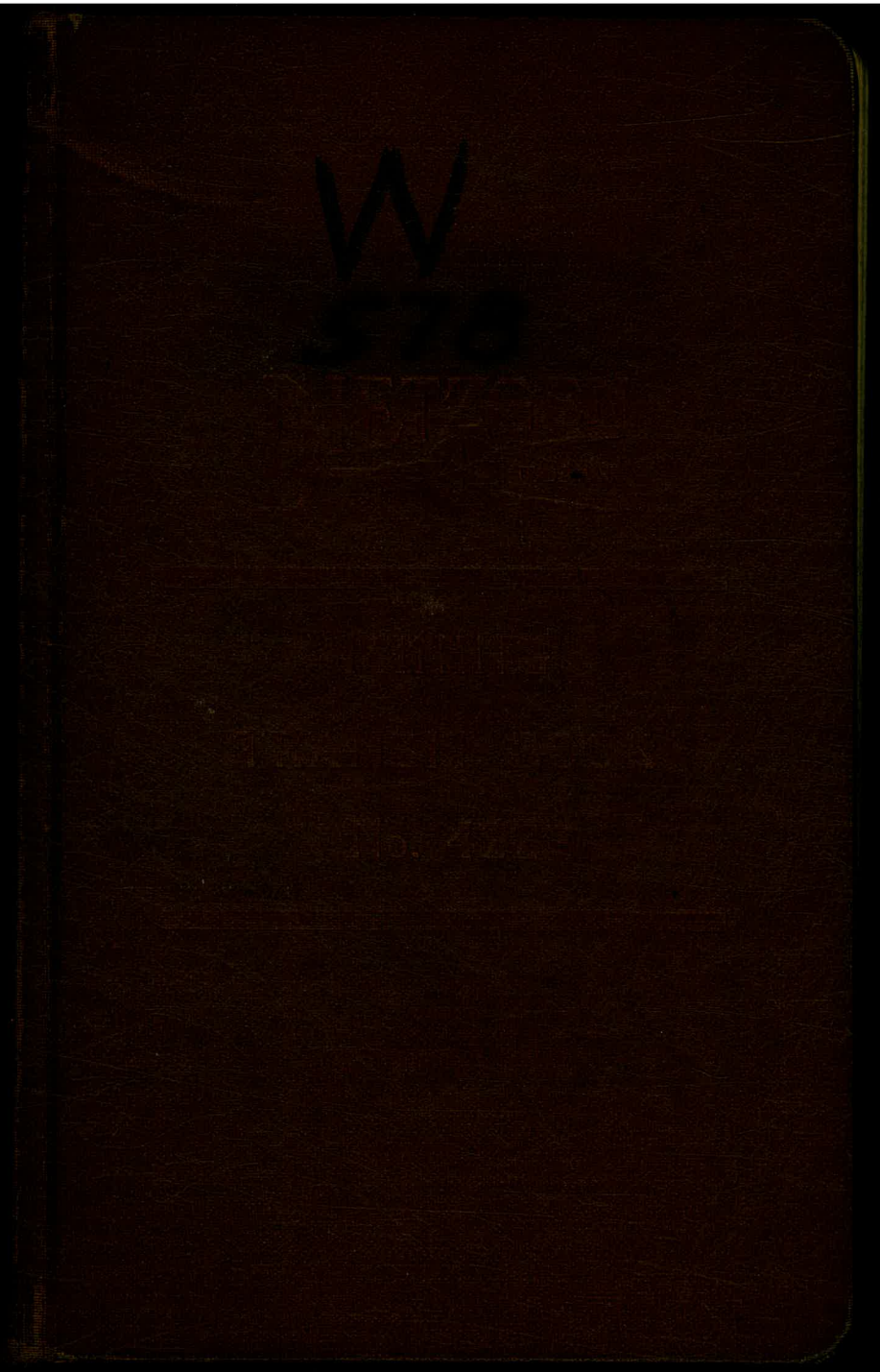

W
520

EUGENE DIETZGEN CO.
DRAWING MATERIALS, MATHEMATICAL and SURVEYING INSTRUMENTS
Chicago New York San Francisco New Orleans Pittsburg Toronto

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

Roadway 16 feet wide. Side Slopes 1 on 1.

For Single Track Embankment.

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

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

This Field Book is manufactured of a high grade **50%** Rag Paper having a **WATER RESISTING** surface.

Survey of Hazard property, to pumping plant site

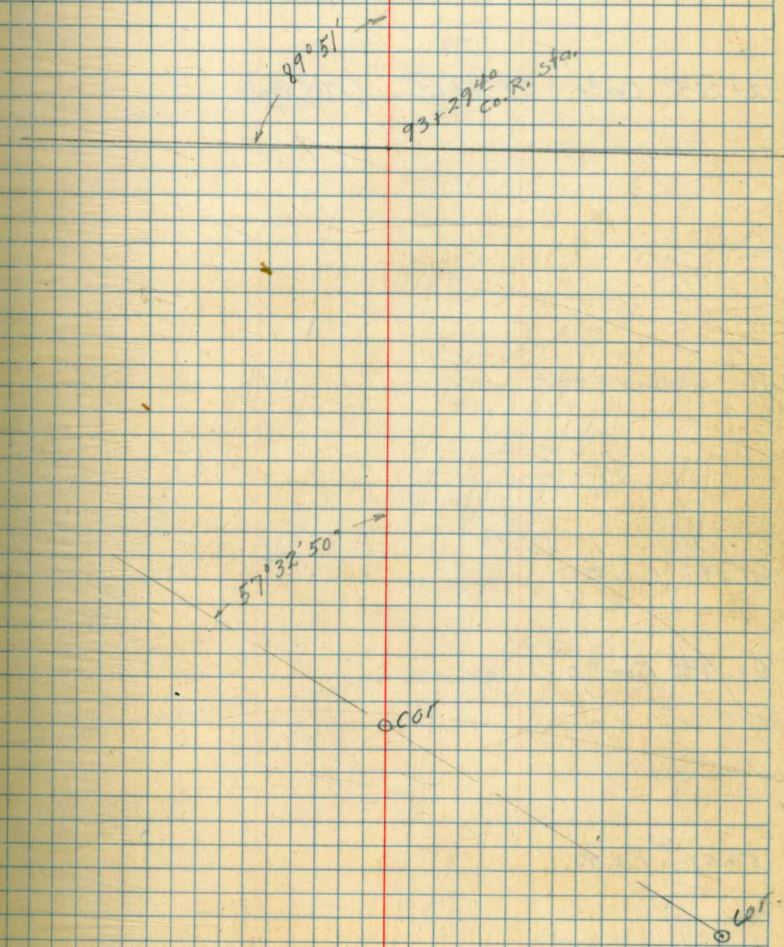
$2+32^{69}$ P.O.T. on boulder

$0+60^{50}$ P.O.T. Intersection with County Road Survey #

0+00

1/7/42
Hill
Soper
Davis

℄

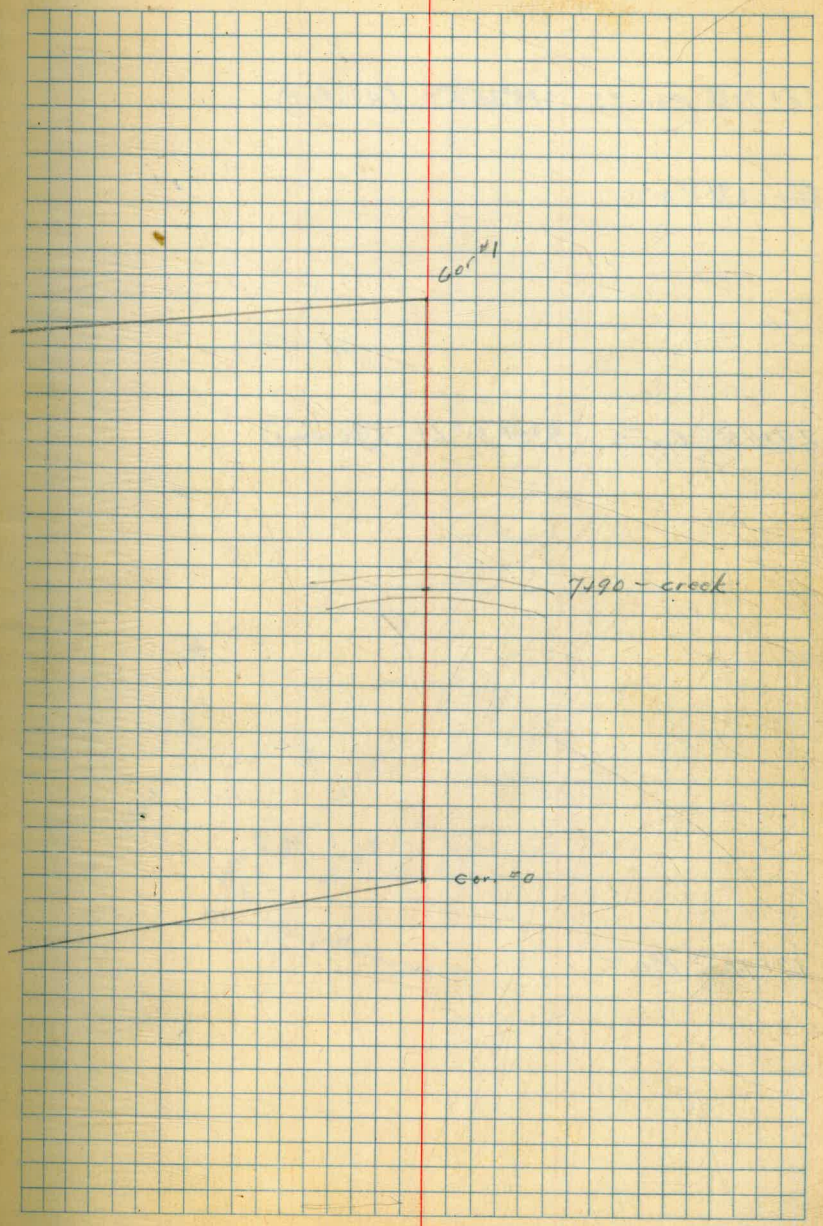


12+26.25 Cor.#1 - 94°58' Lt (1714 feet)

6+34.71 P.O.T.

6+13.25 Cor. #0

5+04.00 P.O.T.

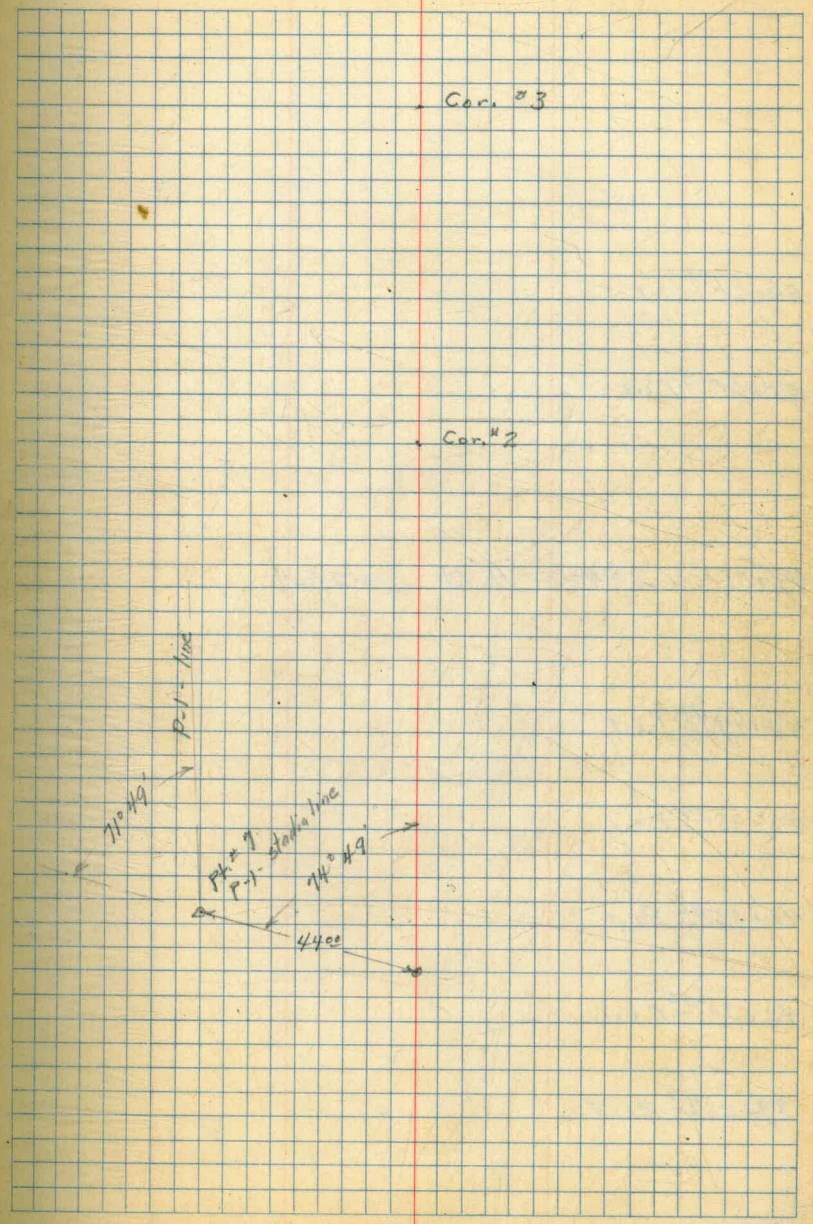


38+70.25 Cor. #3 13°34' Rt (436 feet)

36+02.91 P.O.T.

29+40.25 Cor. #2 - 9°41'30" Lt (930 feet)

12+90.83 P.O.T.



$56+64^{87}$ P.O.T.

$55+65^{25}$ P.O.T.

$43+06^{25}$ Cor = 4 - 6°11' Lt (1572 feet)

$42+79^{48}$ P.O.T.

$42+38^{59}$ P.O.T.

$41+05^{26}$ P.O.T.

$40+35^{26}$ P.O.T.

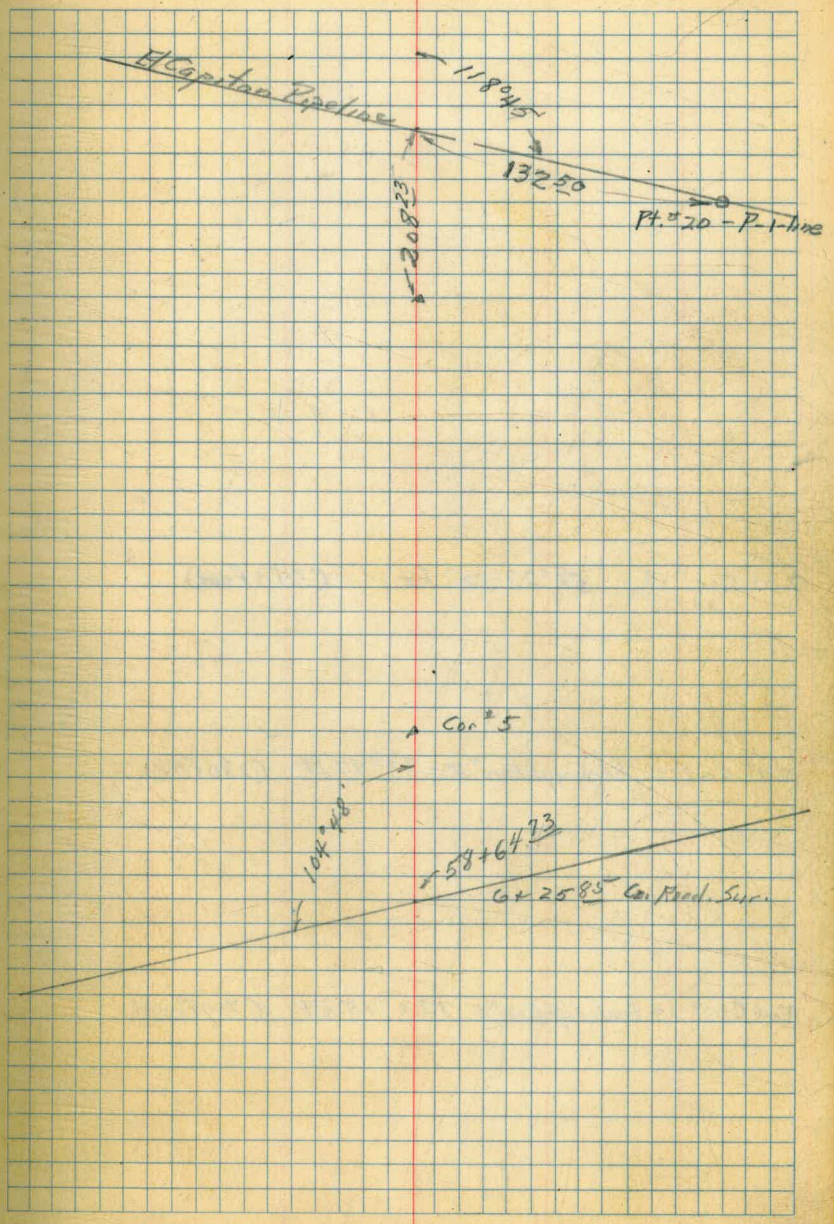
$39+28^{47}$ P.O.T.

58+78.25 - 10°48'40" Rt - (416.3 feet)

Note: Set Corner #12, from Cor. #5

58+78.25 Cor. #5 - 146°08'40" Rt (1283 feet)

58+60.42 Intersection with Co. Road Survey



Π at Cor.# 13 - 51°22'50" Rt (343 feet)

Π at Cor.# 13 backsight on #5 - 83°17'Lt (280 feet)

Π at Cor.# 12 backsight on #5 122°15'Rt (700 feet)

— See Page 42 —

Topography at Pumping Plant site.

				U.S.G.S.	
	16.6	122.64			
0+00 - ℄			15.0	107.6	✓
110' Rt Edge of wash			14.0	108.6	✓
138' Lt Toe slope			3.0	119.6	✓
1+00 - ℄			11.4	111.2	✓
100' Rt edge wash			11.7	110.9	✓
130 Lt Toe slope			1.5	121.1	✓
2+00 - ℄			7.5	115.1	✓
125' Rt edge wash			9.0	113.6	✓
152 - Lt			+7.0	129.6	✓
180' Lt			+15.0	137.6	✓
TP	13.1	133.84	1.9	120.74	
3+00 - ℄			13.5	120.3	✓
152' Rt			18.4	115.4	✓
245 Rt edge wash			17.5	116.3	✓
100' Lt			5.2	128.6	✓
154 Lt			+4.0	137.8	✓
178' Lt			+10.5	144.3	✓
4+00 - ℄			11.6	122.2	✓ ← On edge of wash from canyon to left.
150' Rt			16.0	117.8	✓
40' Lt			10.0	123.8	✓
90' Lt			0.0	133.8	✓
120' Lt			+8.5	142.3	✓

1/12/42
Soper
Rodgerson
Davis

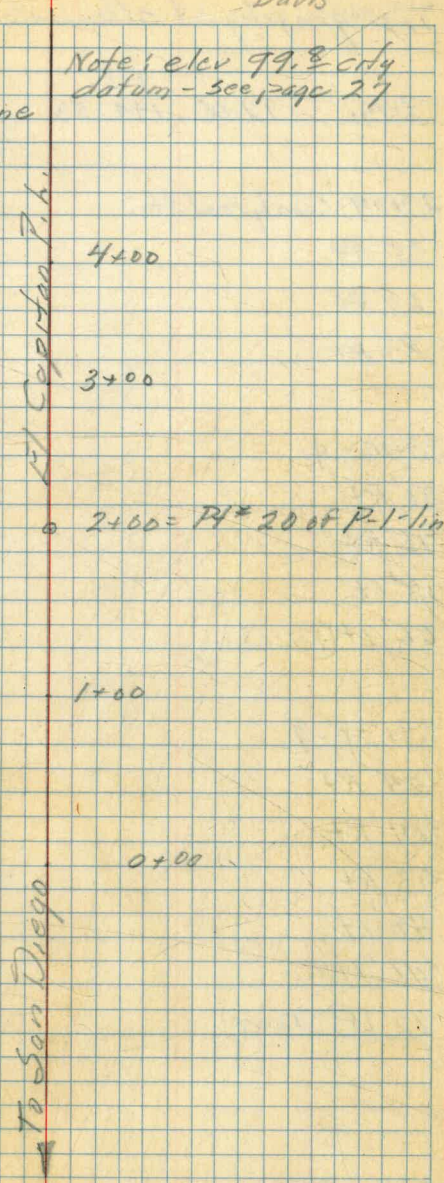
7

Top of El Capitan P.L. at air valve 60.5' to left of P.I #20 - P.L. line

F.L. Grade 103.0
36" Steel Pipe .3.0
106.0

Thickness of Pipe .04
U.S.G.S. 106.04

Note: elev 99.8 city datum - see page 27



1/12/42
50-er
Hodgeson
Davis

Topography at alternate Pump. Plant site.

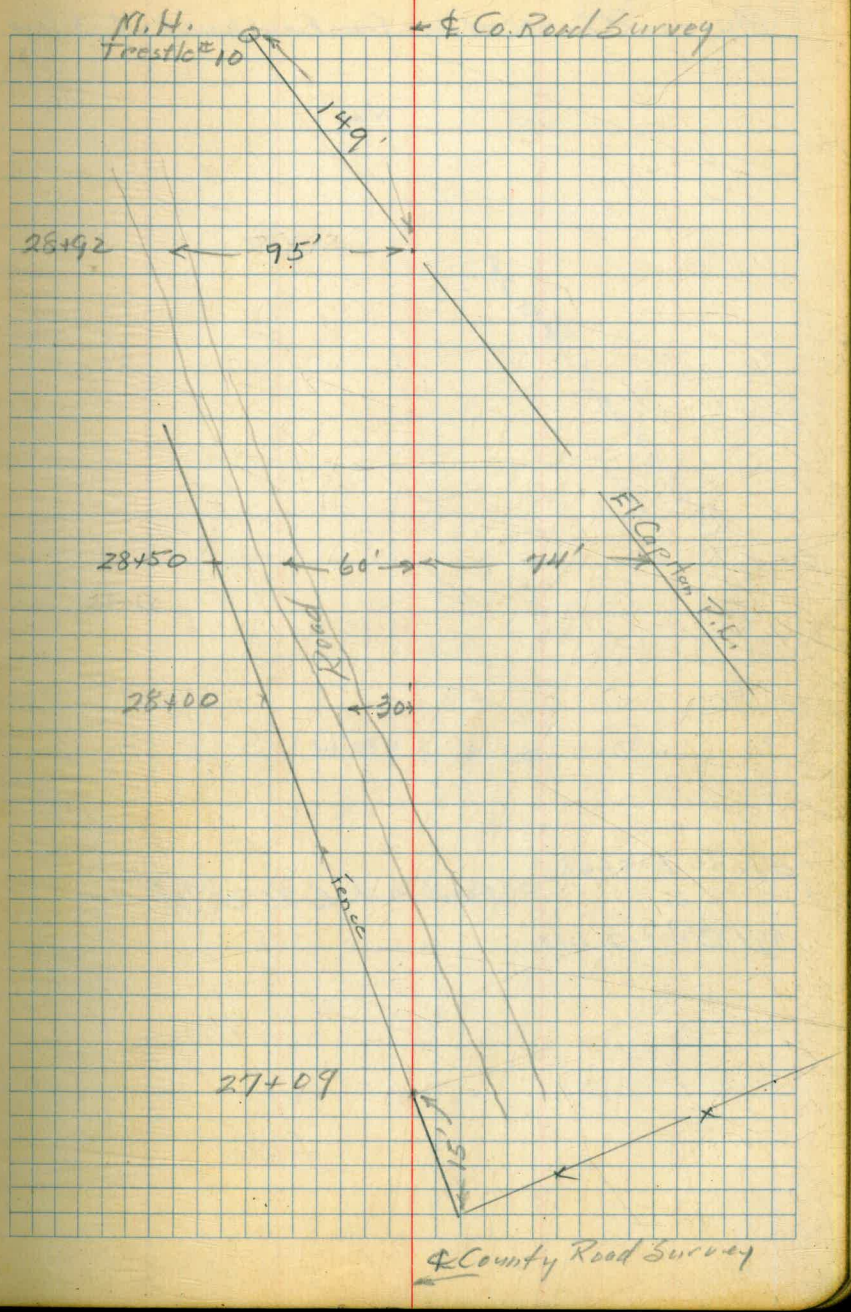
		H.I.		
B.M.	12.06	144.53		132.47 ✓
27+09 - County road Sta.			11.7	132.8 ✓
35' Rt			9.2	135.3 ✓
63' Rt			5.2	139.3 ✓
83' Rt			0.0	144.5 ✓
28+80 - ℄			8.0	136.5 ✓
50' Rt			2.2	142.3 ✓
75' Rt			+4.0	148.5 ✓
15' Lt			9.6	134.9 ✓
66' Lt (Fenceline)			12.3	132.2 ✓
26+50 - ℄			5.8	138.7 ✓
54' Rt			0.5	144.0 ✓
74' Rt			+3.0	147.5 ✓
93' Rt			+9.0	153.5 ✓
40' Lt			8.0	136.5 ✓
46' Lt			11.5	133.0 ✓
82' Lt (Fence)			12.8	131.7 ✓

Cont'd on next page

County B.M. ~~City~~ or U.S.G.S. elev? OK.

144.53

28+92 - ℄ pipeline	5.5	139.0	✓
51' Rt	1.0	143.5	✓
77' Rt	+7.0	151.5	✓
64' Lt	10.3	134.2	✓
72' Lt	15.1	129.4	✓
115' Lt (fence)	17.1	127.4	✓



Murray P.L. location - from Focal point - L-3 line

Mag

Realignment - Page 28

N 80° W

0+00 - L-3 line

= Focal Point - Δ 25°22' Rt

67+33.50 L-2-line

1/21/42
H.11
Soper
Hodgeson
Davis

10

< 9' → 0+83 power pole

1/23/42
Hill
Soper
Hodgeson
Davis

Mag
S 80° W

12+05 30 L. 2°57' Rt.

11+84 - Test hole

S 77°30 W

9+95 58 E.C.

	+95 58 - 11°12.5
	+50 - 10°20.3
	9+00 - 9°23.0
	+50 - 8°25.7
L = 22°25' Lt	8+00 - 7°28.4
R = 1500'	+50 - 6°31.1
T = 297.24	7+00 - 5°33.8
L = 586.88	+50 - 4°36.5
BC = 4+08 70	6+00 - 3°39.2
E.C = 9+95 58	+50 - 2°41.9
def. I = 1.146	5+00 - 1°44.6
1'56' = 0°57.30	4+50 - 0°47'.3

4+08 70 B.C.

N 80° W

Mag.

31+76.86 E.C.

Δ = 10°00'LT

R 1500

T = 131.23

L = 261.81

B.C. =

E.C. =

def.1' = 1.146

def.50' = 0°57'.30

+76.86 - 5°00.0

+50 - 4°29.2

31 - 3°31.9

+50 - 2°34.6

30 - 1°37.3

29+50 - 0°40.0

29+15.05 B.C.

28+84 Test hole - 30' Rt

17+98.67 P.O.T.

S80°W

Mag
S 61° W

41+06.26 E.C.

L = 9°17' Lt
R = 1500'
T = 121.78
L = 243.04
BC = 38+63.22
E.C. = 41+06.26
def. 1' = 1.146
4 50' = 0°57.30

+06.26 - 4°38.5
41+00 - 4°31.3
+50 - 3°34.0
40+00 - 2°36.7
+50 - 1°39.4
39+00 - 0°42.1

38+63.22 B.C.

33+80.00 P.O.T.

33+08.95 P.O.T.

S 70° W.

Mag.

S59°30'W

51+50.00 ℄ 1°29' Lt

43+35.00 P.O.T.

42+20 Test hole - 70' Rt

41+89.38 P.O.T.

S61°W

1/24/42
Hill
Soper
Hodgeson
Davis

R.P. 2x2 □ on split of ℄.   40.00   40.02   R.P. 2x2 on split of ℄.

58+75 - Test hole

S53°W

55+71.47 E.C.

∠ = 6°46' Lt
R = 1500
T = 88.68
L = 177.15
BC = 53+94.32
EC = 55+71.47
def 1' = 1.146
" 50' = 0°57'.30

+71.47 3°23'
+50 = 2°58.4
55+00 = 2°01.1
+50 = 1°03.8
54+00 = 0°06'.5

53+94.32 B.C.

S59°30'W

1/26/42
Hill
Soper
Hodgeson
Davis
Bowlin

R.P. 1"x1" 40.00 30.00 R.P. 2x2

R.P. 2x2 40.00 40.00 R.P. 2x2

22.77 changed 12/23/42

~~63+25~~ ^{25} = Pt. #20 - P-1-line — R.P. □ hubs 50' & 94.45' - Rt 65°

63+00 - Test hole

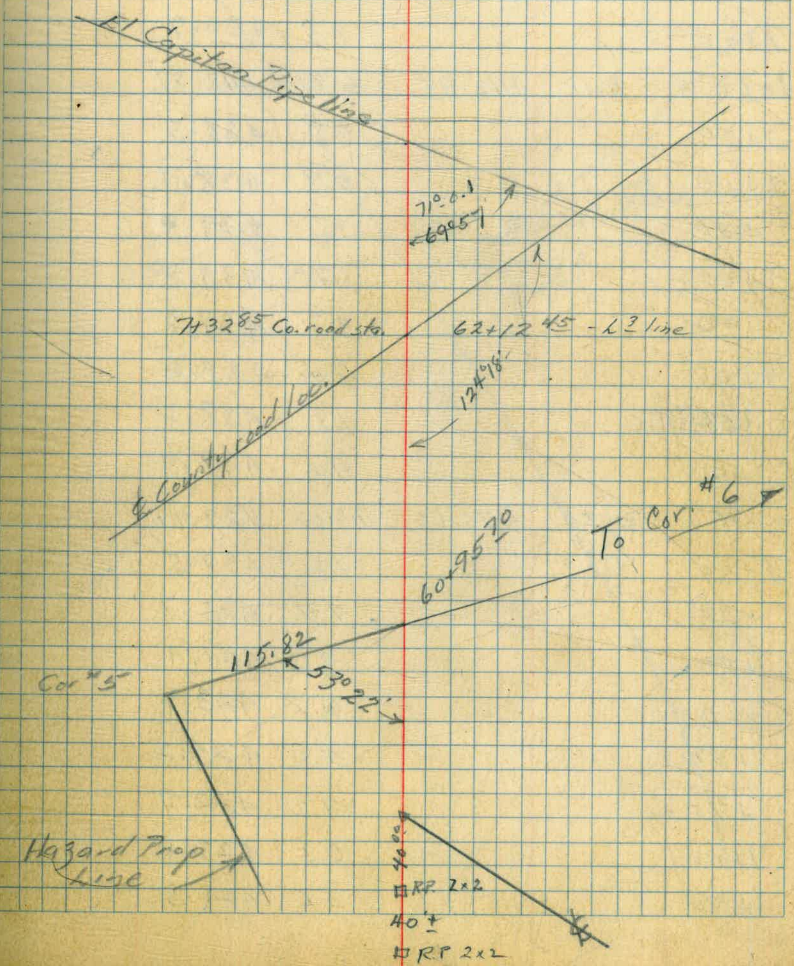
60+90 - Test hole - 175 Lt.

N83°30'W

~~59+36~~ ^{00} ~~43°21' Rt.~~ R.P. 33' Lt. 78'

44°24 changed 12/23/42

S55°W



1/26/42
Soper
Bowtin
Hodgeson
Davis

℄ profile L-3-line — City Datum

B.M.	0.37	472.96		472.59
TP	0.89	461.00	12.85	460.11
TP	0.14	448.88	12.26	448.74
0+50			5.5	443.4
1+00			8.2	440.7
Set B.M.	0.11	442.98	6.01	442.87
1+50			4.5	438.5
2+00			4.9	438.1
+50			3.6	439.4
3+00			3.7	439.3
+50			3.7	439.3
4+00			4.4	438.6
+087° BC.			4.8	438.2
+50			9.1	433.9
TP	0.22	430.13	13.07	429.91
5+00			1.6	428.5
+25			4.4	425.7
+50			8.7	421.4
6+00			6.2	423.9
+50			5.9	424.2
+75			7.2	422.9
7+00			6.5	423.6
+50			5.6	424.5

Nail in power pole

0+00 = 67+33.5 L-2 line

Nail in power pole, 9' Rt 0+83

See Pg. 33 for "L" 3 Revision Notes

		430.13		
8+00			7.1	423.0
+50			8.7	421.4
9+00			9.8	420.3
+26			10.7	419.4
+50			8.3	421.8
195 58 F.C			7.7	422.4
10+00			7.6	422.5
+30			5.1	425.0
+50			6.1	424.0
TP	4.19	428.52	5.80	424.33
10+80			2.4	426.1
11+00			3.3	425.2
+30			1.9	426.6
+50			3.7	424.8
+83			4.1	424.4
12+05 30			3.2	425.3
+25			4.8	423.7
+40			4.2	424.3
+50			5.3	423.2
13			7.9	420.6
+50			10.5	418.0
Set B.M.	0.69	416.26	12.95	415.57
14+00			1.7	414.6
+20			4.3	412.0
+50			6.1	410.2

Nail in 2×2 - 53' Rt 14+00

Soper
Bowyn
Hodgeson
Davis.

		416.26		
15+00			10.0	406.3
+20			11.3	405.0
TP	0.36	403.78	12.84	403.42
15+50			2.9	400.9
16			8.1	395.6
+20			10.5	393.3
+45			13.9	389.9
+50			13.4	390.4
17			12.5	391.3
TP	1.03	392.43	12.38	391.40
17+50			2.9	389.5
18+00			4.8	387.6
+20			5.5	386.9
+50			7.9	384.5
+75			9.4	383.0
19+00			11.0	381.4
+30			13.1	379.3
TP	0.10	379.57	12.96	379.47
19+50			2.9	376.7
+80			6.9	372.7
20+08			13.8	365.8
+30			11.8	367.8
+60			9.7	369.9
+80			8.4	371.2
21+00			5.8	373.8

		379.57		
21+30			3.5	376.1
+50			2.2	377.4
+75			0.5	379.1
TP	12.59	391.28	0.88	378.69
22			10.4	380.9
+50			8.8	382.5
23			6.7	384.6
+15			4.6	386.7
+35			5.4	385.9
+50			4.3	387.0
+65			3.0	388.3
+85			3.3	388.0
24			2.4	388.9
+15			1.9	389.4
+50			2.1	389.2
+75			2.2	389.1
TP	0.67	389.64	2.31	388.97
25+00			2.0	387.6
+25			2.6	387.0
+50			4.8	384.8
26			7.8	381.8
+50			8.2	381.4
+70			6.1	383.5
27			4.0	385.6
+20			1.6	388.0

		389.64		
Set B.M	11.39	400.40	0.63	389.01
27+50			9.2	391.2
+75			7.7	392.7
28			6.1	394.3
+50			4.6	395.8
+75			5.2	395.2
29			5.8	394.6
+15.05 B.C.			5.9	394.5
+38			5.8	394.6
+50			5.3	395.1
+65			4.8	395.6
+80			2.7	397.7
30			2.1	398.3
TP	13.02	413.07	0.35	400.05
30+50			10.9	402.2
31			6.2	406.9
+50			3.9	409.7
+71.86 E.C.			3.1	410.0
32			2.8	410.3
+10			2.1	411.0
+50			2.0	411.1
33			1.7	411.4
+50			2.1	411.0
+80			1.3	411.8
TP	0.47	412.20	1.34	411.73

Nail in 2x2 - 31' Rt 27+75

on ℄ hub sta 33+80

		412.20			
34+00			2.0	410.2	
+50			3.9	408.3	
35			6.2	406.0	
+50			8.2	404.0	
+75			8.6	403.6	
36			10.3	401.9	
PI	3.97	405.97	10.20	402.00	
36+50			6.2	399.8	
+75			7.3	398.7	
37			7.0	399.0	
+50			6.8	399.2	
38			5.3	400.7	
+50			5.0	401.0	
+63.23 B.C.			4.9	401.1	
39			4.6	401.4	
+20			3.4	402.6	
+50			3.5	402.5	
+70			2.9	403.1	
40			3.1	402.9	
+25			2.7	403.3	
+50			4.5	401.5	
+85			5.6	400.4	
PI	0.23	401.33	4.87	401.10	
41			2.3	399.0	
41+06.26 E.C. ahead			2.7	398.6	390.3
41+96.38 back					

8.3

		401.33			Grade
41+50			6.2	395.1	387.0
+65			7.2	394.1	386.7
42			10.7	390.6	382.3
TP	0.02	388.40	12.95	388.38	
42+20			0.0	388.40	380.1
+50			4.3	384.10	376.5
+80			7.5	380.90	372.8
43			10.3	378.10	370.1
+18			12.0	376.4	367.3
Set B.M.	0.56	376.28	12.68	375.72	
43+35			2.9	373.4	365.0
+50			5.6	370.7	362.6
TP	0.43	364.10	12.61	363.67	
44			1.3	362.8	354.9
+35			6.9	357.2	348.9
+50			10.2	353.9	346.3
TP	0.31	351.50	12.91	351.19	
44+75			1.6	349.9	342.0
45			6.0	345.5	337.7
+35			11.5	340.0	332.0
TP	0.73	339.18	13.05	338.45	
45+50			2.0	337.2	329.6
+80			5.8	333.4	325.1
46			9.2	330.0	322.1
+25			13.1	326.1	318.3

Cut
8.1
8.4
8.3
8.3
7.6
8.1
8.0
9.1
Nail in 2x2 b.b. 40' Rt 43+50
8.4
8.1
7.9
8.3
7.6
7.9
7.8
8.0
7.6
8.3
7.9
7.8

					Grade	Cut
		339.18				
TP	0.17	326.34	13.01	326.17		
46+50			4.0	322.3	314.5	7.8
+60			5.3	321.0	313.0	8.0
+75			7.6	318.7	310.8	7.9
47			11.3	315.0	307.3	7.7
TP	0.53	313.78	13.09	313.25		
47+50			4.4	309.4	301.2	8.2
48			9.5	304.3	296.3	8.0
+30			10.8	303.0	294.0	9.0
+50			13.3	300.5	292.6	7.9
TP	0.41	301.19	13.00	300.78		
48+65			1.7	299.5	291.8	7.7
+80			1.4	299.8	290.9	8.9
49			3.1	298.1	289.8	8.3
+15			3.6	297.6	289.0	8.6
+30			5.5	295.7	288.3	7.4
+45			4.8	296.4	287.5	8.9
+50			5.7	295.5	287.3	8.2
+56			6.5	294.7	287.0	7.7
50			8.5	292.7	284.8	7.9
+25			9.3	291.9	283.5	8.4
+50			10.8	290.4	282.3	8.1
+65			10.8	290.4	281.5	8.9
51			13.1	288.1	279.6	8.5
TP	0.18	288.36	13.01	288.18		

					Grade	Cut
		288.36				
51+50	L.		3.8	284.6	275.4	9.2
52			9.3	279.1	269.6	9.5
+10			10.4	278.0		
Set B.M.	0.23	276.83	11.76	276.60		Nail in 2×2 40' Rt 52+30
52+40			4.1	272.7		
+50			6.7	270.1	262.2	7.9
+62			9.1	267.7		
TP	0.26	264.10	12.93	263.90		
53			2.1	262.0	253.9	8.1
+50			10.6	253.5	246.4	9.1 X
TP	0.28	251.33	13.05	251.05		
53+94 32	B.C.		3.8	247.5		
54			4.5	246.8	238.9	7.9
+50			12.3	239.0	231.4	7.6
TP	0.15	238.68	12.80	238.53		
54+15			3.4	235.3		
55+00			7.1	231.6	223.9	7.7
+25			10.3	228.4		
TP	0.49	226.07	13.10	225.58		
55+50			1.5	224.6	216.3	8.3
+71 47	E.C.		4.9	221.2		
56			9.2	216.9	208.6	8.3
TP	0.20	213.42	12.85	213.22		
56+22			0.2	213.2		
+50			5.6	209.8	199.4	8.4

				Elev.	Grade
		213.42			
56+78			12.1	201.3	
TP	0.53	201.19	12.76	200.66	
57+00			4.2	197.0	189.1
+20			7.4	193.8	
Set B.M.	0.49	188.71	12.97	188.22	
57+50			1.0	187.7	179.1
+85			7.6	181.1	
58			10.8	177.9	169.1
TP	0.37	176.34	12.74	175.97	
58+20			3.8	172.5	
+35			6.0	170.3	
+50			9.5	166.8	158.7
+65			12.6	163.7	
TP	0.54	163.97	12.91	163.43	
59			6.6	157.4	148.0
+17			10.2	153.8	
TP	0.93	151.97	12.93	151.04	
59+26			1.3	150.7	
+36 00 L.			4.1	147.9	139.3
+50			7.2	144.8	135.8
+68			12.3	139.7	
TP	0.13	139.27	12.83	139.14	
59+75			2.4	136.9	129.1
TP	0.47	126.66	13.08	126.19	
60+00			2.7	129.0	116.6

Cut	
7.9	
Nail in 2×2 - 56 Lt 56+65	
8.6	
8.8	
8.1	
9.4	
8.6	
9.0	
7.8	
7.4	

Note in computing quantities from sta 59 to 62+50 use new alignment & grades from Am. Pipe Co. sheets

See page 69

		126.66		Elev	Grade	
60+13			8.1	118.6		
+25			11.1	115.6	104.0	11.6
+30			13.0	113.7		
TP	0.70	114.60	12.76	113.90		
60+50			6.0	108.6	102.1	6.5
+80			7.8	106.8		
+87			6.4	108.2		
61			6.4	108.2	100.1	8.1
+20			7.0	107.6		
+30			8.7	105.9		
+40			9.0	105.6	100.1	5.5
+45			7.3	107.3		
+50			6.9	107.7	100.3	7.4
62			6.8	107.8	101.3	6.5
+50			6.4	108.2	102.2	6.0
set B.M.	7.60	115.38	6.82	107.78		S.E. Cor. Manhole chamber 68 Lt, 63+25^{25}
63+00			6.6	108.8	103.2	5.6
+25^{25}			6.6	108.8		
TP	3.13	105.45	13.06	102.32		
TP	4.48	97.63	12.30	93.15		
ck on B.M.			6.93	90.70		County B. M. (U.S.G.S elev) Marked elev 96.63 − 6.12 = 90.51 − City datum
B.M.	1.65	109.43		107.78		
			9.60	99.8	City datum	Top of El Capitan P.L. at air value 605' Lt of P.I.#20 · P-1-line See page 7 this book

2/6/42
Hill
Soper
Bowlin
Davis

Alignment revision - L-3-line

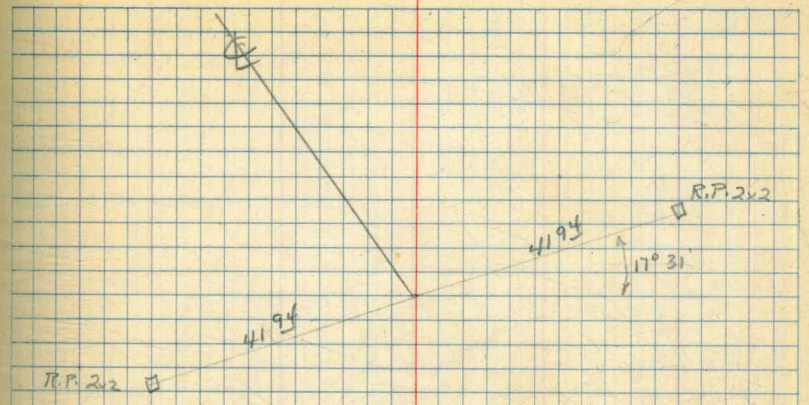
Mag.

S 77°30'W

5+83.00 ℄ 35°02' Lt.

N 67°W

0+00 - ℄ -3-line (Focal point) ℄ 38°03'30" Rt
67+33.50 - ℄-2-line



0+82 - power pole ⊕ < 8' >

19+00 P.O.T.

14+00 P.O.T.

12+70.00 P.O.T.

S 77°30'W

P.P. 2x2 ⊡ 40.00 40.00 ⊡ P.P. 2x2

2/7/42
Hill
Soper
Bowlin
Davis

Mag.

West

26+91.45 E.C.

Δ = 12°37' Rt

R = 1000'

T = 110.55

L = 220.20

B.C. = 24+71.25

E.C. = 26+91.45

def. i' = 1.719

def 50' = 1°25.944

+91.45 - 6°18.5

+50 - 5°07.2

26+00 - 3°41.3

+50 - 2°15.4

25+00 - 0°49.4

24+71.25 B.C.

S 77°30' W

R.P. 2×2 ▫ 40°00' . 40°00 ▫ R.P. 2×2

R.P. 2×2 ▫ 40°00' . 40°00 ▫ R.P. 2×2

2/9/42
Hill
Soper
Bowlin
Davis

Mag

S61°30'W

34+97.14 E.C

+97.14 = 14°30.5
+50 - 13°09.5
34+00 - 11°43.5
+50 - 10°17.6
33+00 - 8°51.6
+50 - 7°25.7
32+00 - 5°59.8
+50 - 4°33.8
31+00 - 3°07.9
+50 - 1°41.9
30+00 - 0°15.9

Δ = 29°01' Lt
R = 1000'
T = 258.77
L = 506.44
P.C. 29+90.70
P.C. 34+97.14
def. 1' = 1.74
def. 50' = 1°25.944

29+90.70 B.C.

R.P. 2x2 ⊡ 40.00 · 40.00 ⊡ R.P. 2x2

R.P. 2x2 ⊡ 40.00 · 40.00 ⊡ R.P. 2x2

(To page 13)

$41+06^{26}$ ahead (E.C. of prev. line)
=
$41+96^{38}$ back (P.O.T.

P.I. of curve on prev. line.
=
$40+74^{60}$ P.O.T.

R.P. 2x2 ▫ 40^{08} 40^{00} ▫ R.P. 2x2

2/9/42
Soper
Bowtin
Davis

℄ profile, L-3 revision

				Elev.	Grade
B.M.	4.90	447.77		442.87	
0+00			1.4	446.24	438.3
0+50			3.7	442.41	435.9
1+00			6.0	441.8	434.1
1+50			7.5	440.3	433.2
2+00			7.4	440.4	433.2
+50			6.2	441.6	433.1
3+00			5.4	442.4	433.1
+50			4.4	443.4	433.0
4+00			5.2	442.6	433.0
+50			6.7	441.1	432.7
+80			5.8	442.0	432.4
5+00			7.0	440.8	432.3
+20			8.8	439.0	431.8
+50			7.7	440.1	
+83			9.3	438.5	
6+00			9.9	437.9	
+30			9.5	438.3	
+50			11.6	436.32	428.1
7+00			12.5	435.3	426.3
PT	0.75	435.65	12.87	434.90	
7+50			2.6	433.1	424.5
+75			3.9	431.28	423.6
8+00			5.1	430.6	422.7

Cut

Nail in power pole, 9' Rt. 0+83

8.1
8.2
7.7
7.1
7.2
8.5
9.3
10.4
9.6
8.4
9.6
8.5
7.2
8.1
9.0
8.6
8.2
7.9

Note Δ at 5+83 replaced by curve.
See Am. Pipe + Constr. Co. drawing
" 4-29-8.

5+23.74 ahead
5+20.14 back

Sta.	Elev.	Grade	Cut
5+39.54	439.3	431.3	8.0
5+71.14	439.2	430.6	8.6
6+02.74	438.0	429.9	8.1
6+34.34	438.3	428.7	9.6

				Elev	Grade	Cut
		435.65 ✓				
8+05			5.6	430.1 ✓	422.5	7.6
+27			4.6	431.1 ✓	421.7	9.4
+50			6.5	429.2 ✓	420.9	8.3
+90			7.5	428.2 ✓	419.5	8.7
9+10			8.7	427.0 ✓	418.1	7.9
+35			9.9	425.8 ✓	417.8	8.0
+50			9.7	426.0 ✓	417.3	8.7
+90			11.6	424.1 ✓	416.5	7.6
10+00			11.2	424.5 ✓	416.3	8.2
+20			9.9	425.8 ✓	416.3	9.5
+50			11.1	424.6 ✓	416.2	8.4
+80			11.1	424.6 ✓	416.2	8.4
11+00			9.9	425.8 ✓	416.2	9.6
+20			10.3	425.4 ✓	416.2	9.2
+50			11.1	424.6 ✓	416.1	8.6
12+00			11.2	424.5 ✓	416.1	8.4
+17			10.8	424.9 ✓	416.0	8.9
+50			12.0	423.7 ✓	416.0	7.7
+65			10.4	425.3 ✓	415.9	9.4
+90			12.4	423.3 ✓	415.4	7.9
TP	0.70	424.55 ✓	11.80	423.85 ✓		
13+00			1.0	423.6 ✓	415.1	8.5
+25			2.8	421.8 ✓	414.0	7.8
+50			2.7	421.9 ✓	412.9	9.0
+70			4.3	420.3 ✓	411.7	8.6

				Elev	Grade
		424.55			
14+00			5.2	419.4	409.8
+20			8.1	416.5	408.2
+50			8.4	416.2	405.8
+65			9.8	414.8	404.6
+78			13.4	411.2	403.6
ck. on B.M.			8.98	415.57	Rec elev 415.57
TP	0.52	412.15	12.92	411.63	
15+00			1.9	410.3	401.8
+50			7.5	404.7	397.1
+75			9.4	402.8	394.8
16+00			11.8	400.4	392.6
TP	1.26	400.55	12.86	399.29	
16+10			0.6	400.0	391.5
+35			3.9	396.7	388.9
+50			5.9	394.7	387.3
+70			5.7	394.9	387.3
+85			6.6	394.0	387.3
17+00			5.4	395.2	387.3
+15			4.6	396.0	387.2
+50			4.9	395.7	387.2
18+00			4.4	396.2	386.7
+50			6.4	394.2	385.4
19+00			9.6	391.0	382.7
TP	0.65	388.64	12.56	387.99	
19+50			2.3	386.3	379.1

5' Lt 14+54

Cut
9.6
8.3
10.1
10.2
7.6
Radius 2+2 5' Lt 14+54
8.5
7.6
8.0
7.9
8.5
7.8
7.4
7.6
6.7
7.9
8.8
8.5
9.5
8.8
8.3
7.2

				Elev.	Grade	Cut
		388.64				
19+70			3.4	385.2	377.3	7.9
20+00			6.4	382.2	374.3	7.9
+30			9.1	379.5	370.6	8.9
+50			12.1	376.5	367.9	8.6
PI	1.89	377.93	12.60	376.04		
21+00			9.8	368.1	360.1	8.0
+35			16.6	361.3	353.3	6.0
+50			14.8	363.1	355.7	7.4
+70			9.7	368.2	358.0	10.2
22			8.7	369.2	361.4	7.8
+25			4.8	373.1	363.8	9.3
+50			3.3	374.6	366.2	8.4
PI	12.72	390.24	0.41	377.52		
22+70			13.2	377.0	367.8	9.2
+85			13.4	376.8	368.9	7.9
23			11.0	379.2	370.1	9.1
+40			8.8	381.4	372.5	8.9
+50			8.6	381.6	373.1	8.5
60			8.9	381.3	373.7	7.6
24+00			6.5	383.7	376.1	7.6
+50			3.5	386.7	378.1	8.6
+71.25 BC			2.1	388.1	378.7	9.4
PI	3.69	391.77	2.16	388.08		0.4 hub
25			4.0	387.8	379.1	8.7
+25			4.4	387.4	379.0	8.4

				Elev.	Grade	Cut
		391.77				
25+50			4.8	387.0	378.5	8.5
26			7.5	384.3	376.3	8.0
+50			11.1	380.7	372.9	7.8
+9145	EC		13.5	378.3	370.7	7.6
27+00			12.6	379.2	370.3	8.9
+25			12.8	379.0	371.4	7.6
+50			10.3	381.5	372.9	8.6
28			6.9	384.9	376.8	8.1
+50			3.3	388.5	380.7	8.3
+60			2.4	389.4	380.6	8.8
PI	13.01	403.53	1.25	390.52		
28+85			13.0	390.5	381.4	9.1
29			13.1	390.4	382.1	8.3
+50			12.3	391.2	382.9	8.3
+80			11.5	392.0	383.3	8.7
+90.70	BC		12.0	391.5	383.4	8.1
30			12.2	391.3	383.5	7.8
+25			11.5	392.0	384.2	7.8
+50			9.9	393.6	384.9	8.7
31			8.5	395.0	387.2	8.8 X
+50			4.6	398.9	390.4	8.5
+65			4.1	399.4	391.6	7.8
32			0.9	402.6	394.7	7.9
PI	12.71	415.41	0.83	402.70		
+30			10.4	405.0	396.6	8.4

				Elev.	Grade	Cut
		415.41				
32+50			9.5	405.9	397.7	8.2
33+00			7.4	408.0	400.0	8.0
+50			5.1	410.3	401.4	8.9
34+00			4.8	410.6	401.9	8.7
+18			4.6	410.8	401.7	9.1
+50			5.0	410.4	401.4	9.4
+97.4	E.C		6.0	409.4		
35+00			6.1	409.3	400.1	9.2
+50			8.1	407.3	399.0	8.3
36			9.5	405.9	397.9	8.0
+50			10.4	405.0	397.0	8.0
37			11.7	403.7	395.9	7.8
+50			12.6	402.8	394.8	8.0
TP	4.58	407.61	12.38	403.03		
38			6.2	401.4	394.0	7.4
+30			5.7	401.9	394.0	7.9
+50			5.7	401.9	394.0	7.9
+75			4.8	402.8	394.0	8.8
39			4.8	402.8	394.0	8.8
+50			5.0	402.6	394.0	8.6
40			5.0	402.6	394.0	8.6
+20			4.4	403.2	394.0	9.2
+50			4.4	403.2	394.0	9.2
41			4.5	403.1	393.7	9.4
+20			4.6	403.0	393.2	9.8

				Elev.	Grade
		407.61			
41+50			6.4	401.2	392.5
170			7.0	400.6	391.7
41+96.38 Back					
41+60.26 Ahead			9.0	398.6	390.3
TP	0.62	395.19	13.04	394.57	
TP	0.48	383.66	12.01	383.18	
Check B.M.			7.97	375.69	Rec. elev 375.72

Cut

8.7

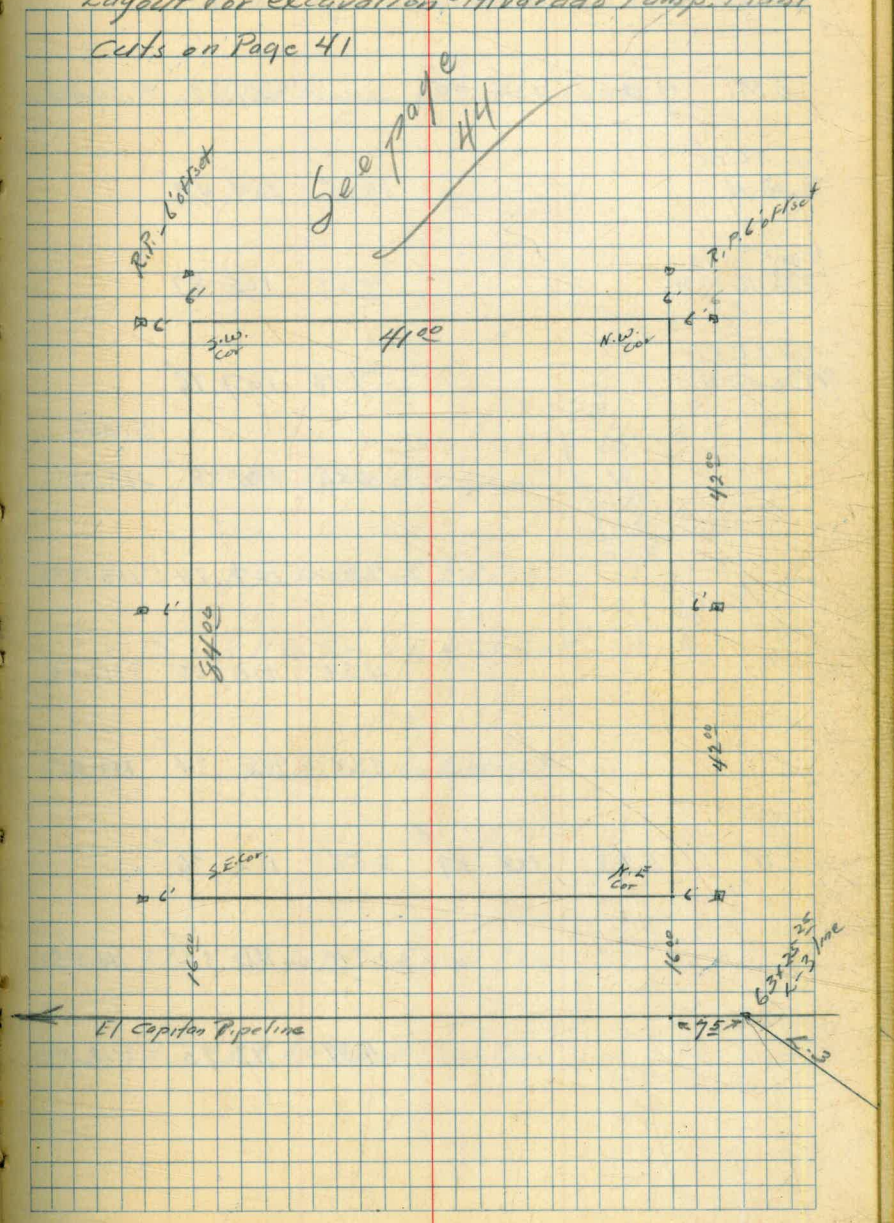
8.9

8.3 See bottom page 22

Nail in 2x2 hub 40' Rt. 43+50

Layout for excavation - Alvarado Pump. Plant

Cuts on Page 41



2/19/42
H.11
Soper
Bowlin
Davis

Offset cuts for Alvarado Pump Plant.

B.M.	7.16	114.94'		107.78	City datum
Top E.C.P.L. By M.H.			10.45	104.49'	
Top E.C.P.L. 33± N. M.H.			9.07	105.87'	
Top E.P.P.L. 74' N. of M.H.			7.18	107.76'	
					Grade
			4.56	110.38'	111.55
			7.20	107.74'	111.55
			4.39	110.55'	111.55
			2.60	112.34'	111.55
TP	5.93	118.29'	2.58	112.36'	
			1.97	116.32'	111.55
			4.39	113.90'	111.55

See page #5

S.E. Cor M.H. Chamber 68' Lt 63+25

F-1.17' R.P. to No. of N.E. Cor.

F-3.81' R.P. to So. of S.E. Cor.

F-1.00' R.P. to So. on ℄ of cut

C-0.79' R.P. to No. on ℄ of cut

C-4.77' R.P. to No. of N.W. Cor

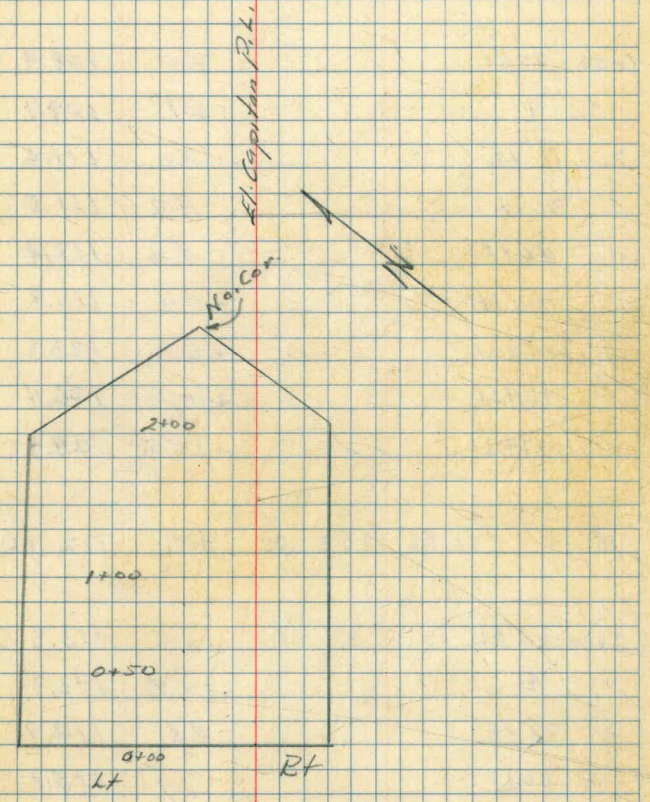
C-2.35' R.P. to So. of S.W. Cor.

2/19/42
Hill
Soper
Bowlin
Davis

X-Sections for topog. - Alvarado Pump Plant.

	8.57	116.35'	107.78	City datum
0+00 - ℄		12.7	103.7	
25' Rt		13.6	102.8	
0+00 - 50' Lt		11.0	105.4	
" 100' Lt		6.2	110.2	
" 121' Lt		2.4	114.0	
" 150' Lt		+7.5	123.9	
" 177' Lt		+16.3	132.7	
0+50 - 25' Rt		11.1	105.3	
0+00 - ℄		11.1	105.3	
" 49' Lt		9.4	107.0	
" 100' Lt		4.1	112.3	
" 136' Lt		0.0	116.4	
" 150' Lt		+4.6	121.0	
" 181' Lt		+14.8	131.2	
1+00 - 25' Rt		8.6	107.8	
" ℄		9.2	107.2	
" 50' Lt		5.7	110.7	
" 100' Lt		1.7	114.7	

All sections taken at 90°, Rt or Lt of El Capitan Pipe line



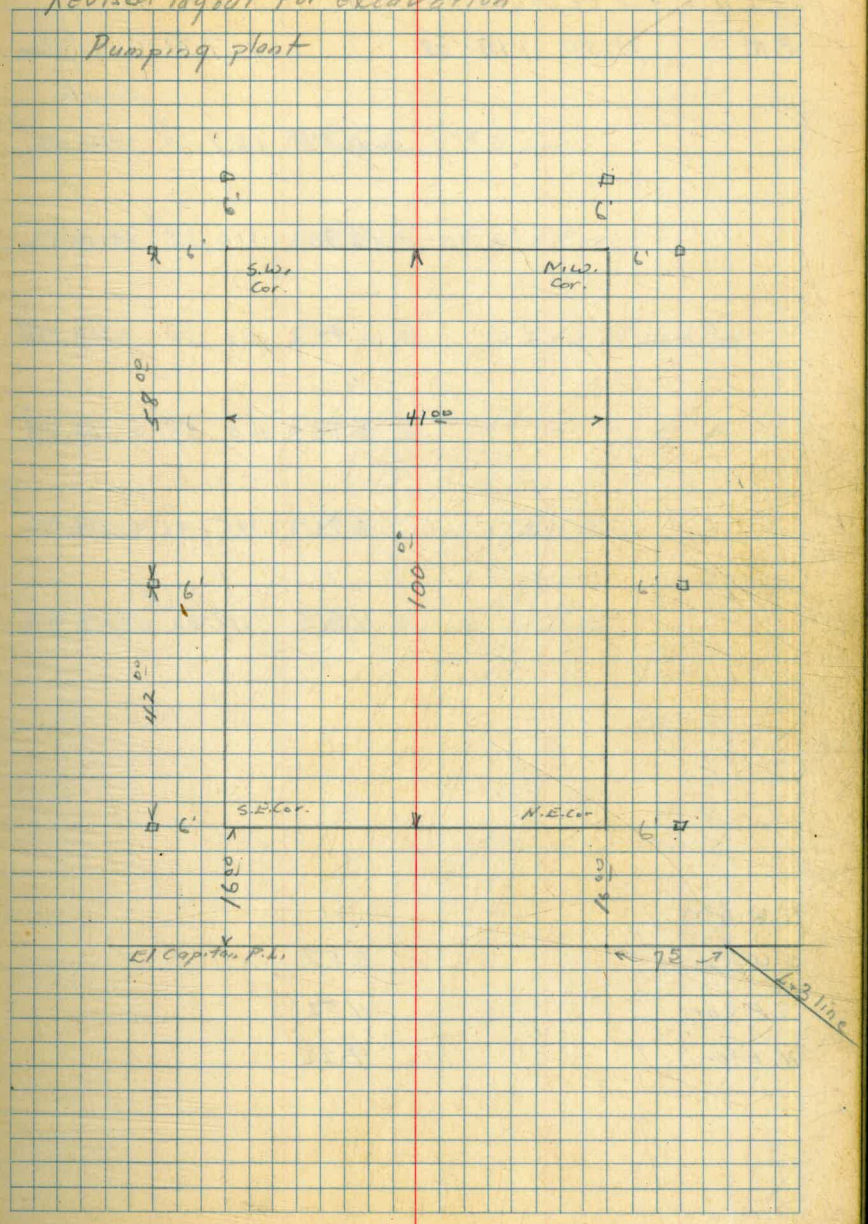
		116.35		
1+00 - 125' Lt			+1.5	117.9
" 140' Lt			+4.5	120.9
" 173' Lt			+12.5	128.9
1+50 - 25' Rt			7.5	108.9
" ℄			6.7	109.7
" 11' Lt			5.0	111.4
" 30' Lt			4.9	111.5
" 50' Lt			4.0	112.4
" 100' Lt			+0.4	116.8
" 150' Lt			+6.9	123.3
" 164' Lt			+10.0	126.4
" 174' Lt			+13.5	129.9
PI	11.56	123.72 ✓	4.19	112.16 ✓
2+00 - 25' Rt			10.4	113.3
" ℄			10.4	113.3
" 38' Lt			8.8	114.9
" 50' Lt			7.9	115.8
" 100' Lt			3.3	120.4
" 142' Lt			+2.7	126.4
" 164' Lt			+7.8	131.5
On No. Con Pump. Plant.			7.6	116.1

See Sketch - page 42

2/29/42
Soper
Bowden
Davis

Revised layout for excavation

Pumping plant



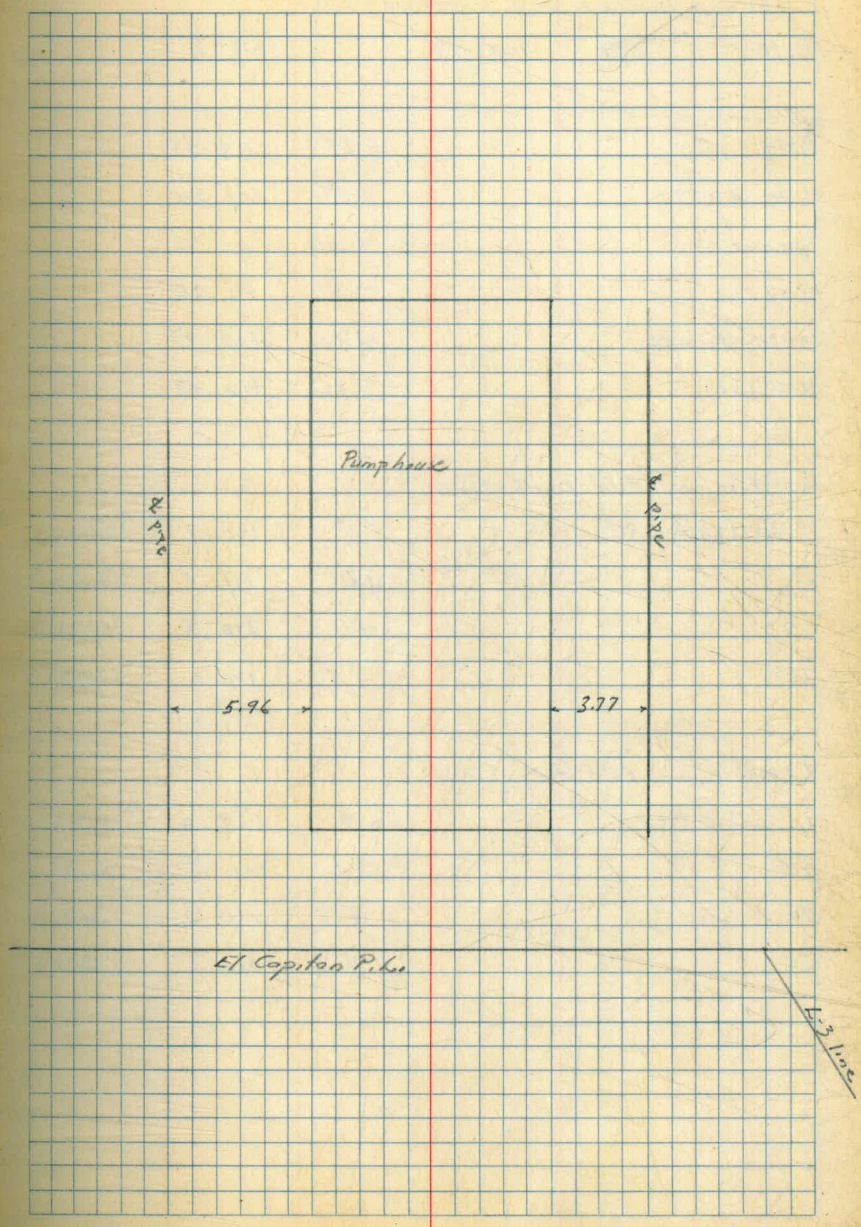
Cuts for excavation - Pumping Plant

B.M	11.50	119.28		107.78	City datum
					Grade
			11.54	107.74	110.32
			8.90	110.38	110.32
			6.94	112.34	110.74
			8.73	110.55	110.74
			3.92	115.36	111.32
			1.26	118.02	111.32
N.W. Cor.			1.71		
S.W. Cor.			3.57		
S.E. Cor.			11.52		
N.E. Cor.			9.22		

F - 2.58	R.P. to So. of S.E. Cor.
C - 0.06	R.P. to No of N.E. Cor.
C - 1.60	R.P. to No. - 42' West of East line
F - 0.19	R.P. to So. " " " " "
C - 4.04	R.P. to So. of S.W. Cor.
C - 6.70	R.P. to No. of N.W. Cor.

B.M.	8.60	116.38		107.78	
			6.61	109.77	110.32
			5.92	110.46	110.32
			5.73	110.65	110.74
			5.36	111.02	110.74
			4.14	112.24	111.27
			4.49	111.89	111.27
B.M.	12:56	120.34		107.78	
			3.87	116.47	111.32
			2.29	118.05	111.32

F. 0.6	S.E. Cor
C. 0.2	N.E. Cor
F. 0.1	42' West - No. side
C. 0.3	42' West - So. side
C. 1.0	95' West - So. side
C. 0.6	95' West - No. side
5.15	R.P. 6' West of S.W. Cor
6.73	R.P. 6' West of N.W. Cor.


Pumphouse
8" P.V.C
8" P.V.C
5.96
3.77
El Capitan P.L.
L-3 line

Pump house - and pipeline cuts.

B.M.	7.81	115 59		107.78
S.E. Cor Bldg.			5.84	109.75
center So. side			4.49	114.10
S.W. cor			4.20	111.39
N.W. cor			4.24	111.35
center-No. side			4.72	110.87
N.E. Cor.			5.12	110.47

℄ profile, manifold North of house

15' west of E.C.P.L.			5.5	110.1	104.2	C 5.9
40' " " "			4.6	111.0	104.2	C 6.8
65 " " "			4.7	110.9	104.2	C 6.7
86.5 " " "			4.5	111.1	104.2	C 6.9

℄ profile, manifold South of house

15' west of E.C.P.L.			6.4	109.2	104.3	C 4.9
25' " " "			5.2	110.4	104.3	C 6.1
50' " " "			4.7	110.9	104.3	C 6.6
65' " " "			4.3	111.3	104.3	C 7.0

Grades - Pumphouse

B.M.	8.02	115.80		107.78	Subgrade
S.E.Cor. 2' off			5.90	109.90	109.97
N.E. " "			5.46	110.34	109.97
center N. side 2' off			5.00	110.80	110.17
" S. Side "			4.66	111.14	110.17
S.W. Cor 3' off			4.29	111.51	110.37
N.W. " "			4.57	111.23	110.37

Res. at N.W. cor pump plant tract

	13.01	120.79		107.78
S.E. Cor. Residence			1.1	119.7
R	8.25	129.02	0.02	120.77
N.E. Cor. Residence			7.6	121.4
N.W. " "			2.6	126.4
S.W. " "			4.7	127.3

(bottom of cone)

F. 0.07'
C - 0.37'
C. 0.63'
C - 0.97'
C - 1.14'
C - 0.86'

Cuts for Manifold pipe

B.M.	8.18	115.96		107.78	
N.E. Cor			3.98	111.98	104.21
" 1			3.98	111.98	"
" 2			3.99	111.97	"
" 3			4.01	111.95	"
" 4			3.98	111.98	"
" 5			3.99	111.97	"
S.W. Cor			3.93	112.03	104.27
" 1			3.93	112.03	"
" 2			3.94	112.02	"
" 3			3.95	112.01	"
" 4			3.95	112.01	"
" 5			3.97	111.99	"

7.77
7.77
7.76
7.74
7.77
7.76

7.76
7.76
7.75
7.74
7.74
7.72

check on top of Manifold pipes

B.M.	4.26	112.04		107.78
			4.73	107.31
			4.67	107.37
B.M.	4.63	112.41		107.78
			5.10	107.31
B.M.	3.82	111.60		107.78
			4.25	107.35

Top of North 36" I.D. Pipe (0.02 for wrapping)

" " South " " " " " " "

Top of So. 36" I.D. Pipe No wrapping

Soundings to determine loc. of old earth dam at Murray 10/28/02 - 10/29/02

BM. 495 44041 5-35.46

4.92 53549 = 100.0' em

But 24 (East end).

Stadia dists from ℄ walk of multiple arch dam.

23

22

21

20

19

18

17

16

15

14

Res. gauge 86.6

Res. gauge

For But. 25 see P. 53

73.1 72.7 71.4 70.1 66.6 63.1

13.5 13.9 15.2 16.5 20.0 23.5

29 40 57 96 150 182

Conc.

69.2 67.6 60.6 59.8 60.8 60.6 57.6 55.8

17.8 19.0 26.0 26.3 25.8 26.0 29.0 30.8

32 55 80 100 128 155 210

Conc 2

58.8 58.3 62.6 65.6 66.9 59.3 54.6 52.6

27.8 28.3 24.0 21.0 20.3 27.3 32.0 34.0

47 66 81 94 125 157 191 220

Conc 2

62.6 62.6 66.9 66.4 58.4 51.6 47.6 46.4

22.0 24.0 20.6 20.2 28.2 35.0 39.0 40.2

33 112 119 129 145 192 230 257

Conc

62.3 60.6 60.2 65.6 66.2 50.6 50.6 44.6

24.3 26.0 26.3 21.0 20.4 36.0 36.0 42.0

33 77 112 127 136 185 215 266

Conc 2

59.4 51.6 57.3 65.4 66.5 49.6 48.6 42.4 38.2

27.8 29.0 29.3 24.9 20.1 37.0 38.6 44.2 48.4

42 72 110 135 146 190 227 253 297

51.6 67.6 54.3 54.6 66.2 66.6 40.6 48.6 32.6

29.0 29.0 32.3 32.0 20.3 21.0 46.0 46.0 59.0

32 63 75 130 140 154 199 240 280

Conc 2

50.4 50.6 48.6 50.6 65.9 65.9 46.2 31.6 20.6 20.6 17.6

36.0 36.0 38.0 20.7 20.7 40.4 55.0 66.0 66.0 69.0

43 77 102 148 160 185 205 260 295 370

Conc 2

45.6 44.6 40.6 40.8 65.4 64.9 42.6 28.6 26.6 10.6 10.6

41.9 42.0 46.0 45.8 20.9 21.7 44.4 58.0 60.0 76.0 76.0

48 56 71 105 152 163 195 220 237 290 390

Conc 2

43.4 44.4 31.9 37.3 65.6 65.6 53.6 34.6 16.6 9.6 12.6

43.1 57.2 55.6 48.3 21.0 21.0 32.0 52.0 70.0 77.0 79.0

49 81 101 113 160 175 193 220 281 350 390

29.6 20.1 25.9 18.6 13.5 21.6

57.0 66.5 58.0 28.6 21.2 65.4 21.0 65.6 60.7 68.0 73.1 65.0

57 89 109 164 176 255 286 325 390

Conc 2

To be this or

(cont.)

But

13

12

11

10

9

8

7

6

25

Gauge 86.6

22.4	14.0	14.6	65.1	65.1	25.1	22.6	15.6	26.1	28.6
64.2	72.6	72.0	21.5	21.5	61.5	64.0	71.0	60.5	58.0
61	78	84	171	180	251	257	282	380	425

Concr 2

12.6	20.6	65.6	65.6	46.6	41.6	36.6
72.0	66.0	21.0	21.0	40.0	45.0	50.0
70	99	178	193	270	322	410

46.6	21.6	23.6	38.1	65.6	65.6	51.6	52.6	55.1	44.1
62.0	65.0	63.0	48.5	21.0	21.0	35.0	34.0	31.5	42.5
18	73	100	129	186	197	228	253	319	390

Concr 2

42.1	34.0	31.6	34.6	46.1	66.1	65.6	48.6	58.6	57.6	53.6	51.5
44.5	52.6	55.0	52.0	40.5	20.5	21.0	38.0	28.0	29.0	33.0	35.1
48	58	91	104	155	195	206	242	267	276	335	396

Concr 2

43.9	33.8	46.6	65.9	66.0	51.6	62.5	63.7	58.1
42.7	52.8	40.0	20.7	20.6	29.0	24.1	22.9	28.5
52	70	133	200	213	232	256	315	405

46.6	44.5	46.5	58.3	65.0	67.6	71.6	73.8	72.3
40.0	42.1	40.1	28.3	21.6	18.0	15.0	12.8	14.3
43	60	92	158	187	225	250	267	360

Concr

53.7	64.9	64.7	78.7	86.6
32.9	31.7	21.9	7.9	0.0
47	83	128	183	197

61.4	64.2	70.9	86.6
26.2	22.4	15.7	0.0
38	59	98	139

77.0	74.8	75.3	71.9	66.8
9.6	11.8	11.3	14.7	19.8
25	70	84	120	170

approx. 2 oldom

Profile 10' offset hubs - Murray Pl.

King Hyman 12-23-47

	B.S.	H.I.	F.S.	Elev.	Grade
B.M.	Top of air valve Cham.		El Capitan Pl.	107.78	
	4.65	112.43			
63+00			4.0	08.4	103.7
62+50			9.8	07.6	102.7
62+00			4.6	07.8	101.3
61+50			5.3	07.1	100.3
61+40			5.7	06.7	100.1
61+00			5.3	07.1	100.1
60+75			4.7	07.7	100.1
60+50			1.5	10.9	102.7
T.P.			0.85	111.58	
	12.12	123.70			
60+25			8.2	15.5	109.0
T.P.	0.46		0.46	123.24	
	12.09	135.33			
60+00			10.6	24.7	116.6
T.P.			0.26	135.07	
	12.59	147.66			
59+75			10.5	37.2	129.1
59+50			6.1	41.6	135.8
T.P.			0.61	147.05	
	12.51	159.56			
△ 59+36			16.4	43.2	139.3
59+25			9.5	50.1	142.1

54

10' ft offset grades

Cut

Cut

~~4.7~~ 5.2
~~5.7~~
~~4.9~~ 5.4
6.5
6.8
6.6
7.0
7.6
8.2

11.5

8.1

8.1
5.8

3.9
8.0

Used Am. Pipe Co. align. & grades, see page 69.

	B.S.	159.56	F.S.	Elev.	Grade
59+00			4.5	35.1	148.0
58+75			0.1	59.5	153.5
T.P. offset hub	12.86	172.32	0.10	159.46	
58+50			7.7	64.6	158.7
T.P.	13.06	185.10	0.28	172.04	
58+00			8.6	76.5	169.1
T.P.	12.75	197.13	0.72	184.38	
57+50			10.0	87.1	179.1
57+08			0.4	96.7	189.1
B.M.	56' Lt.		8.95	Elev. 188.22 correct 188.18	
T.P. hub 57	12.30	209.10	0.37	196.80	
56+50			2.3	06.8	199.4
T.P.	12.85	221.28	0.77	208.35	
56+00			6.3	215.0	208.6
E.C. 55+71.47			1.6	219.7	213.1
T.P.	12.66	233.84	0.10	221.18	
55+50			11.5	22.3	216.3
55+00			5.8	28.0	223.9
T.P.	12.14	245.67	0.31	233.52	
54+50			10.2	35.5	231.7
54+00			1.5	44.2	238.9
53+94.32			0.6	45.1	
T.P.	12.85	249.97	9.05	236.62	
T.P.	12.65	261.90	0.22	249.25	

Cut

7.1
6.0
5.9
7.4
8.0
7.6
7.4
6.4
6.6
6.0
4.1
4.1
5.3

T.P. on Hub - 48' Lt. 53+94.32

		261.90			
53+50			10.4	51.5	246.4
53+00			2.0	59.9	253.9
T.P.	12.76	273.42	0.84	61.06	
52+75			9.6	63.8	257.9
52+50			5.2	68.2	262.2
TP	12.77	~~285.99~~ 286.03	0.20	273.~~22~~ 26	
52+25			11.5	74.5	266.1
52+00			7.8	78.2	269.6
51+75			4.7	81.3	272.7
51+50			2.2	83.8	275.4
T.P.	12.77	297.~~88~~ 92	0.88	285.~~1~~ 15	
51+25			11.5	86.4	277.7
51+00			9.9	88.6	279.6
50+75			8.8	89.1	286.1
50+50			7.6	90.3	282.3
50+00			5.4	92.5	284.8
49+50			2.5	95.4	287.3
49+00			0.4	97.5	289.8
T.P. ON Gig	12.67	310.~~76~~ 21	0.~~39~~ 38	~~219.99~~ 297.54	
48+50			10.00	300.2	292.6
48+25			7.6	02.6	294.3
48+00			6.5	03.7	296.3
47+75			4.3	05.9	298.6
47+50			1.0	09.2	301.2
T.P. 9 INCH 47+50	12.98	322.~~44~~ 13	~~1.02~~ 0.98	309.~~14~~ 23	

Cut

5.1
6.0
5.9
6.0
8.4
8.6
8.6
8.9
8.7
8.9
8.0
8.0
7.7
8.1
7.9
7.6
3.3
7.4
7.3
8.0

King Hyman 12-30-42

		~~322.04~~ 322.13				
47+25			10.4	~~11.6~~ 11.7 ✓	309.1	7.6
47+00			7.1	~~14.9~~ 15.0 ✓	307.3	7.7
46+75			3.5	~~18.5~~ 18.6 ✓	310.8	7.8
46+50			0.3	~~21.7~~ 21.8 ✓	314.5	7.3
T.P. engine 46+50	12.81	~~334.53~~ 334.64	~~0.32~~ 0.30	~~321.72~~ 321.83 ✓		
46+00			5.3	~~29.2~~ 29.3	322.1	7.2
T.P.	12.43	~~346.47~~ 346.60	~~0.49~~ 0.47	~~334.04~~ 334.17		
45+50			10.2	~~36.5~~ 36.4	329.6	6.8
45+00			1.9	~~44.6~~ 44.7	337.7	7.0
T.P.	12.46	~~358.37~~ 358.51	~~0.56~~ 0.55	~~345.91~~ 346.05		
44+50			5.8	~~52.6~~ 52.7	346.3	6.4
T.P.	12.62	~~370.58~~ 370.73	~~0.41~~ 0.40	~~357.96~~ 358.11		
44+00			9.2	~~361.4~~ 361.5	354.9	6.6
43+50			1.1	69.6	362.6	7.0
T.P.	12.45	~~381.90~~ 382.05	1.13	~~369.45~~ 369.60		
43+25			8.6	73.5	366.5	7.0
43+00			5.4	76.7	370.1	6.6
42+75			1.7	80.4	373.4	7.0
T.P.	12.53	~~394.06~~ 394.23	~~0.37~~ 0.35	~~381.53~~ 381.70		
42+25			7.5	86.7	379.6	7.1
42+00			5.2	89.0	382.3	6.7
41+75			2.5	91.7	384.8	6.9
T.P.	12.65	~~406.09~~ 406.24	~~0.62~~ 0.64	~~393.44~~ 393.59		
41+40			10.8	395.4	387.9	7.5
41+06.26=			8.5	97.7	390.3	7.4

41+96.38 Back

		406.24 ~~.09~~			
41+75			6.7	99.5	391.5
41+50			5.7	100.5	392.5
41+00			3.9	02.3	393.7
40+50			3.8	02.4	394.0
40+00			4.0	02.2	394.0
39+50			4.0	02.2	394.0
39+00			4.3	01.9	394.0
38+50			5.0	01.2	394.0
T.P. 38+50	7.93	409.24 ~~.08~~	4.93 4.94	401.31 ~~.15~~	
38+00			8.5	400.7	394.0
37+50			7.1	02.1	394.8
37+00			5.5	03.7	395
36+50			4.7	04.5	397.0
36+00			3.7	05.5	397.9
35+50			1.5	07.7	394.0
35+00			0.2	09.0	400.1
T.P. 9.NWP 35+00			0.24	409.02 ~~408.84~~	
B.M.	L 34+60 - 80'			411.73	
	3.40	415.13			
34+50			4.6	10.5	401.4
34+00			4.4	10.7	401.9
33+50			5.0	10.1	401.4
33+00			7.0	08.1	400.1
32+50			8.7	06.4	397.7
32+00			12.0	03.1	394.5

8.0
8.0
8.6
8.4
8.2
8.2
7.9
7.2

6.7
7.3
7.8
7.5
7.6
8.7
8.9

9.1
8.8
8.7
8.4
8.7
8.6

MINE OTTEN Hyman 1-25-93

		415.13			
T.P. 32+00	0.65	407.73	12.05	403.08	
31+50			3.9	99.8	390.9
31+00			6.9	96.8	387.2
30+50			9.0	94.7	384.9
30+00			10.8	92.9	383.5
B.C. 29+90.20			10.8	92.9	383.4
29+50			11.0	92.7	382.9
29+00			11.5	92.2	382.1
28+75			12.0	91.7	381.2
T.P. 28+75	1.38	393.12	11.99	391.74	
28+50			3.0	390.1	380.2
28+25			5.0	388.1	378.7
28+00			6.5	386.6	376.8
27+50			10.6	382.5	372.9
27+25			13.2	379.9	371.9
27+00			13.6	379.5	370.3
E.C. 26+91.45			13.8	379.3	
26+75			13.6	379.5	371.0
26+50			11.6	382.5	372.9
26+25			10.7	382.4	374.9
26+00			6.6	386.5	376.3
25+75			4.2	388.9	377.6
25+50			3.1	390.0	378.5
25+25			2.2	390.9	379.0
25+00			2.6	390.5	379.1

	9.4
	9.6
	9.8
	9.4
	9.5
	9.8
	9.1
	10.5
	9.9
	9.4
	9.8
	9.6
	8.5
	9.2
	8.1
	9.6
	7.8
	10.2
	11.3
	11.5
	11.9
	11.4

KING
OTHER
2-17-43

				Elev	Grade
		397.12			
B.C. 24+31.25			3.7	389.4	378.7 ~~379.7~~
T.P.	12.12	401.47	3.77	289.35	
				395.99	
B.M. hub 1+90' -24+71			6.05	395.42	
24+25	0.37	395.81	8.4	87.4	377.4 OK from here
24			9.5	86.3	376.1
23+50			12.11	83.7	373.1
T.P.	0.80		12.62	383.19	
23		383.99	2.4	81.6	370.1
22+50			9.5	79.5	366.2
22			10.5	72.5	361.4
T.P.	7.91		12.89	371.10	
21+90		379.01	12.6	66.4	354.6
21+20			12.8	66.2	357.2
21+00			9.6	69.4	360.1
20+75			8.6	70.4	364.1
20+50			5.0	74.0	367.9
20+25			0.3	78.7	371.3
T.P.	9.84		0.33	378.68	
20+00		388.52	7.2	81.3	374.8
19+75			5.0	83.5	376.9
19+50			4.4	84.1	379.1
T.P. Gun 19+30	12.79		4.36	384.16	
19+00		396.95	8.0	89.0	382.7
18+50			4.2	92.8	385.4
18+25			2.8	94.2	386.3
17+75			2.4	94.6	87.2
17+50			2.6	94.4	87.2
17			3.2	93.8	87.3
16+50			1.0	96.0	87.3

10.7 ~~10.8~~	
10.0	
10.2	
10.6	
11.5	
13.3	
11.1	
11.8	
9.0	
9.3	
6.3	
6.1	
7.4	
7.0	
6.6	
5.0	
6.3	
7.4	
7.9	
7.4	
7.2	
6.5	
8.7	

		396.95				
T.P.	13.02	409.35	0.62	396.33		
16+00			9.0	400.4	92.5	7.9
15+50			3.1	06.3	97.1	9.2
T.P.	12.52	421.28	0.59	408.76		
15+00			9.9	11.4	401.8	9.6
14+50			5.6	15.7	05.8	9.9
14+00			2.5	18.8	09.8	9.0
B.M. Lt. 14+50	11.27	426.73	5.82	415.96 c 415.46		
13+50			5.2	21.5	12.9	8.6
13+00			3.7	23.0	15.1	7.9
T.P. 40' Lt 12+70 hub	11.65	435.6.8	2.70	424.03		
12+75			11.8	23.9	15.8	8.1
12+50			11.9	23.8	14.0	7.8
12+00			9.6	26.1	16.1	10.1
11+50			9.2	26.5	16.1	10.4
11+00			9.2	26.5	16.2	10.3
10+50			10.8	24.9	16.2	8.7
10+00			11.4	24.3	16.3	8.0
9+50			11.1	24.6	17.3	7.3
9+00			9.3	26.4	19.1	7.3
8+50			7.6	29.1	20.9	8.3
8+00			5.5	30.2	22.7	7.5
7+50			3.0	32.7	24.5	8.2
7+00			0.9	34.8	26.3	8.5
T.P	10.01	445.58	0.11	435.57		

	995.58			
6+39.39		8.2	37.4	29.1
6+02.74		7.6	38.0	29.9
5+71.19		6.4	39.2	30.6
5+39.54		6.3	39.3	31.3
5+00		5.7	39.9	32.3
4+50		4.8	40.9	32.7
4+00		3.2	42.4	33.0
3+50		2.8	42.8	33.0
3+00		3.7	41.9	33.1
2+50		4.5	41.1	33.1
2+00		6.0	39.6	33.2
1+50		5.8	39.8	33.2
1+00		4.2	41.4	34.1
0+50		2.2	43.9	35.9
0+00		0.0	45.6	38.3
B.M.4+50		10.57	34.96 35.01	

8.3
8.1
8.6
8.0
7.6
8.2
9.4
9.8
8.8
8.6
6.4
6.6
7.3
7.5
7.3

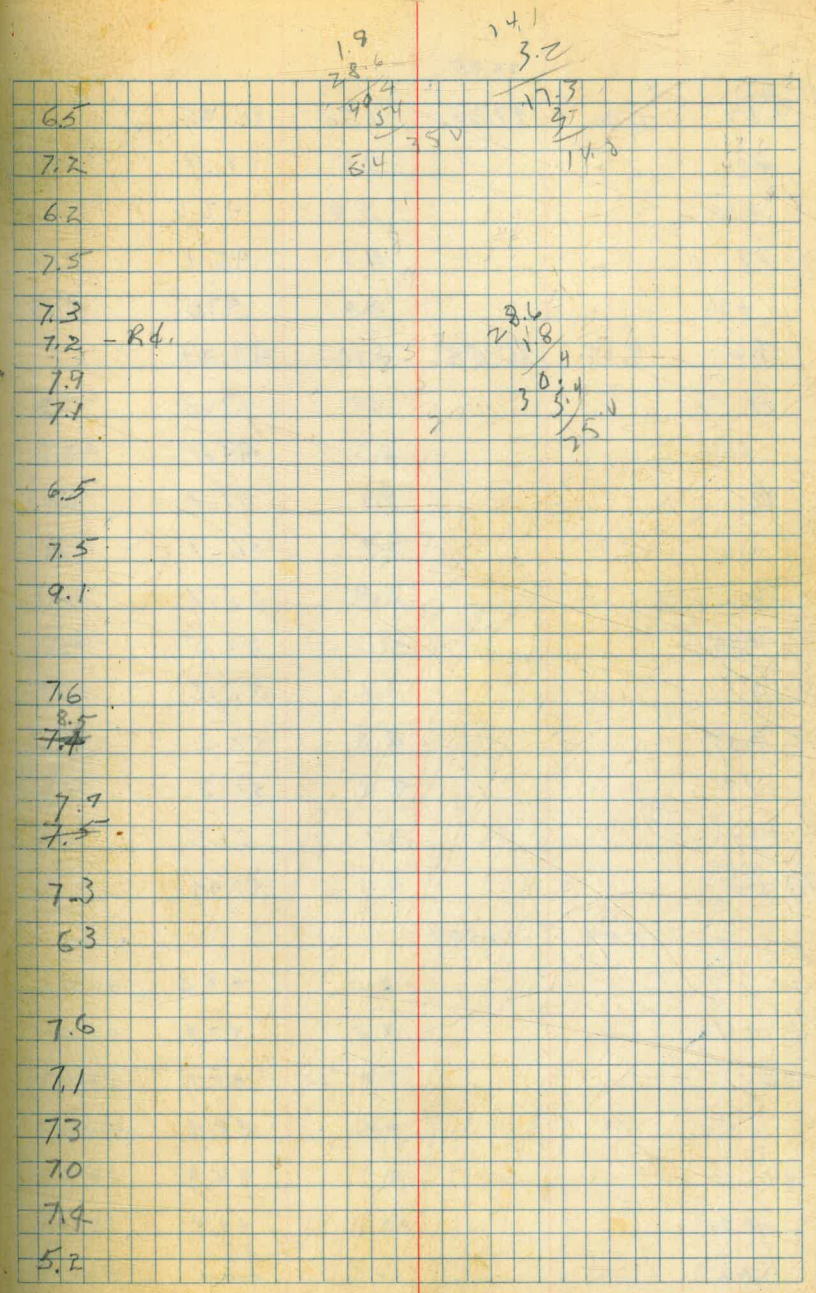
CONT'D from Book 543 - 10' offset

King
Otten
2-15-43

21.9
7.8

T.P.	0.71	43.11		42.40		
+75			2.9	40.1	35.1	5.0
+50			5.4	37.6	31.1	6.5
TP.	0.12	30.53	12.70	30.41		
52			0.9	29.6	22.3	7.3
+75			4.9	25.6	417.9	7.7
+50			8.9	21.6	413.0	8.6
TP.	8.68	27.42	11.79	18.74		
+25			11.2	16.2	407.8	8.4
51			10.6	16.8	407.8	9.0
+50			12.2	15.2	407.8	7.4
+25				H.L. 16.8	407.8	7.8
50			5.5	21.9	413.3	8.6
+75			0.4	27.0	418.5	8.5
TP.	12.73	39.71	0.44	26.98		
+50			8.9	30.8	423.3	7.5
+25			4.6	35.1	427.6	7.5
49			0.7	39.0	431.4	7.6
TP.	12.12	51.12	0.71	39.00		
+75			9.0	42.2	434.7	7.5
B.M.R+49	11.47	53.90	8.72	42.43 / 42.40		
+50			8.9	45.0	437.6	7.9
+25			5.8	48.1	440.1	8.0
48			4.1	49.8	442.3	7.5
+75			2.4	51.5	444	7.4 ~~8.4~~
+50			1.3	52.6	445.4	7.2

		53.90			
+25			1.2	52.7	446.2
47			0.2	53.7	46.5
+75			1.4	525	46.3
+50			0.8	53.1	45.6
+25			2.0	H.L 51.7 ~~51.9~~	44.4
96				H.L 50.0	42.8
+75				H.L 48.6	40.7
+50				45.3	38.2
T.P.	0.47	46.83	7.54	46.36	
+25			4.6	42.2	35.7
45			6.6	40.2	32.7
+75			8.5	38.3	29.2
T.P.	0.41	34.31	12.93	33.90	
+25			5.7	28.6	21.0
4.4				H.L 25.0 ~~23.9~~	16.5
T.P.	2.43	24.07	12.67	21.64	
43+45			10.2	H.L 14.0 ~~13.8~~	06.3
43+05			10.0	14.1	06.8
+50			5.0	19.1	12.8
T.P.	12.29	35.95	0.41	23.66	
42			9.1	26.9	19.3
+75			6.9	29.1	22.8
+50			4.5	31.5	24.2
+25			3.1	32.9	25.9
41			1.4	34.6	27.2
+50			1.0	35.0	29.8



		35.95			
T.P.	11.90	47.35	0.50	35.45	
40			9.5	38.9	32.9
+50			5.9	42.0	35.0
39			2.3	45.1	37.6
+50			0.4	47.0	39.3
T.P.	9.39	57.55	0.14	47.21	
38			8.8	47.8	48.9
+50			6.7	49.9	42.6
37			4.9	51.7	44.3
+50			3.7	52.9	45.2
36			2.9	53.7	46.1
+50			3.1	53.5	46.1
35			3.9	52.7	45.7
+50			4.4	52.2	45.3
34			4.8	51.8	44.9
+50			5.1	51.5	43.5
T.P. 33+50 Quincy			5.11	51.44	
	5.53	56.97			
33			8.0	49.0	41.3
+50			9.6	47.4	40.2
32			9.8	47.1	40.1
+50			8.6	48.4	40.0
31			8.8	48.2	39.9
+25			10.2	46.8	39.8
+50			10.5	H.L. 46.0 ~~46.5~~	40.3

6.5
7.0
7.5
7.7
6.9
7.3
7.4
7.7
7.6
7.4
7.0
6.9
6.9
8.0
7.7
7.2
7.0
6.4
8.3
7.0
5.7
6.2

		56.97			
30			8.0	49.0	42.1
+50			6.3	50.7	43.9
29			4.4	52.6	45.7
+50			2.1	54.9	48.7
T.P.	11.54	67.76	0.75	56.22	
28			10.6	57.2	51.0
+20			9.1	58.7	52.5
27			5.9	61.9	55.9
+50			3.6	64.2	58.2
+25			2.7	65.1	58.9
26			2.3	65.5	59.1
+75			2.1	65.7	59.5
+50			1.9	65.9	59.5
+25			1.9	65.9	59.5
25			2.3	65.5	59.2
+75			2.6	65.2	58.9
24+50			3.2	64.6	58.3
24			4.6	63.2	57.0
+50			5.5	62.3	56.8
23			6.4	61.4	54.5
22+50+T.P.			7.77	59.99	53.3
	0.75	60.74			
22+25				59.4	52.3
22+00			7.7	58.0	50.8
+75			3.8	56.9	48.8
+50			5.6	55.1	46.3

6.9
6.8
6.9
6.6

6.2
6.2
6.0
6.0
6.2
6.4
6.2
6.4
6.4
6.3
6.3
6.3
6.2
6.5
6.9
6.7

7.1
7.2
8.1
8.8

		60.74			
+25			8.7	52.0	43.3
T.P.	066	49.91	11.49	49.25	
21+00			3.0	46.9	39.8
+75			6.3	43.6	35.8
+50			10.1	39.8	31.4
TP	0.05	38.45	11.51	38.40	
+25			3.7	34.8	26.7
20+00			7.38	31.07	21.6
T.P.	0.60	26.42	12.63	25.82	
19+50			7.2	19.2	10.6
T.P.	0.94	14.59	12.77	13.65	
19+00			10.0	04.6	9.7
T.P.	12.76	23.28	4.07	10.52	
EC 18+16.05			7.7	15.6	7.7
18			5.2	18.1	10.9
T.P.	11.99	34.63 ~~28.18~~	0.64	22.64 ~~16.19~~	
+50			6.4	28.2	21.2
T.P.	12.94	47.15 ~~40.70~~	042	34.21 ~~27.76~~	
17			8.0	39.2	32.2
+75			2.5	47.7	38.20
T.P.	12.31	~~57.18~~ ~~50.65~~	0.36	46.79 ~~46.34~~	
+50			9.2	48.9	43.10
+25			5.3	53.8	46.8
16			1.5	57.6	46.9
B.M.			2.22	56.88 ~~50.42~~	56.90

10.6

8.7

7.1

7.8

8.4

8.1

9.5

Top Ring on BACK Pipe

8.6

4.9

Top Ring on Pipe at 18+00

7.9

7.2

1052

	18+50		1.2	09.3	Grade 401.1	C -8.2
7.0	18+80		5.8	04.7	595.3	9.4

7.0

6.5

5.8

7.0

10.7

Hub at 15+52

H.I. 4-20
King
Polar
Otten

		H.I		Elev	Grade
B.M.	9.85	44.35		34.50	
0+75			11.7	33.7	429.5
1+00			12.9	31.5	428.3
1+40			17.2	27.2	
1+46.3			13.8	30.6	428.3
1+683			13.0	31.4	429.3
2+00			7.3	37.1	434.4
T.P.	12.35	55.99	0.71	43.64	
2+50			10.9	45.6	442.1
2+97			2.1	53.9	448.6
3+09			0.2	55.8	449.8
3+25			0.2	55.8	449.8
3+50			2.0	54.0	449.4
3+75			4.0	52.0	448.6
4+00			5.0	51.0	447.4
4+50			5.6	50.4	445.0
4+75			5.9	50.1	444.2
5+00			5.9	50.1	443.8
5+50			6.1	49.9	443.8

Cut

N. in abutm.

4.2

3.2

F.L. Culv.

2.3

2.1

2.7

3.5

5.3

6.0

6.0

4.6

3.4

3.6

5.4

5.9

6.3

6.9

KING OTTER Polack 4-26

℄ & offsets - Murray Pl.

						Top air valve chamber
B.M.	9.73	117.51		107.78		
62+50			9.4	~~106~~ 108.1	102.2	5.~~7~~ 9
62			9.7	107.8	101.3	6.5
61+52			9.8	107.7	100.3	7.4
61+36			10.8	106.7	99.9	6.8
61+20			10.5	107.0	99.6	7.4
61+04			10.6	106.9	99.3	7.8
60+72			9.6	107.9	99.3	8.6
60+56			7.7	109.8	100.4	9.4
60+40			5.9	~~112.6~~ 111.6	102.9	8.7
60+24			1.9	115.6	106.8	8.8
T.P.	11.50	127.07	1.94	115.57		
E.C. 60+09.5			6.0	121.1	~~114.7~~ 111.8	~~6.4~~ 9.3
℄			6.6	120.5		
T.P.	12.27	138.71	0.63	126.44		
59+94.88			10.3	128.4	117.7	10.7
℄			10.4	128.3		
59+80.76			1.4	12' 137.3	124.8	12.5
℄			1.3	137.4		
59+66.31			2.0	136.7	130.8	5.9
℄			0.0	138.7		
T.P.	12.59	151.27	0.03	20' 138.68		
59+51.95			9.2	142.1	135.6	6.5
℄			5.9	145.4		
59+36.30			2.0	12' 149.3	139.4	9.9

		151.27			
℄			0.4	150.9	
T.P	12.97	163.76	0.48	150.79	
59+20.98			11.3	132.5	147.0
℄			8.7	155.1	
59+05.58			9.3	154.5	146.7
℄			7.9	156.4	
58+90.19			6.7	157.1	150.2
℄			4.4	159.3	
T.P.	12.85	176.33	0.28 14	163.48	
58+50			12.0 14	164.3	157.1
58			0.7	175.6	167.8
T.P.	12.86	188.94	0.25 14	176.08	
57+50			2.1	186.8	178.4
T.P.	13.08	201.90	0.12 14	188.82	
57			6.0 14	195.9	189.1
T.P.	12.67	214.48	0.09 14	201.81	
56+50			9.5 14	205.0	199.4
T.P.	8.72	221.46	1.74	212.74	
Cut sunit #1			6.47	14.99	
15.11	9.72	466.62		456.90	
15+50			4.9	61.70	447.0
15+00			7.7	58.9	447.1
14+50			11.8	54.8	447.2
14+25			11.4	55.2	447.3
14+00			9.4	57.2	447.9
13+75			6.8	59.8	449.0

9.5

7.8

6.9

Equation 58+74.67 West = 58+67.01 East

Grade 153.6 to 163.3
See Pipe Co. drawing

7.2

7.8

8.4

6.8

5.6

Hub at 15+50

14.7

11.8

7.6

7.9

9.3

10.8

		466.62			
13+50			4.7	61.9	450.6
13+25			4.1	62.5	452.2
13+00			1.8	64.8	453.3

C

11.3

10.3

11.5

4-29-43
H. Ill
Kinda
Otten
Polak

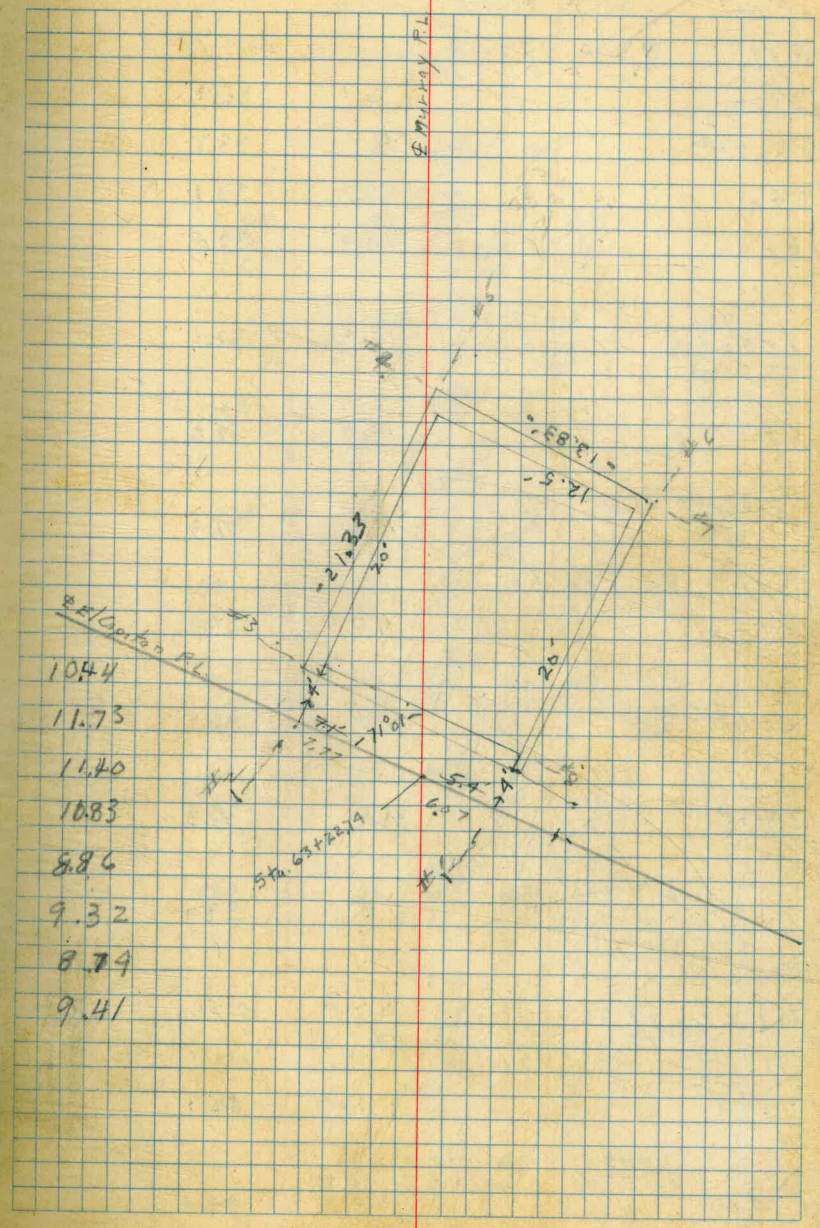
Murray P.L.

Levels Valve Chamber - Sta. 63 +00

B.M.	4.79	112.57		107.78	Top air V. ch.
#1 N. Cor			2.79	109.78	
#2 N. Cor			2.93	109.64	
#3 E. Cor			3.24	109.33	
#4 E. Cor.			3.27	109.30	
#5 S. Cor.			4.17	108.40	
#6 S. Cor.			4.34	108.23	
#7 W. Cor.			4.16	108.41	
#8 W. Cor.			3.84	108.73	
Hub 63+22.74			3.39	109.18	

Levels - Valve Chamber - 8' offsets

B.M.	5.81	113.59		107.78	
#1			9.45	109.14	98.7
#2			3.16	110.43	98.7
#3			3.49	110.10	98.7
#4			3.76	109.83	99.0
#5			5.73	107.86	99.0
#6			5.27	108.32	99.0
#7			5.85	107.74	99.0
#8			5.98	108.11	98.7
Top 5th Pipe			5.76	107.83	
" Conc			5.56	108.03	



King Isla Otten 5-3-42

Final	x-sect - Murray	Dam -		
B.M.	8.34	442.84	Top of Pipe	434.50
0+38			6.1	36.7
0+68 29			9.1	33.7
0+81			9.7	33.1
0+93			10.3	32.5
1+02			10.7	32.1
1+30			10.8	32.0
1+58			10.5	32.3
1+68			9.7	33.1
2+00			6.7	36.1
2+15			4.3	38.5
2+23			2.9	39.9
T.P	12.86	455.42 ✓	0.28	42.56 ✓
2+27 -				Began 8" slab over Pipe
2+29			13.3	42.1
2+39			11.0	44.4

2.9 4.3 7.2 4.3

9.5

31.9 +3.1 12.3 | 28.7 -0.1 5.5 | 428.8 bot. pipe 14.0 | 30.0 +1.2 15

30.3 +2.1 8.5 | 27.7 -0.5 5.5 | 428.2 bot. pipe 14.6 | 27.7 -0.5 9 | 32.6 +4.4 22.5

31.3 +3.5 18 | 30.2 +2.4 7 | 27.3 -0.5 5 | 427.8 bot. pipe 16.0 | 27.3 -0.5 5 | 30.3 +2.5 8 | 38.0 +10.2 36

29.8 +2.6 12 | 29.2 +2.0 6 | 26.7 -0.5 4 | 427.2 bot. pipe 14.6 | 27.2 0.0 4 | 32.9 +5.7 17

30.4 +2.4 16 | 30.5 +2.5 7 | 27.5 -0.5 1.5 | 428.0 bot. pipe 17.8 -0.5 4 | 27.5 0.0 5.5 | 28.0 +6.3 6.5 | 34.3 +11.3 14 | 39.3

31.4 +2.6 16 | 31.4 +2.6 8 | 28.8 0.0 4 | 428.8 bot. pipe 14.0 | 28.3 -0.5 1 | 33.0 +4.2 5 | 41.3 +12.5 16

33.8 +2.0 17 | 34.3 +2.5 7 | 31.3 -0.3 5 | 431.8 bot. pipe 12.0 | 31.3 -0.5 4 | 40.4 +8.6 7 | 48.0 +16.2 15

36.2 +2.0 17 | 36.6 +2.4 8 | 33.7 -0.5 5 | 434.2 bot. pipe 8.6 | 33.7 -0.5 3 | 38.5 +4.3 3.5 | 51.8 +17.6 12

38.1 +2.5 14 | 38.6 +3.0 8 | 35.1 -0.5 6 | 435.6 bot. pipe 7.2 | 35.1 -0.5 3 | 39.9 +4.3 3 | 45.3 +9.7 7.5

Top of corner slab 2+27 + 8" + 2'

Top of slab

41.7 -0.4 17 | 442.1 13.3 | 42.2 +0.1 3 | 49.6 +7.5 7'

43.2 -1.2 18.5 | 444.4 11.0 | 44.5 +0.1 8 | 54.0 +9.6 19.5

		455.42		
2+50			8.4	47.0
2+62			6.2	49.4
2+80			3.1	52.3
2+92			1.2	54.2
3+00			0.3	55.1
T.P.	2.21	457.34	0.29	55.13
3+13			1.4	55.9
3+21			Top Pipe	
3+25			2.0	55.3
3+41			2.3	55.0
3+48			2.5	54.8
3+56			3.0	54.3
3+75			4.6	52.7
4+00			6.1	51.2
4+50			7.3	50.0

Top Slab		45.5 / −1.5 / 16	447.0 / 8.4	47.1 / +0.1 / 4.5		52.8 / +5.8 / 8'
" "		48.0 / −1.2 / 17	449.2 / 6.2	49.1 / −0.1 / 6'		54.4 / +5.2 / 10
" "		51.1 / −1.2 / 17'	452.3 / 3.1	52.3 / 0.0 / 4'		59.1 / +6.8 / 8'
" "	53.3 / −0.9 / 19'		454.2 / 1.2	54.2 / 0.0 / 3.5		63.6 / +9.4 / 8.5
" "	C. 55.8 / +0.7 / 29.5	55.0 / −0.1 / 23	45[illegible] / 0.3	55.1 / 0.0 / 2.5		63.0 / +7.9 / 7.5'
" "	C. 59.4 / +3.5 / 28'	56.1 / +0.2 / 22'	455.9 / 1.4	55.9 / 0.0 / 4'		62.5 / +6.6 / 4.5'
End of slab						
		54.0 / −1.5 / 30'	455.5 / 1.8	56.6 / +1.1 / 6'	59.6 / +4.1 / 6.5	61.0 / +5.5 / 14
		Top of trench excav.				
		53.3 / −0.7 / 25	454.0 / 3.3	54.0 / 0.0 / 4.5		60.2 / +6.2 / 13
		52.6 / −1.6 / 24	454.2 / 3.1	54.2 / 0.0 / 4	56.2 / +2.0 / 13.5	59.8 / +5.6 / 18.5
		53.1 / −0.5 / 25	453.6 / 3.7	54.3 / +0.7 / 15.0	60.8 / +7.2 / 25'	64.4 / +10.8 / 32
		51.9 / +0.3 / 26	451.6 / 5.7	53.0 / +1.4 / 13.5	59.9 / +8.3 / ~~18.5~~ 20	
		50.1 / −0.9 / 25	451.0 / 6.3	52.0 / +1.0 / 13		59.6 / +8.6 / 15
		47.7 / −1.2 / 25	448.9 / 8.4	50.2 / +1.3 / 11		57.0 / +8.1 / 14

This cut ordered by P.B. for turn around

		457.34 Top Pipe	
4+70		8.5	48.8
4+77		8.9	48.4
4+84		9.3	48.0
5+00		9.9	47.4
5+10		10.2	47.1
5+40		10.5	46.8
5+53		10.4	46.9
5+78		10.5	46.8
5+85		10.5	46.8
B.C 5+97	1.3	10.4	46.9
6+00		10.3	47.0
6+10		10.3	47.0
6+20		10.1	47.2
6+28		10.0	47.3

47.9 −0.6 = 29
448.5 8.8
50.0 +1.5 = 10
56.7 +8.2 = 15

47.9 −0.8 = 25
448.7 8.6
50.1 +1.4 = 10
53.5 4.8 = 13.5

48.3 −0.4 = 25
448.7 8.6
50.1 +1.4 = 13.0
56.9 +8.2 = 14.0

448.7 8.6

48.0 −0.5 = 27
448.5 8.8
50.0 +1.5 = 10
56.9 +8.4 = 14

47.5 −0.4 = 30
447.9 9.4
50.2 +2.8 = 11.5
59.8 +11.9 = 17

46.8 −0.9 = 26
447.7 9.6
48.9 +1.2 = 9
51.0 +3.3 = 11
60.8 +13.1 = 10

46.8 0.0 = 23
446.8 10.5
48.7 +1.9 = 8.5
53.6 +6.8 = 13
65.9 +19.1 = 14.0

46.3 −0.5 = 23
446.8 10.5
48.4 +1.6 = 8
66.4 19.6 = 14.0

46.6 −0.4 = 20
447.0 10.3
447.0 10.3
447.0 10.3
48.7 +1.7 = 8.5
69.5 +22.5 = 19

447.2 10.1

47.6 −0.3 = 17
447.9 9.4
48.3 +0.7 = 13
69.4 +21.5 = 19

		457.34	Top Pipe	
6+40			9.9	47.4
6+50			9.8	47.5
6+70			9.7	47.6
6+80			9.7	47.6
6+90			9.8	47.5
7+00			9.7	47.6
T.P.	1.85	53.62	5.57	51.77
7+15			5.8	47.8
7+25			5.7	47.9
7+35			5.6	48.0
7+50			5.4	48.2
7+55			5.4	48.2
7+65			5.2	48.4

48.0 +0.6 14 | 447.4 9.9 | 48.2 +0.8 14 | 57.4 +10.0 18.5 | 71.8 +21.1 20

448.5 8.8

448.5 8.8

48.5 −0.2 8 | 448.7 8.6 | 49.7 +1.0 14 | 56.0 +7.3 16 | 72.0 +23.3 22

448.4 8.9

448.6 8.7

R.H. Wall Rt 8'-7+25-IN Rock

49.6 +0.4 8 | 449.2 4.5 | 49.2 0.0 13 | 62.2 +13.0 17

50.3 +1.4 8 | 448.9 4.7 | 48.9 0.0 13 | 64.1 +15.2 18

450.1 3.5

451.1 2.5

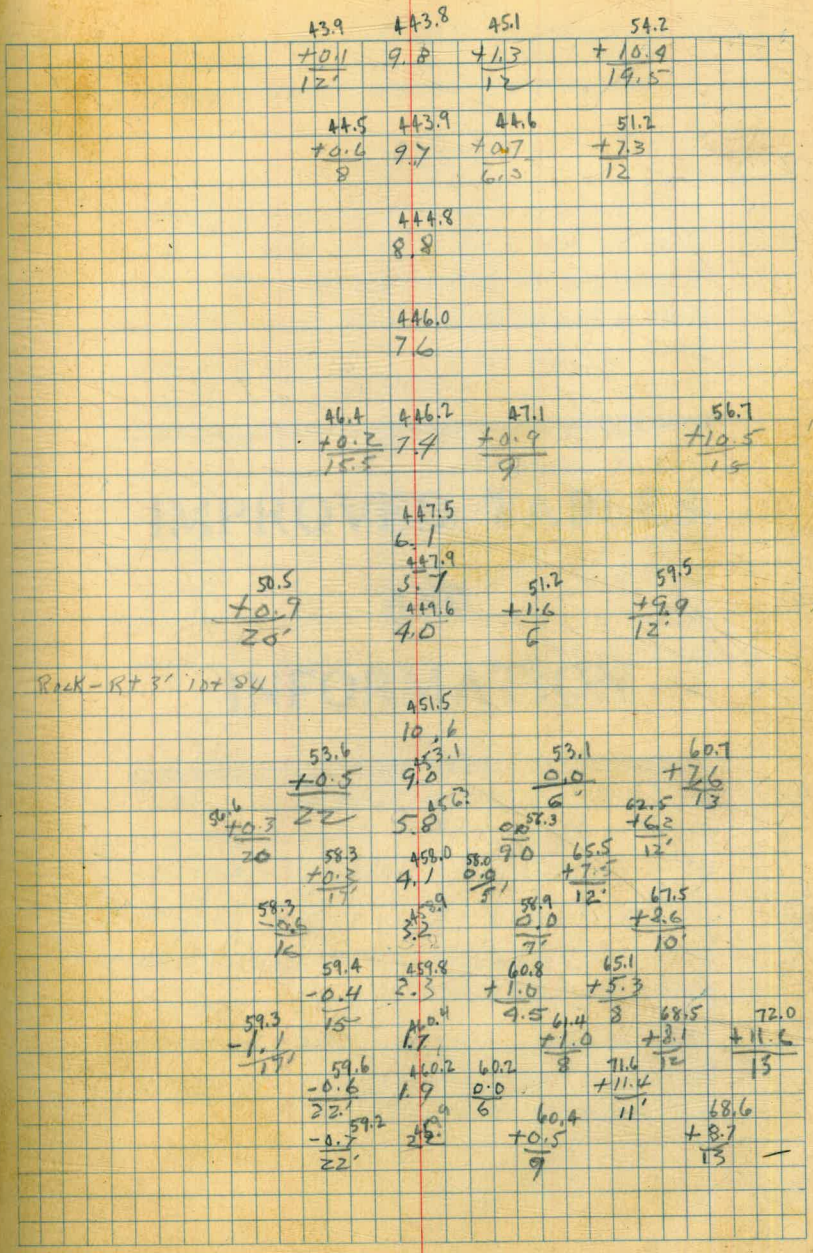
451.1 2.5

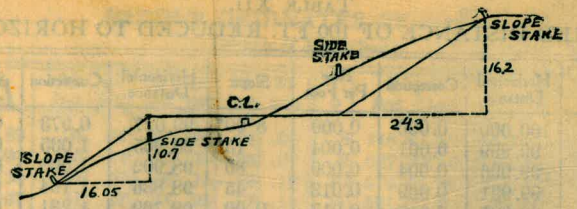
451.2 2.4

	53.62								
7+80		5.1	48.5			52.8 +1.0 13'	451.8 1.8	52.8 +1.0 16	69.3 +17.5 23'
7+90		5.0	48.6				452.1 1.5		
8+00		4.9	48.7			52.6 +0.5 19'	452.1 1.5	52.1 0.0 15'	60.0 +7.9 18
8+45		4.7	48.9			51.5 −0.6 30'	452.1 1.5	54.8 +2.7 11'	60.9 +8.8 13.5'
8+50		4.7	48.9				452.1 1.5		
Ec. 8+68 58		4.8	48.8			51.6 −0.1 28	451.7 1.9	56.4 +4.7 10'	59.5 +7.8 12
8+90		5.0	48.6			50.1 +0.7 25	449.8 3.8	53.2 +3.4 10	58.9 +9.1 13
9+00		5.2	48.4				449.7 3.9		
9+10		5.5	48.1				449.4 4.2		
9+20		5.7	47.9			46.6 −1.3 23	447.9 5.7	47.9 0.0 14.5	52.9 +5.0 21.0
9+40		6.2	47.4			43.9 −0.5 20'	444.4 9.2	45.1 +0.7 21.5	50.0 +5.6 27.5'
9+45									
9+54		6.6	47.0	−24" Culv.	top of culv. 41.0 −3.0 24	43.5 −0.5 17	444.0 9.6	44.5 +0.5 19	52.4 +8.4 29
9+62		6.7	46.9			43.0 +0.1 13'	442.9 10.7	44.9 +2.0 20'	52.2 +9.3 27

		53.62	Top Pipe	
9+87			6.9	46.7
10+00			7.0	46.6
10+15			6.9	46.7
10+27			6.6	47.0
10+35			6.4	47.2
10+50			6.1	47.5
10+60			5.7	47.9
10+88.75			3.2	50.4 — Use 49.2 A.R.
T.P	12.96	62.11 ✓	3.97	49.65 ✓
11+00			12.4	49.7
11+10			11.5	50.6
11+25			10.0	52.1
11+42			8.1	54.0
11+50			7.3	54.8
11+80			5.7	56.4
12+00			5.3	56.8
12+10.92			5.1	57.0
12+50			4.0	58.1
T.P.	6.10	66.69 ✓	1.57	66.54 ✓
T.P.			4.22	62.42

62.9 Gimmey 11+25





DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING.

SLOPE 1½ 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.

2)19.50
9.75

411.60
9.75
401.85
401.1

Ties to pipe from ℄ as staked

	6+00 -	0'	Rt.
℄ Pipe	6+10	0.4'	"
"	6+28	0.7	"
"	6+40	0.9	"
"	6+50	0.9	"
"	6+70	1.0	"
"	6+80	1.5	"
"	6+90	1.8	"
"	7+00	3.5	"
"	7+15	4.3	"
"	7+25	5.5	"
"	7+35	5.7	"
"	7+50	5.8	"
"	7+55	5.6	"
"	7+65	5.4	"
"	7+80	5.0	"
"	7+90	4.5	"
"	8+00	4	"
"	8+15	3.0	"
"	8+50	2.8	"
"	8+68 -	1.4	Rt Lt

℄ Pipe - 12+50 - 2' Rt Lt
" - 12+80 - 3.8'
℄ " - 17+80 - 3.7
11+50 - 2.3
11+92 - 0.8

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	25.2	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)÷2 or 2 ft. added to 41.9 =43.9. For slopes of 1 on 1 see inside of front cover.

X-Section - Back Fill - Murray P.L. Sta 0+38 - 12+50

King
Polek
Otten
5-21-43

Sta.	F.S.	H.I.	B.S.	Elev.
	9.65	444.15		434.50
0+38			7.6	36.6
0+68 29			9.1	35.1
			0.0 / 4.5' Lt	35.1
			-0.3 / 3.6' R	34.8
0+81			9.4	34.8
			+0.1 / 12' Lt	34.9
			0.0 / 2' Rt	34.8
			-1.4 / 6' Lt	33.4
0+93			10.2	34.0
			-0.5 / 8.5' Lt	33.5
			0.0 / 2.5' R	34.0
			-1.4 / 6.5' R	32.6
1+02			10.9	33.3
			-0.3 / 11' Lt	33.0
			0.0 / 2' R	33.3
			-0.7 / 6.5' R	32.6
1+30			11.1	33.1
			-0.4 / 10' Lt	32.7
			+0.2 / 6' R	33.3
1+50			10.5	33.7
			-0.5 / 10.5' Lt	33.2
			+0.2 / 5' R	33.9
1+68			9.7	34.5
			-0.5 / 9' Lt	34.0
			+0.3 / 5.5' Rt	34.8
2+00			6.7	37.5
			-1.0 / 16' Lt	36.5
			+0.1 / 4.5' R	37.6

Sta.	F.S.	H.I.	B.S.	Elev.
2+15			4.9	39.3
			-1.3 / 16' Rt	38.0
			+0.1 / 3' R	39.4
2+23			3.5	40.7
			-1.5 / 18' Lt	39.2
			+0.1 / 2.5' R	40.8
2+27			2.6	41.6
			-1.5 / 19' Lt	40.1
			+0.4 / 2.5' R	42.0
2+29			2.0	42.2
			-1.3 / 20' Lt	40.9
			+0.3 / 2.5 Rt	42.5
T.P.	10.32	453.65	-0.82	443.33
2+39			9.4	44.3
			-0.8 / 19' Lt	43.5
			0.0 / 2.5' R	44.3
2+50			6.7	47.0
			-1.5 / 18' Lt	45.5
			+0.1 / 4.3 R	47.1
2+62			4.3	49.4
			-1.5 / 18' Lt	47.9
			+0.4 / 5' Rt	49.8
2+80			1.4	52.3
			-1.0 / 19'	51.3
			+0.2 / 4' R	52.5
T.P.	4.43	457.38	-0.70	452.95
2+92			3.3	54.1
			+0.2 / 3' Rt	54.3
			-0.2 / 18.5' Lt	53.9
3+00			2.3	55.1
			+0.10 / 2.5' Rt	55.2
			-0.10 / 19' Lt	55.0
3+15			1.5	55.9
			+0.2 / 2.5' Rt	56.1
			-0.8 / 20' Lt	55.1

Sta.	F.S.	H.I.	B.S.	Elev.
		463.62		
11+50			5.1	58.5
			+0.4 / 6'R	58.9
			-0.3 / 20'Lt	58.2
11+80			4.1	59.5
			0.0 / 4.5'R	59.5
			0.0 / 20.5'Lt	59.5
12+00			3.9	59.7
			+0.1 / 4'R	59.8
			0.0 / 21'Lt	59.7
12+10.92			3.8	59.8
			+0.2 / 5'R	60.0
			0.0 / 23'Lt	59.8
12+50			3.8	59.8
			+0.9 / 7'R	60.7
			-0.1 / 22'Lt	59.7
T.P.			2.30	461.6

Ginway 10+50 - 61.5

61.5

Sta	F.S.	H.I. 456.47	B.S.	Elev
7+80			4.6	51.9
			+0.4 / 9'R	52.3
			-0.2 / 9'Lt	51.7
8+00			4.2	52.3
			+0.2 / 8'R	52.5
			-0.1 / 9'Lt	52.2
8+45			4.4	52.1
			+0.2 / 7'R	52.3
			+0.3 / 14'Lt	52.4
8+68.58			4.7	51.8
			+0.5 / 5'R	52.3
			+0.5 / 15'Lt	52.3
8+90			5.9	50.6
			+0.4 / 7'R	51.0
			-0.2 / 13'Lt	50.4
9+20			7.0	49.5
			+0.2 / 8'R	49.7
			-2.0 / 8'R	47.5
			-0.3 / 10'Lt	49.2
			-2.0 / 13'Lt	47.5
9+40			8.0	48.5
			+0.2 / 5'R	48.7
			-0.6 / 7'R	47.9
			+0.1 / 9'Lt	48.6
			-5.0 / 14'Lt	43.5
9+54			8.4	48.1
			0.0 / 7'R	48.1
			-2.3 / 10'R	45.8
			0.0 / 8'Lt	48.1
			-4.9 / 14'Lt	43.2
9+62			8.6	47.9
			0.0 / 6'R	47.9
			-2.2 / 11'R	45.7
			-0.3 / 7'Lt	47.6
			-4.7 / 14.5'Lt	43.2
9+87			9.1	47.4
			+0.2 / 9'R	47.6
			-0.2 / 9'Lt	47.2
			-4.5 / 15'Lt	42.9
10+00			9.0	47.5
			+0.1 / 8'Rt	47.6
			-0.4 / 10.5'Lt	47.1
10+35			8.7	47.8
			+0.2 / 10'R	48.0
			+0.5 / 14'Lt.	47.3
10+88.25			5.3	51.2
			+0.7 / 8'R	51.9
			-0.7 / 17'Lt	50.5
T.P.	9.41	463.62 ✓	2.26 ✓	454.21 ✓
11+10			9.4	54.2
			+0.6 / 9'R.	54.8
			-0.6 / 19'Lt	53.6
11+25			7.1	56.5
			+0.4 / 8.5'R	56.9
			-0.1 / 20'Lt	56.4
11+92			5.5	58.1
			+0.4 / 8'R	58.5
			-0.2 / 20.5'Lt	57.8

Sta	F.S.	H.I. 457.38	B.S.	Elev.
3+21			1.5	55.9
			+0.2 (2.5 Rt)	56.1
			-1.2 (20 Lt)	54.7
3+25			1.3	56.1
			-0.2 (3.5' R)	55.9
			-1.8 (22' Lt)	54.3
3+41			1.7	55.7
			+0.6 (8' R)	56.3
			-2.0 (25' Lt)	53.7
3+48			2.1	55.3
			+0.6 (8 Rt)	55.9
			-1.6 (24' Lt)	53.7
3+56			2.2	55.2
			+0.5 (9' R)	55.7
			-2.1 (24' Lt)	53.1
3+75			3.0	54.4
			+1.0 (9' R)	55.4
			-2.7 (23 Lt)	51.7
4+00			6.1	51.3
			-0.1 (9' R)	51.2
			-1.1 (22' Lt)	50.2
T.P.	2.10	453.83 ✓	-5.65	451.73 ✓
4+50			3.3	50.5
			+0.2 (7' R)	50.7
			-2.0 (20' Lt)	48.5
4+70			4.4	49.4
			+0.9 (8' R)	50.3
			-1.2 (20' Lt)	48.2
4+77			4.5	49.3
			+0.8 (8' R)	50.1
			-1.1 (18' Lt)	48.2
4+89			4.5	49.3
			+0.8 (7' R)	50.1
			-1.0 (20' Lt)	48.3

Sta	F.S.	H.I. 453.83	B.S.	Elev.
5+10			4.5	49.3
			+0.5 (6' R)	49.8
			-1.2 (21' Lt)	48.1
5+40			4.8	49.0
			+0.4 (6' R)	49.4
			-1.5 (22' Lt)	47.5
5+53			5.4	48.4
			+0.5 (6' R)	48.9
			-1.3 (21' Lt)	47.1
5+78			5.9	47.9
			+0.2 (5.5' R)	48.1
			-0.9 (17' Lt)	47.0
5+85			5.7	48.1
			+0.6 (5.5' R)	48.7
			-0.9 (16' Lt)	47.2
5+97 18			5.4	48.2
			+0.6 (5' R)	48.8
			-0.7 (14' Lt)	47.5
T.P.	6.37	456.47 ✓	3.73	450.10 ✓
6+28			7.9	48.6
			+0.3 (7' R)	48.9
			-1.9 (13' Lt)	47.6
6+40			7.8	48.7
			+0.6 (8' R)	49.3
			-0.9 (13' Lt)	47.8
6+80			7.5	49.0
			+0.5 (8' R)	49.5
			+0.4 (8' Lt)	49.1
7+15			6.5	50.0
			+0.5 (10' R)	50.5
			-0.6 (8' Lt)	49.9
7+25			6.1	50.4
			+0.6 (10' R)	51.0
			0.9 (8' Lt)	50.4

Ground line #544 p. 73
5+97 – 16+60

#543 p. 50-60
67+33.5 to Filter Plant
17+00 –

#578 p 33-39

41+06.26 – End #578 p 22-27

First 1200' bench exc.
Orig. x-sec. #543 p. 71-72
0+38 – 1+68

1+68 – 12+50 #543 p 61-69

Final bench
0+00 – 12+50 #578 p. 73-78
backfill hauled in
final sections on yellow sheet

Pipe off ℄ #578 back page