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## **SURVEYOR'S REPORT**

### **USGS Wells Phase 4**

USGS Station No: 264941081321301

Station Name: GL-328

Prepared For: South Florida Water Management  
District

Work Order No: 4600004161-WO5

Report Date: September 1, 2020



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## SURVEYOR'S REPORT

According to the:  
**STATE OF FLORIDA**  
**Standards of Practice**  
**CHAPTER 472.027 Florida Statutes**  
**Chapter 5J-17.050 through 5J-17.052, Florida Administrative Code**

This report and copies thereof are not valid without the signature and original raised seal of a Florida Licensed Surveyor and Mapper. **This report is not valid without the digital files referenced in this report.**

Additions or deletions to the report by other than the signing party are prohibited without written consent of the signing party.

All field work was performed by:

T2 UES, Inc., LB00008336  
5670 Zip Drive  
Fort Myers, Florida 33905  
Phone: (239) 277-0722 Fax: (239) 277-7179  
Scott Urquhart, PSM 6524 (Surveyor and Mapper in Responsible Charge)

I hereby certify that as a duly registered Florida Professional Surveyor and Mapper, I have prepared this Report for the specific purpose of providing the **South Florida Water Management District** with the information as outlined. This report is not complete without the referenced information being available during an examination of said Report. I further certify that the precision achieved and the care taken in collecting the data to formulate this Report are adequate for the purpose of the assignment and that the standards set forth in Chapter 5J-17.050 through 5J-17.052 of the Florida Administrative Code have been met.

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Scott Urquhart  
Professional Surveyor & Mapper  
Florida Certificate No. 6524  
(For the firm – LB 8336)

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Date Signed



## PURPOSE OF SURVEY AND PROJECT OVERVIEW

The specific purpose of this survey is establish North American Vertical Datum of 1988 (NAVD88) elevations for United States Geological Survey (USGS) well site **GL-328**, provide a site benchmark and additional well data as follows:

- Establish an elevation on the USGS measuring mark on top of the well(s) at each site.
- Stamp a District provided aluminum tag with the appropriate data in the appropriate spaces on the tag. Including the Corpscon 6.0.1 vertical offset value from NGVD1929 to NAVD1988.
- Establish a North American Datum 83/11 (or higher) State Plane Coordinate on the benchmark and the well head.
- Provide an NAVD88 elevation on each of the USGS benchmarks (in the USGS Reports noted as “Reference Marks” or “RM’s”) recovered at the site.
- Take a typical ground shot near the well.
- Take an elevation shot on all four (4) corners of the concrete well pad.
- Measure the well diameter to determine the casing material (i.e. PVC), include a picture with a ruler on it and state and show in the report.
- Determine distance to the water table inside the well (DTW) (measurement from the well measuring point, along with time and date). Measure the well head size whether it is a manhole or surface casing.
- Complete the standard District benchmark form for each control monument set and submit the form as a .pdf and a .xlsx.

## SITE LOCATION

See Page 6 for SFWMD Well Site Form.

## PROJECT DATUM

- Horizontal – The project horizontal data is referenced to the North American Datum of 1983, 2011 adjustment, Florida State Plane Coordinate System, East Zone, U.S. Survey Feet.
- Vertical – The project vertical data is referenced to the North American Vertical Datum of 1988 (NAVD88). All data referenced to National Geodetic Vertical Datum of 1929 (NGVD29) was converted utilizing **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.



## **LEVELING PROCEDURES AND METHODOLOGY**

All control leveling for the project was completed utilizing a Leica DNA 03 (serial number 347859) and Leica LS10 digital level (serial number 700874) with barcode level rod. Collimation and adjustment of the instrument was completed prior to leveling. Leveling began on National Geodetic Survey Benchmark J 519 and closed on Benchmark LA1-J, 2000 which was utilized as site benchmark. No other information was available for this monument. All leveling was completed in accordance with standard survey practice utilizing conventional third order methods, techniques, and equipment. The run terminated holding an OPUS value for LA1-J and met the allowable project requirements of 0.02 feet times the square root in miles ( $0.02 \times \text{SQRT}(\text{miles})$ ).

See page 33 for SFWMD Benchmark Datasheet.

## **NATIONAL GEODETIC SURVEY ONLINE POSITIONING USER SERVICE (OPUS)**

The site-established benchmark was also occupied collecting positional GPS data for a duration of 6.5 hours. This information was then uploaded to the OPUS site for processing. See pages 34-37 for LA1-J OPUS Report.

## **DATES OF FIELD DATA COLLECTION**

Field survey work by T2 was performed between July 13, 14, 23, 24, and August 3 and 14, 2020. Field notes are contained in Field Books 537; 555; 556, pages 60-61; 1-15; 20.



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U.S.G.S. Station Name: GL 328	U.S.G.S. Station Number: 264941081321301	Agency: T2 UES, Inc.	Date of Field Work: 8-14-2020
Party Chief: <b>HAYWOOD</b>	Field Book: 555; 537; 556	Page(s): 1-15; 60-61; 20	Report Prepared by: <b>CHAMBLESS</b>

### SITE SPECIFIC DATA

Site Benchmark: LA1-J 2000	Benchmark Elevation(s) (NAVD88): 39.42	Corpscon 6.0.1 Conversion Factor (NAVD88 to NGVD29) + 1.23	
Well Reference Elevation (NAVD88): 40.29	DTW: 3.61 (08/14/2020 at 8:36 AM)	Ground Elevation (NAVD88): 39.37	Pad Elevation (NAVD88): N/A

### GEOGRAPHIC DATA

Section 17	Township 42S	Range 28E
Well Latitude: 26°49'40.00"N	Well Longitude: 81°32'12.86"W	Location Source: RTK GPS
State Plane Coordinates:	Northing (Y) = 906938.386	Easting (X) = 481072.745

**Notes:** 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 of Overall Well Site

Not to scale (GoogleEarth product)



Well Site and Well Head



Well: "GL 328"  
Reference Point: N.RIM 11" IRON PIPE  
Reference Point El. = 40.29 feet NAVD88  
Distance to Water = 3.61 feet from reference point (08/14/2020 at 8:36 AM)



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New Aluminum Tag







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USGS RMs

**No well report provided by District.**



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## Site Benchmark

Site Benchmark Overall Photo



Site BM:



Latitude: 26°49'40.36"N  
Longitude: 81°32'12.85"W  
Elev. = 39.42 feet NAVD88





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## Source Benchmarks



NGS Benchmark "J519" (AJ7266)



Latitude: 26°47'11.98124" N  
Longitude: 81°26'07.30811" W  
NAVD88 EL = 19.64 FEET



"J519" Benchmark Datasheet (1 of 3)

DATASHEETS

Page 1 of 3

The NGS Data Sheet

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

```

PROGRAM = datasheet95, VERSION = 8.12.5.7
Starting Datasheet Retrieval...
1      National Geodetic Survey,  Retrieval Date = MAY 19, 2020
AJ7266 *****
AJ7266 DESIGNATION - J 519
AJ7266 PID - AJ7266
AJ7266 STATE/COUNTY- FL/GLADES
AJ7266 COUNTRY - US
AJ7266 USGS QUAD - LA BELLE (2018)
AJ7266
AJ7266 *CURRENT SURVEY CONTROL
AJ7266
AJ7266* NAD 83(2011) POSITION- 26 47 11.98124(N) 081 26 07.30811(W) ADJUSTED
AJ7266* NAD 83(2011) ELLIP HT- -18.481 (meters) (06/27/12) ADJUSTED
AJ7266* NAD 83(2011) EPOCH - 2010.00
AJ7266* NAVD 88 ORTHO HEIGHT - 5.985 (meters) 19.64 (feet) ADJUSTED
AJ7266
AJ7266 GEOID HEIGHT - -24.467 (meters) GEOID18
AJ7266 NAD 83(2011) X - 848,509.712 (meters) COMP
AJ7266 NAD 83(2011) Y - -5,634,025.699 (meters) COMP
AJ7266 NAD 83(2011) Z - 2,857,125.434 (meters) COMP
AJ7266 LAPLACE CORR - 0.22 (seconds) DEFLEC18
AJ7266 DYNAMIC HEIGHT - 5.976 (meters) 19.61 (feet) COMP
AJ7266 MODELED GRAVITY - 979,096.9 (mgal) NAVD 88
AJ7266
AJ7266 VERT ORDER - FIRST CLASS II
AJ7266
AJ7266 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
AJ7266 Standards:
AJ7266 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
AJ7266 Horiz Ellip SD_N SD_E SD_h (unitless)
AJ7266 -----
AJ7266 NETWORK 1.48 1.86 0.63 0.55 0.95 -0.37369756
AJ7266 -----
AJ7266 Click here for local accuracies and other accuracy information.
AJ7266
AJ7266
AJ7266.The horizontal coordinates were established by GPS observations
AJ7266.and adjusted by the National Geodetic Survey in June 2012.
AJ7266
AJ7266.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
AJ7266.been affixed to the stable North American tectonic plate. See
AJ7266.NA2011 for more information.
AJ7266
AJ7266.The horizontal coordinates are valid at the epoch date displayed above
AJ7266.which is a decimal equivalence of Year/Month/Day.
AJ7266
AJ7266.The orthometric height was determined by differential leveling and
AJ7266.adjusted by the NATIONAL GEODETIC SURVEY
AJ7266.in February 2002.
AJ7266

```



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## "J519" Benchmark Datasheet (2 of 3)

DATASHEETS

Page 2 of 3

AJ7266.Significant digits in the geoid height do not necessarily reflect accuracy.  
 AJ7266.GEOID18 height accuracy estimate available [here](#).  
 AJ7266  
 AJ7266.Click [photographs](#) - Photos may exist for this station.  
 AJ7266  
 AJ7266.The X, Y, and Z were computed from the position and the ellipsoidal ht.  
 AJ7266  
 AJ7266.The Laplace correction was computed from DEFLEC18 derived deflections.  
 AJ7266  
 AJ7266.The ellipsoidal height was determined by GPS observations  
 AJ7266.and is referenced to NAD 83.  
 AJ7266  
 AJ7266.The dynamic height is computed by dividing the NAVD 88  
 AJ7266.geopotential number by the normal gravity value computed on the  
 AJ7266.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
 AJ7266.degrees latitude (g = 980.6199 gals.).  
 AJ7266  
 AJ7266.The modeled gravity was interpolated from observed gravity values.  
 AJ7266  
 AJ7266. The following values were computed from the NAD 83(2011) position.  
 AJ7266  

AJ7266;		North	East	Units	Scale Factor	Converg.
AJ7266;SPC FL E	-	271,841.262	156,709.109	MT	0.99996430	-0 11 46.3
AJ7266;SPC FL E	-	891,865.87	514,136.47	sFT	0.99996430	-0 11 46.3
AJ7266;UTM 17	-	2,962,880.492	456,723.879	MT	0.99962312	-0 11 46.3

AJ7266!		Elev Factor	x	Scale Factor	=	Combined Factor
AJ7266!SPC FL E	-	1.00000290	x	0.99996430	=	0.99996720
AJ7266!UTM 17	-	1.00000290	x	0.99962312	=	0.99962602

  
 AJ7266  
 AJ7266 U.S. NATIONAL GRID SPATIAL ADDRESS: 17RMK5672362880 (NAD 83)  
 AJ7266  
 AJ7266  
 AJ7266 SUPERSEDED SURVEY CONTROL  
 AJ7266  

AJ7266		NAD 83(2007)-	26 47 11.98142(N)	081 26 07.30889(W)	AD(2002.00)	0
AJ7266	ELLIP H (02/10/07)	-18.465	(m)		GP(2002.00)	
AJ7266	NAD 83(1999)-	26 47 11.98181(N)		081 26 07.30937(W)	AD( )	1
AJ7266	ELLIP H (12/12/02)	-18.476	(m)		GP( )	4 1
AJ7266	NAVD 88	5.99	(m)	19.7	(f) LEVELING	3

  
 AJ7266  
 AJ7266.Superseded values are not recommended for survey control.  
 AJ7266  
 AJ7266.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
 AJ7266.See file [dsdata.pdf](#) to determine how the superseded data were derived.  
 AJ7266  
 AJ7266\_MARKER: F = FLANGE-ENCASED ROD  
 AJ7266\_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.)  
 AJ7266\_STAMPING: J 519 2001 CERP  
 AJ7266\_MARK LOGO: NONE  
 AJ7266\_PROJECTION: RECESSED 3 CENTIMETERS  
 AJ7266\_MAGNETIC: O = OTHER; SEE DESCRIPTION  
 AJ7266\_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL  
 AJ7266\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
 AJ7266+SATELLITE: SATELLITE OBSERVATIONS - January 13, 2011  
 AJ7266\_ROD/PIPE-DEPTH: 16.5 meters  
 AJ7266  

AJ7266	HISTORY	- Date	Condition	Report By
AJ7266	HISTORY	- 200105	MONUMENTED	FOST
AJ7266	HISTORY	- 20020309	GOOD	MAPTEC
AJ7266	HISTORY	- 20110113	GOOD	NOGUCCO



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## "J519" Benchmark Datasheet (3 of 3)

DATASHEETS

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AJ7266  
AJ7266 STATION DESCRIPTION  
AJ7266  
AJ7266'DESCRIBED BY CHARLEY FOSTER AND ASSOCIATES 2001 (JB)  
AJ7266'THE MONUMENT IS LOCATED 13.75 MILES (22.13 KM) SOUTH OF PALMDALE, FL  
AJ7266'AND 1.9 MILES (3.06 KM) NORTH OF  
AJ7266'LABELLE, FL. IN SECTION 29, TOWNSHIP 42 SOUTH, RANGE 29 EAST.  
AJ7266'  
AJ7266'OWNERSHIP IS THE FLORIDA DEPARTMENT OF TRANSPORTATION.  
AJ7266'  
AJ7266'TO REACH THE MONUMENT FROM THE INTERSECTION OF US HIGHWAY 80 AND STATE  
AJ7266'ROAD 29 IN LA BELLE, GO  
AJ7266'NORTH 1.9 MILES (3.06 KM) ON STATE ROAD 29 AND THE MONUMENT IS ON THE  
AJ7266'WEST SIDE (LEFT) OF THE ROAD.  
AJ7266'THE MONUMENT IS 12.3 MILES (19.79 KM) SOUTH OF THE JUNCTION OF STATE  
AJ7266'ROAD 29 AND US HIGHWAY 27.  
AJ7266'  
AJ7266'THE MONUMENT IS 72.2 FEET (22.01 M) WEST OF THE CENTERLINE OF STATE  
AJ7266'ROAD 29, 52.4 FEET (15.97 M) WEST  
AJ7266'OF A UTILITY POLE AND 3.0 FEET (0.91 M) EAST OF A CARSONITE WITNESS  
AJ7266'POST. NOTE ACCESS TO THE DATUM  
AJ7266'POINT (THE TOP OF A STAINLESS STEEL ROD) IS HAD THROUGH A 5 INCH LOGO  
AJ7266'CAP. NOTE A MAGNET WAS  
AJ7266'PLACED INSIDE THE PVC PIPE.  
AJ7266'  
AJ7266  
AJ7266 STATION RECOVERY (2002)  
AJ7266  
AJ7266'RECOVERY NOTE BY MAPTECH INCORPORATED 2002 (CDP)  
AJ7266'RECOVERED AS DESCRIBED  
AJ7266'  
AJ7266  
AJ7266 STATION RECOVERY (2011)  
AJ7266  
AJ7266'RECOVERY NOTE BY NORTHROP GRUMMON CORPORATION 2011 (MR)  
AJ7266'RECOVERED IN GOOD CONDITION.  
  
\*\*\* retrieval complete.  
Elapsed Time = 00:00:02



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## Field Notes (1 of 18)

171204 05 SWFWMD USGS PH4 WELLS  
 CR001-002.05 WELL GL-328

COLLIMATION - 8.0  
 COLL ERR OLD 0.00 COLL ERR NEW  
 DIFF - 8.0 RETICLE 4.74049

STA	(BS)	HI	(FS)	EL
				19.64
1	8.884	28.524		
			4.773	23.750
2	5.377	29.127		
			5.851	23.275
3	4.334	27.610		
			4.736	22.873
4	4.428	27.302		
			4.805	22.496
5	4.153	26.650		
			4.827	21.823
6	5.637	27.460		

E DOUGLAS 7/13/20 FB 555 PG 1  
 B REIDER PAGE 1 OF 3

INST: LEICA LS 70 (DIGITAL LEVEL) S/N 700874  
 FILE: 171204.05 ED 71220

DESC  
 NGS PT DESIGNATION 'J519' PED AJ 7266

TURN PT 1 TEMP TURN TP 1

A1 SET NAIL NW QUAD OF SR 29 + WHIDDEN RD  
 IN EOP

TURN PT 2 TEMP TURN TP 2

TURN PT 3 TEMP TURN TP 3

A2 SET NAIL IN EOP NW QUAD OF WHIDDEN RD  
 + CR 731 FIRE TOWER RD

CONT →



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## Field Notes (2 of 18)

171204.05 SWFWMD USGS PH 4 WELLS BENCHRUN CONT... WELL GL-328					E DOYLE 7/13/20	FB555 PG 2
STA	BS	HI	FS	EL	B REIDER	PAGE 2 OF 3
6			3.855	23.605	DJSC	
7	6.160	29.765			TURN PT 4 TEMP TURN TP 4	
			3.406	26.359		
8	6.567	32.926			TURN PT 5 TEMP TURN TP 5	
			3.456	29.47		
9	6.001	35.471			TURN PT 6 TEMP TURN TP 6	
			3.915	31.556		
10	6.163	37.720			A3 SET NAIL IN EOP EASTSIDE OF RD FIRE TOWER RD 2100' NORTH OF A2 +/-	
			4.261	33.459	TURN PT 7 TEMP TURN TP 7	
11	5.584	39.043				
			4.088	34.954	TURN PT 8 TEMP TURN TP 8	
12	4.987	39.142				
			5.050	34.091	A4 SET NAIL IN EOP EAST SIDE OF RD 1400' +/- OF A3	





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## Field Notes (3 of 18)

171204.05 SWFWMD USGS PH4 WELLS WELL GL-328					E DOULE BREIDER		7/13/20		FB 555 PG 3 PAGE 3 OF 3	
BENCHRUN CONT...										
STA	BS	HI	FS	EL	DESC					
13	4.888	38.979	4.808	34.171	TURN PT 9 TEMP TURN TP9					
14	5.372	39.543	4.326	35.217	TURN PT 10 TEMP TURN TP10					
15	5.730	40.947	4.373	36.573	A5 SET NAIL IN EOP EAST SIDE OF 'FIRE TOWER RD' 1400' +/- NORTH OF A4					
16	5.467	42.040	4.426	37.614	TURN PT 11 TEMP TURN TP11					
17	5.030	42.644	4.875	37.768	A6 SET NAIL + DISC 'T2 CONT PT' LB 8336 NE QUAD OF 'POLLYWOG CROSSOVER + FIRE TOWER RD'					



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## Field Notes (4 of 18)

STA	BS	HI	FS	ELEV	
171204.05 SWFWMD USGS PH4 wells					
CR001-002.05 WELL GL-328					
COLLIMATION -3.4					
COLLERR OLD-8.0 COLL ERR NEW					
DIFF 4.6 RETICLE 4.51553					
A6	5.850	43.618		37.768	
			5.576	38.042	
1	5.329	43.371			
			4.387	38.984	
2	5.755	44.740			
			4.449	40.290	
3	5.036	45.326			
			4.794	40.532	
4	4.630	45.162			
			4.384	40.777	
5	5.400	46.178			
6			4.630	41.547	

DESC	
A6 DESC PG3	
TURN PT 1 TEMP TURN TP1	
TURN PT 2 TEMP TURN TP2	
A7 SET NAIL 1400' +/- NORTH OF A6 IN EAST SIDE OF FIRE TOWER RD	
TURN PT 3 TEMP TURN TP3	
TURN PT 4 TEMP TURN TP4	
A8 SET NAIL 1400' +/- NORTH OF A7 EAST SIDE OF RD	



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## Field Notes (5 of 18)

171204.05 SWFWMD USGS PHY WELLS WELL 60-328					E DOUCE 7/14/20		FB 555 PG 5	
BENCHMKN CONT...					B REIDER		PAGE 2 OF 4	
STA	BS	HI	FS	ELEV	DESC			
7	5.383	46.931						
			4.551	42.380	TEMP TURN PT 5 TP 5			
8	6.513	48.893						
			5.517	43.375	TEMP TURN PT 6 TP 6			
9	4.245	47.620						
			5.519	42.181	A9 1400 +/- NW OF A8 SET NAIL N. SIDE OF RD			
10	5.254	47.355						
			5.174	42.181	TEMP TURN PT 7 TP 7			
11	5.097	47.278						
			5.484	41.794	TEMP TURN PT 8 TP 8			
12	4.445	46.239						
			5.452	40.787	A10 1400 +/- NW OF A9 SET NAIL N. SIDE OF RD			
13	4.932	45.719						

CONT



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## Field Notes (6 of 18)

171204.05 SWFWMD USGS PH4 WELLS  
WELL 6L-328

BENCHRUN CONT...

STA	BS	HI	FS	ELEV
13			5.173	40.546

14	5.125	45.671		
----	-------	--------	--	--

			5.397	40.274
--	--	--	-------	--------

15	5.371	45.645		
----	-------	--------	--	--

			5.198	40.446
--	--	--	-------	--------

16	5.014	45.461		
----	-------	--------	--	--

			4.928	40.536
--	--	--	-------	--------

17	4.948	45.484		
----	-------	--------	--	--

			4.820	40.664
--	--	--	-------	--------

18	4.955	45.619		
----	-------	--------	--	--

			4.720	40.889
--	--	--	-------	--------

19	4.004	44.904		
----	-------	--------	--	--

E DOYLE 7/14/20

BREIDER

JABROU

FB555 PG 6

PAGE 3 OF 4

DESC

TEMP TURN 9 TP 9

TEMP TURN 10 TP 10

A11 SET NAIL N. SIDE OF PVT 1400' +/- WEST OF  
A10 'WALTER GREEN RD'

TEMP TURN 11 TP 11

TEMP TURN 12 TP 12

A12 SET NAIL N. SIDE OF PVT 1400' +/- WEST  
OF A11 'WALTER GREEN RD'



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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## Field Notes (7 of 18)

STA	BS	HI	FS	ELEV	DESC
171204.05 SWFWMD USGS PH4 WELLS					
Well GL-328					
BENCHRUN CONT...					
19			4.686	40.218	TEMP TURN 13 TP13
20	5.237	45.455			
			4.857	46.598	TEMP TURN 14 TP14
21	5.384	45.982			
			4.353	41.628	A13 SET NAIL EAST SIDE WALTER GREEN RD 1400' +/- NE OF A12
22	5.590	47.219			
			2.763	44.456	TEMP TURN 15 TP15
23	5.299	49.756			
			6.442	43.313	TEMP TURN 16 TP16
24	4.789	48.102			
			5.132	42.970	A14 SET NAIL N. SIDE OF WALTER GREEN RD 1400' +/- NW OF A13



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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## Field Notes (8 of 18)

STA	BS	HI	FS	ELEV	DESC
171204.05 SFWMD USGS PH4 WELLS					
WELL GL-328 LEVEL RUN					
COLLIMATION -3.0					
COLL ERR OLD -3.4 COLL ERR NEW -3.0					
DIFF 0.4 RETICLE 4.77370					
A14	4.089	47.059		42.970	A14 DESC PG 7
1			4.047	43.011	TURN PT 1 TEMP TURN TP1
2	4.941	47.952			
			4.891	43.061	TURN PT 2 TEMP TURN TP2
3	5.018	48.079			
			4.275	43.801	A15 SET NAIL N SIDE OF LOBLOLY WAY 2100' +/- WEST OF A14
4	4.970	48.775			
			4.423	44.351	TP3 SAME DESC AS STA 2
5	5.350	49.701			
			4.442	45.259	TP4 SAME DESC AS STA 2
6	5.548	50.807			
			4.244	46.563	TP5 SAME DESC AS STA 2

CONT-5



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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## Field Notes (9 of 18)

171204.05 SFWMD USGS PH4 WELLS					E Douce	7/23/20	FB555 PG 9
WELL 6L-328					B. REIDER		PAGE 2078
BENCHRUN CONT...							
STA	BS	HI	FS	ELV	DESC		
7	5.022	51.585			TP5		
			5.277	46.308	A16 SET NAIL N SIDE OF LOBLOLLY BAY RD 2700'		
					OF A15		
8	3.801	50.109					
			4.808	45.301	TP6		
9	6.866	52.162					
			7.454	44.703	TP7		
10	5.131	49.839					
			4.083	45.755	A17 SET NAIL NW QUAD OF LOBLOLLY BAY RD		
					AND RAINBOW BLVD		
11	6.135	51.890					
			4.341	47.549	TP8 (STORED AS A18)		
12	6.818	54.367					
			4.024	50.342	BM 'K5' EL=50.38		



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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## Field Notes (10 of 18)

STA	BS	HI	FS	ELEV	DESC
17/20 4.05 SFWMD USGS PA4 WELLS WELL GL-328					
BENCHRUN CONT...					
13	3.938	54.281	6.729	47.551	A18 TP 8 STORED AS A18A
14	4.314	51.866	6.108	45.758	A17 B TURN
15	6.099	51.857	4.384	47.473	TP 9
16	4.942	52.415	5.694	46.721	TP10
17	4.178	50.900	4.637	46.262	TP11 A19 STORED AS TP11 1400' +/- WEST OF A17 SET NAIL N SIDE OF LOBLOLLY BAY RD
18	4.755	51.018	4.890	46.127	TP12
19	4.517	50.645	4.729	45.915	TP13 A20 SET NAIL N SIDE OF RD 700' +/- WEST OF A19 STORED AS TP13





# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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## Field Notes (11 of 18)

171204.05 SFWMD USGS AH4 WELLS		E DOYLE		7/23/20		FB 555 PG 11	
BENCHMARK CONT... WELL 02-328		B REIDER				PAGE 4 OF 6	
STA	BS	HT	FS	ELEV	DESC		
20	4.932	50.848					
			4.924	45.923	TP14		
21	4.381	50.305					
			5.741	44.563	TP15		
22	4.751	49.315					
			4.914	44.460	AZ1 SET MARK N. SIDE OF RD LOBLOLLY BAY RD		
					1400' +/- WEST OF AZ0		
23	4.712	49.112					
			4.726	44.386	TP16		
24	4.670	49.056					
			5.230	43.825	TP17		
25	4.659	48.485					
			5.811	42.673	AZ2 SET MARK N SIDE OF RD 'LOBLOLLY BAY'		
					1400' +/- WEST OF AZ1		
26	5.055	47.729					
			5.944	41.785	TP18		



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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## Field Notes (12 of 18)

171204.05 SFWMD USG.S PH-4 WELLS		E DOULE		7/23/20		FB 555 PG 17	
BENCHRUN CONT.,,		B REIDER				PAGE 5 OF 6	
STA	BS	HI	FS	ELEV	DESC		
27	4.439	46.225					
			4.735	41.489	TP19		
28	5.123	46.613					
			4.326	42.286	A23 SET NAIL N. SIDE OF 2100' +/- WEST OF A22		RF
29	5.730	48.016					
			5.387	42.629	TP20		
30	4.400	47.030					
			4.975	42.055	TP21		
31	5.212	47.268					
			5.209	42.058	A24 SET NAIL N. SIDE OF 2100' +/- WEST OF A23		
32	4.837	46.895					
			4.841	42.053	TP22		



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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Field Notes (13 of 18)

1720405 SFWMD USGS RHY wells					E DOYLE	7/23/20	FB 555 PG 13
BENCHRUN CONT...					B REIDER		PAGE 6 OF 6
STA	BS	HI	FS	ELEV	DESC		
33	4.421	46.475					
			5.630	41.445	AT 25	SET NAIL N SIDE OF RD LOBLOLLY BAY	
						RD 200' EAST +/- OF LOBLOLLY BAY	
						RD AND KIRBY THOMPSON RD	



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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## Field Notes (14 of 18)

17120405 SAWMD USGS #4 wells					E DOYLE	7/24/20	FB555 PG 14
WELL GL-328					B REIDER	PAGE 10 F 2	
BENCHRUN, MONUMENT, WELL + GROUND SHOTS							
GPS CHECK IN J 579 NGS PT							
P	891865.87	514136.47	19.64				
M	891865.92	514136.47	19.70				
#0.048 V 0.065 ROD HEIGHT 6.562							
INSTS TRIMBLE R8s 'CREW 3' PTS 8							
FILE 8 171204.05 ED 7-24-20							
COLLIMATION							
COLL ERR OLD - 3.0 COLL ERR NEW 7.8							
DIFF 10.9 RETICLE 4.53913							
STA	BS	HI	FS	ELEV	DESC		
A25	4.785	46.230		41.445	A25 see desc PG 13		
			5.328	40.901	TP1 TEMP TURN		
1	4.454	45.356					
			5.492	39.863	TP2 TEMP TURN		
2	4.748	44.612					
			5.193	39.419	Bm LA2-J 2000		
					SOUTH FLORIDA WATER MANAGEMENT 2" DISC		
					FOUND POURED IN PLACE CONC MON		
3	5.054	44.473					
			4.185	40.287	WELL GL-328 SHOT MARK TOP OF PIPE		
					NW SIDE		



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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## Field Notes (15 of 18)

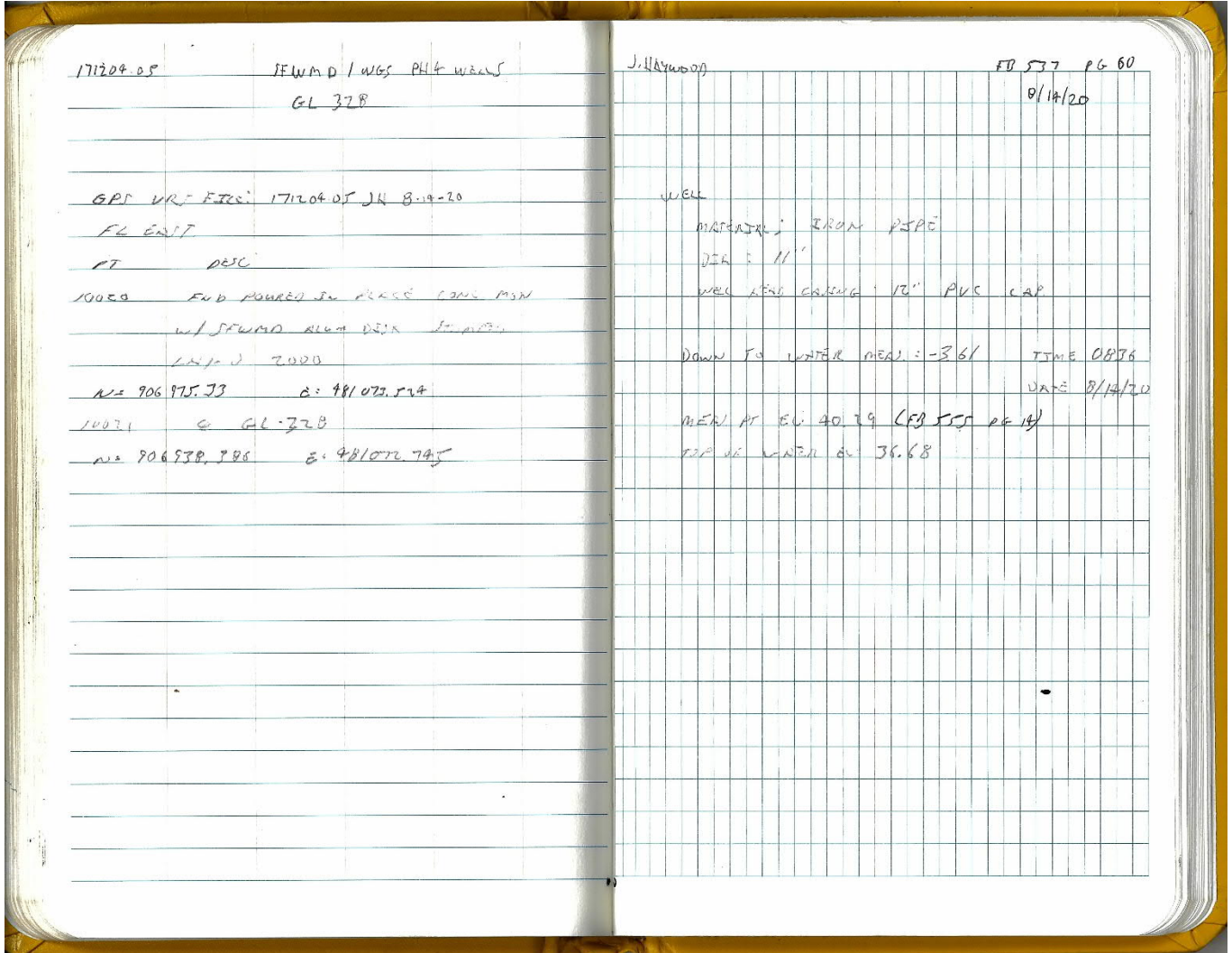
171201105 SFWMD USGS P44 WELLS					E DOYLE	7/24/20	FB 555 AG 15
BENCHRUN CONT.					B/A/DEK		PAGE 2 OF 2
STA	BS	HI	FS	EL	DESC		
4	4.013	44.301					
			4.881	39.419	CHK IN BM LA1-J 2000 (B)		
LEVEL RUN FOR GROUND SHOTS							
ADJACENT TO WELL							
STA	BS	HI	IS	EL	DESC		
1	4.013	44.301		39.419	BM LA1-J 2000		
			5.02	38.281	GPS LOCATION #1000	GROUND SHOTS	
			4.86	39.44	GPS LOCATION #1001		
			4.81	39.49	GPS LOCATION #1002		
			5.07	39.26	GPS LOCATION #1003		
2	4.98	44.241					
			<del>3.95</del>	<del>40.291</del>			
			3.95	40.291	CHK IN WELL 66.328 TOP OF PIPE		
					EL=40.287	NW SIDE	
GPS CHECK OUT J 519 NGS PT							
					P 891865.87	514186.47	19.64
					M 891865.87	514186.46	19.66
					H 0.012	V 0.018	



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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## Field Notes (16 of 18)





# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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## Field Notes (17 of 18)

17120905 SFWMD 1/16/20 P14 WELL  
GL-328

NEW BM PICTURE

NICH DESC

LA1-3-1 DIK CLOSE UP

LA1-3-2 MARK WEST SIDE

LA1-3-3 AREA LOOKING N

LA1-3-4 AREA LOOKING E

LA1-3-5 AREA LOOKING S

LA1-3-6 AREA LOOKING W

WELL GL 328 PICTURE

GL-328-1 WELL CLOSE UP

GL-328-2 WELL CLOSE UP

GL-328-3 CLOSE UP OF TAG

GL-328-4 TAG PLACEMENT

GL-328-5 AREA LOOKING N

GL-328-6 AREA LOOKING E

GL-328-7 AREA LOOKING S

GL-328-8 AREA LOOKING W

J. Hammond  
CA 577 PG 59  
9/14/20

LOBLOLLY BAY RD JCT.

SWALE

BM LA-3

37.65

30" DIA

ARM 1 LAG BOLT IN W. FACE 30" DIA

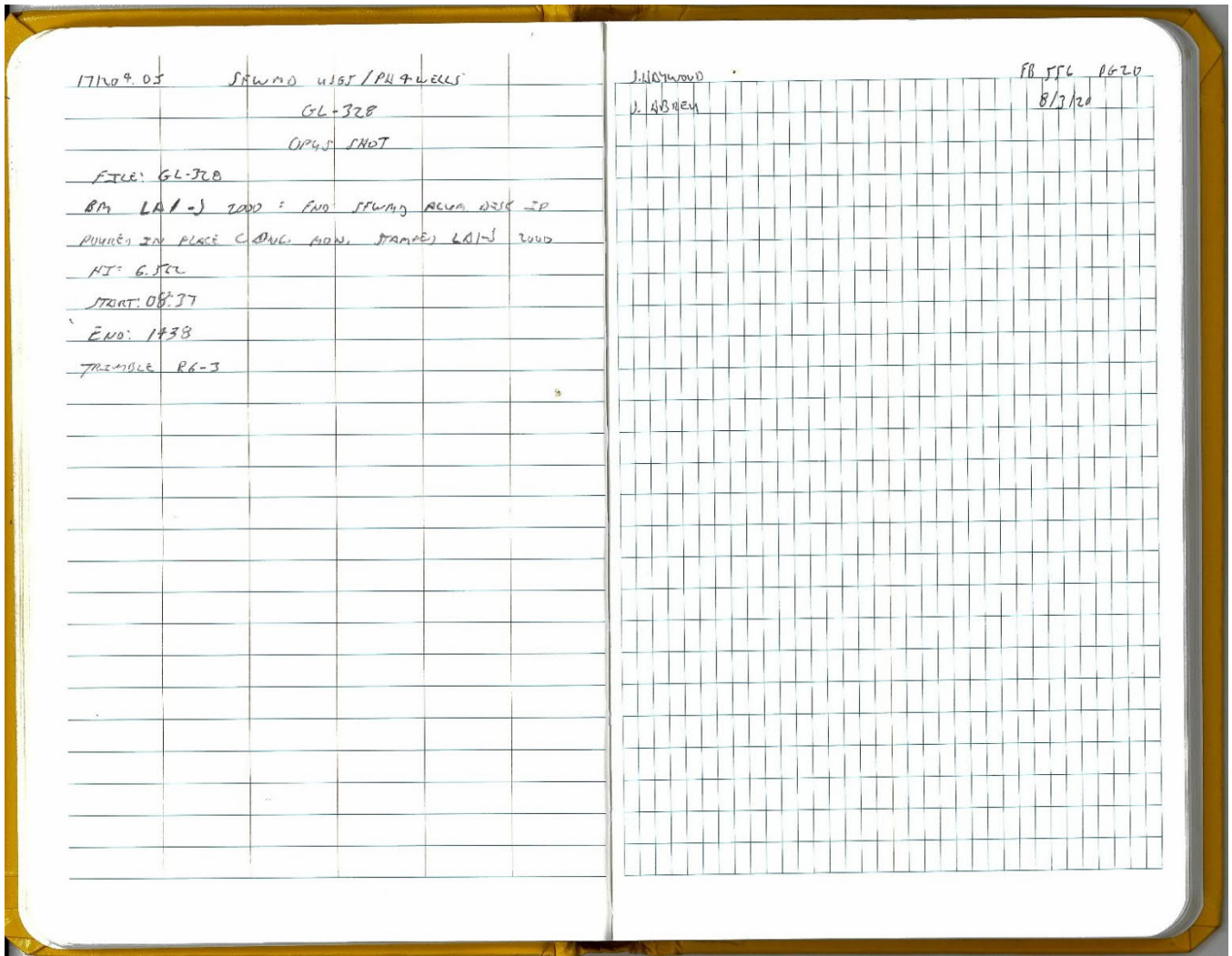
WELL GL-328



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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Field Notes (18 of 18)







### South Florida Water Management District Benchmark Datasheet

Designation: <u>LA1-J</u>	Project Name: <u>USGS PHASE 4 WELLS</u>	Type: <u>V</u>	State Plane Zone: <u>FL East</u>
Stamping: <u>LA1-J 2000</u>	Field Book Name: <u>S37; 555; 556</u>	Field Book Page: <u>60-62; 1-15; 20</u>	
Established By: _____	Recovered By: <u>TZues</u>	Recovery Date: <u>07/23/20</u>	
Surveyor: <u>DOULE</u>	Established Date: _____	Status: <u>New</u>	

#### GEOGRAPHIC POSITION INFORMATION

Section: <u>17</u>	Township: <u>42S</u>	Range: <u>28E</u>
County: <u>GLADES</u>	Quadrangle: <u>TELEGRAPH SWAMP SE</u>	Quad Index: <u>2313</u>
NAD83 Adj. Year: <u>2011</u>	Vertical Datum: <u>NAVD1988</u>	Horizontal Datum: <u>NAD1983</u>
NAVD88 Elevation (feet): <u>39.421</u>	NGVD29 Elevation (feet): <u>40.651</u>	2022 Elevation: _____
NAVD88 Class: _____	NGVD29 Class: _____	Other Elevation: _____
NAVD88 Order: <u>3RD</u>	NGVD29 Order: _____	Other Elevation Type: _____
		NGS Source BM(s): <u>J 519</u>
		NGS PID(s): <u>AJ7266</u>
		NGS NAVD88 Elev (ft): <u>19.64</u>
		NGS NAVD88 Elev (m): <u>5.985</u>
		NGS 2022 Elev (ft): _____

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.GIS files supplied by the U.S. Army Corps of Engineers South Atlantic Division, Jacksonville FL.)

Vertical Datum Offset: + <u>1.23</u>	Actual NGS Elevation or ngvd29.txt file: _____	OPUS Ortho Height: <u>12.047(m)</u>
Northing (Y) (feet): <u>906975.407</u>	Easting (X) (feet): <u>481073.437</u>	Source of Latitude & Longitude: <u>OPUS SOLUTION</u>
Latitude: <u>26</u>	<u>49</u>	<u>40.36472</u>
Longitude: <u>81</u>	<u>32</u>	<u>12.85274</u>
DD°	MM'	SS"
Latitude (Decimal Degrees): <u>26.82787909</u>	Longitude (Decimal Degrees): <u>-81.53690354</u>	

#### RECOVERY DATA

How to Reach: FROM THE PHYSICAL FORKED INTERSECTION OF COUNTY ROAD 78 AND KIRBY THOMPSON RD, HEAD NORTH ALONG KIRBY THOMPSON RD FOR 5.72 MILES TO THE INTERSECTION OF LOBLOLLY BAY RD AND KIRBY THOMPSON RD, PROCEED WEST ALONG LOBLOLLY BAY RD FOR 0.25 MILES TO THE MARK ON THE LEFT. THE BENCHMARK IS 36.95 FEET NORTHEAST OF WELL GL 328, 37.65 FEET WEST OF A LAG BOLT IN WEST FACE OF 30 INCH OAK TREE (RM1), 47.50 FEET SOUTH OF THE CENTERLINE OF LOBLOLLY BAY RD AND 9.40 FEET NORTH OF A BARBED WIRE FENCE.

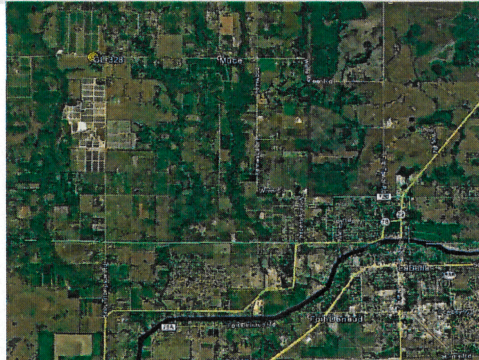
Description/Notes:

Notable Landmarks:

Other Source Benchmarks:

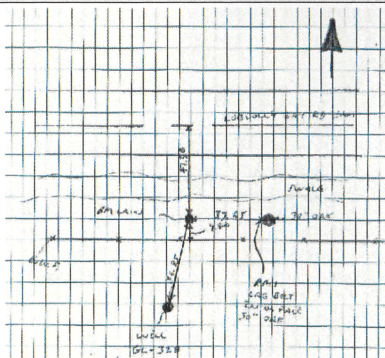
#### PICTURES

Aerial View of Overall Site



#### PICTURES

Site Sketch



Haywood, Joshua

From: opus <opus@ngs.noaa.gov>
Sent: Friday, August 14, 2020 12:41 PM
To: Haywood, Joshua
Subject: OPUS solution : 42732160.20o OP1597423058163

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

FILE: 42732160.20o OP1597423058163

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information:

https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=02%7C01%7Cjosh.haywood%40t2ue.com%7C518684ea393c4629af5a08d84070c548%7Ce64791d699864645a1a068c1175eda41%7C1%7C0%7C637330200387241248&sd=TfOB2MvtVqKSDZrPYtcj6DRHJ9p7tTr7Logz64ZFE%3D&reserved=0

USER: josh.haywood@t2ue.com DATE: August 14, 2020
RINEX FILE: 4273216m.20o TIME: 16:40:25 UTC

SOFTWARE: page5 1801.18 master73.pl 160321 START: 2020/08/03 12:38:00
EPHEMERIS: igr21171.eph [rapid] STOP: 2020/08/03 18:38:00
NAV FILE: brdc2160.20n OBS USED: 11712 / 13939 : 84%
ANT NAME: TRMR6-3 NONE # FIXED AMB: 88 / 104 : 85%
ARP HEIGHT: 2.000 OVERALL RMS: 0.021(m)

REF FRAME: NAD\_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.5892)

X: 838221.375(m) 0.010(m) 838220.544(m) 0.010(m)
Y: -5633488.697(m) 0.039(m) -5633487.118(m) 0.039(m)
Z: 2861204.261(m) 0.021(m) 2861204.092(m) 0.021(m)

LAT: 26 49 40.36472 0.006(m) 26 49 40.38449 0.006(m)
E LON: 278 27 47.14726 0.008(m) 278 27 47.12587 0.008(m)
W LON: 81 32 12.85274 0.008(m) 81 32 12.87413 0.008(m)
EL HGT: -12.454(m) 0.044(m) -14.033(m) 0.044(m)
ORTHO HGT: 12.023(m) 0.072(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 17) SPC (0901 FLE)
Northing (Y) [meters] 2967484.316 276446.657
Easting (X) [meters] 446649.686 146631.477
Convergence [degrees] -0.24231667 -0.24231667
Point Scale 0.99963514 0.99997633
Combined Factor 0.99963710 0.99997829

US NATIONAL GRID DESIGNATOR: 17RMK4664967484(NAD 83)

BASE STATIONS USED
PID DESIGNATION LATITUDE LONGITUDE DISTANCE(m)
DR4402 LBLL LABELLE CORS ARP N264451.324 W0812712.291 12168.2
DG4691 FMYR FORT MYERS CORS ARP N263527.508 W0815150.972 41826.4
DH3757 WACH WAUCHULA CORS ARP N273051.042 W0815256.615 83398.1

NEAREST NGS PUBLISHED CONTROL POINT
AD7646 MUSE N265006.011 W0813146.214 1078.9

BASE STATION INFORMATION

STATION NAME: lbll a 1 (LBLL LaBelle; LaBelle, Florida USA)
MONUMENT: NO DOMES NUMBER
XYZ 847023.9738 -5636220.8238 2853260.8910 MON @ 2010.0000 (M)
XYZ -0.0111 -0.0005 0.0019 VEL (M/YR)
NEU 0.0000 0.0000 0.0000 MON TO ARP (M)
NEU 0.0001 -0.0008 0.1242 ARP TO L1 PHASE CENTER (M)
NEU -0.0000 -0.0008 0.1337 ARP TO L2 PHASE CENTER (M)
XYZ -0.1175 -0.0053 0.0201 VEL TIMES 10.5892 YRS
XYZ 0.0000 0.0000 0.0000 MON TO ARP
XYZ 0.0157 -0.1098 0.0560 ARP TO L1 PHASE CENTER
XYZ 847023.8720 -5636220.9389 2853260.9672 L1 PHS CEN @ 2020.5892
XYZ 0.0000 0.0000 0.0000 + XYZ ADJUSTMENTS

XYZ 847023.8720 -5636220.9389 2853260.9672 NEW L1 PHS CEN @ 2020.5892  
XYZ 847023.8563 -5636220.8291 2853260.9111 NEW ARP @ 2020.5892  
XYZ 847023.8563 -5636220.8291 2853260.9111 NEW MON @ 2020.5892  
LLH 26 44 51.34435 278 32 47.68769 -18.0673 NEW L1 PHS CEN @ 2020.5892  
LLH 26 44 51.34434 278 32 47.68772 -18.1916 NEW ARP @ 2020.5892  
LLH 26 44 51.34434 278 32 47.68772 -18.1916 NEW MON @ 2020.5892

STATION NAME: fmyr a 3 (FORT MYERS; Fort Meyers, Florida, U.S.A.)  
MONUMENT: NO DOMES NUMBER

XYZ 807700.0049 -5649861.2926 2837755.7910 MON @ 2010.0000 (M)  
XYZ -0.0111 0.0007 0.0020 VEL (M/YR)  
NEU 0.0000 0.0000 0.0000 MON TO ARP (M)  
NEU 0.0001 -0.0008 0.1242 ARP TO L1 PHASE CENTER (M)  
NEU -0.0000 -0.0008 0.1337 ARP TO L2 PHASE CENTER (M)  
XYZ -0.1179 0.0077 0.0213 VEL TIMES 10.5893 YRS  
XYZ 0.0000 0.0000 0.0000 MON TO ARP  
XYZ 0.0150 -0.1100 0.0557 ARP TO L1 PHASE CENTER  
XYZ 807699.9019 -5649861.3950 2837755.8681 L1 PHS CEN @ 2020.5892  
XYZ -0.0000 0.0000 0.0000 + XYZ ADJUSTMENTS  
XYZ 807699.9019 -5649861.3950 2837755.8681 NEW L1 PHS CEN @ 2020.5892  
XYZ 807699.8870 -5649861.2849 2837755.8123 NEW ARP @ 2020.5892  
XYZ 807699.8870 -5649861.2849 2837755.8123 NEW MON @ 2020.5892  
LLH 26 35 27.52771 278 8 9.00643 -14.7356 NEW L1 PHS CEN @ 2020.5892  
LLH 26 35 27.52770 278 8 9.00646 -14.8598 NEW ARP @ 2020.5892  
LLH 26 35 27.52770 278 8 9.00646 -14.8598 NEW MON @ 2020.5892

STATION NAME: wach a 2 (Wauchula; Wauchula, Florida, U.S.A.)  
MONUMENT: NO DOMES NUMBER

XYZ 799335.4500 -5604081.2975 2928868.5949 MON @ 2010.0000 (M)  
XYZ -0.0116 0.0017 0.0012 VEL (M/YR)  
NEU 0.0000 0.0000 0.0000 MON TO ARP (M)  
NEU 0.0001 -0.0008 0.1242 ARP TO L1 PHASE CENTER (M)  
NEU -0.0000 -0.0008 0.1337 ARP TO L2 PHASE CENTER (M)  
XYZ -0.1231 0.0179 0.0123 VEL TIMES 10.5893 YRS  
XYZ 0.0000 0.0000 0.0000 MON TO ARP  
XYZ 0.0148 -0.1091 0.0575 ARP TO L1 PHASE CENTER  
XYZ 799335.3417 -5604081.3887 2928868.6647 L1 PHS CEN @ 2020.5892  
XYZ -0.0000 -0.0000 -0.0000 + XYZ ADJUSTMENTS  
XYZ 799335.3417 -5604081.3887 2928868.6647 NEW L1 PHS CEN @ 2020.5892  
XYZ 799335.3269 -5604081.2796 2928868.6072 NEW ARP @ 2020.5892  
XYZ 799335.3269 -5604081.2796 2928868.6072 NEW MON @ 2020.5892  
LLH 27 30 51.06302 278 7 3.36197 9.2828 NEW L1 PHS CEN @ 2020.5892  
LLH 27 30 51.06302 278 7 3.36200 9.1585 NEW ARP @ 2020.5892  
LLH 27 30 51.06302 278 7 3.36200 9.1585 NEW MON @ 2020.5892

#### REMOTE STATION INFORMATION

STATION NAME: 4273 1

MONUMENT: NO DOMES NUMBER

XYZ 838220.3506 -5633487.3031 2861204.2118 MON @ 2020.5889 (M)  
NEU -0.0022 -0.0003 2.0000 MON TO ARP (M)  
NEU 0.0022 0.0003 0.0855 ARP TO L1 PHASE CENTER (M)  
NEU 0.0017 -0.0018 0.0828 ARP TO L2 PHASE CENTER (M)  
XYZ 0.2625 -1.7663 0.9007 MON TO ARP  
XYZ 0.0114 -0.0745 0.0405 ARP TO L1 PHASE CENTER  
XYZ 838220.6245 -5633489.1439 2861205.1530 L1 PHS CEN @ 2020.5892

BASELINE NAME: ltbl 4273

XYZ 0.1922 0.1695 -0.1101 + XYZ ADJUSTMENTS  
XYZ 838220.8167 -5633488.9744 2861205.0429 NEW L1 PHS CEN @ 2020.5892  
XYZ 838220.8054 -5633488.8999 2861205.0024 NEW ARP @ 2020.5892  
XYZ 838220.5428 -5633487.1336 2861204.1017 NEW MON @ 2020.5892  
LLH 26 49 40.38456 278 27 47.12576 -11.9295 NEW L1 PHS CEN @ 2020.5892  
LLH 26 49 40.38449 278 27 47.12575 -12.0150 NEW ARP @ 2020.5892  
LLH 26 49 40.38456 278 27 47.12576 -14.0150 NEW MON @ 2020.5892

BASELINE NAME: fmyr 4273

XYZ 0.1991 0.1766 -0.1193 + XYZ ADJUSTMENTS  
XYZ 838220.8236 -5633488.9672 2861205.0337 NEW L1 PHS CEN @ 2020.5892  
XYZ 838220.8122 -5633488.8927 2861204.9932 NEW ARP @ 2020.5892  
XYZ 838220.5497 -5633487.1265 2861204.0925 NEW MON @ 2020.5892  
LLH 26 49 40.38438 278 27 47.12605 -11.9390 NEW L1 PHS CEN @ 2020.5892  
LLH 26 49 40.38431 278 27 47.12604 -12.0245 NEW ARP @ 2020.5892  
LLH 26 49 40.38438 278 27 47.12605 -14.0245 NEW MON @ 2020.5892

BASELINE NAME: wach 4273

XYZ 0.1893 0.2088 -0.1312 + XYZ ADJUSTMENTS  
XYZ 838220.8138 -5633488.9351 2861205.0218 NEW L1 PHS CEN @ 2020.5892  
XYZ 838220.8025 -5633488.8606 2861204.9813 NEW ARP @ 2020.5892  
XYZ 838220.5399 -5633487.0943 2861204.0806 NEW MON @ 2020.5892  
LLH 26 49 40.38452 278 27 47.12587 -11.9740 NEW L1 PHS CEN @ 2020.5892  
LLH 26 49 40.38445 278 27 47.12586 -12.0596 NEW ARP @ 2020.5892  
LLH 26 49 40.38452 278 27 47.12587 -14.0595 NEW MON @ 2020.5892

G-FILES

Axx2020 8 3 20 8 3  
 B2020 8 31238 20 8 31838 1 page5 v1801.18IGS 132 1 2 27NGS 2020 814IFDDPX  
 ITRF2014\_2114 IGS 20200712  
 C00090003 88033135 11 -27336955 37 -79431906 19 X2160A4273X2160ALBLL  
 D 1 2 -5321357 1 3 1497821 2 3 -8515622

Axx2020 8 3 20 8 3  
 B2020 8 31238 20 8 31838 1 page5 v1801.18IGS 132 1 2 27NGS 2020 814IFDDPX  
 ITRF2014\_2114 IGS 20200712  
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 D 1 2 -3766384 1 3 4570470 2 3 -9000504

Axx2020 8 3 20 8 3  
 B2020 8 31238 20 8 31838 1 page5 v1801.18IGS 132 1 2 27NGS 2020 814IFDDPX  
 ITRF2014\_2114 IGS 20200712  
 C00090001 -388852130 8 294058147 39 676645266 20 X2160A4273X2160AWACH  
 D 1 2 -6268273 1 3 4156536 2 3 -8929440

POST-FIT RMS BY SATELLITE VS. BASELINE

OVERALL 01 02 03 05 06 07 09 11  
 l|bl-4273| 0.021 0.021 0.017 0.032 0.025 0.020 0.016 0.022 0.019  
 12 13 15 17 19 22 24 25 28  
 l|bl-4273| 0.018 0.035 ... 0.017 ... 0.024 0.024 0.030 0.017  
 29 30  
 l|bl-4273| 0.029 0.016

OVERALL 01 02 03 05 06 07 09 11  
 f|myr-4273| 0.021 0.020 0.015 0.030 0.020 0.019 0.028 0.025 ...  
 12 13 15 17 19 22 24 25 28  
 f|myr-4273| 0.021 0.043 0.026 0.019 0.022 0.027 0.025 0.025 0.020  
 29 30  
 f|myr-4273| 0.027 0.018

OVERALL 01 02 03 05 06 07 09 11  
 w|ach-4273| 0.020 0.026 0.016 0.024 0.023 0.018 0.019 ... ..  
 12 13 15 17 19 22 24 25 28  
 w|ach-4273| 0.017 0.024 0.021 0.021 ... 0.025 0.025 0.020 0.019  
 29 30  
 w|ach-4273| 0.023 0.020

OBS BY SATELLITE VS. BASELINE

OVERALL 01 02 03 05 06 07 09 11  
 l|bl-4273| 3882 158 406 204 351 671 79 74 38  
 12 13 15 17 19 22 24 25 28  
 l|bl-4273| 313 53 ... 449 ... 141 110 148 439  
 29 30  
 l|bl-4273| 20 228

OVERALL 01 02 03 05 06 07 09 11  
 f|myr-4273| 4207 157 499 165 377 77 55 92 ...  
 12 13 15 17 19 22 24 25 28  
 f|myr-4273| 391 88 31 430 535 120 220 235 422  
 29 30  
 f|myr-4273| 85 228

OVERALL 01 02 03 05 06 07 09 11  
 w|ach-4273| 3623 129 371 66 323 615 88 ... ..  
 12 13 15 17 19 22 24 25 28  
 w|ach-4273| 331 82 18 462 ... 37 125 207 454  
 29 30  
 w|ach-4273| 76 239

ITRF position of 4273 as determined by individual baselines

	X	Y	Z
l bl	838220.543	-5633487.134	2861204.102
f myr	838220.550	-5633487.127	2861204.092
w ach	838220.540	-5633487.094	2861204.081

Residuals of position determined by individual baselines from the final position

	X	Y	Z	East	North	Up
l bl	-0.001	-0.015	0.010	-0.004	0.002	0.018
f myr	0.006	-0.008	0.001	0.004	-0.003	0.009
w ach	-0.004	0.024	-0.011	-0.001	0.001	-0.027

Covariance Matrix for the xyz OPUS Position (meters^2).

0.0000005200	-0.0000001103	0.0000000331
-0.0000001103	0.00000086978	-0.0000003902
0.0000000331	-0.0000003902	0.0000022600

Covariance Matrix for the enu OPUS Position (meters^2).

0.0000006650	0.0000004650	-0.0000009805
--------------	--------------	---------------

0.000004650 0.000032145 -0.000022909  
-0.000009805 -0.000022909 0.000075983

Horizontal network accuracy = 0.00365 meters.  
Vertical network accuracy = 0.00540 meters.

Derivation of NAD 83 vector components

Position of reference station ARP in NAD\_83(2011)(EPOCH:2010.0000).

	Xa(m)	Ya(m)	Za(m)		
LBLL	847024.68649	-5636222.40999	2853261.08073	2010.00	
FMYR	807700.71683	-5649862.87839	2837755.98266	2010.00	
WACH	799336.16445	-5604082.87126	2928868.78053	2010.00	

Position of reference station monument in NAD\_83(2011)(EPOCH:2010.0000).

	Xr(m)	Yr(m)	Zr(m)		
LBLL	847024.68649	-5636222.40999	2853261.08073	2010.00	
FMYR	807700.71683	-5649862.87839	2837755.98266	2010.00	
WACH	799336.16445	-5604082.87126	2928868.78053	2010.00	

Velocity of reference station monument in NAD\_83(2011)(EPOCH:2010.0000).

	Vx (m/yr)	Vy (m/yr)	Vz (m/yr)
LBLL	0.00151	0.00044	-0.00103
FMYR	0.00146	0.00163	-0.00078
WACH	0.00128	0.00265	-0.00157

Vectors from unknown station monument to reference station monument in NAD\_83(2011)(EPOCH:2010.0000).

	Xr-X= DX(m)	Yr-Y= DY(m)	Zr-Z= DZ(m)		
LBLL	8803.31149	-2733.71299	-7943.18027	2010.00	
FMYR	-30520.65817	-16374.18139	-23448.27834	2010.00	
WACH	-38885.21055	29405.82574	67664.51953	2010.00	

STATE PLANE COORDINATES - U.S. Survey Foot  
SPC (0901 FL E)

Northing (Y) [feet] 906975.407  
Easting (X) [feet] 481073.437  
Convergence [degrees] -0.24231667  
Point Scale 0.99997633  
Combined Factor 0.99997829

\*\*\*\*\* New Reference Frame Preview \*\*\*\*\*

We are replacing the nation's NAD 83 and NAVD 88 datums, to improve access and accuracy of the National Spatial Reference System. More at <https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fgeodesy.noaa.gov%2Fdatums%2Fnewdatums%2F&data=02%7C01%7Cjosh.haywood%40t2ue.com%7C518684ea393c4629af5a08d84070c548%7Ce64791d699864645a1a068c1175eda41%7C1%7C0%7C637330200387241248&data=lbY4NBMc2gudG8Z5h%2BsXmEKVXYqY8AxxaiGkRj%2Bfy8%3D&reserved=0>

Below are approximate coordinates for this solution in the new frames:

APPROX ORTHO HGT: 12.047 (m) [PROTOTYPE (Computed using xGeoid19B,GRS80,ITRF2014)]

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.

GL-328 Raw Level Data 1.GSI

\*110001+000000000000000001 32...7+0000000000332588 331.27+0000000000053400  
390...+000000000000000004 391.27+0000000000000001  
\*110002+000000000000000002 32...7+0000000000344692 332.27+0000000000052414  
390...+000000000000000003 391.27+0000000000000000  
\*110003+000000000000000003 32...7+0000000000670815 332.27+0000000000046394  
390...+000000000000000003 391.27+0000000000000001  
\*110004+000000000000000004 32...7+0000000001348119 331.27+0000000000047353  
390...+000000000000000003 391.27+0000000000000002  
\*410005+00000000?.....1  
\*110006+0000000000000000J519 83..17+0000000000196400  
\*110007+0000000000000000J519 32...7+0000000003512730 331.07+0000000000088840  
390...+000000000000000004 391.07+0000000000000006  
\*110008+0000000000000000TP1 32...7+0000000003466320 332.07+0000000000047739  
390...+000000000000000003 391.07+0000000000000005  
\*110009+0000000000000000TP1 573.07+0000000000046410 574.07+0000000006979050  
83..07+00000000000237501  
\*110010+0000000000000000TP1 32...7+0000000003521159 331.07+0000000000053770  
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83..07+00000000000232759  
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390...+000000000000000004 391.07+0000000000000004  
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83..07+00000000000228738  
\*110016+0000000000000000TP2 32...7+0000000003490021 331.07+0000000000044289  
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83..07+00000000000224967  
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390...+000000000000000003 391.07+0000000000000005  
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83..07+00000000000218234  
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\*110023+0000000000000000TP4 32...7+0000000003466293 332.07+0000000000038555  
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\*110024+0000000000000000TP4 573.07+0000000000144848 574.07+0000000038061866  
83..07+00000000000236051  
\*110025+0000000000000000TP4 32...7+0000000003480651 331.07+0000000000061601  
390...+000000000000000003 391.07+0000000000000003  
\*110026+0000000000000000TP5 32...7+0000000003436691 332.07+0000000000034067

GL-328 Raw Level Data 1.GSI

390. . . +000000000000000003 391. 07+0000000000000005  
\*110027+00000000000000TP5 573. 07+0000000000188808 574. 07+0000000044979208  
83. . 07+0000000000263585  
\*110028+00000000000000TP5 32. . . 7+0000000003477339 331. 07+0000000000065676  
390. . . +0000000000000004 391. 07+0000000000000006  
\*110029+00000000000000TP6 32. . . 7+0000000003462413 332. 07+0000000000034561  
390. . . +0000000000000004 391. 07+0000000000000007  
\*110030+00000000000000TP6 573. 07+0000000000203733 574. 07+0000000051918960  
83. . 07+0000000000294701  
\*110031+00000000000000TP6 32. . . 7+0000000003481350 331. 07+0000000000060016  
390. . . +0000000000000003 391. 07+0000000000000006  
\*110032+00000000000000A3 32. . . 7+0000000003428869 332. 07+0000000000039154  
390. . . +0000000000000003 391. 07+0000000000000005  
\*110033+00000000000000A3 573. 07+0000000000256215 574. 07+0000000058829179  
83. . 07+0000000000315563  
\*110034+00000000000000A3 32. . . 7+0000000003481741 331. 07+0000000000061639  
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\*110035+00000000000000TP7 32. . . 7+0000000003476602 332. 07+0000000000042611  
390. . . +0000000000000003 391. 07+0000000000000001  
\*110036+00000000000000TP7 573. 07+0000000000261354 574. 07+0000000065787522  
83. . 07+0000000000334591  
\*110037+00000000000000TP7 32. . . 7+0000000003474209 331. 07+0000000000055840  
390. . . +0000000000000004 391. 07+0000000000000005  
\*110038+00000000000000TP8 32. . . 7+0000000003402707 332. 07+0000000000048882  
390. . . +0000000000000003 391. 07+0000000000000002  
\*110039+00000000000000TP8 573. 07+0000000000332856 574. 07+0000000072664438  
83. . 07+0000000000341549  
\*110040+00000000000000TP8 32. . . 7+0000000003469601 331. 07+0000000000049877  
390. . . +0000000000000003 391. 07+0000000000000005  
\*110041+00000000000000A4 32. . . 7+0000000003327415 332. 07+0000000000050509  
390. . . +0000000000000005 391. 07+0000000000000007  
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83. . 07+0000000000340918  
\*110043+00000000000000A4 32. . . 7+0000000003482209 331. 07+0000000000048880  
390. . . +0000000000000003 391. 07+0000000000000005  
\*110044+00000000000000TP9 32. . . 7+0000000003464695 332. 07+0000000000048088  
390. . . +0000000000000005 391. 07+0000000000000007  
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83. . 07+0000000000341710  
\*110046+00000000000000TP9 32. . . 7+0000000003472486 331. 07+0000000000053725  
390. . . +0000000000000003 391. 07+0000000000000002  
\*110047+00000000000000TP10 32. . . 7+0000000003444968 332. 07+0000000000043264  
390. . . +0000000000000003 391. 07+0000000000000006  
\*110048+00000000000000TP10 573. 07+0000000000520073 574. 07+0000000093325812  
83. . 07+0000000000352171  
\*110049+00000000000000TP10 32. . . 7+0000000003484216 331. 07+0000000000057304  
390. . . +0000000000000003 391. 07+0000000000000006  
\*110050+00000000000000A5 32. . . 7+0000000003454926 332. 07+0000000000043740  
390. . . +0000000000000003 391. 07+0000000000000005

GL-328 Raw Level Data 1.GSI

\*110051+00000000000000A5 573.07+0000000000549362 574.07+0000000100264955  
83.07+0000000000365735  
\*110052+00000000000000A5 32.07+0000000003487926 331.07+0000000000054673  
390.07+0000000000000003 391.07+0000000000000004  
\*110053+000000000000TP11 32.07+0000000003464002 332.07+0000000000044265  
390.07+0000000000000004 391.07+0000000000000007  
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83.07+0000000000376144  
\*110055+000000000000TP11 32.07+0000000002506734 331.07+0000000000050302  
390.07+0000000000000003 391.07+0000000000000003  
\*110056+00000000000000A6 32.07+0000000002350347 332.07+0000000000048759  
390.07+0000000000000003 391.07+0000000000000004  
\*110057+00000000000000A6 573.07+0000000000729674 574.07+0000000112073964  
83.07+0000000000377687



GL-328 Raw Level Data 2.GSI

\*110001+00000000000000000001 32...7+0000000000332987 331.27+00000000000052204  
390...+00000000000000000003 391.27+000000000000000000  
\*110002+00000000000000000002 32...7+0000000000344557 332.27+00000000000051243  
390...+00000000000000000003 391.27+000000000000000000  
\*110003+00000000000000000003 32...7+0000000000668745 332.27+00000000000044209  
390...+00000000000000000003 391.27+000000000000000001  
\*110004+00000000000000000004 32...7+0000000001345405 331.27+00000000000045185  
390...+00000000000000000003 391.27+000000000000000001  
\*410005+00000000?. . . . . 1  
\*110006+0000000000000000A6 83...17+0000000000377680  
\*110007+0000000000000000A6 32...7+0000000003482129 331.07+00000000000058502  
390...+00000000000000000003 391.07+000000000000000001  
\*110008+0000000000000000TP1 32...7+0000000003483158 332.07+00000000000055762  
390...+00000000000000000003 391.07+000000000000000003  
\*110009+0000000000000000TP1 573.07-0000000000001029 574.07+0000000006965286  
83...07+0000000000380420  
\*110010+0000000000000000TP1 32...7+0000000003477191 331.07+00000000000053297  
390...+00000000000000000004 391.07+000000000000000007  
\*110011+0000000000000000TP2 32...7+0000000003489337 332.07+00000000000043873  
390...+00000000000000000004 391.07+000000000000000006  
\*110012+0000000000000000TP2 573.07-0000000000013176 574.07+0000000013931814  
83...07+0000000000389844  
\*110013+0000000000000000TP2 32...7+0000000003443619 331.07+00000000000057557  
390...+00000000000000000003 391.07+000000000000000002  
\*110014+0000000000000000A7 32...7+0000000003477566 332.07+00000000000044498  
390...+00000000000000000003 391.07+000000000000000001  
\*110015+0000000000000000A7 573.07-0000000000047123 574.07+0000000020852999  
83...07+0000000000402903  
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390...+00000000000000000003 391.07+000000000000000005  
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\*110018+0000000000000000TP3 573.07+0000000000009115 574.07+0000000027734507  
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\*110019+0000000000000000TP3 32...7+0000000003474529 331.07+00000000000046302  
390...+00000000000000000004 391.07+000000000000000006  
\*110020+0000000000000000TP4 32...7+0000000003427550 332.07+00000000000043846  
390...+00000000000000000003 391.07+000000000000000001  
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83...07+0000000000407778  
\*110022+0000000000000000TP4 32...7+0000000003427718 331.07+00000000000054003  
390...+00000000000000000003 391.07+000000000000000004  
\*110023+0000000000000000A8 32...7+0000000003429943 332.07+00000000000046301  
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\*110024+0000000000000000A8 573.07+00000000000053868 574.07+0000000041494247  
83...07+0000000000415480  
\*110025+0000000000000000A8 32...7+0000000003442962 331.07+00000000000053839  
390...+00000000000000000004 391.07+000000000000000005  
\*110026+0000000000000000TP5 32...7+0000000003454384 332.07+00000000000045518

GL-328 Raw Level Data 2.GSI

390. . . +000000000000000003 391. 07+0000000000000001  
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83. . 07+0000000000423801  
\*110028+00000000000000TP5 32. . . 7+0000000003397249 331. 07+0000000000065131  
390. . . +00000000000000003 391. 07+0000000000000003  
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390. . . +00000000000000004 391. 07+0000000000000006  
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83. . 07+0000000000433754  
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390. . . +00000000000000003 391. 07+0000000000000004  
\*110032+00000000000000A9 32. . . 7+0000000003458844 332. 07+0000000000055191  
390. . . +00000000000000003 391. 07+0000000000000005  
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83. . 07+0000000000421015  
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390. . . +00000000000000004 391. 07+0000000000000006  
\*110035+00000000000000TP7 32. . . 7+0000000003476987 332. 07+0000000000051743  
390. . . +00000000000000003 391. 07+0000000000000002  
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390. . . +00000000000000004 391. 07+0000000000000007  
\*110038+00000000000000TP8 32. . . 7+0000000003485269 332. 07+0000000000054845  
390. . . +00000000000000003 391. 07+0000000000000004  
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83. . 07+0000000000417945  
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390. . . +00000000000000003 391. 07+0000000000000005  
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\*110043+00000000000000A10 32. . . 7+0000000003474247 331. 07+0000000000049323  
390. . . +00000000000000003 391. 07+0000000000000006  
\*110044+00000000000000TP9 32. . . 7+0000000003485066 332. 07+0000000000051732  
390. . . +00000000000000004 391. 07+0000000000000007  
\*110045+00000000000000TP9 573. 07-0000000000026783 574. 07+0000000089866584  
83. . 07+0000000000405467  
\*110046+00000000000000TP9 32. . . 7+0000000003483188 331. 07+0000000000051252  
390. . . +00000000000000003 391. 07+0000000000000004  
\*110047+00000000000000TP10 32. . . 7+0000000003481745 332. 07+0000000000053976  
390. . . +00000000000000005 391. 07+0000000000000007  
\*110048+00000000000000TP10 573. 07-0000000000025340 574. 07+0000000096831518  
83. . 07+0000000000402743  
\*110049+00000000000000TP10 32. . . 7+0000000003484571 331. 07+0000000000053710  
390. . . +00000000000000004 391. 07+0000000000000007  
\*110050+00000000000000A11 32. . . 7+0000000003459779 332. 07+0000000000051984  
390. . . +00000000000000003 391. 07+0000000000000005

GL-328 Raw Level Data 2.GSI

\*110051+000000000000A11 573.07-000000000000547 574.07+0000000103775868  
83.07+0000000000404469  
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390...+000000000000004 391.07+000000000000007  
\*110053+000000000000TP11 32...7+000000003461862 332.07+000000000049248  
390...+000000000000003 391.07+000000000000005  
\*110054+000000000000TP11 573.07-0000000000009919 574.07+0000000110690221  
83.07+0000000000405367  
\*110055+000000000000TP11 32...7+000000003453518 331.07+000000000049482  
390...+000000000000003 391.07+000000000000002  
\*110056+000000000000TP12 32...7+000000003427931 332.07+000000000048204  
390...+000000000000003 391.07+000000000000005  
\*110057+000000000000TP12 573.07+0000000000015669 574.07+0000000117571669  
83.07+0000000000406644  
\*110058+000000000000TP12 32...7+000000003443791 331.07+000000000049556  
390...+000000000000004 391.07+000000000000006  
\*110059+000000000000A12 32...7+000000003479646 332.07+000000000047200  
390...+000000000000003 391.07+000000000000005  
\*110060+000000000000A12 573.07-0000000000020186 574.07+0000000124495107  
83.07+0000000000408999  
\*110061+000000000000A12 32...7+000000003448417 331.07+000000000040042  
390...+000000000000003 391.07+000000000000005  
\*110062+000000000000TP13 32...7+000000003361017 332.07+000000000046860  
390...+000000000000003 391.07+000000000000005  
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83.07+0000000000402181  
\*110064+000000000000TP13 32...7+000000003435055 331.07+000000000052375  
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390...+000000000000003 391.07+000000000000003  
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83.07+0000000000405980  
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\*110068+000000000000A13 32...7+000000003486417 332.07+000000000043535  
390...+000000000000003 391.07+000000000000005  
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83.07+0000000000416290  
\*110070+000000000000A13 32...7+000000003477289 331.07+000000000055905  
390...+000000000000003 391.07+000000000000005  
\*110071+000000000000TP15 32...7+000000003463532 332.07+000000000027631  
390...+000000000000004 391.07+000000000000006  
\*110072+000000000000TP15 573.07+0000000000032014 574.07+0000000152108477  
83.07+0000000000444564  
\*110073+000000000000TP15 32...7+000000003398628 331.07+000000000052997  
390...+000000000000003 391.07+000000000000003  
\*110074+000000000000TP16 32...7+000000003446436 332.07+000000000064429  
390...+000000000000003 391.07+000000000000005  
\*110075+000000000000TP16 573.07-0000000000015793 574.07+0000000158953540

GL-328 Raw Level Data 2.GSI

83. .07+0000000000433131  
\*110076+000000000000TP16 32. . . 7+0000000003470029 331. 07+0000000000047895  
390. . . +0000000000000003 391. 07+0000000000000005  
\*110077+000000000000A14 32. . . 7+0000000003468492 332. 07+0000000000051322  
390. . . +0000000000000003 391. 07+0000000000000004  
\*110078+000000000000A14 573. 07-0000000000014257 574. 07+0000000165892060  
83. .07+0000000000429704

GL-328 Raw Level Data 3.GSI

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390...+0000000000000003 391.27+0000000000000000  
\*110002+0000000000000002 32...7+0000000000332505 332.27+0000000000049851  
390...+0000000000000004 391.27+0000000000000001  
\*110003+0000000000000003 32...7+0000000000659529 332.27+0000000000044966  
390...+0000000000000004 391.27+0000000000000001  
\*110004+0000000000000004 32...7+0000000001320312 331.27+0000000000045461  
390...+0000000000000003 391.27+0000000000000001  
\*410005+00000000?.....1  
\*110006+00000000000000A25 83..17+0000000000414450  
\*110007+00000000000000A25 32...7+0000000003488195 331.07+0000000000047854  
390...+0000000000000003 391.07+0000000000000005  
\*110008+00000000000000TP1 32...7+0000000003469340 332.07+0000000000053284  
390...+0000000000000004 391.07+0000000000000007  
\*110009+00000000000000TP1 573.07+0000000000018855 574.07+0000000006957535  
83..07+0000000000409020  
\*110010+00000000000000TP1 32...7+0000000003469021 331.07+0000000000044544  
390...+0000000000000003 391.07+0000000000000004  
\*110011+00000000000000TP2 32...7+0000000003464909 332.07+0000000000054925  
390...+0000000000000003 391.07+0000000000000005  
\*110012+00000000000000TP2 573.07+0000000000022967 574.07+0000000013891466  
83..07+0000000000398639  
\*110013+00000000000000TP2 32...7+0000000000738675 331.07+0000000000047488  
390...+0000000000000003 391.07+0000000000000001  
\*110014+000BM LA1-J 2000 32...7+0000000000685093 332.07+0000000000051931  
390...+0000000000000003 391.07+0000000000000001  
\*110015+000BM LA1-J 2000 573.07+0000000000076549 574.07+0000000015315234  
83..07+0000000000394196  
\*110016+000BM LA1-J 2000 32...7+0000000000270275 331.07+0000000000050543  
390...+0000000000000003 391.07+0000000000000000  
\*110017+00000WELL GL-328 32...7+0000000000095595 332.07+0000000000041859  
390...+0000000000000003 391.07+0000000000000000  
\*110018+00000WELL GL-328 573.07+00000000000251229 574.07+0000000015681104  
83..07+0000000000402880  
\*110019+00000WELL GL-328 32...7+0000000000099291 331.07+0000000000040131  
390...+0000000000000003 391.07+0000000000000000  
\*110020+00BM LA1-J 2000B 32...7+0000000000266245 332.07+0000000000048814  
390...+0000000000000004 391.07+0000000000000000  
\*110021+00BM LA1-J 2000B 573.07+0000000000084275 574.07+0000000016046639  
83..07+0000000000394197

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\*110001+000000000000000000001 32...7+0000000000333517 331.27+00000000000050639  
390...+000000000000000000003 391.27+000000000000000000000  
\*110002+000000000000000000002 32...7+0000000000329392 332.27+00000000000050158  
390...+000000000000000000003 391.27+000000000000000000000  
\*110003+000000000000000000003 32...7+0000000000659862 332.27+00000000000047257  
390...+000000000000000000003 391.27+000000000000000000000  
\*110004+000000000000000000004 32...7+00000000001322724 331.27+00000000000047739  
390...+000000000000000000003 391.27+000000000000000000001  
\*410005+00000000?. . . . . 1  
\*110006+0000000000000000A14 83..17+00000000000429700  
\*110007+0000000000000000A14 32...7+00000000003490289 331.07+00000000000040894  
390...+000000000000000000003 391.07+000000000000000000006  
\*110008+0000000000000000TP1 32...7+00000000003432295 332.07+00000000000040478  
390...+000000000000000000003 391.07+000000000000000000004  
\*110009+0000000000000000TP1 573.07+00000000000057994 574.07+00000000006922584  
83..07+000000000000430116  
\*110010+0000000000000000TP1 32...7+00000000003512543 331.07+00000000000049412  
390...+000000000000000000003 391.07+000000000000000000005  
\*110011+0000000000000000TP2 32...7+00000000003469139 332.07+00000000000048918  
390...+000000000000000000004 391.07+000000000000000000006  
\*110012+0000000000000000TP2 573.07+00000000000101399 574.07+00000000013904266  
83..07+000000000000430610  
\*110013+0000000000000000TP2 32...7+00000000003485563 331.07+00000000000050184  
390...+000000000000000000003 391.07+000000000000000000001  
\*110014+0000000000000000A15 32...7+00000000003452914 332.07+00000000000042750  
390...+000000000000000000003 391.07+000000000000000000006  
\*110015+0000000000000000A15 573.07+00000000000134048 574.07+00000000020842742  
83..07+000000000000438044  
\*110016+0000000000000000A15 32...7+00000000003479567 331.07+00000000000049709  
390...+000000000000000000003 391.07+000000000000000000003  
\*110017+0000000000000000TP3 32...7+00000000003449958 332.07+00000000000044235  
390...+000000000000000000003 391.07+000000000000000000001  
\*110018+0000000000000000TP3 573.07+00000000000163658 574.07+00000000027772267  
83..07+000000000000443519  
\*110019+0000000000000000TP3 32...7+00000000003485592 331.07+00000000000053500  
390...+000000000000000000003 391.07+000000000000000000004  
\*110020+0000000000000000TP4 32...7+00000000003464551 332.07+00000000000044423  
390...+000000000000000000004 391.07+000000000000000000006  
\*110021+0000000000000000TP4 573.07+00000000000184698 574.07+00000000034722410  
83..07+000000000000452596  
\*110022+0000000000000000TP4 32...7+00000000003475136 331.07+00000000000055483  
390...+000000000000000000003 391.07+000000000000000000004  
\*110023+0000000000000000TP5 32...7+00000000003457484 332.07+00000000000042447  
390...+000000000000000000003 391.07+000000000000000000003  
\*110024+0000000000000000TP5 573.07+00000000000202350 574.07+00000000041655029  
83..07+000000000000465632  
\*110025+0000000000000000TP5 32...7+00000000003470363 331.07+00000000000050225  
390...+000000000000000000003 391.07+000000000000000000003  
\*110026+0000000000000000A16 32...7+00000000003442858 332.07+00000000000052776

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390. . . +00000000000000000004 391. 07+00000000000000000006  
\*110027+0000000000000000A16 573. 07+0000000000229855 574. 07+0000000048568250  
83. . 07+00000000000463080  
\*110028+0000000000000000A16 32. . . 7+0000000003483671 331. 07+0000000000038018  
390. . . +00000000000000000003 391. 07+000000000000000002  
\*110029+0000000000000000TP6 32. . . 7+0000000003465828 332. 07+0000000000048083  
390. . . +00000000000000000003 391. 07+000000000000000001  
\*110030+0000000000000000TP6 573. 07+0000000000247698 574. 07+0000000055517749  
83. . 07+00000000000453015  
\*110031+0000000000000000TP6 32. . . 7+0000000003479727 331. 07+0000000000068610  
390. . . +00000000000000000003 391. 07+000000000000000001  
\*110032+0000000000000000TP7 32. . . 7+0000000003401252 332. 07+0000000000074545  
390. . . +00000000000000000004 391. 07+000000000000000006  
\*110033+0000000000000000TP7 573. 07+0000000000326174 574. 07+0000000062398729  
83. . 07+00000000000447080  
\*110034+0000000000000000TP7 32. . . 7+0000000003484760 331. 07+0000000000051310  
390. . . +00000000000000000003 391. 07+000000000000000006  
\*110035+0000000000000000A17 32. . . 7+0000000001695666 332. 07+0000000000040840  
390. . . +00000000000000000003 391. 07+000000000000000002  
\*110036+0000000000000000A17 573. 07+0000000002115268 574. 07+0000000067579155  
83. . 07+00000000000457551  
\*110037+0000000000000000A17 32. . . 7+0000000001773439 331. 07+0000000000061353  
390. . . +00000000000000000003 391. 07+000000000000000003  
\*110038+0000000000000000A18 32. . . 7+0000000001722156 332. 07+0000000000043413  
390. . . +00000000000000000003 391. 07+000000000000000002  
\*110039+0000000000000000A18 573. 07+0000000002166550 574. 07+0000000071074750  
83. . 07+00000000000475491  
\*110040+0000000000000000A18 32. . . 7+0000000002004120 331. 07+0000000000068182  
390. . . +00000000000000000003 391. 07+000000000000000001  
\*110041+0000000000000000BMK5 32. . . 7+0000000001881607 332. 07+0000000000040246  
390. . . +00000000000000000003 391. 07+000000000000000003  
\*110042+0000000000000000BMK5 573. 07+0000000002289063 574. 07+0000000074960477  
83. . 07+00000000000503427  
\*110043+0000000000000000BMK5 32. . . 7+0000000001887145 331. 07+0000000000039387  
390. . . +00000000000000000003 391. 07+000000000000000002  
\*110044+0000000000000000A18A 32. . . 7+0000000001999050 332. 07+0000000000067297  
390. . . +00000000000000000004 391. 07+000000000000000003  
\*110045+0000000000000000A18A 573. 07+0000000002177158 574. 07+0000000078846672  
83. . 07+00000000000475518  
\*110046+0000000000000000A18A 32. . . 7+0000000001779513 331. 07+0000000000043148  
390. . . +00000000000000000003 391. 07+000000000000000001  
\*110047+0000000000000000A17B 32. . . 7+0000000001710247 332. 07+0000000000061086  
390. . . +00000000000000000003 391. 07+000000000000000002  
\*110048+0000000000000000A17B 573. 07+0000000002246423 574. 07+0000000082336432  
83. . 07+00000000000457581  
\*110049+0000000000000000A17B 32. . . 7+0000000003494571 331. 07+0000000000060996  
390. . . +00000000000000000005 391. 07+000000000000000008  
\*110050+0000000000000000TP9 32. . . 7+0000000003481834 332. 07+0000000000043843  
390. . . +00000000000000000003 391. 07+000000000000000005

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\*110051+000000000000TP9 573.07+0000000002259161 574.07+0000000089312836  
83..07+0000000000474733  
\*110052+000000000000TP9 32...7+0000000003485467 331.07+0000000000049422  
390...+0000000000000003 391.07+0000000000000002  
\*110053+000000000000TP10 32...7+0000000003472148 332.07+0000000000056940  
390...+0000000000000003 391.07+0000000000000000  
\*110054+000000000000TP10 573.07+0000000002272479 574.07+0000000096270451  
83..07+0000000000467215  
\*110055+000000000000TP10 32...7+0000000003487249 331.07+0000000000041788  
390...+0000000000000004 391.07+0000000000000005  
\*110056+000000000000TP11 32...7+0000000003450892 332.07+0000000000046376  
390...+0000000000000003 391.07+0000000000000001  
\*110057+000000000000TP11 573.07+0000000002308837 574.07+0000000103208592  
83..07+0000000000462628  
\*110058+000000000000TP11 32...7+0000000003482110 331.07+0000000000047557  
390...+0000000000000003 391.07+0000000000000003  
\*110059+000000000000TP12 32...7+0000000003445987 332.07+0000000000048905  
390...+0000000000000004 391.07+0000000000000006  
\*110060+000000000000TP12 573.07+0000000002344960 574.07+0000000110136689  
83..07+0000000000461280  
\*110061+000000000000TP12 32...7+0000000003483604 331.07+0000000000045177  
390...+0000000000000005 391.07+0000000000000007  
\*110062+000000000000TP13 32...7+0000000003410597 332.07+0000000000047299  
390...+0000000000000003 391.07+0000000000000005  
\*110063+000000000000TP13 573.07+0000000002417967 574.07+0000000117030891  
83..07+0000000000459157  
\*110064+000000000000TP13 32...7+0000000003480545 331.07+0000000000049328  
390...+0000000000000003 391.07+0000000000000004  
\*110065+000000000000TP14 32...7+0000000003436064 332.07+0000000000049247  
390...+0000000000000003 391.07+0000000000000006  
\*110066+000000000000TP14 573.07+0000000002462448 574.07+0000000123947499  
83..07+0000000000459237  
\*110067+000000000000TP14 32...7+0000000003468279 331.07+0000000000043816  
390...+0000000000000004 391.07+0000000000000005  
\*110068+000000000000TP15 32...7+0000000003444645 332.07+0000000000057416  
390...+0000000000000004 391.07+0000000000000006  
\*110069+000000000000TP15 573.07+0000000002486081 574.07+0000000130860424  
83..07+0000000000445638  
\*110070+000000000000TP15 32...7+0000000003487403 331.07+0000000000047517  
390...+0000000000000005 391.07+0000000000000007  
\*110071+000000000000A21 32...7+0000000003443086 332.07+0000000000049149  
390...+0000000000000003 391.07+0000000000000005  
\*110072+000000000000A21 573.07+0000000002530398 574.07+0000000137790913  
83..07+0000000000444007  
\*410073+00000000?. . . . . 1  
\*110074+000000000000A21 83..07+0000000000444007  
\*110075+000000000000A21 32...7+0000000003480659 331.07+0000000000047122  
390...+0000000000000003 391.07+0000000000000005  
\*110076+000000000000TP16 32...7+0000000003479584 332.07+0000000000047264



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390. . . +0000000000000003 391. 07+0000000000000002  
\*110077+000000000000TP16 573. 07+000000000001075 574. 07+0000000006960243  
83. . 07+0000000000443865  
\*110078+000000000000TP16 32. . . 7+0000000003481053 331. 07+0000000000046701  
390. . . +0000000000000003 391. 07+0000000000000006  
\*110079+000000000000TP17 32. . . 7+0000000003484241 332. 07+0000000000052306  
390. . . +0000000000000004 391. 07+0000000000000007  
\*110080+000000000000TP17 573. 07-0000000000002113 574. 07+0000000013925538  
83. . 07+0000000000438259  
\*110081+000000000000TP17 32. . . 7+0000000003505062 331. 07+0000000000046594  
390. . . +0000000000000003 391. 07+0000000000000004  
\*110082+000000000000A22 32. . . 7+0000000003448099 332. 07+0000000000058116  
390. . . +0000000000000003 391. 07+0000000000000001  
\*110083+000000000000A22 573. 07+0000000000054850 574. 07+0000000020878699  
83. . 07+0000000000426737  
\*110084+000000000000A22 32. . . 7+0000000003496486 331. 07+0000000000050559  
390. . . +0000000000000004 391. 07+0000000000000005  
\*110085+000000000000TP18 32. . . 7+0000000003516600 332. 07+0000000000059440  
390. . . +0000000000000003 391. 07+0000000000000004  
\*110086+000000000000TP18 573. 07+0000000000034736 574. 07+0000000027891784  
83. . 07+0000000000417856  
\*110087+000000000000TP18 32. . . 7+0000000003463261 331. 07+0000000000044395  
390. . . +0000000000000003 391. 07+0000000000000006  
\*110088+000000000000TP19 32. . . 7+0000000003454543 332. 07+0000000000047354  
390. . . +0000000000000003 391. 07+0000000000000002  
\*110089+000000000000TP19 573. 07+0000000000043453 574. 07+0000000034809589  
83. . 07+0000000000414897  
\*110090+000000000000TP19 32. . . 7+0000000003485349 331. 07+0000000000051238  
390. . . +0000000000000003 391. 07+0000000000000005  
\*110091+000000000000A23 32. . . 7+0000000003459389 332. 07+0000000000043267  
390. . . +0000000000000003 391. 07+0000000000000001  
\*110092+000000000000A23 573. 07+0000000000069414 574. 07+0000000041754327  
83. . 07+0000000000422867  
\*110093+000000000000A23 32. . . 7+0000000003472518 331. 07+0000000000057303  
390. . . +0000000000000003 391. 07+0000000000000004  
\*110094+000000000000TP20 32. . . 7+0000000003450706 332. 07+0000000000053873  
390. . . +0000000000000004 391. 07+0000000000000006  
\*110095+000000000000TP20 573. 07+0000000000091225 574. 07+0000000048677551  
83. . 07+0000000000426297  
\*110096+000000000000TP20 32. . . 7+0000000003486427 331. 07+0000000000044007  
390. . . +0000000000000003 391. 07+0000000000000005  
\*110097+000000000000TP21 32. . . 7+0000000003467993 332. 07+0000000000049752  
390. . . +0000000000000004 391. 07+0000000000000007  
\*110098+000000000000TP21 573. 07+0000000000109660 574. 07+0000000055631971  
83. . 07+0000000000420553  
\*110099+000000000000TP21 32. . . 7+0000000003488884 331. 07+0000000000052128  
390. . . +0000000000000003 391. 07+0000000000000002  
\*110100+000000000000A24 32. . . 7+0000000003430008 332. 07+0000000000052098  
390. . . +0000000000000003 391. 07+0000000000000004

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\*110101+000000000000A24 573.07+0000000000168536 574.07+0000000062550863  
83. .07+0000000000420583  
\*110102+000000000000A24 32. . .7+0000000003482180 331.07+000000000048371  
390. . .+0000000000000003 391.07+0000000000000004  
\*110103+000000000000TP22 32. . .7+0000000003479358 332.07+000000000048414  
390. . .+0000000000000003 391.07+0000000000000006  
\*110104+000000000000TP22 573.07+0000000000171357 574.07+0000000069512401  
83. .07+0000000000420539  
\*110105+000000000000TP22 32. . .7+0000000003453805 331.07+000000000044217  
390. . .+0000000000000004 391.07+0000000000000005  
\*110106+000000000000A25 32. . .7+0000000003445845 332.07+000000000050303  
390. . .+0000000000000003 391.07+0000000000000001  
\*110107+000000000000A25 573.07+0000000000179318 574.07+0000000076412051  
83. .07+0000000000414454

<b>Project File Data</b>		<b>Coordinate System</b>	
Name:	J:\2017\171204.05 - SFWMD USGS Phase 4 Wells\TBC\GL 328.vce	Name:	Default
Size:	63 KB	Datum:	WGS 1984
Modified:	8/4/2020 3:50:11 PM (UTC:-4)	Zone:	Default
Time zone:	Eastern Standard Time	Geoid:	
Reference number:		Vertical datum:	
Description:		Calibrated site:	
Comment 1:			
Comment 2:			
Comment 3:			

## Level Report

Imported file: [M\\_171204.05ED7-13-20.GSI](#)

Instrument:

Creation option: Delta elevations

Description usage: Feature codes

### Run - 0002 Raw Observations

Standard error per kilometer of double leveling: 0.00230 ft  
 Standard error per turn/station setup: 0.00000 ft  
 Raw Misclosure: ?  
 Σ BS Distances: 25586.201 ft  
 Σ FS Distances: 25235.260 ft  
 Run Length: 50821.461 ft  
 Reduction: Raw Elevations

Create	Point ID	BS	HI	IS	FS	Δ Elevation	Raw Elevation	Misclosure	Adj. Elevation	Type	Distance	Description
✓	B519	✓ 8.88398 ft	28.52394 ft			0.00000 ft	19.63996 ft	0.00000 ft	19.63996 ft	Benchmark	351.272 ft	
✓	TP1				✓ 4.77389 ft	4.11009 ft	23.75005 ft			Computed	346.631 ft	
	TP1	✓ 5.37699 ft	29.12704 ft								352.115 ft	
✓	A1				✓ 5.85119 ft	-0.47420 ft	23.27585 ft			Computed	245.126 ft	
	A1	✓ 4.33479 ft	27.61064 ft								246.773 ft	
✓	TP2				✓ 4.73689 ft	-0.40210 ft	22.87375 ft			Computed	343.434 ft	
	TP2	✓ 4.42889 ft	27.30265 ft								349.001 ft	
✓	TP3				✓ 4.80599 ft	-0.37710 ft	22.49666 ft			Computed	348.593 ft	
	TP3	✓ 4.15369 ft	26.65035 ft								349.083 ft	
✓	A2				✓ 4.82699 ft	-0.67330 ft	21.82336 ft			Computed	265.435 ft	
	A2	✓ 5.63719 ft	27.46055 ft								262.088 ft	
✓	TP4				✓ 3.85549 ft	1.78170 ft	23.60505 ft			Computed	346.629 ft	
	TP4	✓ 6.16009 ft	29.76514 ft								348.064 ft	
✓	TP5				✓ 3.40669 ft	2.75339 ft	26.35845 ft			Computed	343.668 ft	
	TP5	✓ 6.56759 ft	32.92603 ft								347.733 ft	
✓	TP6				✓ 3.45609 ft	3.11149 ft	29.46994 ft			Computed	346.241 ft	
	TP6	✓ 6.00159 ft	35.47153 ft								348.134 ft	
✓	A3				✓ 3.91539 ft	2.08620 ft	31.55614 ft			Computed	342.886 ft	
	A3	✓ 6.16389 ft	37.72002 ft								348.173 ft	
✓	TP7				✓ 4.26109 ft	1.90280 ft	33.45893 ft			Computed	347.660 ft	
	TP7	✓ 5.58399 ft	39.04292 ft								347.420 ft	
✓	TP8				✓ 4.88819 ft	0.69580 ft	34.15473 ft			Computed	340.270 ft	
	TP8	✓ 4.98769 ft	39.14242 ft								346.959 ft	
✓	A4				✓ 5.05089 ft	-0.06320 ft	34.09153 ft			Computed	332.741 ft	
	A4	✓ 4.88799 ft	38.97952 ft								348.220 ft	
✓	TP9				✓ 4.80879 ft	0.07920 ft	34.17073 ft			Computed	346.469 ft	
	TP9	✓ 5.37249 ft	39.54322 ft								347.248 ft	
✓	TP10				✓ 4.32639 ft	1.04610 ft	35.21683 ft			Computed	344.496 ft	
	TP10	✓ 5.73039 ft	40.94722 ft								348.421 ft	
✓	A5				✓ 4.37399 ft	1.35640 ft	36.57323 ft			Computed	345.492 ft	
	A5	✓ 5.46729 ft	42.04052 ft								348.792 ft	
✓	TP11				✓ 4.42649 ft	1.04080 ft	37.61402 ft			Computed	346.400 ft	
	TP11	✓ 5.03019 ft	42.64421 ft								250.673 ft	
✓	A6				✓ 4.87589 ft	0.15430 ft	37.76832 ft			Computed	235.034 ft	
	A6	✓ 5.85019 ft	43.61851 ft								348.212 ft	
✓	TP12				✓ 5.57619 ft	0.27400 ft	38.04232 ft			Computed	348.315 ft	
	TP12	✓ 5.32969 ft	43.37201 ft								347.718 ft	
✓	TP13				✓ 4.38729 ft	0.94240 ft	38.98472 ft			Computed	348.933 ft	
	TP13	✓ 5.75569 ft	44.74041 ft								344.361 ft	
✓	A7				✓ 4.44979 ft	1.30590 ft	40.29062 ft			Computed	347.756 ft	
	A7	✓ 5.03609 ft	45.32671 ft								346.887 ft	
✓	TP14				✓ 4.79429 ft	0.24180 ft	40.53242 ft			Computed	341.263 ft	
	TP14	✓ 4.63019 ft	45.16261 ft								347.452 ft	

✓	TP15				✓ 4.38459 ft	0.24560 ft	40.77802 ft			Computed	342.754 ft
	TP15	✓ 5.40029 ft	46.17831 ft								342.771 ft
✓	A8				✓ 4.63009 ft	0.77020 ft	41.54822 ft			Computed	342.994 ft
	A8	✓ 5.38389 ft	46.93211 ft								344.296 ft
✓	TP16				✓ 4.55179 ft	0.83210 ft	42.38032 ft			Computed	345.438 ft
	TP16	✓ 6.51309 ft	48.89340 ft								339.724 ft
✓	TP617				✓ 5.51779 ft	0.99530 ft	43.37561 ft			Computed	339.104 ft
	TP617	✓ 4.24529 ft	47.62090 ft								348.545 ft
✓	A9				✓ 5.51909 ft	-1.27380 ft	42.10182 ft			Computed	345.884 ft
	A9	✓ 5.25429 ft	47.35611 ft								338.220 ft
✓	TP18				✓ 5.17429 ft	0.08000 ft	42.18182 ft			Computed	347.698 ft
	TP18	✓ 5.09749 ft	47.27931 ft								345.804 ft
✓	TP19				✓ 5.48449 ft	-0.38700 ft	41.79482 ft			Computed	348.526 ft
	TP19	✓ 4.44539 ft	46.24021 ft								350.566 ft
✓	A10				✓ 5.45219 ft	-1.00680 ft	40.78802 ft			Computed	347.489 ft
	A10	✓ 4.93229 ft	45.72031 ft								347.424 ft
✓	TP20				✓ 5.17319 ft	-0.24090 ft	40.54712 ft			Computed	348.506 ft
	TP20	✓ 5.12519 ft	45.67231 ft								348.318 ft
✓	TP21				✓ 5.39759 ft	-0.27240 ft	40.27472 ft			Computed	348.174 ft
	TP21	✓ 5.37099 ft	45.64571 ft								348.456 ft
✓	A11				✓ 5.19839 ft	0.17260 ft	40.44732 ft			Computed	345.977 ft
	A11	✓ 5.01459 ft	45.46191 ft								345.248 ft
✓	TP22				✓ 4.92479 ft	0.08980 ft	40.53712 ft			Computed	346.186 ft
	TP22	✓ 4.94819 ft	45.48531 ft								345.351 ft
✓	TP23				✓ 4.82039 ft	0.12780 ft	40.66492 ft			Computed	342.792 ft
	TP23	✓ 4.95559 ft	45.62051 ft								344.378 ft
✓	A12				✓ 4.71999 ft	0.23560 ft	40.90052 ft			Computed	347.964 ft
	A12	✓ 4.00419 ft	44.90471 ft								344.841 ft
✓	TP24				✓ 4.68599 ft	-0.68180 ft	40.21872 ft			Computed	336.101 ft
	TP24	✓ 5.23749 ft	45.45621 ft								343.505 ft
✓	TP25				✓ 4.85749 ft	0.38000 ft	40.59872 ft			Computed	346.961 ft
	TP25	✓ 5.38439 ft	45.98311 ft								347.202 ft
✓	A13				✓ 4.35349 ft	1.03090 ft	41.62962 ft			Computed	348.641 ft
	A13	✓ 5.59049 ft	47.22011 ft								347.728 ft
✓	TP26				✓ 2.76309 ft	2.82739 ft	44.45701 ft			Computed	346.353 ft
	TP26	✓ 5.29969 ft	49.75670 ft								339.862 ft
✓	TP27				✓ 6.44289 ft	-1.14320 ft	43.31381 ft			Computed	344.643 ft
	TP27	✓ 4.78949 ft	48.10330 ft								347.002 ft
✓	A14				✓ 5.13219 ft	-0.34270 ft	42.97111 ft			Computed	346.849 ft
	A14	✓ 4.08939 ft	47.06051 ft								349.028 ft
✓	TP28				✓ 4.04779 ft	0.04160 ft	43.01271 ft			Computed	343.229 ft
	TP28	✓ 4.94119 ft	47.95390 ft								351.254 ft
✓	TP29				✓ 4.89179 ft	0.04940 ft	43.06211 ft			Computed	346.913 ft
	TP29	✓ 5.01839 ft	48.08050 ft								348.556 ft
✓	A15				✓ 4.27499 ft	0.74340 ft	43.80551 ft			Computed	345.291 ft
	A15	✓ 4.97089 ft	48.77640 ft								347.956 ft
✓	TP30				✓ 4.42349 ft	0.54740 ft	44.35291 ft			Computed	344.995 ft
	TP30	✓ 5.34999 ft	49.70290 ft								348.559 ft
✓	TP31				✓ 4.44229 ft	0.90770 ft	45.26061 ft			Computed	346.454 ft
	TP31	✓ 5.54829 ft	50.80890 ft								347.513 ft
✓	TP32				✓ 4.24469 ft	1.30360 ft	46.56421 ft			Computed	345.748 ft
	TP32	✓ 5.02249 ft	51.58670 ft								347.036 ft
✓	A16				✓ 5.27759 ft	-0.25510 ft	46.30911 ft			Computed	344.285 ft
	A16	✓ 3.80179 ft	50.11090 ft								348.366 ft
✓	TP33				✓ 4.80829 ft	-1.00650 ft	45.30261 ft			Computed	346.582 ft
	TP33	✓ 6.86099 ft	52.16360 ft								347.972 ft
✓	TP34				✓ 7.45449 ft	-0.59350 ft	44.70911 ft			Computed	340.125 ft
	TP34	✓ 5.13099 ft	49.84010 ft								348.475 ft
✓	A17				✓ 4.08399 ft	1.04700 ft	45.75611 ft			Computed	169.566 ft
	A17	✓ 6.13529 ft	51.89140 ft								177.344 ft
✓	A18				✓ 4.34129 ft	1.79400 ft	47.55010 ft			Computed	172.215 ft
	A18	✓ 6.81819 ft	54.36829 ft								200.412 ft
✓	BMK5				✓ 4.02459 ft	2.79359 ft	50.34370 ft			Computed	188.160 ft
	BMK5	✓ 3.93869 ft	54.28239 ft								188.714 ft
✓	A18A				✓ 6.72969 ft	-2.79099 ft	47.55270 ft			Computed	199.905 ft
	A18A	✓ 4.31479 ft	51.86750 ft								177.951 ft
✓	A17B				✓ 6.10859 ft	-1.79380 ft	45.75891 ft			Computed	171.024 ft
	A17B	✓ 6.09959 ft	51.85850 ft								349.456 ft
✓	TP35				✓ 4.38429 ft	1.71530 ft	47.47421 ft			Computed	348.183 ft
	TP35	✓ 4.94219 ft	52.41640 ft								348.546 ft

	TP36				✓ 5.69399 ft	-0.75180 ft	46.72241 ft			Computed	347.214 ft
	TP36	✓ 4.17879 ft	50.90120 ft								348.724 ft
✓	TP37				✓ 4.63759 ft	-0.45880 ft	46.26361 ft			Computed	345.089 ft
	TP37	✓ 4.75569 ft	51.01930 ft								348.210 ft
✓	TP38				✓ 4.89049 ft	-0.13480 ft	46.12881 ft			Computed	344.598 ft
	TP38	✓ 4.51769 ft	50.64650 ft								348.360 ft
✓	TP39				✓ 4.72989 ft	-0.21220 ft	45.91661 ft			Computed	341.059 ft
	TP39	✓ 4.93279 ft	50.84940 ft								348.054 ft
✓	TP40				✓ 4.92469 ft	0.00810 ft	45.92471 ft			Computed	343.606 ft
	TP40	✓ 4.38159 ft	50.30630 ft								346.827 ft
✓	TP41				✓ 5.74159 ft	-1.36000 ft	44.56471 ft			Computed	344.464 ft
	TP41	✓ 4.75169 ft	49.31640 ft								348.740 ft
✓	A21				✓ 4.91489 ft	-0.16320 ft	44.40151 ft			Computed	344.308 ft
	A21	✓ 4.71219 ft	49.11370 ft								348.065 ft
✓	TP42				✓ 4.72639 ft	-0.01420 ft	44.38731 ft			Computed	347.958 ft
	TP42	✓ 4.67009 ft	49.05740 ft								348.105 ft
✓	TP43				✓ 5.23059 ft	-0.56050 ft	43.82681 ft			Computed	348.423 ft
	TP43	✓ 4.65939 ft	48.48620 ft								350.505 ft
✓	A22				✓ 5.81159 ft	-1.15220 ft	42.67461 ft			Computed	344.809 ft
	A22	✓ 5.05589 ft	47.73050 ft								349.648 ft
✓	TP44				✓ 5.94399 ft	-0.88810 ft	41.78652 ft			Computed	351.659 ft
	TP44	✓ 4.43949 ft	46.22601 ft								346.325 ft
✓	TP45				✓ 4.73539 ft	-0.29590 ft	41.49062 ft			Computed	345.454 ft
	TP45	✓ 5.12379 ft	46.61441 ft								348.534 ft
✓	A23				✓ 4.32669 ft	0.79710 ft	42.28772 ft			Computed	345.938 ft
	A23	✓ 5.73029 ft	48.01800 ft								347.251 ft
✓	TP46				✓ 5.38729 ft	0.34300 ft	42.63071 ft			Computed	345.070 ft
	TP46	✓ 4.40069 ft	47.03141 ft								348.642 ft
✓	TP47				✓ 4.97519 ft	-0.57450 ft	42.05622 ft			Computed	346.799 ft
	TP47	✓ 5.21279 ft	47.26901 ft								348.888 ft
✓	A24				✓ 5.20979 ft	0.00300 ft	42.05922 ft			Computed	343.000 ft
	A24	✓ 4.83709 ft	46.89631 ft								348.217 ft
✓	TP48				✓ 4.84139 ft	-0.00430 ft	42.05492 ft			Computed	347.935 ft
	TP48	✓ 4.42169 ft	46.47661 ft								345.380 ft
✓	A25				✓ 5.03029 ft	-0.60860 ft	41.44632 ft			Computed	344.584 ft
	A25	✓ 4.78539 ft	46.23171 ft								348.819 ft
✓	TP49				✓ 5.32839 ft	-0.54300 ft	40.90332 ft			Computed	346.933 ft
	TP49	✓ 4.45439 ft	45.35771 ft								346.901 ft
✓	TP50				✓ 5.49249 ft	-1.03810 ft	39.86522 ft			Computed	346.490 ft
	TP50	✓ 4.74879 ft	44.61401 ft								73.867 ft
✓	BM LA1-J 2000				✓ 5.19309 ft	-0.44430 ft	39.42092 ft			Computed	68.509 ft
	BM LA1-J 2000	✓ 5.05429 ft	44.47521 ft								27.027 ft
✓	WELL GL-328				✓ 4.18589 ft	0.86840 ft	40.28932 ft			Computed	9.559 ft
	WELL GL-328	✓ 4.01309 ft	44.30241 ft								9.929 ft
✓	BM LA1-J 2000B				✓ 4.88139 ft	-0.86830 ft	39.42102 ft			Computed	26.624 ft

Run - 0002 (N18) Reduced Observations

Observation	Status	Raw Δ Elevation	Correction	Final Δ Elevation	Setups	Length	Σ BS Readings	Σ FS Readings	Std. Error
TP19-TP1 (E397)	Enabled	4.11009 ft	0.00000 ft	4.11009 ft	1	697.904 ft	8.88398 ft	4.77389 ft	0.00106 ft
TP1-A1 (E398)	Enabled	-0.47420 ft	0.00000 ft	-0.47420 ft	1	597.241 ft	5.37699 ft	5.85119 ft	0.00098 ft
A1-TP2 (E399)	Enabled	-0.40210 ft	0.00000 ft	-0.40210 ft	1	590.207 ft	4.33479 ft	4.73689 ft	0.00097 ft
TP2-TP3 (E400)	Enabled	-0.37710 ft	0.00000 ft	-0.37710 ft	1	697.594 ft	4.42889 ft	4.80599 ft	0.00106 ft
TP3-A2 (E401)	Enabled	-0.67330 ft	0.00000 ft	-0.67330 ft	1	614.517 ft	4.15369 ft	4.82699 ft	0.00099 ft
A2-TP4 (E402)	Enabled	1.78170 ft	0.00000 ft	1.78170 ft	1	608.716 ft	5.63719 ft	3.85549 ft	0.00099 ft
TP4-TP5 (E403)	Enabled	2.75339 ft	0.00000 ft	2.75339 ft	1	691.733 ft	6.16009 ft	3.40669 ft	0.00105 ft
TP5-TP6 (E404)	Enabled	3.11149 ft	0.00000 ft	3.11149 ft	1	693.974 ft	6.56759 ft	3.45609 ft	0.00106 ft
TP6-A3 (E405)	Enabled	2.08620 ft	0.00000 ft	2.08620 ft	1	691.021 ft	6.00159 ft	3.91539 ft	0.00105 ft
A3-TP7 (E406)	Enabled	1.90280 ft	0.00000 ft	1.90280 ft	1	695.833 ft	6.16389 ft	4.26109 ft	0.00106 ft
TP7-TP8 (E407)	Enabled	0.69580 ft	0.00000 ft	0.69580 ft	1	687.690 ft	5.58399 ft	4.88819 ft	0.00105 ft
TP8-A4 (E408)	Enabled	-0.06320 ft	0.00000 ft	-0.06320 ft	1	679.700 ft	4.98769 ft	5.05089 ft	0.00105 ft
A4-TP9 (E409)	Enabled	0.07920 ft	0.00000 ft	0.07920 ft	1	694.689 ft	4.88799 ft	4.80879 ft	0.00106 ft
TP9-TP10 (E410)	Enabled	1.04610 ft	0.00000 ft	1.04610 ft	1	691.744 ft	5.37249 ft	4.32639 ft	0.00105 ft
TP10-A5 (E411)	Enabled	1.35640 ft	0.00000 ft	1.35640 ft	1	693.913 ft	5.73039 ft	4.37399 ft	0.00106 ft
A5-TP11 (E412)	Enabled	1.04080 ft	0.00000 ft	1.04080 ft	1	695.191 ft	5.46729 ft	4.42649 ft	0.00106 ft
TP11-A6 (E413)	Enabled	0.15430 ft	0.00000 ft	0.15430 ft	1	485.707 ft	5.03019 ft	4.87589 ft	0.00088 ft
A6-TP12 (E414)	Enabled	0.27400 ft	0.00000 ft	0.27400 ft	1	696.527 ft	5.85019 ft	5.57619 ft	0.00106 ft
TP12-TP13 (E415)	Enabled	0.94240 ft	0.00000 ft	0.94240 ft	1	696.651 ft	5.32969 ft	4.38729 ft	0.00106 ft
TP13-A7 (E416)	Enabled	1.30590 ft	0.00000 ft	1.30590 ft	1	692.117 ft	5.75569 ft	4.44979 ft	0.00105 ft
A7-TP14 (E417)	Enabled	0.24180 ft	0.00000 ft	0.24180 ft	1	688.150 ft	5.03609 ft	4.79429 ft	0.00105 ft
TP14-TP15 (E418)	Enabled	0.24560 ft	0.00000 ft	0.24560 ft	1	690.207 ft	4.63019 ft	4.38459 ft	0.00105 ft
TP15-A8 (E419)	Enabled	0.77020 ft	0.00000 ft	0.77020 ft	1	685.765 ft	5.40029 ft	4.63009 ft	0.00105 ft

A8-TP16 (E420)	Enabled	0.83210 ft	0.00000 ft	0.83210 ft	1	689.733 ft	5.38389 ft	4.55179 ft	0.00105 ft
TP16-TP617 (E421)	Enabled	0.99530 ft	0.00000 ft	0.99530 ft	1	678.828 ft	6.51309 ft	5.51779 ft	0.00104 ft
TP617-A9 (E422)	Enabled	-1.27380 ft	0.00000 ft	-1.27380 ft	1	694.429 ft	4.24529 ft	5.51909 ft	0.00106 ft
A9-TP18 (E423)	Enabled	0.08000 ft	0.00000 ft	0.08000 ft	1	685.918 ft	5.25429 ft	5.17429 ft	0.00105 ft
TP18-TP19 (E424)	Enabled	-0.38700 ft	0.00000 ft	-0.38700 ft	1	694.331 ft	5.09749 ft	5.48449 ft	0.00106 ft
TP19-A10 (E425)	Enabled	-1.00680 ft	0.00000 ft	-1.00680 ft	1	698.055 ft	4.44539 ft	5.45219 ft	0.00106 ft
A10-TP20 (E426)	Enabled	-0.24090 ft	0.00000 ft	-0.24090 ft	1	695.930 ft	4.93229 ft	5.17319 ft	0.00106 ft
TP20-TP21 (E427)	Enabled	-0.27240 ft	0.00000 ft	-0.27240 ft	1	696.492 ft	5.12519 ft	5.39759 ft	0.00106 ft
TP21-A11 (E428)	Enabled	0.17260 ft	0.00000 ft	0.17260 ft	1	694.434 ft	5.37099 ft	5.19839 ft	0.00106 ft
A11-TP22 (E429)	Enabled	0.08980 ft	0.00000 ft	0.08980 ft	1	691.434 ft	5.01459 ft	4.92479 ft	0.00105 ft
TP22-TP23 (E430)	Enabled	0.12780 ft	0.00000 ft	0.12780 ft	1	688.144 ft	4.94819 ft	4.82039 ft	0.00105 ft
TP23-A12 (E431)	Enabled	0.23560 ft	0.00000 ft	0.23560 ft	1	692.342 ft	4.95559 ft	4.71999 ft	0.00105 ft
A12-TP24 (E432)	Enabled	-0.68180 ft	0.00000 ft	-0.68180 ft	1	680.942 ft	4.00419 ft	4.68599 ft	0.00105 ft
TP24-TP25 (E433)	Enabled	0.38000 ft	0.00000 ft	0.38000 ft	1	690.466 ft	5.23749 ft	4.85749 ft	0.00105 ft
TP25-A13 (E434)	Enabled	1.03090 ft	0.00000 ft	1.03090 ft	1	695.843 ft	5.38439 ft	4.35349 ft	0.00106 ft
A13-TP26 (E435)	Enabled	2.82739 ft	0.00000 ft	2.82739 ft	1	694.081 ft	5.59049 ft	2.76309 ft	0.00106 ft
TP26-TP27 (E436)	Enabled	-1.14320 ft	0.00000 ft	-1.14320 ft	1	684.505 ft	5.29969 ft	6.44289 ft	0.00105 ft
TP27-A14 (E437)	Enabled	-0.34270 ft	0.00000 ft	-0.34270 ft	1	693.851 ft	4.78949 ft	5.13219 ft	0.00106 ft
A14-TP28 (E438)	Enabled	0.04160 ft	0.00000 ft	0.04160 ft	1	692.257 ft	4.08939 ft	4.04779 ft	0.00105 ft
TP28-TP29 (E439)	Enabled	0.04940 ft	0.00000 ft	0.04940 ft	1	698.167 ft	4.94119 ft	4.89179 ft	0.00106 ft
TP29-A15 (E440)	Enabled	0.74340 ft	0.00000 ft	0.74340 ft	1	693.846 ft	5.01839 ft	4.27499 ft	0.00106 ft
A15-TP30 (E441)	Enabled	0.54740 ft	0.00000 ft	0.54740 ft	1	692.951 ft	4.97089 ft	4.42349 ft	0.00106 ft
TP30-TP31 (E442)	Enabled	0.90770 ft	0.00000 ft	0.90770 ft	1	695.013 ft	5.34999 ft	4.44229 ft	0.00106 ft
TP31-TP32 (E443)	Enabled	1.30360 ft	0.00000 ft	1.30360 ft	1	693.261 ft	5.54829 ft	4.24469 ft	0.00106 ft
TP32-A16 (E444)	Enabled	-0.25510 ft	0.00000 ft	-0.25510 ft	1	691.321 ft	5.02249 ft	5.27759 ft	0.00105 ft
A16-TP33 (E445)	Enabled	-1.00650 ft	0.00000 ft	-1.00650 ft	1	694.949 ft	3.80179 ft	4.80829 ft	0.00106 ft
TP33-TP34 (E446)	Enabled	-0.59350 ft	0.00000 ft	-0.59350 ft	1	688.097 ft	6.86099 ft	7.45449 ft	0.00105 ft
TP34-A17 (E447)	Enabled	1.04700 ft	0.00000 ft	1.04700 ft	1	518.042 ft	5.13099 ft	4.08399 ft	0.00091 ft
A17-A18 (E448)	Enabled	1.79400 ft	0.00000 ft	1.79400 ft	1	349.559 ft	6.13529 ft	4.34129 ft	0.00075 ft
A18-BMK5 (E449)	Enabled	2.79359 ft	0.00000 ft	2.79359 ft	1	388.572 ft	6.81819 ft	4.02459 ft	0.00079 ft
BMK5-A18A (E450)	Enabled	-2.79099 ft	0.00000 ft	-2.79099 ft	1	388.619 ft	3.93869 ft	6.72969 ft	0.00079 ft
A18A-A17B (E451)	Enabled	-1.79380 ft	0.00000 ft	-1.79380 ft	1	348.975 ft	4.31479 ft	6.10859 ft	0.00075 ft
A17B-TP35 (E452)	Enabled	1.71530 ft	0.00000 ft	1.71530 ft	1	697.639 ft	6.09959 ft	4.38429 ft	0.00106 ft
TP35-TP36 (E453)	Enabled	-0.75180 ft	0.00000 ft	-0.75180 ft	1	695.760 ft	4.94219 ft	5.69399 ft	0.00106 ft
TP36-TP37 (E454)	Enabled	-0.45880 ft	0.00000 ft	-0.45880 ft	1	693.813 ft	4.17879 ft	4.63759 ft	0.00106 ft
TP37-TP38 (E455)	Enabled	-0.13480 ft	0.00000 ft	-0.13480 ft	1	692.808 ft	4.75569 ft	4.89049 ft	0.00106 ft
TP38-TP39 (E456)	Enabled	-0.21220 ft	0.00000 ft	-0.21220 ft	1	689.419 ft	4.51769 ft	4.72989 ft	0.00105 ft
TP39-TP40 (E457)	Enabled	0.00810 ft	0.00000 ft	0.00810 ft	1	691.660 ft	4.93279 ft	4.92469 ft	0.00105 ft
TP40-TP41 (E458)	Enabled	-1.36000 ft	0.00000 ft	-1.36000 ft	1	691.291 ft	4.38159 ft	5.74159 ft	0.00105 ft
TP41-A21 (E459)	Enabled	-0.16320 ft	0.00000 ft	-0.16320 ft	1	693.048 ft	4.75169 ft	4.91489 ft	0.00106 ft
A21-TP42 (E460)	Enabled	-0.01420 ft	0.00000 ft	-0.01420 ft	1	696.023 ft	4.71219 ft	4.72639 ft	0.00106 ft
TP42-TP43 (E461)	Enabled	-0.56050 ft	0.00000 ft	-0.56050 ft	1	696.528 ft	4.67009 ft	5.23059 ft	0.00106 ft
TP43-A22 (E462)	Enabled	-1.15220 ft	0.00000 ft	-1.15220 ft	1	695.315 ft	4.65939 ft	5.81159 ft	0.00106 ft
A22-TP44 (E463)	Enabled	-0.88810 ft	0.00000 ft	-0.88810 ft	1	701.307 ft	5.05589 ft	5.94399 ft	0.00106 ft
TP44-TP45 (E464)	Enabled	-0.29590 ft	0.00000 ft	-0.29590 ft	1	691.779 ft	4.43949 ft	4.73539 ft	0.00105 ft
TP45-A23 (E465)	Enabled	0.79710 ft	0.00000 ft	0.79710 ft	1	694.472 ft	5.12379 ft	4.32669 ft	0.00106 ft
A23-TP46 (E466)	Enabled	0.34300 ft	0.00000 ft	0.34300 ft	1	692.321 ft	5.73029 ft	5.38729 ft	0.00105 ft
TP46-TP47 (E467)	Enabled	-0.57450 ft	0.00000 ft	-0.57450 ft	1	695.441 ft	4.40069 ft	4.97519 ft	0.00106 ft
TP47-A24 (E468)	Enabled	0.00300 ft	0.00000 ft	0.00300 ft	1	691.888 ft	5.21279 ft	5.20979 ft	0.00105 ft
A24-TP48 (E469)	Enabled	-0.00430 ft	0.00000 ft	-0.00430 ft	1	696.152 ft	4.83709 ft	4.84139 ft	0.00106 ft
TP48-A25 (E470)	Enabled	-0.60860 ft	0.00000 ft	-0.60860 ft	1	689.964 ft	4.42169 ft	5.03029 ft	0.00105 ft
A25-TP49 (E471)	Enabled	-0.54300 ft	0.00000 ft	-0.54300 ft	1	695.752 ft	4.78539 ft	5.32839 ft	0.00106 ft
TP49-TP50 (E472)	Enabled	-1.03810 ft	0.00000 ft	-1.03810 ft	1	693.392 ft	4.45439 ft	5.49249 ft	0.00106 ft
TP50-BM LA1-J 2000 (E473)	Enabled	-0.44430 ft	0.00000 ft	-0.44430 ft	1	142.377 ft	4.74879 ft	5.19309 ft	0.00048 ft
BM LA1-J 2000-WELL GL-328 (E474)	Enabled	0.86840 ft	0.00000 ft	0.86840 ft	1	36.587 ft	5.05429 ft	4.18589 ft	0.00024 ft
WELL GL-328-BM LA1-J 2000B (E475)	Enabled	-0.86830 ft	0.00000 ft	-0.86830 ft	1	36.554 ft	4.01309 ft	4.88139 ft	0.00024 ft

**Run - 0002 (N18) Reduced Coordinates**

Point ID	Status	Elevation
J519	Enabled	19.63996 ft

**Office**

**Project**

14 August 2020

**INPUT**

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

**OUTPUT**

State Plane, NAD83  
0901 - Florida East, U.S. Feet  
Vertical - NGVD29 (Vertcon94), U.S. Feet

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**GL-328-BENCHMARK**

1/1

<b>Northing/Y:</b> 906975.330	<b>Northing/Y:</b> 906975.330
<b>Easting/X:</b> 481073.524	<b>Easting/X:</b> 481073.524
<b>Elevation/Z:</b> 39.420	<b>Elevation/Z:</b> 40.650
<b>Convergence:</b> -0 14 32.33948	<b>Convergence:</b> -0 14 32.33948
<b>Scale Factor:</b> 0.999976325	<b>Scale Factor:</b> 0.999976325
<b>Combined Factor:</b> 0.999978271	<b>Combined Factor:</b> 0.999978212

Grid Shift (U.S. ft.): X/Easting = 0.0, Y/Northing = 0.0

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Remark: