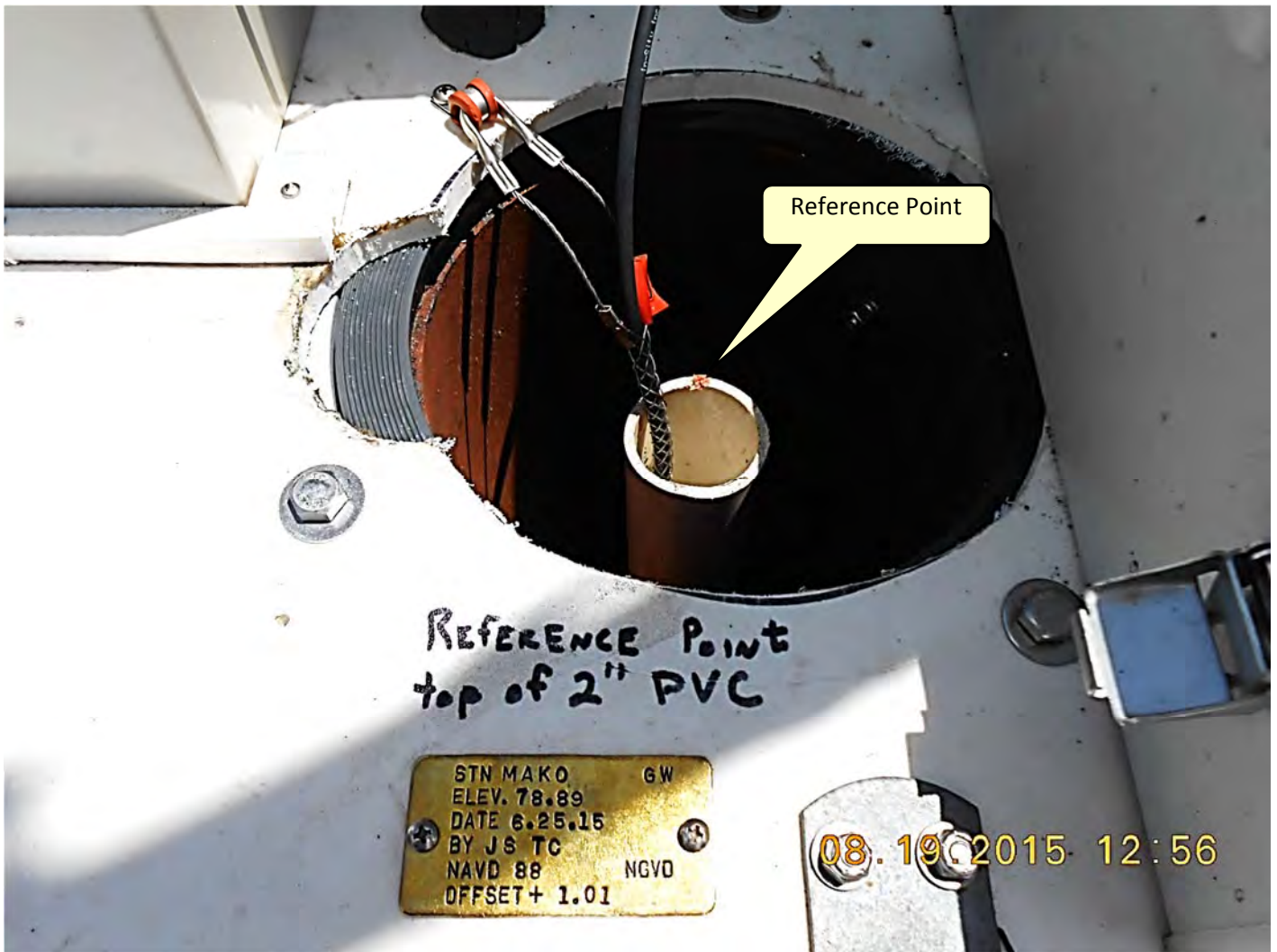


Site Name MAKO GW1		Date of Field Work June 25, 2015
Party Chief Strickland/Clanton	Field Book Name/Number MISC FB # 6X	Page Number 19
Site Benchmark Name MAKO3	Benchmark Elevation (NAVD88) 75.517	Datum Offset to NGVD29 + 1.01
Reference Elevation (NAVD 88) 79.33'		Existing Tag Elevation (Datum) 80.19' (NGVD 29)
Notes: Plywood in bad condition. Tag shows the 2" PVC pipe elevation of 78.89 ft Corpscon offset = +1.01, Field offset = +0.86 Ground elevation = 75.75ft (NAVD 88)		

Photographs:

<p>Overall Site</p> 	<p>Benchmark Close Up</p> 	<p>Benchmark Location</p> 
<p>Brass Tag Close Up</p> 	<p>Brass Tag + Reference Mark</p> 	<p>Staff Gauge N/A</p>



SCADA Picture (19-aug-15)

PROPERTY OF:

South Florida Water Management District

RTU Name: MAKO

Contact SCADA: 561-682-2047

M



MAKO GK
ELEV. 80.19
DATE 09-27-07
BY WOOLPERT
NAVD NGVD29

SUN RES OR RAIN 2464 80C 300V OR OTHER USE
2403 2907 2007

MADE IN USA
RESISTANT



the desiccant
is the dust
desiccant?

FLA. WATER MANAGEMENT DIST.
SURVEY
B.M.
MAKO.3
1998
MARKER

SEC	32	TWP	25	RGE	31
	ESTABLISH	NAVY 88	ELEV @	MAKO	GW WELL
STA	+	HI	-	ELEV	BM ELEV
BM	5.23 1.54	80.75		75.52	75.517
MAKO REF			1.42	79.33	
2" PVC			1.26	78.89	
GRND			5.0	75.75	
BM		5.23		75.52	75.52

~~TK III STRICKLAND~~
~~Ø CLANTON~~

COMMENTS

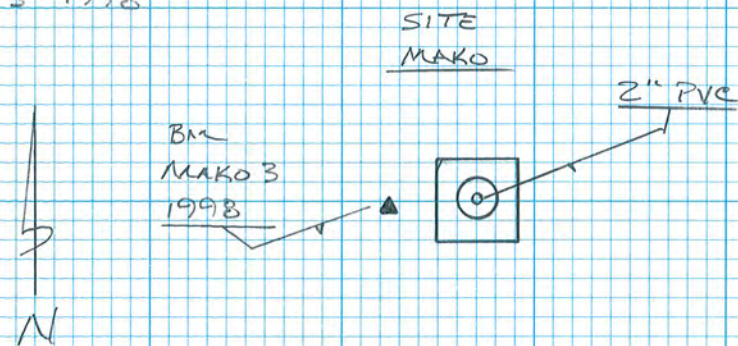
BM MAKO 3 1998 SFWWD ALUM CAP GOOD COND

MAKO GW REF ATOP of PLYWOOD PLATFORM (IN BAD COND)

2" PVC PIPE "X" E. SIDE

GROUND @ WELL

BM MAKO 3 1998





South Florida Water Management District Benchmark Database

Report run on: May 16, 2008 12:06 PM

Designation: MAKO3	Latitude: 281628.200	Scaled values only
County: OSCEOLA	Longitude: 811340.500	
USGS Quad: NARCOOSSEE	Monument By: SFWMD	
Project: MAKO WELL SITE	Year: 1998	
Sec: 32 Twp: 25 Rge: 31	Type: V	
Status: GOOD	Stamping: BM MAKO-3 1998	
NAD 1927 Coordinates:	Party Chief: HOLLIN	
N =	Field Book OSCEOLA CO WELLS15	Misc6H p34-36
E =	Page: 65	
Adjustment:	NGVD 1929	
NAD 1983 Coordinates:	Elevation: 76.390 76.515'	
X =	Order: 3	
Y =	Class:	
Adjustment:	NAVD 1988	
Order:	Elevation: 75.517'	
Class:	Order:	
	Class:	

Description:

Corpscon El. 76.531
 Corpscon 29 to 88 offset: -1.014 NGVD29
 Old SFWMD El. 76.39 NGVD 1929 (from level run)
 ***** Recovery Note *****
 9/27/07 Urzuz, Woolpert VDUP no field book mak03 1998 el. 76.39 NGVD 1929

 From the intersection of U.S. Highway 441 and 192, and State Road 15 (SR15), go North on SR 15 for 1.6 miles to Ralph Miller Road; Then go East on Ralph Miller Road for 0.9 mile to Twelve Oaks Road; Go North on Twelve Oaks Road for 0.35 mile to house #1220, and station location.
 Mark is a SFWMD aluminum disc stamped "BM Mako-3 1998", set in a 1-1/4-inch iron pipe flush with the ground. Mark is located 90 feet Northeasterly along the driveway, from the centerline of Twelve Oaks Road and 29 feet Southeast of the centerline of said driveway. Also it is 68 feet Southwesterly of the Southeast corner of the pump house and 2 feet Westerly of the well at Mako site.



SOUTH FLORIDA WATER MANAGEMENT DISTRICT



Survey Data Entry and Retrieval Application (SDERA) Print Output

Control Point Search Results

Derived Data - Denoted By: **

Designation	MAKO3	Record State	ACCEPTED
NGS PID			
Project Name	MAKO WELL SITE	Date Entered/Updated	11/05/2015
Updated By	hehmke	Status	GOOD
Party Chief		Type	V
Monument Set By	SOUTH FLORIDA WATER MANAGEMENT DISTRICT	Date Established	01/01/1998
County	OSCEOLA COUNTY	Section	32
Township	25	Range	31
Quadrangle	NARCOOSSEE	Offset (29 to 88)	
NGS Source BM		CCR Link	
Ctrl Pt Source(s)			

<u>Horizontal</u>	<u>NAD 1927</u>	<u>NAD 1983</u>	<u>Vertical</u>	<u>NGVD 1929</u>	<u>NAVD 1988</u>
Latitude		28 16 28.2	Class		
Longitude		81 13 40.5	Order	3	3
Northing(Y)			Elevation	76.515	75.517
Easting(X)			Measurement Unit	Feet	Feet
Class					
Order					
NAD83 Adj Year					

Field Book

Field Book Pages

Stamping

How to Reach

THE PROGRAM WILL NOT PRINT THIS DATA.

Description

DISCLAIMER:

The NGS Data Sheet

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

```

PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey,      Retrieval Date = NOVEMBER 5, 2015
DG6183 *****
DG6183 DESIGNATION - H 576
DG6183 PID - DG6183
DG6183 STATE/COUNTY- FL/OSCEOLA
DG6183 COUNTRY - US
DG6183 USGS QUAD - NARCOOSSEE (1970)
DG6183
DG6183 *CURRENT SURVEY CONTROL
DG6183
DG6183* NAD 83(1986) POSITION- 28 15 14. (N) 081 14 30. (W) SCALED
DG6183* NAVD 88 ORTHO HEIGHT - 22.126 (meters) 72.59 (feet) ADJUSTED
DG6183
DG6183 GEOID HEIGHT - -28.003 (meters) GEOID12B
DG6183 DYNAMIC HEIGHT - 22.093 (meters) 72.48 (feet) COMP
DG6183 MODELED GRAVITY - 979,158.9 (mgal) NAVD 88
DG6183
DG6183 VERT ORDER - SECOND CLASS I
DG6183
DG6183.The horizontal coordinates were scaled from a topographic map and have
DG6183.an estimated accuracy of +/- 6 seconds.
DG6183.
DG6183.The orthometric height was determined by differential leveling and
DG6183.adjusted by the NATIONAL GEODETIC SURVEY
DG6183.in September 2004.
DG6183
DG6183.Significant digits in the geoid height do not necessarily reflect accuracy.
DG6183.GEOID12B height accuracy estimate available here.
DG6183
DG6183.The dynamic height is computed by dividing the NAVD 88
DG6183.geopotential number by the normal gravity value computed on the
DG6183.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DG6183.degrees latitude (g = 980.6199 gals.).
DG6183
DG6183.The modeled gravity was interpolated from observed gravity values.
DG6183
DG6183; North East Units Estimated Accuracy
DG6183;SPC FL E - 434,370. 176,290. MT (+/- 180 meters Scaled)
DG6183
DG6183 SUPERSEDED SURVEY CONTROL
DG6183
DG6183.No superseded survey control is available for this station.
DG6183
DG6183_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RMM762253(NAD 83)
DG6183
DG6183_MARKER: DD = SURVEY DISK
DG6183_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
DG6183_STAMPING: H 576 2003
DG6183_MARK LOGO: FLDEP
DG6183_PROJECTION: FLUSH
DG6183_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET
DG6183_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
DG6183+STABILITY: SURFACE MOTION
DG6183_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DG6183+SATELLITE: SATELLITE OBSERVATIONS - January 25, 2003
DG6183

```

DG6183	HISTORY	- Date	Condition	Report By
DG6183	HISTORY	- 20030125	MONUMENTED	FLDEP

DG6183

DG6183

STATION DESCRIPTION

DG6183

DG6183'DESCRIBED BY FL DEPT OF ENV PRO 2003 (JLM)

DG6183'THE MARK IS ABOUT 5.6 MI SOUTH OF NARCOOSSEE, 3.3 MI EAST-NORTHEAST OF
DG6183'ST. CLOUD, 0.3 MI NORTH OF ASHTON, IN SECTION 5, TOWNSHIP 26 SOUTH,
DG6183'RANGE 31 EAST.

DG6183'

DG6183'TO REACH THE MARK FROM THE JUNCTION OF U.S. HIGHWAY 192, 441 (13TH
DG6183'STREET) AND COUNTY ROAD 523 (VERMONT AVENUE, CANOE CREEK ROAD) IN ST.
DG6183'CLOUD, GO EAST ON U.S. HIGHWAY 192, 441 (13TH STREET, EAST BRONSON
DG6183'HIGHWAY) FOR 3.0 MI TO THE INTERSECTION OF STATE ROAD 15, TURN LEFT
DG6183'ON STATE ROAD 15 (NARCOOSSEE ROAD) AND GO NORTH FOR 0.55 MI TO THE
DG6183'JUNCTION OF LILLIAN LEE ROAD ON THE RIGHT AND THE MARK ON THE RIGHT,
DG6183'SET IN THE TOP OF A ROUND CONCRETE MONUMENT FLUSH WITH THE GROUND AND
DG6183'ABOUT 2.0 FT BELOW THE LEVEL OF STATE ROAD 15.

DG6183'

DG6183'LOCATED 111.5 FT NORTH OF THE APPROXIMATE CENTERLINE OF LILLIAN LEE
DG6183'ROAD, 64.6 FT SOUTH OF A ROUND CONCRETE POWER POLE NUMBER 10432, 41.7
DG6183'FT EAST OF THE CENTERLINE OF STATE ROAD 15, 1.4 FT WEST OF A HOGWIRE
DG6183'FENCE AND 1.0 FT WEST OF A CARSONITE WITNESS POST. NOTE A BAR MAGNET
DG6183'WAS IMBEDDED IN THE GROUND ON THE WEST SIDE OF THE MONUMENT.

*** retrieval complete.

Elapsed Time = 00:00:02

MISC F.B. G-H
 LEVELS FROM NGS H 576 2003 TO 05-85 &
 05-18 (SAME ENDWALL) AS PER HOWARD EHMKE'S
 INSTRUCTION ELEV. RAN IN NAVD 88

STA	+	HI	-	ELEV.	BM ELEV
B.M.				72.59	72.592
	4.81	77.40			
	2.46				
	7.27				
T.P.			4.91	72.49	
			2.36		
	3.04	75.53	7.27		
	4.23				
	7.27				
T.P.			4.35	71.18	
			2.92		
	3.37	74.55	7.27		
	3.90				
	7.27				
TP			4.26	70.29	
			3.01		
	3.69	73.98	7.27		
	3.58				
	7.27				
T.P.			4.99	68.99	
			2.28		
	4.21	73.20	7.27		
	3.06				
	7.27				
T.P.			4.41	68.79	
			2.86		
	3.76	72.56	7.27		
	3.50				
	7.27				

CONT'D ON Pn - 35

COMMENTS

BM H 576 2003 RECOVERED AS DESCRIBED
 NAVD 88 ELEV.

STA	+	HI	ELEV	BM ELEV.
B.M.			5.634 1.63	66.93 92
	5.66 1.61	72.89 58	7.27	
BM	RETURN LEVELS		5.67 1.60	66.92 91
	5.63 1.64	72.55 54	7.27	
T.P.			3.40 3.87	69.15 14
	4.96 2.31	74.11 10	7.27	
T.P.			4.19 3.08	69.92 91
	5.12 2.15	75.04 03	7.27	
T.P.			4.83 2.43	70.21 20
	4.41 2.86	74.62 61	7.26	
T.P.			3.32 3.95	71.80 29
	4.48 2.79	75.78 77	7.27	
T.P.			3.71 3.56	72.07 06
	4.94 2.33	77.01 00	7.27	

Cont'd. on Pg. 36

COMMENTS

B.M. OS. 85 1980 2400' RECOVERED AS DESCRIBED

B.M. OS. 18 LINE 2 1978 RECOVERED AS DESCRIBED

28.55 ~~28.56~~ -1.001
34.23
-5.68

66.912 - OS 85
66.902 - OS 18 LINE 2

STA

Misc. F.B. # 6-H
+ HI

-

ELEV.

B.M. ELEV.

B.M.

4.39
2.88

~~72.62~~
72.61

72.592

7.27

29.54

23.84

+5.70

72.612

72.592

.020

-
+ .01
+ .01

14.02

- .0014 +

- .05 MILES

- .05 ALLOWABLE

HEAT WAVES - PC

GOOD

Misc. F.B. # 6-H

05/28/08

36

B.M. H. 576 2003 SEE Pg. 34

ERROR + 0.02

LEVELS TO WELLS - SEE MARKS ON - E. 52			
INSTR	25'	RES. S.I.E	
STA	+	HI	-
			ELEV. RM. ELEV
B.M.			67.50 67.785
	4.36 2.40	72.66	
TP			4.49 2.77 68.17
	4.56 2.70	72.73	
TP			4.32 2.44 67.91
	4.53 2.73	72.44	
TP			4.24 3.02 68.20
	4.62 2.57	72.89	
TP			4.11 3.15 68.78
	4.87 2.39	73.65	
TP			4.32 2.74 69.33
	5.26 2.70	74.59	
TP			4.23 2.93 70.31
	5.08 2.18	75.32	

CONF'D. ON PG 69

COMMENT
B.M. 05-85 1705 Recovered in Gov. Commission

R-2

R-2

LEVELS TO WELL SITE W/245 IN				WELL 50	
TYPE	BSI	ROD SIZE		ELEV.	HT. ELEV
STA	+	#1	-		
B.M.				67.57	67.793
	4.36	72.66			
	3.47				
TP			4.29	68.17	
			2.77		
	4.56	72.73			
	2.70				
TP			4.32	67.91	
			2.44		
	4.53	72.44			
	2.73				
TP			4.24	68.20	
			3.02		
	4.67	72.89			
	2.57				
TP			4.11	68.78	
			3.15		
	4.87	73.65			
	2.39				
TP			4.32	69.33	
			2.94		
	5.26	74.59			
	2.00				
TP			4.03	70.31	
			1.93		
	5.08	75.39			
	2.18				

CONFID. BY PER-69

COMMENT

B.M. 05-85 1985 RECORDED IN GEN. COMMENTS

[Red handwritten mark]

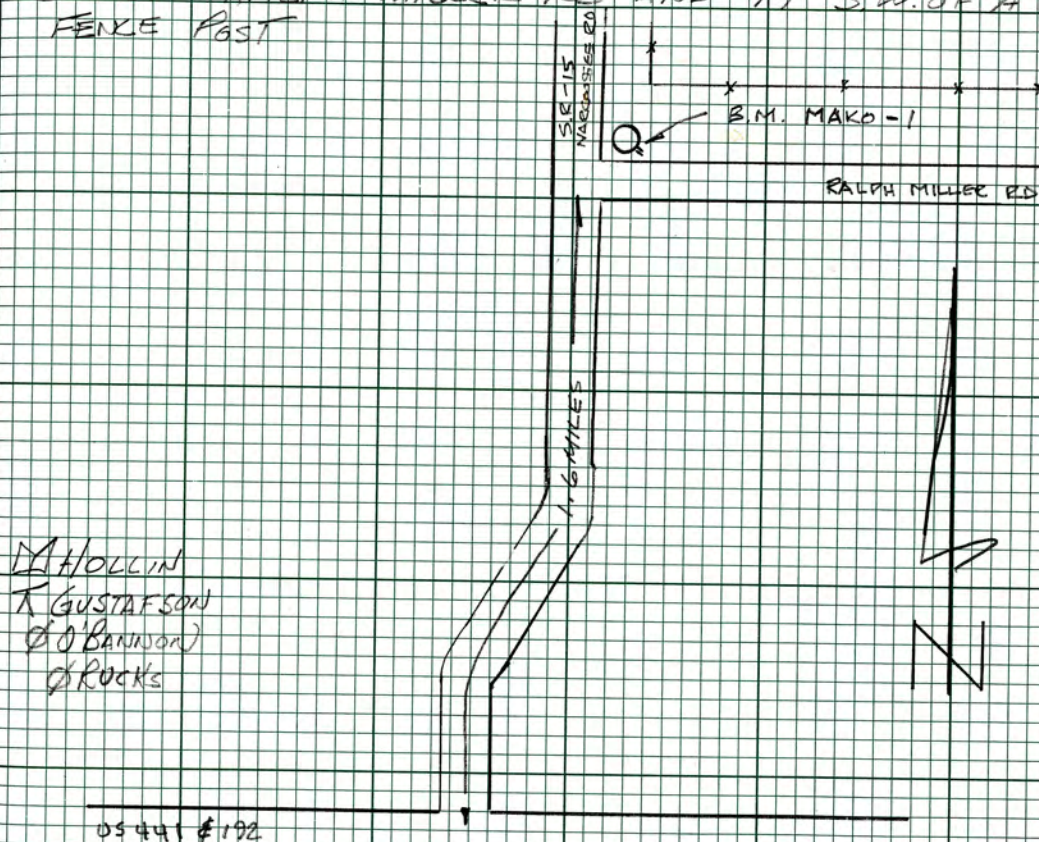
[Red handwritten mark]

STA	+	HI	-	ELEV.	SHEET
		75.39			
T.P.			3.93 3.33	71.46	
	5.21 205	76.67			
B.M.			3.31 3.95	73.36 73.35	
	RETURN LEVELS				
B.M.				73.36 73.35	
	3.15 4.11	77.51			
T.P.			5.05 2.21	71.46	
	4.42 2.84	75.83			
T.P.			4.45 2.81	71.43	
	3.80 3.46	75.23			
T.P.			5.35 1.91	69.83	
	3.69 3.57	73.57			
T.P.			4.50 2.76	69.07	
	3.70 3.56	72.77			
	CONT'D ON P. 40				

COMMENT

Handwritten initials

B.M. MAKO-1 IS THE TOP OF 2 BOLTS TO GROUND STRAP ON S.E. SIDE OF 36" ROUND CONCR. POWER POLE TO REACH FROM THE INTERSECTION OF US 441 & 192 AND SR-15 (NARCOOSSEE RD) GO N. ON SR-15 1.6 MILES TO RALPH MILLER RD AND STATION LOCATION. STATION IS 34' E OF THE E OF SR-15 AND 18' N. OF THE E OF RALPH MILLER RD AND 19' SW. OF A FENCE POST

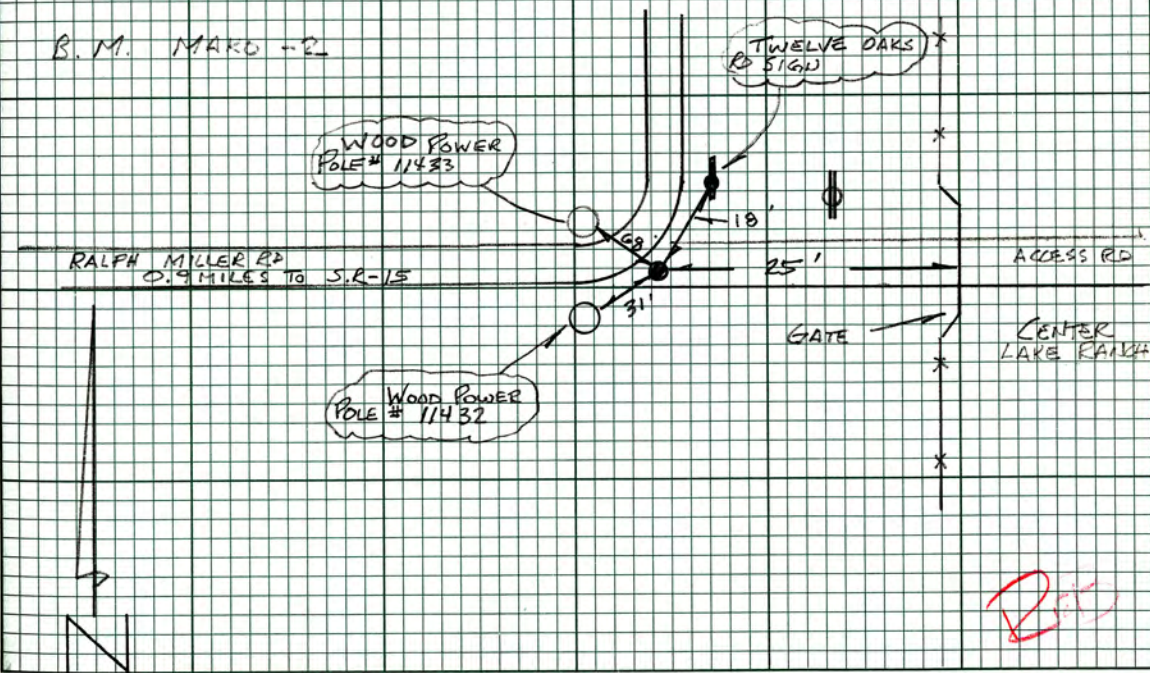


Handwritten initials

STA	CONT'D. FROM PG 61	HI	—	ELEV.	B.M. ELEV.
T.P.		80.91	5.42 1.73	75.43	
	4.43 2.83	79.86 79.86			
T.P.			5.08 2.18	74.78	
	4.73 2.53	79.51			
B.M.			5.28 1.98	74.23	74.25
RETURN LEVELS					
B.M.				74.23	74.25
	5.15 2.12	79.38			
T.P.			4.70 2.56	74.63	
	4.57 2.37	79.57			
T.P.			4.40 2.34	75.17	
	5.69 1.57	80.36			
CONT'D. ON PG 63					

COMMENTS

B.M. MARK #2 IS A 1/4" X 18" GALV. IRON PIPE W/ S.F.W.M.D. ALUM. DISK. TO REACH FROM THE INTERSECTION OF US-44/192 & S.R.-15 GO N. ON S.R.-15 1.6 MILES TO RALPH MILLER RD. THEN GO E. ON RALPH MILLER RD. 0.9 MILES TO A 90° TURN IN RD TO N. AT TWELVE OAKS RD & STATION LOCATION. STATION IS ON THE PROJECT E OF RDS. SET IN Q OF ACCESS RD TO CENTER LAKE RANCH. STATION IS 25' W. OF THE GATE 1' S.W. OF THE TWELVE OAKS STREET SIGN, 68.0' S.S.E. OF POWER POLE # 11433 AND 31.0' ENE. OF OF POWER POLE # 11432



CONT'D. FROM PG-63

STA	+	HI	—	ELEV.	B.M. ELEV.
T.P.		81.18	4.71 2.55	76.47	
	1.06 3.20	80.53			
T.P.			5.45 1.82	75.08	
	3.33 3.93	78.41			
B.M.			5.09 2.17	73.32	73.35
LEVELS CONT'D. TO WELL					
B.M.					74.25
	5.81 1.45	80.00			
T.P.			3.71 3.55	76.35	
	5.96 1.30	82.31			
T.P.			4.71 2.55	77.60	
	4.45 2.82	82.05			
T.P.			4.87 2.39	77.18	
	4.24 3.02	81.42			

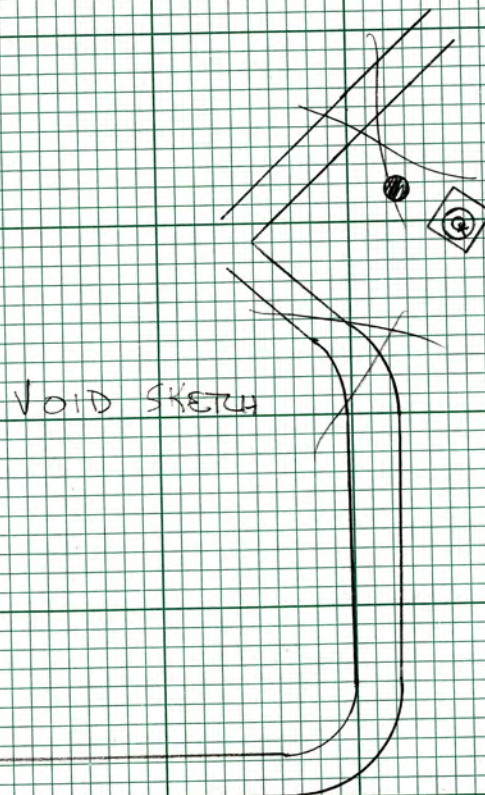
CONT'D. ON PG-65

COMMENTS

ERROR 1ST RUN 0.00
 ERROR RET RUN -0.03
 ADJUST + 0.02

B.M. MAKO-1 SEE PG-59

B.M. MAKO-2 1998 PG-62



VOID SKETCH

STA	CONT'D. FROM PA-64	H1	ELEV	B.M. ELEV.
T.P	+	81.42	4.64 2.62	76.78
	4.52 2.74	81.30		
T.P			4.61 2.65	76.69
	4.33 2.33	81.62		
B.M			5.23 2.03	76.39 76.39
RETURN LEVEL				
B.M				76.39 76.39
	3.02 2.24	81.41		
T.P			4.72 2.54	76.69
	4.50 2.76	81.19		
T.P			4.49 2.77	76.70
	4.74 2.52	81.44		
CONT'D ON PA-66				

COMMENTS

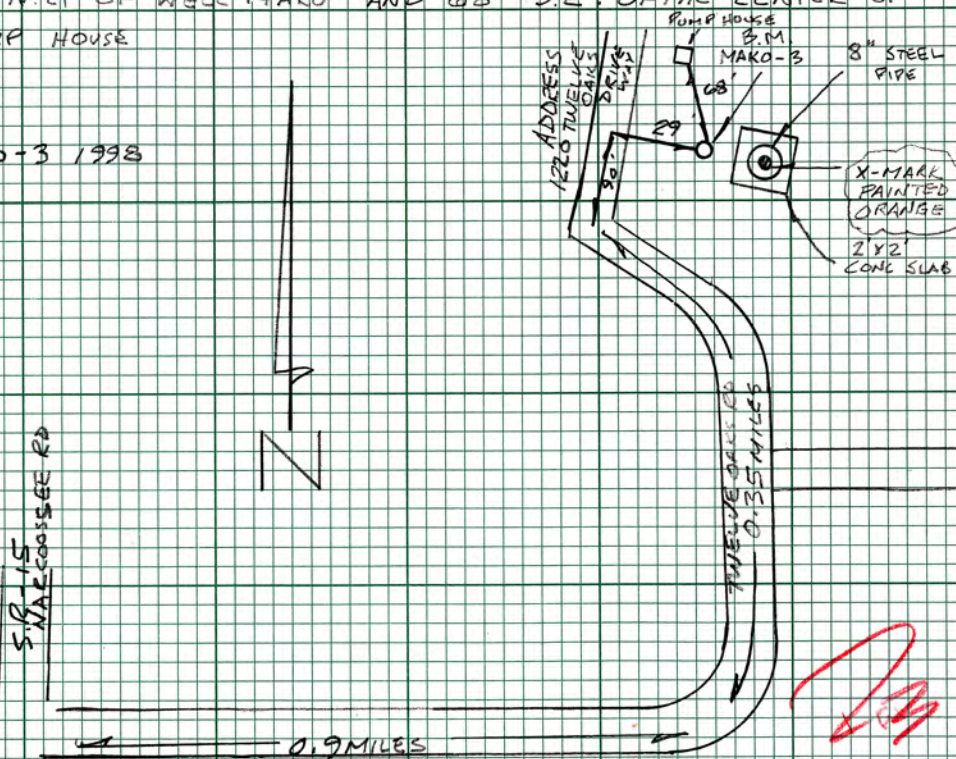
SEC 32 TWP 25S R9E 31E

GPS FOR WELL & B.M. IN FILE WELLS 2

NO STAFF GAGE WAS FOUND @ THIS LOCATION

B.M. MARK-3 1998 IS A 1 1/4" x 1 1/8" I.P.P.E W/ S.F.W.M.D ALUM. DISK. TO REACH FROM S.R-441, 192 AND S.R-15 GO N. ON S.R-15 1.6 MILES TO RALPH MILLER RD. THEN GO E. ON RALPH MILLER DR 0.9 MILES TO TWELVE OAKS RD. THEN GO N.N.W. ON TWELVE OAKS RD 0.35 MILES TO HOUSE #1220 AND STATION LOCATION. STATION IS 90.1' UP THE DRIVEWAY FROM C OF RD & 29.0' S.E. OF C OF DRIVEWAY AND 2.0' N.W. OF WELL MARK AND 68' S.E. OF THE CENTER OF THE PUMP HOUSE

B.M. MARK-3 1998



REGISTRATION WORKSHEET - MAKO Addendum

Site Name: **MAKO** Today's Date: **6/30/2015** Type Recorder:
 Activity: **Addendum** Effective Date: Start Date of Data :
 Customer: **Garnett Ritchie** Bus. Area: **SCADA Maintenance** Agency: **SFWMD** Internal Order:
 Project Manager: **Amelia Rodriguez** Bus. Area: **Infrastructure Maint.** Agency: **SFWMD** Fund:
 Contract #:
 Project Name: **VDUP** Legal Mandate:

Short Common Name / Description:

Proj. Mgr. Notes: This addendum was performed to add NAVD 88 surveying data for the reference elevation. To convert to NGVD 29 add +1.01ft.

Site Directions:

Site Address (if any):

Transportation: Lock type or combination: #

Recorder Location/Purpose: Structure Type:

Array ID Configuration table attached

SURVEY INFORMATION

B.M. Elevation: **75.517** Date: **9/27/2007** Stamp: **MAKO3**
 Agency: **SFWMD** Type: **ALUM** Datum: **NAVD 88**

Benchmark Location/ Description: From the intersection of US HWY 441 and 192, and SR15, go north on SR 15 for 1.6 miles to Ralph Miller Road. Then go east on Ralph Miller Road for 0.9 miles to Twelve Oaks road. Go north on Twelve Oaks road for 0.35 miles to site location.

COMMUNICATIONS INFORMATION

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

WELL INFORMATION

Sensor	Customer Ref	Ref Elev	Elev Date	Top of Well	Bottom of Well	Ground Elev	Benchmark Elev	Benchmark Datum	Ref Elevation Location
GW1		79.33	6/25/2015	78.89ft		75.75	75.517	NAVD 88	Reference point at edge of wood as marked.

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

ADDITIONAL GPS INFORMATION

Item/Param	Lat	Long	X-Coord	Y-Coord	Sec	Township	Range	Quad	Basin	County	Description
GW1	28 16 28.18	81 13 40.49	582808	1432570	32	25	31	Narcoossee		Osceola	