SURVEYORS REPORT

Specific Purpose Survey of the Stilling Well

Site WRWX

Polk County, Florida

South Florida Water Management Districts

Purchase Order number 4500009354

Keith and Schnars project number 16434.00,

Task 22187

Report Date: July 23, 2007

Prepared for:

South Florida Water Management District

Prepared by:

KEITH and SCHNARS, P.A.
ENGINEERS, PLANNERS, SURVEYORS

6500 N. Andrews Avenue

Ft. Lauderdale, Florida 33309-2132
Ph. (954) 776-1616 Fax (954) 351-7643
Licensed Business (L.B.) 1337

TABLE OF CONTENTS

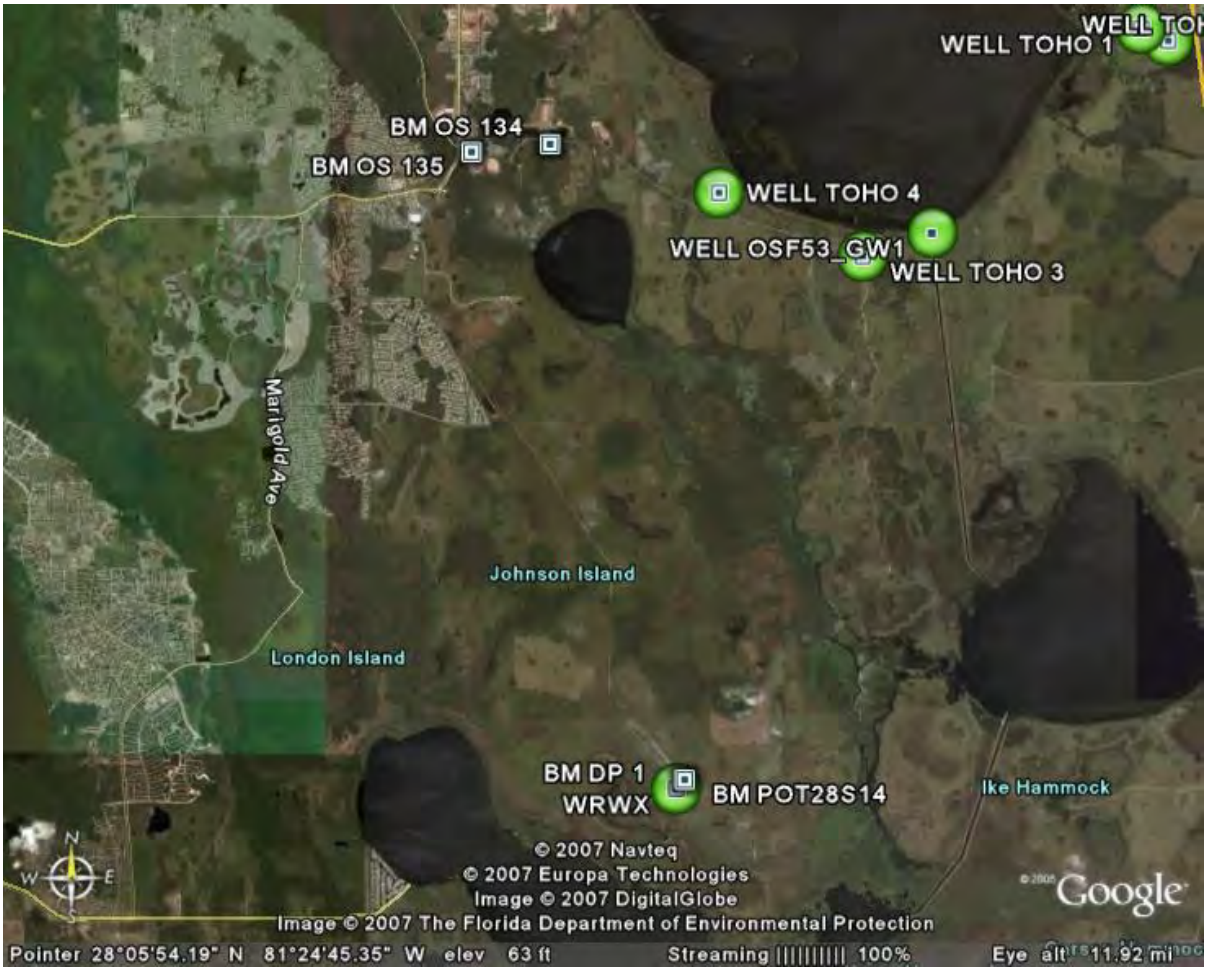
SURVEYORS REPORT

PURPOSE

This survey was done to obtain elevations with respect to vertical datums NAVD 88 and NGVD 29 on the site wells and a newly established site bench mark.

LOCATION OF PROJECT

The project is located in Polk County, Florida, on the grounds of the Disney Wilderness Preserve (Walker Ranch).



SURVEYORS REPORT

ITEMS DELIVERED TO THE DISTRICT

1. **Electronic copy of field notes.**
2. **Electronic copy of all computation sheets.**
3. **CORPSMET 95 file.**
4. **Site photographs.**
5. **Surveyors Report.**
6. **South Florida Water Management District Benchmark Data Sheet.**

DATUM FOR THE PROJECT

The vertical datums for the project are the North American Vertical Datum of 1988 (NAVD 88) and the National Geodetic Vertical Datum of 1929 (NGVD 29). National Geodetic Survey (NGS) vertical control monuments having published NAVD 88 elevations were used as control for obtaining NAVD 88 elevations at this site. No NGVD 29 elevations were available for the control monuments employed. Elevations with respect to NGVD 29 were computed by applying the estimated datum offset computed by NGS' program VERTCON version 2.0 (computed for the latitude and longitude at the site of bench mark WRWX) to each of the measured NAVD 88 elevations. The VERTCON-modeled datum shift is -1.112 feet, with the sense of the algebraic sign being NAVD 88 elevation minus NGVD 29 elevation.

LEVELING METHODS

Differences in elevation were measured using a Leica NA 3003 digital level. NGS bench marks OS 134 (NGS PID 6743) and OS 135 (NGS PID DF6750) were used to control elevation determination. Leveling was done between OS 134 and OS 135 to check the two bench marks and their published elevations. The misclosure for the section between the them was 0.003 feet, which did not exceed the maximum allowable misclosure of 0.031 feet (computed as 0.03 feet times the square root of the section length in miles). A level run from bench mark OS 135 to new site bench mark WRWX and back to OS 135 (with several turning points being common to both directions of running) was done to obtain the elevation of WRWX. The misclosure of each section of leveling (between the aforementioned consecutive common turning points of the run) was in each case less than the corresponding maximum allowable error of closure.

Elevations of the wells on site were subsequently obtained by differential leveling from WRWX.

SURVEYORS REPORT

VERTICAL CONTROL

BM OS 134	Elevation:	**NAVD 1988**	**70.649'**	**NGVD 1929**	
PID DF6743	Latitude	28 09 18		Not published	
State/County FL/OSCEOLA	Longitude	081 25 23			
USGS QUAD LAKE TOHOPEKALIGA					
Vert. Order SECOND CLASS I					

Described by FL Dept of Env Pro 2001 (JLM) the mark is about 12.25 mi southwest of Kissimmee, in Section 8, Township 27 South, Range East.

To reach the mark from the junction of U.S. Highway 192 (Vine Street)and U.S. Highway 17, 92 (John Young Parkway) in Kissimmee, go south on U.S. Highway 17, 92 for 3.5 mi to the junction of Pleasant Hill Road (County Road 531) on the left, turn left on Pleasant Hill Road (County Road 531) and go south for 7.55 mi to the junction of Southport Road on the left, turn left on Southport Road and go east for 1.2 mi to the mark on the right, set in the top of a round concrete monument recessed 0.6 ft below the level of the ground and the level of Southport Road.

Located 265.0 ft west of the approximate centerline of Hurt road, 22.5 ft south of the centerline of Southport road, 1.2 ft north of a SFWMD metal witness post, 1.0 ft west of a barbwire fence leading south and 0.9 ft north of a barbwire fence.

SURVEYORS REPORT

VERTICAL CONTROL (Cont.)

BM OS 135	Elevation:	**NAVD 1988**	**64.744'**	**NGVD 1929**	
PID DF6750	Latitude	28 09 14		Not published	
State/County FL/OSCEOLA	Longitude	81 26 15			
USGS QUAD LAKE TOHOPEKALIGA					
Vert. Order SECOND CLASS I					

Described by FL Dept of Env Pro 2001 (JLM) the mark is about 10.0 mi southwest of Kissimmee, in Section 8, Township 27 South, Range 29 East.

To reach the mark from the junction of U.S. Highway 192 (Vine Street) and U.S. Highway 17, 92 (John Young Parkway) in Kissimmee, go south on U.S. Highway 17, 92 for 3.5 mi to the junction of Pleasant Hill Road (County Road 531) on the left, turn left on Pleasant Hill Road (County Road 531) and go south for 7.55 mi to the junction of Southport Road on the left, turn left on Southport Road and go east for 0.1 mi to the mark on the left, a disk set on top of a rod driven into the ground encased in a 6-inch PVC pipe flush with the ground and level with Southport Road, the disk is recessed 1.0 ft below the top of the PVC pipe.

Located 33.0 ft north of the centerline of Southport Road, 14.5 ft east of power pole number 6-38430, 6.0 ft south-southwest of power pole number K 6086733 with 4 guy wires attached and 1.1 ft south of a SFWMD metal witness post.

Note access to the disk is had through a 5-inch screw cap.

SURVEYORS REPORT

PROJECT RESULTS

Wells appear in the table below in order of their placement on site, going north from the southerlymost well.

Well HMW1	***Distance to water***
Reference mark: **Set new mark on top rim of PVC tee pipe fitting; reference mark is between two notches filed into the rim** Set and stamped brass tag with the following information: Mark El. **70.06' (NGVD 29)** Initials: **K AND S** Date: **5/9/07** Offset: **-1.112'** (to NAVD 88) (written with marker and not stamped) Reference mark elevations written at the site: **70.22'** Reference mark location: **Uncertain (markings are faded; appears to be the inside shoulder of the fitting's bell)**	Reference mark: **Same as reference mark noted left** El. **70.06'** (NGVD 29) Measurement to water: **12.75'** Date: **5/9/07** Water Elevation: **57.3'**
Well SMW2	***Distance to water***
Reference mark: **Set new mark on top rim of PVC "tee" pipe fitting; reference mark is between two notches filed into the rim** Set and stamped brass tag with the following information: Mark El. **69.70' (NGVD 29)** Initials: **K AND S** Date: **5/9/07** Offset: **-1.112'** (to NAVD 88) (written with marker and not stamped) Reference mark elevations written at the site: **69.53'** Reference mark location: **Inside shoulder of the fitting's bell**	Reference mark: **Same as reference mark noted left** El. **69.70'** (NGVD 29) Measurement to water: **8.92'** Date: **5/9/07** Water Elevation: **60.8'**

SURVEYORS REPORT

PROJECT RESULTS

Well SMW1	***Distance to water***
Reference mark: **Set new mark on top rim of PVC "tee" pipe fitting; reference mark is between two notches filed into the rim** Set and stamped brass tag with the following information: Mark El. **69.65' (NGVD 29)** Initials: **K AND S** Date: **5/9/07** Offset: **-1.112'** (to NAVD 88) (written with marker and not stamped) Reference mark elevations written at the site: **69.44'** Reference mark location: **Inside shoulder of the fitting's bell**	Reference mark: **Same as reference mark noted left** El. **69.65'** (NGVD 29) Measurement to water: **12.58'** Date: **5/9/07** Water Elevation: **57.1'**
Well FMW1	***Distance to water***
Reference mark: **Set new mark on top rim of PVC "tee" pipe fitting; reference mark is between two notches filed into the rim** Set and stamped brass tag with the following information: Mark El. **69.43' (NGVD 29)** Initials: **K AND S** Date: **5/9/07** Offset: **-1.112'** (to NAVD 88) (written with marker and not stamped) Reference mark elevations written at the site: **68.75'** Reference mark location: **Uncertain (markings are faded; appears to be the inside shoulder of the fitting's bell)**	Reference mark: **Same as reference mark noted left** El. **69.43'** (NGVD 29) Measurement to water: **13.17'** Date: **5/9/07** Water Elevation: **56.3'**

05/09/07 Keith and Schnars, P.A.

HWM1 well and tag

05/09/07 Keith and Schnars, P.A.

SWM2 well and tag

05/09/07 Keith and Schnars, P.A.

SWM1 well and tag

05/09/07 Keith and Schnars, P.A.

FWM1 well and tag

COMMENTS:

Party Chief: T. Corbett Field Book: SFWMD 10 Pages 4–42
Bench Mark: WRWX El. 64.87', Vertical Datum: NAVD 88
El. 65.98', Vertical Datum: NGVD 29
Offset: 1.112 SFWMD VALUE (subtract this value from NGVD 29 to convert to NAVD 1988)

NAVD 88 — North American Vertical Datum of 1988
NGVD 29 — National Geodetic Vertical Datum of 1929
NAD 83 — North American Datum of 1983
NGS — National Geodetic Survey
PID — Unique point identifier in NGS database
SFWMD — South Florida Water Management District
PVC — Polyvinyl Chloride

SURVEYORS CERTIFICATION

I hereby certify that this Specific Purpose Survey meets applicable portions of the Minimum Technical Standards set forth by the Florida Board of Professional Surveyors and Mappers in Chapter 61-G17, Florida Administrative Code. This report is prepared for the sole and specific use of the South Florida Water Management District and is not assignable.

KEITH and SCHNARS, PA.
L.B. number 1337

By:

Date of Survey
May 9, 2007

Loren J. Gibson, PSM
Professional Surveyor and Mapper
State of Florida
Certificate No. 6510

NAVD 88

SOUTH FLA. WATER. MAN. DISTRICT.
BENCH LOOP
WRW X

05-01-07
T.C. TA.

"AFRICA HOT"
JOB # 16434.00

SFWMD 10 1/04

STA	(+) BACK	HI	(-) FORWARD	EL	BMEL	REMARKS
OS 134	+ 1.7037				= 70.65'	ALUM. DISC SET IN TOP OF CONC. MON. STAMPED. BM OS-134 1981 SFWMD ELEVATION IN NAVD 88
		= 72.3537				mon. on NORTH BP SOUTH FORK
			- 3.9761			
TP 1				= 71.3776		SET 60d Nail
	+ 5.4646					
		= 76.8422'				
			- 1.6440'			
TP 2				=		SET 60d Nail
	+ 1.3792'					
		=				
			- 2.7756			
TP 3				=		" "
	+ 3.6806'					
		=				
			- 5.1900'			
TP 4				=		" "
	+ 4.0236'					
		=				
			- 5.4620'			
TP 5				=		" "
	+ 3.8111'					
		=				
			- 4.4668'			
TP 6				=		" "
	+ 4.6906'					
		=				
			- 4.6600'			
TP 1				=		" "

So. Fla. Water Man. Dist.
WRWX

05-01-07
TC. TB.

SFWMD 10/05

STA	(+)	HI	(-)	= EL	BM/EL	REMARKS
7	+ 4.2703'	=	- 4.5674'	=		
TP8	+ 4.8118'	=	- 3.8575	=		SET 60d NAIL
TP9	+ 4.5596'	=	- 5.1209'	=		SET 60d NAIL
TP10	+ 4.8732'	=	- 5.0835'	=		SET 60d NAIL
TP11	+ 4.3032'	=	- 5.0621'	=		" "
TP12	+ 4.9061'	=	- 3.4523'	=		" "
TP13	+ 4.7295'	=	- 4.7369'	=		" " (WEST E/P SOUTH FORK)
TP14						" "

So. Fla Water Man. Dist.

05-02-07
TC. TB.

"AFRICA HOT"

SFWMD 10/06

W R W X

STA	(+)	HI	(−)	= EL	BM@L	REMARKS
14						SET 60d Nail
	+ 3.9153'					
	=		-6.3626			
TP15				= 64.7481'	64.744	"Control Point" 05-135 NAVD 88 "So. Fla. Water Man. Dist. 1981 05-135 BM"
	+ 5.6239'					
	=		-3.9724'			
TP16				=		SET 60d Nail
	+ 5.5130'					
	=		-5.1502'			
TP17				=		SET WOOD HUB
	+ 5.5489'					
	=		-4.0633			
TP18				=		60d Nail
	+ 4.7907'					
	=		-6.1805'			
TP19				=		60d Nail.
	+ 4.5758'					
	=		-5.6757			
TP20				=		MAG Nail SET IN CONC. S/W
	+ 4.2725'					
	=		-4.9113			
TP21				=		60d

NAVD 88

So. Fla. Water Man. Dist.

WRWX

05-02-07

SFWMD 10/07

STA	(+)	HI	(-)	EL	BMEL	Remarks
21						
	+ 5.5193'					
			- 4.4507'			Set Wood Hub
TP 22						
	+ 5.7366'					
			- 3.0419'			Wood Hub
TP 23						Turning Down Old Pleasant Hill
	+ 5.5928'					
			- 8.6392'			60d Nail
TP 24						
	+ 3.9470'					
			- 3.7565'			Mag Nail
TP 25						
	+ 4.3252'					
			- 4.9204'			60d
TP 26						
	+ 4.8150'					
			- 4.6222'			60d
TP 27						
	+ 4.8568'					
			- 5.0488'			60d
TP 28						

NAVD 88

So. Fla. Water Man. Dist.

WRWX

05-02-07

SFWMD 10/08

STA	(+)	HI	(-)	EL	BMEL	REMARKS.
28	+ 4.8072'	=	- 4.7733'	=		60 d
TP 29	+ 4.5439'	=	- 4.3008'	=		60 d
TP 30	+ 5.2218'	=	- 4.1947'	=		60 d
TP 31	+ 5.0169'	=	- 4.3298'	=		SET MAG NAIL @ ENTRANCE FOR NEW DIMENSION H.S. ± 400 NORTH OF PRESERVE ENTRANCE.
TP 32	5.9490'	=	- 5.8469' (171)	=		60 d ENTERING PRESERVE.
TP 33	+ 4.5955'	=	- 4.5079'	=		60 d
TP 34	+ 5.0209'	=	- 4.8173'	=		60 d
TP 35						SET K+S IR+C

NAVD 88

So. Fla. Water Man Dist.

WRWX

05-02-07 89° SFWMD 10/09

STA	(+)	HI	(-)	EL	BMEL	REMARKS
35						KEITH & SCHNARS — IRON ROD & CAP.
	+5.2308'					
	=		-4.6511'	=		
TP 36						60d
	+5.4202'					
	=		-5.6092'	=		
TP 37						60d
	+5.9032'					
	=		-5.9038'	=		
TP 38						60d
	+3.2256.					
	=		-5.4899'	=		
TP 34						60d
	+4.7352					
	=		-4.7555'	=		
TP 40						Wood Hub.
	+4.6736'					
	=		-5.4138'	=		
TP 41						60d
	+5.3856'					
	=		-5.0726'	=		
TP 42						60d

NAVD88

So. Fla Water Man. Dist.

WRWX

05-02-07
TC. TB.

89° LIGHT WIND

SFWMD 10/10

STA	(+)	HI	(-)	EL	BMEL	REMARKS
42	+ 4.9767'	=	- 4.9424'	=		60d NAIL.
43	+ 4.9532'	=	- 4.9001'	=		60d.
44	+ 4.8031'	=	- 4.9719'	=		K-S IR+C.
45	+ 5.0403'	=	- 5.0119'	=		60d
46	+ 4.9400'	=	- 5.0236'	=		60d
47	+ 5.2428'	=	- 5.0924'	=		60d.
48	+ 5.0361'	=	- 4.9119'	=		60d
49						

NAVD 88 — S. FLA WATER MAN. DIST. — 05-02-07 TC. TB. — Hot & Getting Hotter. 89° — SFWMD 10/21

W R W X

STA	(+)	HI	(-)	EL	BM EL	REMARKS
49				=		60 d NAIL.
	+4.8362'	=				
			-5.2997'			
50				=		60d.
	+4.9873'	=				
			-4.7348'			
51				=		60 d
	+4.6758'	=				
			-4.1107'			
52				=		60d. (SET IN ℄ DIRT ROAD)
	+4.9535'	=				
			-5.0851'			
53				=		60d.
	+5.1014'	=				
			-4.8736'			
54				=		60d.
	+4.8108'	=				
			-4.7655'			
55				=		K & S IR + C.
	+4.8740'	=				
			-4.9883			
56				=		60d

NAVD 88

So. Fla. Water Man. Dist.

WRWX

05-02-07
TC. TB.

SFWMD 10/12

STA	(+)	HI	(-)	EL	BMEL	Remarks
56				=		60d
	+4.6704'	=				
			-4.6577'	=		
57				=		60d
	+4.7606'	=				
			-4.9179'	=		
58				=		60d
	+5.3692'	=				
			-4.6360'	=		
59				=		60d
	+4.7517'	=				
			-5.1265'	=		
60				=		60d
	+4.2244'	=				
			-4.7428'	=		
61				=		60d
	+5.0160'	=				
			-4.6612'	=		
62				=		60d.
	+4.2923'	=				
			-4.6934	=		
63				=		60d

NAVD 88

So. Fla. Water Man. Dist.

WRWK

05-02-07

STA	(+)	HI	(−)	= EL	BMEL	REMARKS
63	+5.4271'	=	−5.3278'	=		60d
64	+4.1560'	=	−4.9501'	=		60d (IN @ DIRT ROAD)
65	+5.3148'	=	−4.4820'	=		K'S IR+C.
66	+4.9322'	=	−4.2486'	=		WOOD HUB.
67	+4.5741'	=	−4.69866'	=		60d
68	+4.9321'	=	−5.3141	=		WOOD HUB.
69	+4.9748'	=	−4.8798	=		60d
70						60d.

NAVD88

So. Fla Water Man. Dist.

WRWX

05-02-07

SFWMD 10/14

STA	(+)	HI	(-)	EL	BMEL	REMARKS
70	+5.4397'					60d Nail.
			-4.4650'			
71						Wood Hub.
	+5.0091'					
			-4.4814'			60d.
72						
	+4.9794'					
			-4.8288'			60d.
73						
	+5.0013'					
			-4.2711'			Wood Hub.
74						
	+5.1119'					
			-5.2310'			Wood Hub.
75						
	+3.8426'					
			-9.1131'			60d
76						
	+4.3239'					
			-4.0805'			60d
77						

NAVD 88 So. Fla. Water Man. Dist.

WRWX.

STA	(+)	HI	(−)	EL	BMEL	Remarks
77	+5.3340		-6.2193'			60d NAIL
78	+5.2934'		-5.0671'			60d (BATT. DEAD) RETURN TO HOTEL 1730 HRS.
79	+5.1529'		-5.3510'			WOOD HUB.
80	+4.9614'		-4.7036'			60d.
81	+5.5640'		-3.9852'			60d.
82	+5.0692'		-4.7891'			60d
83	+4.3243'		-5.5121'			WOOD HUB.
84						WOOD HUB.

05-02-07 / 05-03-07

TC. TB.

SFWMD 10/15

NAVD88

So. Fla. Water Man. Dist

WRWX

05-03-07
TC. TB.

SFWMD 10/11

STA	(+)	HI	(-)	EL	BMEL	REMARKS
84	+3.9420' =		-5.3510' =		=	Wood Hub.
85	+5.2438' =		-4.6682' =		=	K's JR+C.
86	+4.3738' =		-4.1100' =		=	60d.
87	+4.1556' =		-4.6182' =		=	Wood Hub.
88	+4.8820' =		-4.6461' =		=	60d.
89	+5.0053' =		-5.3220' =		=	Wood Hub.
90	+4.7753' =		-4.3449' =		=	60d
91						60 d

NAVD 88

So. Fla. Water Man. Dist.

WRWX

05-03-07

SFWMD 10/12

STA	(+)	HI	(-)	EL	BMEL	REMARKS
91	+5.4444'	=	-5.0240'	=		60d
92	+4.3786'	=	-4.8142'	=		60d.
93	+4.2194'	=	-5.1889'	=		60d.
94	+4.3672'	=	-4.5445'	=		60d
95	+5.9129'	=	-5.5485'	=		60d
96	+5.0485'	=	-4.9841'	=		60d.
97	+5.0667'	=	-5.5514'	=		60d
98						

NAVD 88

So. Fla. Water Man. Dist.

W R W &

05-03-07

SFWMD 10/18

STA	(+)	HI	(-)	EL	BMEL	Remarks.
98				=		60d Nail
	+ 4.5304'					
	=		- 4.2360'			
99				=		60d.
	+ 4.7738'					
	=		- 5.1420'			
100				=		Wood Hub.
	+ 4.7480'					
	=		- 4.4019'			
101				=		Wood Hub.
	+ 4.1570'					
	=		- 4.1238'			
102				=		K & S IR & C
	+ 4.6466'					
	=		- 4.2323'			
103				=		Wood Hub.
	+ 4.2728'					
	=		- 4.1280'			
104				=		Wood Hub.
	+ 9.2883'					
	=		- 4.3610'			
105				=		60d

NAVD 88

So. Fla. Water. Man Dist.

WRWX

05-03-07

SFWMD 10/19

STA	(+)	HI	(-)	EL	BMEL	REMARKS
105						60d Na.l.
	+4.9294'					
	=		-4.6738'			
106						60d.
	+4.9757'					
	=		-4.6759'			
107						Wood Hub
	+4.4323'					
	=		-5.4622'			
108						Wood Hub.
	+4.3516'					
	=		-4.9664'			
109						60d
	+4.7598'					
	=		-4.7610'			
110						K&S IR+C.
	+4.2082'					
	=		-4.5945'			
111						Wood Hub.
	+4.1506'					
	=		-4.2437'			
112						Wood Hub.

NAVD 88 So. FLA. WATER MAN. DIST. 05-03-07 TC. TB. SFWMD 10/20

WRWX

STA	(+)	HI	(-)	EL	BM EL	REMARKS
112	+4.8783'	=				WOOD HUB.
			-4.9461' =			
113	+4.6577'	=				WOOD HUB.
			-4.6749' =			
114	+5.0177'	=				60d.
			-5.0457 =			
115	+4.5469'	=				60d.
			-5.2252' =			
116	+4.7458'	=				60d.
			-4.7285' =			
117	+4.5884'	=				60d.
			-4.6568' =			
118	+4.4288'	=				60d
			-4.9054 =			
119						60d

NAVD88

So. Fla. Water Man. Dist.
WRWX

05-03-07
TC. TB.

SFWMD 10/21

STA	(+)	HI	(-)	EL	BMEL	REMARKS:
119		=				60 d NAIL.
	+4.9468'					
			-5.2832'			
120		=				60 d Nail
	+4.8259'					
		=				
			-4.2560'			60 d
121		=				
	+4.4888'					
		=				
			-4.9702'			60 d.
122		=				
	+5.9150'					
		=				
			-4.1961'			IRON ROD & CAP K & S.
123		=				
	+4.8597'					
		=				
			-4.5281'			WOOD HUB.
124		=				
	+5.3200'					
		=				
			-4.7406'			60d
125		=				
	+3.8270'					
		=				
			-5.6289'			IRC K&S
126		=				

NAVD 88 So. Fla. Water Man. Dist.

WRWIX

05-03-07 / 05-07-07 – AM WEATHER 79° 15-20 MPH WIND 10/22
TC TB. TC. TB.

STA	(+)	HI	(–)	EL.	REMARKS
126	+ 4.8021'	=	~~5.2044'~~ 5.2056'	= (64.686) comp-	K/S IR + C
127					Alum Disc "SFWMD BM DW-1 2002.
	+ ~~4.9857~~ 4.8036'	=	– 4.6780'	= 64.810 ft' UU ADJ	
128	+ 4.8146'	=			BRASS DISC SET IN CONC 1' ROUND 10" DEEP w/ 3/8" IRON ROD INSIDE "SFWMD WRWIX 2007" 50,358.9 USFT. SEE PG 38 FOR ADJUSTMENT.
			– 4.5336'	=	
129	+ 5.1823'	=			IR + C
			– 4.3874'	=	
130	+ 4.3678'	=			GOOD
			– 4.9533'	=	
131	+ 4.2253'	=			WOOD H V13.
			– 4.5587'	=	
132	+ 3.5090'	=			K/S IR+C
			– 5.1701	=	
133					GOOD

NAVD88

So. Fla. Water Man. Dist.

WRWIX

STA	(+)	HI	(−)	EL	BMEL	Remarks
133						60 d Nail.
	+4.6480'					
	=		-4.1718'			
134			=			60 d.
	+3.9631'					
	=		-4.5316'			
135			=			60 d.
	+4.0399'					
	=		-4.2986'			
136			=			60d.
	+4.7859'					
	=		-4.3138'			
137			=			60d
	+4.6001'					
	=		-4.5338'			
138			=			60d
	+4.5158'					
	=		-4.5352'			
139			=			60 d.
	+4.9123'					
	=		-4.2316			
140			=			60 d

05-07-02
TC-TB

"79° very windy"

NAVD 88 — So. Fla Water Man. Dist

WRWX

STA	(+)	HI	(−)	EL	BMEL
140 *	+4.9799' =		−4.9955' =		
141	+4.2317' =		−4.2170' =		
142	+4.7783' =		−4.7090' =		
143	+4.0108' =		−3.9211 =		
144	+4.3126' =		−3.9306' =		
145	+4.2916' =		−4.2924' =		
146	+4.7782' =		−4.1683 =		
147					

09-07-07 — 80° VERY WINDY. — SFWMD 10/24

TC. TB.

REMARKS.

60 d Nail.

60 d.

Wood Hub.

Wood Hub.

Wood Hub

Kis IR + C.

60d.

Wood Hub.

NAVD 88

So. Fla. Water Man. Dist.

05-07-07
TC. TB.

"Hurricane Wilma Windy"
"35 MPH"
80°

SFWMD 10/15

WRWX

STA	(+)	HI	(-)	EL	BMEL	REMARKS
147						Wood Hub
	+5.0963'	=	-4.0698'	=		
148						Wood Hub.
	+4.0939'	=	-4.4001'	=		
149						60d
	+4.4039'	=	-4.6907'	=		
150						60d.
	+3.9723'	=	-4.8983'	=		
151						Wood Hub.
	+4.0994'	=	-4.2445'	=		
152						Wood Hub.
	+4.3599'	=	-4.7781'	=		
153						K&S IR-C.
	+4.5165'	=	-4.5446'	=		
154						Wood Hub

NAVD 88

So. Fla. Water Man. Dist.

05-07-07
TC. TB.

80° & Windy.

SFWMD 10/06

WRWX

STA	(+)	HI	(-)	EL	BMEL
154	+4.2885'	=	-4.6267'	=	
155	+5.0344'	=	-4.6663'	=	
156	+4.3344'	=	-4.6394'	=	
157	+5.1890'	=	-4.7013'	=	
158	+4.5131'	=	-4.5790'	=	
159	+5.0763'	=	-5.4418'	=	
160	+4.6311'	=	-4.4554'	=	
161					

REMARKS

Wood Hub:

Wood Hub.

60d.

60d

60d.

60d.

60d

60d

NAVD 88

So. Fla Water Man. Dist.

05-07-07
TC. TB

SFWMD 10 /27

WRWK

STA	(+)	HI	(−)	EL	BMEL	Remarks
161						60d.
	+5.6702'	=				
			-4.1002'	=		
162						60d.
	+4.5554'	=				
			-4.1218'	=		
163						60d.
	+4.4029'	=				
			-4.8753'	=		
164						60d.
	+3.9254'	=				
			-4.3576	=		
165						60d
	+5.1506'	=				
			-4.8443'	=		
166						Wood Hub.
	+4.7838'	=				
			-5.0196'	=		
167						60d.
	+4.7280'	=				
			-4.8063'	=		
168						Wood Hub.

NAVD 88 So. Fla Water Man. Dist.

WRWX

STA	(+)	HI	(−)	=	EL	BMEL
168	+3.8914'		-4.1549'	=		
169	+3.9065'		-4.4835'	=		
170	+5.1314'		-3.7241'	=		
171	+5.1020'		-3.9163'	=		
172	+4.4677'		-4.7483'	=		
173	+3.8452'		-5.4236'	=		
174	+4.5434'		-4.7984'	=		
175						

05-07-07
TC. TB.

SFWMD 10/08

Remarks
Wood Hub
Lod
K&S IR+C.
Wood Hub.
Wood Hub.
Lod
Lod.
Lod

NAVD 88 So. FLA. WATER MAN. DIST.

05-07-07 80° ; WINDY SFWMD 10/29

TC, TB

WRWX

STA	(+)	HI	(-)	EL	BMEL	REMARKS
175	+4.9280'	=	-5.3272'	=		60 d NAIL.
176	+4.2508'	=	-4.4806'	=		WOOD HUB.
177	+6.3021	=	-5.4172'	=		60d
178	+4.0638'	=	-4.3115'	=		60d.
179	+5.1928'	=	-3.9214'	=		60 d.
180	+5.0374'	=	-4.9177'	=		WOOD HUB.
181	+3.9889'	=	-4.7210	=		WOOD HUB,
182						60 d

NAVD 88

So. Fla Water Man. Dist.

WRWX

05-07-07
TC. TB,

80° & windy.

SFWMD 10/30

STA	(+)	HI	(−)	EL	BMEL	REMARKS
182						60 d.
	+4.8934'					
			-5.0434'			
183						
	+4.3693'					60 d
			-4.8971'			
184						Wood Hub.
	+4.4743'					
			-4.4506'			
185						60d.
	+4.8801'					
			-4.9797'			
186						60 d.
	+4.7238'					
			-4.3433'			
187						Wood Hub. BAT DIED 1655 HRS
	+~~4.4705~~ 4.3707'					
			-4.2181			
188						60d.
	+4.1062'					
			-4.7905'			
189						Wood Hub

NAVD 88

So. FLA. WATER MAN. DIST.

W&RWX

05-08-07
TC. TB.

SFWMD 10/31

STA	(+)	HI	(-)	EL	BMEL
189					
	+ 4.4348'				
		=	- 5.3255'	=	
190					
	+ 4.8938'				
		=	- 4.1038'	=	
191					
	+ 5.1605'				
		=	- 5.2586'	=	
192					
	+ 4.8359'				
		=	- 4.4309'	=	
193					
	+ 4.6893'				
		=	- 5.0419'	=	
194					
	+ 4.8248'				
		=	- 4.3096'	=	
195					
	+ 5.0662'				
		=	- 4.1905'	=	
196					

REMARKS

Wood Hub.

K & S IR + C.

60d (& DIRT ROAD)

60 d.

60 d.

60d.

60d.

60d

NAVD 88

So. Fla. Water Man. Dist.
WRWX

05-08-07
TC. TB.

STA	(+)	HI	(-)	EL	BMEL	REMARKS
196						60d Na.L
	+4.3036'	=				
			-5.0334'	=		
197						60d.
	+4.7306'	=				
			-4.9768'	=		
198						60d.
	+4.5970'	=				
			+4.6059'	=		
199						60d.
	+4.7906'	=				
			-4.6753'	=		
200						K & S JR + C.
	+4.7183'	=				
			-4.7630'	=		
201						60d.
	+4.6303'	=				
			-4.8578'	=		
202						60d.
	+4.8963'	=				
			-4.7663'	=		
203						60d (E DIRT ROAD)

NAVD 88

So. Fla. Water Man. Dist.

WRWx

05-08-07
TC. TB.

SFWMD 10/33

Sta	(+)	HI	(−)	EC	BM/EL	Remarks
203						60d NAIL (E DIRT ROAD)
	+3.8903'					
			-4.4558'			
204						60d.
	+4.5873'					
			-4.8309'			
205						60d.
	+4.9458'					
			-4.4844'			
206						60d.
	+4.6925'					
			-4.7813'			
207						60d
	+4.7028'					
			-4.8546'			
208						60d. 64.001
	+4.9627'					
			-4.8321'			
209						60d.
	+4.7572'					
			-4.7851			
210						60d

NAVD 88

So. FLA. WATER MAN. DIST.

WRWX

05-08-07

TC. TB.

SFWMD 10/34

STA	(+)	ht	(-)	= ELEVATION BMEL	REMARKS
Z10	+4.7844'	=	-4.6133'	=	60 d. Na. L.
Z11	+4.5220'	=	-4.5734'	=	K's IR-C.
Z12	+4.3946'	=	-4.4345'	=	60 d.
Z13	+4.8627'	=	-5.1793''	=	60 d.
Z14	+4.8343'	=	-4.0957'	=	60d
Z15	+4.5761'	=	-4.5948'	=	w/ 000 Hubs.
Z16	+5.2919'	=	-3.0314	=	60d.
Z17					60d

NAVD 88

So. Fla. Water Man. Dist.

WI R WI X

05-08-07
TC. TB.

SFWMD 10/35

STA	(+)	HI	(-)	EL	BMEL	REMARKS
217						60d NAIL.
	+5.8357'					
			-5.4365'			
218						60d
	+5.2721'					
			-5.1538'			
219						60d.
	+4.9560'					
			-5.0613'			
220						K+S IR+C
	+4.9177					
			-5.1757'			
221						60d.
	+LT 4.6992'					
			-4.7295'			
222						60d.
	+6.2271'					
			-6.3893'			
223						60d.
	+4.4148'					
			-5.0514'			
224						MAG Nail

NAVD 88

So. Fla. Water Man. Dist.

WRWX

05-08-07
TC. TB.

SFWMD 10 /36

STA	(+)	HI	(-)	EL	BMEL	Remarks
224		=				Mag nail
	+4.8578'					
	=		-5.3219'			
225			=			60d.
	+4.4217'					
	=		-4.6193'			
226			=			60d
	+4.7129'					
	=		-4.7511'			
227			=			60d.
	+5.0390'					
	=		-4.8492'			
228			=			60d.
	+4.6226'					
	=		-4.8171'			
229			=			60d
	+4.9051'					
	=		-4.3146'			
230			=			Mag nail
	+3.1805'					
	=		-4.0226'			
231			=			60d

NAVD 88

So. Fla. Water Man. Dist.

WRWX

05-08-07
TC. TB.

SFWMD 10 /31

STA	(+)	HI	(-)	EL	BMEL	REMARKS
231		=				60 d NAIL.
	+ 7.7019'					
	=		-4.6212'			
			=			Wood Hub.
232						
	+3.3065'					
	=		-5.9952'			
			=			Wood Hub.
233						
	+3.9280'					
	=		-5.1050'			
			=			60d Nail
234						
	+4.9841'					
	=		-4.2988'			
			=			ring Nail.
235						
	+5.6779'					
	=		-4.5777'			
			=			60 d.
236						
	+6.1784'					
	=		-4.1920'			
			=			60 d.
237						
	+4.0186'					
	=		-5.8007'			
			=			Wood Hub.
238						

NAVD88

So. Fla. Water Man. Dist.

WRWX

STA	(+)	HI	(−)	EL	BMEL
238				=	
	+ 4.9936'				
	=				
			- 5.3602'		
239				=	
	+ 3.9798'				
	=				
			- 5.6184'		
240				= 64.6185'	64.744'

05-08-07
TC. TB.

SFWMD 10/38

REMARKS
WOOD HUBS.

60d NAIL.

CONTROL PT. 05-135 NAVD 88 "So. FLA. WATER MAN. DIST. 1981 30-135 BM"

RUN = 94988.3 USFT

ALLOWABLE ERR .1272
(S.F.W.M.D. .03)

ERROR ON RUN .1255

.1255 ÷ 240 = .0005229 ADJ FACTOR

SFWMD BRASS DISC "WRWX" (TP 128)
128 × .0005229 = .067 ADJ
TP 128 UNADJ = 64.8104
TP 128 ADJ = 64.877

So. Fla. Water Man. Dist.

WRWX
WELL SITE ELEV.

05-09-07
TC. TB.

SFWMD 10/89

STA	(+)	HI	(-)	EL	BMEL	REMARKS
BM "WRWX"					64.877	S.F.W.M.D. SURVEY DISC STAMPED WRWX 2007 "ADJ EL"
	T 5.425'					
	M 5.215'	(42)				
	B 5.005'					
	A 5.215'					
	= 70.092					
PIPE (SOUTH) "HMW1"			- 1.14'	68.952'		HAWTHORN WEST RIM SEE DETAIL NEXT PG
PIPE "SMW2"			- 1.50'	68.592'		SHAL. SOUTH " "
PIPE "SMW1"			- 1.55'	68.542'		SHAL NORTH " "
PIPE (NORTH) "FMW1"			- 1.765'	68.327'		4" FLOR. " "
		T 2.675'				
		M 2.501'	(34)			
		B 2.33'				
		A 2.502'				
			= 67.59'			
T.P.						
	T 2.88'					
	M 2.706'					
	B 2.532'	(35)				
	A 2.707'					
	= 70.297'					
		T 5.63'				
		M 5.42'	(43)			
		B 5.205'	=			
		A 5.418'				
BM "WRWX"			= 64.879		64.877	S.F.W.M.D. BRASS DISC "WRWX"
					.002 ERR	
					.005 ALLOWABLE ERR	

So. Fla. Water Man. Dist.

WRWX

4" Floridan	88 = 68.327'	DTW	12' 9"
Shallow (North)	88 = 68.542'	DTW	18' 11"
Shallow (South)	88 = 68.592'	DTW	12' 7"
Hawthorn	88 = 68.952'	DTW	13' 2"

ALL PREVIOUS INFO ON WELL ELEV. WERE NOT FROM TOP OF PIPE. THEY WERE FROM INSIDE THE PVC. "T"

LAT/LONG. = 28° 02' 55" / 80° 24' 00" = BM "WRWX"

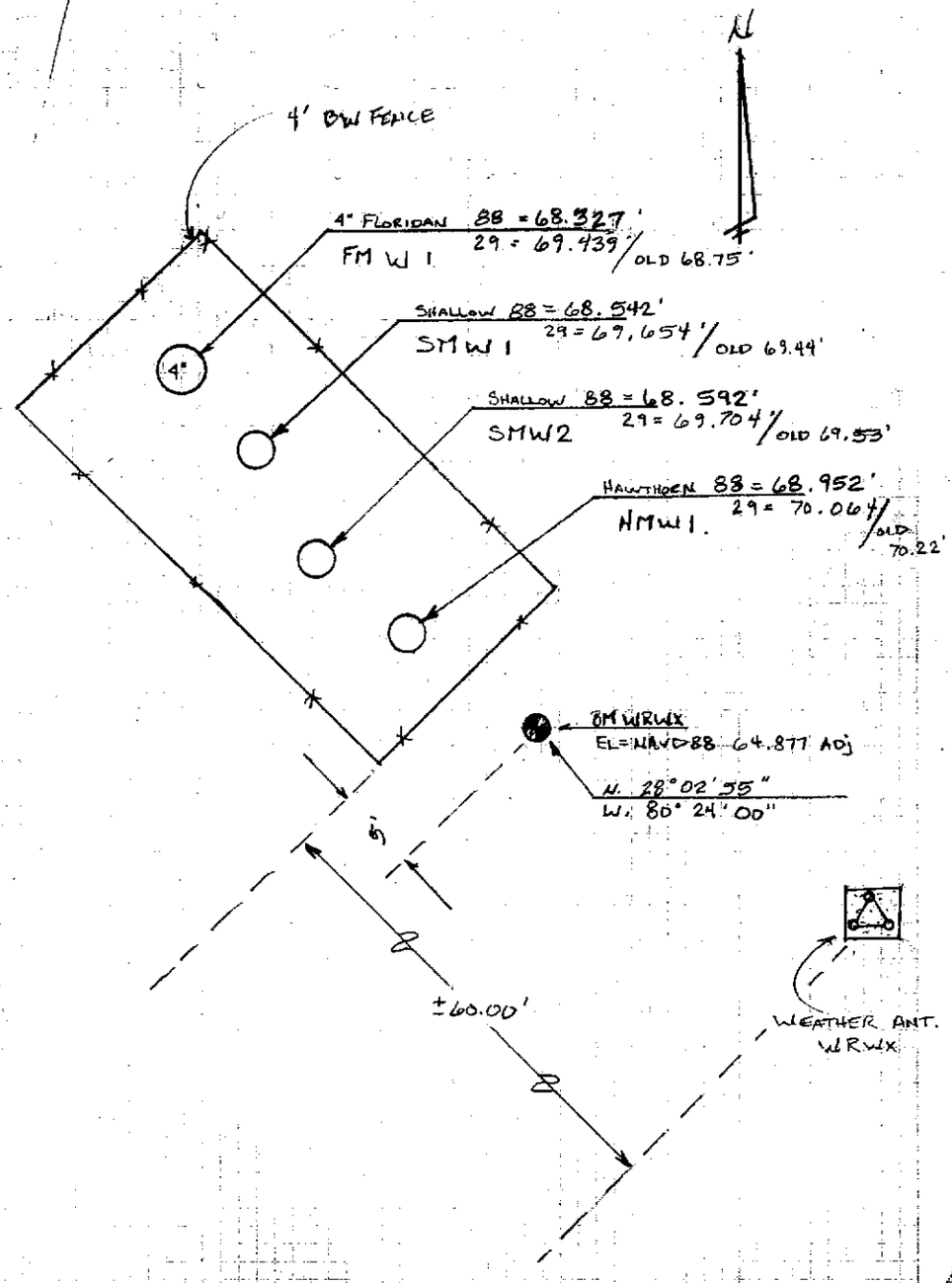
TOP OF PIPE DETAIL
W/ CAP REMOVED.

TOP OF PIPE NOTCHED & ELEVATED, ALSO COLORED BLACK W/ PERM MARKER
PER. MIKE MOSSEY @ K&S FT LAUD.

05-09-07
TC. TB.

+1.112' TO 29

SFWMD 10/40



So. Fla. Water Man. Dist.

WRWX

05-09-07
TC. TB.

SFWMD 10/41

Picture Index

-Pictures stored in office Sony Cyber Shot

Pic#	Remark.
14	BM OS 135
15	BM OS 134
16	So. Fla. Water Man. Dist Brass Disc "WRWX"
17	Well Station Looking North
18	" " Looking East
19	" " Looking West
20	" " Looking South
21	S.F.W.M.D. Alum Disc stamped DW-1 2002
37, 38, 39, 52	HMW 1
40, 41, 42, 51	SMW 2
43, 44, 45, 50	SMW 1
46, 47, 48, 49	FMW 1

So. Fla. Water Man. Dist.

WRWX

Route Directions.

- From the Inter sec. of Pleasant Hill & SouthPort Blvd Go S.W. for .50 to old Pleasant Hill, make left take old Pleasant Hill for .60 mi to the Disney Preserve main gate (scrub jay trail). make left & take scrub jay trail .40 mi to 1st dirt road on right. then go south <.05 mi to locked gate (S.F.W.M.D. "L" key needed) pass through gate & go south on dirt road for 6.45 mi station is on the right ± 250' west of ℄ dirt road.
4 well stand pipes are located within a 4' barb-wire fence. ± 65' North of weather station
"WRWX" 28° 02' 55" 80° 24' 00" ± 14' acc.

05-09-07
TC. TB.

SFWMD 10/42


MAY 3 2007


MAY 3 2007


MAY 3 2007


MAY 3 2007


MANAGER
RESERVE
DWL
BM
MARKER
2002
MAY 3 2007

WATER MGT. DISTRICT

STATION DESIGNATION

W R W X

YEAR 2007

DO NOT DISTURB

SURVEY MARKER

MAY 3 2007


SO. FLA. WATER MANAGEMENT DIST
SURVEY
OS-134
19 81
BM
MARKER
MAY 1 2007

FLA. WATER MANAGEMENT DIST.
SURVEY MARKER
MAY 1 2007


eTrex
LEGEND
Satellite
Ready To Navigate
Accuracy: 15 Feet
Location
N 28°02'55.8"
W081°24'00.2"
Elevation
70'
GARMIN
STATION DESIGNATION
W R W X
YEAR 2007
DO NOT DISTURB
SURVEY


SFL WATER MGT. DISTRICT
STATION DESIGNATION
W R W X
YEAR 2007
DO NOT DISTURB
SURVEY MARKER


4" FLORIDA
MAY 9 2007


69.439'
-1.112 TO
NAVD 88


68.75
FMW-1


FMW1
W
ELEV. 69.43
DATE 5-9-07
BY K AND S
NGVD 29


MAY 9 2007


70.22
HMW1


1.112
TO
NAVD
88


MAY 9 2007


SMN1


-1.112
TO
NAVD
88


10'
POS-11
SW1
SW1
10'


MAY 9 2007


69.52
SMW 2


-1.112
TO
NAVD
88

STAR*NET-PRO Version 6.0.33

Licensed for Use by Keith and Schnars, P.A.
Run Date: Thu May 31 2007 13:49:18

Summary of Files Used and Option Settings

Project Folder and Data Files

Project Name WRWX
Project Folder L:\PROJECTS\...\DIGITAL LEVEL\STARNET\NAVD88
Data File List 1. WRWX.dat
2. WRWX edited.dat

Project Option Settings

STAR*NET Run Mode : Adjust Only
Type of Adjustment : Lev
Project Units : FeetUS
Input/Output Coordinate Order : North-East
Create Coordinate File : Yes

Instrument Standard Error Settings

Project Default Instrument
Differential Levels : 0.009000 FeetUS / Mile

Summary of Unadjusted Input Observations

Number of Entered Stations (FeetUS) = 1

Fixed Stations	Elev	Description
OS135	64.7440	

Number of Differential Level Observations (FeetUS) = 27

From	To	Elev Diff	StdErr	Length
OS135	MAG1	1.0102	0.0052	1755
MAG1	MAG2	0.3286	0.0056	2029
MAG2	MAG3	0.1093	0.0061	2390
MAG3	IRC1	1.0784	0.0049	1581
IRC1	IRC2	-2.6409	0.0075	3631
IRC2	IRC3	0.4952	0.0083	4447
IRC3	IRC4	-1.1640	0.0079	4058
IRC4	IRC5	1.6673	0.0111	8066
IRC5	IRC6	-0.1860	0.0102	6830
IRC6	IRC7	0.4259	0.0071	3242
IRC7	IRC8	-0.2934	0.0090	5267
IRC8	IRC9	-0.4909	0.0043	1208
IRC9	DW1	-0.4023	0.0010	60
DW1	WRWX	0.1248	0.0012	101
WRWX	IRC9	0.2810	0.0014	126
IRC9	IRC8	0.4760	0.0043	1211
IRC8	IRC7	0.2667	0.0090	5267
IRC7	IRC6	-0.4467	0.0070	3239
IRC6	IRC5	0.1695	0.0102	6827
IRC5	IRC4	-1.6800	0.0111	8067
IRC4	IRC3	1.1666	0.0079	4061
IRC3	IRC2	-0.5033	0.0083	4449
IRC2	IRC1	2.6253	0.0075	3626
IRC1	MAG3	-1.0845	0.0049	1583
MAG3	MAG2	-0.1201	0.0061	2390
MAG2	MAG1	-0.3418	0.0056	2030
MAG1	OS135	-1.0007	0.0052	1754

Adjustment Statistical Summary

Number of Stations = 15

Number of Observations = 27
Number of Unknowns = 14
Number of Redundant Obs = 13

Observation	Count	Sum Squares of StdRes	Error Factor
Level Data	27	29.032	1.494
Total	27	29.032	1.494

Warning: The Chi-Square Test at 5.00% Level Exceeded Upper Bound Lower/Upper Bounds (0.621/1.379)

Adjusted Station Information

Coordinate Changes from Entered Provisionals (FeetUS)

Station	dZ
OS135	0.0000

Adjusted Elevations (FeetUS)

Station	Elev	Description
OS135	64.7440	
MAG1	65.7494	
MAG2	66.0846	
MAG3	66.1993	
IRC1	67.2808	
IRC2	64.6477	
IRC3	65.1469	
IRC4	63.9817	
IRC5	65.6553	
IRC6	65.4776	
IRC7	65.9139	
IRC8	65.6338	
IRC9	65.1503	
DW1	64.7473	
WRWX	64.8709	

Adjusted Observations and Residuals

Adjusted Differential Level Observations (FeetUS)

From	To	Elev Diff	Residual	StdErr	StdRes
OS135	MAG1	1.0054	-0.0048	0.0052	0.9
MAG1	MAG2	0.3352	0.0066	0.0056	1.2
MAG2	MAG3	0.1147	0.0054	0.0061	0.9
MAG3	IRC1	1.0814	0.0030	0.0049	0.6
IRC1	IRC2	-2.6331	0.0078	0.0075	1.0
IRC2	IRC3	0.4992	0.0040	0.0083	0.5
IRC3	IRC4	-1.1653	-0.0013	0.0079	0.2
IRC4	IRC5	1.6736	0.0063	0.0111	0.6
IRC5	IRC6	-0.1777	0.0083	0.0102	0.8
IRC6	IRC7	0.4363	0.0104	0.0071	1.5
IRC7	IRC8	-0.2801	0.0133	0.0090	1.5
IRC8	IRC9	-0.4835	0.0074	0.0043	1.7
IRC9	DW1	-0.4030	-0.0007	0.0010	0.8
DW1	WRWX	0.1236	-0.0012	0.0012	1.0
WRWX	IRC9	0.2795	-0.0015	0.0014	1.1
IRC9	IRC8	0.4835	0.0075	0.0043	1.7
IRC8	IRC7	0.2801	0.0134	0.0090	1.5
IRC7	IRC6	-0.4363	0.0104	0.0070	1.5
IRC6	IRC5	0.1777	0.0082	0.0102	0.8
IRC5	IRC4	-1.6736	0.0064	0.0111	0.6
IRC4	IRC3	1.1653	-0.0013	0.0079	0.2

IRC3	IRC2	-0.4992	0.0041	0.0083	0.5
IRC2	IRC1	2.6331	0.0078	0.0075	1.0
IRC1	MAG3	-1.0814	0.0031	0.0049	0.6
MAG3	MAG2	-0.1147	0.0054	0.0061	0.9
MAG2	MAG1	-0.3352	0.0066	0.0056	1.2
MAG1	OS135	-1.0054	-0.0047	0.0052	0.9

Elapsed Time = 00:00:00

→17
44

00001C54
STARPLUS
0000D4AF

Field book SFWMD 10, pp. 04-38

List of turning points which are common to forward and backward runs between OS 135 and WRWX

Form of each line in this list:

TP [fwd. TP#] = [name used in Star*Net] = TP [bkwd. TP#]

TP 20 = "MAG1" = TP 235
TP 25 = "MAG2" = TP 230
TP 31 = "MAG3" = TP 224
TP 35 = "IRC1" = TP 220
TP 44 = "IRC2" = TP 211
TP 55 = "IRC3" = TP 200
TP 65 = "IRC4" = TP 190
TP 85 = "IRC5" = TP 170
TP 102 = "IRC6" = TP 153
TP 110 = "IRC7" = TP 145
TP 123 = "IRC8" = TP 132
TP 126 = "IRC9" = TP 129

16434.00.22187 Well WRWX

Misclosure checks for leveling involving B.M.'s OS 134, OS 135, and WRWX

From-to station pair	*d.e. (ft.)*	*Section length (ft.)*		
1) Leveling between published NGS bench marks OS 134 and OS 135				
OS134-OS135	-5.9019	5693		
OS 134 (publ.)	*70.649*			
OS 135 (observed)	64.7471	(Sum of d.e. and publ. OS 134)		
OS 135 (publ.)	*64.744*			
Misclosure (O-A)	***0.0031***			
Allowable misclosure:	***0.0312***	*Misclosure does not exceed allowable*		
2) Misclosures between consecutive sections having common turning points between OS 135 and WRWX				
OS135-MAG1	1.0102	1755		
MAG1-OS135	-1.0007	1754		
Partial & sum of dist:	***0.0095***	***3509***	***0.0095***	***Cumulative partial from OS 135***
Allowable:	***0.0245***	*Misclosure does not exceed allowable*		
MAG1-MAG2	0.3286	2029		
MAG2-MAG1	-0.3418	2030		
Partial & sum of dist:	***-0.0132***	***4059***	***-0.0037***	***Cumulative partial from OS 135***
Allowable:	***0.0263***	*Misclosure does not exceed allowable*		
MAG2-MAG3	0.1093	2390		
MAG3-MAG2	-0.1201	2390		
Partial & sum of dist:	***-0.0108***	***4780***	***-0.0145***	***Cumulative partial from OS 135***
Allowable:	***0.0285***	*Misclosure does not exceed allowable*		
MAG3-IRC1	1.0784	1581		
IRC1-MAG3	-1.0845	1583		
Partial & sum of dist:	***-0.0061***	***3164***	***-0.0206***	***Cumulative partial from OS 135***
Allowable:	***0.0232***	*Misclosure does not exceed allowable*		
IRC1-IRC2	-2.6409	3631		
IRC2-IRC1	2.6253	3626		
Partial & sum of dist:	***-0.0156***	***7257***	***-0.0362***	***Cumulative partial from OS 135***
Allowable:	***0.0352***	*Misclosure does not exceed allowable*		
IRC2-IRC3	0.4952	4447		
IRC3-IRC2	-0.5033	4449		
Partial & sum of dist:	***-0.0081***	***8896***	***-0.0443***	***Cumulative partial from OS 135***

Differences in elevation and section lengths were extracted from the Leica GSI file by Star*DNA version 4.0.5 (Starplus Software).

The value of the allowable misclosure is computed as 0.03*sqrt(M), where M is the total loop length (i.e., BM "start" to BM "end" and back to BM "start") in miles.

Allowable:	***0.0389***	*Misclosure does not exceed allowable*		
IRC3-IRC4	-1.1640	4058		
IRC4-IRC3	1.1666	4061		
Partial & sum of dist:	***0.0026***	***8119***	***-0.0417***	***Cumulative partial from OS 135***
Allowable:	***0.0372***	*Misclosure does not exceed allowable*		
IRC4-IRC5	1.6673	8066		
IRC5-IRC4	-1.6800	8067		
Partial & sum of dist:	***-0.0127***	***16133***	***-0.0544***	***Cumulative partial from OS 135***
Allowable:	***0.0524***	*Misclosure does not exceed allowable*		
IRC5-IRC6	-0.1860	6830		
IRC6-IRC5	0.1695	6827		
Partial & sum of dist:	***-0.0165***	***13657***	***-0.0709***	***Cumulative partial from OS 135***
Allowable:	***0.0482***	*Misclosure does not exceed allowable*		
IRC6-IRC7	0.4259	3242		
IRC7-IRC6	-0.4467	3239		
Partial & sum of dist:	***-0.0208***	***6481***	***-0.0917***	***Cumulative partial from OS 135***
Allowable:	***0.0332***	*Misclosure does not exceed allowable*		
IRC7-IRC8	-0.2934	5267		
IRC8-IRC7	0.2667	5267		
Partial & sum of dist:	***-0.0267***	***10534***	***-0.1184***	***Cumulative partial from OS 135***
Allowable:	***0.0424***	*Misclosure does not exceed allowable*		
IRC8-IRC9	-0.4909	1208		
IRC9-IRC8	0.4760	1211		
Partial & sum of dist:	***-0.0149***	***2419***	***-0.1333***	***Cumulative partial from OS 135***
Allowable:	***0.0203***	*Misclosure does not exceed allowable*		
IRC9-DW1	-0.4023	60		
DW1-WRWX	0.1248	101		
WRWX-IRC9	0.2810	126		
Misclosure/dist. sum:	***0.0035***	***287***		
Allowable:	***0.0070***	*Misclosure does not exceed allowable*		

Total length, BM OS 135 to BM WRWX:

42618

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

COUNTY Polk	**PROJECT STRIVE**	**DESIGNATION WRWX**
SECTION 15	**TOWNSHIP 28 S**	**RANGE 29 E**
GEOGRAPHIC INDEX OF QUAD		
Established by Keith & Schnars, P.A. Recovered by	**NAME OF QUADRANGLE Lake Hatchineha**	
SURVEYOR T. Corbett DATE 5/ 9/ 2007	**FIELD BOOK SFWMD 10**	**PAGE 4–42**
HORIZONTAL DATUM: NAD 1983 zone East		
VERTICAL DATUM: NGVD 1929 and NAVD 1988		
CONTROL ACCURACY: HORIZONTAL (N/A, autonomous GPS) VERTICAL 3rd order		

STATE PLANE COORDINATES	**X 527130 U.S. Survey Feet**	**Y 1350670 U.S. Survey Feet**	**EL. NGVD 29 65.98' (VERTCON)** **EL. NAVD 88 64.87'**

LATITUDE **28°02'55.8"** LONGITUDE **-81°24'00.2"**

DESCRIPTION

To Reach: From the intersection of Pleasant Hill Road and Southport Road in Osceola County, Florida, go southwest for 0.5 mile to the Intersection of Pleasant Hill Road with Old Pleasant Hill Road; turn left onto Old Pleasant Hill Road and go 0.6 mile to the intersection of Scrub Jay Trail with Old Pleasant Hill Road; turn left on Scrub Jay Trail, which is the entrance to the Disney Wilderness Preserve, and go 0.4 mile to the first dirt road going right; turn right and go south on the dirt road for about 0.05 mile to a gate and continue south on the dirt road for another 6.5 miles to the station on the right. Bench mark WRWX is approximately 250 feet west of the dirt road.

Notable Land marks: Bench mark WRWX is situate on the SFWMD well site designated WRWX, and lies about 5 feet southeast of the midpoint of the southeast side of a 4' tall barb wire fence surrounding the four wells at the WRWX site.

SKETCH

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

```
DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.42
1        National Geodetic Survey,   Retrieval Date = JANUARY 11, 2007
 DF6743 ***********************************************************************
 DF6743  DESIGNATION -  OS 134
 DF6743  PID         -  DF6743
 DF6743  STATE/COUNTY-  FL/OSCEOLA
 DF6743  USGS QUAD   -  LAKE TOHOPEKALIGA (1987)
 DF6743
 DF6743                        *CURRENT SURVEY CONTROL
 DF6743  ______________________________________________________________________
 DF6743* NAD 83(1986)-  28 09 18.     (N)    081 25 23.     (W)     SCALED
 DF6743* NAVD 88     -        21.534  (meters)      70.65   (feet)  ADJUSTED
 DF6743  ______________________________________________________________________
 DF6743  GEOID HEIGHT-         -27.60  (meters)                      GEOID03
 DF6743  DYNAMIC HT  -          21.502 (meters)      70.54  (feet)  COMP
 DF6743  MODELED GRAV-     979,153.7   (mgal)                        NAVD 88
 DF6743
 DF6743  VERT ORDER  -  SECOND    CLASS I
 DF6743
 DF6743.The horizontal coordinates were scaled from a topographic map and have
 DF6743.an estimated accuracy of +/- 6 seconds.
 DF6743
 DF6743.The orthometric height was determined by differential leveling
 DF6743.and adjusted by the National Geodetic Survey in April 2004..
 DF6743
 DF6743.The geoid height was determined by GEOID03.
 DF6743
 DF6743.The dynamic height is computed by dividing the NAVD 88
 DF6743.geopotential number by the normal gravity value computed on the
 DF6743.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 DF6743.degrees latitude (g = 980.6199 gals.).
 DF6743
 DF6743.The modeled gravity was interpolated from observed gravity values.
 DF6743
 DF6743;                    North         East    Units  Estimated Accuracy
 DF6743;SPC FL E     -   423,460.      158,450.      MT  (+/- 180 meters Scaled)
 DF6743
 DF6743                          SUPERSEDED SURVEY CONTROL
 DF6743
 DF6743.No superseded survey control is available for this station.
 DF6743
 DF6743_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RMM584144(NAD 83)
 DF6743_MARKER: DD = SURVEY DISK
 DF6743_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
 DF6743_STAMPING: BM OS-134 1981
 DF6743_MARK LOGO: SFLWMD
 DF6743_PROJECTION: RECESSED 15 CENTIMETERS
 DF6743_MAGNETIC: N = NO MAGNETIC MATERIAL
 DF6743_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 DF6743+STABILITY: SURFACE MOTION
 DF6743_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 DF6743+SATELLITE: SATELLITE OBSERVATIONS - July 20, 2001
 DF6743
 DF6743  HISTORY     - Date     Condition        Report By
 DF6743  HISTORY     - 1981     MONUMENTED       SFLWMD
 DF6743  HISTORY     - 20010720 GOOD             FLDEP
 DF6743  HISTORY     - 20050202 GOOD             INDIV
 DF6743
 DF6743                          STATION DESCRIPTION
 DF6743
 DF6743'DESCRIBED BY FL DEPT OF ENV PRO 2001 (JLM)
 DF6743'THE MARK IS ABOUT 12.25 MI SOUTHWEST OF KISSIMMEE, IN SECTION 8,
 DF6743'TOWNSHIP 27 SOUTH, RANGE
 DF6743'29 EAST.
 DF6743'
 DF6743'TO REACH THE MARK FROM THE JUNCTION OF U.S. HIGHWAY 192 (VINE STREET)
 DF6743'AND U.S. HIGHWAY
 DF6743'17, 92 (JOHN YOUNG PARKWAY) IN KISSIMMEE, GO SOUTH ON U.S. HIGHWAY 17,
 DF6743'92 FOR 3.5 MI TO THE
 DF6743'JUNCTION OF PLEASANT HILL ROAD (COUNTY ROAD 531) ON THE LEFT, TURN
 DF6743'LEFT ON PLEASANT HILL
 DF6743'ROAD (COUNTY ROAD 531) AND GO SOUTH FOR 7.55 MI TO THE JUNCTION OF
 DF6743'SOUTHPORT ROAD ON
 DF6743'THE LEFT, TURN LEFT ON SOUTHPORT ROAD AND GO EAST FOR 1.2 MI TO THE
 DF6743'MARK ON THE RIGHT,
 DF6743'SET IN THE TOP OF A ROUND CONCRETE MONUMENT RECESSED 0.6 FT BELOW THE
 DF6743'LEVEL OF THE
 DF6743'GROUND AND THE LEVEL OF SOUTHPORT ROAD.
 DF6743'
 DF6743'LOCATED 265.0 FT WEST OF THE APPROXIMATE CENTERLINE OF HURT ROAD, 22.5
```

```
DF6743'FT SOUTH OF THE
DF6743'CENTERLINE OF SOUTHPORT ROAD, 1.2 FT NORTH OF A SFWMD METAL WITNESS
DF6743'POST, 1.0 FT WEST
DF6743'OF A BARBWIRE FENCE LEADING SOUTH AND 0.9 FT NORTH OF A BARBWIRE
DF6743'FENCE.
DF6743'
DF6743'
DF6743
DF6743                          STATION RECOVERY (2005)
DF6743
DF6743'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2005
DF6743'RECOVERED AS DESCRIBED. RECOVERY NOTE BY COONER AND ASSOCIATES, INC.

*** retrieval complete.
Elapsed Time = 00:00:00
```

```
DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.42
1        National Geodetic Survey,   Retrieval Date = JANUARY 11, 2007
 DF6750 ***********************************************************************
 DF6750  DESIGNATION -  OS 135
 DF6750  PID         -  DF6750
 DF6750  STATE/COUNTY-  FL/OSCEOLA
 DF6750  USGS QUAD   -  LAKE TOHOPEKALIGA (1987)
 DF6750
 DF6750                         *CURRENT SURVEY CONTROL
 DF6750 ______________________________________________________________________
 DF6750* NAD 83(1986)-  28 09 14.     (N)    081 26 15.     (W)     SCALED
 DF6750* NAVD 88     -        19.734  (meters)      64.74   (feet)  ADJUSTED
 DF6750 ______________________________________________________________________
 DF6750  GEOID HEIGHT-         -27.58  (meters)                      GEOID03
 DF6750  DYNAMIC HT  -          19.705 (meters)      64.65  (feet)  COMP
 DF6750  MODELED GRAV-     979,153.6   (mgal)                        NAVD 88
 DF6750
 DF6750  VERT ORDER  -  SECOND    CLASS I
 DF6750
 DF6750.The horizontal coordinates were scaled from a topographic map and have
 DF6750.an estimated accuracy of +/- 6 seconds.
 DF6750
 DF6750.The orthometric height was determined by differential leveling
 DF6750.and adjusted by the National Geodetic Survey in April 2004..
 DF6750
 DF6750.The geoid height was determined by GEOID03.
 DF6750
 DF6750.The dynamic height is computed by dividing the NAVD 88
 DF6750.geopotential number by the normal gravity value computed on the
 DF6750.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 DF6750.degrees latitude (g = 980.6199 gals.).
 DF6750
 DF6750.The modeled gravity was interpolated from observed gravity values.
 DF6750
 DF6750;                    North         East    Units  Estimated Accuracy
 DF6750;SPC FL E     -   423,340.      157,030.      MT  (+/- 180 meters Scaled)
 DF6750
 DF6750                          SUPERSEDED SURVEY CONTROL
 DF6750
 DF6750.No superseded survey control is available for this station.
 DF6750
 DF6750_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RMM570143(NAD 83)
 DF6750_MARKER: DD = SURVEY DISK
 DF6750_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)
 DF6750_STAMPING: BM OS-135 1981
 DF6750_MARK LOGO: SFLWMD
 DF6750_PROJECTION: FLUSH
 DF6750_MAGNETIC: N = NO MAGNETIC MATERIAL
 DF6750_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
 DF6750_SATELLITE: THE SITE LOCATION WAS REPORTED AS NOT SUITABLE FOR
 DF6750+SATELLITE: SATELLITE OBSERVATIONS - July 20, 2001
 DF6750_ROD/PIPE-DEPTH: 16.5 meters
 DF6750
 DF6750  HISTORY     - Date     Condition        Report By
 DF6750  HISTORY     - 1981     MONUMENTED       SFLWMD
 DF6750  HISTORY     - 20010720 GOOD             FLDEP
 DF6750  HISTORY     - 20050216 GOOD             INDIV
 DF6750
 DF6750                          STATION DESCRIPTION
 DF6750
 DF6750'DESCRIBED BY FL DEPT OF ENV PRO 2001 (JLM)
 DF6750'THE MARK IS ABOUT 10.0 MI SOUTHWEST OF KISSIMMEE, IN SECTION 8,
 DF6750'TOWNSHIP 27 SOUTH, RANGE
 DF6750'29 EAST.
 DF6750'
 DF6750'TO REACH THE MARK FROM THE JUNCTION OF U.S. HIGHWAY 192 (VINE STREET)
 DF6750'AND U.S. HIGHWAY
 DF6750'17, 92 (JOHN YOUNG PARKWAY) IN KISSIMMEE, GO SOUTH ON U.S. HIGHWAY 17,
 DF6750'92 FOR 3.5 MI TO THE
 DF6750'JUNCTION OF PLEASANT HILL ROAD (COUNTY ROAD 531) ON THE LEFT, TURN
 DF6750'LEFT ON PLEASANT HILL
 DF6750'ROAD (COUNTY ROAD 531) AND GO SOUTH FOR 7.55 MI TO THE JUNCTION OF
 DF6750'SOUTHPORT ROAD ON
 DF6750'THE LEFT, TURN LEFT ON SOUTHPORT ROAD AND GO EAST FOR 0.1 MI TO THE
 DF6750'MARK ON THE LEFT, A
 DF6750'DISK SET ON TOP OF A ROD DRIVEN INTO THE GROUND ENCASED IN A 6-INCH
 DF6750'PVC PIPE FLUSH WITH
 DF6750'THE GROUND AND LEVEL WITH SOUTHPORT ROAD, THE DISK IS RECESSED 1.0 FT
 DF6750'BELOW THE TOP OF
 DF6750'THE PVC PIPE.
```

```
DF6750'
DF6750'LOCATED 33.0 FT NORTH OF THE CENTERLINE OF SOUTHPORT ROAD, 14.5 FT
DF6750'EAST OF POWER POLE
DF6750'NUMBER 6-38430, 6.0 FT SOUTH-SOUTHWEST OF POWER POLE NUMBER K 6086733
DF6750'WITH 4 GUY WIRES
DF6750'ATTACHED AND 1.1 FT SOUTH OF A SFWMD METAL WITNESS POST.
DF6750'
DF6750'NOTE ACCESS TO THE DISK IS HAD THROUGH A 5-INCH SCREW CAP.
DF6750'
DF6750'
DF6750'
DF6750
DF6750                          STATION RECOVERY (2005)
DF6750
DF6750'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2005
DF6750'RECOVERED AS DESCRIBED. RECOVERY NOTE BY COONER AND ASSOCIATES, INC.

*** retrieval complete.
Elapsed Time = 00:00:00
```