

281

S.M.P.L. ~ ~ ~
CROSS-SECTIONS

PLANT

LEVEL BOOK

STOP

W281

Our Leather Bound Engineers Note Books are carried in the following rulings:

- No. 380 LEVEL BOOK. Left and Right Hand Page the same as Left Hand Page of this Book.
- No. 382 FIELD BOOK. Left Hand Page as in this Book, Right Hand Page 4 x 4 to the inch, Center Line Red.
- No. 384 MINING TRANSIT BOOK. Left Hand Page as in this Book, Right Hand Page 8x8 to the inch, Center Line Red.
- No. 385 FIELD BOOK. Left Hand Page as in this Book, Right Hand Page 8 vertical and 4 horizontal lines to the inch, Center Line Red.

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In ordering Fabri-Hide covered books, add the letter "F" to catalog number.

THE FREDERICK POST CO.
ENGINEERING and DRAFTING SUPPLIES

IRVING PARK STATION

CHICAGO, ILL.

MICROFILMED

JAN 11 1965

O.R.-S.D. 2nd. Main Pipe Line.

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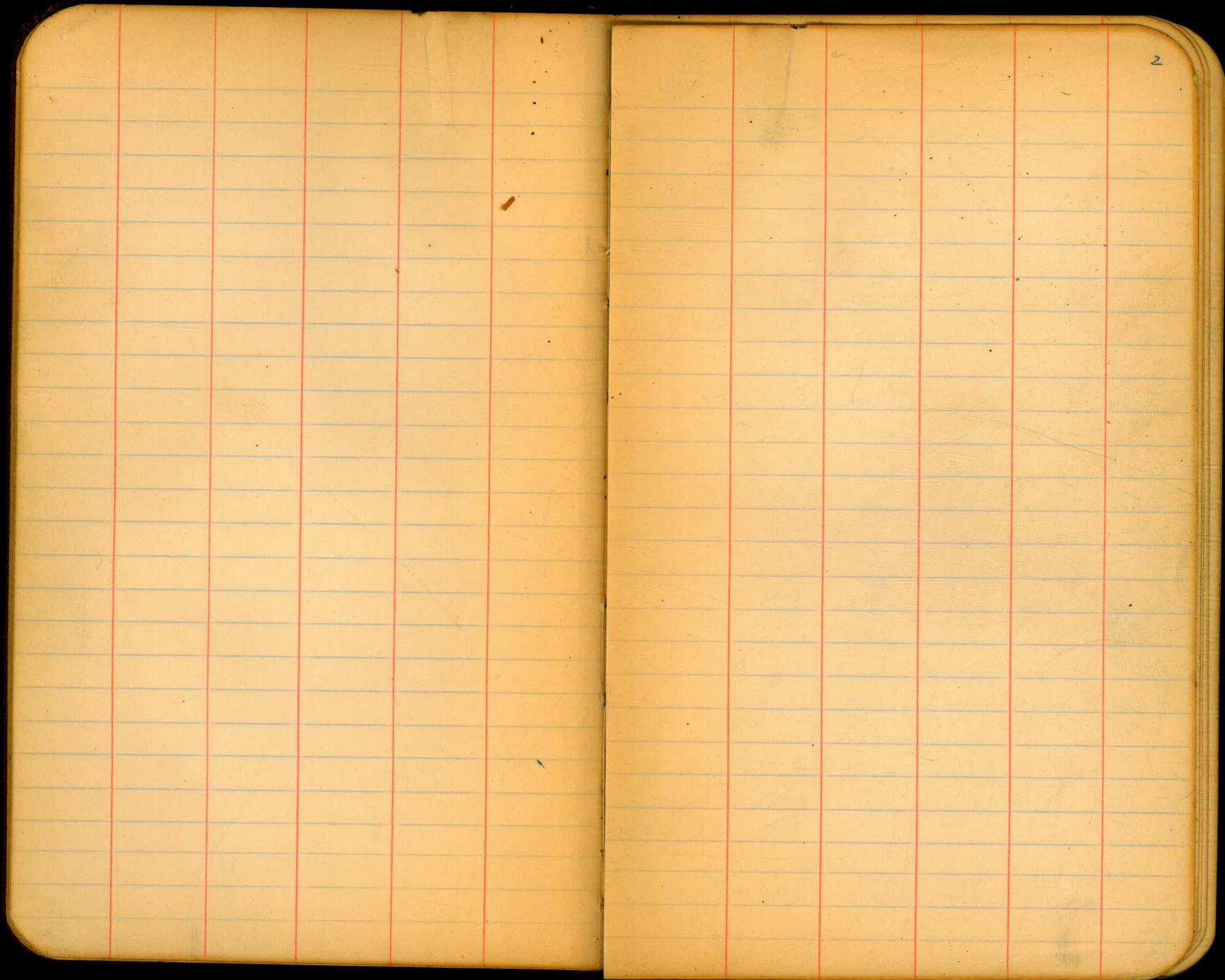
ADMITTED

MICROFILMED

JAN 1 1982

00

00



663.	368.49	9.0	359.5
+11		9.2	359.3
+21		11.1	357.4
+30		10.7	357.8
+35		12.2	356.3
+44		8.8	359.7
+58		6.4	362.1
+81		6.4	362.1
664		8.6	359.9

	Left	≠	Right	5						
	1.4 26	2.7 18	1.3 12	6.5 7	7.3 7	61.2 1	10.6 3	19.9 13	16.5 13	19.4 21
	0.7 23	69.2 20	6.7 20	3.5 12	65.0 5	61.7 5	11.2 4	19.9 17	21.4 25	49.3
	1.0 23	67.5 16	6.4 16	6.4 16	60.6 9	61.7 9	17.7 10	20.7 21	20.7 21	48.1
	0.0 23	68.5 18	6.3 18	5.5 18	63.0 8	61.7 8	15.5 10	20.2 26	20.2 26	48.3
	0.4 23	68.1 21	6.9 21	5.8 16	62.7 6	61.7 6	15.8 8	19.0 18	20.5 26	49.5 48.0
	10.9 23	69.4 15	6.8 15	2.7 15	63.3 7	61.7 7	12.5 7	16.8 17	19.5 25	49.0
	1.5 23	70.0 15	6.4 15	2.1 15	64.6 7	61.7 7	13.0 13	16.8 22	16.8 22	51.7
	2.1 27	70.9 16	6.8 16	0.1 16	64.0 8	61.7 8	10.1 9	13.0 15	17.3 25	51.3
	2.8 23	71.3 17	6.2 17	2.3 12	62.5 5	61.7 5	12.1 8	17.4 21	17.4 21	51.1

368.49

664+07	9.7	358.8
+19	6.8	361.7
+32	2.3	366.2
T.P.	0.5-8	367.91
11.78		379.69
+50	9.5	370.2
B.M.	6.0	373.59
+75	7.7	372.0
665	8.3	371.4
+15	7.1	372.6
+28	7.1	372.6
+42	8.1	371.6

Air valve
664+50

Left Right

70.9	66.0	44.8	6.8	6.0	51.9	49.0
+21 2.3	3.7	10	12.8	16.6	19.5	x drain
23 2.1	1.8	10	7	17	24	
70.7	67.6	64.1	6.8	6.0	55.9	51.8
+22 0.9	4.4	5.0	8.0	12.6	17.1	17.1
23 2.1	1.1	8	3	13	24	24
71.9	71.3	71.5	70.3	63.6	58.7	54.9
+34 2.3	+3.0	+1.9	4.9	9.8	13.6	13.6
23 2.0	1.1	7	4	14	25	25
71.7	73.1	72.3	69.3	61.8	57.8	57.8
8.0	6.6	7.4	10.4	17.9	21.9	21.9
23 15	4	2.0	15	25	25	25
72.4	74.2	75.6	72.3	70.5	60.8	57.2
7.3	5.5	7.1	7.4	9.2	18.9	22.5
23 21	15	7	3	16	25	25
72.0	75.1	73.3	69.2	62.8	59.2	59.2
7.7	7.6	6.5	10.5	16.9	19.5	19.5
23 17	6	6	19	25	25	25
72.9	77.9	77.3	75.7	70.3	64.0	61.0
6.8	2.3	2.7	4.0	9.4	16.7	18.7
23 16	9	6	7	18	25	25
72.7	75.6	74.6	71.2	64.4	61.2	61.2
7.0	4.1	5.7	8.5	15.3	18.5	18.5
23 18	5	5	4	16	25	25
72.9	74.8	74.1	70.4	64.8	61.7	61.7
6.8	7.9	5.6	7.3	14.9	18.0	18.0
23 16	10	7	7	17	25	25

	379.69		
665+65	6.0	373.7	
+88	8.1	371.6	
666	7.7	372.0	
+20	7.8	371.9	
+40	9.6	370.1	
+60	10.7	369.0	
667	0.85	365.93	TP. at 667+0.0
	0.8	365.1	
+35	6.0	359.9	
+60	8.3	357.6	

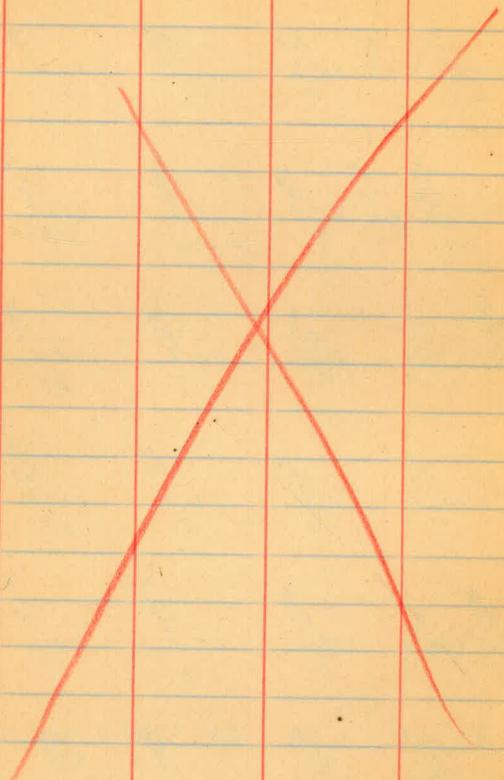
Left	Right	7
72.8 6.9 23	76.4 3.3 13	75.2 4.5 5
10.6 8	69.1 11.8 13	16.1 21
72.3 7.7 23	77.0 7.7 13	74.5 5.2 8
12.5 11	67.2 12.5 11	16.1 21
72.2 7.5 23	75.1 7.6 12	74.6 5.1 7
13.2 12	66.5 13.2 12	17.7 25
72.3 7.4 23	74.3 5.9 15	74.5 5.2 8
13.3 10	66.4 13.3 10	18.1 25
72.1 7.6 23	72.4 7.3 10	72.4 7.3 10
12.1 5	67.3 12.1 5	15.8 13
71.7 8.0 23	71.0 8.7 18	70.7 9.0 7
17.0 13	62.7 17.0 13	17.0 18
71.1 7.2 23	65.9 6.0 9	64.0 1.9 3
7.0 13	58.9 7.0 13	10.1 25
71.0 1.9 23	63.1 2.8 18	61.5 4.4 10
8.1 8	59.8 8.1 8	10.6 17
61.5 4.4 23	61.0 4.9 15	59.1 6.8 8
8.7 4	57.2 8.7 4	55.5 10.4 9
12.8 23	53.1 12.8 23	53.1 12.8 23

0008

365.93

10.1

355.8



Left

~~±~~

Right

8

58.5
7.7
23

54.9
11.0
7

53.7
12.2
17

B.M. 6.86 220.77 213.61

678 3.7 16.8

+06 3.5 17.0

+20 1.5 19.0

+28 2.6 17.9

+42 6.5 14.0

+64 6.8 13.7

+73 3.0 17.5

+90 12.7 07.8

Left & Right 9

Nail in Tel. pole at intersec. 65th & Akins

Level

Level

Level

Level

11.0	11.0	13.5	14.7
3.5	3.5	7.0	6.1
12	7	6	14

15.1	13.7
5.4	6.8
12	12

15.0	14.3	10.1	16.9	
5.5	2.2	3.1	7.4	3.6
17	11	7	10	16

09.2	10.7	09.1	
11.3	9.8	11.8	12.4
18	12	6	15

22047

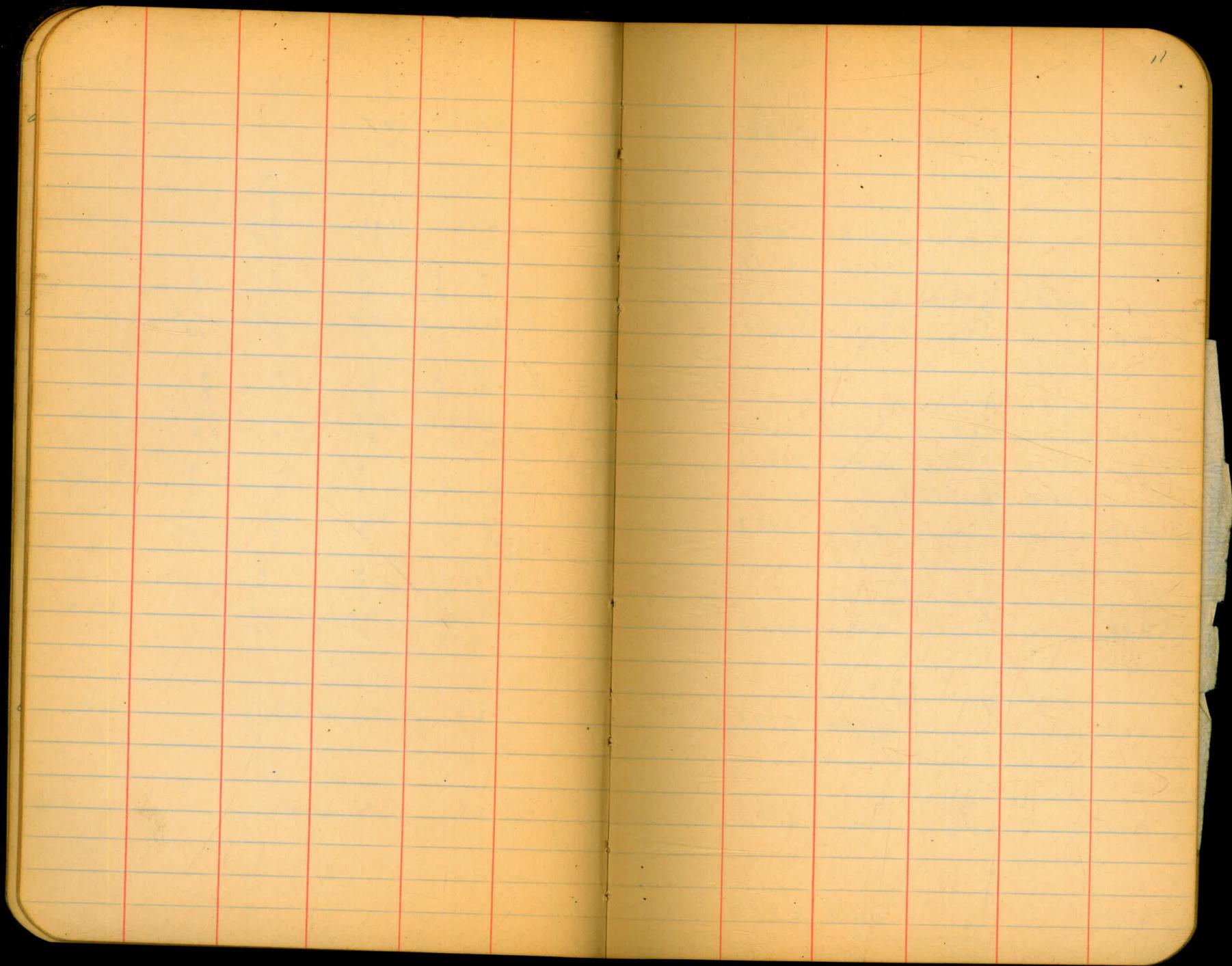
6679	12.7	07.8
+17	13.1	07.4
+28	8.6	11.9
+37	7.9	12.6
+44	9.2	11.3
+59	6.6	13.9
+83	7.9	12.6
680	7.2	13.3

Left ~~2~~ Right 10

07.9	07.8		
12.6	12.7		
15	15		
07.9	07.9		
13.1	12.6		
15	15		
07.9	09.8		
13.1	10.7		
19	13		
12.6			
7.9			
7			
10.3	13.5		
10.2	7.0		
14	11		
09.8	12.5		
10.7	8.0		
15	12		
12.6			
7.7			
15			
14.8			
5.7			
8			
14.4			
6.1			
8			
12.2			
8.3			
5			
14.1			
6.4			
15			
12.6			
7.9			
5			
14.8			
8.1			
11.7			
8.8			
5			
11.7			
11.9			
7.6			
20			
13.0			
7.5			
15			

Level

Level



Xsec's at trestle #39

B.M.	5.18	274.72	269.54
689+54		11.2	263.5
T.P.		11.17	263.55
	1.43	264.98	
+70		5.0	260.0
+87		9.5	255.5
T.P.		12.97	252.51
	1.56	254.07	
690+07		5.9	248.2
+30		11.0	243.1
+46		14.2	239.9
+66		20.0	234.1
+77		18.2	235.9

Left $\frac{1}{2}$ Right 12

Airvalve 687+6.0

Level

6.3	6.3	2.8
15	9	15
53.9	53.9	17.2
11.1	11.1	7.2
15	10	15
7.3	46.8	7.1
15		15
13.1	41.0	9.8
15		15
16.2	37.9	41.5
15		15
20.0	39.1	24.1
15		15
18.9	36.2	36.0
15		15

ter.

	254.07		
690+85	14.0	240.1	
691	10.1	243.7	
+20	5.7	248.4	
T.P.	0.00	254.07	
7.90	261.97		
+35	10.9	251.1	
+50	7.2	254.8	
+75	3.7	258.3	

Left & Right 13

399	
14.2	13.2
15-	15-

441	443
10.0	9.8
15-	15-

481	489
6.0	5.2
15-	15-

516	520
10.4	10.0
15-	15-

549	544
7.1	7.6
15-	15-

Level Level

B.M.	7.06	380.49	373.43
707	15.7	364.8	
+25	12.3	368.2	
+50	8.5	372.0	
+70	6.8	373.7	
+85	6.7	373.6	
708	5.8	374.7	
+13	4.8	375.7	
+25	2.3	378.2	
+50	2.7	377.8	

Left	Right	79
Air valve 708+90		
	64.7	69.5
	15.8	11.0
	13	5
	67.2	70.8
	13.3	7.7
	15	2.0
	68.9	72.8
	11.6	7.7
	15	2.0
	71.6	75.0
	8.9	5.5
	9	5
	70.3	76.5
	10.2	75.2
	13	6
	70.6	77.2
	10.0	5.3
	14	6
	71.8	78.8
	6.7	3.6
	5	7
	71.5	79.3
	9.0	76.9
	13	9
	72.0	80.1
	71.3	80.8
	9.2	79.5
	15	7
	71.9	80.3
	8.6	12
	75.7	81.1
	9.8	2.0
	5	1
	72.5	81.2
	8.0	2.4
	17	10
	72.4	80.0
	8.1	2.0
	10	6
	73.5	80.7
	7.0	10
	17.5	20

380.49

708+70

7.7

372.8

B.M. 3.46

376.29

3.46

~~373.43~~~~377.03~~~~372.4~~

+81

4.5

~~376.0~~

+90

5.0

371.9

375.5

709

4.8

372.1

375.7

+25

5.1

371.8

~~375.4~~

Left

d

Right

15

13.5

7.0

15

12.5

8.0

10

77.4

3.1

5

79.5

1.0

11

79.8

0.7

17

223.8

15

274.3

10

722.1

6

72.4

2

71.1

6

71.2

7

78.2

11

79.1

17

223.8

15

273.1

6

71.9

2

72.3

6

76.9

12

78.5

16

274.3

15

723.6

7

71.5

8

722.1

7

71.9

17

71.5

12

722.2

11

Xsec's at trestle #40

258.77

8.10 267.17

714+45 +25
+61 2.9 264.3

+75 8.4 258.8

+88 13.9 253.3

715 19.7 247.5

+15 23.5 243.7

+26 20.5 246.7

+35 15.3 250.9

+50 10.3 256.9

Left & Right 16

T.P. 715+56

603 65.0 65.4
6.9 2.2 1.8
15 7 17

55.8 51.0 60.8 61.5
11.1 10.2 6.1 5.7
16 8 9 16

501 51.4 55.2
17.1 15.8 12.0
15 8 15

44.0 45.4 47.2 49.2 50.7
23.2 21.8 20.0 18.0 16.5
16 10 7 8 16

44.3 44.4 46.1 46.6
17.9 22.8 21.1 20.6
15 6 8 15

53.6 49.3 45.2 44.3
13.6 17.9 22.0 22.9
15 8 6 16

50.7 53.5 47.8 47.2
11.5 13.7 19.9 20.0
15 6 10 16

59.2 52.3 52.8
8.0 8.9 14.8
15 6 15

	267.17		
715+61		7.4	259.8
+73		7.5	262.7
+90		1.6	265.6
716		+1.0	268.2

Left \neq Right 17

6.7 15	60.5	8.1 7	2.7 15
5.4 15	61.8	9.7 15	2.7 15
2.0 15	66.2	0.7 14	6.5

Level

e matter.

ors

B.M.	3.08	374.76	371.68
722+27		8.1	366.7
+34		8.9	365.8
+40		6.1	368.7
+50		4.2	370.6
+57		6.7	368.1
+65		3.8	371.0
+75		3.7	371.1
723		3.0	371.8

Left & Right

18

Air valve 723+15

Level

6x	69.1	69.8
10.1	5.7	5.0
15	5.0	15
10	6.7	10x

page three

association has recently reaffirmed its
 views: "Recommendations for fluoridation
 by medical and public health groups.
 If the treatment, it then becomes the
 responsibility and industry to follow through
 if proper controls are assured."
 The board of directors has not been
 and this letter is intended to clarify the matter.
 The organization of engineers, administrators
 interested in the

interest to members of the State Settlement System. A dividend could be made
interest and accounting effectives described in the third and fourth paragraphs of article

1) Ordinance No. 1885. *State of Iowa* State Ordinance No. 1885. *Res. 410*
December 23. *137.50*

3:30 P.M. January 12. He passed the half-year work (no loss time accidents)
2) This month's directors safety meeting will be held at Chicago station.

0 - Res = 347.2 U.S.G.S.

with interest and interest on the amount of the settlement.

137.50
484.7

It has expressed its full approval of the efforts of the committee to coordinate
of generally and medicine.

0 tower

under approval. It is not an organization of professional men in the sense
and their behavior is expected to be directed to the maintenance of public

This association is an organization of citizens' representatives
generally understood by some and this letter is intended to clarify the matter.

Alman
40000

The policy established by the board of directors has not been
maintained and irregularly made proper controls are essential.

498.02
1.16
496.86

operation of the water works system and industry to follow through
when the proper authorities approve the plan. It then becomes the

and the responsibilities of the board, medical and public health boards.

condition on investigation as follows: "Recommendations for investigation

3) The American Water Works Association has recently reaffirmed the

g) The American Water Works Association has recently reaffirmed its position on fluoridation as follows: "Recommendations for fluoridation are the prerogatives of the dental, medical and public health groups. When the proper authorities approve the treatment, it then becomes the function of the water works utility and industry to follow through willingly and intelligently where proper controls are assured."

The policy established by the board of directors has not been clearly understood by some and this letter is intended to clarify the matter.

This association is an organization of engineers, administrators and staff personnel engaged in or interested in the furnishing of public water supply. It is not an organization of professional men in the fields of dentistry and medicine.

It has expressed itself plainly as ready and willing to cooperate with dental and medical men who advocate fluoridation.

It does not promote fluoridation.

h) This month's Division Safety Meeting will be held at Chollas Station, 2:30 P.M., January 15. We passed the half-way mark (no lost time accidents) December 27.

i) Ordinance No.4982. Passed by the City Council Nov. 13 without fanfare and becoming effective December 14 we find an ordinance of vital interest to members of the City Retirement System. A printed copy is yours

for the asking at the City Clerk's office. Provisions of the ordinance

B.M.	3.08	374.76	371.68
722+27		8.1	366.7
+34		8.9	365.8
+40		6.1	368.7
+50		7.2	370.6
+57		6.7	368.1
+65		3.8	371.0
+75		3.7	371.1
723		3.0	374.8

Left & Right 18

Air valve 723+15

			Level		
			64.4		
	10.4	5.7	69.1		69.8
	15	5.0			15
	10.8	2.5	70.4		
	15	5			
	10.7	6.8	72.7		71.3
	15	7			17
Install x'drain	10.3	5.7	69.1		
	15	15			
	9.4	4.5	71.7		72.7
	15	5			10
	9.1	4.0	72.3		
	15	3			
	8.7	3.9	72.8		72.0
	15	3			15
	7.3	2.0	73.8		
	10	6			
		1.0	73.2		
		10			
		1.6			
		15			

723 + 25	374.76	3.0	371.8
+50		3.8	371.0
+75		4.5	370.3
+81		6.6	368.2
+88		9.7	370.1
724		1.7	370.1
+25		5.9	369.4
+50		6.2	368.6
+60		8.6	366.2

Left	←	Right	19
8.5 14	66.3	2.3 3	72.5
10.2 15	67.3	1.3 11	73.5
11.0 15	67.7	2.3 8	72.5
11.8 15	68.0	1.5 11	73.3
11.5 15	68.3	2.7 13	72.1
12.7 15	68.6	2.0 8	72.8
12.7 15	69.1	7.8 15	70.1
12.7 15	69.6	2.5 9	72.3
12.7 15	69.7	1.6 10	73.2
12.7 15	69.8	3.6 3	71.2
12.7 15	69.9	3.3 15	71.5
12.7 15	70.1	1.6 10	71.1
12.7 15	70.2	2.5 9	69.2
12.7 15	70.3	7.6 15	70.2
12.5 15	70.3	0.1 6	68.7
11.6 10	70.2	7.6 15	70.2
11.6 10	70.2	4.6 15	70.2

	374.76		
724+66		6.4	368.4
725		6.2	368.6
+50		7.8	367.0
T.P.		5.5-1	368.95
	0.65	369.60	
726		7.0	365.6
+50		6.3	363.3
+75		7.7	361.9
727		10.8	358.8
+25			
T.P.		12.70	356.90
	6.5-9	363.49	
+25		7.7	355.8

20

Left	$\frac{d}{2}$	Right
$\frac{62.3}{12.5}$ $\frac{63.0}{15}$	$\frac{63.0}{11.8}$ $\frac{67.5}{12}$	$\frac{69.1}{5.7}$ $\frac{70.5}{7}$
$\frac{72.5}{12.2}$ $\frac{73.1}{15}$	$\frac{68.1}{11.7}$ $\frac{69.0}{11}$	$\frac{70.3}{5.8}$ $\frac{70.3}{2}$
$\frac{60.8}{14.0}$ $\frac{62.8}{17}$	$\frac{67.9}{12.0}$ $\frac{69.3}{8}$	$\frac{69.3}{5.5}$ $\frac{69.3}{15}$
$\frac{60.2}{9.1}$ $\frac{61.6}{14}$	$\frac{66.6}{8.0}$ $\frac{68.9}{8}$	$\frac{68.9}{3.0}$ $\frac{68.9}{3}$
$\frac{59.6}{10.0}$ $\frac{60.0}{15}$	$\frac{61.4}{9.2}$ $\frac{66.1}{11}$	$\frac{68.0}{3.5}$ $\frac{68.6}{5}$
$\frac{58.2}{11.4}$ $\frac{58.6}{15}$	$\frac{60.1}{9.5}$ $\frac{64.9}{11.0}$	$\frac{67.3}{7.7}$ $\frac{67.3}{5}$
$\frac{56.8}{12.8}$ $\frac{57.3}{14}$	$\frac{63.0}{12.6}$ $\frac{66.1}{6}$	$\frac{66.1}{6.6}$ $\frac{66.1}{6}$
$\frac{52.5}{11.0}$ $\frac{55.3}{15}$	$\frac{61.7}{12.6}$ $\frac{63.3}{9}$	$\frac{63.3}{7.9}$ $\frac{63.3}{10}$

727+60	363.49	9.1	354.4
+82		9.3	354.2
728		10.7	352.8
+90		11.3	351.2
+75		9.6	353.9
+87		8.6	354.9
729		8.2	355.3
+25		7.8	355.7
+50		7.4	356.1

Left		Right	21
50.1 13.4 15	51.1 12.4 9	54.2 9.3 7	54.9 6.3 13
	49.3 14.2 15	50.9 12.6 7	54.5 6.8 15
	49.8 13.7 14	51.0 12.5 6	54.2 8.7 12
	49.0 14.5 15	50.9 13.6 8	54.2 8.3 15
	49.0 14.5 15	52.0 11.5 3	54.9 8.2 13
	49.9 13.6 15	52.3 11.2 6	55.4 7.2 15
	51.2 12.3 14	55.3 8.2 3	55.6 5.6 15
	52.7 10.8 15	55.2 8.3 5	56.7 3.0 15
	53.4 10.1 15	55.5 8.0 8	56.9 0.6 5
			58.2 5.3 15
			58.8 7.7 15
			56.1 7.7 15
			56.3 7.2 15
			57.9 5.6 15
			60.5 3.0 15
			62.1 1.7 15

	363.49		
729+75	7.1	356.1	
730	8.5	355.0	
+50	10.0	353.5	
731	10.6	352.9	
+50	10.6	352.9	
732	8.0	355.5	
+25	6.2	357.3	
+50	5.1	358.4	
+75	5.5	358.0	

Left			Right	22
53.9	55.8	57.0	56.5	52.5
9.6 15	7.7 10	6.5 7	3.0 10	5.9 15
52.4	54.6	55.9	57.0	59.8
11.1 15	8.9 9	7.6 7	6.5 7	3.7 11
				2.1 15
50.5	52.6	56.1	58.7	59.3
13.0 15	10.9 10	7.7 7	7.8 10	7.2 15
49.8	51.5	54.7	57.0	61.8
13.7 15	12.0 11	8.8 6	6.5 10	5.3 15
49.9	52.3	53.7	57.7	58.6
13.6 15	11.2 10	9.8 3	5.8 11	7.9 15
53.1	55.5	56.0	57.2	58.7
10.7 15	8.0 7	7.5 3	6.3 7	7.8 10
				7.2 15
54.1	56.7	57.7	60.4	
9.7 15	6.8 4	5.8 7	3.1 15	
74.3	55.9	58.8	60.0	
9.2 15	7.6 7	7.7 3	3.5 15	
53.8	56.1	58.8	60.2	
9.7 15	7.4 5	7.7 4	3.3 15	

733 363.49 7.8 355.7

+25 9.9 353.7

T.P. 11.10 352.39

0.01 352.40

+50 2.8 341.6

+75 6.9 345.5

734 12.2 340.2

TP 733+35

Left \pm Right 23

$\left[\begin{array}{c} 52.1 \\ 10.8 \\ 15 \end{array} \right]$ $\left[\begin{array}{c} 6.3 \\ 8.2 \\ 7 \end{array} \right]$ $\left[\begin{array}{c} 57.1 \\ 6.4 \\ 8 \end{array} \right]$ $\left[\begin{array}{c} 59.7 \\ 5.8 \\ 15 \end{array} \right]$

$\left[\begin{array}{c} 50.7 \\ 12.8 \\ 15 \end{array} \right]$ $\left[\begin{array}{c} 27 \\ 10.8 \\ 7 \end{array} \right]$ $\left[\begin{array}{c} 56.0 \\ 8.5 \\ 15 \end{array} \right]$

$\left[\begin{array}{c} 47.5 \\ 7.9 \\ 15 \end{array} \right]$ $\left[\begin{array}{c} 48.1 \\ 7.3 \\ 10 \end{array} \right]$ $\left[\begin{array}{c} 50.0 \\ 2.7 \\ 15 \end{array} \right]$

$\left[\begin{array}{c} 43.4 \\ 9.0 \\ 15 \end{array} \right]$ $\left[\begin{array}{c} 56.5 \\ 6.9 \\ 10 \end{array} \right]$ $\left[\begin{array}{c} 45.4 \\ 2.0 \\ 15 \end{array} \right]$

level

Hill
Elliot
Simpson clear

6/8/29

Left

&

Right

21

374.83

B.M. 2.93 377.76
739 12.2 365.60

+07 10.3 367.5

+21 8.0 369.2

+30 6.2 371.6

+50 2.6 375.2

+60 1.2 376.6

B.M. 9.52 384.35 374.83

+75 5.2 379.1

740 3.3 381.0

Top air valve 740+00

Level

67.2 69.1 67.3 65.3
10.6 9.7 10.5 12.5
15 9 10 23

69.8 69.2 69.1 67.0
8.0 8.6 8.7 10.8
15 7 19 23

61.4 72.1 73.2 70.6 71.2 69.4 67.9
6.7 5.7 4.6 7.2 6.6 9.4 2.9
15 8 4 8 13 20 23

71.2 74.0 70.1 69.8
0.6 3.8 7.7 7.9
15 8 19 23

79.1 76.1 71.1 70.3
+1.3 1.7 6.7 7.5
15 9 19 23

Air valve 740+00

80.2 80.1 80.2 76.2 72.1 71.8
7.1 7.2 6.1 8.1 12.2 12.5
15 9 9 13 19 23

80.2 79.8 73.3 73.0
7.1 4.5 11.0 11.7
15 10 18 23

740+15	3.2	381.1
+25	1.6	382.7
+50	1.5	382.8
+75	2.6	381.7
+90	3.0	381.3
741	4.4	380.0
+25	8.1	376.0
+40	10.8	373.5
T.P.	11.46	372.89
0.39		373.29

384.35

Left	\bar{x}	Right	25
2.9	81.4	3.5	80.8
15		9	
10.3	74.0	10.3	74.0
11.3	73.0	11.3	73.0
23		23	
2.1	82.2	3.0	81.3
15		8	11.0
10.8	73.5	10.8	73.5
23		23	
0.8	82.5	2.0	82.3
15		7	
6.8	77.5	6.8	77.5
11.3	73.0	11.3	73.0
11.3	73.0	11.3	73.0
23		23	
2.3	82.0	3.7	80.6
15		7	
12.3	72.0	12.3	72.0
12.2	72.1	12.2	72.1
23		23	
1.5	82.8	5.1	79.2
15		6	
12.7	71.6	12.7	71.6
12.7	71.6	12.7	71.6
21		21	
2.3	82.0	6.1	78.2
15		7	
13.0	71.0	13.0	71.0
12.9	71.4	12.9	71.4
20		20	
7.5	77.0	9.0	75.3
15		7	
10.2	74.1	10.2	74.1
13.5	70.8	13.5	70.8
13.4	71.0	13.4	71.0
20		20	
7.5	73.5	11.2	73.1
15		11	
14.2	70.1	14.2	70.1
14.0	70.3	14.0	70.3
20		20	

741+50 373.29
1.5 371.8

+65 4.3 369.0

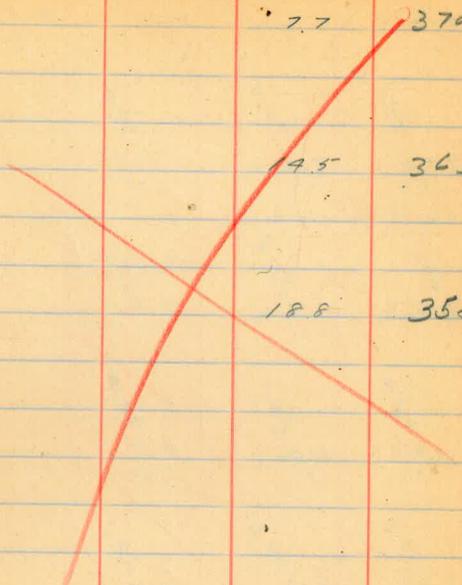
+75 5.3 368.0

742 8.2 365.1

Left	±	Right	26
69.8 3.5 15	71.2 2.1 10	71.8 1.5 4	72.1 1.2 11
67.5 5.8 15	69.9 3.6 8	69.1 4.2 2	70.3 3.1 12
66.1 7.2 15	68.3 5.0 5	67.8 5.5 5	69.1 1.2 20
			26 59.9 3.4 19 59.9 3.9 20 59.9 3.9 20

Laval

778 + 40
 377.70
 7.7 370.0
 773
 19.5 363.2
 779
 18.8 358.9



Left & Right 31

62.7 15.0 23	62.7 15.0 20	67.3 10.4 13	68.7 9.0 8	73.7 4.0 15
60.7 17.0 26	60.7 18.7 21	60.7 17.0 18	66.1 11.6 15	66.1 17.6 15
			66.9 20.8 21	60.1 17.6 15

B.M.	6.34	375.30	368.96
768+75	13.8	361.5	
769	10.6	364.7	
+12	9.7	365.6	
+25	8.0	367.3	
+48	6.1	369.2	
+75	4.8	370.5	
770	2.9	372.4	
+25	3.4	371.9	

Air valve 770+85

	19.0	64.7		
	16.3	10.6		
	15	22		
	61.9	66.8	65.4	68.3
	13.4	8.5	9.9	7.0
	15	9	14	19
	62.8	67.6	65.4	68.3
	12.5	7.7	9.9	9.7
	15	6	8	16
	64.5	68.5	65.4	68.3
	10.8	6.7	5.7	6.9
	15	13	17	
	66.5	68.3	68.4	69.8
	8.8	7.0	6.9	5.5
	15	8	4	7
	68.5	69.3	72.4	74.5
	6.8	6.0	2.9	0.8
	15	7	3	15
	68.1	69.7	71.3	73.6
	7.2	4.0	1.7	0.0
	21	9	7	17
	68.6	69.3	71.1	74.0
	6.7	6.0	4.2	1.3
	22	15	6	15

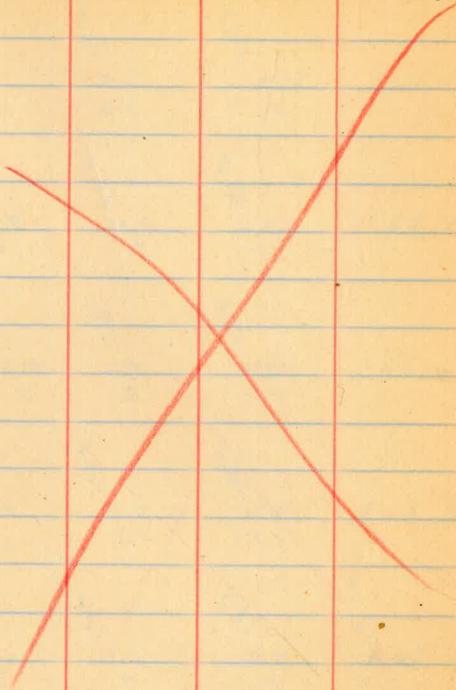
Left 4 Right

32

770+50

37530

4.1 370.9



Left \pm

Right

33

6.8
20

2.8
15

	13.00	340.50	327.50
766		+1.0	341.5
+14		5.2	336.3
+24		10.5	330.0
	0.03	327.53	327.50
+48		11.5	316.0
+61		11.8	315.7
T.P.		10.20	317.33
	12.1	329.43	
+78		11.1	318.0
+97		8.8	320.6
767+09		6.5	322.9

Left & Right 34

T.P. peg 7' L - 766+26

	0.3	+1.9	2.5
	15	15	
34.1	6.4	2.6	37.9
	15	13	
34.2	6.3	4.5	34.0
	10	17	
33.2	7.3	5.4	34.5
	5	19	
28.6	11.9	6.0	34.5
	15	23	
28.7	11.8		
	6		
33.3	7.2		
	15		
	7.7		
	20		

T.P. peg 7' L 766+26

	12.7	6.3	20.2
	15	18	
14.8	12.7	10.4	17.1
	12	16	
14.8	11.5		
	15		
18.1	11.3	12.8	16.7
	15	7	18
21.1	8.3	11.6	17.8
	15	8	18
23.2	6.2	7.6	17.0
	15	19	
21.8			

Xsec's at Trestle 441

0.10 327.36

327.26

2
1

767 436

9.7 317.7

458

2.5 324.9

Left &

Right

35

T.P. peg 767+66

11.1 / 163
15

9.7 18.0
9

10.1 173
19

9.0 234
15

2.2 21.2
12

3.7 23.7
21

B.M. 9.20 379.26 370.06

air valve 787+40

786+00

4.5 374.8

72.6
6.7 5.7 3.8 75.5
23 15 15

+50

3.8 375.5

74.9 74.0
7.7 3.3
15 15

787+17

3.0 376.3

76.7 76.4
2.6 2.9
15 19

+25

3.0 376.3

76.9 75.6 73.1 76.7 77.2
2.1 3.7 6.2 2.6 2.1
15 7 10 17 22

+35

3.6 375.8

77.1 77.1 69.3 70.3 74.9 77.1
2.2 2.2 10.0 9.0 9.7 2.2
15 3 9 14 17 23

+50

2.0 377.3

77.1 77.0 69.6 69.4 72.4 77.9 77.5
2.2 6.3 9.7 9.9 6.9 1.7 1.8
27 19 16 12 6 7 15

+60

2.1 377.2

77.4 77.8 76.8 72.3 68.7 75.1 76.7
1.9 1.5 2.5 7.0 10.6 10.6 9.2 2.6
15 8 7 7 14 16 23 28

+68

3.5 375.8

77.5 77.5 69.0 68.8 74.8 76.8
1.2 1.0 10.3 10.5 4.8 2.5
15 6 14 18 25 30

379.26

7877.75

2.8

376.5

788

5.1

374.2

775

6.9

372.4

750

10.3

369.0

Left = Right

37

77.1
2.2
15

76.4
2.9
7

74.3
5.0
10

69.1
10.2
15

68.6
10.7
19

66.4
8.9
23

64.1
8.2
29

71.3
4.0
15

74.8
4.5
7

72.6
5.7
13

70.4
8.9
16

67.9
11.7
21

65.3
9.0
27

72.2
7.1
29

71.0
4.3
34

73.0
6.3
15

72.0
7.3
12

69.8
8.5
20

68.1
11.2
28

70.2
9.1
15

67.6
11.7
15

0.5-0 239.85 239.45

7 50+00 0.5 239.8 ?

+18 9.0 231.0

+34 9.6 230.3

+52 6.0 234.0

T.P. 7.20 232.75

4.10 236.85

+69 4.8 232.0

+84 E bank of creek 4.1 332.7

+90 6.7 230.1

751+09 5.5 231.3

Left & Right 38

T.P. peg 750+01

0.5 39.4
15 10.0
15 10.0

10.1 39.9
15 5.6 34.4
8 2.8 37.2
13 3.5 36.5

9.5 30.5
15 9.8 30.2
8 6.8 33.2
17

28.8
11.2 8.5 8.5 5.8 34.2 10.1 29.9
22 20 8 7 12 18 2.5 30.5 8.0 32.0
23

27.8 7.3 29.5 7.0 32.0 7.5 32.3 7.9 32.0
18 14 12 6 23

30.2 29.6 7.0 32.8 7.8 32.0 4.5 32.3
10 3 7 13 23

6.0 30.8 6.0 30.8 7.2 32.6 7.0 32.0
15 7 5 23

30.8 6.0 5.9 31.3 23

B.M. 12.49 385.89 373.40
 0.69 385.20
 1.95 390.15
 12.25 377.90
 0.30 378.20

648+5.0

+85

649

+30

+5.0

12.25 390.15 0.30 377.90

650

+5.0

651

+22 Sedge part.

+16.5 N. "

Left ~~4~~

Right A0

Air valve at 654+0.0

H.I. 378.20

	6.6	7.6	7.5	12.8	
	20	30		15	
	7.3	7.6	6.9	6.8	
top	21	4	9.3	11.4	13.2
	7.2	7.7		5	15
	7.0	6.5	8.0	6.7	6.0
	22	3		11.8	12.5
	7.8	7.8	7.3	11	15
	5.7	5.7	5.9	6.8	6.9
	23	2		8.1	8.8
	7.7	7.4	7.2	10	15
	5.3	4.2	4.0	7.8	7.8
	29	17		5.7	5.8
				15	15

H.I. 390.15

	18.8	13.1	14.0	12.2	12.6	12.7	12.7	11.7	17.6
	37	25	20	11		7		15	
	8.3	7.2	7.2	8.3	8.3	8.3	8.3	8.3	8.3
	5.8	14.9	14.9	8.8	8.8	8.8	8.8	7.0	6.6
	39	25	21	8		6		11	15
	8.1	7.8	7.3	8.8	8.8	8.1	8.1	8.2	8.2
	1.0	12.0	11.8	3.3	3.2	2.7	2.7	1.9	1.9
	73	29	20	5		10		15	15
	90.00	83.1	88.1	90.0	89.8	90.0	90.0	90.0	90.0
+0.4	7.0	2.0	2.0	0.2	0	0.2	0.2	0.2	0.2
11	36	22	10	10		15		15	15
	90.5	90.1	89.8	89.8	89.8	89.1	89.1	89.1	89.1
+0.4	1.0	0.0	0.3	0.3	0.3	1.0	1.0	0.9	0.9
80	44	37	32	32		11		15	15

390.15

651+75

652

+50

653

T.P.

0.69

386.89

T.P.

9.32

382.72

+50

654

+50

T.P.

0.10

370.18

655

+50

+90

+75

(23' L)

14.1

356.1
3.3
52.8

topot pipe

Left

d

Right

11

		H.I. 390.15						
390.0	88.8	87.5	87.2	87.0	87.0	90.75		
0.2	1.3	2.6	2.9	3.1	1.2	+0.6		
75	25	10	7	7	5	15		
90.75	80.2	80.3	86.6	86.2	86.2	90.25		
10.6	9.9	9.8	7.5	3.9	3.9	+0.1		
75	24	20	10	3	3	15		
87.3	77.6	77.4	84.1	84.6	84.8	89.8		
2.8	12.5	12.7	6.0	5.5	5.3	0.6		
44	28	21	9	3	3	12		
82.8	75.0	74.7	82.4	82.8	83.0	86.5		
7.3	15.2	15.4	7.7	7.3	7.2	3.6		
40	29	23	10	3	3	11		

Air valve of 654+00

		H.I. 382.7						
79.7	73.0	74.9	80.2	80.1	83.4	83.9		
3.0	9.7	2.8	2.5	2.6	+0.7	+1.2		
38	25	12	3	3	10	15		
72.5	71.2	72.1	76.6	76.7	78.0	78.0		
10.2	11.5	10.6	5.1	6.0	4.7	4.7		
27	23	22	10	4	12	15		
71.1	70.5	71.7	71.7	72.0	72.5	72.5		
11.6	12.2	11.0	11.0	10.7	10.2	10.2		
45	30	16	6	6	15	15		

71.2
67.9
76.5

H.I. 370.2

64.5	64.4	65.5	66.6	66.6		
5.7	5.8	7.7	7.6	3.6		
30	22	12	15	15		
59.9	59.2	59.7	61.2	61.8	62.8	
10.3	11.0	10.5	9.0	8.4	7.7	
36	29	18	17	15	15	
56.0	57.2	57.2	59.3			
19.2	12.5	10.9				
32		15				

370.18

656

+15

+25

+50

657

+35

+60

T.P. 0.10 359.62 10.66 359.52

+85

658

1.19 348.51 12.30 347.32

+25

+46

T.P. 11.56 336.95

962 337.54

133
300
500

Left

±

Right

42

55.9 11.1 370.2 59.4
14.3 56.0 51.5 10.8
30 14.2 12.7 15

54.6 58.4 57.5 59.4
15.6 14.5 12.7 10.8
30 17 15

53.7 55.3 59.1 59.4
16.5 14.9 13.1 10.8
30 18 12 15

52.6 53.3 54.0 59.6 60.5 63.1
17.6 16.9 16.2 10.6 9.7 7.1
30 23 17 9 15

52.3 53.6 57.8 60.6 64.9
17.9 16.6 12.4 9.6 5.5
30 17 10 15

50.8 52.5 57.2 61.4 64.2
19.4 17.7 13.0 9.5 6.0
30 18 10 15

49.1 50.0 55.4 58.1 61.8
21.1 20.0 14.8 12.1 8.9
32 20 9 15

46.5 46.3 52.4 54.3 56.0 56.9
13.1 13.3 7.2 5.3 3.6 2.7
30 18 7 8 15

43.6 44.0 49.5 51.7 54.1 54.5
16.0 15.6 10.1 7.9 5.5 5.1
30 19 8 10 15

10.384 38.8 54.29 44.8 0.7 47.8
28 18 9 15

34.9 35.5 35.5 40.3 43.5
13.6 13.0 13.0 8.2 5.0
32 19 9 15

33757

658+65

659 edge of road S.

+40 " " " N.

+60

+82 begin. of prev. x sections - see page 3

Left

±

Right

13

Left		±		Right	
32.9	33.1	33.9	33.9	37.6	40.3
4.7	7.5	3.7	3.7	0.0	+2.7
33	23.4 road	11		6	15
31.0	31.1	30.3	30.9	31.6	30.8
6.6	6.5	7.3	6.7	6.1	6.9
30	22	15		6	11
31.1	29.5	29.2	27.5	27.6	27.6
6.5	8.0	8.7	10.1	10.0	15
27	20	3			
32.2	31.1	28.2	27.5	26.4	26.6
5.7	6.5	9.7	10.1	11.2	11.0
30	20	12		3	19
				Wedge road	Edge road

X-Section's Pump Plant Site
Clay Filter Plant

BYER
KING
ALLAN
STEPHENS

10-11-44

74

Note: - For Key Sketch to X-Sec. see Book 282

Page 65

X-Section's Cont. from Book 282 page 69

2.54	406.68	403.54	
	3.98	402.10	
0-5	5.9	400.2	
0-10	9.0	397.1	
3'50.	10.7	395.4	
10'50.	5.1	401.0	
20'50.	6.4	399.7	
30'50.	7.2	398.9	
35'50.	8.4	397.7	over PL.
6' N.	4.5	401.6	
10' N	6.0	400.1	
20' N	5.8	400.3	
30' N	5.6	400.5	
40' N	5.1	401.0	
0-20	10.2	395.9	
3' N	10.1	396.0	
10' N	5.7	400.4	
20' N	6.4	399.7	
30' N	6.1	400.0	

D.M. X end of Retaining Wall S.E. Cor Main
Filter Plant

Set D.M. "X" on G.V. to A.V. #1

Note: - "over PL." is approximate.

0-20.

40' N

406.08

5.5

400.6

5' 50.

5.5

400.6

10' 50.

7.3

398.8

20' 50.

7.0

399.1

30' 50.

8.2

397.9

34' 50.

9.2

396.9 over P.L.

40' 50.

9.1

397.0

0-25

7.3

398.8

0-30

6.9

399.7

10' 50.

7.0

399.1

20' 50.

7.6

398.5

30' 50.

9.8

396.3

33' 50.

10.2

395.9 over P.L.

40' 50.

9.6

396.5

7' N.

10.7

395.4

17' N.

5.3

400.8

20' N.

6.6

399.5

30' N.

6.6

399.5

40' N

5.8

400.3

0-40

7.6

398.5

10' 50.

7.1

399.0

20' 50

9.1

397.0

15

406.08

30' 50.

10.2

395.9 over P.L.

40' 50.

11.0

395.1

7' N.

6.2

399.9

10' N.

7.6

398.5

15' N

10.9

395.2

20' N

9.1

397.0

25' N

4.9

401.2

30' N

6.5

399.6

40' N

6.4

399.7

0-50

7.4

398.7

10' 50.

7.8

398.3

20' 50.

10.1

396.0

25' 50.

10.6

395.5 over P.L.

30' 50.

11.3

394.8

40' 50.

12.5

393.6

10' N

7.5

398.6

14' N

6.4

399.7

20' N

10.0

396.1

23' N

10.8

395.3

33' N

5.8

400.3

40' N

5.7

400.4

406.08

0-60	9.0	397.1
10' So.	9.3	396.8
20' So.	11.4	394.7
10' N	8.8	397.3
19' N	6.8	399.3
29' N	11.2	394.9
34' N	10.9	395.2
44' N	5.3	400.8

0-70	12.6	395.5
10' So.	11.3	394.8
17' So.	12.4	393.7
10' N.	10.3	395.8
14' N.	10.2	395.9
18' N.	12.0	394.1
25' N.	7.7	398.4
30' N	7.6	398.5
41' N	11.0	395.1
53' N	5.0	401.1
60' N	5.8	400.3
70' N	5.7	400.4
80' N	5.4	400.7

0-80	11.8	394.3
10' So.	12.7	393.4

406.08

13' So.	13.0	393.1
7' N.	13.1	393.0
14' N.	10.1	396.0
20' N.	10.2	395.9
30' N.	9.5	396.6
40' N	8.3	397.8
50' N.	7.2	398.9
54' N.	10.8	395.3
64' N.	5.0	401.1
70' N.	5.4	400.7
80' N.	5.8	400.3
90' N.	5.0	401.1

0-86	13.9	392.2
0-90	13.2	392.9
3' So.	13.9	392.2
10' N.	11.8	394.3
20' N	11.0	395.1
30' N	10.0	396.1
40' N	9.3	396.8
50' N	7.8	398.3
54' N	6.4	399.7
64' N	10.6	395.5
76' N	4.5	401.6
80' N	5.8	400.3

over PL.

over PL.

over PL.

over PL.

406.08

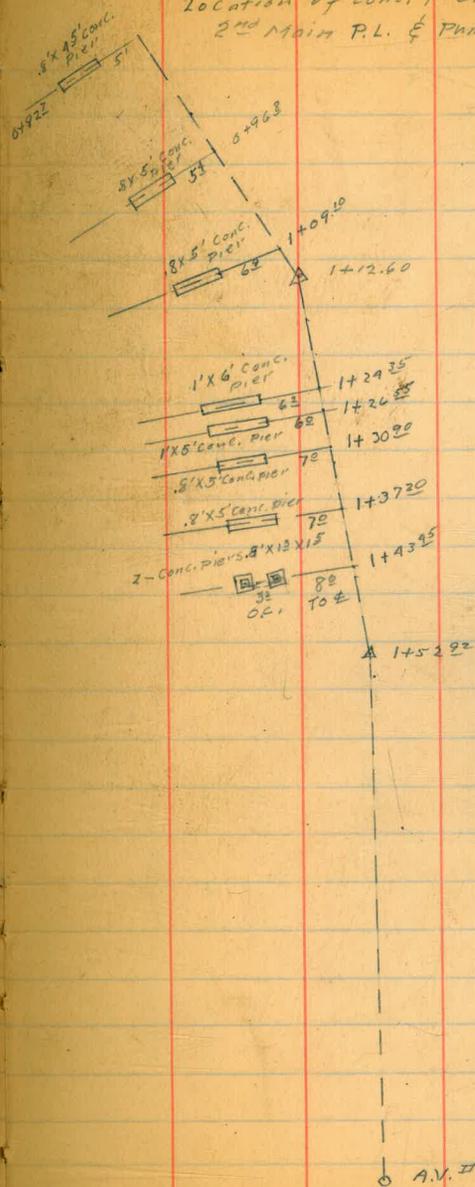
90'N	5.8	400.3
100'N	5.0	401.1
- 1 00	13.8	392.3
10' N.	12.7	393.4
20' N.	11.3	394.8
30' N.	11.0	395.1
40' N.	9.3	396.8
50' N.	8.7	397.4
60' N.	6.9	399.2
66' N.	5.9	400.2
77' N.	10.8	395.3
90' N.	4.4	401.7
100' N.	5.6	400.5
110' N.	4.8	401.3
120' N.	3.4	402.7

over PL.

Byler
King
Stephens
Otter
70-11-44

Location of Conc. Piers Near Otay
2nd Main P.L. & Pump plant site

98



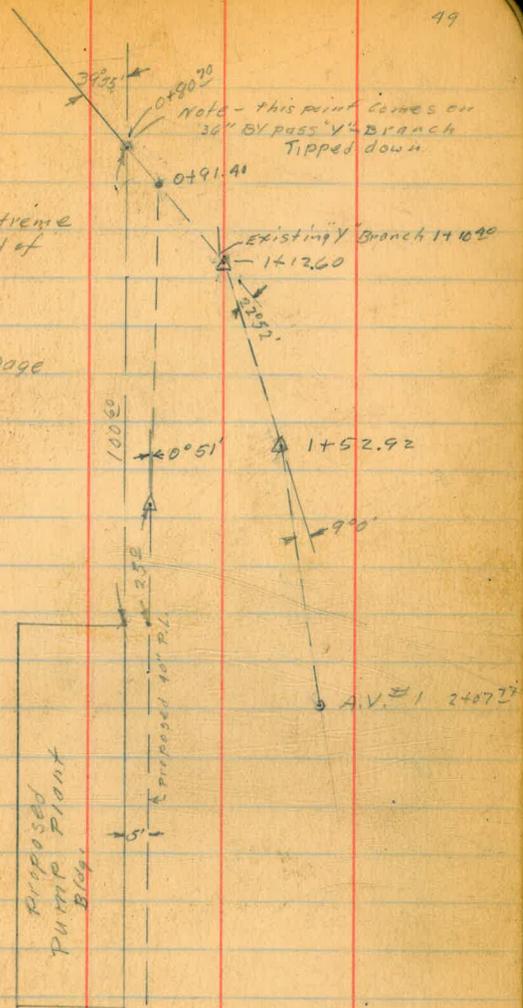
Hookup of Pump Plant To
200' STAY Main P.L.

Oyer
King
Otten
Stappens
10-11-44

49

0+00 = Wall at extreme
Back of Pit So. End of
Filter Plant.

See Previous Page
For Location of
Conc. Piers.



403.54

50
B.M. X on end of Conc. Retaining Wall S.E. Cor.
Filter Plant

9-16-44
KING
OTTEN
STEVENSON

36" Raw Water Line

3.23 405.33

402.10

B.M. X - Top Air Valve #1

see p 44

0+00	6.95	398.38
	10.6	394.7
+08 Δ pt.	9.6	395.7
+16		
+16	8.6	396.7
+21	6.2	399.1
+27	6.4	398.9
+47	5.6	399.7
+70	6.7	398.6
Δ +76.7	9.1	396.2
+83	7.6	397.7
Δ +96.37 = 97.85	7.3	398.0

Top Pipe at "y"
Ground

Profile 36" EFFL. P.L.

3.23 405.33 402.10

0 +00	+0.50	395.8
	10.65	394.68
	11	
+09	10.8	394.5
+21	10.7	394.6
+22	11.5	393.8
A +34.2	12.5	392.8
+41	11.27	394.06
+43	11.7	393.6
+55	8.4	396.9
+71	7.7	397.6
+75	10.4	394.9
+83	7.8	397.5
+97.85	7.7	398.0

Top 36" EFFLUENT P.L.
Ground

8" Drain

405.33

1+1765 5.1 400.2

1+25 4.3 401.0

1+805 4.4 400.9

End of Pipe

Profile 40" Outlet Pipe

405.33

0+00 5.6 399.7

+14 6.1 399.2

+63 4.2 401.1

Δ 0+80.5 5.3 400.0

+94 6.1 399.2

1+00 4.6 400.7

1+09 10.1 395.2

1+15 5.6 399.7

1+20 7.5 397.8

405.33

1+59.8

13.1 392.2

GROUND

1+59.8

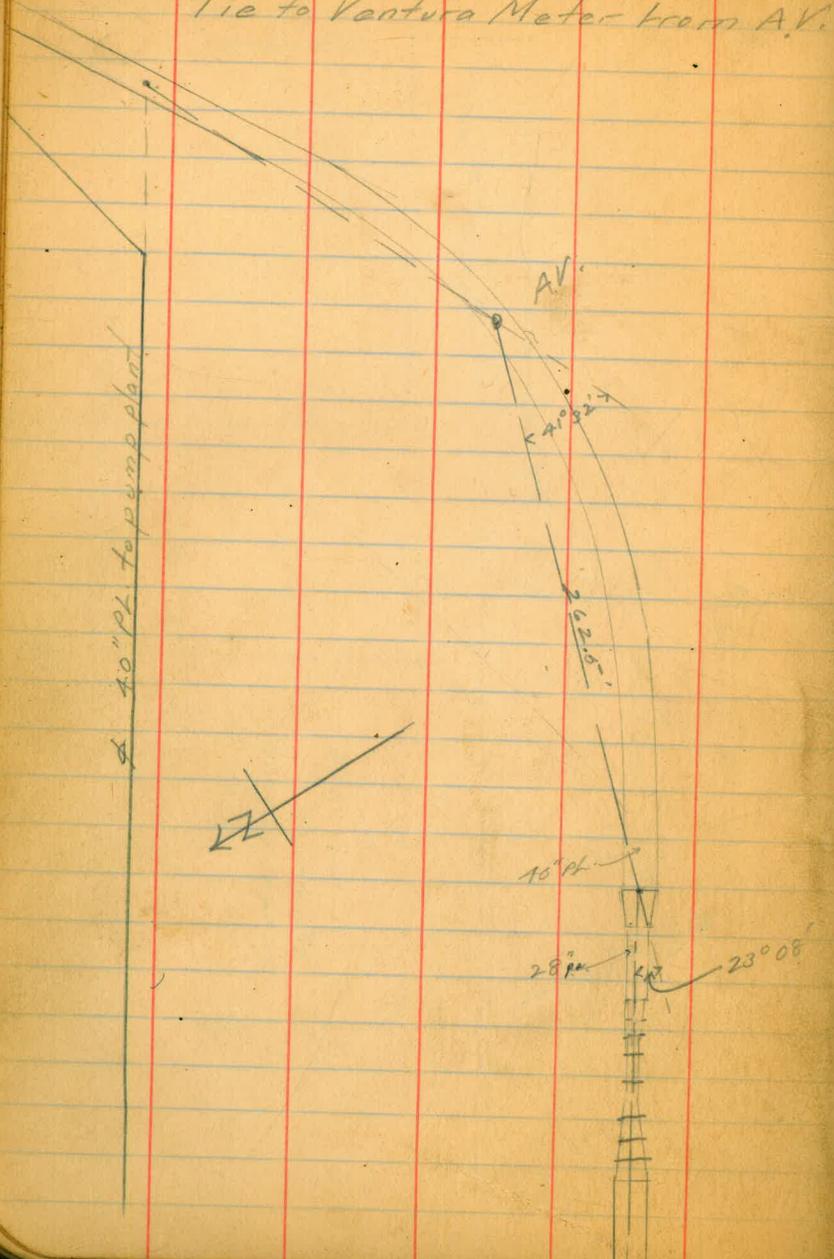
14.40 390.93

Top Pipe Existing Otag 2nd Main

-4.65 400.68 400.6

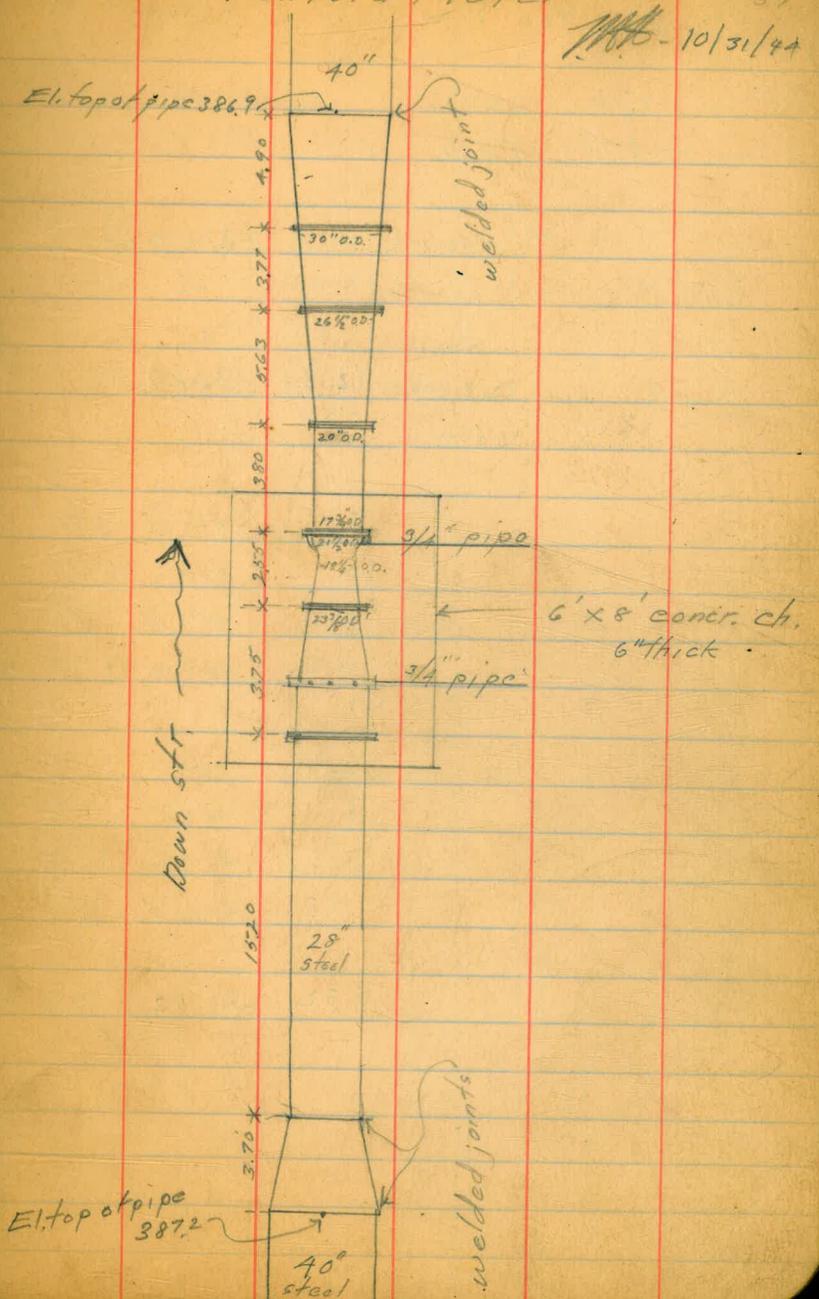
S.W. Cor. Bldg

Tie to Ventura Meter from A.V.



Ventura Meter

57
~~10/31/44~~ 10/31/44



Elk. Top Pipe Ventura meter - stay Filter Plant

10-31-44

58 H. H.
KING
OTTEN
STEPHENS

B.M.	1.26	403.36		402.10
T.P.	8.53	399.18	-12.71	390.65
			11.99	387.19
			12.43	
			12.54	
			12.84 ³⁰	386.88
T.P.	13.10	411.44	-0.84	
			9.6	401.8
			10.1	401.3
			8.2	403.2
			8.2	403.2
			3.3	408.1
			3.7	407.7
			0.2	411.2
			0.3	411.1
			9.32	402.12
				402.10

X-ON Air Valve

Top 40" Pipe towards Filter Plant
 " 28" " outside Ventura M. Box
 " 28" " inside " " "
 " 40" " West side " " "

S.E. Cor. Garage

S.W. " "

N.W. " "

N.E. " "

S.W. " House

S.E. " "

N.W. " "

N.E. " "

Nov. 6 1944

Soper
King
O'Neil
Stephens

59

Elevs - Grades and Cuts - Otay Pumping Plant. Finish Floor Grade

B.M.	2.40	404.50	402.10	x on air valve
				Cut
S.E. Cor		4.2	400.3	396.75
N.E. Cor		3.8	400.7	396.75
N.W. Cor		4.0	400.5	397.50
S.W		3.1	401.4	397.50

B.M. 1.95 404.05 402.10

3.05	401.00
3.05	401.00
3.05	401.00
3.05	401.00
3.05	401.00
3.05	401.00

Grade - top of wall. S.E. Cor. cut 4²⁵ to top conc. floor
 " " " " N.E. " " 4²⁵ " " " "
 " " " " center bldg " 3⁸⁸ " " " "
 " " " " " " " 3⁸⁸ " " " "
 " " " " N.W. cor " 3⁵⁰ " " " "
 " " " " S.W. " " 3⁵⁰ " " " "

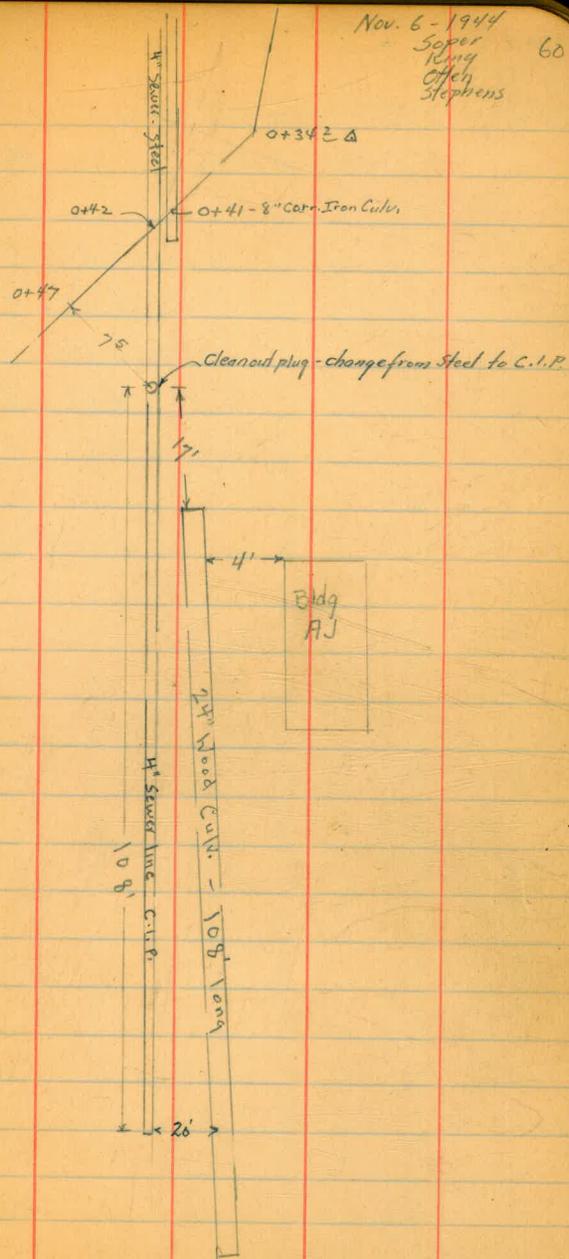
Nov. 22 1944

Soper
Stephens

Profile-drain and sewer lines. South side from proposed 40" line - Clay Pumping Plant.

B.M.	2.40	404.50		402.10
0+41				
Top 8" Corr. I. Culv.		10.3		394.2
0+42				
Top 4" Steel Sewer line		10.8		93.7
Top of cleanout plug		12.3		92.2
TP	1.57	393.01	13.06	391.44
Fl. line 24" wood Drain		6.0		387.0
Ground above 24" drain		3.2		89.8
Ground - above drain - 75' from beginning		5.0		88.0
Fl. line - end of 24" drain @ ground elev		19.1		73.9
Ground 20' beyond drain		24.1		68.9
Top 4" Sewer - end of pipe		8.3		84.7
Ground - 35' beyond sewer pipe		16.5		76.5
cl. on top of Saddle of Cone Piers - Elev. 395.64		+ 2.7		395.7

Proposed 40" line to pump house



Blue tops for Pump house floor - stay

3.26 405.36 402.10

7.86 397.50

8.05 397.31

8.24 397.12

8.42 396.94

8.61 396.75

4.36 401.00

Nov. 28, 1944

Soper
King
Olsen
Stephens

61

Top concrete floor - West end of pump house

" " " 1/4 point

" " " center of bldg

" " " 1/4 point

" " " East end of pump house

check on blue top, set Nov. 22 - Elev. 401.00 Top of wall

Dec. 19, 1944 62
 Soper
 King
 Stephens

Profile of offsets - 40" line to pumps

			Grade	Cut
B.M.	2.57	404.67	402.10	
0+05 ² x	10.0	394.7	398.3	F 3.6 x on q
0+14 ³ o	9.6	395.1	398.3	F 3.2 4' offset to left.
0+34 ⁵ back 0+34 ² ahead	12.1	392.6	398.3	F 5.7 6' offset to left.
0+65	11.4	393.3	398.3	F 5.0
0+97 ⁷	4.3	400.4	398.3	C 2.1
1+20	4.1	400.6	398.3	C 2.3
1+40	4.1	400.6	398.3	C 2.3
1+60	3.8	400.9	398.3	C 2.6
1+81 ²⁵	4.0	400.7	398.3	C 2.4

36" Line

0+00			395.8	
0+08 x	7.0	397.7	395.8	C 1.9 6' off to Rt
0+20 x	4.1	400.6	398.46	C 2.1
0+50	4.5	400.2	398.46	C 1.7
0+76 ⁷⁰ Rt to back Tang	7.0	397.7	398.46	F 0.8
0+76 ⁷⁰ " Tang ahead.	8.4	396.3	398.46	F 2.2
0+96 ³⁷	7.5	397.2	398.46	F 1.3

Profile of offsets - 40" line from pumps

			Grade	Cut	
	404.67				
0+01 ⁶ x	4.2	400.5	398.3	C 2.2	Offset to Rt
0+25	3.9	400.8	398.3	C 2.5	"
0+50	3.6	401.1	398.3	C 2.8	"
0+80 ^{5A} x	4.1	400.6	398.3	C 2.3	" El. to back tang.
1+00	6.2	398.5	395.67	C 2.8	"
1+25	8.4	396.3	392.29	C 4.0	"
1+50	11.5	393.2	388.91	C 4.3	"
1+59 ⁸ x			387.6		

Profile 40" line to pumps
404.67

0+05 ²	10.0	394.7 ✓
0+14	9.7	395.0 ✓
0+34	11.8	392.9 ✓
0+55	7.8	396.9 ✓
0+65	7.1	397.6 ✓
0+69	7.2	397.5 ✓
0+74	10.2	394.5 ✓
0+93	7.7	397.0 ✓
0+97	4.5	400.2 ✓
1+20	4.0	400.7 ✓
1+40	3.9	400.8 ✓
1+81	3.9	400.8 ✓

36" line

0+08	9.0	395.7 ✓
0+23	5.8	398.9 ✓
0+50	5.2	399.5 ✓
0+62	5.3	399.4 ✓
0+76 ²⁰	9.0	395.7 ✓
0+94	7.6	397.1 ✓
0+96 ³⁷	4.5	400.2 ✓

Profile 40" line From Pumps
404.67

0+016	4.2	400.5 ✓
0+25	3.9	400.8 ✓
0+50	3.6	401.1 ✓
0+80 ⁵	3.9	400.8 ✓
1+00	7.7	395.0 ✓
1+25	8.4	396.3 ✓
1+42	9.1	395.6 ✓
1+50	10.5	394.2 ✓
1+59 ⁸	12.4	392.3 ✓

Hill 2/21/45
Hutt

65

Elevs for floor of res. + transformer base of Otay pump plant

9.95 410.95 401.0

Floor elev. pump house

S.W. cor. 2.90 408.05

N.W. " 2.40 408.55

N.E. " 2.0 408.95

S.E. " 2.3 408.65

410.28 0.67 grade elev. top of wall

Elev. highest cor. = N.E. cor. = 408.95

Min. Ht above gr. = 1.33

410.28

400.46 10.49 N.W., S.W. & S.E. cor. finished grade transformer base
399.79 N.E. cor

10.17 400.78 400.46 @ 0.32 S.W. cor

9.95 401.00 400.46 @ 0.54 N.W. "

9.70 401.25 400.46 0.79 S.E. "

11.00 399.95 399.79 0.16

Grades and cuts for 40" lines at new pump plant - Olay

B.M.	3.12	405.22		402.10	
			6.92	398.30	398.30
TP	4.85	405.87	4.20	401.02	
			5.4	400.5	
Inter. Point			5.3	400.6	398.3
			4.8	401.1	398.3
0+80 ^E			5.1	400.8	398.3
1+25			9.7	396.2	392.29

Grade for bottom of 40" pipe

clear 6' offset 0+06 - 40" outlet line

c-2.3

c 2.8

c 2.5

c 3.9

Grades & cuts for 40" & 36" lines - Olay Plant

	0.14	402.24	402.10		
0+01.16			3.94	398.30	398.30
1+00			6.57	395.67	395.67
1+25			9.95	392.29	392.29
1+50			13.33	388.91	388.91
	2.90	405.00	402.10		
			6.70	398.30	398.30
			6.54	398.46	36" " " 0+20 to 0+76.7

40" line to pumps

36" " " 0+20 to 0+76.7

411
Bliss Notes
King &
Davis
10/14/46

Levels over Wash Water Line from

B.M.	2.15	405.69		403.54	X on
T.P.	0.48	394.11	12.06	393.63	
Bottom Section Well					
T.P.	5.24	335.50	3.85	390.26	
			10.72	384.78	
			11.35	384.15	
T.P.	10.73	405.00	1.23	394.27	
			1.48	403.52	
BM	5.25 ⁴	502.05		496.81	? From
T.P.	10.99 ³⁰	512.63	0.22	501.83	
T.P.	1.70	513.81	0.52	512.11	
T.P.	0.65	502.81	11.65	502.16	
			7.60	195.21	
		513.81			
T.P.	4.25	513.04	5.02	508.79	
			4.4	508.6	
Total Length of line 979' ± - chained					
			11.4	501.6	
T.P.	4.84	513.63	4.25	508.79	
T.P.	1.17	514.13	0.67	512.96	
T.P.	1.33	503.10	12.36	501.77	
check			6.34 ²⁵	496.85	
				496.81	Record

Otay Filter Plant to Outlet into Lake Otay 8" line
End of retaining wall S.E. Cor. Filter plant

Bottom Section Well

Top 6" Section Line in Pump House

Base of Pump

check starting BM

Top Angle Iron on Gauging Sta. Top Otay Dam

This apparently is
a correct Elev.
see FB 911 129.77
1/20/56 Beatty

Hand level
Flow Line of outlet into Lake

High Point of Ground

Elev of Pipe by Goldok. Pipe Finder 820' From
Beginning.

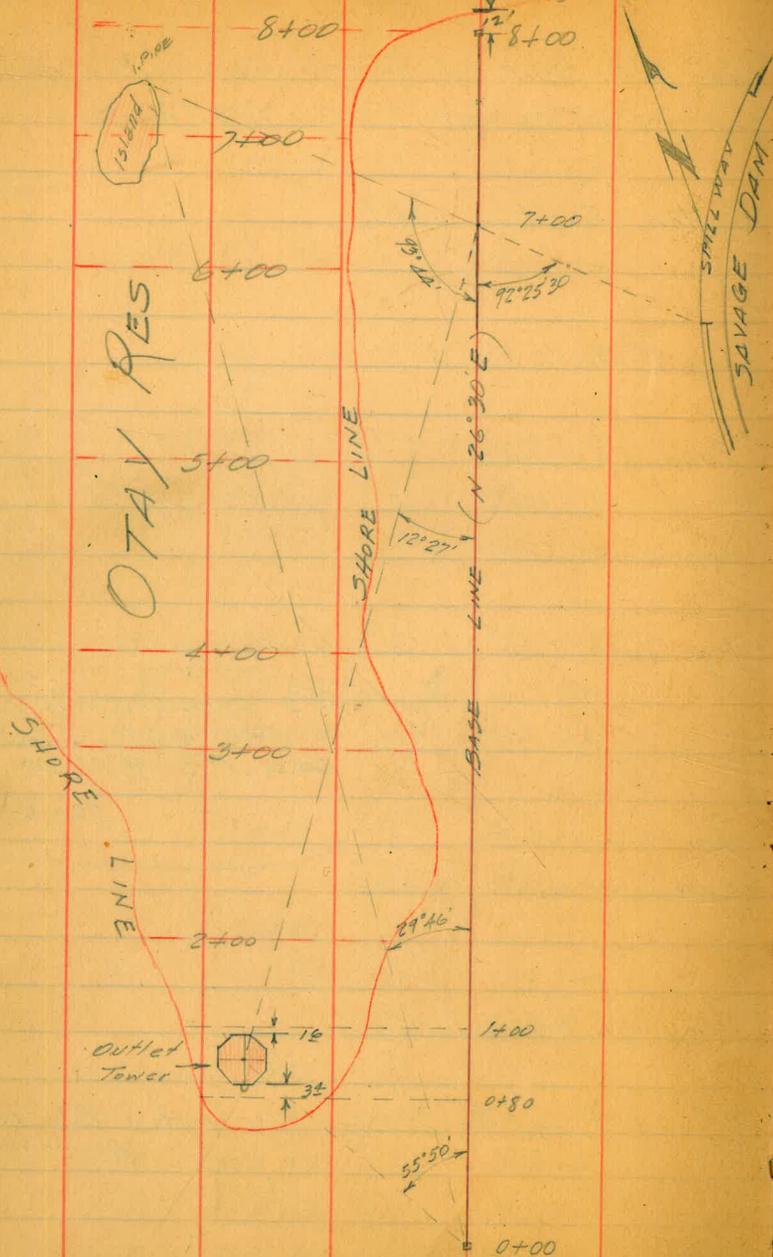
Starting BM.

SOUNDINGS AT LOWER OTAY RES.

April 16 1951

BATTY
LEONARD
G. NELSON

70



RIGHT BASE LINE

Station	60.5	60.2	60.4	60.0	60.8
8+00	8.0	5.6	5.4	8.8	15.0
7+00	456	421	391	366	331
6+00	59.2	46.9	65.3	49.3	48.0
6+00	162	22.5	23.5	23.5	24.8
5+00	316	2.8	259	241	216
5+00	65.1	49.6	69.5	60.9	66.8
5+00	22.7	19.2	13.0	7.9	0.0
5+00	206	193	175	151	127
5+00	58.4	58.7	58.7	59.4	
5+00	10.0	10.1	10.1	15.4	
5+00	444	424	419	384	
5+00	41.9	46.9	47.5	49.7	49.7
5+00	21.0	22.5	21.3	19.1	19.5
5+00	324	279	272	266	234
5+00	204	166	144	124	91
5+00	62.4	66.8	66.8	66.8	
4+00	56.6	59.6	58.6	58.5	60.5
4+00	12.2	13.2	14.2	16.0	18.0
4+00	435	405	350	322	295
4+00	59.5	55.8	58.0	55.5	57.5
4+00	15.0	13.0	14.8	13.1	12.3
4+00	176	125	160	131	115
4+00	107	100	81	75	58
4+00	49	29			
4+00	68.8	64.2	63.7	61.5	59.7
4+00	0.0	4.6	3.5	7.0	9.5
4+00	350	450	340	305	265
4+00	59.3	59.9	49.3	64.3	59.1
4+00	135	15.0	19.5	14.5	11.7
4+00	232	22.0	21.0	192	180
4+00	146	131	120	94	70
4+00	60	37			
4+00	68.5	60.5	59.6	57.7	49.5
4+00	0.0	2.8	5.0	11.5	19.0
4+00	259	238	215	190	174
4+00	164	141	126	120	96
4+00	81				
4+00	68.5	61.6	61.6	61.6	68.8
4+00	0.0	7.2	7.2	0.0	
4+00	164	141	131	110	

Edge of WATER

68.8 - Water Level Gauge Height 1:30 PM

SOUNDINGS AT LOWER OTAY RES.

4/16/51

71

RIGHT

BASE
LINE

8+00

8+00

25.9	26.7	61.7	65.1	61.8	51.6
33.0	22.5	7.5	3.7	7.0	17.2
490	450	380	350	325	285

8+00

8+00

62.5	34.3	30.8	27.4	24.7	51.7	57.8	66.8	68.8
26.0	34.5	38.0	31.4	24.5	17.5	11.0	2.0	0.0
255	270	205	180	135	150	130	100	93

7+00

7+00

68.8	10.5	68.5	65.8	67.0
00	+20	00	3.0	5.8
478	423	398	371	326

island

7+00

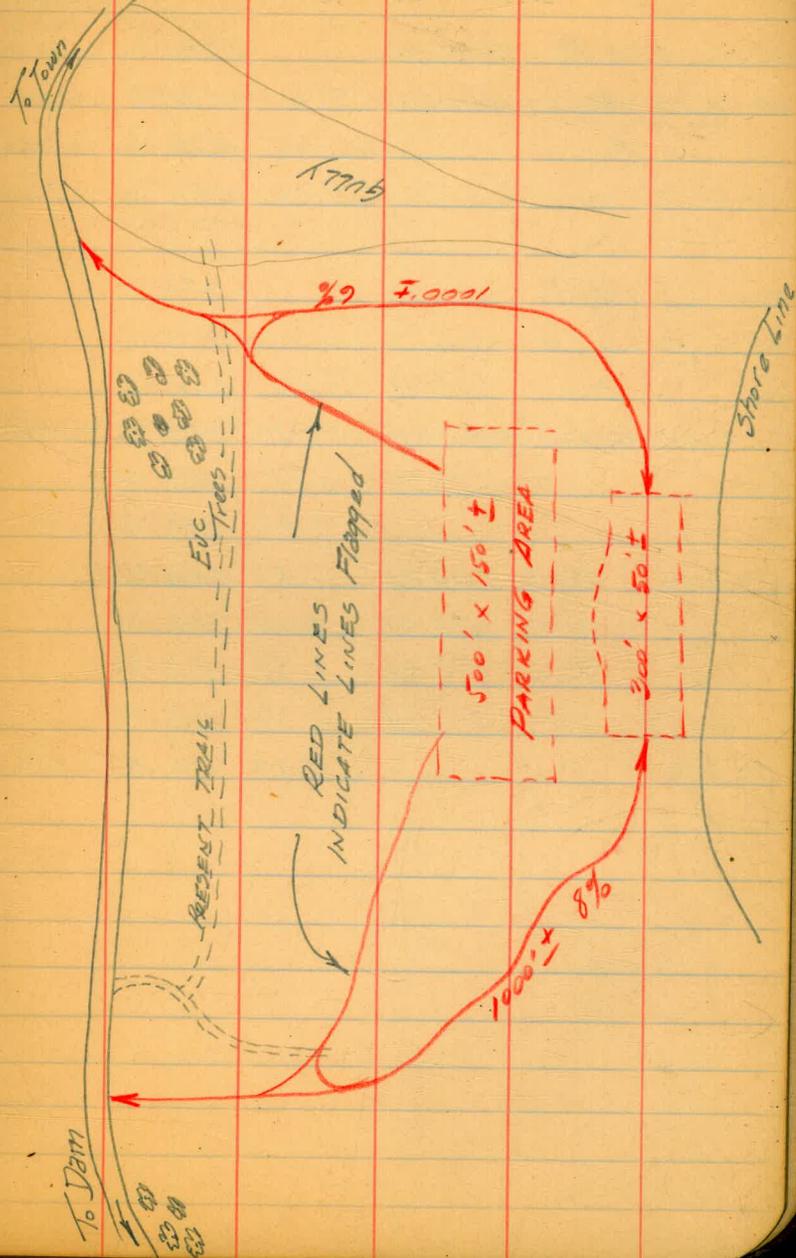
7+00

58.8	57.7	24.8	20.8	25.3	25.8	45.7	24.4	61.6	68.8
10.0	11.5	17.0	28.0	23.5	33.0	23.5	20.0	7.2	0.0
36	296	271	241	251	216	176	171	149	129

PROPOSED RECREATION AREA
Entrance Roads Flagged out.

April 17 1951
Beatty
Leonard
& Nelson

72



OTAY RESEVOIR

ELEV. OF SPILLWAY OF DAM
 SET ELEV. ON ALARM POLE LINE

B.M.	0.52	498.54		498.02
P	0.87	494.20	5.21	493.33
			8.44	485.76
			5.94	488.26
TBM	0.52	498.54		498.02
P	2.16	496.19	4.51	494.03
P	3.01	489.88	9.32	486.87
+ GAUGE on OUTLET TOWER	121.52	348.36	= 347.2	
P	10.60	493.73	6.75	483.13
			7.97	485.76
SET TBM.	13.03	504.88	1.88	491.85
	8.05	512.87	0.06	504.82
	5.70	518.22	0.35	512.52
	1.82	508.25	11.79	506.43
CK B.M.			10.29	497.96 = 498.02

JAN. 10, 1952 - MILD

73.

ELEV. PAINTED ON ANGLE IRON
 Top Angle Iron on Gauging Sta. Top Otay Dam.

Note: This same B.M. is shown 496.81 ELEV.
 on 19.69.
 Crest of Spillway of Dam.
 Crest of Spillway of Overflow Spillway System
 NEasterly of Dam.

498.02
 496.81
 1.21

GAUGE HEIGHT ELEV. = Diff. 1.16

NAIL IN Euc. Tree.

OTAY FILTER PLANT
CROSS-SECTIONS OF CONC DRIVEWAY &
CUT SLOPES AROUND FILTRATION BLDG

BM	4.19	406.29		402.10	pg. 52. 444
	2.61	406.45	4.61	401.68	= 401.82
SET. BM	13.13	413.71	5.87	400.58	= 400.6

0+00 (SEE SKETCH PAGE 78)

0+10

0+18 (Begin Conc DRIVEWAY)

0+25 (SE. Cor BLDG)

0+35

0+45

0+55

0+65

0+75

0+85

0+95

1+05

413.71

OCT. 16 1953

BENTLEY
MARTELL
ALEXANDER

74

NOTE: BM. 403.52, pg. 69, OBLITERATED!

AIR VALVE #1
Floor @ Door Filtration Bldg. See Map. File No 3237
CHIS. □ NE CHLORINE LOADING PLATFORM.

401.11 402.21 403.78
12.6 11.5 10.0
2 10 30
oil oil oil (ALL ON oiled SURF.)

Edge
BLDG.

401.5 402.2 402.9 406.2 406.6
12.2 11.5 10.8 7.5 7.1
2 10 11 16 26
oil Edge oil

401.74 401.88 401.1 408.2
11.97 11.33 6.6 5.5
2 10 17 27
Conc Conc

402.05 401.89 401.7 404.1 407.8 408.6 409.4
11.66 11.82 12.0 9.6 5.9 5.1 4.3
2 Conc Conc 11 12 18 21 30

402.40 402.25 402.2 404.2 409.2 410.5 411.5
11.31 11.46 11.5 9.5 4.5 3.2 2.2
2 Conc Conc 10 10.6 12 20 25 30

402.55 402.36 402.5 404.8 409.8 408.4 412.2 412.7
11.16 11.35 11.2 8.9 3.9 2.1 3.3 1.5 1.0
2 Conc Conc 10 12 13 19 21 23 26 30

402.64 402.45 402.9 404.6 412.3 412.3 411.5 411.5 413.2
11.07 11.26 10.8 9.1 1.2 1.2 2.2 2.2 0.5
2 Conc Conc 10 12 13 22 23 24 26 30

402.77 402.54 402.7 404.3 413.6 413.6 412.4 412.4 412.1
10.94 11.17 11.0 9.4 0.1 +0.7 1.3 1.3 +1.6
2 Conc Conc 10 12 13 23 27 29 30 39

402.87 402.64 402.3 402.7 405.9 413.5 412.3 411.2
10.84 11.07 11.4 11.0 7.8 0.2 +1.4 +2.5
2 Conc Conc 10 10 12 14 24 30 35

402.94 402.70 402.4 402.9 403.8 405.9 413.7 412.9 412.7
10.80 11.01 11.3 10.8 7.9 7.8 0.0 +0.8 +1.0
2 Conc Conc 10 10 12 13 14 25 27 29.5
Beam Rubble diam
ditch 0+80.3
E 31E RT

403.02 402.8 402.5 402.9 404.2 412.6 413.3 412.6 413.7 413.7
10.69 10.9 11.2 10.8 9.5 1.1 +0.4 +1.0 0.0 0.0
2 Conc Conc 10 10 12 14 24 27 30 30.5 31.5
11.3 411.2 409.7
+0.2 +2.5 +2.0
35 39 40

403.06 402.89 402.6 402.7 413.2 413.1 412.2 412.0 411.0 410.0
10.65 10.82 11.1 11.0 0.5 +0.6 +1.5 4.0 2.0 7
2 Conc Conc 10 10 12 25 28 30.5 31 32 +2.7 +3.7
35 39

These sections
extend out
see FB 885 pg. 3

OTAY FILTER PLANT
X-SECTS Cont'd.

213.71 ✓

1+15

1+25

1+29

1+35

1+45

1+57³⁰ BK

1+57² (45°)

1+57² AH

1+57² AH

1+63^e BK

1+63^e A.H.

1+73^e

1+84³ BK

NE COR BLDG

4.77

214.67 ✓

3.81

209.90 ✓

NE COR DET
WALL, NIV Side
Plant.

10/16/53

75

10.50 c Conc	10.72 c Conc	11.0 10	10.7 12	8.4 16	3.8 20.5	3.2 22	+1.0 27.2	+1.4 29	+2.4 31	+1.4 31.5	+1.4 32.5	+1.2 34	+3.3 34	+5.0 41
10.41 c Conc	10.62 c Conc	11.0 10	10.7 12	9.6 13	6.2 17	+1.5 27	+2.5 31	+3.5 31.5	+2.2 32	+2.2 32.5	+4.4 34	+6.2 34		
10.38 c Conc	10.58 c Conc	10.9 10	10.9 12	6.5 16	0.6 23	+1.5 27	+2.9 31.5	+2.6 31.5	+3.4 32	+3.0 33	+3.0 33	+5.0 34.5	+6.5 43	
10.32 c Conc	10.61 c Conc	10.4 13	8.9 15.5	1.4 22	+1.5 26	+3.4 29	+4.1 31.5	+3.0 32	+3.0 33	+5.0 34.5	+7.3 34.5			
10.28 c Conc	10.55 c Conc	10.1 15	0.6 15.5	0.7 16	+2.6 20.5	+5.6 29.5	+3.9 32	+3.9 33	+6.4 34	+8.6 35				
10.08 c Conc	10.36 c Conc	10.0 16	2.1 17	+2.8 24	+5.7 24	+6.7 28	+5.2 32	+5.2 32.5	+9.0 37	+11.1 45				
10.08 c Conc	10.33 c Conc	10.1 16	3.6 17	+5.3 22	+9.6 30	+11.5 42								
10.08 c Conc	10.42 c Conc	3.83 18	+3.5 17	+3.5 19	+1.0 20	+1.0 23	+3.4 24	+5.9 30	+8.8 40					
10.08 c Conc	10.42 c Conc	3.83 18	+4.2 23	+2.0 24	+8.0 30	+8.7 40								
11.11 c Conc	11.32 c Conc	4.78 15.5	4.81 16.2	+3.3 24.2	+5.4 24.5	+6.4 29	+8.0 50							
11.11 c Conc	11.32 c Conc	4.78 15.5	4.81 16.2	+2.3 24.2	+5.4 24.5	+6.4 29	+8.0 50							
11.16 c Conc	11.33 c Conc	4.81 12	4.80 18.5	+2.26 19.7	+6.40 20.5	+8.25 24.5	+8.9 42.2	+8.0 50						
11.21 c Conc	11.41 c Conc	4.92 12.0	4.94 18.4	+2.23 19.7	+6.40 20.5	+8.25 24.5	+8.9 42.2	+8.0 50						

OTAY FILTER PLANT
X-SECTS Cont'd.

414.74

2+60

2+70

2+80

2+90

3+00

3+10

3+20

3+30

3+40

3+50

3+56.20

SET TP.

P

P

CK P

CK BM

SW. Cor. BLDG.
End Conc. Driveway Platform

		12.63	402.11
P	12.35	427.09	0.00
P	0.01	414.57	12.53
CK P	3.79	405.70	12.46
CK BM		5.32	200.58 = 200.58

10/20/53

77.

417.97 402.67 403.8 405.9 417.0 417.5 416.6 416.6 418.1 419.3
 11.77 12.07 10.9 8.8 10.1 9.62 10.5 10.5 8.95 7.8
 Conc Conc 14.8 15 28 31 31 32 32 30.

402.83 402.64 403.1 409.8 415.3 415.86 414.91 414.99 415.12 417.7
 11.91 12.10 11.6 9.7 11.8 11.23 12.18 12.1 11.87 9.6
 Conc Conc 15 14 15 27 30 30 31 33 30

402.78 402.59 402.6 404.6 404.4 414.1 414.59 413.28 413.39 414.3 415.3
 11.96 12.15 12.1 10.1 8.3 0.6 10.15 1.26 1.35 10.4 11.4
 Conc Conc 14 15 17 26 29.5 29.5 30.5 22.5 40

402.67 402.53 402.6 404.8 412.2 412.66 Conc Rubble d. 7.5 411.59 411.74 412.99 414.4
 12.07 12.21 12.1 9.9 2.5 2.89 3.15 3.00 1.75 0.3
 Conc Conc 15 12 13.5 22 28.5 28.5 29.5 31 40

402.62 402.41 402.4 403.9 416.6 410.2 410.8 409.8 410.0 411.4 412.9
 12.12 12.33 12.3 10.8 8.1 2.5 3.9 5.9 4.7 3.3 1.8
 Conc Conc 12 15 22 26 26 27 29 40

402.57 402.35 402.9 402.2 403.6 406.1 408.7 409.09 407.17 407.24 409.5 410.6
 12.17 12.39 12.8 12.5 11.1 8.6 6.0 5.65 7.57 7.40 5.2 4.1
 Conc Conc 10 12 13 17.5 21 25.5 25.5 26.5 28.5 40

402.43 402.23 401.8 402.0 402.0 406.7 407.31 405.01 405.22 407.79 408.9
 12.31 12.51 12.9 12.7 12.7 8.0 7.43 9.73 9.52 6.95 5.8
 Conc Conc 10 12 13 19 24.5 24.5 25.5 27.5 40

402.41 402.10 401.7 402.1 405.2 405.29 403.01 403.2 405.7 407.4
 12.33 12.64 13.0 12.6 7.5 7.25 11.73 11.5 9.0 7.3
 Conc Conc 10 12 19 23.5 23.5 24.5 26.5 40

402.35 402.09 401.7 402.2 409.0 403.56 401.91 402.04 404.12 406.2
 12.39 12.65 13.0 12.5 10.7 11.15 12.83 13.26 12.62 8.3
 Conc Conc 10 12.5 15.5 20.5 22.5 23.5 25.5 40

402.26 402.09 401.8 401.4 402.1 403.2 404.3
 12.45 12.65 12.9 13.3 12.6 11.5 10.4
 Conc Conc 10 10.5 12.5 21 33

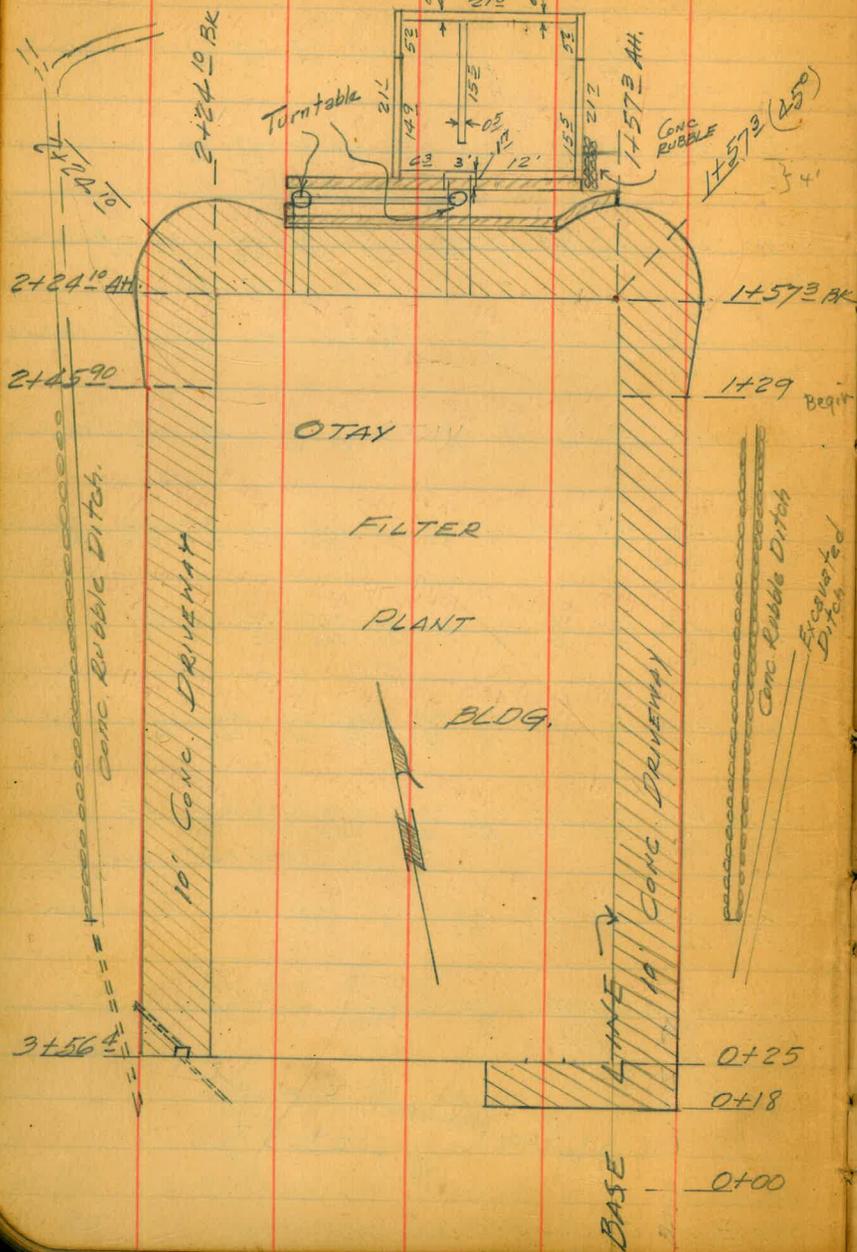
402.20 402.16 402.09 403.5 404.2
 12.54 12.58 12.65 11.2 10.5
 Conc Conc 10 30.

142 WIDE DRIVEWAY BLDG

Notes Reduced by JF-1
10-23-53

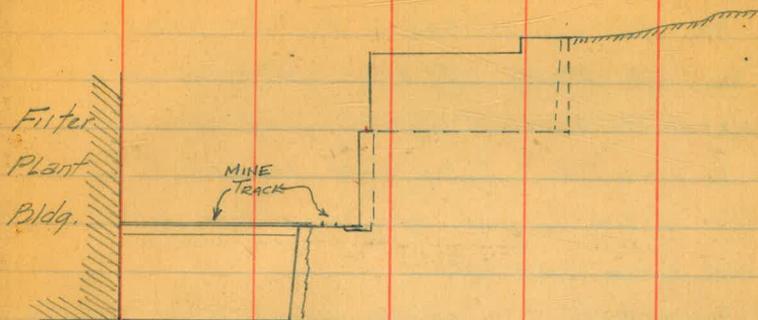
CHIS □ NE Cor. CHLORINE LOADING PLATFORM

OTAY FILTER PLANT
SKETCH OF X-SECTS



10/20/53

78.



SECTION VIEW 1457³ AH to 2424¹⁰ BK

SEE ALSO FB 885
FOR CONTINUED FIELD NOTES
IN THIS AREA

New blow-off 750+45 Elev. Gr. 326.00

look up plans of blow-off involve's
740+00 to Second Crossing of Crowder
at Summit take new levels
open ditch to get old pipe line elev.
each side 740+00

ascertain the whereabouts of notes on them

take detail topog. Sta 716+00

ascertain grade of drainage canal

Sta. 7280 at trestle lower present grade 2' ±

Question: is 2' C" coverage absolute in emergency
cases outside of city streets

Cross-section from Woodman past Ridgeway

ascertain advisability of specific bench work
to be done by Contr. on his own exp.
or by classification of unit bid {at own expense}

Note: check on Mag. Course 630+ to 632+

in closing notes bear. N 14° 35' 30" W for this

see about deeded road Sta. 851+00 re-drain valve

DIRECTIONS FOR USE OF TABLES

TABLE No. 1

Distance of slope stake from side or shoulder
stake for any width roadway, slope 1:1 to 1:
If ground is nearly level, the cut or fill at side
stake is located by the double entry method in
left column and top row. The number in body

of table in same row and column gives distance
from side stake to slope stake. If ground is not

level, the distance from side stake to slope stake, lower table by this
amount if cut, elevate if fill. Add this amount

to cut or fill and distance in table. Set up
rod at this point and line of sight should cut

target.
necessarily.

IMPROVED TABLES AND INFORMATION

TABLE No. 2

To find Tangent and External for curve of
any other degree divide by degree of curve and
add correction found in column of corrections.

Degree of curve with a given T may be found
by dividing tangent (or external), opposite T by
given tangent (or external).

The distance from a point on the tangent to
the curve is very nearly the square of the tangent
length divided by twice the radius.

6432 508.79

DIRECTIONS FOR USE OF TABLES

TABLE No. 1.

Distance of slope stake from side or shoulder stake for any width roadway, slope $1\frac{1}{2}$ to 1. If ground is nearly level, the cut or fill at side stake is located by the double entry method in left column and top row. The number in body of table in same row and column gives distance from side stake to slope stake. If ground is not level estimate the difference in elevation between the side stake and slope stake, lower target by this amount if cut, elevate if fill. Add this amount to cut or fill and find distance in table. Set up rod at this point, and line of sight should cut target. If it does not make the slight adjustment necessary.

TABLE No. 9.

To find Tangent and External for curve of any other degree, divide by degree of curve and add correction found in column of corrections.

Degree of curve with a given I may be found by dividing tangent, (or external), opposite I by given tangent, (or external).

The distance from a point on the tangent to the curve is very nearly the square of the tangent length divided by twice the radius.

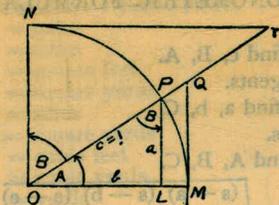


TABLE II
TRIGONOMETRIC FORMULÆ.

$$\angle A = \angle MOP \quad \angle B = \angle PON = \angle OPL$$

$$R = OB = c = 1$$

$$\sin A = \frac{a}{c} = \frac{a}{1} = a = \cos B = LP$$

$$\cos A = \frac{b}{c} = \frac{b}{1} = b = \sin B = OL$$

$$\tan A = \frac{a}{b} = \frac{MQ}{OM} = \frac{MQ}{1} = MQ = \cot B = MQ$$

$$\cot A = \frac{NT}{ON} = \frac{NT}{1} = NT = \tan B = NT$$

$$\sec A = \frac{OQ}{OM} = \frac{OQ}{1} = OQ = \csc B = OQ$$

$$\csc A = \frac{OT}{ON} = \frac{OT}{1} = OT = \sec B = OT$$

$$\text{vers } A = \frac{LM}{OP} = LM = \text{covers } B$$

$$\text{covers } A = \frac{OP - LP}{OP} = OP - LP = \text{vers } B$$

$$\text{exsec } A = PQ = \text{coexsec } B$$

$$\text{coexsec } A = PT = \text{exsec } B$$

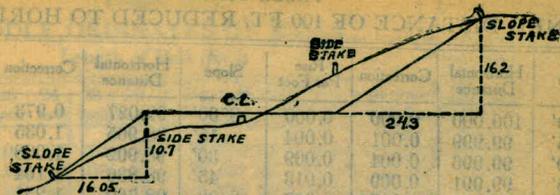
$$\sin \frac{1}{2} A = \sqrt{\frac{1 - \cos A}{2}} \quad \cos \frac{1}{2} A = \sqrt{\frac{1 + \cos A}{2}}$$

$$\sin 2A = 2 \sin A \cos A \quad \cos 2A = \cos^2 A - \sin^2 A$$

$$\text{Law of Sines} \quad \frac{\sin A}{a} = \frac{\sin B}{B} = \frac{\sin C}{C}$$

$$\text{Law of Cosines} \quad c^2 = a^2 + b^2 - 2ab \cos C$$

$$\text{Law of Tangents} \quad \frac{a+b}{a-b} = \frac{\tan \frac{1}{2}(A+B)}{\tan \frac{1}{2}(A-B)}$$



DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING.

SLOPE 1 1/2 TO 1. ROADWAY OF ANY WIDTH.

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	0.00	0.15	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	0
1	1.50	1.65	1.80	1.95	2.10	2.25	2.40	2.55	2.70	2.85	1
2	3.00	3.15	3.30	3.45	3.60	3.75	3.90	4.05	4.20	4.35	2
3	4.50	4.65	4.80	4.95	5.10	5.25	5.40	5.55	5.70	5.85	3
4	6.00	6.15	6.30	6.45	6.60	6.75	6.90	7.05	7.20	7.35	4
5	7.50	7.65	7.80	7.95	8.10	8.25	8.40	8.55	8.70	8.85	5
6	9.00	9.15	9.30	9.45	9.60	9.75	9.90	10.05	10.20	10.35	6
7	10.50	10.65	10.80	10.95	11.10	11.25	11.40	11.55	11.70	11.85	7
8	12.00	12.15	12.30	12.45	12.60	12.75	12.90	13.05	13.20	13.35	8
9	13.50	13.65	13.80	13.95	14.10	14.25	14.40	14.55	14.70	14.85	9
10	15.00	15.15	15.30	15.45	15.60	15.75	15.90	16.05	16.20	16.35	10
11	16.50	16.65	16.80	16.95	17.10	17.25	17.40	17.55	17.70	17.85	11
12	18.00	18.15	18.30	18.45	18.60	18.75	18.90	19.05	19.20	19.35	12
13	19.50	19.65	19.80	19.95	20.10	20.25	20.40	20.55	20.70	20.85	13
14	21.00	21.15	21.30	21.45	21.60	21.75	21.90	22.05	22.20	22.35	14
15	22.50	22.65	22.80	22.95	23.10	23.25	23.40	23.55	23.70	23.85	15
16	24.00	24.15	24.30	24.45	24.60	24.75	24.90	25.05	25.20	25.35	16
17	25.50	25.65	25.80	25.95	26.10	26.25	26.40	26.55	26.70	26.85	17
18	27.00	27.15	27.30	27.45	27.60	27.75	27.90	28.05	28.20	28.35	18
19	28.50	28.65	28.80	28.95	29.10	29.25	29.40	29.55	29.70	29.85	19
20	30.00	30.15	30.30	30.45	30.60	30.75	30.90	31.05	31.20	31.35	20
21	31.50	31.65	31.80	31.95	32.10	32.25	32.40	32.55	32.70	32.85	21
22	33.00	33.15	33.30	33.45	33.60	33.75	33.90	34.05	34.20	34.35	22
23	34.50	34.65	34.80	34.95	35.10	35.25	35.40	35.55	35.70	35.85	23
24	36.00	36.15	36.30	36.45	36.60	36.75	36.90	37.05	37.20	37.35	24
25	37.50	37.65	37.80	37.95	38.10	38.25	38.40	38.55	38.70	38.85	25
26	39.00	39.15	39.30	39.45	39.60	39.75	39.90	40.05	40.20	40.35	26
27	40.50	40.65	40.80	40.95	41.10	41.25	41.40	41.55	41.70	41.85	27
28	42.00	42.15	42.30	42.45	42.60	42.75	42.90	43.05	43.20	43.35	28
29	43.50	43.65	43.80	43.95	44.10	44.25	44.40	44.55	44.70	44.85	29
30	45.00	45.15	45.30	45.45	45.60	45.75	45.90	46.05	46.20	46.35	30
31	46.50	46.65	46.80	46.95	47.10	47.25	47.40	47.55	47.70	47.85	31
32	48.00	48.15	48.30	48.45	48.60	48.75	48.90	49.05	49.20	49.35	32
33	49.50	49.65	49.80	49.95	50.10	50.25	50.40	50.55	50.70	50.85	33
34	51.00	51.15	51.30	51.45	51.60	51.75	51.90	52.05	52.20	52.35	34
35	52.50	52.65	52.80	52.95	53.10	53.25	53.40	53.55	53.70	53.85	35
36	54.00	54.15	54.30	54.45	54.60	54.75	54.90	55.05	55.20	55.35	36
37	55.50	55.65	55.80	55.95	56.10	56.25	56.40	56.55	56.70	56.85	37
38	57.00	57.15	57.30	57.45	57.60	57.75	57.90	58.05	58.20	58.35	38
39	58.50	58.65	58.80	58.95	59.10	59.25	59.40	59.55	59.70	59.85	39
40	60.00	60.15	60.30	60.45	60.60	60.75	60.90	61.05	61.20	61.35	40
41	61.50	61.65	61.80	61.95	62.10	62.25	62.40	62.55	62.70	62.85	41
42	63.00	63.15	63.30	63.45	63.60	63.75	63.90	64.05	64.20	64.35	42
43	64.50	64.65	64.80	64.95	65.10	65.25	65.40	65.55	65.70	65.85	43
44	66.00	66.15	66.30	66.45	66.60	66.75	66.90	67.05	67.20	67.35	44
45	67.50	67.65	67.80	67.95	68.10	68.25	68.40	68.55	68.70	68.85	45
46	69.00	69.15	69.30	69.45	69.60	69.75	69.90	70.05	70.20	70.35	46
47	70.50	70.65	70.80	70.95	71.10	71.25	71.40	71.55	71.70	71.85	47
48	72.00	72.15	72.30	72.45	72.60	72.75	72.90	73.05	73.20	73.35	48
49	73.50	73.65	73.80	73.95	74.10	74.25	74.40	74.55	74.70	74.85	49
50	75.00	75.15	75.30	75.45	75.60	75.75	75.90	76.05	76.20	76.35	50

Computed by L. Leland Locke.

594
- 591

- 844 on DAM

+ 0.87

- 5.21

+ 0.52

498.02
.52

498.54
5.21

493.33
87

N. 494.20

8.44

Spilldam. 485.76

496.81
.05

- 451

496.86
5.21

+ 2.16

491.65
87

492.52
8.44

484.08

C 1
0 7
0-20 17
0-40 8
1-0 5
1-20 4
1-40 3
2-0 2
2-20 2
2-40 2
3-0 1
3-20 1
3-40 1
4-0 1
4-20 1
4-40 1
5
6
7
To find

400.46
 399.79
 0.67

33.76
 11.6
 326.0

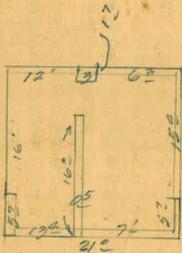
1481.25
 697.77
 834.8

Import 24/1/40
 2 to 6 to come

98183
 332
 196326
 294489
 196328
 22773816

228
 337
 5125

8-90 out
 7-125 out



12.08
 502
 17.10

91.90
 21.20
 112.60
 90.30
 152.80
 54.80
 207.77

91.90

112.60
 92.70
 29.90

71508.4

91.90
 10.70
 90.70

51

51381
 11.65
 502.14

51363
 502
 508.61

497.07
 496.81
 0.26

529

100.0

49681
 524
 502.05
 22.02
 501.83

10.99

10.90
 1.9
 10.80

501.83
 .29

512.63
 12
 512.71
 1.70
 510.81
 502
 508.79

501.83
 10.78
 512.61
 52
 512.09
 170
 512.79
 502
 508.77

10.99
 12
 10.87

501.83
 10.78

512.68
 52

512.98
 170

513.68
 502

508.81

508.79

10.99
 12
 10.78