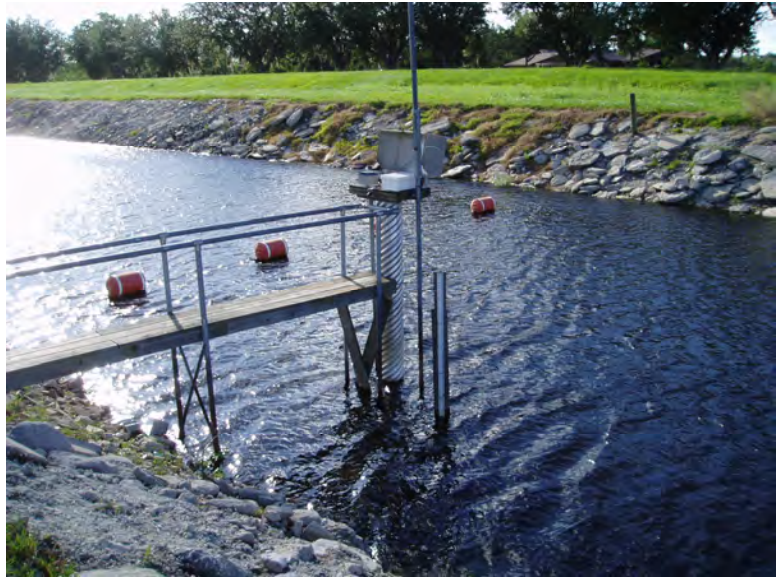




Contract # CN60744/3600000504



VERTICAL CONTROL SURVEY REPORT

**SOUTH FLORIDA WATER
MANAGEMENT DISTRICT**

FINAL

December, 2007

VERTICAL CONTROL SURVEY REPORT

Monitoring Well Reference Elevations

for:

South Florida Water Management District
3301 Gun Club Road
West Palm Beach, FL 33406

by:

WOOLPERT, INC.
Florida Certificate of Authorization # 6777
2121 Ponce de León Blvd., Suite 200
Coral Gables, Florida 33134
(305) 567-9900/fax: (305) 567-9009

Prepared by:

John A. Cestnick, PSM
Florida Professional Surveyor and Mapper # 5994

Summary of Contents

Section 1: Vertical Control Survey Report	8 Pages
Summary of Contents	1
Overview of the Project	2
List of Project Deliverables.....	3
Date of Survey.....	3
Equipment Used	3
Project Location	4
Survey Methodology	4
Summary of Leveling Results	5
Monitoring Well Site Information Summary	7
Surveyor's Notes:	8
Section 2: Monitoring Well Site Information	Pages 9-85
Section 3: Monitoring Well Site Information in Table Format	Pages 86-88
Section 4: New Benchmark Data Sheets	Pages 89-98

Overview of the Project

This survey request consisted of establishing or verifying elevations to third-order National Geodetic Survey (NGS) Standards at District Recorder Well Sites. This survey request is associated with the District's Vertical Datum Upgrade Project (VDUP).

There were two main tasks to this survey.

1. Set reference elevations and tags at each well using a local site benchmark referenced to the National Geodetic Vertical Datum of 1929 (NGVD29).
2. For those sites that did not have a local benchmark, set a concrete monument and establish elevations referencing the North American Vertical Datum of 1988 (NAVD88), and then compute a conversion NGVD29 elevation.

The project began requiring a total of six sites that needed a new local benchmark, and a total of 59 separate sites requiring tags to be placed on wells. As the project was being completed, changes to the scope of services was required due to situation found in the field. For example, some sites were identified to have missing or destroyed benchmarks, additional leveling was required, and some sites were found to have additional wells than were identified.

To address these changes, a second work-order has been assigned for these additional tasks, as well as to perform similar services at additional site locations. The original list of sites to complete include the following.

- | | | | | |
|-------------|--------------|---------------|------------|--------------|
| 1. AIR19 | 15. MOSSPK * | 29. S63-SCA | 43. TOHO4 | 57. WR8 * |
| 2. ALL1 | 16. OAKISL * | 30. SCBR | 44. TOHO5 | 58. WR9 * |
| 3. ALL2 | 17. OS181 ** | 31. SCPE | 45. TOHO6 | 59. WRLGTE * |
| 4. BFARM * | 18. OSF53 | 32. SCPN | 46. TOHO7 | |
| 5. BLACK ** | 19. REDYCK | 33. SCPS | 47. TOHO8 | |
| 6. BOG527 * | 20. REEDC | 34. SCSS | 48. TOHO10 | |
| 7. C31SW | 21. S57-SCA | 35. SW15 | 49. TOHO12 | |
| 8. CAST * | 22. S58-SCA | 36. TAFTOR ** | 50. TOHO13 | |
| 9. EXOTFI * | 23. S59-SCA | 37. TMRNCH | 51. TOHO14 | |
| 10. INRCTY | 24. S59W | 38. TB1 | 52. TOHO15 | |
| 11. KIRCOF | 25. S60-SCA | 39. TB2 | 53. TOHO16 | |
| 12. KISSD * | 26. S61-SCA | 40. TB3 | 54. TOHOE | |
| 13. KISSFS | 27. S61W | 41. TOHO1 | 55. TOHOW | |
| 14. MAKO | 28. S62-SCA | 42. TOHO2 | 56. WR6 * | |

* Benchmark was set at site (11 total).

** Site was decommissioned / destroyed (3 total).

Not part of this report are the following sites for the following reasons.

Site	Notes:
BFARM	<ul style="list-style-type: none"> Incorrect elevation was set on tag. This site will be included with the second work-order deliverable.
BLACK	<ul style="list-style-type: none"> Site was decommissioned.
KISSFS	<ul style="list-style-type: none"> Incorrect elevation was set on tag. This site will be included with the second work-order deliverable.
OS181	<ul style="list-style-type: none"> Site was decommissioned.
REEDC	<ul style="list-style-type: none"> REEDC was removed from the project after the District was informed that it was completed under a different contract.
S61W	<ul style="list-style-type: none"> Site was overlooked. This site will be included with the second work-order deliverable.
TAFTOR	<ul style="list-style-type: none"> Site was decommissioned.
TMRNCH	<ul style="list-style-type: none"> Site was found to have existing tag, and tag elevations were verified. Tags were set by "EE &

Site	Notes:
TB1	<p>COON". GW1 was set on 5-18-05 with a verified reference elevation of 72.17, and GW2 was set on 1-6-06 with a verified reference elevation of 71.89 feet.</p> <ul style="list-style-type: none"> • Site was found to have existing tag, and tag elevations were verified. Tags were set by "K&S" dated "8-8-06". The east well was verified at 104.35 feet. The west well was verified at 104.02 feet.
TB2	<ul style="list-style-type: none"> • Site was found to have existing tag, and tag elevations were verified. Tags were set by "K&S" dated "8-9-06". GW1 well was verified at 104.09 feet. GW2 well was verified at 105.24 feet.
TB3	<ul style="list-style-type: none"> • TB3 was inaccessible due to high water. After discussing this with the District, it was assumed to also be completed by "K&S" as were TB1 and TB2.
TOHO13	<ul style="list-style-type: none"> • Site was found to have existing tag, and tag elevations were verified. Tag was set by "K&S" dated "8-9-07". Stamped elevation was 65.099 feet.
WRLGTE	<ul style="list-style-type: none"> • Incorrect elevation was set on tag. This site will be included with the second work-order deliverable.

List of Project Deliverables

In addition to four signed and sealed hard copies of this survey report, the following deliverables were also a part of this project.

1. The survey report in Adobe Acrobat format.
2. Digital photos named by sites.
3. Scanned copies of field notes.
4. Any other digital files associated with the survey.
5. Completed District benchmark description sheet for all set marks.

These digital deliverables will be delivered on CD along with the final signed and sealed copy of this report.

Date of Survey

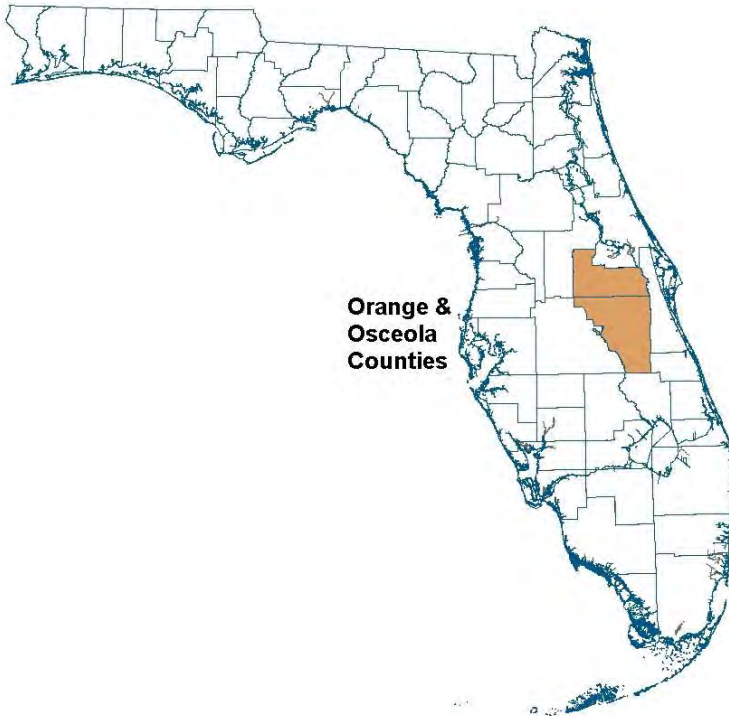
All site field operations took place between August 28 and October 19, 2007.

Equipment Used

Wild NA2002 digital levels were used for all leveling. Latitude and Longitudes were determined for each site using Trimble Pro-XR sub-meter GPS equipment. These Latitudes and Longitudes were then converted to Florida State Plane Coordinates, East Zone, using the United States Army Corps of Engineers software CORPSCON version 6.0.1.

Project Location

All well site locations were in Osceola and Orange Counties, Florida.



Survey Methodology

Woolpert began by setting concrete monuments at each of the locations that did not have a benchmark on site. Monuments consisted of an 8 inch PVC pipe, 40 inches long, filled with poured concrete with an aluminum South Florida Water Management District survey cap. Rebar rods were also added to the mixture for durability.

Following building the concrete monuments, reconnaissance was done to find existing NGS control stations. Once found, elevation were established by using two NGS stations, performing closed level loops ensuring that NGS monument published elevations matched.

At each site, Woolpert used the local site benchmark to set reference elevations for each found well. All well sites had a previously marked reference point on the well. Woolpert used the local benchmark to perform a closed loop level run from the benchmark to the reference mark to establish a NGVD29 elevation on the well reference point. If the local benchmark did not have a published NGVD29 elevation, Woolpert used the sites latitude, longitude, and NAVD88 elevation to find a NGVD29 elevation using the United States Army Corps of Engineers software CORPSCON version 6.0.1. To determine the sites benchmark latitude and longitude, Woolpert used a Trimble Pro-XR GPS receiver. This GPS receiver obtains differential GPS corrections from Coast Guard stations, resulting in horizontal accuracies of approximately 1 meter, at one sigma.

If a staff gauge existed at the site, Woolpert obtained the water level, the staff gauge reading, and

recorded the time and date of those measurements.

Following all leveling and positioning, Woolpert then attached metal tags to each found well. Each tag was stamped with: Site name, well designation, elevation, date, firm name, and reference datum (NGVD29 in all cases).

Summary of Leveling Results

BOG527 was set using NGS station L715017, a Second-Order Class I benchmark with published elevation of 92.90 feet (NAVD88), and NGS station L715018, a Second-Order Class I benchmark with published elevation of 91.84 feet (NAVD88). Leveling began at station L715017, passed through BOG527, and ended on L715018 with a leveled elevation of 91.88. Total leveling distance was 5.8 miles resulting in a closure of 0.04 (0.07 allowable). Resulting elevation for BOG527 was 80.95 feet NAVD88. This was converted using the United States Army Corps of Engineers software CORPSCON version 6.0.1 to derive a NGVD29 elevation of 81.88 feet.

CAST was set using NGS station Q507, a Second-Order Class I benchmark with published elevation of 73.65 feet (NAVD88), and NGS station P507, a Second-Order Class I benchmark with published elevation of 76.01 feet (NAVD88). Leveling began at station Q507, passed through CAST, and ended on P507 with a leveled elevation of 76.01. Total leveling distance was 1.65 miles resulting in a closure of 0.04 (0.04 allowable). Resulting elevation for CAST was 70.65 feet NAVD88. This was converted using the United States Army Corps of Engineers software CORPSCON version 6.0.1 to derive a NGVD29 elevation of 71.85 feet.

EXOFTI was set using NGS station S507, a Second-Order Class I benchmark with published elevation of 73.08 feet (NAVD88), and NGS station R507, a Second-Order Class I benchmark with published elevation of 70.67 feet (NAVD88). Leveling began at station S507, passed through EXOFTI, and ended on R507 with a leveled elevation of 70.65. Total leveling distance was 1.54 miles resulting in a closure of 0.02 (0.04 allowable). Resulting elevation for EXOFTI was 70.92 feet NAVD88. This was converted using the United States Army Corps of Engineers software CORPSCON version 6.0.1 to derive a NGVD29 elevation of 72.14 feet.

KISSD was set using NGS station F514, a Second-Order Class I benchmark with published elevation of 74.41 feet (NAVD88), and NGS station N512, a Second-Order Class I benchmark with published elevation of 65.69 feet (NAVD88). Leveling began at station F514, passed through KISSD, and ended on N512 with a leveled elevation of 65.69. Total leveling distance was 1.46 miles resulting in a closure of 0.00 (0.04 allowable). Resulting elevation for KISSD was 60.48 feet NAVD88. This was converted using the United States Army Corps of Engineers software CORPSCON version 6.0.1 to derive a NGVD29 elevation of 61.42 feet.

MOSSPK was set using NGS station R575, a Second-Order Class I benchmark with published elevation of 66.29 feet (NAVD88), and NGS station C802-008, a Second-Order Class I benchmark with published elevation of 66.88 feet (NAVD88). Leveling began at station R575, passed through MOSSPK, and ended on C802-008 with a leveled elevation of 66.91. Total leveling distance was 0.98 miles resulting in a closure of 0.03 (0.03 allowable). Resulting elevation for MOSSPK was 67.49 feet NAVD88. This was converted using the United States Army Corps of Engineers software CORPSCON version 6.0.1 to derive a NGVD29 elevation of 68.53 feet.

OAKISL was set using NGS station D466, a Second-Order Class I benchmark with published elevation of 155.80 feet (NAVD88), and NGS station I4-72A42E RM2, a Second-Order Class I benchmark with

published elevation of 189.29 feet (NAVD88). Leveling began at station D466, passed through OAKISL, and ended on I4-72A42E RM2 with a leveled elevation of 189.33. Total leveling distance was 6.7 miles resulting in a closure of 0.04 (0.08 allowable). Resulting elevation for OAKISL was 108.24 feet NAVD88. This was converted using the United States Army Corps of Engineers software CORPSCON version 6.0.1 to derive a NGVD29 elevation of 109.10 feet.

WR6 was set using NGS station OS134, a Second-Order Class I benchmark with published elevation of 70.65 feet (NAVD88), and NGS station OS135, a Second-Order Class I benchmark with published elevation of 64.75 feet (NAVD88). Leveling began at station OS134, passed through WR6, and ended on OS135 with a leveled elevation of 64.71. Total leveling distance was 12.8 miles resulting in a closure of 0.06 (0.11 allowable). Resulting elevation for WR6 was 63.78 feet NAVD88. This was converted using the United States Army Corps of Engineers software CORPSCON version 6.0.1 to derive a NGVD29 elevation of 64.82 feet.

WR8 was set using NGS station OS134, a Second-Order Class I benchmark with published elevation of 70.65 feet (NAVD88), and NGS station OS135, a Second-Order Class I benchmark with published elevation of 64.75 feet (NAVD88). Leveling began at station OS134, passed through WR8, and ended on OS135 with a leveled elevation of 64.71. Total leveling distance was 11.6 miles resulting in a closure of 0.06 (0.10 allowable). Resulting elevation for WR8 was 69.79 feet NAVD88. This was converted using the United States Army Corps of Engineers software CORPSCON version 6.0.1 to derive a NGVD29 elevation of 70.83 feet.

WR9 was set using NGS station OS134, a Second-Order Class I benchmark with published elevation of 70.65 feet (NAVD88), and NGS station OS135, a Second-Order Class I benchmark with published elevation of 64.75 feet (NAVD88). Leveling began at station OS134, passed through WR9, and ended on OS135 with a leveled elevation of 64.71. Total leveling distance was 11.6 miles resulting in a closure of 0.06 (0.10 allowable). Resulting elevation for WR9 was 69.32 feet NAVD88. This was converted using the United States Army Corps of Engineers software CORPSCON version 6.0.1 to derive a NGVD29 elevation of 70.36 feet.

Monitoring Well Site Information Summary

In Section 2, all well site information is presented in the same format.

EXAMPLE:

Site Name		Sensor		
Example		GW1		
Latitude	Longitude	Northing	Easting	
28° 23' 31.937"	81° 22' 31.937"	1472251	538267	
Section	Township	Range	County	Quad
13	24	29	Orange	Lake Jessamine
Benchmark Information:				
Name	Existing / Set	NAVD88	NGVD29	
BOG527	Set	80.851	81.876	
Reference Point Information:				
Stamped Elevation (NGVD29)	Stamped Date	By Firm		
87.50	9-21-07	Woolpert, Inc.		
Note: Reference mark at edge of wood as marked.				
Staff Gauge Information:				
Water Elevation (NGVD29)	Gauge Reading	Time of Reading	Date of Reading	
79.928	80.05	09:25	9-21-07	

NOTES:

1. Latitude and longitude were derived at the benchmark location, and is given to assist in locating the site. It is not meant to accurately locate each well.
2. The Northing and Easting were obtained by using CORPSCON to convert the latitude and longitude to Florida State Plane Coordinates, East Zone, Adjustment of 1990 (NAD83/90) HARN.
3. All measurements and elevations are in feet unless otherwise noted.
4. Reference point elevations were determined by using the stated NGVD29 elevation. NGVD29 elevations were calculated using CORPSCON to convert the stated NAVD88 elevation. In some cases the local benchmark only had a NGVD29 elevation, so it was used and no NAVD88 elevation is stated.

Surveyor's Notes:

THIS SURVEY IS NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

THIS REPORT OF SURVEY CONSISTS OF FOUR SECTIONS AS OUTLINED WITHIN THE SUMMARY OF CONTENTS AND IS NOT VALID UNLESS ATTACHED TO THE OTHERS IN THEIR ENTIRETY.

ADDITIONS OR DELETIONS TO SURVEY MAPS AND REPORTS BY OTHER THAN THE SIGNING PARTY OR PARTIES IS PROHIBITED WITHOUT THE WRITTEN CONSENT OF THE SIGNING PARTY OR PARTIES.

Surveyor and Mapper in Responsible Charge:

John A. Cestnick

Professional Surveyor and Mapper,

License Number: 5994

Signed: _____
(For, and on behalf of the firm Woolpert, Inc.)

Seal:

Section 2: Monitoring Well Site Information

Site Name		Sensor	
OAKISL		GW1	

Latitude 28° 20' 02.49"	Longitude 81° 38' 01.31"	Northing 1454680	Easting 452311
Section 5	Township 25	Range 27	County Osceola
			Quad Lake Louisa SW

Benchmark Information:

Name OAKISL	Existing / Set Set	NAVD88 108.24	NGVD29 109.10
-----------------------	------------------------------	-------------------------	-------------------------

Reference Point Information:

Stamped Elevation (NGVD29) 111.46	Stamped Date 6-26-07	By Firm Woolpert, Inc.
---	--------------------------------	----------------------------------

Note: Reference point at top of PVC pipe as marked.

Staff Gauge Information:

Water Elevation (NGVD29) NA	Gauge Reading NA	Time of Reading NA	Date of Reading NA
---------------------------------------	----------------------------	------------------------------	------------------------------

To Reach Description: (as described)

In Osceola County, approximately 5.2 miles west of I-4 on US 192/SR 530, turn south (left) into the Leninfield Development. Follow road until a 'T' intersection and turn left (east). Site is on the left on a curve in about 1000 ft.

Sensor Well Area:



Sensor Well:



Tag Close-up:



Bench Mark:



Bench Mark:



Site Name		Sensor	
OAKISL		GW2	

Latitude	Longitude	Northing	Easting
28° 20' 02.49"	81° 38' 01.31"	1454680	452311
Section	Township	Range	County
5	25	27	Osceola
			Quad
			Lake Louisa SW

Benchmark Information:

Name	Existing / Set	NAVD88	NGVD29
OAKISL	Set	108.24	109.10

Reference Point Information:

Stamped Elevation (NGVD29)	Stamped Date	By Firm
111.60	6-26-07	Woolpert, Inc.

Note: Reference point at top of PVC pipe as marked.

Staff Gauge Information:

Water Elevation (NGVD29)	Gauge Reading	Time of Reading	Date of Reading
NA	NA	NA	NA

To Reach Description: (as described)

In Osceola County, approximately 5.2 miles west of I-4 on US 192/SR 530, turn south (left) into the Leninfield Development. Follow road until a 'T' intersection and turn left (east). Site is on the left on a curve in about 1000 ft.

Sensor Well Area:



Sensor Well:



Tag Close-up:



Bench Mark:



Bench Mark:



Site Name		Sensor	
OAKISL		GW3	

Latitude 28° 20' 02.49"	Longitude 81° 38' 01.31"	Northing 1454680	Easting 452311
Section 5	Township 25	Range 27	County Osceola
			Quad Lake Louisa SW

Benchmark Information:

Name OAKISL	Existing / Set Set	NAVD88 108.24	NGVD29 109.10
-----------------------	------------------------------	-------------------------	-------------------------

Reference Point Information:

Stamped Elevation (NGVD29) 111.55	Stamped Date 6-26-07	By Firm Woolpert, Inc.
---	--------------------------------	----------------------------------

Note: Reference point at top of PVC pipe as marked.

Staff Gauge Information:

Water Elevation (NGVD29) NA	Gauge Reading NA	Time of Reading NA	Date of Reading NA
---------------------------------------	----------------------------	------------------------------	------------------------------

To Reach Description: (as described)
 In Osceola County, approximately 5.2 miles west of I-4 on US 192/SR 530, turn south (left) into the Leninfield Development. Follow road until a 'T' intersection and turn left (east). Site is on the left on a curve in about 1000 ft.

Sensor Well Area:



Sensor Well:



Tag Close-up:



Bench Mark:



Bench Mark:



Site Name		Sensor		
OAKISL		GW4		

Latitude 28° 20' 02.49"	Longitude 81° 38' 01.31"	Northing 1454680	Easting 452311	
Section 5	Township 25	Range 27	County Osceola	Quad Lake Louisa SW

Benchmark Information:

Name OAKISL	Existing / Set Set	NAVD88 108.24	NGVD29 109.10
-----------------------	------------------------------	-------------------------	-------------------------

Reference Point Information:

Stamped Elevation (NGVD29) 110.01	Stamped Date 6-26-07	By Firm Woolpert, Inc.
---	--------------------------------	----------------------------------

Note: Reference point at lip of hole as marked.

Staff Gauge Information:

Water Elevation (NGVD29) NA	Gauge Reading NA	Time of Reading NA	Date of Reading NA
---------------------------------------	----------------------------	------------------------------	------------------------------

To Reach Description: (as described)

In Osceola County, approximately 5.2 miles west of I-4 on US 192/SR 530, turn south (left) into the Leninfield Development. Follow road until a 'T' intersection and turn left (east). Site is on the left on a curve in about 1000 ft.

Sensor Well Area:



Sensor Well:



Tag Close-up:



Bench Mark:



Bench Mark:





2

451M F-691-

TACISL GW2
ELEV. 121.60
DATE 9 23 07
BY WOOL PERT
NAVD
NGVD 29

OAK ISL GW 2

ELEV. 111.60

DATE 9 26 07

BY WOOL PERT

NAVD

NGVD 29



OAK ISL GW1
ELEV. 111.46
DATE 9 26 07
BY WOOLPERT
NAVD NGVD 29

#1

0-2000-0

OAK ISL GW1

ELEV. 111.46

DATE 9 26 07

BY WOOLPERT

NAVD

NGVD 29







OAKISL GW4

ELEV. 110.01

DATE 09.26.07

BY WOOLPERT

NAVD

NGVD 29



PARTS 11-55
ELEV 11-55
DATE 09-26-07
BY WOODPORT
NAVD -NGVD 25

0716215PM 0 THE 2

OAKISL GW3

ELEV. 111.55

DATE 09 26 07

BY WOODLPERT

NAVD

NGVD 29





SM
UR
VE
Y





FLA. WATER MANAGEMENT DIST.
SURVEYMENT
OAK ISLAND
2007
MARKER

Monitoring Well Field Data Sheet

SFWMD #067411

Site/Station Designation: OAK ISL

Date: 9 26 07

Crew: URZUA/McCARTNEY

Bench Mark Used:

Name stamp	Date stamp	EL NAVD 88	EL NGVD 29	Sign Present
OAK ISL	2007	—	109.101	Yes

Level Setup:

STA	BS	HI	FS	NGVD29 EL	DIST & REM
OAK ISL				109.101	
	4.565	113.666			27.62
GW1			2.064	111.602	20.83
	1.962	113.564			21.26
OAK ISL			4.464	109.100	27.46

Tag Check List:

Photo Check List:

- | | | |
|----------------------------------|--------------------|---------------------|
| • Stamp Site/Station Designation | <u>OAK ISL GW1</u> | Bench Mark close |
| • Stamp Elevation in NGVD 29 | <u>111.60</u> | Bench Mark standing |
| • Stamp Date | <u>09 26 07</u> | M. Well tag close |
| • Stamp By Woolpert | <u>✓</u> | M. Well standing |
| • Stamp Datum (NGVD 29) | <u>✓</u> | M. Well Area |
| • Scratch Old Tag | <u>✓</u> | |

Photo#	100-0042
Photo#	100-0043
Photo#	100-0044
Photo#	100-0049
Photo#	100-0052

Staff Gauge:

Site Name	Water Elev.	Gauge Reading	Time Meas.	Date Meas.
—	—	—	—	—

Latitude and Longitude:

28° 20' 02.49	81° 38' 01.31
---------------	---------------

Site Description, Comments, or Remarks:

Monitoring Well Field Data Sheet

SFWMD #067411

Site/Station Designation: OAK 15L

Date: 9 26 07

Crew: URZUA/McCARTNEY

Bench Mark Used:

Name stamp	Date stamp	EL NAVD 88	EL NGVD 29	Sign Present
OAK 15L	2007		109.101	Yes

Level Setup:

STA	BS	HI	FS	NGVD29 EL	DIST & REM
OAK 15L				109.101	
	4.464	113.565			27.46
GW 2			2.107	111.458	26.41
	2.169	113.627			26.90
OAK 15L			4.525	109.102	27.39

Tag Check List:

Photo Check List:

- Stamp Site/Station Designation OAK 15L GW 2 Bench Mark close
- Stamp Elevation in NGVD 29 111.46 Bench Mark standing
- Stamp Date 09/26/07 M. Well tag close
- Stamp By Woolpert ✓ M. Well standing
- Stamp Datum (NGVD 29) ✓ M. Well Area
- Scratch Old Tag ✓

Photo# 100-0042
Photo# 100-0043
Photo# 100-0045
Photo# 100-0050
Photo# 100-0052

Staff Gauge:

Site Name	Water Elev.	Gauge Reading	Time Meas.	Date Meas.
-	-	-	-	-

Latitude and Longitude:

24° 20' 02.49	81° 38' 01.31
---------------	---------------

Site Description, Comments, or Remarks:

Monitoring Well Field Data Sheet

SFWMD #067411

Site/Station Designation: OAK ISL

Date: 9-26-07

Crew: URZUA/McCARTNEY

Bench Mark Used:

Name stamp	Date stamp	EL NAVD 88	EL NGVD 29	Sign Present
OAK ISL	2007		109.101	Yes

Level Setup:

STA	BS	HI	FS	NGVD29 EL	DIST & REM
OAK ISL				109.101	
	4.524	113.625			27.39
GW3			2.071	111.554	33.56
	2.091	113.645			34.02
OAK ISL			4.534	109.111	27.17

Tag Check List:

Photo Check List:

- Stamp Site/Station Designation OAK ISL GW3 Bench Mark close
- Stamp Elevation in NGVD 29 111.55 Bench Mark standing
- Stamp Date 9 26 07 M. Well tag close
- Stamp By Woolpert / M. Well standing
- Stamp Datum (NGVD 29) / M. Well Area
- Scratch Old Tag /

Photo#	100-00 42
Photo#	100-00 43
Photo#	100-00 48
Photo#	100-00 51
Photo#	100-00 52

Staff Gauge:

Site Name	Water Elev.	Gauge Reading	Time Meas.	Date Meas.
-	-	-	-	-

Latitude and Longitude:

26° 20' 02.49	81° 38' 01.31
---------------	---------------

Site Description, Comments, or Remarks:

Monitoring Well Field Data Sheet

SFWMD #067411

Site/Station Designation: OAK ISL

Date: 9-26-07

Crew: URZUA/McCARTNEY

Bench Mark Used:

Name stamp	Date stamp	EL NAVD 88	EL NGVD 29	Sign Present
OAK ISL	2007		109.101	Yes

Level Setup:

STA	BS	HI	FS	NGVD29 EL	DIST & REM
OAK ISL				109.101	
	4.143	113.244			47.38
GW4			3.238	110.006	43.93
	3.286	113.292			44.13
OAK ISL			4.191	109.101	47.47

Tag Check List:

Photo Check List:

- Stamp Site/Station Designation OAK ISL GW4 Bench Mark close
- Stamp Elevation in NGVD 29 110.01 Bench Mark standing
- Stamp Date 9-26-07 M. Well tag close
- Stamp By Woolpert ✓ M. Well standing
- Stamp Datum (NGVD 29) ✓ M. Well Area
- Scratch Old Tag ✓

Photo#	100-0042
Photo#	100-0043
Photo#	100-0056
Photo#	100-0054
Photo#	100-0053

Staff Gauge:

Site Name	Water Elev.	Gauge Reading	Time Meas.	Date Meas.
-	-	-	-	-

Latitude and Longitude:

26° 20' 02.72	81° 38' 01.76
---------------	---------------

Site Description, Comments, or Remarks:

GW4 IS SET 60 ft to the RIGHT OF GW3 DOWN A HILL

M. RODRIGUEZ
 N. MCCARTNEY
 9 18 07
 OAK ISL

SFWMD
 VERTICAL CONTROL
 SURVEY

STA	Bs	HI	FS	EL	REM
D466				155.800	BM
PHOTO TAKEN #1472 & #1473	3.003	158.803			85.42
TP 1			10.787	148.016	2609
	3.715	151.732			360
TP 2			13.092	138.640	73
	0.031	139.271			180
TP 3			7.684	131.588	172
	4.966	136.554			240
TP 4			6.501	130.053	264
	5.481	135.533			250
TP 5			6.816	128.718	243
	0.672	129.389			330
TP 6			8.066	121.323	360
	5.043	126.366			270
TP 7			6.632	119.734	286
	5.099	124.833			336

STA	Bs	HI	FS	EL	REM
TP 8			6.699	118.134	335
	5.276	123.410			330
TP 9			6.372	117.038	364
	4.708	121.746			317
TP 10			5.118	116.628	366
	4.446	121.074			350
TP 11			5.212	115.862	373
	4.766	120.628			337
TP 12			4.66	115.97	265
	4.543	120.513			290
TP 13			4.827	115.686	286
	5.141	120.827			327
TP 14			5.690	115.137	282.8
	6.801	121.938			266
TP 15			4.608	117.329	324
	4.344	121.673			329
TP 16			4.851	116.823	231
	3.949	120.772			331

SAME CREW

CONTINUE

W0104-41

STA	Bs	HI	Fs	EL	REM
TP 17			5.049	115.724	373
	4.705	120.428			350
TP 18			4.770	115.658	278
	4.684	120.343			347
TP 19			5.280	115.063	333
	5.351	120.413			320
TP 20			5.414	114.999	380
	7.131	122.130			275
TP 21			3.119	119.011	250
	3.913	122.924			270
TP 22			7.612	115.312	209
	1.820	117.132			283
TP 23			4.817	112.315	319
	6.516	118.836			255
TP 24			5.766	113.064	261
	5.129	118.194			285
TP 25			6.791	111.403	283
	3.721	115.124			324

STA	Bs	HI	Fs	EL	REM
TP 26			4.548	110.576	278.27
	8.281	118.857			315.
TP 27			4.090	114.767	280
	6.908	121.675			339
TP 28			4.567	117.108	361
	5.322	122.430			260
TP 29			7.732	114.697	311.
	4.393	119.090			261
TP 30			5.510	113.580	253
	5.322	118.902			255
TP 31			4.987	113.915	229
	1.765	115.680			286
TP 32			7.533	108.147	303
	5.803	113.950			251
OAK ISL			5.709	108.241	196
	5.148	113.390			284
TP 33			5.421	107.968	286
	8.174	116.142			244

NGVD 29 109.101

108.241 / 196

SET MAN.

18348.54

SAME CREW

CONTINUE

W0104-42

STA	BS	HI	FS	EL	REM
TP 34			1.293	114.849	256 234
	9.054	123.905			
TP 35			2.077	121.827	187 296
	3.975	125.802			
TP 36			8.910	116.892	229 211
	1.397	118.289			
TP 37			8.849	109.440	187 260
	4.142	113.582			
TP 38			5.401	108.181	259 275
	4.630	112.810			
TP 39			4.697	108.113	199 253
	4.971	113.085			
TP 40			3.762	109.323	225 261
	7.325	116.648			
TP 41			5.098	111.610	287 260
	6.874	118.484			
TP 42			3.231	115.253	242 257
	6.230	121.483			

STA	BS	HI	FS	EL	REM
TP 43			4.612	116.871	325 308
	6.406	123.478			
TP 44			4.134	119.344	333 305
	4.347	123.692			
TP 45			7.200	116.491	277 339
	3.568	120.059			
TP 46			6.360	113.700	325 342
	5.843	119.542			
TP 47			6.396	113.146	319 328
	6.177	119.323			
TP 48			5.092	114.231	313 305
	5.204	119.435			
TP 49			6.952	112.483	240 240
	6.938	119.421			
TP 50			2.208	117.213	173 200
	9.688	126.901			
TP 51			0.189	126.712	182 329
	8.433	135.145			

SAME CREW CONTINUE

STA	BS	HI	FS	EL	REM
TP 52			4.637	130.508	336
	8.885	139.393			190
TP 53			1.529	137.864	175
	8.018	145.882			286
TP 54			1.920	143.962	180.2
	10.469	154.431			293
TP 55			2.070	152.361	187
	4.779	157.141			286
TP 56			10.574	146.566	288
	2.621	149.187			275
TP 57			9.305	139.832	293
	-0.129	139.754			321
TP 58			4.067	135.686	280
	12.848	148.534			295
TP 59			2.425	146.110	295
	11.208	157.318			307
TP 60			-0.114	157.431	107
	12.246	169.677			134

STA	BS	HI	FS	EL	REM
TP 61			0.825	168.852	60
	12.525	181.377			160
TP 62			0.490	180.887	95
	9.581	190.468			248
TP 63			5.675	184.793	166
	0.713	185.507			229
TP 64			4.031	181.475	260
	12.123	193.599			294
TP 65			-0.310	193.909	217
	3.886	197.795			253
TP 66			8.046	189.749	221
	5.770	195.518			253
TP 67			3.730	191.789	175
	5.835	197.623			151

I-N 72 AHZE
RM2

8.293 139.730 88
(BM)

PHOTO
TAKEN
#1470
#1471

CLOSURE ERROR 0.04
TOTAL DIST 6.7 MI

Δ DIST 6.7 MI

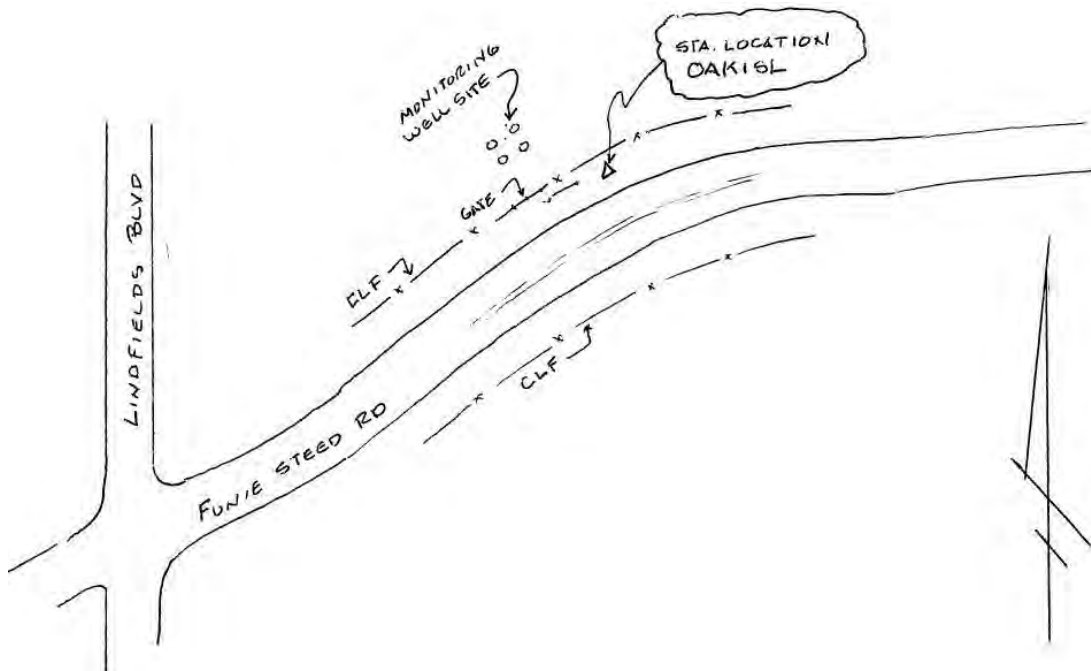


SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

COUNTY	OSCEOLA	PROJECT	VDUP- Reference Elevation Audit Project # 1	DESIGNATION	OAKISL
SECTION	5	TOWNSHIP	25	RANGE	27
GEOGRAPHIC INDEX OF QUAD		28081-C6			
Established by	WOOLPERT	NAME OF QUADRANGLE		Lake Louisa SW	
SURVEYOR JOHN CESTNICK DATE 9 / 12 / 2007		FIELD BOOK W0104-40 PAGE			
HORIZONTAL DATUM: 1983		ZONE E			
VERTICAL DATUM: NGVD 1929 NAVD 1988					
CONTROL ACCURACY:		HORIZONTAL GPS RTD		VERTICAL 3	
STATE PLANE COORDINATES	X	452311	Y	1454680	EL. NGVD 29 109.10 NAVD 88 108.24
LATITUDE	28° 20' 02.5"		LONGITUDE	81° 38' 01.3"	
DESCRIPTION					
<p>To Reach: From the intersection of I4 & US192, go west on US192 for 5.2 miles to Lindfields Blvd. Turn left on Lindfields Blvd and proceed south to Funie Steed Rd. Go east on Funie Steed Rd. for approximately 1000 feet to the BM is on the north side of the road. BM is +/- 8' S of chain link fence, +/- 40' east of well, and is marked by a carsonite survey sign post. The BM is a SFWMD aluminum disc on an 8" diameter & 40" deep concrete monument incased by a PVC pipe.</p>					

SKETCH



The NGS Data Sheet

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

```

DATABASE = ,PROGRAM = datasheet, VERSION = 7.60
1 National Geodetic Survey, Retrieval Date = MAY 15, 2008
AJ4634 *****
AJ4634 DESIGNATION - D 466
AJ4634 PID - AJ4634
AJ4634 STATE/COUNTY- FL/LAKE
AJ4634 USGS QUAD - LAKE LOUISA SW (1985)
AJ4634
AJ4634 *CURRENT SURVEY CONTROL
AJ4634
AJ4634* NAD 83(1986)- 28 20 49. (N) 081 40 24. (W) SCALED
AJ4634* NAVD 88 - 47.489 (meters) 155.80 (feet) ADJUSTED
AJ4634
AJ4634 GEOID HEIGHT- -27.35 (meters) GEOID03
AJ4634 DYNAMIC HT - 47.419 (meters) 155.57 (feet) COMP
AJ4634 MODELED GRAV- 979,172.6 (mgal) NAVD 88
AJ4634
AJ4634 VERT ORDER - SECOND CLASS I
AJ4634
AJ4634.The horizontal coordinates were scaled from a topographic map and have
AJ4634.an estimated accuracy of +/- 6 seconds.
AJ4634
AJ4634.The orthometric height was determined by differential leveling
AJ4634.and adjusted in May 2004.
AJ4634
AJ4634.The geoid height was determined by GEOID03.
AJ4634
AJ4634.The dynamic height is computed by dividing the NAVD 88
AJ4634.geopotential number by the normal gravity value computed on the
AJ4634.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
AJ4634.degrees latitude (g = 980.6199 gals.).
AJ4634
AJ4634.The modeled gravity was interpolated from observed gravity values.
AJ4634
AJ4634; North East Units Estimated Accuracy
AJ4634;SPC FL E - 444,840. 133,990. MT (+/- 180 meters Scaled)
AJ4634
AJ4634 SUPERSEDED SURVEY CONTROL
AJ4634
AJ4634.No superseded survey control is available for this station.
AJ4634
AJ4634_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RMM340358(NAD 83)
AJ4634_MARKER: DD = SURVEY DISK
AJ4634_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
AJ4634_STAMPING: D 466 1997
AJ4634_MARK LOGO: FLDEP
AJ4634_PROJECTION: FLUSH
AJ4634_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET
AJ4634_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
AJ4634+STABILITY: SURFACE MOTION
AJ4634_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AJ4634+SATELLITE: SATELLITE OBSERVATIONS - January 18, 2006
AJ4634
AJ4634 HISTORY - Date Condition Report By
AJ4634 HISTORY - 1997 MONUMENTED FLDEP
AJ4634 HISTORY - 20050506 GOOD FLDEP
AJ4634 HISTORY - 20060118 GOOD USPSQD
AJ4634 HISTORY - 20070918 GOOD WOOLPT
AJ4634
AJ4634 STATION DESCRIPTION
AJ4634
AJ4634'DESCRIBED BY FL DEPT OF ENV PRO 1997 (LGB)
AJ4634'THE MARK IS ABOUT 8.0 MI (12.9 KM) NORTH OF THE OVERPASS OF U.S.
AJ4634'HIGHWAY 27 AND INTERSTATE 4 SOUTH OF CLERMONT, AT THE OVERPASS OF U.S.
AJ4634'HIGHWAY 27 AND U.S. HIGHWAY 192, IN SECTION 35, TOWNSHIP 24 SOUTH,
AJ4634'RANGE 26 EAST. TO REACH THE MARK FROM THE OVERPASS OF U.S. HIGHWAY 27
AJ4634'AND INTERSTATE 4 SOUTH OF CLERMONT, GO NORTH ON U.S. HIGHWAY 27 FOR
AJ4634'8.1 MI (13.0 KM) TO THE OVERPASS OF U.S. HIGHWAY 192 AND THE MARK ON
AJ4634'THE LEFT, SET IN THE TOP OF A ROUND CONCRETE MONUMENT FLUSH WITH THE

```

DATASHEETS

AJ4634'GROUND AND ABOUT LEVEL WITH U.S. HIGHWAY 27. LOCATED 10.3 FT (3.1 M)
AJ4634'SOUTH OF THE SOUTH END OF THE BRIDGE ABUTMENT, 9.5 FT (2.9 M) EAST OF
AJ4634'THE EAST EDGE OF THE SOUTHBOUND LANES OF U.S. HIGHWAY 27 AND 7.4 FT
AJ4634'(2.3 M) SOUTH OF A CARSONITE WITNESS POST.

AJ4634
AJ4634 STATION RECOVERY (2005)

AJ4634
AJ4634'RECOVERY NOTE BY FL DEPT OF ENV PRO 2005 (JLM)
AJ4634'RECOVERED AS DESCRIBED.

AJ4634
AJ4634 STATION RECOVERY (2006)

AJ4634
AJ4634'RECOVERY NOTE BY US POWER SQUADRON 2006 (AFA)
AJ4634'RECOVERED IN GOOD CONDITION.

AJ4634
AJ4634 STATION RECOVERY (2007)

AJ4634
AJ4634'RECOVERY NOTE BY WOOLPERT CONSULTANTS 2007 (NM)
AJ4634'RECOVERED IN GOOD CONDITION.

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

The NGS Data Sheet

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

```

DATABASE = ,PROGRAM = datasheet, VERSION = 7.60
1 National Geodetic Survey, Retrieval Date = MAY 15, 2008
AK1464 *****
AK1464 DESIGNATION - I4 72 A42E RM 2
AK1464 PID - AK1464
AK1464 STATE/COUNTY- FL/POLK
AK1464 USGS QUAD - LAKE LOUISA SW (1985)
AK1464
AK1464 *CURRENT SURVEY CONTROL
AK1464
AK1464 NAD 83(1986)- 28 19 10. (N) 081 40 07. (W) SCALED
AK1464 NAVD 88 - 57.696 (meters) 189.29 (feet) ADJUSTED
AK1464
AK1464 GEOID HEIGHT- -27.37 (meters) GEOID03
AK1464 DYNAMIC HT - 57.610 (meters) 189.01 (feet) COMP
AK1464 MODELED GRAV- 979,167.4 (mgal) NAVD 88
AK1464
AK1464 VERT ORDER - SECOND CLASS I
AK1464
AK1464.The horizontal coordinates were scaled from a topographic map and have
AK1464.an estimated accuracy of +/- 6 seconds.
AK1464
AK1464.The orthometric height was determined by differential leveling
AK1464.and adjusted in May 2004.
AK1464
AK1464.The geoid height was determined by GEOID03.
AK1464
AK1464.The dynamic height is computed by dividing the NAVD 88
AK1464.geopotential number by the normal gravity value computed on the
AK1464.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
AK1464.degrees latitude (g = 980.6199 gals.).
AK1464
AK1464.The modeled gravity was interpolated from observed gravity values.
AK1464
AK1464;
AK1464;SPC FL W - North East Units Estimated Accuracy
AK1464 441,650. 232,500. MT (+/- 180 meters Scaled)
AK1464
AK1464 SUPERSEDED SURVEY CONTROL
AK1464
AK1464 NAVD 88 (06/15/91) 57.718 (m) 189.36 (f) UNKNOWN 2 2
AK1464 NGVD 29 (??/??/92) 57.981 (m) 190.23 (f) ADJ UNCH 2 2
AK1464
AK1464.Superseded values are not recommended for survey control.
AK1464.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AK1464.See file dsdata.txt to determine how the superseded data were derived.
AK1464
AK1464_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RMM344327(NAD 83)
AK1464_MARKER: DR = REFERENCE MARK DISK
AK1464_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
AK1464_SP_SET: SET IN TOP OF CONCRETE MONUMENT
AK1464_STAMPING: I4 72 A42E RM NO 2
AK1464_MARK LOGO: FLDT
AK1464_MAGNETIC: N = NO MAGNETIC MATERIAL
AK1464_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
AK1464+STABILITY: SURFACE MOTION
AK1464_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AK1464+SATELLITE: SATELLITE OBSERVATIONS - September 04, 2003
AK1464
AK1464 HISTORY - Date Condition Report By
AK1464 HISTORY - 1972 MONUMENTED FLDT
AK1464 HISTORY - 1973 GOOD FLDT
AK1464 HISTORY - 19970923 GOOD FLDEP
AK1464 HISTORY - 20030904 GOOD FL-105
AK1464 HISTORY - 20070918 GOOD WOOLPT
AK1464
AK1464 STATION DESCRIPTION
AK1464
AK1464'DESCRIBED BY FLORIDA DEPARTMENT OF TRANSPORTATION 1973
AK1464'19.2 MI NE FROM POLK CITY.

```

DATASHEETS

AK1464 FROM THE INTERSECTION OF INTERSTATE ROUTE 4 AND STATE ROUTE 559A,
AK1464 ABOUT 2.4 MILES SOUTHEAST OF POLK CITY, GO NORTHEAST ON INTERSTATE
AK1464 ROUTE 4 FOR ABOUT 10.65 MILES TO THE INTERSECTION OF U.S. ROUTE 27,
AK1464 THEN NORTH ON U.S. ROUTE 27 FOR ABOUT 6.1 MILES AND REFERENCE
AK1464 MARK, WHICH IS SET IN THE TOP OF A ROUND CONCRETE MONUMENT THAT
AK1464 IS 4 INCHES BELOW THE GROUND. IT IS 1.6 FEET EAST OF A METAL
AK1464 WITNESS POST, 71.3 FEET WEST-SOUTHWEST OF CENTER OF U.S. ROUTE 27
AK1464 SOUTHBOUND LANE AND 82.7 FEET NORTH-NORTHWEST OF POWER POLE 286.
AK1464 SECTION 12, T 25S, R 26E

AK1464
AK1464 STATION RECOVERY (1997)

AK1464 RECOVERY NOTE BY FL DEPT OF ENV PRO 1997 (LGB)
AK1464 RECOVERED AS DESCRIBED.

AK1464
AK1464 STATION RECOVERY (2003)

AK1464 RECOVERY NOTE BY POLK COUNTY FLORIDA 2003 (JFO)
AK1464 RECOVERED AS DESCRIBED. RECOVERY NOTE BY POLK COUNTY PROPERTY
AK1464 APPRAISER GIS DEPARTMENT.

AK1464
AK1464 STATION RECOVERY (2007)

AK1464 RECOVERY NOTE BY WOOLPERT CONSULTANTS 2007 (NM)
AK1464 RECOVERED IN GOOD CONDITION.

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

Section 3: Monitoring Well Site Information in Table Format

Monitoring Well Site Information in Table Format

Well Designation	Well Type	County	Quadrangle	Section	Township	Range	Northing	Easting	Latitude of BM	Longitude of BM	Ref. Point Elev. (NGVD29)	Ref. Point Elev. (NAVD88)	Benchmark Name Used to Set Ref. Elev.	Benchmark Elev. (NGVD29)	Benchmark Elev. (NAVD88)
AIR19	GW1	Orange	Pine Castle	18	24	30	1479505	542444	28 24 11.94	81 21 13.49	89.41	88.48	AIR19	84.80	83.87
AIR19	GW2	Orange	Pine Castle	18	24	30	1479505	542444	28 24 11.94	81 21 13.49	90.05	89.12	AIR19	84.80	83.87
ALL1	GW1	Osceola	Ashton	29	26	31	1404991	577718	28 11 55	81 14 36.8	76.52	75.59	ALLIGATOR WELL #2	71.77	70.85
ALL1	GW2	Osceola	Ashton	29	26	31	1404991	577718	28 11 55	81 14 36.8	76.27	75.35	ALLIGATOR WELL #2	71.77	70.85
ALL2	GW1	Osceola	Ashton	29	26	31	1404988	578899	28 11 55	81 14 23.6	74.16	73.24	ALLIGATOR WELL #2	71.77	70.85
ALL2	GW2	Osceola	Ashton	29	26	31	1404988	578899	28 11 55	81 14 23.6	73.80	72.88	ALLIGATOR WELL #2	71.77	70.85
BOG527	STG1	Orange	Lake Jessamine	13	24	29	1475481	535428	28 23 31.94	81 22 31.9	87.50	86.58	BOG 527	81.88	80.95
C31SW	STG1	Osceola	St Cloud South	8	26	30	1418598	547434	28 14 09.02	81 20 15.7	62.77	61.83	C31 GFS	57.70	56.76
CAST	GW1	Osceola	Ashton	5	27	32	1395463	612548	28 10 21.4	81 08 07.4	74.54	73.34	CAST	71.85	70.65
CAST	GW2	Osceola	Ashton	5	27	32	1395463	612548	28 10 21.4	81 08 07.4	74.07	72.87	CAST	71.85	70.65
EXOTFI	GW1	Osceola	Holopaw	9	27	32	1389346	619075	28 09 20.7	81 06 54.4	75.39	74.17	EXOTFI	72.14	70.92
INRCTY	GW1	Osceola	Intercession City	3	26	28	1426088	493978	28 15 21.34	81 30 13.70	71.17	70.21	OSFWELLS BM1	68.47	67.51
INRCTY	GW2	Osceola	Intercession City	3	26	28	1426088	493978	28 15 21.34	81 30 13.70	71.14	70.18	OSFWELLS BM1	68.47	67.51
INRCTY	GW3	Osceola	Intercession City	3	26	28	1426088	493978	28 15 21.34	81 30 13.70	71.98	71.02	OSFWELLS BM1	68.47	67.51
INRCTY	GW4	Osceola	Intercession City	3	26	28	1426088	493978	28 15 21.34	81 30 13.70	72.53	71.57	OSFWELLS BM1	68.47	67.51
INRCTY	GW5	Osceola	Intercession City	3	26	28	1426088	493978	28 15 21.34	81 30 13.70	72.10	71.14	OSFWELLS BM1	68.47	67.51
INRCTY	GW6	Osceola	Intercession City	3	26	28	1426088	493978	28 15 21.34	81 30 13.70	71.23	70.27	OSFWELLS BM1	68.47	67.51
KIRCOF	GW1	Osceola	Lake Tohopekaliga	9	27	29	1389279	519428	28 09 17.84	81 25 27.67	74.83	73.82	OS 134	71.66	70.65
KIRCOF	GW2	Osceola	Lake Tohopekaliga	9	27	29	1389279	519428	28 09 17.84	81 25 27.67	73.93	72.92	OS 134	71.66	70.65
KISSD	STG1	Osceola	Kissimmee	28	25	29	1436371	521494	28 17 04.2	81 25 06.4	65.19	64.25	KISSD	61.42	60.48
MAKO	GW1	Osceola	Narcoossee	32	25	31	1432570	582808	28 16 28.18	81 13 40.49	80.19		MAKO 3	76.39	
MOSSPK	GW1	Orange	Narcoossee NW	23	24	31	1470369	594673	28 22 42.65	81 11 28.46	72.64	71.60	MOSSPK	68.53	67.49
MOSSPK	GW2	Orange	Narcoossee NW	23	24	31	1470369	594673	28 22 42.65	81 11 28.46	72.30	71.26	MOSSPK	68.53	67.49
OAKISL	GW1	Osceola	Lake Louisa SW	5	25	27	1454680	452311	28 20 02.49	81 38 01.31	111.46	110.60	OAKISL	109.10	108.24
OAKISL	GW2	Osceola	Lake Louisa SW	5	25	27	1454680	452311	28 20 02.49	81 38 01.31	111.60	110.74	OAKISL	109.10	108.24
OAKISL	GW3	Osceola	Lake Louisa SW	5	25	27	1454680	452311	28 20 02.49	81 38 01.31	111.55	110.69	OAKISL	109.10	108.24
OAKISL	GW4	Osceola	Lake Louisa SW	5	25	27	1454680	452311	28 20 02.49	81 38 01.31	110.01	109.15	OAKISL	109.10	108.24
OSF53	GW1	Osceola	St Cloud South	18	27	30	1383756	542986	28 08 23.9	81 21 04.3	62.77	61.73	OSF 53	61.41	60.37
OSF53	GW2	Osceola	St Cloud South	18	27	30	1383756	542986	28 08 23.9	81 21 04.3	63.68	62.63	OSF 53	61.41	60.37
OSF53	GW3	Osceola	St Cloud South	18	27	30	1383756	542986	28 08 23.9	81 21 04.3	63.69	62.65	OSF 53	61.41	60.37
REDYCK	GW1	Orange	Intercession City	23	24	27	1470874	467168	28 22 43.57	81 35 15.94	101.54	100.60	REDYCK	99.09	98.15
REDYCK	GW2	Orange	Intercession City	23	24	27	1470874	467168	28 22 43.57	81 35 15.94	103.64	102.70	REDYCK	99.09	98.15
S57-SCA	STG1	Osceola	Narcoossee	1	25	31	1455933	600071	28 20 19.8	81 10 27.79	71.38	70.33	Y 577	68.78	67.73
S57-SCA	STG2	Osceola	Narcoossee	1	25	31	1455933	600071	28 20 19.8	81 10 27.79	71.37	70.32	Y 577	68.78	67.73
S58-SCA	STG1	Osceola	Narcoossee	36	25	31	1431567	604364	28 16 18.59	81 09 39.38	72.40	71.35	OS 100	70.17	69.12
S58-SCA	STG2	Osceola	Narcoossee	36	25	31	1431567	604364	28 16 18.59	81 09 39.38	72.41	71.36	OS 100	70.17	69.12
S59-SCA	HW	Osceola	St Cloud North	33	25	30	1429037	555707	28 15 52.6	81 18 43.5	66.83	65.83	KR 908	61.69	60.69
S59-SCA	TW	Osceola	St Cloud North	33	25	30	1429037	555707	28 15 52.6	81 18 43.5	66.80	65.81	KR 908	61.69	60.69
S59W	GW1	Osceola	St Cloud North	33	25	30	1429076	555692	28 15 52.99	81 18 43.67	62.52	61.63	OS 81 1980	65.02	64.13
S60-SCA	HW	Osceola	Ashton	32	26	31	1397057	580727	28 10 36.5	81 14 03	75.57	74.48	KR 1066	71.01	70.14
S60-SCA	TW	Osceola	Ashton	32	26	31	1397057	580727	28 10 36.5	81 14 03	74.58	73.49	KR 1066	71.01	70.14
S61-SCA	HW	Osceola	St Cloud South	18	27	30	1383797	542852	28 08 24.3	81 21 05.8	65.58	64.54	OSF 53	61.40	60.37
S61-SCA	TW	Osceola	St Cloud South	18	27	30	1382797	542852	28 08 24.3	81 21 05.8	65.56	64.53	OSF 53	61.40	60.37
S62-SCA	HW	Orange	Narcoossee	33	24	31	1464776	586085	28 21 47.13	81 13 04.49	72.51	71.48	OR 91	68.60	67.57
S62-SCA	TW	Orange	Narcoossee	33	24	31	1464776	586085	28 21 47.13	81 13 04.49	72.53	71.50	OR 91	68.60	67.57
S63-SCA	HW	Osceola	Cypress Lake	19	27	31	1376003	574258	28 07 07.9	81 15 14.8	71.75	70.85	KR 1067	68.33	67.43
S63-SCA	TW	Osceola	Cypress Lake	19	27	31	1376003	574258	28 07 07.9	81 15 14.8	71.78	70.88	KR 1067	68.33	67.43
SCBR	GW1	Orange	Lake Jessamine	8	24	29	1478382	516853	28 24 36.17	81 26 01.71	86.28	85.37	C 1286 036	87.57	86.66
SCPE	GW1	Orange	Kissimmee	29	24	29	1468791	514892	28 22 24.96	81 26 21.57	81.44	80.53	SCPE	78.19	77.28
SCPN	HW	Orange	Lake Jessamine	19	24	29	1474814	510500	28 23 24.27	81 27 11.51	83.15	82.24	SCPN	78.53	77.62
SCPN	TW	Orange	Lake Jessamine	19	24	29	1474814	510500	28 23 24.27	81 27 11.51	83.04	82.13	SCPN	78.53	77.62
SCPS	HW	Orange	Kissimmee	30	24	29	1468563	510520	28 22 22.55	81 27 10.50	82.64	81.73	L 715 008	79.23	78.32
SCPS	TW	Orange	Kissimmee	30	24	29	1468563	510520	28 22 22.55	81 27 10.50	82.47	81.56	L 715 008	79.23	78.32
SCSS	STG1	Orange	Lake Jessamine	13	24	28	1477281	508089	28 23 48.78	81 27 38.09	85.09	84.20	SCSS	80.72	79.83
SW15	GW1	Orange	Lake Louisa SW	16	24	27	1475682	456994	28 23 30.67	81 37 10.11	111.05	110.11	SW15-9	108.93	107.99
SW15	GW2	Orange	Lake Louisa SW	16	24	27	1475682	456994	28 23 30.67	81 37 10.11	112.34	111.40	SW15-9	108.93	107.99
TOHO 1	GW1	Osceola	St Cloud South	33	26	30	1396053	555533	28 10 26	81 18 44.5	68.01		TOHO 1	64.46	
TOHO 1	GW2	Osceola	St Cloud South	33	26	30	1396053	555533	28 10 26	81 18 44.5	67.81		TOHO 1	64.46	
TOHO 2	GW1	Osceola	St Cloud South	3	27	30	1395292	557196	28 10 18.5	81 18 25.9	69.40	68.37	TOHO 2	65.66	64.63

Monitoring Well Site Information in Table Format

Well Designation	Well Type	County	Quadrangle	Section	Township	Range	Northing	Easting	Latitude of BM	Longitude of BM	Ref. Point Elev. (NGVD29)	Ref. Point Elev. (NAVD88)	Benchmark Name Used to Set Ref. Elev.	Benchmark Elev. (NGVD29)	Benchmark Elev. (NAVD88)
TOHO 4	GW1	Osceola	Lake Tohopekaliga	10	27	29	1386180	530170	28 08 47.51	81 23 27.55	63.71	62.68	TOHO 4	59.62	58.59
TOHO 5	GW1	Osceola	Lake Tohopekaliga	29	26	29	1405464	514584	28 11 57.92	81 26 22.44	74.36	73.38	TOHO 5	70.33	69.35
TOHO 5	GW2	Osceola	Lake Tohopekaliga	29	26	29	1405464	514584	28 11 57.92	81 26 22.44	74.10	73.12	TOHO 5	70.33	69.35
TOHO 6	GW1	Osceola	St Cloud South	29	26	29	1403532	540917	28 11 39.66	81 21 28.06	70.44	69.45	TOHO 6	67.01	66.02
TOHO 7	GW1	Osceola	Kissimmee	21	25	29	1440606	519669	28 17 46.06	81 25 26.98	74.21	73.25	BMWELL 7	70.84	69.88
TOHO 8	GW1	Osceola	Kissimmee	21	25	29	1440342	523931	28 17 43.6	81 24 39.3	68.95	67.99	BMWELL 8	65.40	64.44
TOHO 10	GW1	Osceola	St Cloud South	19	26	30	1406499	543294	28 12 09.1	81 21 01.6	74.67	73.67	TOHO 10	70.58	69.58
TOHO 12	GW1	Osceola	St Cloud North	10	25	30	1453807	561663	28 19 58.01	81 17 37.57	77.82	76.62	BMWELL12	73.92	72.72
TOHO 14	GW1	Osceola	St Cloud South	13	27	30	1385263	569855	28 08 39.5	81 16 04.2	72.84		WELL 14	69.09	
TOHO 15	GW1	Osceola	St Cloud South	30	26	31	1401062	572717	28 11 16	81 15 32.6	78.40	77.38	TOHO 15	75.05	74.02
TOHO 16	GW1	Osceola	St Cloud South	1	27	30	1393537	568710	28 10 01.4	81 16 17.2	72.77	71.73	TOHO 16A	69.12	68.08
TOHO 16	GW2	Osceola	St Cloud South	1	27	30	1393537	568710	28 10 01.4	81 16 17.2	72.60	71.56	TOHO 16A	69.12	68.08
TOHO E	STG1	Osceola	St Cloud North	2	26	30	1427170	565475	28 15 34.35	81 16 54.22	61.93	60.94	TOHOE	61.63	60.64
TOHO W	STG1	Osceola	Kissimmee	32	25	29	1438045	525426	28 17 20.9	81 24 22.49	62.07	61.13	TOHOW	57.93	56.98
WR6	GW1	Osceola	Lake Hatchineha	28	27	29	1374487	523000	28 06 51.5	81 24 47.2	69.05	68.01	WR 6	64.82	63.78
WR8	GW1	Osceola	Lake Hatchineha	28	27	29	13711644	521486	28 06 23.3	81 25 04.0	72.89	71.85	WR 8	70.83	69.79
WR9	GW1	Osceola	Lake Hatchineha	28	27	29	1372605	520934	28 06 32.8	81 25 10.2	70.65	69.61	WR 9	70.36	69.32

NOTES:

1. Latitude and longitude were derived at the benchmark location, and is given to assist in locating the site. It is not meant to accurately locate each well.
2. Northing and Eastings were obtained by using CORPSCON to convert the latitude and longitude to Florida State Plane Coordinates, East Zone, Adjustment of 1990 (NAD83/90) HARN.
3. All measurements and elevations are in feet unless otherwise noted.
4. Some Benchmarks used did not have a published NAVD88 elevation, and therefore have been left blank.
5. In a few cases a Benchmark did not have superseded NGVD29 values so CORPSCON was used to derive a NGVD29 elevation.

Section 4: Benchmark Data Sheets