

186

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MINING  
TRANSIT BOOK  
363

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21320  
660  
1980



1 S. 3-145-31  
for Henry Theil. Cass Lake.

July 31, 1922, (Mon)

E.B. Horst, B.M. Beach and  
Glen Bacon, get notes +  
Plats and leave for Cass  
Lake and Henry Theil's farm  
to run the NW 1/4 line of Sec.  
3 T. 145-R. 31.

We pitch tent and make  
arrangements for work in  
the morning.

E.B. Horst.



Aug. 1, 1922, (Tues.)

Same crew + Henry Theil.  
Begin at the established sec.  
cor. to secs. 3-4-9-10 (I.M.)  
run N.  $1^{\circ}20'$  E. in a straight  
line with line between secs-9-10  
at 2640 set stake

" 3960 " "

" 4124.3 " Hub.

" 4190 end swp.

" 4385 edge of lake.

From Hub 4124.3-N. thence

N.  $38^{\circ}00'$  E. across swp. 889.5 ft.

thence N.  $8^{\circ}18'$  E. 643.4 ft. to U.S.M.C.

#24 where we find the NE.

U.S. B.T. Tamck 5 N.  $11^{\circ}$  E. 26.4 ft.

and the Gort stake buried in

the mass. We set a 7 ft. 4"x4"

J.P. post  $5\frac{1}{2}$  ft. in the swamp (swp.)  
well into sand bottom.

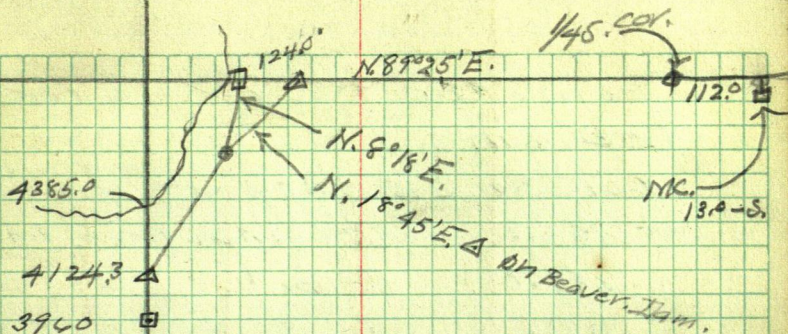
From same A.P. sight N.  $18^{\circ}45'$  E.

to  $\Delta$  on Beaver Dam. 124 ft. E.

of MC #24.



4



3960

2040

N. 120' E

S. 87° 43' E

9103

S. 87° 43' E

Thence N.  $89^{\circ}25'E$ . on a random  
Trp. Line.

at 123.5 E. of M.C. <sup>beaver dam.</sup> set Hub on

at 793.3 "  $7\frac{1}{16}$  S. cov. Post. 0.4'S

" 850.0 " br surf.

" 1133. "  $\frac{1}{2}$  of N+5 Road

" 1425 " cut surf.

" 1685 " br surf

" 2103.5 "  $\frac{1}{4}$  S. cov. (1M. 1" X -) on line

" 2215.5 " The US MC sets S.  
13.0 ft.

U.S. NW. BT. (Oak 10 stump) from which  
 $\frac{1}{4}$  S. cov. sets at correct position.

U.S. BT. (popple 9 S.  $20^{\circ}$  W.) broken  
off blaze still plain from which  
M.C. is at correct position.

E.B. Horet.



Sec. 3-145-31.

6

N.  $89^{\circ}25'E$

N

1443.0

N.  $89^{\circ}09'E$   
N.  $89^{\circ}38'E$

1374.8

N.  $89^{\circ}13'E$   
N.  $89^{\circ}51'E$

N.  $1^{\circ}20'E$   
1318.3

S.  $89^{\circ}56'E$

1316.3

S.  $89^{\circ}43'E$

9.03

7

N. S. E.

N. $1^{\circ}20'$ E. 4124.3	4123.0	96.0
N. $38^{\circ}00'$ E. 889.5	701.0	547.8
N. $8^{\circ}18'$ E. 643.4	636.7	92.9
	<u>5460.7</u>	<u>736.7</u>



W.

8

$$\begin{array}{r}
 102327 \\
 4129 \\
 \hline
 9308 \\
 4654 \\
 2327 \\
 9308 \\
 \hline
 9596548
 \end{array}$$

$$\begin{array}{r}
 633.4 \\
 915 \\
 \hline
 626.7
 \end{array}$$

$$\begin{array}{r}
 114436 \\
 643.4 \\
 \hline
 57744 \\
 43308 \\
 57744 \\
 86616 \\
 \hline
 93881224
 \end{array}$$

$$\begin{array}{r}
 102327 \\
 5430 \\
 \hline
 69810 \\
 9308 \\
 1135 \\
 \hline
 2135610
 \end{array}$$

9

145-31 - S. 3, 4,

Aug 2, 1922,

We go to the cor. to sec 4-5  
32-33-145-146-Rg. 31

and run N.  $89^{\circ}25'E$ . Near an old  
fence.

at 2633 a fence cor. <sup>NWBT. stp. to 1/4s.  
sets N. W. ft.</sup> from which  
a fence runs S. <sub>fence cor at true cor.</sub>

at 2983 E. int. Lake.

From sta. 2985.8 make a triangulation  
as per diagram on next page.

— — — — —  
We find the N.E. U.S.B.T. stump  
to the 1/4s. cor. bet. secs. 3-4-  
145-31 which was J. Pine & N.  $89^{\circ}$   
00' E. 27.06 ft. and is now a stump.  
plainly marked.

J.P. & N.  $73^{\circ}W$ . 65.34 ft. is now a stump  
Just above ground.

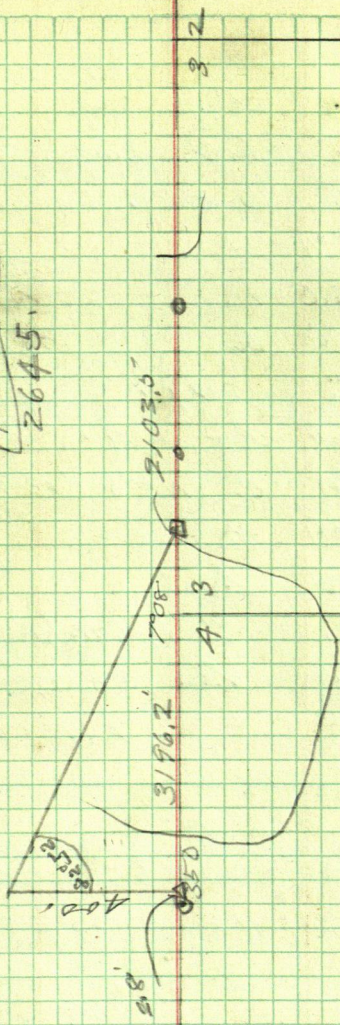
Checks for distance but is about 1 ft.  
N. according to courses.

True 1/4s. at 2636.4 sets W. 1.4 ft.  
from Hub 2640-N.

N. 1/4 S. cor at 4011.2m from which  
We run N.  $89^{\circ}09'E$ . on N. 1/4 line



799058  
 900  
 3196.2  
 2633.5  
 2103.5  
 2.8  
 3179135.5  
 2645.



32

5 4

11

S-3-145-31.

47 200 ent swf.

" 400 ly swf.

" 600 ent swf.

" 695 lv swf.

" 945.4  $\Delta$ " 1305.0  $\Delta$ " 1850.8  $\Delta$ 

" 1875 swf.

" 1990.0 lv swf.

" 2338  $\Delta$  N+S Road." 2347.4  $\Delta$ " 2488.5  $\Delta$ 

" 2640. Set stake mhd 2640E.

" 3175.0  $\Delta$  on bank <sup>W.</sup> of swf.

E. B. Horst.



JULY 1922

31	aug.	1	2	3	4
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F.B. Horst

1/2

1/2

B.M. Beach

1/2

1/2

G.A. Bacon

1/2

1/2

Henry Thiel

1

1

3 1/2

(Charge crew 1 day to Geo. W. Marsland. (Aug. 3, 1922))

21
18
45



Aug. 3, 1922.

Same crew. begin at the  $\frac{1}{4}$  S.  
Cor. on N. Side sec. 3

from which we run S.  $1^{\circ}20' W.$

at 1000.00 surf.

at 1065.6 S. set Hub on ridge

" 1125.00 end surf.

at 1250.00 surf.

" 1428.4 - S. P.I.  $\Delta$  on N.  $\frac{1}{16}$  line

at 2703.8 E.

" 1987.9  $\Delta$

" 2308.0 end surf.

" 3208.00 surf. Sand Beach.

" 3367.8 set Hub on sand beach  
at Cass Lake

Thence assuming the  $\Delta$  as south.  
we run S.  $21^{\circ}15' W.$  900.0 ft.

S.  $14^{\circ}00' W.$  550.0 ft.

S.  $0^{\circ}30' W.$  356.5 ft.

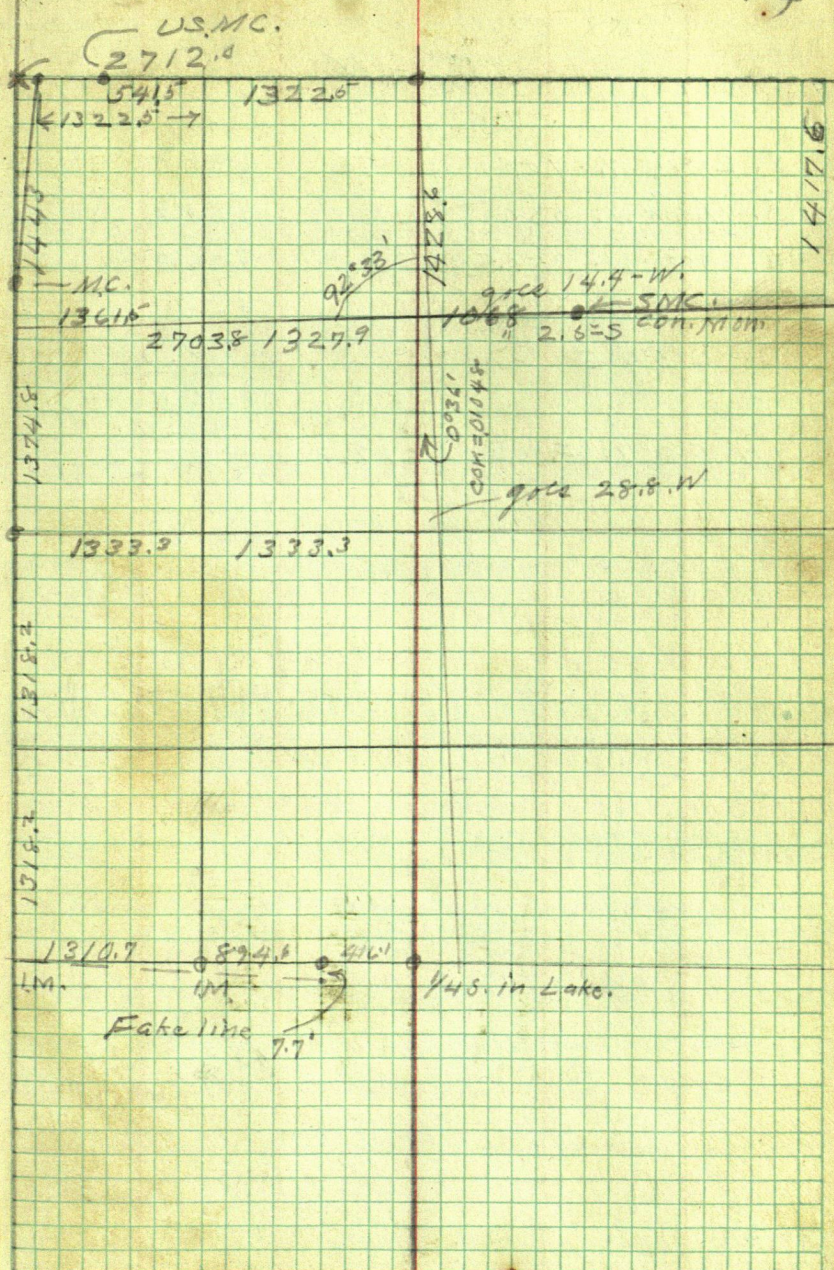
S.  $2^{\circ}15' W.$  322.5

S.  $0^{\circ}54' E.$  87.0 ft. to sec.  
line

Thence S.  $88^{\circ}36' W.$  on sec. line.

894.5 to  $\frac{1}{16}$  sec. line.





15

	N	S	E
South. 3367.8	-	3367.8	-
S. 21°15' W. 900	-	838.8	-
S. 14°00' W. 550		533.7	
S. 0°30' W. 356.5		356.5	
S. 2°15' W. 322.5		322.3	
S. 0°54' E 87.0		87.0	1.5
		<hr/> 5506.11	
		12.3	
N. 88°36' E.	12.3	<hr/> 5493.8	



W.

3960

5446.7

1364

473.7

6324

1318.3

326.2

1320.0

133.1

48.3

3.2

12.7

1.5

475.2

1.5

473.7

5493.8

5454.1

39.7

5493.8

5333.5

5324 : 5333.5 : 1364 : X

1364

5333.5

6820

4092

4092

6820

6820

5324 754769401141765324

22236

21296

9469

5324

40854

37268

35810

19

County Road.  
144 - 31.

(Sat.) Aug. 5 1922.

E.B. Horst, B.M. Beach.

Get Notes & plats for survey  
of a County Road thru secs.

20-21-22 etc. T. 144-31.

E.B. Horst.

(Survey Record 508)



Mon. Aug. 7, 1922

E.B. Horst, B.M. Beach, and  
Glen Bacon, drive to Portage  
Lake (NE. of Wilkinson) where  
Beach + Bacon erect Tent and  
Horst returns to Walker after  
groceries + survey instruments.  
We complete setting up camp  
when Horst returns.

E.B. Horst.



Tues. Aug. 8, 1922  
Same crew.

We look for M.C. #28 on S.E.  
side of Portage Lake and  
between secs. 21-22-144-31  
which is gone.

We look for the  $\frac{1}{4}$  Sec. Cor. bet.  
secs. 21-22 where U.S. Notes call  
Birch 8" N.  $88^{\circ}$  E. 41-1/2 ls.

J. Pine 11" S.  $53^{\circ}$  W. 45 "

Which now is:

J.P. 11" snag badly burned but  
bearing all the scribe marks;  
(Birch rotted to the ground.)

from which we set a 3'x3'x 36"  
maple post for true  $\frac{1}{4}$  s. cor.

From which we run due West  
on a random  $\frac{1}{4}$  as follows:

at 248.4 ft. W. set post for  
<sup>at 274 water's edge</sup> S.M.C. on E. side Lake

set point over Lake, go around  
S. side of Lake and triangulate  
as follows:

Sight E. over lake



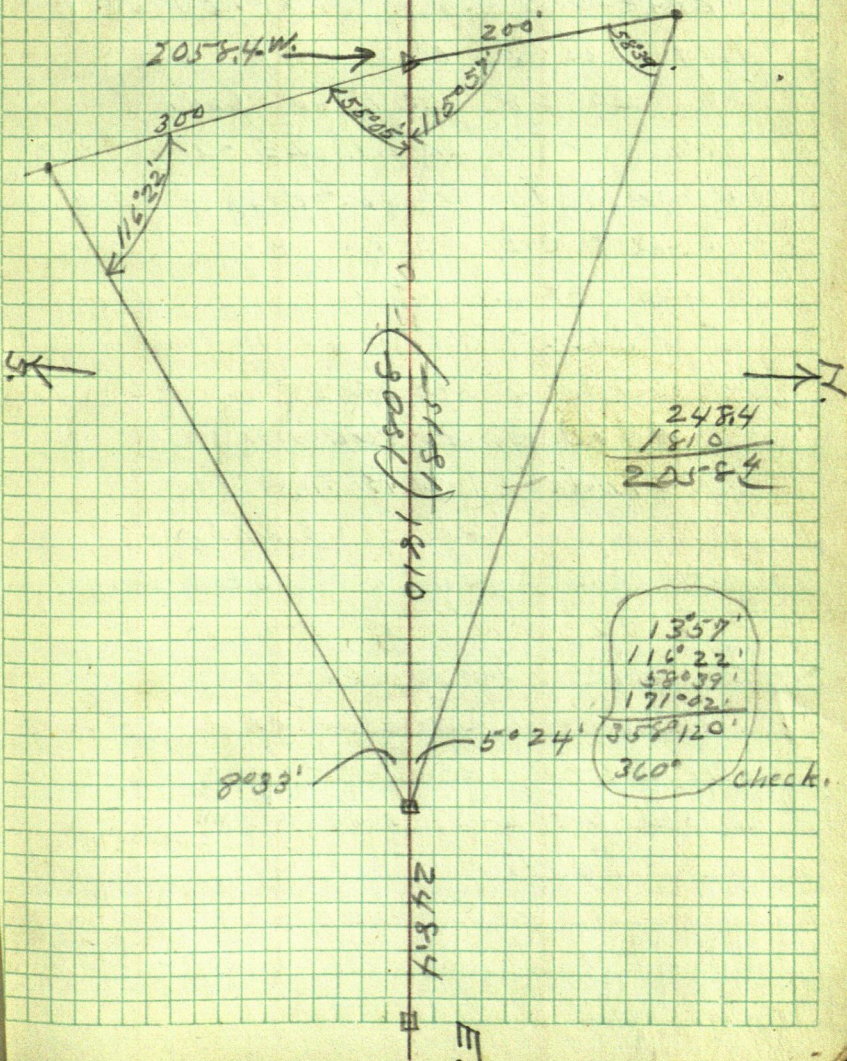
$$\begin{array}{r} 116^{\circ}22' \\ 55^{\circ}05' \\ \hline 171^{\circ}27' \end{array}$$

$$\begin{array}{r} 179^{\circ}60' \\ 171^{\circ}27' \\ \hline 8^{\circ}33' \end{array}$$

$$\begin{array}{r} 115^{\circ}57' \\ 55^{\circ}05' \\ \hline 170^{\circ}42' \\ 171^{\circ}02' \end{array}$$

$$\begin{array}{r} 58^{\circ}39' \\ 115^{\circ}57' \\ \hline 173^{\circ}96' \\ 174^{\circ}36' \end{array}$$

$$\begin{array}{r} 179^{\circ}60' \\ 174^{\circ}36' \\ \hline 5^{\circ}24' \end{array}$$



$$\begin{array}{r} 248.4 \\ 1810 \\ \hline 2058.4 \end{array}$$

$$\begin{array}{r} 135^{\circ}7' \\ 116^{\circ}22' \\ 58^{\circ}39' \\ 171^{\circ}02' \\ \hline 358^{\circ}120' \\ 360^{\circ} \end{array}$$

check.



23

144-31 Co. Rd.

Wed Aug. 9-1922

Worst &amp; same Crew.

Triangulate Lake as per preceding  
page and chain line cut Aug. 8.

rt 2058.4 Hub over Lake

" 2077.8 Hub on <sup>top</sup> bank

" Road N.E.-SW.

" 2773.7 Hub. 9 sq Post sets N. <sup>apt.</sup>

" 3303.3 "

" 3661.2 "

" 4215.4 "

" 4226.5 Fence

4968 E Road

" 4975 Hub.

4975



Aug. 10, 1922

at 5383.0 Fall 7.0 ft. N of  
the  $\frac{1}{4}$ S. cor. between secs. 20-21  
~~144-31.~~

The U.S.B.T. W.Pine 18 S. 88° W. is  
Now a stump bearing all the marks  
from which I set a wood post for  
the true  $\frac{1}{4}$ S. cor.

From Hub 5383.0 - W. We turn  
N.E. angle  $90^{\circ}05'$  from random  
Q, and run North  
 $\frac{1}{4}$ S. cor. between Sections 20-21 =  
Sta. 0.0 N.

at 543.4 Hub  
" 1000 ent. Swamp  
" 1065 Cent Creek  
" 1400 Lv. Open Meadow - ent. heavy brush  
" 1703.5 Hub.  
" 2606.5 the true cor. to secs.  
16-17-20-21 sets E, 9.5 ft.  
all U.S.B.T.s. are present bearing  
all the scribe marks plainly.  
the SW B.T. is green.



Friday, Aug. 11, 1922

Horst drives to Cass Lake for supplies in A.M.  
Beach, Bacon, Hoagland, and Kaiser begin at hub 2606.5 N. on random sec. line bet 20-21, Turn angle of  $90^\circ$  and run E on a random sec. line bet 16-21. True cor. to sec. 16-17-20-21 is station 0.00 E.

At 1100 ent open swamp.

" 1370 center of creek

" 1771.3 hub.

" 1980.0 set stake

" 21.00 leave swamp.

entire line has been thru cedar swamp and bog

" 2354.0 hub.

" 2456 water's edge

Here In turning the angle for a base line, line intersects a big oak tree which would ruin Hoagland's fence if it were cut so we set a hub at 2320.3 from which I turn angle of



Aug 11 Cont.

90° and run a base line N.

Length of base line = 530.0'

$\angle = 82^{\circ}15' - 7^{\circ}45'$

Dist = 3895.4 feet

Hub across lake = 6215.7'

We continue East.

At 6274.4' hub.

Quit for night



Sat. Aug 12., 1922

Horst, Beach, Bacon,  
Hoagland, and Kaiser cont.  
E From hub 62 74.4 on  
random line bet. sections  
15 and 22 - 144 - 31

At 7400 hub. School house  
sets 4.3 feet South.

" 7475 E road.

" 7950 hub (end of line)

We look for the  $\frac{1}{4}$ S. cor. between  
secs. 15 - 22 - 144 - 31 and find  
the U.S. B.T. J.P. 4. N.  $42^{\circ}$  W. 157 ft.  
still standing green and plainly  
marked from which we set the  
true  $\frac{1}{4}$ S. cor. (a wood post)

the SE. B.T. is burned out.

From Hub. 7950 - E. the true  $\frac{1}{4}$ S.  
cor sets. S.  $18^{\circ}00'$  W. 99.4

At 7919.4 the true  $\frac{1}{4}$ S. cor.  
sets. S.  $94.5'$  ft.

Now B.T.s to  $\frac{1}{4}$ S. bet. 15 - 22

J.P. 8 N  $12^{\circ}$  W 34.8 feet:

" 9 S  $70^{\circ}20'$  E 111.8 ft

Var.  $8^{\circ}30'$



Aug. 12. Cont.

We then go to the  $\frac{1}{4}$  S. bet. sec. 21-22, turn  $90^\circ$  from rand. E sec. 21 and run S. on rand sec. line bet. sec. 21 and 22.

At	348.0	hub
"	392.0	E road N.E. & S.W.
"	1084.4	hub.
"	2640.0	"

At the corner to sections 21-22-27-28 we find the following Gov't. bearing trees:

SP. 9 N. 50 E. 20 links

" 3 S 32 E. 40 "

" 3 S 55 W. 38 "

The SP. 3 N. 49 W. 80 " is gone. The N.E. and S.W. B.T.s are now stumps showing the B.T. plainly. The S.E. B.T. is still standing green and plainly marked. We set a  $2 \times 2 \times 48$ " SP stake at true point for corner. At 2643.8 true cor. to sec. 21-22-27-28 sets 96.6' W. N.W. angle at random lines at this cor. =  $89^\circ 40'$ .



Aug. 12 Cont.

From cor. of sec. 21-22-27-28 we run W. on  $8^{\circ}30'$  Var. on a random sec. line bet. Sec. 22-27-144-31.

At 316.5 hub on 8" J.P. stump.

" 1266.7 hub.

" 2127.8 hub

" 2622 W. set hub in center of road from which true  $\frac{1}{4}$  S. cor. bet. sec 21-28 sets S.  $56^{\circ}15'$  W 3-3.8 feet.

We find the U.S. B.T., a J.P. 9 S.  $9^{\circ}$  W. 49 lks. with all the marks showing plainly. We also find a stake set at true point for cor. The J.P. 10 N  $4^{\circ}$  W. is down but all the marks are plainly visible.



Mon. Aug. 14

We go to the N.  $\frac{1}{4}$  cor. between sec. 20-21.

At 1303.2 feet N. of the  $\frac{1}{4}$  S. cor. the  $\frac{1}{4}$  S. cor goes E.  $4.75'$

From this cor. we run  $S 89^{\circ} 45' W.$  on a random N.  $\frac{1}{4}$  line thru sec. 20.

At 998.8 hub

" 1680.7 hub on top of cut bank

" 1779.5 hub in center of G.N. Railroad.

I take the outfit and go to the crossing East of Steamboat Lake where Harst picks me up and we return to Walker in his car.

Ben Peach.

Tuesday, Aug 13.

All day in Walker getting more notes and supplies to make up a new camp.

to take the place of the one that went up in smoke.

Fire was caused by the high wind blowing fire and igniting tent while dinner was being cooked at noon Aug. 14.

Loss consisted of:

1. 16' x 16' ft. squad tent
  1. Gold medal cot.
  15. blankets.
  2. suit cases + clothing.
  1. " " full of notes + inst's.
  - groceries \$13.00
  1. 3 burner Alcazar oil stove.
  - coats + small articles.
- E. B. Horst.





Wed. Aug. 14  
With new camping outfit.  
E.B. Horst. B.M. Beach, G.A.  
Bacon & Lloyd Kennedy  
Drive to Portage Lake to  
complete survey of County Road  
No.

From the  $\angle$  S. 20 & G.N. Ry  
intersection we make tie to  
Ry as per diagram on page  
36 this book.



G. N. R.R. Track. Main line.  
N. 70°00' E.

N. 4°33' E. 731. ft.

1779.5 ft.

S. 89°45' W.  $\frac{1}{2}$  Cor'd.

N  $\frac{1}{16}$  Cor.

N. 89°50' E.

17 16  
20 21

S. 20 S. 21

Steam boat Lake R.R. crossing.

Thots. Aug. 17, 1922.

From Hub 4215.4 on E & W.  $\frac{1}{4}$   
of sec. 21. We chain E. 148.8  
ft. and S. 5.5 ft. and set pt. for  
C.W.  $\frac{1}{16}$  S. Cor. from which a

Popple <sup>brs.</sup> 13  $N. 74^{\circ} W. 37.5$  ft.

" 10 S.  $20^{\circ} E. 3.7$  ft.

thence N.  $0^{\circ} 12' E.$  on W.  $\frac{1}{16}$  line  
and  $\frac{1}{4}$  of county road.

at 1000 ft. N. old Rd. NE-SW.

" 1003.0 " " Hub

" 1308.0 " " Set Post for  
N.W.  $\frac{1}{16}$  S. Cor. sec. 21.



(J.P. 4 S.E. 40' Stake N.W. 40' 40  
New B.T. to 1/4 S. cor 22/27)

Aug. 18

E.B. Horst, B.M. Beach

G.A. Bacon, & Loyd Kennedy  
begin at hub 2220.7 and cont.  
E. on sec. line between sec.

22-27

At 2640 set stake & hub  
" 2644 old stake sets 13.0'S.  
We look for U.S. B.T.s to the  
1/4 S. cor. bet sec. 22-27 where  
notes call for:

Aspen 3 N 30° E 41 links

" 3 N 57° E. 50 "

but find nothing.

At 2780 enter swamp.

" 3470 leave "

" 3960 set stake.

" 4058.4 hub.

" 4292 ~~E~~ old road

" 4760 cont. swp.

" 5293.0 hub. from which  
true cor. of sec. 22-23-26-27

sets 22.4 feet S. (in swamp)

At cor to sec 22-23-26-27

we find the U.S. B.T. as follows:



J.P. 30 S 71° W 290 (now a stump)

N.P. 30 S 260 (standing green)

from which we set a stake  
at true point for cor.

Thence we run N. 10° 15' E.  
on random line bet. sec. 22-23  
N.W.  $\angle$  of random lines = 91° 15'

at 50 feet N. Lv. swp

" 191.0 " " hub on  
8 inch pop. stump.

" 552.5 hub.

" 1085 ent swp

" 1320 lve swp + set  
stake for temp.  $\frac{1}{16}$  S. cor.

" 1455 enter swamp

" 1570 lv " "

" 2011 hub

" 2602 " "

We look for U.S. B.T. station  
 $\frac{1}{4}$  S. cor. bet. sec. 22-23 and  
where Gov't notes call for:

W.P. 7 N. 77° W. 90 links

N.P. 16 S. 84° E. 90 " "

We find the N.P. which  
is now a 4 foot stump bearing  
all the scribe marks.



66° 22'

89.0

42

From hub 2602 True  $\frac{1}{4}$ S. cor.  
sets S. 87° 15' W 40.8 feet.

From True  $\frac{1}{4}$ S. cor. we run  
N. (8° 30' variation)

At 280 enter swamp.  
" 555.6 hub; leave swamp.  
" 1133 "  
" 1320 set stake  
" 1461  $\Phi$  old road. N.W. + S.E.  
" 1977  $\Phi$  " " " "  
" 1900 hub.  
" 2600.0' hub from which  
true cor. to sec. 14-15-22-23  
sets N. 66° 22' W 89.0'



43

144-31.  
(County Road).

Sat. Aug. 19, 1922

Same Crew.

From the Car. to Secs. 14-15-  
22-23-144-31. We run N.  
Mag. Decl.  $8^{\circ}30'$ 

New B.T.s b'gs. only.

J.P. 12" N.  $38^{\circ}40'$  E. } Mag. Decl. =  $8^{\circ}30'$ J.P. 12" N.  $72^{\circ}30'$  W. }

gt. 590 N. ent. swp.

" 690 " Lv. "

" 800 N. Hub.

" 1200 " ent swp.

" 1320 set stake

" 1350 lv swp.

" 1507.3 hub.

" 1560 ent swp.

" 2100 lv. "

" 2638 true point for  $\frac{1}{4}$ s.

bet. sec. 14-15 sets E. 16.0 ft.

We find the stumps of  
both U.S. bearing trees from  
which we set stake for true  $\frac{1}{4}$ s  
corner. From which:

New B.T.s bear.



J.P. 5. N.  $48^{\circ}20'$  E. 37.1 ft.

J.P. 6. N.  $63^{\circ}00'$  W. 53.6 ft.

From  $\frac{1}{4}$  S. Cor. thence N. bet.

secs 14-15

at 386  $\frac{1}{2}$  <sup>East Lake & Steamboat landing</sup> old road E + W - Reed

" 926.0 Hub

" 2036.0 "

" 2650.0 the established cor.  
to secs. 10-11-14-15 sets W. 5810  
feet.

We correct line back and set road  
Centres on true line. S. two miles  
and W. 1 mile then N.  $\frac{1}{2}$  mile.

2650 / 58.0000 15219

53.00

5040

2650

23500

23800

926

219

8334

926

1852

202794

2036

219

18324

2036

4072

445884

45-

2638 / 160000 100607

15828

17200

1507

.005

9.042



Correction for  $N\frac{1}{2}$  bet 14-15 = .0219.

Correction for  $S\frac{1}{2}$  bet 14-15 = .00607.

"  $N\frac{1}{2}$  " 22-23 = .03126.

"  $S\frac{1}{2}$  " — = .01567.

48

Then go from C/4 S. 21 South on  
1/4 sec line 400 ft thence  
S.  $82^{\circ}15'$  E. 865 ft.  
thence 1478 ft. E. to sec. line.

We return to Walker.  
E. B. Horst.

(Survey Record 508)



107

994

95106

.3090

$$\begin{array}{r} 6 \overline{) 94.5} \\ 13.75 \end{array}$$

94.5

30.6

$$\begin{array}{r} 7950.0 \\ 30.6 \end{array}$$

79194

$$\begin{array}{r} 3175 \\ 2689.4 \\ \hline 585.6 \end{array} \quad 2621.4$$

$$2703.8$$

$$2679.0$$

$$324.8$$

$$8.2$$

$$2703.8$$

$$8.2$$

$$2 \overline{) 2712.0}$$

$$1356.0$$

$$\begin{array}{r} 1322.5 \\ 1333.3 \\ \hline 2655.8 \\ 2 \overline{) 2655.8} \\ \hline 1327.9 \end{array}$$

$$2712$$

$$2621.4$$

$$2 \overline{) 5383.4}$$

$$2666.7$$

$$1310.7$$

$$894.6$$

$$473.7$$

$$2679.0$$

$$2621.4$$

$$2645.0 \quad 4 \overline{) 377.6}$$

$$2103.5 \quad 14.4$$

$$5415$$

$$2703.8$$

$$14.4$$

$$2689.4$$

$$1327.9$$

$$1361.5$$

$$1310.7$$

$$894.6$$

$$416.1$$

$$5494 \overline{) 576000} \quad 1048$$

$$5494$$

$$26600$$

$$21976$$

$$46240$$

$$42952$$

$$1361.5$$

$$1305.0$$

$$56.5$$

$$5383 \overline{) 7000.00013}$$

$$5383$$

$$16170$$

$$16149$$

$$.0013$$

$$2773.7$$

$$2750.2$$

$$23.5$$

$$113.5$$

$$70$$

$$79450$$



$$\begin{array}{r} 5851 \\ 48214 \\ \hline 10680 \end{array}$$

$$\begin{array}{r} 1988 \\ 1428 \\ \hline 560 \end{array}$$

$$\begin{array}{r} 1216.4 \\ 2 \\ \hline 24328 \end{array}$$

$$14 \overline{) 1000.000} (71.43$$

$$\begin{array}{r} 20 \\ 14 \\ \hline 60 \\ 56 \\ \hline 40 \\ 42 \end{array}$$

$$\begin{array}{r} 01048 \\ 560 \\ \hline 62880 \\ 5240 \\ \hline 58680 \\ 144 \\ \hline 20.2 \end{array}$$

$$77 \overline{) 5383.000} (70$$

$$\begin{array}{r} 17 \\ 70 \\ \hline 5390 \end{array}$$

$$\begin{array}{r} 5383 \\ 2632.8 \\ \hline 2750.2 \end{array}$$

$$\begin{array}{r} 71.43 \\ 33 \\ \hline 35715 \\ 21429 \\ \hline 250005 \\ 14286 \\ \hline 2642.91 \end{array}$$

$$\begin{array}{r} 71.43 \\ 77 \\ \hline 50001 \\ 50001 \\ \hline 550011 \end{array}$$

$$\begin{array}{r} 37 \\ 70 \\ \hline 2590 \end{array}$$

IIIIII

4124.3  
4388. water.

2645  
2103.5  
541.5

2645  
63.8  
2708.8

2103.5  
793.3  
1310.2

2058.4  
19.4  
2077.8

2290  
2294  
16

1310.2  
793.3  
516.9

516.9  
3200.0  
2058.4

796.7  
516.9  
279.8  
213.6  
6.2

5430

141.6

1443.0  
1417.6

2 2860.6

1430.3  
1428.6  
1320.0

1.7  
2214.6

2274.2 : 2290.2 : 1320 : X  
1320

458040  
68706

22902

2274.2 : 3023064 : 1133  
22742

74886  
38226  
66604

1330  
894.1  
2224.5



4215.4  
4066.6  
148.8

5383.0  
1316.7  
4066.6

# 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.