

K-2

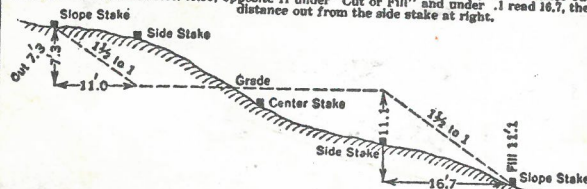
LEVEL BOOK

82 0040

DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING

Roadway of any Width. Side Slopes $1\frac{1}{2}$ to 1.

In the figure below: opposite 7 under "Cut or Fill" and under .8 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	Distance out from Side or Shoulder Stake										Cut or Fill
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
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.

Frank Eagan
Mgr. Wakulla Spgs.

S-251559

357

W. J. Smith

Book 66-1

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

Gravity Field Book

Property of:

Florida Geological Survey
P.O. Box 631,
Tallahassee

If found, please return
to: W.R. Oglesby
224-7141 Extension 602
Department of Conservation
Division of Geology
P.O. Box 631
Tallahassee, Fla.

Wakulla Springs
Wakulla County
Arran 15' Quad.
Date + Station/Inst. No. Reading El. Calib. INST. K Drift

Date + Time	Station/Inst. No.	Reading	El.	Calib. INST. K	Drift
8/16/66			Water Gauge		
9:18			3.15		
9:45	A	116.98			
9:53	1	116.83			
10:32	2	116.56			
11:30	3	116.63			
11:34	4	116.62			
11:37	5	116.56			
11:40	6	116.52			
10:39	7	116.45			
10:50	8	116.45			
10:56	9	116.49			
11:45	10	116.35			
11:55	11	116.30			
11:58	12	116.47			
12:01	B	116.47			
12:05	B	116.38			

Live A-B 50' Station
Mike Shepherd
Tidal Free Bousser Terrain Lat. Relative
Drift Air Correc Correc Correc Gravity

Tidal Drift	Free Air	Bousser Correc	Terrain Correc	Lat. Correc	Relative Gravity
	117.08	117.08			
	.1				
	2	117.03			
	116.76	116.76			
	2				
	3	116.93			
	.2	116.82			
	.2	116.76			
	.2	116.72			
	.2	116.65			
117.25	.8				

Meter No 738

Wahulla Spine's

Date + Time	Station No	INST Read	Date Time	Inst Read	Date Time	INST Read	Date Time	INST Read
8/16/66	A		8/16/66					
10:28	A	116.90	11:25	116.91	12:39	116.90	11:35 11:30	116.90
	1							
	2							
3:	3	116.79						
	4							
	5							
	6							
11:42	7	116.49						
10:53	8	116.45						
	9							
	10							
	11							
	12							
	13							
12:33	B	116.34	1:45	116.33	2:28	116.33	4:08	116.81
3:54	A	119.38	Reel after			motor shut	cleaner	

Date	Station	Inst	(Note)	Date	Station	Time	Start
TIME	NO	Real		Time	No		Point
8/16/66		8/16/66		8/17/66			
12:20	B-1	11616		10:27	11681	10:5	116.76
12:23	B-2	11626		10:30	11679	10:5	116.76
12:27	B-3	11638		10:33	11684	11:0	116.82
12:30	B-4	11619		10:38	11684	11:1	116.80

B-5

B-6

B-7

8/17/66

10:50 B 116.90

Date Time	Station No	Inst Read	Time Date	Inst Reads
--------------	---------------	--------------	--------------	---------------

8/16/66

2:43	C	11704	4:04	11743
------	---	-------	------	-------

51

Grade

2:46	C-1	11705		
------	-----	-------	--	--

11705

2:48	C-2	11705		
------	-----	-------	--	--

11705

2:50	C-3	11705		
------	-----	-------	--	--

11706

2:52	C-4	11713		
------	-----	-------	--	--

11715

2:54	C-5	11719		
------	-----	-------	--	--

11722

2:56	C-6	11719		
------	-----	-------	--	--

11723

2:58	C-7	11719		
------	-----	-------	--	--

11723

3:00	C-8	11723		
------	-----	-------	--	--

11728

3:03	D	11726	4:00	11770
------	---	-------	------	-------

3:08	D-1	11722		
------	-----	-------	--	--

3:10	D-2	11685		
------	-----	-------	--	--

3:18	D-3	11662		
------	-----	-------	--	--

D-4

Wakulla

8/17/66

Station	Date	Time	Reading	Time	Reading
1	8/17/66	12:47	11729	1:48	11735
2		12:50	11729		
③		12:54	11730		
4		12:58	11729	1:44	11730
5		1:03	11725		
6		1:08	11718		
7		1:12	11720		
8		1:17	11722		
9		1:23	11721	1:29	11724
⑩		1:35	11729		
11		1:38	11729		
12					

Intersection 267 & 61 10' Station
 500' South - River (Spring)
 Date: 8/18/66
 Road: Date: Reading:

9:05 11762 9:07 11759

9:09 11760 9:11 11760

Wakulla 8/17/66

Station Tide	Date Time	Inst Read	Time	Inst Read	Time	Inst Read	Time	Inst Read
A	8/17/66 9:22	11749	10:01	11748				
B	9:01	11695	9:34	11696	10:10	11690	10:23	11692
C	9:05	11763	9:12 9:12	11764	9:44	11757	10:15	11736
D	9:18	11785	9:56	11781				
Water Gauge	9:17	3019						

8 11687
9 11685

#1	#2	#3	#4	5	6	7	8	9	10	11
05	10	15	20	25	30	35	40	45	50	55
000	005	010	015	020	025	030	035	040	045	050

Drift
culvert near
1 hour
walk

11730

11729

11728

11727

11726

11725

11724

11723

11722

11721

11720

#1

11716

11718

#11

Wahulla Spring

Date

Read

Station

Time

Reads

Time

Reads

Time

Reads

Time

Read

Read

8/17/66

B

3:05

11695

3:10

11696

3:22

11703

3:37

11703

4:38
4:35

11711
11707

11711

E-1

3:17

11685

3:23

11690

3:22

11687

3:30

11690

3:31

11690

E-2

3:40

11693

3:46

11693

E-3

3:50

11696

3:54

11694

E-4

3:58

11698

4:03

11700

E-5

4:08

11705

4:12

11707

E-6

4:17

11713

4:18

11715

E-7

4:22

11725

4:25

11723

E-8

4:28

11724

4:30

11723

1173

1172

1172

1172

1172

1172

1172

1172

1172

1172

1172

Culvert #1 400' S Lake

61 + 267

Date

8/18/66 Water depth at center of S culvert tunnel
is 33". ~~Total~~
at center 5'.
See photo #1
culvert span 16'

Culvert #2 Road into
posts 8' apart.

Tunnel is dry
Diameter of Tunnel
is 5'

Fill is approx $\frac{1}{2}$ of
Tunnel height
Tunnel is 3' below
road surface
Photo #2

of S culvert tunnel
Water level to 1 D culvert
Surface over culvert 1'.
~~Width~~ Width of South
Total bridge width 19'

Wahulla Spring
A 5' B 9' C
on Tunnel

Station	Time	Feet	Time	Feet
1	9:29	11769	9:31	11767
2	9:38	11765	9:40	11761
3	9:35	11769	9:34	11767

Water Gauge level 3.16
8/18/66

Read from Wadulla Stages Entrance to Tallahassee

Date

Time

8/18/66

Time

Reads

Time

Reads

Time

Reads

Time

Reads

Time

Reads

Time

Read

No

F2=

G

H

I

J

G-1

G-2

G-3

G-4

G-5

G-6

G-7

T

10:52

11671

10:55

11666

10:55

11671

11:32

11671

10:33

11671

11:14

11755

11:12

11753

11:05

11624

11:06

11624

11:23

11740

11:25

11741

12:32

11668

12:34

11667

12:38

11670

12:40

11669

12:44

11669

12:46

11659

12:48

11658

12:52

11653

12:53

11654

12:57

11634

12:59

11635

1:03

11639

1:04

11639

1:08

11629

1:11

11635

1:12

11635

1:16

11639

1:17

11639

1:33

11622

1:35

11622

59V2319^R

59V2321^R

59V2323^R

59V2325^R

59V2327^R

59V2329^R

59V2331^R

8/18/66

Photo #3 Taken From

#4

Point I - entrance to Wakulla Spr.

looking N to Station 6

#5 Sink 60' from Rd from station E-7

200' Ft from hotel/entrance

#6 Sink in front gate 50' from sink #5

Note 10" pipe line carrying water from spring to tower

#7 Showing Stake B

(Geddy's tower) looking toward B-4

#8 Taken From point B looking toward E-7

#1 From Station A-8 looking to Station A. - at left side of hotel (Siflenah)

#2 ✓ at diving pier - in Spring

#3 From D-2 looking to Station D (Corner of fence near ticket office)

#4 From Water/Guiding Station West to diving tower & Spring mouth

#5 From Boat dock looking East down stream.

#6 From wharf to bank looking East - Grass & Sand bank.

Wabulla Sprgo 8/18/66

Station	Date Time	Perch
---------	--------------	-------

8/18/64

E-5	3:05	11715
-----	------	-------

F	3:12	11724
---	------	-------

K	3:20	11665
---	------	-------

L	3:25	11734
---	------	-------

M	3:33	11725
---	------	-------

Wahulla Springs

Date 8/22/66

B M Station Reading 4.8 Av.

A A-1 3.42 3.41 3.4

A-2 2.72 2.69 2.7

A-3 2.39 2.35 2.4

A-4 1.61 1.56 1.6

A-5 1.10 1.03 1.1

A-6 1.12 1.06 1.1

A-7 0.96 1.12 1.0

A-8 0.68 0.80 0.7

A-9

A-10

A-11

A-12

B

Difference
Height

1.4

2.1

2.4

3.2

3.7

3.7

3.8

4.1

Grade
while

.1

.2

.2

.3

.3

.3

.3

.4

Reading

8.96

7.86

7.42

6.52

5.88

5.78

5.51

5.12

Diff.

4.0

3.1

2.6

1.7

1.1

1.0

0.7

0.3

Spirit Levelling

Doyle Tour da



.7

.3



8/22/66

BM X (Inst.) A+

12.86 4.86

BM	Station	diff	Crack Diff
C	5.36	.6	0
C-1	5.40	.6	0
C-2	5.38	.6	0
C-3	5.50	.7	.01
C-4	5.57	.8	.02
C-5	5.65	.9	.03
C-6	5.78	1.0	.04
C-7	5.79	1.0	.04
C-8	5.95	1.2	.05

Wabulla Shays

Concrete Dock is 4.70' above mean sea level.

SPBM A to Dock is

9.38

4.70

14.08' Pt above Sea level at 'A'

4.82

9.26' less first length Station A.

C - 8.69

4.82

3.87

4.70

8.57'

above sea level

C-8

Station	Date Time	El.	Loss H ₂ O	El to Sea level	El Diff	Air Diff
C-1	8/23/66	4.65	+ .01	8.56	0	0
C-2		4.65	+ .01	8.56	0	0
C-3		4.76	- .10	8.67	+ .11	1.53 11875
C-4		4.74	- .08	8.65	+ .09	4.01
C-5		4.72	- .06	8.63	+ .07	+ .01
C-6		4.74	- .08	8.65	+ .09	+ .01
C-7		4.62	+ .04	8.53	+ .03	0
C-8		B.M.		8.57	+ .01	0

Objective is 4.66

8.57

	8/23/66 Time	Inst Read	Time	Read	Time	Read	Diff Error
C-1	10:50	11857					11861
C-2	10:46	11860					11864
C-3	10:43	11868					11871
C-4	10:38	11865					11868
C-5	10:21	11860					11863
C-6	10:15	11863					11865
C-7	10:06	11866					11867
C-8	9:54	11866	10:25	11869	10:50	11870	11866

Objective + 13.23'

10:11 11885

	El.	^{4.32} Diff	^{Song} El.	Date	Reels
				Time	
J-1	9.28	0	9.27	8/23/66 1:05	11873
J-2	4.32	.50	9.14	1:18	11870
J-3	4.10	.72		1:23	11865
J-4	3.91	.91	9.27	1:30	11865
J-5	4.09	.73		1:42	11866
J-6	3.36	1.46		1:45	11854
J-7	3.80	1.02		2:01	11859
J-8	4.80	.02		2:07	11864

Time	Reels	Time	Reels
1:35	11873	2:13	11873

	Inst	F1	
K-1	4.56		7.38
K-2		4.21	6.96
K-3		3.69	6.21
K-4		3.26	5.78
K-5		2.68	5.02
K-6	4.8	2.64	4.95
K-7		2.91	4.61
K-8		4.66	4.94
K-9	4.71	4.96	5.14
K-10	4.71		5.46

Diff	1/2 Str	Height
2.33	2.0	-2.4
2.01	1.8	-2.0
1.36	1.2	-1.3
.83	.7	-.8
.11		-.1
0		0
-.23		-.2
-.09		0
-.29		-.2
-.61		-.6

Wahulla

Station	Date	Read	Time	Read	Time	Read
	8/24/66					
K-1	9:09	11823	9:37	11826	10:51	11826
K-2	9:13	11816				
K-3	9:19	11816				
K-4	9:25	11805				
K-5	9:40	11802				
K-6	9:44	11801				
K-7	9:30	11803				
K-8	9:50	11800				
K-9	9:56	11797				
K-10	10:00	11801				
K-11	10:00	11798				

Block 11

8/24/64 Spent Leveling Gravel Diff Gravel Diff should be Add +.09 17 PLeas

I	51, 20	Inst 4.8	Reads	0	11622	0	Should be
---	-----------	-------------	-------	---	-------	---	--------------

G-7 5.6 - .9 11639 +.17 +.08 +.17 11647 6, 11629

G-68 4.8 5.7 -1.0 11635 +.13 +.09 +.22 ✓ 44 11623

6-6	4	5.1	- .4	1/639	+ .17	+ .04	+ .26	- .42	1/1622
-----	---	-----	------	-------	-------	-------	-------	-------	--------

5.4 -0.7 11635 $+0.3$ 11635 $+0.22$ ✓ 41 11623

G 3 4.8 6.0 -1.3 11634 +.32 4.12 +.21 ✓ 75 11634

G-2 5.4 - .7 11659 +.37 +.06 +.13 ✓ 65 11644

G-1 6.0 - 1.3 11659 : +.47 +.12 +.21 ~ 21 11648

(122)
6.8-2.1 11638 ✓ +.46 +.19 +.28 ✓ 87 11638

I	4.9
---	-----

[illegible]

7-2 4.6 5.4 (5.1)

[illegible]

$\bar{1}-4$ 4.5

I-6

8-24-66

Station	Time	Read	New Pattern Time	Read
I	1:41	11728	2:18	11740
I-1	1:36	11728	2:25	11740
I-2	1:30	11720	2:00	11732
I-3	2:05	11726		
I-4	2:08	11726		

Time

Time

Read

Diff
LevelCorrect
Circuit
Diff

520

319

229

11732	0	11740
-4		11736
-15		11729
+1		11727
+1		11727

8-25-66

Distances between points

I 319' I₁ 260' I₂ 259' I₃ I₄ I₅

Sprint Leveling 8/24/66

Station	Inst Height	Roads	Time	Inst Road	Time	Inst Road	Time	Inst Road
I-4	4.8	4.8	3:33	11736	3:59	11737		
I-5		5.2	3:42	11741				
I-6	4.8	5.0	3:45	11745				
I-7		5.2	3:48	11735				
I-8		5.6	3:54	11731				

Correction
between runs

	Grav Mgls	Inst Diff	Lat Corr	Blw Diff	Free An	Bump pds	Control	Point Mgls	
I-4	117.36		(.001)	0		0		117.36	-.12 117.24
I-5	117.41		117.42	-.4	-.0366	+1.001	-.037	117.46	117.34
I-6	117.45		117.47	-.2	-.0188	+1.001	-.019	117.49	117.39
I-7	117.35		117.38	-.4	-.0366	+1.001	-.037	117.42	117.30
I-8	117.31		117.35	-.8	-.0752	+1.007	-.075	117.43	117.31
I	117.40	+.02	117.38	-.4	-.0366	+1.001	-.035	117.30	117.30
I-1	117.40	117.37	117.34	-.5	-.1047	+1.001	+.046	117.30	117.30
I-2	117.32	117.32	117.30	0	0	0	0	117.30	117.30
I-3	117.26	117.26	117.25	+1	+1.009	0	0	117.24	117.24
I-4	117.26	117.25	(.001)	+1	+1.009	0	0	117.24	117.24

	Anty Unit	1st Drift	Lat Correct (.01)	Elav Drift
I	11622			0 0
G-7	11639		11638	-.9 -.08
G-6	11635		11632	-1.0 -.09
G-5	11639		11636	-.3 -.03
G-4	11634		11630	-.6 -.05
G-3	11653		11648	-1.2 .10
G-2	11659		11653	-.6 -.05
G-1	11670		11663	-1.2 .10
E-1	11671		11664	-2.0 .18

Ed Correct	Lat Error
11622	0
11630	-.2 11628
11623	-.4 11619
11633	-.6 11627
11625	-.8 11617
11638	-.10 11628
11648	-.12 11636
11653	-.14 11639
11644	-.16 11628

Aug 24 Road 61 at
~~Reads~~ Time Read Time
 I-2 19.5 6.1 10:03 11722
 I-2A 5.6 10:00 11725
 I-3 5.3 9:56 11719
 I-3A 5.1 9:53 11720
 I-4 19.3 El. 4.8 9:50 11722 10:05
 I-4A 5.1 10:04
 I-5 5.2 10:13

I-2
 I-2A
 I-1
 I-1A
 I
 G7A
 G7
 G6A
 G6

Wahulla Entrance
 Read Time Read El Diff El Corrected
 -1.04 -1.3 11712
 -0.64 -1.8 11719
 -0.40 -1.5 11715
 -0.24 -1.3 11718
 11723 10:27 11721
 11722
 11722
 -0.24 -1.3 11720
 -0.32 -1.4 11720

8/24/66 Wabulla Spres

W.S. to
Height

Roads

Elev

Time

Read

Time

Read

Read 61

Outside Springs

I-2

5.3

2:30

11756

I-2A

5.1

2:27

11756

I-1

5.1

2:23

11764

I-A

5.0

2:20

11757

I

4.8

20'

2:15

11762

G7A

5.0

19.8

2:11

11763

G7

5.6

19.2

2:08

11766

G6A

5.6

19.2

2:05

11766

G6

5.8

19.0

2:00

11766

G5A

5.0

19.7

1:55

11761

G5

4.9

19.8

1:50

11768

G4A

4.8

19.9

1:46

11770

G4

4.8

19.3

1:42

11767

2:35

11775

2:53

11781

2:55

11780

G3A

5.0

~~2:22~~~~11783~~

2:43

11784

2:45

11787

2:59

11788

G3

5.2

3:03

11792

G2A

5.5

3:08

11798

G2

5.8

3:10

11798

Real
Distances

Along line

I and G.

I	100	I-A
I-A	100	I 1
I-1	100	I 2A
I 2A	100	I 2
I 2	100	G 7A
G 7A	1100	G 7
G 7	1100	G 6A
G 6A	100	G 6
G-6	100	G 5A
G 5A	100	G 5
G 5	100	G-4A
G-4A	100	G 4

Stake off entrance to Whella Spur.

11785
11767
18

From last base

Time Real Time Pents

G-1A	6.2	3:14	11785	
G-T	6.4	3:19	11809	3:31
G 4		3:25	11785	11807

H₂
lost

Depth

8/25/66

Time Depth

G2	4.6	9:36	11787
G1B	4.7	9:34	11790
G1A	4.6	9:30	11791
G1C	4.4	9:25	11790
G-1	<u>4.8</u>	9:00	11795
F	4.9	9:03	11802
F1	5.2	9:07	11802
F2	5.4	9:13	11803
F3	5.8	9:17	11808

50' between Stations

Time

Depth

Ele
Correct

Correction

Air
Correct

				t. 2	11789
				t. 1	11791
				t. 2	11793
				t. 4	11794
9:22	11794	9:40	11798	0	11796
				- .1	11801
				- .4	11798
				- .6	11797
				- 1.0	11798

Run 5 Blue Sink - Leon City Aug 25, 1966
 Station Road Diff Time Points

1	6.00	-1.2	1:25	12576	1:50	12578	12565
2	5.94	-1.1	1:29	12575			12565
3	5.20	-.4	1:33	12575			12571
(4)	(4.8)	0	1:37	12570			12569
5	4.68	+0.1	1:40	12569			12569
6	5.50	-.7	1:43	12575			12567
7	6.60	+1.8		12589			12570

A-1

(1) Run II

A-1 5.3

A-2 5.8

A-3 5.9

A-4 5.7

Inst Height Station (4)

4.8

Inst Height Station (1) 25'-0"

Corrected to Run I

12586 12580 12568

12578 12566

12584 12572

12581 12569

12580 12568

Blue Soil

Fallen

Crabapple

61

Waterbury

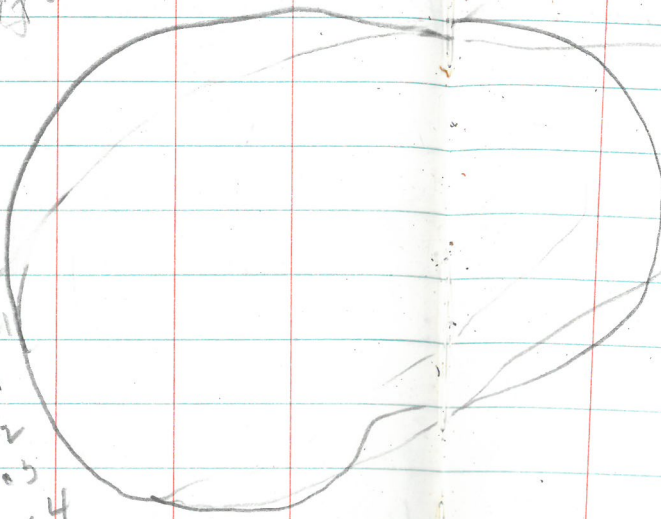
1

2

A-A
A-3
A-2
A-1

1
2
3
4

5 6 7
50 Below Station



Aug 29, 1966

Tallahassee Base Q 155 1954

Time	Reading	Time	Reading	Time	Reading
10:11	12645	10:15	12645	11:38	12654

Drift Corrected - 14 pps

2 150 1954

11:28	12593	11:30	12593
-------	-------	-------	-------

Drifton Base 224-1834

2:50	13391	2:53	13392
------	-------	------	-------

Drift Corrected - 8 pps

13384

US Coast & Geod Survey

Drifton 979.3616

Tallahassee 979.3543

US Coast 7.3 mps. 0073

Time	Reading	Time	Reading	Time	Reading
11:42	12655	3:50	12667	3:54	12671

(Not recovered)

Florida Geod Survey

13384

12654

730

$\times$ Calibration Correction
 $= 7.28394$

Fla 7.28 mps.

Theoretical gravity

anomalies - buried cylinder

$$K_1 (\text{mg/s}) = \frac{12.77 \times \delta \times R^2}{z} \times 10^{-10}$$

12.77 (derived constant)

δ = density contrast

R = radius of cylinder

z = depth of burial

limestone cavern $\pm$ water (fresh)

in kilo feet.

in kilo feet.

R	R^2	δ	z	K_1	R	R^2	δ	z	K_1
.005	.000025	2.5	.005	.162	.020	.0004	1.5	.10	.110
.010	.0001	2.5	.010	.32	.030	.0009	✓	.10	.110
.02	.0004	1.5	.020		.040	.0016	✓	.10	
.03	.0009	1.5	.030		.050	.0025	✓	.10	
.04	.0016	1.5	.040		.060	.0036	✓	.10	
.05	.0025	1.5	.050		.070	.0049	✓	.10	
.06	.0036	1.5	.060		.080	.0064	✓	.10	
.07	.0049	1.5	.070		.100	.01	✓	.10	

Continued

R

R R² σ z

.01 10001 2.5 102

- - - 103

- ✓ - 104

- ✓ ✓ 105

.02

.02

.02

.02

.03 0009 2.5 103

.03 ✓ 2.5 104

.03 - 2.5 105

.03 ✓ 2.5 106

K

.16

.11

.08

.06

.96

Blowing Hole Cave

Elevation of A = 200'

A-1	4.6	0	B-1	1.9	2.7
A-2	4.5	+1.1	B-2	1.3	13.3
A-3	3.7	+1.9	B-3	1.0	+3.6
A-4	3.2	+1.4	B-4	0.5	+4.1
A-5	3.0	+1.6	B-5	4.1	+4.5
A-6	2.6	+2.0	B-6	3.7	+4.9
A-7	2.2	+2.4	B-7	3.2	5.4

Station Time Road Time Road Time

A-1	2:53	13611
A-2		
A-3		
A-4	3:00	13604
A-5		
A-6		
A-7		

8/31/66

Pourcey
Hendry
Oglesby

(Prob. frag)

C-1	3.8	+4.8	Bm
C-2	3.5	+5.1	A-1 200.0
C-3	3.2	+5.4	Bm B-4 204.1
C-4	2.5	+6.1	
C-5	2.0	+6.6	A-1 last Hg 4.6
C-6	1.5	+7.1	B-4 - - 4.5
C-7	1.2	7.4	

Road Station Unit Road

C-1			
C-2			1.3
C-3			1.3
C-4	13:07	13573	4.1
C-5			4
C-6			
C-7	3:10	13560	3:13 13550

Dunes Cave 9/1/36

Station	Reels	Roll	Time	Reels
191	9.1	-4.2	10:34	13625
9-A	9.3	-4.5	10:37	13625
9-B	9.3	-4.4	10:40	13628 13625
1-A	4.3	+1.6	11:02	13585
1-B	4.0	+1.9	11:07	13582

Photo

- #1 From 1-B to Oglesby at 5
- #2 From 4 to - at cave
- #3 From Cave towards 5 incl cave
- #4 From 2 to small hole
- #5 5' in front of 2 to - -

Extended Station

4.5
2.9
/ 6
1.6
4.1

Dunes Cave

9/1/66

Station	Instr	Reels	Off	Handy Time	Reel	Oglesby Time	Reels	Handy Time	Reel	Oglesby Time	Reel
1	4.9			2:08	13594	2:09	13594				
C-1		3.9	+1.0	2:12	13589	2:13	13588				
C-2		4.2	+0.7	2:16	13591	2:17	13591				
C-3		4.8	+0.1	2:18	13591	2:19	13595				
C-4		5.2	-0.3	2:22	13595	2:23	13595				
C-5		6.2	-1.3	2:25	13605	2:26	13605				
C-6		6.8	-1.9	2:37	13616	2:39	13617				
C-7		7.7	-2.9	2:42	13619	2:43	13619				
1	4.9			2:33	13597	2:35	13598	2:45	13595	2:47	13596
2	4.9	5.5	-1.6	2:28	13601	2:29	13601				
1	4.9			3:18	13597	3:20	13598	3:41	13600		
D-1		3.8	+1.1	3:22	13594	3:24	13596				
D-2		3.6	+1.3	3:28	13594	3:27	13594				
D-3		3.4	+1.5	3:45	13597						
D-4		3.1	+1.8	3:50	13594	3:48	13595				

9/2/66 Blaming Hole

10' between stations

Station	Time	Read	Time	Read	Time	Read	Time	Read	Time	Read
---------	------	------	------	------	------	------	------	------	------	------

C-4

C-7 Henry

B-1 9:32 13621

B-2 9:30 13614

B-3 9:27 13611

B-4 9:10 13605 9:25 13604 9:35 13605 10:57 13606

B-5 9:15 13605

B-6 9:18 13601

B-7 9:22 13598

Time Reads 9/2/66

Porency
Time Read

Time Read

Time Read

Time Read

A-1 10:15 13637

A-2 10:12 13637

A-3 10:08 13633

A-4 10:03 13625

A-5 9:53 13623

A-6 9:50 13619

A-7 9:45 13611

B-4 9:38 13603 9:58 13604 10:18 13607 10:58 13606

9/2/66.

Blowhole

Depth

Time Read

Time Read

Time

Read

Entrance

Cave

10:39 13588

10:42 13590

10:43

13591

C-1 10:22 13598

C-2 10:25 13597

C-3 10:29 13597

C-4 10:32 13588

C-5 10:47 13585

C-6 10:45 13585

C-7 10:52 13582

B-4 10:18 13602 10:35 13604 10:54 13605

Cave Entrance
is 3/10 lower
than C-4

9/12/66. Hendry - Collier Cfs. Route 29 - S. Fla shelf.

Sun Oil Co - Ft Meyers

Walter Erwin 9/12/66 AM.
9/14/66 PM.

Lee Cfs, Paul Bt Ed 4-2471

Time + Clinger 404 try

Gravity Bases U.S.C. & G.S.

	Observed	Theoretical	Difference (gals)	Theoretical
Ft Meyers	979.0842	979.0854	- .0012	
La Belle	979.1074	979.0941	+ .0133	
Naples	979.0169	979.0493	+ .0324	
Difference - Ft Meyers to Naples			.0673	.0361
Ft Meyers to La Belle			.0232	.0087

Ft. Meyers Court House B.M.

Elev	Time Read	Time Read
V-37		
11:40	11:40 0139.1	11:34 0140.0
11:46		
11:53	12:41.03702	2:28 037.19

to La Belle Court House

Ft Meyers Ct House

La Belle Ct House. Not Recovered.

La Belle to Miles City

Station Description → Elev.

D-73. La Belle Cont. House. - Not Recor.

✓
① 40 RC 1952 USGS BM. Brass Plate 22.174
22-0

② 41 RC 1952 USGS BM. Brass 26.568
27'-0"

③ 42 RC 1952(?) USGS MM - 28.624
29-0

④ Not found
43 RC 1952 28.322

⑤ Marker Found - Disk Buried
USGS 36'

Dial Reset at Bob's Motel

Time	Read	Time	Read	Time	Read
1:13	11210	1:18	11210	1:23	11213
1:43	11216				

9/13/66

Time Read Time Read Time Read

9:27 03722 10:39 03717 12:00 03733

4:53 14157

9:39 03324 4:43 13757

10:03 02000 4:34 13437

10:25 02704

11:27 01287 12:22 01323

Immokalee

Time	Read	Time	Read	Time	Read
11:28	11215	1:33	11215	11:38	11215

La Belle to Miles City

9/13/66

Station	Description	Elev	Time	Real	Time	Road	Time	Road
D-73	La Belle Ct House		2:37	14139				

①
40RC1952

1410

14139

② BM Not Recovered
09-051-103

+28

3:52 12773

11723

2416

③ Roadside 28-44S-29E (SWen)
09-051-104

+33

3:36 12455

④ Roadside - 9-45S-29E

+30

3:25 12103

⑤ ^{field book} USC+GS Willis Grocery
Landmark Witness Post

36

2:13

11723

3:00

11724

4:05

11739

Kilda to Miles City

Station ^{Kilda} ~~BM #2~~ Description
USCGS. ^{Bar} Willis Creek
Witness Post only
09-051-020 ✓

9/14/66
El. Time Read Time Read Time Read
36 9:33 11734 10:19 11738 10:57 11729
11:38 11729

⑧ NW 1/4 Sec 4-46S-29E
09-021-100 NE End Culvert at water level ± 39' 10:41 11560

⑪ BM. ✓ Sec 8-46S-29E
09-021-101 Not recovered. ± 38' 11:07 11265

⑫ 09-021-103 W 21 ^{Remains} 46S-29E ± 39' 11:23 11010

⑬ BM. Not Recovered.

⑭ BM ^{Fig 13} SRD Brass in Bridge
Pillar Sw Cr. 34' 10:00 10623

Station
BM #3
Fla SRD

Description

Fl

Time

Read

Time

Read

14

Brass Plate at Culvert
Innivallee - ~~Barred~~ Phone

34'

12:48

10629

1:50

10638

2:03

10665

8:30

10629

9010 less diff. 04

16.18

Innivallee Bar = 979.0723

162

979.0561

This is too high by 2.3 mgs.
Reading may be at wrong side

2/19/70

BM #4
Fla SRD

Dish at S E Cr
Bridge W of Hog Island

1:15

09014

Sun Oil Co - Fc/da-

Red Cattle 32-2 Φ

Station El Time Read Time Read

Well
Head
Base on
Road

W-300'

9:50 11578

W-500'

9:54 11576 10:55 11572

S-100'

10:00 11564

S-200'

10:06 11558

S-300'

10:12 11557

S-400'

10:15 11552

S-500'

10:22 11549

W-400'

10:27 11545

W-200'

10:30 11548

W-100'

10:35 11560

E-100'

10:41 11566

E-200'

10:45 11572

E-300'

11:01 11568

E-400'

11:04 11575

11:07 11581

11:10 11585

ESAD
founded
Drift

11578

11576

11564

11559

11558

11554

11551

11547

11550

11563

11569

11576

11573

11580

11586

11591

9/15/66

25 36-26 26

Carve
El. El.
Roads Diff

5.8

5.1

5.5

5.2

5.3

5.3

5.4

5.7

5.2

5.1

5.0

4.9

4.9

5.2

5.6

1mmuchalee to mile City

9/16/66

Station	Description	Elev.	Time	Reals	Time	Reals	Time	Reals
BM #3 1mmuchalee Post	Fla S.R.D. Bridge Culvert	34'	8:23	10690	9:23	10687	10:25	10691
#15	Road shoulder SW 1/2 47529E	± 30	2:00	10686				
			8:35	10506			021-104	
#16	Road Crossing RR. Trail: at track 19-478-29E	± 25	9:00	10284			021-105	
#17	RR Crossing Road at BM Old Hammock intersection	± 25'	9:35	10108			021-106	
#18	At road	Sec line 5+32+ 475+485 30E ± 25'	9:43	09891			021-107	
#19	Ground level	485 30E Sec 8. ± 24	9:53	09702			021-108	
#20	Road Shoulder	17 485 30E ± 20	10:00	09600			021-109	

Sumnerland to Miles City

9/16/66

Station	Description	Elev	Time	Read	Time	Read	Time	Read
BM #4	Bridge at Hug Island	21'	11:20	08832	12:12	08830	12:40	08834
#26	Falchukhater Cons. Club Road level	± 22'	11:35	08835	(See back page for BM #3)			
			11:27	08821	021-110			
#27	Miles City Lockhart farm big	± 15'	11:36	08724	021-111			
#28	NW corner Sec 32 49S-30E	± 15' (?)	11:45	08839	Elev. 021-112			
#29	Flag SRD. BM at under old miles city Bank	17.81'	11:55	08420	omit			
#25	Road shoulder	± 20'	12:20	08983	021-113			
#24	Flag SRD BM. Bridge 128	± 20'	12:30	09071	021-114			
#22	Sumnerland Hg Wall road with tower	± 20'	12:55	09303	021-115			
#21	GCRC #18 Ground	?	1:07	09450	021-117			
#23	49S-49S line 30E	± 15'	1:27	09184	021-116			
#30	GCRC #5		1:15	09450	021-116			
					021-118			

Walton Cty

#145 D1 1933 USGS.

#1 Vaughan White Gate

#1 Kohler to H ones on

#1 Matzen White House

#1 Melley - Sandy Creek

#1 Smith Iron Gate at

#1 Ward Sand open rd

9/22/66

BM.

Spotyem Home West Rd left

W. side rd. small piece.

w/dornes pear sale.

Chuk - opp brick house (BM)

City line to 150 yds of field end

Felda to LaPelle

Station	Description	Elev
BM #2 USCIGS	W. 1st Cr. St.	36

USGS BM 55EEB	NE 20 45S 29E	33.670
31	MT 2nd Church Cr. St.	34

32	Roadside NENE 17 45S 29E	± 32
----	-----------------------------	------

33	W/2 4-45S-29E	± 34
----	---------------	------

BM (8)	USGS 51BC NENE 32 45S 29E	38
--------	------------------------------	----

BM (10)	NE 8 at road. MT 2nd 48S 29E	± 38
---------	---------------------------------	------

34	NENE NE 20 46S 29E	± 42
----	-----------------------	------

34

Felda - Immanuel

9/16/66

Time	Read	Time	Read	Time	Read
3:15	11799	4:08	11803	5:10	11816

3426	11956	09-051-021
------	-------	------------

4:00	12085	09-051-106
------	-------	------------

3:42	12285	09-051-107
------	-------	------------

4:18	11702	09-051-108
------	-------	------------

4:33	11487	09-021-116
------	-------	------------

4:58	11130	09-021-117
------	-------	------------

Ste Rd 83 Line Wallen City

9/23/66

Station	Description	Elev	Time	Reals	Time	Reals	Time	Reals
BM I	30-M-9-USGS 1966	168.42'	7:15	16959	9:50	16975		
BM II	V-10 (page 1127 Bul 132) ^{USGS}	259.76'	9:19	12728	10:21	12733	11:25	12745
BM III	TT32 D 1933 - Front ^{USGS}	32.12'	10:57	12675	1:33	12687	2:57	12688
BM IV	T49 C 1942 - Bruce Bm ^{USGS}	50.0'	1:08	11934	1:58	11938		
BM V	TT45 D 1933 ^{USGS BM} Red Bay West	183'	2:35	12070	3:20	12071		
BM A	500' S' Road that on line ^{USGS} 1953	?	3:35	12146				
BM VI	USGS BM TT34 D 1933 ^{Sec 11 2N 19W}	200'	3:42	12020				
BM B	USGS BM T85 1934	193'?	3:58	12138				

↙ Junction 331 + 282

Walton Cts -

9/24/66

Station	Description	El	Time	Read	Time	Read	Time	Read
BM I	Asphalt 1966	168.42	7:47	16989	8:55	16989	10:33	17000
1	USCGS. A2 MK. 1938	227.67	8:00	16557				
2	USGS BC 49 1947	135'	8:12	17136				
3	Point on top of Rock Near Oak Grove Church	117'	8:38	17184	9:10	17187		
4	See 34 at Pitt + Black Mt. Inter.	127'	9:37	16832				
BM VII	USGS BC 45 - 1947	315'	10:03	14358				
BM VIII	Side of #1 Mullen 3rd Ave. Boundary	?	10:54	16203				
BM I	FLASR BM							
5	BM Top Broken See 23 5N 1940	168.42	11:14	17003				
		215	11:36	15574				
BM II	USCGS 410 - 1917	259.76	12:58	12769	1:32	12778		
BM IX	Argyle RR Station	151.71	1:18	12698	2:00	12785	2:05	12791
6	USCGS P 169 1955	?	1:42	12925				
7	USCGS Argyle 1953	?	1:52	12793				
BM IX	Argyle RR Station	151.71	2:07	12790	3:00	12794		
8	USGS BM TT 41 D 1938	139'	2:40	13173				
9	#1 Kohler	279.94	2:53	12483				

Argyle to Red Bay

9/24/66

Station	Description	El	Time	Read	Time	Read
BM IX	Argyle RR Station	151.71	3:00	12794	4:00	12798
10	x Road 24 2N 18W Valley Church (Top Sect)	± 212	3:25	12380		
11	See Top Sheet SBC on Sec 21 2N-18W	± 201	3:42	12357		

Rock Hill - Red Bay

9/25/66

V		183'	8:05	12095	9:10	12098
12	#1 Seepman		8:10	11986		
13	USCGS. TT 44D Not Recovered	± 177.108	8:35	12053		
14	Road at Red Bay SE Sec 9 2N-17W	± 188	8:55	11866	9:30	11871
15	Church Cr. Sec 15+16 (Wells)				10:33	11870
15	#1 Vaughan 2N-17W	184.2	9:35	11876		
16	Road Crossing near Church Sec 4 2N-17W	± 48	10:18	13038		

DeFuniach - Rock Hill

BM II		259.76	12:50	12796	2:30	12809
17	USCGS Belle 1953 Sec 3 3N+19W	210'	1:06	12626		
18	Sec 23 2N-19W S 00 F 19330738?	?	1:15	12516		
19	Sec 35 2N 19W TT 35 D 1638 USGS	203'	1:28	12387		
20	USG+GS D 141 1953 Sec 35 3N 19W	?	1:38	12482		

De Funiak to Rock Hill
to Freeport

Station	Description	Elev
21	USCGS ^{approaching} C 141 - 1953 2-2N-19W	?
BM VI	USCGS section 23+24	200'
22	D 85-1935 1N 19W	119'
23	USGS TT 330 1933	96'
24	USCGS ^{5 1/2 sec 3} C 139 1953 1S 19W	?
BM VII	Free port	

BM I	De Funiak Station	
27	St Rood 183 USGS BM	Resat 1960 (flipped) BC 39 1947
28	J. M. M. M.	?
29	Fla SRD Bridge SEC	?

Cont'd

9/24/66

Time	Read	Time	Read
11:46	12246		
2:05	12079	2:48	12079 3:50 12084
3:00	12500		
3:08	12593		
3:22	12655		
3:33	12750	4:04	12755

9/25/66

10:54	12803	12:00	12807
11:09	13361		
11:23	13723		
11:37	14663		

#1 Smith to #1 Miller

Station	Description	FI
BM VII	Darlington Bridge FSRD	?
25	Smith #1	132.76
26	Ward #1 Sandspur Int.	314.02
BM VII	Miller #1 ^{USGS Bm} BC45 1947	315
BM VII	Fla SRD	
	BM 60-3	314.07

Freeport to Pt. Washington

BM VII	Freeport	
30	USC+GS G 178 - 1957 Sec 22 18-19W	?
31	USC+GS J 178 - 1957 Sec 34 15-19W	?
32	USC+GS M 178 - 1957 Sec 20 25-19W	
33	P. Washington West Base 1938	
34	USC+GS A 182 Reset 1962	
35	Point Wash East Base USC+GS 1933	

9/25/66 Walter City

Time	Real	Time	Real	Time	Real
8:18	16246	9:02	16245	9:40	16248

8:35 16701

8:50 16019

9:18 14396

9:22 14396

9/25/66

1:00 12759 2:15 12759

1:12 12658

1:25 12568

1:45 12250

1:55 11967 3:23 11981

2:57 10469

3:05 10474 3:40 10478

FSU Campus

9/27/66

Free Air
+Bouyer
.06 ^{Grad}

Station	E.I.	Reals	Diff.	Grav. Reading	Time				
1	99.4	5.6	-.6	12013	10:04				12009
2		5.5	-.5	12012	10:02				12009
3		5.5	-.5	12015	10:00				12012
4		5.4	-.4	12011	9:58				12009
5		5.3	-.3	12011	9:56				12009
6		5.2	-.2	12009	9:54				12008
7		5.1	-.1	12005	9:53				12004
8		5.0	0	12007	9:51				12007
A	800.0	5.0		12010	9:48	12009	10:08	12011	10:25
9		4.9	+.1	12008	10:10				12009
10		4.8	+.2	12004	10:12	12008	10:28		12009
11		4.7	+.3	12005	10:15	12006	10:31		12009
12		4.6	+.4	12009	10:17				12011
13		4.5	+.5	12007	10:18				12010
14		4.4	+.6	12004	10:20				12008
15		4.4	+.6	12008	10:21				12012
16		4.4	+.6	12009	10:23				12013

FSU Canbu 9/27/66

Ready diff ^{Grow} seedling time

1

2

3

11

A

12010 10:52

B-6

5.1

12011 10:56

B-7

5.0

12015 10:58

B-8

5.0

12012 10:59

B

100.1

4.9 to .1

12013 10:53 12014 11:07

B-9

4.8

12015 11:01

B-10

4.8

12016 11:03

B-11

4.8

12013 11:05

F.S.U. Campus

9/28/66

Dem. School

[illegible]

F.S.U. Campus 9/28/66.

Station EI Reads Differ

1
2
3 5.2 -.6

4 5.0 -.4

5 5.0 -.4

6 4.9 -.3

7 4.8 -.2

8 4.7 -.1

B - 4.6 0

9

10

11

12

13

14

15

16

Time Grav Time Grav time Grav
Reads Reads Reads Reads

10:58 12038

10:57 12038

10:55 12039

10:53 12035 11:12 12037

10:50 12034

10:47 12037 11:09 12037

10:44 12032 11:01 12038 11:14 12040

Venice to Punta Gorda

Oct 3, 1966

Station	Description	EI	Time	Reads	Time	Reads	Time	Reads
BM A	Relocated RR Station Venice Base	X-38	7.756	11:11	12209			
BM B	Countdown Punta Gorda Base	L-38	10.164	10:17	10800	12:50	10800	11:20 10800

BM B Relocated 1961
reading taken at step on level with BM (3' from top step)

BM A Venice RR Station X-38 7.756 3:12 12204

BM C USC + 65 N 38 Road 1961
16-405-22E Prod Charlotte Base 11' 1:00 11431 1:42 11430 5:31 11434

1 USC + 65 S 255-1965
Intersection 775 + 41 - S. Venice ± 16' 2:40 12492

2 Shamrock Blue
at 41 Venice ± 18' 2:50 12285

3 ± 16' 3:54 12728

4 Sarasota Cty BM 788 6.35 4:19 12670

5 USC + 65 1934-1955
Hawthorne 8.969 4:35 12458

BM D USC + 5. BMS-38
1938 4:45 12414

Oct 3, 1966 Continued.

Station	Description	Reset	El
6	USCGS R-38 1961		12'
7	Summita Charlotte Hwy (41)		120?
	USGS 1952 78ERS		

Venue to Punta Gorda

Time	Reel	Time	Reel	Time	Reel
5:00	12068				
5:17	11896				

Oct 4, 1966 Hwy (41)

BM E	Port Meyers Court House		
BM B	Punta Gorda Court	10.184	
8	USCGS H-38 1933		
9	34 415 23E 1965	21.916	
10	USGS 104 ERS 1952		
11	Sec 35-43S 24E	12'	
12	Fla SRD Sec 35 Bridge 12-1950	22?	
13	Fla SRD Bridge 11 Sec 35		
14	Fla SRD Bridge 13 Sec 16 43S 24E	22?	
15	Fla SRD Bridge 14 Sec 9 43S 24E		
16	Charlotte Lee Hwy		
17	BM N. Recre S-43S-24E	23.622	
	USCGS P 255 1965		
	Sec 2 42S 23E		
	USCGS J 255 1965	13.917	

Punta Gorda to Ft Meyers

8:28	06666	10:02	06666	11:06	06672
9:15	10823	2:34	10835		
9:34	10453				
10:20	07373				
10:39	07799				
11:41	07529	12:48	07534		
11:58	07899				
12:10	08539				
12:16	08429				
12:32	08875				
2:00	10279				
2:18	10676				

Oct 4, 1966

Station

F-119 Desc./from

18

USC+GS ~~F-119~~ 1945 ~~5.164~~

Sec 18 415 23E 4.567

USC+GS J 38 1933

19

20 415 23E 4.531

~~20~~

21

V3-425 23E

Roadside at Canal

22

Sec 11+12 425 23E

Roadside

20

Road Intersection

E1

~~5.164~~

4.567

4.531

4.531

4.531

4.531

4.531

4.531

4.531

4.531

4.531

4.531

4.531

4.531

4.531

4.531

4.531

4.531

4.531

4.531

4.531

4.531

4.531

4.531

4.531

4.531

4.531

4.531

4.531

4.531

4.531

4.531

4.531

Punta Gorda

Ft Meyer

Time

Pace

Time

Pace

2:46

107/2

4:30

10726

2:52

10703

3:13

10564

3:38

09698

3:46

09867

4:09

09415

b

B

Oct 5 - FT Meyer

Noble

Station	Description	Time	Real Time	Real Time	Real Time
BME	FT Meyer C of H. 114-71 FT	8:27	06695	11:06	06711
BM F	Garden Pine RR	9:50	04527		-1.08 Drift 15
BM G	Q 246 1965 USC+GS 26- 11.998 Brimley Sp. NW Co. Eme 475-25E N. of E. St. USC+GS W-244 1965	10:30	04780	12:53	04790
BM (H)	Fla SRD X 244 13.556	12:36	05060	11:29	05070 2:35 05070
✓ 23	Sec 20 46S 25E 15.640	11:36	05155		
24	USC+GS R 246 1965 14.301	11:42	05223		
✓ 25	Fla SRD Y 244 14.268	11:47	05257		
✓ 26	USC+GS Z 244 1965 8.130	2:02	05484		
# 27	Bridge West Co. 1 Rock Co. 103	2:10	05690		
X 28	Fla SRD H 247 10.256	2:46	05348		
29	SF Co Bridge 38-1964	2:53	05766		
30	Fla SRD I 247	3:00	06006		
31	USC+GS Q 245 1965 5.807	3:08	06144		
P.M. H	N. of E. St. 15.869	3:23	05075	4:42	05080
✓ 32	USG 75 WTM 1952 16	3:30	04959		
X 33	Sec 33 46S 25E 14.928	3:42	04950		

Oct 5 Ft Meyer - Naples

Station	Description	Elev	Time	Photo
34	USC+65 A. U244-1965	16.211	3:50	04911
35	USC+65 T244-1965	14.678	3:59	04885
36	BM 36 not Reloc	+15	4:07	04869
37	USC+65 S244-1965 Dec 22 47 S 25 E	12.536	4:17	04835
38	USC+65 Q244 1965	9.997	4:27	04843

Oct 6 Ft Meyer

BM E	Ft Meyer Court House	(1H+FF)	8:20	06723	10:16	06732
39	Q247 Fla SRD	8.881	8:52	06115		
40	R247 Fla SRD	9.062	8:57	06153		
41	FLA SRD BM (No Number) RD Intersecting	5.247	9:02	06196		
42	FLA SRD Station Point	7.247	9:08	06231		
43	FLA SRD BM No Number	+12'	9:13	06250		
44	In Field By Road Intersect	+14'	9:21	06296		
45	✓ ✓ ✓	+14'	9:30	06326		
46	✓ ✓ ✓	+15'	9:38	06383		
	Ft Meyer City Limit					

Oct 6 FT. Mason

Station Description

E1

Time Peak

47

US C + GS

AF9

Broken Disc

10:08 06615

at Evans St + Anderson Ave

Oct 7 W ahulla Spr.

Station ^{1st} Read Diff

12
G-7A 5.2 -.4

9 5.2 -.4

10 5.2 -.4

11 5.5 -.7

(12) 4.8

13 5.0 -.2

14 5.0 -.2

15 4.9 -.1

16

Time Read Time Read Time Read

3/2/70 Fla Grant Mt

Station	Time	Real	HT	Elev	BM
Quincy Base	11:03	12524	-0.9	-0.9	T154 USC165 1954
Reset - Shaledown					
	11:08	12508	-0.9	246.912	
	11:10	12509	-	-	
	1:00	12495	-		
	1:02	12495	-		
	2:28	12505	-		
	2:30	12507	-		
	3:32	12508	-		
	3:34	12508	-		

Bloxham	4:09	10201	+0.2		D-86
Base	4:11	10199	-		
	5:43	10179	-		
	5:45	10184	-		
	5:47	10184	-		

Bright Sunny Warm Spring day
3/2/70

Station	Time	Real	HT	Elev	BM
Bloxham	12:20	10191	+0.5		D-86 USC165 1935
Base	12:22	10193			
Chittahatchee	1:52	11881	+0.2	87.611	L-134 USC165 1954
Base	1:54	11883			
Tallahassee	3:02	10740	+1.0		Q-155 USC165 1954
Base	3:05	10736	+1.0		
Sopchewitty	4:51	11625	0.0		SRD
Base	4:53	11623			Bridge

N. Sopchewitty	5:05	11631	+0.8		PLS
	5:07	11632			1254

E.S. 160
Intersection of Road 375 + S-372A

Point Washington

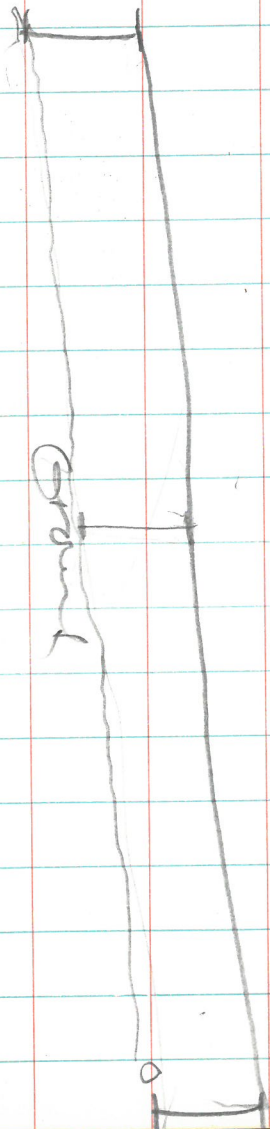
De Funiak Spgs.

Glendale

Ponce de Leon

Pied Pkay

11/1



12:26 / 2287

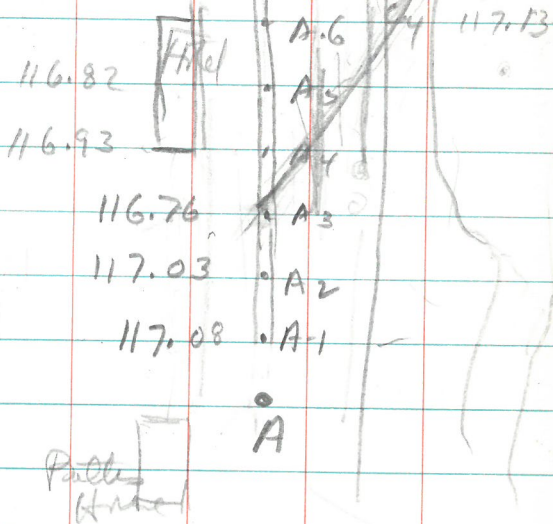
Wakulla County

EFX-2-68

Scale shown 660' = 1"
1-13-59

Ab.

1" = 400'
\$7.00





8.8
6.2
10.0
GIA - 6.2
G1 - 6.4

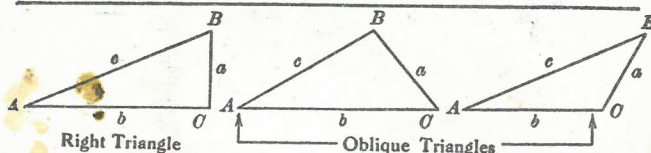
~~18.5~~
0.018
12.52
4.8
7.76

0.1391
3698
1391
23.07

0.947
0.854
87

100.52 Well Behind Survey

TRIGONOMETRIC FORMULÆ



Solution of Right Triangles

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

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

$$A + B = 180^\circ - C, \tan \frac{1}{2}(A - B) = \frac{(a - b) \tan \frac{1}{2}(A + B)}{a + b}$$

a, b, c

A, B, C

$$c = \frac{a \sin C}{\sin A}$$

$$s = \frac{a + b + c}{2}, \sin \frac{1}{2}A = \sqrt{\frac{(s - b)(s - c)}{bc}}$$

$$\sin \frac{1}{2}B = \sqrt{\frac{(s - a)(s - c)}{ac}}, C = 180^\circ - (A + B)$$

a, b, c

Area

$$s = \frac{a + b + c}{2}, \text{area} = \sqrt{s(s - a)(s - b)(s - c)}$$

A, b, c

Area

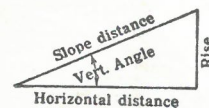
$$\text{area} = \frac{bc \sin A}{2}$$

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 = $318.4 \times .9959 = 318.08$ 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. $\cos 5^\circ 10' = .9959$. $1 - .9959 = .0041$. $318.4 \times .0041 = 1.31$. $318.4 - 1.31 = 317.09$ 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.

