BRIDGE SURVEYS

ST. PAUL-ANOKA RD.

From St. Paul

To Anoka

CO. PROJ. NO.

RD. & NO. 93

BRIDGE SURVEY'S
AND
SOUNDING'S.

ST. PAUL - ANOKA

SOUNDINGS

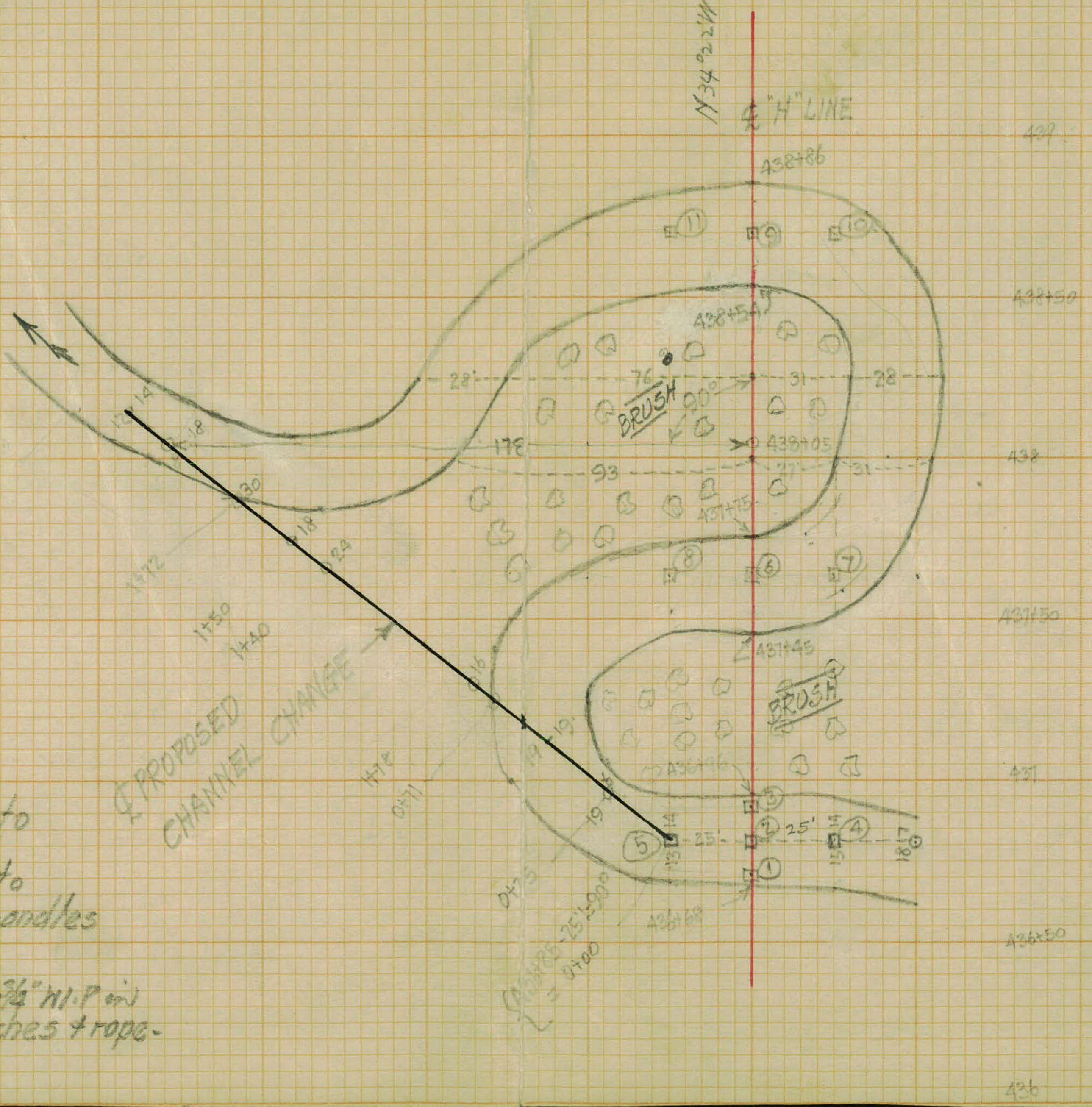
RICE CREEK

NO.	LOCATION	GRD	SOLID BOT.
1	436+73 ℄	4.9	8.3
2	436+83 ℄	5.9	7.7
3	436+93 ℄	4.7	6.5
4	436+83-25'R	5.3	7.8
5	436+83-25'L	4.6	5.8
6	437+64 ℄	4.9	7.2
7	" 25'R	5.0	7.4
8	" 25'L	4.9	7.5
9	438+70 ℄	5.1	7.0
10	" 25'R	5.0	7.2
11	" 25'L	4.8	7.1

ELEV. TOP ICE -970.9

1-19-25

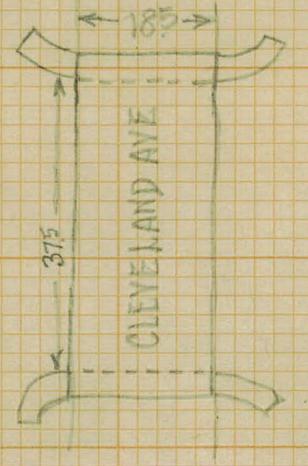
PRB.

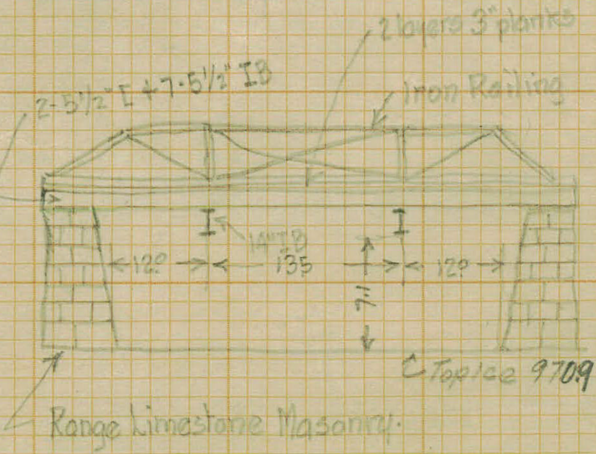


METHOD - Mud bottom determined by pipe coming to rest of own weight.
Solid bottom determind by pipe coming to rest with weight of 2 men hanging by rope handles (Approx 320#)

Equipment - Ice Chisels, Sounding rods of ¾" W.I.P. in 5.0' lengths with couplings, pipe wrenches + rope.

PLAN OF RICE CREEK BRIDGE





RICE CREEK CHANNEL CHANGE
Austin

at 436+83℄ "H" LINE.

X-Sections for Channel Change.
Rice Creek Sta 436+83.

B.M.	4.11	876.84	872.73
0+00	= 25' ht Sta 436+83 @ 90° Δ		866.1
+50			66.8
+71			70.8
0+79			72.1
1+00			72.4
+28			71.6
+50			71.7
+72			71.7
2+00			65.1
+15			65.5

2+00 = 178' left Sta 438+05 @ 90° Δ

"H" line

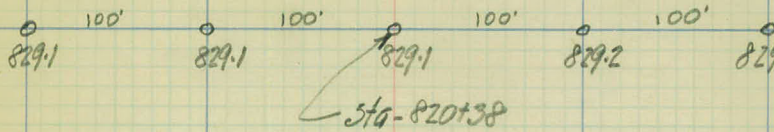
Channel Change

RICE CREEK

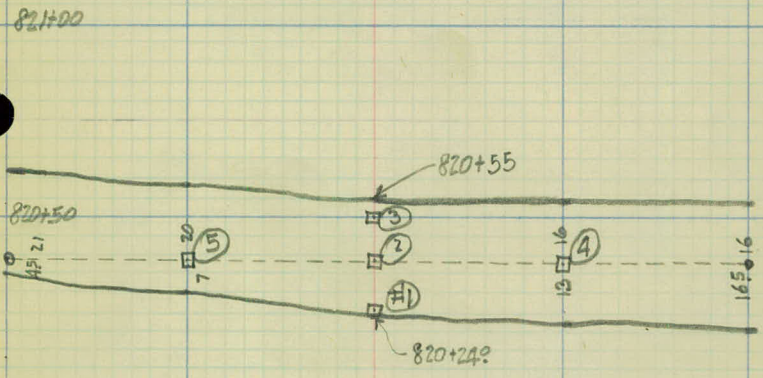
0+00 —	5.0 / 15.0	10.2 / 10.0	10.7	10.0 / 10.0	5.5 / 15.0	
	4.7 / 21.0	9.0 / 15.0	10.6 / 10.0	10.0	9.4 / 10.0	5.9 / 15.0
	4.7 / 15.0	5.0 / 4.0	6.0	10.0 / 10.0	10.0 / 15.0	
		4.9 / 15.0	4.7	4.9 / 10.0	4.7 / 15.0	
	5.7 / 15.0	4.9 / 13.0	4.7 / 8.0	4.4	4.0 / 9.0	4.2 / 15.0
		6.3 / 15.0	6.0 / 10.0	5.9	6.0 / 8.0	5.4 / 15.0
		4.5 / 15.0	4.7 / 8.0	5.1	5.1 / 9.0	5.1 / 15.0
	4.0 / 15.0	4.7 / 12.0	4.4 / 1.0	5.1	6.0 / 1.0	10.0 / 10.0 / 11.1 / 15.0
	3.7 / 15.0	4.0 / 10.0	6.1 / 9.0	11.7	9.6 / 10.0	9.0 / 15.0 / 5.2 / 24.0
		6.1 / 12.0	11.3	6.1 / 12.0		

COON CREEK PROPOSED BRIDGE SITE

T-839.50 ℄-"H" LINE



SOUNDINGS-



Elev Top Ice - 829.1

SOUNDINGS

NO.	LOCATION	TO SOLID BOTTOM - Below Top Ice.
1	820+26 ℄	2.9
2	820+38 ℄	3.6
3	820+50 ℄	1.2
4	820+38-25'R	4.7
5	820+38-25'L	1.9

Solid Gravel Bottom - No Mud

NOTE- Ice - 22" Thick

Material - Mud & Clay bottom.

Equipment Used - 3/4" W.I.P. in 5.0 ft. Lengths.

Top Mud Bottom determined by pipe resting by its own Weight

Solid Clay & Gravel bottom " " " " with Weight of 2 men on rope handles hanging by hand with feet clear of ice and no further penetration. Approx. total Wt - 320#

SOUNDINGS AT LAKE "H" LINE BRICK YARDS BORROW PIT

41'L 19'L 67'L 127'L 61'L 62'L 60'R 99'R 155'R 15'R 86'R 179'R

6.6 11.5 | 5.9 11.6 | 9.7 13.4 | 7.4 10.2 | 5.6 10.0 | 1.0 2.1 | 15.3 16.2 | 14.9 16.1 | 15.4 16.1 | 8.1 10.2 | 7.0 8.9 | 13.5 14.5 | 15.9 17.9 | 11.1 15.8 | 14.8 16.7 | 11.8 12.7 | 10.9 14.3 | 14.6 15.8 | 17.1 19.9 | 13.7 16.6 | 12.9 16.0 | 7.4 10.1 | 5.9 7.0 | 7.9 10.1 | 11.9 13.5 | 16.6 18.9 | 8.4 13.9 | 9.6 13.2 | 11.8 14.6 | 13.1 14.9 | 12.6 13.9 | 3.0 4.4 | 9.5 11.2 | 12.3 13.1 | 10.2 13.8 | 11.6 13.6 | 7.1 8.5 | 11.4 12.7 | 5.2 6.1 | 8.9 10.3 | 5.6 7.0 | 7.3 8.1 | 1.2 2.3 | 5.3 7.2 | 1.6 2.4

NOTE 5.2 - Dist. of Mud Bottom below Top Ice
6.1 - " " Solid " " " "

ELEV. Top Ice - 832.2
1-13-25

LAKE

Shore Line 1-13-25

℄ - "H" LINE

"H" LINE ANOKA SURVEY JAN-13-1925

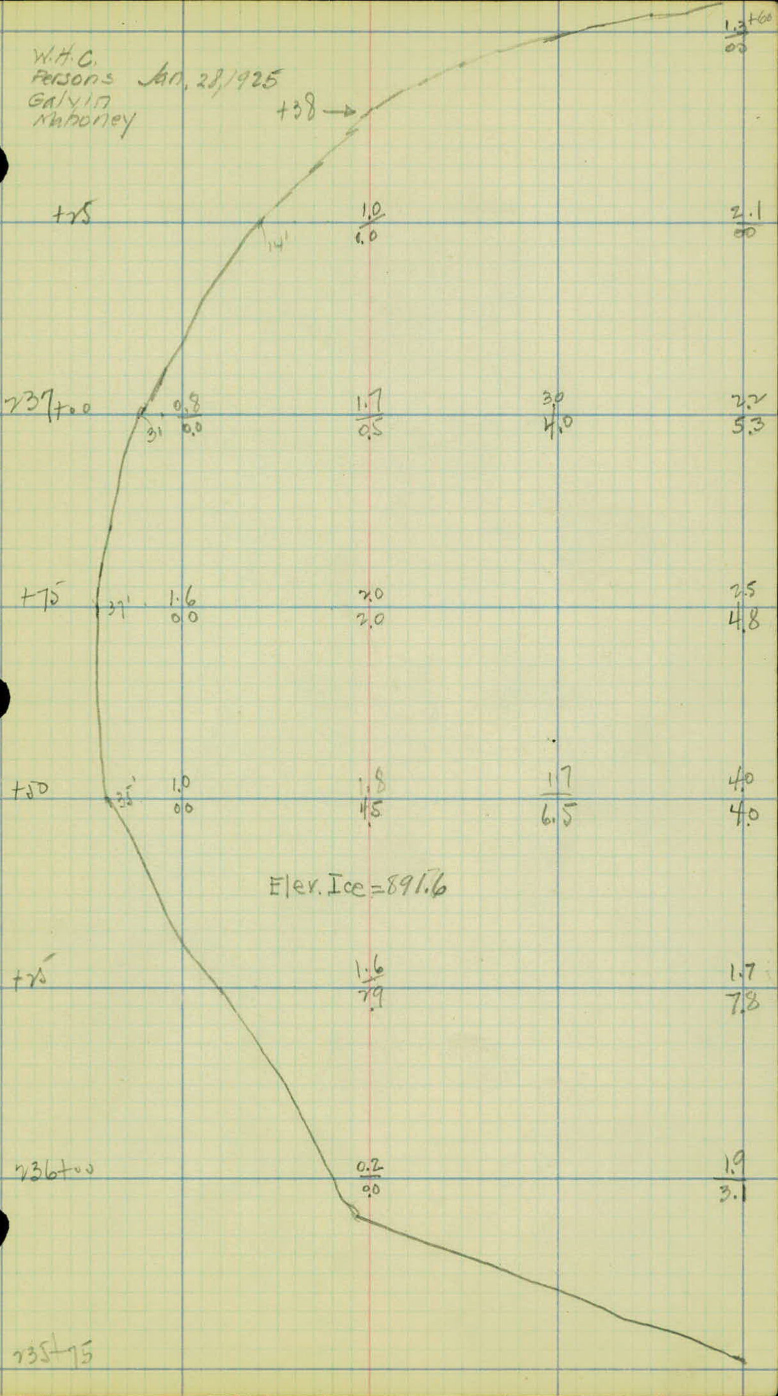
P.R. Banister Asst. Engr.

ST. PAUL - ANOKA LINE

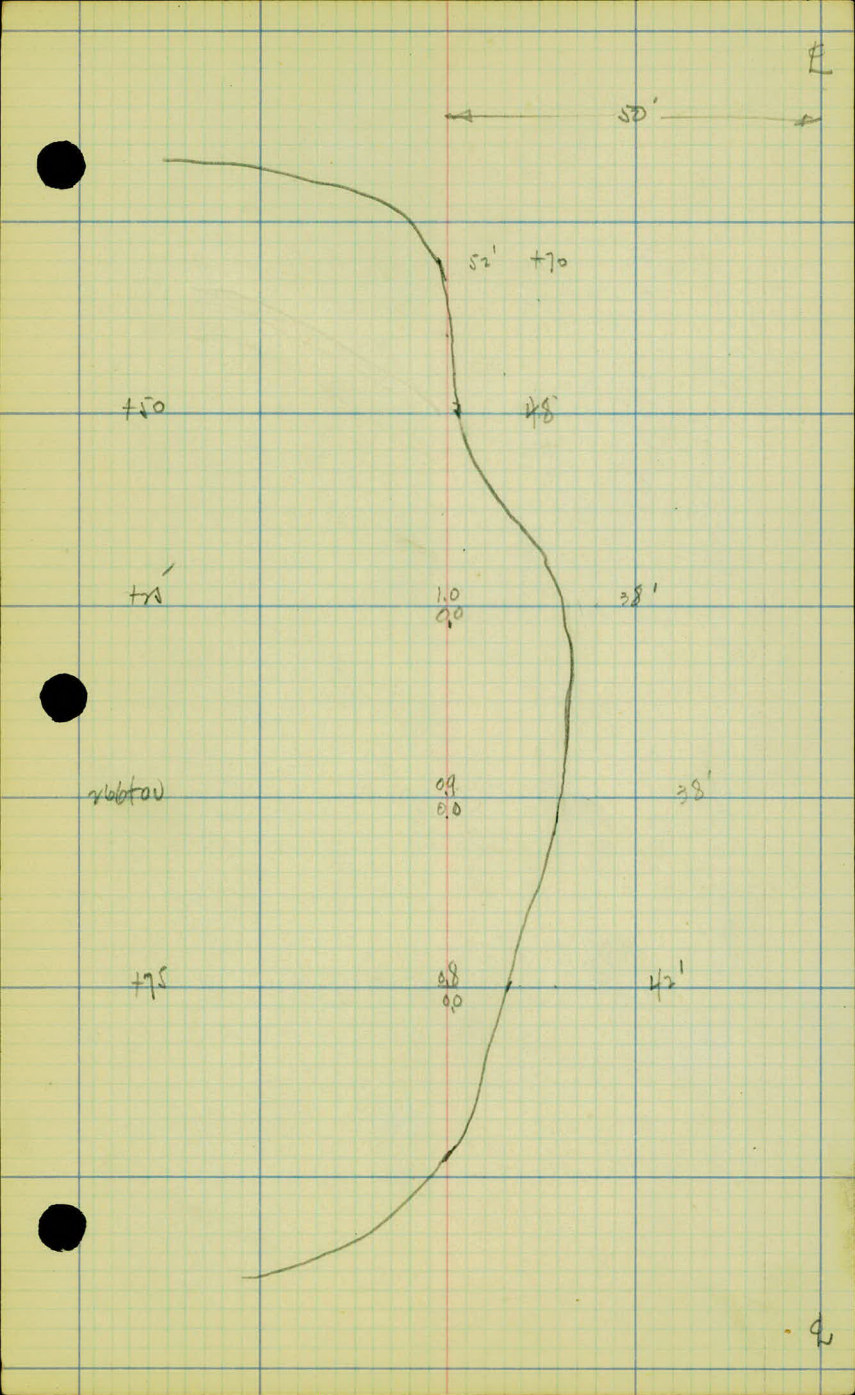
Soundings Sta. 235+75 - 237+25
" " 266+75 - 266+80
" " 291+00 - 294+00

Top Ice Elev. Lake Valentine

soundings Sta. 300+00 - 301+00
" " 305+00 - 307+00
" " 315+00



W.H.C.
Persons Jan. 28, 1925
Galvin
Mahoney
+38 →
+60
1.3/0.0
+25
14'
1.0/1.0
2.1/0.0
237+00
31'
0.8/0.0
1.7/0.5
3.0/4.0
2.2/5.3
+75
37'
1.6/0.0
2.0/2.0
2.5/4.8
+50
35'
1.0/0.0
1.8/4.5
1.7/6.5
4.0/4.0
Elev. Ice = 891.6
+25
1.6/7.9
1.7/7.8
236+00
0.2/0.0
1.9/3.1
235+75

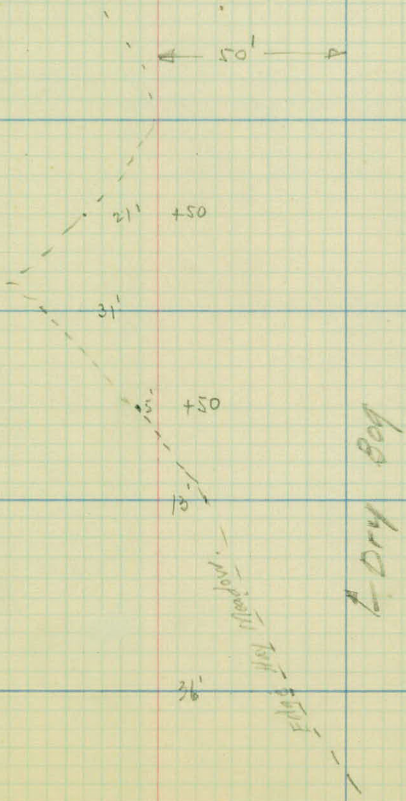

E
50'
52' +70
+50
48'
+45'
1.0
0.0
38'
0.8
0.0
38'
+75
0.8
0.0
42'
N

294

293

292

291


50'
21'
+50
31'
5'
+50
13'
36'
Edge Wet Meadow
Dry Bog

	+	H.I	−	Elev.
B.M.	3.23	885.90		882.67
			9.38	876.52

W.H.C.
Persons
Colvin
Mahoney
Jan. 28, 1925

Elev. Top Ice Lake Valentine
Rt. Sta. 295+50

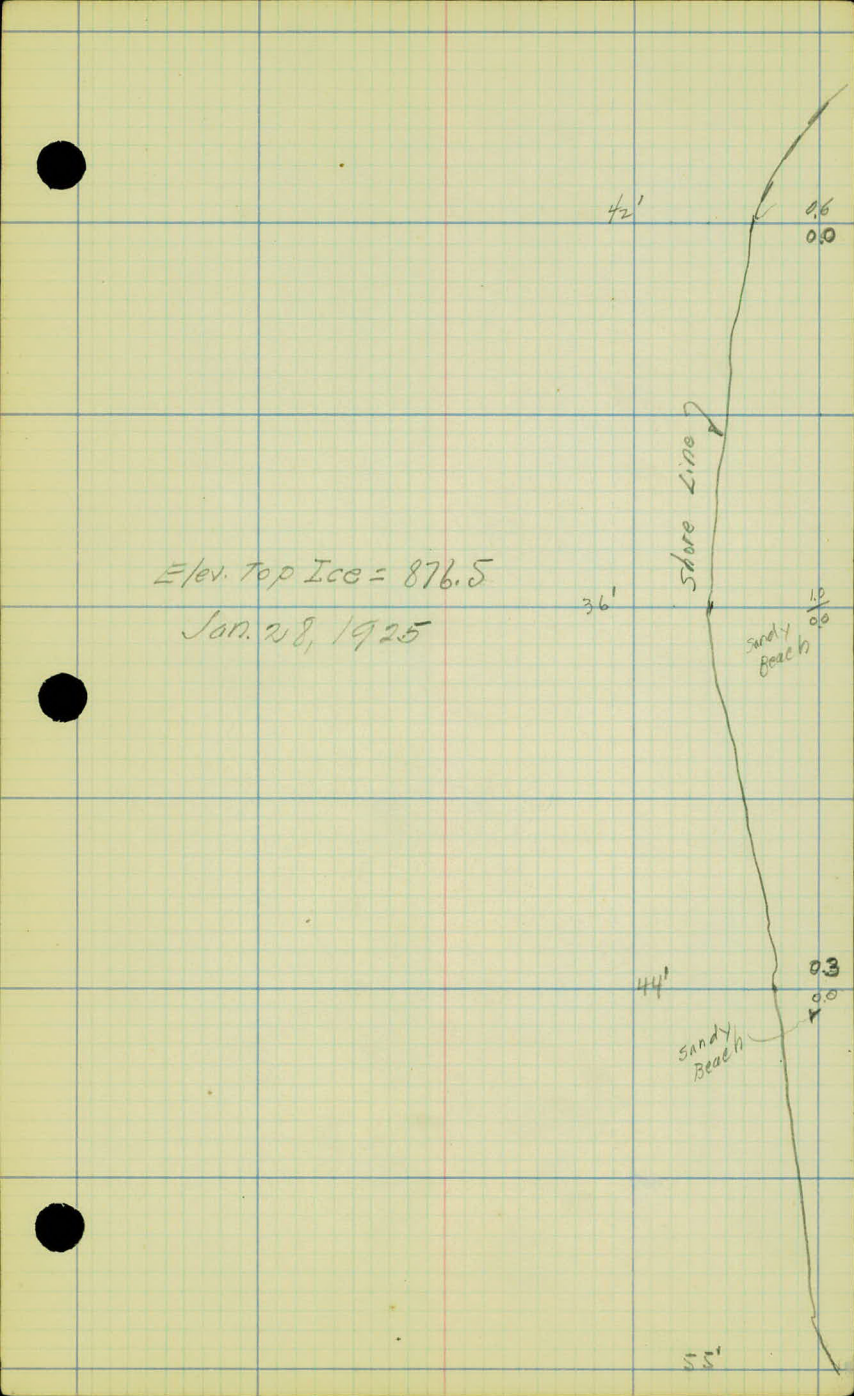
Station 300 & 301
Dry Bog 50' Lt. & Rt.

307+00

306+00

+50

305

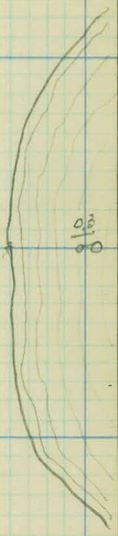

42'
0.6
0.0
Shore Line
Elev. Top Ice = 876.5
Jan. 28, 1925
36'
1.0
0.0
Sandy Beach
44'
0.3
0.0
Sandy Beach
55'

315+50

+30

315+00

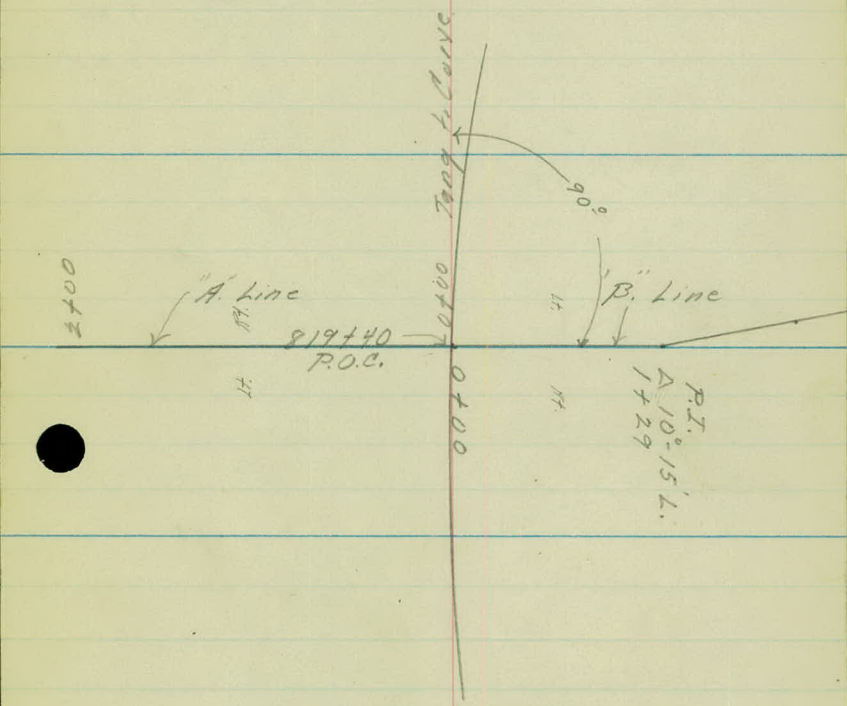
Elev Top Ice = 876.5



Proj. # 46-62

Alignment for Bridge
at Sta. 819+40.

3/26/26


Tang. to Curve
90°
"A" Line
"B" Line
2+00
8+19.40
P.O.C.
0+00
0+00
P.I.
Δ 10°-15' L.
1+29

"A" Line

Art. Topog.

2+00

1+00

0+00

3/27/26

+43 ℄ Creek 50

+14 ℄ Creek.

2+00

+88 Creek 3' L. & 30' R.
+57 Edge of Creek 15' L. & 15' R.

+42 Creek ℄.

+28 Creek 4' & 29' L.

1+00 +00 Creek 7' R. 33' L.

+80 Creek ℄
+80 Creek 33' Lt.

+50 Creek ℄

0

"B" Line
Art. Topog.

+50 Creek 44 R.

6+00 Creek ℄ L. & 37 R.

+70 Creek 6 L. & 37 R.

+32 Creek 10 R. & 35 R.

5+00

+75 Creek 7 R. & 12 L.

+38 Creek 18 R. 26 L.

+02 Creek 15 R. & 36 L.

4+00

+76 Creek ℄ & 46

+70 Creek 7 & 49

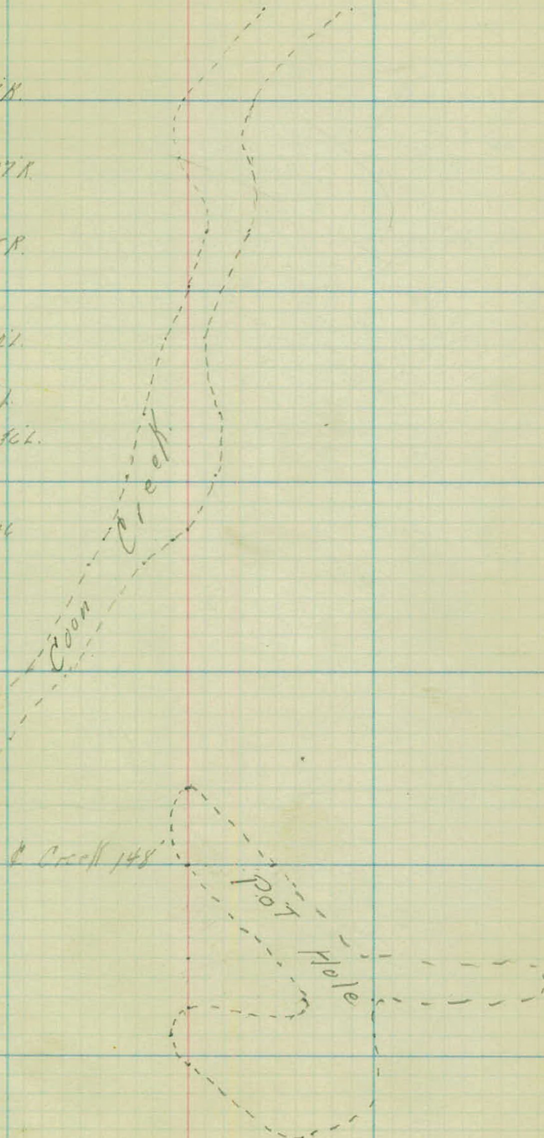
+58 Creek 27 & 58

3+00 ℄ Creek 75

+65 L. Creek 112

+55 Ditch to Lake

2+00 ℄ Creek 148



1+00

Proj. # 26-62

Bridge Survey at Sta. 819+40.

X sections on the "A" Line from Sta 0+00 to Sta 27+43

Sta	−	H.I.	+	Rod	Elev.	
T.P	3.93	859.34		8.55.41		
T.P.	4.20	857.71	5.83	853.51		
T.P.	0.71	846.06	12.36	845.35		
T.P.	2.17	835.92	12.31	833.75		
0+00				4.9	831.0	
0+24				8.3	827.6	
0+41				5.1	830.8	
0+50	Edge of Creek		Top of Water	9.5	826.4	
				11.5	824.4	
0+80	Edge of Creek			9.5	826.4	
				11.2	824.7	
1+00				6.5	829.4	
1+28				7.0	828.9	
1+42	Edge of Creek			10.4	825.5	
1+57	Center of Creek		Top of Water	9.6	826.3	
				11.6	824.3	
2+14	Center of Creek		Top of Water	9.7	826.2	
				10.7	825.2	
2+43						

3/26/24

Rt (Lt)						Lt (Rt)			
		4.9/33	5.9/9		4.9	5.1/3	8.3/10	8.3/33	
	5.3/33	5.7/13	7.9/3		8.3	8.0/7	7.1/20	7.4/27	8.5/33
2.8/33	3.8/14	2.3/13	2.7/9	6.9/3	5.1	4.1/5	6.0/12	10.7/14	11.2/33
	5.6/33	4.8/42	4.2/11	7.7/8	9.5/11.5		9.5/33	11.3/33	
Edge of Creek	9.5/32	10.1/32			11.2	7.2/9	7.2/33		
		11.0/33	11.0/7		6.5	6.2/33			
	11.1/29	11.3/13	10.2/4		7.0	5.9/27	5.9/33		
		11.9/24	11.0/15		10.4	7.3/7	5.9/33		
			11.5/15		9.6/11.6	11.5/15			

Bottom of Creek 11.3/50

X. Sections on the "B" line from Sta. 0+00 to Sta. 6+00.

Sta.	+	H.I.	−	Rod	Elev.
		835.72			
0+22				5.4	830.5
0+44				3.5	832.4
T.P.	6.36	841.22	1.04	834.86	
0+56				2.6	838.6
0+64				2.5	838.7
0+78				7.7	833.5
1+00			Top of Water	11.1	830.1
				12.3	828.9
T.P.	3.41	844.09	4.54	836.68	
1+29				7.5	830.6
1+75				8.7	831.4
2+00	Edge of Pot Hole			10.0	830.1
			Top of Water	10.0	830.1
2+20				13.0	827.1
2+40	Edge of Pot Hole			10.0	830.1
2+55				7.2	832.9 ~~832.9~~

Lt. | Rt.

8.3/33 | 4.8/25 | 5.4 | 5.6/33

Above H.I. | Above H.I.

+0.5/33 | +0.5/28 | 2.1/24 | 2.9/17 | 3.5 | 2.1/15 | +4.6/33

3.9/33 | 2.6 | 1.7/27 | 3.6/33

3.8/33 | 2.5 | 2.1/21 | 10.0/33

3.2/33 | 2.4/22 | 3.6/9 | 7.7 | 11.1/20 | 12.6/33

4.2/33 | 3.9/22 | 8.7/13 | 11.1/12.3 | 13.3/10 | 13.3/33

3.4/30 | 3.4/29 | 9.0/17 | 9.5 | 8.1/33

Top of Water

4.0/38 | 7.0/27 | 8.4/20 | 8.7 | 9.2/14 | 10.0/17 | 11.3/17 | 13.3/33

Top of Water

4.9/37 | 7.3/27 | 7.9/9 | 10.0 | 10.0/20 | 13.0/20

10.0/13.0

5.6/33 | 6.6/27 | 9.0/21 | 10.0/14 | 10.0 | 8.5/23 | 8.3/33

6.8/33 | 6.5/10 | 7.2 | 7.7/18 | 8.3/33

Sta.	+	H.I.	−	Rod.	Elev
		840.09			
3+00				8.6	831.5
	1.42	836.14	5.37	834.72	
3+58				4.7	831.4
3+70				4.8	831.3
3+74	F/go of Creek		Top of Water	9.3	26.8
3+88				8.9	827.2
4+02				9.9	826.2
				9.3	
			Top of Water	8.4	827.7
4+50				9.7	826.4
5+00					
6+00					
T.P.	13.04	848.43	0.75	835.39	
T.P.	12.09	859.39	1.13	847.30	
B.M.			3.95	855.44	855.41

3/27/62

7.7 8.0 8.4
33 14 8.6 33

9.4 8.9 10.1 9.4 6.3 5.1 3.3 3.5
58 41 41 27 25 20 4.7 22 33

Top of Water

9.6 9.7 8.9 10.1 10.8 9.6 6.8 3.3 3.8
49 38 31 31 21 9 7 4.8 17 33

Edge of Creek

Top of Water

9.3 9.4 8.9 10.5 10.3 6.3 4.1 3.4
44 34 20 20 10 9.3 4 10 33

Edge of Creek

Edge of Creek

9.4 9.2 9.2 8.9 9.6 6.2 5.7 2.0 1.0
36 22 10 7.3 15 18 20 28 33

Top of Water

Bottom of Creek

8.3 10.1
11 11

Top of Water

Bottom of Creek

5.3 8.9
20 20

Spk. in Stump Rt. Sta. 815+60

Proj. #26-62

Soundings for Bridge

at Sta. 819 + 40.

Sounding #1 On ℄ at Sta 819+00.

831.6 = Elev. of Ground. Red. Clay

828.6 = Driven With 5 lb mall. Red. Clay.

0.03 = Penetration

Sounding # 2 20 Lt. Sta. 819+00.

831.2 = Elev. of Ground

828.2 = Driven With 5 lb mall Red Clay

0.03 = Penetration

Sounding #3 20 Rt. Sta. 819+00

832.0 = Elev. of Ground.

828.0 = Driven With 5 lb mall Red Clay

0.03 = Penetration

Sounding #4 On ℄ at Sta. 819+20

830.4 = Elev. of Ground

826.9 Driven With 5 lb mall Red Clay

0.03 = Penetration

Sounding #5 20 Rt Sta. 819+20

830.5 = Elev. of Ground.

827.0 = Driven With 5 lb mall Red Clay

0.03 = Penetration

3/29/26

Sounding #6 40' Rt. Sta. 819+20

833.8 = Elev of Ground

829.8 = Driven With 5 lb mall Red Clay

0.03 = Penetration

Sounding #7 30' Lt. Sta. 819+20

830.3 = Elev. of Ground

827.3 = Driven With 5 lb mall Red. Clay.

0.04 = Penetration

Sounding #8 40' Lt. Sta. 819+20

832.1 = Elev of Ground

828.1 = Driven With 5 lb mall Red Clay

0.03 = Penetration

Sounding #9 On ℄ of Sta. 819+40

831.0 = Elev. of Ground

827.5 = Driven With 5 lb mall Red Clay

0.03 = Penetration

Sounding #10 30' Rt. Sta. 819+40

830.5 = Elev. of Ground

827.2 = Driven With 5 lb mall Red Clay

0.03 = Penetration

3/29/26

Sounding #11 40' Rt. Sta 819+40.

831.5 = Elev. Ground
828.1 = Driven. With 5/lb mall Red Clay
0.03 = Penetration.

Sounding #12 20' Lt. Sta. 817+40
827.7 = Elev. Ground
819.7 = Weight of one man.
818.5 = Driven With 5 lb mall Red Clay
0.03 = Penetration
Sounding #13 40' Lt. Sta. 819+40
830.8 = Elev. Ground
822.9 = Driven With 5 lb mall
0.02 = Penetration

Sounding #14 On ℄ at Sta. 819+60
827.6 = Elev. Ground
821.0 = Weight of one man
820.0 = Driven With 5 lb mall. Red Clay
0.03 = Penetration.
Sounding #15 20' Lt. Sta. 819+60
828.5 = Elev. Ground
820.8 = Weight of one man
819.3 = Driven With 5 lb mall Red Clay.
0.03 = Penetration

5/29/20

Sounding #16 40' Lt. Sta 819+60

825.1 = Ground Elev.
820.1 = Driven with 5# mall Red Clay
.04 = Penetration

Sounding #17 20' Rt. Sta. 819+60
831.3 = Ground Elev
827.3 = Driven With 5 lb mall
0.03 = Penetration

Sounding #18 40' Rt. Sta 819+60
831.5 = Ground Elev
827.5 = Driven With 5 lb mall Red Clay
0.03 = Penetration

Sounding #19 On Q at Sta. 819+80
827.5 = Ground Elev.
821.5 = Weight of one man
820.5 = Driven with 5 lb mall Red Clay
0.04 = Penetration.

Sounding #20 & 21 - 20' Lt. & 20' Rt. Sta. 819+80
827.5 = Ground Elev. 20 & 21
821.5 = Weight of one man
819.5 = Driven With 5 lb mall Red Clay
0.03 = Penetration.

3/29/26

Proj' #26-62
Soundings at Sta. 245+00
to Sta, 267+00.

2/19/26

Note - In all cases when bar was driven into the more solid ground either blue clay or sand & gravel was reached.

265+50

Depth of water
Weight of one man
Driven by 5# maul
Penetration

265+75

266+00

LT.		℄	RT.
50'	25'		18'
2.5'	1.5'	—	—
2.9'	3'	2.9'	3'
3.2'	2.7'	2'	3.5
.03'	.03'	.02'	

1.9'
2.4'
3.2'
.05'

50	25		25
2.8'	3.5'	2.2'	—
5.9'	4.5'	1.8'	2'
2.1'	4.7'	8.7'	2.5'
.02'	.03'	.05'	.01

2/19/26

266+25

266+50

266+75

267+00 At ℄, 25'+30' RT, 25' LT. there is about 4' of black top soil, then struck a firm mixture of clay & gravel

LT.	℄	RT.
	1.4'	
	3.4'	
	.8'	
	.02'	

50'	35'		25'
1.7'	1.7'	1.2'	———
7'	7.3'	8'	2.5'
2.1'	1.8'	1.8'	1.8'
.03'	.02'	.23'	.02'

	.8'
	1.3'
	3.4'
	.02'

Proj. #26-62

Soundings at the South End of Valentine Lake.

Sounding #1 at Sta 292 on ℄

Sounding #2 - 25 Rt. Sta 292

Sounding #3 at Sta 292+50 on ℄

Sounding #4 at 25' Lt. Sta 292+50

Sounding #5 at 25' Rt. Sta 292+50

3/2/26

Elev.

877.5 = Ground Elev

5' 874.0 Weight of one man.

1' 868.0 Driven with 6 lb mall

0.08 Penetration with 6 lb mall

876.9 = Ground Elev

17' 859.9 Weight of one man

1' 857.9 Driven With 6 lb mall

0.04 Penetration With 6 lb mall Blue Clay

776.8 = Ground Elev

17' 859.8 Weight of one man.

1' 857.8 Driven with 6 lb mall. Blue Clay

0.04 Penetration.

876.9 Ground Elev.

17' 859.9 Weight of one man.

1' 857.9 Driven With 6 lb mall Blue Clay

0.04

876.1 Ground Elev.

18' 858.1 Weight of one man

1' 856.1 Driven With 6 lb mall Blue Clay.

0.07 Penetration

Sounding at Sta. 291+75 on ℄.

Sounding at 25' Lt. Sta. 291+75

Sounding at 25' Rt. Sta. 291+75

Sounding at Sta. 291+50 on ℄.

Sounding at 25' Rt. Sta. 291+50

Sounding at 25' Lt. Sta. 291+50

877.7 = Ground Elev.

9 = Weight of one man.

2 = Driven with 16 lb. mall.

0.04 Penetration With 16 lb mall.

878.4 = Ground Elev.

5 = Weight of One Man.

2' = Driven With 16 lb mall

0.04 = Penetration With 16 lb mall

877.7 = Ground Elev.

15 = Weight of one man. Through Muck

2 = Driven With 16 lb mall.

0.04 = Penetration 16 lb mall.

878.1 = Ground Elev.

2' = Weight of one man.

2' = Driven With 16 lb mall

879.5 = Ground Elev.

12' = Weight of One man mud,

2' = Driven With 16 lb mall Blue Clay.

0.04 = Penetration With 16 lb mall

878.2 Ground Elev.

1 5/8 Weight of one man Pamps muck

2 Driven With 16 lb mall

Soundings at 25' Rt. Sta. 291+00

Soundings at Sta 293+00 on ℄

Soundings at 50' Rt. Sta. 293+00

Soundings at 50' Lt. Sta. 293+00

877.5 = Ground Elev.

5 = Weight of one man

0.03 = Penetration With 16 lb mall

877.1 = Ground Elev

21 = Weight of one man

2' = Driven With 16 lb mall

0.04 = Penetration

876.5 = Ground Elev

31 = Weight of one man

4 = Driven With 16 mall Blue Clay

0.02 = Penetration With 16 lb mall 2' Drop

877.4 = Ground Elev

10 = Weight of one man

2 = Driven With 16 / lb mall

0.02 = Pene tration

Sounding at Sta. 293+50 on Q.

Sounding at 25 Ft. Sta. 293+50

Sounding at 25 Ft. Sta. 293+50

Sounding at Sta. 294+00 on Q.

sounding at 25' Ft. Sta. 294+00

Sounding at 25' Ft. Sta. 294+00

877.0 = Ground Elev.
20 = Weight of One man
2' = Driven With 16 lb mall
0.05 = Penetration With 16 lb mall.

876.9 = Ground Elev.
13 = Weight of one man
9' = Driven With 16 lb mall Blue Clay
0.02 = Penetration

876.7 = Ground Elev.
23 = Weight of one man Through Muck

877.7 = Ground Elev.
11 = Weight of one man
9' = Driven With 16 lb mall = Blue Clay.
0.04 = Penetration With 16 lb mall

877.7 = Ground Elev.
9' = Weight of one man
9' = Driven With 16 lb mall
0.04 = Penetration With 16 lb mall

877.0 = Ground Elev.
14 = Weight of one man
7' = Driven With 16 lb mall Blue Clay
0.07 = Penetration

Sounding at 294+50 on ℄ 879.2

Sounding at 25 Ft. Sta. 294+50.

Sounding at Sta. 299+00 on ℄. Sand 4" Down

Sounding at Sta. 299+50 on ℄.

Sounding at Sta. 300+00 on ℄.

Sounding at Sta. 300+50 on ℄

Sounding at Sta. 301+00 on ℄. Sand 4" Down

6" Down Sand.

878.9 = Ground Elev.
6" = Fine Sand.

Ground Elev.
4 Weight of one man
3 Driven With 10 lb Hammer Sandy Clay

Ground Elev.
6 Weight of one man. Rock & Clay
7 Driven Blue Clay
0.05 = Penetration
= Ground Elev

9' = Weight of one man Rock.
7' = Driven With 10 lb Hammer Sand at this Elev.
0.05' = Penetration