MONITORING WELL SURVEY REPORT

IFIS WELL SITE LOCATIONS AND BENCH MARK ESTABLISHMENT

PROJECT TITLE: C111 Study Area- Well Site Locations and Benchmark Establishment
PURCHASE ORDER: 9500006397
WORK ORDER NUMBER: 4600002690-WO07 & 4600002690-WO07R1
CONSULTANT NAME: Wantman Group, Inc.
PROJECT MANAGERS: Howard Ehmke, District's Project Manager
Derek Zeman, Consultant's Project Manager

Services provided by:

2035 Vista Parkway
West Palm Beach, Florida 33411
561-687-2220

Deliverable Items to South Florida Water Management District:

The following items were delivered to South Florida Water Management District with this Surveyor's Report. Neither the report nor the items listed below are complete without the other.

A CD Containing the following digital information:

- Survey Report in PDF Format
- Electronic Copy of Field Notes in PDF Format
- Site Photographs of wells and benchmarks

Legend:

NAVD 88 – North American Vertical Datum of 1988
NGS – National Geodetic Survey
SFWMD – South Florida Water Management District
ACOE – Army Corp of Engineers
RTK- Real Time Kinematic (Type of GPS Operating Mode)

Survey Notes:

1. Survey map & report, or copies thereof, are not valid without the signature and the original raised seal of a Florida Licensed Surveyor and Mapper.
2. Additions or deletions to the survey maps or reports by other than the signing party or parties are prohibited without the written consent of the signing party or parties.
3. The purpose of this survey is to show results of the horizontal and vertical locations of 4 existing IFIS well sites and set NAVD88 bench mark (monument) at each site.
4. Horizontal Accuracy: 0.05' of a foot. Vertical Accuracy: 0.02' of a foot.

Surveyor's Certification:

I hereby certify that this Specific Purpose Survey meets applicable portions of the Minimum Technical Standards set forth by the Florida Board of Professional Surveyors and Mappers in Chapter 5J-17, Florida Administrative Code. This report is prepared for the sole and specific use of the South Florida Water Management District and is not assignable.

Last Date of Field Data Acquisition: 7/31/2015

Wantman Group, Inc.
L.B. Number 7055

By: _____
Derek G. Zeman, PSM
State of Florida
Certificate No. LS5655

Table of Contents

Revision 2 – Five Additional Well Sites

ABSTRACT AND SURVEY METHODOLOGY

ABSTRACT

This report documents the vertical and GPS surveys conducted in support of the LiDAR project data collection for C111 Study Area and (4) Well Site Locations and Bench Mark Establishment Project. The data was collected between April 2, and April 15, 2015. The ground control stations were established using a Topcon Omni GPS receiver (s/n 231-0305) and a Topcon GR5 GPS receiver (s/n 847-11322) along with a Topcon DL-505 Digital Level (s/n 510550). There were no problems encountered during the survey for the well sites.

Following control network establishment, surveys were conducted at 4 sites utilizing NGS base stations with both horizontal and vertical data. These surveys established horizontal data on existing wells. Bench run circuits were performed to each site to establish a bench mark at well sites and to establish vertical data on the top of 2" PVC well pipe.

SURVEY METHODOLOGY

Prior to beginning the survey collection, a reconnaissance was done of the existing horizontal and vertical control in the project area. Based on results of the findings, the control to be used was selected based on their locations, horizontal and vertical orders, and accessibility. The control points selected for base points, all have horizontal and vertical information. Checks were done between base points at each setup.

After the Real Time Kinematic (RTK) network was completed, bench runs were adjusted per SFWMD standards and can be seen on attached pages along with the survey field notes.

The horizontal and vertical datums used for this project are listed below:

Coordinate System: US State Plane
Zone: Florida East 0901
Horizontal datum: NAD83/11
Vertical Datum: NAVD88
Geoid Model: Geoid03
Units: US Survey Feet

Main Report

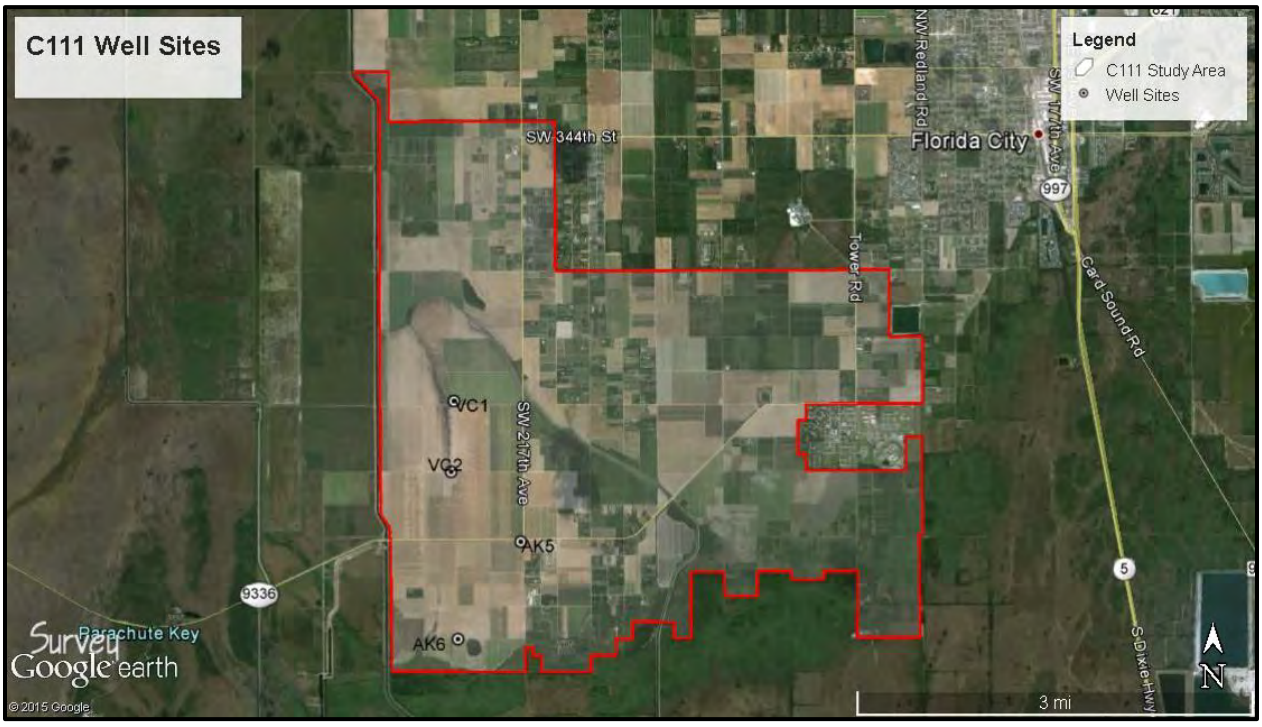
Main Report

REAL TIME KINEMATIC GPS SUMMARY

The RTK network was planned to ensure that each well site control point was tied to two existing NGS control points. The control monuments were selected based on their locations, horizontal and vertical orders, and accessibility see. All base setups were checked to existing NGS points.

PRELIMINARY ANALYSIS

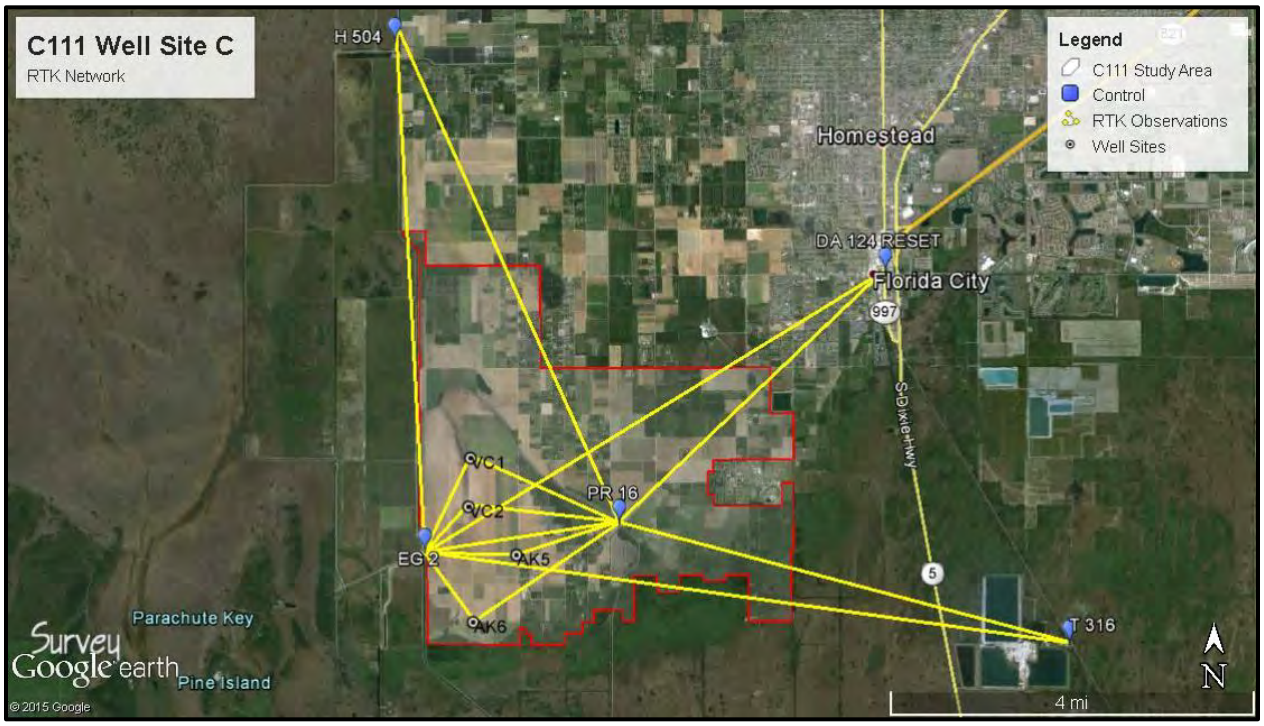
The RTK network was processed using SURVEY LINK with GEODETIC and DIGITAL LEVEL MODULES 7.5.5, then averaged using a WGI Double Occupy Average program (see page 12).
Closed bench runs were ran to each site and averaged using SFWMD standards (see page 21).
Redundant checks were made at each site to show vertical accuracy.

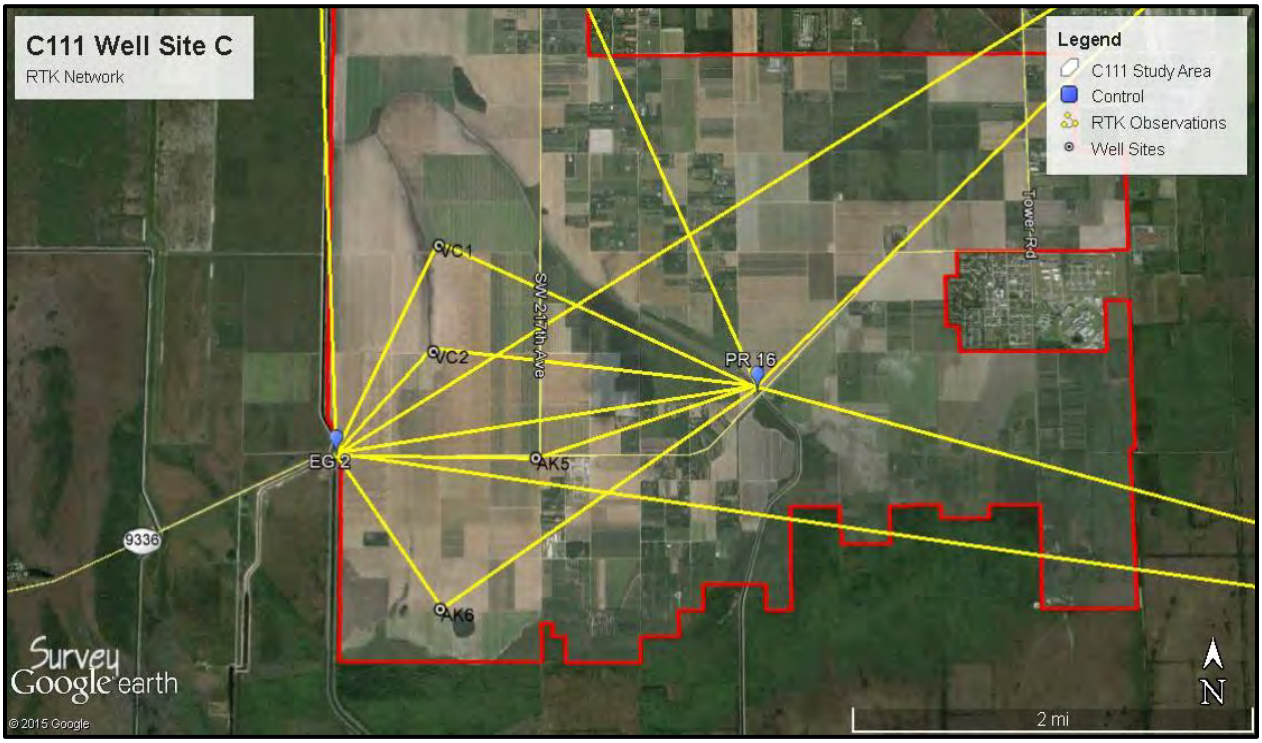


GPS NETWORK

GPS NETWORK MAP

GPS NETWORK MAP





C111 Well Sites Control and Checks

Point	Latitude	Longitude	Northing	Easting	Elev.	Desc.	NGS Northing	NGS Easting	NGS ELEV.	ERROR N.	ERROR E.	ERROR EL.
DA124 RESET	25 26 53.68886	80 28 37.51331	405498.766	828713.417	4.081	CHK DA124RESET	405498.79	828713.47	4.10	-0.024	-0.053	-0.019
PR16	25 24 29.67199	80 31 26.30119	390901.708	813294.128	4.927	CHK PR16	390901.76	813294.17	4.98	-0.052	-0.042	-0.053
EG2	25 24 13.19526	80 33 29.56530	389199.482	801997.510	9.185	CHK EG2	389199.45	801997.54	9.11	0.032	-0.030	0.075
T316	25 23 20.84452	80 26 41.25221	384054.182	839459.370	4.343	CHK T316	384054.21	839459.38	4.35	-0.028	-0.010	-0.007
H504	25 29 00.76435	80 33 49.66628	418224.681	800059.422	9.536	CHK H504			9.51			0.026
10026	25 24 12.57257	80 32 31.11904	389154.672	807356.878	3.923	IR AK5						
10027	25 23 33.78277	80 32 57.96443	385230.332	804908.529	5.277	IR AK6						
10028	25 24 39.86393	80 33 02.14162	391900.171	804503.026	2.820	IR VC2						
10029	25 25 05.50662	80 33 05.39418	394487.894	804196.109	4.080	IR VC1						
10810	25 24 12.58314	80 32 31.09538	389155.747	807359.043	4.800	MH CL RIM AK5						
10811	25 24 12.57701	80 32 31.10650	389155.124	807358.026	4.858	NG						
10812	25 23 33.76728	80 32 57.96429	385228.768	804908.547	5.775	MH CL RIM AK6						
10813	25 23 33.80001	80 32 57.96544	385232.072	804908.431	5.874	NG						
10814	25 24 39.83327	80 33 02.13747	391897.077	804503.417	3.659	MH CL RIM VC2						
10815	25 24 39.87990	80 33 02.14432	391901.782	804502.773	3.626	NG						
10816	25 25 05.53304	80 33 05.38958	394490.562	804196.521	4.633	MH CL RIM VC1						
10817	25 25 05.49840	80 33 05.37806	394487.069	804197.589	4.653	NG						

NGS POINT DA124 RESET HORZ & VERT PID#AC1157 VERTICAL ORDER FIRST CLASS II
NGS POINT PR16 HORZ & VERT PID#AB2358 VERTICAL ORDER FIRST CLASS II
NGS POINT EG2 HORZ & VERT PID#AB2362 VERTICAL ORDER FIRST CLASS II
NGS POINT T316 HORZ & VERT PID#AC1151 HORZ ORDER SECOND, VERTICAL ORDER SECOND CLASS 0
NGS POINT H504 VERT PID#AJ8393 VERTICAL ORDER FIRST CLASS II

WELL AS-BUILT SHEETS

Well Site: VC-1

Party Chief: Jose Mendoza	**Field Book Number:** 586	**Page Number:** 25
Benchmark Elevation (NAVD 88): 4.143	**Date of Field Work:** April 15, 2015	**Datum Offset to NGVD 29:** 1.58
Benchmark Agency: SFWMD	**Benchmark Type:** Precision Rod w/Sleeve	**Benchmark Stamp:** VC-1 2015
Reference Elevation (NAVD88): Notch West Side 2″ PVC = 4.45 (Top of Interior Casing) Well Rim = 4.61 (Exterior Casing) Difference = 0.16 (See Picture #6)		**Natural Ground:** 4.7
Latitude: 25 25 05.53487		**Longitude:** 80 33 05.39099
DTW from Notch: -4.25 12:18AM 4-15-15		

Photographs:

Pic#1:

Pic#2:

Pic#3 3Ft:

Pic#3 10Ft:

Well Site: VC-1

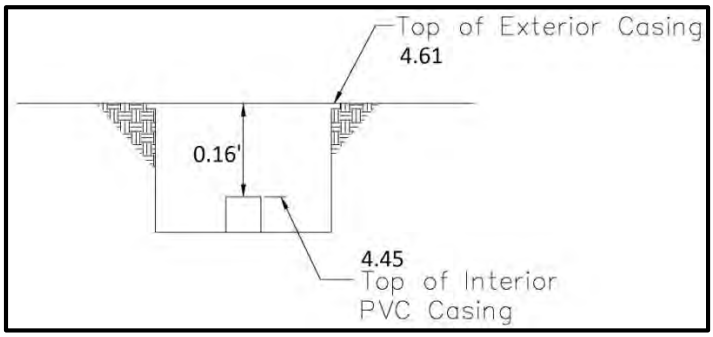
Continued

Pic#4:

Pic#5 3FT:

Pic#5 10FT:

Pic#7:



1. A Picture looking down (top view) at the open well.
2. A picture looking down at the well head (with a ruler on it).
3. An oblique picture of the well approximately 3 feet and one at 10 feet from the well head.
4. A picture looking down (Top view) of the benchmark disk.
5. An oblique picture of the benchmark at approximately 3 feet and on at 10 feet from the benchmark
6. Exhibit of the Distance from the Top of the Interior Casing to the Top of the Exterior Casing.

Well Site: VC-2

Party Chief: Jose Mendoza	**Field Book Number:** 586	**Page Number:** 26
Benchmark Elevation (NAVD 88): 2.865	**Date of Field Work:** April 15, 2015	**Datum Offset to NGVD 29:** 1.58
Benchmark Agency: SFWMD	**Benchmark Type:** Precision Rod w/Sleeve	**Benchmark Stamp:** VC-2 2015
Reference Elevation (NAVD88): Notch South Side 2" PVC = 3.26 (Top of Interior Casing) Well Rim = 3.65 (Exterior Casing) Difference = 0.39 (See Picture #6)		**Natural Ground:** 3.70
Latitude: 25 24 39.83513		**Longitude:** 80 33 02.13896
DTW from Notch: 3.07' 11:17AM 4-15-15		
Photographs:		

Pic#1:

Pic#2

Pic#3 3FT:

Pic#3 10Ft:

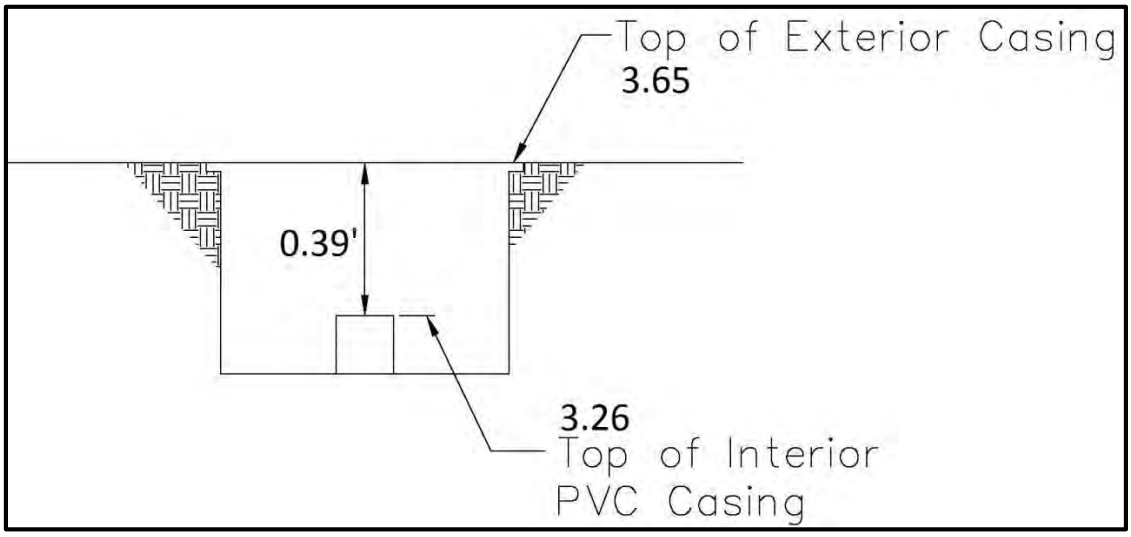
Pic#4:

Well Site: VC-2
Continued

Pic#5 3FT:

Pic#5 10Ft:

Pic#6:



1. A Picture looking down (top view) at the open well.
2. A picture looking down at the well head (with a ruler on it).
3. An oblique picture of the well approximately 3 feet and one at 10 feet from the well head.
4. A picture looking down (Top view) of the benchmark disk.
5. An oblique picture of the benchmark at approximately 3 feet and on at 10 feet from the benchmark
6. Exhibit of the Distance from the Top of the Interior Casing to the Top of the Exterior Casing.

Well Site: AK-5

Party Chief: Jose Mendoza	**Field Book Number:** 586	**Page Number:** 23
Benchmark Elevation (NAVD 88): 6.347	**Date of Field Work:** April 15, 2015	**Datum Offset to NGVD 29:** 1.57
Benchmark Agency: SFWMD	**Benchmark Type:** Precision rod w/Sleeve	**Benchmark Stamp:** AK-5 2015
Reference Elevation (NAVD88): Notch South Side 2" PVC = 4.42 (Top of Interior Casing) Well Rim = 4.80 (Exterior Casing) Difference = 0.38 (See Picture #6)		**Natural Ground:** 4.9
Latitude: 25 24 12.58496		**Longitude:** 80 32 31.097
DTW from Notch: -4.46 9:18AM 4-15-15		

Photographs:

Pic#1:

Pic#2:

Pic#3 3Ft:

Pic#3 10Ft:

Well Site: AK-5

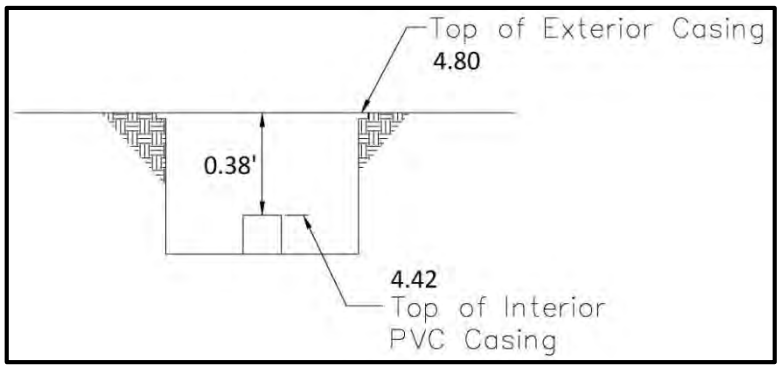
Continued

Pic#4:

Pic#5 3Ft:

Pic#5 10Ft:

Pic#6:



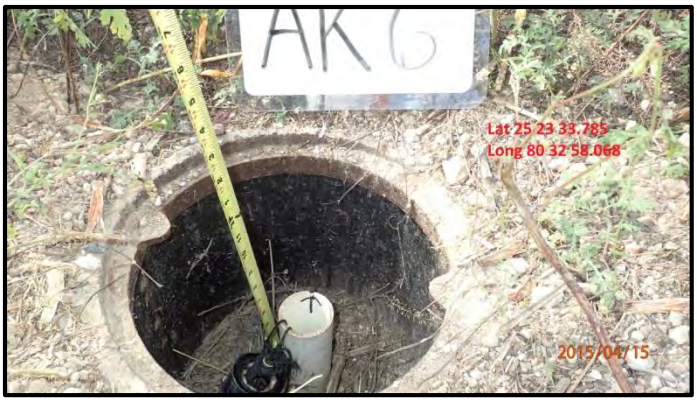
1. A Picture looking down (top view) at the open well.
2. A picture looking down at the well head (with a ruler on it).
3. An oblique picture of the well approximately 3 feet and one at 10 feet from the well head.
4. A picture looking down (Top view) of the benchmark disk.
5. An oblique picture of the benchmark at approximately 3 feet and on at 10 feet from the benchmark
6. Exhibit of the Distance from the Top of the Interior Casing to the Top of the Exterior Casing.

Well Site: AK-6

Party Chief: Jose Mendoza	**Field Book Number:** 586	**Page Number:** 24
Benchmark Elevation (NAVD 88): 5.266	**Date of Field Work:** April 15, 2015	**Datum Offset to NGVD 29:** 1.58
Benchmark Agency: SFWMD	**Benchmark Type:** Precision rod w/Sleeve	**Benchmark Stamp:** AK-6 2015
Reference Elevation (NAVD88): Notch South Side 2" PVC = 5.17 (Top of Interior Casing) Well Rim = 5.60 (Exterior Casing) Difference = 0.43 (See Picture #6)		**Natural Ground:** 5.8
Latitude: 25 23 33.76921		**Longitude:** 80 32 57.96601
DTW from Notch: -5.28 10:18AM 4-15-15		

Photographs:

Pic#1:



Pic#2:

Pic#3 3Ft:

Pic#3 10Ft:

Well Site: AK-6

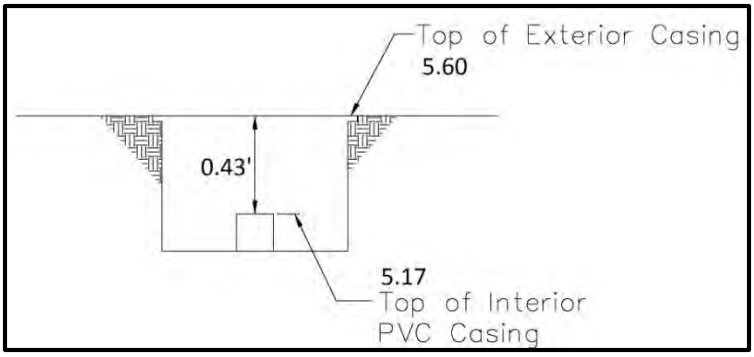
Continued

Pic#4:

Pic#5 3Ft:

Pic#5 10Ft:

Pic#6:



1. A Picture looking down (top view) at the open well.
2. A picture looking down at the well head (with a ruler on it).
3. An oblique picture of the well approximately 3 feet and one at 10 feet from the well head.
4. A picture looking down (Top view) of the benchmark disk.
5. An oblique picture of the benchmark at approximately 3 feet and on at 10 feet from the benchmark
6. Exhibit of the Distance from the Top of the Interior Casing to the Top of the Exterior Casing.

BENCH RUN ADJUSTMENTS

WELL SITE BENCH MARK SHEETS

Closure Report for file K:\Data Files\TDS2015\129707 Org 4-2-15.lev
SFWMD Bench Run for Well As-builts C-111 LiDAR Project
J. Friend TJ Clanton B. Jones
Field Book: 586 Pg. 8-10
Job No. : 1297.07
Benchmark No. : EG2 NGS BM PID# AB2362
Starting BM Elev.: 9.110
Ending BM Elev.: 4.980 (PR16 NGS BM PID# AB2358)
Unadjusted Ending Elev.: 4.952
Closure Error: -0.028
Length of Level Run: 12,174.90 (2.306 Miles)
Allowable Error: 0.05
Units: Feet
Datum: NAVD88
Closure is within allowable tolerances
Adjustment proportional to total distance

Pt.#	Unadj. Elev.	Adj. Elev.	Description
EG2	9.110	Fd	FDOT Brass Disk on Bridge
8-1	5.014	5.015	
8-2	4.736	4.738	
8-3	4.654	4.657	
8-4	4.253	4.258	
8-5	5.157	5.163	
8-6	5.893	5.900	
8-7	5.634	5.642	
8-8	4.974	4.983	
8-9	6.009	6.019	
8-10	6.141	6.153	
10002	6.334	6.347	
8-11	6.084	6.098	
8-12	6.911	6.926	
8-13	6.993	7.009	
8-14	6.410	6.427	
8-15	5.843	5.861	
8-16	5.525	5.544	
8-17	5.792	5.812	
8-18	6.682	6.704	
8-19	6.502	6.525	
8-20	5.960	5.984	
8-21	6.442	6.467	
8-22	6.270	6.296	
8-23	6.264	6.291	
EG1	7.022	7.050	Fd Brass disk on bridge EL+7.01
PR16	4.952	4.980	Fd SFWMD disk stamped PR-16 1979 BM

VC-1 and VC-2 Level run

Closure Report for file K:\Data Files\TDS2015\129707 Edit VC1 and VC2 4-16-15.lev
SFWMD Bench Run for Well As-builts C-111 LiDAR Project Well VC-1 & VC-2
J. Mendoza A. Mathison M. Hart
Field Book : 586 Pg. 24, 29-30
Job No. : 1297.07
Benchmark No. : 586-8-2 Ref. 129707 Org 4-2-15.lev
Starting BM Elev.: 4.738
Ending BM Elev.: 5.163
Unadjusted Ending Elev.: 5.143
Closure Error: -0.020
Length of Level Run: 11,303.20 (2.141 Miles)
Allowable Error: 0.04
Units: Feet
Vertical Datum: NAVD88
Closure is within allowable tolerances
Adjustment proportional to total distance

Pt.#	Unadj. Elev.	Adj. Elev.	Description
8-2	4.738		
29-1	3.935	3.936	
29-2	4.027	4.029	
29-3	4.396	4.399	
29-4	4.271	4.275	
29-5	4.179	4.183	
29-6	4.144	4.149	
29-7	4.193	4.199	
29-8	4.300	4.307	
29-9	4.142	4.150	
29-10	3.309	3.318	
29-11	3.114	3.124	
VC1	4.133	4.143	Set Precision Rod w/Sleeve
29-13	2.786	2.797	
30-14	2.473	2.485	
30-15	2.163	2.176	
30-16	2.722	2.736	
30-17	2.233	2.248	
VC2	2.850	2.865	Set Precision Rod w/Sleeve
30-19	2.644	2.660	
30-20	2.845	2.862	
30-21	3.218	3.236	
30-22	3.152	3.171	
30-23	3.907	3.927	
8-5	5.143	5.163	Ref. 129707 Org 4-2-15.lev

AK-6 Level Run

Closure Report for file K:\Data Files\TDS2015\129707 Edit AK6 4-16-15.lev
SFWMD Bench Run for Well As-builts C-111 LiDAR Project Well AK-6
J. Mendoza A. Mathison M. Hart
Field Book: 586 Pg. 24, 27-28
Job No. : 1297.07
Benchmark No. : 586-8-5 Ref. 129707 Org 4-2-15.lev
Starting BM Elev.: 5.163
Ending BM Elev.: 5.900
Unadjusted Ending Elev.: 5.905
Closure Error 0.005
Length of Level Run: 8,481.30 (1.606 Miles)
Allowable Error: 0.04
Units: Feet
Vertical Datum: NAVD88
Closure is within allowable tolerances
Adjustment proportional to total distance

Pt.#	Unadj. Elev.	Adj. Elev.	Description
586-8-5	5.163		
27-1	4.839	4.839	
27-2	4.461	4.460	
27-3	4.369	4.368	
27-4	3.624	3.623	
27-5	3.498	3.497	
27-6	3.859	3.857	
27-7	4.260	4.258	
27-8	5.246	5.244	
27-9	5.320	5.318	
AK6	5.269	5.266	Set Precision Rod w/Sleeve
28-11	5.250	5.247	
28-12	4.271	4.268	
28-13	3.866	3.863	
28-14	3.504	3.500	
28-15	3.631	3.627	
28-16	4.380	4.376	
28-17	4.475	4.471	
28-18	4.853	4.848	
8-6	5.905	5.900	Ref. 129707 Org 4-2-15.lev

WELL SITE BENCH MARKS

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 8/07

DESIGNATION VC-1 2015	**PROJECT** C111 LiDAR AND WELL SITES
ESTABLISHED BY WANTMAN GROUP **RECOVERED BY**	**SURVEYOR** DEREK ZEMAN **DATE** 04/14/2015

GEOGRAPHIC POSITION

SECTION 5	**TOWNSHIP** 58S	**RANGE** 38E
COUNTY MIAMI-DADE	**NAME OF QUADRANGLE** ROYAL PALM RANGER STATION	

HORIZONTAL DATUM: **1927** (**1983**) **Other**_____ (circle one) ZONE (**E**) or **W**

VERTICAL DATUM: **MSL** **1929** (**1988**) **Other** _____ (circle one)

CONTROL ACCURACY: **HORIZONTAL** **1** **2** (**3**) _____(circle one) **VERTICAL** **1** **2** (**3**)

STATE PLANE COORDINATES	**X** 804196.1088	**Y** 394487.8935	**NAVD 88 ELEV.** 4.143 **NGVD 29 ELEV.** _____

LATITUDE 25 25 05.50846	**LONGITUDE** 80 33 05.39558

RECOVERY DESCRIPTION

Stamping: VC-1 2015

To Reach: FROM THE INTERSECTION OF SOUTH DIXE HWY. AND EAST PALM DR. GO WEST ON E. PALM DR FOR 1.66 MILES TO TOWER RD. TURN LEFT ON TOWER RD. AND GO SOUTH FOR 2.02 MILES TO INGRAHAM HWY. GO WEST ON INGRAHAM HWY. FOR 3.0 MILES TO THE INTERSECTION OF S.W. 217th AVE. TURN RIGHT AND GO NORTH ON SW 217th AVE. 0.94 MILES, TURN LEFT AT A DIRT ROAD HEADING NW (SW 376th ST.) CONTINUE ON DIRT ROAD TO TEE IN ROAD, TURN LEFT AND HEAD WEST ON DIRT ROAD FOR 0.6 MILES TO THE WEST SIDE OF A SLOUGH, MARK IS ON THE SOUTH SIDE OF ROAD. AND 1.2FT NORTH OF A CARSONITE POST AND 4FT SOUTH OF WELL VC-1.
SET PRECISON ROD W/SLEEVE

Notable Land marks: WELL VC-1

FIELD BOOK 586 **PAGE** 29-30

SKETCH



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 8/07

DESIGNATION VC-2 2015	**PROJECT** C111 LiDAR AND WELL SITES
ESTABLISHED BY WANTMAN GROUP	**SURVEYOR** DEREK ZEMAN
RECOVERED BY	**DATE** 04/14/2015

GEOGRAPHIC POSITION

SECTION 5	**TOWNSHIP** 58S	**RANGE** 38E
COUNTY MIAMI-DADE	**NAME OF QUADRANGLE** ROYAL PALM RANGER STATION	

HORIZONTAL DATUM: **1927** (**1983**) **Other**_____ (circle one) ZONE (**E**) or **W**

VERTICAL DATUM: **MSL** **1929** (**1988**) **Other** _____ (circle one)

CONTROL ACCURACY: **HORIZONTAL** **1** **2** (**3**) _____(circle one) **VERTICAL** **1** **2** (**3**)

STATE PLANE COORDINATES	**X** 391900.1708	**Y** 804503.0261	**NAVD 88 ELEV.** 2.865 **NGVD 29 ELEV.** _____

LATITUDE 25 24 39.86579	**LONGITUDE** 80 33 02.14311

RECOVERY DESCRIPTION

Stamping: VC-2 2015

To Reach: FROM THE INTERSECTION OF SOUTH DIXE HWY. AND EAST PALM DR. GO WEST ON E. PALM DR FOR 1.66 MILES TO TOWER RD. TURN LEFT ON TOWER RD. AND GO SOUTH FOR 2.02 MILES TO INGRAHAM HWY. GO WEST ON INGRAHAM HWY. FOR 3.0 MILES TO THE INTERSECTION OF S.W. 217th AVE. TURN RIGHT AND GO NORTH ON SW 217th AVE. 0.51 MILES, TURN LEFT AT A DIRT ROAD HEADING WEST (SW 384th ST.) AND GO 0.55 MILES TO THE SOUTH END OF A SLOUGH, MARK IS ON THE NORTH SIDE OF DIRT ROAD AND 2FT SOUTH OF A CARSONITE POST AND 3FT NORTH OF WELL VC-2
SET PRECISON ROD W/SLEEVE

Notable Land marks: WELL VC-2

FIELD BOOK 586 **PAGE** 29-30

SKETCH

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 8/07

DESIGNATION AK-5 2015	**PROJECT** C111 LiDAR AND WELL SITES
ESTABLISHED BY WANTMAN GROUP	**SURVEYOR** DEREK ZEMAN
RECOVERED BY	**DATE** 04/14/2015

GEOGRAPHIC POSITION

SECTION 9	**TOWNSHIP** 58S	**RANGE** 38E
COUNTY MIAMI-DADE	**NAME OF QUADRANGLE** ROYAL PALM RANGER STATION	

HORIZONTAL DATUM: **1927** (**1983**) **Other**_____ (circle one) ZONE (**E**) or **W**

VERTICAL DATUM: **MSL** **1929** (**1988**) **Other** _____ (circle one)

CONTROL ACCURACY: **HORIZONTAL** **1** **2** (**3**) _____(circle one) **VERTICAL** **1** **2** (**3**)

STATE PLANE COORDINATES	**X** 807468.6067	**Y** 389216.9772	**NAVD 88 ELEV.** 3.896 **NGVD 29 ELEV.** _____

LATITUDE 25 24 13.18774	**LONGITUDE** 80 32 29.89988

RECOVERY DESCRIPTION

Stamping: AK-5 2015

To Reach: FROM THE INTERSECTION OF SOUTH DIXE HWY. AND EAST PALM DR. GO WEST ON E. PALM DR FOR 1.66 MILES TO TOWER RD. TURN LEFT ON TOWER RD. AND GO SOUTH FOR 2.02 MILES TO INGRAHAM HWY. GO WEST ON INGRAHAM HWY. FOR 3.0 MILES TO THE INTERSECTION OF S.W. 217th AVE. AND THE MARK AT THE S.W. CORNER OF THE INTERSECTION. BENCH MARK IS 50.2FT SOUTH OF THE SOUTH EP OF INGRAHAM HWY. AND 2.0FT NORTH OF A CARSONITE POST AND 2.5FT WEST OF WELL AK-5.
SET PRECISION ROD W/SLEEVE

Notable Land marks: WELL AK 5

FIELD BOOK 586 **PAGE** 23 & 26

SKETCH

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 8/07

DESIGNATION AK-6 2015	**PROJECT** C111 LiDAR AND WELL SITES
ESTABLISHED BY WANTMAN GROUP **RECOVERED BY**	**SURVEYOR** DEREK ZEMAN **DATE** 04/14/2015

GEOGRAPHIC POSITION

SECTION 8	**TOWNSHIP** 58S	**RANGE** 38E
COUNTY MIAMI-DADE	**NAME OF QUADRANGLE** ROYAL PALM RANGER STATION	

HORIZONTAL DATUM: **1927** (**1983**) **Other**_____ (circle one) ZONE (**E**) or **W**

VERTICAL DATUM: **MSL** **1929** (**1988**) **Other** _____ (circle one)

CONTROL ACCURACY: **HORIZONTAL** **1** **2** (**3**) _____(circle one) **VERTICAL** **1** **2** (**3**)

STATE PLANE COORDINATES	**X** 804908.529	**Y** 385230.3317	**NAVD 88 ELEV.** 5.266 **NGVD 29 ELEV.** _____

LATITUDE 25 23 33.78470	**LONGITUDE** 80 32 57.96615

RECOVERY DESCRIPTION

Stamping: AK-6 2015

To Reach: FROM THE INTERSECTION OF SOUTH DIXE HWY. AND EAST PALM DR. GO WEST ON E. PALM DR FOR 1.66 MILES TO TOWER RD. TURN LEFT ON TOWER RD. AND GO SOUTH FOR 2.02 MILES TO INGRAHAM HWY. GO WEST ON INGRAHAM HWY. FOR 3.0 MILES TO THE INTERSECTION OF S.W. 217th AVE. CONTINUE WEST ON INGRAHAM HWY. FOR 0.5 MILES TO THE INTERSECTION OF SW 222nd AVE.(A UNMARKED DIRT ROAD) TURN LEFT ON 222nd AVE. AND GO SOUTH FOR 0.75 MILES TO THE END OF THE ROAD. TURN LEFT AND GO APPOX. 90FT TO MARK ON THE NORTH SIDE OF DIRT ROAD. BENCH MARK IS 1.7FT NORTH OF WELL AK 6 AND 2FT SOUTH OF A CARSONITE POST. SET PRECISION ROD W/SLEEVE.

Notable Land marks: WELL AK 6

FIELD BOOK 586 **PAGE** 27-28

SKETCH

NGS DATA SHEETS

DATASHEETS Data Sheet Retrieval
The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.
PROGRAM = datasheet95, VERSION = 8.7
1 National Geodetic Survey, Retrieval Date = JUNE 2, 2015
AC1157 **********
AC1157 DESIGNATION - DA 124 RESET
AC1157 PID - AC1157
AC1157 STATE/COUNTY- FL/MIAMI-DADE
AC1157 COUNTRY - US
AC1157 USGS QUAD - HOMESTEAD (1994)
AC1157
AC1157 *CURRENT SURVEY CONTROL
AC1157 _____
AC1157* NAD 83(2011) POSITION- 25 26 53.68913(N) 080 28 37.51268(W) ADJUSTED
AC1157* NAD 83(2011) ELLIP HT- -23.647 (meters) (06/27/12) ADJUSTED
AC1157* NAD 83(2011) EPOCH - 2010.00
AC1157* NAVD 88 ORTHO HEIGHT - 1.249 (meters) 4.10 (feet) ADJUSTED
AC1157 _____
AC1157 NAD 83(2011) X - 953,414.519 (meters) COMP
AC1157 NAD 83(2011) Y - -5,683,417.183 (meters) COMP
AC1157 NAD 83(2011) Z - 2,723,984.572 (meters) COMP
AC1157 LAPLACE CORR - -3.36 (seconds) DEFLEC12B
AC1157 GEOID HEIGHT - -24.87 (meters) GEOID12B
AC1157 DYNAMIC HEIGHT - 1.247 (meters) 4.09 (feet) COMP
AC1157 MODELED GRAVITY - 978,976.8 (mgal) NAVD 88
AC1157
AC1157 VERT ORDER - FIRST CLASS II
AC1157
AC1157 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
AC1157 Standards:
AC1157 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
AC1157 Horiz Ellip SD_N SD_E SD_h (unitless)
AC1157 ----------
AC1157 NETWORK 2.86 4.33 1.12 1.21 2.21 -0.16270623
AC1157 ----------
AC1157 Click here for local accuracies and other accuracy information.
AC1157
AC1157
AC1157.The horizontal coordinates were established by GPS observations
AC1157.and adjusted by the National Geodetic Survey in June 2012.
AC1157
AC1157.NAD 83(2011) refers to NAD 83 coordinates where the reference
AC1157.frame has been affixed to the stable North American tectonic plate. See
AC1157.NA2011 for more information.
AC1157
AC1157.The horizontal coordinates are valid at the epoch date displayed above
AC1157.which is a decimal equivalence of Year/Month/Day.
AC1157
AC1157.The orthometric height was determined by differential leveling and
AC1157.adjusted by the NATIONAL GEODETIC SURVEY
AC1157.in May 1994.

AC1157
AC1157.WARNING-Repeat measurements at this control monument indicate possible
AC1157.vertical movement.
AC1157
AC1157.The X, Y, and Z were computed from the position and the ellipsoidal ht.
AC1157
AC1157.The Laplace correction was computed from DEFLEC12B derived deflections.
AC1157
AC1157.The ellipsoidal height was determined by GPS observations
AC1157.and is referenced to NAD 83.
AC1157
AC1157.The dynamic height is computed by dividing the NAVD 88
AC1157.geopotential number by the normal gravity value computed on the
AC1157.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
AC1157.degrees latitude (g = 980.6199 gals.).
AC1157
AC1157.The modeled gravity was interpolated from observed gravity values.
AC1157
AC1157. The following values were computed from the NAD 83(2011) position.
AC1157
AC1157; North East Units Scale Factor Converg.
AC1157;SPC FL E - 123,596.279 252,592.372 MT 0.99997532 +0 13 28.9
AC1157;SPC FL E - 405,498.79 828,713.47 sFT 0.99997532 +0 13 28.9
AC1157;UTM 17 - 2,814,686.090 552,574.428 MT 0.99963413 +0 13 28.9
AC1157
AC1157! - Elev Factor x Scale Factor = Combined Factor
AC1157!SPC FL E - 1.00000372 x 0.99997532 = 0.99997904
AC1157!UTM 17 - 1.00000372 x 0.99963413 = 0.99963784
AC1157
AC1157 SUPERSEDED SURVEY CONTROL
AC1157
AC1157 NAD 83(2007)- 25 26 53.68925(N) 080 28 37.51314(W) AD(2002.00) 0
AC1157 ELLIP H (02/10/07) -23.622 (m) GP(2002.00)
AC1157 NAD 83(1999)- 25 26 53.68929(N) 080 28 37.51333(W) AD( ) 1
AC1157 ELLIP H (12/12/02) -23.593 (m) GP( ) 4 1
AC1157 NAVD 88 (12/12/02) 1.25 (m) 4.1 (f) LEVELING 3
AC1157 NAVD 88 (06/15/91) 1.257 (m) 4.12 (f) SUPERSEDED 1 2
AC1157 NGVD 29 (??/??/92) 1.722 (m) 5.65 (f) SUPERSEDED 1 2
AC1157 NGVD 29 (09/01/92) 1.718 (m) 5.64 (f) ADJUSTED 1 2
AC1157
AC1157.Superseded values are not recommended for survey control.
AC1157
AC1157.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AC1157.See file dsdata.txt to determine how the superseded data were derived.
AC1157
AC1157_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNJ5257414686(NAD 83)
AC1157
AC1157_MARKER: DE = TRAVERSE STATION DISK
AC1157_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
AC1157_SP_SET: CONCRETE POST
AC1157_STAMPING: DA 124 RESET 1963
AC1157_MARK LOGO: CGS
AC1157_MAGNETIC: N = NO MAGNETIC MATERIAL
AC1157_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

AC1157+STABILITY: SURFACE MOTION
AC1157_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AC1157+SATELLITE: SATELLITE OBSERVATIONS - February 16, 2011
AC1157
AC1157 HISTORY   - Date   Condition   Report By
AC1157 HISTORY   - 1963   MONUMENTED   CGS
AC1157 HISTORY   - 1966   GOOD   CGS
AC1157 HISTORY   - 1970   GOOD   NGS
AC1157 HISTORY   - 1978   GOOD   NGS
AC1157 HISTORY   - 1988   GOOD   USPSQD
AC1157 HISTORY   - 19910124 GOOD   FLDNR
AC1157 HISTORY   - 19930517 GOOD   NGS
AC1157 HISTORY   - 19940912 GOOD   FLDEP
AC1157 HISTORY   - 20020523 GOOD   MAPTEC
AC1157 HISTORY   - 20071003 GOOD   DEGROV
AC1157 HISTORY   - 20110216 GOOD   MAPTEC
AC1157
AC1157   STATION DESCRIPTION
AC1157
AC1157'DESCRIBED BY COAST AND GEODETIC SURVEY 1966
AC1157'AT FLORIDA CITY.
AC1157'AT FLORIDA CITY, 151 FEET NORTH OF THE CENTER OF THE INTERSECTION
AC1157'OF KROME AVENUE AND PALM DRIVE, IN THE LAWN OF THE KEYS WAY
AC1157'MOTEL, 45.5 FEET WEST OF THE NORTHWEST CORNER OF CABIN NO. 1,
AC1157'28 FEET EAST OF THE CENTER LINE OF KROME AVENUE, 34 FEET NORTH
AC1157'OF THE CENTER LINE OF THE DRIVE LEADING TO MOTEL, 7 1/2 FEET
AC1157'NORTH OF A POWER POLE, ABOUT 1/2 FOOT BELOW THE LEVEL OF THE
AC1157'AVENUE AND SET IN THE TOP OF A CONCRETE POST 0.1 FOOT UNDERGROUND.
AC1157
AC1157   STATION RECOVERY (1970)
AC1157
AC1157'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1970
AC1157'RECOVERED IN GOOD CONDITION.
AC1157
AC1157   STATION RECOVERY (1978)
AC1157
AC1157'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1978
AC1157'RECOVERED IN GOOD CONDITION.
AC1157
AC1157   STATION RECOVERY (1988)
AC1157
AC1157'RECOVERY NOTE BY US POWER SQUADRON 1988 (TD)
AC1157'RECOVERED IN GOOD CONDITION.
AC1157
AC1157   STATION RECOVERY (1991)
AC1157
AC1157'RECOVERY NOTE BY FL DEPT OF NAT RES 1991
AC1157'RECOVERED IN GOOD CONDITION.
AC1157
AC1157   STATION RECOVERY (1993)
AC1157
AC1157'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1993
AC1157'IN FLORIDA CITY, AT THE INTERSECTION OF PALM DRIVE AND KRONE AVENUE,
AC1157'46.1 M (151.2 FT) NORTH OF THE CENTER OF THE DRIVE, 10.2 M (33.5 FT)

AC1157'NORTH OF THE CENTER OF A PAVED DRIVEWAY, 8.8 M (28.9 FT) EAST OF AND
AC1157'LEVEL WITH THE CENTERLINE OF THE AVENUE, 2.2 M (7.2 FT)
AC1157'NORTH-NORTHEAST OF UTILITY POLE NUMBER 453 HN 339, 0.4 M (1.3 FT)
AC1157'SOUTH OF A WITNESS POST, AND THE MONUMENT IS RECESSED 0.1 M (0.3 FT)
AC1157'BELOW THE GROUND SURFACE.
AC1157
AC1157 STATION RECOVERY (1994)
AC1157
AC1157'RECOVERY NOTE BY FL DEPT OF ENV PRO 1994 (LGB)
AC1157'RECOVERED AS DESCRIBED.
AC1157
AC1157 STATION RECOVERY (2002)
AC1157
AC1157'RECOVERY NOTE BY MAPTECH INCORPORATED 2002 (CDP)
AC1157'RECOVERED AS DESCRIBED.
AC1157'
AC1157
AC1157 STATION RECOVERY (2007)
AC1157
AC1157'RECOVERY NOTE BY DEGROVE SURVEYORS INCORPORATED 2007
AC1157'RECOVERED AS DESCRIBED
AC1157
AC1157 STATION RECOVERY (2011)
AC1157
AC1157'RECOVERY NOTE BY MAPTECH INCORPORATED 2011 (JML)
AC1157'MOTEL NO LONGER EXISTS, CURRENTLY IS AN OPEN LOT. POINT IS 10.5 FEET
AC1157'EAST OF THE EDGE OF PAVEMENT. 7.2 FEET NORTH OF A POWER POLE, AND
AC1157'151.2 FEET NORTH OF PALM DRIVE.

*** retrieval complete.
Elapsed Time = 00:00:03

DATASHEETS Data Sheet Retrieval
The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.
PROGRAM = datasheet95, VERSION = 8.7
1 National Geodetic Survey, Retrieval Date = JUNE 2, 2015
AB2362 **********
AB2362 DESIGNATION - EG 2
AB2362 PID - AB2362
AB2362 STATE/COUNTY- FL/MIAMI-DADE
AB2362 COUNTRY - US
AB2362 USGS QUAD - ROYAL PALM RANGER STATION (1979)
AB2362
AB2362 *CURRENT SURVEY CONTROL
AB2362 _____
AB2362* NAD 83(2011) POSITION- 25 24 13.19499(N) 080 33 29.56502(W) ADJUSTED
AB2362* NAD 83(2011) ELLIP HT- -21.737 (meters) (06/27/12) ADJUSTED
AB2362* NAD 83(2011) EPOCH - 2010.00
AB2362* NAVD 88 ORTHO HEIGHT - 2.777 (meters) 9.11 (feet) ADJUSTED
AB2362 _____
AB2362 NAD 83(2011) X - 945,714.486 (meters) COMP
AB2362 NAD 83(2011) Y - -5,686,854.818 (meters) COMP
AB2362 NAD 83(2011) Z - 2,719,525.040 (meters) COMP
AB2362 LAPLACE CORR - -2.83 (seconds) DEFLEC12B
AB2362 GEOID HEIGHT - -24.53 (meters) GEOID12B
AB2362 DYNAMIC HEIGHT - 2.773 (meters) 9.10 (feet) COMP
AB2362 MODELED GRAVITY - 978,980.6 (mgal) NAVD 88
AB2362
AB2362 VERT ORDER - FIRST CLASS II
AB2362
AB2362 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
AB2362 Standards:
AB2362 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
AB2362 Horiz Ellip SD_N SD_E SD_h (unitless)
AB2362 ----------
AB2362 NETWORK 3.28 4.70 1.35 1.33 2.40 -0.02810539
AB2362 ----------
AB2362 Click here for local accuracies and other accuracy information.
AB2362
AB2362
AB2362.The horizontal coordinates were established by GPS observations
AB2362.and adjusted by the National Geodetic Survey in June 2012.
AB2362
AB2362.NAD 83(2011) refers to NAD 83 coordinates where the reference
AB2362.frame has been affixed to the stable North American tectonic plate. See
AB2362.NA2011 for more information.
AB2362
AB2362.The horizontal coordinates are valid at the epoch date displayed above
AB2362.which is a decimal equivalence of Year/Month/Day.
AB2362
AB2362.The orthometric height was determined by differential leveling and
AB2362.adjusted by the NATIONAL GEODETIC SURVEY
AB2362.in April 1996.

AB2362
AB2362.Photographs are available for this station.
AB2362
AB2362.The X, Y, and Z were computed from the position and the ellipsoidal ht.
AB2362
AB2362.The Laplace correction was computed from DEFLEC12B derived deflections.
AB2362
AB2362.The ellipsoidal height was determined by GPS observations
AB2362.and is referenced to NAD 83.
AB2362
AB2362.The dynamic height is computed by dividing the NAVD 88
AB2362.geopotential number by the normal gravity value computed on the
AB2362.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
AB2362.degrees latitude (g = 980.6199 gals.).
AB2362
AB2362.The modeled gravity was interpolated from observed gravity values.
AB2362
AB2362. The following values were computed from the NAD 83(2011) position.
AB2362
AB2362; North East Units Scale Factor Converg.
AB2362;SPC FL E - 118,628.231 244,449.338 MT 0.99996557 +0 11 22.3
AB2362;SPC FL E - 389,199.45 801,997.54 sFT 0.99996557 +0 11 22.3
AB2362;UTM 17 - 2,809,719.737 544,434.172 MT 0.99962438 +0 11 22.3
AB2362
AB2362! - Elev Factor x Scale Factor = Combined Factor
AB2362!SPC FL E - 1.00000342 x 0.99996557 = 0.99996899
AB2362!UTM 17 - 1.00000342 x 0.99962438 = 0.99962779
AB2362
AB2362 SUPERSEDED SURVEY CONTROL
AB2362
AB2362 NAD 83(2007)- 25 24 13.19515(N) 080 33 29.56550(W) AD(2002.00) 0
AB2362 ELLIP H (02/10/07) -21.723 (m) GP(2002.00)
AB2362 NAD 83(1999)- 25 24 13.19519(N) 080 33 29.56555(W) AD( ) 1
AB2362 ELLIP H (12/12/02) -21.711 (m) GP( ) 4 1
AB2362 NAVD 88 (12/12/02) 2.78 (m) 9.1 (f) LEVELING 3
AB2362
AB2362.Superseded values are not recommended for survey control.
AB2362
AB2362.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AB2362.See file dsdata.txt to determine how the superseded data were derived.
AB2362
AB2362_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNJ4443409719(NAD 83)
AB2362
AB2362_MARKER: DD = SURVEY DISK
AB2362_SETTING: 36 = SET IN A MASSIVE STRUCTURE
AB2362_SP_SET: BRIDGE CURB
AB2362_STAMPING: EG 2
AB2362_MARK LOGO: FLDT
AB2362_MAGNETIC: N = NO MAGNETIC MATERIAL
AB2362_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
AB2362_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AB2362+SATELLITE: SATELLITE OBSERVATIONS - June 14, 2012
AB2362
AB2362 HISTORY - Date Condition Report By

AB2362 HISTORY - UNK MONUMENTED FLDT
AB2362 HISTORY - 19940916 GOOD FLDEP
AB2362 HISTORY - 20020523 GOOD MAPTEC
AB2362 HISTORY - 20030930 GOOD WEIDEN
AB2362 HISTORY - 20081002 GOOD GCT
AB2362 HISTORY - 20091209 GOOD DCPWD
AB2362 HISTORY - 20120614 GOOD INDIV
AB2362
AB2362 STATION DESCRIPTION
AB2362
AB2362'DESCRIBED BY FL DEPT OF ENV PRO 1994 (LGB)
AB2362'THE MARK IS ABOUT 5.7 MI (9.2 KM) SOUTHWEST OF FLORIDA CITY IN SECTION
AB2362'6, TOWNSHIP 58 SOUTH, RANGE 38 EAST. TO REACH THE MARK FROM THE
AB2362'INTERSECTION OF U.S. HIGHWAY 1 AND PALM DRIVE (SW. 3 STREET) IN
AB2362'FLORIDA CITY, GO WEST ON PALM DRIVE (STATE ROAD 27, SW. 3 STREET) FOR
AB2362'1.7 MI (2.7 KM) TO THE INTERSECTION OF TOWER ROAD (SW. 192 AVENUE) ,
AB2362'TURN LEFT ON TOWER ROAD (STATE ROAD 27, SW 192 AVENUE) AND GO SOUTH
AB2362'FOR 2.1 MI (3.4 KM) TO THE JUNCTION OF SW. 376 STREET (STATE ROAD 27)
AB2362'ON THE RIGHT, TURN RIGHT ON SW. 376 STREET (STATE ROAD 27) AND GO WEST
AB2362'FOR 4.05 MI (6.52 KM) TO A BRIDGE WITH A WATER CONTROL GATE AND THE
AB2362'MARK ON THE RIGHT, SET FLUSH IN THE NORTHEAST CORNER OF THE BRIDGE
AB2362'CURB AND 1.2 FT (0.4 M) ABOVE THE LEVEL OF SW. 376 STREET (STATE ROAD
AB2362'27) . LOCATED 103.2 FT (31.5 M) EAST OF THE WEST END OF THE CONCRETE
AB2362'BRIDGE GAURDRAIL, 23.2 FT (7.1 M) NORTH OF THE APPROXIMATE CENTERLINE
AB2362'OF SW. 376 STREET (STATE ROAD 27) AND 4.5 FT (1.4 M) WEST OF THE EAST
AB2362'END OF THE CONCRETE BRIDGE GAURDRAIL.
AB2362
AB2362 STATION RECOVERY (2002)
AB2362
AB2362'RECOVERY NOTE BY MAPTECH INCORPORATED 2002 (CDP)
AB2362'RECOVERED AS DESCRIBED.
AB2362'
AB2362
AB2362 STATION RECOVERY (2003)
AB2362
AB2362'RECOVERY NOTE BY WEIDENER SURVEYING AND MAPPING 2003 (MM)
AB2362'RECOVERED AS DESCRIBED
AB2362
AB2362 STATION RECOVERY (2008)
AB2362
AB2362'RECOVERY NOTE BY GUSTIN, COTHERN, AND TUCKER, I 2008
AB2362'RECOVERED IN GOOD CONDITION.
AB2362
AB2362 STATION RECOVERY (2009)
AB2362
AB2362'RECOVERY NOTE BY DADE COUNTY PUBLIC WORKS DEPARTMENT 2009 (MJW)
AB2362'RECOVERED IN GOOD CONDITION.
AB2362
AB2362 STATION RECOVERY (2012)
AB2362
AB2362'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2012 (SU)
AB2362'RECOVERED AS DESCRIBED

*** retrieval complete.

Elapsed Time = 00:00:02

DATASHEETS Data Sheet Retrieval
The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.
PROGRAM = datasheet95, VERSION = 8.7
1 National Geodetic Survey, Retrieval Date = JUNE 2, 2015
AJ8393 **********
AJ8393 DESIGNATION - H 504
AJ8393 PID - AJ8393
AJ8393 STATE/COUNTY- FL/MIAMI-DADE
AJ8393 COUNTRY - US
AJ8393 USGS QUAD - ROYAL PALM RANGER STATION (1979)
AJ8393
AJ8393 *CURRENT SURVEY CONTROL
AJ8393 _____
AJ8393* NAD 83(1986) POSITION- 25 29 05. (N) 080 33 49. (W) SCALED
AJ8393* NAVD 88 ORTHO HEIGHT - 2.898 (meters) 9.51 (feet) ADJUSTED
AJ8393 _____
AJ8393 GEOID HEIGHT - -24.61 (meters) GEOID12B
AJ8393 DYNAMIC HEIGHT - 2.893 (meters) 9.49 (feet) COMP
AJ8393 MODELED GRAVITY - 978,987.8 (mgal) NAVD 88
AJ8393
AJ8393 VERT ORDER - FIRST CLASS II
AJ8393
AJ8393.The horizontal coordinates were scaled from a topographic map and have
AJ8393.an estimated accuracy of +/- 6 seconds.
AJ8393.
AJ8393.The orthometric height was determined by differential leveling and
AJ8393.adjusted by the NATIONAL GEODETIC SURVEY
AJ8393.in June 2002.
AJ8393
AJ8393.The dynamic height is computed by dividing the NAVD 88
AJ8393.geopotential number by the normal gravity value computed on the
AJ8393.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
AJ8393.degrees latitude (g = 980.6199 gals.).
AJ8393
AJ8393.The modeled gravity was interpolated from observed gravity values.
AJ8393
AJ8393; North East Units Estimated Accuracy
AJ8393;SPC FL E - 127,610. 243,880. MT (+/- 180 meters Scaled)
AJ8393
AJ8393 SUPERSEDED SURVEY CONTROL
AJ8393
AJ8393.No superseded survey control is available for this station.
AJ8393
AJ8393_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNJ438186(NAD 83)
AJ8393
AJ8393_MARKER: DD = SURVEY DISK
AJ8393_SETTING: 36 = SET IN A MASSIVE STRUCTURE
AJ8393_SP_SET: FLOOD GATE STRUCTURE
AJ8393_STAMPING: H 504 2000
AJ8393_MARK LOGO: FLDEP
AJ8393_MAGNETIC: N = NO MAGNETIC MATERIAL

AJ8393_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
AJ8393_SATELLITE: THE SITE LOCATION WAS REPORTED AS NOT SUITABLE FOR
AJ8393+SATELLITE: SATELLITE OBSERVATIONS - 2000
AJ8393
AJ8393 HISTORY   - Date   Condition   Report By
AJ8393 HISTORY   - 2000   MONUMENTED   FLDEP
AJ8393
AJ8393   STATION DESCRIPTION
AJ8393
AJ8393'DESCRIBED BY FL DEPT OF ENV PRO 2000 (JLM)
AJ8393'THE MARK IS ABOUT 7.7 MI (12.4 KM) WEST OF HOMESTEAD, 6.7 MI (10.8 KM)
AJ8393'WEST OF FLORIDA CITY, IN SECTION 7, TOWNSHIP 57 SOUTH, RANGE 38 EAST.
AJ8393'TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 1 (SOUTH
AJ8393'DIXIE HIGHWAY) AND PALM DRIVE (STATE ROAD 9336, SOUTHWEST 344TH
AJ8393'STREET) IN FLORIDA CITY, GO WEST ON PALM DRIVE (STATE ROAD 9336,
AJ8393'SOUTHWEST 344TH STREET) FOR 1.7 MI (2.7 KM) TO THE JUNCTION OF
AJ8393'SOUTHWEST 192TH AVENUE (TOWER ROAD, STATE ROAD 9336) TURN LEFT ON
AJ8393'SOUTHWEST 192TH AVENUE (TOWER ROAD, STATE ROAD 9336) AND GO SOUTH FOR
AJ8393'2.1 MI (3.4 KM) TO THE JUNCTION OF SOUTHWEST 376TH STREET (STATE ROAD
AJ8393'9336, INGRAHAM HIGHWAY) ON THE RIGHT, TURN RIGHT ON SOUTHWEST 376TH
AJ8393'STREET (STATE ROAD 9336, INGRAHAM HIGHWAY) AND GO WEST FOR 4.95 MI
AJ8393'(7.97 KM) TO THE EAST END OF BRIDGE NUMBER 870081 1969 SPANNING CANAL
AJ8393'31, TURN RIGHT ON THE LEVEE ROAD ON THE EAST SIDE OF CANAL 31 AND GO
AJ8393'NORTH FOR 8.5 MI (13.7 KM) TO A PUMP HOUSE, TURN LEFT ON THE EAST SIDE
AJ8393'OF THE PUMP HOUSE AND GO NORTH FOR 0.1 MI (0.2 KM) TO A SET OF DOUBLE
AJ8393'LOCKED GATES, PASSING THROUGH THE GATES TO THE MARK ON THE LEFT, SET
AJ8393'FLUSH IN THE TOP OF THE NORTHWEST CORNER OF FLOOD GATE STRUCTURE
AJ8393'NUMBER S174 LEVEL WITH THE STRUCTURE AND LEVEL WITH THE LEVEE ROAD.
AJ8393'LOCATED 10.3 FT (3.1 M) WEST OF THE APPROXIMATE CENTERLINE OF THE
AJ8393'LEVEE ROAD, 3.1 FT (0.9 M) SOUTH OF THE SOUTH END OF A GUARDRAIL AND
AJ8393'0.7 FT (21.3 CM) EAST OF THE NORTHWEST CORNER OF THE FLOOD GATE. NOTE
AJ8393'FOR KEY CONTACT SOUTH FLORIDA WATER MANAGEMENT DISTRICT AT 2195
AJ8393'NORTHEAST 8TH STREET HOMESTEAD, FL 33033, PHONE 305-242-5955.

*** retrieval complete.
Elapsed Time = 00:00:03

DATASHEETS Data Sheet Retrieval
The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.
PROGRAM = datasheet95, VERSION = 8.7
1 National Geodetic Survey, Retrieval Date = JUNE 2, 2015
AB2358 **********
AB2358 DESIGNATION - PR 16
AB2358 PID - AB2358
AB2358 STATE/COUNTY- FL/MIAMI-DADE
AB2358 COUNTRY - US
AB2358 USGS QUAD - ROYAL PALM RANGER STATION (1979)
AB2358
AB2358 *CURRENT SURVEY CONTROL
AB2358 _____
AB2358* NAD 83(2011) POSITION- 25 24 29.67248(N) 080 31 26.30075(W) ADJUSTED
AB2358* NAD 83(2011) ELLIP HT- -23.097 (meters) (06/27/12) ADJUSTED
AB2358* NAD 83(2011) EPOCH - 2010.00
AB2358* NAVD 88 ORTHO HEIGHT - 1.519 (meters) 4.98 (feet) ADJUSTED
AB2358 _____
AB2358 NAD 83(2011) X - 949,076.777 (meters) COMP
AB2358 NAD 83(2011) Y - -5,686,072.863 (meters) COMP
AB2358 NAD 83(2011) Z - 2,719,982.463 (meters) COMP
AB2358 LAPLACE CORR - -3.01 (seconds) DEFLEC12B
AB2358 GEOID HEIGHT - -24.64 (meters) GEOID12B
AB2358 DYNAMIC HEIGHT - 1.517 (meters) 4.98 (feet) COMP
AB2358 MODELED GRAVITY - 978,979.7 (mgal) NAVD 88
AB2358
AB2358 VERT ORDER - FIRST CLASS II
AB2358
AB2358 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
AB2358 Standards:
AB2358 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
AB2358 Horiz Ellip SD_N SD_E SD_h (unitless)
AB2358 ----------
AB2358 NETWORK 4.06 5.29 1.57 1.73 2.70 -0.19093875
AB2358 ----------
AB2358 Click here for local accuracies and other accuracy information.
AB2358
AB2358
AB2358.The horizontal coordinates were established by GPS observations
AB2358.and adjusted by the National Geodetic Survey in June 2012.
AB2358
AB2358.NAD 83(2011) refers to NAD 83 coordinates where the reference
AB2358.frame has been affixed to the stable North American tectonic plate. See
AB2358.NA2011 for more information.
AB2358
AB2358.The horizontal coordinates are valid at the epoch date displayed above
AB2358.which is a decimal equivalence of Year/Month/Day.
AB2358
AB2358.The orthometric height was determined by differential leveling and
AB2358.adjusted by the NATIONAL GEODETIC SURVEY
AB2358.in April 1996.

AB2358
AB2358.The X, Y, and Z were computed from the position and the ellipsoidal ht.
AB2358
AB2358.The Laplace correction was computed from DEFLEC12B derived deflections.
AB2358
AB2358.The ellipsoidal height was determined by GPS observations
AB2358.and is referenced to NAD 83.
AB2358
AB2358.The dynamic height is computed by dividing the NAVD 88
AB2358.geopotential number by the normal gravity value computed on the
AB2358.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
AB2358.degrees latitude (g = 980.6199 gals.).
AB2358
AB2358.The modeled gravity was interpolated from observed gravity values.
AB2358
AB2358. The following values were computed from the NAD 83(2011) position.
AB2358
AB2358; North East Units Scale Factor Converg.
AB2358;SPC FL E - 119,147.094 247,892.558 MT 0.99996949 +0 12 15.3
AB2358;SPC FL E - 390,901.76 813,294.17 sFT 0.99996949 +0 12 15.3
AB2358;UTM 17 - 2,810,238.423 547,876.217 MT 0.99962830 +0 12 15.3
AB2358
AB2358! - Elev Factor x Scale Factor = Combined Factor
AB2358!SPC FL E - 1.00000363 x 0.99996949 = 0.99997312
AB2358!UTM 17 - 1.00000363 x 0.99962830 = 0.99963193
AB2358
AB2358 SUPERSEDED SURVEY CONTROL
AB2358
AB2358 NAD 83(2007)- 25 24 29.67264(N) 080 31 26.30102(W) AD(2002.00) 0
AB2358 ELLIP H (02/10/07) -23.080 (m) GP(2002.00)
AB2358 NAD 83(1999)- 25 24 29.67270(N) 080 31 26.30111(W) AD( ) 1
AB2358 ELLIP H (12/12/02) -23.064 (m) GP( ) 4 1
AB2358 NAVD 88 (12/12/02) 1.52 (m) 5.0 (f) LEVELING 3
AB2358
AB2358.Superseded values are not recommended for survey control.
AB2358
AB2358.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AB2358.See file dsdata.txt to determine how the superseded data were derived.
AB2358
AB2358_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNJ4787610238(NAD 83)
AB2358
AB2358_MARKER: DD = SURVEY DISK
AB2358_SETTING: 32 = SET IN A RETAINING WALL OR CONCRETE LEDGE
AB2358_SP_SET: WATER GATE HEADWALL
AB2358_STAMPING: PR 16 1979
AB2358_MARK LOGO: FLDEP
AB2358_MAGNETIC: N = NO MAGNETIC MATERIAL
AB2358_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
AB2358+STABILITY: SURFACE MOTION
AB2358_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AB2358+SATELLITE: SATELLITE OBSERVATIONS - April 01, 2015
AB2358
AB2358 HISTORY - Date Condition Report By
AB2358 HISTORY - 1979 MONUMENTED FLDEP

AB2358 HISTORY - 19940913 GOOD FLDEP
AB2358 HISTORY - 20020523 GOOD MAPTEC
AB2358 HISTORY - 20071003 GOOD DEGROV
AB2358 HISTORY - 20081002 MARK NOT FOUND GCT
AB2358 HISTORY - 20150401 GOOD SFLWMD
AB2358
AB2358 STATION DESCRIPTION
AB2358
AB2358'DESCRIBED BY FL DEPT OF ENV PRO 1994 (LGB)
AB2358'MARK IS ABOUT 3.9 MI (6.3 KM) SOUTHWEST OF FLORIDA CITY IN SECTION 3,
AB2358'TOWNSHIP 58 SOUTH, RANGE 38 EAST. TO REACH THE MARK FROM THE
AB2358'INTERSECTION OF U.S. HIGHWAY 1 AND PALM DRIVE (SW. 3 STREET) IN
AB2358'FLORIDA CITY, GO WEST ON PALM DRIVE (STATE ROAD 27, SW. 3 STREET) FOR
AB2358'1.7 MI (2.7 KM) TO THE INTERSECTION OF TOWER ROAD (SW. 192 AVENUE) ,
AB2358'TURN LEFT ON TOWER ROAD (STATE ROAD 27, SW 192 AVENUE) AND GO SOUTH
AB2358'FOR 2.1 MI (3.4 KM) TO THE JUNCTION OF SW. 376 STREET (STATE ROAD 27)
AB2358'ON THE RIGHT, TURN RIGHT ON SW. 376 STREET (STATE ROAD 27) AND GO WEST
AB2358'FOR 1.75 MI (2.82 KM) TO A BRIDGE WITH A WATER CONTROL GATE AND THE
AB2358'MARK ON THE RIGHT, SET FLUSH IN THE NORTHEAST HEADWALL OF THE BRIDGE
AB2358'AND ABOUT LEVEL WITH SW. 376 STREET (STATE ROAD 27) . LOCATED 123.3
AB2358'FT (37.6 M) NORTHWEST OF THE APPROXIMATE CENTERLINE OF SW. 376 STREET
AB2358'(STATE ROAD 27) , 23.3 FT (7.1 M) NORTHEAST OF THE SOUTHWEST EDGE OF
AB2358'THE GATE AND 0.75 FT (22.86 CM) SOUTHWEST OF THE NORTHWEST EDGE OF THE
AB2358'GATE.
AB2358
AB2358 STATION RECOVERY (2002)
AB2358
AB2358'RECOVERY NOTE BY MAPTECH INCORPORATED 2002 (CDP)
AB2358'RECOVERED AS DESCRIBED.
AB2358'
AB2358
AB2358 STATION RECOVERY (2007)
AB2358
AB2358'RECOVERY NOTE BY DEGROVE SURVEYORS INCORPORATED 2007
AB2358'RECOVERED AS DESCRIBED
AB2358
AB2358 STATION RECOVERY (2008)
AB2358
AB2358'RECOVERY NOTE BY GUSTIN, COTHERN, AND TUCKER, I 2008
AB2358'MARK NOT FOUND.
AB2358
AB2358 STATION RECOVERY (2015)
AB2358
AB2358'RECOVERY NOTE BY S FL WATER MGMT DIST 2015
AB2358'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
Elapsed Time = 00:00:02

DATASHEETS Data Sheet Retrieval
The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.
PROGRAM = datasheet95, VERSION = 8.7
1 National Geodetic Survey, Retrieval Date = JUNE 2, 2015
AC1151 **********
AC1151 DESIGNATION - T 316
AC1151 PID - AC1151
AC1151 STATE/COUNTY- FL/MIAMI-DADE
AC1151 COUNTRY - US
AC1151 USGS QUAD - HOMESTEAD (1994)
AC1151
AC1151 *CURRENT SURVEY CONTROL
AC1151 _____
AC1151* NAD 83(1990) POSITION- 25 23 20.84478(N) 080 26 41.25208(W) ADJUSTED
AC1151* NAVD 88 ORTHO HEIGHT - 1.326 (meters) 4.35 (feet) ADJUSTED
AC1151 _____
AC1151 LAPLACE CORR - -3.29 (seconds) DEFLEC12B
AC1151 GEOID HEIGHT - -24.85 (meters) GEOID12B
AC1151 DYNAMIC HEIGHT - 1.324 (meters) 4.34 (feet) COMP
AC1151 MODELED GRAVITY - 978,976.3 (mgal) NAVD 88
AC1151
AC1151 HORZ ORDER - SECOND
AC1151 VERT ORDER - SECOND CLASS 0
AC1151
AC1151.The horizontal coordinates were established by classical geodetic methods
AC1151.and adjusted by the National Geodetic Survey in May 1991.
AC1151.
AC1151.The orthometric height was determined by differential leveling and
AC1151.adjusted by the NATIONAL GEODETIC SURVEY
AC1151.in June 1991.
AC1151
AC1151.The Laplace correction was computed from DEFLEC12B derived deflections.
AC1151
AC1151.The dynamic height is computed by dividing the NAVD 88
AC1151.geopotential number by the normal gravity value computed on the
AC1151.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
AC1151.degrees latitude (g = 980.6199 gals.).
AC1151
AC1151.The modeled gravity was interpolated from observed gravity values.
AC1151
AC1151. The following values were computed from the NAD 83(1990) position.
AC1151
AC1151; North East Units Scale Factor Converg.
AC1151;SPC FL E - 117,059.957 255,867.731 MT 0.99997970 +0 14 17.0
AC1151;SPC FL E - 384,054.21 839,459.38 sFT 0.99997970 +0 14 17.0
AC1151;UTM 17 - 2,808,151.998 555,848.669 MT 0.99963852 +0 14 17.0
AC1151
AC1151! - Elev Factor x Scale Factor = Combined Factor
AC1151!SPC FL E - 1.00000370 x 0.99997970 = 0.99998340
AC1151!UTM 17 - 1.00000370 x 0.99963852 = 0.99964222
AC1151

AC1151 SUPERSEDED SURVEY CONTROL
AC1151
AC1151 NAD 83(1986)- 25 23 20.84391(N) 080 26 41.24949(W) AD( ) 2
AC1151 NAD 27 - 25 23 19.43342(N) 080 26 42.04758(W) AD( ) 2
AC1151 NGVD 29 (??/??/92) 1.791 (m) 5.88 (f) ADJ UNCH 2 0
AC1151 NGVD 29 (07/19/86) 1.79 (m) 5.9 (f) LEVELING 3
AC1151
AC1151.Superseded values are not recommended for survey control.
AC1151
AC1151.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AC1151.See file dsdata.txt to determine how the superseded data were derived.
AC1151
AC1151_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNJ5584808151(NAD 83)
AC1151
AC1151_MARKER: DB = BENCH MARK DISK
AC1151_SETTING: 46 = COPPER-CLAD STEEL ROD W/O SLEEVE (10 FT.+)
AC1151_SP_SET: 12.8 FEET
AC1151_STAMPING: T 316 1970
AC1151_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
AC1151_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AC1151+SATELLITE: SATELLITE OBSERVATIONS - June 15, 2007
AC1151
AC1151 HISTORY - Date Condition Report By
AC1151 HISTORY - 1970 MONUMENTED NGS
AC1151 HISTORY - 1972 GOOD NGS
AC1151 HISTORY - 1972 GOOD NGS
AC1151 HISTORY - 1982 GOOD LOCSUR
AC1151 HISTORY - 1986 GOOD USPSQD
AC1151 HISTORY - 1987 GOOD USPSQD
AC1151 HISTORY - 1987 POOR USPSQD
AC1151 HISTORY - 1988 GOOD USPSQD
AC1151 HISTORY - 1988 GOOD USPSQD
AC1151 HISTORY - 1989 GOOD USPSQD
AC1151 HISTORY - 19901230 GOOD USPSQD
AC1151 HISTORY - 19940813 GOOD USPSQD
AC1151 HISTORY - 20070615 GOOD DCPWD
AC1151
AC1151 STATION DESCRIPTION
AC1151
AC1151'DESCRIBED BY NATIONAL GEODETIC SURVEY 1970
AC1151'3.7 MI SE FROM FLORIDA CITY.
AC1151'ABOUT 3.7 MILES SOUTHEAST ALONG CARD SOUND ROAD FROM THE JUNCTION
AC1151'OF U.S. HIGHWAY 1 AT FLORIDA CITY, BETWEEN THE LANES OF A
AC1151'DRIVEWAY WHICH LEADS SOUTHWEST TO THE FLORIDA ROCK AND SAND CO.,
AC1151'(THE PLANT IS AT 15900 SW 408 TH STREET), 143 FEET SOUTHWEST OF
AC1151'THE CENTER LINE OF THE ROAD, 13 1/2 FEET SOUTHEAST OF THE CENTER
AC1151'LINE OF THE NORTHWEST DRIVE, 1 FOOT NORTHEAST OF A CONCRETE
AC1151'LIGHT POLE, 0.4 FOOT NORTHEAST OF A METAL WITNESS POST, ABOUT
AC1151'LEVEL WITH THE ROAD AND IS A DISK ON THE TOP OF A COPPER COATED
AC1151'STEEL ROD WHICH PROJECTS 2 INCHES ABOVE THE LEVEL OF THE GROUND
AC1151'AND PROTECTED BY A 4 INCH METAL PIPE WHICH PROJECTS 3 INCHES
AC1151'ABOVE THE GROUND. THE ROD WAS DRIVEN TO REFUSAL AT A DEPTH OF
AC1151'12.8 FEET.
AC1151

AC1151 STATION RECOVERY (1972)
AC1151
AC1151'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1972
AC1151'SEE STATION IDA
AC1151
AC1151 STATION RECOVERY (1972)
AC1151
AC1151'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1972
AC1151'RECOVERED IN GOOD CONDITION.
AC1151
AC1151 STATION RECOVERY (1982)
AC1151
AC1151'RECOVERY NOTE BY LOCAL SURVEYOR (INDIVIDUAL OR FIRM) 1982
AC1151'ABOUT 3.7 MILES SOUTHEAST ON CARD SOUND ROAD FROM JUNCTION OF U.S.
AC1151'HWY 1 AT FLORIDA CITY.
AC1151
AC1151 STATION RECOVERY (1986)
AC1151
AC1151'RECOVERY NOTE BY US POWER SQUADRON 1986 (LEM)
AC1151'RECOVERED IN GOOD CONDITION.
AC1151
AC1151 STATION RECOVERY (1987)
AC1151
AC1151'RECOVERY NOTE BY US POWER SQUADRON 1987 (TD)
AC1151'RECOVERED IN GOOD CONDITION.
AC1151
AC1151 STATION RECOVERY (1987)
AC1151
AC1151'RECOVERY NOTE BY US POWER SQUADRON 1987 (LEM)
AC1151'MARK RECOVERED IN POOR CONDITION.
AC1151
AC1151 STATION RECOVERY (1988)
AC1151
AC1151'RECOVERY NOTE BY US POWER SQUADRON 1988 (LEM)
AC1151'RECOVERED IN GOOD CONDITION.
AC1151
AC1151 STATION RECOVERY (1988)
AC1151
AC1151'RECOVERY NOTE BY US POWER SQUADRON 1988 (TD)
AC1151'RECOVERED IN GOOD CONDITION.
AC1151
AC1151 STATION RECOVERY (1989)
AC1151
AC1151'RECOVERY NOTE BY US POWER SQUADRON 1989 (TD)
AC1151'RECOVERED IN GOOD CONDITION.
AC1151
AC1151 STATION RECOVERY (1990)
AC1151
AC1151'RECOVERY NOTE BY US POWER SQUADRON 1990 (LEM)
AC1151'RECOVERED IN GOOD CONDITION.
AC1151
AC1151 STATION RECOVERY (1994)
AC1151
AC1151'RECOVERY NOTE BY US POWER SQUADRON 1994

AC1151'RECOVERED IN GOOD CONDITION.
AC1151
AC1151 STATION RECOVERY (2007)
AC1151
AC1151'RECOVERY NOTE BY DADE COUNTY PUBLIC WORKS DEPARTMENT 2007 (MJW)
AC1151'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
Elapsed Time = 00:00:06

FIELD NOTES

3121237.07		SFWMD C-111 LIDAR	J. FRIEND
129707 M601		SET ATs	CLANTON
			B. JONES
		BASE @ EG2 HI = 4.50	
GPS#		DESC	
10500		CHN DA 124 RESET D=0.058 F=0.019'	
10000A	T3	FOUND NAIL & DISK PLS CANT READ NUMBER	
10501 - 10508		AC1 (ASPH)	
10509 - 10516		AC2 (ASPH)	
10001A	T9	SET MAG NAIL + GPS TRAV DISK LB7055	
10517A - 10524A		AC3 (ASPH)	
10002A	T10	FOUND SMALL PK NAIL NO ID	
10525A - 10532A		AC4 (ASPH)	
10533A - 10540A		AC5 (ASPH)	
10003A	T8	IRC SET 5/8" GPS/TRAV LB7055 (+0.06')	
10541A - 10549A		AC6 (Rock)	
10550A - 10557A		AC7 (Rock)	

85°P.C. 30 MAR 2015 MON FB# 5866 1/6

3121297.07 SFWMD C-111 LIDAR J. FRIEND
129707 SF01 SET AT T. CLANTON
B. JONES

BASE @ EG 2 HI: 4.38

GPS#		DESC
10558		CHK PB116 D=0.091' F=0.043'
10004A	T7	IRC SET 5/8" GPS TRAV LB7055 (+0.13' FROM MAP TO TOP TARGET)
10559A - 10567A		AC8 (ROCK RD)
10005A	T6	IRC SET 5/8" GPS TRAV LB7055 (+0.13')
10568A - 10576A		AC9 (ROCK RD)
10006A	T1	IRC SET 5/8" GPS TRAV LB7055 (+0.13')
10577A - 10585A		AC10 (ROCK RD)
10007A	T2	SET MAG NAIL & GPS TRAV DWK LB7055
10586A - 10593A		AC11 (ASPH)
10594A - 10601A		AC12 (ROCK)
10008A	T4	IRC SET 5/8" GPS TRAV LB7055 (+0.13')
10602A - 10610A		AC13 (ROCK)
10009A	T5	SET MAG NAIL & GPS TRAV DWK LB7055
10611A - 10618A		AC14 (ASPH)

85° P.C. 31 MARCH 2015 FB# 586/1

3121297.07 SFWMD C-111 LIDAR J. FRIEND

BENCHRUN FROM EG2 NORTH TO PR16 (NAVD88) T. CLANTON

B. JONES

Bm	BS	DIST BK	FS	DIST FR	ELEV	(NAVD88) ADJ ELEV
EG2 (1)	2.661	245				9.11
586-8-1 (2)	5.169	250'	6.757	246'	5.014 4,911	5.015
586-8-2 (3)	4.967	254'	5.447	253'	4.736 4,944	4.738
586-8-3 (4)	4.077	255'	5.049	254'	4.654	4.657
586-8-4 (5)	4.714	248'	4.478	254'	4.253' 2,011	4.258
586-8-5 (6)	5.559	251'	3.810	247'	5.157 2,506	5.163
586-8-6 (7)	4.185	250'	4.823	250'	5.893 3,007	5.900
586-8-7 (8)	3.784	253'	4.444	246'	5.634 3,523	5.642
586-8-8 (9)	4.573	250'	4.444	255'	4.974 4,011	4.983
586-8-9 (10)	4.999	247'	3.538	252'	6.009 4,518	6.019

87° P.C. 2APRIL 2015 FB# 586 1/3

DESC

SET NAIL & T/T N. EP SW 392ND ST (ENGRAHM HWY)

" " " " " " "

SET NAIL & T/T N. of SW 392ND ST, 60' ± E. OF ℄ SW 224TH AVE (GRAVEL)

SET NAIL & T/T N. EP SW 392ND ST

SET MAG NAIL & GPS/TRAV DISK LB 7055 N. EP SW 392ND ST; 325' ± W. OF SW 222ND AVE (GRAVEL)

SET NAIL & T/T N. EP SW 392ND ST, 175' ± E. of SW 222ND AVE

SET NAIL & T/T N EP SW 392ND ST

SET MAG NAIL & GPS/TRAV DISK LB 7057 N. EP SW 392ND ST

SET NAIL & T/T N. EP SW 392ND ST

3121297.07 SFWMD C-111 LIDAR BENCH RUN CONT

JF
TC
BJ (NAVD88)

Bm	BS	Dist BK	FS	Dist FR	ELEV	ADJ ELEV
586-B-10 (11)	4.378	252'	4.867	255'	6,141 5,015	6,153
10002 (12)	4.668	213'	4.185	212'	6,334 5,479	6,347
586-B-11 (13)	5.547	249'	4.918	218'	6,084 5,910	6,098
586-B-12 (14)	4.764	246'	4.720	246'	6,911 6,405	6,926
586-B-13 (15)	4.626	251'	4.682	249'	6,993 6,900	7,009
586-B-14 (16)	4.716	251'	5.209	248'	6,410 7,399	6,427
586-B-15 (17)	4.972	233'	5.283	248'	5,843 7,398	5,861
586-B-16 (18)	4.577	249'	5.290	231'	5,525 8,362	5,544
586-B-17 (19)	5.679	253'	4.310	250'	5,792 8,861	5,812
586-B-18 (20)	4.172	249'	4.789	250'	6,682 9,369	6,704

24 APRIL 2015 FB# 586/9

DESC

SET NAIL & T/T NEP SW 392nd ST

FOUND SMALL P/K NAIL NO ID @ I SW 392nd ST & SW 217th AVE

SET MAG NAIL & GPS/TRAV DISK LB7055 NEP SW 392nd ST 220' ± W. OF ℄ 215th AVE

SET NAIL & T/T NEP SW 392nd ST; 275' ± E. OF ℄ 215th AVE

SET NAIL & T/T NEP SW 392nd ST; 100' ± E. OF ℄ SW 214th AVE

SET MAG NAIL & GPS/TRAV DISK LB7055 NEP SW 392nd ST.

SET NAIL & T/T NEP SW 392nd ST; 255' ± W. OF ℄ SW 212th AVE

SET NAIL & T/T NEP SW 392nd ST; 209' ± E. OF ℄ SW 212th AVE

SET MAG NAIL & GPS/TRAV DISK LB7055 NEP SW 392nd ST

SET NAIL & T/T NEP SW 392nd ST; 130' ± W. OF ℄ SW 209th AVE

3121292.07 SFWMD C-111 LIDAR JF

BENCH RUN CONT TC

BJ

(NAVD88)

Bm	BS	DIST BK	FS	DIST FR	ELEV	ADJ ELEV
586-8-19 (21)	4.331	252'	4.352	247'	6.502 9,863	6.525
586-8-20 (22)	5.446	253'	4.873	251'	5.960 10,363	5.984
586-8-21 (23)	3.981	253'	4.964	244'	6.442 10,860	6.467
586-8-22 (24)	3.426	254'	4.153	243'	6.270 11,361	6.296
586-8-23	5.377	80'	3.432	242'	6.264 11,857	6.291
EG1	3.590	79'	4.619	77'	7.027 12,014	7.050
PR16			5.657	82'	4.952 12,175	4.980

2 APRIL 2015 FB# 586 1/10

DESC

SET NAIL & T/T N.EP SW 392ND ST; 846 ± E. OF ℄ SW 209TH AVE

SET MAG NAIL & CR/TRAV DISK LB 7055 N.EP SW 392ND ST.

SET NAIL & T/T N.EP SW 392ND ST; N. SIDE N. ASPH DWY ADDRESS "38801"

SET NAIL & T/T N.EP SW 392ND ST

SET MAG NAIL & CR/TRAV DISK LB 7055 N.EP SW 392ND ST; 96 ± W. OF W. END BRIDGE # 870058

FOUND FLORIDA SHD DISK "EG1" TOP CONC CURB NW COR BRIDGE # 870058 EL= 7.01

FOUND

EL= 4.98

$0.03\sqrt{2.306} = 0.046$ ALLOWABLE ERROR

-0.028 ACTUAL ERROR

3121297.07
1297075F01

JFWMD C-111 LIDAR
2nd OBS ON ATs

J. FRIEND
T. CLANTON
B JONES

BASE @ PR16 HI: 7.66

GB#	DESC
10619	CHK EG2 D=0.044 C=0.075'
10006B	CHK 10006A D=0.084' V=0.008'
10578-10585B	CHKS
10005B	CHK 10005A D=0.091' V=0.011'
10568B-10576B	CHKS
10002B	CHK 10002A D=0.055 V=0.002'
10003B	CHK 10003A D=0.068 V=0.009'
10007B	CHK 10007A D=0.032 V=0.018
10000B	CHK 10000A D=0.090' V=0.000'
10008B	CHK 10008A D=0.075' V=0.073'
10004B	CHK 10004A D=0.052 V=0.061'
10559B-10567B	CHKS
*10001B	CHK 10001A D=0.088 V=0.256'
*10009B	CHK 10009A D=0.101' V=0.258'

84° P.C.

3 APRIL 2015
FRIDAY

FB# 5806/11

3121297.07 SFWMD C-111 LIDAR J. FRIEND
1297075F01 SET CONTROL FOR GROUND TRUTHING T. CLANTON
B JONES

BASE@ EG2 HI: 4.46

GPS #	DESC
10009A2	CHK 10009B D= 0.064' V= 0.031'
10620	CHK T316 D= 0.030' V= 0.007'
10010A	SET MAG NAIL & GPS TRAV DISK LB 7055
10011A	" " " " " " " "
10621	CHK H504 EL= 9.51 F-EL= 9.54
10012A	SET MAG NAIL & GPS TRAV DISK LB 7055
10013A	" " " " " " " "
10622	CHK PR16 D= 0.116 C= 0.312'
X10001A2	CHK 10001A D= 0.059 V= 0.023 CHK 10001B D=

* *

870 P.C. 6 APRIL 2015 MON FB# 586/12

0.094 V= 0.233'

3121129 7.07
1297075F01

SFWMD C-111 LIDAR
SET CONTROL FOR GROUND TRUTHING

J. FRIEND
T. CLANTON
B. JONES

BASE @ EG2 HI: 4.46

GPS#	DESC
10623	CHK PR16 D: 0.071 V: 0.031
10014A	IRC SET 5/8" GPS TRAV LB7055
10015A	" " " " " " "
10016A	FOUND MAG NAIL & DISK NO ID
10017A	PIP FOUND 1" ℄I SW 384th ST & SW 214th AVE
10018A	IRC SET 5/8" GPS TRAV LB7055
10019A	" " " " " " "
10020A	" " " " " " "
10021A	" " " " " " "
10022A	" " " " " " "
10023A	" " " " " " "
10024A	" " " " " " "
10624	CHK 10002 D: 0.096 V: 0.03'

85°F P.C.

7 APRIL 2015
TUES

FB# 586/13

3121297.07 JFWMD C-111 LIDAR JF
129707 JF01 SET CONTROL FOR GROUND TRUTH WG TC
BJ

BASE @ PR16 HI: 7.66

GPS#	DESC
10012B	CHK 10012A D= 0.098 V=0.056
10025B	IRC SET 5/8" GRS TRAV LS7055
10001B2	CHK 10001A D= 0.072' V= 0.044'
10010B	CHK 10010A D= 0.092 V= 0.079'
*10011B	CHK 10011A D= 0.144 V= 0.265
10014B	CHK 10014A D= 0.088 V= 0.002'
10015B	CHK 10015A D= 0.064' V= 0.060'
10625B	X MED VEG
10626B	X MED VEG
10627B	X MED VEG

7 APRIL 2015 FB# 586/14

SEMI TRAILER PARKED OVER 10013

3121297.07 JFWMD C-111 LIDAR
1291075F01 SET CONTROL CONT

J. FRIEND
T. CLANTON
B. JONES

8 APRIL 2015 FB# 586/15

BASE @ PR16 HI: 7.66

*10016B	CHK 10016A	D=0.077'	V=0.111'
10017B	CHK 10017A	D=0.088'	V=0.092'
10020B	CHK 10020A	D=0.093	V=0.033
10021B	CHK 10021A	D=0.082	V=0.042
10018B	CHK 10018A	D=0.077'	V=0.032'
10019B	CHK 10019A	D=0.077'	V=0.023'
10022B	CHK 10022A	D=0.095'	V=0.029'
10023B	CHK 10023A	D=0.094'	V=0.032'
10024B	CHK 10024A	D=0.087'	V=0.038

BASE @ EG2 HI=4.66

10000B	CHK 10000A	D=0.087'	V=0.097'
10011A2	CHK 10011B	D=0.072'	V=0.081'
10016A2	CHK 10016B	D=0.085'	V=0.037'
10025A	CHK 10025B	D=0.016'	V=0.012'
10625A	CHK 10625B	D=0.072'	V=0.055'
10626A	CHK 10626B	D=0.053'	V=0.062'
10627A	CHK 10627B	D=0.020'	V=0.015'
10628	CHK PR16	D=0.043'	V=0.063'

3121297,07
1297075F01

SFWMD C-111 LIDAR
GROUND TRUTHING SHOTS

JF
JC
BV

T@ 10019A HI = 5.49
BS 10018A HR = 5.20 HD = 0.004' V = 0.010'

FS	DESC
10629	X UNOB
10630	X UNOB
10631	X LOW VEG
10632	X LOW VEG
10633	X UNOB
10634	X HIGH VEG
10635	X MED VEG
10636	X HIGH VEG
10637	X MED VEG
10638	X LOW VEG
10639	X MED VEG
10640	X HIGH VEG
10641	X MED VEG
10642	X HIGH VEG

8 APRIL 2015 FB# 586/16

T@ 10018A HI = 5.51
BS 10019A HR = 5.13 HD = 0.001 V = 0.007'

GPS#	DESC
10643	X LOW VEG
10644	X UNOB
10645	X UNOB
10646	X MED VEG
10647	X MED VEG
10648	X LOW VEG
10649	X MED VEG
10650	X LOW VEG

T@ 10020A HI = 5.58
BS 10021A HR = 5.48 HD = 0.042 V = 0.064'

10651	X UNOB
10652	" "
10653	" "
10654	X LOW VEG
10655	X HIGH VEG
10656	" " "
10657	X MED VEG
10658	X HIGH VEG

3121297.07 SFWMD C-111 LIDAR JF
129107 SF01 GROUND TRUTHING SHOTS TC
BJ

TC @ 10017A HI = 5.50
BJ 10016A2HR = 4.78 HD = 0.021 V = 0.058

FS	DESC
10659	X HIGH VEG
10660	X HIGH VEG
10661	X LOW VEG
10662	X UNOB
10663	X UNOB
10664	X LOW VEG
10665	X MED VEG
10666	X MED VEG
10667	X MED VEG
10668	X UNOB
10669	X UNOB
10670	X LOW VEG
10671	X MED VEG
10672	X UNOB
10673	X LOW VEG
10674	X HIGH VEG
10675	X HIGH VEG
10676	X LOW VEG
10677	X UNOB
10678	X HIGH VEG
10679	X MED VEG
10680	X LOW VEG
10681	X UNOB
10682	X UNOB
10683	X LOW VEG
10684	X HIGH VEG

8 APRIL 2015 FB# 5386/17

Pt#	DESC
10685	X HIGH VEG
10686	X LOW VEG
10687	X HIGH VEG
10688	X UNOB

3121129107 | SFWMD C-111 LIDAR | J. FRIEND
129107 SF01 | GROUND TRUTHING SHOTS | T. CLANTON
B. JONES

86° P.C. 9 APRIL 2015 THURS FB# 586/18

⊼ @ 10013A HI=5.48
BS 100142 HR=5.48 HD=0.011' V=0.082'

SS	DESC
10689	X UNOB
10690	X MED VEG
10691	X MED VEG
10692	X MED VEG
10693	X HIGH VEG
10694	X HIGH VEG
10695	X UNOB
10696	X LOW VEG
10697	X LOW VEG
10698	X UNOB
10699	X UNOB
10700	X MED VEG
10701	X LOW VEG
10702	X HIGH VEG
10703	X LOW VEG
10704	X MED VEG
10705	X MED VEG

3121297.07
1297075F01

SFWMD C-111 LIDAR
GROUND TRUTHING SHOTS

J.F
TC
BJ

T/ @ 10012A HI = 5.47
BS 10025A HR = 5.40 HD = 0.048 V = 0048

FS	DESC
10706	X UNOB
10707	X LOW VEG
10708	X UNOB
10709	X HIGH VEG
10710	X LOW VEG
10711	X UNOB
10712	X HIGH VEG
10713	X MED VEG
10714	X LOW VEG
10715	X UNOB
10716	X LOW VEG
10717	X HIGH VEG

* PT#S 10625 - 10627 MED VEG LOCATED W/ GPS IN THIS AREA

9 APRIL 2015

FB# 586 / 19

T/ @ 10025A HI: 5.57
BS 10012A HR: 5.15 HD: 0.045 V: 0.066

FS	DESC
10718	CHK 10013A S: 0.048 L: 0.026 E: 0.009
10719	X UNOB
10720	X MED VEG
10721	X UNOB
10722	X LOW VEG
10723	X UNOB
10724	X UNOB
10725	X LOW VEG
10726	X HIGH VEG
10727	X LOW VEG
10728	X HIGH VEG
10729	X LOW VEG
10730	X HIGH VEG
10731	X HIGH VEG
10732	X LOW VEG
10733	X HIGH VEG

31211297.07
129707JF01

JFWMD C-111 LIDAR
GROUND TRUTHING SHOTS

JF
TC
BJ

T@ 10022A HI: 5.52'
BS 10023A HR: 5.43' HD: 0.047' V: 0.120

FS	DESC
10734	X MED VEG
10735	X LOW VEG
10736	X HIGH VEG
10737	X UNOB
10738	X HIGH VEG
10739	X HIGH VEG
10740	X MED VEG
10741	X LOW VEG
10742	X UNOB
10743	X UNOB
10744	X LOW VEG
10745	X MED VEG
10746	X UNOB
10747	X LOW VEG
10748	X UNOB
10749	X HIGH VEG
10750	X HIGH VEG
10751	X HIGH VEG
10752	X UNOB
10753	X MED VEG
10754	X UNOB
10755	X UNOB

9 APRIL 2015

FB# 5836 / 120

T@ 10024 HI: 5.55
BS 10023 HR: 3.43 HD: 0.139' V: 0.029

FS	DESC
10756	X UNOB
10757	X MED VEG
10758	X HIGH VEG
10759	X LOW VEG
10760	X LOW VEG
10761	X HIGH VEG
10762	X LOW VEG
10763	X UNOB

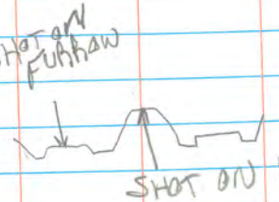
3121297.07
129707SF01

SFWMD C-111 LIDAR
GROUND TRUTHING SHOTS

JF
TL
BJ

T@ 100144 HI = 5.09
BS 100154 HR = 5.18 HD = 0.015 V = 0.039'

FS	DESC
10764	X UNOB
10765	X LOW VEG
10766	X UNOB
10767	X LOW VEG
10768	X HIGH VEG
10769	X MED VEG
10770	X LOW VEG
10771	X LOW VEG
10772	X MED VEG HOLE
10773	X LOW VEG TOP BED
10774	X LOW VEG TOP BED
10775	X MED VEG HOLE
10776	X HIGH VEG
10777	X HIGH VEG
10778	X HIGH VEG
10779	X LOW VEG
10780	X LOW VEG
10781	X UNOB
10782	X UNOB
10783	X MED BED
10784	X LOW FURROW



9 APRIL 2015 FB# 586 1/21

T@ 100153 HI = 5.51
BS 100143 HR = 5.27 HD = 0.020 V = 0.086

FS	DESC
10785	X UNOB
10786	X UNOB
10787	X LOW VEG
10788	X HIGH VEG MOUND
10789	X LOW VEG FURROW
10790	X HIGH BED
10791	X UNOB
10792	X MED VEG BED
10793	X LOW VEG FURROW
10794	X MED VEG HOLE

3121/297.07 SFWMD C-111 LIDAR JF
129707SF01 GROUND TRUTHING SHOTS JC
BJ

TI @ 10011A2 HI: 5.44
BS 10010A HR: 4.76 HD: 0.023 V: 0.071

FS	DESC
10795	X HIGH VEG
10796	X HIGH VEG
10797	X UNOB
10798	X UNOB
10799	X UNOB
10800	X UNOB
10801	X LOW VEG
10802	X UNOB
10803	X MED VEG
10804	X HIGH BED
10805	X LOW FURROW
10806	X UNOB
10807	X MED VEG
10808	X LOW VEG

9 APRIL FB# 586 /22

4-13-15 4-15-15 SFWMD 90°PC

MENDOZA
MATHISON
HART

AK 5
WELL SITE

SET PRECISION ROD ±8' INTO GROUND @ REFUSAL W/STANDARD NGS LOGOCAP STAMPED AK5 2015

	HI	−	ELEV	DESC
+ FINGER✓ 3.11	9.457		6.347	10002 Aerial Target 10
		5.04	4.417	NOTCH @ SOUTH EDGE OF PVC WELL
		4.60	4.857	NG 10810
		5.56	3.897	✓TO IR PNT 10026 BM AK-5

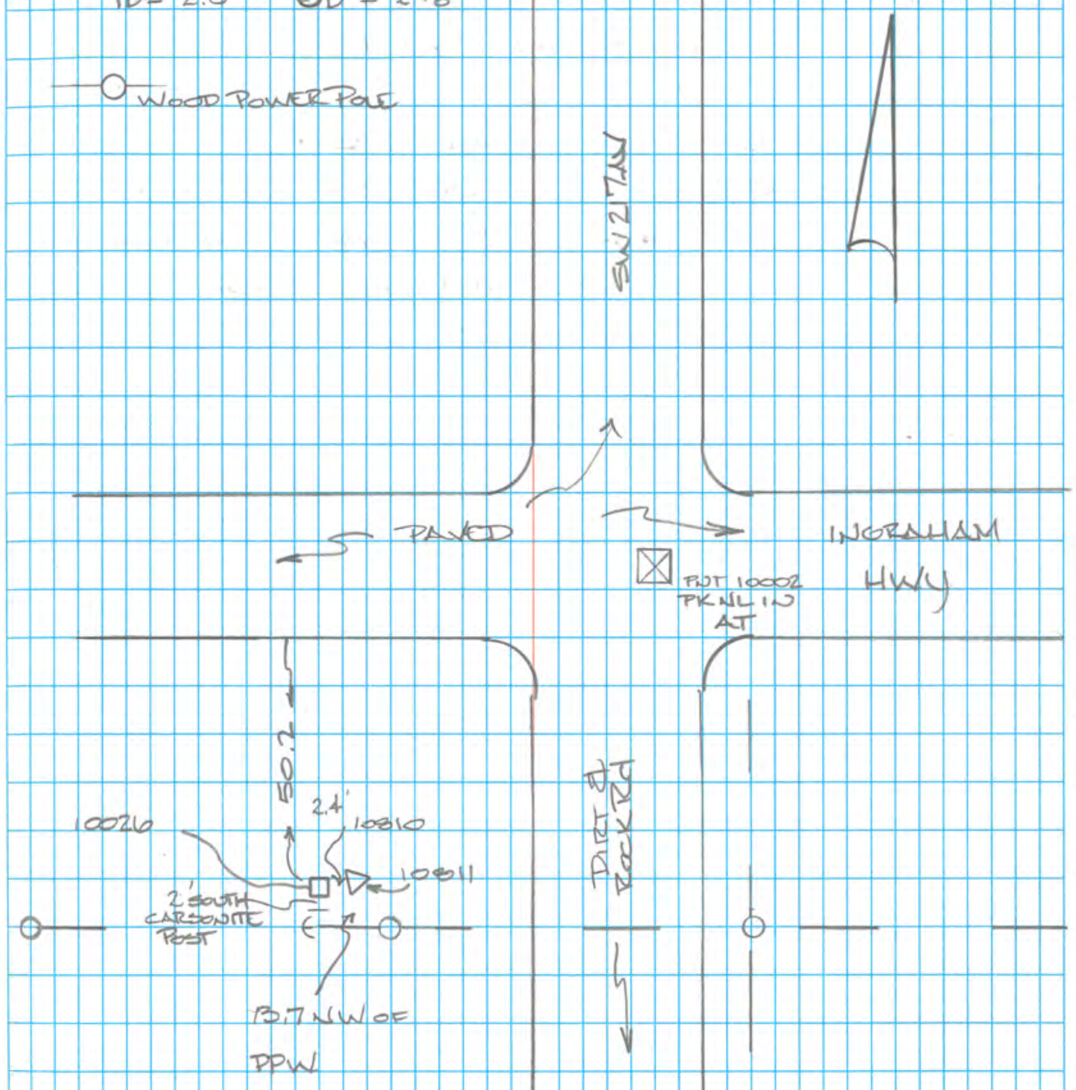
DTW CUT 4.46 TO H_2O FROM NOTCH 9:18 AM 4-15-15

31211297.07 586/23

□ SET SITE BM

△ = EXISTING PVC WELL
ID = 2.0" OD = 2 3/8"

—○— WOOD POWER POLE



4-13-15 4-15-15 SEWMD 90°PC

MENDOZA ΔK 6

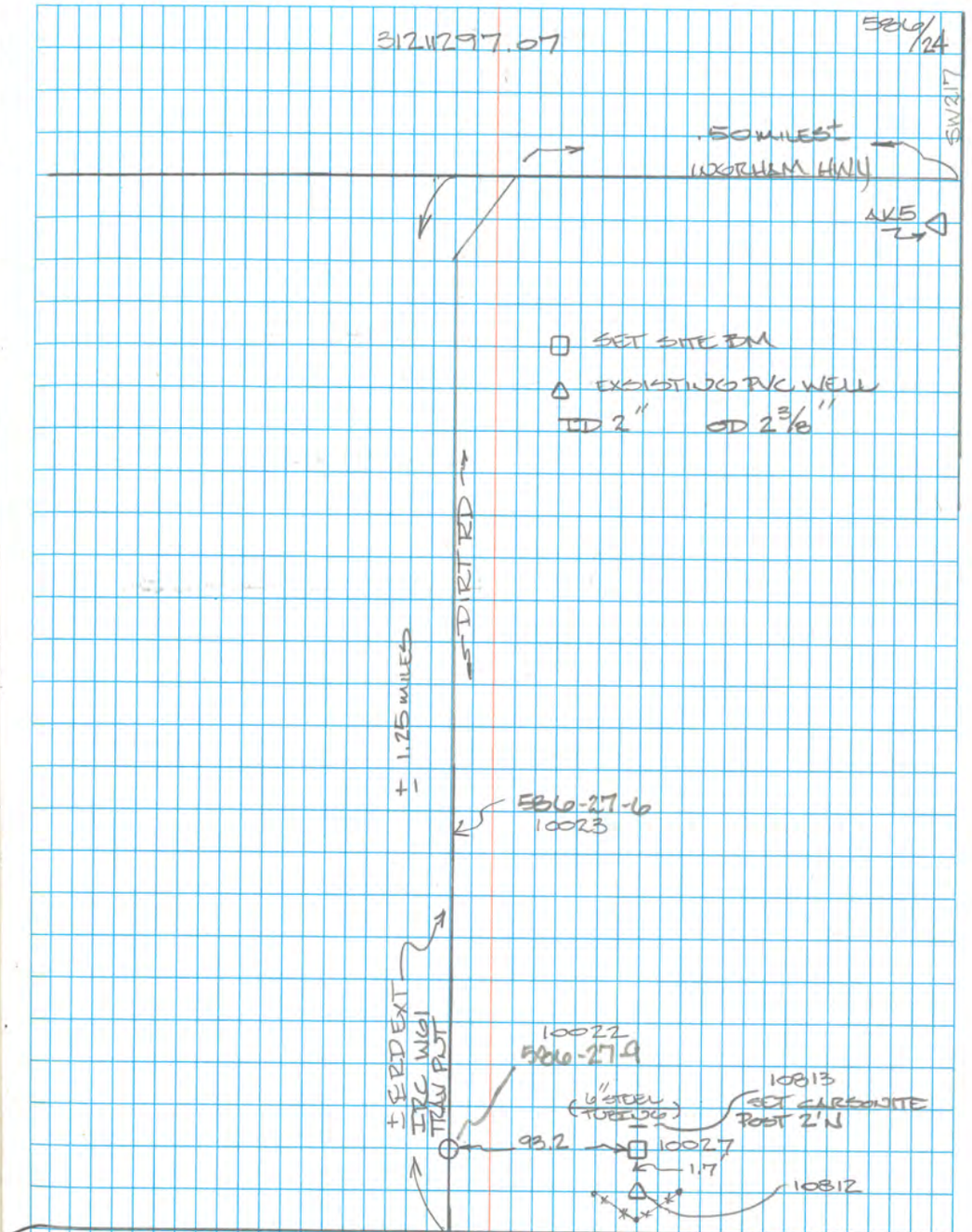
MATHESON WELL SITE

HART

SET PRECISION ROD TO REFUSAL @ 6' W/STANDARD NGS 1000 CAP STAMPED ΔK 6, 2015

+ FV	HI	-	ELEV/DESC
4.880	10.1446		5.2646 10027 ΔK6 SITE BM
		FV ✓ 4.40	5.7446 NG @ CARSONITE POST
		FV ✓ 4.980	5.1646 NOTCH @ SOUTH EDGE OF WELL PVC
FV ✓ 5.02	BROKE SET UP 10.1846		
		FV ✓ 4.915	5.271 √NG @ ΔK6 SITE BM

DTW CUT 5.28 TO H^2O FROM NOTCH @ 10:18 AM 4-15-15



4-13-15 4-15-15 SFWMD

VC 1

MENDOZA

MATHISON

HART

4-14-15
PEG TEST

4.587	99.7	⊼ 100.1	5.869
4.990	9.90	⊼ 190.0	6.276

ERROR 0.001
NO ADJ

SET PRECISION ROD TO REFUSAL @ 3.5' W/STANDARD NGS LOGO CAP STAMPED VC1,2015

+	HI	-	ELEV	DESC
4.78	8.923		4.143	10029 VC1 SITE BM
		4.23	4.693	NO @ ~~CARSON SITE ROOF~~
		4.47	4.453	NOTCH @ WEST EDGE OF PVC WELL
BROKE SETUP				
4.66	9.113			

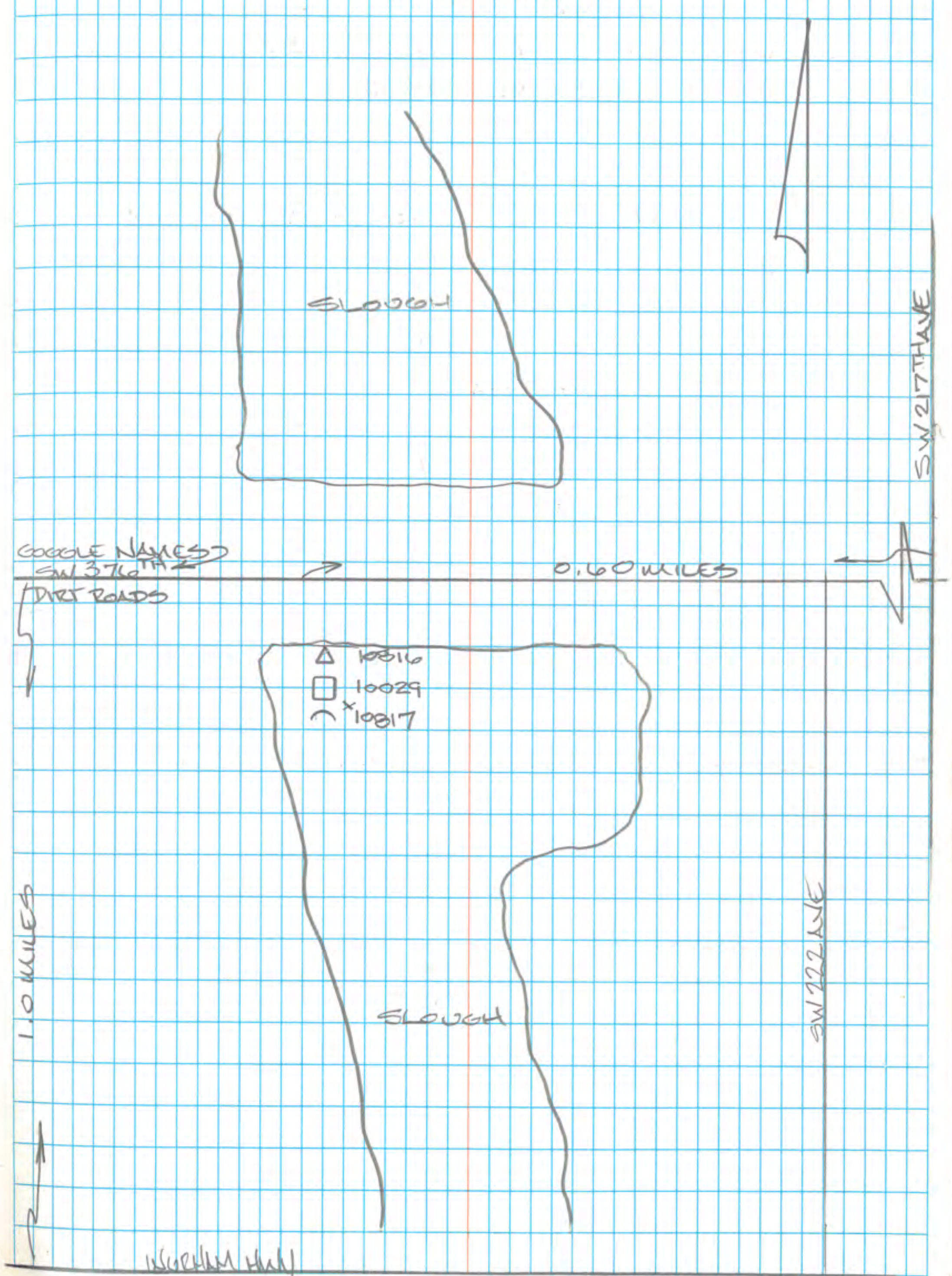
DTW (4.25 CUT) TO H_2O FROM NORTH @ 12:18 AM 4.15.15

+	HI	-	ELEV	DESC
		4.97	4.143	10029 √IN @ SITE BM

31211297.07

580/25

DL17



4-13-15 4-15-15 SFWMD 85°F

MENDOZA

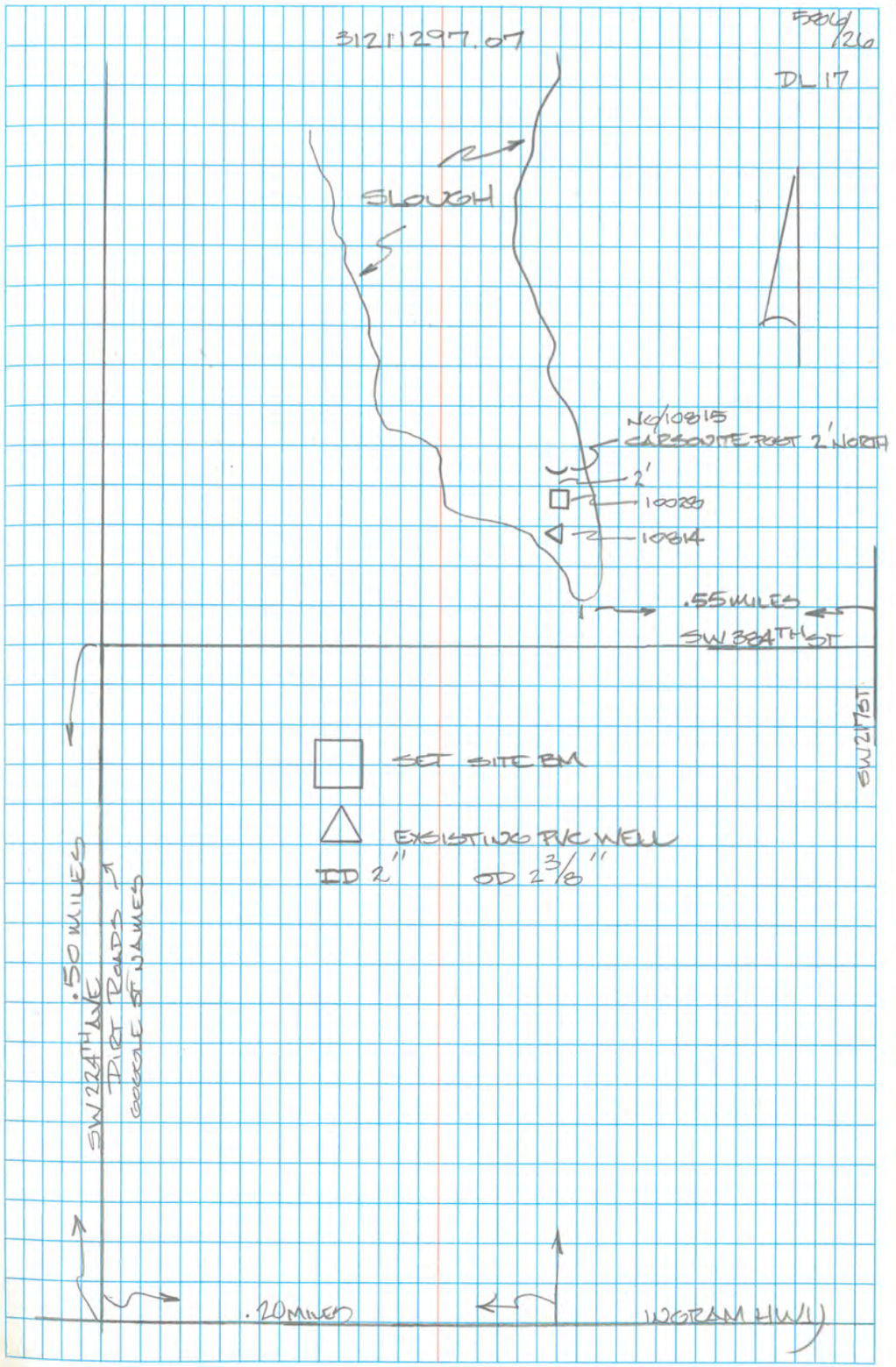
MATHEWS

HART

SET PRECISION ROD 11' TO REFUSAL W/ STANDARD NGS LOGO CAP STAMPED VC2 2015

+	HI	-	ELEV DESC
5.11	7.975		2.865 100280 VC2 SITE BM
		4.28	3.695 NG @ CARSONITE POST
		4.71	3.265 NOTCH @ SOUTH EDGE OF PVC WELL
	BROKE/SETUP		
4.89	8.155		
		5.29	2.865 VW @ 100280

DTW CUT 3.07 TO H_2O FROM NOTCH @ 11:17 AM 4-15-15



4.14.15 SFWMD 85°PC

MENDOZA
MATHISON
HART

LEVELING THRU SITE BM'S

{NOTE PEG TEST ON PG 23}

BS RH	BS DIST	FS RH	FS DIST	ELEV	ADJ ELEV	DESC
{DL FILE AK5}					6.347	PNT10002
2.977	67.5					
		5.427	60.9	3.897		IR
5.587	181.6					
		3.327	184.5	6.157	6.153	NL & TAB
DL FILE AK6					5.163	
5.263	240.4					
		5.587	241.9	4.839		586-27-1
5.154	260.2					
		5.532	261.6	4.461		586-27-2
5.542	253.4					
		5.634	252.8	4.369		586-27-3
4.870	257.5					
		5.615	262.0	3.624		586-27-4
5.196	242.1					
		5.322	239.1	3.498		586-27-5
5.635	183.7					
		5.274	169.5	3.859		586-27-6
5.365	242.3					
		4.964	241.1	4.260		586-27-7
5.222	249.9					
		4.236	247.5	5.246		586-27-8
5.375	165.8					
		5.301	175.7	5.320		586-27-9
4.851	46.9					
		4.902	46.1	5.269		586-27-10 IR

2142.2

31211297.07 586/27

DL17

PRECISION ROD DRIVEN TO REFUSAL @ 8' IN STANDARD NGS LOGO CAP STAMPED AK5 2015

586-8-10

586-8-5

" SET NL & WEST SIDE OF DIRT Rd HEADING TOWARDS WELL AK6 "
GOOGLE EARTH Rd NAME IS SW 222ND AVE TYPICAL

{10023}
FND IRC LB7055 GPS TRAV PNT LIDAR PAIR REF PG 24

" EAST SIDE OF Rd "

" "

FND IRC LB7055 GPS TRAV PNT LIDAR PAIR REF PG 24 {10022}

PRECISION ROD SET TO REFUSAL @ 6' IN STANDARD NGS LOGO CAP STAMPED AK6 2015
REF PG 24

4.14.15
MCWDOLL
MATHISON
HART

SFWMD

LEVEL LINE @ AK16 CONT

BS RH	BS DIST	FS RH	FS DIST	ELEV	ADJ ELEV	DESC
				5.219		5816-27-10
5.496	195.7					
		5.515	1606.2	5.250		5816-28-11
4.219	257.3					
		5.198	240.0	4.271		5816-28-12
4.935	226.6					
		5.340	256.6	3.866		* 5816-28-13
5.423	179.4					
		5.785	174.1	3.504		5816-28-14
5.135	235.8					
		5.000	245.3	3.631		5816-28-15
5.334	244.2					
		4.585	255.3	4.380		5816-28-16
5.680	253.4					
		5.585	252.6	4.475		5816-28-17
5.185	262.1					
		4.807	259.7	4.853		5816-28-18
5.42	223.5					
		4.360	252.0	5.905	5.900	√ INC

3121297.07

5816/28

DL17

NL ON DIRT RD TYP

5816-8-16

4.14.15
MENDOZA
MATHISON
HART

SF WMD
LEVELING TO
VC1 & VC2

95°PC

BS RH	BS DIST	FS RH	FS DIST	ELEV	ADJ ELEV	DESC
					4.738	586-B-2
3.941	238.3					
		4.744	235.1	3.935		586-29-1
5.025	261.7					
		4.933	256.7	4.027		586-29-2
5.211	257.7					
		4.842	260.3	4.396		586-29-3
4.554	260.1					
		4.679	260.1	4.271		586-29-4
4.813	252.7					
		4.905	250.2	4.179		586-29-5
4.881	262.3					
		4.916	257.9	4.144		586-29-6
4.802	241.1					
		4.753	240.4	4.193		586-29-7
4.804	240.7					
		4.757	240.7	4.300		586-29-8
5.041	237.8					
		5.199	240.8	4.142		586-29-9
4.495	267.6					
		5.258	263	3.309		586-29-10
4.636	263.0					
		4.831	259.4	3.114		586-29-11
4.210	126.6					
		3.19	123.0	4.133		586-29-12
3.788	247.3					
		5.135	240.2	2.786		586-29-13

312.1297.07

586/29

S/W VITO STRANDO LAND OWNER. HE STATED THERE WAS NO PROBLEMS W/US CONDUCTING OUR SURVEYS & IF WE NEEDED ANYTHING TO CALL CELL (305)-986-3546

SET NL ON WEST SIDE OF DIRT RD HEAD TOWARDS VC1 & 2 RD ± .20 MILES WEST OF WELLS TYPICAL

SET HUB IN FIELD

SET IR PRECISION ROD TO REFUSAL @ 3.5 W/ STANDARD NGS LOGO CAP CAP STAMPED VC1

SET HUB ON WEST SIDE OF SLOUGH HEAD IN SOUTH TYPICAL

4.14.15 SFWMD 85°PC

MENDOZA

MATHISON

HART

VC1, VC2 LEVELING CONT

BS RH	BS DIST	FS RH	FS DIST	ELEV	ADJ ELEV	DESC
				2.7806		586-29.13
3.978	237.3					
		4.291	240.2	2.473		586-30-14
4.481	242.5					
		4.791	241.6	2.163		586-30-15
4.810	249.7					
		4.251	246.3	2.722		586-30-16
4.351	250.4					
		4.840	251.1	2.233		586-30-17
5.335	181.0					
		4.716	177.1	2.850		586-30-18
4.469	233.8					
		4.675	233.8	2.644		586-30-19
4.752	239.3					
		4.551	237.7	2.845		586-30-20
5.234	251.6					
		4.861	247.9	3.218		586-30-21
4.253	248.8					
		4.319	249.7	3.152		586-30-22
5.116	252.3					
		4.361	250.9	3.907		586-30-23
4.227	115.4					
		2.991	132.1	5.143	5.163	586-8-5

312112 97.07 586/30

DL 17

SET HUB WEST SIDE OF SLOUGH

" "

" "

" "

" "

SET IR PRECISION ROD TO REFUSAL @ 11' W/STANDARD NGS LOGO

CAP STAMPED VC2, 2015

SET HUB IN FIELD

✓ING @ 586-8-5

4-15-15
MENDOZA
MATHISON
HART

GPS SHOTS @ WELLS

BASE 3 @ EG02 H1534
ROVER #30 GRX1 HR 6.7¾

STK	STO	REF	DESC
10002A	10809		⌀0.030 E0.079 C0.004
			AK5
	10026 A/B	23	SET IR AK5
	10810		& RIM COVER @ AK5 WELL (12½" ID 5½" WIDTH RIM TYPICAL)
	10811		NG
			AK6
	10027 A/B	24	SET IR AK6
	10812		& RIM COVER @ AK6 WELL
	10813		NG
			VC2
	10028 A/B	26	SET IR VC2
	10814		& RIM COVER @ VC2 WELL
	10815		NG
			VC1
	10029 A/B	25	SET IR VC1
	10816		& RIM COVER @ VC1 WELL
	10817		NG
10021A	10818		S0.074 W0.0660 E0.007

3121297.07

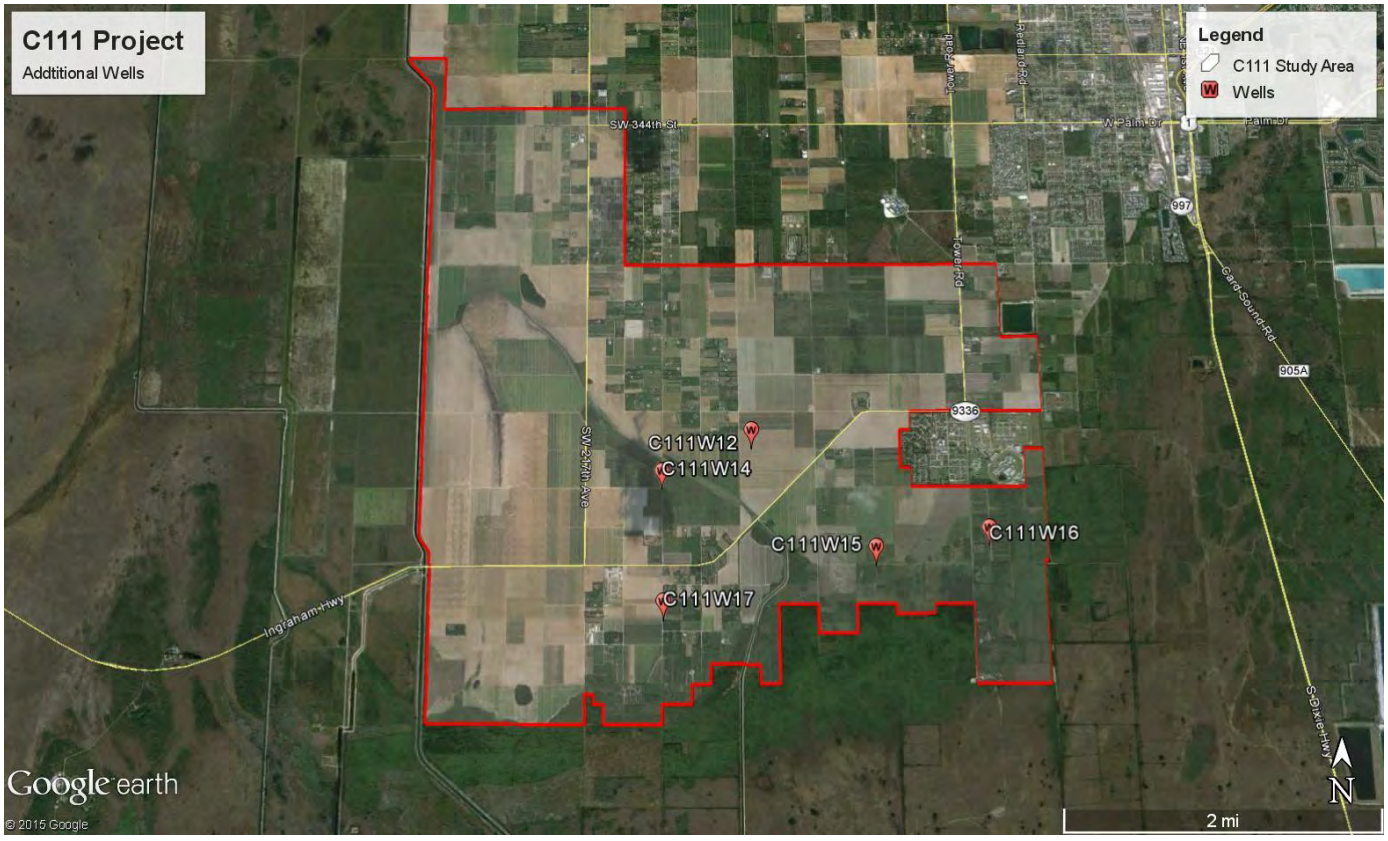
5846/31

GPS30
BASE3
DL17

REVISION 2

ADDITIONAL WELL SITES LOCATION MAP

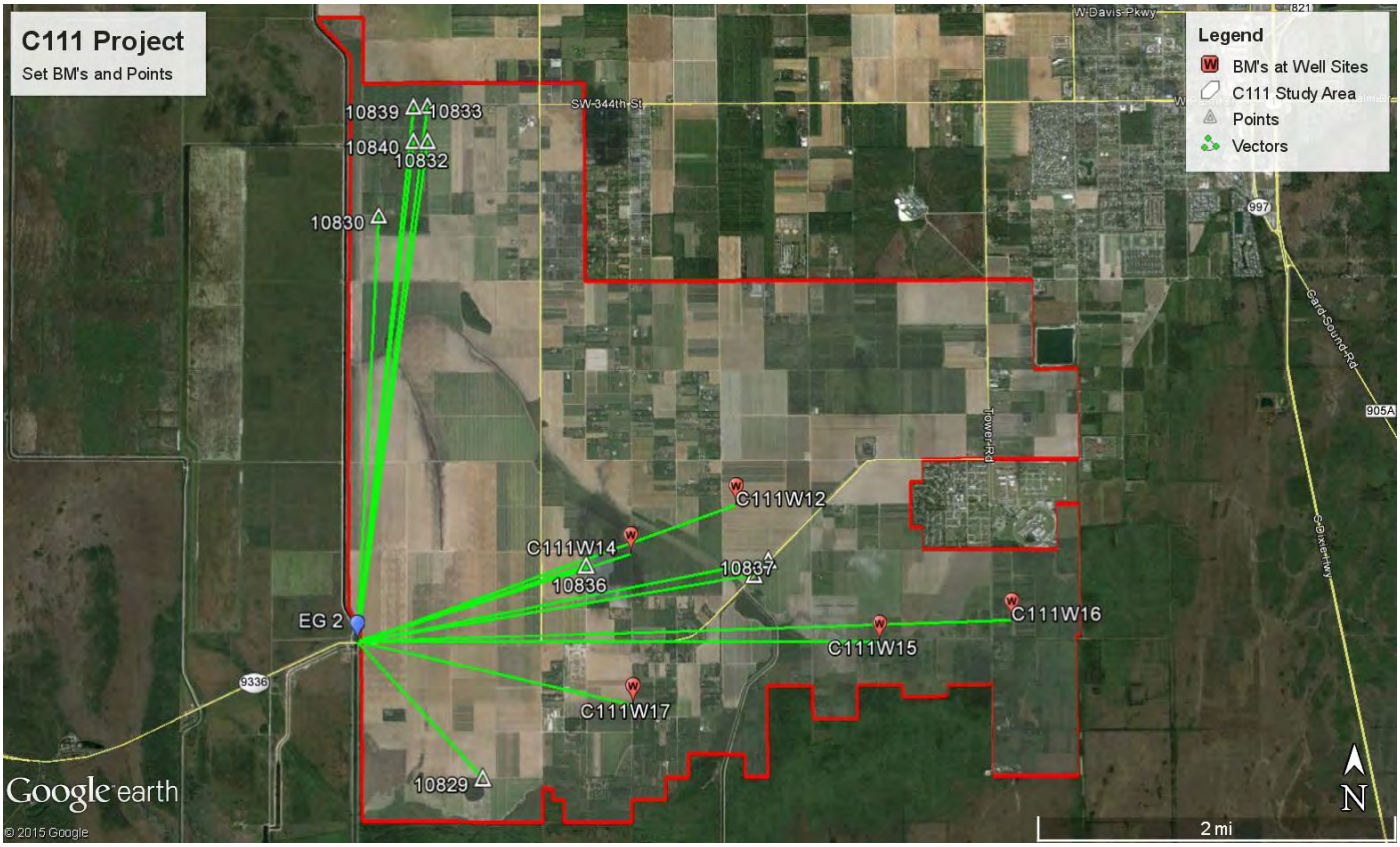
Additional Well Sites Location Map



REVISION 2

ADDITIONAL GPS NETWORK

ADDITIONAL SITES GPS NETWORK MAPS



ADDITIONAL C111 WELL SITES CONTROL

Point #	Lat.	Long.	Northing	Easting	Elev.	Desc.
10820	25°24'38.85508"	-80°32'01.11691"	391817.51	810098.62	7.563	IR P14
10821	25°24'53.09423"	-80°31'27.11205"	393266.01	813211.35	4.13	IR P12
10822	25°24'13.11164"	-80°30'40.58545"	389245.02	817491.94	1.75	IR P15
10823	25°24'19.64895"	-80°29'57.89925"	389919.48	821403.54	2.32	IR P16
10827	25°23'54.81705"	-80°32'00.34710"	387371.95	810184.74	4.222	IR P17
10829	25°23'33.75311"	-80°32'48.84928"	385230.16	805744.42	4.9	IRC GPS TRAV
10830	25°26'18.05173"	-80°33'23.62096"	401806.02	802500.69	3.72	IRC GPS TRAV
10832	25°26'40.32832"	-80°33'07.87825"	404059.76	803936.23	3.48	IRC GPS TRAV
10833	25°26'50.77945"	-80°33'07.99820"	405114.8	803921.7	3.98	IRC GPS TRV
10836	25°24'35.55311"	-80°32'15.47280"	391479.59	808783.51	6.54	NL D WGI
10837	25°24'32.83819"	-80°31'21.23681"	391223.01	813757.34	5.37	IRC GPS TRAV
10838	25°24'37.04998"	-80°31'16.63963"	391649.71	814177.33	4.94	IRC GPS TRAV
10839	25°26'50.52843"	-80°33'12.56616"	405088.06	803503.08	3.85	IRC GPS TRAV
10840	25°26'40.34867"	-80°33'12.50014"	404060.39	803512.57	3.62	IRC
EG2	25°24'13.19494"	-80°33'29.56498"	389199.45	801997.54	9.11	EG2

REVISION 2

WELL AS-BUILT DATA SHEETS

Well Site: C111W12 GW

Party Chief: Jose Mendoza	**Field Book Number:** 586	**Page Number:** 44A
Benchmark Elevation (NAVD 88): 4.13	**Date of Field Work:** July 31, 2015	**Datum Offset to NGVD 29:** N/A
Benchmark Agency: SFWMD	**Benchmark Type:** Precision Rod w/Sleeve	**Benchmark Stamp:** P12 2015
Reference Elevation (NAVD88): Removable Cap "A" = 4.505 (stamped on tag) Rim of Cap "B" = 4.57 (see pic #4)		**Natural Ground:** Adjacent Elevations Near Well Range from 4.5 to 4.6
Latitude: 25.4147484		**Longitude:** -080.5241978

Photographs:

Pic#1:

Pic#2:

Pic#3 3Ft:

Pic#3 10Ft:

Well Site: C111W12 GW

Continued

Pic#4:

Pic#5:

Pic#6 3Ft:

Pic#6 10Ft:

Pic#7:

1. A Picture looking down (top view) at the open well.
2. A picture looking down at the well head (with a ruler on it).
3. An oblique picture of the well approximately 3 feet and one at 10 feet from the well head.
4. A picture of the well and reference points A & B.
5. A picture looking down (Top view) of the benchmark disk.
6. An oblique picture of the benchmark at approximately 3 feet and on at 10 feet from the benchmark
7. A picture of the Brass Tag.

Well Site: C111W14

Party Chief: Jose Mendoza	**Field Book Number:** 586	**Page Number:** 46
Benchmark Elevation (NAVD 88): 7.563	**Date of Field Work:** July 31, 2015	**Datum Offset to NGVD 29:** N/A
Benchmark Agency: SFWMD	**Benchmark Type:** Precision Rod w/Sleeve	**Benchmark Stamp:** P14 2015
Reference Elevation (NAVD88): Removable Cap "A" = 8.472 (stamped on tag) Rim of Cap "B" = 8.53 (see pic #4)		**Natural Ground:** Adjacent Elevations Near Well Range from 8.6 to 8.7
Latitude: 25.4107931		**Longitude:** -080.5336436

Photographs:

Pic#1:

Pic#2:

Pic#3 3Ft:

Pic#3 10Ft:

Well Site: C111W14

Continued

Pic#4:

Pic#5

Pic#6 3Ft:

Pic#6 10Ft:

Pic#7:

1. A Picture looking down (top view) at the open well.
2. A picture looking down at the well head (with a ruler on it).
3. An oblique picture of the well approximately 3 feet and one at 10 feet from the well head.
4. A picture of the well and reference points A & B.
5. A picture looking down (Top view) of the benchmark disk.
6. An oblique picture of the benchmark at approximately 3 feet and on at 10 feet from the benchmark
7. A picture of the Brass Tag.

Well Site: C111W15

Party Chief: Jose Mendoza	**Field Book Number:** 586	**Page Number:** 41
Benchmark Elevation (NAVD 88): 1.75	**Date of Field Work:** July 31, 2015	**Datum Offset to NGVD 29:** N/A
Benchmark Agency: SFWMD	**Benchmark Type:** Precision Rod w/Sleeve	**Benchmark Stamp:** P15 2015
Reference Elevation (NAVD88): Removable Cap "A" = 3.66 (stamped on tag) Rim of Cap "B" = 3.72 (see pic #4)		**Natural Ground:** Adjacent Elevations Near Well Range from 2.2 to 2.3
Latitude: 25.4036427		**Longitude:** -080.5112661

Photographs:

Pic#1:

Pic#2:

Pic#3 3Ft:

Pic#3 10Ft:

Well Site: C111W15

Continued

Pic#4:

Pic#5

Pic#6 3Ft:

Pic#6 10Ft:

Pic#7:

1. A Picture looking down (top view) at the open well.
2. A picture looking down at the well head (with a ruler on it).
3. An oblique picture of the well approximately 3 feet and one at 10 feet from the well head.
4. A picture of the well with the reference points.
5. A picture looking down (Top view) of the benchmark disk.
6. An oblique picture of the benchmark at approximately 3 feet and on at 10 feet from the benchmark
7. A picture of the brass tag.

Well Site: C111W16

Party Chief: Jose Mendoza	**Field Book Number:** 586	**Page Number:** 40
Benchmark Elevation (NAVD 88): 2.32	**Date of Field Work:** July 31, 2015	**Datum Offset to NGVD 29:** N/A
Benchmark Agency: SFWMD	**Benchmark Type:** Precision Rod w/Sleeve	**Benchmark Stamp:** P16 2015
Reference Elevation (NAVD88): Removable Cap "A" = 2.72 (stamped on tag) Rim of Cap "B" = 2.79		**Natural Ground:** Adjacent Elevations Near Well Range from 2.7 to 2.9
Latitude: 25.4054591		**Longitude:** -080.4994094

Photographs:

Pic#1:

Pic#2:

Pic#3 3Ft:

Pic#3 10Ft:

Well Site: C111W16

Continued

Pic#4:

Pic#5

Pic#6 3Ft:

Pic#6 10Ft:

Pic#7:

1. A Picture looking down (top view) at the open well.
2. A picture looking down at the well head (with a ruler on it).
3. An oblique picture of the well approximately 3 feet and one at 10 feet from the well head.
4. A picture of the well with the Brass Tag and reference points.
5. A picture looking down (Top view) of the benchmark disk.
6. An oblique picture of the benchmark at approximately 3 feet and on at 10 feet from the benchmark
7. A picture of the Brass Tag.

Well Site: C111W17

Party Chief: Jose Mendoza	**Field Book Number:** 586	**Page Number:** 45A
Benchmark Elevation (NAVD 88): 4.222	**Date of Field Work:** July , 2015	**Datum Offset to NGVD 29:** N/A
Benchmark Agency: SFWMD	**Benchmark Type:** Precision Rod w/Sleeve	**Benchmark Stamp:** P17 2015
Reference Elevation (NAVD88): Removable Cap "A" = 4.508 (stamped on tag) Rim of Cap "B" = 4.569 (see pic#4)		**Natural Ground:** Adjacent Elevations Near Well Range from 4.8 to 4.9
Latitude: 25.3985595		**Longitude:** -080.5334007

Photographs:

Pic#1:

Pic#2:

Pic#3 3Ft:

Pic#3 10Ft:

Well Site: C111W17

Continued

Pic#4:

Pic#5

Pic#6 3Ft:

Pic#6 10Ft:

Pic#7:

1. A Picture looking down (top view) at the open well.
2. A picture looking down at the well head (with a ruler on it).
3. An oblique picture of the well approximately 3 feet and one at 10 feet from the well head.
4. A picture of the well with the Brass Tag and reference points.
5. A picture looking down (Top view) of the benchmark disk.
6. An oblique picture of the benchmark at approximately 3 feet and on at 10 feet from the benchmark
7. A picture of the Brass Tag.

REVISION 2

BENCH RUN ADJUSTMENT SHEETS

Closure Report for file C:\Users\Brennan.Mosciski\Desktop\150727_jose.lev

Job No.	: 1297.07
Benchmark No.	: C432
Starting BM Elev.	: 7.080
Ending BM Elev.	: 4.980 (PR16)
Unadjusted Ending Elev.	: 5.004
Closure Error	: 0.024
Length of Level Run	: 21,149.400
Allowable Error	: 0.060
Units	: Feet
Datum	: NAVD88

Closure is within allowable tolerances

Adjustment proportional to total distance

Pt.#	Unadj. Elev.	Adj. Elev.	Description
C432	7.080		
36-1	4.943	4.942	
36-2	4.930	4.929	
36-3	3.756	3.754	
36-4	3.003	3.001	
36-5	2.967	2.964	
36-6	3.387	3.384	
36-7	3.156	3.152	
36-8	2.927	2.922	
36-9	3.183	3.178	
36-10	3.175	3.170	
37-11	2.877	2.871	
37-12	2.323	2.317	
37-13	2.854	2.848	
37-14	3.177	3.170	
37-15	3.066	3.059	
37-16	3.342	3.334	
37-17	3.572	3.564	
37-18	3.127	3.118	
37-19	3.266	3.257	
37-20	3.067	3.057	
37-21	2.618	2.607	
37-22	2.802	2.791	
37-23	1.755	1.744	
38-24	2.785	2.773	
38-25	2.392	2.380	
38-26	2.635	2.622	

38-27	2.472	2.459	
38-28	3.049	3.035	
38-29	2.624	2.610	
38-30	2.950	2.935	
38-31	2.638	2.622	
38-32	3.623	3.607	
38-33	7.417	7.400	
38-34	7.564	7.547	
38-35	6.380	6.362	
42-36	4.519	4.501	
42-37	4.855	4.836	
42-38	4.934	4.914	
42-39	4.681	4.661	
42-40	4.151	4.130	
42-41	4.978	4.957	
42-42	3.907	3.885	
42-43	5.167	5.145	
42-44	3.532	3.509	
42-45	3.674	3.651	
42-46	4.696	4.672	
42-47	5.004	4.980	PR16

Closure Report for file C:\Users\Brennan.Mosciski\Desktop\7-28-15_Jose.lev
SFWMD Bench runs for well BM's at P14 and P17
J. Mendoza E. Pryor R. Miller

Field Book & Page	: 586/43-44
Job No.	: 1297.07
Benchmark No.	: 586-8-15 ADJ
Starting BM Elev.	: 5.861
Ending BM Elev.	: 5.544 (586-8-16 ADJ)
Unadjusted Ending Elev.	: 5.524
Closure Error	: -0.020
Length of Level Run	: 9,201.200
Allowable Error	: 0.040
Units	: Feet
Datum	: NAVD88

Closure is within allowable tolerances

Adjustment proportional to total distance

Pt.#	Unadj. Elev.	Adj. Elev.	Description
8-15	5.861		
43-1	4.855	4.856	
43-2	4.658	4.660	
43-3	4.727	4.730	
43-4	5.111	5.115	
43-5	4.217	4.222	
43-6	5.111	5.116	
43-7	4.727	4.733	
43-8	4.654	4.661	
43-9	4.850	4.858	
43-10	5.311	5.320	
43-11	5.882	5.892	
43-12	6.197	6.208	
44-13	7.155	7.167	
44-14	8.139	8.152	
44-15	7.549	7.563	
44-16	8.135	8.150	
44-17	7.149	7.165	
44-18	6.189	6.206	
44-19	5.872	5.890	
44-20	5.300	5.319	
8-16	5.524	5.544	

Reference file 129707 Org ADJ 4-2-15.pdf for the adjusted run from which this run is adjusted to.

REVISION 2

WELL SITE BENCH MARKS

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 8/07

DESIGNATION C111W12 2015	**PROJECT** C111 LiDAR AND WELL SITES
ESTABLISHED BY WANTMAN GROUP **RECOVERED BY**	**SURVEYOR** Derek Zeman **DATE** JULY 27, 2015

GEOGRAPHIC POSITION

SECTION 3	**TOWNSHIP** 58S	**RANGE** 38E
COUNTY Miami-Dade	**NAME OF QUADRANGLE** Royal Palm Ranger Station	

HORIZONTAL DATUM: **1927** (**1983**) **Other**_____ (circle one) ZONE (**E**) or **W**

VERTICAL DATUM: MSL 1929 (1988) Other _____ **(circle one)**

CONTROL ACCURACY: HORIZONTAL 1 2 (3) _____(circle one) **VERTICAL 1 2 (3)**

STATE PLANE COORDINATES	**X** 813211.3537	**Y** 393266.0099	**NAVD 88 ELEV.** 4.13 **NGVD 29 ELEV.** _____

LATITUDE 25.4147484	**LONGITUDE** -080.5241978

RECOVERY DESCRIPTION

Stamping: P12 2015

To Reach: From the intersection of Tower Rd and Ingraham Hwy head west along Ingraham Hwy for 1.1 miles. Turn left onto SW 380th St and head West for .5 miles. Mark is on the left, 1' north of a carsonite witness post. Set precision rod with PVC sleeve and lid.

Notable Land marks: Well P12

FIELD BOOK 586 **PAGE** 42

SKETCH

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 8/07

DESIGNATION C111W14 2015	**PROJECT** C111 LiDAR AND WELL SITES
ESTABLISHED BY WANTMAN GROUP **RECOVERED BY**	**SURVEYOR** Derek Zeman **DATE** JULY 27, 2015

GEOGRAPHIC POSITION

SECTION 4	**TOWNSHIP** 58S	**RANGE** 38E
COUNTY Miami-Dade	**NAME OF QUADRANGLE** Royal Palm Ranger Station	

HORIZONTAL DATUM: **1927** (**1983**) **Other**_____ (circle one) ZONE (**E**) or **W**

VERTICAL DATUM: MSL 1929 (1988) Other _____ **(circle one)**

CONTROL ACCURACY: HORIZONTAL 1 2 (3) _____(circle one) **VERTICAL 1 2 (3)**

STATE PLANE COORDINATES	**X** 810098.6232	**Y** 391817.5119	**NAVD 88 ELEV.** **7.563** **NGVD 29 ELEV.** _____

LATITUDE 25.4107931	**LONGITUDE** -080.5336436

RECOVERY DESCRIPTION

Stamping: P14 2015

To Reach: From the intersection of Tower Rd and Ingraham Hwy head west along Ingraham Hwy for 2.4 miles. Turn right onto SW 212th Ave and head North for .5 miles. Mark is on your right, 1' North of a carsonite witness post. Set precision rod with PVC sleeve and lid.

Notable Land marks: Well P14

FIELD BOOK 586 **PAGE** 44

SKETCH

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 8/07

DESIGNATION C111W15 2015	**PROJECT** C111 LiDAR AND WELL SITES
ESTABLISHED BY WANTMAN GROUP **RECOVERED BY**	**SURVEYOR** Derek Zeman **DATE** JULY 22, 2015

GEOGRAPHIC POSITION

SECTION 10	**TOWNSHIP** 58S	**RANGE** 38E
COUNTY Miami-Dade	**NAME OF QUADRANGLE** Royal Palm Ranger Station	

HORIZONTAL DATUM: **1927** (**1983**) **Other**_____ (circle one) ZONE (**E**) or **W**

VERTICAL DATUM: MSL 1929 (1988) Other _____ **(circle one)**

CONTROL ACCURACY: HORIZONTAL 1 2 (3) _____(circle one) **VERTICAL 1 2 (3)**

STATE PLANE COORDINATES	**X** 817491.9441	**Y** 389245.0167	**NAVD 88 ELEV.** 1.75 **NGVD 29 ELEV.** _____

LATITUDE 25.4036421	**LONGITUDE** -080.5112737

RECOVERY DESCRIPTION

Stamping: P15 2015

To Reach: From the intersection of Tower Rd and Ingraham Hwy head west along Ingraham Hwy for 1.1 miles and turn left onto SW202nd Ave. Head South for .7 miles and turn left onto SW 392ns St. Head East for .4 miles. Mark is on your right, 6.5' North of a carsonite witness post. Set precision rod with PVC sleeve and lid.

Notable Land marks: Well P15

FIELD BOOK 586 **PAGE** 38

SKETCH

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 8/07

DESIGNATION C111W16 2015	**PROJECT** C111 LiDAR AND WELL SITES
ESTABLISHED BY WANTMAN GROUP **RECOVERED BY**	**SURVEYOR** Derek Zeman **DATE** JULY 22, 2015

GEOGRAPHIC POSITION

SECTION 2	**TOWNSHIP** 58S	**RANGE** 38E
COUNTY Miami-Dade	**NAME OF QUADRANGLE** Homestead	

HORIZONTAL DATUM: **1927** (**1983**) **Other**_____ (circle one) ZONE (**E**) or **W**

VERTICAL DATUM: **MSL** **1929** (**1988**) **Other** _____ (circle one)

CONTROL ACCURACY: **HORIZONTAL** **1** **2** (**3**) _____(circle one) **VERTICAL** **1** **2** (**3**)

STATE PLANE COORDINATES	**X** 821403.5415	**Y** 389919.4813	**NAVD 88 ELEV.** 2.32 **NGVD 29 ELEV.** _____

LATITUDE 25.4054591	**LONGITUDE** -080.4994094

RECOVERY DESCRIPTION

Stamping: P16 2015

To Reach: From the intersection of Tower Rd and Ingraham Hwy head South along Tower Rd for .9 miles and take a left onto a dirt road. Head East for .1 miles. Mark is on your right, 4.9' North of a carsonite witness post. Set precision rod with PVC sleeve and lid.

Notable Land marks: Well P16

FIELD BOOK 586 **PAGE** 37

SKETCH

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 8/07

DESIGNATION C111W17 2015	**PROJECT** C111 LiDAR AND WELL SITES
ESTABLISHED BY WANTMAN GROUP **RECOVERED BY**	**SURVEYOR** Derek Zeman **DATE** July 27, 2015

GEOGRAPHIC POSITION

SECTION 9	**TOWNSHIP** 58S	**RANGE** 38E
COUNTY Miami-Dade	**NAME OF QUADRANGLE** Royal Palm Ranger Station	

HORIZONTAL DATUM: **1927** (**1983**) **Other**_____ (circle one) ZONE (**E**) or **W**

VERTICAL DATUM: **MSL** **1929** (**1988**) **Other** _____ (circle one)

CONTROL ACCURACY: **HORIZONTAL** **1** **2** (**3**) _____(circle one) **VERTICAL** **1** **2** (**3**)

STATE PLANE COORDINATES	**X** 810184.7379	**Y** 387371.9528	**NAVD 88 ELEV.** **4.222** **NGVD 29 ELEV.** _____

LATITUDE 25.3985603	**LONGITUDE** -080.5334298

RECOVERY DESCRIPTION

Stamping: P17 2015

To Reach: From the intersection of Tower Rd and Ingraham Hwy head West along Ingraham Hwy for 2.4 miles. Turn left onto SW 212th Ave and head South for .3 miles. Mark is on your left, 1.2' West of a carsonite witness post. Set precision rod with PVC sleeve and lid.

Notable Land marks: Well P17

FIELD BOOK 586 **PAGE** 43

SKETCH

REVISION 2

FIELD NOTES

8-19-15
G. Williams
S. Donohue
R. Miller

SFWMD

SHOOT RIM OF WELLS

+	HT	−	ELEV.	DESC.
			3.896	AK-5 2015
7.04	10.936			
		6.14	4.796	NORTH/SOUTH
		6.14	4.796	EAST/WEST
	AK-6		5.266	AK-6 2015
4.57	9.836			
		4.24	5.596	NORTH/SOUT
		4.24	5.596	EAST/WEST
	VC-1		4.143	VC-1 2015
4.56	8.703			
		4.09	4.613	NORTH/SOUTH
		4.09	4.613	EAST/WEST
	VC-2		2.865	VC-2
5.04	7.905			
		4.25	3.655	NORTH/SOUTH
		4.25	3.655	EAST/WEST

3121297.07
1020

6/02/21
Bk#9

LEVEL 21

HELD STRING LINE ACROSS WELL RIM (WELL AK-5)

AK-6

VC-1

VC-2

7-21-15 SFWMD 90° C10
MENDOZA C-111 LIDAR RAIN
NUNEZ & WELL
ALVAREZ

SITE ID	RODS SET TO REFUSAL	CAP DEPTH BELOW WG
P12	3.5	
P14	8.0	
P17	10.0	
7-22-15	~~7.0~~	
SAME		
P16	13.4	
P15	7.0	

3121297.07 FB 36/35

7-22-15 SFWMD 90° C10

MENDOZA LEVELING FOR

NUNEZ P16, P15 & P12

ALVAREZ PEG TEST

4.616 a		100.1	A	99.7	b 5.308
4.793 a	10.2	B		190.0	b 5.495

ERROR 0.003

NO ADJ

BS RH	BS DIST	FS RH	FS DIST	ELEV	ADJ ELEV	DESC
					7.08	AB 2356 C432
2.569	238.0					
		4.706	240.4		4.943	586-36-1
4.847	251.7					
		4.860	252.1		4.930	586-36-2
5.085	254.3					
		6.259	251.2		3.756	586-36-3
4.164	254.4					
		4.917	252.7		3.003	586-36-4
4.54	244.6					
		4.577	243.5		2.967	586-36-5
5.467	250.8					
		5.047	251.1		3.387	586-36-6
4.793	260.0					
		5.024	260.8		3.156	586-36-7
5.012	259.1					
		5.241	260.5		2.927	586-36-8
5.279	253.5					
		5.023	253.1		3.183	586-36-9
4.708	143.6					
		4.716	143.1		3.175	586-36-10
	2410		2408.5			

DL FILE 7 22 15 312 11297 07 586/36

DL17

SET NL & TABS @ W/ E/P OF SW 192ND AVE (TOWER RD) HEADING SOUTH {TYPICAL}

" " ± 230' SOUTH OF ENTRANCE TO DADE & HOMESTEAD CORRECTIONAL

" "

" " ± 15' N OF NW RETURN OF SW 384 ST.

" "

" "

" "

" " NL +/- .40 MILES SOUTH OF SW 384 ST JUST NORTH OF ROCK

DRIVE TO P-16

SET NL @ ℄ DRIVE TO P-16

7-22-15 SFWMD 90° C10

MENDOZA LEVELING CONT

NUNEZ

ALVAREZ

BS RH	BS DIST		FS RH	FS DIST	ELEV	ADJ ELEV	DESC
					3.175		586-36-10
4.644	209.9						
			4.942	213.9	2.877		586-37-11
4.769	49.6						
			5.323	42.7	2.323	2.32	10823 586-37-12
5.396	42.9						
			4.865	49.5	2.854		586-37-13
4.960	208.3						
			4.637	215.5	3.177		586-37-14
4.807	248.0						
			4.918	249.3	3.066		586-37-15
4.954	239.3						
			4.678	241.1	3.342		586-37-16
5.036	255.5						
			4.806	254.3	3.572		586-37-17
4.835	252.9						
			5.280	251.5	3.127		586-37-18
4.824	251.1						
			4.685	253.8	3.266		586-37-19
4.759	251.4						
			4.958	251.0	3.067		586-37-20
4.753	258.9						
			5.202	260.6	2.618		586-37-21
5.230	253.0						
			5.046	254.7	2.802		586-37-22
4.712	42.2						
			5.759	47.6	1.755		586-37-23
	2563			2585.5			

31211297.07 586/37

DL 17

SET NL

P-16

SET IR TO REFUSAL @ 13.4' ± 2.4' WEST OF ℄ NEW WELL P16 & 5.9' N OF 6' FNC COR.

{INROUTE TO P-15}

SET NL

SET NL

SET NL @ W E/P OF SW 192ND AVE ± 260 SOUTH OF DRIVE TO P16

TYP

{SET NL @ N E/P} OF SW 392 ST ± 210' WEST OF ℄ SW 192ND AVE

" "

" "

" " ± 30' E OF A STEEL GATE ON SOUTH SIDE OF ROAD

" --

" --

B15 SEE NEXT PG

7-22-15 SFWMD 90°c10

MENDOZA
NUNEZ
ALVAREZ

LEVELING CONT

BS RH	BS DIST		FS RH	FS DIST	ELEV	ADJ ELEV	DESC
					1.755	1.75	586-37-23
5.675	110.3						
			4.645	103.8	2.785		586-38-24
4.921	251.2						
			5.214	256.8	2.392		586-38-25
5.179	255.0						
			4.936	249.6	2.635		586-38-26
4.923	253.4						
			5.086	249.3	2.472		586-38-27
5.039	255.1						
			4.462	258.4	3.049		586-38-28
4.700	244.9						
			5.125	249.9	2.624		586-38-29
5.244	252.0						
			4.918	251.3	2.950		586-38-30
5.067	256.4						
			5.379	254.2	2.638		586-38-31
5.494	251.4						
			4.509	252.7	3.623		586-38-32
6.818	253.5						
			3.024	255.8	7.417		586-38-33
5.549	245.9						
			5.402	252.3	7.564		586-38-34
3.558	262.3						
			4.742	207.5	6.380 vs 6.362		586-38-35
	2891.4			2841.6			

312|297.07 586/38

DL17

P-15

SET IR TO REFUSAL @ 7.0' ± 2.5 WEST OF 4"x4" METAL CASING FOR WELL P-15 & ± 6.3' NNE OF NW CORNER OF CONC PILE
" BACK TO NL'S TYPICAL HEADING WEST "

" SET NL @ ℄ OF DIRT & ROCK RD ± 45' W OF WEST END OF PAVED RD

" "

" " ± 300' E OF INTERSECTION OF 392 ST & SW 202ND AVE

SET NL ± 270' N OF INT ABOVE @ ℄ OF SW 202ND AVE

" "

" "

" ± 150' SOUTH OF MIDDLE DRIVEWAY @ 38601/202ND AVE W/2 GATES

" "

REF 552 #4 pg 36 TP 7

STOPPED THUNDER STORMS

7-24-15
7-23-15 SFWMD 90°clo

MENDOZA ~~LEVELING CONT~~

NUNEZ LOCATE BM & TOPO CONTROL

ALVAREZ

GPS28/GR3
SET BASE @ EG2 HI 4.425

7-24-15 → HI

STK	HD / VD	STO	DESC
10002		10819	N0.020 W0.001 F0.019
	0.032 / 0.002	10820 A/B	IR @ P14
	0.017 / -0.061	10821 A/B	IR @ P12
	0.019 / 0.053	10822 A/B	IR @ P15
		10825	℄ WELL @ REF POINT A
	0.027 / -0.074	* 10823 (AC)/BD	IR @ P16
		10824	℄ WELL @ REF POINT A
		10826	℄ WELL @ REF POINT
	0.028 / -0.048	10827 A/B	IR @ P17
10027A		10828	IR @ AK6 N0.050 W0.004 F0.089 (586-27-10 USED UNADJ)
	0.065 / 0.051	10829 A/B	SET IRC GPS TRAV
	0.126 / 0.053	* 10830 (A)/BC	" "
10018A		10831	S0.088 E0.073 F0.001
	0.079 / -0.032	10832 A/B	" "
	0.033 / -0.051	10833 A/B	" "
		~~10834~~ A	" NOT NEEDED
10016B		10835	N0.010 W0.002 C0.009
	0.024 / -0.059	10836 A/B	
	0.025 / -0.056	* 10837 A/(BC)	
	0.043 / -0.022	10838 A/B	

UNABLE TO GET RADIO @ END OF DAY

UF SCIENCE TECH
HALESH 334-524-6047 3121 1297.07 586/39

1297075F01 SP80

7-24-15 HR6666

NEED PHOTOS {B OBSERVATIONS}

*
10839 (A/B2) SET IRC GPS TRAV

*
10840 A/(B)/C " " 0.132 / -0.039

10002A 10841 N0.017 E0.081 C0.093

7-31-15
7-23-15

MENDOZA
NUNEZ
ALVAREZ

SFWMD
TOPO & WELL
DATA G
P16

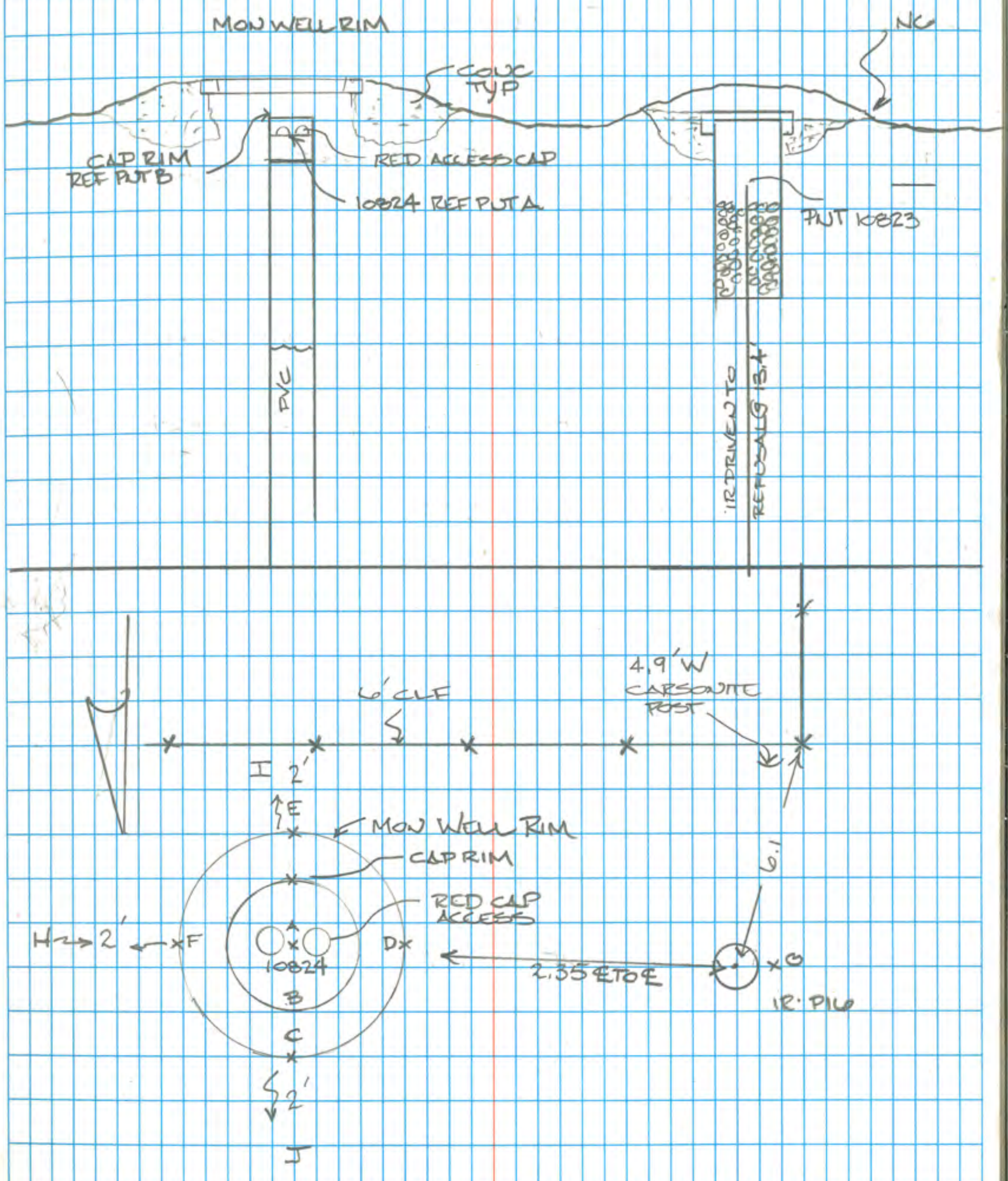
90°F PC

F + √	HI	FINGER √ −	ASSUMED ELEV	DESC
5.42	7.74		2.32 ~~500.0~~	586-37-12 IR @ 10823 P16
		4.68	3.06	C NORTH RIM
		4.70	3.04	F EAST
		4.71	3.03	E SOUTH
		4.69	3.05	D WEST
		4.95	2.79	B FIX CAP RIM REF PNT B
		5.02	2.72	A ok 10824 REF PT A
		5.0	2.74	G NO SHOTS
		4.95	2.79	H
		5.0	2.74	I
		4.85	2.89	J
BROKE SETUP				
			2.72	A 10824
4.77	7.49			
		5.17		√ING IR P16

NOTE INSTRUCTED BY HE TO STAMP BRASS TAG @ REF PNT A LOCATION IN EMAIL 7-31-15 TYPICAL

1297075F01 31211297.07 586/40

GPS 36
DL 17
NG



7-23-15 SFWMD 90° PC

MENDOZA Topo & WELL
NUNEZ DATA @
ALVAREZ P 15

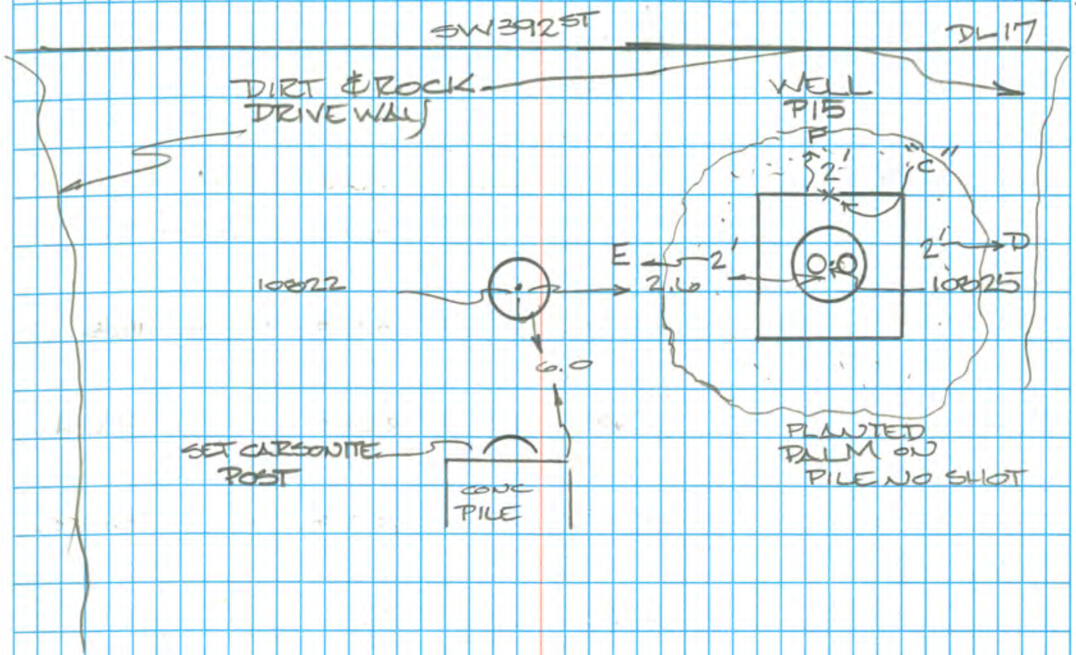
+	HI	FINGER/ −	ASSUMED ELEV	DESC
			1.75 ~~59960~~	58637-23 10822 IR @ P15
5.66	7.41			
		3.75	3.66	REF PNT A #10825
		3.69	3.72	REF PNT B FIXCAP RIM
		3.75	3.66	C TOP OF 4"x4" CASING NORTH SIDE
		5.2	2.21	D NG
		5.1	2.31	E NG
		5.2	2.21	F NG

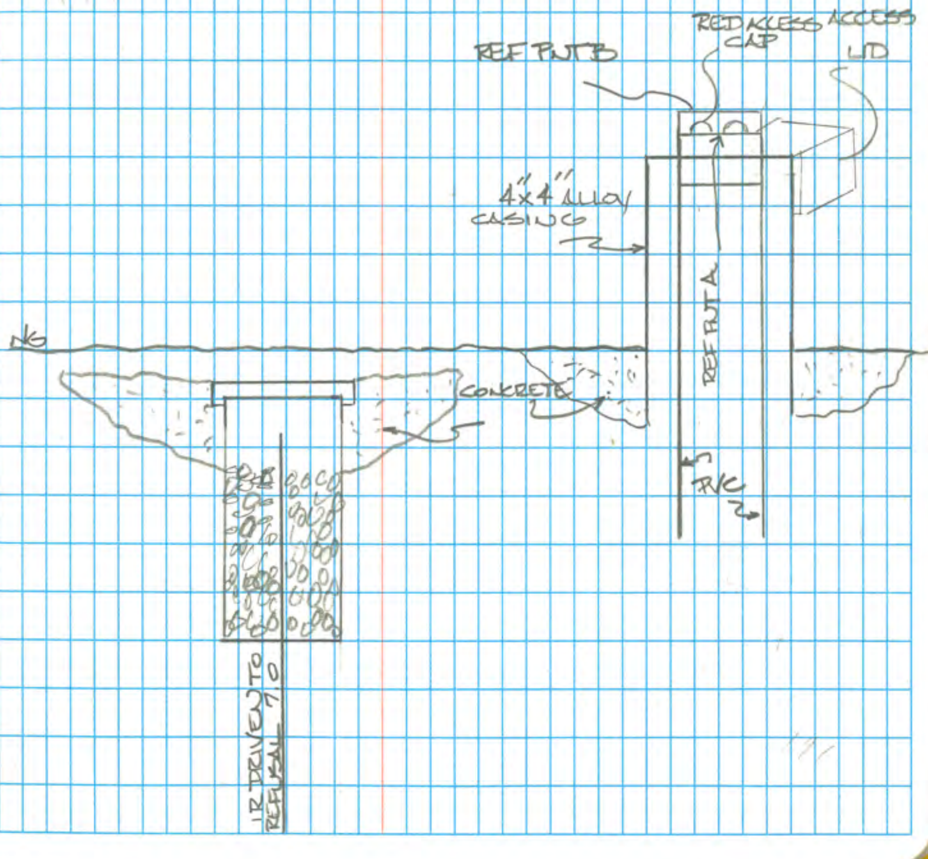
BROKE SETUP

REF PT A 10825

3.54	7.2			
		5.45	1.75	VIN @ 10822

GP556 DL17





7-27-15
MENDOZA
REYOR
MILLER

SFWMD
LEVELING CONT
FROM 5816-38-35 FOR
P16-P15-P12

90°C 10

BS RH	BS DIST	FS RH	FS DIST	ELEV	ΔDS ELEV	DESC
				6.38		5816-38-35
3.814	243.6					
		5.675	248.3	4.519		5816-42-36
5.818	258.5					
		5.482	259.4	4.8155		5816-42-37
5.606	247.9					
		5.527	248.4	4.934		5816-42-38
5544	255.9					
		5.797	252.3	4.6881		5816-42-39
5.136	262.6					
		5.6666	211.9	4.151	4.13	5816-42-40
6.098	216.8					
		5.271	252.5	4.978		5816-42-41
4.850	252.6					
		5.921	254.0	3.907		5816-42-42
5.560	247.3					
		4.300	254.8	5.167		5816-42-43
5.181	257.4					
		6.816	254.0	3.532		5816-42-44
5.075	251.0					
		4.933	251.4	3.674		5816-42-45
5.469	151.9					
		4.447	151.7	4.696		5816-42-46
6.003	88.90					
		5.755	76.4	5.004	4.98	5816-42-47
	1734.3		1715.1			

DL FILE CONT
7-22-15

3121297.07

386/42

DL-17

SET NL ON WEST SIDE OF DIRT RD (SW 380TH ST) LEADING TO P-12

"

"

"

"

P-12

IR SET TO REFUSAL @ 3.5' W/ STANDARD NGS LOOP CAP STAMPED P-12 2015

SET NL ON EAST SIDE OF SW 207TH AVE HEADING SOUTH TOWARDS PR16 @ 5178

SET NL

SET NL

SET NL ± 130' INTO TURN OF SW 207TH AVE TURNING SSE

" "

" "

√ N/G PR16

ERROR 0.024
TOTAL DIST = 21449.4
√4.005 MILES × .03 = 0.06 ALLOWABLE

7-27-15

MENDOZA

PRYOR

MILLER

SFWMD

LEVELING

FOR WELL BM's

@ P14 & P17

90610

~~FS~~ RH	BS DIST	FS RH	FS DIST	ELEV	ADJ ELEV	DESC
					5.8601	5806-B-15
4.832	243.9					
		5.838	243.5	4.855	4.8556	5806-43-1
5.245	247.00					
		5.442	247.9	4.658	4.660	5806-43-2
5.831	252.3					
		5.762	252.4	4.727	4.73	5806-43-3
5.374	249.7					
		4.990	248.9	5.111	5.1165	5806-43-4
5.271	55.1					
		6.1605	49'	4.217	4.222	5806-43-5
6.1660	48.9	RUN TO P14				
		5.274	55.2	5.111	5.116	5806-43-6
5.019	249.2					
		5.403	249.4	4.727	4.733	5806-43-7
5.764	252.0					
		5.837	252.6	4.654	4.661	5806-43-8
5.442	249.1					
		5.246	245.8	4.858	4.858	5806-43-9
6.024	240.8					
		5.563	242.2	5.311	5.320	5806-43-10
5.735	252.2					
		5.114	251.7	5.882	5.892	5806-43-11
5.413	253.7					
		5.098	250.2	6.197	6.208	5806-43-12
	2593.9		2588.8			

DL FILE 7-27-15 312297.07

5806/43

DL17

SET NL @ WEST E/P OF SW 212TH AVE IN ROUTE TO P17 ± 30' SOUTH OF MBX # 21199

" ± 100' SOUTH OF ℄ SW 394 ST

" "

" "

P-17

IR SET TO REFUSAL @ 10' SITE BM FOR P17 W/ STANDARD NGS LOGO CAP STAMPED P-17 2015

NL

NL

NL

NL

SET NL @ EAST E/P OF SW 212TH AVE INSIDE OF INGRAM HWY ± 230' N OF ℄

" "

NL

NL " ± 105' SOUTH OF ℄ SW 388 ST

7-27-15
MENDOZA
PRYOR
MILLER

SFWMD
LEVELING CONT

90° clo

BS RH	BS DIST	FS RH	FS DIST	ELEV	ADJ ELEV	DESC
				6.197		586-43-12
5.823	247.7					
		4.865	245.7	7.155	7.167	586-44-13
5.710	259.9					
		4.726	259.0	8.139	8.152	586-44-14
5.595	191.0					
		6.185	169.5	7.549	7.563	586-44-15
6.169	169.5					
		5.583	180.9	8.135	8.15	586-44-16
4.662	258.7					
		5.668	260.2	7.149	7.165	586-44-17
4.788	246.3					
		5.748	247.1	6.189	6.206	586-44-18
5.104	250.3					
		5.421	253.5	5.872	5.89	586-44-19
5.176	251.8					
		5.748	252.00	5.300	5.319	586-44-20
4.545	139.9					
		4.321	145.5	5.524	5.544	586-44-21

9201.2 TOTAL
$\sqrt{1.74 \text{ MILES}} \times 0.03$
ALLOWABLE = 0.039

2005.1　　2013.4

31211297.07

586/44

DL 17

SET NL @ E E/P SW 212TH AVE

NL

P-14

IR DRIVEN TO REFUSAL @ 8.0' W/STANDARD NGS LOGOCAP STAMPED P14 2015 ±1' BELOW NG

NL (BACK TO INGRAHAM HWY)

" "

" "

" "

" "

" √ W/ 586-8-16 "

7-28-15 SFWMD 90° CLEAR
MENDOZA GROUNDTRUTHING
PRYOR TOPO
MILLER

⊼	BS	HD	-0.015
10836	10016A2		
5.37	5.26	VD	-0.058

TYPICAL HR 6.77 FIXED 10669 F 0.008 L 0.002 C 0.024 10842
10843 → 10908 XSECT AREA 3
10909 10979 XSECT

⊼	BS	HDERR	-0.09
10830B	10018A		
HI 5.31	HR 5.33	VD	-0.018

10645 F 0.043 R 0.001 C 0.043 10980
10981 MED VEG SHOT NOT WHILE WALKING
10985 IN PRESERVE NOTICED HOLE IN CAPROCK ±1 TO 2' DEEP IN THIS AREA

⊼	BS	HD	0.002
10839	10833		
HI 5.17	HR 4.82	VD	0.094

3RD PUT 10840 F 0.031 L 0.077 F 0.057 10986
10987 → 10997 MED VEG SHOTS ALSO SHOT FURROWS

⊼	BS	HD	0.057
10840	10839		
HI 5.25	HR 4.84	VD	0.098

10832 B 0.019 R 0.022 C 0.090 10998
10999 MISC GROUND SHOTS
11005

3121297.07 586/45
TOPCON 20

⊼	BS	HD -0.017	TDS 36
10829	10027		
HI	HR 5.06	VD -0.024	

11006 – 11110 XSECT

(CHK SHOTS BY OTHERS)

10018A	10019A	HD -0.012
HI 5.42	HR 5.00	VD -0.01

10649 11111 ✓ ON PREVIOUS SHOT
11112 GROUND SHOT IN HOLE IN CAPROCK
11113 GROUND SHOT OUTSIDE OF HOLE
NOTE HOLE'S IN CAP ROCK MUCH LARGER @ NORTH SIDE OF PRESERVE SEE PHOTO'S

⊼	BS	HD -0.017
10019A	10018A	
HI 5.26	HR 5.10	VD 0.04

10635 11114 CHK SHOT SHOT IN HOLE
11115 SHOT NEXT TO HOLE
10641 11116 CHK SHOT

⊼	BS	HD -0.002
10837	PR16	
HI 5.37	HR 6.0	VD 0.061

10838 B 0.07 L 0.024 C 0.093 11117
11116 → 11170 MISC XSECT SHOTS

10038	PR16	HD 0.008
HI 5.22	HR 6.0	VD -0.081

10837 B 0.057 L 0.041 F 0.004 11171

7-~~29~~ 31-15 | SFW/MD | 90°C16

MENDOZA
PRYOR
MILLER

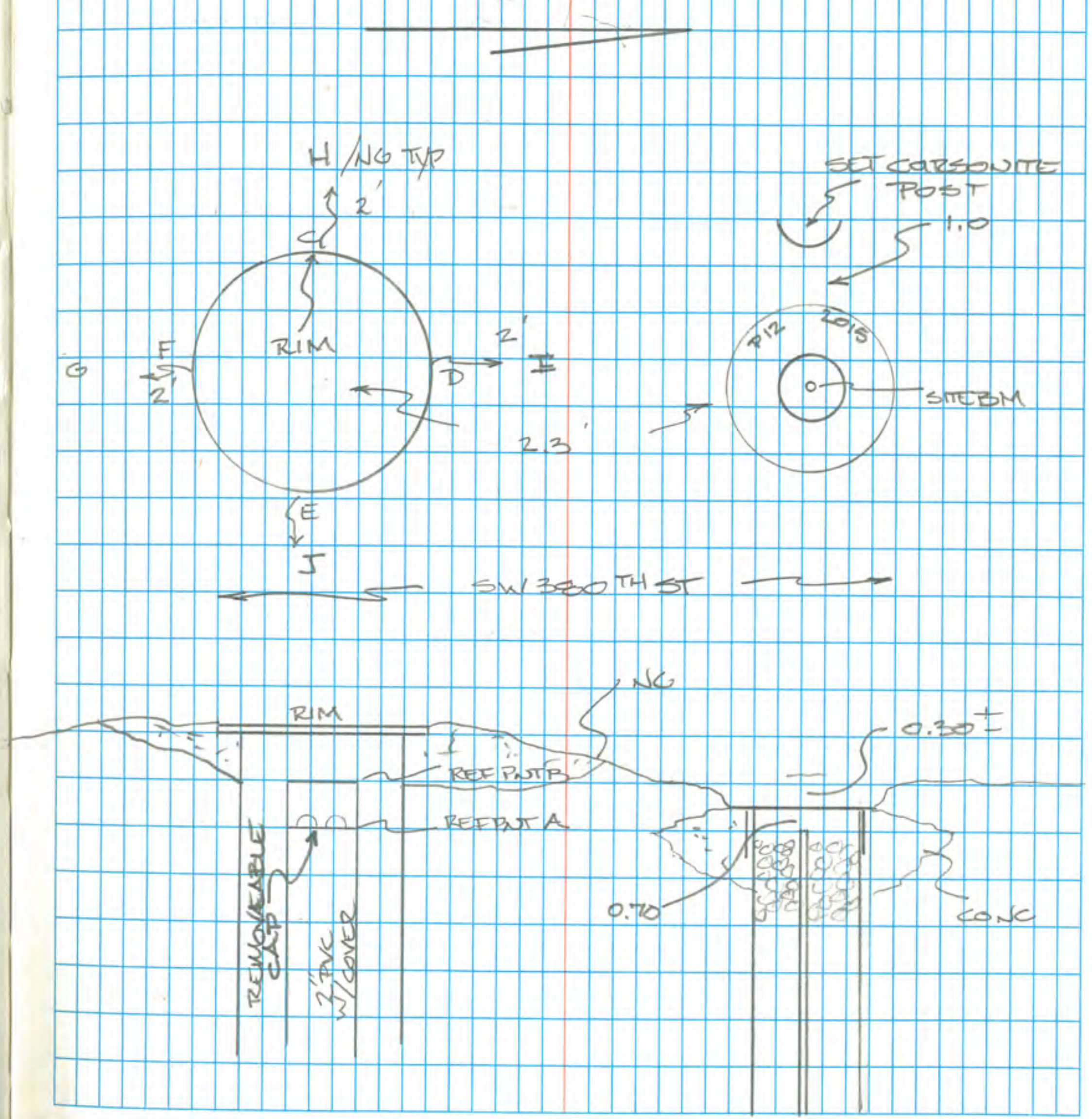
P-12

3WIRE	+	HI	3WIRE	-	ELEV	DESC
					4.13	SET IR TO REFUSAL
5.12						
4.91	4.913	9.043				
4.71						
			4.745			
			4.54	4.538	4.505	REFPT A
			4.33			
			4.68			
			4.47	4.473	4.57	REFPT B
			4.27			
			F√x8			
			4.56	4.483 →		H NG
			4.40	4.643 →		I
			4.41	4.633 →		J
			4.50	4.543 →		K
			4.31	4.733 →		C RIM
			4.30	4.743 →		D
			4.31	4.733 →		E
			4.31	4.733 →		F
			BROKE SETUP			
					4.57	REF PT B
4.23		8.800				
				4.29	4.51	√REF A
				4.67	4.13	√@ IR SITE BM

31211297.07 | 5860/44A

DL17

@ 3.5'/586-4240



7-31-15 P-17 90°c10

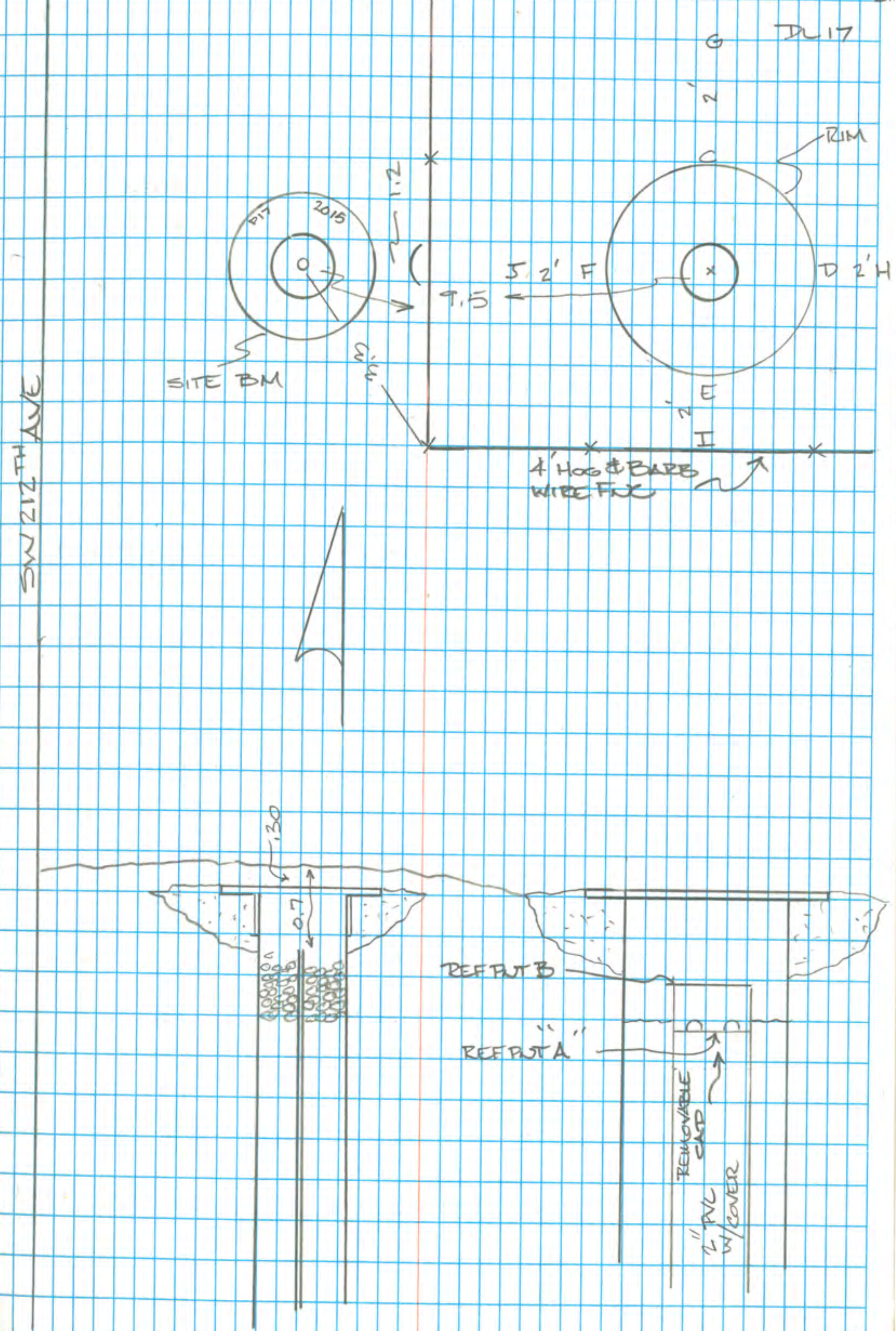
MENDOZA SFWMD

PRYOR

MILLER

3WIRE	+	HI	3WIRE	-	ELEV	DESC
					4.222	586-43-5
5.96						
5.835	5.835	10.057				
5.71						
			5.71			
			5.55	5.549	4.508*	REF PNT "A"
			5.388			
			5.65			
			5.49	5.488	4.569	REF PNT B
			5.325			
				F✓		
				5.28	4.777	C RIM
				5.29	4.767	D
				5.28	4.777	E
				5.28	4.777	F
				5.24	4.817	G NG
				~~5.23~~ 5.30	4.757	H
				5.21	4.847	I
				5.18	4.877	J
		BROKE SETUP				
					4.569	REF PNT "B"
F✓ 5.73	10.299					
				F✓ 5.79		√@ REF "A"
				6.075	4.224	√IN @ SITE BM

31211297.07 586/45A



7-31-15 P 14 90°PC
MENDOZA SFWMD
PRYOR
MILLER

3WIRE	+	HI	3WIRE	-	ELEV	DESC
					7.563	IR 586-44-15
6.47						
6.342	6.340	13.903				
6.21						
			5.563			
			5.30 (43)	5.431	8.472	REF PNT "A"
			5.30			
			5.505			
			5.372	5.373	8.53	REF PNT "B"
			5.242			
				5.225	8.678	C RIM
				5.225	8.678	D
				5.23	8.863	E
				5.23	8.863	F
				5.26	8.643	G NG
				5.27	8.633	H
				5.28	8.623	I
				5.23	8.673	J
			BROKE SETUP			
					8.53	REF PT "B"
F✓ 5.66		14.19				
				5.72	8.47	✓REF "A"
				6.625	7.565	✓@ IR 4TE BM

3121297.07