

G-200

EUGENE DIETZGEN CO.

DRAWING MATERIALS, MATHEMATICAL and
SURVEYING INSTRUMENTS

Chicago New York San Francisco New Orleans Pittsburg Toronto

Distances from Center of Roadway for Cross-Sectioning
Roadway 16 feet wide. Side Slopes 1 on 1.
For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	0
1	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	1
2	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	2
3	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	3
4	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	4
5	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	5
6	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	6
7	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	7
8	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	8
9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	9
10	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	10
11	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	11
12	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	12
13	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	13
14	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	14
15	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	15
16	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	16
17	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	17
18	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	18
19	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	19
20	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	20
21	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	21
22	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	22
23	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	31.9	23
24	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	24
25	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	25
26	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	26
27	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	27
28	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	36.9	28
29	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	37.9	29
30	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9	30
31	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	31
32	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	40.9	32
33	41.0	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8	41.9	33
34	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	42.9	34
35	43.0	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8	43.9	35
36	44.0	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8	44.9	36
37	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	45.9	37
38	46.0	46.1	46.2	46.3	46.4	46.5	46.6	46.7	46.8	46.9	38
39	47.0	47.1	47.2	47.3	47.4	47.5	47.6	47.7	47.8	47.9	39
40	48.0	48.1	48.2	48.3	48.4	48.5	48.6	48.7	48.8	48.9	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 30.6. For same slopes but other widths of roadbed, correct above figures by one-half difference in width of roadbed; thus in example above, for 20 ft. roadbed distance will be $30.6 + (20 - 16) \div 2$ or 2 ft. added to 30.6 = 32.6. For slopes of 1 on 1½ see inside of back cover.

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M. 1051

C-450

G-200

42" = .27
at bell 55

70.00
33.00
37.00

CITY ENGINEER

Jess De Mirand

13.4 inside of M.H. to bulkhead inside

MICROFILMED

APR 12 1965

The paper stock of this book is made of a high grade 50% rag paper having a water resisting surface. This book is sewed with Bing Special Enamel Waterproof Thread.

Made in U. S. A.

0.43 below F.L. = 2 Rails

Boren. T 4055

123.5' More Siphon 20 piles

Cut Stk Elevations & F.L. Grade Elev. Pg. 2 to 7
and pg. 10

Highline Grades 109+35 to 106+05 Pg 8 to 9

" " 106+05 to page 11

" " 47+48 to 54+23 page 18-51

Cut stk. Elev. & F.L. Grades 38+10 to 42+25.57 ^{M.H.} page 47

Water Main Locations page 53 to 55

Location Culvert Crosby & Colton page 58

" " Sampson & " page 57

Cuts and Grades on 60" Sewer
28th St. To Berdidsky

Sta.		El. Stake	El. F.L.
54	+94.43 =		
55	+43.48		-6.60
55	+49.95	B.C.	-6.59
	+75		-6.56.5
56			-6.54
	+25		-6.515
	+50		-6.49
	+75		-6.465
57			-6.44
	+19.25	E.C.	-6.42
	+50		-6.39
58			-6.34
	+50	B.C.	-6.29
59			-6.24
	+50	} Conc. slab + RC. steel under X-ing	-6.19
60			-6.14
	+50		-6.09
61			-6.04
	+05.53	E.C.	-6.035
	+50		-5.99
62			-5.94
	+50		-5.89
63			-5.84

+12.5 = top

Cuts

~~Indexed~~
93

	Cuts	El. Stake	El. F.L.
63+33.79 B.C. Rt.	9.57		-5.81
+50	9.63		-5.79
64+00.18 M.H. as built	9.67	Elev. top +4.60	-5.74
+50	9.78		-5.69
65	10.07		-5.64
+50	10.44		-5.59
66	10.39		-5.54
+50	10.51		-5.49
66+67.63 = M.H. under St. Drain	10.56		-5.44
67	10.82		-5.39
+50			-5.34
68 on pipe			-5.29
+50	11.21		-5.29
69	12.12		-5.24
+50	11.59		-5.19
70	12.35		-5.14
+50	13.88		-5.09
71	16.10		-5.04
+50	19.89		-4.99
72	23.17		-4.94
+50			-4.89
+78 = M.H. as built	C 21.57	at EL.	
+90.56 E.C.			-4.85
73			-4.84
+12.51 ϕ Schley			-4.83
+50			-4.79

3

M.H. under Storm Drain Flow Line = -7.36
Sta. 66+67.63

	Grade	10' Rt. Cut.
65+70 B.V.C.	-5.57	10.48
+90 Brk	-5.66	10.57
66+10 E.V.C.	5.95	10.89
+30	6.35	11.36
+50	6.75	11.75
+70 B.V.C.	7.15	12.14
+90 Brk	7.34	12.48
67+10 E.V.C.	7.11	12.31
+30	6.67	12.00
+50	6.23	11.64
+70 B.V.C.	5.79	11.38
+90 Brk	5.45	11.08
68+10 E.V.C.	5.33	10.97

C 21.37 to Subgrade

	Elev. Stk.	Elev. F.L.	Cut.
74		-4.79	
+50		-4.69	
75		-4.64	
+50		-4.59	
76		-4.54	
+50		-4.49	
77		-4.44	
+50		-4.39	
78		-4.34	
+50		-4.29	
79		-4.24	
44.35 M.H. #15	R.P. 15' L. of 2	19.02	-4.20
80		19.23	-4.14
+50		18.99	-4.09
81		18.69	-4.04
+50		19.13	-3.99
82		19.25	-3.94
+50		19.62	-3.89
83		19.93 ^{ak}	-3.84
+50		20.55	-3.79
84		20.56	-3.74
+50		20.58	-3.69
		20.49	-3.69

23.22
23.37
23.08
22.73
23.12
23.19
23.51
23.77
24.34
24.29
24.18

85 3.4 bet. pipes
 +50 M.H. as built
 85+99.56 L 44' RT.
 86 +04.56 M.H. #16 E.L. Sampson
 34.58 @ Sampson
 +50

87 20.30 -3.44

+50 20.50 -3.39

88 20.28 -3.34

+50 20.71 -3.29

89 20.65 -3.24

+50 20.31 -3.19

90 19.87 -3.14

+50 19.86 -3.09

91 19.86 -3.04

+50 19.64 -2.99

92 19.56 -2.94

+50 19.50 -2.89

+95.40 19.82 -2.84

93 -2.84

+50 18.69 -2.79

94 18.04 -2.74

+50 17.63 -2.69

95 17.32 -2.64

+50 17.31 -2.59

96 17.38 -2.54

+50 17.08 -2.49

97 16.63 -2.44

+50 17.17 -2.39

El. Cut Stk Elev. F.L.

20.53 -3.64

20.59 -3.59

20.82 -3.54

20.58 -3.49

20.30 -3.44

20.50 -3.39

20.28 -3.34

20.71 -3.29

20.65 -3.24

20.31 -3.19

19.87 -3.14

19.86 -3.09

19.86 -3.04

19.64 -2.99

19.56 -2.94

19.50 -2.89

19.82 -2.84

-2.84

18.69 -2.79

18.04 -2.74

17.63 -2.69

17.32 -2.64

17.31 -2.59

17.38 -2.54

17.08 -2.49

16.63 -2.44

17.17 -2.39

Cuts 9' offsets

24.17 New New

24.18 Elev. Stk Cut

24.36 Aug. 15-1941

6.5' off Isbell

24.07 20.47 23.91

23.74 20.29 23.73

23.89 20.61 23.99

23.62 20.30 23.67

24.00 20.75 24.04

23.89 20.67 23.91

23.50 20.32 23.51

23.01 19.97 23.11

22.95 20.08 23.17

22.90 20.00 23.04

22.63 19.75 22.74

22.50 19.77 22.71

22.39 19.59 22.48

22.66 M.H. @ Evans st.

21.48

20.78

20.32

19.96

19.90

19.92

19.57

19.07

19.56

Sta. Grad.

87+92 -3.35

+75 3.37

+56 3.39

+40 3.40

+25 3.42

+08 3.43

86+92 3.45

25' Highline

24' Highline

Sta.	El. Stake	El. F.L.	Cuts
98	17.17	-2.34	19.51
+50	16.79	-2.29	19.08
99	16.61	-2.24	18.85
+50		-2.19	
	16.30	-2.185	18.48
+55.40	16.285	-2.195	18.48
100	16.02	-2.14	18.16
+50	15.42	-2.09	17.51
101	15.22	-2.04	17.26
+50	14.98 ⁷	-1.99	16.97
102	14.62	-1.94	16.56
+50	14.90	-1.89	16.79
103	14.86	-1.84	16.70
+50	15.14	-1.79	16.93
104	15.35	-1.74	17.09
+50	15.41	-1.69	17.10
105	15.21	-1.64	16.85
+50	14.78	-1.59	16.37
106	14.41	-1.54	15.95
+16.82	14.65	-1.52	16.17
+55	13.87	-1.485	15.35
107+05	14.94	-1.435	16.37
+55	15.14	-1.385	16.52
108+05	14.89	-1.335	16.22
+55	14.05	-1.285	15.33

6.5' Rt. M.H. E of DEWEY

10' Lt.

	El. Stake	Elev. F.L.	Cuts
109+05	13.48	-1.235	14.71 10' Lt.
+55	13.08	-1.185	14.26 "
110+05	12.93	-1.135	14.06 "
+55	12.68	-1.085	13.76 "
111+05	12.43	-1.035	13.46 "
+55	11.98	-0.985	c-12.96 "
112+47.35 = M.H.		-0.89	
54+22.43	Clean out to siphon E. edge Box		
		-6.67	
54+00		-6.69	
+50		-6.74	
53		-6.79	
+50		-6.84	
52		-6.89	
+50		-6.94	
51		-6.99	
+50		-7.04	
50		-7.09	
+50		-7.14	
49		-7.19	
+50		-7.24	
48	L 2° left		9.56
+50		-7.29	
		2.27	
		-7.34	9.51
		2.17	
47		-7.39	9.50
		2.11	

(cont. on page 10)

HIGH LINE GRADES
60" SEWER ON COLTON
BEARDSLY TO 28th sts.

Isbell					
Sta.	+	X	-	El. stake	El. F.L.
6/19/41					
B.M.	4.915	18.965		14.05	
109+35			4.17	14.795	-1.205
B.M.	4.98	19.03		14.05	
109+53			4.22	14.81	-1.19
+37			4.23	14.80	-1.20
6/20/41	Isbell				
B.M.	5.03	19.08		14.05	
109+21			4.30	14.78	-1.22
108+05	Iron Pin		3.415	15.67	-1.335
B.M.	4.18	19.07		14.89	
109+04	¢ grade		4.305	14.765	-1.235
109+37	check. ¢ grade		4.27	14.80	-1.20
6/21/41	Isbell				
B.M.	4.04	18.93		14.89	
108+89	¢ grade		4.18	14.75	-1.25
108+73			4.20		-1.27
B.M.	4.47	19.36		14.89	
108+67	¢ grade		4.63	14.73	-1.27
108+53	"		4.65	14.71	-1.29
6/23/41	Isbell				
B.M.	5.20	20.14		14.94	
108+23	¢ grade		4.46	15.68	-1.32

108+00 = 1.34

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8

Cut stake at 108+55 El. 14.05
 $\begin{array}{r} 4.915 \\ 18.965 \end{array}$

Cut stake at 108+55 El. = 14.05
 $\begin{array}{r} 4.98 \\ 19.03 \end{array}$

+16.0

Cut stake at 108+55 El. 14.05

+16.0

+17.0

Cut stake at 108+05 El. 14.89

+16.0

+16.0

Cut stake at 108+05 El. 14.89

+16.0

$\begin{array}{r} 4.62 \\ 4.18 \\ \hline 8.80 \end{array}$
 8.80 up from 46.00

Cut stake at 108+05 El. 14.89

+16.0

+16.0

Cut stake at 107+05 El. 14.94

+17.0

Sta.	+	π	-	El. stake	Elev. F.L.
		20.14			
107+92	± grade		4.47	15.67	-1.33
B.M.	5.29	20.18		14.89	
107+57	± grade		4.56	15.62	-1.38
June 24-1941	Isbell				
B.M.	6.20	20.07		13.87	
107+92	Check ± grade		4.40	15.67	-1.33
107+57	" " "		4.45	15.62	-1.38
107+30	± grade		4.48	15.59	-1.41
B.M.	5.39	19.26		13.87	
107+01	± grade		3.70	15.56	-1.44
106+83	"	19.24	3.70	15.54	-1.46
106+62	"		3.72	15.52	-1.48
Backfill to	110+00				
Pipe to	107+00				
Ditch to	106+50				
} June 24-1941					
June 25-1941	Isbell				
B.M.	4.29	19.50			
106+39	± grade		4.00	15.50	-1.50
106+21	"		4.02	15.48	-1.52
106+05	"		4.035	15.465	-1.535
Backfill to	110+00				
Pipe to	106+70				
Ditch to	106+00				
} June 25-1941					

CONT. ON PAGE 11

107 = -1.94
 106 = -1.54
 105 = -1.64

9

Cuts

+17.00

on Cut Stake 108+05 El. 14.89

+17.00

on Cut Stake 106+55 El. 13.87

+17.0

+17.0

+17.0

on Cut Stake at 106+55 El. 13.87

+17.0

+17.0 check π on cut stake at 106+06

El. = 14.41

4.83 +

19.24 π

El. = 15.21

on Cut Stake at 105+00

+17.0

+17.0

+17.0

El. = 15.41

4.09

19.50

Cuts and Grades on 60" Sewer
 Cont. from page. (7) -

	Elev. Sth.	Elev. F. L.	Cuts
+50	2.45	-7.44	9.89
46+00	2.44	-7.49	9.93
+50	2.52	-7.54	10.06
45	2.59	-7.59	10.18
+50	2.79	-7.64	10.43
44	2.88	-7.69	10.57
+50	2.60	-7.74	10.34
43	2.48	-7.79	10.27
42+39.95 } 42+25.57 } 42+39.27 = Equation.	1.71	-7.85	9.56

High Line Grades 60"
Sewer on Colton st
Cont. from page (9)

Isbell
June 26-1941

Sta.	+	X	-	Elev. Stk.	Elev. F.L.
B.M.	4.28	19.49		15.21	
105+89	2 grade		4.70	14.79	-1.55
105+85			4.045	15.445	-1.555
105+65			4.065	15.425	-1.575
Backfill to 109+00					
Pipe to 106+70					
Ditch to 105+50					
Can. along side of pipe start at 108+00				To 107+50	
B.M.		19.61			6/27/A1
106+21	check 2 grade		4.13	15.48	-1.52
106+05	"		4.145	15.465	-1.535
105+85	"		4.165	15.445	-1.555
105+65	"		4.185	15.425	-1.575
105+50	C. Grade		4.20	15.41	-1.59
105+40	"		4.29	15.32	-1.60
105+32	"		4.22	15.39	-1.61
Backfill to 108+50					
Pipe to 106+70					
Ditch to 104+95					
Can. to 106+85					
Backfill to 106+90					
Pipe to 106+70					
Ditch to 104+87					
Can. to 106+85					

June 26-1941

June 27-1941

June 28-1941

105 - -1.60

on Cut Stake at 105+00	El. 15.21 4.28 19.49	check on 104+50	El. 15.41 4.08 19.49
+16.34			
+17.00			
+17.00			
on Cut Stake at 104+50	El. 15.41 4.20 19.61	check on 104+00	El. 15.35 4.26 19.61
+17.0			
+17.0			
+17.0			
+17.0			
+17.0 up 17 to 19.0			
+16.92			
+17.0			

105+00 = -1.64
 104+00 = -1.74

Sta.	+	x	-	El. Stake	El. F.L.
June 28-1941 Isbell					
B.M.	4.58	19.93		15.35	
106+62	check & grade		4.41	15.52	-1.40
106+39	"		4.43	15.50	-1.50
106+21	"		4.45	15.48	-1.52
106+05	"		4.465	15.465	-1.535
105+85	"		4.485	15.445	-1.555
105+65	"		4.505	15.425	-1.575
105+50	"		4.52	15.41	-1.59
105+32	Set & Grade		3.54	15.39	-1.61
105+10	"		4.56	15.37	-1.63
105+10	"		3.56	16.37	-1.63
104+90	"		3.58	16.35	-1.65
104+60				16.32	-1.68
104+27					
June 30-1941 Isbell					
B.M.	4.63	19.77		15.14	
106+21	check & grade		4.31	15.46	
105+85	"		4.33	15.44	
105+65	"		4.35	15.42	
105+32	"		3.42	16.35	
105+10	"		3.43	16.34	
104+90	"		3.45	16.32	
104+60	Set & grade		3.45	16.32	-1.68
104+27	" "		3.48	16.29	-1.71

Cuts
on cut stake at 104+00
$\begin{array}{r} \text{El.} = 15.35 \\ 4.58 \\ \hline 19.93 \end{array}$ check on 103+50 $\begin{array}{r} \text{El.} = 15.14 \\ 4.63 \\ \hline 19.77 \end{array}$
$\begin{array}{r} 4.735 \\ 4.465 \\ \hline .270 \text{ Low} \end{array}$
$\begin{array}{r} 4.495 \\ 4.485 \\ \hline .010 \text{ Low} \end{array}$
$\begin{array}{r} 4.69 \\ 4.52 \\ \hline .17 \text{ Low} \end{array}$
$\begin{array}{r} 4.56 \text{ L} \\ 2.61 \\ \hline 1.95 \text{ High} \end{array}$
$\begin{array}{r} 4.56 \text{ R} \\ 3.41 \\ \hline 1.15 \text{ High} \end{array}$
$\begin{array}{r} 3.58 \text{ L} \\ 3.67 \\ \hline .09 \text{ Low} \end{array}$
$\begin{array}{r} 3.58 \text{ R} \\ 2.85 \\ \hline .73 \text{ High} \end{array}$
$\begin{array}{r} 4.51 \\ 4.54 \\ \hline .03 \text{ High} \end{array}$
$\begin{array}{r} \text{El.} = 15.14 \\ 4.63 \\ \hline 19.77 \end{array}$ check on 103+00 $\begin{array}{r} \text{El.} = 14.86 \\ 4.91 \\ \hline 19.77 \end{array}$
.02 Low
.04 Low
.08 Low
.03 Low
$\begin{array}{r} 3.93 \\ 3.45 \\ \hline .48 \text{ up} \end{array}$
$\begin{array}{r} 3.95 \\ 3.48 \\ \hline .47 \text{ up} \end{array}$

Sta.	+	X	-	El. Stake	El. F.L.
------	---	---	---	-----------	----------

Backfill to 106+90
 Concrete to 106+85 } June 30-1941
 Pipe to 106+70 }
 Ditch to 103+95 }
 Laid 50' of pipe East of M.H.
 July 7-1941. Isbell

B.M.	5.02	19.64		14.62	
104+27	Check & grade			16.29	-1.71
103+95	Set & grade			16.225	-1.745
B.M.	4.09	20.48		16.39	
106+39	Check Grades	.02 Low	5.01	15.50	.03 Low
106+21	"	.02 Low	5.02	15.48	.02 Low
105+85	"	.02 Low ✓	5.04	15.445	
105+65	"	.085 Low ✓	5.06	15.425	-1.575
105+32	"	.01 Low ✓	4.09	15.39	-1.61
105+16	"		4.11	15.37	-1.63
104+90	"		4.12	16.35	-1.55
104+60	"		4.16	16.32	-1.68
104+27	"	.02 Low	4.22	16.29	-1.71
106+62	"	.02 Low	4.96	15.52	
B.M.	4.72	19.62		14.90	7/8/41
103+95	Set & Grades		3.89	16.25	-1.75
108+53	"	"	4.04	16.21	-1.79
B.M.		19.52	4.90	14.62	

Cts.	
	El. = 14.62
	5.02
	19.64
on det stake at 102+00	check on 102+50
+18.0	El. = 14.90
	4.74
	19.64
+18.0	
+18.0	
+18.0	
+18.0	
+18.0	up .52
+18.0	up .63

7/8/41 Isbell

Sta.	+	X	-	Elev. Stake	Elev. Pt.
B.M.					
103+95	Check	Grade			-1.75
103+53	"	"			-1.79
Backfill to 106+90					
Pipe to 106+60					
Ditch to 103+25					
Laid 131' East of M.H. & of Crosby					
B.M.	4.13	19.11		14.98	
103+95	Check	Grade	2.87	16.24	-1.75
103+53	"	"	2.95	16.16	-1.79
103+38	Set out of	Highline	2.94	16.17	-1.80
103+18	Set.	& Grade			-1.82
103+75	Set	& Grade 20.20	3.97	16.23	-1.77
104+27	Check	& GRADE ^{20.12}	3.83	16.29	-1.71
Backfill to					
Pipe to 104+00					
Ditch to 103+05					
Laid 45' West of M.H. & of Crosby					
B.M.	Check	& GRADE			
104+27		19.78	3.50	16.29	-1.71
103+95			3.53	16.25	-1.75
103+75			3.55	16.23	-1.77
103+40			3.60	16.20	-1.80
Backfill to 105+50					
Pipe to 103+90					
Ditch to 103+05					

July 7-8-1941

July 9, 1941
M.R. Yale

July 10, 1941
M.R. Yale

Cuts

July 9-1941	EI = 14.98		EI = 14.62
on Cut stake 101+50	4.73	Check on 102+00	4.39
	19.17		19.11
17.99	01' Low ✓		
17.95	.05' Low ✓		
17.97	.03 Low ✓		
+18.0			
7/9/41	EI = 15.35		
on cut Stk 104+00	4.77		
	20.12		
July 10, 1941	EI = 15.35		EI = 14.86
on cut Stk 104+00	4.43	103+00	4.92
	19.78		19.78
+18.0-01' Low ✓			
ok ✓			
ok ✓			
02 Low			

7/11/41 M.R. Yale

103+00 = -1.84

102+00 = -1.94

15

Sta.	+	H.I.	-	Elev. Stk.	Elev. F.L.
B.M.	4.29	18.91		14.62	
103+95	Check & Grades		2.65	16.25	-1.75
103+75	"	"	2.69	16.23	-1.77
103+40	"	"	2.70	16.20	-1.80
103+20	Set & Grades		2.73	16.18	-1.82

Note: worked most of day around 28th street
checking & Grades, see pg. 59.

Backfill to

Pipe to 103+50

Ditch to

} July 11, 1941
M.R. Yale

B.M.	4.14	19.00		14.86	
103+40	Check & Grades		2.79	16.20	-1.80
103+20			2.83	16.18	-1.82
102+85	Set & GRADES		2.86	16.14	-1.86
B.M.	4.21	19.43		15.22	
101+50	Reset Cut Stk		4.46	14.97	near Elev of Cut Stk. 101+50
Pipe to 103+35					M.R. Yale July 12 1941 cut Stk. 102+00
B.M.	4.30	18.92		14.62	
103+40	Check & GRADES		2.72	16.20	-1.80
103+20			2.75	16.17	-1.82
102+85			2.78	16.14	-1.86
102+65	Set & GRADES		2.78	16.14	-1.87
102+45			2.80	16.12	-1.89
102+25			2.83	16.09	-1.91
103+03				16.16	-1.84
Pipe to 102+95					M.R. Yale 7/14/41

Cuts

.01 High ✓
+18.0° 102+00 $\frac{14.62}{4.29}$ ✓
18.91

103+00 $\frac{14.86}{4.05}$ ✓
18.91

.01 Low

.01 High ✓

+18.0° ✓

.01 Low
+18.0° ✓ 103+00 $\frac{14.86}{4.14}$
19.00

14.90
102+50 $\frac{4.09}{18.99}$

+18.0° ✓

15.22
101+00 +4.21
HI = 19.43

14.62
102+00 +4.81
HI = 19.43 check ✓

14.90
102+50 +4.02 = HI
18.92

14.62
102+00 +4.30 = HI check
18.92 ✓

+18.0°

" .01 Low

" .03 Low (Raised) ✓

" .01 High

" .01 High

" ✓

	+	H.I.	-	El. Stk	F.L. Elev.
B.M.	4.16	19.06		cut Stk 102+50 14.90	
102+85	Check &	Grades	2.93	<16.14> 16.13	-1.86
102+65			2.94	<16.12> 16.12	-1.88
102+45			2.95	<16.10> 16.11	-1.90
102+25			2.98	<16.08> 16.08	-1.92
102+02	Set &	Grades	4.01	<16.06> 16.06	-1.94
101+85			3.86	<16.04> 16.04	-1.96
101+66			3.83	<16.03> 16.03	-1.97

HIGHLINE Grades FOR DITCHER:

	Cuts	El. Cut Stk	F.L. Elev	Total Depth below Cut Stk	Amount to Raise
101+50	+18°	14.97	-1.99	16.96	1.04
101+00	18°	15.22	-2.04	17.26	0.74
100+50	18° & 19°	15.42	-2.09	17.51	0.49 & 1.49
100+00	19°	16.02	-2.14	18.16	0.84
99+85	20°	16.30	-2.19	18.49	Grade
99+55	20°	16.30	-2.19	18.49	1.51
99+00	20°	16.61	-2.24	18.85	1.15
98+50	20°	16.79	-2.29	19.08	0.92
98+00	20° & 21°	17.17	-2.34	19.51	0.49 & 1.49
97+50	21°	17.17	-2.39	19.56	1.44

Pipe to 102+60 }
Ditch to 100+50 } one section condemned pipe hauled away
MAY R. Yule 7/15/41

B.M	4.62	19.24		14.62	
102+02	Check &	Grades	3.18	<16.06> 16.06	-1.94
101+85			3.21	<16.04> 16.03	-1.96
101+66			3.215	<16.03> 16.03	-1.97

$$102+00 = -1.94 = F.L.$$

$$101+00 = -2.04$$

16

cut	102+50	14.90	102+00	14.62
+18° .01 Low		-4.16		+4.44
		19.06		19.06 = H.I. Check
" .02 High lowered.				
" .01 High				
" OK				
" .101 Low - Raised & ✓			3.00 ✓	
" .84 Low - Raised & ✓			3.02 ✓	
" .80 Low - Raised & ✓			3.03 ✓	

Cuts	102+00	14.62	101+00	15.22
+18° ✓		4.62		4.02
		19.24		19.24
" .01 Low				
" ✓				

Sta.	+	1924 H.I.	-	El. of Stk	F.L. El.
101+48			3.92	<16.01> 15.32	-1.99
101+33			3.61	<15.99> 15.63	-2.01
101+14			3.57	<15.97> 15.67	-2.03
100+98			3.61	<15.96> 15.63	-2.04
100+82			3.49	<15.94> 15.75	-2.06
Pipe to 101+95	}	7/16/41	M.R. Yale	also pg. 48 & 49	
Ditch to 100+50					
B.M.	4.68	19.30		<16.04>	
101+85	Check & Grades			<16.03>	-1.96
101+66			3.27	16.03	-1.97
101+48			3.28	<16.01> 16.02	-1.99
101+33			3.30	<15.99> 16.00	-2.01
101+14			3.33	<15.97> 15.97	-2.03
100+98			3.34	<15.96> 15.96	-2.04
100+82			3.36	<15.94> 15.94	-2.06
B.M.		19.85			
101+66	Re-Check & Grades		3.87	<16.03> 15.98	-1.97
101+48		19.85	3.91	<16.01> 15.94	-1.99
101+33			3.94	<15.99> 15.91	-2.01
101+14			3.89	<15.97> 15.96	-2.03
100+98			3.89	<15.96> 15.96	-2.04
Pipe to 101+10	}	7/17/41	M.R. Yale	El. of Stk	
B.M.				4.03	20.05
101+14	Check & Grades		4.09	<15.97> 15.96	-2.03
100+98			4.09	<15.96> 15.96	-2.04
100+82			4.12	<15.94> 15.93	-2.06

Cuts	Raise	New (-)	
+18°	.69	3.22	ol High
+18°	.36	3.24	ol High
+18°	.30	3.27	✓
+18°	.33	3.27	ol High
+18°	.19	3.30	✓
		14.90	
		102+50 +4.39	14.62
		HI = 19.29	102+00 +4.63
			H.I. = 19.30 check
+18°			
"	ol High		
"	ol High		
"	✓		
"	✓		
"	✓		
		14.62	
		102+00 +5.23	14.84
		HI = 19.85	
Raise .05	✓		
" .07	✓		
" .08	✓	Raise .03	
		14.62	
		102+00 +5.43	16.02
		HI = 20.05	100+00 +4.03
			20.05 = H.I. ✓

+ HI 20.05

- El. Cut Stk F.L. El.

Set & Grades

100+66	4.27	<15.93> 15.78	-2.07
100+50	4.20	<15.91> <16.00> 15.85	-2.09
100+34	3.90	<16.89> 16.15	-2.11
100+18	3.76	<16.88> 16.29	-2.12

Pipe to 100+40 7/18/41 M.R. Yale

B.M.	3.91	20.52		
100+50	Check & Grades	3.60	<16.91> 16.92	-2.09
100+34		3.63	<16.89> 16.89	-2.11
100+18		3.64	<16.88> 16.88	-2.12

Set & Grades

99+85	3.69	<16.84> 16.83	-2.16	
99+85	Set High Line Ft.	2.69	<17.84> 17.83	-2.16

Pipe to Sta. 100+15 7/19/41 M.R. Yale

B.M.	3.75	20.36	16.61	99+00
------	------	-------	-------	-------

100+34 Check & Grades

100+18	3.51	<16.88> 16.85	-2.12	
99+85	3.54	<16.84> 16.82	-2.16	
99+83	Set & Grade	3.65	<17.84> 16.71	-2.16

Pipe to Sta. 99+90 7/21/41 M.R. Yale

B.M.	20.79			
99+72	Set & Grades	3.96	<16.83> 16.83	-2.17
99+56		4.01	<16.82> 16.78	2.18

Pipe to Sta. 99+90 M.R. Yale 7/22/41

100+00 = -2.14 = F.L.

99+00 = 2.24

Cuts	To BE Raised	NEW (-)
18°	.15	4.11 ✓
18° & 19°	.06 & 1.06	4.14 & 3.12 ✓
19°	.74	3.17 ✓
19°	.59	3.18 ✓

$$102+00 \begin{array}{r} 14.62 \\ + 5.72 \\ \hline 20.52 \text{ H.I.} \end{array}$$

$$99+55 \begin{array}{r} 16.30 \\ + 4.20 \\ \hline 20.50 \end{array}$$

$$99+00 \begin{array}{r} 16.61 \\ + 3.91 \\ \hline 20.52 \text{ H.I.} \end{array}$$

+19°	.01 High ✓
+19°	✓ ✓
+19°	✓ ✓

19°	.01 Low
+20°	✓ ✓

$$99+55 \begin{array}{r} 16.30 \\ + 4.06 \\ \hline \text{H.I.} = 20.36 \end{array}$$

$$99+00 \begin{array}{r} 16.61 \\ + 3.75 \\ \hline 20.36 \text{ H.I.} \end{array}$$

19°	.03	3.49 ✓
19°	.02	3.52 ✓
20°	1.13	2.52 ✓

VOID DIDN'T NEED IT

$$99+55 \begin{array}{r} 16.30 \\ + 4.49 \\ \hline 20.79 \text{ H.I.} \end{array}$$

+19°	Grade ✓ ✓	
19°	.04	3.98 ✓

Note: <Elev.> = correct elev.

99+00 = -2.24 = F.L.
98+00 = -2.34

Sta.	+	H.I.	-	Elev. of Sta.	F.L. Elev.
B.M.	4.51	21.12		16.61 <16.84>	
99+85	Check & Grades		4.28	16.84	-2.16
99+72			4.28	16.83 <16.83>	-2.17
99+56			4.29	16.82 <16.82>	-2.18
99+40	Set & Grades		4.21	16.80 <16.80>	-2.20
99+39			4.20	17.80 <17.80>	-2.20

Pipe to Sta. 90+90 7/23/41 M.R. Yale

B.M.	+	H.I.	-	Elev. of Sta.	F.L. Elev.
B.M.	4.04	21.21		17.17 <16.84>	
99+85	Check & Grades		4.37	16.84	-2.16
99+72			4.38	16.83 <16.83>	-2.17
99+56			4.38	16.82 <16.82>	-2.18
99+40			4.44	16.77 <16.80>	-2.20
99+39				17.80 <17.80>	-2.20

Pipe to 99+57 M.H. 7/24/41 M.R. Yale

B.M.	+	H.I.	-	Elev. of Sta.	F.L. Elev.
B.M.		21.72		16.82 <16.82>	
99+56	Check & Grades		4.90	16.82	-2.18
+40			4.95	16.80 <16.80>	-2.20
+39			4.04	16.77 <17.80>	-2.20
B.M.		21.40		17.68 <17.78>	
99+23	Set & Grades		4.49	16.91	-2.22
+07			4.51	17.77 <17.77>	-2.23
98+89			4.26	16.89 <17.75>	-2.25
98+71			4.18	17.14 <17.73>	-2.27
+53			4.07	17.22 <17.71>	-2.29

Pipe to Sta. 98+87 7/25/41 M.R. Yale

Cuts - To Be Raised - NEW

+19°	OK	
+19°	.01 High	
+19°	.01 High	
+19°	.11 High	4.32 vv
+20°	.88 Low	3.31 .01 High vv
+19°	OK	
+19°	OK	
+19°	.01 High	
+19°	.03 Low	4.40 .01 High
19°	OK	
19°	.03 Low	4.92 vv
20°	.12 Low	3.92 vv
+20°	.87 Low	3.61 .01 High vv
+20°	.88 Low	3.62 .01 High
+20°	.61 Low	3.64 .01 High
+20°	.51 Low	
+20°	.38 Low	

16.30
99+55 = 4.83
H.I. = 21.13
99+00 = 4.51
21.12 = H.I.

16.61
99+00 = 4.61
H.I. = 21.22
16.79
98+50 = 4.92
21.21

98+00 = 19.17
4.94
21.21

16.79
98+50 = 4.94
H.I. = 21.73
17.17
98+00 = 4.55
H.I. = 21.72

16.78
98+50 = 4.62
21.40

Note (Elev.) = correct Elev.

Sta	+	H.I.	—	El. of Stk.	F.L. Elev.
B.M.	5.37	22.00		El. Cut Stk. 16.63 97+00 <17.75>	
98+89	Check of Grades			<17.73>	-2.25
98+71				<17.71>	-2.27
98+53				<17.70>	-2.29

{ Pipe to 98+87 7/26/41 M.R. Yale
Weather: cloudy + light showers, W.P.A. didn't work today

B.M.	+	H.I.	—	El. Cut Stk.	F.L. Elev.
B.M.	5.21	21.84		El. cut Stk. 16.63 97+00 <17.75>	
98+89	Check of Grades		4.09	17.75 <17.73>	-2.25
98+71			4.14	17.70 <17.71>	-2.27
98+53			4.13	17.71 <17.70>	-2.29
98+37	Set of Grades		4.44	17.40 <17.68>	-2.30
98+20			4.24	17.60	-2.32

HIGHLINE Grades FOR DITCHERS

Station	Elev. Cut Stk.	F.L. Elev.	Total Depth Cut Stk. to Flow Line	Cuts	Amount to be Raised
98+00	17.17	-2.34	19.51	+20" \$ +21" \$	0.99 \$ 1.49 \$
97+50	17.17	-2.39	19.56	+21"	1.44
97+00	16.63	-2.44	19.07	+21"	1.93
96+50	17.08	-2.49	19.57	+21"	1.43
96+00	17.38	-2.54	19.92	+21"	1.08
95+50	17.31	-2.59	19.90	+21"	1.10
95+00	17.32	-2.64	19.96	+21" \$ +21" \$	1.04 0.68 \$
94+50	17.63	-2.69	20.32	+22" \$	1.68 \$
94+00	18.04	-2.74	20.78	+22"	1.22
93+50	18.69	-2.79	21.48	+22" \$ +23" \$	0.52 1.52

Pipe to Sta. 98+27 7/28/41 M.R. Yale
also pg. 49

F.L. 98+00 = -2.34

Cuts To BE RAISED (NEW -)

98+00	17.17		17.17
	4.84		4.83
	22.01		22.00

97+00	16.63		
	5.37		
H.I.	22.00		

97+50	17.17		
	4.67		
H.I.	21.84		

97+00	16.63		
	5.21		
H.I.	21.84		

+20"	OK		
+20"	.03 Low	4.11	OK
+20"	OK		
+20"	.30 Low	4.14	OK
+20"	.08 Low	4.16	OK

Note: (Elev) = Correct Elev.

Sta.	+ H.I.	-	E.I. & Stk	F.L. Elev
B.M.	22.00			
98+37	Check & Grades	4.35	<17.70> 17.65 <17.68>	-2.30
98+20		4.36	17.64	-2.32
98+04	Set & Grades	4.27	<18.66> <17.66> 17.73 <18.65>	-2.34
97+89		4.24	17.76	-2.35

Pipe to Sta 98+07 7/29/41 W.R. Yale
 Backfill to 99+50 } July 30-1941 Isbell
 Ditch to 97+20 }

$\bar{x} = 22.10$ ISBELL July 31-1941

Sta.	-	Elev. stk.	Elev. F.L.	Header Cut	$\bar{x} = 22.10$
97+70	4.37	17.73	-2.37	20.10	3.47
97+54	4.42	17.68	-2.39	20.07	3.49
97+38	4.46	17.64	-2.40	20.04	3.50

Backfill to 98+50 }
 Pipe to 98+07 } July 31-1941 ISBELL
 Ditch to 97+04 }

Aug. 1-1941 ISBELL

Sta.	-	Elev. Header	Elev. F.L.	Header Cut	$\bar{x} = 21.825$
97+23	4.39	17.43	-2.42	19.85	3.24
97+06	4.50	17.32	-2.43	19.75	3.25

Back Fill to 98+50 }
 Pipe to 98+07 } Aug. 1-1941 ISBELL
 Ditch to 96+80 }

Aug. 2-1941 - Isbell

Sta.	-	Elev. Header	Elev. F.L.	Header Cut	$\bar{x} = 21.96$
96+88	4.50	17.46	-2.45	19.91	3.41

98+00 = -2.34 = F.L.
 97+00 = -2.44 = F.L.

21

Cuts Remarks NEW (-)

					17.17	16.63
					97+50 $\frac{4.83}{22.00}$	97+00 $\frac{4.93}{22.10}$
+20°	.05 Low	4.30				$\bar{x} = 22.10$
+20°	.04 Low	4.32			17.08	
+20°	.07 High	4.34			96+50 $\frac{4.92}{22.00}$	<3.44>
+21°	.93 Low	3.34				<3.45>
+21°	.89 Low	3.35				
		4.28		20.01		
		3.28		21.03	.02 High.	
		3.36		21.02	.01 High	

Highline Cut	$\bar{x} = 21.97$	Check Cut Highline	97+00 = 16.63	97+50 = 17.17
21.0	3.33	21.01	$\frac{3.47}{22.10}$	$\frac{4.93}{22.10}$
21.0	3.35	21.01	Checked Aug. 2-1941	
21.0	3.36	21.01		

Highline Cut	$\bar{x} = 21.97$	Check Cut Highline	97+00 = 16.63	97+50 = 17.17
21.00	3.38	21.01	$\frac{5.22}{21.83}$	$\frac{4.65}{21.82}$
21.00	3.39	21.01	97+00 = 16.63	97+50 = 17.17
			$\frac{5.35}{21.98}$	$\frac{4.79}{21.96}$

96+00 = 17.08
 $\frac{4.87}{21.97}$

21.00

Aug. 4-1941

ISBELL

Sta	K	-	Elev. stk.	Elev. F.L.	Cut.
96+70	22.13	3.60	18.53	-2.47	21.00
96+52	21.57	3.06	18.51	-2.49	21.00
96+36	21.89	3.39	18.50	-2.50	21.00

Backfill to		98+50	} Aug. 4-1941	ISBELL
Pipe to		96+68		
Ditch to		96+24		
Backfill to		98+00	} Aug. 5-1941	
Pipe to		96+55		
Ditch to		95+85		

96+16	21.69	3.21	18.48	-2.52	21.00
95+96	21.74	3.28	18.46	-2.54	21.00
95+76	21.94	3.50	18.44	-2.56	21.00

Backfill to		97+75	} Aug. 7-1941	
Pipe to		96+10		
Ditch to		95+66		

95+57	21.94	3.52	18.42	-2.58	21.00
95+41	21.94	3.54	18.40	-2.60	21.00
95+26	22.26	3.87	18.39	-2.61	21.00

Backfill to		97+00	} Aug. 8-1941	
Pipe to		96+10		
Ditch to		95+26		

96+00 = -2.54
95+00 = -2.64

K	-	Cut.
21.57	3.04	21.00
21.89	3.38	21.00
21.69	3.19	21.00

checked Aug. 4-1941 } Aug. 6 8/7
" Aug. 5-1941 } 1941
Checked Aug 6 1941 } Aug. 6 11
" " " " " "

Checked 8/7 8/8 8/9 checked
" 8/8 " 8/9 8/11
Set 8/8 checked 8/9 "

Checked
Set 8/8 checked 8/9 8/11
" 8/8 " 8/9 "
Set 8/9 "

Sta.	π	-	Elev. Stk.	Elev. FL.	Cut.
95+10	22.26	3.89	18.37	-2.63	21.00
94+91	22.29	3.94	18.35	-2.65	21.00
Aug. 11-1941 Isbell					
94+75	21.73	3.39	18.34	-2.66	21.00
94+59	21.73	3.41	18.32	-2.68	21.00
94+43	22.02	3.72	18.30	-2.70	21.00
94+27	22.02	2.73	19.29	-2.71	22.00
Backfill to 97+00					
Pipe to 95+00					
Ditch to 94+20					
Aug. 11-1941					
Aug. 12-1941 Isbell					
94+10	22.60	3.33	19.27	-2.73	22.00
93+93	"	3.35	19.25	-2.75	22.00
93+74	23.12	3.89	19.23	-2.77	22.00
Backfill to 96+25					
Ditch to 93+82					
Aug. 12-1941					
Aug. 13-1941 Isbell					
93+58	23.12	2.90	20.22	-2.78	23.00
93+41	"	2.92	20.20	-2.80	23.00
Pipe to 94+30					
Ditch to 93+45					
Aug. 13-1941					
Aug. 14-1941 Isbell					
93+21	23.12	2.94	20.18	-2.82	23.00
Backfill to 95+75					
Ditch to 93+09					
Aug. 14-1941					

8/9	8/11	8/12	8/13	8/15	8/16	8/18
95+00 = -2.64	94+00 = -2.74					
93+00 = -2.84						
Set	Checked	Check				
	Set	Check				
			8/13			
	Set	Check				
	Set	Check	Check			
		Set	Checked	8/15		
	Set	Checked	8/15			
Set 8/13	Checked 8/15					
Set 8/13	"	8/15				
Set 8/14	"	8/15	Checked 8/16			
Set 8/14	Checked 8/15	Checked 8/16	Checked 8/18			
Set 8/14	"	8/15	"	8/16	"	8/18
Set 8/14	Checked 8/15	Checked 8/16	Checked 8/18			

(93+00 = -2.84) (92+00 = -2.94) (91+00 = -3.04)

(Rain) Aug. 15-1941
Isbell

Sta.	X	-	Elev. sth.	Elev. F.L.	Cut
93+05	23.43	3.27	20.16	-2.84	23.00
92+88	23.33	3.18	20.15	-2.95	23.00
92+72	23.33	3.20	20.13	-2.87	
			Backfill to 95+25		
			Pipe to 93+80		8/15/41
			Ditch to 92+70		

Aug. 16-1941
Isbell

92+52	23.33	3.22	20.11	-2.89	23.00
92+32	24.09	4.00	20.09	-2.91	23.00
			Backfill to 95+00		
			Pipe to 93+60		8/16/41
			Ditch to 92+32		

Aug. 18-1941
Isbell

92+14	24.09	5.02	19.07	-2.93	22.00
91+96	24.09	5.03	19.06	-2.94	22.00
			Ditch to 91+84		8/18/41

Aug. 19-1941
Isbell

91+80	24.23	5.19	19.04	-2.96	22.00
91+64	24.23	5.21	19.02	-2.98	22.00
91+48	23.20	4.19	19.01	-2.99	22.00
91+32	23.20	4.21	18.99	-3.01	22.00
			Backfill to 94+50		
			Pipe to 93+15		8/19/41
			Ditch to 91+32		

Set 8/15 Checked 8/16 Checked 8/18 Checked 8/19
 Set 8/16 " 8/18 " 8/19 8/20
 " 8/16 " 8/18 " 8/19 8/20

Set 8/16 Checked 8/18 8/20
 Set 8/18 " 8/19 8/20 8/21

Set 8/18 Checked 8/19 8/20 8/21
 Set 8/18 " 8/19 8/20 8/21 8/23

Set 8/19 Checked 8/20 8/21 8/23
 Set 8/19 " 8/20 8/21 8/23
 Set 8/20 " 8/21 8/23
 Set 8/20 " 8/21 8/23

Aug. 20-1941
Isbell

Sta.	π	-	Elev. stk.	Elev. F.L.	Cut.
91+16	23.20	4.22	18.98	-3.02	22.00
90+97	23.12	4.16	18.96	-3.04	22.00
90+80	23.12	3.18	19.94	-3.06	23.00

Backfill to 94+00
Pipe to 92+82 } 8/20/41
Ditch to 90+85 }

Aug. 21-1941 Isbell

90+61	23.12	3.20	19.92	-3.08	23.00
90+43	23.95	4.05	19.90	-3.10	23.00
			Pipe to 92+32		} 8/21/41
			Ditch to 90+36		

Aug. 22-1941 Isbell

90+28	23.95	4.06	19.89	-3.11	23.00
90+12	"	4.08	19.87	-3.13	23.00
89+94	"	4.10	19.85	-3.15	23.00
			Backfill to 93+50		} 8/22/41
			Pipe to 91+82		
			Ditch to 89+98		

Aug. 23-1941 Isbell

89+77	24.31	4.47	19.84	-3.16	23.00
89+58	"	4.49	19.82	-3.18	23.00
89+42	"	4.51	19.80	-3.20	23.00
			Backfill to 93+00		} 8/23/41
			Pipe to 91+67		
			Ditch to 89+45		

(91+00 = -3.04) (90+00 = -3.14) (89+00 = -3.24)

25

368 lengths of Pipe to M.H. & Evans

Set 8/20 Checked 8/21 8/23 8/25
Set 8/21 " 8/23 8/25
Set 8/21 " 8/23 8/25

2 pipe E. of M.H. & Evans

Set 8/21 Checked 8/23 8/25
Set 8/23 " 8/25

10 pipe

Set 8/23 Checked 8/25
Set 8/23 " 8/25
Set 8/23 " 8/25 8/27

10 pipe

Set 8/25 Checked 8/27
Set 8/25 " 8/27
Set 8/25 " 8/27

3 pipe

Sta	π	-	Sill. El	FL	Out
→ 87+40		5.44	19.17	3.46	.45
87+50	24.61	3.99		-3.39	
87+40		5.44	19.17	-	
87+54		5.42	19.19	-3.38	.43
87+75		5.56	19.05	-3.36	.59
88+00				-3.34	

B.M.	20.87				
82+52	"	3.76	17.13	-3.88	21°
82+32	"	3.80	17.09	-3.90	21°
82+14	"	3.81	17.08	-3.92	21°
81+95	"	4.02	16.87	-3.94	21°
81+75	"	3.85	17.04	-3.96	21°
81+56	"	3.60	17.29	-3.98	22° #
81+41	"	3.63	17.26	-4.00	22°
Pipe to Sta 82+10			9/16/41	M.R. Yale	
B.M.	20.97				
81+20	20.97	3.55	17.42	-4.02	22°
81+01	20.94	3.72	17.22	-4.04	22°
Pipe to Sta 81+20			9/17/41	M.R. Yale	
B.M.	23.65				
80+80				-4.06	22°
Pipe to 81+20			9/18/41	M.R. Yale	

(Fl. Station 81-404
Sta 82+00 = -3.94)

Sta B.M. Elev +	HI
MN 86+04.56	20.87
+ 3.79	
Sta. 83+00	El. Stk = 19.93 + 0.96 HI = 20.89
Sta 82+00	19.25 + 1.64 HI = 20.89
Check 9/16/41	OK
check " "	OK
check " "	OK
Set " "	raise .19 check 9/17/41
set " "	OK check " "
Set " "	lower .27 raise .73 check " "
Set " "	" .74 check " checked 9/22/41
Sta. 82+00	Elev = 19.25 + 1.72 $\pi = 20.97$
Set 9/17/41	Raise .56
" 9/17/41	check 9/18/41
Set 9/18/41	
B.M. 82+00	19.25 + 4.39 $\pi = 23.64$
Fire H. Elev =	20.45 + 3.20 $\pi = 23.65$

	HI.	-	El. Stk	F.L.	Cut
B.M					
81+20	23.94	4.06	19.88	-4.02	22°
81+00	23.94	3.62	20.32	-4.04	22°
80+80	23.94	4.26	19.68	-4.06	22°
Pipe to 81+20 9/20/41 M.R. Yale					
B.M					
81+63	24.70	7.90	16.80	-4.08	22°
B.M.	20.71				
78+95	"	2.98	17.73	-4.24	22°
78+77	"	2.98	17.73	-4.26	22°
78+57	"	2.99	17.72	-4.28	22°
78+37	"	3.01	17.70	-4.30	22°
78+19	"	3.03	17.68	-4.32	22°
77+99	"	3.05	17.66	-4.34	22°
77+79	"	3.09	17.62	-4.36	22°
77+60				-4.38	
77+40				-4.40	
77+20				-4.42	
77+01				-4.44	

18.74 = 3.M.

78+00 - 4.34 - F.L.

28

Reset 9/19/41
 " "
 " "

Bank 1.90 checked F.H. 20.45
 + 3.49
 X = 23.94
 lower 2.36 9/21/41
 lower 1.74 "

F.H. 20.45
 + 4.25
 X = 24.70

Set 9/22/41 raise 112

18.74
 + 1.97
 X = 20.71

Check 7/30/41 .03 low 2.95 ok.
 " " .01 low 2.97 ok.
 " " ok
 " " ok
 " " ok
 " " ok
 " " .02 low 3.07 ok.

Siphon Grades - Chollas Creek

M

~~Indexed~~
98

Inlet		F.L.	
		- 8.52	
0+00 =	Inside of Wall		35+50.93
0+12	0+12.5 = 1st bent	- 9.50	35+38.93
0+24		- 10.40	35+26.93
0+36		- 11.24	35+14.93
0+48		- 11.90	35+02.93
0+60		- 12.40	34+90.93
0+72		- 12.80	34+78.93
0+84		- 13.08	34+66.93
0+96		- 13.29	34+54.93
0+96.5 =	2 Bent P.U.C	- 13.29	34+54.93
1+08.5		13.37	34+42.93
1+20.5		13.44	34+30.93
1+32.5		13.51	34+18.43
1+44.5		13.58	34+06.43
33+97.93 =	85' Bent	13.65	
1' 85.93 =	End of U. curve	13.71	
73.93		13.69	
61.93		13.49	
49.93		13.09	
37.93		12.51	
25.93		11.75 ¹⁴	
13.93		10.81	
33+01.93		9.68	

32+94⁹³

+89⁹³

+83⁴³ = inside of E. Wall

9.00

8.80

8.80

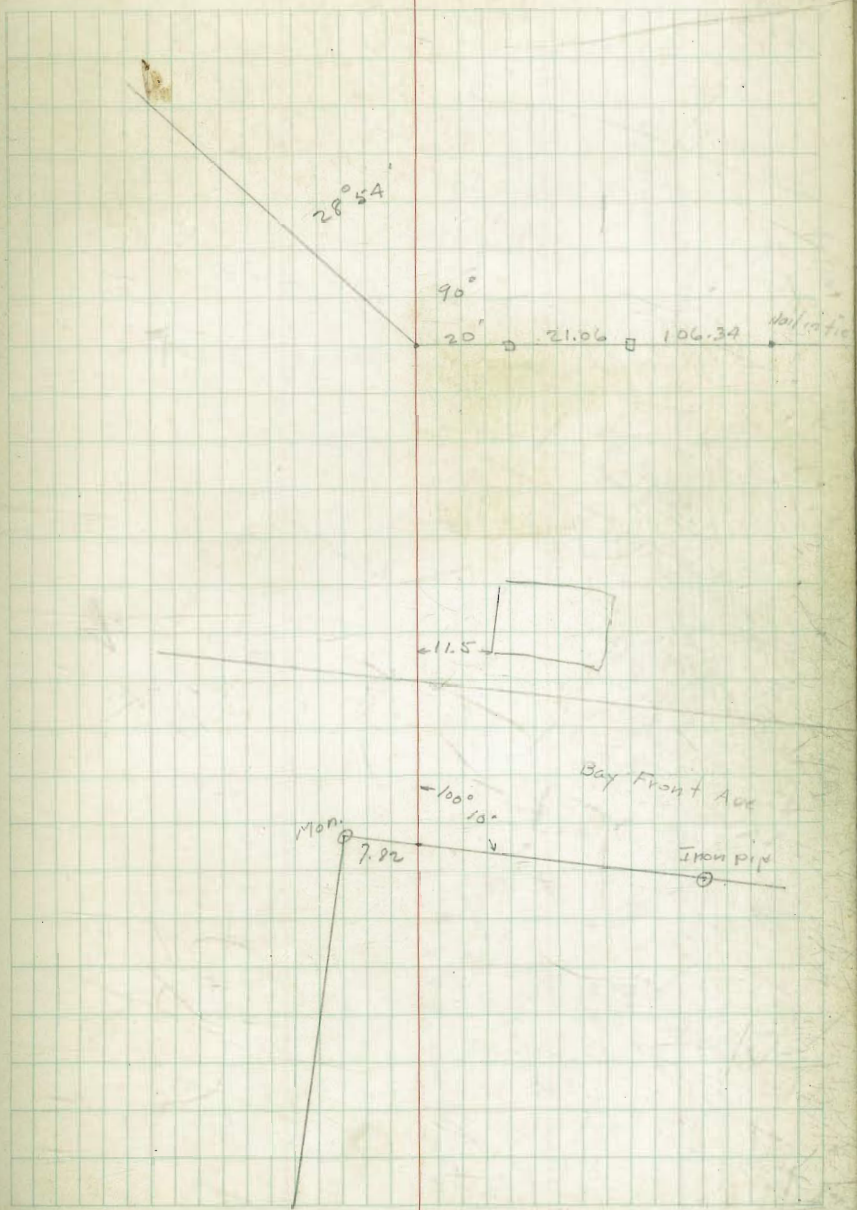
Grades - E. of Chollas Siphon

	F. L.	Elev. sk.	cut
32+36.13 ^{E. inside Edge of box}	8.80	0.75	9.55
32+10	8.88	More fall	
31+60	8.93	5.35	14.28
31+10 ^{Extra stake 25' out}	8.98	5.89	14.87
30+60	9.03	6.38	15.41
30+10	9.08	6.67	15.75
29+60	9.13	6.89	16.02
29+10	9.18	7.04	16.22
28+60 ^{-25' out}	9.23	6.91	16.14
28+10	9.28	6.47	15.75
27+60	9.33	5.84	15.17
27+10	9.38	5.76	15.08
26+60 ^{-25' out}	9.43	5.55	14.98
26+10	9.48		

Grades - 32^d - West.

0.73

	El. sk.	F.L.	Cut.	off.
15+48.82	1.87	-10.54	12.41	
16+00	2.39	10.49	12.88	16+2202 = Edge of 1st Pipe
+50	2.69	10.44	13.13	
17+00	2.63	10.39	13.02	
17+55	2.65	10.34	12.99	
18+00	9.74	10.29	20.03	
18+50	9.89	10.24	20.13	
19+00	9.69	10.19	19.88	
+50	8.93	10.14	19.07	
20+00	8.58	10.09	18.67	
+40 - Angle pt.	8.28	10.05	18.33	
21+00	7.49	9.99	17.48	
+50	6.58	9.94	16.52	
+95	7.26	9.89	17.15	
22+45	6.94	9.84	16.78	
23+00	—	9.79	—	
+50	5.32	9.74	15.06	
24	5.34	9.69	15.03	
+50	—	9.64	—	
25+10	3.77	9.58	13.35	
+50	3.28	9.54	12.82	
+91.23 = Angle pt.	2.20	9.50	11.70	



20+40 20 20 R.A.D.
 90° ← 21°09'30"

18+70
 stub.



shed

By Front

Iron pin

65.505

4.06

91.09

231.0

Disc.

1387 El. 215

ct.

2.2 from co.

15+48.82

15+36.32

15+00 spike

El. 2.47

C 864 Portal

32.00

5.5
 to X
 in co.

105.45

Beardley - West

top = 12.50

0+89.75 = inside of W. Wall 3' s. of N. Cor. 5' 33" to W.L. Beard.

	Ek. stake	Flow.	Cut.	off.
1+00	10.04	19.99	30.03	20'
1+50	11.19	19.95	31.14	"
2+00	10.68	19.91	30.59	"
+50	11.77	19.87	31.64	15'
3+00	11.25	19.83	31.08	
+50	10.86	19.79	30.65	
4+00	9.59	19.75	29.34	
+50	9.05	19.71	28.76	4+70 = begin offset
+85	8.82	19.68	28.50	
5+50	7.23	19.63	26.86	
6+00	7.23	19.59	26.82	= Nail 20
6+66.44 = top 46.0	19.54	24.14		Max offset = 7.5.
6+61.86				
6+59.48 = M.H. as built				
8+50 = End offset				

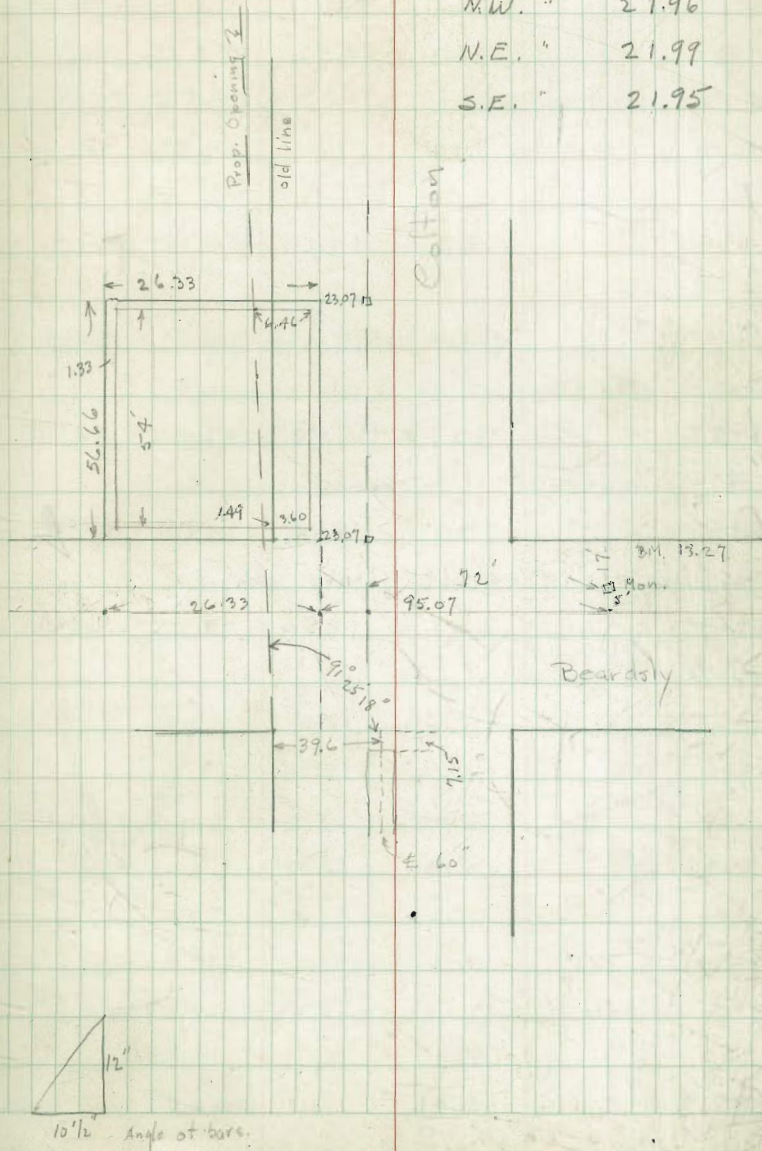
T.P. on house	-2.68		
1+00 Nail	-2.92	-19.99	
1+50			
2+00	-0.92	-19.91	
+50	-2.18	-19.87	
3+00	-2.92	-19.83	
+50	-3.39	-19.79	
4+00	-1.82	19.75	
+50	-2.50	19.71	

Pipe B.M. #3 E.L. 59.20 N of M.L. EL. 690

13' Beard. 20 N. of old N.L. E.L. 13.27 **34**

Nail in Post = -2.40

S.W. ct. -21.98
N.W. " 21.96
N.E. " 21.99
S.E. " 21.95



Sigsbee - W.

Nails in Poles.

	El. nail	F.L.	cut	off.	
6+85	7.63	-19.52	27.15	34.1	L
8+50	3.14	-19.39	22.53	34.9	
10+39	4.91	-19.24	24.15	34.2	
12+32	3.64	19.09	22.73	34.5	
13+47 = Gas Co. Connection on N. Side at spring line					
14+22	4.87	18.93	23.80	34.1	
14+87 = M.H. as built		188+45 = state sta.			
16+57	3.94	18.74	22.68	33.8	
17+82.76 = 191+40.66 = state sta.					
18+93	3.61	18.56	22.17	34.3	
20+37 = M.H. (special) as built					
20+44.43	-1.36	18.44	17.08		
+96.7 ϕ	-0.62	18.39	17.77		
20 " on Pole	2.17	18.39	20.62	60.27 R.	
21+44.62	0.09	18.35	18.44		
22+00	1.72	18.31	20.03		
23+00	0.85	18.23	19.08		
+16.6 Pole	2.05	-18.22	20.27	60.27 R.	
+50	3.81	18.19	14.38		
24+50	0.81	18.11	18.92		

B.M. ± 5 - 0.40 spike in bridge timber 150 Rt. 20+20

35

173+ 57.90 = diff in sta. subtract from state to get ours.

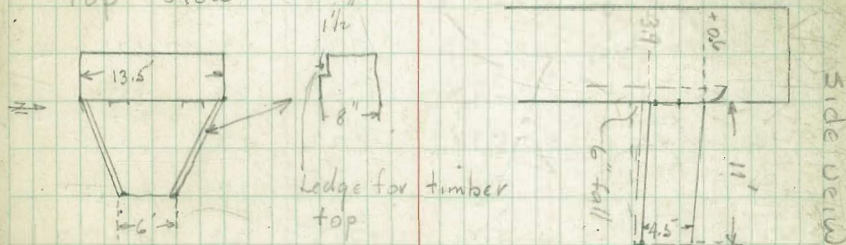
20+40 = lead plug in M.H. on ϕ E.L. -0.10

20+96.7 = Pole 60.27 Rt. 2.17

24+75 = 2x4 on ϕ -0.53

Outlet box for Weir M.H.

Top View



		E.L.	F.L.	Cut	off
24+51	Pole	4.49	18.11	22.60	65.21 R.
24+25.88 =	M.H. as built				
25+85		1.58	18.00	19.58	
26+56	Pole	4.42	17.94	22.36	58.14 R.
27+00		1.23	17.91	19.14	
28+00		1.45	17.83	19.28	
29+13.4		0.83	17.74	18.57	
" "	Pole	4.20	17.74	21.94	103.32 R.
30+95.34	stake	1.83	17.59	19.42	20 R.
31+50		2.04	17.55	19.59	"
32+00		1.99	17.51	19.50	"
32+50		2.10	17.47	19.57	"
32+89 =	M.H. as built				
32+82 =	M.H.				
33+00		2.27	17.43	19.70	"
33+50		2.08	17.39	20.47	"
33+85.14		2.52	17.36	19.88	"
34+50	on fence	5.69	17.31	23.00	51.50 Lt.
35+00	" "	5.73	17.27	23	55.30
464.62	Ang.				90° to Forw. Tangy
4' 48' 45" Lt.		5.78	17.22	23	60.45
36+00		5.81	17.19	23	60.30
+50		5.85	17.15	23	60.30
36+98.86	Pat. spike in pav.	5.89	17.11	23	59.90
37+50		0.99	17.07	18.05	60' spike in pav.

Nail in tool house Rim 7.62
F.L. 13.47 below nail

36

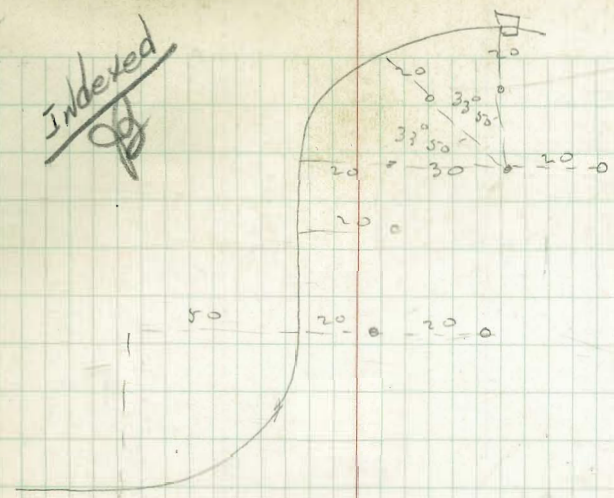
21" Sewer - Valencia Park

Sta.	El. st.	F.L.	Cut,	
105+95.88	10.38	9.22	19.60	P.C.C.
+75	10.06	-9.19	19.25	
+25	8.34	9.11	17.45	
105+00	9.49	9.07	18.56	
+50	9.43	9.00	18.43	
104+00	10.03	8.92	18.95	
+50	10.02	8.85	18.87	
103+00	9.56	8.77	18.33	
+50	11.22	8.70	19.92	
P.R.C.				Elev. of F.L. of 24" pipe set in M.H. = -6.06
102+08.72	M.H. 9.21	-8.64	17.85	
B.M.	7.53	on spike on switch	150 Rt. sta. 105	
	8.99	T.P. on Conc. base of fence post		
106+76.05 = EC.	9.18	-9.34	18.52	
107+11.61	8.60	-9.39	17.99	
107+47.33	8.47	-9.45	17.92	P.C. 50' R.
+76.85	8.52	-9.49	18.01	20' off. Radial
108+06.38	8.81	-9.54	18.35	inside edge of box A

M

Indexed
~~9/1~~

37



This page is a blank ledger with a grid of 16 columns and 26 rows. The columns are defined by red vertical lines, and the rows are defined by blue horizontal lines. The grid covers most of the page, with a narrow margin at the top and bottom.

This page is a blank grid page with a grid of 16 columns and 26 rows. The grid is formed by green lines and covers most of the page, with a narrow margin at the top and bottom. The number '38' is printed in red in the top right corner.

	Σ	-	El. & Stk	F.L.	Cuts
B.M.	12.78				
4+30	12.78	4.46	8.32	-11.64	20°
+50	12.78	5.53	7.25	-11.62	20°
+70	12.78	4.40	8.38	-11.60	20°
4+10	12.78	5.34	7.44	-11.66	20°
B.M.	14.22				
0+98	14.22	7.30	6.92	-11.98	19°
1+14	14.22	7.50	6.72	-11.96	19°
1+30	14.22	8.25	5.97	-11.94	19°
1+46	10.71	4.925	5.785	-11.925	19°
B.M.					
4+00	13.75	6.42	7.33	-11.67	19°
3+78	13.75	6.44	7.31	-11.69	19°
3+61	13.75	6.45	7.30	-11.71	19°
3+45	13.75	6.47	7.28	-11.73	19°

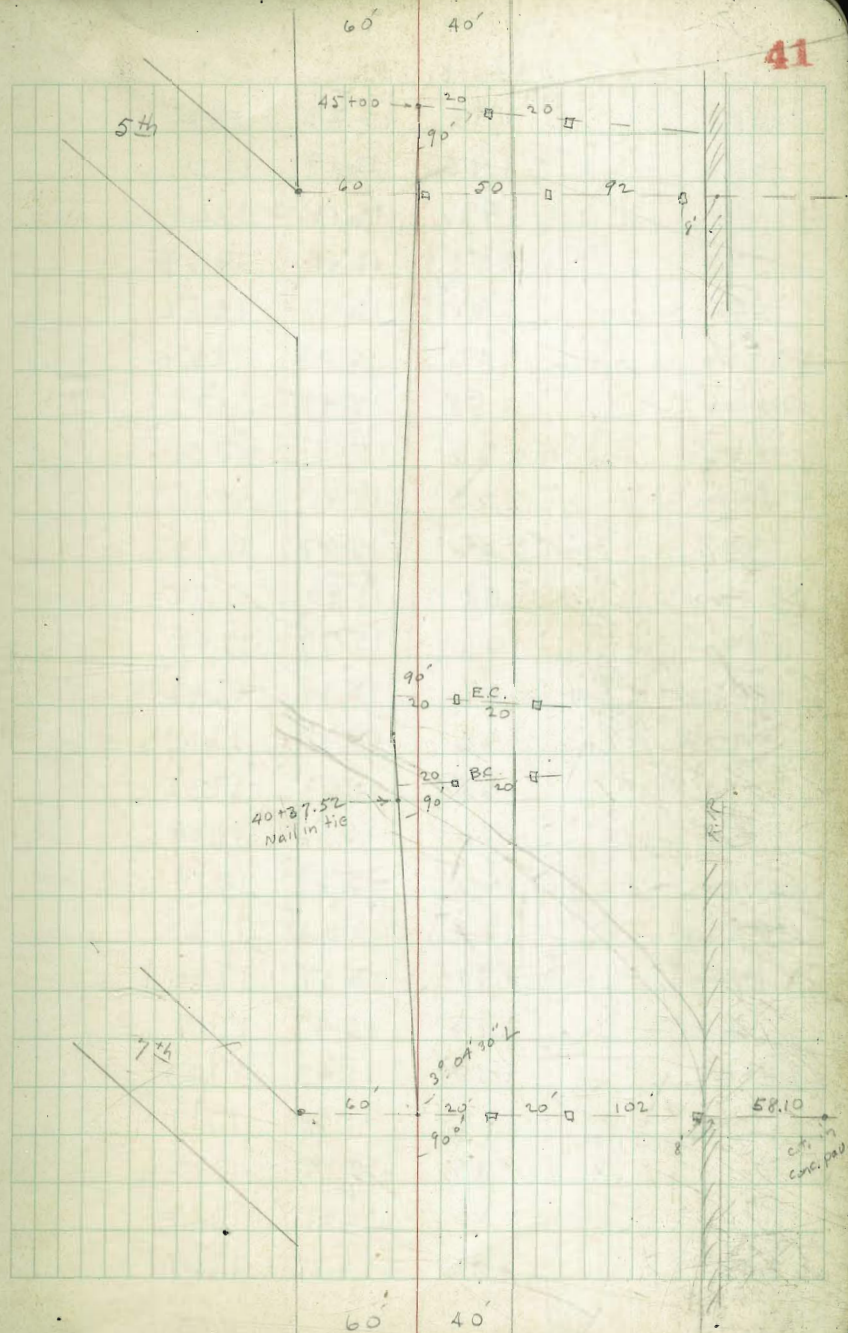
F.L. Sta 400 - 11.67

41

	Sta 4+00	738 +540.5 $\Sigma=12.785$		Sta 3+50	8.46 +4.31.5 $\Sigma=12.775$
Check	9/20/41	.04 low		3+00	8.78 4.00 $\Sigma=12.78$
Set	"	1.13 low (didn't use)			
Check	"	.02 low			
Set	9/20/41	(new) 4.43			
				1+66.20 B.C.	7.10 5.12 $\Sigma=14.22$
Set	9/20/41	raise 0.10		7.22	checked 9/22/41
Set	"	raise 0.32		7.18	" "
Set	"	raise 1.09		7.17	" "
Set	9/22/41	" 1.29			1+66.20 B.C. 9.10 +1.61 $\Sigma=10.71$
				4+00=7.98 +6.39 $\Sigma=13.76$	
Check	9/29/41	checked		3+50=8.46 8.30 13.76	
"	"			3+00=8.78 4.96 13.74	
Set	"	01 High			
"	"	01 High			

7th - West.

	El. sk	F.L	Cut	off
36+49	2.09	17.15	19.24	
Nail in pav.				
36+99:28	1.04	17.11	18.15	
37+50	1.12	17.07	18.19	
38+06.24 =				
38+03.82 =	0.58	17.03	17.61	Ang. 3° 04' 30"
38+50	0.87	16.99	17.86	
39+05	0.36	16.95	17.31	
+50	1.17	16.91	18.08	
M.H. #16 as built				
40+00	1.49	16.87	18.36	M.H. #28
40+50	2.16	16.83	18.99	
40+96.14	0.93	16.79	17.72	Ang. 5° 34' 30"
41+36.54	0.65	16.76	17.41	B.C. R=400 L=40.4 T=19.48
41+99.5	0.78	16.71	17.49	E.C.
42+50	0.78	16.67	17.45	
43+00	0.35	16.63	16.98	
+50	0.50	16.59	17.09	
44+00	1.51	16.55	18.09	Nail in pav. tied out 20' + 50' from E
+50	1.32	16.51	17.83	
45+00	1.30	16.47	17.77	top of pipe - Ang. 2° 30' L
+45	1.04	16.43	17.47	Conn. for Lat. from locker bld. plus - 10' N. of E. 3' above 2.21 - B.M. Nail in corr. found.
+50	1.04	16.43	17.47	
46+00	1.21	16.39	17.60	
+65	1.66	16.33	17.99	
47+00	1.81	16.31	18.12	M.H. #29
+01.3 = M.H. as built				
+50	2.30	16.27	18.57	

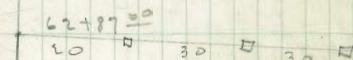
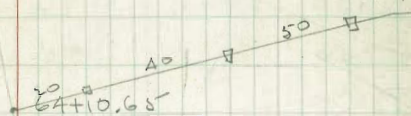


	EL. sk.	F.L.	CUT	
48+00	1.93	16.23	18.12	
+50	1.92	16.19	18.11	
49+01	1.49	16.15	17.64	
+50	2.53	16.11	18.64	
+95	2.45	16.07	18.52	
50+50	2.56	16.03	18.59	
51+00	2.58	15.99	18.57	
+55	2.36	15.95	18.31	
52+00	2.20	15.91	18.11	
+40	2.26	15.87	18.13	
53+00	1.89	15.83	17.72	
+45	1.67	15.79	17.46	
54+00	M.H. #30	1.67	15.75	17.42
+01	as built			POT.
+40		1.46	15.71	17.17
55+00		1.65	15.67	17.32
+54		1.66	15.63	17.29
56+00		1.60	15.59	17.19
+50		1.68	15.55	17.23
57+00		1.79	15.51	17.30
+58		1.70	15.47	17.17
58+00		1.80	15.43	17.23
+50		1.78	15.39	17.17
59	Ang. 1° Rt.	1.87	15.35	17.22
+50		1.90	15.31	17.21
60+00		1.94	15.27	17.21

60+82 = 4" C.I. Sewer Lat.

	EL. sk	F.L.	Cut	
60+50	2.00	15.23	17.23	
61+00	2.02	15.19	17.21	Leaving 6" U.C. pipe at spring line on N. side of M.H. for Navy Bld.
+03 = M.H. as Bldg				
+50	1.97	15.15	17.12	
62+00	1.80	15.11	16.91	
+50	1.87	15.07	16.94	
+87.60	1.97	15.04	17.01	Iron pin 40
63+25	1.92	15.01	16.93	45'
+50	1.83	14.99	16.82	30'
+75	1.86	14.97	16.83	30'
64+10	1.89	14.94	16.83	40'
+50	1.93	14.91	16.84	
65+00	1.99	14.87	16.86	
+50	2.23	14.83	17.06	
66+00	1.76	14.79	16.55	
+50	1.66	14.75	16.41	
67+00	1.76	14.71	16.47	
+50	2.07	14.67	16.74	
68+00	2.12	14.63	16.75	
+31.87	2.07	14.61	16.68	M.H. as shown
+50	2.15	14.59	16.74	
69+00	2.37	14.55	16.92	
+50	2.03	14.51	16.54	19' Rt.
70+00	2.15	14.47	16.62	
+50	1.84	14.43	16.27	
71+00	2.20	14.39	16.59	

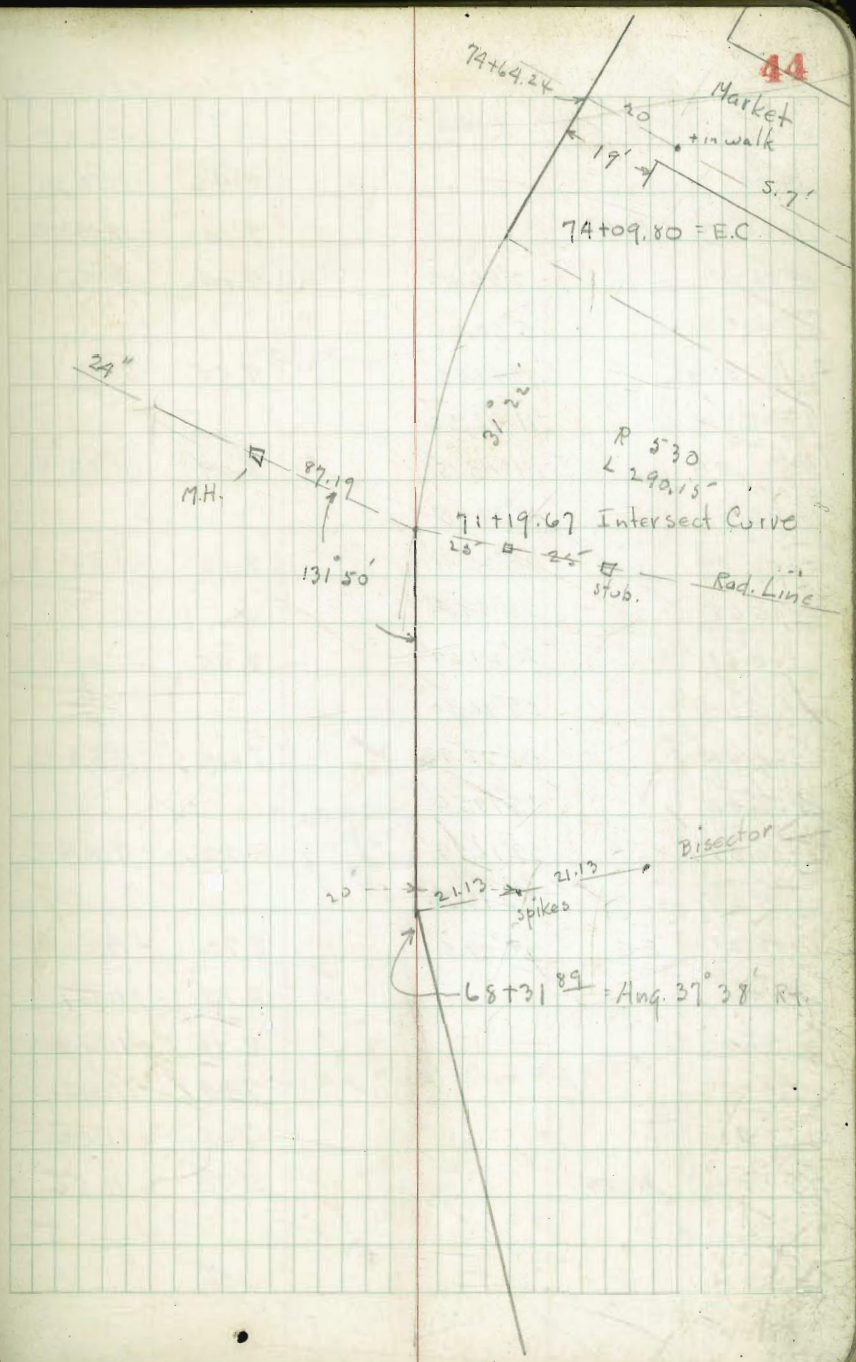
43



2-6" U.C. Con. thru wall of
M.H. 5' below surface.

59+00 Ang. 1° Rt.

	Juck. Cor. 24" Line Int. Curve.			
	EL. st.	F.L.	Cut	
71+19 ⁶⁵				
71+19 ⁶⁰	2.16	14.37	16.83	25' + 25'
+50	2.17	14.35	16.52	
72+00	1.96	14.31	16.27	
+50	1.90	14.27	16.17	
73+00	2.09	14.23	16.32	
+50	1.89	14.19	16.08	
74+09 ⁸⁰ EC.	2.49	14.14	16.63	
+64 ²⁴ 5.7' of Market.	3.13	14.10	17.23	+ in walk



Station		El. Cut Stk.	F.L. Grade
0+00			-12.00
0+91.84			
1+25		9.46	-11.95
1+66.22	B.C.	9.10	-11.905
1+71.15	2°56.63'	9.14	-11.90
1+76.08	5°53.26'		
1+81.01	8°49.89'	9.53	-11.89
1+85.94	11°46.52'		
1+90.88	14°43.15'	8.09	-11.88
1+95.81	17°39.78'		
2+00.74	20°36.41'	8.13	-11.87
2+05.68	23°33.04'		
+10.61	26°29.67'	7.35	-11.86
+15.55	29°26.30'		
+20.48	32°22.93'	7.64	-11.85
+25.42	35°19.56'		
+30.35	39°16.19'	7.72	-11.84
+35.29	42°12.82'		
+40.21	E.C. 44°09.5'	8.72	-11.83
3+00		8.78	-11.77
+50		8.46	-11.72
4+00		7.38	-11.67
+50		6.25	-11.62
5+10	Δ Rt.	5.73	-11.56

Cuts

21.41
21.00
21.04
21.42
19.97
20.00
19.21
19.49
19.56
20.55
20.55
20.18
19.05
17.87

Note: Cut Stks 12' Rd.

sta 5+10
Δ 24°40'20"

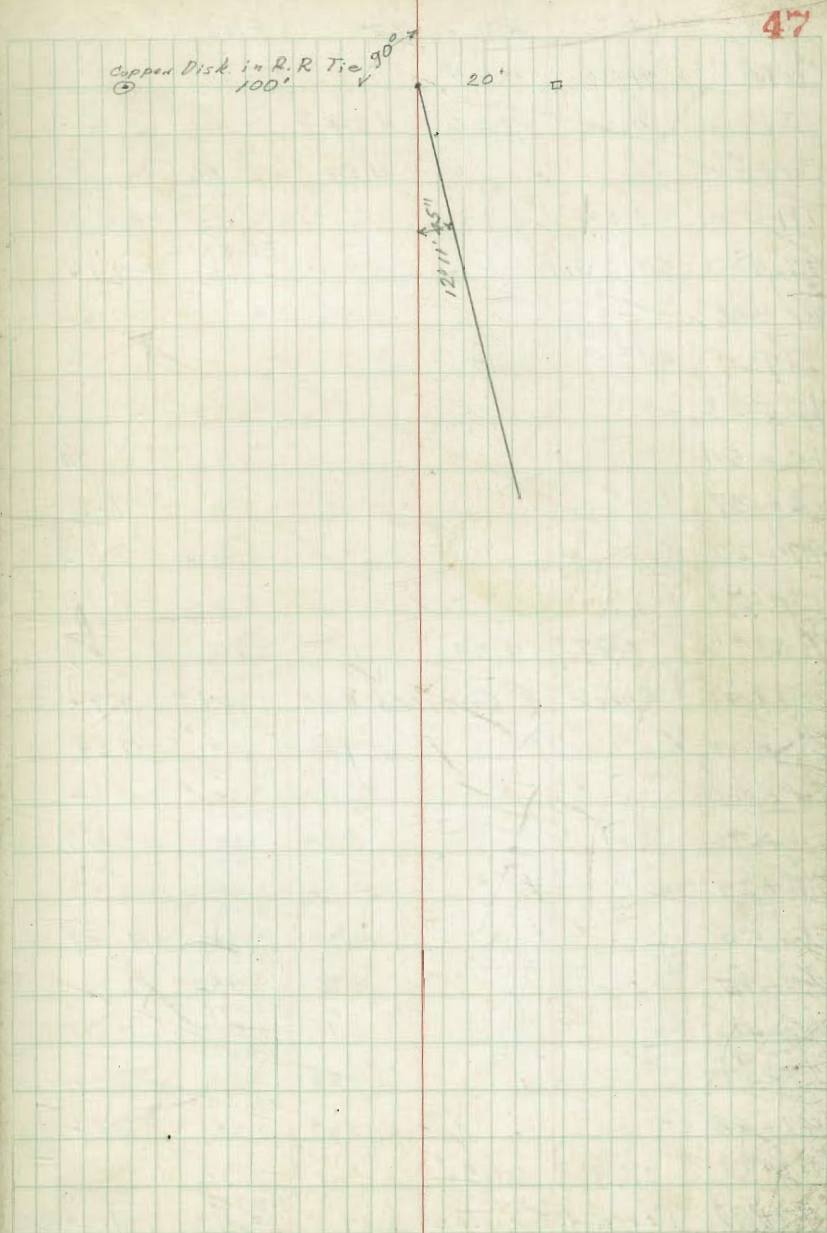
264.71'

EC=2+40.21
L=123.95'
E=+45'
A=88.19'
BC=1156.22'= 0+91.84
0+00

□ Conc. B.M. Tack Elev. = 8.24

Sta.	X	Elev.stk	Elev.F.L.	Cut
35+56.93	Inside Edge Box	West End	Syphon	
38+25			-8.25	
38+45			-8.23	
38+65			-8.21	
38+85			-8.19	
39+07			-8.17	
39+27			-8.15	
39+47			-8.13	
39+67			-8.11	
39+87			-8.09	
40+07			-8.07	
40+27			-8.05	
40+47			-8.03	
40+67			-8.01	
40+87			-7.99	
41+07			-7.97	
41+27			-7.95	
41+48			-7.93	
41+68			-7.91	
41+88			-7.89	
42+08			-7.87	
42+28.57	M.H.#		-7.85	

↑
10% grade
↓



Sta	+	H.I	-	Elev.
B.M.	4.32	7.34		3.02
T.P.	4.66	7.06	4.94	2.40
B.M #1			4.28	2.76
TP	3.64	6.40		
47+48	Set & Grade		2.74	El. of Stk. +3.66 -7.34
47+86			2.70	3.70 -7.30
T.P.	4.13	6.89		
48+23				3.73 -7.27
48+54				3.76 -7.24
48+87				3.80 -7.20
49+27				3.84 -7.16
49+69				3.88 -7.12
B.M #1	4.47	7.23		2.76
43+50	Check & Grades	4.02		3.21 -7.74
44+03			3.96	3.27 -7.69
44+48			3.90	3.33 -7.64
44+96			3.84	3.39 -7.59
45+29			3.82	3.41 -7.56
45+50			3.79	3.44 -7.54
45+97			3.75	3.48 -7.49
46+46			3.70	3.53 -7.44
47+00			3.68	3.55 -7.39
47+48			3.60	3.63 -7.34
B.M #1	3.69	6.45		2.76
47+86	Check & Grades	2.87		3.57 -7.30

cont next pg.

$$47+00 = -7.39$$

$$48+00 = -7.29$$

$$49+00 = -7.19$$

Set B.M. in N. Curb Nail Mark

Cuts

11.0

11.0

11.0

11.0

11.0

11.0

11.0

11.0

To BE
Raised NEW
(-)

11.0

11.0

11.0

11.0

11.0

11.0

11.0

11.0

11.0

11.0

11.0

11.0

11.0

11.0

11.0

11.0

11.0

11.0

11.0

05 3.97 ✓

04 3.91 01 High ✓

03 3.86 01 High ✓

02 3.82 ✓

03 3.79 ✓

02 3.76 01 High ✓

03 3.71 01 High ✓

03 3.67 ✓

06 3.62 ✓

03 3.56 01 High ✓

13 2.75 ✓

Sta	+	6.45	Note <Elev.> = correct Elev.	El. of Stk. F.L.
T.P.	4.85	6.59	4.71	1.74 ^{El. TP}
Check of Grades				
48+23			2.96	3.737 3.43 -7.27
+54			2.85	<3.76> 3.74 -7.24
+87			2.80	<3.80> 3.79 -7.20
49+27			2.74	<3.84> 3.85 -7.16
+69			2.70	<3.88> 3.89 -7.12

7/16/41 M.R. Yale

B.M.#1	3.98	6.74		2.76
47+86	Check of Grades		3.05	<3.70> 3.69 -7.30
48+23			3.04	<3.73> 3.70 -7.27
+54			3.09	<3.76> 3.65 -7.24
+87			3.30	<3.80> 3.44 -7.20
49+27			2.90	<3.84> 3.84 -7.16
+69			2.85	<3.88> 3.89 -7.12

7/22/41 M.R. Yale

B.M.	4.46	7.48		3.02 - Elev. B.P. on Cur b
43+40	Set of Grade		4.23	<3.25> 3.25 -7.75
44+03			4.17	<3.31> 3.31 -7.69
44+48			4.13	<3.36> 3.35 -7.64
44+96			4.08	<3.41> 3.40 -7.59
45+29			4.04	<3.44> 3.44 -7.56
45+50			4.02	<3.46> 3.46 -7.54

Cuts

49

	To BE Raised	NEW (-)	
+11 ^o	.10	2.85	.01 High
	.02	2.84	.01 Low
	.01		Low
	.01		High
	.01		High
+11 ^o	.01 Low		
	.03 Low	3.01	✓✓
	.11 Low	2.99	.01 Low ✓
	.36 Low	3.92	.02 High ✓
	✓✓		
	.01 High		✓✓

+11 ^o	ok ✓✓	set Header Board
+11 ^o	ok ✓✓	
+11 ^o	.01 Low	
+11 ^o	.01 Low	
+11 ^o	ok	
+11 ^o	ok	

19
3
57

266
57
209

191 + 40.66

194 + 06.66
2.66
193 + 87.66

191 + 40.66
2.09
193 + 49.66
+ 19
193 + 30.66
192 + 92.66
192 + 73.66
194 + 06.66
193 + 87.66

191 + 40.66
2.09
193 + 49.66 } Bents with braces between
+ 19
193 + 30.66
192 + 92.66
192 + 73.66
194 + 06.66
193 + 87.66

$\frac{19}{2} \times 1.1$
 $\frac{19}{4}$
 $\frac{19}{2} \times 1.1 = 10.45$

191 + 40.66 = 1st Bent X

$\frac{19}{2} \times 1.1 = 10.45$
 $\frac{19}{4} = 4.75$
 $191 + 40.66 + 89.16$

194 + 08 $\frac{16}{2}$ = Lost limb Bent

193 + 95 $\frac{66}{2}$ = 20 + 37 $\frac{76}{2}$ = 10 + 14

498
578
798
1051
57+
85+
57+89

0.201
1.194
4.768
50
90
60
99 + 29
85

- 0.10
4.45
+ 4.35
12.55
1.42
6.77

18.29
677
11.52
1.80
10.02

819
193
6.26
12.03
1.58
10.53

193 + 87.66

194 + 06.66

191 + 40.66

266
57
209

191 + 40.66
2.09
193 + 49.66
+ 19
193 + 30.66
192 + 92.66
192 + 73.66
194 + 06.66
193 + 87.66

191 + 40.66
2.09
193 + 49.66
+ 19
193 + 30.66
192 + 92.66
192 + 73.66
194 + 06.66
193 + 87.66

22 + 25
22 + 00
21 + 85
21 + 20
20 + 80
20 + 00

1833 11/14 964
358 11/17 967
38 11/19 969
1833 11/22 972
1841 11/24 974

1829 1203 10453
1831 1205 11555
1833 11 1108
1835
1837
1839
1841
1843

6.277
6.277
6.277
6.277
6.277
6.277

July 30-1941
Isbell

Check & grades

Sta	+	π	-	Elev. sth.	F.L. Elev.
		7.38			
44+48			4.04	3.34	-7.64
44+96			4.00	3.38	-7.59
45+29			3.94	3.44	-7.56
45+50			3.92	3.46	-7.54
45+97			3.86	3.52	-7.49
46+46			3.81	3.57	7.44
Back fill to 43+30 Pipe to Bench Levels					
B.M.	2.09	7.17		5.08	
B.M.	5.16	7.54	4.79	2.38	
B.M.	4.67	7.53	4.68	2.86	
B.M.	4.65	7.23	4.95	2.58	
B.M.	4.91	7.36	4.78	2.45	
B.M.	5.14	7.89	4.61	2.75	
B.M.			4.87	3.02	
Sta.	$\pi = 6.93$	Elev. sth.	Elev. F.L.	Cut.	$\pi =$
47+00	3.32	3.61	-7.39	11.00	
+48	3.25	3.68	-7.34	11.02	3.26
+86	3.24	3.69	-7.30	10.99	3.23
48+23	$\pi = 7.02$		-7.27	11.00	3.07
+54	3.26	3.76	-7.24	11.00	3.04
+86	3.23	3.79	-7.20	10.99	3.00
49+27	3.24	3.78	-7.16	10.94	2.96
+76	4.96	2.06	-7.12	9.18	2.92
+97	4.76	2.26	-7.09	9.35	2.88

Continued on Page 51

Kiel Mark on N. Ob. opp. 46+50 $\frac{2.76 \text{ B.M.}}{4.62+}$
7.38

Cuts.	
10.98	.02 Low
10.97	.03 Low
11.00	
11.00	
11.01	.01 High
11.01	.01 High

Sph. in pole on W.B.L. 25' E. of E. line 28th st.

"H" 115 State Hwy. Sta. x on ob.

"H" 113 " " " " " "

"H" 111 " " " " " "

R.F.M.H. #11 opp. 48+00

Kiel Mark on N. ob. opp. 46+56

B.P. in End of N. ob. on Harbor Dr.

Cut.	$\pi = 7.05$	Check Cut Highline			B.M. = 2.45
3.44	11.00				4.48
11.01	3.37	11.00			$\pi = 6.93$
11.00	3.34	11.01	Checked Aug. 2-1941		
11.00	3.31	11.01	Aug. 4-1941	Rod. Cut	B.M. = 2.58
11.00	3.29	11.00		8.41 4.65 11.00	4.41
11.00	3.25	11.00		4.61 11.00	$\pi = 7.02$
11.00	3.84	8.41	Elev. S+K. π Rod Cut	4.57 11.00	Checked 8/8
11.00	3.88	7.96		4.08 11.00	8/9
11.01	3.91	4.05		11.00	8/18
			Checked 8/11/41		8/20
			8/12/41		

Continued from Page 50

	-	Elev. Stringer	Elev. F.L.	Cut	-
50+20	$\bar{x}=7.02$ 4.68	2.34	-7.07	9.41	$\bar{x}=6.80$ 2.88
+44	4.60	2.42	-7.05	9.47	2.85
+68	4.64	2.38	-7.02	9.40	2.82
+92	4.72	2.30	-7.00	9.30	2.79
51+16	4.48	2.54	-6.97	9.51	2.77
+40	$\bar{x}=7.17$ 4.75	2.42	-6.95	9.37	$\bar{x}=7.17$ 3.12
+64	4.75	2.42	-6.93	9.35	3.10
+88	4.80	2.37	(-6.92)	9.27	4.07
52+12	4.88	2.29	-6.91 -6.88	9.17	4.05
+30	4.39	2.78	-6.90 -6.86	9.64	4.05
+48	4.30	2.87	-6.89 -6.84	9.71	4.01
+66	4.38	2.79	-6.88 -6.82	9.61	3.99
+84	4.52	2.65	-6.87 -6.81	9.46	3.98
53+02	4.58	2.59	-6.87 -6.78	9.37	3.95
+20	4.67	2.50	-6.86 -6.77	9.27	3.94
+38	4.73	2.44	-6.85 -6.75	9.19	3.91
+54	4.69	2.48	-6.84 -6.74	9.22	3.91
+70	4.68	2.49	-6.83 -6.72	9.21	3.88
+88	4.80	2.37	-6.83 -6.70	9.07	3.87
54+06	4.95	2.22	-6.82 -6.68	8.90	3.86
+16	5.04	2.13	-6.81 -6.675	8.80	3.84
+22.43			-6.67 -6.93	(-6.81) New Elev. F.L.	

.26 Low Raised .12

{ -0.27 Top Wall }
6.54 to F.L.

48+00 = -7.29
47+00 = -7.39

51

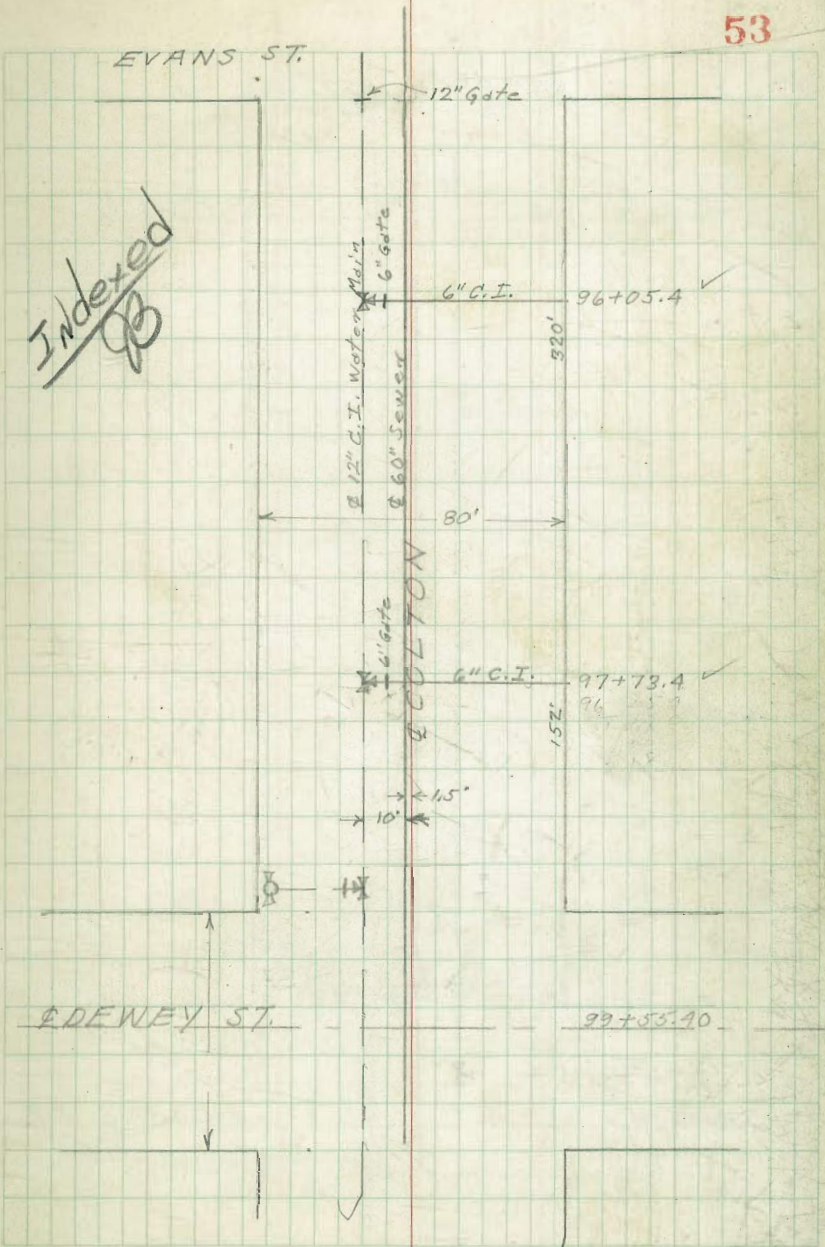
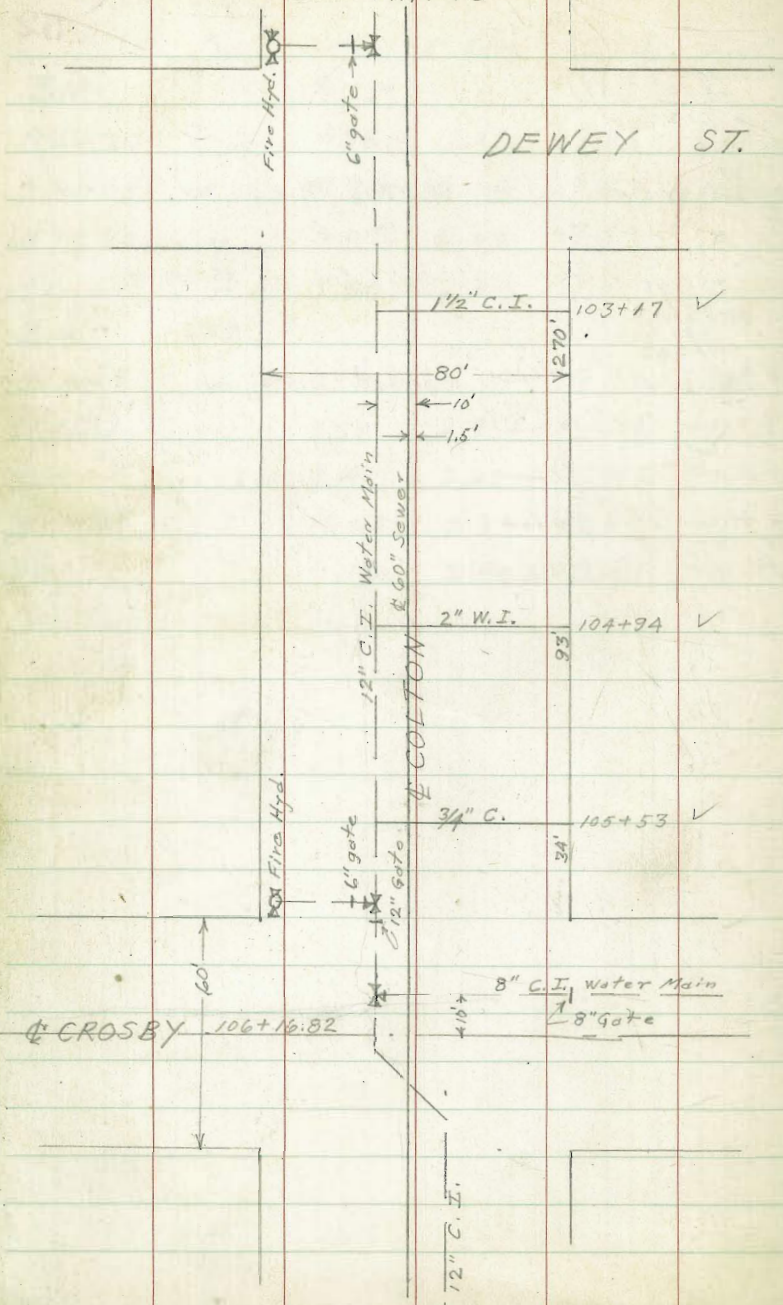
Cut	Elev. Stk.	-	Cut.	Checked
10.99	3.93	$\bar{x}=7.85$ 3.92	11.00	8/11 8/12 8/19 8/20
11.00	3.95	$\bar{x}=6.73$ 2.78	11.00	8/12 8/16 8/19 8/20 8/22
11.00	3.98	$\bar{x}=8.81$ 4.83	11.00	8/16 8/19 8/20 8/22
11.01	4.00	4.81	11.00	8/16 8/19 8/20 8/22
11.00	4.03	4.78	11.00	8/16 8/19 8/20 8/22
11.00	4.05	4.76	11.00	8/16 8/19 8/20 8/22
11.00	4.07	$\bar{x}=8.48$ 4.41	11.00	8/19 8/20 8/22
10.00	(3.08)	5.38	10.00	8/19 8/20 8/22 (Rake Point.)
10.00	3.12	$\bar{x}=9.41$ 6.29	10.00	8/20 8/22 8/25
9.98	3.14	$\bar{x}=8.68$ 5.54	10.00	8/22 8/25
10.00	3.16	5.52	10.00	8/22 8/25
10.00	3.18		10.00	8/25
10.00	3.19		10.00	8/25
10.00	3.21		10.00	8/25
10.00	3.23		10.00	
10.01	3.25		10.00	
10.00	3.26		10.00	
10.01	3.28		10.00	
10.00	3.30		10.00	
10.99	3.32		10.00	
10.00	3.325		10.00	
	-0.27 Top of Wall		6.54	

.047 to Checked 8/28

	π	-	El. Stk	FL. Elev.	Cut
B.M.		9/15/41			
42+27	7.12	4.96	2.16	-7.85	10°
42+08	"	4.98	2.14	-7.87	10°
41+88	"	5.09	2.03	-7.89	10°
41.68	"	5.08	2.04	-7.91	10°
B.M.	653				11°
41+48		3.53	3.00	-7.93	11°
41+27		3.58	2.95	-7.95	11°
41+07		3.91	2.62	-7.97	11°
40+89		4.22	2.31	-7.99	11°
40+71		4.13	2.40	-8.01	11°

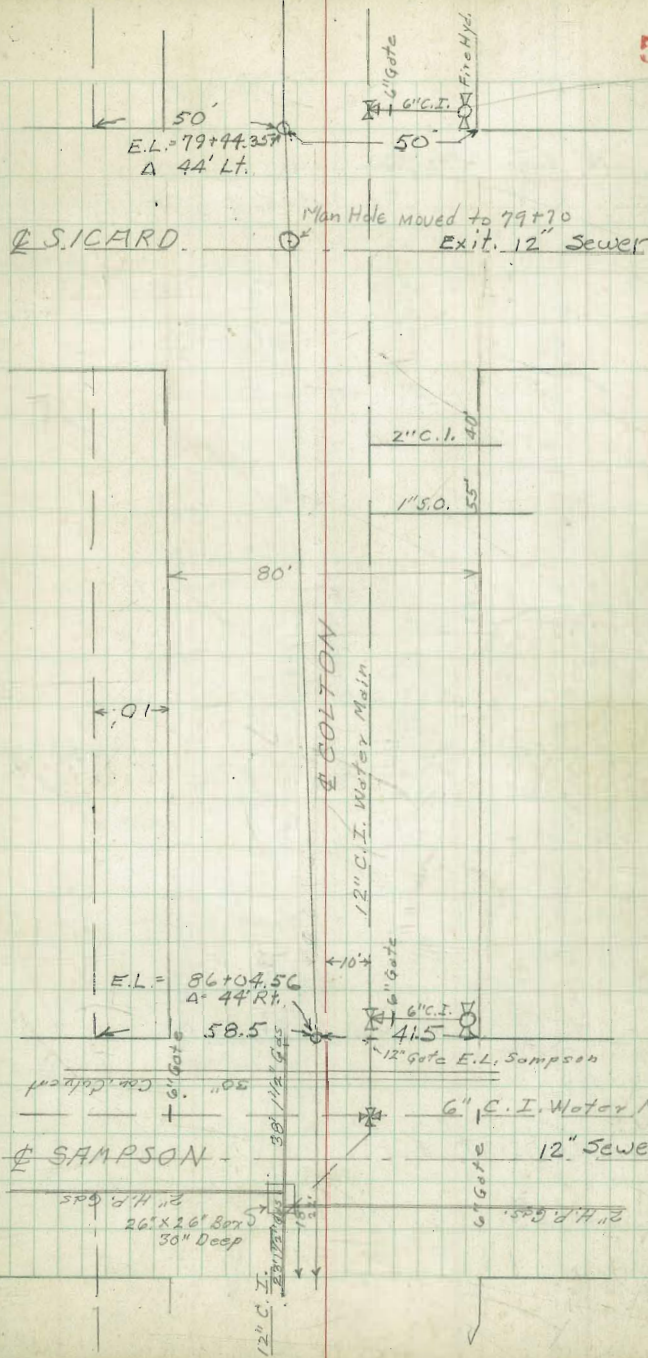
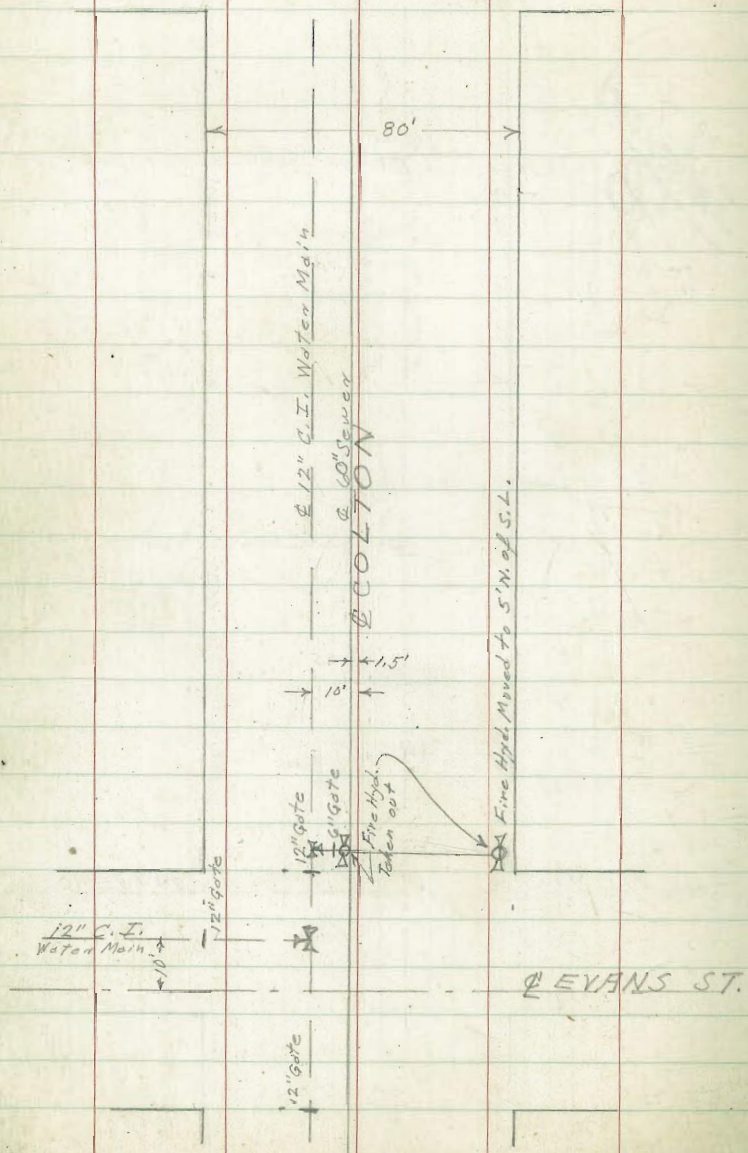
B.M. =	3.02				
	+4.10				
H.I. =	7.12				
	of High				
	of High				
Checked	9/15/41			checked	9/18/41 ok
	.09 low			"	" .02 low
	" "			checked	" .05 Low
	.05 low				" .03 "
	" "				
B.M. El. =	3.02				
	+3.51				
	H.I. = 6.53				
Set	8/16/41	.07 low		checked	9/18/41 ok
Set	"	.10 low			
Set	"	.41 low			
Set	"	.70 low			
Set	"	.59 low			

WATER MAINS

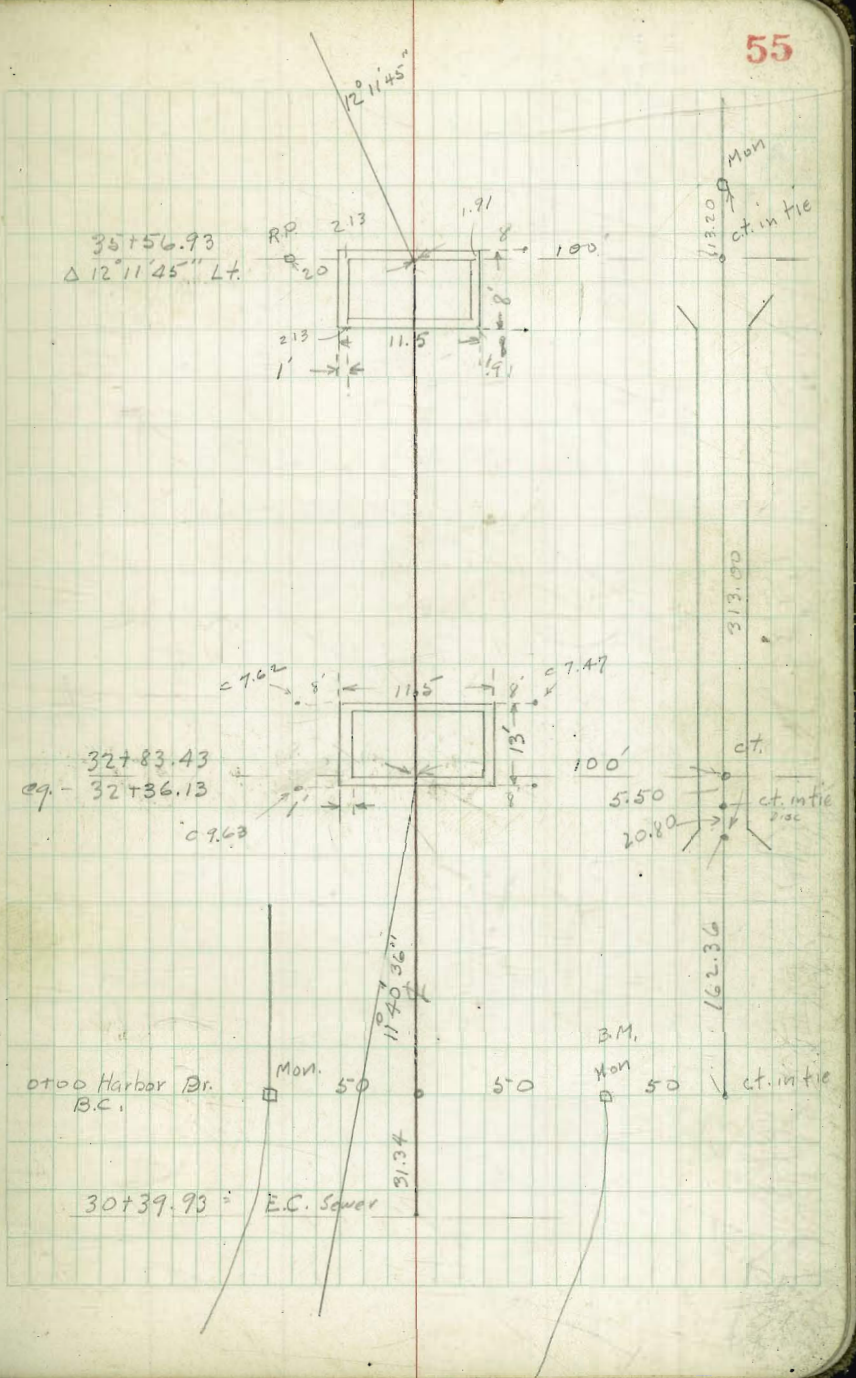
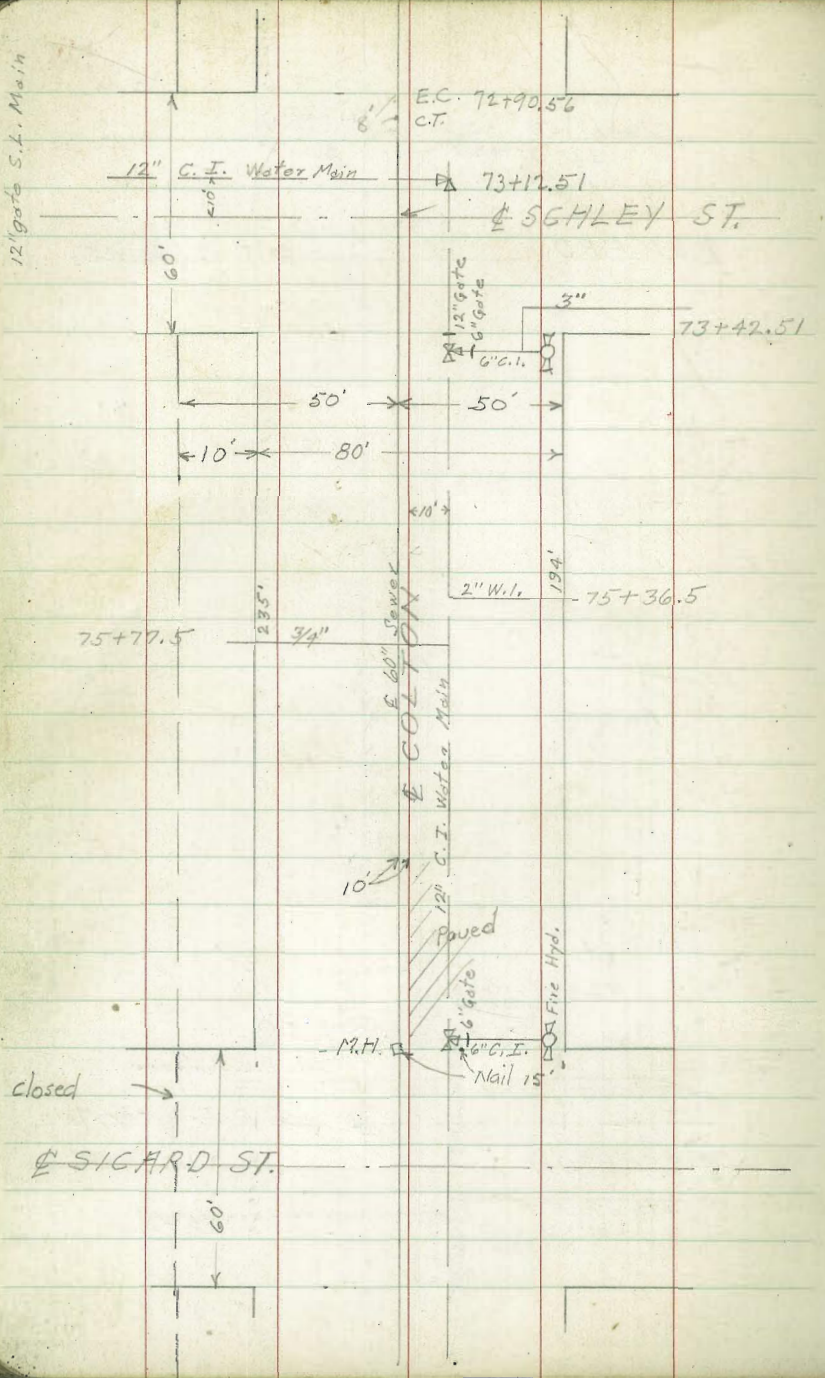


Indexed
93

SAMPSON ST.



12" gate S.A. Main



A ledger-style table with 5 columns and 20 rows. The columns are defined by vertical red lines, and the rows are defined by horizontal blue lines. The table is currently empty.

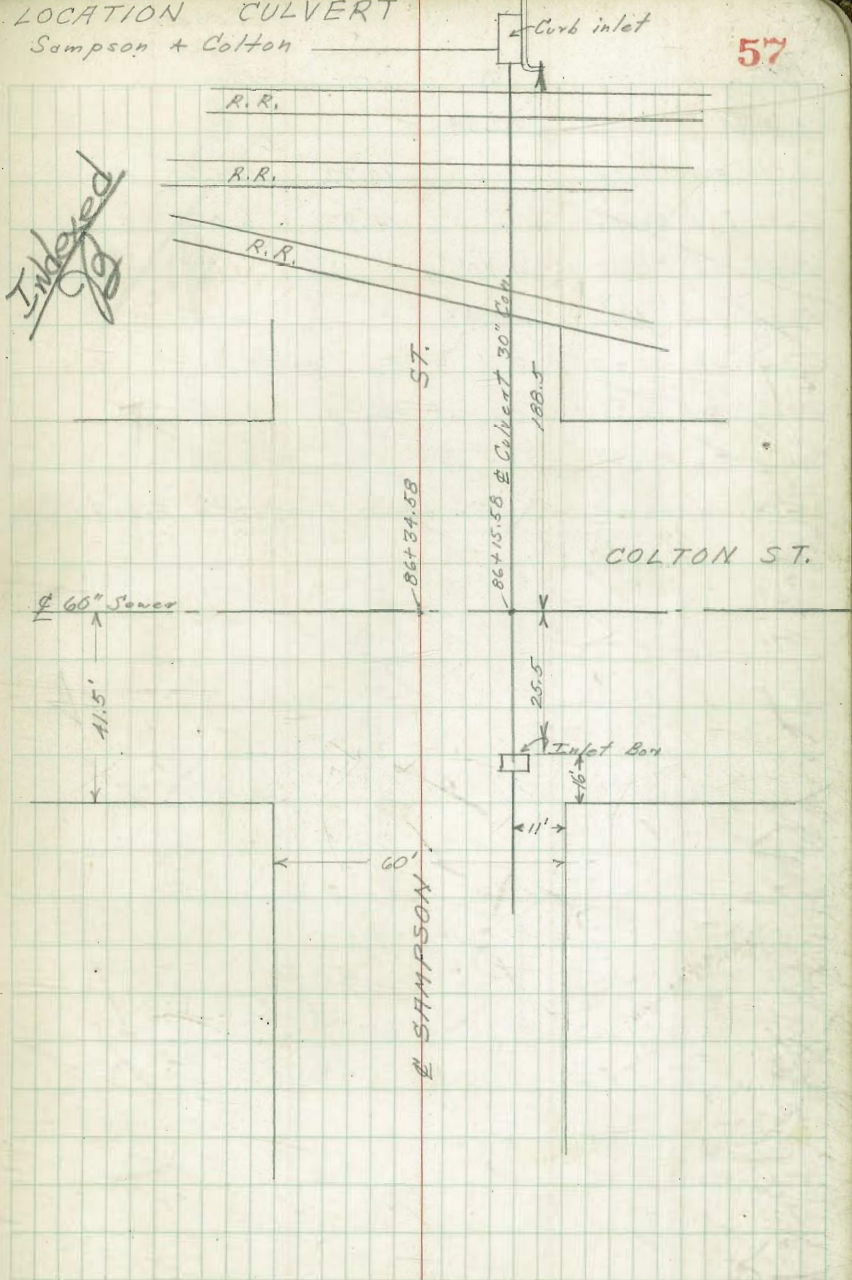
A grid-style table with 15 columns and 20 rows. The columns are defined by vertical blue lines, and the rows are defined by horizontal blue lines. The table is currently empty.

Sta.	+	X	-	Elev.
B.M. 86+50	4.21	24.79		20.58
N. End Culvert F.L.			9.01	16.78
S. End Culvert F.L.			13.61	11.18
Top pipe hgd.			2.21	22.58
Diff in Elev. = 5.60'				
Rate per ft. = .0262				
El. F.L. Culvert at 86+15.58 =				11.85
" " 60" Sewer at 86+15.58 =				-3.52
" Top Pipe 60" " " 86+15.58 =				1.98
Clearance Top Pipe 60" Sewer + F.L. Culvert 9.87'				

Tsbo 11
8/23/41

LOCATION CULVERT
Sampson + Colton

57



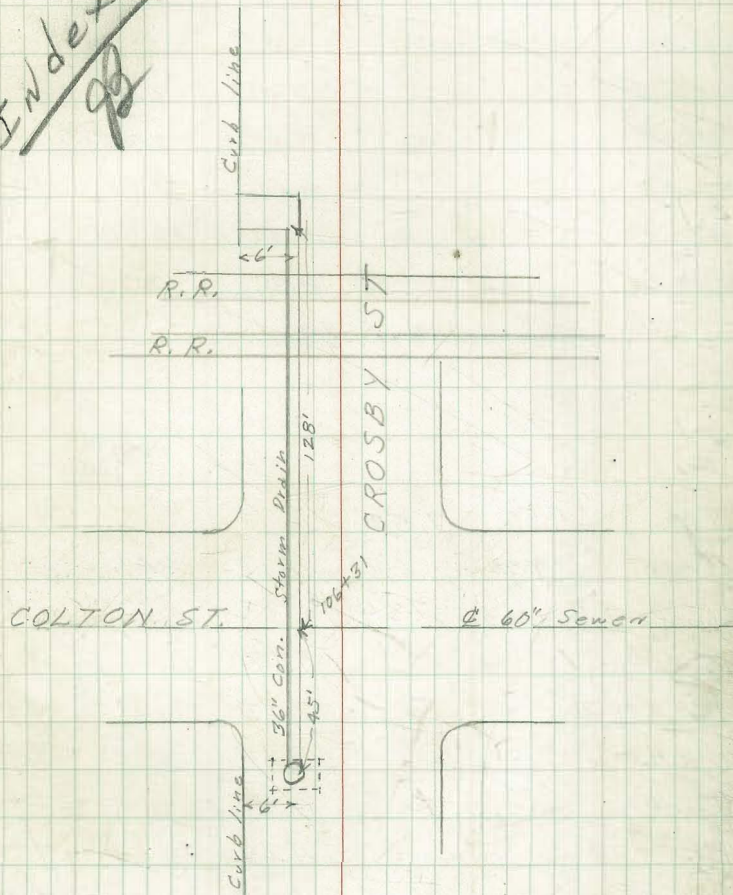
Sta.	+	π	-	Elev.
B.M.	3.25	20.94		17.69
North End Drain			10.72	10.22 F.L.
South End Drain			14.92	6.02 F.L.
Diff. in Elev.	4.20'			
Rate per ft.	.0243			
Elev. at 106+31	7.11	=	F.L. 36" Drain	
Elev. F.L. 60" sewer at 106+31	-1.51			
" Top Pipe "	"	"	"	= 4.49
Clearance 2.62' Top of 60" Sewer to F.L. 36" Drain				

Isbell
June 24-1941

LOCATION CULVERT
Crosby + Colton

58

~~Indexed~~
92



Check Top of Pipe on
60" Sewer on Harbor Dr.

Isbell

June 23-1941

Sta.	+	π	-	Elev.
B.M	4.08	7.10		3.02
42+39.95			9.41	-2.31
42+75			9.45	-2.35
43+00			9.41	-2.31
43+25			9.43	-2.33
43+43			9.38	-2.28

See G-198 P-24

7" / 4" yale

B.M.	+	π	-	Elev.
B.M.	4.50	7.52		+3.02
T.P.	393	4.11	3.41	
Check of Grades	7.34			
			El. of Grade Header board	F.L. Elev
45+50		3.88	3.46	-7.54
45+97		3.83	3.51	-7.49
46+46		3.78	3.56	-7.44
47+00		3.73	3.61	-7.39
43+50		4.05	3.26	-7.74
44+03		4.04	3.31	-7.69
44+48		3.98	3.36	-7.64
44+96		3.93	3.41	-7.59
45+29		3.90	3.44	-7.56

See pg 48 - Setting of Grades

B.M.

59

5	= RR spike in Bridge near sta. 20+00	- 0.40
6	= Iron pipe = P.I. of E R.R.	+ 2.34
7	= Top Hyd. E. side of 7 th bet. R.R.	+ 4.46
8	= " " " " 6 th " "	+ 4.84
9	= B.P. in found.	+ 4.78
10	= " " " Cym bld.	+ 2.19
11	= B.P. in cb. 43' Rt. Sta. 63+00	+ 2.56

On & Grade of 44+96 } F.L. Elev. = 759, & Cr = +112 above FL or
Cuts } Should be a + 3.41 Elev. ✓

11.0 ✓ .13 Low

11.0 ✓ .06 Low

" ✓

" ✓

" ✓

" ✓ .01 Low

" ✓

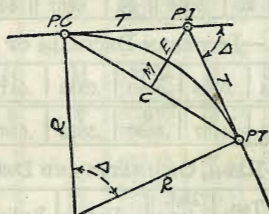
" ✓

" ✓

	Elev.
Govt. B.M. Crosby and Colton	17.69
Top Hyd. Rt of 99+00 on Colton	20.39
B.P. end of N. cb. E. of 20° on Harbor Dr.	3.02
B.M. Spike on Pole on Williams Base Line of 25° ^{25° E. of E. line}	5.08
53+75 x in cb. "H" 115 State Hwy sta.	2.38
51+75 " " " "H" 113 " " "	2.86
49+75 " " " "H" 111 " " "	2.58
48+00 " " " R.P. M.H. # 11	2.45
46+50 Kiel Mk. on N. Curb. opp. 46+50	2.75
R.P.B.C. "H" 100+80.35 at E. end S. cb. Harbor Dr.	2.56
Con. at Base of Fence Post	2.20
Top. Fire Hyd. Colton Sampson S.E. Cor.	22.565
" " " " " Second " "	20.45
R. Shley 60' N. S.L. Colton x in Pav.	20.62
spike in pole at Shley	21.62
B.M. in cb. opp. 65+80 by palm tree	5.56
spike in W. end trestle	70.44
+ in cb. opp. P.I.	6.56
+ in cb. opp. palm tree	5.56
+ in cb. " B.C.	4.80
Mon. by R.R. track	4.12
Con. Slab. " " "	2.73
rail in brewery	5.85

DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

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



CURVE FORMULAS

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

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

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

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

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

EXPLANATION AND USE OF TABLES

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

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

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

Externals.—May be found in similar manner to tangents. Thus E for curve above is 91.37. For from Table IV for 1° curve $E = 960.6$ for $8^\circ 20' = 960.6 \div 8\frac{1}{4} = 91.27$ and from Table V correction $= .10$ or $E = 91.37$ ft. Or suppose $\Delta = 32^\circ$ and E is measured and found to be 42 ft. What is D ? From Table IV $E = 230.9$ and $\div 42 = 5.5$ or $D = 5^\circ 30'$.

Five Plug 7' North of South Line
 Chuck Croiler, Service Dept. S.D.C.G. + E.Co
 Laid to
 Sept. 3- 87+68

Ent
 of 1
 stad
 run
 line
 locati
 the
 gives
 from
 "f +
 be ac
 Distar
 scale
 5° of
 ts the



STATIONARY NORTH 7' NORTH LINE

So. S.D. Park Blk 119 - Lots 11 to 14

30
43
127
30
157

106416.82
7.57
104430

214
25.5
22188.3

42439.27 =

42439.95 51.41
11.71

F.L.

-7.835

41.5

434100 2148

-7.79

16
23.5

450 2160

44 289

34.58

450 2179

19

15.58

45 2159

450 2152

46 2199

450 2145

47 2111

-7.39

450 2117

-7.34

48 2127

-7.29

DISTANCES FROM CENTER OF ROADWAY FOR
CROSS-SECTIONING.

Roadway 16 feet wide. Side Slopes 1 on 1 1/2
For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.2	8.3	8.5	8.6	8.8	8.9	9.1	9.2	9.4	0
1	9.5	9.7	9.8	10.0	10.1	10.3	10.4	10.6	10.7	10.9	1
2	11.0	11.2	11.3	11.5	11.6	11.8	11.9	12.1	12.2	12.4	2
3	12.5	12.7	12.8	13.0	13.1	13.3	13.4	13.6	13.7	13.9	3
4	14.0	14.2	14.3	14.5	14.6	14.8	14.9	15.1	15.2	15.4	4
5	15.5	15.7	15.8	16.0	16.1	16.3	16.4	16.6	16.7	16.9	5
6	17.0	17.2	17.3	17.5	17.6	17.8	17.9	18.1	18.2	18.4	6
7	18.5	18.7	18.8	19.0	19.1	19.3	19.4	19.6	19.7	19.9	7
8	20.0	20.2	20.3	20.5	20.6	20.8	20.9	21.1	21.2	21.4	8
9	21.5	21.7	21.8	22.0	22.1	22.3	22.4	22.6	22.7	22.9	9
10	23.0	23.2	23.3	23.5	23.6	23.8	23.9	24.1	24.2	24.4	10
11	24.5	24.7	24.8	25.0	25.1	25.3	25.4	25.6	25.7	25.9	11
12	26.0	26.2	26.3	26.5	26.6	26.8	26.9	27.1	27.2	27.4	12
13	27.5	27.7	27.8	28.0	28.1	28.3	28.4	28.6	28.7	28.9	13
14	29.0	29.2	29.3	29.5	29.6	29.8	29.9	30.1	30.2	30.4	14
15	30.5	30.7	30.8	31.0	31.1	31.3	31.4	31.6	31.7	31.9	15
16	32.0	32.2	32.3	32.5	32.6	32.8	32.9	33.1	33.2	33.4	16
17	33.5	33.7	33.8	34.0	34.1	34.3	34.4	34.6	34.7	34.9	17
18	35.0	35.2	35.3	35.5	35.6	35.8	35.9	36.1	36.2	36.4	18
19	36.5	36.7	36.8	37.0	37.1	37.3	37.4	37.6	37.7	37.9	19
20	38.0	38.2	38.3	38.5	38.6	38.8	38.9	39.1	39.2	39.4	20
21	39.5	39.7	39.8	40.0	40.1	40.3	40.4	40.6	40.7	40.9	21
22	41.0	41.2	41.3	41.5	41.6	41.8	41.9	42.1	42.2	42.4	22
23	42.5	42.7	42.8	43.0	43.1	43.3	43.4	43.6	43.7	43.9	23
24	44.0	44.2	44.3	44.5	44.6	44.8	44.9	45.1	45.2	45.4	24
25	45.5	45.7	45.8	46.0	46.1	46.3	46.4	46.6	46.7	46.9	25
26	47.0	47.2	47.3	47.5	47.6	47.8	47.9	48.1	48.2	48.4	26
27	48.5	48.7	48.8	49.0	49.1	49.3	49.4	49.6	49.7	49.9	27
28	50.0	50.2	50.3	50.5	50.6	50.8	50.9	51.1	51.2	51.4	28
29	51.5	51.7	51.8	52.0	52.1	52.3	52.4	52.6	52.7	52.9	29
30	53.0	53.2	53.3	53.5	53.6	53.8	53.9	54.1	54.2	54.4	30
31	54.5	54.7	54.8	55.0	55.1	55.3	55.4	55.6	55.7	55.9	31
32	56.0	56.2	56.3	56.5	56.6	56.8	56.9	57.1	57.2	57.4	32
33	57.5	57.7	57.8	58.0	58.1	58.3	58.4	58.6	58.7	58.9	33
34	59.0	59.2	59.3	59.5	59.6	59.8	59.9	60.1	60.2	60.4	34
35	60.5	60.7	60.8	61.0	61.1	61.3	61.4	61.6	61.7	61.9	35
36	62.0	62.2	62.3	62.5	62.6	62.8	62.9	63.1	63.2	63.4	36
37	63.5	63.7	63.8	64.0	64.1	64.3	64.4	64.6	64.7	64.9	37
38	65.0	65.2	65.3	65.5	65.6	65.8	65.9	66.1	66.2	66.4	38
39	66.5	66.7	66.8	67.0	67.1	67.3	67.4	67.6	67.7	67.9	39
40	68.0	68.2	68.3	68.5	68.6	68.8	68.9	69.1	69.2	69.4	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 41.9. For same slopes but other widths of roadbed correct above figures by one-half difference in width of roadbed; thus in example above for 20 ft. roadbed distance will be $41.9 + (20 - 16) \div 2$ or 2 ft. added to 41.9 = 43.9. For slopes of 1 on 1 see inside of front cover.

MADE IN U. S. A.