



## **SURVEYOR'S REPORT**

**Specific Purpose Survey of the  
United States Geological Survey  
Recorder Well G-2897  
in  
Broward County, Florida**

**Prepared for:**

### **South Florida Water Management District**

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West Palm Beach, Florida 33406  
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**Prepared by:**

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Florida Professional Surveyor and Mapper  
License Number 5381  
State of Florida

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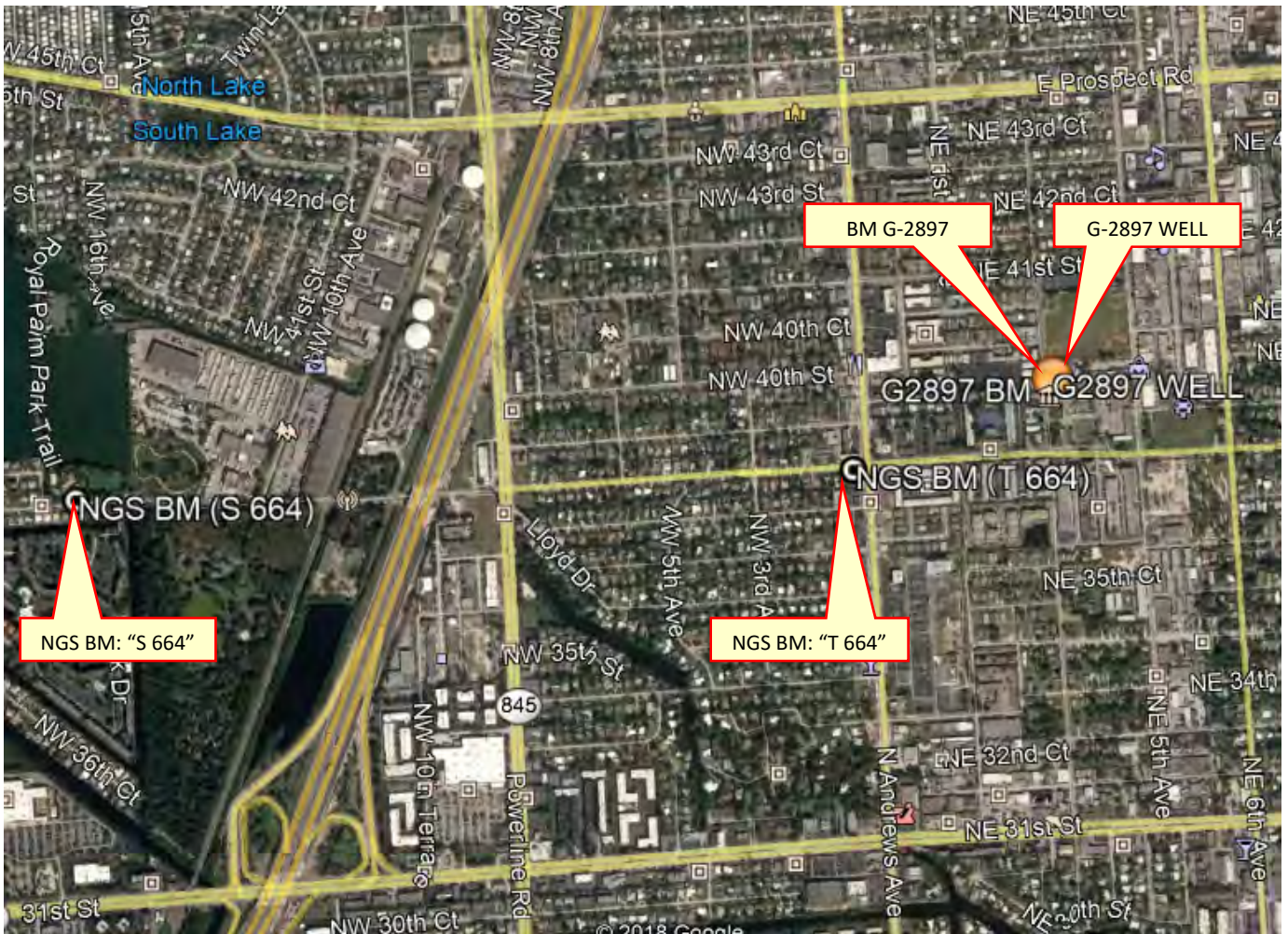
Field Date: September 25, 2019  
Report Date: December 4, 2019  
PO NO: 9500008146

**PURPOSE**

The objective of this work order is to supply NAVD 88 elevations on the site benchmark, ground elevation at the site, well monitoring point and any USGS benchmarks at the site. In addition, horizontal positions of each well and benchmark need to be provided in the North American Datum of 1983.

**LOCATION OF PROJECT**

The United States Geological Survey's Recorder Well **G-2897** is located in Section 15, Township 49 South, Range 42 East, Broward County, Florida.



**General Location (Intended Display scale is "Not to Scale")**

**PROJECT VERTICAL DATUM**

The project vertical datum is the North American Vertical Datum (NAVD) of 1988.

To convert the NAVD 88 elevation to the National Geodetic Vertical Datum of 1929 at station **G-2897 (G2897 2019), add 1.58'**. These values are based on Corpscon 6.0.1 a US. Army Corps of Engineers Engineering Research and Development Center Topographic Engineering Center Alexandria, Virginia Windows-based program to convert coordinates and elevations between datum's using vertcon05.txt and vertcon05.05 files supplied by the US. Army Corps of Engineers South Atlantic Division, Jacksonville, FL.

**PROJECT HORIZONTAL DATUM**

All horizontal data shall be collected in and based on the North American Datum of 1983, 2011 adjustment (NAD 83/11). Horizontal coordinate control shall be established from existing National Geodetic Survey (NGS) 2<sup>nd</sup> Order control or higher in the area by using GPS, RTK GPS, network RTK GPS, or OPUS derived solutions.

**LEVELING METHODS (Site Benchmark)**

The leveling for this project was performed in accordance with standard survey practice using conventional third order methods, techniques and equipment.

The allowable error (.02  $\sqrt{\text{miles}}$ ) on this project meets or exceeds third order closures as required by SFWMD for this project per executed SOW for 4600003706-WO03 and discussions with SFWMD.

A level loop was run from the NGS Benchmark "T 664" (DL2190), through the site benchmark, and back to the NGS Benchmark "T 664" (DL2190). A GPS base was then set on NGS BM "S 664" and a GPS Rover was then checked into NGS Benchmark "T 664" to prove its elevation. The observations and measurements were collected using a Digital Level and were hand written in Whidden Surveying & Mapping, Inc. Field Book W 212 Pages 26 and 66, dated September 25, 2019, and November 25th, 2019, reduced and adjusted electronically. Additional data was manually recorded in the field book.

**GPS METHODS (horizontal position of site benchmark)**

Latitude and Longitude for Benchmark G-2897 (G2897 2019) were established by observing a 3-minute session of GPS data on September 25, 2019 using a Trimble R-8-3 and The Florida Permanent Reference Network (FPRN). The FPRN network consists of nearly 100 Continuously Operating Reference Stations (CORS) located throughout Florida.

**EQUIPMENT USED**

- Trimble GPS unit R8-3 Serial #: 4615113539
- Trimble GPS unit R6-4 Serial #: 0220266504
- Dini Digital Level Serial #: 735642

## SURVEYOR'S REPORT

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### **LEVELING METHODS (Site: ground elevation-well monitoring point- USGS benchmarks)**

A level loop was run from the previously established Site Benchmark G-2897 (G2897 2019), through all corners of the well casing enclosure, through the ground shot North of the well casing enclosure, through the well monitoring point and back to the site benchmark. The measurements were collected using an Automatic Level and were hand written in Dewberry Engineering, Inc. Field Book S.F.W.M.D. #1, Pages 50-53, dated September 25, 2019. Additional data was manually recorded.

### **GPS METHODS (horizontal position of Well G-2897 monitoring point & USGS Benchmarks)**

Latitude and Longitude for Well G-2897 monitoring point (North edge of PVC casing 6 ½" at black mark) were established by observing a 3-minute session of GPS data on September 25, 2019 using a Spectra SP-80 and The Florida Permanent Reference Network (FPRN). The FPRN network consists of nearly 100 Continuously Operating Reference Stations (CORS) located throughout Florida.


### **EQUIPMENT USED**


- Spectra SP-80 Rover Serial #: 1165
- Topcon AT-G2 Serial #: 1439

**SURVEYOR'S REPORT**


**VERTICAL CONTROL POINT**

The Vertical Control point utilized and set as part of this survey is the:

| <b>NGS Benchmark "T 664" (DL2190)</b>  |                    |           |   |          |        |           |
|--|--------------------|-----------|---|----------|--------|-----------|
| 26° 10' 25.89" (N)   | 80° 08' 49.03" (W) | Published | 3.34 ft.  | (NAVD88) | 1.02 m | Published |
|  |                    |           | <p>LOCATED 59.0 FT WEST OF THE WEST EDGE OF THE PAVEMENT OF ANDREWS AVENUE, 20.5 FT WEST OF A WOODEN GUY POLE WITH TWO GUY WIRES ATTACHED, 20.0 FT WEST-NORTHWEST OF A CONCRETE POWER POLE, 11.5 FT WEST OF THE APPROXIMATE CENTERLINE OF THE EASTBOUND LANES OF NORTHWEST 38TH STREET AND 1.0 FT NORTH OF THE NORTH EDGE OF THE SIDEWALK.</p> <p>NGS BENCHMARK IS A FLANGE-ENCASED STAINLESS STEEL ROD W/O SLEEVE STAMPING: T 664 2006</p> |          |        |           |
|  |                    |           |   |          |        |           |

| <b>NGS Benchmark "S 664" (DL2189)</b>   |                    |           |  |          |        |           |
|---|--------------------|-----------|--|----------|--------|-----------|
| 26° 10' 25.75" (N)  | 80° 09' 50.78" (W) | Published | 3.05 ft.   | (NAVD88) | 0.93 m | Published |
|  |                    |           | <p>LOCATED 40.0 FT NORTH OF THE CENTERLINE OF NORTHWEST 38TH STREET, 20.5 FT WEST OF THE APPROXIMATE CENTERLINE OF THE ENTRANCE TO ROYAL PALM PARK, 13.0 FT NORTH OF THE NORTH EDGE OF THE SIDEWALK, 9.0 FT SOUTH OF THE SOUTHEAST CORNER OF THE PARKING LOT, 4.5 FT EAST OF THE MOST NORTHEAST PALM TREE OF A SET OF FOUR PALM TREES AND 2.3 FT WEST OF THE WEST ENTRANCE GATE POST.</p> <p>NGS BENCHMARK IS A FLANGE-ENCASED STAINLESS STEEL ROD W/O SLEEVE STAMPING: S 664 2006</p> |          |        |           |
|   |                    |           |  |          |        |           |

**SURVEYOR'S REPORT**

|   |                    |   |          |        |                |
|---|--------------------|---|----------|--------|----------------|
| <b>BM: G-2897 (Existing on site benchmark)</b>                                    |                    |   |          |        |                |
| 26° 10' 31.93" (N)  | 80° 08' 32.86" (W) | 4.83 ft.  | (NAVD88) | 1.47 m | Level run      |
| NAD_83(2011)  |                    | 6.41 ft.  | (NGVD29) | 1.95 m | Converted      |
|  |                    |   | 1.58 ft. |        | Corpscon 6.0.1 |
|   |                    | STATION IS A S.F.W.M.D. BM STAMPED "G2897 2019" SET IN GRASS AREA NEXT TO FENCE LINE<br><br>LOCATED: EAST SIDE OF NE 3 <sup>RD</sup> AVENUE NORTH OF PARKING LOT AND SOUTH OF HOCKEY RINK |          |        |                |

Field Book W212, Page 26

| STA   | F     | HI     | EL    |            |
|-------|-------|--------|-------|------------|
|       |       |        | 3.34  | (SSR)      |
| TP 1  | 6.10  | 9.50   | 4.466 | 5.035      |
| TP 2  | 4.455 | 9.49   | 4.498 | 4.492      |
| TP 3  | 5.273 | 10.16  | 5.023 | 5.153      |
| TP 4  | 5.27  | 10.42  | 4.27  | 4.15       |
| TP 5  | 5.407 | 9.80   | 5.27  | 4.220      |
|       | 6.572 | 10.798 |       |            |
| G2897 |       |        | 5.96  | 4.84 (YPL) |
| TP 7  | 5.00  | 9.84   | 5.13  | 4.21       |
| TP 8  | 5.52  | 9.73   | 4.92  | 4.80       |
| TP 9  | 5.40  | 10.21  | 5.80  | 4.85       |
| TP 10 | 4.05  | 10.40  | 5.69  | 4.72       |
| TP 11 | 4.81  | 9.52   | 5.90  | 3.56       |

| STA   | F | HI | EL    |             |
|-------|---|----|-------|-------------|
| TP 14 |   |    | 6.244 | 3.346 (SSR) |

Dini S.N.# 735642  
 TRIMBLE RB-3 4615113539  
 TRIMBLE RB-1 022026650A

SURVEYOR'S REPORT

Field Book 212 page 66

07097-112819

| POINT     | DATE | TIME | TYPE  | REMARKS        |
|-----------|------|------|-------|----------------|
| 1011      | 07   | 08   | 55.16 | "5.000" (2.00) |
| 1012      | 07   | 08   | 55.12 | "5.000" (2.00) |
| V.O. 0.13 |      |      |       |                |

DW  
ND  
BM

0709/66

| POINT | DATE | TIME | TYPE | REMARKS |
|-------|------|------|------|---------|
|-------|------|------|------|---------|

**PROJECT RESULTS**

Overall Site



G-2897 Well Site  
Latitude: 26° 10' 31.91"  
Longitude: 80°08'33.02"  
Reference elevation  
4.75' (NAVD88)



Benchmark "G-2897"  
El. 4.83' (NAVD88)

Looking Easterly (Oblique not to scale)




## SURVEYOR'S REPORT

Tabular Form

| Reference and Ground Elevations: NAVD88                                |                  |                     |   |
|--|------------------|---------------------|---|
| Well   | Ground Elevation | Reference Elevation | Comments                                      |
| G-2897   | 4.98 ft.         | 4.75 ft.            | North top of edge of PVC casing at black mark |
| Offset to NGVD29: +1.58' (See Project Vertical Datum Notes in Page: 4) |                  |                     |   |
| Well diameter  |                  | Casing material     | DTW   |
| 6 ½" PVC   |                  | PVC                 | -4.87 ft. (9/25/19 at 1:17 PM)                |

| Source & Site Benchmark | NAVD88               | NGVD29 (Published) | NGVD29 (Corpscon)     |
|-------------------------|----------------------|--------------------|-----------------------|
| NGS "T 664" (DL2190)    | 3.34 ft. (Published) |                    |                       |
| NGS "S 664" (DL2189)    | 3.05 ft. (Published) |                    |                       |
| BM G-2897 (SFWMD)       | 4.83 ft. (Measured)  |                    | 6.408 ft. (Converted) |
|                         |                      |                    |                       |
|                         |                      |                    |                       |

### Well Photos and Diagrams (Continued)



**Reference Point**  
El. 4.75' (NAVD88)

| PT#   | DESCRIPTION            |
|---|------------------------|
| 12021   | MP @ TOP OF PVC CASING |
| ~~~~~   |                        |
| TASK: MEASURE & RECORD DISTANCE FROM MARKING POINT TO WATER LINE.   |                        |
| MEASUREMENT: 4.87'; AS MEASURED FROM BLACK SHARPE MARK ON NORTH EDGE OF PVC CASING (6 ½")   |                        |
| TIME: 1:17 PM   |                        |
| ~~~~~   |                        |
| THIS WELL SITE IS LOCATED IN A CONCRETE 'IN-GROUND' or 'BELOW GRADE' ENCLOSURE IN A GRASS AREA TO THE SOUTH WEST OF A COMMUNITY OUTDOOR HOCKEY RINK, JUST OFF THE EASTERN R/W OF NE 3RD AVENUE. |                        |

## SURVEYOR'S REPORT

### Well Photos and Diagrams (Continued)



Reference Point  
El. 4.75' (NAVD88)

Overhead View (Oblique Not to scale)



### Surveyors' Notes:

1. All measurements herein are in United States Survey feet and decimal thereof, unless otherwise specified.
2. Underground utilities were not located as part of this survey.
3. This survey report or copies thereof are not valid without the original signature and seal of a Florida licensed Surveyor and Mapper.
4. Additions or deletions to this survey report by other than the signing party (or parties) is prohibited without written consent of the signing party (or parties).
5. To convert from NAVD 88 to NGVD 29 add 1.58 feet. This value is based on Corpscon 6.0.1 a U.S. Army Corps of Engineers Engineering Research and Development Center Topographic Engineering Center Alexandria, Virginia Windows-based program to convert coordinates and elevations between datum's using vertcon05.txt and vertcon05.05 files supplied by the U.S. Army Corps of Engineers South Atlantic Division, Jacksonville Fl.
6. Date of last field work: September 25, 2019, PO NO: 9500008146
7. SFWMD Data records (on file at the District's headquarters):
8. A. Electronic Data files:
  - Miscellaneous picture files
- B. Conventional reporting
  - Field Book: W212 page 26 and 66

**SURVEYOR'S REPORT**

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**Abbreviations:**

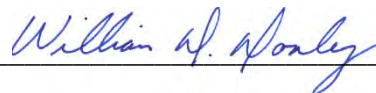
- Elev.** - Elevation
- DTW** - Distance to the water table inside the well
- BroCo.** - Broward County
- NAVD88** - North American Vertical Datum of 1988
- NGVD29** - National Geodetic Vertical Datum of 1929
- NGS** - National Geodetic Survey
- PSM** - Professional Surveyor & Mapper
- PID** - Permanent Identifiers
- SFWMD** - South Florida Water Management District
- USGS** - United States Geological Survey
- MP** - Monitoring Point
- GS** - Ground Shot
- BM** - Benchmark
- RM** - Reference Monument

**SURVEYOR'S CERTIFICATION**

In my professional opinion this Specific Purpose Survey meets applicable portions of the Standards of Practice set forth by the Florida Board of Professional Surveyors and Mappers in Chapter 5J-17, Florida Administrative Code. This report is prepared for the sole and specific use of the South Florida Water Management District and is not assignable.

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Last date of Survey  
Sept. 25, 2019



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William Donley, PSM  
Florida Professional Surveyor and Mapper  
License Number 5381  
State of Florida  
Dewberry Engineering, Inc. LB No 8011  
131 West Kaley Street, Orlando, FL. 32806  
Tel (321) 354-9826





### South Florida Water Management District Benchmark Datasheet

|   |   |                                     |                                  |
|---|---|-------------------------------------|----------------------------------|
| Designation: <b>G-2897</b>                | Project Name: <b>USGS Ph 2, BROWARD</b>           | Type: <b>V</b>                      | State Plane Zone: <b>FL East</b> |
| Stamping: <b>G2897 2019</b>               | Field Book Name: <b>W212</b>                      | Field Book Page: <b>26 &amp; 66</b> |                                  |
| Established By: <b>DEWBERRY / WHIDDEN</b> | Recovered By: <b>N/A</b>                          | Recovery Date: <b>N/A</b>           |                                  |
| Surveyor: <b>WILLIAM D. DONLEY</b>        | Established Date: <b>9/25/2019 &amp; 11/25/19</b> | Status: <b>New</b>                  |                                  |

#### GEOGRAPHIC POSITION INFORMATION

|                                      |  |                                   |
|--------------------------------------|--|-----------------------------------|
| Section: <b>15</b>                   | Township: <b>49 SOUTH</b>                | Range: <b>42 EAST</b>             |
| County: <b>BROWARD</b>               | Quadrangle: <b>FORT LAUDERDALE NORTH</b> | Quad Index: <b>1802</b>           |
| NAD83 Adj. Year: <b>2011</b>         | Vertical Datum: <b>NAVD1988</b>          | Horizontal Datum: <b>NAD1983</b>  |
| NAVD88 Elevation (feet): <b>4.83</b> | NGVD29 Elevation (feet): <b>6.408</b>    | 2022 Elevation: <b>N/A</b>        |
| NAVD88 Class: <b>N/A</b>             | NGVD29 Class: <b>N/A</b>                 | Other Elevation: <b>N/A</b>       |
| NAVD88 Order: <b>3</b>               | NGVD29 Order: <b>N/A</b>                 | Other Elevation Type: <b>N/A</b>  |
|                                      |  | NGS Source BM(s): <b>T 644</b>    |
|                                      |  | NGS PID(s): <b>DL2190</b>         |
|                                      |  | NGS NAVD88 Elev (ft): <b>3.34</b> |
|                                      |  | NGS NAVD88 Elev (m): <b>1.019</b> |
|                                      |  | NGS 2022 Elev (ft): <b>N/A</b>    |

CORPSCON 6.0.1 CONVERSION FACTOR (NAVD88 TO NGVD29): (A U.S. Army Corps of Engineers Engineering, Research and Development Center Topographic Engineering Center Alexandria, Virginia Windows-based program to convert coordinates and elevations between datum's using vector 05.0x) and vertical 05.05 files supplied by the U.S. Army Corps of Engineers South Atlantic Division, Jacksonville FL)

|  |   |   |
|--|---|---|
| Vertical Datum Offset: + <b>1.58</b>         | Actual NGS Elevation or ngvd29.txt file: <b>N/A</b> | OPUS Ortho Height: <b>N/A</b>   |
| Northing (Y) (feet): <b>670418.9</b>         | Easting (X) (feet): <b>937412.5</b>                 | Source of Latitude & Longitude: <b>AVERAGED FPRN &amp; TRIMBLE VRSNOW RTK</b> |
| Latitude: <b>26</b>                          | <b>10</b>   | <b>31.93</b>  |
| Longitude: <b>80</b>                         | <b>8</b>  | <b>32.86</b>  |
| DD°  | MM'   | SS"   |
| Latitude (Decimal Degrees): <b>26.175536</b> |   | Longitude (Decimal Degrees): <b>-80.142461</b>                                |

#### RECOVERY DATA

How to Reach:

1. FROM I-95, TAKE EXIT 31A TO MERGE ONTO FL-816 E/W OAKLAND PARK BLVD AND HEAD EASTERLY FOR 0.3 MILES
2. TURN LEFT ONTO NW 9TH AVE/POWERLINE RD, CONTINUE 0.5 MI
3. TURN RIGHT ONTO NW 38TH ST, CONTINUE 0.7 MI
4. TURN LEFT ONTO NE 3RD AVE
5. CONTINUE NORTHERLY FOR 530 FEET TO THE MARK ON THE RIGHT

Description/Notes: **2" ALUMINUM SFWMD DISK SET IN A POURED IN PLACE CONCRETE MONUMENT**

Notable Landmarks: **WIMBERLY ATHLETIC COMPLEX, HOCKEY RINK**  
 Other Source Benchmarks: **NGS "S 664" (DL2189)**

#### PICTURES

Aerial View of Overall Site

NOT TO SCALE. AERIAL FROM GOOGLE EARTH

056° N56E 0996mils TRUE

#### PICTURES

Site Sketch

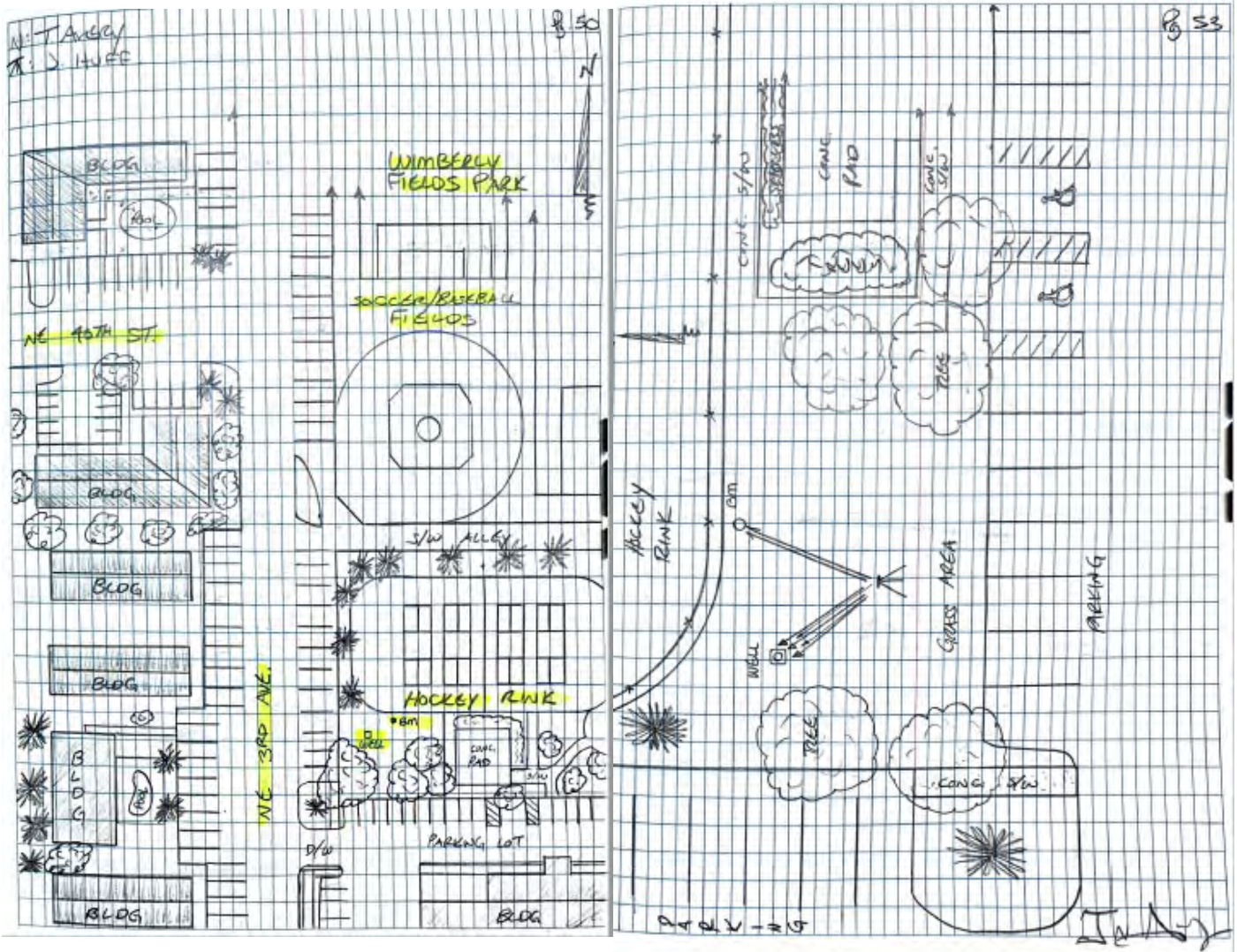


# SOUTH FLORIDA WATER MANAGEMENT DISTRICT



SKETCH

FIELD BOOK SFWMD #1, PAGE 50 & 53



# Office

## Project

2 December 2019

### INPUT

State Plane, NAD83  
0901 - Florida East, U.S. Feet  
Vertical - NAVD88, U.S. Feet

### OUTPUT

Geographic, NAD83  
Vertical - NGVD29 (Vertcon94), U.S. Feet

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## BM G2897

1/2

**Northing/Y:** 670418.9  
**Easting/X:** 937412.5  
**Elevation/Z:** 4.83  
**Convergence:** 0 22 41.89291  
**Scale Factor:** 1.000031876  
**Combined Factor:** 1.000035670

**Latitude:** 26 10 31.92538  
**Longitude:** 80 08 32.85506  
**Elevation/Z:** 6.408

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## WELL G2897

2/2

**Northing/Y:** 670417.49'  
**Easting/X:** 937397.61'  
**Elevation/Z:** 4.75  
**Convergence:** 0 22 41.82058  
**Scale Factor:** 1.000031866  
**Combined Factor:** 1.000035664

**Latitude:** 26 10 31.91239  
**Longitude:** 80 08 33.01859  
**Elevation/Z:** 6.328

SPECTEX SR20 SFW M.D. 09/25/19  
 Rover S/N: USGS WELLS E BMS  
 Trundle NET JOB # 5009 1949  
 Trundle HI: G.S.G. WELL SITE: G-2897

TASK: OBTAIN HORIZONTAL LOCATIONS OF MONITORING POINT & ALL REFERENCE MONUMENTATIONS

STATION AS

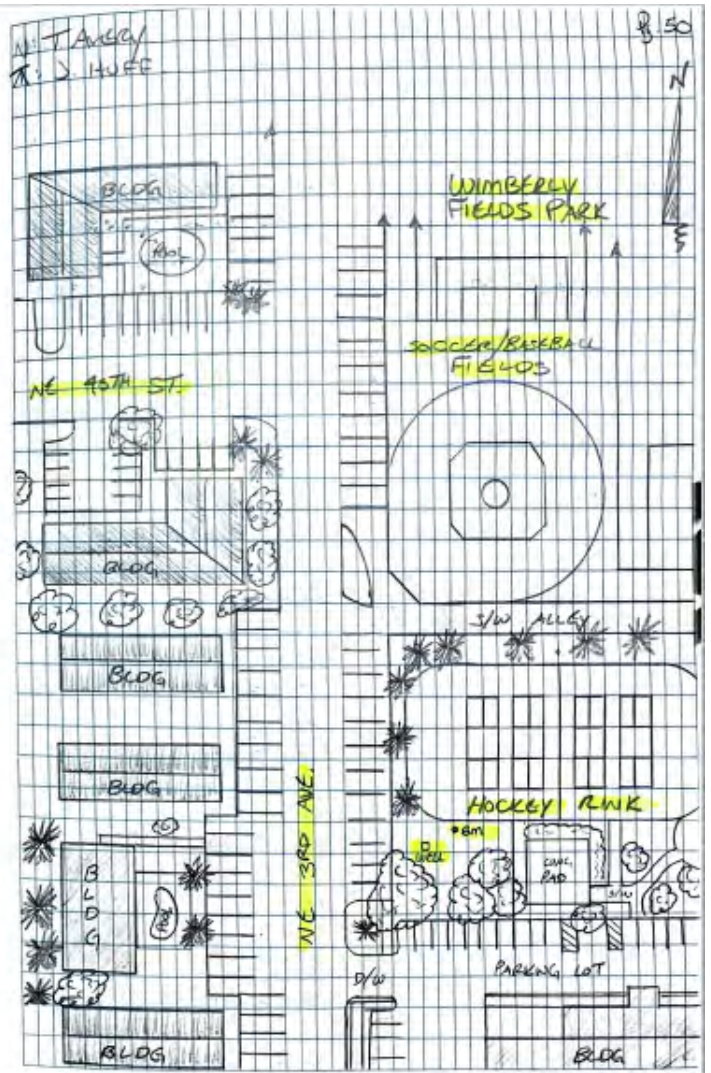
| PT#                | (N) ELEV | (E) ELEV | (C) ELEV | PT# | DESCRIPTION |
|--------------------|----------|----------|----------|-----|-------------|
| 5/0                | 16       | -0.071   | 0.088    | C   | 0.001       |
| *LOCATED PT# 12037 |          |          |          |     |             |
| 5/0                | 16       | -0.069   | 0.093    | F   | 0.047       |

PT# DESCRIPTION  
 12037 MP @ TOP OF PVC CASING

TASK: MEASURE & RECORD DISTANCE FROM MONITORING POINT TO WATER LINE.

MEASUREMENT: 4.87'; AS MEASURED FROM BLACK SHARPIE MARK ON NORTH EDGE OF PVC CASING (6"±)

THIS WELL SITE IS LOCATED IN A CONCRETE 'IN-GROUND' or 'BELOW GRADE' ENCLOSURE IN A GRASS AREA TO THE SOUTH WEST OF A COMMUNITY OUTDOOR HOCKEY RINK, JUST OFF THE EASTERN END OF NE 3RD AVENUE.







| Tollans                                       |       | S.F.W.M.D           |                     | 4/25/19                |                                  |
|---|-------|---------------------|---------------------|------------------------|----------------------------------|
| AT-GZ   |       | USGS WELLS & BMS    |                     |                        |                                  |
| 7N:1434                                       |       | JOB #: 50029949     |                     |                        |                                  |
|   |       | WELL SITE: G-2897   |                     |                        |                                  |
| TASK: CONTINUOUS ELEVATING POINTS OF INTEREST |       |                     |                     |                        |                                  |
| BACKSIGHT (+)                                 |       | X                   |                     | FORESIGHT (-) ASMD ADS |                                  |
| STA ID  | RDS   | MEAN ELEV           | RDS                 | MEAN ELEV              | ELEV.                            |
|   |       |                     |                     | 3.50                   |                                  |
| Bm  |       | <del>4.995150</del> | 3.365               | 3.3667                 | <del>4.995150</del> 4.979        |
|   |       | 8.345               | 3.235               |                        |                                  |
|   |       |                     | 26.5/59.5'          |                        |                                  |
| "   | "     | "                   | "                   | 3.725                  |                                  |
|   |       |                     |                     | 3.60                   | 3.5983 <del>4.747</del> 4.747    |
|   |       |                     |                     | 3.47                   |                                  |
|   |       |                     |                     | 25.5/32.5'             |                                  |
| * BREAK SET-UP                                |       |                     |                     |                        |                                  |
|   |       | 3.54                |                     | 3.465                  |                                  |
| MP  | 3.415 | 3.4150              | <del>4.995150</del> | 3.33                   | 3.3300 <del>4.995150</del> 4.830 |
|   |       | 3.29                | 8.162               | 3.195                  |                                  |
|   |       | 25/77.5'            |                     | 21/109.5'              |                                  |
| * END LEVEL LOOP                              |       |                     |                     |                        |                                  |

N: T. AVERY  
X: J. HOFF

8/52

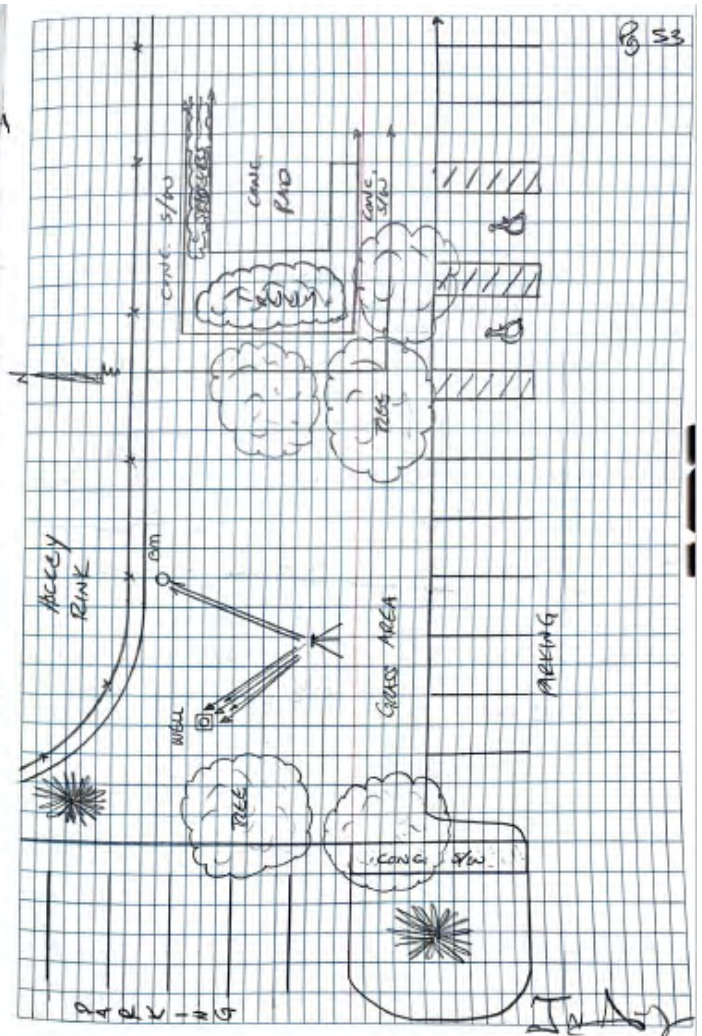
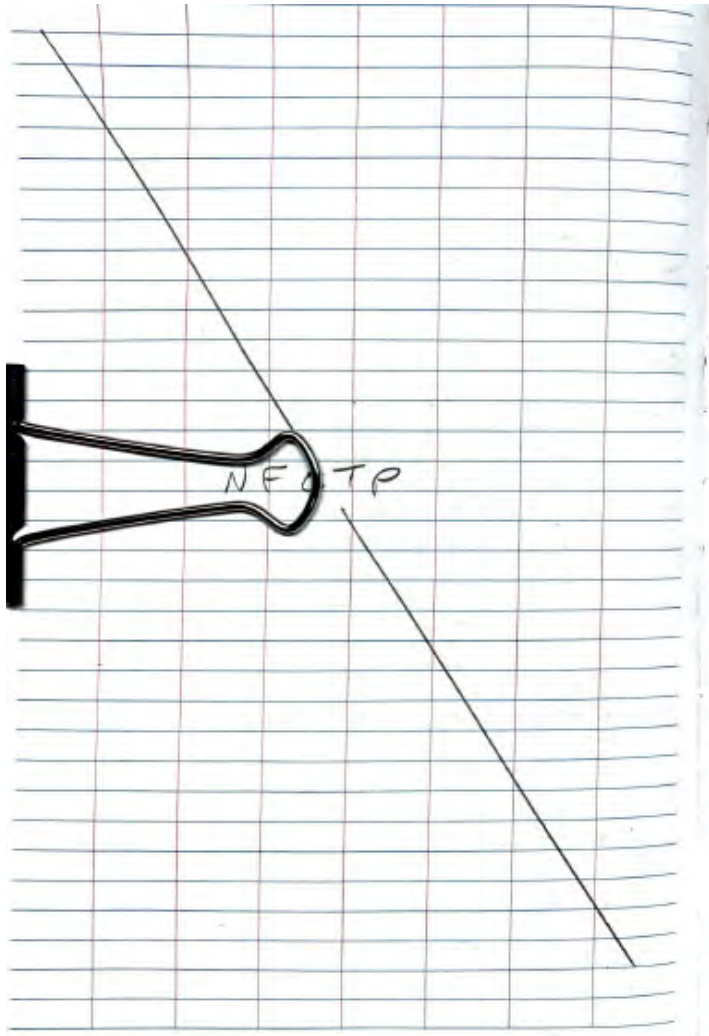
FORESIGHT (-)  
DESCRIPTION

GROUND SHOT, N. OF WELL CASING ENCLOSURE

MEASURING POINT (NORTH EDGE OF PIG CASING)  
(MARKED W/ BLACK SHARPIE)

BACK @ STARTING POINT (SITE Bm)

Check In = 0.008'



## The NGS Data Sheet

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

PROGRAM = datasheet95, VERSION = 8.12.5.2

1 National Geodetic Survey, Retrieval Date = MAY 20, 2019

DL2190 \*\*\*\*\*

DL2190 DESIGNATION - T 664

DL2190 PID - DL2190

DL2190 STATE/COUNTY- FL/BROWARD

DL2190 COUNTRY - US

DL2190 USGS QUAD - FORT LAUDERDALE NORTH (1995)

DL2190

DL2190 \*CURRENT SURVEY CONTROL

DL2190

DL2190\* NAD 83(1986) POSITION- 26 10 26. (N) 080 08 49. (W) SCALED

DL2190\* [NAVD 88](#) ORTHO HEIGHT - 1.019 (meters) 3.34 (feet) ADJUSTED

DL2190

DL2190 GEOID HEIGHT - -25.699 (meters) GEOID12B

DL2190 DYNAMIC HEIGHT - 1.017 (meters) 3.34 (feet) COMP

DL2190 MODELED GRAVITY - 979,064.1 (mgal) NAVD 88

DL2190

DL2190 VERT ORDER - FIRST CLASS II

DL2190

DL2190.The horizontal coordinates were scaled from a topographic map and have

DL2190.an estimated accuracy of +/- 6 seconds.

DL2190.

DL2190.The orthometric height was determined by differential leveling and

DL2190.adjusted by the NATIONAL GEODETIC SURVEY

DL2190.in June 2009.

DL2190

DL2190.Significant digits in the geoid height do not necessarily reflect accuracy.

DL2190.GEOID12B height accuracy estimate available [here](#).

DL2190

DL2190.[Photographs](#) are available for this station.

DL2190

DL2190.The dynamic height is computed by dividing the NAVD 88

DL2190.geopotential number by the normal gravity value computed on the

DL2190.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

DL2190.degrees latitude (g = 980.6199 gals.).

DL2190

DL2190.The modeled gravity was interpolated from observed gravity values.

DL2190

DL2190; North East Units Estimated Accuracy

DL2190;SPC FL E - 204,160. 285,280. MT (+/- 180 meters Scaled)

DL2190

DL2190\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNJ852952(NAD 83)

DL2190

DL2190 SUPERSEDED SURVEY CONTROL

DL2190

DL2190.No superseded survey control is available for this station.

DL2190

DL2190\_MARKER: F = FLANGE-ENCASED ROD

DL2190\_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)

DL2190\_STAMPING: T 664 2006

DL2190\_MARK LOGO: NGS

DL2190\_PROJECTION: FLUSH

DL2190\_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET

DL2190\_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL

DL2190\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

"T 664" NGS Benchmark Datasheet (2 of 2)

DL2190+SATELLITE: SATELLITE OBSERVATIONS - August 02, 2006

DL2190\_ROD/PIPE-DEPTH: 12.5 meters

DL2190

| DL2190 HISTORY | - Date | Condition | Report By |
|----------------|--------|-----------|-----------|
|----------------|--------|-----------|-----------|

|                |            |            |       |
|----------------|------------|------------|-------|
| DL2190 HISTORY | - 20060802 | MONUMENTED | FLDEP |
|----------------|------------|------------|-------|

DL2190

DL2190 STATION DESCRIPTION

DL2190

DL2190'DESCRIBED BY FL DEPT OF ENV PRO 2006 (JLM)

DL2190'THE MARK IS IN OAKLAND PARK, IN SECTION 22, TOWNSHIP 49 SOUTH, RANGE

DL2190'42 EAST.

DL2190'

DL2190'TO REACH THE MARK FROM THE INTERSECTION OF INTERSTATE 95 (EXIT 31) AND

DL2190'OAKLAND PARK BOULEVARD (STATE HIGHWAY 816) IN OAKLAND PARK, GO EAST

DL2190'ON OAKLAND PARK BOULEVARD (STATE HIGHWAY 816) FOR 0.8 MI TO THE

DL2190'INTERSECTION OF ANDREWS AVENUE, (COUNTY ROAD 811A), TURN LEFT ON

DL2190'ANDREWS AVENUE (COUNTY ROAD 811A) AND GO NORTH FOR 0.5 MI TO THE

DL2190'INTERSECTION OF NORTHWEST 38TH STREET AND THE MARK ON THE LEFT, A

DL2190'STAINLESS STEEL ROD DRIVEN TO REFUSAL AT A DEPTH OF 40.9 FT WITH A

DL2190'NGS LOGO CAP FLUSH WITH THE GROUND AND ABOUT 0.6 FT ABOVE THE LEVEL

DL2190'OF 38TH STREET, THE DATUM POINT IS RECESSED 0.7 FT BELOW THE LEVEL OF

DL2190'THE NGS LOGO CAP.

DL2190'

DL2190'LOCATED 59.0 FT WEST OF THE WEST EDGE OF THE PAVEMENT OF ANDREWS

DL2190'AVENUE, 20.5 FT WEST OF A WOODEN GUY POLE WITH TWO GUY WIRES

DL2190'ATTACHED, 20.0 FT WEST-NORTHWEST OF A CONCRETE POWER POLE, 11.5 FT

DL2190'WEST OF THE APPROXIMATE CENTERLINE OF THE EASTBOUND LANES OF

DL2190'NORTHWEST 38TH STREET AND 1.0 FT NORTH OF THE NORTH EDGE OF THE

DL2190'SIDEWALK.

DL2190'

DL2190'NOTE A MAGNET WAS PLACED INSIDE OF THE NGS LOGO CAP.

DL2190'

DL2190'NOTE ACCESS TO THE DATUM POINT IS HAD THROUGH A 5-INCH NGS LOGO CAP.

\*\*\* retrieval complete.

Elapsed Time = 00:00:04

## The NGS Data Sheet

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

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PROGRAM = datasheet95, VERSION = 8.12.5.4
1      National Geodetic Survey,  Retrieval Date = NOVEMBER 26, 2019
DL2189 *****
DL2189 DESIGNATION - S 664
DL2189 PID - DL2189
DL2189 STATE/COUNTY- FL/BROWARD
DL2189 COUNTRY - US
DL2189 USGS QUAD - FORT LAUDERDALE NORTH (1995)
DL2189
DL2189 *CURRENT SURVEY CONTROL
DL2189
DL2189* NAD 83(1986) POSITION- 26 10 26. (N) 080 09 50. (W) SCALED
DL2189* NAVD 88 ORTHO HEIGHT - 0.930 (meters) 3.05 (feet) ADJUSTED
DL2189
DL2189 GEOID HEIGHT - -25.642 (meters) GEOID18
DL2189 DYNAMIC HEIGHT - 0.928 (meters) 3.04 (feet) COMP
DL2189 MODELED GRAVITY - 979,064.3 (mgal) NAVD 88
DL2189
DL2189 VERT ORDER - FIRST CLASS II
DL2189
DL2189.The horizontal coordinates were scaled from a map and have
DL2189.an estimated accuracy of +/- 6 seconds.
DL2189.
DL2189.The orthometric height was determined by differential leveling and
DL2189.adjusted by the NATIONAL GEODETIC SURVEY
DL2189.in June 2009.
DL2189
DL2189.Significant digits in the geoid height do not necessarily reflect accuracy.
DL2189.GEOID18 height accuracy estimate available here.
DL2189
DL2189.Click here to see if photographs exist for this station.
DL2189
DL2189.The dynamic height is computed by dividing the NAVD 88
DL2189.geopotential number by the normal gravity value computed on the
DL2189.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DL2189.degrees latitude (g = 980.6199 gals.).
DL2189
DL2189.The modeled gravity was interpolated from observed gravity values.
DL2189
DL2189; North East Units Estimated Accuracy
DL2189;SPC FL E - 204,150. 283,580. MT (+/- 180 meters Scaled)
DL2189
DL2189_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNJ835952(NAD 83)
DL2189
DL2189 SUPERSEDED SURVEY CONTROL
DL2189
DL2189.No superseded survey control is available for this station.
DL2189
DL2189_MARKER: F = FLANGE-ENCASED ROD
DL2189_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)
DL2189_STAMPING: S 664 2006

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"S 664" NGS Benchmark Datasheet (2 of 2)

DL2189\_MARK LOGO: NGS  
DL2189\_PROJECTION: RECESSED 3 CENTIMETERS  
DL2189\_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET  
DL2189\_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL  
DL2189\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
DL2189+SATELLITE: SATELLITE OBSERVATIONS - August 02, 2006  
DL2189\_ROD/PIPE-DEPTH: 5.8 meters

| DL2189 | HISTORY | - Date     | Condition  | Report By |
|--------|---------|------------|------------|-----------|
| DL2189 | HISTORY | - 20060802 | MONUMENTED | FLDEP     |

DL2189  
DL2189 STATION DESCRIPTION

DL2189'DESCRIBED BY FL DEPT OF ENV PRO 2006 (JLM)  
DL2189'THE MARK IS IN OAKLAND PARK, IN SECTION 21, TOWNSHIP 49 SOUTH, RANGE  
DL2189'42 EAST.

DL2189'  
DL2189'TO REACH THE MARK FROM THE INTERSECTION OF INTERSTATE 95 (EXIT 31) AND  
DL2189'OAKLAND PARK BOULEVARD (STATE HIGHWAY 816) IN OAKLAND PARK, GO EAST  
DL2189'ON OAKLAND PARK BOULEVARD (STATE HIGHWAY 816) FOR 0.3 MI TO THE  
DL2189'JUNCTION OF POWERLINE ROAD (COUNTY ROAD 45) ON THE LEFT, TURN LEFT ON  
DL2189'POWERLINE ROAD (COUNTY ROAD 845) AND GO NORTH FOR 0.5 MI TO THE  
DL2189'INTERSECTION OF NORTHWEST 38TH STREET, TURN LEFT ON NORTHWEST 38TH  
DL2189'STREET AND GO WEST FOR 0.5 MI TO THE ENTRANCE TO ROYAL PALM PARK ON  
DL2189'THE RIGHT AND THE MARK ON THE RIGHT, A STAINLESS STEEL ROD DRIVEN TO  
DL2189'REFUSAL AT A DEPTH OF 19.0 FT WITH A NGS LOGO CAP RECESSED 0.1 FT  
DL2189'BELOW THE LEVEL OF THE GROUND AND ABOUT LEVEL WITH NORTHWEST 38TH  
DL2189'STREET, THE DATUM POINT IS RECESSED 0.4 FT BELOW THE LEVEL OF THE NGS  
DL2189'LOGO CAP.

DL2189'  
DL2189'LOCATED 40.0 FT NORTH OF THE CENTERLINE OF NORTHWEST 38TH STREET, 20.5  
DL2189'FT WEST OF THE APPROXIMATE CENTERLINE OF THE ENTRANCE TO ROYAL PALM  
DL2189'PARK, 13.0 FT NORTH OF THE NORTH EDGE OF THE SIDEWALK, 9.0 FT SOUTH  
DL2189'OF THE SOUTHEAST CORNER OF THE PARKING LOT, 4.5 FT EAST OF THE MOST  
DL2189'NORTHEAST PALM TREE OF A SET OF FOUR PALM TREES AND 2.3 FT WEST OF THE  
DL2189'WEST ENTRANCE GATE POST.

DL2189'  
DL2189'NOTE A MAGNET WAS PLACED INSIDE OF THE NGS LOGO CAP.

DL2189'  
DL2189'NOTE ACCESS TO THE DATUM POINT IS HAD THROUGH A 5-INCH NGS LOGO CAP.

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