



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 1/16

DB Hydro Station Names: FPU-MZU & FPU-MZL		DB Hydro Site Name: FTPRTL	Date of Field Work: 20-sep-17
Party Chief: Wise	Field Book: Misc 7E	Pages 13 & 14	Prepared by: H. Ehmke

SITE SPECIFIC DATA

Site Benchmarks: BM 2007 FTPRTL 2005	Benchmark Elevation (NAVD88) 6.735 3.626	Corpscon 6.0.1 Conversion Factor (NAVD88 to NGVD29) +1.503
Reference Elevation(s) (NAVD88): FPU-MZU GW1 – El. 9.37 NAVD 88 FPU-MZL GW2 – El. 10.45 NAVD 88	Existing Brass Tag Elevation (Datum): None FPU-MZU GW1 11.01 NGVD 29 written at site FPU-MZL GW2 11.964 NGVD 29 written at site	Calibration Port Elevation(s) (NAVD88): GW1 – El. 9.37 NAVD 88 GW2 – Not Applicable
Ground Elevation (NAVD88): NW Corner El. 6.2 NE Corner El. 6.0 SW Corner El. 6.0 SE Corner El. 5.9	Pad Elevation (NAVD88): NW Corner El. 6.11 NE Corner El. 6.21 SW Corner El. 6.15 SE Corner El. 6.11	

GEOGRAPHIC DATA

Section 2	Township 35 South		Range 40 East
BM 2007 Benchmark	Latitude: 27°27'21.438"	Longitude: 80°18'54.467	Source: OPUS Solution
	State Plane Coordinates	Northing (Y) = 1135531.531	Easting (X) = 878270.399

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

NW Cor.
Pad El. 6.11
Ground El. 6.2


NE Cor.
Pad El. 6.21
Ground El. 6.0

SE Cor.
Pad El. 6.11
Ground El. 5.9


SW Cor.
Pad El. El.6.15
Ground El. 6.2

FPU-MZU GW1 Well Site
Latitude: 27°27'21.58"
Longitude: -80°18'54.60"

FPU-MZL GW2 Well Site
Latitude: 27°27'21.57"
Longitude: -80°18'54.63"



Benchmark "BM 2007"
Latitude: 27°27 21.5' "
Longitude: -80°18 54.5'0"
El. 6.735 NAVD88



Benchmark "FTPRTL 2005"
Latitude: 27°27 20.4' "
Longitude: -80°18 53.9"
El. 3.626 NAVD88

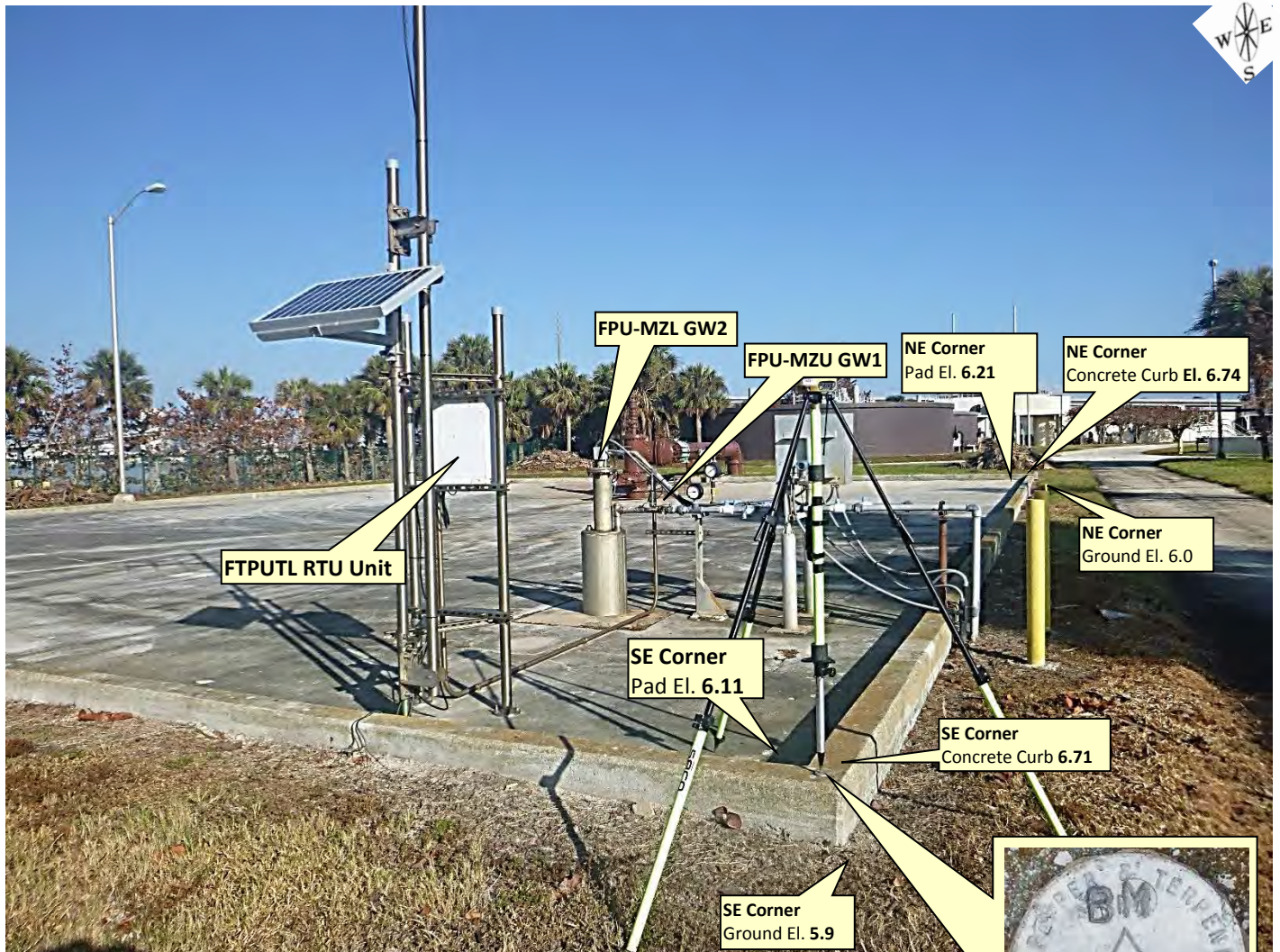
Not to scale (esri product)



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Overall Well Site



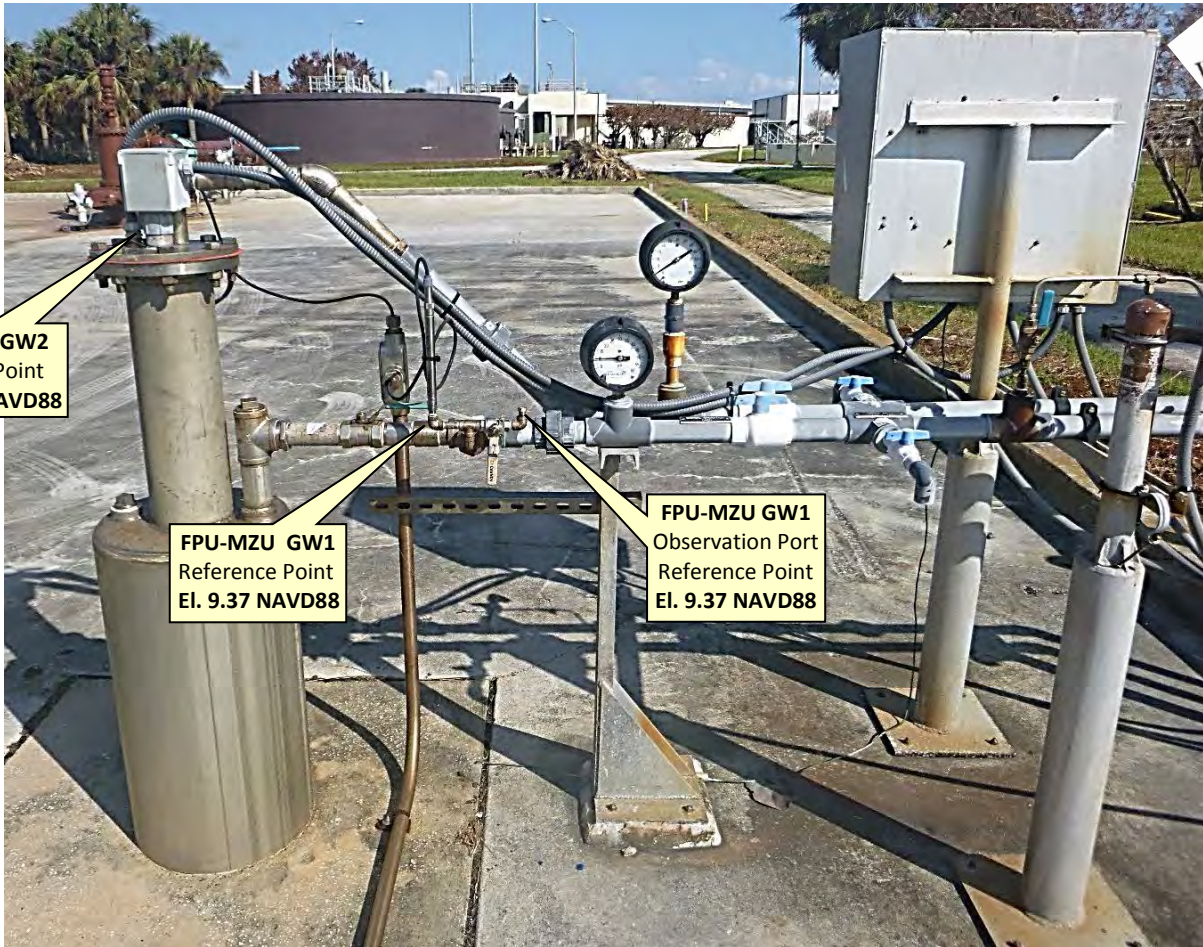
Looking Northerly (oblique not to scale) (20-sep-17)



Benchmark "BM 2007"
Latitude: 27°27' 21.438"
Longitude: -80°18' 54.467"
El. 6.735 NAVD88



FPU-MZU GW1 & FPU-MZL GW2



Looking Northerly (oblique not to scale) (20-sep-17)

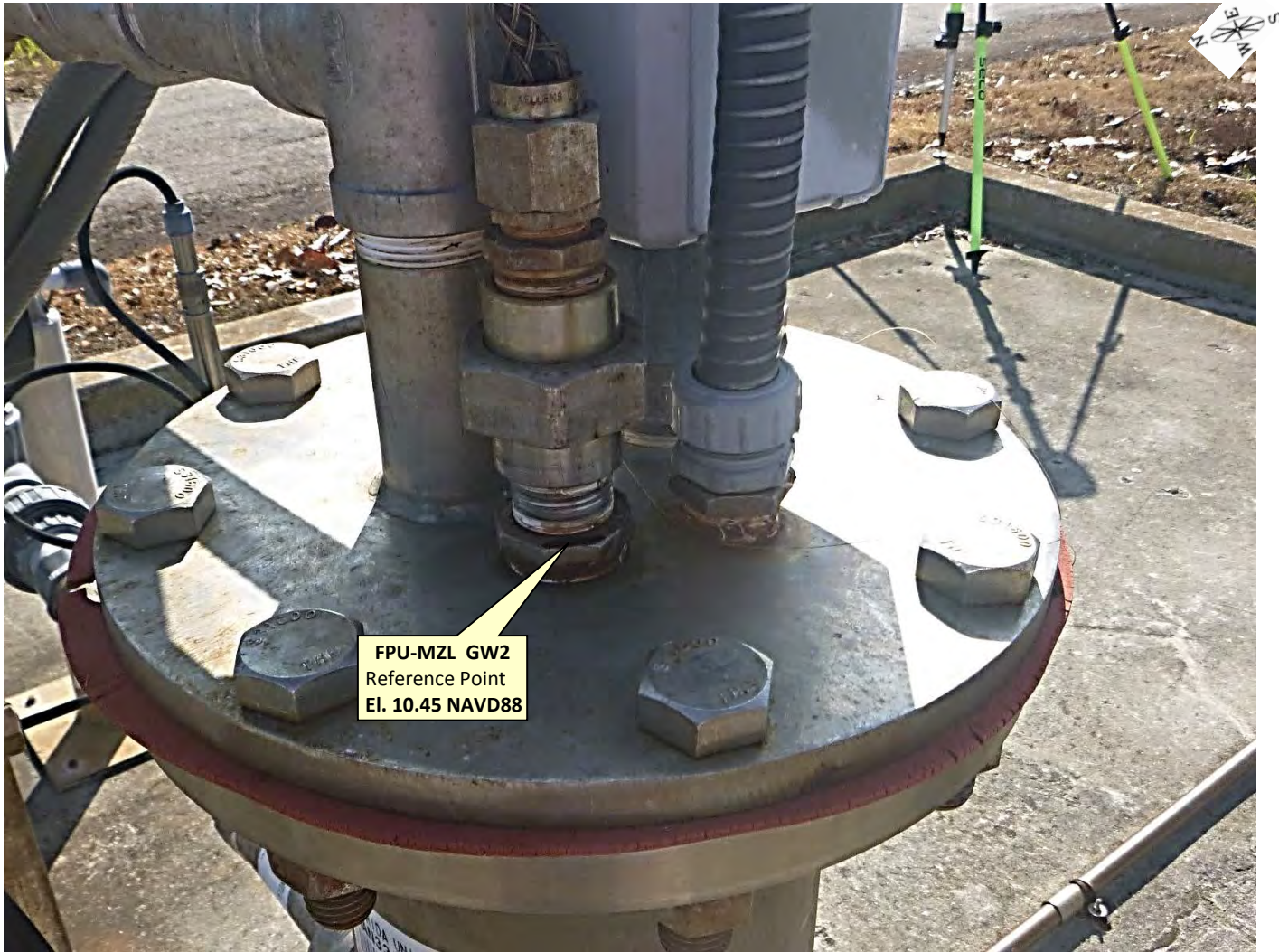
FPU-MZU GW1



Looking Northerly (oblique not to scale) (20-sep-17)



FPU-MZL GW2



Looking Southeasterly (oblique not to scale) (20-sep-17)

FPU-MZU GW1
Brass tag (Close-up)



Looking Northerly (oblique not to scale) (20-sep-17)

FPU-MZU GW2
NAVD88 Brass tag (Close-up)



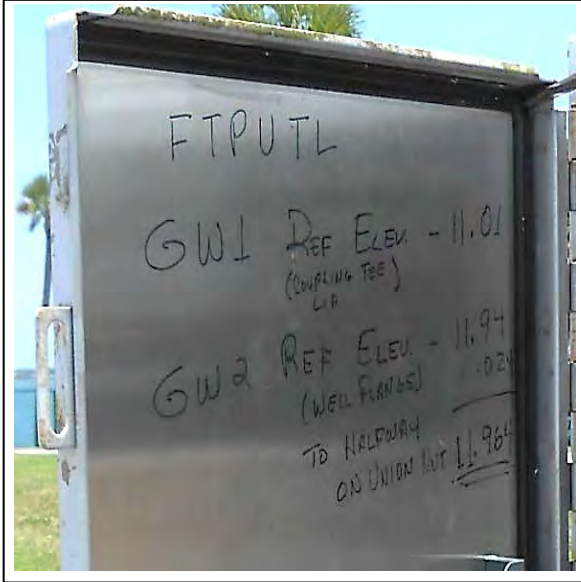
Looking Easterly (oblique not to scale) (20-sep-17)



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FTPURL RTU



Inside Door



Looking Southwesterly (oblique not to scale) (16-sep-09)

Shown for informational purposes only

SEC 2 TWP 35 RGE 40
 ESTABLISH NAVD 88 ELEV ON REFERENCE
 POINTS @ WELL SITE FTPUTL GW WELL #1
 AND #2

STA	+	HI	-	ELEV	BM E.L.
BM	7.81	11.44			3.626 NAVD 88
BM			4.71	6.73	6.735
GW1 REF PT			2.07	9.37	
GW1 OBS PORT			2.07	9.37	
GW2 REF PT			0.99	10.45	
CONC PAD			5.23	6.21	
CONC CURB			4.70	6.74	
GRND			5.4	6.04	
CONC PAD			5.33	6.11	
CONC CURB			4.74	6.70	
GRND			5.2	6.24	
CONC PAD			5.29	6.15	
CONC CURB			4.71	6.73	
GRND			5.4	6.04	
CONC PAD			5.33	6.11	
CONC CURB			4.73	6.71	
GRND			5.5	5.94	
BM			4.71	6.73	6.735

names reversed

MI M. WISE
 Ø GIAMMARCO

OPUS FD BM "BM 2007", 2" ALUM DISC CULPEPPER;
 TERPENING LB4286
 START: 8:23 OKEE UNIT# 8419
 END: 10:36 HI = 1.5 M

BM 2007 FD CULPEPPER; TERPENING ALUM DISC GD COND.

BM FTPUTL FD SFWMD ALUM DISC GD COND.

REF PT IS MAGIC MARKER MARK ATOP 1/2" 90 DN S SIDE W OF 1/2" T GW1

OBS PORT IS MAGIC MARKER MARK ATOP 1/2" 90 DN S SIDE E OF 1/2" T GW1

REF PT IS MAGIC MARKER MARK ATOP 3/4" FEMALE ADAPTER NE SIDE GW2

CONC PAD NE

CONC CURB NE

GROUND NE

CONC PAD NW

CONC CURB NW

GROUND NW

CONC PAD SW

CONC CURB SW

GROUND SW

CONC PAD SE

CONC CURB SE

GROUND SE

BM FTPUTL FD SFWMD ALUM DISC GD COND

SEC

2

TWP

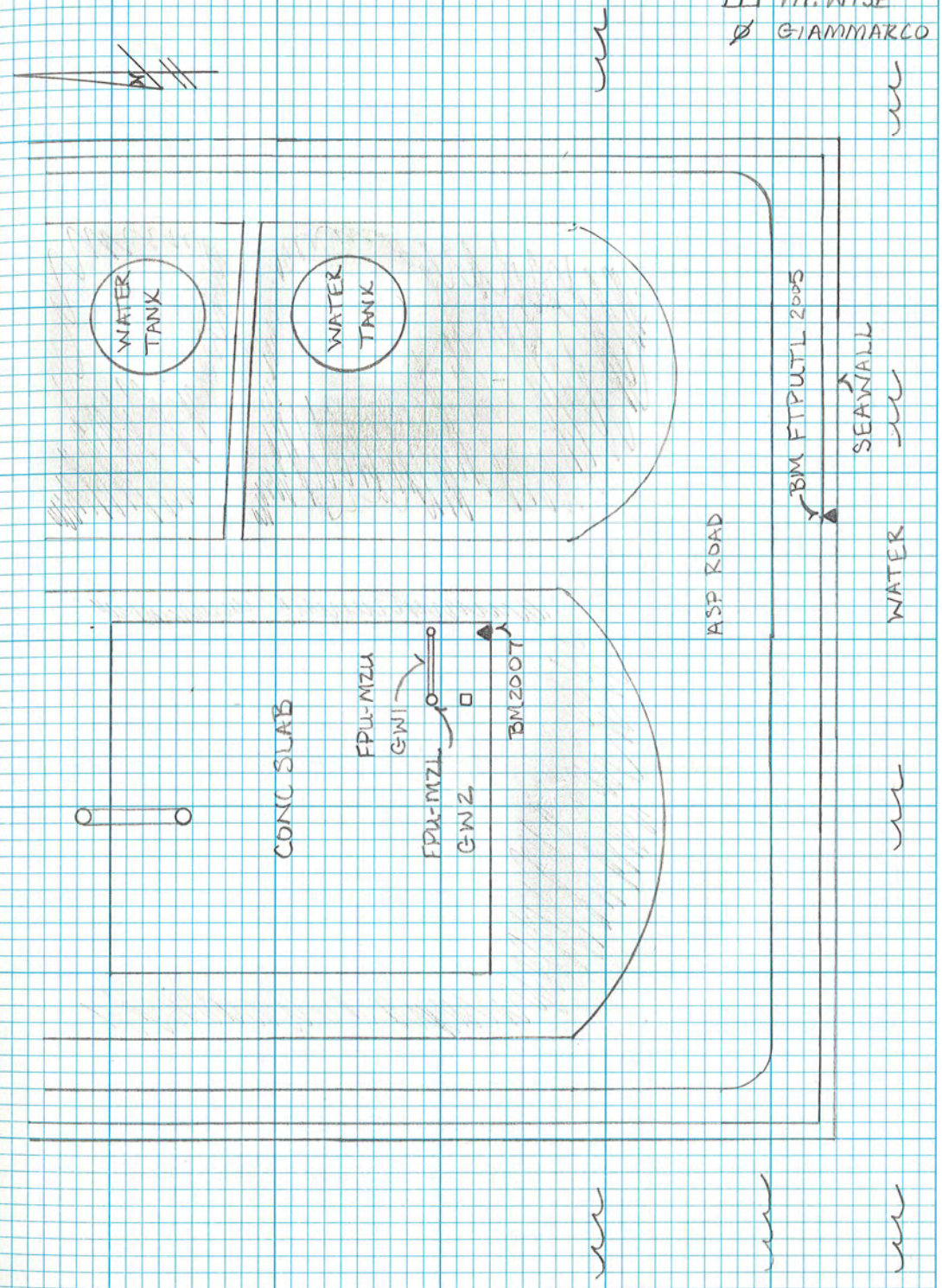
35

RGE

40

CONTINUED FROM PAGE # 13

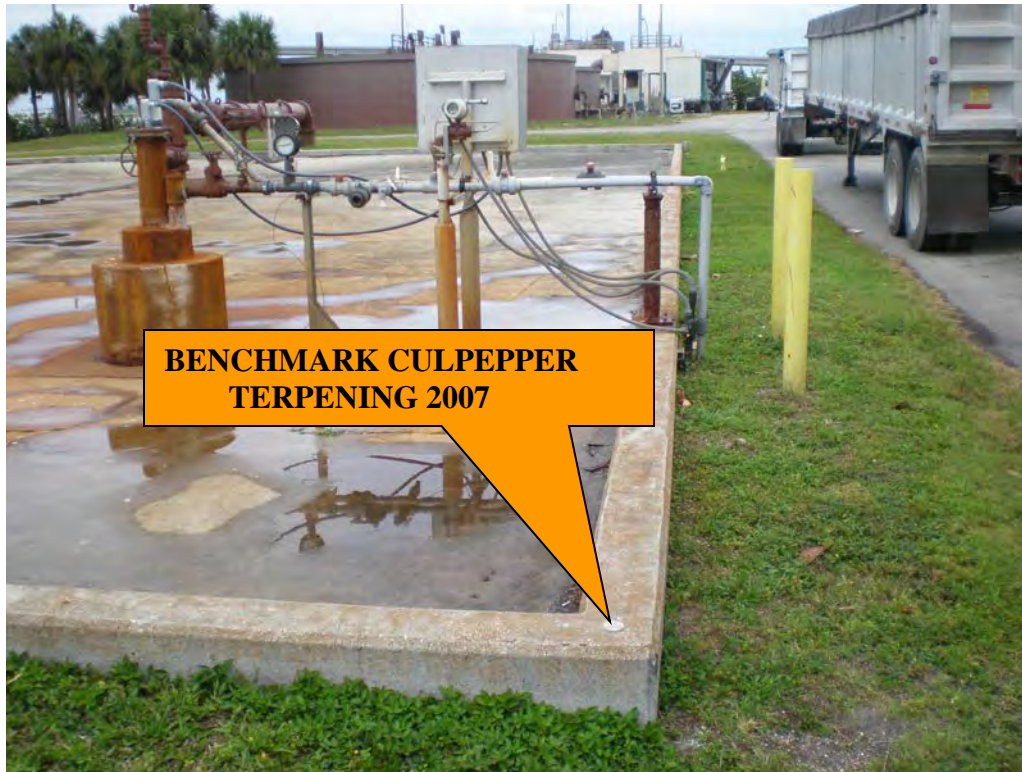
III M. WISE
Ø GIAMMARCO





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**BENCHMARK CULPEPPER
TERPENING 2007**





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Wise, Michael

From: opus <opus@ngs.noaa.gov>
Sent: Wednesday, September 20, 2017 2:49 PM
To: Wise, Michael
Subject: OPUS solution : BM_2007 OP1505933257201

FILE: BM_2007 OP1505933257201

2005 NOTE: The IGS precise and IGS rapid orbits were not available
2005 at processing time. The IGS ultra-rapid orbit was/will be used to
2005 process the data.

2005

NGS OPUS SOLUTION REPORT

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All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: mwise@sfwmd.gov DATE: September 20, 2017
RINEX FILE: bm_2263m.17o TIME: 18:48:52 UTC

SOFTWARE: page5 1603.24 master90.pl 160321 START: 2017/09/20 12:24:00
EPHEMERIS: igu19673.eph [ultra-rapid] STOP: 2017/09/20 14:37:00
NAV FILE: brdc2630.17n OBS USED: 5745 / 5923 : 97%
ANT NAME: TPSHIPER_V NONE # FIXED AMB: 39 / 41 : 95%
ARP HEIGHT: 1.5 OVERALL RMS: 0.017(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2017.7193)

X: 952807.090(m) 0.012(m) 952806.286(m) 0.012(m)
Y: -5583027.592(m) 0.040(m) -5583026.014(m) 0.040(m)
Z: 2923128.427(m) 0.028(m) 2923128.265(m) 0.028(m)

LAT: 27 27 21.43829 0.028(m) 27 27 21.45895 0.028(m)
E LON: 279 41 5.53254 0.009(m) 279 41 5.51335 0.009(m)
W LON: 80 18 54.46746 0.009(m) 80 18 54.48665 0.009(m)
EL HGT: -25.577(m) 0.043(m) -27.152(m) 0.043(m)
ORTHO HGT: 1.995(m) 0.074(m) [NAVD88 (Computed using GEOID12B)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 17) SPC (0901 FL E)

Northing (Y) [meters]	3037124.593	346110.703	N- 1135531.531
Easting (X) [meters]	567674.255	267697.353	E- 878270.399
Convergence [degrees]	0.31578279	0.31578279	
Point Scale	0.99965653	0.99999773	
Combined Factor	0.99966055	1.00000175	

US NATIONAL GRID DESIGNATOR: 17RNL6767437124(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DE9138	OKCB OKEECHOBEE CORS ARP	N271557.715	W0805119.181	57438.9
DF7046	BRTW BARTOW CORS ARP	N275658.642	W0814658.200	154746.7
DH3834	LAUD LAUDERDALE CORS ARP	N261146.341	W0801023.014	140290.5

NEAREST NGS PUBLISHED CONTROL POINT

DI3918	872 2219 A TIDAL	N272730.	W0801859.	291.4
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This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

Office

Project

14 September 2017

INPUT

Geographic, flhp gn - Florida HPGN
Vertical - NAVD88, U.S. Feet

OUTPUT

State Plane, flhp gn - Florida HPGN
0901 - Florida East, U.S. Feet
Vertical - NGVD29 (Custom), U.S. Feet

FPU-MZU

1/1

Latitude: 27 27 21.482
Longitude: 80 18 54.543
Elevation/Z: 0

Northing/Y: 1135535.909
Easting/X: 878263.570
Elevation/Z: 1.503
Convergence: 0 18 56.78367
Scale Factor: 0.999997723
Combined Factor: 1.000001976

Remark:

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

DBHYDRO | by station

STATION INFORMATION

Station	FPU-MZU
Site	FTPURL
Type	SUBSTATION
Latitude (ddmsss.sss)	272721.482
Longitude (ddmsss.sss)	801854.543
X Coord (ft) NAD83	878263.456
Y Coord (ft) NAD83	1135535.746
County	St. Lucie
Basin	MID COASTAL
Section	2
Township	35
Range	40
Show Map	Google Map
Well Info	Info
Description	Substation of FPU-MW (900-1019 ft bls)
Notes	
Nearby Stations	Nearby Stations
Attachments	None Available

Query returned 1 station record(s).

Get Sample Data

Get Time Series Data

DBHYDRO | by station

STATION INFORMATION

Station	FPU-MZL
Site	FTPURL
Type	SUBSTATION
Latitude (ddmmss.sss)	272721.482
Longitude (ddmmss.sss)	801854.543
X Coord (ft) NAD83	878263.456
Y Coord (ft) NAD83	1135535.746
County	St. Lucie
Basin	MID COASTAL
Section	2
Township	35
Range	40
Show Map	Google Map
Well Info	Info
Description	Substation of FPU-MW (1850-1920 ft bls)
Notes	
Nearby Stations	Nearby Stations
Attachments	None Available

Query returned 1 station record(s).

Get Sample Data

Get Time Series Data

REGISTRATION WORKSHEET - FTPUTL Addendum

Site Name: **FTPUTL** Today's Date: **9/20/2017** Type Recorder: **CR1000**
 Activity: **Addendum** Effective Date: **9/26/2017** 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:
 Contract #:
 Project Name: Legal Mandate:

Short Common Name / Description: FTPUTL

Proj. Mgr. Notes: This addendum was performed to add NAVD 88 surveying data for the reference elevation. To convert to NGVD 29 add +1.503ft.

Site Directions: Begin at the intersection of United States Highway 1 (US1) and State Road A1A in Fort Pierce, proceed east 1.0 mile along state road A1A to the east end of the State Road A1A (Seaway Highway) Bridge and the junction of an access road on the right; turn right heading South then West along the access road 0.18 of a mile to the entrance of a waste water treatment plant; enter the plant following the asphalt road southerly 0.25 of a mile to the mark set on the southeast corner of

Site Address (if any):

Transportation: **Std Vehicle** Lock type or combination: **Abloy S** #

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

Array ID Configuration table attached **NO**

SURVEY INFORMATION

B.M. Elevation: **BM 2007** Date: **3/20/2008** Stamp: **SFWMD**
 Agency: **#REF!** Type: **ALUM** Datum: **NAVD 88**

Benchmark Location/Description

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		9.37	9/20/2017	9.37		5.9	6.735	NAVD 88	black magic marker mark atop a 1/2" 90° south side
GW2		10.45	9/20/2017	10.45		5.9	6.735	NAVD 88	black magic marker mark atop a 3/4" female adapter NE side GW2

Sensor	GW Sensor Location Offset	Meas Pt Elevation	GW Land Elevation	Depth of Well	Type of Well	Top of Monitored Interval	Base of Monitored Interval	Parameter Transmitted								
GW1																
GW2																

COORDINATE INFORMATION

Item/Parm	Lat	Long	X-Coord	Y-Coord	Sec	Township	Range	Quad	Basin	County	Description
GW1	27 27 21.58	80 18 54.6			2	35	40	Ft. Pierce		St. Lucie	
GW2	27 27 21.58	80 18 54.63			2	35	40	Ft. Pierce		St. Lucie	