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# Surveyor's Report

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## Kissimmee River & Palm Beach County Monitoring Wells

NMI Project No. 1078.015

Report Date: August 18<sup>th</sup>, 2006

Submittal: Final

Prepared for:

**South Florida Water Management  
District**



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## **OVERVIEW OF THE PROJECT**

### **PURPOSE**

The purpose of the Kissimmee River & Palm Beach County Wells Project is to establish vertical control marks near each monitoring well. The project tests the application of Federal Geodetic Control Subcommittee (FGCS) Second-Order, Class II leveling procedures with Third-Order equipment. The goal of this hybrid pairing of procedures and equipment is to produce leveling measurements that will be acceptable to the National Geodetic Survey (NGS) and used in future vertical adjustments throughout the District.

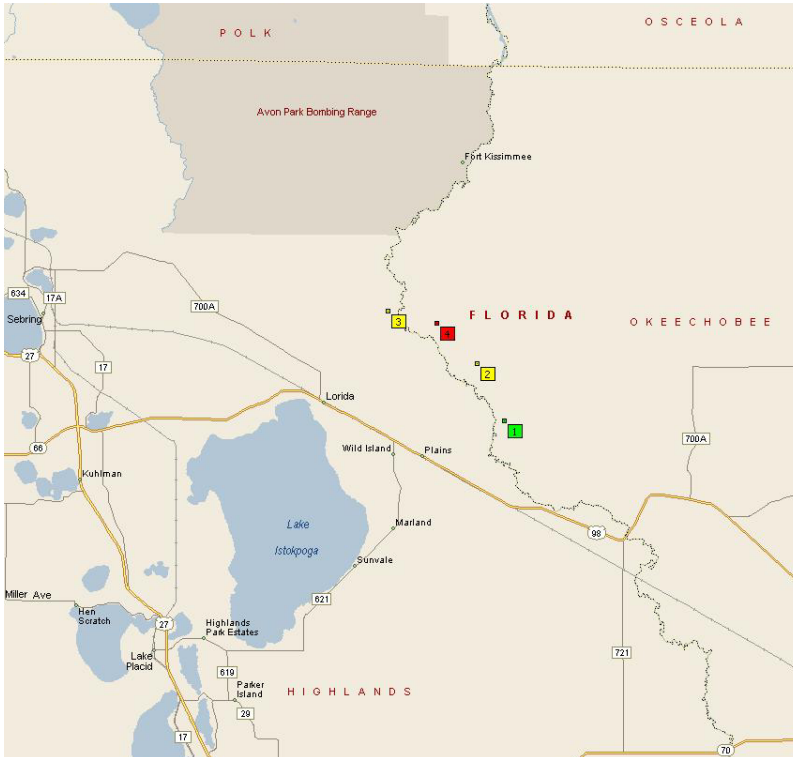
This project utilizes uncalibrated “off-the-shelf” fiberglass level rods. Such rods are not currently approved by NGS for precise leveling (Second-Order Class II and above) for three primary reasons:

1. The fiberglass material used to construct the rods is less dimensionally stable than rods constructed of Invar metal.
2. The fiberglass rods are not individually calibrated by the manufacturer to identify scale errors across the length of the rod.
3. The fiberglass rods are a three-section snap-together style that will, over time, wear at the connection points creating error in measurements on the top two sections.

While these limitations make the rods unsuitable for the extreme precision required in First-Order and Second-Order, Class I leveling, it is the hypothesis of this project that such rods can deliver Second-Order, Class II precisions. Fiberglass rods are commonly used by surveyors today. In contrast, Invar level rods are expensive and specialized equipment only used by surveyors working on the highest precision vertical control surveys. By demonstrating that fiberglass level rods such as those used in this project are suitable for Second-Order, Class II leveling the District will benefit from the increased number of consultants using these rods. As a result, more level lines run within the District should meet NGS’s requirements for inclusion in future vertical adjustments, further refining the elevation models used for water control.

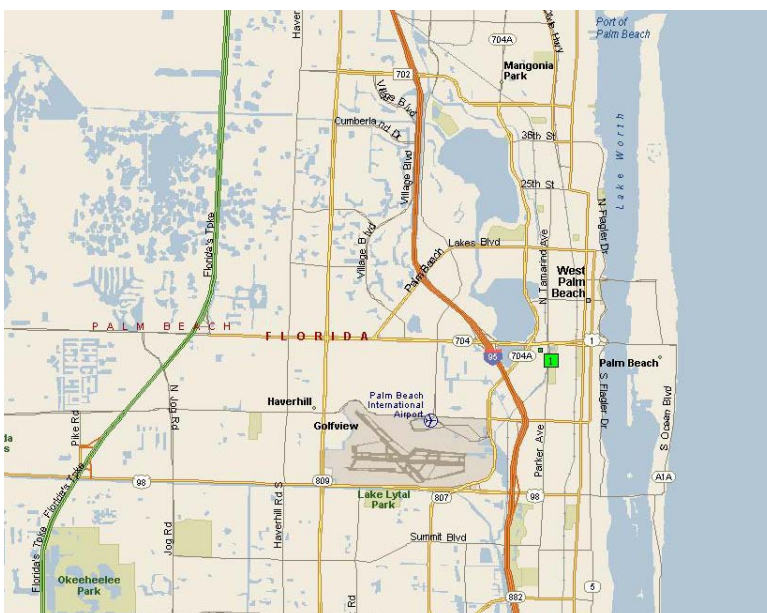
**LOCATION OF PROJECT**

The Kissimmee River portion of the project is located in Highlands and Okeechobee Counties. Following is a map and legend.



- 1. LKBC1C
- 2. LKBC2B
- 3. LKBC3A
- 4. LKBC3B

The remaining portion of the project is located in Palm Beach County. Following is a map and legend.



- 1. PBF-2

**ITEMS DELIVERED TO THE CLIENT**

The following items are delivered to the client with this report. Neither the report nor the items listed below are complete without the other.

- 1. Paper and electronic copy of field notes
- 2. Paper and electronic copy of all computation sheets
- 3. CORPSMET file for each site
- 4. Paper and electronic copy of site photographs
- 5. Paper copy of South Florida Water Management District Benchmark Description
- 6. Paper and electronic copy of NGS Blue Book submittal

**VERTICAL DATUM FOR THE PROJECT**

The vertical datum for the project is the North American Vertical Datum of 1988. For correlation with older data sets, the elevations of the benchmarks are also shown in the National Geodetic Vertical Datum (NGVD) of 1929. The NGVD 29 elevations were derived using data provided by the South Florida Water Management District in a file named “NGVD29.ABS” when applicable, otherwise NGS superseded values were used. The linear unit for all elevations is the meter unless otherwise stated.

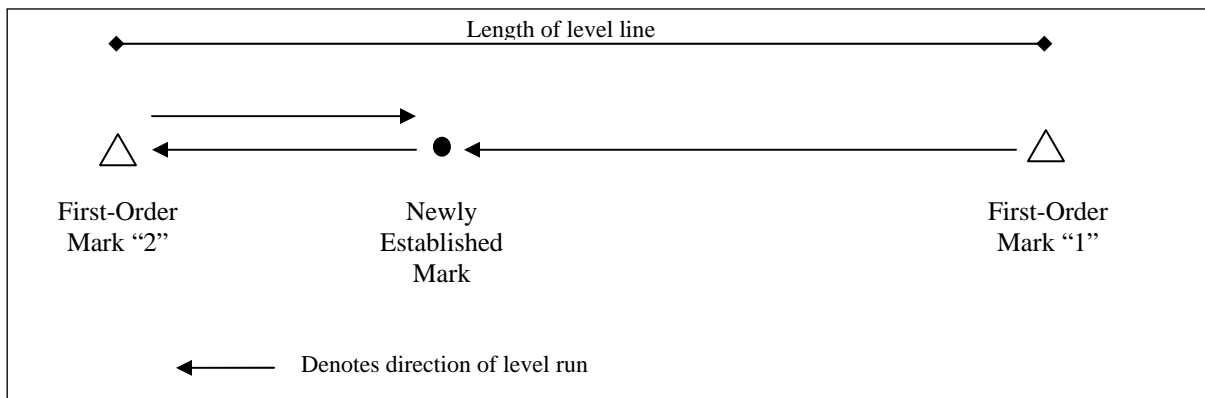
**LEVELING METHODS**

**CONFIGURATION OF LEVEL RUNS**

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

For each level line, two existing First or Second Order vertical marks were used. The run was started at one of the First or Second Order marks and continued through the newly established mark near the structure and closed on the second First or Second Order vertical mark. The run was then looped back from the second First or Second Order mark to the newly established mark (see Figure 1 below).

**Figure 1 Typical Level Run Pattern**




The FGCS maximum allowable misclosure for this type of run is eight millimeters multiplied by the length of the line in kilometers.

**EQUIPMENT USED**

All leveling during the project was performed with a Leica DNA03 digital level and Leica three-section, fiberglass bar-code level rods. Information and technical specification for the Leica DNA03 digital level are available at <http://www.leica-geosystems.com>.

**PROJECT RESULTS**

The following tables list the elevations established for each new mark, the level run misclosure, “to-reach” description for each mark and a photo of the mark. All elevations are in US Survey Feet.

<b>LKBC1C</b>		Elevation:	<b>40.22 ft</b>	(NAVD 88)	41.42 ft	(NGVD 29)
Bench Mark 1:	C 555		45.58 ft	(NAVD 88)	46.77 ft	(NGVD 29)
Bench Mark 2:	B 555		48.63 ft	(NAVD 88)	49.83 ft	(NGVD 29)
Monitoring Well:	LKBC1C		44.53 ft	(NAVD88)	45.72 ft	(NGVD 29)
Concrete Pad:	LKBC1C		40.75 ft	(NAVD88)	41.94 ft	(NGVD 29)
Ground Elevation:	LKBC1C		40.27 ft	(NAVD 88)	41.46 ft	(NGVD 29)
Length of Run:	3.20 km		To Reach LKBC1C:			
Max Allowable Misclosure:		14 mm	FROM THE INTERSECTION OF U.S. HIGHWAY 98/441, (PARROT AVE.) AND U.S. HIGHWAY 98/ STATE HIGHWAY 70, (N. PARK ST.) IN OKEECHOBEE, GO WEST ON U.S. 98/S.H. 70 FOR 1.5 MILES THEN TURN RIGHT AND CONTUNUE NORTHWEST ON U.S. 98/S.H. 700 FOR 15.9 MILES TO A JUNCTION WITH MICCO BLUFF ROAD (NW 230 <sup>TH</sup> AVE) AT BASINGER, THEN TURN RIGT ON MICCO BLUFF ROAD AND GO NORTH FOR 0.2 MILES, THEN TURN LEFT AND CONTINUE NORTHWESTERLY ON THE MICCO BLUFF FOR 6.1 MILES TO THE END OF THE PAVED ROAD AND BEGINNING OF A DIRT ROAD (NW 285 <sup>TH</sup> DR.), WHICH CONTINUES TO THE NORTHWEST TO A LOCKED GATE ON THE LEFT (NEED L KEY). GO WESTERLY ON THE DIRT ROAD FOR 0.5 MILES TO LOCKED GATE (NEED L KEY). CONTINUE DOWN THE DIRT ROAD FOR 0.25 MILES TO THE STATION ON THE LEFT. THE MARK IS 79.65 FEET SOUTH OF THE CENTERLINE OF THE DIRT ROAD, 9.3 FEET. NORTH OF THE STILLING WELL LKBCIC AND 3.0 FEET SOUTH OF METAL GATE (NEED S KEY). A MAGNET WAS SET 1 FOOT NORTH OF MONUMENT.			
Actual Misclosure:		2 mm				
						

**LKBC1C**



**Nick Miller, Inc.**  
**Date of Photo: July 31, 2006**  
**View: Looking at the well facing south**

# LKBC1C



Nick Miller, Inc.  
Date of Photo: July 31, 2006  
View: Close-up of the well showing the contractor's markings



**LKBC1C**



**Nick Miller, Inc.**

**Date of Photo: July 31, 2006**

**View: Looking at the benchmark facing south**

**LKBC1C**



**Nick Miller, Inc.**  
**Date of Photo: July 31, 2006**  
**View: A top view of the benchmark**

1078.015  
~~1078.008~~

SFWMD

SET CONCRETE MONUMENT @  
STILLING WELL LKBC2B

- SET POURED-IN-PLACE CONCRETE MONUMENT WITH
- SET MAGNET 1' NORTH OF CONC. MONUMENT

- STAMPED: LKBC2B  
2006

- TIES:

SET CONC. MON. 7.5 FT. NORTH OF STILLING WELL LKBC2B

" " " 25.2 FT SOUTH OF CENTERLINE OF DIRT RD.

" " " 46.7 FT SOUTH OF A BARBED WIRE FENCE -  
ON NORTH SIDE OF ROAD.

- COORDINATES ON B.M. LKBC2B

STATE PLANE 83

WGS84

N. N. 27° 28' 00"

E. W. 081° 09' 05"

- COORDINATES ON STILLING WELL LKBC2B

STATE PLANE 83

WGS84

N. N. 27° 28' 00"

E. W. 081° 09' 05"

- RECON BENCHMARKS FOR STILLING WELL LKBC2B

KR1506 FOUND IN GOOD CONDITION

KR1499 " " " "

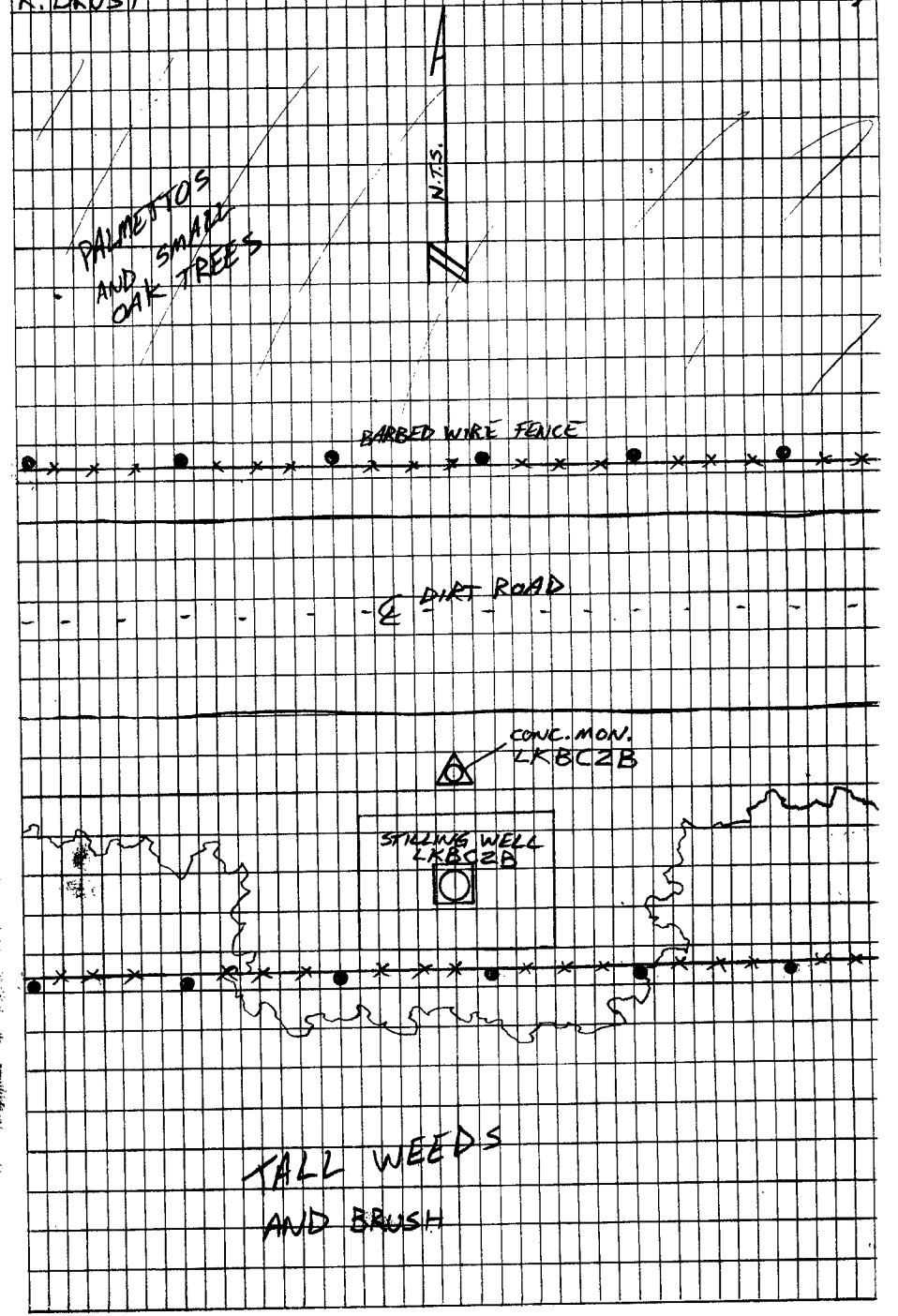
OK 17 " " " "

G. RAGER III

MON. JULY 31 - 2006

R. BRUST

SFWMD-11,75



1078.015

~~1078.006~~

SFWMD

SET CONCRETE MONUMENT @  
STILLING WELL LKBC1C

- SET POURED-IN-PLACE CONCRETE MONUMENT WITH BRASS DISK
- SET MAGNET 1' NORTH OF CONC. MONUMENT

- STAMPED: LKBC1C  
2006

- TIES:

SET CONC. MON. 9.3 FT. NORTH OF STILLING WELL ~~LKBC1C~~ LKBC1C

" " " 3.0 FT. SOUTH OF METAL GATE.

" " " 79.65 FT SOUTH OF CENTERLINE DIRT ROAD.

- COORDINATES ON B.M. LKBC1C

STATE PLANE 83

WGS 84

N.

N. 27° 25' 58"

E.

W. 081° 07' 59"

- COORDINATES ON STILLING WELL LKBC1C

STATE PLANE 83

WGS 84

N.

N. 27° 25' 58"

E.

W. 081° 07' 59"

- RECON BENCHMARKS FOR STILLING WELL LKBC1C

C555 FOUND IN GOOD CONDITION

B555 " " "

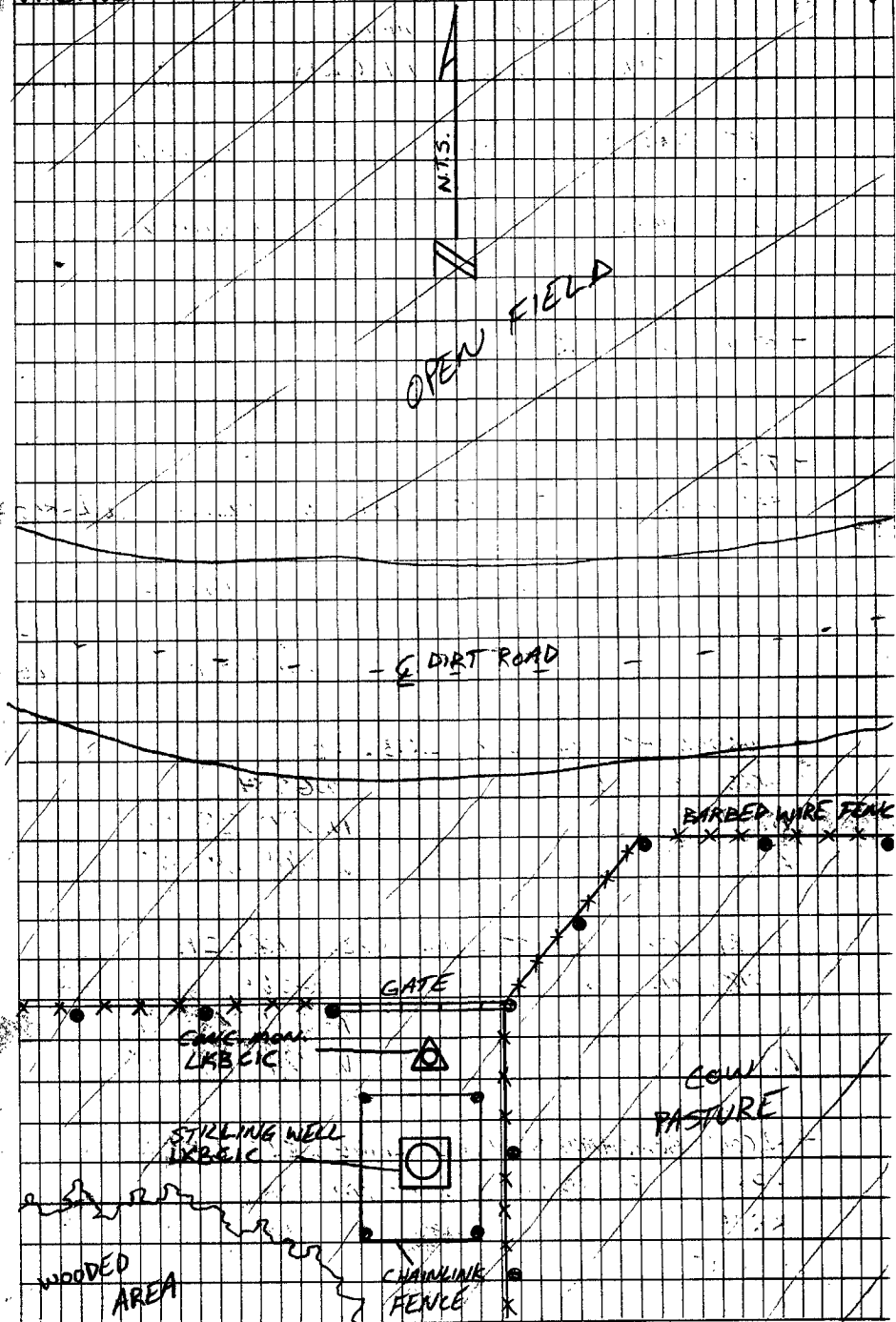
KR1505 FOUND MUTILATED, TOOK PICTURES FOR N.G.S. REPORT

G. RAGER II

MON. JULY 31<sup>ST</sup> 2006

R. BRUST

SFWMD # 106



1078.015

~~1078.008~~

BENCH RUN

SFWMD RAGER, J

WED. AUG. 2<sup>ND</sup> 2006

RAGER, G II

SFWMD-13,39

B555 → LKBCIC

BRUST

COL. = 1.2

	+	H.I.	-	ELEV.	DESC.
	1.3355		1.6876		B.M. B555
1	[67.7]		[67.7]		SET D.H. NAIL ON SOUTHEAST SIDE OF PAVED RD.
	1.5224		1.5834		" " " "
2	[66.0]		[67.3]		" " " "
	1.5424		1.6010		" " " "
3	[69.1]		[69.3]		" " " "
	1.5614		1.6088		SET 60 D NAIL ON SOUTHEAST SIDE OF DIRT RD.
4	[69.3]		[67.9]		" " " "
	1.6277		1.5100		" " " "
5	[68.7]		[67.9]		" " " "
	1.5625		1.5442		" " " "
6	[68.6]		[68.0]		" " " "
	1.5583		1.2829		" " " "
7	[67.1]		[68.7]		" " " "

1078.015  
~~1078.008~~

BENCH RUN

SFWMD: RAGER, J  
RAGER, G III  
BRUST

WED. AUG. 2<sup>ND</sup> 2006

SFWMD-13,40

B555 → LKBCIC (CONT.)

COL. = 1.2

	<u>H.I</u>	<u>ELEV.</u>	<u>DESC.</u>
+			
8	1.6458 [68.3]	1.4677 [68.6]	SET 60 D NAIL ON SOUTHEAST SIDE OF DIRT RD.
			" "
9	1.5196 [68.1]	1.5252 [68.2]	" "
			" "
10	1.4822 [68.1]	1.6857 [67.8]	" "
			" "
11	1.5058 [69.1]	1.8242 [69.0]	" "
			" "
12	1.2169 [69.6]	1.7891 [68.7]	" "
			" "
13	1.0003 [69.2]	1.8406 [69.6]	" "
			" "
14	1.2907 [11.6]	1.9837 [10.9]	B.M. LKBCIC
			TOTAL DIST: 1.79999 KM.

1078.015  
~~1078.008~~

BENCH LOOP

SFWMD

RAGER, J

WED. AUG. 2<sup>ND</sup> 2006

RAGER, G III

SFWMD-13, 41

BRUST

STILLING WELL LKBCIC

+  
6.505

HI.

-

ELEV.

DESC.

B.M. LKBCIC

6.460

GROUND SHOT IN FRONT OF WELL CONC. PAD

5.980

CONC. PAD OF WELL

2.200

STILLING WELL LKBCIC

2.390

STILLING WELL LKBCIC

6.170

CONC. PAD OF WELL

6.695

B.M. LKBCIC ✓

1078.015  
~~1078.008~~

BENCH RUN

LKBCIC → B555  
COL. = 1.2

+  
2.3569  
1 [28.4]

1.9168  
2 [67.0]

1.8227  
3 [69.1]

1.6833  
4 [69.8]

1.6098  
5 [67.8]

1.6081  
6 [69.0]

1.4161  
7 [69.3]

HI      -  
1.5019  
[28.5]

1.0905  
[67.0]

1.2212  
[69.1]

1.4789  
[68.9]

1.5240  
[67.9]

1.5543  
[69.0]

1.7635  
[69.1]

SFWMD

RAGER, J  
RAGER, G III  
BRUST

WED. AUG. 2<sup>ND</sup> 2006

SFWMD-13, 42

ELEV.

DESC.

B.M. LKBCIC  
SET 60 D NAIL ON SOUTHEAST SIDE OF DIRT RD.

" " "

" " "

" " "

" " "

" " "

" " "

" " "

" " "

" " "

" " "

" " "

" " "



1078.015  
~~1078.008~~

BENCH RUN

SFWMD

RAGER, J

WED. AUG. 2<sup>ND</sup> 2006

RAGER, G III

SFWMD-13,43

LKBCIC → B555 (CONT.)

BRUST

COL. = 1.2

	+	H.I.	-	ELEV.	DESC.
8	1.4394 [69.2]		1.5595 [69.3]		SET GOD NAIL ON SOUTHEAST SIDE OF DIRT RD.
9	1.5747 [69.1]		1.5352 [69.4]		" " " "
10	1.4361 [68.7]		1.5562 [68.0]		SET D.H. NAIL ON SOUTHEAST SIDE OF PAVED RD.
11	1.5344 [67.4]		1.5004 [68.0]		" " " "
12	1.5616 [68.8]		1.5428 [68.3]		" " " "
13	1.5793 [68.8]		1.4285 [68.1]		" " " "
14	1.6751 [46.1]		1.3908 [47.0]		" " " "
				B.M. B555	TOTAL DIST: 1.79598 KM. 3.7 mm. ✓

Identification\_Information:

Citation:

Citation\_Information:

Originator: Nick Miller, Inc. (comp.)  
Originator: Stephen M. Gordon, PSM(ed.)  
Publication\_Date: 20060315  
Publication\_Time: Unknown  
Title: S. F. W. M. D. Monitoring Well LKBC1C  
Edition: 1  
Publication\_Information:

Publication\_Place: West Palm Beach, FL  
Publisher: South Florida Water Management District

Description:

Abstract:

South Florida Water Management District Monitoring Well LKBC1C.

Purpose:

To determine as built dimensions relative to NAVD 88 and NGVD 29 vertical datum

Time\_Period\_of\_Content:

Time\_Period\_Information:

Single\_Date/Time:

Calendar\_Date: 20060818

Currentness\_Reference: Publication Date

Status:

Progress: Complete

Maintenance\_and\_Update\_Frequency: Unknown

Spatial\_Domain:

Bounding\_Coordinates:

West\_Bounding\_Coordinate: -081D 07M 59.0S  
East\_Bounding\_Coordinate: -081D 06M 57.0S  
North\_Bounding\_Coordinate: +27D 26M 14.0S  
South\_Bounding\_Coordinate: +27D 25M 44.0S

Keywords:

Theme:

Theme\_Keyword\_Thesaurus: Tri - Service Spatial Data Standard  
Theme\_Keyword: Improvement  
Theme\_Keyword: Geodetic/Cadastral

Place:

Place\_Keyword\_Thesaurus: None  
Place\_Keyword: S. F. W. M. D. Monitoring Well LKBC1C  
Place\_Keyword: Sec. 16, Twp. 35 S., Rge. 32 E  
Place\_Keyword: Okeechobee County, Florida  
Place\_Keyword\_Thesaurus: Geographic Names Information System  
Place\_Keyword: Florida  
Place\_Keyword: Okeechobee County  
Place\_Keyword: Basinger NW

Access\_Constraints: None

Use\_Constraints: None

Point\_of\_Contact:

Contact\_Information:

Contact\_Person\_Primary:

Contact\_Person: Howard Ehmke

Contact\_Organization: South Florida Water Management

District

Contact\_Position: Project Manager

Contact\_Address:

Address\_Type: mailing and physical address

Address: 3301 Gun Club Road

City: West Palm Beach

State\_or\_Province: Florida

Postal\_Code: 33406

Country: USA

Contact\_Voice\_Telephone: 561-682-6672

Contact\_Electronic\_Mail\_Address: hehmke@sfwmd.gov

Data\_Quality\_Information:

Attribute\_Accuracy:

Attribute\_Accuracy\_Report: N/A

Logical\_Consistency\_Report:

Horizontal data was established using mapping grade GPS

equipment. Vertical data was established using NGS control points B 555 & C 555. Coordinates are in the Florida State Plane Coordinate System, East Zone, NAD 83/90. Elevations are in the NAVD 88 and the NGVD 29.

Completeness Report:

Horizontal location taken at site benchmark  
 Lat. +27D 25M 58.0S  
 Long. -081D 13M 30.6S  
 N 1,126,518 ft  
 E 613,007 ft  
 Site Benchmark.  
 "LKBC1C" is a South Florida Water Management District (SFWMD) brass disk set in concrete.  
 FROM THE INTERSECTION OF U. S. HIGHWAY 98/441, (PARROT AVE.) AND U. S. HIGHWAY 98/ STATE HIGHWAY 70, (N. PARK ST.) IN OKEECHOBEE, GO WEST ON U. S. 98/S. H. 70 FOR 1.5 MILES THEN TURN RIGHT AND CONTINUE NORTHWEST ON U. S. 98/S. H. 700 FOR 15.9 MILES TO A JUNCTION WITH MICCO BLUFF ROAD (NW 230TH AVE) AT BASINGER, THEN TURN RIGHT ON MICCO BLUFF ROAD AND GO NORTH FOR 0.2 MILES, THEN TURN LEFT AND CONTINUE NORTHWESTERLY ON THE MICCO BLUFF FOR 6.1 MILES TO THE END OF THE PAVED ROAD AND BEGINNING OF A DIRT ROAD (NW 285TH DR.), WHICH CONTINUES TO THE NORTHWEST TO A LOCKED GATE ON THE LEFT (NEED L KEY). GO WESTERLY ON THE DIRT ROAD FOR 0.5 MILES TO LOCKED GATE (NEED L KEY). CONTINUE DOWN THE DIRT ROAD FOR 0.25 MILES TO THE STATION ON THE LEFT. THE MARK IS 79.65 FEET SOUTH OF THE CENTERLINE OF THE DIRT ROAD, 9.3 FEET NORTH OF THE STILLING WELL LKBC1C AND 3.0 FEET SOUTH OF METAL GATE (NEED S KEY). A MAGNET WAS SET 1 FOOT NORTH OF MONUMENT.  
 Benchmark Elevation is 40.22 feet (NAVD 88).  
 Well Elevation (LKBC1C) is 44.53 feet (NAVD 88) as observed at the existing reference mark for the well which is a black mark at the top of a PVC pipe at the center of the well.  
 Concrete Pad Elevation is 40.75 feet (NAVD 88).  
 Ground Elevation is 40.27 feet (NAVD 88).  
 NGVD 29 minus NAVD 88 equals 1.197 feet.  
 The NGVD 1929 value was taken from the NGVD29.ABS file provided from the SFWMD for benchmark C 555.  
 Vertical Control used B 555 El. 14.822 (m) (NAVD 88) El. 15.188 (m) (NGVD 29), C 555 El. 13.892 (m) (NAVD 88) El. 14.257 (m) (NGVD 29).

Positional Accuracy:

Horizontal Positional Accuracy:

Horizontal Positional Accuracy Report:

The horizontal position of Site Benchmark "LKBC1C" was established using a mapping grade GPS receiver (Trimble Pro XR in accordance with the Florida Minimum Technical Standards (Chapter 61G17-6, Florida Administrative Code).

Quantitative Horizontal Positional Accuracy Assessment:

Horizontal Positional Accuracy Value: 3 to 5 meters

Horizontal Positional Accuracy Explanation: The intended

positional accuracy for this survey is 3 to 5 meters more or less.

Vertical Positional Accuracy:

Vertical Positional Accuracy Report:

A level line was run originating on benchmark C 555 and terminating at benchmark B 555 with an allowable error of 8mm times the square root of the distance leveled (in kilometers).

Quantitative Vertical Positional Accuracy Assessment:

Vertical Positional Accuracy Value: 0.002 m

Vertical Positional Accuracy Explanation: NAVD 88 level

loop, 0.002 m closure in 3.20 km, max. allowed 0.014m.

Lineage:

Process\_Step:

Process\_Description:

The horizontal work was performed using a Trimble Pro XR GPS receiver (mapping grade). The level loop was run with a Leica DNA03 digital level.

Process\_Date: 20060816

Metadata\_Reference\_Information:

Metadata\_Date: 20060818

Metadata\_Contact:

Contact\_Information:

Contact\_Person\_Primary:

Contact\_Person: Stephen M. Gordon

Contact\_Organization: Nick Miller, Inc.

Contact\_Position: Project Surveyor

Contact\_Address:

Address\_Type: mailing and physical address

Address: 2560 RCA Blvd., Suite 105

City: Palm Beach Gardens

State\_or\_Province: Florida

Postal\_Code: 33410

Country: USA

Contact\_Voice\_Telephone: 561-627-5200

Contact\_Facsimile\_Telephone: 561-627-0983

Contact\_Electronic\_Mail\_Address: sgordon@nickmillerinc.com

Metadata\_Standard\_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata\_Standard\_Version: 2.0

Metadata\_Time\_Convention: Local time

Metadata\_Access\_Constraints: South Florida Water Management District controls

access.

Metadata\_Use\_Constraints: Per South Florida Water Management District

Metadata\_Security\_Information:

Metadata\_Security\_Handling\_Description: None

Metadata\_Security\_Classification: Unclassified

Metadata\_Security\_Classification\_System: Structure

-\*- FIELD ABSTRACT -\*-

060802-060802 HGZ L10785 8.0 MM ORDER 2 CLASS 2 PAGE 1  
SOUTH FLORIDA WATER MANAGEMENT DISTRICT  
HIGHLANDS AND OKEECHOBEE COUNTY MONITORING WELLS  
ESTABLISH BENCH MARK NEAR MONITORING WELL LKBC1C

FROM	TO	START	F/B	DIST TOTAL (KM)	ELEV DIFF (MT)	-(F+B) TOTAL (MM)	MEAN DIFF FLD ELEV (MT)	I C
0327 C 555							13.89200	
0327 C 555		8020930	F	1.40	0.93239 *	0.00	0.93239	1
0326 B 555				1.40		0.00	14.82439	
0326 B 555		8021050	F	1.80	-2.56286 *	-3.95	-2.56483	1
0325 LKBC1C		8021300	B	1.80	2.56681 *	-3.95	12.25956♀	1
				3.20				

ELEVATION REJECTION AND ERROR CODES

- C - section elevation difference was rejected for cause  
ie. \*43\* record rejection code set to "F"
- R - section elevation difference was rejected by Halperin rejection algorithm
- @ - section elevation difference does not include refraction correction
- \* - section elevation difference does not include rod correction

♀

INSTRUMENT CODE	INSTRUMENT	RODS
1	243 - 331132	396 - 333 396 - 444

♀  
LEVEL LINE SECTION RUNNING TREE

0327  
0326  
0325♀

FROM	TO	N. LATITUDE	W. LONGITUDE	FIELD DISTANCE	VS. COMPUTED
	0327	272614	0810724	0.00	0.00
0327	0326	272544	0810657	1.40	1.18
0326	0325	272558	0810759	1.80	1.76♀

SECTION  
FROM TO ERROR MESSAGES



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

COUNTY OKEECHOBEE	PROJECT Hydrology - Kissimmee River & Palm Beach Wells	DESIGNATION LKBC1C 2006
SECTION 16	TOWNSHIP 35 SOUTH	RANGE 32 EAST
GEOGRAPHIC INDEX OF QUAD		
Established by <u>Nick Miller Inc.</u> Recovered by	NAME OF QUADRANGLE BASINGER NW	
SURVEYOR <u>Stephen M. Gordon</u> DATE <u>07/31/2006</u>	FIELD BOOK _____ 11 _____ PAGE <u>76</u>	
HORIZONTAL DATUM: 1927 <u>1983</u> Other _____ (circle one) ZONE <u>E</u> or W		
STATE PLANE COORDINATES	E 613,007 ft	N 1,126,518 ft
LATITUDE: N 27.43278°	LONGITUDE: W 81.13306°	
VERTICAL DATUM: MSL 1929 <u>1988</u> Other _____ (circle one)	EL. 40.22 ft	
VERTICAL DATUM: MSL <u>1929</u> 1988 Other _____ (circle one)	EL. 41.42 ft	
CONTROL ACCURACY: HORIZONTAL 1 2 3 <u>SUB-METER</u> (circle one) VERTICAL 1 2 <u>3</u>		
<b>DESCRIPTION</b>		
<p>To Reach:</p> <p>FROM THE INTERSECTION OF U.S. HIGHWAY 98/441, (PARROT AVE.) AND U.S. HIGHWAY 98/ STATE HIGHWAY 70, (N. PARK ST.) IN OKEECHOBEE, GO WEST ON U.S. 98/S.H. 70 FOR 1.5 MILES THEN TURN RIGHT AND CONTUNUE NORTHWEST ON U.S. 98/S.H. 700 FOR 15.9 MILES TO A JUNCTION WITH MICCO BLUFF ROAD (NW 230<sup>TH</sup> AVE) AT BASINGER, THEN TURN RIGT ON MICCO BLUFF ROAD AND GO NORTH FOR 0.2 MILES, THEN TURN LEFT AND CONTINUE NORTHWESTERLY ON THE MICCO BLUFF FOR 6.1 MILES TO THE END OF THE PAVED ROAD AND BEGINNING OF A DIRT ROAD (NW 285<sup>TH</sup> DR.), WHICH CONTINUES TO THE NORTHWEST TO A LOCKED GATE ON THE LEFT (NEED L KEY). GO WESTERLY ON THE DIRT ROAD FOR 0.5 MILES TO LOCKED GATE (NEED L KEY). CONTINUE DOWN THE DIRT ROAD FOR 0.25 MILES TO THE STATION ON THE LEFT. THE MARK IS 79.65 FEET SOUTH OF THE CENTERLINE OF THE DIRT ROAD, 9.3 FEET. NORTH OF THE STILLING WELL LKBCIC AND 3.0 FEET SOUTH OF METAL GATE (NEED S KEY). A MAGNET WAS SET 1 FOOT NORTH OF MONUMENT.</p> <p>Benchmarks Used: B 555 &amp; C 555</p> <p>Notable Land marks:</p>		



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

SKETCH

1078.015  
~~1078.000~~ SFUMD  
 SET CONCRETE MONUMENT @  
 STILLING WELL LKBCIC

- SET POURED-IN-PLACE CONCRETE MONUMENT  
 WITH BRASS DISK  
 - SET MAGNET 1' NORTH OF CONC. MONUMENT

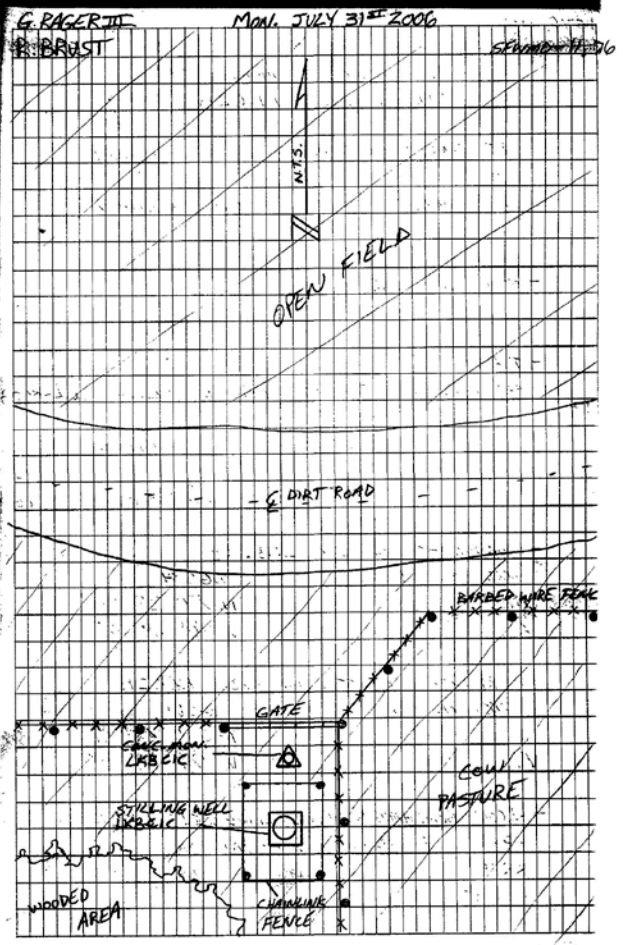
- STAMPED: LKBCIC  
 2006

- TIES:  
 SET CONC. MON. 9.3 FT. NORTH OF STILLING WELL LKBCIC  
 " " " 3.0 FT. SOUTH OF METAL GATE.  
 " " " 79.65 FT SOUTH OF CENTERLINE DIRT ROAD.

- COORDINATES ON B.M. LKBCIC  
 STATE PLANE 83 WGS 84  
 N. N. 27° 25' 58"  
 E. W. 081° 07' 59"

- COORDINATES ON STILLING WELL LKBCIC  
 STATE PLANE 83 WGS 84  
 N. N. 27° 25' 58"  
 E. W. 081° 07' 59"

- RECON BENCHMARKS FOR STILLING WELL LKBCIC  
 C555 FOUND IN GOOD CONDITION  
 B555 " " "  
 KR1505 FOUND MUTILATED, TOOK PICTURES FOR NGS REPORT



# The NGS Data Sheet

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

```

PROGRAM = datasheet95, VERSION = 8.7
1      National Geodetic Survey,   Retrieval Date = JULY 22, 2015
DF8357 *****
DF8357 DESIGNATION - B 555
DF8357 PID - DF8357
DF8357 STATE/COUNTY- FL/OKEECHOBEE
DF8357 COUNTRY - US
DF8357 USGS QUAD - BASINGER (1972)
DF8357
DF8357 *CURRENT SURVEY CONTROL
DF8357
DF8357* NAD 83(1986) POSITION- 27 25 44. (N) 081 06 57. (W) SCALED
DF8357* NAVD 88 ORTHO HEIGHT - 14.822 (meters) 48.63 (feet) ADJUSTED
DF8357
DF8357 GEOID HEIGHT - -26.14 (meters) GEOID12B
DF8357 DYNAMIC HEIGHT - 14.800 (meters) 48.56 (feet) COMP
DF8357 MODELED GRAVITY - 979,129.7 (mgal) NAVD 88
DF8357
DF8357 VERT ORDER - SECOND CLASS I
DF8357
DF8357.The horizontal coordinates were scaled from a topographic map and have
DF8357.an estimated accuracy of +/- 6 seconds.
DF8357.
DF8357.The orthometric height was determined by differential leveling and
DF8357.adjusted by the NATIONAL GEODETIC SURVEY
DF8357.in May 2004.
DF8357
DF8357.The dynamic height is computed by dividing the NAVD 88
DF8357.geopotential number by the normal gravity value computed on the
DF8357.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DF8357.degrees latitude (g = 980.6199 gals.).
DF8357
DF8357.The modeled gravity was interpolated from observed gravity values.
DF8357
DF8357; North East Units Estimated Accuracy
DF8357;SPC FL E - 342,930. 188,550. MT (+/- 180 meters Scaled)
DF8357
DF8357 SUPERSEDED SURVEY CONTROL
DF8357
DF8357.No superseded survey control is available for this station.
DF8357
DF8357_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML885339(NAD 83)
DF8357
DF8357_MARKER: DD = SURVEY DISK
DF8357_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
DF8357_STAMPING: B 555 2001
DF8357_MARK LOGO: FLDEP
DF8357_PROJECTION: FLUSH
DF8357_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET
DF8357_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
DF8357+STABILITY: SURFACE MOTION
DF8357_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DF8357+SATELLITE: SATELLITE OBSERVATIONS - February 27, 2006
DF8357
DF8357 HISTORY - Date Condition Report By
DF8357 HISTORY - 20011005 MONUMENTED FLDEP
DF8357 HISTORY - 20050608 GOOD MACTEC

```



DF8357 HISTORY - 20060227 GOOD NICKMI  
 DF8357 HISTORY - 20090401 GOOD MOREKL

DF8357

DF8357 STATION DESCRIPTION

DF8357

DF8357'DESCRIBED BY FL DEPT OF ENV PRO 2001 (JLM)

DF8357'THE MARK IS ABOUT 23.7 MI NORTHWEST OF OKEECHOBEE, 6.0 MI NORTHWEST OF

DF8357'BASINGER, ON

DF8357'NORTHWEST 160TH DRIVE, IN SECTION 15, TOWNSHIP 35 SOUTH, RANGE 32

DF8357'EAST.

DF8357'

DF8357'TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 441 (PARROTT

DF8357'STREET) AND U.S.

DF8357'HIGHWAY 98 (STATE HIGHWAY 70, PARK STREET) IN OKEECHOBEE, GO WEST ON

DF8357'U.S. HIGHWAY 98

DF8357'(STATE HIGHWAY 70, PARK STREET) FOR 1.15 MI TO THE JUNCTION OF U.S.

DF8357'HIGHWAY 98 NORTH ON

DF8357'THE RIGHT, TURN RIGHT ON U.S. HIGHWAY 98 AND GO NORTHWESTERLY FOR 0.65

DF8357'MI TO THE

DF8357'RAILROAD TRACKS, CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 11.9 MI

DF8357'TO THE JUNCTION

DF8357'OF COUNTY ROAD 68 EAST ON THE RIGHT, CONTINUE NORTHWESTERLY ON U.S.

DF8357'HIGHWAY 98 FOR

DF8357'1.85 MI TO THE JUNCTION OF NORTHWEST 176TH AVENUE (COUNTY ROAD 700-A)

DF8357'ON THE RIGHT,

DF8357'CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 1.7 MI TO THE JUNCTION

DF8357'OF NORTHWEST

DF8357'203RD AVENUE (MICCO BLUFF ROAD) ON THE RIGHT, TURN RIGHT ON NORTHWEST

DF8357'203RD AVENUE

DF8357'(MICCO BLUFF ROAD) AND GO NORTH-NORTHWESTERLY FOR 0.2 MI TO THE

DF8357'JUNCTION OF NORTHWEST

DF8357'160TH DRIVE (MICCO BLUFF ROAD, COUNTY ROAD 68), TURN LEFT ON NORTHWEST

DF8357'160TH DRIVE

DF8357'(MICCO BLUFF ROAD, COUNTY ROAD 68) AND GO WEST-NORTHWESTERLY FOR 5.85

DF8357'MI TO THE MARK

DF8357'ON THE LEFT, SET IN THE TOP OF A ROUND CONCRETE MONUMENT FLUSH WITH

DF8357'THE GROUND AND

DF8357'ABOUT 0.5 FT ABOVE THE LEVEL OF NORTHWEST 160TH DRIVE.

DF8357'

DF8357'LOCATED 33.0 FT SOUTH OF THE APPROXIMATE CENTERLINE OF THE ROAD, 18.6

DF8357'FT WEST OF THE

DF8357'CENTER OF A GATE, 10.0 FT WEST OF A BARBWARE FENCE LEADING SOUTH, 1.1

DF8357'FT NORTH OF A

DF8357'BARBWARE FENCE AND 1.0 FT NORTH OF A CARSONITE WITNESS POST.

DF8357'

DF8357'NOTE A MAGNET WAS IMBEDDED IN THE GROUND ON THE SOUTH SIDE OF THE

DF8357'MONUMENT.

DF8357'

DF8357'

DF8357'

DF8357'

DF8357'

DF8357'

DF8357

DF8357 STATION RECOVERY (2005)

DF8357

DF8357'RECOVERY NOTE BY MACTEC ENGINEERING AND CONSULTING 2005 (CBG)

DF8357'RECOVERED AS DESCRIBED

DF8357

DF8357 STATION RECOVERY (2006)

DF8357

DF8357'RECOVERY NOTE BY NICK MILLER INCORPORATED 2006 (ECD)

DF8357'RECOVERED AS DESCRIBED.

DF8357

DF8357

DF8357 STATION RECOVERY (2009)

DF8357

DF8357'RECOVERY NOTE BY MORGAN AND EKLUND INC 2009 (PCV)  
DF8357'RECOVERED AS DESCRIBED

\*\*\* retrieval complete.  
Elapsed Time = 00:00:02

# The NGS Data Sheet

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

```

PROGRAM = datasheet95, VERSION = 8.7
1      National Geodetic Survey,   Retrieval Date = JULY 22, 2015
DF8358 *****
DF8358 DESIGNATION - C 555
DF8358 PID - DF8358
DF8358 STATE/COUNTY- FL/OKEECHOBEE
DF8358 COUNTRY - US
DF8358 USGS QUAD - BASINGER (1972)
DF8358
DF8358 *CURRENT SURVEY CONTROL
DF8358
DF8358* NAD 83(1986) POSITION- 27 26 14. (N) 081 07 24. (W) SCALED
DF8358* NAVD 88 ORTHO HEIGHT - 13.892 (meters) 45.58 (feet) ADJUSTED
DF8358
DF8358 GEOID HEIGHT - -26.13 (meters) GEOID12B
DF8358 DYNAMIC HEIGHT - 13.870 (meters) 45.51 (feet) COMP
DF8358 MODELED GRAVITY - 979,131.1 (mgal) NAVD 88
DF8358
DF8358 VERT ORDER - SECOND CLASS I
DF8358
DF8358.The horizontal coordinates were scaled from a topographic map and have
DF8358.an estimated accuracy of +/- 6 seconds.
DF8358.
DF8358.The orthometric height was determined by differential leveling and
DF8358.adjusted by the NATIONAL GEODETIC SURVEY
DF8358.in May 2004.
DF8358
DF8358.The dynamic height is computed by dividing the NAVD 88
DF8358.geopotential number by the normal gravity value computed on the
DF8358.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DF8358.degrees latitude (g = 980.6199 gals.).
DF8358
DF8358.The modeled gravity was interpolated from observed gravity values.
DF8358
DF8358; North East Units Estimated Accuracy
DF8358;SPC FL E - 343,860. 187,810. MT (+/- 180 meters Scaled)
DF8358
DF8358 SUPERSEDED SURVEY CONTROL
DF8358
DF8358.No superseded survey control is available for this station.
DF8358
DF8358_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML878348 (NAD 83)
DF8358
DF8358_MARKER: DD = SURVEY DISK
DF8358_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
DF8358_STAMPING: C 555 2001
DF8358_MARK LOGO: FLDEP
DF8358_PROJECTION: FLUSH
DF8358_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET
DF8358_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
DF8358+STABILITY: SURFACE MOTION
DF8358_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DF8358+SATELLITE: SATELLITE OBSERVATIONS - June 07, 2005
DF8358
DF8358 HISTORY - Date Condition Report By
DF8358 HISTORY - 20011005 MONUMENTED FLDEP
DF8358 HISTORY - 20050607 GOOD MACTEC

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DF8358

DF8358

## STATION DESCRIPTION

DF8358

DF8358'DESCRIBED BY FL DEPT OF ENV PRO 2001 (JLM)

DF8358'THE MARK IS ABOUT 24.6 MI NORTHWEST OF OKEECHOBEE, 6.9 MI NORTHWEST OF

DF8358'BASINGER, ON

DF8358'NORTHWEST 160TH DRIVE, IN SECTION 10, TOWNSHIP 35 SOUTH, RANGE 32

DF8358'EAST.

DF8358'

DF8358'TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 441 (PARROTT

DF8358'STREET) AND U.S.

DF8358'HIGHWAY 98 (STATE HIGHWAY 70, PARK STREET) IN OKEECHOBEE, GO WEST ON

DF8358'U.S. HIGHWAY 98

DF8358'(STATE HIGHWAY 70, PARK STREET) FOR 1.15 MI TO THE JUNCTION OF U.S.

DF8358'HIGHWAY 98 NORTH ON

DF8358'THE RIGHT, TURN RIGHT ON U.S. HIGHWAY 98 AND GO NORTHWESTERLY FOR 0.65

DF8358'MI TO THE

DF8358'RAILROAD TRACKS, CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 11.9 MI

DF8358'TO THE JUNCTION

DF8358'OF COUNTY ROAD 68 EAST ON THE RIGHT, CONTINUE NORTHWESTERLY ON U.S.

DF8358'HIGHWAY 98 FOR

DF8358'1.85 MI TO THE JUNCTION OF NORTHWEST 176TH AVENUE (COUNTY ROAD 700-A)

DF8358'ON THE RIGHT,

DF8358'CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 1.7 MI TO THE JUNCTION

DF8358'OF NORTHWEST

DF8358'203RD AVENUE (MICCO BLUFF ROAD) ON THE RIGHT, TURN RIGHT ON NORTHWEST

DF8358'203RD AVENUE

DF8358'(MICCO BLUFF ROAD) AND GO NORTH-NORTHWESTERLY FOR 0.2 MI TO THE

DF8358'JUNCTION OF NORTHWEST

DF8358'160TH DRIVE (MICCO BLUFF ROAD, COUNTY ROAD 68), TURN LEFT ON NORTHWEST

DF8358'160TH DRIVE

DF8358'(MICCO BLUFF ROAD, COUNTY ROAD 68) AND GO WEST-NORTHWESTERLY FOR 6.15

DF8358'MI TO THE END OF

DF8358'THE PAVED ROAD AND THE JUNCTION OF A DIRT ROAD LEADING NORTHWEST AND

DF8358'THE BEGINNING OF

DF8358'NORTHWEST 285TH DRIVE (A DIRT ROAD LEADING NORTHWESTERLY), BEAR RIGHT

DF8358'ON NORTHWEST

DF8358'285TH DRIVE AND GO NORTHWESTERLY FOR 0.55 MI TO THE JUNCTION OF A DIRT

DF8358'ROAD ON THE

DF8358'RIGHT LEADING EAST AND THE MARK ON THE RIGHT, SET IN THE TOP OF A

DF8358'ROUND CONCRETE

DF8358'MONUMENT FLUSH WITH THE GROUND AND ABOUT 1.5 FT BELOW THE LEVEL OF

DF8358'NORTHWEST 285TH

DF8358'DRIVE.

DF8358'

DF8358'LOCATED 70.0 FT NORTH OF THE APPROXIMATE CENTERLINE OF A ROAD LEADING

DF8358'EAST, 41.5 FT EAST

DF8358'OF THE APPROXIMATE CENTERLINE OF THE ROAD, 1.1 FT WEST OF A BARBWIRE

DF8358'FENCE AND 1.0 FT

DF8358'WEST OF A CARSONITE WITNESS POST.

DF8358'

DF8358'NOTE A MAGNET WAS IMBEDDED IN THE GROUND ON THE SOUTH SIDE OF THE

DF8358'MONUMENT.

DF8358'

DF8358'

DF8358'

DF8358'

DF8358

DF8358

## STATION RECOVERY (2005)


DF8358


DF8358'RECOVERY NOTE BY MACTEC ENGINEERING AND CONSULTING 2005 (CBG)

DF8358'RECOVERED AS DESCRIBED

\*\*\* retrieval complete.

Elapsed Time = 00:00:02

<b>LKBC2B</b>		Elevation:	<b>42.65 ft</b>	(NAVD 88)	43.85 ft	(NGVD 29)
Bench Mark 1:	KR 1506		45.91 ft	(NAVD 88)	47.11 ft	(NGVD 29)
Bench Mark 2:	KR 1499		47.05 ft	(NAVD 88)	48.24 ft	(NGVD 29)
Monitoring Well:	LKBC2B		46.49 ft	(NAVD 88)	47.69 ft	(NGVD 29)
Concrete Pad:	LKBC2B		43.18 ft	(NAVD 88)	44.38 ft	(NGVD 29)
Ground Elevation:	LKBC2B		42.83 ft	(NAVD 88)	44.03 ft	(NGVD 29)
Length of Run:	2.12 km	To Reach LKBC2B:				
Max Allowable Misclosure:		12 mm	<p>FROM THE INTERSECTION OF U.S. HIGHWAY 98/441 (PARROT AVE), AND U.S. HIGHWAY 98/STATE HIGHWAY 70, (N.PARK ST.) IN OKECHOBEE, GO WEST ON U.S. HIGHWAY 98/ STATE HIGHWAY 70 FOR 1.15 MILES, THEN TURN RIGHT AND CONTINUE NORTHWEST ON U.S. HIGHWAY 98/ STATE HIGHWAY 700 FOR 15.9 MILES, TO A JUNCTION WITH MICCO BLUFF ROAD (NW 230<sup>TH</sup> AVE) AT BASINGER, THEN TURN RIGT ON MICCO BLUFF ROAD AND GO NORTH FOR 0.2 MILES, THEN TURN LEFT AND CONTINUE NORTHWESTERLY ON THE MICCO BLUFF FOR 6.1 MILES TO THE END OF THE PAVED ROAD AND BEGINNING OF A DIRT ROAD (NW 285<sup>TH</sup> DR.) AND CONTINUE TO THE NORTHWEST FOR 2.8 MILES TO THE STATION ON THE LEFT. THE MARK IS 46.7 FEET SOUTH OF A BARBED WIRE FENCE ON THE NORTH SIDE OF THE ROAD, 25.2 FEET SOUTH OF THE CENTERLINE OF THE DIRT ROAD, AND 7.5 FEET NORTH OF STILLING WELL LKBC2B. A MAGNET WAS SET 1.0 FOOT NORTH OF MONUMENT.</p>			
Actual Misclosure:		3 mm				
						

<b>LKBC3A</b>		Elevation:	<b>42.44 ft</b>	(NAVD 88)	43.63 ft	(NGVD 29)
Bench Mark 1:	V 462		56.12 ft	(NAVD 88)	57.32 ft	(NGVD 29)
Bench Mark 2:	U 462		46.96 ft	(NAVD 88)	48.16 ft	(NGVD 29)
Monitoring Well:	LKBC3A		47.13 ft	(NAVD 88)	48.32 ft	(NGVD 29)
Concrete Pad:	LKBC3A		43.02 ft	(NAVD 88)	44.21 ft	(NGVD 29)
Ground Elevation:	LKBC3A		42.55 ft	(NAVD 88)	43.74 ft	(NGVD 29)
Length of Run:	2.15 km	To Reach LKBC3A:				
Max Allowable Misclosure:		12 mm	<p>FROM THE JUNCTION OF US 98 AND SR 70, HEAD NORTHERLY AND WESTERLY ON US 98 FOR 20.8 MILES TO BLUFF HAMMOCK ROAD. GO NORTHERLY FOR 4.7 MILES ON BLUFF HAMMOCK ROAD, TO GRASS ROAD WITH LOCKED SFWMD GATE ON RIGHT. GO THROUGH SFWMD LOCKED GATE AND GO EAST FOR + OR - 470 FEET. TO MARK ON RIGHT. MARK IS LOCATED 66.0 FEET SOUTH WEST OF THE NORTHWEST CORNER OF A 4 FEET DIAMETER CULVERT. 6.95 FEET WEST OF A 12 INCH GREY PIPE OF MONITORING WELL LKBC3A, 35.80 FEET EAST OF PK NAIL AND DISK ON THE NORTH SIDE OF A 8 INCH DIAMETER OAK TREE WHICH IS 4 FEET EAST OF SECOND 8 INCH DIAMETER OAK TREE. MONUMENT IS FLUSH WITH GROUND AND HAS A MAGNET SET 1FOOT NORTH OF MARK.</p>			
Actual Misclosure:		2 mm				
						

**LKBC2B**



**Nick Miller, Inc.**  
**Date of Photo: July 31, 2006**  
**View: Looking at the well facing east**

# LKBC2B



**Nick Miller, Inc.**  
**Date of Photo: July 31, 2006**  
**View: Close-up of the well showing the contractor's markings**

**LKBC2B**



**Nick Miller, Inc.**  
**Date of Photo: July 31, 2006**  
**View: Looking at the benchmark facing south**



# LKBC2B



**Nick Miller, Inc.**  
**Date of Photo: July 31, 2006**  
**View: A top view of the benchmark**









1078.015  
~~1078.008~~

BENCH RUN

C555 → B555 (CONT.)

SFWMD

COL. = 1.2

	+	HI	-	ELEV.
	1.6234			
11	12.0		1.5603	
			19.9	
	1.4919			
12	11.1		1.4173	
			12.3	

RAGER, J

WED. AUG. 2<sup>ND</sup> 2006

RAGER, G. III

SFWMD-12, 76

BRUST

DESC.

D.H. NAIL SET ON SOUTHEAST SIDE OF PAVED ROAD

"

"

B.M. B555

TOTAL DIST: 1.40068 KM

✓ 2.3 mm

1078.015

~~1078.008~~

BENCH LOOP

SFWMD RAGER, J

WED. AUG. 2<sup>ND</sup> 2006

RAGER, G III

SFWMD-13,44

STILLING WELL LKBCZB

BRVST

+  
5.440

H.I.

—

ELEV. DESC.

B.M. LKBCZB

5.260

GROUND SHOT IN FRONT OF WELL CONC. PAD.

4.910

CONC. PAD OF WELL

1.600

STILLING WELL LKBCZB

1.500

STILLING WELL LKBCZB

4.810

CONC. PAD OF WELL

5.340

B.M. LKBCZB ✓

Identification\_Information:

Citation:

Citation\_Information:

Originator: Nick Miller, Inc. (comp.)  
Originator: Stephen M. Gordon, PSM(ed.)  
Publication\_Date: 20060315  
Publication\_Time: Unknown  
Title: S. F. W. M. D. Monitoring Well LKBC2B  
Edition: 1  
Publication\_Information:

Publication\_Place: West Palm Beach, FL  
Publisher: South Florida Water Management District

Description:

Abstract:

South Florida Water Management District Monitoring Well LKBC2B.

Purpose:

To determine as built dimensions relative to NAVD 88 and NGVD 29 vertical datum

Time\_Period\_of\_Content:

Time\_Period\_Information:

Single\_Date/Time:

Calendar\_Date: 20060818

Currentness\_Reference: Publication Date

Status:

Progress: Complete

Maintenance\_and\_Update\_Frequency: Unknown

Spatial\_Domain:

Bounding\_Coordinates:

West\_Bounding\_Coordinate: -081D 09M 05.0S  
East\_Bounding\_Coordinate: -081D 08M 03.9S  
North\_Bounding\_Coordinate: +27D 28M 00.0S  
South\_Bounding\_Coordinate: +27D 27M 35.2S

Keywords:

Theme:

Theme\_Keyword\_Thesaurus: Tri - Service Spatial Data Standard  
Theme\_Keyword: Improvement  
Theme\_Keyword: Geodetic/Cadastral

Place:

Place\_Keyword\_Thesaurus: None  
Place\_Keyword: S. F. W. M. D. Monitoring Well LKBC2B  
Place\_Keyword: Sec. 05, Twp. 35 S., Rge. 32 E  
Place\_Keyword: Okeechobee County, Florida  
Place\_Keyword\_Thesaurus: Geographic Names Information System  
Place\_Keyword: Florida  
Place\_Keyword: Okeechobee County  
Place\_Keyword: Basinger NW

Access\_Constraints: None

Use\_Constraints: None

Point\_of\_Contact:

Contact\_Information:

Contact\_Person\_Primary:

Contact\_Person: Howard Ehmke

Contact\_Organization: South Florida Water Management

District

Contact\_Position: Project Manager

Contact\_Address:

Address\_Type: mailing and physical address

Address: 3301 Gun Club Road

City: West Palm Beach

State\_or\_Province: Florida

Postal\_Code: 33406

Country: USA

Contact\_Voice\_Telephone: 561-682-6672

Contact\_Electronic\_Mail\_Address: hehmke@sfwmd.gov

Data\_Quality\_Information:

Attribute\_Accuracy:

Attribute\_Accuracy\_Report: N/A

Logical\_Consistency\_Report:

Horizontal data was established using mapping grade GPS



equipment. Vertical data was established using NGS control points KR 1506 & KR 1499. Coordinates are in the Florida State Plane Coordinate System, East Zone, NAD 83/90. Elevations are in the NAVD 88 and the NGVD 29.

Completeness\_Report:

Horizontal Location taken at site benchmark  
 Lat. +27D 28M 00.0S  
 Long. -081D 09M 05.0S  
 N 1,138,841 ft  
 E 607,076 ft  
 Site Benchmark.  
 "LKBC2B" is a South Florida Water Management District (SFWMD) brass disk set in concrete.  
 FROM THE INTERSECTION OF U. S. HIGHWAY 98/441 (PARROT AVE), AND U. S. HIGHWAY 98/STATE HIGHWAY 70, (N. PARK ST.) IN OKECHOBEE, GO WEST ON U. S. HIGHWAY 98/ STATE HIGHWAY 70 FOR 1.15 MILES, THEN TURN RIGHT AND CONTINUE NORTHWEST ON U. S. HIGHWAY 98/ STATE HIGHWAY 700 FOR 15.9 MILES, TO A JUNCTION WITH MICCO BLUFF ROAD (NW 230TH AVE) AT BASINGER, THEN TURN RIGHT ON MICCO BLUFF ROAD AND GO NORTH FOR 0.2 MILES, THEN TURN LEFT AND CONTINUE NORTHWESTERLY ON THE MICCO BLUFF FOR 6.1 MILES TO THE END OF THE PAVED ROAD AND BEGINNING OF A DIRT ROAD (NW 285TH DR.) AND CONTINUE TO THE NORTHWEST FOR 2.8 MILES TO THE STATION ON THE LEFT. THE MARK IS 46.7 FEET SOUTH OF A BARBED WIRE FENCE ON THE NORTH SIDE OF THE ROAD, 25.2 FEET SOUTH OF THE CENTERLINE OF THE DIRT ROAD, AND 7.5 FEET NORTH OF STILLING WELL LKBC2B. A MAGNET WAS SET 1.0 FOOT NORTH OF MONUMENT.  
 Benchmark Elevation is 42.65 feet (NAVD 88).  
 Well Elevation (LKBC2B) is 46.49 feet (NAVD 88) as observed at the existing reference mark for the well which is a black mark at the top of a PVC pipe at the center of the well.  
 Concrete Pad Elevation is 43.18 feet (NAVD 88).  
 Ground Elevation is 42.83 feet (NAVD 88).  
 NGVD 29 minus NAVD 88 equals 1.197 feet.  
 The NGVD 1929 value was taken from the NGVD29.ABS file provided from the SFWMD for benchmark KR 1499.  
 Vertical Control used KR 1506 El. 13.994 (m) (NAVD 88) El. 14.359 (m) (NGVD 29), KR 1499 El. 14.340 (m) (NAVD 88) El. 14.705 (m) (NGVD 29).

Positional\_Accuracy:

Horizontal\_Positional\_Accuracy:

Horizontal\_Positional\_Accuracy\_Report:

The horizontal position of Site Benchmark "LKBC2B" was established using a mapping grade GPS receiver (Trimble Pro XR in accordance with the Florida Minimum Technical Standards (Chapter 61G17-6, Florida Administrative Code).

Quantitative\_Horizontal\_Positional\_Accuracy\_Assessment:

Horizontal\_Positional\_Accuracy\_Value: 3 to 5 meters

Horizontal\_Positional\_Accuracy\_Explanation: The intended

positional accuracy for this survey is 3 to 5 meters more or less.

Vertical\_Positional\_Accuracy:

Vertical\_Positional\_Accuracy\_Report:

A level line was run originating on benchmark KR 1506 and terminating at benchmark KR 1499 with an allowable error of 8mm times the square root of the distance leveled (in kilometers).

Quantitative\_Vertical\_Positional\_Accuracy\_Assessment:

Vertical\_Positional\_Accuracy\_Value: 0.003 m

Vertical\_Positional\_Accuracy\_Explanation: NAVD 88 level

loop, 0.003 m closure in 2.12 km, max. allowed 0.012m.

Li Neage:

Process\_Step:

LKBC2B.met

Process\_Description:

The horizontal work was performed using a Trimble Pro XR GPS receiver (mapping grade). The Level Loop was run with a Leica DNA03 digital level.

Process\_Date: 20060807

Metadata\_Reference\_Information:

Metadata\_Date: 20060818

Metadata\_Contact:

Contact\_Information:

Contact\_Person\_Primary:

Contact\_Person: Stephen M. Gordon

Contact\_Organization: Nick Miller, Inc.

Contact\_Position: Project Surveyor

Contact\_Address:

Address\_Type: mailing and physical address

Address: 2560 RCA Blvd., Suite 105

City: Palm Beach Gardens

State\_or\_Province: Florida

Postal\_Code: 33410

Country: USA

Contact\_Voice\_Telephone: 561-627-5200

Contact\_Facsimile\_Telephone: 561-627-0983

Contact\_Electronic\_Mail\_Address: sgordon@nickmillerinc.com

Metadata\_Standard\_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata\_Standard\_Version: 2.0

Metadata\_Time\_Convention: Local time

Metadata\_Access\_Constraints: South Florida Water Management District controls access.

Metadata\_Use\_Constraints: Per South Florida Water Management District

Metadata\_Security\_Information:

Metadata\_Security\_Handling\_Description: None

Metadata\_Security\_Classification: Unclassified

Metadata\_Security\_Classification\_System: Structure

-\*- FIELD ABSTRACT -\*-

060801-060801 HGZ L10785 8.0 MM ORDER 2 CLASS 2 PAGE 1  
 SOUTH FLORIDA WATER MANAGEMENT DISTRICT  
 HIGHLANDS AND OKEECHOBEE COUNTY MONITORING WELLS  
 ESTABLISH BENCH MARK NEAR MONITORING WELL LKBC2B

FROM TO	START	F/B	DIST TOTAL (KM)	ELEV DIFF (MT)	-(F+B) TOTAL (MM)	MEAN DIFF FLD ELEV (MT)	I C
0329 KR 1506						13.99400	
0329 KR 1506	8011030	F	0.89	0.34914 *	0.00	0.34914	1
0330 KR 1499			0.89		0.00	14.34314	
0330 KR 1499	8011125	F	1.23	-1.34256 *	0.51	-1.34230	1
0328 LKBC2B	8011255	B	1.23	1.34205 *			1
	SL 1		2.12		0.51	13.00084♀	

ELEVATION REJECTION AND ERROR CODES

- C - section elevation difference was rejected for cause i.e. \*43\* record rejection code set to "F"
- R - section elevation difference was rejected by Halperin rejection algorithm
- @ - section elevation difference does not include refraction correction
- \* - section elevation difference does not include rod correction

♀

INSTRUMENT CODE	INSTRUMENT	RODS
1	243 - 331132	396 - 333 396 - 444

♀  
 LEVEL LINE SECTION RUNNING TREE

FROM	TO	N. LATITUDE	W. LONGITUDE	FIELD DISTANCE	VS. COMPUTED
0329	0330 (0328♀)	272735	0810803	0.00	0.00
0329	0330	272759	0810820	0.89	0.87
0330	0328	272800	0810905	1.23	1.24♀

SECTION FROM TO ERROR MESSAGES



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

COUNTY OKEECHOBEE	PROJECT Hydrology - Kissimmee River & Palm Beach Wells	DESIGNATION LKBC2B 2006
SECTION 05	TOWNSHIP 35 SOUTH	RANGE 32 EAST
GEOGRAPHIC INDEX OF QUAD		
Established by <u>Nick Miller Inc.</u> Recovered by	NAME OF QUADRANGLE BASINGER NW	
SURVEYOR <u>Stephen M. Gordon</u> DATE <u>07/31/2006</u>	FIELD BOOK <u>11</u> PAGE <u>75</u>	
HORIZONTAL DATUM: 1927 <b>1983</b> Other _____ (circle one) ZONE <b>E</b> or W		
STATE PLANE COORDINATES	E 607,076 ft	N 1,138,841 ft
LATITUDE: N 27.46666°	LONGITUDE: W 81.15139°	
VERTICAL DATUM: MSL 1929 <b>1988</b> Other _____ (circle one)	EL. 42.65 ft	
VERTICAL DATUM: MSL <b>1929</b> 1988 Other _____ (circle one)	EL. 43.85 ft	
CONTROL ACCURACY: HORIZONTAL 1 2 3 <b>SUB-METER</b> (circle one) VERTICAL 1 2 <b>3</b>		
<b>DESCRIPTION</b>		
<p>To Reach:</p> <p>FROM THE INTERSECTION OF U.S. HIGHWAY 98/441 (PARROT AVE), AND U.S. HIGHWAY 98/STATE HIGHWAY 70, (N.PARK ST.) IN OKEECHOBEE, GO WEST ON U.S. HIGHWAY 98/ STATE HIGHWAY 70 FOR 1.15 MILES, THEN TURN RIGHT AND CONTINUE NORTHWEST ON U.S. HIGHWAY 98/ STATE HIGHWAY 700 FOR 15.9 MILES, TO A JUNCTION WITH MICCO BLUFF ROAD (NW 230<sup>TH</sup> AVE) AT BASINGER, THEN TURN RIGT ON MICCO BLUFF ROAD AND GO NORTH FOR 0.2 MILES, THEN TURN LEFT AND CONTINUE NORTHWESTERLY ON THE MICCO BLUFF FOR 6.1 MILES TO THE END OF THE PAVED ROAD AND BEGINNING OF A DIRT ROAD (NW 285<sup>TH</sup> DR.) AND CONTINUE TO THE NORTHWEST FOR 2.8 MILES TO THE STATION ON THE LEFT. THE MARK IS 46.7 FEET SOUTH OF A BARBED WIRE FENCE ON THE NORTH SIDE OF THE ROAD, 25.2 FEET SOUTH OF THE CENTERLINE OF THE DIRT ROAD, AND 7.5 FEET NORTH OF STILLING WELL LKBC2B. A MAGNET WAS SET 1.0 FOOT NORTH OF MONUMENT.</p> <p>Benchmarks Used: KR 1506 &amp; KR 1499</p> <p>Notable Land marks:</p>		



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

SKETCH

1078-015  
~~1078-008~~ SFWMD

SET CONCRETE MONUMENT @  
 STILLING WELL LKBCZB

- SET POURED-IN-PLACE CONCRETE MONUMENT WITH

- SET MAGNET 1' NORTH OF CONG. MONUMENT

- STAMPED: LKBCZB  
 2006

- TIES:

SET CONG. MON. 7.5 FT. NORTH OF STILLING WELL LKBCZB

" " " 25.2 FT SOUTH OF CENTERLINE OF DIRT RD.

" " " 46.7 FT SOUTH OF A BARBED WIRE FENCE ON NORTH SIDE OF ROAD.

- COORDINATES ON B.M. LKBCZB

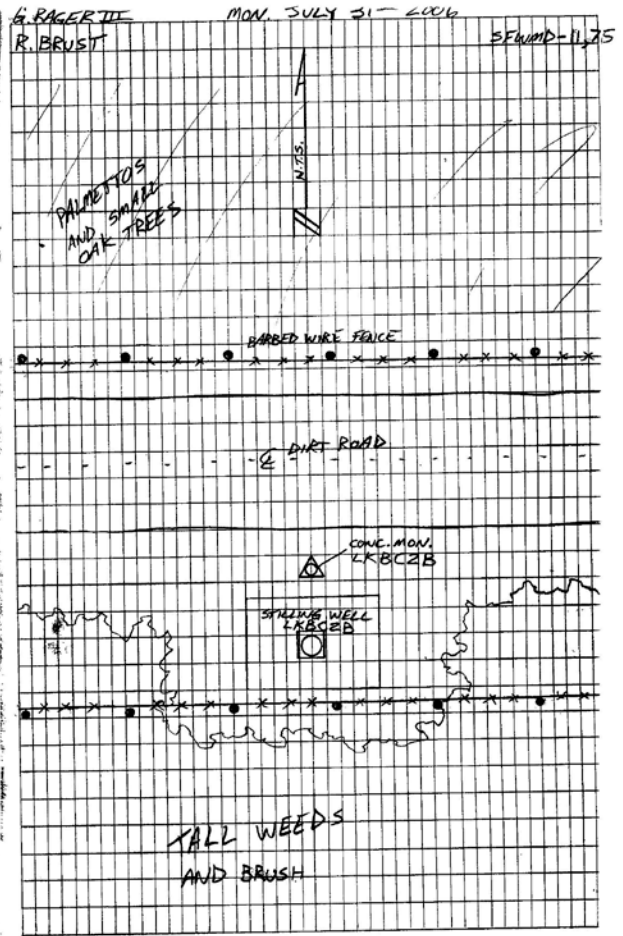
STATE PLANE 83	WGS84
N. N. 27° 28' 00"	
E. W. 081° 09' 05"	

- COORDINATES ON STILLING WELL LKBCZB

STATE PLANE 83	WGS84
N. N. 27° 28' 00"	
E. W. 081° 09' 05"	

- RECON BENCHMARKS FOR STILLING WELL LKBCZB

KR1506	FOUND IN GOOD CONDITION	"
KR1499	"	"
OK 17	"	"



# The NGS Data Sheet

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

```

PROGRAM = datasheet95, VERSION = 8.7
1      National Geodetic Survey,      Retrieval Date = JULY 22, 2015
AH9330 *****
AH9330 DESIGNATION - KR 1499
AH9330 PID - AH9330
AH9330 STATE/COUNTY- FL/OKEECHOBEE
AH9330 COUNTRY - US
AH9330 USGS QUAD - BASINGER NW (1972)
AH9330
AH9330 *CURRENT SURVEY CONTROL
AH9330
AH9330* NAD 83(2011) POSITION- 27 27 59.75085(N) 081 08 20.57438(W) ADJUSTED
AH9330* NAD 83(2011) ELLIP HT- -11.795 (meters) (06/27/12) ADJUSTED
AH9330* NAD 83(2011) EPOCH - 2010.00
AH9330* NAVD 88 ORTHO HEIGHT - 14.340 (meters) 47.05 (feet) ADJUSTED
AH9330
AH9330 NAD 83(2011) X - 872,345.007 (meters) COMP
AH9330 NAD 83(2011) Y - -5,595,626.081 (meters) COMP
AH9330 NAD 83(2011) Z - 2,924,181.191 (meters) COMP
AH9330 LAPLACE CORR - -0.75 (seconds) DEFLEC12B
AH9330 GEOID HEIGHT - -26.14 (meters) GEOID12B
AH9330 DYNAMIC HEIGHT - 14.318 (meters) 46.98 (feet) COMP
AH9330 MODELED GRAVITY - 979,136.2 (mgal) NAVD 88
AH9330
AH9330 VERT ORDER - SECOND CLASS I
AH9330
AH9330 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
AH9330 Standards:
AH9330 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
AH9330 Horiz Ellip SD_N SD_E SD_h (unitless)
AH9330 -----
AH9330 NETWORK 1.16 1.63 0.49 0.46 0.83 0.03690113
AH9330 -----
AH9330 Click here for local accuracies and other accuracy information.
AH9330
AH9330
AH9330.The horizontal coordinates were established by GPS observations
AH9330.and adjusted by the National Geodetic Survey in June 2012.
AH9330
AH9330.NAD 83(2011) refers to NAD 83 coordinates where the reference
AH9330.frame has been affixed to the stable North American tectonic plate. See
AH9330.NA2011 for more information.
AH9330
AH9330.The horizontal coordinates are valid at the epoch date displayed above
AH9330.which is a decimal equivalence of Year/Month/Day.
AH9330
AH9330.The orthometric height was determined by differential leveling and
AH9330.adjusted by the NATIONAL GEODETIC SURVEY
AH9330.in May 2004.
AH9330
AH9330.The X, Y, and Z were computed from the position and the ellipsoidal ht.
AH9330
AH9330.The Laplace correction was computed from DEFLEC12B derived deflections.
AH9330
AH9330.The ellipsoidal height was determined by GPS observations
AH9330.and is referenced to NAD 83.
AH9330

```

AH9330.The dynamic height is computed by dividing the NAVD 88  
 AH9330.geopotential number by the normal gravity value computed on the  
 AH9330.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
 AH9330.degrees latitude (g = 980.6199 gals.).

AH9330  
 AH9330.The modeled gravity was interpolated from observed gravity values.

AH9330  
 AH9330. The following values were computed from the NAD 83(2011) position.

AH9330

AH9330;		North	East	Units	Scale	Factor	Converg.
AH9330;SPC FL E	-	347,111.062	186,256.982	MT	0.99994351	-0	03 50.9
AH9330;SPC FL E	-	1,138,813.54	611,078.12	sFT	0.99994351	-0	03 50.9
AH9330;UTM 17	-	3,038,124.611	486,261.671	MT	0.99960233	-0	03 50.9

AH9330

AH9330!		Elev Factor	x	Scale Factor	=	Combined Factor
AH9330!SPC FL E	-	1.00000185	x	0.99994351	=	0.99994536
AH9330!UTM 17	-	1.00000185	x	0.99960233	=	0.99960418

AH9330  
 AH9330 SUPERSEDED SURVEY CONTROL

AH9330	NAD 83(2007)-	27 27 59.75114(N)	081 08 20.57551(W)	AD(2002.00)	0
AH9330	ELLIP H (02/10/07)	-11.794 (m)		GP(2002.00)	
AH9330	NAD 83(1999)-	27 27 59.75096(N)	081 08 20.57541(W)	AD( )	1
AH9330	ELLIP H (05/31/01)	-11.770 (m)		GP( )	4 1
AH9330	NAD 83(1990)-	27 27 59.74993(N)	081 08 20.57507(W)	AD( )	1
AH9330	ELLIP H (06/01/99)	-11.774 (m)		GP( )	4 1
AH9330	NAVD 88 (06/01/99)	14.4 (m)	GEOID96 model used	GPS OBS	

AH9330  
 AH9330.Superseded values are not recommended for survey control.

AH9330  
 AH9330.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
 AH9330.[See file dsdata.txt](#) to determine how the superseded data were derived.

AH9330  
 AH9330\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML8626138124(NAD 83)

AH9330  
 AH9330\_MARKER: DD = SURVEY DISK  
 AH9330\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT  
 AH9330\_STAMPING: KR 1499 93  
 AH9330\_MARK LOGO: USE  
 AH9330\_PROJECTION: FLUSH  
 AH9330\_MAGNETIC: O = OTHER; SEE DESCRIPTION  
 AH9330\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO  
 AH9330+STABILITY: SURFACE MOTION  
 AH9330\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
 AH9330+SATELLITE: SATELLITE OBSERVATIONS - November 18, 2009

AH9330

AH9330	HISTORY	- Date	Condition	Report By
AH9330	HISTORY	- 1993	MONUMENTED	USE
AH9330	HISTORY	- 20011005	GOOD	FLDEP
AH9330	HISTORY	- 20091118	GOOD	PICKET

AH9330  
 AH9330 STATION DESCRIPTION

AH9330'DESCRIBED BY US ENGINEERS 1993  
 AH9330'THE STATION IS ABOUT 24.1 MI (38.8 KM) NORTHWEST OF OKEECHOBEE, 7.5 MI  
 AH9330'(12.1 KM) EAST NORTHEAST OF LORIDA, 1.6 MI (2.6 KM) NORTHEAST OF  
 AH9330'KISSIMMEE RIVER CANAL C-38 IN SECTION 04, TOWNSHIP 35 SOUTH, RANGE 32  
 AH9330'EAST. TO REACH STATION FROM THE INTERSECTION OF U.S.HIGHWAY 98/441  
 AH9330'(PARROT AVE) AND U.S.HIGHWAY 98/STATE HIGHWAY 70 (N PARK ST) IN  
 AH9330'OKEECHOBEE, GO WEST ON U.S.HIGHWAY 98/STATE HIGHWAY 70 FOR 1.15 MI  
 AH9330'(1.85 KM) , THEN TURN RIGHT AND CONTINUE NORTHWEST ON U.S.HIGHWAY  
 AH9330'98/STATE HIGHWAY 700 FOR 15.9 MI (25.6 KM) TO A JUNCTION WITH MICCO  
 AH9330'BLUFF ROAD (NW 230TH AVE) AT BASINGER, THEN TURN RIGHT ON MICCO BLUFF  
 AH9330'ROAD AND GO NORTH FOR 0.2 MI (0.3 KM) , THEN TURN LEFT AND CONTINUE  
 AH9330'NORTHWESTERLY ON MICCO BLUFF ROAD (NW 160TH DR) FOR 6.1 MI (9.8 KM) TO  
 AH9330'THE END OF THE PAVED ROAD AND BEGINNING OF A DIRT ROAD (NW 285TH DR)

AH9330'AND CONTINUE TO THE NORTH NORTHWEST FOR 2.8 MI (4.5 KM) TO THE STATION  
AH9330'ON THE LEFT, NORTH OF A PASTURE ROAD LEADING WEST AND SOUTH OF AN  
AH9330'EAST-WEST BARBWIRE FENCELINE, SET IN THE TOP OF A ROUND CONCRETE  
AH9330'MONUMENT FLUSH WITH GROUND. LOCATED 85.3 FT (26.0 M) WEST OF  
AH9330'CENTERLINE OF ROAD (NW 285TH DR) AT THE EAST-WEST FENCELINE OPENING,  
AH9330'19.7 FT (6.0 M) NORTH OF PASTURE ROAD LEADING WEST, 26.9 FT (8.2 M)  
AH9330'NORTHWEST OF CENTER OF STEEL GATE-4 TO THE PASTURE ROAD, 17.1 FT (5.2  
AH9330'M) WEST OF T-FENCE CORNER, 2.6 FT (0.8 M) SOUTH OF STEEL  
AH9330'S.FL.W.M.D.WITNESS POST AT EAST-WEST BARBWIRE FENCELINE. RECOVERABLE  
AH9330'WITH MAGNETIC LOCATOR, MAGNETIC SOURCE UNKNOWN.

AH9330

AH9330

STATION RECOVERY (2001)

AH9330

AH9330'RECOVERY NOTE BY FL DEPT OF ENV PRO 2001 (JLM)

AH9330'THE MARK IS ABOUT 27.0 MI NORTHWEST OF OKEECHOBEE, 9.2 MI NORTHWEST OF  
AH9330'BASINGER, ON

AH9330'NORTHWEST 285TH DRIVE, IN SECTION 4, TOWNSHIP 35 SOUTH, RANGE 32 EAST.

AH9330'TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 441 (PARROTT  
AH9330'STREET) AND U.S.

AH9330'HIGHWAY 98 (STATE HIGHWAY 70, PARK STREET) IN OKEECHOBEE, GO WEST ON  
AH9330'U.S. HIGHWAY 98

AH9330'(STATE HIGHWAY 70, PARK STREET) FOR 1.15 MI TO THE JUNCTION OF U.S.

AH9330'HIGHWAY 98 NORTH ON

AH9330'THE RIGHT, TURN RIGHT ON U.S. HIGHWAY 98 AND GO NORTHWESTERLY FOR 0.65

AH9330'MI TO THE

AH9330'RAILROAD TRACKS, CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 11.9 MI

AH9330'TO THE JUNCTION

AH9330'OF COUNTY ROAD 68 EAST ON THE RIGHT, CONTINUE NORTHWESTERLY ON U.S.

AH9330'HIGHWAY 98 FOR

AH9330'1.85 MI TO THE JUNCTION OF NORTHWEST 176TH AVENUE (COUNTY ROAD 700-A)

AH9330'ON THE RIGHT,

AH9330'CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 1.7 MI TO THE JUNCTION

AH9330'OF NORTHWEST

AH9330'203RD AVENUE (MICCO BLUFF ROAD) ON THE RIGHT, TURN RIGHT ON NORTHWEST

AH9330'203RD AVENUE

AH9330'(MICCO BLUFF ROAD) AND GO NORTH-NORTHWESTERLY FOR 0.2 MI TO THE

AH9330'JUNCTION OF NORTHWEST

AH9330'160TH DRIVE (MICCO BLUFF ROAD, COUNTY ROAD 68), TURN LEFT ON NORTHWEST

AH9330'160TH DRIVE

AH9330'(MICCO BLUFF ROAD, COUNTY ROAD 68) AND GO WEST-NORTHWESTERLY FOR 6.15

AH9330'MI TO THE END OF

AH9330'THE PAVED ROAD AND THE JUNCTION OF A DIRT ROAD LEADING NORTHWEST AND

AH9330'THE BEGINNING OF

AH9330'NORTHWEST 285TH DRIVE (A DIRT ROAD LEADING NORTHWESTERLY), BEAR RIGHT

AH9330'ON NORTHWEST

AH9330'285TH DRIVE AND GO NORTHWESTERLY FOR 2.8 MI TO A METAL GATE AND THE

AH9330'JUNCTION OF A DIRT

AH9330'ROAD ON THE LEFT LEADING WEST THROUGH A GATE AND THE MARK ON THE LEFT,

AH9330'SET IN THE TOP

AH9330'OF A ROUND CONCRETE MONUMENT FLUSH WITH THE GROUND AND LEVEL WITH

AH9330'NORTHWEST 285TH

AH9330'DRIVE.

AH9330'

AH9330'LOCATED 85.3 FT WEST OF THE APPROXIMATE CENTERLINE OF NORTHWEST 285TH

AH9330'DRIVE, 27.0 FT

AH9330'NORTHWEST OF THE CENTER OF A STEEL GATE (NUMBER 4), 19.7 FT NORTH OF

AH9330'THE APPROXIMATE

AH9330'CENTERLINE OF A ROAD LEADING WEST, 17.1 FT WEST OF A T-FENCE CORNER

AH9330'AND 2.6 FT SOUTH OF A

AH9330'METAL SFWMD WITNESS POST AND AN EAST-WEST BARBWIRE FENCE.

AH9330'

AH9330'NOTE THE MARK WAS RECOVERED WITH A MAGNETIC LOCATOR.

AH9330'

AH9330'

AH9330'

AH9330'



AH9330 STATION RECOVERY (2009)  
AH9330  
AH9330'RECOVERY NOTE BY PICKETT AND ASSOCIATES 2009 (JM)  
AH9330'RECOVERED IN GOOD CONDITION.

\*\*\* retrieval complete.  
Elapsed Time = 00:00:03

# The NGS Data Sheet

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

```

PROGRAM = datasheet95, VERSION = 8.7
1      National Geodetic Survey,      Retrieval Date = JULY 22, 2015
AH9329 *****
AH9329 DESIGNATION - KR 1506
AH9329 PID - AH9329
AH9329 STATE/COUNTY- FL/OKEECHOBEE
AH9329 COUNTRY - US
AH9329 USGS QUAD - BASINGER NW (1972)
AH9329
AH9329 *CURRENT SURVEY CONTROL
AH9329
AH9329* NAD 83(2011) POSITION- 27 27 35.24591(N) 081 08 03.85777(W) ADJUSTED
AH9329* NAD 83(2011) ELLIP HT- -12.145 (meters) (06/27/12) ADJUSTED
AH9329* NAD 83(2011) EPOCH - 2010.00
AH9329* NAVD 88 ORTHO HEIGHT - 13.994 (meters) 45.91 (feet) ADJUSTED
AH9329
AH9329 NAD 83(2011) X - 872,852.062 (meters) COMP
AH9329 NAD 83(2011) Y - -5,595,898.759 (meters) COMP
AH9329 NAD 83(2011) Z - 2,923,511.752 (meters) COMP
AH9329 LAPLACE CORR - -0.83 (seconds) DEFLEC12B
AH9329 GEOID HEIGHT - -26.14 (meters) GEOID12B
AH9329 DYNAMIC HEIGHT - 13.973 (meters) 45.84 (feet) COMP
AH9329 MODELED GRAVITY - 979,135.2 (mgal) NAVD 88
AH9329
AH9329 VERT ORDER - SECOND CLASS I
AH9329
AH9329 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
AH9329 Standards:
AH9329 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
AH9329 Horiz Ellip SD_N SD_E SD_h (unitless)
AH9329 -----
AH9329 NETWORK 1.32 1.72 0.56 0.52 0.88 0.04971662
AH9329 -----
AH9329 Click here for local accuracies and other accuracy information.
AH9329
AH9329
AH9329.The horizontal coordinates were established by GPS observations
AH9329.and adjusted by the National Geodetic Survey in June 2012.
AH9329
AH9329.NAD 83(2011) refers to NAD 83 coordinates where the reference
AH9329.frame has been affixed to the stable North American tectonic plate. See
AH9329.NA2011 for more information.
AH9329
AH9329.The horizontal coordinates are valid at the epoch date displayed above
AH9329.which is a decimal equivalence of Year/Month/Day.
AH9329
AH9329.The orthometric height was determined by differential leveling and
AH9329.adjusted by the NATIONAL GEODETIC SURVEY
AH9329.in May 2004.
AH9329
AH9329.The X, Y, and Z were computed from the position and the ellipsoidal ht.
AH9329
AH9329.The Laplace correction was computed from DEFLEC12B derived deflections.
AH9329
AH9329.The ellipsoidal height was determined by GPS observations
AH9329.and is referenced to NAD 83.
AH9329

```

AH9329.The dynamic height is computed by dividing the NAVD 88  
 AH9329.geopotential number by the normal gravity value computed on the  
 AH9329.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
 AH9329.degrees latitude (g = 980.6199 gals.).

AH9329

AH9329.The modeled gravity was interpolated from observed gravity values.

AH9329

AH9329. The following values were computed from the NAD 83(2011) position.

AH9329

AH9329;	North	East	Units	Scale	Factor	Converg.
AH9329;SPC FL E	- 346,356.319	186,715.112	MT	0.99994335	-0 03 43.1	
AH9329;SPC FL E	- 1,136,337.36	612,581.16	sFT	0.99994335	-0 03 43.1	
AH9329;UTM 17	- 3,037,370.125	486,719.645	MT	0.99960218	-0 03 43.1	
AH9329!	- Elev Factor	x Scale Factor	=	Combined Factor		
AH9329!SPC FL E	- 1.00000191	x 0.99994335	=	0.99994526		
AH9329!UTM 17	- 1.00000191	x 0.99960218	=	0.99960409		

AH9329

#### SUPERSEDED SURVEY CONTROL

AH9329

AH9329	NAD 83(2007)-	27 27 35.24623(N)	081 08 03.85888(W)	AD(2002.00)	0
AH9329	ELLIP H (02/10/07)	-12.143 (m)		GP(2002.00)	
AH9329	NAD 83(1999)-	27 27 35.24602(N)	081 08 03.85873(W)	AD( )	1
AH9329	ELLIP H (05/31/01)	-12.114 (m)		GP( )	4 1
AH9329	NAD 83(1990)-	27 27 35.24500(N)	081 08 03.85837(W)	AD( )	1
AH9329	ELLIP H (06/01/99)	-12.118 (m)		GP( )	4 1
AH9329	NAVD 88 (06/01/99)	14.0 (m)	GEOID96 model used	GPS OBS	

AH9329

AH9329.Superseded values are not recommended for survey control.

AH9329

AH9329.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

AH9329.[See file dsdata.txt](#) to determine how the superseded data were derived.

AH9329

AH9329\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML8671937370(NAD 83)

AH9329

AH9329\_MARKER: DD = SURVEY DISK

AH9329\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

AH9329\_STAMPING: KR-1506 93 JAX-GPS

AH9329\_MARK LOGO: USE

AH9329\_PROJECTION: FLUSH

AH9329\_MAGNETIC: O = OTHER; SEE DESCRIPTION

AH9329\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

AH9329+STABILITY: SURFACE MOTION

AH9329\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

AH9329+SATELLITE: SATELLITE OBSERVATIONS - November 18, 2009

AH9329

AH9329	HISTORY	- Date	Condition	Report By
AH9329	HISTORY	- 1993	MONUMENTED	USE
AH9329	HISTORY	- 20011005	GOOD	FLDEP
AH9329	HISTORY	- 20060810	GOOD	HOLE
AH9329	HISTORY	- 20091118	GOOD	PICKET

AH9329

#### STATION DESCRIPTION

AH9329

AH9329'DESCRIBED BY US ENGINEERS 1993

AH9329'THE STATION IS ABOUT 23.5 MI (37.8 KM) NORTHWEST OF OKEECHOBEE, 7.7 MI

AH9329'(12.4 KM) EAST NORTHEAST OF LORIDA, 1.6 MI (2.6 KM) NORTHEAST OF

AH9329'KISSIMMEE RIVER CANAL C-38 IN SECTION 04, TOWNSHIP 35 SOUTH, RANGE 32

AH9329'EAST. TO REACH STATION FROM THE INTERSECTION OF U.S.HIGHWAY 98/441

AH9329'(PARROT AVE) AND U.S.HIGHWAY 98/STATE HIGHWAY 70 (N PARK ST) IN

AH9329'OKEECHOBEE, GO WEST ON U.S.HIGHWAY 98/STATE HIGHWAY 70 FOR 1.15 MI

AH9329'(1.85 KM) , THEN TURN RIGHT AND CONTINUE NORTHWEST ON U.S.HIGHWAY

AH9329'98/STATE HIGHWAY 700 FOR 15.9 MI (25.6 KM) TO A JUNCTION WITH MICCO

AH9329'BLUFF ROAD (NW 230TH AVE) AT BASINGER, THEN TURN RIGHT ON MICCO BLUFF

AH9329'ROAD AND GO NORTH FOR 0.2 MI (0.3 KM) , THEN TURN LEFT AND CONTINUE

AH9329'NORTHWESTERLY ON MICCO BLUFF ROAD (NW 160TH DR) FOR 6.1 MI (9.8 KM) TO

AH9329'THE END OF THE PAVED ROAD AND BEGINNING OF A DIRT ROAD (NW 285TH DR)  
AH9329'AND CONTINUE TO THE NORTH NORTHWEST FOR 2.2 MI (3.5 KM) TO THE STATION  
AH9329'ON THE RIGHT, SOUTH OF A DIRT PASTURE ROAD LEADING NORTHEAST WITH A 30  
AH9329'FT (9.1 M) HIGH PINE SNAG GATE POST ENTRANCE, SET IN THE TOP OF A  
AH9329'ROUND CONCRETE MONUMENT IN A 0.5 FT (15.2 CM) METAL PIPE SLEEVE, 0.3  
AH9329'FT (9.1 CM) BELOW GROUND LEVEL. LOCATED 36.0 FT (11.0 M) NORTHEAST OF  
AH9329'THE CENTERLINE OF THE ROAD (NW 285TH DR) , 15 FT (4.6 M) SOUTHEAST OF  
AH9329'CENTERLINE OF DIRT PASTURE ROAD LEADING NORTHEAST, 10.0 FT (3.0 M)  
AH9329'NORTH OF SOUTHEAST END OF 2.0 FT (0.6 M) DIAMETER METAL PIPE CULVERT  
AH9329'UNDER THE DIRT PASTURE ROAD, 0.95 FT (28.96 CM) WEST OF A WOOD CORNER  
AH9329'R/W FENCE POST, AND 0.8 FT (24.4 CM) WEST OF A S.FL.W.M.D.STEEL  
AH9329'WITNESS POST. RECOVERABLE WITH A MAGNETIC LOCATOR.

AH9329

AH9329 STATION RECOVERY (2001)

AH9329

AH9329'RECOVERY NOTE BY FL DEPT OF ENV PRO 2001 (JLM)

AH9329'THE MARK IS ABOUT 26.5 MI NORTHWEST OF OKEECHOBEE, 8.7 MI NORTHWEST OF  
AH9329'BASINGER, ON

AH9329'NORTHWEST 285TH DRIVE, IN SECTION 4, TOWNSHIP 35 SOUTH, RANGE 32 EAST.

AH9329'TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 441 (PARROTT  
AH9329'STREET) AND U.S.

AH9329'HIGHWAY 98 (STATE HIGHWAY 70, PARK STREET) IN OKEECHOBEE, GO WEST ON

AH9329'U.S. HIGHWAY 98

AH9329'(STATE HIGHWAY 70, PARK STREET) FOR 1.15 MI TO THE JUNCTION OF U.S.

AH9329'HIGHWAY 98 NORTH ON

AH9329'THE RIGHT, TURN RIGHT ON U.S. HIGHWAY 98 AND GO NORTHWESTERLY FOR 0.65

AH9329'MI TO THE

AH9329'RAILROAD TRACKS, CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 11.9 MI

AH9329'TO THE JUNCTION

AH9329'OF COUNTY ROAD 68 EAST ON THE RIGHT, CONTINUE NORTHWESTERLY ON U.S.

AH9329'HIGHWAY 98 FOR

AH9329'1.85 MI TO THE JUNCTION OF NORTHWEST 176TH AVENUE (COUNTY ROAD 700-A)

AH9329'ON THE RIGHT,

AH9329'CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 1.7 MI TO THE JUNCTION

AH9329'OF NORTHWEST

AH9329'203RD AVENUE (MICCO BLUFF ROAD) ON THE RIGHT, TURN RIGHT ON NORTHWEST

AH9329'203RD AVENUE

AH9329'(MICCO BLUFF ROAD) AND GO NORTH-NORTHWESTERLY FOR 0.2 MI TO THE

AH9329'JUNCTION OF NORTHWEST

AH9329'160TH DRIVE (MICCO BLUFF ROAD, COUNTY ROAD 68), TURN LEFT ON NORTHWEST

AH9329'160TH DRIVE

AH9329'(MICCO BLUFF ROAD, COUNTY ROAD 68) AND GO WEST-NORTHWESTERLY FOR 6.15

AH9329'MI TO THE END OF

AH9329'THE PAVED ROAD AND JUNCTION OF A DIRT ROAD LEADING NORTHWEST AND THE

AH9329'BEGINNING OF

AH9329'NORTHWEST 285TH DRIVE (A DIRT ROAD LEADING NORTHWESTERLY), BEAR RIGHT

AH9329'ON NORTHWEST

AH9329'285TH DRIVE AND GO NORTHWESTERLY FOR 2.25 MI TO THE JUNCTION OF A DIRT

AH9329'ROAD ON THE

AH9329'RIGHT LEADING EAST THROUGH A GATE WITH A 30.0 FT HIGH PINE SNAG GATE

AH9329'POST ENTRANCE AND

AH9329'THE MARK ON THE RIGHT, SET IN THE TOP OF A ROUND CONCRETE MONUMENT

AH9329'FLUSH WITH THE

AH9329'GROUND AND LEVEL WITH NORTHWEST 285TH DRIVE.

AH9329'

AH9329'LOCATED 36.0 FT NORTH OF THE APPROXIMATE CENTERLINE OF THE ROAD, 15.5

AH9329'FT SOUTHEAST OF

AH9329'THE APPROXIMATE CENTERLINE OF A ROAD LEADING NORTHEAST, 10.0 FT NORTH

AH9329'OF THE

AH9329'SOUTHEAST END OF A 24-INCH METAL PIPE CULVERT UNDER THE ROAD LEADING

AH9329'NORTHEAST, 1.0 FT

AH9329'WEST OF A WOODEN FENCELINE CORNER POST AND 0.8 FT WEST OF A SFWMD

AH9329'METAL WITNESS POST.

AH9329'

AH9329'NOTE THE MARK WAS RECOVERED WITH A MAGNETIC LOCATOR.

AH9329'

AH9329

AH9329 STATION RECOVERY (2006)

AH9329

AH9329'RECOVERY NOTE BY HOLE MONTES AND ASSOCIATES INC 2006 (BRH)

AH9329'RECOVERED IN GOOD CONDITION.

AH9329

AH9329 STATION RECOVERY (2009)

AH9329

AH9329'RECOVERY NOTE BY PICKETT AND ASSOCIATES 2009 (JM)

AH9329'RECOVERED IN GOOD CONDITION.

\*\*\* retrieval complete.

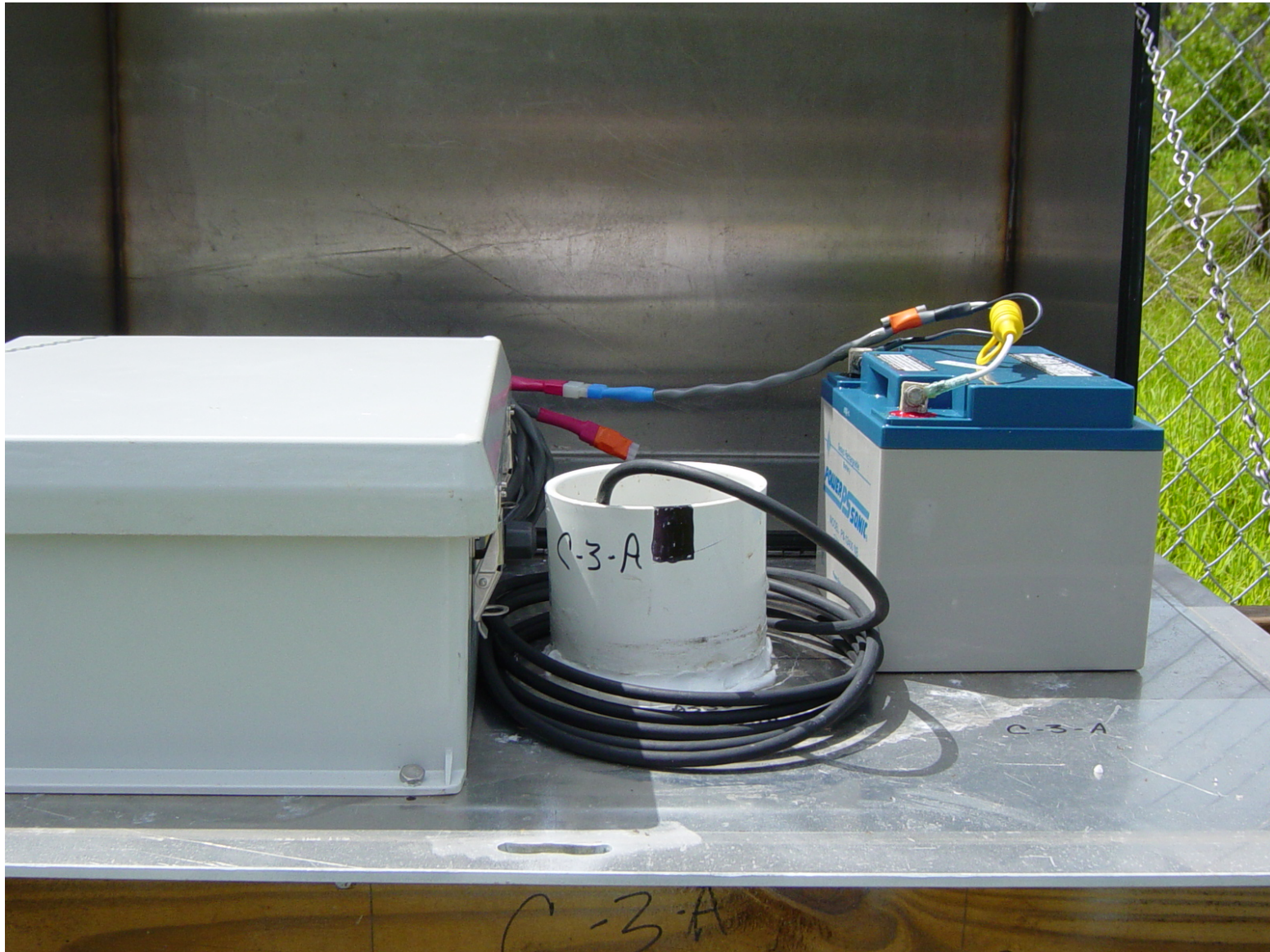
Elapsed Time = 00:00:02

# LKBC3A



**Nick Miller, Inc.**  
**Date of Photo: August 1, 2006**  
**View: Looking at the well facing south**

# LKBC3A



**Nick Miller, Inc.**

**Date of Photo: August 1, 2006**

**View: Close-up of the well showing the contractor's markings**

**LKBC3A**



**Nick Miller, Inc.**

**Date of Photo: August 1, 2006**

**View: Looking at the benchmark facing south**



# LKBC3A



Nick Miller, Inc.  
Date of Photo: August 1, 2006  
View: A top view of the benchmark

1078.D15

MONITORING WELL

LKBC3A

- SET (POURED) - IN-PLACE CONCRETE MONUMENT W/ BRASS DISK
- SET MAGNET 1' NORTH OF MONUMENT

STAMPED: LKBC3A  
2006

TIES

- SET MONUMENT 66.0' SW OF <sup>NORTHWEST</sup> SOUTH END CORNER OF CALVERT 6.95'
- SET MONUMENT 35.80' WEST OF 12" GREY PIPE OF MONITORING WELL LIKE LKBC3A
- SET MONUMENT <sup>35.80'</sup> 6.95' EAST OF PRRAIL AND DISK ON NORTH SIDE OF OAK TREE (4' EAST OF SECOND) 8" OAK TREE

COORDINATES ON MONITORING WELL LKBC3A

NAD 84

STATE PLANE 83

N. 27° 29' 53"

N.

W. 81° 12' 40"

E.

COORDINATES ON MONUMENT

NAD 84

STATE PLANE 83

N. 27° 29' 53"

N.

W. 81° 12' 40"

E.

TUES. AUG. 1, 2006

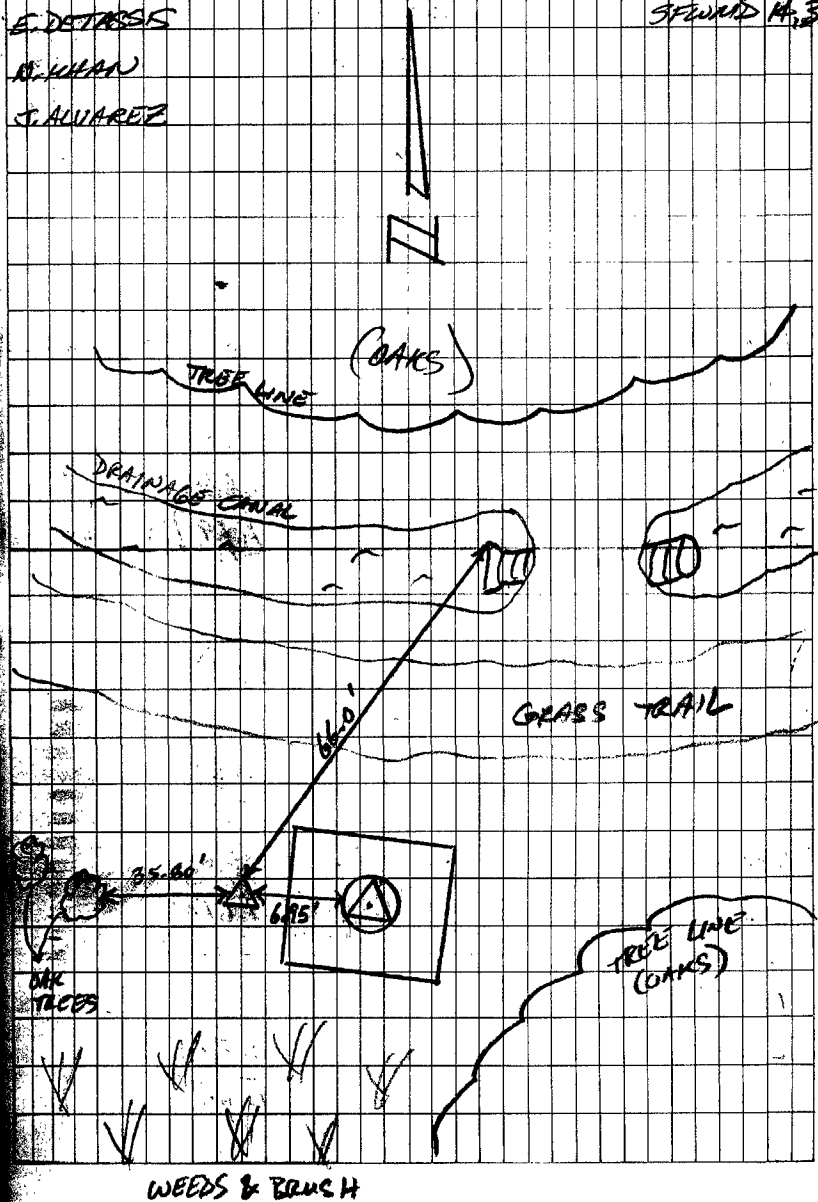
37

SFWARD # 36

E. DETROSS

R. KHAN

J. ALVAREZ





1078.515

MONITORING WELL

SEWARD

LKBC3A

LEVEL RUN CONT'D.

+	H.I.	-	EL
	1.4274		
7 [67]		1.7325 [66]	
	1.4748		
8 [68]		1.5870 [68]	
	1.4301		
9 [67]		1.6373 [67]	
	1.3792		
10 [66]		1.7470 [67]	
	1.2075		
11 [67]		1.7172 [67]	
	1.4592		
12 [7]		1.5057 [9]	

WED. AUG. 2, 2006

E. DETASSIS

SEWARD 14.38

N. KHAN

J. A. WARE 2

YES

GET 60'S NAIL ON EAST EP OF BLUFF HANDECK

11	11	11	11
----	----	----	----

11	11	11	11
----	----	----	----

11	11	11	11
----	----	----	----

11	11	11	11
----	----	----	----

11	11	11	11
----	----	----	----

11	11	11	11
----	----	----	----

11	11	11	11
----	----	----	----

11	11	11	11
----	----	----	----

11	11	11	11
----	----	----	----

11	11	11	11
----	----	----	----

BM 11462

TOTAL DIST: 1.987 KM

DIFFERENCE: 2.4 mm

TOLERANCE: 9.75 mm



WED. AUG. 7, 2006

41

SENUMD 14, 20

1078.015

ELEVATE MONITORING

SENUMD

EDETRASSIS

WELL LKBC3A

N. KHAN

J. ALVAREZ

+  
5.08  
[ ]

H.I.

- EL

DESC

BM LKBC3A

[0.39]

M.W.

4.50

CONC. PAD

4.97

GROUND SHOT

4.62

CONC. PAD

0.51

M.W.

5.20

BM LKBC3A

1  
1/2  
1  
1/2  
1  
1/2

1078.015

LEVEL RUN

SEWARD

E. DETASSIS

WED. AUG. 2, 2005

92

SEWARD 19, 91

N. KHAN

LKBC3A → U 462

J. ALVAREZ

<u>T</u>	<u>H.T</u>	<u>EL</u>
1.7750		
19 [22]		1.7156 [22]
2.1399 <del>2.14</del>		
20 [50]		0.8694 [48]
2.0659		
21 [66]		1.3879 [66]
1.3503		
22 [67]		1.5516 [67]
1.4707		
23 [66]		1.6756 [66]
1.4440 1.443		
24 [56]		1.6655 [57]

DESC

BM LKBC3A

SET 60D NAIL ON SOUTH SIDE OF DIRT ROAD

U	U	U	U
		EP	
SET 60D NAIL ON WEST	SIDE OF BLUFF	MARKER	
U	U	U	U
U	U	U	U
U	U	U	U
U	U	U	U
U	U	U	U
U	U	U	U
U	U	U	U
U	U	U	U
U	U	U	U
U	U	U	U

✓ TOTAL DIST: 1.31687 KM  
 DIFFERENCE: 2 mm  
 TOLERANCE: 9.18 mm

Identification\_Information:

Citation:

Citation\_Information:

Originator: Nick Miller, Inc. (comp.)  
Originator: Stephen M. Gordon, PSM(ed.)  
Publication\_Date: 20060315  
Publication\_Time: Unknown  
Title: S. F. W. M. D. Monitoring Well LKBC3A  
Edition: 1  
Publication\_Information:

Publication\_Place: West Palm Beach, FL  
Publisher: South Florida Water Management District

Description:

Abstract:

South Florida Water Management District Monitoring Well LKBC3A.

Purpose:

To determine as built dimensions relative to NAVD 88 and NGVD 29 vertical datum

Time\_Period\_of\_Content:

Time\_Period\_Information:

Single\_Date/Time:

Calendar\_Date: 20060818

Currentness\_Reference: Publication Date

Status:

Progress: Complete

Maintenance\_and\_Update\_Frequency: Unknown

Spatial\_Domain:

Bounding\_Coordinates:

West\_Bounding\_Coordinate: -081D 18M 15.9S  
East\_Bounding\_Coordinate: -081D 12M 40.0S  
North\_Bounding\_Coordinate: +27D 29M 53.0S  
South\_Bounding\_Coordinate: +27D 28M 55.0S

Keywords:

Theme:

Theme\_Keyword\_Thesaurus: Tri - Service Spatial Data Standard  
Theme\_Keyword: Improvement  
Theme\_Keyword: Geodetic/Cadastral

Place:

Place\_Keyword\_Thesaurus: None  
Place\_Keyword: S. F. W. M. D. Monitoring Well LKBC3A  
Place\_Keyword: Sec. 27, Twp. 34 S., Rge. 31 E  
Place\_Keyword: Highlands County, Florida  
Place\_Keyword\_Thesaurus: Geographic Names Information System  
Place\_Keyword: Florida  
Place\_Keyword: Highlands County  
Place\_Keyword: Basinger NW

Access\_Constraints: None

Use\_Constraints: None

Point\_of\_Contact:

Contact\_Information:

Contact\_Person\_Primary:

Contact\_Person: Howard Ehmke

Contact\_Organization: South Florida Water Management

District

Contact\_Position: Project Manager

Contact\_Address:

Address\_Type: mailing and physical address  
Address: 3301 Gun Club Road  
City: West Palm Beach  
State\_or\_Province: Florida  
Postal\_Code: 33406  
Country: USA

Contact\_Voice\_Telephone: 561-682-6672

Contact\_Electronic\_Mail\_Address: hehmke@sfwmd.gov

Data\_Quality\_Information:

Attribute\_Accuracy:

Attribute\_Accuracy\_Report: N/A

Logical\_Consistency\_Report:

Horizontal data was established using mapping grade GPS



equipment. Vertical data was established using NGS control points V 462 & U 462. Coordinates are in the Florida State Plane Coordinate System, East Zone, NAD 83/90. Elevations are in the NAVD 88 and the NGVD 29.

Completeness\_Report:

Horizontal location taken at site benchmark  
Lat. +27D 29M 53.0S  
Long. -081D 12M 40.0S  
N 1,150,284 ft  
E 587,730 ft  
Site Benchmark.  
"LKBC3A" is a South Florida Water Management District (SFWMD) brass disk set in concrete.  
FROM THE JUNCTION OF US 98 AND SR 70, HEAD NORTHERLY AND WESTERLY ON US 98 FOR 20.8 MILES TO BLUFF HAMMOCK ROAD. GO NORTHERLY FOR 4.7 MILES ON BLUFF HAMMOCK ROAD, TO GRASS ROAD WITH LOCKED SFWMD GATE ON RIGHT. GO THROUGH SFWMD LOCKED GATE AND GO EAST FOR +/- 470 FEET TO MARK ON RIGHT. MARK IS LOCATED 66.0 FEET SOUTH WEST OF THE NORTHWEST CORNER OF A 4 FEET DIAMETER CULVERT. 6.95 FEET WEST OF A 12 INCH GREY PIPE OF MONITORING WELL LKBC3A, 35.80 FEET EAST OF PK NAIL AND DISK ON THE NORTH SIDE OF A 8 INCH DIAMETER OAK TREE WHICH IS 4 FEET EAST OF SECOND 8 INCH DIAMETER OAK TREE. MONUMENT IS FLUSH WITH GROUND AND HAS A MAGNET SET 1 FOOT NORTH OF MARK.  
Benchmark Elevation is 42.44 feet (NAVD 88).  
Well Elevation (LKBC3A) is 47.13 feet (NAVD 88) as observed at the existing reference mark for the well which is a black mark at the top of a PVC pipe at the center of the well.  
Concrete Pad Elevation is 43.02 feet (NAVD 88).  
Ground Elevation is 42.55 feet (NAVD 88).  
NGVD 29 minus NAVD 88 equals 1.193 feet.  
The NGVD 1929 value was taken from the NGVD29.ABS file provided from the SFWMD for benchmark F 555 which was the closest control with NGVD29 data.  
Vertical Control used V 462 El. 17.106 (m) (NAVD 88) El. N/A (m) (NGVD 29), U 462 El. 14.314 (m) (NAVD 88) El. N/A (m) (NGVD 29).

Positional\_Accuracy:

Horizontal\_Positional\_Accuracy:

Horizontal\_Positional\_Accuracy\_Report:

The horizontal position of Site Benchmark "LKBC3A" was established using a mapping grade GPS receiver (Trimble Pro XR in accordance with the Florida Minimum Technical Standards (Chapter 61G17-6, Florida Administrative Code).

Quantitative\_Horizontal\_Positional\_Accuracy\_Assessment:

Horizontal\_Positional\_Accuracy\_Value: 3 to 5 meters

Horizontal\_Positional\_Accuracy\_Explanation: The intended

positional accuracy for this survey is 3 to 5 meters more or less.

Vertical\_Positional\_Accuracy:

Vertical\_Positional\_Accuracy\_Report:

A level line was run originating on benchmark V 462 and terminating at benchmark U 462 with an allowable error of 8mm times the square root of the distance leveled (in kilometers).

Quantitative\_Vertical\_Positional\_Accuracy\_Assessment:

Vertical\_Positional\_Accuracy\_Value: 0.002 m

Vertical\_Positional\_Accuracy\_Explanation: NAVD 88 level

loop, 0.002 m closure in 2.15 km, max. allowed 0.012m.

Li neage:

Process\_Step:

Process\_Description:

The horizontal work was performed using a Trimble Pro XR GPS receiver (mapping grade). The level

LKBC3A.met

Loop was run with a Leica DNA03 digital level.

Process\_Date: 20060803

Metadata\_Reference\_Information:

Metadata\_Date: 20060818

Metadata\_Contact:

Contact\_Information:

Contact\_Person\_Primary:

Contact\_Person: Stephen M. Gordon

Contact\_Organization: Nick Miller, Inc.

Contact\_Position: Project Surveyor

Contact\_Address:

Address\_Type: mailing and physical address

Address: 2560 RCA Blvd., Suite 105

City: Palm Beach Gardens

State\_or\_Province: Florida

Postal\_Code: 33410

Country: USA

Contact\_Voice\_Telephone: 561-627-5200

Contact\_Facsimile\_Telephone: 561-627-0983

Contact\_Electronic\_Mail\_Address: sgordon@nickmillerinc.com

Metadata\_Standard\_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata\_Standard\_Version: 2.0

Metadata\_Time\_Convention: Local time

Metadata\_Access\_Constraints: South Florida Water Management District controls

access.

Metadata\_Use\_Constraints: Per South Florida Water Management District

Metadata\_Security\_Information:

Metadata\_Security\_Handling\_Description: None

Metadata\_Security\_Classification: Unclassified

Metadata\_Security\_Classification\_System: Structure

-\*- FIELD ABSTRACT -\*-

060802-060802 HGZ L10785 8.0 MM ORDER 2 CLASS 2 PAGE 1  
 SOUTH FLORIDA WATER MANAGEMENT DISTRICT  
 HIGHLANDS AND OKEECHOBEE COUNTY MONITORING WELLS  
 ESTABLISH BENCH MARK NEAR MONITORING WELL LKBC3A

FROM	TO	START	F/B	DIST TOTAL (KM)	ELEV DIFF (MT)	-(F+B) TOTAL (MM)	MEAN DIFF FLD ELEV (MT)	I C
0320 V 462							17.10600	
0320 V 462		8020900	F	1.49	-2.78982 *	0.00	-2.78982	1
0319 U 462				1.49		0.00	14.31618	
0319 U 462		8021020	F	0.66	-1.38198 *	2.10	-1.38093	1
0321 LKBC3A		8021130	B	0.66	1.37988 *	2.10	12.93525♀	1
		SL 1		2.15				

ELEVATION REJECTION AND ERROR CODES

- C - section elevation difference was rejected for cause  
 ie. \*43\* record rejection code set to "F"
- R - section elevation difference was rejected by Halperin rejection algorithm
- @ - section elevation difference does not include refraction correction
- \* - section elevation difference does not include rod correction

♀

INSTRUMENT CODE	INSTRUMENT	RODS
1	243 - 332854	396 - 111 396 - 222

♀

LEVEL LINE SECTION RUNNING TREE

FROM	TO	N. LATITUDE	W. LONGITUDE	FIELD DISTANCE	VS. COMPUTED
0320					
0319 (0321♀					
0320	0320	272855	0811253	0.00	0.00
0320	0319	272938	0811237	1.49	1.39
0319	0321	272953	0811240	0.66	0.47♀

SECTION FROM TO ERROR MESSAGES



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

COUNTY HIGHLANDS	PROJECT Hydrology - Kissimmee River & Palm Beach Wells	DESIGNATION LKBC3A 2006
SECTION 27	TOWNSHIP 34 SOUTH	RANGE 31 EAST
GEOGRAPHIC INDEX OF QUAD		
Established by <u>Nick Miller Inc.</u> Recovered by	NAME OF QUADRANGLE BASINGER NW	
SURVEYOR <u>Stephen M. Gordon</u> DATE <u>08/01/2006</u>	FIELD BOOK <u>14</u> PAGE <u>37</u>	
HORIZONTAL DATUM: 1927 <u>1983</u> Other _____ (circle one) ZONE <u>E</u> or W		
STATE PLANE COORDINATES	E 587,730 ft	N 1,150,284 ft
LATITUDE: N 27.49806°	LONGITUDE: W 81.21111°	
VERTICAL DATUM: MSL 1929 <u>1988</u> Other _____ (circle one)	EL. 42.44 ft	
VERTICAL DATUM: MSL <u>1929</u> 1988 Other _____ (circle one)	EL. 43.63 ft	
CONTROL ACCURACY: HORIZONTAL 1 2 3 <u>SUB-METER</u> (circle one) VERTICAL 1 2 <u>3</u>		
<b>DESCRIPTION</b>		
<p>To Reach:</p> <p>FROM THE JUNCTION OF US 98 AND SR 70, HEAD NORTHERLY AND WESTERLY ON US 98 FOR 20.8 MILES TO BLUFF HAMMOCK ROAD. GO NORTHERLY FOR 4.7 MILES ON BLUFF HAMMOCK ROAD, TO GRASS ROAD WITH LOCKED SFWMD GATE ON RIGHT. GO THROUGH SFWMD LOCKED GATE AND GO EAST FOR +/- 470 FEET TO MARK ON RIGHT. MARK IS LOCATED 66.0 FEET SOUTH WEST OF THE NORTHWEST CORNER OF A 4 FEET DIAMETER CULVERT. 6.95 FEET WEST OF A 12 INCH GREY PIPE OF MONITORING WELL LKBC3A, 35.80 FEET EAST OF PK NAIL AND DISK ON THE NORTH SIDE OF A 8 INCH DIAMETER OAK TREE WHICH IS 4 FEET EAST OF SECOND 8 INCH DIAMETER OAK TREE. MONUMENT IS FLUSH WITH GROUND AND HAS A MAGNET SET 1 FOOT NORTH OF MARK.</p> <p>Benchmarks Used: U 462 &amp; V 462</p> <p>Notable Land marks:</p>		



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

SKETCH

DTB.015 MONITORING WELL  
LKBC3A

- SET (MARKER) - IN-PLACE CONCRETE MONUMENT W/ BRASS DISK
- SET MAGNET 1' NORTH OF MONUMENT

STAMPED: LKBC3A  
2006

TIES

- SET MONUMENT 66.0' SW OF <sup>NORTH WEST</sup> SOUTH ~~WEST~~ CORNER OF CULVERT 6.95'
- SET MONUMENT 36.0' WEST OF 12" GREY PIPE OF MONITORING WELL LKBC3A
- SET MONUMENT <sup>35.80'</sup> EAST OF PERAIL AND DISK ON NORTH SIDE OF OAK TREE (4' EAST OF SETTING) 8' ON TREE

COORDINATES ON MONITORING WELL LKBC3A

NGS 84	STATE PLANE 83
N. 27° 29' 53"	N.
W. 81° 12' 40"	E.

COORDINATES ON MONUMENT

NGS 84	STATE PLANE 83
N. 27° 29' 53"	N.
W. 81° 12' 40"	E.

TUES. AUG. 1, 2006

E. DETROSS  
R. WILSON  
J. ALVARADO

STANDARD M. 36

Sketch details: A north arrow points upwards. A wavy line represents the 'TREE LINE (OAKS)'. Below it is a 'DRAINAGE CANAL'. A 'GRASS TRAIL' is shown to the right. A square represents the 'MONITORING WELL' with a circle inside containing a triangle. A line connects the well to a point labeled '35.80'' near a 'DISEASE' area. Another line connects the well to a point labeled '66.0'' near a 'DISEASE' area. 'WEEDS & BRUSH' are indicated at the bottom. 'DISEASE' is written in two locations. 'DISEASE TRACES' is written near the well. 'DISEASE' is also written near the tree line.

# The NGS Data Sheet

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

```

PROGRAM = datasheet95, VERSION = 8.7
1      National Geodetic Survey,      Retrieval Date = JULY 22, 2015
AH8813 *****
AH8813 DESIGNATION - U 462
AH8813 PID - AH8813
AH8813 STATE/COUNTY- FL/HIGHLANDS
AH8813 COUNTRY - US
AH8813 USGS QUAD - BASINGER NW (1972)
AH8813
AH8813 *CURRENT SURVEY CONTROL
AH8813
AH8813* NAD 83(2011) POSITION- 27 29 38.00951(N) 081 12 37.58529(W) ADJUSTED
AH8813* NAD 83(2011) ELLIP HT- -11.795 (meters) (06/27/12) ADJUSTED
AH8813* NAD 83(2011) EPOCH - 2010.00
AH8813* NAVD 88 ORTHO HEIGHT - 14.314 (meters) 46.96 (feet) ADJUSTED
AH8813
AH8813 NAD 83(2011) X - 865,158.788 (meters) COMP
AH8813 NAD 83(2011) Y - -5,595,329.465 (meters) COMP
AH8813 NAD 83(2011) Z - 2,926,864.420 (meters) COMP
AH8813 LAPLACE CORR - -0.44 (seconds) DEFLEC12B
AH8813 GEOID HEIGHT - -26.13 (meters) GEOID12B
AH8813 DYNAMIC HEIGHT - 14.292 (meters) 46.89 (feet) COMP
AH8813 MODELED GRAVITY - 979,134.8 (mgal) NAVD 88
AH8813
AH8813 VERT ORDER - SECOND CLASS I
AH8813
AH8813 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
AH8813 Standards:
AH8813 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
AH8813 Horiz Ellip SD_N SD_E SD_h (unitless)
AH8813 -----
AH8813 NETWORK 0.84 1.39 0.35 0.34 0.71 0.07575508
AH8813 -----
AH8813 Click here for local accuracies and other accuracy information.
AH8813
AH8813
AH8813.The horizontal coordinates were established by GPS observations
AH8813.and adjusted by the National Geodetic Survey in June 2012.
AH8813
AH8813.NAD 83(2011) refers to NAD 83 coordinates where the reference
AH8813.frame has been affixed to the stable North American tectonic plate. See
AH8813.NA2011 for more information.
AH8813
AH8813.The horizontal coordinates are valid at the epoch date displayed above
AH8813.which is a decimal equivalence of Year/Month/Day.
AH8813
AH8813.The orthometric height was determined by differential leveling and
AH8813.adjusted by the NATIONAL GEODETIC SURVEY
AH8813.in July 1999.
AH8813
AH8813.The X, Y, and Z were computed from the position and the ellipsoidal ht.
AH8813
AH8813.The Laplace correction was computed from DEFLEC12B derived deflections.
AH8813
AH8813.The ellipsoidal height was determined by GPS observations
AH8813.and is referenced to NAD 83.
AH8813

```

AH8813.The dynamic height is computed by dividing the NAVD 88  
 AH8813.geopotential number by the normal gravity value computed on the  
 AH8813.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
 AH8813.degrees latitude (g = 980.6199 gals.).

AH8813  
 AH8813.The modeled gravity was interpolated from observed gravity values.

AH8813  
 AH8813. The following values were computed from the NAD 83(2011) position.

AH8813

AH8813;	North	East	Units	Scale	Factor	Converg.
AH8813;SPC FL E	- 350,145.309	179,205.987	MT	0.99994651	-0 05	49.7
AH8813;SPC FL E	- 1,148,768.40	587,944.98	sFT	0.99994651	-0 05	49.7
AH8813;UTM 17	- 3,041,157.822	479,213.082	MT	0.99960533	-0 05	49.7

AH8813

AH8813!	- Elev Factor	x	Scale Factor	=	Combined Factor
AH8813!SPC FL E	- 1.00000185	x	0.99994651	=	0.99994836
AH8813!UTM 17	- 1.00000185	x	0.99960533	=	0.99960718

AH8813

SUPERSEDED SURVEY CONTROL

AH8813

AH8813	NAD 83(2007)-	27 29 38.00973(N)	081 12 37.58637(W)	AD(2002.00)	0
AH8813	ELLIP H (02/10/07)	-11.799 (m)		GP(2002.00)	
AH8813	NAD 83(1999)-	27 29 38.00965(N)	081 12 37.58638(W)	AD( )	1
AH8813	ELLIP H (05/31/01)	-11.783 (m)		GP( )	4 1
AH8813	NAD 83(1990)-	27 29 38.00865(N)	081 12 37.58588(W)	AD( )	1
AH8813	ELLIP H (06/01/99)	-11.798 (m)		GP( )	4 1
AH8813	NAVD 88 (06/01/99)	14.35 (m)	47.1 (f)	LEVELING	3

AH8813  
 AH8813.Superseded values are not recommended for survey control.  
 AH8813  
 AH8813.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
 AH8813.[See file dsdata.txt](#) to determine how the superseded data were derived.

AH8813  
 AH8813\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML7921341157(NAD 83)

AH8813  
 AH8813\_MARKER: DD = SURVEY DISK  
 AH8813\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT  
 AH8813\_STAMPING: U 462 1997  
 AH8813\_MARK LOGO: FLDNR  
 AH8813\_MAGNETIC: N = NO MAGNETIC MATERIAL  
 AH8813\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO  
 AH8813+STABILITY: SURFACE MOTION  
 AH8813\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
 AH8813+SATELLITE: SATELLITE OBSERVATIONS - January 15, 2011

AH8813

AH8813	HISTORY	- Date	Condition	Report By
AH8813	HISTORY	- 1997	MONUMENTED	FLDEP
AH8813	HISTORY	- 19981128	GOOD	DENI
AH8813	HISTORY	- 20050517	GOOD	MACTEC
AH8813	HISTORY	- 20080821	GOOD	MOREKL
AH8813	HISTORY	- 20110115	GOOD	NOGUCCO

AH8813

STATION DESCRIPTION

AH8813

AH8813'DESCRIBED BY FL DEPT OF ENV PRO 1997 (JLM)  
 AH8813'THE MARK IS ABOUT 33.5 MI (53.9 KM) NORTHWEST OF OKEECHOBEE, 4.6  
 AH8813'NORTHEAST OF LORIDA, 1.0 MI (1.6 KM) WEST OF KISSIMMEE RIVER IN  
 AH8813'SECTION 27, TOWNSHIP 34 SOUTH, RANGE 31 EAST. TO REACH THE MARK FROM  
 AH8813'THE POST OFFICE IN LORIDA, GO SOUTHEAST ON U.S. HIGHWAY 98 FOR 1.05  
 AH8813'MI (1.69 KM) TO THE JUNCTION OF BLUFF HAMMOCK ROAD ON THE LEFT, TURN  
 AH8813'LEFT ON BLUFF HAMMOCK ROAD AND GO NORTHEAST FOR 4.15 MI (6.68 KM) TO  
 AH8813'THE END OF THE PAVED ROAD AND A Y-JUNCTION, BEAR LEFT ON THE SAND ROAD  
 AH8813'AND GO NORTH FOR 0.35 MI (0.56 KM) TO THE MARK ON THE RIGHT, SET IN  
 AH8813'THE TOP OF A ROUND CONCRETE MONUMENT FLUSH WITH THE GROUND AND LEVEL  
 AH8813'WITH THE SAND ROAD. LOCATED 67.7 FT (20.6 M) SOUTHEAST OF THE CENTER  
 AH8813'OF A METAL GATE, 60.0 FT (18.3 M) SOUTHEAST OF THE SOUTHEAST GATE

AH8813'POST, 59.8 FT (18.2 M) SOUTHEAST OF THE SOUTHEAST END OF A 30-INCH  
AH8813'STEEL PIPE UNDER A ROAD LEADING NORTH-SOUTH, 41.3 FT (12.6 M)  
AH8813'SOUTHEAST OF THE CENTER OF A WOODEN GATE, 32.2 FT (9.8 M) NORTHEAST OF  
AH8813'THE CENTERLINE OF THE SAND ROAD, 1.0 FT (0.3 M) SOUTHWEST OF A HOG  
AH8813'WIRE FENCE AND 0.8 FT (24.4 CM) SOUTHWEST OF A CARSONITE WITNESS POST.  
AH8813

AH8813 STATION RECOVERY (1998)

AH8813

AH8813'RECOVERY NOTE BY DENI ASSOCIATES INCORPORATED 1998 (RLW)  
AH8813'THE STATION IS ABOUT 28.7 MI (46.2 KM) NORTHWEST OF OKEECHOBEE, 4.5 MI  
AH8813'(7.2 KM) NORTHEAST OF LORIDA, 1.0 MI (1.6 KM) WEST OF THE KISSIMMEE  
AH8813'RIVER CANAL C-38 IN SECTION 27, TOWNSHIP 34 SOUTH, RANGE 31 EAST. TO  
AH8813'REACH THE STATION FROM THE POST OFFICE IN LORIDA, GO SOUTHEAST ON  
AH8813'U.S.HIGHWAY 98 FOR 1.05 MI (1.69 KM) TO THE JUNCTION OF BLUFF HAMMOCK  
AH8813'ROAD ON THE LEFT, TURN LEFT ON BLUFF HAMMOCK ROAD AND GO NORTHEAST FOR  
AH8813'4.15 MI (6.68 KM) TO THE END OF THE PAVED ROAD AND A Y-JUNCTION, BEAR  
AH8813'LEFT ON THE SAND ROAD AND GO NORTH FOR 0.35 MI (0.56 KM) TO THE  
AH8813'STATION ON THE RIGHT, SET IN THE TOP OF A ROUND CONCRETE MONUMENT  
AH8813'FLUSH WITH THE GROUND AND LEVEL WITH THE SAND ROAD. LOCATED 67.7 FT  
AH8813'(20.6 M) SOUTHEAST OF THE CENTER OF A METAL GATE, 59.0 FEET (18.0 M)  
AH8813'SOUTHEAST OF THE SOUTHEAST GATE POST/T FENCE POST, 138 FT (42.1 M)  
AH8813'SOUTHEAST OF THE NORTHEAST END OF A 4.0 FT (1.2 M) DIAMETER METAL PIPE  
AH8813'CUVERT UNDER THE SAND ROAD, 31 FT (9.4 M) NORTHEAST OF THE CENTERLINE  
AH8813'OF THE SAND ROAD, 2.5 FT (0.8 M) SOUTHWEST OF A HOG WIRE R/W FENCE AND  
AH8813'N.G.S.CARSONITE WITNESS POST.

AH8813

AH8813 STATION RECOVERY (2005)

AH8813

AH8813'RECOVERY NOTE BY MACTEC ENGINEERING AND CONSULTING 2005 (CGB)

AH8813'RECOVERED AS DESCRIBED

AH8813

AH8813 STATION RECOVERY (2008)

AH8813

AH8813'RECOVERY NOTE BY MORGAN AND EKLUND INC 2008

AH8813'RECOVERED IN GOOD CONDITION.

AH8813

AH8813 STATION RECOVERY (2011)

AH8813

AH8813'RECOVERY NOTE BY NORTHROP GRUMMON CORPORATION 2011 (MR)

AH8813'RECOVERED IN GOOD CONDITION.

\*\*\* retrieval complete.

Elapsed Time = 00:00:02



# The NGS Data Sheet

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

```

PROGRAM = datasheet95, VERSION = 8.7
1      National Geodetic Survey,   Retrieval Date = JULY 22, 2015
AH8814 *****
AH8814 DESIGNATION - V 462
AH8814 PID - AH8814
AH8814 STATE/COUNTY- FL/HIGHLANDS
AH8814 COUNTRY - US
AH8814 USGS QUAD - BASINGER NW (1972)
AH8814
AH8814 *CURRENT SURVEY CONTROL
AH8814
AH8814* NAD 83(1986) POSITION- 27 28 55. (N) 081 12 53. (W) SCALED
AH8814* NAVD 88 ORTHO HEIGHT - 17.106 (meters) 56.12 (feet) ADJUSTED
AH8814
AH8814 GEOID HEIGHT - -26.11 (meters) GEOID12B
AH8814 DYNAMIC HEIGHT - 17.080 (meters) 56.04 (feet) COMP
AH8814 MODELED GRAVITY - 979,132.8 (mgal) NAVD 88
AH8814
AH8814 VERT ORDER - SECOND CLASS I
AH8814
AH8814.The horizontal coordinates were scaled from a topographic map and have
AH8814.an estimated accuracy of +/- 6 seconds.
AH8814.
AH8814.The orthometric height was determined by differential leveling and
AH8814.adjusted by the NATIONAL GEODETIC SURVEY
AH8814.in July 1999.
AH8814
AH8814.The dynamic height is computed by dividing the NAVD 88
AH8814.geopotential number by the normal gravity value computed on the
AH8814.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
AH8814.degrees latitude (g = 980.6199 gals.).
AH8814
AH8814.The modeled gravity was interpolated from observed gravity values.
AH8814
AH8814; North East Units Estimated Accuracy
AH8814;SPC FL E - 348,820. 178,780. MT (+/- 180 meters Scaled)
AH8814
AH8814 SUPERSEDED SURVEY CONTROL
AH8814
AH8814.No superseded survey control is available for this station.
AH8814
AH8814_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML787398 (NAD 83)
AH8814
AH8814_MARKER: DD = SURVEY DISK
AH8814_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
AH8814_STAMPING: V 462 1997
AH8814_MARK LOGO: FLDEP
AH8814_MAGNETIC: N = NO MAGNETIC MATERIAL
AH8814_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
AH8814+STABILITY: SURFACE MOTION
AH8814_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AH8814+SATELLITE: SATELLITE OBSERVATIONS - 1997
AH8814
AH8814 HISTORY - Date Condition Report By
AH8814 HISTORY - 1997 MONUMENTED FLDEP
AH8814 HISTORY - 20080731 GOOD MOREKL
AH8814

```

AH8814

## STATION DESCRIPTION

AH8814

AH8814'DESCRIBED BY FL DEPT OF ENV PRO 1997 (JLM)

AH8814'THE MARK IS ABOUT 33.0 MI (53.1 KM) NORTHWEST OF OKEECHOBEE, 3.6

AH8814'NORTHEAST OF LORIDA, 2.0 MI (3.2 KM) WEST OF KISSIMMEE RIVER IN

AH8814'SECTION 34, TOWNSHIP 34 SOUTH, RANGE 31 EAST. TO REACH THE MARK FROM

AH8814'THE POST OFFICE IN LORIDA, GO SOUTHEAST ON U.S. HIGHWAY 98 FOR 1.05

AH8814'MI (1.69 KM) TO THE JUNCTION OF BLUFF HAMMOCK ROAD ON THE LEFT, TURN

AH8814'LEFT ON BLUFF HAMMOCK ROAD AND GO NORTHEAST FOR 3.5 MI (5.6 KM) TO THE

AH8814'JUNCTION OF A BARBWIRE FENCES ON THE RIGHT, LEADING EAST AND THE MARK

AH8814'ON THE RIGHT, SET IN THE TOP OF A ROUND CONCRETE MONUMENT FLUSH WITH

AH8814'THE GROUND AND LEVEL WITH THE BLUFF HAMMOCK ROAD. LOCATED 39.5 FT

AH8814'(12.0 M) SOUTHEAST OF THE CENTERLINE OF BLUFF HAMMOCK ROAD, 1.8 FT

AH8814'(0.5 M) NORTHWEST OF THE BARBWIRE FENCES AND 1.2 FT (0.4 M) NORTHWEST

AH8814'OF A CARSONITE WITNESS POST.

AH8814

AH8814

## STATION RECOVERY (2008)


AH8814


AH8814'RECOVERY NOTE BY MORGAN AND EKLUND INC 2008

AH8814'RECOVERED IN GOOD CONDITION.

\*\*\* retrieval complete.

Elapsed Time = 00:00:02

<b>LKBC3B</b>		Elevation:	<b>43.12 ft</b>	(NAVD 88)	44.32 ft	(NGVD 29)
Bench Mark 1:	KKR PC 41		47.22 ft	(NAVD 88)	48.41 ft	(NGVD 29)
Bench Mark 2:	KRR PC 26		49.82 ft	(NAVD 88)	51.02 ft	(NGVD 29)
Monitoring Well:	LKBC3B		46.44 ft	(NAVD 88)	47.64 ft	(NGVD 29)
Concrete Pad:	LKBC3B		43.59 ft	(NAVD 88)	44.79 ft	(NGVD 29)
Ground Elevation:	LKBC3B		43.39 ft	(NAVD 88)	44.59 ft	(NGVD 29)
Length of Run:	2.54 km	To Reach LKBC3B:				
Max Allowable Misclosure:	13 mm	FROM THE INTERSECTION OF U.S. HIGHWAY 98 (PARROT AVE.) AND STATE HIGHWAY 70 (N. PARK ST.) IN OKEECHOBEE, GO WEST ON U.S. 98 FOR 1.5 MILES THEN TURN RIGHT AND CONTINUE NORTHWEST ON U.S. 98 FOR 15.9 MILES TO A JUNCTION WITH MICCO BLUFF ROAD (NW 230 <sup>TH</sup> AVE) AT BASINGER, THEN TURN RIGHT ON MICCO BLUFF ROAD AND GO NORTH FOR 0.2 MILES, THEN TURN LEFT AND CONTINUE NORTHWESTERLY ON THE MICCO BLUFF FOR 10.3 MILES TO A DIRT ROAD ON THE LEFT WITH A SFWMD LOCKED GATE. GO THROUGH THE GATE AND CONTINUE WEST ON DIRT ROAD FOR 0.10 MILE TO DIRT TRAIL. GO NORTH ON DIRT TRAIL FOR 0.5 MILE THEN EAST +/- 450 FEET TO THE MARK. MARK IS LOCATED 55.75 FEET EAST OF PK NAIL AND DISK LB 4318 ON NORTH SIDE OF A 14 INCH OAK TREE, 7.4 FEET SOUTH OF A 12 INCH GREY MONITORING WELL PIPE FOR LKBC3B AND 93.70 FEET WEST OF A GREEN SIGN POST FOR SFWMD VEGETATION MONITORING PROJECT. MONUMENT IS FLUSH WITH THE GROUND. A MAGNET WAS SET 1 FOOT NORTH OF MONUMENT.				
Actual Misclosure:	1 mm					
						

<b>PBF-2</b>		Elevation:	<b>14.83 ft</b>	(NAVD 88)	16.35 ft	(NGVD 29)
Bench Mark 1:	REFERENCE 2		14.44 ft	(NAVD 88)	15.97 ft	(NGVD 29)
Bench Mark 2:	A 71		17.26 ft	(NAVD 88)	18.78 ft	(NGVD 29)
Monitoring Well:	PBF-2		17.60 ft	(NAVD 88)	19.12 ft	(NGVD 29)
Concrete Pad:	PBF-2		14.78 ft	(NAVD 88)	16.30 ft	(NGVD 29)
Ground Elevation:	PBF-2		14.36 ft	(NAVD 88)	15.88 ft	(NGVD 29)
Length of Run:	3.91 km	To Reach PBF-2:				
Max Allowable Misclosure:	16 mm	FROM THE INTERSECTION OF AUSTRALIAN AVE. AND OKEECHOBEE BLVD, GO EAST ON OKEECHOBEE BLVD. FOR 0.1 MILE TO TAMARIND AVE. GO SOUTH ON TAMARIND AVE FOR +/- 400 FEET TO ACCESS ROAD ON YOUR RIGHT. TAKE RIGHT ON ACCESS ROAD AND HEAD SOUTHWEST FOR +/- 300 FEET TO A GATED PARKING LOT. MAKE RIGHT INTO THE GATED PARKING LOT AND CONTINUE NORTH WEST FOR +/- 250 FEET TO A PAVED ROAD. TURN LEFT ONTO THE PAVED ROAD AND CONTINUE SOUTHWEST FOR +/- 100 FEET TO A FENCED IN PARKING LOT. TURN RIGHT INTO THE PARKING LOT AND CONTINUE NORTHWEST FOR +/- 135 FEET TO MONUMENT ON THE RIGHT. MONUMENT IS SET IN THE SOUTHWEST CORNER OF A 3 FEET BY 3 FEET CONCRETE PAD LOCATED 10.1 FEET SOUTH OF THE CENTERLINE OF A SANITARY MANHOLE, 33.4 FEET WEST OF THE CENTER OF A CONCRETE LIGHT POST AND 49.45 FEET NORTHWEST OF THE NORTHWEST CORNER OF CATCH BASIN GRATE.				
Actual Misclosure:	8 mm					
						

**LKBC3B**



**Nick Miller, Inc.**  
**Date of Photo: August 1, 2006**  
**View: Looking at the well facing north**

# LKBC3B



**Nick Miller, Inc.**  
**Date of Photo: August 1, 2006**  
**View: Close-up of the well showing the contractor's markings**

**LKBC3B**



**Nick Miller, Inc.**  
**Date of Photo: August 1, 2006**  
**View: Looking at the benchmark facing east**

# LKBC3B



Nick Miller, Inc.  
Date of Photo: August 1, 2006  
View: A top view of the benchmark

1078.015

MONITORING WELL

STAMPED

LKBC3B

- SET POURED-IN-PLACE CONCRETE MONUMENT W/ BRASS DISK
- SET MAGNET 1' NORTH OF MONUMENT

STAMPED: LKBC3B

2006

## TIES

- SET MONUMENT 55.75' EAST OF <sup>PERMANENT DISK</sup> ~~ON~~ <sup>ON</sup> LB 4318 ON NORTH SIDE OF 14" OAK TREE
- SET MONUMENT 7.4' SOUTH OF 12" GREY MONITORING WELL PIPE (LKBC3B)
- SET MONUMENT 93.70' WEST OF GREEN POST (SEWARD VEGETATION MONITORING PROJECT)

## COORDINATES ON MONITORING WELL LKBC3B

NGS 94

STATE PLANE 83

N. 27° 29' 27"

N.

W. 81° 10' 43"

E.

## COORDINATES ON MONUMENT LKBC3B

NGS 84

STATE PLANE 83

N. 27° 29' 27"

N.

W. 81° 10' 43"

E.

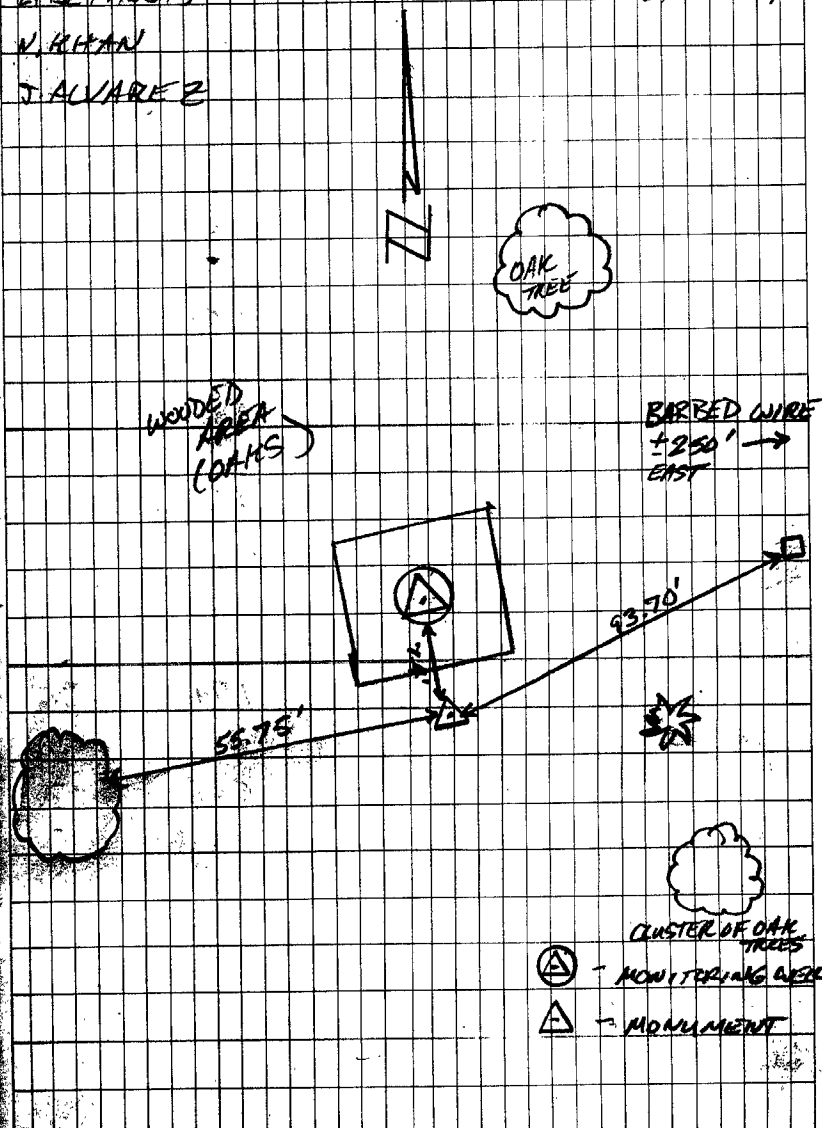
TUES. AUG. 1, 2006

E. DETAGSIS

SEWARD #135

V. KHAN

J. ALVAREZ





107B.015

LEVEL TO MONITORING  
WELL LKBC3B

SEWID

TUES. AUG. 1, 2006

SEWID 14, 36

E. DEBASSIS

N. KHAN

J. ALVAREZ

7

4.90

H.T.

20.90

-

EL

16.00  
(ASSUMED)

DESC

BM LKBC3B

1.58

19.32

MONITORING WELL

4.43

16.47

CONCRETE PAD

4.63

16.27

GROUND

4.59

21.06  
~~20.86~~  
26.49

1.74

19.32

MONITORING WELL

5.06

16.00

BM LKBC3B

1078.015  
~~1078.008~~

BENCH RUN

SFWMD RAGER, J  
RAGER, G III

THURS. AUG. 3<sup>RD</sup> 2006

SFWMD-13,47

KRR PC26 → LKBC3B

COL. = -1.6 BRUST

	<u>+</u>	<u>-</u>	<u>ELEV.</u>	<u>DESC.</u>
	1.3696	1.4731		B.M. KRR PC26
1	[45.1]	[44.9]		SET 60 D NAIL ON SOUTHWEST SIDE OF GRASS RD.
	1.3450	1.6380	"	"
2	[68.8]	[68.6]	"	"
	1.2681	1.7513	"	"
3	[66.1]	[66.7]	"	"
	1.3220	1.5948	"	"
4	[68.3]	[68.7]	"	"
	1.6268	1.7115	"	"
5	[69.62]	[68.8]	"	"
	1.6598	<del>1.6557</del>	"	"
6	[67.5]	[67.9]	"	"
	1.2772	1.4823	"	"
7	[66.3]	[66.7]	"	SET I.R. IN OPEN FIELD

1078.015

~~1078.008~~

## BENCH RUN

SFWMD

RAGER, J

THURS. AUG 3<sup>RD</sup> 2006

RAGER, G III

SFWMD-13,48

KRRPC26 → LKBC3B (CONT.) COL. = 1.6

BRUST

+	H.I.	-
7.4461		
8 [69.6]		1.5321
		[69.4]
1.5080		
9 [67.7]		1.5818
		[68.0]
1.3818		
10 [64.5]		1.6725
		[64.5]
1.5881		
11 [16.7]		1.5563
		[16.5]
<del>1.48</del> 1.4918		
12 [15.8]		1.6751
		[17.0]

ELEV.

DESC.

SET I.R. IN OPEN FIELD

" " "

" " "

" " "

" " "

" " "

" " "

" " "

" " "

B.M. LKBC3B

TOTAL DIST: 1.37389 KM.

1078.015

~~1078.008~~

BENCH RUN

SFWMND

RAGER, J

THURS. AUG 3<sup>RD</sup> 2006

RAGER, G. III

SFWMND-13, 49

LKBC3B → KRR PC 26

COL. = -1.6

BRUST

+	HI	-	ELEV.	DESC.
1.7361		1.2622		B.M. LKBC3B
1 [68.8]		[68.6]		SET I.R. IN OPEN FIELD
1.5123		1.4384		" " "
2 [68.6]		[68.6]		" " "
1.5682		1.4548		" " "
3 [69.7]		[69.2]		" " "
1.5256		1.3016		" " "
4 [68.2]		[68.0]		SET 60 D NAIL ON NORTHEAST SIDE OF GRASS RD.
1.6165		1.5700		
5 [69.3]		[68.6]		
1.5547		1.5590		
6 [67.6]		[68.7]		
1.4606		1.2182		
7 [69.4]		[68.97]		

1078015  
~~1078008~~

BENCH RUN

SFWMD RAGER, J

THURS. AUG. 3<sup>RD</sup> 2006

RAGER, G III

SFWMD-13.50

LKBC3B → KRR PC 26 (CONT.)

COL. = -16

BRUST

+	HI.	-
1.6802 8 [68.8]		1.5072 [68.9]
1.7161 9 [69.1]		1.3543 [69.5]
1.4260 10 [51.5]		1.2900 [47.7]

ELEV.

DESC.

SET 60D NAIL ON NORTHEAST SDE OF GRASS RD

" " " "

" " " "

" " " "

" " " "

B.M. KRR PC26

1.33809 KM

TOTAL DIST. 1.51857 KM

✓ 0.07 m.m.

Identification\_Information:

Citation:

Citation\_Information:

Originator: Nick Miller, Inc. (comp.)  
Originator: Stephen M. Gordon, PSM(ed.)  
Publication\_Date: 20060315  
Publication\_Time: Unknown  
Title: S. F. W. M. D. Monitoring Well LKBC3B  
Edition: 1  
Publication\_Information:

Publication\_Place: West Palm Beach, FL  
Publisher: South Florida Water Management District

Description:

Abstract:

South Florida Water Management District Monitoring Well LKBC3B.

Purpose:

To determine as built dimensions relative to NAVD 88 and NGVD 29 vertical datum

Time\_Period\_of\_Content:

Time\_Period\_Information:

Single\_Date/Time:

Calendar\_Date: 20060818

Currentness\_Reference: Publication Date

Status:

Progress: Complete

Maintenance\_and\_Update\_Frequency: Unknown

Spatial\_Domain:

Bounding\_Coordinates:

West\_Bounding\_Coordinate: -081D 10M 43.0S  
East\_Bounding\_Coordinate: -081D 09M 36.0S  
North\_Bounding\_Coordinate: +27D 29M 46.0S  
South\_Bounding\_Coordinate: +27D 28M 19.0S

Keywords:

Theme:

Theme\_Keyword\_Thesaurus: Tri - Service Spatial Data Standard  
Theme\_Keyword: Improvement  
Theme\_Keyword: Geodetic/Cadastral

Place:

Place\_Keyword\_Thesaurus: None  
Place\_Keyword: S. F. W. M. D. Monitoring Well LKBC3B  
Place\_Keyword: Sec. 25, Twp. 34 S., Rge. 31 E  
Place\_Keyword: Okeechobee County, Florida  
Place\_Keyword\_Thesaurus: Geographic Names Information System  
Place\_Keyword: Florida  
Place\_Keyword: Okeechobee County  
Place\_Keyword: Basinger NW

Access\_Constraints: None

Use\_Constraints: None

Point\_of\_Contact:

Contact\_Information:

Contact\_Person\_Primary:

Contact\_Person: Howard Ehmke

Contact\_Organization: South Florida Water Management

District

Contact\_Position: Project Manager

Contact\_Address:

Address\_Type: mailing and physical address

Address: 3301 Gun Club Road

City: West Palm Beach

State\_or\_Province: Florida

Postal\_Code: 33406

Country: USA

Contact\_Voice\_Telephone: 561-682-6672

Contact\_Electronic\_Mail\_Address: hehmke@sfwmd.gov

Data\_Quality\_Information:

Attribute\_Accuracy:

Attribute\_Accuracy\_Report: N/A

Logical\_Consistency\_Report:

Horizontal data was established using mapping grade GPS

equipment. Vertical data was established using NGS control points KKR PC 41 & KRR PC 26. Coordinates are in the Florida State Plane Coordinate System, East Zone, NAD 83/90. Elevations are in the NAVD 88 and the NGVD 29.

Completeness\_Report:

Horizontal Location taken at site benchmark  
 Lat. +27D 29M 27.0S  
 Long. -081D 10M 43.0S  
 N 1,150,257 ft  
 E 598,266 ft  
 Site Benchmark.  
 "LKBC3B" is a South Florida Water Management District (SFWMD) brass disk set in concrete.  
 FROM THE INTERSECTION OF U. S. HIGHWAY 98 (PARROT AVE.) AND STATE HIGHWAY 70 (N. PARK ST.) IN OKEECHOBEE, GO WEST ON U. S. 98 FOR 1.5 MILES THEN TURN RIGHT AND CONTINUE NORTHWEST ON U. S. 98 FOR 15.9 MILES TO A JUNCTION WITH MICCO BLUFF ROAD (NW 230TH AVE) AT BASINGER, THEN TURN RIGHT ON MICCO BLUFF ROAD AND GO NORTH FOR 0.2 MILES, THEN TURN LEFT AND CONTINUE NORTHWESTERLY ON THE MICCO BLUFF FOR 10.3 MILES TO A DIRT ROAD ON THE LEFT WITH A SFWMD LOCKED GATE. GO THROUGH THE GATE AND CONTINUE WEST ON DIRT ROAD FOR 0.10 MILE TO DIRT TRAIL. GO NORTH ON DIRT TRAIL FOR 0.5 MILE THEN EAST +/- 450 FEET TO THE MARK. MARK IS LOCATED 55.75 FEET EAST OF PK NAIL AND DISK LB 4318 ON NORTH SIDE OF A 14 INCH OAK TREE, 7.4 FEET SOUTH OF A 12 INCH GREY MONITORING WELL PIPE FOR LKBC3B AND 93.70 FEET WEST OF A GREEN SIGN POST FOR SFWMD VEGETATION MONITORING PROJECT. MONUMENT IS FLUSH WITH THE GROUND. A MAGNET WAS SET 1 FOOT NORTH OF MONUMENT.  
 Benchmark Elevation is 43.12 feet (NAVD 88).  
 Well Elevation (LKBC3B) is 46.44 feet (NAVD 88) as observed at the existing reference mark for the well which is a black mark at the top of a PVC pipe at the center of the well.  
 Concrete Pad Elevation is 43.59 feet (NAVD 88).  
 Ground Elevation is 43.39 feet (NAVD 88).  
 NGVD 29 minus NAVD 88 equals 1.197 feet.  
 The NGVD 1929 value was taken from the NGVD29.ABS file provided from the SFWMD for benchmark KRR PC 26.  
 Vertical Control used KKR PC 41 El. 14.392 (m) (NAVD 88) El. 14.756 (m) (NGVD 29), KKR PC 26 El. 15.185 (m) (NAVD 88) El. 15.550 (m) (NGVD 29).

Positional\_Accuracy:

Horizontal\_Positional\_Accuracy:

Horizontal\_Positional\_Accuracy\_Report:

The horizontal position of Site Benchmark "LKBC3B" was established using a mapping grade GPS receiver (Trimble Pro XR in accordance with the Florida Minimum Technical Standards (Chapter 61G17-6, Florida Administrative Code).

Quantitative\_Horizontal\_Positional\_Accuracy\_Assessment:

Horizontal\_Positional\_Accuracy\_Value: 3 to 5 meters

Horizontal\_Positional\_Accuracy\_Explanation: The intended positional accuracy for this survey is 3 to 5 meters more or less.

Vertical\_Positional\_Accuracy:

Vertical\_Positional\_Accuracy\_Report:

A level line was run originating on benchmark KKR PC 41 and terminating at benchmark KRR PC 26 with an allowable error of 8mm times the square root of the distance leveled (in kilometers).

Quantitative\_Vertical\_Positional\_Accuracy\_Assessment:

Vertical\_Positional\_Accuracy\_Value: 0.001 m

Vertical\_Positional\_Accuracy\_Explanation: NAVD 88 Level

LKBC3B.met

Loop, 0.001 m closure in 2.54 km, max. allowed 0.013m.

Lineage:

Process\_Step:

Process\_Description:

The horizontal work was performed using a Trimble Pro XR GPS receiver (mapping grade). The level loop was run with a Leica DNA03 digital level.

Process\_Date: 20060804

Metadata\_Reference\_Information:

Metadata\_Date: 20060818

Metadata\_Contact:

Contact\_Information:

Contact\_Person\_Primary:

Contact\_Person: Stephen M. Gordon

Contact\_Organization: Nick Miller, Inc.

Contact\_Position: Project Surveyor

Contact\_Address:

Address\_Type: mailing and physical address

Address: 2560 RCA Blvd., Suite 105

City: Palm Beach Gardens

State\_or\_Province: Florida

Postal\_Code: 33410

Country: USA

Contact\_Voice\_Telephone: 561-627-5200

Contact\_Facsimile\_Telephone: 561-627-0983

Contact\_Electronic\_Mail\_Address: sgordon@nickmillerinc.com

Metadata\_Standard\_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata\_Standard\_Version: 2.0

Metadata\_Time\_Convention: Local time

Metadata\_Access\_Constraints: South Florida Water Management District controls

access.

Metadata\_Use\_Constraints: Per South Florida Water Management District

Metadata\_Security\_Information:

Metadata\_Security\_Handling\_Description: None

Metadata\_Security\_Classification: Unclassified

Metadata\_Security\_Classification\_System: Structure



-\*- FIELD ABSTRACT -\*-

060803-060803 HGZ L10785 8.0 MM ORDER 2 CLASS 2 PAGE 1  
SOUTH FLORIDA WATER MANAGEMENT DISTRICT  
HIGHLANDS AND OKEECHOBEE COUNTY MONITORING WELLS  
ESTABLISH BENCH MARK NEAR MONITORING WELL LKBC3B

FROM	TO	START	F/B	DIST TOTAL (KM)	ELEV DIFF (MT)	-(F+B) TOTAL (MM)	MEAN DIFF FLD ELEV (MT)	I C
0324	KKR PC 41						14.39200	
0324	KKR PC 41	8030845	F	1.20	0.79233	* 0.00	0.79233	1
0323	KRR PC 26			1.20		0.00	15.18433	
0323	KRR PC 26	8031000	F	1.37	-2.04028	* -1.15	-2.04086	1
0322	LKBC3B	8031130	B	1.34	2.04143	* -1.15	13.14347♀	1
				2.54				

ELEVATION REJECTION AND ERROR CODES

- C - section elevation difference was rejected for cause  
ie. \*43\* record rejection code set to "F"
- R - section elevation difference was rejected by Halperin rejection algorithm
- @ - section elevation difference does not include refraction correction
- \* - section elevation difference does not include rod correction

♀

INSTRUMENT CODE	INSTRUMENT	RODS
1	243 - 331132	396 - 333 396 - 444

♀  
LEVEL LINE SECTION RUNNING TREE

FROM	TO	N. LATITUDE	W. LONGITUDE	FIELD DISTANCE	VS. COMPUTED
0324		272919	0810936	0.00	0.00
0324	0323	272946	0811002	1.20	1.10
0323	0322	272927	0811043	1.34	1.27♀

SECTION FROM TO ERROR MESSAGES



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

COUNTY OKEECHOBEE	PROJECT Hydrology - Kissimmee River & Palm Beach Wells	DESIGNATION LKBC3B 2006
SECTION 25	TOWNSHIP 34 SOUTH	RANGE 31 EAST
GEOGRAPHIC INDEX OF QUAD		
Established by <u>Nick Miller Inc.</u> Recovered by	NAME OF QUADRANGLE BASINGER NW	
SURVEYOR <u>Stephen M. Gordon</u> DATE <u>08/01/2006</u>	FIELD BOOK <u>14</u> PAGE <u>35</u>	
HORIZONTAL DATUM: 1927 <b>1983</b> Other _____ (circle one) ZONE <b>E</b> or W		
STATE PLANE COORDINATES	E 598,266 ft	N 1,150,257 ft
LATITUDE: N 27.49803°	LONGITUDE: W 81.17861°	
VERTICAL DATUM: MSL 1929 <b>1988</b> Other _____ (circle one)	EL. 43.12 ft	
VERTICAL DATUM: MSL <b>1929</b> 1988 Other _____ (circle one)	EL. 44.32 ft	
CONTROL ACCURACY: HORIZONTAL 1 2 3 <b>SUB-METER</b> (circle one) VERTICAL 1 2 <b>3</b>		
<b>DESCRIPTION</b>		
<p>To Reach:</p> <p>FROM THE INTERSECTION OF U.S. HIGHWAY 98 (PARROT AVE.) AND STATE HIGHWAY 70 (N. PARK ST.) IN OKEECHOBEE, GO WEST ON U.S. 98 FOR 1.5 MILES THEN TURN RIGHT AND CONTINUE NORTHWEST ON U.S. 98 FOR 15.9 MILES TO A JUNCTION WITH MICCO BLUFF ROAD (NW 230<sup>TH</sup> AVE) AT BASINGER, THEN TURN RIGHT ON MICCO BLUFF ROAD AND GO NORTH FOR 0.2 MILES, THEN TURN LEFT AND CONTINUE NORTHWESTERLY ON THE MICCO BLUFF FOR 10.3 MILES TO A DIRT ROAD ON THE LEFT WITH A SFWMD LOCKED GATE. GO THROUGH THE GATE AND CONTINUE WEST ON DIRT ROAD FOR 0.10 MILE TO DIRT TRAIL. GO NORTH ON DIRT TRAIL FOR 0.5 MILE THEN EAST +/- 450 FEET TO THE MARK. MARK IS LOCATED 55.75 FEET EAST OF PK NAIL AND DISK LB 4318 ON NORTH SIDE OF A 14 INCH OAK TREE, 7.4 FEET SOUTH OF A 12 INCH GREY MONITORING WELL PIPE FOR LKBC3B AND 93.70 FEET WEST OF A GREEN SIGN POST FOR SFWMD VEGETATION MONITORING PROJECT. MONUMENT IS FLUSH WITH THE GROUND. A MAGNET WAS SET 1 FOOT NORTH OF MONUMENT.</p> <p>Benchmarks Used: KRR PC 26 &amp; KKR PC 41</p> <p>Notable Land marks:</p>		



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

SKETCH

1078.015 MONITORING WELL STAMPED  
LKBC3B

- SET POURED-IN-PLACE CONCRETE MONUMENT W/ BRASS DISK
- SET MAGNET 1' NORTH OF MONUMENT

STAMPED: LKBC3B  
2006

TIES

- SET MONUMENT 55.75' EAST OF PK. NAIL DISK OAK TREE
- LB 4318 ON NORTH SIDE OF 14" OAK TREE
- SET MONUMENT 7.4' SOUTH OF 12" GREY MONITORING WELL PIPE (LKBC3B)
- SET MONUMENT 93.70' WEST OF GREEN POST (SEWMD VEGETATION MONITORING PROJECT)

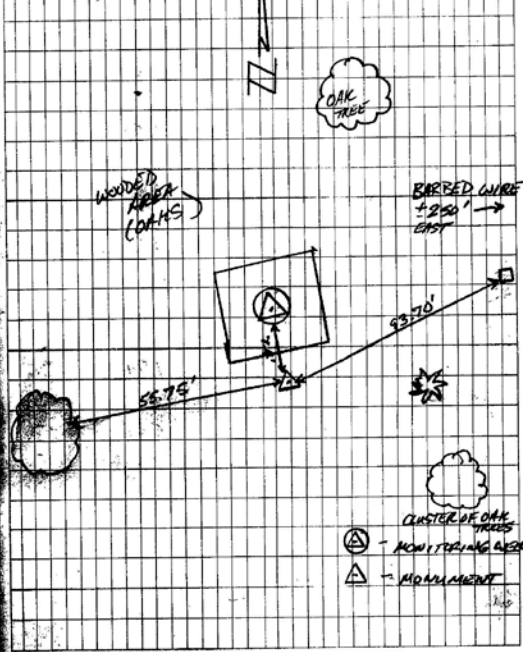
COORDINATES ON MONITORING WELL LKBC3B

WGS 84 STATE PLANE 83  
 N. 27° 29' 27" N.  
 W. 81° 10' 43" E.

COORDINATES ON MONUMENT LKBC3B

WGS 84 STATE PLANE 83  
 N. 27° 29' 27" N.  
 W. 81° 10' 43" E.

TUES. AUG. 1, 2006  
 E. NETAESIS  
 V. RICHAN  
 J. ALVAREZ  
 SEWMD # 35



# The NGS Data Sheet

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

```

PROGRAM = datasheet95, VERSION = 8.7
1      National Geodetic Survey,      Retrieval Date = JULY 22, 2015
DF8405 *****
DF8405 DESIGNATION - KRR PC 26
DF8405 PID - DF8405
DF8405 STATE/COUNTY- FL/OKEECHOBEE
DF8405 COUNTRY - US
DF8405 USGS QUAD - BASINGER NW (1972)
DF8405
DF8405 *CURRENT SURVEY CONTROL
DF8405
DF8405* NAD 83(1986) POSITION- 27 29 46. (N) 081 10 02. (W) SCALED
DF8405* NAVD 88 ORTHO HEIGHT - 15.186 (meters) 49.82 (feet) ADJUSTED
DF8405
DF8405 GEOID HEIGHT - -26.15 (meters) GEOID12B
DF8405 DYNAMIC HEIGHT - 15.163 (meters) 49.75 (feet) COMP
DF8405 MODELED GRAVITY - 979,139.5 (mgal) NAVD 88
DF8405
DF8405 VERT ORDER - SECOND CLASS I
DF8405
DF8405.The horizontal coordinates were scaled from a topographic map and have
DF8405.an estimated accuracy of +/- 6 seconds.
DF8405.
DF8405.The orthometric height was determined by differential leveling and
DF8405.adjusted by the NATIONAL GEODETIC SURVEY
DF8405.in May 2004.
DF8405
DF8405.The dynamic height is computed by dividing the NAVD 88
DF8405.geopotential number by the normal gravity value computed on the
DF8405.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DF8405.degrees latitude (g = 980.6199 gals.).
DF8405
DF8405.The modeled gravity was interpolated from observed gravity values.
DF8405
DF8405; North East Units Estimated Accuracy
DF8405;SPC FL E - 350,390. 183,480. MT (+/- 180 meters Scaled)
DF8405
DF8405 SUPERSEDED SURVEY CONTROL
DF8405
DF8405.No superseded survey control is available for this station.
DF8405
DF8405_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML834413(NAD 83)
DF8405
DF8405_MARKER: DD = SURVEY DISK
DF8405_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
DF8405_STAMPING: KRR PC 26 1997 JAX DIST
DF8405_MARK LOGO: USE
DF8405_PROJECTION: FLUSH
DF8405_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET
DF8405_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
DF8405+STABILITY: SURFACE MOTION
DF8405_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DF8405+SATELLITE: SATELLITE OBSERVATIONS - October 06, 2001
DF8405
DF8405 HISTORY - Date Condition Report By
DF8405 HISTORY - 1997 MONUMENTED USE
DF8405 HISTORY - 20011006 GOOD FLDEP

```

DF8405

DF8405

## STATION DESCRIPTION

DF8405

DF8405'DESCRIBED BY FL DEPT OF ENV PRO 2001 (JLM)

DF8405'THE MARK IS ABOUT 29.7 MI NORTHWEST OF OKEECHOBEE, 11.9 MI NORTHWEST

DF8405'OF BASINGER, IN

DF8405'SECTION 30, TOWNSHIP 34 SOUTH, RANGE 32 EAST.

DF8405'

DF8405'TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 441 (PARROTT

DF8405'STREET) AND U.S.

DF8405'HIGHWAY 98 (STATE HIGHWAY 70, PARK STREET) IN OKEECHOBEE, GO WEST ON

DF8405'U.S. HIGHWAY 98

DF8405'(STATE HIGHWAY 70, PARK STREET) FOR 1.15 MI TO THE JUNCTION OF U.S.

DF8405'HIGHWAY 98 NORTH ON

DF8405'THE RIGHT, TURN RIGHT ON U.S. HIGHWAY 98 AND GO NORTHWESTERLY FOR 0.65

DF8405'MI TO THE

DF8405'RAILROAD TRACKS, CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 11.9 MI

DF8405'TO THE JUNCTION

DF8405'OF COUNTY ROAD 68 EAST ON THE RIGHT, CONTINUE NORTHWESTERLY ON U.S.

DF8405'HIGHWAY 98 FOR

DF8405'1.85 MI TO THE JUNCTION OF NORTHWEST 176TH AVENUE (COUNTY ROAD 700-A)

DF8405'ON THE RIGHT,

DF8405'CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 1.7 MI TO THE JUNCTION

DF8405'OF NORTHWEST

DF8405'203RD AVENUE (MICCO BLUFF ROAD) ON THE RIGHT, TURN RIGHT ON NORTHWEST

DF8405'203RD AVENUE

DF8405'(MICCO BLUFF ROAD) AND GO NORTH-NORTHWESTERLY FOR 0.2 MI TO THE

DF8405'JUNCTION OF NORTHWEST

DF8405'160TH DRIVE (MICCO BLUFF ROAD, COUNTY ROAD 68), TURN LEFT ON NORTHWEST

DF8405'160TH DRIVE

DF8405'(MICCO BLUFF ROAD, COUNTY ROAD 68) AND GO WEST-NORTHWESTERLY FOR 6.15

DF8405'MI TO THE END OF

DF8405'THE PAVED ROAD AND THE JUNCTION OF A DIRT ROAD LEADING NORTHWEST AND

DF8405'THE BEGINNING OF

DF8405'NORTHWEST 285TH DRIVE (A DIRT ROAD LEADING NORTHWESTERLY), BEAR RIGHT

DF8405'ON NORTHWEST

DF8405'285TH DRIVE AND GO NORTHWESTERLY FOR 2.8 MI TO A EAST-WEST FENCELINE

DF8405'OPENING AND THE

DF8405'JUNCTION OF A DIRT ROAD ON THE LEFT LEADING WEST, PASSING THROUGH THE

DF8405'OPENING

DF8405'CONTINUE NORTHWEST ON THE DIRT ROAD (NORTHWEST 285TH DRIVE) FOR 0.7 MI

DF8405'TO AN

DF8405'EAST-WEST FENCELINE OPENING WITH ONE 25.0 FT CONCRETE POLE ON BOTH

DF8405'SIDES OF THE ROAD,

DF8405'CONTINUE NORTHWEST ON THE DIRT ROAD FOR 0.7 MI TO INTERSECTION OF AN

DF8405'EAST-WEST DIRT

DF8405'ROAD, CONTINUE NORTHWEST ON THE DIRT ROAD FOR 1.3 MI TO THE MARK ON

DF8405'THE LEFT, SET IN THE

DF8405'TOP OF A ROUND CONCRETE MONUMENT FLUSH WITH THE GROUND AND LEVEL WITH

DF8405'THE ROAD.

DF8405'

DF8405'LOCATED 99.2 FT EAST OF AND ACROSS THE ROAD FROM THE APPROXIMATE

DF8405'CENTERLINE OF A ROAD

DF8405'LEADING NORTHWEST AND A STEEL GATE, 28.5 FT NORTHEAST OF THE

DF8405'APPROXIMATE CENTERLINE

DF8405'OF THE ROAD, 27.0 FT SOUTHEAST OF A BARBWIRE GATE, 1.0 FT SOUTHWEST OF

DF8405'THE BARBWIRE

DF8405'FENCE AND A FENCELINE POST WITH A WITNESS POST AND 0.9 FT SOUTH OF A

DF8405'CARSONITE WITNESS

DF8405'POST.

DF8405'

DF8405'NOTE AUTHORIZED PERSONNEL ONLY BEYOND THIS POINT.

DF8405'

\*\*\* retrieval complete.

Elapsed Time = 00:00:02

# The NGS Data Sheet

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

```

PROGRAM = datasheet95, VERSION = 8.7
1      National Geodetic Survey,   Retrieval Date = JULY 22, 2015
DF8360 *****
DF8360 DESIGNATION -   KKR PC 41
DF8360 PID          -   DF8360
DF8360 STATE/COUNTY-  FL/OKEECHOBEE
DF8360 COUNTRY      -   US
DF8360 USGS QUAD    -   BASINGER NW (1972)
DF8360
DF8360                                *CURRENT SURVEY CONTROL
DF8360
DF8360* NAD 83(1986) POSITION- 27 29 19.      (N) 081 09 36.      (W) SCALED
DF8360* NAVD 88 ORTHO HEIGHT -   14.392 (meters)      47.22 (feet) ADJUSTED
DF8360
DF8360 GEOID HEIGHT   -           -26.14 (meters)      GEOID12B
DF8360 DYNAMIC HEIGHT -           14.370 (meters)      47.15 (feet) COMP
DF8360 MODELED GRAVITY -   979,138.9 (mgal)      NAVD 88
DF8360
DF8360 VERT ORDER    -   SECOND      CLASS I
DF8360
DF8360.The horizontal coordinates were scaled from a topographic map and have
DF8360.an estimated accuracy of +/- 6 seconds.
DF8360.
DF8360.The orthometric height was determined by differential leveling and
DF8360.adjusted by the NATIONAL GEODETIC SURVEY
DF8360.in May 2004.
DF8360
DF8360.The dynamic height is computed by dividing the NAVD 88
DF8360.geopotential number by the normal gravity value computed on the
DF8360.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DF8360.degrees latitude (g = 980.6199 gals.).
DF8360
DF8360.The modeled gravity was interpolated from observed gravity values.
DF8360
DF8360;
DF8360;SPC FL E      -   North      East      Units  Estimated Accuracy
DF8360;          -   349,550.    184,190.    MT    (+/- 180 meters Scaled)
DF8360
DF8360                                SUPERSEDED SURVEY CONTROL
DF8360
DF8360.No superseded survey control is available for this station.
DF8360
DF8360_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML841405(NAD 83)
DF8360
DF8360_MARKER: DD = SURVEY DISK
DF8360_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
DF8360_STAMPING: KKR PC 41 1998 JAX DIST
DF8360_MARK LOGO: USE
DF8360_PROJECTION: FLUSH
DF8360_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET
DF8360_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
DF8360+STABILITY: SURFACE MOTION
DF8360_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DF8360+SATELLITE: SATELLITE OBSERVATIONS - October 06, 2001
DF8360
DF8360 HISTORY      -   Date      Condition      Report By
DF8360 HISTORY      -   1998      MONUMENTED    USE
DF8360 HISTORY      -   20011006  GOOD          FLDEP

```

DF8360

DF8360

## STATION DESCRIPTION

DF8360

DF8360'DESCRIBED BY FL DEPT OF ENV PRO 2001 (JLM)

DF8360'THE MARK IS ABOUT 29.0 MI NORTHWEST OF OKEECHOBEE, 11.2 MI NORTHWEST

DF8360'OF BASINGER, IN

DF8360'SECTION 30, TOWNSHIP 34 SOUTH, RANGE 32 EAST.

DF8360'

DF8360'TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 441 (PARROTT

DF8360'STREET) AND U.S.

DF8360'HIGHWAY 98 (STATE HIGHWAY 70, PARK STREET) IN OKEECHOBEE, GO WEST ON

DF8360'U.S. HIGHWAY 98

DF8360'(STATE HIGHWAY 70, PARK STREET) FOR 1.15 MI TO THE JUNCTION OF U.S.

DF8360'HIGHWAY 98 NORTH ON

DF8360'THE RIGHT, TURN RIGHT ON U.S. HIGHWAY 98 AND GO NORTHWESTERLY FOR 0.65

DF8360'MI TO THE

DF8360'RAILROAD TRACKS, CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 11.9 MI

DF8360'TO THE JUNCTION

DF8360'OF COUNTY ROAD 68 EAST ON THE RIGHT, CONTINUE NORTHWESTERLY ON U.S.

DF8360'HIGHWAY 98 FOR

DF8360'1.85 MI TO THE JUNCTION OF NORTHWEST 176TH AVENUE (COUNTY ROAD 700-A)

DF8360'ON THE RIGHT,

DF8360'CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 1.7 MI TO THE JUNCTION

DF8360'OF NORTHWEST

DF8360'203RD AVENUE (MICCO BLUFF ROAD) ON THE RIGHT, TURN RIGHT ON NORTHWEST

DF8360'203RD AVENUE

DF8360'(MICCO BLUFF ROAD) AND GO NORTH-NORTHWESTERLY FOR 0.2 MI TO THE

DF8360'JUNCTION OF NORTHWEST

DF8360'160TH DRIVE (MICCO BLUFF ROAD, COUNTY ROAD 68), TURN LEFT ON NORTHWEST

DF8360'160TH DRIVE

DF8360'(MICCO BLUFF ROAD, COUNTY ROAD 68) AND GO WEST-NORTHWESTERLY FOR 6.15

DF8360'MI TO THE END OF

DF8360'THE PAVED ROAD AND THE JUNCTION OF A DIRT ROAD LEADING NORTHWEST AND

DF8360'THE BEGINNING OF

DF8360'NORTHWEST 285TH DRIVE (A DIRT ROAD LEADING NORTHWESTERLY), BEAR RIGHT

DF8360'ON NORTHWEST

DF8360'285TH DRIVE AND GO NORTHWESTERLY FOR 2.8 MI TO AN EAST-WEST FENCELINE

DF8360'OPENING AND THE

DF8360'JUNCTION OF A DIRT ROAD ON THE LEFT LEADING WEST, PASSING THROUGH THE

DF8360'OPENING

DF8360'CONTINUE NORTHWEST ON THE DIRT ROAD (NORTHWEST 285TH DRIVE) FOR 0.7 MI

DF8360'TO AN

DF8360'EAST-WEST FENCELINE OPENING WITH ONE 25.0 FT CONCRETE POLE ON BOTH

DF8360'SIDES OF THE ROAD,

DF8360'CONTINUE NORTHWEST ON THE DIRT ROAD FOR 0.7 MI TO INTERSECTION OF AN

DF8360'EAST-WEST DIRT

DF8360'ROAD, CONTINUE NORTHWEST ON THE DIRT ROAD FOR 0.6 MI TO THE MARK ON

DF8360'THE LEFT, SET IN

DF8360'SIDE OF A 10-INCH PVC PIPE FLUSH WITH THE GROUND AND LEVEL WITH THE

DF8360'ROAD.

DF8360'

DF8360'LOCATED 130.0 FT SOUTH OF AND ACROSS THE ROAD FROM THE APPROXIMATE

DF8360'CENTERLINE OF A

DF8360'ROAD AND A STEEL GATE, 18.7 FT WEST-SOUTHWEST OF THE APPROXIMATE

DF8360'CENTERLINE OF THE

DF8360'ROAD AND 1.6 FT EAST-NORTHEAST OF A HOGWIRE FENCE AND A CUT-OFF POWER

DF8360'POLE WITH A C.O.E.

DF8360' WITNESS SIGN.

DF8360'

DF8360'NOTE A MAGNET WAS IMBEDDED IN THE GROUND ON THE SOUTH SIDE OF THE

DF8360'MONUMENT.

DF8360'

DF8360'NOTE AUTHORIZED PERSONNEL ONLY BEYOND THIS POINT.

DF8360'

DATASHEETS

\*\*\* retrieval complete.  
Elapsed Time = 00:00:02



# PBF-2



**Nick Miller, Inc.**  
**Date of Photo: August 7, 2006**  
**View: Looking at the well facing north**

# PBF-2



**Nick Miller, Inc.**

**Date of Photo: August 7, 2006**

**View: Close-up of the well showing the contractor's markings**

# PBF-2



**Nick Miller, Inc.**  
**Date of Photo: August 7, 2006**  
**View: A top view of the benchmark**

SET MONUMENT

1078.015

SFWCD

SET MONUMENT IN SOUTHWEST CORNER  
OF 3'x3' CONCRETE PAD THAT WELL  
SITS ON.

THE MONUMENT IS ~~49.5'~~ 10.1' SOUTH OF THE CENTER  
OF A SANITARY MANHOLE, 33.4' WEST OF THE CENTER  
OF A CONCRETE LIGHT POST, 49.45' <sup>NW</sup> NE OF  
THE NW CORNER OF THE CATCH BASIN  
GRATE

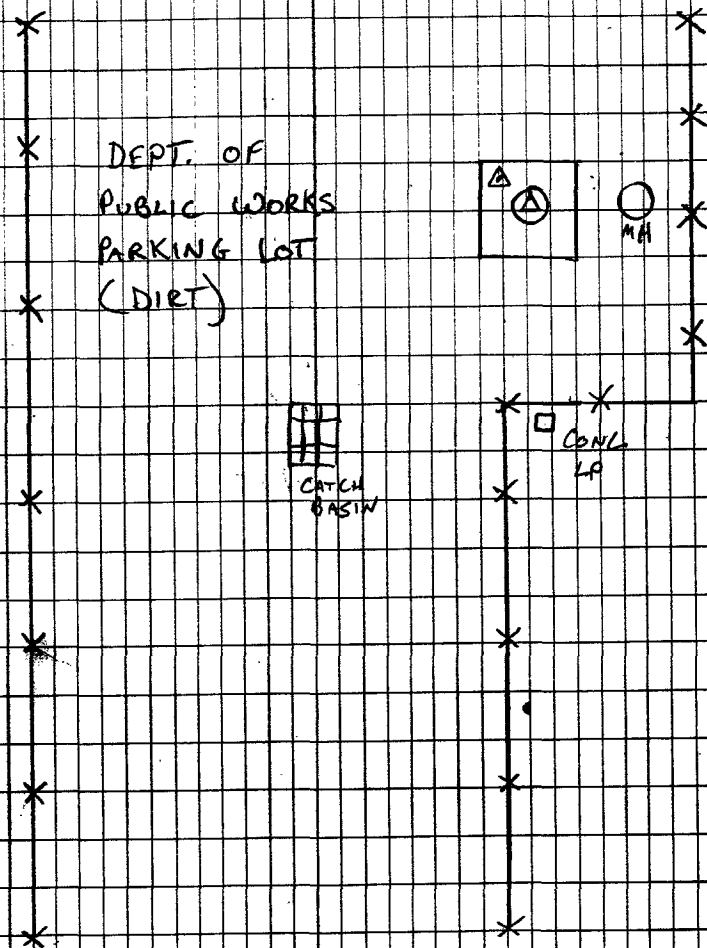
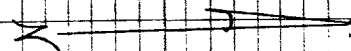
COORDINATES FOR WELL AND BENCHMARK

LAT:  $28^{\circ}04'21.17''$   
LONG:  $080^{\circ}03'48''$

J. SZULCOWSKI  
J. CAMPBELL  
R. WYKOFF

WED. AUG 2, 2006

SFWCD 153



BENCH RUN

1078.015

STAND

LEVEL TO MONITORING WELL

+	H.I.	-	ELEV.
4.30			
		4.77	
		4.45	
		1.53	
1.38			
		4.20	
		4.15	

J. SZULEWSKI

WED. AUG. 2, 2006

J. CAMPBELL

STAND 15, 2

R. ~~WALKER~~ WYCKOFF

DESC

TBM

~~WELL~~ GROUND SHOT

TO CONC. PAD SE COR

WELL

WELL

CONC. PAD

TBM



BENCH RUN

1078.015

SFWMD

REFERENCE 2 -> A71 (CONT.)

	+	H.I.	-	ELEV.
	1.3563		1.1451	
"	62.88		62.77	
	1.2157		1.7475	
"	69.71		69.50	
	1.3004		1.4991	
"	69.45		69.71	
	1.6115		1.4612	
"	69.30		68.95	
	1.1536		1.2515	
"	69.33		69.34	
	1.7976		1.1857	
"	68.75		69.18	
	1.0420		1.1298	
"	68.31		68.41	
	1.5040		1.7151	
"	35.39		30.75	

J. SZKLEWSKI

MON. AUG. 7, 2006

J. CAMPBELL

SFWMD 15.4

R. BRUST

DESC.

BOD. NAIL SET ON E. SIDE OF FL. EASTCOAST RAILWAY

"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"

A71

TOTAL DIST. = 2.35670 KM

TOLERANCE = 12.28 mm

DIFFERENCE = 8.4 mm

BENCH RUN

1078.015

S (WIND)

A71 → PBF 2

	<u>T</u>	<u>H.I.</u>	<u>-</u>	<u>FLU.</u>
1	1.8276 38.38		1.7756 38.37	
2	1.6878 67.47		0.5544 67.32	
3	2.7006 67.58		2.1716 67.85	
4	1.0814 67.74		2.2612 68.47	
5	0.8237 69.63		2.4535 69.23	
6	0.9134 68.52		1.0404 69.61	
7	1.5760 38.92		1.9749 37.63	
8	1.8182 69.07		1.6669 69.19	
9	1.7249 69.64		1.4933 69.50	
10	1.8432 69.23		1.1234 69.87	

J. SZULEWSKI

Mon. Aug. 7 2006

J. CAMPBELL

S (WIND) 15.5

R. BEUST

DESC

D.H. NAIL SET ON S. SIDE OF PARK PL.

" " " "

" " " "

" " " "

" " " "

600 D.H. NAIL SET ON EAST SIDE OF RR EASEMENT

D.H. NAIL SET ON EAST SIDE OF CLARE AVE

" " " "

" " " "

" " " "



BENCH RUN

1078.015

SFUMID

A71 → PBF 2 (CONT.)

	<u>+</u>	<u>H.I.</u>	<u>-</u>	<u>ELEV.</u>
	1.9224			
11	68.40		2.6502 68.64	
	1.8896			
12	55.66		2.2451 50.79	
	1.4882			
13	19.70		1.8472 21.79	
	1.5643			
14	10.00		1.3343 10.57	

J. SZOLEWSKI

MON. AUG. 7, 2006

J. CAMPBELL

SFUMID 156

R. BRUST

DESC.

D.H. NAIL SET ON E. SIDE OF CLARE AVE.

DH NAIL SET IN D.P.W. PARKING LOT.

" " " "

PBF 2

TOTAL DIST. = 1.55818 KM

BENCH RUN

		ST. WIND	
PBF-2 → A71			
X	+	-	ELEV.
	1.4803		
1	24.31	1.4464	24.32
	1.4034		
2	67.90	1.3179	68.21
	1.6983		
	1.6982		
3	50.92	1.6756	51.26
	50.67		
	50.92		
	1.2103		
4	68.34	1.8850	68.37
	1.4364		
5	67.95	1.6780	68.20
	1.6838		
6	67.60	1.7468	64.97
	1.6574		
7	68.54	2.0730	69.14
	2.3113		
8	68.44	0.6823	68.29
	2.1899		
9	61.49	0.8813	64.02
	2.2723		
10	69.03	0.5407	68.17

J. SZULEWSKI

Mon. Aug. 7, 2006

J. CAMPBELL

ST. WIND 157

R. BRUST

DESC.

DH. NAIL SET ON W. SIDE OF CHARLOTTE ST.

DH NAIL SET ON S. SIDE OF FREDRICK ST.

" " " " E. SIDE OF OKEECHOBEE RD.

DH. NAIL SET ON E. SIDE OF CLARE AVE.

" " " "

" " " "

BENCH RUN

1078.015 SFWD

PBF-2 → A71 (CONT.)

	+	H.L.	-	ELEV
	1.0061			
11	68.68		3.4645	
			69.38	
	1.4169			
12	68.91		1.6129	
			68.70	
	1.5859			
13	11.39		1.9284	
			12.87	
	1.8182			
14	8.09		1.5038	
			10.24	

J. SZULEWSKI

MON. AUG. 7 2006

J. CAMPBELL

SFWD 15.8

R. BRUST

DESC

A71

TOTAL DIST. = 1.54776 KM

Identification\_Information:

Citation:

Citation\_Information:

Originator: Nick Miller, Inc. (comp.)  
Originator: Stephen M. Gordon, PSM(ed.)  
Publication\_Date: 20060315  
Publication\_Time: Unknown  
Title: S. F. W. M. D. Monitoring Well PBF-2  
Edition: 1  
Publication\_Information:

Publication\_Place: West Palm Beach, FL  
Publisher: South Florida Water Management District

Description:

Abstract:

South Florida Water Management District Monitoring Well PBF-2.

Purpose:

To determine as built dimensions relative to NAVD 88 and NGVD 29 vertical datum

Time\_Period\_of\_Content:

Time\_Period\_Information:

Single\_Date/Time:

Calendar\_Date: 20060818

Currentness\_Reference: Publication Date

Status:

Progress: Complete

Maintenance\_and\_Update\_Frequency: Unknown

Spatial\_Domain:

Bounding\_Coordinates:

West\_Bounding\_Coordinate: -080D 03M 48.0S  
East\_Bounding\_Coordinate: -080D 03M 15.0S  
North\_Bounding\_Coordinate: +26D 43M 05.0S  
South\_Bounding\_Coordinate: +26D 41M 52.0S

Keywords:

Theme:

Theme\_Keyword\_Thesaurus: Tri - Service Spatial Data Standard  
Theme\_Keyword: Improvement  
Theme\_Keyword: Geodetic/Cadastral

Place:

Place\_Keyword\_Thesaurus: None  
Place\_Keyword: S. F. W. M. D. Monitoring Well PBF-2  
Place\_Keyword: Sec. 28, Twp. 43 S., Rge. 43 E  
Place\_Keyword: Palm Beach County, Florida  
Place\_Keyword\_Thesaurus: Geographic Names Information System  
Place\_Keyword: Florida  
Place\_Keyword: Palm Beach County  
Place\_Keyword: Palm Beach

Access\_Constraints: None

Use\_Constraints: None

Point\_of\_Contact:

Contact\_Information:

Contact\_Person\_Primary:

Contact\_Person: Howard Ehmke

Contact\_Organization: South Florida Water Management

District

Contact\_Position: Project Manager

Contact\_Address:

Address\_Type: mailing and physical address  
Address: 3301 Gun Club Road  
City: West Palm Beach  
State\_or\_Province: Florida  
Postal\_Code: 33406  
Country: USA

Contact\_Voice\_Telephone: 561-682-6672

Contact\_Electronic\_Mail\_Address: hehmke@sfwmd.gov

Data\_Quality\_Information:

Attribute\_Accuracy:

Attribute\_Accuracy\_Report: N/A

Logical\_Consistency\_Report:

Horizontal data was established using mapping grade GPS

PBF-2.met

equipment. Vertical data was established using NGS control points REFERENCE 2 & A71. Coordinates are in the Florida State Plane Coordinate System, East Zone, NAD 83/90. Elevations are in the NAVD 88 and the NGVD 29.

Completeness\_Report:

Horizontal Location taken at site benchmark  
Lat. +26D 42M 17.0S  
Long. -080D 03M 48.0S  
N 862,961 ft  
E 961,966 ft  
Site Benchmark.  
"PBF-2" is a South Florida Water Management District (SFWMD) aluminum disk set in concrete.  
FROM THE INTERSECTION OF AUSTRALIAN AVE. AND OKEECHOBEE BLVD, GO EAST ON OKEECHOBEE BLVD. FOR 0.1 MILE TO TAMARIND AVE. GO SOUTH ON TAMARIND AVE FOR +/- 400 FEET TO ACCESS ROAD ON YOUR RIGHT. TAKE RIGHT ON ACCESS ROAD AND HEAD SOUTHWEST FOR +/- 300 FEET TO A GATED PARKING LOT. MAKE RIGHT INTO THE GATED PARKING LOT AND CONTINUE NORTH WEST FOR +/- 250 FEET TO A PAVED ROAD. TURN LEFT ONTO THE PAVED ROAD AND CONTINUE SOUTHWEST FOR +/- 100 FEET TO A FENCED IN PARKING LOT. TURN RIGHT INTO THE PARKING LOT AND CONTINUE NORTHWEST FOR +/- 135 FEET TO MONUMENT ON THE RIGHT. MONUMENT IS SET IN THE SOUTHWEST CORNER OF A 3 FEET BY 3 FEET CONCRETE PAD LOCATED 10.1 FEET SOUTH OF THE CENTERLINE OF A SANITARY MANHOLE, 33.4 FEET WEST OF THE CENTER OF A CONCRETE LIGHT POST AND 49.45 FEET NORTHWEST OF THE NORTHWEST CORNER OF CATCH BASIN GRATE.  
Benchmark Elevation is 14.83 feet (NAVD 88).  
Well Elevation (PBF-2) is 17.60 feet (NAVD 88) as observed at the existing reference mark for the well which is a black mark at the top of the metal flange at the center of the well.  
Concrete Pad Elevation is 14.78 feet (NAVD 88).  
Ground Elevation is 14.36 feet (NAVD 88).  
NGVD 29 minus NAVD 88 equals 1.526 feet.  
The NGVD 1929 value was taken from the NGS superseded control value for benchmark A 71.  
Vertical Control used REFERENCE 2 El. 4.400 (m) (NAVD 88) El. 4.868 (m) (NGVD 29), A 71 El. 5.260 (m) (NAVD 88) El. 5.725 (m) (NGVD 29).

Positional\_Accuracy:

Horizontal\_Positional\_Accuracy:

Horizontal\_Positional\_Accuracy\_Report:

The horizontal position of Site Benchmark "PBF-2" was established using a mapping grade GPS receiver (Trimble Pro XR in accordance with the Florida Minimum Technical Standards (Chapter 61G17-6, Florida Administrative Code).

Quantitative\_Horizontal\_Positional\_Accuracy\_Assessment:

Horizontal\_Positional\_Accuracy\_Value: 3 to 5 meters

Horizontal\_Positional\_Accuracy\_Explanation: The intended

positional accuracy for this survey is 3 to 5 meters more or less.

Vertical\_Positional\_Accuracy:

Vertical\_Positional\_Accuracy\_Report:

A level line was run originating on benchmark REFERENCE 2 and terminating at benchmark A 71 with an allowable error of 8mm times the square root of the distance leveled (in kilometers).

Quantitative\_Vertical\_Positional\_Accuracy\_Assessment:

Vertical\_Positional\_Accuracy\_Value: 0.008 m

Vertical\_Positional\_Accuracy\_Explanation: NAVD 88 level

loop, 0.008 m closure in 3.91 km, max. allowed 0.016m.

Lineage:

Process\_Step:

Process\_Description:

The horizontal work was performed using a Trimble Pro XR GPS receiver (mapping grade). The level loop was run with a Leica DNA03 digital level.

Process\_Date: 20060816

Metadata\_Reference\_Information:

Metadata\_Date: 20060818

Metadata\_Contact:

Contact\_Information:

Contact\_Person\_Primary:

Contact\_Person: Stephen M. Gordon

Contact\_Organization: Nick Miller, Inc.

Contact\_Position: Project Surveyor

Contact\_Address:

Address\_Type: mailing and physical address

Address: 2560 RCA Blvd., Suite 105

City: Palm Beach Gardens

State\_or\_Province: Florida

Postal\_Code: 33410

Country: USA

Contact\_Voice\_Telephone: 561-627-5200

Contact\_Facsimile\_Telephone: 561-627-0983

Contact\_Electronic\_Mail\_Address: sgordon@nickmillerinc.com

Metadata\_Standard\_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata\_Standard\_Version: 2.0

Metadata\_Time\_Convention: Local time

Metadata\_Access\_Constraints: South Florida Water Management District controls

access.

Metadata\_Use\_Constraints: Per South Florida Water Management District

Metadata\_Security\_Information:

Metadata\_Security\_Handling\_Description: None

Metadata\_Security\_Classification: Unclassified

Metadata\_Security\_Classification\_System: Structure

-\*- FIELD ABSTRACT -\*-

060807-060807 HGZ L10786 8.0 MM ORDER 2 CLASS 2 PAGE 1  
SOUTH FLORIDA WATER MANAGEMENT DISTRICT  
PALM BEACH COUNTY MONITORING WELLS  
ESTABLISH BENCH MARK NEAR MONITORING WELL PBF-2

FROM TO	START	F/B	DIST TOTAL (KM)	ELEV DIFF (MT)	-(F+B) TOTAL (MM)	MEAN DIFF FLD ELEV (MT)	I C
0332 REFERENCE 2						4.40000	
0332 REFERENCE 2	8070900	F	2.36	0.85157	*	0.00	0.85157 1
0334 A 71			2.36			0.00	5.25157
0334 A 71	8071240	F	1.56	-0.73069	*	-3.43	-0.73241 1
0331 PBF-2	8071430	B	1.55	0.73413	*	-3.43	4.51916♀ 1
			3.91				

ELEVATION REJECTION AND ERROR CODES

- C - section elevation difference was rejected for cause i.e. \*43\* record rejection code set to "F"
- R - section elevation difference was rejected by Halperin rejection algorithm
- @ - section elevation difference does not include refraction correction
- \* - section elevation difference does not include rod correction

♀

INSTRUMENT CODE	INSTRUMENT	RODS
1	243 - 332854	396 - 333 396 - 444

♀  
LEVEL LINE SECTION RUNNING TREE

FROM TO	N. LATITUDE	W. LONGITUDE	FIELD DISTANCE	VS. COMPUTED
0332	264305	0800315	0.00	0.00
0332 0334	264152	0800318	2.36	2.25
0334 0331	264216	0800348	1.55	1.11♀

SECTION FROM TO ERROR MESSAGES

**South Florida Water Management District  
Palm Beach County Wells  
Vertical Control Summary**

Control Name	Vertical Control							Well Elevations			NGS Blue Book				Location				Lat min (dec) Lat max (dec)	Long min (dec) Long max (dec)	Lat min (dms) Lat max (dms)	Long min (dms) Long max (dms)		
	Order	Class	NAVD 88		NGVD 29		Diff foot	Desc	NAVD 88		Line No	Part No	SSN No	Abstract Values			NAD 83 (dec)						NAD 83 (dms)	
			meter	foot	meter	foot			diff (ft)	elev (ft)				elev (m)	diff (m)	diff (ft)	Latitude	Longitude					Latitude	Longitude
LKBC1C			12.260	40.222	12.624	41.419	-1.197						325	12.260	0.000	0.000	27.43278	81.13306	27.25580	81.07590	27.42889	81.11583	27.25440	81.06570
								Well LKBC1C	4.305	44.527							27.43278	81.13306	27.25580	81.07590	27.43722	81.13306	27.26140	81.07590
								Ground Elevation	0.045	40.267							27.43278	81.13306	27.25580	81.07590				
								Concrete Pad	0.525	40.747							27.43278	81.13306	27.25580	81.07590				
C 555	Second	I	13.892	45.577	14.257	46.774	-1.197						327	13.892	0.000	0.000	27.43722	81.12333	27.26140	81.07240				
B 555	Second	I	14.822	48.629	15.188	49.829	-1.200						326	14.824	-0.002	-0.008	27.42889	81.11583	27.25440	81.06570				
LKBC2B			13.001	42.654	13.366	43.850	-1.197						328	13.001	0.000	0.000	27.46666	81.15139	27.27600	81.09050	27.45979	81.13441	27.27352	81.08039
								Well LKBC2B	3.840	46.494							27.46666	81.15139	27.27600	81.09050	27.46666	81.15139	27.27600	81.09050
								Ground Elevation	0.180	42.834							27.46666	81.15139	27.27600	81.09050				
								Concrete Pad	0.530	43.184							27.46666	81.15139	27.27600	81.09050				
KR 1506	Second	I	13.994	45.912	14.359	47.111	-1.199						329	13.994	0.000	0.000	27.45979	81.13441	27.27352	81.08039				
KR 1499	Second	I	14.340	47.047	14.705	48.244	-1.197						330	14.343	-0.003	-0.010	27.46660	81.13905	27.27597	81.08206				
LKBC3A			12.935	42.438	13.299	43.631	-1.193						321	12.935	0.000	0.000	27.49806	81.21111	27.29530	81.12400	27.48194	81.21111	27.28550	81.12400
								(NGVD offset from F 555)									27.49806	81.21111	27.29530	81.12400	27.49806	81.30441	27.29530	81.18159
								Well LKBC3A	4.690	47.128							27.49806	81.21111	27.29530	81.12400				
								Ground Elevation	0.110	42.548							27.49806	81.21111	27.29530	81.12400				
								Concrete Pad	0.580	43.018							27.49806	81.21111	27.29530	81.12400				
V 462	Second	I	17.106	56.122	17.470	57.315	-1.193						320	17.106	0.000	0.000	27.48194	81.21472	27.28550	81.12530				
U 462	Second	I	14.314	46.962	14.678	48.155	-1.193						319	14.316	-0.002	-0.007	27.49389	81.30441	27.29380	81.18159				
LKBC3B			13.143	43.122	13.508	44.318	-1.197						322	13.143	0.000	0.000	27.49083	81.17861	27.29270	81.10430	27.48861	81.16000	27.29190	81.09360
								Well LKBC3B	3.320	46.442							27.49083	81.17861	27.29270	81.10430	27.49611	81.17861	27.29460	81.10430
								Ground Elevation	0.270	43.392							27.49083	81.17861	27.29270	81.10430				
								Concrete Pad	0.470	43.592							27.49083	81.17861	27.29270	81.10430				
KKR PC 41	Second	I	14.392	47.218	14.756	48.414	-1.196						324	14.392	0.000	0.000	27.48861	81.16000	27.29190	81.09360				
KKR PC 26	Second	I	15.185	49.819	15.550	51.016	-1.197						323	15.184	0.001	0.002	27.49611	81.16722	27.29460	81.10020				
PBF-2			4.519	14.827	4.984	16.352	-1.526						331	4.519	0.000	0.000	26.70472	80.06333	26.42170	80.03480	26.69778	80.05417	26.41520	80.03150
								Well PBF-2	2.770	17.597							26.70472	80.06333	26.42170	80.03480	26.71806	80.06333	26.43050	80.03480
								Ground Elevation	-0.470	14.357							26.70472	80.06333	26.42170	80.03480				
								Concrete Pad	-0.050	14.777							26.70472	80.06333	26.42170	80.03480				
REFERENCE 2	First	I	4.400	14.436	4.868	15.971	-1.535						332	4.400	0.000	0.000	26.71806	80.05417	26.43050	80.03150				
A 71	First	II	5.260	17.257	5.725	18.783	-1.526						334	5.252	0.008	0.028	26.69778	80.05500	26.41520	80.03180				

= NGVD 29 Elevation from CERP Project (NGVD29.txt)  
 = Assumed Closest control for NGVD 29 Adjustment  
 = No NGVD29 Data - Used VERTCON  
 = Superseded Survey Control





SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

COUNTY PALM BEACH	PROJECT Hydrology - Kissimmee River & Palm Beach Wells	DESIGNATION PBF-2 2006
SECTION 28	TOWNSHIP 43 SOUTH	RANGE 43 EAST
GEOGRAPHIC INDEX OF QUAD		
Established by <u>Nick Miller Inc.</u> Recovered by	NAME OF QUADRANGLE PALM BEACH	
SURVEYOR <u>Stephen M. Gordon</u> DATE <u>08/02/2006</u>	FIELD BOOK <u>15</u> PAGE <u>01</u>	
HORIZONTAL DATUM: 1927 <b>1983</b> Other _____ (circle one) ZONE <b>E</b> or W		
STATE PLANE COORDINATES	E 961,966 ft	N 862,961 ft
LATITUDE: N 26.70472°	LONGITUDE: W 80.06333°	
VERTICAL DATUM: MSL 1929 <b>1988</b> Other _____ (circle one)	EL. 14.83 ft	
VERTICAL DATUM: MSL <b>1929</b> 1988 Other _____ (circle one)	EL. 16.35 ft	
CONTROL ACCURACY: HORIZONTAL 1 2 3 <b>SUB-METER</b> (circle one) VERTICAL 1 2 <b>3</b>		
<b>DESCRIPTION</b>		
<p>To Reach:</p> <p>FROM THE INTERSECTION OF AUSTRALIAN AVE. AND OKEECHOBEE BLVD, GO EAST ON OKEECHOBEE BLVD. FOR 0.1 MILE TO TAMARIND AVE. GO SOUTH ON TAMARIND AVE FOR +/- 400 FEET TO ACCESS ROAD ON YOUR RIGHT. TAKE RIGHT ON ACCESS ROAD AND HEAD SOUTHWEST FOR +/- 300 FEET TO A GATED PARKING LOT. MAKE RIGHT INTO THE GATED PARKING LOT AND CONTINUE NORTH WEST FOR +/- 250 FEET TO A PAVED ROAD. TURN LEFT ONTO THE PAVED ROAD AND CONTINUE SOUTHWEST FOR +/- 100 FEET TO A FENCED IN PARKING LOT. TURN RIGHT INTO THE PARKING LOT AND CONTINUE NORTHWEST FOR +/- 135 FEET TO MONUMENT ON THE RIGHT. MONUMENT IS SET IN THE SOUTHWEST CORNER OF A 3 FEET BY 3 FEET CONCRETE PAD LOCATED 10.1 FEET SOUTH OF THE CENTERLINE OF A SANITARY MANHOLE, 33.4 FEET WEST OF THE CENTER OF A CONCRETE LIGHT POST AND 49.45 FEET NORTHWEST OF THE NORTHWEST CORNER OF CATCH BASIN GRATE.</p> <p>Benchmarks Used: REFERENCE 2 &amp; A71</p> <p>Notable Land marks:</p>		



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

## SKETCH

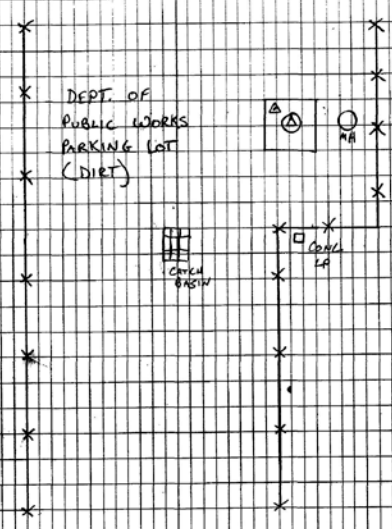
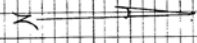
1078-015 SET MONUMENT Sewer

SET MONUMENT IN SOUTHWEST CORNER OF 3'x3' CONCRETE PAD THAT WELL SITS ON.

THE MONUMENT IS 495' 10.1" SOUTH OF THE CENTER OF A SANITARY MANHOLE, 23.4' WEST OF THE CENTER OF A CONCRETE LIGHT POST, 49.45' NE OF THE NW CORNER OF THE CATCH BASIN GRATE

COORDINATES FOR WELL AND BENCHMARK  
 LAT: 28° 04' 21.17"  
 LONG: 080° 03' 48.18"

J. SOULGINSKI WED. AUG 2, 2006 SWMD 153  
 J. CAMPBELL  
 R. WIKROFF



# The NGS Data Sheet

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

```

PROGRAM = datasheet95, VERSION = 8.7
1      National Geodetic Survey,   Retrieval Date = JULY 22, 2015
AD2829 *****
AD2829 DESIGNATION - EAST RM 2
AD2829 PID - AD2829
AD2829 STATE/COUNTY- FL/PALM BEACH
AD2829 COUNTRY - US
AD2829 USGS QUAD - PALM BEACH (1983)
AD2829
AD2829 *CURRENT SURVEY CONTROL
AD2829
AD2829* NAD 83(1986) POSITION- 26 43 05.28 (N) 080 03 16.06 (W) HD_HELD1
AD2829* NAVD 88 ORTHO HEIGHT - 4.400 (meters) 14.44 (feet) ADJUSTED
AD2829
AD2829 GEOID HEIGHT - -26.54 (meters) GEOID12B
AD2829 DYNAMIC HEIGHT - 4.393 (meters) 14.41 (feet) COMP
AD2829 MODELED GRAVITY - 979,119.8 (mgal) NAVD 88
AD2829
AD2829 VERT ORDER - FIRST CLASS I
AD2829
AD2829.The horizontal coordinates were determined by differentially corrected
AD2829.hand held GPS observations or other comparable positioning techniques
AD2829.and have an estimated accuracy of +/- 3 meters.
AD2829.
AD2829.The orthometric height was determined by differential leveling and
AD2829.adjusted by the NATIONAL GEODETIC SURVEY
AD2829.in June 1991.
AD2829
AD2829.The dynamic height is computed by dividing the NAVD 88
AD2829.geopotential number by the normal gravity value computed on the
AD2829.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
AD2829.degrees latitude (g = 980.6199 gals.).
AD2829
AD2829.The modeled gravity was interpolated from observed gravity values.
AD2829
AD2829; North East Units Estimated Accuracy
AD2829;SPC FL E - 264,523.7 294,079.2 MT (+/- 3 meters HH1 GPS)
AD2829
AD2829 SUPERSEDED SURVEY CONTROL
AD2829
AD2829 NGVD 29 (??/??/92) 4.868 (m) 15.97 (f) SUPERSEDED 1 1
AD2829 NGVD 29 (09/01/92) 4.868 (m) 15.97 (f) ADJUSTED 1 1
AD2829
AD2829.Superseded values are not recommended for survey control.
AD2829
AD2829.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AD2829.See file dsdata.txt to determine how the superseded data were derived.
AD2829
AD2829_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNK9404755565(NAD 83)
AD2829
AD2829_MARKER: DR = REFERENCE MARK DISK
AD2829_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
AD2829_SP_SET: CONCRETE POST
AD2829_STAMPING: REFERENCE NO 2
AD2829_MARK LOGO: CGS
AD2829_PROJECTION: PROJECTING 3 CENTIMETERS
AD2829_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

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AD2829+STABILITY: SURFACE MOTION  
 AD2829\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
 AD2829+SATELLITE: SATELLITE OBSERVATIONS - April 25, 2006

AD2829

AD2829	HISTORY	- Date	Condition	Report By
AD2829	HISTORY	- 1924	MONUMENTED	CGS
AD2829	HISTORY	- 1965	GOOD	CGS
AD2829	HISTORY	- 1973	GOOD	NGS
AD2829	HISTORY	- 19910117	GOOD	NGS
AD2829	HISTORY	- 20020330	GOOD	USPSQD
AD2829	HISTORY	- 20030409	GOOD	USPSQD
AD2829	HISTORY	- 20040409	GOOD	USPSQD
AD2829	HISTORY	- 20050408	GOOD	USPSQD
AD2829	HISTORY	- 20060425	GOOD	USPSQD

AD2829

AD2829 STATION DESCRIPTION

AD2829

AD2829'DESCRIBED BY COAST AND GEODETIC SURVEY 1965  
 AD2829'AT WEST PALM BEACH.  
 AD2829'AT WEST PALM BEACH, IN SECTION 21, R 43 E, T 43 S, ABOUT 313.0  
 AD2829'FEET SOUTHEAST OF THE SOUTHEAST CORNER OF THE FLORIDA EAST  
 AD2829'COAST RAILWAY STATION, 340.0 FEET EAST OF AND ACROSS SIDE  
 AD2829'TRACKS FROM THE EAST RAIL OF THE NORTHBOUND TRACK, NEAR NORTHWEST  
 AD2829'CORNER OF LAWN OF THE CITY ENGINEERS BUILDING, 105.0 FEET  
 AD2829'WEST-SOUTHWEST OF THE NORTHWEST CORNER OF THE BUILDING, 65.0  
 AD2829'FEET NORTH OF THE CENTER LINE OF 5TH STREET, 30.0 FEET EAST OF  
 AD2829'THE CENTER LINE OF EAST RAILROAD AVE., 9.8 FEET SOUTH OF THE  
 AD2829'SOUTH RAIL OF A SPUR TRACK, 6.6 FEET EAST OF THE EAST EDGE OF THE  
 AD2829'SIDEWALK, ABOUT LEVEL WITH THE SIDEWALK AND SET IN THE TOP OF A  
 AD2829'CONCRETE POST PROJECTING 0.2 FOOT. NOTE-- THE RAILWAY STATION  
 AD2829'NO LONGER EXISTS. 9.8 FEET SOUTH OF THE SOUTH RAIL OF A SPUR  
 AD2829'TRACK SHOULD BE DELETED.

AD2829

AD2829 STATION RECOVERY (1973)

AD2829

AD2829'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1973  
 AD2829'RECOVERED IN GOOD CONDITION.

AD2829

AD2829 STATION RECOVERY (1991)

AD2829

AD2829'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1991  
 AD2829'IN WEST PALM BEACH, AT 415 5TH STREET, 33.1 M (108.6 FT) WEST OF THE  
 AD2829'NORTHWEST CORNER OF THE DAMSEL AND GELSTON P.A. LAWYERS OFFICE AT  
 AD2829'415 5TH STREET, 19.2 M (63.0 FT) NORTH OF AND LEVEL WITH THE CENTER  
 AD2829'OF 5TH STREET, 14.7 M (48.2 FT) SOUTHEAST OF THE CURB OF EL CAMPEON  
 AD2829'BOULEVARD, 3.5 M (11.5 FT) NORTHEAST OF A UTILITY BRACE POLE WITH A  
 AD2829'GUY WIRE, 0.2 M (0.7 FT) SOUTHEAST OF A WITNESS POST, AND THE  
 AD2829'MONUMENT IS RECESSED 0.05 M (0.16 FT) BELOW THE GROUND SURFACE.

AD2829

AD2829 STATION RECOVERY (2002)

AD2829

AD2829'RECOVERY NOTE BY US POWER SQUADRON 2002 (AAS)  
 AD2829'5TH STREET DEADENDS AT LOCATION OF MARK. EL CAMPEON BLVD IS NOW  
 AD2829'CALLED NORTH QUADRILLE

AD2829

AD2829 STATION RECOVERY (2003)

AD2829

AD2829'RECOVERY NOTE BY US POWER SQUADRON 2003 (AAS)  
 AD2829'MARK NOW FENCED IN ON PROPERTY AT 415 5TH STREET. CAN BE VIEWED THRU  
 AD2829'FENCE.

AD2829

AD2829 STATION RECOVERY (2004)

AD2829

AD2829'RECOVERY NOTE BY US POWER SQUADRON 2004 (AAS)  
 AD2829'RECOVERED IN GOOD CONDITION.

AD2829

AD2829 STATION RECOVERY (2005)

AD2829

AD2829'RECOVERY NOTE BY US POWER SQUADRON 2005 (AAS)

AD2829'RECOVERED IN GOOD CONDITION.

AD2829

AD2829 STATION RECOVERY (2006)

AD2829

AD2829'RECOVERY NOTE BY US POWER SQUADRON 2006 (AAS)

AD2829'RECOVERED IN GOOD CONDITION.

\*\*\* retrieval complete.

Elapsed Time = 00:00:02

## The NGS Data Sheet

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

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DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.37
1 National Geodetic Survey, Retrieval Date = AUGUST 28, 2006
AD2819 *****
AD2819 DESIGNATION - A 71
AD2819 PID - AD2819
AD2819 STATE/COUNTY- FL/PALM BEACH
AD2819 USGS QUAD - PALM BEACH (1983)
AD2819
AD2819 *CURRENT SURVEY CONTROL
AD2819
AD2819* NAD 83(1986)- 26 41 52. (N) 080 03 18. (W) SCALED
AD2819* NAVD 88 - 5.260 (meters) 17.26 (feet) ADJUSTED
AD2819
AD2819 GEOID HEIGHT- -26.46 (meters) GEOID03
AD2819 DYNAMIC HT - 5.252 (meters) 17.23 (feet) COMP
AD2819 MODELED GRAV- 979,118.6 (mgal) NAVD 88
AD2819
AD2819 VERT ORDER - FIRST CLASS II
AD2819
AD2819.The horizontal coordinates were scaled from a topographic map and have
AD2819.an estimated accuracy of +/- 6 seconds.
AD2819
AD2819.The orthometric height was determined by differential leveling
AD2819.and adjusted by the National Geodetic Survey in June 1991..
AD2819.WARNING-Repeat measurements at this control monument indicate possible
AD2819.vertical movement.
AD2819
AD2819.The geoid height was determined by GEOID03.
AD2819
AD2819.The dynamic height is computed by dividing the NAVD 88
AD2819.geopotential number by the normal gravity value computed on the
AD2819.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
AD2819.degrees latitude (g = 980.6199 gals.).
AD2819
AD2819.The modeled gravity was interpolated from observed gravity values.
AD2819
AD2819; North East Units Estimated Accuracy
AD2819;SPC FL E - 262,270. 294,040. MT (+/- 180 meters Scaled)
AD2819
AD2819 SUPERSEDED SURVEY CONTROL
AD2819
AD2819 NGVD 29 (09/01/92) 5.725 (m) 18.78 (f) ADJUSTED 1 2
AD2819
AD2819.Superseded values are not recommended for survey control.
AD2819.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AD2819.See file dsdata.txt to determine how the superseded data were derived.
AD2819
AD2819_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNK940533(NAD 83)
AD2819_MARKER: DB = BENCH MARK DISK
AD2819_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
AD2819_SP_SET: CONCRETE POST
AD2819_STAMPING: A 71 1934
AD2819_MARK LOGO: CGS
AD2819_PROJECTION: FLUSH
AD2819_MAGNETIC: N = NO MAGNETIC MATERIAL
AD2819_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
AD2819+STABILITY: SURFACE MOTION
AD2819_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AD2819+SATELLITE: SATELLITE OBSERVATIONS - April 25, 2006
AD2819
AD2819 HISTORY - Date Condition Report By
AD2819 HISTORY - 1934 MONUMENTED CGS
AD2819 HISTORY - 1965 GOOD NGS
AD2819 HISTORY - 1973 GOOD NGS
AD2819 HISTORY - 1979 GOOD NGS
AD2819 HISTORY - 1987 MARK NOT FOUND USPSQD
AD2819 HISTORY - 19910115 GOOD NGS
AD2819 HISTORY - 20020408 GOOD USPSQD
AD2819 HISTORY - 20020514 GOOD MAPTEC

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## DATASHEETS

AD2819 HISTORY - 20040408 GOOD USPSQD  
 AD2819 HISTORY - 20050408 GOOD USPSQD  
 AD2819 HISTORY - 20060425 GOOD USPSQD

## AD2819 STATION DESCRIPTION

AD2819 DESCRIBED BY NATIONAL GEODETIC SURVEY 1965  
 AD2819 AT WEST PALM BEACH.  
 AD2819 AT WEST PALM BEACH, ABOUT 1.45 MILE SOUTH ALONG THE FLORIDA EAST  
 AD2819 COAST RAILWAY FROM THE PASSENGER STATION, IN SECTION 28, R 43 E,  
 AD2819 T 43 S, 0.4 MILE SOUTH OF MILEPOST 300, AT THE CROSSING OF PARK  
 AD2819 PLACE, 150.0 FEET NORTHEAST OF THE NORTHEAST RAIL OF THE  
 AD2819 NORTHBOUND TRACK, 22.5 FEET NORTH OF THE NORTH CURB OF PARK  
 AD2819 PLACE, 26.0 FEET WEST OF THE SOUTHEAST CORNER OF A LARGE CONCRETE  
 AD2819 BLOCK BUILDING, 1.5 FEET SOUTH OF THE SOUTH SIDE OF BUILDING,  
 AD2819 2.5 FEET SOUTHEAST OF THE EAST SIDE OF A DOOR ON THE SOUTH SIDE  
 AD2819 OF BUILDING, ABOUT 1 FOOT ABOVE THE LEVEL OF PARK PLACE, AND SET  
 AD2819 IN THE TOP OF A CONCRETE POST PROJECTING 0.3 FOOT. NOTE-- THE  
 AD2819 RAILWAY PASSENGER STATION NO LONGER EXISTS.

## AD2819 STATION RECOVERY (1973)

AD2819 RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1973  
 AD2819 RECOVERED IN GOOD CONDITION.

## AD2819 STATION RECOVERY (1979)

AD2819 RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1979  
 AD2819 RECOVERED IN GOOD CONDITION.

## AD2819 STATION RECOVERY (1987)

AD2819 RECOVERY NOTE BY US POWER SQUADRON 1987 (BJS)  
 AD2819 MARK NOT FOUND.

## AD2819 STATION RECOVERY (1991)

AD2819 RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1991  
 AD2819 IN WEST PALM BEACH, AT 429 PARK PLACE, 45.0 M (147.6 FT) EAST OF THE  
 AD2819 NEAR RAIL OF THE FLORIDA EAST COAST RAILROAD, 15.3 M (50.2 FT) EAST  
 AD2819 OF THE SOUTHWEST CORNER OF PALM BEACH COUNTY SERVICES OFFICES AT 429  
 AD2819 PARK PLACE, 8.1 M (26.6 FT) WEST OF THE SOUTHEAST CORNER OF THE  
 AD2819 BUILDING, 0.4 M (1.3 FT) SOUTH OF A WITNESS POST AND THE SOUTH FACE  
 AD2819 OF THE BUILDING, AND THE MONUMENT PROJECTS 0.05 M (0.16 FT) ABOVE THE  
 AD2819 GROUND SURFACE.

## AD2819 STATION RECOVERY (2002)

AD2819 RECOVERY NOTE BY US POWER SQUADRON 2002 (AAS)  
 AD2819 THERE IS NO LONGER A DOOR ON THE SOUTH SIDE OF THE BUILDING

## AD2819 STATION RECOVERY (2002)

AD2819 RECOVERY NOTE BY MAPTECH INCORPORATED 2002 (CDP)  
 AD2819 RECOVERED AS DESCRIBED.

## AD2819 STATION RECOVERY (2004)

AD2819 RECOVERY NOTE BY US POWER SQUADRON 2004 (AAS)  
 AD2819 MARK IS 9 INCHES SOUTH OF WITNESS POST

## AD2819 STATION RECOVERY (2005)

AD2819 RECOVERY NOTE BY US POWER SQUADRON 2005 (AAS)  
 AD2819 RECOVERED IN GOOD CONDITION.

## AD2819 STATION RECOVERY (2006)

AD2819 RECOVERY NOTE BY US POWER SQUADRON 2006 (AAS)  
 AD2819 RECOVERED IN GOOD CONDITION.

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

The combination of Second-Order, Class II methods and Third-Order fiberglass level rods produced errors of closure within the FGCS standard for Second-Order, Class II geodetic leveling. The data gathered during this project has been submitted to Mr. Ronnie Taylor, NGS Advisor for the State of Florida for further analysis and recommendations.

**SURVEYOR'S CERTIFICATION**

In my professional opinion, this report of 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.

NICK MILLER, INC.  
DBPR Authorization No. 4318

August 07, 2006

Date of Survey

By: \_\_\_\_\_

Stephen M. Gordon, PSM  
Professional Surveyor and Mapper  
State of Florida  
Certificate No. 5974