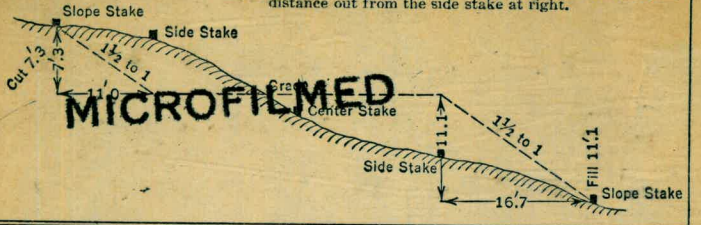
DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING

Roadway of any Width. Side Slopes 1½ to 1.

In the figure below: opposite 7 under "Cut or Fill" and under .3 read 11.0, the distance out from the side stake at left. Also, opposite 11 under "Cut or Fill" and under .1 read 16.7, the distance out from the side stake at right.



Cut or Fill	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	Cut or Fill
	Distance out from Side or Shoulder Stake										
0	0.0	0.2	0.3	0.5	0.6	0.8	0.9	1.1	1.2	1.4	0
1	1.5	1.7	1.8	2.0	2.1	2.3	2 4	2.6	2.7	2.9	1
2	3.0	3.2	3.3	3.5	3.6	3.8	3.9	4.1	4.2	4.4	2
3	4.5	4.7	4.8	5.0	5.1	5.3	5.4	5.6	5.7	5.9	3
4	6.0	6.2	6.3	6.5	6.6	6.8	6.9	7.1	7.2	7.4	4
5	7.5	7.7	7.8	8.0	8.1	8.3	8.4	8.6	8.7	8.9	5
6	9.0	9.2	9.3	9.5	9.6	9.8	9.9	10.1	10.2	10.4	6
7	10.5	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	11.9	7
8	12.0	12.2	12.3	12.5	12.6	12.8	12.9	13.1	13.2	13.4	8
9	13.5	13.7	13.8	14.0	14.1	14.3	14.4	14.6	14.7	14.9	9
10	15.0	15.2	15.3	15.5	15.6	15.8	15.9	16.1	16.2	16.4	10
11	16.5	16.7	16.8	17.0	17.1	17.3	17.4	17.6	17.7	17.9	11
12	18.0	18.2	18.3	18.5	18.6	18.8	18.9	19.1	19.2	19.4	12
13	19.5	19.7	19·8	20.0	20.1	20.3	20.4	20.6	20.7	20.9	13
14	21.0	21.2	21.3	21.5	21.6	21.8	21.9	22.1	22.2	22.4	14
15	22.5	22.7	22.8	23.0	23.1	23.3	23.4	23.6	23.7	23.9	15
16	24.0	24.2	24.3	24.5	24.6	24.8	24.9	25.1	25.2	25.4	16
17	25.5	25.7	25.8	26.0	26.1	26.3	26.4	26.6	26.7	26.9	17
18	27.0	27.2	27.3	27.5	27.6	27.8	27.9	28.1	28.2	28.4	18
19	28.5	28.7	28.8	29.0	29.1	29.3	29.4	29.6	29.7	29.9	19
20	30.0	30.2	30.3	30.5	30.6	30.8	30.9	31.1	31.2	31.4	20
21	31.5	31.7	31.8	32.0	32.1	32.3	32.4	32.6	32.7	32.9	21
22	33.0	33.2	33.3	33.5	33.6	33.8	33.9	34.1	34.2	34.4	22
23	34.5	34.7	34.8	35.0	35.1	35.3	35.4	35.6	35.7	35.9	23
24	36.0	36.2	36.3	36.5	36.6	36.8	36.9	37.1	37.2	37.4	24
25	37.5	37.7	37.8	38.0	38.1	38.3	38.4	38.6	38.7	38.9	25
26	39.0	39.2	39.3	39.5	39.6	39.8	39.9	40.1	40.2	40.4	26
27	40.5	40.7	40.8	41.0	41.1	41.3	41.4	41.6	41.7	41.9	27
28	42.0	42.2	42.3	42.5	42.6	42.8	42.9	43.1	43.2	43.4	28
29	43.5	43.7	43.8	44.0	44.1	44.3	44.4	44 6	44.7	44.9	29
30	45.0	45.2	45.3	45.5	45.6	45.8	45.9	46 1	46.2	46.4	30
31	46.5	46.7	46.8	47.0	47.1	47.3	47.4	47.6	47.7	47.9	31
32	48.0	48.2	48.3	48.5	48.6	48.8	48.9	49.1	49.2	49.4	32
33	49.5	49.7	49.8	50.0	50.1	50.3	50.4	50.6	50.7	50.9	33
34	51.0	51.2	51.3	51.5	51.6	51.8	51.9	52.1	52.2	52.4	34
35	52.5	52.7	52.8	53.0	53.1	53.3	53.4	53.6	53.7	53.9	35
36	54.0	54.2	54.3	54.5	54 6	54.8	54.9	55.1	55.2	55.4	36
37	55.5	55.7	55.8	56.0	56.1	56.3	56.4	56.6	56.7	56.9	37
38	57.0	57.2	57.3	57.5	57.6	57.8	57.9	58.1	58.2	58.4	38
39	58.5	58.7	58.8	59.0	59.1	59.3	59.4	59.6	59 7	59.9	39
40	60.0	60.2	60.3	60.5	60.6	60.8	60.9	61.1	61.2	61.4	40

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BARRAGAN SHERRY STANLEY 8-28-47 CLEAR CAL M

PROFILE LEVELS OF DE-ANZA POINT

BASELINE

STATION	B.S.	H.I.	F.S.	ELEV.	
MORENA	4.72	23.66		18.941	U.S.C.+G.S. MK
T.P.	2.97	20.41	6.22	17.44	TOP S.F. RAIL
T.P.	2.15	16.17	6.39	14.02	STATE H.W. CULVERT MARK
T.P.	5.33	17.25	4.25	11.92	U.S. 101
T.P.	5.19	18.18	4.26	12.99	U.S. 101
T.P.	5.31	19.48	4.01	14.17	U.S. 101
T.P.	3.93	18.51	4.90	14.58	U.S. 101
STA N 149+00			5.04	13.47 +2.47	3
N 150+00			5.35	13.16	
N 151+00			5.93	12.58	
T.P. N 152+00			5.59	12.92	
T.P.	4.76	17.68		12.92	TOP HUB N 152+00
N 153+00			5.09	12.59	
N 154+00			5.50	12.18	
N 155+00			5.61	12.07	
T.P.	4.19	16.26		12.07	TOP HUB N 155+00
N 156+00			4.79	11.47	
N 157+00			4.98	11.28	

8-28-47 ①

STATION	B.S.	H.I.	F.S.	ELEV.	
N 158+00		16.26	5.49	10.77	Indexed
N 159+00			5.79	10.47	
T.P.	4.94	15.41		10.47	TOP HUB N 159+00
N 160+00			5.00	10.41	
N 161+00			5.18	10.23	
N 162+00			5.36	10.05	
N 163+00			5.65	9.76	
T.P.	5.11	14.87		9.76	TOP HUB N 163+00
N 164+00			5.03	9.84	
N 165+00			5.13	9.74	
N 166+00			4.73	10.14	
T.P.	6.03	16.17		10.14	TOP HUB N 166+00
N 167+00			5.79	10.38	
N 168+00			5.48	10.69	
W 73+00			4.48	11.69	
W 74+00			4.20	11.97	
T.P.	4.75	16.72		11.97	TOP HUB W 74+00
W 75+00			5.10	11.62	
W 76+00			4.79	11.93	
W 77+00			4.24	12.48	

PROFILE LEVELS DE-ANZA B/L

STATION	B.S.	H.I.	F.S.	ELEV	
T.P. 3	4.27	16.75		12.48	To P Hub W77+00
W78+00			4.97	11.78	
4 STATE			4.51	12.24 = 12.09	CONC. MON. TOP LEAD CITY MON.
W79+00			4.95	11.80	
W80+00			6.28	10.47	
W81+00			9.91	6.84	
T.P.	3.78	10.62		6.84	To P Hub W81+00
W82+00			4.51	6.11	
W83+00			4.65	5.97	
W84+00			5.02	5.60	
W85+00			5.22	5.40	
T.P	4.55	9.95		5.40	To P Hub W85+00
W86+00			4.29	5.66	
W87+00			5.03	4.92	
W88+00			4.61	5.34	
W89+00			4.05	5.90	
T.P.	5.38	11.28		5.90	Top Hub W89+00
W90+00			5.14	6.14	
W91+00			5.29	5.99	
W92+00			4.75	6.53	

(CONT.)

8-28-97 (2)

STATION	B.S.	H.I.	F.S.	ELEV	
W93+00		11.28	4.80	6.48	
T.P	6.45	12.93		6.48	Top Hub W93+00
W94+00			5.93	7.00	
W95+00			5.00	7.93	
W96+00			5.06	7.87	
W97+00			5.19	7.74	
T.P.	5.08	12.82		7.74	Top Hub W97+00
W98+00			5.15	7.67	
W99+00			4.86	7.96	
W100+00			6.02	6.80	
W101+00			4.56	8.26	
T.P.	4.26	12.52		8.26	Top Hub W101+00
			3.64	8.88 = 8.804	Δ BOND U.S.E.D.
Δ BOND	4.53	13.33		8.804	U.S.E.D. Δ Top Brass Cap
W102+00			5.50	7.83	
W103+00			5.15	8.18	
W104+00			5.96	7.37	
T.P.	5.95	13.32		7.37	Top Hub W104+00
W105+00			5.50	7.82	W-105+00
W106+00			4.95	8.37	W-106+00
W107+00			8.77	4.55	W-107+00
T.P	5.58	13.77	5.13	8.13	T.P.
Δ BOND			4.97	8.80 = 8.80	BOND Δ USED

-ORIGINAL-

BARRAGAN SHERRY STANLEY

9-2-47 CLEAR CALM HOT

X-SECTIONS OF FILL AREA OF PROJECT # 3-1

SECTIONS TO W95+00 ARE AT 75° 37' 15" TO B/L.

STA-W107+00 THRU W104+00 COMPLETED IN BK. #23 PAGE 1.

STA-107+00 W

0+00 = STA-107+00 ON B/L: SECT. AT 90° TO B/L

PX

STA	+	H.I.	−	ELEV	
		9.62		8.37	TOP HUB
	1.25	~~9.44~~		~~8.19~~	W106+00
0+00			5.1	4.5	
S-0+50			4.9	4.7	
S-1+10			5.0	4.6	
S-1+80			4.9	4.7	
S-2+68			5.3	4.3	
S-2+80			2.7	6.9	
S-3+50			3.6	6.0	
S-4+30			3.6	6.0	
S-5+05			3.9	5.7	
S-5+75			4.5	5.1	
S-6+40			4.8	4.7	
S-7+05			4.7	4.9	
S-7+80			4.8	4.8	
S-8+35			4.8	4.8	
S-9+10			4.5	5.1	
S-					

-5.09-7 105 18.3
+4.5 C-106+00

(3)

STA-106+00 W

0+00 = W106+00 ON B/L

PX

STA-	+	H.I.	−	ELEV	
		13.13		7.66	TOP HUB
	5.47	~~13.29~~		~~7.82~~	W 105+18.3
S-10+00			8.2	4.9	
S-9+50			8.1	5.0	
S-9+05			7.6	5.5	Undersized
S-8+40			8.0	5.1	
S-7+80			8.0	5.1	
S-7+35			9.9	3.2	
S-6+80			9.8	3.3	
S-6+25			9.1	4.0	
S-5+70			9.2	3.9	
S-5+20			9.6	3.5	
S-4+65			9.1	4.0	
S-3+95			8.9	4.2	
S-3+20			9.1	4.0	
S-2+50			9.4	3.7	
S-2+05			6.0	7.1	
S-1+58			5.8	7.3	
S-0+80			5.5	7.6	
S-0+00			5.1	8.0	

9-2-47

0+00 = STA	STA- +	W 105+00 H.I.	−	ON ELEV	B/L PX
	4.56	12.93		8.37	TOP HUB W106+00
0+00			5.2	7.7	
0+55			5.2	7.7	
S-1+10			5.5	7.4	
S-1+65			5.5	7.4	
S-2+25			5.3	7.6	
S-2+65			6.1	6.8	
S-3+15			6.0	6.9	
S-3+70			6.4	6.5	
S-4+25			7.5	5.4	
S-4+70			7.3	5.6	
S-5+30			7.2	5.7	
S-6+00			7.1	5.8	
T.P.	4.55	11.05	6.43	6.50	600' SOUTH ON LINE
S-6+40			5.7	5.3	
S-6+65			6.8	4.2	
S-7+05			7.1	3.9	
S-7+63			7.4	3.6	
S-8+05			6.9	4.1	

W-105+00

9-2-47 PX (1)

STA	+	H.I.	−	ELEV
S-8+50		11.05	7.2	3.8
S-8+90			6.8	4.2
S-9+30			7.0	4.0
S-9+40			8.0	3.0
S-9+80			8.2	2.8
S-10+40			8.2	2.8
S-11+05			8.3	2.7
S-11+65			8.0	3.0
S-12+00			8.1	2.9

5.2 9-2-17

0+00 = STA -104+00 W ON B/L

STA	+	H.I.	−	ELEV	
	9.79	12.61		7.82	Top Hub W105+00
0+00			5.2	7.4	
S-0+60			5.3	7.3	
S-1+10			5.4	7.2	
S-1+75			5.6	7.0	
S-2+30			5.5	7.1	
S+2+85			5.4	7.2	
S-3+35			5.7	6.9	
S-3+90			5.8	6.8	
S-4+50			7.9	4.7	
S-5+10			8.1	4.5	
S-5+75			7.7	4.9	
S-6+30			8.1	4.5	
S-6+90			7.8	4.8	
S-7+95			7.9	4.7	
S-8+00			7.8	4.8	
T.P.	4.59	9.69	7.51	5.10	
S-8+65			4.8	4.8	
S-9+30			4.4	5.2	

PX

W-104+00 39 9-2-17 ⑤

STA	+	H.I.	−	ELEV
S-10+05		9.69	4.5	5.1
S-10+65			5.7	3.9
S-11+50			6.2	3.4
S-12+35			6.2	3.4
S-13+05			6.3	3.3
S-13+80			6.9	2.7
S-14+45			6.9	2.7
S 15+30			7.0	2.6
16+00			6.8	2.8

PX

9-2-47

STA-103+00-W

0+00 = W 103+00 ON B/L.

STA.	+	H.I.	−	ELEV	PX
	5.63	13.00		7.37	W 104+00
0+00			5.0	8.0	
S-0+50			5.2	7.8	
S-1+05			5.3	7.7	
S-1+55			5.6	7.4	
S-2+10			5.8	7.2	
S-2+60			7.1	5.9	
S-3+10			6.7	6.3	
S-3+60			6.4	6.6	
S-4+10			6.4	6.6	
S-4+60			7.8	5.2	
S-5+10			8.7	4.3	
S-5+50			8.7	4.3	
S-5+90			8.7	4.3	
S-6+25			8.7	4.3	
S-6+85			8.8	4.2	
S 7+35			8.6	4.4	
S-7+95			8.7	4.3	
S-8+35			8.8	4.2	

W-103+00

9-2-47

(6)

STA.	+	H.I.	−	ELEV	PX
S-9+00		13.00	8.3	4.7	
T.P.	4.83	9.58	8.25	4.75	ON LINE 900' SOUTH W 103+00
S-9+45			5.1	4.4	
S-9+95			4.9	4.6	
S-10+42			4.7	4.8	
S-10+85			4.7	4.8	
S-11+40			4.4	5.1	
S-11+85			4.5	5.0	
S-12+40			4.4	5.1	
S-13+10			4.4	5.1	
S-13+50			4.6	4.9	
S-14+05			4.7	4.8	
S-14+60			4.7	4.8	
S-15+25			5.1	4.4	
S-15+80			5.1	4.4	
S-16+15			5.3	4.2	
S-16+56			5.7	3.8	
S-16+60			7.1	2.4	
S-16+90			7.5	2.0	
S-17+25			7.5	2.0	
S-18+00			7.1	2.4	

PX

W-102+00

9-2-47

0+00 = STA W 102+00 ON B/L.

STA	+	H.I.	−	ELEV	
T.B.M.	4.68	12.86		8.18	Top Hub W103+00
0+00			5.1	7.7	
S-0+70			5.3	7.5	
S-1+40			5.6	7.2	
S-2+05			5.6	7.2	
S-2+75			6.2	6.6	
S-3+40			6.4	6.4	
S-3+85			8.0	4.8	
S-4+05			6.7	6.1	
S-4+70			7.0	5.8	
S-5+45			8.4	4.4	
S-6+10			8.7	4.1	
S-6+80			9.0	3.8	
S-7+50			8.6	4.2	
S-8+05			8.7	4.1	
S-8+70			8.8	4.0	
S-9+30			8.8	4.0	
S 10+00			8.7	4.1	

W-102+00

9-2-47

(7)

PX

STA	+	H.I.	−	ELEV
S 10+50		12.86		
T.P.	4.21	8.32	8.75	4.11
S-11+10			4.0	4.3
S-11+80			3.6	4.7
S-12+45			3.1	5.2
S-13+15			4.0	4.3
S-13+95			4.2	4.1
S-14+90			4.2	4.1
S-15+75			4.5	3.8
S-16+75			4.3	4.0
S-17+55			4.2	4.1
S-18+25			4.2	4.1
S-18+70			4.5	3.8
S-19+10			5.9	2.4
S-19+90			6.0	2.3
S-20+40			5.9	2.4

PROJ - #3-1

BARRAGAN
SHERRY
STANLEY

9-18-47
CLEAR
CALM
COOL

PX

STA - 83+00 - W

0+00 = {STA-W 83+00 / N-168+69.36} SOUND SOUTH AT 90° TO N-168+69.36 L

DIST	SOUND		DIST	SOUND	
0+00	2.1	+2.1	1+80	2.6	+1.6
09:07	2.1	—	(4.2)	2.6	—
(4.2)	2.1	—	2+00	2.7	+1.5
	2.2	+2.0		2.8	+1.4
	2.2	—	09:10	2.8	—
50	2.2	—		2.8	—
	2.4	+1.8		2.8	—
	2.4	—	50	2.8	—
	2.4	—		2.9	+1.3
	2.5	+1.7		2.9	—
1+00	2.4	+1.8		2.9	—
	2.5	+1.7		2.9	—
	2.5	—	3+00	2.9	—
	2.6	+1.6		2.9	—
	2.6	—		2.9	—
	2.6	—		2.9	—
50	2.6	—		2.9	—
	2.6	—		2.9	—
1+70	2.6	—	3+50	2.9	—

W - 83+00

9-18-47

(8)

DIST	SOUND		DIST	SOUND	
3+60	2.9	+1.3	5+60	3.2	+1.1
(4.2)	3.0	+1.2	09:15	3.3	+1.0
09:13	3.0	—		3.3	—
(4.3)	3.0	+1.3	(4.3)	3.3	—
4+00	3.0	—	6+00	3.3	—
	3.0	—	PX	3.3	—
	3.0	—		3.3	—
	3.0	—		3.3	—
	3.0	—		3.3	—
50	3.0	—	50	3.3	—
	3.0	—		3.3	—
	3.0	—		3.3	—
	3.1	+1.2		3.3	—
	3.1	—		3.3	—
5+00	3.1	—	7+00	3.3	—
	3.1	—		3.3	—
	3.1	—		3.4	+0.9
	3.2	+1.1		3.4	—
	3.2	—		3.4	—
5+50	3.2	—	7+50	3.4	—

W-83+00 9-18-47

DIST	SOUND		DIST	SOUND	
7+60	3.1	+0.9	9+60	3.5	+0.8
	3.4	—		3.5	—
(4.3)	3.4	—	(4.1)	3.6	+0.8
09:18	3.4	—	PX	3.6	—
8+00	3.4	—	10+00	3.6	—
	3.4	—		3.6	—
	3.4	—		3.6	—
	3.4	—		3.6	—
	3.4	—		3.6	—
50	3.4	—	50	3.7	+0.7
	3.4	—		3.7	—
	3.4	—		3.7	—
	3.4	—		3.7	—
	3.4	—		3.7	—
9+00	3.4	—	11+00	3.7	—
(4.3)	3.4	—		3.7	—
(4.4)	3.4	+1.0		3.7	—
	3.5	+0.9		3.7	—
09:20	3.5	—		3.7	—
9+50	3.5	—	11+50	3.7	—

W-83+00 9-18-47 (9)

DIST	SOUND		DIST	SOUND	
11+60	3.7	+0.7	13+60	3.9	+0.5
	3.7	—		3.9	—
(4.4)	3.7	—	(4.4)	3.9	—
	3.7	—	PX	3.9	—
12+00	3.7	—	14+00	3.9	—
	3.7	—		3.9	—
	3.7	—		4.0	+0.4
	3.8	+0.6		4.0	—
	3.8	—		4.0	—
50	3.8	—	50	4.0	—
	3.8	—		4.0	—
	3.8	—		4.0	—
09:21	3.8	—		4.0	—
	3.8	—		4.0	—
13+00	3.8	—	15+00	4.0	—
	3.9	+0.5		4.0	—
	3.9	—		4.0	—
	3.9	—		4.0	—
	3.9	—	15+50	4.1	+0.3
	3.9	—		4.1	—
13+50	3.9	—		4.1	—
			16+00	4.1	+0.2
				4.2	—
				4.2	—

W-83+00 9-18-97

DIST	SOUND		DIST	SOUND
16+10	1.2	+0.2		
	1.2	—	PX	
(1.1)	1.2	—		
	1.2	—		
50	1.2	—		
	1.2	—		
	1.2	—		
	1.2	—		
	1.2	—		
	1.2	—		
17+00	1.2	—		
09:27				

W-83+00 9-18-97 (10)

W-83+00 = {W-83+00 N-168+(1.96)} SOUND NORTH AT 30° TO N-168+61.96 LINE.

DIST	SOUND		DIST	SOUND	PX
0+10	2.3	+2.2	2+00	2.0	+2.5
09:33	2.5	+2.0	09:35	2.0	—
	2.4	+2.1		2.0	—
(1.5)	2.4	—	(1.5)	2.0	—
50	2.4	—		2.0	—
	2.4	—	50	2.0	—
	2.4	—		1.9	+2.6
	2.4	—		1.7	+2.8
	2.4	—		1.7	—
1+50	2.4	—		1.7	—
	2.2	+2.3	3+00	1.7	—
	2.2	—		1.7	—
	2.2	—	3+20	1.6	+2.9
	2.2	—	09:37		
50	2.2	—			
	2.2	—	50		
	2.1	+2.4			
	2.1	—			
1+90	2.0	+2.5			

PX

W-82+00

9-18-47

0+00 = {W-82+00 / N-168+64.96} SOUND SOUTH AT 90° TO N-168+64.96 L

DIST	SOUND		DIST	SOUND	
0+00	2.5	+2.2	1+80	3.4	+1.3
09:13	2.5	—		3.4	—
	2.5	—	2+00	3.4	—
(4.7)	2.6	+2.1	(4.7)	3.4	—
	2.6	—		3.4	—
50	2.7	+2.0		3.4	—
	2.9	+1.8		3.4	—
	2.9	—	50	3.4	—
	2.9	—		3.4	—
09:15	2.9	—		3.4	—
1+00	3.0	+1.7		3.4	—
	3.0	—		3.4	—
	3.0	—	3+00	3.4	—
	3.0	—		3.4	—
	3.1	+1.6		3.4	—
50	3.3	+1.4		3.4	—
	3.4	+1.3		3.4	—
1+70	3.4	—	3+50	3.4	—

W-82+00

9-18-47

(11)

PX

DIST	SOUND		DIST	SOUND	
3+60	3.5	+1.2	5+60	3.8	+0.9
	3.5	—		3.8	—
(4.7)	3.5	—	(4.7)	3.8	—
	3.5	—		3.9	+0.8
4+00	3.5	—	6+00	3.9	—
	3.5	—		3.9	—
	3.5	—		3.9	—
	3.6	+1.1		3.9	—
09:48	3.6	—		3.9	—
50	3.6	—	50	3.9	—
	3.7	+1.0	(4.7)	3.9	—
	3.7	—	09:50	3.9	—
	3.7	—	(4.8)	3.9	+0.9
	3.7	—		3.9	—
5+00	3.7	—	7+00	3.9	—
	3.7	—		3.9	—
	3.8	+0.9		3.9	—
	3.8	—		3.9	—
	3.8	—		3.9	—
5+50	3.8	—	7+50	3.9	—

W-82+00 9-18-47

DIST	SOUND		DIST	SOUND	
7+60	3.9	+0.9	9+60	4.1	+0.7
	3.9	—	09:53	4.1	—
(4.8)	4.0	+0.8	(4.8)	4.1	—
	4.0	—		4.1	—
8+00	4.0	—	10+00	4.1	—
	4.0	—		4.1	—
	4.0	—		4.1	—
	4.0	—		4.1	—
	4.0	—		4.2	+0.6
50	4.0	—	50	4.2	—
	4.0	—		4.2	—
	4.0	—		4.2	—
	4.0	—		4.2	—
	4.1	+0.7		4.2	—
9+00	4.1	—	11+00	4.2	—
	4.1	—		4.2	—
	4.1	—		4.2	—
	4.1	—		4.2	—
	4.1	—		4.2	—
9+50	4.1	—	11+50	4.2	—

W-82+00 9-18-47 (12)

DIST	SOUND		DIST	SOUND	
11+60	4.2	+0.6	13+60	4.4	+0.4
	4.3	+0.5		4.4	—
(4.8)	4.3	—	(4.8)	4.4	—
	4.3	—		4.4	—
12+00	4.3	—	14+00	4.4	—
03:55	4.3	—		4.5	+0.3
	4.3	—		4.5	—
	4.3	—		4.5	—
	4.3	—		4.5	—
50	4.3	—	50	4.5	—
	4.3	—		4.5	—
	4.3	—		4.5	—
	4.3	—		4.5	—
	4.3	—		4.5	—
13+00	4.4	+0.4	15+00	4.5	—
	4.4	—		4.5	—
	4.4	—		4.6	+0.2
	4.4	—		4.6	—
	4.4	—		4.6	—
13+50	4.4	—	50	4.7	+0.1

W-82+00 9-18-47

DIST	SOUND	
15+60	4.7	+0.1
(4.8)	4.7	—
	4.7	—
	4.7	—
16+00	4.7	—
	4.7	—
16+20	4.7	—
10:00		

W-82+00 9-18-47 (13)

(0+00 = {W-82+00 / N-16.8, E-43.6}) SOUND NORTH AT 90° TO N16.8, E43.6 LINE.

DIST	SOUND		DIST	SOUND	
0+10	2.9	+2.1	2+00	2.5	+2.5
10.05	2.9	—		2.4	+2.6
	2.9	—		2.4	—
(5.0)	2.9	—	(5.0)	2.4	—
50	2.9	—		2.4	—
	2.9	—	50	2.4	—
	2.9	—		2.3	+2.7
	2.9	—		2.3	—
	2.9	—		2.2	+2.8
1+00	2.9	—		2.2	—
	2.8	+2.2	3+00	2.2	—
	2.8	—		2.2	—
	2.8	—		2.1	+2.9
	2.7	+2.3		2.0	+3.0
50	2.7	—		2.0	—
	2.6	+2.4	50	2.0	—
	2.6	—	3+60	1.9	+3.1
	2.6	—	10:10		
1+90	2.5	+2.5			

PX

W - 81+00

9-18-47

0+00 = { W - 81+00 / N - 168+61.96 }

DIST	SOUND		DIST	SOUND	
		SOUND SOUTH AT 90° T. N-168+61.96			
0+00	3.2	+2.0	1+80	3.7	+1.5
	3.2	—		3.7	—
10:18	3.2	—	2+00	3.7	—
(5.2)	3.2	—	(5.2)	3.8	+1.4
	3.2	—		3.8	—
50	3.2	—		3.8	—
	3.3	+1.9		3.8	—
	3.3	—	50	3.9	+1.3
	3.4	+1.8		3.9	—
	3.4	—		3.9	—
1+00	3.5	+1.7	10:20	3.9	—
	3.5	—		3.9	—
	3.5	—	3+00	3.9	—
	3.5	—		3.9	—
	3.7	+1.5		4.0	+1.2
50	3.7	—		4.0	—
	3.7	—		4.0	—
1+70	3.7	—	3+50	4.0	—

W - 81+00

9-18-47

(14)

PX

DIST	SOUND		DIST	SOUND	
3+60	4.0	+1.2	5+60	4.2	+1.0
	4.0	—		4.2	—
(5.2)	4.0	—	(5.2)	4.2	—
	4.0	—		4.2	—
4+00	4.0	—	6+00	4.3	+0.9
	4.0	—		4.3	—
	4.0	—		4.3	—
	4.0	—		4.3	—
50	4.0	—	50	4.3	—
	4.0	—		4.3	—
	4.1	+1.1		4.3	—
	4.1	—		4.3	—
	4.1	—		4.3	—
5+00	4.1	—	7+00	4.3	—
	4.2	+1.0		4.3	—
	4.2	—		4.3	—
	4.2	—		4.4	+0.8
	4.2	—	10:24	4.4	—
5+50	4.2	—	7+50	4.4	—

W-81+00 9-18-17

DIST	SOUND		DIST	SOUND	
7+60	4.4	+0.8	9+60	4.5	+0.7
	4.4	—		4.5	—
10:25	4.4	—		4.5	—
(5.2)	4.4	—	(5.2)	4.5	—
8+00	4.4	—	10+00	4.5	—
	4.4	—		4.5	—
	4.5	+0.7		4.5	—
	4.5	—		4.5	—
	4.5	—		4.6	+0.6
50	4.5	—	50	4.6	—
	4.5	—		4.6	—
	4.5	—		4.6	—
	4.5	—		4.6	—
	4.5	—		4.6	—
9+00	4.5	—	11+00	4.6	—
	4.5	—		4.6	—
	4.5	—		4.6	—
	4.5	—		4.6	—
	4.5	—		4.6	—
9+50	4.5	—	11+50	4.6	—

W-81+00 9-18-17 (15)

DIST	SOUND		DIST	SOUND	
11+60	4.7	+0.5	13+60	4.8	+0.4
	4.7	—		4.8	—
	4.7	—	(5.2)	4.8	—
(5.2)	4.7	—	10:30	4.8	—
12+00	4.7	—	14+00	4.8	+0.5
10:28	4.7	—	(5.3)	4.9	+0.4
	4.8	+0.4		4.9	—
	4.8	—		4.9	—
	4.8	—		4.9	—
50	4.8	—	50	4.9	—
	4.8	—		4.9	—
	4.8	—		4.9	—
	4.8	—		4.9	—
	4.8	—		4.9	—
13+00	4.8	—	15+00	4.9	—
	4.8	—		4.9	—
	4.8	—		4.9	—
	4.8	—		4.9	—
	4.8	—		4.9	—
13+50	4.8	—	15+50	4.9	—

W- 81+00

9-18-17

DIST	SOUND	PX
15+60	4.9	+0.4
(5.3)	4.9	—
	4.9	—
	4.9	—
16+00	5.0	+0.3

DIST	SOUND	
16+10	5.0	+0.3
(5.3)	5.0	—
	5.0	—
	5.0	—
16+50	5.0	—
10:33		

W- 81+00

9-18-17

(16)

0+00 = (W- 81+00 / N- 168+69.96) SOUND NORTH AT 90° TO N-168+69.96 LINE.

DIST	SOUND	PX
0+10	3.2	+2.2
	3.2	—
10:39		
	3.3	+2.1
(5.1)	3.3	—
50	3.3	—
	3.3	—
	3.3	—
	3.2	+2.2
	3.2	—
1+00	3.2	—
	3.2	—
	3.2	—
	3.2	—
	3.2	—
50	3.1	+2.3
	3.0	+2.4
	3.0	—
	3.0	—
1+90	3.0	—

DIST	SOUND	PX
2+00	3.0	+2.4
	3.0	—
(5.4)	2.9	+2.5
10:42	2.8	+2.6
	2.8	—
50	2.8	—
	2.7	+2.7
	2.7	—
	2.7	—
	2.6	+2.8
3+00	2.6	—
	2.5	+2.9
	2.5	—
	2.5	—
	2.5	—
50	2.5	—
	2.5	—
	2.5	—
10:45	2.4	+3.0
	2.4	—
4+00	2.4	—
4+10	2.2	+3.2
4+20	2.2	—
4+30	2.0	+3.4

W- 80+00 9-18-47

0+00 = {W-80+00 / N-168+64.96) SOUND SOUTH AT 90° TO N-168+64.96

PX

DIST	SOUND		DIST	SOUND	
0+00	3.5	+2.0	1+80	4.1	+1.4
	3.5	—		4.1	—
10:53	3.5	—	2+00	4.1	—
(5.5)	3.5	—	(5.5)	4.1	—
	3.5	—		4.2	+1.3
50	3.5	—		4.2	—
	3.6	+1.9		4.2	—
	3.9	+1.6	50	4.2	—
	3.9	—		4.3	+1.2
	3.9	—	10:55	4.3	—
1+00	3.9	—		4.3	—
	3.9	—		4.3	—
	3.9	—	3+00	1.3	—
	4.0	+1.5		1.3	—
	4.0	—		4.3	—
50	4.0	—		4.4	+1.1
	4.0	—		4.4	—
1+70	4.1	+1.4	3+50	1.4	—

W-80+00 9-18-47 (17)

PX

DIST	SOUND		DIST	SOUND	
3+60	4.4	+1.1	5+60	4.5	+1.0
	4.4	—		4.5	—
(5.5)	4.4	—	(5.5)	4.6	+0.9
	4.4	—		4.6	—
4+00	4.4	—	6+00	4.6	—
	4.4	—		4.6	—
	4.4	—		4.6	—
	4.4	—		4.6	—
	4.4	—		4.6	—
50	4.4	—	50	4.6	—
	4.4	—		4.7	+0.8
	4.4	—		4.7	—
	4.4	—		4.7	—
	4.4	—		4.7	—
5+00	4.4	—	7+00	4.8	+0.7
	4.4	—		4.8	—
	4.4	—		4.8	—
	4.4	—		4.8	—
10:58	4.5	+1.0	11:00	4.8	—
5+50	4.5	—	7+50	4.8	—

W- 80+00

9-18-17

DIST	SOUND	PX	DIST	SOUND	
7+60	4.8	+0.7	9+60	5.0	+0.5
(5.5)	4.8	—	(5.5)	5.0	—
	4.8	—		5.0	—
	4.8	—		5.0	—
8+00	4.8	—	10+00	5.0	—
	4.9	+0.6		5.0	—
	4.9	—	11:03	5.0	—
	4.9	—		5.0	—
	4.9	—		5.0	—
50	4.9	—	50	5.0	—
	4.9	—		5.0	—
	4.9	—		5.0	—
	4.9	—		5.0	—
	4.9	—		5.0	—
9+00	4.9	—	11+00	5.0	—
	4.9	—		5.0	—
	5.0	+0.5		5.0	—
	5.0	—		5.0	—
	5.0	—		5.0	—
9+50	5.0	—	11+50	5.0	—

W- 80+00

9-18-17

(18)

DIST	SOUND	PX	DIST	SOUND	
11+60	5.0	+0.5	13+60	5.2	+0.3
	5.0	—		5.2	—
(5.5)	5.0	—	(5.5)	5.2	—
	5.0	—		5.2	—
12+00	5.0	—	14+00	5.2	—
	5.0	—		5.2	—
	5.0	—		5.2	—
11:05	5.0	—		5.2	—
	5.0	—		5.3	+0.2
50	5.1	+0.4	50	5.3	—
	5.1	—		5.3	—
	5.1	—		5.3	—
	5.1	—		5.3	—
	5.1	—	11:08	5.3	—
13+00	5.1	—	15+00	5.3	—
	5.1	—		5.3	—
	5.1	—		5.3	—
	5.1	—		5.3	—
	5.1	—		5.3	—
13+50	5.2	+0.3	15+50	5.3	—

W - 80+00

9-18-47

DIST	SOUND	PX	DIST	SOUND	
15+60	5.3	+0.2	17+10	5.4	—
(5.5)	5.4	+0.1		5.4	—
	5.4	—	(5.5)	5.4	—
	5.4	—	11:10	5.4	—
16+00	5.4	—	50	5.4	+0.2
	5.4	—	(5.6)	5.4	—
	5.4	—		5.5	+0.1
	5.4	—		5.5	—
	5.4	—		5.5	—
50	5.4	—	18+00	5.5	—
	5.4	—		5.5	—
	5.4	—		5.5	—
	5.4	—		5.5	—
	5.4	—		5.5	—
17+00	5.4	—	18+50	5.5	—

W - 80+00

9-18-47

(19)

0+00 = {W-80+00 / N-168+69.36} Sound North at 90° to N-168+69.96 L.

DIST	SOUND	PX	DIST	SOUND	
0+10	3.8	+1.9	2+00	3.3	+2.4
	3.8	—		3.3	—
11:24	3.8	—		3.3	—
(5.7)	3.8	—	(5.7)	3.2	+2.5
50	3.8	—		3.1	+2.6
	3.7	+2.0	50	3.1	—
	3.7	—		3.1	—
	3.7	—		3.0	+2.7
	3.7	—		3.0	—
1+00	3.7	—		3.0	—
	3.7	—	3+00	3.0	—
	3.7	—		3.0	—
	3.7	—		3.0	—
	3.7	—		3.0	—
50	3.6	+2.1		2.9	+2.8
	3.6	—	50	2.8	+2.9
	3.5	+2.2		2.8	—
	3.5	—		2.7	+3.0
			11:22	2.6	+3.1
1+90	3.4	+2.3	3+90	2.5	+3.2

9-18-47

W- 79+00

0+00 = {W- 79+00 / N-168+61.96}

PX

SOUND SOUTH AT 90° TO N-168+61.96

DIST	SOUND		DIST	SOUND	
0+00	4.0	+1.7	1+80	4.5	+1.2
12:27	4.0	—		4.5	—
	4.1	+1.6	2+00	4.5	—
(5.7)	4.1	—	(5.7)	4.6	+1.1
	4.1	—		4.6	—
50	4.2	+1.5		4.6	—
	4.3	+1.4		4.7	+1.0
	4.3	—	50	4.7	—
	4.3	—	12:30	4.7	—
	4.3	—		4.8	+0.9
1+00	4.3	—		4.8	—
	4.4	+1.3		4.8	—
	4.4	—	3+00	4.8	—
	4.4	—		4.8	—
	4.4	—		4.8	—
50	4.5	+1.2		4.8	—
	4.5	—		4.8	—
1+70	4.5	—	3+50	4.8	—

W- 79+00

9-18-47

(20)

DIST	SOUND		DIST	SOUND	
3+60	4.9	+0.8	5+60	5.1	+0.6
	5.0	+0.7	PX	5.1	—
(5.7)	5.0	—	(5.7)	5.1	—
	5.0	—		5.1	—
4+00	5.0	—	6+00	5.1	—
	5.0	—		5.1	—
	5.0	—		5.1	—
	5.0	—		5.1	—
	5.0	—		5.1	—
50	5.0	—	50	5.1	—
	5.0	—		5.1	—
	5.0	—		5.2	+0.5
	5.0	—		5.2	—
	5.0	—	12:33	5.2	—
5+00	5.0	—	7+00	5.2	—
	5.0	—		5.2	—
	5.0	—		5.2	—
	5.0	—		5.2	—
	5.1	+0.6		5.2	—
5+50	5.1	—	7+50	5.2	—

W-7900 9-18-17

DIST	SOUND	PX	DIST	SOUND	
7+60	5.2	+0.5	9+60	5.4	+0.3
	5.2	—		5.4	—
(5.7)	5.2	—	(5.7)	5.4	—
	5.3	+0.4		5.4	—
8+00	5.3	—	10+00	5.4	—
	5.3	—		5.4	—
	5.3	—		5.4	—
	5.3	—		5.4	—
	5.3	—		5.4	—
50	5.3	—	50	5.4	—
	5.3	—		5.4	—
12:35	5.3	—		5.4	—
	5.4	+0.3		5.4	—
	5.4	—		5.4	—
9+00	5.4	—	11+00	5.4	—
	5.4	—		5.4	—
	5.4	—		5.4	—
	5.4	—		5.4	—
	5.4	—		5.4	—
9+50	5.4	—	11+50	5.4	—

W-7900 9-18-17 (21)

DIST	SOUND		DIST	SOUND	
11+60	5.4	+0.3	13+60	5.5	+0.2
	5.4	—	PX	5.6	+0.1
(5.7)	5.4	—		5.6	—
	5.4	—	(5.7)	5.6	—
12+00	5.5	+0.2	14+00	5.6	—
	5.5	—	12:40	5.6	—
	5.5	—		5.6	—
12:38	5.5	—		5.6	—
	5.5	—		5.6	—
50	5.5	—	50	5.6	—
	5.5	—		5.6	—
	5.5	—		5.6	—
	5.5	—		5.6	—
	5.5	—		5.6	—
13+00	5.5	—	15+00	5.6	—
	5.5	—		5.6	—
	5.5	—		5.6	—
	5.5	—		5.6	—
	5.5	—		5.6	—
13+50	5.5	—	15+50	5.6	—

W- 79+00 9-18-17

DIST	SOUND		DIST	SOUND	
15+60	5.6	+0.1	17+60	5.8	-0.1
	5.6	—		5.8	—
(5.7)	5.6	—	(5.7)	5.8	—
	5.6	—		5.8	—
16+00	5.6	—	18+00	5.8	—
	5.7	0.0		5.8	—
	5.7	—		5.8	—
	5.7	—		5.8	—
	5.7	—		5.8	—
50	5.7	—	50	5.8	—
12:43	5.7	—		5.8	—
	5.7	—		5.8	—
	5.7	—		5.8	—
	5.7	—		5.8	—
17+00	5.8	-0.1	19+00	5.8	—
	5.8	—	12:45		
	5.8	—			
	5.8	—			
	5.8	—			
17+50	5.8	—			

W- 79+00 9-18-17 (22)

0+00 = {W- 79+00 / N-168+67.96} SOUND NORTH AT 90° TO N-168+67.96.

DIST	SOUND		DIST	SOUND	
0+10	3.7	+1.9	2+00	3.2	+2.4
12:54	3.7	—		3.1	+2.5
	3.7	—		3.1	—
(5.6)	3.7	—	(5.6)	3.0	+2.6
50	3.6	+2.0		3.0	—
	3.6	—	50	3.0	—
	3.6	—		3.0	—
	3.6	—		2.9	+2.7
	3.6	—		2.9	—
1+00	3.6	—		2.9	—
	3.6	—	3+00	2.9	—
	3.5	+2.1		2.8	+2.8
	3.5	—		2.8	—
	3.5	—		2.8	—
50	3.5	—		2.7	+2.9
	3.4	+2.2	50	2.6	+3.0
	3.4	—		2.5	+3.1
	3.3	+2.3	12:57	2.3	+3.3
				2.0	+3.6
1+90	3.3	—		2.0	
			4+00	1.9	+3.7

PX

W-78+00

9-18-47

0+00 = {W-78+00 / N-168+49.96} SOUND SOUTH AT 90° TO N-168+49.96

DIST	SOUND		DIST	SOUND	
0+00	3.6	+1.9	1+80	4.3	+1.2
13:03	3.7	+1.8		4.4	+1.1
	3.8	+1.7	2+00	4.4	—
(5.5)	3.8	—	(5.5)	4.4	—
	3.9	+1.6		4.5	+1.0
50	4.0	+1.5		4.5	—
	4.0	—		4.5	—
	4.1	+1.4	50	4.5	—
	4.1	—		4.5	—
	4.1	—		4.5	—
1+00	4.2	+1.3		4.5	—
	4.2	—		4.5	—
	4.2	—	3+00	4.5	—
	4.2	—		4.5	—
13:05	4.3	+1.2		4.5	—
50	4.3	—		4.5	—
	4.3	—		4.6	+0.9
1+70	4.3	—	3+50	4.6	—

W-78+00

9-18-47

(23)

DIST	SOUND		DIST	SOUND	
3+60	4.6	+0.9	5+60	4.7	+0.8
	4.6	—	PX	4.8	+0.7
(5.5)	4.6	—	13:10	4.8	—
	4.6	—	(5.5)	4.8	—
4+00	4.6	—	6+00	4.8	—
	4.6	—		4.8	—
13:08	4.6	—		4.9	+0.6
	4.6	—		4.9	—
	4.6	—		4.9	—
50	4.7	+0.8	50	4.9	—
	4.7	—		4.9	—
	4.7	—		4.9	—
	4.7	—		4.9	—
	4.7	—		4.9	—
5+00	4.7	—	7+00	4.9	—
	4.7	—		4.9	—
	4.7	—		4.9	—
	4.7	—		4.9	—
	4.7	—		4.9	—
5+50	4.7	—	7+50	4.9	—

W-78+00 9-18-47

DIST	SOUND		DIST	SOUND	
7+60	4.9	+0.6	9+60	5.1	+0.4
PX	4.9	—		5.1	—
(5.5)	4.9	—	(5.5)	5.1	—
	4.9	—		5.1	—
8+00	4.9	—	10+00	5.1	—
	4.9	—		5.1	—
	4.9	—		5.1	—
	5.0	+0.5		5.1	—
	5.0	—		5.1	—
50	5.0	—	(5.5) 50	5.1	—
13:13	5.0	—	13:15	5.1	—
	5.0	—		5.1	+0.3
	5.0	—	(5.4)	5.1	—
	5.0	—		5.1	—
9+00	5.0	—	11+00	5.1	—
	5.0	—		5.1	—
	5.1	+0.4		5.1	—
	5.1	—		5.1	—
	5.1	—		5.1	—
9+50	5.1	—	11+50	5.1	—

W-78+00 9-18-47

DIST	SOUND		DIST	SOUND	
11+60	5.1	+0.3	13+60	5.2 PX	+0.2
	5.1	—	13:18	5.2	—
(5.4)	5.1	—	(5.4)	5.2	—
	5.1	—		5.2	—
12+00	5.1	—	14+00	5.2	—
	5.1	—		5.2	—
	5.1	—		5.2	—
	5.1	—		5.2	—
	5.1	—		5.2	—
50	5.1	—	50	5.2	—
	5.1	—		5.2	—
	5.1	—		5.2	—
	5.1	—		5.3	+0.1
	5.2	+0.2		5.3	—
13+00	5.2	—	15+00	5.3	—
	5.2	—		5.3	—
	5.2	—		5.4	0.0
	5.2	—		5.4	—
	5.2	—		5.4	—
13+50	5.2	—	15+50	5.4	—

W - 78+00 9-18-17

DIST	SOUND		DIST	SOUND	
15+60 PX	5.4	0.0	17+60	5.5	-0.1
13:20	5.4	—		5.5	—
(5.4)	5.4	—	(5.4)	5.5	—
	5.4	—		5.5	—
16+00	5.4	—	18+00	5.5	—
	5.4	—	13:23		
	5.4	—			
	5.4	—			
	5.4	—			
	5.5	-0.1			
50	5.5	—			
	5.5	—			
	5.5	—			
	5.5	—			
	5.5	—			
	5.5	—			
17+00	5.5	—			
	5.5	—			
	5.5	—			
	5.5	—			
	5.5	—			
	5.5	—			
17+50	5.5	—			

W - 78+00 9-18-17 (25)

0+00 = {W-78+00 / N-168+69.96} SOUND NORTH AT 90° TO N-168+69.96 LINE

DIST	SOUND		DIST	SOUND	PX
0+10	3.5	+1.8	2+00	2.7	+2.6
	3.5	—		2.7	—
13:30	3.5	—	(5.3)	2.7	—
	3.4	+1.9		2.7	—
50	3.4	—	PX	2.5	+2.8
(5.3)	3.4	—	50	2.5	—
	3.4	—		2.4	+2.9
	3.4	—		2.3	+3.0
	3.3	+2.0	—	2.2	+3.1
1+00	3.3	—		2.1	+3.2
	3.2	+2.1	3+00		
	3.1	+2.2	13:33		
	3.0	+2.3			
	3.0	—			
50	2.9 ~~2.9~~	+2.4	—		
	2.9	—	—		
	2.9	—			
	2.8	+2.5			
1+90	2.8	—			

PX

W-77+00

9-18-17

0+00 = {W-77+00 / N-168+69.96}

DIST	SOUND		SOUTH AT 90° TO	SOUND	N-168+69.96
0+00	3.2	+1.7	1+80	3.8	+1.1
14:03	3.1	+1.8	14:05	3.8	—
	3.1	—	2+00	3.9	+1.0
(4.9)	3.2	+1.7	(4.9)	3.9	—
	3.2	—		3.9	—
50	3.2	—		4.0	+0.9
	3.2	—		4.0	—
	3.2	—	50	4.0	—
	3.4	+1.5		4.0	—
	3.5	+1.4		4.0	—
1+00	3.5	—		4.0	—
	3.6	+1.3		4.0	—
	3.6	—	3+00	4.0	—
	3.6	—		4.0	—
	3.6	—		4.0	—
50	3.7	+1.2		4.0	—
	3.7	—		4.0	—
1+70	3.8	+1.1	3+50	4.0	—

W-77+00

9-18-17

(26)

PX

DIST	SOUND		DIST	SOUND	
3+60	4.0	+0.9	5+60	4.1	+0.8
	4.0	—		4.1	—
(4.9)	4.0	—	(4.9)	4.2	+0.7
	4.0	—		4.3	+0.6
4+00	4.0	—	6+00	4.3	—
	4.0	—		4.3	—
	4.0	—		4.3	—
	4.0	—		4.3	—
	4.0	—		4.3	—
50	4.0	—	50	4.3	—
	4.0	—	(4.9)	4.3	—
	4.1	+0.8	14:10	4.4	+0.5
	4.1	—	(4.8)	4.4	+0.4
14:09	4.1	—		4.4	—
5+00	4.1	—	7+00	4.4	—
	4.1	—		4.4	—
	4.1	—		4.4	—
	4.1	—		4.4	—
	4.1	—		4.4	—
5+50	4.1	—	7+50	4.4	—

DIST	PX	SOUND	W-77+00	DIST	SOUND	9-18-17	DIST	SOUND	W-77+00	DIST	SOUND	9-18-17 PX
8+60		4.4	+0.4	10+60	4.5	+0.3	12+60	4.6	+0.2	14+60	4.9	-0.1
		4.4	—		4.6	+0.2		4.6	—		4.9	—
(4.8)		4.4	—	(4.8)	4.6	—	(4.8)	4.6	—	(4.8)	4.9	—
		4.4	—		4.6	—		4.6	—		4.9	—
9+00		4.4	—	11+00	4.6	—	13+00	4.6	—	15+00	4.9	—
		4.4	—		4.6	—		4.6	—		4.9	—
		4.4	—		4.6	—	14:15	4.7	+0.1	14:18	4.9	—
		4.4	—		4.6	—		4.7	—		4.9	—
		4.4	—		4.6	—		4.8	0.0		4.9	—
50		4.4	—	50	4.6	—	50	4.8	—	50	4.9	—
		4.4	—		4.6	—		4.8	—		4.9	—
		4.5	+0.3		4.6	—		4.8	—		4.9	—
		4.5	—		4.6	—		4.8	—		4.9	—
		4.5	—		4.6	—		4.8	—		4.9	—
10+00		4.5	—	12+00	4.6	—	14+00	4.8	—	16+00	4.9	—
		4.5	—		4.6	—		4.8	—		4.9	—
		4.5	—		4.6	—		4.8	—		4.9	—
		4.5	—	14:13	4.6	—		4.8	—		4.9	—
		4.5	—		4.6	—		4.8	—		4.9	—
50		4.5	—	12+50	4.6	—	14+50	4.8	—	16+50	4.9	—

W-77+00 9-18-17

DIST	SOUND	
16+60	4.9	-0.1
14:20	4.9	—
	4.9	—
(4.8)	4.9	—
17+00	4.9	—
	4.9	—
	4.9	—
	4.9	—
	4.9	—
50	4.9	—
	4.9	—
	4.9	—
	4.9	—
	4.9	—
18+00	4.9	—
	4.9	—
	4.9	—
	4.9	—
14:23	4.9	—
18+50	4.9	—

W-77+00 9-18-17

0+00 = (W-77+00 / N-168+64.96)

DIST	SOUND	
0+10	2.8	+1.8
	2.8	—
14:30	2.7	+1.9
(4.6)	2.7	—
50	2.7	—
	2.6	+2.0
	2.6	—
	2.6	—
	2.5	+2.1
1+00	2.5	—
	2.3	+2.3
	2.3	—
	2.2	+2.4
	2.1	+2.5
50	2.0	+2.6
	2.0	—
	2.0	—
	2.0	—
1+90	2.0	

PROS - #3-1 9-18-17 (28)

NORTH AT 90° TO N-168+64.96

DIST	SOUND	
2+00	2.0	+2.6
	2.0	—
(4.6)	1.9	+2.7
	1.8	+2.8
2+10	1.7	+2.9

FLOW LINE ELEV'S OF CULVERTS ALONG HI-WAY 101 - PROJECT NO. 3-1

STA	+	H.I.	−	ELEV.	GRADE
T.B.M.	5.64	18.22		12.58	
151+~~58~~ 80			10.84	~~7~~ 11.38	1%
151+~~58~~ 80			9.85	8.37	
T.B.M.	5.22	15.63		~~10.47~~ 41	
159+~~30~~ 59			10.98	4.65	3.7%
159+~~30~~ 54			6.90	8.73	
T.B.M.	5.40	15.24		9.84	
164+20			8.81	6.43	1%
164+20			7.66	7.58	
T.B.M.	5.68	16.06		10.38	
167+15			9.02	7.04	1.5%
167+15			7.49	8.57	
T.B.M.	6.18	16.87		10.69	
W 73+35			10.12	6.75	
73+35			8.52	8.35	1.5%
T.B.M.	5.15	17.08		11.93	
W 77+40			9.00	8.08	1.0%
W 77+40			8.30	8.78	

12.68
5.64

9.97
5.90
15.37
8.81
.51

Indexed

9-24-97

TOP HUB
151+00 (SEE PG 1)

F.L. WEST 48" CULV. — 92' LONG

F.L. EAST " "

TOP HUB
160+00

F.L. WEST 12" CULV. 110' LONG

" EAST " "

TOP HUB
164+00

F.L. WEST 24" CULV. 90' LONG

" EAST " "

TOP HUB
167+00

F.L. WEST 24" CULV 96' LONG

" EAST 24" "

TOP HUB
168+00

F.L. WEST 36" CULV. 100' LONG.

" EAST " "

TOP HUB
76+00 W

F.L. WEST 30" CULV. 80' LONG

" EAST " "

55' PAV.
RdW. 75

BARRAGAN
SHERRY
STANLEY

12-17-97
CLOUDY
& COOL
CLEAR

TOPOGRAPHIC FEATURES OF ROSE CREEK AND BANKS

N17,244.60
STA 106+00 W10,600 (SEE PAGE 29 FOR CONTROL POINTS)

W 105+00 EL. 7.82 + 5.43 H.I. = 13.25

STA	AZIM.	DIST	ROD	ELEV	OBJECT
℄					
W106+00	75°37'15"				STA 95W
1	75°37'15"	90	5.7	7.5	
2	"	50	5.5	7.7	
3	"	25	5.1	8.1	
4	"	20	5.3	7.9	
1	235°37'15	32	5.7	7.5	
2	"	40	5.5	7.7	
3	"	46	6.8	6.4	X-SECTION ALONG DE ANZA B/L
4	"	65	7.0	6.2	
5	"	70	8.7	4.5	
6	"	75	9.2	4.0	
7	"	105	9.0	4.2	
8	"	132	8.7	4.5	
9	"	157	8.5	4.7	
10	"	162	7.2	6.0	
11	"	165	5.5	7.7	
12	"	172	4.9	8.3	

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(30)

H.I. = 13.25

STA	AZIM	DIST	ROD	ELEV	
℄ (13)					
106+00W	235°37'15"	190	5.5	7.7	Indexed
14	"	232	4.9	8.3	X-SECTION ALONG DE ANZA B/L CONTD.
15	"	295	5.0	8.2	
16	"	365	4.5	8.7	
1	226°35'	420	6.2	7.0	
2	209°30'	395	6.2	7.0	
3	204°03'	370	6.7	6.5	
4	199°	350	7.3	5.9	
5	195°12'	337	6.7	6.5	
6	191°38'	346	9.5	3.7	
7	192°36'	325	9.1	3.8	
8	186°40	340	9.2	4.0	
9	182°30'	302	8.8	4.4	
10	177°30'	300	9.5	3.7	
11	176°49'	297	7.3	5.9	
12	175°05'	295	6.0	7.2	
13	164°15"	290	6.6	6.6	
14	133°53'	300	6.1	7.1	
15	150°55'	255	5.9	7.3	

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STA	AZIM	DIST	ROD	ELEV
⊼ △ 106+00W			H.I. = 13.25	
	161°30'	240	6.4	6.8
	171°08'	235	6.3	6.9
	178°07'	235	5.8	7.4
	180°43'	235	9.1	4.1
	186°26'	240	9.3	3.9
	189°14'	243	9.7	3.5
	192°35'	248	9.3	3.9
	199°23'	260	8.4	4.8
	204°12'	272	9.0	4.2
	205°28'	280	6.1	7.1
	210°32'	300	6.5	6.7
	216°30'	327	6.0	7.2
	221°06'	365	5.6	7.6
	225°22'	415	6.0	7.2
	232°36'	390	5.6	7.6
	230°10'	345	5.3	7.9
	226°42'	295	5.5	7.7
	222°49'	260	5.9	7.3
	217°04'	230	5.7	7.5

12-17-47 (31)

H.I. = 13.25

STA	AZIM	DIST	ROD	ELEV	OBJ.
⊼ 106+00W	216°31'	230	7.7	5.8	
	216°47'	226	8.6	4.6	
	208°30	205	8.4	4.8	
	199°15'	182	9.8	3.4	
	189°43'	167	9.6	3.6	
	188°02'	165	7.7	5.5	
	186°28'	165	6.6	6.6	
	180°14'	164	6.1	7.1	
	169°39'	160	5.8	7.4	
	155°15'	162	6.5	6.7	
	142°19'	175	5.9	7.3	
⊼ △ 106+00W	75°37'15 STA-105+00W EL.= 7.82 + 5.33 = 13.15 H.I.				STA 90W (12-18-47)
	118°54'	105	5.4	7.7	
	136°42	75	5.4	7.7	
	174°30'	60	5.2	7.9	
	201°34'	68	5.9	7.2	
	219°05'	84	6.6	6.5	
	221°45'	87	10.3	2.8	
	224°15'	93	10.6	2.6	

12-18-47

STA	AZIM	DIST	ROD	ELEV
↑ 106+00W			H.I. = 13.15	
	227°35'	100	9.0	4.1
	234°20'	128	9.0	4.1
	238°30'	147	9.1	4.0
	239°30	156	8.1	5.0
	242°05'	173	7.3	5.8
	242°15'	180	5.9	7.2
	242°60'	185	5.6	7.5
	245°55'	210	5.2	7.9
	246°20'	245	5.2	7.9
	248°05'	295	5.4	7.7
	248°10'	340	4.7	8.4
	264°30	358	4.6	8.5
	266°45'	310	4.8	8.3
	268°22'	280	4.1	9.0
	270°41'	245	4.7	8.4
	274°05'	208	4.7	8.4
	278°07	172	4.6	8.5

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(32)

Sta	Azim	Dist	Rod	Elev
↑ W106+00		H.I. = 13.15		
	278°37	168	7.0	6.1
	280°12'	157	9.0	4.1
	282°51'	142	9.3	3.8
	288°05	120	8.8	4.3
	297°30	95	9.2	3.9
	301°30'	88	9.4	3.7
	303°20'	85	6.5	6.6
	316°27'	60	6.8	6.3
	321°05'	60	4.5	8.6
	08°15'	55	4.7	8.4
	39°35'	98	5.0	8.1
	28°45'	196	5.1	8.0
	19°25'	126	5.3	7.8
	356°36'	116	4.5	8.6
	336°10'	124	4.4	8.7
	333°41'	125	6.4	6.7
	322°51'	140	7.0	6.1
	317°06'	142	8.9	4.2
	318°30	148	8.3	4.8

12-18-97

H.I. = 13.15

STA	AZIM	DIST	ROD	ELEV
W106+00	314°40	157	7.9	5.2
	313°30	160	8.6	4.5
	308°00	175	8.8	4.3
	303°33'	190	9.1	4.0
	301°45'	202	8.9	4.2
	301°07	205	6.5	6.6
	300°06'	208	4.9	8.2
	295°28'	237	4.6	8.5
	289°05'	282	4.6	8.5
	284°50'	327	4.6	8.5
	293°15	360	4.4	8.7
	298°00	320	5.0	8.1
	304°10'	280	4.9	8.2
	310°32	255	5.4	7.7
	311°00	250	6.9	6.2
	311°30'	252	9.3	3.8
	313°16'	245	9.3	3.8
	316°45	240	8.9	4.2
	321°55'	225	8.6	4.5

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(33)

H.I. = 13.15

STA	AZIM	DIST	ROD	ELEV
106+00	322°48'	225	7.6	5.5
	326°20'	216	7.8	5.3
	328°55	211	8.6	4.5
	330°10'	210	8.7	4.4
	332°05'	206	7.2	5.9
	335°48'	203	6.2	6.9
	337°37'	202	4.0	9.1
	354°26'	197	4.5	8.6
	02°12	202	4.6	8.5
	02°28'	275	4.4	8.7
	349°52	270	4.4	8.7
	338°36'	271	4.0	9.1
	336°46'	272	5.3	7.8
	334°55'	275	8.1	5.0
	331°10'	280	8.4	4.7
	330°	282	7.6	5.5
	327°40	285	8.4	4.7
	321°49'	300	9.1	4.0
	318°33'	303	9.7	3.4

H.I. = 13.15 — 12-18-47

STA	AZIM	DIST	ROD	ELEV	OBJ.
⊼ W106+00	318°00'	304	9.3	3.8	
	317°25'	307	6.6	6.5	
	316°45'	310	4.9	8.2	
	308°40	340	4.4	8.7	
	301°15'	395	4.1	9.0	
	T.B.M #1 EL. 9.78 + 4.67 = 14.45 H.I.				
⊼ 5+00N	165°00" ~~345°00'00"~~				106+00W
	223°45'	290	1.9	9.5	
	220°	262	5.3	9.1	
	214°25	235	5.7	8.7	
	210°05'	222	6.7	7.7	
	207°20'	210	7.2	7.2	
	206°	205	10.2	4.2	
	202°05'	198	10.2	4.2	
	195°25'	185	10.1	4.3	
	184°43'	170	9.5	4.9	
	183°07'	170	8.1	6.3	
	181°10'	168	8.0	6.4	
	179°40	165	5.2	9.2	
	158°35'	165	5.0	9.2	

H.I. = 14.45 — 12-18-47 — (34)

STA	AZIM	DIST	ROD	ELEV
⊼ 5+00N	131°15'	198	5.4	9.0
	121°45	158	5.3	9.1
	135°35	123	5.2	9.2
	160°42'	96	4.4	10.0
	197°05	93	4.1	10.3
	198°12'	96	7.2	7.2
	206°00	100	9.0	5.4
	207°35'	100	10.1	4.3
	212°30	122	11.7	2.7
	224°00'	135	10.5	3.9
	225°00	137	9.1	5.3
	228°30'	152	7.9	6.5
	234°42'	175	6.7	7.7
	239°10'	210	7.4	7.0
	243°03	245	7.0	7.4
	247°00'	282	6.5	7.9
	259°	277	6.0	8.4
	259°30'	250	6.5	7.9
	258°35'	190	7.3	7.1
	258°35'	160	6.7	7.7

H.I. = 14.45 — 12-18-47

STA	AZIM	DIST	ROD	ELEV
↑ 5+00N	257°40'	114	8.3	6.1
	257°40'	105	10.2	4.2
	258°25'	80	11.2	3.2
	257°10'	62	10.2	4.2
	257°10'	61	8.5	5.9
	258°45'	55	5.5	8.9
	258°45'	50	3.9	10.5
	162°05'	10'	4.8	9.6
	93°30'	67	5.3	9.1
	86°50'	166	5.3	9.1
	69°47'	170	5.3	9.1
	60°47'	100	5.5	8.9
	349°49'	52	4.8	9.6
	307°20'	78	4.8	9.6
	303°15'	87	8.5	5.9
	303°	89	10.2	4.2
	302°50'	91	11.7	2.7
	294°40'	105	12.2	2.2
	290°10'	117	11.3	3.1
	289°15'	120	9.3	5.1

H.I. = 14.45 — 12-18-47 — (35)

STA	AZIM	DIST	ROD	ELEV
↑ 5+00N				
	286°45'	130	7.8	6.6
	281°15'	161	6.8	7.6
	278°	185	6.2	8.2
	275°	225	6.1	8.3
	288°45'	260	5.9	8.5
	291°30'	240	6.8	7.6
	296°10'	210	6.4	8.0
	302°05'	186	7.5	6.9
	305°05'	175	9.2	5.2
	305°45'	174	11.1	3.3
	312°55'	162	12.0	2.4
	320°35'	140	10.2	4.2
	321°45'	136	8.0	6.4
	324°32	130	4.9	9.5
	348°	105	4.7	9.7
	22°35'	117	5.0	9.4
	31°02'	130	6.9	7.5
	40°25	158	5.2	9.2
	51°	208	5.4	9.0

H.I. = 14.45 12-18-17

STA	AZIM	DIST	ROD	ELEV
T.A. 5+00 N				
	39° 55'	240	4.6	9.8
	24° 30'	194	4.7	9.7
	00° 13'	182	4.5	9.9
	353° 30'	185	6.6	7.8
	348° 30'	184	5.2	9.2
	332° 30'	200	4.1	10.3
	329° 35'	204	9.5	4.9
	325° 17'	210	9.2	5.2
	323° 05'	212	11.7	2.7
	320° 45'	218	10.7	3.7
	320° 09'	220	8.9	5.5
	314° 50'	235	9.3	5.1
	311° 40'	245	9.3	5.1
	310° 30'	250	6.8	7.6
	309° 30'	255	5.6	8.8
	307° 45'	266	6.1	8.3
	302°	290	6.0	8.4
	297° 45'	327	6.4	8.0
	304° 10	390	4.0	10.4

H.I. = 14.45 12-18-17 (36)

STA	AZIM	DIST	ROD	ELEV
T.A. 5+00 N				
	307° 45'	365	4.1	10.3
	311° 40'	345	4.4	10.0
	314° 30'	330	5.4	9.0
	317° 10'	322	6.7	7.7
	319° 45'	312	7.6	6.8
	320° 15'	318	10.1	4.3
	321° 20'	310	11.7	2.7
	323° 33'	305	8.5	5.9
	327° 35	290	8.6	5.8
	333° 05'	280	8.5	5.9
	334° 13'	276	11.0	3.4
	334° 57'	280	10.1	4.3
	336° 42'	275	4.5	9.9
	338° 16'	272	5.7	8.7
	340°	270	5.3	9.1
	343° 07	265	4.3	10.1
	356°	260	4.4	10.0
	11° 32	280	4.1	10.3

12-18-47

T.B.M. #2 EL. 9.98 + 5.07 = 15.05 H.I. 0

STA	AZIM	DIST	ROD	ELEV	OBJ.
⊼ △ 10+00 N	165°00'				106+00 W
	127°30'	235	5.6	9.4	
	138°50'	200	4.6	10.4	
	154°15'	170	4.8	10.2	
	174°10'	160	4.9	10.1	
	176°	160	6.6	8.4	
	178°40'	161	6.2	8.8	
	181°	163	9.5	5.5	
	184°45'	165	9.4	5.6	
	185°30'	166	10.9	4.1	
	188°05'	167	12.5	2.5	
	191°15'	170	10.9	4.1	
	191°40'	170	10.0	5.0	
	198°40'	175	9.5	5.5	
	207°40'	190	9.5	5.5	
	207°50'	193	7.9	7.1	
	209°20'	196	5.7	9.3	
	215°13	212	5.5	9.5	

H.I. = 15.05

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(37)

STA	AZIM	DIST	ROD	ELEV
⊼ 10+00 N				
	219°30	247	4.4	10.6
	226°50	285	5.0	10.0
	238°15'	250	4.8	10.2
	236°	210	4.5	10.5
	234°30'	172	5.1	9.9
	229°45'	142	5.3	9.7
	228°53'	135	7.7	7.3
	227°45'	130	9.6	5.4
	220°45'	105	9.4	5.6
	219°45'	105	12.6	2.4
	215°55'	95	12.2	2.8
	215°	92	9.3	5.7
	199°22'	75	9.2	5.8
	197°55	74	10.1	4.9
	195°	72	7.9	7.1
	192°	68	4.4	10.6
	155°30'	78	3.0	12.0
	154°50'	76	6.3	8.7
	151°05'	78	8.8	6.2

H.I. = 15.05 — 12-18-47

STA	AZIM	DIST	ROD	ELEV
↑ 10+00N				
	123°	112	8.4	6.6
	105°07	170	7.1	7.9
	87°40'	164	8.7	6.3
	89°10'	95	7.1	7.6
	85°30	28	9.7	5.3
	85°30'	26	7.6	7.4
	85°30'	24	4.5	10.5
	00°	00	4.9	10.1
	160°05	120	4.0	11.0
	156°45	120	8.1	6.9
	134°	195	8.9	6.1
	131°45'	200	4.9	10.1
	108°30'	253	4.6	10.4
	107°06'	250	9.0	6.0
	259°55	24	5.0	10.0
	259°55'	26	7.7	7.3
	260	28	8.8	6.2
	256°	30	10.9	4.1
	256°50	35	10.6	4.4

H.I. = 15.05 — 12-18-47 — (38)

STA	AZIM	DIST	ROD	ELEV
↑ 10+00N				
	257°	37	9.3	5.7
	258°50'	77	9.2	5.8
	258°50'	80	12.1	2.9
	258°25'	87	11.7	3.3
	257°45'	95	9.7	5.3
	257°15	112	9.0	6.0
	258°35'	120	6.0	9.0
	258°33'	125	5.0	10.0
	258°30'	162	5.0	10.0
	258°35'	205	4.6	8.4
	258°34'	250	4.9	10.1
	275°45'	263	4.7	10.3
	278°45'	227	4.7	10.3
	283°20'	196	4.7	10.3
	291°	152	5.5	9.5
	293°22'	145	8.3	6.7
	294°05'	142	11.1	3.9
	297°40'	130	10.4	4.6
	298°30'	130	9.2	5.8

H.I. = 15.05 12-18-97

STATION	AZIM	DIST	ROD	ELEV
	306°15'	111	8.7	6.3
	312°05'	98	9.5	5.5
	311°55'	93	9.7	5.3
	324°	85	9.4	5.6
	331°20'	80	5.4	9.6
	09°56'	73	4.3	10.7
	19°20'	80	8.7	6.3
	47°15'	118	7.5	7.5
	57°15'	182	6.9	8.1
	38°13'	219	7.1	7.9
	28°17'	193	7.1	7.9
	14°22'	168	8.6	6.4
	01°25'	155	8.1	6.9
	359°25'	155	4.0	11.0
	336°08'	158	4.6	10.4
	333°50'	159	9.8	5.2
	331°50'	161	9.6	5.4
	327°05'	166	8.9	6.1
	320°02	173	8.8	6.2

H.I. = 15.05 12-18-97

STA	AZIM	DIST	ROD	ELEV
10toON				
	320°	175	11.6	3.4
	317°02'	181	11.8	3.2
	315°35'	185	11.0	4.0
	315°	186	9.5	5.5
	311°20'	195	9.2	5.8
	309°20'	202	6.4	8.6
	308°26'	205	5.1	9.9
	301°15	230	5.4	9.6
	293°37	262	4.9	10.1
	288°05'	297	4.4	10.6
	300°35'	355	4.3	10.7
	304°40'	330	4.2	10.8
	309°40'	307	4.3	10.7
	308 45'	278	4.6	10.4
	319°35'	275	7.3	7.7
	321°	272	8.7	6.3
	325°10	268	9.7	5.3
	325°45'	267	12.3	2.7
	327°35'	263	11.8	3.2

H.I. = 15.05 — 12-18-17

STA ↑ 10+00N	AZIM	DIST	ROD	ELEV
	328°10'	261	9.6	5.4
	329°55'	258	9.0	6.0
	337°15'	248	9.2	5.8
	339°30'	243	4.6	10.4
	348°20'	237	4.8	10.2
	00°15'	228	4.2	10.8
	02°15'	230	8.2	6.8
	14°55'	242	8.7	6.3
	31°50'	280	6.6	8.4
	24°45'	332	7.2	7.8
	15°10'	305	7.7	7.3
	07°02'	295	7.6	7.4
	06°18'	295	3.8	11.2
	353°27'	297	3.8	11.2
	340°53'	300	3.9	11.1
	340°13'	302	7.3	7.7
	338°30'	305	9.2	5.8
	335°45'	310	9.3	5.7
	335°15'	313	11.1	3.9

12-20-17

H.I. = 15.05 — 12-18-17 — (10)

STA ↑ 10+00N	AZIM	DIST	ROD	ELEV
	333°55'	315	11.4	3.6
	330°55'	325	10.4	4.6
	330°30'	326	9.5	5.5
	327°18'	330	7.9	7.1
	329°57'	332	7.2	7.8
	323°40'	335	5.6	9.4
	317°45'	352	4.5	10.5
	311°30'	374	3.9	11.1
	305°40'	400	3.7	11.3
	313°15'	465	3.2	11.8
	316°45'	450	3.3	11.7
	321°50'	425	3.7	11.3
	323°45'	415	5.7	9.3
	327°20'	398	7.8	7.2
	332°	385	8.7	6.3
	336°12'	372	9.4	5.6
	336°50'	372	11.0	4.0
	337°50'	371	11.6	3.4
	339°57'	362	10.6	4.4

H.I. = 15.05 12-18-47

STA	AZIM	DIST	ROD	ELEV
⊼ Δ 10+00N				
	340°22'	360	6.7	8.3
	345°30'	353	3.5	11.5
	355°45'	348	3.8	11.2
	08°47'	365	4.3	10.7
	09°50'	330	3.8	11.2
	10°15'	323	7.4	7.6
	17°32'	370	7.2	7.8
	16°50'	380	4.5	10.5
	14°45	415	4.0	11.0
	14°45	420	0.9	14.1
	04°22'	380	3.8	11.2
	04°22'	390	0.1	14.9
	346°18'	363	2.7	12.3
	346°18'	367	+0.3	15.3
	342°48'	368	0.3	14.7
	341°18'	369	5.9	9.1

12-18-47 (71)

T.B.M. #3 EL. 13.23 + 4.53 = 17.76 H.I.

STA	AZIM	DIST	ROD	ELEV	OBJECT
⊼ Δ 15+00N	165°00'00"				10+00W
	245°50'	225	5.3	12.5	
	244°30'	192	5.5	12.3	
	242°10'	152	6.4	11.4	
	241°48'	142	8.1	9.7	
	243°07'	130	10.1	7.7	
	237°15'	96	10.8	7.0	
	223°07'	80	11.8	6.0	
	228°50'	76	13.9	3.9	
	227°45'	70	12.5	5.3	
	229°20'	55	11.6	6.2	
	204°15'	35	9.2	8.6	
	201°	29	5.1	12.7	
	113°45'	57	4.9	12.9	
	100°25'	148	5.3	12.5	
	112°10'	178	5.1	12.4	
	114°	184	3.1	14.7	
	132°20	137	3.4	14.4	

H.I. = 17.76 — 12-18-97

STA	AZIM	DIST	ROD	ELEV
⊼ △ 15+00 N				
	130°30'	132	5.6	12.2
	168°	108	5.5	12.3
	169°22'	115	2.2	15.6
	82°45'	152	5.3	12.5
	76°30'	63	5.1	12.7
	00	00	5.0	12.7
	261°	22	5.2	12.6
	261°40'	35	11.6	6.2
	261°15'	43	11.8	6.0
	261°	61	11.3	6.5
	260°45'	64	12.2	5.6
	260°20'	70	12.4	5.4
	260°	72	13.3	4.5
	260°	75	11.1	6.7
	259°	106	10.8	7.0
	259°	137	9.5	8.3
	25845'	142	6.9	10.9
	259°	147	5.6	12.2
	259°	195	5.2	12.6

H.I. = 17.76 — 12-18-97 — (42)

STA	AZIM	DIST	ROD	ELEV
⊼ △ 15+00 N				
	259°	248	4.9	12.9
	274°35'	275	4.4	13.4
	277°	245	4.6	13.2
	282°45'	200	4.7	13.1
	283°30'	190	5.8	12.0
	283°40	182	8.0	9.8
	289°	162	10.2	7.6
	297°15'	135	11.4	6.4
	303°10'	121	11.9	5.9
	306°50'	110	12.1	5.7
	312°50'	108	10.9	6.9
	319°10'	103	11.6	6.2
	324°30	97	7.8	10.0
	330°15'	93	6.9	10.9
	332°45'	92	5.0	12.8
	15°	103	5.2	12.6
	40°10'	159	5.0	12.8
	25°40'	208	5.6	12.2
	03°10'	176	4.9	12.9

H.I. = 17.76 — 12-18-97

STA	AZIM	DIST	ROD	ELEV
15+00N				
	334°40'	180	4.6	13.2
	333°30'	182	6.1	11.9
	330°13'	185	8.7	9.1
	324°15'	195	10.4	7.4
	321°42'	206	10.4	7.4
	316°50'	215	10.8	7.0
	310°50'	205	10.8	7.0
	297°55'	240	9.3	8.5
	296°15'	255	8.3	9.5
	295°35'	264	5.7	12.1
	295°30'	267	4.6	13.2
	290°23'	295	4.1	13.7
	287°15'	340	3.7	14.1
	297°20'	390	3.8	14.0
	299°25'	375	3.6	14.2
	303°05'	355	3.7	14.1
	303°40'	350	5.2	12.5
	306°05	342	8.7	9.1
	309°10'	325	8.4	9.4

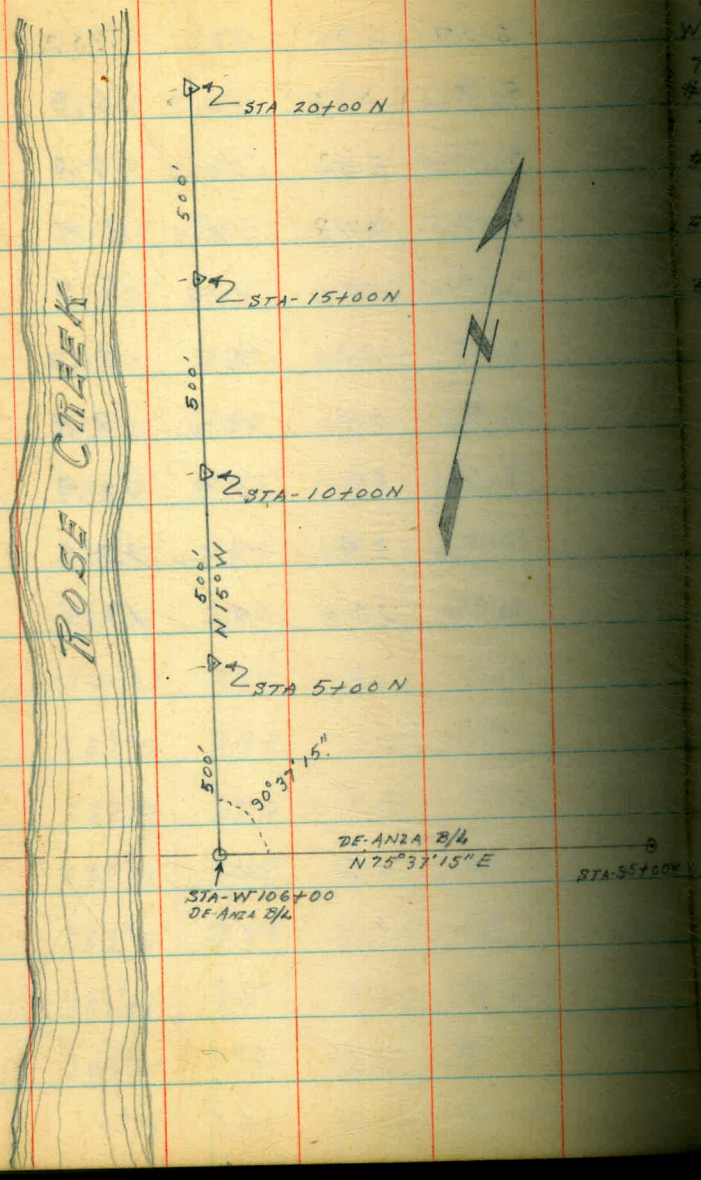
H.I. = 17.76 — 12-18-97

STA	AZIM	DIST	ROD	ELEV
15+00N				
	311°	315	10.5	7.3
	316°30'	295	10.6	7.2
	320°22'	288	10.9	6.9
	323°25'	280	10.0	7.8
	327°40'	275	12.9	5.9
	325°40'	270	11.9	5.9
	326°	270	9.6	8.2
	334°05'	250	10.0	7.8
	338°55'	250	5.4	12.4
	357°50'	242	4.2	13.6
	05°55'	258	4.3	13.5

BARRAGAN
SHERRY
STANLEY

12-19-97

LOCATION OF CONTROL POINTS FOR TOPOGRAPHY OF ROSE CREEK



BARRAGAN
SHERRY
STANLEY

12-19-97

BENCH LEVELS FOR TOPOGRAPHY OF ROSE CREEK

Indexed

STA	+	H.I.	−	ELEV	
T.B.M. W105+00	6.23	14.05		7.82	TOP HUB W106+00 DE-ANZA B/L
T.B.M #1	5.35	15.13	4.27	9.78	20' N/ OF ℄ 5+00 N
T.B.M #2	7.99	17.97	5.15	9.98	20' N/ OF ℄ 10+00 N
T.B.M #3	5.29	18.52	4.74	13.23	20' N/ OF ℄ 15+00 N
T.B.M #4			3.49	15.03	20' N/ OF ℄ 20+00 N

2-6-48

PX

0+00 W-105+00

DIST.	+	HI	−	ELEV.	
~~W-105+00~~	4.65	12.83		8.18	STA W-103+05
0+00			5.0	7.8	
0+45			5.1	7.7	
1+30			4.9	7.9	
2+30			4.1	8.7	
3+45			4.2	8.6	
4+35			4.4	8.4	
4+45			3.5	9.3	
5+25			3.4	9.4	
5+40			5.3	7.5	
5+75			5.1	7.7	
5+80			3.4	9.4	
6+48			3.3	9.5	
6+80			4.9	7.9	
7+10			4.1	8.7	
7+75			3.5	9.3	
8+90			2.9	9.9	
8+95			5.0	7.8	

2-6-48 (45)

PX

W.105+00 cont.

Indexed

DIST.	+	HI	−	ELEV.
		12.83		
9+80			4.7	8.1
10+75			4.1	8.7
11+80			4.3	8.5
12+90			3.9	8.9
13+60			3.5	9.3
14+10			1.4	11.4
14+20			0.3	12.5

2-6-48

0+00 STA. W 104+00

DIST.	+	HI	−	ELEV	
	4.40	12.58		8.18	STA W103+00
14+30			3.1	9.4	
13+20			3.4	9.1	
12+30			3.6	8.9	
11+40			4.0	8.5	
10+30			4.3	8.2	
9+40			4.9	7.6	
9+00			3.1	9.4	
8+60			3.9	8.6	
8+25			3.1	9.4	
7+25			3.1	9.4	
6+35			3.8	8.7	
5+45			5.1	7.4	
4+90			3.9	8.6	
4+05			3.6	8.9	
3+35			3.6	8.9	
2+50			4.1	8.4	

2-6-48 (46)

STA. W 104+00

DIST.	+	HI	−	ELEV.
		12.58		
1+85			4.5	8.0
1+00			4.7	7.8
0+00			5.1	7.4

2-6-48

0+00 = W 103+00

DIST	+	H.I.	—	ELEV	
	5.29	13.12		7.83	STA W102+00
0+00			5.1	8.0	
0+65			5.2	7.9	
1+30			5.1	8.0	
2+10			4.9	8.2	
3+00			4.0	9.1	
4+05			5.4	7.7	
4+15			4.5	8.6	
4+45			5.6	7.5	
5+50			4.1	9.0	
6+30			4.7	8.4	
6+40			4.2	8.9	
7+30			3.9	9.2	
8+45			3.6	9.5	
9+00			4.2	8.9	
10+20			3.3	9.8	
11+00			3.2	9.9	
11+80			3.5	9.6	

W 103+00 Cont. 2-6-48 (47)

DIST.	+	HI	—	ELEV	
		13.12			
12+70			2.2	10.9	
13+30			2.1	11.0	
13+70			2.2	10.9	EDGE RR GRADE
14+10					

2-6-48

0+00 = W 102+00

DIST.	+	H.I.	−	ELEV.	
	4.95	13.21		8.26	STA. W101+00
14+15			+0.4	13.6	
13+70			0.4	12.8	
13+60			1.7	11.5	
12+70			2.5	10.7	
11+50			3.0	10.2	
10+55			5.1	8.1	
9+60			4.6	8.6	
9+00			4.4	8.8	
8+10			3.7	9.5	
7+15			4.8	8.4	
5+75			4.7	8.5	
4+40			5.7	7.5	
3+15			5.7	7.5	
2+05			5.1	8.1	
1+05			5.0	8.2	
0+00			5.4	7.8	

2-6-48

0+00 = W 101+00

DIST.	+	H.I.	−	ELEV.	
	6.68	13.48		6.80	STA. W-100+00
0+00			5.3	8.2	
0+50			5.8	7.6	
1+30			5.5	~~7.9~~ 8.0	
2+25			6.2	~~7.2~~ 7.3	
2+85			6.2	~~7.2~~ 7.3	
4+30			6.1	7.3	
5+15			5.3	8.2	
6+30			4.9	~~8.5~~ 8.6	
7+50			5.1	~~8.3~~ 8.4	
8+95			5.5	8.0	
9+75			3.8	9.7	
10+60			4.0	9.5	
11+35			3.4	10.1	
12+35			2.8	10.7	
13+60			1.9	11.6	
13+70			+0.2	13.7	

STA 2-6-48

0+00 = W100+00

PX

DIST.	+	H.I.	−	ELEV.	
	4.20	12.16		7.96	STA. W99+00
				S EDGE RR GRADE	
13+65					
13+55			+0.1	12.3	
13+50			1.4	10.8	
12+30			2.0	10.2	
11+25			2.0	10.2	
10+15			2.7	9.5	
9+05			4.0	8.2	
7+95			4.2	8.10	
6+60			4.0	8.2	
5+40			4.2	8.0	
4+25			4.5	7.7	
3+25			4.5	7.7	
2+40			4.2	8.0	
1+30			4.6	7.6	
0+00			5.4	6.8	

STA. 2-6-48 (49)

0+00 = W 99+00

PX

DIST.	+	H.I	−	ELEV	
	5.58	13.25		7.67	STA. W98+00
0+00			5.4	7.8	
0+50			5.3	7.9	
1+05			5.6	7.6	
2+05			5.0	8.2	
3+00			5.3	7.9	
4+35			5.5	7.7	
5+40			5.7	7.5	
6+40			5.4	7.8	
7+60			5.2	8.0	
8+30			5.1	8.1	
9+50			3.9	9.3	
10+35			3.4	9.8	
11+55			3.4	9.8	
12+45			3.0	10.2	
13+20			2.5	10.7	
13+30			0.6	12.6	

2-6-48

0+00 = STA. W 98+00

DIST.	+	H.I	−	ELEV	
	5.16	12.9°		7.74	STA W. 97+00
13+10			0.2	12.7	
13+00			2.2	10.7	
12+00			2.9	10.0	
10+75			3.0	9.9	
9+50			3.4	9.5	
8+45			4.6	8.3	
7+10			5.4	7.5	
6+05			5.5	7.4	
4+60			5.6	7.3	
3+55			5.3	7.6	
2+40			5.2	7.7	
1+55			5.2	7.7	
0+70			5.0	7.9	
0+00			5.3	7.6	

2-6-48 (59)

0+00 = STA. W 97+00

DIST	+	HI	−	ELEV	
	5.16	13.03		7.87	STA W 96+00
0+00			5.4	7.6	
0+60			5.4	7.6	
1+50			5.6	7.4	
2+30			5.9	7.1	
3+30			5.6	7.4	
4+55			5.6	7.4	
5+80			5.2	7.8	
6+65			5.2	7.8	
8+00			4.8	8.2	
9+15			3.7	9.3	
10+50			3.7	9.3	
11+75			3.6	9.4	
12+70			2.1	10.9	
12+82			Top RR GRADE	14.0	

2-6-48

PX 0+00 = STA. W 96+00

DIST.	+	H.I.	−	ELEV.	
	5.00	12.93		7.93	STA 95+00
12+50			Top RR Grade		
12+35			1.9	11.0	
11+50			3.3	9.6	
10+75			3.6	9.3	
9+85			4.1	8.8	
8+80			4.2	8.7	
7+85			5.1	7.8	
6+75			5.3	7.6	
5+80			5.6	7.3	
4+65			5.7	7.2	
3+45			5.6	7.3	
2+50			5.8	7.1	
1+30			5.5	7.4	
0+00			5.1	7.8	

2-6-48 (51)

0+00 = STA. W 95+00 PX

DIST.	+	HI	−	ELEV.	
	5.39	13.26		7.87	STA 96+00
0+00			5.4	7.9	
0+80			5.8	7.5	
1+95			6.2	7.1	
3+25			6.2	7.1	
4+55			6.1	7.2	
5+95			6.0	7.3	
7+50			5.5	7.8	
8+85			5.2	8.1	
10+20			4.8	8.5	
11+05			4.1	9.2	
11+85			2.7	10.6	
12+00			0.0	13.3	
12+10			Top RR Grade		

PX

0+00 = STA W. 94+00

DIST.	+	HI	−	ELEV.	
	4.78	12.71		7.93	STA W95+00
11+55			TOP R.R GRADE		
11+40			0.0	12.7	
11+30			2.6	10.1	
10+50			3.3	9.4	
9+25			4.2	8.5	
8+20			5.1	7.6	
7+25			5.3	7.4	
6+15			5.5	7.2	
5+00			5.7	7.0	
~~4~~+00			5.8	6.9	
2+85			5.8	—	
1+40			5.8	—	
0+00			5.3	7.4	

2-10-42 (52)

PX

Sta - 119+00

Dist	+	HI	−	Elev	
	3.38	12.18		8.80	T.B.M. Sta. 120+00
2+00			5.2	7.0	
3+70			5.1	7.1	
4+50			4.8	7.4	
5+20			4.5	7.7	
5+90			4.3	7.9	
7+95			3.7	8.5	
8+75			3.7	—	
9+25			2.8	9.4	
9+70			2.1	10.1	
10+25			1.0	11.2	

2-10-48

PX

Sta 118+00

Dist	+	H.I.	−	Elev	
	4.51	12.41		7.90	T.B.M. Sta. 117+00
8+45			1.8	10.6	
6+80			2.2	10.2	
6+30			2.5	9.9	
5+75			2.8	9.6	
5+05			3.6	8.8	
4+55			3.9	8.5	
3+85			4.3	8.1	
3+10			4.6	7.8	
2+25			5.0	7.4	
1+70			4.9	7.5	
0+75			5.0	7.4	
0+00			5.2	7.2	

2-10-48

(53)

PX

Sta. 117+00

Dist	+	H.I.	−	Elev.	
	4.80	12.56		7.76	T.B.M. Sta. 118+00
0+00			5.3	7.3	
0+95			5.0	7.6	
1+95			5.0	—	
2+90			4.7	7.9	
3+95			4.1	8.5	
5+30			3.6	9.0	
5+40			2.0	10.6	
5+45			3.9	8.7	
5+60			2.7	9.9	
5+70			3.4	9.2	
6+70			3.2	9.4	
7+60			3.3	9.3	
8+50			3.0	9.6	
9+45			2.6	10.0	
10+80			1.5	11.1	
11+55			1.0	11.6	

2-10-42

PX

Sta. 116+00

Dist	+	HI	−	Elev	
T.B.M.	4.52	12.62		8.10	T.B.M. 15' South STA 116+00
12+55			0.8	11.8	
11+15			2.0	10.6	
10+00			2.1	10.5	
9+90			3.4	9.2	
9+80			2.6	10.0	
8+55			3.3	9.3	
7+40			3.9	8.7	
6+15			4.3	8.3	
5+15			3.5	9.1	
5+00			4.3	8.3	
4+85			4.0	8.6	
3+75			4.3	8.3	
2+55			4.7	7.9	
1+65			4.8	7.8	
0+55			5.1	7.5	
0+00			5.2	7.4	

2-10-42 (54)

PX

STA 115+00

Dist	+	HI.	−	ELEV.	
	4.71	12.81		8.10	T.B.M. 15' So. of Sta. 116+00
0+00			5.3	7.5	
0+50			4.7	8.1	
2+10			5.2	7.6	
3+35			5.0	7.8	
4+45			4.8	8.0	
5+55			4.7	8.1	
6+50			4.5	8.3	
8+45			2.1	10.7	
9+60			4.1	8.7	
8+70			2.7	10.1	
9+95			2.2	10.6	
11+50			1.3	11.5	
12+85			0.8	12.0	

2-10-48

PX

Sta 114+00

Dist	+	HI	−	Elev	
	4.50	13.21		8.71	TBM Sta 113.00
14+60			0.4	12.8	
13+80			1.3	11.9	
12+90			1.6	11.6	
11+70			2.6	10.6	
10+75			2.5	10.7	
9+90			3.0	10.2	
8+90			3.7	9.5	
7+85			4.0	9.2	
7+30			4.0	—	
7+15			4.9	8.3	
7+05			3.7	9.5	
6+60			4.6	8.6	
5+90			4.9	8.3	
5+15			5.1	8.1	
4+15			5.2	8.0	

PX

Sta 114+00 Cont.

Dist	+	HI	−	Elev
3+50		13.21	5.1	8.1
2+75			5.2	8.0
1+90			5.0	8.2
1+40			5.0	—
0+80			5.6	7.6
0+00			5.4	7.8

2-10-48

PX

Sta 113+00

Dist	+	H.I.	−	Elev	T.B.M. Sta 112+00
	4.78	13.70		8.92	
0+00			5.3	8.4	
0+95			5.4	8.3	
2+30			5.2	8.5	
3+55			5.0	8.7	
4+45			5.1	8.6	
5+65			5.6	8.1	
6+90			5.2	8.5	
8+25			5.0	8.7	
9+30			4.3	9.4	
9+85			5.0	8.7	
10+20			3.6	10.1	
11+25			3.5	10.2	
12+30			3.3	10.4	
13+30			3.4	10.3	
14+50			1.4	12.3	

2-10-48

(56)

PX

STA 112+00

Dist from	+	H.I.	−	ELEV	T.B.M. STA. 111+00
	4.95	13.74		8.79	
14+50			2.0	11.7	
13+40			2.7	11.0	
12+05			3.6	10.1	
11+25			3.9	9.8	
10+35			4.7	9.0	
9+50			4.2	9.5	
8+50			4.4	9.3	
7+50			4.4	—	
6+50			4.4	—	
5+25			4.5	9.2	
4+20			4.8	8.9	
3+15			4.7	9.0	
2+15			5.0	8.7	
1+05			5.5	8.2	
0+00			5.3	8.4	

2-10-48

PX

Sta. 111+00

Dist	+	H.I.	−	Elev.	TBM
	4.60	13.52		8.92	Sta 1+
0+00			5.3	8.2	
0+70			4.7	8.8	
1+65			4.6	8.9	
2+60			4.5	9.0	
3+45			4.4	9.1	
4+45			4.3	9.2	
5+30			4.0	9.5	
6+30			3.8	9.7	
7+30			3.8	—	
8+25			4.1	9.4	
9+20			3.6	9.9	
10+30			3.5	10.0	
11+00			3.4	10.1	
11+90			3.4	—	
12+80			3.0	10.5	
13+60			2.1	11.4	

2-10-48

(57)

PX

Sta. 110+00

Dist	+	H.I.	−	Elev.	TBM.
	4.56	13.35		8.79	sta.
15+20			1.2	12.1	
13+10			4.2	9.1	
13+70			7.6	5.7	
14+60			9.0	4.3	
14+60			9.4	3.9	
14+40			7.2	6.1	
14+20			7.7	5.6	
14+10			9.1	4.2	
13+50			9.9	3.4	
12+60			10.9	2.4	
12+50			8.6	4.7	
11+70			8.2	5.1	
11+50			6.3	7.0	
11+15			4.0	9.3	
10+45			4.1	9.2	

2+10-48

PX

Sta. 110+00 Cont.

Dist.	+	H.I.	−	Elev.
9+45		13.35	3.2	10.1
8+55			3.0	10.3
7+85			3.5	9.8
7+70			5.2	8.1
6+50			5.6	7.7
6+00			3.9	9.4
5+60			5.2	8.1
4+85			5.6	7.7
4+20			5.6	—
3+25			4.8	8.5
2+80			6.0	7.3
2+35			7.1	6.2
2+00			6.7	6.6
1+65			6.2	7.1
1+60			5.2	8.1
1+15			4.9	8.4
0+55			5.0	8.3
0+00			5.3	8.0

2-10-48

(58)

PX

Sta 109+00

Dist.	+	HI	−	Elev.	
TBM	5.22	13.86		8.64	T.B.M. Sta. 110+00
0+00			5.2	8.7	
0+25			5.2	—	
0+60			5.4	8.5	
0+30			5.2	8.7	
0+00			5.1	8.8	
0+75			4.7	9.2	
0+47.5			6.4	7.5	
0+75			6.9	7.0	
5+60			6.0	7.9	
6+20			6.0	—	
6+60			7.1	6.8	
6+90			10.0	3.9	
7+35			9.2	4.7	
7+70			10.1	3.8	
7+80			8.2	5.7	
8+35			8.2	—	

2-10-48

PX STA 109+00 CONT.

DIST	+	H.I.	−	ELEV.	T.B.M. STA 110+00
	5.22	13.86		8.64	
8+40			10.7	3.2	
8+50			9.4	4.5	
9+15			8.5	5.4	
9+20			11.1	2.8	
9+45			10.8	3.1	
9+48			9.1	4.8	
10+65			8.5	5.4	
11+15			4.4	9.5	
12+25			3.0	10.9	
12+50			5.0	8.9	
12+70			4.2	9.7	
13+40			2.9	11.0	
13+70			2.3	11.6	
14+10			0.3	13.6	
14+20			+1.2	15.1	

2-10-48 (59)

PX STA 108+00

T.B.M. NO. 1

DIST T.B.M.	+	H.I.	−	ELEV
	4.95	13.37	8.42	
14+00			+1.0	14.4
13+86			0.8	12.6
13+90			2.3	11.1
13+40			2.4	11.0
13+20			6.0	7.4
12+80			7.0	6.4
12+10			7.0	—
9+00			6.6	6.8
8+90			3.1	10.3
8+10			3.5	9.9
7+65			3.7	9.7
7+50			4.7	8.7
7+40			3.9	9.5
6+70			3.5	9.9
6+20			3.4	10.0
5+95			6.1	7.3

2-10-48

PX

STA 108+00 CONT.

DIST	+	H.I. 13.37	−	ELEV.
5+75			7.6	5.8
5+65			10.2	3.2
4+25			9.6	3.8
3+25			9.1	4.3
2+50			9.8	3.6
2+45			5.7	7.7
1+45			4.6	8.8
0+85			5.4	8.0
0+00			5.3	8.1
T.P.			8.32	

2-10-48 (C0)

PX

Sta 107+00

Dist	+	H.I.	−	Elev.
	4.41	9.46		5.05 T.P
6+00			5.2	4.3
2+75			5.0	4.5
1+65			4.7	4.8
2+05			4.4	5.1
2+60			2.0	7.5
2+80			1.1	8.4
3+00			0.5	9.0
T.P.			0.60	8.86
	5.30	14.16		
0+10				
3+85			4.6	9.6
4+80			4.7	9.5
5+80			4.7	—
5+90			6.7	7.5
6+00			5.0	9.0

PX

Sta 107+00 Cont.

Dist	+	HI	−	Elev
300 6+35		14.16	4.6	9.6
300 6+50			6.9	7.3
300 6+75			4.7	9.5
300 7+65			4.4	9.8
300 8+55			3.3	10.9
300 8+65			7.6	6.6
300 10+05			6.9	7.3
300 10+10			3.1	11.1
300 10+20			2.9	11.3
300 10+30			6.6	7.6
300 11+85			6.6	—
300 12+75			5.8	8.4
300 13+30			6.2	8.0
300 13+70			3.9	10.3
300 14+00			3.1	11.1
14+20			0.0	14.2

2-10-48

(61)

PX

Dist	+	HI	−	Elev	
	6.80	13.62		7.82	TBM Sta. 105+00
14+20			+ 0.1	13.7	
14+00			2.2	11.4	
13+50			4.5	9.1	
12+10			5.1	8.5	
12+00			3.7	9.9	
10+50			5.2	8.4	
10+30			3.7	9.9	
10+00			5.2	8.4	
9+80			7.8	5.8	
9+00			6.7	6.9	
8+90			7.6	6.0	
8+85			4.0	9.6	
8+00			4.5	9.1	
7+20			3.7	9.9	
6+00			4.5	9.2	
5+85			7.0	6.6	

Sta 106+00 Cont.

Dist	+	H.I.	−	Elev.
PX		13.62		
5+65			4.5	9.1
5+00			4.3	9.3
4+25			4.3	—
3+65			4.6	9.0
3+35			3.5	10.1
3+05			5.2	8.4
2+75			4.6	9.0
2+20			5.0	8.6
1+25			5.4	8.2
0+80			5.2	8.4
0+00			5.4	8.2

ORIGINAL

BARRAGAN SHERRY STANLEY 3-5-48 CLEAR CALM WARM

SOUNDINGS OF APPROACH CHANNEL SECT. "B"

PROJ - #3-1

STA-(-2+00)

0+00 = STA (-2+00) SECT. "B" B/L. SOUND EAST AT 90° TO B/L.

DIST	SOUND		DIST	SOUND	
0+00	1.4	+2.2	1+70	1.5	+2.1
+10	1.4	—	09:20	1.8	+1.8
09:18	1.4	—	(3.6)	2.1	+1.5
(3.6)	1.3	+2.3	2+00	2.5	+1.1
	1.4	+2.2		5.5	-1.9
50	1.3	+2.3		7.1	-3.5
	1.3	—		8.0	-4.4
	1.3	—		8.0	—
	1.3	—	50	8.5	-4.9
	1.3	—		9.1	-5.5
1+00	1.3	—		9.5	-5.9
	1.3	—		9.2	-5.6
	1.4	+2.2		9.1	-5.5
	1.4	—	3+00	8.0	-4.4
	1.4	—		7.2	-3.6
50	1.4	—		6.5	-2.9
1+60	1.4	—	3+30	6.0	-2.4

STA-(-2+00) 3-5-98 (62)

DIST	SOUND		DIST	SOUND
3+40	5.3	-1.7		
50	5.0	-1.4		
	5.0	—		
(3.6)	5.5	-1.9		
	6.2	-2.6		
	7.6	-4.0		
4+00	9.0	-5.4		
	9.6	-6.0		
	10.1	-6.5		
	10.6	-7.0		
	11.2	-7.6		
50	11.5	-7.9		
	11.5	—		
	11.5	—		
	11.8	-8.2		
	12.3	-8.7		
5+00	12.5	-8.9		
09:25				

STA-(-3+00)

0+00 = STA-(-3+00) SECT. "B" B/L: SOUND EAST AT 98° T.B/L.

DIST	SOUND		DIST	SOUND	
0+00	1.7	+1.7	1+80	1.6	+1.8
+10	1.5	+1.9	(3.4)	2.4	+1.0
09:37	1.5	—	2+00	2.9	+0.5
(3.4)	1.5	—	09:40	6.0	-2.6
	1.4	+2.0		7.0	-3.6
50	1.4	—		7.9	-4.5
	1.3	+2.1		8.4	-5.0
	1.2	+2.2	50	8.8	-5.4
	1.2	—		8.9	-5.5
	1.2	—		8.9	—
		—			
1+00	1.2			8.8	-5.4
	1.2	—		8.7	-5.3
	1.2	—	3+00	8.0	-4.6
	1.2	—		8.5	-5.1
	1.3	+2.1		10.5	-7.1
50	1.2	+2.2		11.0	-7.6
	1.3	+2.1		11.4	-8.0
1+70	1.5	+1.9	3+50	11.4	—

DIST	SOUND		DIST	SOUND
3+60	12.0	-8.6		
	13.1	-9.7		
(3.4)	13.2	-9.8		
	13.5	-10.1		
4+00	13.9	-10.5		
09:43	14.0	-10.6		
	14.0	—		
	14.1	-10.7		
	14.1	—		
50	13.8	-10.4		

STA - (-4+00) 3-5-18

0+00 = STA - (-4+00) SECT "B" B/L: SOUND EAST AT 90° T.B.L.

DIST	SOUND		DIST	SOUND	
0+00	1.0	+2.2	1+90	6.0	-2.8
+10	1.1	+2.1	2+00	6.8	-3.6
09:50	1.1	—		7.8	-4.6
(3.2)	1.1	—	(3.2)	9.3	-6.1
	1.2	+2.0		11.5	-8.3
50	1.2	—		12.9	-9.7
	1.1	+2.1	50	15.0	-11.8
	1.0	+2.2		16.0	-12.8
	1.0	—		16.2	-13.0
	1.1	+2.1		16.4	-13.2
1+00	1.1	—		16.9	-13.5
	1.1	—	3+00	16.4	-13.2
	1.1	—		16.1	-12.9
	1.1	—		16.2	-13.0
	1.2	+2.0		16.0	-12.8
50	1.4	+1.8		16.0	—
	1.7	+1.5	50	16.5	-13.3
09:53	1.5	+1.7		16.5	—
1+80	4.4	-1.2	3+70	16.5	

STA - (-4+00) 3-5-18 (64)

DIST	SOUND		DIST	SOUND
3+80	16.6	-13.4		
	16.6	—		
4+00	16.2	-13.0		
	16.0	-12.8		
(3.2)	15.0	-11.8		
	14.5	-11.3		
	14.2	-11.0		
50	14.0	-10.8		
09:55				

STA. (-5+00)

3-5-18

0+00 = STA. (-5+00) SECT "B" B/L. SOUND EAST 90° T.B/L

DIST	SOUND	
0+00	0.7	+2.3
+10	0.7	—
10:10	0.7	—
10:08		
(3.0)	0.7	—
	0.7	—
50	0.7	—
	0.7	—
	0.7	—
	0.7	—
	1.2	+1.8
1+00	1.5	+1.5
	2.0	+1.0
	2.4	+0.6

3-5-18

(CE)

END SECTION 150' EAST STA. (-9+00)

0+10 = PT. 150' EAST STA. (-9+00). SOUND SOUTH AT 90°.

DIST	SOUND		DIST	SOUND	
0+10	1.0	+1.8	1+90	18.1	-15.3
+20	1.0	—	2+00	17.5	-14.7
10:20	1.1	+1.7			
(2.8)	1.5	+1.3	(2.8)		
50	1.5	—			
	2.0	+0.8			
	2.8	0.0			
	5.5	-2.7			
	10.1	-7.3			
1+00	14.0	-11.2			
	17.2	-14.4			
	17.0	-14.2			
	16.0	-13.2			
	16.0	—			
50	16.7	-13.9			
	16.7	—			
	17.0	-14.2			
1+80	18.0	-15.2			

3-5-48

END SECT. 250' EAST OF STA. (-1+00)

0+00 = PT. 250' EAST STA (-1+00) SECT. B/L: SOUND SOUTH

DIST	SOUND		DIST	SOUND	
0+00	7.5	-4.9	1+80	7.6	-5.0
+10	7.6	-5.0		7.8	-5.2
10:35	7.5	-4.9	2+00	7.8	—
(2.6)	7.5	—		7.8	—
	7.5	—	(2.6)	8.0	-5.4
50	7.5	—		8.0	—
	7.5	—		8.0	—
	7.4	-4.8	50	8.0	—
	7.4	—		8.0	—
	7.4	—		8.4	-5.8
1+00	7.4	—		9.1	-6.5
	7.4	—		11.0	-8.4
	7.7	-5.1	3+00	13.0	-10.4
	7.9	-5.3		14.4	-11.8
	8.0	-5.4		15.2	-12.6
50	8.0	—		16.0	-13.4
	8.0	—		16.4	-13.8
1+70	7.7	-5.1	3+50	16.7	-14.1

END SECTION 3-5-48

(66)

DIST	SOUND		DIST	SOUND
3+60	17.0	-14.4		
	17.2	-14.6		
(2.6)	17.6	-15.0		
	17.8	-15.2		
4+00	18.0	-15.4		
10:46				

FINAL 3-5-48

SOUNDINGS APPROACH CHANNEL SECT. "A" PROJ. #3-1

PX

STA- 1+00

0+00 = STA- 1+00 SECT. "A" - B/L: SOUND SOUTH AT 90° TO B/L.

DIST	SOUND		DIST	SOUND	
0+00	4.0	-2.8	1+70	11.5	-10.3
+10	2.9	-1.7		12.5	-11.3
12:45	4.8	-3.6	(1.2)	12.6	-11.4
(1.2)	4.7	-3.5	2+00	12.0	-10.8
	4.0	-2.8		11.4	-10.2
50	2.5	-1.3		11.6	-10.4
	4.5	-3.3		11.4	-10.2
	4.2	-3.0		10:1	-9.2
	5.0	-3.8	50	10.2	-9.0
	4.8	-3.6		11.0	-9.8
1+00	5.5	-4.3		11.0	—
	10.2	-9.0		10.3	-9.1
	12.7	-11.5		9.7	-8.5
	12.5	-11.3	3+00	9.0	-7.8
	11.0	-9.8		9.0	—
50	12.5	-11.3		7.0	-5.8
1+60	12.6	-11.4	12:50 3+10 3+25	0.9 0.9	+0.3 +1.2

3-5-48 (47)

PX Redeyed

STA- 0+80

0+00 = STA- 0+80 SECT. "A" B/L: SOUND SOUTH // TO BRIDGE.

DIST	SOUND		DIST	SOUND	
			1+60	13.0	-12.0
0+00				13.6	-12.6
+10	2.5	-1.5			
1:00	4.2	-3.2	(1.0)	14.7	-13.7
(1.0)	3.0	-2.0		15.2	-14.2
	2.7	-1.7	2+00	13.0	-12.0
50	4.0	-3.0		10.0	-9.0
	3.7	-2.7		8.5	-7.5
	4.5	-3.5		9.0	-8.0
	5.0	-4.0		12.1	-11.1
	5.7	-4.7	50	12.3	-11.3
1+00	6.5	-6.5		9.3	-8.3
	9.5	-8.5		9.9	-8.9
	13.5	-12.5		10.0	-9.0
	11.0	-10.0		10.7	-9.7
	11.0	—	3+00	9.0	-8.0
1+50	13.6	-12.6	3+10	10.3	-9.3

0+80

DIST	SOUND		DIST	SOUND
3+20	8.5	-7.5		
	6.0	-5.0		
(1.0)	6.6	-5.5		
50	6.1	-5.1		
13:05	1.6	-0.6		
3+70 +10	0.0	+1.0		

3-5-48

(68)

PX

STA - 0+70

400=STA - 0+70 SECT "A" BK: SOUND SOUTH // TO BRIDGE

DIST	SOUND		DIST	SOUND	
0+20	1,5	-0.6	1+80	11.0	-10.1
13:10	2,5	-1.6		10.5	-9.6
(0.9)	2,0	-1.1	2+00	10,6	-9.7
50	2,8	-1.9	(0.9)	10,5	-9.6
	3,4	-2.5		10,0	-9.1
	3,4	—		9.8	-8.9
	3.5	-2.6		10,0	-9.1
	4.2	-3.3	50	9,0	-8.1
1+00	5,0	-4.1		8.5	-7.6
	8.5	-7.6		11.0	-10.1
	10.3	-9.4		10.8	-9.9
	11.8	-10.9		10.1	-9.2
	11.2	-10.3	3+00	10.1	—
50	10.8	-9.9		10.7	-9.8
	10,5	-9.6		10.0	-9.1
1+70	9.3	-8.4	3+30	9.5	-8.6

0+70 3-5-48

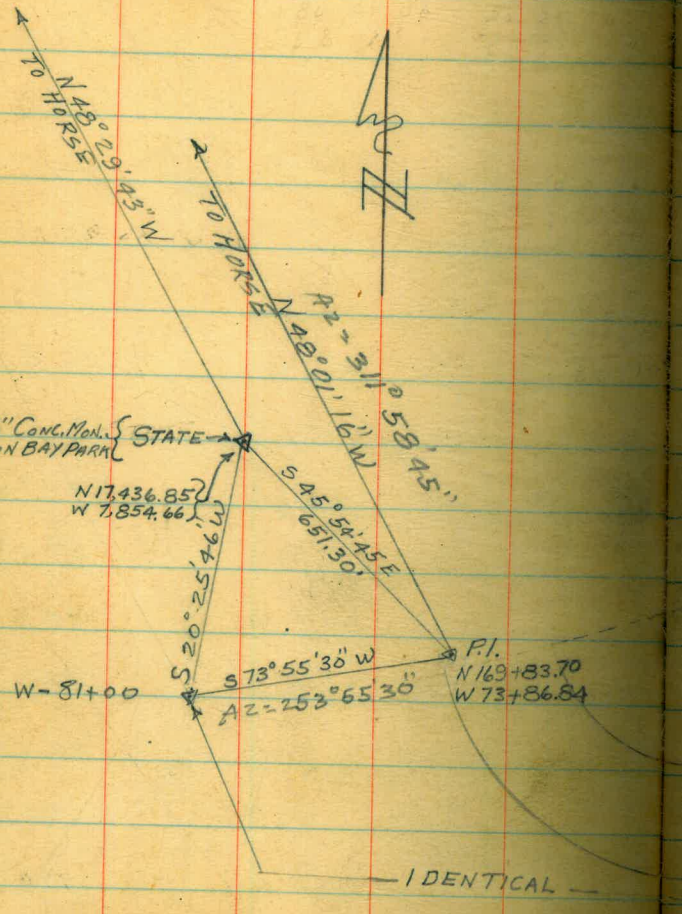
DIST	SOUND		DIST	SOUND
3+90	9.1	-8.2		
50	8.5	-7.6		
	3.0	-2.1		
3+70	0.0	+0.9		

(0.9)

DE ANZA COVE BASELINE FOR SOUNDINGS OF DREDGED AREA MISSION BAY PROJECT No. 3.1

S 85°12'44W
N 44 7 1 6W
DO

S89 59 60W
85 12 44
N 4°47'16"W
10 25 46
25°18' 02" 47.



4-15-48

T. A. STAMPER

Indexed

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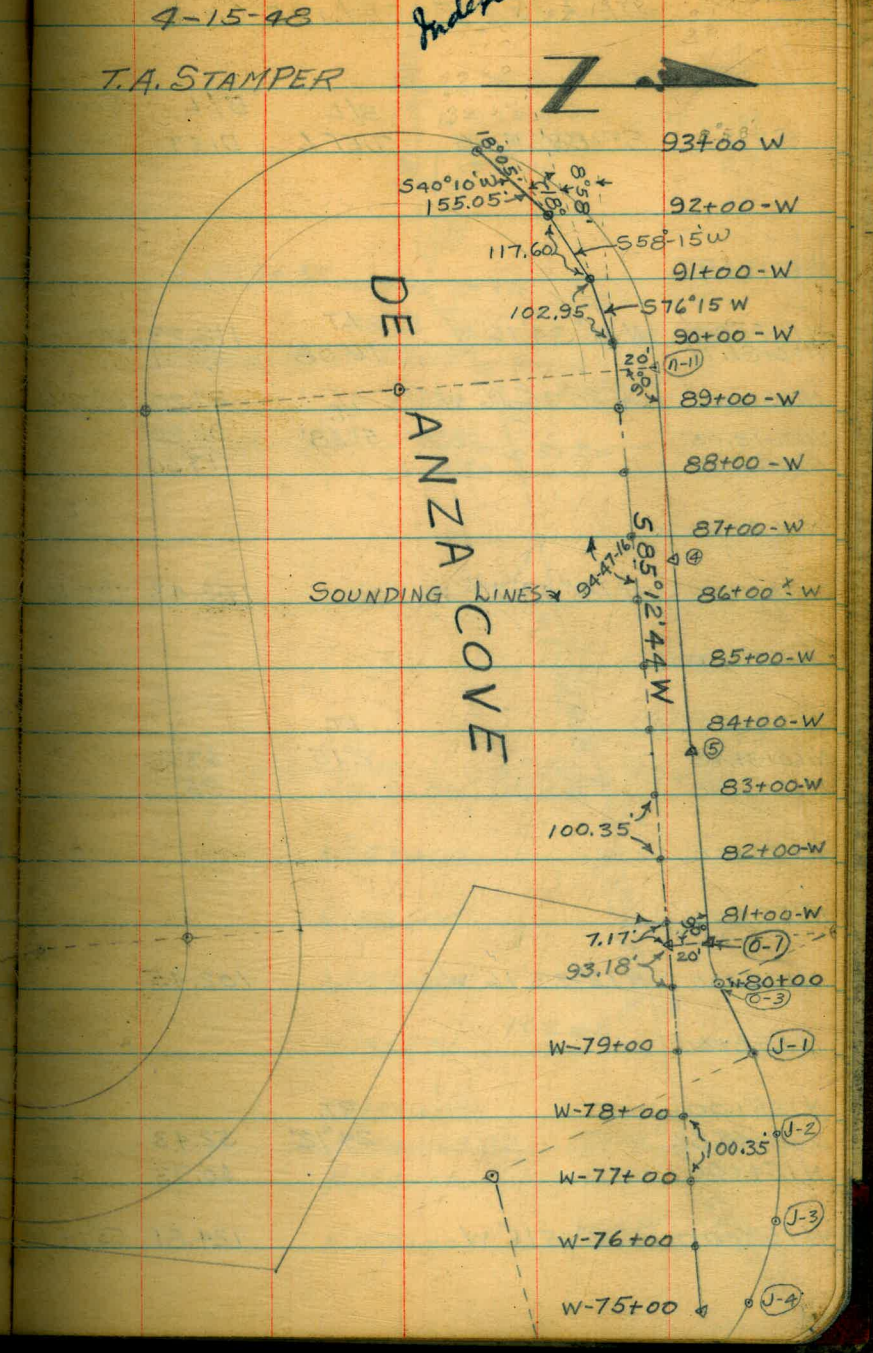
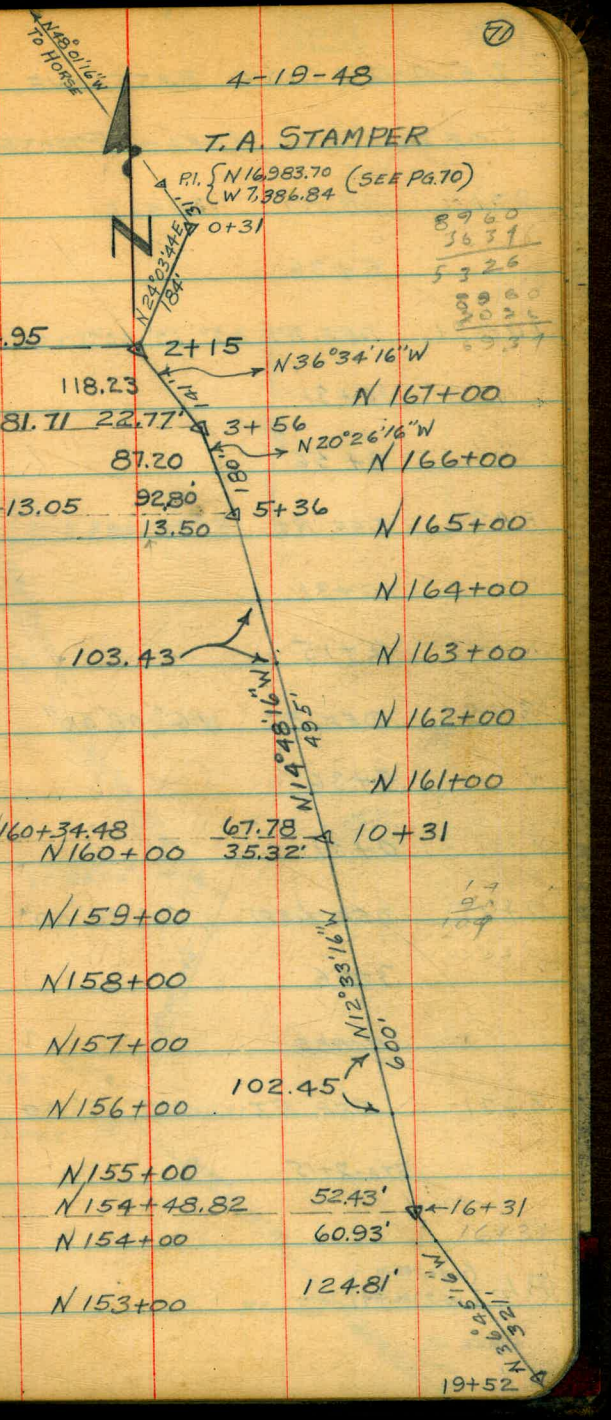


DE ANZA BASELINE CONTD

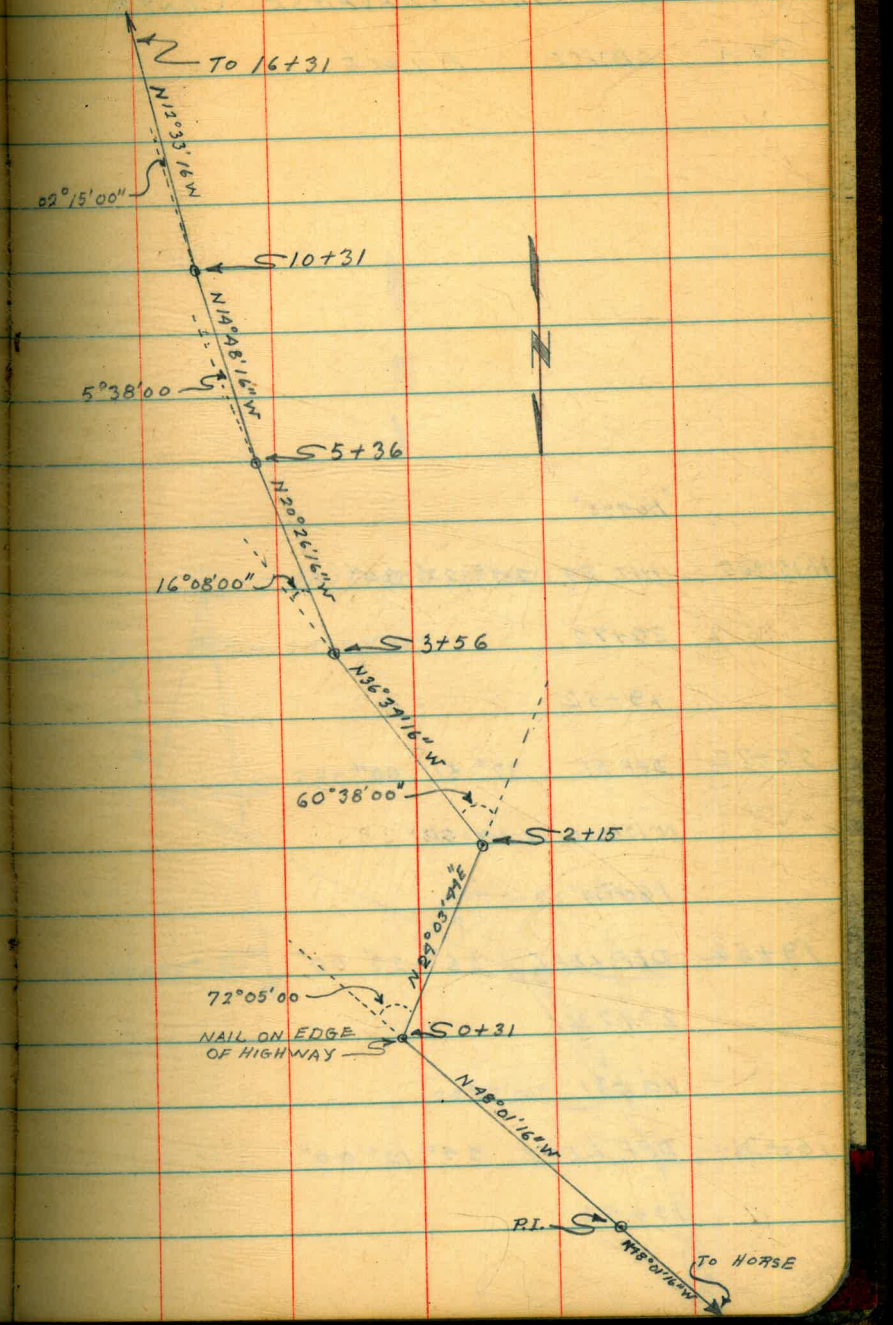
STA	BEARING	B/L DEFL	B/L DIST	SOUNDING ANGLE
N167+94.95				
N167+00	N 36° 34' 16" W	LT 16° 08'	118.23	53° 25' 44"
N166+81.71			22.77	
N166+00	N 20° 26' 16" W	LT. 5° 38'	87.20	69° 33' 44"
N165+13.05			92.80	
N165+00			13.50	
N164+00				
N163+00	N 14° 48' 16" W		103.43	75° 11' 44"
N162+00				
N161+00		LT. 2° 15'		
N160+34.48			67.78	
N160+00			35.32	
N159+00				
N158+00				77° 26' 44"
N157+00	N 12° 33' 16" W		102.45	
N156+00				
N155+00		RT. 24° 12'		
N154+48.82			52.43	
N154+00			60.93	
N153+00	N 36° 45' 16" W		124.81	53° 14' 44"



DE-ANZA COVE BASELINE FOR SOUNDINGS OF DREDGED AREA - PROJECT # 3-1

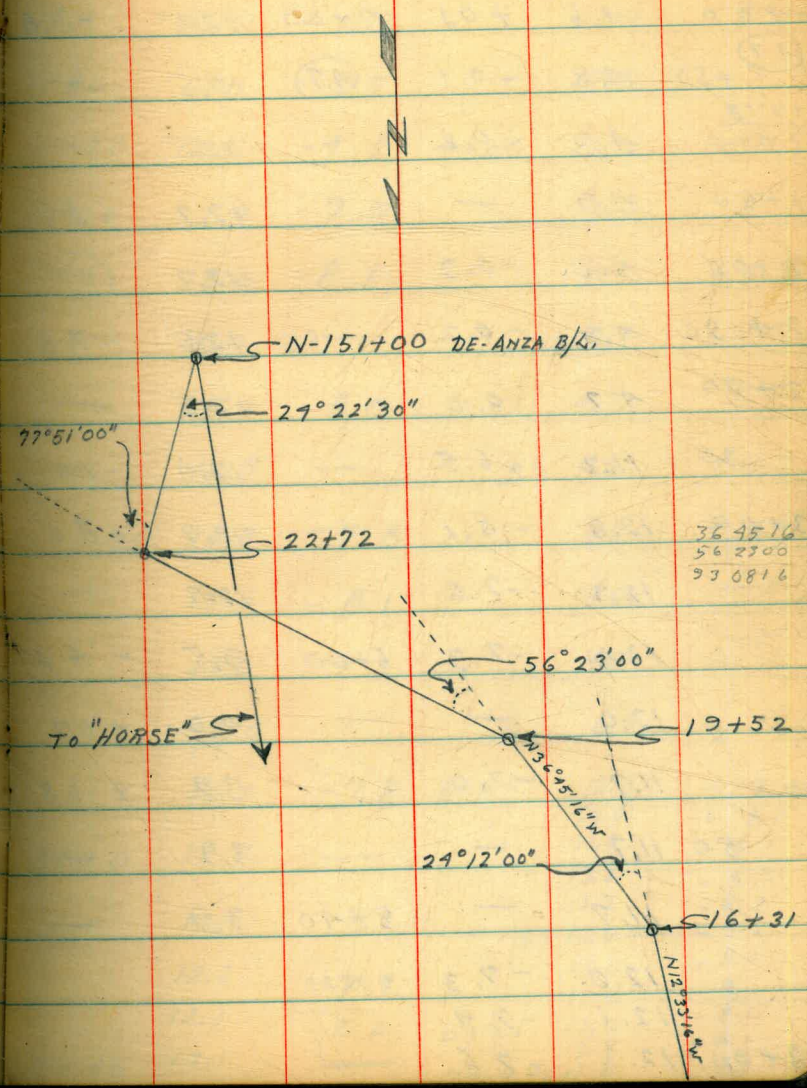
STA	OBJECT	ANGLE
	5+36	
10+31	DEF. RT.	02° 15' 00"
	16+31	
	3+56	
5+36	DEF. RT.	5° 38' 00"
	10+31	
	2+15	
3+56	DEF. RT.	16° 08' 00"
	5+36	
	0+31	
2+15	DEF. LEFT.	60° 38' 00"
	3+56	
	HORSE	
0+31	DEF. RT.	72° 05' 00
	STA-2+15	

P.I. (N-16,383.70 W-7,386.84)



COVE BASELINE TRAVERSE CONT'D.

STA	OBJECT	ANGLE
	"HORSE"	
N-151+00	INT. RT	24° 22' 30"
	22+72	
	19+52	
22+72	DEF. RT.	77° 51' 00"
	N-151+00 DE-ANZA B/L.	
	16+31	
19+52	DEF. LEFT.	56° 23' 00"
	22+72	
	10+31	
16+31	DEF. LEFT.	24° 12' 00"
	19+52	



36 45 16
56 23 00
93 08 16

P.X — FINAL — BARRAGAN SHERES STANLES — 1-22-48

SOUNDINGS OF BORROW AREA NORTH OF STA. 61+00 TO 65+00 "D" B/L.

END SECTION 350' N/OF STA-60+00 "D" B/L.

3+00 = PT. 350' N/STA-60+00 "D" B/L: SOUND EAST.

DIST	SOUND		DIST	SOUND	
0+00	4.6	+0.1	4+00	12.5	-7.8
(4.7) +50	4.8	-0.1	(4.7)	12.5	—
09:18 1+00	4.9	-0.2		12.5	—
1+50	4.9	—		12.7	-8.0
2+00	5.0	-0.3		12.7	—
2+50	4.9	-0.2	50	12.5	-7.8
2+80	4.7	0.0		12.5	—
90	11.2	-6.5		12.4	-7.7
3+00	12.8	-8.1		12.7	-8.0
	12.3	-7.6		12.7	—
	12.0	-7.3	5+00	9.5	-4.8
	12.0	—		4.0	+0.7
	11.7	-7.0		3.9	+0.8
50	11.7	—		3.9	—
	11.7	—	5+40	3.9	—
	12.0	-7.3	09:25		
	12.1	-7.4			
3+90	12.3	-7.6			

STA-61+00 — 1-22-48

0+00 = PT. 400' N/OF STA-61+00 "D" B/L: SOUND SOUTH

DIST	SOUND		DIST	SOUND	
PX 0+00	4.7	-0.2	3+50	12.0	-7.1
0 +50	4.9	0.0		12.0	—
1+00 09:35	5.0	-0.1	(4.9)	12.3	-7.4
1+50	5.2	-0.3		13.0	-8.1
1+80	5.4	-0.5		12.8	-7.9
90	9.5	-4.6	4+00	12.0	-7.1
2+00	12.8	-7.9		10.0	-5.1
(4.9)	13.0	-8.1		4.7	+0.2
	13.0	—		4.7	—
	12.9	-8.0		4.7	—
	12.9	—	50	4.6	+0.3
50	12.7	-7.8		4.5	+0.4
	13.0	-8.1		4.5	—
	13.0	—		4.5	—
	13.0	—		6.5	-1.6
	12.7	-7.8	5+00	12.3	-7.4
	12.7	—		13.0	-8.1
3+00				13.0	-8.1
	12.4	-7.5		13.2	-8.3
			50	13.2	-8.3
	12.2	-7.3		13.0	-8.1
				13.0	-8.1
	12.1	-7.2	09:42	13.0	-8.1
3+40	12.1	—	6+00	13.0	-8.1
				13.2	-8.3

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STA-62+00 4-22-48

0+00 = PT. 400' N/OF STA-62+00 "D" B/L: SOUND SOUTH.

DIST	SOUND		DIST	SOUND	
P.X					
0+00	4.8	+0.2	3+40	12.8	-7.8
09:55			10:00		
0+50	5.0	00	50	12.8	-
1+00	5.1	-0.1		12.5	-7.5
1+40	5.2	-0.2			
1+50	13.0	-8.0		12.4	-7.4
(5.0)	13.0	-	(5.0)	12.2	-7.2
	13.0	-		12.2	-
	13.0	-	4+00	12.2	-
	12.9	-7.9		12.2	-
2+00	12.7	-7.7		12.0	-7.0
	12.5	-7.5		9.8	-4.8
	12.5	-		6.4	-1.4
	12.4	-7.4	50	5.1	-0.1
	12.4	-		4.5	+0.5
50	12.4	-		4.5	-
	12.4	-		4.5	-
			+90	5.5	-
	12.5	-7.5	5+00	11.1	-6.1
			10	13.7	-8.7
	12.5	-	20	13.5	-8.5
			30	13.2	-8.2
			40	13.2	-8.2
	12.8	-7.8	50	13.0	-8.0
3+00	13.0	-8.0	60	13.0	-
10	13.0	-	70	13.0	-
10:05			80	13.0	-
20	13.0	-	90	13.0	-
3+30	13.0	-	6+00	13.1	-8.1

STA-63+00 4-22-48 (75)

400 = PT. 400' N/OF STA-63+00 "D" B/L: SOUND SOUTH

DIST	SOUND		DIST	SOUND	
P.X					
0+00	4.7	+0.3	2+10	13.0	-8.0
10:11					
+10	4.7	-		13.0	-
(5.0)	4.7	-	(5.0)	12.9	-7.9
	4.8	+0.2		12.9	-
	8.0	-3.0	50	12.8	-7.8
50	12.5	-7.5	10:15	12.8	-
	13.0	-8.0		12.8	-
	12.3	-7.3		12.5	-7.5
	12.1	-7.1		12.1	-7.1
	12.3	-7.3	3+00	12.1	-
1+00	12.5	-7.5		12.1	-
	12.5	-		12.2	-7.2
10:13	12.7	-7.7		12.2	-
	12.7	-		12.4	-7.4
	12.8	-7.8	50	12.4	-
50	12.8	-		12.4	-
	12.8	-		12.4	-
	13.0	-8.0		12.2	-7.2
	13.0	-		12.2	-
	13.0	-	4+00	12.2	-
2+00	13.0	-			

STA-63+00

4-22-98

DIST	SOUND		DIST	SOUND
4+10	12.0	-7.0		
	12.0	-		
(5.0)	12.5	-7.5		
	12.7	-7.7		
50	12.7	-		
10:18	12.0	-7.0		
	12.4	-7.4		
	12.0	-7.0		
	12.5	-7.5		
5+00	12.5	-7.5		
	12.5	-7.5		
	12.5	-7.5		
	12.8	-7.8		
	13.0	-8.0		
50	13.1	-8.1		
	13.1	-		
	13.2	-8.2		
	13.1	-8.1		
10:20	13.0	-8.0		
6+00	13.0	-8.0		

STA-65+00

4-22-98

(76)

1+00 = PT. 400' N/OF STA-65+00 "D" B/L; SOUND SOUTH.

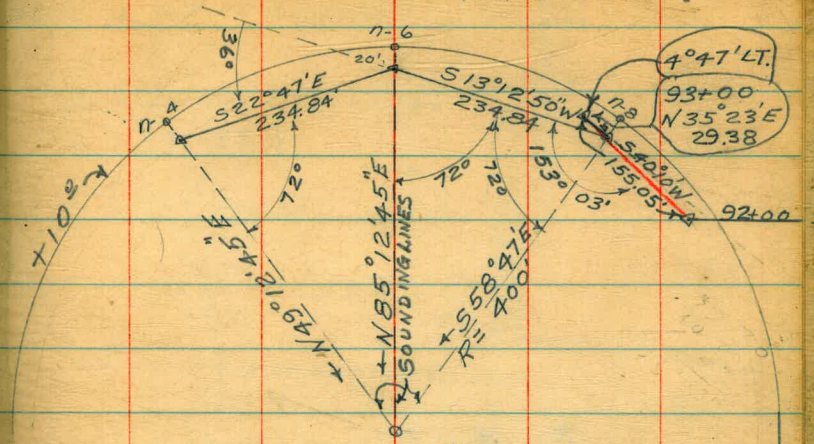
PT 1

DIST	SOUND		DIST	SOUND	
0+00	4.0	+1.0	1+90	11.4	-6.4
+10	4.0	-	2+00	11.0	-6.0
10:28	4.0	-		11.0	-
(5.0)	4.1	+0.9	(5.0)	11.4	-6.4
	4.2	-		12.3	-7.3
50	9.5	-4.5		12.3	-
	11.8	-6.8	50	12.0	-7.0
	12.0	-7.0		12.2	-7.2
	11.8	-6.8		12.3	-7.3
	10.8	-		12.0	-7.0
1+00	10.0	-5.0		12.0	-
	8.2	-3.2	3+00	11.8	-6.8
	9.7	-4.7		11.5	-6.5
	11.5	-6.5		11.8 +0.8	-6.8
	11.3	-6.3		12.0	-7.0
50	11.0	-6.0		12.0	-
	12.0	-7.0	50	12.0	-
10:30	11.8	-6.8		11.4	-6.4
1+80	11.2	-6.2	3+70	11.0	-6.0

STA - 65+00 9-22-48

DIST	SOUND		DIST	SOUND	
3+80	11.0	-6.0	5+80	12.5	7.5
10:33	11.0	-		12.7	7.7
4+00	11.5	-6.5	6+00	12.7	7.7
	11.5	-	(5.0)		
(5.0)	12.5	-			
	12.8	-7.8			
	13.0	-8.0			
50	14.5	-9.5			
	14.5	-			
	14.0	-9.0			
	14.0	-			
	14.0	-			
5+00	14.4	-9.4			
	14.4	-			
10:35	14.0	-9.0			
	14.0	-			
	13.5	-8.5			
50	13.8	-8.3			
	13.2	-8.2			
5+70	12.7	-7.7			

5-11-48 (76)
T. A. STAMPER



DE-ANZA COVE

BASELINE FOR RADIAL SOUNDINGS
OF PROJECT NO. 3.1

Indexed

of 31' P.I.

HORSE

184' P.I. DEF RT. 72°05'00"

STA - 215
0+31

STA - 2+15 DEF LT. 60° 40' 00" 38' 00"

STA - 3+56

STA - 3+56 2+15 DEF RT - 16°08'00"
5+36

STA - 5+36 3+56 DEF RT. 5°38'00"
10+31

STA - 10+31 5+36 DEF RT. ~~01°56'00"~~ 02°15'00"
16+31

STA 16+31 10+31 DEF LEFT 24°12'00
19+52

STA - 19+52 16+31 DEF. LT. 56°23'00"
22+72

22+72 19+52 DEF. RT. 77°51'00

N-151+00 DE-ANZA B/L

N-151+00 HORSE INT. PT. 22+72 { 24°23'0" / 48°45'00" } 24°22'30"

N-151+58 - 48"
N-159+30 - 12"
N-164+00 - 24"
N-166+85 - 24"
N-168+35 - 36"
W-76+30W - 30"

S-75-37-15-W

P.I.
31'
0+31
184'
2+15
141'
3+56
180'
5+36
495'
10+31
600'
16+31
321'
19+52
320'
22+72
113.56'
237+85.56 = N-151+00 DE-ANZA B/L

215
141
356

01°56'00

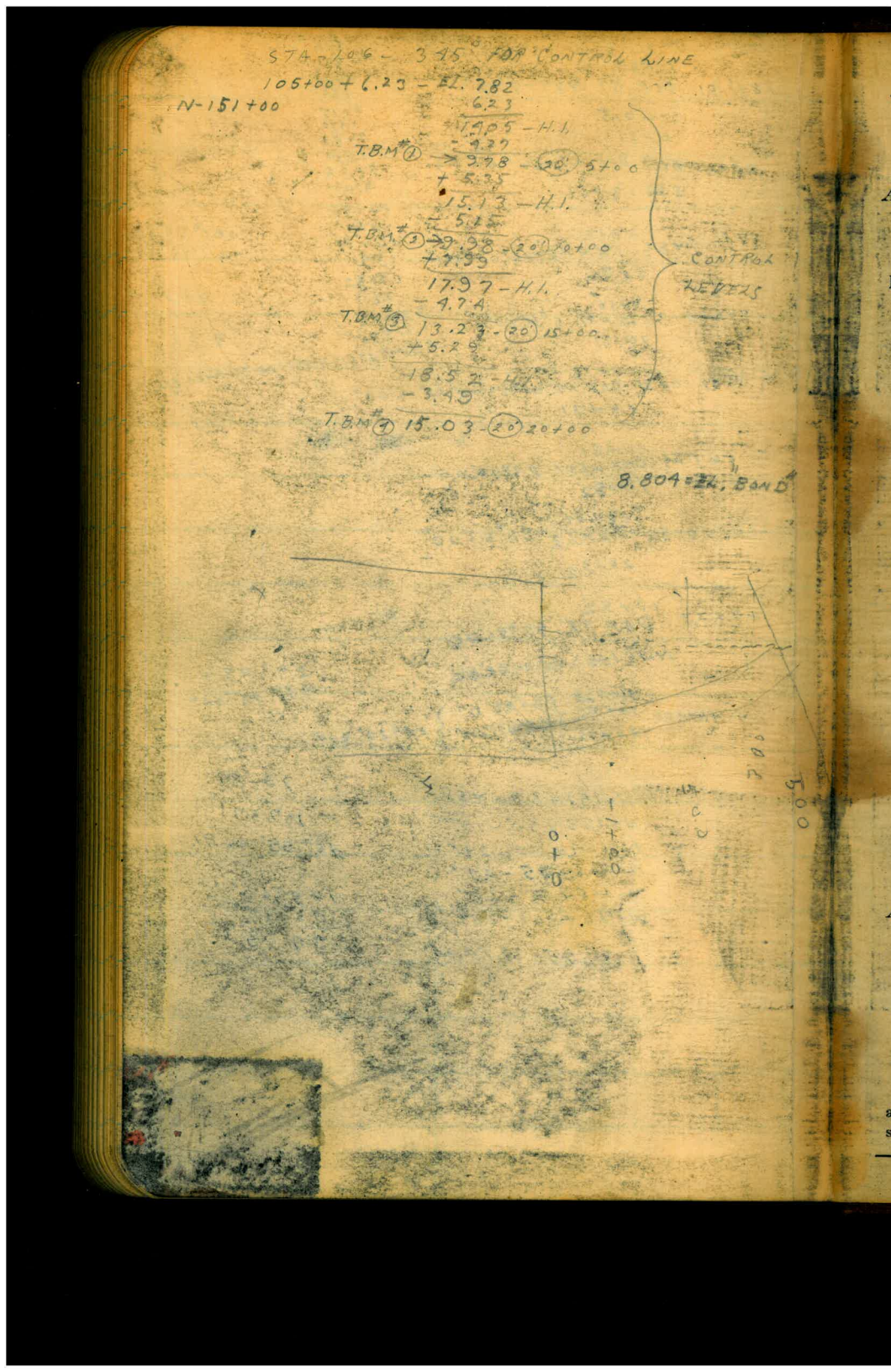
287
34
321

56°23'00"

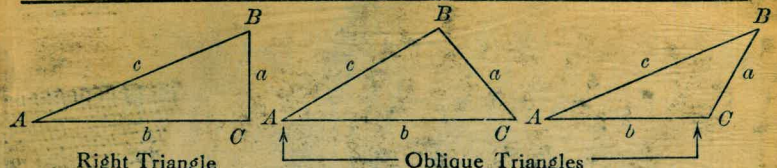
24°23'0
48°45'00"

79-80
15°54'
15°55' → P.I.

179°60'
75°55'
134°05'



TRIGONOMETRIC FORMULÆ



Solution of Right Triangles

For Angle A. $\sin = \frac{a}{c}$, $\cos = \frac{b}{c}$, $\tan = \frac{a}{b}$, $\cot = \frac{b}{a}$, $\sec = \frac{c}{b}$, $\operatorname{cosec} = \frac{c}{a}$

Given	Required	
a, b	A, B, c	$\tan A = \frac{a}{b} = \cot B$, $c = \sqrt{a^2 + b^2} = a\sqrt{1 + \frac{b^2}{a^2}}$
a, c	A, B, b	$\sin A = \frac{a}{c} = \cos B$, $b = \sqrt{(c+a)(c-a)} = c\sqrt{1 - \frac{a^2}{c^2}}$
A, a	B, b, c	$B = 90° - A$, $b = a \cot A$, $c = \frac{a}{\sin A}$.
A, b	B, a, c	$B = 90° - A$, $a = b \tan A$, $c = \frac{b}{\cos A}$.
A, c	B, a, b	$B = 90° - A$, $a = c \sin A$, $b = c \cos A$,

Solution of Oblique Triangles

Given	Required	
A, B, a	b, c, C	$b = \frac{a \sin B}{\sin A}$, $C = 180° - (A + B)$, $c = \frac{a \sin C}{\sin A}$
A, a, b	B, c, C	$\sin B = \frac{b \sin A}{a}$, $C = 180° - (A + B)$, $c = \frac{a \sin C}{\sin A}$
a, b, C	A, B, c	$A + B = 180° - C$, $\tan \frac{1}{2}(A - B) = \frac{(a-b)\tan \frac{1}{2}(A+B)}{a+b}$, $c = \frac{a \sin C}{\sin A}$
a, b, c	A, B, C	$s = \frac{a+b+c}{2}$, $\sin \frac{1}{2}A = \sqrt{\frac{(s-b)(s-c)}{bc}}$, $\sin \frac{1}{2}B = \sqrt{\frac{(s-a)(s-c)}{ac}}$, $C = 180° - (A+B)$
a, b, c	Area	$s = \frac{a+b+c}{2}$, area $= \sqrt{s(s-a)(s-b)(s-c)}$
A, b, c	Area	area $= \frac{bc \sin A}{2}$
A, B, C, a	Area	area $= \frac{a^2 \sin B \sin C}{2 \sin A}$

REDUCTION TO HORIZONTAL

Horizontal distance = Slope distance multiplied by the cosine of the vertical angle. Thus: slope distance = 319.4 ft. Vert. angle = 5° 10′. From Table, Page IX. cos 5° 10′ = .9959. Horizontal distance = 319.4 × .9959 = 318.09 ft.

Horizontal distance also = Slope distance minus slope distance times (1 − cosine of vertical angle). With the same figures as in the preceding example, the following result is obtained. Cosine 5° 1
319.4 × .0041 = 1.31. 319.4 − 1.31 = 318.0

When the rise is known, the horizontal distance is approxi
ance less the square of the rise divided by twice the slope dist
slope distance = 302.6 ft. Horizontal distance = 302.6 − $\frac{14 \times 14}{2 \times 302.6}$