

COUNTY

BAY

DADE

ESCAMBIA

GADSDEN

HOLMES

JACKSON

LEON

LIBERTY

OKALOOSA

SANTA ROSA

1
9
6
5

39

PLEASE RETURN TO

JON D. TREMPER

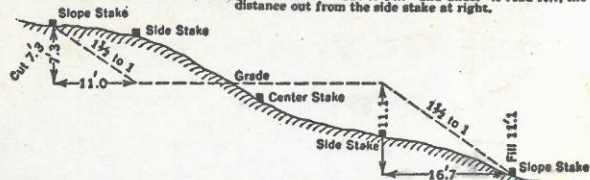
FLA. GEOLOGICAL
SURVEY

P.O. DRAWER 631
TALLAHASSEE, FLA.

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	Fill or Cut
	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

KEUFFEL & ESSER CO., N. Y.

The paper in this book is made of 50% high grade rag stock with a WATER RESISTING surface sizing.

Well #	Well Index page		
ES5856	3		
Es 3872	7		37
SR 6575	9	✓	37
SR5005	13		37
Qa 6835	15	✓	37
Qa 6305	19		
Qa 6853	21	✓	
By 6855	25		37
By 3333	27	✓	37
By 6842	30	✓	37
Hb 6307	33		37
Hb 2771	35	✓	37
JK2880	39		37
JK2565	41	✓	37
JK2528	45	✓	37
JK2564	49	✓	37

Well #	page			Well #	page	Well #	page
JK 3415	53			6224 Lb	91	5205	127
JK { 4234 4297 4684	55			5535 Lb	93	5204	129
JK 2572	57	✓		4240 Ga	95	6077	131
JK 6888	61			3482 Ga	97	3276	133
JK 5583	63			5958 Lb	99	4407	135
LN 6890	65	✓	★	5425 Dd	101	6657	137
Hanna	69	✓	★	3501 Lb	103	4798	139
Quinn	71	✓		3199 Lb	105	4403	141
LN 6912	73	✓		6025 Lb	107	3695	143
? 6336	75	✓	★	6901 Lb	109	✓ 5705	145
LN 6626	77	✓		6611 Lb	113	3504	147
LN 6834	79	✓	★	5201 Ga	115		
LN 3553	81			4992 Ga	117		
LN 6655	83			3684 Ga	119		
LN 6654	85	✓		6107 Ga	121		
LN 6902	87			3078 Ga	123		
LN 6666	89			4404 Ga	125		

W-6327

B.S. I.H. F.S. EIV.

B.M

Ass.
100

T.P. 3.84 103.84 4.69 99.15

reset 1965

— Barth 1938 Triangulation Sta.

— Barth No. 3 1964 Reference
Mark

4/27

Rain until 9⁰⁰

Cloudy noon.

Jeff - rod Jon - Level
original line was run
from triangulation
station. No B.M.'s
in area.

BARTH RM NO. 3 1964

208.60 feet

W-5856

B.S.

I.H.

F.S.

E.V.

ass.

100

B.M.

5.9

5.6

T.P. 4.49 104.49 1.65 102.84

TP₂ 10.16 113.00 .95 112.05TP₃ 8.79 120.84 .45 120.39TP₄ 9.80 130.19 .18 130.01TP₅ 11.69 141.70 .41 141.29TP₆ 10.69 151.98 1.55 150.43TP₇ 11.77 162.20 .08 162.12TP₈ 10.61 172.73 .11 172.62TP₉ 10.54 183.16 .05 183.11TP₁₀ 8.46 191.57 .04 191.53TP₁₁ 8.06 199.59 .20 199.39TP₁₂ 6.23 205.62 1.51 204.11TP₁₃ 6.17 210.28 8.25 202.03TP₁₄ 4.27 206.30 5.04 201.26TP₁₅ 1.55 202.81 10.75 192.06TP₁₆ .96 193.02 6.65 186.37

3

124.24

37.87

4/27

Jeff-rod

Jon-level

cloudy afternoon

B.M. - Molino approx 30

47' ft. E. of R.R. Track

TT59C 1940

U.S.C.+G.S

elv. 30.31

Bench Mark

4

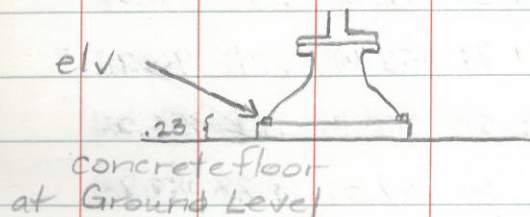
	B.S	I.H	F.S	Elv.
				186.37
T.P ₁₇	⁶ 11.61	197.98	^u .92	197.06
TP ₁₈	11.66	208.72	^u .91	207.81
TP ₁₉	11.58	219.39	.11	219.28
TP ₂₀	11.73	231.01	.17	230.84
TP ₂₁	11.54	242.38	.34	242.04
TP ₂₂	11.75	253.79	.08	253.71
TP ₂₃	5.52	259.23	6.17	253.06
TP ₂₄	5.00	258.06	4.23	253.83
TP ₂₅	3.54	257.37	6.47	250.90
TP ₂₆	3.04	253.94	5.95	247.99
TP ₂₇	2.64	250.63	5.12	245.51
TP ₂₈	4.42	249.93	3.92	246.01
	94.03		34.39	

146.01
30.31
 176.32

124.24
 94.03

 218.27
 72.26

 146.01



B.M elv 30.31

+ 146.01
176.32

W - 3872

B.S. I.H. F.S. EIV

B.M. 93.03

TP₁ ³5.69 98.12 ⁴1.28 96.84TP₂ 6.98 103.82 6.15 97.67TP₃ 3.00 100.67 6.17 94.50TP₄ 6.51 101.01 2.63 98.38TP₅ 4.31 102.69 6.48 96.21TP₆ 3.23 99.44 3.20 96.24TP₇ 1.15 97.39 8.29 89.10TP₈ 3.91 93.01 4.47 88.54TP₉ 5.39 93.93 3.98 89.95TP₁₀ 5.37 95.32 4.71 90.61

44.94 47.36

2.42

47.36

93.03

90.61

2.42

4/27

Clear afternoon

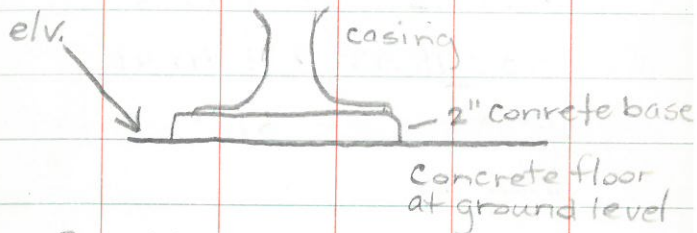
Jon - level

Jeff - rod

B.M. Pensacola Municipal

Airport U.S.C + G.S.

R 25 1942

EIV, 93.02590.61

W-6575	B.S.	I.H.	F.S.	Elev	ass.
B.M.					100
T.P.	4.90	104.90	2.76	102.14	
TP ₂	3.65	105.79	3.68	102.11	
TP ₃	6.69	108.80	4.16	104.64	
TP ₄	3.84	108.48	1.53	106.95	
TP ₅	3.21	110.16	4.46	105.70	
TP ₆	4.75	110.45	1.77	108.68	
TP ₇	7.46	116.14	4.46	111.68	
TP ₈	2.81	114.49	5.95	108.54	
TP ₉	4.21	112.75	2.88	109.87	
TP ₁₀	5.02	114.89	2.93	111.96	
TP ₁₁	5.38	117.34	.57	116.77	
TP ₁₂	10.48	127.25	1.51	125.74	TBM
TP ₁₃	8.69	134.43	.63	133.80	
TP ₁₄	8.81	142.61	1.41	141.20	
TP ₁₅	6.89	148.09	3.73	144.36	
TP ₁₆	7.26	151.62	.66	150.96	

4/28

Clear morning

Jeff - rod

Jon - level

mulat off R.R. Tracks

B.M. U.S.C + G.S.

W 161 1955

No Elev

B.S I.H. F.S. E.V. 150.96

TP₁₇ 8.91 159.87 1.88 157.99

TP₁₈ 5.47 163.46 2.46 161.00

TP₁₉ 8.69 169.69 1.27 168.42

TP₂₀ 11.72 180.14 3.02 177.12

TP₂₁ 10.61 187.73 .84 186.89

TP₂₂ 11.80 198.69 1.58 197.11

TP₂₃ 5.27 202.38 5.21 197.17

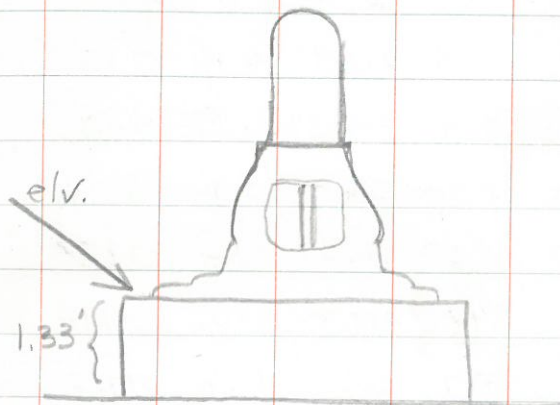
TP₂₄ 5.87 203.04 3.29 199.75

TP₂₅ 5.05 204.80 3.28 201.52

167.44

65.92

101.52



B.M. E.V.

+ 101.52

W-5005

B.S.

I.H.

F.S.

Elev.

B.M. 201.52

TP₁ 7.74 205.86 2.90 202.96TP₂ 7.59 210.55 .97 209.58TP₃ 3.34 212.92 6.14 206.78TP₄ 5.49 212.87 2.85 210.02TP₅ 4.06 214.08 3.17 210.91TP₆ 6.27 217.18 4.42 212.76TP₇ 4.58 217.34 3.20 214.14TP₈ 5.79 219.93 2.73 217.20TP₉ 5.87 223.07 2.82 220.25TP₁₀ 5.70 225.95 3.37 222.58TP₁₁ 5.90 228.48 4.48 224.00TP₁₂ 4.50 228.50 4.62 223.88TP₁₃ 4.53 228.41 4.45 223.96TP₁₄ 2.69 226.65 1.44 225.21

70.65

47.56

47.56

23.09

13

4/29

B.M. U.S.C + G.S.

W161 1955

Ran from cyanamid well

225.21

201.52

23.69

Clear morning

Jeff - rod

Jon - level

Elev

B.M. Elev

+

125.21

Well Elev.

3.05'

ground

14

W-6835

B.S.

I.H.

F.S.

Elev

B.M.

ass,
100

4/29

Windy afternoon

Jeff - rod

Jan - level

TP₁ 2.29 102.29 4.66 97.63TP₂ 3.03 100.66 5.65 95.01TP₃ 3.14 98.15 5.40 92.75TP₄ 3.62 96.37 5.92 90.45TP₅ 4.93 95.38 5.87 89.51TP₆ 3.61 93.12 5.69 87.43TP₇ 3.01 90.44 6.00 84.44TP₈ 4.04 88.48 4.29 84.19TP₉ 3.29 87.48 4.79 82.69TP₁₀ 4.99 87.68 5.46 82.22TP₁₁ 3.84 86.06 5.05 81.01TP₁₂ 2.35 83.36 10.41 72.95TP₁₃ 1.80 74.75 5.16 69.59TP₁₄ 3.49 73.08 7.25 65.83TP₁₅ 1.04 66.87 8.00 58.87TP₁₆ 5.16 64.03 1.66 62.37

U.S.C+GS B.M. at entrance

to Eglin AFB.

85A and 397

M 124

1951 No Elev.

B.S. I.H. F.S. E.I.V. 62.37

T.P.₁₇ 10.30 72.67 2.30 70.37

TP₁₈ 6.23 76.60 6.81 69.79

TP₁₉ 1.09 70.88 11.96 58.92

TP₂₀ 1.75 60.67 4.30 56.37

TP₂₁ 7.22 63.59 .77 62.82

TP₂₂ 9.12 71.94 2.44 69.50

TP₂₃ 8.26 77.76 7.88 69.88

TP₂₄ 5.04 74.92 3.70 71.22

102.64

131.42

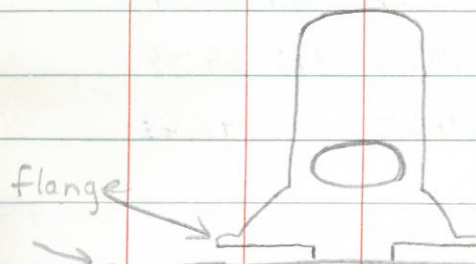
28.78

- base

- flange

diff

28.78



flange

concrete base

W-6305

B.S. I.H. F.S. EIV

B.M.

11.69

T.P.	² 3.03	11.72	³ 5.24	6.48
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T.P. ₂	4.14	10.62	10.93	- .31
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TP ₃	10.18	9.87	.09	9.78
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TP ₄	5.60	15.38	.50	14.88
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TP ₅	11.14	26.02	.55	25.47
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TP ₆	11.81	37.28	.41	36.87
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TP ₇	11.22	48.09	.48	47.61
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TP ₈	11.71	59.32	.17	59.15
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TP ₉	4.76	65.91	3.88	62.03
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	3.54	62.37
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72.59

21.91

50.68

21.91

base

floor

4/30

Clear morning

Jeff Rod

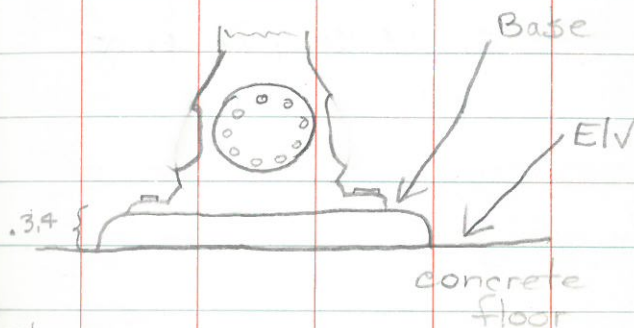
Jon - level

B.M. U.S.C+G.S.

Y 28

1934

EIV. 11.693



121	62.37
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11.69

50.68

W-6853

B.S. T.H. F.S. EIV.

B.M.

16.44

T.P.₁ .01 16.45 11.28 5.17T.P.₂ 1.58 6.75 7.08 -3.33T.P.₃ 11.10 10.77 1.77 9.00T.P.₄ 8.48 17.48 3.52 13.96U.S.C. & G.S.
B.M.T.P.₅ 9.31 23.27 9.64 13.63T.P.₆ 11.95 25.58 1.04 24.54T.P.₇ 11.29 35.83 10.8 34.75T.P.₈ 3.75 38.50 11.33 27.17T.P.₉ .89 28.06 11.92 16.14T.P.₁₀ .109 16.23 2.40 13.83T.P.₁₁ 10.05 23.88 1.80 22.08T.P.₁₂ 9.91 31.99 2.68 29.31T.P.₁₃ 7.96 37.27 4.23 33.04T.P.₁₄ 1.61 34.65 10.91 23.74T.P.₁₅ .33 24.07 11.49 12.58T.P.₁₆ .06 12.64 11.20 1.44

4/30

Clear Afternoon

Jeff - rod

Jon - level

U.S.C. & G.S. B.M.

TT 28 D 1938

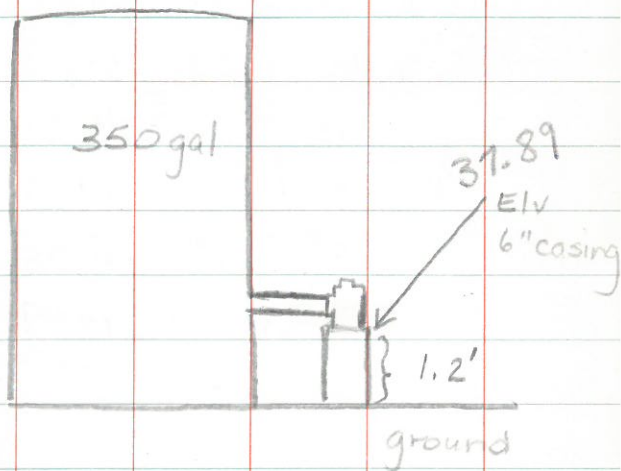
16.440

NE End of Rocky Bayou
Bridge

	B.S.	I.H.	F.S.	Elv	1.44
TP ₁₇	.81	2.25	5.55	-3.30	
TP ₁₈	9.18	12.48	.57	11.91	
TP ₁₉	9.87	21.78	1.99	19.79	
TP ₂₀	11.86	31.65	.85	30.80	
TP ₂₁	11.72	42.52	2.19	40.33	
TP ₂₂	7.45	47.78	8.91	38.87	
TP ₂₃	2.00	40.87	5.91	34.96	
TP ₂₄	10.11	45.07	.26	44.81	
TP ₂₅	6.40	51.41	2.22	49.19	
TP ₂₆	4.08	53.27	7.92	45.35	28.05
TP ₂₇	3.89	49.24	4.75	44.49	
	<u>165.94</u>		<u>144.49</u>		

21.45

44.49
- 6.60
37.89



W-6855

BS

I.H

F.S.

ELEV.

15.33

T.P. 4.18 19.51 4.74 14.77

T.P.₂ 4.65 19.42 4.32 15.10 ground

8.83

9.06

.19

.23

15.79

concrete
base

5/5 '65

clear morning

jon-rod

jeff-level

B. M. Corps of Eng.
 established bench mark
 rear of building 720
 Tydale AFB

Elev.

15.33

w-3333

B.S. I.H. F.S. ELEV.

T.P.	3.4	5.49	48.49	3.4	.98	45.51
TP ₂	4.10	50.21	5.47	44.74		
TP ₃	3.81	48.55	5.13	43.42		
TP ₄	5.23	48.65	3.00	45.65		
TP ₅	4.79	50.44	3.10	47.34		
TP ₆	4.18	51.52	4.16	47.36		
TP ₇	3.00	50.36	5.04	45.32		
TP ₈	0.42	45.74	11.42	34.32		
TP ₉	0.03	34.35	11.65	22.70		
TP ₁₀	1.06	23.76	8.15	15.61		
TP ₁₁	4.05	19.66	3.30	16.36		

TP ₁₂	36.76		61.40
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			37.76
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			24.64
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16.36

20.74

37.10

5/5/65

clear afternoon

Jon - Rod

Jeff - level

USC + GS B.M.

P 88

1935

ON US 231 3.75 miles SW
Bayou George by Atlanta + St Andrews
USC + GS B.M. tied

in to SRD B.M. on bridge
over Mills Bayou on US 231
SW end of bridge

line was run from SRD B.M.
in 1964 to well. Difference
from assumed 100' was
20.74'. Elevation of well to
nearest foot 37.10

1964 reading taken from
18" concrete base

W. 6842

	B.S.	I.H.	F.S.	ELEV.
				100

TP ₁	.57	100.57	11.16	89.41
TP ₂	.17	89.58	3.37	86.21
TP ₃	1.28	93.49	8.58	84.91
TP ₄	1.26	86.17	3.09	83.08
TP ₅	7.23	90.31	4.91	85.40

$\frac{16.51}{14.60} \quad \frac{3.11}{3.11}$
 Run from U.S. C+GS

Δ Park 1956 to be tied
 in with B.M. across bay
 diff $\frac{23.08}{-14.60}$
 8.48¹⁵

T.P. ₁	.69	15.69	11.75	3.94
T.P. ₂	.39	4.33	4.66	-.33
T.P. ₃	3.75	3.42	2.43	.99
TP ₄	3.87	4.86	3.75	1.11
TP ₅	5.64	6.75	4.57	2.18
TP ₆	3.74	5.92	6.12	-.20

B.S. I.H. F.S. EIV. -20

TP₇ 3.03 2.83 6.27 - 3.44

TP₈ 4.54 1.10 3.63 - 2.53

TP₉ 6.05 3.52 4.05 - .53

TP₁₀ 4.27 3.74 4.77 - 1.03

TP₁₁ 3.91 2.88 4.10 - 1.22

TP₁₂ 7.63 6.41 .17 6.24

TP₁₃ 9.67 15.91 3.31 12.60

57.18

2.40

59.58 - 14.60

uncorrected EIV. - 2.00

4/5 late afternoon

4/6 early morning

Jeff - rod

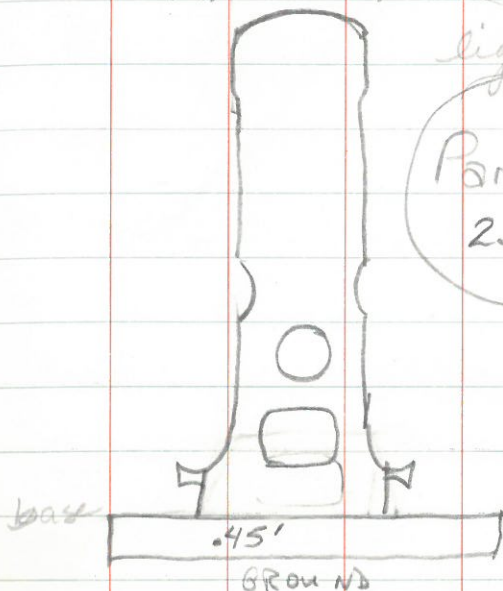
Jon - level

Corps of Engineers U.S. Army

4/11 1937 Under 0

lighthouse

▲
Park 1956
23.077



W-6307

B.S. I.H. F.S. EIV.

B.M.

241

TP₁ 5.68 246.68 3.99 242.69TP₂ 4.43 247.12 3.97 243.15TP₃ 3.43 246.58 4.63 241.95 ground

13.54

12.59

95

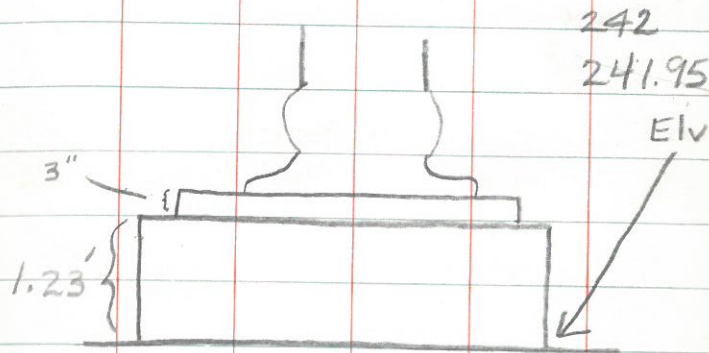
12.59

5/6/65

Jeff - rod

for - level

B.M. center-line of
 S-79-topographic figure
no other B.M. available



W-2771

B.S. I.H. F.S. EIV.

B.m

192

TP₁ 8.13 200.13 7.05 193.08TP₂ .14 193.22 11.48 181.74TP₃ .13 181.81 11.49 170.38TP₄ .33 170.91 11.25 159.46TP₅ .97 160.43 11.76 148.67TP₆ 1.22 149.89 7.66 142.73TP₇ 2.23 144.46 6.00 138.46TP₈ 2.89 141.35 2.99 138.36TP₉ .74 139.10 4.08 135.02TP₁₀ 3.99 139.01 6.57 132.44TP₁₁ 8.09 140.53 .24 149.29TP₁₂ 10.68 150.97 8.52 142.45TP₁₃ .19 141.34 8.62 132.72TP₁₄ 3.21 135.93 11.41 124.52TP₁₅ .10 124.62 10.00 114.62TP₁₆ .34 114.96 8.49 106.47

35

5/10

Hot ^{clear} morning

Jeff - rod

Jan - level

B.M. U.S.G.S.

1948 192 ft.

WSM 9

192.23

36

B.S. I.H. F.S. Elv 106.47

TP₇ 10.03 116.50 .89 115.61

TP₁₈ 11.99 127.60 .39 127.21

TP₁₉ 2.78 124.43 5.88 118.55

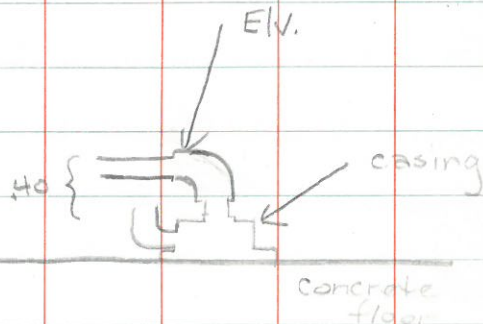
TP₂₀ 4.41 123.16 3.93 126.09 - pipe 40

72.79

~~118.83~~ - casing
~~.23~~

119.06

125.89 - casing



W-2880

B.S. I.H. F.S. EIV

B.M

159TP₁ ^{3 3} 3.24 162.24 ^{3 2} 4.71 157.53TP₂ 4.91 162.44 7.19 155.25TP₃ .74 155.99 5.60 150.39TP₄ 6.16 156.55 1.17 155.38TP₅ 5.43 160.81 4.15 156.66TP₆ 4.57 161.23 8.91 152.32TP₇ 4.25 156.57 4.66 151.91

29.30

36.39

- 48

151.43

14

151.29

36.39

29.30

7.09

159.00

151.91

7.09

5/10/65

Jeff - rod clear

Jan - level afternoon

U.S.G.S B.M

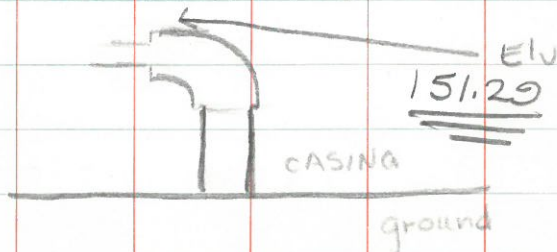
WSM 7 1948 No Elv

Reset 1961

159.864

To be tied in with
B.M. ON 77, (Tremper)
64

1964 Diff. -.48



W-2565

B.S. T.H. F.S. E.V.

B.M.

112

T.P. .64 112.64 3.23 109.41

TP₂ 9.67 119.08 .24 118.84TP₃ 8.51 127.35 3.61 123.74TP₄ 6.30 130.04 2.69 127.35TP₅ 7.60 134.95 1.15 133.80TP₆ 3.62 137.42 6.71 130.71T_{B.M.}TP₇ 8.28 138.99 1.49 137.50TP₈ 3.37 140.87 9.16 131.71TP₉ .78 132.49 8.64 123.85TP₁₀ 1.73 125.58 7.45 118.13TP₁₁ 3.84 121.97 4.35 117.62TP₁₂ 4.99 122.61 5.38 117.23TP₁₃ 4.66 121.89 4.61 117.28TP₁₄ 4.62 121.90 4.85 117.05TP₁₅ 4.74 121.79 4.75 117.04TP₁₆ 6.42 123.46 2.37 121.09

5/10

clear afternoon

Jeff - rod

Jan - level

B.M. U.S.G.S

112 feet

TT41 CWH

1947

112.203

B.S. I.H. F.S. EIV 121.09

TP₁₇ 7.53 128.62 2.07 126.55

TP₁₈ 8.49 135.04 1.65 133.39

TP₁₉ 6.17 139.56 6.10 133.46

TP₂₀ 1.76 135.22 7.11 128.11

TP₂₁ 5.82 133.93 2.95 130.98

TP₂₂ 2.10 133.08 5.41 127.67

TP₂₃ 5.16 132.83 3.61 129.22

TP₂₄ 5.86 135.08 2.04 133.04

TP₂₅ 8.80 141.84 .39 141.45

TP₂₆ 11.79 153.24 1.16 152.08

TP₂₇ 8.97 161.05 3.65 157.40

TP₂₈ 5.93 163.33 3.51 159.82

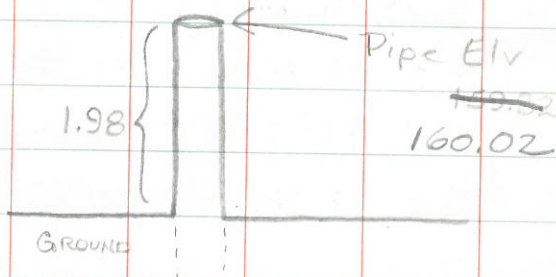
158.15

110.33

47.82

diff
47.82

Well No Longer
IN Use.



W-2528

B.S. I.H. F.S. EIV

B.M

130

TP₁ 5.52 135.52 2.27 133.25TP₂ 8.48 141.73 .19 141.54TP₃ 6.69 148.23 9.76 138.47TP₄ .80 139.27 5.37 133.90TP₅ 5.26 139.16 1.18 137.98TP₆ 4.96 142.94 6.19 136.75TP₇ 4.68 141.43 4.17 137.26TP₈ 7.89 145.15 5.30 139.85TP₉ 4.33 144.18 5.26 138.92TP₁₀ 6.79 145.71 3.15 142.56TP₁₁ 6.58 149.14 5.45 143.69TP₁₂ 4.82 148.51 .13 148.38TP₁₃ 9.63 158.01 5.91 152.10TP₁₄ 6.01 158.11 5.26 152.85TP₁₅ 2.59 155.44 6.96 148.48TP₁₆ 2.80 151.28 6.59 144.69

45

5/12

clear morning

Jeff - road

Jon - level

B.M USGS

130 feet

WSM 33

1948

B.S. I.H.F.S. EIV 144.69

TP₁₇ 6.96 151.65 2.18 149.47

TP₁₈ 6.03 155.50 6.17 149.33

TP₁₉ 6.94 156.27 10.58 145.69

TP₂₀ .91 146.60 5.41 141.19

TP₂₁ 10.43 151.62 .36 151.26

TP₂₂ 10.68 161.94 5.05 156.89

127.78

102.89

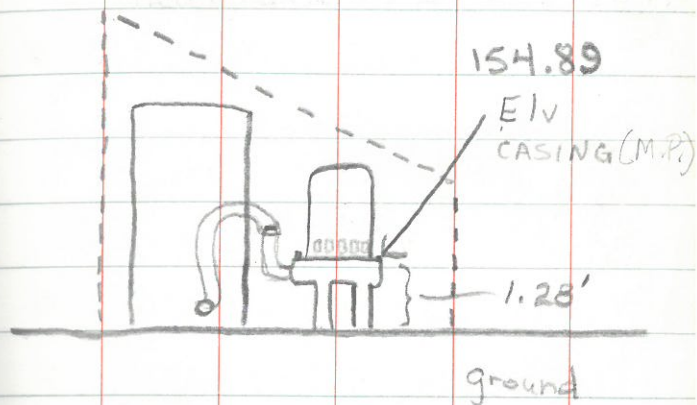
26.89

24.89

156.89

-2.00

154.89



W-2564

B.S. I.H. F.S. EIV

B.M

153.39

T.P. 8.47 161.86 5.10 156.76

TP₂ 1.03 157.79 11.57 146.22TP₃ .46 146.68 11.36 135.32TP₄ 1.56 136.88 10.94 125.94TP₅ .37 126.31 10.20 116.11TP₆ 1.71 117.82 8.17 109.65TP₇ 4.02 113.67 4.05 109.62TP₈ 4.26 113.88 2.80 111.08TP₉ 6.42 117.50 2.85 114.65TP₁₀ 7.47 122.12 2.37 119.75TP₁₁ 10.65 130.40 2.41 127.99TP₁₂ 8.30 136.29 2.55 133.74TP₁₃ 8.86 142.60 .52 142.08TP₁₄ 2.38 144.46 11.53 132.93TP₁₅ .95 133.88 8.98 124.90TP₁₆ 4.63 129.53 2.23 127.30

5/12

clear afternoon

Jeff - rod

Jon - level

Ran from previously
determined elevation
from B.M. U.S.G.S

1947

TT54

JDN

EIV. 97.50

B.S. I.H. F.S. E/V 127.30

TP₁₇ 9.25 136.55 7.13 129.42

TP₁₈ 3.08 132.50 .59 131.91

80.87

24.48

105.35

67

21.48

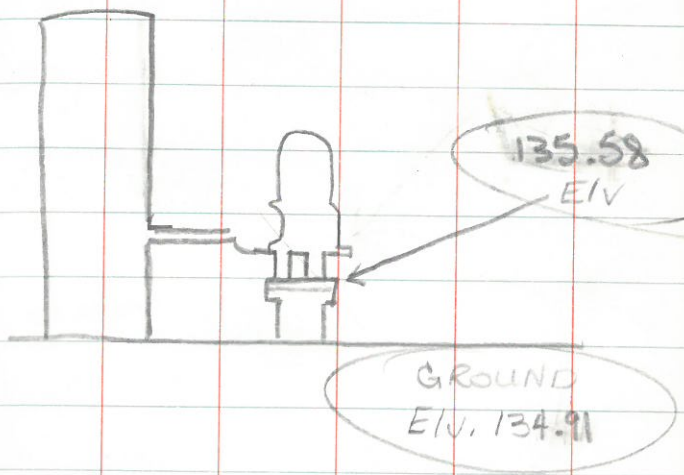
131.91

+3.00

134.91

.67

135.58



W-3415

B.S.

I.H.

F.S.

Elv

5/13/65

B.M.

96

clear morning

TP₁ 8.87 104.87 5.97 103.90

Jeff road

TP₂ 7.86 111.76 1.52 110.24

Jon - level

TP₃ 6.47 116.71 7.62 109.09

Only available B.M.

TP₄ .88 109.97 11.84 98.13

Topo elev. centerline of

TP₅ .04 98.17 4.86 93.31

S-167. To be tied in

TP₆ 3.03 96.34 3.95 92.39

with SRD B.M. on S-167.

TP₇ 4.46 96.85 4.59 92.26

Diff + 24.37 gr.

31.61

35.35

+ 25.02 casing

31.61

3.74

Corrected from SRD

116.05 - ground

Bridge Elv. 91.00

92.26

116.70 - casing

5.92

5.24

91.68

.58

Diff .68

W-4234
4297
4684

B.S. I. H. F.S. EIV.

B.M.

T.P. ^{5.6} 5.10 160.01 ^{5.5} 3.92 156.09

TP₂ 5.26 161.35 3.33 158.02

TP₃ 4.11 162.13 .01 162.12

TP₄ 11.98 174.10 .14 173.96

TP₅ 10.63 184.59 .12 184.47

TP₆ 10.14 194.61 5.38 189.23

TP₇ 6.38 195.61 6.44 189.17

TP₈ 3.13 192.30 7.45 184.85

TP₉ .06 184.91 7.31 177.60

TP₁₀ 3.58 181.18 4.20 176.98

TP₁₁ 3.63 180.61 6.87 173.74

TP₁₂ .66 174.40 8.76 165.64

TP₁₃ .74 166.38 6.38 160.00

TP₁₄ 7.08 167.08 3.42 163.66

72.48

63.73

8.75

63.73

5/13/65

Clear afternoon

Jeff - Rod

Jon - level

B.M. U.S.C. + G.S.

T 11 1918

EIV. 154.911

Run to SRD B.M.

to be tied in to

W-4234

W-4297

W-4684

162.92

Diff. 8.75

W-2572

B.S. I.H. F.S. EIV

B.m

128.83

5/14

Clear morning

Jeff - rod

Jon - level

TP₁ 4.79 133.62 4.18 129.44TP₂ 4.72 134.16 3.95 130.21TP₃ 4.58 134.79 3.90 130.89TP₄ 4.44 135.33 3.70 131.63TP₅ 4.48 136.11 4.03 132.08TP₆ 5.01 137.09 4.88 132.21TP₇ 3.13 135.34 4.46 130.88TP₈ 5.63 136.51 1.34 135.17TP₉ 4.65 139.82 2.61 137.21TP₁₀ 5.62 142.83 3.10 139.73TP₁₁ 5.74 145.47 2.06 143.41TP₁₂ 4.33 147.74 3.11 144.63TP₁₃ 11.17 155.80 .37 155.43TP₁₄ 6.43 161.86 2.52 159.34 T_{Bm}TP₁₅ .01 159.35 7.38 151.97TP₁₆ 4.73 156.70 5.74 150.96

B.m.

U.S.C + G.S.

Y 11 1918

Elev. 128.825

B.S. I.H. F.S. E/v 150.96

TP₁₇ 5.36 156.32 5.70 150.62

TP₁₈ 6.66 157.28 6.15 151.13

TP₁₉ 5.93 157.06 11.02 146.04

TP₂₀ 3.06 149.10 3.10 146.00

TP₂₁ 6.12 152.12 .49 151.63

TP₂₂ 1.76 153.39 7.50 145.89

TP₂₃ 1.20 147.09 5.34 141.75

TP₂₄ .86 142.61 5.88 136.73

TP₂₅ 1.33 138.06 2.91 135.15

TP₂₆ 8.86 144.01 .97 143.04

TP₂₇ 7.24 150.28 8.39 141.89

TP₂₈ 1.35 143.24 7.06 136.18

129.19

7.49

1.35

121.84

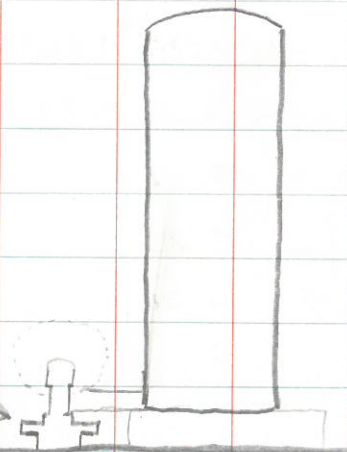
diff =
7.35

E/v 136.18

.43 f

Ground

135.75



W-6888

B.S. I.H. F.S. EIV

B.m.

132.01

T.D. 1.37 133.38 6.89 126.49

TP₂ 2.03 128.52 4.23 124.29TP₃ 4.26 128.55 4.31 124.24
3.47 125.08

7.66

15.43

7.66

7.77

132.01

124.24

7.77

5/17

Cloudy morning

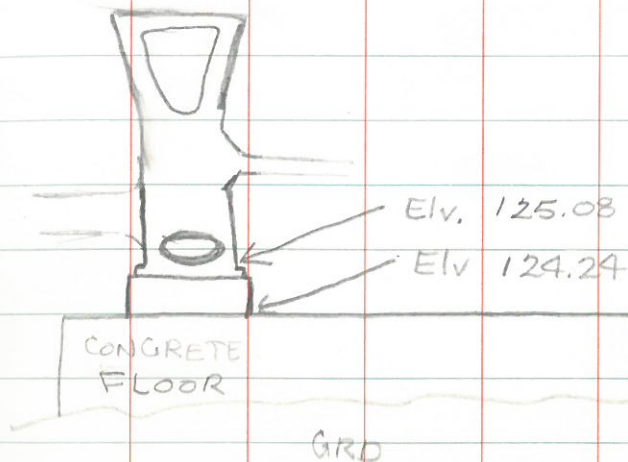
Jeff - rod

Jon - level

B.M. U.S.C. & G.S.

A 12 1918

EIV. 132.011



W-5583

B.S.

I.H.

F.S.

EIV

B.M.

123.77

TP ₁	3.94 ⁴	127.71	5.85 ^{4.2}	121.86	949
-----------------	-------------------	--------	---------------------	--------	-----

TP ₂	3.70	125.56	7.21	118.35	
-----------------	------	--------	------	--------	--

TP ₃	7.15	125.50	6.39	119.11	
-----------------	------	--------	------	--------	--

TP ₄	2.96	122.07	11.81	110.26	
-----------------	------	--------	-------	--------	--

TP ₅	.43	110.74	11.60	99.14	
-----------------	-----	--------	-------	-------	--

TP ₆	1.82	100.96	2.74	98.22	
-----------------	------	--------	------	-------	--

TP ₇	7.59	105.81	1.18	104.63	
-----------------	------	--------	------	--------	--

TP ₈	10.62	115.25	2.71	112.54	
-----------------	-------	--------	------	--------	--

TP ₉	5.79	118.33	4.05	114.28	
-----------------	------	--------	------	--------	--

44.05

53.54

44.05

9.49

DIF

9.49

5/17

Jeff - rod

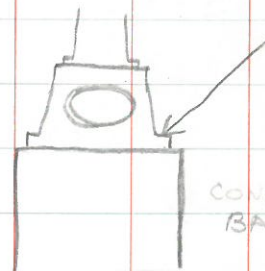
Jan - level

clear afternoon

USED B.M.

Axis Mon, 70 + 39.35

EIV. 123.771

CONCRETE
BASE

GRD

W-6890

B.S. I.H. F.S. Elev

B.M.

115

TP₁ 3.36 118.36 3.36 115TP₂ 5.14 120.14 5.62 114.52TP₃ 3.37 117.89 4.64 113.25TP₄ 6.37 119.62 4.69 114.93TP₅ 5.14 120.07 4.56 115.51TP₆ 4.92 120.43 5.84 114.59TP₇ 2.06 116.65 6.86 109.79TP₈ 3.23 113.02 7.00 106.02TP₉ 2.48 108.50 .31 108.19TP₁₀ 9.11 117.30 2.84 114.46TP₁₁ 6.31 120.77 4.43 116.34TP₁₂ 3.70 120.04 7.95 112.09TP₁₃ 1.46 113.55 11.41 102.14TP₁₄ 1.63 103.77 9.58 94.19TP₁₅ 6.90 101.09 .02 101.07TP₁₆ 10.36 111.43 2.92 108.51

65

5/19

Jeff - rod

Jon - level

clear moun

B.M. centerline of
S-20 topo elev. 115'

108.51

TP ₁₇	7.30	115.81	3.30	112.51
TP ₁₈	5.81	118.32	6.47	111.85
TP ₁₉	2.81	114.66	7.73	106.93
TP ₂₀	1.37	108.30	10.00	98.30
TP ₂₁	1.54	99.84	5.37	94.47
TP ₂₂	6.37	100.84	2.62	98.22
TP ₂₃	7.59	105.81	4.40	101.41
TP ₂₄	3.65	105.06	7.14	97.92
TP ₂₅	1.34	96.58	10.83	85.75
TP ₂₆	1.92	87.67	6.59	81.08

115.24

31.24

146.48

33.92

81.08

- 2.68

78.40

78.40

Elevation on 6"
Walnut tree on
bottom.
Near core hole,
approx same as
ground elev.

Hanna
Well B.S. I.H. F.S. Elev.

B.M.

157

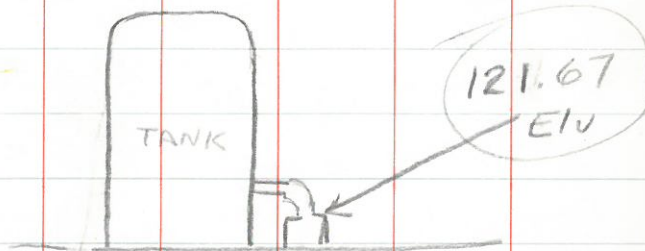
TP ₁	4.99	161.99	3.04	158.95
TP ₂	5.70	164.65	3.41	161.24
TP ₃	5.32	166.56	3.85	162.71
TP ₄	6.27	168.98	5.06	163.92
TP ₅	.98	164.90	4.40	160.50
TP ₆	4.64	165.14	4.94	160.20
TP ₇	.48	160.68	13.08	147.60
TP ₈	.21	147.81	12.71	135.10
TP ₉	3.17	138.27	.37	137.90
TP ₁₀	12.99	150.89	.97	149.92
TP ₁₁	13.03	162.95	.71	162.24
TP ₁₂	5.60	167.84	5.87	161.97
TP ₁₃	.94	162.91	12.58	150.33
TP ₁₄	.02	150.35	12.87	137.48
TP ₁₅	.33	137.81	11.72	126.09
TP ₁₆	1.26	127.35	3.68	123.67
69	67.93	31.33	99.26	-2.00
				121.67

33.33

5/20

clear morning
Jeff - rod
Jon - level

B.M. Topo centerline
Road Elev. 157



QUINN
Well
B.M.

B.S. I.H. F.S. ELEV.

TP ₁	3.43	33.43	5.35	28.08
TP ₂	3.34	31.42	6.85	<u>24.57</u>

6.77

12.20

6.77

5.43

30.06

24.57

5.43

5/20

clear morning
jeff-level
fon-rod

B.M. Topo centerline

Kate Rd. 61

elevation 30

elevation on casing
24.67 feet

w-6912

B.M.

B.S. I.H. F.S. ELEV

TP₁ .04 213.04 4.95 208.09TP₂ 5.78 213.87 2.60 211.27TP₃ 6.08 217.35 .85 216.50TP₄ 6.88 223.38 3.38 220.00TP₅ 7.15 227.75 5.33 222.42TP₆ 4.08 226.50 11.21 215.39TP₇ 2.55 217.94 5.08 212.86

33.16

33.40

33.16

24

213.00

212.86

5/21

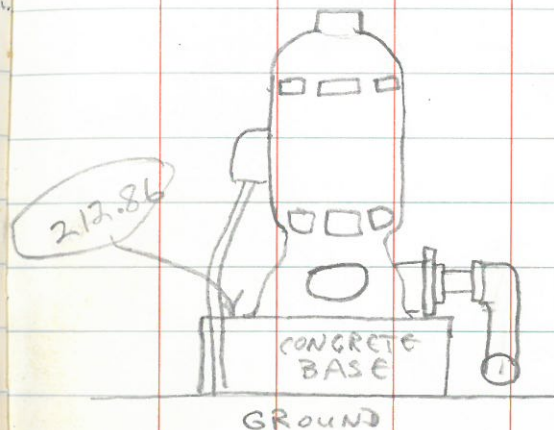
HAZY MORNING

yon - rod

Jeff - level

RAN FROM TOPO ELEV.

CENTER VS 29 + St. 261



w-6336

BS

IH

FS

ELEV.

B.M

140

TP₁ 2.51 142.51 .50 142.01TP₂ 11.79 153.80 .38 153.42TP₃ 12.96 166.38 .05 166.33TP₄ 13.30 179.63 .02 179.61TP₅ 13.20 192.83 .10 192.73TP₆ 13.05 205.88 .14 205.74TP₇ 10.97 216.71 .00 216.71TP₈ 4.25 220.96 12.32 208.64

82.03

68.52

13.51

208.64

-.12

208.52

68.64

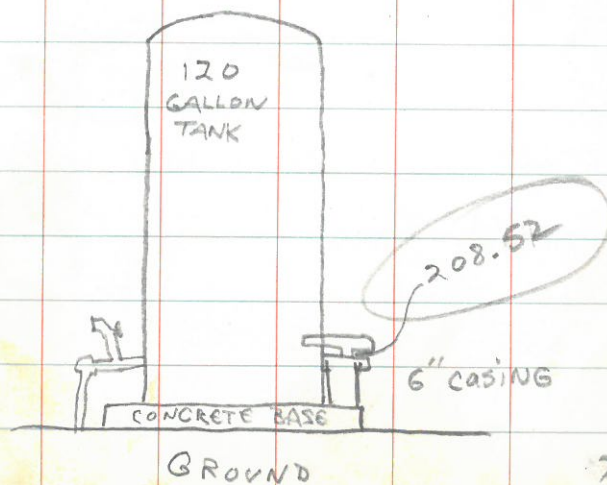
5/21

Jon-rod
Jeff-level

hazy afternoon

B.M USGS 5 PFB 1953

ELEVATION 140 FEET



W-6626

B.S. I.H. F.S. ELEV.

B.M

61.68

TP₁ 3.31 64.99 6.71 58.28

39.60

22.08

TP₂ .22 58.50 10.01 48.49TP₃ 1.75 50.24 7.87 42.37TP₄ 3.61 45.98 7.54 38.44TP₅ 7.18 45.62 6.02 39.60

16.01

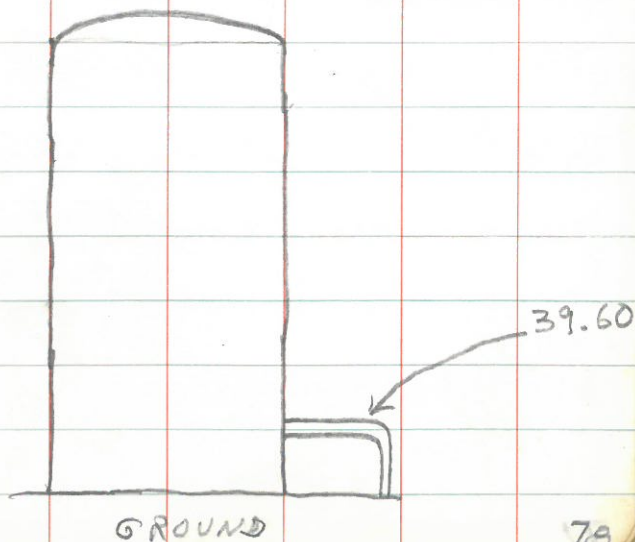
38.15

16.07

22.08

diff
22.08

5/21

clear afternoon
jon-rod
jeff-levelB.M SRD nail in
POWER POLE
61.68 feet

W-6834

BS

IH

FS

ELEV.

BM

61.68

TP₁ 3.85 65.53 3.15 61.78TP₂ 1.66 63.44 10.48 52.96TP₃ .69 53.65 10.01 43.64TP₄ 3.76 47.40 1.40 47.00TP₅ 7.21 54.21 4.92 49.29TP₆ 3.59 52.88 3.96 48.92TP₇ 5.50 54.42 3.45 50.97TP₈ 3.83 54.80 3.44 51.36

30.09

41.41

10.32

11.32

$$\begin{array}{r}
 51.36 \\
 + 1.00 \\
 \hline
 52.36
 \end{array}$$

5/21

clear AFTERNOON

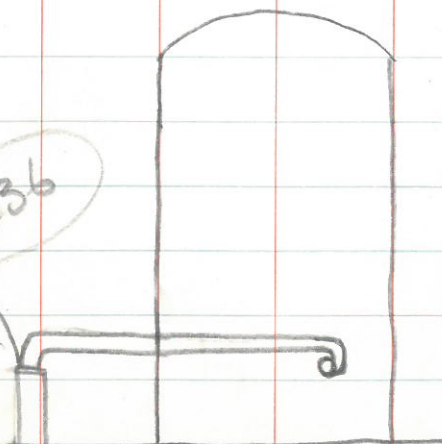
SON-ROD

JEFF-LEVEL

B.M. SRD NAIL IN POWER POLE

ELEVATION 61.68

52.36



GROUND

W-3553

B.S. I.H. F.S. EIV.

B.M.

199

TP₁ 3.47 202.47 5.04 197.43TP₂ 8.63 206.06 5.67 200.39

12.10

10.71

10.71

1.39

1.39

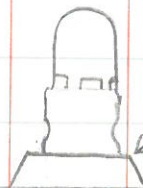
5/24

hazy morning

Jeff + rod

Jon - level

B.M. Top of road elev.

199

200.39

CONCRETE
FLOOR

W-6655

B.S. I.H. F.S. EIV

B.M.

129

TP ₁	11.18	140.18	1.71	139.47
-----------------	-------	--------	------	--------

TP ₂	6.74	146.21	5.24	140.97
-----------------	------	--------	------	--------

TP ₃	5.08	146.05	5.87	140.18
-----------------	------	--------	------	--------

TP ₄	6.30	146.48	5.15	141.33
-----------------	------	--------	------	--------

29.30

16.97

16.97

12.33

12.33

5/24

Hazy morning

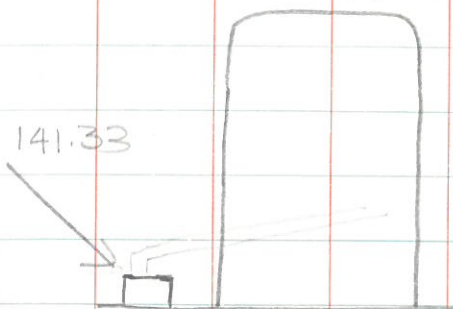
Jeff - rod

Jon - level

B.M. Topo road

elv. 129

U.S.G.S copper rivet B.M.



W-6654 B.S. I.H. F.S. E/v

B.M.

TP₁ 7.45 171.45 1.94 170.51TP₂ 7.25 177.76 5.76 172.00TP₃ 5.70 177.70 1.45 176.25TP₄ 12.00 188.25 .27 187.98TP₅ 13.09 201.07 .14 200.93TP₆ 13.29 214.22 4.18 210.04TP₇ 2.98 213.02 5.97 207.05TP₈ 4.27 211.32 3.11 208.21TP₉ 7.56 215.77 4.13 211.64TP₁₀ .84 212.48 12.70 199.78TP₁₁ 1.57 201.35 2.92 198.43TP₁₂ 2.73 201.16 9.10 192.06TP₁₃ 2.97 195.03 7.94 187.09

51.70

58.61

23.09

58.61

187.09

164.00

23.09

diff =

23.09

5/24

Hazy Mon.

Jeff - rod

Jon - level

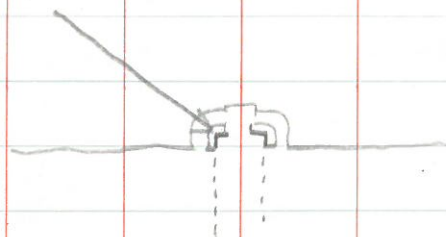
B.M. U.S.G.S.

9 PFB

164 ft

TT

1953



W-6902

	B.S.	I.H.	F.S.	Elev
B.M.				90
TP ₁	2.99	92.99	6.03	86.96
TP ₂	2.22	89.18	6.28	82.90
TP ₃	3.77	86.67	6.97	79.70
	8.98		19.28	
			8.98	
			10.30	

Diff = 10.30

5/24

clear afternoon

Jeff - rod

Jon - level

B.M. Top of road elev.

90 ft

Water Level over core hole

Reading taken
at water level

W-6666

B.S. I.H. F.S. E/v

B.M.

79.56
64.07T.P. ² 5.74 ² 69.81 4.43 65.38TP₂ 6.31 71.69 3.15 68.54TP₃ 7.58 76.12 2.10 74.02TP₄ 8.42 82.44 2.75 79.69TP₅ 6.04 85.73 3.44 82.29 old wellTP₆ 1.89 84.18 4.30 79.88

35.98

20.17

20.17

15.81

Diff. 15.81

5/24

clear afternoon

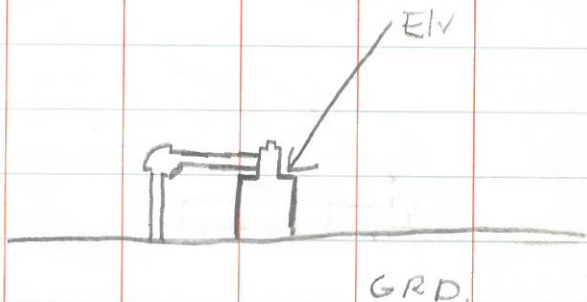
Jeff - rod

Jon - level

B.M. USC + TS

64.068

K 47 1934



W-6224

B.S. I.H. F.S. Elev

B.M.

18

TP₁ 5.86 23.86 5.93 17.93TP₂ 4.50 22.43 5.14 17.29TP₃ 3.12 20.41 4.10 (16.31)

13.48

15.77

13.48

1.69

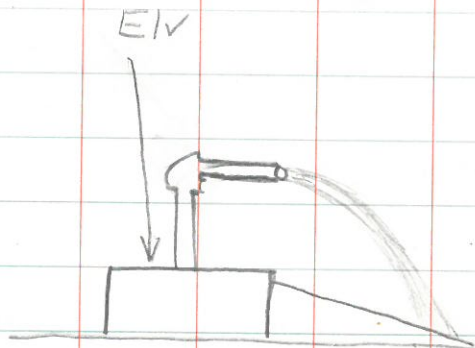
Diff = 1.69

5/26

clear morning

Jeff - rod

Jon - level

B.M. topo road
intersection elev.

W-5535

B.S. I.H F.S. E/v

B.m

62.06

T.P.	¹ 5.68	² 67.74	² 61.01	61.73
------	-------------------	--------------------	--------------------	-------

TP ₂	5.06	66.79	4.44	62.35
-----------------	------	-------	------	-------

TP ₃	5.23	67.53	4.69	62.89
-----------------	------	-------	------	-------

TP ₄	5.13	68.02	4.36	63.66
			3.71	64.31

TP ₅	3.30	67.61	5.15	62.46
-----------------	------	-------	------	-------

24.90

24.00

Diff = .90

T.B.M.

5/27

afternoon - light
cloud coverJeff - rod
Jon - level

B.M. U.S.C. & G.S.

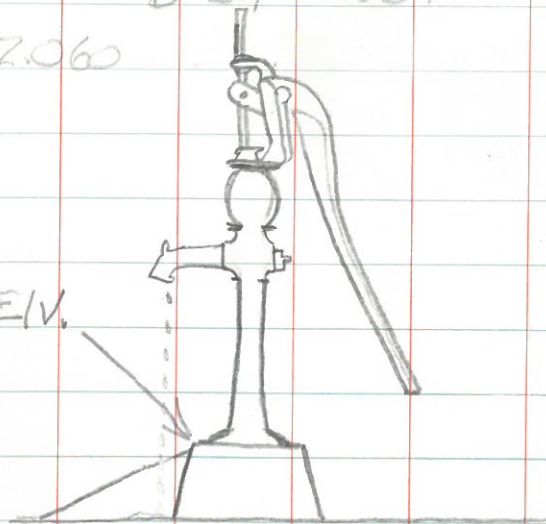
E/v

D-87

1934

62.060

E/v.



W-4240

B.S. I.H. F.S. Elv

B.m

88, 82

43	24
TP, 11.88 100.70	3.73 96.97

TP ₂	10.70	107.67	.17	107.50
-----------------	-------	--------	-----	--------

TP ₃	12.65	120.15	,36	119.79
-----------------	-------	--------	-----	--------

TP _a	12.17	132.56	.26	132.30
-----------------	-------	--------	-----	--------

TP ₅	13.03	145.33	.16	145.17	Diff =
-----------------	-------	--------	-----	--------	--------

TP ₆	11.00	156.17	.07	156.10	84.77
-----------------	-------	--------	-----	--------	-------

TP ₇	13.21	169.31	.07	169.24
-----------------	-------	--------	-----	--------

TP ₈	12.32	181.56	3.22	178.34
-----------------	-------	--------	------	--------

TP ₉	.68	179.02	5.43	173.59
-----------------	-----	--------	------	--------

28, 24

13.47

13.47

84. 77

5/28

partly cloudy
jiff-level
Jan-rod

ANGUS GIBLSON

B. M. U.S. Corps of
Engineers

88.82 E/P.

EIV 173.59



W-3482 B.S. I.H. F.S. Elv

B.M. 100

TP ₁	48	100.48	10.57	89.91
TP ₂	2.17	92.08	7.65	84.43
TP ₃	3.60	88.03	3.69	84.34
TP ₄	4.64	88.98	4.0	88.58
TP ₅	13.11	101.69	.02	101.67
TP ₆	12.69	114.36	.22	114.14
TP ₇	12.74	126.88	.84	126.04
TP ₈	11.81	137.85	.78	137.07
TP ₉	12.74	149.81	.69	149.12
TP ₁₀	9.51	158.63	11.46	147.17
TP ₁₁	1.86	149.03	9.53	139.50
TP ₁₂	1.47	140.97	.69	140.28
TP ₁₃	12.23	152.51	.78	151.73
TP ₁₄	9.26	160.99	2.07	158.92

100.31
48.29
58.92

CORRECTED ELEV.

97 146.53

146.92
88.00
58.92

5/28/65

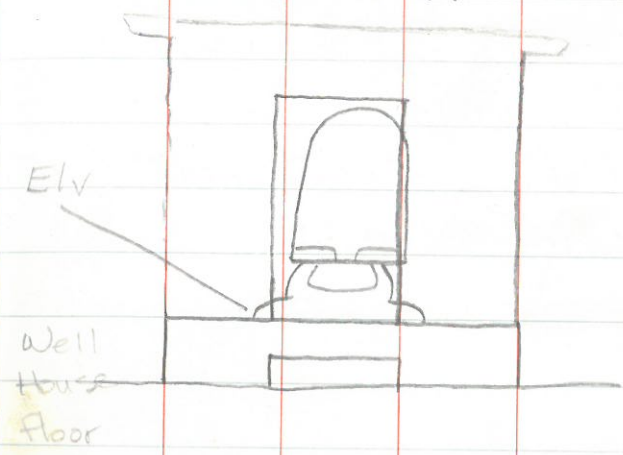
Cloudy afternoon
Jeff road
low level

B.M. USC+GS

1954

L 134 88 ft

No Elv. 87.61



W-5958

B.S.

I.H.

F.S.

Elev

Bm

63

TP ₁	5.2 4.14	67.14	5.4 3.90	63.24
-----------------	-------------	-------	-------------	-------

TP ₂	3.10	66.34	4.63	61.71
-----------------	------	-------	------	-------

TP ₃	3.82	65.53	4.85	60.68
-----------------	------	-------	------	-------

TP ₄	4.64	65.32	4.61	60.71
-----------------	------	-------	------	-------

TP ₅	5.74	66.45	3.07	63.38
-----------------	------	-------	------	-------

TP ₆	5.64	69.02	5.05	63.97
-----------------	------	-------	------	-------

TP ₇	4.21	68.18	4.86	63.32
-----------------	------	-------	------	-------

TP ₈	3.30	66.62	5.09	61.53	Diff =
-----------------	------	-------	------	-------	--------

TP ₉	5.90	67.43	4.35	63.08	+ .83
-----------------	------	-------	------	-------	-------

TP ₁₀	4.65	67.73	3.90	63.83
------------------	------	-------	------	-------

45.14

44.31

83

44.31

6/1/65

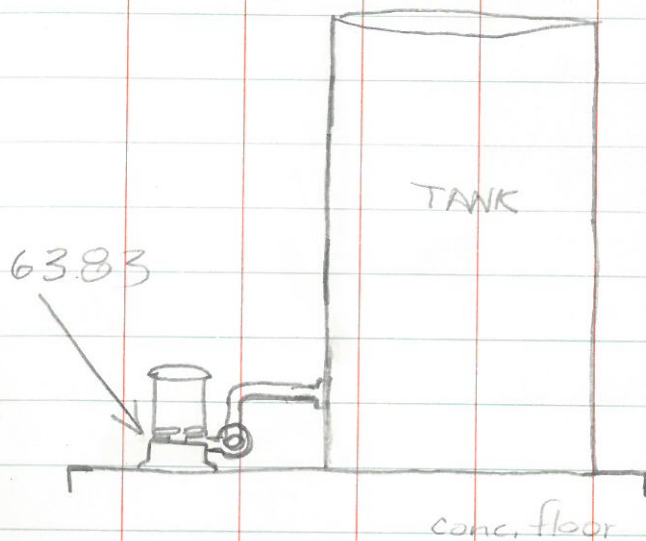
Cloudy morning

Jeff - rod

Jan - level

B.M. Topo R.R.

Elev. 63



W-5425 B.S. I.H. F.S. EIV

B.M. 167

TP₁ ¹ 4.33 ² 171.93 3.91 167.92

TP₂ 5.75 173.67 2.93 170.74

TP₃ 6.12 176.86 6.50 170.36

TP₄ 5.08 175.44 5.31 170.13

TP₅ 5.18 175.31 4.14 171.17

26.96

22.79

22.79

4.17

Diff. =

4.17

6/1/65

Overcast afternoon

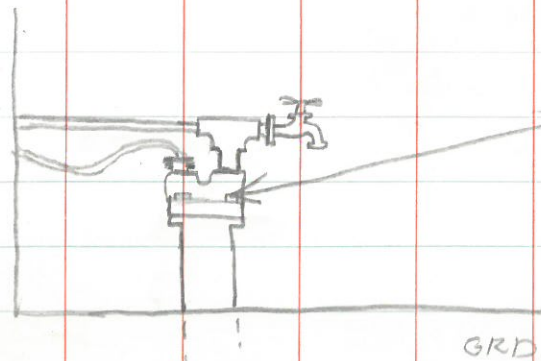
Jeff - rod

Jon - level

B.M. Topo road elev.

167

TANK
HOUS-
ING



171.17
EIV

GRD.

w-3501

B.S. I.H. F.S. E.L.V.

B.M.

167

TP ₁	4.3 5.83	172.83	4.2 4.70	168.13
-----------------	-------------	--------	-------------	--------

TP ₂	5.44	173.57	4.76	168.81
-----------------	------	--------	------	--------

TP ₃	4.70	173.51	5.92	167.59
-----------------	------	--------	------	--------

TP ₄	4.13	171.72	4.43	167.29
-----------------	------	--------	------	--------

TP ₅	4.48	171.77	5.31	166.46
-----------------	------	--------	------	--------

TP ₆	4.69	171.15	4.45	166.70
-----------------	------	--------	------	--------

TP ₇	5.97	172.67	6.44 5.96	166.23 166.71
-----------------	------	--------	--------------	------------------

TP ₈	35.24		35.53 35.24	
-----------------	-------	--	----------------	--

.29

Diff =

.29

TBM

6/1/65

Jeff - rod

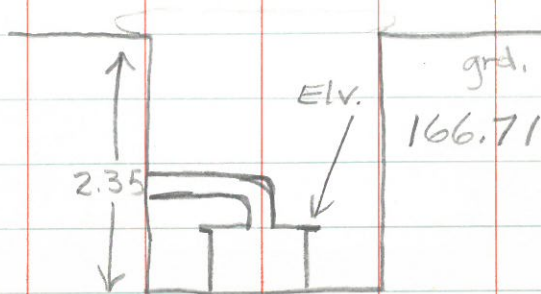
Jon - level

B.M. -

USC+TS Bubblegum wad

on C.L. - U.S. 20

Elev 167.00001



W-3199 B.S. I.H. F.S. EIV

TBM					166.23
TP ₁	² 4.50	¹ 170.73	² 5.65	² 165.08	165.73
TP ₂	4.81	169.89	4.18	165.71	.50
TP ₃	4.05	169.76	2.79	166.97	
TP ₄	3.47	170.44	3.82	166.62	
TP ₅	4.33	170.95	5.22	165.73	
	21.16		21.66		
			21.16		
			.50		

Diff =
.50

6/1/65

partly cloudy after-five

Jeff - rod
Jon - level

From
B.M. Topo Rd elev.
166.23

165.73

EIV,



W-6025 BS IH FS ELEV.

FBM

166.23

TP₁ 5.64 171.87 2.05 169.82

TP₂ 2.52 172.34 5.87 166.47

TP₃ 2.78 169.25 1.59 167.66

10.94

9.51

9.51

1.43

diff (1.43)

6/2/65

clear morning

for - rod

Jeff - level

B.M. Topo road elev.

166.23

PUMP
HOUSE

ELEV. ON CONCRETE
FLOOR

W-601

B.S. I.H. F.S. Elev

B.M.

16600

TP ₁	^{1.6} 4.74	170.74	^{6.8} 4.68	166.06
				$\frac{81.20}{84.20}$

TP ₂	4.94	171.00	5.85	165.15
-----------------	------	--------	------	--------

TP ₃	5.52	170.67	2.48	168.19
-----------------	------	--------	------	--------

TP ₄	6.42	174.61	2.25	172.36
-----------------	------	--------	------	--------

TP ₅	6.37	178.73	3.16	175.57
-----------------	------	--------	------	--------

TP ₆	5.59	181.16	3.14	178.02
-----------------	------	--------	------	--------

TP ₇	6.10	184.12	3.84	180.28
-----------------	------	--------	------	--------

TP ₈	5.68	185.96	3.27	182.69
-----------------	------	--------	------	--------

TP ₉	4.60	187.29	4.15	183.14
-----------------	------	--------	------	--------

TP ₁₀	4.94	188.08	4.02	184.06
------------------	------	--------	------	--------

TP ₁₁	4.10	188.16	7.74	180.42
------------------	------	--------	------	--------

TP ₁₂	.18	180.60 ⁵	13.01	167.59
------------------	-----	---------------------	-------	--------

TP ₁₃	.43	168.02	13.08	154.94
------------------	-----	--------	-------	--------

TP ₁₄	.11	155.05	12.62	142.43
------------------	-----	--------	-------	--------

TP ₁₅	.64	143.07	12.99	130.08
------------------	-----	--------	-------	--------

TP ₁₆	.15	130.23	12.25	117.98
------------------	-----	--------	-------	--------

109

60.51

108.53

6/3/65

cloudy afternoon

jeff - rod

jeff - level

B.M. Topo road elev.

166'

110

B.S. I.H. F.S. Elev. 117.98

TP₁₇ .35 118.33 10.48 107.85

TP₁₈ .05 107.90 11.70 96.20

TP₁₉ .49 96.69 11.72 84.97

TP₂₀ 2.92 87.89 6.09 81.80

2.51

39.10

60.51

108.53

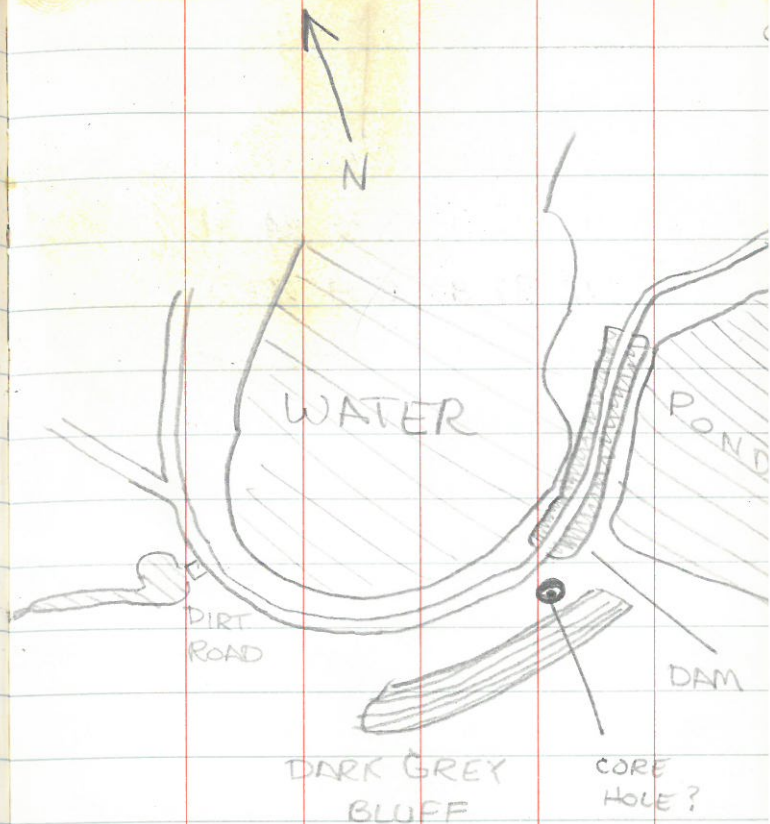
64.32

48.52

64.32

84.20

diff 84.20



6611 B.S. I.H. F.S. EIV

B.M

282

TP ₁	5	91	282.91	10.18	272.73	259.55
-----------------	---	----	--------	-------	--------	--------

TP ₂	40	273.13	8.38	264.75	22.45
-----------------	----	--------	------	--------	-------

TP ₃	70	265.45	6.54	258.91
-----------------	----	--------	------	--------

TP ₄	3.59	262.50	5.96	256.54
-----------------	------	--------	------	--------

TP ₅	3.92	260.46	4.85	255.61
-----------------	------	--------	------	--------

TP ₆	3.87	259.48	4.50	254.98
-----------------	------	--------	------	--------

TP ₇	4.87	259.85	2.85	257.00
-----------------	------	--------	------	--------

TP ₈	5.00	262.00	1.87	260.13
-----------------	------	--------	------	--------

TP ₉	5.28	265.41	4.89	260.52
-----------------	------	--------	------	--------

TP ₁₀	2.01	262.53	2.98	259.55
------------------	------	--------	------	--------

30.55

53.00

30.55

22.45

CORRECTED ELEV.

259.20

6/3/65

Cloudy afternoon

Jeff - rod

Jon - level

B.M. U.S.G.S

76 JWM

1951

281.628

EIV 282

Reading taken
at ground level
near core hole

W-5201 B.S. I.H. F.S. ELEV.

BM 290

TP₁ 4.79 294.79 2.78 292.01

TP₂ 3.38 295.39 3.42 291.97

TP₃ 3.16 295.13 5.46 289.67

TP₄ 4.20 293.87 4.08 289.79

15.53

15.74

15.53

21

CORRECTED ELEVATION

289.55

6/4/65

clear morning

Jon - rod

Jeff - level

B.M. USC+GS

C134 1954

ELEV. 290 Feet

289.76

289.55

289.79

TANK

GROUND

W-4992 B.S. I.H. F.S. ELEV

BM

290

TP₁ ^{5.4} 4.88 294.88 ^{4.3} 2.30 292.58

TP₂ 4.10 296.68 3.71 292.97

TP₃ 3.17 296.14 4.03 292.11

TP₄ 3.50 295.61 4.47 291.14

TP₅ 3.75 294.89 3.84 291.05

TP₆ 3.86 294.91 3.47 291.44

TP₇ 4.40 295.84 4.06 291.78

TP₈ 6.76 298.54 1.86 296.68

TP₉ 6.94 303.62 5.04 298.58

TP₁₀ 4.04 302.62 4.81 297.81

45.40

37.59

37.59

7.81

CORRECTED ELEVATION

297.57

C/4/65

clear afternoon

you - rod

jeff level

BM - USC + GS

C 134 1954

ELEVATION 290 FEET

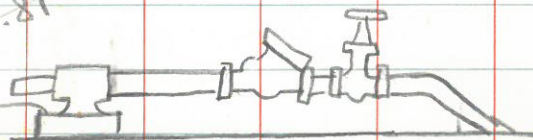
289.76

Diff =

+7.81

297.57

297.81



GROUND

W-3684 BS IH FS ELEV.

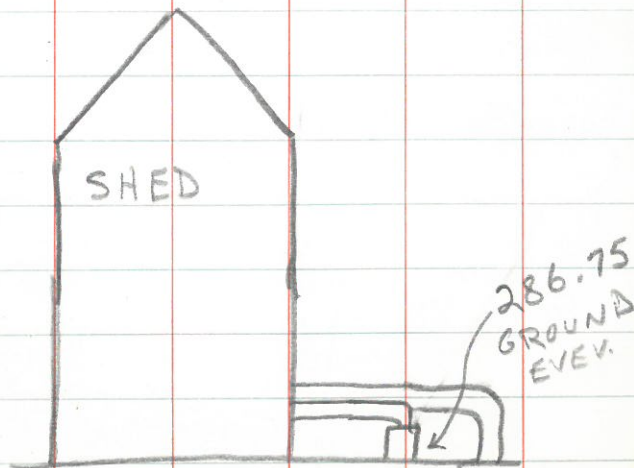
BM 287.4

TP, 4.86 292.26 5.51 286.75

6/4/65

off-level
iron rod

B.M. Established elev.
under Fla Forest Ser.
Fire Tower Quincy



W-6107 BS IH FS ELEV

6/7/65

BM 270

TP₁ 1.45 271.45 4.53 266.92

TP₂ 7.64 274.56 .27 274.29

TP₃ 7.40 281.69 2.22 279.47

6.49 7.02 279.47

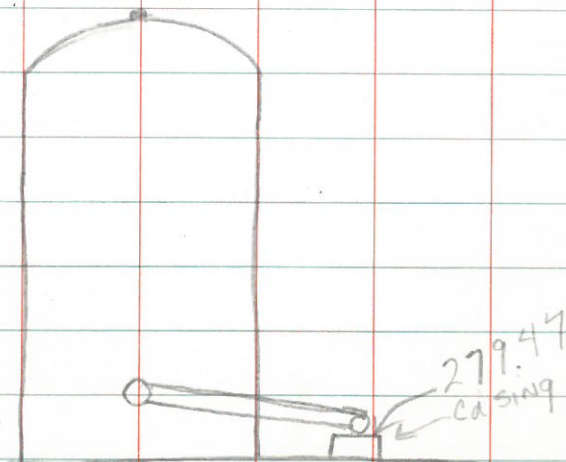
7.02 279.47

9.47

diff 9.47

95% cloud covered
relative humidity ^{morning} 99% thundering
jeff - level ^{nightly}
jon - rod

BM centerline paved road
270 feet



W-3078 BS IH FS ELEV.

TBM					291.97
TP ₁	2.38	294.35	5.16	289.19	277.52
TP ₂	4.96	294.15	5.47	288.68	14.45
TP ₃	3.25	291.93	5.69	286.24	
TP ₄	4.27	290.51	5.60	284.91	
TP ₅	2.58	287.49	4.93	282.56	
TP ₆	2.79	285.35	6.59	278.76	
TP ₇	5.91	284.67	.85	283.82	
TP ₈	3.03	286.85	5.75	281.10	
TP ₉	4.54	285.64	3.82	281.82	
TP ₁₀	6.63	288.45	5.31	283.14	
TP ₁₁	3.02	286.16	6.32	279.84	
TP ₁₂	2.50	282.34	5.26	277.08	
TP ₁₃	4.92	282.00	1.51	280.49	
TP ₁₄	8.19	288.68	4.41	284.07	
TP ₁₅	1.85	285.92	8.40	277.52	

60.82

75.27

CORRECTED
ELEVATION

277.28

6/7/65

slowly clearing up afternoon
gon-level
jeff-rod

BM USC+GS C 134 1954

290 289.76

TBM established from
previous work with USC+GS MARK
291.97



W-4404 BS IH FS ELEV.

BM 288

TP₁ 7.59 295.59 2.56 293.03

TP₂ 4.74 297.77 4.91 292.86

TP₃ 4.47 297.33 3.20 294.13

TP₄ 4.19 298.32 3.76 294.56

TP₅ 6.55 301.11 5.82 295.29

TP₆ 2.87 298.16 4.28 293.88

TP₇ 6.07 299.95 2.71 297.24

TP₈ 5.33 302.57 4.41 298.16

GROUND
ELEV.

+ 1.10

299.26

CASING

diff. 10.16

CORRECTED ELEVATION

298.37

6/8/65

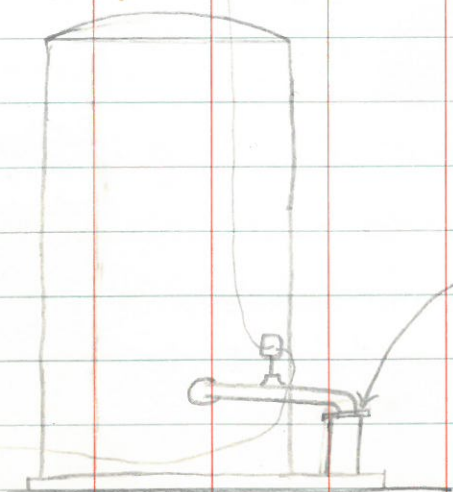
gon-rod
jeff- level

raining early afternoon

BM USC+68

S 133 1954 287.11

elev. 288



298.37
299.26
CASING

GROUND

W-5205

B.S. I.H. T.S. EIV

B.M.

266

TP ₁	^{2 2} 6.88	272.28	^{3 1} 5.69	267.19
-----------------	------------------------	--------	------------------------	--------

TP ₂	3.21	270.40	3.91	266.49
-----------------	------	--------	------	--------

diff =

TP ₃	5.39	271.88	3.60	268.28
-----------------	------	--------	------	--------

1.53

TP ₄	4.55	272.83	4.70	268.13
-----------------	------	--------	------	--------

TP ₅	4.04	272.17	4.64	267.53
-----------------	------	--------	------	--------

24.07

22.54

22.54

1.53

CORRECTED ELEV.

267.57

7/8/65

Jeff - road

Jon - level

cloudy afternoon

B.M. USGS

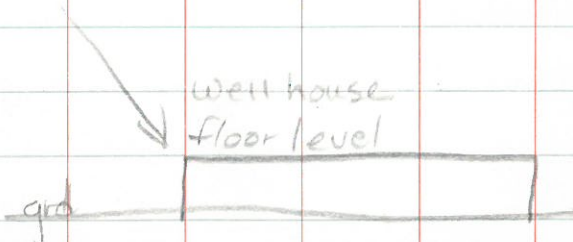
REL 2

1953

266.028

266 ft.

267.57



well house
floor level

W-5204	BS	IH	FS	ELEV
BM				294
TP ₁	^{3 3} 3.83	297.83	^{3 2} 4.79	293.04
TP ₂	4.71	297.75	4.65	293.10
TP ₃	4.46	297.56	5.82	291.74
TP ₄	3.59	295.33	5.35	289.98
TP ₅	5.00	294.98	3.84	291.14
TP ₆	6.85	297.99	1.01	296.98
TP ₇	5.39	302.37	4.46	297.91
	^{12 1} 33.83		29.92	
	29.92			
	3.9			

CORRECTED ELEV

298.02

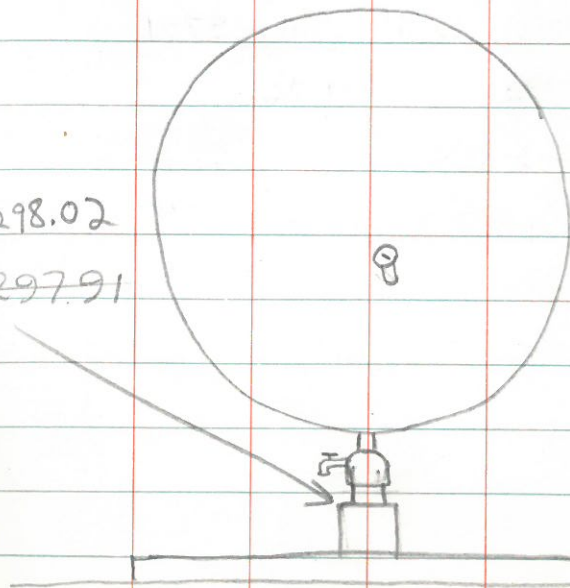
6/9/65

cloudy morning
Jon - level
Jeff - rod

BM USGS 4 REL TT 1953
294 FEET 294.105

298.02

297.91



W-6077 BS IH FS ELEV.

BM 187

3.5
TP₁ 11.48 198.48 2.05 198.43

TP₂ 11.76 210.19 1.02 209.17

TP₃ 7.24 216.41 3.50 212.91

TP₄ 5.55 218.46 2.57 215.89

TP₅ 7.09 222.98 .06 222.92

TP₆ 9.18 232.10 4.56 227.54

TP₇ 3.21 230.75 5.16 225.59

TP₈ 5.36 230.95 1.06 229.89

TP₉ 4.38 234.27 4.35 229.92

65.25

22.33

42.92

Diff =
42.92

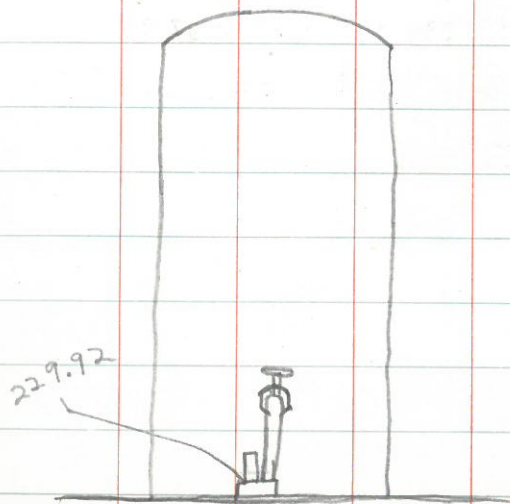
PARTLY CLOUDY AFTERNOON

JEFF - LEVEL

JON - ROD

BM TOPO ROAD CENTERLINE ELEV.

187



W-3276 B.S. I.H. F.S. Elev

B.M

TP ₁	² 3.28	272.28	³ 3.52	266.76	Diff =
-----------------	-------------------	--------	-------------------	--------	--------

TP ₂	1.44	268.20	3.18	265.02	1.54
-----------------	------	--------	------	--------	------

TP ₃	3.43	268.45	5.65	262.80	
-----------------	------	--------	------	--------	--

TP ₄	6.69	269.49	3.82	265.67	
-----------------	------	--------	------	--------	--

TP ₅	5.45	271.12	4.66	266.46	
-----------------	------	--------	------	--------	--

TP ₆	5.38	271.84	4.38	267.46	TBM
-----------------	------	--------	------	--------	-----

25.67

27.21

25.67

1.54

CORRECTED ELEV. 267.50

TBM at approx grd. level.
N. corner bottom step to E.

entrance to old farmer's
market platform ^{loading} 90 ft N of

present SE corner of bld.

7 ft. N of N End of steps to

133

loading platform.

6/9/65

Cloudy afternoon

Jeff - Rod

Jan - level

W.C. + G.S. B.M.

Z 154 1954

269 ft. 269.04

Could not find
casing Well no longer
in use. Originally
drilled under building
Reading taken at
ground level.

134

W 4407 B.S. I.H. F.S. Elev

B.m.

TP₁ 2 2 5.23 247.23 7.93 239.30

TP₂ .02 239.32 10.33 228.99

TP₃ .06 229.05 5.37 223.68

TP₄ 10.55 234.23 5.77 228.46

TP₅ .43 228.89 10.41 218.48

TP₆ 9.43 227.91 .46 227.45

TP₇ 9.86 237.31 3.74 233.61

35.58

43.97

35.58
8.39

242
- 3.61

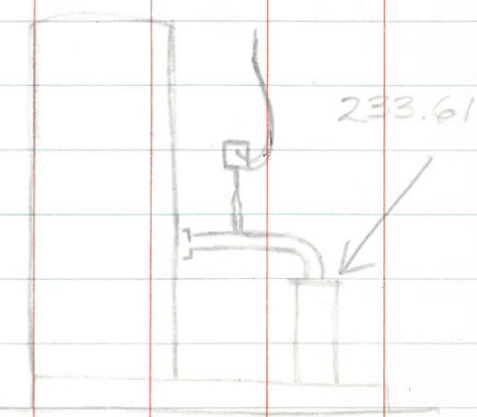
Diff =
8.39

Following 3
Days Rain 6/15/65

extreme overcast aft.

Jeff - rod
Jon - level

B.M. tops road
Elevation 242'



GRD

W6657	B.S.	I.H.	F.S.	E.I.V.	
B.M.	44		6		225.63
					145
TP ₁	8.95	153.95	5.22	153.77	80.63
TP ₂	13.15	186.87	.24	186.63	
TP ₃	12.78	179.41	.65	179.76	
TP ₄	12.50	191.26	.36	190.90	
TP ₅	13.04	203.94	4.64	199.30	
TP ₆	.15	192.45	12.14	187.31	
TP ₇	.02	187.33	12.70	174.63	
TP ₈	1.51	176.14	.24	175.90	
TP ₉	11.15	187.05	.88	186.17	
TP ₁₀	13.05	199.22	.29	198.93	
TP ₁₁	13.14	212.07	.12	211.95	
TP ₁₂	10.31	222.24	.38	221.88	
TP ₁₃	6.64	228.52	3.83	224.69	
TP ₁₄	5.00	229.65	4.06	225.59	
	121.39		40.76		
	40.76				
	80.63				

6/15/65

rainy afternoon

Jeff - rod

Jon - level

B.M. USGS

chiseled square

Elev. 145

144.66

TANK

225.29

E.I.V.

CONCRETE BASE

138

W 4798

B.S. I.H. F.S. EIV

B.M.

271

6/15/65
cloudy afternoonT.P.₁ 2.25 273.25 ¹5.30 267.95

266.14

4.86

TP₂ 3.40 271.35 5.59 265.76TP₃ 4.22 269.98 3.84 266.14

9.87

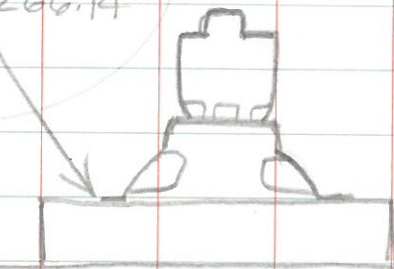
14.73

9.87

4.86

B.M. Topo road

Elev. 271

Elev. 266.14
BASE

Floor

W-4403 B.S. I.H. F.S. ELEV

BM

253

TP, 3.83 256.83 4.45 252.38

3.83

.62

Diff =

62

6/15/65

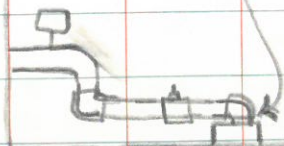
Jon - LEVEL

JEFF - ROD

BM TOPO. ROAD

ELEV. 253

252.38



W-3695 B.S. I.H. F.S. EIV

B.M.

215

TP₁ ^{2 3} 6.72 221.72 ^{3 4} 3.16 218.56

TP₂ 2.25 220.81 10.73 210.08

TP₃ .31 210.39 11.47 198.92

TP₄ .09 199.01 4.29 194.72

TP₅ 8.49 203.21 .43 202.78

TP₆ 11.32 214.10 5.48 208.62

5.03 213.65 3.69 209.96

34.21

39.25

34.21

5.04

Diff =

5.04

CORRECTED ELEV.

210.36

6/16/65

Rainy morning

Jeff - rod

Jon - level

B.M. USGS

REL 6

1954

215.399

215 ft.

210.36

~~209.96~~

EIV.

GRD

W-5705 BS IH FS ELEV.

BM

TP 4.33 269.33 5.95 263.38

TP 5.08 268.46 3.87 264.59

9.41

9.82

9.41

4

265.00

264.59

.41

diff

.41

6/16/65

SON - ROD

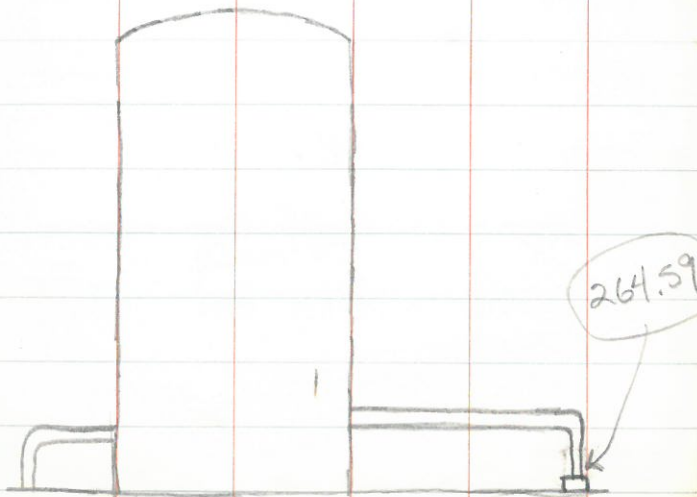
JEFF - LEVEL

cloudy AFTERNOON

BM

TOPO RD. ELEV.

265 FEET



264.59

W-350⁴ BS IH FS ELEV ASSUM.

BM

100

TP₁ 21 4.17 104.17 2.02 102.15

TP₂ 6.95 109.10 4.03 105.07 3.29
DIFF.

TP₃ .81 105.88 9.38 96.50

TP₄ 4.36 100.86 4.15 96.71

16.29

19.58

16.29

3.29

CORRECTED ELEVATION

238.67

6/16/65

Clear afternoon

ION-ROD

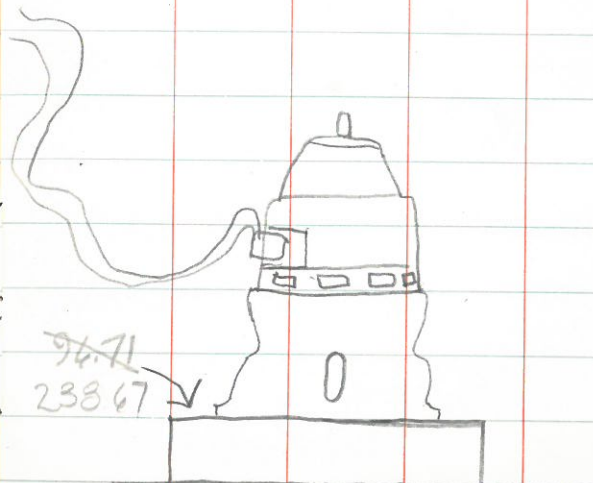
JEFF-LEVEL

BM

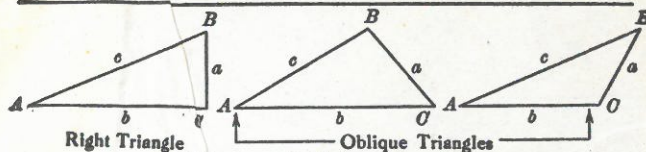
MA 164

241.95

1957
USC+GS



TRIGONOMETRIC FORMULÆ



Solution of Right Triangles

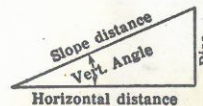
For Angle A. $\sin = \frac{a}{c}$, $\cos = \frac{b}{c}$, $\tan = \frac{a}{b}$, $\cot = \frac{b}{a}$, $\sec = \frac{c}{b}$, $\operatorname{cosec} = \frac{c}{a}$

Given a, b	Required 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	$B = 90^\circ - A$, $b = a \cot A$, $c = \frac{a}{\sin A}$
A, b	B, a, c	$B = 90^\circ - A$, $a = b \tan A$, $c = \frac{b}{\cos A}$
A, c	B, a, b	$B = 90^\circ - A$, $a = c \sin A$, $b = c \cos A$

Solution of Oblique Triangles

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

REDUCTION TO HORIZONTAL



Horizontal distance = Slope distance multiplied by the cosine of the vertical angle. Thus: slope distance = 318.4 ft. Vert. angle = $5^\circ 10'$. From Table, Page IX, $\cos 5^\circ 10' = .9959$. Horizontal distance = $318.4 \times .9959 = 318.09$ 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. $\cos 5^\circ 10' = .9959$. $1 - .9959 = .0041$. $318.4 \times .0041 = 1.31$. $318.4 - 1.31 = 318.09$ ft.

When the rise is known, the horizontal distance is approximately:—the slope distance less the square of the rise divided by twice the slope distance. Thus: rise = 14 ft. Slope distance = 302.6 ft. Horizontal distance = $302.6 - \frac{14 \times 14}{2 \times 302.6} = 302.6 - 0.32 = 302.28$ ft.