

150

29-138-27

Slot

152



IVY LEAF



No. 1202

N<sup>o</sup> 150

Sec 29-138-27. Stots Survey

SUBDIVISION

Co WORK

INDEX.

US Notes 1 & 4. -

Field Notes Pages 5-

Board Sheet 14-20-37

Time Sheet 15-21-36

49-51-56-57-59-60-66-

Maps 1-7-9-23-25-27-29-31-38-40-47-48

Corrections - 31-32-

0  
H.B. Scott NW  $\frac{1}{4}$  & NW  $\frac{1}{4}$ .

F.M. Scott SW  $\frac{1}{4}$  & NW  $\frac{1}{4}$  & SE  $\frac{1}{4}$  & NW  $\frac{1}{4}$ .

M.T. Hamlett N  $\frac{1}{2}$  & NW  $\frac{1}{4}$  & SW  $\frac{1}{4}$  N  $\frac{1}{2}$  & NE  $\frac{1}{4}$  & SW  $\frac{1}{4}$ .

Dick Hamlett S  $\frac{1}{2}$  & NE  $\frac{1}{4}$ .

Edwards S  $\frac{1}{2}$  & SW  $\frac{1}{4}$  & S  $\frac{1}{2}$  & N  $\frac{1}{2}$  & SW  $\frac{1}{4}$ .

T138 P27.

58  
3 x 8  
3 x 8  
38.28

19

20

21

680  
6210  
= 32.5

Red Oak 6N14W15  
WB 30 54.6E 20 = 13.20

(94) (Var)  
8000

AS 10S14E14  
WB 12S19W104  
" 16N32E94  
" 28N43W49

Red Oak 6N14W15  
WB 30 54.6E 20 = 13.20  
" 16N32E94  
" 28N43W49

(29)

AS 8N8W16  
WB 6S6E20  
(10° Var) 8000

WB 7N9E14  
WB 6N8W202

(Var 10°17'E)  
39.90

WB 17N65W43  
" 17N70E61

(10° E)

WB 30N45E110  
" 16N30W44  
" 10S20E52  
" 10S45W76

32

33

10° Var.  
80.00

North bet. Sec 33 & 34

Var  $10\frac{1}{2}^{\circ}$  E.

40.00  $\frac{1}{4}$  cor.

W.P. 20 S 45 W 15  
" " 34 N 62 E 22

80.00 cor to sec. 33, 34, 27 & 28

W.P. 24 N 71 E 38

" " 24 N 41  $\frac{1}{2}$  W 27

" " 20 S 30  $\frac{1}{2}$  E 32

Y.P. 18 S 22 W 22

East bet sec 28 & 33

39.65  $\frac{1}{4}$  cor.

Y.P. 14 N 7 E 32

W.P. 20 S 24 W 46

North bet 20 & 21 Var  $10^{\circ}$  E

40.00 Set  $\frac{1}{4}$  Cor.

Red Oak 7 S 60 W 24

N. P. 5 N 65 E 30

80.00 cor to sec 16, 17, 20 & 21

Charred Stump N 30 E 41

" " S 40 E 21

North bet 19 & 20 Var  $9\frac{1}{2}^{\circ}$  E

(40.00) W.P. 30 N 82 W 20

Aspen 10 S 47 E 25

(8900) Cor to sec 17, 18, 19, 20

W.P. 24 N 11  $\frac{1}{2}$  E 27

" " 20 N 33  $\frac{1}{2}$  W 70

" " 20 S 34  $\frac{1}{2}$  E 18

" " 35 S 42 W 70

Town Line.

Cor to sec 45, 32 & 33.

Tam 5 N 48 E 119

W Birch 6 N 84 E W 161

Tam 4 S 60 E 105

Aspen 8 S 19 W 126

Cor to sec 5, 6, 31 & 32

W Birch 4 N 43 E 24

Aspen 12 S 58 E 9

" 12 S 38 W 37

" 12 N 82 W 12

Range Line

Cor to sec 25, 30, 31 & 36

Aspen 10 N 15 E 21

W.P. 9 S 77 E 46

" " 8 S 57  $\frac{1}{2}$  W 46

Y.P. 9 N 50 W 31

4

Cor to sec 19, 30, 24 & 25

Y.P. 16N 18E 94

D.P. 14 S 13 E 8

W.P. 20 S 15 W 50

Y. 16 N 50 W 64

(5)

Dec 6 1920

John W Carr, starts  
Survey.

Dec 20 1920.

Starting at the SW cor of  
 Sec 29 Iron North @ 8° Var  
 @ 300, 600, 900, 1200 spike.  
 1500, 1800 spike 2100, 2400  
 2700 spike, 3000, 3300 spike  
 3600, 3900 spike 4146 Old road  
 runs E & W 4200 — 4500  
 quite for Night.

Dec 21/1920

Starting at 4500 N we continue  
line N @ 4800, 5100 5251 + 33 ft  
so that it will bring the S.W. Cor  
of sec 29, 33 ft south & 33 ft west  
of an old fence corner -

5251 + 33 = 5284 N.

N 88° 45' E 38.1 all spikes on line



Dec 21 1920

Starting at the S W cor of sec.  
29 and 33 ft south of a fence run-  
ning E run random line E.  
a 300, 600 spike on line 900, 1200  
spike on line. 1393.2 spike on  
top of hill for hub. 1500, 1800  
2100 E 2400 E spike. 2700, 3000  
E spike. cut line untill darker  
than quartz for Night-Marking  
snow all afternoon.

Mr M. T. Hamlett says that the fence  
is 6 ft inside of road limit.

Dec. 21, 1920

38.1  
88°40'

Sine of 88°40' =

Sin 99980 x 38.1 = E  
Cos 99980 x 38.1 = N  
= .02327

38.1 x .99985 = 38.09

38.1 x .02327 = 0.89

291  
381  
—  
291  
2328  
873  
—  
11.0871

99985  
381  
—  
99985  
799880  
299955  
—  
38094285

5284

Dec 22, 1920

Start to finish line run-  
ning East on south side of sec.  
29 but snowed too hard and had  
to quit it looks good for  
tracking though.

Dec 24, 1920.

Starting at 3000. I chain E. 3300  
spike on line 3600, 3900 spike on  
line 4200, 4500, 4800 5071.2 E to 5100 W

$$5100 + 5071.2 = 10171.2 \div 2 = 5085.6.$$

thence N @ 80 Var. quite for  
Night.

Dec 25/1920  
Christmas  
In Brainerd.

Dec 26 1920  
Sunday  
In Brainerd.

Dec. 27, 1920. Monday.

Board Sheet For Dec. 1920

Board with Mrs. H.B. Spotts.

Dec 19 20 21 22 23 24 25 26 27 28 29 30 31

J.W. Curo —

I.P. Babcock

D B D B D B D B  
S L S L S L S L

# Time Sheet For Dec 1920

Subdivision of Sec 29, T138N R27W.

Dec 6-19 20 21 22 23 24 25 26 27 28 29 30 31

	SUN	MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU	FRI
J.W. Curo	1	—	—	—	—	—	—	—	—	—	—	—	—
Car. @ 12 1/2 mi	35	—	—	—	—	—	—	—	—	—	—	—	—
I. B. Babcock	—	1	1 1/2	—	—	1	—	—	—	—	—	—	—
H. B. Stotts.	—	1	1	—	—	1	—	—	—	—	—	—	—
F. Stotts.	—	1	1	1 1/2	—	1	—	—	—	—	—	—	—
M. T. Hamlet.	—	—	1	1 1/2	—	—	—	—	—	—	—	—	—

CHICKADEES.

April. 7, 1921,

Came from Brainerd,

Car. fare 1.29.

Call Stott's toll 10¢

Rains hard. Stott's calls up  
and says that he is not  
coming in the Rain.

Room & Breakfast at  
Superior Hotel. \$2.00

Supper in Pine River, \$.50

April 8 1921.

H.B. Stotts, M.T. Hamlett, Viles  
Robinson, to start at spike for  
Temp Cor. of the S.E. cor g sec 29  
cut line N. @  $80^\circ$  Var.

H.B. Stotts & I Chain  
from 1 mill E to spike 5383:

$$5383 + 5071.2 = 10454.2$$

$$\begin{array}{r} 2 \overline{) 10454.2} \\ \underline{5227.1} \end{array}$$

at 5227.1 W I set a  $\frac{1}{2}$  X 10" I.N.  
for true cor to sec 28, 29, 32, 33.

New Bearings viz.  $80^\circ$  Var E

Pine Stump  $20^\circ N 43^\circ E$  34.7

T.P.  $8^\circ N 60^\circ W$  53.6

Pine Stump  $85^\circ 40' W$  30.15

" "  $75^\circ 45' E$  41.4

April 8, 1921. Continued

From Tim Cor I run N @ 80°

300, 600, 806 Hub on line.

1126.9 Tall stake on line.

1146. Enter Marsh pos. NW + SE

1346 Leave Same NW + SE

1429.9 N stake. Not on line.

1686.9 Hub on line.

1800, 1820 Old Road E + W.

2007 Enter Bog NW + SE.

2100, 2700, 2818 Leave Bog.

2904 Hub on line, 3000, 3290

Enter Bog 3350 Leave same.

3600, 3900, 4200, 4500 Stakes Not  
on line.

Snowing.

D. P. Babcock

April, 9, 1921.

Starting at 4500 N. continue  
line N.

4772.8 hub. on line -

4800, 5100, 5280 N hub on line

Noon.

Stott goes to town Hamlett  
does not work. So do not  
work in afternoon.

D. Babcock





April 11, 1921

Starting at N.W. Cor of sec 29

Iron Randon E @ 730' E

300, 600, 900 stakes not on line

929.2 Hub on line, 1200, 1500, 1800,

1948.2 Hub on line. 2100, 2400

2640 Tem  $\frac{1}{4}$  cor 2700 Hub on line

3000, 3300, 3600, 3900 Hub on line

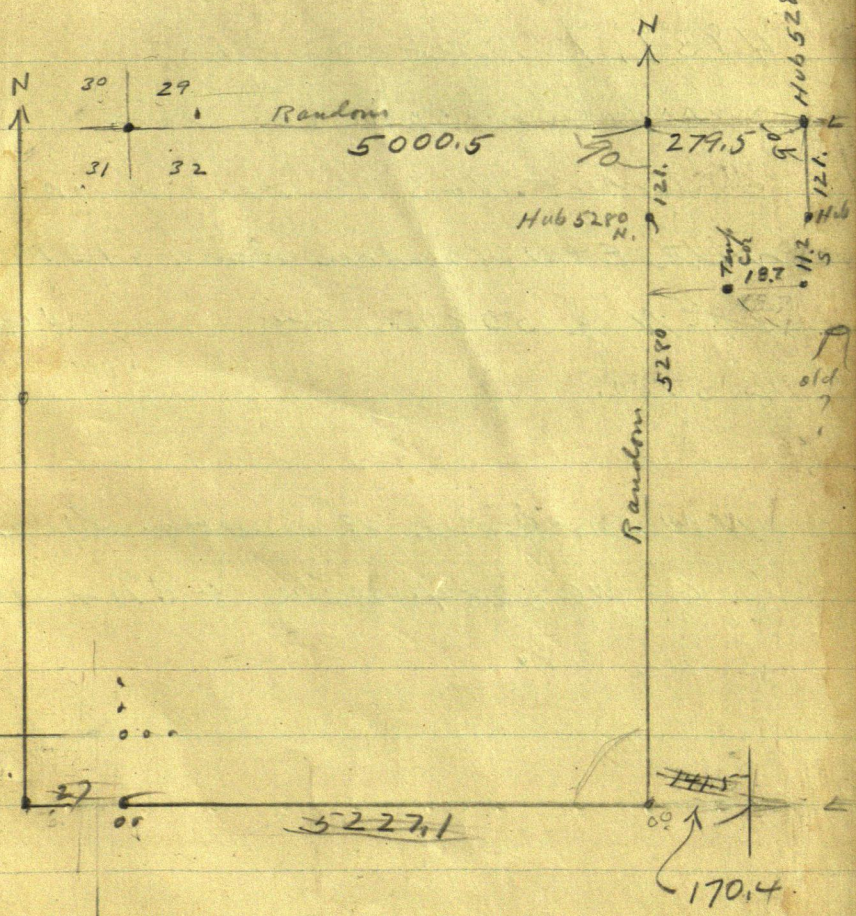
4084 Hub on line 4200.

arrive home @ 6:30 P.M.

at  $5280 + 121 = 5401$  N.  $279.5$   
 intersect random @  $5000.5$  E  $171.5$   
 $171.5$   
 $38.0$

SW angle of random lines at  $5100.0$   
 $99.5$   
 NE Cor sec 29-138-27  $5000.5$   
 $279.5$   
 reads  $90^\circ$   $5280.0$

at  $5280$  E Turn  $90^\circ$  in S  $121$  S  
 Temp NE Cor sec 29 from which our  
 Second Temp on (set from old BT? strip)  
 bears  $11.2$  S and  $18.7$  W



Apr. 12, 1921

Continue E 4500, 4800

4938.7 Has on line

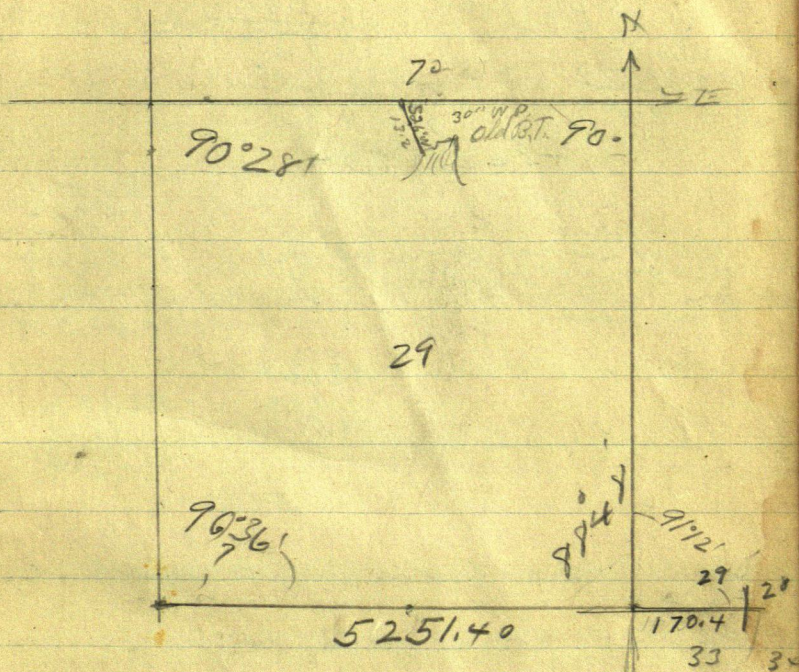
5100, on line, 5280 on line.

Intersect N & S Random line  
with E & W Random line. 121.0

ft N of 5280, and West  
of 5100.

NW cor of sec R random line  
is 6.9 W of 5284. Spike + 37.4 N  
of sec cor.

Carro arrives on work about  
8:30 a.m. H. B. Carro comes with him



90°	72'	88° 48'
88°	48'	91 12
2°	24'	179.60

(26)

$$7920 = 5227.2$$

$$\begin{array}{r} 47520 \\ 47520 \\ \hline 5227.20 \end{array}$$

$$\begin{array}{r} 5227.2 \\ 5266.8 \\ \hline 10494.0 \end{array}$$

$$5227.2 \quad 7930 = 5233.80$$

$$\begin{array}{r} 5227.2 \\ 6.6 \\ \hline 5233.8 \\ 47580 \\ \hline 523380 \end{array}$$

$$7980 = 5266.80$$

$$\begin{array}{r} 5266.80 \\ 5233.80 \\ \hline 10500.60 \end{array}$$

$$\begin{array}{r} 47880 \\ 47880 \\ \hline 526680 \end{array}$$

- See Pg 29 -

at SW corner 29 The O.O. Hub  
is 27.00 ft E and 6 ft S of  
line corner

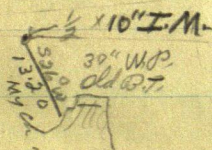
$$\begin{array}{r} 5400.0 \\ 5036.4 \\ \hline 10436.4 \\ 27.0 \\ \hline 10463.4 \end{array}$$

$$\begin{array}{r} 5266.8 \\ 15.2 \\ \hline 5251.6 \end{array}$$

$$\begin{array}{r} 5227.2 \\ 15.2 \\ \hline 5212.0 \end{array}$$

April 13, 1921

From Blazed 30" W.P. Stumps I  
 set a  $\frac{1}{2}$  x 10" I.M. N 26° W 13:20  
 thence run south @ 89° or E  
 Stotts, Hamlett, Robinson to  
 on job.



28

138-27

Sec 29

5400.0	159.1	5400.0
159.1		17.7
5240.9		5382.3

April 13-1921

Babcock-Dwight and 9 chain

So line of Sec 28

Be@ Co 27-28-33-34 chain  
 along so edge of graded road  
 West bet 28-33-

350-600-950-1200-1500-1800

2100-2400-2700-3000-3300

3600-3900-4200-4500-4800

5100 set stakes

5240.9 Im  $\frac{1}{2}$  x 10 Temp Co

T. 28-29-32-33

5400. W set stake

5382.3 West interest spike  
 where random line runs north  
 5400 W set stake



5227.2  
5266.8  
10494.0

138-27  
SEC 29-

29

25x 4800  
4800 236.4  
25x 5036.4  
505x

Check chain on random line  
from the west Reg @ 4500 E  
chain

East 4800- stake + 236.4  
= 5036.4 E interest "5400"  
stake from the East

@ 5054.0 East interest  
pt where random line leads  
north  
5100 E at point  
5195.5 interest 1m 1/2 x 10"  
Temp curve

5400  
5036.4  
27.0  
10.463.4 Total =

29

28

7980 LKS =	10494.05	7920 LKS =
5266.8 F F US		5227.2 F F US
5251.4 my ch OK		5212.0 my ch
	10494.0. US	
	10463.4 my ch OK	
	30.6 short	

1.0029159  
10494 30.600.  
20988  
9.6120.  
94446.  
16740.  
10494  
62.460  
52470  
9990.9  
94446  
54554

$$\begin{array}{r} 5100.0 \\ 150.8 \\ \hline 5250.8 \end{array}$$

$$\begin{array}{r} 5250.8 \\ 33 \\ \hline 5283.8 \end{array}$$

$$\begin{array}{r} 386 \\ 2) 772 \\ \hline 172 \end{array}$$

April 13-1921  
Dwight B and JWC run  
new BTS @ NW cor sec 29

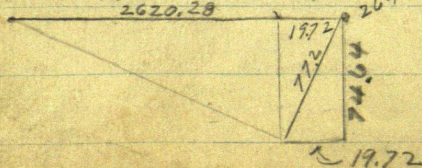
Pop 8 N 54° 25' E 18.85'  
" 7 N 18° 20' W 11.6  
" 5 S 58° 50' W 21.5  
" 6 S 11° 30' E 39.0

Walk 1/2 mile East to 2640 Hb  
from which the 1/4 corner on sec  
29 - Put here  
bears S 14° 48' W 77.2 ft

at 1320 E run S 14° 48' W 38.6 ft  
and set W 1/16 cor  
77.2

Bg @ stake 5100 N on W line  
random line of sec 29  
Chain N 150.80 ft to 5250.80 N  
plus + 5283.8 stake marked 528 x'

$$\begin{aligned} &14^\circ 48' \\ \text{Sine } 25545 \times 77.2 &= 19.72 \text{ W} \\ \text{Cosine } 96682 \times 77.2 &= 74.645 \end{aligned}$$



April 14-1921 Thursday

31

29-138-27

### Figuring Corrections

South side sec 28-29-138-27

5227.2 US - 15.2 = 5212.0 my ch

5266.8 US - 15.4 = 5251.4 " "

10.463.4 Total my ch

at 5240.9 W - I'm gone E 28.9 T. 5212. W  
at 5195.5 E - I'm gone E 55.9 minus - 27 = 28.9 OK

### Correcting

South side sec 29-138-27

Stake mkd 1320 E is 1320 + 27 = 1347 E

and goes West 34.15 To 1312.85 E

To W 1/16 cor but Sec 29-32

Stake mkd 2640 E is 2640 + 27 = 2667 E

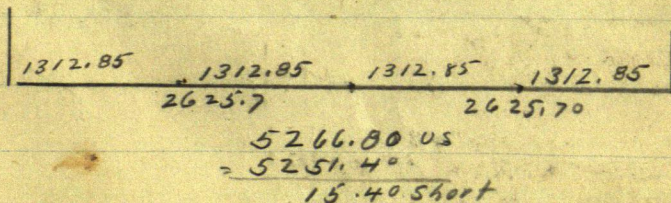
and goes West 41.30 To 2625.70 E

To 1/4 but 29-32 - 138-27

Stake mkd 3960 E is 3960 + 27 = 3987 E

and goes W - 48.45 To 3938.55 E

To E 1/16 but 29-32 138-27



32

April 14-1921

138-27

Figuring Corrections West side Sec 29-

at 5284 N The NW Cor Sec 29 bears N 88° 40' E

38.1 ft being .90 of a foot North and 38.1 East

@ 5285 N the NW Cor (Sec 29-138-2) bears East

38.1 ft.

But as this is figured Sta 0.0. to be 33 ft South

of fence at SW Cor it is 6 ft off as Sta 0.0."

at SW Cor should be 27 ft So of fence instead of

33 ft is of fence Note: Random line starts

1 chain 6 ft in line with fence running E @

SW Cor Sec 29. Total Length 52.79. - 1 ft short

Stake Marked "1320 N" is really 1320 + 27

= 1347 N and goes South 27.25 ft to

1319.75 N Then East 9.52 to S  $\frac{1}{16}$ 

But 29-30 7138 R 27

?

Stake marked 2640 N is really 2640 + 27 =

2667. N and goes South 27.50 ft to 2639.5 N

then East 19.05 to  $\frac{1}{4}$  Cor But 29-30-

Stake marked 3960 N is really 3987. N and goes

South 27.75 to 3959.25 N Then East

28.56 to N  $\frac{1}{16}$  W side 29

Apr 14-1921

33

20 87.8 170.

at W  $\frac{1}{16}$  to rid 29

IM  $\frac{1}{2} \times 10$

BTS 0.3

2" oak N about 10° E 20.0

2" " S " 50° W 32.8

Note changed this 0.95 of a foot west BTS then chain NE 20.17 SW 32.10  
change this 1.95 West BTS then chain SE 8.80 NW 6.90

$\frac{1}{4}$  Co No rid 29 set IM  $\frac{1}{2} \times 10$

Bush stp 45 about 80° E 6.95

4' Oak N " 10° W 7.25

From  $\frac{1}{4}$  on N rid sec 29

run South 8° intersect to line

87.8 ft East of  $\frac{1}{4}$  corner

at Temp IM w/ chain East 28.9 and set IM  $\frac{1}{2} \times 10$  for true cor.

28-29-33-3x SEC 29 138-27

BTS 0.3

Tal Pole 10 N about N 70° E 101.2

" " 9 N " N 70° W 79.8

NP 15 S " 45° W 113.5

Pop 8 S " 50° E 85.2

From the corner chain 170.4 ft west to pt where random line runs north

~~SW Co 29 set 2" pop that 27 ft south of SW Co of fence and in line with fence running north then chain west along line line 27.0 ft to IM  $\frac{3}{4} \times 10$  set for line SW Co sec Cont'd Page~~

34

29-138-27

Stotz Survey

co work

June 6-1921 Monday

John W Curo and car take  
Alina, Gerald & Reed to Stotz for  
supper and over night

June 7-1921 Tuesday

Rain all day figures corrected  
2 Hours

29-138-27

35

June 8-1921 Wed.

Still foggy 20 @ 9<sup>15</sup> and back  
 @ 11<sup>15</sup> work 2 hours  
 H.B. Statz and his Ford @ 15¢ a mile  
 Gerald and I.

At spike "2700 N" on W. side, sec 29  
 set tall flag.

Hub @ SW Cor 29 has been graded out

W 1/4 So side 29 we re-set from new BTS  
 See Page 33-34

1/4 So side 29 find I.M. set tall flag

SEC 29 - graded out at small hub from

new BTS. See Pg 33-34

5 miles @ 15¢ = .75¢ for statz  
 2 hours @ 85 = 1/4 day 125  
 \$2.00 for statz

P.M.

Clean up - 20 @ 1-30 P.M.

Statts - Gerald & I - re-run S line sec

29 - also W. line - intersect

line S. line with West random

@ SW Cor 29 - the NE angle reads  
 plat "0" back sight E near 90°51'

" " " " N " 90°49'

" " " " E " 90°52'

" " " " N " 90°49'

Mean = 90°50' N.E. angle @ SW Cor 29

True S line with random run N on

W. side.

pt of intersection is

John W. Curo

36

29-138-27

Subdivision C. Wash  
TIME SHEET.

JUNE

1921

	SUN 5	6	7	8	9	24	25	SUN 26	27	28	29	30
John W Curo <sup>8.5</sup>	0	-	1/4	1	1	-	1	1	1/2 PM	1	1	1
Expense	0	-	-	-	-	-	-	0	-	-	-	-
Car	0	-	-	2 <sup>30</sup>	8 <sup>5</sup>	2 <sup>5</sup>	2 <sup>50</sup>	8 <sup>250</sup>	8 <sup>230</sup>	2 <sup>250</sup>	8 <sup>250</sup>	
G W Curo <sup>8.4</sup>	0	-	-	1 3/4	-	-	0	-	-	-	-	-
H B Stotts <sup>8.5</sup>	0	-	-	7/4	3/4	-	-	1	1/2 PM	-	-	1/4 PM
Stotts Car 150 mil	0	-	-	12.5 1.88	15.5 2.33	-	-	9	4 1/2	-	-	6.2
M T Hamlett <sup>8.5</sup>	0	-	-	-	3/4	-	-	1	-	1	1	-
I P Babcock	0	-	-	-	-	-	1	1	1/2 PM	1	1	1
W M Hunt <sup>8</sup>	0	-	-	-	-	-	-	1/2 PM	1	1	-	-
G C Hardy <sup>8.4</sup>	0	-	-	-	-	-	-	1/2 AM	-	-	-	-
Lyman <sup>8.4</sup>	0	-	-	-	-	-	-	1	1	1	1	1
Vilos												
Robinson									1/2	-	-	-
Hardy Car										3/4	3/4	3/4

July 1921

	1	2	3	4	5	6	7	8	9	10	11	12
Babcock	1	1	1									
Lyman <sup>8.4</sup>	1	1	1/2									
Hamlett	1	1	1/2									
Geo Hardy <sup>12.5</sup>	1/2	-	-									
Hardy's Car <sup>8.1</sup>	1	-	-									
Curo				1								
Car				1								

1921

Board Sheet

SUN JUNE

1921

5	6	7	8	9	24	25	SUN 26	27	28	29	30
---	---	---	---	---	----	----	-----------	----	----	----	----

With Mrs Harold B. Stotts

[illegible]

July

[illegible]

FM Stille

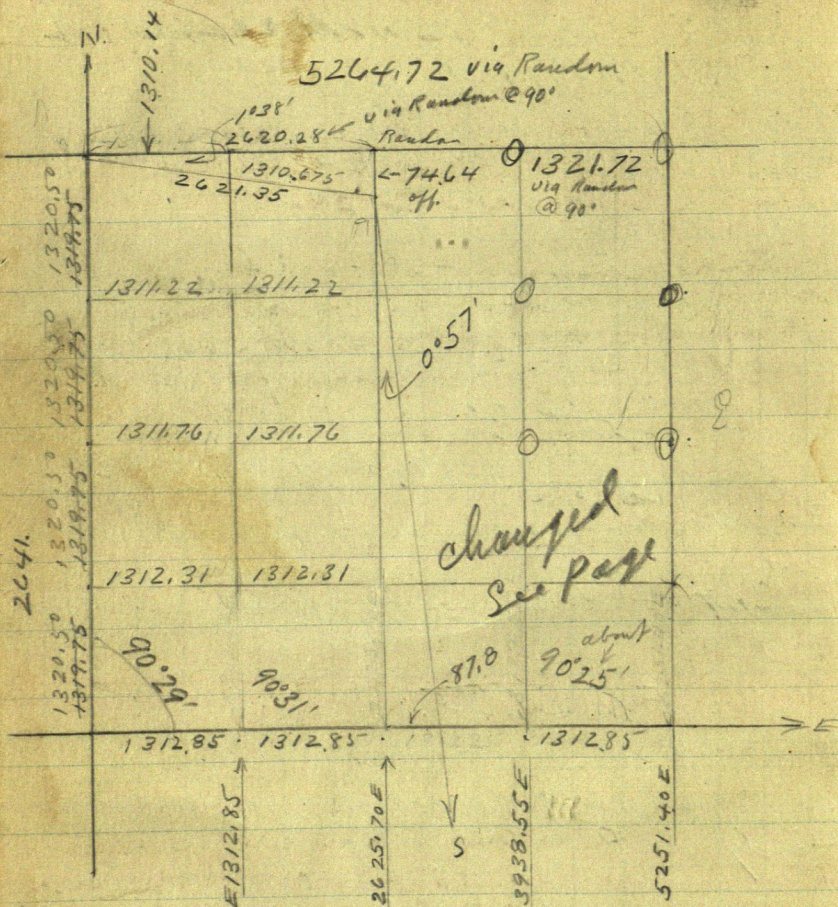
Hardy

Hardy

Babcock

Cuso

Handled

$$\frac{13205}{52820}$$


Correction N and S.  $\angle .016629 = 0^\circ 57' W$

RE-CHAINED

Sec Pg 47

June 8-1921  
PM

39

at SW Co 29-138-27 set Limp Hub  
2" poplar Hub 27. ft South and in line  
with fence running North chained from  
center of SW Co post.

From 2" pop Hub chain West along  
line line 27.0 ft to IM  $3/4 \times 10$ "  
set for line SW Co 29-

interesting Babcock's line from the  
North Backing it in we intersect  
line line at a pt 5.50 ft West of line  
IM SW Co and running North from  
this hub we run 32.4 ft West of  
E SW Co post of fence

Re-trace Babcock's random West  
line of sec 29. 138-27

Bay 5.50 ft West of line SW Co  
sec 29. chain

North along random @ 26.50 we are  
in line with fence running East and  
32.4 West of SW Co post

300-600-881.7 Hub 900-1200-  
1500-1800 stake 1850 N. road turn  
NE; 1950 stake +300 = 2250 stake  
+150 = 2400 stake +247 = 2647

2 road runs West 2700 stake  
2700 + 24.9 = 2724.9 stake  
3000 stake get home for supper  
@ 6:30 PM.

Work after Supper

Take My Baby Grand and L @ 7.10 PM  
Continue West side 29 Random

North 3300-3600-3900-4200-  
4500-4800-5100 + 182 = 5282 N  
Correl E 37.20 Home @ 8-30

Two miles from Co @ 150 = 30 % John W. Cline

June 8-1921 Continued

Figure and Check notes 1-Hour

Sto Hs Cor makes  $7\frac{1}{2}$  miles in PM

5 in AM and  $7\frac{1}{2}$  in PM =  $12\frac{1}{2}$  miles

@  $15^c = 8188$

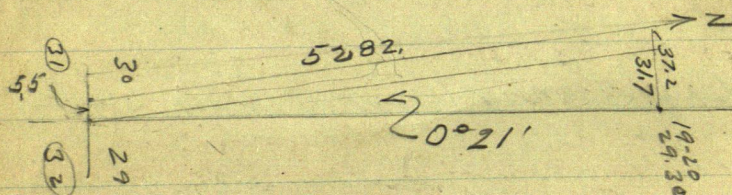
Sto Hs work 7 Hours @  $62\frac{1}{2}^c = 8438$

Sto Hs work 2 Hrs in AM and 5 Hrs in PM = 7 Hrs

Gerald Cues work same as Sto Hs plus 1 Hr 20 Minus = 8 Hrs 20 Minus

Jwe work 2 Hrs + 5 Hrs + 1 Hr 20 m + 1 Hour = 9 Hours 20 Minus call it a day

Cue Cor drives 2 miles @  $15^c = 30^c$



Correction =  $.006001 \text{ Eft each PM} + 5.5$   
at each correction

1320.50 N gain E 13.42 =  $5\frac{1}{16}$  OK

2641.00 N " E 21.35 =  $\frac{1}{4}$  OK

3961.50 N " E 29.27 =  $N\frac{1}{16}$  OK

5282.00 N " E 37.20 =  $S\frac{1}{8} C$  OK

Net 881.7 N gain E  $5-29+5.5 = 10.79$  OK

1320.5  
7.9230  
5.5  
13.42

2641  
15.846  
5.546  
21.346

3962  
6  
23.772  
5.5  
29.27

882  
6  
5.292  
5.5  
10.79

29-138-27

41

June 9-1921, Thurs

Foggy till 9:15 am. L<sup>o</sup> and  
dinner to Hamlett farm and back  
with him to Slotts = 3 milesthen  $1\frac{3}{4}$  miles E. to W  $\frac{1}{16}$  sec. side  
29. focus East and turn NE angle  
 $90^{\circ} 31'$  and run thro center of  
west half of sec 29.  
North. on West  $\frac{1}{16}$ Gerald W Cress  $\bar{\pi}$  (his first work)  
with M.T. Hamlett as man no chaining.  
Slotts and I keep them a while then  
go 2. miles on crooked road 1 ft  
near  $\frac{1}{4}$  on E side 29 where we look  
for US BTS. See Pg 1

NP 17 N 65 W 43 LKs =

NP 17 N 70 E 61 " =

No find run and come back 2. mile  
Then  $3\frac{1}{4}$  mile to House. Then  $\frac{1}{4}$  mile E  
and  $1\frac{1}{4}$  miles <sup>1 mile or so</sup> West home to dinner.  
Hamlett takes dinner with Slotts  
Total for am. 12 miles  
Home at 12:15 for dinner = 3. Hours  
each.

P.M.

Very hot L<sup>o</sup> @ 1-p.m.We then N 1-1320.50 Then E 13.42 and  
set IM  $3\frac{1}{4} \times 10''$  for S  $\frac{1}{16}$  on W side 29  
BTS 47.

4" Oak N about 45 E 18.75

3" " S " 50 E 12.70

Look North on random... turn 90-50' R  
and runEast on line line (?) this run is  
half of sec 29.

J. W. Cress

42

June 9-1921

To put in  $\frac{1}{4}$  m.w. rd. 29-138.27  
 at 2700 N. Chan. South 59.00 ft 15  
 2041 N. set hat then Chan. East 21.35-  
 not rain starts at 4.05 PM and we run  
 a mile home in 5 minutes on lin. Stotts.  
 Car runs 1.50 then 0.75 then 1.25 home -  $3\frac{1}{2}$  miles  
 before rain comes in PM.

Miss Smith arrives

on a visit and as there is no room  
 at Stotts we dine home.

John W. Curo

June 24-1921

43

Friday Cross and Cor Lake  
Babcock and I. T. IMS with anchor  
rods drive to Stots from Beaman  
via Jenkins and Kambel's  
Resort

Note: No charge for today only for  
Cor bring Iron Monuments from  
Beaman - \$5.

We get dinner at Jenkins.  
Supper and over night with  
Herald Stotts

Evening I drive to Hamlets try  
to get him to help on survey  
tomorrow.

He will not come on acct of  
Farm Bureau picnic tomorrow  
at Eagle Lake

June 25-1921

Saturday: To Farm Bureau picnic  
at Ben Jenkins place at Eagle Lake  
can get no crew to help Babcock & I.

Cure and Car with Babcock go to

$\frac{1}{4}$  mi on West side 29-138.27 bet 29-30

Ht 2700 N Chain South 59 ft  
find my old hut

Look N on random Turn R  $90^{\circ}$   
and Chain East 21.35 ft just in

IM  $\frac{3}{4} \times 10$  line  $\frac{1}{4}$  mi

BTS Uij 12' WPN  $50^{\circ} 23' E$  53.53 T. Took

W. Oak 4 H  $73^{\circ} 46' W$  102.75

W. Oak 3 S  $44^{\circ} 59' W$  74.47

W "  $55^{\circ} 9' 54" E$  57.30

Box of rock line  
turned from line & looking  
East

From same random Hat 59 S.

Look N on random - line R  $90^{\circ} 50'$

run East - forming  $3\frac{3}{4}$  inches S of  
line  $\frac{1}{4}$  mi 21.35 feet away.

Continue about 400 ft East: set

Hat. Set second Hat  $3\frac{3}{4}$  inches

N over which we set Transit

Rock right on line  $\frac{1}{4}$  mi as run

EAST on E of sec 29. just to  
start the line parallel with S. Boundary 29

Then go to N  $\frac{1}{16}$  mi bet 29-30

1320.50

3961.50

at 3900 N - Chain N 61.50 to 3961.50 N

line  $90^{\circ}$  and run East 29.27 T. line N  $\frac{1}{16}$

Bet 29-30

We work till 1.00 P.M. dinner,  
then drive to Jenkins farm eat dinner  
with Farm Bureau Club - Mrs  
Statts likes lunch for Babcock & I.  
P.M.

We LV @ 5.05 P.M. and work on survey

Transit on random Hat 3961.50 N

Looking N line R  $90^{\circ} 50'$  and run

East on line (2) N  $\frac{1}{4}$  line of  
sec 29 T138-R27

@ 29.27 ft E. the line N  $\frac{1}{4}$  Bt 29  
and 30 - bear north. 5. inches  
at about 1000 ft E set point  
from which we measure 5. inches  
north and set hub over which  
we set transit - took sight  
west on line  $\frac{1}{4}$  corner and run  
East on N  $\frac{1}{4}$  line sec 29.

Then go to  $\frac{1}{4}$  on So side of sec  
29. and chain

East on line line

@ 72. enter swamp bear N 20° E  
150 ft then turn and run N with  
about 20° W 175 ft then curve westerly

at 166. to swamp which runs  
N 30° E 150 ft then N 150 ft then  
N 10° W 100 ft and curve back  
to join to N end of marsh.  
Marsh extends about 350 ft of line  
small lake 100 x 100 near N end  
Marsh extends <sup>320° W</sup> South 150 ft and  
can be drained SE into lake  
S 20° W 150 ft  
square on so end.  
Lake lies 50 ft below marsh.

At 300 E set stake 307.3 Mark  
Then 150 ft to 450 E then 50 ft T.  
500 at sharp drop off nearly  
~~50 ft deep~~ chain across  
25 ft det slope of hill is 55 ft  
long  
From 500 chain 200 (via) 25 ft  
slope and set stake marked 800 ft  
roll this must go E Then go

46

June 25-1921 Saturday

Back and plumb down hill set stake

1 1/2 east and set stake 800 E.

@ 1000 L<sub>v</sub> low land

1090 cuts sw cor of meadow

1100 stake + 212.85 set

1312.85 E line E 1/16 bel

acc 29 and 32 in meadow

1400 stake. 1490 L<sub>v</sub> meadow

N.E. SW 1700 - stake 1800 cut in long

2100 stake + 125 = 2225

2525 + 96.9 =

at Home at 8.35 PM

1 1/2 Hours in AM

3 1/2 " " PM } = 8 Hours

Car 1/2 day @ 230

	2525.0
	96.9
	2621.9
2625.70	
2621.90	
<u>2625.70</u>	
2623.80	
<u>2623.80</u>	
1311.90	
<u>1311.90</u>	
3935.7	

1311.9
<u>3</u>
3935.7

2625.70

1312.85
2625.70
<u>3938.55</u>

3938.55
3935.70
<u>2.85</u>

1312.85
1311.90
<u>.95</u>

June 26-1921 Sunday

28-138-27

Hamlet corner at 7:30 and go on to work: Babcock and I

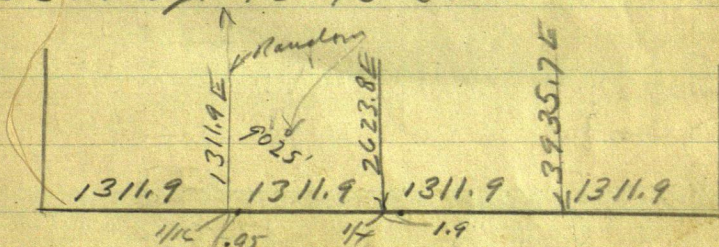
Call up Geo and Lyman Hardy who will help us and we L. @ 8:30

Bab - Lyman - and Hamlet

Beg @  $\frac{1}{4}$  on W side of sec 29 and run East on  $\frac{1}{4}$  Parallel to Nto dry. Geo Hardy and I go to E  $\frac{1}{16}$  on So side sec 29 - and set corner on pt

Re-Chain of S. Betty

See Page 45-46-38

1312.85 IM goes 0.95 of a foot W to True  $\frac{1}{16}$ 2625.7 IM goes W 1.9 to True  $\frac{1}{4}$  So side26278

1.9

At 3935.7 E put in Hub for E  $\frac{1}{16}$  N side 29.So take Mkt  $1312.85 + 2625.70 = 3938.55$ 

E from which we chain West 2.85 and put in Hub for line corner. Look East

True  $90.25^\circ$  N E angle and run north @ 160 LV meadow 230 road & NW

John W. Cress



$$\begin{array}{r} 3929.4 \\ 3942.00 \quad 126 \\ 262028 \quad 39420 \\ \hline 1321.72 \end{array}$$

$$\begin{array}{r} 3942.00 \\ 1321.72 \\ \hline 5263.72 \end{array}$$

$$\begin{array}{r} 139 \\ 3929.4 \\ 1 \quad 126 \\ \hline 3922.00 \\ 262028 \\ \hline 1301.72 \end{array}$$

$$\begin{array}{r} 3929.4 \\ 126 \\ \hline 3942.00 \\ 262028 \\ \hline 7721.72 \end{array}$$

$$\begin{array}{r} 2620.28 \quad 49 \\ 1320 \\ \hline 3940.28 \\ 3929.40 \\ \hline 1088 \\ 12 \end{array}$$

$$\begin{array}{r} 119.00 \\ 7864 \\ \hline 2193.64 \\ 096.82 \end{array}$$

At 3929.4 E Chain E 12.60 to 3942.0  
Which is 1321.72 E  $9 \frac{1}{4}$  on Uir random line

At 3942.00 E Chain E 1321.72 = to  
5263.72 E Then to 119.00 to run on 5282.14

changed  
 By Dismissing  
 old  $\frac{1}{4}$  on N side  
 and  $\frac{1}{4}$  on N side  
 changed to 97.88  
 121  
 96.82  
 5282.14

At 3942.00 E Chain to 96.82  
 set Hub E  $\frac{1}{16}$  on N side run 29  
 Random running north east  
 west of this  $\frac{1}{16}$

At  $\frac{1}{4}$  on E side 2700 N side  
 57 1/8 E on line SE angle 88° 43'  

$$\begin{array}{r} 2700.00 \\ 57 \\ \hline 2643.00 \end{array}$$

June 27-1921 - Monday.

Rain in a.m.

Curo - Bob & Stotts go to Curo  
Lake start survey of sec 21  
137-27. See other book

Lyman Hardy and Wm Hunt - get  
early dinner - take Hardy's Ford and  
drive to Cen of NE  $\frac{1}{4}$  sec 29-138-27  
and cut line North.

Lv @ 11-00 a.m. (10-30 by Hardy's  
line)

P.M.

Curo - Hardy & Hunt continue  
North - intersect Random on N  
side of sec 29 at a point 3929.4 East  
SW angle of random line read  
89°14'. About right South  
See Page 48,

At IP. Hub @ 3929.4 E run 12.60 E to  
3942. E Turn 90° to random and  
in S 96.82 ft set 2x2x30" stake lamp  $\frac{1}{16}$

Then go South meet Bob & crew  
and go to  $\frac{1}{4}$  on E. side Sec 29.

at 2643. N - intersect E from  
the west - show 3-inch-6 ft Bull fold  
nearly full length in soft marsh  
for I.P. Hub SE angle of random line  
read 88°43'

Babeck - H Stotts & Car - with  
Vilas Robinson finish N- $\frac{1}{16}$  line cut  
East. Hamlet no work. Curo & crew  
work late so that Hardy & Hunt get  
in 8 Hours Curo Yr. day.

Note: This is the day we start Survey of sec 21-137-27

## 51

on

(52) - 29-138-27 June 28-1921  
Stotts Survey Tuesday

Stotts and Robinson do not work  
Curo & Co takes Bob - Hamlin - Hardy  
& Hunt to work - Beg 80 rods E of  
8 1/16 on W side of 29 continues rounder  
(true) line

East this end of so half of sec 29  
138-27

Curo figures notes all run.  
Hut as Hill.

I called up Chas Mahlum and  
my wife - Commencement does not meet  
till July 11-1921

East Bdry Sec 29

At 2643.2 N Cham SE along  
line E & W line - 216.81 ft and set

1/4 E side bet 28-29-138-27  
BTS Ugi

At 2641.74 N + 1320.87 = 3962.61 N  
Cham South 3.6 To 3959.01 N - on random  
Then @ 90° run  
East - ~~239.52~~ 240.01 = N 1/16

At 5283.48 N - Cham S. 3.6 T.

5279.88 N on random then 90° and run  
East 263.22 ft. - NE cor 29

Valid - This is within an inch or so to true  
corner

John W. Curo

June 28-1921

53

5401.00.	121.12
5279.88	74.64
<u>121.12</u>	<u>2195.76.</u>
	97.88

At 5263.72 E on random the  
NE Cor Tree 29. sets South @ 90° -  
121.12 feet.

The East  $\frac{1}{16}$  on N side sets so  
97.88 ft so that the stake set yesterday  
at 96.82 so must go 1.06 ft further  
South to be on line

Note: This difference is  
caused by our not figuring the  
3.6 ft shown at SE Cor of 29.  
See map on page 51

OK.  
J. W. Lewis  
June 28  
1921

Lyman Hardy Leaves his cor @  $\frac{1}{4}$  Cor E  
side sec 29 -  
I figure correction

54

# Stotts Survey

29-138-27

June 28-1921 Continued

Lyman Hardy, - Hunt and Bob  
run the S  $\frac{1}{16}$  across sec 29

Hardy uses his car a little & pay for  
his car. Quit at 12-10

get home to dinner 12-30

stay in ops heat till

3.30 PM

met Hardy & Co. He takes  
Bob & Hamilton to  $\frac{1}{16}$  E of SW  $\frac{1}{4}$  and  
they run West  $\frac{1}{16}$  line sec 29  
North

Chris and Hunt chain 217 ft  
E. and set  $3\frac{1}{4} \times 10$  " I.M. for line  
 $\frac{1}{4}$  Cor E side 29 -

See Page 51.

NP 10" S 45° E 30.50 ft 7.1

" 18" S 54° W 67.10

turned from line E & W line  
sets 100 ft E of 607

Walk 80 rods N & at 3959.01 N turn

90° and run E 240.01 set Hat

N  $\frac{1}{16}$  Cor E side 29.

NP 10" N 75° E 59.9 } I read

JP 10" N 19° W 59.45 } 6° 40'

Turned from line West

$\frac{1}{16}$  sets 1. inch N. of Bob's random  
coming from West - Close Check

June 29-1921

55

Wednesday.

Cisco-Balcock-Lyman H and  
Hamlin work - Cuts and Hards like  
corr - Cisco with I.M.S.

N  $\frac{1}{16}$  E side 29-138-27 Bat 28-29  
set 2x48" I.M. Anchor rod 4 plate  
anchors  $\frac{1}{2}$  ft above ground  $3\frac{1}{2}$  ft  
cable  $3\frac{1}{4}$ " oval cap sloping  
shoulder wheel  $\frac{1}{16}$ "

At 5280. N on Random Turn 90° and  
run East 263.22 ft Then South  
0.12 of foot N

5279.89 N (See Map Page 51)

Set  $3\frac{1}{4} \times 10$ " I.M. for line N.E. on  
29=

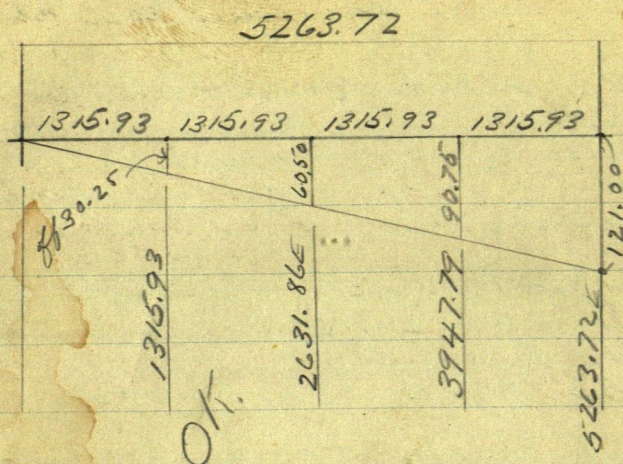
BTS V. 1. - Pap 6 N  $86^{\circ}55'$  E 44.05

Pap 5 N  $38^{\circ}47'$  W 133.28

Oak 105  $55^{\circ}23'$  W 46.35

" BS  $70^{\circ}50'$  E 74.20

Turned from random looking west  
on



At 3947.79E turn 90° and run  
 to 90.75 ft at Sld. 0.5000 where  
 1/16" for E 1/16 N rd. 29

But near

BTS 0

Back 8" N 59° 38' W 42.55

NP128 63° 25' W 65.60

Turned for EFW random

To put in 1/16 in Cen of NE Quail - sec 29  
 rd. at meadow North - interest random  
 at 3929.4 E (see p. 48) and as per Hub n  
 random turn 90° at 3947.79E we  
 interest 18.39 West of Top 1/16 on EFW  
 random and on the SW angle of random  
 lines reads 89° 14'

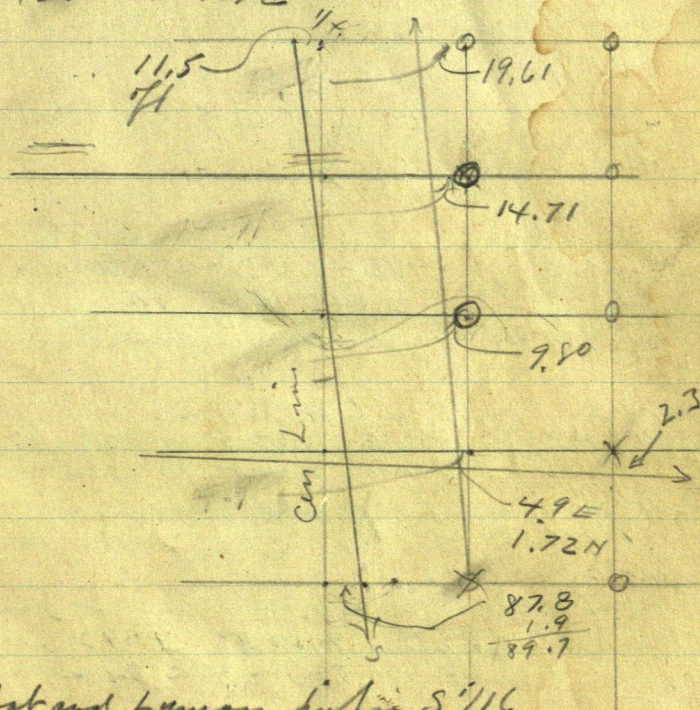
Tang = .01338 x 90.75 = 1.22 ft add  
 to 18.39 = 19.61 ft West of the line 1/16 E  
 on N rd. Sec 29

To put in 1/16 in E of NE 1/4 first  
 interest random lines then chain  
 E at 14.71 ft line 1/16 because the

E. and W. random in on the line line

To put in  $\frac{1}{16}$  in Cen of E  $\frac{1}{2}$  first  
intersect random lines then chain  
E or W along random 9.80 to line  $\frac{1}{16}$   
because E & W random in on line line

To put in  $\frac{1}{16}$  in Cen of NE  $\frac{1}{4}$  first  
intersect random lines then chain  
E or W along random 4.90 ft  
and North 1.72



Bat and Lyman put in S  $\frac{1}{16}$   
on E side 29-nd Bat

BTS-06

Pap 6 N  $68^{\circ}05'W$  19.7

Oak 12 N  $20^{\circ}42'E$  69.65

Turned from random looking West  
Random from the West cuts 2.3 S of  
 $\frac{1}{16}$

58

Cross and Hummingbird in US-IM

@ Center NE  $\frac{1}{4}$  also

Center East half

10.40

Bat and Lyman just std US IM

@  $\frac{1}{16}$  in cen of SE  $\frac{1}{4}$  white cross  
Hummingbird to Hub 1320 E Cham west  
4.07 ft to 1315.93 E

Then 90° South 30.25 and put  
in Hub for line

W  $\frac{1}{16}$  N side 29-

which is 10.4 ft E of Babcock  
random line coming from the  
South

Bts by

Pine slump 14.71 43° 50' W 88.80

305 40° 10' W 116.65

Turned from line line looking so

At 2640.00 E Cham west 8.14

to 2631.86 E Then @ 90° run South  
60.50 ft to  $\frac{1}{4}$  N side 29-

Put

set  $\frac{3}{4}$  x 10' IM

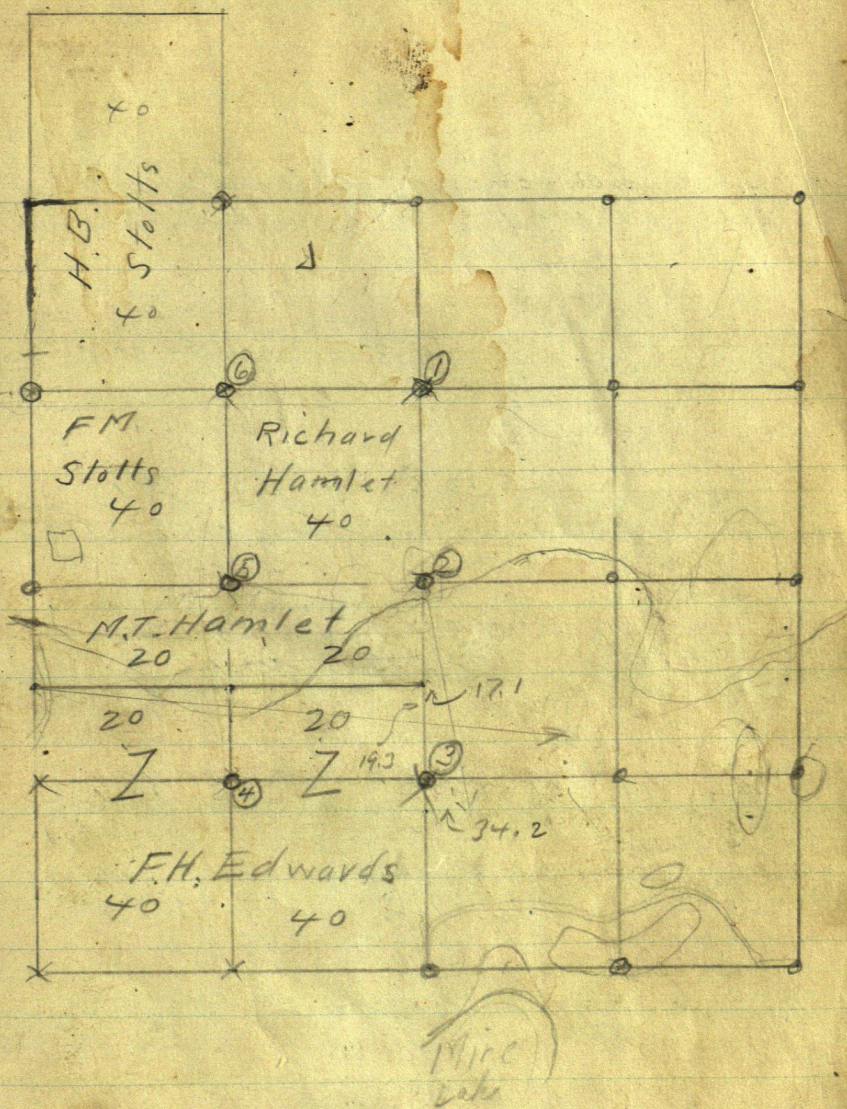
(BTS 03)

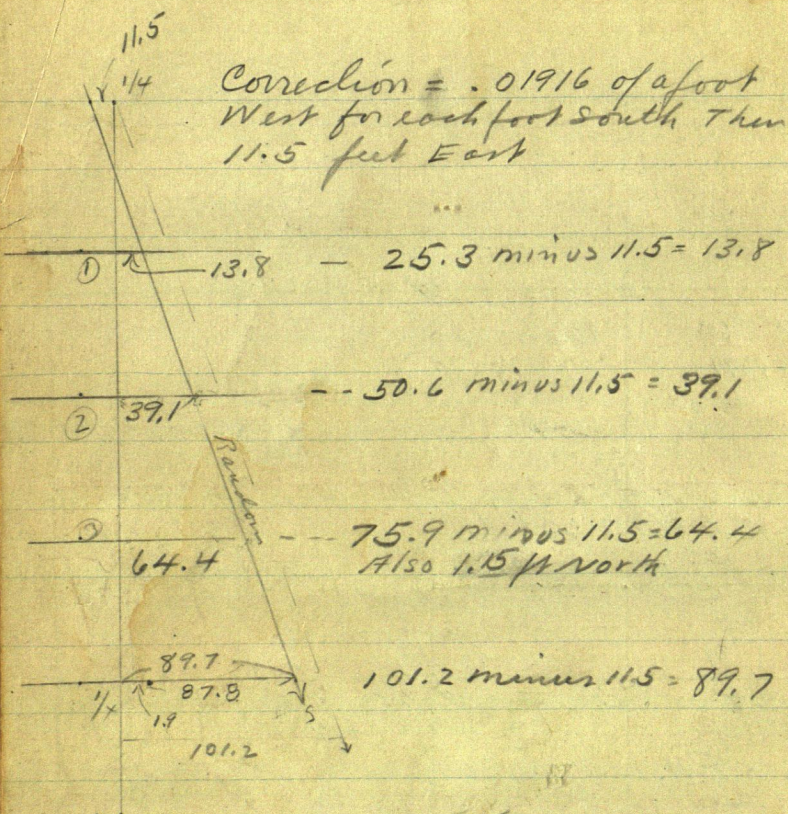
oak slump seen 9 north 41.75

" " " 7 S 45° W 21.45

11.50 ft E of N end of Babcock  
random South line extended  
North

Babcock original  $\frac{1}{4}$   
near S 40° W





575  
 11 50

June 30-1921

61

Hardy and I meet Bob and I on  
the road. Turn back and we change  
ours. And 29. as per page 33.  
then to

### Run Road

Begin @ 1/4 on side of run 29. being  
about 60 ft. E of Road Curve run  
North.

Then run 200 ft at 60 ft level

@ 282. Sta 1

Sta 1. N 60° E 111. ft. Sta 2

" 2 N 79° E 367 " 3

" 3 S 68° E 625 " 4

" 4 S 80° E 39 " 5

Corr 1/16 line 230 N of 1/16 C

5 N 67° E 247. to 6.

247

6 N 78 E 381 " 7

7 S 49 E 673 " 8

8 E or N 184

### Marsh

Begin @ Sta 6 run N 200 ft. to E  
end of egg shaped marsh begin West  
end.

Ex lands 150 ft E and 200 ft West  
and is 100 ft wide where my line  
hits.

100 ft W of my line. Marsh is 150 wide.

16" green WP in marsh 40 ft from  
N E side

### Marsh

E 1/16 side 29. set 25 ft N of S edge of  
marsh - which is 160 ft wide from 1/16 post to  
N side. So side of marsh runs about

straight E & W and looks to be 25 ft N. 50 ft  
S of per line. Marsh Ex lands West 300 ft  
ft and E 400. Egg shape begin W end  
good meadow down SW. to this lake  
John W. Curran

with  
land

To get N edge of marsh Beg @  $1/16$  mi N  
 @ 160 L. mark bear N  $70^{\circ}$  W 100 ft  
 S  $50^{\circ}$  W 150 ft South to line  
 S  $30^{\circ}$  W 100 ft N pt near line

Beg @ 160 N side marsh run  
 S  $70^{\circ}$  E 150 -  
 NE 150 ft left 50 ft from road  
 S  $45^{\circ}$  E 150 -  
 S west to line

Harold plots uses 3<sup>d</sup>  
 dynamite 2 shots Full and Cap  
 shoots out stump @  $1/16$  mi SE  
 $1/4$  N. half left 6 inches N of IM  
 which Bab and Lyman 16 feet  
 in. Harold plots  $1/4$  day \$1.25  
 cor 5 miles - 75¢  
 dynamite 100 Total - \$3.

Bab and Harold set 2x48  
 shot IM @ S  $1/16$  E side 29 set in  
 W side of small marsh 4 rods from  
 Hardpan battery.  
 March 300 ft long N S - 150 wide  
 pits about 150 ft W of marsh

Meander of marsh and lake E. side

see 29.

@ 2010 N on random Marsh bar  
560' W 150 ft then NE

2010 - sta 0' from which swamp bar  
N 50° E 125

2100 run N 330 W across bog 243  
ft to point in bank point of land (841)  
20 ft from bog E side work  
sharp point of land NE 75 ft

From Sta 2100 N on random at  
100 ft E to solid land

@ 2200 N 125 E to land

2275 - at narrow cut pt of land  
on the east and is 50 ft W or S to  
solid point of land

② = pt of narrow

① = up on bog bank

② E edge of bog run N 37° E 125

② run N 23° E across bog 300 ft

② water 100 ft W

② N 23° E 333 ft E edge of bog ③

124 ft E of EP station  
③ clear water 124 ft to H

④ - Brick stack in bog

③ sup run north 100 ft W

④ it is 100 ft W to water

④ run south 125 ft to pt 10 ft E  
of water

Sta 4 run N. on pond 125 L. bog  
 Land & L. 25 ft west and  
 E edge of bog run 600 ft N of  
 Sta 4 and kept 25 ft W of pond  
 by sharp pt. NE cor  
 kept 20 ft N of Sta 4 by is  
 250 ft W of ...

④ Chan west across bog  
 @ 150 Lake S 150  
 385 W bank of bog Sta 5

⑤ 150 NW of water

⑤ bog run N 24° E 300 to 500 ft

⑤ S 44° W edge of bog

@ 100 water 30 ft E

200 bog 20 ft W water 50 E

@ 300 hit bank 30 ft from water ①

⑥ S 7° E 160 to 20 ft from lake

⑦ S 16° W @ 150 = 50 ft from lake

200 in 100 ft from water  
 300 in 100 ft

⑧ S 84° E across bog

@ 100 sup. line S 100

water N E 50 @ 150 water N 30

sup S 30 - @ 275 S 84° ⑨ on

bank 30 ft SE of water

⑨ N 46° E across bog edge

@ 100 bog 20 R Lake 30 L

300 ft lake 200 water 30 L

334 Sta ① 100 ft from water

① water line

① Due North

200 ent water 300 LV E x lines E  
100 ft

① N 30° W 200 ent water 400 LV

① N 45° W 150 ft water

① ~~west~~ N 62° W 100 ft to water

Correcting From  
Intersection of random Lines  
Point

1. gaer West 13.8

2. " West 39.1

3. " 64.4 West and 1.15 North

See Map Page 59

④ gaer East 1.90 and N 0.57 of foot

5 " " 4.63

6 " E 7.56

See Page 59.

4:20 P.M. Curo goes to Bred. Lyman &

J. put in N  $\frac{1}{16}$  and Intersect and get

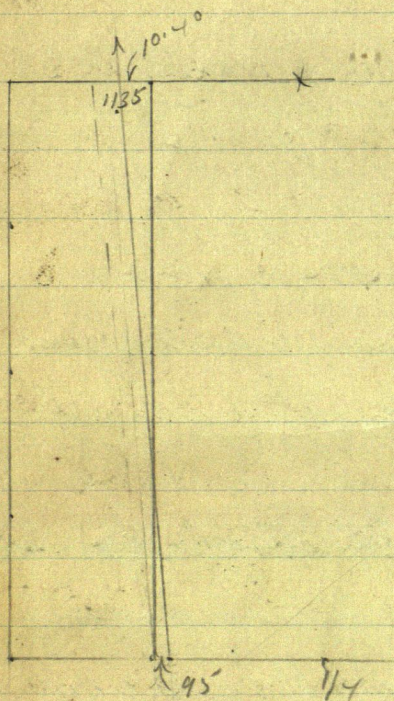
Point for U.S. Standard Mon & of N. 1/4.

put at 7:00 P.M.

(66) Correcting West  $\frac{1}{4}$  line sec 29  
 = 11.35 - 95' of front at each corner

$$\begin{array}{r} 8) 1135 \quad (1.429) \\ \underline{88} \\ 255 \\ \underline{220} \\ 35 \end{array}$$

$$\begin{array}{r} 1442 \\ \underline{3} \\ 326 \\ \underline{95} \\ 231 \end{array}$$



July 1, 1921.

Lyman Hardy, Hamlett & I in A.M.

put in  $\frac{1}{4}$  NW  $\frac{1}{4}$ , W  $\frac{1}{2}$  N side sec 29,  
 $\frac{1}{4}$  N  $\frac{1}{2}$  sec 29, also put in points  
 for center of sec 29  $\frac{1}{4}$  S  $\frac{1}{2}$ ,  $\frac{1}{4}$  SW  $\frac{1}{4}$ ,  
 $\frac{1}{4}$  West  $\frac{1}{2}$  of sec 29 - 138-27

Hamlett takes dinner with Hardy's  
 P.M.

Lyman Hardy & Hamlett put in U.S.  
 standard MON. while Geo Hardy, & I  
 run South  $\frac{1}{4}$  Mile from  $\frac{1}{4}$  on west  
 side sec 29.

Starting at  $\frac{1}{4}$  on west side sec 29,  
 chg. South 200  $\frac{1}{4}$  Road running west  
 297.9 Hub, 300.600, 792. Road -  
 7.5 ft South to Road -  
 900, 1200, 1321.08 to S  $\frac{1}{2}$  on west  
 side sec 29.  $1321.08 \div 2 = 660.53$   
 at 660.53 put in hub for  $\frac{1}{4}$  of NW  $\frac{1}{4}$  of  
 SW  $\frac{1}{4}$  Start to Rain,  
 S.W.

July 2 1921.

Starting at the center of sec 29 Hamlet,  
I start to Run Randon for  $\frac{1}{4}$  mile  
south then work transit on line.

Moist Brush & chain - 300, ~~376.6~~

660 Sub. 900, 1106.7 Hat.

1320 Hab. turn S 89° 20' W 34.2 ft.

Lyman Hardy Put in E of SW  $\frac{1}{4}$   
sec 29.

$$34.2 \div 2 = 17.1 \text{ ft.} = \frac{1}{2} \text{ of NE } \frac{1}{4} \text{ of}$$

SW  $\frac{1}{4}$  thence to hat on west side.

29 & Run South on Randon mis,

or 1903. South.

$$1.90 \div 2 = .85$$

$$.85 + 1.90 = \textcircled{2.75} = 2.31$$

July 3-1921  
Sunday

Curt and Cor. get up early - leave  
before breakfast.  
L. Babcock to dig holes. Drive  
to Hordys - eat breakfast with Hordys.  
Bring Lyman back. finish setting  
W 1/16 A. side 29-

Had to cut off men leaving  
anchor rod in place

drive to A 1/16 W side 29  
meet Hamlet. Leave Hamlet &  
Hamlet to dig hole.  
Curt takes Bab. back to Halls  
for his breakfast  
then back to work

SW Cr 29-8" J

Pop 5 S 42° W 26.0

" 6 S 52° 30' E 34.45

" 4 N 50° 30' W 34.2

" 3 N 10° 30' E 100.40

8" cedar fence cor post

N 52° 30' E 41.55

150

Levels Co. Ditch No. 12.  
Birch-Ten Mile Lake  
Thorofare

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MINING  
TRANSIT BOOK  
363

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Return to  
County Surveyor  
Walker, Minn.

CHAPTER 441--H. F. No. 1214.  
AN ACT to amend Chapter 44 of the General Statutes of Minnesota for 1913, relating to drainage by adding thereto certain sections to be known as Sections 5481-A, 5481-B, 5552-A, 5552-B, and 5672-A, and to amend Sections 5525, 5526, 5527, 5530, 5534, 5536, 5537, 5541, 5542, 5551, 5571, 5605, 5672 and 5703, all of said sections relating to public ditches and the drainage of lands, assessments of damages and benefits resulting therefrom, defining the duties of the State Drainage commission, engineers and state and county officials so far as the same relates to drainage and drainage ditches, providing for appeals in certain cases and for the cost of construction of bridges over such ditches under certain conditions.

Be it enacted by the Legislature of the State of Minnesota:

Section 1. Amend Chapter 44 of the General Statutes of Minnesota for the year 1913, relating to drainage, by adding after Section 5481 a new section to be known as Section 5481-A as follows:

"5481-A. The State Drainage Commission of the State of Minnesota is hereby authorized and empowered, and it shall be its duty to prescribe rules and regulations for the establishment and construction of drainage projects under any and all of the drainage laws of the state in accordance with what may seem to said Commission to be just and proper and consistent with the provision of law governing ditch proceedings and such commission shall furnish copies of said rules and regulations for the use of engineers, county officials and others engaged in such work, but said rules and regulations shall be construed to be advisory only.

It shall be the duty of any engineer appointed by any court or board to take charge of any drainage project to proceed therein and be governed as far as practicable in his work therein by the rules and regulations made by the said drainage commission and all such engineers engaged in any such project shall make an additional copy of their plats, maps, profiles and reports, and shall transmit such copy of all said papers to the drainage commission and such commission shall file and keep the same and shall make and keep a permanent record of such items thereof as it may deem proper in books to be prepared for that purpose and kept in the office of such commission.

In taking the levels of the surface of the ground over which the engineer shall make his survey for any such drainage project, he shall, whenever practicable, use as his base datum the sea level datum as determined by the use of the elevation of bench marks, which have heretofore or may hereafter be established by the United States Geological Survey, the United States Coast and Geodetic Survey, the United States Corps of Engineers and other reliable engineering authorities.

## Summary

### Duties of Engineer in

#### Charge of Ditch

Sec. 2. Amend Chapter 44 of the General Statutes of Minnesota for the year 1913, relating to drainage, by adding after Section 5481-A of said statutes a new section to be known as Section 5481-B, as follows:

"5481-B. The State Drainage Commission is further authorized and directed upon request to examine, criticize and pass upon any plans for the construction of drainage projects which may be submitted to it by officials having the same under consideration.

Any court or county board having before it any proceedings to establish or repair any drainage project may submit to said drainage commission the petition, engineers' reports and other papers in connection therewith and propound to said commission any question relative to said proceedings or said project which it may desire to have answered and said commission and the state engineer or his deputies and assistants shall forthwith proceed to examine all the papers so submitted and shall in good faith answer all such questions so propounded and if in the opinion of the drainage commission there is any defect in any of the plans and designs so submitted, the said commission shall report the same back to such court or county board with its recommendations as to what alterations, corrections or additions should be made.

And whenever in the opinion of said drainage commission or said engineer it shall be deemed advisable and for the best interest of such drainage project that an examination upon the ground should be made of the route of the proposed drainage project, then said commission is hereby authorized to cause such examination to be made before passing upon the report of the engineer in said proceedings. In case such physical examination shall be made of the proposed route, the expense thereof shall be at once reported to said court or board, and such expense, as it

Sec. 3. Amend Section 5523 of the General Statutes of Minnesota for 1913 as amended by Chapter 300 of the General Laws of Minnesota for the year 1915 so as to read as follows:

5523. The county board of the several counties and the district court of the several districts of the State of Minnesota, are hereby authorized and empowered to make all necessary orders for and cause to be constructed and maintained, public drainage systems, drains and ditches to deepen, widen, straighten or change the channel or bed of any river, creek or waterway following the general direction thereof, and when practical terminating therein to extend the same into or through any city or village for the purpose of securing a suitable outlet to drain in whole or in part, meandered lakes which have become normally shallow and of a marshy character or which are no longer of sufficient depth or volume to be of any substantial public use for fishing, boating or water supply, and when deemed necessary to control flood waters therein may raise, lower or establish the height of water in any lake, body of water or water course and cause to be constructed all necessary structures and improvements to maintain the same for flood control or other public purposes, and where only a part of the meandered lake is to be drained to cause to be constructed dykes or dams for the purpose of holding the water at ordinary high water mark in that part of the lake not to be drained, but no meandered lake upon which any city or village is now a riparian owner shall be drained or lowered unless by the approval of a majority vote of the legal voters of said city or village at any annual or special election held for such purpose.

Sec. 4. Amend Section 5523 of the General Statutes of 1913 so as to read as follows:

5523. Before any public ditch or drain or other work specified in Section 5523 shall be established under the provisions of this act, a petition signed by not less than 25 per cent of the owners of the land described in such petition, but in no event shall more than eight signers be required, or by the supervisor of any township or the duly authorized officers of any city or village council, which township, village or city is liable to be affected by or assessed for the proposed construction or by the duly authorized agent of any public institution, corporation or railroad whose lands or property will be liable to be affected by or assessed for the expense of the construction of same or by the state Board of Control or its duly authorized agent, setting forth the necessity thereof that the same will be of public utility and will promote the public health, the description of the starting point, the general course and the terminus of same together with a description of the lands over which the proposed ditch or improvement passes, and that the petitioners will pay all costs and expenses which may be incurred in case the proceedings are dismissed, or for any reason no contract for the construction thereof is let, shall be filed if for a county ditch with the county auditor and if for a judicial ditch, with the clerk of the district court.

Upon the filing of such petition and before any action is taken thereon, one or more of such petitioners shall make and file a bond payable to the county in the sum of not less than two thousand dollars, with good and sufficient sureties to be approved by the officer with whom the same is filed, conditioned to pay all costs and expenses which may be incurred in case the proceedings are dismissed or for any reason no contract is entered into for the construction of the ditch or drain petitioned for. If it be made to appear at any time prior to the letting of the contract for the construction of such ditch or drain, that the bond of the petitioners is insufficient, either in amount or as to surety, to protect the county from loss on account of any cost or expense incurred or to be incurred, the court or the board may, and it shall be its duty, to require a further and additional bond and all further proceedings shall be stayed until such bond is furnished, and in case such additional bond is not furnished within ten days from such notice, the proceedings shall be dismissed.

Any party signing such bond, either as surety or principal, or a majority of the petitioners, may at any time subsequent to the filing of the engineer's report, and prior to the letting of the contract, pay the costs and expenses incurred to that time, and upon ten days' notice in writing to the petitioners of their intention so to do, cause such proceedings to be dismissed, unless one or more of the petitioners in the meantime cause a new bond to be filed in lieu of the former one.

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Sec. 5. That Section 5626 of the General Statutes of Minnesota for 1913 be and the same is hereby amended so as to read as follows:

5626. Upon the filing of the petition and bond as herein provided, the County Board in a County ditch proceeding and the Judge of the District court in a Judicial Ditch proceeding, shall within 30 days thereafter by order appoint a competent and experienced civil engineer, and direct him to proceed and examine into and report within the time fixed in said order to said Board or court all matters necessary and essential to disclose the practicability, necessity and advisability of the construction of the proposed ditch or improvement, and the engineer so appointed shall within 10 days thereafter take and subscribe an oath to faithfully perform the duties assigned to him according to the best of his ability, and shall give a bond in the sum of \$5,000 with good and sufficient surety, payable to the county or counties affected by the proposed ditch or improvement, for the benefit of such county or counties, and also for the use of all parties aggrieved or injured by any negligence or malfeasance on the part of said engineer, conditioned that he will diligently, honestly, and to the best of his skill and ability perform his duties as such engineer in said proceeding, said bond to be approved by the auditor or the clerk, as the case may be, and thereupon said engineer shall without delay proceed and examine all matters named and referred to in said petition, and make such preliminary survey of the territory likely to be affected by the proposed improvement as will enable him to fully determine whether the same is necessary or practicable and report accordingly, and if some other or different plan than that described in the petition is found practical, said engineer shall so report, giving such detail and information as will be necessary to fully inform the court or county board on all matters pertaining to the practicability or feasibility of the proposed plan either as outlined in said petition or according to some other or different plan that may be designated or recommended by said engineer, but it shall be his duty to outline and designate all changes whether by extension, adding main laterals or otherwise that may be necessary to make the plan of the proposed improvement practicable and feasible, showing the probable size, character and cost of such laterals, and if the construction of a ditch or drain is involved in the proposed improvement, said engineer shall specially examine and report the nature and capacity of the outlet and any extension that may be necessary to supply the same, and if he finds the improvement petitioned for is feasible, he shall include in his report a map of the proposed improvement, giving the description of the different tracts of land likely to be affected, and outline thereon any recommended changes, and give so far as known, the names of the owners of the property and corporations affected, and the probable area that is likely to be drained or affected by the proposed improvement, and such other information as the Board or court may order.

Upon the filing of the report of the engineer as herein provided with the county auditor or clerk of the district court, as the case may be, it shall be the duty of said auditor to immediately notify the county board, or the clerk the judge of the district court of the filing of said report, and the said auditor or said clerk with the approval of the judge, shall fix a time for the hearing thereon, not to exceed 30 days from the date of filing thereof, and within 10 days thereafter shall by mail notify the several petitioners and the owners of the several tracts of land affected by the proposed proceeding as shown in the engineer's report, of the time and place of said hearing, and at such time and place fixed, said engineer shall attend before said county board or judge of the district court, and make such explanation and supply such information as may be necessary to fully inform said board or court of all facts named or referred to in his report, and such other facts as affect or relate to such improvement petitioned for or as recommended by him, and the petitioners and all other parties interested may appear and be heard, and if upon full hearing, it shall appear that the proposed improvement is not practical and no plan is reported by the engineer whereby it can be made practical, or is not of public benefit or utility, or that the outlet is not of sufficient capacity, then said petition shall be dismissed, but if the county board or district court shall be satisfied that the proposed improvement as outlined in said petition or as modified and recommended by the engineer is practical, that there is necessity therefor, and that it will be a public benefit and promote the public health, and have an outlet of sufficient capacity, then said board or court shall so find and by said order shall designate the changes that shall be made in the proposed improvement from that outlined in the petition; said changes may be described in general terms, and shall be sufficiently described by attaching to said order and said petition, a map drawn by said engineer outlining the proposed improvement thereon, and the changes made, and thereafter said petition shall be treated as modified accordingly. Upon the filing of said order, said board or court shall order said engineer or any other engineer, if a change of engineers shall be determined, to proceed and make a detailed survey and furnish all necessary plans and specifications for the proposed improvement, and report the same to said board or court with all reasonable dispatch, and in case of a change of engineers, each new engineer shall make and file the oath and bond as provided in this section.

4

Upon the filing of such order, such engineer shall forthwith make a correct survey of the line of said ditch, drain, creek or water course, and of the branches thereof, if any, from its source or sources, to its outlet, or outlets; and he shall cause stakes or monuments to be set along said line, numbered progressively up or down stream, each one hundred feet; and he shall make a computation of the number of cubic yards of earth to be excavated and removed from said ditch, drain, creek or water course between each of the one hundred foot stakes, and the estimated cost per cubic yard for the removal thereof, and shall sum up the total number of cubic yards of earth to be excavated and removed for the entire length of such ditch, drain, creek or water course, and shall make an itemized tabulation of all cleaning of obstructions of water courses, building of flumes, of other wood or masonry work, construction of fences for protection of the ditch, and construction of bridges or other additional construction work found necessary, together with the estimated cost thereof, and shall make an estimate of the total cost of laying out, establishing and constructing the whole work (including branch ditches, if any), and including all preliminary and other expenses connected therewith, and with the inspecting and certifying to the work when and as the same is completed. He shall also, in tabular form, give the depth of cut, width at the bottom and width at the top, at the source, outlet,

and at each one hundred foot stake or monument of said ditch, creek or water course; and he shall specify the time, so far as practicable, and the manner in which the work shall be done, and may for that purpose set a different time for completing the several contracts, and also for completing any station or stations included in each contract, and shall have power, when he finds it necessary, to provide for running said ditch underground, through drain tiles, or other materials, as he deems best, by specifying the size and kind of tile, or other material to be used in such underground work, and shall estimate the cost of the same, as a part of the total cost of the work.

He shall also include in his report a form of contract as complete in its provisions as practicable and which shall contain detail and complete specifications by direct statement, or by reference to other parts of the report, and shall provide for all necessary supervision of the laying of tile, excavation and other construction work of the contractor or contractors, and which shall define the relation which shall exist between the county and the contractor or contractors and which shall give the engineer the right with the consent of the county board or the judge of the district court, as the case may be, to modify his reports, plans and specifications as the work proceeds, and as circumstances may require, provided no changes are made that will substantially impair the usefulness of any part of the ditch, or substantially alter its original character or increase its total cost by more than ten per centum (10 per cent) of the total original contract price for the construction thereof, but no such increase shall make the cost of the ditch or work exceed the total estimated benefits as found by the court or board, which added cost is to be paid by the county to the contractor at the cost fixed for like work in said contract, and the county attorney, upon request from the engineer, shall assist him in the preparation of said form of contract, specifications and provisions. In locating a public ditch, drain, creek or water course or the branches thereof, the engineer may vary from the line described in the petition, as finally adopted by the board or court, or from the starting point thereof, as he deems best, and as he finds necessary for the complete drainage of the lands likely to be assessed for the ditch originally petitioned for, and, provided, that he shall have authority to specify such branch ditch, or ditches, as in his opinion may be necessary to give owners of lands likely to be assessed for the construction of the main ditch as finally modified by the court or board, the full benefit thereof, and he shall do the same things and report the same data, tabulations and estimates with reference to said branches as are required by this law with reference to the public ditch, drain, creek or water course or the branches thereof, described in the petition; provided, that such branch ditch, or branch ditches may either be opened at the same time and in the manner as the main ditch, or the engineer may only locate said branch, ditch or ditches for future construction, but he must fix a time limit as to the construction of any such branch ditches. In all cases in which the route proposed is along highways already established, the engineer shall locate the ditch at sufficient distance from the center of such highway to admit of a good road along the central line thereof. That earth taken from the ditch shall be so placed, and the brush or timber taken from the right of way of such ditch may be so placed upon the roadway as to form a turnpike, which shall be provided with sufficient and suitable culverts or openings so as not to obstruct the natural flow of surface water in time of high water, and no nearer to the margin thereof than two feet. When there is not sufficient fall in the length of the route described in the petition to drain the land adjacent thereto, or when for other reason it appears expedient, he may shorten or extend the ditch from the outlet named in the petition far enough to reasonably effectuate the purpose for which the work is intended. When, in his opinion, it will not be detrimental to the usefulness of the whole work or to the usefulness of any extensive section of the whole work, he shall, as far as practicable, locate the ditch on division lines between lands owned by different persons; and he shall, as far as practicable, avoid laying the same diagonally across lands, but he shall not sacrifice the general utility of the ditch to avoid diagonal lines.

Sec 5527

Where a more feasible outlet will be had the engineer may, with the approval of the board or court first obtained, shorten or extend the ditch from the outlet described in the petition far enough to effectuate the purpose sought, and where more economical or better results will be accomplished, provide for different parts of the drainage to flow in different directions with more than one outlet, and in all such cases the viewers shall assess benefits and damages to such additional lands. It shall not be necessary for such ditches to connect if they embrace the drainage area intended to be affected by the petition instituting the proceedings. Where no practical outlet can be had but through the lands of an adjoining state, he shall procure a description of the necessary right-of-way and probable cost thereof and estimate the cost of constructing an outlet through the same. Provided further, that if in any pending proceedings an engineer has been appointed to make a survey as contemplated by Chapter 44, General Statutes 1913, and said engineer has made such survey but has not filed his report, the preliminary survey provided for in this act shall not be required.

In making a survey the engineer shall fix and establish suitable bench marks upon permanent objects not more than one mile apart along the side of the line surveyed, so that the same will not be destroyed in constructing the system and carefully note the location thereof in his field book.

The engineer shall enter all field notes made during the survey and construction into a field book properly ruled, make a complete and accurate map and profile of the drainage system as surveyed by him upon good tracing cloth; such map shall be drawn to a scale, show the number of the section, township and range in which the lands affected are situated, the division of such lands into farms, the number of acres, and the names of the owners thereof, the location of the buildings thereon, each station number in figures, location of the bench marks, the public streets, highways and railroad right-of-way affected, the names of the county, township and municipality in which such lands or any part thereof are situated, and all other matters necessary to the understanding of the board or of the court. The profile shall be drawn on a scale, show the elevation, grade, depth of cut, size of tile, and the elevation in figures of each branch and lateral at its source and outlet. When the work of construction is completed, or when for any cause the engineer ceases to longer act as such he shall cause the original maps, profiles, and field books to be filed, in the office of the clerk or auditor where such proceedings are pending.

5527

Sec. 6. That Section 5527 be amended to read as follows:

5527. He shall thereupon make a detailed and complete report of his doings, which shall include all maps, profiles, specifications and matters herein provided for, and submit therewith the necessary plans and specifications and a description of the lands over which the ditch or ditches is or are surveyed. Such report shall give the names of assistants and laborers and the time each was employed by or under him, together with his own time on the work, and every other item of expense by him incurred in and about the said work, and he shall forthwith file such report with the auditor after having subscribed and sworn to the same. All reports, except reports as to assistants and expenses incurred, all plans, specifications, maps or profiles herein required to be made by the engineer shall be made by him in triplicate and filed in the office of the county auditor or the clerk of the district court, as the case may be, one for each auditor, one for the State Drainage Commissioner and one with a copy of the contract shall be delivered to the contractor at his request at any time after the execution of the contract.

Every such engineer shall every two weeks after the beginning of his work and during the time he is engaged in the same, up till letting of contract, make an accurate report of all expenses connected with such drainage project incurred by him or under his direction and file the same with the auditor or clerk, as the case may be, and under no circumstances shall he incur a greater expense on account of such ditch project than the bond provided by the petitioners calls for.

It shall be the duty of the court in the case of all ditches established by it to cause all contracts entered into under the provisions of this section to be carried into effect and to cause all ditches and drains so contracted for to be constructed according to such contracts and the plans and specifications of the engineer; and it shall be the duty of the county board in the case of all ditches established by it, in like manner, to cause all such contracts to be carried out as above provided.

5530

7

Sec. 7. Amend Section 5530 of the General Statutes of Minnesota for the year 1913, so that the same shall read as follows:

5530. Said viewers shall forthwith file with the county auditor a report of all their doings and findings in detail, including expenses and the actual time they were engaged. They shall in every case completely perform every duty by this act imposed upon them (except in case of a re-reference, as hereinafter provided), within thirty days from the date of their first meeting; provided, that if the water be so high, or the weather so inclement, or such unavoidable accidents occur as in the opinion of the board of county commissioners to practically and reasonably prevent them from so doing, the necessary delay caused thereby may be excused by such board; but the report of said viewers must in such case state the reason for such delay, and if such reason be not deemed sufficient by the board of county commissioners such viewers shall forfeit one-half of the compensation hereinafter provided. No attorney, engineer or any other person interested in the ditch shall be with the viewers while they are considering and determining the assessments of benefits and damages to be fixed by them."

Sec. 8. Amend Section 5534 of the General Statutes of Minnesota for the year 1913, so as to read as follows:

Section 5534. Any person or corporation aggrieved thereby may appeal from an order of the county board made in any ditch proceeding and entered upon its records, determining either of the following matters:

First: The amount of benefits to any tract of land or owner of any public or corporate road or railroad.

Second: The amount of damages allowed to any person, persons or corporation or assessed to any tract of land.

Third: Refusing to establish such proposed ditch.

Any person so appealing on the first or second ground may include and have considered and determined benefits or damages affecting lands other than his own in such ditch proceeding.

He shall specify in his notice of appeal the particular land and the assessment appealed from, and such notice of appeal shall be served upon the owner or occupant of such land or upon the attorney who represented such owner in the proceedings before the court or board. In case such owner has made no appearance by attorney or otherwise in such ditch proceeding then said notice of appeal shall be served upon the clerk or auditor where said proceedings are pending.

To render such appeal effectual such appellant shall file with the county auditor within thirty days from the date of such final order a notice of appeal which shall briefly state the grounds upon which such appeal is taken, accompanied by an appeal bond to the county board with sufficient sure-

ty in not less than \$250.00 to be approved by the auditor of the county in which such appeal is taken conditioned that said appellant will duly prosecute the appeal and pay all costs and disbursements that may be adjudged against him and to abide the order of court. Within 30 days after such filing the auditor shall make a complete transcript of all the papers and proceedings on file and of record in his office so far as the same pertain to the premises or matter on account of which the appeal is taken together with the notice of appeal and file the same in the office of the clerk of the district court of the county. For such services the auditor shall receive the sum of \$3.00.

Any person deeming himself aggrieved in a county or judicial ditch proceeding by an order of the county board or the court, as the case may be, determining the amount of his benefits or damages, or the benefits or damages assessed upon lands other than his own as hereinbefore provided, may demand a jury trial to determine the amount of such benefits or damages, as the case may be, on account of the construction of such ditch. Such demand shall be in writing, signed by the party making the same, or by his agent or attorney, and with a copy of the proposed bond shall be served upon the attorney for the petitioner, if any, and if not, then upon the county attorney of the county wherein proceedings were instituted and the original bond and notice, with proof of service as herein required, shall be filed in the office of the clerk of the district court within and for the county in which the proceeding is pending within 20 days after the filing therein of the order confirming the report of the viewers. In a judicial ditch proceeding such demand shall be accompanied by a bond in the sum of at least \$250.00 with sufficient sureties to be approved by the clerk of the district court wherein such proceedings were commenced, said bond to be conditioned that defendant will pay all costs and disbursements adjudged against him and further conditioned to abide the order of the court therein. The issues raised by such demand shall stand for trial and shall be fully tried and determined at the next term of the district court held within the county in which such proceedings were commenced, or in such other county in which such trial shall be held as hereinbefore provided, beginning after the filing of such demand, and shall take precedence of all matters of a civil nature in said court. If there be more than one demand triable in one county, they may be consolidated and tried together, but the rights of such demandants shall be separately determined by the jury in its verdict. If the defendant or appellant fails to recover more damages than awarded to him or fails to reduce the amount of benefits assessed against his land, then the costs of such trial shall be paid by the defendant or appellant as the case may be. The construction of any such ditch shall not be ordered, delayed or prevented by the prosecution of any appeal or demand herein mentioned. In case of demand for a jury trial as to assessments of damages or benefits to land situated in a county other than the county wherein such ditch proceedings were instituted and are pending, and in case such defendant for jury trial so requests in such demand, such trial as to the land situated in such other county shall be held at the next term of the district court of the county wherein such lands are situated, and in such case the clerk of the district court where such demand is filed shall make, certify and file in the office of the clerk of the district court of the county where such trial is to be had a transcript of the papers and documents on file in his office in such proceeding so far as pertain to the matter on account of which said appeal is taken. After such trial the clerk of the district court of the county where such action is tried shall make, certify and return the verdict of the district court of the county wherein such proceedings were instituted and such verdict or order shall be entered and enforced as a part of the proceedings in such last mentioned county.

5536

9

Sec. 9. Amend Section 5536 of the General Statutes of Minnesota for the year 1913, as amended by Chapter 309 of the General Laws of Minnesota for the year 1915, so as to read as follows:

5536. Within ten days after the filing in the office of the auditor or clerk as the case may be, of the order establishing a ditch or drain, the auditor, chairman of the county board and the clerk of court, or a majority of them in the first instance, and in the second instance, the auditors of the respective counties meeting for that purpose at the office of the auditor of the county in which the proceedings are pending with the chairman of the county board and clerk of court of said county, or a majority of them, shall proceed as hereinafter provided, to sell the job of digging and constructing the entire work either as one job or in one or more linear sections of 100 feet each, each of said sections to be known and numbered by the stake or monument set by the engineer at the foot of each such section as shown in the engineer's report, commencing at the one including the outlet and thence in succession up the stream to the one including the source. The auditor or auditors, as the case may be, together with such chairman of the county board and clerk of court, or a majority of them, may with the approval of the engineer, sell separately from the jobs of excavation, any jobs of building of flumes or other wood or masonry work, fencing or other construction work specified in the engineer's report. The auditor or auditors as the case may be, with such chairman and clerk, or a majority of them, may if deemed for the best interests of all concerned, let a separate contract for the furnishing of material for the construction of such system. The auditor or auditors, as the case may be, with such chairman and clerk, or a majority of them shall contract in the name of the county or in the name of the respective counties as the case may be, each acting by and through its auditor, chairman and clerk, with the party to whom any of such jobs of construction work or any section or sections is or are sold, requiring him to construct the same in the time and manner and according to the specifications, provisions and form of contract upon which the ditch is established, and shall take from him a bond in the penal sum of not less than 75 per cent of the entire contract price with sufficient surety payable

to the county or to the respective counties, or any two or more of them, as the case may be, for the use of such county or counties, as the case may be and also for the use of all persons who may show themselves to be aggrieved or injured by any breach thereof, or of the contract for which such bond is given; to be by said auditor or auditors, and such chairman and clerk, approved, conditioned that such party shall faithfully perform and fulfill his contract, and pay all damages which may accrue by reason of the failure to complete the work in the manner and within the time required in the contract therefor, and otherwise conditioned as in this act provided, which bond shall include a stipulation that no change, extension, alteration or addition to the terms of the contract or specifications shall in any wise affect the obligation of the principal or principals or surety on said bond. The auditor of the county in which the proceedings were taken shall give notice of the letting of such contract by publication for three successive weeks in the official paper of such county of the time when and the place where such contracts shall be let to the lowest responsible bidders; and in such notice shall state the approximate amount of work and the estimated cost and shall invite bids for the work as one job, and also for any one or more of such sections or any one or more of such construction jobs, and if a separate contract for the furnishing of material shall be deemed advisable such notice shall contain all matters hereinbefore specified, so far as applicable, and a statement of the kind and size of tile, the number of lineal feet of each size required, and the general specifications of all other materials required, the estimated cost thereof, the time within which the same are to be furnished, with such other matters as he may deem proper for the information of bidders. He shall reserve the right to reject any and all bids and no bid shall be entertained which exceeds more than thirty per cent of the estimated cost of the construction of the part of said work covered by said bid; nor unless accompanied by his certified check payable to the auditor or to the respective auditors, as the case may be, for not less than ten per cent of the bid; and said auditor and auditors, chairman and clerk, may adjourn such letting from time to time until the whole work shall be taken and with the approval of the engineer may let any one or more of such sections or any one or more of such construction jobs. When the estimated cost of the construction is more than \$3,000.00 the auditor may also advertise such letting in a trade paper. If no bids are received which can be entertained, the bondsmen for the petitioners may have the right at any time to pay the costs of the proceedings, and dismiss the same. The engineers shall attend to the letting of the work, and no bid shall be accepted without his approval, as to the compliance with plans and specifications."

5537

Sec. 10. That Section 5537 of the General Statutes of Minnesota for the year 1913 be amended so as to read as follows:

"5537. The bond and contract shall be attached to each other and the contract shall contain the specific description of the work to be done, either expressly or by reference to plans and specifications, and refer to the number of the section or sections, as provided for in the preceding section and shall provide that the work shall be done and completed as provided for in the report of the engineer, and subject to his approval and that of the auditor or auditors, as the case may be.

Such contract shall be drawn to the satisfaction of the engineer and the county attorney. Every such contract and bond shall embrace all the provisions provided by law for the giving of bond by contractors for public works and improvements and for the better security of the contracting county or counties and of the parties performing labor and furnishing material in and about the performance of such contracts and shall provide that time shall be the essence of the contract, in that if there should be any failure to perform the work according to the terms of said contract, within the time limited therein, originally or by extension, the contractors shall forfeit and pay to the county in which the portion of the work in default shall be located, a certain sum, to be named therein, and which shall be fixed by the county auditor or auditors, as the case may be, for each day that such failure shall continue.

The bond shall expressly provide that the bondsmen shall be liable for all damages resulting from any such failure, whether the work by resold or not, and that any person showing himself injured by such failure may maintain an action upon such bond in his own name and that such actions may be successive in favor of all persons so injured. Such contractor shall be considered a public officer and such bond an official bond within the meaning of the statutory provisions construing such official bonds, of public officers as security to all persons and providing for action on such bonds by any injured party in the district court.

No extension of time shall be granted by the auditor or auditors, as the case may be, unless applied for in writing to the auditor or auditors, as the case may be, stating to his or their satisfaction good and sufficient reasons therefor; nor shall any extension affect the right to enforce such forfeiture, if any, as shall after the time originally limited and before such extension, or accruing after the limit of the extension. One such extension may be made for a period of time not exceeding one year without notice.

No extension after the first above provided for, shall be granted until a hearing upon such application shall be held after such notice as hereinafter provided. In such case, the auditor of the county wherein such drainage proceedings were instituted, shall cause to be prepared and published as hereinafter provided, a brief notice setting forth the

17  
filing of such application and setting forth the time and place when and where the said application will be heard, considered, and determined by such auditor or auditors, as the case may be. At the time and place so designated the said auditor issuing such notice and if present such other auditors upon whom service of such notice is herein provided for, shall proceed to hear, consider and determine such application and shall make written order in relation thereto.

Such notice of hearing shall be published for two successive weeks prior to such hearing in each county affected by such drainage proceedings in the newspaper therein duly designated to publish the delinquent tax list for such year, and shall be served upon the county auditor or each such county so affected. The expense of such hearing and the publication and service of such notice shall be paid by such contractor applying for such extension.

Provided, that whenever tiling is used in the construction of any ditch or drain or any part thereof and the petition for said drain so requires, or at any time previous to the commencement of advertising for the sale of the job or jobs for the construction of the same upon a request of a majority of the petitioners in writing therefor, filing with the county auditor of the proper county, such contract shall require the contractor of the whole tile work or the contractor of any part thereof, as the case maybe, to guarantee all of such tile work done by any such contractor for a period of three years after the completion of any such contract, against any fault or negligence on the part of any such contractor and any failure during said period of any part of said tile work constructed by any such contractor, to accomplish the purpose of drainage for which it was intended, shall be prima facie evidence that the same is due to the fault or negligence of said contractor. Notice of such request shall be given by the county auditor in the advertisement for sale of such job or jobs.

The said contractor shall give a good and sufficient bond for the performance of such undertaking and contract. The acceptance of such tile ditch by the engineer or county board shall not relieve or exempt said contractor or his bondsmen from the liability therein imposed on said contractor for said three-year period.

Provided, further, that at the end of each year of each season's work, after giving such contractor's bond, and prior to the completion and acceptance of such job of construction the contractor may make verified application to the county board in case of a county ditch or in case of a judicial ditch, to the judge of the district court of the county where the proceedings were instituted, setting forth approximately the total yardage of excavation completed and total amount of other work completed, the contract price thereof and the value of the work theretofore certified as complete by the engineer, and the amount of money received by contractor, and further setting forth the amount then owing or unpaid by said contractor for labor or material already furnished in the matter of the completion of such contract, and asking an order reducing the amount of the contractor's bond.

Upon the receiving such application, the said judge of the district court or the said county board, as the case may be, shall proceed to hear, consider and determine said application upon such notice as shall be directed by such judge or by such county board respectively, and if upon such hearing, it is determined that no loss will result thereby, the said judge or the said county board may by order reduce the penalty of such bond to such a sum as shall be deemed advisable by such judge or such county board, as the case may be, but such reduction shall in no case exceed by more than twenty-five per cent the amount already paid to the contractor and such reduction shall not affect the validity or the enforcement, or in any manner otherwise affect the remaining amount of the penalty of such bonds."

Sec. 11. That section 3041 of the General Statutes of Minnesota for 1913 as amended by Chapter 300 of the General Laws of Minnesota for 1915 be and the same is hereby amended so as to read as follows:

"3041. It shall be the duty of the engineer on being notified by the contractor that his job is completed, to inspect the same, and if he finds it complete according to the contract, plans and specifications he shall report that back to the county board or court, as the case may be, and give to the contractor a certificate stating that said Section or Sections (by number) or other jobs of construction, are completed according to the contract, plans and specifications as set forth in the report of said engineer.

Provided, that when the work for which such certificate is to be issued, affects more than one county, proportionate certificate shall be issued to each county. Upon the filing of such report of the engineer that any ditch or job has been completed, the board or court shall fix a day when it will meet or hear the same of which meeting ten days' notice by mail shall be given by the auditor or clerk of court to all the land owners whose lands are assessed for benefits by the construction thereof, who are residents of the county, or whose postoffice address is known. Service of such notice shall be sufficient if the same is mailed ten days before the date of such hearing; whereupon, if approved by the county board or court, as the case may be, and upon presentation and surrender of said certificate with such approval endorsed thereon to the auditor or clerk, of the proper county said auditor or clerk shall draw a warrant on the county treasurer of his county in case of the auditor, and of the separate counties in case of clerk, for the proportionate amount found to be due from such county on said contract, according to such preliminary certificate, as herein provided; and that said warrant shall be paid out of the general ditch fund to be provided by the County Board as hereinafter specified. Said warrant shall become due and payable out of said funds at once, and if there shall be no cash in said fund to pay said warrant when the same is presented the county treasurer shall endorse said warrant "Not paid for want of funds" and date and sign such endorsement, and the amount of said warrant shall draw interest at the rate of six (6) per cent. per annum until called in by the treasurer or auditor of said county and paid.

At any time during the progress of the work of construction, the engineer may issue preliminary certificates for work done and approved or for material or supplies furnished and delivered along the line of said proposed ditch, or otherwise delivered according to the contract therefor and to be used for the construction or installment of tile or other enclosed drains or for bridges or culverts along the line of and as a part of said proposed ditch system; which preliminary certificates shall contain the station number or numbers of the work covered by such certificate, the actual yardage of the excavation certified, and the total value thereof according to the contract of construction, or in case the same is for material furnished, then an estimate of the total value of such material according to contract. Such certificates shall further show the percentage of such total value of the work or material to be paid by the county or counties, and if the proportion has been fixed by the District Court, such certificates shall further show the proportion of such total value to be paid by the respective counties. Such certificate shall be executed in duplicate by the said engineer, or in such number as may be necessary and as many thereof marked "duplicate"

shall be delivered to the contractor as there are counties affected, and such engineer shall further file one thereof with the county auditor of each county affected; provided, that except as hereinafter provided no engineer in drainage proceedings shall by preliminary certificate certify or recommend for payment and no county auditor shall cause to be paid a sum exceeding 85% of the total value of work done and approved or exceeding 65% of the total value of bridge and culvert material and not exceeding 50% of the total value of all other material or supplies furnished or delivered as such total value is shown by such preliminary certificate.

And provided further, that when the excavation work thereof on an open ditch or the construction work thereof on a tile system exclusive of the tile furnished shall be 50% or more completed and the contract of construction shall not be in default the engineer shall issue a further preliminary certificate allowing to the contractor 33 1-3% of the retained 15% on excavation or construction and of the retained 35% on material and thereupon the auditor shall issue his warrant therefor payable as herein provided for payment of warrants issued after the full completion of the contract of construction.

In case where the total estimated cost of construction of any such drainage ditch shall exceed the sum of \$30,000.00 and where fifty per cent. (50%) of the total amount of said excavation as shown by the engineer's report is complete and where the contract is not in default, the engineer may issue a further preliminary certificate setting forth the total value of previous construction work theretofore certified as complete by the engineer, the total amount of warrants issued to such construction contractors for such work, the total balance of sums retained by the county or counties involved, from preliminary estimates theretofore made, and the total percentage of the yardage of excavation theretofore finished and certified by engineer and the proportion of the cost of construction to be paid by the respective counties if more than one. Such further preliminary certificate shall be executed, delivered and filed by the engineer as other preliminary certificates provided for in this section and upon presentation thereof to the county auditor, such auditor shall thereupon forthwith issue to the contractors presenting the same his warrants for such county's proportionate share of 75% of the balance of such sums retained by the county or counties involved from preliminary estimates theretofore made as set forth in such further preliminary certificates provided for in this paragraph, provided that in case of ditch proceedings wherein the contract of construction has been entered into prior to the passage of this act, before the issuing and delivering of the said warrant to such contractors there shall be filed with the said county auditor the assent thereto in writing of the surety on such contractor's bond, such assent to provide that such payment upon such preliminary certificates shall not in any manner affect or reduce the liability of such surety upon such contractor's bond.

The provisions of this section shall apply to all public ditch proceedings heretofore or hereafter instituted, under any law of this state, except state and township ditches.

Provided, that no certificate or certificates of partial completion or of furnishing of material shall be furnished or delivered by the engineer unless the said certificate or certificates shall be accompanied by the engineer's written certificate that no loss will result from such partial payment. Provided, further, that the county or counties paying a preliminary estimate of the engineer on material furnished or delivered shall have a lien on the said material to the amount of all payments made thereon by such county or counties.

14

Provided, that the said certificate or certificates of the engineer in the matter of any county or judicial ditch proceedings or any other estimate or certificate required under any of the drainage laws of this state to be made by him, shall not constitute prima facie or other evidence of the truth of the contents thereof, or of the completion of any ditch or any part thereof by the contractor or otherwise, or of the fulfillment of the contract or part thereof.

It shall also be the duty of the engineer to inspect the laying of tile, excavation and all other work of construction from time to time, as provided for in the specifications and provisions in his report and as provided for in the contract for construction, and every thirty days during the progress of the work to report in writing to the county board or the judge of the district court as the case may be, as to all work completed since the last prior report, and his services for making such inspection shall be paid for at the rate and in the same way as his services in making his original survey and report.

15

Sec. 12. That Section 5542 of the General Statutes of Minnesota 1913, as amended by Section 4, Chapter 300, General Laws 1915, be amended so as to read as follows:

"5542. The county board of each and every county wherein any drainage ditch is proposed to be wholly or partly located and established, or wherein lands are located which are assessed for benefits by reason of the construction thereof, are hereby authorized after the lien statement prepared by the county auditor has been filed in the office of the register of deeds, to issue the bonds, of their respective counties in such amounts as may be necessary to defray in whole or in part, the expenses incurred or to be incurred in locating, constructing and establishing or repairing so much of any such ditch as may be located within said county; or in such relation to such county as to affect lands therein within the terms of this act. All such bonds shall be sold and negotiated as provided by Section 1856 of the General Statutes of Minnesota 1913, and not otherwise. The word 'expenses' shall be construed to mean and cover every item of cost of said ditch from its inception to its completion, and all fees and expenses to be incurred in pursuance thereof. Such bonds shall be payable at such time or times not to exceed twenty years from their date, and shall bear such rate of interest not to exceed six per cent per annum, payable annually or semi-annually, all as the county board shall by resolution determine. Each bond shall contain a recital that it is issued by authority of and in strict accordance with the provisions of this act, or such bond may be in such form as the state board of investment may prescribe, and shall be signed by the county auditor, who shall keep a record thereof. Said county board shall have power to sell and negotiate said bonds, as hereinbefore provided, but for not less than their par value. The proceeds from the sale of all such bonds shall be placed in a general ditch fund which is hereby created. The county auditor shall keep a separate account with each drainage ditch system, which account shall be credited with all moneys arising from the sale of bonds, all moneys received as interest or penalties or upon liens, charges, assessments and from all other sources on account of such drainage system, and which account shall be debited with every item of expenditure made on account of such drainage system. Such county board shall provide moneys for the payment of the principal and interest of said bonds as they severally mature, which moneys shall be placed in the general ditch fund, into which fund it may transfer any surplus moneys remaining in the general revenue fund or other funds of the county which can be properly used for the purpose of this act. Into which fund shall be paid all moneys received from the payment of any liens created under the provisions of this act. And such board is hereby authorized to pay drainage bonds issued under the provisions of this chapter out of any available funds in the county treasury, when the moneys on hand in the general ditch fund of the treasury are insufficient to meet the payment of bonds issued in ditch proceedings when the same mature, but the fund from which such moneys have been taken or used for the payment of bonds as they mature shall be replenished with interest at the rate of six per cent per annum from collections of unpaid assessments, for ditches, drains or water courses constructed under any proceedings had hereunder."

Except as herein otherwise stated, the provisions of this act shall not affect the rights or liability of any party to any existing contract or any surety on any existing bond, and existing statutes shall be deemed in force as to all such contracts and bonds."

Sec. 13. That Section 5531 of the General Statutes of Minnesota for 1913 be and the same hereby is amended so as to read as follows:

"5551. Any township, village, city, county or other municipality receiving any benefits from the construction of drainage improvement under the provisions of this act shall be assessable therefor for any improvements to any public roads, street or other property owned or controlled by such municipality, and in the case of villages or cities they shall also be assessable for any benefits derived from the construction of such drainage improvement by way of furnishing an outlet for drainage of surface waters from within or in the vicinity of such city or village and for the removal of unhealthful conditions in the vicinity of such village or city by the drainage of stagnant waters from within or in the vicinity of such city or village, or for the furnishing of any other drainage sewer outlet that may result in any benefit or improvement of the healthful conditions of said city or village, and it shall be the duty of the viewers appointed under the provisions of this law to assess such benefits to such municipalities. Whenever any public road or street shall have been found to be so benefited the city, village, town or county which is by law chargeable with the duty of keeping such road or street in repair shall be assessed the amount of such benefits accruing to such road or street within the limits of such town, village, city or county, and all benefits that shall result to any such village or city in consequence of being furnished an outlet for drainage of any kind or improvement of the healthful conditions of said city or village as hereinbefore specified, shall be also assessed against such village or city, by reason of the construction of such improvement and the same, being fixed and determined by order of the board or court at any final hearing, or in case of appeal at any subsequent hearing before the court, the amount of the liability of such municipality for such assessed benefits shall be determined in the manner provided in Section 5543 of the General Statutes of Minnesota of 1913, and the amount thus ascertained shall thereupon become a liability of such city, village, town or county, and shall be due and payable in ten annual installments beginning on the first day of June next following the date of the entry of the lien against private individuals as herein provided, and if such installments are not paid within thirty days after its maturity the amount thereof shall be extended by the county auditor against all the property in such city, village or town liable to taxation, and a levy thereof made thereon and the same shall become due, to be paid and collected in the same manner and at the same time as other taxes. In the event that for any reason an additional lien statement shall be filed in any drainage improvement the same method shall be pursued to ascertain the actual liability of each municipality or other party, and additional lien statement made and filed with reference to municipalities the same as in the case of lands or individuals. Provided: When any public road found to be benefited is a county or state road as defined by the laws of this State, the benefits accruing thereto shall not be assessed against any city, village or town chargeable with the duty of keeping such roads in repair, but the same shall be assessed against the county and the amount thereof shall be charged to and paid out of the general road and bridge fund of said county. Whenever the lands of any railroad company shall be determined in any such proceeding to be benefited by any such improvement said lands shall be assessed their just proportion of the benefits as other lands are assessed, and such assessments shall be collected from the owners of such lands and in the same manner as in the case of other lands.

17  
Whenever any railroad or the lands of any railroad company shall be determined in such proceedings to be benefited by any such ditch, such railroad, or the lands of such railroad company shall be assessed their just proportion of such benefits as other lands benefited are assessed, which assessment shall be collected from the owners of such railroad or from such railroad company in the same manner as personal taxes are collected by law. From the date of the filing by the county auditor or in the office of the register of deeds of the statement aforesaid, the amount of such assessment, with interest, shall constitute a lien against all property of such owners and railroad company within such county. Such lien may be foreclosed by action in the same manner as provided by law for the foreclosure of mortgage liens."

19

Sec. 14. Amend Chapter 44 of the General Statutes of Minnesota for the year 1913, relating to drainage, by adding thereto, after Section 5552, another Section to be known as Section 5552-A, to read as follows:

"5552-A. That in all counties where drainage ditches costing in the aggregate not less than \$50,000, have been or hereafter shall be constructed under the provisions of the laws of the State of Minnesota, by the district court or county board, there shall be appointed by the county board, a competent man who shall be known as county ditch inspector, whose duty it shall be to travel over the line of all of such county and judicial ditches in said county at least twice in each season and inspect the same, observe their operations and what repairs thereto or improvements may be necessary or proper, and immediately after such inspection he shall make a full report in writing to the county board of his work, together with his estimate of the cost thereof. He shall also include in such report an itemized statement of the time spent upon each ditch and of his expenses incurred in connection therewith."

Whenever it shall appear by the report and recommendations of such inspector that it is necessary and proper for any drainage ditch in such county to be repaired or improved, the county board shall take such steps as it may deem advisable to determine the necessity for such repairs and improvements and if in its judgment any repairs and improvements are necessary then it shall make an order specifying the same and it shall require said work to be done under the provisions of Section 5552 of the General Statutes of Minnesota for the year 1913, as amended by Chapter 300 of the General Laws of Minnesota for the year 1915 and all the provisions of said last named section shall apply to the making of such repairs and improvements so far as applicable.

The salary of such county ditch inspector shall be fixed by the county board and shall be paid out of the general revenue funds of the county which shall be reimbursed as provided for in said Section 5552 by assessment upon all lands originally assessed for benefits by reason of the construction of the ditches inspected by him.

Sec. 15. Amend Chapter 44 of the General Statutes of Minnesota for the year 1913 relating to drainage, by adding a new section after Section 5552A to be known as 5552B to read as follows:

"5552B. Whenever one or more parties owning land adjoining or in the vicinity of any outlet or any public ditch or drain, adjoining or in the vicinity of any body of water forming a part of or connected with any such ditch or drain, and having right of way connecting his or their land therewith, shall petition the county board of the county wherein said land is located for the establishment of a tile drainage system draining his or their land and connecting the same with said ditch or drain or body of water, and fully describing said proposed system in general terms, and said petitioners shall in their said petition fully authorize and empower said county board to do and perform all things necessary to establish and construct such tiled drainage system and to exercise in so doing all the authority by this act or any other law of this state granted to the board of county commissioners in the establishment of county ditches or county drainage improvements without the giving or service of any notice in connection therewith, and expressly waiving all such notice, and shall in and by said petition fully authorize said county board to order established and constructed said tile drainage system as finally determined upon by them, and to levy and assess the cost thereof against the

property drained, and benefited, and shall file said petition in the office of the county auditor of such county, then and in that event the county board shall have jurisdiction of all persons and property named, described and referred to, in said petition, and are hereby authorized to cause to be surveyed said drainage system as petitioned for, or as may be established by them, and upon the coming in of the engineer's reports may order said system established and cause the same to be constructed, and shall have and may exercise together with the county auditor all power and authority by this act granted to county boards and county auditors in the establishment and construction of county ditches or county drainage improvements, including the letting of contracts, the filing of summary statements and lien statements, the establishment of liens and the time and manner of payment and the issuance and sale of bonds, and all other acts and things by this act authorized, so far as the same may be necessary, as fully and with the same effect as in the case of regular proceedings to establish a drainage improvement under the provisions of this act. Provided, no county board shall incur any expense under the provisions of this section until a proper bond is furnished by said petitioners, in at least the sum of \$1,000, with sufficient sureties to be approved by the county auditor and payable to the said county, conditioned to hold the county harmless from any cost in connection with said proceedings, and all costs and expense incurred in connection therewith shall be added to and treated as a part of the costs of said proceedings, and assessed against the property benefited, and if the parties themselves have agreed upon a plan of division of the costs such plan may be adopted, otherwise viewers may be appointed with like authority and effect as in the case of ordinary county drainage proceedings. Provided, further; that in the event that at the land or some part thereof has not been assessed for the construction of said main ditch or drain then such system shall be connected with said ditch or drain only upon condition that all lands not assessed shall be assessed as provided by this act in the case of connecting laterals, and said lateral or tile system when connected shall be and form a part of said ditch for all future purposes."

Sec. 16. Amend Section 5571 of the General Statutes of Minnesota for the year 1913 so as to read as follows:

5571. The following fees and expenses shall be allowed and paid for services rendered under this act. To engineers a sum not exceeding the sum of \$10.00 per day, to be fixed by the judge or the county board making the appointment, for every day necessarily engaged and actual and necessary expenses including cost of bond. To each viewer the sum of \$4.00 per day for every day necessarily engaged in viewing ditches and traveling therefor and making up the reports and actual and necessary expenses. To each rodman a sum not exceeding \$3.00 per day and actual and necessary expenses. To each chainman, axeman and other like employees not herein mentioned and necessary to the prompt execution of the work of locating or constructing a public ditch, a sum not exceeding \$2.50 and actual and necessary expenses. To each member of the county board the sum of \$5.00 per day for each day actually occupied in proceedings to establish or repair or inspect any ditch after its completion or during the course of the work if appointed as a committee for that purpose and the sum of 10 cents per mile each way for travel necessary in attending any special meeting of the county board called for the purpose of transacting any business pertaining to such ditch and for travel in inspecting ditches or any other necessary travel in said ditch matter. To the county auditor, county attorney, attorney for petitioners, clerk of the district court, the register of deeds, the sheriff and other official performing duties thereunder, such reasonable compensation as shall be fixed by the county board or court as the case may be, and the fees and compensation of all such county officials and other officers in such proceedings shall be in addition to all sums and fees allowed them by law, provided that the fees of such auditor shall in no case be less than \$20.00 nor more than \$250.00. In all proceedings where any county is directly interested the county attorney thereof shall represent the county unless otherwise provided by the county board. No county attorney or his assistants or any attorney associated with him in business shall otherwise appear in any drainage proceeding for any person or party whatsoever interested therein. All fees, per diem, compensation and expenses provided for in this act and fees for other legal service and expenses as may be necessary shall be allowed and paid in the order of the county board or the judge of the district court, as the case may be.

The said judge or county board, as the case may be, may appoint a referee in any ditch proceedings to perform the duties hereinafter set forth and such referee shall qualify by taking the appropriate oath and giving bond to the county or counties affected by such ditch in such sum as shall be fixed by such judge or board, as the case may be. Said bond shall be conditioned for the faithful performance of his duties as such referee. Said referee shall be a qualified civil engineer. The fees of such referee shall be fixed by said judge or board, as the case may be, and shall be paid out of funds of such ditch as shall be ordered by said judge or board. It shall be the duty of such referee, if appointed, to consider all bills of account or applications for payment in such ditch proceedings and to hear evidence if offered in relation thereto and to report in writing to such judge or county board his approval, rejection or amendment thereof as such referee who shall also keep accurate record and account of all bills of account and all applications for payment acted upon by him and reported to said judge or county board together with copies of all such reports and all proceedings had in relation thereto. It shall further be the duty of said referee by order of said judge or board to inspect and examine and make report upon all work of construction in the matter of such ditch prior to final acceptance thereof and for the purpose of making such examination or inspection and upon application of such referee the said judge or board may appoint and designate a competent and experienced civil engineer, other than than the one officially acting as such in such ditch proceedings, to examine such ditch and the plans and specifications thereof and report thereon to said referee and it shall be the duty of such referee and if requested by such referee of said engineer to appear and testify before the judge or county board considering the final acceptance of such ditch. When order of said judge or county board approving a report of such referee and allowing a bill of account or application for payment in such ditch proceedings shall constitute and be construed as an accounting and allowing of such account by such judge or county board within the meaning of this Section and the approval by said judge or county board of any order of said referee shall constitute the said report of said referee, the order of said judge or county board in such proceeding, provided in all cases and said judge or county board may reject such report and make an independent order in relation thereto covered by or contained in such report. Such referee shall be subject to removal at the pleasure of said judge or county board.

Any land owner, employee or other person aggrieved by any order of court or county board relative to the allowance of fees or fees and expenses may appeal from such order to the district court of any county in which the proceeding is pending and by notice given on or before the first day of the term, demand and obtain a jury trial. All such appeals shall be taken within thirty (30) days after the order allowing such claim and shall be governed as far as applicable by the provisions of Section 5534 of the General Statutes of Minnesota for 1913, save that in all appeals taken by parties whose lands are assessed for said improvements, then the expenses thereof shall be paid by the county and assessed against said improvement.

23

Sec. 17. Amend Section 5605 of the General Statutes of Minnesota for the year 1913, so as to read as follows:

5605. In any case where one or more ditches or drainage improvements whether open or tiled, whether public or private shall have been or are being constructed or may hereafter be constructed, or for the construction of which proceedings have already been, or may hereafter be, initiated, the waters from which do or may empty into any creek, draw, water course or body of water, whether meandered or not, and the construction of said ditch or drainage improvement shall cause or is likely to cause by reason of the added waters, the overflow of the waters of said creek, draw, water course or body of water, and the inundation of the adjoining land, then, and in that event, upon the filing of a petition by the county board of any county affected, or by not less than four freeholders whose property is affected by such overflow, with the clerk of the district court of any county affected by such proposed improvement, setting forth in general terms the existence of said ditch or ditches and the conditions of said creek, draw or water course or body of water and outlet, and the necessity for the improvement of said outlet, and if need be, the controlling of said waters therein or in said body of water, or both, and that said proposed improvement will be a public benefit and utility and improve the public health and protect said land from overflow, and asking for the consolidation of all said ditches or ditch proceedings, whether public or private, connected with or emptying its waters into said outlet or into said body of water into one system, and the extension of the same so as to furnish a proper outlet for all waters of said basin that naturally drain into or through said outlet and that the cost of constructing such outlet shall be borne by all of the lands to be benefited, and that in order to equitably apportion the cost of the construction of said improvement on the extension of said outlet to all the lands to be benefited, it is necessary that such proceedings be merged and consolidated, and said petition shall be accompanied by a proper bond as provided in Section 4 of this law; thereupon the clerk of said court shall notify the judge thereof and said judge shall make an order fixing the time and place for hearing upon said petition and ordering all proceedings then pending in any or all of said ditch proceedings to be stayed until the hearing and determination of said petition, which petition and order shall be served upon all persons and parties interested in such ditch proceedings by publication thereof once a week for three successive weeks prior to the date of such hearing, in a legal newspaper in each county in which such proposed ditch or ditches or any part thereof are situated, and if any such proposed ditches are pending before the county board of any county, such petition and order shall be served upon the county auditor and clerk of the district court of such county.

Sec. 18. Amend Section 5672 of the General Statutes of Minnesota for the year 1913, so that the same shall read as follows:

5672. Whenever there has heretofore been filed with the county auditor clerk of court, as the case may be, a petition and bond for the establishment of a public drainage ditch and where the requirements of the drainage laws of this state with reference to the establishment and construction of drainage ditches have been complied with and a ditch has been established by the court or county board in accordance with said petition and the assessments for damages and benefits to the land affected have been made and confirmed or where in addition to the foregoing said ditch has actually been constructed, on the assumption that such ditch should end at the terminus or outlet named in the petition, or in the order establishing the same, and where it is found that in order to make such ditch effectual to drain the land sought to be drained thereby or where it is found that such ditch, as constructed

was not constructed to a proper and adequate outlet, or that such ditch carries and deposits water upon lands lying at, near or below the terminus thereof, without providing adequate facilities for its escape therefrom and where no damage or adequate damages have been awarded on account thereof and it will be necessary to extend such ditch beyond the outlet named in the petition and the order establishing the same to a point beyond such designated outlet which may be within or outside the boundary of such county and state, then the court or county board, as the case may be, may employ an engineer and appoint viewers and proceed to ascertain the cost of the extension of such ditch to the point of outlet necessary to make said ditch effectual to drain the lands sought to be drained, and to extend such ditch so as to provide a proper and adequate outlet thereto and prevent the water carried therein from being deposited on lands lying at, near or below the terminus of said ditch, as fixed in the petition or order establishing the same, without having adequate facilities for the escape therefrom, and when such cost is so ascertained said court or board may make a second assessment to cover such cost on the same lands and in the same proportion as the first assessment for such ditch or such equitable assessment upon lands affected thereby as may under all of the circumstances be just and proper and the moneys arising from said second assessment shall be used exclusively to defray the expenses of such extension to such new outlet. The proceedings herein provided for may be initiated by petition signed by one or more land owners whose lands were affected by said original ditch or whose lands are liable to be affected by or assessed for the extension. In the doing of such work by said court or board, it shall be governed by all the provisions, so far as applicable, of Section 5532 of the General Statutes of Minnesota for the year 1913, as amended by Section 300 of the General Laws of Minnesota for 1915 and other provisions of law applicable thereto.

Any employment of an assistant or consulting engineer to assist the drainage engineer in any ditch proceeding and any payment heretofore made to such assistant or consulting engineer by the county board or on the order of any district judge are hereby legalized and confirmed.

25

Sec. 19. Amend Chapter 44 of the General Statutes of Minnesota for 1913 relating to drainage by adding thereto after Section 5702 a new section to be known as Section 5702-A to read as follows:

"5702-A. Whenever any ditch or drain has been or shall be ordered by the county board of any county or the district court and thereafter it shall appear that the amount of the assessment of benefits made in the final order of such board or court shall be insufficient to cover the cost of the construction of such ditch or drain and the damages allowed and the other outlay made necessary thereby, but where the costs, damages and outlay are less than the amount originally found by the viewers as benefits, then on petition to such board or court by any one interested, to have the former final order vacated as to all assessments of benefits and allowances of damages and a new final order as to such benefits and damages made and entered, such board or court shall make an order directing that such petition be heard at a time and place therein specified. The same notice shall be given as was required to be given upon the final hearing in the proceeding in which said final order was made, excepting that the notice shall also specify that the former final order as to all assessments and damages may be vacated upon such hearing. Upon such hearing the board or court shall hear and consider the matter as to assessments of benefits and damages de novo and may make reference to the same or other viewers and may make such new order as to benefits and damages as shall be proper, with the right of appeal and demand of jury trial as in other cases, or final order if such proceedings determining assessments of benefits or damages. Such new order shall have the effect to vacate any appeals or demands for jury trials, taken from such former final order. The board or court may in its discretion allow appellant in any appeal or demandant for a jury trial under the former final order, such sum if any as may be just to compensate for expenses incurred subsequent to the taking of such appeal or making of such demand, and such allowance shall be made in the new final order, but the allowances made to appellants or demandants from the former final order who shall appeal or demand jury trial under the new final order shall become void upon the making of a new appeal or new demand. Provided that in the event more than nine months have elapsed since the order establishing any ditch was made and the contract for the construction thereof has not been let, then upon the written application of not less than seventy-five per cent of the then owners of lands assessed for benefits for the construction of such ditch under this law, such ditch may be vacated by the county board or court on payment by such applicants of all costs and expenses, and thereupon any such ditch proceeding shall be dismissed.

Sec. 20. Amend Chapter 44 of the General Statutes of Minnesota for 1913, relating to drainage by adding thereto, after Section 5703, a new section to be known as Section 5703-A, to read as follows:

"5703-A. That in all cases where a public drainage ditch has been, or shall hereafter be constructed wholly or partly along a boundary line between towns or counties and the excavated material, or a portion thereof, has been, or shall hereafter be deposited on the said boundary line or within two rods on either side thereof, the cost of construction and maintenance of all bridges heretofore or hereafter constructed across any such ditch, along said boundary line shall be paid for and borne equally by the town and county wherein said bridges are or shall be constructed and the town and county adjoining said boundary line."

Sec. 21. In all cases where a petition has been filed and proceedings have been instituted thereunder for the establishment of any drainage improvement under any drainage law of this state prior to the passage of this act, said proceedings may be completed under the provisions of law existing prior to the passage of this act, and the provisions of such law shall continue for all purposes of completing such unfinished proceedings notwithstanding the amendments provided for in this act.

Approved April 23, 1917.

Co. Ditch No 12.

77

Wed. June 20th. 1917.

E.B. Horst transitman & Chainman

Earl Crow Chainman & flagman.

Drive from Walker to George Wilmot's  
place and begin work on

E.B. Horst.

Petition not granted at  
Meeting Oct. 9th, 1917.

28

Co. Ditch. No. 12.

Preliminary center line

Course vernier Sta. Distance

	3+61.0	361.0 Ft
L 82° 06'	7+47.3	386.3 "
L 82° 50'	24+21.0	1673.7 "
L 20° 30'	37+04.6	1283.6 "
L 17° 35'	46+45.1	940.5 "
R 17° 44'	56+70.5	1025.4 "
R 63° 00'	60+54.6	384.1 "
R 23° 24'	79+22.3	1867.7 "
R 5° 32'	87+87.4 *	"
R 25° 02'	103+14.1	2391.8 "
L 69° 08'	109+94.6	680.5 "
R 88° 42'	124+26.1	1431.5 "
L 90° 00'	131+46.4	720.3 "
R 19° 30'	137+02.1	555.7 "
	141+31.3	429.2 " TO

1917, June 20-21-22-23-25-26

Sta 0.00 = W. end of small lake

Sta 21 to 23 swp. 100 Ft wide. Ditch in cent

" 34+19 Cent. of E+W road, S.W.  $\angle = 87^{\circ}30'$ " 35+82.9 - 9th Stan. Parallel. N.W. angle =  $92^{\circ}53'$ 

P.L. of Ditch &amp; 9th Parallel 1292 Ft E of S.W. cor sec 32.

\* Sta 87+87.4. intersect Range line

464.5 Ft N. of  $\frac{1}{4}$  cor between

Secs 1-4-6 T136 Rge 29 &amp; 30

N.E. angle =  $95^{\circ}44'$ 

## Mayo Brook. End of Ditch.

Brook very sluggish and winding  
 running thru bottom of variable width

Banks of creek pretty brushy in places  
 also subject to overflow.

E. B. Horst.

30

## County Ditch No 12

Course	Distance
90° from M.D.-W.	1428.0 Ft to sec. line

# Lateral No. 1.

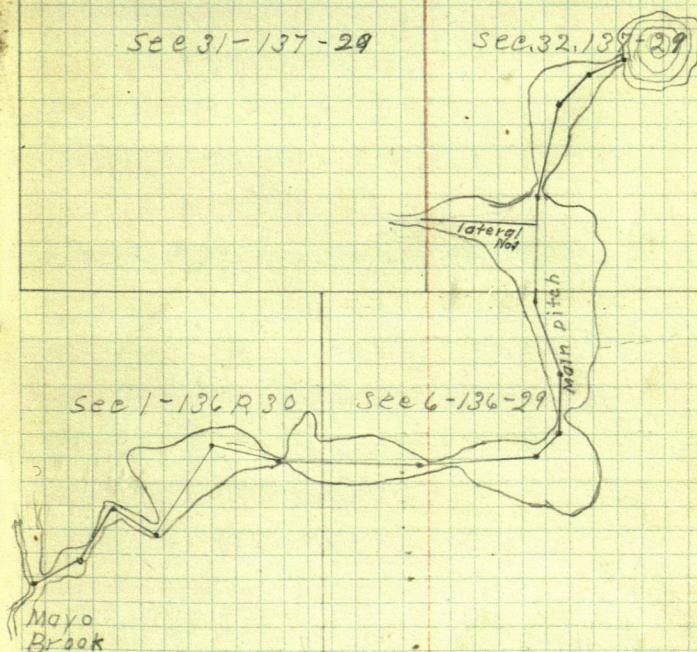
31

Sta. 0.00 = sta 27 on Main Ditch  
 turn 90° and run W. to W. side of sec 32.  
 N. E angle of lateral No. 1 to W line of  
 Sec 32-137-29 = 93°30'

Co. Ditch & lateral. Total length 15559.3 Ft

Sec 31-137-29

Sec. 32, 137-29



E. B. Horst.

+ 5	H.I.	- 5	Elev	Obj	Dis
4.6	104.6		100.00	B.M.	Rock
		4.2	100.4	Edge of Box.	W. 360'
		4.2	100.4	" "	" E 425'
		5.5	99.1	sta. 34	N. of
		5.4	99.2	" 33	"
		5.3	99.3	" 32	"
		5.6	99.0	" 31	"
		5.5	99.1	" 30	"
		5.5	99.1	" 29	"
		5.3	99.3	" 28	"
		5.3	99.3	" 27	"
		5.3	99.3	" 26	"
		5.6 <sup>s</sup>	99.0	35	S.
		5.6 <sup>s</sup>	99.	36	"
		5.8 <sup>s</sup>	98.8	37	-- 40
		5.9 <sup>s</sup>	98.7	38	
		6.0 <sup>s</sup>	98.6	39	
		6.1	98.5	40	Gr.
		5.9	98.7	Hv 40	T.P.
3.7	102.4				
		4.2	98.2	41	
		4.1	98.3	42	
		4.1	98.3	43	
		4.2	98.2	44	

John M. Greene - Level  
Paterson - Rodman  
June 28, 1917

87

Stadia Readings

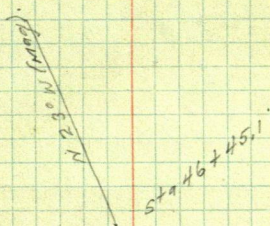
Upper Middle Lower

on Road 4' East of Culvert

6.00 4.2 2.4

6.3 4.2 2.05

graded E. & W. Road.



drove stake for T.P.

38

+ S	H. I	- S	Elev	Obj	Dis
	102.4				
	4.5		97.9	45	
	5.7		96.7	46	
	4.0		98.4	46 + 10	
	4.9 <sup>s</sup>		97.5	46 + 45.1	
	3.4 <sup>s</sup>		99.0	0 on Beaver Dam	
	1.3		101.1	0 " " "	
	2.7		99.7	a. Cor. of Fence	
	5.5		96.9	b " " Fence	
	6.0 <sup>s</sup>		96.4	47	
	6.9		95.5	Fence crosses	
	7.0		95.4	48	
				48 + 96 Cross	
	7.5		94.9	49	
	7.4 <sup>s</sup>		95.0	50	
	7.1		95.3	51	
	7.2'		95.2	51 + 40	
	7.2		95.2	242.5' S. 25° E	
	6.9		95.5	270	
	5.3		97.1	310'	
	3.8		98.6	365'	
	1.6		100.8	205'	
	4.6		97.8	140'	
	7.0		95.4		

Upper Middle Lower Bearing

N. Edge of old Beaver Dam

Hub L ①

3.1 3.45 3.8 N. 76° W. 70'

on fence 1.325 2.375 S. 54° W. 1050'

1.8 2.725 3.65 S. 69° W. 185'

4.75 5.5 6.2 S. 28° W. 145'

6.35 6.95 7.55 120'

and runs. to 6.

Same fence.

corner of brush patch

5.95 7.2 8.475 where fence enters wood on E.

5.6 6.95 8.3 Cor. " S. 22° W

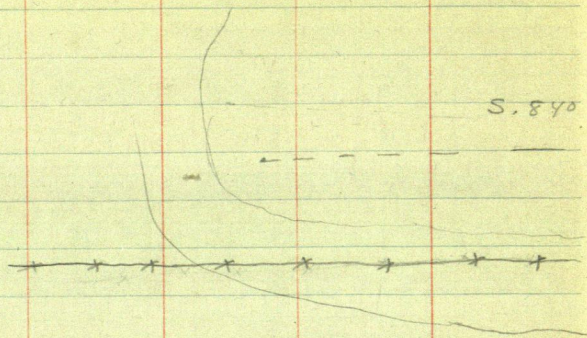
3.75 5.3 6.85 " " S. 32° W

2.0 3.8 5.65 " " S. 84° W

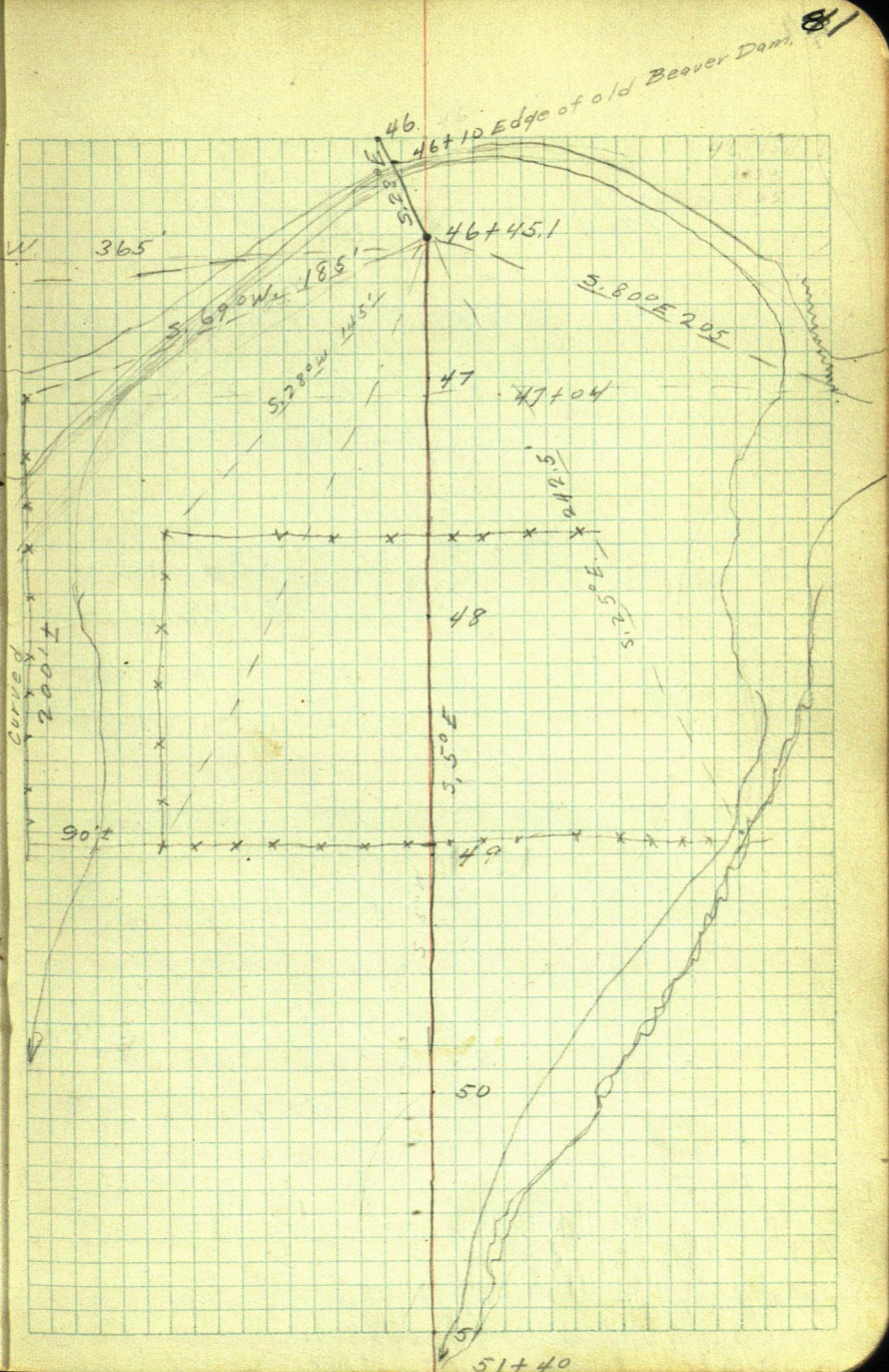
1.6 1.625 2.65 S. 80° E

3.9 4.6 5.3 " " N. 79° E

40



Curved



4.2

Sta 7

95.4'

2.2

97.6

7.0

3.7

93.9

52

4.9

92.7

on water in

4.95

92.7

53

3.5

94.1

53+10 on Beaver

0.56

2.65

N. 45° W

3.75

215

"

1.45

" " "

2.45

205

"

1.1

2.3

240

4.4

93.2

54

4.6

93.0

54-60° E, old

0.56

1.4

N. 59° W

3.05

" "

1.4

?

4.5

1.9

N. 30° E

3.75

370

4.4

93.2

N. 3° E

3

0.56

3.6

555

390

0.56

3.4

94.2 56-60° W

4.9

92.7

56-?

6.05

91.5

56-100° E old

51.

51+40 T.P. Hub

bog hole water 1.6' deep to rocky bottom.

52

$$\begin{array}{r} 3725 \\ 266 \\ \hline 1015 \end{array}$$

$$\begin{array}{r} 245 \\ 1425 \\ \hline 1023 \end{array}$$

Dam

175

53

54

creek bed

Nearly level  
marsh

55

56

N. 80 E. 1000'

creek bed

44

H.I			Lower	Upper.
97.6	6.0	91.6	Top of water	
	6.1	91.5	Edge of bog	
	6.2	91.4	5.35	7.05 = 270
	6.2	91.4	4.95	7.40 245
	4.95	92.7	3.35	6.5 315
	5.85	91.8	4.35	7.4 305
	4.75	92.9	2.95	6.55 360
	6.2	91.4	4.8	7.6 280
	7.95	89.7	5.7	10.15 445
	6.2	91.4	5.35	7.05 170
	6.3	91.3	Sta. 57	
	6.2	91.4	57.75	
	4.9	92.7	57.90	Beaver Dam
	5.0	92.6	58	17
	5.95	91.7	5.1	6.8 5.54 270
	8.0	89.6	Next T. Post Sta. 60.546	5.0 6.5
3.5 <sup>25</sup>	93.1			702
		4.5	88.6	60.54.6
		4.4	88.7	60
		3.1	90.0	59
Set up by 61.	N. 32° E.	3.0	90.0	1.85 4.1 - 2.25
	S. 35° E	4.7	89.4	2.6 6.85 4.25
		4.6	88.5	61

in bog hole water about 4' deep  $\pm$ , waded  
out 2.6' very soft on top but solid bottom.

S. 74° E to End of water hole

S. 28° E across bog on edge

S. 21° E " " to edge of woods

S. 02° E

Edge of woods

S. 2° E

S. 10° W

S. 16° W

S. 16° W

S. 15° W

to edge of woods

35.5

360

320

305

280

260

245

230

215

200

185

170

155

140

125

110

95

80

65

50

35

20

5

0

15

30

45

60

75

90

105

120

135

150

165

180

195

210

225

240

255

270

285

300

315

330

345

360

375

390

405

420

435

450

465

480

495

510

525

540

555

570

585

600

615

630

645

660

675

690

705

720

735

750

765

780

795

810

825

840

855

870

885

900

915

930

945

960

975

990

1005

1020

1035

1050

1065

1080

1095

1110

1125

1140

1155

1170

1185

1200

1215

1230

1245

1260

1275

1290

1305

1320

1335

1350

1365

1380

1395

1410

1425

1440

1455

1470

1485

1500

1515

1530

1545

1560

1575

1590

1605

1620

1635

1650

1665

1680

1695

1710

1725

1740

1755

1770

1785

1800

1815

1830

1845

1860

1875

1890

1905

1920

1935

1950

1965

1980

1995

2010

2025

2040

2055

2070

2085

2100

2115

2130

2145

2160

2175

2190

2205

2220

2235

2250

2265

2280

2295

2310

2325

2340

2355

2370

2385

2400

2415

2430

2445

2460

2475

2490

2505

2520

2535

2550

2565

2580

2595

2610

2625

2640

2655

2670

2685

2700

2715

2730

2745

2760

2775

2790

2805

2820

2835

2850

2865

2880

2895

2910

2925

2940

2955

2970

2985

3000

3015

3030

3045

3060

3075

3090

3105

3120

3135

3150

3165

3180

3195

3210

3225

3240

3255

3270

3285

3300

3315

3330

3345

3360

3375

3390

3405

3420

3435

3450

3465

3480

3495

3510

3525

3540

3555

3570

3585

3600

3615

3630

3645

3660

3675

3690

3705

3720

3735

3750

3765

3780

3795

3810

7.6

+ S

H. 1  
93.1

- S

Elev Obj

5.1 88.0 Sta 62

5.5 87.6 63

5.4 87.7 64

5.3 87.8 65

5.4 87.7 66

5.2 87.9 67

5.4 87.7 68

5.2 87.9 69

5.1 88.1 T.P. 19.62

4.9 93.0

5.2 87.8 70

5.3 87.7 71

5.4 87.6 72

72 + 40 Corduroy

6.1 86.9 73

6.3 86.7 74

6.5 86.5 75

6.8 86.2 76

7.0 86.0 77

7.1 85.9 78

7.4 85.6 79

6.4 86.5 T.P. 79 + 22.3

3.4 89.9

1

4.5 85.4 80

4.3 85.6 81

4.7 85.2 82

4.7 85.2 83

4710

60+54.9

61

62

63

64

65

66

48

+ S	H. I	- S	Elev.	Obj.
	89.9	5.0	84.9	84
		5.2	84.7	85
		5.6	84.3	86
		5.8	84.1	87
		6.7	83.2	Bottom E. Ditch
		5.1	84.8	Road
		5.7	84.2	88
		6.9	83.0	Bottom W. Ditch
		6.3	83.6	89
		6.3	83.6	90
		6.8	83.1	91
		6.4	83.5	92
		7.0	82.0	93
		7.0	82.0	94
		7.2	82.7	T.P.
		4.65	85.25	B. Mark
		1.2	88.7	Rock in Road
13.1	101.8'			
		4.75	97.05	1. M. 1/16 Cor.
		1.8	100.0	Rock in Ole Berds
12.8	112.8'	1.175	111.625	
5.9	117.525	12.2	105.3	
5.4	110.7	10.7	100.0	point by stone
		10.7	100.0	B.M. Rock

Stone in E. Ditch at edge of Highland S. outboard  
checking ground.

field.

ble

in road. Check

Check Levels between  
Bench, Marks O.K.

50

E.B. Horst, level  
Oscar Peterson, Rod.

+s H.1 -s Elev Obj.

2.4 85.3 82.7 T.P. 95

3.0 82.3 Sta. 96

3.4 81.9 " 97

3.75 81.55 " 98

3.7 81.60 " 99

4.65 80.65 T.P. 100

5.65 79.65 101

5.30 80.00 102?

5.80 79.50 103?

4.50 80.80 T.P. 103+14.1

0.7 81.5 5.75 75.75 103.50

1.6 79.90 Sta. 104

3.35 78.15 " 105

4.45 77.05 " 106

3.90 77.60 " 106+4.0

5.30 76.20 " 107

6.20 75.30 " 108

7.30 74.20 " 108+8.5

6.90 74.60 " 109

6.60 74.90 " T.P. 109

3.05 77.95

~~3.90~~

3.90 74.05 " 110

3.90 74.05 " 111

4.00 73.95 " 112

4.25 73.70 " 113

Friday, June, 29-1917.

Bottom of old Ditch

Top of Knoll.

Bottom of old ditch

+ 94.6

52

+ S	H.I.	- S	elev	obj
	77.95	5.7	72.25	Bottom of
		4.2	73.75	sta 114
		4.3	73.45	" 115
		4.55	73.40	" 116
		4.90	73.85	" 117
		5.30	72.45	" 118
		5.60	72.35	" 119
		6.30	71.45	" 120
		5.80	72.15	T.P. 120
2.2	74.35			
		3.60	70.75	sta 121
		0.90	73.45	Top of Knoll
		2.20	72.15	sta 122
		4.45	69.90	" 123
		4.50	69.85	" 124
		4.80	69.55	" 125
		5.15	69.20	" 126
		5.90	68.45	" 127
		5.95	68.40	" 128
		7.40	66.95	" 129
		6.50	67.85	" 130
		8.00	66.35	" 131
		6.70	67.65	" T.P. 131+

ditch

Top at side of ditch

Level of water hole

46.4

54

+ S H.I. - S elev. Obj  
67.65

5.05 72.70

6.70	66.00	Sta 132
6.05	66.65	" 133
4.70	68.00	" 134
3.30	69.40	old road
6.60	66.10	" 135
5.75	66.95	" 136
6.90	65.80	" 137
5.45	66.25	T.P. Δ 137+

4.05-70.30

5.80	64.50	" 138
5.60	64.70	" 139
4.90	65.40	" 140 Top
8.30	62.00	" 141
9.00	61.30	" 141 <sup>E</sup> 31.3
11.10	59.20	" " "
1.90	68.40	B.M.

Level of water hole

02.1

Small Meadow

of Ridge

end of ditch

Water level of Mayo Brook

12 in. spruce 65 FTS of sta. 139+50

56

# Levels Lateral. No. 1 Co. Ditch - 12

+ S	H.I.	- S	elev	obj
3.7	103.7		100.0	B.M.
		3.4	100.3	Sta. 0.00 0
		4.40	99.3	" "
		4.45	99.25	" 1 West
		4.50	99.20	" 2
		4.50	99.20	" 3
		4.30	99.40	" 4
		3.95	99.75	" 5
		3.3	100.40	T.P. 0

3.45	103.85			
		3.5	100.35	" 6
		4.3	99.55	" 7
		4.4	99.45	" 8
		4.1	99.75	" 9
		4.0	99.85	" 10
		3.85		" 11 <sup>E</sup>
		4.10	99.75	" 12
		3.85	100.00	" 13
		4.05	99.80	" 14
		3.55	100.30	T.P. 14+28

3.6	103.90			
		3.2	100.70	B.M. Tamak
		4.25	99.75	edge of
		4.7	99.20	in swamp

Friday, June 29 - 1917.

established by J.M. Greene. 4' E culvert  
= Sta 27 on main Ditch  
on ground

at Sta .5.

end of lateral No. 1.

tree 70 Ft N. of line  
high land 245 Ft. S. "  
230 Ft W

+S	H.I.	-S	elev	obj.
			100.3	sta 27 @ on
395	104.25			"
		5.10	99.15	" 26
		5.00	99.25	" 25
		3.80	100.45	" 24 + 21 < 0
		5.15	99.10	" 24.
		4.95	99.30	" 23.
		4.75	99.50	" 22.
		3.20	101.05	B.M.
		4.40	99.85	" 21
		4.65	99.60	" 20
		4.65	99.60	" 19
		4.50	99.75	" 18
		4.50	99.75	" 17
		4.30	99.95	" 16
		4.45	99.80	" 15 <sup>E</sup>
		4.40	99.85	" 14
		4.00	100.25	T.P. Set
7.9	108.15			
		8.50	99.65	" 13.
		8.25	99.90	" 12
		8.10	100.05	" 11
		8.00	100.15	" 10
		8.00	100.15	" 9

Main Ditch.

on farm road

Rock 40 Ft W of Culvert.

Hut.

+ S	H.I.	- S	elev	obj
	108.15			
	8.15	100.00	sta. 8	on
	6.95	101.20	"	7+47.3
	8.20	99.95	"	7
	7.95	100.20	"	6
	8.10	100.05	"	5
	8.00	100.15	"	4
	7.30	100.85	"	3+41 < 0
	8.20	99.95	"	3
	7.35	100.80	"	2 on
	7.90	100.25	"	1
	6.50	101.65	"	0.00 on
	8.20	99.95	"	" "
	4.30	103.85	B.M. No 6	highest

Ditch

L ①

Beaver Damn.

Hub

level of water in lake

point on largest Rock. S. side of line

150 Ft S of 3+61

62

## Ditch No 12

June 30. 1917.

Horst and Peterson

+ S H. I. - S elev. obj  
103.85 B.M. No. 6.

1.9 105.75

Level at sta. 2. stadia's

Upper	Middle	Lower	"	Dist	Course
9.40	5.50	1.6	100.25	780	L 23° 45'

100.85 sta 3+61

4.35 105.20

7.65 4.90 2.15 100.30 550 FT L 21°

6.35 5.25 4.15 99.95 220 L 67°

7.60 5.25 2.90 99.95 470 R 67° 30'

6.80 5.05 3.30 100.15 350 S R 64° 15'

5.00 100.20 sta 14 0 T.P.

4.25 104.45

" 22

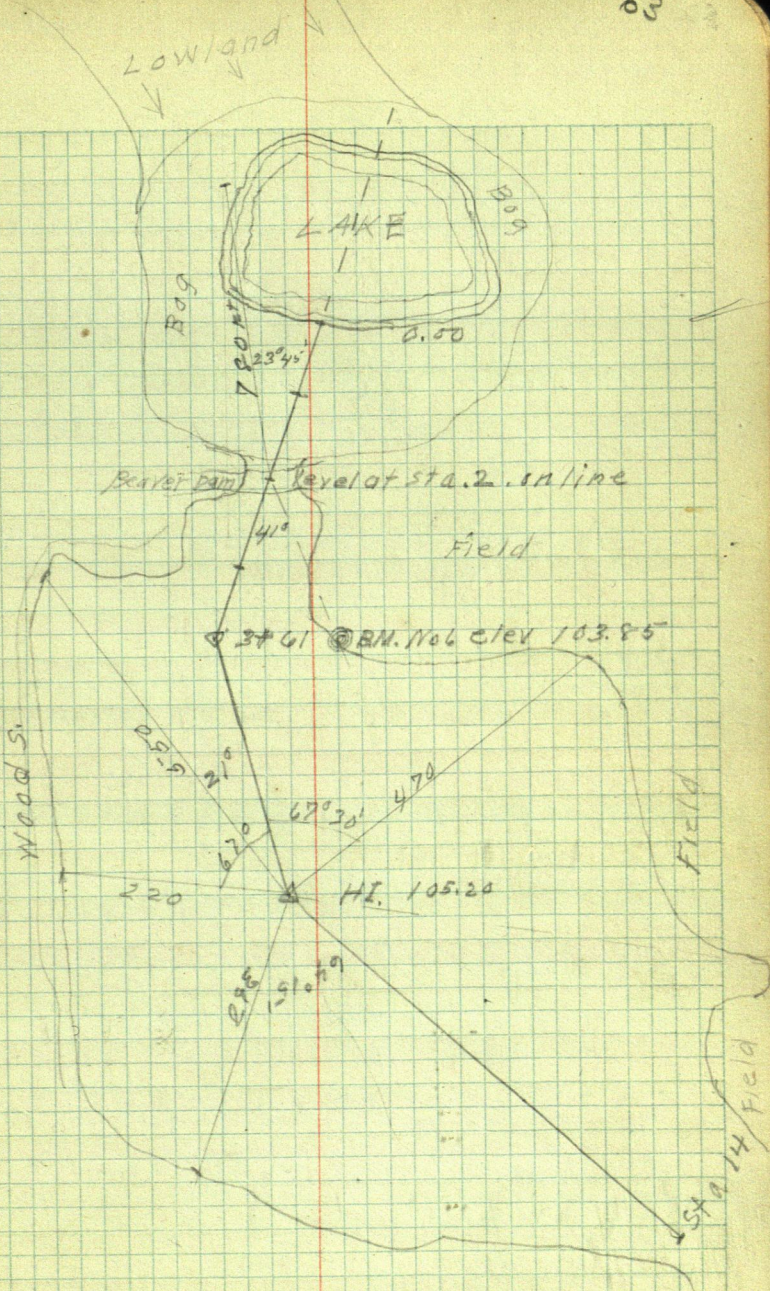
4.05 100.40 " 24+21 0

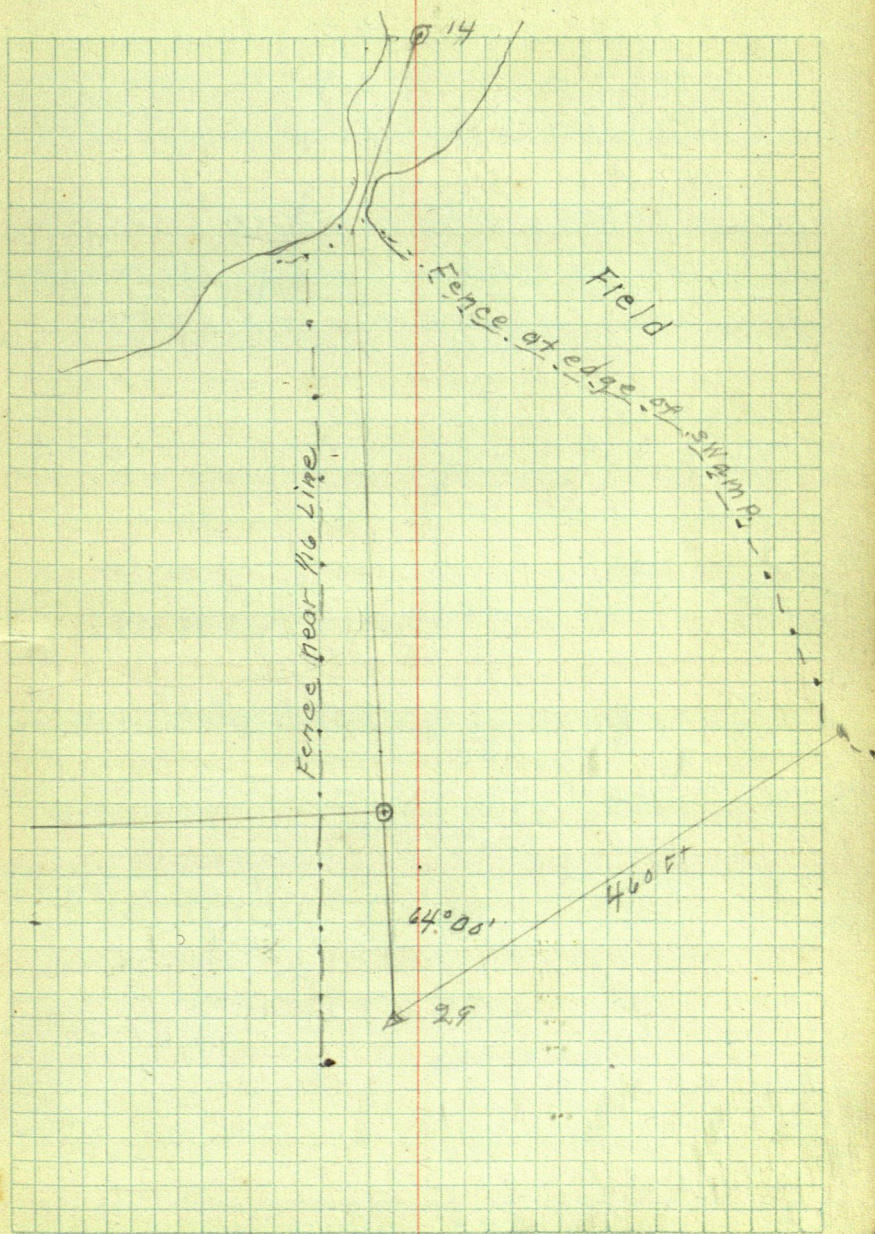
2.95 103.35

Level at sta 29.

6.30 4.00 1.70 99.35 460 FT N 64° E

3.35 100.00 B.M. No. 6. By Greene





## Ditch No. 12.

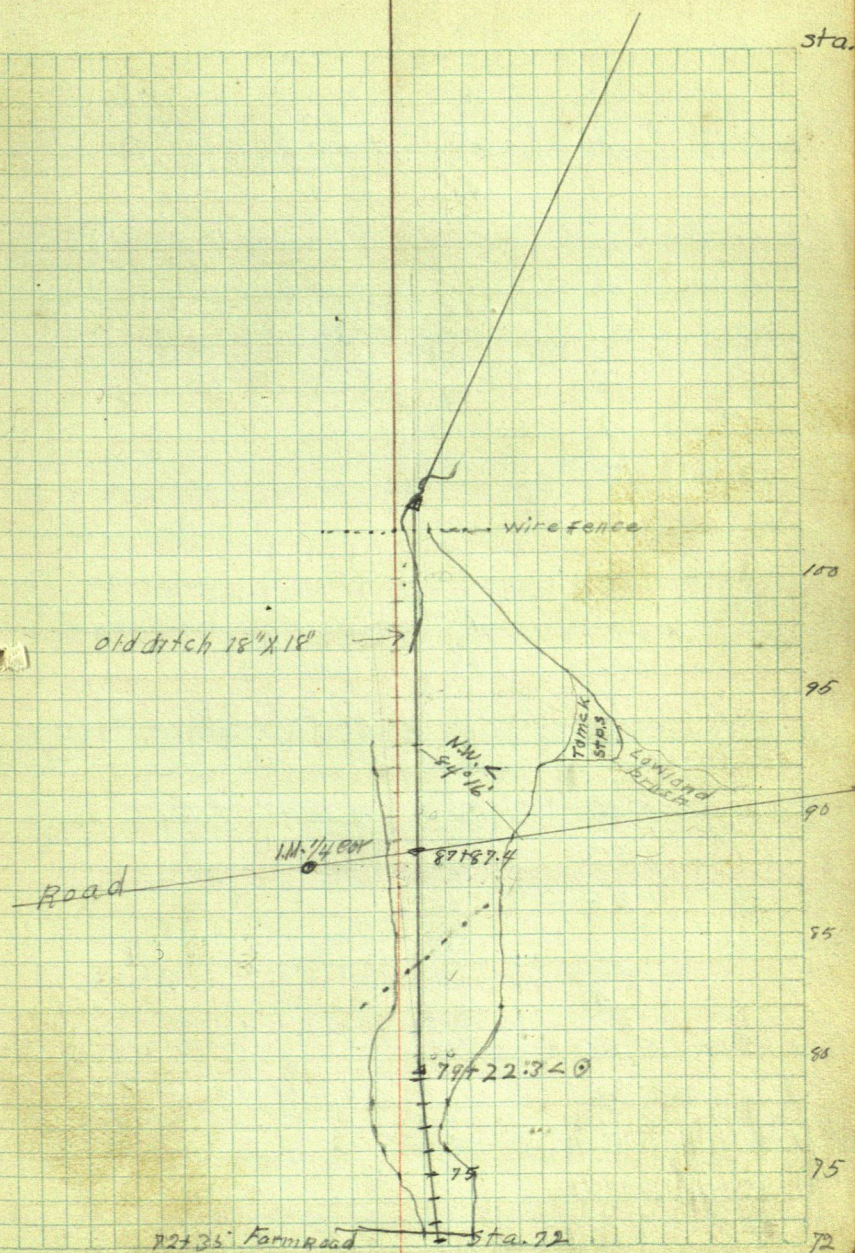
July 2nd 1917. Monday.  
Harst and Peterson chaining  
outlying swamps draining to  
ditch

From 60+54.6 chain S.  $81^{\circ}$  E

1200 Ft. end of swamp 180 Ft wide  
Highland, low, drains into swamp.

Sta.	N.	S.	
72	150	50	
74	140	175	
76	120	200	
78	80	240	
82	340	110	
83+80			line of old posts
85	320	95	
88	380	100	
92	485	175	
93	820		low land extends N $30^{\circ}$ E <sup>more</sup> 400 Ft
97		11 Ft	old ditch
98	1 Ft		" "
99	16		" " swp. S. $35^{\circ}$ E
100	18		" "
101		14	" "
102		54	" "
102	00	80	Ravine. ditch crosses point <sup>of Highland</sup>

sta.



Station	FT		
	N	S	
103+14.1		4	old ditch 3' deep
103+45	0	0	ditch on line. high Beaver Dam
104		4	High Meadows, 130 FT old ditch
104+15			ditch crosses line
104+50	54		old ditch
105	94	140	High Meadow
106	44		old Ditch
107	32		" "
107+60	13		" "
108	21		" " SWP, 170 FT N
108+81			" " crosses line
109		21	" " 4 FT wide 14" deep
"	640	190	Swamp

Ditch line bet sta's 103+14.1 and 107+94.6

extended intersects edge of swamp at 720 FT.

Sta	E.	W.	4' X 14" ditch
111	57		" "
112	28		" "
113	5		" "
114	0	0	" "
115	13		" "
116	36		" "
117	58		" "
118	57		" " ends
118	170	400	edge of swamp

Mayo Brook Bottoms

Small Swamp

Slexy

Jack Pine Ridge

Beaver Dam

Jack Pine Ridge

720 FT

109+04.6

640 FT

106

105

104

103

102

101

100

99

98

97

96

95

94

93

92

91

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141  
140  
139  
138  
137

135

132  
124  
123

120

115

110

121 a water hole E of line 90 Ft wide  
and 3.4 Ft deep, solid clay bottom.

121+50 a beaver dam at  $90^\circ \angle$  to ditch line.  
land high and dry 125 Ft S. of Beaver  
dam. ditch then follows what  
appears to be a high water channel  
from sta. 123 to 132

132 to 133 water hole 100' Diam 2.6' deep  
soft clay bottom

133+50 to 134+50 Logging road cut thru a  
low pine ridge

135 thru swamp 75 Ft wide 125 Ft long.

137 to 139 Wet swamp 2 Ft deep, solid bottom

139 to 140+60 low ridge

140+60 to Mayo Brook, meadow, dry at present.

Channel 8 Ft wide, very winding.

Water 2.4 Ft deep, solid clay bottom.

" runs very slow.

72

Estimate  
County ditch #12  
3' base 1:1 Slopes

Station	Ground Elev.	Grade Elev.	Cut	Areas	Cu. Yds.
0	101.7	96.0	5.7	49.59	150.0
1	100.3	96.0	4.3	31.39	129.8
2	100.8	95.9	4.9	38.71	125.6
3	100.0	95.9	4.1	29.11	79.5
+61	100.9		5.1	41.31	53.4
4	100.2	95.8	4.4	32.56	118.4
5	100.1	95.8	4.3	31.39	120.6
6	100.2	95.7	4.5	33.75	120.6
7	100.0	95.7	4.3	31.39	68.0
+47	101.2		5.5	46.75	77.8
8	100.0	95.6	4.4	32.56	125.0
9	100.2	95.6	4.6	34.96	131.8
10	100.2	95.5	4.7	36.19	131.8
11	100.1	95.5	4.6	34.96	127.2
12	99.9	95.4	4.5	33.75	820.6
13	99.7	95.4	4.3	31.39	122.9
14	99.9	95.3	4.6	34.96	127.2
15	99.8	95.3	4.5	33.75	131.8
16	100.0	95.2	4.8	37.44	134.1
17	99.8	95.2	4.6	34.96	131.8
18	99.8	95.1	4.7	36.19	129.5
19	99.6	95.1	4.5	33.75	127.2
20	99.6	95.0	4.6	34.96	136.4
21	99.9	95.0	4.9	38.71	136.4

2857.4

Station	Ground Elev.	Grade Elev.	Cut	Areas	Cu. Yds.
22	99.5	94.9	4.6	34.96	125.0
23	99.3	94.9	4.4	32.56	118.4
24	99.1	94.8	4.3	31.39	31.5
+21	100.5		5.7	49.59	121.9
25	99.3	94.8	4.5	33.75	127.2
26	99.3	94.7	4.6	34.96	129.5
27	99.3	94.7	4.6	34.96	131.8
28	99.3	94.6	4.7	36.19	129.5
29	99.1	94.6	4.5	33.75	127.2
30	99.1	94.5	4.6	34.96	127.2
31	99.0	94.5	4.5	33.75	134.2
32	99.3	94.4	4.9	38.71	141.0
33	99.2	94.4	4.8	37.44	138.7
34	99.1	94.3	4.8	37.44	136.4
35	99.0	94.3	4.7	36.19	136.4
36	99.0	94.2	4.8	37.44	134.1
37	98.8	94.2	4.6	34.96	129.5
38	98.7	94.1	4.6	34.96	127.2
39	98.6	94.1	4.5	33.75	125.0
40	98.5	94.0	4.5	33.75	118.5
41	98.2	94.0	4.2	30.24	116.3
42	98.3	93.9	4.4	32.56	120.6
43	98.3	93.9	4.4	32.56	120.6
44	98.2	93.8	4.4	32.56	120.6
					3486.3

Station	Ground Elev.	Grade Elev.	Cut	Areas	Cu. Yds.
45	97.9	93.5	4.4	32.56	102.4
46	96.7	93.2	3.5	22.75	12.1
+10	98.4	0	5.2	42.64	48.0
+45	97.5		4.3	31.39	55.1
47	96.4	92.9	3.5	22.75	72.2
48	95.4	92.6	2.8	16.24	57.0
49	94.9	92.3	2.6	14.56	60.3
50	95.0	92.0 X	3.0	18.00	83.2
51	95.3	91.4	3.9	26.91	39.1
+40	95.2		3.8	25.84	49.7
52	93.9	90.8	3.1	18.91	60.5
53	92.7	90.2	2.5	13.75	7.5
+10	94.1		3.9	26.91	84.5
54	93.2	89.6	3.6	23.76	88.0
55	92.6	89.0	3.6	23.76	88.0
56	92.0	88.4	3.6	23.76	86.1
57	91.3	87.8	3.5	22.75	70.5
+75	91.4		4.0	28.00	20.4
+90	92.7		5.4	45.36	16.8
58	92.6	87.2	5.4	45.36	124.3
59	90.0	86.6	3.4	21.76	68.8
60	88.7	86.0 X	2.7	15.39	31.4
+55	88.6		2.7	15.39	25.6
61	88.5	85.8	2.7	15.39	52.5
					1,404.00

Station	Ground Elev.	Grade Elev.	Cut	Areas	Cu. Yds.
62	88.0	85.6	2.4	12.96	45.2
63	87.6	85.4	2.2	11.44	46.6
64	87.7	85.2	2.5	13.75	45.5
65	87.8	85.0	2.8	76.24	61.8
66	87.7	84.8	2.9	17.11	70.2
67	87.9	84.6	3.3	20.79	77.0
68	87.7	84.4	3.3	20.79	84.4
69	87.9	84.2	3.7	24.79	93.8
70	87.8	84.0	3.8	25.84	97.7
71	87.7	83.8	3.9	26.91	101.7
72	87.6	83.6	4.0	28.00	94.0
73	86.9	83.4	3.5	22.75	84.3
74	86.7	83.2	3.5	22.75	84.3
75	86.5	83.0	3.5	22.75	82.4
76	86.2	82.8	3.4	21.76	80.6
77	86.0	82.6	3.4	21.76	82.4
78	85.9	82.4	3.5	22.75	82.4
79	85.6	82.2	3.4	21.76	21.6
+ 22	86.5		4.3	31.39	76.8
80	85.4	82.0	3.4	21.76	88.1
81	85.6	81.8	3.8	25.84	91.8
82	85.2	81.6	3.6	23.76	91.8
83	85.2	81.4	3.8	25.84	93.8
84	84.9	81.2	3.7	24.79	91.8

1870.00

Station	Ground Elev.	Grade Elev.	Cut	Areas	Cu Yds.
85	84.7	81.0	3.7	24.79	88.0
86	84.3	80.8	3.5	22.75	84.2
87	84.1	80.6	3.5	22.75	90.0
88	84.2	80.4	3.8	25.84	88.1
89	83.6	80.2	3.4	21.76	84.3
90	83.6	80.0	3.6	23.76	82.5
91	83.1	79.8	3.3	20.79	88.3
92	83.5	79.6	3.9	26.91	76.8
93	82.0	79.4	2.6	14.56	57.0
94	82.0	79.2	2.8	16.24	75.98
95	82.7	79.0	3.7	24.79	76
96	82.3	78.8	3.5	22.75	84.00
97	81.9	78.6	3.3	20.79	80.55
98	81.6	78.4	3.2	19.84	75.22
99	81.6	78.2	3.4	21.76	77.03
100	80.7	78.0	2.7	15.39	68.9
101	74.7	77.3	2.4	12.96	52.5
102	80.0	76.6	3.4	21.76	64.2
103	79.5	75.9	3.6	23.76	84.2
104	79.9	75.2	4.7	36.19	111.0
105	78.2	74.5	3.7	24.79	112.9
106	77.1	73.8	3.3	20.79	84.4
107	76.2	73.1	3.1	18.91	73.5
108	75.3	72.4	2.9	17.11	66.9
					63.3
					1917.40

Station	Ground Elev.	Grade Elev.	Cut	Areas	Cu. Yds.
109	74.6	71.7	2.9	17.11	66.7
110	74.1	71.0 X	3.1	18.91	75.3
111	74.1	70.7	3.4	21.76	84.2
112	74.0	70.4	3.6	23.76	88.0
113	73.7	70.1	3.6	23.76	95.8
114	73.8	69.8	4.0	28.00	107.4
115	73.7	69.5	4.2	30.24	112.0
116	73.4	69.2	4.2	30.24	112.0
117	73.1	68.9	4.2	30.24	109.8
118	72.7	68.6	4.1	29.11	107.8
119	72.4	68.3	4.1	29.11	99.9
120	71.7	68.0	3.7	24.79	80.9
121	70.8	67.7	3.1	18.91	82.4
122	72.2	67.4	3.8	25.84	77.9
123	69.9	67.1	2.8	16.24	65.0
124	69.9	66.8	3.1	18.91	70.0
125	69.6	66.5	3.1	18.91	68.3
126	69.2	66.2	3.0	18.00	60.2
127	68.5	65.9	2.6	14.56	57.0
128	68.4	65.6	2.8	16.24	44.8
129	67.0	65.3	1.7	7.99	46.4
130	67.9	65.0	2.9	17.11	46.4
131	66.4	64.7	1.7	7.99	28.4
132	66.0	64.4	1.6	7.36	

1787.3

Station	Ground Elev.	Grade Elev.	Cut	Areas	Cu Yds
133	66.7	64.1	2.6	14.56	40.5
134	68.0	63.8	4.2	30.24	82.9
135	66.1	63.5	2.6	14.56	82.9
136	67.0	63.2	3.8	25.84	74.8
137	65.8	62.9	2.9	17.11	79.5
138	64.5	62.6	1.9	9.31	48.9
139	64.7	62.3	2.4	12.96	41.2
140	65.4	62.0	3.4	21.76	64.2
141	62.0	61.7	0.3	0.99	42.1
130	61.3	61.3	0.0	0.0	1.8

558.8

13,881.20

Total length of Ditch 14431.3'  
Lateral No. 1

Total Cu. yds excavation 13,881.20  
@ .20 2776.240 2776.24

Culverts # (corrugated metal) 2'x32' 48.00  
# " " 48.00

Lateral 1488' 3' bottom  
1449 Cu. yds  
20  
289.80 289.80  
Clearing 25.

Cost of Preliminary Survey 150.00  
" " Viewers

27 13881.20  
1449  
153307  
2  
30660

Tuesday Sept. 4 - 1917.

As per instructions of Co. Board I go to Geo. Wilmots to run a preliminary line down Mayo Brook to determine an outlet for Ditch No. 12.

I stop at A.W. Moulsters office Pine River to get Notes of previous survey of ditch.

Moulster is gone and I cannot find Notes. go onto Wilmots.

Dinner at Hackensack, 35 cts. Pd.

Supper at Wilmots

E.B. Horst.

Wed. sept. 5 - 1917

Horst engineer.

Melo Widmark. Rodman.

begin at B.M. on Spruce tree  
elev 68.40 Ft.

+ S H.I. - S elev

1.25	69.65	68.40	B.M. on 12" spruce tree
	8.35	61.30	T.P. Hub at end of ditch

Setting transit on Hub at end of ditch

I continue last course of ditch to

Sta 141+92.7 and turn Left  $45^{\circ}41'$ 

(Sta 142+74.0 enter creek) SWPE 120

" 143+22.0 leave " " W 140

" 144+28.0 enter " }

" 144+96.0 leave " }

" 145+30.0 enter " }

" 145+40.0 leave " }

" 145+83.0 enter " }

" 146+01.0 leave " }

" 147+15.3 TURN Left  $40^{\circ}23'$ 

" 148+42.0 enter creek } {SWPE 100}

" 148+59.0 leave " } { " W 140 }

149+00.0

E.B. Horst.

scattering willows &amp; open swp.

Thursday, Sept 6 - 1917.

Horst, Melo & Elmer Widmark.  
Sta.

"	149+	71	enter	creek
"	149+	88	leave	"
"	150+	64	enter	"
"	150+	84	leave	"
"	151+	82	enter	"
"	151+	98	leave	"
"	153+	77	ent.	"
"	155+	83	lv.	"
"	156+	45	ent.	"
"	156+	55	lv.	"
"	157+	00	ent.	"
"	157+	10	lv.	"
"	157+	30	ent.	"
"	157+	66	lv.	"
"	160+	55.8	Turn left $20^{\circ}47'$	
"	160+	57.0	enter	creek
"	161+	19.0	leave	"
"	163+	54.0	ent.	"
"	163+	63.0	lv.	"
"	169+	43.0	ent.	
"	169+	58.0	lv.	

E.B. Horst.

## Station

- 173+74 intersect Sec line bet. Sec's  
 14 12 T. 136, R. 30. 357.3 Ft E of NW  $\frac{1}{16}$  Cor.  
 N.W. angle =  $54^{\circ}22'$
- 174+20.6 Turn Right  $28^{\circ}00'$
- 176+99.0 enter creek }  
 176+96 1/2. " }  
 181+84 ent. " }  
 181+95 1/2. " }
- 187+26.3 intersect NW  $\frac{1}{16}$  line of Sec. 12  
 Turn Left  $82^{\circ}04'$  Run E on NW  $\frac{1}{16}$   
 line
- 189+66 enter creek
- 190+03 leave "
- 194+28.4 I.M. at center of NW  $\frac{1}{2}$  of Sec  
 12.

E.B. Horst.

90

## Ditch No 12

Friday, Sept 7, 1917.

A.M. Rain.

P.M. Horst. Midmark + Midmark  
levels.

+ S.	H.I.	- S.	elev.	- Obj's
			61.30	T.P. 141+31.3

4.0 65.30

7.00 58.30 Water level

4.00 61.30 141+92.7

4.15 61.15 142+00

4.50 60.80 bank

8.10 59.20 bottom

4.60 60.70 144+00

8.00 59.30 bottom

3.80 61.50 145+00

4.25 61.05 146+00

4.70 60.60 147+00

T.P. 4.35 60.95 147+15.3

3.00 63.95

4.20 59.75 148+00

3.70 60.25 bank

6.40 59.55 bottom

4.20 59.75 149

4.45 59.50 bank

5.20 59.75 bottom

3.80 60.15 150+00

Hub at end of ditch

in creek

angle Hub T.P.

93

+ S.	H.I.	- S.	elev.	Obj.
3	63.95			
		4.20	59.75	bank
		5.80	58.15	bottom
		4.10	59.85	151+00
		4.70	59.25	bank
		8.80	55.15	bottom
		4.90	59.05	152+00
		4.90	59.05	153
		4.45	59.50	154
		4.90	59.05	155
		4.90	59.05	bank
		7.30	56.65	bottom
		6.50	57.45	Water level
		4.80	59.15	156
		5.10	58.85	bank
		7.70	56.25	bottom
		5.20	58.75	157 and Bank
		6.80	57.15	bottom.
		5.00	58.95	158
		6.00	57.95	159
		6.20	57.75	160
		4.85	59.10	160+55.80
310	62.20			
		4.30	57.90	161 & bank
		5.90	56.30	bottom
				Elbowet.

T.P. angle Hub.

+S	H.I.	-S	elev	obj.
3.10	62.20			
		4.30	57.90	162
		4.50	57.70	163
		4.65	57.55	- bank
		7.00	55.20	bottom
		4.60	57.60	164
		5.50	56.70	165
		4.70	57.50	166
		4.40	57.80	167
		4.60	57.60	168
		5.40	56.80	169
		5.30	56.90	bank 169+40
		7.40	54.80	bottom
		5.20	57.00	170
		4.30	57.90	171
		4.30	57.90	172
		4.10	58.10	173
		4.70	57.50	173+74
		4.80	57.40	174+00
		4.65	57.55	T.P. 174+20.6
3.40	60.95			
		3.50	57.45	175+00
		3.40	57.55	176 "
		3.50	57.45	bank
		7.00	53.95	bottom
			EB Horst.	

163+63 1x open swp enter Heavy alders.

leave alder, enter scattering <sup>Heavy</sup> willow.

Center Line of Surveyed & brushed <sup>Cp. Rd.</sup>

angle Hub

enter light scattering willow

& " open swp

98

## Co. Ditch No. 12.

+ S. H.I. - S. elev. Obj.

340 60.95

4.50 56.45 Water level

3.80 57.15 177

3.80 57.15 - 178

4.60 56.35 179

4.70 56.25 180

4.70 56.25 181

4.60 56.35 bank

7.60 53.35 bottom

4.30 56.65 182

4.50 56.45 183

4.70 56.25 184

4.50 56.45 185

4.30 56.65 186

4.40 56.55 187

3.30 57.65 T.P. 187+24.

B.M. 10 in.

C.B. Horst.

brush light

l.v. brush. light

2.3 Ft Ref. Angle Hub.

Tam stump S  $72^{\circ}$  W 10 Ft from Sta 189+26.3

Saturday Sept. 8, 1917.

Rain. until 2-30 P.M.

I drive to Moulsters office  
at Pine River to get Note  
Books and data of previous  
survey and copy my notes  
in field Book No. 150. and  
compute elevations of  
stations

102

## Sunday

+ S	H.I.	- S	elev	obj
2.9	60.55		57.65	187 + 249
		2.26	58.30	B.M. 1011
		4.25		188.
		4.70		189.
		5.00		bank
		7.30		bottom
		6.80		190.
		4.70		190 + 15
		4.55		191.
		3.70		192.
		3.90		193.
		3.90		194
		3.00	57.55	194 + 28 T.P.
2.10	59.65			
		3.00		T.P.
		3.00	56.65	T.P. 800
5.26	61.85			
		6.00	55.85	on ground
		7.60		bottom of
		5.20	56.65	T.P. 1500 ft
4.60	61.25			
		8.70		Bottom of cr
		3.25	58.00	T.P.

Tam stp 572W 10 Ft.

on top of I.M.  $\frac{1}{16}$  Corner

4 Ft SE of Sta 194+28

at T.P.

creek 100 Ft W of T.P. 0.9 Ft water  
SE.

crk 200 Ft N of center of E  $\frac{1}{2}$  of Sec 12. 8 Ft water

+ S	H.I.	- S	elev.	obj.
4.60	62.60			
		10.50	52.10	bottom of
		9.10	53.50	bank "
		6.35	56.25	T.P.
6.50	62.75			
		10.50		bottom
		9.20		bank
		7.70	55.05	T.P. on
3.70	58.75			
		7.50		bottom
		5.35		bank
		3.85	54.90	T.P.
4.70	59.60			
		4.80	54.80	T.P.
10.00	64.80			
		13.30		bottom of
		11.60		bank "
		12.90		
		12.30		
		10.80	54.00	T.P.
5.20	59.20			
		10.10		bottom.
		7.60		bank
		9.25		water level

creek 500 FT below E + W  $\frac{1}{4}$  line

" " " " "

850 " " " "

1200 " " " "

water 0.4 ft.

S  $\frac{1}{4}$  line

150 FT S of S  $\frac{1}{4}$  line See 12

" " " "

300 " " " "

600 " " "

creek 700 FT " " "

" " " "

1000 " " "

" " " "

" " " "

on see line W of S.E. Cor 12 } also J.E. Pt.

" " " " " 12 } of W. Branch  
Mayo Creek.

LS H.I. - S elev obj.

5-20 59.20

7.10

bank

10.10

bottom

5.80

53.40

T.P.

7.85

61.25

6.85

54.40

B.M. on Bridge

13.20

Bottom W.

11.75

Water level

9.10

Bank

11.80

Water level

12.80

Bottom.

12.00

Water level

12.25

" "

by Horst, & Elmer Widmark  
1/2 day Sunday P.M.

E.B. Horst.

300 Ft below see line

10	20	30	40	50
11	12	13	14	15

buttmt. at NW cor. Concrete bridge bet.  
sees 13 & 18 600 Ft. S of cor.  
of Bridge

11	12
----	----

100 Ft below Bridge

11	12	13
14	15	16
200	11	12
600	11	12

Friday Sept 28. 1917.

E.B. Horst, Level.

Ole Anderson, Rod

Leveling Mayo Brook E thru

Secs 18 &amp; 17 T. 136. R. 29.

+ S	H.I.	- S	elev	obj
			54.40	B.M. on NW.

2.76 54.16

4.00 53.16 T.P.

3.20 54.34

5.50 50.86 T.P.

4.90 55.76

7.06 48.70 Water level

4.26 51.50 T.P.

3.60 55.10

4.70 50.48 T.P.

5.20 55.60

7.70 47.90 Water level

3.90 51.70 T.P.

12.10 63.80

2.30 61.50 T.P.

0.50 62.00

14.40 47.60 Water level

5.50 56.60 T.P.

1.00 59.60

Transition Bridge

Wing of Rge. line Bridge

on W  $\frac{1}{16}$  line

600 Ft E of W  $\frac{1}{16}$  line sec 18.

above Dam 200 Ft W of E  $\frac{1}{16}$  line sec 18

S of Byes House

110

+ S	H.I.	- S	elev	
	57.60	12.25	45.35	Water level
		6.90	48.70	B.M. on <sup>2. inch</sup> Pap
		9.10	48.50	T.P.
3.40	51.90			...
		8.10	43.80	Water level
		2.30	49.60	T.P.
10.20	59.80			
		11.90	47.90	T.P.
3.20	51.10			
		8.50	42.60	Water level at
		5.00	46.10	T.P.
4.60	50.70			
		9.40	41.30	Water " "
		5.20	45.50	T.P.
8.50	54.00			
		13.50	40.50	Water level
		4.70	49.30	T.P.
5.50	54.80			
		4.00	50.80	T.P. J.P. Δ
2.70	53.50			
		0.30	53.20	T.P. J.P. Δ D
1.20	54.40			

111  
at Bys Bridge  
ple tree 50 Ft E of Bridge.

of creek bet. sees. 17+18.

W 1/4 line sec 17.

1/4 " " 17.

at Bend of Creek. Creek turns N.

P.M.

+ S	H.I.	- S	elev	obj.
1.20	54.40	7.10	47.30	T.P.
3.38	50.60	11.80	38.80	Water level
		2.20	48.40	T.P.
4.40	53.00			
B.M.		8.15	44.85	S.E. Wing Wall
		14.40	38.60	Water level at
12.90	57.75			E on Road
		4.00	53.75	T.P.
5.20	58.95	4.18	54.85	B.M. 10.7 Ft
		4.90	54.05	
8.85	54.90	9.50	45.40	B.M. on top of
1.50	46.90	13.20	33.70	Water level
		0.60	46.30	T.P.
12.50	58.80	3.90	54.90	B.M. E of sec
				Over

of creek 500 Ft S of sec line on E  $\frac{1}{4}$

of Bridge Near E  $\frac{1}{4}$  Cor bet. sees 8+17  
Bridge

Between sees 8+17

E of sec. Cor. 8-9-16-17

N.W. Cor. Bridge Banister.

at Bridge N of Cor

} Check level back to cor.  
cor 8-9-16-17

East on Random line bet sees. 94/10

+ S	H.I.	- S	elev	obj
			54.85	B.M. at cor
8.50	63.35			
		7.20	56.15	T.P.
2.80	58.95			
		4.40	54.35	T.P. Hub. W.
0.55	55.10			
		12.40	42.70	T.P.
4.30	47.00			
		15.70	31.30	Water level at
		11.50	35.50	T.P. E of
4.50	40.00			
		12.00	28.00	Water level
		1.00	39.00	T.P. 300 ft
13.20	52.20			
		0.50	51.70	T.P.
9.20	60.90			
		3.00	57.90	T.P. on @lds
6.90	64.80			
		13.00	51.80	T.P.
0.85	52.65			
		13.10	39.55	T.P.
0.20	39.75			
		12.45	27.30	T.P.
1.20	28.50			
		9.60	18.90	Water level
		4.20	24.30	= B.M. on 6 in

+16

to Sees 8-9-16-17

of creek

of creek

Bend of creek

on sec line E. Bend of Creek.

E of  $\frac{1}{4}$  cot Sees 9-16

Road.

Not granted  
Not granted  
Dix Oct 9-1917

of sibley Lake.

Purple tree at Lake

Aug. 7-8-9. 1919.

Proposed thorofare bet.  
 Birch and Ten Mile Lakes.  
 E.B. Horst, Transit & Levelman.  
 Benson Beach, Rodman.

Boat livery by,

Board at Lakeview Hotel Hacken<sup>sack</sup>.

Cut line from Birch Lake at  
 S. end of Boy River thorofare  
 N.  $65^{\circ}$  W. (Mag. bearing) to Ten mile  
 Lake. Thence S.  $65^{\circ}$  E. over same  
 line and chain same as follows.

Sta. 0.00 in Ten Mile Lake

- |   |       |  |
|---|-------|--|
| " | 2+88  | Leave lake (Sand Beach)                    |
| " | 3+00  | Hub on Sand Beach.                         |
| " | 3+78  | Leave sand, (foot of ridge)                |
| " | 4+00  | stake                                      |
| " | 4+08  | Hub on top of ridge                        |
| " | 4+35  | foot of ridge                              |
| " | 4+43  | wagon Road (enter alder <sup>swamp</sup> ) |
| " | 5+00  | stake                                      |
| " | 7+50  | W. edge of pine Ridge 9                    |
| " | 9+00  | E. " " " "                                 |
| " | 11+76 | Wagon Road N.W. + S.E.                     |
| " | 12+37 | Wire fence N. + S.                         |
| " | 13+00 | E. side of pine Ridge                      |
| " | 15+00 | Enter <sup>dead</sup> Tamck. swp.          |

ge popple & Alder undg. (scattering Pine)

enter heavy Alder + willow undg.  
and willow brush.

122

stg.

20+00

entcr green Tamek.

23 \* 00

Leave " " enter

 $25 + 00$ 

leave pop. enter open swp.

 $29+26$ 

Int. W  $\frac{1}{4}$  line of sec. 12

 $37 + 42$ 

Hub on shore of Birch

37.50

Waters edge of "

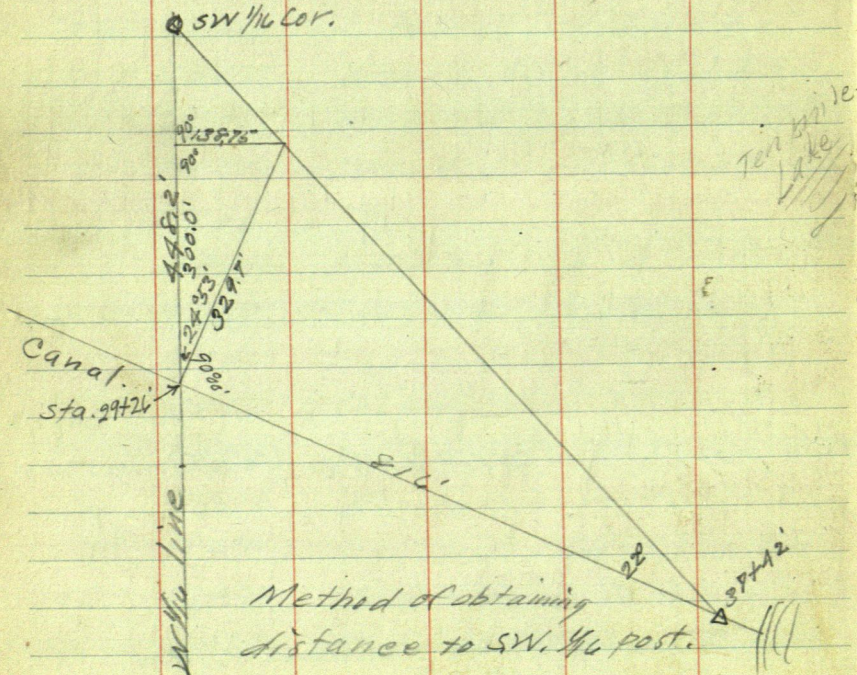
38.

3 ft. of Water and 3 ft

no solid bottom found.

39

Mouth of Boy River



Method of obtaining  
distance to SW.  $\frac{1}{4}$  post.

Light pop. timber.

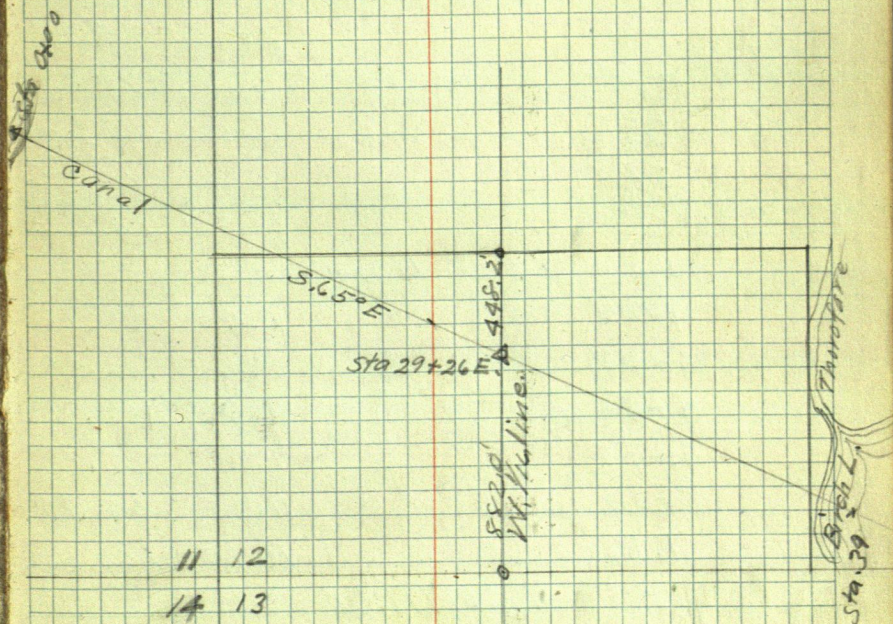
at sta ft N. of sec. line N.E.  $\angle = 115^{\circ}00'$

Lake. shore & open swamp alike spongy.

"

of soft muck bottom measured.

unaccessible



124

# Levels of Proposed

Thoro fare c's		elev.	
sta.			
0+00	7.85	107.85	12.70 95.15
+25			12.20 95.65
+50			11.60 96.25
+75			11.20 96.65
1+			11.00 96.85
+25			10.75 97.10
+50			10.60 97.25
+75			" 97.25
2+			10.60 97.25
+25			10.50 97.35
+50			10.60 98.25
+88			7.85 100.00
3+00			6.30 101.50
3+25			2.65 105.20
3+78			3.40 104.45
T.P.			0.45 107.20
4+00	7.95	115.15	
4+00			6.45 108.70
4+08			3.45 111.70
4+35			9.85 105.30
4+45			9.85 105.30
5+00			11.25 104.90
T.P.			10.15 105.00
	6.40	111.40	8.30
6+00			8.30 109.30
7+00			7.00 104.60

## Remarks.

0100 288 ft in lake  
Sand bottom

Waters edge. Sand Beach. assumed elev.

Hub on sand Beach.

B.M. on Norway Tree 12" 28 ft S of line  
E. edge of sand. Foot of Ridge

on W. side of seawall slope.

" top of seawall. Large Rock & sand.

126

Station	+ s.	H.I.	- s	elev.
		111.60		
7+50			6.50	105.10
8+00			5.10	106.50
9+00			6.40	105.20
10			6.80	104.80
11			7.40	104.20
11+76			6.60	105.00
12			8.00	103.60
T.P.			7.10	104.50
	3.60	108.10		
12+37			3.40	104.70
13			6.90	101.20
14			7.60	100.50
15			7.40	100.70
16			7.40	100.70
17			7.70 <sup>E</sup>	100.40
18			7.80	100.30
19			7.60	100.50
20			7.90	100.20
T.P.			5.60	102.50
	4.10	4.10 106.60		
21			6.00	100.60
22			6.90	100.60
23			5.90	100.50
24			5.00	101.60
24+03.5			4.10	102.50

W. edge of pine Ridge

B.M. Popple 5" - 2.5' S. of line

128

Station	+ S	H.I.	- S	elev.
		106.60		
25+00			6.10	100.50
26			6.40	100.20
27			6.40	100.20
28			6.50	100.10
29			6.60	100.00
29+26			6.60	100.00
T.P.			5.70	100.90
	4.50	105.40		
30			5.10	100.30
31			5.10	100.30
32			5.00	100.40
33			5.20	100.20
34			5.30	100.10
35			5.40	100.00
36			5.60	99.80
37			5.70	99.70
37+42			5.80	99.60
37+60			6.00	99.40
37			2.00	103.40
37+70			12.00	93.40
39+00				

W<sup>1</sup>/<sub>16</sub> line

ground at Hub on swampy Lake shore

Water level of Birch Lake.

B.M. on top of 4" stake 68.8 ft. S. of line

Rod in soft muck bottom 6 ft.

Mouth of Bay River inaccessible

(.015 of 1<sup>st</sup> to grade)

38.40

36

35

34

33

32

31

30

29

28

27

26

Below 8 ft.

25+70

sand at 6.5

25+50

sand at 5.0

25+00

" " 3.0

24

point of pop. Land

23

" " 7.0

22

Below 8.0

13+50

sand at 5.0

13+00

enter sand ridge

$$\begin{array}{r} 23,50 \\ 10,000 \\ \hline 2350,000 \end{array}$$

$$\begin{array}{r} .2350 \\ 10,000 \\ \hline 2350,000 \\ 235- \end{array}$$

$$\begin{array}{r} 125 \\ 29 \\ \hline 500 \\ 250 \\ \hline 27 \overline{) 3,000} \quad 111 \\ \underline{27} \\ 30 \\ \underline{27} \\ 30 \\ \underline{27} \\ 30 \\ \underline{27} \end{array}$$

8 ~~IV~~  
4 ~~P~~  
128 1049

$$\begin{array}{r} 112 \overline{) 13,00} \quad 11\frac{1}{2} \\ \underline{112} \\ 180 \\ \underline{112} \\ 68 \end{array}$$

$$\begin{array}{r}
 37+42 \\
 29+26 \\
 \hline
 8+16 + \tan \text{ of } 22^\circ = \text{dist at } 90^\circ \\
 + \tan \text{ of } 24^\circ 53'
 \end{array}$$

$$\begin{array}{r}
 30 \overline{) 18,400.000} \quad \underline{8000} \\
 \underline{180} \phantom{00} \\
 40 \phantom{00} \\
 \underline{30} \phantom{00} \\
 100 \phantom{00} \\
 \underline{90} \phantom{00} \\
 100 \phantom{00} \\
 \underline{90} \phantom{00} \\
 100 \phantom{00} \\
 \underline{100} \phantom{00} \\
 8000
 \end{array}$$

+5-3.7

355 4.7 555

3704.6

2421.0

1283.6

4645.1

3764.6

940.5

7922.7

6054.6

1867.7

10994.6

10314.1

680.5

630

170

7600.0

17.1

2582.9

81.50

5.75

55.75

89.80

5.40

84.16

58.80

54.55

395.625

315

14.40

107.26

7.94

115.15

747.3

361

286.3

5670.5

4645.1

1025.4

10314.1

7922.3

2391.8

12426.1

10994.6

1531.5

85.30

7.75

782.65

525 625

235

235

1.10

13

38

20.1

35

57.65

2.9

60.55

50.60

38.80

11.80

50

320.5

2421.6

747.3

1673.7

6054.6

5270.5

384.1

73146.4

12426.1

720.2

13702.1

10146.4

555.7

14131.3

13702.1

429.2

525

280

2.35

25

8

77

6

31

400  
2000  
2000  
1300

# DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

ROADWAY 14 FEET WIDE. SIDE SLOPES  $1\frac{1}{2}$  TO 1.

FOR SINGLE TRACK EMBANKMENT.

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	7.0	7.2	7.3	7.5	7.6	7.8	7.9	8.1	8.2	8.4	0
1	8.5	8.7	8.8	9.0	9.1	9.3	9.4	9.6	9.7	9.9	1
2	10.0	10.2	10.3	10.5	10.6	10.8	10.9	11.1	11.2	11.4	2
3	11.5	11.7	11.8	12.0	12.1	12.3	12.4	12.6	12.7	12.9	3
4	13.0	13.2	13.3	13.5	13.6	13.8	13.9	14.1	14.2	14.4	4
5	14.5	14.7	14.8	15.0	15.1	15.3	15.4	15.6	15.7	15.9	5
6	16.0	16.2	16.3	16.5	16.6	16.8	16.9	17.1	17.2	17.4	6
7	17.5	17.7	17.8	18.0	18.1	18.3	18.4	18.6	18.7	18.9	7
8	19.0	19.2	19.3	19.5	19.6	19.8	19.9	20.1	20.2	20.4	8
9	20.5	20.7	20.8	21.0	21.1	21.3	21.4	21.6	21.7	21.9	9
10	22.0	22.2	22.3	22.5	22.6	22.8	22.9	23.1	23.2	23.4	10
11	23.5	23.7	23.8	24.0	24.1	24.3	24.4	24.6	24.7	24.9	11
12	25.0	25.2	25.3	25.5	25.6	25.8	25.9	26.1	26.2	26.4	12
13	26.5	26.7	26.8	27.0	27.1	27.3	27.4	27.6	27.7	27.9	13
14	28.0	28.2	28.3	28.5	28.6	28.8	28.9	29.1	29.2	29.4	14
15	29.5	29.7	29.8	30.0	30.1	30.3	30.4	30.6	30.7	30.9	15
16	31.0	31.2	31.3	31.5	31.6	31.8	31.9	32.1	32.2	32.4	16
17	32.5	32.7	32.8	33.0	33.1	33.3	33.4	33.6	33.7	33.9	17
18	34.0	34.2	34.3	34.5	34.6	34.8	34.9	35.1	35.2	35.4	18
19	35.5	35.7	35.8	36.0	36.1	36.3	36.4	36.6	36.7	36.9	19
20	37.0	37.2	37.3	37.5	37.6	37.8	37.9	38.1	38.2	38.4	20
21	38.5	38.7	38.8	39.0	39.1	39.3	39.4	39.6	39.7	39.9	21
22	40.0	40.2	40.3	40.5	40.6	40.8	40.9	41.1	41.2	41.4	22
23	41.5	41.7	41.8	42.0	42.1	42.3	42.4	42.6	42.7	42.9	23
24	43.0	43.2	43.3	43.5	43.6	43.8	43.9	44.1	44.2	44.4	24
25	44.5	44.7	44.8	45.0	45.1	45.3	45.4	45.6	45.7	45.9	25
26	46.0	46.2	46.3	46.5	46.6	46.8	46.9	47.1	47.2	47.4	26
27	47.5	47.7	47.8	48.0	48.1	48.3	48.4	48.6	48.7	48.9	27
28	49.0	49.2	49.3	49.5	49.6	49.8	49.9	50.1	50.2	50.4	28
29	50.5	50.7	50.8	51.0	51.1	51.3	51.4	51.6	51.7	51.9	29
30	52.0	52.2	52.3	52.5	52.6	52.8	52.9	53.1	53.2	53.4	30
31	53.5	53.7	53.8	54.0	54.1	54.3	54.4	54.6	54.7	54.9	31
32	55.0	55.2	55.3	55.5	55.6	55.8	55.9	56.1	56.2	56.4	32
33	56.5	56.7	56.8	57.0	57.1	57.3	57.4	57.6	57.7	57.9	33
34	58.0	58.2	58.3	58.5	58.6	58.8	58.9	59.1	59.2	59.4	34
35	59.5	59.7	59.8	60.0	60.1	60.3	60.4	60.6	60.7	60.9	35
36	61.0	61.2	61.3	61.5	61.6	61.8	61.9	62.1	62.2	62.4	36

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