

# **SURVEYOR'S REPORT**

**Specific Purpose Survey of  
Weather Tower Small Cypress  
Monroe County, Florida**

**Prepared for:**

**South Florida Water Management District**

**Prepared by:**



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**Licensed Business (L.B.) 6860**

**South Florida Water Management District's**

**Purchase Order number 4500012430**

**Keith and Associates project number 07050.02,**

**Task 001**

**Report Date: September 4, 2007**

**Submittal: First**

**SURVEYOR'S REPORT**

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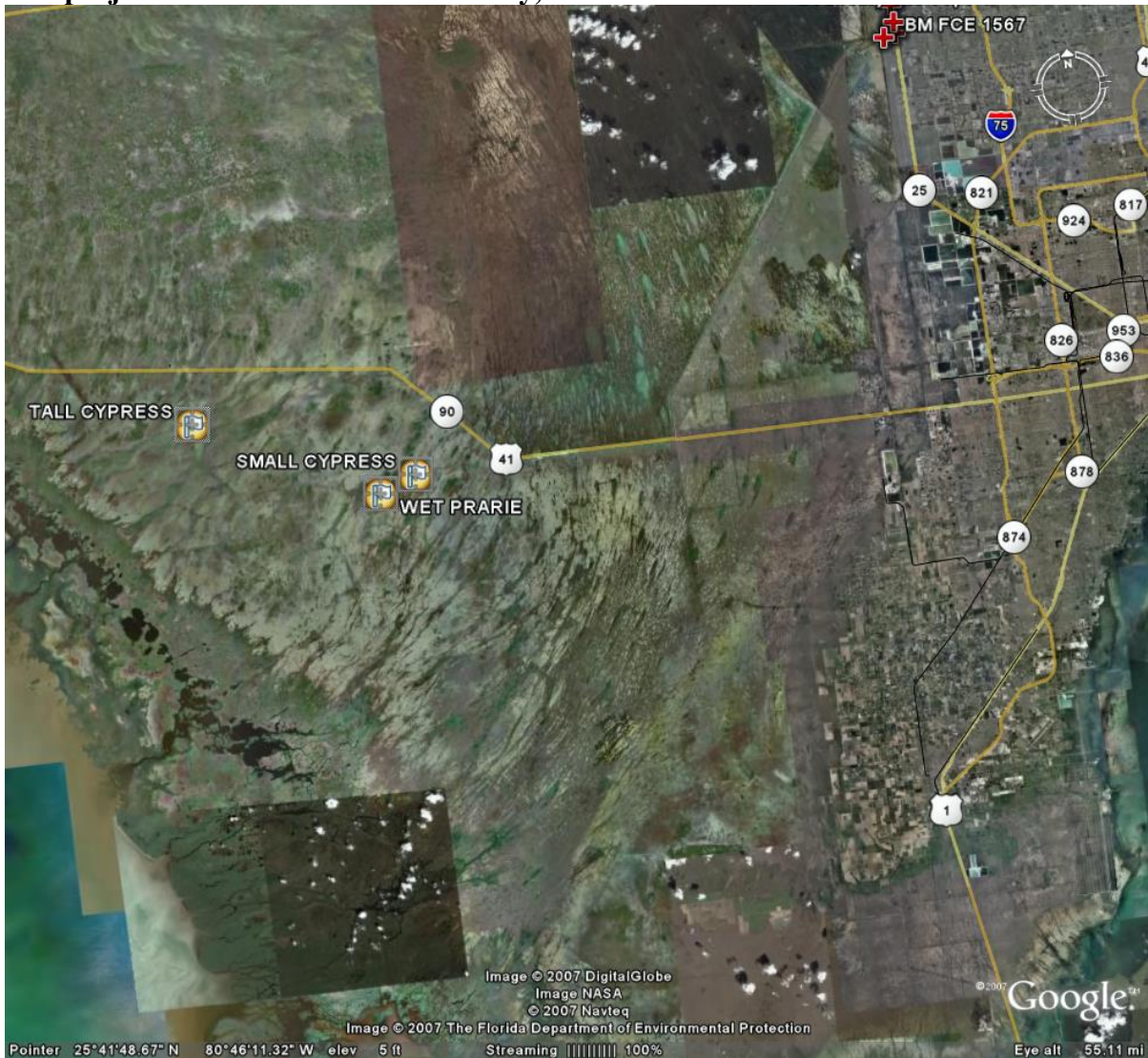
# SURVEYOR'S REPORT

## PURPOSE

To establish (NAVD 1988 and NGVD 1929) vertical data at the site.  
Set a site benchmark and elevate the well.  
Locate the antenna base and guy-wires.

## LOCATION OF PROJECT

The project is located in Monroe County, Florida.



## **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.
6. District Benchmark Sheet.
7. AutoCad drawing.

### **DATUM FOR THE PROJECT**

The vertical datum for the project is National Geodetic Vertical Datum (NGVD) of 1929 and North American Vertical Datum (NAVD) of 1988. NGVD 1929 elevations and offset were derived using the NGVD 1929.txt file supplied by the South Florida Water Management District. Horizontal datum is NAD (North American Datum) 1983/03.

### **LEVELING METHODS**

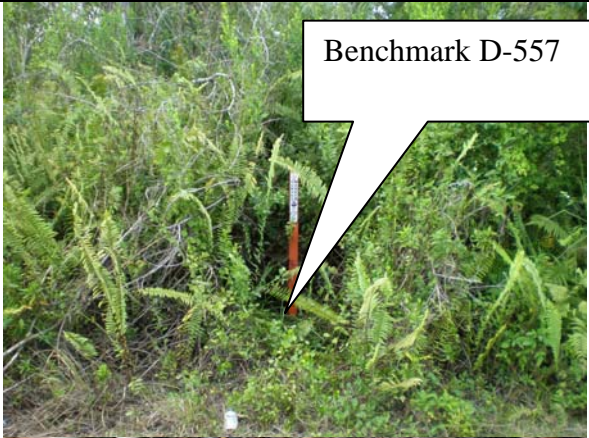

Site Benchmark "Small 2007" is a 3-1/2" SFWMD brass disk set in the concrete base for the weather antenna at the Small Cypress site. A level loop was run starting at NGS benchmark D-557, through site Benchmark "Small 2007" through NGS Benchmark F-557, through site Benchmark "Wet 2007" (at the Wet Prairie antenna site), through NGS benchmark Pinecrest and back to D-557. Site Benchmark "Small 2007" was used to as-built the well. A Leica NA2 conventional level was used for the level run and the site As-Builts. The level run meets or exceeds the closure requirement of "the square root of the level run in miles x 0.03'.

### **HORIZONTAL LOCATIONS**

Horizontal locations were obtained using a Trimble 5700 receiver and RTK cellular link.

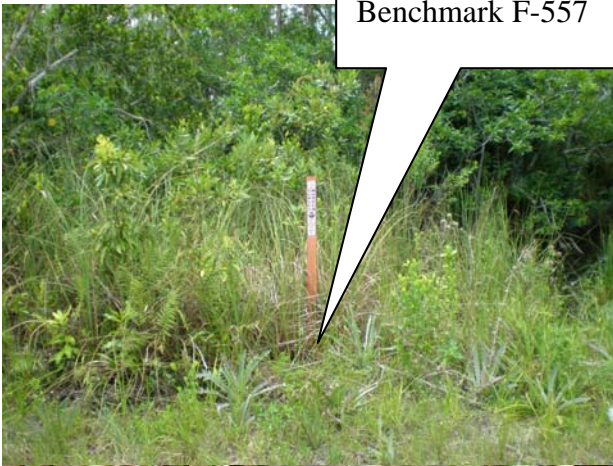
## SURVEYOR'S REPORT

### VERTICAL CONTROL

<b>D-557</b>		Elevation:	<b>NAVD 1988</b>	<b>7.218'</b>	<b>NGVD 1929</b>	<b>8.700'</b>
PID AJ8943		Latitude	25°45'39" (Scaled)		From NGVD 29.txt file	
State/County FL/Monroe		Longitude	-80°53'45" (Scaled)			
USGS QUAD Fiftymile Bend (1995)						
Vertical Order Class	First II	The mark is about 37.8 mi west of Miami, 4.4 mi west of Fortymile Bend, in estimated Section 23, Township 53 South, Range 35 East. To reach the mark from the junction of County Road 997 (Krome Avenue SW 177th Ave) and U.S. Highway 41 (Tamiami Trail, SW 8th Street) about 10.0 miles southwest of Hialeah, go west on U.S. Highway 41 (Tamiami Trail, SW 8th Street) for 21.2 mi to Flood Control Structure S-12A, continue west on U.S. Highway 41 for 0.35 mi to the junction of Loop Road (State Highway 94) on the left, turn left on Loop Road (State Highway 94) and go south then west for 4.35 mi to the mark on the left, set in the top of a round concrete monument flush with the ground and level with loop road. Located 175.0 ft west of a power pole, 23.4 ft east of a 10-inch cypress tree, 14.9 ft south of the approximate centerline of Loop Road, 7.4 ft north of the south side of the canal and 1.5 ft north of a carsonite witness post. Note a magnet was imbedded in the ground on the south side of the monument.				
						
						

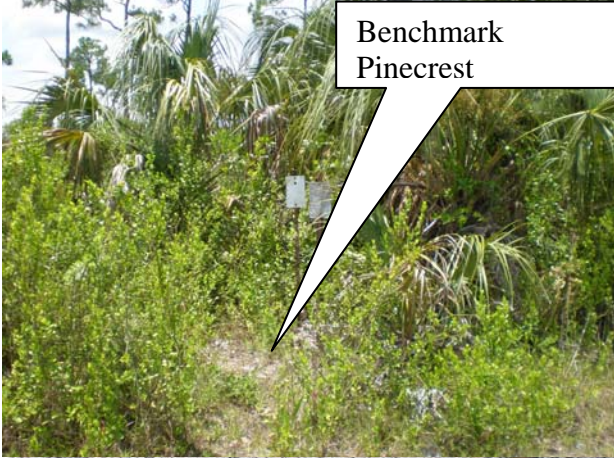

# SURVEYOR'S REPORT

## VERTICAL CONTROL (CONTINUED)

<b>F-557</b>		Elevation:	<b>NAVD 1988</b>	<b>7.247'</b>	<b>NGVD 1929</b>	<b>8.729'</b>
PID AJ8945	Latitude		25°45'29" (Scaled)		From NGVD 29.txt file	
State/County FL/Monroe	Longitude		-80°55'42" (Scaled)			
USGS QUAD Fiftymile Bend (1995)						
Vertical Order Class	First II		<p>The mark is about 39.9 mi west of Miami, 6.5 mi west of Fortymile bend, in estimated Section 21, Township 54 South, Range 34 East. To reach the mark from the junction of County Road 997 (Krome Avenue SW 177th Ave) and U.S. highway 41 (Tamiami Trail, SW 8th Street) about 10.0 miles southwest of Hialeah, go west on U.S. highway 41 (Tamiami Trail, SW 8th street) for 21.2 mi to Flood Control Structure S-12A, continue west on U.S. Highway 41 for 0.35 mi to the junction of Loop Road (State Highway 94) on the left, turn left on Loop Road (State Highway 94) and go south then west for 6.45 mi to the mark on the left, set in the top of a round concrete monument flush with the ground and level with Loop Road. Located 67.7 ft southeast of power pole number 37-10, 20.3 ft south of the approximate centerline of Loop Road, 17.2 ft southwest of the west end of a slough headwall and 1.3 ft north of a carsonite witness post. Note a magnet was imbedded in the ground on the south side of the monument.</p>			
						

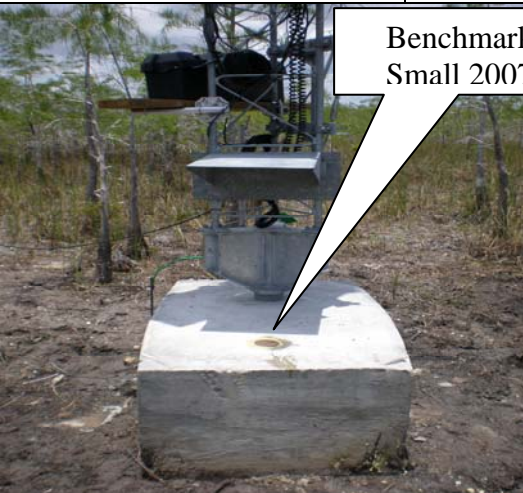
# SURVEYOR'S REPORT

## VERTICAL CONTROL (CONTINUED)

<b>PINECREST</b>		Elevation:	NAVD 1988	6.834'	NGVD 1929	8.315'
PID AC4455	Latitude		25°44'46.71348"		From NGVD 29.txt file	
State/County FL/Monroe	Longitude		-80°56'2243678"			
USGS QUAD Lostmans Trail (1972)						
Vertical Order First Class II Horizontal Order A			<p>The mark is about 41.1 mi west of Miami, 7.6 mi west of Fortymile Bend, in estimated Section 29, Township 54 South, Range 34 East. To reach the mark from the junction of County Road 997 (Krome Avenue SW 177th Ave) and U.S. Highway 41 (Tamiami Trail, SW 8th Street) about 10.0 miles southwest of Hialeah, go west on U.S. Highway 41 (Tamiami Trail, SW 8th Street) for 21.2 mi to flood control structure S-12A, continue west on U.S. Highway 41 for 0.35 mi to the junction of Loop Road (State Highway 94) on the left, turn left on Loop Road (State Highway 94) and go south then west for 7.65 mi to a curve right and the mark on the left, set in the top of a square concrete monument projecting 0.3 ft above the level of the ground and above the level of Loop Road. Located 172.2 ft southwest of power pole number 25-40, 57.1 ft west of a warning o.r.v. permit required sign, 27.2 ft south of the approximate centerline of Loop Road, 1.3 ft south of a metal witness post and 1.0 ft north of a metal witness post. Note a magnet was imbedded in the ground on the south side of the monument.</p>			
						
						

## SURVEYOR'S REPORT

### VERTICAL CONTROL (CONTINUED)

<b>SMALL 2007</b>		Elevation:	<b>NAVD 1988</b>	<b>7.360'</b>	<b>NGVD 1929</b>	<b>9.112'</b>
	Latitude		25°45'44.7"	Elevation derived from the level run described above.		Elevation derived from the level run described above.
State/County FL/Monroe	Longitude		-80°53'36.3"			
USGS QUAD Fiftymile Bend (1995)						
Vertical Order Third Horizontal Order Third		The mark is about 39.9 mi west of Miami, 6.5 mi west of Fortymile Bend, in estimated Section 22, Township 54 South, Range 34 East. To reach the mark from the junction of County Road 997 (Krome Avenue SW 177th Ave) and U.S. Highway 41 (Tamiami Trail, SW 8th Street) about 10.0 miles southwest of Hialeah, go west on U.S. Highway 41 (Tamiami Trail, SW 8th Street) for 21.2 mi to Flood Control Structure S-12A, continue west on U.S. Highway 41 for 0.35 mi to the junction of Loop Road (State Highway 94) on the left, turn left on Loop Road (State Highway 94) and go south, then west for 5.1 mi to the mark on the right. The benchmark is approximately 400' north of Loop Road along a trail. The mark is a 3-1/2 inch South Florida Water Management District brass disk stamped "SMALL 2007" set in the end of the concrete base of the weather tower.				
		<p style="text-align: center;"><b>Benchmark Small 2007</b></p>				
						



**SURVEYOR'S REPORT**  
**SITE PHOTOS (CONTINUED)**



**Small Cypress Tower**

**SURVEYOR'S REPORT**

**SITE PHOTOS (CONTINUED)**



**Small Cypress Well**

**SURVEYOR'S REPORT**  
**SITE PHOTOS (CONTINUED)**



**Small Cypress Solar Panels**

**SURVEYOR'S REPORT**  
**SITE PHOTOS (CONTINUED)**



**Small Cypress Rain Gauge**

**SURVEYOR'S REPORT**

**PROJECT RESULTS**

**Well Site Small Cypress**

Reference mark: **Fnd. X-Mark.**

**New Information at the site:**

Mark El. **11.292'** (NGVD 29).

Mark El. **9.810'** (NAVD 88).

Initials: **K&A**

Date: **06/18/07**

Offset : **1.48'**

**Previous Information at the site:**

**None**

Reference Mark Elevation(s)

El. **N/A**

Date: **N/A**

Initials: **N/A**

Reference Mark location

**N/A**

**DTW** (Distance to water inside well)

Reference mark:

**Same as Fnd. Mark above**

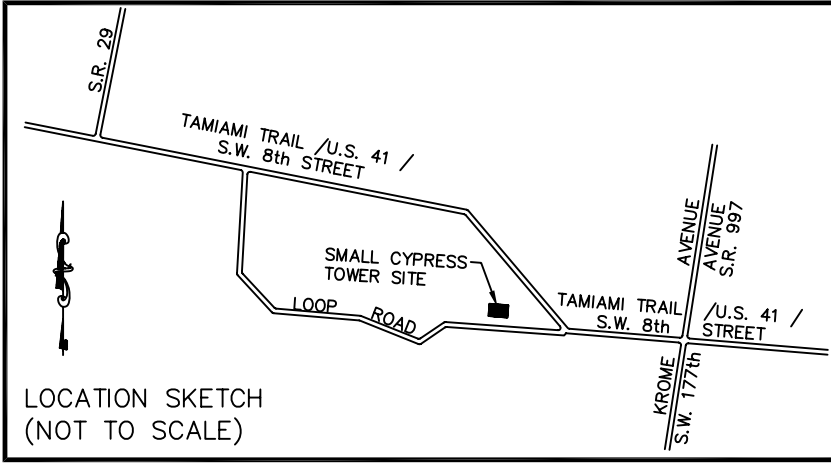
El. **7.6'** (NGVD 29)

Measurement to water: **3.67'**

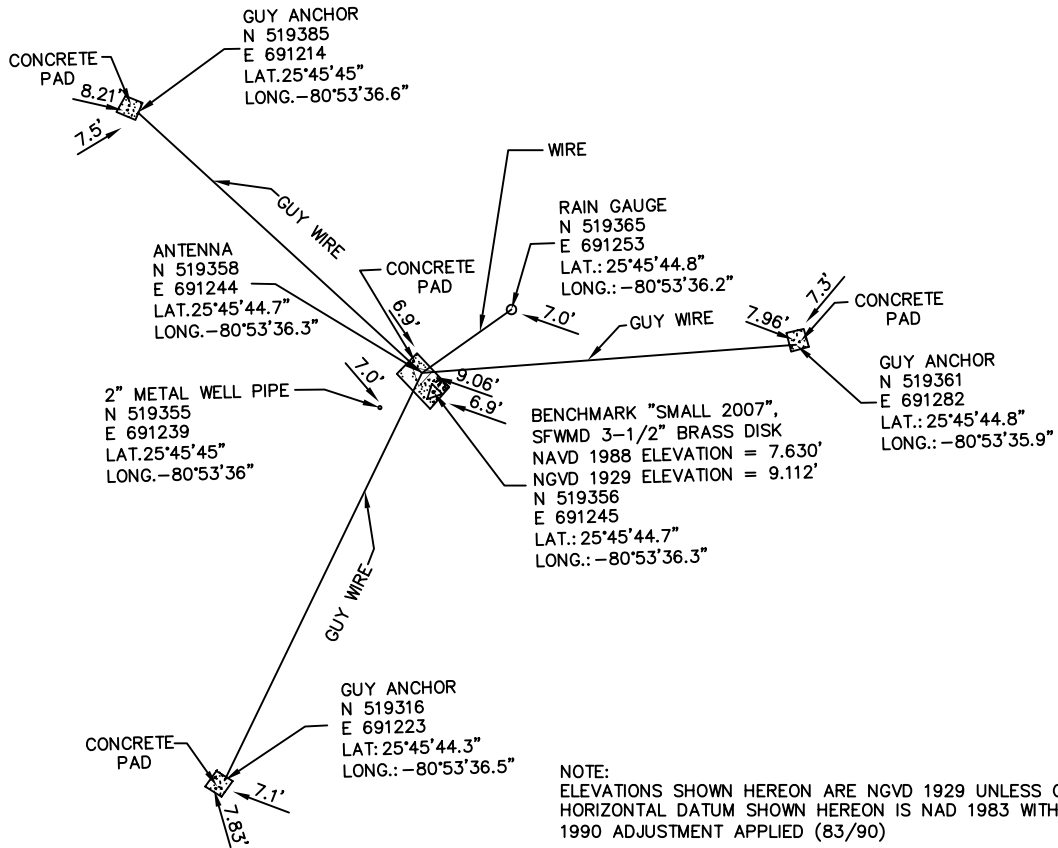
Date: **06/18/07**

Time: **11:26 a.m.**

SCALE: 1" = 20'



LOCATION SKETCH  
(NOT TO SCALE)



NOTE:  
ELEVATIONS SHOWN HEREON ARE NGVD 1929 UNLESS OTHERWISE NOTED.  
HORIZONTAL DATUM SHOWN HEREON IS NAD 1983 WITH THE  
1990 ADJUSTMENT APPLIED (83/90)

LEGEND:

- B.M. = BENCHMARK
- LAT. = LATITUDE
- LONG. = LONGITUDE
- NAD = NORTH AMERICAN DATUM
- NAVD = NORTH AMERICAN VERTICAL DATUM
- NGVD = NATIONAL GEODETIC VERTICAL DATUM
- SFWMD
- $\nearrow 7.5'$  = EXISTING ELEVATION

SMALL CYPRESS TOWER SITE

TOWER AND EQUIPMENT  
LOCATIONS

**KEITH**  
ASSOCIATES, INC.  
consulting engineers  
301 EAST ATLANTIC BOULEVARD  
POMPANO BEACH, FLORIDA 33060-6643  
(954) 788-3400 FAX (954) 788-3500  
EMAIL: mail@keith-associates.com LB NO. 6860

SHEET 1 OF 1

DRAWING NO.

DATE 9/3/07

SCALE 1"=20'

FIELD BK. 268

DWNG. BY MMM

CHK. BY AMK

DATE REVISIONS

DATE	REVISIONS

## **SURVEYOR'S REPORT**

### **Comments**

Elevations shown hereon are NGVD 1929 datum unless noted otherwise.

Party Chief: A. McKinney Field Book: 268 Pages 3-18,20, 76-77

Bench Mark: "SMALL 2007" El. 7.630', Vertical Datum: NAVD1988

El. 9.112', Vertical Datum: NGVD1929

Offset: 1.482' SFWMD VALUE (subtract this value to convert to NAVD 1988)

Offset: 1.482' NGS VALUE (subtract this value to convert to NAVD 1988)

The offset values referred to as "SFWMD VALUE" and "NGS VALUE" were derived by subtracting the published NAVD 1988 elevation from the NGVD 29.txt file value at Benchmark "D-557".

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

L.B. - Licensed Business

## **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 Associates, Inc.

L.B. number 6860

By:

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Date of Survey  
September 3, 2007

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Michael M. Mossey, PSM  
Professional Surveyor and Mapper  
State of Florida  
Certificate No. 5660

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Michael M. Mossey, PSM  
Professional Surveyor and Mapper  
State of Florida  
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Date of Survey  
September 3, 2007