

Surveyor's Report

**Well Sites: Holeyland, Rotenberger, TCEYDC,
3ANE, & 3ANW
Well Site Surveys
Broward, Okeechobee and Palm Beach Counties,
Florida**

SFWMD Work Order Number: 2

Contractors Project No. 4600000947

Report Date: 12/11/08

Submittal: Final

Prepared for:

South Florida Water Management District



Prepared By:



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Purpose

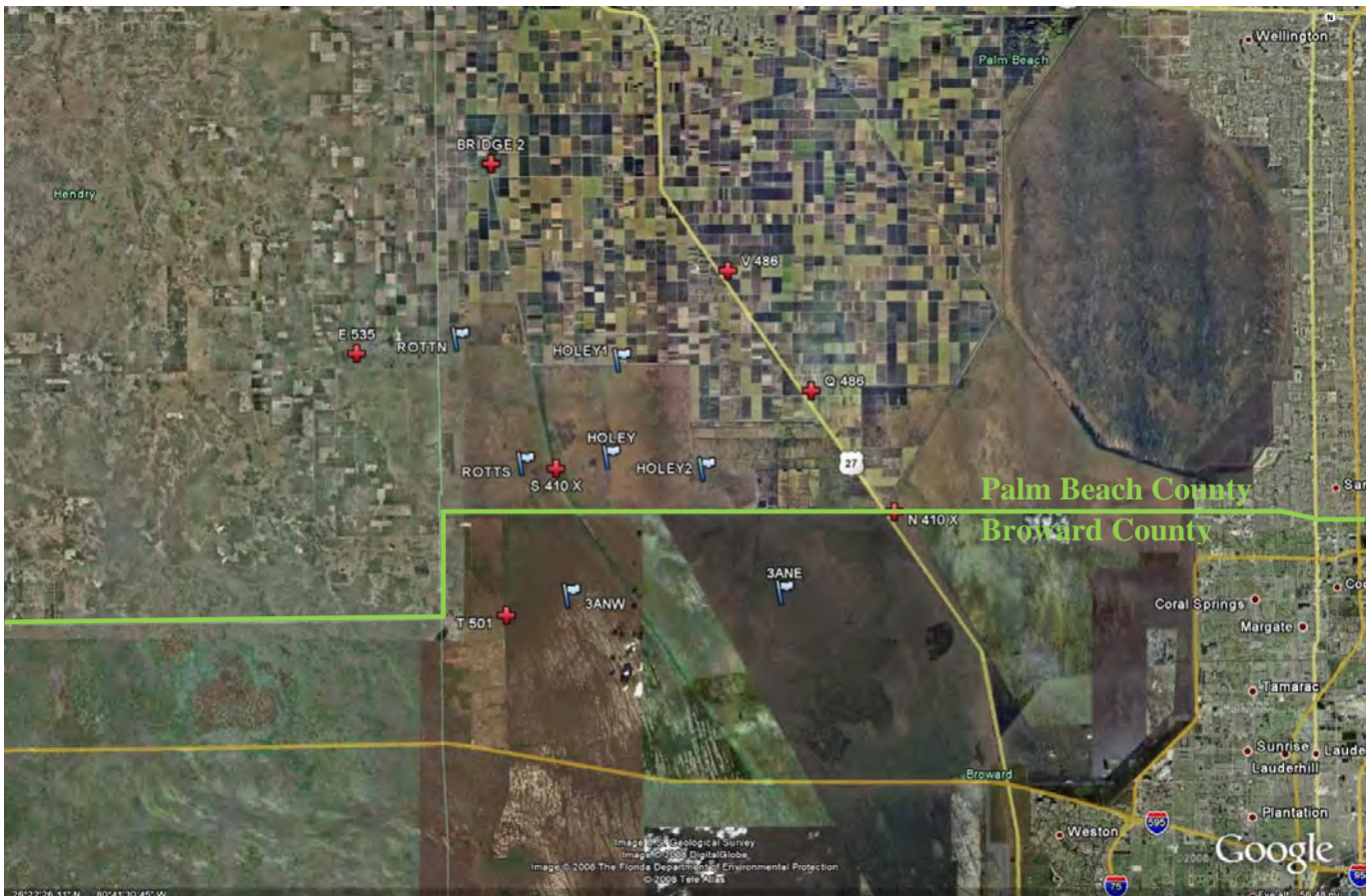
The purpose of this project is to establish site benchmarks with North American Vertical Datum of 1988 (NAVD 1988) and National Geodetic Vertical Datum of 1929 (NGVD 1929) at six well sites. Five are located within the Holeyland and Rotenberger Wild Life Management Areas in Palm Beach County and one is located in Okeechobee County at the Eckerd Youth Center. Additional benchmarks shall also be established on the well platforms and the measured distance to water shall also be recorded. Site photographs shall also be taken with close-ups of the recorder and the inside of the well casing. Existing well sites 3ANW and 3ANE are located in Broward County and have established benchmarks. New photographs and distance to water measurements for these wells are a part of this final report.

All services performed for this project were in accordance with Chapter 472 of the Florida Statutes, and under the direction of a Professional Surveyor and Mapper (PSM) registered in the State of Florida.

Project Location-1:

Project Location-1 is located within the northern portion of Broward County and the southern portion of Palm Beach County as represented on the following aerial map showing the approximate location of the well sites and NGS survey control used for this survey.

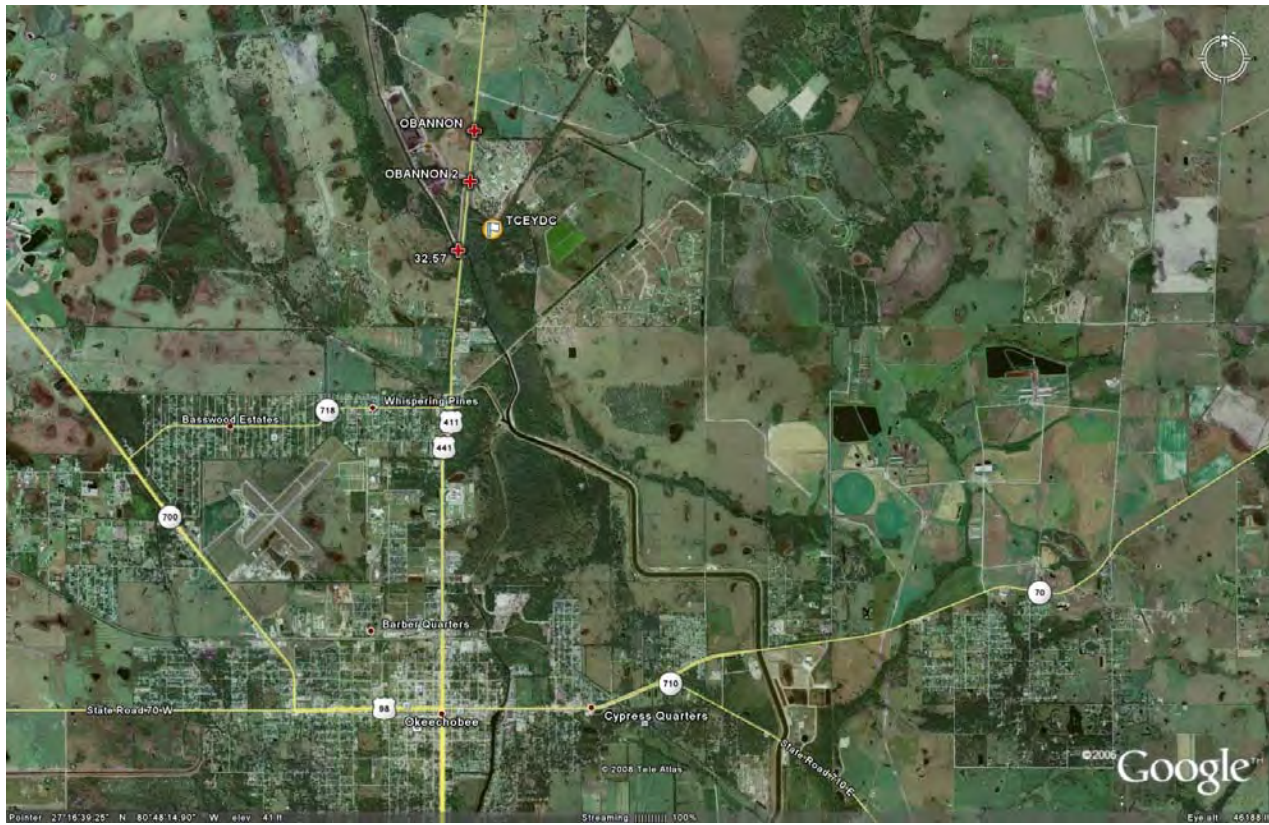
Figure 1: Project Locations – North Broward County and South Palm Beach County



Project Location-2:

Project Location-2 is located within Okeechobee County as represented on the following aerial map showing the approximate location of the well site and NGS survey control used for this survey.

Figure 2: Project Locations - Okeechobee County



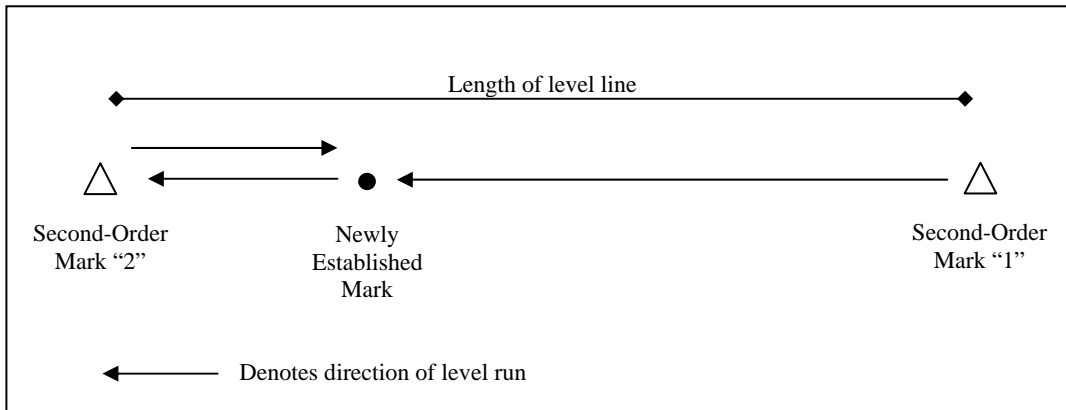
Items Delivered to the Client:

1. A CD containing the following:
 - Two copies of the survey report and one digital version in Microsoft Word format.
 - SFWMD survey control data sheets.
 - Digital photos (named the photo files with the benchmark designations).
 - Scanned copies of field notes.
 - Any other digital files associated with the survey.
 - Completed District benchmark description sheets for all set marks.
2. Bi-weekly contract status reports were delivered previously to Howard Ehmke PSM, Project Manager at ehmke@sfwmd.gov; and Ronnie Hudson, District Field Representative at rhudson@sfwmd.gov during the course of the project. Said contract status reports are not included in this report.

Configuration of Level Runs:

The leveling for the project was performed in accordance with the Federal Geodetic Control Subcommittee standard for Third-Order, Class II geodetic leveling. A brief description of the procedures used follows.

For each level run, two existing NGS First-Order, Class II vertical benchmarks were used. The run was started at one of the benchmarks and closed to a second benchmark. Level loops to the contract control points were then performed, both starting and ending at verified benchmarks.



Equipment Used:

All leveling during this project was performed with a Leica NA2 level and a Philadelphia rod. Information and technical specification for the Leica NA2 level are available at <http://www.leica-geosystems.com>.

Expected Accuracy:

The expected accuracy for all level runs for this project is Third-Order-Class II. This accuracy standard was verified by applying the following formula for checking all level runs: 0.03' times the square root of the length of the level run in miles. All level runs for this project met or exceeded the expected accuracy standard.

Vertical Datum for the Project:

The vertical datum for the project is the NAVD 88. Elevations of the benchmarks are also shown in the NGVD 29. The NGVD 29 elevations shown within this report were established by using the superseded survey control values as depicted on the NSG data sheets for the survey control used to determine the vertical values of the site benchmarks. The all elevation datum is expressed in the U.S. foot unless otherwise stated.

Horizontal Datum for the Project:

The horizontal datum for the project is the North American Datum of 1983, NSRS2007 adjustment (83/07) East Zone.

HORIZONTAL/GPS METHODS

GPS Equipment and Software Used:

Three Trimble 4800 receiver/antenna and one Trimble R8 receiver/antenna (without ground plane) were used for all static sessions.

The GPS baselines were processed and adjusted using (TGO) Trimble Geomatics Office version 1.62.

GPS METHOD:

Due to the remote location within the Holeyland and Rotenberger Wildlife Management Areas and wet conditions due to tropical storm Fay and seasonal rains the sites retained from one foot to four feet of water. Therefore it was determined that a GPS static survey were the only way to efficiently obtain elevations on the proposed new site benchmarks. All sites within the Holeyland and Rotenberger Wildlife Management Areas had to be accessed by airboat. GPS observations for this project were preformed in accordance with guidelines for Establishing GPS-Derived Ellipsoid Heights (National Geodetic Survey Technical Memorandum NOS NGS-58)

Mr. Ronnie Taylor the NOAA advisor for the state of Florida was contacted and supplied a mission plan for the GPS static survey to produce final coordinates. Mr. Taylor required two session's per site using two NGS control monuments with occupation time of 1.5 hours and a time separation of 4.0 hours between observations. Calvin, Giordano and Associates occupied three NGS control monuments for each site and observation sessions lasted for 2.0 hours with 4.0 hours between occupation times. These procedures exceeded Mr. Taylor's minimum allowable occupation time.

GPS observations were conducted over six days:


September 19th, 2008
September 24th, 2008
September 25th, 2008
September 29th, 2008
October 1st, 2008
October 6th, 2008

The two observed adjusted values were averaged to check the average closure of the two sessions then compared to the total processed observations to obtain the final elevations of all static surveyed benchmarks. The expected accuracy for the final elevation of site benchmarks at HOLEY, HOLEY1, HOLEY2, ROTTN AND ROTTS is +/-0.10'.

GPS BASELINE PROCESSING AND ADJUSTMENT

Baselines were processed using TGO. Cycle slips within baselines were disabled before processing. For each session, (n-1) baselines were selected that produced fixed integer solutions with the lowest possible RMS values. Baselines were selected to ensure that all set benchmarks had multiple vectors from multiple NGS control stations. NGS control stations S 410 X, V 486, Q 486, N 410 X, T 501, R 535 and BRIDGE2 were used for horizontal and vertical constrained adjustment.

For final coordinates, baseline were processed independently for each session to check redundant measurements and then combined to compute final coordinates. NAD 83 (NSRS2007) NGS Adjustment and NAVD 88 as vertical datum and GEOID03 for geoid were used for final coordinate adjustment.

ROTTN		Elevation:	11.65 ft	(NAVD 88)	13.10 ft	(NGVD 29)
Bench Mark 1:	S 410 X		18.36 ft	(NAVD 88)	19.79 ft	(NGVD 29)
Bench Mark 2:	BRIDGE2		19.16 ft	(NAVD 88)	26.61 ft	(NGVD 29)
Benchmark 3:	E 535		22.11 ft	(NAVD 88)	23.56 ft	(NGVD 88)
Monitoring Well:	ROTTN		19.26 ft	(NAVD 88)	20.71 ft	(NGVD 29)
ESTABLISHED BY GPS			To Reach ROTTN:			
			<p>From the intersection of US Route 27 and the Palm Beach / Broward County Line proceed north on US 27 for 0.15 MI to a paved road on the left on the north side of the L-4 canal. Turn left and proceed west for +/- 6 MI where the road turns to rock, continue 8.7 MI to S8 pump station, cross over the pump station then proceed north over a small pump station to the first levee on left; then proceed west on the levee +/-2.5 MI to an airboat trail; then proceed north +/-8.5 MI along the airboat trail to the ROTTN well site. The benchmark is a South Florida Water Management District (SFWMD) Aluminum Cap set in the northwest concrete footer of well structure.</p>			
						

Well Site ROTTN

Benchmark Information. NGVD29

NAVD88 to NGVD29 offset +1.45' from NGS Data sheet Superseded Control

Established benchmark by GPS method: see above

Found existing benchmark stamped ROTT NORTH RESET 1999, El. 15.44'

CGA this survey measured elevation El. 15.52' on this survey.

Reference mark: Found ink marker mark on well deck.

Existing elevation of ink marker mark El. 20.64'


CGA established elevation and set brass tag at El. 20.71'

Average Ground Elevation: = 12.0'

Distance to Water (DTW): from brass tag reference mark: 20.71'-7.20' DTW: El. 13.51'
9/9/2008 at 1:45 PM

Staff Gauge: El. 13.31' CGA measured El. 13.38'

18.54 Field Notes
18.56 Brass Tag

ROTTS		Elevation:	11.31 ft (NAVD 88)	12.74 ft	(NGVD 29)
Bench Mark 1:	S 410 X		18.36 ft (NAVD 88)	19.79 ft	(NGVD 29)
Bench Mark 2:	T 501		20.08 ft (NAVD 88)	21.51 ft	(NGVD 29)
Benchmark 3:	E 535		22.11 ft (NAVD 88)	23.56 ft	(NGVD 88)
Monitoring Well:	ROTTS		19.26 ft (NAVD 88)	20.71 ft	(NGVD 29)
ESTABLISHED BY GPS		To Reach ROTTs:			
		<p>From the intersection of US Route 27 and the Palm Beach / Broward County Line proceed north on US 27 for 0.15 MI to a paved road on the left on the north side of the L-4 canal. Turn left and proceed west for +/- 6 MI where the road turns to rock, continue +/- 8.7 MI to S8 pump station, cross over pump station then proceed north over small pump station to the first levee on left, then proceed west on the levee +/-2.5 MI to an airboat trail, then proceed north along the airboat trail +/-1.8 MI to the ROTTs well site. The benchmark is a South Florida Water Management District (SFWMD) Aluminum Cap set in the northwest concrete footer of well structure.</p>			
					

19.97 Field Notes
19.99 Brass Tag

Well Site ROTTs

Benchmark Information. NGVD29

NAVD88 to NGVD29 offset +1.43' from NGS Data sheet Superseded Control

Established benchmark by GPS method: see above

Found existing benchmark stamped ROT SOUTH RESET 1994, El. 14.81'

CGA measured elevation 14.83' on this survey.

Reference mark: Found ink marker mark on well deck.

Existing elevation of ink marker mark El. 19.95'

CGA established elevation and set brass tag at El. 19.97'

Average Ground Elevation: 11.7'

Distance to Water (DTW): from brass tag reference mark: 19.97'-6.70' DTW: El. 13.27'
10/16/2008 1:35 PM

Staff Gauge: EL=13.30'. CGA measured El. 13.30'

SURVEYOR'S 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 61G17, Florida Administrative Code. This report is prepared for the sole and specific use of the South Florida Water Management District and is not assignable.

**Calvin, Giordano & Associates, Inc.
L.B. Number 6791**

**12/09/2008
Last Date of Field Survey**

**By: _____
Jon P. Weber, PSM
Professional Surveyor and Mapper
State of Florida Certificate No. 4323**

The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

DATABASE = , PROGRAM = datasheet, VERSION = 7.64

1 National Geodetic Survey, Retrieval Date = DECEMBER 1, 2008

AJ6774 *****

AJ6774 DESIGNATION - E 535
 AJ6774 PID - AJ6774
 AJ6774 STATE/COUNTY- FL/HENDRY
 AJ6774 USGS QUAD - LITTLE CYPRESS (1990)

AJ6774 *CURRENT SURVEY CONTROL

AJ6774* NAD 83(2007)- 26 26 03.07920(N) 080 56 45.91576(W) ADJUSTED
 AJ6774* NAVD 88 - 6.739 (meters) 22.11 (feet) ADJUSTED

AJ6774 EPOCH DATE - 2002.00
 AJ6774 X - 899,342.562 (meters) COMP
 AJ6774 Y - -5,643,849.641 (meters) COMP
 AJ6774 Z - 2,822,209.500 (meters) COMP
 AJ6774 LAPLACE CORR- -0.61 (seconds) DEFLEC99
 AJ6774 ELLIP HEIGHT- -18.028 (meters) (02/10/07) ADJUSTED
 AJ6774 GEOID HEIGHT- -24.75 (meters) GEOID03
 AJ6774 DYNAMIC HT - 6.728 (meters) 22.07 (feet) COMP

AJ6774 ----- Accuracy Estimates (at 95% Confidence Level in cm) -----

Type	PID	Designation	North	East	Ellip
NETWORK	AJ6774	E 535	1.08	1.06	2.12

AJ6774 MODELED GRAV- 979,064.3 (mgal) NAVD 88

AJ6774 VERT ORDER - FIRST CLASS II

AJ6774.The horizontal coordinates were established by GPS observations
 AJ6774.and adjusted by the National Geodetic Survey in February 2007.

AJ6774.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).
 AJ6774.See [National Readjustment](#) for more information.
 AJ6774.The horizontal coordinates are valid at the epoch date displayed above.
 AJ6774.The epoch date for horizontal control is a decimal equivalence
 AJ6774.of Year/Month/Day.

AJ6774.The orthometric height was determined by differential leveling
 AJ6774.and adjusted in January 2002.

AJ6774.The X, Y, and Z were computed from the position and the ellipsoidal ht.

AJ6774.The Laplace correction was computed from DEFLEC99 derived deflections.

AJ6774.The ellipsoidal height was determined by GPS observations
 AJ6774.and is referenced to NAD 83.

AJ6774.The geoid height was determined by GEOID03.

AJ6774.The dynamic height is computed by dividing the NAVD 88
 AJ6774.geopotential number by the normal gravity value computed on the
 AJ6774.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 AJ6774.degrees latitude (g = 980.6199 gals.).

AJ6774.The modeled gravity was interpolated from observed gravity values.

DATASHEETS

```
AJ6774;
AJ6774;SPC FL E - 232,717.484 205,377.263 MT 0.99994153 +0 01 26.4
AJ6774;SPC FL E - 763,507.28 673,808.57 sFT 0.99994153 +0 01 26.4
AJ6774;UTM 17 - 2,923,770.063 505,375.428 MT 0.99960036 +0 01 26.4
AJ6774
AJ6774! - Elev Factor x Scale Factor = Combined Factor
AJ6774!SPC FL E - 1.00000283 x 0.99994153 = 0.99994436
AJ6774!UTM 17 - 1.00000283 x 0.99960036 = 0.99960319
```

```
AJ6774
AJ6774|-----|
AJ6774| PID      Reference Object          Distance      Geod. Az |
AJ6774|                                     dddmmss.s |
AJ6774| AJ6805 G 342 D                    19.638 METERS 31327 |
AJ6774|-----|
```

```
AJ6774
AJ6774 SUPERSEDED SURVEY CONTROL
AJ6774
AJ6774 NAD 83(1999)- 26 26 03.07943(N) 080 56 45.91561(W) AD( ) 1
AJ6774 ELLIP H (12/12/02) -18.024 (m) GP( ) 2 2
AJ6774 NAVD 88 (12/12/02) 6.74 (m) 22.1 (f) LEVELING 3
```

```
AJ6774
AJ6774.Superseded values are not recommended for survey control.
AJ6774.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AJ6774.See file dsdata.txt to determine how the superseded data were derived.
```

```
AJ6774
AJ6774 U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNK0537523770 (NAD 83)
AJ6774 MARKER: F = FLANGE-ENCASED ROD
AJ6774 SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)
AJ6774 STAMPING: E 535 2001 CERP
AJ6774 MARK LOGO: NONE
AJ6774 PROJECTION: RECESSED 10 CENTIMETERS
AJ6774 MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET
AJ6774 STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
AJ6774 SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AJ6774+SATELLITE: SATELLITE OBSERVATIONS - June 18, 2007
AJ6774 ROD/PIPE-DEPTH: 24.8 meters
```

```
AJ6774
AJ6774 HISTORY - Date Condition Report By
AJ6774 HISTORY - 20010712 MONUMENTED MOREKL
AJ6774 HISTORY - 2002 GOOD MAPTEC
AJ6774 HISTORY - 20030221 GOOD FLDEP
AJ6774 HISTORY - 20041108 GOOD WEIDEN
AJ6774 HISTORY - 20070618 GOOD GCT
```

```
AJ6774
AJ6774 STATION DESCRIPTION
AJ6774
AJ6774'DESCRIBED BY MORGAN AND EKLUND INC 2001 (MAB)
AJ6774'THE STATION IS LOCATED ABOUT 50.5 KM (31.4 MILES) NORTHEAST OF MILES
AJ6774'CITY, ABOUT 59.6 KM (37.0
AJ6774'MILES) NORTHWEST OF ANDYTOWN, ABOUT 35.6 KM (22.1 MILES) SOUTH OF
AJ6774'CLEWISTON, IN SECTION
AJ6774'33, TOWNSHIP 46 SOUTH, RANGE 34 EAST.
AJ6774'
AJ6774'OWNERSHIP SOUTH FLORIDA WATER MANAGEMENT DISTRICT (CANAL RIGHT OF
AJ6774'WAY)
AJ6774'
AJ6774'TO REACH THE STATION FROM THE INTERSECTION OF STATE ROAD 80 AND COUNTY
AJ6774'ROAD 833, ABOUT
AJ6774'19.4 KM (12.0 MILES) WEST OF CLEWISTON, GO SOUTH ON COUNTY ROAD 833
AJ6774'FOR 32.5 KM (20.2 MILES)
AJ6774'TO THE JUNCTION OF COUNTY ROAD 846, GO EAST ON COUNTY ROAD 846/833 FOR
AJ6774'9.6 KM (6.0 MILES)
AJ6774'TO A 90 DEGREE BEND TO THE SOUTH, CONTINUE SOUTH ALONG COUNTY ROAD 833
AJ6774'FOR 3.2 KM (2.0
AJ6774'MILES) TO THE JUNCTION OF COUNTY ROAD 835 (ALSO KNOWN AS COUNTY ROAD
AJ6774'846), GO EAST
```


AJ6774'RECOVERY NOTE BY FL DEPT OF ENV PRO 2003 (JLM)
AJ6774'THE MARK IS ABOUT 29.5 MI EAST IF IMMOKALEE, 26.0 MI SOUTH OF
AJ6774'CLEWISTON, SECTION 33, TOWNSHIP 46 SOUTH, RANGE 34 EAST.
AJ6774'
AJ6774'TO REACH THE MARK FROM THE JUNCTION OF U.S. HIGHWAY 27 SOUTHBOUND
AJ6774'LANES AND MIAMI CANAL ROAD IN LAKE HARBOR (ABOUT 6.5 MI WESTERLY OF
AJ6774'SOUTHBAY), GO SOUTHERLY ON MIAMI CANAL ROAD FOR 0.15 MI TO THE
AJ6774'INTERSECTION OF CORKSCREW BOULEVARD, CONTINUE SOUTHERLY ON THE MIAMI
AJ6774'CANAL ROAD FOR 0.65 MI TO THE END OF THE PAVEMENT, CONTINUE SOUTHERLY
AJ6774'(ON THE WEST SIDE OF MIAMI CANAL) FOR 8.55 MI TO THE INTERSECTION OF A
AJ6774'PAVED ROAD (AT A BRIDGE SPANNING THE MIAMI CANAL), CONTINUE SOUTHERLY
AJ6774'ON THE WEST SIDE OF THE MIAMI CANAL FOR 6.15 MI TO A CANAL LEADING
AJ6774'WEST AND A 90 DEGREE BEND RIGHT, CONTINUE WESTERLY ON THE LEVEE ROAD
AJ6774'FOR 0.05 MI TO A ONE LANE BRIDGE ON THE LEFT, CONTINUE WESTERLY ON
AJ6774'THE LEVEE ROAD FOR APPROXIMATELY 75.0 FT TO A LOCKED GATE, PASSING
AJ6774'THROUGH THE GATE, CONTINUE WESTERLY ON THE LEVEE ROAD FOR 4.8 MI TO
AJ6774'THE T-JUNCTION OF A NORTH-SOUTH LEVEE ROAD, TURN LEFT ON THE LEVEE
AJ6774'ROAD AND GO SOUTH FOR 1.85 MI TO THE JUNCTION OF A LEVEE ROAD ON THE
AJ6774'RIGHT LEADING WEST, TURN RIGHT ON THE LEVEE ROAD AND GO WEST FOR 2.0
AJ6774'MI TO THE JUNCTION OF A LEVEE ROAD ON THE RIGHT LEADING NORTH, TURN
AJ6774'RIGHT ON THE LEVEE ROAD AND GO NORTH FOR 1.95 MI TO THE INTERSECTION
AJ6774'OF A LEVEE ROAD LEADING EAST-WEST, TURN LEFT ON THE LEVEE ROAD AND GO
AJ6774'WEST FOR 1.95 MI TO THE T-JUNCTION OF A NORTH-SOUTH LEVEE ROAD, TURN
AJ6774'LEFT ON THE LEVEE ROAD AND GO SOUTH FOR 2.0 MI TO THE JUNCTION OF A
AJ6774'LEVEE ROAD LEADING EAST AND A ROAD LEADING WEST SPANNING A CONCRETE
AJ6774'BRIDGE AND THE MARK ON THE LEFT, A STAINLESS STEEL ROD DRIVEN INTO THE
AJ6774'GROUND WITH A LOGO CAP RECESSED 0.4 FT BELOW THE LEVEL OF THE GROUND
AJ6774'AND ABOUT LEVEL WITH THE LEVEE ROAD, THE DATUM POINT IS RECESSED 0.2
AJ6774'FT BELOW THE LEVEL OF THE LOGO CAP. THE MARK CAN ALSO BE REACHED
AJ6774'FROM THE JUNCTION OF U.S. HIGHWAY 27 SOUTHBOUND LANES AND COUNTY ROAD
AJ6774'835 (EVERCANE ROAD) ON THE EAST SIDE OF CLEWISTON, GO SOUTH ON COUNTY
AJ6774'ROAD 835 (EVERCANE ROAD) FOR 11.5 MI TO THE INTERSECTION OF COUNTY
AJ6774'ROAD 835 AND CANAL L-1, CONTINUE WEST ON COUNTY ROAD 835 (ALSO KNOW
AJ6774'AS COUNTY ROAD 846) FOR 15.0 MI TO A 90 DEGREE BEND RIGHT (WEST) AND
AJ6774'A DIRT ROAD ON THE LEFT, TURN LEFT ON THE DIRT ROAD AND GO EAST FOR
AJ6774'2.1 MI TO THE EAST END OF A BRIDGE CROSSING CANAL L-1, CONTINUE EAST
AJ6774'ON THE DIRT ROAD FOR 0.05 MI TO THE JUNCTION OF A LEVEE ROAD ON THE
AJ6774'LEFT AND THE MARK ON THE LEFT.
AJ6774'
AJ6774'LOCATED 15.3 FT EAST OF THE APPROXIMATE CENTERLINE OF THE LEVEE ROAD,
AJ6774'15.0 FT EAST-SOUTHEAST OF A GATE AND 8.4 FT SOUTH OF A CARSONITE
AJ6774'WITNESS POST.
AJ6774'
AJ6774'NOTE ACCESS TO THE DATUM POINT IS HAD THROUGH A 5-INCH LOGO CAP.
AJ6774'
AJ6774'NOTE A BAR MAGNET WAS PLACED INSIDE OF THE LOGO CAP.
AJ6774'
AJ6774'NOTE FOR KEY CONTACT SOUTH FLORIDA WATER MANAGEMENT AT PHONE NUMBER
AJ6774'813-983-1431.
AJ6774
AJ6774 STATION RECOVERY (2004)
AJ6774
AJ6774'RECOVERY NOTE BY WEIDENER SURVEYING AND MAPPING 2004
AJ6774'RECOVERED AS DESCRIBED
AJ6774
AJ6774 STATION RECOVERY (2007)
AJ6774
AJ6774'RECOVERY NOTE BY GUSTIN, COTHERN, AND TUCKER, I 2007 (WBM)
AJ6774'RECOVERED IN GOOD CONDITION.

*** retrieval complete.

Elapsed Time = 00:00:00

The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

DATABASE = , PROGRAM = datasheet, VERSION = 7.64
1 National Geodetic Survey, Retrieval Date = DECEMBER 1, 2008
AJ6528 *****
AJ6528 DESIGNATION - T 501
AJ6528 PID - AJ6528
AJ6528 STATE/COUNTY- FL/BROWARD
AJ6528 USGS QUAD - NORTH OF LONE PALM (1979)
AJ6528
AJ6528 *CURRENT SURVEY CONTROL
AJ6528
AJ6528* NAD 83(2007)- 26 15 10.23562(N) 080 49 47.15390(W) ADJUSTED
AJ6528* NAVD 88 - 7.645 (meters) 25.08 (feet) ADJUSTED
AJ6528
AJ6528 EPOCH DATE - 2002.00
AJ6528 X - 912,219.950 (meters) COMP
AJ6528 Y - -5,650,814.782 (meters) COMP
AJ6528 Z - 2,804,204.653 (meters) COMP
AJ6528 LAPLACE CORR- 0.29 (seconds) DEFLEC99
AJ6528 ELLIP HEIGHT- -17.114 (meters) (02/10/07) ADJUSTED
AJ6528 GEOID HEIGHT- -24.75 (meters) GEOID03
AJ6528 DYNAMIC HT - 7.633 (meters) 25.04 (feet) COMP
AJ6528
AJ6528 ----- Accuracy Estimates (at 95% Confidence Level in cm) -----
AJ6528 Type PID Designation North East Ellip
AJ6528 -----
AJ6528 NETWORK AJ6528 T 501 0.55 0.74 0.88
AJ6528 -----
AJ6528 MODELED GRAV- 979,050.4 (mgal) NAVD 88
AJ6528
AJ6528 VERT ORDER - FIRST CLASS II
AJ6528
AJ6528.The horizontal coordinates were established by GPS observations
AJ6528.and adjusted by the National Geodetic Survey in February 2007.
AJ6528
AJ6528.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).
AJ6528.See National Readjustment for more information.
AJ6528.The horizontal coordinates are valid at the epoch date displayed above.
AJ6528.The epoch date for horizontal control is a decimal equivalence
AJ6528.of Year/Month/Day.
AJ6528
AJ6528.The orthometric height was determined by differential leveling
AJ6528.and adjusted in December 2001.
AJ6528
AJ6528.The X, Y, and Z were computed from the position and the ellipsoidal ht.
AJ6528
AJ6528.The Laplace correction was computed from DEFLEC99 derived deflections.
AJ6528
AJ6528.The ellipsoidal height was determined by GPS observations
AJ6528.and is referenced to NAD 83.
AJ6528
AJ6528.The geoid height was determined by GEOID03.
AJ6528
AJ6528.The dynamic height is computed by dividing the NAVD 88
AJ6528.geopotential number by the normal gravity value computed on the
AJ6528.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
AJ6528.degrees latitude (g = 980.6199 gals.).
AJ6528
AJ6528.The modeled gravity was interpolated from observed gravity values.
AJ6528

```

	North	East	Units	Scale Factor	Converg.
AJ6528;					
AJ6528;SPC FL E	- 212,636.859	217,005.906	MT	0.99994475	+0 04 31.1
AJ6528;SPC FL E	- 697,626.09	711,960.21	sFT	0.99994475	+0 04 31.1
AJ6528;UTM 17	- 2,903,696.289	517,000.104	MT	0.99960357	+0 04 31.1

AJ6528
 AJ6528!
 - Elev Factor x Scale Factor = Combined Factor
 AJ6528!SPC FL E - 1.00000269 x 0.99994475 = 0.99994744
 AJ6528!UTM 17 - 1.00000269 x 0.99960357 = 0.99960626

AJ6528

AJ6528

SUPERSEDED SURVEY CONTROL

AJ6528

AJ6528	NAD 83(1999)-	26 15 10.23573(N)	080 49 47.15419(W)	AD()	1
AJ6528	ELLIP H (04/07/04)	-17.109 (m)		GP()	2 2
AJ6528	NAVD 88 (04/07/04)	7.64 (m)	25.1	(f) LEVELING	3

AJ6528

AJ6528.Superseded values are not recommended for survey control.

AJ6528.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

AJ6528.[See file dsdata.txt](#) to determine how the superseded data were derived.

AJ6528

AJ6528_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNK1700003696(NAD 83)

AJ6528_MARKER: F = FLANGE-ENCASED ROD

AJ6528_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)

AJ6528_STAMPING: T 501 2000

AJ6528_MARK LOGO: NGS

AJ6528_PROJECTION: RECESSED 5 CENTIMETERS

AJ6528_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET

AJ6528_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL

AJ6528_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

AJ6528+SATELLITE: SATELLITE OBSERVATIONS - September 30, 2003

AJ6528_ROD/PIPE-DEPTH: 72.5 meters

AJ6528

AJ6528 HISTORY - Date Condition Report By

AJ6528 HISTORY - 2000 MONUMENTED FLDEP

AJ6528 HISTORY - 20030930 GOOD FLDEP

AJ6528

AJ6528

STATION DESCRIPTION

AJ6528

AJ6528'DESCRIBED BY FL DEPT OF ENV PRO 2000 (JLM)

AJ6528'THE MARK IS ABOUT 33.0 MI (53.1 KM) WEST OF ANDYTOWN, 8.0 MI (12.9 KM)

AJ6528'NORTHEAST OF SNAKE ROAD (I-75 EXIT 14) , ESTIMATED SECTION 3, TOWNSHIP

AJ6528'49 SOUTH, RANGE 35 EAST. TO REACH THE MARK FROM THE JUNCTION OF SNAKE

AJ6528'ROAD AND INTERSTATE HIGHWAY 75 (EXIT 14) NEAR ANDYTOWN, GO EAST ON

AJ6528'INTERSTATE HIGHWAY 75 FOR 1.8 MI (2.9 KM) TO THE EAST END OF THE

AJ6528'BRIDGE OVER CANAL L-28, CONTINUE EAST ON INTERSTATE HIGHWAY 75 FOR 0.1

AJ6528'MI (0.2 KM) TO THE JUNCTION OF A PAVED ROAD ON THE RIGHT, TURN RIGHT

AJ6528'ON THE PAVED ROAD AND GO SOUTH THEN WEST THEN NORTH PASSING UNDER

AJ6528'INTERSTATE HIGHWAY 75 FOR 0.2 MI (0.3 KM) TO A METAL GATE, CONTINUE

AJ6528'NORTH ON LEVEE ROAD 28 FOR 0.2 MI (0.3 KM) TO A LOCKED GATE, CONTINUE

AJ6528'NORTH ON LEVEE ROAD 28 FOR 0.1 MI (0.2 KM) TO THE JUNCTION OF A PAVED

AJ6528'ENTRANCE TO STRUCTURE NUMBER 140 ON THE RIGHT, CONTINUE NORTH ON THE

AJ6528'WEST SIDE OF STRUCTURE NUMBER 140 FOR 0.1 MI (0.2 KM) TO A LOCKED

AJ6528'GATE, CONTINUE NORTH ON LEVEE ROAD 28 FOR 5.55 MI (8.93 KM) TO A

AJ6528'TURNOUT ON THE RIGHT AND THE MARK ON THE RIGHT, A STAINLESS STEEL ROD

AJ6528'DRIVEN TO REFUSAL AT A DEPTH OF 72.5 FT (22.1 M) WITH A NGS LOGO CAP

AJ6528'RECESSED 0.2 FT (6.1 CM) BELOW THE LEVEL OF THE GROUND AND BELOW THE

AJ6528'LEVEL OF THE LEVEE ROAD, THE DATUM POINT IS RECESSED 0.6 FT (18.3 CM)

AJ6528'BELOW THE LEVEL OF THE NGS LOGO CAP, BAR-MAGNET NEAR DATUM POINT.

AJ6528'LOCATED 51.2 FT (15.6 M) NORTHEAST OF SURVEY DISK L-28-5 1980, 20.4 FT

AJ6528'(6.2 M) EAST OF THE APPROXIMATE CENTERLINE OF THE LEVEE ROAD, 1.5 FT

AJ6528'(0.5 M) NORTH OF A 4-INCH PVC PIPE WITH CAP AND 1.0 FT (0.3 M) WEST OF

AJ6528'A CARSONITE WITNESS POST. NOTE ACCESS TO THE DATUM POINT IS HAD

AJ6528'THROUGH A 5-INCH NGS LOGO CAP. NOTE FOR KEY CONTACT SOUTH FLORIDA

AJ6528'WATER MANAGEMENT, REGIONAL DIRECTOR, CLEWISTON FIELD STATION, PHONE

AJ6528'NUMBER 813-983-1431 AND MICCOSUKEE ADMINISTRATION OFFICE COMPLEX, PHONE

AJ6528'NUMBER 305-223-8380.

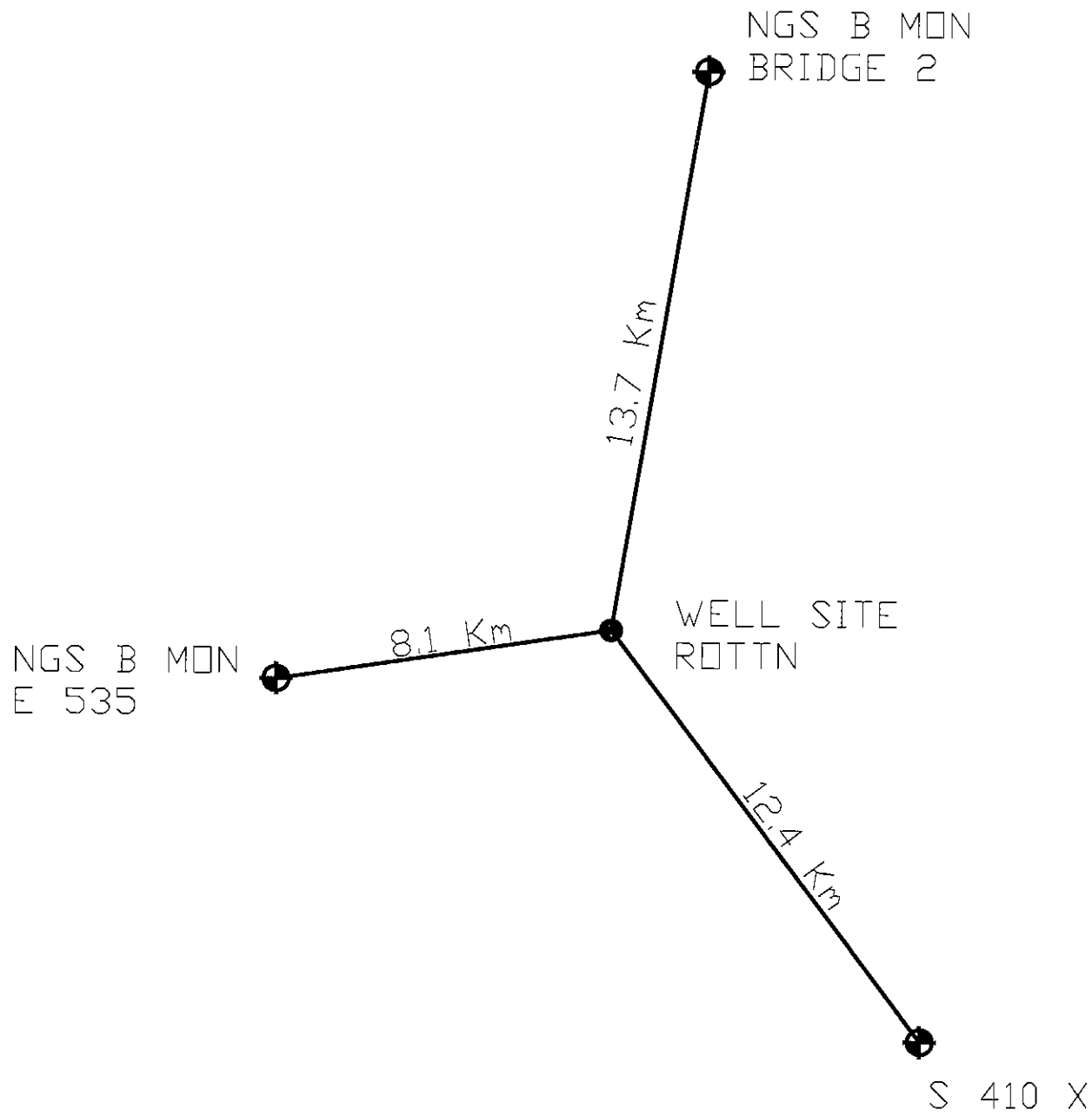
AJ6528

AJ6528 STATION RECOVERY (2003)
AJ6528
AJ6528'RECOVERY NOTE BY FL DEPT OF ENV PRO 2003 (RWH)
AJ6528'RECOVERED AS DESCRIBED.
AJ6528'
AJ6528'

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

Calvin, Giordano
Actual GPS Observation Sessions
In the Field

Station	Session	Day	Start Time	End Time	R8	4800	4800	4800
ROTTN	1	10/1/2008	8:45 AM	11:20 AM	E 535	BRIDGE2	S 410 X	ROTTN
ROTTN	2	10/1/2008	3:30 PM	5:45 PM	E 535	BRIDGE2	S 410 X	ROTTN
ROTTN	1	9/29/2008	8:45 AM	11:00 AM	E 535	T 501	S 410 X	ROTTN
ROTTN	2	10/6/2008	3:30 PM	5:50 PM	E 535	T 510	S 410 X	ROTTN
HOLEY	1	9/24/2008	9:03 AM	11:15 AM	V 486	S 410 X	T 501	HOLEY
HOLEY	2	9/24/2008	15:20 PM	17:40 PM	V 486	S 410 X	T 501	HOLEY
HOLEY1	1	10/10/2008	9:02 AM	11:15 AM	S 410 X	BRIDGE 2	V 486	HOLEY1
HOLEY1	2	10/10/2008	3:40 PM	5:55 PM	S 410 X	BRIDGE 2	V 486	HOLEY1
HOLEY2	1	9/25/2008	8:05 AM	10:20 AM	N 410 X	Q 486	S 410 X	HOLEY2
HOLEY2	2	9/25/2008	2:35 PM	4:50 PM	N 410 X	Q 486	S 410 X	HOLEY2



Calvin, Giordano & Associates, Inc.
Engineers Surveyors Planners

GPS STATION ASSIGNMENT

560 Village Blvd., Suite 340
 West Palm Beach, Florida 33409
 Phone: 561.684.6161 Fax 561.684.6360

PROJECT NAME: ROTTN PROJECT NUMBER: 065994.3 OPERATOR: DARVILLE DATE: 10/1/08
 RECEIVER SERIAL No.: 7019 RECEIVER TYPE: RB FILE NAME: E535B/E535C

OPERATOR	SESSION No. 1	SESSION No. 2	SESSION No. 3	SESSION No. 4	SESSION No. 5	SESSION No. 6	SESSION No. 7	SESSION No. 8	SESSION No. 9	SESSION No. 10
UNIT # 1 MCLMORE	ROTTN	ROTTN								
UNIT # 2 DARVILLE	E 535 G 406	E 535 G 406								
UNIT # 3 SCHNEIDER	BRIDGE2	BRIDGE2								
UNIT # 4 NICOLAS	S 410 X	S 410 X								
HI MEASURE & RECORD 3 SIDES	FT/MT 6.562 FT.	6.562 FT.								
ESTIMATED START TIME	8:45 AM	3:30 PM								
END TIME	11:20 AM	5:45 PM								
ACTUAL START TIME	8:45 AM	3:30 PM								
END TIME	11:20 AM	5:45 PM								

NOTES:

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GPS STATION ASSIGNMENT

560 Village Blvd., Suite 340
 West Palm Beach, Florida 33409
 Phone: 561.684.6161 Fax 561.684.6360

PROJECT NAME: ROTTN PROJECT NUMBER: 065994.3 OPERATOR: SCHNEIDER DATE: 2/6/08
 RECEIVER SERIAL No.: 512 RECEIVER TYPE: Trimble 4800 FILE NAME: _____

OPERATOR	SESSION No. 1	SESSION No. 2	SESSION No. 3	SESSION No. 4	SESSION No. 5	SESSION No. 6	SESSION No. 7	SESSION No. 8	SESSION No. 9	SESSION No. 10
UNIT # 1 MCLMORE	ROTTN	ROTTN								
UNIT # 2 DARVILLE	G 406	G 406								
UNIT # 3 SCHNEIDER 2	BRIDGE2	BRIDGE2								
UNIT # 4 NICOLAS	S 410 X	S 410 X								
HI MEASURE & RECORD 3 SIDES	4.705/1.435	4.705/1.435								
	4.705/1.435	4.705/1.435								
	4.705/1.435	4.705/1.435								
ESTIMATED START TIME	8:45	3:30								
END TIME	11:20	5:45								
ACTUAL START TIME	8:45	3:30								
END TIME	11:20	5:45								

NOTES: LIGHT FOG @ SESSION # 1 SUNNY SESSION # 2

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GPS STATION ASSIGNMENT

560 Village Blvd., Suite 340
 West Palm Beach, Florida 33409
 Phone: 561.684.6161 Fax 561.684.6360

PROJECT NAME: ROTTN PROJECT NUMBER: 065994.3 OPERATOR: NICOLAS DATE: 10-01-08
 RECEIVER SERIAL No.: 9590 RECEIVER TYPE: TRIMBLE 4800 FILE NAME: S 410X

OPERATOR	SESSION No. 1	SESSION No. 2	SESSION No. 3	SESSION No. 4	SESSION No. 5	SESSION No. 6	SESSION No. 7	SESSION No. 8	SESSION No. 9	SESSION No. 10
UNIT # 1 MCLMORE	ROTTN	ROTTN								
UNIT # 2 DARVILLE	E 535 G 406	E 535 G 406								
UNIT # 3 SCHNEIDER	BRIDGE2	BRIDGE2								
UNIT # 4 3 NICOLAS	S 410 X	S 410 X								
HI MEASURE & RECORD 3 SIDES	5.88/1.79	5.98/1.82								
	5.88/1.79	5.98/1.82								
	5.88/1.79	5.98/1.82								
ESTIMATED START TIME	09:00	15:25								
END TIME	11:00	17:40								
ACTUAL START TIME	09:00	15:30								
END TIME	11:20	17:45								

NOTES: Light pole 6'-0" NORTH WEST OF S410X. Added time is needed for both sessions.
 Party chief advised. See SKETCH ON BACK.

Calvin, Giordano & Associates, Inc.
Engineers Surveyors Planners

GPS STATION ASSIGNMENT

560 Village Blvd., Suite 340
 West Palm Beach, Florida 33409
 Phone: 561.684.6161 Fax 561.684.6360

PROJECT NAME: ROTTN PROJECT NUMBER: 065994.3 OPERATOR: McLEMORE DATE: 10/01/08
 RECEIVER SERIAL No. 335 RECEIVER TYPE: Trimble FILE NAME: _____

OPERATOR	SESSION No. 1	SESSION No. 2	SESSION No. 3	SESSION No. 4	SESSION No. 5	SESSION No. 6	SESSION No. 7	SESSION No. 8	SESSION No. 9	SESSION No. 10
UNIT # 1 MCLMORE	ROTTN	ROTTN								
UNIT # 2 DARVILLE Lyke	G-406 E-535	G-406 E-535								
UNIT # 3 SCHNEIDER	BRIDGE2	BRIDGE2								
UNIT # 4 NICOLAS	S 410 X	S 410 X								
HI MEASURE & RECORD 3 SIDES	^{FT/WT} 10:05 / 3:07 PM	10:05 / 3:07 PM								
	^{FT/WT} 10:05 / 3:07 PM	10:05 / 3:07 PM								
	^{FT/WT} 10:05 / 3:07 PM	10:05 / 3:07 PM								
ESTIMATED START TIME	8:45 AM	3:30 PM								
END TIME	11:00 AM	5:45 PM								
ACTUAL START TIME	8:45 AM	3:30 PM								
END TIME	11:20 AM	5:45 PM								

NOTES: AM PC HOT DATA 10 min due to bad's not out till 9:20 AM 2 SMOX DISC UNDER WATER ± 0.30
 PM PC HOT

Calvin, Giordano
Actual GPS Observation Sessions
In the Field

Station	Session	Day	Start Time	End Time	R8	4800	4800	4800
ROTTN	1	10/1/2008	8:45 AM	11:20 AM	E 535	BRIDGE2	S 410 X	ROTTN
ROTTN	2	10/1/2008	3:30 PM	5:45 PM	E 535	BRIDGE2	S 410 X	ROTTN
ROTTN	1	9/29/2008	8:45 AM	11:00 AM	E 535	T 501	S 410 X	ROTTN
ROTTN	2	10/6/2008	3:30 PM	5:50 PM	E 535	T 510	S 410 X	ROTTN
HOLEY	1	9/24/2008	9:03 AM	11:15 AM	V 486	S 410 X	T 501	HOLEY
HOLEY	2	9/24/2008	15:20 PM	17:40 PM	V 486	S 410 X	T 501	HOLEY
HOLEY1	1	10/10/2008	9:02 AM	11:15 AM	S 410 X	BRIDGE 2	V 486	HOLEY1
HOLEY1	2	10/10/2008	3:40 PM	5:55 PM	S 410 X	BRIDGE 2	V 486	HOLEY1
HOLEY2	1	9/25/2008	8:05 AM	10:20 AM	N 410 X	Q 486	S 410 X	HOLEY2
HOLEY2	2	9/25/2008	2:35 PM	4:50 PM	N 410 X	Q 486	S 410 X	HOLEY2

NGS B MON
E 535

15.6 Km

2.4 Km

NGS B MON
S 410 X

ROTTS

11.7 Km

NGS B MON
T 501



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Engineers Surveyors Planners

GPS STATION ASSIGNMENT

560 Village Blvd., Suite 340
 West Palm Beach, Florida 33409
 Phone: 561.884.6161 Fax 561.684.6360

PROJECT NAME: ROTTS PROJECT NUMBER: 065994.3 OPERATOR: SCHNEIDER DATE: 9/19/03
 RECEIVER SERIAL No.: 8341 RECEIVER TYPE: TRIMBLE 4800 FILE NAME: _____

OPERATOR	SESSION No. 1	SESSION No. 2	SESSION No. 3	SESSION No. 4	SESSION No. 5	SESSION No. 6	SESSION No. 7	SESSION No. 8	SESSION No. 9	SESSION No. 10
UNIT # 1 MCLMORE	ROTTS	ROTTS								
UNIT # 2 DARVILLE	E535 G 406	G 406								
UNIT # 3 SCHNEIDER	T 501	T 501								
UNIT # 4 NICOLAS	S 410 X	S 410 X								
HI MEASURE & RECORD 3 SIDES	FT/HT 5.57/1.698	5.26/1.603								
	FT/HT 5.57/1.698	5.255/1.601								
	FT/HT 5.57/1.699	5.26/1.603								
ESTIMATED START TIME	8:45	9:15								
END TIME	11:00	5:30								
ACTUAL START TIME	8:45									
END TIME	11:00									

RM session failed

NOTES: _____

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GPS STATION ASSIGNMENT

560 Village Blvd., Suite 340
 West Palm Beach, Florida 33409
 Phone: 561.684.6161 Fax 561.684.6360

PROJECT NAME: ROTTS PROJECT NUMBER: 065994.3 OPERATOR: SCHENIDER DATE: 10/6/08
 RECEIVER SERIAL No.: 8341 RECEIVER TYPE: Trimble 4800 FILE NAME: _____

OPERATOR	SESSION No. 1	SESSION No. 2	SESSION No. 3	SESSION No. 4	SESSION No. 5	SESSION No. 6	SESSION No. 7	SESSION No. 8	SESSION No. 9	SESSION No. 10
UNIT # 1 MCLMORE	ROTTS	ROTTS								
UNIT # 4 LUKE	E 535	E 535								
UNIT # 2 SCHNEIDER	T 501	T 501								
UNIT # 3 NICOLAS	S 410 X	S 410 X								
HI MEASURE & RECORD 3 SIDES	FT/HT	5.675/1.731								
	FT/HT	5.685/1.74								
	FT/HT	5.675/1.731								
ESTIMATED START TIME		3:30								
END TIME		5:45								
ACTUAL START TIME		3:30								
END TIME		5:50								

NOTES: OVERCAST @ 4:00 - 5:50

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GPS STATION ASSIGNMENT

560 Village Blvd., Suite 340
 West Palm Beach, Florida 33409
 Phone: 561.684.6161 Fax 561.684.6360

PROJECT NAME: ROTTS PROJECT NUMBER: 065994.3 OPERATOR: MCLEMORE DATE: 09/29/08
 RECEIVER SERIAL No.: 2040 RECEIVER TYPE: Jumble FILE NAME: _____

OPERATOR	SESSION No. 1	SESSION No. 2	SESSION No. 3	SESSION No. 4	SESSION No. 5	SESSION No. 6	SESSION No. 7	SESSION No. 8	SESSION No. 9	SESSION No. 10
UNIT # 1 MCMORE	ROTTS	ROTTS								
UNIT # 2 DARVILLE	G-408 E-535	G-408 E-535								
UNIT # 3 SCHNEIDER	T 501	T 501								
UNIT # 4 NICOLAS	S 410 X	S 410 X								
HI MEASURE & RECORD 3 SIDES	FT/HT 10:05/307M	10:05/307M								
	FT/HT 10:35/307M	10:35/307M								
	FT/HT 10:55/307M	10:55/307M								
ESTIMATED START TIME	3:45 AM	3:15 PM								
END TIME	11:00 AM	5:00 PM								
ACTUAL START TIME	8:45 AM	3:15 PM								
END TIME	11:00 AM	5:17 PM								

PM Session Failed

NOTES: FOUND ALUMINUM UNDER BASE MATS 10:05/307M 10:35/307M 10:55/307M Is tip of point out of base mat
AM - PC HOT
PM - Cloudy HOT 45 MIN RAIN - 1/2 IN 0.50 WATER ON TOP DRG

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GPS STATION ASSIGNMENT

560 Village Blvd., Suite 340
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PROJECT NAME: ROTTS PROJECT NUMBER: 065994.3 OPERATOR: McLEMORE DATE: 10/06/08
 RECEIVER SERIAL No.: 2040 RECEIVER TYPE: Trimble FILE NAME: _____

OPERATOR	SESSION No. 1	SESSION No. 2	SESSION No. 3	SESSION No. 4	SESSION No. 5	SESSION No. 6	SESSION No. 7	SESSION No. 8	SESSION No. 9	SESSION No. 10
UNIT # 1 MCLMORE	ROTTS	ROTTS								
UNIT # 4 LUKE	E 535	E 535								
UNIT # 2 SCHNEIDER	T 501	T 501								
UNIT # 3 NICOLAS	S 410 X	S 410 X								
HI MEASURE & RECORD 3 SIDES	FT/MT	10.095 / 3077 MT								
	FT/MT	10.095 / 3077 MT								
	FT/MT	10.10 / 3078 MT								
ESTIMATED START TIME		3:30 PM								
END TIME		5:45 PM								
ACTUAL START TIME		3:32 PM								
END TIME		5:56 PM								

NOTES: Cloudy. Hot than expected storm came for 15 on unit some lightning

Unit would not come on @ correct time after touching where wires are showing unit came on. Extended time to 6:50

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GPS STATION ASSIGNMENT

560 Village Blvd., Suite 340
 West Palm Beach, Florida 33409
 Phone: 561.684.6161 Fax 561.684.6360

PROJECT NAME: ROTTTS PROJECT NUMBER: 065994.3 OPERATOR: DARVILLE DATE: 9-29-2008
 RECEIVER SERIAL No.: 7019 RECEIVER TYPE: RB FILE NAME: E535 / E535 A

OPERATOR	SESSION No. 1	SESSION No. 2	SESSION No. 3	SESSION No. 4	SESSION No. 5	SESSION No. 6	SESSION No. 7	SESSION No. 8	SESSION No. 9	SESSION No. 10
UNIT # 1 MCLMORE	ROTTTS	ROTTTS								
UNIT # 2 DARVILLE	E 535 E 406	E 535 E 406								
UNIT # 3 SCHNEIDER	T 501	T 501								
UNIT # 4 NICOLAS	S 410 X	S 410 X								
HI MEASURE & RECORD 3 SIDES	FT/HT 6.562 FT	6.562 FT								
	FT/HT									
	FT/HT									
ESTIMATED START TIME	8:45 AM	3:15 PM								
END TIME	11:00 AM	5:17 PM								
ACTUAL START TIME	8:45 AM	3:15 PM								
END TIME	11:00 AM	5:17 PM								

2m session failed

NOTES:

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Engineers Surveyors Planners

GPS STATION ASSIGNMENT

560 Village Blvd., Suite 340
 West Palm Beach, Florida 33409
 Phone: 561.684.6161 Fax 561.684.6360

PROJECT NAME: ROTTS PROJECT NUMBER: 065994.3 OPERATOR: LUKE DATE: 10-6-08
 RECEIVER SERIAL No.: 7019 RECEIVER TYPE: R8 FILE NAME: E-535D

OPERATOR	SESSION No. 1	SESSION No. 2	SESSION No. 3	SESSION No. 4	SESSION No. 5	SESSION No. 6	SESSION No. 7	SESSION No. 8	SESSION No. 9	SESSION No. 10
UNIT # 1 MCLMORE	ROTTS	ROTTS								
UNIT # 4 LUKE	E 535	E 535								
UNIT # 2 SCHNEIDER	T 501	T 501								
UNIT # 3 NICOLAS	S 410 X	S 410 X								
HI MEASURE & RECORD 3 SIDES	FT/RT	6:56 PM								
	FT/RT	6:56 PM								
	FT/RT	6:56 PM								
ESTIMATED START TIME		3:30 pm								
END TIME		5:50 pm								
ACTUAL START TIME		3:30 pm								
END TIME		5:50 pm								

NOTES: Start raining at 4:10 pm to 4:30 pm, I put plastic Bag to
Cover Survey Controller. & COVER Receiver for 5 min.

Calvin, Giordano & Associates, Inc.
Engineers Surveyors Planners

GPS STATION ASSIGNMENT

560 Village Blvd., Suite 340
 West Palm Beach, Florida 33409
 Phone: 561.684.8161 Fax 561.684.8360

PROJECT NAME: ROTTTS PROJECT NUMBER: 065994.3 OPERATOR: NICOLAS DATE: 9-29-08
 RECEIVER SERIAL No.: 9590 RECEIVER TYPE: TRIMBLE 4800 FILE NAME: S 410 X

OPERATOR	SESSION No. 1	SESSION No. 2	SESSION No. 3	SESSION No. 4	SESSION No. 5	SESSION No. 6	SESSION No. 7	SESSION No. 8	SESSION No. 9	SESSION No. 10
UNIT # 1 <i>MCLMORE</i>	ROTTTS	ROTTTS								
UNIT # 2 <i>DARVILLE</i>	G 406	G 406								
UNIT # 3 <i>SCHNEIDER</i>	T 501	T 501								
UNIT # 4 <i>NICOLAS</i>	S 410 X	S 410 X								
HI MEASURE & RECORD 3 SIDES	<i>FT/MT</i> 5.94/1.81	<i>6.05/1.84</i>								
	<i>FT/MT</i> 5.94/1.81	<i>6.05/1.84</i>								
	<i>FT/MT</i> 5.94/1.81	<i>6.05/1.84</i>								
ESTIMATED START TIME	9:00	15:15								
END TIME	11:00	17:30								
ACTUAL START TIME	8:45	15:15								
END TIME	11:00	17:17								

PM Session Failed

NOTES: *Light Pole 6'-0" NORTH WEST OF S-410 X. Extra time might be necessary for both sessions. SKETCH ON BACK. PARTY CHIEF ADVISED.*

Calvin, Giordano & Associates, Inc.
Engineers Surveyors Planners

GPS STATION ASSIGNMENT

560 Village Blvd., Suite 340
 West Palm Beach, Florida 33409
 Phone: 561.684.6161 Fax 561.684.6360

PROJECT NAME: ROTTS PROJECT NUMBER: 065994.3 OPERATOR: NICOLAS DATE: 10-06-08
 RECEIVER SERIAL No.: 9590 RECEIVER TYPE: TRIMBLE 4800 FILE NAME: S 410 X

OPERATOR	SESSION No. 1	SESSION No. 2	SESSION No. 3	SESSION No. 4	SESSION No. 5	SESSION No. 6	SESSION No. 7	SESSION No. 8	SESSION No. 9	SESSION No. 10
UNIT # 1 MCLMORE	ROTTS	ROTTS								
UNIT # 4 LUKE	E 535	E 535								
UNIT # 2 SCHNEIDER	T 501	T 501								
UNIT # 3 NICOLAS	S 410 X	S 410 X								
HI MEASURE & RECORD 3 SIDES	FT/WT	6.08/1.85								
	FT/WT	6.08/1.85								
	FT/WT	6.08/1.85								
ESTIMATED START TIME		15:15								
END TIME		17:45								
ACTUAL START TIME		15:30								
END TIME		17:50								

NOTES: Light Pole in the vicinity of S410 X 6'-0". EXTRA TIME will be added for THE session. Crew Chief advised. See SKETCH ON BACK.

09/18/2008





MANHOLE COVER
3-14
SURREY
ROTIN
COSTA

09/18/2008



09/09/2008



09/09/2008



09/09/2008



09/09/2008



09/09/2008



09/09/2008



09/09/2008



09/09/2008



09/09/2008

P.T. Cable
S/N 208616
Fax: Tel: 10035123

VHF
1=169 425
2=169 525
3=171 025
4=171 050
5=170 275
6=170 225
Z=
8=

09/09/2008





Power Sonic
MODEL PS-12450 88
45 Amp. 45 Amp-hrs.

09/09/2008



20.64

09/09/2008





09/09/2008



7
6
5
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14.0
9
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7
6
5
4

09/09/2008



FL5155LF

09/09/2008



09/09/2008



09/09/2008



FLA. WATER RESOURCES BOARD
NORTH FLORIDA WATER MANAGEMENT DISTRICT
MARCH 1999

09/09/2008



09/09/2008



09/09/2008

ROTTNW
ELEV. 20.71
DATE 10/01/08
BY CGA
NAVD NGVD 29

10/16/2008



09/18/2008



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/08

COUNTY Palm Beach	PROJECT Holeyland Rotenberger Well Site Survey	DESIGNATION ROTTN
SECTION 32	TOWNSHIP 46 SOUTH	RANGE 35 EAST
NAME OF QUADRANGLE East of Little Cypress Swamp		
Established by Calvin, Giordano & Associates, Inc.	Recovered by _____ (Surveyor / Firm Name)	
DATE 10/01/2008	FIELD BOOK P-111 PAGE 33	
HORIZONTAL DATUM: 1927 1983 ADJ _____ Other _____ (circle one) ZONE E or W		
STATE PLANE COORDINATES	N 767182.7 ft	E 700105.0 ft
LATITUDE: N 26° 26' 39.29217"	LONGITUDE: W 80° 51' 56.57824"	
VERTICAL DATUM: MSL 1929 1988 Other _____ (circle one)	EL. 11.65 ft	
VERTICAL DATUM: MSL 1929 1988 Other _____ (circle one)	EL. 13.10 ft	
CONTROL ACCURACY: HORIZONTAL 1 2 3 SUB-METER (circle one) VERTICAL 1 2 3		
DESCRIPTION		
<p>To Reach: From the intersection of US Route 27 and the Palm Beach / Broward County Line proceed north on US 27 for 0.15 MI to a paved road on the left on the north side of the L-4 canal. Turn left and proceed west for 6 MI where the road turns to rock continue 8.7 MI to S8 pump station cross over pump station the proceed north over small pump station to the first levee on left then proceed west on levee 2.5 MI to an airboat trail then proceed north 8.5 MI to ROTTN well site. The benchmark is a South Florida Water Management District (SFWMD) Aluminum Cap set in the northwest concrete footer of well structure.</p>		
NGS Benchmarks Used: S 410 X, BRIDGE2 AND E 535		
Notable Land marks:		
SKETCH		



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/08

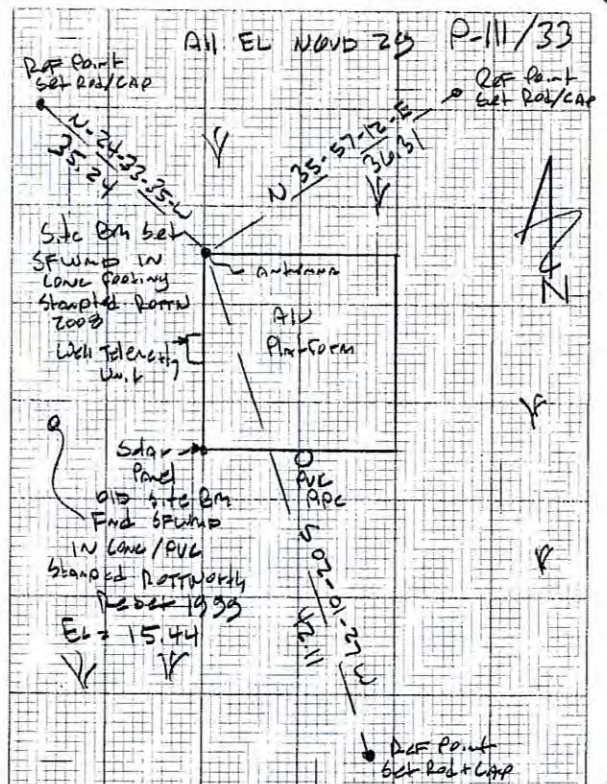
T. McLaren
H. Dawville
R. Luke

SFWMD
Hayward Rotenberg
Monitoring Well BM
ROTTN Well site

9/9/08

STA	+	-	EL	Dis
SFWMD DUBLIN Footings	8.74	21.84	13.10	Set site BM
Old site BM Elev 15.44		6.32	15.52	old site BM
Set Brass Tags		1.13	20.71	
	0.90	21.67		
avg ground EL		11.2	10.5	
cloud		0.57	13.10	new site BM

Means to Water Brass Tags EL = 20.71
- 7.20
9/9/08 1:45 PM Water EL = 13.51





SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/08

PICTURE





09/18/2008



09/18/2008



09/18/2008



09/18/2008



10/06/2008



10/06/2008



10/06/2008



10/06/2008



10/06/2008



10/06/2008



10/06/2008



POWER PS SONIC
MODEL PS-12550 U

10/06/2008



10/06/2008



19.95



10/06/2008

ROTTTS

10/06/2008

ROTTTS

10/06/2008



HOLE 2

10/06/2008



09/09/2008



09/09/2008



09/09/2008



09/09/2008



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09/09/2008



19.95

09/09/2008





09/09/2008

2.7 MM DIA

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San Diego, CA 92121
Tel: 619-444-1111
Fax: 619-444-1112
www.veristar.com

Optic Aligned by
John Diaz

VERI
1=169,425
2=169,525
3=171,020
4=171,050
5=170,270
6=170,220
7=
8=

DVG
DL-3
USB
M 4 1
T-SNP

READY FOR

09/09/2008



Sealed Rechargeable
Battery
POWER SONIC
MODEL PS-12550-U
12 Volt 55.5 Amp Hr

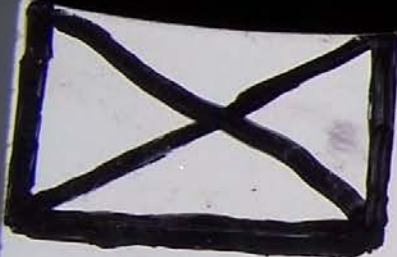
09/09/2008



POWERPSONIC
MODEL: PS-12850 II
12 VDC 18 AH 1000 CCA

09/09/2008

ROTT S W
ELEV. 19.99
DATE 10/01/08
BY CGA
NAVD NGVD 29



10/16/2008



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/08

COUNTY Palm Beach	PROJECT Holeyland Rotenberger Well Site Survey	DESIGNATION ROTTS
SECTION 27	TOWNSHIP 47 SOUTH	RANGE 35 EAST
NAME OF QUADRANGLE North of Lone Palm Head		
Established by Calvin, Giordano & Associates, Inc.	Recovered by _____ (Surveyor / Firm Name)	
DATE 10/06/2008	FIELD BOOK P-111 PAGE 34	
HORIZONTAL DATUM: 1927 (1983) ADJ _____ Other _____ (circle one) ZONE (E) or W		
STATE PLANE COORDINATES	N 735782.3 ft	E 716742.0 ft
LATITUDE: N 26° 21' 28.08744"	LONGITUDE: W 80° 48' 54.03003"	
VERTICAL DATUM: MSL 1929 (1988) Other _____ (circle one)	EL. 11.31 ft	
VERTICAL DATUM: MSL (1929) 1988 Other _____ (circle one)	EL. 12.74 ft	
CONTROL ACCURACY: HORIZONTAL 1 2 3 (SUB-METER) (circle one) VERTICAL 1 2 (3)		
DESCRIPTION		
<p>To Reach: From the intersection of US Route 27 and the Palm Beach / Broward County Line proceed north on US 27 for 0.15 MI to a paved road on the left on the north side of the L-4 canal. Turn left and proceed west for 6 MI where the road turns to rock continue 8.7 MI to S8 pump station cross over pump station the proceed north over small pump station to the first levee on left then proceed west on levee 2.5 MI to an airboat trail then proceed north 1.8 MI to ROTTS well site. The benchmark is a South Florida Water Management District (SFWMD) Aluminum Cap set in the northwest concrete footer of well structure.</p>		
NGS Benchmarks Used: S 410 X, T 501 AND E 535		
Notable Land marks:		
SKETCH		



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/08

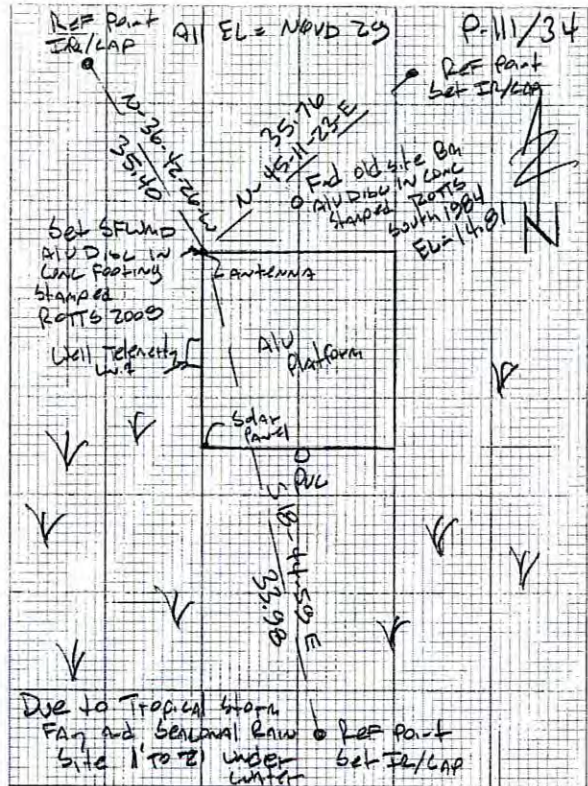
T Maloney
H Daville
R Wike

SFWMD
Hayward Katanbagan
Monitoring Well Bn
Rotts Well site

10/6/08
Sunny
Good

Sta	+	-	EL	Desc
Site Bn	8.19	12.93	12.74	
Fnd old site Bn		6.10	14.83	old site Bn SFWMD in cone
Auto Ground Station		9.12	11.7	
Set Brass Tag		0.910	9.97	Set Brass Tag
	0.77	20.74		
Closed		8.00	12.74	New site Bn

Meas To Water Brass Tag EL = 9.97
- 6.70
10/16/08 1:35 PM Water Elev 13.27





SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/08

PICTURE

