

691

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

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

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

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

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Kiowa Dr. Pipe Line Elev 128
 * Location
 Alice

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1.

Alvarado Regulating
X-Sects. (cont'd) El Monte Res. Site

	523.82		
5+90			
10N	7.2	516.6	
20N	8.6	515.2	
30N	10.0	513.8	
40N	10.7	513.1	
50N	12.2	511.6	
60N	SEE PAGE 32		
6+00			
10N	7.7	516.1	
20N	8.9	514.9	
30N	10.3	513.5	
40N	11.8	512.0	
50N	SEE PAGE 32	12.8	511.0
6+10			
10N	8.2	515.6	
20N	9.5	514.3	
30N	10.6	513.2	
40N	12.1	511.7	
50N	SEE PAGE 32	13.9	509.9

10-15-45 KING - HUNLEY
LEONARD - KLINGER

2.

See BK 690

	523.82		
6+20			
10N	7.8	516.0	
20N	9.5	514.3	
30N	10.8	513.0	
40N	12.4	511.4	
50N	SEE PAGE 32	14.1	509.7
6+30			
10N	8.7	515.1	
20N	9.2	514.6	
30N	10.8	513.0	
40N	12.4	511.4	
50N	SEE PAGE 33	14.0	509.8
6+40			
10N	7.6	516.2	
20N	10.1	513.7	
30N	11.7	512.1	
40N	SEE PAGE 33	13.0	510.8
6+50			
10N	8.0	515.8	
20N	9.7	514.1	
30N	12.0	511.8	

	523.82		
6+50			
40N SEE PAGE 33	12.9	510.9	
6+60			
10N	8.8	515.0	
20N	10.1	513.7	
30N	11.5	512.3	
40N SEE PAGE 33	13.2	510.6	
6+70			
10N	8.6	515.2	
20N	8.8	515.0	
30N	12.0	511.8	
40N SEE PAGE 34	13.8	510.0	
6+80			
10N	8.4	515.4	
20N	10.0	513.8	
30N	12.0	511.8	
40N SEE PAGE 34	13.4	510.4	
6+90			
10N	8.9	514.9	
20N	10.3	513.5	
30N	12.3	511.5	
40N SEE PAGE 34	13.8	510.0	
7+00			
10N	8.8	515.0	

	523.82		
7+00			
20N	11.1	512.7	
30N SEE PAGE 34	12.4	511.4	
7+10			
10N	8.2	515.6	
20N	10.0	513.8	
30N SEE PAGE 35	11.6	512.2	
7+20			
10N	8.7	515.1	
20N	9.7	514.1	
30N	10.6	513.2	
40N SEE PAGE 35	13.0	510.8	
7+30			
10N	8.3	515.5	
20N	9.8	514.0	
30N	10.5	513.3	
40N SEE PAGE 35	11.8	512.0	
7+40			
10N	7.6	516.2	
20N	8.5	515.3	
30N	9.9	513.9	
40N	11.2	512.6	
50N SEE PAGE 36	12.0	511.8	

5

523.82

T.P.	9.14	532.61	0.35	523.47	
T.P.	1.06	526.65	7.02	525.59	525.59 T.P.#3
T.P.	2.79	517.52	11.92	514.73	

0+00					
30 N			3.2	514.3	
40 N			4.6	512.9	
50 N			6.4	511.1	
60 N			8.3	509.2	
70 N			9.6	507.9	
80 N			11.0	506.5	
90 N			12.3	505.2	
100 N			13.5	504.0	
110 N			14.2	503.3	
120 N	SEE PAGE 63		16.3	501.2	
0+10					
40 N			4.0	513.5	
50 N			6.1	511.4	
60 N			7.9	509.6	

6

517.52

0+10					
70 N			9.2	508.3	
80 N			10.1	507.4	
90 N			11.7	505.8	
100 N			13.0	504.5	
110 N			14.1	503.4	
120 N	SEE PAGE 63		16.4	501.1	
0+20					
40 N			3.8	513.7	
50 N			5.2	512.3	
60 N			7.3	510.2	
70 N			8.9	508.6	
80 N			10.2	507.3	
90 N			11.0	506.5	
100 N			12.2	505.3	
110 N			13.8	503.7	
120 N	SEE PAGE 63		15.9	501.6	
0+30					
40 N			2.5	515.0	
50 N			4.5	513.0	
60 N			6.7	510.8	

7.

		517.52	
0+30			
70 N		8.3	509.2
80 N		9.2	508.3
90 N		9.8	507.7
100 N		10.9	506.6
110 N		12.2	505.3
120 N	SEE PAGE 64	15.1	502.4
0+40			
40 N		1.5	516.0
50 N		3.2	514.3
60 N		5.7	511.8
70 N		7.8	509.7
80 N		8.5	509.0
90 N		9.2	508.3
100 N		10.1	507.4
110 N		12.4	505.1
120 N		14.3	503.2
130 N	SEE PAGE 64	16.0	501.5
0+50			
50 N		2.2	515.3
60 N		4.8	512.7

8.

		517.52	
0+50			
70 N		7.0	510.5
80 N		8.0	509.5
90 N		8.6	508.9
100 N		10.0	507.5
110 N		12.3	505.2
120 N		13.7	503.8
130 N	SEE PAGE 65	15.7	501.8
0+60			
60 N		4.0	513.5
70 N		5.6	511.9
80 N		7.1	510.4
90 N		7.9	509.6
100 N		9.8	507.7
110 N		11.8	505.7
120 N		13.5	504.0
130 N		15.0	502.5
140 N	SEE PAGE 65	16.5	501.0
0+70			
60 N		3.4	514.1
70 N		5.3	512.2

9.

517.52

0+70			
80N		6.7	510.8
90N		7.9	509.6
100N		9.4	508.1
110N		11.3	506.2
120N		12.3	505.2
130N		14.1	503.4
140N	SEE PAGE 65	15.7	501.8
0+80			
60N		2.4	515.1
70N		4.3	513.2
80N		5.9	511.6
90N		7.5	510.0
100N		8.8	508.7
110N		10.2	507.3
120N		12.0	505.5
130N		13.7	503.8
140N	SEE PAGE 66	15.2	502.3
0+90			
60N		2.2	515.3
70N		3.6	513.9

10.

517.52

0+90			
80N		4.9	512.6
90N		6.7	510.8
100N		7.9	509.6
110N		8.9	508.6
120N		11.0	506.5
130N		13.6	503.9
140N		14.7	502.8
150N	SEE PAGE 66	16.0	501.5
1+00			
60N		1.4	516.1
70N		3.4	514.1
80N		4.3	513.2
90N		5.8	511.7
100N		7.4	510.1
110N		8.8	508.7
120N		10.5	507.0
130N		12.8	504.7
140N	SEE PAGE 66	15.2	502.3
1+10			
60N		0.6	516.9

11			
1+10	517.52		
70N	2.4	515.1	
80N	3.9	513.6	
90N	5.6	511.9	
100N	7.0	510.5	
110N	9.2	508.3	
120N	11.1	506.4	
130N	13.0	504.5	
140N	SEE PAGE 65	14.2	503.3
142° 60N	0.1	517.4	
70N	2.1	515.4	
80N	3.9	513.6	
90N	5.3	512.2	N. W CORNER
100N	6.9	510.6	
110N	8.6	508.9	
120N	10.8	506.7	
130N	12.3	505.2	
140N	14.4	503.1	
150N	SEE PAGE 67	16.2	501.2

12.			
1+30	517.52		
60N	0.2	517.3	
70N	2.0	515.5	
80N	3.5	514.0	
90N	4.8	512.7	
100N	5.8	511.7	
110N	7.7	509.8	
120N	10.0	507.5	
130N	12.2	505.3	
140N	14.0	503.5	
150N	SEE PAGE 67	16.3	501.2
140			
80N	3.2	514.3	
90N	4.3	513.2	
100N	5.8	511.7	
110N	7.5	510.0	
120N	9.8	507.7	
130N	11.8	505.7	
140N	12.9	504.6	
150N	SEE PAGE 67	15.2	502.3

13.

517.52

1430			
80N	2.5	515.0	
90N	4.1	513.4	
100N	5.8	511.7	
110N	7.4	510.1	
120N	9.6	507.9	
130N	11.6	505.9	
140N	13.1	504.4	
150N	15.4	502.1	SEE PAGE 68
1460			
90N	3.5	514.0	
100N	5.2	512.3	
110N	6.9	510.6	
120N	8.5	509.0	
130N	10.8	506.7	
140N	13.1	504.4	
150N	15.1	502.4	SEE PAGE 68
1470			
90N	3.3	514.2	
100N	5.0	512.5	
110N	5.6	511.9	

14.

517.52

1470			
120N	8.0	509.5	
130N	10.3	507.2	
140N	12.7	504.8	
150N	15.2	502.3	SEE PAGE 68
1480			
90N	3.1	514.4	
100N	4.6	512.9	
110N	6.4	511.1	
120N	8.1	509.4	
130N	9.7	507.8	
140N	12.2	505.3	
150N	14.5	503.0	SEE PAGE 68
1490			
90N	2.8	514.7	
100N	4.5	513.0	
110N	5.9	511.6	
120N	7.2	510.3	
130N	8.4	509.1	
140N	12.0	505.5	
150N	14.3	503.2	SEE PAGE 69

15	517.52		
2700			
90N		2.5	515.0
100N		4.2	513.3
110N		5.4	512.1
120N		6.8	510.7
130N		8.3	509.2
140N		11.1	506.4
150N		13.7	503.8
160N		15.5	502.0
170N	SEE PAGE 69	16.3	501.2
2+10			
90N		2.2	515.3
100N		4.0	513.5
110N		5.4	512.1
120N		6.6	510.9
130N		8.5	509.0
140N		11.1	506.4
150N		13.5	504.0
160N		14.2	503.3
170N	SEE PAGE 69	16.2	501.3

2+20	517.52		16
100N		3.0	514.5
110N		4.8	512.7
120N		6.4	511.1
130N		8.0	509.5
140N		10.3	507.2
150N		12.4	505.1
160N		14.5	503.0
170N	SEE PAGE 69	16.4	501.1
2+30			
100N		3.0	514.5
110N		4.2	513.3
120N		5.7	511.8
130N		7.7	509.8
140N		10.0	507.5
150N		12.0	505.5
160N		13.8	503.7
170N	SEE PAGE 70	16.3	501.2
2+40			
100N		2.7	514.8
110N		4.1	513.4

17	517.52		
2+40			
120N		6.0	511.5
130N		7.8	509.7
140N		9.3	508.2
150N		11.3	506.2
160N		13.2	504.3
170N SEE PAGE 70		15.5	502.0
2+50			
100N		1.8	515.7
110N		3.3	514.2
120N		5.4	512.1
130N		7.5	510.0
140N		9.4	508.1
150N		10.9	506.6
160N		12.7	504.8
170N SEE PAGE 70		15.0	502.5
2+60			
110N		2.1	515.4
130N		4.4	513.1
130N		7.1	510.4
140N		8.9	508.6

	517.52		18
2+60			
150N		10.4	507.1
160N		12.8	504.7
170N		14.1	503.4
180N SEE PAGE 71		17.2	500.3
2+70			
110N		2.2	515.3
120N		4.2	513.3
130N		6.8	510.7
140N		8.5	509.0
150N		10.1	507.4
160N		12.4	505.1
170N		14.1	503.4
180N SEE PAGE 71		16.4	501.1
T.P.	5.33	518.04	4.81 512.71
2+80			
100N		3.1	514.9
110N		4.7	513.3
120N		5.9	512.1

19	518.04		
2780			
130 N		6.7	511.3
140 N		8.7	509.3
150 N		10.4	507.6
160 N		11.9	506.1
170 N		12.3	504.7
180 N	SEE PAGE 71	16.0	502.0
2790			
100 N		3.1	514.9
110 N		5.0	513.0
120 N		6.4	511.6
130 N		8.3	509.7
140 N		9.7	508.3
150 N		11.1	506.9
160 N		11.7	506.3
170 N		12.2	504.8
180 N	SEE PAGE 72	15.6	502.4
3100			
100 N		3.0	515.0
110 N		4.7	513.3
120 N		5.8	512.2

20	518.04		
3100			
130 N		7.7	510.3
140 N		9.1	508.9
150 N		11.4	506.6
160 N		12.2	505.8
170 N		13.2	504.8
180 N	SEE PAGE 72	15.6	502.4
3110			
100 N		3.2	514.8
110 N		4.3	513.7
120 N		5.8	512.2
130 N		7.6	510.4
140 N		9.2	508.8
150 N		11.1	506.9
160 N		12.7	505.3
170 N		13.7	504.3
180 N	SEE PAGE 72	15.8	502.2
3120			
110 N		4.4	513.6
120 N		6.2	511.8
130 N		7.3	510.7

21	578.04		
3+20			
140N		9.1	508.9 ✓
150N		11.0	507.0
160N		12.8	505.2
170N		14.7	503.3
180N	SEE PAGE 73	15.3	502.7
3+30			
110N		4.4	513.6
120N		6.1	511.9
130N		7.6	510.4
140N		8.9	509.1
150N		10.7	507.3
160N		12.8	505.2 ✓
170N		14.4	503.6
180N	SEE PAGE 73	15.4	502.6
3+40			
100N		2.9	515.1
110N		4.4	513.6
120N		6.1	511.9
130N		7.6	510.4
140N		8.9	509.1

37+0	578.04		29
150N		10.9	507.1
160N		12.9	505.1
170N		14.5	503.5 ✓
180N	SEE PAGE 73	16.4	501.6
3+50			
100N		3.1	514.9
110N		5.0	513.0
120N		5.9	512.1
130N		7.9	510.1
140N		9.1	508.9
150N		11.1	506.9
160N		13.1	504.9
170N		14.8	503.2
180N	SEE PAGE 74	16.5	501.5 ✓
3+60			
100N		3.4	514.6
110N		4.8	513.2
120N		7.0	511.0
130N		8.0	510.0
140N		9.3	508.7

23

3+60	518.04		
150N		11.1	506.9
160N		12.7	505.3
170N		15.0	503.0
180N	SEE PAGE 74	16.8	501.2
3+70			
100N		3.7	514.3
110N		4.5	513.5
120N		6.6	511.4
130N		8.1	509.9
140N		9.8	508.2
150N		11.5	506.5
160N		13.1	504.9
170N		15.4	502.6
180N	SEE PAGE 74	17.2	500.8
3+80			
90N		2.6	515.4
100N		4.9	513.1
110N		4.9	513.1
120N		7.0	511.0
130N		8.3	509.7

24

3+80	518.04		
140N		10.1	507.9
150N		11.8	506.2
160N		13.5	504.5
170N	SEE PAGE 40	16.0	502.0
3+90			
90N		2.0	515.0
100N		4.0	514.0
110N		5.4	512.6
120N		7.1	510.9
130N		8.7	509.3
140N		10.7	507.3
150N		12.3	505.7
160N		15.0	503.0
170N	SEE PAGE 40	17.2	500.8
4+00			
90N		2.5	515.5
100N		4.5	513.5
110N		6.0	512.0
120N		7.8	510.2
130N		9.6	508.4

25.

4+00	518.04		
140N		11.3	506.7
150N		13.6	504.4
160N SEE PAGE 41		16.2	501.8
4+10			
90N		3.8	514.2
100N		5.0	513.0
110N		6.4	511.6
120N		7.9	510.1
130N		10.0	508.0
140N		12.6	505.4
150N		14.6	503.4
160N SEE PAGE 41		17.3	500.7
4+20			
80N		2.8	515.2
90N		3.8	514.2
100N		5.4	512.6
110N		7.0	511.0
120N		7.3	510.7
120N		10.3	507.7
140N		12.3	505.7

26.

4+20	518.04		
150N SEE PAGE 42		15.1	502.9
4+30			
80N		2.8	515.2
90N		4.6	513.4
100N		6.0	512.0
110N		7.5	510.5
120N		7.7	510.3
130N		11.0	507.0
140N		12.2	505.8
150N SEE PAGE 42		16.7	501.3
4+40			
80N		3.5	514.5
90N		5.2	512.8
100N		6.3	511.7
110N		8.0	510.0
120N		9.1	508.9
130N		11.4	506.6
140N		14.2	503.8
150N SEE PAGE 43		17.4	500.6
4+50			
80N		4.2	513.8

27

4+50	518.04		
90N		5.3	512.7
100N		6.7	511.3
110N		8.4	509.6
120N		10.4	507.6
130N		12.2	505.8
140N		14.6	503.4
150N	SEE PAGE 43	17.0	501.0
4+60			
70N		3.4	514.6
80N		4.6	513.4
90N		6.2	511.8
100N		7.5	510.5
110N		9.0	509.0
120N		10.6	507.4
130N		12.8	505.2
140N		15.1	502.9
150N	SEE PAGE 43	16.7	501.3
4+70			
70		2.7	514.3
80		5.0	513.0

28

4+70	518.04		
90N		6.6	511.4
100N		8.0	510.0
110N		9.5	508.5
120N		11.3	506.7
130N		13.8	504.2
140N	SEE PAGE 44	15.0	503.0
4+80			
100N		8.8	509.2
110N		10.3	507.7
120N		11.9	506.1
130N		13.7	504.3
140N	SEE PAGE 44	15.8	502.2
4+90			
100N		9.2	508.8
110N		11.0	507.0
120N		12.4	505.6
130N		14.3	503.7
140N	SEE PAGE 44	16.5	501.5
5+00			
100N		9.1	508.9
110N		10.1	507.9

29.

5400	518.04		
120 N		12.5	505.5
130 N		14.2	503.8
140 N	SEE PAGE 45	16.7	501.3
5710			
100 N		9.7	508.3
110 N		11.5	506.5
120 N		13.2	504.8
130 N	SEE PAGE 45	14.7	503.3
5720			
90 N		8.9	509.1
100 N		10.4	507.6
110 N		12.2	505.8
120 N		14.1	503.9
130 N	SEE PAGE 45	15.5	502.5
5730			
80		8.3	509.7
90		10.1	507.9
100		11.5	506.5
110		13.1	504.9
120		14.4	503.6
130 N	SEE PAGE 46	16.0	502.0

30

5440	518.04		
70 N		7.1	510.9
80 N		8.7	509.3
90 N		10.3	507.7
100 N		12.0	506.0
110 N		13.4	504.6
120 N		14.7	503.3
130 N	SEE PAGE 46	16.7	501.3
5450			
70 N		7.5	510.5
80 N		9.5	508.5
90 N		10.5	507.5
100 N		12.4	505.6
110 N		13.5	504.5
120 N		14.5	503.5
130 N	SEE PAGE 46	16.0	502.0
5460			
60 N		7.1	510.9 *
70 N		8.3	509.7
80 N		10.2	507.8
90 N		11.3	506.7

* DUPLICATION. SEE P. 124, BOOK 690

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5+60	518.04		
100N		13.2	504.8
110N		14.5	503.5
120N		14.4	503.6
130N	SEE PAGE 47	16.0	502.0
5+70			*
60N		7.0	511.0
70N		8.8	509.7
80N		10.3	507.7
90N		12.4	505.6
100N		13.7	504.3
110N		15.1	502.9
120N		15.5	502.5
130N	SEE PAGE 47	16.0	502.0
5+80			
60N		7.5	510.5
70N		9.1	508.9
80N		10.7	507.3
90N		12.1	505.9
100N		13.8	504.2
110N	SEE PAGE 47	15.7	502.3

* DUPLICATION, SEE P. 124, BOOK 690.

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5+90	518.04		
70N		9.5	508.5
80N		11.0	507.0
90N		12.6	505.4
100N		14.1	503.9
110N	SEE PAGE 48	14.7	503.3
6+00			
60N		8.5	509.5
70N		9.9	508.1
80N		11.3	506.7
90N		12.9	505.1
100N		14.0	504.0
110N	SEE PAGE 48	16.7	501.3
6+10			
60N		9.1	508.9
70N		10.7	507.3
80N		12.2	505.8
90N		13.6	504.4
100N	SEE PAGE 48	15.2	502.8
6+20			
60N		9.1	508.9
70N		11.2	506.8

	518.04		
6+20			
80N		13.3	504.7
90N		14.9	503.1
100N	SEE PAGE 48	17.0	501.0
6+30			
60N		10.2	507.8
70N		12.0	506.0
80N		13.6	504.4
90N	SEE PAGE 49	15.3	502.7
6+40			
50N		7.9	510.1
60N		10.8	507.2
70N		12.2	505.8
80N		14.1	503.9
90N	SEE PAGE 49	16.6	501.4
6+50			
50N		9.4	508.6
60N		11.3	506.7
70N		13.1	504.9
80N		14.4	503.6
90N	SEE PAGE 49	16.6	501.4
6+60			
50N		9.1	508.9

	518.04		
6+60			
60N		11.7	506.3
70N		13.6	504.4
80N	SEE PAGE 49	16.0	502.0
6+70			
50N		9.6	508.4
60N		11.5	506.5
70N		14.1	503.9
80N	SEE PAGE 50	16.2	501.8
6+80			
50N		9.7	508.3
60N		12.0	506.0
70N		13.9	504.1
80N	SEE PAGE 50	16.9	501.1
6+90			
50N		10.0	508.0
60N		12.3	505.7
70N		14.4	503.6
80N	SEE PAGE 50	16.8	501.2
7+00			
40N		8.4	509.6
50N		10.6	507.4
60N		12.7	505.3

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518.04

7+00			
70N	SEE PAGE 51	15.4	502.6
7+10 40N		9.5	508.5
50N		10.9	507.1
60N		13.1	504.9
70N	SEE PAGE 52	14.4	503.6
7+20 50N		9.5	508.5
60N		11.6	506.4
70N		13.4	504.6
80N		14.2	503.8
90N		15.0	503.0
100N	SEE PAGE 52	15.9	502.1
7+30 50N		8.3	509.7
60N		9.5	508.5
70N		11.0	507.0
80N		11.7	506.3
90N		12.9	505.1
100N		13.2	504.8
110N		13.9	504.1

36.

518.04

7+30			
120N		14.3	503.7
130N		14.9	503.1
140N		15.0	503.0
150N		15.6	502.4
160N		15.6	502.4
170N		15.5	502.5
180N		15.7	502.3
190N		16.2	501.8
200N		16.5	501.5
210N	END	16.9	501.1
7+40 60N		7.9	510.1
70N		8.2	509.8
80N		9.1	508.9
90N		10.6	507.4
100N		11.0	507.0
110N		11.4	506.6
120N		11.8	506.2
130N		12.2	505.8

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	518.04		
740			
140 N		12.5	505.5
150 N		12.7	505.3
160 N		13.5	504.5
170 N		13.4	504.6
180 N		14.0	504.0
190 N		14.2	503.8
200 N		15.1	502.9
210 N END		15.1	502.9
7450 60 N		5.8	512.2
70 N		6.9	511.1
80 N		7.3	510.7
90 N		8.1	509.9
100 N		9.1	508.9
110 N		9.0	509.0
120 N		9.7	508.3
130 N		10.3	507.7
140 N		10.4	507.6
150 N		11.6	506.4

38

	518.04		
7450			
160 N		12.0	506.0
170 N		12.4	505.6
180 N		12.7	505.3
190 N		13.4	504.6
200 N		13.8	504.2
210 N END		14.5	503.5
7460 60 N		4.2	513.8
70 N		5.3	512.7
80 N		6.0	512.0
90 N		6.4	511.6
100 N		7.0	511.0
110 N		7.9	510.1
120 N		8.1	509.9
130 N		8.6	509.4
140 N		9.3	508.7
150 N		10.1	507.9
160 N		10.3	507.7
170 N		11.2	506.8

39

7+60	518.04		
180N		11.5	506.5
190N		12.1	505.9
200N		12.2	505.8
210N END		12.9	505.1
7+70			
110N		5.8	512.2
120N		6.3	511.7
130N		7.7	510.3
140N		8.3	509.7
150N		8.5	509.5
160N		8.9	509.1
170N		9.5	508.5
180N		9.9	508.1
190N		10.5	507.5
200N END		11.1	506.9
7+80			
110N		4.0	514.0
120N		4.4	513.6
130N		5.1	512.9
140N		5.8	512.2

40.

7+80	518.04		
150N		7.2	510.8
160N		8.0	510.0
170N		8.3	509.7
180N END		8.7	509.3
T.P.	0.07	505.64	12.47
3+80			
180N		5.5	500.1
190N		6.7	498.9
200N		8.6	497.0
210N		10.8	494.8
220N		11.3	494.3
230N		13.7	491.9
240N END		16.0	489.6
3+90			
180N		6.4	499.2
190N		7.3	498.3
200N		9.0	496.6
210N		10.6	495.0

41

505.64

3190			
220N	12.8	492.8	
230N	13.4	492.2	
240N END	15.8	489.8	
4100 170N	5.8	499.8	
180N	6.8	498.8	
190N	7.9	497.7	
200N	9.3	496.3	
210N	10.8	494.8	
220N	13.2	492.4	
230N	13.3	492.3	
240N END	15.6	490.0	
4110 170N	6.1	499.5	
180N	6.9	498.7	
190N	7.5	498.1	
200N	8.6	497.0	
210N	11.3	494.3	
220N	13.7	491.9	
230N	14.6	491.0	

42

505.64

4110			
240N END	16.3	489.3	
4120 160N	4.9	500.7	
170N	6.7	498.9	
180N	7.5	498.1	
190N	8.3	497.3	
200N	10.2	495.4	
210N	12.0	493.6	
220N	13.7	491.9	
230N	15.4	490.2	
240N END	16.3	489.3	
4130 160N	5.5	500.1	
170N	6.3	499.3	
180N	7.2	498.4	
190N	9.1	496.5	
200N	10.5	495.1	
210N	13.0	492.6	
220N	14.2	491.4	
230N	15.7	489.9	

43

4+30	505.64		
240N ENO		18.0	487.6
4+40 160N		5.6	500.0
170N		6.0	499.6
180N		7.6	498.0
190N		9.0	496.6
200N		11.3	494.3
210N		13.0	492.6
220N SEE PAGE 53		14.7	490.9
4+50 160N		5.6	500.0
170N		7.2	498.4
180N		7.4	498.2
190N		9.7	495.9
200N		10.9	494.7
210N		13.2	492.4
220N SEE PAGE 53		14.0	491.6
4+60 160N		6.5	499.1
170N		7.0	498.6
180N		8.1	497.5

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4+60	505.64		
190N		9.6	496.0
200N		11.9	493.7
210N		13.6	492.0
220N SEE PAGE 53		15.1	490.5
4+70 150N		4.5	501.1
160N		6.0	499.6
170N		7.8	497.8
180N		9.6	496.0
190N		10.8	494.8
200N SEE PAGE 54		12.1	493.5
4+80 150N		4.9	500.7
160N		6.5	499.1
170N		8.1	497.5
180N		10.1	495.5
190N		11.4	494.2
200N SEE PAGE 54		12.8	492.8
4+90 150		5.4	500.2
160		6.7	498.9

45

4790	505.64		
170N		8.7	496.9
180N		10.3	495.3
190N		11.2	494.4
200N	SEE PAGE 54	12.1	492.5
5100			
150N		5.0	500.6
160N		7.2	498.4
170N		8.8	496.8
180N		10.4	495.2
190N		11.8	493.8
200N	SEE PAGE 54	13.0	492.6
5110			
140N		4.6	501.0
150N		5.8	499.8
160N		7.1	498.5
170N		9.0	496.6
180N		10.0	495.6
190N	SEE PAGE 54	12.3	493.3
5120			
140N		4.7	500.9
150N		6.2	499.4

46

5120	505.64		
160N		7.7	497.9
170N		9.1	496.5
180N		10.9	494.7
190N	SEE PAGE 55	12.7	492.9
5130			
140N		5.2	500.4
150N		6.8	498.8
160N		8.2	497.4
170N		10.0	495.6
180N		11.7	493.9
190N	SEE PAGE 55	13.9	491.7
5140			
140N		5.3	500.3
150N		7.1	498.5
160N		8.7	496.9
170N		10.4	495.2
180N		12.0	493.6
190N	SEE PAGE 55	14.1	491.5
5150			
140N		5.9	499.7
150N		7.7	497.9

47

5+50	505.64		
160 N		9.6	496.0
170 N		11.3	494.3
180 N	SEE PAGE 56	12.7	492.9
5+60			
140 N		6.3	499.3
150 N		8.3	497.3
160 N		10.2	495.4
170 N		11.6	494.0
180 N	SEE PAGE 56	14.0	491.6
5+70			
140 N		7.0	498.6
150 N		9.1	496.5
160 N		11.1	494.5
170 N	SEE PAGE 56	12.1	493.5
5+80			
120 N		4.8	500.8
130 N		4.6	501.0
140 N		8.1	497.5
150 N		9.8	495.8
160 N		11.2	494.4
170 N	SEE PAGE 57	13.2	492.4

48

5+90	505.64		
120 N		4.5	501.1
130 N		6.9	498.7
140 N		8.6	497.0
150 N		10.7	494.9
160 N	SEE PAGE 57	12.5	493.1
6+00			
120 N		5.7	499.9
130 N		7.6	498.0
140 N		9.8	495.8
150 N		11.7	493.9
160 N	SEE PAGE 58	13.6	492.0
6+10			
110 N		5.0	500.6
120 N		6.8	498.8
130 N		7.9	497.7
140 N		10.1	495.5
150 N	SEE PAGE 58	12.5	493.1
6+20			
110 N		6.4	499.2
120 N		7.7	497.9
130 N		10.2	495.4

49

6+20	505.64		
140N		11.5	494.1
150N	SEE PAGE 58	13.2	492.4
6+30			
100N		5.2	500.4
110N		7.2	498.4
120N		9.2	496.4
130N		10.9	494.7
140N		12.2	493.4
150N	SEE PAGE 59	14.9	490.7
6+40			
100N		5.9	499.7
110N		8.3	497.3
120N		10.4	495.2
130N		12.4	493.2
140N	SEE PAGE 59	14.0	491.6
6+50			
100N		7.4	498.2
110N		9.7	495.9
120N		12.0	493.6
130N	SEE PAGE 60	13.5	492.1
6+60			
90N		6.3	499.3

50

6+60	505.64		
100N		8.4	497.2
110N		10.8	494.8
120N	SEE PAGE 60	12.7	492.9
6+70			
90N		7.2	498.4
100N		8.4	497.2
110N	SEE PAGE 61	12.1	493.5
6+80			
90N		6.8	498.8
100N		9.1	496.5
110N	SEE PAGE 61	13.1	492.5
6+90			
90N		7.0	498.6
100N		9.4	496.2
110N		11.3	494.3
120N		11.3	494.3
130N		9.7	495.9
140N		10.3	495.3
150N		11.1	494.5
160N		11.5	494.1
170N		11.4	494.2

51

6790	505.64		
180N		12.3	493.3
190N		12.0	493.6
200N		12.3	493.3
210N		12.5	493.1
220N END		12.3	493.3
7+00			
80N		5.4	500.2
90N		8.4	497.2
100N		7.9	497.7
110N		7.4	498.2
120N		8.1	497.5
130N		8.7	496.9
140N		9.7	495.9
150N		9.5	496.1
160N		9.5	496.1
170N		8.6	497.0
180N		9.6	496.0
190N		10.4	495.2
200N		10.7	494.9

52

7+00	505.64		
210N		10.0	495.6
220N END		10.3	495.3
7+10			
80N		4.2	501.4
90N		5.0	500.6
100N		6.8	498.8
110N		6.4	499.2
120N		6.6	499.0
130N		6.6	499.0
140N		6.9	498.7
150N		7.3	498.3
160N		7.3	498.3
170N		7.1	498.5
180N		7.3	498.3
190N		7.7	497.9
200N		8.4	497.2
210N END		8.2	497.4
7+20			
110N		3.6	502.0
120N		4.1	501.5

7+20	505.64		
130N		4.4	501.2
140N		4.5	501.1
150N		5.0	500.6
160N		5.1	500.5
170N		5.6	500.0
180N		5.8	499.8
190N		6.0	499.6
200N		6.4	499.2
210N	END	6.4	499.2
T.P	0.23	^{493.49} 493.29	[✓] 12.38 493.26
4+40			
230N		4.4	489.1
240N	END	6.2	487.3
4+50			
230N		4.3	489.2
240N	END	6.6	486.9
4+60			
230N		4.5	489.0
240N	END	7.0	486.5

4+70	493.49		
210N		1.8	491.7
220N		3.6	489.9
230N		5.6	487.9
240N	END	7.4	486.1
4+80			
210N		2.5	491.0
220N		4.0	489.5
230N		5.7	487.8
240N	END	7.4	486.1
4+90			
210N		2.7	490.8
220N		4.1	489.4
230N		6.1	487.4
240N	END	8.4	485.1
5+00			
210N		3.1	490.4
220N		4.7	488.8
230N		7.0	486.5
240N	END	8.4	485.1
5+10			
190N		0.1	
5+10			
200N		1.1	492.4

55

	493.49		
5110			
210N		3.5	490.0
220N		5.4	488.1
230N		7.4	486.1
240N END		9.2	484.3
5120			
190N		0.5	
5120			
200N		2.6	490.9
210N		2.6	490.9
220N		4.5	489.0
230N		8.4	485.1
240N END		9.0	484.5
5130			
200N		3.8	489.7
210N		5.5	488.0
220N		5.2	488.3
230N		7.5	486.0
240N END		9.4	484.1
5140			
200N		3.9	489.6
210N		5.6	487.9
220N		6.4	487.1

56

	493.49		
5140			
230N		8.1	485.4
240N END		10.1	483.4
5150			
190N		2.7	490.8
200N		4.7	488.8
210N		6.5	487.0
220N		7.5	486.0
230N		9.0	484.5
240N END		10.3	483.2
5160			
190N		3.2	490.3
200N		5.7	487.8
210N		7.6	485.9
220N		8.4	485.1
230N		10.3	483.2
240N END		11.2	482.3
5170			
180N		2.8	490.7
190N		4.5	489.0
200N		6.5	487.0
210N		8.8	484.7

57

5770	493.49		
220N		9.2	484.3
230N		11.2	482.3
240N END		12.7	480.8
5+80 180N		2.3	490.2
190N		5.5	488.0
200N		7.4	486.1
210N		9.2	484.3
220N		10.0	483.5
230N		12.1	481.4
240N END		14.0	479.5
5+90 170N		2.3	491.2
180N		4.5	489.0
190N		7.2	486.3
200N		8.2	485.3
210N		9.9	483.6
220N		10.8	482.7
230N		12.7	480.8
240N END		14.5	479.0

52

6+00	493.49		
170N		3.1	490.4
180N		5.3	488.2
190N		7.2	486.3
200N		8.9	484.6
210N		10.0	483.5
220N		11.6	481.9
230N		13.7	479.8
240N END		15.0	478.5
6+10 160N		2.6	490.9
170N		4.2	489.3
180N		6.2	487.3
190N		7.6	485.9
200N		10.3	483.2
210N		10.4	483.1
220N		12.0	481.5
230N		13.5	480.0
240N END		18.2	475.3
6+20 160N		4.0	489.5

59.

6+20	493.49		
170N	5.2	488.3	
180N	7.0	486.5	
190N	8.7	484.8	
200N	11.4	482.1	
210N	11.9	481.6	
220N	12.1	481.4	
230N END	14.3	479.2	
6+30			
160N	5.2	488.3	
170N	6.5	487.0	
180N	9.5	484.0	
190N	10.9	482.6	
200N	11.8	481.7	
210N	13.6	479.9	
220N END	15.0	478.5	
6+40			
150N	4.1	489.4	
160N	6.1	487.4	
170N	7.7	485.8	
180N	9.6	483.9	

60.

6+40	493.49		
190N	11.5	482.0	
200N	14.0	479.5	
210N	14.1	479.4	
220N END	14.5	479.0	
6+50			
140N	3.9	489.6	
150N	5.8	487.7	
160N	7.3	486.2	
170N	9.0	484.5	
180N	9.6	483.9	
190N	10.0	483.5	
200N	8.6	484.9	
210N	8.9	484.6	
220N END	8.4	485.1	
6+60			
130N	2.7	490.8	
140N	5.0	488.5	
150N	6.5	487.0	
160N	6.5	487.0	
170N	7.2	486.3	

61		493.49	
6+60			
180N	8.3	485.2	
190N	8.1	485.4	
200N	7.1	486.4	
210N	7.0	486.5	
220N	7.1	486.4	END
6+70			
120N	2.3	491.2	
130N	4.7	488.8	
140N	5.4	488.1	
150N	4.6	488.9	
160N	4.1	489.4	
170N	4.7	488.8	
180N	4.8	488.7	
190N	4.1	489.4	
200N	4.4	489.1	
210N	4.2	489.3	
220N	3.3	490.2	END
6+80			
120N	2.0	491.5	
130N	2.4	491.1	

62		493.49		
6+80				
140N	2.7	490.8		
150N	2.0	491.5		
160N	1.4	492.1		
170N	1.5	492.0		
180N	1.4	492.1		
190N	1.7	491.8		
200N	1.5	492.0		
210N	1.6	491.9		
220N	1.3	492.2	END	
T.P.	12.75	505.74	492.99	
		505.54	0.50	492.79
T.P.	12.97	518.52	505.55	
		518.32	0.19	505.35
T.P.	12.34	530.58	518.24	
		530.38	0.28	518.04
T.P. #3	1.01	525.56	5.02	525.59

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T.P. #3	1.08	526.67	✓	525.59
T.P.	0.33	514.66	✓	12.34 514.33
T.P.	1.75	503.83	✓	12.58 502.08
0+00				
130 N			4.0	499.8
140 N			4.9	498.9
150 N			7.6	496.2
160 N	End		10.2	493.6
0+10				
130 N			3.7	500.1
140 N			4.9	498.9
150 N			7.1	496.7
160 N	End		9.8	494.0
0+20				
130 N			3.3	500.5
140 N			4.7	499.1
150 N			6.8	497.0
160 N			8.9	494.9
170 N			10.9	492.9
180 N			12.9	490.9

King
Leonard
Klinger

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503.83

190 N			14.5	489.3
200 N	END		15.6	488.2
0+30				
130 N			2.9	500.9
140 N			3.9	499.9
150 N			6.0	497.8
160 N			7.9	495.9
170 N			10.4	493.4
180 N			12.5	491.3
190 N			14.1	489.7
200 N	END		15.8	488.0
0+40				
140 N			3.8	500.0
150 N			5.8	498.0
160 N			7.7	496.1
170 N			9.7	494.1
180 N			11.5	492.3
190 N			14.4	489.4
200 N	see Page 75		16.5	487.3
0+50				
140 N			3.5	500.3

65.		503.83	
0+50			
150N		5.1	498.7
160N		7.3	496.5
170N		9.6	494.2
180N		11.6	492.2
190N		14.3	489.5
200N	see page 75	16.3	487.5
0+60			
150N		4.6	499.2
160N		7.1	496.7
170N		8.7	495.1
180N		11.4	492.4
190N		13.2	490.6
200N	see page 75	16.8	487.0
0+70			
150N		3.8	500.0
160N		6.1	497.7
170N		7.9	495.9
180N		11.2	492.6
190N		13.5	490.3
200N	see page 75	16.3	487.5

66.		503.83	
0+80			
150N		3.1	500.7
160N		6.0	497.8
170N		6.4	497.4
180N		11.3	492.5
190N		13.3	490.5
200N	see page 76	16.0	487.8
0+90			
150N		6.0	497.8
170N		8.5	495.3
180N		11.0	492.8
190N		13.4	490.4
200N	see page 76	16.2	487.6
1+00			
150N		3.3	500.5
160N		5.7	498.1
170N		8.0	495.8
180N		10.7	493.1
190N		13.1	490.7
200N	see page 76	16.2	487.6
1+10			
150N		3.2	500.6

267

503.83

1+10			
160N		5.7	498.1
170N		7.7	496.1
180N		10.2	493.6
190N		12.4	491.4
200N	See page 76	15.9	487.9
1+20			
160N		5.5	498.3
170 N		6.8	497.0
180 N		9.5	494.3
190 N		12.9	490.9
200N	See page 76	15.5	488.3
1+30			
160N		4.8	499.0
170K		6.3	497.5
180 N		8.0	495.8
190 N		12.0	491.8
200 N	See page 77	15.3	488.5
1+40			
160N		4.7	499.1
170N		6.1	497.7
180N		7.8	496.0

68.

503.83

1+10			
190N		11.5	492.3
200N	See page 77	15.2	488.6
1+50			
160N		3.9	499.9
170N		6.0	497.8
180N		8.7	495.1
190N		12.0	491.8
200N	See page 77	15.3	488.5
1+60			
160N		3.4	500.4
170N		5.0	498.0
180N		8.8	495.0
190N		12.0	491.8
200 N	See page 77	15.0	488.8
1+70			
160N		2.6	501.2
170N		5.1	498.7
180N		7.8	496.0
190N		11.1	492.7
200N	See page 78	14.6	489.2
1+80			
160N		2.7	501.1

69		503.83	
1780			
170N		4.7	499.1
180N		7.5	496.3
190N		10.6	493.2
200N	See page 78	14.4	489.4
1790			
160N		2.0	501.8
170N		4.1	499.7
180N		6.3	497.5
190N		9.6	494.2
200N	See page 78	13.6	490.2
2100			
180N		5.9	497.9
190N		9.4	494.4
200N		13.1	490.7
210N	See page 78	16.4	487.4
210			
180N		5.3	498.5
190N		8.7	495.1
200N		11.9	491.9
210N	See page 79	15.6	488.2
2120			
180N		4.8	499.0

70		503.83	
2120			
190N		7.6	496.2
200N		11.0	492.8
210N		14.6	489.2
220N	See page 79	17.4	486.4
2130			
180N		5.1	498.7
190N		7.3	496.5
200N		9.7	494.1
210N		13.2	490.6
220N	See page 79	16.5	487.3
2140			
180N		4.8	499.0
190N		7.0	496.8
200N		8.8	495.0
210N		11.9	491.9
220N	See page 79	15.0	488.8
2150			
180N		4.7	499.1
190N		6.8	497.0
200N		8.6	495.2
210N		11.2	492.6

71		503.83		
2+50				
220N			13.9	489.9
230N	END		16.5	487.3
2+60				
190N			5.9	497.9
200N			7.7	496.1
210N			10.2	493.6
220N			13.3	490.5
230N	END		16.4	487.4
T.P.	7.61	502.04 ✓	9.40	494.43 ✓
2+70				
190N			3.3	498.7
200N			5.3	496.7
210N			7.5	494.5
220N			10.1	491.9
230N	END		14.3	487.7
2+80				
190N			2.7	499.3
200N			5.0	497.0
210N			7.6	494.4

72		502.04		
2+80				
220N			10.0	492.0
230N	END		13.2	488.8
2+90				
190N			2.0	500.0
200N			4.2	497.8
210N			7.1	494.9
220N			9.7	492.3
230N	END		12.9	489.1
3+00				
190N			1.6	500.4
200N			3.6	498.4
210N			6.9	495.1
220N			9.4	492.6
230N			12.5	489.5
240N	END		15.0	487.0
3+10				
190N			1.5	500.5
200N			4.1	497.9
210N			7.0	495.0
220N			9.2	492.8
230N			12.3	489.7

73

		502.04		
3710				
240N	End		16.5	485.5
3720				
190N			1.6	500.4
200N			4.1	497.9
210N			7.6	494.4
220N			9.1	492.9
230N			11.4	490.6
240N	End		13.6	488.4
3730				
190N			1.2	500.8
200N			3.2	498.8
210N			5.6	496.4
220N			8.7	493.3
230N			11.1	490.9
240N	End		13.6	488.4
3740				
190N			2.4	499.6
200N			3.2	498.8
210N			5.6	496.4
220N			9.8	492.2
230N			12.5	489.5

74

		502.04		
3740				
240N	End		15.0	487.0
3750				
190N			0.8	501.2
200N			3.4	498.6
210N			5.3	496.7
220N			7.9	494.1
230N			10.7	491.3
240N	End		13.2	488.8
3760				
190N			2.1	499.9
200N			3.4	498.6
210N			5.4	496.6
220N			7.8	494.2
230N			10.1	491.9
240N	End		12.5	489.5
3770				
190N			3.5	498.5
200N			4.7	497.3
210N			5.6	496.4
220N			7.4	494.6
230N			10.5	491.5

75

3+70	502.04		
240N End		12.5	489.5
T.P.	2.01 491.12	12.93	489.11
0+40			
210N		5.8	485.3
220N End		10.0	481.1
0+50			
210N		7.1	484.0
220N		10.6	480.5
230N		11.8	479.3
240N End		14.4	476.7
0+60			
210N		7.7	483.4
220N		10.5	480.6
230N		12.7	478.4
240N see 79		14.7	476.4
0+70			
210N		7.3	483.8
220N		10.4	480.7
230N		12.7	478.4
240N see 80		15.6	475.5

76

0+80	491.12		
210N		7.2	483.9
220N		10.2	480.9
230N		13.6	477.5
240N see 80		15.9	475.2
0+90			
210N		7.1	484.0
220N		9.4	481.7
230N		13.2	477.9
240N see 80		16.6	474.5
1+00			
210N		6.1	485.0
220N		9.3	481.8
230N		13.4	477.7
240N see 80		16.3	474.8
1+10			
210N		6.2	484.9
220N		9.8	481.3
230N		13.9	477.2
240N see 80		16.0	475.1
1+20			
210N		6.2	484.9
220N		9.8	481.3

77

	491.12		
1720			
230N		13.8	477.3
240N	See p 80	16.2	474.9
1730			
210N		5.9	485.2
220N		9.7	481.4
230N		13.8	477.3
240N	See p 81	16.9	474.2
1740			
210N		5.7	485.4
220N		9.7	481.4
230N		13.4	477.7
240N	See p 81	16.5	474.6
1750			
210N		5.0	486.1
220N		8.9	482.2
230N		12.7	478.4
240N	See p 81	15.6	475.5
1760			
210N		5.1	486.0
220N		8.4	482.7
230N		12.1	479.0
240N	See p 81	15.0	476.1

78

	491.12		
1770			
210N		4.3	486.8
220N		7.9	483.2
230N		11.0	480.1
240N	See p 81	14.5	476.6
1780			
210N		4.3	486.8
220N		6.7	484.4
230N		10.0	481.1
240N		13.7	477.4
250N		16.4	474.7
260N	END	19.5	471.6
1790			
210N		3.9	487.2
220N		6.2	484.9
230N		9.1	482.0
240N		13.0	478.1
250N		16.0	475.1
260N	END	18.7	472.4
2700			
220N		5.5	485.6
230N		8.1	483.0

79

2+00		491.12		
240N			11.9	479.2
250N	END		15.6	475.5
2+10				
220N			4.9	486.2
230N			7.7	483.4
240N			11.2	479.9
250N	END		14.7	476.4
2+20				
230N			6.7	484.4
240N	END		10.3	480.8
2+30				
230N			6.0	485.1
240N	END		9.2	481.9
2+40				
230N			5.4	485.7
240N	END		8.1	483.0
T.P.	0.47	479.22	12.37	478.75
0+60				
250N			6.9	472.3
260N	END		10.5	468.7

80

0+70		479.22		
250N			6.9	472.3
260N	END		10.7	468.5
0+80				
250N			5.7	473.5
260N			10.4	468.8
0+90				
250N			5.4	473.8
260N			10.1	469.1
270N	END		15.1	464.1
1+00				
250N			6.5	472.7
260N			9.9	469.3
270N			16.3	462.9
280N	END		19.7	459.5
1+10				
250N			6.6	472.6
260N			10.1	469.1
270N			15.9	463.3
280N	END		19.6	459.6
1+20				
250N			7.1	472.1
260N			9.8	469.4
270N			15.9	463.3

81.		479.22 ^v		
1720				
280N	End		19.7	459.5
1730				
250N			7.9	471.3
260N			9.4	469.8
270N			14.2	465.0
280N	End		19.6	459.6
1740				
250N			7.5	471.6
260N			9.8	469.4
270N	End		11.3	467.9
1750				
250N			6.8	472.4
260N	End		9.4	469.8
1760				
250N			6.6	472.6
260N	End		8.9	470.3
1770				
250N			5.3	473.9
260N	End		8.3	470.9
T.P.	12.98	489.26 ^v 501.16	2.84	476.38 ^v 488.28
T.P.	12.87	502.02 ^v 513.92	0.11	489.15 ^v 501.05
T.P.	12.60	514.37 ^v 526.27	0.25	501.77 ^v 513.67

		514.37		
T.P.	12.78 ^v	526.07 ^v	0.48	513.89 ^v
8710				
40N			2.6	523.5
50N			3.6	522.5
60N			4.1	522.0
70N			4.0	522.1
80N			4.4	521.7
90N			6.1	520.0
100N			6.7	519.4
110N			7.1	519.0
120N			7.8	518.3
130N			8.5	517.6
140N			9.1	517.0
150N			9.6	516.5
160N	End		10.9	515.2
8720				
40N			2.6	523.5
50N			2.7	524.0
60N			3.6	522.5

83

526.07

70 N		1.4	524.7
80 N		2.0	524.1
90 N		4.9	521.2
100 N		5.3	520.8
110 N		5.8	520.3
120 N		6.4	519.7
130 N		7.0	519.1
140 N		7.9	518.2
150 N		8.4	517.7
160 N	End	9.2	516.9

T.P.	10.78	536.71 ✓	0.14	525.93 ✓
------	-------	----------	------	----------

B.M.			0.37	536.34 ✓	536.39 ✓
------	--	--	------	----------	----------

84

Top Murray Dam East End

TURNS CHECKED - J.K. 4.2.46

REDUCED & CHECKED - J.K. 4.5.46

85

SLOPE STAKES ALVARADO
REGULATING RESERVOIR.

	+		-	
	4.40	540.79		536.39
7+40 S			7.2	533.6
7+00 S			7.1	533.7
6+55 S			8.2	532.6
6+24 S			5.1	535.7
6+00 S			4.6	536.2
5+00 S			4.3	536.5
4+00 S			4.2	536.6
3+50 S			3.7	537.1
3+00 S			4.4	536.4
T.P	0.57	536.56	4.80	535.99
2+00 S			1.0	535.6
			2.5	534.1
0+00 W			5.9	530.7
0+15.5 W			6.6	530.0
0+88 W			13.7	522.9
T.P	0.68	524.24	13.00	523.56

8-7-46
Cool-overcastNelson T
Leonard
Eaton

86

B.M. East End of dam (city datum)

Note
(distances measured from
outside edge of 2nd drive way of
Reservoir)

C 3.6
3.6 out

C 3.7
3.7 out

C 2.6
2.6 out

C 5.7
5.7 out

C 6.2
6.2 out

C 6.5
6.5 out

C 6.6
6.6 out

C 7.1
7.1 out

C 6.4
6.4 out

C. 5.6
5.6 out

C 4.1
4.1 out

C 0.7
0.7 out

Grade
0.0

F 7.1
14.2 out

STATIONS ON ENDS
RUN FROM SOUTH TO NORTH

87		524.29		
1+12W			2.7	521.5
1+48W			7.7	516.5
T.P.	1.81	513.19	12.86	511.38
1+80W			3.8	509.4
1+20N			35.7	477.5
2+00N			24.7	488.5
T.P.	11.15	517.54	6.80	506.39
3+00N			15.0	502.5
4+00N			19.1	498.4
T.P.	0.88	505.43	12.99	504.55
5+00N				
6+00N				
6+31N				
7+00N			10.4	495.0
7+40N			1.1	504.3
T.P.	13.08	518.31	0.20	505.23
T.P.	12.30	530.35	0.26	518.05

	530	
	513.2	88
	16.8	
	7.3	
	2.1	
F 8.5		
17' out		
	530.0	
F 13.5		
27.0 out		
	517.5	
	12.5	
	530	
F 20.6		
41.2 out		
	505.4	
	24.6	
	12.5	
	4	
	530	
F 52.5		
105' out		
F 41.5		
83' out		
	518.3	
	11.7	
F 27.5		
55' out		
F 31.6		
63.2 out		
F 37.5		
75' out		
F 48.3		
96.6 out		
F 52.0		
104.0 out		
F 35.0		
70' out		
F 25.7		
51.4 out		

89

530.35[✓]

1+80 E

9.4

521.0

1+05E

4.3

526.1

T.P

7.26

537.18[✓]

0.43

529.92[✓]

0+49E

7.2

530.0

0+20E

5.6

531.6[✓]

T.P

8.47

538.68[✓]

6.97

530.21[✓]

CK B.M

2.31

536.37[✓] = 536.39

90

F 9.2

28.0 out

F 3.9

7.8 out

Grade

2 1.6

1.6 out

B.M ON DAM

TURNS CHECKED.

JK 8.8.46

91 ALIGNMENT MURRAY PIPE LINE
HOOK UP FROM REG. RIES.
STAKES MARKED "M"

P.O.T
4+85

4+83²³

NOTE:
THIS LOCATION NOT USED
SEE PAGE 111 THIS BOOK
NELSON
3-22-48

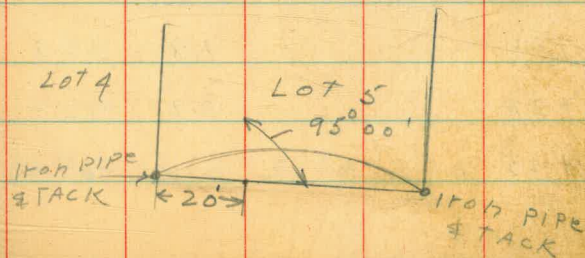
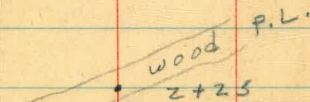
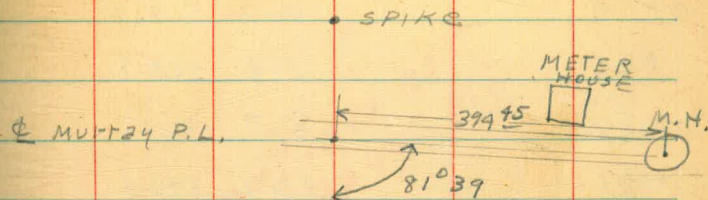
N 28° 45' W

0+00

8-23-46
clear-HoT

Nelson
Eaton
Leonard

92



93 Profile MURRAY HOOKUP
LINE (Alignment page 91)

	3.22	514.60		511.38
0+00		✓	0.2	514.4
+31			5.8	508.8
+50			8.7	505.9
+81			13.2	501.4
T.P.	0.89	503.23	12.26	502.34
1+00			5.0	498.2
T.P.	0.15	490.70	12.68	490.55
+50			3.3	487.4
+75			8.2	482.5
+85			11.8	478.9
T.P.	0.19	478.19	12.70	478.00
2+00			7.7	470.5
+10			11.0	467.2
T.P.	1.47	466.57	13.09	465.10
+21			1.8	464.8
+22			3.2	463.4
+25			1.6	465.0

8-23-46
clear-HOT

Nelson
EATON
Leonard 94

CITY DATUM
T.P. FROM levels of 8-7-46 pages

NOTE
THIS LOCATION NOT
USED see page III
THIS BOOK NELSON
3-22-48

TOP Wood stave PIPE line

95

466.57

2 +31		4.4	462.2
+35		8.4	458.2
+43		12.3	454.3
T.P.	2.36	456.47	12.46 454.11
+50		5.7	450.8
+57		11.5	445.0
T.P.	0.39	444.07	12.74 443.73
+77		5.4	438.7
+95		10.9	433.2
T.P.	0.55	431.99	12.63 431.44
3+00		1.8	430.2
T.P.	2.39	421.50	12.88 419.11
+35		12.0	409.5
+50		12.4	409.1
T.P.	5.08	414.34	12.24 409.26
+80		8.9	405.4
+90		11.4	402.9
4+00		10.8	403.5

96

ROCK 3+16 BLUE KEEL ON TOP

A Creek

97

414.34

A+06 9.3 405.0

+15 5.9 408.4

T.P. 8.51 422.40 0.45 413.89

T.P. 10.43 432.68 0.15 422.25

T.P. 9.47 441.32 0.83 431.85

T.P. 10.46 451.15 0.63 440.69

+69 1.6 449.6

+85 1.0 450.2

T.P. 10.78 459.46 2.47 448.68

CK B.M. 0.36 459.10 459.27

8-26-46
Clear. HotNelson
LEONARD
Eaton

98

TOP. M.H. between Meter House & d. 347

Turns checked 8.29.46 JK

Reduced $\frac{1}{2}$ checked 8.29.46 JK

99 stadia line along Fence
Line Lot 1 To Murray P.L.

	Rod INTERVAL	Vertical ANGLE	True dist	Elev
5+66 ⁷⁷	H.I. 1.48	-6° 47'	146.0	
	3.15	+4° 39'	313.0*	
	1.39	-28° 40'	103.0	
	* +18' To Pipe line			
5+10 516.7	7.00	7° 30'	146.0	490.5
	1.00	6° 40'	459.0	462.1
5+20	10.00	29° 34'	103	398.9

8-26-46
Clear Not

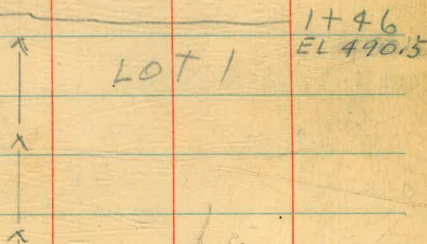
WELSH
EATON 100
DAVIS

Shoulder of road across creek

BASE of cliff

Murray pipe line 4+77
EL 462.9
Shoulder of road 4+59
EL 462.1

bottom of creek 3+56
EL 398.9



Hub @ 5+66⁷⁷
54' P.L. from
REG. RES.

PIPE LINE KIOWA & LAKE MURRAY BLVD
TO COLORADO AVE. STAKES MARKED "C"

SEE PAGE (106) FOR
FINAL ALIGNMENT

P.O.T
7+50

S80°00'W

P.I
6+63⁰³ Δ=4°20' R

S76°30'W

P.I
3+02⁰⁸ Δ=19°13' L

N85°15'W

P.I
0+69²⁵ Δ=15°58' R

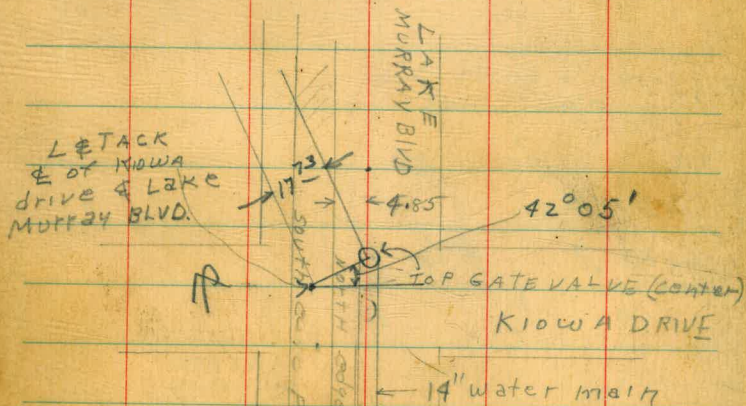
0+00

S78°45'W

0-10 = Kiowa Drive

8-27-46
Clear water

Nelson
Leonard
Eaton 101



12+05⁶⁵ END

P.I.
9+99⁰⁵

P.O.T
9+75⁵³

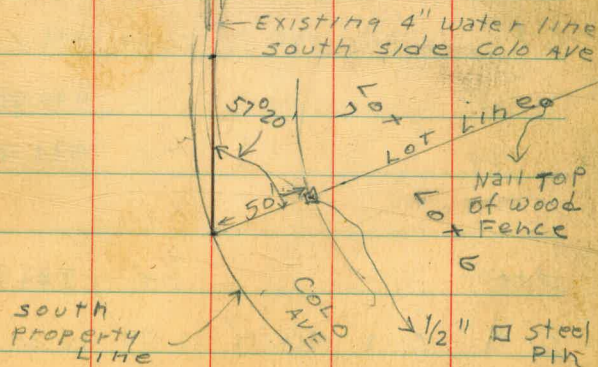
102

EXISTING
6" Line on
oregon st

15.0'
EXISTING Line
15.0' from EAST
Property Line

NOTE

From sta 9+99⁰⁵
to 12+05⁶⁵ line fol-
lows directly above
4" line which is
36⁵⁰' south of North
property line on
Colorado Ave.



Profile levels pipe line from
Klowa & Murray Blvd to Colo Ave

SEE PAGE (108) FOR -
9.93 546.32 536.39

T.P.	4.99	542.61	8.70	537.62
T.P.	0.31	530.15	12.77	529.84
T.P.	1.14	522.13	9.16	520.99
Set B.M.			7.45	514.68
0+00			7.8	514.33
0+50			9.8	512.33
+69 ²⁵			11.0	511.13
+90			11.8	510.33
1+00			13.1	509.03
T.P.	0.29	509.57	12.85	509.28
+50			7.5	502.07
T.P.	0.15	496.70	13.02	496.55
2+00			1.9	494.80
+50			4.6	492.10
3+00			11.0	485.70
T.P.	0.18	484.11	12.77	483.93

8-28-46.
Heat-Hot

Nelson
Leonard
Eaton

103

FINAL LOCATION

B.M. TOP of dent (city datum)

Lead PLUG & of HOWB & Lake Murray Blvd.

on ground

		505.08		
8+63			8.5	496.58
+75			3.0	502.08
T.P.	12.89	517.39	0.58	504.50
+87			10.2	507.19
9+00			7.4	509.99
T.P.	9.09	526.37	0.10	517.29
+22			11.6	519.77
+50			9.3	517.07
10+00			5.9	520.47
+50			4.8	521.57
11+00			3.8	522.57
+50			2.4	523.97
12+00			0.7	525.67
12+05 ⁶⁵			0.4	525.97
T.P.	13.03	537.87	1.53	524.84
T.P.	7.42	541.59	3.70	534.17
CK T.P.			3.55	538.04 = 538.04

T.P. on Hub Cen. PT. Layout Axis see Book
700 P 2

Final alignment of pipe
Line (see page 101)

E.C
3+34.96 9° 36.5

3+25 8° 10.9

P.I
3+01.73 $\Delta = 190 13' L$

3+00 $T = 33.85$
 $R = 200$ 4° 36'

2+75 $L = 67.08$ 1° 01.2

B.C
2+67.88

E.C
0+96.94 7° 59

0+75 4° 50.4

P.I
0+69.25 $\Delta = 150 58 R$

0+50 $T = 28.04$
 $R = 200$ 1° 15.5

$L = 55.73$

B.C
0+41.21

0+00 see page (101)

9-11-96
Clear-Hot

Nelson T
Leonard
Eaton 106

7+69 5.5 \rightarrow

7+55 1.0 \rightarrow

D 1.0 7+45

\rightarrow 5' 3+45

3+31 5' \rightarrow

\rightarrow 4.5 3+15

1+84
ROCK pile 2' HIGH
SMALL ROCKS

1+68

1+69 $\leftarrow 4' \rightarrow$

1+45 $\leftarrow 1' \rightarrow$

\rightarrow 3.5 1+38 EUCALYPTUS

1+28 4.7 \rightarrow TREES 6" to
12" dia,

\rightarrow 3.5 1+01

0+90 3.5 \rightarrow

0+52 $\leftarrow 5.7 \rightarrow$

E.C
12+02.58 END 3° 39'

12+00 3° 34.8

+50 Δ = 7° 18' R 2° 15.7'

11+00 R = 1086.5
L = 138.31 56'.5

B.C
10+64.27

E.C
10+44.35 14° 00'

10+25 11° 23.7

10+00 7° 39'

P.I
9+96.41 Δ = 28' 00" L

9+75 T = 49.86
R = 200.0 40 09'

9+50 L = 97.74' 0° 29'

B.C
9+46.61

P.I
6+62.06 Δ = 4° 20' R

↘ 4.0 8+93

↘ 2.0 8+64

8+38 110

8+33 5.0

□ 2.0 8+29

8+14 5.0

□ 2.0 8+10

↘ 2.0 7+94

Final profile of Pipe Line
SEE PAGE (103)

	0.92	515.60		514.68
0+00 Bc			1.3	514.3
0+47.31			2.9	512.7
+50			3.9	512.2
+75			5.0	510.6
1+00			6.6	509.0
T.P	0.41	503.60	12.41	503.19
+50			1.6	502.0
2+00			8.8	494.8
+50			11.5	492.1
T.P	1.19	492.07	12.72	490.88
+75			3.3	488.8
3+00			6.3	485.8
+25			12.8	479.3

9-12-46
Clear-140T

Nelson 108
Leonard
Eaton

T.P. Lead Plug @ Kiowa & Murray Blvd

	3.8	6.7	8.2	8.8
	15	6	3	6
			8.1	14.7
			15	15
			11.2	6.7
			15	15
			4.9	8.0
			15	15
			7.3	15.9
			15	10
				17.0
				15

		492.07		
T.P	5.73	485.62	12.18	479.89
3+45			11.3	474.3
+50			11.5	474.1
+83			12.0	473.6
+86			9.1	476.5
4+00			9.7	475.9
+50			6.3	479.3
5+00			2.9	482.7
T.P	10.80	496.39	0.03	485.59
+50			10.3	486.1
6+00			6.9	489.5
+50			0.6	495.8
T.P	9.50	505.26	0.63	495.76
7+00			4.6	500.7
+50			1.2	504.1
8+00			4.1	501.2
+26				
+26			7.0	498.3

480.4
5.2
15

474.2
11.4
15

497.7
7.6
15

492.9
72.4
15

505.3
0.0
15

503.8
1.5
15

505.26

T.P. 9.35 503.42 11.19 494.07

8+44 12.1 491.3

+50 12.9 490.5

+55 12.1 491.3

+64 6.0 497.4

+75 0.6 502.8

T.P. 11.19 514.41 0.20 503.22

9+00 4.3 510.1

T.P. 12.91 526.34 0.98 513.43

+50 9.2 517.1

+75 7.3 519.0

10+00 6.2 520.1

+25 5.3 521.0

+50 4.6 521.7

11+00 3.6 522.7

+50 2.4 523.9

12+00 0.4 525.9

12+02⁵⁹ - 0.35 525.99

110

~~488.7~~ ~~488.2~~ ~~496.9~~
 14.7 15.2 6.5
 15 10 15

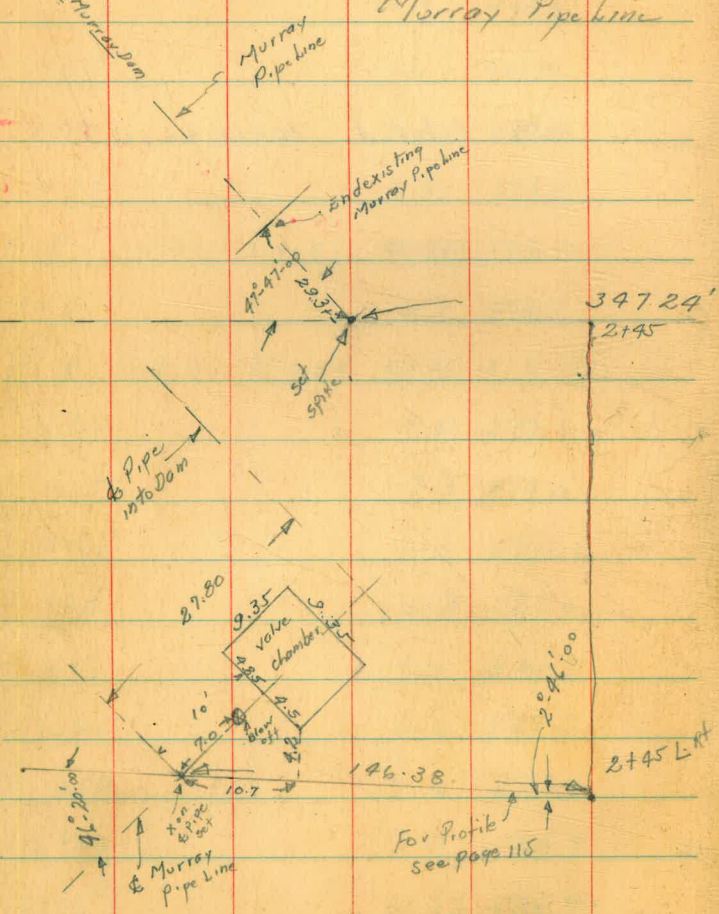
Notes Reduced 10-15-46 J.G.

49
105

Location & Profile for 42" Outlet from Alvarado Regulating Reservoir

Levels Page 112. To Connection with

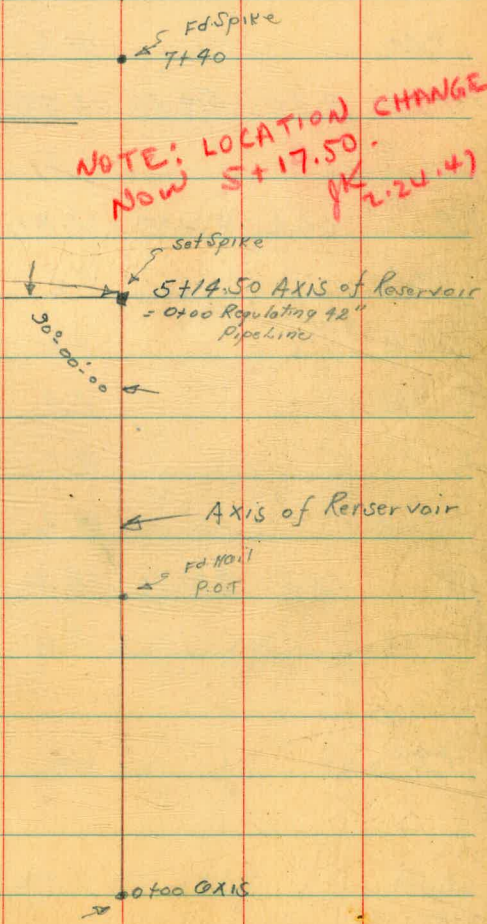
Murray Pipeline



Hill clear 111
Bliss to Hot 10
King
Davis - 10/2/46



NOTE: LOCATION CHANGE.
Now S+17.50.
(K 2.24.14)



	+	x	-	Elev
BM.	1.08	537.47		536.39
T.P.	0.67	525.88	12.26	525.21
0100			4.2	521.68
+50			10.6	515.28
T.P.	0.93	514.26	12.55	513.33
1			6.5	507.76
T.P.	1.23	502.60	12.89	501.37
+50			3.0	499.60
+75			6.8	495.80
+85			9.3	493.30
2			11.7	490.90
+65			10.2	492.40
T.P.	1.05	490.75	12.90	489.70
+25			2.6	488.15
+44			6.5	484.25
+50			7.3	483.45

lt & rt 112

USGS. Southend Murray Dam 542.51
 6.12 -
 536.39 city datum

-0.7 -1.0 2.6 -1.7 .00 -0.9
 15 3 7 6 15

-0.5 -1.2 6.5 -1.0 -0.2
 15 3 8 15

00 -1.2 00 7.3 -0.8
 15 4 2 11

T
490.75

2+60 9.7 481.05

TP 1.13 478.83 13.05 477.70

+88 9.7 474.13

3 7.9 470.93

+09 9.0 469.83

+18 11.2 467.63

+22 14.5 464.33

+29 14.6 464.23

+33 12.2 466.63

+39 11.8 467.03

+41 14.8 464.03

£

113

$\frac{00}{13}$ 11.2 $\frac{-2.4}{7}$ $\frac{-2.2}{14}$

$\frac{+3.4}{12}$ $\frac{+3.0}{3}$ 14.5 $\frac{+11}{8}$ $\frac{+2.8}{15}$

$\frac{-1.2}{12}$ $\frac{-0.8}{8}$ 14.6 $\frac{+0.5}{3}$ $\frac{+3.5}{15}$

$\frac{-3.4}{11}$ $\frac{00}{3}$ 12.2 $\frac{+2.3}{13}$

$\frac{-4.6}{10}$ $\frac{-4.3}{3}$ 11.8 $\frac{+2.2}{13}$

$\frac{00}{13}$ 14.8 $\frac{+2.0}{2}$ $\frac{+3.8}{11}$

π
478.83

3747²⁹ L PL 14.2 464.63

149 12.3 466.53

154 11.9 466.93

158 9.8 469.03

176⁵⁴ Groundat Pipe 10.2 468.63

" Top Murray PL. 7.10 471.73

T.P. 0.18 466.34 12.67 466.16

10
7.19 459.24

459.27

0.03 error

114

Note. Top of Pipe Plastered with Concrete. Was not able to get actual Top of pipe. Plaster appears to be 0.25 Thick +/-

10/16/46
Bliss. Notes
King T
Davis
BM. Cuffitts

Threatening
Rain

Profile Line Change
42" Pipe Line See Page 111 Lt
Com 3-22-48

12.43	484.16	471.73		
2+95	0.3	483.86		
+60	3.2	480.96		
+87	2.7	474.46		
T.P.	2.42	474.71	11.87	472.29
3+0	4.2	470.5		
+17	7.1	467.6		
+21	10.1	464.6		
+28	10.3	464.4		
+31	8.1	466.6		
+39	7.2	467.5		

Top Murray Pipe Line Set on Previous Levels See P. 114

$-\frac{0.5}{10}$ $-\frac{1.0}{5}$ 0.3 $-\frac{0.5}{10}$

$\frac{0.0}{10}$ 7.1 $-\frac{2.5}{7}$ $\frac{1.9}{11}$ $\frac{+0.5}{16}$

$\frac{+2.5}{10}$ $\frac{+1.4}{4}$ 10.1 $-\frac{0.2}{7}$ $\frac{+3.5}{13}$

$-\frac{1.4}{10}$ 10.3 $\frac{+2.8}{5}$ $\frac{+3.9}{12}$

$-\frac{2.3}{8}$ 8.1 $\frac{+1.5}{10}$

$-\frac{7}{10}$ $-\frac{5.0}{5}$ 7.2 $\frac{+9.4}{10}$

	T		
	974.71		
374.2		10.5	464.2
+50		8.3	466.4
+57		5.6	469.1
+75		6.1	468.6
+81		5.3	469.4
+91 ³⁸ int Murray Pipe Line		3.3	471.39
check 3M		2.96	471.75

6.5
 2 pieces 48" pipe 1. 6.5 long
 " 5.3 "
 48" Concrete (RCC?)
 pipe @ MURRAY
 RES OUTLET

H	L	Rt	116
-9.8	10.5	+1.5	
10		8	
-1.6	-1.2	8.3	+3.0
10	7		6
			12

Profile Levels Line Change

on Euclid Ave. Pipe Line from 0+00

West.

B.M.	11.48	519.46		507.98
T.P.	8.62	524.89	3.19	516.27
0+00			7.9	519.99
+50			6.4	518.49
+100			9.7	515.19
+12 ^L 20			10.3	514.59
+51.99			11.5	513.29
T.P.	5.43	519.38	10.94	513.95
2+0			8.4	510.98
+50			9.8	509.58

507.98
512
514.10

117

Spike in Power Pole = 514.10 USGS

2 +84 10.5 508.88 ✓

+91 11.7 507.68 ✓

+96 10.5 508.88 ✓

3 10.4 508.98 ✓

+20 10.0 509.38 ✓

+55⁸⁸ 9.4 509.98 ✓ 985

Check BM 11.39 507.99 ✓

Starting on P.P.

Alvarado Reg. Reservoir.

Ties to all Four Corners

Both ways out

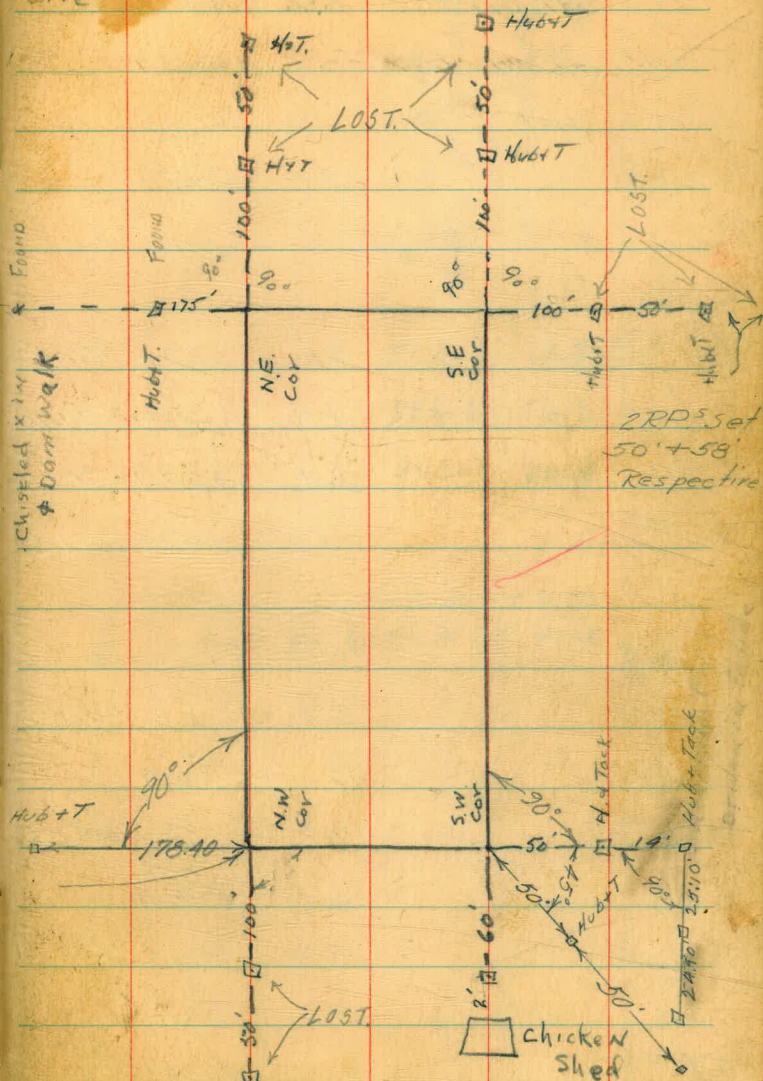
NOTE: HUBS ON EAST END AND SE CORNER ARE LOST.
10-5-49.
A.S. Leonard

Line Point
612
stadia

King
Nichols
Etc

4-9-47

119



120 Grades for Outlet Pipes
Alvarado REG RESERVOIR

B.M. on Dam Alvarado			536.39	
1.41			537.80	
T.P. #1		13.01	524.79	
3.26			528.05	
T2"				
7+44 ²³	7.6	520.5	510.58	509.96
7+69 ¹⁶	4.9	523.2	509.90	509.28
7+94 ⁰⁰ end	0.4	527.7	509.28	508.61
T.P. #2		13.07	514.98	
0.49			515.47	
A2"				
0+74 ⁵	4.7	510.8	504.58	
↙	4.6	Profile 510.9		
0+90 ¹⁴	7.0	508.5	502.98	
↙	6.6	Profile 508.9		
1+05 ³¹	9.3	506.2	500.67	
↙	8.4	Profile 507.1		
T.P. #3		13.04	502.43	
0.20			502.63	

GRADE
BOT. OF PIPE

Cuts

10.5	} corrected JK	506.0	cuts	14.5	
9.9				506.6	16.6
13.9				507.3	20.4
13.3					
19.1					
18.5					

Revised grade
Bottom of concrete
Bedding
as constructed
JK 7.18.47

120

↙ CUT TO BOTTOM OF PIPE JK

6.2

6.3

5.5

5.9

5.5

6.4

121 Grades for Outlet Pipes
Alvarado

502.63

1+50 3.4 499.2 493.69

☩ 3.1 499.5

1+9959 11.8 490.8 485.96

☩ 11.1 491.5

T.P. #4 12.31 490.32

0.11 490.43

2+1544 2.1 488.3 483.37

☩ 1.2 489.2

2+3041 4.2 486.2 480.38

☩ 3.8 486.6

2+45 Δ pt 1°20'30" Rt. 8.3 482.1 477.03

☩ 6.3 484.1

2+6138 10.2 480.2 473.31

☩ 9.6 480.8

T.P. #5 12.68 477.75

1.01 478.76

cuts.

121

5.5

5.8

4.8

5.5

4.9

5.8

5.8

6.2

5.1

7.1

6.9

7.5

122

Grades for Outlet Pipes
Alvarado REG RESERVOIR

478.76

2+92 ⁰²	5.8	473.0	465.34
¢	5.9	472.9	
3+07 ³⁸	11.5	467.3	461.36
¢	9.3	469.5	
3+17 ¢	11.1	467.7	
3+22 ²³	11.3	467.4	458.50
¢	14.5	464.3	
3+30 ²⁵	11.0	467.8	458.0
¢	12.5	466.3	
3+40 ¢	11.2	467.6	458.0
3+45 ²¹	9.4	469.4	458.92
¢	12.9	465.9	
3+56 ¢	9.8	469.0	
3+69 ²⁸	9.9	468.9	462.73
¢	10.6	468.2	
3+83	9.4	469.4	
3+91.26 end of line	7.6	471.2	466.13

cuts

122

7.7

7.6

5.9

8.4

9.0

5.9

9.8

8.3

9.6

10.5

7.0

6.2

5.5

478.76

Int. of Survey Pipe 7.41 471.35

Set T.B.M. on N.W. 2.70 476.06

Cor. of Valve Chamber

T.B.M. on T Pole 507.98

8.02 516.00

1.28 514.72

10.20 524.92

54"

0+00 5.7 519.2 505.5

0+50 7.8 517.1 505.0

1+00 11.3 513.6 504.5

1+12²² B.C. 11.6 513.3 504.381+51²² E.C. 13.3 511.6 503.981+75⁹⁰ End of 14.1 510.8 503.74

10.19 514.73

3.53 518.26

10.27 507.99

CUT TO BOTTOM OF PIPE

13.7

12.1

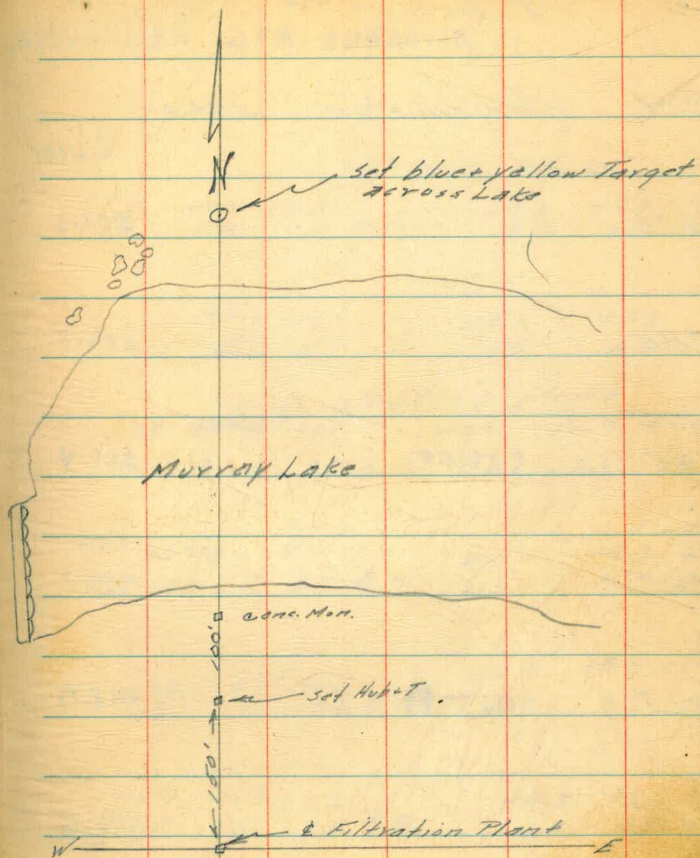
9.1

8.9

7.6

7.1

Additional ties to Filtration
Plant (Alvarado)



SEE BOOK 693

PAGE 75 COM 3-22-48

125

X Section 42" Pipeline
ALVARADO REG. RESERVOIR

TBM.	Elev. Bluetop	504.08	ELEV
	0.33	504.41	
0+75			503.8
0+85			502.5
0+95	CUTOFF		501.4
1+05			499.9
1+15	CUTOFF		498.0
1+25			496.6
1+35	CUTOFF		494.9
1+45			493.8

T.P. to Bluetop 9.16 595.25

JK
9.6.47

Left

Right

+9.2	+8.3	-0.8		+0.4	+7.4	+7.3
10	6.8	2.8	0.6	2.8	6.0	10

+8.2	-0.6		+0.3	+7.3
5.6	3.0	1.9	3.0	6.0

start of slope

+7.6	+4.8	+3.7	+0.5	+0.2	+2.7	+5.6
12	9	6	3.0	3.0	6.5	10.4

+7.4	+5.4	+4.0	0.0	+0.2	+5.3	+6.5
12	10.0	6.5	4.0	4.5	2.3	7.6

+7.2	+4.1	+0.5		+0.5	+5.3	+6.4
12	6	2.8	6.4	3.4	7.7	10.0

+6.9	+2.9	+0.6		+0.8	+6.1
11.3	5.0	3.0	7.8	2.7	8.5

+7.3	+5.2	+0.7		+0.4	+6.3
12	6.6	3.6	9.5	2.8	7

end of slope

+7.3	+7.0	0.0		+0.1	+6.8
10	4.0	2.8	10.6	3.4	8.0

Note: these sections for estimating quantities of materials removed because of shattering of trench sides between cutoffs

126

X-Sections of Wash Water Storage Tank

0+00 = 256' West & 143' North

B.M. 9.18 [✓] 545.57 536.39 [✓] Top Munnay Dam

0+00 5 7.4 38.2

0+10 7.4 38.0

0+18 8.1 37.5

0+25 8.4 37.2

0+50 9.0 36.6

0+75 10.5 35.3

$$1+00 = \begin{matrix} N \\ 256' W \\ \# \\ 243' N \end{matrix}$$
 10.4 35.2
 CK B.M. 9.18 536.39

126

2-11-48 King
Leonard
Baker

of this pt. of Filter Plant

L.T.

A.T.

36.7	37.1	38.2	38.6	41.3	39.4
<u>8.9</u>	<u>8.3</u>	7.4	7.0	4.3	6.3
40	30		14	38	41

36.1		38.0	39.0	43.4	42.0	39.3
<u>9.5</u>		7.6	7.6	2.2	3.6	6.3
40			3	20	32	38

35.6		37.5	37.5	39.3
<u>10.0</u>		8.1	6.1	6.3
40		0	17	35

35.2	36.7	37.2		40.2
<u>10.4</u>	<u>8.9</u>	8.4		6.4
40	20			38

33.8	35.3	36.6	37.8	38.4
<u>11.8</u>	<u>10.3</u>	9.0	7.8	7.2
40	26		24	45

31.8	33.7	36.5	37.9
<u>13.8</u>	<u>11.9</u>	<u>10.3</u>	<u>9.1</u>
40	26	20	40

30.7	32.4	35.2	35.5	36.6
<u>11.9</u>	<u>13.2</u>	<u>10.4</u>	<u>10.1</u>	<u>9.0</u>
40	20	0	20	40

 Reduced
 2-18-48
 C.P.L.

Alvarado Wash Water Tank
Foundation

Cuts

		536.39	
5.68	542.07		534.0
0°N	7.0	535.1	1.1
45°NE	5.5	536.6	2.6
90°E	4.0	538.1	4.1
135°SE	3.3	538.8	4.8
0°S	4.6	537.5	3.5
45°SW	5.6	536.5	2.5
90°W	7.4	534.7	0.7
45°NW	8.2	533.9	0.1

5.68 536.39

END 3-22-48
COM.

Max. 16, 1948 Rainey
Baker
Shipman

127

B.M East end Murray dam, COM
City Datum 3-22-48

KIOWA Pipe Line

elev Top of Pipe

	0.71	515.39		514.68
	0.37	509.70	11.06	509.33
1+67 ⁸²			2.79	496.91
1+67 ⁸			5.6	499.1
TP	0.42	494.39	10.73	493.97 ✓
5+65.80			10.64	483.75
5+65.80			8.2	486.2
	11.73	505.74	0.38	494.01
	11.25	516.39	0.60	505.14
	6.46	521.74	1.11	515.28
			3.29	518.45 =
		509.70		
1+50			5.14	499.56
			2.4	502.3
8/5/36 Beatty-Williams-Kellhofer				
TP	0.99	494.96		493.97
		(Ground line	6.0	489.0
2+67 ⁸ BC		Top 6" A.C. Pipe	8.51	486.45
TP	1.36	485.65	10.67	484.29
		(Ground line	7.6	478.1
3+36 ⁹ EC		Top 6" A.C. pipe	10.17	475.48
TP	12.36	497.70	0.21	485.34
TP	12.80	510.38	0.12	497.58
OK BM	8.20	517.58	1.00	509.38
			2.88	514.70 - 514.68

West
Williams
Kellhofer

128

7/29/56

BM 1+T Q Kiowa + Lake Murray Blvd

See page 125

Top 6" AC

Top Ground

Top of pipe 6" AC

Top Ground

518.48 BM BP NW Corner footing on
city fence cor Kiowa Dr. + Lake Murray Blvd

Top of Pipe

Top of Ground

JEE 3552

Ties To existing 6" AC Mann

EC 3434.76 6" AC { 20' Nly of Transit Sta. EC
12' Sly of Cyclone Bdry FEN
S 659.29 E 279.91
see sketch next pg.

BC 2167.88 6" AC { 310' Nly of Transit Sta. BC
450' Sly of Bdry Cyclone Fen
S 687.60 E 340.38
8/3/56 ^{Beath} Williams _{and paper}

5+66²¹ 6" AC 1³ South of Transit Line
16² North of Transit Line
To City fence

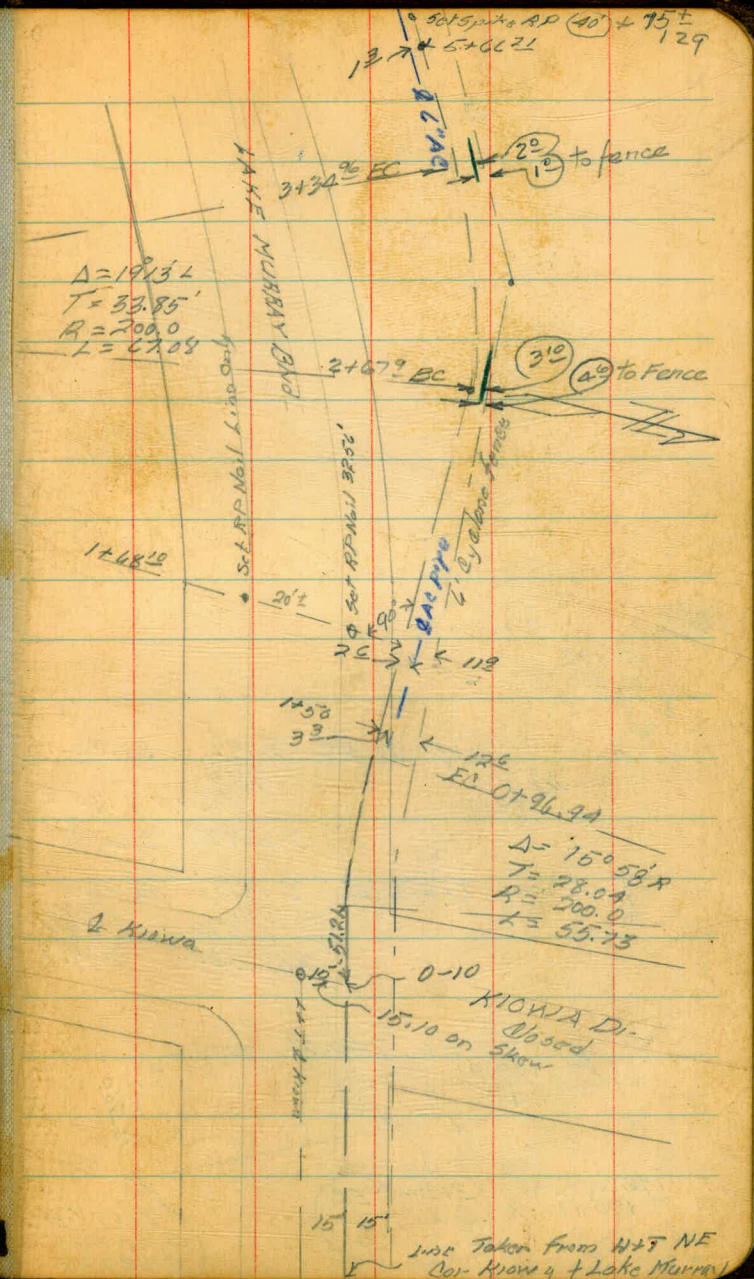
Grid (597.10 South) Transit Line
Cord (57.14 East) Line

1+68¹⁰ 6" AC 2⁶ North of Transit Line
City fence line 112' North of
Transit Line

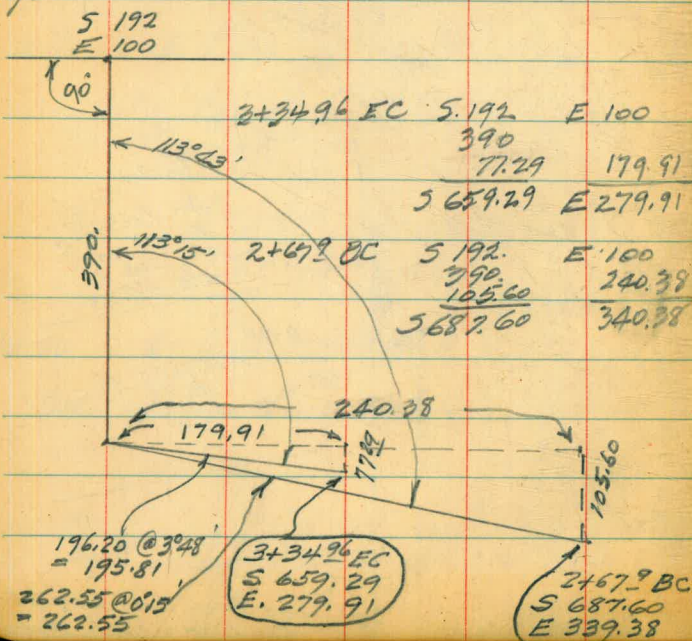
Grid (744.48' South) Transit Line
Cord (422.12' East) Line

1+50 6" AC 3³ North of Transit Line
City fence line 12⁶ North of Transit Line

Grid (754.84' South) Transit Line
Cord (437.03' East) Line



8/2/56



DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.
 Roadway 16 feet wide. Side Slopes 1 on 1½
 For Single Track Embankment.

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

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

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17.73
 26
 106.38
 354.6
 468.98
 13.13

P.P. #71708
 1.9
 51.99
 1470.99600
 3+47.24
 18.3
 376.54 P.P.

542.57
 6.22
 536.39

3+91.38
 2.45
 146.38

End of curb 530.27
 530.27

Please Return to
 City of San Diego Water Dept.
 Room 268 Civic Center
 Telephone Main 5161