

Federal Aid Project No 19

Pine River - Jenkins Road.

Transit & Level Location Notes.

C. J. White,
Engineer.

FIELD BOOK

361

KEUFFEL & ESSER CO.

DRAWING MATERIALS

AND

SURVEYING INSTRUMENTS.

NEW YORK.

CHICAGO. ST. LOUIS. SAN FRANCISCO. MONTREAL.

Tables for Excavations and Embankments.

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.
ROADWAY 18 FEET WIDE. SIDE SLOPES 1 to 1.
FOR SINGLE TRACK EXCAVATION.

"Copyright, 1895, by Keuffel & Esser Co."

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

Calculated by Julien A. Hall, M. Am. Soc. C. E.

FOR KEITH'S RAILROAD CURVE TABLES SEE END OF BOOK.

E. side street of school Ho
= Sta. 9+93

62 47
74 49

136 96
137° 36'

96509
200

193.0 1800

179° 60
137° 36

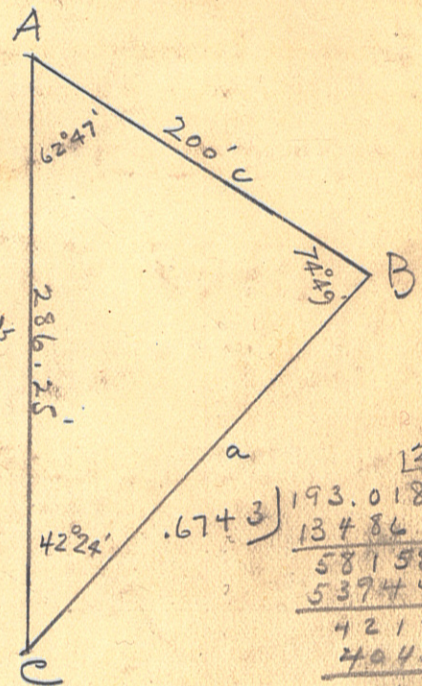
42° 24

201 + 27.8
2 + 86.3

204 + 14.1 b

6743

37215



12862
193.0 18000

13486
58158

53944
42140

40458

16820
13486

33340

sin C : sin B :: c : b
.67430 : .96509 :: 200 : b

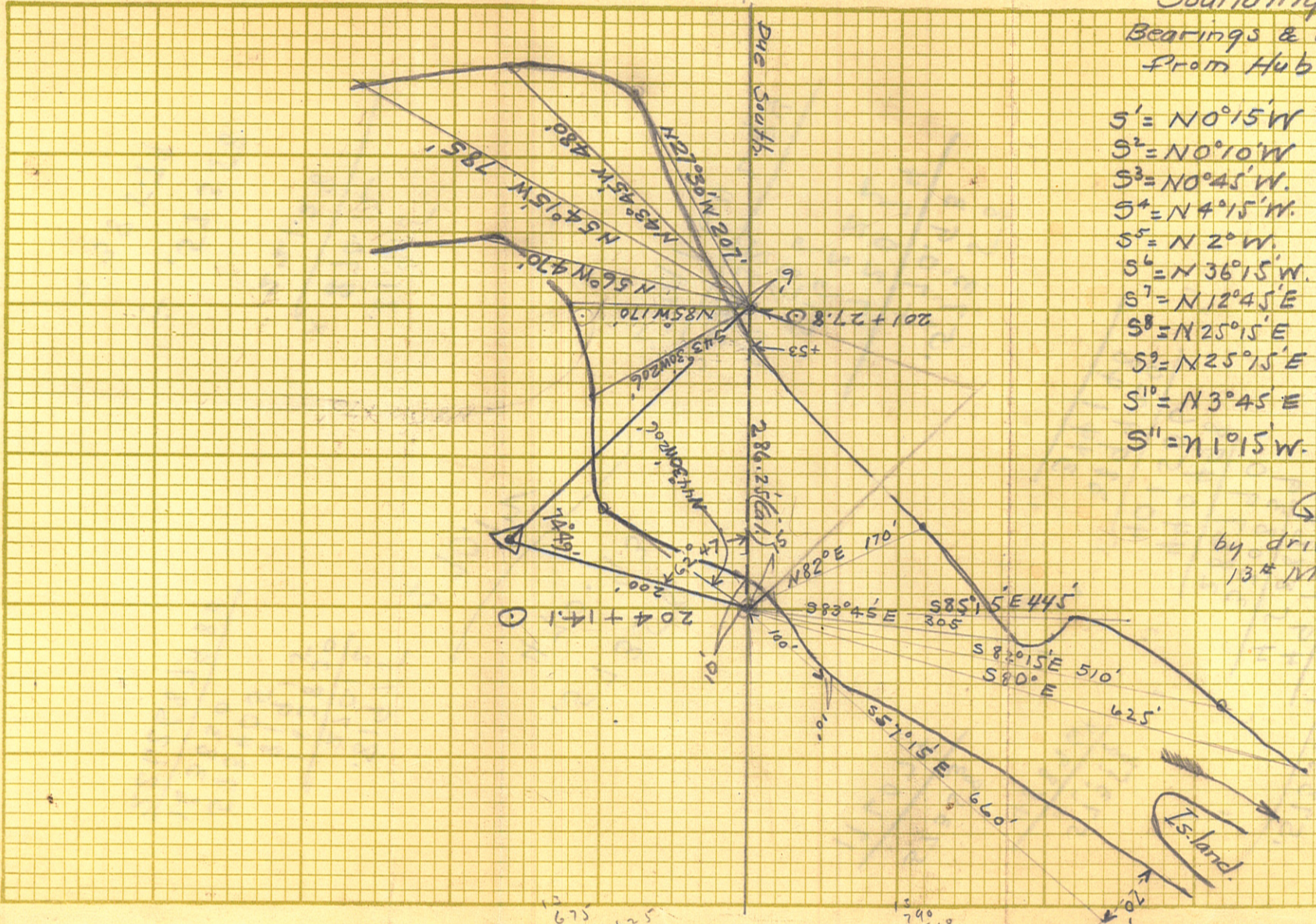
PINE RIVER BRIDGE SURVEY.

Soundings in River

Bearings & Distances
From Hub on S. bank

- S¹ = N 0° 15' W 188'
- S² = N 0° 10' W 140'
- S³ = N 0° 45' W 90'
- S⁴ = N 4° 15' W 43'
- S⁵ = N 2° W 14'
- S⁶ = N 36° 15' W 48'
- S⁷ = N 12° 45' E 89'
- S⁸ = N 25° 15' E 136'
- S⁹ = N 25° 15' E 163'
- S¹⁰ = N 3° 45' E 175'
- S¹¹ = N 1° 15' W 130'

Put down
by driving with
13" Maul.



$$\begin{array}{r} 1385.76 \\ 57358 \overline{) 221.2687980} \\ \underline{172074} \\ 491947 \\ \underline{458864} \\ 330839 \\ \underline{286790} \\ 440498 \\ \underline{401506} \\ 389920 \\ \underline{344148} \end{array}$$

$$\begin{array}{r} 57358 \\ \underline{172074} \\ 458864 \end{array}$$

$$\begin{array}{r} 57358 \\ \underline{172074} \end{array}$$

$$\begin{array}{r} 57358 \\ \underline{470.93} \\ 172074 \\ 516222 \\ 401506 \\ \underline{229432} \\ 270.160294 \end{array}$$

$$\begin{array}{r} 57358 \\ 470.93 \end{array}$$

$$270.12$$

$$\begin{array}{r} .81915 \\ 270.12 \\ \hline 163830 \\ 81915 \\ \hline 573405 \\ 163830 \\ \hline 221.2687980 \end{array}$$

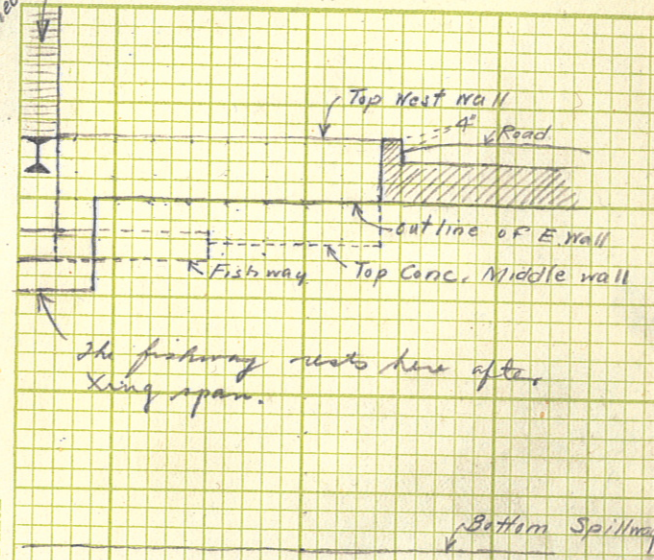
$$\begin{array}{r} .81915 \\ \times 270.12 \\ \hline 221.28 \end{array}$$

$$\begin{array}{r} \div .57358 \\ = 385.79 \end{array}$$

267
11.2

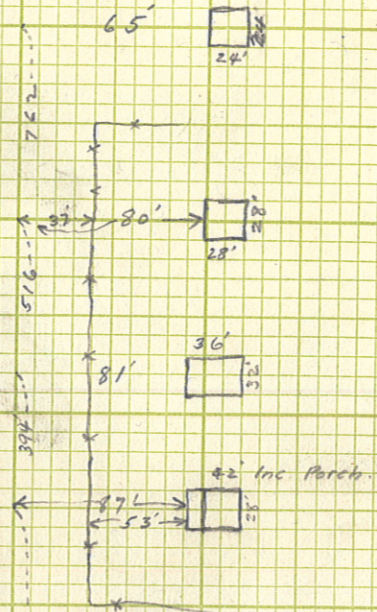
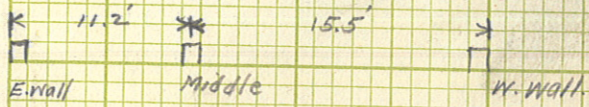
Bldgs. on St.

Wheel Ho

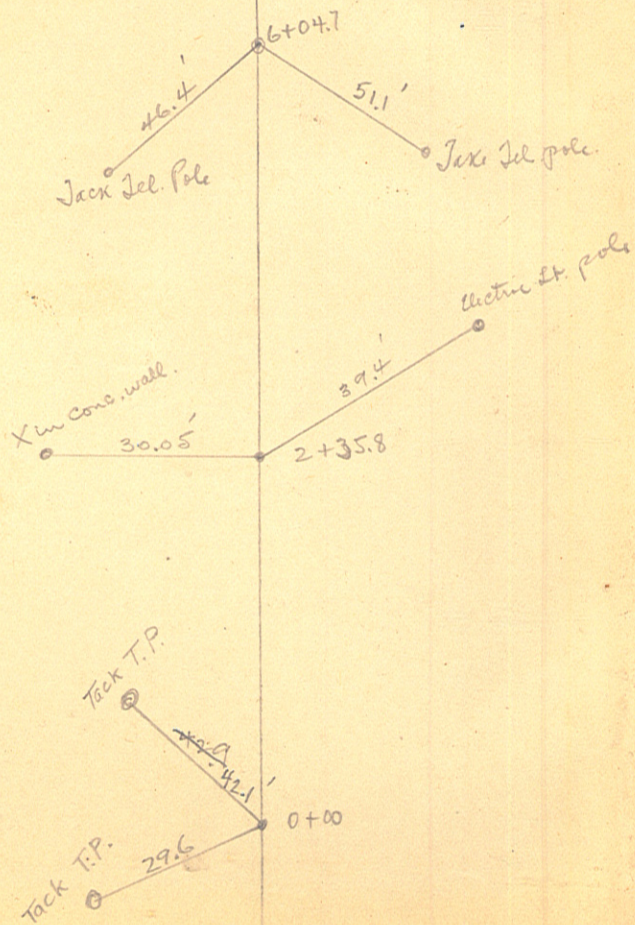
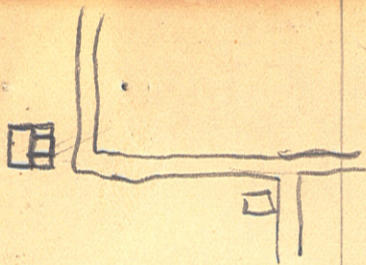


10 Lines = 1 Inch

End View Looking West
Scale 1" = 5'



Δ 20+06.6(?) 1/2



INDEX

	P.
Pine River-Jenkins Road Transit Notes---	1 & 2
" " " " " " " ---	4-21
Alignment of Offtake ditch 344+73---	22-25
Levels " " " " " ---	26-31
Levels & Sections #19-station to 196 ---	40-51

Using Var. 8°

0

A

~~N 100°~~

B 79.

N 68° 40' E.

+01² Δ R. 37° 51' = 0+00 Remer Road.

14 N 30° 50' E.

+41² Δ L. 9° 44' = Intx. of E Barclay Ave. with
= 1/4 Line 4th St.

13

12

11

10

+93

+33

9

8

7

+33

6

+73

5

4

3

+73

+13

2

+33

0+00

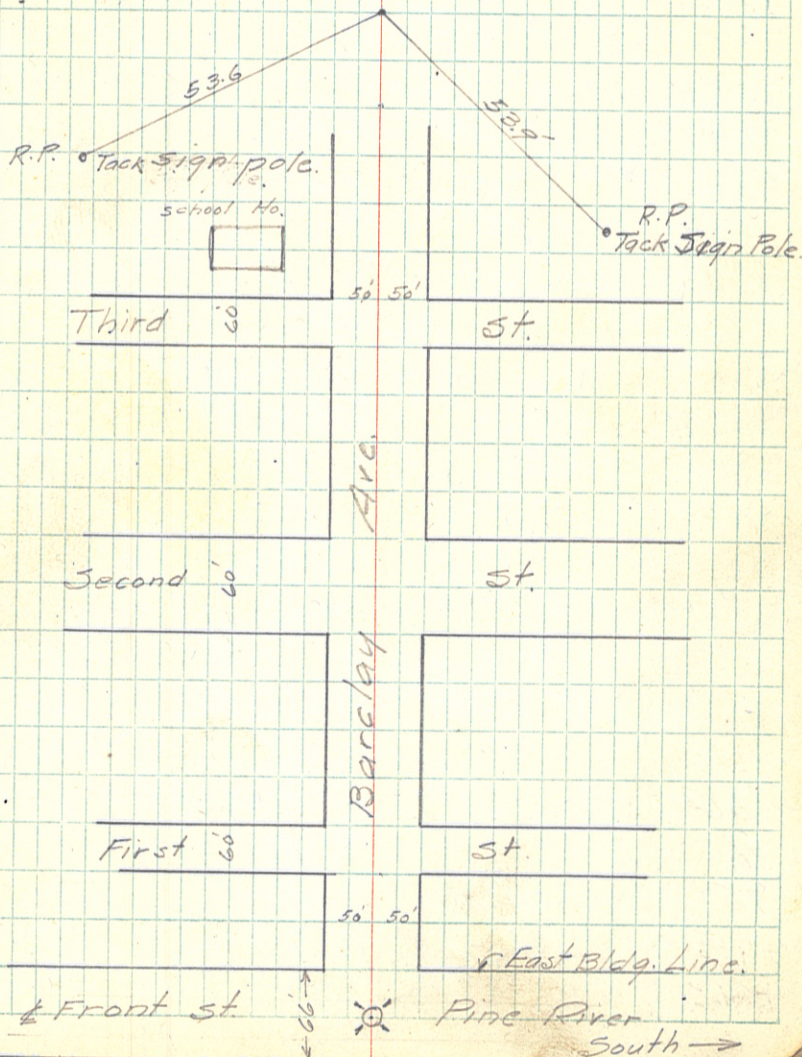
N 40° 15' E.

6-18-19
Bright & Hot.
C.J.W. - S.D. - F.M.

68 40
30 50
37 50

Over Dam

40 15
30 50
9 25



0 Δ Brq.

Continued on P. 4.

+ 362 Δ2543' R. 585° E. = sta. 2+35⁸ P.R. - Remer

16

15

+ 745

+ 65

Road.

Spillway at Dam.

Dam

16+61⁵

16+46⁰

16+34⁵

16+20

16

15

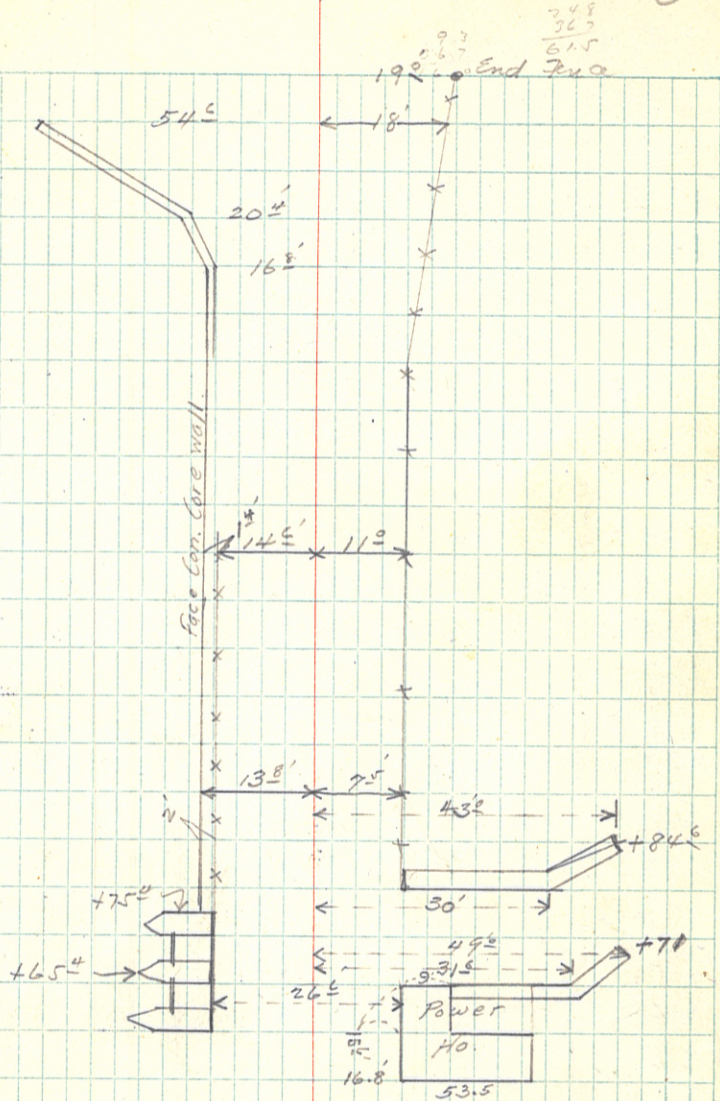
14+65

+50

14+34⁵

SURVEY. 6-18-19

3

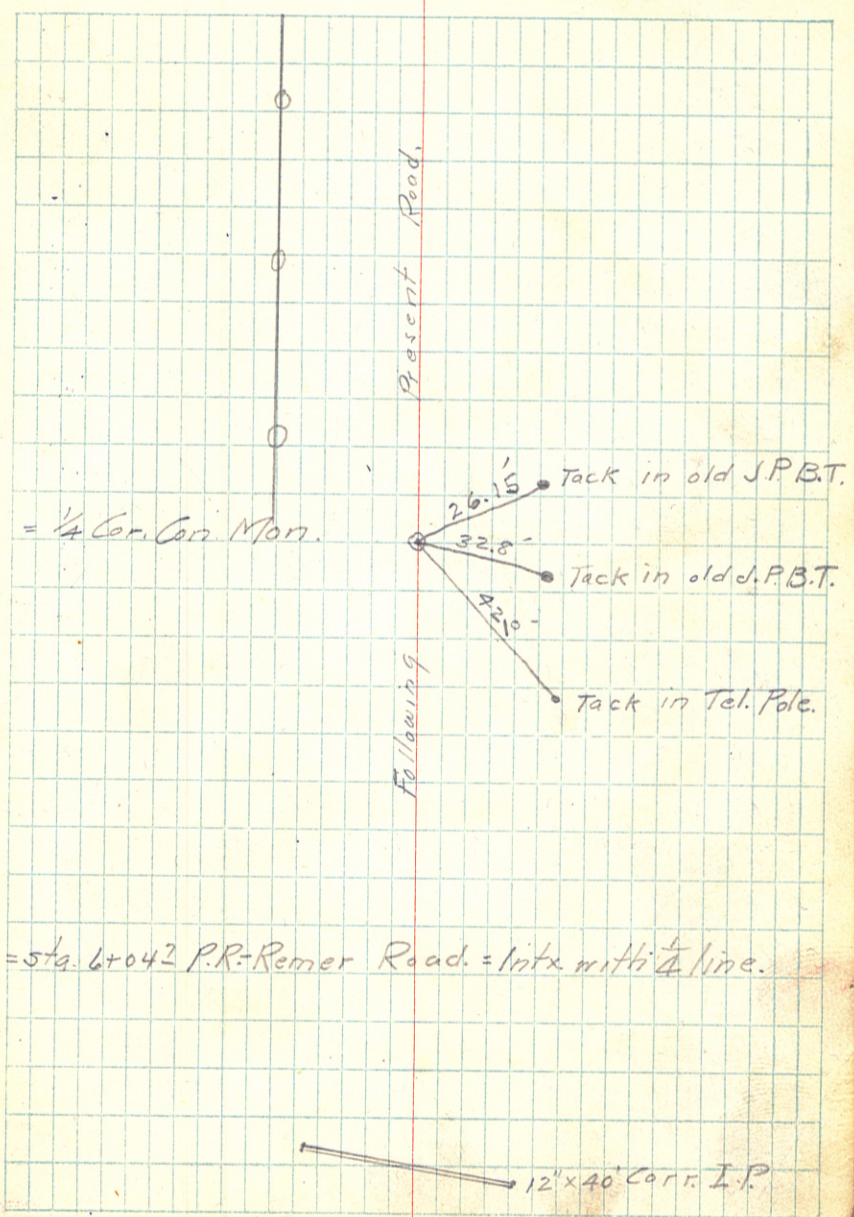


38
 37
 36
 35
 34
 33
 32
 31
 30
 29
 +68³
 28
 27
 26
 25
 24
 23
 22
 21
 +06⁶
 20
 19
 18
 +64
 17

$\Delta 93^{\circ}20' L. 78945' E.$

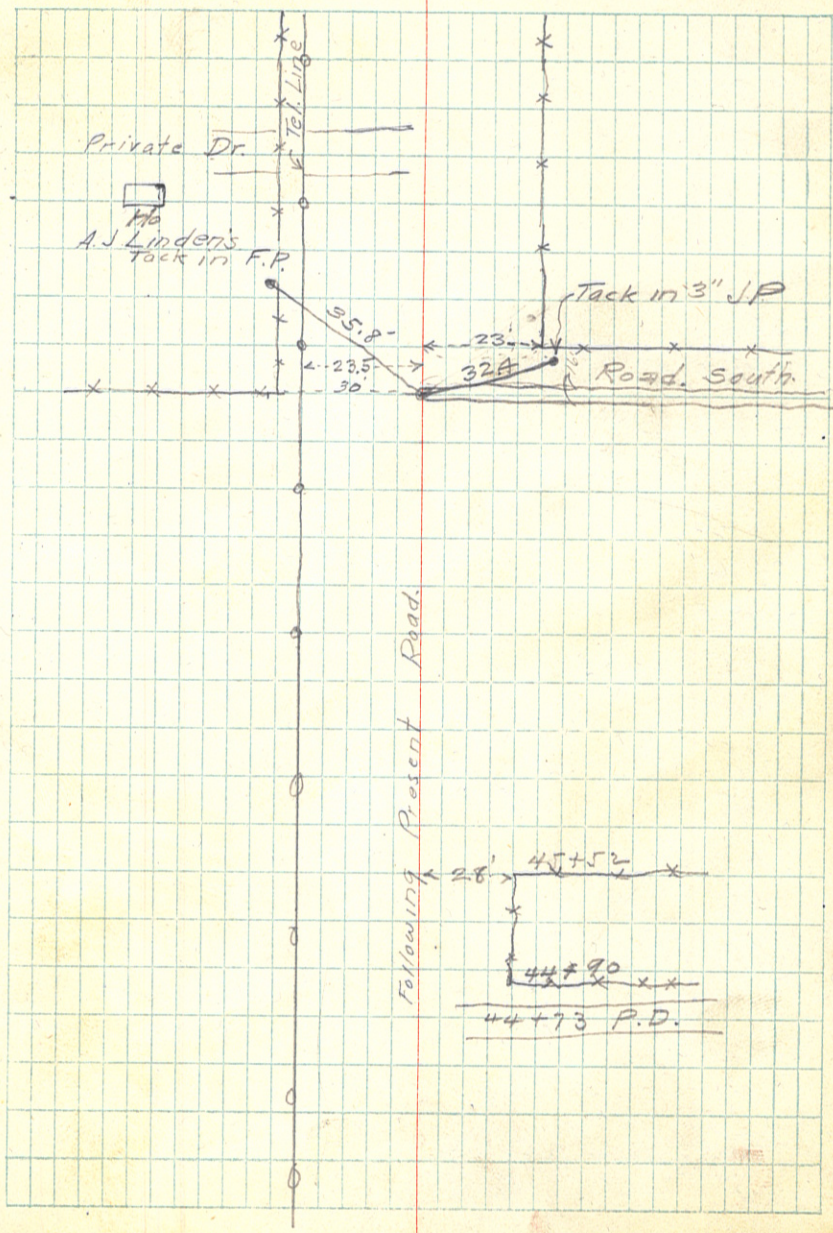
$\Delta 88^{\circ}28' R. 53910' W.$

Running East.
 (Going South on $\frac{1}{4}$ line)

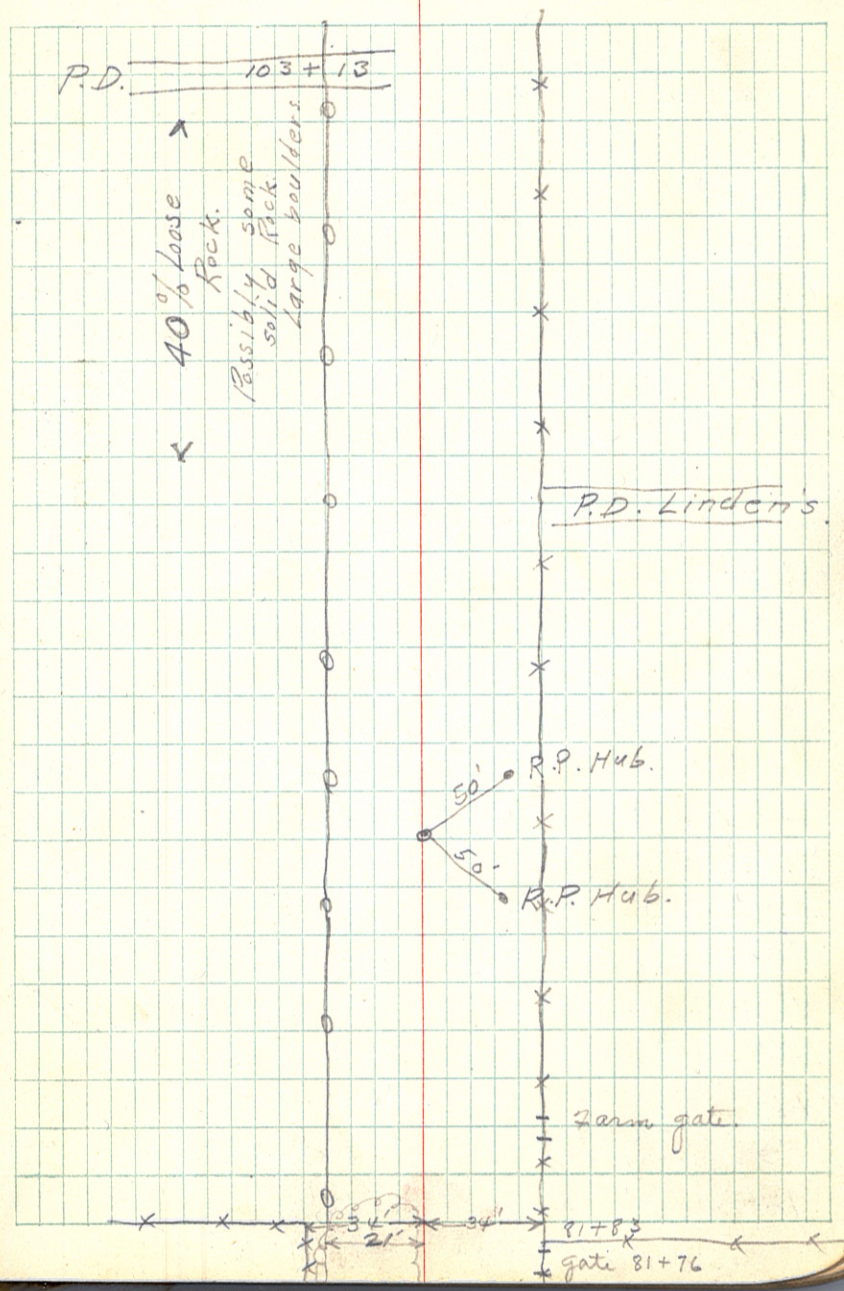


60
 59
 + 17
 58
 57
 56
 + 732
 + 402 $\Delta 0^{\circ}12'R$ $N 89^{\circ}25'E$ Due East 2" I.P. Sec. Cor.
 55 Cor. for Sec 31 & 32-108-29
 54 + Sec. 6 & 5-137-29
 53
 52
 51
 50
 49
 48
 47
 46
 45
 44
 43
 42
 41
 40
 39

Running East.



- 103
- 102
- 101
- 100
- 99
- 98
- 97
- 96
- 95
- +90
- 94
- 93
- 92
- 91
- 90
- 89
- 88 ○ P.O.I N89°25E
- 87
- 86
- 85
- 84
- 83
- +70
- 82
- +90

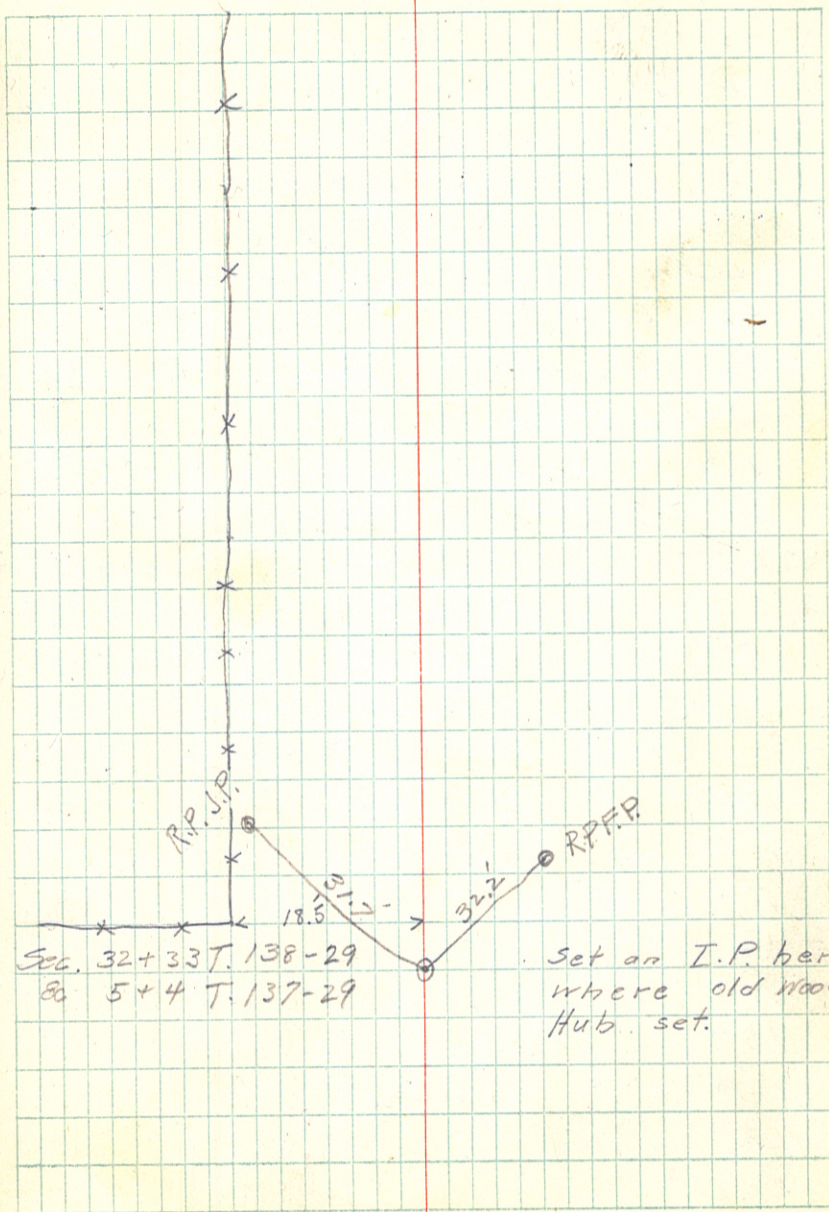


⊙ M.B. T.B.

126	
125	
124	
123	
122	
121	
120	
119	
118	
117	
116	
115	
114	
113	
112	
111	
110	
109	
+ 52 ⁸	
+ 26 ⁸	50°02'E
	Δ 90°33'R. 50°40'W.
108	
107	
106	
105	
104	

Running South.

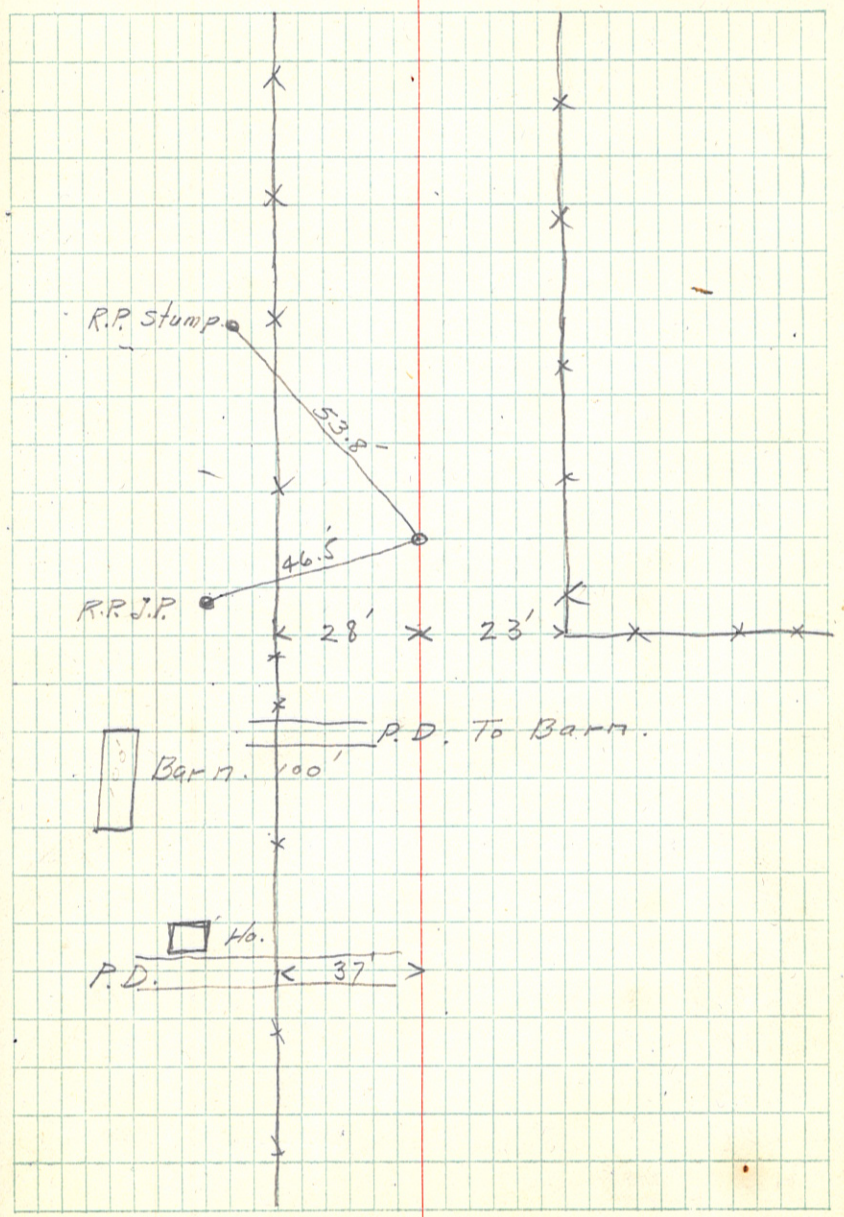
sec. Cor.



Sec. 32+33 T. 138-29
Sec. 5+4 T. 137-29

Set an I.P. here
where old wood
Hub. set.

- 147
- 146
- 145
- 144
- 143
- 142
- 141
- 140
- 139
- 138
- 137 \odot P.O.T. J.P. Hub. 50°02'E
- 136
- +75
- 135
- +90
- +40
- 134
- 133
- 132
- +75
- 131
- 130
- 129
- 128
- 127



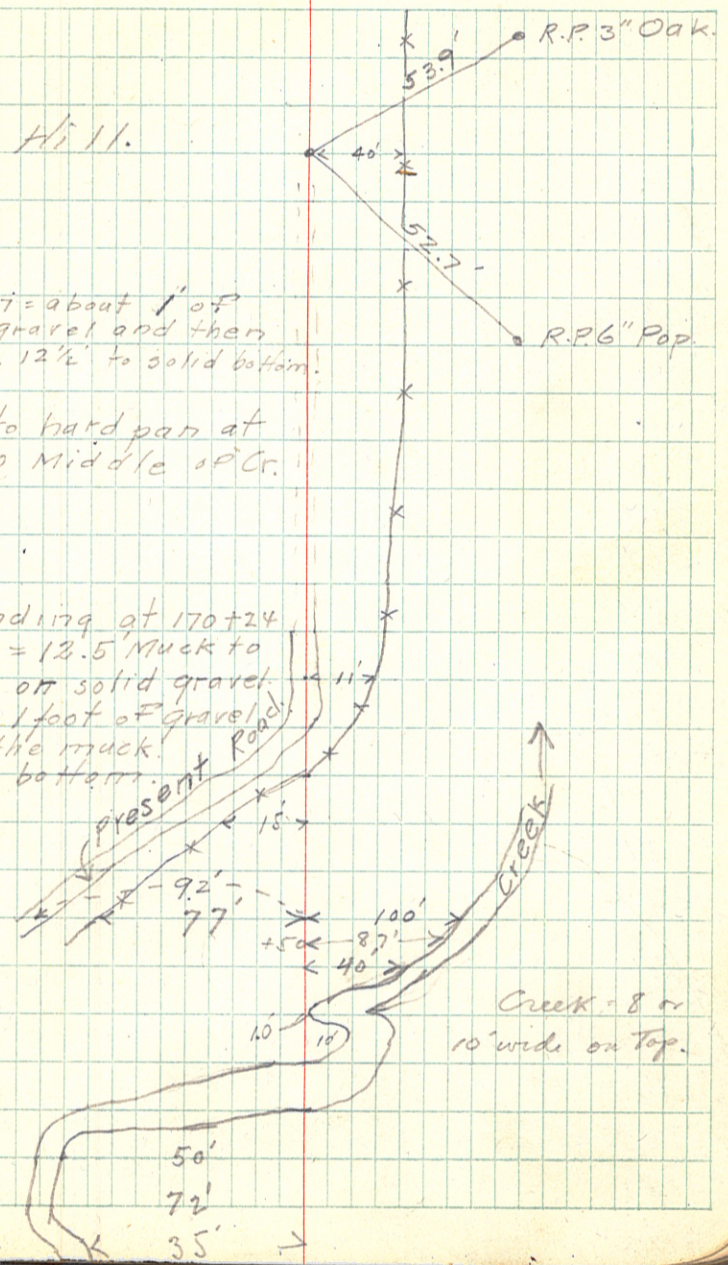
187
 186
 +75.9 ○ S0°22'E P.O.T. Oak Hub.
 185
 184
 183
 182
 181
 180
 179
 178
 177
 176
 +50
 175
 +66
 174
 173
 172
 171
 +41
 +24
 +16
 170
 169
 168+50

Top Hill.

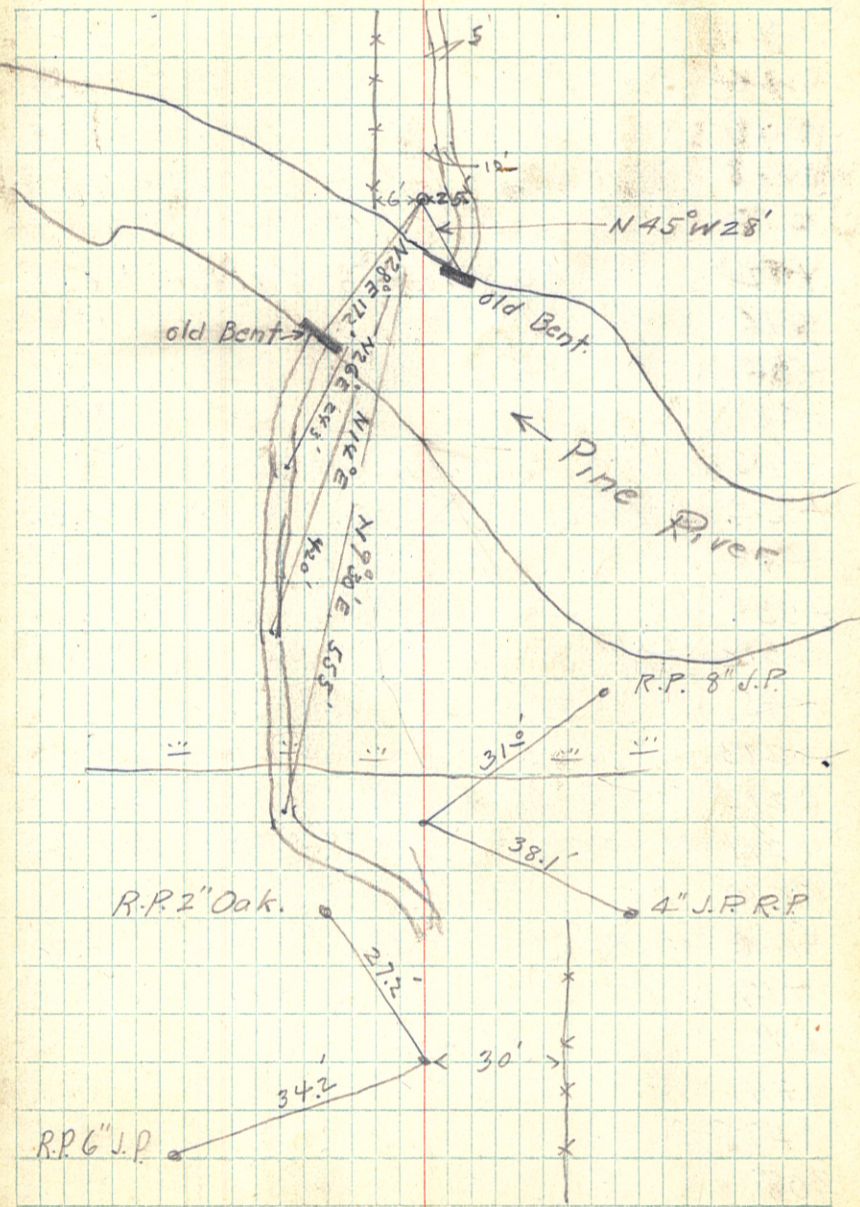
170+17 = about 1' of
 Loose gravel and then
 Muck. 12 1/2' to solid bottom.

12 1/2' to hard pan at
 170+20 Middle of Cr.

Sounding at 170+24
 ON E = 12.5' Muck to
 Rock on solid gravel
 about 1 foot of gravel
 over the muck.
 on Cr. bottom.



207
 206
 205
 + 14.1 @ P.O.T. Oak stake.
 + 05
 204
 203
 202
 + 53 N. River bank.
 + 278 @ P.O.T. J.P. Hub.
 201
 200
 199
 198
 197
 + 25 Enter River Bottoms.
 196 @ P.O.T. J.P. Hub.
 195
 194
 193
 192
 191 @ P.O.T. Oak Hub.
 190
 189
 188



221
 220
 219
 218
 217
 +92
 216
 +94
 +216
 215
 +95
 +48
 +33
 214
 +45
 213
 212
 211
 210
 +63⁸
 +17
 209
 +91
 +75
 208

Log in R/W Fence to C.G.

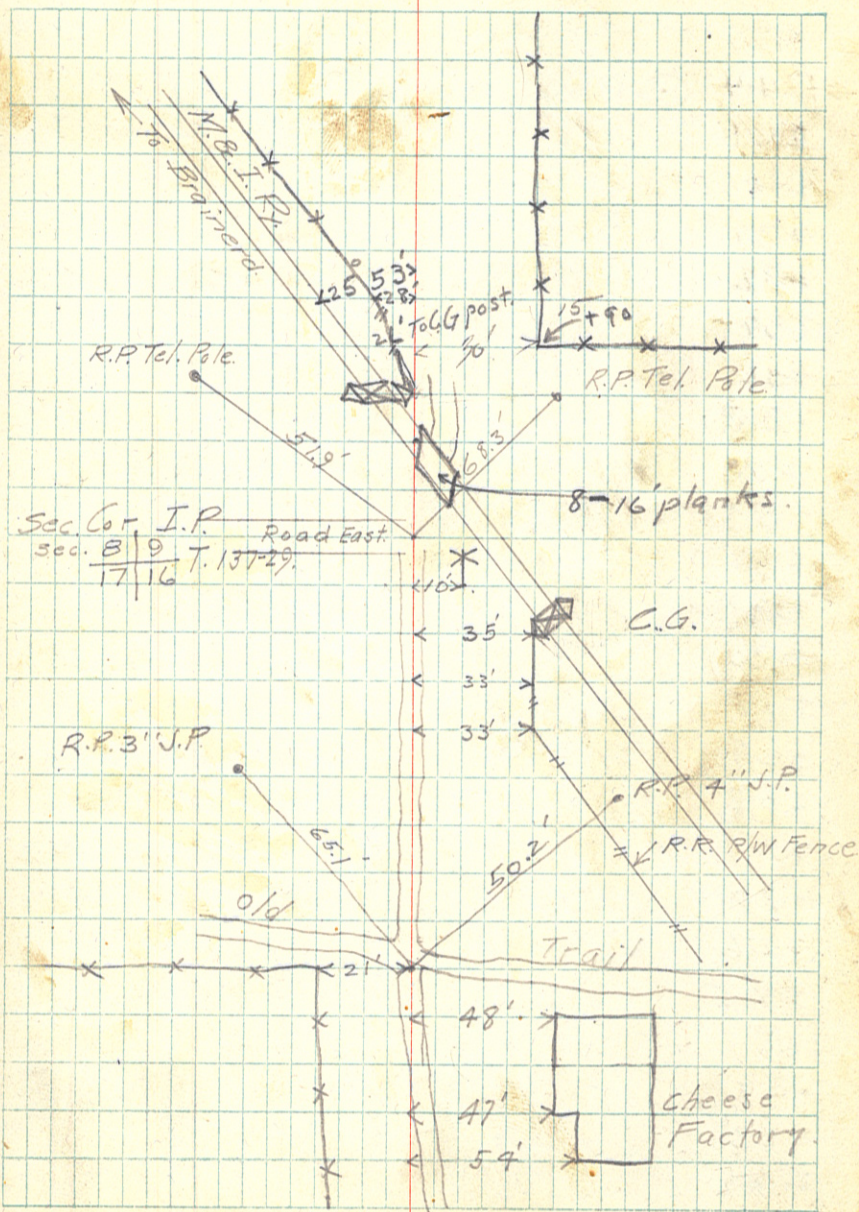
$S1^{\circ}30'E$,
 $\Delta 1^{\circ}08' L. 50^{\circ}45'E.$

⊙ P.O.T.

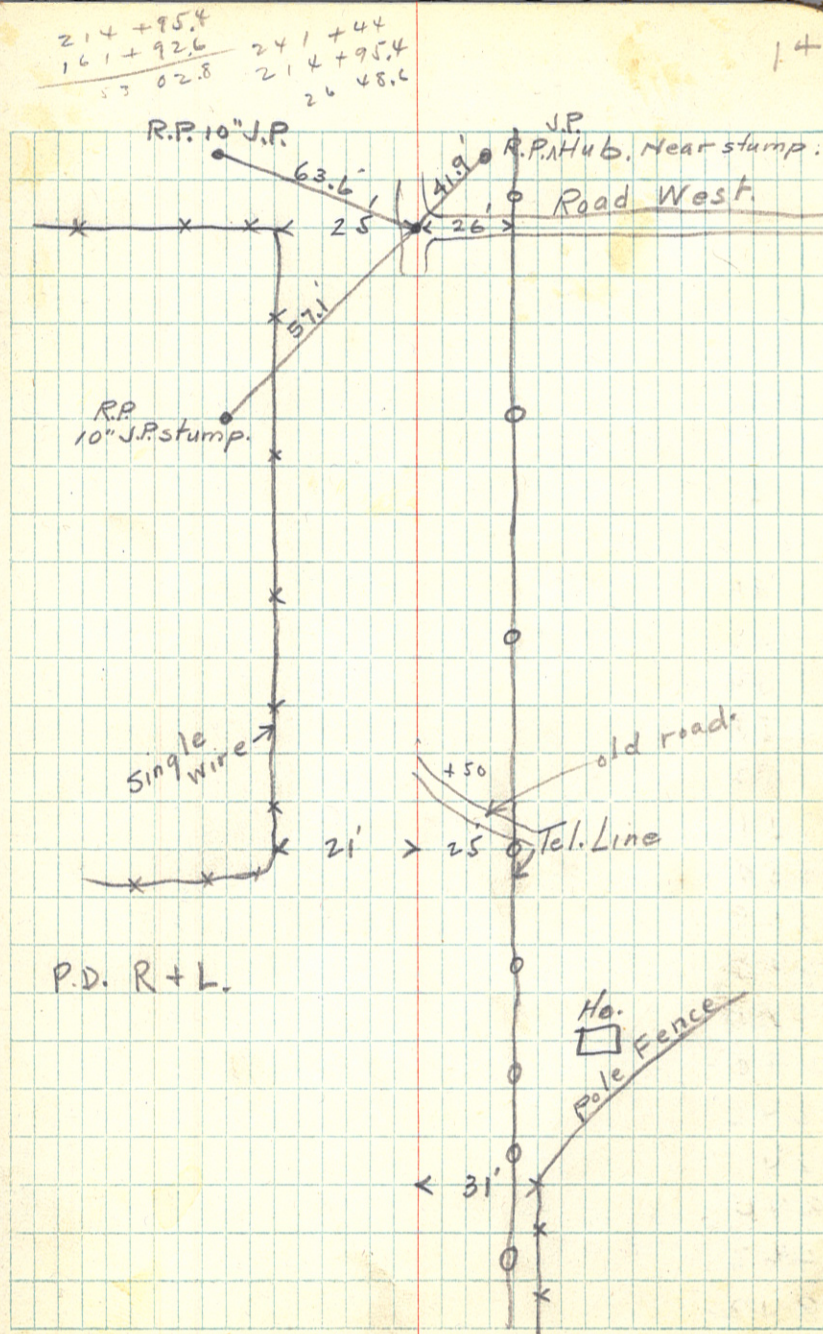
CJW - JFP - F.M.
S.J. - O.R.

Rain at 4 P.M.
6-22-

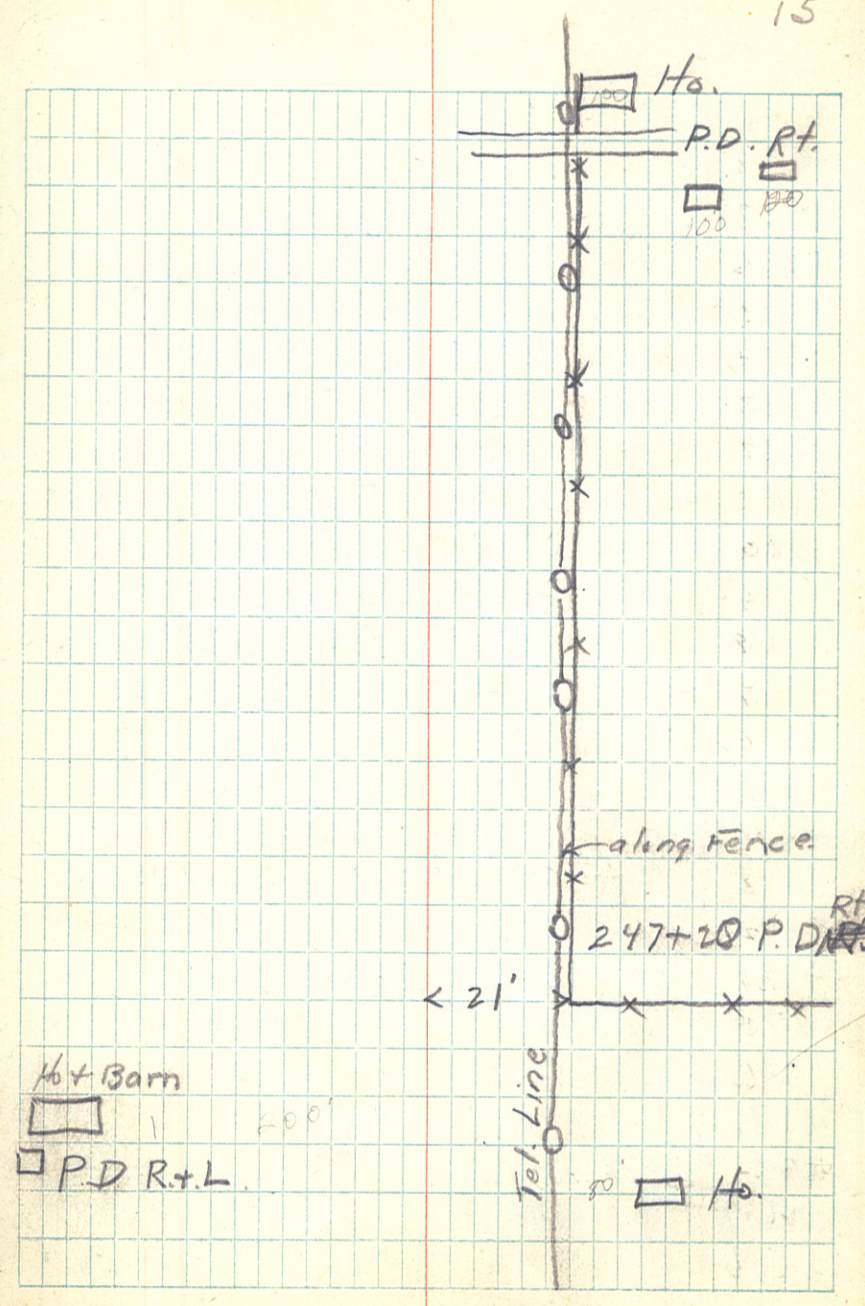
13



+ 44 \odot P.O.T. $S 0^{\circ} 45' E$ $\frac{1}{2}$ Cor. I.P.
 241 Bet. Sec. 16+17
 240 137-29.
 239
 238
 237
 236
 235
 234
 233
 232
 231
 230
 + 18
 229
 228
 227
 + 77
 226
 225
 + 68
 224
 223
 222

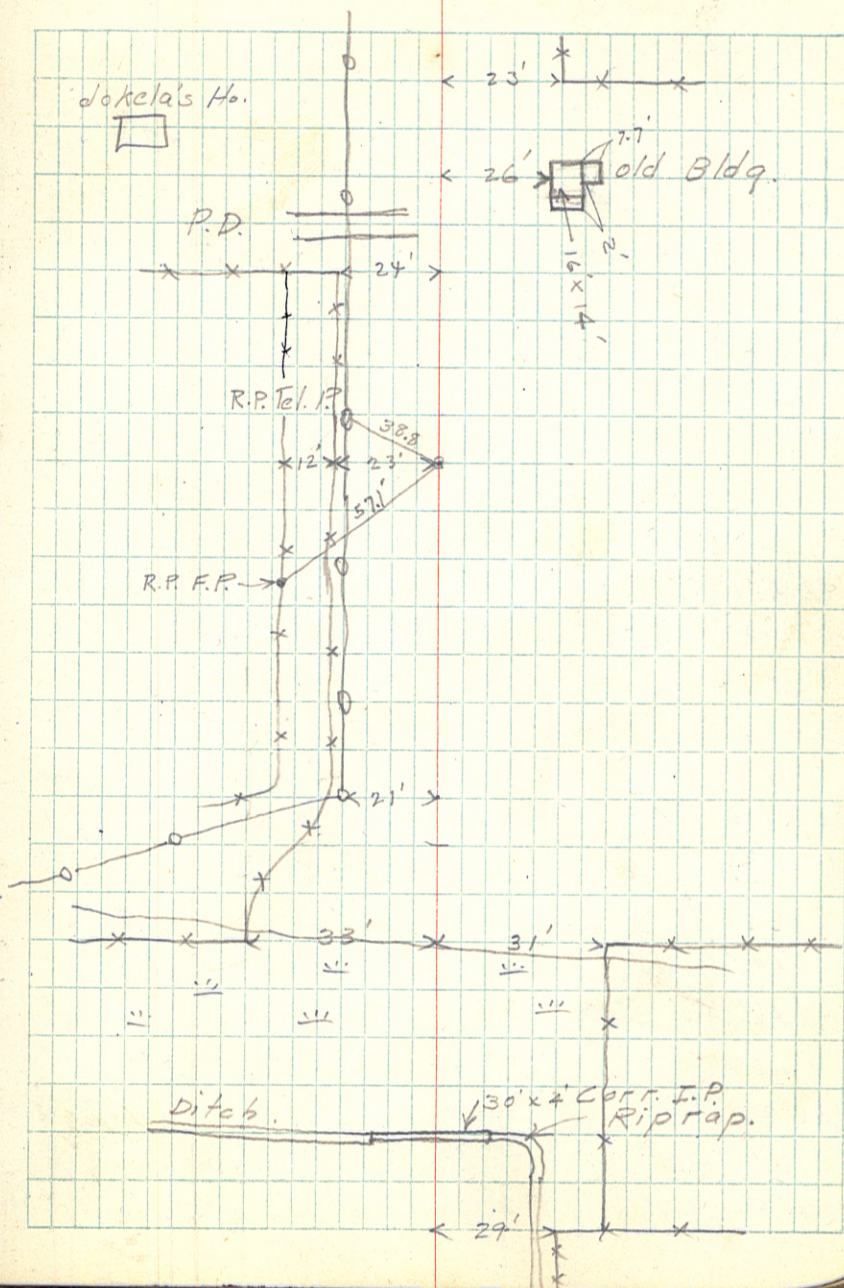


- 5
- 4
- 3
- 2
- 1
- 260
- 59
- 57
- 57
- 56
- 55
- 54
- 53
- 52
- 51
- 250
- 249
- 248
- +20
- 247
- 246
- 245
- 244
- 243
- 242



+77
 +50
 07
 +81
 +24
 06
 05
 04
 03 ○ P.O.T. Hub.
 02
 01
 300
 299
 298
 297
 +50
 296
 295
 +39
 294
 293
 292
 +10
 291
 +07

Leave Swamp.



100°
59'4
10'

$0^{\circ}59'2''$ ← True angle.
 $\Delta 0'14'' R.$ Due South
 on Random Line
 Sec. Cor. $\frac{20}{29}$ | $\frac{21}{28}$
 Cor. Mor.

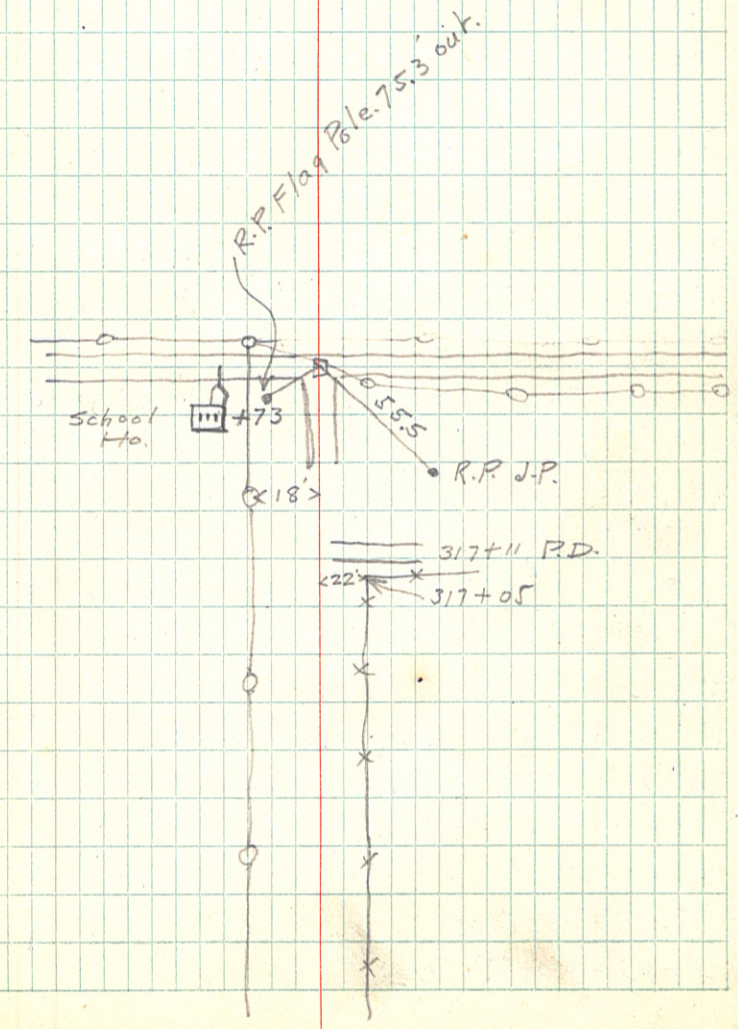
1899
 320
 19
 18
 17
 16
 15
 14
 13
 12
 11
 310
 09
 308.

Hot.

320+89.9
 267+92.1
 5297.8

6-24-19
 CJW - J.F.P. - S.J. - F.M. 18
 O.R.

137-29



Random line South 6-24-19
bet. Sec. 28 & 29 - 137-29.

19

see next Page For Sketch of Random Line

At 373+86 ^S Sec. Cor. sets 69.8' west. at

At 366+50 Enter heavy Brush
At 366 Hub.
At 360 Enter open swamp.

At 359+00 Hub.

At 358+30 Leave open swamp

At ~~35~~

At 355+75 Enter open swamp.

At 350 Hub. Leave Open Swamp. Enter

At 339 Leave brush. enter open swamp.

At 335 Enter Brush + low ground - swampy

At 1210.1 S = 333+00 Hub.

0+00 = 320+89.9 Due South. Var. 8°30'

of Random Line

90°

Jam.

Enter point of High land.

high land + brush

Cross ditch at 344+73
36" pipe req'd.

start Random Line South thra brush.

373+86^E A -
 373+86^Z O

366+00 Hub.

360+62.2 $\frac{1}{16}$ Cor. set on True Line.

359+00 Hub

350+00 Hub.

347+38^L $\frac{1}{4}$ Cor. set on True line.

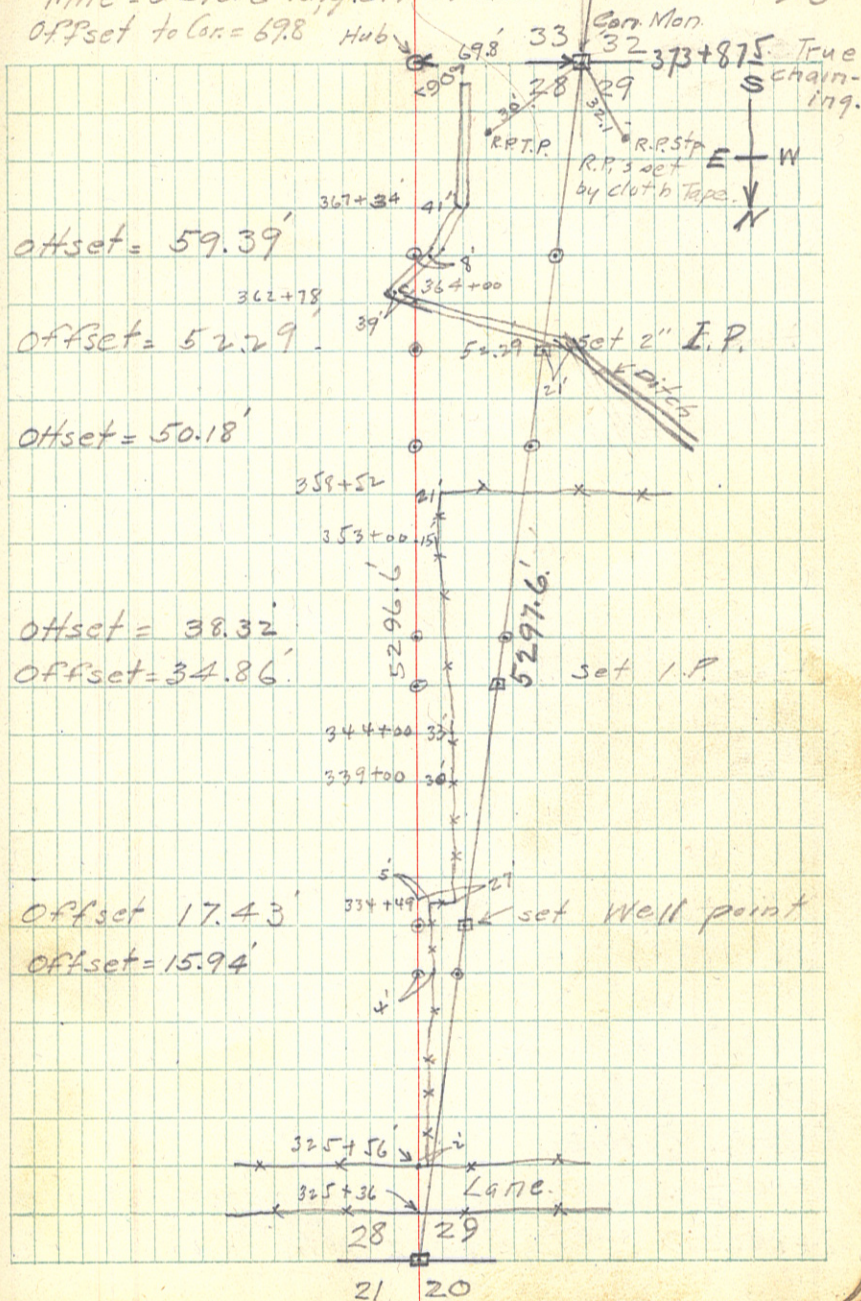
334+14^O $\frac{1}{16}$ Cor. set on Trueline

333+00 Hub.

320+89.9 40°14' R. Due south. Var. 8°30'

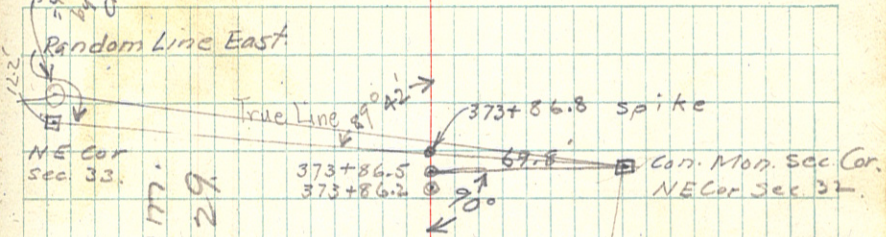
Rate of Correction = 0.01317 per Ft.
 Mile = 5296.6 long. on Random Line.
 Offset to Cor = 69.8 Hub

20



Random Line East

along N. side Sec. 33-137-29²¹



Running East on Random.
Along N. side sec 33-137-29

Random Line South.

True Line.

sta 374+84 = 12" x 20" Corr I-P
Under E+W Road.

N+5 Random at sta. 373+86.8 on Random.
LINE

427+06⁵ ○ Hub. At. 90° the Cor sets 12.2' South.
406+80² ○ Hub.
392+80² ○ Hub.
374+92⁰ ○ spike. Intersection with
374+22.2 ○ Due East. 830' at. NE Cor Sec. 32
137-29.