

# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

## SURVEYOR'S NOTES

- 1. This survey was prepared without the benefit of a title commitment.
- 2. Additions or deletions to this survey map by other than the signing party (or parties) is prohibited without the written consent of the signing party (or parties)
- 3. Coordinates shown hereon are referenced to the State Plane Coordinate System, Florida East Zone, North American Datum 1983, Adjustment of 2011 and were obtained utilizing the Trimble VRS Now network. Checks to NGS published control in the area as well as checks to coordinates derived from OPUS (Online Positional Users Service) were made periodically during the course of the survey effort. All data has been verified by redundant measurements
- 4. Bearings shown herein are referenced to the State Plane Coordinate System, Florida East Zone, North American Datum 1983, Adjustment of 2011 and are further referenced to the East line of the Northeast one-quarter (NE ¼) of Section 10, Township 55 South, Range 40 East, having a bearing of North 02°11'33" West and all others are relative thereto.
- All measurements shown herein are grid and displayed in U.S. survey feet.
- 6. Date of last field work was June 18, 2014
- 7. Aerial photography shown herein was obtained from the Labins website (www.labins.org) and was flown between January 6 and April 12, 2012.
- 8. Underground utilities were not located as part of this survey

## 9. RIGHT-OF-WAY

The following is a summary of the approach, methodology and analysis of collected survey control used for the determination of the final canal boundary lines.

Title Review: Based upon review of the Title Memorandum by Mike Debish, Senior Title Examiner and dated December 20, 2012 the district has an acquired interest in the canal rights-of-way and maintenance easements through portions of Sections 10, 11 and 14, Township 55 South, Range 40 East, Miami-Dade County, Florida.

The basis of interests through these sections of land has been acquired from individual entities, the FDOT, FEC and Dade County through a series of Easements, Easement Deeds, Quit Claim Deeds and Quit Claim Conveyance Deeds. In many of the conveyance documents the canal rights-of-way and easements were described per the recorded subdivision plats. Per the GCY contract assumptions, the basis of survey in platted areas will be the canal right-of-way location according to the final subdivision plat field positions.

**10. Right-of-Way Maps:** The primary maps used for the Canal R/W alignment are the un-recorded "Canal 100-A R/W Map", Drawing No. C-100A-8 by the Central and Southern Florida Flood Control District, dated 6-16-75 and the "Right of Way Map for Cutler Drain C-100A Extension", Project No. 2206 by the Dade County Public works Department, dated 10-12-1962. These maps were created before the recorded subdivision maps, contain their own PLSS sectional frameworks and are believed have been the right-of-way protection alignment for design of the canal. In addition to these Canal R/W maps, the Certified Corner Record for Township 55 South, Range 40 East by The Public Works Department of Dade County, right-of-way maps for US Highway No. 1 and the FEC railway and the record subdivision maps were also used as a basis for the survey.

**11. State Plane Coordinates And Control** ~ All horizontal survey work conducted on this project utilized RTK methods using Trimble R-10 GPS GNSS System Equipment for horizontal control. The differential correction for the RTK utilized the differential correction broadcast from the Trimble VRS Now network. The control was based on the North American Datum of 1983, 2011 adjustment (NAD 83-11).

12. Certified Corner Records & National Geodetic Monuments Reporting ~ All section and quarter section corners utilized in the Cadastral Surveys of the Right-of-Way were documented by filing Certified Corner Records with the FDEP/DSL/Bureau of Surveying and Mapping in Tallahassee, Florida. The consultant reported to NGS through the online reporting system the status of all control marks used for this project as required by the Statement of Work from SFWMD.

13. SFWMD Bench Mark Description Reporting ~ The consultant has delivered to, and was accepted by, the SFWMD the Survey Data Entry & Retrieval Application (SDERA) via email due the fact that the online reporting system was inoperable at the time of the reporting. Bench Marks were established in the project limits by Second Order, Class II, differential leveling. The source Bench Marks NGS benchmark "H 342" (NGSPID AC3197) and NGS benchmark "KILLIAN" (NGSPID AC3838)

**14. Location Of Improvements** ~ The consultant utilized multiple methods in locating improvements required by the SFWMD. These included the use of: Conventional total stations; Compass direction with laser measurement equipment and the Trimble V-10 Imaging Rover.

15. Core Borings ~ All core borings have been located horizontally and vertically.

**16. Establish Elevations** ~ Elevations shown hereon are referenced to the North American Vertical Datum of 1988 (NAVD 88) and are further referenced to NGS Bench Mark "H 342" (NGS PID AC3197) and NGS Bench Mark "KILLIAN" (NGS PID AC3838). To convert from NAVD88 to National geodetic Vertical Datum 29 (NGVD29) add 1.54 feet to all elevations.

17. Cross Section ~ All upland cross sections were obtained by GPS/RTK. All water side cross sections were derived from surfaces produced from multi-beam data and verified by conventional soundings. Hydrographic equipment used was an Odom MB1 Multi-Beam Echo Sounder, Odom DMS-05 motion sensor and Hemisphere VS131 DGPS Heading and Position Sensor. Hypack - Hysweep version 2013a software was used for data collection and post processing. Surfaces were generated in AutoCad Civil 3D 2014 software.

18. Centerline Profile ~ Centerline profiles were derived from surfaces produced from multi-beam data and verified by conventional soundings. Hydrographic equipment used was an Odom MB1 Multi-Beam Echo Sounder, Odom DMS-05 motion sensor and Hemisphere VS131 DGPS Heading and Position Sensor. Hypack - Hysweep version 2013a software was used for data collection and post processing. Surfaces were generated in AutoCad Civil 3D 2014 software.

19. Side Slope Erosion ~ Sub-surface water side slopes and undercutting locations were identified using side scan sonar. The side-scan system was the EdgeTech dual frequency (600 kHz and 1600 kHz) chirp side-scan sonar. The model used was the 4125. The side-scan sonar is capable of producing sonic images of the bottom with the resolution to display small objects if they are exposed and not completely buried. The limitations of the side-scan sonar are that it cannot penetrate the bottom and detect a buried object. The navigation equipment used for the survey was a Trimble DSM 232 Real Time Differential Global Positioning System (DGPS). The undercutting locations derived from the Side Scan Sonar data is depicted on sheets 43 through 65 of this map set and labelled as "Areas of Potential Undermining"

20. Tree Identification ~ Locations of all trees with a diameter of 4" or greater (measured at 4 feet above the ground) have been located and identified by point number. All tree point numbers with coordinates were provided in a spread sheet to the District for field naming identification. The tree identification is provided by the District and incorporated into the survey drawing by a table.

## MIAMI-DADE, FLORIDA



SHEET 1	COVER SHEET
SHEET 2	HORIZONTAL & VERTICAL CONTROL SHEET
SHEET 3	DRAWING SET KEY SHEET
SHEET 4	LEGAL DESCRIPTION
SHEETS 5-9	LEGAL DESCRIPTION KEY SHEETS
SHEETS 10-16	BOUNDARY SURVEY AT 1"=100'
SHEETS 17-19	PROJECT MONUMENT, POINT LISTING
SHEETS 20-42	IMPROVEMENTS AND BASELINE SURVEY PROFILE AT 1"=50
SHEETS 43-65	CROSS SECTIONS AND PLAN VIEW AT 1" $=50$ '
SHEET 66	POINT LISTING OF FOUND MONUMENTS





TREE INFORMATION										
Point Number	Northing	Easting	Latitude	Longitude	Size & Description					
22804	487205.718	875181.433	N25°40'20.936"	W80°20'6.107"	10" Queen Palm					
22820	487144.314	875186.825	N25°40'20.328"	W80°20'6.052"	8" Gumbo Limbo					
60227	487041.925	875427.426	N25°40'19.302"	W80°20'3.428"	16" Live Oak					
60228	487045.763	875382.062	N25°40'19.342"	W80°20'3.923"	16" Live Oak					
60229	487041.257	875360.782	N25°40'19.298"	W80°20'4.156"	6" Avacado					
73253	487035.13	875335.87	N25°40'19.239"	W80°20'4.429"	4" Coconut Palm					
73258	487023.052	875324.945	N25°40'19.12"	W80°20'4.549"	10" Coconut Palm					
73259	487029.842	875328.715	N25°40'19.187"	W80°20'4.507"	12" Coconut Palm					
73260	487035.806	875323.746	N25°40'19.246"	W80°20'4.561"	10" Coconut Palm					
73261	487051.607	875301.481	N25°40'19.404"	W80°20'4.804"	10" coconut Palm					
73262	487077.103	875271.941	N25°40'19.658"	W80°20'5.125"	24" Sappodilla					
73263	487075.186	875250.647	N25°40'19.64"	W80°20'5.358"	36" Seagrape					
73264	487050.48	875278.86	N25°40'19.394"	W80°20'5.051"	10" Coconut					
73265	487064.261	875240.115	N25°40'19.532" W80°20'5.47		10" Queen Palm					
73266	487048.035	875245.775	N25°40'19.371"	W80°20'5.413"	6" Queen Palm					
73273	487055.434	875228.294	N25°40'19.445"	W80°20'5.603"	30" Schefflera					
73274	487059.497	875228.581	N25°40'19.486"	W80°20'5.6"	36" Schefflera					
73275	487062.817	875228.519	N25°40'19.519"	W80°20'5.6"	12" Schefflera					
73276	487066.353	875229.192	N25°40'19.554"	W80°20'5.593"	36" Schefflera					
73403	487207.307	875285.419	N25°40'20.947"	W80°20'4.971"	10" Seagrape					
73404	487206.199	875280.598	N25°40'20.936"	W80°20'5.023"	36" Seagrape					
73405	487205.814	875274.461	N25°40'20.933"	W80°20'5.09"	36" Seagrape					
73406	487202.813	875274.471	N25°40'20.903"	W80°20'5.091"	15" Seagrape					
73407	487202.923	875249.08	N25°40'20.905"	W80°20'5.368"	14" Gumbo Limbo					
73408	487201.353	875211.437	N25°40'20.892"	W80°20'5.78"	8" Coconut Palm					
73409	487200.596	875204.107	N25°40'20.884"	W80°20'5.86"	8" Coconut Palm					
73412	487229.751	875313.717	N25°40'21.168"	W80°20'4.66"	13" Live Oak					
75084	487044.202	875492.845	N25°40'19.321"	W80°20'2.712"	6" Coconut					









**SURVEY BASELINE 'A' PROFILE** (Intended Horizontal Display Scale: 1"=50') (Intended Vertical Display Sclae: 1"=5')



TREE INFORMATION										
Point Number	Northing	Easting	<u>Latitude</u>	Longitude	Size & Description					
61255	487067.247	875871.615	N25°40'19.53"	W80°19'58.571"	14" Bottle Brush					
61256	487069.665	875875.494	N25°40'19.554"	W80°19'58.529"	10" Bottle Brush					
61257	487072.297	875901.637	N25°40'19.579"	W80°19'58.243"	16" Bottle Brush					
61259	487050.417	875929.85	N25°40'19.361"	W80°19'57.936"	12" Avacado					
61268	487055.242	875958.88	N25°40'19.407"	W80°19'57.618"	6" Tangerine					
61269	487031.108	875942.061	N25°40'19.169"	W80°19'57.803"	12" Queen Palm					
71361	487066.559	876032.103	N25°40'19.515"	W80°19'56.817"	16" Mango					
71380	487033.202	875993.019	N25°40'19.187"	W80°19'57.246"	5" Christmas Palm					
71381	487049.963	875993.98	N25°40'19.353"	W80°19'57.235"	6" Christmas Palm					
71382	487048.881	876010.199	N25°40'19.341"	W80°19'57.058"	6" Christmas Palm					
71383	487054.023	876025.908	N25°40'19.392"	W80°19'56.886"	6" Christmas Palm					
71384	487030.814	876031.617	N25°40'19.161"	W80°19'56.825"	6" Christmas Palm					
71385	487041.681	875994.509	N25°40'19.271"	W80°19'57.23"	12" Coconut					
71386	487057.515	875996.937	N25°40'19.428"	W80°19'57.202"	10" Tabulia					
71387	487069.924	875999.611	N25°40'19.55"	W80°19'57.172"	12" Coconut					
71388	487050.74	876016.943	N25°40'19.36"	W80°19'56.984"	9" Coconut					
71389	487070.566	876019.109	N25°40'19.556"	W80°19'56.959"	10" Coconut					
71390	487068.14	876061.98	N25°40'19.53"	W80°19'56.491"	18" Mango					
71391	487045.774	876065.393	N25°40'19.308"	W80°19'56.455"	6" Live Oak					
73302	487036.017	875754.107	N25°40'19.227"	W80°19'59.857"	20" Ligustrum					
73306	487056.387	875798.876	N25°40'19.426"	W80°19'59.367"	5" Carrotwood					
73310	487048.71	875851.579	N25°40'19.348"	W80°19'58.791"	12" Royal Poinciana					
73311	487056.484	875847.968	N25°40'19.425"	W80°19'58.83"	32" Yucca					









A	PPROXIMATE TOP	OF WATER EL.=1.	2' (2/11/2014)									
19+	+00	20	+00	21	+00	22	+00	23-	+00	24-	-00	





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	⊃ C +33 13			РТ +66.67					0.0
	33+			34-					-5.0
									40.0
									-10.0
33-	+00	34+	-00		35-	+00	36-	+00	-15.0

	<b>.</b>				<b>•• •</b>
int Number	Northing	Easting	Latitude	Longitude	Size & Description
22824	487239.359	8/7869.318	N25°40'21.135"	W80°19'36.728"	5" Live Oak
22825	487242.437	877877.775	N25°40'21.165"	W80°19'36.635"	8" Sabal
22827	48/225.0/3	87/862.928	N25°40'20.994"	W80°19'36.798''	10" Gumbo Limbo
22828	48/191./01	8//862.3/	N25 40 20.663	W80 19 36.806"	12" Cumbo Limbo
60205	48/1/3.088	877803.740	N25 40 20.485	W80 19 36.792	E" Cumbo Limbo
60295	48/109.244	878009.105	N25 40 19.809	W80 19 28.649	Odmid Odmud O
60296	48/139.029	878585.707	N25 40 20.105	W80 19 28.925	30 Canary Island Date
60297	48/149.703	070577 225	N25 40 20.211	W80 19 28.927	
60298	48/181.048	878577.325	N25 40 20.521	W80 19 28.993	L6" LOCONUT
60958	400970.301	070507 111	N25 40 18.515	WOU 19 20.09	
60959	400997.049	070501 2/2	N25 40 18.704	10/20 19 20.705	
60961	400304.404	070505 601	N25 40 16.574	WOU 19 20.05	6" Cocoput
60961	407005.220	070505.004	N25 40 16.70	W60 19 26.911	19" Coconut
60963	407012.920	878585 086	N25°40'18.830	W80 19 28.909	8" Coconut
60964	487027 274	878585 374	N25°/0'18.997	W80 19 28.907	
60965	487027.274	878585 /133	N25°40'19 071"	W80 19 28.913	10 Coconut
60966	487034.014	878582 578	N25°40'19.071	W80 19 28.912	
60967	487040.455	878584 669	N25°/0'19.129	W80 19 28.945	10 Coconut
60968	487051 391	878581 708	N25°40'19.180	W/80°19'28.52	
60970	487086 624	878585 508	N25°/0'19.586"	W80 19 28.952	
60971	487080.024	878583 184	N25°40'19.580	W80 19 28.908	
61004	487255 570	878521 ///1	N25°40'21 262"	W80°19'20.955	
61005	487767 600	878/150 172	N25°/0'21 227"	W80°10'20 270	יאי רמאמאמ זטיי די דמאמאמ זטיי די ד
61005	487726 122	878350 270	N25°/0'21.33/	W/20°10'21 //8	26" Ranvan
61007	487727 07	878202 022	N25°/0'21.0/9	W80°10'20 004"	10" Sahal Dalm
61008	487226 052	878475 202	N25°40'21.034	W80°19'20 6/15"	8" Farleaf Acada
62178	487234 201	878527 551	N25°40'21.074	W80°19'29 //79''	17" Panava
62179	487216 38	878534 831	N25°40'20 874"	W80°19'29 455"	12" Coconut
62180	486962 694	878598 848	N25°40'18 358"	W80°19'28 77"	30" Avacado
62181	486944 288	878602 702	N25°40'18 175"	W80°19'28 728''	14" Mango
62185	486918 350	878608 573	N25°40'17 918"	W80°19'28 666"	
62213	487132.255	878497.258	N25°40'20.042"	W80°19'29.87"	10" Coconut
62214	487145.753	878480.819	N25°40'20.177"	W80°19'30.049"	24" Areca
62216	487155.226	878465.848	N25°40'20.271"	W80°19'30.212"	10" Coconut
62217	487163.328	878388.135	N25°40'20.356"	W80°19'31.061"	10" Traveller Palm
62218	487163.19	878385.869	N25°40'20.354"	W80°19'31.086"	8" Traveller Palm
62219	487160.229	878393.025	N25°40'20.325"	W80°19'31.008"	4" Christmas Palm
62649	487163.343	878106.775	N25°40'20.37"	W80°19'34.137"	28" Womans Tongue
62650	486998.066	878533.694	N25°40'18.711"	W80°19'29.48"	12" Royal Poinciana
72877	487166.105	878361.201	N25°40'20.384"	W80°19'31.356"	, 28" Gumbo Limbo
72878	487163.939	878347.258	N25°40'20.364"	W80°19'31.508"	36" Gumbo Limbo
72879	487165.296	878339.564	N25°40'20.377"	W80°19'31.592"	5" Royal Palm
72880	487161.52	878338.969	N25°40'20.34"	W80°19'31.599"	8" Royal Palm
72881	487165.447	878332.446	N25°40'20.379"	W80°19'31.67"	60" Traveler Palm
72882	487164.101	878323.672	N25°40'20.366"	W80°19'31.766"	6" Gumbo Limbo
72883	487165.053	878319.087	N25°40'20.376"	W80°19'31.816"	10" Gumbo Limbo
72884	487163.434	878316.708	N25°40'20.36"	W80°19'31.842"	4" Live Oak
72885	487162.578	878312.396	N25°40'20.352"	W80°19'31.889"	14" Gumbo Limbo
72886	487157.926	878297.168	N25°40'20.307"	W80°19'32.056"	10" Coconut
72887	487158.512	878288.796	N25°40'20.313"	W80°19'32.147"	4" Gumbo Limbo
72888	487164.231	878276.891	N25°40'20.37"	W80°19'32.277"	4" Gumbo Limbo
72889	487162.761	878263.404	N25°40'20.356"	W80°19'32.425"	4" Sabal Palm
72890	487153.007	878262.398	N25°40'20.26"	W80°19'32.436"	20" Royal Poinciana
72891	487146.023	878258.626	N25°40'20.191"	W80°19'32.478"	6" Coconut
72896	487142.659	878285.179	N25°40'20.156"	W80°19'32.188"	10" Coconut
72925	487135.79	878152.103	N25°40'20.095"	W80°19'33.643"	20" Coconut
72926	487133.862	878166.579	N25°40'20.075"	W80°19'33.485"	10" Bottle Brush
72927	487137.706	878175.972	N25°40'20.112"	W80°19'33.382"	8" Coconut
72928	487136.78	878201.498	N25°40'20.102"	W80°19'33.103"	8" Coconut
72929	487138.1	878218.619	N25°40'20.114"	W80°19'32.916"	10" Coconut
72930	487140.737	878225.943	N25°40'20.14"	W80°19'32.835"	10" Coconut
72931	487133.924	878231.512	N25°40'20.072"	W80°19'32.775"	5" Live Oak
72932	487135.05	878239.847	N25°40'20.083"	W80°19'32.684"	7" Gumbo Limbo
72933	487138.358	878240.873	N25°40'20.116"	W80°19'32.672"	5" Coconut
72934	487141.405	878242.033	N25°40'20.146"	W80°19'32.659"	18" Gumbo Limbo
72935	487161.613	878234.323	N25°40'20.346"	W80°19'32.743"	10" Women Tongue
72936	487156.345	878229.859	N25°40'20.294"	W80°19'32.792"	12" Brazilian Pepper
72946	487156.021	878001.888	N25°40'20.303"	W80°19'35.283"	13" Money Tree
72947	487155.186	877974.812	N25°40'20.296"	W80°19'35.579"	12" Live Oak
72948	487156.742	877972.378	N25°40'20.311"	W80°19'35.606"	14" Live Oak
72949	487162.296	877972.328	N25°40'20.366"	W80°19'35.606"	48" Areca
72950	487152.624	877934.531	N25°40'20.272"	W80°19'36.02"	64" Seagrape
72951	487151.451	877889.813	N25°40'20.263"	W80°19'36.509"	8" Gumbo Limbo
72952	487150.62	877893.277	N25°40'20.255"	W80°19'36.471"	14" Gumbo Limbo
72953	487151.187	877896.283	N25°40'20.26"	W80°19'36.438"	14" Gumbo Limbo
72954	487151.033	877911.404	N25°40'20.258"	W80°19'36.273"	5" Avacado
73359	486992.882	878504.185	N25°40'18.661"	W80°19'29.802"	10" Mango
73369	487232.548	878562.568	N25°40'21.032"	W80°19'29.151"	12" Coconut Palm
73370	487221.034	878558.27	N25°40'20.918"	W80°19'29.199"	10" Cassia Javanica
75061	487058.72	878583.336	N25°40'19.31"	W80°19'28.934''	20" Coconut
75062	487068.509	878586.368	N25°40'19.406"	W80°19'28.9"	10" Coconut
75063	487076.311	878584.822	N25°40'19.484"	W80°19'28.916"	9" Coconut
75064	487153.238	877870.928	N25°40'20.282"	W80°19'36.715"	10" Gumbo Limbo
75065	487156 198	878035.463	N25°40'20.303"	W80°19'34.916"	5" Ice Cream Bean
/					
75066	487163 671	878153 551	N25°40'20 371"	W80°19'33 625"	10" Australian Pine



X



42	+00	43-	+00	44	+00	45+00	46-	+00	47-	+00	48-	-00
				APPROXIMATE	TOP OF WATER EI	.=1.2' (2/11/2014)						
												1