73

FIELD BOOK

360

NO. 173

KEUFFEL & ESSER CO.

DRAWING MATERIALS
AND
SURVEYING INSTRUMENTS.
NEW YORK.

CHICAGO. ST. LOUIS. SAN FRANCISCO. MONTREAL.

TABLES FOR EXCAVATIONS AND EMBANKMENTS.

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.
ROADWAY 18 FEET WIDE. SIDE SLOPES 1 TO 1.
FOR SINGLE TRACK EXCAVATION.

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	0
1	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	1
2	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	2
3	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	3
4	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	4
5	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	5
6	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	6
7	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	7
8	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	8
9	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	9
10	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	10
11	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	11
12	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	12
13	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	13
14	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	14
15	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	15
16	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	16
17	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	17
18	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	18
19	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	19
20	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	20
21	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	21
22	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	31.9	22
23	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	23
24	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	24
25	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	25
26	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	26
27	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	36.9	27
28	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	37.9	28
29	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9	29
30	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	30
31	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	40.9	31
32	41.0	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8	41.9	32
33	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	42.9	33
34	43.0	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8	43.9	34
35	44.0	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8	44.9	35
36	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	45.9	36

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

For Keith's Railroad Curve Tabels see end of book.

43
21
6.4

298
303+70

cut out stake = Sta 288 R.

INDEX

S.A.R. N°8

Sta	+S	HI	-S	GR.	Grade
1					10.5
3					9.7
4					9.5
5					9.5
6					9.8
7					10.8
8					12.0
9					14.0
10					16.0
11					17.6
12					18.3
PC 12+77.1					18.6
T.P. 13	6.6	20.4		5.0 5.3 5.6	18.7
14				4.9 5.7 5.5	18.8
15				5.0 5.3 5.6	18.7
16				5.4 5.7 6.0	18.3
17				5.7 6.0 6.3	18.0
18				6.0 6.3 6.6	17.7
19					
T.P.	3.07	20.43	6.68	13.36 6.7	17.3
20				.34	17.0
+60				3.6	16.8
					16.7

L	℄	R
33 L 16+00		
17.44	5.7	
	5.1 5.7	6.5
	4.7 5.4	5.8
	5.0 5.6	5.8
	5.4 6.0	6.5
	6.6 6.6	6.9
down .5	6.8 7.2	7.3
.5	3.9 4.0	4.0
.6	4.7 4.5	4.6

Sta	+S	H.I.	-S		Grade
		20.43			
21				3.7	16.7
22				4.1	16.3
23				4.4	16.0
24				4.8	15.6
25				5.3	15.1
T.P.	3.32	18.45	5.30	15.13	
26				3.8	14.7
27			5.06	(.06) 4.3 13 13.43	14.2
28				4.7	13.8
28+54					13.6
29				5.1	13.4
30				5.6	12.9
30+37.6				5.8	12.7
31				6.0	12.5
32				6.5	12.0
PC. 32+38.0				6.5 (4.4)	12.0
	3.07	16.50		13 13.43	
33				4.5	12.0
34				4.5	12.0
35				4.5	12.0
T.P.	3.25	15.25	4.50	12.00	
36				3.3	12.0
37				3.8	11.5
PT 37+68.0 = 1st 41+63.8				4.1	11.2

	L	℄	R
down 6.5	5.2	4.6 (4.9)	4.6
" 6.0	5.0	4.6 (4.5)	4.7
" 5.0	4.9	4.7 (4.3)	5.0
	5.1	5.1	5.1
	5.9	5.5	5.3
	4.0	4.1	4.2
Sta 27+5 R	4.1	4.3	4.2
	4.4	4.5	4.6
	5.6	5.3	5.4
	5.9	5.9	5.3
	6.0	6.0	6.0
	6.2	6.2	6.3
	6.9	6.6	6.6
	7.3	6.5	6.4
	4.7	4.8	4.0
	4.9	4.9	4.7
℄ BT. 35	5.1	4.9	4.8
	3.8	3.8	3.6
	3.1	3.7	3.9
	4.1	4.2	4.5

Sta	+S	H.I.	−S	GR.	Grade		L	℄	R
		15.25							
42				4.3	11.0		4.2	4.5	4.9
43				4.8	10.5		4.9	4.9	5.0
44				5.3	10.0	(5.2)	4.9	4.7	4.8
45				5.3	10.0	(5.0)	4.5	4.8	4.7
46				5.3	10.0	(4.7)	4.3	4.6	4.5
47				5.3	10.0	(4.6)	4.3	4.5	4.4
+50	4.38	15.09	4.54	10.71		4-54 E.S. 4.7 +50 (5.1) [4.8]	4.8	4.7	4.6
48				5.1	10.0	4.4	4.7	4.5	4.4
49				5.1	10.0	4.4	4.7	4.5	4.4
50				5.1	10.0	(4.8)	4.9	5.0	4.2
				1319.32		B.M. [illegible] T.P. 52+50			
51				5.1	10.0		5.2	5.1	5.6
PC 51+46.5				− 4.8 4.9 + 5.0	10.2		5.1	5.0	5.8
52				4.5 4.6 4.7	10.5		4.9	4.5	4.8
+50				4.2 4.3 4.4	10.8		4.5	4.4	4.4
53				4.0 4.1 4.2	11.0		4.3	4.1	4.5
+50				3.7 3.8 3.9	11.3		3.6	3.9	5.9
54				3.5 3.6 3.7	11.5		3.9	3.7	3.6
+50				3.5 3.6 3.7	11.5		3.4	3.6	3.7
55				3.6 3.7 3.8	11.4		3.4	3.6	3.8
+50					11.4		3.6	4.0	4.0
56				3.7 3.8 3.9	11.3		3.5	3.9	4.0
+50				3.7 3.8 3.9	11.3		4.0	3.8	4.0
57				3.8 3.9 4.0	11.2		4.1	4.1	4.4
PT. +58.1				3.9 40.41	11.1		4.1	4.3	4.7

2° Curve

TP	4.90	15.72		13+0.87	
58				4.6	11.1
59				4.7	11.0
60				4.7	11.0
61				4.7	11.0
62				4.7	11.0
63				4.7	11.0
64				4.7	11.0
TP	4.89	15.91	4.70	11.02	
65				4.9	11.0
			5.04	13 10.29 (87)	
66				4.9	11.0
67				4.9	11.0
68				4.9	11.0
69				4.9	11.0
70				4.6	11.3
P.C. +89.7	2.62	22.35		13 19.73	
				10.4 10.2 10.0	12.7
71				12.3 10.1 9.9	12.3
72				9.1 8.9 8.7	13.5
73				8.1 7.9 7.7	14.5
74				7.5 7.3 7.1	15.1
75				7.2 7.2 7.0	15.7
76				7.7 7.5 7.3	12.9
				13 19.73	
	3.34	17.99	7.70	14.65	

	L	℄	R
Spin stump Stake			
	5.2	5.2	5.4
	5.3	5.3	5.2
	4.6	5.0	5.1
(4.6)	4.9	4.9	4.7
	4.9	5.0	5.0
	5.4	5.5	5.5
	5.5	5.0	5.2
	5.2	5.4	5.3
RC 76+00. 8' SPK Spike	4.8	4.9	5.0
	4.8	5.1	5.0
(4.8)	5.1	4.8	4.9
(4.8)	4.6	4.8	5.1
(4.5)	5.0	4.9	5.3
76+00 · 33'L	10.9	10.7	10.5
	10.6	10.0	10.2
	9.2	8.7	8.9
	8.3	7.7	7.9
Eg. r.p. (7.3)	8.6	7.6	8.2
	7.5	7.4	7.5
	7.9	7.8	7.6
BM 76+00 33'L			
LSH Sta 76.			

Sta	+S	HI	-S	GR	Grade
		17.99			
				+ −	
77				3.9 3.7 3.5	14.3
78				4.5 4.3 4.1	13.7
79				5.1 4.9 4.7	13.1
80				5.6 5.4 5.4	12.6
81				6.2 6.0 5.8	12.0
82				6.2 6.0 5.8	12.0
83				6.2 6.0 5.8	12.0
T.P.	5.00	17.22	5.77	12.22	
84				5.3 5.1 4.9	12.0
85				5.2 5.0 4.8	12.0
86				5.2 5.0 4.8	12.0
	5.70	16.04	6.78	10.34	
87				5.2 5.0 4.8	12.0
	5.70	16.04			
88					12.0
P.T. 406.8					12.0
95				4.0 (3.9)	12.0
96				4.0 (3.9)	12.0
97				4.0 (3.9)	12.0
98				4.0 (3.9)	12.0
99				4.0 (3.9)	12.0
100				4.0	12.0
T.P.	5.18	17.21	4.01	12.03	
101				5.2	12.0
102				5.2	12.0

6-22-23

	L	℄	R		
77+0	3.7	3.4	3.2		
	4.2	3.9	3.9		
	5.2	4.8	4.8		
	6.2	5.6	5.7		
	6.3	6.5	6.0		
	6.2	6.4	6.0		
	6.3	6.4	6.0		
.154	5.6	5.4	5.3		
.154	5.2	5.2	4.8		
?.31	5.5	5.3	5.0		
87+00 R. 33' 6.0 spike 1sh.	5.3	5.4	4.9		
	4.8	4.6	4.3		
	4.4	4.7	4.3		
	4.2	4.2	3.9		
	4.5	4.4	4.3		
	4.7	4.2	4.4		
	5.0	4.6	5.1	.3hi	.4hi
	5.8	5.2	5.9		
	5.6	5.8	5.8		

Sta	+S	H.I.	-S	G.R.	Grade		L	℄	R	
		17.21								
103				5.2 (5.1)	17.0		5.3	5.8	5.1	
104				5.2	17.0		5.3	6.0	6.2	
105				(5.1) 5.2	17.0		5.2	4.9	5.1	
106				5.2 5.1	17.0		5.0	5.3	5.4	
107				5.2 5.1	17.0		4.9	5.1	5.1	
108				4.9 4.8	17.3		4.6	4.4	4.4	
	4.24		1.48	15.19		109+60 33' L 8" m.p.				
109		19.43		4.2	13.0		4.3	4.0	3.9	
110				5.4	14.0		5.5	5.3	5.6	
111				4.4	15.0		4.8	4.5	4.6	
112				3.8	15.6		4.9	4.4	4.4	
113				3.9	15.5	(3.7)	4.5	4.3	4.3	
T.P.	3.75	18.44	4.74	14.67						
114				3.4	15.0		4.4	3.9	4.1	
115				3.9	14.5		4.0	4.0	4.4	
116				4.4	14.0		4.2	4.2	4.8	
117				4.9	13.5		4.8	4.7	4.7	
118				5.4	13.0		5.2	5.2	5.4	
119				5.9	12.5		6.2	5.5	5.7	
120				6.4	12.0	.3 hi	6.5	6.3	6.1	2 h.
T.P.	4.48	16.99	5.93	12.51						
121				5.0	12.0		5.1	5.3	4.9	
122				6.0	12.0	.3 m	4.7	5.0	4.9	

Sta		H.I.				Grade	L	℄	R
		16.99							
173					5.0	12.0	5.2	5.0	5.2
174					5.0 (4.9)	12.0	4.9	5.0	5.0
175					4.9	12.0	5.1	5.0	5.0
176					4.9	12.0	4.8	5.1	5.3
177					4.[illegible]	12.0	4.7	5.3	5.2
178					4.9	12.0	5.0	5.1	5.1
T.P.	3.64	16.55	4.08						
129				46	4.5	12.0	4.5	4.5	3.8
130					4.3	12.0	4.6	4.6	5.0
131					4.5	12.0	4.1	4.1	4.3
132					4.5	12.0	4.4	4.3	4.3
133					4.5	12.0	4.8	4.7	4.6
134					4.3	12.0	4.4	4.5	4.3
135					4.5	12.0	4.7	4.6	4.3
P.C. 1320	7.34	19.41	4.48	12.07	4.5		4.4	4.6	4.6
136						12.0			
137						12.0			
	3.64	18.46	4.57			1314.82	Ry Sb 12 NP 95 L Sta 138		

Sta	Rod	Grade
135+52.0	6.5	12.0
+50	6.5	12.0
136	6.5	12.0
+50	6.5	12.1
137	6.2	12.3
+50	5.8	12.7
138	5.2	13.3
+50	4.6	13.9
139	3.9	14.6
+50		
140		

			℄			
		6.7	6.5	6.4		
	8.6	6.4	6.5	6.5	5.6	
	8.7	6.6	6.5	6.5	5.5	
	8.4	6.6	6.7	6.1	5.5	
	7.9	6.1	5.6	5.6	7.8	
7.5	7.5	5.3	5.4	5.6	7.4	7.7
7.0	6.5	4.8	4.7	4.0	6.9	7.5
	6.6	4.5	4.5	4.5	6.6	7.3
	5.8	3.9	4.1	[illegible]	6.0	

		HI			
		18.46			
140+33.7 P.C.				3.5	15.0
141				2.7	15.8
142				1.4	17.1
T.P. 143	8.80	25.85	1.41	1705 7.5	18.4
144				6.7	19.7
145				6.7	20.7
146				6.9	21.0
147				6.9	21.0
148				6.9	21.0
149				6.9	21.0
150				6.9	21.0
151				6.9	21.0
T.P. 152	6.97	> 25.85	6.88	20.97	21.0
			6.91	Bm. 5.0	
153				5.0	21.0
154	6.91 5.94	25.99 25.02		5.0 19.05	21.0
155				4.0	21.0
156				4.0	21.0
					1319.08
157				4.0	21.0
158				4.0	21.0
159				4.2	20.8
160				4.8	20.2

L	℄	R		
6.2	3.7	3.7	3.9	5.9
	2.6	2.8	3.1	5.3
	1.5	1.0	1.0	
	7.3	7.3	7.2	9.2
8.3	6.5	6.0	6.2	7.9
7.0	5.0	5.0	5.0	6.8 .4 mi.
4.7	4.7	4.7	4.7	6.6 .3
7.2	5.1	5.3	5.6	7.4
	5.4	5.3	5.5	RD, 5 to.
	4.6	4.9	4.9	
	4.5	4.5	4.5	6.3 .6 mi.
	4.6	4.8	4.7	
	5.1	5.0	4.7	
7.1	4.2	4.2	4.5	4.7
	4.5	4.7	5.0	
	4.7	4.2	4.2	
6.6	4.2	4.1	4.1	4.7
154+80-36" W.P. 17 L				
	4.5	4.3	4.1	
	4.1	4.1	4.3	
6.3	4.7	4.7	4.3	4.3
	4.6	4.9	4.9	

		HI				
		25.02				
161					5.8	19.2
162					6.9	18.1
163					8.1	16.9
TP. 164	1.38	16.30	8.10	14.92	5.6	15.7
165					3.8	14.5
166					4.9	13.4
167					6.1	12.2
P.C. 168 +12.2 +50 (11.6)	6.6 6.7 6.6					12.0
					6.1 6.0 5.9	11.3
+50					6.5 6.4 6.3	11.1
169					6.8 6.7 6.6	11.0
+50					6.8 6.7 6.6	11.0
170	4.64	16.25	6.69	11.61	6.9 6.8 6.7	11.0
+50					5.1 5.0 4.8	
171					5.1 5.0 4.9	11.0
					5.1 5.0 4.6	
172					5.1 5.0 4.85	11.0
					5.3 5.2 5.1	
173					5.3 5.2 5.1	11.0
					5.3 5.2 5.1	
174					5.3 5.2 5.0	11.0
					5.3 5.1 5.0	
175					5.0 4.9 4.8	11.0
175+50	5.14	15.60	5.81	(10.14)	4.6 4.5 4.4	
					3.9 3.6 3.5	11.0
176					3.7 3.6 3.5	
177					3.7 3.6 3.5	11.0
178					4.3 4.2 4.1	11.0
179					4.5 4.6 4.5	11.0
180					4.6	11.0
181					4.6	11.0
P.C. 182 +50					4.6	1311.78 / 11.0
183					4.1	11.5
184						12.0

		L	℄	R		
		6.0	6.0	6.0		
		7.2	7.2	7.2		Low .3
		8.3	8.2	8.5	10.4	
	4.3	2.5	2.6	2.6	4.5	
	5.9	3.8	3.7	3.6	5.4	
	6.8	4.8	4.8	4.8	6.7	
	7.8	5.7	5.4	5.6		
168+50			6.4			
		6.5	6.8	6.7		
		7.0	6.8	6.6		
		7.0	7.0	6.7		GR 11.5
		5.0	5.0	4.6		11.3
		5.1	5.0	4.8		11.3
		5.1	5.0	4.7		
		5.3	5.1	4.9		
		5.4	5.2	4.8		11.1
		5.5	5.3	5.2		11.1
		5.1	4.9	5.2		11.1
		5.1	4.8	4.6		
		4.7	4.7	4.6		11.2
		4.8	4.5	4.2		oversurge 11.4
Blue mark on stp.		4.6	4.5	4.0		Lose (11.7) Elev
		4.1	3.9	3.7		11.7
		3.9	3.7	3.6		11.7
		4.2	3.9	4.0		11.7
		4.3	4.0	3.7		11.4
		4.7	4.6	4.7		11.6
		4.6	4.5	4.8	6.7	
24" W.P.		4.5	4.4	4.7		
182+00 65' R.		4.2	4.3	4.2		
		3.5	4.0	4.2		

SAR #8 J.B. #3201

X-Sec. Clay Pit. & Stripping

Sta	+S	H.I.	-S	Elev.	B.M.
	10.80	22.53			1318.73
200+49	original	section		18.8	
201				19.2	
201+49				19.9	
201+71.9 / 203+17.6				21.1	
204				22.4	
205				22.0	
206 +25				24.9	
207				24.9	
208				18.3	
209					

L ℄ R

Sta 199+00 L℄ 60' Lt.
Sp. Hd in 12 Aspen

L	℄	R
9.8/28 10.4/11 11.5/60 10.6/60	10.7	10.2/17.0
9.7/30 10.0/14	10.3	8.4/8 10.6/13
9.7/30 10.0/14	9.6	8.4/8 10.6/13
9.1/24 9.7/8 8.6/3	8.4	8.0/10 9.6/16 10.0/20
Beg. Clay Pit L.0 8.4/25 7.7/9 6.7/7	7.1	6.3/13 8.5/17 8.6/20 L
L.0. 7.4/71 9.9/66 11.1/64 10.5/48 11.3/30 10.3/26 8.3/22	7.5	5.5/11.0 7.3/17 5.2/18 8.5/24
L.0. 3.8/72 8.8/63 7.7/61 9.3/49 10.1/30 8.9/29 8.6/24 4.7/19	6.6	
L.0. 3.8/73 8.1/67 8.5/64 9.5/6[illegible] 8.6/[illegible]7 9.7/30 7.9/29 7.9/20 4.4/15	4.6	
7.2/72 7.3/16	6.2	

A1 103 205+32

		H.I.			
	0.53	19.85			19.32
54+50					
55					
55+50					
56					
56+50					
57					
PT 57+58.1 TT 58	3.90	16.24	7.51	12.36	
59					
54+50					
55					
55+50					
56					
56+50					
57					
P.T. +58.1					
58					
59					

J.P. 16"
52+50 110'L

L						R				
	8.3/37	8.7/36	9.5/17	7.9/12	8.3	54+60 +00 Borrow				
7.0/39	7.1/33	10.0/27	9.7/16	8.1/12	8.3	8.6/12	9.8/15	10.5/26	8.0/31	8.3/34
4.6/35	4.8/32	10.6/25	10.1/16	8.3/12	8.4	8.7/12	10.1/17	10.6/27	7.6/32	7.7/35
7.4/33	7.4/29	10.3/35	9.7/15	8.1/12	8.3	8.8/12	9.9/14	10.4/26	4.6/33	4.5/38
	10.1/34	9.9/32	9.9/15	8.4/12	8.5	8.9/12	10.7/15	10.8/29	10.0/33	9.8/35
6.9/35	6.7/30	10.9/25	10.3/15	8.7/12	8.6	9.0/12	10.7/15	11.2/25	10.3/28	10.8/32
9.6/34	9.5/29	11.3/26	10.6/16	8.5/12	8.6	9.3/12	10.8/15	11.2/26	9.3/29	9.5/32
3.9/36	3.9/30	7.6/24	7.3/17	5.4/12	5.2	5.2/12	7.2/16	7.6/26	5.1/29	5.0/33
6.2/35	5.2/28	8.0/25	7.1/16	5.5/11	5.4	5.4/12	7.4/16	5.1/28	6.5/31	6.7/35

← Computed Elev. 59+76 Borrow .00

	11.6/37	11.7/36	10.4/17	12.0/12	11.6					
12.7/39	12.8/33	9.9/27	10.2/16	11.8/12	11.6	11.3/12	10.1/15	9.4/26	11.9/31	11.6/34
15.3/35	15.1/32	9.3/25	9.8/16	11.6/12	11.5	11.2/12	9.8/17	9.3/27	12.3/32	12.2/35
12.5/33	12.5/29	9.6/25	10.2/15	11.8/12	11.6	11.1/12	10.0/14	9.5/26	15.3/33	15.4/38
	? 9.8/34	10.0/32	10.0/15	11.5/12	11.4	11.0/12	11.2/15	9.1/29	9.9/33	10.1/35
13.0/35	13.7/30	9.0/25	9.6/15	11.2/12	11.3	10.9/12	9.7/15	8.7/25	9.6/28	9.1/32
10.3/34	10.4/29	8.6/26	9.3/16	11.4/12	11.3	10.6/12	9.1/15	8.7/26	10.6/29	10.4/32
12.3/36	12.3/30	8.6/24	8.1/17	10.8/12	11.0	11.0/12	9.0/16	8.6/26	11.1/29	11.2/33
10.0/35	10.6/28	8.7/25	9.1/16	10.7/11	10.8	10.8/12	8.8/16	9.1/28	9.7/31	9.5/35

Billow -

Sta		H.I			B.M.
	6.31	21.13			1314.82
139					
+50					
140					
P.T. +33.7					
141					
142					
T.P.	7.93	24.98	4.08	17.05	
143					
144					

J.S. Walker ⊼
M. Duncan R.L.
B. Schluter Ch.

7-15-3

Elev. R. R

Ry Sp 12" N.P. - 95 Lt. 138+00

Computed elev. Rod Readings.

	14.8/37	15.2/34	11.0/30	12.8/16	13.4/12	13.7 / 7.4	7.7/12	8.9/16	10.1/30	6.9/34	6.3/37
	14.9/36	14.8/31	11.1/27	12.7/16	13.9/12	14.0 / 7.1	7.7/12	8.4/16	10.0/27	6.3/31	6.2/36
	15.7/36	14.3/31	11.7/27	13.1/16	14.4/12	14.4 / 6.7	6.7/12	8.0/16	9.4/27	6.8/31	5.4/36
	15.2/36	14.8/30	12.1/36	13.4/15	14.8/12	14.9 / 6.2	6.3/12	7.7/15	9.0/26	6.3/30	5.9/36
	15.7/34	15.4/28	12.8/25	13.6/15	15.6/12	15.8 / 5.3	5.5/12	7.5/15	8.3/25	5.7/28	5.4/34
	19.9/37	19.7/30	14.9/24	15.6/18	17.3/12	17.2 / 3.9	3.8/12	5.5/18	6.2/24	1.4/30	1.2/37
BT 142	21.3/36	21.1/30	16.6/24	17.3/17	18.8/12	18.8 / 6.2	6.2/12	7.7/17	8.4/24	3.9/30	3.7/36
	20.7/30	20.4/25	17.7/22	18.4/15	19.8/12	19.7 / 5.3	5.2/12	6.6/15	7.3/22	4.6/25	4.3/30

S.A.R. #8 3.6 + 32.01

Sta	+S	HI	-S	Gr Elev	Grade
			4.77		1311.78
183					11.5
T.P.	3.90	16.55	8.68	12.65	
184					12.0
T.P.					
185					12.5
185+40					12.7
186					13.3
187					14.7
188					16.3
T.P.	2.57	21.33	10.22	18.76	
189					18.0
190					19.7
191					21.3
192					23.0
		29.02			

		L	℄	R		
Sta 182-65' R sp in 26' W.P.						
(40)'						
	9.1	Dc 1.8 9.3 22.7	-0.5 9.8		9.5	(40)' L 9.3
	8.6	+0.4 8.2 23.6	+0.2 8.6	+0.2 8.8 23.3	9.0	(40)' L 8.8
(56.0)'	8.4	Dc 0.2 10.2 20.3	-3.4 12.0	2.9 1.7 18.4	8.8	8.6'
14'	7.8	-4.8 12.6 21.2	-4.4 12.4	-4.0 12.2 20.0	8.2	(40) 8.0'
L (40) ✓	6.4	-2.9 9.3 16.4	-1.8 8.4	Dc 0.1 8.7 20.2	6.8	6.6 ✓
	4.8	Dc 0.9 5.9 21.4	5.2	+0.3 4.9 23.5	5.2	(40) 5.0
60' L	10.8	Dc 1.5 11.3 22.3	11.0	+0.2 11.0 23.3	11.2	11.0
40' L	9.1	+1.5 7.6 25.3	7.9	+3.0 6.5 27.5	7.5	7.3
40'	7.5	+0.1 7.4 23.2	0.0 7.7	Dc 1.3 8.6 22.0	7.9	7.7
+0.8 5.2 33	5.8	Dc 1.8 6.0 22.7	-1.2 7.2	Dc 1.7 6.5 22.6	6.2	6.0

	+5	H/I	-5	GV	Grade
192+62					23.9
193		↑			24.3
T.P.	3.79	29.02 ✓	5.68	25.23	
194					24.4
195					24.1
196					23.8
197					23.5
+64					~~23.3~~
198					23.3
+42					~~23.2~~
+70		↑			~~23.1~~
		30.91			

	SE	L	℄	R	SE	GR
	+.2				-.2	
	4.9	+1.5 3.4 25.3	+0.5 4.6	+1.3 4.0	5.3	5.1
46'	4.5	192 0.7 5.8 24.1	+0.1 4.6	+0.8 4.1 34.7	4.9	4.7
TP ℄ 193						
	6.3	-2.1 8.4 15.7	-2.9 9.2	-2.4 9.1 15.6	6.7	6.5
~~46~~						
46'	6.6	PI 0.7 7.9 21.1	-1.9 8.7	-2.1 9.1 15.2	7.0	6.8
46	6.9	-2.1 9.0 13.2	-1.9 9.0	-1.3 8.6 14.0	7.3	7.1
	7.2	+2.7 2.5 22.1	+2.0 5.2	+1.0 6.6 24.5	46R 7.6	7.4
40'	7.4	+0.1 7.3 23.2	-1.9 5.7	+2.3 3.5 29.0	7.8	7.6

Sta	+S	HI	-S	Grid	Grade
199					23.0
B.M.					1318.73
200					23.0
201					23.0
T.P.	12.18	30.91	11.82		18.73
{201+91.9 LC {203+17.6 LA					23.0
204					23.0
205					23.4
206					23.4
+25					23.4
207		30.58			23.4

	SE	L	℄	R	SE	GR
	+.2			-.2		
40	7.7	Dc 0.5 9.7 20.8	-0.6 8.5	Dc 1.7 8.9 21.8	8.1	7.9
		Sta 199 -60' L - Tp in 12" Bap.				
	7.7	-2.6 10.3 15.9	-2.6 10.5 11.2	-2.6 10.7 15.9	40 8.1	7.9
	7.7	-3.6 -11.3 17.4	-3.7 11.6	-3.6 11.7 17.4	40' 8.1	11.2 -3.3 25 7.9
18.96 BM.		-3.0 10.3 16.5	-2.3 9.6	-3.8 11.1 17.7	40	7.3
		Dc 0.3 9.0 20.5	-1.7 9.0	-2.3 9.6 15.5		7.3
		Dc 0.1 9.1 20.2	-1.3 8.5	Dc 0.2 9.0 20.7		7.2
		Dc 0.7 9.3 21.4	+1.7 5.5	+1.4 5.8 25.1		7.2
		Dc 0.4 8.8 20.6	+1.6 5.6	+2.1 5.1 26.2		7.2

Sta	+S	H.I.	-S	Elev.	Grade
208					23.7
209					24.1
210		↑			24.5
T.P.	6.00	30.58	8.70	24.58	
211					24.9
212					25.2
P.C. +54.6					25.4
213					25.6
+50					25.8
214					26.0
+50		↑			26.0
		32.78			

Sta	SE	L	ϕ	R	SE	GR
		PC 0.9 8.0 21.4	-0.3 7.2	PC 0.8 8.1 21.2		6.9
		-1.9 8.2 14.9	-1.4 7.9	-2.6 9.1 15.9		6.5
		-2.0 8.1 15.0	-1.9 8.0	-2.7 8.3 15.3		6.1
		PC 0.8 9.1 21.7	-1.4 9.3	PC 0.4 9.5 20.6		7.9
		+1.2 6.4 20.8	-0.7 8.3	PC 1.9 7.7 22.9		7.6
	7.6	+1.4 6.7 35.1	-1.4 8.6	PC 1.8 7.4 27.7	7.7	7.4
	7.4	PC 1.0 8.4 21.5	-1.6 9.0	PC 1.7 7.8 21.8	7.0	7.7
	7.7	PC 1.3 7.9 22.0	-1.9 8.9	PC 1.6 7.7 22.4	6.8	7.0
	7.0	+0.8 6.2 34.2	+0.9 5.9	+0.6 6.0 28.7	6.6	6.8
30.47	7.0	+2.7 4.3 27.1	+2.1 4.7	+1.5 5.1 25.3	6.6 6.6	6.8 6.8

5-19-33

	+S	H.I	S				L	∠	R		
						S.E. .2				S.E. .2	
215					26.0	7.0	+1.8 5.7 25.7	+1.8 5.0	+0.5 6.1 23.9	6.6	6.8
+50					26.0	7.0	+2.5 4.5 26.7	+0.8 6.0	+2.7 4.4 26.3	6.6	6.8
	6.50	32.78	4.80	26.28							
216					26.0	5.3	+1.1 4.2 24.7	-0.5 5.6	+1.7 5.2 22.6	4.9	5.1
+50					26.0	5.3	+0.6 6.7 20.9	-1.7 6.8	-3.4 8.3 17.1	4.9	5.1
217					25.9	5.4	-3.1 8.5 16.7	-2.0 7.2	-4.9 9.9 19.4	5.0	5.2
+50					25.7	5.6	-2.6 8.2 15.9	-1.9 7.3	-3.9 7.1 17.9	5.2	5.4
					1326.78	219+50					
St. 218					25.5	5.8	+1.4 6.4 22.1	-0.8 6.4	+0.7 6.7 21.1	5.4	5.6
+50					25.2	6.1	+1.5 4.6 25.3	+0.4 5.5	+0.5 5.2 23.8	5.7	5.9
219					24.9	6.4	+1.7 4.7 25.6	+0.8 5.4	+1.6 6.4 22.5	6.0	6.2
+50					24.5	6.8	+2.0 4.8 26.0	+1.0 5.6	+0.1 6.3 23.2	6.4	6.6
B.M.		31.08			1326.28	219+50 - 40' Rt Rx Sp. in 8" Birch					

Station					Elev.				L	₵	R			
220					24.0		7.3		+0.2 7.1 23.3	+1.5 5.6	+1.2 5.7 24.8		6.9	7.1
+50					23.5		7.8		+2.8 5.0 27.2	+2.6 5.0	+4.1 3.3 29.2	7.4		7.6
221	4.80	31.08			23.0 1326.28		8.3		+1.7 6.6 25.6	+1.4 6.7	+1.9 6.0 33.9	7.9		8.1
T.P.	3.88	30.16			1326.28									
P.T. 221+72.4					22.3	8.1		Rep.	Dc 0.8 9.2 21.2	+0.3 7.6	Dc 1.5 8.7 22.3	✓	7.7	7.9
222					22.0			Rep.	Dc 1.5 5.7 22.3	-0.4 7.8	+0.4 7.8 23.6	✓		8.2
223					21.0				0.0 9.2 23.0	-0.1 9.3	Dc 1.6 9.6 22.4	✓		9.2
224					20.3	10			Dc 0.5 11.4 20.8	-1.6 11.5	Dc 0.7 11.2 21.1	✓	-0.5 10.36 25	9.9
T.P.	1.56	21.36		0.36	19.80									
225					20.0				-3.3 4.7 17.0	-2.8 4.2	-3.8 5.2 17.7		✓	14
226					20.0		F1.3/5.5 24 Cul		-3.5 4.9 17.3	-3.3 4.7	-4.9 6.3 ~~19.4~~ 21.4	1.45h	+1.0 10.37 24 Culv.	14

226 Place 24"x42' C.M.C.

Bl = C = 28 +
DC = 25 +

5-18-33

		21.36											
227					20.2		-4.0 5.2 24.0	-4.4 5.6 18.6	-3.3 4.5	-5.0 6.2 21.5	✓	14sh	1.2
228					20.7		-1.4 2.1 21.2	-2.4 3.1 15.6	-2.5 3.2	-2.9 3.6 16.4	✓		0.7
T.P.			2.12	19.72 ✓		Bottom							
229					21.3	0.0		+1.1 7.4 24.7	-0.3 8.8	DC 2.0 8.5 23.0	✓	8.5	0.0
230					22.0	3.0, 25'		+3.9 3.9 33.9	+2.4 5.4	+1.2 6.6 29.8	✓	7.8	25' DD.
+75					22.5	25'							25'
231					22.7	25'		+2.6 4.5 31.9	+1.5 4.6	+2.4 4.7 31.6	✓	7.1	25'
T.P.	5.08	29.79	5.98	24.71									
Ed 232					23.3	0.0		+0.9 6.5 24.4	+0.9 6.5	+0.5 6.9 23.8	✓	7.4	0.0 ✓
P.C. +93.5					23.7			DC 0.2 8.6 20.3	-0.7 7.5	DC 0.5 8.3 20.8	✓		6.8
233					24.0								
+50					24.3	1° C. R.		-2.3 8.7 15.5	-1.3 7.7	-2.5 8.9 15.8	✓		6.4
		30.69											

Sta	+S	H.I.	-S	G.E.	Grade		L	℄	R	G.P.
234					24.7		DC 0.7 7.8 20.3	-1.1 7.1	DC 0.3 7.7 20.5	6.0 ✓
+50					25.0		DC 1.5 6.2 22.3	-0.7 6.4	DC 0.7 7.0 21.1	5.7 ✓
235					25.0		DC 0.7 7.0 21.1	+0.3 5.4	+0.3 5.4 23.5	5.7 ✓
T.P.	5.68	30.69	5.35	25.01		Nail in Post To! 238+50				
+50					25.0		DC 1.1 6.3 21.7	+1.3 4.1	+0.9 4.5 24.4	5.4 ✓
236					25.0	RP 40' L	DC 1.8 5.6 22.7	+1.0 4.4	+0.8 4.6 24.2	5.4 ✓
+50					25.0	RP 40' L	DC 1.5 5.9 22.3	-0.2 5.6	DC 1.6 5.8 22.4	5.4 ✓
237					25.0	RP 50' L	DC 1.2 6.7 21.8	-0.9 6.3	DC 1.0 6.4 21.5	5.4 ✓
+50		↑			25.0		DC 1.0 6.4 21.5	-1.1 6.5	DC 1.1 6.3 21.7	5.4 ✓
238		30.36			25.0		DC 0.5 6.9 20.8	-1.6 7.0	-2.0 7.4 [illegible]	5.4 ✓

Sta.	+ S	H.I.	- S	Gr. El.	Grade
T.P.	5.35	30.36	5.06	25.01	
23.8+50					25.0
239					25.0
P.T. +43.5					25.0
240					25.0
241					25.0
242					25.0
T.P.	2.66	28.07	9.00	25.41	
243					25.6
244					26.2
245					26.9
		3441			

5-17-83

23

	L	℄	R	G.R.
No. 1 T.P. L 23+50				
	DC 0.4	-2.6	-0.4	
	4.7	5.7	3.5	3.1 ✓
	20.6		15.6	
	DC 0.3	-3.1	-2.0	
	4.8	6.7	5.1	3.1 ✓
	20.5		15.0	
	-1.7	-3.B	-2.1	
	4.8	6.1	5.5	3.1
	14.5		15.6	
	-2.0	-3.6	-2.2	
	5.1	6.7	5.3	3.1 ✓
	15.0		15.3	
	-2.0	-3.5	-2.3	
	5.1	6.6	5.1	3.1 ✓
	15.0		15.5	
	DC 0.4			
	4.7	-3.2	DC 0.3	
	20.6	6.3	4.8	3.1 ✓
			20.5	
	DC 1.3	-0.8	DC 1.4	
	9.5	9.6	9.4	8.8 ✓
	22.0		22.1	
	DC 1.1	-1.9	DC 1	
	9.1	10.1	9.1	8.2 ✓
	21.7		21.7	
	+1.2	+1.0	+0.5	
	6.3	6.5	7.0	7.5 ✓
	24.8		23.8	

11-20-32 ✓
5-17-33 S.S. Walker ⊼ M Duncan Rech.

	+S	H.I.	-S	[illegible]	Gr	L	℄	R	Gr.R.
246					27.5	+2.2 4.7 26.3	+2.3 4.6	+1.6 5.3 25.4	6.9 ✓
247		↑			28.1	+1.7 4.6 25.6	+1.1 5.2	+1.4 4.9 25.1	6.3 ✓
248	2.76 4.47	3441 36.12			28.7 1331.65	Dc.1.7 6.0 22.6	+0.6 5.1	+0.6 5.1 23.9	5.7 ✓
249					29.4	Dc1.5 7.2 22.3	.04 7.1	Dc1.8 6.9 22.7	6.7 ✓
250		↓			30.0	Dc1.2 6.9 21.8	+0.1 6.0	+0.1 6.0 23.2	6.1 ✓
B.M.					1331.65	250-36'R Rx.Sp. 12" Maple ✓			
251					30.2	+3.5 2.4 28.3	+1.9 4.0	+0.5 5.4 23.8	5.9 ✓
+40					30.3	+2.2 3.6 26.3	+2.1 3.7	+0.1 5.7 23.2	5.8 ✓
252					30.4	Dc1.9 5.8 22.4	-0.4 6.1	Dc1.4 6.3 22.1	5.7 ✓
+22.3					30.4				

11-20-32
10° below zero
cold.

Sta.	+S	H.I.	-S				L	℄	R	
		36.12								
253					30.7		-2.3 7.7 15.5	-1.6 7.0	Dc 0.4 7.0 20.6	5.4 ✓
+48					30.8		Dc 0.3 7.0 20.5	-0.4 5.7	+2.1 3.2 26.2	5.3 ✓
254					30.9		-3.4 8.6 17.1	-3.2 8.4 ✓	-3.0 8.2 16.5	5.2 ✓
255					31.1	14'sh	-5.5 10.5 22.3	-6.0 11.0	-6.0 11.0 23.0	5.0 14'sh ✓
256					31.3		-3.0 7.8 16.5	-2.7 ✓ 7.5	-2.9 7.7 16.4	4.8 ✓
+37					31.4		Dc 0.7 6.0 21.1	-0.5 5.2	-3.1 7.8 16.7	4.7 ✓
257					31.5		Dc 0.9 5.7 21.4	-1.2 5.8	Dc 0.5 6.1 20.8	4.6 ✓
258					31.8		+1.7 2.6 25.6	+2.3 2.0	+2.2 2.1 26.3	4.3 ✓
T.P.	3.60	39.54	0.18	35.94						
+72					32.0		+0.8 6.7 24.2	+3.5 4.0	+3.7 3.8 28.6	7.5 ✓
259					32.0		+0.4 7.1 23.6	+2.7 4.8	+4.5 3.0 29.8	7.5 ✓

	+3	#1	-5		
		39.54			
260					31.5
+32					31.3
261					31.0
T.P.	8.41	36.45	11.50	28.04	
+38					30.8
+84					30.4
262					30.5
P.C. +57.5					30.2
263					30.0
+50					29.8

11-22-32
Snowy

26

	L	℄	R	
	4.7 / 9.3 / 21.1	0.0 / 8.0	10.7 / 7.3 / 24.1	8.0 ✓
	+0.3 / 7.9 / 23.5	+1.2 / 7.0 ✓	+0.9 / 7.3 / 24.4	8.2 ✓
	4.4 / 12.5 / 14.2	-3.4 / 11.9 ✓	-2.9 / 14.4 / 16.4	8.5 ✓
14 sh	-5.1 / 10.8 / 21.7	-4.9 / 10.6 ✓	-4.6 / 10.3 / 20.9	5.7 14 sh ✓
14 sh	-4.4 / 10.3 / 20.6	-4.2 / 11.1	-4.6 / 10.5 / 20.9	5.9 14 sh ✓
	-3.6 / 9.6 / 17.4	-3.1 / 9.1	-4.2 / 10.2 / 18.5	6.0 ✓
	+2.1 / 4.2 / 26.2	+1.9 / 4.4	+1.6 / 4.7 / 25.4	6.3 ✓
	+2.1 / 4.4 / 26.2	+2.8 / 3.7	+1.7 / 4.8 / 25.6	6.5 ✓
	+1.8 / 4.9 / 25.7	+1.9 / 4.8	+2.3 / 4.4 / 26.5	6.7 ✓

B.M. 3

11-22-32
Snow

						L	R	
	+8	+1	-5					
		36.45						
264					29.5	+1.0 / 6.3 / 20.5	+2.1 / 4.9	+2.5 / 4.5 / 26.7 — 7.0 ✓
+50					29.3	Pc 1.5 / 7.7 / 22.3	+0.1 / 7.1	+0.3 / 6.9 / 23.5 — 7.2
265					29.0	Pc 0.7 / 8.8 / 21.1	-0.3 / 7.8	Pc 0.8 / 8.7 / 21.2 — 7.5
+50					28.8	-2.0 / 7.7 / 15.0	-2.1 / 7.8	-2.4 / 10.1 / 15.6 — 7.7 ✓
266					28.5	-2.6 / 10.6 / 15.9	-2.6 / 10.6	-2.7 / 10.9 / 16.4 — 8.3 ✓
+50					28.3	-3.0 / 11.2 / 16.5	-2.9 / 11.1	-2.4 / 10.6 / 15.6 — 8.2 ✓
267					28.0	Pc 0.2 / 10.3 / 20.3	-1.1 / 9.6	Pc 1.7 / 8.8 / 22.6 — 8.5 ✓
T.P.	4.31	33.53	7.23	29.22				
+38					27.8			
+50					27.7	+1.0 / 4.8 / 24.5	+1.5 / 4.3	+1.9 / 3.7 / 25.7 — 5.8 ✓
+90					27.5			
B.M.			3.90		1329.74	268+50 - 95' Rt - Ry Spk in 10" Birch.		

	+5	+17	-5		
		33.53			
268				27.5	
P.T. +84.7				27.1	
269				27.0	
	1.52	31.26		13 29.74	268+50
270				26.4	
271				25.9	
272				25.3	
273				24.8	
274				24.2	
275				23.7	
276				23.1	
T.P.	0.29	26.47	5.13	26.13	

11-7-32

28

	L	&	R	G.P.
	+0.3 5.7 23.5	+1.1 4.9	+1.7 4.3 25.6	6.0
	+0.7 5.7 24.1	+0.7 5.7	+1.1 5.3 24.7	6.4
	+0.3 6.2 23.5	+0.9 5.6	+1.4 5.1 24.1	6.5
	Dc 2.0 4.9 23.0	-1.0 5.9	+0.5 4.5 23.8	4.9
	Dc 0.9 6.5 21.4	2.2 7.6	Dc 0.3 7.1 20.5	5.4
14'	-5.0 11.0 21.5	-3.7 9.7	-4.2 10.2 20.3	14' 6.0
14'	-4.6 11.1 20.9	-3.4 9.9	-3.7 10.2 19.6	14' 6.5
	Dc 0.2 2.9 20.3	-1.6 8.7	Dc 0.4 8.7 20.6	7.1
	+2.6 5.0 26.9	+1.0 6.6	+1.0 6.6 24.5	7.6
	+2.9 5.3 27.2	+3.0 5.2	+2.8 5.4 27.2	8.2

Nov-7-32

	+S	HI	-S			L	℄	R	OP
		26.42 ↓							
277					22.5	+1.9 2.0 25.9	+2.3 1.6	+1.7 2.2 25.6	3.9
278					22.0	+0.7 3.7 24.1	+0.5 3.9	+0.7 3.7 24.1	4.4
279					21.5	Dc 1.7 5.2 22.2	-0.1 5.6	+1.2 3.7 24.8	4.7
280					21.0	+0.3 5.1 23.5	0.0 5.4	+0.6 4.8 23.9	5.4
+50					20.8	+0.5 5.1 23.8	-0.7 5.9	+1.0 4.0 25.4	5.6
281					20.5	Dc 1.8 6.1 22.7	-1.2 7.1	+1.0 4.9 24.5	5.9
282					20.0	Dc 1.0 7.4 21.5	-2.2 8.6	Dc 0.7 7.7 21.1	6.4
T.P.	4.14	23.65	6.91	19.51					
+60					20.0	Dc 1.4 4.3 22.1	-1.7 5.4	+0.4 3.3 23.6	5.7
		↓							
283					20.0	Dc 1.2 4.5 21.8	-1.6 5.3	+0.1 5.6 23.2	37

Sta.					Elev.
		r 3.65 ↓			
284					20.0
285					20.0
286					20.0
287					20.0
288 P.C. +00.2	5/20/53 Hifrl Restaking borrow (4.07) ←	(23.79)	→	(19.77)	19.7 20.0 20.2
+50					20.0
289					20.0
T.P.	5.68	23.96	5.37 4.18	18.78 19.78	
+50		↓			20.0
290					20.0
+50		↓			20.0

c = 31'
DC = 28

Nov 7-53

Correct Borrow 60' 17.9

	L	℄	R		
	-1.9 5.6 14.9	-1.7 5.4	DC 0.5 5.7 20.8		3.7 ✓
	-3.4 7.1 17.1	-1.9 5.5	-3.3 7.0 17.0		3.7 ✓
	✓ DC 0.6 5.1 20.9	-1.1 4.8	~~-2.0 8.7 15.0~~ DC 1.4 4.4 30.1	Restake Bor. 28' B.D.	3.8 ~~3.7~~
	DC 1.0 28' BD 4.8 29.5 ~~DC 1.6 4.4 27.4~~	-0.1 3.8	~~+1.3 2.4 25.0~~ +0.7 3.1 33.1	29' B.D.	3.8 ~~3.7~~
4.0	DC 0.5 28' B.D. 5.3 28.8 ~~DC 0.7 5.3 21.1~~	-1.6 ~~5.3~~	~~1.3 5.5 14.4~~ DC 1.2 4.6 29.8 ~~3.4~~	28' B.D.	(3.8) ~~3.7~~
4.0	DC 0.5 5.5 20.8	-1.8 5.5	DC 0.2 5.2 20.3	3.4	3.7 ✓
4.0	-2.1 6.1 15.2	-1.8 5.5	DC 0.1 5.3 20.2	3.4	3.7 ✓
4.3	DC 0.0 6.3 20.0	-1.8 5.8	DC 0.4 5.3 20.6	3.7	4.0 ✓
4.3	DC 0.7 5.6 21.1	-1.2 5.2	DC 0.1 5.6 20.2	3.7	4.0 ✓
4.3	DC 0.8 5.5 21.2	-1.1 5.1	DC 0.7 5.0 21.1	3.7	4.0 ✓

	+S	HI	-S	Ground	Elev.
B.M.	4.30	24.07			1319.78
291		↓			19.7 20.0 20.3
+50					20.0
292					20.0
+50					20.0
293					20.0
+50					20.0
294					20.0
+50					20.0
295					20.0
P.T. +30.5					20.0

Sta.	L	#	R	SE.	Grade
291+50 - 36' R - 10" Basswood Ry. Sp.					
	Rc 1.0 5.3 21.5	-0.9 4.9	Rc 0.8 4.9 21.2	3.7	4.0 ✓
4.3	Rc 1.4 4.9 22.1	-1.0 5.0	Rc 1.2 4.5 21.8	3.7	4.0 ✓
4.3	Rc 0.7 6.1 20.3	-1.4 5.4	Rc 1.1 4.6 21.7	3.7	4.0 ✓
4.3	-1.1 5.4 22.7	-1.0 5.0	Rc 1.5 4.7 22.3	3.7	4.0 ✓
4.3	Rc 0.6 5.5 21.7	-0.6 4.6	Rc 2.0 3.7 23.0	3.7	4.0
4.3	Rc 1.1 5.2 21.7	-0.8 4.8	Rc 1.6 4.3 22.1	3.7	4.0 ✓
4.3	-2.4 6.3 15.1	-1.9 5.9	Rc 0.3 5.4 20.5	3.7	4.0 ✓
4.3	-4.1 8.4 18.2	-2.7 6.7	-3.6 7.3 17.4	3.7	4.0 ✓
14' 4.3	-6.1 10.4 55.2	-5.3 9.3	-4.0 7.7 20.0	3.7	14' 4.0 ✓
4.3	-2.8 7.1 16.2	-2.8 6.8	-3.1 6.8 16.7	3.7	4.0 ✓

		24.02			
295+50					20.1
296					20.2
T.P.	5.27	27.36 ✓	1.93	22.09	
297					21.0
298					22.0 22.2
T.P.			6.40 10.89	21.23 21.33	
+70					22.7
299					23.0
300					24.0 24.5
301					25.0
+30					25.3
302					26.0
+50					26.3
		31.42			

Nov 11-32

		L	℄	R		GR.
0.0 BV.		-2.4 6.3 15.6	-1.4 5.3	Dc 1.1 4.8 21.7		3.4 0.0 BV.
B.O. 26		Dc 2.0 3.8 29.0	+0.2 3.6	+1.9 1.9 31.9		3.8 26 ✓ B.O.
26		+1.5 4.9 31.3	+2.7 3.7	+2.5 3.9 32.7		4.4 26 ✓
0.0 299 gr Plug.	-3.5 8.7 17.3	-2.6 8.0 15.9	+0.5 4.9 -7.2	+1.5 3.9 31.3	Dc 0.7 6.5 21.1	5.4 26 ✓ +40 = 0.0 5.2
		-4.4 13.9 18.6	-3.9 13.4	-2.9 17.4 16.4		9.5 ✓
-1.7 10.9		-4.2 13.4 18.3	-4.4 13.6	-3.3 12.5 17.0		7.2 ✓
	Dc 1.2 8.5 21.8	-3.0 11.2 16.5	-2.4 10.6 -2.3 10.0	-2.7 10.9 16.1	15.4	8.2 ✓ 7.7 ✓
+4.0 3.2		+2.9 4.3 27.4	+1.7 ✓ 5.5	Dc 1.9 7.3 22.9		7.2
		+3.0 3.9 27.5	+2.2 4.7	+0.8 6.1 24.2		6.9 ✓
+3.4 2.8		+2.4 3.6 26.6	+1.4 4.8	7.4 5.9 3 6	+0.1 6.2 6.1 24 23.2	6.2 ✓
		Dc 1.7 6.2 24.6 6.1 4	-0.8 6.7	Dc 1.6 6.3 22.4		5.9 ✓

	+ S	H.I.	− S		G. Elev 303 (23.45)
T.P.					
303					26.3
304					25.1
T.P.	2.97	32.22	4.00	29.25	
+26.~~4~~					24.6
305					23.2
306					21.4
T.P.	12.50	33.25	0.84	20.75	
307					19.5
308					17.6
309		↑			15.7
T.P.	9.28	21.59	2.15	12.31	
310					13.8
311					12.2
		↑			
		14.46			

10-~~28~~-32
29

	L	¢	R		
−0.9 6.8	+0.9 / 5.0 / 24.4	−0.1 / 6.0	Dc 1.3 / 6.6 / 22.0	5.9	✓
5.3	+3.2 / 3.9 3.7 5.3 3.5 / 27.8 12 10 6	+3.9 / 3.2	+4.4 / 3.0 4.2 2.6 2.7 / 20 23 29 29.6	7.1	✓
	+4.9 / 3.8 3.5 5.1 3.7 / 30.4 14 7 6	+5.3 / 3.4	+5.7 / 3.0 / 31.6	8.7	✓
+6.2 3.9	+5.0 / 5.1 4.7 6.7 5.1 / 30.5 14 12 8	+5.8 / 4.3	+6.4 / 4.7 6.3 4.1 3.7 / 14 17 21 32.6	10.1	✓
+4.1 7.8	+3.7 / 8.2 8.9 11.4 9.9 / 28.6 17 14 11	+2.6 / 9.3	+4.8 / 10.0 10.7 8.6 7.1 / 14 16 18 30.2	11.9	✓
+1.3 0.84	+0.4 / 1.7 2.2 4.4 3.3 / 23.6 20 17 16	−0.3 / 2.4	Dc 1.9 / 3.0 4.1 2.3 2.2 / 11 13 16 22.9	2.1	✓
	−1.8 / 5.8 / 14.7	−1.6 / 5.6	Dc 0.2 / 6.1 7.2 5.9 5.8 / 7 10 11 20.3	4.0	✓
−1.1 8.0	−2.0 / 7.9 7.9 / 15.0 16	−1.9 / 7.8	−2.5 / 8.3 9.4 8.1 8.4 / 5 9 11 15.8	5.9	✓
−1.5	−1.2 / 2.5 3.0 3.9 2.6 / 14.7 22 20 17	−1.6 / 2.3	−2.4 / 3.2 3.9 3.2 3.1 / 10 13 15 15.6	0.7	✓
−1.4 3.7	−2.7 / 5.2 4.5 5.4 4.2 / 16.4 18 15 13	−0.8 / 3.1	−2.8 / 3.9 5.9 4.4 4.6 5.1 / 13 16 18 16.2	2.3	✓

	+3	HI	-S		
312				11.0	
313				10.0	
				1306.33	
314				09.0	
315				08.2	
316				0 8.0	
317				08.0	
T.P.	6.13	14.46		1308.33	
318				08.0	
~~B.S~~				08.0	
319				08.0	
320				08.0	
B.M.		↑ 17.25	3.92	1308.33	

318 +27 - 50' L Ry Sp in 8" Pole.

Sta	+S	H.I.	-S	Gr	Grade
T.P.	7.68	12.25	7.15		
321					08.0
322					08.0
323					08.0
324		↑			08.0
T.P.	4.09	11.92	4.67	7.83	
325					08.0
326					08.0
327					~~08.0~~ 8.5
328					~~08.5~~ 9.0
329					~~09.0~~ 9.5
~~Ry. Xing +77.5~~					~~09.5~~
		↑ 12.45			1306.49

L	℄	R	
-4.1 8.0 18.2	-2.8 6.7	-2.8 6.7 16.2	3.9
-4.1 8.0 18.2	-2.5 6.4	-2.7 6.6 16.1	3.9
-3.2 7.1 16.8	-2.2 6.1	-2.1 6.0 15.2	sand bottom of Sw. 3.9
Ec 0.4 5.5 5.2 20.6 16	-0.9 4.8	6.0 4.9 / 4 7 Ec 1.3 4.3 4.6 17 22.0	3.9
Ec 1.3 5.2 5.7 6.8 5.9 22.0 14 11 9	-1.0 5.5	Ec 0.6 5.9 20.9	4.5
-4.6 9.1 18.9	-4.8 9.3	8.3 -4.3 8.8 22 18.5	4.5
-4.1 8.1 18.2	-4.1 8.1	8.7 -4.7 8.7 21 19.1	4.0
Ec 0.3 5.2 5.2 20.5 21	-1.9 5.4	6.5 -2.9 6.4 20 16.4	3.5
6.6 5.6 Ec 0.2 4.8 4.9 14 13 20.3 17	-2.7 5.7	6.8 -3.8 6.8 16 17.7	3.0

Spike in. 12" maple 331

	+S	HI	-S		
T.P.	5.96	12.45 ↑	7.62	06.49	
T.P. ℄ Track	0.35	14.11			1313.76
330 Ry		↓	4.5 Rail	Ry Rail	09.5
~~+15~~					~~09.6~~
~~+34~~					~~09.6~~
~~+65~~					~~09.5~~
331					9.5 ~~09.4~~
332					09.0
333					09.0
334					09.0
335					09.0
336					09.0
B.M.	0.35	14.11			1313.76

L ℄ R

Spike in 12" Maple 33' R 331

336+50

-1.1 5.7 — Dc.0.6 6.0/20.9 6.5/28 6.0/14 5.3/7 — -0.4 5.0 — 5.4/8 9.4/22 8.1/25 -3.1 7.7/16.7 — 4.6 ✓

-2.0 6.6/150 6.8/25 6.8/9 8.3/7 — -3.1 7.7 — 7.7/21 L.0. -3.0 7.6/16.5 — 4.6 ✓

-1.9 7.0/14.9 7.3/24 7.3/8 9.5/2 — -3.6 8.7 — -3.4 8.5/17.1 L.0. — 5.1 ✓

Dc 0.3 6.8/20.5 7.0/14 7.1/7 8.8/2 — -3.0 8.1 — -2.9 8.0/16.4 8.1/21 — 5.1 ✓

Dc 1.8 5.3/22.7 5.4/27 5.3/7 7.5/4 — -0.3 5.4 — Dc 1.2 5.9/21.8 L.0. — 5.1 ✓

+1.0 4.1/24.5 4.1/24 4.1/6 5.1/5 — +1.0 4.1 — +0.8 4.3/24.2 — 5.1 ✓

+1.7 3.4/25.6 3.4/26 2.5/13 — +1.5 3.6 — 4.2/2 3.0/5 3.0/28 +2.1 3.0/26.2 — 5.1 ✓

5.1

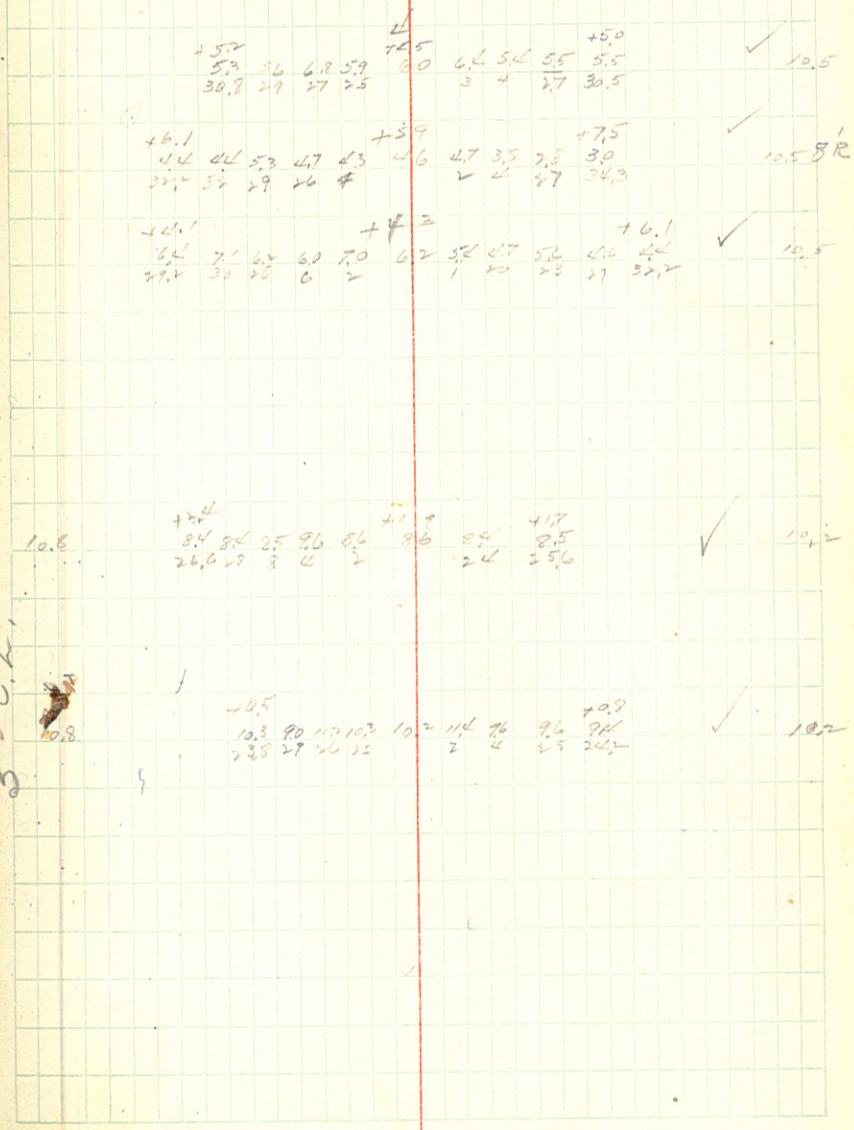
336+50-60'L Ry Sp in 28" W.P.

10-25-32

Sta	+S	HI	-S	Cor.	Grade
	5.71	19.47			1313.76
337					09.0
+57.5 ~~+54.7~~					09.0
338					09.0
P.C. 02.9 ~~116.7~~					09.0
+50					09.0
339					09.0
+50					09.0
340					09.0
+50					09.0

L & R

336+50 '60'L Ry Sp. 28' N.P.



10-25-32
Snow 8.10

Sta	+S	HI	-S	GT	Grade
		19.47			
341					8.7 09.0 9.3
T.P.	5.00	13.29	11.19	08.29	
+50					09.0
342					8.7 09.0 9.3
+50					09.0
343					8.7 09.0 9.3
+50					08.9
344					8.5 ~~9.0~~ 08.8 9.1
345					08.5
T.P.	4.58	13.55	4.32	8.97	
P.T. +14.9					08.5
+32.9 = old P.T. + 26.7					08.4
346					08.3
			4.3	08.47 9.3	4.0

L ℄ R

10.8 | -0.7 11.19 | Dc 0.5 12.3 20.8 | 12.3 21 | 12.7 19 | 11.7 15 | -0.7 11.2 | 11.6 6 | 13.2 10 | 12.6 13 | 12.3 26 | Dc 0.1 12.1 20.2 | ✓ | 10.2

℄ 4.3

4.6 | (0.3 4.6) | Dc 0.8 5.8 21.2 | 6.0 25 | 6.1 15 | 7.2 12 | 5.7 8 | -0.9 5.2 | 5.7 13 | 7.2 16 | 5.6 18 | 5.7 28 | 4.0 | Dc 0.6 5.4 20.9 | ✓ | 4.0

+0.2 4.1

4.6 | Dc 1.6 5.0 22.4 | 5.3 25 | 5.3 9 | 6.9 7 | 5.4 3 | -1.0 5.3 | 5.8 21 | Dc 0.4 5.6 21.6 | ✓ | 4.0

4.6 | [illegible] | 6.2 21 | -0.2 4.5 | 4.6 2 | 6.8 6 | 5.0 | 4.7 25 | Dc 1.3 4.7 22.0 | 4.0

5.1 ~~4.6~~ | 7.7 1.4 | +2.2 2.9 | 4.6 ~~4.0~~ | 5.2 | 4.5 | 4.6 15 | 24 | 5.2 26 | 4.6 | -0.1 4.6 12.2 | ✓ | 4.5 4.0

346 Grade 5.1

5.4 | +2.2 32 26.3 | +0.4 4.7 | 5.0 18 | 7.7 25 | 5.3 30 | Dc 0.5 6.5 20.8 | ℄ 4.8 5.1

(5.1) | +0.7 4.7 24.1 | (4.8) | Dc 1.5 5.0 22.3 | (4.5) | (reset Sta 344)

Sta.	+S	H.I.	−S		Elev.		L	℄	R		
345					08.5						
~~P.T. +26.7~~					~~08.4~~						
T.P.			3.77	8.95							
346					08.3	+0.6 3.8	Dc 1.6 4.8 22.4	−1.1 5.5	Dc 1.0 5.4 21.5		4.4 ✓
347					08.0	+0.8 3.9 3.3	Dc 2.0 4.7 23.0	−0.5 5.2	−1.3 6.0 14.0	19.49 Reset.	4.7
+45					07.8		+1.2 3.7 24.8	+1.2 3.7	0.0 4.9 23.0		4.9
348					07.5	+0.2 5.0 33	Dc 1.2 6.0 21.8	−0.8 6.0	0.0 5.2 23.0		5.2
349		↑			07.0	−1.7 7.4 3.3	−2.5 8.2 15.8	−2.2 7.9	Dc 0.5 7.2 20.8		5.7
T.P.	6.77	11.72	5.14	05.95							
350		↑			06.5	−0.6 5.2	Dc 0.9 5.7 21.4	−0.4 5.0	Dc 1.6 5.0 22.4		4.6
+44		11.09			06.3		Dc 1.2 5.6 21.8	−0.3 5.1	Dc 1.4 5.4 22.1		4.8

Party. S.S. Walker ⊼ / M. Duncan R / B. Schluter & Ch. 10-13-32 Cool-Rain 4:00

Sta.	+S	H.I.	-S	Gr. Elev.	Grade			L	℄	R	Grade Rod.
351					06.0	14	-7.7 7.8 33	-3.8 8.9 19.7	-4.2 9.3	-4.7 9.8 21.1	5.1 14 ✓
+45					06.0						
352					06.0	14	-4.0 9.1 33	-5.4 10.5 27.4	-5.7 10.8	-4.9 10.0 21.4	5.1 14 ✓
P.C. +34.0		↑			06.0	14		-4.4 9.5 20.6	-4.5 9.6	-3.9 9.0 19.9	5.1 14 ✓
+50	4.12	11.09			06.0	14		-4.2 9.3 20.3	-4.2 9.3	-3.5 8.6 19.3	5.1 14 ✓
	8.08	15.05			1306.97						
353		↓			06.0		-7.9 12.0 33'	-3.0 12.1 16.5	-1.4 10.5	+1.1 8.0 24.7	9.1 ✓
+50					06.0			+0.6 8.5 23.9	+1.7 7.4	+2.2 6.9 26.3	9.1 ✓
354					06.0	1° CR	+2.0 7.1 37	+2.1 7.0 26.2	+2.8 6.3	+3.4 5.7 28.1	9.1 ✓
+50					06.0			+2.7 6.4 27.1	+4.1 5.0	+4.1 5.0 29.2	9.1 ✓

Sta	+S	HI	-S	Ground	Grade
		15.05			1306.97
355		↓			06.0
+50					05.9
356					05.8
+50					05.7
T.P.	4.84	10.28	9.61	05.44	
357		↓			05.6
P.T. +65.7					05.5
358					05.4
359					05.2
360					05.0

	L		R		Grade Rds.	
355+00 - 50' L Ry Tpk in 26" W.P.						
+2.8 6.3 33.5	+2.9 6.2 27.4	+3.8 5.3	+2.7 6.4 27.1		9.1	✓
	+1.7 7.5 25.4	+0.2 9.0	+1.8 7.4 25.7		9.2	✓
+2.8 6.5 .83	+2.0 7.3 26.0	+1.6 7.7	+1.4 7.9 25.1		9.3	✓
	+2.2 7.2 26.3	+1.5 7.9	+2.0 7.4 26.0		9.4	✓
Est 357						
+0.5 4.2 3.3	DC 1.9 4.8 22.9	0.0 4.7	+1.0 3.7 24.5		4.7	✓
	DC 1.5 5.3 22.3	-1.3 6.1	DC 0.5 6.3 20.8		4.8	✓
-1.0 5.9 22.5	-1.5 6.4 18.2	-1.7 6.6	-2.2 7.1 15.3		4.9	✓
-0.7 5.8 27	DC 0.2 6.9 20.3	-1.9 7.0	-2.7 7.8 16.1		5.1	✓
+0.3 5.0 3.0	DC 0.6 6.7 20.9	-0.7 6.0	DC 1.1 6.2 21.7		5.3	✓

Sta	+S	H.I.	-S	Ground	Grade		L	℄	R		
		10.28									
361		↓			04.6	+1.5 4.2 32	+1.1 4.6 22.7	+0.1 5.6	cc 1.8 5.9 22.7	5.7	✓
362					04.2	-0.1 6.2 28.3	cc 1.1 7.0 21.7	+0.4 5.7	0.0 6.1 23.0	6.1	✓
363					03.8		-2.5 9.0 15.8	-2.5 9.0	cc 1.6 6.9 22.4	6.5	✓
T.P.	3.70	10.95		3.03	07.25	BM-365					
~~+25~~					~~03.7~~						
+50		↓			03.65		+1.3 6.0 25.0	-1.4 8.7	+0.1 7.2 23.2	7.3	✓
~~+70~~					~~03.6~~						
364					03.5	+2.8 4.7 33	+2.8 4.7 27.2	-0.6 8.1	+1.1 6.4 24.7	7.5	✓
B.M.					1307.23	365+00 - 45' R - T.B.M.-11-L					
365					03.5	+0.9 6.6 33	+0.5 7.0 23.8	+1.0 6.5	+2.3 5.2 26.5	7.5	✓
366					03.5	+0.4 7.1 33	+0.1 7.4 23.2	+0.4 7.1	+2.2 5.3 26.3	7.5	✓
+37					03.5						

10-13-32

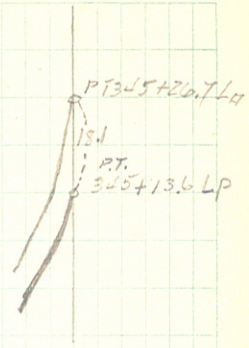
Sta	+S	HI	-S	Ground	Grade		Elev Super –	L	℄	R	Top Elev +	Grade Rod	
		10.95											
366+41		↓			03.5							7.5	✓
367					03.5	+0.2 7.3 33		Dc 1.5 8.0 22.3	-1.5 9.0	0.0 7.5 23.0		7.5	/
+72					03.5				~~2.9 10.6~~			7.5	
368					03.5	+1.4 6.1 33		+0.2 7.3 23.3	-2.9 10 ∠	-3.7 11.2 17.6		7.5	/
+16					03.5								
369					03.5	+1.0 6.5 33		-0.1 7.6 23.2	0.0 7.5	Dc 0.8 8.7 21.2		7.5	/
+09					03.5								
P.C. +65.5					03.5	4.0	(3.5) .5	Dc 1.5 4.0 22.3	0.0 7.5	Dc 1.7 8.3 22.6	.5 8.0	7.5	/
T.P.	3.80	07.57		7.23	03.77								
370		↓			03.5	+0.6 3.4 33	(3.5)	Dc 1.1 4.4 21.7	-1.0 5.0	Dc 1.7 4.8 22.6	.5 (4.5)	4.0	/

10° C - R

Station	07.52					L	℄	R	S.E.			
370+50	↓	03.5			(3.5)	Dc 0.3 5.1 20.5	-1.4 5.4	Dc 1.4 5.1 22.1	(4.5)	4.0		/
371		03.5	+0.3 4.3 25.5	14	3.5	-0.5 4.0 14.8	-0.5 4.5	-2.0 6.5 17.0	(4.5)	4.0	14	/
+50		03.5		14'	3.5	+0.2 3.3 25.3	-1.2 5.2	-4.2 8.7 20.3	(4.5)	4.0	14'	—
372		03.5		14'	3.5 (?) D.C.	+ 0.0 3.5 14.0	-0.4 4.4	-5.8 10.3 22.7	(4.5)	4.0	14'	/
+50		03.5		14'	3.5	-5.7 9.2 22.6	+0.1 3.9	-7.2 11.7 24.8	(4.5)	4.0	14'	/
373		03.5		14'			0.0 4.0	-8.0 12.5 26.0	↑ (4.5)	4.0	14'	/
P.T. +10.2		03.5		14'	3.5	-7.5 11.0 25.3			(4.5)	4.0	14'	/

Preliminary Revision.

P.T. +13.6	18°-06'	
345	17°-46'	
+50	16°-31'	
344	15°-16'	
+50	14°-01'	
343	12°-46'	Δ 36°-12' L
+50	11°-31'	P.I. 341+64.3
342	10°-16'	D = 5°CL
+50	9°-01'	T = 374.7
341	7°-46'	L°/6 = 724.0'
+50	6°-31'	
340	5°-16'	
+50	4°-01'	
339	2°-46'	
+50	1°-31'	
338	0°-15.6'	
	10.4	
P.C. +89.6		
+50.2	P.T. is 10' R of 337+54.7 P.O.T.	
337		
336		
335		
334		
333		
332		
331		
L.P. 330+17.7	℄ Sec. Line Track = 330+17.7 L.P.	



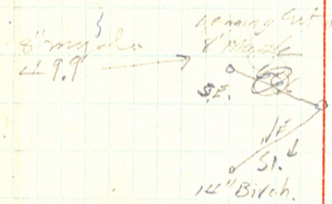
Δ 36°-12' L
341+64.3 P.I.

Cemetary Revision

318	
317	
316	
315	
314	
313	
312	
311	
310	
309	
308	
307	
306	
305	
+26.2	P.O.T. on fill
304	
303	
302	
301	
300	
299	
298	
297	
296	
P.T. 295+30.5	

S. S. Walker ⊼
B. L. Satterfield
M. Duncan Jr.

10-20-32
Cold - Cloudy



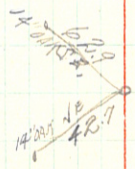
P.C. 338+02.9
P.T. 295+30.5
L of Tang. 42+72.4
offset 10'   Area = .49 Acres

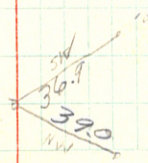
Sta. 295+30.5 used as a pivot and St. 338+02.9 moved 10' R to avoid cutting into cemetary. New line is 6.2' longer - old X-Sec & Level Notes used - very close check.

341+70.9	P.I.	
341		
340		
339		
338		
+57.5		Top Hill opposite Cem. Gate
337		
336		
335		
334		
333		
332		
331		
330		Ry Track
329		
328		
327		
326		
325		
324		
323		
322		
321		
320		
319		

Δ 35° 36'
341+70.9 P.I.
T = 368.0'
L of C. = 712.0'
P.C. 338+02.9
P.T. 345+14.9
D = 5° C.L.

345+34.9	= old Loc.	345+26.7			
P.T. 345+49	17°-48'				
345	17°-36'				
344	14°-56'	P.O.C.		Δ = 35°-36'	
343	13°-36'			T = 368.0	
342	9°-56'				
341	7°-36'				
340	4°-56'				
339	2°-25.6'				
P.C. 338+02.9	97.1				





Sta	Rod at +5	Slope H/1	Stakes lost -5	CUT	Grade
	3.76	10.73			1306.9
353					6.0
354+50					6.0
347			~~4.8~~		~~5.0~~ 8.0

	L	℄	R	
BM				
30 7.7	-3.0 7.7 16.5	-1.8 6.5		4.7
	-4.3 9.0 20.5	-4.6 7.3		4.7
		-0.6 3.3	HL 0.3 4 K 20.5	2.7

Finishing Stake Notes

Sta	+ S	H.I.	− S	Ground (L / ℄ / R)	Grade
	7.70	14.32			(1306.49)
330 R[illegible]				4.9	0.95
331				4.9	0.95
332				5.4	0.90
333				5.4	0.90
334				5.2 / 5.4 / 5.3	0.90
335				5.3 / 5.4	0.90
	2.87	16.63	~~4.3~~	7.5 / / 7.5	1313.76
336				7.6	0.90
				7.5 / / 7.5	1313.76
337				7.6	0.90
P.C. 338				L 7.9 / 7.6 / R 7.3	0.90
339				7.9 / 7.6 / 7.3	0.90
340				7.9 / 7.6 / 7.3	0.90
341				7.6	0.90
T.P.	3.77	13.67	6.73	9.90	Stump
342				5.0 / 4.7 / 4.4	0.90
343				5.0 / 4.7 / 4.4	0.90
344				5.2 / 4.9 / 4.6	0.88
345				5.4 / 5.2 / 4.1	0.85
P.T. +14.9				5.2	0.85
346				5.4	0.83
347				5.7	0.80
T.P.	3.53	11.54	5.66	08.01	
348				4.0	0.75
349				4.5	0.70
350				5.0	0.65
351				5.5	0.60
352				5.5	0.60

3° C.L.

S.S. Walker ⊼
M.W. Duncan R.

April 28. 33
Clear Cool.
Ice went out of Leech Lake
Last nite.

Ditch	L	℄	R	Ditch
Spike in 12" Maple · 33' R · 331				
		4.6		
		5.1		
		4.9		
		4.6		
		4.5		
		7.2		
336+50 60' L R/spin 28" N.P.		7.2		
		7.6		
		7.3		
		7.6		
		5.1		
		4.9		
		5.6		
		5.1		
		5.6		
		5.9		
		5.8		
R Blutop 347		4.1		
		4.6		
		4.5		
		5.4		
		5.6		

Sta	+S	H.I.	−S	G.R.	Grade	Ditch L	¢	R	Ditch
		11.54							
P.C. 352+34.0				5.5	06.0		5.7		
+50				5.8	06.0				
353 T.P.				5.5	06.0		5.4		
+50				5.5	06.0		5.6		
	5.57	11.67	5.44	06.10		L.B.T. 353+50			
354				5.7	06.0		5.7		
+50				5.7	06.0		5.4		
			4.69		1306.97	355+00 - 60' L Ry. Sp. in 26" W.P.			
355				5.7	06.0		5.2		
+50				5.8	05.9		5.2		
356				5.9	05.8		5.1		
+50				6.0	05.7		5.3		
357				6.1	05.6		5.6		
P.T. +65.7				6.2	05.5		6.2		
358				6.3	05.4		6.6		
359				6.5	05.8		6.6		
T.P.	3.83	09.10	6.40	05.27					
360				4.1	05.0		4.5		
361				4.5	04.6		4.3		
362				4.9	04.2		4.4		
363				5.3	03.8		5.3		
364				5.6	03.5		5.0		
					1307.23	365+00 - 45' R - (TBM11)			
365				5.6	03.5		5.4		
	7.03	9.26	1.79	07.31					
366				5.8	03.5		5.3		
367				5.8	03.5		5.2		
368				5.5	03.5		5.1		

10° R

55 Walker R. -
M Duncan P.

5-16-33

Sta	+S	H.I.	-S	Grade Rd.	Grade	Ditch	L	℄	R	Ditch
		9.26								
369				5.3	03.5			5 1		
P.C. +65.5				5.3 6.3 5.8	03.5			5 1		
370					03.5			5 5		
+50					03.5			5 7		
371					03.5			5 9		
+50					03.5			5 7		
372					03.5			5 8		
+50					03.5			5 4		
P.T. 373+10.2					03.5			5 8		
								5-17-33		
T.P.	436	36.01			133.65	250+00 -36' R. Ry spk in 12" Map.				
P.T. 252+22.3		↓		5.6	30.4			5 9		77
253				5.3	30.7			5 3		
254				5.1 4.8	30.9			4 6		
255				4.9 4.7	31.1	14'		4 7		14'
256				4.7 4.6	31.3			4 7		
257				4.5	31.5		6.7	4 7	6.4	14
258				4.2	31.8		6.2	4 1	6.1	14
259				4.0 4.1	32.0			3 9		
T.P.	2.98	34.84	4.15	31.86 L.B.T.						
260		↓		3.3 3.4	31.5			3 1	3½	
261				3.8 3.7	31.0			3 7		
+38				4.0 3.8	30.8	14		3 8		14
+84				4.2 4.0	30.6	14		4 3		14

10° C.R.

5-17-33

Sta	+S	HI	−S	4	Grade	L	℄	R	GR.
		34.84							
262				4.3 4.2	30.5		4.4		
P.C. +57.5				4.4 4.6 4.8	30.2	6.9	4.9	7.0	
263				4.6 4.8 5.0	30.0		5.2		
+50				4.8 5.0 5.2	29.8		5.2		
264				5.1 5.3 5.5	29.5		5.3	7.1	
+50				5.3 5.5 5.7	29.3		5.5	7.4	
265				5.6 5.8 6.0	29.0		5.4		
+50				5.8 6.0 6.2	28.8		5.7		
266				6.1 6.3 6.5	28.5		6.1		
+50				6.3 6.5 6.7	28.3		6.3		
267				6.6 6.8 7.0	28.0	staked ℄ 4' Li	6.4		
+50				6.9 6.9 7.1 7.3 7.1	27.7	" .2' Li	6.5		
268				7.1 7.3 7.5	27.5		6.9		
T.P.	4.97	32.79	7.02	27.82					
P.T. +84.7				5.5 5.7 5.9	27.1		5.2		
			3.11		1329.74				
T.P.	2.07	31.81							
269		↓		4.8 4.9	27.0	6.?	4.3	6.?	
270				5.1 5.4	26.4		5.2		
271				5.5 5.9	25.9		5.5		
272				5.6 6.5	25.3	14 sh	5.2		14 sh
273		↓		6.0 7.0	24.8	14 sh	5.6		14 sh
T.P.	1.47	27.24 ↓	6.04	25.77					

3° C R.

268+50 95' R Ry Sk in 10" Birch

Sta	+S	HI	-S		
		27.24			
274				2.8 3.0	24.2
275				3.5	23.7
276				4.1	23.1
277				4.7	22.5
278				5.2	22.0
279				5.7	21.5
280				6.2	21.0
7.7 281	✓		6.20 4.16	21.04 4.7	20.5
282				5.2	20.0
283				5.2	20.0
284				4.8	20.0
285				4.8	20.0
286		↑		5.0	20.0
287 T.P.	5.52	25.21	5.98	5.2 6.0 19.69 5.2	20.0
P.C. 288		↑		5.7 6.0 5.2	20.0
+50				5.7	20.0
289				5.4 5.3 5.6	20.0
+50				5.5	20.0
290		↑		5.4 5.7 5.4	20.0
+50				5.4	20.0
		25.67			
		↑			

6-21-23

	2 8		
	3 6		
BT 3' Low — Low 4 — 6.5	4 6	6 8	Low .7
BT. 3' Low	5 0		
BT 3' Low	5 7	7.9	Low .7
BT 4' Low	6 4	8.4	H. 3
BT. 5' Low — 7 Low	6 8	8.9	
⊥ stake 280 — 7.4	4 7	4.4	H. 3
	5 0		
	5 4		
	4 2		
	4 6		
	5 1		
	5 1	Low .2	
	5 3		
	5 7		
	5 3		
	5 6		
	5 4		
	5 4		

	H I			G. Rod	
	3				
				57 51	
291				54	20.0
					1319.72
+50				54	20.0
292				54	20.0
+50				54	20.0
293				54	20.0
+50				54	20.0
294				54	20.0
				5.7 51	
+50				54	20.0
				57 51	
295		↑		54	20.0
P.T. +30.15				57 54 54	
				52	20.1
T.P.	5.95	25.67			1972
296					20.2
297					21.0
298					22.0
299					23.0

6°0'

5 4

291+50 36' R Ry Spk in 10" Bass Wood

5 3

5 4

5 4

5 4

5 2

5 4

5 4

1456 5 2 1464

5 4

Sta.	+S	H.I.	−S		
					1326.28
T.P.			5.11	23.45	
P.C. 232+93.5				4.5 4.7	23.9
233+50				4.2	24.3
234				3.9	24.7
T.P.	3.56	28.56	5.38	25.00	
+50				5.[illegible]	25.0
235				5.4	25.0
+50				5.4	25.0
236				5.4	25.0
+50				5.4	25.0
			5.91		24.47
237				5.4 5.2	25.0
+50				5.0	25.4
238				5.0	25.4
+50				5.0	25.4
239				5.0	25.4
P.T. +43.5				5.0	25.4
240				5.0	25.4
241				5.0	25.4
242				5.0	25.4
T.P.	4.70	30.38	7.83	25.68	
243				7.9	25.6
		↑ 33.51 ↑			

	L	℄	R
217+50 .46' R Ry. spk in 8" Birch			
Nail in 12" Pop R. 229+40			
		4.2	
		4.1	
		5.3	7.1
	8.4	5.3	8.6
	8.3	5.2	7.7
	8.2	5.4	7.6
R.B.M. 8" Pop 237+50 small Nail	8.5	5.2	7.6
		5.1	
		5.1	
		5.1	
		5.0	
		5.0	
		5.1	
		5.2	
		4.7	
		4.6	
R.B.T. 243		7.7	10.2

Sta	+S	H.I.	-S	Grade	Grade		L	℄	R
244				7.3	26.2			7.3	9.6
245				6.6	26.1		3.8	6.8	9.8
246				6.2	27.5		8.3	6.3	8.6
247				5.4	28.1			5.4	8.6
248				4.8	28.7		6.7	4.7	7.4
249				4.1	29.4		6.7	3.9	6.4
250				3.5	30.0		5.7	3.5	6.1
251				3.3	30.2		5.5	3.4	6.1
252		↑		3.1	30.4			3.4	
+22.3				3.1	30.4				
T.P.	1.86	33.51			1331.65	250+00 - 36'R Ry Spk 12" Maple			
TP.	3.34	26.79			23.45	Nail in 12" Pop R 229+40 pg 56			
232		↓		3.5	23.3	6' Hi	5.9	3.4	6.5
231				4.1	22.7	7' Low	6.8	4.1	7.0
230				4.8	22.0		7.7	5.1	8.1
229				5.5	21.3		8.1	5.4	7.6
228				~~6.1~~ 5.3	~~20.7~~ 21.5	.9'		5.2	
227				~~6.6~~ 4.9	20.2	1.6' 1.2		5.0	
226				~~6.8~~ 5.1	20.0	1.9' 1.7		4.9	
225				~~6.8~~ 5.3	20.0	1.2 1.3		5.6	

Sta		H.I.			
		26.79			
224				5.7 6.5	20.3
223				5.5 5.8	21.0
T.P.	8.69	29.98	5.50	21.29	
222		↓		8.0	22.0
P.T. 221+72.4				7.9 7.7 7.5	22.3
221				7.2 7.0 6.8	23.0
+50				6.7 6.5 6.3	23.5
220				6.2 6.0 5.8	24.0
+50				5.7 5.5 5.3	24.5
T.P.	5.15	31.43	3.64	26.34	1326.28
219				6.7 6.5 6.3	24.9
+50		↓		6.4 6.2 6.0	25.2
218				6.1 5.9 5.7	25.5
+50				5.9 5.7 5.5	25.7
217				5.7 5.5 5.3	25.9
+50				5.6 5.4 5.2	26.0
216				5.6 5.4 5.2	26.0
+50				5.6 5.4 5.2	26.0
215				5.6 5.4 5.2	26.0
+50				5.6 5.4 5.2	26.0
214				5.6 5.4 5.2	26.0
+50				5.8 5.6 5.4	25.8
213				6.0 5.8 5.6	25.6
P.C. 212+54.6		↓		6.2 6.0 5.8	25.4
T.P.	4.02	29.25	6.20	25.23	

	L	℄	R
9′ 0′		56	
4′ 3′		54	
	11.1	79	11.0
	10.6	79	11.0
	9.5	70	7.5
	9.0	65	9.3
	8.9	63	9.2
	8.4	60	8.9
BM 219+50 40′R	9.4	66	7.5
	9.2	61	8.7
		60	Sh'lH
		56	
st.3H		53	
st.2H		52	
	7.7	535	7.8
	8.0	56	7.9
	8.6	57	8.4
	7.7	56	7.5
	8.3	57	8.4
	7.2	58	8.5
	10.1	58	9.5
	9.6	60	7.3

L. S. st. of P.C.

Sta		HI			Grade		L	¢	R
		↓ 29.25 ↓							
212				4.1 4.25	25.2			3.8	
211				4.4 4.6	24.9			4.3	
210				4.8 5.0	24.5			4.5	
209				5.2	24.1			5.1	
208				5.6 5.3	23.7			5.1	
207				5.1	23.4			6.2	8.4
206				5.9 5.6	23.4			6.1	
205				5.9	23.4			5.8	
204				6.3 5.7	23.0	s'hi raised .6'		5.5	
P.T. 203+76				6.3 5.3	23.0	1.3" " 1.3'		5.1	
T.P.			5.33 5.33		1318.73	199+00 L60' Spkes 10" top.			
2	9.96	28.69			1318.73				
201		↓		4.7 4.9 5.1 5.7	23.0	.8' L	R .8	4.9	
200				4.7 4.9 5.1 5.7	23.0	.9' L	R .8	4.8	
199				5.2 5.4 5.6 5.7	23.0	.2 L	R .3	5.5	
ol 198				5.2 5.6 5.4	23.3	9.0		5.4	
197				5.0 5.4 5.2	23.5			5.6	
196				4.7 5.1 4.9	23.8			5.0	
195		↓		4.4 4.8 4.6	24.1			4.4	
T.P.	4.61	28.50 ↓	4.80	23.89					

		28.50					
194		↓		3.9 4.1 4.3	24.4		4.3
193				4.0 4.2 4.4	24.3		4.4
192				5.3 5.5 5.7	23.0		5.7
191				7.0 7.2 7.4	21.3		6.7
190				8.6 8.8 9.0	19.7		8.7
189 T.P.	1.66	19.86	10.30	10.3 10.5 10.7 18.20	18.0		10.7
188				3.4 3.6 3.8	16.3		3.6
187				5.0 5.2 5.4	14.7	staked [illegible]	4.8
186				5.9 6.1 6.6 6.3	13.3	st. 5 [illegible]	6.1
185				7.2 7.4 7.6	12.5		7.4
184				7.7 7.9 8.1	12.0		8.0
183				8.2 8.4 8.6	11.5		8.3
	5.83	16.69	8.20	4.26			
			4.70		1311.78	182+00 6.5' R [illegible] W.P.	

T.P.	0.72	14.45			1313.76
338+90					9.0
338 Pc.					9.0
337					9.0
336					9.0
335					9.0
334					9.0
333					9.0
332					9.0
331					7.0
330					9.5

July 5 Wed

Claying sta 339 to 373

AM 3 Men 9.30 to 12 = 7½ Man Hrs ✓

PM 6 Men 1 to 6 = 30 Man Hrs ✓

July 6 Thur

AM 4 Men 7 to 12 = 20 Man Hrs ✓

3 Horse Team & 1 Man = 8 Man Hrs / 12 Team Hrs

Cat & Blade 8 & 3 men 2 Hrs July 5 Blading ✓

Cat & Blade 8 & 3 men 2 Hrs July 7 Blading

336+50 - 60' L Rt. Spk in 28" R.P.

Rt Dt.		L.D.
		9.0
8.0		8.6
7.5		7.6
7.4		7.5
7.4		7.5
7.5		7.6 old ditch
8.6	7.3	9.7
9.0		10.0 "

Sand Spreading

July 8/ 5 Hrs 10/ 10 Hrs 11/ 10 Hrs 12/ 10 Hrs = 35 (Team & 1 Man) Hrs ✓

July 8/ 12 Man Hrs 10/ 21 M Hrs 11/ 20 Man Hrs 12/ 21 M.Hs = 74 Man Hrs Spreading ✓

7½ Man Hrs sloping & leveling Sand Pit ✓

N. Cem. Apr. put in 8 12' Cult - taken out?

7-20-33 Rip-Rapping ✓

P6 Mens Team 5.00 per day. | 7 Men 9 Hrs each = 63 Man Hrs 7-20-33 5T ✓
7 Men 4 Hrs each = 28 Man Hrs 7-21-33 2T
91 Total Man Hrs

SAR #8 - J.B. #3201 — 7-7-33

SAND HAUL CHART.

2900' H.

Sta 367 Sand Pit — Dead Haul .53031

367 to 341 = 5 mi Dead Haul

Sta 341 + 00	.1 Mi.	= .6 mi	Haul
330 + 44			
319 + 88	.2	= .8	
309 + 32	.2	= 1.0	
298 + 76	.2	= 1.2	
288 + 20	.2	= 1.4	
277 + 64	.2	= 1.6	
267 + 08	.2	= 1.8	
256 + 52	.2	= 2.0	
245 + 96	.2	= 2.2	
235 + 40	.2	= 2.4	
224 + 84	.2	= 2.6	
214 + 28	.2	= 2.8	
203 + 72	.2	= 3.0	
191 + 91	.2	= 3.2	125 Equa
181 + 35	.2	= 3.4	

Sta 185 to 210 = 2500'

7-8-33

	Total yds	C.Y./Mi.		
A10 - 2.5 Cu/ds	37.5	119.5	✓	# 1629
15 - 2.5 "	37.5	120.0	✓	# 1536
A7 - 3.5 "	47.0	155.4	✓	# 1584
257 - 2.5 "	35.0	111.0	✓	# 1201
A6 - 3.5 "	45.5	143.5	✓	# 1031
12 - 2.5 "	10.0	32.0	✓	# 76
A11 - 2.5 "	35.0	111.2	✓	# 2002
	249.5	792.4		

10.4 Cu/ds per sta.

Sta 210 to 235 = 4000

7-10-33

A6 - 3.5	91.0	232.4	✓	# 1433
A7 - 3.5	91.0	232.4	✓	# 1585
257 - 2.5 "	70.0	180.5	✓	# 1586
12 - 2.5	55.0	141.5	✓	# 1202
A11 - 2.5	62.5	160.5	✓	# 1203
A10 - 2.5	70.0	179.5	✓	# 1631
A15 - 2.5	70.0	178.5	✓	# 1533
	509.5	1305.3		

12.1 Cu/ds per sta.

1437
77
78
2207
2210
1430

252 to 291

7-11-33

		Cu/ds	Cu/Yds		
A-10	2.5	60.0	107.5	V	#1637 #1633
12	2.5	67.5	121.0	V	#79 #80
15	2.5	55.0	102.5	V	#1534 #1540
A-6	3.5	98.0	175.7	V	#1435 #1435
257	2.5	70.0	128.5	V	#1704 #1705
A-11	2.5	70.0	127.0	V	#7711 #7717
A-7	3.5	98.0	173.6	V	#1587 #1588
		518.5	935.8		

Stock Pile 270 29.5 Cu Yds

Stock Pile 288 26.5 Cu Yds

Headwards Estr 19.0 Cu Yds

Marvins Estr 15.0 Cu Yds

Millers Estr 7.5 Cu Yds.

7-12-33

15	2.5	72.5	73.0	V	1541
A-10	2.5	60.0	60.0	V	1634 1635
A-11	3.5	75.0	76.5	V	7713 7714
A-7	3.5	108.5	109.7	V	1589 1590
A-6	3.5	108.5	109.9	V	1436 1437
12	2.5	70.0	71.0	V	81 82
257	2.5	72.5	73.0	V	1706 1707
		567.0	572.6		

✓ ✓

Jobs Cu Yds 1844.5 Cu Yds Mi. 3606.1

X-Sec Ditches and Borrows

187
188
189
190
191
192
193

196
197
198
199

211
211
212
212+56.6
213
213+50
214
214+50

S. S. Walker
M. [illegible] Duncan

L			R				
187+75 = 00			Ditch 0.0				
-1.2/9.5	-2.9/7	-1.7/2	-1.0/2	-2.9/8	-0.3/11	+0.5/12	✓
-0.3/11	-3.0/8	-1.2/2	-1.5/2	-3.0/8	+0.2/11.5		✓
+0.6/14	-2.3/8.5	-0.9/2	-1.1/2	-2.6/8	+2.9/15		✓
0.0/11	-2.8/7	-1.1/2	-1.3/2	-3.2/8	-0.6/11.0		✓
-0.3/11.0	-2.5/7.0	-1.1/2	-1.1/2	-2.9/8	-0.1/11		✓
-1.2/10	-2.8/8	-1.1/2	-1.2/2	-2.8/8	+0.6/12		✓
193+60 = 00			193+75 = 00				
0.0			0.0				
+2.1/15	-3.1/9	-2.2/3	-1.3/2	-2.7/7.0	+0.8/11		✓
-0.3/13	-3.1/8	-1.2/2	-1.0/2	-2.9/9	+6.0/17.0		✓
-2.0/11	-3.3/9.0	-1.5/6.0	-1.2/2	-3.1/8	-1.7/10.5		
199+20			199+15 = 00				

50 yds R 205+50 to 208 — L at bottom - close
50 yds L 206 to 208 — L low — } don't need x-sec

L			R			
210+60			0.0			
-1.1/9	-2.6/7	-1.2/2	-1.3/2	-3.7/7	-1.7/8	
+0.9/12	-2.6/8	-1.1/2	-1.1/2	-3.3/8.5	-0.3/11	
-0.1/13	-3.1/9	-1.3/2	-1.1/2	-3.1/8	-0.6/12	
-1.2/12	-3.2/9	-2.5/4	-1.8/2	-3.4/9	-1.9/11	✓
-1.0/10.5	-3.0/8	-1.4/2	-1.4/2	-3.3/8.5	-0.9/17	✓
+0.5/12	-2.8/8	-1.0/2	-1.1/2	-2.7/8	0.0/11	✓
+2.2/14	-4.2/5	-1.1/2	-1.3/2	-3.9/9.0	+1.1/13.5	✓

July 16 · 33
Ht Windy ✓

Station	L				R				
215	+1.3/13	-2.6/9	-1.2/2		-1.6/2	-3.2/8	-0.3/11		✓
215+50	+2.4/15	-3.5/9	-0.9/2		-1.6/2	-2.9/7.5	+1.7/13		✓
216	+0.8/13	-2.3/9	-0.7/2		-1.6/2	-2.9/6	-0.7/10.5		✓
	216+40=00				216+15=00				
	217+52=00				21				
218	-0.6/9	-2.6/7	-1.3/2		218+25=00				✓
218+50	+1.3/13	-2.7/8.5	-1.0/2		-0.9/2	-2.5/8.5	+0.3/11.5		✓
219	+1.9/14	-2.6/9	-1.0/2		-1.3/2	-2.9/8	+0.5/12		✓
219+50	-1.7/14	-2.3/9	-0.9/2		-1.6/2	-3.4/8	+1.2/16		✓
220	+0.5/12.5	-2.5/9	-1.0/2		-1.5/2	-3.5/8	+1.0/12.5		✓
220+50	+2.5/15	-2.4/9	-1.0/2		-1.2/2	-3.0/9	+3.0/16		✓
221	+1.1/14	-2.6/8	-0.9/2		-1.2/2	-2.7/9	+1.5/14		✓
PT. 221+77.4	-1.1/9	-2.5/7.5	-1.6/2		-1.5/2	-3.0/8	-0.7/10.5		✓
222	-1.2/9	-3.1/7.5	-1.5/2		-1.3/2	-2.9/7	-0.1/11		✓
223	-2.6/11	-3.2/9.0	-1.4/2		-1.6/2	-3.1/7.5	-0.5/10		✓
224	-2.6/8.5	-3.2/7.5	-1.3/2		-1.3/2	-3.6/8.5	-2.2/10		end ditch
228+42=00 Ditch									
229	+0.7/11	-2.5/8.5	-1.2/2		-0.8/2	-2.3/8.5	-0.5/10.5		
230	+3.4/21	-2.5/14	-2.1/5		-1.3/2	-2.7/6	-2.9/12.5	+1.1/18	✓
231	+2.1/18	-0.5/15	-2.3/12	-2.0/5	-2.0/4	-2.3/12	+2.2/18.5		✓
231+40	-0	+1.7/14	-2.4/10	-1.8/45	-2.0/4	-2.5/11	+1.2/14	+1.4/22	
232	+0.5/12	-2.3/8	-1.9/3.5		-2.1/4	-2.3/9	+0.4/11		✓
PC. 232+93.5	-2.1/9	-2.8/6			-1.9/4	-3.1/9	-2.2/1.0.0		End Ditch

7-15-33
7-17-33

Station	Blue Top Stakes High Sts. for Plotting	L	℄	R	
234		-1.0/9.5	-3.0/8.5	-2.0/3 -2.3/4 -3.0/9 -2.0/10	✓ Begin Ditch
234+50		-0.5/11	-2.5/9.0	-2.0/3.5 -2.4/4 -2.9/9 -1.3/10.5	✓
235		-0.8/11	-2.6/9	-1.6/3 -1.4/3.5 -2.3/9.0 -0.2/11	✓
235+50	.1	-0.2/11	-2.6/9	-1.8/3 -1.8/5 -2.2/8.5 +0.5/11.5	✓
236	.1	-0.3/11.5	-2.9/8	-2.6/4 -1.7/4 -2.2/8 +0.2/11	✓
236+50	.1 SF	End Ditch -1.7/10	-2.3/8	-2.0/4 -1.9/4 -2.5/8 -0.8/11	Note Raised Grade ↓
237	.2 SF			-2.5/5 -2.9/8 -1.7/10	✓
237+50	.4 F			-2.6/3 -2.9/9 -1.5/10	✓
238	.2 F			Ditch =00	✓
242				-1.4/2 -2.7/8 -2.0/9	✓
243				-1.3/2 -2.8/8 -1.3/10	✓
244		242+75=00		-1.1/3 -2.7/9 -0.9/10.5	✓
245		+0.7/11	-1.9/8	-1.0/2 -1.8/3 -2.7/8 +0.6/12	✓
246		+2.4/14	-2.1/8	-1.4/3 -1.7/3 -2.5/8 +2.3/14	✓
247		+1.6/13	-1.9/8	-1.5/3 -2.1/3 -3.2/10 +0.9/15	✓
248		-0.7/10	-2.5/8	-1.1/2 -1.6/3 -2.8/10 -0.1/16	✓
249		-0.9/10	-2.8/8	-1.8/3 -1.5/2 -2.7/9 -0.9/10	✓
250		-1.5/10.5	-2.9/9	-2.1/4 -1.4/3 -2.3/8.5 -0.2/10.5	✓
251		+3.2/15.5	-2.2/9	-2.1/3.5 -1.6/4 -2.4/8 -0.7/10	✓
252		-0.5/12	-2.7/9	-2.1/3 -1.7/2 -2.4/9 -1.0/11	End Ditch R
		252+50=00		Headmans Entr to Old Rd 56' wide	
253				-1.4/3 -2.5/8.5 -0.8/11	✓
				253+75=00	

Sta	+S	H.I.	-S		
257					
258					
259					
260+37.0					
B.M.	3.85	33.59			1329.74
TP.	1.84	26.30	7.13	22.46	
274		↓			
275					
276					
277					
277+65					
278					
279					
280					
281					
282					
283					
284					

7.18-23

L ℄ R

-1.3/9 -2.0/8 -1.2/3 -1.6/3 -2.3/8 -1.7/9 5 ft Ditch ✓

+1.5/12.5 -0.8/10 -1.9/7.5 -1.1/3 -1.3/3 -2.0/7 [illegible] 2.2/13 ✓

-0.5/10.5 -2.2/8 -1.7/3 -1.7/3 -1.7/8 +0.6/16.5 ✓

-0.5/10 -2.3/7.5 -1.5/3 -1.5/3 -2.4/7 +0.6/12

✓

Ditch=00 260+52

262+57.5 PC to 270 Ditches close - south end ditches are trifle larger

268+50 95' R Ry Spk. in 10" Birch

R.&L. Begining of Ditch.

3.7/24 3.9/21 4.2/20 3.5/15 1.8/12 19 1.8/11.5 3.5/14 4.1/18 3.5/17 3.5/22

0.5/27 4.1/23 2.6/21 3.8/15 2.6/12 28 2.7/11 4.5/14 5.6/20 3.7/23 1.5/26 ✓

0.4/27 4.3/33.0 5.3/21.5 4.8/14.5 3.4/12 36 3.8/11.5 5.6/15 5.8/19 3.6/23 0.6/26 ✓

2.5/25 4.8/23 6.1/21 5.1/15 4.1/12 43 4.5/12 5.8/15 6.5/19.5 4.5/23 2.9/25 ✓

1.9/30.0 2.6/24.5 6.5/21 5.4/15 4.5/12 46 4.7/12 5.9/15 6.4/19 4.0/22 3.0/38 3.1/33.5?

3.4/33 3.7/25 6.9/21 6.2/16 4.7/12 48 4.8/12 6.4/15 7.0/19 4.0/22.5 3.7/29 ✓

6.4/28 5.5/22 8.1/20 6.9/14 5.4/12 53 5.3/12 6.5/14 7.5/21 4.2/24 3.5/33 ✓

5.7/27 5.3/22 8.4/20 7.9/15 5.9/12 59 5.8/12 7.2/14 8.0/19.5 4.7/23.5 3.9/30 ✓

6.2/27 6.2/21.5 8.5/20 7.6/14 6.0/12 60 5.8/12 7.0/15 7.7/20 5.0/24 4.8/29

7.9/27 7.9/21.5 8.8/20 7.8/14 6.3/12 62 6.3/12 7.7/15 8.5/22 7.7/23 7.6/27 ✓

7.7/26 7.2/22 8.8/20.5 7.9/15 6.3/12 63 6.2/12 7.2/15 8.3/21 6.4/23 6.1/27 ✓

283 +50=00 283 +75=00

58

Clay Pit X-Sections

Sta	+S	H.I.	-S		
	3.88	17.64			1313.76
334					
+83					
335					
336					
+50					
337					
+57.5					
338					
339					
339+70					
T.P.	4.77	14.17	8.24	9.60	

L ℄ R

336+50 - 60' L Ry Spk 28" N.P.

Begin Bor. 7.5/34 7.8/30 10.9/23 10.0/17 8.2/12 | 8.4

7.5/35 7.7/31 10.0/27 11.0/22 10.0/17 8.2/12 | 8.4

6.3/34 6.5/30 9.4/26 10.4/24 10.0/15 8.4/12 | 8.3 | 8.3/12 9.5/16 10.2/21 6.8/26 6.5/33

4.7/35 5.0/32 9.1/27 10.4/24 7.5/14 8.6/11.5 | 8.4 | 8.5/12 9.7/17 10.2/32 5.7/29 5.4/35

3.4/35 3.6/32 10.7/22 9.9/15 8.5/12 | 8.4 | 8.3/12 9.9/17 10.3/27 9.1/30 3.7/35 3.6/41

2.6/33 6.4/30 9.2/26 10.4/24 9.6/15 8.5/12 | 8.3 | 8.3/12 9.5/16 10.5/25 8.5/30 1.3/35 1.2/36

4.4/36 5.0/33 9.9/27 10.7/25 10.4/15 8.5/12 | 8.4 | 8.6/12 9.7/15 11.0/24 9.6/25 6.0/32 4.2/34 2.0/37

338+92 7.6/37 7.6/31.5 11.3/27 10.8/15 8.7/12 | 8.5 | 8.2/12 9.3/15 9.9/24 6.1/30 6.2/35 | 339+00

8.3 | 8.1/12 9.4/15 10.1/21 7.1/25 7.3/31

stake

Sand Borrow for Curve

Sta	+S	H/I	-S
		147	
341			
342			
343			
344			

69

L

63/33	70/36	86/34	27/17	55/12	50	✓
46/36	68/31	88/28.5	26/17	55/12	52	✓
60/32	60/29	56/16	28/17	58/12	52	✓
48/33	50/26	83/21	78/17	57/12	55	✓

Sec C/S on Boy River Rd.

CAR #4 - Job #321

N 26&25 1/16 Cr tied to Birch tree (West Reference tree)

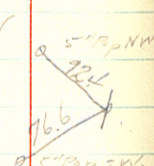
1/4 Cr S26 & 25 (Wired to N.W. Ref tree - with Barb Wire.

Sec Cr. 26, 25, 35, 36 Twp 142N R28W

crs wired to NW Ref tree

N 1/16 Cr S35 & 36

Ref. Pts. to 1919 Cr - Same trees as 1928 Cr



1/4 Cr 35, 36 tied to NE oak Ref tree

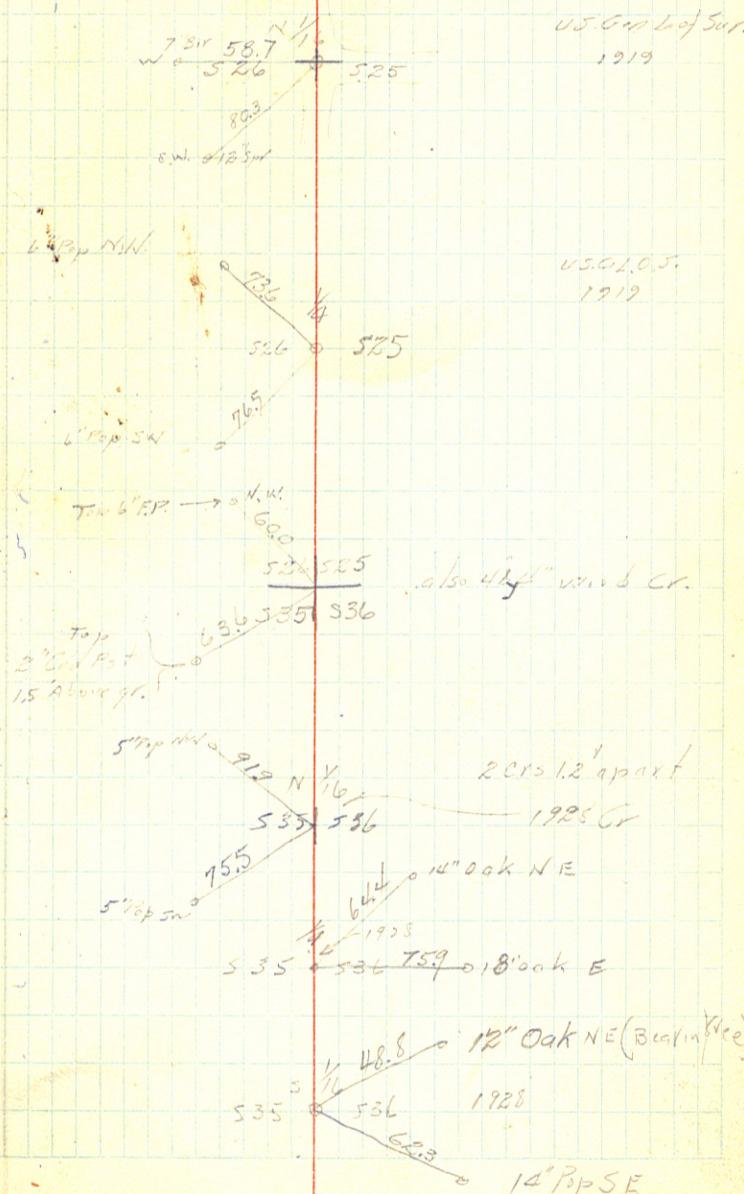
S 1/16 35 & 36 tied to NE oak Bearing tree & R.T.

Note: Corner's Replaced 10-22-32
Same Crew - under surface 4'
Clear - Cool. - S.S.W.

6-29-32

S.S. Walker
Bl. Schluter ch.
M. Duncan Rd.

Note: Sec crs. Ref. & Removed - tied to one of respective Ref trees with wire.



Natural Tangents

Deg.	0′	10′	20′	30′	40′	50′	Deg.	Deg.	0′	10′	20′	30′	40′	50′	Deg.
0	0000	0029	0058	0087	0116	0145	**89**	**40**	8391	8441	8491	8541	8591	8642	**49**
1	0175	0204	0233	0262	0291	0320	88	41	8693	8744	8796	8847	8899	8952	48
2	0349	0378	0407	0437	0466	0495	87	42	9004	9057	9110	9163	9217	9271	47
3	0524	0553	0582	0612	0641	0670	86	43	9325	9380	9435	9490	9545	9601	46
4	0699	0729	0758	0787	0816	0846	85	44	9657	9713	9770	9827	9884	9942	45
5	0875	0904	0934	0963	0992	1022	84	45	1.0000	1.0058	1.0117	1.0176	1.0235	1.0295	44
6	1051	1080	1110	1139	1169	1198	83	46	1.0355	1.0416	1.0477	1.0533	1.0599	1.0661	43
7	1228	1257	1287	1317	1346	1376	82	47	1.0724	1.0786	1.0850	1.0913	1.0977	1.1041	42
8	1405	1435	1465	1495	1524	1554	81	48	1.1106	1.1171	1.1237	1.1303	1.1369	1.1436	41
9	1584	1614	1644	1673	1703	1733	80	49	1.1504	1.1571	1.1640	1.1708	1.1778	1.1847	40
10	1763	1793	1823	1853	1883	1914	**79**	**50**	1.1918	1 1988	1.2059	1.2131	1.2203	1.2276	**39**
11	1944	1974	2004	2035	2065	2095	78	51	1.2349	1.2423	1.2497	1.2572	1.2647	1.2723	38
12	2126	2156	2186	2217	2247	2278	77	52	1.2799	1.2876	1.2954	1.3032	1.3111	1.3190	37
13	2309	2339	2370	2401	2432	2462	76	53	1.3270	1.3351	1.3432	1.3514	1.3597	1.3680	36
14	2493	2524	2555	2586	2617	2648	75	54	1.3764	1.3848	1,3934	1.4019	1.4106	1.4193	35
15	2679	2711	2742	2773	2805	2836	74	55	1.4281	1.4370	1.4460	1.4550	1.4641	1.4733	34
16	2867	2899	2931	2962	2994	3026	73	56	1.4826	1.4919	1.5013	1.5108	1.5204	1.5301	33
17	3057	3089	3121	3153	3185	3217	72	57	1.5399	1.5497	1.5597	1.5697	1.5798	1.5900	32
18	3249	3281	3314	3346	3378	3411	71	58	1,6003	1.6107	1.6212	1.6319	1.6426	1.6534	31
19	3443	3476	3508	3541	3574	3607	70	59	1.6643	1 6753	1.6864	1.6977	1.7090	1.7205	30
20	3640	3673	3706	3739	3772	3805	**69**	**60**	1.7321	1.7437	1.7556	1.7675	1.7797	1.7917	**29**
21	3839	3872	3906	3939	3973	4006	68	61	1.8040	1.8165	1.8291	1.8418	1.8546	1.8676	28
22	4040	4074	4108	4142	4176	4210	67	62	1.8807	1.8940	1.9074	1.9210	1.9347	1.9486	27
23	4245	4279	4314	4348	4383	4417	66	63	1.9626	1.9768	1.9912	2.0057	2.0204	2.0353	26
24	4452	4487	4522	4557	4592	4628	65	64	2.0503	2.0655	2.0809	2.0965	2,1123	2.1283	25
25	4663	4699	4734	4770	4806	4841	64	65	2.1445	2.1609	2.1775	2.1943	2.2113	2.2286	24
26	4877	4913	4950	4986	5022	5059	63	66	2.2460	2.2637	2.2817	2.2998	2.3183	2.3369	23
27	5095	5132	5169	5206	5243	5280	62	67	2.3559	2.3750	2.3945	2.4142	2.4342	2.4545	22
28	5317	5354	5392	5430	5467	5505	61	68	2.4751	2.4960	2.5172	2.5386	2.5605	2.5826	21
29	5543	5581	5619	5658	5696	5735	60	69	2.6051	2 6279	2.6511	2.6746	2.6985	2.7228	20
30	5774	5812	5851	5890	5930	5969	**59**	**70**	2.7475	2.7725	2.7980	2.8239	2.8502	2.8770	**19**
31	6009	6048	6088	6128	6168	6208	58	71	2.9042	2.9319	2.9600	2.9887	3.0178	3.0475	18
32	6249	6289	6330	6371	6412	6453	57	72	3,0777	3.1084	3.1397	3.1716	3.2041	3.2371	17
33	6494	6536	6577	6619	6661	6703	56	73	3.2709	3.3052	3.3402	3.3759	3.4124	3.4495	16
34	6745	6787	6830	6873	6916	6959	55	74	3.4874	3.5261	3.5656	3.6059	3.6470	3.6891	15
35	7002	7046	7089	7133	7177	7221	54	75	3.7321	3.7760	3.8208	3.8667	3.9136	3.9617	14
36	7265	7310	7355	7400	7445	7490	53	76	4.0108	4.0611	4.1126	4.1653	4.2193	4.2747	13
37	7536	7581	7627	7673	7720	7766	52	77	4.3315	4.3897	4.4494	4.5107	4.5736	4.6382	12
38	7813	7860	7907	7954	8002	8050	51	78	4.7046	4.7729	4.8430	4.9152	4.9894	5.0658	11
39	8098	8146	8195	8243	8292	8342	50	79	5.1446	5.2257	5,3093	5.3955	5.4845	5.5764	10
Deg.	60′	50′	40′	30	20′	10′	Deg.	Deg.	60′	50′	40′	30′	20′	10′	Deg.

Deg.	0′	10′	20′	30′	40′	50′	Deg.
80	5.6713	5.7694	5.8708	5.9758	6.0844	6.1970	9
81	6.3138	6.4348	6.5606	6.6912	6.8269	6.9682	8
82	7.1154	7.2687	7.4287	7.5958	7.7704	7.9530	7
83	8.1443	8.3450	8.5555	8.7769	9.0098	9.2553	6
84	9.5144	9.7882	10.078	10.385	10.711	11.059	5
85	11.430	11.826	12.250	12.706	13.197	13.727	4
86	14.300	14.924	15.605	16.350	17.169	18.075	3
87	19.081	20.206	21.470	22.903	24.542	26.432	2
88	28.636	31.242	34.368	38.189	42.964	49.104	1
89	57.290	68.750	85.940	114.588	171.885	343.77	0
Deg.	60′	50′	40′	30′	20′	10′	Deg.

Natural Cotangents

Start Ditch { 737+50 taken. / 243 Raise. ∠
no ditch on ℄

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

ROADWAY 14 FEET WIDE. SIDE SLOPES $1^1/_2$ TO 1.

FOR SINGLE TRACK EMBANKMENT.

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

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

R.