

241

WELZEN

ENGINEERS

FIELD BOOK

NO. 241

Note:

This book belongs to
John W. Curo
Walker Minn

If lost, finder please
notify the owner and
receive a suitable reward

Listen:

Please rush - because the
book is not worth a dime
to any other person and
the owner may need it
and looking for it now

June 11-1938

John W Curo
Walker Minn

2

Index

Time Sheet 7.

US Notes 4

Maps 4

Board Sheet Page 35

AG Fisher

138-139-30

POWERS Twp 139-30

Road

27-28-33-34-139-30 P9 43-65-

Jack Codner. Sec. 34-13930-46-71

Clark. Johnston Sec. 1-138-31-73-89

Elmer Doty Sec 32-139-30-92-

Index

3

Any old Twp -- almost

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

①

Hand-drawn map of Bowen Lake with handwritten notes and survey data. The map shows a curved shoreline with several points marked and labeled. The lake is labeled "Bowen Lake" at the top. The shoreline is marked with points MC24, MC23, and MC22. The lake is labeled "us ch" (upper channel) and "LKS" (lower channel). The shoreline is marked with "1592" and "1050.72". The lake is labeled "269.28" and "755.7 FT". The shoreline is marked with "400" and "264. FT". The lake is labeled "MC23" and "NP24 MC5 W 36 =". The shoreline is marked with "1606 LRS" and "1051.96 FT US". The lake is labeled "NP18 59° E 70 = 146.2" and "BR15 58° E 31 =". The shoreline is marked with "sec 5" and "138-30". The lake is labeled "sec 4" and "138-30". The shoreline is marked with "1592" and "1050.72". The lake is labeled "269.28" and "755.7 FT". The shoreline is marked with "400" and "264. FT". The lake is labeled "MC23" and "NP24 MC5 W 36 =". The shoreline is marked with "1606 LRS" and "1051.96 FT US". The lake is labeled "NP18 59° E 70 = 146.2" and "BR15 58° E 31 =". The shoreline is marked with "sec 5" and "138-30". The lake is labeled "sec 4" and "138-30".

1/4 US Nalis says

BP12864E38 = 25.08 F1
BP15 West 4 = 2.67

5

4

NP 20 N 85 E 570 =
NP 20 N 87 1/2 E 576 =
N 15 S 82 W 725 =
BP 12 N 71 W 500 =

8

9

Backus

(2)

5

June 11-1938

A. G. Fisher of Backus Minn
Called at Jenkins-- Wants a
Survey. Owns land on So End
of Bowen Lake Gov Lot 1.7"
= Fractional NE NE Sec 5
138-30 = 39.30 Acres U.S. Survey

Letters

June

Backus Minn June 15-38

Mr John Curo - Jenkins Minn Dr Sir
Please let me know when you
can do our surveying which I talked
to you about recently yours truly
signed A. G. Fisher

July 15-1938 A note left on my door
at Jenkins: When can you survey
for A G Fisher at Backus. Like to
get it done "Fisher."

US Notes ③

6 July 20-1938 about

Curo Loahr for USCors

138-30 "C" = 1/4 Cor N Side 2

1/4 - Sec 2. ^{Tan H N 21 W 27:}
" 45 38 E 6

On N. Town Line 138-30

"D" NP 22 N 11 1/2 E 70

" 20 N 13 W 54

" 20 S 45 W 44

" 28 S 76 1/2 E 83

d.

NP 18 S 47 E 129

NP 20 N 4 1/2 E 106

8

(5)

Dec 15-1938 Thurs

Harald, Martha and I

Jenkins 1: Walker

Dec 16-1938 Friday

Martha-Harald and I back
to Jenkins

Dec 17-1938 Sat

Harald, Martha + I all day in
Brainerd

Dec 18-1938 Sunday

Harald-Martha + I

to Walt Liske Res. W. of Lake

George Buy Tan 8" @ \$6 pr

cord delivered at Jenkins

6 cds @ \$6. = \$36.

Martha pay \$10. down

As Walker with trailer
and Washer - late

(6)

9

Dec 14-1938 Monday

Martha plays with I & son in Walker
Harald & I to JenkinsCall on Pequot Bank also
Harry A Park.

Dec 20-1938 Tues

up @ 6-30 - @ 9 AM Harald & I
go to Bachus Town & Rd 17 E $\frac{1}{4}$ Bet 29-32 - 139-30 Take
SW angle of roads 89°30' about
From about PZ of roads &
Go along west edge of lot3-6-9-12 @ bet 1326 Fine W
15-18-21-24-27-30-33-36

39-42-45 @ 4800 & Creek

Bachus Brook Runs ENE

5100 + 203 = 5303. Hit RR right
W edge of lot

10-30 AM. meet

Fisher & son near Cemetery

Harald & I dinner at
Bachus 40° x 40° 80°

Paid by Harald.

(7)

10 Dec 20-1938 Continued
PM

Aloe & our 5303- Turn
90° to L&R road (about) 1/2
Set Back about 30 rods E & R
West Random Town Line

O. is about 16 ft West of yellow
line of N 5- Road + 27x15
Hub on hill 300-600 pinnifield
1-PM.

A E Fisher and his son come
out Ivan E Fisher 24 married
Son of AG Helps Harald Cut
line West

AG and I pick up
Clarence Pomplun who
lives with Harry Burman
18 years last Fall on E 1/2 NW
1/4 Sec 5-138-30 -

They say J.A. Newman
Grandpa Newman knew
location of many corners

I take Pomplun and
Fisher a mile East where
Pomplun points out NW
Cor post of old fence

which Pomplun says he set
24. inches so of an old
1/4 stake. He also says
the fence on so side of road
leading East from 1/4 on
Tar Road was set exactly
2 rods so of line running
East and that the E 1/16
Cor stake bet 5-32
Set exactly 2 rods so of fence
All wrong!

Checking this fence we
find it 24 ft so from our
point for 1/4 on Tar road
Nali. They must have
attempted to set it 1 1/2 rods
Later: Pomplun says this
may be so.

Anyhow we drive back
I take Pomplun home.

Fisher drops off and I
join Harold and young
Fisher (Ivan E Fisher)
and we continue West.

(9)

(12 Dec 20-1938 continued

Sta 0.0 = point R.R. Spike
15.4 West of yellow line

about OK for N-S for

$\frac{1}{4}$ bet 5-32-138-139-30

West on random about

90° to Tar wood

274.5 Hub on hill

3-6- 614 Cross old N-S

Fence about 18 ft N of SVR

Cor 638 Hut 4, 30 ft so of

Heart of Short 12" SP slumps
on West slope

All Hubs are R.R. Spikes

West on Town Line

735 foot of Hill NE SVR

888 enter Wet Creek Bottom

N-S 900 slake

935 R. bank Bachus Brook

Flows ~~Early~~ Early

965 L Bank

991 L left Bank

Creek says about 60 ft so

1035 R. Bank

1145 R "

Creek says 100 N

1196 L Bank

1200 slake 1265 cross 3 wire
fence about 20 ft N of SE cor.

Cut line west and

Quit at dark

Harold and I to Sentinel
for overnight

14

Dec 21-1938 Wed

Up @ 6-30 - Write letter to
Walter Linke about Tarn
House logs - Place red
flag where we want logs
piled $\frac{1}{2}$ mile West of
Junkin. Tell Mrs Kemper
Write up notes

10 AM L & Junkin in my
car take lunch

11-45 Harold and I
at Find Ivan cutting
West on Town Line

1305.7 Hat Iron pipe at
fence Cor sets 20.3 So and
0.80 West

1306.50 West a bent
 $1\frac{1}{2} \times 30$ inch pipe sets So
20.3. we straighten up the
Pipe from which a fence runs
E-S-W Pipe sets - 0.50 N of
Cor post

1306.5 Pipe 20.3 So

Work on Town line

$$1500 + 200 = 1700 \text{ slake}$$

1780 Left Bank Creek

1817 R. Bank Creek says 2000

$$2000 \text{ slake} + 249 = 2249 \text{ Hub}$$

+ 300 = 2549 slake 177 west
of where Ivan quit cutting
wide strips

Note: Ivan cut too wide
lots of 3 to 6" sap trees 4 ft
wide

$$2549 - 177 = 2372 \text{ end of}$$

Wide Cutting

From here on we cut no
limbs

$$2549 \text{ fin} + 88.8 = 2637.8$$

Hub

12-30 PM I send Ivan home
to his dinner Harold & I
stay Find 8x8x36"

Current Post on E W fence
bear S 12°30'E 40 feet

Harold and I go back to E

John W. Cress

16

Dec 21-1938 could
 Meet Clarence Pomphrey
 on our way back
 Fisher & Son meet us at
 Tar road

Harald and I extend
 the fence west to a
 point 24 ft so of Sta 0.0.

Pomphrey says maybe
 the fence was not 3 rods 3
 old crooked fence chains
 54 ft N. of the fence

From 0.0. extend our
 line East 16.2 to pt 0.80
 East of yellow line

Turn 1/4 Cor
 Probably TRUE 1/4 Cor
 Bet 5 and 32 - on Town line
 Try driving RR. spikes in
 @ Road. Only make a hole

(14)

165°
30
493.0117°
30
93.0

17

Hloe & one Hale in lat

Temp 1/x

Focus 30 rods E on alal

Back shot Turn 0'52' L
and run

East on Town Line

connected at about 80 rods
set flag

Focus 0.0 on flag (Plat. 90')

late BTS viz

JP 10 N 24°44'E 147.80

8" T. Pal. S 71°22'W 53.35 + 50 =
53.85

JP 11 S 28°50'E 103.50

JP 6 S about 73°45'E 90.9 + 52 =
91.40 T. spot at baseTurned from true line
EastI do a lot of figuring to
get Fisher & son cutting
Wah till dark. Fisher takes
Haeed to Backus for supper and
over mile. I drive in to Walther

John W. C. M.

18

30

29

17

139-30

31

32

1/4
9930

32-
139-30

5303.0
Chained by Herald
except that we only
eliminated about 1/2 where
1/2 on N side, was located

2637.8

31

32

Random

38.955

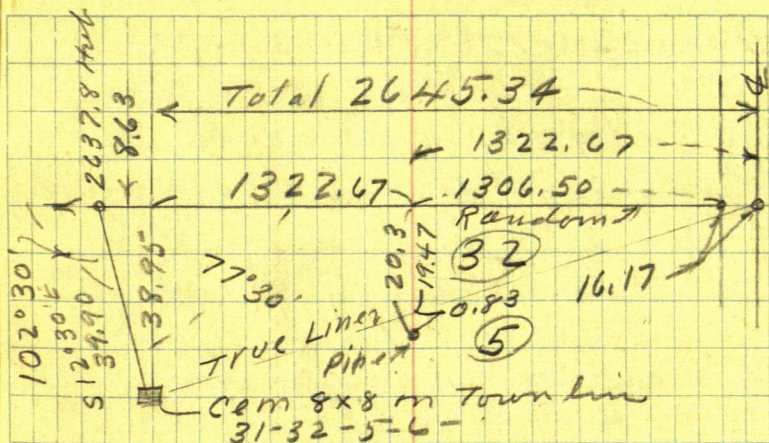
-8.63

6

5

138-30

6.17



$$S 12^{\circ} 30' E \quad 39.90$$

$$\text{Since } 2164 \times 39.9 = 8.63$$

$$\text{Cor } 9763 \times 39.9 = 38.95$$

$$\begin{array}{r} 1322.67 \\ 1306.50 \\ \hline 16.17 \\ 2645.34 \end{array}$$

$$\begin{array}{r} 2629.17 \\ 1306.50 \\ \hline 1322.67 \end{array}$$

$$\begin{array}{r} 2637.80 \\ 863 \\ \hline 2629.17 \end{array}$$

$$2645.34 \text{ in } 38.95 \text{ Tang} = 0.014724$$

$$2645.34 \times 0.0147224 = 38.94575$$

$$0.014724 \text{ Tang} =$$

$$0^{\circ} 51' \text{ Tang} = 0.0148$$

20

(17)

Dec 22-1938 Thurs

I am at Walker with Ilo
and Martha. Harald is
staying at Bachus at
some place furnished
by A. G. Fisher - working

I work on figures till
10-30 A.M. Storming
Figuring

Tang

0° 50'	0145
51'	0148
52	0151
53	0154
54	0157
55	0160
56	0163
57	0166
58	0169
0° 59	0172
1° 00	0175

My Angle should be
0147 24 about 0° 51' -

Walk thro swamp to 21
 Ct Ho at 11-AM still
 storming

Bob Dahms Office girl
 is Mrs Jake Fleisher
 Jim Miles daughter Ella
 Miles Jake is a son of
 Chet Fleisher of Hackensack
 Look up C. Records
 BOOK A

Sec 138-30

1
 2
 3
 4

5 Pg 172-173

6 " 170-171

Sec 139-30

36 Pg 373-377

35 " " "

34 " " "

33 " 160-161

32 " 158-159

31 " 168-169

30 " 166-167

29 " 154-155

28 " 156-157

27 " 164-165

26 " 373-377

25 " " "

24 " " "

23 " " "

22 " 162-163

22

Dec 22 - 1938 cont'd

Book A gives me no lead
on the H.B. Fisher survey

Nothing in Book A

May examine other books

Get part of a bottle Higgins
Ink at Dahmer office12 - Noon quit and walk
home Ilo and Martha

send me for stove gas

Meet young Shepard He
says Walt Liske is in
Weather - Points out his car
I catch Walt near Ct Ho
Walt says First hood Sam
Linher went to Lohman
today - Bat of 6. Cds will
be all in Saturday

6 cds. @ \$6. = \$36 - \$10 p.d

Bat \$26. I will send
this to Walt Liske Kerner
Martha hands me \$15 to
pay Walt

(20)

23

Town Line

138-139-30

P.M.

Still storming: Figuring Pg 19

$$1322.67 \times .014724 = 19.47$$

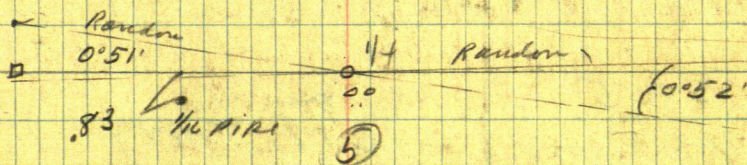
$$2645.34 \times .014724 = 38.95$$

2030

1947

.83

(32)



Nat'l. We Turn 0.0° & Road $0^\circ 52' L$
we should have turned $0^\circ 51'$

Our Random East from Tar Road
is One minute - for Left
going East = .00029 too far E
= 1.54 in one mile.

0.77 " $\frac{1}{2}$ mile

0.39 " 80 rods

0.29 in 1000 feet

24

Dec 22-1938 continued

(24)

269.28 US

755.7 US

Bowen Lake

264
263

(22)

(23)

See P. 4

See 5

A. G. Fisher

See 4

O. M. Terry

Art Miller

Finson

School Bus - Old Hi one back
 of Hald at Longville owned by
 Johnson Halil Keeper
 Jack Parker How Truck

Stove door $6\frac{3}{4} \times 10\frac{1}{4}$

22

Reg. of deeds
office walke
BLUPP

30 29

stone 1/4

17.0

Sta 598 + 74.1

31 32 SRN: 7

Cem-
etary

56.2

P.I.

598 + 74.1

Δ 0°09' R

50'

R 1/4 W

50'

2 1/2" iron
pipe 1/4
Cor

31 32
6 5

+ 25

39.5

3.3

Cor part of
fence

P.I. 651 + 77.5

Δ 0°07' R

= 1/4 Cor So Side 32-139.30

Copied From State Highway
Blue Print at Walke

26

I pay back Tax on Lot 3 Bk 2
 Remm wa Curo - \$255

Lalin Martha gives me 1855

2000
 1855

145

Total paid by
 Martha

At Link's Res
 at warke

10.00

15.00

18.55

"

"

Total

43.55

I paid out to Link 10.00

For tax

255

Bal Due Link

2600

3855

4355

3855

500

This is 55 I borrowed from
 Martha to be paid back Jan 1 - 1939

(24)

27

Dec 23-1938 Friday

Jahnnie Babcock come from
Fort Snelling on rail
train at 6-AM

9-AM I mail P.O. order \$10
to Walter Lisk, Rennie

Bal due Walt \$16. for Tam
Hour logs

Check US play at Walker

57

58

24

408

1145

56

22

23

Sun 5

138-30

Sun 5

138-30

2006

1606

28 Dec 23-1938 contd

L. Walker @ 9-AM On 10.05 AM

Ivan Fisher and wife say

Harald worked all day yesterday in the storm and left for Jenkins at dark last night.

I drove on to Jenkins and found Harald

Harald's notes for yesterday and day before on or follow

" Wed Dec 21-1938

Supper with A. G. Fisher who takes me to Jack Hammond see 1: sleep"

" Thursday Dec 22-1938

Breakfast with Fisher 7 AM

he drives me to work. about 8

A. G. Fisher goes back home

Ivan Fisher and I Beg @ 0.0-

Temp 1/2 Cor in E. State Highway

East along Liverpool

3-6-9-12 slakes N side of road

@ 1300 road turns SE

14 14.0 Hut (Halt: Don't see hut at about 1300)

1414.00 Hub on E Bent of hill

1500 slake foot of hill 1653 cross
old Beaver Dam n-s- 1726.9 Hub

1800-2100 slake 2263 Nalich in
N side 18 inch Birch tree

2330 & 16" Elm leaves so
can get by. 2365.3 Hub

2367 & big 30" Birch which
we cut 2370 entire ice

2400 slake in in Bowen
Lake 2640 slake on line (alt)

2700-3000-3300 slake on
ice 3387.2 cross + on ice
+ 15.9 = 4" birch at

edge of water E Seal Lake

House on line ahead
Omit at 5.15

Summer 1 noon with 2000

Evening: Walk to Jenkins - eat
at Pine River 40%

5 Hours walk to Jenkins "

Nalich all Hub and

R.R. spikes Harold J. Cund

(27)

30 Dec 23-1938 could
I copy Harald's notes
pg 28-29

Harald & I eat dinner at
Jenkins

PM

One Minute So Correction
for Hubs to put random on
line passing thru Hale $\frac{1}{2}$
in cement road with Cam
See Cor half a mile west

Nale: we pitched our random
One minute too far N from
Tas road East so we set
Hub So to line random of
Tang = .29

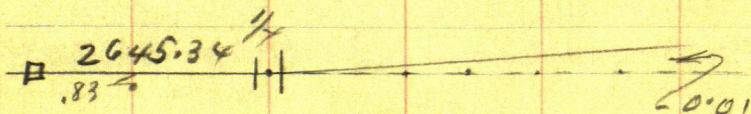
1414 g acc S 0.41

1726.9 " S 0.50

2365.3 " S 0.69

2640.0 " S 0.77

3387.2 " S (= + in ice) 0.98



AG Fisher Backus

1-30 Lv Senkr 2 or

At cross in ice @ 3387.2

Set pipe in ice 0.98 ft

True Random Tower

Corrected Hat 3387.2 ch

Ear 33.4

To 3420.6 Hat

+ 235.2

3655.8 Hat

2640 00

269.28

2370.72

3395.7

3387.2

8.5

2640

755.7

3395.7

From 3387.2 ch E 8.5 T. 3395.7

Set Hat

At 3387.2 ch E 8.5 T

3395.7 Hat Pt for M.C.

at edge of bank 2 ft in
of foot seawall

32

Dec 23-1938 continued

Ivan piles willow brush cut from lake shore on a fire I build on the ice. Almost refuses to work Harald and I fight hell out of the line to get a hole East up the hill to avoid cutting trees. Ivan is impatient. Stops working a couple of times and I tell him to go home.

Clarence Pomplon stands around the fire.

Ivan goes home about 4. Harald and I slick it out and stay till after dark.

Meet O. M. Terry show him "about" where the line will fall. Show him the new Birch BT at 24 on west side of lake. Terry is fine about the whole thing. Home to Walker.

A G Fisher - Backus

Johnnie Babcock - Harald -
Martha - Ilo and I over
niti at Walker

Harald is stiff over his
long walk last niti from
Backus to Imhuin

Time Sheet on Page 7.
Board Sheet on Page

34

(31)

A. G. Fisher - Backus

1938

Board Sheet

Dec

21 22 23

Boarding with AG Fisher

Harald J. Curo

Dec

5

B

Boarding with Jack Hammond

Harald J. Curo

Dec

L

Boarding with Ivan Fisher

Harald J. Curo

D

Dec 20-1938

John W. Curo - and Harald J. Curo

Dinner at Becker 80¢ per day

Harald

Dec 22-1938

Harald gets Supper at Pine

River and pays 40¢

214.5

36

Dec 24-1938 Salundan
 up @ 8:30 Borrow boats from Geo
 for Bal 10-AM - Bob - Harald.
 + ILV Watter - 10-45 AM. Find no
 crew Pick up Ivan and drive boat
 X over 3655.80 E = RR spike
 BTS - Ties viz

NP14N 36° 45' E 47.8 + 5 = 48.3

NP15N 20° 48' W 50.35 + 5 = 50.85

JP12S 75° 44' W 92.55 + 5 = 93.05

JP10S 34° 26' E 39.9 + 5 = 40.40

To Spat at base Turned
 from True Random
 Van woods 7°

But the car is only 12 ft NW

The SE BT is about 3 steps
 N and 1 ft W of NW Cor
 of House

3655.8 Contin

EarV + 211.5 = 3867.3

Pin foot of hill NW wheel hook
 up NW + 214.5 = 4081.8

Hub on top RR spike

JP12N 63° 45' E 37.75 + 5 = 38.25

JP8N 34° 22' W 29.95 + 5 = 30.45

HG Fisher - BACKUS

Hub 4081.8 is 15 ft N of E W Road

Fisher Brothers L for dinner at 12-30 PM

East 300 mi + 112.3 = 412.3
= 4494.10 Hub RR spike on E Brink
18 ft N of Road

Bab and I walk E-W and set Hub

on so slope of hill near 1/4 in line with fence S also at E side of swamp

3rd almost on top of Big Hill 100 rods E of 1/4 Cor

RR spike at 1 ft N of N wheel track. Tie

7" Brink N about 20° W

3.80 spot on DE note

Walk back to Howard at 7

Fisher and his two sons arrive at 1-30 PM

Ties to 4494.10

Red Oak 8H W
JP 7S W

38

At Fisher⁽³⁵⁾ BACKUS.

Dec 24-1938 continued

Starts to snow From 4494.10
 East about 4770 foot of hill
 enter grade in Swamp + 3 =
 4794.1 pin + 3

5094.1 " + 104.5? =

5198.1? Hat in line with
 old 1/2 A lake and fence run-
 -ning so Hat on so slope of
 grade ft N of as old
 lake and ft N of NWC or
 of fence S and E + 9-12-

+ 83? = 12837 + 4494.1
 = about 5777.1

Hat 1 ft N of N wheel track
 near E edge of Swamp

Note: check these measure-
 ments as it was snowing

I kept note in on a loose piece
 of paper and lost it

Fisher & Sons talk at
 too much scenery and
 we all drive back to Backus
 3:30 to 4 PM in Backus

I tell Fisher I will finish
his work for \$75 - \$35 down
bal in payments

But he will have to cut the
line

At Bachur I call at Fisher
rer but he cannot pay me
a dollar - may have some
first of next week

I offer to set his MC on to
side of Bowen Lake @ \$50
but he will have to first pay
me \$35 on account

But Harold & I L.
Bachur 4-30 as Walker
about 5 PM

Frank Saulter a river
3 to 5 minutes later with
Currie and Reed

When I start to write up
notes from 4494.1 East
find I have lost the slip
and write up notes from
memory. Will re chain
it later

John W. Crew

40

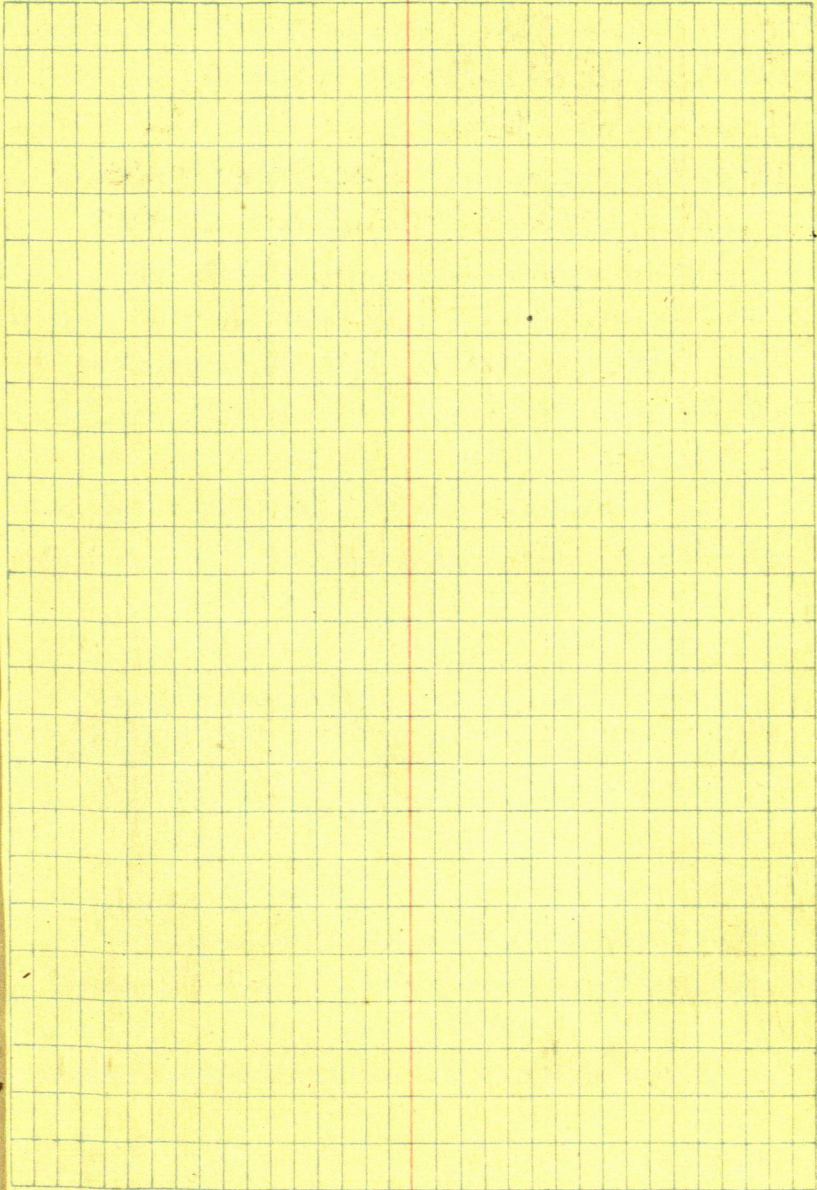
(37)
Fisher Backus

Dec 24-1938 cont'd

6-PM. All at the Harry
Paddock house at Walker
Martha and I - Reed & Eunice
Ilo and Frank - Harald & Ivers

Reed and Eunice left the
baby with Mrs Geo Ridley in
Brainerd and came up with
Frank and his new car
Calder.

AG Fisher Backus



①
Powers Trwp

43

139-30 Township Road
West Half Mile Bet Sec 27-34

June 11-1946 Trwp

Harold J Curo and John W Curo
in 41 Ford
Walker to Backus

Drive E x N

Call Herbert W. Londwehr

CHORMAN
Trwp Road

Tel 16 F III BACKUS Owns and lives
on 5 Lots Horse Shoe Beach on
Horse Shoe Lake Sec 11-139-30

Urgel R and his wife Kate
Blackford own

Lot 1-33 139-30

" 6 28

They called yesterday at
Otto Powers Trwp will pay for
Survey and Blackford will build
it

(2)

44 June 11-1946 continued
3-30 PM.

Herbert W. Landwehr Chairman
Powers Town Board and his

Car go with Harold and I 1/
1/4 Cor bet 27-34-139-30

Find 2" pipe in 4 N-S graded Rd
Harold marks 4 new BTS.

while Herb & I in his car drive
S and West 1/4 mile where

Blackford has rented a
house. They will be ready to help

@ 9 am tomorrow

Herb and I return to 1/4 Cor
where Harold is still spalling 4
new BTS. Nearly 5 PM too late
to work to-night

Will be back 9-AM tomorrow

Harold & I to Jenkins see Maple
and Tim off on bus.

Back to Pine River. Call on Robideau.
His people come on in to walk
Oil out of my Ford

Jabmea Cuss

Power Twp Road - 27-34-139-30

June 12-1946 Wed

Limy Ford Lake Harold's Pky 36
pay 87° pickets Bailey Lb Co no sleep

L. Walker 8- Ar 8.45

Find Herb and his young helper

Earl O. Reeve 16 + son of

Cleo Reeve Cutting brush

Bath Cars drive SE E + NE
around bog try to find Co 10

27-28-33-34 - 139-30 N.G

Place X over 2" pipe & v-s rock
1/4 bet 27-34 -

Focus 1/2 mil E at Natch in trees run

West on random bet 27-34

Set picket West

Ties to 1/4 bet

27-34-139-30

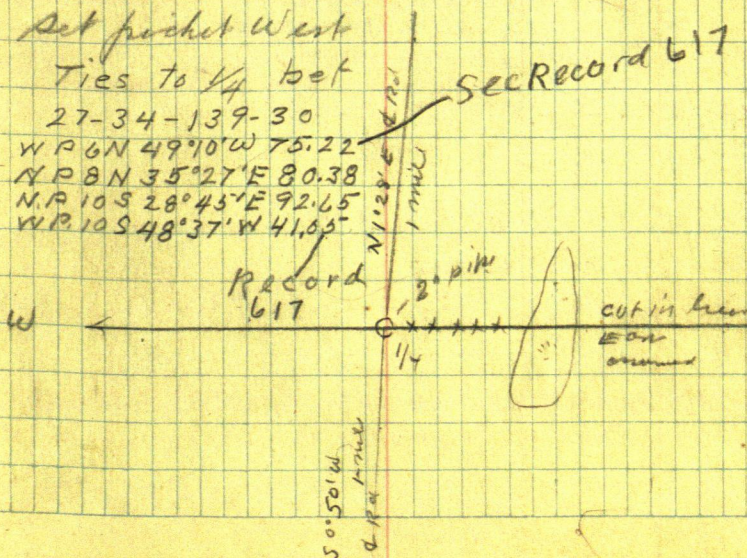
W P 6 N 49° 10' W 75.22

N P 8 N 35° 27' E 80.38

N P 10 S 28° 43' E 92.65

W P 10 S 48° 37' W 41.65

See Record 617



Five Sheet Powers Turp Road

1946 June 11 12 13

James Cus 0.18 1/2

2

Car @ \$3.50 per day

EXP @ \$2.50

Harald Cus \$1. H

Car @ 250 day

EXP Buses @ \$2.50

Herbert Landwehr @ ?

2

48

(6)

April 7. 1947

I Lr Walker in my car
drive to Blackford in sec
27-137-30 Arrive a round
Noon Blackford + I visitables
hubs on our old random line
bet sec 27-28 which he has
knock out building his road.
Tower Temp cor to sec 27-28
33-34- 139-30 Site E on temp
sec line Turn 90° and cut
line N and set a spike on top of
hill we also cut line south
quit @ 4:30

5 hr.

Blackford + I have a
hard time getting out with
car.

Harold Curo

Apr. 8 - 1947.

I in my car drive to
Blackford's Power Trap, arrive
11-30 eat lunch with Blackford
we continue line south to
33-34-139-30 set traps on
grass point about $\frac{1}{2}$ way over
lake. set one on S bank above
just over creek and one on
N shore of creek. To dark to
see good.

Blackford & I about 5 hrs.
more mud hard to get car
out

Apr. 9. Fgs with JWC and
Coyne to Remer

Harold Curo

50 Blackford. Powers Twp

April 16 - 1947

Coyne and I Lv Walker in my
car drive to Blackford he can
enter main road take outfit
and walk $\frac{1}{2}$ mile W to Blackford
He can not go right away

Coyne and I go to Temp cor
to sec. 27-28-33-34-139,30
and chain N @ 156.3 spike on top
@ 271.7 spike on seawall enter
sw land around lake shore bears
E and curves SW @ 356 enter
open ice

Dinner with Blackford
P.M.

Blackford come out @ 1-15
From Temp cor 27-28-33-34
chain S @ 152 Lv swp NE SW
@ 352.1 spike on top
@ 409 foot of hill enter flat low land
@ 458.3 spike in bank on west
edge of 7" Elm stump
@ 506 enter swp around lake
shore bears N about 60° E and west
@ 622 over swp enter open ice
NE, SW

Harold Curo

Powers⁹ TWP 139-30

51

Apr. 16-1947 Blackford road

$352.1 + 300 = 652.1$ pin on ice +
 $300 = 952.1$ pin + $300 = 1252.1$ pin +
 $300 = 1552.1$ pin + $300 = 1852.1$ pin +
 $291.2 = 2143.305$
60 ft spike on grass point under
water

Over 2143.30 Take atada Reading
over open water

@ 1222 = 3365.30 spike
on N side of creek now under
6" of water at mouth of creek

$2143.30 + 1410 = 3553.30$ spike
hub over creek on sea wall.

From Temp Cor 27-28-33-34
139-30 run line West

@ 282.75 spike @ 713.6 spike hub
@ 1001.3 spike hub + 241.8 = 1243.1
spike hub on bank 45 ft E of water's
edge @ 943 lake lies N 200 ft.

From Hub 1001.3 old Backus road on
lake looks like it is about 100 ft N of where
our line would come out if cont over lake

H.J.C.

Aug 6-1947

Mrs. Blackford call @ Court House Wants her work done now I pick up Walt @ 930 and drive to $\frac{1}{4}$ cor bet 27-34 139-30 Walk W 420ft +- to edge of field where we look for 60' spike but cannot find it drive to Blackfords Tower spike 1078.9 site E ~~see~~ picket I think is 600 W set stake on this line look for spike 418.45

Walt has his dinner
 Eat with Blackfords
 Tower I M $\frac{1}{4}$ Cor. bet. Sec. 27-34
 139-30 site W on 60' spike
 hub, 1078.9 and run

N $1^{\circ}20'E$ along W side of wheel Track,
 so as to be out of way of cars. @ 300
 600-900-1200-1500-1800-+200-2000 pin
 +300-2300 pin +300-2600 pin +98.5-2698.5
 hub 60' spike Sta ①
 Tower 2698.5 BS S $1^{\circ}20'W$
 and continue N $1^{\circ}20'E$

Aug 6 - 1947

$2698.5 + 300 = 2998.5$ pin + 300 = 3298.5
 pin 3298.5 + 300 = 3598.5 pin + 300 = 3898.5
 pin 3898.5 + 300 = 4198.5 pin + 300 = 4498.5
 pin 4498.5 + 300 = 4798.5 pin + 300 = 5098.5 pin
 $5098.5 + 194.9 = 5293.4$ N Hub = 60' spike
 about 15 ft S of Φ of Tar road in curve
 Tower hut 5293.4 BS S 1'20' W and
 run N 89° W @ 1356.9, spike in Tar
 road 4 ft N of Φ
 Tower hut 1356.9 W BS, S 89° E
 and run N 89° 35' W 1258.7 to spike
 in Φ tar road E + W @ Φ of road
 running North.

(angle)

T @ 1356.9 BS on Temp & High Cor
 5293.4 N of $\frac{1}{4}$ bet sec 27-34

Var @ '00' Turn L 0° 35' 1258.7 to spike
 5:45 PM. Walk has $\frac{1}{2}$ mile
 to car I have $\frac{1}{4}$ mile to walk
 We drive 1 mile S to pick up
 Back shots as the are in the road
 of mail man. Then head for
 Home.

54 Aug 7- 1949

Walt & I L & Walker in my
 car. @ 930 drive to Blackfords
 sharpen tools get boat from
 Blackford. load everything
 in boat & eat lunch with
 Blackford. Walt has his dinner
 Take boat row around to hut
 on our line S of Red flat.
 row over lake to S shore of creek
 There 40' ^{3553.3} spike over our Randen
 line S of 33-34 139-30 and
 continue South heavy brush
 until 6-40 row back to car load
 tools start for home 730.

See page 50 This book
 which says - 3553.30 spike over
 river

Aug 8. 1947

Walt & I L & Walker about 9-30
drive 1 mil S of Raders then
• E 1 mil pack out pit NE to
our random line and continue
our line S bet. 33-34-139-30
beg @ Hub 604 spike & side creek 3553.3
S of Temp cor To Sec 27-28-33-34-139-30
chain south bet. 33-34

We cut line south to range line
road eat dinner

P.M.

Beginning @ 604 spike hub
3553.3 we chain S between
Sec 33-34, -139-30

@ 3912.7 spike hub on top of high
hill.

@ 4562.0 spike hub.

This :- Oak 6548°28'E 15.05
W. Pine 14534°25'W 24.06

@ 4763.25 spike hub

This :- W Birch 8363°27'W 33.85
N.P. 16 S 38°11'E 31.58

@ 5102.9 hub 604 spike

This Birch 9335°41'E 27.05

W Oak 7513°42'W 6.50 Twin Birch 5.6 m
Birch 6575°19'W 15.88

52

@ 5249.2 hut 60% spike
in E Township line road
T over 5249.2

Take this

Pop. 10 N 54° 38' E 42.7

Birch 7 N 56° 18' W 30.87

Twin 5-6' Birch 5 S 58° 57' W 23.32 ^{2-ans} south

Birch 5 S 62° 05' E 26.27

T over 5249.2 Take NW
angle of our random line
with Top. road 88° 35'
Lv 4-30 for home.

Harald Cur

139-30

33

88° 35'

34

2640

5249.2

0.14
in swamp

194.4

194.4

2m
gone

Note: Bert Brumfield old settler may
have seen the 2m Auger Lind
and Jones paced line

August 17-1947

Sunday Harold Curo
and his car with JWC

L. Walker 9-am

Drive to Barker then so 1.20 mi.
then East on old road

Call on "Corey" Jones

Charles E. Jones who lives on

where his wife stays while he
works in Brainerd

Jones goes with Harold and I
we begin at pt near $\frac{1}{4}$ Cor
on So side of Sec

where an old fence runs South
East along old graded road
almost grown up. Harold & I
rough chain 3-6-9-12 + 120
= 1320 Jones fence going So is
about 10 feet

15-18-21-24-27 ft 2700 +
134.4 = 2834.4 East where
we infer start Harold's
random from the north 194.4 E
Temp 15°C Cor John W Curo

August 17-47 continued
 Jones says he knows an I.M.
 one mile so we drive
 SE so SW and went but
 Jones can not find the I.M.
 We drive a mile west to Ten
 road then 1 mile + 1.3/4 miles
 East let Jones off at his to
 Harold and I continue 80 rods
 East and try to locate On to

with magnet compass needle
 no find, drive back to Backus.
 Chicken dinner at Bailey
 restaurant 75 + 75¢

Heavy rain starts and we
 drive home to Walker.

Elsie Miller "13" reports
 two cars to see us

Mike Harrington in one car
 will be back Saturday

The other car Bertine says
 was George and Cessie Dilworth
 from International Falls
 going to Jenkins

John W. Curo

(17)

Powers Two 139-30

59

139-30

28

27

Random
12640

90

33

139-30

34

139-30

8835

Random

1941.4
5249.2

2640

114

Oct
1941

4

138-30

3

138-30

60 August 17-47 Cont'd

4-PM I drove to Jenkins
and on to Ed Rosenigren res.
I tell him my bill is \$46⁰⁰

Walt Miller 3 day @ 7- 21

Harold 2 " 20

Car and gas 5
46⁰⁰

I work 2 day no charge

Ed says he will mail ck from
Pequot office

Back at Jenkins to lat. to catch
Geo Dilworth and Cassie who have
gone on to Duluth

Find Dwight and Mary from
California

Eat supper with the family

Lv Jenkins 10 PM Fog he and stay
Pine River Hotel Room 22 Pay^s 1.50

Aug 18-1947 Monday

Lv Pine River Drive to Pequot

Make out my bill \$46 and leave it
at Rosenberg's office

Talk with Henry Byl

Call on Mrs. Brown
who cannot find address of

At Pine River Elmer Hoaland pays
me \$25 on acct Bal \$50

I take him to dinner

In Walker 6-PM as whistle blows
Harold and Walt Miller worked
at ponto

James C. Curran

62

Aug 19-47

Harold and I 2 hrs at CHHS

Harold + Walt Miller Lv for Pontö

I copy Town Board

Power Twp 139-30

Mrs Kathryn Tew Bacher Clerk

Herbert Landwehr " Ch

Paul Stehr

Charley Toplin } Trustees

Also

Pontö Lake Twp 139-29

Mrs Esther Shepard Bacher Clk

→ Leslie Shepard " Chmn

Arthur O. Anderson	} Resigned Sup
Fred Meyer	

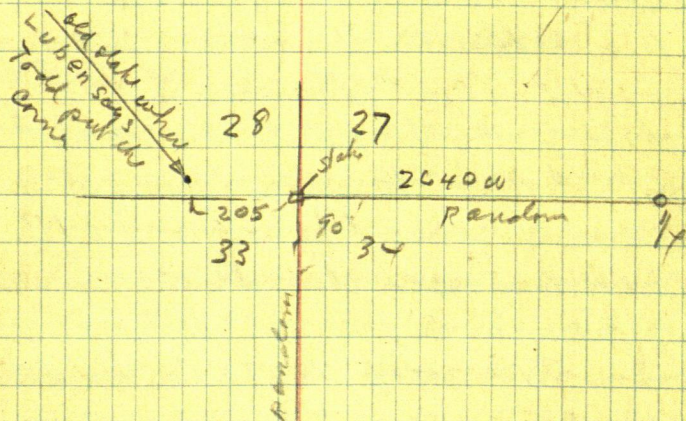
Chet Snyder new

Ed Elison J.P

in Dakota Aug 19-1947 Cmn

Powers Twp

Harold and Walt Miller left
Ponti. Elsie and Elene work
Glen and I eat dinner
1-30 PM w/ L & Walter
Call on Mr & Mrs Blackford



Waldo Lubben
2000 North Arcade
St Paul

A address given me by
Mr & Mrs Blackford

Aug 19-1947 I decide to have
Lubben come up Sunday if I can
Glen and I go to Ponti meet
Harold & Walt See Book 271
John A Curo

64

Aug 20-1947

Cloudy-rain Harold and
Walt Miller Lrjn Ponto Book 271

I copy notes in file
... write Lubben to come up

March 1-1950 I, Harold Curo
find that Lubben was
right that Harry S Todd
did run this line and
set the cor to sec. 27-28-33-34
139-30 in March - 1913
find loose leaf notes
of same copy on scratch pad
in Timely Notes book
cover.

Copy of Harry S Todd's Notes

Mon Mar. 10-1913 - I Lv. Benidji at 11-45 PM
Arrive at Backus 1-50 AM

Tuesday Mar. 11-13. The Town Board meets to-day
and pay me for some roadwork I did for Powers Twp.
last June. I go out in the P.M. to the corner to sec.
27-28-33-34-139-30. I find nothing so go back to
Backus I take the night train to Walker. Harry Tod
Wed. Mar 12-1913- I Lv. Walker at 9-30 for Backus
arr at Backus 10-22 I walk out to f Lubbens for
dinner. We go out to work in P.M. We look for cor to
sec. 27-28-33-34 but find nothing

Town Line Bet

Todd's Notes continued

We then go North at this corner to the lake I find the M.C. there which we set and then we chain back 226.38 ft to where the corner ought to be

quite for night Chester Kenworthy - Jasper a Lybber - J.A. Whittemore - John Buske

Thru March 13-1913

We go to the cor 27-28-33-34-139-30. We set Transit upon a Basswood stump using it as the NE BT. to cor to sec 27-28-33-34-139-30 From this stp. we find an old stp that check perfect for course & measurement as the NW BT and one that check perfect for the SW Tree We find no trace of the SE BT. We use these as the BTs as the distance to the M.C. North of this cor. on the lake check out good. We put in following new BTs

Birch 14 N 34° 43' E 7.35 ft Birch 12 S 75° 06' E 13.40'

" 12 S 65° 27' W 13.00' Basswood 8 N 21° 48' W 22.65'

We then run S. from this cor. mag. Var. 8° 30' at 50 enter small swp at 300 Lv same @ 416.50 hub on hill @ 575 enter lake bas E + W at 2640 set temp 1/4 cor on ice @ 3600 Lv lake @ 3680 set hub @ 4002.5 hub on hill @ 5292.4 true cor bears east 162. ft checking back 1/4 Cor goes 81. ft E + 620. ft S same crew

Harry S Todd

Over

April 24-1949
 Jack Calls from Backus

April 25-1949 Monday
 Harold and Ace
 working at Mike Toohy
 Resort See Field Book N°
 I pick up Glen
 Miller and his car
 I pay \$2. for gas 30¢ for oil
 We drive to the end of Brown
 Lake

See Page 28 This Book

Todd's Notes Continued
 Fir. Mar 14-13 We go to the $\frac{1}{4}$ corner previously set on
 the ice by me and run E mag. Var. 8° at 200 Lr lake enter
 meadow @ 600 Lr same enter high land @ 667.7 hub cross road
 N+S @ 1435.5 hub @ 1846.35 hub @ 2378 cross road NE-SW at
 2647.5 intersect N+S & stapt. 2659.5 ft S of $\frac{1}{4}$ on N side, sec
 34-139-30 at 3114 hub @ 3927.2 hub @ 4333 hub @ 5255 true
 $\frac{1}{4}$ cor on E side Sec 34-139-30 bears N 51° ft
 Corrections New B.T. to center of sec 34-139-30
 hub 4333 geo N 42.05° N.P. slip 205 $26^\circ 18' E$ 5695' 5695'
 " 3927.2 " N 38.09° " " 205 $52^\circ W$ 52.50
 " 3114 " N 30.20° We drive a drag tooth for car here
 " 2647.5 " N 25.65° Same error
 Mar. 15-13 - all day in Backus I go out to Kenworthy to get my checks
 signed Mar. 16-1913 all day in Backus. Mar 17 Lr Backus for Pillager

April 30 1949

Beg @ hub 4081.8 on Twp line

Side Powers Twp chain E 300 =

4381.8 pin + 122.7 = 4504.5 hub 60^d pins

From hub 4504.5 we ch W 10.4 find

old RR spike hub 4494.10 OK.

4381.8 + 300 = 4681.8 pin + 300 =

4981.80 pin in E road. + 218.9 = 5200.70

Tower 4494.10 BS Won railroad

run N 89° 25' E 706.6 ft to Flag in E

road.

Sine .001454 x 706.6 =

Cosine .999999 x 706.6 =

Tang .001454

Sine .010181 X

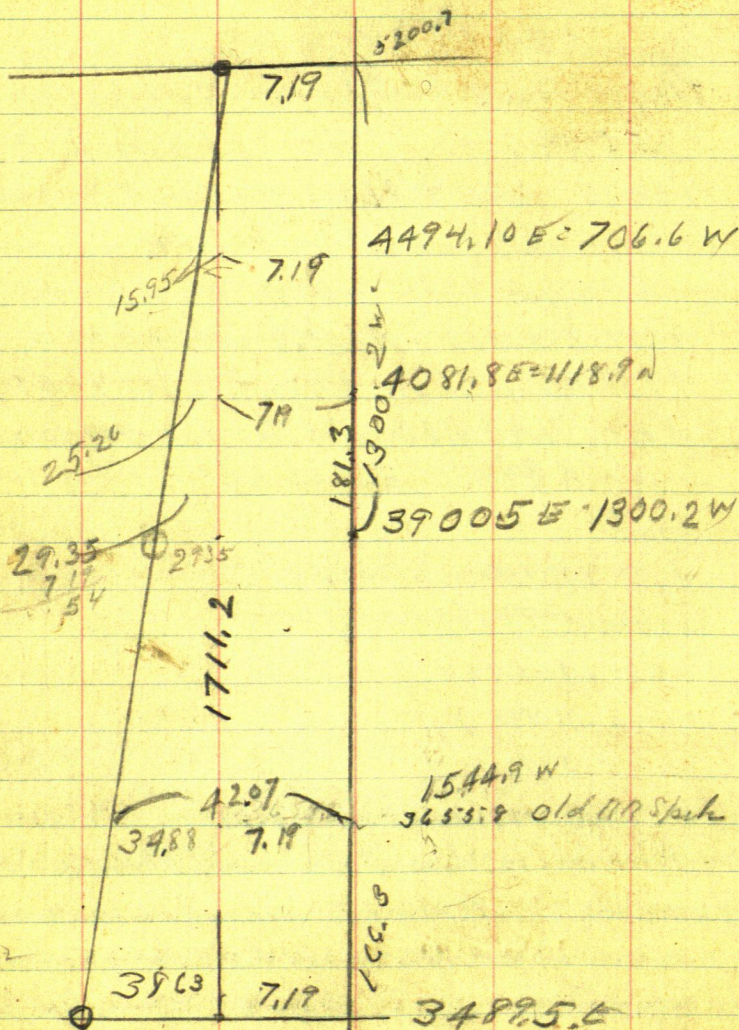
Cosine .999948 X

Tang .010181 X 706.6 = 7.19

dinner in Backus 81.50

P.M.

68



$$1711.2) 38.63$$

$$= 022.5748 = 1' 17''$$

$$5200.7 E +$$

$$1300.2 W$$

$$3900.5 E - 1300.2 W =$$

$$1300.2$$

$$\begin{array}{r} 5200.7 \\ 1300.2 \\ \hline 3900.5 \end{array}$$

$$\begin{array}{r} 4081.8 \\ 3900.5 \\ \hline 181.3 \end{array}$$

From Hub 4081.8 E Ch W 181.3 T

$$3900.5 E Ch N 29.35 + 7.19 = 36.54$$

$$\begin{array}{r} 7.19 \\ 34.89 \\ \hline 42.07 \end{array}$$

$$\text{Hub } 3655.8 E = 1544.9 W \text{ goes } N 7.19 + 34.89 = 42.07$$

$$" 3900.5 E = 1300.2 W \text{ " } N 7.19 + 29.35 = 36.54$$

to W Vic Cor on S side sec. 33

$$\text{Hub } 4081.8 E = 1118.9 W \text{ " } N 7.19 + 25.26 = 32.45$$

$$" 4494.10 E = 706.6 W \text{ " } N 7.19 + 15.96 = 23.14$$

Ties to M.C. East side Bower

lake on Township line

^{old} ~~Spoke~~ JP 12 N 85° 28' E 45.50

^{old} ~~Spoke~~ JP 10 S 19° 02' E 19.80.

Birch 6 S 85° 10' W 17.20

To JP 15 " N 57° W 1.60 all say
6° 10' don

Turned from Tam Tap

Line E

80 ft N E of Boat Dock

2X26" pipe on Top of Access

E 1/4 From old RR Spoke

on old π line 4081.8 E Chan

What on old line 1811.3 To

1300.2 W of 1/4 in Sward

being 3900.50 E of Mds HY

N 371 Tam 90° R ch N

7.19 + 29.35 = 36.54

Set pipe

Koops Add to Backus

James Campfield
Apr. 29-1902



Lake

Blue Mountain
Hyllian

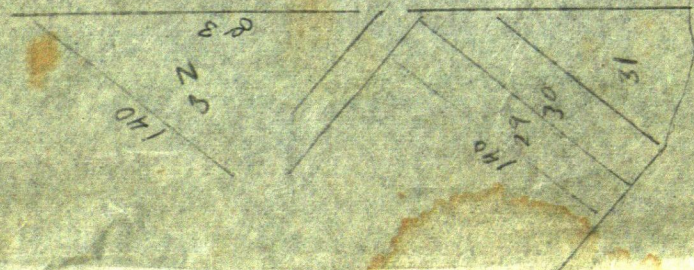
Grover

Boulevard

Washburn Ave

Rosalind Ave

Ave



Working for

Jack Codner

Achenmiller

ER F101-a

{ 8
100

July 1-1951

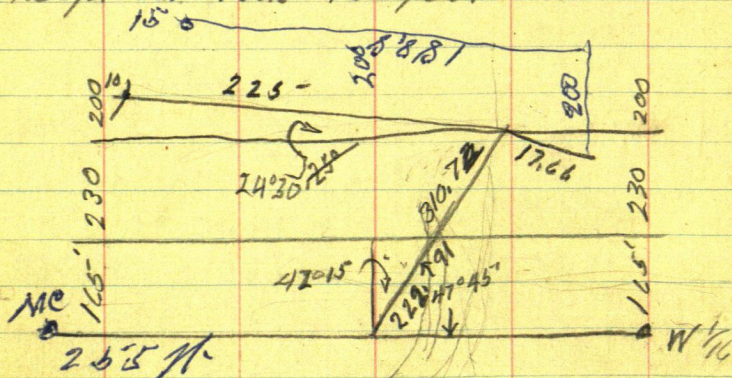
Gas: in cor.

Ed. & I Lr Walker at noon drive
to W 1/4 Cor So. Side Sec. 33-139-30

Hazel A. Wall

owns Lot 8

except $S_{n/10}$ rods = 165 feet



N 42° 15' E

Cosine 740218 into 165 =

check

Backus Miner

8/1/51

No 39

Harold Cuss

37⁰⁰

Hazel A Wall

Clark^① Johnston Backus
 Oct 15⁹ - Sat. 1949

Don & Ed. & I & Walker in my
 car drive to Backus then on
 to NE cor T. 138-31 where
 we find a $2\frac{1}{4} \times 48$ " Gal. I M. Caped,
 and bent over. We stop @
 Shadow Wood where Mr. Clark
 Johnston owner says he will
 pay ~~75.00~~ to put in his corner
 and have a man cut out the line
 he sends Herman Milder to help.
 We go to NE cor Twp 138-31,
 where old notes call for.

Book page Co. book of surveys

J.P. 11 N 28° E 37.35 ft

Oak 12 N 35° 50' W 39.40 "

" 7 S 63° 05' W 27.65 "

" 14 S 9° 40' E 44.90 "

We pull up I M. & straighten it
 New Ties Van 7°

R.O. 16 N 29° 44' W 55.20 ft

N.P. 16 N 63° 35' E 75.00

R.O. 20 S 42° 50' E 79.55

H. Maple 6 S 40° 10' W 43.30

16 spots @
 Base

Turn NE Cor Sec. 1-138-31. run
West on 7° Var. parallel to fence
6 rods N of same. do not chain
set two hubs hit garage

Turn 60° run 95.4 ft Turn 60°
run 95.4 back on Random
Back on random Turn 60°
Continue random West

Oct 24-1949

Pick up Ernest Swift @
930 drive to Clark Johnstone
South West of Backus
arr @ 10:30

leg at I.M. Twp Cor

N E Cor Sec 1

Chain West @ 177.6 hub

60° spike @ 300 pin

@ 596.1 hub = 60° spike

Where we Turned 3-60° angles
to get around Garage

596.1 + 95.4 = 691.5 hub

60° spike in front of garage

+ 269.1 = 960.6 hub 60° spike

691.5 + 300 = 991.5 + 8.5 = 1000 pin

+ 300 + 1300 pin + 2.4 = 1302.4 hub

60° spike on E bank of ditch

Now 1302.4 B S E on random

+ run .5 85° 13' W 436.75

@ 64 cross N & S fence

Now 60° spike hub 436.75 + p

50 ft W of E road N & S

B.S. N 85° 13' E 4 run West

474.95 hub 60° spike in N 1/2

8" oak stump

Monday Oct. 31-1949

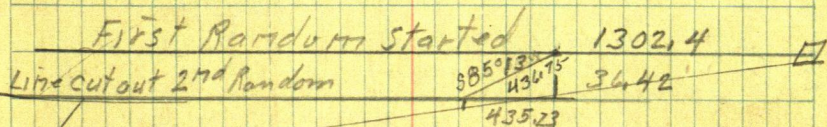
I Pick up Ernest Swift
drive to Backus call Guy
Findlay tell him I will
be out at one o'clock.

meet Clark Johnston
in tel. Office he says that
I am working for him & not
Guy Findlay. He does not like
Guy and don't see why I called
him. The line I am
running is between Johnston
& Findlay. OK for that
Ernest Swift & I dinner in
Backus \$ 1.50.

P.M.

Over hub 835.65 W of Angl
Point and 25 73.28 west of
Twp cor Continue West 200+300
= 3073.28 @ 3115 enter big bog
bears NW. & S @ 3873 Lr bog
@ 3914.08 hub 60 ft. spike
@ 4235 enter bog N & S.
@ 4575 over bog. @ 4793.37 hub 60 ft
spike on ridge @ 4875 enter bog
@ 52.29.28 hub 60 ft. spike in

sup. T over 5229.28 in sup
the NW Cor I.M. to Sec. 1-138-31
bear West $45^{\circ}5'8''$ South of
 $S 44^{\circ}02' W$ 120.3 ft.



as the crew followed my 1st line
about $\frac{1}{4}$ mile then started one
of their own I run my first line
1302.4 Then run $S 85^{\circ}13' W$ 436.
75 ft to their line and continue
W. Parallel To first random
on a 36.42 foot off set. to 1st line
1737.63 ft W of Twp cor. Continue
this off set line west to a point
5229.28 ft west of Twp cor.
NW Cor Sec 1 sets $S 44^{\circ}02' W$ 120.3 ft.
to I.M.

making a total of 5312.90 ft
my chain

$\frac{1}{4}$ Cor. N side section 1
138-31

as Clark Johnston would
like to know where the E
 $\frac{1}{16}$ cor comes I

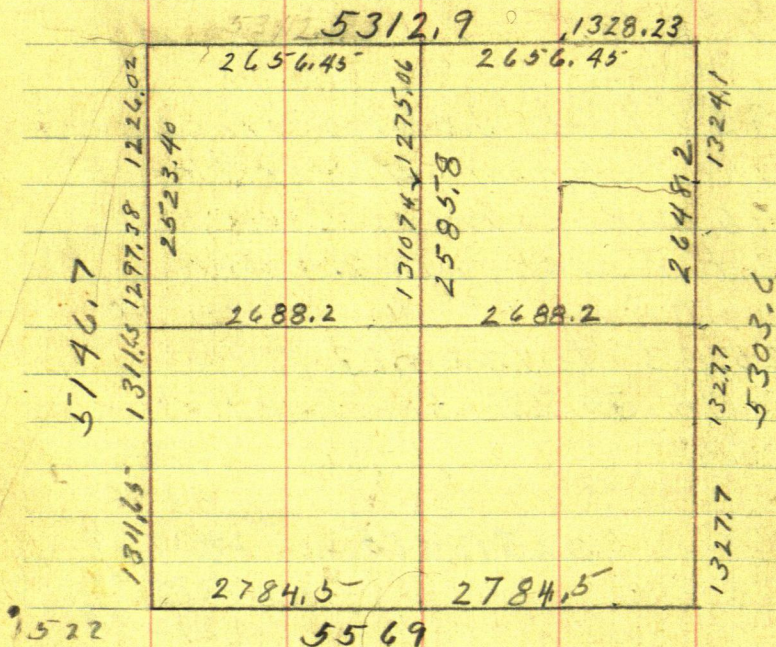
set T over 1302.4 and
continue 1st Random W
25.83 to 1328.23 Then run
South 30.72 To True E $\frac{1}{16}$
Cor.

02313425

$$\begin{array}{r} 130240 \\ 43523 \\ \hline 1737.63 \\ 47495 \\ \hline 2212.58 \end{array}$$

$$\begin{array}{r} 226645 \\ 22125 \\ \hline 444 \end{array}$$

Sec. 1 - T. 138 - 31



$$\begin{array}{r} 13241 \\ 13241 \\ \hline 26482 \end{array}$$

$$\begin{array}{r} 122602 \\ 124738 \\ \hline 252340 \end{array}$$

$$\begin{array}{r} 25234 \\ 26482 \\ \hline 2151716 \\ 25858 \end{array}$$

$$\begin{array}{r} 13241 \\ 122602 \\ \hline 255012 \\ 127506 \end{array}$$

Nov

Monday

I drive to Backus Eat
dinner drive to Shadow Wood
where I pick up Herman

We find Guy Findley
on line we go to $\frac{1}{4}$ N side
of sec. 1-138-31 where we
correct Random see page
this book, 241 + set a 2x48"
Gal. pipe cap on top for
True $\frac{1}{4}$ Corner North side
Sec. 1.

New Ties to $\frac{1}{4}$

J.P. 10 S 25° E 28.25'

Oak 7 N 42° 32' E 8.93 ft

Old 14" J.P. scrib marks

Not. U.S. bears N 38° 29' W 38.58 to
old top Blage

Over hub 2656.45' W from
NE cor Sec. 1 on Random line
Turn 90° to random Then E $1\frac{1}{8}$ '
to make it 90° to True line
We pass I.M. 55' E

84

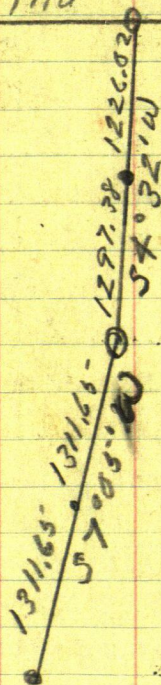
11

Sec. 2. Twp 138. R 31

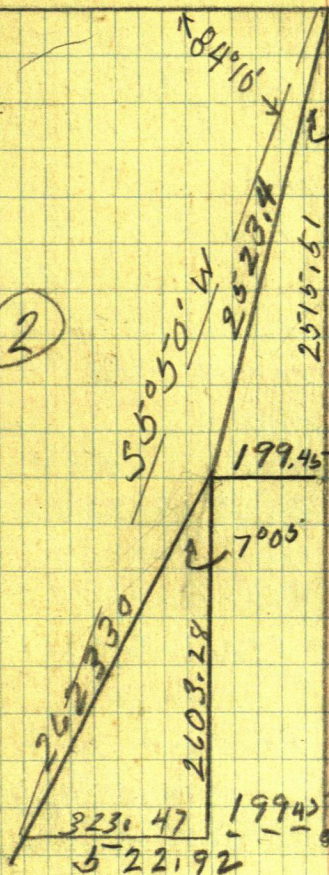
E & W line

(2)

(1)



Sec 1-2-138-31 5312.9



5117.0

079039 x 2523.4 =

199.45

Cosine

996872 x 2523.4 =

2515.51

7°05'

Sine

123313 x 26233 = 323.48

Cosine

992368

x 26233

2603.28

2515.51

2603.28

5118.79

323.47

522.92

199.45

102157 = 5°50'

5118.79 / 522.92

Nov 11 - 1949

Drive to Backus stop at
Ranger Sta. where their plot
shows the S side Sec 1 - 138.31
is 5569 ft long.

Drive on to Sec 1 where I
meet Herman he goes
for his ax continue N+S \angle
at 90° to N line @ $1/4$ Cor
on N side said Sec. 1

big @ I. M. Chavis S @ 189.0

hub 60' spike under T @ 300 stake
@ 575- cross old road NW-SE

@ 600 stake @ 734.5- hub 60'

spike 900 stake @ 1200 stake

@ 1275.06 set R.R. spike on

very shoulder of road on south
side as the Ranger Station

Plot shows the S side of sec
5569 ft figure

'86°18' Tang. 064667 X 1275.06 =

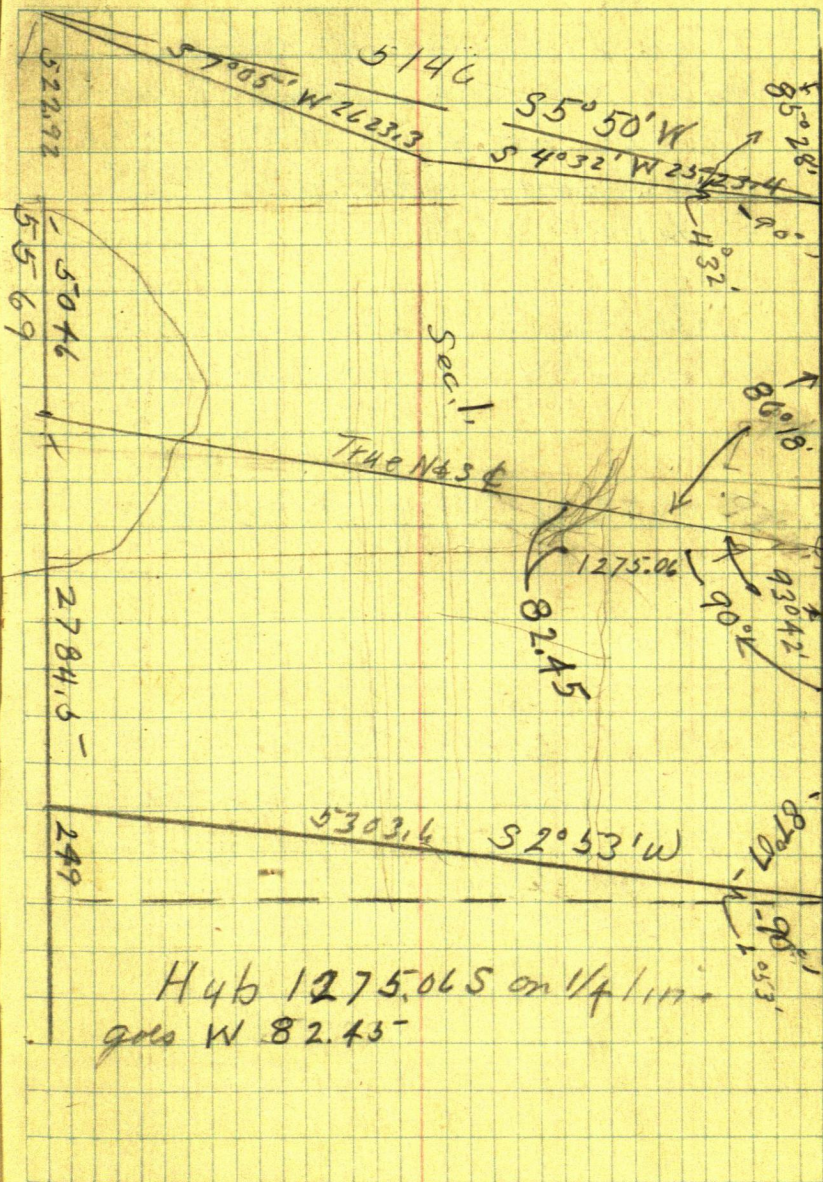
82.45 ft

Hub 189.5 goes W 12.22

" 734.55 " N 47.50

Nov 15

531295320



Nov 18 - 1949

I go to Backus stop
and make agreement with
Elmer Doty to plat 7 lots
on Bowan Lake for 350 ~~00~~
hours late

(16) Clark Johnston 89

Nov 19-1949

I drive to Backus where
I cash Doty's check for 116.75
meet Clark Johnson-

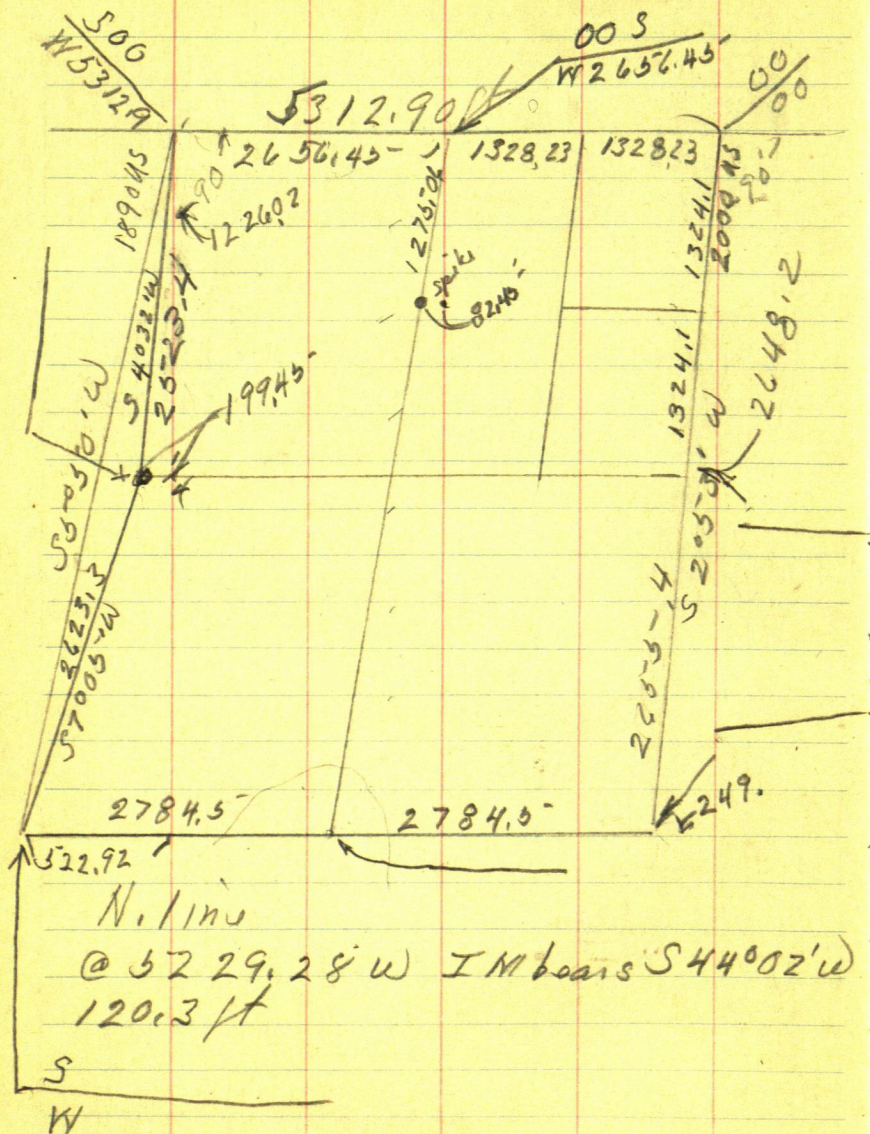
call Gary Findley who
meets me at $\frac{1}{4}$ Center N $\frac{1}{2}$
sec 1.

where we chain west from
random hub 82 ft set well
point for $\frac{1}{16}$ cor

Take Ties

Red Oak, 8 S $16^{\circ}51'W$ 27.20 ft
S.P. 16 N $60^{\circ}45'W$ 24.94 ft

138-31 Sec 1



S 2°53'W 2648.2

Sine 050302 x

Cosine 998734 x

S 4°32'W 2523.4

Sine 079039 x

Cosine 996872 x

S 7°05'W 2623.3

Sine

Cosine

S 2°53'W 5303.6

Nov - 1949.

I promise to be at Elmer Dotys Nov 18th 1949. To look over his place. I Lv Walker in my car. and drive to Dotys home on the North West corner of Bowen Lake. They are getting ready to leave. Elmer Doty & I walk over the ground & he shows me what he wants. He wants to plat a part of Govt lot 1 Sec. 32-139-30 from the Elms of said lot 1 west stopping back from creek around 200ft, and running back from the lake about 50ft N of brink. Leaving about 50 feet on top he mark trees to show about where to go.

I tell him I will plat it & set I.M. lot corners for \$350.00. He gives me a check for \$116.75 being 1/3 down. I am to get the next 1/3 when I finish detail plat. The balance when work is finished. The Plat is to be known as Eldo Shore.

Elmer Doty plot (2) Lot 1 in 32- 93
139-30
Nov 18th 1949 -

The agreement - Nov 18 1949
Mr. Caro is to survey plot for Elmer
Doty for \$350.00 One third down
and other third when detail plot
is completed and Balance when
work is finished.

Name of Plot ELDO Shore

Signed Elmer Doty owner
Harold Caro Co. Surveyor & Cass Co.
address -

Elmer Doty
Kankakee Illinois

Copy of down payment check
Backus Mimm Nov 18th 1949

Backus State Bank
Harold Caro \$116.75

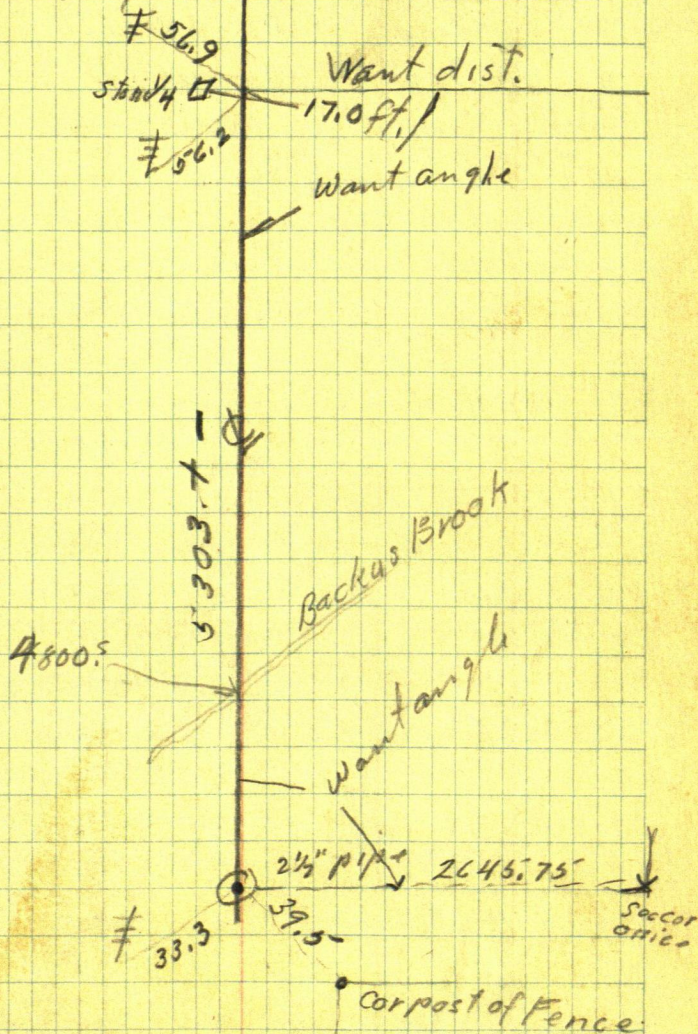
Elmer Doty,
Cashed at Backus State Bank,

Plot of Eldo More
Lot 1 Sec 32

④ Elmer Doty
139-30

95

Highway Ties $\frac{1}{4}$ m N. Side



96

Lot 1 Sec 32 - 139-30 (5)

May 20. Elmer Doty call at
the office. I tell him I will
be down Tues or Wed. May 22-24

May 24-1950

No mail - I fill Gas Tank 230
at deep Rock get 40 at Bank get $1\frac{1}{4} \times 1\frac{1}{2}$ "
stake at lumber yard 88¢ drive to
Acis where I pick up Ernest Swift
and drive to Elmer Doty's $\frac{1}{2}$ mile
S + $\frac{1}{2}$ mile E from the Backus road
Tell Elmer I am Here We drive back
to 371 and S to Town line from E
Backus Brook we rough chain S 503
to pt near corner To $\frac{1}{4}$ M. Cor. S. and 32
arrive at 11 o'clock.

US Notes call for
We find Curo's Ties to $\frac{1}{4}$ S and line
32 - on page 17 dated Dec 21-1938
JP 10 N $24^{\circ}44'E$ 147.80 ft this is
cut off 4 ft high

Telapole 8 S $71^{\circ}22'W$ 53.85 this is
gone

JP 11 S $28^{\circ}50'E$ 103.50 this is
cut off 4 ft high

JP 6 S about $73^{\circ}54'E$ 91.4 this
still stands green
From these we mark pt for cor. in
E tar road N^o 371.

Lot 1 Sec 32-139-30

We go E and look for old random
hub @ 1414 but can not find it
go to dinner \$1.50 at Backus
P.M.

We go W. and find hub 638.
Work π on line between
this R.R. spike Hub & $\frac{1}{4}$ Cor set
flag. drive N $\frac{1}{4}$ mile set pt for
Temp $\frac{1}{4}$. N side 32-139-30

Ernest holds flag at Temp $\frac{1}{4}$
on N side 32. I set π over
Temp $\frac{1}{4}$ on S side 32. site
Non flag and read the NW
angle from Temp $\frac{1}{4}$ on N side
32 to flag on Random West of
 $\frac{1}{4}$ on S side of 32 this flag is
 $0^{\circ}51'$ to far N. see page 20 this
book.

The NW angle reads $89^{\circ}46' +$
 $0^{\circ}51' =$

Second reading $179^{\circ}33' + 0^{\circ}51'$
 $+ 0^{\circ}51' =$

I drive to N E cor Sec 32 find
J.P. stump S W B.T. to late to do
much so go home 11 to 5.15 for Ernest
1 hr for moon

W.J.C.

139-30

⑧ Elmer
Doty

99

$$BP 8N 67^{\circ} E 43 = 28.38$$

$$\text{Sine } 390731 \times 28.38 = 11.09 \text{ W}$$

$$\text{Cosine } 920505 \times 28.38 = 26.12 \text{ S}$$

NE
Cor
82

$$89^{\circ} 46'$$

$$31$$

$$89^{\circ} 97'$$

$$90^{\circ} 37'$$

N 6 S 5-303

$$90^{\circ} 37'$$

$$89^{\circ} 46'$$

$$89^{\circ} 37'$$

$$2645.75$$

Line

$$2645.75$$

$$28.48 \text{ N}$$

Sec
Cor
om
ice

True line 8051'

$$2645.34 \text{ W}$$

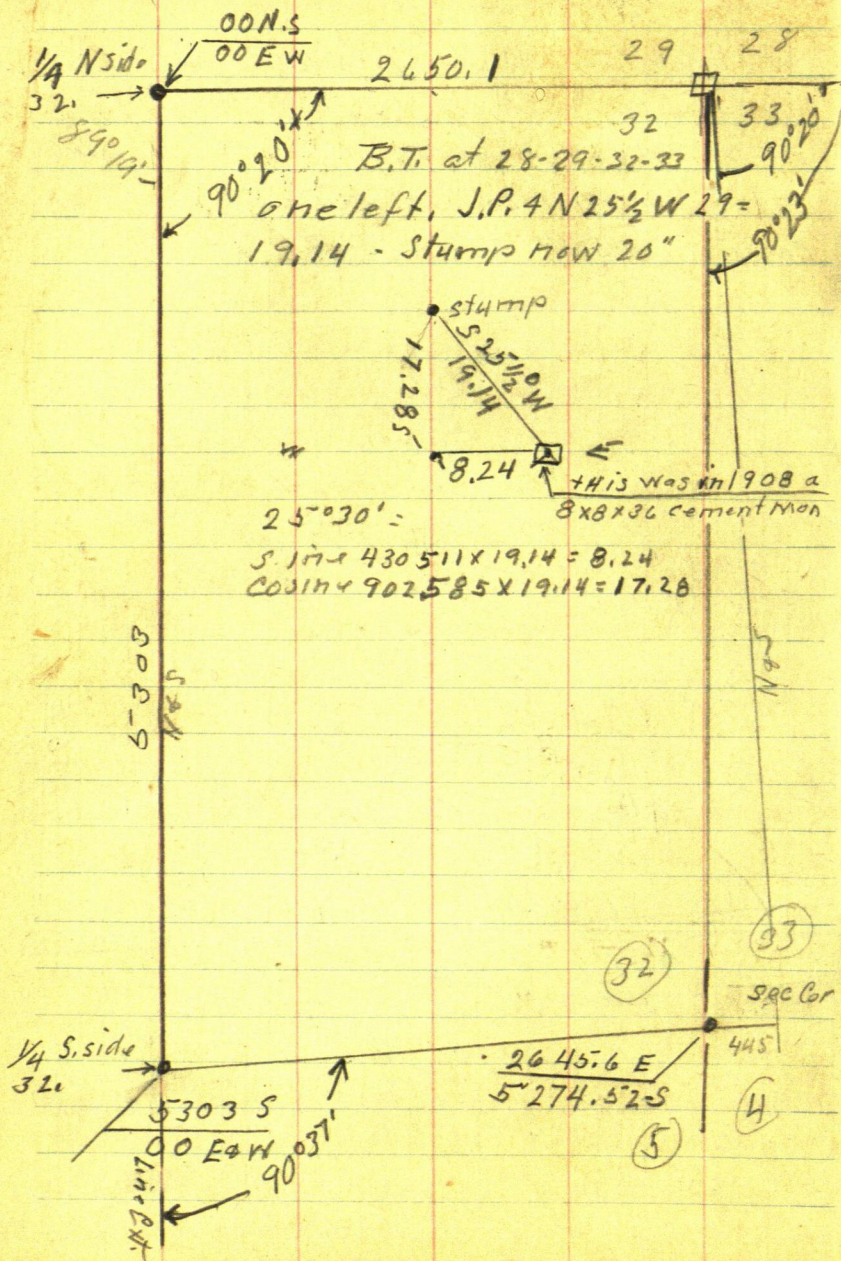
Random

$$90^{\circ} 37'$$

Line Extended

100

Lot 1 Acc 32 ⑨ 189-30



May 27 1950 Sat.

I & Lu Walker drive to Ace's pick up
Ernest Swift he has not had breakfast
we drive to Backus Ernest gets some
thing to eat and we drive to NE Cor
Sec. 32 where US Notes call for

$$JP 8 N 67^{\circ} E 43 Lks = 28.38$$

$$JP 4 N 25\frac{1}{2}^{\circ} W 29 Lks = 1914 ft$$

$$JP 10 S 78^{\circ} E 31 Lks = 20.46$$

Stamp 4 ft high = NW B.T. still
standing from face of B.T.

run S $25\frac{1}{2}^{\circ} E$ 1914 ft at 6:30 A.M.
and set a 2 x 30" pipe for true Sec
Cor. 6 or 8 inches down in S edge
of S wheel tract set flag. pack it
about $\frac{1}{4}$ mile W Ernest take flag
and walk another $\frac{1}{4}$ mile to spike
in cross roads Temp $\frac{1}{4}$ N side 32
I work T on line between the two
flags.

Go to Dinner

Get Gas 1.00

T over $\frac{1}{4}$ N side Sec 32 side S on
flag at $\frac{1}{4}$ on south side 32 the S E angle
reads $90^{\circ} 20'$

Note the $\frac{1}{4}$ corners are both Temp points

102

Lot 1 - Sec 32 - 139-30

Nrid sec 32 from Temp $\frac{1}{4}$ - EastFrom Temp $\frac{1}{4}$ Nrid Sec 32 = 60' spits

chain E 100 pin + 300 = 400 pin + 300 =

700 pin + 300 = 1000 + 300 = 1300 + 252.3 =

1552.3 but 40' spits in $\frac{1}{4}$ road

1300 + 300 = 1600 pin + 300 = 1900 + 300 =

2200 - @ 2230 road runs NE to farm House

@ 2451 $\frac{1}{4}$ of Culvert 30" under road@ 2500 pin @ 2501 $\frac{1}{4}$ 4" Culvert@ 2506 $\frac{1}{4}$ 36' Culvert, under road,

@ 2500 + 150.10 E I.M. Sec Cor.

Ties to Sec. Cor.

R.O. 12 N 62° E 44.70 spot at base

R.O. 10 S 25° 54' E 23.43 " "

Elm 11 S 47° 46' W 30.85 spot 3' up.

Elm 10 N 55° 42' W 93.90 " 2 ft up.

"figuring"

Turn the E side of Sec 32 set

Aover I.M. NE Cor Sec 32 BS Whit

S 89° 40' W on Random line

Hub. 1552.3 E of Temp $\frac{1}{4}$ and turn

S 0° 03' W on true E line of Sec 32

139-382

Elmer Doty

103

(29)

(28)

IM True Sec Cor

Temp $\frac{1}{4}$

2650.1

$90^{\circ}20'$

(32)

(33)

1928.52

2000.44

$90^{\circ}20'$
 $90^{\circ}23'$

1320
60866

922.46

608.52

$0^{\circ}03'$

True Line

2647.925

5303

$90^{\circ}37'$

2645.75

Temp $\frac{1}{4}$

$90^{\circ}31'$

4.45

922.46
5332.2
5332.2
5332.2
60866

10A

Elmer Doty ⁽¹³⁾ Lot 1 Acc. 32-139-30

Time sheet

I am working for Elmer Doty Plating

Part of Government lot

017 Contract 5350 - 1/3 down 1/3 when out kind

Bal. when finished. I rec. ~~116.75~~ Nov 18-1949

May

24 25 26 27 28 29 30 31 June 1 2 3 4 5 6 7

Harold Caro

115161

Car.

255	100	42	11	1
-----	-----	----	----	---

Expense

	150	Day	150/150
--	-----	-----	---------

Irons - Slakes (12M 50%)

889 689

Ernest Swiff

60
1
1

Note on June 2. Dinner 1.50 and 1.00 for the car (Battery)

Elmer Doty + Ada Doty

Monday May 29-1950

to Walker pick up Ernest
drive to NE cor Sec 32 - 139-30

Turn NE cor BS won flag at
hub on 1552.3 E of turn $\frac{1}{4}$ on N
side Sec 32. Turn SE ang $90^{\circ}23'$
hit big tree on fence line

We continue N. Line of Sec 32 E
2 ft and set pt. Tower pt 2 ft E
of NE Cor. Sec 32 - BS won flag
Turn SE angle $90^{\circ}23'$ and run south
@ 199.55 hub on hub. 2 ft N of line
@ hub 199.55 S we set a hub 2 ft W
but decide to carry our line on
as it is on the 2 ft offset E.

$199.55 + 234.1 = 433.65$ hub. +
150. = 583.65 pin + 201 = 784.65
hub. $583.65 + 300 = 883.65$ pin
+ 300 = 1183.65 + 300 = 1483.65 pin
+ 246.4 = 1730.05 hub. - 30 = E side of street

1928.52 US chain to M.C. Nersd Bower

$1730.05 + 194.5 = 1924.55$ hub

40 ft spike in center of wall 5 ft
N of water quit @ 5-40 drive
home

$\begin{array}{r} 194.5 \\ 30 \\ \hline 224.5 \end{array}$

(16) $569^{\circ}46'E$

Lot 1 Sec. 32-139-30

107

May 30 1950 cloudy showers

Pickup Ernest at about
9 o'clock drive to Elmer Doty's
pack N E.

Tower spike 1924.55 S on sea
wall on 2 ft offset E of True Line
5 ft N of water BS N on line
2 ft E of True line called N & S
and run lake shore in E wall

Tower 1924.55 run.

S $75^{\circ}57'W$ 163.75 to sta ① on lake

T still @ 1924.55 Turn 90° and

run W @ 2 ft net pt for MC

@ 2+33 = 35 ft W net pt for width of
33 ft street

Tower sta ① 3 ft from water

BS N $75^{\circ}57'E$ and run S $75^{\circ}22'W$

250.4 to sta ② 5 ft from water

Tower 250.4 BS N $75^{\circ}22'E$ and run

S $72^{\circ}40'W$ 206.2 to Sta ③ 3 ft water

Tower Sta 3 BS N $72^{\circ}40'E$ and run

S $68^{\circ}56'W$ 154.5 to Sta A.

T still @ 206.2 spike hub on seawall ^{see next pg.}
189.8 S bears S $69^{\circ}46'W$ 122 ft.

Lot 1 Sec. 32- 139-30
May 30 1950. continued-

Travel hub 1700 on 2 ft offset
E of true Sec line South side
of street BS N on 2 ft offset
Line E of true line and run
S $87^{\circ}11'W$ 310.9 ft to Sta (A) street
Travel sta (A) BS N $87^{\circ}11'E$ and
run S $88^{\circ}37'W$ 197.8 Sta (B) street
end of street Travel 197.8 Turn
 90° and set spike 66 ft North.

Still at 197.8 run S $42^{\circ}46'W$
@ 120.05 spike hub @ 301 ft from
Lot Cor. Travel 301 BS N $42^{\circ}46'E$
and run South parallel to E line
@ 142.4 spike on line @ 189.8 spike
E sea wall five feet from Lake

Still at 301 take sta dq
of Dam

- 110 S $78^{\circ}22'W$
- 120 S $88^{\circ}01'W$
- 110 S $85^{\circ}44'W$
- 150 S $85^{\circ}12'W$
- 150 S $84^{\circ}46'W$
- 150 S $88^{\circ}01'W$
- 145 S N $89^{\circ}55'W$

(18)
Elmer Doty Lot 1 Ac 32 109

Stada of Creek N of Dam. E side

90 ft N 75° W

110 N 33° W

200 N 10° East

South of Dam

90 S $63^{\circ}55'$ W

150 S $40^{\circ}30'$ W

230 S 19° W

quit 345'

Friday June 2 1950

up early take Gert to work at 5.45-
go to Court House check plot drive home
get I.M.s. drive to Ace's Ernest Swift
just got up has to milk. I get the I.M.s
that I left at Ace's - 11 I.M.s wait for Ernest
Lv Ace's at 8¹⁰ drive to Hackensack Ernest
gets breakfast drive on to Elmer Dotys
about 1 mile S E of Backus arrive @ Dotys
@ 8-30 π over hub 301 S 42° 46' W site
South on spike on seawall and run East
at 100 spike 150 spike 200 spike - 300 spike

π over 100 run N-S to st. line South
@ I.M. @ Bowen lake

π over 150 run N to Back line run S
to I.M. @ Bowen Lake

π over 200 run N to St. line S. to I.M.

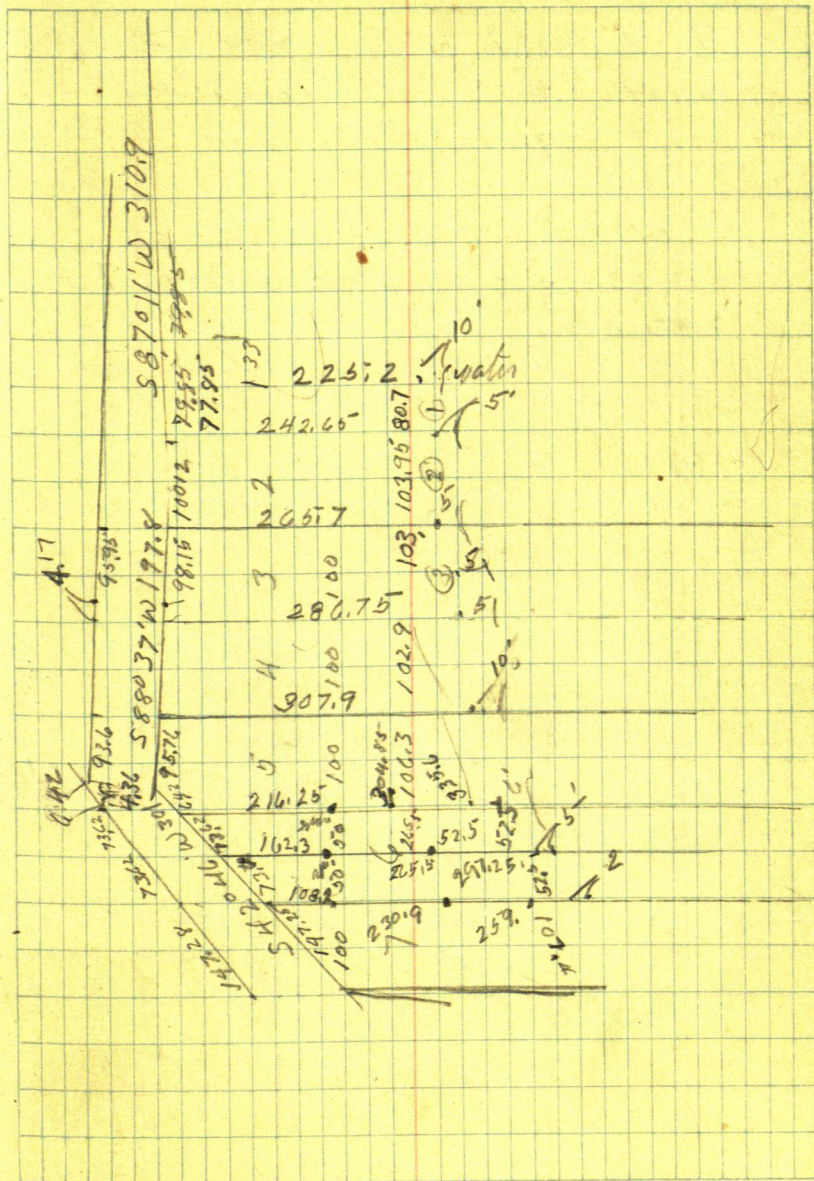
@ Bowen Lake —

π over 300 run N to St. line

Noon

I give Ernest Swift check on acc.
\$125⁰⁰

111



June 6-1950

I finish plat and leave
it with Carl at Auditor's
office go to Brainerd

Commissioners Meet
Carl is to give them the plat
to act on.

ELDO Shore

58°03'W 196

58°01'W 311.14

Adg.

Ave

South

77.90

100.12

100.12

100.12

100.12

100.12

100.12

100.12

100.12

100.12

Elmer

225.2

242.6

265.7

286.7

307.9

335.6

357.2

378.8

400.4

422.0

443.6

465.2

486.8

508.4

530.0

551.6

573.2

594.8

616.4

638.0

659.6

681.2

702.8

724.4

746.0

767.6

789.2

810.8

832.4

Sec. line

2

3

4

5

6

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114

Tue. 7. 1950

I make out Bill for Plating
Eldo. Shore.

Total	\$350	00
Paid Nov. 18-1949	116	75
Balance	233	25

Sec. 32-139-30

Highway Ties
page 95 of this book

115-

Ties 19.100

Random

2650.1 ±

1326.05 ±

9027

9020

32

41

303

3

5

Leslie E Ogle comes to my office
 sometime in May wants his
 line run in Koops Add to Backus
 I tell him O.K. he leaves his deed
 Copy. of Deed.

made this 9th day of Oct. 1950 between
 Claude A Spurlin and Loretta Spurlin
 individually and as husband & wife of Cassco
 parties of the 1st Part and.

Leslie E Ogle and Alice J. Ogle of Cassco
 for sum of \$2700 convey

All that part of Block 3 of Koops Add
 to the Village of Backus lying between the
 North 100 ft and the S. 100 ft of said Blk 3
 It being the intention to deed 100 feet + -

Also that portion of Gov't Lot 1 Section
 31 Twp 139-30 lying west of Lyllian
 Boulevard and South of the N line
 of Blk 3 of Koops Add to Backus

described as follows Starting at a
 line projecting westerly to Pine Mountain
 Lake 50 ft S of and parallel to the N line
 of said Blk 3 running a line over

projecting westerly to pine Mountain
lake 125 ft South of and parallel to
the N. line of said Blk 3

Fig.

$$\begin{array}{r} 304 \\ - 521 \\ \hline 251.9 \end{array} \quad 300 \overline{) 251.9} \quad .83966 = 40^{\circ}01'$$

$40^{\circ}01'$

$$\text{Sine } 643010 \times 391.72 = 251.88$$

$$\text{Cosine } 765857 \times 391.72 = 300$$

$$\text{Tang. } 839595$$

$$300 \div 765857 = 391.72$$

$$100 \div 765857 = 130.57$$

$$200 \div 765857 = 261.15$$

$40^{\circ}01'$

$$\text{Sine } 643010 \times 130.57 = 83.97 + 521 = 136.07$$

$$\text{Cosine } 765857 \times 130.57 = 99.9979$$

$$\text{Sine } 643010 \times 261.15 = 167.92 + 521 = 220.02$$

$$\text{Cosine } 765857 \times 261.15 = 200.00$$

Monday July 23-1951

I pick up Mike Craig
and drive to Backus

Look for lot corners

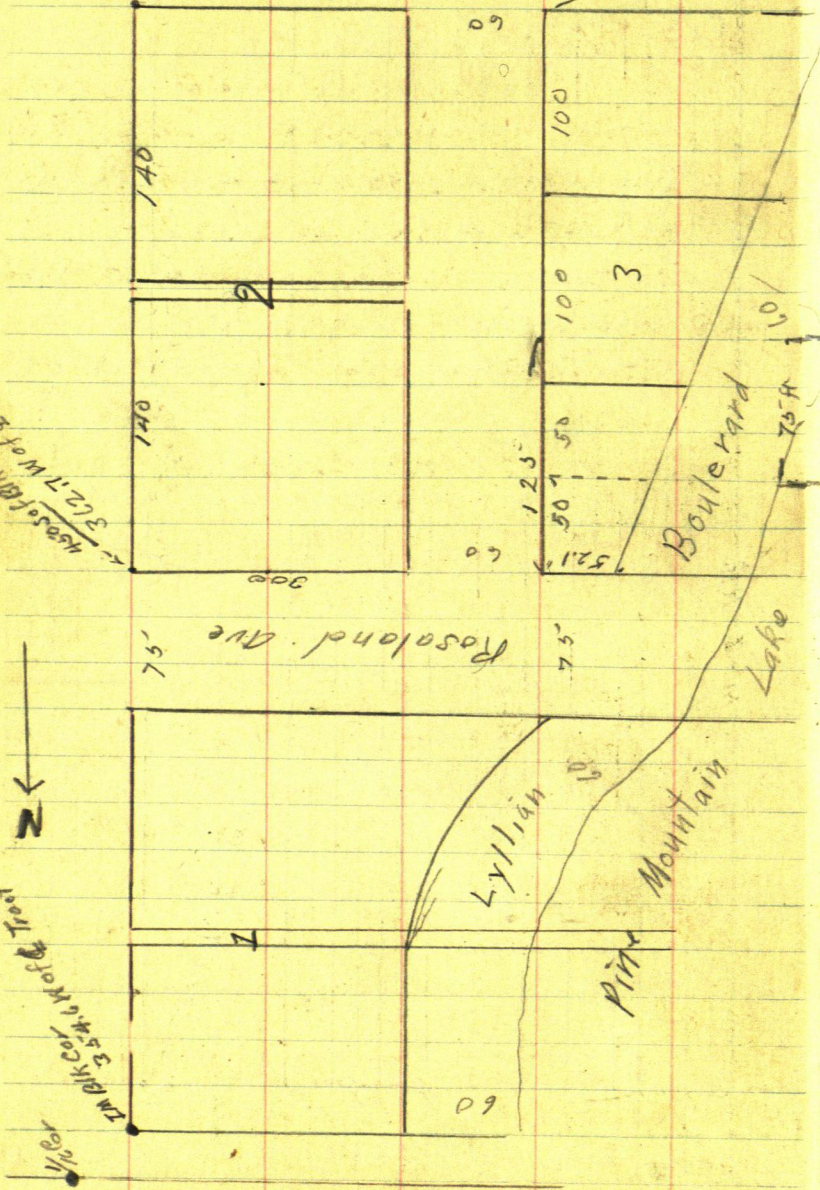
at $\frac{1}{4}$ cor between Sec. Cor and
M.C. at Lake N. side Section 31-139-30
old notes 1907 says from NE cor
Sec. 31 chain W 1336 ft West and set a
8x8x36" cement post for true $\frac{1}{4}$ cor
we dig down in $\frac{1}{4}$ stred's find a stone
10x10x8" but do not find any cement
post. We have dinner at Bailey's \$1.50
home late

122
Pt 372.5 W of
Spain's IM

450.50 ft Blk CWN IM
372.7 W of Blk

2M Blk Col W of Blk Tract
374.6 W of Blk

N
↓



Aug 4-1951

Mike and I Lv Walker about 9 o'clock
drive to Backus from I.M. Blk. Cor
NE Cor. Blk. I. Koop's Add to Backus
chain South @ 450 set spike Temp
NE Cor Blk 2 Koop's Add. @ 750 out
spike Temp SE Cor of Blk 2.

Walk E to Rail Road Tract get in
line with fence running West
and from Φ tract chain West
along fence @ 367.3 set spike

Note: this would put the Blk. cor
E of side walk and as the fence
corner across street is 5.5 feet
to far west of Φ Tract I add 5.5
to my chain west and at intersection
of this distance W and 750 ft So
of NE cor Blk 1 I find a $1\frac{1}{2}$ " pipe
2 inches below ground under sod.
Mrs Miller says this IM was set by
J.W.C. along time ago flag at this
IM and flag at I.M. NE cor Blk 1
I work π on line between the
2 I.M.s, and at 450 ft S of IM NE
Cor blk 1 I set a 60" spike for

true NE cor of Blk 2 Hoops
Add. to Backus

Travel over 60' spike NE cor Blk 2
Site S on flag @ SE cor. Blk 2
Turn 90° and run West hit
tall stone pillar. Back at π
Site S on flag, and run N 30 ft
set 60' spike for a 30 ft offset
to the N.

go to Dinner.

Sat. Oct 27 1951

Don-Ed- and I Lr Walker drive
to Backus, at the $\frac{1}{4}$ corner
N side Section 32-139-30
Where J.W. Euro set a 8X8X36
cement mon. in 1908 from USBT.
The State Highway 371 covers this
point. J.W. Euro in 1939 got the
ties to this corner from Highway
Dept. See page 25 this book
in check these notes on the ground
the light poles must have been
moved; the S.W. The Corn. Fence
has been taken out. so we can not
locate our old hub set in Elmer
Doty's Survey See page 100 this book
To get the same line we run then
We find hub 199.55 and 433.65
see page 106 this book and back
our line up North and re-set hub
2 ft E of Sec. cor. on offset line So.
To over hub at Sec. cor on 2 ft offset
E. Site So on offset line and Turn SE
angle $90^{\circ}23'$ see page 106 and re-
run our old line West.

@ 875.3 hub 60' spike in E
E & W road + 449.75' W set
spike hub. 1325.05' W of NE
corner Sec. 32. and 1326.05' E
of point 17 feet W of E highway
quite at 5 o'clock
drive back to Walker

Note fence running N is about
5 feet W of 1325.05' W of NE Cor.
so fence must have been built
1320 feet E of $\frac{1}{4}$

Sunday Oct 28, 1951

Don-Ed + I drive to hub. 132505-
W of NE Corner Sec 32.

Site from NE Cor Sec 32 Turn
Right $90^{\circ} 21\frac{1}{2}'$ and run South.
at 33 set 2X30 inch Iron Monument
@ 100 pin + 300 = 400 pin + 300 = 700 pin +
300 = 1000 ft S. of $\frac{1}{4}$ cor. as the land
is all uphill from here we go South
to hub on top and chain North down
hill @ 300 pin + 300 = 600 pin + 210 =
810 + 51.3 = 815.3 ft N from hub to
pin 1000 S. of $\frac{1}{4}$ cor $815.3 + 1000 =$
1815.3 S hub 60' spike + 269.2 =
2084.5 hub on brink + 30 = 2035 ft
put road 2084.5 + 172.1 = 2256.6 hub
+ 200 = 2456.6 pin + 120.7 = 2577.3

I Mon shore of Bowen Lake 2 ft from
water

Over hub 2084.5 BS N on $\frac{1}{4}$ corner
Turn R. 90° and run E 75 ft to IM
Over 75 Site W on IM @ 2084.5
and Turn L. 90° and run 386.4 ft
to I Mon shore of Bowen Lake 2 ft
from water edge

Description

A part of Gov't Lot 1 Sec. 32 - T139-30
of the 5th PM Cass Co Minn

The land herein conveyed is the
West 100 feet of said Gov't Lot 1
Lying South of a point 2577.30 feet
of the North Boundary line of said
Section 32, IF ANY

Description

A tract of Land situated in Gov't
Lot 1 Section 32 - Twp 139^N Rge 30^W
of the 5th PM Cass County Minnesota
described as follows

Beginning at an I.M. placed at the
intersection of the West line of said Lot 1
with the shore of Bowen Lake Placed
at a point 2577.30 feet South from
the East $\frac{1}{4}$ Corner between Sections
29 and 32 of said Twp and Range and
running thence North along said
West line of said Lot 1 a distance of
492.80 feet to a second iron moni
thence East 90° to said West line 75 ft
to the third iron moni thence South
parallel with the said West line 386.40

feet to the forth Iron Mani, thence
south westerly along the shore of
said Bowen Lake 130 feet more or less
to the place of beginning

• The land herein conveyed extends
Easterly and southeasterly to the
waters edge of said Bowen Lake
But does Not extend South past the
point of beginning and contains
76/100 of an acre as near as maybe
subject to mineral Rights and
mineral reservations if any of Record
together with easement for ingress
and egress over the present traveled
road

Sec. 3-139-30

133

Dec. 13th 1981

Copy Kemps old notes of 1913.

Loose Leaf page 00 Timesheet
pg. 1. says. 139-30 ap. 7-13

I go to Backus on the morning train
after dinner O.C. Hernenway takes me
in his car to his home in section 2 T139-30

I go to the iron monument at cor. to sec. 34, 9410
with Hernenway Wm Jones + Earl Jones -
Taking Todds old survey line + chainage
as found still marked on stakes

We correct the East half of South line
of Sec 5 as follows setting tall stakes marked
Road Center @ 5314 Cor to Secs 34-9-10
sets south 63.70 ft

hub 4654.4 goes S 56.32 ft

" 3965.10 " " 47.98

" 3703.80 " S 44.82 mark

.21

Windy - cold Apr. 8-13

Kemp - Hernenway Wm + Earl Jones -

K + E Transit - 300 ft steel tape Plumb-bob

+ double centers - Kemp + Hernenway

chain. Setting over iron Cor for Sec 34-9-10 We

run. E @ 9015' Var.

@ 600 enter loop @ 1300 Lx Swp. @ 1666.2

hub + tack

@ 1785 cross NW - SE road
 @ 2640 hub @ 2651 - $\frac{1}{4}$ Cor. on South
 side Sec. 3 sets S 32.3 ft
 at this point Gov't Notes call for:
 N.P. 7 N 41° E 48 (31.68 ft)
 N.P. 14 S 59 $\frac{1}{2}$ ° E 25 (16.50 ft)

We find the Stamps of both old B.T.s which
 Mark.

Pg. (3) check perfectly, from which we
 set a 3x3x24" Oak hub + tack for the True
 $\frac{1}{4}$ Cor + mark the following B.T.s @ 9° Var.
 to tack heads Oak 6 N 42° 05' W 62.50 ft
 Nor Pine 10 S 18° W 60.05 ft

Ike Bushy worked in afternoon. ^{PM} Setting
 over $\frac{1}{4}$ Cor just set we run North thro'
 center of Sec 3 @ 9° Var.

@ 862.6 hub @ 975 cross NW - SE Log,
 road @ 1377.10 hub @ 1750 cross road
 bears S 70° W @ 1860 cross E + W Log. road
 @ 2518.20 hub @ 2603.00 hub @ 2850
 enter Lake + chain across on the ice
 @ 3955 Lr lake @ 3975.90 hub on shore

Mark.
 pg. 4 139-30 - Ap. 9th/13
 Kemp, Hermerway Wm + Earl Jones

Ike Bushey continue North @ 4320.8
tack in log @ 5255.2 $\frac{1}{4}$ cor. on North side
Sec. 3. sets West 211.3 ft

This corner we establish as follows
As we can find NO trace of Old Govt B.Ts.
We go to Cor. to Sec 2-3 - 34-35 where Govt
Notes call for

N.P. 20 N31°E 89 (58.74 ft)

NP18 N6 $\frac{1}{4}$ °W 126 (83.16 ft)

NP20 S 89 $\frac{3}{4}$ °W 120 (79.20 ft)

NP22 S 66°E 146 (96.36 ft)

We find a stake set by Canfield which
check out O.K. from all four B.Ts. Only
the SW tree stands green. Only the
rotted stumps of the others being left Mark.

Page. ⑤ 139-30 April 9-1913

We mark New B.Ts. as follows to tack heads

@ 9° Ver. J.P. 9 N 56° 38' W 37 ft.

" " 9 N 44° 20' E 46.85 ft

Setting over this Corner We run West on 830'

@ 2640 hub @ 5272.6 NW Cor. Sec 3 sets

North 4 ft. at this point CUR's

old 1910 notes call for.

Old B.T. S 30° 16' W 20.46 ft

New B.T. N 34° 10' W 48.60 "

From these trees we set a hub + tack

for the true Cor. by flat measurements
Correcting back:—

hub 2640 goes 3.7 ft E and 2 ft N
where we set a 4X4 oak hub + tack
for true $\frac{1}{4}$ Cor. + mark the following
B.Ts. @ 9° Var. Page (6)

Oak 4 S $6^{\circ}50'W$ 42.25

• 6 N $35^{\circ}E$ 69.00 ft

Going to corner to Sec. 2-3-34-35

We set over Sea stake + Run South on 9° Var

@ 853.6 hub + tack @ 1300 enter open swamp

@ 1800 Lv open swp. @ 2553.00 $\frac{1}{4}$ Cor.

on West Side Sea 2 being M.C. No 34 sets

West. 7.5 ft at this point Gov't notes call
for 1 Non 20 N $70^{\circ}E$ 22 (14.52 ft)

" 15 N $67^{\circ}E$ 50 (33 ft)

We find both B.Ts. stumps badly rotted
+ set a 4X4 inch hub + tack for true $\frac{1}{4}$
Cor. + mark the following M.M.

Page (7) 139-30

April 9 + 1913

B.Ts. @ 9° Var. to tack heads in place:—

Pine Stump 20 N $56^{\circ}40'E$ 32 ft

" " 20 S $62^{\circ}E$ 55.25 ft

Setting over $\frac{1}{4}$ Cor We run West
thru center of Sec. 3 on $8^{\circ}35'Var$
@ 585 cross SW + NE road.

pg. (7) Continued April 10th / 13

Kemp Wm + Earl Jones Ike Bushey
continue West Earl Jones chain with me
@ 1105.3 hub @ 1783.00 hub @ 2400 hub
@ 2412 W cross N+S, center line @ Sta
2700 N @ 2570 hub @ 2700 enter lake.
shore bears S 60° W M.A.K.

Page (8)

@ 3870 Lv Lake - brs N+S @ 4450
cross NW-SE road @ 4673.5 hub.
@ 4860 NW-SE rd. @ 4914.40 hub
@ 5280 Temp 1/4 Sec. Cor on W. side Sec 3

At this point Govt Notes Call for

B.P. 6 N 87° E 29 (19.14 ft)

B.P. 9 S 80 W 16 (10.56 ft)

We find no trace of B.T. so go to iron
cor to Sec 34. 9-10 + Setting over Corn
Wetum North 9° 30' Var

@ 600 set hub

M.A.K.

Page 9 April 11 / 13

Kemp Hernenway Wm + Earl Jones
Ike Bushey continue North Kemp
Hernenway chain @ 705 cross E+W rd road
@ 1800.5 hub @ 2641.4 - 1/4 Cor on West
side Sec. 3 sets West 36.5 ft.

Page 9 - 139-30 - April 11/13

We hunted again and this time find the S.W. B.T. fallen & half buried in the sand. We stand it up & set a 4X4X30" inch hub & tack for true corner @ $9^{\circ}45'$ Var setting over this we take the following bearings @ $9^{\circ}45'$

Old B.T. S 80° W 19.20 ft

" B.T. roosts N 87° E 10.61 ft

New B.T.s as follows

Nor. Pine 8° N $74^{\circ}47'$ W 187.90 ft

W Pine 15° N $52^{\circ}20'$ E 229.15 ft

to tack heads M.A.K.

Page 10 - 139-30

Correcting Back East half of E+W center line

@ 5158.4 W the $\frac{1}{4}$ Corner W side Sec. 3 sets S. 68. ft.

Hub 2570 goes S 33.92 ft

" 2400 " S 31.68 "

at these two points we set hub & tacks & cut out the True E+W center line between them

Hub 1783 goes S 23.54 ft

" 1105.3 " S 14.59 "

at these points we set hub & tack & Tall stakes marked "True E+W center line
Correcting back South half of N+S center line

@ 5255.20 the $\frac{1}{4}$ Cor on N side Sec. 3 sets
W 211.3 ft. @ 2666 N we turn 90°
west 107.17 ft + set hub + tack. We find
that this hub is at the exact inter-
section of the true N+S and E+W center
lines, so

Page (11) - 139-30

We pull up the hub and replace it with a
good 4X4' Oak hub + tack for the true
center of Section 4. We mark the following
B.T.s. @ 9° Var.

Oak 3 N 52° 04' W 40.65 ft

" 6 N 9° 40' E 60.15 ft

To tack heads in trees

{ at 2666 N True Center of Sec 3
sets West 107.17 ft

{ at 2519 W True Center of Sec. 3 sets S 33.25° E
Hub 2518.20 N goes W 101.23 ft

@ Sta 1333 N We turn 90° W + run 53.58 ft
where we set a 3X3' oak hub + tack for $\frac{1}{4}$
Cor. South of center of Sec. 3

M. A. R.

Page (12) - 139-30

April 11 / 1913

and mark the following B.T.s. @ 8° 45' Var

Oak 3 N 37° 38' E 66.15 ft

Norway 10 N 79° 51' W 79.60 ft to tack heads
in trees

April 11-1913 Page 12 Continued
Hub. 862.6 goes W 34.18 ft.

April 12/13 Kemp & Hernerway
correcting back South line of West
 $\frac{1}{2}$ Sec. 3.

Hub 2640 goes 30.01 ft S

" 1666 " 20.33 ft S.

@ Sta 1325.50 E turn 90° & run
South 16.15 ft where we set 3X3 inch
hub & tack for $\frac{1}{16}$ cor. West of $\frac{1}{4}$ Cor on
South side Sec. 3 & mark the following B.Ts.
@ $930'$ Dist. to tack heads

S.P. 10 N $54^\circ 45' E$ 59.00 ft

" 10 S $36^\circ 35' E$ 85.15 ft

This completes road survey for
Powers Twp MA Kemp

April 12/13

Kemp & Hernerway run East
from M.C. No 34 being $\frac{1}{4}$ Cor on W
Side Sec 2. We run compass line
& chain a mile East then hunt for
 $\frac{1}{4}$ Cor on East side Sec 2. at this point
Govt notes call for

N Pine 22 N $27^\circ E$ 142 (93.72 ft)

W Pine 24 S $49^\circ 30' W$ 92 (60.72 ft)

we find stumps of both trees badly
burned but with parts of old marks
still visible. We set a $3 \times 3 \times 24$ " pine
stake for true $\frac{1}{4}$ Cor by flat measurement
+ mark the following B.T. @ 10° Var. + drive stakes

N Pine $10 N 75^\circ 15' E 41.85'$

S " stump $10 N 33^\circ 35' W 51.00'$

an old stake marked up for the
 $\frac{1}{4}$ Cor. sets several ft west of my
stake

W. A. Kemp

Trum. Mis. line for Hernerex

Owners of land in Sec. 3-139-30
 Dec. 17-1951
 Charles Lnd Hattie Wysoglad
 Lot 1. Sec. 3-139-30

Amelia Mooney - Lot 2 - Sec 3-139-30

Mary M. Steen - N 160 ft of W 300 ft of
 Lot 10 - Sec-3-139-30 2nd 1/2 Lot 7

Backus Minn Everett A. 2nd Josie Rideout Lot 10 Less
 part sold - N 27.4 Acres Lot 11 - Sec 3

Theodore 2nd Janet Lumbblad Lot 3 - Sec 3

John Wynn Lot 4 Less N 40 rods of W 40 rods.
 " " Lot 5 Less part sold Lot 6
 SW 1/4 - SW 1/4

Leonard J. & Mayme Milbert S 75' of E 100
 of Lot 5 - Sec 3-139-30

Backus Minn Thomas jun & Ida LeVasseur - S 17.4 Acres
 Lot 11 Lot 8 - (NE 1/4 SE 1/4)

Herbert G Wolf N 75' of S 150' of E 200' Lot 5
 James E & Myrtice Bickle part of Lot 5

Arthur J. & Lillian M Friday N 40 rods of W 40 rods
 Lot 4

146 Sec. 3-139-30

Ties to NE Corner Section 3-139-30

2X30" pipe

New Ties

Twin Pines - J.P. 6 N 21°02' W 90.9 ft

J.P. 3 S 37°10' W 56.70 "

J.P. 11 S 59°50' E 76.20 "

J.P. 12 N 49°53' E 94.10

Ties marked in 1913 by MA Kemp

NE Cor. Sec 3-

J.P. 9 N 56°38' W 37' to tack head

J.P. 9 N 44°20' E 46.85 " " "

1/4 N side Sec 3

Oak 4 S 6°50' W 42.25'

" 6 N 35° E 69.00

1/4 E side Sec 3 being also MC 34

Pine Stump 20 N 56°40' E 32. ft

" " 20 S 62° E 55.25 "

To tack heads in blaze

Center of Sec. 3-139-30

Oak 3 N 52°04' W 40.65' to tack

" 6 N 9°40' E 60.15' heads

Ties by Kemp in 1913

147

$\frac{1}{4}$ Cor West side Sec 3

N.P. 8 N $74^{\circ}47'W$ 187.9 to tack heads

N.P. 15 N $52^{\circ}20'E$ 229.15

$\frac{1}{4}$ South Side Sec 3.

Oak 6 N $42^{\circ}05'W$ 62.50 To tack

Nor P. 10 S $18^{\circ}W$ 60.05 heads

$\frac{1}{16}$ Center South $\frac{1}{2}$ Sec 3

Oak 3 N $37^{\circ}30'E$ 66.15 to tack

Nor Way 10 N $79^{\circ}51'W$ 79.60 heads

148

Backus
DeComp's plat of
Pine Mountain Shore
lot 1 of said Plat,
owned by Ben. Phillips
who calls at my Office
The grader while fixing
the Street on the southerly side
of Lot 1 took out the I.M.
I tell Phillips I will put them
back in for \$25⁰⁰ he says go ahead.
July 1st 1954

T.

Darrell - Somers
LaVanche " buyers

Floyd Skeesuck owners
Stella.

$NE\frac{1}{4}$ of $NE\frac{1}{4}$ & $SE\frac{1}{4}$ $NE\frac{1}{4}$ = $E\frac{1}{2}$
of $NE\frac{1}{4}$ Sec. 29-139-30

Gertrude & I Lv Walker drive
to Sec. 29-Twp 139 Rge 30 atop a
Sumers.

Over intersection of the twp
road and highway 87-S W angle
of \angle s of the two roads read $88^{\circ}57'$
use N & S Twp road as N & S
run S on \angle Twp road 574.1 ft to
60th spike Over 574.1 Site N along
 \angle Twp road and run $S 87^{\circ}52' W$
220.7 ft to 60th spike

Over 227 BS $S 87^{\circ}52' E$
Take locations of buildings
House



over

Tower 220.7

NW Cor. House bears N $11^{\circ}05'E$ 69.5'SW " " " N $15^{\circ}32'E$ 41.4'SE " " " N $43^{\circ}14'E$ 51.9'

Barn

SW Corner bears S $15^{\circ}31'E$ —NW " " S $26^{\circ}28'E$ —SE " " S $45^{\circ}45'E$ —

Lorn

34.6 x 38.6

Garage 2 - Cor.

NE Corner bears N $18^{\circ}52'W$ 29.06'SE " " N $54^{\circ}44'W$ 12.7SW " " N $74^{\circ}36'W$ 31.7

Garage 22.2 x 22.2

from hub 220.7 run S $72^{\circ}05'W$
41.55 to 60' up hTower 41.55 B.S. N $72^{\circ}05'E$ on hub

220.7 Take course of barn

SW Cor of Barn bears S $38^{\circ}00'E$ NW " " " S $33^{\circ}49'E$ NE " " " S $64^{\circ}22'E$

Toilet

SW Cor bears N $10^{\circ}15'W$ 22.8'SE " " N $11^{\circ}36'E$ 22.8

4.2 x 5.2'

Chicken house

NE corner bears N $10^{\circ}41'W$ 52.8
 SE " " N $18^{\circ}05'W$ 24.3
 SW " " N $37^{\circ}21'W$ 32.2

chicken house $\overline{E_3}$
 30.3

home late after supper
 Bert & kids go to show
 I go to Office to make
 sketch of buildings

152 72 Lot 4 Sec 4 - 138-30

Aug 7 1955 Sunday

Ed & I to Bowen Lake

Tower W 1/4 IM site W on true

line take Ties to W 1/4 cor on Twp line

J.P. 10 N 34° 11' E 16.22 ft

J.P. 14 S 70° E 9.11 ft

We run E 29.7 ft set hub

Note the deed calls for 77 rods and

Leaves a 3 rod road as the 1/4 Mile is

only 1300.2 instead of 1320 we

chain 29.7 and run South 90° to

Township line @ 45° & new road

@ 95.5 but in E of an old road

bed the deed figuring the distance.

N 45° to be 2640 ft would put the

road 82.5 South of Twp line

as the distance S W from here is 747

along road the old road being discontinued

for a new one we will try to

follow the out line of the old road

Southwestly

Tower 95.5 run S 72° 40' W 147 + 300 =

447 spike hub + 150 = 597 but

Tower 597 run North to Bowen Lake

@ 27.10 but @ 38 E road @ 60 - 3.7 =

56.3 IM + 108.10 IM on seawall

5 ft from water

Tower 2710 site North and run
 S $72^{\circ}40'$ W 150 ft = 30 ft N of new road
 Tower 150. run North to Bowen Lake
 I Mat 150 SW and 30 ft \pm N of road
 From 150 SW chain North 102. ft +
 water 3 ft. Book 102.

Trad 2 Description pag 292

Oscar Enerson & Luella to Mary B. Steen
 The E 150 ft of the following described
 land to-wit: All that portion of Lot 4 Sect 4
 138-30 described as follows. Starting at
 the NE cor of lot 3 Sect 4 - 138-30 thence
 running South a distance of 160 rods to the
 SE cor of lot 6 Sect 4. Thence West a distance
 of 77 rods thence N on a straight line
 a distance of 155 rods to the Trap road
 running in a easterly & westerly direction
 thence in a S westerly direction along the
 said trap road a distance of 747 ft thence
 N parallel to E line of said lot 4 to the
 shore of Bowen lake which pt shall
 be known as the pt of beg. thence S parallel
 to E boundary line of said lot 4 to said
 trap road thence in E westerly direction along
 said road a distance of 300 ft

to a pt. thence N parallel to E
line lot 4 to shore of Bowen Lake
thence in westerly direction along
the shore line of Bowen L to place of
Book 23 of Deeds 3-75

19 " " 430

19 " " 429

Book 107
pg 118

Tract 1

All that portion of South lot 4 Sec. 4-138-30
described as follows to wit start at NE Cor to 3
S. 160 rods to SE Cor Lot 6. Thence W T 7 rods
thence N on a straight line 155 rods to
Twp road. Thence SW along said
road a distance of 447. to a pt. Thence N
parallel to E line lot 4 to shore of Bowen
Lake which pt. to be known as place of
Bey. Thence S parallel to E line lot 4
to Twp road. Thence E along said
Twp road a distance of 140 ft to a pt.
Thence N parallel to E line lot 4 to shore
of Bowen Lake thence westerly along
shore of Bowen Lake to pt of Bey.

T Steen

153

Sept 5- 2640 W 44 St Mpl 10 Min

Pick up Don Bethel and drive to
Bower Lake where we meet Mr + Mrs Steen
take rough copy of description

at 10-30 we start looking for my
old hubs we find all spikes set as
shown on page 152 this book 241

Turn hub 447 Site $S 72^{\circ} 40' W$ on
hub 597 and run North to Bower Lake

From SE cor 300 ft Tract
chain N @ 100 \pm road @ 130 per
 $+ 100 = 230 - 1.9 = 228.1$ IM on
Twp line $14.25 E$ of MC

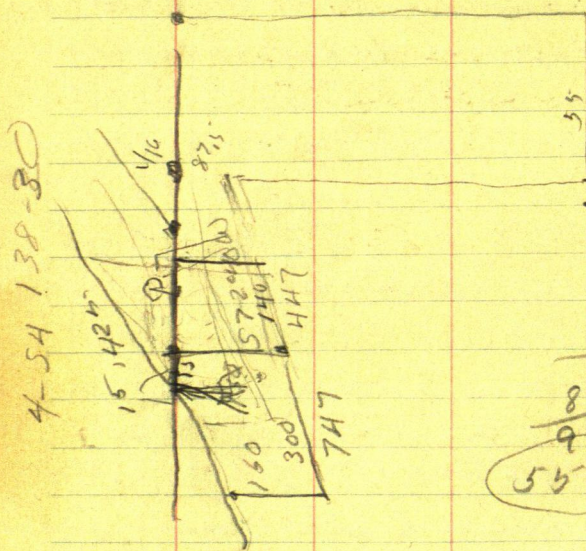
MC $15 E$ of Water 6 ft S of Water

from + in cement chain W 129.4
to IM NE Cor of E 130 of 300 ft tract
from SE cor of 140 ft tract in Codner's
garden chain N 130 \pm road @ $190 - 3.3$
186.7

From + chain S 580 at IM on
line chain W 3.45 IM on Twp line

Don Bethel gets in 5 hr.

136



$$\begin{array}{r} 3^2 \\ 165 \\ \underline{33} \\ 825.0 \end{array}$$

$$\begin{array}{r} 2 \\ 165 \\ \underline{33} \\ 825 \\ \underline{825} \\ 907.5 \end{array}$$

(55 rod) N 6 rods

M-417

B. 76-471 p. 1 50 rods

SW along trap road 825 ft
thence N 6 rods to water line

1

1956

Gerald - Deputy Sheriff tells me that
land buyer across the road from his
brother-in-law wants a \$1000
needs survey - $\frac{1}{2}$ mile E & $\frac{1}{2}$ S of
Zaffke's farm. Better see Backus Bank
first:

N $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 28 - 139-30

Met Walker

owner. Isaac M. Walker Jr.
" " " Jr.

Dick Ray.

Buyer Alma. wife.

Myrtle " wife

from NW cor Sec 28 $\frac{1}{2}$ road

chain E 85.5' to pt

Turn at site W on $\frac{1}{2}$ 84 + run S

road run S $10^{\circ}45'W$

up the line S $7^{\circ}12'W$ 500'

Turn 500 BS N $7^{\circ}12'E$ to the

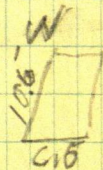
building

Corn crib

SW S $21^{\circ}40'E$ 98.6

NW S $23^{\circ}44'E$ 92.8

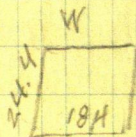
NE S $29^{\circ}00'E$ 98.6



Garage

NE cor S $15^{\circ}38'E$ 52.6

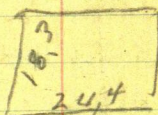
NW cor S $4^{\circ}39'W$ 51.2



13-8

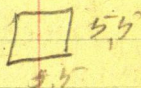
Barn.

SE cor $S 8^{\circ} 36' W$ 94.8
 NE " $S 10^{\circ} 21' W$ 76.8
 NW " $S 26^{\circ} 45' W$ 85.8
 84.8



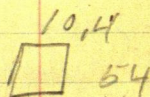
Toilet.

SE cor $S 52^{\circ} 50' W$ 66.6
 NE cor $S 56^{\circ} 35' W$ 63.5
 NW cor $S 59^{\circ} 10' W$ 68.



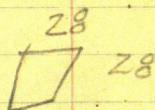
shed

SE cor $S 69^{\circ} 57' W$ 122.6
 NE cor $S 72^{\circ} 20' W$ 121.1
 NW cor $S 73^{\circ} 25' W$ 131.3



House

SW cor $N 53^{\circ} 35' W$ 35.1
 SE cor $N 0^{\circ} 38' W$ 20.9



Certificate of Surveyor

I the undersigned Harold Curo hereby
 certify that I am a Reg. Land Surveyor in
 the State of Minn. that I have prepared
 this sketch of the $N \frac{1}{2}$ of the $NW \frac{1}{4}$ of Sec.
 28 - Twp 139N R 30W of the 6th PM Cons
 Co. Minn for Dick Ray who is now in
 possession of the property. That Isaac M

Walker Jr. is the registered owner
That there are no visible repairs or
improvements accomplished within
the last 90 days. That there are no
encroachments and no violation of
building restriction that all improve-
ments are within the boundaries as
shown by this sketch

Dated this 25th day of Jan. 1957

160

72, Sec 36-139-31

Ed & I find spike on top line 23.

2656.45 W of Tap Cor from which we
chain E 83.17 and find spike hub2573.28 W of Tap Cor on our second
random line W from Tap cor.

Took old spike hub 2573.28 BS W

on old spike 2656.45 and ran E
from hub 2656.45 we chain E 300

+ 60.7 find oak stop no spike

300 + 72 we set spike hub. + 280 +

221.8

280

300

801.8 E of 2573.28 spike in wedge of

road. angle from this old

random to Sta in road

is NW angle $110^{\circ}42'$

372

360.7

11.3

2573.28

801.8

1771.48

1737.63

33.85

474.95

11

363.85

160

180

280

2278

501.8

372.

5018

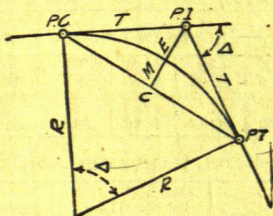
873.8

835.6

38.2

DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

Copyright, 1914, by Eugene Dietzgen Co., New York City



CURVE FORMULAS

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

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

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

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

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

EXPLANATION AND USE OF TABLES

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

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

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

Externals.—May be found in similar manner to tangents. Thus E for curve above is 91.37. For from Table IV for 1° curve E=960.6 for 8° 20'=960.6+8 $\frac{1}{5}$ =91.27 and from Table V correction=.10 or E=91.37 ft. Or suppose $\Delta=32^\circ$ and E is measured and found to be 42 ft. What is D? From Table IV E=230.9 and +42=5.5 or D=5° 30'.



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No 241

$$\begin{array}{r} 299100 \\ 8375 \\ \hline 21625 \end{array}$$

$$\begin{array}{r} 19955 \\ 2341 \\ \hline 43365 \end{array}$$

$$\begin{array}{r} 299910 \\ 5735 \\ \hline 24265 \end{array}$$

$$\begin{array}{r} 29910 \\ 1918 \\ \hline 1092 \end{array}$$

$$\begin{array}{r} 747 \\ 150 \\ \hline 597 \\ 1898 \end{array}$$

$$\begin{array}{r} 148365 \\ 2464 \\ \hline 173005 \end{array}$$

$$\begin{array}{r} 29910 \\ 691 \\ \hline 2309 \end{array}$$

$$\begin{array}{r} 29910 \\ 343 \\ \hline 26317 \end{array}$$

$$\begin{array}{r} 85.1 \\ 83.17 \\ \hline 1.93 \end{array}$$

$$\begin{array}{r} 184200 \\ 2000 + 3000 \\ 2300 \end{array}$$

$$154.5$$

$$122$$

$$\begin{array}{r} 808 \\ 41 \\ \hline 259 \end{array}$$

$$8753$$

$$1325.09$$

$$8753$$

$$44975$$

$$13288$$

$$\begin{array}{r} 12650 \\ 1325 \end{array}$$