960

F.B. 960

FIELD BOOK

960

KEUFFEL & ESSER CO.

DRAWING MATERIALS
AND
SURVEYING INSTRUMENTS.
NEW YORK.

CHICAGO. ST. LOUIS. SAN FRANCISCO. MONTREAL.

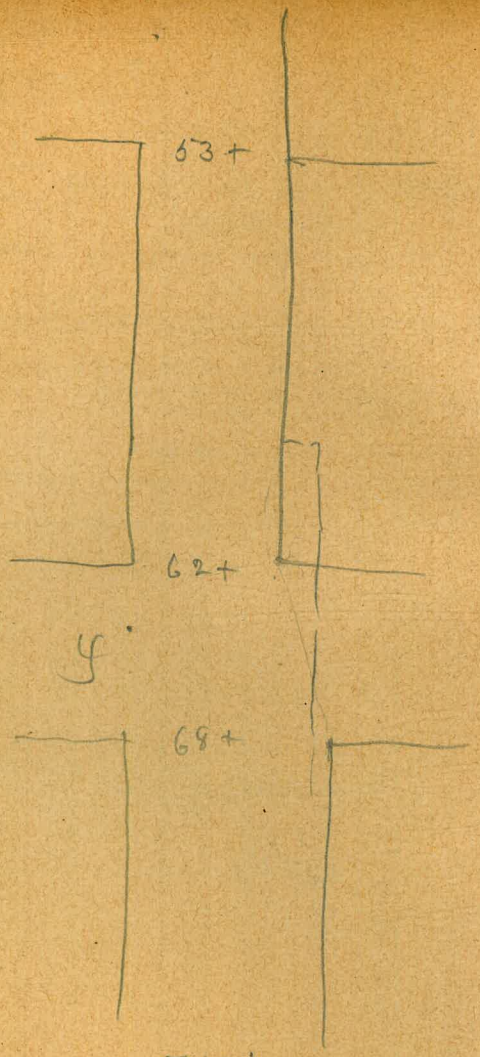
TABLES FOR EXCAVATIONS AND EMBANKMENTS.

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.


63+
62+
y
68+
74+

1/4/15 Gregory Moore

CROSS SECTION OF Q ST 60' WIDE
From W.L. 39th St To E.L. 38th St

B.M.	0.44	110.83		110.41	NE 39th + Woolman
		W L 39th St			
N			10.1	100.7	✓
cl			10.6	100.2	
1/4			11.0	99.8	
C			10.8	100.0	✓
1/4			10.8	100.0	
cl			10.4	100.4	
S			7.0	103.8	✓
		20' W.			
S			5.5	105.3	✓
cl			10.9	99.9	
1/4			12.6	98.2	
T.P.	6.06	106.54	10.35	100.48	
C			9.3	97.2	✓
1/4			8.4	98.1	
cl			10.3	96.2	
N			12.3	94.2	✓
+10			12.4	94.1	
		40' W.			
-30			15.4	91.1	
-20			17.4	89.1	
N			14.4	92.1	✓
cl			12.2	94.3	
1/4			9.0	97.5	

106.5

2

G ST

C			6.0	100.5	✓
1/4			3.9	102.6	
cl			2.9	102.6	
S			1.4	105.1	✓
		120' W.			
S			1.4	105.1	✓
cl			6.7	99.8	
1/4			9.5	97.0	
C			11.9	94.6	✓
T.P.	0.15	094.64	12.05	094.49	
1/4			2.2	92.6	
cl			3.5	91.1	
N			3.7	91.9	✓
		150' W.			
N			9.4	85.7	✓
cl			8.0	87.6	
1/4			6.4	88.2	
C			4.1	90.5	✓
1/4			3.0	91.6	
cl			2.0	92.6	
S			1.3	93.3	✓
		200' W.			
S			7.0	87.6	✓
cl			9.0	85.6	
1/4			9.7		

		@94.6			
C			10.1	84.5	✓
1/4			11.5	83.1	
cb			11.5	83.1	
N			11.1	83.5	✓
+10			8.8	85.8	
		250' W			
N			9.7	84.9	✓
cb			12.1	82.5	
1/4			15.1	79.5	
C			12.8	81.8	✓
1/4			11.6	83.0	
cb			9.4	85.2	
S			6.6	88.0	✓
T.P.	6.96	88.53	1307	81.57	
		300' W			
S			2.6	85.9	✓
cb			6.4	82.1	
1/4			9.0	79.5	
+5			10.8	77.7	
C			9.8	78.7	✓
1/4			7.4	81.1	
cb			5.3	83.2	
N			3.0	85.5	✓
		350' W			
N			0.7	87.8	✓
cb			3.5	85.0	

PLOTTED

1/4		5.9	82.6	
C		7.4	81.1	✓
1/4		9.5	79.0	
cb		12.6	75.9	
S		10.6	77.9	✓
+5		6.6	81.9	
	400' W			
S		12.8	76.3	✓
cb		13.1	75.6	
1/4		13.4	75.1	
C		10.5	78.0	✓
1/4		8.1	80.4	
cb		5.8	82.7	
N		4.3	84.2	✓
	485' W			
-19		7.1	81.4	
N		6.2	82.3	✓
cb		7.2	81.3	
1/4		9.3	79.2	
C		12.0	76.5	✓
1/4		13.2	75.3	
cb		13.6	74.9	
S		13.7	74.8	✓
+20		14.7	76.8	

88.53

450' W

-20			12.7	75.8
S			13.7	74.8 ✓
db			14.1	74.4
1/4			14.0	74.5
C			14.4 ✓	74.1 ✓
1/4			12.8	75.7
db			12.1	76.4
N			12.2	76.3 ✓
+10			8.9	77.6

475' W

PLOTTED

N			6.7	81.8 ✓
db			9.0	79.5
1/4			11.0	77.5
C			13.0	75.5 ✓
1/4			14.2	74.3
db			14.4	74.1
S			14.5	74.0 ✓
T.P.	7.23	84.17	11.59	76.94

500' W

S			10.2	76.0 ✓
db			10.3	75.9
1/4			9.7	76.5
C			7.9	76.3 ✓
1/4			5.1	79.1
db			3.2	81.0
N		8	1.7	82.5 ✓

84.2

Q ST.

4

550' W

N			0.2	84.0 ✓
db			2.4	81.8
1/4			3.7	80.5
C			5.9	78.3 ✓
1/4			7.7	76.5
db			9.7	74.5
S			10.9	73.3 ✓
+20			11.8	72.4

600' W = E. L. 38TH ST.

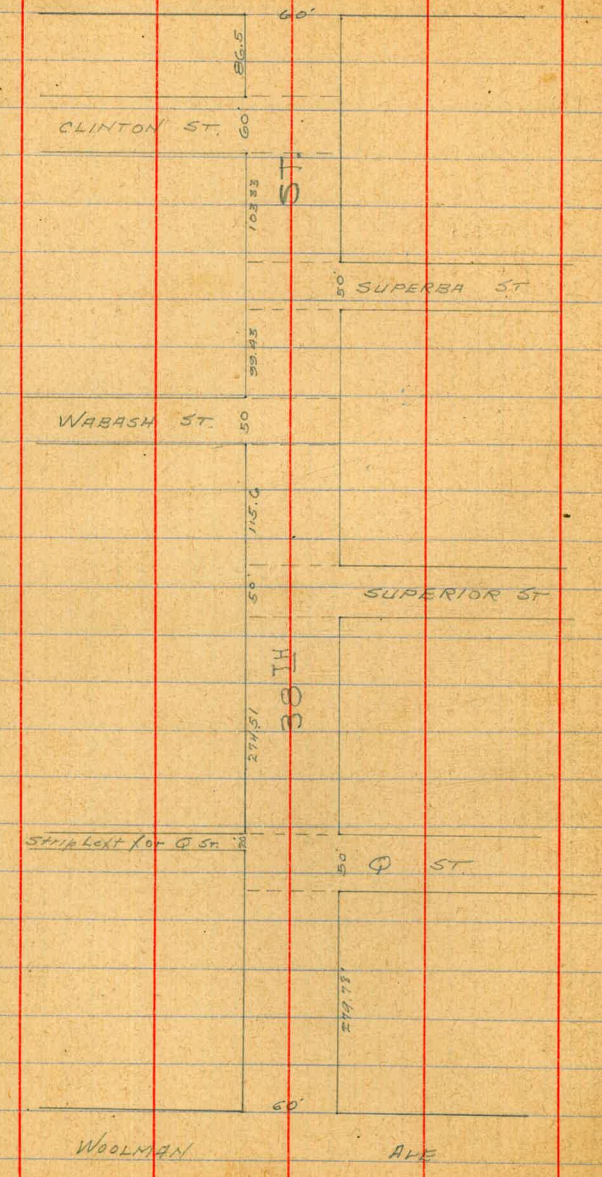
-20			13.1	71.1
S			13.3	70.9 ✓
db			11.7	72.5
1/4			9.6	74.6
C			8.1	76.1 ✓
1/4			6.4	78.8
db			4.7	79.5
N			3.0	81.2 ✓

Chk Finish Stake N.W. Woolman+38th 4.20 79.97

1/5th Gregory/Moore

CROSS-SECTION OF 38TH ST. (60' WIDE)

From N.L. Woolman Ave.
To S.L. Siegel = M ST.



86.50
60.00
103.33
50.00
99.43
50.00
115.60
50.00
274.51
50.00
79.98
1119.15

84.VJ49

38TH ST.

6

T.P. 420 84.17 79.97 54 VJM 38th + Woolman

N.L. WOOLMAN AVE.

W.		4.0	80.2
dr.		4.2	80.0
1/4		4.4	79.8
C		3.7	80.5
1/4		3.8	80.4
dr.		3.2	81.0
E		3.0	81.2
	PLOTTED 50' N/O.		
E		6.6	77.6
dr.		6.7	87.5
1/4		6.8	77.4
C		7.0	77.2
1/4		6.7	77.5
dr.		7.1	77.1
W		7.4	76.8
	100' N/O.		
W		11.4	72.8
dr.		11.0	73.2
1/4		10.7	73.5
C		10.8	73.4
1/4		11.1	73.1
dr.		11.4	72.8
E		11.0	73.2

84.17

150' No.		
E	7.7	76.5
cb	9.1	75.1
¼	10.3	73.9
C	10.8	73.4
¼	11.7	72.5
cb	12.3	71.9
W	12.8	71.4
175' No.		
W	12.6	71.6
cb	11.8	72.4
¼	11.3	72.9
C	10.6	73.6
¼	9.5	74.7
cb	8.1	76.1
E	6.1	78.1
200' No.		
E	5.8	75.4
cb	10.0	74.2
¼	11.5	72.7
C	12.3	71.9
¼	7.0	77.2
cb	13.4	70.8
W	13.6	70.6

84.2 H9.

38TH ST

230' No.		
W	16.3	67.9
cb	15.9	68.3
¼	15.5	68.7
C	15.0	69.2
¼	15.0	69.2
cb	14.7	69.5
E	14.0	70.2
280' No. = S.L. @ ST (See sketch.)		
E	13.3	70.9
cb	13.6	70.6
¼	14.3	69.9
C	14.6	69.6
¼	14.4	69.8
cb	14.2	70.0
W	14.2	70.0
50 CURB		
W	13.1	71.1
cb	13.3	70.9
¼	13.3	70.9
C	13.6	70.4
¼	13.2	71.0
cb	12.3	71.9
E	11.6	72.6

PLOTTED

84.17

So. ¼

E.	9.6	74.6
ab.	11.2	73.0
¼	11.9	72.3
C	12.6	71.6
¼	12.4	71.8
ab	12.3	71.9
W	12.3	71.9

CENTER

W	11.4	72.8
ab	11.3	72.9
¼	11.3	72.9
C	11.1	73.1
¼	10.5	73.7
ab	9.9	74.3
E	8.0	76.2

No. ¼

E	6.5	77.7
ab	8.4	75.8
¼	8.8	75.4
C	9.8	74.4
¼	10.4	73.8
ab	10.6	73.6
W	10.4	73.8

84.243. O ST

No. CURB

8

W	9.7	74.5
ab	9.7	74.5
½	9.5	74.7
C	8.4	75.8
½	7.5	76.7
ab	7.2	77.0
E	4.5	79.7

No. L. O ST.

E	3.0	81.2
ab	4.9	79.3
½	6.3	77.9
C	7.2	77.0
½	8.2	76.0
ab	8.7	75.5
W	9.0	75.2

50' No.

W			2.9	81.3
ab			3.5	80.7
¼			3.4	80.8
C			2.6	81.6
¼			2.2	82.0
ab			1.3	82.9
TR.	11.46	94.88	0.75	83.42
E			10.6	84.3

PLOTTED

94.88

100' NO.

E			6.8	88.1
cb			8.2	86.7
¼			8.7	86.2
C			9.0	85.9
¼			9.5	85.4
cb			9.7	85.2
W			9.3	85.6

150' NO.

W			3.7	91.2
cb			4.1	90.8
¼			4.5	90.4
C			4.1	90.8
¼			4.2	90.7
cb			3.8	91.1
E			2.8	92.1
T.P.	953	103.82	0.89	93.99

200' NO

E			6.6	97.2
cb			7.9	95.9
¼			8.2	95.6
C			8.1	95.7
¼			8.8	95.0
cb			8.9	94.9
W			9.2	94.6

103.8 NO 38TH ST

250' NO.

W	5.7		98.1
cb	5.3		98.5
¼	5.0		98.8
C	4.1		99.7
¼	3.7		100.1
cb	3.9		99.9
E	2.3		101.5
E	1.3		102.5

275' NO. = S.L. SUPERIOR ST. (50' WIDE)

E	0.2		103.6
cb	1.1		102.7
¼	2.8		101.0
C	2.3		101.5
¼	2.5		101.3
cb	3.9		99.9
E	4.1		99.7
W	4.5		99.3

50. CURB

W	4.3		99.5
cb	3.6		100.2
¼	3.2		100.6
C	2.0		101.8
¼	1.7		102.1
cb	1.8		102.0
E	0.4		103.4

103.82

So. 1/4

E	0.7	103.1
cb	1.0	102.8
1/4	1.3	102.5
C	1.8	102.0
1/4	3.0	100.8
cb	3.4	100.4
W	3.9	99.9

CENTER

W	3.5	100.3
cb	3.0	100.8
1/4	2.7	101.1
C	1.6	102.2
1/4	1.0	102.8
cb	0.7	103.1
E	0.4	103.4

No. 1/4

E	0.6	103.2
cb	0.7	103.1
1/4	0.9	102.9
C	1.3	102.5
1/4	2.4	101.4
cb	2.7	101.1
W	3.3	100.5

No. CURB

W	2.7	101.1

103.8 #3

38TH ST

10

cb	2.3	101.5
1/4	2.2	101.6
C	1.0	102.8
1/4	0.9	102.9
cb	0.7	103.1
E	0.0	103.8

N.L. SUPERIOR ST.

T.P. 196 105.31 0.47 103.35

E	0.5	104.8
cb	0.9	104.4
	2.2	103.1
1/4	2.2	103.1
C	2.4	102.9
1/4	3.5	101.8
cb	3.5	101.8
W	3.5	101.8

50' No.

W	3.6	101.7
cb	3.6	101.7
1/4	3.2	102.1
C	2.8	102.5
1/4	2.3	103.0
cb	2.2	103.1
	2.6	102.7
E	0.8	104.5
	0.0	105.3

PLOTTED

1053 HD

100' No.

E	2.1	103.2
cb	3.7	101.6
	5.4	99.9
¼	5.3	100.0
C	5.6	99.7
¼	6.5	98.8
cb	6.9	98.4
W	8.0	97.3

115.6' No. = S.L. WABASH ST. (50' WIDE)

W	9.4	95.9
cb	8.3	97.0
¼	7.4	97.9
C	6.4	98.9
¼	5.7	99.6
cb	5.5	99.8
	4.3	101.0
E	2.6	102.7

So. CURB

E	3.0	102.3
cb	4.3	101.0
	5.5	99.8
¼	6.0	99.3
C	6.5	98.8
¼	7.6	97.7
cb	9.0	96.3
W	9.6	95.7

1053 HD. 38TH ST

So. ¼

11

W	10.1	95.2
cb	8.8	96.7
¼	7.7	97.6
C	6.6	98.7
¼	6.0	99.3
cb	5.0	100.3
E	3.4	101.9

CENTER

E	3.2	102.1
	4.5	100.8
cb	5.7	99.6
¼	6.1	99.2
C	6.6	98.7
¼	7.6	97.7
cb	9.0	96.3
W	10.1	95.2

PLOTTED

No. ¼

W	10.7	94.6
cb	9.4	95.9
¼	8.0	97.3
C	6.9	98.4
¼	6.4	98.9
	6.2	99.1
cb	4.6	100.7
E	3.5	101.8

105.21

No. Curb

E	3.5	101.8
cb	4.5	100.8
1/4	6.6	98.7
C	6.7	98.6
1/4	7.3	98.0
cb	8.2	97.1
W	9.3	96.0
	10.6	94.7

N.L. Wabash St.

W	12.2	93.1
cb	9.5	95.8
1/4	8.3	97.0
C	7.3	98.0
1/4	6.9	98.4
cb	6.7	98.6
E	3.7	100.8
		100.6

50' No.

E	5.4	99.9
cb	7.5	97.8
1/4	9.0	96.3
C	9.7	95.6
1/4	10.4	94.9
cb	12.4	92.9
W	14.7	90.6

105.3 49 38TH St

99.43 49.43 No. = S.L. Superba St. 12

W	12.5	92.8
cb	11.9	93.4
1/4	10.9	94.4
C	9.4	95.9
1/4	9.4	95.9
cb	9.3	96.0
E	6.2	99.1

50. Curb

E	6.4	98.9
cb	8.4	96.9
1/4	8.9	96.4
C	9.2	96.1
1/4	9.6	95.7
cb	10.1	95.2
W	11.1	94.2

50. 1/4

W	9.9	95.4
cb	9.1	96.2
1/4	9.0	96.3
C	8.7	96.6
1/4	8.4	96.9
cb	7.6	97.7
E	6.1	99.2

PLOTTED

105.31

CENTER

E	5.6	99.7
cb	6.9	98.4
¼	8.1	97.2
C	8.3	97.0
¼	8.4	96.9
cb	8.9	96.4
W	9.5	95.8

No. ¼

W	9.5	95.8
cb	8.9	96.4
¼	8.0	97.3
C	7.9	97.4
¼	7.8	97.5
cb	7.0	98.3
E	6.3	99.0

No. CURB

E	5.4	99.9
cb	6.9	98.4
¼	7.5	97.8
C	7.7	97.6
¼	7.8	97.5
cb	9.2	96.1
W	10.0	95.3

105.2 No 9 38TH ST.

No. L. SUPERBA ST.

W	10.1	95.2
cb	9.5	95.8
¼	8.6	96.7
C	7.4	97.9
¼	7.3	98.0
cb	6.3	99.0
E	4.3	101.0

50' No.

E	3.4	102.9
cb	4.7	100.6
¼	6.5 / 6.2	98.8 / 99.1
C	6.4	98.9
¼	7.8	97.5
N	9.9	95.4
W	10.1	95.2

PLOTTED

103.33 No. = St. CLINTON ST. 60' WIDE

W			7.6	97.7
cb			6.4	98.9
¼			5.7	99.6
C			4.7	100.6
¼			4.5	100.8
TP	5.65	106.59	4.37	100.94
cb			1.3	105.3
E			0.0	106.6

106.59

So. Curb

E	00	106.6
cb	2.3	104.3
1/4	5.6	101.0
C	5.8	100.8
1/4	6.4	100.2
cb	7.8	99.4
W	8.5	98.1

So. 1/4

W	7.9	98.7
cb	6.7	99.9
1/4	6.1	100.5
C	5.7	100.9
1/4	5.6	101.0
cb	2.8	103.8
E	0.8	105.8

Center

E	1.8	104.8
cb	3.6	103.0
1/4	5.7	100.9
C	5.7	100.9
1/4	5.7	100.9
cb	6.4	100.2
W	7.1	99.5

106.6 38TH ST

14

No. 1/4

W	6.8	99.8
cb	5.9	100.7
1/4	5.6	101.0
C	5.8	100.8
1/4	5.8	100.8
cb	3.7	102.9
E	2.2	104.4

No. Curb

E	2.8	103.8
cb	3.9	102.7
1/4	6.1	100.5
C	6.0	100.6
1/4	5.6	101.0
cb	6.0	100.6
W	6.8	99.8

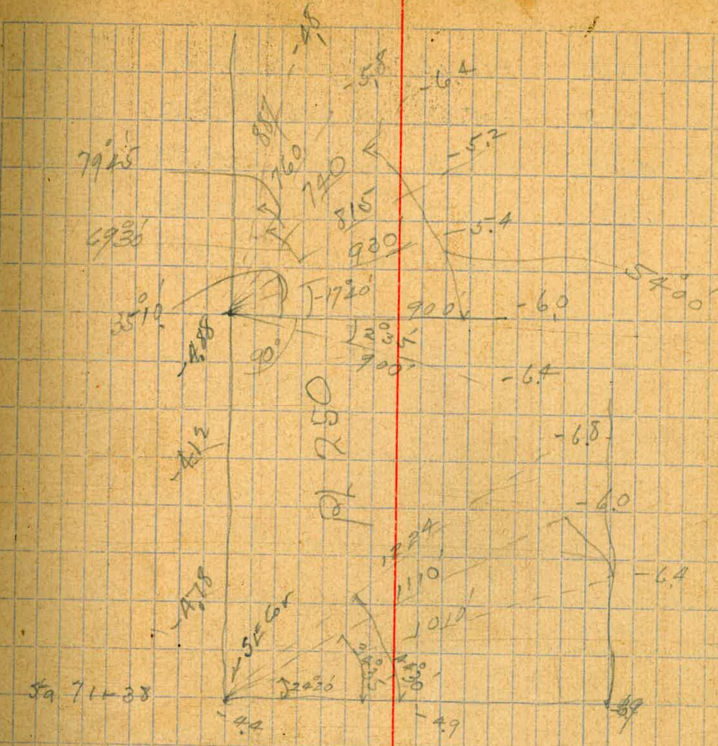
PLOTTED

N.L. Clinton St.

W	6.8	99.8
cb	6.4	100.2
1/4	6.3	100.3
C	6.3	100.3
1/4	6.3	100.3
cb	3.9	102.7
E	3.2	103.4

		106.59			
		50' No.			
E			7.0	99.6	
cb			7.6	99.0	
1/4			8.5	98.1	
C			8.7	97.9	
1/4			9.3	97.3	
cb			9.0	97.6	
W			9.0	97.6	
		86.5' No. = SL. M ST			
W			10.5	96.1	
cb			10.5	96.1	
1/4		PLOTTED	10.2	95.7	
C			10.7	95.9	
1/4			10.8	95.8	
cb			10.9	95.7	
E			10.6	96.0	
T.P.	12.16	116.55	2.20	104.39	
T.P.	9.00	122.68	2.87	113.68	
B.M.			2.89	119.79 = 119.8 W	S.W. 39th & M.

1/14/15 Hatch Memorial Hall		Dummy /	Public Lot 250		
	615	23.16		1.701	BM Voltaire Cable
	0.19	10.89	12.46	10.70	
	511	3.54	12.46	- 1.57	
	550	3.69	5.35	- 1.81	
	318	2.76 ✓	4.06	- 0.37	
	244	1.17	4.03	- 1.27	
Pay at End of Line -			5.50	- 4.33	
SW Cor.	437	-0.12	5.66	- 4.49	

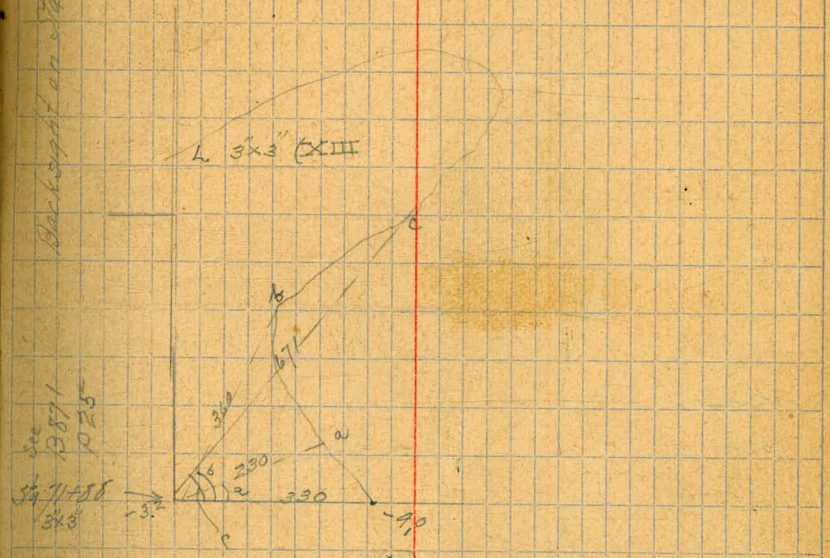


1/26/15 Hatch Survey of B.M. 228 Swope Hall — for area

B.M.	Swope	4.62	11.16	-0.536	Hancock Waterbury
		5.04	5.60	0.56	
		5.00	2.67	-2.33	
	x	4.52	1.90	-2.62	
			5.90	-4.00	

Backsight on Sta 58+68.4 4"x5" "226"

Sta 71+88 3"x3"



a = 32°15'	230		3"x3" (XI)	
b = 69°15'	360	J = 71°10'	1370	
c = 59°15'	671	K = 76°45'	1220	
d = 46°15'	1120	L = 90°	1070	(XIII)
e = 42°45'	1350			
f = 39°50'	1690	(VIII)		
g = 45°30'	2030			
h = 63°20'	1930			
I = 59°50'	1560	(XII)		

4"x5" "226"

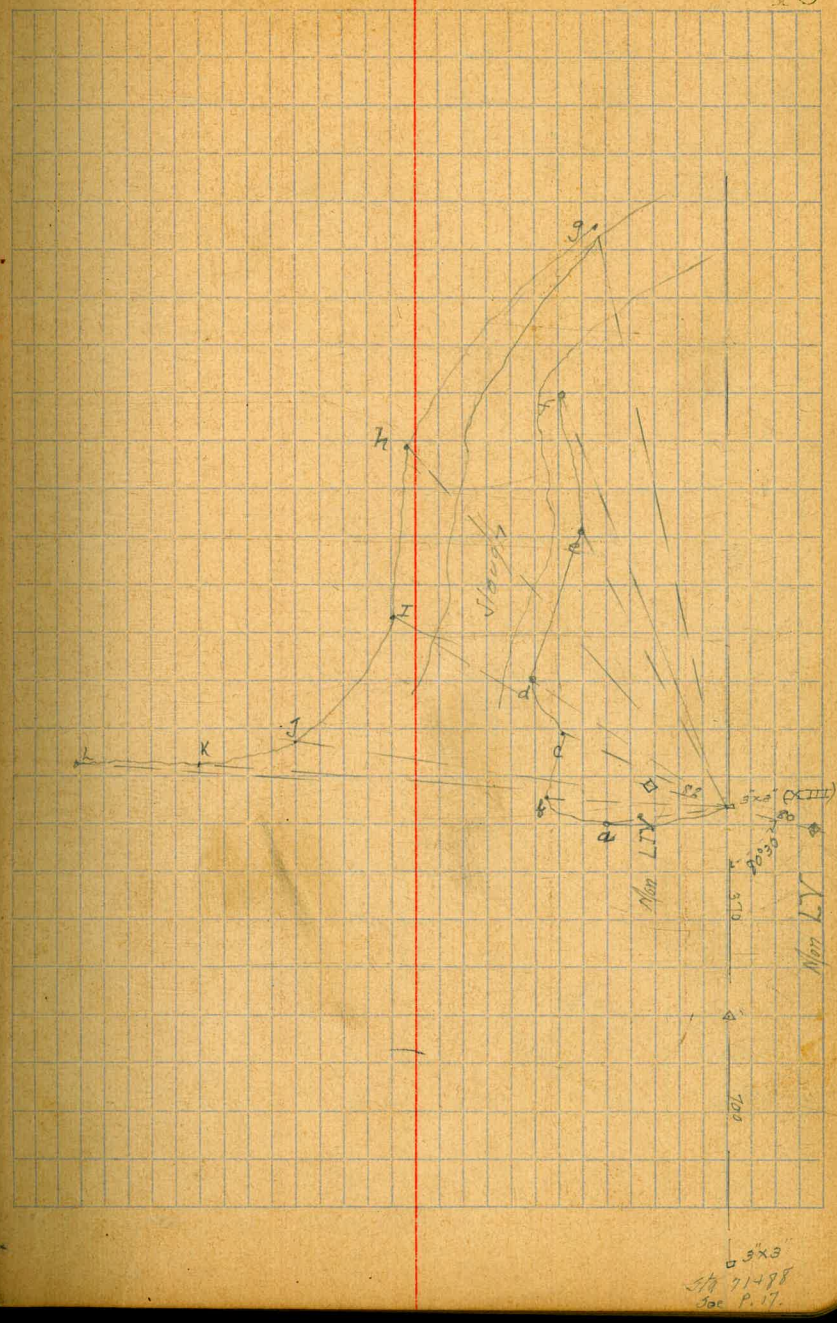
4/12/15 Hotel Moore Hall — Stadia Survey Pl 231, 232 . to determine Freq above -4.0 Elev

TP		4.32	1.60	-2.62	Geo p 17
		3.92	0.61	4.90	-3.30
Non(XIV)		4.77	1.01	4.38	-3.76 BM
				5.01	-4.00

a = 100°30'	L	90	✓	
b = 85°30'	L	170	✓	
c = 54°20'	L	172	✓	
d = 39°30'	L	235	✓	
e = 13°15'	L	367	✓	
f = 11°10'	L	525	✓	
g = 7°50'	L	810	✓	
h = 27°30'	L	575	✓	
I 43°20'	L	475	✓	
J = 66°15'	L	350	✓	
k = 72°30'	L	680	✓	
L = 77°50'		8.45	✓	
M 79°20'		10.20	✓	
N 80°00'		13.26	✓	

o = 77°20'	L	1426	✓
P = 75°05'	L	1679 = 210 W of	

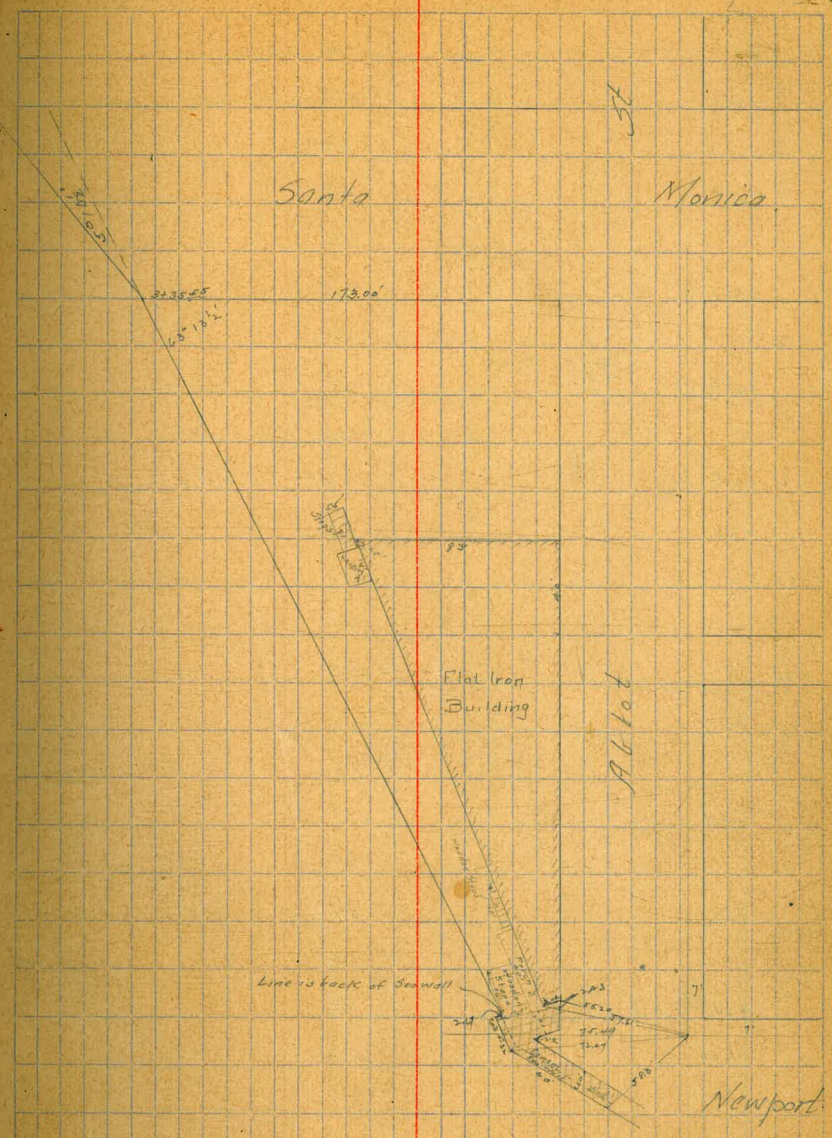
W. Atlanta and 10 W of ℄ Wright St



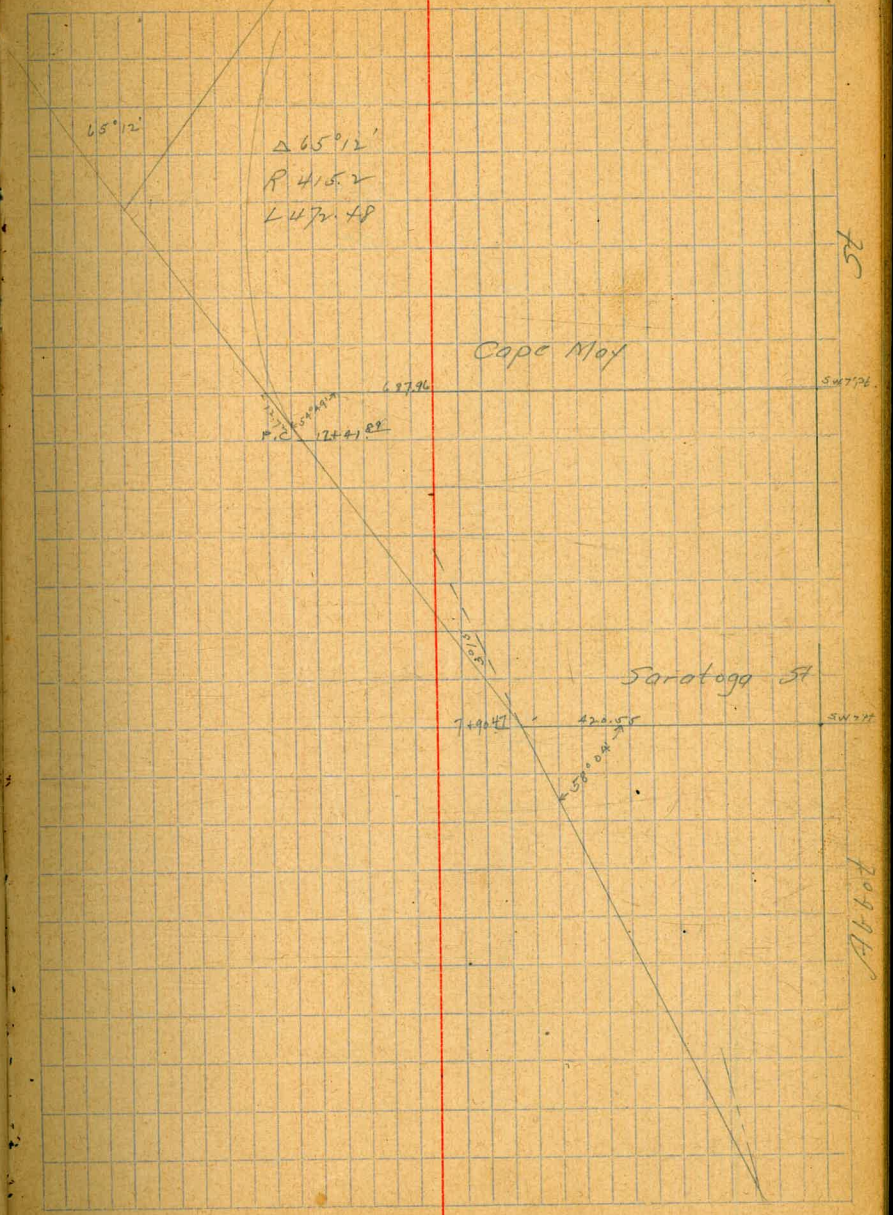
Sta 71+98 Geo P. 17.

Levels over M.H. Tide Line Abbott St to Bkhd. 10/12/15

Sta	+	Ft.	−	Elev.
	2.95	9.45		6.50 MW Bkhd
T.R	1.88	+0.69	10.64	−1.19
0+00 End present Wall			4.30	
+50			4.90	
1			5.0	
+50			5.1	
2			5.0	
+50			4.9	
3			4.8	
+85 St.			4.9	
	2.98	9.48		6.50 BMC
T.P	0.71	1.24	8.95	0.53
+50			5.3	
4			5.5	
+50			5.5	
5			5.5	
+50			5.6	
6			5.6	
+50			5.6	
7			5.5	
+50			5.4	
+90 47			5.3	
T.P	7.34	3.33	5.25	−4.01
8			7.3	
+50			9.3	

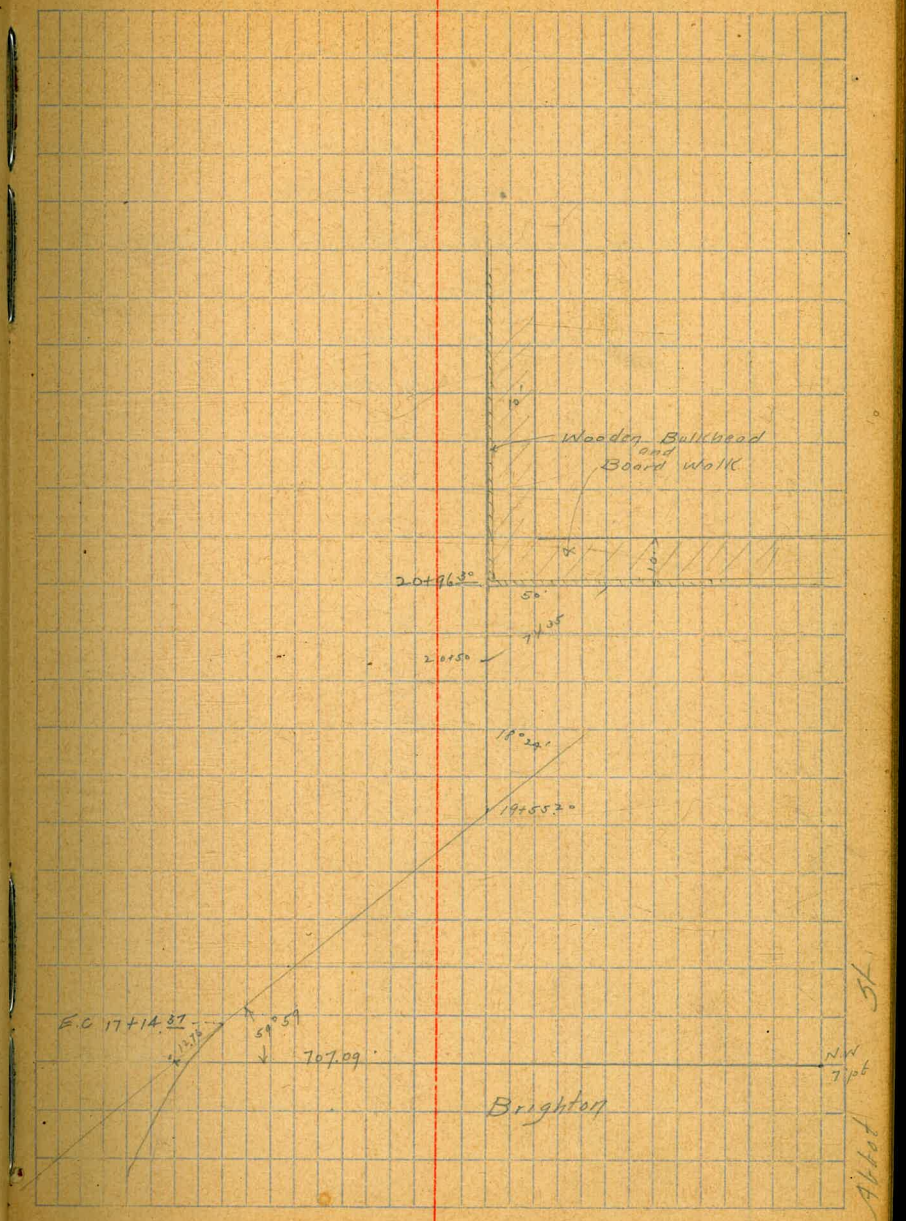


		H1. 3.33		
9			7.3	
+50			7.3	
10			7.2	
+50			7.2	
11			7.4	
150			7.5	
12			7.9	
+41.89 P.C	10/15/15		P.3	− 5.0
T.P	0.71	2.61	1.43	1.90
+41.89 P.C	10/15/15		6.6	−4.0
+50			6.7	
13			7.0	
+50			7.1	
14			7.2	
+50			7.1	
15			7.1	
+50			7.1	
16			6.9	
+50			6.7	
17			6.4	
+14.37 E.C			6.3	
+50			6.0	
18			5.9	
+50			5.8	
19			5.9	



Sta	+	MH 2.61	—	Elev
19+50			5.9	
+55 2°			5.9	
20			6.6	
+50			7.4	
+96 3°			8.5	

Elev Top Wooden Bulkhead +4.90



Borings along M.H. Tide line (P.19).

0+00	Sand Stone	4.5' deep
1	" "	5.5 "
2	" "	6.0 "
3	" "	6.0 "

From Sta 3 to end no foundation struck at depth of 8'

100' West of Line

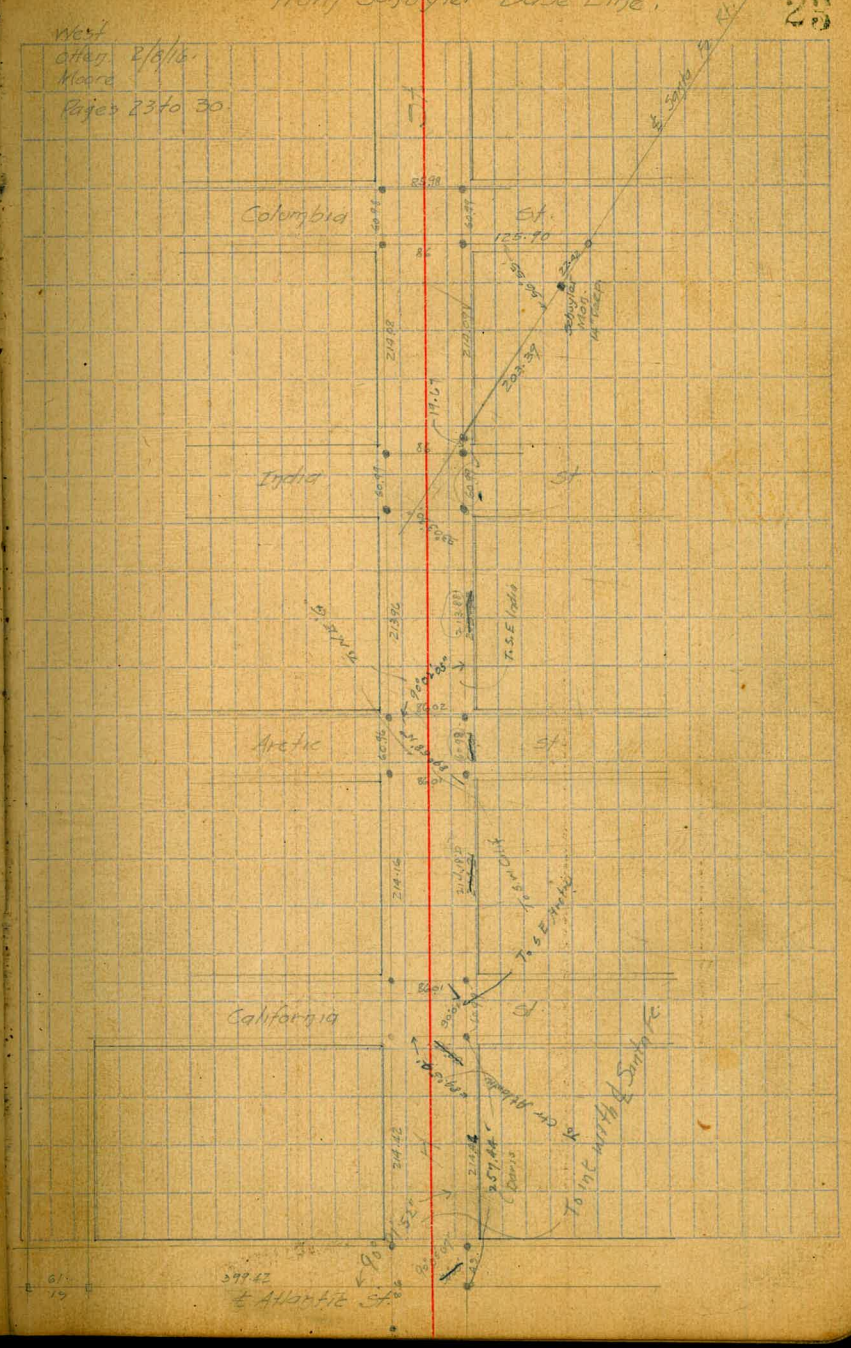
0+00	Sand Stone on Surface	
1	" "	2' deep
2	" "	4' "
3	" "	5' "
4	" "	6 "
6	Rock	7.5"
8	Sand at	8'
10	" "	8'
12	" "	8'
14	" "	8
16	" "	8'
18	" "	6
20+96	Clay "	6'

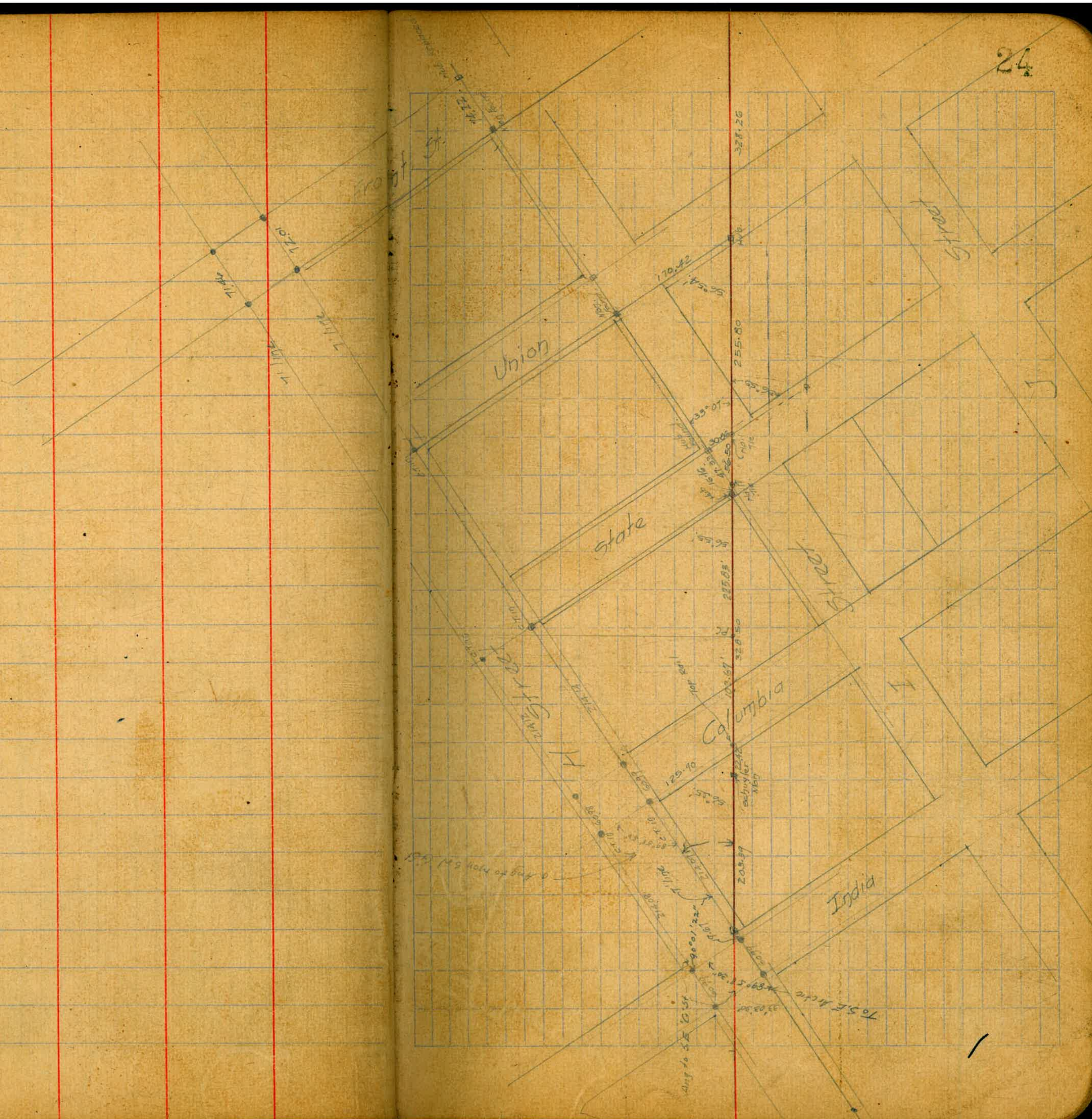
200' West

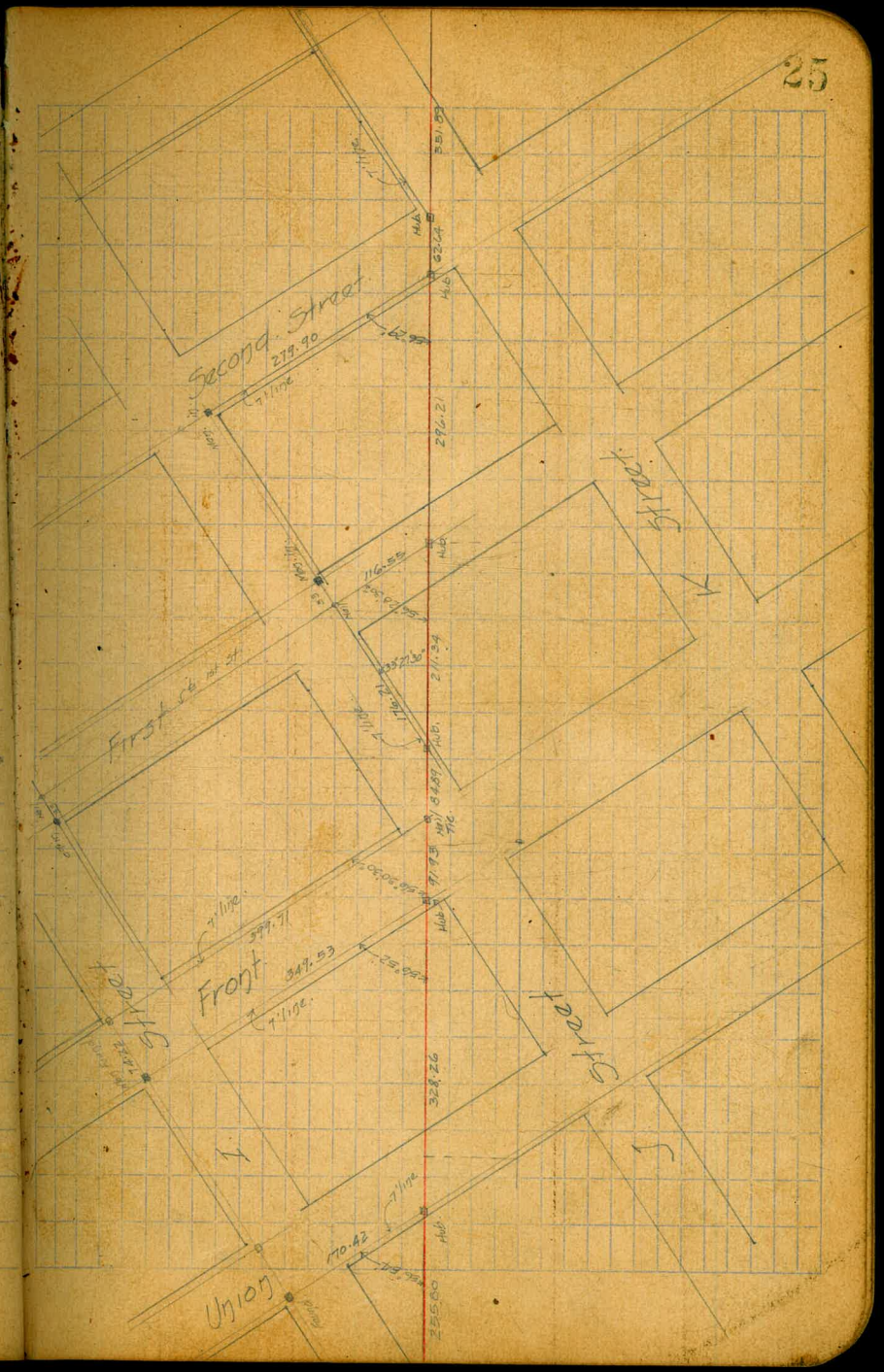
Sta 12	Sand Stone	7' deep
14	Sand	8 "
16	Clay	5.5 "
18	Sand	8.0'
20+96	Sand Stone	3.5

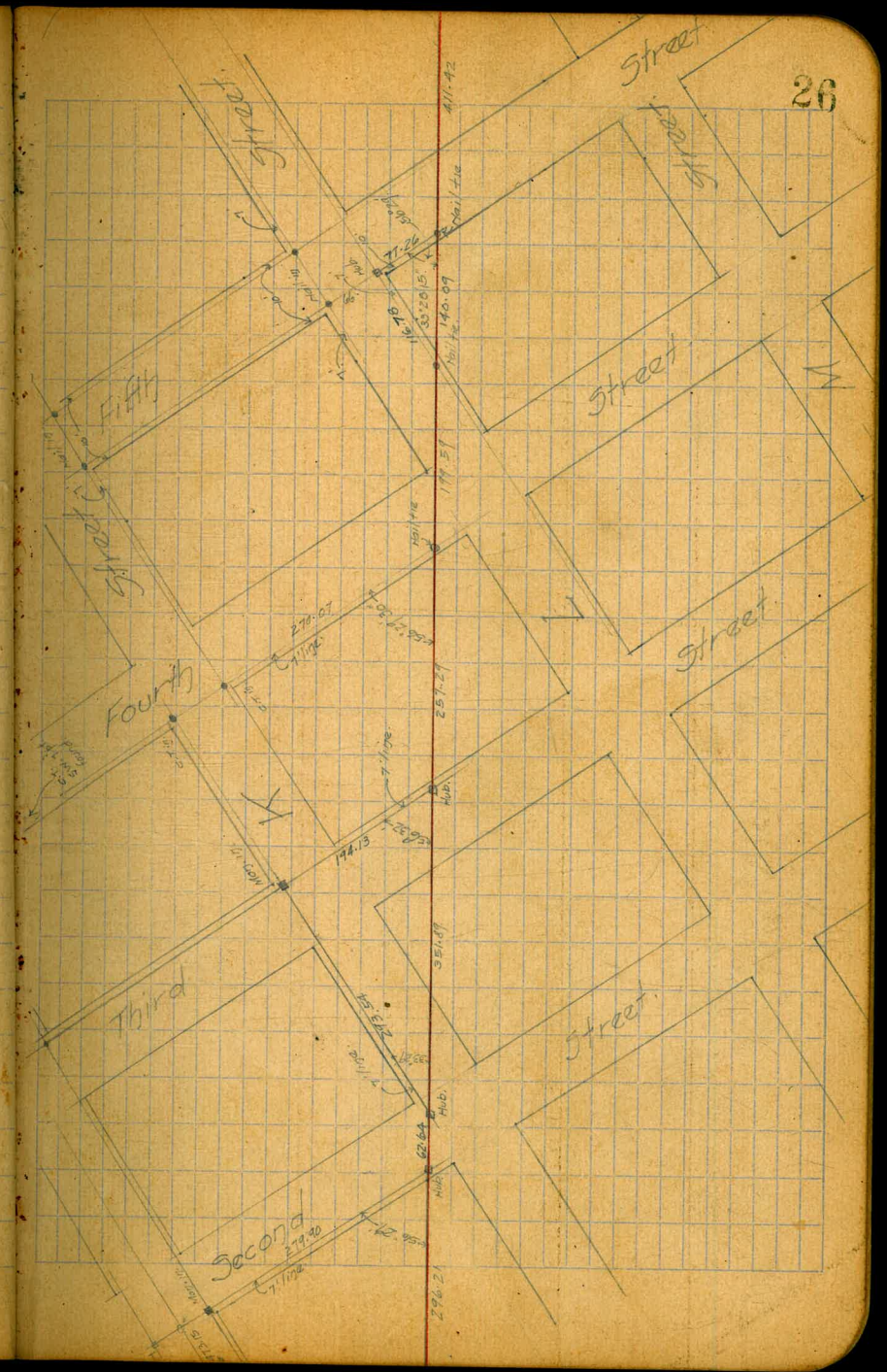
Tie Point Survey to City Points from Schuyler Base Line.

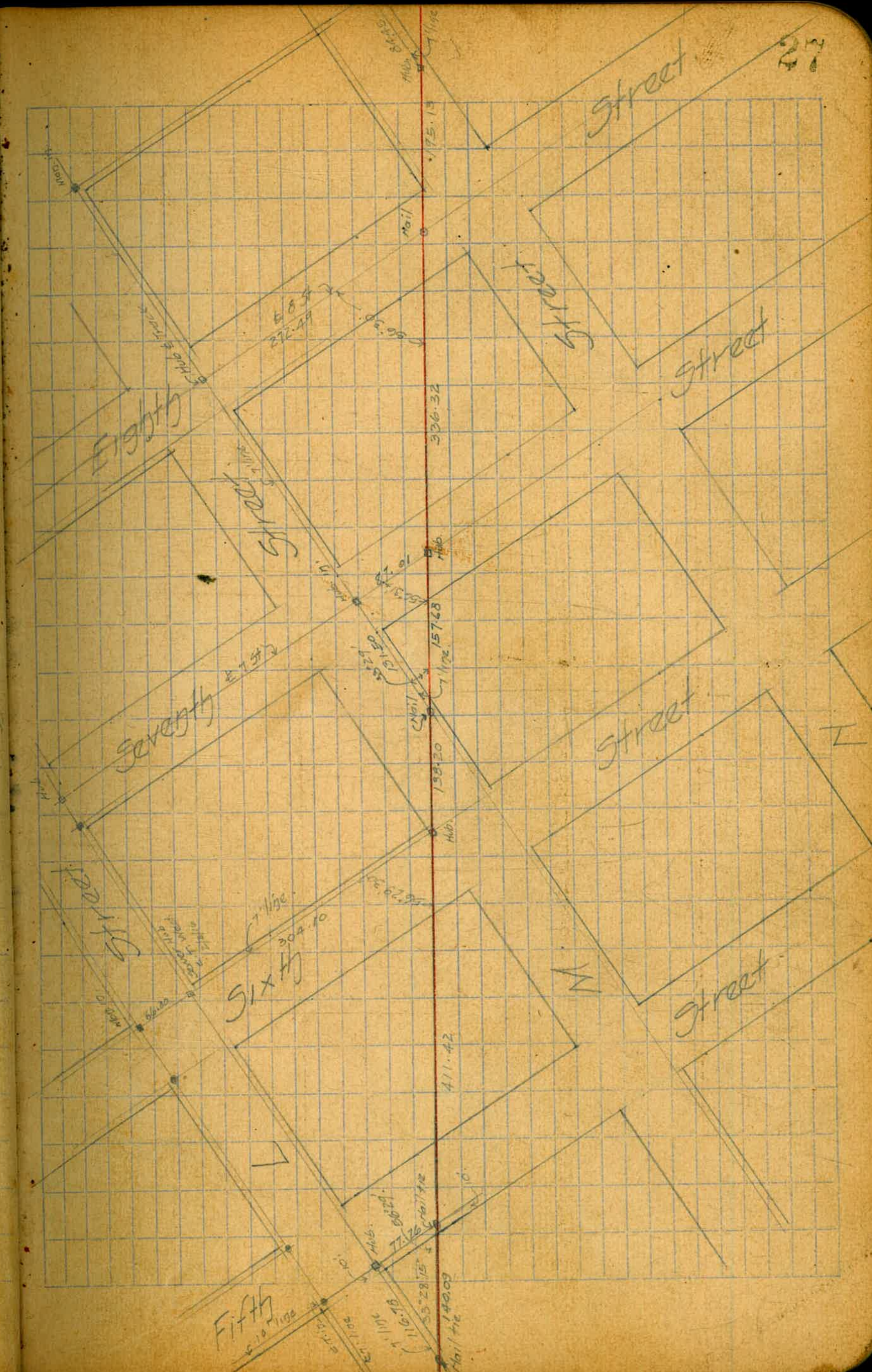
West
Atlas 2/8/15.
Moore
Pages 23 to 30




Front St.
Union
State
Columbia
India
Street
Street
H
I
J


Second Street
279.90
7" line
296.21
Y Street
First St. not st.
211.34
7" line
Front
349.71
347.53
7" line
Front Street
328.26
1
Union
170.42
7" line
255.80

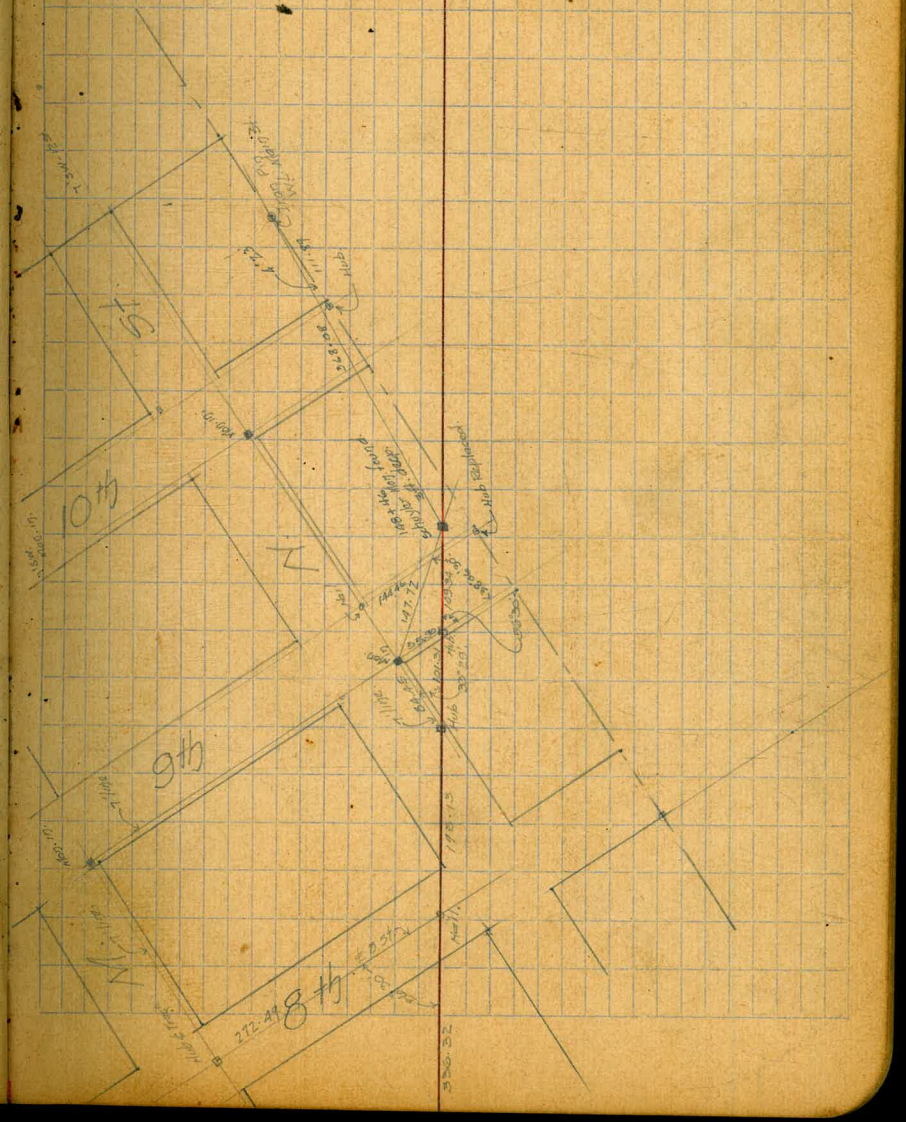

Street
Fifth
Street
Fourth
Street
Third
Street
Second
Street
W
X
Y
411.42
140.09
119.51
270.07
264.27
174.13
351.89
296.21
279.30
77.26
62.64

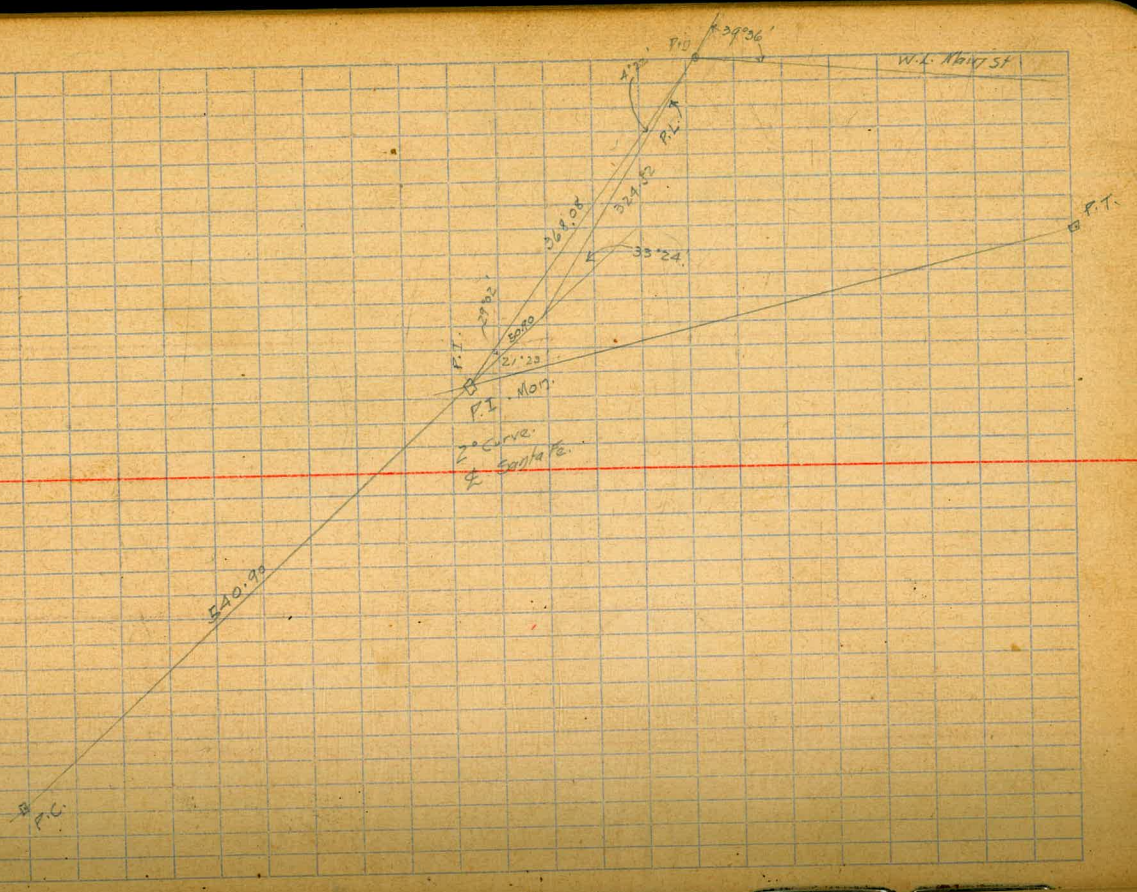

Eighth
Street
Seventh
Street
Sixth
Fifth
Street
Street
Street
Street
Street
L
M
306.32
157.68

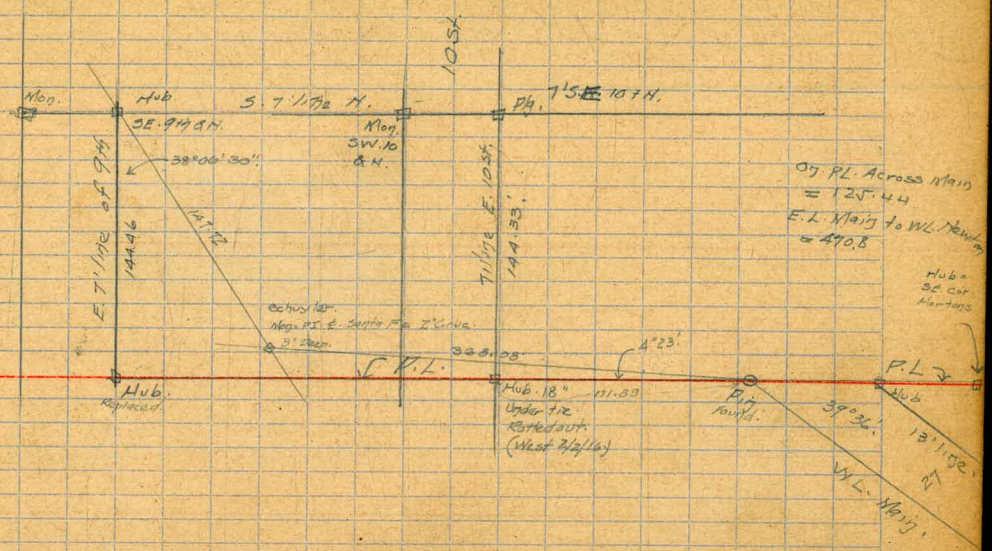
Wcot
Atty 2/8/10.
Moore.

Tie Point Survey to City Points
From Schuyler Base Line.
For Harbor Tide Land Franchises.

Copied into Book 1039




P.I.
N 39°36' W
W. L. Main St.
P.C.
P.T.
P.I. Main.
2° Curve
Santa Fe.
540.99
368.08
324.52
33°24'
50.00
21°23'
54°47'
52.54

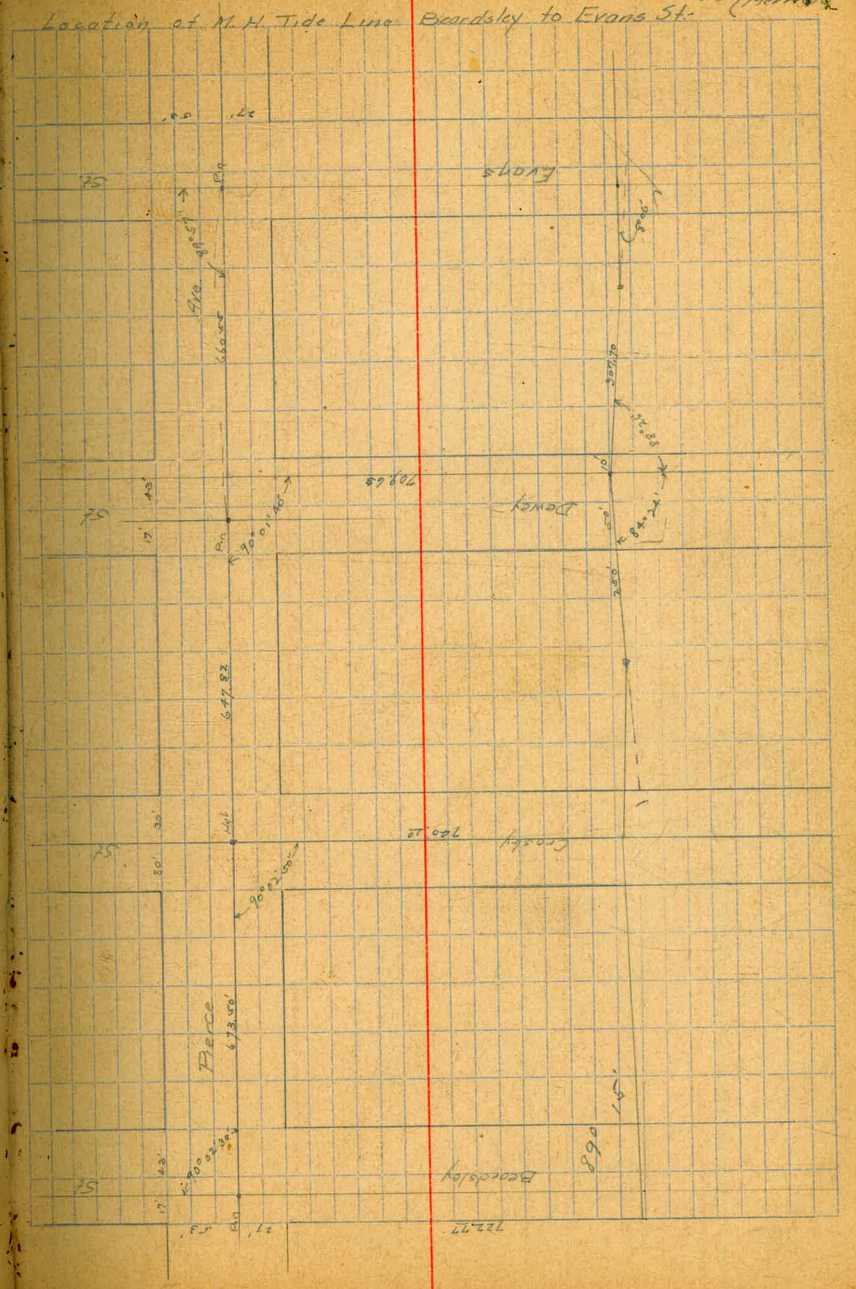

Mon.
Hub
SE. 9H&M.
S. 7 1/2° E.
Mon.
SW. 10
& H.
Pg.
15 E. 10 H.
105'
38°06' 30"
141.42
E. Tillage off 9H
144.96
Tillage E. 105'
144.33'
Schuyler
Mon. 21 E. Santa Fe 2° Curve.
3° Deer.
K.L.
328.08
4°23'
Hub
Replaced.
Hub. 18"
Under 1/2
Rotted out.
(West 2/2/16)
111.83
P.C.
Found.
P.T.
Hub
39°34'
13'1 ridge.
W.L. Main.
Hub
SE. Cor.
Martens
07 RL. Across Main
= 125.44
E.L. Main to W.L. Newton
= 470.8
℄ PL.
P.L.

	1.12	23.30		22.18 SE Mound Creek Mon
TP	0.46	12.72	11.04	12.26
TP	1.33	3.82	10.23	2.49
	7.70	10.19	1.33	2.49
	6.05	12.07	4.17	6.02
Nail Top	p.in E Side	Dewey	11.72	0.35
	0.56	- 0.41	13.04	- 0.97
Stake	East of Evans		3.71	- 4.12
Nail	in Pile W side Evans		3.79	- 4.20
	0.46	0.81		0.35
	- 0.46	- 0.11		0.35

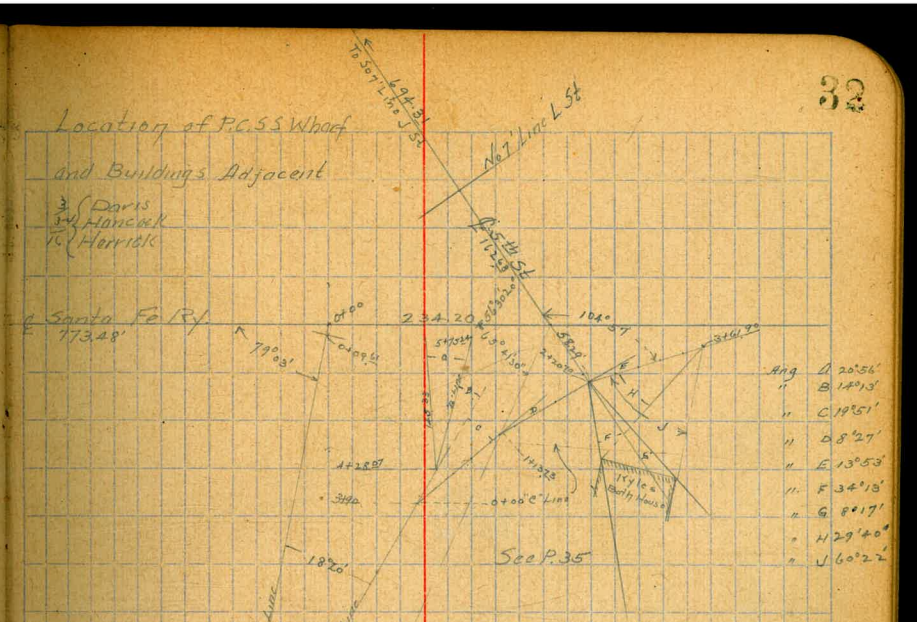
3/14/16 {Davis, Hansen, Hansen}

31

Location of M.H. Tide Line Beardsley to Evans St.



Location of P.C.S.S. Wharf and Buildings Adjacent



Sou't Line of J St

S 89° 42' 30" E

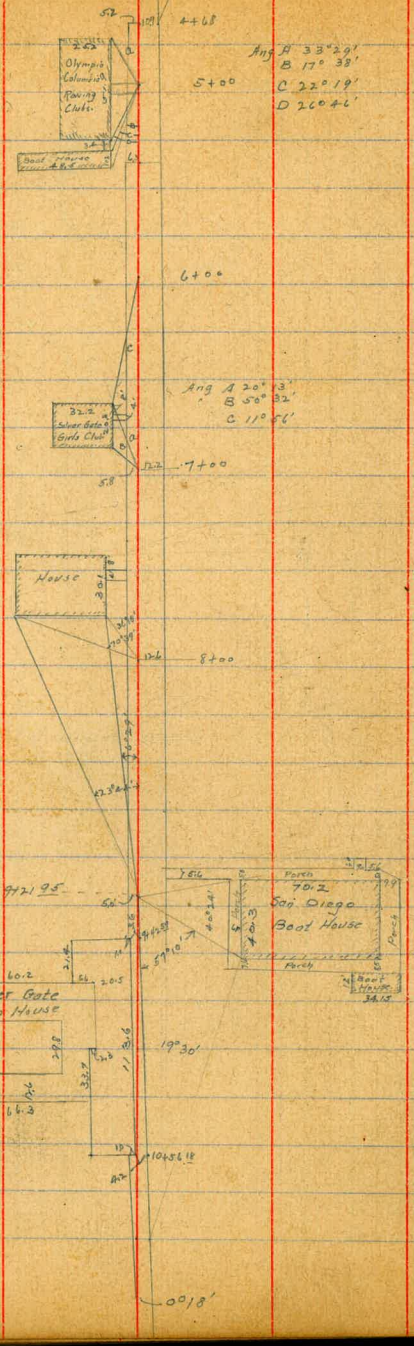
N 56° 30' 40" E

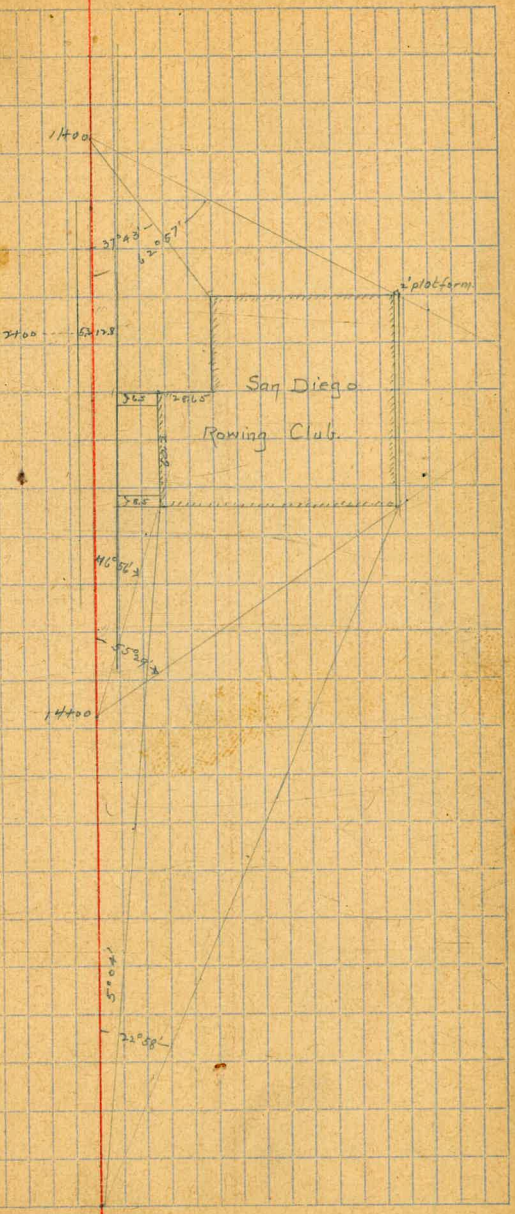
2d St

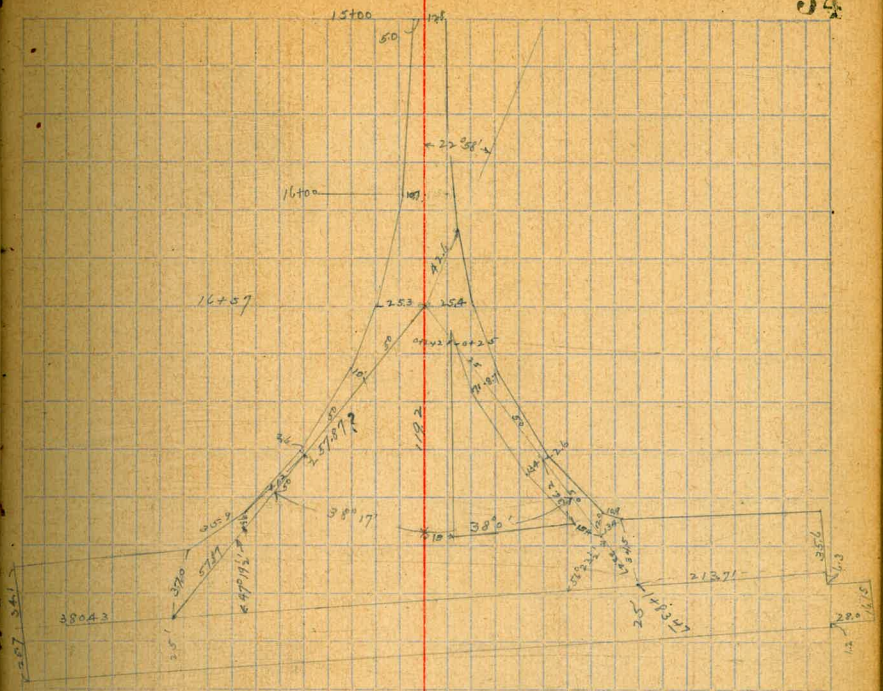
R = 301.28'

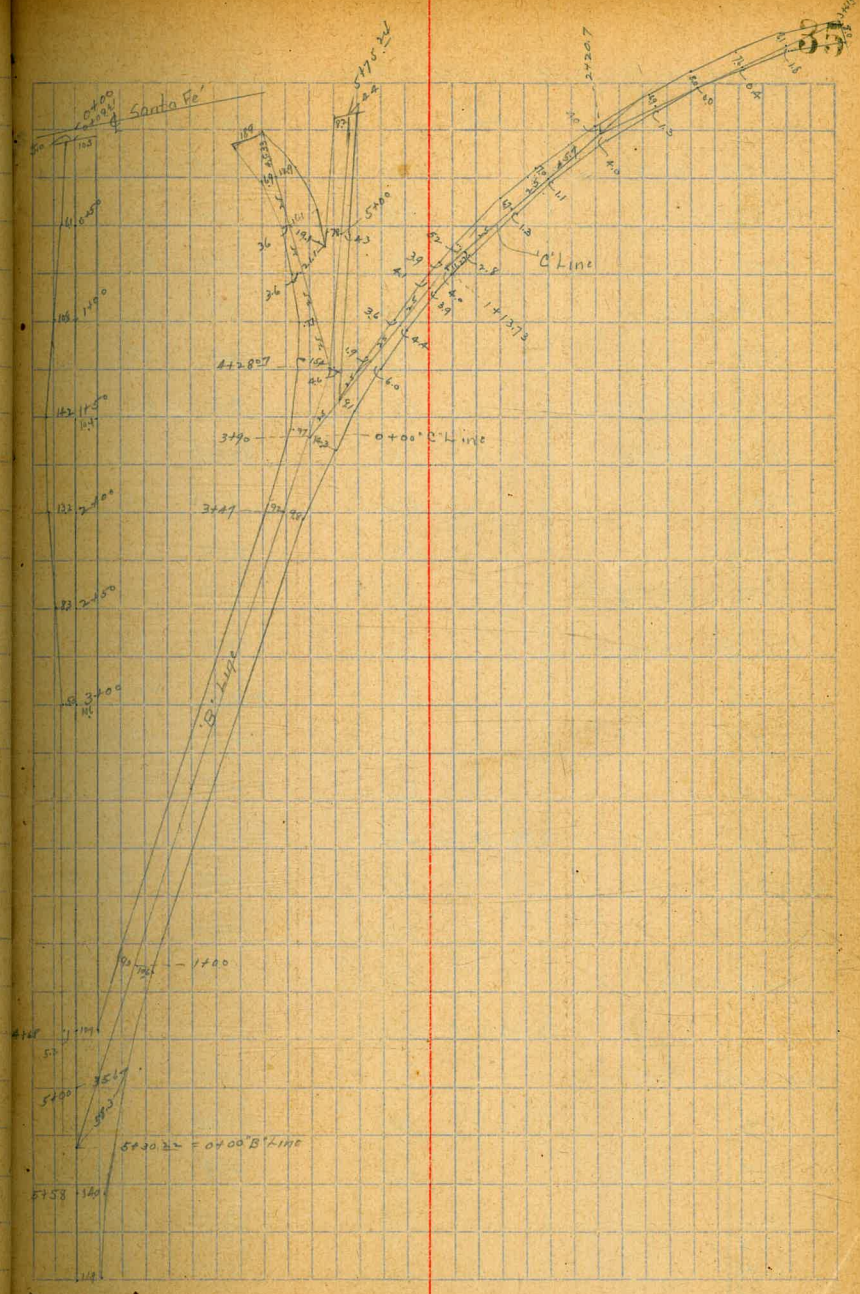
2d St. Road

9+21.93


4+68
Ang A 33°29'
B 17° 38'
C 22° 19'
D 26° 4'
Olympic Columbia Rowing Club
5+00
6+00
Ang A 20° 13'
B 50° 32'
C 110° 56'
Silver Gate Girls Club
7+00
House
8+00
Porch
70.2
San Diego Boat House
Porch
Boat House
Silver Gate Crew House
19° 30'
10+56.12
11+00
00'18'


11+00
37° 43'
62° 07'
2' platform
12+00
San Diego
Rowing Club.
116° 25'
13+00
14+00
72° 58'
16+57


15+00
16+00
16+57
38°17'
38°
38043
21371

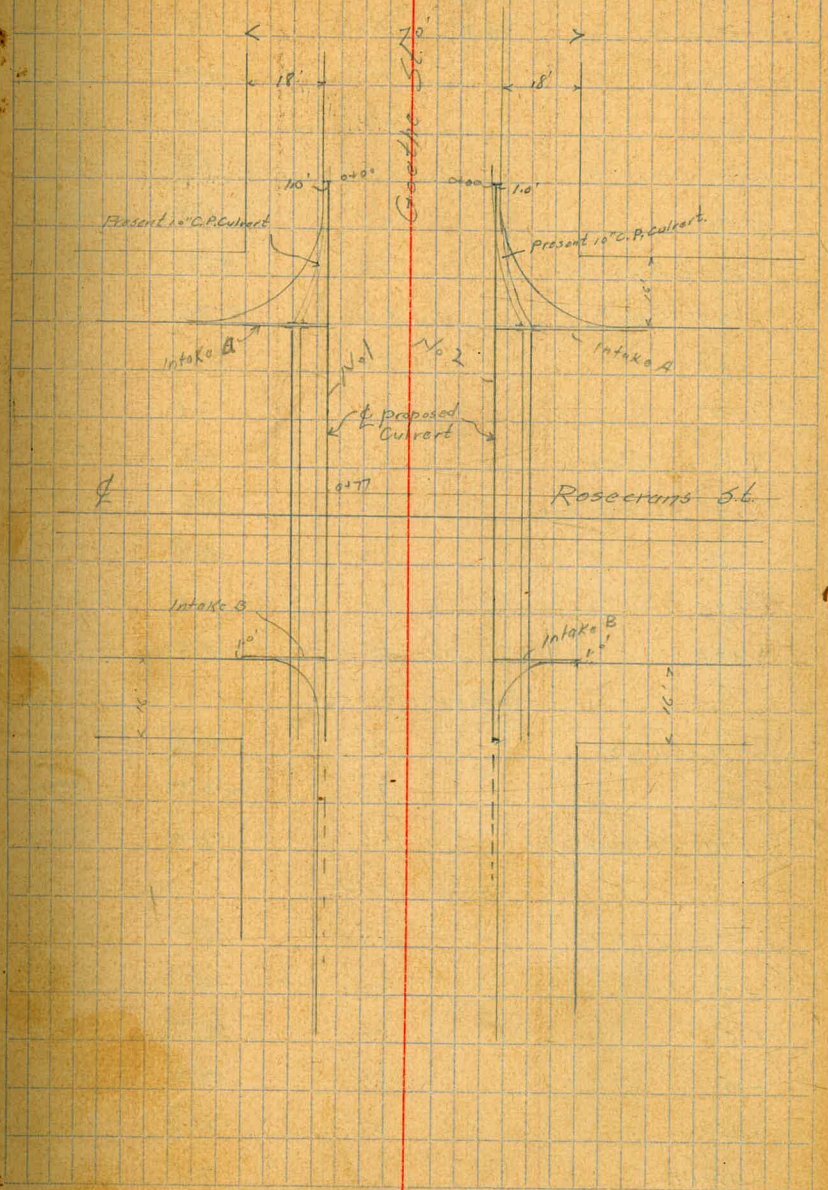

Santa Fe'
'C' Line
'B' Line
0+00 'C' Line
5430.22 = 0+00 'B' Line
1+37.73
4+28.07
3+90
3+41
5+00
5+47.24
5400
5758

3/7/16 Dan Hancock Hamik

Levels over Proposed Culverts: Rosecrans & Goethe

5+0 + 4+6	M 6.62 / 7.62 −	Elev. 2.16 B.M. R.R. Spk. S.W. Sta.	
0+00 Outv Cul No 1	6.1	~~1.5~~	0.5
0+00 Top Ct	4.90	~~2.7~~	1.7
+25	5.0	~~2.6~~	1.6
+44 Intake A	5.6	~~2.7~~	1.1
+50	5.7	~~2.2~~	1.2
+77 ℄ Rosecrans	5.3	~~2.3~~	1.3
+82.6 Top W rail	5.37	~~2.175~~	1.25
+90	6.3	~~2.3~~	1.3
1+00	6.3	~~1.3~~	0.3
+12 Intake B	6.7	~~0.9~~	−0.1
1+27 EL Rosecrans	7.2	~~0.4~~	−0.6
+50	P.6	~~−1.0~~	−2.0
+75	8.9	~~−1.3~~	−2.3
2+00	9.3	~~−1.9~~	−2.9
Intake B Cul No 1			
0+00 1+10 Cul No 1	6.7	~~0.9~~	−0.1
+5	8.3	~~−0.7~~	−1.7
+19 S.L. Goethe	6.7	~~0.9~~	−0.1
Intake A Cul No 1			
0+00 0+44 Cul No 1	5.5	~~2.1~~	1.1
+7	7.8	~~−0.2~~	−1.2
+19 S.L. Goethe	6.7	~~0.9~~	−0.1
+25	5.5	~~2.1~~	1.1
1'E	6.8	~~0.8~~	−0.2
+45	5.5	~~2.1~~	1.1
1'E	6.9	~~0.7~~	−0.3

Location of Proposed Culverts at Rosecrans & Goethe Sts



Culvert No 2

0+00 = Cntr	6.62	5.9	+.7	0.7
0+00 = Top Clk		4.81	~~-2.8~~	1.8
+25		5.6	~~2.0~~	1.0
+44 = Intake A		5.7	~~+.9~~	0.9
+50		5.7	~~+.9~~	0.9
+77 = ℄ Rosecrans		5.3	~~-2.3~~	1.3
+82.5 = N. Rail		5.36	~~-2.26~~	1.26
+90		5.2	~~-2.2~~	1.2
1+00		6.1	~~+.5~~	0.5
+10 = Intake B		6.4	~~+.2~~	0.2
+27 = E.L. Rosecrans		7.0	~~-0.6~~	-0.4
+50		7.2	~~-0.4~~	-0.6
+75		7.5	~~-0.1~~	-0.9
2+00		7.8	~~-0.2~~	-1.2
	Intake B Cul #2			
0+00 = 1+10 Cul No 2		6.4	~~+.2~~	0.2
+6		8.3	~~-0.7~~	-1.7
+19 = N.L. Goethe		6.6	~~+.0~~	0.0
	Intake A Cul #2			
0+00 = 0+44 Cul #2		5.7	~~+.9~~	0.9
+7		7.5	~~-0.1~~	-0.9
+15		5.6	~~2.0~~	1.0
+25		5.4	~~2.2~~	1.2
+45		5.1	~~2.5~~	1.5
+45 1'E		6.5	~~+.1~~	0.1
3'E		5.1	~~2.5~~	1.5

12/16/19 Gregory Miller Shard

Survey of Land in P.L. 213 Claimed to be all which remains above high water.

22+10

20+48

17+69

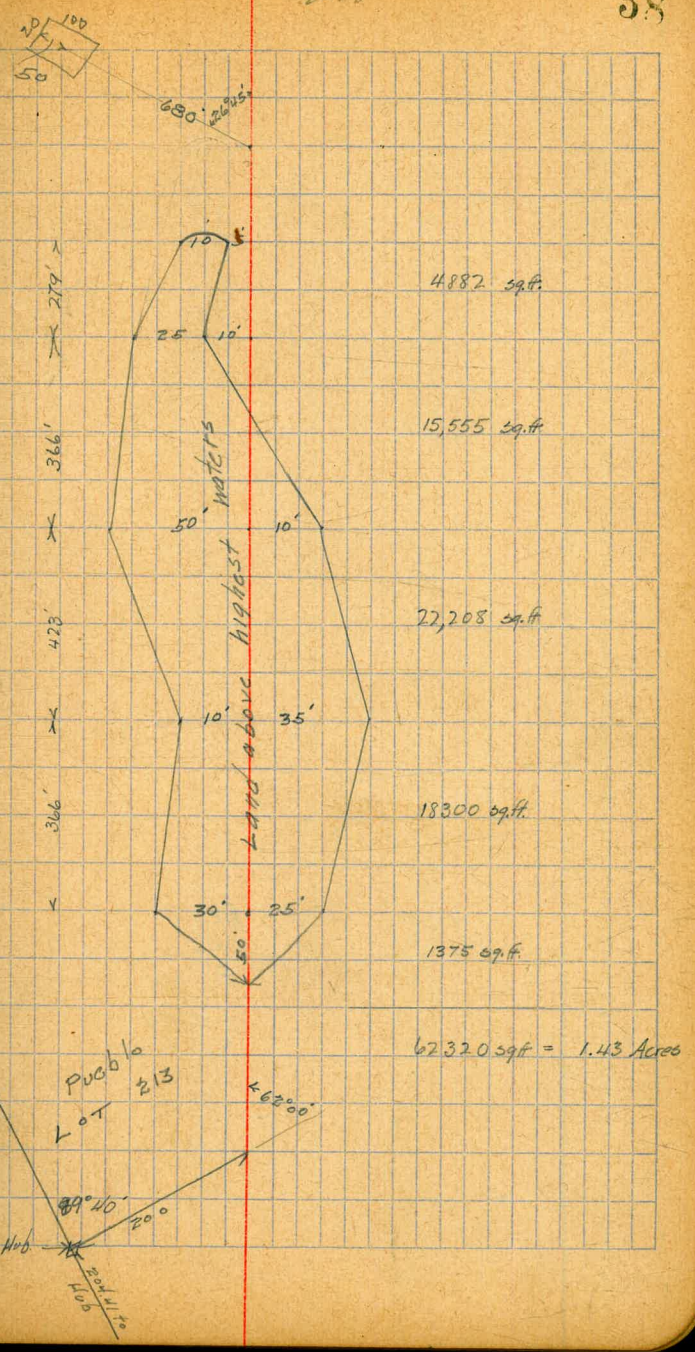
14+03

9+80

6+14 Δ 7°53' R

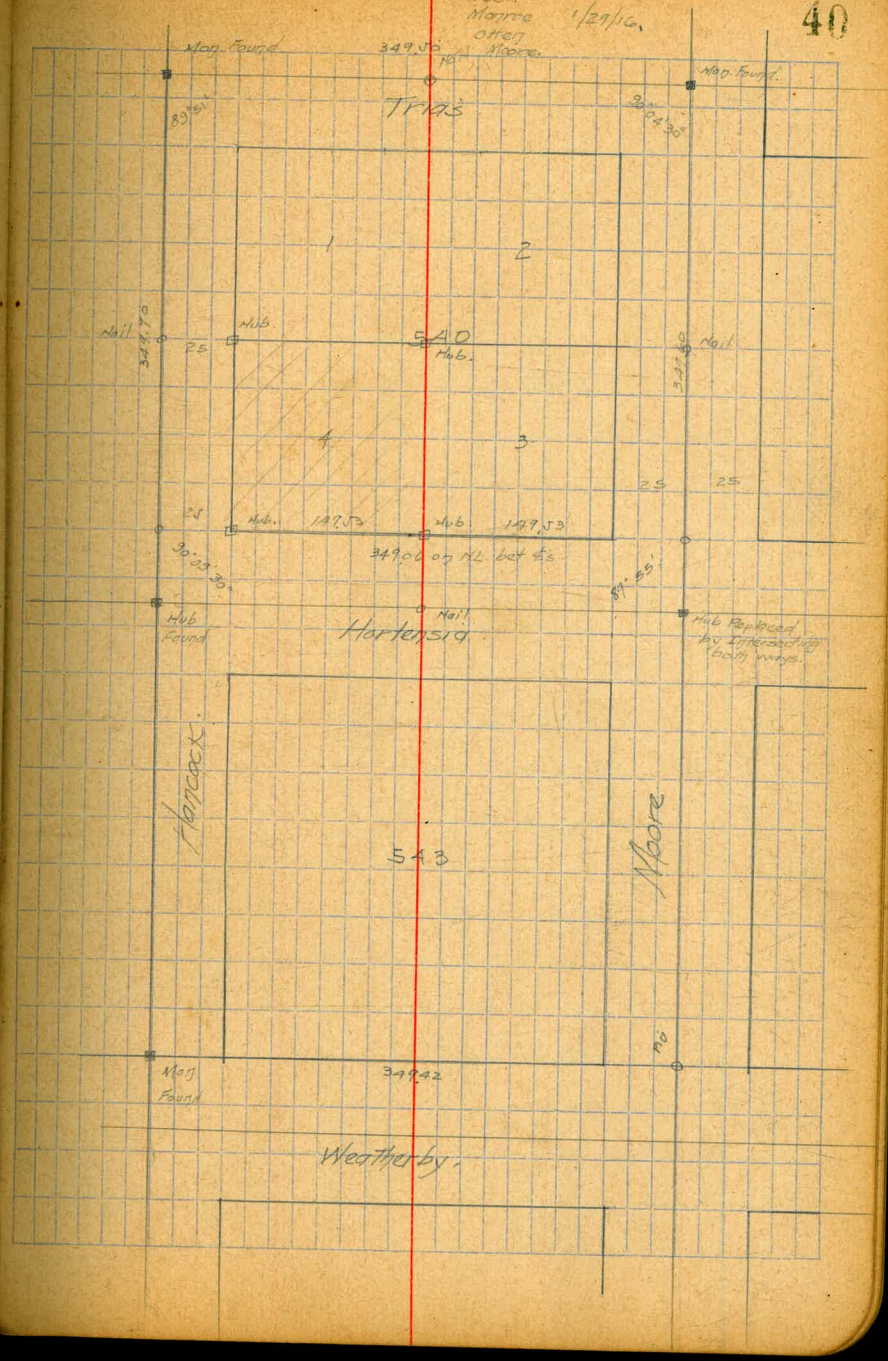
2+00 Δ 62°00' L

0+00



Survey Lot #1 Bl 540. Oldtown.

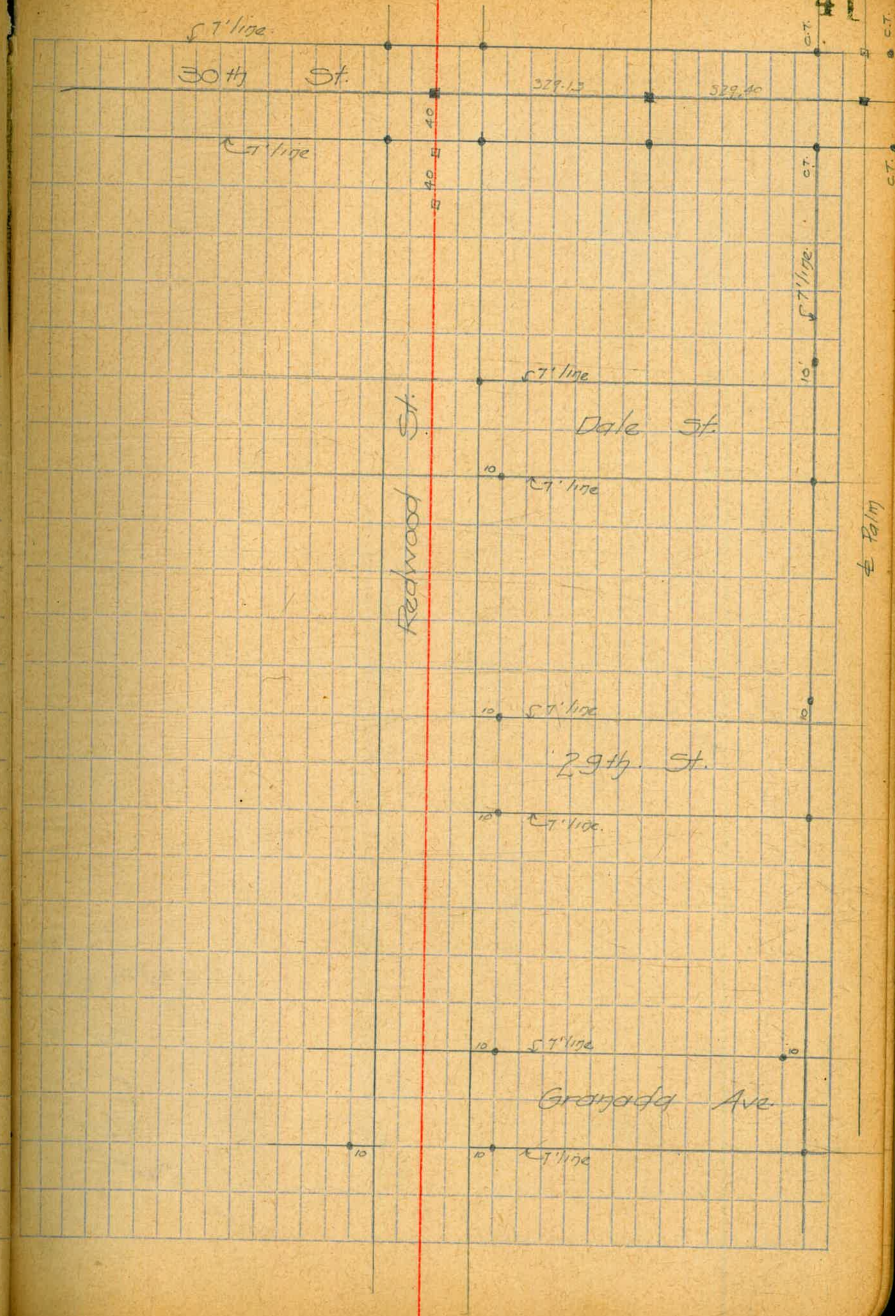
West Monroe 1/29/16.
often Moore.



341.70
344.06
3.44 17 2470

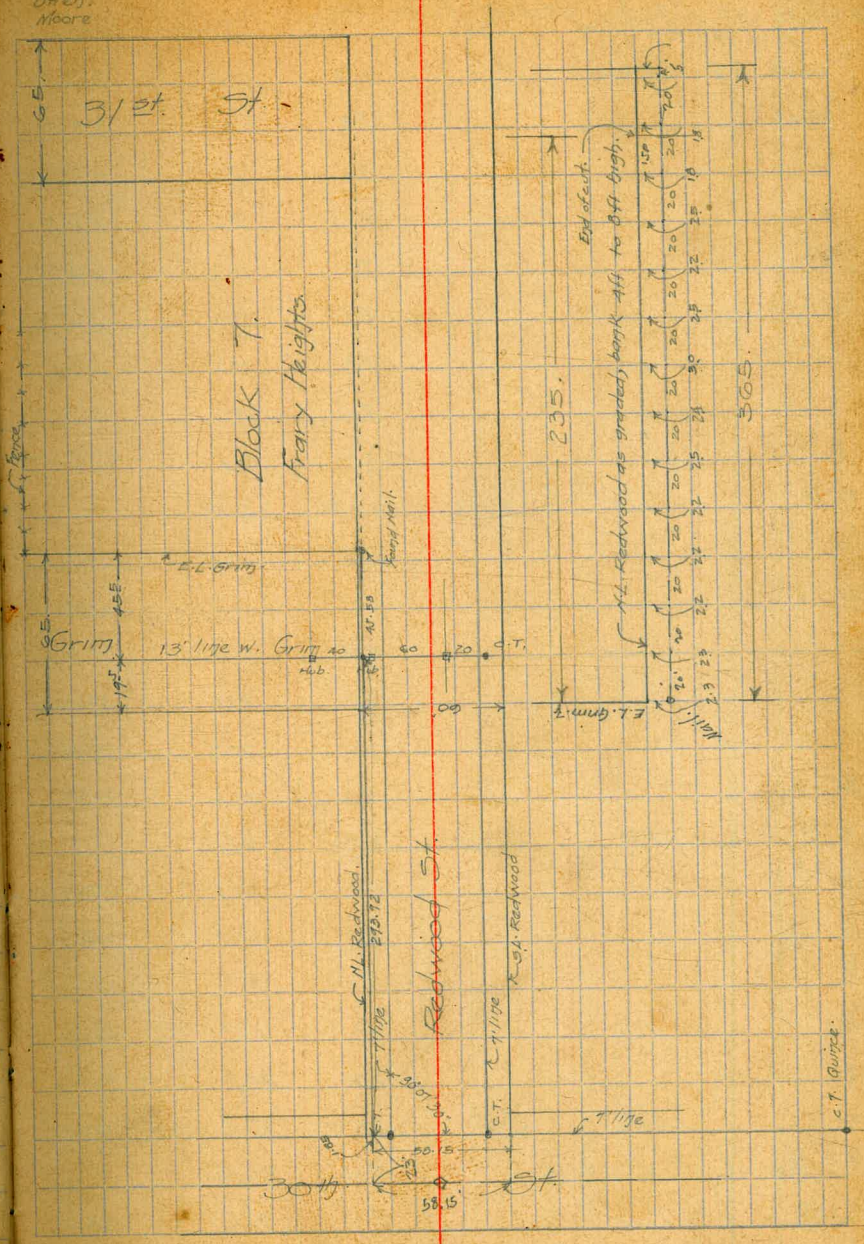
321.7 | 44000 | 137.5
.5249 | 149.3
11530 | 10540
9741 | 12795
17870 | 6420
16235 | 1955
1655 | 212770

349.06
.21
349.27
174.635


℄ T'line
30th St.
329.13
329.40
40
C.T.
Redwood St.
Dale St.
29th St.
Granada Ave.
℄ Palm
10

West Monroe 2/8/16.
Offen.
Moore

Sketch showing Conditions of
REDWOOD STREET



CUTS FOR 16" WATER MAIN
ALLISON ST
GRAND AVE No.

→ Stakes set 4' E. of ℄ of Allison.	100	17.00		7.00	Grade	
0+00 = ℄ of Grand			10.5	6.5	3.0	+3.5
1+00			9.5	7.5	3.7	+3.8
2			9.0	8.0	4.3	+3.7
3			9.0	8.0	5.0	+3.0
4			7.3	9.7	6.3	+3.4
5			4.1	12.9	7.6	+5.4
6			3.9	13.1	8.8	+4.3
7			3.4	13.6	10.0	+3.6
8			1.6	15.4	11.3	+4.1
T.P.	12.81	28.19	1.62	15.38		
9			1.0	17.2	12.5	+4.7
10			9.4	18.8	13.8	+5.0
11			7.7	20.5	15.0	+5.5
12			5.8	22.4	17.1	+6.3
13			4.0	24.2	19.2	+5.6
14			2.0	26.2	21.3	+4.9
T.P.	10.57	38.76	0.00	28.19		
15			1.0	27.8	23.4	+4.4
16			9.1	29.7	25.6	+4.2
17			7.1	31.7	27.6	+4.1
18			5.1	33.7	29.7	+4.0
19			3.2	35.6	31.8	+3.8
20	11.37	48.47	1.7	37.1 break	33.9	+3.2
T.P. head of bolt rt. of 18+60			2.00	36.76		
x13			10.0	38.5	35.4	+3.1

6/12 = 2.1

21
13
63
147
1533

		48.47				
31+73			8.1	40.4	37.2	+3.2
32+73			6.3	42.2	39.0	+3.2
33+73			4.1	44.4	40.8	+3.6
34+73			3.1	46.4	42.6 ✓	+3.8
T.P	11.92	59.05	1.34	47.13		
35+73			10.6	48.5	44.6 ✓	+3.9
36+73			8.4	50.7	46.6	+4.1
37+73			6.7	52.4	48.6	+3.8
38+73			5.1	54.0	50.6	+3.4
39+73			3.2	55.9	52.6	+3.3
40+73			1.4	57.7	54.6 ✓	+3.1
TP	9.85	68.13	0.77	58.28		
41+73			8.6	59.5	56.4	+3.1
42+73			7.1	61.0	58.2	+2.8
43+73			5.0	63.1	60.0 ✓	+3.1
44+73	10.70	77.64	1.19	66.94	62.0	+4.9
45+73			9.3	68.3	64.0 ✓	+4.3
46+73			7.8	69.8	64.8 ✓	+5.0
47+73			6.2	71.2	65.6 ✓	+5.6
48+81 (108 27)	△ 40° L		4.5	73.1	66.4 ✓	+6.7
49+78	△ 78° R.		7.7	69.9	66.9 ✓	+3.0
50+73			6.7	70.9	67.9 ✓	+3.0
51+73			6.0	71.6	68.9 ✓	+2.7
52+73			5.0	72.6	69.2 ✓	+3.4
53+73			4.1	73.5	69.6 ✓	+3.9
54+73	8.02	82.36	3.30	74.34	71.0 ✓	+3.3
55+73			7.2	75.2	71.4 ✓	+3.8

1&2 .744 508 ∫ 10.00 10.16 2

8x36.

46+73			6.3	76.1	71.8 ✓	+4.3
47+73			5.7	76.7	72.8	+3.9
48+73			4.7	77.7	73.8	+3.9
49+73			3.6	78.8	74.8	+4.0
50+73			2.6	79.8	75.8	+4.0
51+73	7.50	88.11	1.75	80.61	76.8	+3.8
52+73			6.6	81.5	77.8	+3.7
53+73			6.0	82.1	78.8	+3.3
54+73			5.2	82.9	79.8	+3.1

8/10/22 Gregory Xsection @ X Filler 15' wide
Moore Pat 4th 5th
Ellis Xrom Robin to Penns'l.
Shaw

B.M.	4.90	292.79		287.89	NW 5th + Robin
	S.L. Robinson			7928	
E			4.57	288.22	on boring
C			4.70	288.09	" "
W			4.33	288.46	" "
		50' S.			
W			4.3	288.5	
C			4.1	288.7	
E			3.8	289.0	
		100' S.			
E			4.2	288.6	
C			3.9	288.9	
W			3.9	288.9	
		154' S.			
-3	= edge of cement		4.07	288.72	
W			4.3	288.5	
C			4.2	288.6	
E			4.2	288.6	
		194' S.			
E	= cement apron		4.3	288.5	
C			4.4	288.5	
W			4.5	288.3	
		208' S.			
W			4.5	288.3	
C			4.5	288.3	

7928 46

E = garage floor (dirt)			4.7	288.1
		250' S.		
E			4.8	288.0
C			4.8	288.0
W			4.9	287.9
		312' S.		
W = garage floor dirt			5.3	287.5
C			5.3	287.5
E			5.4	287.4
T.P.	3.78	291.40	5.17	287.62
		338' S.		7914
-5 = garage floor cement.			3.83	287.57
E			4.4	287.0
C			4.2	287.2
W			3.9	287.5
		355' S.		
-8 = garage floor dirt			4.2	287.2
W			4.4	287.0
C			4.5	286.9
E = garage floor (wood)			4.04	287.36
		375' S.		
E = garage floor (cement)			4.4	287.0
C			4.6	286.8
W			4.5	286.9
+8 = garage (dirt)			4.4	287.0

		291.40.		291.4	
		400' S			
W			5.0	286.4	
C			5.0	286.4	
E			5.0	286.4	
		475' S			
E = public garage floor (cement)			5.6	285.8	
C			5.6	285.8	
W			5.4	286.0	
		500' S			
W			5.6	285.8	
C			5.8	285.6	
E = S. line of public garage			5.7	285.7	
T.P.	3.64	288.55	6.49	284.91	
		550' S		(288.5)	
E			3.4	285.1	
C			3.5	285.0	
W			3.5	285.0	
		600' S of NL Penn			
W			4.09	284.46	on cement ob
C			4.4	284.1	
E			4.43	284.17	on cement ob
chk B.M.			6.08	282.47 = .47	BP NW 5th & Penn

11/20 for Gregory Moore Ellis Shaw

Cross Section of Alley Between 4th & 5th (15' wide) Walnut to Brookes

	5.83	289.51	283.98	
		N. C6 Line Walnut.		
W.		4.17	285.64	on curb
E		4.36	285.45	"
		N.L. Walnut		
E		4.00	285.81	on curb
C	Use this for yardage	4.0	285.81	
(C)		(4.20)	285.61	on paving
W		3.85	285.96	on curb
	6' N			
W		1.1	288.7	
+5		3.0	286.8	
C		2.9	286.9	
+3		3.1	286.7	
E		1.5	288.3	
	20' N			
E		1.5	288.3	
+4		2.1	287.7	
C		1.9	287.9	
+3		1.7	288.1	
W		0.8	289.0	
	50 N			
W		0.8	289.0	
C		1.2	288.6	
E		1.3	288.5	

T.P.	4.85	293.49	1.17	288.64
		66' N		
E = S. end of wooden approach			5.25	288.24 ✓
		70' N		
W = edge of pavement in yard S. end			4.76	288.74 ✓
		78' N		
E = S. side garage + N end of wooden approach			4.56	288.94 ✓
		86' N		
W = edge of pavement in yard N end			4.32	289.17 ✓
		100' N		
E			5.1	288.4
C			4.6	288.9
W			4.5	289.0
		118 N		
1' E of EL = wooden floor.			5.40	288.09 ✓
		147 N		
-1' E = dirt drive			5.40	288.09
C			4.9	288.6
W			4.20	289.29
		160' N		
3' E of EL = cement floor.			5.44	288.05
		194' N		
W = front of garage dirt floor			4.40	289.09 ✓ This floor can be excavated
		200' N		
W			4.4	289.1

		293.49		
C			5.0	288.49
E			5.0	288.49
		275'N		
E			5.1	288.4
+4			5.9	287.6
C			5.6	287.9
+3			5.6	287.9
W			4.6	288.9
T.P.	1.90	288.66	6.73	286.76
		256'N		
-4 = cement floor			1.40	287.46 ✓
W			1.30	287.4
C			1.7	287.0
E			2.0	286.7
		300'N		
E			3.4	285.3
C			3.6	285.1
+3			3.4	285.3
W			2.4	286.3
		308'N		
3'W. of WL = cement floor			2.26	286.41 ✓
		350'N		
W			3.7	285.0
+5			4.4	284.3
C			4.3	284.4
E			4.5	284.2

288.66

	369'N		This entrance is from the N. & grade can be B'lowed
2.5'W. of WL = cement		3.09	285.57 ✓
	400'N		
E		4.8	283.9
C		4.8	283.9
+5		4.8	283.9
W		3.8	284.9
	450'N		
W		5.0	283.7
C		5.4	283.3
E		5.4	283.3
	492'N		
W = edge apron		5.02	283.64 ✓ Garage is W.
	511'N		
T.P. 4.64	287.99	5.31	283.35
-5 = cement floor		4.87	283.12 ✓
E		4.9	283.1
C		4.7	283.3
W = edge apron		4.40	283.59 ✓ Garage 9' West.
	550'N		
W		5.0	283.0
C		4.9	283.1
E		4.9	283.1
	590'N		
E		4.6	283.4
+4		5.2	282.8

		28799			
C			5.2	278.8	
W			5.2	278.8	
		60Z' N = SL. Brookes			
W			5.6	278.4	
+W			6.2	278.8	
C			6.0	278.0	
+3			6.0	278.0	
E			5.0	283.0	
	No alley returns on either side				
E	4.00	38546	6.53	281.46	on curb
W			3.75 (6.28)	281.71	~ ~
Chk BM.			5.51	279.95	NW 5th Brookes = 279.91

11/20/ yw

Gregory Moore Eng'g Shaw

CROSS SECTION OF ALLEY BETWEEN 28th & Oregon 15' wide
Myrtle to Upas

	v. 95	333.92 N.L. Upas	330.97	BP NE brangle v. Myrtle
E		6.53	327.39	on curb
+3		5.7	28.2	
C		6.1	27.8	
W		5.90	27.02	on curb
		12' N		
W		5.6	28.3	
C		5.3	28.6	
E		4.5	29.4	
		50' N		
E		4.6	29.3	
C		5.4	28.5	
W		5.5	28.4	
		80' N		
-4 = garage floor cement.		5.17	328.75	
W		5.2	28.7	
C		5.2	28.7	
E		4.9	29.0	
+2 = garage floor Ent. from S.		4.06	329.87	
		100' N		
E		4.7	29.2	
C		5.0	28.7	
W		5.1	28.8	
		156' N		
W		5.1	28.8	

16877 / 12377 / 11627

13006 / 12256

51

Myrtle

125.56 | 15' | 115.56

OREGON

BLK 66

284

125.89 | 15 | 115.89

Upas

C		5.0	328.9
E		4.8	29.1
	182' N		
-1 = dirt floor		4.6	29.3
E		4.7	29.2
C		5.1	28.8
W		5.3	28.6
	200' N		
W		4.7	29.2
C		4.8	29.1
X +5		4.6	29.3
E		4.0	29.9

	333.42		
	450' N		
E		3.7	330.2
C		4.3	29.6
W		4.3	29.6
	300' N		
W		3.4	30.5
C		3.7	30.2
E		3.0	30.9
	354' N		
E		3.2	30.7
C		3.6	30.3
W		3.7	30.2
	361' N = S.L. Myrtle		
W return is 1.35' in alley		4.22	329.70 on curb
C		4.2	329.7
E return is 0.6 in alley		3.93	329.99 on curb

12/5/22 Gregory Moore Ellis Shaw

CROSS SECTION OF Portion of Myrtle & Indiana Intersection

	9.65	303.70	294.05 BP NW Indiana
10'N of N.L. Myrtle			
W.L. Indiana		9.3	294.4 ✓
20'E = W.cb Line		9.7	294.0 ✓
N.L Myrtle			
W. cb. line		9.5	294.2 ✓
10'W		8.0	295.7 ✓
14'W		7.9	295.8 ✓
W.L. Indiana		5.7	298.0 ✓
5' S of N.L Myrtle			
W.L Indiana		5.0	298.7 ✓
7'E		7.6	296.2 ✓
14?20 ✓ = W.cb Indiana		9.1	294.6 ✓
10' S			
W.cb		9.3	294.4 ✓
4'W		8.1	295.6 ✓
13' ✓		7.0	296.7 ✓
30'W = W.L. Indiana		5.4	298.3 ✓
20' S			
W.L. Indiana		4.8	298.9 ✓
7'E		5.7	298.0 ✓
14' ✓		6.0	297.7 ✓
20' ✓ = W. cb		9.3	294.4 ✓
3' ✓ of ✓ ✓		10.3	293.4 ✓
30' S = Center Myrtle			
3'E of W.cb		10.3	293.4 ✓
W.cb		9.2	294.5 ✓
8'W		4.2	299.5 ✓
13' ✓		4.4	299.3 ✓
20' ✓ = W.L. Indiana		3.5	300.2 ✓
40' S			
W.L Indiana		3.0	300.7 ✓
7'E		3.1	300.6 ✓
10' ✓		3.2	300.5 ✓
30' ✓ = W cb		9.2	294.5 ✓
3'E of ✓ ✓		10.2	293.5 ✓
50' S			
3'E of W.cb		10.4	293.3 ✓
W cb		9.7	294.0 ✓
10'W of W.cb		3.1	300.6 ✓
20' ✓ ✓ ✓ ✓		2.6	301.1 ✓
60' S = W.L. Indiana			
W.L. Indiana		2.5	301.2 ✓
7'E		3.0	300.7 ✓
20' ✓ = W.cb		9.4	294.3 ✓
3' ✓ of ✓ ✓		10.6	293.1 ✓

Grades A/c/
Blk 66 Park Villas

S.L. N/w/t/c	329.1	329.99
	4' out from Wedge	1.5 out from Bldg
80'N break	328.6	328.8
	5' out	5' out
40'N	329.81	328.09
N.L. Pgas	329.00	327.39

328.80 BP SE 28th & Pgas
4
332.80

328.09
+.71
3.1
+1.60
329.81
4.99
4.47
0.52

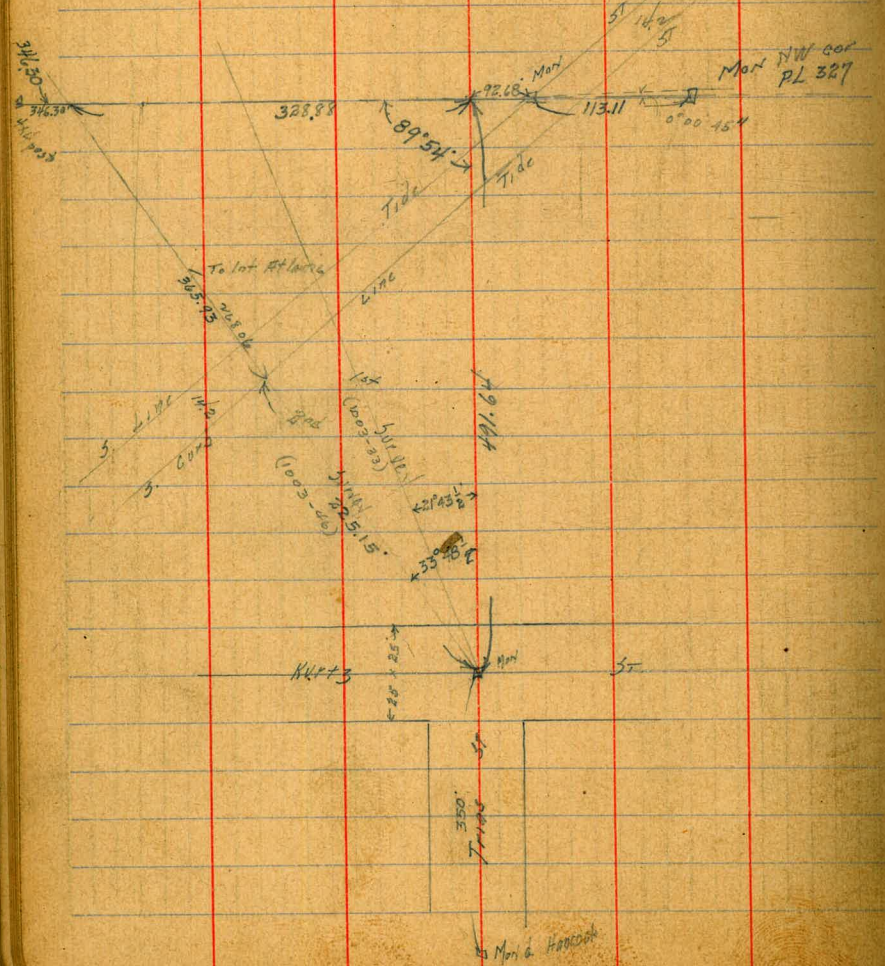
328.8
4.0
+0.8 from nail.

328.6
4.20
-0.10

2/4/24 Gregory. Resurvey of OLD TOWN OUTFALL

See book 1003-33 for 1st Survey

See book 1003-46 for original 2nd Survey



267.90 365.80

67.16 10.74 78.97

55

Soundings Pacific Ave Outfall

Angles taken from North Reference Pt. See book 1056 p

D. Allen – 10-8-26

#1	23°04'	5
#2	30°41'	8.5
#3	35°58'	13
#4	40°35'	15
#5	45°00'	17
#6	48°40'	20
#7	50°51'	20
#8	53°27'	21
#9	55°37'	24
#10	57°45'	26
#11	60°25'	30
#12	61°51'	30.3
#13	63°04'	32
#14	64°26'	32
#15	66°17'	35
#16	67°22'	35.2
#17	68°58'	39
#18	70°06'	39
#19	72°08'	41.5
#20	73°04'	42
#21	73°21'	45
#22	74°26'	47
#23	75°00'	49

PLUMOSA PARK SEWERS

Additional Lines installed after public improvement contract.

0+00 = M.H. #25 of Improvement mored to a point 2 Ft. N. of N. L. of Plumosa Park.

End = Tank in Wing St. Line 2 Ft. N. of N. Line of Plumosa Park R. of W. reserved.

Notes copied from D.A. Loebenstein's Notes by G.R. Hayler. 11-9-26

57

	2.74	101.48		98.74		
0+00	TP 2.44		12.03	89.45	83.80	C 5.65 Manhole #25 of Improvement.
		91.89				
0+50			1.95	89.94	83.47	C 6.47
1			2.40	89.49	83.13	C 6.36
+20				89.32	83.00 (A)	C 6.32 Manhole
+30			3.0	88.9		
+50			6.49	85.40	78.79	C 6.61
+70			12.3	79.6		
TP	0.31	79.38	12.82	79.07		
2			4.45	74.93	71.77	C 3.16
+28			6.5	72.9		
+50			8.35	71.03	64.75	C 6.28
+71			12.6	66.8		
TP	0.69		12.53	66.85		
		67.54				
3			7.39	60.15	57.74	C 2.41
+30			10.9	56.6		
TP	0.06	55.08	12.52	55.02		
+50			1.25	53.83	50.72	C 3.11
4			9.93	45.15	43.70	C 1.45
+05			10.11	44.97	43.00 (A)	C 1.97 Tank

Plumosa Park Sewers

Sewer in North End Blk "C" Plumosa Park

	2.06	129.91		127.85	
TP	1.53		12.31	117.60	
		119.13			
TP	3.43	109.66	12.90	106.23	
0+00 D.E.			7.40	102.26	97.00 (X)
0+00			7.7	102.0	
0+50			6.87	102.79	96.46
+50			7.5	102.2	
1			5.16	104.5	95.92
1			5.9	103.8	
+50			4.79	104.87	95.38
+50			5.1	104.6	
+85			4.33	105.33	95.00 (X)
+85	M.H		4.5	105.2	
+85			4.45	105.21	95.00 (X)
2			5.63	104.03	94.51
2			5.7	104.0	
+50			8.36	101.30	92.86
+50			8.5	101.2	
3			10.92	98.7	
3	2.07	100.81	10.92	98.74	91.21
+37			5.61	95.20	90.00

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58

Elevations in tenths are ground at ℄ Ditch

12 ALLEY

C 5.26 DEAD END

C 6.33

C 8.58 -1.081

C 9.49

C 10.33 X MANHOLE TOP 104.0

C 10.21

C 9.52 -3.289

C 8.44

C 7.53

ALONG N.L. LOT 17

Official Flow = MAN HOLE #24 OF IMPVT.

PLOMOSA PARK SEWER ALONG N.L. BLK'S "F" AND "D" TO ALLEY IN BLK "D" THEN DOWN ALLEY TO EXISTING SEWER.

Copied from D.A. Loebenstein's Notes by G.R.H. 11-9-26

B.M.	1.03			157.40		
		158.43				
0			6.28	152.15	147.00 (X)	C 5.15 DEAD END
+50			8.30	150.13	144.25	C 6.88
1			11.34	147.09	141.50	C 5.59
TP	0.38		11.34	147.09		
		147.47				
+10			1.0	146.5		Class "C" 1+09 3 lengths C.I. Pipe 1+45 Fly. Fill. Chas Moore
+25			5.8	141.7		
+35			6.5	141.0		
+40			4.5	143.0		
+50			4.75	142.72	138.75	C. 3.97
+62	CUT		5.2	142.3		
2			7.12	140.35	136.00 (X)	C 4.35 M. H.
+20			8.6	138.9		
+50			9.65	137.82	135.17	C 2.65
+52			9.8	137.7		
+56			3.8	143.7		
3			4.98	142.59	134.33	C 8.26
+50			6.85	140.62	133.50	C 7.12
4			8.78	138.69	132.67	C 6.02
+50			10.45	137.02	131.83	C 5.19
+70 M.H.				135.92	131.50	C 4.42
+85				135.1		
TP 5	2.94		12.45	135.02	~~131.00~~ (X) 130.56	C 4.46 M. H.
		137.96				

PLUMOSA PARK ADDITIONAL SEWERS Continued from page 59

		137.96			
5+50			3.83	134.13	129.00
6			6.09	131.87	127.44
+50			8.85	129.11	125.88
7			11.27	126.69	124.32
℄	3.20		12.64	125.32	
		128.52			
+50			3.81	124.71	122.77
8			4.98	123.54	121.21
+06.60 = M.H.					
+66.75 + D.E. of IMPVT.					121.00 Ⓚ
MH 6'N GUINEA			6.11	122.41	
CUT GUINEA			0.65	119.	
BM	2.13	144.85		142.72	
TRUE CUT	1+68		4.0		
"	2+26		6.9		
	3 94				
	197				

(BLOCK D - ALLEY IN WESTERLY END)

STOB PLUMOSA PARK ADDITIONAL					
4+50 = 1+70 Stub	9.15	146.17		137.02	
4+70	M.H.		10.25	135.92	131.50 Ⓚ
1+50			8.85	137.32	132.97
1			2.81	143.36	136.65
0+50	℄ 7.33		0.71	145.46	140.33
		152.79			
0+00			4.53	148.26	144.00 Ⓚ

G 5.13
C 4.43
C 3.23
C 2.37

C 1.94
C 2.33

C 1.41

C 8.85 9.50
6.5

1+50

SEWER

C 4.42 M.H.
C 4.35
Shown C 6.71
C 5.13

C 4.26 DEAD END

SEWERS CLIFF GARDEN TRACT

"A" LINE				GROUND	GRADE	
	5.87	^	352.85		346.98	
0+00			4.75	348.10	343.50	C 4.60
+50		1	5.39	347.46	342.91	C 4.55
1+00		1.98 ft	5.66	347.19	342.31	C 4.88
+50			6.32	346.53	341.72	C 4.81
2			6.50	346.35	341.13	C 5.22
+50			7.67	345.18	340.53	C 4.65
+95	MH	v	8.93	343.92	340.00	C 3.92
2+95	MH		8.88	343.97	339.64	C 4.33
		^				
3			8.90	343.95	339.58	C 4.37
+50		1.20 ft	9.11	343.74	338.98	C 4.76
4			9.83	343.02	338.38	C 4.64
+15	M.H	v	9.95	342.90	338.20	C 4.70
+15	M.H		9.95	342.90	336.40	C 6.50
+50		^	9.20	343.65	336.59	C 7.06
6		+0.55 ft	8.70	344.15	336.87	C 7.28
+35	M.H	v	8.28	344.57	337.06	C 7.51
= 5+25	"B" LINE				339.56	

Construction Notes D A Loebenstein
Copied by G.R.H 11-9-26

61

BM S.W. COR. MARYLAND AND MADISON
5' E of E L LOTS 5 and 8 BLOCK D

℄ DELEWARE	344.50	F 0.58
	344.50	F 0.53

LOW = ℄ DELEWARE + GOLDEN GATE F 1.1
344.00

℄ GOLDEN GATE + HARVEY ROAD

SEWERS CLIFF GARDEN TRACT

"B" LINE

			352.85			
0+00		^ 1-12" 1.3%	353.53	348.35	344.0	C 4.35
+50			6.29	347.24	343.14	C 4.10
1+00			5.08	347.77	342.27	C 5.50
+45	M.H.	v		345.57	341.50	C 4.07
+45	M.H.	^	7.28	345.57	340.66	C 4.91
+50					340.63	
2			6.91	345.94	340.36	C 5.58
+50			6.71	346.14	340.0825	C 6.06
+65	M.H	1.0%	6.33	346.52	340.00	C 6.52
3			6.75	346.10	339.81	C 6.29
+50			6.92	345.93	339.53	C 6.40
4			7.42	345.43	339.26	C 6.17
+50			7.49	345.36	338.98	C 6.38
5			8.05	344.80	338.71	C 6.09
+25	M.H.	v	8.28 P	344.57	338.57	C 6.00

= 5+35 A 337.06

Construction Notes D.A. Loebenstein
Copied by GRH 11-9-26

62

- S'E of E L Lots 2 & 5 Blk C

= ℄ Maryland Top M H = 345.85
Drop 0.84

= { ℄ Maryland and Golden Gate
{ Top MH 346.61 F 0.09

= ℄ Golden Gate and Harvey Road 344.82
F 0.25

SEWERS CLIFF GARDEN TRACT

"C" LINE

	6.52	351.09		344.57	
0+15		10.30	340.79	338.93	C 1.86
+50		9.43	341.66	338.74	C 2.92
1		8.24	342.85	338.46	C 4.39
+15	Δ	7.97	343.12	338.38	C 4.74
+50		7.67	343.42	838.19	C 5.23
2		7.29	343.80	337.91	C 5.89
+50		6.93	344.16	337.64	C 6.52
3		6.70	344.39	337.36	C 7.03
+50		~~6.70~~	~~344.39~~	~~337.09~~	
+55				337.06	
=5+35	"A"				
=5+25	"B"				

Construction Notes D.A. Loebenstein

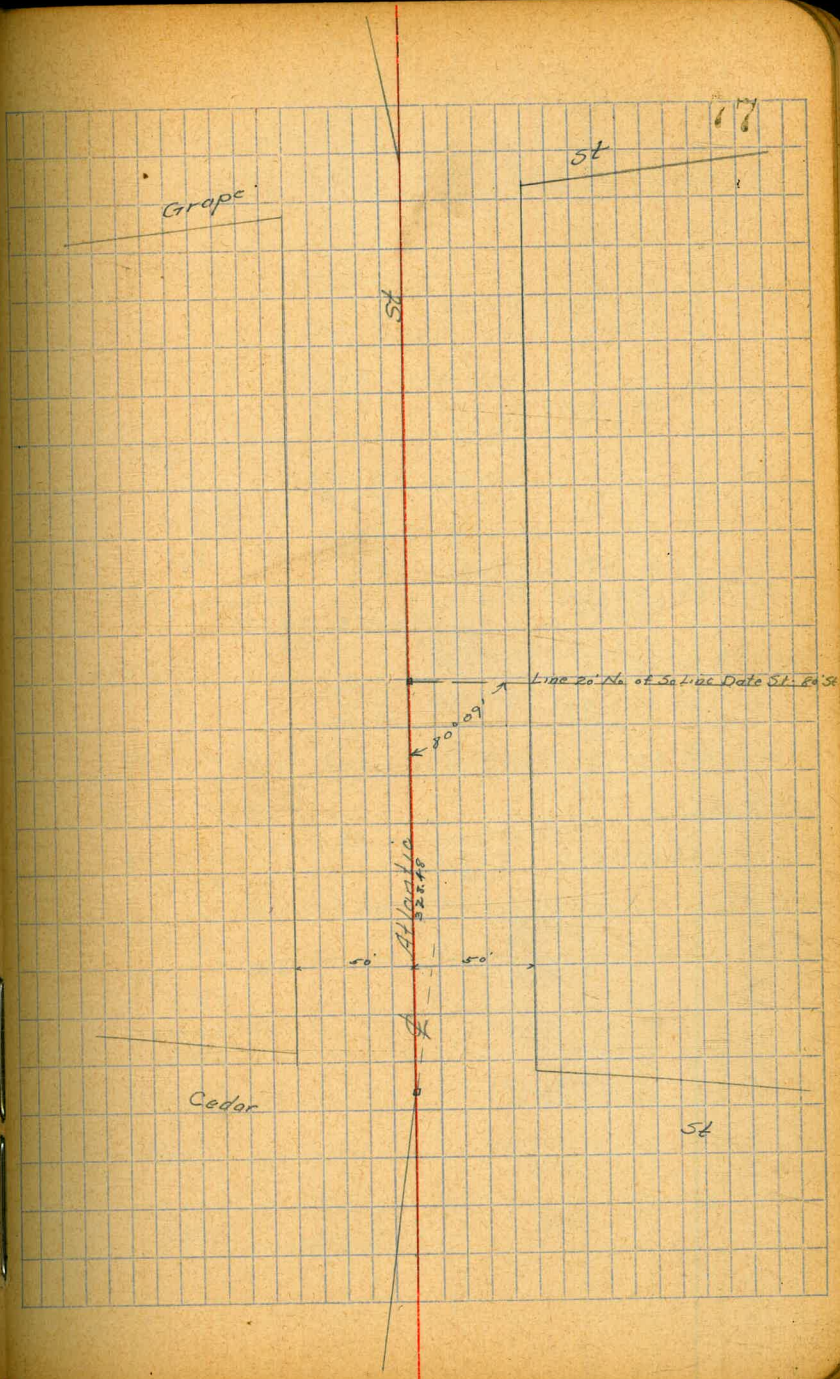
Copied by G.R.H. 11-9-26

63

=5'E CTR BANJO HARVEY Road

27 C

M.H.


5th
Grape
5th
Line 20' No. of Saline Date St. E. of St
80°09'
50'
50'
Cedar
5th

Checking Streets in Bird Rock

Hodgman ave. April 26 & 27/15

142.64 H.I. 1365

13 5.15 S.W. cor 6.14 S.E. cor Bird rock

7.14

1340

8.64 M.W. cor.

Bird rock ave.

131.33 100' no. on west side

11.31 131.00 125' no.

11.64 13158 150' no.

11.09

13180

10.84 175' no.

133.12 200' no.

9.52

0.00

142.14 S.P.

5.97

148.11 H.I. 143.76 370' no.

4.36 145.13 395' no.

2.98

146.90 146.99 420' no.

1.21 445' no. 147.28 470' no.

1.92

0.83 1473

0.80 495 no. 147.01

1.10 570' no.

146.37

1.74 545' no. 145.39

2.72 370' no. 144.0 600' no.

4.11

note— East side not grade from Bird rock ave. north.

142.72 138.3 so. of Bird rock ave. on west side

5.39 143.54 East side

1.57

143.67 25' so. East from 144.36 " "

4.44 3.75

144.24 25' so. " " 145.21 " "

3.82 2.90

144.65 25' " " " 145.60 " "

3.46 2.51

144.32 25' " " " 145.30 " "

3.79 2.81

141.0 250' " " " 142.0 " "

7.11 6.11

138.70 Public line 1.5'. 139.30 E side

9.41 west side 8.81

Waverly ave.

~~S.E.~~ 118.10 H.I. 118.00 N.E. & S.W.
N.W. 117.00 0.10
1.10 checked every 100' in between
109.0 110.0
9.10 8.10 chk O.K.

127.55 H.I.
119.00 S.E. cor 125.0 126.0
8.55 2.55 1.55
at Prebble line. E = 123.0 W = 122.0
121.0 120.0
6.55 N.E. forward. 7.55 N.W. forward

21° 57' 20"
1310 45'
21° 57' 30"

345
57

6|180
30

Dodge ave. Childs Alton Kerr

106.03 H.I. Apr. 26 '27

93.0 93.5
14.03 12.53
checked every 100' O.K.

100.0 101.0 101.5 102.5
6.03 5.03 4.53 3.53

all four corners check O.K

0.58
105.45 S.P.
6.10
111.55 H.I.
106.5 108.0
5.05 3.63

105.85 104.35 chk O.K.
5.70 7.20

88.72
4.96
93.68 H.I.
9.98
83.70 S.P.
4.12
87.82 H.I.
77.60
10.22

Dolphin West of Chelsea on north

18' west 73.50 H.I.

6.2 7.2 6 6.2 7.2

67.3 no. 66.3 so.

108' west of Chelsea on north

9.0 9.5

64.5 on no. 64.0 on south

East end of curve.

14.0 14.5

59.5 no. side 59.0 so. side

60.68 H.I.

80' west of East end curve on South

13.7 14.7

47.0 on no. 46.0 on south.

return S.W. cor Chelsea 0.5 high

280.1 N
140.06
130.06

270.1 N
12
256.1 N
175
131.00

256.1 N
11
245.1 N
125.00
116.1 N

280.1 N
140.06
130.06

168.77

115
75
1225
75
130.0

354.77
58
296.77
30
266.77

133.39
30

163 N
56.73

133.34

13
1337.7
1241
109.27

Bird Rock ave 80

74.90 H.I.

64.00 Chk. O.K. break 50 west
10.90 cor. of Chelsea on north
68.00 Chk O.K. break 50' west
6.90 of cor Chelsea on north.

return on S.E. cor. 4 high Chelsea

0.76
74.14 S.P. To hub 10' S.E. of cor.
Bird Rock ave & Chelsea.
9.82
83.96 H.I.

Center alley. bet. Chelsea
& Ocl Boulevard
No. 76.5 South 76.5'
West line Ocl Blvd. No. 79.0 South
checks 0.2 high for 78.0
from Ocl Blvd. to
Dodge ave. not graded.

return 2 high 10.15 / 4.53 — 100.0 / 6.0?

101.0 / 5.03

0.83
83.13 S.P.
12.66
95.79 H.I.
.7.07
88.72
7.0
95.79 I.P.
10.24
106.03 H.I.

1.317
80.79 B.M.

10.25
3.53
10.5-45
12.65
118.10 H.I.

5.93
2.67
8.60
2.67
11.27
2.67
13.94

117.0
1.20
3.54
4.64

N.E. 115.00 / 0.10
0.95
117.95 S.P.
7.60
127.55 H.I.
119.00
8.55 N.E. cor

12.49
130.44 H.I.
0.34
130.10 S.P.
12.54
142.64 H.I.

Chelsea ave.

No. End.

74.90 H.I.

61.5 / 13.4 Prop. 4 low.

63.0 / 11.9 curb & prop. .4 high

return on So. side dolphin .5 high S.W. cr

" " " " abalone .5 "

69.5 / 5.4

71.0 / 3.90 Birdrock ave .2 high curb N.W. cor.

N.E. & S.E. check 73.0

S.W. cor 72.0 / 3.90 prop. .8 low.

71.0 / 3.90 1.0 high both curb & N.W. cor. abalone & property

70.5 / 4.4 1.0 high both curb & prop. S.W. cor.

4.53 / 70.37 T.P.

3.13 / 73.50 H.I.

6.0 / 67.5

12.5 / 61.0

68.5 66.5 / 66.0 63.0

66.0 / 7.5 curb .3 low on S.W. cor return on dolphin .5 high

KEITH'S RAILROAD CURVE TABLES.

Published by KEUFFEL & ESSER CO., New York.

HOW TO USE KEITH'S TABLES.

EXAMPLE.

Wanted a Curve with an Ext. of about 12 ft. Angle of Intersection or I. P.=23° 20′ to the R. at Station 542+72.

Ext. in Tab. IV opposite 23° 20′=120.87
120.87÷12=10.07. Say a 10° Curve.

Tan. in Tab. IV opp. 23° 20′=1183.1
1183.1÷10=118.31.

Tab. V. correction for A. 23° 20′ for a 10° Cur.=0.16
118.31+0.16=118.47=corrected Tangent.

(If corrected Ext. is required find in same way)
Ang. 23° 20′=23.33°÷10=2.3333=L. C.

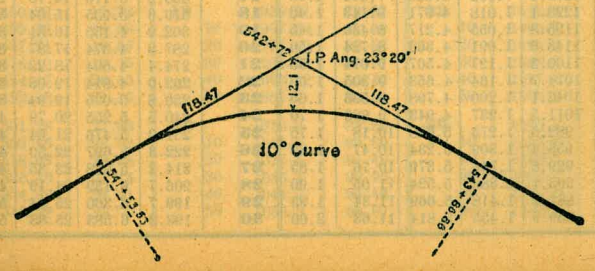
2° 19½′=def. for sta.	542	I. P.=sta.	542+72
4° 49½′= " " "	+50	Tan.=	1.18.47
7° 19½′= " " "	543	B. C.=sta.	541+53.53
9° 49½′= " " "	+50	L. C.=	2.33.33
11° 40′= " " "	543+	E. C.=sta.	543+86.86
	86.86		

100—53.53=46.47×3′(def. for 1 ft. of 10° Cur.)=139.41′=2° 19½″=def. for sta. 542.

Def. for 50 ft.=2° 30′ for a 10° Curve.

Def. for 36.86 ft.=1° 50½′ for a 10° Curve

(These tables are published in Field Books of KEUFFEL & ESSER Co., New York, N. Y.)



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	1405	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 3452	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	3.8657	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

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

ROADWAY 14 FEET WIDE. SIDE SLOPES 1½ 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.

MADE IN GERMANY.