

# **SURVEYOR'S REPORT**

**Specific Purpose Survey of the Monitoring Wells**

**TOHO-1**

**Osceola County, Florida**

**South Florida Water Management District's**

**Purchase Order number PC P602020**

**Keith and Schnars project number 16434.07,**

**Task 22001**

**Report Date: August 15, 2006**

**Submittal: First**

**Prepared for:**

**South Florida Water Management District**

**Prepared by:**



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**Lakeland, FL 33811**

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**Licensed Business (L.B.) 1337**

## SURVEYOR'S REPORT

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# SURVEYOR'S REPORT

## PURPOSE

To establish vertical data (NAVD 1988 and NGVD 1929) on the Monitoring Wells at the structure.

## LOCATION OF PROJECT

The project is located in Osceola County.



## **SURVEYOR'S REPORT**

### **ITEMS DELIVERED TO THE DISTRICT**

1. Electronic copy of field notes.
2. Electronic copy of all computation sheets.
3. CORPSMET 95 file.
4. Site photographs.
5. Surveyor's Report.

### **DATUM FOR THE PROJECT**


The vertical datum for the project is North American Datum of 1988 (NAVD '88). National Geodetic Survey vertical control monuments with published NAVD '88 elevations were used as the basis for this survey. The National Geodetic Vertical Datum of 1929 (NGVD '29) shown were computed using CORPSCON version 6.0 program.

### **LEVELING METHODS**

Benchmark TOHO-01 was constructed at the site. The elevations were established from Benchmark C 514 using a Wild NA-2 conventional level and three-wire observation method.

# SURVEYOR'S REPORT

## VERTICAL CONTROL

<b>BM C 514</b>	Elevation:	<b>NAVD 1988</b>	<b>87.65'</b>	<b>NGVD 1929</b>	
Found in National Geodetic Survey Database	Latitude	28°10'23" (Scaled)			
State/County FL/Osceola	Longitude	81°18'07" (Scaled)			
USGS QUAD St. Cloud South (1980)					
Horiz. Order (Preliminary) Class (Preliminary)		<p>DESCRIBED BY FL DEPT OF ENV PRO 2001 (JLM)            THE MARK IS ABOUT 26.9 MI NORTH OF KENSVILLE, 4.9 MI SOUTH OF ST. CLOUD, IN SECTION 34, TOWNSHIP 26 SOUTH, RANGE 30 EAST. TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 192, 441 (13TH STREET) AND COUNTY ROAD 523 (VERMONT AVENUE, CANOE CREEK ROAD) IN ST. CLOUD, GO SOUTH ON COUNTY ROAD 523 (VERMONT AVENUE, CANOE CREEK ROAD) FOR 4.7 MI TO THE JUNCTION OF FRIARS COVE ROAD ON THE RIGHT, TURN RIGHT ON FRIARS COVE ROAD AND GO WEST FOR 1.4 MI THE EAST END OF BRIDGE NUMBER 920131 OVER THE FLORIDA TURNPIKE AND THE MARK IS ON THE LEFT, SET FLUSH IN THE TOP OF THE BRIDGE WALKWAY AND ABOUT 1.0 FT ABOVE THE LEVEL OF FRIARS COVE ROAD. LOCATED 15.6 FT SOUTHWEST OF THE APPROXIMATE CENTERLINE OF FRIARS COVE ROAD, 8.3 FT NORTHWEST OF THE SOUTHEAST END OF THE BRIDGE WALKWAY AND 0.9 FT NORTHEAST OF THE NORTH FACE OF THE BRIDGE RAIL.</p>			
					

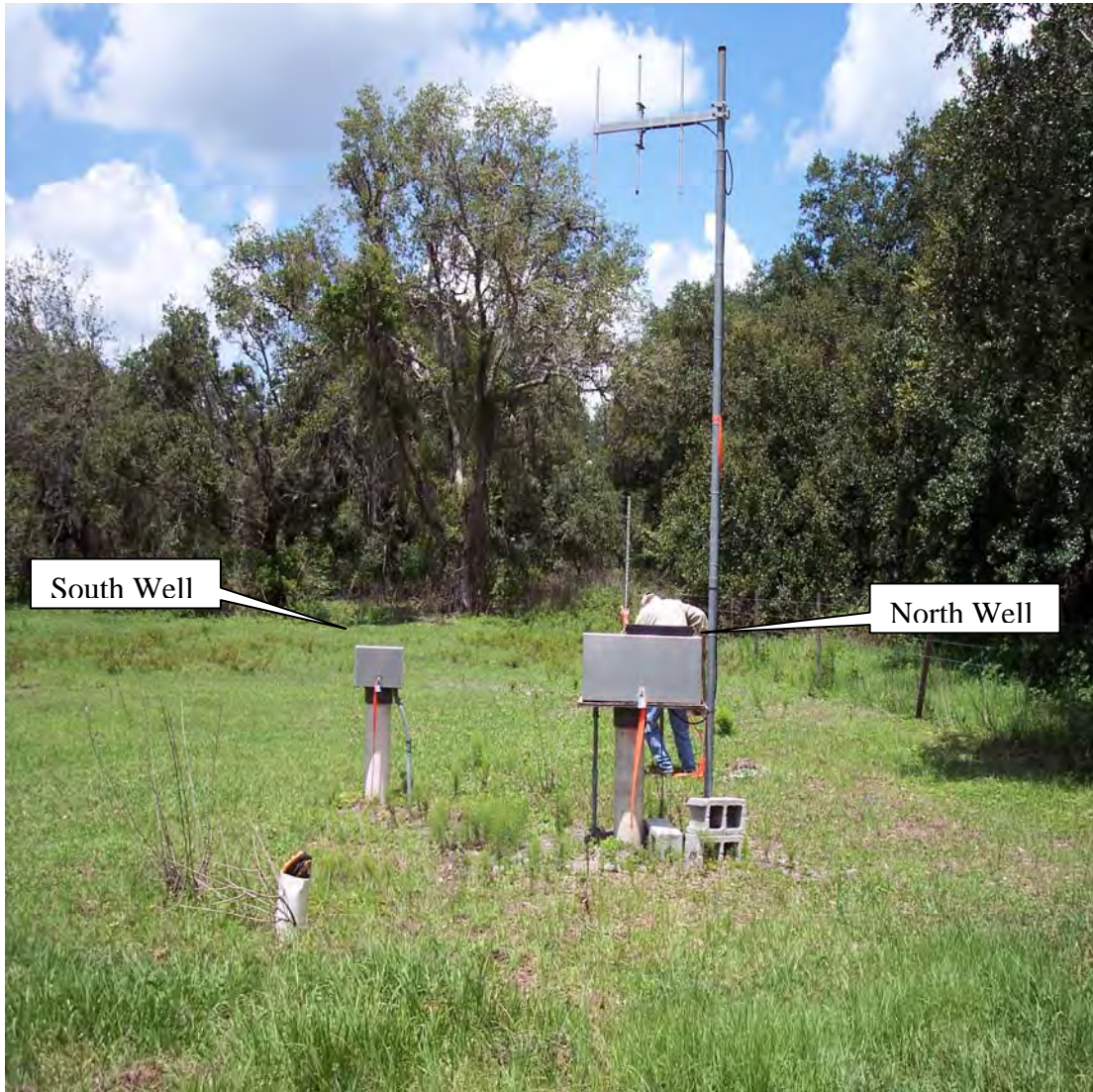
**PROJECT RESULTS**

<b>North Monitoring Well 1</b>	<b>South Monitoring Well 2</b>
<p>Monitoring Well TOHO-01: Reference mark: <b><u>Set mark on S. side PVC pipe</u></b> <b><u>With initials K&amp;S.</u></b></p> <p>New Reference Mark El. <b><u>68.158'</u></b> (NGVD '29) <b><u>(Wrote -1.024' to NAVD 1988).</u></b></p> <p>Initials:  <b><u>K&amp;S</u></b> <b><u>B.M., R.F., R.C.</u></b></p> <p>Date: <b><u>7/27/06</u></b></p> <p><b>written at the mark:</b></p> <p>El. <b><u>68.02</u></b> Date: <b><u>03/09/99</u></b> By: <b><u>F.D., D.S.Y.</u></b></p> <p>Reference Mark location: <b><u>TOP OF PVC</u></b></p>	<p>Monitoring Well TOHO-01: Reference mark: <b><u>Set mark on S. side PVC pipe</u></b> <b><u>With initials K&amp;S.</u></b></p> <p>New Reference Mark El. <b><u>67.957'</u></b> (NGVD '29) <b><u>(Wrote -1.024' to NAVD 1988).</u></b></p> <p>Initials:  <b><u>K&amp;S</u></b> <b><u>B.M., R.F., R.C.</u></b></p> <p>Date: <b><u>7/27/06</u></b></p> <p><b>written at the mark:</b></p> <p>El. <b><u>67.81</u></b> Date: <b><u>06/09/99</u></b> By: <b><u>F.D., D.S.Y.</u></b></p> <p>Reference Mark location: <b><u>TOP OF PVC</u></b></p>

**SURVEYOR'S REPORT**

**PROJECT PHOTO**

**TOHO-1**



SURVEYOR'S REPORT

PROJECT PHOTO

NORTH WELL

TOHO-1





SURVEYOR'S REPORT

PROJECT PHOTO

NORTH WELL

TOHO-1



SURVEYOR'S REPORT

PROJECT PHOTO

SOUTH WELL

TOHO-1



SURVEYOR'S REPORT

PROJECT PHOTO

SOUTH WELL

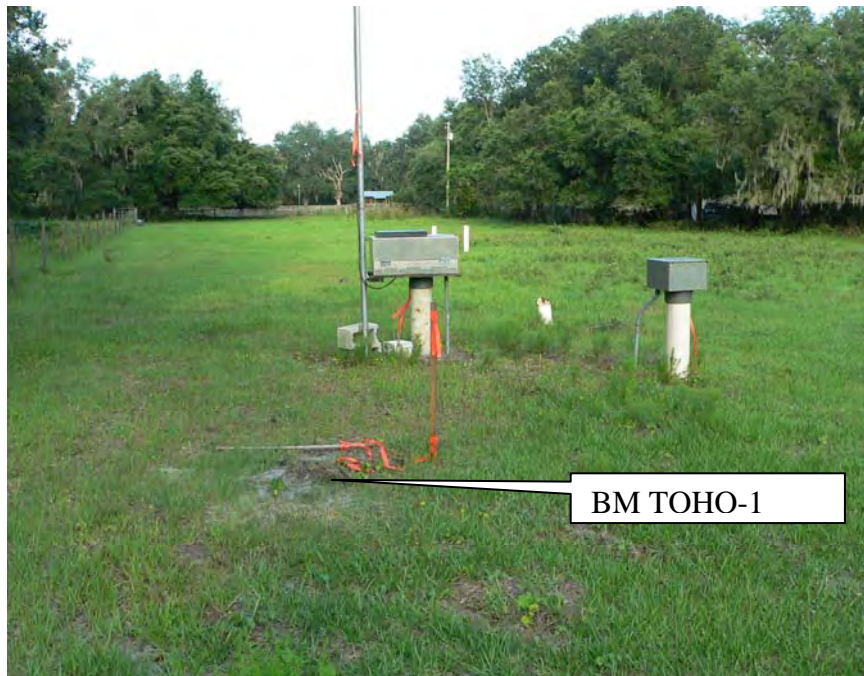
TOHO-1



**SURVEYOR'S REPORT**

**PROJECT PHOTO**

**TOHO-1**



## SURVEYOR'S REPORT

Comments:

Party Chief: D. Sullivan Field Book: 1156 Page 31-38, 53-57  
Bench Mark: "C 514" El. 87.65', Vertical Datum: NAVD1988  
Offset: 1.027' SFWMD VALUE (add this value to convert to NGVD 1929)  
Offset: 1.027' NGS VALUE (add this value to convert to NGVD 1929)  
NAVD 88 - North American Vertical Datum of 1988  
NGVD29 -National Geodetic Vertical Datum of 1929  
NAD 83-99 (Horizontal Datum) North American Datum  
NGS- National Geodetic Survey  
SFWMD- South Florida Water Management District  
PVC- Polyvinyl Chloride

### SURVEYOR'S CERTIFICATION

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

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

By:

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**Date of Survey**  
**July 27, 2006**

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**Kenneth T. Glass, PSM**  
**Professional Surveyor and Mapper**  
**State of Florida**  
**Certificate No. 5713**

JOB NO 16434.07  
DATE 06-28-06  
CREW SAME

BENCH WORK (CONT)

Bm	BS	MN	HI	FS	MN
<del>TBM 27</del>	<del>5.93 5.66 5.39</del>	<del>5.600</del>		<del>6.59 5.92 5.25</del>	<del>5.920</del>
D 514	6.65 5.70 4.75	5.700		6.22 5.95 5.67	5.947
TBM 28	7.69 6.53 5.36	6.527		4.54 3.59 2.64	3.590
TBM 29	7.59 6.39 5.19	6.390		5.46 4.28 3.11	4.283
TBM 30	7.58 6.34 5.10	6.340		5.22 3.99 2.76	3.990
TBM 31	7.31 6.12 4.92	6.117		4.94 3.20 1.96	3.200

ELEV ADJ ELEV REMARKS

~~TOED HUB SW OF FRIARS COVE RD~~

BEGIN BENCH RUN FOR TOHO-1 & TOHO-2

~~57.22~~ 57.31 D 514 NGS DATASHEET  
NGS FLANGE ENCASED ROD  
FLANGE STAMPED D 514  
PUBLISHED ELEV = 57.31 NAVD 88

TOED HUB N/E FRIARS COVE RD

TOED HUB N/E FRIARS COVE RD

TOED HUB N/E FRIARS COVE RD

TOED HUB N/E FRIARS COVE RD

JOB NO 16434.07  
DATE 06-29-06  
CREW SAME

BENCH WORK (CONT)

B.M.	BS	MN	HI	FS	MN
TBM 32	6.81 5.65 4.48	233' 5.647		6.72 5.52 4.32	240' 5.520
TBM 33	6.17 4.98 3.78	239' 4.977		5.64 4.48 3.32	232' 4.480
TBM 34	6.10 4.91 3.71	239' 4.907		6.73 5.53 4.34	239' 5.533
TBM 35	6.94 5.80 4.66	228' 5.800		6.89 5.70 4.51	238' 5.700
TBM 36	6.87 5.68 4.39	248' 5.630		7.01 5.88 4.74	227' 5.877
TBM 37	7.65 7.01 6.138	247' 7.013		5.14 3.90 2.65	249' 3.897

ELEV'	ADJ ELEV	REMARKS
67.801		TOED HUB N/E FRIARS COVER RD
		TOED HUB N/E FRIARS COVER RD
		TOED HUB N/E FRIARS COVER RD
		TOED HUB N/E FRIARS COVER RD
		TOED HUB N/E " " "
		TOED HUB N " " "

JOB NO 16434.07  
 DATE 06-29-06  
 CREW SAME

BENCH WORK (CONT)

BM	BS	MN	HI	FS	IN
TBM 38	7.83 1.39 6.94	7.387		2.00 1.37 0.74	1.370
TBM 39	8.54 8.00 7.47	8.003		1.74 1.29 0.85	1.293
TBM 40	7.06 6.55 6.04	6.550		2.83 2.34 1.86	2.343
CS14				6.07 5.57 5.08	5.573

ELEV ADJ ELEV REMARKS

74.918 TOED NUB N FRIARS COVE RD

TOED NUB N FRIARS COVE RD

PK NAIL EXPANSION JOINT WEST END BRIDGE

87.649 87.65 STAMPED DISC SE CORNER  
 -0.001 CS14 NGS DATA SHEET  
 PUBLISHED ELEV = 87.65 NAVD 88

BENCH RUN CONTINUED IN  
BOOK 1156 PAGE 53



JOB NO 16434.07  
 DATE 07.05.06  
 WEATHER SUNNY, 90°  
 CREW D. SULLIVAN, D. JOHNSON, R. CRUMP, J. LAFLAUR

RERUN BENCH TRV TO HD 1 & 2 TO D514

BM	BS	MN	HI	FS	MN
C514	5.75 5.03 4.30	145' 5.027			
TBM1	1.34 0.86 0.88	96' 0.860		8.42 7.69 6.96	146' 7.690
TBM2	2.21 1.70 1.18	103' 1.697		8.54 8.06 7.38	96' 8.060
TBM3	2.75 1.97 1.19	156' 1.970		7.74 7.23 6.72	102' 7.230
TBM4	6.34 5.28 4.22	212' 5.280		7.04 6.26 5.49	155' 6.263
TBM5	4.91 3.72 2.53	238' 3.720		8.00 6.94 5.88	212' 6.940
	949	18.557		7.11	36.183

BENCHRUN CONTINUED FROM  
BOOK 1156 PAGE 38

ELEV ADJ ELEV REMARKS

87.65

NGS DATA SHEET C514  
 PUBLISHED ELEV = 87.65 NAVD 88  
 NGS STAMPED METAL DISC S.E. CORNER  
 BRIDGE 920131.

TOED HUB SO. SIDE FRIARS COVE RD.

" " " " " " "

" " " " " " "

" " " " " " "

TOED HUB PASTURE AT 3340 FRIARS COVE RD

JOB No 16434.07  
 DATE 07-05-06  
 CREW SAGE

BENCH RUN TOHO 1 & 2 (CONT)

BM	BS	MIN	HI	FS	MIN
TBM6	6.42 5.65 4.88	154'	5.650	6.53 5.34 4.15	238' 5.340
3B TOHO 2 TOHO 1	6.80 5.60 4.40	240'	5.600	6.47 5.69 4.91	156' 5.690
TBM7	7.38 6.21 5.04	234'	6.210	6.76 5.55 4.34	242' 5.500
TBM8	6.63 5.78 4.93	170'	5.780	5.18 3.94 2.78	233' 3.943
TBM9	6.47 5.29 4.11	236'	5.290	5.35 4.50 3.65	170' 4.500
TBM 10	6.61 5.39 4.17	204'	5.390	6.43 5.26 4.09	254' 5.260
	1280		33.926	1272	30,230

ELEV	ADJ ELEV	REMARKS
64.861		TOED HUB PASTURE AT 3340 FRIARS COVE RD
64.641	64.634	1 DIA CAST MON W/ SEWMD BRASS DISC TO HO 1
		TOED HUB PASTURE AT 3340 FRIARS COVE RD
		" " " " " " " "
		NEAR GATE
		TOED HUB SO. SIDE FRIARS COVE RD.
		" " " " " " " "

JOB No 16434.07  
DATE 07.05-06  
CREW SAME

BENCH RUN TO H0 1 & 2 (CONT)

BM	BS	MN	NE	FS	MN
TBM 11	6.24 5.76 5.17	116'	5.757	6.31 5.09 3.87	247' 5.090
TBM 12	6.24 5.04 3.84	240'	5.040	5.88 5.29 4.71	112' 5.293
TBM 13	6.69 5.46 4.23	240'	5.460	6.90 5.70 4.50	240' 5.700
TBM 14	4.99 3.72 2.44	252'	3.717	7.69 6.46 5.23	246' 6.460
TBM 15	7.02 5.93 4.84	218'	5.930	5.93 4.64 3.35	252' 4.640
TBM 16	5.33 4.81 4.29	104'	4.810	8.28 7.19 6.11	112' 7.193
	1179		30.717	1321	34.373

ELEV    ADJ ELEV    REMARKS

68.618

TOED HUB SO/W SIDE FRIARS COVE RD

TOED HUB SO. SIDE PARTIN RANCH RD

TOED HUB <sup>NO</sup> ~~SO~~ SIDE PARTIN RANCH RD.

TOED HUB NO. SIDE PARTIN RANCH RD

TOED HUB NEAR CORRAL PARTIN RANCH

TOED HUB SIDE PASTURE PARTIN RANCH

JOB NO 16434.07  
 DATE 07-05-06  
 CREW SAME

BEACH RUN TOHOLEZ (CONT)

Bm	BS	MN	HI	FS	MIN
S/B TOHOLEZ	7.75			7.40	
<del>TOHOLEZ</del>	6.76	198	6.760	6.84	102
	5.77			6.38	
TBM 17	7.84	222	6.730	5.47	198
	6.73			4.48	4.480
	5.62			5.49	
TBM 18	6.35	200	5.350	6.18	200
	5.35			5.08	5.080
	4.35			3.98	
TBM 19	4.56	232	3.400	5.77	206
	3.40			4.74	4.740
	2.24			3.71	
TBM 20	5.55	248	4.337	7.81	234
	4.34			6.64	6.640
	3.12			5.47	
TBM 21	5.44	224	4.320	7.91	242
	4.32			6.70	6.700
	3.20			5.49	
	1318		50.900	1203	34.521

ELEV	ADJ ELEV	REMARKS
63.156	63.134	1' DIA CAST MON W/ SF WIND DISC
		TOED HUB PASTURE AT 3200 FRIARS COVE RD
		" " " " " " " "
		TOED HUB NO/E SIDE FRIARS COVE RD
		TURN LONG. FELL IN MIDDLE OF ROAD
		TOED HUB NO/E SIDE FRIARS COVE RD
		" " " " " " " "

JOB No. 16484.07  
 DATE 07-05-06  
 CREW SAME

BENCH RUN TO HD 1 & 2 (CONT)

BM	BS	MIN	HI	FS	MN	ELEV	ADJ ELEV	REMARKS
IBM22	5.31 4.16 3.00	231'	4.157	7.67 6.55 5.42	285'	6.547	59.866	TOED HUB NO/E FRIARS COVER RD
IBM23	6.04 5.88 5.71	33'	5.877	7.70 6.55 5.40	280'	6.550		5/8" IRC " " " " KSPA
D514				6.17 6.01 5.84	33'	6.007		
	264		10.034	488		19.104		

57.343    57.31  
 +0.033

NGS FLANGED ENCASED ROD  
 FLANGE STAMPED D514  
 NGS DATA SHEET D514  
 PUBLISHED ELEV. = 57.31 NAVD '88

$9985 \div 5280 = 1.891$      $\sqrt{1.891} \times 0.03 = 0.041$  Allowable ERR

( \*NOTE: SEE P-36 )

END OF BENCHRUN

SAME CREW  
7/27/2006  
TOHO 1, REDO

BM	BS	MEAN	HI	FS	MEAN
	5.75				
BM TOHO 1	5.62	5.620	70.254		
	5.49		68.754		
	16.86				
				1.69	
WELL PIPE 1				1.62	1.620
				1.55	
				4.86	
	2.33			1.90	
WELL PIPE 2	2.24	2.243		1.82	1.820
	2.16			1.74	
	6.73			5.96	
				6.17	
BM TOHO 1			6.04	6.040	
			5.91		
			18.12		

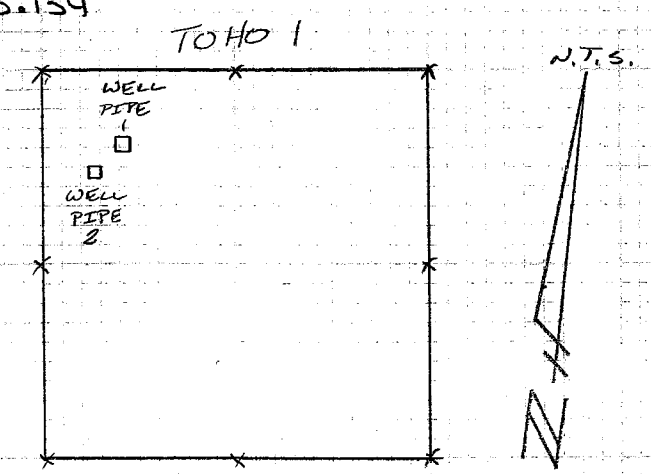
ELEV.      REMARKS

POURED CONC. MON. W/ S.F. W.M.D. BRASS DISK  
ELEV = ~~64.634~~ NAVD 88  
63.134

~~68.634~~ 2" PVC PIPE IN ALUM. BOX ON 8" PVC PIPE INCASEMENT  
67.134 (SHALLOW) NAVD 29  
69.658 68.158  
- 1.024 TO NAVD 88

66.934.  
~~68.434~~ 2" PVC PIPE IN ALUM. BOX ON 8" PVC PIPE INCASEMENT  
(DEEP) NAVD 29 =  
~~68.433~~ (BALANCED) 69.457 67.957  
66.933 - 1.024

~~64.637~~ POURED CONC. MON. W/ S.F. W.M.D. BRASS DISK  
63.137 EL. = 63.134  
+0.003



## Identification Information:

## Citation:

## Citation Information:

**Kenneth T. Glass**  
**Keith & Schnars**

Originator: Kenneth T. Glass, P. S. M. (ed.)  
 Publication\_Date: 20060808  
 Publication\_Time: Unknown  
 Title: S. F. W. M. D. Monitoring Well  
 Edition: TOHO-1  
 Series\_Information:  
 Publication\_Information:  
 Publication\_Place: Not Published  
 Publisher: None  
 Online\_Linkage: kglass@keithandschnars.com  
 Larger\_Work\_Citation:  
 Citation\_Information:  
 Series\_Information:  
 Publication\_Information:

## Description:

## Abstract:

South Florida Water Management District  
 Structure TOHO-1.

**Purpose**

## Purpose:

To establish reference elevations in NAVD 1988 and  
 NGVD 1929 datum at the Monitoring Well(s).

## Time\_Period\_of\_Content:

## Time\_Period\_Information:

**Survey Date**

## Single\_Date/Time:

Calendar\_Date: 20060727

## Range\_of\_Dates/Times:

## Multiple\_Dates/Times:

## Currentness\_Reference: Publication Date

## Status:

Progress: Complete

Maintenance\_and\_Update\_Frequency: Unknown

## Spatial\_Domain:

## Bounding\_Coordinates:

West\_Bounding\_Coordinate: 81° 18' 44.3"

East\_Bounding\_Coordinate: 81° 18' 44.3"

North\_Bounding\_Coordinate: 28° 10' 26.0"

South\_Bounding\_Coordinate: 28° 10' 26.0"

## Keywords:

## Theme:

Theme\_Keyword\_Thesaurus: Specific Purpose Survey

Theme\_Keyword: Monitoring Well(s)

## Place:

Place\_Keyword\_Thesaurus: Osceola County

Place\_Keyword: S. F. W. M. D. Monitoring Well TOHO-1

Place\_Keyword: SEC. 33 - T26S - R30E

## Stratum:

## Temporal:

Access\_Constraints: Key needed to gain access to Monitoring Wells.

Use\_Constraints: Call South Florida Water Management District for key.

## Point\_of\_Contact:

## Contact\_Information:

**Howard Ehmke**

## Contact\_Person\_Primary:

Contact\_Person: Howard J. Ehmke

Contact\_Organization: South Florida Water Management

**SFWMD**

## District

## Contact\_Organization\_Primary:

Contact\_Position: P. S. M.

## Contact\_Address:

Address\_Type: mailing and physical address

## Address:

Acceler 8

Suite 150

2301 Centerpark West Drive

City: West Palm Beach

State\_or\_Province: Florida

Postal\_Code: 33409

Country: USA

TOHO 1. gen  
Contact\_Voice\_Telephone: (561) 242-5520 ext 4064  
Contact\_Electronic\_Mail\_Address: hehmke@sfwmd.gov  
Hours\_of\_Service: 8:00 am to 5:00 pm EST

Security\_Information:  
Cross\_Reference:

Citation\_Information:  
Series\_Information:  
Publication\_Information:

Data\_Quality\_Information:

Attribute\_Accuracy:  
Attribute\_Accuracy\_Report:

## Equipment Used

The horizontal location of the benchmark was taken from a hand held G.P.S. unit. The vertical data was collected using a Wild NA-2 Level. Coordinates are based on the Florida State Plane Coordinate System, East Zone, NAD 83/90. Elevations are based on NAVD 1988 with an offset supplied to convert to NGVD 1929.

Logical\_Consistency\_Report:  
Vertical data on the monitoring wells were established using the site benchmark.

Completeness\_Report:

## Project Results

Well 1(North Well)  
68.158' (NGVD 1929) TOHO-1 Well.  
Offset written at wells (-) 1.024' to NAVD 1988.  
Well 2 (South Well)  
67.957' (NGVD 1929) TOHO-1 Well.  
Offset written at wells (-) 1.024' to NAVD 1988.  
TOHO-1 2006 was the site benchmark used for this survey.  
NAVD 1988 elevation 63.134'

Positional\_Accuracy:

## Horizontal

Horizontal\_Positional\_Accuracy:  
Horizontal\_Positional\_Accuracy\_Report:  
The horizontal position of the benchmark was established using a hand held GPS.  
Quantitative\_Horizontal\_Positional\_Accuracy\_Assessment:  
Horizontal\_Positional\_Accuracy\_Value: Lat. 28°10'26.0"

Long. 81°18'44.3"

Horizontal\_Positional\_Accuracy\_Explanation: Value derived

by hand-held GPS unit.

Vertical\_Positional\_Accuracy:  
Vertical\_Positional\_Accuracy\_Report:  
The onsite benchmark was used to establish the elevations on the monitoring well(s) in this report.  
Quantitative\_Vertical\_Positional\_Accuracy\_Assessment:  
Vertical\_Positional\_Accuracy\_Value: 0.033ft. NAVD88  
Vertical\_Positional\_Accuracy\_Explanation: Better than

0.03ft. x sq. root of miles of the level loop.

Lineage:

Source\_Information:  
Source\_Citation:  
Citation\_Information:  
Series\_Information:  
Publication\_Information:  
Larger\_Work\_Citation:  
Citation\_Information:  
Series\_Information:  
Publication\_Information:

Source\_Time\_Period\_of\_Content:  
Time\_Period\_Information:  
Single\_Date/Time:  
Range\_of\_Dates/Times:  
Multiple\_Dates/Times:

Process\_Step:

## Level Line

Process\_Description:  
Differential leveling was performed using a Wild NA-2 conventional level. The onsite benchmark TOHO-1 2006 was used to determine the monitoring well elevation. Elevations were written at the wells in NGVD 1929 with an



TOHO 1. gen  
 offset provided to convert the elevations to NAVD 1988.  
 Process\_Date: 20060727  
 Process\_Contact:  
   Contact\_Information:  
     Contact\_Person\_Primary:  
     Contact\_Organization\_Primary:  
     Contact\_Address:  
 Spatial\_Data\_Organization\_Information:  
   Spatial\_Reference\_Information:  
     Horizontal\_Coordinate\_System\_Definition:  
       Geographic:  
         Latitude\_Resolution: 28°10'26"  
         Longitude\_Resolution: 81°18'44.3"  
         Geographic\_Coordinate\_Units: Degrees, minutes, and decimal  
         seconds  
         Geodetic\_Model:  
           Vertical\_Coordinate\_System\_Definition:  
             Altitude\_System\_Definition:  
             Depth\_System\_Definition:  
 Entity\_and\_Attribute\_Information:  
   Detailed\_Description:  
     Entity\_Type:  
     Attribute:  
       Attribute\_Domain\_Values:  
       Attribute\_Value\_Accuracy\_Information:  
     Overview\_Description:  
 Distribution\_Information:  
   Distributor:  
     Contact\_Information:  
       Contact\_Person\_Primary:  
       Contact\_Organization\_Primary:  
         Contact\_Organization: Keith and Schnars, P. A.  
         Contact\_Person: Kenneth T. Glass, P. S. M.  
       Contact\_Position: Director of Surveying and Mapping Lakeland  
       Contact\_Address:  
         Address\_Type: mailing and physical address  
         Address: 2525 Drane Field Rd., Suite 7  
         City: Lakeland  
         State\_or\_Province: Florida  
         Postal\_Code: 33811  
         Country: Polk  
       Contact\_Voice\_Telephone: (863)-646-4771  
       Contact\_Facsimile\_Telephone: (863)-646-3378  
       Contact\_Electronic\_Mail\_Address: kglass@keithandschnars.com  
       Hours\_of\_Service: 8:00-5:00 est.  
   Distribution\_Liability: None  
 Standard\_Order\_Process:  
   Digital\_Form:  
     Digital\_Transfer\_Information:  
     Digital\_Transfer\_Option:  
       Online\_Option:  
         Computer\_Contact\_Information:  
           Network\_Address:  
           Dialup\_Instructions:  
       Offline\_Option:  
         Recording\_Capacity:  
 Available\_Time\_Period:  
   Time\_Period\_Information:  
     Single\_Date/Time:  
     Range\_of\_Dates/Times:  
     Multiple\_Dates/Times:  
 Metadata\_Reference\_Information:  
   Metadata\_Date: 20060808  
   Metadata\_Contact:  
     Contact\_Information:  
       Contact\_Person\_Primary:  
       Contact\_Person: Kenneth T. Glass, P. S. M.  
       Contact\_Organization: Keith and Schnars, P. A.  
       Contact\_Organization\_Primary:  
       Contact\_Position: Director of Surveying and Mapping Lakeland

TOHO 1. gen

Contact\_Address:

Address\_Type: mailing and physical address

Address: 2525 Drane Field Rd. , Suite 7

City: Lakeland

State\_or\_Province: FL

Postal\_Code: 33811

Country: USA

Contact\_Voice\_Telephone: (863) 646-4771

Contact\_Facsimile\_Telephone: (863) 646-3378

Contact\_Electronic\_Mail\_Address: kgl ass@keithandschnars.com

Hours\_of\_Service: 8:00 am to 5:00 pm EST

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

Metadata\_Standard\_Version: 19940608

Metadata\_Security\_Information:



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

<b>COUNTY</b> OSCEOLA		<b>PROJECT</b>		<b>DESIGNATION</b> Structure TOHO-1	
<b>SECTION</b> <u>33</u>		<b>TOWNSHIP</b> <u>26</u> SOUTH		<b>RANGE</b> <u>30</u> EAST	
<b>GEOGRAPHIC INDEX OF QUAD</b>					
Established by <u>KEITH AND SCHNARS</u>			NAME OF QUADRANGLE		
Recovered by			<u>ST. CLOUD SOUTH</u>		
<b>SET CLASS "C" MONUMENT WITH SFWMD BRASS DISK.</b>					
SURVEYOR <u>D. SULLIVAN (Keith and Schnars)</u>			FIELD BOOK, 1156, pgs. 36-38, 53-57		
DATE <u>06/28/2006</u>					
HORIZONTAL DATUM: 1983 with 1999 correction, ZONE East					
VERTICAL DATUM: NGVD 1929 and NAVD 1988					
CONTROL ACCURACY: HORIZONTAL HAND-HELD GPS, 3 <sup>rd</sup> Order VERTICAL					
STATE PLANE COORDINATES		X = 555549	Y = 1396054	EL. (NGVD 1929) 64.158'	
				EL. (NAVD 1988) 63.134'	
LATITUDE <u>28° 10' 26.0"</u>			LONGITUDE <u>81° 18' 44.3"</u>		
<b>DESCRIPTION</b>					
South Florida Water Management District brass disk set in concrete monument stamped TOHO 1 / 2006					
The benchmark is located 5.5 miles southwest of Saint Cloud					
To reach the mark from the intersection of U.S. 192 and Vermont Ave. in Saint Cloud travel south along Vermont Ave. a distance of 4.8 miles (Vermont Ave. will turn into Canoe Creek Rd.) to Friars Cove Rd. Then					
Travel 1.8 miles west along Friars Cove Rd. to Partin Ranch Rd. Then travel south along Partin Ranch Rd.					
a distance of 0.2 miles. The mark is 0.13 miles west of the gate to Partin Ranch Property, 15' northwest					
of the well structure, and 300' north west of a gate next to the cattle loading Area.					
Notable Land marks:					

SKETCH



# The NGS Data Sheet

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

```

DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.35
1 National Geodetic Survey, Retrieval Date = APRIL 26, 2006
DF6738 *****
DF6738 DESIGNATION - D 514
DF6738 PID - DF6738
DF6738 STATE/COUNTY- FL/OSCEOLA
DF6738 USGS QUAD - ST CLOUD SOUTH (1980)
DF6738
DF6738 *CURRENT SURVEY CONTROL
DF6738
DF6738 * NAD 83(1986)- 28 10 36. (N) 081 19 03. (W) SCALED
DF6738 * NAVD 88 - 17.467 (meters) 57.31 (feet) ADJUSTED
DF6738
DF6738 GEOID HEIGHT- -27.80 (meters) GEOID03
DF6738 DYNAMIC HT - 17.441 (meters) 57.22 (feet) COMP
DF6738 MODELED GRAV- 979,154.7 (mgal) NAVD 88
DF6738
DF6738 VERT ORDER - SECOND CLASS I
DF6738
DF6738 .The horizontal coordinates were scaled from a topographic map and have
DF6738 .an estimated accuracy of +/- 6 seconds.
DF6738
DF6738 .The orthometric height was determined by differential leveling
DF6738 .and adjusted by the National Geodetic Survey in April 2004..
DF6738
DF6738 .The geoid height was determined by GEOID03.
DF6738
DF6738 .The dynamic height is computed by dividing the NAVD 88
DF6738 .geopotential number by the normal gravity value computed on the
DF6738 .Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DF6738 .degrees latitude (g = 980.6199 gals.).
DF6738
DF6738 .The modeled gravity was interpolated from observed gravity values.
DF6738
DF6738 ;
DF6738 ; North East Units Estimated Accuracy
DF6738 ; SPC FL E - 425,830. 168,820. MT (+/- 180 meters Scaled)
DF6738
DF6738 SUPERSEDED SURVEY CONTROL
DF6738
DF6738 No superseded survey control is available for this station.
DF6738
DF6738 U.S. NATIONAL GRID SPATIAL ADDRESS: 17RMM688168(NAD 83)
DF6738 _MARKER: F = FLANGE-ENCASED ROD
DF6738 _SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)
DF6738 _STAMPING: D 514 2001
DF6738 _MARK LOGO: FLDEP
DF6738 _PROJECTION: FLUSH
DF6738 _MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET
DF6738 _STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
DF6738 _SATELLITE: THE SITE LOCATION WAS REPORTED AS NOT SUITABLE FOR
DF6738 +SATELLITE: SATELLITE OBSERVATIONS - June 28, 2001
DF6738 _ROD/PIPE-DEPTH: 23.9 meters
DF6738
DF6738 HISTORY - Date Condition Report By
DF6738 HISTORY - 20010628 MONUMENTED FLDEP
DF6738
DF6738 STATION DESCRIPTION
DF6738
DF6738 'DESCRIBED BY FL DEPT OF ENV PRO 2001 (JLM)
DF6738 'THE MARK IS ABOUT 27.0 MI NORTH OF KENSVILLE, 5.0 MI SOUTH OF ST.
DF6738 'CLOUD, IN SECTION 33,
DF6738 'TOWNSHIP 26 SOUTH, RANGE 30 EAST.
DF6738 '
DF6738 'TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 192, 441 (13TH
DF6738 'STREET) AND
DF6738 'COUNTY ROAD 523 (VERMONT AVENUE, CANOE CREEK ROAD) IN ST. CLOUD, GO
DF6738 'SOUTH ON COUNTY
DF6738 'ROAD 523 (VERMONT AVENUE, CANOE CREEK ROAD) FOR 4.7 MI TO THE JUNCTION
DF6738 'OF FRIARS COVE

```

DATASHEETS

DF6738'ROAD ON THE RIGHT, TURN RIGHT ON FRIARS COVE ROAD AND GO WEST FOR 1.4  
DF6738'MI TO THE EAST  
DF6738'END OF THE BRIDGE OVER THE FLORIDA TURNPIKE, CONTINUE WEST ON FRIARS  
DF6738'COVE ROAD FOR 1.0  
DF6738'MI TO THE DEAD END AND THE MARK ON THE LEFT, A STAINLESS STEEL ROD  
DF6738'DRIVEN TO REFUSAL AT  
DF6738'A DEPTH OF 78.4 FT WITH A NGS LOGO CAP FLUSH WITH THE GROUND AND ABOUT  
DF6738'1.0 FT BELOW THE  
DF6738'LEVEL OF FRIARS COVE ROAD, THE DATUM POINT IS RECESSED 0.5 FT BELOW  
DF6738'THE LEVEL OF THE NGS  
DF6738'LOGO CAP.  
DF6738'  
DF6738'LOCATED 92.0 FT SOUTHWEST OF A METAL GATE, 20.0 FT SOUTH OF THE  
DF6738'APPROXIMATE CENTERLINE  
DF6738'OF FRIARS COVE ROAD, 17.0 FT WEST OF A 60-INCH OAK TREE, 1.2 FT NORTH  
DF6738'OF A BARBWIRE FENCE  
DF6738'AND 1.0 FT NORTH OF A CARSONITE WITNESS POST.  
DF6738'  
DF6738'NOTE ACCESS TO DATUM POINT IS HAD THROUGH A 5-INCH NGS LOGO CAP.  
DF6738'  
DF6738'NOTE A MAGNET WAS IMBEDDED IN THE GROUND ON THE SOUTH SIDE OF THE  
DF6738'MONUMENT.  
DF6738'  
DF6738'  
DF6738'

\*\*\* retrieval complete.  
Elapsed Time = 00:00:01

## The NGS Data Sheet

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

DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.35

1 National Geodetic Survey, Retrieval Date = APRIL 26

DF6737 \*\*\*\*\*

DF6737 DESIGNATION - C 514

DF6737 PID - DF6737

DF6737 STATE/COUNTY- FL/OSCEOLA

DF6737 USGS QUAD - ST CLOUD SOUTH (1980)

DF6737

DF6737 \*CURRENT SURVEY CONTROL

DF6737

DF6737*	NAD 83(1986)-	28 10 23.	(N)	081 18 07.	(W)	SCALED
DF6737*	NAVD 88	-	26.717	(meters)	87.65	(feet) ADJUSTED

DF6737

DF6737 GEOID HEIGHT- -27.82 (meters) GEOID03

DF6737 DYNAMIC HT - 26.678 (meters) 87.53 (feet) COMP

DF6737 MODELED GRAV- 979,154.6 (mgal) NAVD 88

DF6737

DF6737 VERT ORDER - SECOND CLASS I

DF6737

DF6737.The horizontal coordinates were scaled from a topographic map and have an estimated accuracy of +/- 6 seconds.

DF6737

DF6737.The orthometric height was determined by differential leveling

DF6737.and adjusted by the National Geodetic Survey in April 2004..

DF6737

DF6737.The geoid height was determined by GEOID03.

DF6737

DF6737.The dynamic height is computed by dividing the NAVD 88

DF6737.geopotential number by the normal gravity value computed on the

DF6737.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

DF6737.degrees latitude (g = 980.6199 gals.).

DF6737

DF6737.The modeled gravity was interpolated from observed gravity values.

DF6737

DF6737;	North	East	Units	Estimated Accuracy
DF6737;SPC FL E -	425,420.	170,350.	MT	(+/- 180 meters Scaled)

DF6737

DF6737 SUPERSEDED SURVEY CONTROL

DF6737

DF6737.No superseded survey control is available for this station.

DF6737

DF6737 U.S. NATIONAL GRID SPATIAL ADDRESS: 17RMM703164(NAD 83)

DF6737\_MARKER: DD = SURVEY DISK

DF6737\_SETTING: 31 = SET IN A PAVEMENT SUCH AS STREET, SIDEWALK, CURB, ETC.

DF6737\_SP\_SET: BRIDGE WALKWAY

DF6737\_STAMPING: C 514 2001

DF6737\_MARK LOGO: FLDEP

DF6737\_MAGNETIC: N = NO MAGNETIC MATERIAL

DF6737\_STABILITY: D = MARK OF QUESTIONABLE OR UNKNOWN STABILITY

DF6737\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

DF6737+SATELLITE: SATELLITE OBSERVATIONS - June 28, 2001

DF6737

DF6737	HISTORY	- Date	Condition	Report By
DF6737	HISTORY	- 20010628	MONUMENTED	FLDEP

DF6737

DF6737 STATION DESCRIPTION

DF6737

DF6737'DESCRIBED BY FL DEPT OF ENV PRO 2001 (JLM)

DF6737'THE MARK IS ABOUT 26.9 MI NORTH OF KENSVILLE, 4.9 MI SOUTH OF ST.

DF6737'CLOUD, IN SECTION 34,

DF6737'TOWNSHIP 26 SOUTH, RANGE 30 EAST.

DF6737'

DF6737'TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 192, 441 (13TH

DF6737'STREET) AND

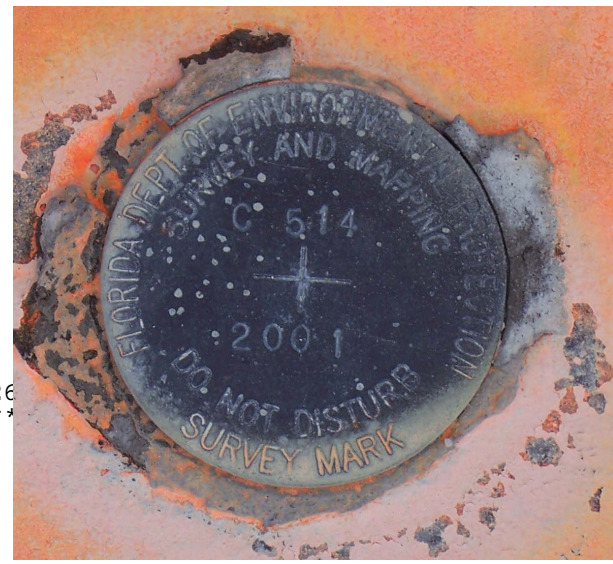
DF6737'COUNTY ROAD 523 (VERMONT AVENUE, CANOE CREEK ROAD) IN ST. CLOUD, GO

DF6737'SOUTH ON COUNTY

DF6737'ROAD 523 (VERMONT AVENUE, CANOE CREEK ROAD) FOR 4.7 MI TO THE JUNCTION

DF6737'OF FRIARS COVE

DF6737'ROAD ON THE RIGHT, TURN RIGHT ON FRIARS COVE ROAD AND GO WEST FOR 1.4



DATASHEETS

DF6737' MI THE EAST END  
DF6737' OF BRIDGE NUMBER 920131 OVER THE FLORIDA TURNPIKE AND THE MARK ON THE  
DF6737' LEFT, SET FLUSH  
DF6737' IN THE TOP OF THE BRIDGE WALKWAY AND ABOUT 1.0 FT ABOVE THE LEVEL OF  
DF6737' FRIARS COVE ROAD.  
DF6737'  
DF6737' LOCATED 15.6 FT SOUTHWEST OF THE APPROXIMATE CENTERLINE OF FRIARS COVE  
DF6737' ROAD, 8.3 FT  
DF6737' NORTHWEST OF THE SOUTHEAST END OF THE BRIDGE WALKWAY AND 0.9 FT  
DF6737' NORTHEAST OF THE  
DF6737' NORTH FACE OF THE BRIDGE RAIL.  
DF6737'  
DF6737'  
DF6737'  
DF6737'

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