No. 165

FIELD BOOK

360

No. 165

Property of Cass County
Return To Highway Engr.

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.

"Copyright, 1895, by Keuffel & Esser Co."

	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.

Index!

Oct. 26 - 1929

Transit Notes County Aid Job #

Prudlo
Trout
Mast

26+

13+20 1/16 Line No Mon. POT

13+26

0+00 Sec. Cor. No Mon. S 6° 30' E

RP { 5" Pop 44.5 S.W.
4" Pop 59.0 SE

(1)

$52+39$

102+00 P.I. Δ 19° 30' R

787

131+890 PI Δ

~

121+110 PI Δ 70° 0' Lt

105

136+00 1/4 Line No Mon Δ 0°16' L

1627390 Sec Cor Iron Stk Inp. △ 0° 13' R

R.P. { 6" Pine 73.9 E
14" Pine 83.8 SE

188+73.6 1/4 Cor Iron Pipe Imp P.O.T.

R.P.S 8" pop 35.0 N.E
6" pop. 47.1 S.E.

218+79.7 Corr. Cor. Iron pipe Inp. POT.

R.P. { 6" Pop 55.5 NW
5" Pop. 61.7 NE

215

215+08.3 Sec. Cor. Iron pipe Inp. △ 90°21'L

R.P. { 6" Pine 17.3. NW
7" Pine 35.8 SW

210

248+89 1/16 Line P.O.T.

R.P. { 6" pop 36.7 N.E.
8" pop 37.2 S.E.

234+99.0 Sec Cor. Stk Imp. △ 90°28'R

R.P. { 6" pop 50.6 N.W.
6" pop. 27.7 N.E.

289+29.1 Sec

R.P { F.P 35.1 N.E.
F.P 42.5 S.E

276+09 1/16 Line P.O.T.

RP { 4" pop 6.43 N.W.
8" pop. 57.2 S.W.

262+39 1/4 Line P.O.T.

R.P. { 4" Pop 52.9 S.E.
8" pine 39.3 S.W.

Job #304 Nov. 15-1929 Prudlo & Lester McAllister

Transit Notes Co. Aid Road IXa 17

Soundings

Sta 10+15 To 25+00 Average 4'

Swamp Swamp

10 — — — 10+15 — — — — — —

Wild Land

4+60.0 1/4 Line No. Mon. P.O.T. NW of N.E Cor Sec 3-137-3

R.P. { 6" J. Pine 34.7 S / 6" J P 55.4 SW

Wild Land.

Field

0+00 S 83° 30' W.

R.P. { 5" J.P. 37.9 NE / 5" J.P. inc 46.6 N.W.

51

40

36

34

30+06.3 Sec. Cor. No. Mon. Δ 0° 12' R

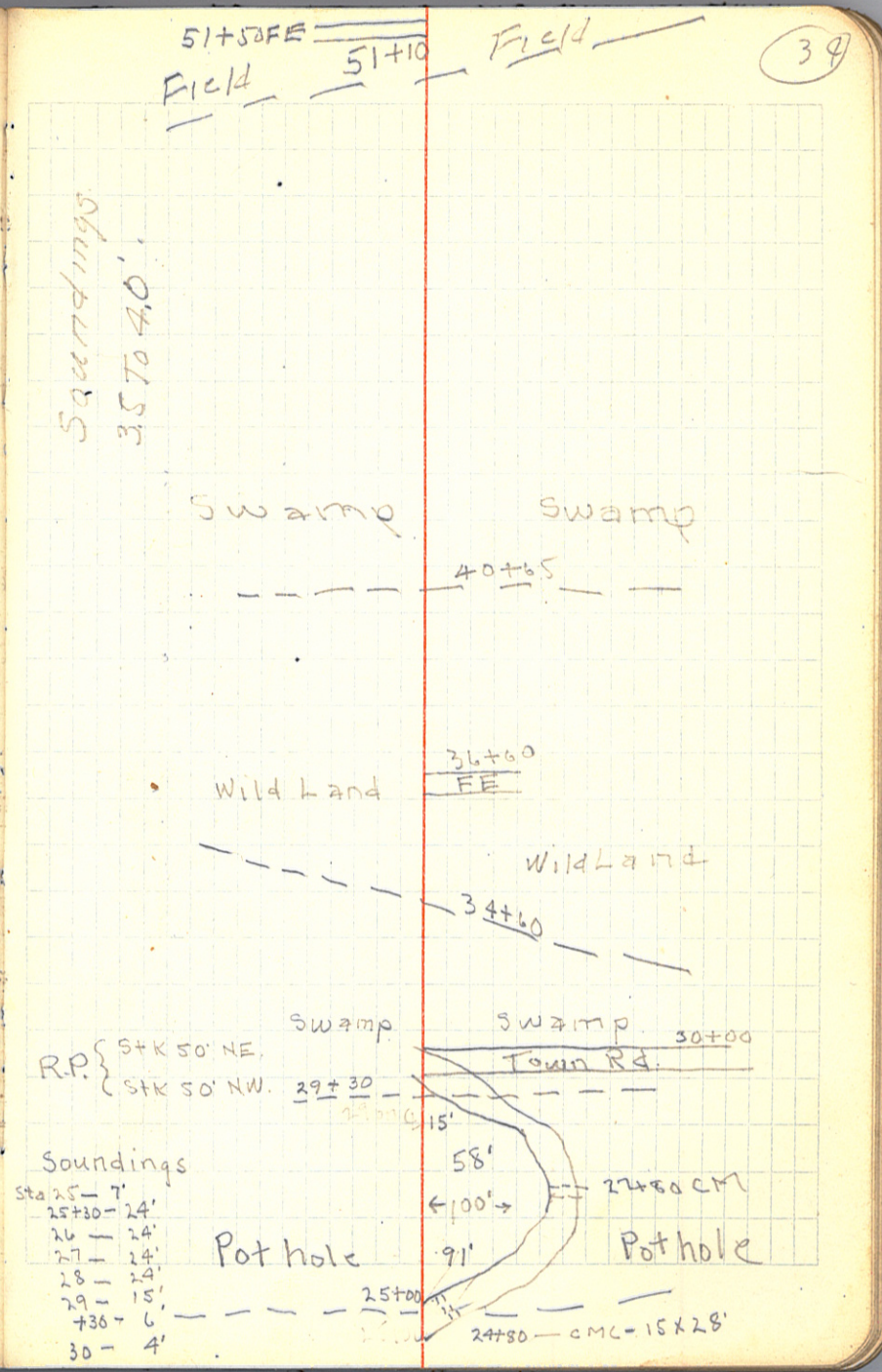
29

28

27

26

NW Cor Sec 3 - 137-30



12/9/93

R.A. Dahms
R.H. Harms
W. Buykholder

(35)

Re-X-Sec.

R — L Shoulder grade — L

5+00	5.2	6.2	6.8	5.2
	0	3	8	10
6+00	5.2	6.5	7.1	5.2
	0	4	10	14
+40	5.2	6.5	7.1	3.5
	0	3	9	15
7+00	5.2	6.2	6.4	2.3
	0	3	11	18
+50	5.2	6.2	6.6	1.0
	0	3	10	20
8+00	5.2	6.6	6.9	0.9
	0	4	10	21
9+00	5.2	6.5	6.8	0.2
	0	3	18	21
+50	5.2	6.5	6.8	2.3
	0	3.0	10	18
10+00	5.2	6.9	7.0	4.9
	0	3	10	19

57+39.2 — 1/4 Cor. — No Mon — NW of NE Sec 4 — 137-30

R.P. { F.P. 395'S
3" J.Pine 72.4 SW.

Field

Field

Nov. 16-1929

Prudloff
Lester
Mc Allister

Level Notes County Aid Road No 17

BM ↘				1300.00
	9.63	0963		
0-200			36	060
0-100			28	068
0+00			31	065
1+00			37	059
2+00			48	048
3+00			82	014
+50			95	001
4			100	996
+60			96	1300.0
	8.28	8.30	9.61	00.2
5			8.0	000
6			6.6	0.17
7			4.6	037
+50			4.9	034
8			6.6	01.7
+50			8.6	997
9			10.8	97.5
	1.30	9814	10.86	9744
10			6.6	92.1
+50			8.1	90.6
11			8.5	90.2
	4.48	9474	8.48	902.6
12 ✓			4.8	89.9
13			5.1	89.6

Originals

36

6" Jack Pine 65' L 4+60

3.6
2.8
2.1
3.7
4.8
8.2
9.5
10.0
9.6
8.0
6.6
4.9
6.6
8.6
10.8
6.6
8.1
8.5
4.8
5.1

		9474		
14			5.0	89,7
15			5.0	89,7
16			5.6	89,1
17			5.9	88,8
18			6.3	88,4
	2.61	9180	5.55	89.19
19			3.4	88,4
20			4.0	87.8
21			4.2	87,6
22			50	86.8
23			5.4	86.4
24			5.9	85,9
	4.00	8990	590	8590
25			4.6	85.3
26			6.1	83.8
27			6.1	83.8
+80	Offtake Dr. 50. To Lake 24x18 CM New			
28			6.0	83,9
29			4.6	85.3
30			4.7	85.2
31			4.5	85.4
32			3.7	86.2
33			2.3	87.6
34			0.3	89.6
	1266	0227	0.19	8961

		0227		
34+60			12.0	90.3
35			9.5	92.8
36			5.6	96.7
B.M.			050	101.77
36+60			3.6	98.7
37			3.3	99.0
38			2.7	99.6
	5.70	0532	265	9962
39			4.2	01.1
+50			3.8	01.5
40 +0			5.3	00.0
40+50			7.5	97.8
41			8.6	96.7
42 +12 −15x24 CMC Remove			8.4	96.9
43			7.9	97.4
	4.28	01.75	7.85	97.47
44			4.5	97.3
45			4.6	97.2
46			4.7	97.1
47			4.8	97.0
48			4.9	96.9
+29	30"X14" CMC Good Dr. So.			
49			4.8	97.0
50			4.2	97.6
	12.07	0962	4.20	9755

Needs New Side Ditch on R

38

L R

LO 137/27 151/30 151/19 140/18 124/10 1 2 0 124/10 128/15 123/21 111/30

107/30 107/18 96/12 9 5 94/11 95/27 72/33 SS

63/30 73/21 73/12 59/11 5 6 58/13 66/19 43/33 SS

10" J. Pine 50' R 36+50

53/31 53/16 49/12 3 6 26/22 26/31

53/30 50/16 37/11 3 3 36/13 28/22 23/31

47/30 44/14 30/9 2 7 23/17 27/24 14/32

54/30 54/15 46/11 4 2 42/14 51/20 32/27 32/30

52/30 50/14 42/9 3 8 42/13 45/19 41/28

55/30 60/14 53/9 5 3 53/20 30/27 30/30

84/30 82/17 7 5 75/15 78/19 78/25 62/28 L

98/30 96/11 86/6 8 6 86/13 93/19 95/30

51/30 83/21 97/18 97/17 86/16 8 4 84/21 94/22 94/23 84/24 LO

LO 85/21 96/19 96/18 86/17 7 9 85/21 88/23 85/25 LO

45/27 70/20 70/19 52/17 4 5 50/21 55/24 48/26 LO

LO 53/27 66/20 66/19 51/18 4 6 48/21 56/22 56/23 46/25 LO

51/20 78/21 74/20 54/19 4 7 47/21 45/30

L 57/27 72/20 72/19 58/18 52/10 4 8 53/12 53/30

58/27 76/19 76/18 60/17 60/16 49/5 4 9 52/7 59/12 60/30

pitch 73/200 70/100 6 9

L 56/27 75/21 75/20 58/18 4 8 55/15 57/30

46/27 69/18 69/17 48/16 4 7 52/17 55/31

0962

51			11.2	98.4	
51½			8.2	014	
+70			5.2	044	
53			4.7	049	
54			5.0	046	
55			4.4	052	
56			4.0	056	
57			4.0	056	
+39			4.1	055	
BM			4.14	0548	

Sta	0+00 – 25+00	1.2 Ac Light C&G.			
	30+00 – 52+20	0.8 Ac " "			
		x Section Borrow Pit			
					Grade
	0,35	102.12		101.77	
35+00					91.5
+50					92.1
36					92.8
+40					93.1
+60					93.5

51

(39)

106/30 112/24 124/21 132/20 114/17 11.2 121/17 132/20 120/24 120/30

60/32 85/25 84/15 8.2 82/7 92/12 88/15 99/30

52/30 66/18 52/14 5.2 55/9 74/14 70/30

42/30 52/20 61/17 47/12 4.7 50/10 67/15 53/22 53/30

50/30 50/20 58/15 47/11 5.0 53/10 67/16 67/24 44/35

44/30 42/18 54/14 47/10 4.4 47/9 54/14 54/17 44/24 LO

40/30 42/17 50/13 40/9 4.0 44/10 50/16 47/24 47/30

40/30 40/15 50/14 40/9 4.0 43/10 50/14 40/30

4.1

T.P. 55 ℄ 57 49

A.W. Prud'ho
Allin Cater

South Slope Stake noted as ℄

Ground ℄

92.8 — 125/9 (89.6) 108/4 (91.3)

94.7 — 124/48 (89.7) 79/29 (94.2) 70/11 (95.1) 80/℄ ℄ 94.1

96.7 — 126/75 (89.5) 108/62 (91.3) 81/50 (94.0) 83/37 (93.8) 65/℄ (95.6)

97.7 — 115/40 (90.6) 95/15 (92.6) 84/62 (93.7) 81/37 (94.0) 74/20 (94.7) 60/℄ (96.1)

98.7 — 125/88 (89.6) 105/75 (91.6) 99/63 (92.2) 90/51 (93.1) 96/47 (92.5) 87/35 (93.9) 57 (96.4)

37		102.12			94.0
+50					94.6
38					95.3

Re-X-Sec. Borrow Pit.

36+00
+40
+65
37+00
+50
38+00
39+00
+50
40+00
+30

99.0	89.6 125/57	90.9 112/45	92.3 9.8/40	94.1 80/17	95.1 70/15	5.8/2	96.3	
99.3				90.8 113/50	94.0 81/30	5.6	96.5	
99.6					95.6 65/45	5.2	96.9	

12/9/30 L

R.A. Dakins
R.H. Hoines
W. Burkholder. R

N. Gr. 8.9	8.9	8.7	8.0	7.3	5.9	L	Shoulder Grade
	95	75	50	25	4.0	0	
N. Gr. 8.4	8.4	8.1	7.6	6.7	5.2		
	100	75	50	25	3	0	
N. Gr. 8.7	8.5	8.2	7.2	6.3	4.6		
	97	75	50	25	3	0	
			7.4	7.1	5.8	4.2	
			46	25	4	0	
			6.3	6.2	5.5	3.7	
			46	25	4	0	
		6.5	9.6	9.0	8.8	6.6	New Set up.
		52	46	25	4	0	
		2.6	9.6	8.1	7.5	5.2	
		53	43	25	4	0	
		2.7	8.2	8.1	6.6	4.5	
		54	44	25	5	0	
		2.1	7.7	7.7	6.6	4.0	
		52	45	25	5	0	
		4.3	7.0	6.3	5.4	3.5	End of Borrow.
		52	45	25	5	0	

Transit Notes on Co. Aid Road No. 12

Beg. at a point 1720' W of NE Cor Sec. 9-T135-R 30

22+00 End of Project

17+19.8 Sec. Cor. No. Mon. Δ 1°19' L.
↳ N.E. Cor Sec. 9-135-30

12

5+53.8 P.I Δ 0°55' R

0+00 P.O.T.

11-20-29

Party { Prudlo Lester McAllister — Rod — Chain

(41)

R.P. { 6" Pop. 42.6 S.W.
6" Pop 51.9 So.

Wild Land Wild Land

R.P. { F.R. 42.3 NE.
F.R. 64.2 E

S.A. Rd No. 1
17+20
Old Road
15+60
48 x 30 cm

Wild Land Wild Land

12+00

Swamp Swamp

8+60

R.P. { 6" Pop 43.0 S.W.
4" pop 50.4 SE.

Wild Land Wild Land

R.P. { 24" Pine Stump 49.5 NE
8" Oak 40.4 NW.

Level Notes. County Aid Road No. 12.

B.M.	5.13	130513		130000
0+00			72	97.9
1+00			60	99.1
2+00			65	98.6
3+00			3.7	01.4
	5.51	08.08	2.56	130257
3+50			5.6	02.5
4+00			6.1	02.0
+50			5.7	02.4
5			5.4	02.7
+50			6.3	01.8
6+00			8.0	00.1
	1.44	01.55	7.97	00.11
7+00			7.1	9.45
	0.30	9145	1040	91.15
8+00			5.2	86.3
+40			10.1	81.4
	0.21	8048	11.18	80.27
9			4.2	75.3
10			7.2	73.3
+60			6.3	74.2
10+63	48+24" CMC New			10'L 14'R
11			7.1	73.4
	6.95	8031	7.12	73.36

11-21-29 Party { Prudlo * Lester Rod. McAllister

Sp. in 6" Oak 50' R Sta. 1+30

72

65/30 60/16 73/15 61/9 60 64/8 73/11 58/14 69/30

72/30 70/17 77/14 70/11 65 71/7 79/11 74/15 74/30

36/31 39/17 41/16 33/11 37 38/6 47/9 42/13 41/30

53/30 55/18 66/14 58/11 56 60/7 68/10 61/14 64/30

90/30 89/14 61/8 61 65/7 99/13 103/30

83/30 80/14 59/8 57 60/7 91/14 93/30

27/32 25/24 65/15 55/9 54 59/11 70/17 30/24 28/30

06/30 10/24 82/16 66/10 63 64/12 74/16 18/24 14/30

34/30 33/20 91/14 82/9 80 78/14 86/17 28/24 27/30

26/30 22/20 85/11 72/7 71 72/14 83/17 11/25 11/30

44/30 44/18 62/13 52/8 52 53/14 77/21 67/23 67/30

149/30 150/13 100/5 101 106/11 152/19 163/30

82/30 72/8 44/4 42 47/11 82/17 96/30

101/30 95/8 73/4 72 74/10 94/16 104/30

105/30 100/9 63/3 63 65/7 101/12 102/30

105

95/30 87/7 74/4 71 73/6 87/10 98/30

		8031		
12			6.7	73.6
+50			54	74.9
13			50	75.3
14			6.7	73.6
15			6.7	73.6
	8.75	82.51	6.55	73.76
+60			7.9	74.6
+60	48' X 30 CML on Skew. Rep.			
16			12.3	70.2
+40			11.2	71.3
17			8.2	74.3
+20			6.6	75.9
+60			6.0	76.5
	11.40	92.39	1.52	80.99
18			11.5	80.9
+50			6.6	85.8
19			3.3	89.1
	11.40	03.14	0.65	91.74
+50			10.7	92.4
20			5.4	97.7
+50			2.6	00.5
BM			1.84	01.30
21			2.7	00.4
22			4.0	99.1
23			5.1	98.0

Sta 0+00 – 22+00 1.4 Ac Light C&G.

91/30 78/14 86/10 68/4 67 67/10 79/15 64/20 65/30

60/30 82/23 77/11 57/5 54 51/11 68/17 75/22 53/27 LO

44/30 42/19 70/12 53/6 50 50/9 58/14 48/17 54/30

72/30 76/10 66/6 67 71/9 79/13 73/19 86/30

86/28 90/9 70/5 67 69/8 97/14 108/30

122/30 82/19 75/8 79 85/7 100/11 113/18 122/30

127

133/30 128/19 123 123/3 70/13 75/27 122/33

121/50 121/9 111/5 112 112/7 121/10 108/30 65/38 65/50

128/60 105/30 99/11 30/5 82 77/7 91/11 88/30 72/60

83/200 83/100 66 37/100 67/200

91/60 80/30 74/13 63/10 60 60/15 68/19 34/26 28/33 37/60

146/50 136/30 122/16 145/13 118/7 115 112/13 128/16 95/22 108/50

83/30 76/24 73/15 88/12 68/7 66 60/14 73/19 53/22 LO

41/30 37/15 52/12 35/8 33 33/12 43/16 30/20 30/36

120/30 116/15 139/11 113/7 107 111/16 132/30 97/38

76/30 68/21 63/17 76/13 60/9 54 60/10 80/28 52/36

32/30 53/21 31/16 42/13 32/9 26 31/8 42/12 27/15 27/20

6" Pop 60'R 21+00

32/30 30/16 39/13 29/9 27 30/8 37/12 28/14 28/30

42/30 41/15 51/13 42/8 40 41/7 50/11 41/13 46/30

51

Little Sand Creek at Culverts.

Aug. 1st 1932

S.S. Vol. Vol IX
R.A. Oahms R.

45

+S	H/I	S	Hor	
4.67	1430.14			1425.47
		8.71	21.43	
		9.26	20.88	
		6.51	23.63	
		11.45	11.69	
		9.26	20.88	
		10.71	19.43	
		9.29	20.88	
		9.77	20.37	
		9.71	20.43	
		9.79	20.35	
		9.93	20.21	
X-Sec 15' N of N end of Culv				
		9.59	20.55	
		10.32	19.82	
		10.03	20.11	
		9.82	20.32	
		10.21	19.73	
		10.27	19.87	

PZ = BM - Spike in root of 8" Pop. 100' SE. of Culverts.

H_2O surface above Culvert.

H_2O surface below Culvert.

Top N end of E. Culvert

Bottom of River Bed 90' Below Culverts.

H_2O Surface 90' below culverts.

Bottom of River Bed 25' Below Culv.

H_2O Surface 25' " "

Inv of S end of E. Culv

Inv of S end of W. Culv

Inv of N end of W Culv

Inv of N end of E. Culv.

Depth of H_2O in W Culv (N End) = 1.0 Diam 2.50 W Culv

Depth of H_2O in E Culv (N end) = 1.1 Diam. 2.25 E. Culv

	W side				E side	
	20.35	20.72	20.31	20.76	20.93	20.63
0.0	9.79	9.42	9.83	9.38	9.21	9.51
40	20	10	05.	10	20	30

25' N of N end of Culv.	Bottom of channel		
50' N of N end of Culv	✓	✓	✓
75' N of N end of Culv	✓	✓	✓
100' N of N end of Culv.	✓	✓	✓
125' N of N end of Culv	✓	✓	✓
150' N of N. end of Culv.	✓	✓	✓