



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 1/16

DB Hydro Station Names: <b>PBF-10R</b> <b>PBF-11</b> <b>PBF-12</b>	DB Hydro Site Name: <b>WHILL</b> <b>WHILL</b> <b>WHILL</b>	Date of Field Work: <b>28-sep-17</b>
Party Chief: <b>Giammarco</b>	Field Book: <b>Misc 6Z</b>	Pages <b>72 &amp; 73</b>
Prepared by: <b>H. Ehmke</b>		

### SITE SPECIFIC DATA

Site Benchmark: <b>12.5265 (PBF-10R)</b> <b>12.4785 (PBF-11 &amp; 12)</b>	Elevation (NAVD88) <b>11.005</b> <b>10.957</b>	Y (N) <b>735577.78</b> <b>735569.16</b>	X (E) <b>886676.45</b> <b>886679.24</b>	Latitude: <b>26°21'20.2652"</b> <b>26°21'20.1795"</b>	Longitude: <b>80°17'45.84244"</b> <b>80°17'45.81228"</b>	Corpscon 6.0.1 (NAVD88 to NGVD29) <b>+1.519</b>
Reference Elevation(s) (NAVD88): PBF-10R GW1 El. <b>14.68</b> PBF-11 GW2 El. <b>13.95</b> PBF-12 GW3 El. <b>16.44</b>		Existing Brass Tag Elevation (Datum): <b>None</b> <b>None</b> <b>PBF-12 GW3 17.965 11 20 14 EE JB</b>		Calibration Port Elevation(s) (NAVD88): PBF-10R GW1 El. <b>14.68</b> PBF-11 GW2 El. <b>13.98</b> PBF-12 GW3 <b>Not Applicable</b>		
Ground Elevation (NAVD88): taken at the corners			Pad Elevation (NAVD88): taken at the corners			
PBF-10R NW El. <b>10.8</b> NE El. <b>10.5</b> SW El. <b>10.8</b> SE El. <b>10.7</b>	PBF11 & PBF12 NW El. <b>10.7</b> NE El. <b>10.6</b> SW El. <b>10.7</b> SE El. <b>10.6</b>	PBF-10R NW El. <b>10.93</b> NE El. <b>10.94</b> SW El. <b>10.93</b> SE El. <b>10.94</b>	PBF11 & PBF12 NW El. <b>10.93</b> NE El. <b>10.91</b> SW El. <b>10.96</b> SE El. <b>10.93</b>			

### GEOGRAPHIC DATA

Section <b>19</b>	Township <b>47</b> South	Range <b>41</b> East
<b>12.5265 Benchmark</b>	Latitude: <b>26°21'20.266"</b>	Longitude: <b>80°17'45.844"</b>
	State Plane Coordinates	Source: <b>OPUS Session 28-sep-17</b>
	Northing (Y) = <b>735577.915</b>	Easting (X) = <b>886676.281</b>

**Notes:**

**OPUS** – Online Positioning User Service provided by the National Geodetic Survey (NGS)  
**NAVD88** – North American Vertical Datum of 1988  
**NGVD29** - National Geodetic Vertical Datum of 1929  
**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.

### PICTURES

Aerial Overall Site

Benchmark  
"OTTER (AD7241)"  
Latitude: **26°21'22.08231"**  
Longitude: **80°17'50.48868"**  
El. **13.501 NAVD88**

Benchmark  
"FCE3943 (AD7240)"  
Latitude: **26°21'20.58454"**  
Longitude: **80°17'51.59533"**  
El. **22.365 NAVD88**

PBF-10R, PBF-11 &  
PBF-12 (WHILL) Well Site  
Latitude: **26°21'20.26"**  
Longitude: **80°17'45.84"**

**S-39**

Not to scale (esri product)



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

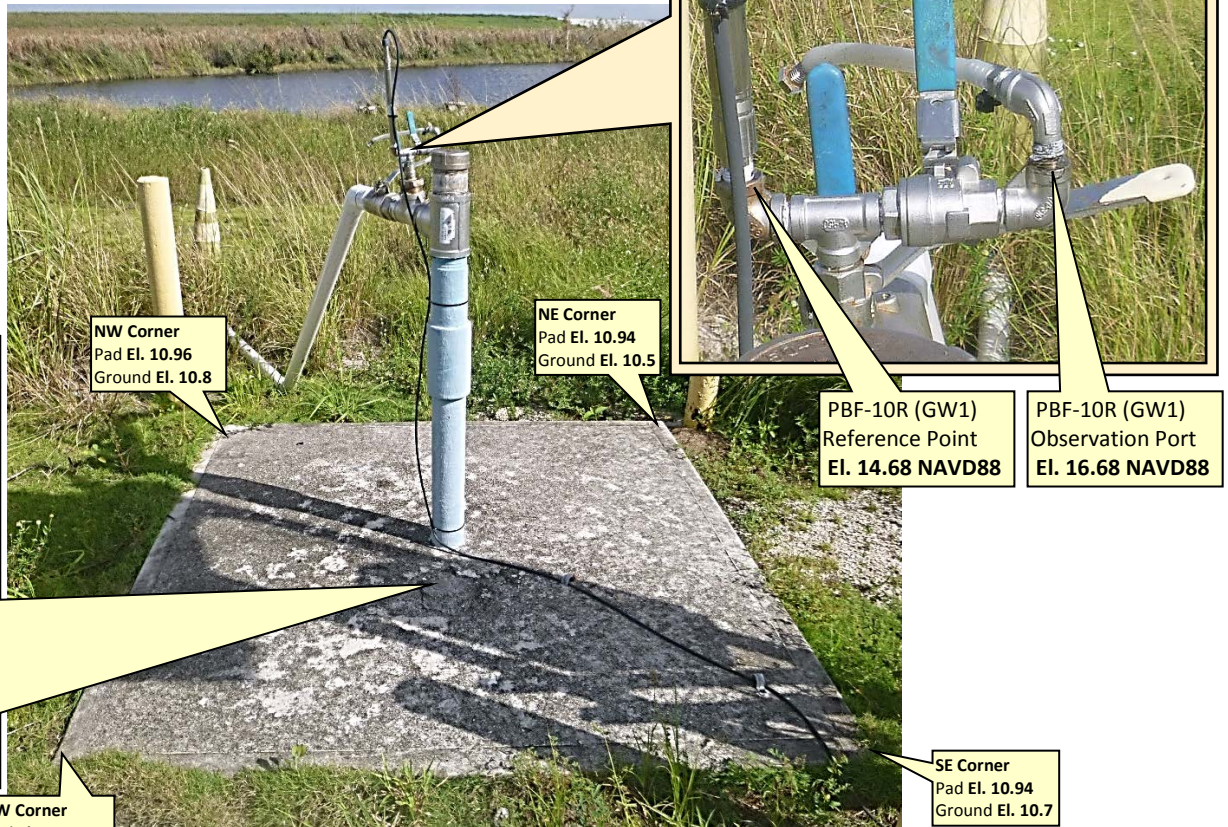
Rev. 1/16

## Overall



Looking Easterly (oblique not to scale) (28-sep-17)

## PBF-10R (GW1) Well



Benchmark "12.5265"  
Latitude: 26°21'20.2652"  
Longitude: 80°17'45.84244"  
El. 11.05 NAVD88

SW Corner  
Pad El. 10.93  
Ground El. 10.8

Looking Northerly (oblique not to scale) (23-oct-17)



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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PBF-11 (GW2), PBF12 (GW3) Wells



**PBF-12 (GW3)**  
Reference Point  
El. 16.44 NAVD88

**PBF-11 (GW2)**  
Observation Port  
El. 13.98 NAVD88

**PBF-11 (GW2)**  
Reference Point  
El. 13.95 NAVD88



**Benchmark "12.4785"**  
Latitude: 26°21'20.1795"  
Longitude: 80°17'45.81228"  
El. 10.957 NAVD88

Looking Northerly (oblique not to scale) (17-sep-12)



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 1/16

PBF-11 (GW2), Well



**PBF-11 (GW2)**  
Reference Point  
El. 13.95 NAVD88

**PBF-11 (GW2)**  
Observation Port  
El. 13.98 NAVD88

Looking Northerly (oblique not to scale) (23-oct-17)

**PBF-12 (GW3)**  
Reference Point  
El. 16.44 NAVD88

**PBF-12 (GW3)**  
Reference Point  
El. 16.44 NAVD88

PBF-12 (GW3), Well



Looking Northerly (oblique not to scale) (23-oct-17)

STN WHILL3 GW3  
ELEV. 17.9965  
DATE 11 20 14  
BY EE JB  
NAVD NAVD 29

CHARLOTTE  
PE & FOUNDRY CO



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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New NAVD88 Brass Tag  
Close-up (to be added)

New NAVD88 Brass Tag  
Close-up (to be added)

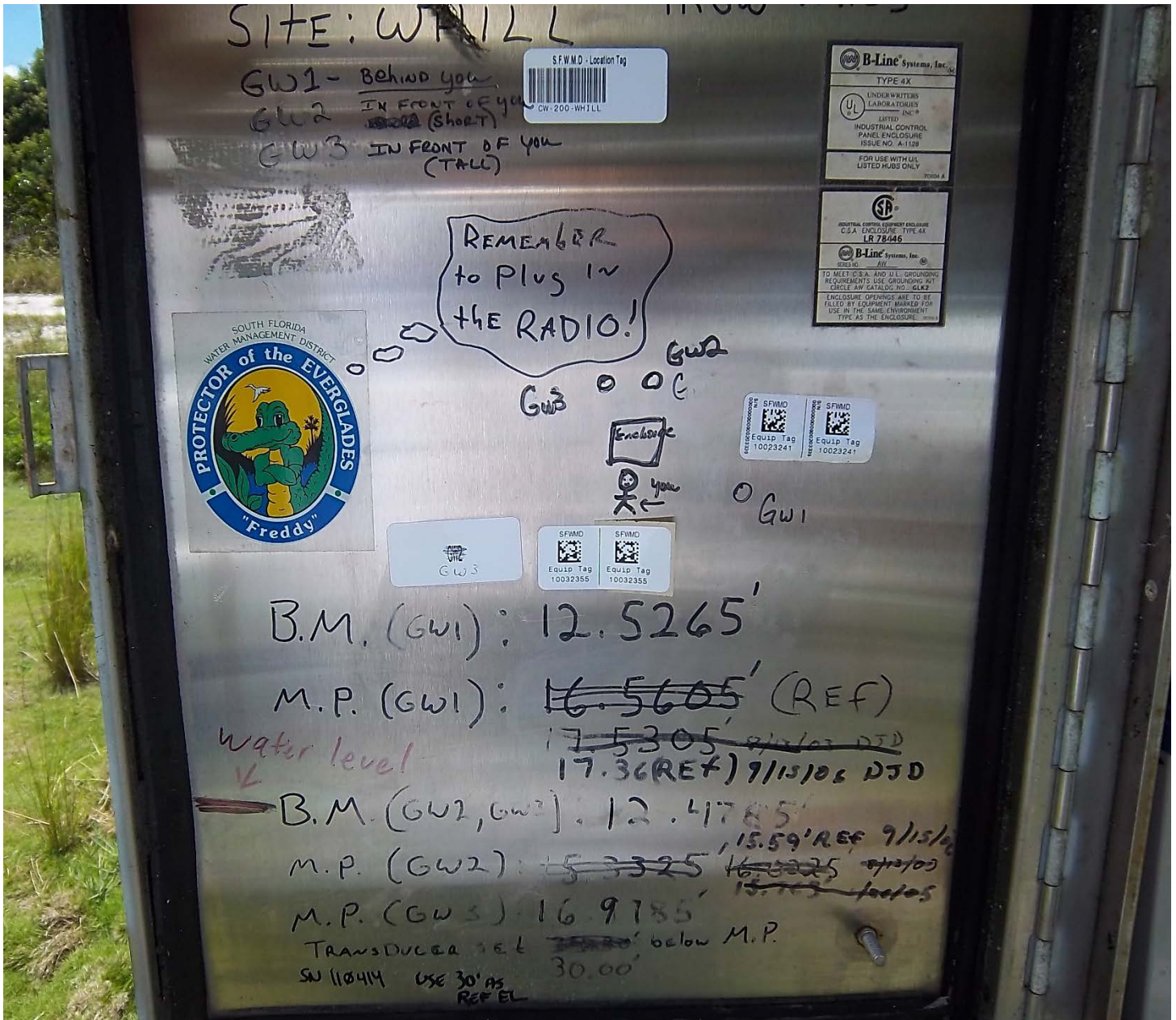
New NAVD88 Brass Tag  
Close-up (to be added)

STN PBF-10R GW1  
 ELEV. 14.68  
 DATE 9-28-17  
 BY AG RH  
 NAVD 88 NGVD  
 OFFSET + 1.52

STN PBF-11 GW2  
 ELEV. 13.95  
 DATE 9-28-17  
 BY AG RH  
 NAVD 88 NGVD  
 OFFSET + 1.52

STN PBF-12 GW3  
 ELEV. 16.44  
 DATE 9-28-17  
 BY AG RH  
 NAVD 88 NGVD  
 OFFSET + 1.52

## RTU Inside Panel



Looking Southerly (oblique not to scale) (09-aug-12) information purposes only

SEC 19 TWP 47 RGE 41

NAVD 88  
ZEISS N12  
25' ROD

A GRAMMAR  
R. ANDSON

SITE NAME WHILL PBE10R, H&12  
VERIFY BENCH MARKS

BM	+	HI	-	ELEV	
		22.96		22.37	
	0.59		9.45	13.51	13.50
	5.60	19.11			
			3.88	15.23	15.20
	3.23	18.46			
T.B.M.			7.41	11.05	FD
	7.37	18.42			
			3.19	15.23	
	4.05	19.28			
OTTER			5.77	13.51	

FCE 3943 FD GOOD PER DATA SHEET

OTTER FD GOOD PER DATA SHEET

539 TAILWATER BENCH

IS.F.W.M.D ALUMN DISK STAMPED 12.5265

PHOTOS

- 1) SITE VERIFICATION
- 2) SOUTH LOOKING NORTH
- 3) WEST LOOKING EAST
- 4) NORTH LOOKING SOUTH
- 5) BM ON PBE10R PAD
- 6) BM ON PBE11&12 PAD

SEC 19 TWP 47 RGE 41

PBF 10R, 11, & 12 (WHILL) & PBF 11 (WHILL)  
 PROVIDE NEW NAVD88 ELEV & COORDINATES  
 VERIFY EXISTING BENCH, ESTABLISH NEW  
 REF. ELEV, NATURAL GROUND & PAD SHOTS  
 AT ALL PAD CORNERS, DO RAPID STATIC ON  
 SITE B.M.

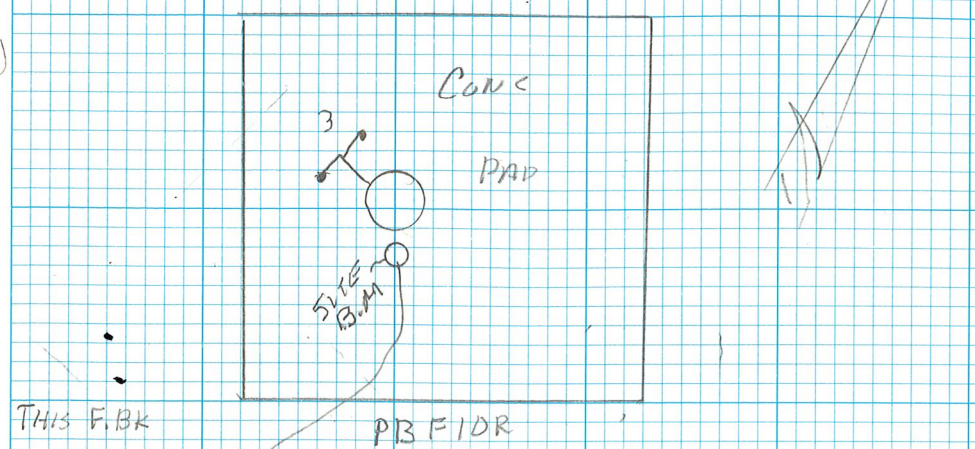
REF. NGS DATA SHEETS, S.F.W.M.D BENCHMARK SHEETS

BM	+	HA	-	ELEV	
SITE BM				11.05	SEE PG 72
	6.77 ✓	17.82			
			1.38	10.44	PBF GW 3
			3.87	13.95	PBF 11 GW 2
			3.84	13.98	REF OBS
			6.91	10.91	N.E COR PAD
			7.2	10.6	GND
			7.2	10.6	S.E COR GND
			6.89	10.93	S.E COR PAD
			6.86	10.96	S.W COR PAD
			7.1	10.7	GND
			7.1	10.7	N.W GND
			6.89	10.93	N.W COR PAD
			3.14	14.68	GW OBS
			3.14	14.68	GW REF
			6.88	10.94	N.E COR PAD
			7.3	10.52	N.E COR GND
			7.7	10.7	S.E COR GND
			6.86	10.94	S.E COR PAD
			6.89	10.93	S.W COR PAD
			7.0	10.8	N.W COR GND
			7.1	10.7	N.W COR GND
			6.86	10.96	PAD
			6.82	11.00	FD ALUMN

HYPER V, TOP CON

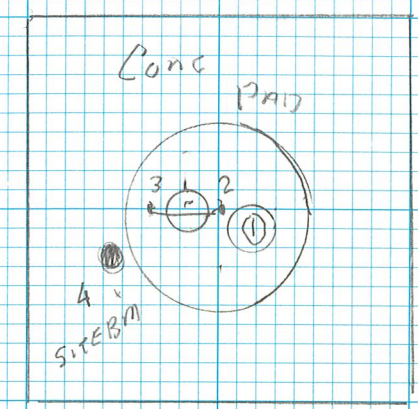
(WHILL) Well Site  
 PBF 10R, 11 & 12

A GIAMMARCO  
 R HUDSON



ELEC. BOT  


RAPID STATIC  
 GPS UNIT 5378  
 BEGIN TIME 1:24  
 END TIME 3:10  
 HEIGHT 1.2 MTS



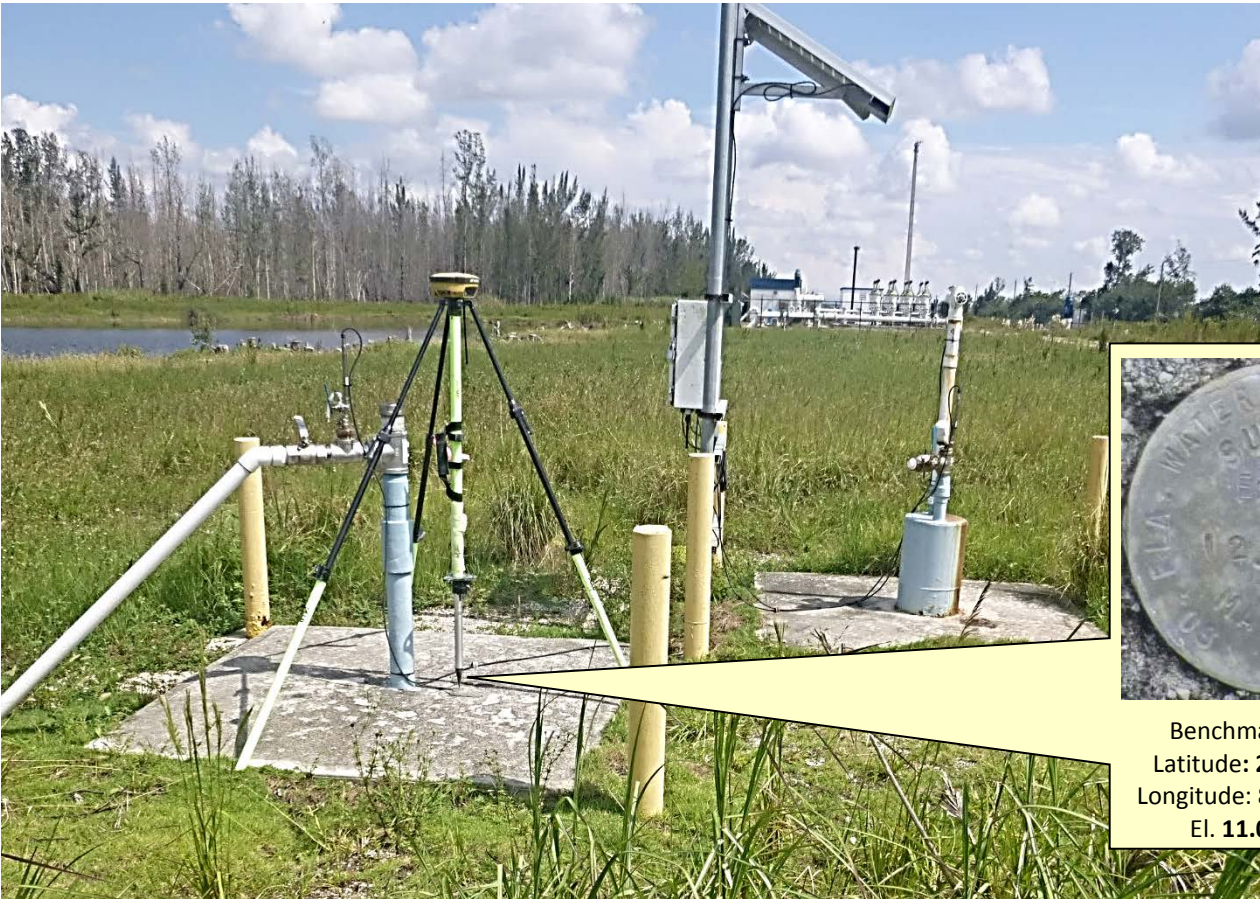

SW corner

DISK STAMPED



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 1/16

DESIGNATION: <b>125265</b>		PROJECT: <b>WHILL Well Site</b>	
ESTABLISHED BY: BISCAYNE ENGINEERING		SURVEYOR: <b>Giammrco</b>	
RECOVERED BY: <b>SOUTH FLORIDA WATER MANAGEMENT DISTRICT</b>		DATE: <b>28-sep-17</b>	
<b>GEOGRAPHIC POSITION</b>			
SECTION <b>19</b>	TOWNSHIP <b>47 SOUTH</b>	RANGE <b>41 EAST</b>	
COUNTY: <b>Palm Beach</b>	NAME OF QUADRANGLE: <b>Coral Springs NE</b> GEOGRAPHIC INDEX OF QUAD: <b>1903</b>		
HORIZONTAL DATUM: 1927 <b>(1983)</b> Other _____ (circle one) ZONE <b>(E)</b> or W			
VERTICAL DATUM: MSL 1929 <b>(1988)</b> Other _____ (circle one)			
VERTICAL ACCURACY: 1 2 <b>(3)</b>			
STATE PLANE COORDINATE	(N) Y= <b>735577.915</b>	(E) X= <b>886676.281</b>	NAVD 88 EL. <b>11.05</b> NGVD 29 EL. <b>12.572</b>
CORPSCON 6.0.1 CONVERSION FACTOR (NAVD88 TO NGVD29): <b>+ 1.519</b>			
LATITUDE: <b>26°21'20.26638"</b>		LONGITUDE: <b>80°17'45.84430"</b>	
<b>RECOVERY DATA</b>			
Stamping: <b>EL -12.5265</b>			
To Reach: From the intersection of State Road 7 and Lox Road, go West on Lox Road 6.8 miles to South Florida Water Management District Levee 36 and Structure 39; turn right cross over Structure 39 and go 180 feet to a dirt road on the North side of the Hillsboro Canal; turn right onto the dirt road and go Southeasterly 490 feet to WHILL well site on the left and station location. The station is located at the base of PBF-10R well; The station is a South Florida Water Management District aluminum cap stamped "EL - 12.5265 grouted into the concrete pad.			
NGS SOURCE BENCHMARK: <b>FCE3943 (AD7240)</b>		FIELD BOOK <b>Misc 6Z PAGE 72</b>	
<b>PICTURES</b>			
Overall Site			
			
			
		<p>Benchmark "<b>12.5265</b>" Latitude: <b>26°21'20.2652"</b> Longitude: <b>80°17'45.84244"</b> El. <b>11.05 NAVD88</b></p>	
Looking Easterly (Oblique not to scale) 28-sep-17			





# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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## SKETCH (Field Book Misc 6Z page 73)

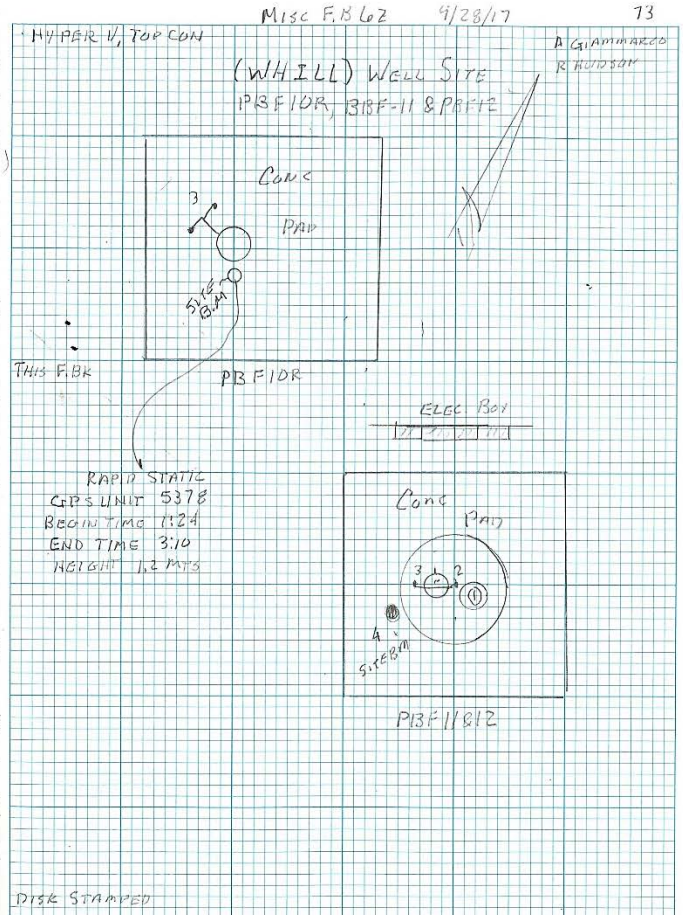
(13) Misc F. 6Z 9/28/17

Sec 19 TWP 47 RGE 41

PBF-10R, 11, 12 (WHILL) & PBS-11 (WHILLA)  
 PROVIDE NEW NAVD88 ELEV & COORDINATES  
 VERIFY EXISTING BENCH, ESTABLISH NEW  
 REF. ELEV, NATURAL GROUND & PAD SHOTS  
 AT ALL PAD CORNERS, DO RAPID STATIC ON  
 SITE - B.M.

REF. NGS DATA SHEETS, S.F.W.M.D BENCH MARK SHEETS

B.M.	N	E	ELEV	SEE Pg 72
Site BM	6.77	17.82	11.05	
			11.38	PBE GW 2
			13.87	PBE II GW 2
			13.84	REF OBS
			10.91	NE COR PAD
			7.2	END
			7.2	S. BEAR PAD
			6.89	S. W COR PAD
			6.80	S. W COR PAD
			7.1	END
			7.1	N.W COR PAD
			6.87	N.W COR PAD
			3.14	GW DIS
			3.14	GW REF
			6.88	NE COR PAD
			7.3	NE COR PAD
			7.7	SE COR PAD
			6.86	S. BEAR PAD
			6.84	S. W COR PAD
			7.0	N.W COR PAD
			7.1	N.W COR PAD
			10.86	PAD
			6.82	ED ALUMINA



# Office

## Project

1 November 2017

### INPUT

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

### OUTPUT

Geographic, flhpgn - Florida HPGN  
Vertical - NGVD29 (Custom), U.S. Feet

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**12.5265**

1/1

**Northing/Y:** 735577.915

**Easting/X:** 886676.281

**Elevation/Z:** 0

**Convergence:** 0 18 45.06282

**Scale Factor:** 1.000002101

**Combined Factor:** 1.000006081

**Latitude:** 26 21 20.26637

**Longitude:** 80 17 45.84429

**Elevation/Z:** 1.519

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Remark:

Corpscon v6.0.1, U.S. Army Corps of Engineers

# DBHYDRO | by station

## STATION INFORMATION

Station	PBF-10R
Site	WHILL
Type	WELL
Latitude (ddmmss.sss)	262120.286
Longitude (ddmmss.sss)	801745.837
X Coord (ft) NAD83	886678.707
Y Coord (ft) NAD83	735581.372
County	Palm Beach
Basin	HILLSBORO CANAL
Section	19
Township	47
Range	41
Show Map	<a href="#">Google Map</a>
Well Info	<a href="#">Info</a>
Description	SFWMD Western Hillsboro ASR Pilot - Injection Zone Monitor (Near)
Notes	500 ft E of S39 Structure along N side of Hillsboro Canal, next to PBF-13
Nearby Stations	<a href="#">Nearby Stations</a>
Attachments	<a href="#">Show Attachments</a>

Query returned 1 station record(s).

Get Sample Data

Get Time Series Data

# DBHYDRO | by station

## STATION INFORMATION

Station	PBF-11
Site	WHILL
Type	SUBSTATION
Latitude (ddmmss.sss)	262120.286
Longitude (ddmmss.sss)	801745.837
X Coord (ft) NAD83	886678.707
Y Coord (ft) NAD83	735581.372
County	Palm Beach
Basin	HILLSBORO CANAL
Section	19
Township	47
Range	41
Show Map	<a href="#">Google Map</a>
Well Info	<a href="#">Info</a>
Description	Substation of HASR-DZMW (1515-1670 ft bls)
Notes	
Nearby Stations	<a href="#">Nearby Stations</a>
Attachments	None Available

Query returned 1 station record(s).

Get Sample Data

Get Time Series Data

# DBHYDRO | by station

## STATION INFORMATION

Station	PBF-12
Site	WHILL
Type	SUBSTATION
Latitude (ddmmss.sss)	262120.286
Longitude (ddmmss.sss)	801745.837
X Coord (ft) NAD83	886678.707
Y Coord (ft) NAD83	735581.372
County	Palm Beach
Basin	HILLSBORO CANAL
Section	19
Township	47
Range	41
Show Map	<a href="#">Google Map</a>
Well Info	<a href="#">Info</a>
Description	Substation of HASR-DZMW (2135-2260 ft bls)
Notes	
Nearby Stations	<a href="#">Nearby Stations</a>
Attachments	None Available

Query returned 1 station record(s).

Get Sample Data

Get Time Series Data

## REGISTRATION WORKSHEET - WHILL Addendum

Site Name: **WHILL** Today's Date: **11/1/2017** Type Recorder: **CR-10**  
 Activity: **Addendum** Effective Date: **9/28/2017** Start Date of Data :  
 Customer: **Steve Krupa** Bus. Area: **5720** Agency: **SFWMD** Internal Order:  
 Project Manager: **Howard Ehmke** Bus. Area: **Survey & Mapping** Agency: **SFWMD** Fund:  
 Project Name: Legal Mandate:

Short Common Name / Description:

Proj. Mgr. Notes: This addendum was performed to add NAVD 88 surveying data for the reference elevation. To convert to NGVD 29 add +1.519 ft.

Site Directions: From the junction of U.S. Highway 27 and State Road 80, go west of S.R 80 for 3.58 miles to a dirt road and iron gate leading into cane fields on the right; proceed northerly for 0.5 of a mile on a rock road to two (2) parallel rock roads leading northwesterly; Turn on most northerly road and go 1.6 miles to South Florida Water Management District's (SFWMD's) Canal 43; turn right and go 1.6 miles to station location

Site Address (if any):

Transportation: Lock type or combination: #

Recorder Location/Purpose: **Stand-Alone Recorder (Non-Flow Site)** Structure Type:

Array ID Configuration table attached

### SURVEY INFORMATION

B.M. Elevation: **12.527** Date: **2/9/2001** Stamp: **12.5265**  
 Agency: **SFWMD** Type: **ALUM** Datum: **NAVD 88**

Benchmark Location/ Description: From the intersection of State Road 7 and Lox Road, go West on Lox Road 6.8 miles to South Florida Water Management District Levee 36 and Structure 39; turn right cross over Structure 39 and go 180 feet to a dirt road on the North side of the Hillsboro Canal; turn right onto the dirt road and go Southeasterly 490 feet to WHILL well site on the left and station location. The station is located at the base of PBF-10R well. The station is a South Florida Water Management

### COMMUNICATIONS INFORMATION

Communications System: Loggernet Server: Loggernet IP Address:  
 Tower: Communication Type: R.F. Code/Modem Address: R.F. Access Point:  
 Phone Number:  
 RTU Address: Gateways:

### WELL INFORMATION

Sensor	Customer Ref	Ref Elev	Elev Date	Top of Well	Bottom of Well	Ground Elev	Benchmark Elev	Benchmark Datum	Ref Elevation Location
GW1	PBF-10R	14.68	9/28/2017	14.68		10.8	11.005	NAVD 88	Mark on top of 90 degree elbow
GW2	PBF-11	13.95	9/28/2017	13.95		10.7	11.005	NAVD 88	Mark on top of 90 degree elbow
GW3	PBF-12	16.44	9/28/2017	16.44		10.7	11.005	NAVD 88	Black mark at notch on well

Sensor	GW Land Elevation	Depth of Well	Meas Pt Above BM	Type of Well	GW Sensor location									
GW1														
GW2														
GW3														

### ADDITIONAL GPS INFORMATION

Item/Parm	Lat	Long	X-Coord	Y-Coord	Sec	Township	Range	Quad	Basin	County	Description
GW1					19	47	41			Palm Beach	
GW2					19	47	41			Palm Beach	
GW3					19	47	41			Palm Beach	