

ENGINEERS'
LOU LEAF
FIELD BOOK

23

A. W. Moulton,
Pine River, Minn.
April 15, 1912.

Level on S.R. # 5

Sta.	B.S.	H.I.	F.S.	S.E.	B.M.
B.M.	4.91	104.91			100
0+00				99.86	
2+00				101.46	
4+00	6.86	106.915	4.865	100.045	
6+00				102.60	
B.M.			3.18		103.725
8+00				101.40	
10+00	9.945	111.37	5.48	101.425	
12+00				105.6	
14+00				106.12	
16+00				104.37	
I.P.	9.25	115.37	5.25	106.12	
18+00				106.00	
19+25				110.50	
B.M.			3.70		111.67
20+00				108.30	
I.P.	6.465	109.17	12.665	102.705	

in Dec. 9 Aug. 139 P. 29 Cms Co.
West B. D. D. D. D.

Grade Cut +
Fill -

Remarks

an pipe at
SW Cor. Sta. 9-137-29

an ground at corner

I.P.

an 7" J.P. 40 east of
Sta. 6+00

I.P.

an 10" J.P. 35' east
of Sta. 19+25

may 10-1917 - Moulton Eng.

3

Levels on S. P. No 5

Sta.	B.S. +	H.I.	F.S. -	S.E.	B.M.
22+00				96.70	
23+00				94.50	
24+00				101.50	
25+00				106.60	
26+00				103.70	
26+45.65				104.17	
B.M.			4.21		104.96

Weatherline Dec. 9 - 138 - 29

4

Grade	cut + fill -	Remarks
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cut top of 2" x 48" pipe -
the 1/2 cut. bet 8+9.

9 Transit notes on S.R. To 5

Sta.	Brg.	Ang. R.	Ang. L.	Dis.	Offset.
26+45.65					
26+00					
25+00					
24+00					
23+00					
22+00					
20+00					
19+25					
18+00					
16+00					
14+00					
12+00					
10+00					
8+00					
6+00					
4+00					
2+00					
0.0					π

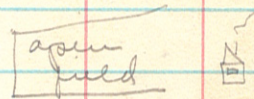
Survey on west line Dec. 9-139-29 10
South 1/2

2" x 48" iron in concrete → 1/4000 r. bot. 8+9

on south side of hill

marsh hollow

field



S.W. Cor. Dec. 9-139-29
← 2" x 48" pipe set in concrete

May 10-1917. A.W. Mendenhall Eng.

11 Invariant Notes on S.R. 705.

Sta. Brq. Aug. R. Aug. L. Dis. Aspect

36+25

36+00

34+25

34+00

32+00

30+00

29+00

28+00

27+75 N

12+00

10+00

8+00

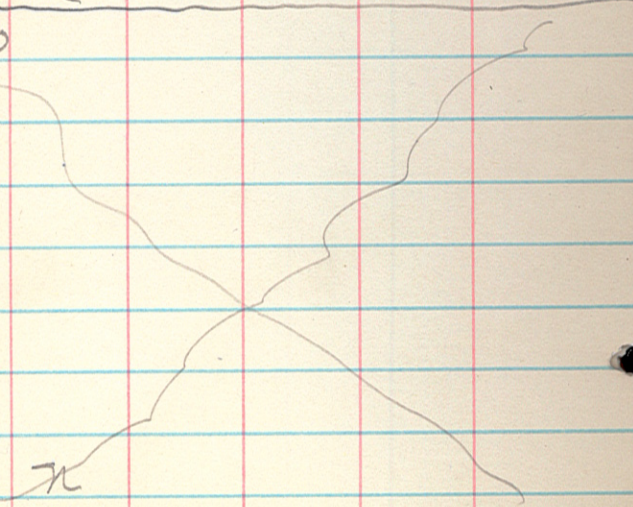
6+00

5+00

4+00

2+00

0+00 N



West line Dec. 9-139-29
North 1/2

12

N edge of low ground.
in low ground.


S edge of low ground.

On N side of raise

On center of raise 110' ^{hit for} across fills N+S

Small low place  135 feet across

On raise



Small cut along  75' N E

Location for  12" culvert

In low place - to be filled from Sta - 5 to 6
Top of North edge of hill

On hill - dirt to fill swamp.

Small swamp  135 feet across.

Being 1/4 cor. W  side of Dec. 9
2" x 48" iron in con. 

13 Transit notes on S.P. No 5.

Sta. Big Aug. R. Aug. 6. Dis. approx

52+87.5

51+00

49+00

48+50

47+00

45+40

44+00

42+00

40+00

38+00

West line Dec. 9 - 129 - 29 14

Being Dec. Cor. To
Dist for Hillskel. 49+51
South edge of }
ditch }
4-5-8-9
south edge of right way

In South edge small } ditch - 40 feet across

also 50' east.

May 11 - 1912 - Mountain

25

Transit Notes on S.R. No 4.

Sta. Brg. Ang. P. Ang. L. Dis. Effect.

3+75 Intersection of stage road.

2+15 $71\frac{1}{2}^{\circ}E$ -

0+00 $71\frac{1}{7}^{\circ}13'E$ -

\nearrow of $\nearrow E$ Cor. Sec. 8 \uparrow

16+00

14+50

13+25

11+30

8+85

8+00

4+00

1+00

0+00 South

Ret. Dec. 8+9-138-29.

By Road

an hill

Top of hill

15 feet higher - 30 feet east

Foot of hill

Enter swamp.

— Cor. 4-5-8-9

Insel Notes on S.P. 70.4

Sta.	B.S. +	H.I.	F.S.	S.E.	B.M.
B.M.	0.72	100.72			100
0+00				96.6	
I.P.	0.25	90.85	10.17	90.60	
1+00				86.40	
4+00				85.00	
B.M.	5.11	91.60	4.36		86.49
8+00				90.20	
8+85				90.10	
I.P.	9.80	100.90	0.50	91.10	
I.P.	12.84	111.89	1.85	99.05	
I.P.	12.05	123.38	0.56	111.33	
11+30				120.60	
12+60				116.30	
13+25			1.91	121.47	← I.P.
B.M.	3.89	125.36	5.27	122.09	120.09
	0.23	121.70			←
14+50				102.70	

Return on 8+9-128-29

Grade
Cut +
Fill -

Remarks
on 8+9-128-29
put center of S.E. Cor. 8

See Cor.

South edge of hill
enter - ramp.

6" diameter
35 W. Sta 4+00

stone ramp
71 feet of hill

on 10. narrow
40 feet S.E. stab
11+30

Level Notes on S.P. 704

Sta.	B.S. + H.I.	F.S. - S.E.	B.M.
16+00		117.80	
B.M.		1.97	119.73

End of road take in ground.

777 E Cor. Sec. 8

17+00	10.91	110.91		100
0+400			96.6	
I.P.	8.10	117.74	1.27	109.64
2+15		4.90	112.80	
3+75		6.90	110.80	

Bel. Pers. 8+9-138-29

Continued from Page

Grade cut + F. II - Remarks

4" g.P. 45 feet
7E Sta 16+00

See Stage Road

Levels for drainage ditch

B.S. + I.T. F.S. - S.E. D.M.

12.6 112.60

I.T. 2.76 104.64 10.72 101.88

9.30 95.34

Distance from dug to
lake = length of ditch =
Approx. - 330 feet - 20 rods

Levels for drainage ditch

Lake to Pine River

11.14 102.14 4.29 99.85 10.0

4.78 104.63

18.6

98.6

1.81 99.96 6.48 98.15 2.0

3.15 98.91 4.10 95.86

4.38 98.25 5.07 93.87

length = 2240

acres - 140

lake to road - 650

5.85 92.40

Dec 8 - 138.29

Remarks

Water in dug
used as 100.00

Being level of water
in lake

Dec -

138.29 - Sammamish

Lake level

2' South ground

Water level of Pine River

Data for Proposed Bridge #

Width of Water 80'
 Shore E to NB MW 94
 Sounding - 2'-E - 1' W
 " 5' W 1 1/2'

Clear keep and muddy
 Bet holes 53'

N Sound 20' from sand 34'
 from high bank.

Elev for 100' (H. 1'-5')

NB on W - 103'

Elev S B W - 101'

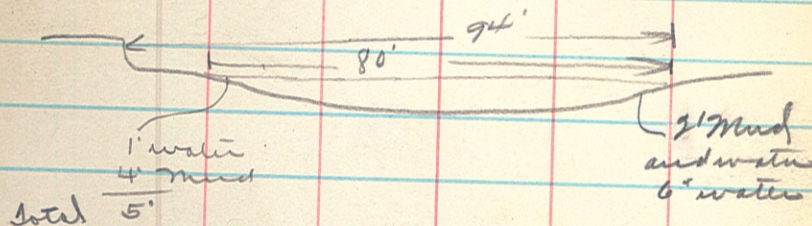
" E B W 100.5

B.M. 4" Hardwood

Elev 104.8'

At Ingrade Narrows
 Dec. 32 - 141-27

Width of Water 80 feet



Clear - deep and muddy -

Bet. 2 Extreme Soundings 53'

West Sounding 20' from sand or
 34' from high bank.

On west side water 14' from high bank

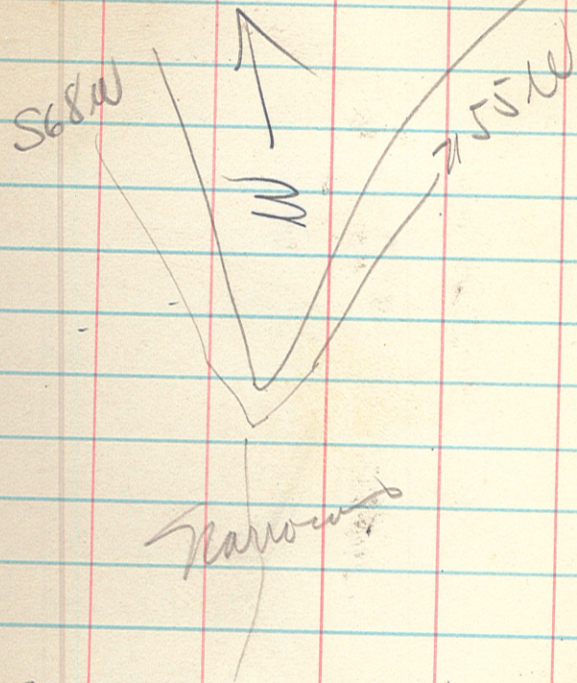
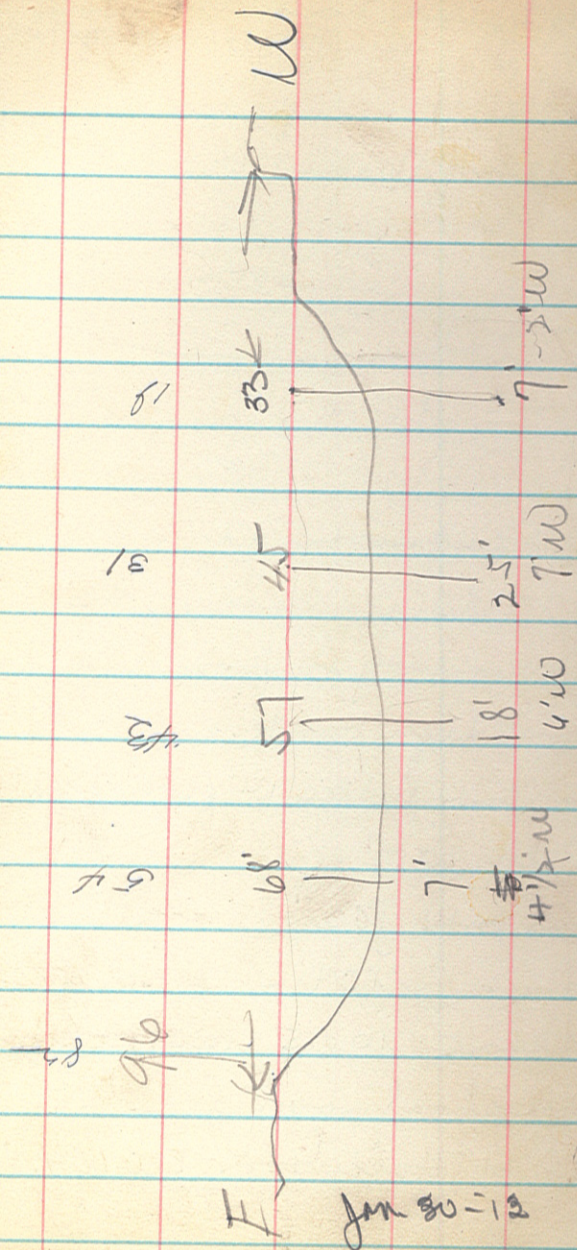
Elev. in 100'

High bank on W 103'

Low " " " 101'

East Shore 100.5 - same Elev.
 follows shoal east.

B.M. 4" Hardwood - Elev. 104.8



~~100~~ feet East of Narrows in
 channel - depth 10' wide
 3' water - 3' mud to bank
 bottom in center - Hard sedges

Jan. 30 - 13

37 Survey on S.R. #16 -
Feet. Recs. 27-28, 33-34 - 135-30

Req. at NE. cor. Sec. 28 - this
corner preserved by Frank Erickson.

Run south - in swamp
1433 - cross Homebrook E+W

7646 - 1/4 corner - NE. BT. present.

One line runs on 10°30'

Continue south -

350 leave swamp

762 Sack in log

1416 " " "

2027.75 " " "

2425 Enter swamp E+W

7657.4 - SE. corner of

Sec. 28 sets east 6.75 feet.

38

Req. at 27-28-33-34

Run south 9° Var.

646.4 Sack in log

970 Inquire road NE+SW

1196.7 Sack in log

1750 leave swamp NE+SW

1871 Sack in log

2487 " " "

5269.50 - SE cor 33 sets
west 161.75 feet

19.60

36.80

57.4

76

Sues. June. 17-1913

Length of east awning 2475 feet = 150 rows

" " West " 1085 " = 66 rows

Quantities -

8" deep on center 8'

4" " 4' on each side

Equals 8 sq ft to linear foot

132" " " " rod

Approx 5 cu. yds to the rod

East awning requires 750 yards

West " " 330 "

Thurs. June 20 1913

July 3 - Measuring trenches East
on North Side Sec. 20 - 138-29

E

Width of cut feet	Sta.	Depth - average
25.0	25	0.
25.0	50	.9
24.0	75	1.3
24.5	100	2.1
25	125	3.6
22.5	150	2.3
19.5	175	0.0

Along sides

Average 1' to 1'

Base

Average 24' wide

W

0 to 25 = 10.22 cu. yards

25 " 50 = 19.56

50 " 75 = 24.36

75 " 100 = 40.50

100 " 125 = 57.57

125 " 150 = 60.00

150 " 175 = 27.17

239.38

240 yards

Level notes on S.T.R. #1 -

Sta. B.S. + H.I. F.S. - S.E. B.M.

0+00	106.55	101.35	
0+25			
0+00		100.75	
1+25			
2+00		102.0	
3+00		102.0	
4+00		103.5	
5+00		103.0	
6+00		101.50	
7+00		99.5	
8+00		97.0	
8+50			
9+00		97.5	
9+39		97.2	

Ret. swings on Saine Au. 29-
145-31

at + H.I. E.S.
Level Fall -

100.00

99.00

99.05

100.8

101.5

102.5

102.5

101.3

99.3

98.2

96.9

95.5

95.5

95.0

Remarks

East end of ditch in
writing.

Even across

Level at outlet ditch
in east end

Aravit Trees on County Road

Sta. Beg. Ang. R. Ang. L. Dia. Offset

8+00

7+00

6+00

5+00

4+50

3+70

3+00

2+50

1+50

1+00

0+00 South Oak

East Line Rec. 1 - 138-31

44

2nd Name Log.

Remarks

To. lower end

Enter low land

1/4 Corner Iron
East 1/2 of Rec. 1 - 138-31

Level notes on County Road

Sta.	B.S. +	I.I.	4.S -	S.E.	B.M.
0+00	1.05	101.05		100.00	100.00
1+00				98.0	
1+50				97.8	
I.S.P.	0.85	89.95	11.85	89.10	
I.S.P.	7.30	84.94	12.31	77.64	
2+50				75.40	
3+00				73.10	
3+70				74.0	
4+50				82.5	
5+00				82.6	
6+00				81.9	
I.S.P.	12.02	95.70	1.76	93.68	
7+00				92.70	
8+00				95.50	

East side Sect. 1 - 138-31 46

Bull Moose Sng

Grade	Cut +	Fill -	Remarks
			0+00 Sng Pige - 1/4 corner

Aw. m.
Aug. 1913

Drum notes on Well 1411

Sta.	Req.	Res.
12+50		
12+00		
11+00		
10+00		
9+00		
8+00		
7+50		
7+00		
6+00		
5+00		
4+25		
4+00		
3+00		
2+00		
1+00		
0+00	North	

Est June Rev 6-138-30 48

Remarks

End of Fill

Fill average
70' wide

End of Cut - Req. Fill

cut average
2' at base
3' at top

2' cut
End of fill
Req. of cut.

Req. of fill with 70' cut

1/4 Corner

Level Notes on 1 full level
 (RB) (EF)

Sta.	B.S.±	H.I.	I.S.-	S.E.	B.M.
0+00	10.69	110.69		99.7	
1+00				101.0	
2+00				102.9	
3+00				105.3	
4+00				109.4	
I.P.	7.04	115.58	2.15	108.54	
4+25				110.7	
5+00				113.0	
6+00				112.4	
7+00				108.6	
7+50				105.0	
I.P.	0.23	102.81	13.0	102.58	
8+00				101.4	
9+00				97.4	
10+00				94.2	
11+00				90.6	
12+00				88.2	
12+50				86.8	

East Side Rev 6-138-30

made cut+
 fill- Remarks

End of file

Hell Hill - Hyacinth at 50's

4+55 ^{Hyacinth} 0.0

5+06 7.5

6+00 9.25

7+00 2.6

7+50 0.0

Slope 1 to 1

cut averages 32' wide at base.

All averages 20' wide.

Ride slope of 1 to 1.

A.M.F.M.

Aug. 13-13

Carey Distillery

5th Sometone

North Full

174' long

Av. 4' wide

" 1.6' deep

238 long

4' wide

1 1/2' deep

2nd

214' long

Av. 6' wide

" 1' deep

3rd

40' long

6' wide

.8 deep

4th

1375' long -

4' wide 1/2' deep

Averages 1' deep - 4' wide =

$$8164' \text{ long} - 4 \times 8164 = 302 \text{ cu yds}$$

27

Levels Bet. Lake James

Sta.	B.S. +	N.I.	I.S. -	S.I.	B.M.
	9.58	109.58		100.0	
#1	6.94	111.07	5.45	104.13	
#2	0.06	110.63	0.50	110.57	
#3	4.98	110.41	5.2	105.43	
#4	3.87	109.98	4.30	106.11	
#5			4.80	105.18	

and Shunder Lake
Sept. 11-13

E.L. Forbet - warden
E.E. Martin - almon

Remarks

Being level of
Shunder Lake

On wagon grade

Level of Lake James

Levels at Pine Lake - down creek

Sta. B.S. + H.I. F.S. - S.E. B.M.

Sta.	B.S. + H.I.	F.S.	S.E.	B.M.
#1	5.55	105.55	4.35	101.20 100.00
#2 ⁷⁰⁰	3.67	104.87	5.03	99.84
#3 ⁷⁰⁰	4.66	104.50	5.72	98.78
#4 ⁶²⁵	4.515	103.295	4.165	99.13
#5 ⁹²⁵	4.23	103.26	5.675	97.685
#6 ¹³⁰⁰	3.72	101.405	4.45	96.955
#7 ¹⁵²⁵	3.42	100.375	4.23	96.145
#8 ¹⁶⁷⁵	3.685	99.83	4.805	95.025
#9 ¹⁸²⁵	4.19	99.22	5.235	93.985
#10	7.70	101.685	7.435	94.25 S. ground
#11	3.635	97.885	4.445	93.44
#12	4.05	97.49	4.63	92.86
#13	3.78	96.64	4.13	92.51
#14	4.23	96.74	5.245	91.495
#15	7.46	98.96	5.13	93.83
#16	7.45	101.28	11.53	89.75
#17	4.615	94.365	5.295	89.07
#18	4.445	93.515	5.85	87.665

Per 75' W
road at
Oriongen's

E.L. Forbes rodman
9-18-13

Remains
Being level by Road.

93.68
Elev. at Thompson's =

On highland

Being level of Pine R.
Banks Elev. on S.W. - 90.01

Oct. 8 - 1 BT3 TC. S. E. 11.

During - 8 line Dec 6 - 140-30

By, at SW Cor. Rec. 6 - set 15 years
ago by B. T. S. Batted from B. T. S.

Run east 9° Var.

700 Hub.

800 "

1557 Cu. R. T. N+S

1448 Hub.

2080.5 "

2200 Cu. Gov. Trial

At 2380.5 1/4 - sets Bench

11.9 feet. Set from BTs - Nochone

shows marks - Identified

by B. T. S.

Assistants

C. J. White

B. T. S. Bartlett

M. W. Wier - Another

Nov. 10 - 1. 13

At NW Cor. Rec. 6 - 136-29 - 2 find

Iron mon. Cur set from large

wood stump - being the sign of the

bearing tree. - Dip. identified by

Ch. Berg

W. Dip. stands $78^{\circ}47' E 53.75$ feet

$8^{\circ}45'$ Var.

At SW Cor. Rec. 32 - 137-29 - we find

Cur. mon. set by Cur - being in sup

Mon. Notes call for - S -

Same $57^{\circ}41/2 E 57$ lbs

N. Pine 20 $72^{\circ}4 W 229$ "

2 find he set the corner from

following - 9° Var.

Burned same of - 6' high - $76^{\circ}4 - 30 E 57$ lbs
37.62

N. P. Dip - badly burned - $72^{\circ}15' W 223$ lbs
147.18

at SE corner 33 - should be
 set correctly from the
 original bearings.

Calcu. m.

Yardage in Burley works

Pit #1 - Burley work

	E	Width	Depth
0+00		30.0	0.0
0+25		30.0	1.6
50		29.5	1.8
100		29.5	2.5
150		28.5	2.1
200		28 1/2	1.8
237		28'	0.0

Mean Pit width $\frac{7(9.8)}{1.4}$

Pit #2 - Width, Depth, Grade, Sides

0+00	33.5	1.0	1.0
25	32	2.14	1.5
50	39	4.8	3.3
75	45'	4.5	2.2
100	33	3.2	0.0
113	31	2.0	0.0

$$\begin{array}{r} 3 \\ 1.3 \\ \hline 24.3 \\ 2.2 \end{array}$$

$$\begin{array}{r} 213.5 \\ \hline 34 \end{array} \quad \begin{array}{r} 17.9 \\ \hline 3 \end{array} \quad \begin{array}{r} 18.0 \\ \hline 11.3 \end{array}$$

Pit # 3 - ~~benzene~~

0-00

Gas only sampled at 25 cu yds.
cannot accurately measure -
getting poor stage

Dec 19-13

Pit # 4

80' long

7 1/2 wide

2' (average) deep at ends

0.0 feet " " " "

Pit # 3

90' long

25 wide

avg 1 3/4' deep

Hurry -
Total Yards

#4	77 cu yds
#3	146 " "
2	313
1	361
	<hr/>
	897

900 cu yds @ \$4 = \$234.00
214.68
19.32

Paid -

June 17th - J. H. Hurley 169.00

Dec. 2nd - C. H. Hurley 24.30

J. H. Hurley 21.38
214.68

Sta. B.S. + H.I. F.S. S.E. T.B. m

4.93 104.93 4.30 100.63 100

4.14 104.77 2.75 102.02

2.43 104.45 3.62 100.83

3.25 104.08

See level of Lake

Date. Dec. 27-13.

John Crossman - 2.

2137-29

Running a straight line from
SE of 32 to SW of 32 and west-
2 find S $\frac{1}{4}$ cor of 31 sets north
15 feet. This puts SW of 32
10 feet north of a line from
SE 32 to S $\frac{1}{4}$ of 31.

This from Baileys SW of 32 to
mon at NW of 6-136-29 (B to C)
is 1548.95'

Cur's rail for south $\frac{1}{4}$ of 31
is 1" south of mine.
Set from Cur and W.P.

From alt. 6.2 north of Cur's line
(Cur's NW 76)

225' from 14 to road

568' from SW 31 to Cur's line

Dec. 30

From cur. mon. - Middleton
Ray - Pine Island
N 21° 27' W 147.35 -

Sta. B.S. H.T. A.S. - S.E. B.M.

3.96 103.96 4.82 99.14 100.0

I.P. 5.19 104.10 4.75 99.21

I.P. 4.94 105.04 4.30 100.10

I.P. 5.05 105.49 4.60 100.44

I.P. 5.05 106.14 4.40 101.09

I.P. 5.25 106.04 5.35 100.79

do 1.705 105.855 1.89 104.15

do 4.815 106.76 4.41 101.445

do 4.89 105.98 5.17 101.09

do 5.27 106.50 4.75 101.23

do 4.735 106.47 4.765 101.735

do 5.85 107.64 4.68 101.79

5.07 106.66 6.05 101.59

2.03 104.63

do 4.88 106.73 4.81 101.85

5.245 107.36 4.615 102.115

3.73 103.63

Reg. White face 8-137-29
and working up

Remarks

#1 ^{west} ~~at~~ ~~the~~ ~~point~~

See at lower bridge

Wouldn't flow but at R. B. bridge

#2 ^{lower} ~~at~~ ~~the~~ ~~point~~
On S. side - Said grain at hand

See at mouth of dam

B.M. #3 ^{on edge of} ~~at~~ ~~the~~ ~~point~~ ~~in~~ ~~the~~ ~~bank~~
from South

10 rods N of bridge

Near Range Line
On bank of river
2 sides near R. line

#4

Bridge #779-

At Sugarloaf Narrows

Monuments taken June 1914

304' long

16' wide

5 dressed joists - 12" x 10"

Bents 16' center to center

Deck - 3" oak planks

Railway 3.5' high (C.R.I.)

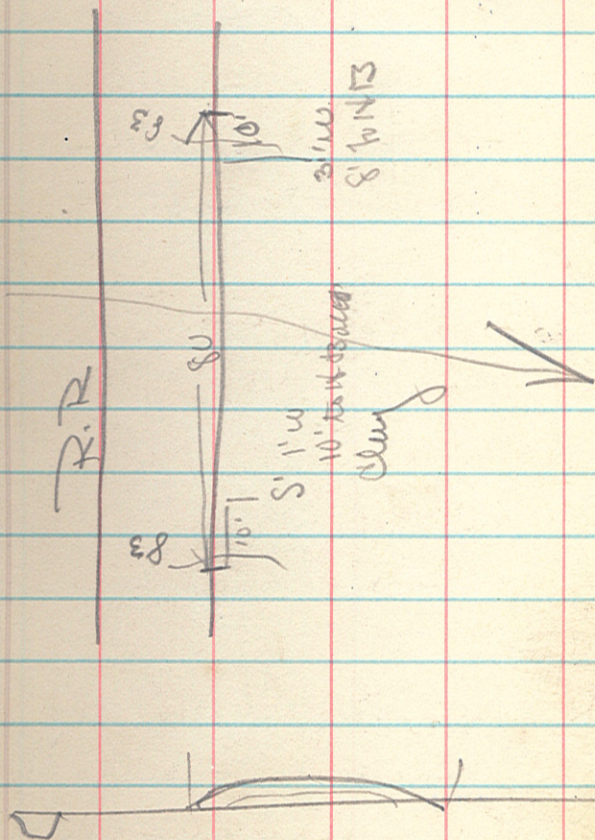
West end 7' clear

East " 4' "

Piles average 11" diam.

Cost \$3600.00

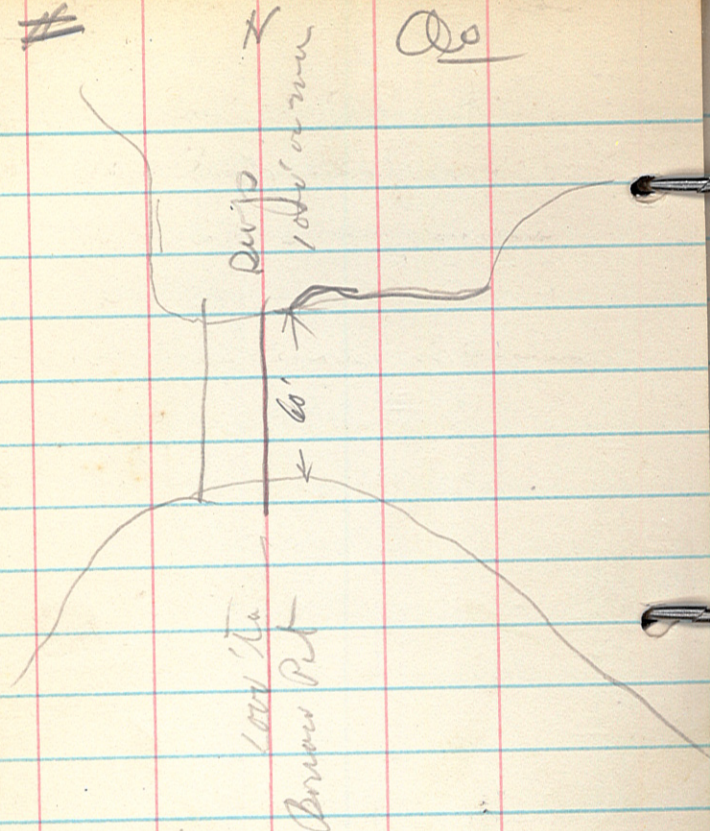
Proposed Budget
Steamboat Service
80 Budget recommended



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N

Qo



Concrete take surrounding many
 being frozen
 R.R. Embankment is about 175' long
 Oregon Trench is 1-1 1/2' higher
 than water. Snow is 2' higher
 Angles with walls about 45°

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Qo 72

Length of east wing wall on
 north side to be about 4' (long)
 Water on stream about 4' deep
 X seen above some 20' above -
 20' below is 10' wide at base

Runway
 Feb. 26-14

Concrete needed in x tube R.R.
grade - high at water thru south

- C-1 - 10" x 18' at Walden Lake
- C-2 18' Dog Lake Squashed
- C-3 16' at Long Lake
- C-4 16' do
- C-5 16' at Band Lake
- ✓ 6 12 x 8" Horse Park
- ✓ 7 12 x 8" 1/2 mile north of Plover
- 8 16' at Old Park
- ✓ 9 12' x 12' at Plover

$$2 \text{ } 10'' \times 18' @ .65 = \$23.40$$

$$4 \text{ } 10'' \times 16' @ .65 = 41.60$$

$$3 \text{ } 8'' \times 12' @ .55 \quad 19.80$$

\$84.80

80

\$67.8400

Pit at Eastern by Plover for
Hudson

70' long
00' ^{at} ^{end} at end

9' Well at B

19' " " Dog

3 1/2' aug in C.

Five River Survey - 5-25-

B.S. + H.I. F.S. - S.E.

1.76 1299.16 1297.4

2.21 1296.21 1294.0

5.05 1292.55 1287.5

C+P = 1.04 TRAVERSE

Sta.	Mag. Btg. Reading	Rod. Reading	Dist.	Date
1-2	S81°45'W.	4.98 3.23	176'	2/21/16.
2-3	N12°00'W	6.15 4.03	213'	
3-4	N10°00'W.	13.00 6.45	656'	
4-5	N63°15'E	13.00 10.70	231'	
5-6	N26°00'E.	13.00 9.65	436'	
6-7	N40°15'E.	13.00 9.95	306'	
7-8	N58°45'E.	13.00 10.70	231'	
8-9	S67°00'E.	13.00 10.80	221'	
9-10	S63°00'E.	13.00 9.30	371'	
10-11	N44°00'E.	13.00 9.80	321'	
	S53°30'E	13.00 8.30	471'	
11-12	N34°30'E	13.00 6.87	614'	
12-13	N21°00'E.	13.00 8.80	421'	
13-14	N39°00'E.	13.00 8.80	421'	
14-15	S66°45'E.	13.00 9.78	323'	
15-16	N51°00'E	13.00 7.70	531'	
16-17	N54°00'E	13.00 10.00	301'	
17-18	N80°45'E	13.00 7.30	571'	

44 (Sust. Level.)
5' high of Jam.
limber on Right.

at Sta. 13+14 put in Spike to use for Base line for "B" Branch traverse.

LINE N^o 1 CO. DITCH # 4

N.P. J.B.C. C & W. 80

1-2 = sec. line continued

Sta. 1 = N-W Cor. 28-138-30

Between 2-3 = small bay on R. about 100' in arc. Swamp is about 75' to 100' to L. in form of " " " 25' " L along this line.

This line is right on edge of swamp.

small point runs across this line about 25' R.

Edge of Swamp. Tamarac Limber on R. along Swamp edge Jam. on R.

Edge of Swamp.

Edge of swamp - Enter open swamp.

Tie Line Sta. 11 on Traverse to Sta. 40 on ditch along edge.

Small bay to L. of Course 12-13 approx 80' back.

across narrow neck thru which "B" Branch runs

along Edge.

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Note: From 13-14 a beaver dam runs // to line + about 50' to L.

Sta.	Mag. Brg.	Rod.	Dist.
18-19	N25°00'E.	13.00 9.22	379
19-20	N29°00'E.	13.00 9.45	356
20-21	N5°00'W.	13.00 10.05	296
1 st Brg.	N44° SW.	13.00 8.15	486
2 nd Brg.	N27° SW.	13.00 7.65	536
3 rd "	N20° SW.	13.00 7.90	511
4 th "	N7° SW.	13.00 8.92	409
5 th "	N1°30'E.	13.00 8.40	461
6 th "	N.	13.00 9.70	331
7 th "	N15°15'E.	13.00 11.30	171
8 th "	N62°45'E.	13.00 10.56	245
2 ¹ Sta. 22	N86°45'E.	13.00 10.28	273
22-23	S11°45'E.	13.00 7.35	566
23-24	S35°45'W.	13.00 10.55	246
24-25	S6°30'W.	13.00 8.20	481
25-26	S47°00'W.	13.00 11.30	171
26-27	S77°15'W.	13.00 10.12	229

along edge on w. side.

Side shots.

There seems to be a low beaver dam across the narrow neck N. of Sta. 21.

N.P. GBC. C.G.W.
2/21/16.

13.00
~~14.3~~
1.70

5.0
~~3.3~~
1.7

along edge. (See note for Sta. 18. on next page.)

Note: → Setting on Sta. 21 I took these bearings up into the bay at end of swamp, the same being the bearing + distances to various points + indentations in the bay, and these points are to be connected on plat before plotting Sta. 22.

Sta. 22 = Sta. 00 on ditch. ^{at edge}
along edge.

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(See Note for Sta. 24 on next page)