

2012

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Report Issue Date: 9/19/12

Prepared For



STAFF GAUGE REPORT

This document contains a surveyor's report and certification as to the accuracy of the methods used to determine NAVD88 elevations for staff gauges set by CivilSurv Design Group, Inc.

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

STAFF GAUGE INSTALLATION & RECALIBRATION SERVICES

HYDRAULIC & HYDROLOGY, DISCIPLINES #8, CONTRACT #4600002182

Report for calibration of staff gauges for the South Florida Water Management District.

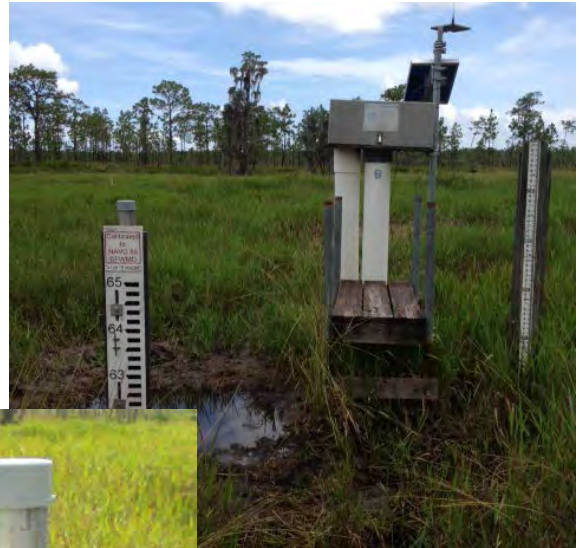
Report Issue Date: 9/19/12

Staff Gauge	Benchmark Used	Benchmark Elevation	Datum	Conversion used	Wellhead Elevation
ALLI	ALLI	63.85	NAVD88	NO	66.800
BRIC	BRIC	64.01	NAVD88	NO	67.860
C31GFS	C31GFS 2006	56.76	NGVD88	NO	61.835
KUB009	KUB009	56.90	NGVD88	NO	59.050
KUB011	KUB011	54.98	NAVD88	NO	58.740
LCYP19R	BM-C507	48.85	NAVD88	NO	58.440
LHATCH3	LHATCH3	53.287	NAVD88	NO	58.047
LKGT	LKGT2 1996	66.10	NAVD88	NO	66.980
MARIC	POT28S18	53.33	NAVD88	NO	56.850
REEDC	05135 1981	64.74	NAVD88	NO	63.590
S60_H	KR1066	70.14	NAVD88	NO	73.705
S60_T	KR1066	70.14	NAVD88	NO	73.715
S61_H	0S129	60.93	NAVD88	NO	64.56
S61_T	0S129	60.93	NAVD88	NO	64.55
S63_H	KR1067	67.43	NAVD88	NO	70.860
S63_T	KR1067	67.43	NAVD88	NO	70.870
S63A_H	KR1068 1966	62.96	NAVD88	NO	67.050
S63A_T	KR1063 1966	62.96	NAVD88	NO	67.060
TOHOW_H	TOHO W 2006	56.98	NAVD88	NO	60.995
WR6	WR6 2007	63.78	NAVD88	NO	68.010
WR8	WR8 2007	69.79	NAVD88	NO	71.845
WR9	WR9 2007	69.32	NAVD88	NO	71.255
WR11	WR11 2007	67.59	NAVD88	NO	70.665
WR15	WR15 2007	62.01	NAVD88	NO	66.580
WR16	SITE 6 1996 WR-11	65.14	NAVD88	NO	69.420

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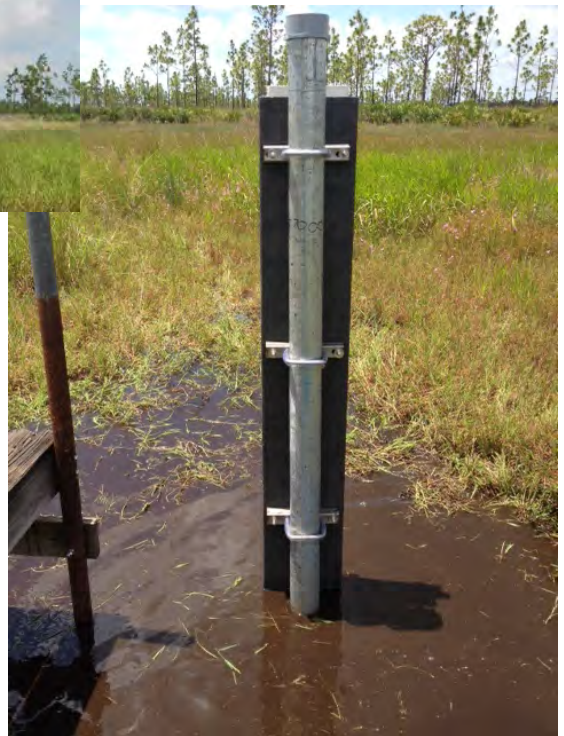
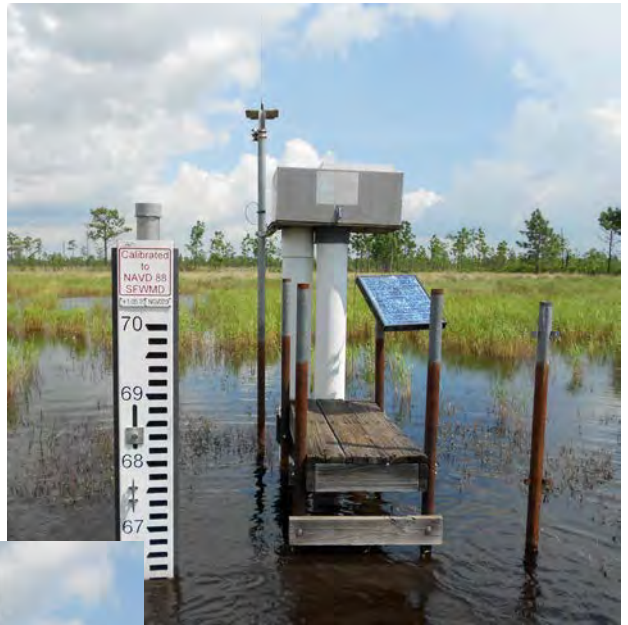
WR6



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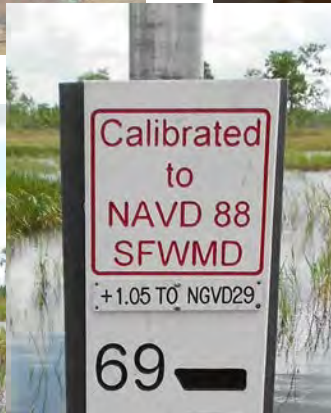
WR8



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WR9



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WR11



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WR15



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WR16



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Specific Purpose Survey Report

Purpose:

To establish elevations of staff gauges as set in place and certify that they have been set correctly at the time of our inspection. Field Surveys for these gauges completed during the period of 06/26/12 through 8/23/12

Leveling methods:

Leveling methods: Conventional differential leveling was performed in accordance with Florida Administrative Code 5J-17.051(3)(b)15.a. The maximum error of closure for this type of leveling is $0.05' \times \sqrt{\text{Distance in miles}}$. The maximum error of closure determined for this project is a more stringent $0.03' \times \sqrt{\text{Distance in miles}}$. The error of closure achieved for the leveling performed meets or exceeds the more stringent specification. The error of closure achieved for the leveling performed meets or exceeds this specification.

Equipment used:

Wild NA-1

Vertical Datum:

The staff gauges listed in this report have been correctly calibrated to the North American Vertical Datum 1988 (NAVD88) as of August 23, 2012.

Sources of Data:

Benchmarks were provided by South Florida Water Management District. Information on the specific benchmarks can be obtained from the S.D.E.R.A. Website:

<http://my.sfwmd.gov/sderawebapp/gis/sderamain.jsp>

Surveyor's Certificate:

This staff gauge elevation specific purpose survey is certified to the South Florida Water Management District. This report is not valid without the original signature and raised seal.

This is to certify that this staff gauge elevation specific purpose survey with report was made under my responsible charge and meets the minimum technical requirements as set forth in Chapter 5J-17 of the Florida Administrative Code.

Report Issue Date: September 19, 2012



Robert N. Johnson, PSM 6540

Senior Project Surveyor

CivilSurv Design Group, Inc.

Certificate of Authorization Number: LB-7805



Date

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06.26.2012

I. CORBETT
B. EASTON.

S.F.W.M.D.

WR 6
NAVD 88

STA	(+)	HI	(-)	ELEV	BMELEV
BM WR 6 2007					63.78'
T	4.68'		1.81'		
M	4.4'	50 = 68.18'	1.47'		
B	4.12'		1.13'		
A	4.4'		1.47'		
TP				66.71'	
T	3.34'		1.85'		
M	2.83'	112 = 69.54'	1.27'		
B	2.27'		.69'		
A	2.83'		1.27'		
TOP OF PVC PIPE.				68.27'	
T	1.95'		2.20'		
M	1.36'	118 = 67.63'	1.62'		
B	.77'		1.04'		
A	1.36'		1.62'		
WOOD PLATFORM.				68.01'	
T	2.08'		5.78'		
M	1.50'	116 = 69.51'	5.22'		
B	.92'		4.66'		
A	1.50'		5.22'		
Bolt in STAFF 62				64.29'	64.30'
			3.97'		
(-) MARK ON PIPE.				65.54'	
T	3.42'		3.95'		
M	3.185'	50 = 67.475'	3.69'		
B	2.95'		3.43'		
A	3.185'		3.69'		
BM WR 6				63.785'	63.78'

AM: HIGH WIND & STORMS.
PM: " " " "

60.0' BS 59.5
65.0' T 65.5
6' BRD

REMARKS
FOUND SFWMD ALUM DISC IN 8" CONC. MON. NAVD 88 = 63.78 NAVD 29 = 64.82' - WR 6 IS IN DISNEY WILDERNESS TREE.
TURN POINT ON TOP OF METAL 1/2" PIPE.
SHOT ON BLACK MARK ON N.W. COR PVC PIPE TAG = 69.31 RFE = 69.305' NAVD 29
SHOT ON BLACK MARK ON WOOD PLATFORM WR 6 TAG = 69.05 NAVD 29
SHOT AT Bolt TOP. Bolt SET APPROX 64.30
POT O/O SLASH ON 8" STEEL PIPE PUT IN BY C.S.D.U. NAVD 88
S.F.W.M.D. ALUM. DISC. IN CM.

06.26.2012

J. CARBETT

B. EASTON

S.F.W.M.D.

WIR 8
NAVD 88

STA	(+)	HE	(-)	ELEV	B.M.E.L.
BM WIR 8 2007					= 69.79'
	7 4.97	= 73.62	7 2.80		
	m 3.83		m 1.60		
	B 2.09		B .52		
	A 0.83		A 1.60		
TOP OF PVC PIPE				= 72.02	
	7 2.89	= 73.63	7 3.045		
	m 1.61		m 1.785		
	B .33		B .525		
	A 1.61		A 1.785		
WOOD PLATFORM				= 71.845	
	7 3.365	= 73.95			
	m 2.105				
	B .845				
	A 2.105				
(-) MARK ON PIPE			4.95'	= 69.0'	
			7 3.30		
			m 4.16		
			B 3.02		
			A 4.16		
BM WIR 8 2007				= 69.79'	69.79

P.M. = HIGH WIND

REMARKS

FOUND S.F.W.M.D. ALUM DISC IN 8" CONC. MON.
NAVD 88 = 69.79 NAVD 29 = 70.83' - IN WILDERNESS PRESERVE

SHOT AT BLACK MARK ON 2" PVC RISER IN WELL
NAVD 29 73.075

SHOT AT BLACK "X" MARK ON WOOD PLATFORM
NAVD 29 = 72.89

(-) SLASH ON 8" STEEL PIPE PUT IN BY C.S.D.G.
NAVD 88 = 69.0

S.F.W.M.D. ALUM DISC IN CM.

06.27.2012

T. CORBETT

B. EASTON

S.F.W.M.D.

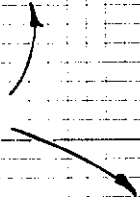
WR-9

NAVD 88

BENCH STARTS ON PAGE 7

STA	(+)	HI	(-)	ELEV	BM ELEV
BM WR 4 SITE BM 2				67.81	
	T 5.25'		T 1.64'		
	M 4.605'	130 = 72.415'	M .99'		
	B 3.96'		B .34'		
	A 4.605'		A .99'		
TOP OF PVC PIPE					71.425'
	T 1.77'		T 1.94'		
	M 1.12'	130 = 72.575'	M 1.29'		
	B .47'		B .64'		
	A 1.12'		A 1.29'		
"X" Wood Platform					71.255'
	T 1.85'				
	M 1.20'	130 = 72.455'			
	B .55'				
	A 1.20'				
"- " MARK ON PIPE					67.49'
			T 4.965'		
			T 5.30'		
			M 4.645'		
			B 3.99'		
			A 4.645'		
BM WR 4 SITE BM 2				67.81	

CONTINUED ON PAGE 7



AM: HIGH WINDS & SCAT. STORMS - 78°

REMARKS
FOUND S.F.W.M.D. ALUM. DISC IN 4" CONC. MARK NAVD 88° X NAVD 29° ? - DISNEY WILDERNESS PRESERVE
SHOT AT BLACK MARK ON TOP OF 2" PVC RISER, IN Box NAVD 29 = 72.46'
SHOT AT BLACK <input checked="" type="checkbox"/> ON WOOD PLATFORM, IN Box NAVD 29 = 72.30'
SET "- " MARK ON 8" STEEL PIPE PUT IN BY C.S.D.G. NAVD 88
SFWMD ALUM DISC IN 4" CM

06.27.2012
T. CORBETT
B. EASTON

S.F.W.M.D.
WR 11
NAVD 88

STA	(+)	HT	(-)	ELEV	BM ELEV
BM WR 11 2007					67.59'
	T 5.68		T 7.13'		
	M 4.97	= 72.56	M 6.465	= 66.095'	
	B 4.26		B 5.80'		
	A 4.97		A 6.465		
TP 1					
	T 6.54		T 1.20		
	M 5.85	= 71.945	M 1.035	= 66.095'	
	B 5.16		B .31		
	A 5.85		A 1.035		
TOP OF PVC PIPE					
	T 1.94		T 2.18		
	M 1.27	= 72.18	M 1.515	= 66.095'	
	B .60		B .85		
	A 1.27		A 1.515		
X" WOOD PLATFORM					
	T 2.10				
	M 1.44	= 72.105		= 66.095'	
	B .78				
	A 1.44				
1" MARK ON PIPE					
			T 3.105		
			T 6.69		
			M 6.005		
			B 5.32		
			A 6.005		
TP					
	T 7.20		T 5.71		
	M 6.52	= 72.62	M 3.025	= 66.10	
	B 5.84		B 4.34		
	A 6.52		A 5.025		
BM WR 11 2007					

Pin High Wind & Clouds

REMARKS.
FOUND S.F.W.M.D. ALUM DISC IN 8" CONC MON.
NAVD 88 = 67.59 NAVD 29 = 68.66 DISNEY WILDERNESS PRESERVE

SET WOOD HUB TBM 1 WR 11

SHOT AT BLACK MARK ON TOP OF 2" PVC RISER IN BOX
NAVD 29 = 71.97'

SHOT AT BLACK ~~18~~ ON TOP OF WOOD PLATFORM IN BOX
NAVD 29 = 71.735'

1" MARK SET ON 8" STEEL PIPE SET BY C.S.D.G.
NAVD 88

TBM 1

SFWMD ADIC WR 11 2007

06.27.2012
T. CORBETT
E. EAST ON

S.F.W., M.D.
WR-15
NAVD 88

STA	(+)	HT	(-)	ELEV	BM BU
Bm WR15 2007					62.01
	T 7.80'		T 6.33'		
	M 6.88'	= 68.67'	M 5.22'		
	B 5.56'		B 4.11'		
	A 4.68'		A 5.22'		
TP					= 63.47'
	T 4.27'		T 1.15'		
	M 3.755'	= 67.225'	M .645'		
	B 3.24'		B .14'		
	A 3.755'		A .645'		
Wood Platform					= 66.58'
	T 1.31'		T 1.10'		
	M .80'	= 67.38'	M .59'		
	B .29'		B .08'		
	A .80'		A .59'		
TOP OF PVC PIPE					= 66.79'
	T 1.05'				
	M .545'	= 67.335'			
	B .04'				
	A .545'				
" MARK ON PIPE					= 69.00'
			T 2.335'		
			T 4.38'		
			M 3.865'		
			B 3.35'		
			A 3.865'		
TP					= 63.47'
	T 6.31'		T 7.77'		
	M 5.19'	= 68.66'	M 6.65'		
	B 4.07'		B 5.53'		
	A 5.19'		A 6.65'		
WR 15 2007					= 62.01

PM - Cloudy.

REMARKS

FOUND SPINND ALUM DISC IN 8" CONC MON.
NAVD 88 = 62.01 NAVD 29 = 63.09 DISNEY WILDERNESS PRESERVE.

SET WOOD HUB, TBM 1 WR 15

SHOT AT BLACK X ON WOOD PLATFORM, IN BOX
NAVD 29 = 67.66'

SHOT AT BLACK MARK ON TOP OF 2" PVC RISER, IN BOX
NAVD 29 = 67.86'

SET " ON 8" PIPE SET BY CSDG
NAVD 88

TBM 1 WR 15

SFWMD ADIC WR 15 2007

Dec 28, 2012
T. Corbett
B. Easton

S.F.W.M.D.
WR 9
NAVD 88

STA	(+)	HT	(-)	EL	EM EL
BM WR 9 2007					= 69.32'
	T 6.80		T 6.49		
	M 5.99	24' = 74.91'	M 5.29		
	B 4.38		B 4.09		
	A 5.59		A 5.29		
TP					= 62.62'
	T 5.33		T 7.15		
	M 4.59	19.8' = 74.21'	M 6.40		
	B 3.85		B 5.65		
	A 4.59		A 6.40		
BM WR 4 SITE BM 2					= 67.81
	T 7.0		T 5.18		
	M 6.25	15.0' = 74.06'	M 4.45		
	B 5.50		B 3.71		
	A 6.25		A 4.45		
TP					= 69.615'
	T 6.21		T 6.52		
	M 5.01	0.42' = 74.625'	M 5.305		
	B 3.81		B 4.09		
	A 5.01		A 5.305		
BM WR 9 2007					= 69.32'

CONNECT TO Pk 4

AM = 85° CLEAR

PALE

REMARKS
FOUND S.F.W.M.D. ALUM. DISC IN 8" CONC. MORT.
NAVD 88 = 69.32' NAVD 29 = 70.36' IN DISNEY WILDERNESS PRESERVE

SET WOOD HUB TBM 1 WR 9

S.F.W.M.D. ALUM DISC IN 4x4 CONC MORT ONLY HAVE
NAVD 29 DATUM. TIE RUN AT THIS POINT TO
BENCH RUN ON PL 4.

TBM 1 WR 9

S.F.W.M.D. ADJC. NAVD 88 EL = 69.30'

07.25.2012

CORBETT

KETT

S. F. W. M. D.

WR 16

STA	(+)	Ht	(-)	EL	BMBL
Bm SITE 6 1996 WR 11					= 65.14'
	T 5.54'		T		
	M 4.87'		M 4.01'		
	B 7.20'		B		
	A 4.87'		A		
(-) ^{5/16}		= 70.01'		= 66.0	
	X		T 1.28'		
	X		M .59'		
	X		B 0.00'		
	X		A .59'		
TP <input checked="" type="checkbox"/>				= 62.42'	
	T 1.31'		T 5.58'		
	M .62'	= 70.04'	M 4.91'		
	B .62'		B 4.24'		
	A .62'		A 4.91'		
Bm SITE 6 1996 WR 11				= 65.13'	65.14'

REMARKS
RUFF POUR CONC MON. N.W. EDGE BROKEN! WITNESS POST DESTROYED
1" (-) MARK ON GAL PIPE
70.51 NVD 29
SEE ABOVE.