+6.89
 2.07
 114+18.40
 5 00.
 1 39.72
 114+55.12

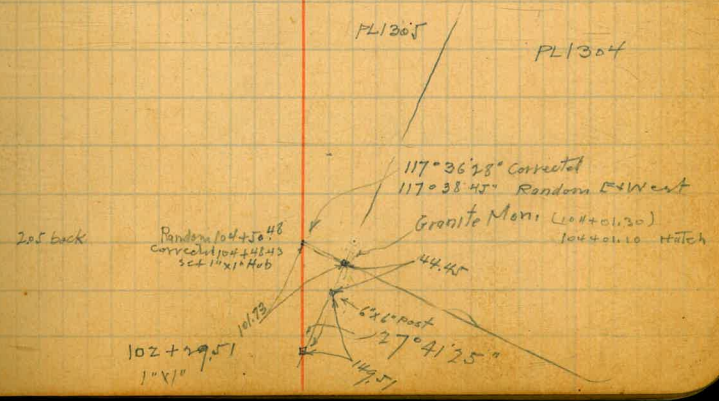
500 48931
 100 39982
 117°38'45"
 2 17
 117°36'28"
 27°41'25"
 120 7
 117°34'
 352°56'11"
 117 38 48
 17 = 0.243080
 2629.61 = 3.4215381
 6.8214977
 0°02'17"

111+16.40
 1 x 1

2.74 correction
 578.6 Random line

102.75
 111+16.4 = 4025.9487
 1.57
 231 4,025.9647
 6,372.8981
 0.4288663
 2.7471
 117.5.1 = 4.070226
 27
 4.0702263
 6.3727981
 10.4430244
 29.49

S 27° 15' 40" E



128

127

126

+86.94 Tie to old 4"x4" Post in Rock Mound

125

124

123

+51.72 Ref.

122

121

120

119

118

+55.14 Ref. City Line

117

116

117+55.14
 4 96.60
 122+51.72
 4 97.24
 127+48.94
 1 47.00
 128+95.94

127+48.94
 1 23.00
 125+66.94

793.2 6041 10
 494.6 500
 79403 6000
 40712 800
 34.30
 2 96182 1553
 6 743
 288526
 384728
 769456
 81081426

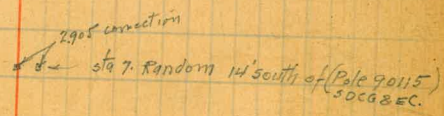
125+66.94 Nail



122+51.72 1"x1"

527° 15' 45" E

Reset With Con. 117+55.14 1"x1" Hv Mon.



141

140

139

138

+77.57 Pot.

137

136

135

134

+28.43 Int P.L. Line Random
+09.09 Pot. (134+27.05) Int Corrected P.L. line

133

132

131

130

+49.09 Int # Santa Fe RR Track CR. TK. in Tie

129

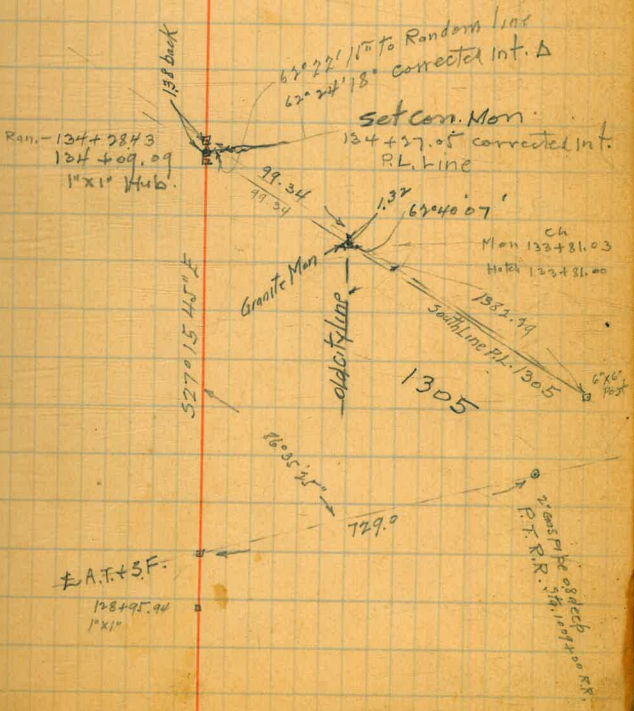
+95.94 Pot. N. side S.F. Track.

128

128+95.94
 3.15
 129+49.09
 4 60.00 414
 134+07.07
 19.34
 134+28.43
 3 49.09
 137+77.57
 4 54.63
 142+32.15

40077 1.13
 49989 500
 229.11
 787.00 P.A.C.E.S.F.R.P.
 4068
 350
 47970
 20722
 349090
 49918 2019
 449500
 499510
 397672
 48762690
 134+28.43
 1.38
 134+27.05

137+77.57
1"X1"



154 +01.34 P.o.t. Mon. Needed at this Point

153

152

+59.16 P.o.t.

151

150

149

148

147

+59.23 P.o.t.

146

145

144

143

+32.15 P.o.t.

142

142 +32.15
4 27.08
146 +59.23
4 99.93
151 +59.16
2 42.18
152 +01.34

127°
to Pole

set con Mon
154 +01.34

5 7932 6.41
7 43 430 12
0 Pole # 90903
3806
29776
39728
427.076
99987 0.56
49993 500
7 99952 1246
2 242.3 242.3
297656
199906
397808
199906 269
242.183696

151 +59.16
1" x 1"

set con Mon. 146 + 59.23
1" x 1" 146

527015 145" E

142 +32.15 →
1" x 1"

166 +27.29 Pof. oppo Pole #90100

165

164 +06.80 Int. P.L. Line produced to Int. cly line

163

162 +21.41 Pof.

161

160

159 +21.74 Int. W.L. line P.L. 1275
+06.34 Pof.

158

157

156

155

154 +01.34
5 00.00
15 90 01.34
20.38 fct
15 90 21.74
2 99.69
16 20 21.41
4 05.88
16 40 27.29

166 +27.29
1" x 1"

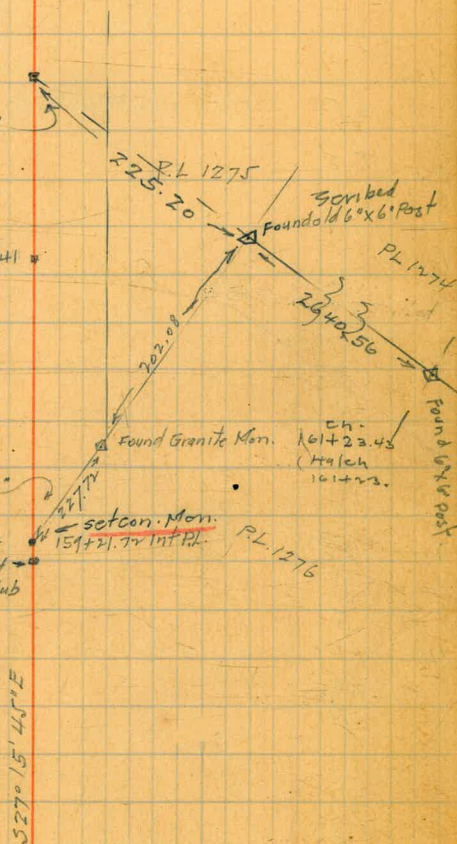
99963 1233 13
227.8 227.8
799704
699741
199926
199926
227.715714
.99877 2036 195.82
3 200 6.96
797.691 202.03
9997 1034 486
406
99984
399880
405.8784

164 +06.80
50' 1" x 1" Hub.
62° 20' 20"

162 +21.41
1" x 1"

159 +01.34
Pof. 1" x 1" Hub

27° 39' 20"



179

178

177

176

+75.10 P.o.f. 187' ahead to Pole # 90097

175

174

173

172

171

+25.30

170

169

168

167

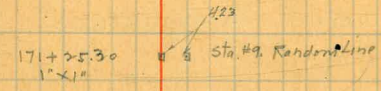
$166 + 27.49$
 $3 \quad 19.76$
 $1 \quad 78.25 \text{ flat}$
 $171 + 25.30$
 $3 \quad 38.87$
 $1 \quad 10.93$

 $175 + 75.10$

$4 \quad 8 \quad 99926 \quad 2014$
 $5 \quad 32$
 199852
 299778
 319.7632

 $99963 \quad 1032$
 $329 \quad 329$
 899667
 299864
 299889

 338.87457



S 27° 15' 40" E

19w +81.19 P.of. Correction 4.74 east o.k. 19' Past Pole #90093
 Mon. should be set Here

191

190

189

+51.14 P.of.

188

187

+95.64 Correct Int P.L. 1275
 +53.80 Int S.L. P.L. 1275

186

185

+61.35 P.of. opposite Pole #90095

184

183

182

181

+74.91 P.of. 36 ahead to Pole #90096

180

175 +75.10
 + 99.81
 180 +74.91
 + 86.46
 184 +61.35
 + 39.79
 188 +51.14
 + 27.14
 192 +23.98
 186 +53.80

188 +51.14
 + 330.15
 191 +81.19
 1" x 1" Hub.

set con. Mon.

77964
 47951
 99599
 388
 796792
 796793
 248797
 38644419

1035
 500
 5008
 388.
 99945 1054
 39 390
 399505
 299235
 3897855

+ 77913 2023'
 + 1975 1975
 49966
 699391
 899217
 99913
 197328175
 99943 6903
 332 332
 198886
 298229
 798321
 33015074

188 +51.14
 1" x 1"

(41.84)

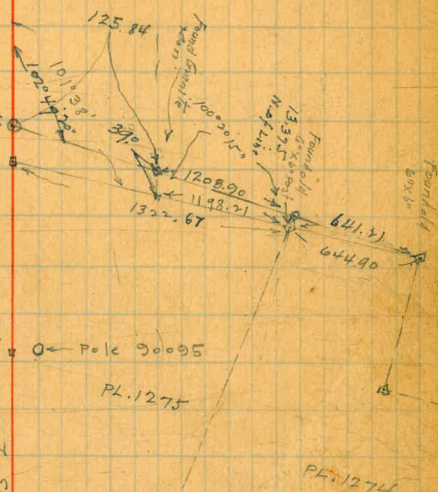
set con. Mon
 186 +75.64
 186 +53.80
 set 1" x 1"

184 +61.35 = 0 - Pole 90095
 1" x 1"

P.L. 1275

527915 45" E

P.L. 1274



180 +74.91
 1" x 1"

29 = 38.37 (90°)
 1011' 50"

205

204

203

202

201

+70.96 P.O.F.

200

199

198

197

196

+76.91 P.O.F. N. Side Rose Canyon.

195

194

193

$$\begin{array}{r}
 759 \quad 10+03.90 \\
 \quad \quad 3 \quad 13.83 \\
 \hline
 13+17.73 \\
 \quad \quad 5.08 \\
 \hline
 13+22.81
 \end{array}$$

$$\begin{array}{r}
 191+21.19 \\
 \quad \quad 3 \quad 95.72 \\
 \hline
 195+76.91 \\
 \quad \quad 4 \quad 74.05 \\
 \hline
 200+70.96
 \end{array}$$

$$\begin{array}{r}
 79668 \quad 4040 \quad 16 \\
 \quad \quad 145 \quad 145 \\
 \hline
 498340 \\
 398672 \\
 99668 \\
 \hline
 14451260 \\
 \quad \quad 208 \\
 \quad \quad 208 \\
 \hline
 74736 \\
 186840 \\
 1943136 \\
 65 \quad 9864 \quad 7017 \\
 \quad \quad 318 \quad 318 \\
 \hline
 78954 \\
 4867 \\
 27607 \\
 \hline
 3135342
 \end{array}$$

$$\begin{array}{r}
 9181.19 = 4.2825712 \\
 \quad \quad 46 \\
 6.2973981 \\
 0.4777739 \\
 \hline
 4.7400
 \end{array}$$

$$\begin{array}{r}
 5.90428 \quad 601 \\
 \quad \quad 398 \quad 398 \\
 795424 \\
 894652 \\
 283224 \\
 27572344 \\
 \quad \quad 98804 \quad 551 \\
 \quad \quad 49405 \quad 500
 \end{array}$$

200+70.96
1" x 1" Hub.

3270/540F

195+76.91
1" x 1" Hub.

5.93
Hub.

218

217

216 +10.10 Int. W. Line P.L. 1245

215

214

+65.08 P.of. 19.5 South of Pole # 90087
+58.90 P.of. 1 set Con. Mon.

213

+50.40 P.of.

212

211

210

+70.18 P.of.

209

208

207

206

+70.64 P.of. Bottom of Rose Canyon

700+70.96
499.68
705+70.64
399.54
309.70.18
280.22
212+50.40
14.68
213.65.08
452.69
218417.77

216+10.10
Set Con Mon.

1" x 1" 213+65.08
Set Mon - 213+58.90

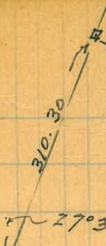
212+50.40
1" x 1" Hub.

209+70.18
1" x 1" Hub.

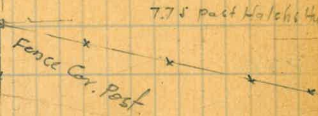
205+70.64
1" x 1"

400.57
19.5

99936 2° 03' 17
49968 500
99885 2° 45'
399540 400 9° 21'
98671 284
394684
789368
9342
8021564 4014
99727 115
7 115 115
498635
99727
99727
11468605



5270.15 LINE



221

220

219 +05.06 P. of.

218

+62.34 P. of.

217

216

215

214

213

+65.01 P. of.

212

211

210

209 +85.26 90° to old cov. P.L 1245

+17.52 P. of

218+17.77
 -0.25
 218+17.52
 +47.49
 222+65.01
 +97.83
 227+62.34
 +42.72
 229+05.06

99712	421	39443	18
454	454	42	500
398848		207215	470
448560		317770	
398848		4474935	
45269248		79467	J.55
		49738	500

21817.77 +432715 =
 6.292891
 0.7317071

229+05.06
1"x1"

227+62.34
1"x1"

527915 14°E

222+65.01
1"x1" Hub.

218+85.26 90° 143.57
 5.39 Found old 1'x2' RWK Hub.
 Random line Sta 12.

2 244

23 243

22 242

22 241 +08.95 Pot.

22 240

22 239

22 238

22 237

22 236

22 235

22 234

2 233 +62.18 Pot.

2 232 -

$279 + 05.26$
 257.12
 23262.18
 499.97
 326.80
 241408.95

3 79921 2017 19
 1 3574
 390684 357.4
 699447
 499605
 299763
 $357,117654$

$232 + 62.18$ 4.3666471
 .87
 6.3925981
 0.7595439
 5.7284

5.31
 Hatch 5 Hub
 Hatch 6 Hub
 (241+25.0) 24108.95 = 4.3521792
 (ch 241+25.0) 5.5922931
 0.7750778
 5.9577

Set Con. Mon. 241+08.95
1"x1"

5.96 correction
Random Line #14

527°15' 145°E

232+62.18
1"x1" Hub

5.75 connection East
Random Line St. #13

257

+45.70

256

255

254

+57.86

Int. S. line P.L. 1245 See page 44 for Survey 1245

253

+70.95

P.O.T.

252

251

250

249

248

247

246

245

(187.8)

90° 06' 00"	241 + 08.95
27° 15' 45"	5 00.00
5 02° 50' N-W	5 00.00
28° 40'	162.00
15° 30' 15"	252 + 70.95
	372.75
	256 + 43.70

252 + 70.95
86.91
253 + 57.86

256 + 43.70
Set Con. Mon

S 84° 46' E

270 17.41

70.05 33

12 3 3

17 4 5

20

372.75

161
N 37° 15' 45" W
62 28.55
W 89° 36' 40" N

6.34 correction East

Random line Hub. Sta #15

119
6.4027 = 4.402763
6.398711
0.301855
6.3969

187.02 41
63 20 55

Set Con. Mon. 253 + 57.86

70.96

252 + 70.95

11x11

1524.065
(9000 Mon.)

S 27° 15' 45" E

187.8

166.35

Found Granite Mon on old ch. line

1605.9

Random line

1544.6

N 89° 36' 40" N

70.96

Found old Hub

Set Con. Mon.

P.L. 1245

70.96

390.0

1508.9

60.3

1545.6

1007 19981

500 133.90

1.13 x 0.0530714

1545.6 = 3.182071

6.86 39513.0

To find distance from station to point (rounded)

Williams
Dunkle
Evans
Folke
July 16-1919

270

269

268

267

266

265

264

263 +18.70 P.o.t.

262

261

260

259

258

256 +43.70
5 00.00
1 75.00
263 +18.70
4 99.96
5 00.00
273 +18.66

163
0.42 5.06 9.4993
499.96 21

S 27° 15' 45" E

263 +18.70
1" x 1"

282 +37.48 int P.L. Line N.L inc P.L. /23v

282

281

280

279

278

277 +28.20

P.of.

276

275

274

273 +18.66

P.of.

272

271

273 +18.66
+ 29.54
277 +28.20
+ 20.00
+ 29.26
283 +37.48

265.72

209.53

283 +37.48
Set 1 x 1 1/4 Hub

0.15 500

27728.2 = 4.44 x 9.15 22

6.3927951

0.1358166

6.527

set con Mon.

209.53
622/20

Round Granite Mon.

265.72

Round 6 1/2

277 +28.20

6.50 correction Random Sta. #17

273 +18.66
Set 1 x 1 1/4 Hub

296

295

294

292

292

291

+43.48

Prof

290

289

288

287

286

285

284

$$\begin{array}{r}
 283+37.48 \\
 706.00 \\
 290+43.48 \\
 \hline
 653.10 \\
 297+07.58
 \end{array}$$

58.1

$$\begin{array}{r}
 62+21.15 \\
 187.00 \\
 62+21.15
 \end{array}$$

23

$$\begin{array}{r}
 290+3.48 \\
 6.3928981 \\
 4.4630415 \\
 \hline
 0.8559396 \quad 7179
 \end{array}$$

Correction East
718 Sta 18 Random Line

297+01.58
12 73.90
309+75.48
2 26.90
312+01.68

2.32 ch

24

309
308
307
306
305
304
303
302
301
300
299
298

29701.58 4.4727711
6.2928921
0.865669
(7.2295)
ck 30975.48 4.4910112
2.52 6.291981
0.8827094
75.43

297+01.58 P.of

set 1" x 1" Hub
297+01.58
correction cast
7.34 5/16" #19 Random Line

312+01.68
 10 73.20
 322674.88

115.65
 312+01.68
 1 15.65
 313+17.33

231.27 62° 20' 10" 25
 1870.00 30
 62 20 10
 27° 15' 45"
 87 35 55"

7614 312+01.68 = 4.4941824
 6.2925981
 0.8870804
 77102

2.67 32274.88 4.5088663
 6.2925981
 0.9017644
 77756

320+34.06 Look for EX Mission Cor. #9

322
 321
 320
 319
 318
 317
 316
 315
 314
 313
 312
 311
 310
 309

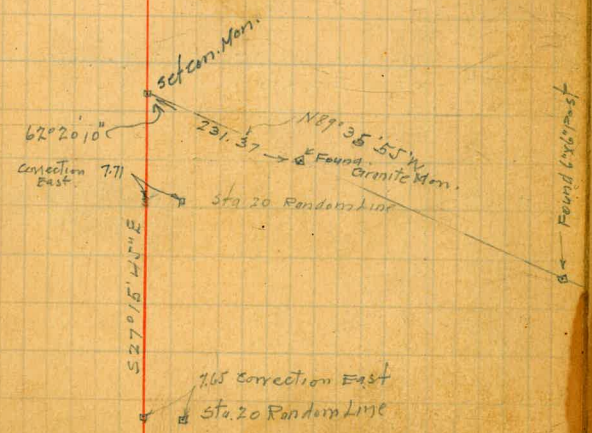
Int So. Line PL 1232

+17.33

312+01.68

+75.48

P.of.



SEE R.O.S. 7124
FILED BY COUNTY

330 +46.78 set P.Ot.

334

33

332

331

330 +98.20 Int. W. Line P.L. 1218

Note See page 45 for Survey
P.L. 1218

329

338

327

326 +47.35 Int. of S. Line of 50 street (sub. New Riverside County)
+19.51 Int. of TWP. 154 16

325 +14.67 90° and 213.81 to Right to Granite Mon Twp Line
between Twp 154 16

324

323 +74.86

322 +74.88
14 71.90
334 +46.78
14 09.10
348 +55.88

25.20 ahead to
Hatch Point

334 +46.78

33000

26

8' offset west
P.L.
1218

33346.78 = 4.5730568
6.29259 91
0.9159549
1.2116

Sta #23 Random
8.24 connection east
set 8° offset west

See page 45
32647.35
27.84
32675.51
P.L.
1219

63° 53'
191° 31'
65° 5'

450.88 2006 V. 44
440933
450.88
799964
799964
44996650
3999732
45084979104

Int. W. Line P.L.
1218

34514.67
137.68
32647.35

1.11371
21
54885
23274
278227
90-00
63-53
26-07

27° 40' 10"

set Con. Mon.
329 + 98.50

Found Hub

New Riverside

Highland Sub.
Reset with Con. Mon. Set 2' x 2' Hub
Int. TWP. Line

Reset with Con. Mon.
Set 1' x 1' Hub 326 + 47.35

116° 14'

116° 14' Found
old 2' x 2' Hub

27.89

Found Granite Mon
Marked in 3' x 3' of Line
TWP. Int. P.L. 1219 01
West side

325 + 44.67
Set Nail

213.81

90°

7.975 connection East

322 + 74.88
Set 1' x 1' Hub

Sta 22 Random Line

348 755.88

347

346

345

344

343 +01.42
+96.28
+58.93

pot
Int. S. Line PL1218 With City Line
Int. of S.L. P.L. With 8' offset line west

342

341

340

339

338

337

336

Aug 1-1919
Williams
DunNe
Frans.

4925
343+01.42
42.50
34246.73

348+55.88

1025' 401.97

2.9928674
2.6041736
2.6040608 (201.85)
401.97
26.77 S. 6' Mon.

2° 02' 500 91937

49969
102.35
60264

set con Non.
Int. P.L. line

342+76.28

342+58.93

See Page 45

S 27° 15' 40" E

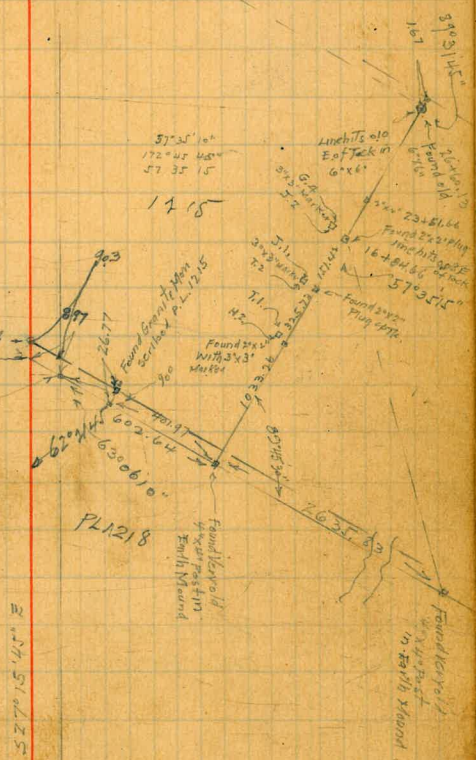
63° 02' 30"
189 19' 30"
63° 04' 10"

37



6' offset west

348+55.88
4.5422775
6.3428981
6.7351756
86134



10334
6° 55' 50" 49100
151.42
104.66
441.77
2124.13

0° 31' 50" 49100
341.00
172.25
1033.26
325.78
1358.99
0° 36' 50" 49100
491.00
2184.63
475.50
706.73

341 155.88
 4 25.50
 352 81.38
 4 99.00
 75.57
 2 3 256.81

352 81.38
 8.83
 252+72.55

352 81.38 4.547509 2.8
 6.392198
 0.7404390
 7.1184
 1.46 500 79969
 49989
 353 58.81 = 4.557574
 6.392198
 0.9474721
 8.8608

361

360

359

+56.85 Pot

358

357

356

355

354

353

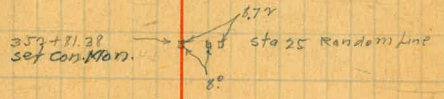
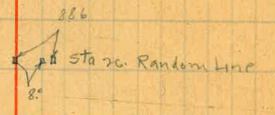
+81.38 Pot
 +72.55 Hitchs Hub (352+70)

352

351

350

349



374

373

+76.10 Int. P.L. 1215 + 1204

372

+17.55 xxx Hatch (371+75

371

370

369

368

367

366 +19.07

Ref.

365

364

363

+60.25 Int. S.L. of County Road To Camp Kearney

362

357+58.57

397.77

5.63

362+60.25

359.52

368+19.77

499.74

168.00

218.40

375.05.71

372.87.51

15.12

372+72.40

9.234

371+77.85

Mon to beat

372+76.10

Set Con. Mon

1.56

398

799.43

6119

372

116.57

799.544

62.109

599.487

299.829

372+73.14

57.03.10

176.10.30

52°03'30"

372.57

378.75

206+19.77

4.5627183

6.2228921

10.7566164

9.0493

12.1

500

499.42

499.74

375+05.41

5741.007

6.2922751

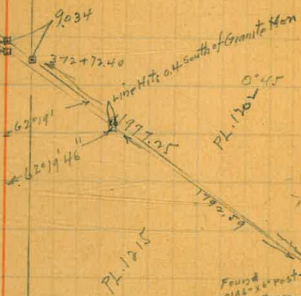
0.7669273

9.7627

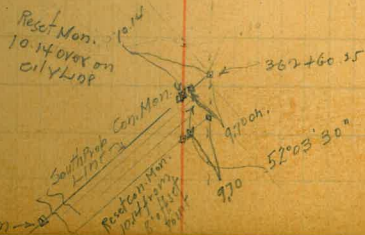
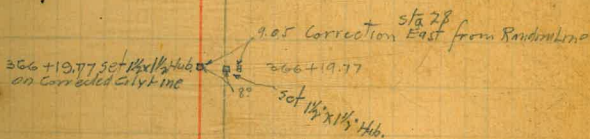
372+72.4

3.7

372+76.1



see back leaf.



387

386

385

384

383 +27.93 P. of.

382

381

380

379

378

378 +52.14 P. of

377

376


375 +05.91


275 +05.91
 2 46.28
 377.54 19
 4 95.74
 382.47.75
 80.00
 383.27.93
 491.64
 500.00
 393.17.53

1971
 4.24 247 3
 69797
 39884
 19982
 4262839
 7099 500 74125
 40512
 211 492 39019
 4 402
 199838
 899271
 399876
 491.60148

Aug 5, 1919
Williams

30

383 +27.93 set 1" x 1" Hub on offset line 8° west


377 +52.14 (Hatch's Hub 377+50)
 377 +52.14 set 2" x 2" R.M. Hub
 377 +52.14 set 1" x 1" on offset line 8° west


375 +05.91 set Con. Mon →
 927 connection east
 Sta 29 Random line


400 +06.87

399 +25.85

Prof.

398

397

396

395

394

393 +19.53

Prof.

392

391

390

389

388

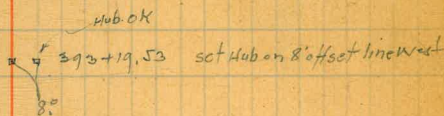
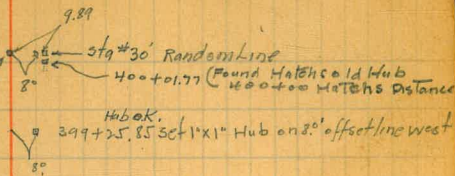
393 +19.53
470.32
46.00
70.00
33.00
37.00

399 +25.85

936 986
477 477
6902
6902
3944
470.32

Set Con Mon 400 +06.87
Prof.

31



413

412

411

410+02.16

Ref.

409

408

407

406

405

404+01.81

Ref.

Hatch's Hub 90° West

403

+55.69

Tic to P.L. Cor

402

401

399+15.85

81.02
 400+06.87
 3 94.40
 404+01.51
 4 99.90
 1 00.41
 410+02.16
 1 70.00
 5 00.00
 2 10.00
 1 65.00
 1 47.90
 421.97.06
 499.97
 426+97.03

1200 394.85
 395.15
 499.75
 794.85
 399.95
 394.94.75

100 100
 99.979
 49.990

500 00.00
 499.97
 499.97

189

201

06.87

35

76
 400+06.87
 40.00
 108.82
 402+5.69

201
 400+06.87 = 4.602136
 6.342851
 10.945041
 98863
 10.15
 25

1346 97127
 215 215
 485635
 97127
 196274
 2695305
 97037
 1359 13744

1013 East Concretion

Random Sta 21

Hatch Hub 110 West (410+00)

288148
 388148
 673333
 485185
 97037
 154,715,7928

410+02.16 Sci Con. Mon.

61°15'
 135°30'
 61°15'

100

157.00

109.00

47.17

20.00

42.77

22.75

42.75

42.877

15°00

235.00

78.27

378.00

(see page 42 for correct int of PL line)
 402+56.46 int PL 1200
 1901

61°14'50"
 to Granite Mon.



see page 42

426

425

424

423

422 +02.31 Hatch Hub (422+00)
+97.06

421

420

419

418

417

416

415

414

426+97.06
2 89.20
430,86.03
2 39.67
433+25.70

33

421+97.06
F. 25
422+02.31

(Set Corn Mill
set 2" x 2" Hub
421+07.06



439

438

437

436

435

434

433

432 +35.975 Established Cor. for Int. of P.L. $\frac{1200}{1186}$

431

430

429

428

427 +97.03

426-

425 +75.70 80.50 500 99999
 + 97.94 99994
 500.00
 500.00
 40.00
 39.00
 38.00
 44697.24

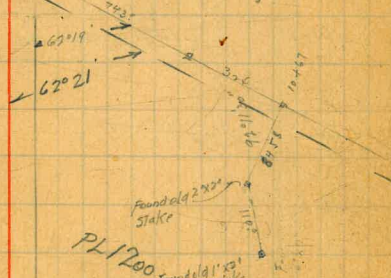
37271.9 34
 2420.8
 40752.7
 2980.8
 43233.5

433 + 25.70
 434 + 32.50
 9220

500
 197
 46
 743
 322
 1067

Int P.L. 1186 432 + 32.70
 + P.L. 1200
 set Con. Mer.

432 + 33.50 set 1' x 1' Hub to
 100K for Cor.



PL 1200 Found old stake

426 + 97.03 & Econ. Road
 and 8' off set west

500
 50 16+10x

446+97.24
4 97.31
251295.01

445+97.24 = 4.609727
69
6.392.896
11.042204
110.25

35

452
+95.05 pot

451

450

449

448

447
+97.24 pot

446

445

+75.64 set 1"x1" Hub

444

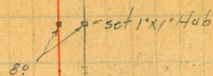
+74.64 set 1"x1" Hub

443

442

441

440



500 500
497.81

Mon. to be set

446+97.24
Set Cap. Mon.
City line

11.05 Correction East from Random Line

Sta 34

set 1"x1" Hub
80°

set 1"x1" Hub
444+75.64

18.76

Found old 4"x4" post
in Rock Mound

85°18'

80°

19.0

Found old 4"x4" post
in Rock Mound

80°55'30"

461

464

463 +14.4 Pof turned 62°19 Looker for Lox

462 +10.34 Pof

+51.22 Pof

461

460

459

458

457

456

455

454

453

451 + 95.05 460 7024
 456.17 77167
 500.00 460
 461 + 51.22 7950020
 396668
 45612820

110 19 30
 36 46 30
 36 46 30

62°
 151° 57' 45"
 82°

429.53
 40.00
 40.00
 60.00
 80.00
 110.50

825.03
 1.28
 826.31

482.40
 431.41
 927.00
 254.42
 1182.20
 490.00
 1672.20
 95.00
 1767.31
 81.85
 1849.15
 203.39
 2052.54

449.05
 2030 490 + 2
 8971450
 394620
 48953450
 4030 19642 85
 490 45

8972280
 392768
 48807080

2557 40867 3
 440
 3994680
 379468
 43941250
 3055 99766 1
 255 3
 498830
 499830
 109532
 254,40330
 1902 94523 4
 378092
 850707
 8385162

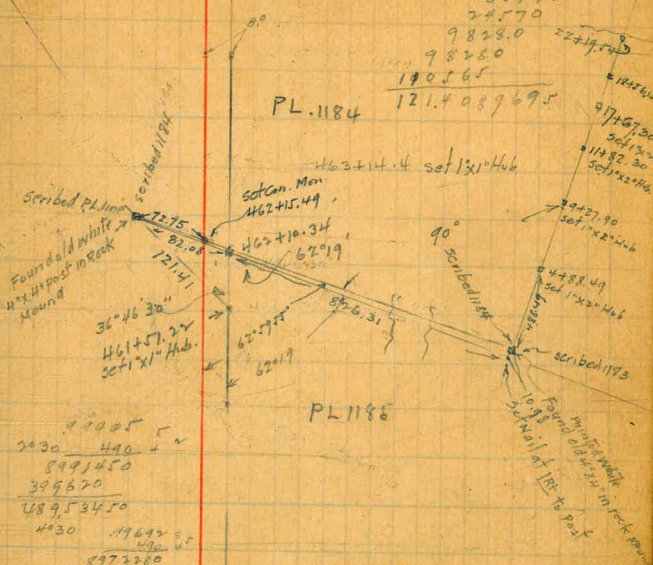
27051 88417
 411
 88417
 89417
 353618

863373.87
 531 98897 5 6
 73.56 5 6
 593382
 490485
 296691
 693279
 727486332

170 402 99731 460 +1440 36
 170 460 427.00
 8981100 163.18
 99731 122.55 847
 16924270
 163.18 98827
 636 85995
 24570
 9828.0 2219.00
 9828.0
 190565
 121.4089695

PL 1184

PL 1185



462 + 10.34
 5.15
 462 + 15.49

478

477

+61.04

pot

476

475

474

473

472 +02.46

pot

471

470

469

468

467

466 + 18.53

pot

463 + 14.40
304.13
466 + 18.53

472 + 02.46
458.58

476 + 61.04

213.80

473 + 74.84

461.83

483,36.67

439.90

487 + 76.57

7859.63

516736.20

466 + 18.53
496.58

87.35

472 + 02.46

476 + 61.04

set 1 x 2° 476 + 61.04
on corrected G.F. line

487 + 76.57

410.50

483,36.67

2.66

2° 48' 99.851

27

304.5

499.405

399.524

299.6430

304.137641

465 18.53 466 74.6

75

6.292898

11.060579

11.50

6° 42' 50.0

793.17 496.58

472 + 02.46 = 4.673942

18

6.392392

11.066858

11.66

795.5 99.047

463.4

297.141

594382

396188

458,58761

1944

215

477.20

99.02

17.822

213790

11.66

ch 11.66

← Sta 36 Randomline

469 + 31.0 Look for Ex M. Co
#10

11.5x correction East

set 1 x 1 Hub

Sta 35 Randomline

30

491

490

489

488

+76.57

487

486

485

484

+66.07

con. Mon Hatch

483+36.67 Prof.

482

481

480

479

+74.84

478

477 0.69 Eaded Line

44.24
39.00
410.67

298.35
59.00
457.03

462414.40
21.30
483534.40

38

2035 7.6437980
9.9905584
76433564
23990

7040.74106
466.7
594636
594636

1009

410.62
2.6134507
9.9995544
2.6133051
410.50

398424
46183396

487+76.57

12.06

Sta 37 Random Line

Found Con Mon Hatch (483+66.07)
0.67 East of Line
Set 11x2" Hub 483+36.67

669

Reset Mon on line 209 west

Set 11x2" Hub 478+74.84
Connect to City Line

504

491

503

490

502

489

501

488

500

487

499

486

498

497

496

495

494

493

492

478

516 +36.20

515

514

513

512

511

510

509

508

507

506

505

516+36.20 Found Con. Mon.
Level with Ground

12.76
Random line Hub Sta. 38

Chas Moore makes angle at Cor³ 4

11° 02' 45"

179-59-60
 71°45'10"
 38°11'50"

N 27°15'55"
 41°12'15"
 N 88°28'00" W
 88°11'50"
 N 0°16'10" W

6°3'
 99351
 354.6
 596106
 397404
 496755
 298053
 352278646

449.60
 145.00
 254.60
 N 27°15'55"
 6759.54
 901540
 S 79°44'30" W

408.54
 72.75
 831.64
 179-59-60
 64-59-55
 117°00'00"
 326.31
 82.01
 408.39

441

306251
 38
 3062830
 381
 480
 480
 310
 251.30
 2003.30

437476.57
 462+1549
 25° 61.08

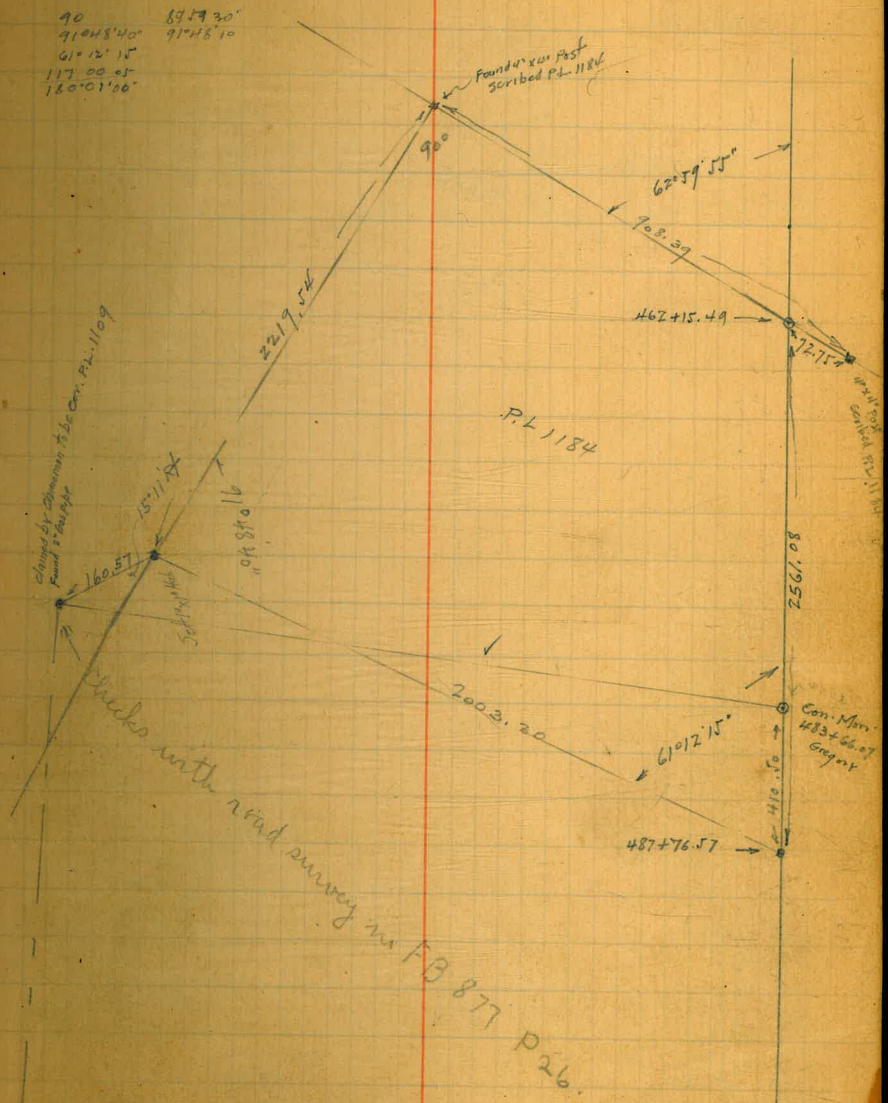
	N	S	E	W
S 27°15'55" E	2561.08	2276.55	1173.10	
N 88°28' W	2003.30	53.60		2002.58
N 0°16'10" W	2219.54	2219.52		10.44
N 89°44'20" E	835.64	3.81	835.64	
	2277.93	2276.55	2008.74	2013.02

2561.1 = 34084265
 9.7488667
 3.3577222
 1276.55
 3.4084265
 9.6609090
 13.0693279
 1173.10

2003.3 = 3.3017460
 3.4374821
 11.7292081
 53.605
 3.3017460
 9.9999952
 13.3015905
 2002.58

2219.54 3.3462630
 9.9999952
 3.3462634
 3219.52
 3.3462630
 7.6722450
 11.0186080
 10.438

835.64 2.9220192
 7.6587014
 10.5807204
 38083
 2.9220192
 9.9999952
 2.9220147
 835.64



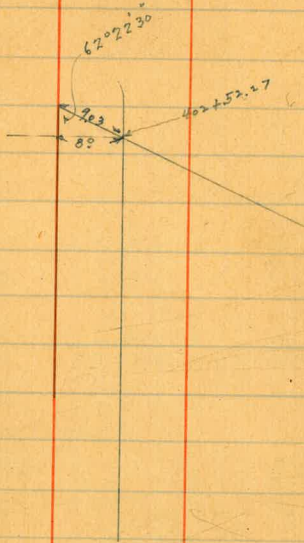
Checks with road survey in FB 877 P 26.

89-59-60
62-22-30
27-37-30

137°07'11"
62°22'30"

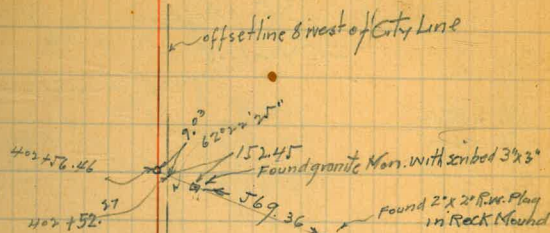
71

52316
52353
52385
52388
478680



Ex

12378
12375
52353
52385
52388
902928
402+55.69
3.42
402+52.27
419
402+56.46



238.82
278.80
204.19
731.81
152.45
569.36

1435 96778
15752
19356
483890
677346
483990
96778
1524537056

7043 99094
241
99094
396376
198188
23851654

9656 9856
283
295548
788128
197032
27880028

90753
24050 225
453765
181506
181506
20419425

Survey of Ex Mission Line West to Int.
City Line

51°-32'55"
36°-06'45"
62°-20'10"
179°59'55"

81°33'
36°06'50"
62°20'10"
180°00'00"

85+81.0
15.1
85+96.10

95+80.40
85+96.10
984.30

$36^{\circ}06'50'' : 984.3 = 81^{\circ}33' : X$

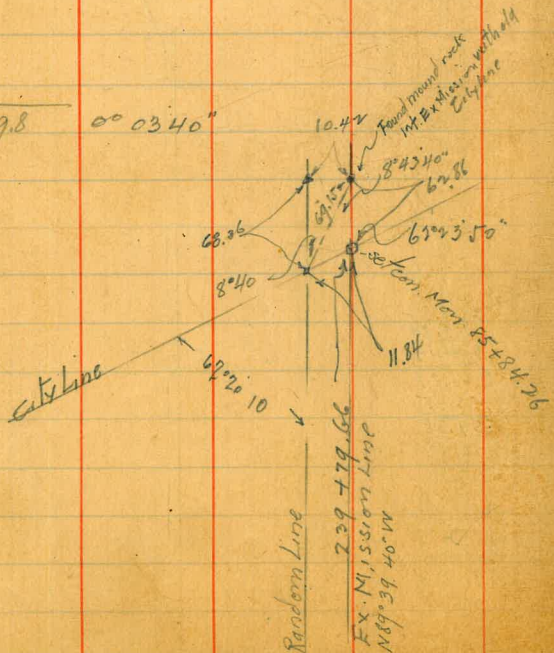
12.40
10.44
1.98

222+22.25
1651.90
238+74.15
68.36
23942.51

$1659.36 \sqrt{19.8} \quad 00^{\circ}03'40''$

85+96.10
11.84
85+84.26

229+42.51
62.81
239+79.66



N89°39'40\" W
Corrected Course of
Line between Mound & 11'x11' & 2'x3'

Pot 222+22.25
1'x11' Hub
79
270+82.25
1'x11' Hub
78

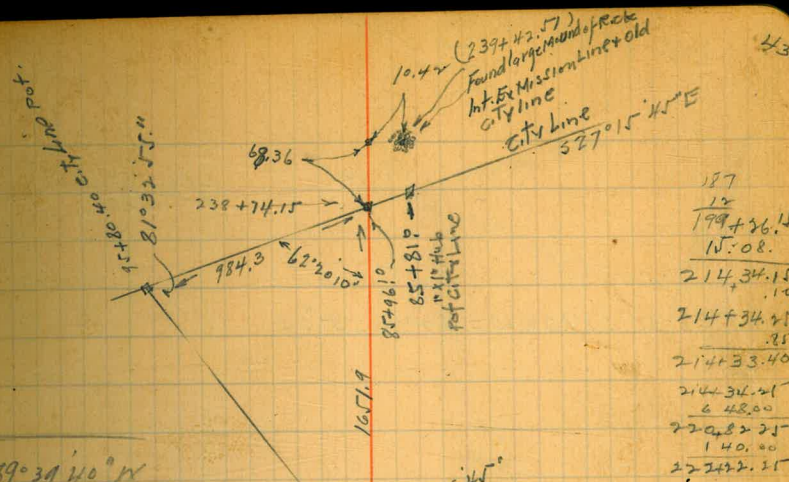
Pot 214+34.25
1'x11' Hub

Pot 1'x22' 199+26.25

Pot 1'x22' 187+26.15

184+26.15
Set Spk.

156+51.65
Set Nail



187
12
199+26.15
15.08

214+34.15
10
214+34.25

214+33.40

214+34.25

648.00

220+22.25

140.00

222+22.25

LINE EX MISSION S DEPT
N 89°39'40\" W
1.11 M. W. County
509°56'E City

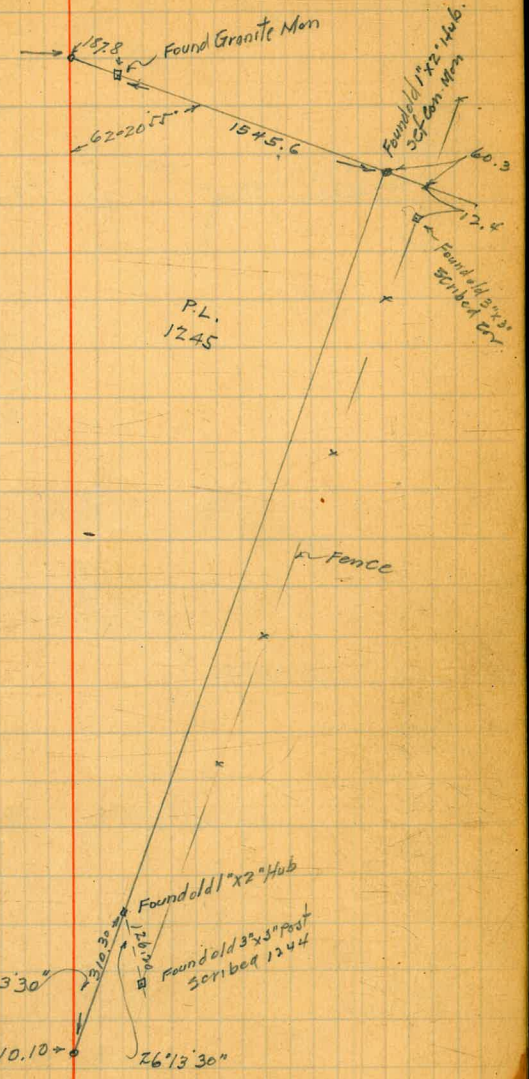
79
Pile Stone

6
Round Hub in Pile Stone

Williams
 Junkle
 Moore
 Moore
 Oct 1-2-1919
 44

set con Mon
 253+57.86

62° 20' 55"
 27° 33' 00"
 89° 53' 55"
 90° 06'



P.L.
 1245

Fence

set con Mon 216+10.10+
 City Line

$$27^{\circ}33'30'' : 17.33.4 = 64^{\circ}20'55'' : x$$

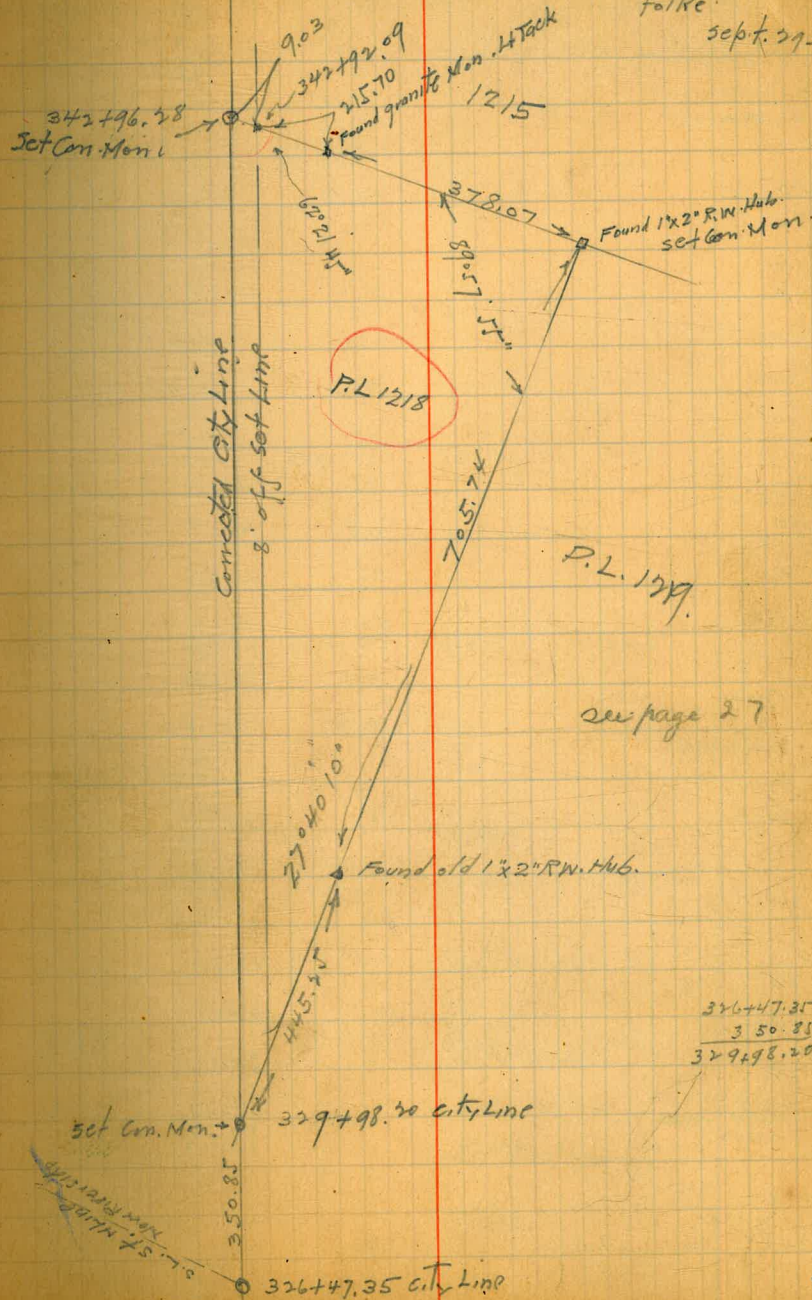
$$90^{\circ}06'05'' : 1$$

Williams
Punkle.
Falke
Sept. 27-1919

62 21 45
27° 40' 10"
89 57 55
179 59 50

9.03	705.74
215.70	445.35
378.07	1157.00
602.80	301.4
	4604
	1151
	34530
43560	3469114 (8
	348430

34296
32998
1300



326+47.35
350.85
329+98.20

	+	-	415.88	422.46
Top. T. Water Gauge	423.19			422.46
Water Level		-1.90	421.3	415.87
Top reservoir dirt		-7.06	416.13	
0+00		0.90	422.39	
0+20 ground		-7.06	416.13	
3+00		-7.60	415.6	
		-8.80	414.4	
5+64.5	+4.23	-7.97 T.P.	415.22	
6		-6.50	413.0	
9	2.90	6.10	413.4	
14		6.33 T.P.	413.12	
15		-3.6	412.4	
15		-6.1	409.9	
18	2.25	6.7	409.3	
21		T.P. 6.96	409.06	
23+200		2.8	408.5	
24		4.8	406.5	
24		6.6	404.5	
27	2.49	11.0	400.3	
30		T.P. 10.73	400.58	
Bank Wash		3.7	399.4	
31+22		10.3	392.8	
32+20 Pot Wash			360.00	
32+20 Bank Wash			360.00	
33+11	7.78	9.1	393.0	
36	8.50	T.P. 3.36	399.21	
34		6.7	400.8	
40+50		T.P. 3.33	403.66	
47		6.6	405.6	
47 Bank Wash	0.50	4.4	407.8	
44+13	0.67	10.3	401.9	
46+91 Break.		T.P. 12.58	391.64	
47+16 Pot Wash		T.P. 12.74	387.35	
47+41 Break.		4.9	383.1	
47+88			373.17	
50+8200			271.37	
Bank Wash			270.17	
53+24		4.4	394.1	

Williams Dunkel Oct 6-1919	46
Top Reservoir Elev. Bot. Reservoir according to Gauge	414.30
Shaft Pump #1	
Survey of Water Pipe Line from Booster Pump to P.L. 1189	
0+00 water level	415.88
Storage Reservoir	416.13
45' 28' Lt.	415.88
	2.59 +
	418.47
	3.25 -
	415.22
	7.97 +
	423.19
	7.97 -
	415.22
	2.23 +
	419.45
	6.33 -
	413.12
	2.90 +
	416.02
	6.96 -
	409.06
Pot 1"x1" Hub	2.25 +
	411.31
	10.73 -
	400.58
	2.49 +
	403.07
	3.86 -
	399.21
	7.78 +
	406.99
	3.33 -
	403.66
Turn down to City Line	12.70 -
	8.56 +
	412.22
	12.58 -
	399.64
	12.90 -
	0.50 +
	400.14
	12.79 -
	387.35
	20.62 +
	387.97
Pot 1"x1" Hub	1.40 -
	386.57
Pot nail	11.93 +
	398.50
Pot 1"x1" Hub	0.46 -
	398.04
Pot 1"x1" Hub	0.10 -
	325.47
Pot 1"x1" Hub	13.00 -
	312.47
Pot 1"x1" Hub	0.10 -
	312.37
Pot 1"x1" Hub	12.90 -
	299.47

	+	+	-	Elev
				398.00
56+24 ^R	11.55	409.59	4.6	405.0
57+64 ^R	1.82	408.09	3.32 T.P.	406.27
60			10.5	397.6
63	1.42	396.71	12.86 T.P.	395.29
66			6.3	390.4
68+85	1.27	385.21	9.7	387.0
70 70			12.77 T.P.	383.94
73 73			3.4	381.8
75			12.4	374.8
77	0.47	373.97	11.71 T.P.	373.50
78+50			11.2	362.8
81+50			11.3	362.7
84+50	6.58	379.84	2.65 T.P.	371.32
87			4.6	372.5
90			7.0	370.1
92+50	1.27	377.75	9.6	367.5
93			T.P. 387	373.76
93+75			4.0	375.8
96			5.5	374.3
99			4.2	375.6
102			T.P. 336	376.48
104 4.5			2.8	375.0
105			5.8	372.0
108	4.18	369.58	T.P. 12.35	365.40
111			7.3	362.3
114			11.0	358.6
117	6.21	365.0	10.8	358.8
			T.P. 10.79	358.79
			4.2	360.8
			7.10	357.9
	1.92	354.36	T.P. 12.56	352.44
			4.6	349.8
			7.10	347.3
			5.8	348.6
	2.86	353.30	T.P. 372	350.44
			4.0	349.2

□ Pot 1"x1" Hub

△ 8° 52' Rt.

□ Pot. 1"x1" Hub.

84+47 176. fence N45 P.L.L.I.N.T.

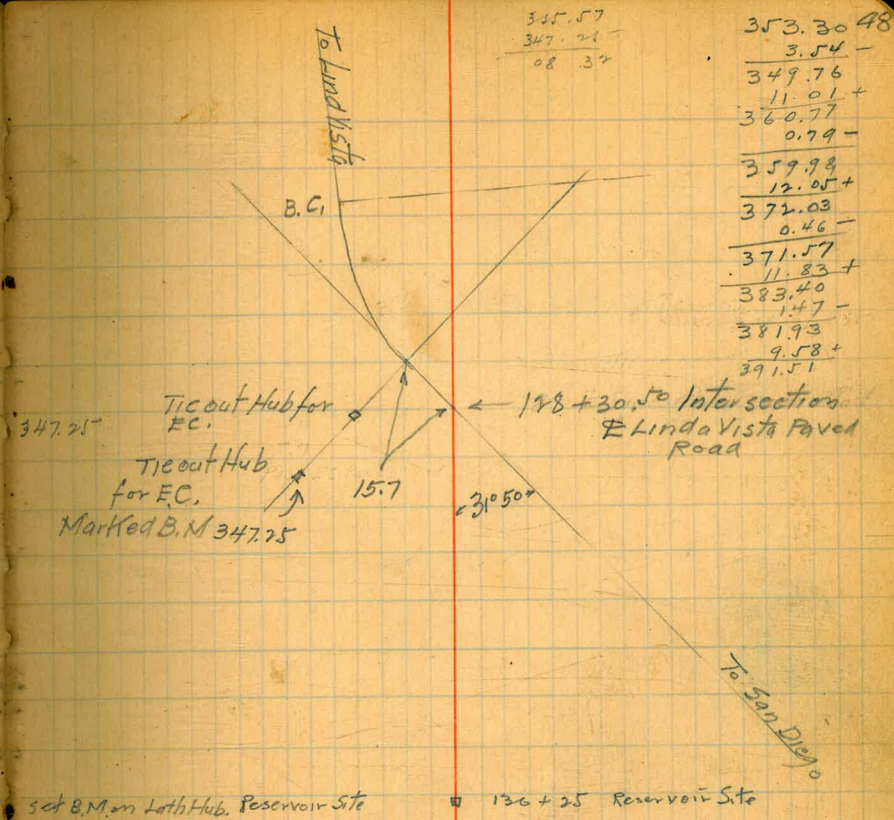
□ Pot. 1"x1" Hub.

int. E.W. P.L.L.I.N.T. 104+10

□ Pot 1"x1" Hub

398.04
11.55+
409.59
3.32-
406.27
1.82+
408.09
12.80-
395.29
1.42+
396.71
12.77-
383.94
1.27+
385.21
11.71-
373.50
0.47+
373.97
11.2-
371.32
5.81+
377.13
3.87-
373.26
6.58+
379.84
3.26-
376.48
1.27+
377.75
12.35-
365.40
4.18+
369.58
10.79-
358.79
6.21+
365.00
12.56-
352.44
1.92+
354.36
3.92-
350.44
2.86+
353.30

	+	-	127+100	X
			130.50	
			17830.50	
120 Bank Wash		353.30		
120 Bottom Wash			10.0	343.3
122+50			29.0	324.3
123 Bank Wash			15.8	338.3
124			8.5	344.8
127 T.P. on Sta 127			3.54 T.P.	349.76
		360.77		
128+30.50			5.9	354.9
129 -			5.70	355.57 on B.M.
			4.9	355.7
130+50			2.1	358.7
			T.P. 0.79	359.98
	12.05	372.03		
132			7.0	365.0
			T.P. 0.46	371.57
	11.83	383.4		
133+50			9.6	373.8
135+00			5.4	378.0
			T.P. 1.47	381.93
136+25	9.51	391.51		
			3.91	387.60



Road A

120
121
122
123
124
12
12
12
12
12
13
13
13
13
13

14+69 12" Culvert
589°38'10"E 513.60

11+50
10+50
10+21 Int Road.

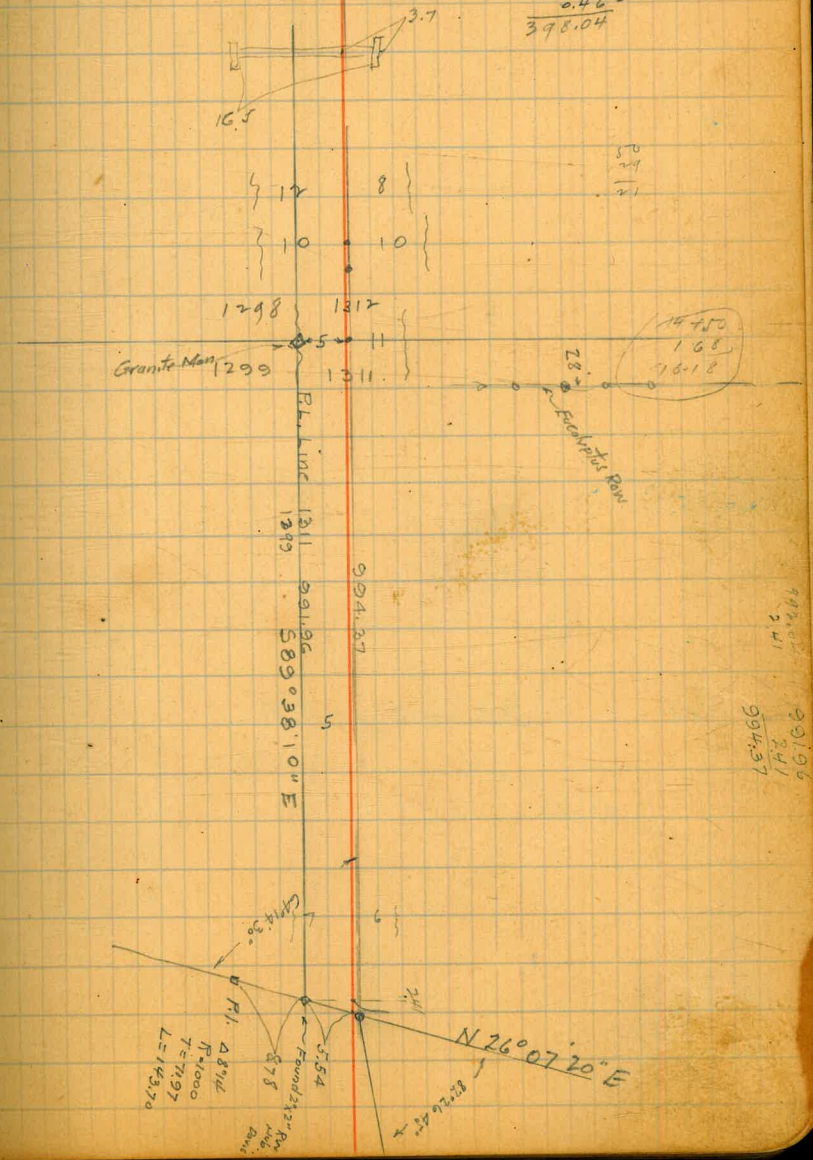
9+94.37

994.37
589°38'10"E 994.37

1400

0+00

387.97
1.40
386.57 B. Mason
11.93
398.50
0.46
398.04



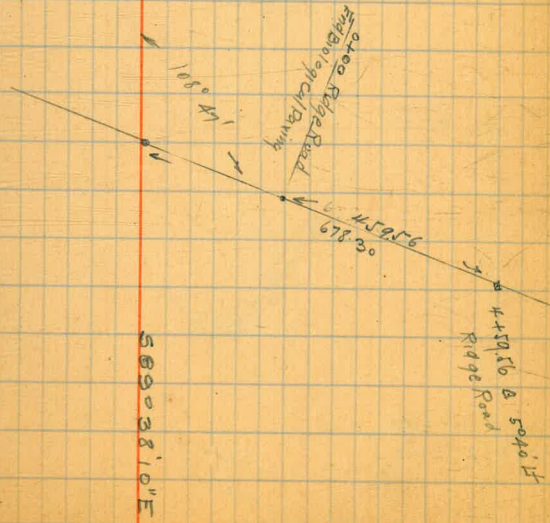
994.37
994.37
994.37
994.37

14 + 69.00
38.97
15 + 07.97

50

15 + 07.97

Int. Semitang Biological Farming



"D" Line

11+91.34 = "D" Line = *
106+50 = Davis Line

586°07'40"E 134.34

10+57

Δ 29°30" Rt

9+20

7+50

6+00

4+50

N64°27'20"E 1057'

1+50

0+00 = "D" Line
10+21.0 = "A" Line

X 586°07'40"E

N64°27'20"E

S.W. 1/4 Sec 10
106+50
10+91.34

65°20'

520°42'40"E

586°02'40"E

1°E 9'

50°

N64°27'20"E

0+00 "A" Line

589°33'10"E

10+21.0 "A" Line
0+00 "D" Line

1057
134.34
1181.34
750
130
880
1057
137

51

6+10 Int. Road

5+00

4+40 Int. Road Hog Ranch

3+10

Δ 6°24' LT

2+50

Δ 94°21' LT

200

661.59

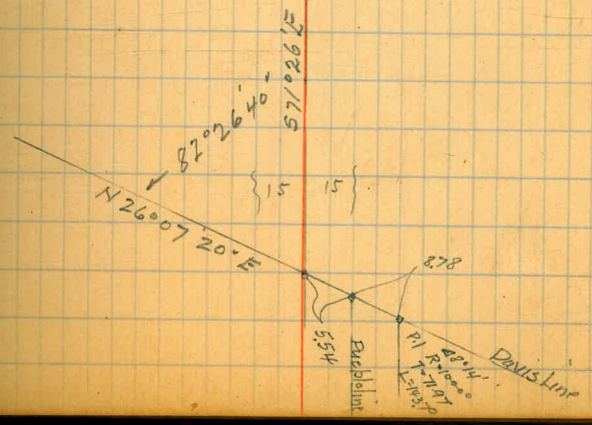
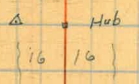
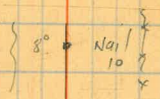
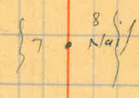
100

0+00

N 17° 49' E
376.05

x N 44° 32' E
60.9

S 71° 26' E
250.0



"B" Line

9+15
58
9-73

53

15+08.25 Int. Rose Canyon Road

14+50

14+00 P.I.

$\Delta = 45^\circ 30' \text{ Rt}$
Ex = 14°

x N87°49'30"E
108.25

12+50

11+50

10+50

9+73 Nail Int. Road

9+15

8+10

$\Delta = 44^\circ 30' \text{ Rt}$

x N41°56'E
59.0°

x N37°16'30"E x

6+86.05 Int Road

$\Delta = 29^\circ 21' 30'' \text{ Rt}$



{ 9 9 }

{ 7 7 }

{ 2 13 }

{ 2 13 }

6 11

{ 11° 0' Nail
7°

{ 11° 0' Nail
8°

{ 7 10 }

Road "c"

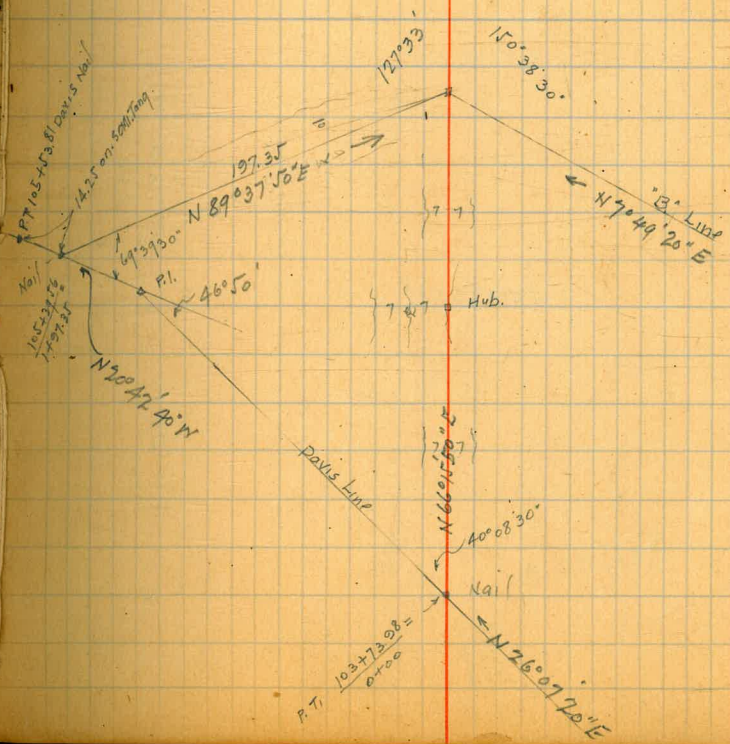
2+74.9 Int Bline at 6+86.05

1+43 P.I.

Δ 29° 04' 30" A
Ex. 7°

DAVIS
103+73.98 P.C.
0+00 "C" Road

N 66° 15' 50" E * N 37° 11' 20" E *
143.0 131.90



103+73.98
103+73.98
103+73.98

137	143.00
65.31	131.90
197.35	774.90

54

179.59	100
150° 38' 30"	
79.21	100

E Line.

4+07 fence

S 82° 10' 36" E
280.0

6+90

$\Delta 83^{\circ} 47' 30''$ Lt
Ev = 21.8

S 1° 37' 00" W
140.0

5+50

$\Delta 15^{\circ} 49' 30''$ Lt

S 17° 26' 30" W
250.0

3+00

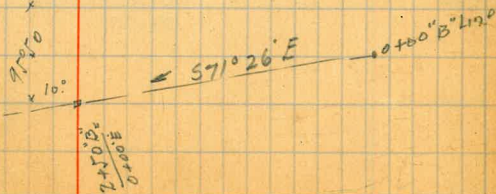
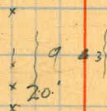
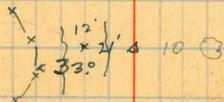
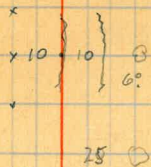
$\Delta 6^{\circ} 57' 30''$ Lt

S 24° 02' 4" W
300.0

2+40 fence

0+00 "E" Line
2+50 "B" Line

X



"F" Line

300
15+70 55
1 63
17+13

17+13

$\Delta 54^{\circ} 59' 30''$ Lt
Ex 8 $^{\circ}$

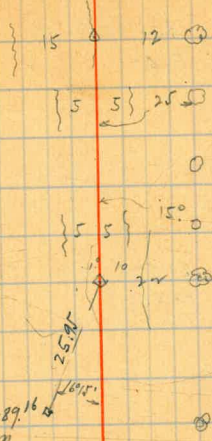
16+70

x $528^{\circ} 33' W$
143 $^{\circ}$

15+85

15+70

$\Delta 28^{\circ} 13'$ Rt
Ex 5 $^{\circ}$



1 st Hub 12+89.16
Pot Random

12+70

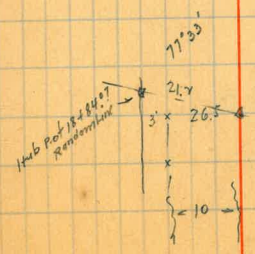
$50^{\circ} 20' W$
600 $^{\circ}$

8 8 } 20 Trees

9+70

$\Delta = 82^{\circ} 30' 30''$ Rt
Ex 15 $^{\circ}$

x



9+70

"E" Line

26+60.14

$\Delta 31^{\circ} 28' L$ ✓
Ex = 4°

25+20

23+86.54

$\Delta 45^{\circ} 18' L$
Ex = 5°

23+10

22+29.84

$\Delta 47^{\circ} 59' 30'' R$
Ex = 11°

21+60

20+40

18+62.44

$\Delta 26^{\circ} 52' R$
Ex = 7°

17+90

x

53° 07' N
773.69

x

54° 25' W
116.70

x

50° 25' 30" W
367.40

x

52° 26' 30" E
149.44

17+13
17

17290

{ 11 } 16 →

{ 7 } 16 →

{ 12 } 16 →

{ 7 } 16 →

{ 12 } 24 →

{ 7 } 16 →

{ 7 } 16 →

{ 7 } 28 →

{ 7 } 20 →

1713
14944
1862.44
367.40
2229.84
156.70
2386.54
273.60
2660.14
116.02
27476.16
180

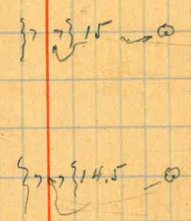
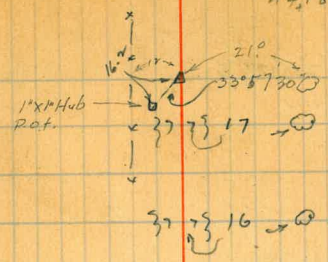
"E" Line

44+18	x	$\Delta 10^{\circ} 25' 30''$ Rt	
42+43			
39+43			
36+43			
33+43			
30+43	x	$\Delta 27^{\circ} 12'$ Rt Ex=7°	
29+06.83		$\Delta 28^{\circ} 11' 30''$ Lt Ex=6°	
27+76.16		$\Delta 29^{\circ} 10'$ Rt Ex=6°	
			528° 21' E 116.07
			50° 49' W 130.67
			527° 22' 30" E 136.17
			50° 10' 30" E 137.5°

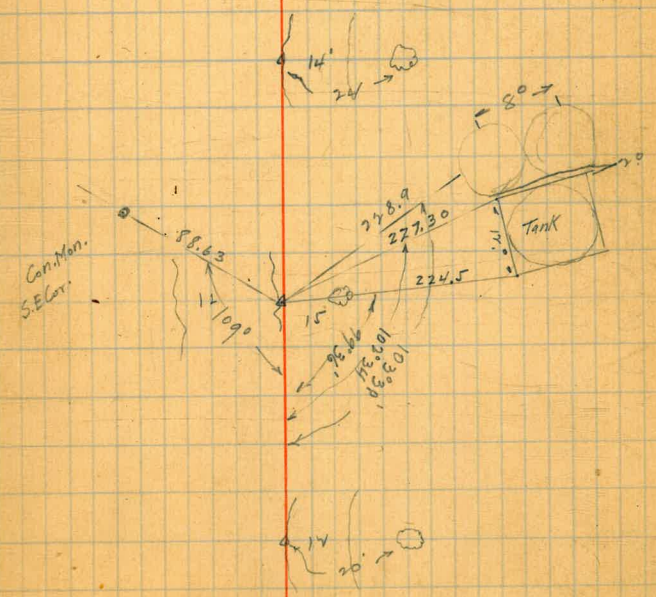
230.43
137.5
44.18

2776.16
130.67 57

290.683
126.17
3043.00
710
109



89.267
773.3
26798
80334
80334
88.63518



"E" Line

60 + 13.75 = Int Field Survey
40 + 27.03 = Field Survey

55 + 92.65 Int Line PL 1296

53 + 18

50 + 18

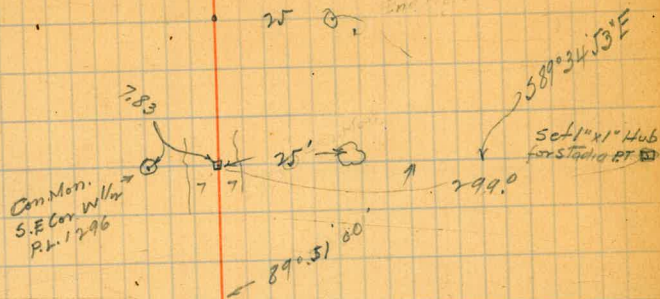
47 + 18

50° 15' W
1595.75

44 + 18
11 74.65
55 92.65
350
59 42.61

58

End Field



"F" Line

Road To Hog Pens

Williams
Dunkle
C Moore Nov 13, 1914
B. Moore

3+47.49

A 27° 46' 30" Lt

2+31.32

A 65° 15' Lt

1+12.80

A 25° 23' 30" Rt

4+40 "B" Line =
0+00 "F" Line

N 70° 35' 30" W

N 20° 11' E

N 85° 26' E

N 60° 02' 30" E

112.80

231.32
53.70
315.02

231.32
4.70
236.02

231.32
116.17
347.49

414.3
387.6
26.7

59

93
6
21

π

Az.

Dist

π

Az.

Dist

F.S. 3+47.49

Lt

3+15.02

116° 13'

26.50

3+15.02 N 41'

69° 59'

26.50

6' x 12" Corn Crib

Lt

2+31.32

85° 58'

44.7

F.G. (3+47.49)

77° 25'

45.9

7' x 7' Corn Meat House

49° 00'

37.7

Corn Found

78° 34'

37.7

22.5' x 10.5'

8° 47'

44.8

N.L. Corn

Shute 2' wide Killing Pen.

Rt

2+21.32

8° 27'

28.70

15° 47'

29.70

52° 48'

32.40

34° 21'

22.40

F.S.

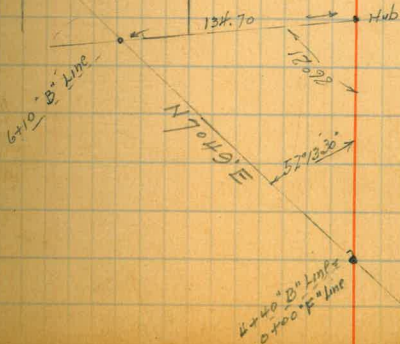
(3+47.49)

3.7 x 3.7 Lt

Kettle for Hots

Pig Pen.

Pig Pen.



"F" Line

Nov 13 1919

6+39.07 "F" Line =
9+73.0 "B" Line.

3+98.67 Nail

3+47.49

N 70° 31' 30" W

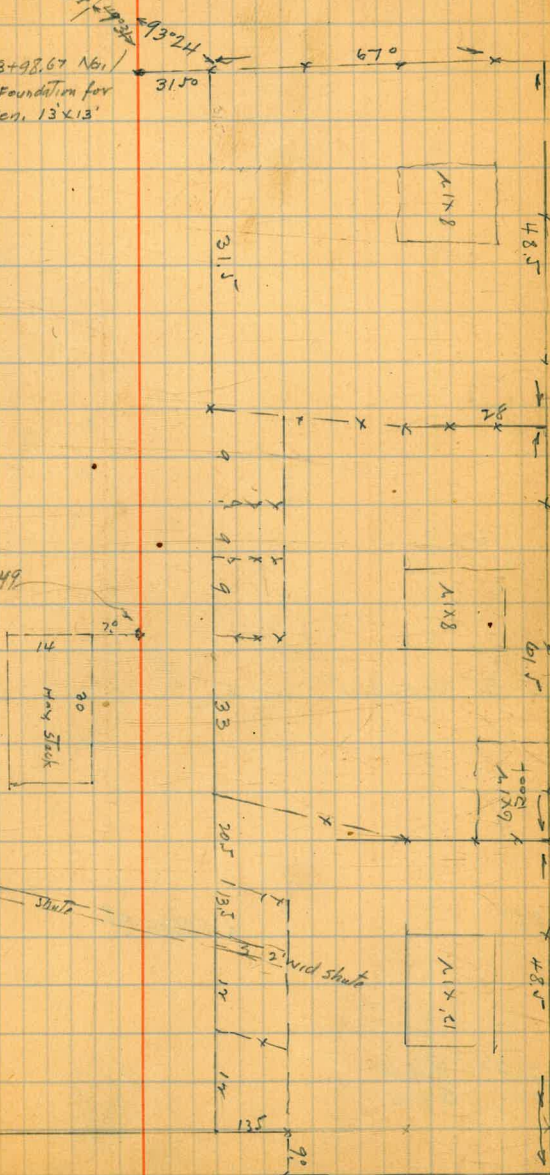
60

AZ Dist

Station	Angle	Dist
FS 6+39.07	RL	
3+98.67	142° 34'	85.0
	RL	
5° 57'	82°	

3+98.67 Nail
Com. Foundation for
pig pen. 13' x 13'

632.07 "F" Line
9+73.0 "B" Line



"G" Line

14' wide Road from Hog Pens to Beefpiary

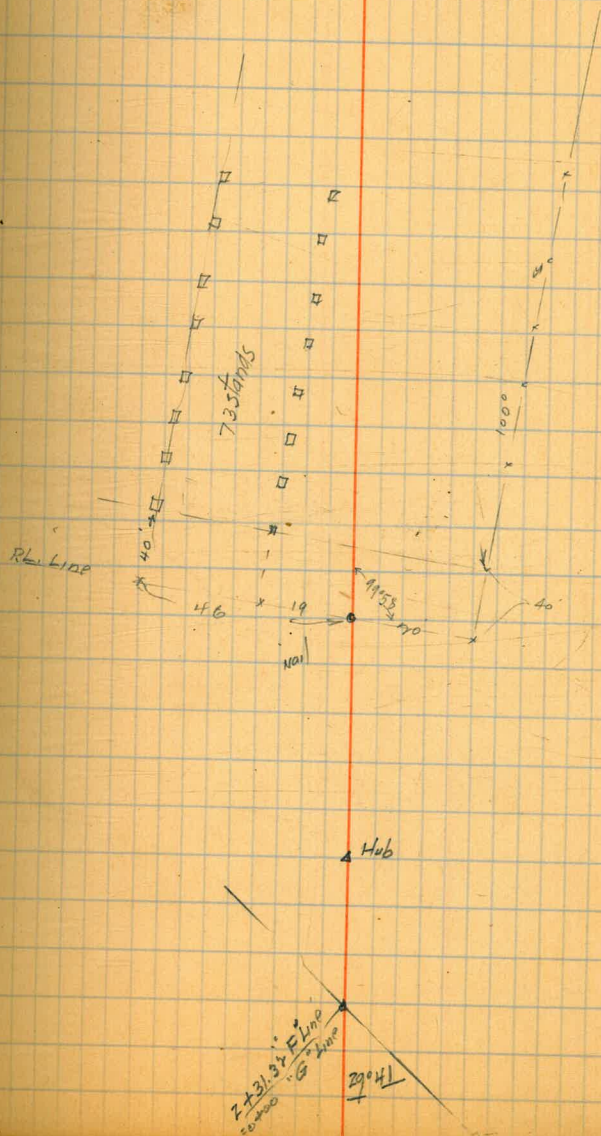
61

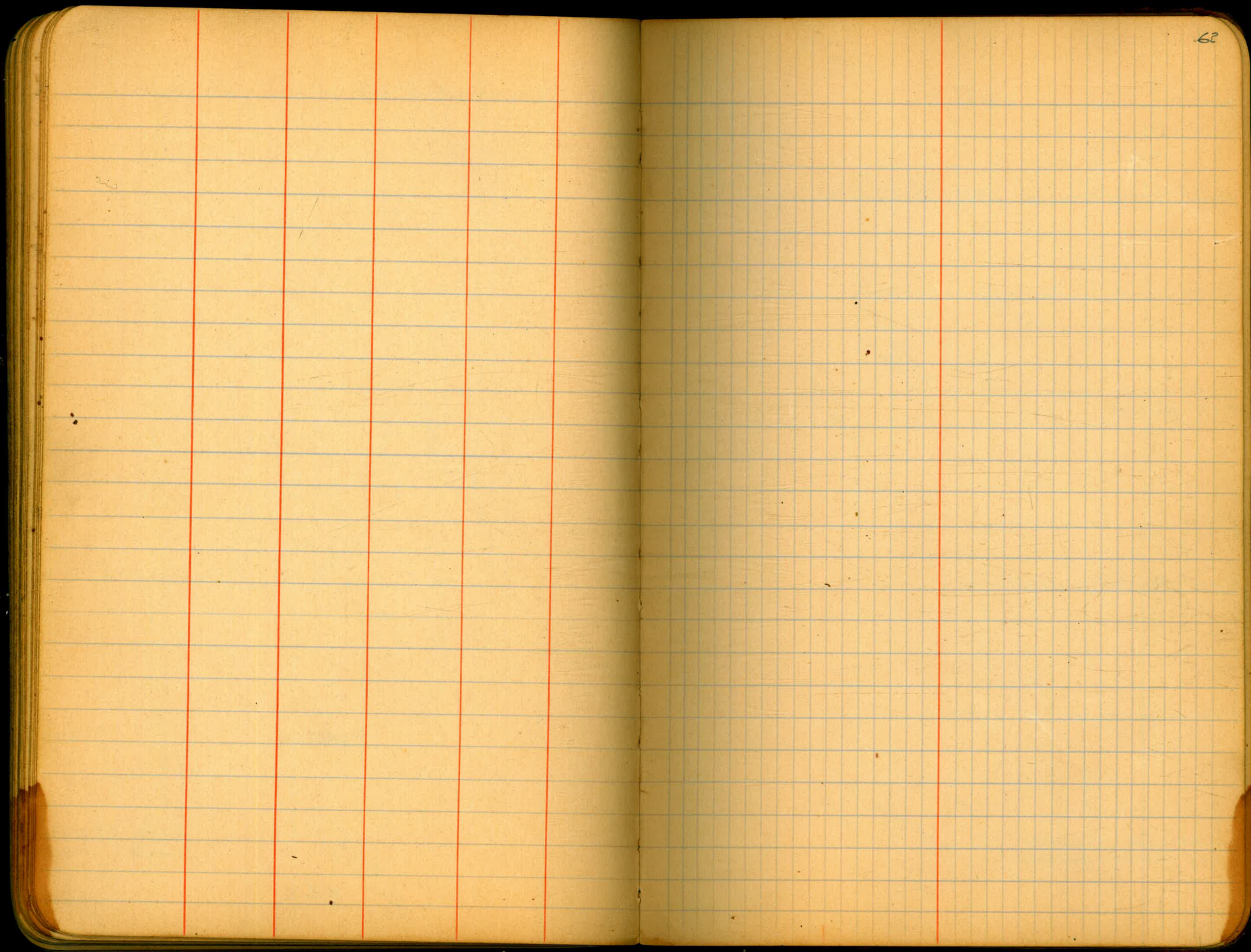
2+35.35 1st Pl. Line

0+88°

Δ 55°04RT

2+31.57 "F" Line
0+00 "G" Line





Williams
Dunkle Nov 13 1919
C. Moore
B. Moore

23+25 0.3036 Rt

6+86° Line of P. lowing $\Delta 83^{\circ}17'$ Rt B.S. 4+70

4+70

13+11.11 = End of Survey
29+44.03° E Line

6+86° line of P. lowing south

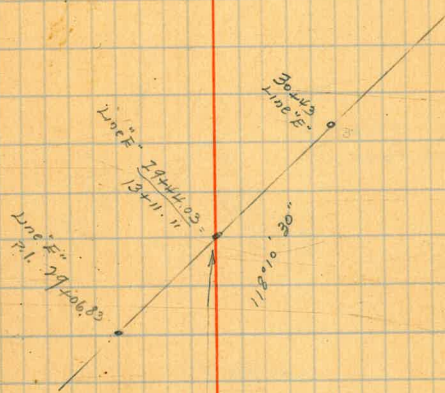
4+70 int approx P.L. line $\Delta 76^{\circ}33'$ Lt

78+81.21 = Davis Road Survey
0+00 Traversed Field Traversed

22251
6 86
15-37
63

Hub.

Hub.



R. 12 Road to here

Hub.



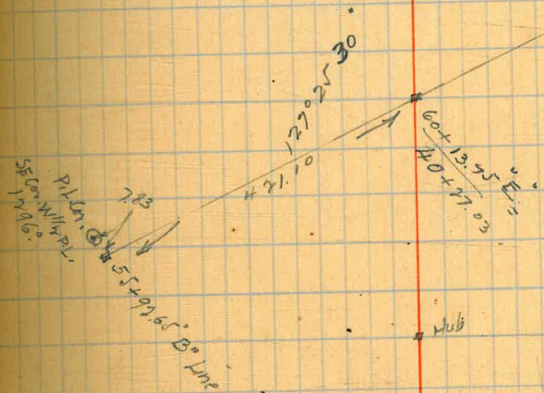
471.10

32+13	2257
2645	475 (4)
32+39.41	
129.00	299.00
33+68.45	18.80
219.90	317.80
35+88.35	
	127°25'30" Lt

40+27.03 = Int. of Road "E"
60+13.75 "E" Line Road Survey

	538.68	
36+88.35	x	441°29 Lt
	219.90	
34+68.45	y	79°07 Rt
	120.0	
33+39.45	x	485°12 Lt Int S.L. P.L. 1296
	539.45	
28+00	x	27°03 Lt
	475°	

along P.L. 1296



Hub
Hub
Hub
Hub

317.80 from SECOR
N. of P.L. 1296

Williams
Dunkle
C. Moore
B. Moore
Nov. 14, 1919

100 + 78° P.C.

99 + 75.22

99 + 47.48

98 + 94.0

± 35' road East
Tree row west

Garden Line east & west & line of Hydrants

97

96

95

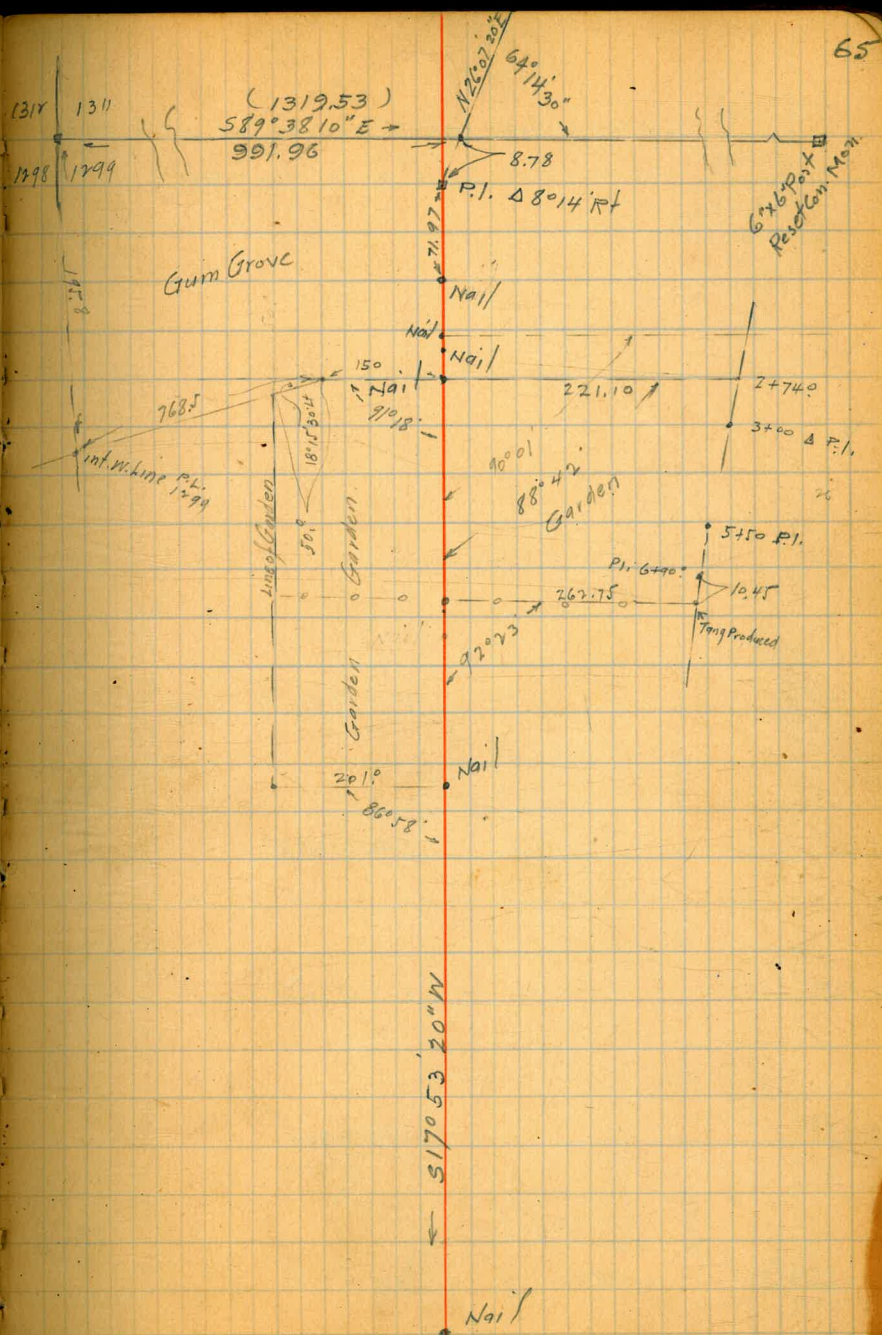
94 + 58°

Garden East also line of 2nd Hydrants

90 + 50

Garden West

78 + 85.2° EC, Davis



Williams
Dunkle
C Moore
B Moore

Survey of Grain field in west portion of P.L. 1299
from
P.C. 78+85.21 DAVIS Survey farm Road

7+64.5

$\Delta 75^{\circ} 17' \text{ RL to P.L. line}$

204.0
165°

5+60

$\Delta 96^{\circ} 22' 30'' \text{ RL}$

3+75.0

$\Delta 72^{\circ} 05' 30'' \text{ RL}$

170°

2+05.0

$\Delta 50^{\circ} 30' 30'' \text{ RL}$

205°

B.S.

$\frac{78+85.21}{0+00}$

100+78. PC.

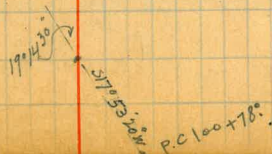
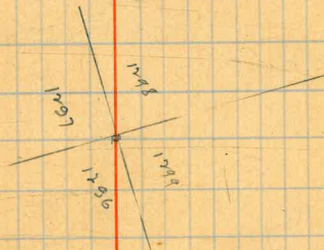
$\Delta 19^{\circ} 14' 30'' \text{ RL}$

$\times 537^{\circ} 07' 10'' \text{ W} \times 513222.40 \text{ E} \times 5841' 50'' \text{ W} \times 174424.10 \text{ W} \times 110^{\circ} 22' \text{ E}$

375
180
560

517.52 20° W
19.14 30
537.07 20° W
5030.30
513.22 40° E
320.05 30°
5842.50 W
9622.30
105.05 20°
N 7454.40 W
- 22
N 75.16 40 E

66



4+06.68 =
16+99.83 Ridge Road.

$\Delta 25^{\circ} 49' 14''$

106.68

3+00 P.I.

$\Delta 14^{\circ} 43' 30''$ Lt
Ex. 5°

150'

150' P.I.

$\Delta 23^{\circ} 32' 30''$ Lt
Ex. 7°

150'

55.4° 14' 30" E

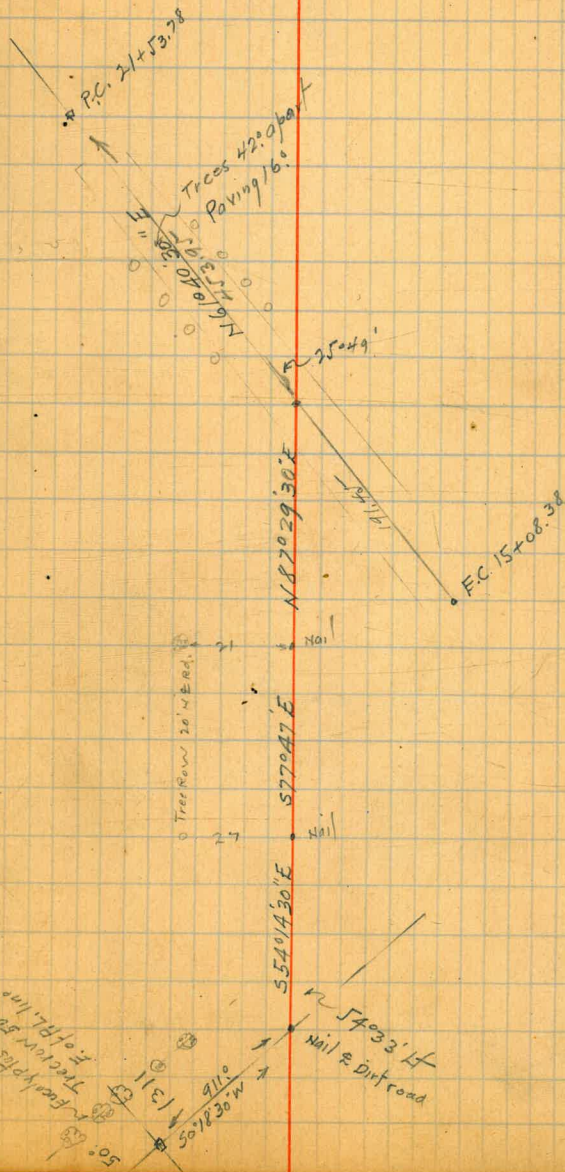
0+00 = 911.0' South of Granite Mon. N.W. Cor. 1311. ON R.V. line

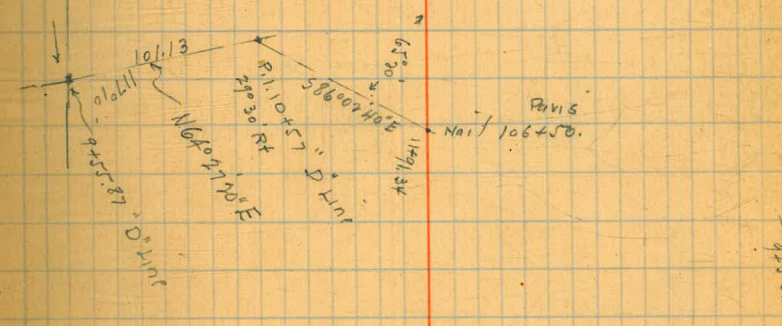
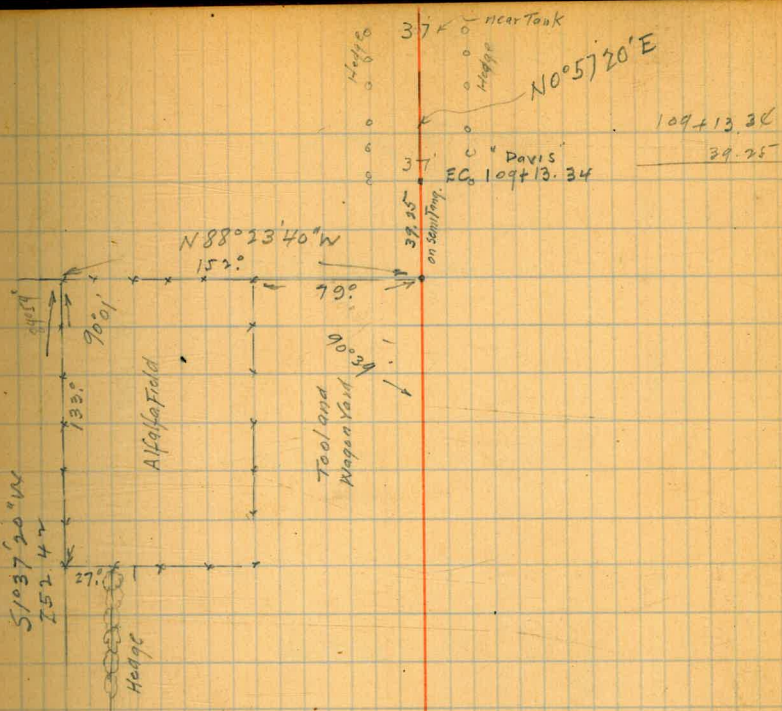
102.2
75+08.38
1.91.45
76+99.83

191.45

74.93.00
50° 18' 30" W
574° 14' 30" E

Tree rows
42' wide
Paved Highway





10+57.00
101.13
21.10+57

101.13
21.10+57

Field #1.

16+70 x $\Delta 57^{\circ}24'$ Lt

15+20.0 x $\Delta 13^{\circ}35'30''$ Rt

13+05.0 x $\Delta 11^{\circ}35'30''$ Lt

8+45.0 x $\Delta 2^{\circ}31'$ Rt.

5+45.0 x $\Delta 61^{\circ}18'$ Lt

5+22.70 P.I. for Linda Vist Road
Ex. = 8.0

2+10.30 Δ 54.5° Δ 10' - 23' long

$\Delta 60^{\circ}44'$ Lt to Ridge Road 0+00 =
24+17.45 P.I.

* N 10° 22' 30" E * N 12° 53' 30" E * N 8° 42' W * N 14° 53' 30" E *
 N 161° 40' 30" E

24+17

69

1303
245
460

Hub
Trees Continuation
this Tang.

Hub

Hub

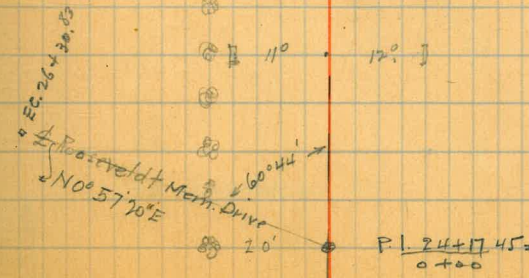
Hub

Nail

Nail

Plowed Field

Eucal. Grove



40+90

$\Delta 15^{\circ}15' RT$

36+50^o

$\Delta 20^{\circ}15'30'' LT$

33+50^o

$\Delta 3^{\circ}24'30'' LT$

30+50^o

$\Delta 7^{\circ}23'30'' RT$

27+00

$\Delta 20^{\circ}43' LT$

21+50

$\Delta 74^{\circ}44'30'' RT$

19+20^o

440

300^o

300^o

350^o

780^o

250^o

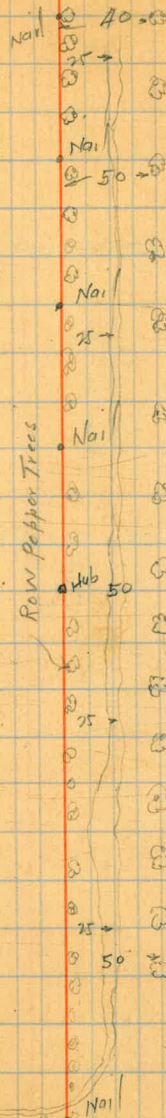
$\Delta 52^{\circ}30'30''$

$\Delta 22^{\circ}14' E$

$\Delta 103' E \times \Delta 8^{\circ}54'30'' E \Delta 5^{\circ}30' E \times \Delta 14^{\circ}45'30'' X$

Grainfield

Road from Pavement
around Hayfield



Ficus v. lat. Grove

From 16+70

16+70
2.20
17+90

67+20' Pof

Field #2

65+17.85

617.85

1810

59+00

Field #1

42+80

Int of Roosevelt Mem. Drive

89° 25' Lt

N 0° 29' 30" E

N 88° 55' 30" W

N 88° 18' 30" W from Highway Survey

54+00
6 17.85
6 5+17.85

74+73.45
5 78.45
6 6+94.75

40+90

71

347.300

528.45

Grainfield

93° 31'

N 2° 30' 30" W

Grainfield

End of Road 10 Wide

578.45

66+94.75 = Road
65+17.85 = Field Survey

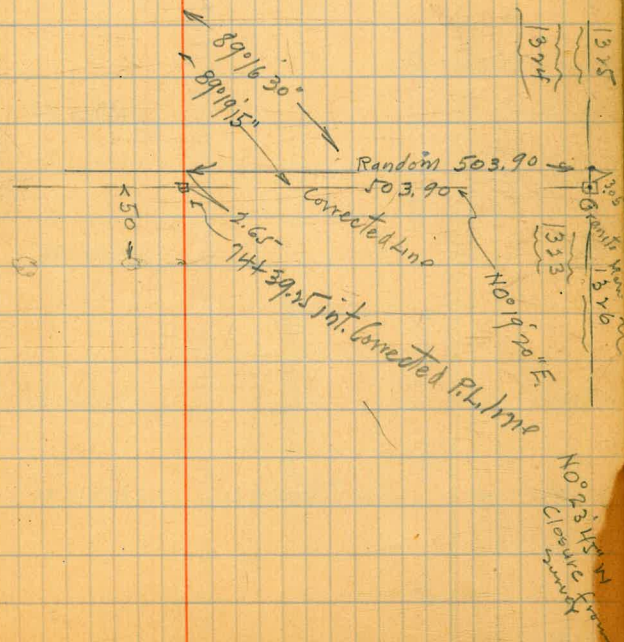
Evenly ptes. Grave

35' = P.C. 72+73. Road Survey (Boo K1034)
(Page 18)

End of Popper Trees

Jog in Grave

74 + 41.90 Int. Random line WL. PL. 1374



Field #3

18+85°

x
140
x

Δ 27° 44' 30" Lt

17+45°

x
160°
x

Δ 66° 34' 30" Lt

15+85°

x
260°
x

Δ 95° 20' Rt

13+25

x
390°
x

Δ 106° 40' Lt

9+30°

x
335°
x

Δ 4° 03' Rt

5+95

x
135°
x

Δ 67° 21' Rt

4+60°

x
70°
x

Δ 27° 03' Rt

3+90°

x
390°
x

Δ 92° 52' Rt

Grain field starts here

0+00 =

59+00 B.S. on 42+80

x N 0° 29' 30" E x N 6° 29' 30" E x S 86° 38' 30" E x S 7° 45' 30" N x S 11° 48' 30" N x N 85° 08' 30" E x S 0° 28' 30" N x S 14° 06' E x N 86° 09' 30" E

from 18+85° to 28+35 field has not been plowed this year to date

Grain field

Hub

Hub

Hub

Hub

Hub

73

N 0° 29' 30" E
 92.52
 93-21.30
 586-38.30 E
 27.03
 559.35.30 E
 67.21 00
 5745.30 W
 4.03 00
 511° 48' 30" W
 106° 40' 00"
 94 51 30
 N 85° 08' 30" E
 95° 30' 00"
 180 28 30
 50° 28' 30" W
 66° 34' 30"
 566° 06' 00" E
 27-44-30
 93 50 30
 N 86° 09' 30" E

leave Gum Grove Here and follow around Edge of Mesa

Eucalyptus Grove

1 35+50°

$\Delta 40^{\circ}44'30''$ Rt

1 32+50°

$\Delta 69^{\circ}45'$ Rt

13 28+35°

$\Delta 74^{\circ}03'30''$ Rt

1 25+85°

$\Delta 94^{\circ}04'30''$ Lt

24+65°

$\Delta 87^{\circ}29'$ Rt

22+50°

$\Delta 48^{\circ}41'30''$ Lt

4 21+80°

$\Delta 69^{\circ}03'$ Lt

20+50°

$\Delta 27^{\circ}57'30''$ Lt

165° x 130° x 70° x 215° x 120° x 75° x 45° x 300°

$\Delta 86^{\circ}09'30''$ E x $\Delta 58^{\circ}12'$ E x $\Delta 110^{\circ}51'$ W x $\Delta 59^{\circ}21'30''$ W x $\Delta 77^{\circ}56'30''$ E x $\Delta 66^{\circ}08'$ W x $\Delta 7^{\circ}55'30''$ E x $\Delta 77^{\circ}40'30''$ E x $\Delta 61^{\circ}35'$ E

74

$\Delta 86^{\circ}09'30''$ E
 $\Delta 27^{\circ}57'30''$
 $\Delta 58^{\circ}12'00''$ E
 $\Delta 69^{\circ}03'00''$
 $\Delta 10^{\circ}51'$ W
 $\Delta 48^{\circ}41'30''$
 $\Delta 59^{\circ}32'30''$ W
 $\Delta 87^{\circ}29'00''$
 $\Delta 27^{\circ}56'30''$ E
 $\Delta 94^{\circ}04'30''$
 $\Delta 66^{\circ}08'00''$ W
 $\Delta 74^{\circ}03'30''$
 $\Delta 7^{\circ}55'30''$ E
 $\Delta 69^{\circ}45'$
 $\Delta 77^{\circ}40'30''$ E
 $\Delta 40^{\circ}44'30''$
 $\Delta 118^{\circ}25'00''$
 $\Delta 61^{\circ}35'$ E

75+30	x	130°	Δ 57° 51' 30" Lt	to 1st fence x	N 34° 12' 30" E
74+00	x	280°	Δ 38° 27' Lt		N 87° 04' E
71+20	x	190°	Δ 23° 39' Lt		S 54° 29' E
69+30°	x	190°	Δ 32° 16' Rt		S 30° 50' E
67+00°	x	230°	Δ 52° 55' Lt		S 63° 06' E
64+90°	x	210°	Δ 22° 15' 30" Lt		S 10° 11' E
62+55°	x	235°	Δ 45° 06' Rt		S 12° 04' 30" W
61+05°	x	150°	Δ 41° 06' Rt		S 33° 01' 30" E
59+80°	x	125°	Δ 30° 13' Rt		S 74° 07' 30" E
57+30°	x	250°	Δ 41° 03' Lt		N 75° 39' 30" E
56+14°	x	116°	Δ 11° 42' Lt		S 63° 17' 30" E
53+14	x	300	Δ 80° 50' 30" Rt		S 51° 25' 30" E
52+60	x	710	Δ 79° 15' 30" Rt		N 31° 31' 30" W
53+14	x	710			N 47° 04' E
45+50°	x	260°	Δ 106° 26' 30" Lt		N 17° 05' E
42+90°	x	530°	Δ 71° 10' Lt		S 33° 55' E
37+60°	x	210°	Δ 27° 40' Rt		S 61° 30' E

PL 1781
 W 1/2 PL 1780
 E 1/2 PL 1785

old 6" x 6" Post P.L. Cor

78+95.60 1st straddle
 75

76

11°55' 40"
269 46 35
89 55 33

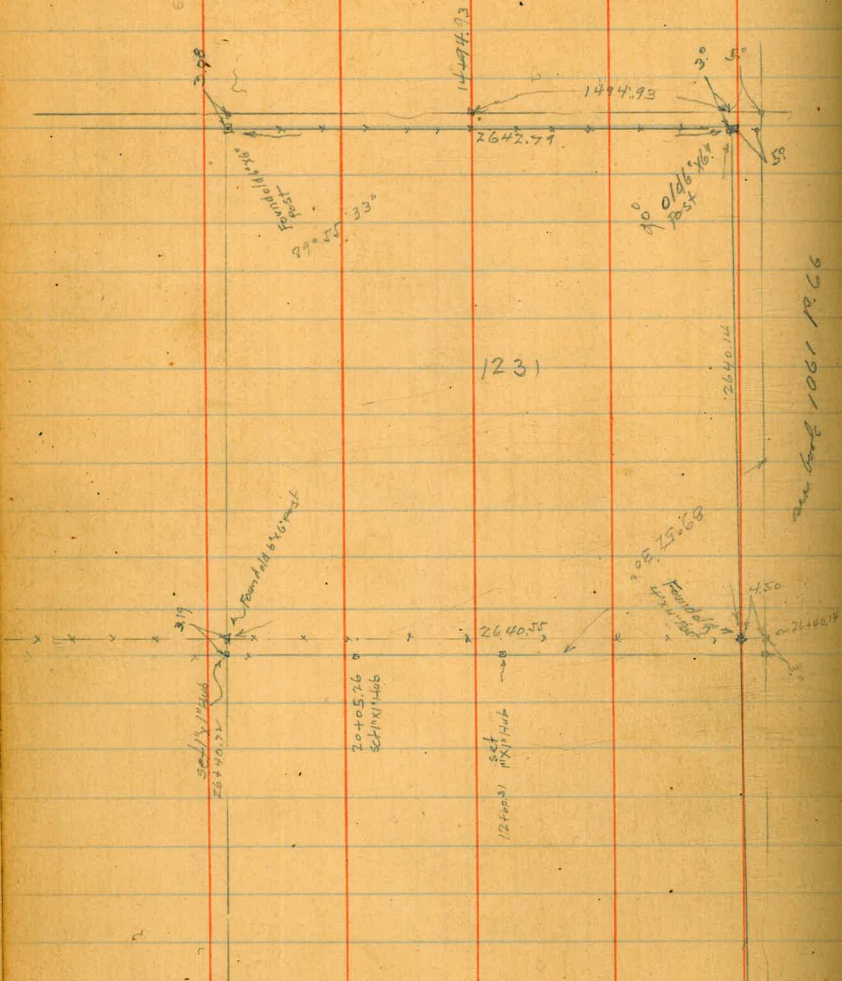
156

95

Williams
Dankle
Evans

Aug. 2 1919

Survey P.L. 1231 (Fletcher)



1231

run long 1061 P. 66

Did not use same corners as

P.L. 1232 FB 1061 P. 66

E.L.B.

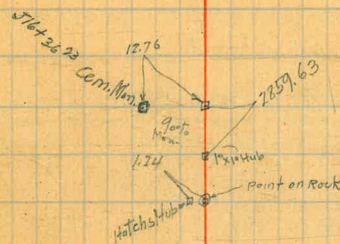
99985	0°59'	500	11
49993			
500.00	00	500	
149993	00	500	
105500			
1494.93	1°22'	500	99972
499.86			49986
71.00			
404.00	1°35'	500	99962
173.00			49981
2642.77			450
			49931
	0°46'	500	99961
			49982
	0°26'	500	99967
			49989

2640.55	2642.74
4.50	5
2645.05	2647.79
4°27' 7.112 0364	2645.05
2646 + 3.422 7348	2645.05
12.532 6762	274
34751	

- #38 12.76 West of Cem. Men
 #37 North of three Poles N. side Mission Valley
 #36 105 South of Pole 90019
 #35 71 South of Pole 90014
 #34 50 N. of Pole 90019
 #33 90 N. of Pole 90029
 #32 8 N. of Pole 90027
 #31 146 N. of Pole 90030
 #30 20 So. of Pole 90033
 #29 128.8 S. of Pole 90041
 #28 57 N. of Pole 90043
 #27 71 N. of Pole 90044
 #26 79 South Pole 90046

2859.63 = 3,456.214
 12.76 91
 17.06 6.392898
 9.849203 7067

4039' 285
 1967 285
 285 285
 49835
 79736
 19934
 2840595
 43.00
 50.00
 377.06
 .22
 377.28



104
 Hatch's Hub

883
 Cem. Men.
 S. side Co. Road
 To Camp Keener

#25 146.5 N. of Pole 90047
 #24 127.6 south of Pole 90049
 #23 142 south of Pole 90053
 #22 3 ft North of Pole 90056
 #21 Granite Mon. S. line PL 123
 #20 4.18 Hatchers Hub 76' south of Pole 90060
 #19 Pole 90063
 #18 4.13 East of Hatchers Hub 125' back of Pole 90062
 #17 opposite Pole 90069
 #16 25' back from Pole 90071 50664
 #15
 #14
 #13 south South Bank San Clemente
 #12 south Bank San Clemente
 #11 mid. Bank San Clemente
 #10 N. Bank San Clemente
 #9
 #8 offset 5' east to Miss pole line
 #7
 #6
 #5
 #4
 #3
 #2
 #1
 #0 Δ at San Clemente

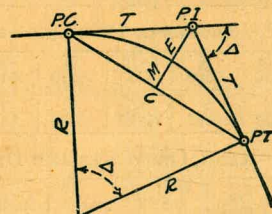
0.59 west of Hatchers Hub.
 25.38 South of from #23
 3"x3" Hub Hatchers
 4.18 Hatchers Hub 76' south of Pole 90060
 Pole 90063
 4.13 East of Hatchers Hub 125' back of Pole 90062
 4.13 to Hatchers Hub
 25' back from Pole 90071 50664
 219 Post SDCG+EGG, Pole # 90086
 4.55 to Hatchers Hub 3"x3" north

Note set 20023 or west. on original map

5' offset 100' 100'

DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

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3.89
 66
 4.53
 2980.87

CURVE FORMULAS

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

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

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

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

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

EXPLANATION AND USE OF TABLES

Stations.—Given P. I. = Sta. 161 + 60.35 to find Sta. of P. C. and P. T. $\Delta = 62^\circ 10'$ $D = 8^\circ 20'$. From Table IV for 1° curve $T = 3454.1$ and $\div 8\frac{1}{3} = 414.49$ ft. From Table V correction = .36 or $T = 414.85$ ft. P. C. = Sta. P. I. - $T = 157 + 45.50$. Also from (4) $L = 746.00$ and P. T. = Sta. P. C. + $L = 164 + 91.50$.

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

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

Externals.—May be found in similar manner to tangents. Thus E for curve above is 115.37 For from Table IV for 1° curve $E = 960.6$ for $8^\circ 20' = 960.6 \div 8\frac{1}{3} = 115.27$ and from Table V correction = .10 or $E = 115.37$ Or suppose $\Delta = 32^\circ$ and E is measured and found to be 42 ft. What is D ? From Table IV $E = 230.9$ and $\div 42 = 5.5$ or $D = 5^\circ 30'$.

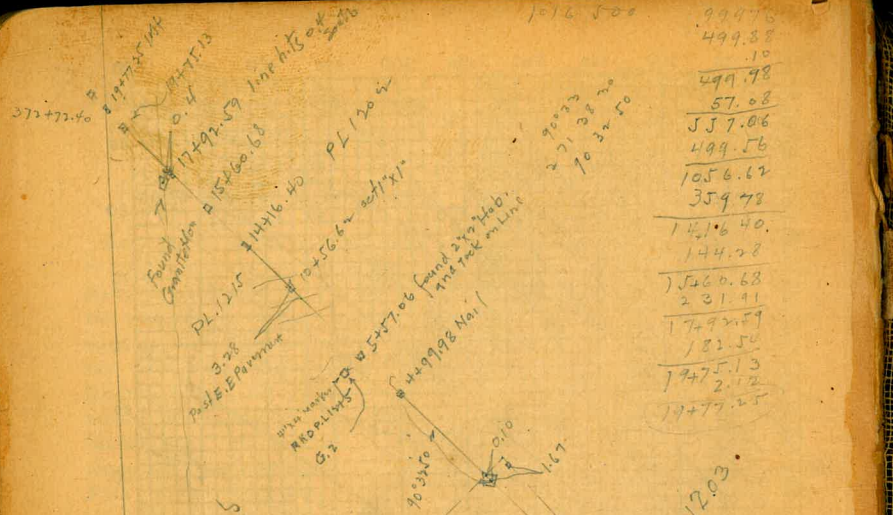
TABLE VIII.—NATURAL TRIGONOMETRICAL FUNCTIONS.

Angle	Sine.	Tan.	Cotg.	Cosin.	Angle	Sine.	Tan.	Cotg.	Cosin.		
32	.5299	.6249	1.600	.84805	58	.30	.6225	.7954	1.257	.78261	30
10	.5324	.6289	1.590	.84650	50	.40	.6248	.8002	1.250	.78079	20
20	.5348	.6330	1.580	.84495	40	.50	.6271	.8050	1.242	.77897	10
30	.5373	.6371	1.570	.84339	30						
40	.5398	.6412	1.560	.84182	20	39	.6293	.8098	1.235	.77715	51
50	.5422	.6453	1.550	.84025	10	10	.6316	.8146	1.228	.77531	50
						20	.6338	.8195	1.220	.77347	40
33	.5446	.6494	1.540	.83867	57	30	.6361	.8243	1.213	.77162	30
10	.5471	.6536	1.530	.83708	50	40	.6383	.8292	1.206	.76977	20
20	.5495	.6577	1.520	.83549	40	50	.6406	.8342	1.199	.76791	10
30	.5519	.6619	1.511	.83389	30						
40	.5544	.6661	1.501	.83228	20	40	.6428	.8391	1.192	.76604	50
50	.5568	.6703	1.492	.83066	10	10	.6450	.8441	1.185	.76417	50
						20	.6472	.8491	1.178	.76229	40
34	.5592	.6745	1.483	.82904	56	30	.6494	.8541	1.171	.76041	30
10	.5616	.6787	1.473	.82741	50	40	.6517	.8591	1.164	.75851	20
20	.5640	.6830	1.464	.82577	40	50	.6539	.8642	1.157	.75661	10
30	.5664	.6873	1.455	.82413	30						
40	.5688	.6916	1.446	.82248	20	41	.6561	.8693	1.150	.75471	49
50	.5712	.6959	1.437	.82082	10	10	.6583	.8744	1.144	.75280	50
						20	.6604	.8796	1.137	.75088	40
35	.5736	.7002	1.428	.81915	55	30	.6626	.8847	1.130	.74896	30
10	.5760	.7046	1.419	.81748	50	40	.6648	.8899	1.124	.74703	20
20	.5783	.7089	1.411	.81580	40	50	.6670	.8952	1.117	.74509	10
30	.5807	.7133	1.402	.81412	30						
40	.5831	.7177	1.393	.81242	20	42	.6691	.9004	1.111	.74314	48
50	.5854	.7221	1.385	.81072	10	10	.6713	.9057	1.104	.74120	50
						20	.6734	.9110	1.098	.73924	40
36	.5878	.7265	1.376	.80902	54	30	.6756	.9163	1.091	.73728	30
10	.5901	.7310	1.368	.80730	50	40	.6777	.9217	1.085	.73531	20
20	.5925	.7355	1.360	.80558	40	50	.6799	.9271	1.079	.73333	10
30	.5948	.7400	1.351	.80386	30						
40	.5972	.7445	1.343	.80212	20	43	.6820	.9325	1.072	.73135	47
50	.5995	.7490	1.335	.80038	10	10	.6841	.9380	1.066	.72937	50
						20	.6862	.9435	1.060	.72737	40
37	.6018	.7536	1.327	.79864	53	30	.6884	.9490	1.054	.72537	30
10	.6041	.7581	1.319	.79688	50	40	.6905	.9545	1.048	.72337	20
20	.6065	.7627	1.311	.79512	40	50	.6926	.9601	1.042	.72136	10
30	.6088	.7673	1.303	.79335	30						
40	.6111	.7720	1.295	.79158	20	44	.6947	.9657	1.036	.71934	46
50	.6134	.7766	1.288	.78980	10	10	.6967	.9713	1.030	.71732	50
						20	.6988	.9770	1.024	.71529	40
38	.6157	.7813	1.280	.78801	52	30	.7009	.9827	1.018	.71325	30
10	.6180	.7860	1.272	.78622	50	40	.7030	.9884	1.012	.71121	20
20	.6202	.7907	1.265	.78442	40	50	.7050	.9942	1.006	.70916	10
							.7071	1.	1.	.70711	45
	Cosin.	Cotg.	Tan.	Sine.	Angle.		Cosin.	Cotg.	Tan.	Sine.	Angle.

TABLE IX.—CALCULATION OF EARTHWORK.

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

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



994.78
 499.38
 10
 499.78
 57.08
 557.06
 499.56
 1056.62
 359.78
 141.640
 144.28
 1526.68
 231.41
 1749.27
 182.54
 1775.13
 212.12
 1777.25

369.58
 9.25
 358.83

360.77
 9.25
 370.00

DISTANCES FROM CENTER OF ROADWAY FOR
 CROSS-SECTIONING.
 Roadway 15 feet wide. Side Slopes 1 on 1 1/2.
 For Single Track Embankment.

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

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