



SURVEYOR'S REPORT

**Specific Purpose Survey of the
United States Geological Survey
Recorder Well G-2445
in
Broward County, Florida**

Prepared for:

South Florida Water Management District

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Prepared by:

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License Number 5381
State of Florida

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131 West Kaley Street, Orlando, FL. 32806
Tel (321) 354-9826

Field Date: September 26, 2019
Report Date: December 4, 2019
PO NO: 9500008146

SURVEYOR'S REPORT

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-2445** is located in Section 25, Township 48 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-2445 (G2445 2019), add 1.57'**. 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) 2nd 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 √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 "016" (DO2665), through the well site benchmark, and to the NGS Benchmark "016" (DO2665). Another level loop was then run from NGS Benchmark "015" (DO2654), through the site Benchmark G-2147, and closed on NGS Benchmark "016" (DO2665). The measurements were collected using a Digital Level and were hand written in Whidden Surveying & Mapping, Inc. Field Book W 212 Page 20 and Field Book W203 Page 73, dated September 19th-20th, 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-2445 (G2445 2019) were established by observing a 3-minute session of GPS data on September 19th-20th, 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 #: 5307425789
- Dini Digital Level Serial #: 735642

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

A level loop was run from the previously established Site Benchmark G-2445 (G2445 2019), through the well monitoring point, through the North top edge of circular metal metal well enclosure, through USGS Benchmarks "RM 2", "RM 3", and "RM 1", 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 69-71, dated September 26, 2019. Additional data was manually recorded.

GPS METHODS (horizontal position of Well G-2445 monitoring point & USGS Benchmarks)

Latitude and Longitude for Well G-2445 monitoring point (North top edge of 2" PVC opening) and USGS RM 2 (Nail/disc in concrete slab), USGS RM 3 (5/8" rebar in concrete in 4" PVC), and USGS RM 1 (Aluminum disc in concrete in 4" PVC) were established by observing a 3-minute session of GPS data on September 26, 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

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VERTICAL CONTROL POINT

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

NGS Benchmark "015" (DO2654)						
26° 14' 59.37" (N)	80° 06' 04.77" (W)	Published	6.77 ft.	(NAVD88)	2.06 m	Published
		<p>LOCATED 80.0 FT WEST OF THE CENTERLINE OF FEDERAL HIGHWAY (U.S. HIGHWAY 1), 77.0 FT SOUTH OF THE CENTERLINE OF NORTHEAST 14TH STREET, 46.6 FT SOUTHWEST OF A METAL LIGHT POLE, 30.9 FT WEST OF THE WEST EDGE OF A CONCRETE SIDEWALK, 12.9 FT SOUTH OF A SIGN POST, 4.0 FT EAST OF A FENCE LINE AND 1.0 FT EAST OF A CARSONITE WITNESS POST.</p> <p>NGS BENCHMARK DISK, SET IN GRASS AREA NEXT TO FENCELINE STAMPING: CITY OF POMPANO BEACH 015 2011 BENCHMARK</p>				

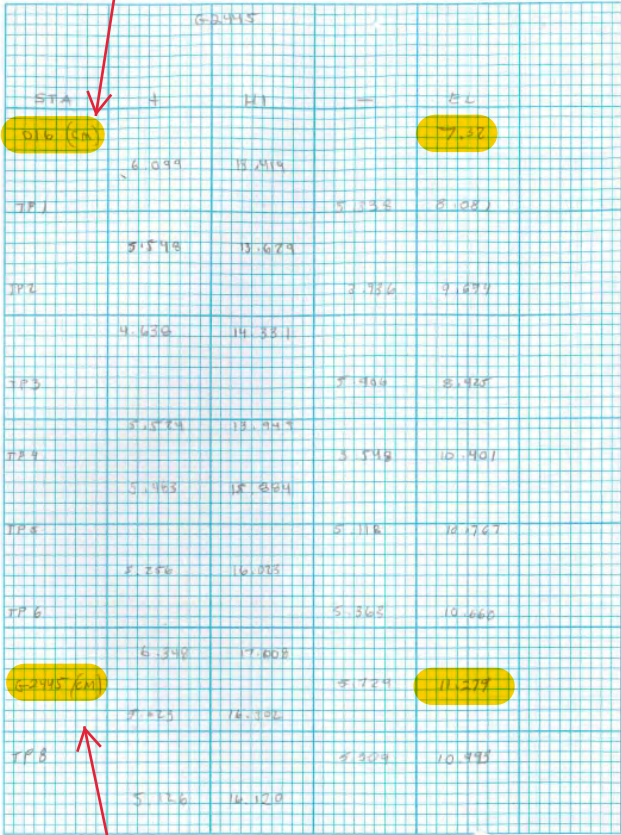
NGS Benchmark "016" (DO2655)						
26° 14' 34.84" (N)	80° 06' 08.47" (W)	Published	7.32 ft.	(NAVD88)	2.23 m	Published
		<p>LOCATED 100.0 FT WEST OF THE CENTERLINE OF FEDERAL HIGHWAY (U.S. HIGHWAY 1), 45.0 FT SOUTH OF THE CENTERLINE OF NORTHEAST 10TH STREET, 44.6 FT NORTHWEST OF A METAL SIGNAL POLE, 24.0 FT NORTH OF THE NORTH EDGE OF A CONCRETE SIDEWALK, 14.2 FT SOUTHEAST OF A WIRE PULL BOX, 8.9 FT EAST OF A METAL LIGHT POLE AND 1.2 FT NORTH OF A CARSONITE WITNESS POST. NOTE REBAR ROD IS IMBEDDED IN THE MONUMENT.</p> <p>NGS BENCHMARK DISK SET IN GRASS AREA NEXT TO EOP STAMPING: CITY OF POMPANO BEACH 016 2011 BENCHMARK</p>				

SURVEYOR'S REPORT

BM: G-2445 (Existing on site benchmark)				
26° 14'49.04" (N)	80° 06' 27.55" (W)	11.27 ft.	(NAVD88)	
NAD_83(2011)		12.84 ft.	(NGVD29)	
		1.57 ft.	(conversion factor)	
		3.44 m		Level run
		3.91 m		Converted
				Corpscon 6.0.1
<p>STATION IS A S.F.W.M.D. BM STAMPED "G2445 2019" SET IN GRASS AREA NEXT TO FENCE LINE</p> <p>LOCATED: NORTH OF A LANDING STRIP AT POMPANO BEACH AIRPORT</p>				

Field Book W212, Page 20

NGS BM "016"
Elev. 7.32' (NAVD88)



Site BM G-2445
Elev. 11.27' (NAVD88)

W212/118

LEVEL: Dini S/N 735642
Receiver: TG-4 S/N 5307425789
Receiver: RB-3 S/N 445113589

STA	HI	RL
TP9	8.769	10.338
TP10	7.198	9.042
TP11	8.652	7.677
TP12	6.921	7.111
TP13 (018)	7.795	7.321

* 37 mph winds

This Loop Began & Ended on NGS MARK 016, PID: 202055.

REFER TO FIELD BOOK W203, PAGE 23 FOR NOTES FOR G2167 AND LEVEL LOOP FROM 016 TO 015.

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Field Book 203 page 73

NGS BM *015*
Elev. 6.72' (NAVD88)

STATION	+	H/I	-	Elev	
015	7.665	13.435		6.77	(cm)
62147			5.818	7.122	(Disc)
	3.746	12.866			
TP2	5.452	12.762	5.558	7.31	
TP3			5.437	7.229	
	2.117	13.292			
TP4			4.690	8.771	
	4.719	13.81			
TP5			3.993	9.864	
	4.781	14.346			
TP6			5.671	8.679	
	5.607	14.281			
016			6.751	7.83	(cm)

NGS BM *016*
Elev. 7.32' (NAVD88)

09/19/19 w203/73

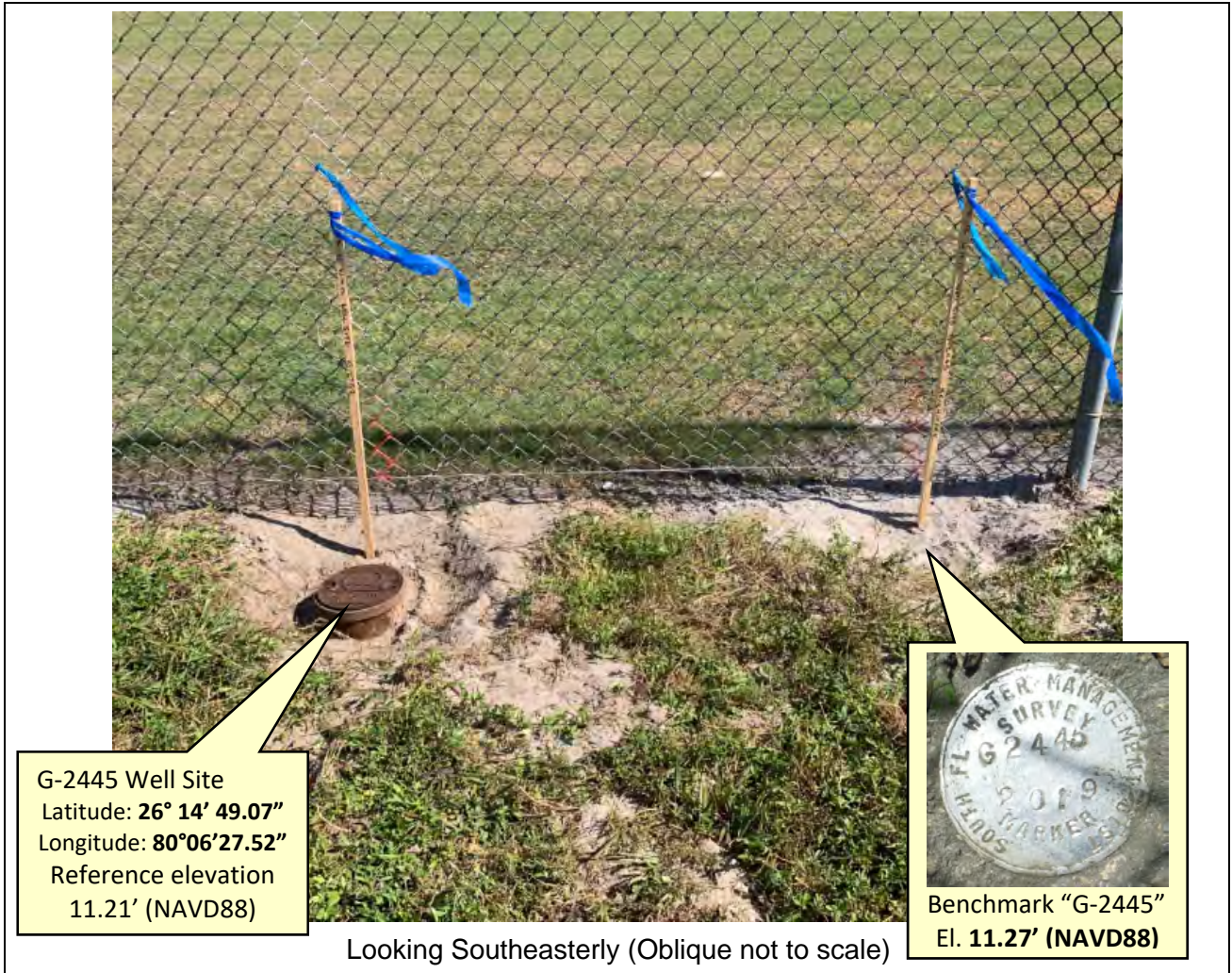
Dist. S/A: 735632

Receiver DG-3 4615445534

Receiver DG-4 6307425729

PROJECT RESULTS

Overall Site



G-2445 Well Site
Latitude: **26° 14' 49.07"**
Longitude: **80°06'27.52"**
Reference elevation
11.21' (NAVD88)

Benchmark "G-2445"
El. **11.27' (NAVD88)**

Looking Southeasterly (Oblique not to scale)

SURVEYOR'S REPORT

Tabular Form

Reference and Ground Elevations: NAVD88			
Well	Ground Elevation	Reference Elevation	Comments
G-2445	11.5 ft.	11.21 ft.	North top of edge of PVC opening
Offset to NGVD29: +1.57' (See Project Vertical Datum Notes in Page: 4)			
Well diameter		Casing material	DTW
2" PVC		Metal	-7.45 ft. (9/26/19 at 2:50 PM)

Source & Site Benchmark	NAVD88	NGVD29 (Published)	NGVD29 (Corpscon)
NGS "015" (DO2654)	6.77 ft. (Published)		
NGS "016" (DO2655)	7.32 ft. (Published)		
BM G-2445 (SFWMD)	11.27 ft. (Measured)		12.83 ft. (Converted)

Well Photos and Diagrams (Continued)

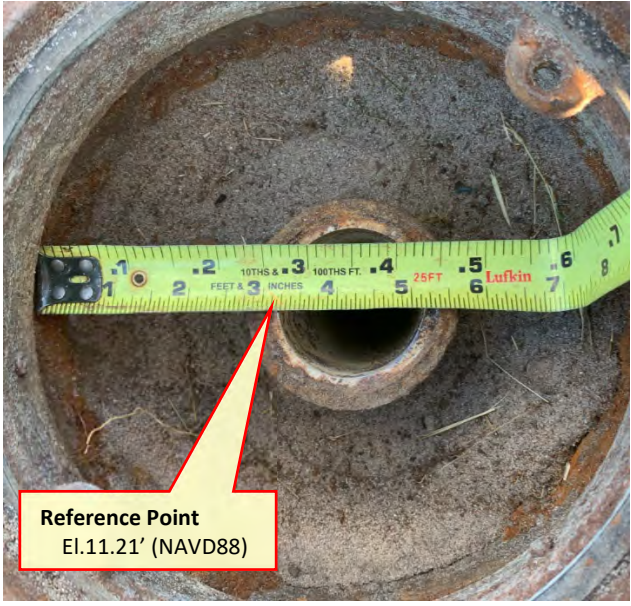


Photo Description

12054 REC. 3" ALUMINUM DISC IN 9" PVC W/ CONC (RM 1)
 12055 REC. 3/8" REBAR IN 9" PVC W/ CONC (RM 3)
 12056 REC. MND "USGS SURVEY MARKER" (RM 2)
 12057 MP @ N. EDGE @ TOP OF WELL HEAD (2" PVC IN OPENING)
 12058 N. EDGE @ TOP OF CIRCULAR METAL WELL ENCLOSURE

TASK: MEASURE & RECORD A DISTANCE FROM THE MONITORING POINT TO THE WATERLINE

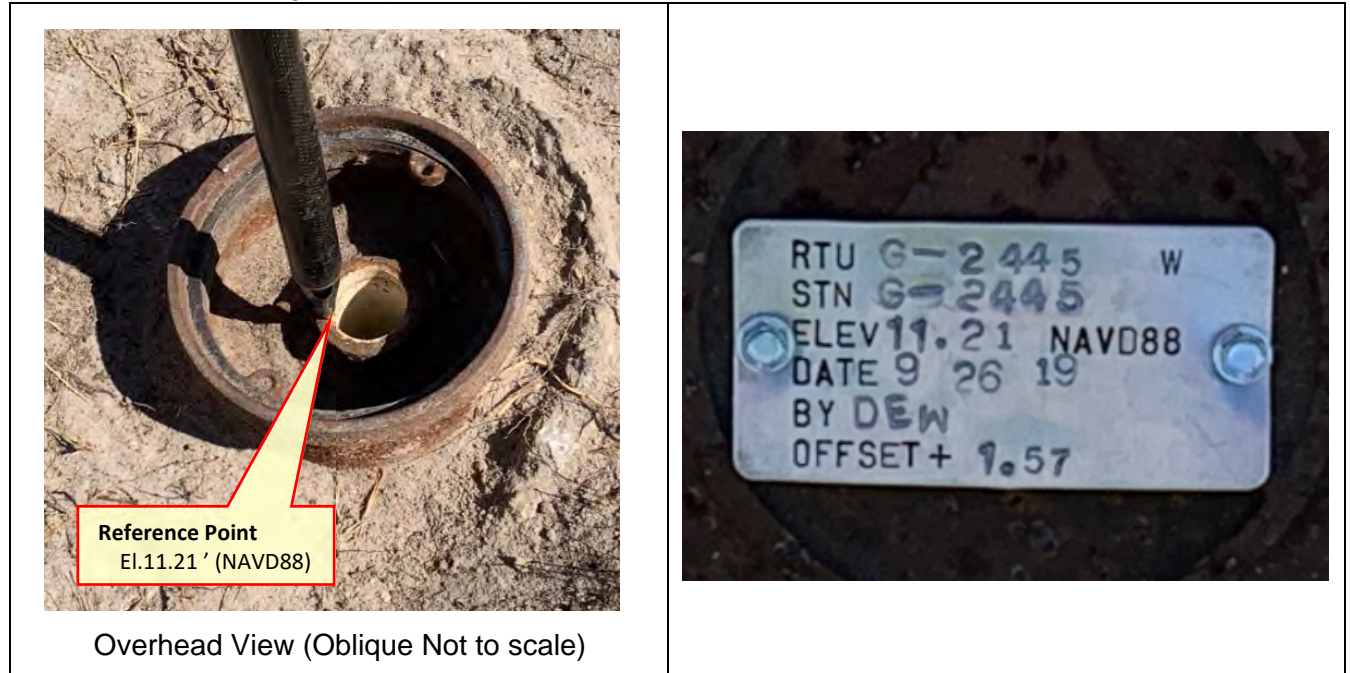
MEASUREMENT: 7.45' ; AS MEASURED FROM THE ^{TOP} N. EDGE OF 2" PVC PIPE INSIDE & RUSTED METAL 'TIE LIKE' CASING (NOT TO BE CONFUSED W/ THE CIRCULAR METAL ENCLOSURE)

Time: 2:50 pm

THIS WELL IS LOCATED ON THE EAST SIDE OF FERRANDO BEACH AIR PARK NEAR AN 8' CHAIN LINK FENCE W/ BARBED WIRE THAT SEPARATES THE AIR PARK & PROFANO BEACH GOLF COURSE

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Well Photos and Diagrams (Continued)



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 1.57 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 26, 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 20 and W203 page 73

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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.

Last date of Survey
Sept. 26, 2019

William D. Donley

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: G-2445	Project Name: USGS Ph 2, BROWARD	Type: V	State Plane Zone: FL East
Stamping: G2445 2019	Field Book Name: W212/W203	Field Book Page: 20/23	
Established By: DEWBERRY / WHIDDEN	Recovered By: N/A	Recovery Date: N/A	
Surveyor: WILLIAM D. DONLEY	Established Date: 9/20/2019 & 9/19/19	Status: New	

GEOGRAPHIC POSITION INFORMATION

Section: 25	Township: 48 SOUTH	Range: 42 EAST
County: BROWARD	Quadrangle: POMPANO BEACH	Quad Index: 1801
NAD83 Adj. Year: 2011	Vertical Datum: NAVD1988	Horizontal Datum: NAD1983
NAVD88 Elevation (feet): 11.27	NGVD29 Elevation (feet): 12.838	2022 Elevation: N/A
NAVD88 Class: N/A	NGVD29 Class: N/A	Other Elevation: N/A
NAVD88 Order: 3	NGVD29 Order: N/A	Other Elevation Type: N/A
		NGS Source BM(s): "016"
		NGS PID(s): DO2655
		NGS NAVD88 Elev (ft): 7.32
		NGS NAVD88 Elev (m): 2.232
		NGS 2022 Elev (ft): N/A

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 vertcon05.txt and vertcon05.05 files supplied by the U.S. Army Corps of Engineers South Atlantic Division, Jacksonville FL.)

Vertical Datum Offset: + 1.57	Actual NGS Elevation or ngvd29.txt file: N/A	OPUS Ortho Height: N/A
Northing (Y) (feet): 696456.4	Easting (X) (feet): 948649.8	Source of Latitude & Longitude: AVERAGED FPRN & TRIMBLE VRSNOW RTK
Latitude: 26 DD°	14 MM'	49.04 SS"
Longitude: 80 DD°	6 MM'	27.55 SS"
Latitude (Decimal Degrees): 26.246956	Longitude (Decimal Degrees): -80.107653	

RECOVERY DATA

How to Reach:

1. FROM FL-814, HEAD NORTH ON US-1/N FEDERAL HWY FOR 0.8 MI
2. TURN LEFT ONTO NE 10TH ST, CONTINUE FOR 0.5 MI TO SHELTAIR EXECUTIVE TERMINAL HANGARS ENTRANCE ON THE RIGHT
3. PASS THROUGH THE CHAIN LINK ROLL-GATE AND TAKE THE IMMEDIATE RIGHT ONTO AN ASPHALT PERIMETER RD, CONTINUE 0.7 MILES TO THE MARK ON THE RIGHT

NOTE: THE MARK IS LOCATED ALONG A FENCE LINE, APPROXIMATELY 90 FEET NE OF FENCE CORNER POST AND 5.0' SE OF MONITORING WELL

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

Notable Landmarks: **POMPANO BEACH AIRPARK**
 Other Source Benchmarks: **NGS "015" (DO2654)**

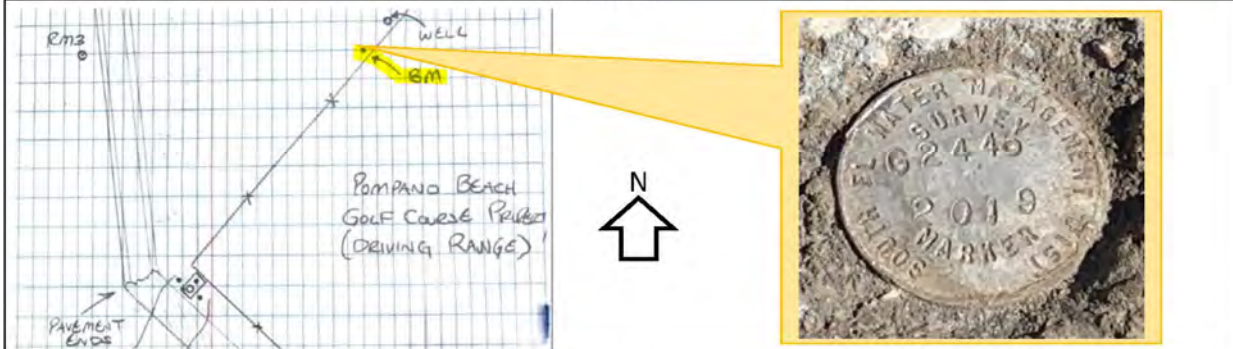
PICTURES

Aerial View of Overall Site



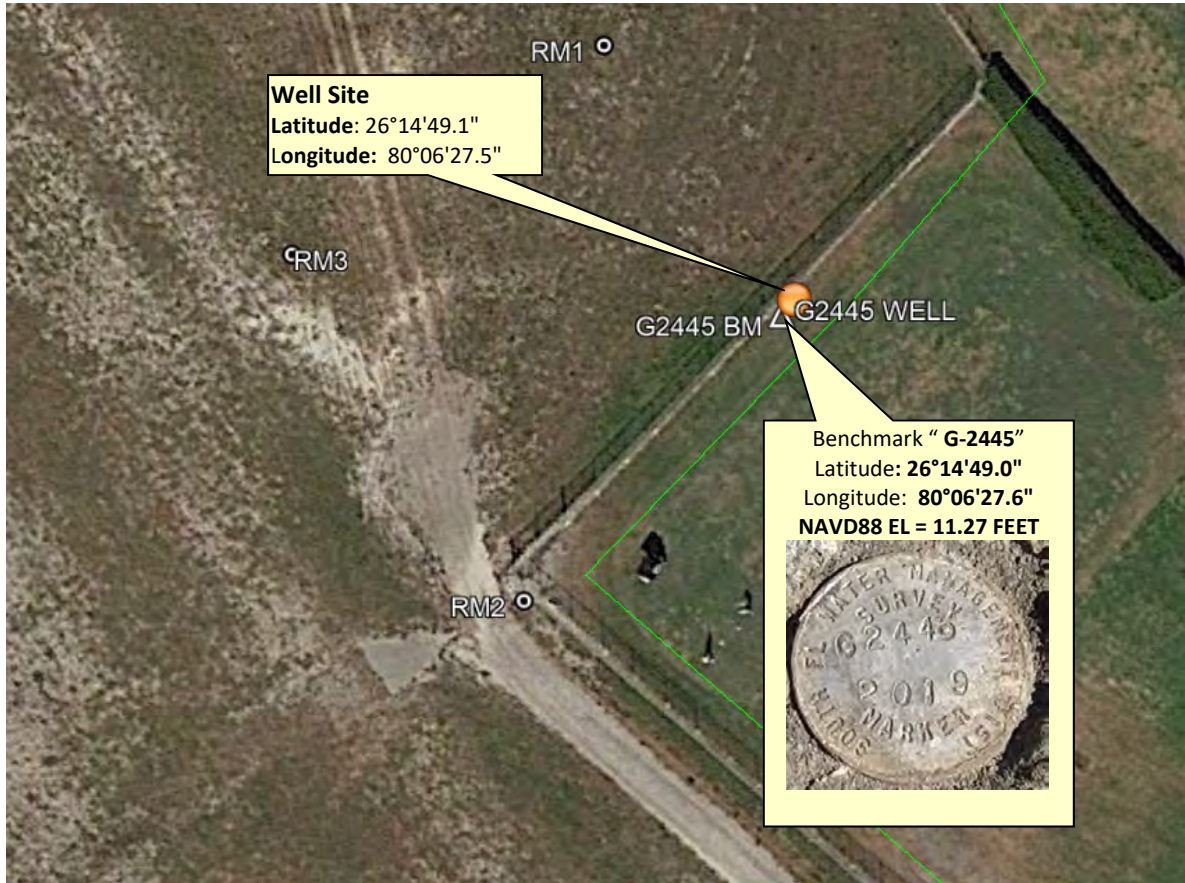
PICTURES

Site Sketch





SOUTH FLORIDA WATER MANAGEMENT DISTRICT



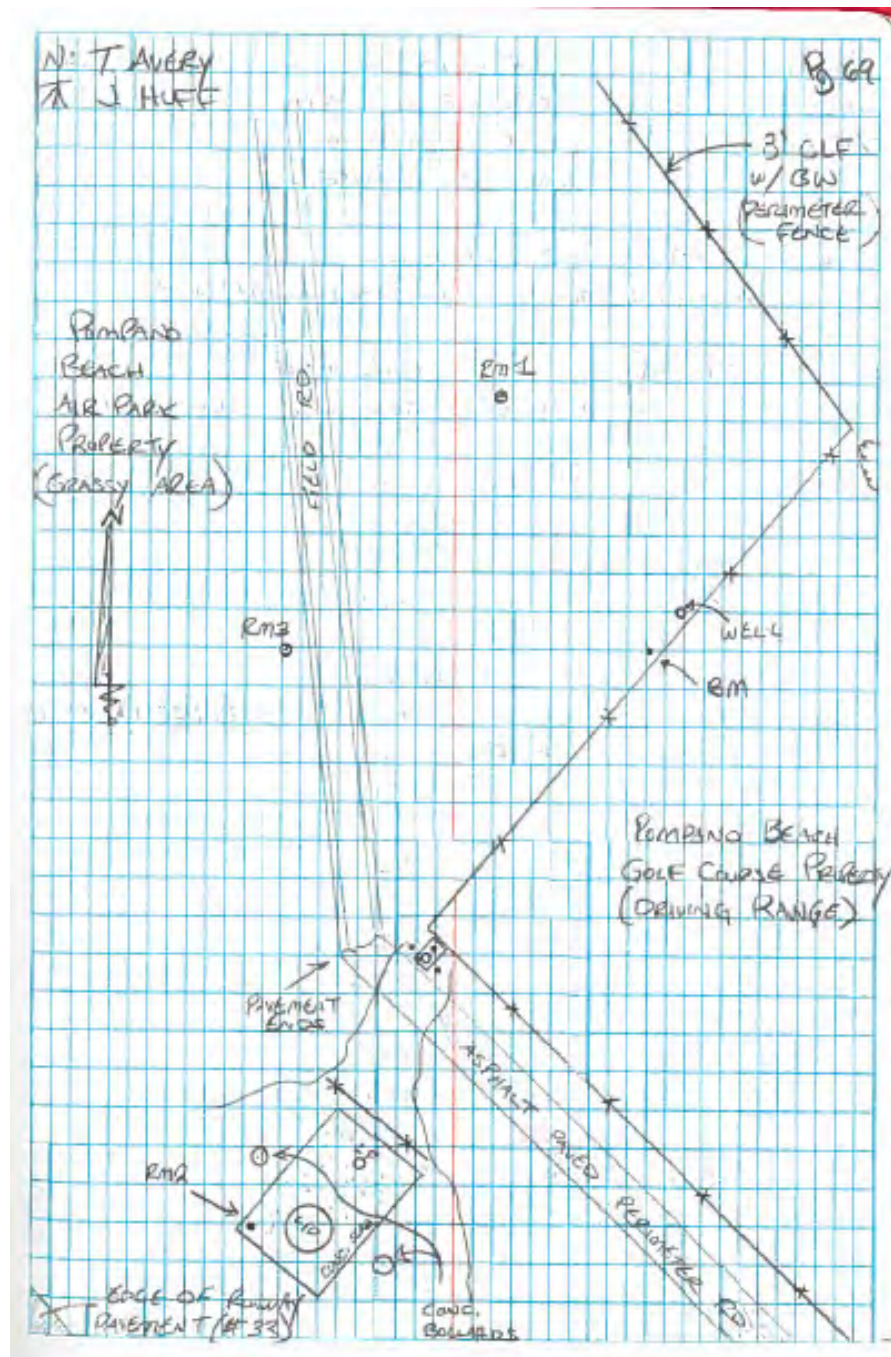
NOT TO SCALE (Google Earth Product)



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

SKETCH

FIELD BOOK SFWMD #1, PAGE 69



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

BM G-2445

1/2

Northing/Y: 696456.4

Latitude: 26 14 49.03643

Easting/X: 948649.8

Longitude: 80 06 27.55256

Elevation/Z: 11.27

Elevation/Z: 12.838

Convergence: 0 23 40.76994

Scale Factor: 1.000039267

Combined Factor: 1.000042778

WELL G-2445

2/2

Northing/Y: 696460.28'

Latitude: 26 14 49.07464

Easting/X: 948652.92'

Longitude: 80 06 27.51800

Elevation/Z: 11.21

Elevation/Z: 12.778

Convergence: 0 23 40.78576

Scale Factor: 1.000039269

Combined Factor: 1.000042783

Section 560 SFWMD 09/26/16
 Rover #1165 USGS Well & BMS
 Temple Network JRS# 5099 9999
 HT: G-562 WELL SITE G-2495

TASK: ESTABLISH HORIZONTAL LOCATIONS ON WELL MONITORING POINT & REC. MONUMENTATION @ SITE

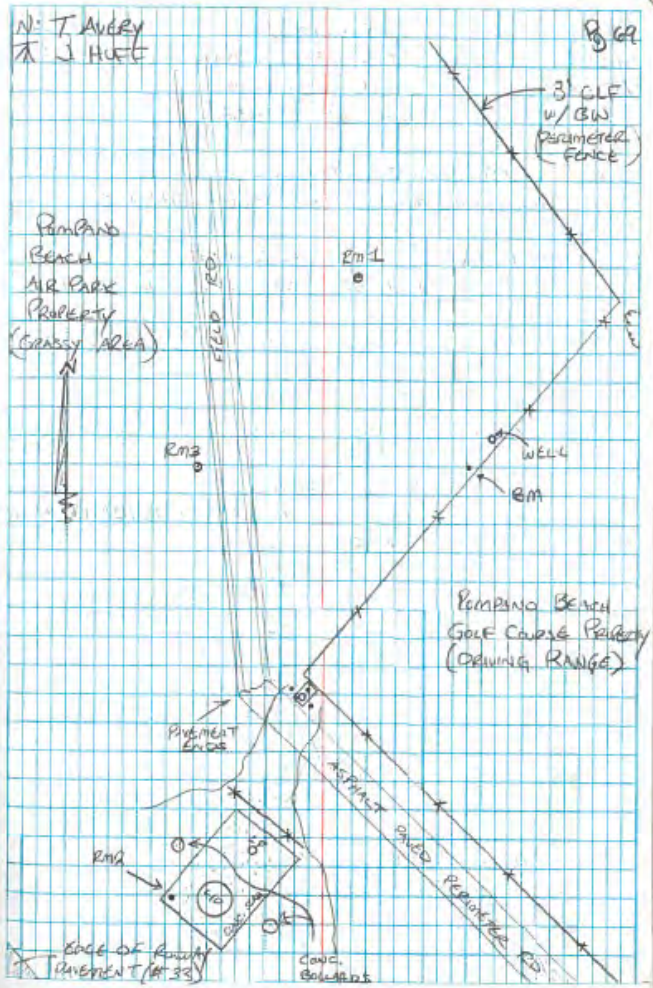
PT#	N/E	E/E	W/E	PT#	DESCRIPTION
5/0	9	-0.059	0.005	F 0.04	5090 CHK-IN B@G2495
* LOCATED PT#s: 1205A-1205B					
5/0	9	-0.009	-0.019	F 0.118	5091 CHK-OUT B@G2495

PT#s	DESCRIPTION
1205A	REC. 3" ALUMINUM DISC IN 4" PVC W/ CONC (RM 1)
1205B	REC. 3/8" REBAR IN 4" PVC W/ CONC. (RM 3)
1205C	REC. MND "USGS SURVEY MARKER" (RM 2)
1205T	MP @ N. EDGE @ TOP OF WELL HEAD (2" PVC W/ CONC)
1205B	N. EDGE @ TOP OF CIRCULAR METAL WELL ENCLOSURE

TASK: MEASURE & RECORD A DISTANCE FROM THE MONITORING POINT TO THE WATERLINE

MEASUREMENT: 7.45' ; AS MEASURED FROM THE ^{TOP} N. EDGE OF 2" PVC PIPE INSIDE A RUSTED METAL PIPE LIKE CASING (NOT TO BE CONFUSED W/ THE CIRCULAR METAL ENCLOSURE)

THIS WELL IS LOCATED ON THE EAST SIDE OF POMPANO BEACH AIR PARK NEAR AN 8' CHAIN LINK FENCE W/ BARBED WIRE THAT SEPARATES THIS AIR PARK & POMPANO BEACH GOLF COURSE



FROM		TO		DATE			
SF W m L		09/26/19					
AT-GZ		USGS WELLS & BMs					
S/N: 1939		JOB # 50099949					
		WELL SITE: G-2445					
TASK: ELEVATE MONITORING POINT, REFERENCE MONUMENTATION, & GROUND @ WELL SITE							
BACKSIGHT (+)		PI		FORESIGHT (-)		ADJ	
STA ID	RDS	MEAN	ELEV	RDS	MEAN	ELEV	ELEV
	5.845			5.93			
Bm	5.565	5.5633	105.5633	5.63	5.6283	99.9350	11.205
	5.28		16.8333	5.325			
	56.5/36.5			60.5/117			
				5.725			
"	"	"	"	5.42	5.4217	100.1417	11.4116
				5.12			
				60.5/117			
				5.60			
"	"	"	"	5.295	5.2950	100.2685	11.5383
				4.99			
				61/117.5			
				5.74			
"	"	"	"	5.385	5.3850	100.1785	11.4483
				5.03			
				71/121.5			
				5.31			
"	"	"	"	4.99	4.9867	100.5767	11.8466
				4.66			
				65/121.5			

ELEVATION	DESCRIPTION
100.000	ALUMINUM DISC FOUND SW OF WELL ENCLOSURE NEAR 8' CLF. STAMPED "SF W M D SURVEY MARK G2445 2019" (DISC WAS SET IN CONCRETE)
11.27 (Whitson) (NAVD83)	
FORESIGHT (-)	DESCRIPTION
	IMP @ N. TOP EDGE OF PVC PIPE OPENING (2" PVC)
	MP (MONITORING POINT)
	N. TOP EDGE OF CIRCULAR METAL WELL ENCLOSURE
	GROUND STAKE, N. OF METAL WELL ENCLOSURE
	RM2 - REC MND IN CONC. SLAB @ WEST CORNER OF SLAB (SLAB IS LOCATED SW OF WELL ENCLOSURE NEAR 8' CLF CORNER)
	RM3 - REC. 5/8" REBAR CEMENTED INTO A 4" PVC PIPE, LOCATED WEST OF WELL ENCLOSURE

TPC: [unclear] SF W MD CA/26/19
 AT-G2 USGS WELLS & BMS
 S/N: 1439 JOB #: 50099999
 WELL SITE: G-2445

TASK: CONTINUE ELEVATING POINTS OF INTEREST

BACKSIGHT (+)		TK		FORESIGHT (-)		ADJ
STA ID	RDS	MEAN	ELEV	RDS	MEAN	ELEV
			5.29			
BM		105.5138	4.96	4.9583	100.6050	11.8750
		106.1533	4.625			
			106.5123			
* BREAK SET-UP						
	5.17		5.79			
EM 1	4.93	4.98	105.5850	5.585	5.5850	100.9000
	4.79		106.1533	5.38		
* END LEVEL LOOP						

M: T AVERY
 TK: J. HUFF

870
 970
 1070
 1170
 1270
 1370
 1470
 1570
 1670
 1770
 1870
 1970
 2070
 2170
 2270
 2370
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 8970
 9070
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 9470
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 9870
 9970
 10070

FORESIGHT (-)
 DESCRIPTION

RM1 - RECOVERED 3.25" ALUMINUM DISC SET IN
 TOP OF 9" PVC W/ CEMENT @ GROUND LEVEL
 STAMPED " USGS SURVEY MARK "

BACK @ STARTING POINT (SITE BM)

Check Im = 0.00'

[Signature]

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

D02654 *****

D02654 DESIGNATION - 015

D02654 PID - D02654

D02654 STATE/COUNTY- FL/BROWARD

D02654 COUNTRY - US

D02654 USGS QUAD - POMPANO BEACH (1983)

D02654

D02654 *CURRENT SURVEY CONTROL

D02654

D02654* NAD 83(1986) POSITION- 26 14 59. (N) 080 06 04. (W) SCALED

D02654* [NAVD 88](#) ORTHO HEIGHT - 2.063 (meters) 6.77 (feet) ADJUSTED

D02654

D02654 GEOID HEIGHT - -25.873 (meters) GEOID12B

D02654 DYNAMIC HEIGHT - 2.060 (meters) 6.76 (feet) COMP

D02654 MODELED GRAVITY - 979,072.1 (mgal) NAVD 88

D02654

D02654 VERT ORDER - SECOND CLASS II

D02654

D02654.The horizontal coordinates were scaled from a topographic map and have

D02654.an estimated accuracy of +/- 6 seconds.

D02654.

D02654.The orthometric height was determined by differential leveling and

D02654.adjusted by the NATIONAL GEODETIC SURVEY

D02654.in December 2012.

D02654

D02654.Significant digits in the geoid height do not necessarily reflect accuracy.

D02654.GEOID12B height accuracy estimate available [here](#).

D02654

D02654.[Photographs](#) are available for this station.

D02654

D02654.The dynamic height is computed by dividing the NAVD 88

D02654.geopotential number by the normal gravity value computed on the

D02654.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

D02654.degrees latitude (g = 980.6199 gals.).

D02654

D02654.The modeled gravity was interpolated from observed gravity values.

D02654

	North	East	Units	Estimated Accuracy
D02654; SPC FL E	- 212,590.	289,800.	MT	(+/- 180 meters Scaled)

D02654

D02654_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNK897036(NAD 83)

D02654

D02654 SUPERSEDED SURVEY CONTROL

D02654

D02654.No superseded survey control is available for this station.

D02654

D02654_MARKER: DB = BENCH MARK DISK

D02654_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

D02654_STAMPING: 015 2011

D02654_MARK LOGO: FL2570

D02654_PROJECTION: RECESSED 5 CENTIMETERS

D02654_MAGNETIC: R = STEEL ROD IMBEDDED IN MONUMENT

D02654_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

D02654+STABILITY: SURFACE MOTION

"015" NGS Benchmark Datasheet (2 of 2)

D02654_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

D02654+SATELLITE: SATELLITE OBSERVATIONS - December 22, 2011

D02654

D02654	HISTORY	- Date	Condition	Report By
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D02654	HISTORY	- 20111222	MONUMENTED	STONER
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D02654

D02654 STATION DESCRIPTION

D02654

D02654'DESCRIBED BY STONER AND ASSOCIATES INC 2011 (DWS)

D02654'THE MARK IS ABOUT 7.7 MI (12.4 KM) SOUTHEAST OF WEST DIXIE BEND, 7.6

D02654'MI (12.2 KM) SOUTH OF BOCA RATON, 1.7 MI (2.7 KM) EAST-NORTHEAST OF

D02654'POMPANO BEACH, IN SECTION 30, TOWNSHIP 48 SOUTH, RANGE 43 EAST.

D02654'OWNERSHIP IS THE FLORIDA DEPARTMENT OF TRANSPORTATION.

D02654'

D02654'TO REACH THE MARK FROM THE INTERSECTION OF WEST ATLANTIC BOULEVARD AND

D02654'NORTH DIXIE HIGHWAY IN POMPANO BEACH, GO EAST ON EAST ATLANTIC

D02654'BOULEVARD FOR 1.5 MI (2.4 KM) TO THE INTERSECTION OF FEDERAL HIGHWAY

D02654'(U.S. HIGHWAY 1). TURN LEFT ON NORTH FEDERAL HIGHWAY (U.S. HIGHWAY 1)

D02654'AND GO NORTH FOR 1.2 MI (1.9 KM) TO THE MARK ON THE LEFT, SET IN THE

D02654'TOP OF A 10-INCH (25 CM) ROUND CONCRETE MONUMENT RECESSED 0.2 FT (6

D02654'CM) BELOW THE LEVEL OF THE GROUND AND 0.5 FT (15 CM) BELOW THE LEVEL

D02654'OF NORTH FEDERAL HIGHWAY (U.S. HIGHWAY 1).

D02654'

D02654'LOCATED 80.0 FT (24.4 M) WEST OF THE CENTERLINE OF FEDERAL HIGHWAY

D02654'(U.S. HIGHWAY 1), 77.0 FT (23.5 M) SOUTH OF THE CENTERLINE OF

D02654'NORTHEAST 14TH STREET, 46.6 FT (14.2 M) SOUTHWEST OF A METAL LIGHT

D02654'POLE, 30.9 FT (9.4 M) WEST OF THE WEST EDGE OF A CONCRETE SIDEWALK,

D02654'12.9 FT (3.9 M) SOUTH OF A SIGN POST, 4.0 FT (1.2 M) EAST OF A FENCE

D02654'LINE AND 1.0 FT (0.3 M) EAST OF A CARSONITE WITNESS POST.

D02654'

D02654'NOTE REBAR ROD IS IMBEDDED IN THE MONUMENT.

*** retrieval complete.

Elapsed Time = 00:00:04

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

DO2655 *****

DO2655 DESIGNATION - 016

DO2655 PID - DO2655

DO2655 STATE/COUNTY- FL/BROWARD

DO2655 COUNTRY - US

DO2655 USGS QUAD - POMPANO BEACH (1983)

DO2655

DO2655 *CURRENT SURVEY CONTROL

DO2655

DO2655* NAD 83(1986) POSITION- 26 14 34. (N) 080 06 08. (W) SCALED

DO2655* [NAVD 88](#) ORTHO HEIGHT - 2.232 (meters) 7.32 (feet) ADJUSTED

DO2655

DO2655 GEOID HEIGHT - -25.867 (meters) GEOID12B

DO2655 DYNAMIC HEIGHT - 2.229 (meters) 7.31 (feet) COMP

DO2655 MODELED GRAVITY - 979,071.4 (mgal) NAVD 88

DO2655

DO2655 VERT ORDER - SECOND CLASS II

DO2655

DO2655.The horizontal coordinates were scaled from a topographic map and have
DO2655.an estimated accuracy of +/- 6 seconds.

DO2655.

DO2655.The orthometric height was determined by differential leveling and
DO2655.adjusted by the NATIONAL GEODETTIC SURVEY

DO2655.in December 2012.

DO2655

DO2655.Significant digits in the geoid height do not necessarily reflect accuracy.
DO2655.GEOID12B height accuracy estimate available [here](#).

DO2655

DO2655.[Photographs](#) are available for this station.

DO2655

DO2655.The dynamic height is computed by dividing the NAVD 88
DO2655.geopotential number by the normal gravity value computed on the
DO2655.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DO2655.degrees latitude (g = 980.6199 gals.).

DO2655

DO2655.The modeled gravity was interpolated from observed gravity values.

DO2655

DO2655;	North	East	Units	Estimated Accuracy
DO2655;SPC FL E	- 211,820.	289,700.	MT	(+/- 180 meters Scaled)

DO2655

DO2655_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNK896028(NAD 83)

DO2655

DO2655 SUPERSEDED SURVEY CONTROL

DO2655

DO2655.No superseded survey control is available for this station.

DO2655

DO2655_MARKER: DB = BENCH MARK DISK

DO2655_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

DO2655_STAMPING: 016 2011

DO2655_MARK LOGO: FL2570

DO2655_PROJECTION: RECESSED 5 CENTIMETERS

DO2655_MAGNETIC: R = STEEL ROD IMBEDDED IN MONUMENT

DO2655_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

DO2655+STABILITY: SURFACE MOTION

"016" NGS Benchmark Datasheet (2 of 2)

DO2655_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DO2655+SATELLITE: SATELLITE OBSERVATIONS - December 22, 2011

DO2655

DO2655	HISTORY	- Date	Condition	Report By
DO2655	HISTORY	- 20111222	MONUMENTED	STONER

DO2655

DO2655

STATION DESCRIPTION

DO2655

DO2655'DESCRIBED BY STONER AND ASSOCIATES INC 2011 (DWS)

DO2655'THE MARK IS ABOUT 8.0 MI (12.9 KM) SOUTH OF BOCA RATON, 7.9 MI (12.7
DO2655'KM) SOUTHEAST OF WEST DIXIE BEND, 1.5 MI (2.4 KM) EAST-NORTHEAST OF
DO2655'POMPANO BEACH, IN SECTION 31, TOWNSHIP 48 SOUTH, RANGE 43 EAST.

DO2655'OWNERSHIP IS THE FLORIDA DEPARTMENT OF TRANSPORTATION.

DO2655'

DO2655'TO REACH THE MARK FROM THE INTERSECTION OF WEST ATLANTIC BOULEVARD AND
DO2655'NORTH DIXIE HIGHWAY IN POMPANO BEACH, GO EAST ON EAST ATLANTIC

DO2655'BOULEVARD FOR 1.5 MI (2.4 KM) TO THE INTERSECTION OF FEDERAL HIGHWAY

DO2655'(U.S. HIGHWAY 1). TURN LEFT ON NORTH FEDERAL HIGHWAY (U.S. HIGHWAY 1)

DO2655'AND GO NORTH FOR 0.8 MI (1.3 KM) TO THE MARK ON THE LEFT, SET IN THE

DO2655'TOP OF A 10-INCH (25 CM) ROUND CONCRETE MONUMENT RECESSED 0.2 FT (6

DO2655'CM) BELOW THE LEVEL OF THE GROUND AND 0.5 FT (15 CM) BELOW THE LEVEL

DO2655'OF NORTH FEDERAL HIGHWAY (U.S. HIGHWAY 1).

DO2655'

DO2655'LOCATED 100.0 FT (30.5 M) WEST OF THE CENTERLINE OF FEDERAL HIGHWAY

DO2655'(U.S. HIGHWAY 1), 45.0 FT (13.7 M) SOUTH OF THE CENTERLINE OF

DO2655'NORTHEAST 10TH STREET, 44.6 FT (13.6 M) NORTHWEST OF A METAL SIGNAL

DO2655'POLE, 24.0 FT (7.3 M) NORTH OF THE NORTH EDGE OF A CONCRETE SIDEWALK,

DO2655'14.2 FT (4.3 M) SOUTHEAST OF A WIRE PULL BOX, 8.9 FT (2.7 M) EAST OF A

DO2655'METAL LIGHT POLE AND 1.2 FT (0.4 M) NORTH OF A CARSONITE WITNESS POST.

DO2655'NOTE REBAR ROD IS IMBEDDED IN THE MONUMENT.

*** retrieval complete.

Elapsed Time = 00:00:04