

**JUPITER ISLAND
BEACH RENOURISHMENT
PROJECT**



**BEACH AND NEARSHORE
MONITORING SURVEY REPORT**

July 2019 – July 2020

- **Shoreline Changes**
- **Erosion / Accretion Volumes**
- **Beach Profile Overlays**
- **Survey Drawings**

PREPARED FOR

Town of Jupiter Island, FL

**FDEP #0186991-008-JC
USACE #199201740(MOD-LCK)**

BY



**GAHAGAN & BRYANT ASSOCIATES, INC.
3802 W. BAY TO BAY BLVD., SUITE B-22
TAMPA, FL 33629
(813) 831-4408
(813) 831-4216 (fax)
Certificate of Authorization #2247**

November 2020

Carlton F. Bryant, FL P.E. #43881

Date

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1.0 INTRODUCTION AND SCOPE

1.1 BACKGROUND

The Town of Jupiter Island (the Town) is a barrier island located off the east coast of Florida, bounded on the north by the St. Lucie Inlet and on the south by the Jupiter Inlet. The opening of the St. Lucie Inlet, and subsequent jetty construction and improvements, has interrupted the flow of the sand along the coastline and has resulted in accelerated erosion of the Island's beachfront. The erosion potential along this section of shoreline is greater than at many other locations in Florida because the continental shelf narrows continuously from northern Florida to southern Florida. Once south of Jupiter Inlet, the effects of a narrower shelf are offset partly by wave sheltering by the Bahama Banks offshore. Jupiter Island lacks this sheltering, leading to a relatively higher potential for sediment transport and erosion.

The Town has maintained a long history of attempts to mitigate the severe erosion of the beaches along the developed portions of its shoreline. These efforts have consisted of various forms of shoreline armoring and beach restoration through artificial renourishment. After many years of research, studies and field investigation, and considering the environmental and economic factors involved, the Town of Jupiter Island has concluded that a long-term program of artificial beach renourishment is the only viable means to combat the erosion of its shoreline.

The current beach nourishment program began in 1973. From 1973 to 1989 various nearshore borrow areas were dredged for placement of sand on the beach. In 1989, the Town performed a sand search for high quality borrow material for the Jupiter Island beaches, resulting in the delineation of two significant borrow sites directly offshore of the Island. The northern site is a 290-acre tract approximately 11,000 feet offshore of the public beach at the northern portion of the Town, and the southern site is a 562-acre tract approximately 10,000 feet offshore of the Island at the Town's southern limits. These borrow sites have been used on the previous beach restoration projects performed since 1989. The northern site, Borrow Site A, has been exhausted. Limited material remains in the southern site, Borrow Site B. Another sand search was completed in 2017 and a new borrow site containing over 10 million cubic yards of beach compatible sand has been permitted. The new site is an easterly expansion of Borrow Site B and is therefore referred to as Borrow Site B Expansion. A project location map is provided as Figure 1-1.



Figure 1-1: 2019 Beach Project Location Map

1.2 PREVIOUS BEACH NOURISHMENT PROJECTS

Eighteen Town sponsored beach nourishment projects have been completed since 1973, including the recent beach nourishment project completed in 2019. These are listed in Table 1-1.

Table 1-1: Beach Nourishment Projects

Town of Jupiter Island Beach Nourishment Projects		
Year	Borrow Site	Volume Placed (cy)
1973	Nearshore Borrow Areas	2,612,000
1974	Nearshore Borrow Areas	1,126,200
July 1977 - Aug. 1977	Nearshore Borrow Areas	630,519
1978	Nearshore Borrow Areas	847,223
1983	Nearshore Borrow Areas	1,000,000
May 1987 - June 1987	Nearshore Borrow Areas	2,234,869
Feb. 1990 - Apr. 1990	Borrow Site "B"	585,308
1991	Borrow Site "B"	414,812
1993	Borrow Site "B"	203,736
1995-1996	Borrow Site "B"	1,741,134
Mar. 2002 - Apr. 2002	Borrow Sites "A" & "B"	611,594
Nov. 2002 - Apr. 2003	Borrow Sites "A" & "B"	907,968
Feb. - Apr. 2006	Borrow Sites "A" & "B"	733,186
Nov. - Dec. 2006	Borrow Site "A"	317,263
Jan. - Apr. 2007	Borrow Sites "A" & "B"	656,262
Jan. - Apr. 2012	Borrow Site "B"	1,150,858
Jan. - Apr. 2016	Borrow Site "B"	1,670,455
Jan. - Apr. 2019	Borrow Sites "B" & "B Expansion"	1,174,512
TOTAL 1973-2019		18,617,899

In addition to the above listed beach nourishment projects, there was a County inlet dredging project that placed sand on the beach during the years 1998 and 1999. Also, there were two USACE inlet dredging projects, during the years 2000 and 2001, and 2002 that placed material in nearshore areas, from ranges 800 feet to 1800 feet as measured from the Erosion Control Line (ECL). These are all included in Table 1-2.

Table 1-2: Inlet Dredging Projects

USACE / Martin County Beach and Nearshore Nourishment Projects		
Year	Borrow Site	Volume Placed (cy)
1998-1999	St. Lucie Inlet	500,000 (Beach)
2000 - 2001	St. Lucie Inlet	221,000 (Nearshore)
2002	St. Lucie Inlet	292,000 (Nearshore)
TOTAL		1,013,000

1.3 SCOPE OF MONITORING SERVICES AND REPORT

Gahagan and Bryant Associates, Inc. (GBA) has been retained to provide surveys and engineering services in fulfillment of the requirements for the physical monitoring plan for the Town’s USACE #199201740(MOD-LCK) and FDEP #0186991-008-JC permits. These services include topographic and hydrographic surveys of the beach, nearshore and offshore areas, as well as the borrow sites. These surveys are measured in U.S. Feet and are horizontally referenced to the U.S. State Plane Coordinate System, Florida East, North American Datum of 1983 (NAD83), and vertically referenced to the North American Vertical Datum of 1988 (NAVD88). This report summarizes and discusses the data and the performance of the beach nourishment project, and identifies erosion and accretion patterns within the monitored area. Results are analyzed for patterns, trends, or changes between annual surveys and cumulatively since project construction. In compliance with the permit, this report specifically includes:

- A record of the volume and location of all beach fill or inlet sand bypassing material placed within the project area;
- The volume and percentage of remaining fill since the last beach nourishment project;
- The most recent MHW shoreline positions (ft) in comparison with the design profile at each individual monument location (represented as the 0.0’ contour NAVD88);
- The MHW shoreline position changes (ft) relative to the pre-construction survey at each individual monument location for all the monitoring periods (represented as the 0.0’ contour NAVD88); and,
- Other shoreline position and volumetric analyses deemed useful in assessing, with quantitative measurements, the performance of the project, including historical trend analyses.

The basis of these evaluations are the annual physical monitoring surveys. This monitoring period utilizes the surveys completed in July 2019 and July 2020. Appendix G includes superimposed plots of these two beach profile surveys, the January 2020 post-Hurricane Dorian survey, and the beach fill design template.

2.0 PROJECT INFORMATION

2.1 PHYSICAL MONITORING SURVEYS

A beach profile monitoring survey was performed during July 2020 at the Town of Jupiter Island, FL, covering the limits of the recent Jupiter Island beach nourishment projects, in accordance with requirements of the Town's USACE #199201740(MOD-LCK) and FDEP #0186991-008-JC permits. The survey encompassed 59 profiles of the beach and nearshore areas located between DNR Monuments R-68 to R-121. Profile lines were surveyed at a typical spacing of 800 feet and extended from the landward limit of the beach/dune to 4,000 feet offshore. Most of these profiles have been surveyed annually since 1995 and provide for a consistent comparison with the historical surveys. This report includes comparisons and accretion/erosion analyses between the July 2020 survey and the previous summer physical monitoring survey completed during July 2019, as well as the January 2020 post-Hurricane Dorian survey completed during this monitoring period. The results are divided into five sections: Hobe Sound National Wildlife Refuge (Refuge), North, Middle, South, and Blowing Rocks. The results are similarly divided into four ranges as measured from the ECL/Baseline: Beach (-200'-300'), Nearshore (300'-800'), Offshore (800'-1800'), and Offshore (1800'-2800'). In addition, this report includes accretion/erosion trend analyses based on the annual surveys since 1995. These historical trends do not include the Refuge section, as this section was added to the physical monitoring surveys in 2018. The beach profile locations are shown in Figure 2-1 and listed in Table 2-1: Beach Profile Monitoring Survey Line Locations.



Figure 2-1: Physical Monitoring Survey Profile Locations and Volume Sections

Table 2-1: Beach Profile Monitoring Survey Line Locations

	PROFILE STATION	BASELINE P.I.	
		Northing	Easting
1	R-68	1,009,215.41	936,801.18
2	R-69	1,008,432.59	937,191.18
3	R-70	1,007,587.85	937,597.57
4	R-71	1,006,748.58	937,964.94
5	R-72	1,006,013.97	938,419.69
6	R-73	1,005,193.03	938,793.41
7	R-74	1,004,464.96	939,110.85
8	R-75	1,003,565.01	939,576.70
9	R-76A	1,002,767.30	940,063.35
10	1,002,364	1,002,527.53	940,378.01
11	1,001,686	1,001,849.53	940,832.28
12	1,000,977	1,001,140.53	941,210.04
13	1,000,258	1,000,421.53	941,563.86
14	999,543	999,706.53	941,927.08
15	998,829	998,992.53	942,295.13
16	998,122	998,285.53	942,676.36
17	997,400	997,563.53	943,024.64
18	996,663	996,826.53	943,335.66
19	995,908	996,071.53	943,604.58
20	995,131	995,294.52	943,819.55
21	994,364	994,527.52	944,059.30
22	993,615	993,778.52	944,342.31
23	992,902	993,065.52	944,708.51
24	992,183	992,346.52	945,063.35
25	991,458	991,621.52	945,402.65
26	990,730	990,893.52	945,735.80
27	989,997	990,160.52	946,058.33
28	989,265	989,428.52	946,380.41
29	988,526	988,689.52	946,686.04
30	987,770	987,933.52	946,952.74

	PROFILE STATION	BASELINE P.I.	
		Northing	Easting
31	987,014	987,177.51	947,219.78
32	986,263	986,426.51	947,496.97
33	985,519	985,682.51	947,789.97
34	984,778	984,941.51	948,091.81
35	984,039	984,202.51	948,399.29
36	983,302	983,465.51	948,709.82
37	982,559	982,722.51	949,006.41
38	981,814	981,977.51	949,300.08
39	981,078	981,241.51	949,612.75
40	980,328	980,491.51	949,892.18
41	979,566	979,729.51	950,145.18
42	978,429	978,592.50	950,534.82
43	977,664	977,827.50	950,779.62
44	976,899	977,062.50	951,023.12
45	976,130	976,293.50	951,259.20
46	975,362	975,525.50	951,494.99
47	974,589	974,752.50	951,720.10
48	973,812	973,975.50	951,935.60
49	973,025	973,188.49	952,128.53
50	972,232	972,395.49	952,306.17
51	971,439	971,602.49	952,483.80
52	970,641	970,804.49	952,650.64
53	969,838	970,001.48	952,804.29
54	969,019	969,182.47	952,917.73
55	968,204	968,367.47	953,042.67
56	967,417	967,580.46	953,235.49
57	966,631	966,794.45	953,428.06
58	965,844	966,007.45	953,620.88
59	965,058	965,221.44	953,813.45

Notes:

- 1) Stationing refers to the Y coordinate of the intersection line and the Erosion Control Line (ECL) historically referenced to NAD '27. Lines R-68 to R-76A are referenced to the respective R-Monument coordinates. All other lines are referenced to the ECL.
- 2) The ECL is referenced at range 0, with range values increasing seaward.
- 3) Profile azimuths for R-68 to R-76A are 69° grid. All other profile azimuths are 67°17'54" grid.
- 4) Coordinates refer to Florida State Plane, East Zone, NAD '83
- 5) Profile lines are approximately 800' spacing with the exception of lines 9 and 10 which are 340' apart and lines 41 and 42 which are 1200' apart. Profile lines extend offshore to range 4000.

2.2 PREVIOUS 2016 BEACH NOURISHMENT PROJECT

The 2016 Jupiter Island Beach Restoration Project resulted in the placement of 1,670,455 cubic yards of sand on 4.6 miles of beachfront within two fill segments located between DNR Monuments R-76A to R-84 and R-91 to R-113. The beach was constructed with a typical berm width of 100 to 125 feet at elevation +8.4 feet NAVD88. The berm was constructed with a slight seaward slope of 1 vertical on 100 horizontal slope. The foreshore slope was constructed on a 1 vertical on 10 horizontal slope. Additionally, where directed by the Town, sand was placed to construct a dune feature at varying elevations as generally depicted on the contract drawings to match the existing dune elevation and at widths between 20 and 30 feet. The seaward dune slope was constructed on a 1 vertical on 4 horizontal slope. The beach restoration project was performed by Manson Construction during a 2-½ month period between January 16th through April 2nd, 2016. The 2016 project beach fill areas are shown in Figure 2-2.

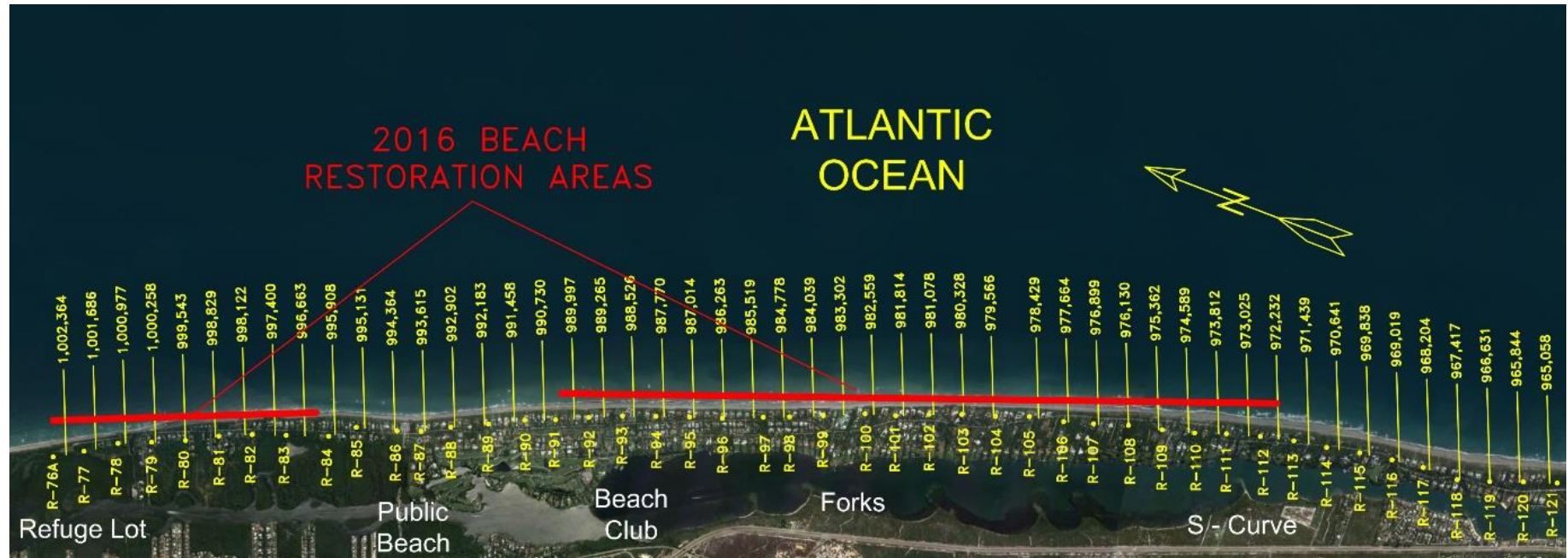


Figure 2-2: 2016 Beach Project Restoration Areas

2.3 2019 BEACH NOURISHMENT PROJECT

The 2019 Jupiter Island Beach Restoration Project resulted in the placement of 1,174,512 cubic yards of sand on 6.1 miles of beachfront within three fill segments located between DNR Monuments R-73 to R-84 (Profile 995,908), and R-87 (Profile 993,615) to R-107 (Profile 976,899), and R-111 (Profile 973,812) to R-115 (Profile 969,838). The beach was constructed with a typical berm width of 100 to 150 feet at elevation +8.4 feet NAVD88. The berm was constructed with a slight seaward slope of 1 vertical on 100 horizontal slope. The foreshore slope was constructed on a 1 vertical on 10 horizontal slope. The dredging and beach fill were performed by Weeks Marine during a 3-month period between January 21 through April 28, 2019. The 2019 project beach fill areas are shown in Figure 2-3.

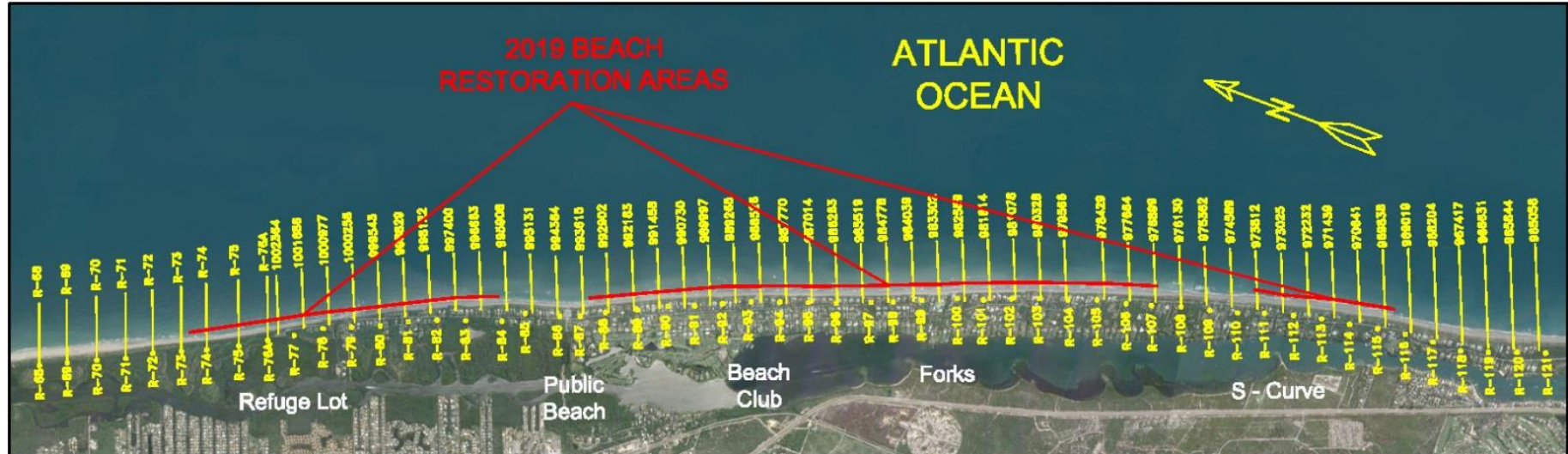


Figure 2-3: 2019 Beach Project Restoration Areas

The two borrow sites utilized for the 2019 beach nourishment project were Borrow Site B and Borrow Site B Expansion. Borrow site surveys were performed before and after the beach nourishment project completed in May 2019. Survey transects were conducted at 200' spacing over the borrow site limits. A total of 1,278,657 cubic yards were dredged, including 265,013 cubic yards removed from Borrow Site B and 1,013,644 cubic yards removed from Borrow Site B Expansion. These borrow sites are identified in Figure 2-4 and Figure 1-5.



Figure 2-4: 2019 Beach Project Borrow Site Locations

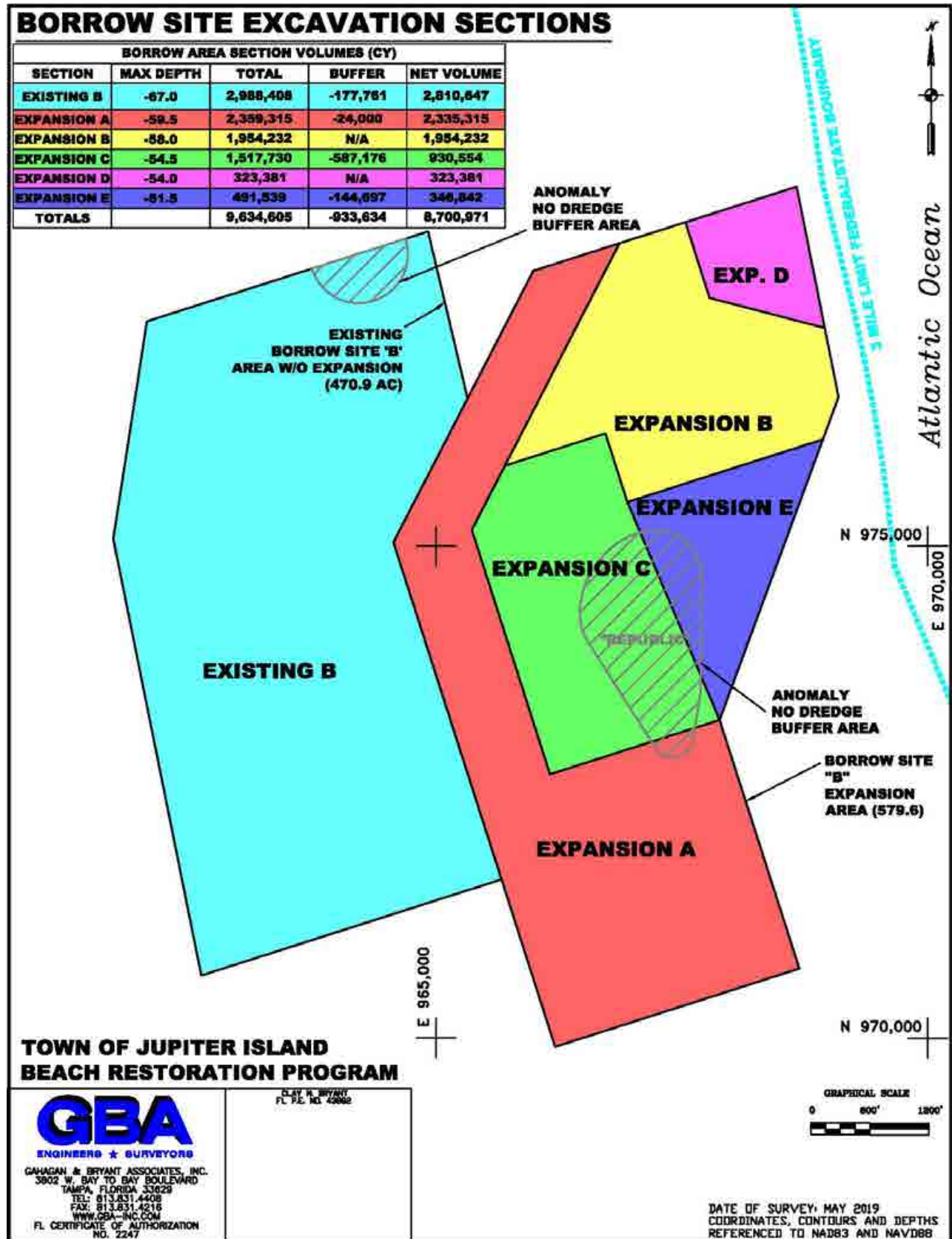


Figure 1-5: 2019 Beach Project Borrow Site Sections

3.0 WEATHER IMPACTS (July 2019 – July 2020)

During this past year monitoring period, the Town's beaches were directly impacted by Hurricane Dorian September 2-3, 2019. It approached the southeast coast of Florida as a Category 5 hurricane with sustained winds of 165 miles per hour. As it reached Freeport, Bahamas it stalled and slowed to a Category 3 hurricane with sustained winds of 120 miles per hour as it moved northward passing by Jupiter Island. The size and location of Hurricane Dorian as it passed by the southeast coast of Florida are shown in Figures 3-1 and 3-2.



Figure 3-1: Hurricane Dorian September 2, 2019



Figure 3-2: Hurricane Dorian September 3, 2019

As Hurricane Dorian passed by Jupiter Island, wave heights offshore reached over 15 feet. The Town's beaches were also impacted by the passage of several cold fronts and northeasters during the fall/winter season. The following graph, Figure 3-3, presents the recorded wave heights, from July 1, 2019 to June 30, 2020, as recorded by the NOAA Station 41114 Waverider Buoy, located offshore of Ft. Pierce, FL during the past year. The figure indicates that at least 20 unnamed storm events exceeded a 6-foot significant wave height, with three events surpassing wave heights of 10 feet. These storms contributed to accretional/erosional variations throughout the sand system (beach/nearshore/offshore) during this monitoring period.

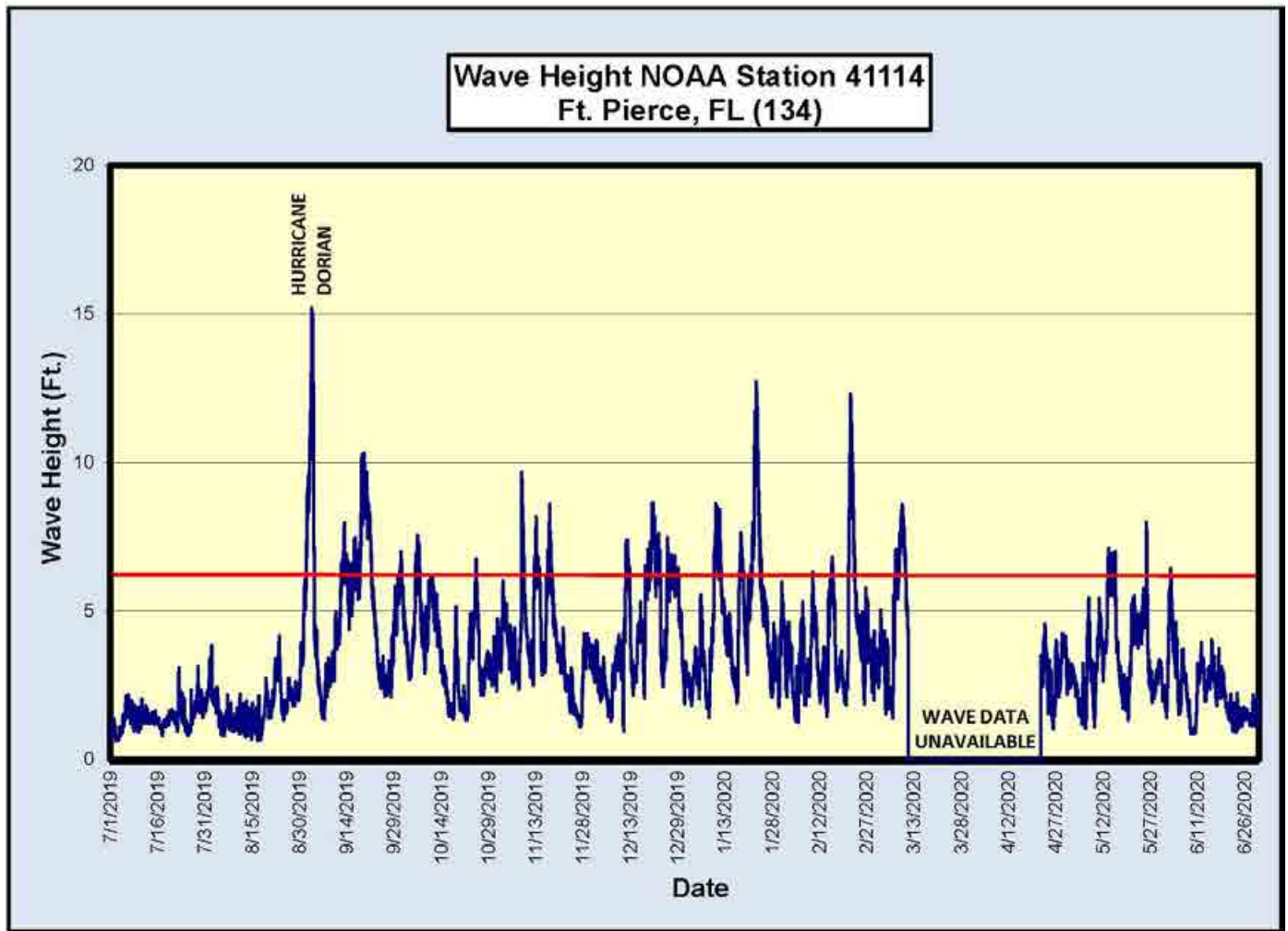


Figure 3-3: Wave Heights (July 2019 – July 2020)

4.0 JULY 2019 TO POST-STORM SURVEY (JANUARY 2020)

The following data analyses are based on the annual physical monitoring survey completed in July 2019 and the post-storm survey completed in January 2020. These surveys were performed in the same manner and for the same profiles and ranges providing for suitable comparisons and accurate calculations. The post-storm survey did not include profile lines beyond the 2019 Beach Project limits at the north and south ends (Profiles R-68 to R-72 and 967,417 to 965,058). In order to complete the volumes calculations, 60% of the total volumes for the annual monitoring period (July 2019 to July 2020) were applied to these profiles.

4.1 ACCRETION / EROSION VOLUMES

Table 4-1 summarizes the accretion/erosion volumes (cubic yards) for the 6-month period between the July 2019 annual physical monitoring survey and the January 2020 post-storm survey. The data is summarized for each section and survey range of the entire project area.

Table 4-1: Accretion/Erosion Volumes July 2019 to January 2020

SECTION	ACCRETION/EROSION BY SURVEY RANGE (Cubic Yards)				NET VOLUME CHANGE (CY)
	Beach -200' – 300'	Nearshore 300' – 800'	Offshore 800' – 1800'	Offshore 1800' – 2800'	
Refuge	(32,236)	13,368	12,848	(68,116)	(74,136)
North	(86,287)	(40,240)	57,474	(20,640)	(89,693)
Middle	(180,120)	1,183	25,524	54,244	(99,168)
South	(210,772)	(45,317)	166,927	(23,951)	(113,114)
Blowing Rocks	(37,332)	(94,546)	109,917	(31,488)	(53,449)
TOTALS	(546,747)	(165,553)	372,690	(89,951)	(429,561)

Note: Volumes in parenthesis () indicate erosion.

It is apparent from this data that all five sections experienced significant losses on the beach (Range -200' – 300'), largely due to the effects of Hurricane Dorian and the early winter storm season. Furthermore, the nearshore area (Range 300' – 800') and the offshore area (Range 1800' – 2800') experienced losses in most of the sections. However, during this period, the offshore area (Range 800' – 1800') of the survey profiles benefitted from accretional gains in all five sections. Overall, the entire system, through all sections and ranges had a net loss of nearly 430,000 cubic yards during this period.

5.0 POST-STORM SURVEY (JANUARY 2020) TO JULY 2020

The following data analyses are based on the post-storm survey completed in January 2020 and the July 2020 annual physical monitoring survey. These surveys were performed in the same manner and for the same profiles and ranges providing for suitable comparisons and accurate calculations. The post-storm survey did not include profile lines beyond the 2019 Beach Project limits at the north and south ends (Profiles R-68 to R-72 and 967,417 to 965,058). In order to complete the volumes calculations, the remaining 40% of the total volumes for the annual monitoring period (July 2019 to July 2020) were applied to these profiles.

5.1 ACCRETION / EROSION VOLUMES

Table 5-1 summarizes the accretion/erosion volumes (cubic yards) for the 6-month period between the January 2020 post-storm and the July 2020 surveys. The data is summarized for each section and survey range of the entire project area.

Table 5-1: Accretion/Erosion Volumes January 2020 to July 2020

SECTION	ACCRETION/EROSION BY SURVEY RANGE (Cubic Yards)				NET VOLUME CHANGE (CY)
	Beach -200' – 300'	Nearshore 300' – 800'	Offshore 800' – 1800'	Offshore 1800' – 2800'	
Refuge	6,305	(14,097)	(23,680)	(24,419)	(55,892)
North	2,256	(45,253)	(36,977)	(48,382)	(128,356)
Middle	(187)	(50,406)	(65,022)	(10,249)	(125,863)
South	2,319	(126,276)	(68,016)	14,784	(177,188)
Blowing Rocks	5,812	(76,681)	24,292	(8,130)	(54,706)
TOTALS	16,505	(312,712)	(169,402)	(76,396)	(542,005)

Note: Volumes in parenthesis () indicate erosion.

It is apparent from this data that during this period the beach (Range -200 - 300) experienced modest recovery following Hurricane Dorian and the late winter storm season. However, the nearshore area (Range 300' – 800') and the offshore areas (Ranges 800' – 1800' and 1800' – 2800') experienced significant erosional losses in most of the sections. Overall, the entire system, through all sections and ranges showed a net loss of just over 540,000 cubic yards during this period.

6.0 CURRENT ANNUAL PHYSICAL MONITORING PERIOD (July 2019 – July 2020)

The following data analyses are based on the July 2019 annual physical monitoring survey and the July 2020 annual physical monitoring survey. These surveys were performed in the same manner and for the same profiles and ranges providing for suitable comparisons and accurate calculations.

6.1 ACCRETION / EROSION VOLUMES

The following table summarizes the accretion/erosion volumes (cubic yards) for the 1-year period between the July 2019 and the July 2020 surveys. The data is summarized for each section and survey range of the entire project area in Table 6-1.

Table 6-1: Accretion/Erosion Volumes July 2019 to July 2020

SECTION	ACCRETION/EROSION BY SURVEY RANGE (Cubic Yards)				NET VOLUME CHANGE (CY)
	Beach -200' – 300'	Nearshore 300' – 800'	Offshore 800' – 1800'	Offshore 1800' – 2800'	
Refuge	(25,931)	(729)	(10,832)	(92,536)	(130,028)
North	(84,031)	(85,493)	20,498	(69,022)	(218,049)
Middle	(180,307)	(49,222)	(39,498)	43,996	(225,031)
South	(208,453)	(171,593)	98,911	(9,167)	(290,302)
Blowing Rocks	(31,520)	(171,227)	134,209	(39,618)	(108,156)
TOTALS	(530,242)	(478,265)	203,288	(166,347)	(971,566)

Note: Volumes in parenthesis () indicate erosion.

It is apparent from this data that all five sections experienced significant losses on the beach (Range -200' – 300'), largely due to the effects of Hurricane Dorian and the winter storm season. Furthermore, the nearshore area (Range 300' – 800') experienced significant losses in all of the sections and the offshore area (Range 1800' – 2800') experienced losses in most of the sections. However, during this period, the offshore area (Range 800' – 1800') of the survey profiles benefitted from accretional gains in three of the sections, especially in the South and Blowing Rocks sections. Overall, the entire system, through all sections and ranges had a net loss just over 970,000 cubic yards during this period.

6.2 HISTORICAL ACCRETION / EROSION ANNUALIZED RATES

Table 6-2 summarizes the accretion/erosion annual average volumetric change (cubic yards per year) for each section and survey range of the project area, with renourishment project fill volumes included.

Table 6-2: Accretion/Erosion Annual Averages (fill included)

SECTION	AVERAGE ANNUAL VOLUME CHANGE BY SURVEY RANGE, JUNE 1995 – JULY 2020 (CY/YR) (project fill volumes included)			TOTAL VOLUME CHANGE (CY/YR)
	Beach -200' – 300'	Nearshore 300' – 800'	Offshore 800' – 1800'	
North	32,492	16,506	(8,412)	40,586
Middle	38,003	6,643	(15,380)	29,267
South	40,253	(5,791)	(20,526)	13,936
Blowing Rocks	29,424	9,042	5,996	44,462
TOTALS	140,173	26,400	(38,321)	128,251

Note: Volumes in parenthesis () indicate erosion.

These annual volume changes since June 1995 are graphically represented in the following chart, Figure 6-1, with trend lines shown and renourishment events noted.

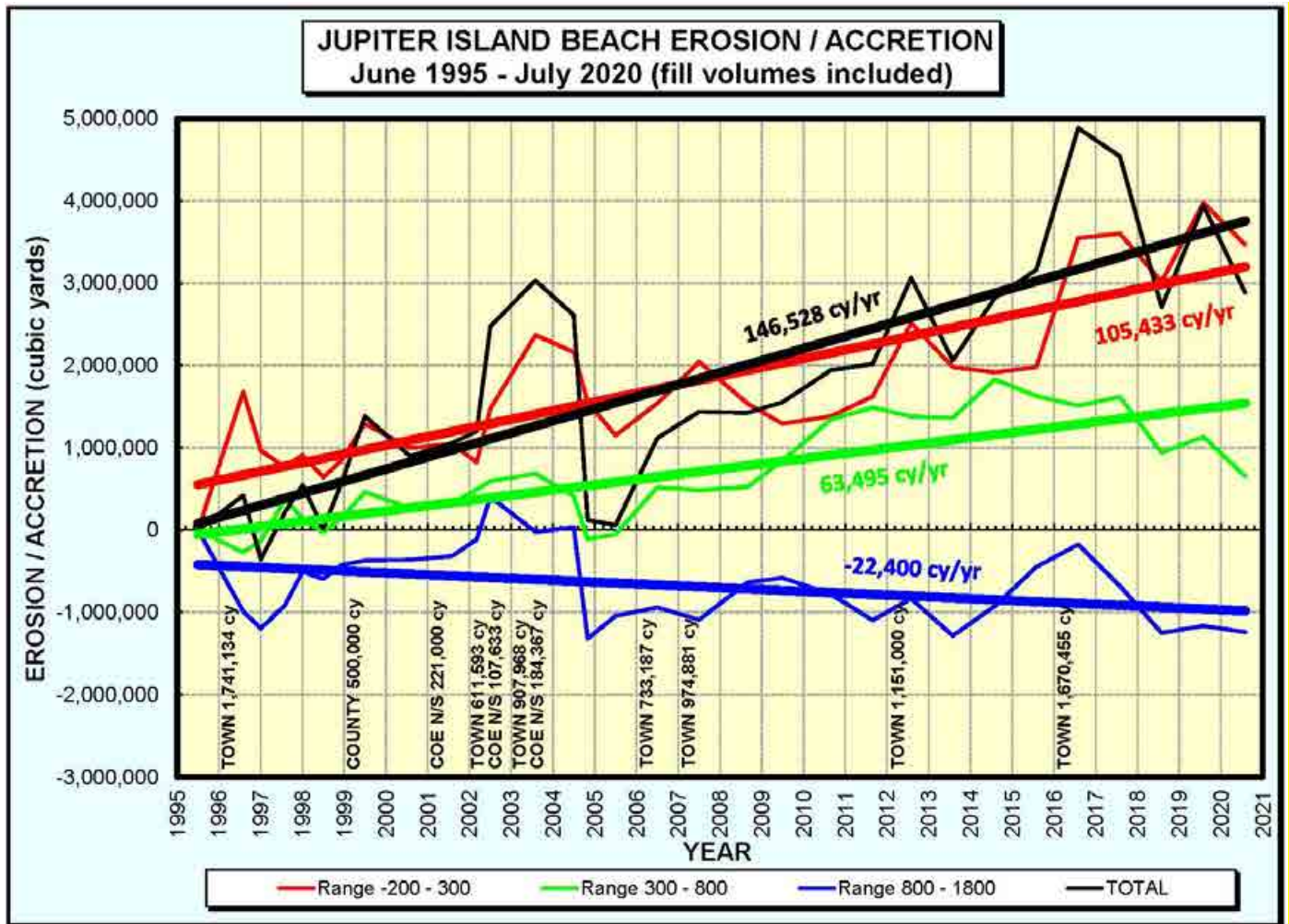


Figure 6-1: Beach Erosion/Accretion June 1995 through July 2020 (fill volumes included)

Upon review of Table 6-2 and Figure 6-1 including fill volumes, it is apparent that the beach and overall system has benefitted from the renourishment projects, overcoming the predominate erosional forces that regularly impact the coast. However, the offshore area (Range 800' – 1800') continues to suffer moderate erosional losses.

Table 6-3 summarizes the accretion/erosion annual average volumetric change (cubic yards per year) for the total for all sections by survey range of the project area, but with renourishment fill volumes removed to better represent the natural changes only. The data is also represented in Figure 6-2 with the fill volumes removed. The following list of projects were removed:

- 6/1995-7/1996 Range -200 - 300 adjusted by -1,741,134 for renourishment project
- 11/1998 - 6/1999 Range -200 - 300 adjusted by -500,000cy for renourishment project (70% of bin measured volume of 714,000cy)
- 7/2000 - 7/2001 Range 800-1800 adjusted by -221,000cy for offshore disposal from inlet project
- 2/2002 - 6/2002 Range -200 - 300 adjusted by -611,593cy for beginning of renourishment project

- 2/2002 - 6/2002 Range 800-1800 adjusted by -107,633cy for beginning of offshore disposal from inlet project
- 6/2002 - 7/2003 Range -200 - 300 adjusted by -907,968 for remainder of renourishment project
- 6/2002 - 7/2003 Range 800-1800 adjusted by -184,367cy for remainder of offshore disposal from inlet project
- 6/2005 - 7/2006 Range -200 - 300 adjusted by -733,186cy for beginning of renourishment project
- 7/2006 - 6/2007 Range -200 - 300 adjusted by -974,881cy for remainder of renourishment project
- 8/2011 - 7/2012 Range -200 - 300 adjusted by -1,151,000cy for renourishment project
- 7/2015 - 7/2016 Range -200 - 300 adjusted by -1,670,455cy for renourishment project
- 7/2018 - 7/2019 Range -200 - 300 adjusted by -1,174,512cy for renourishment project

Table 6-3: Accretion/Erosion Annual Averages (fill removed)

SECTION	AVERAGE ANNUAL VOLUME CHANGE BY SURVEY RANGE, JUNE 1995 – JULY 2020 (CY/YR) (project fill volumes removed)			TOTAL VOLUME CHANGE (CY/YR)
	Beach -200' – 300'	Nearshore 300' – 800'	Offshore 800' – 1800'	
TOTALS	(243,307)	26,400	(59,046)	(275,953)

Note: Volumes in parenthesis () indicate erosion.

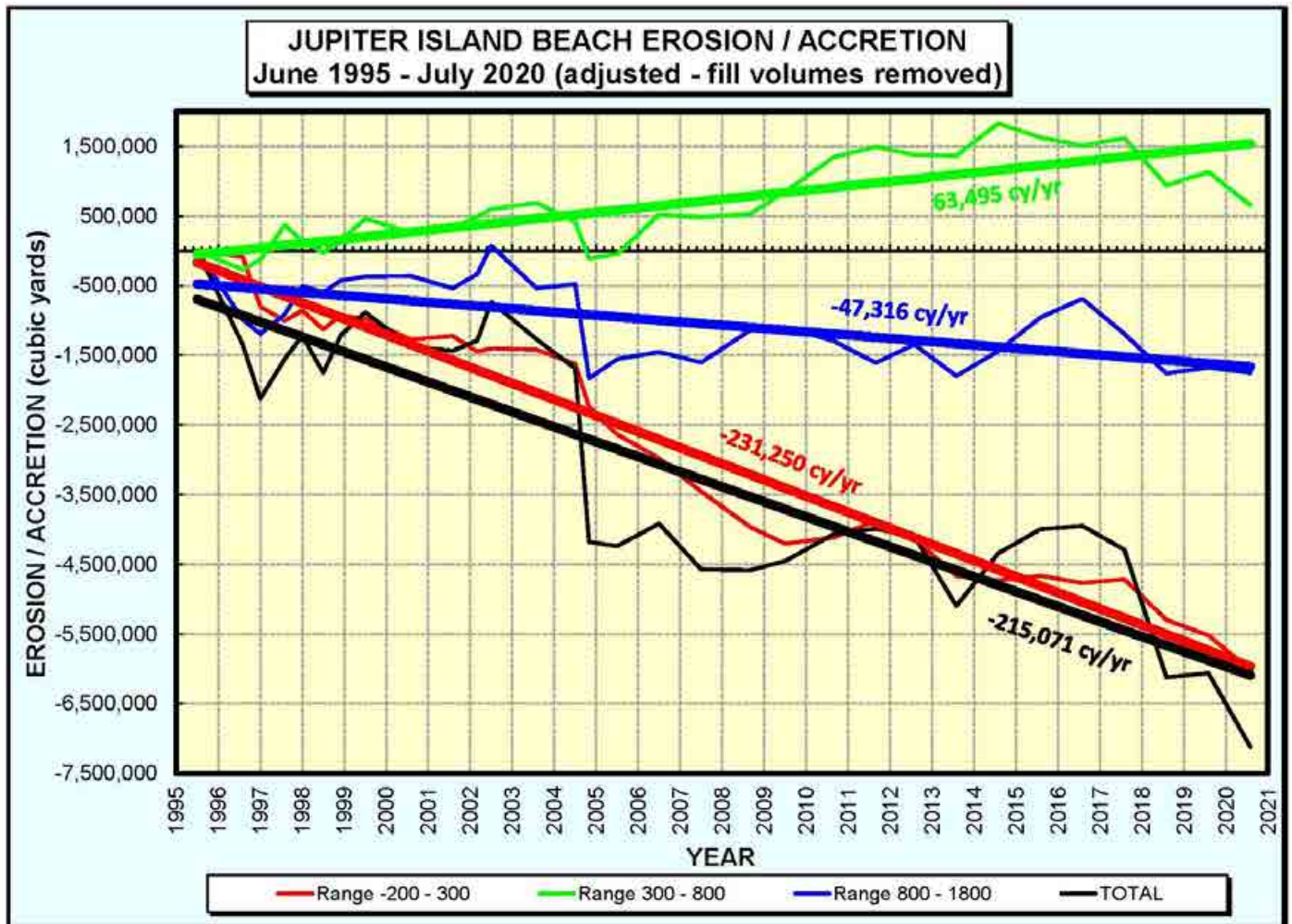


Figure 6-2: Beach Erosion/Accretion June 1995 through July 2020 (fill volumes removed)

The above annualized rates in Figure 6-2 are based on a trendline analysis. Upon review of Table 6-3 and Figure 6-2 with the fill volumes removed it is apparent that frequent and continuous natural erosional forces are causing detrimental impacts to the beach, exhibiting an average annual loss of approximately 230,000 cubic yards per year on the beach. However, the significant losses are attributable to hurricanes. In particular, during 2004, Hurricanes Frances and Jeanne struck the east coast of Florida, in the direct vicinity of the island, causing severe sand losses to the beaches and offshore regime. To better understand and quantify the impacts of these storms, the previous volume table and chart were adjusted by subtracting the volumes lost during the time period based on before and after storm surveys and substituting the average of the previous years to the 3-month period. In addition, Hurricane Matthew passed by in 2016, Hurricane Irma passed by in 2017, and Hurricane Dorian passed by in 2019 causing substantial erosional impacts to the beach. The volume changes calculated from these post-storm surveys were used to adjust the volume table. The resulting averages better represent a typical average year with no renourishment projects and no major hurricane impacts. These results are presented in Table 6-4 and Figure 6-3.

Table 6-4: Accretion/Erosion Annual Averages (fill removed, hurricanes removed)

SECTION	AVERAGE ANNUAL VOLUME CHANGE BY SURVEY RANGE, JUNE 1995 – JULY 2020 (CY/YR) (fill volumes removed) (2004, 2016, 2017 hurricanes removed)			TOTAL VOLUME CHANGE (CY/YR)
	Beach -200' – 300'	Nearshore 300' – 800'	Offshore 800' – 1800'	
TOTALS	(170,532)	57,233	40,935	(72,365)

Note: Volumes in **parenthesis ()** indicate erosion.

Without the hurricane impacts the average annual loss on the beach is reduced by roughly 70,000 cubic yards to approximately 170,000 cubic yards per year. The annual volumes since June 1995 without the renourishment event fill volumes and without the 2004, 2016, 2017, and 2019 hurricane impacts are graphically represented in Figure 6-3, and suggest an annualized erosion trend on the beach of approximately 185,000 cubic yards, neglecting those significant hurricane events and fill projects.

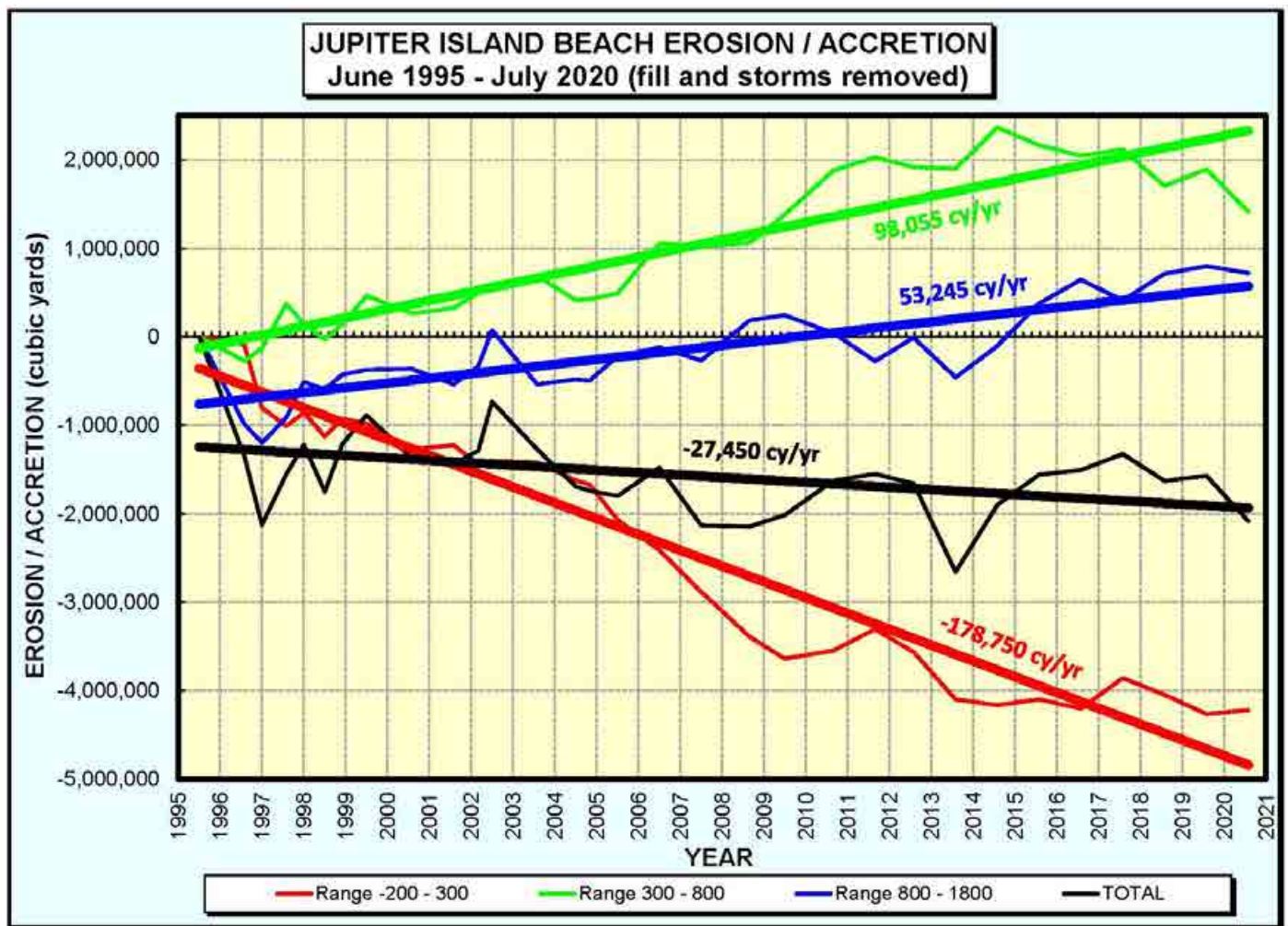


Figure 6-3: Beach Erosion/Accretion June 1995 through July 2020 (fill and hurricane events removed)

6.3 CUMULATIVE VOLUMETRIC CHANGE

Figure 6-4 graphically represents the cumulative volumetric changes (cubic yards) for the 5-year period between the July 2015 and the July 2020 surveys. The data is summarized for each survey range (Beach, Nearshore, Offshore, and Total) of the entire project area.

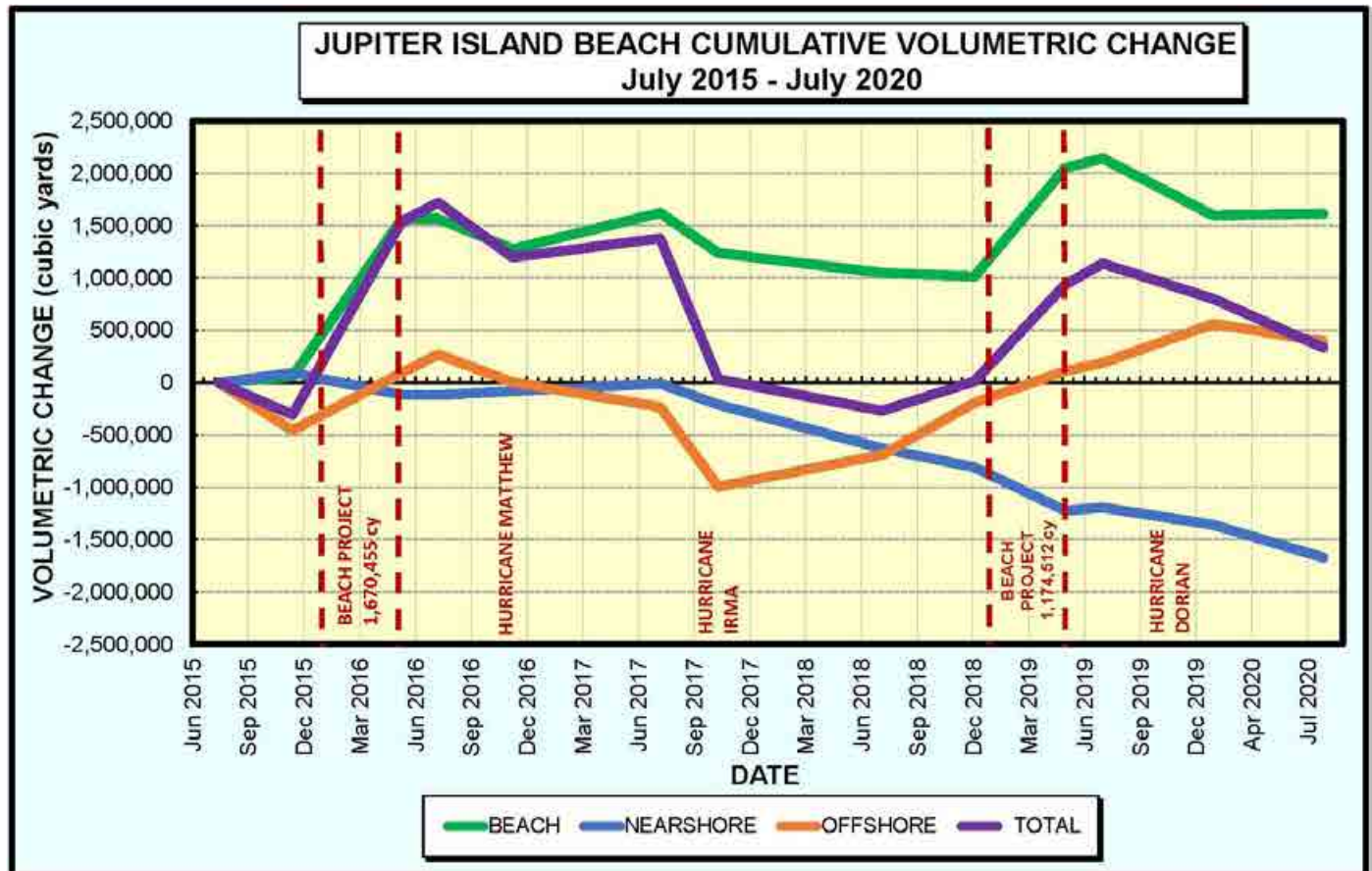


Figure 6-4: Cumulative Volumetric Change Since 2015

It is apparent from this chart that the beach and overall system have benefitted from the 2016 and 2019 renourishment projects, overcoming the effects of hurricanes Matthew and Irma. Without these fill events the beach would have suffered from continual erosion. However, Hurricane Dorian caused rather severe erosional losses on the beach and nearshore reaches following the 2019 renourishment. Apparently, much of these losses were moved to the offshore region.

6.4 2019 BEACH PROJECT RESIDUAL VOLUMES (May 2019 to July 2020)

The most recent beach renourishment project was completed during January to April 2019. Approximately 1,174,512 cubic yards of sand was placed on the beach in three segments. The North Fill Section was filled with 666,401 cubic yards between profile R-73 to profile 995,908. As of this July 2020 condition survey, approximately 53%, or 351,142 cubic yards remain in place on the beach within this fill area, indicating erosional losses of roughly half of the placed fill volume. The Middle Fill Section was filled with 415,080 cubic yards between profile 993,615 and profile 976,899. As of this July 2020 condition survey,

approximately 12%, or 50,371 cubic yards remain in place on the beach within this fill area, after experience significant erosional losses due to Hurricane Dorian. The South Fill Section was filled with 93,031 cubic yards between profile 973,812 and profile 969,838. As of this July 2020 condition survey, approximately 90%, or 83,280 cubic yards remain in place on the beach within this fill area, exhibiting modest erosional losses. Net erosional losses in all three segments combined total approximately 689,719 cubic yards or 59% of the total volume placed on the beach in early 2019. These losses include an estimated 127,545 cubic yards lost during the project construction time period from December 2018 to May 2019. Since the completion of the project in May 2019, a span of 15 months, an additional 562,174 cubic yards has eroded from the beach within the project fill limits. These volumes are also presented in Table 6-5 and Figure 6-5.

Table 6-5: 2019 Project Residual Fill Volumes

Jupiter Island Residual Fill Volumes - 2019 Restoration Project						
Fill Section	Jan-Apr 2019 Project Fill	Remaining Volumes as of AD Survey May 2019	Gains / Losses May 2019 - July 2019	Gains / Losses July 2019 - July 2020	July 2020 Residual Volumes	%
North Fill Section R-73 - 995,908	666,401	513,824	(3,776)	(158,907)	351,142	53%
Middle Fill Section 993,615 - 976,899	415,080	416,373	50,118	(416,120)	50,371	12%
South Fill Section 973,812 - 969,838	93,031	116,769	(689)	(32,800)	83,280	90%
Total	1,174,512	1,046,967	45,653	(607,827)	484,793	41%

Note: Volumes in parenthesis () indicate erosion.



Figure 6-5: 2020 Beach Project residual fill volumes

6.5 SHORELINE CHANGES

Table 6-6 summarizes the average and range of net shoreline changes for the 12-month period between the July 2019 and the July 2020 annual physical monitoring surveys. The data is summarized for each section of the project, and is based on the position of the shoreline referenced at 0.0' NAVD88. A full tabulation of shoreline changes for each section is included in Appendix E.

Table 6-6: Shoreline Change July 2019 to July 2020

SECTION	AVG. SHORELINE CHANGE (ft.)	MAX. SHORELINE RETREAT (ft.)	MAX. SHORELINE ADVANCE (ft.)
Refuge	(3)	(50)	37
North	(15)	(60)	40
Middle	(27)	(71)	11
South	(27)	(99)	31
Blowing Rocks	13	(45)	105

Note: A **negative** net change indicates erosion, or landward movement of shoreline.

All five sections of the Town's beachfront were negatively impacted during this period for most of the profiles, primarily as a result of impacts of Hurricane Dorian. Only a few profiles at the south end of the South and Blowing Rocks sections exhibited an advancing shoreline. The shoreline changes are graphically represented in Figure 6-6 and Figure 6-87 depicting the positions of the 0.0' contour (NAVD88) from the July 2019 and July 2020 monitoring surveys and the net shoreline changes between the two surveys.

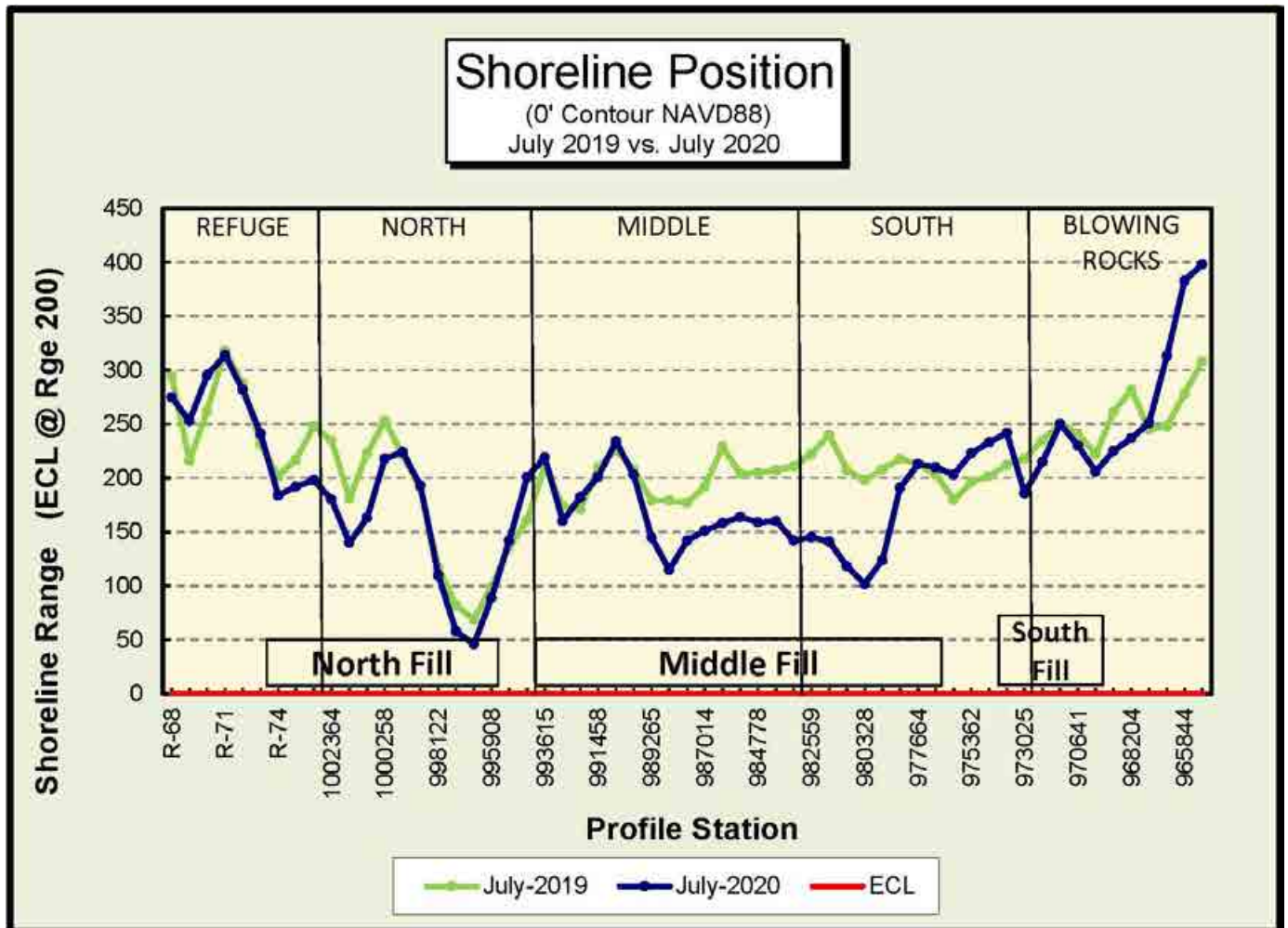


Figure 6-6: Shoreline Position July 2019 vs. July 2020

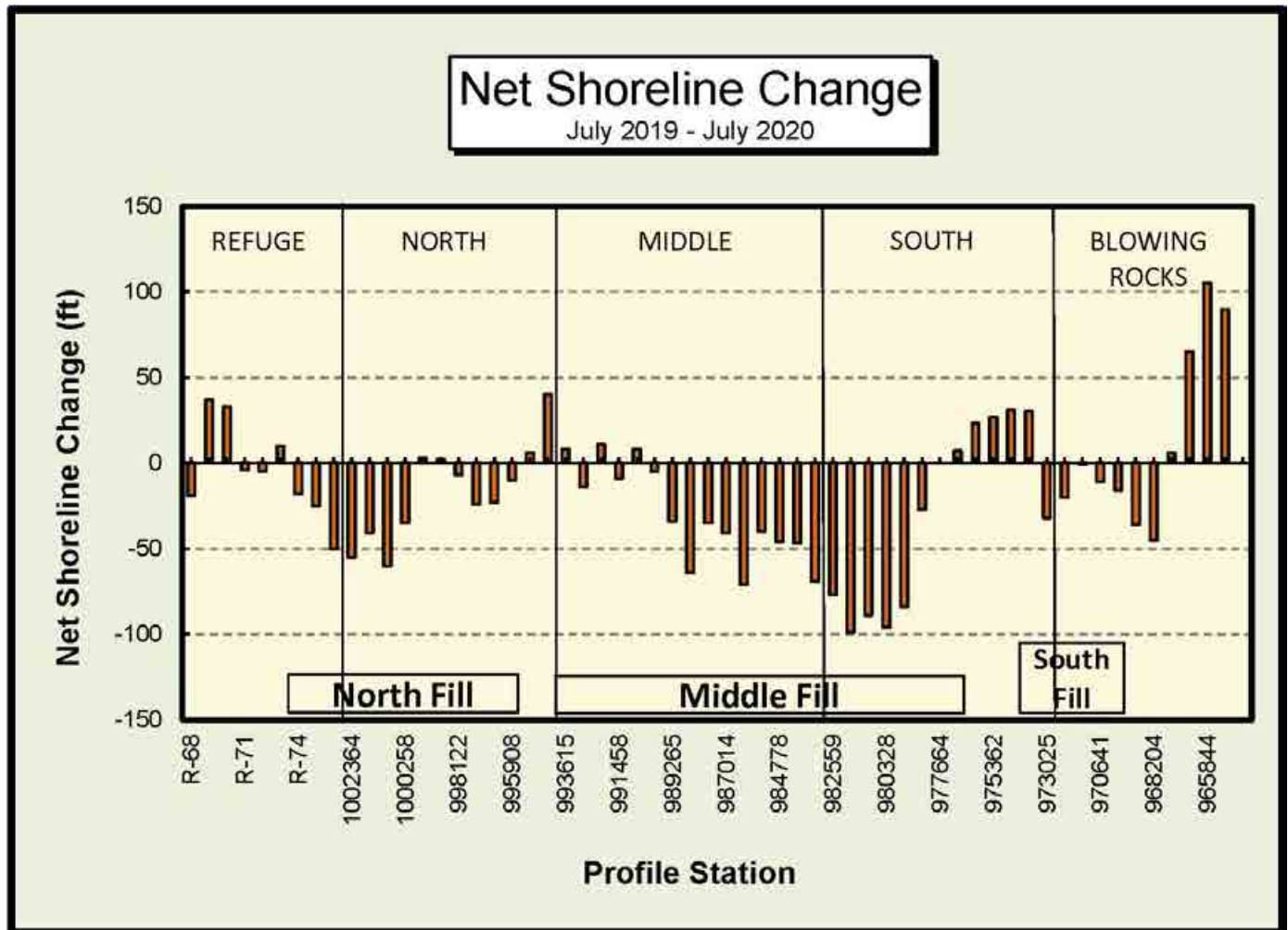


Figure 6-7: Shoreline Position Change July 2019 vs. July 2020

Figure 6-6 and Figure 6-7 reveal that the shoreline has retreated significantly throughout most sections over the past year, as a direct result of Hurricane Dorian and other winter storms. However, the July 2020 survey recorded that new maximum shoreline advance positions were achieved at 13 beach profile stations, based on measurements since 1995, as a result of eroded sands shifting towards the south and accumulating onto a few southern areas. This analysis presents an average shoreline advance of 128 feet in 2019 as compared to 1995, but this is an average of 18 feet less than in July 2019. A summary representation is presented in Figure 6-8. Detailed drawings exhibiting the historical shoreline range since 1995 are included in Appendix F, with the July 2020 positions included.

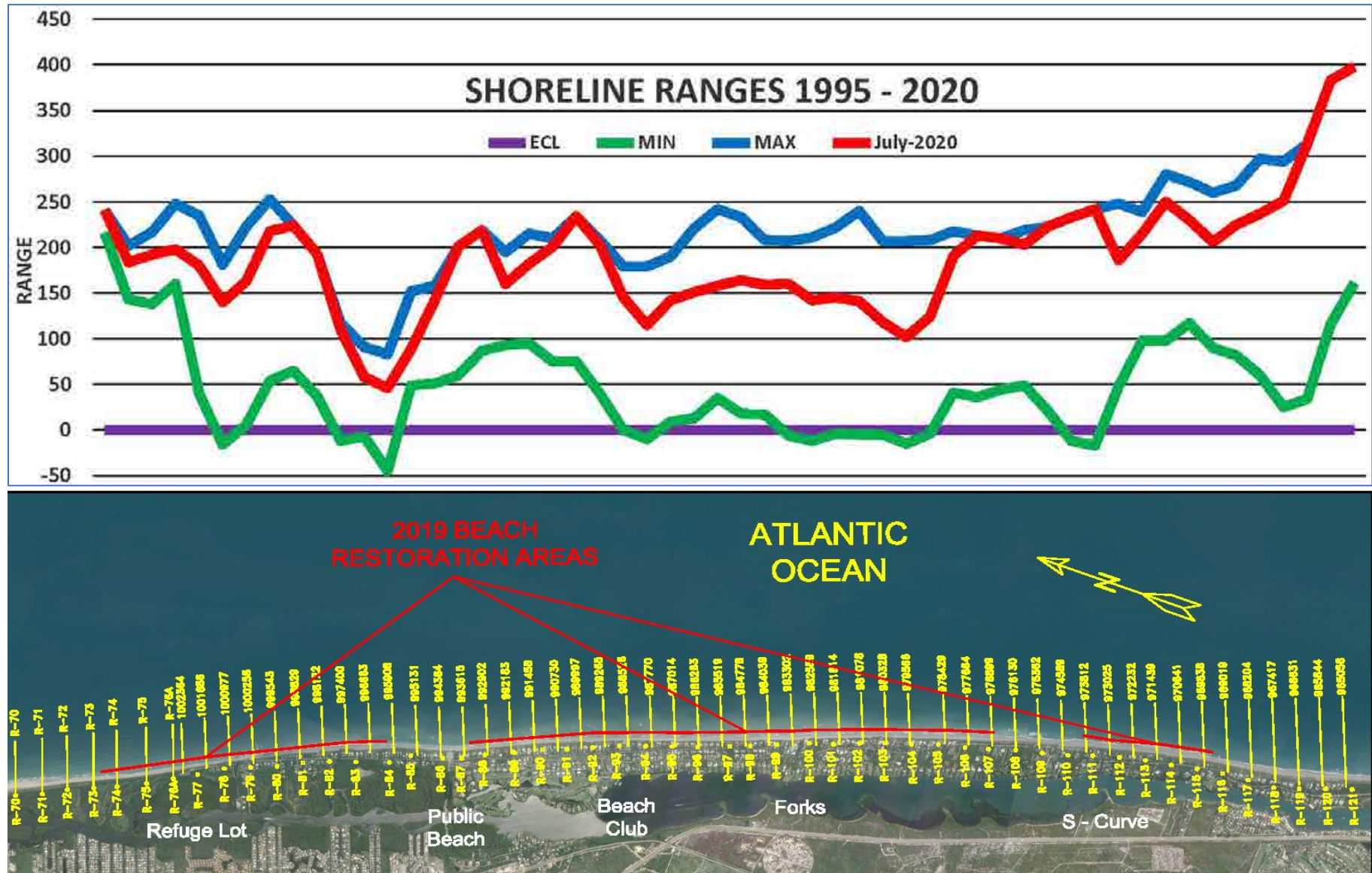


Figure 6-8: Minimum and Maximum Shoreline Ranges 1995 - 2020

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APPENDIX A
Accretion / Erosion Volume Tabulation
July 2019 – January 2020 (Post-Storm)

JUPITER ISLAND BEACH RESTORATION PROJECT

BEACH EROSION / ACCRETION

July 2019 - January 2020

(Volume in Cubic Yards)

SURVEY PROFILE	SURVEY RANGE				NET CHANGE
	-200 - 300	300 - 800	800 - 1800	1800 - 2800	
<u>Refuge Section</u>					
R-68 (Refuge)					
	2,520	1,475	557	247	4,799
R-69 (Refuge)					
	7,512	1,498	4,819	(202)	13,627
R-70 (Refuge)					
	3,552	(3,863)	420	(4,192)	(4,083)
R-71 (Refuge)					
	546	(5,001)	(3,294)	(7,819)	(15,568)
R-72 (Refuge)					
	(1,853)	(2,755)	3,846	(8,961)	(9,723)
R-73 (Refuge)					
	(7,292)	974	9,971	(10,858)	(7,205)
R-74 (Refuge)					
	(14,622)	7,811	(608)	(19,621)	(27,040)
R-75 (Refuge)					
	(15,309)	11,479	(3,718)	(15,049)	(22,598)
R-76A (Refuge)					
	(7,291)	1,750	854	(1,660)	(6,347)
1,002,364 (Refuge)					
Section Total	(32,236)	13,368	12,848	(68,116)	(74,136)

*Volumes in parenthesis indicate erosion.

**The Erosion Control Line is referenced at Range 0.

JUPITER ISLAND BEACH RESTORATION PROJECT

BEACH EROSION / ACCRETION

July 2019 - January 2020

(Volume in Cubic Yards)

SURVEY PROFILE	SURVEY RANGE				NET CHANGE
	-200 - 300	300 - 800	800 - 1800	1800 - 2800	
North Section					
1,002,364 (Refuge)					
	(22,259)	(8,468)	(207)	2,480	(28,454)
1,001,686 (161 N Beach Rd.)					
	(26,460)	(16,705)	1,997	(1,533)	(42,701)
1,000,977 (147 N Beach Rd.)					
	(18,295)	(13,937)	(1,138)	(8,271)	(41,641)
1,000,258 (130 N Beach Rd.)					
	(627)	(1,238)	2,060	(4,867)	(4,672)
999,543 (113 N Beach Rd.)					
	6,949	4,454	9,729	5,858	26,991
998,829 (99 N Beach Rd.)					
	7,771	(2,521)	7,900	698	13,848
998,122 (Coast Guard)					
	1,778	(1,305)	1,458	(5,782)	(3,851)
997,400 (67 N Beach Rd.)					
	(8,741)	(84)	2,128	(418)	(7,115)
996,663 (53 N Beach Rd.)					
	(8,657)	(1,364)	6,729	(307)	(3,599)
995,908 (35 N Beach Rd.)					
	(8,583)	176	7,055	(2,227)	(3,579)
995,131 (19 N Beach Rd.)					
	(11,279)	(1,037)	8,363	(3,982)	(7,935)
994,364 (Public Beach)					
	2,115	1,788	11,400	(2,289)	13,014
993,615 (9 S Beach Rd.)					
Section Total	(86,287)	(40,240)	57,474	(20,640)	(89,693)

*Volumes in parenthesis indicate erosion.

**The Erosion Control Line is referenced at Range 0.

JUPITER ISLAND BEACH RESTORATION PROJECT

BEACH EROSION / ACCRETION

July 2019 - January 2020

(Volume in Cubic Yards)

SURVEY PROFILE	SURVEY RANGE				NET CHANGE
	-200 - 300	300 - 800	800 - 1800	1800 - 2800	
<u>Middle Section</u>					
993,615 (9 S Beach Rd.)					
	(1,502)	(17,451)	6,672	(8,373)	(20,653)
992,902 (21 S Beach Rd.)					
	(6,418)	(18,411)	(3,757)	(7,658)	(36,245)
992,183 (39 S Beach Rd.)					
	3,313	1,275	(5,915)	(560)	(1,887)
991,458 (51 S Beach Rd.)					
	3,817	1,173	6,315	(1,836)	9,469
990,730 (67 S Beach Rd.)					
	1,902	(1,623)	15,283	40,338	55,901
989,997 (81 S Beach Rd.)					
	(13,894)	1,091	6,305	47,804	41,307
989,265 (97 S Beach Rd.)					
	(26,821)	(8,654)	1,695	8,031	(25,749)
988,526 (Beach Club)					
	(21,078)	(2,765)	4,269	1,276	(18,298)
987,770 (127 S Beach Rd.)					
	(13,932)	16,869	598	(4,338)	(803)
987,014 (143 S Beach Rd.)					
	(12,488)	5,182	551	(4,956)	(11,711)
986,263 (157 S Beach Rd.)					
	(16,416)	(3,638)	1,438	(3,067)	(21,682)
985,519 (169 S Beach Rd.)					
	(22,431)	2,735	(1,392)	(3,471)	(24,560)
984,778 (185 S Beach Rd.)					
	(25,669)	9,111	(3,051)	(3,778)	(23,387)
984,039 (203 S Beach Rd.)					
	(28,503)	16,288	(3,488)	(5,169)	(20,871)
983,302 (215 S Beach Rd.)					
Section Total	(180,120)	1,183	25,524	54,244	(99,168)

*Volumes in parenthesis indicate erosion.

**The Erosion Control Line is referenced at Range 0.

JUPITER ISLAND BEACH RESTORATION PROJECT

BEACH EROSION / ACCRETION

July 2019 - January 2020

(Volume in Cubic Yards)

SURVEY PROFILE	SURVEY RANGE				NET CHANGE
	-200 - 300	300 - 800	800 - 1800	1800 - 2800	
<u>South Section</u>					
983,302 (215 S Beach Rd.)					
	(32,655)	18,173	(5,791)	(4,236)	(24,508)
982,559 (231S Beach Rd.)					
	(36,916)	4,887	(9,734)	(6,502)	(48,265)
981,814 (241 S Beach Rd.)					
	(39,822)	(638)	(531)	(2,529)	(43,520)
981,078 (249 S Beach Rd.)					
	(42,482)	3,068	13,812	3,089	(22,513)
980,328 (259 S Beach Rd.)					
	(37,174)	1,078	17,748	2,600	(15,749)
979,566 (275 S Beach Rd.)					
	(37,117)	(4,597)	27,302	5,187	(9,224)
978,429 (299 S Beach Rd.)					
	(9,059)	(6,739)	14,864	(4,098)	(5,032)
977,664 (318 S Beach Rd.)					
	(1,276)	(8,640)	10,187	(5,756)	(5,484)
976,899 (330 S Beach Rd.)					
	1,704	(10,390)	9,883	(6,120)	(4,923)
976,130 (355 S Beach Rd.)					
	4,668	(10,932)	21,421	(10,889)	4,268
975,362 (365 S Beach Rd.)					
	8,292	(14,013)	24,761	6,173	25,213
974,589 (384 S Beach Rd.)					
	10,666	(9,441)	20,850	5,182	27,256
973,812 (404 S Beach Rd.)					
	398	(7,133)	22,155	(6,053)	9,367
973,025 (417 S Beach Rd.)					
Section Total	(210,772)	(45,317)	166,927	(23,951)	(113,114)

*Volumes in parenthesis indicate erosion.

**The Erosion Control Line is referenced at Range 0.

JUPITER ISLAND BEACH RESTORATION PROJECT

BEACH EROSION / ACCRETION

July 2019 - January 2020

(Volume in Cubic Yards)

SURVEY PROFILE	SURVEY RANGE				NET CHANGE
	-200 - 300	300 - 800	800 - 1800	1800 - 2800	
<u>Blowing Rocks</u>					
973,025 (417 S Beach Rd.)					
	(2,634)	(10,793)	17,851	1,969	6,393
972,232 (427 S Beach Rd.)					
	(2,435)	(4,371)	12,323	(364)	5,153
971,439 (439 S Beach Rd.)					
	(7,439)	2,083	4,553	(4,027)	(4,829)
970,641 (447 S Beach Rd.)					
	(10,597)	9,962	3,456	(3,862)	(1,042)
969,838 (461 S Beach Rd.)					
	(13,912)	(3,705)	9,907	(3,502)	(11,213)
969,019 (473 S Beach Rd.)					
	(8,921)	(20,990)	12,362	(4,187)	(21,735)
968,204 (481S Beach Rd.)					
	(1,912)	(28,163)	9,725	(5,464)	(25,813)
967,417 (491 S Beach Rd.)					
	4,141	(31,632)	11,427	(2,661)	(18,725)
966,631 (Nature Conservancy)					
	5,368	(12,456)	14,360	(3,128)	4,144
965,844 (517 S Beach Rd.)					
	1,008	5,520	13,952	(6,261)	14,219
965,058 (Blowing Rocks)					
Section Total	(37,332)	(94,546)	109,917	(31,488)	(53,449)
GRAND TOTAL	(546,747)	(165,553)	372,690	(89,951)	(429,561)

*Volumes in parenthesis indicate erosion.

**The Erosion Control Line is referenced at Range 0.

APPENDIX B
Accretion / Erosion Volume Tabulation
January 2020 (Post-Storm) – July 2020

JUPITER ISLAND BEACH RESTORATION PROJECT

BEACH EROSION / ACCRETION

January 2020 - July 2020

(Volume in Cubic Yards)

SURVEY PROFILE	SURVEY RANGE				NET CHANGE
	-200 - 300	300 - 800	800 - 1800	1800 - 2800	
<u>Refuge Section</u>					
R-68 (Refuge)					
	1,680	983	372	165	3,199
R-69 (Refuge)					
	5,008	998	3,213	(135)	9,085
R-70 (Refuge)					
	2,368	(2,575)	280	(2,795)	(2,722)
R-71 (Refuge)					
	364	(3,334)	(2,196)	(5,213)	(10,379)
R-72 (Refuge)					
	3,388	450	(12,731)	(10,249)	(19,142)
R-73 (Refuge)					
	4,792	1,258	(12,680)	(6,674)	(13,304)
R-74 (Refuge)					
	(318)	(5,649)	53	(6,239)	(12,152)
R-75 (Refuge)					
	(7,288)	(4,534)	1,223	1,191	(9,408)
R-76A (Refuge)					
	(3,691)	(1,695)	(1,214)	5,530	(1,070)
1,002,364 (Refuge)					
Section Total	6,305	(14,097)	(23,680)	(24,419)	(55,892)

*Volumes in parenthesis indicate erosion.

**The Erosion Control Line is referenced at Range 0.

JUPITER ISLAND BEACH RESTORATION PROJECT

BEACH EROSION / ACCRETION

January 2020 - July 2020

(Volume in Cubic Yards)

SURVEY PROFILE	SURVEY RANGE				NET CHANGE
	-200 - 300	300 - 800	800 - 1800	1800 - 2800	
North Section					
1,002,364 (Refuge)					
	(4,781)	2,419	(4,589)	8,076	1,125
1,001,686 (161 N Beach Rd.)					
	(789)	2,834	(3,752)	(3,507)	(5,214)
1,000,977 (147 N Beach Rd.)					
	(2,016)	(6,832)	(1,413)	(8,636)	(18,897)
1,000,258 (130 N Beach Rd.)					
	(1,422)	(7,584)	1,891	(8,560)	(15,675)
999,543 (113 N Beach Rd.)					
	2,033	(9,183)	1,639	(3,133)	(8,644)
998,829 (99 N Beach Rd.)					
	(3,527)	(9,350)	(4,900)	(2,173)	(19,950)
998,122 (Coast Guard)					
	(15,169)	(8,562)	(9,832)	(9,600)	(43,163)
997,400 (67 N Beach Rd.)					
	(12,308)	(3,538)	(7,288)	(10,587)	(33,721)
996,663 (53 N Beach Rd.)					
	(1,370)	(27)	(3,511)	(6,124)	(11,032)
995,908 (35 N Beach Rd.)					
	7,703	(318)	(1,806)	(1,560)	4,019
995,131 (19 N Beach Rd.)					
	21,034	1,690	(1,630)	831	21,926
994,364 (Public Beach)					
	12,867	(6,801)	(1,787)	(3,409)	870
993,615 (9 S Beach Rd.)					
Section Total	2,256	(45,253)	(36,977)	(48,382)	(128,356)

*Volumes in parenthesis indicate erosion.

**The Erosion Control Line is referenced at Range 0.

JUPITER ISLAND BEACH RESTORATION PROJECT

BEACH EROSION / ACCRETION

January 2020 - July 2020

(Volume in Cubic Yards)

SURVEY PROFILE	SURVEY RANGE				NET CHANGE
	-200 - 300	300 - 800	800 - 1800	1800 - 2800	
<u>Middle Section</u>					
993,615 (9 S Beach Rd.)					
	351	913	(4,655)	(13,018)	(16,409)
992,902 (21 S Beach Rd.)					
	(582)	3,900	(959)	(12,480)	(10,120)
992,183 (39 S Beach Rd.)					
	(2,931)	(11,835)	(152)	(6,387)	(21,304)
991,458 (51 S Beach Rd.)					
	281	(7,547)	(6,968)	(640)	(14,874)
990,730 (67 S Beach Rd.)					
	1,893	(3,400)	(2,510)	9,813	5,797
989,997 (81 S Beach Rd.)					
	6,765	(10,558)	(4,052)	8,600	756
989,265 (97 S Beach Rd.)					
	4,785	(4,240)	(7,944)	2,569	(4,829)
988,526 (Beach Club)					
	(2,834)	743	(6,825)	2,596	(6,320)
987,770 (127 S Beach Rd.)					
	101	(4,278)	(6,540)	(1,840)	(12,557)
987,014 (143 S Beach Rd.)					
	(3,734)	1,049	(6,578)	(1,924)	(11,187)
986,263 (157 S Beach Rd.)					
	(3,878)	5,295	(6,656)	907	(4,331)
985,519 (169 S Beach Rd.)					
	2,347	3,687	(4,750)	(2,813)	(1,529)
984,778 (185 S Beach Rd.)					
	(220)	(7,133)	(3,202)	991	(9,564)
984,039 (203 S Beach Rd.)					
	(2,533)	(17,004)	(3,232)	3,378	(19,391)
983,302 (215 S Beach Rd.)					
Section Total	(187)	(50,406)	(65,022)	(10,249)	(125,863)

*Volumes in parenthesis indicate erosion.

**The Erosion Control Line is referenced at Range 0.

JUPITER ISLAND BEACH RESTORATION PROJECT

BEACH EROSION / ACCRETION

January 2020 - July 2020

(Volume in Cubic Yards)

SURVEY PROFILE	SURVEY RANGE				NET CHANGE
	-200 - 300	300 - 800	800 - 1800	1800 - 2800	
<u>South Section</u>					
983,302 (215 S Beach Rd.)					
	(225)	(7,778)	(9,364)	3,942	(13,425)
982,559 (231S Beach Rd.)					
	1,747	(203)	(13,817)	2,307	(9,966)
981,814 (241 S Beach Rd.)					
	(1,227)	(868)	(13,842)	(2,876)	(18,813)
981,078 (249 S Beach Rd.)					
	(3,100)	(3,828)	(9,745)	3,396	(13,278)
980,328 (259 S Beach Rd.)					
	(5,328)	(10,682)	(5,232)	3,969	(17,274)
979,566 (275 S Beach Rd.)					
	(97)	(21,410)	(542)	(5,087)	(27,136)
978,429 (299 S Beach Rd.)					
	4,516	(10,981)	2,212	(2,751)	(7,004)
977,664 (318 S Beach Rd.)					
	4,400	(13,986)	(3,534)	4,902	(8,218)
976,899 (330 S Beach Rd.)					
	4,149	(18,339)	(3,874)	3,133	(14,931)
976,130 (355 S Beach Rd.)					
	4,305	(12,206)	(3,403)	(4,529)	(15,833)
975,362 (365 S Beach Rd.)					
	2,904	(13,569)	(7,139)	578	(17,226)
974,589 (384 S Beach Rd.)					
	(2,150)	(9,057)	(987)	4,031	(8,163)
973,812 (404 S Beach Rd.)					
	(7,576)	(3,369)	1,254	3,769	(5,923)
973,025 (417 S Beach Rd.)					
Section Total	2,319	(126,276)	(68,016)	14,784	(177,188)

*Volumes in parenthesis indicate erosion.

**The Erosion Control Line is referenced at Range 0.

JUPITER ISLAND BEACH RESTORATION PROJECT

BEACH EROSION / ACCRETION

January 2020 - July 2020

(Volume in Cubic Yards)

SURVEY PROFILE	SURVEY RANGE				NET CHANGE
	-200 - 300	300 - 800	800 - 1800	1800 - 2800	
<u>Blowing Rocks</u>					
973,025 (417 S Beach Rd.)					
	(11,179)	(2,745)	(2,202)	5,320	(10,806)
972,232 (427 S Beach Rd.)					
	(1,467)	5,336	(6,421)	1,436	(1,117)
971,439 (439 S Beach Rd.)					
	4,994	(7,896)	(2,616)	(360)	(5,878)
970,641 (447 S Beach Rd.)					
	5,135	(24,828)	2,736	(467)	(17,425)
969,838 (461 S Beach Rd.)					
	3,868	(3,517)	(2,431)	(369)	(2,450)
969,019 (473 S Beach Rd.)					
	(1,275)	1,457	2,251	(2,013)	419
968,204 (481S Beach Rd.)					
	(1,275)	(18,775)	6,484	(3,643)	(17,209)
967,417 (491 S Beach Rd.)					
	2,761	(21,088)	7,618	(1,774)	(12,484)
966,631 (Nature Conservancy)					
	3,579	(8,304)	9,573	(2,085)	2,763
965,844 (517 S Beach Rd.)					
	672	3,680	9,301	(4,174)	9,479
965,058 (Blowing Rocks)					
Section Total	5,812	(76,681)	24,292	(8,130)	(54,706)
GRAND TOTAL	16,505	(312,712)	(169,402)	(76,396)	(542,005)

*Volumes in parenthesis indicate erosion.

**The Erosion Control Line is referenced at Range 0.

APPENDIX C
Accretion / Erosion Volume Tabulation
July 2019 – July 2020

JUPITER ISLAND BEACH RESTORATION PROJECT

BEACH EROSION / ACCRETION

July 2019 - July 2020
(Volume in Cubic Yards)

SURVEY PROFILE	SURVEY RANGE				NET CHANGE
	-200 - 300	300 - 800	800 - 1800	1800 - 2800	
<u>Refuge Section</u>					
R-68 (Refuge)					
	4,200	2,458	929	411	7,999
R-69 (Refuge)					
	12,521	2,496	8,032	(337)	22,712
R-70 (Refuge)					
	5,921	(6,439)	701	(6,987)	(6,804)
R-71 (Refuge)					
	910	(8,334)	(5,490)	(13,032)	(25,946)
R-72 (Refuge)					
	1,535	(2,305)	(8,885)	(19,210)	(28,865)
R-73 (Refuge)					
	(2,500)	2,232	(2,709)	(17,533)	(20,509)
R-74 (Refuge)					
	(14,940)	2,163	(555)	(25,860)	(39,192)
R-75 (Refuge)					
	(22,597)	6,945	(2,495)	(13,858)	(32,006)
R-76A (Refuge)					
	(10,982)	55	(360)	3,870	(7,416)
1,002,364 (Refuge)					
Section Total	(25,931)	(729)	(10,832)	(92,536)	(130,028)

*Volumes in parenthesis indicate erosion.

**The Erosion Control Line is referenced at Range 0.

JUPITER ISLAND BEACH RESTORATION PROJECT

BEACH EROSION / ACCRETION

July 2019 - July 2020
(Volume in Cubic Yards)

SURVEY PROFILE	SURVEY RANGE				NET CHANGE
	-200 - 300	300 - 800	800 - 1800	1800 - 2800	
North Section					
1,002,364 (Refuge)					
	(27,040)	(6,049)	(4,796)	10,556	(27,329)
1,001,686 (161 N Beach Rd.)					
	(27,249)	(13,871)	(1,756)	(5,040)	(47,916)
1,000,977 (147 N Beach Rd.)					
	(20,311)	(20,769)	(2,551)	(16,907)	(60,538)
1,000,258 (130 N Beach Rd.)					
	(2,049)	(8,822)	3,951	(13,427)	(20,347)
999,543 (113 N Beach Rd.)					
	8,982	(4,729)	11,369	2,724	18,347
998,829 (99 N Beach Rd.)					
	4,244	(11,871)	3,000	(1,476)	(6,102)
998,122 (Coast Guard)					
	(13,391)	(9,867)	(8,373)	(15,382)	(47,013)
997,400 (67 N Beach Rd.)					
	(21,049)	(3,622)	(5,160)	(11,004)	(40,836)
996,663 (53 N Beach Rd.)					
	(10,027)	(1,391)	3,218	(6,431)	(14,631)
995,908 (35 N Beach Rd.)					
	(880)	(142)	5,249	(3,787)	440
995,131 (19 N Beach Rd.)					
	9,756	653	6,733	(3,151)	13,991
994,364 (Public Beach)					
	14,982	(5,013)	9,613	(5,698)	13,884
993,615 (9 S Beach Rd.)					
Section Total	(84,031)	(85,493)	20,498	(69,022)	(218,049)

*Volumes in parenthesis indicate erosion.

**The Erosion Control Line is referenced at Range 0.

JUPITER ISLAND BEACH RESTORATION PROJECT

BEACH EROSION / ACCRETION

July 2019 - July 2020
(Volume in Cubic Yards)

SURVEY PROFILE	SURVEY RANGE				NET CHANGE
	-200 - 300	300 - 800	800 - 1800	1800 - 2800	
<u>Middle Section</u>					
993,615 (9 S Beach Rd.)					
	(1,151)	(16,538)	2,018	(21,391)	(37,062)
992,902 (21 S Beach Rd.)					
	(7,000)	(14,511)	(4,716)	(20,138)	(46,364)
992,183 (39 S Beach Rd.)					
	382	(10,560)	(6,067)	(6,947)	(23,191)
991,458 (51 S Beach Rd.)					
	4,098	(6,373)	(653)	(2,476)	(5,404)
990,730 (67 S Beach Rd.)					
	3,796	(5,022)	12,773	50,151	61,698
989,997 (81 S Beach Rd.)					
	(7,129)	(9,467)	2,253	56,404	42,062
989,265 (97 S Beach Rd.)					
	(22,036)	(12,893)	(6,249)	10,600	(30,578)
988,526 (Beach Club)					
	(23,911)	(2,022)	(2,556)	3,871	(24,618)
987,770 (127 S Beach Rd.)					
	(13,831)	12,591	(5,942)	(6,178)	(13,360)
987,014 (143 S Beach Rd.)					
	(16,222)	6,231	(6,027)	(6,880)	(22,898)
986,263 (157 S Beach Rd.)					
	(20,293)	1,658	(5,218)	(2,160)	(26,013)
985,519 (169 S Beach Rd.)					
	(20,084)	6,422	(6,142)	(6,284)	(26,089)
984,778 (185 S Beach Rd.)					
	(25,889)	1,978	(6,253)	(2,787)	(32,951)
984,039 (203 S Beach Rd.)					
	(31,036)	(716)	(6,720)	(1,791)	(40,262)
983,302 (215 S Beach Rd.)					
Section Total	(180,307)	(49,222)	(39,498)	43,996	(225,031)

*Volumes in parenthesis indicate erosion.

**The Erosion Control Line is referenced at Range 0.

JUPITER ISLAND BEACH RESTORATION PROJECT

BEACH EROSION / ACCRETION

July 2019 - July 2020
(Volume in Cubic Yards)

SURVEY PROFILE	SURVEY RANGE				NET CHANGE
	-200 - 300	300 - 800	800 - 1800	1800 - 2800	
South Section					
983,302 (215 S Beach Rd.)					
	(32,880)	10,396	(15,156)	(293)	(37,933)
982,559 (231S Beach Rd.)					
	(35,169)	4,684	(23,551)	(4,196)	(58,231)
981,814 (241 S Beach Rd.)					
	(41,049)	(1,507)	(14,373)	(5,404)	(62,333)
981,078 (249 S Beach Rd.)					
	(45,582)	(760)	4,067	6,484	(35,791)
980,328 (259 S Beach Rd.)					
	(42,502)	(9,604)	12,516	6,569	(33,022)
979,566 (275 S Beach Rd.)					
	(37,213)	(26,007)	26,760	100	(36,360)
978,429 (299 S Beach Rd.)					
	(4,542)	(17,720)	17,076	(6,849)	(12,036)
977,664 (318 S Beach Rd.)					
	3,124	(22,627)	6,653	(853)	(13,702)
976,899 (330 S Beach Rd.)					
	5,853	(28,729)	6,009	(2,987)	(19,853)
976,130 (355 S Beach Rd.)					
	8,973	(23,138)	18,018	(15,418)	(11,564)
975,362 (365 S Beach Rd.)					
	11,196	(27,582)	17,622	6,751	7,987
974,589 (384 S Beach Rd.)					
	8,516	(18,498)	19,862	9,213	19,093
973,812 (404 S Beach Rd.)					
	(7,178)	(10,502)	23,409	(2,284)	3,444
973,025 (417 S Beach Rd.)					
Section Total	(208,453)	(171,593)	98,911	(9,167)	(290,302)

*Volumes in parenthesis indicate erosion.

**The Erosion Control Line is referenced at Range 0.

JUPITER ISLAND BEACH RESTORATION PROJECT

BEACH EROSION / ACCRETION

July 2019 - July 2020

(Volume in Cubic Yards)

SURVEY PROFILE	SURVEY RANGE				NET CHANGE
	-200 - 300	300 - 800	800 - 1800	1800 - 2800	
<u>Blowing Rocks</u>					
973,025 (417 S Beach Rd.)					
	(13,813)	(13,538)	15,649	7,289	(4,413)
972,232 (427 S Beach Rd.)					
	(3,902)	964	5,902	1,071	4,036
971,439 (439 S Beach Rd.)					
	(2,444)	(5,813)	1,938	(4,387)	(10,707)
970,641 (447 S Beach Rd.)					
	(5,462)	(14,867)	6,191	(4,329)	(18,467)
969,838 (461 S Beach Rd.)					
	(10,044)	(7,222)	7,476	(3,871)	(13,662)
969,019 (473 S Beach Rd.)					
	(10,196)	(19,533)	14,613	(6,200)	(21,316)
968,204 (481S Beach Rd.)					
	(3,187)	(46,938)	16,209	(9,107)	(43,022)
967,417 (491 S Beach Rd.)					
	6,902	(52,720)	19,044	(4,436)	(31,209)
966,631 (Nature Conservancy)					
	8,947	(20,760)	23,933	(5,213)	6,907
965,844 (517 S Beach Rd.)					
	1,680	9,200	23,253	(10,436)	23,698
965,058 (Blowing Rocks)					
Section Total	(31,520)	(171,227)	134,209	(39,618)	(108,156)
GRAND TOTAL	(530,242)	(478,265)	203,288	(166,347)	(971,566)

*Volumes in parenthesis indicate erosion.

**The Erosion Control Line is referenced at Range 0.

APPENDIX D
Historic Accretion / Erosion Summary
1995-2020

JUPITER ISLAND BEACH RESTORATION PROJECT
BEACH EROSION / ACCRETION
NORTH SECTION
June 1995 - July 2020
(Volumes in Cubic Yards)

June 1995 - July 2020 SURVEY PERIOD	SURVEY RANGE			NET CHANGE
	-200 - 300	300 - 800	800 - 1800	
6/95	0	0	0	0
6/95-7/96	515,944	28,902	(276,784)	268,062
7/96-1/97	(184,495)	(49,822)	11,767	(222,550)
1/97-7/97	(76,679)	111,225	87,212	121,758
7/97-1/98	19,892	(18,178)	189,529	191,243
1/98-6/98	(86,647)	(38,277)	(45,969)	(170,893)
6/98-11/98	49,816	60,950	53,236	164,001
11/98-6/99	155,526	71,936	17,647	245,109
6/99-7/00	(90,280)	(41,237)	(44,116)	(175,633)
7/00-7/01	(46,916)	(65,853)	(51,200)	(163,969)
7/01-2/02	(51,987)	45,724	37,528	31,265
2/02-6/02	167,520	22,581	111,730	301,831
6/02-7/03	177,197	39,254	(96,313)	120,138
7/03-6/04	(78,084)	130,820	(28,354)	24,382
7/04-10/04	(114,011)	(23,180)	(47,898)	(185,089)
10/04-6/05	(73,983)	(71,664)	(34,191)	(179,838)
6/05-7/06	111,845	81,293	75,844	268,982
7/06-6/07	33,359	105,281	(49,516)	89,124
6/07-8/08	(76,484)	(87,054)	11,692	(151,846)
8/08-6/09	(85,946)	30,350	67,305	11,709
6/09-8/10	4,234	92,597	(33,404)	63,427
8/10-8/11	72,317	(11,953)	(136,168)	(75,804)
8/11-7/12	231,554	(30,734)	45,460	246,280
7/12-7/13	(191,762)	(62,090)	(51,843)	(305,695)
7/13-7/14	(23,739)	113,904	57,560	147,725
7/14-7/15	20,366	(201)	55,412	75,577
7/15-7/16	338,051	(2,457)	23,529	359,124
7/16-7/17	(46,061)	18,802	(124,715)	(151,975)
7/17-7/18	(126,538)	(108,778)	(88,071)	(323,387)
7/18-7/19	344,311	151,920	34,378	530,609
7/19-7/20	(84,031)	(85,493)	20,498	(149,027)
NET VOLUME CHANGE June 1995 - July 2020	804,289	408,568	(208,218)	1,004,640
ANNUAL AVERAGE	32,492	16,506	(8,412)	40,586

-Volumes in parenthesis indicate erosion
-The Erosion Control Line is referenced at range 0.

JUPITER ISLAND BEACH RESTORATION PROJECT
BEACH EROSION / ACCRETION
MIDDLE SECTION
June 1995 - July 2020
(Volumes in Cubic Yards)

June 1995 - July 2020 SURVEY PERIOD	SURVEY RANGE			NET CHANGE
	-200 - 300	300 - 800	800 - 1800	
6/95	0	0	0	0
6/95-7/96	704,271	(98,110)	(385,788)	220,373
7/96-1/97	(187,172)	95,473	(87,631)	(179,330)
1/97-7/97	(144,204)	163,701	119,776	139,273
7/97-1/98	52,276	(111,893)	137,196	77,579
1/98-6/98	(30,062)	3,679	(18,799)	(45,182)
6/98-11/98	(5,003)	40,652	(8,621)	27,028
11/98-6/99	235,708	104,279	62,966	402,953
6/99-7/00	(119,446)	(72,985)	(21,791)	(214,222)
7/00-7/01	(38,188)	(54,813)	76,812	(16,189)
7/01-2/02	(111,314)	70,355	88,142	47,183
2/02-6/02	3,146	52,507	184,189	239,842
6/02-7/03	378,194	(30,012)	(86,518)	261,664
7/03-6/04	(78,084)	(130,820)	(28,354)	(237,258)
7/04-10/04	(176,538)	(262,817)	(534,679)	(974,034)
10/04-6/05	(220,886)	152,188	(89,260)	(157,958)
6/05-7/06	334,983	274,470	(8,759)	600,694
7/06-6/07	(83,458)	(32,128)	(68,929)	(184,515)
6/07-8/08	(201,694)	114,883	163,909	77,098
8/08-6/09	(136,134)	(4,207)	48,222	(92,119)
6/09-8/10	23,292	153,002	132,956	309,250
8/10-8/11	44,179	190,894	53,917	288,990
8/11-7/12	372,623	(135,861)	213,375	450,137
7/12-7/13	(23,996)	(45,316)	(217,155)	(286,467)
7/13-7/14	15,350	117,622	110,401	243,373
7/14-7/15	68,832	(49,435)	141,366	160,763
7/15-7/16	348,189	(95,542)	91,947	344,593
7/16-7/17	29,249	12,740	(191,651)	(149,661)
7/17-7/18	(232,342)	(251,009)	(136,542)	(619,893)
7/18-7/19	299,244	42,173	(81,902)	259,516
7/19-7/20	(180,307)	(49,222)	(39,498)	(269,027)
NET VOLUME CHANGE June 1995 - July 2020	940,709	164,448	(380,702)	724,454
ANNUAL AVERAGE	38,003	6,643	(15,380)	29,267

-Volumes in parenthesis indicate erosion
-The Erosion Control Line is referenced at range 0.

JUPITER ISLAND BEACH RESTORATION PROJECT
BEACH EROSION / ACCRETION
SOUTH SECTION
June 1995 - July 2020
(Volumes in Cubic Yards)

June 1995 - July 2020 SURVEY PERIOD	SURVEY RANGE			NET CHANGE
	-200 - 300	300 - 800	800 - 1800	
6/95	0	0	0	0
6/95-7/96	433,230	(220,963)	(332,901)	(120,634)
7/96-1/97	(120,557)	66,587	(149,278)	(203,248)
1/97-7/97	(64,790)	181,699	29,576	146,485
7/97-1/98	(5,330)	(33,380)	80,087	41,377
1/98-6/98	(107,912)	(99,933)	(33,170)	(241,015)
6/98-11/98	93,425	23,454	100,986	217,865
11/98-6/99	(6,790)	77,319	2,874	73,403
6/99-7/00	25,010	(154,226)	(47,007)	(176,223)
7/00-7/01	44,495	167,074	25,611	237,180
7/01-2/02	(84,556)	41,125	9,388	(34,043)
2/02-6/02	393,004	33,138	166,381	592,523
6/02-7/03	249,876	22,223	(120,420)	151,679
7/03-6/04	(153,299)	(187,409)	72,516	(268,192)
7/04-10/04	(271,257)	(217,396)	(643,668)	(1,132,321)
10/04-6/05	(147,510)	21,481	217,121	91,092
6/05-7/06	(60,143)	134,722	42,809	117,388
7/06-6/07	518,350	(122,858)	(14,433)	381,059
6/07-8/08	(310,400)	49,277	133,945	(127,178)
8/08-6/09	(120,761)	118,022	(58,686)	(61,425)
6/09-8/10	(10,566)	199,812	(155,970)	33,276
8/10-8/11	135,060	(80,785)	(122,461)	(68,187)
8/11-7/12	252,178	34,089	(27,855)	258,412
7/12-7/13	(271,937)	128,503	(130,625)	(274,059)
7/13-7/14	(108,782)	180,855	130,394	202,467
7/14-7/15	(58,547)	(82,938)	222,742	81,256
7/15-7/16	852,262	(40,951)	155,220	966,532
7/16-7/17	35,644	4,844	(169,711)	(129,223)
7/17-7/18	(167,609)	(159,602)	(80,231)	(407,442)
7/18-7/19	243,058	(55,536)	89,776	277,298
7/19-7/20	(208,453)	(171,593)	98,911	(281,136)
NET VOLUME CHANGE June 1995 - July 2020	996,392	(143,347)	(508,080)	344,966
ANNUAL AVERAGE	40,253	(5,791)	(20,526)	13,936

-Volumes in parenthesis indicate erosion
-The Erosion Control Line is referenced at range 0.

JUPITER ISLAND BEACH RESTORATION PROJECT
BEACH EROSION / ACCRETION
BLOWING ROCKS
June 1995 - July 2020
(Volumes in Cubic Yards)

June 1995 - July 2020 SURVEY PERIOD	SURVEY RANGE			NET CHANGE
	-200 - 300	300 - 800	800 - 1800	
6/95	0	0	0	0
6/95-7/96^	27,660	18,581	8,710	54,950
7/96-1/97	(220,849)	30,350	17,293	(173,206)
1/97-7/97	77,324	43,584	42,539	163,447
7/97-1/98	84,507	(62,209)	219	22,517
1/98-6/98	(44,948)	(39,353)	11,650	(72,651)
6/98-11/98	60,831	45,868	21,387	128,086
11/98-6/99	66,053	66,828	(26,037)	106,844
6/99-7/00	(111,016)	68,591	121,077	78,652
7/00-7/01	90,850	17,222	(5,124)	102,948
7/01-2/02	24,437	7,030	68,796	100,263
2/02-6/02	92,043	(3,887)	52,780	140,936
6/02-7/03	84,451	58,810	(122,316)	20,945
7/03-6/04	106,164	(83,490)	38,572	61,247
7/04-10/04	(51,515)	(22,756)	(122,675)	(196,946)
10/04-6/05	42,785	(37,608)	180,761	185,938
6/05-7/06	1,154	75,608	(8,202)	68,560
7/06-6/07	35,592	15,086	(16,282)	34,395
6/07-8/08	81,243	(36,291)	144,902	189,855
8/08-6/09	97,917	173,716	(1,615)	270,018
6/09-8/10	73,878	55,392	(144,962)	(15,693)
8/10-8/11	(9,810)	48,125	(109,473)	(71,158)
8/11-7/12	34,587	22,047	32,125	88,759
7/12-7/13	(46,796)	(37,198)	(49,703)	(133,698)
7/13-7/14	53,344	52,819	58,974	165,138
7/14-7/15	33,656	(68,680)	59,125	24,101
7/15-7/16	28,801	21,155	449	50,406
7/16-7/17	34,466	72,334	(17,796)	89,004
7/17-7/18	(57,404)	(158,533)	(263,760)	(479,698)
7/18-7/19	70,462	51,893	42,796	165,151
7/19-7/20	(31,520)	(171,227)	134,209	(68,538)
NET VOLUME CHANGE June 1995 - July 2020	728,346	223,809	148,417	1,100,572
ANNUAL AVERAGE	29,424	9,042	5,996	44,462

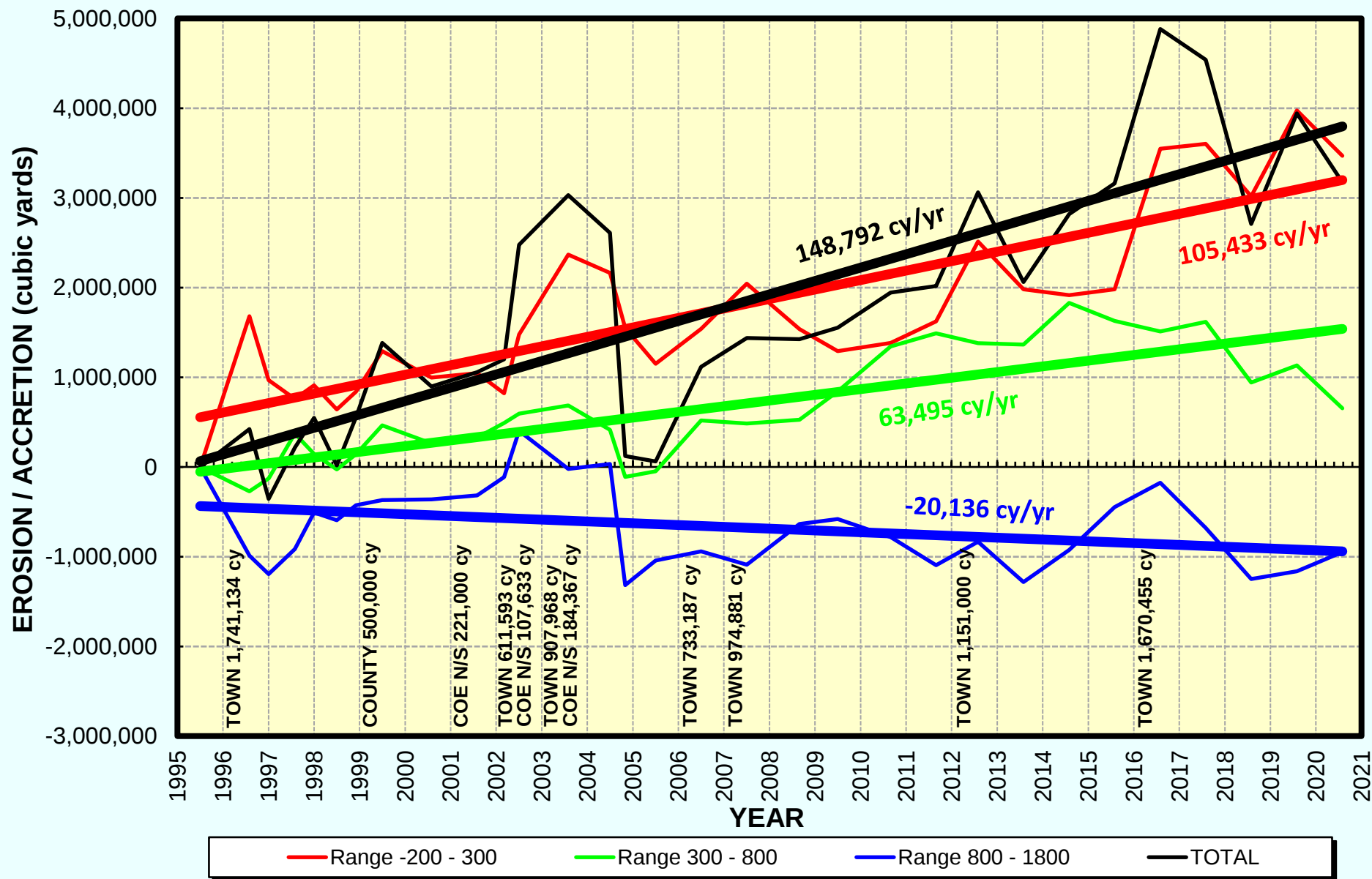
^Volumes for Blowing Rocks unavailable for 6/95-7/96 - average of all other periods applied
-Volumes in parenthesis indicate erosion
-The Erosion Control Line is referenced at range 0.

JUPITER ISLAND BEACH RESTORATION PROJECT
BEACH EROSION / ACCRETION (fill volumes included)
ALL SECTIONS (incl. Blowing Rocks)
June 1995 - July 2020
(Volumes in Cubic Yards)

June 1995 - July 2020 SURVEY PERIOD	SURVEY RANGE			NET CHANGE
	-200 - 300	300 - 800	800 - 1800	
6/95	0	0	0	0
6/95-7/96^	1,681,105	(271,590)	(986,763)	422,751
7/96-1/97	(713,073)	142,588	(207,849)	(778,334)
1/97-7/97	(208,349)	500,209	279,103	570,963
7/97-1/98	151,345	(225,660)	407,031	332,716
1/98-6/98	(269,569)	(173,884)	(86,288)	(529,741)
6/98-11/98	199,069	170,923	166,988	536,981
11/98-6/99	450,497	320,362	57,450	828,309
6/99-7/00	(295,732)	(199,857)	8,163	(487,426)
7/00-7/01	50,241	63,630	46,099	159,970
7/01-2/02	(223,420)	164,234	203,854	144,668
2/02-6/02	655,713	104,339	515,080	1,275,132
6/02-7/03	889,718	90,275	(425,567)	554,426
7/03-6/04	(203,303)	(270,899)	54,380	(419,821)
7/04-10/04	(613,321)	(526,149)	(1,348,920)	(2,488,390)
10/04-6/05	(399,594)	64,397	274,431	(60,766)
6/05-7/06	387,839	566,093	101,692	1,055,624
7/06-6/07	503,843	(34,619)	(149,160)	320,063
6/07-8/08	(507,335)	40,815	454,448	(12,071)
8/08-6/09	(244,924)	317,881	55,226	128,183
6/09-8/10	90,838	500,803	(201,381)	390,260
8/10-8/11	241,746	146,281	(314,186)	73,840
8/11-7/12	890,942	(110,459)	263,105	1,043,588
7/12-7/13	(534,491)	(16,101)	(449,327)	(999,919)
7/13-7/14	(63,827)	465,201	357,330	758,704
7/14-7/15	64,306	(201,254)	478,645	341,697
7/15-7/16	1,567,304	(117,795)	271,144	1,720,654
7/16-7/17	53,298	108,721	(503,873)	(341,855)
7/17-7/18	(583,893)	(677,922)	(568,604)	(1,830,420)
7/18-7/19	957,076	190,451	85,047	1,232,573
7/19-7/20	(504,311)	(477,536)	214,120	(767,727)
NET VOLUME CHANGE June 1995 - July 2020	3,469,736	653,479	(948,583)	3,174,632
ANNUAL AVERAGE	140,173	26,400	(38,321)	128,251

^Volumes for Blowing Rocks unavailable for 6/95-7/96 - average of all other periods applied
-Volumes in parenthesis indicate erosion
-The Erosion Control Line is referenced at range 0.

JUPITER ISLAND BEACH EROSION / ACCRETION June 1995 - July 2020 (fill volumes included)



JUPITER ISLAND BEACH RESTORATION PROJECT ADJUSTED BEACH EROSION / ACCRETION (fill volumes removed) ALL SECTIONS (incl. Blowing Rocks) June 1995 - July 2020 (Volumes in Cubic Yards)				
June 1995 - July 2020 SURVEY PERIOD	SURVEY RANGE			NET CHANGE
	-200 - 300	300 - 800	800 - 1800	
6/95	0	0	0	0
6/95-7/96^*	(87,689)	(271,590)	(986,763)	(1,346,042)
7/96-1/97	(713,073)	142,588	(207,849)	(778,334)
1/97-7/97	(208,349)	500,209	279,103	570,963
7/97-1/98	151,345	(225,660)	407,031	332,716
1/98-6/98	(269,569)	(173,884)	(86,288)	(529,741)
6/98-11/98	199,069	170,923	166,988	536,981
11/98-6/99*	(49,503)	320,362	57,450	328,309
6/99-7/00	(295,732)	(199,857)	8,163	(487,426)
7/00-7/01*	50,241	63,630	(174,901)	(61,030)
7/01-2/02	(223,420)	164,234	203,854	144,668
2/02-6/02*	44,120	104,339	407,447	555,906
6/02-7/03*	(18,250)	90,275	(609,934)	(537,909)
7/03-6/04	(203,303)	(270,899)	54,380	(419,821)
7/04-10/04	(613,321)	(526,149)	(1,348,920)	(2,488,390)
10/04-6/05	(399,594)	64,397	274,431	(60,766)
6/05-7/06*	(345,347)	566,093	101,692	322,438
7/06-6/07*	(471,038)	(34,619)	(149,160)	(654,818)
6/07-8/08	(507,335)	40,815	454,448	(12,071)
8/08-6/09	(244,924)	317,881	55,226	128,183
6/09-8/10	90,838	500,803	(201,381)	390,260
8/10-8/11	241,746	146,281	(314,186)	73,840
8/11-7/12*	(260,058)	(110,459)	263,105	(107,412)
7/12-7/13	(534,491)	(16,101)	(449,327)	(999,919)
7/13-7/14	(63,827)	465,201	357,330	758,704
7/14-7/15	64,306	(201,254)	478,645	341,697
7/15-7/16*	(103,151)	(117,795)	271,144	50,199
7/16-7/17	53,298	108,721	(503,873)	(341,855)
7/17-7/18	(583,893)	(677,922)	(568,604)	(1,830,420)
7/18-7/19*	(217,436)	190,451	85,047	58,061
7/19-7/20	(504,311)	(477,536)	214,120	(767,727)
NET VOLUME CHANGE June 1995 - July 2020	(6,022,652)	653,479	(1,461,583)	(6,830,757)
ANNUAL AVERAGE	(243,307)	26,400	(59,046)	(275,953)

^Volumes for Blowing Rocks unavailable for 6/95-7/96 - average of all other periods applied

*Volumes adjusted - fill project volumes removed.

-Volumes in parenthesis indicate erosion

-The Erosion Control Line is referenced at range 0.

Notes on volume adjustments:

6/95-7/96 Rge -200 - 300 adjusted by -1,741,134 for renourishment project

11/98 - 6/99 Rge -200 - 300 adjusted by -500,000cy for renourishment project (70% of bin measured volume of 714,000

7/00 - 7/01 Rge 800 - 1800 adjusted by -221,000cy for nearshore disposal from inlet project

2/02 - 6/02 Rge -200 - 300 adjusted by -611,593cy for beginning of renourishment project

2/02 - 6/02 Rge 800 - 1800 adjusted by -107,633cy for beginning of nearshore disposal from inlet project

6/02 - 7/03 Rge -200 - 300 adjusted by -907,968 for remainder of renourishment project

6/02 - 7/03 Rge 800 - 1800 adjusted by -184,367cy for remainder of nearshore disposal from inlet project

6/05 - 7/06 Rge -200 - 300 adjusted by -733,186cy for beginning of renourishment project

7/06 - 6/07 Rge -200 - 300 adjusted by -974,881cy for remainder of renourishment project

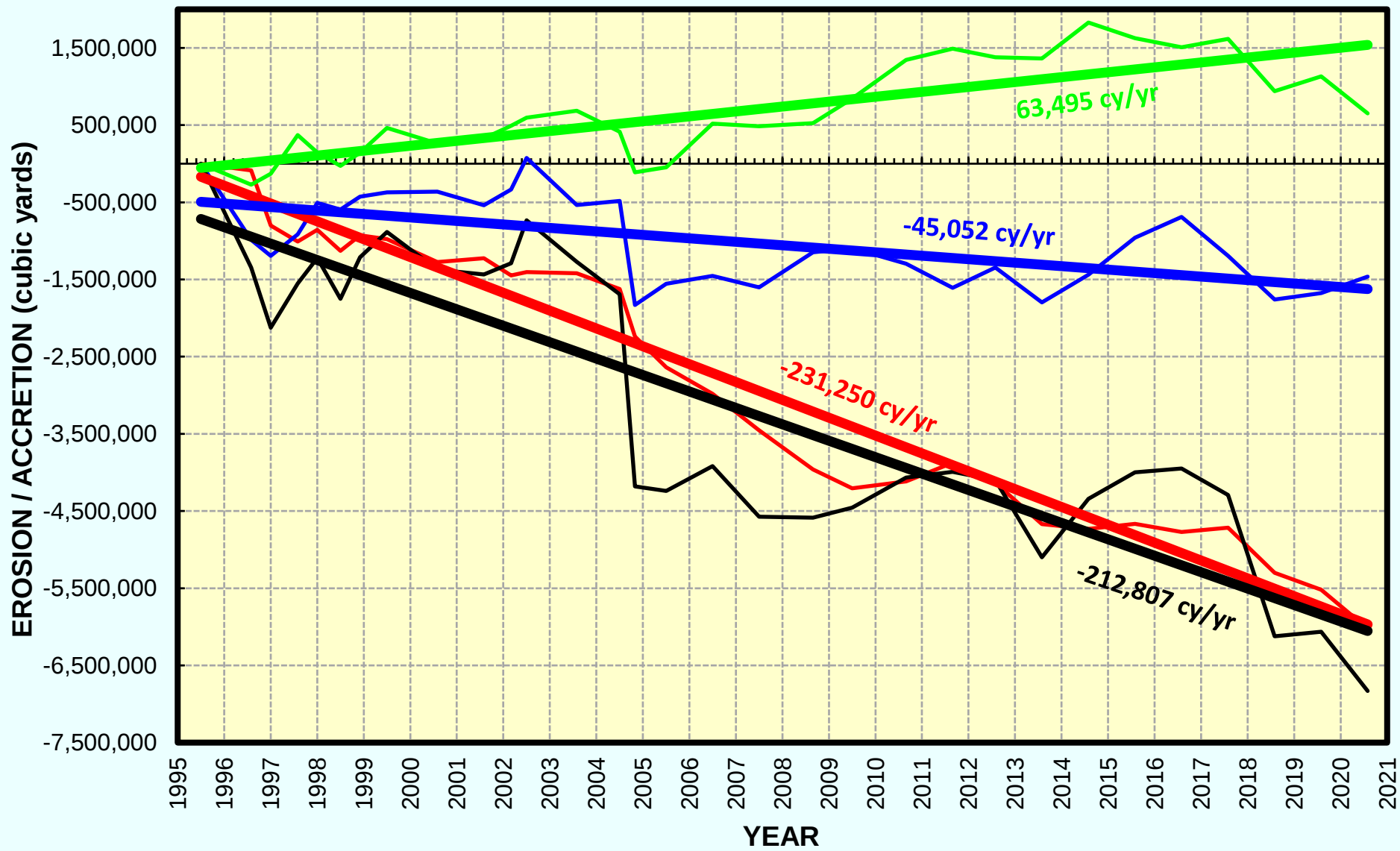
8/11 - 7/12 Rge -200 - 300 adjusted by -1,151,000cy for renourishment project

7/15 - 7/16 Rge -200 - 300 adjusted by -1,670,455cy for renourishment project

7/18 - 7/19 Rge -200 - 300 adjusted by -1,174,512cy for renourishment project

JUPITER ISLAND BEACH EROSION / ACCRETION

June 1995 - July 2020 (adjusted - fill volumes removed)



— Range -200 - 300
 — Range 300 - 800
 — Range 800 - 1800
 — TOTAL

JUPITER ISLAND BEACH RESTORATION PROJECT ADJUSTED BEACH EROSION / ACCRETION (fill and storm volumes removed) ALL SECTIONS (incl. Blowing Rocks) June 1995 - July 2020 (Volumes in Cubic Yards)				
June 1995 - July 2020 SURVEY PERIOD	SURVEY RANGE			NET CHANGE
	-200 - 300	300 - 800	800 - 1800	
6/95	0	0	0	0
6/95-7/96*	(87,689)	(271,590)	(986,763)	(1,346,042)
7/96-1/97	(713,073)	142,588	(207,849)	(778,334)
1/97-7/97	(208,349)	500,209	279,103	570,963
7/97-1/98	151,345	(225,660)	407,031	332,716
1/98-6/98	(269,569)	(173,884)	(86,288)	(529,741)
6/98-11/98	199,069	170,923	166,988	536,981
11/98-6/99*	(49,503)	320,362	57,450	328,309
6/99-7/00	(295,732)	(199,857)	8,163	(487,426)
7/00-7/01*	50,241	63,630	(174,901)	(61,030)
7/01-2/02	(223,420)	164,234	203,854	144,668
2/02-6/02*	44,120	104,339	407,447	555,906
6/02-7/03*	(18,250)	90,275	(609,934)	(537,909)
7/03-6/04	(203,303)	(270,899)	54,380	(419,821)
7/04-10/04**	(44,700)	11,413	(13,247)	(46,535)
10/04-6/05	(399,594)	64,397	274,431	(60,766)
6/05-7/06*	(345,347)	566,093	101,692	322,438
7/06-6/07*	(471,038)	(34,619)	(149,160)	(654,818)
6/07-8/08	(507,335)	40,815	454,448	(12,071)
8/08-6/09	(244,924)	317,881	55,226	128,183
6/09-8/10	90,838	500,803	(201,381)	390,260
8/10-8/11	241,746	146,281	(314,186)	73,840
8/11-7/12*	(260,058)	(110,459)	263,105	(107,412)
7/12-7/13	(534,491)	(16,101)	(449,327)	(999,919)
7/13-7/14	(63,827)	465,201	357,330	758,704
7/14-7/15	64,306	(201,254)	478,645	341,697
7/15-7/16*	(103,151)	(117,795)	271,144	50,199
7/16-7/17***	344,967	72,759	(237,038)	180,687
7/17-7/18****	(189,506)	(416,306)	303,738	(302,075)
7/18-7/19*	(217,436)	190,451	85,047	58,061
7/19-7/20*****	42,436	(477,536)	214,120	(220,980)
NET VOLUME CHANGE June 1995 - July 2020	(4,221,228)	1,416,695	1,013,266	(1,791,267)
ANNUAL AVERAGE	(170,532)	57,233	40,935	(72,365)

*Volumes adjusted - fill project volumes removed.

**2004 Storms removed - previous years average applied to 3 month period.

***2016 Hurricane Matthew removed - Post-storm survey volumes used

****2017 Hurricane Irma removed - Post-storm survey volumes used

*****2019 Hurricane Dorian removed - Post-storm survey volumes used

-The Erosion Control Line is referenced at range 0.

^Volumes for Blowing Rocks unavailable for 6/95-7/96 - average of all other periods applied

-Volumes in parenthesis indicate erosion

Notes on volume adjustments:

6/95-7/96 Rge -200 - 300 adjusted by -1,741,134 for renourishment project

11/98 - 6/99 Rge -200 - 300 adjusted by -500,000cy for renourishment project (70% of bin measured volume of 714,000)

7/00 - 7/01 Rge 800 - 1800 adjusted by -221,000cy for nearshore disposal from inlet project

2/02 - 6/02 Rge -200 - 300 adjusted by -611,593cy for beginning of renourishment project

2/02 - 6/02 Rge 800 - 1800 adjusted by -107,633cy for beginning of nearshore disposal from inlet project

6/02 - 7/03 Rge -200 - 300 adjusted by -907,968 for remainder of renourishment project

6/02 - 7/03 Rge 800 - 1800 adjusted by -184,367cy for remainder of nearshore disposal from inlet project

6/05 - 7/06 Rge -200 - 300 adjusted by -733,186cy for beginning of renourishment project

7/06 - 6/07 Rge -200 - 300 adjusted by -974,881cy for remainder of renourishment project

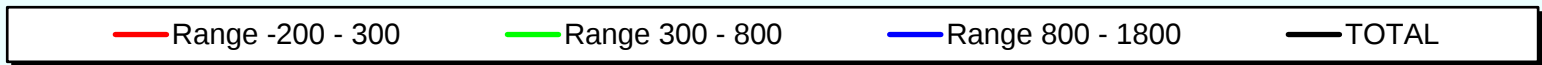
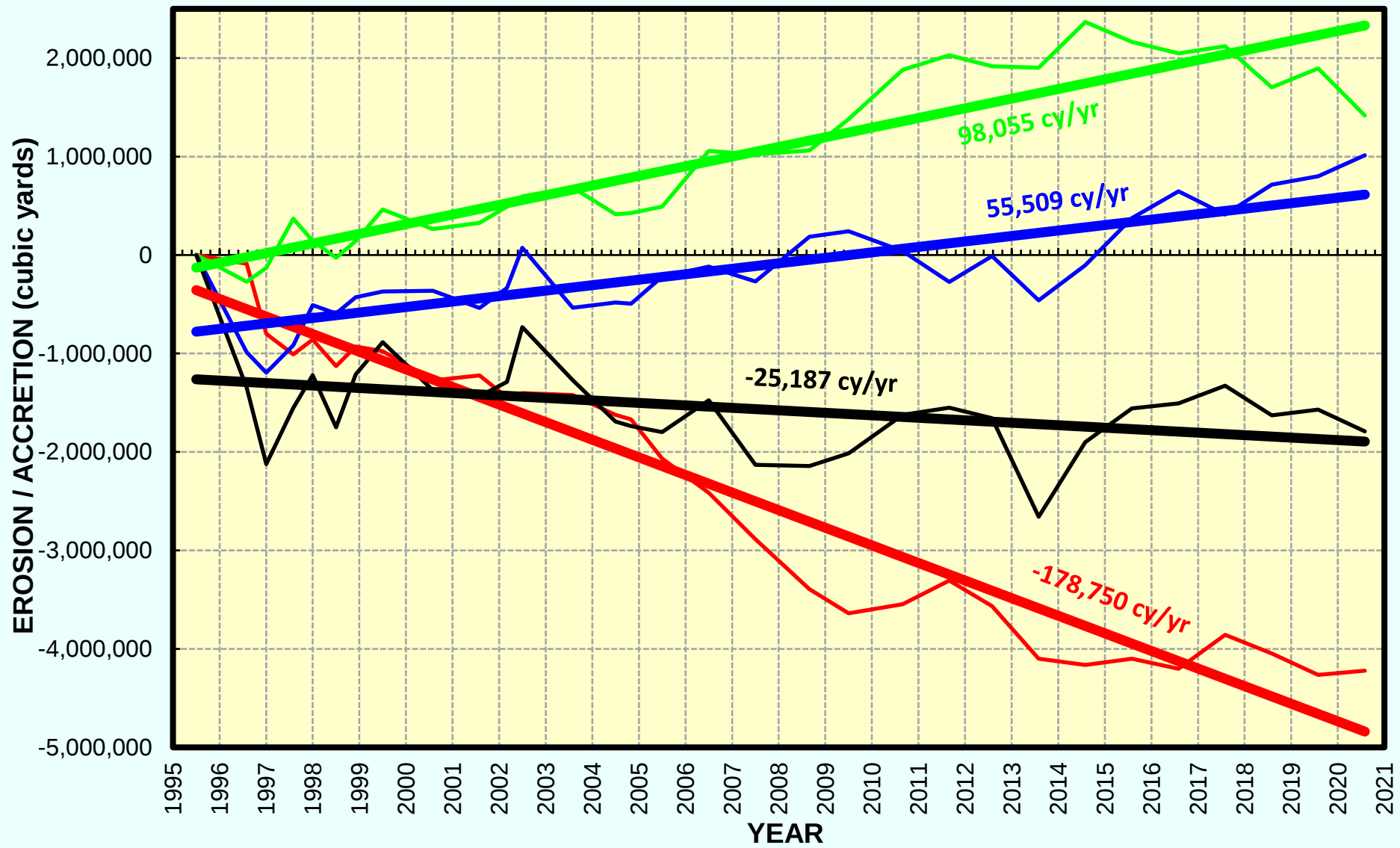
8/11 - 7/12 Rge -200 - 300 adjusted by -1,151,000cy for renourishment project

7/15 - 7/16 Rge -200 - 300 adjusted by -1,670,455cy for renourishment project

7/18 - 7/19 Rge -200 - 300 adjusted by -1,174,512cy for renourishment project

JUPITER ISLAND BEACH EROSION / ACCRETION

June 1995 - July 2020 (fill and storms removed)



APPENDIX E
Shoreline Changes Tabulation
July 2019 – July 2020

JUPITER ISLAND BEACH RESTORATION PROJECT

NET SHORELINE CHANGES

July 2019 - July 2020
(Change in Feet)

SURVEY PROFILE Refuge Section	SURVEY RANGE OF SHORELINE		NET CHANGE
	July-2019	July-2020	
R-68 (Refuge)	294	275	(19)
R-69 (Refuge)	216	253	37
R-70 (Refuge)	262	295	33
R-71 (Refuge)	318	314	(4)
R-72 (Refuge)	287	282	(5)
R-73 (Refuge)	231	241	10
R-74 (Refuge)	202	184	(18)
R-75 (Refuge)	217	192	(25)
R-76A (Refuge)	248	198	(50)

*Changes in parenthesis indicate landward movement of shoreline.

**The Erosion Control Line is referenced at range 0.

***The position of the shoreline is referenced at 0.0' NAVD.

JUPITER ISLAND BEACH RESTORATION PROJECT

NET SHORELINE CHANGES

July 2019 - July 2020
(Change in Feet)

SURVEY PROFILE North Section	SURVEY RANGE OF SHORELINE		NET CHANGE
	July-2019	July-2020	
1,002,364 (Refuge)	235	180	(55)
1,001,686 (161 N Beach Rd.)	181	140	(41)
1,000,977 (147 N Beach Rd.)	223	163	(60)
1,000,258 (130 N Beach Rd.)	253	218	(35)
999,543 (113 N Beach Rd.)	221	224	3
998,829 (99 N Beach Rd.)	191	193	2
998,122 (Coast Guard)	117	110	(7)
997,400 (67 N Beach Rd.)	82	58	(24)
996,663 (53 N Beach Rd.)	69	46	(23)
995,908 (35 N Beach Rd.)	99	89	(10)
995,131 (19 N Beach Rd.)	136	142	6
994,364 (Public Beach)	161	201	40

*Changes in parenthesis indicate landward movement of shoreline.

**The Erosion Control Line is referenced at range 0.

***The position of the shoreline is referenced at 0.0' NAVD.

JUPITER ISLAND BEACH RESTORATION PROJECT

NET SHORELINE CHANGES

July 2019 - July 2020
(Change in Feet)

SURVEY PROFILE Middle Section	SURVEY RANGE OF SHORELINE		NET CHANGE
	July-2019	July-2020	
993,615 (9 S Beach Rd.)	211	219	8
992,902 (21 S Beach Rd.)	174	160	(14)
992,183 (39 S Beach Rd.)	171	182	11
991,458 (51 S Beach Rd.)	210	201	(9)
990,730 (67 S Beach Rd.)	226	234	8
989,997 (81 S Beach Rd.)	208	203	(5)
989,265 (97 S Beach Rd.)	179	145	(34)
988,526 (Beach Club)	179	115	(64)
987,770 (127 S Beach Rd.)	177	142	(35)
987,014 (143 S Beach Rd.)	192	151	(41)
986,263 (157 S Beach Rd.)	229	158	(71)
985,519 (169 S Beach Rd.)	204	164	(40)
984,778 (185 S Beach Rd.)	205	159	(46)
984,039 (203 S Beach Rd.)	207	160	(47)
983,302 (215 S Beach Rd.)	211	142	(69)

*Changes in parenthesis indicate landward movement of shoreline.

**The Erosion Control Line is referenced at range 0.

***The position of the shoreline is referenced at 0.0' NAVD.

JUPITER ISLAND BEACH RESTORATION PROJECT

NET SHORELINE CHANGES

July 2019 - July 2020
(Change in Feet)

SURVEY PROFILE South Section	SURVEY RANGE OF SHORELINE		NET CHANGE
	July-2019	July-2020	
982,559 (231S Beach Rd.)	222	145	(77)
981,814 (241 S Beach Rd.)	240	141	(99)
981,078 (249 S Beach Rd.)	207	118	(89)
980,328 (259 S Beach Rd.)	198	102	(96)
979,566 (275 S Beach Rd.)	208	124	(84)
978,429 (299 S Beach Rd.)	218	191	(27)
977,664 (318 S Beach Rd.)	213	213	0
976,899 (330 S Beach Rd.)	203	210	7
976,130 (355 S Beach Rd.)	180	203	23
975,362 (365 S Beach Rd.)	196	223	27
974,589 (384 S Beach Rd.)	202	233	31
973,812 (404 S Beach Rd.)	212	242	30
973,025 (417 S Beach Rd.)	218	186	(32)

*Changes in parenthesis indicate landward movement of shoreline.

**The Erosion Control Line is referenced at range 0.

***The position of the shoreline is referenced at 0.0' NAVD.

JUPITER ISLAND BEACH RESTORATION PROJECT

NET SHORELINE CHANGES

July 2019 - July 2020
(Change in Feet)

SURVEY PROFILE Blowing Rocks	SURVEY RANGE OF SHORELINE		NET CHANGE
	July-2019	July-2020	
972,232 (427 S Beach Rd.)	235	215	(20)
971,439 (439 S Beach Rd.)	251	250	(1)
970,641 (447 S Beach Rd.)	241	230	(11)
969,838 (461 S Beach Rd.)	222	206	(16)
969,019 (473 S Beach Rd.)	261	225	(36)
968,204 (481S Beach Rd.)	282	237	(45)
967,417 (491 S Beach Rd.)	245	251	6
966,631 (Nature Conservancy)	248	313	65
965,844 (517 S Beach Rd.)	278	383	105
965,058 (Blowing Rocks)	308	398	90

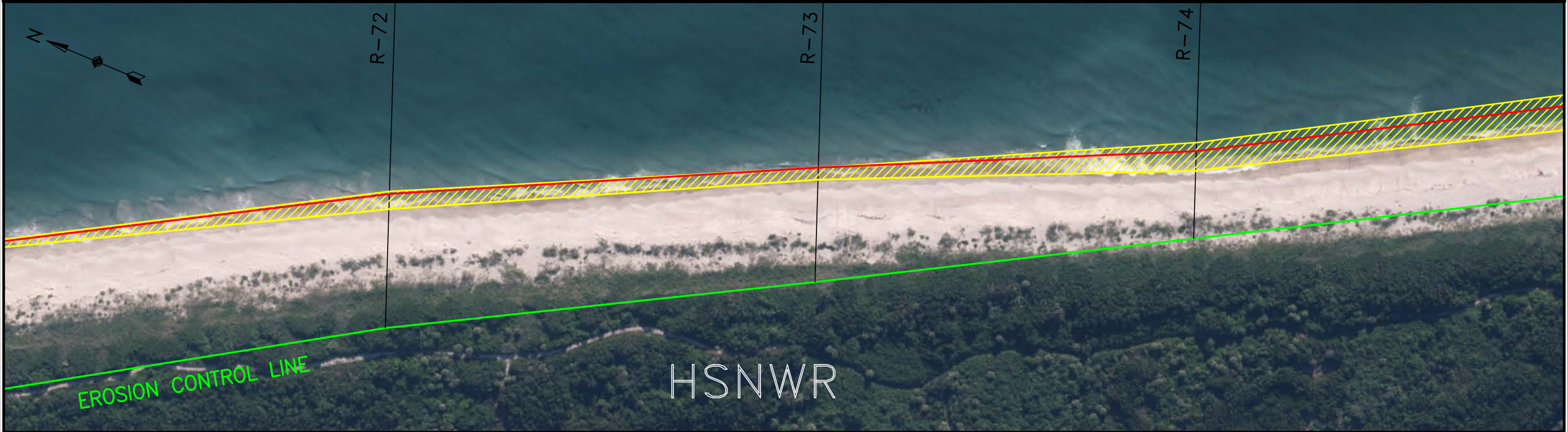
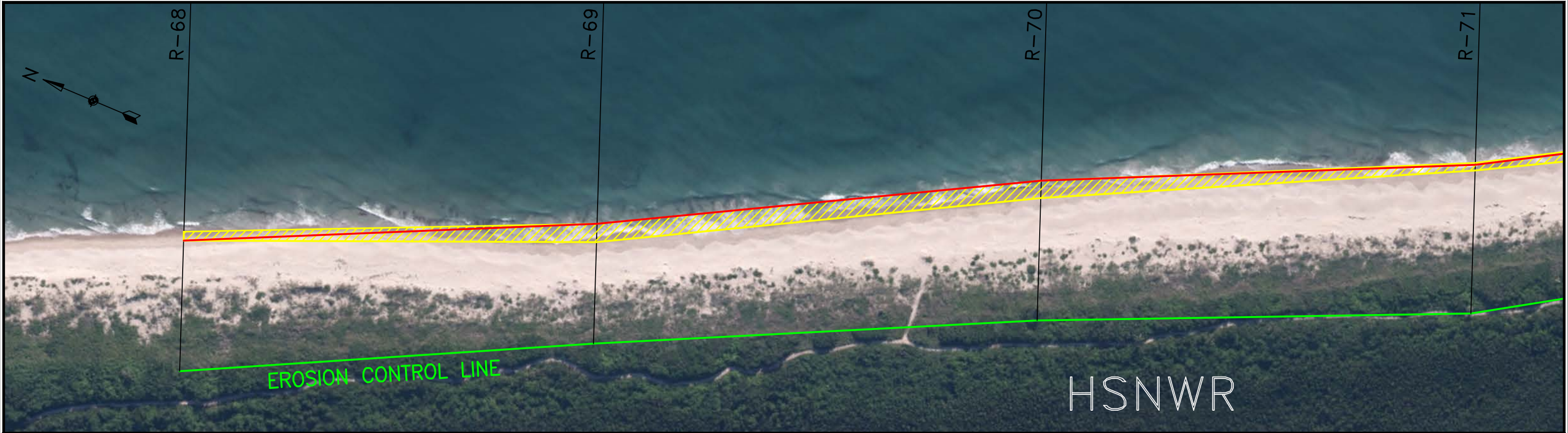
*Changes in parenthesis indicate landward movement of shoreline.

**The Erosion Control Line is referenced at range 0.

***The position of the shoreline is referenced at 0.0' NAVD.

APPENDIX F

Historical Shoreline Range Maps 1995 – 2020

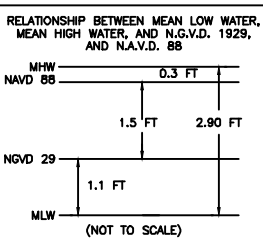


REV	REVISIONS	DATE	APP

GENERAL NOTES:
1. ALL ELEVATIONS ARE FEET AND TENTHS AND REFER TO N.A.V.D. 88
2. ALL ELEVATIONS ARE BELOW THE REFERENCE PLANE UNLESS PRECEDED BY A PLUS (+) SIGN.
3. COORDINATES ARE BASED ON THE STATE PLANE COORDINATE SYSTEM FOR THE EAST ZONE OF FLORIDA, NAD 1983.
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5. SHORELINES REPRESENTED AT EL. 0' NAVD'88 AT SURVEY PROFILES.
6. DATE OF SURVEY: JULY 2020.
7. DATE OF AERIAL PHOTOGRAPHY: JUNE 2012.

LEGEND:
○ R-# D.E.P. MONUMENT
— EROSION CONTROL LINE
— SHORELINE POSITION 1995
— SHORELINE POSITION JULY 2020
▨ SHORELINE RANGE 1995 TO 2020

0 100' 200'
GRAPHIC SCALE

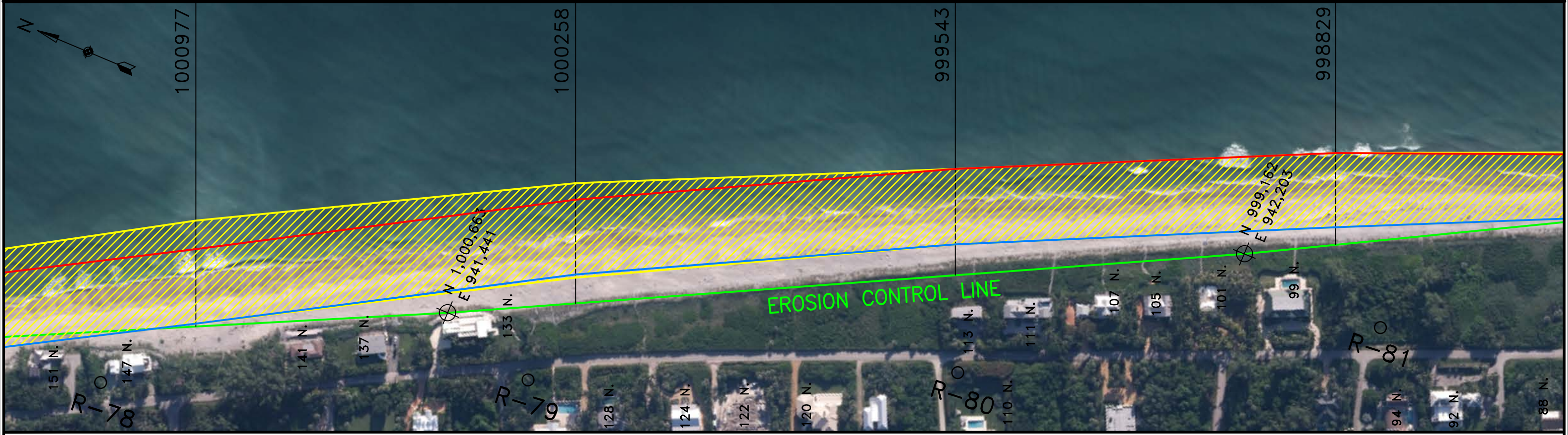
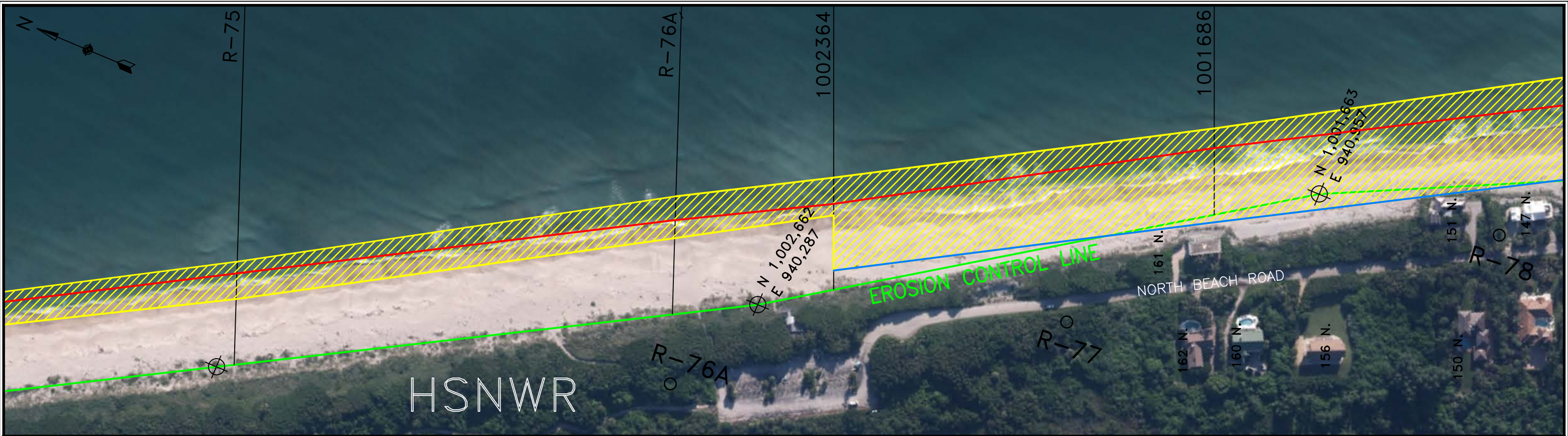


CONDITION SURVEY	
SURVEY DATE:	JULY 2020
HORIZ. PROJECTION:	U.S. STATE PLANE, NAD 83
ZONE:	FLORIDA - EAST ZONE 0901
VERT. REFERENCE:	N.A.V.D. 88
SURVEY UNITS:	U.S. SURVEY FEET
VESSEL:	FIRST LIGHT
SOUNDER:	ODOM ECHOTRAC MKIII
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS481 RTK GPS

CLAY W. BRYANT
FL P.E. NO. 43882

GBA
ENGINEERS ★ SURVEYORS
GAHAGAN & BRYANT ASSOCIATES, INC.
3802 W. BAY TO BAY BOULEVARD
TAMPA, FLORIDA 33629
TEL: 813.831.4408
FAX: 813.831.4216
WWW.GBA-INC.COM
FL CERTIFICATE OF AUTHORIZATION NO. 2247

TOWN OF JUPITER ISLAND			
SHORELINE LOCATIONS 1995 - 2020			
PLANVIEW			
DWG DATE:	OCTOBER 2020	DWG NAME:	SHORELINE CHANGE LINES 1995-2020 SPLT.DWG
DRAWN:	M. FORD	CHECKED:	C. BRYANT
SCALE:	AS SHOWN	SHEET:	1 OF 8
		ENGR:	C. BRYANT
		REV:	0



REV	REVISIONS	DATE	APP

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LEGEND:

- R-# D.E.P. MONUMENT
- EROSION CONTROL LINE
- SHORELINE POSITION 1995
- SHORELINE POSITION 2020
- ▨ SHORELINE RANGE 1995 TO 2020

RELATIONSHIP BETWEEN MEAN LOW WATER, MEAN HIGH WATER, AND N.A.V.D. 88

(NOT TO SCALE)

CONDITION SURVEY

SURVEY DATE:	JULY 2020
HORIZ. PROJECTION:	U.S. STATE PLANE, NAD 83
ZONE:	FLORIDA - EAST ZONE 0901
VERT. REFERENCE:	N.A.V.D. 88
SURVEY UNITS:	U.S. SURVEY FEET
VESSEL:	FIRST LIGHT
SOUNDER:	ODOM ECHOTRAC MKIII
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS481 RTK GPS

CLAY M. BRYANT
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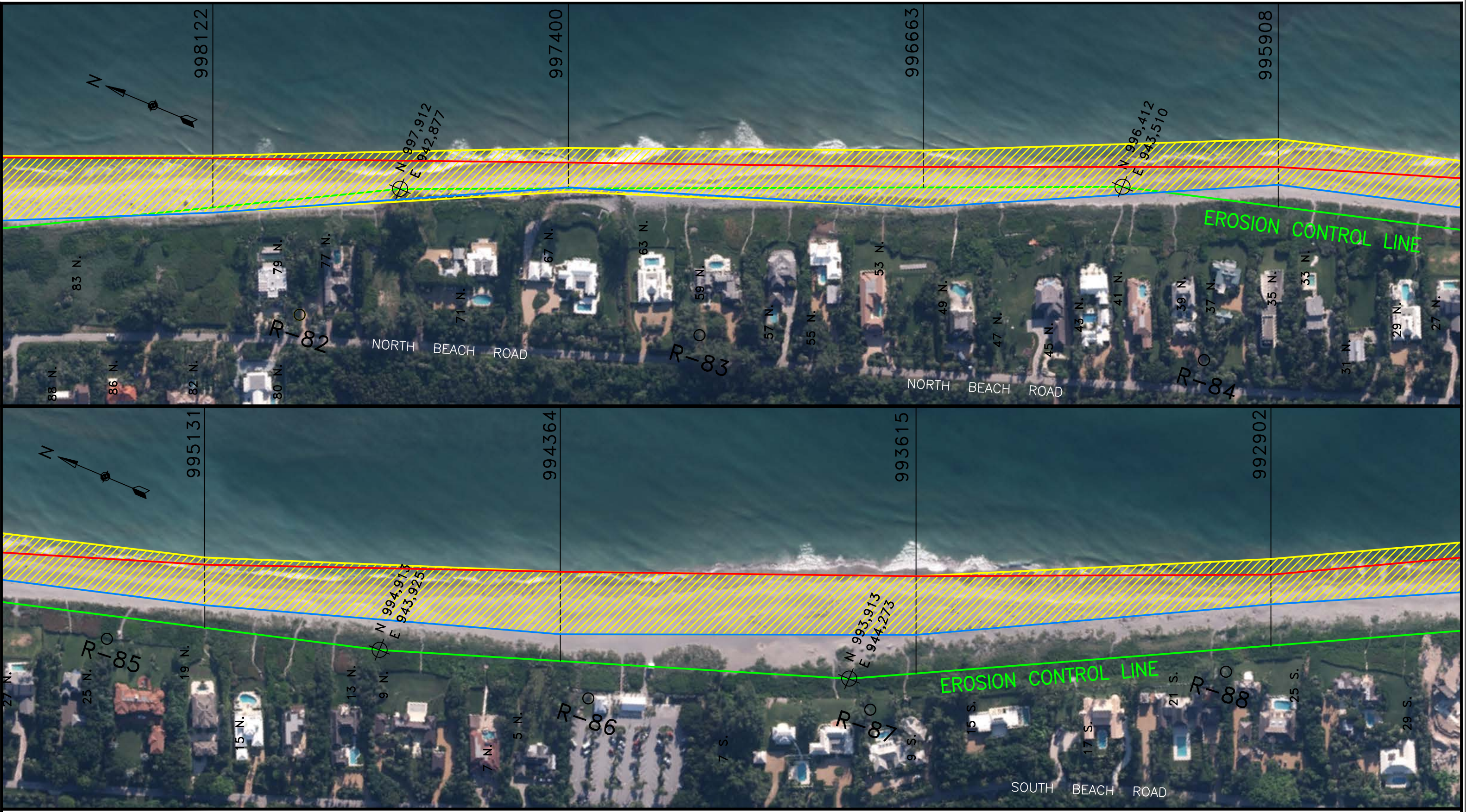
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TOWN OF JUPITER ISLAND

SHORELINE LOCATIONS 1995 - 2020

PLANVIEW

DWG DATE:	OCTOBER 2020	DWG NAME:	SHORELINE CHANGE LINES 1995-2020 SPLT.DWG
DRAWN:	M. FORD	CHECKED:	C. BRYANT
SCALE:	AS SHOWN	SHEET:	2 OF 8
		ENGR:	C. BRYANT
		REV:	0

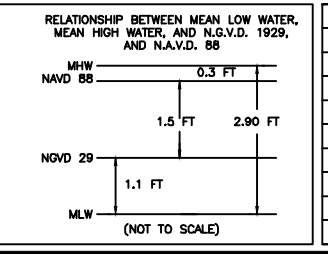


REV	REVISIONS	DATE	APP

GENERAL NOTES:
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LEGEND:
○ R-# D.E.P. MONUMENT
— EROSION CONTROL LINE
— SHORELINE POSITION 1995
— SHORELINE POSITION JULY 2020
▨ SHORELINE RANGE 1995 TO 2020

0 100' 200'
GRAPHIC SCALE

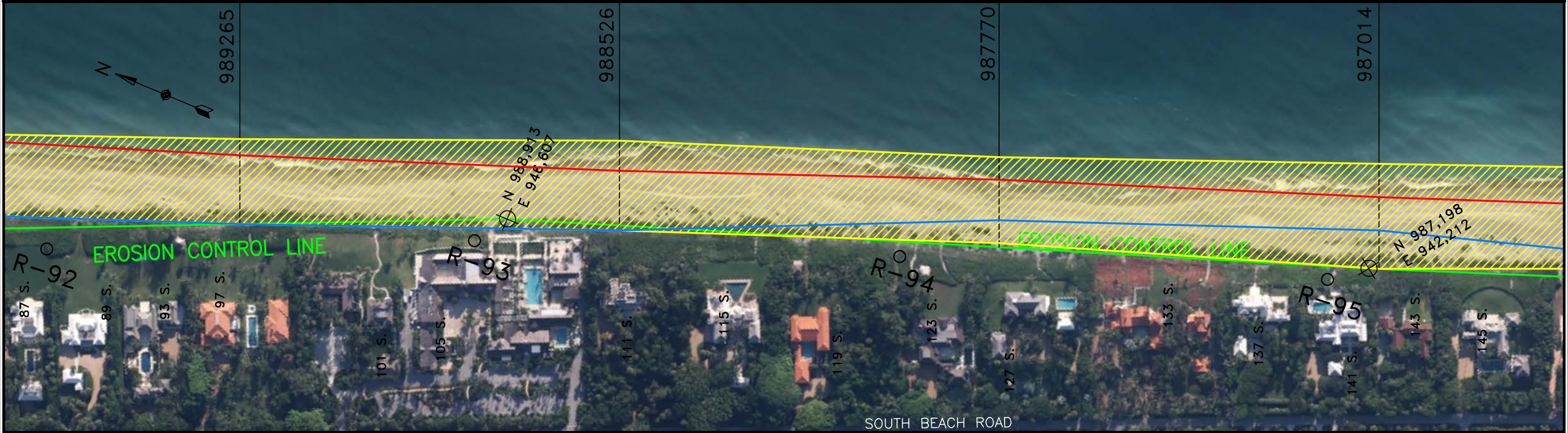
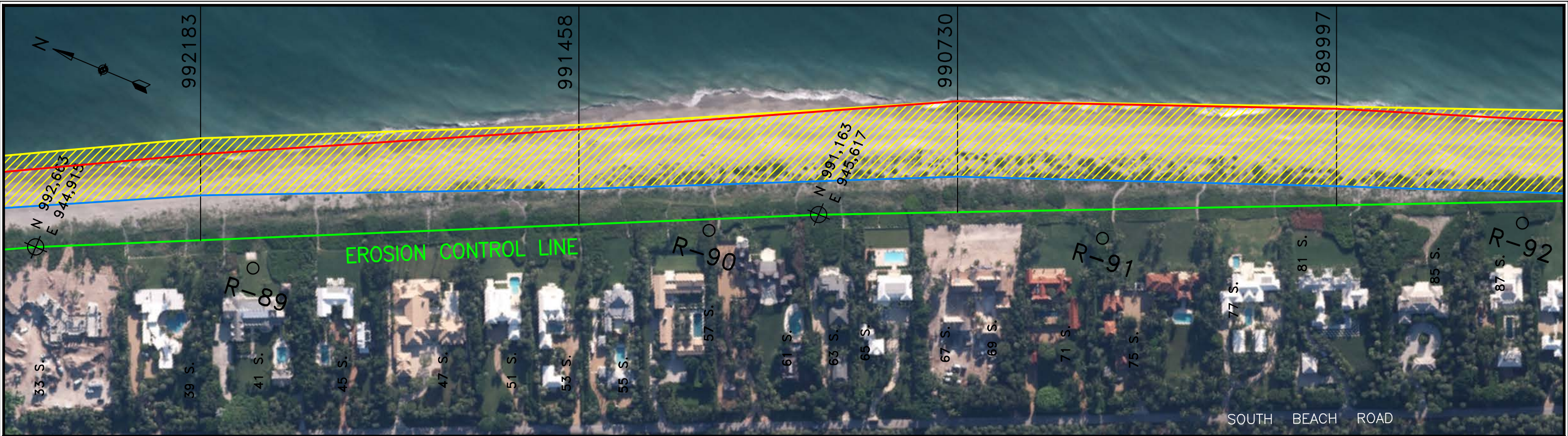


CONDITION SURVEY	
SURVEY DATE:	JULY 2020
HORIZ. PROJECTION:	U.S. STATE PLANE, NAD 83
ZONE:	FLORIDA - EAST ZONE 0901
VERT. REFERENCE:	N.A.V.D. 88
SURVEY UNITS:	U.S. SURVEY FEET
VESSEL:	FIRST LIGHT
SOUNDER:	ODOM ECHOTRAC MKIII
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS461 RTK GPS

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TOWN OF JUPITER ISLAND			
SHORELINE LOCATIONS 1995 - 2020			
PLANVIEW			
DWG DATE:	OCTOBER 2020	DWG NAME:	SHORELINE CHANGE LINES 1995-2020 SPLIT.DWG
DRAWN:	M. FORD	CHECKED:	C. BRYANT
SCALE:	AS SHOWN	SHEET:	3 OF 8
		ENGR:	C. BRYANT
		REV:	0



REV	REVISIONS	DATE	APP

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- SHORELINE POSITION JULY 2020
- ▨ SHORELINE RANGE 1995 TO 2020

0 100' 200'
GRAPHIC SCALE

RELATIONSHIP BETWEEN MEAN LOW WATER, MEAN HIGH WATER, AND N.A.V.D. 88

MHW NAVD 88	0.3 FT
1.5 FT	2.90 FT
NOVD 29	1.1 FT
MLW	

(NOT TO SCALE)

CONDITION SURVEY

SURVEY DATE:	JULY 2020
HORIZ. PROJECTION:	U.S. STATE PLANE, NAD 83
ZONE:	FLORIDA - EAST ZONE 0901
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VESSEL:	FIRST LIGHT
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SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS481 RTK GPS

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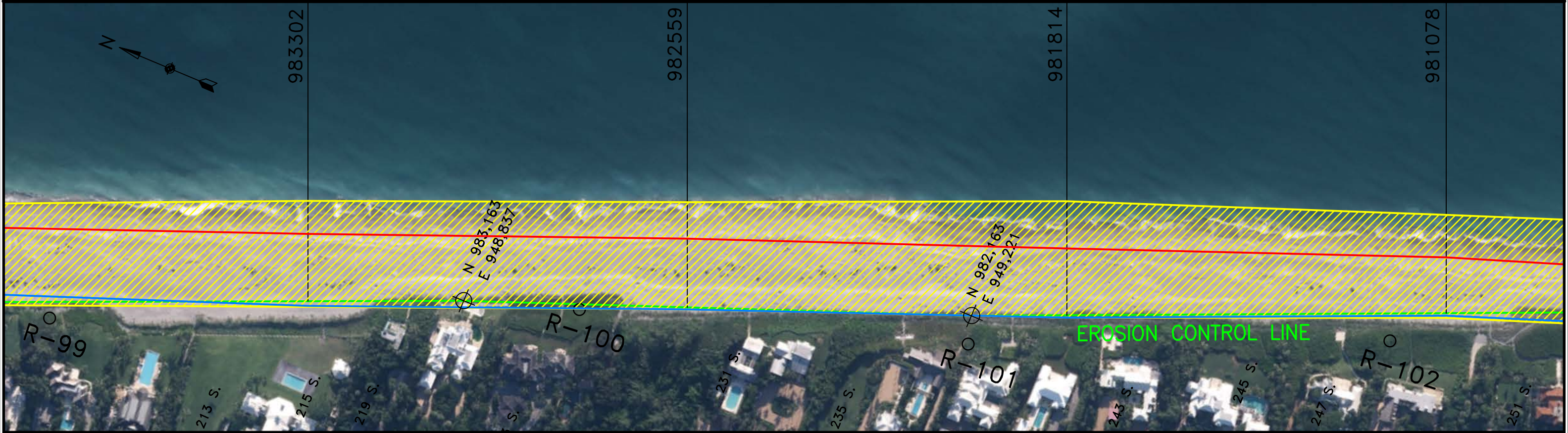
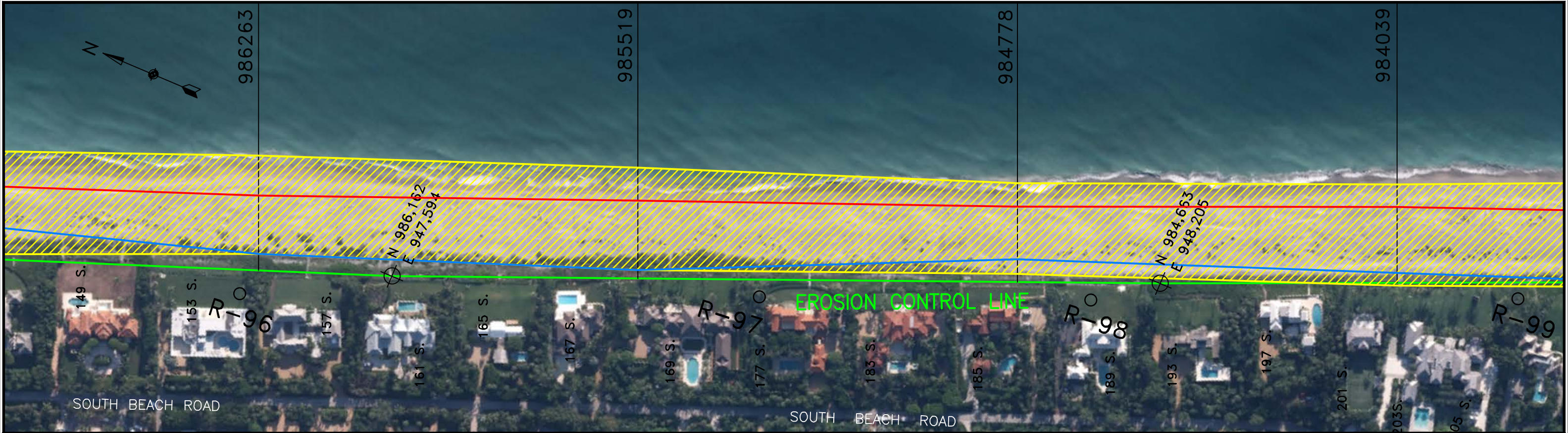
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TOWN OF JUPITER ISLAND

SHORELINE LOCATIONS 1995 - 2020

PLANVIEW

DWG DATE:	OCTOBER 2020	DWG NAME:	SHORELINE CHANGE LINES 1995-2020 SPLIT.DWG
DRAWN:	M. FORD	CHECKED:	C. BRYANT
SCALE:	AS SHOWN	SHEET:	4 OF 8
		ENGR:	C. BRYANT
		REV:	0



REV	REVISIONS	DATE	APP

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- SHORELINE POSITION JULY 2020
- ▨ SHORELINE RANGE 1995 TO 2020

0 100' 200'
GRAPHIC SCALE

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MHW NAVD 88	0.3 FT
1.5 FT	2.90 FT
1.1 FT	
MLW	

(NOT TO SCALE)

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VESSEL:	FIRST LIGHT
SOUNDER:	ODOM ECHOTRAC MKIII
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS461 RTK GPS

CLAY M. BRYANT
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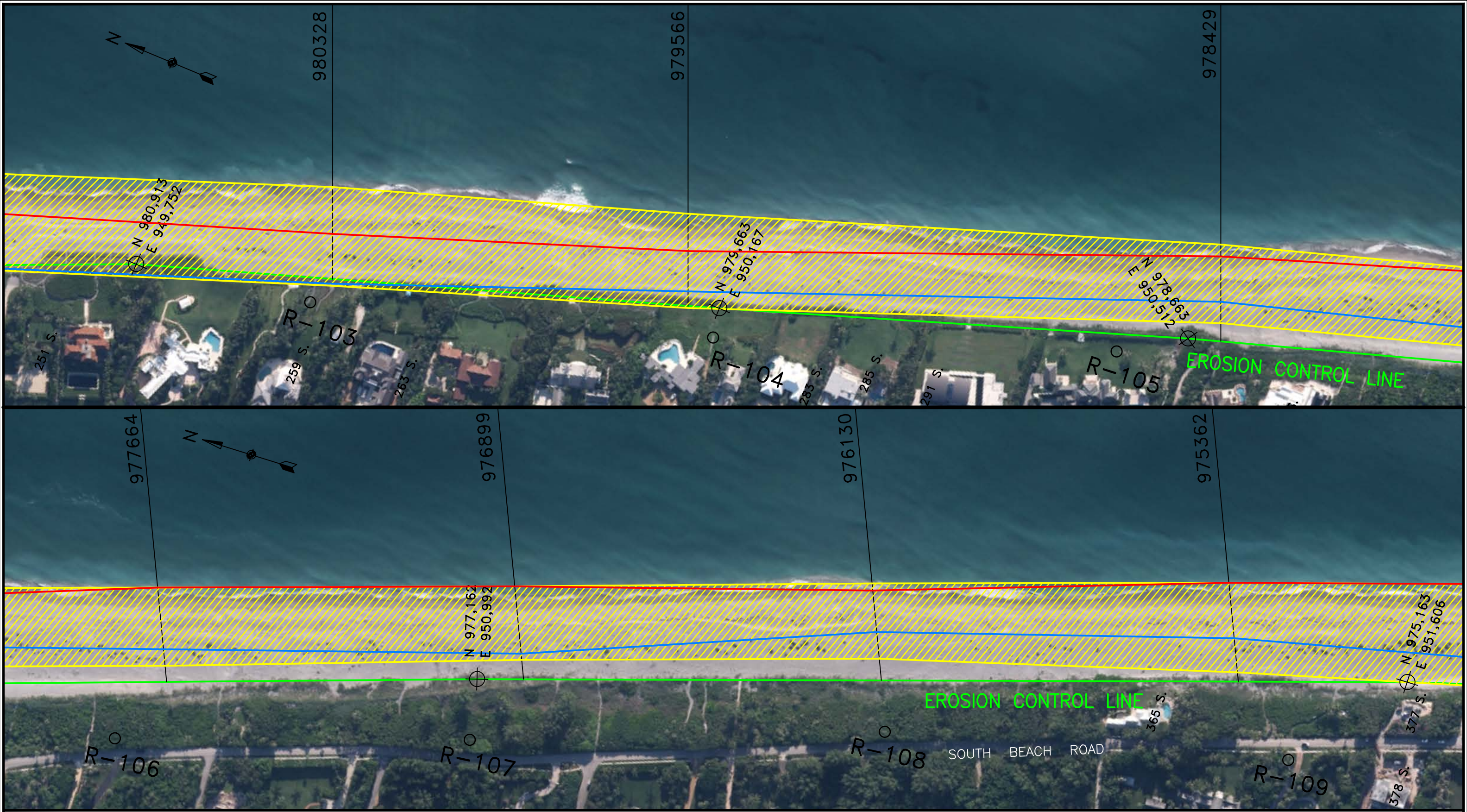
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TOWN OF JUPITER ISLAND

SHORELINE LOCATIONS 1995 - 2020

PLANVIEW

DWG DATE:	OCTOBER 2020	DWG NAME:	SHORELINE CHANGE LINES 1995-2020 SPLT.DWG
DRAWN:	M. FORD	CHECKED:	C. BRYANT
SCALE:	AS SHOWN	SHEET:	5 OF 8
		ENGR:	C. BRYANT
		REV:	0

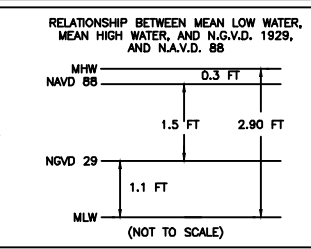


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— SHORELINE POSITION 1995
— SHORELINE POSITION JULY 2020
▨ SHORELINE RANGE 1995 TO 2020

0 100' 200'
GRAPHIC SCALE

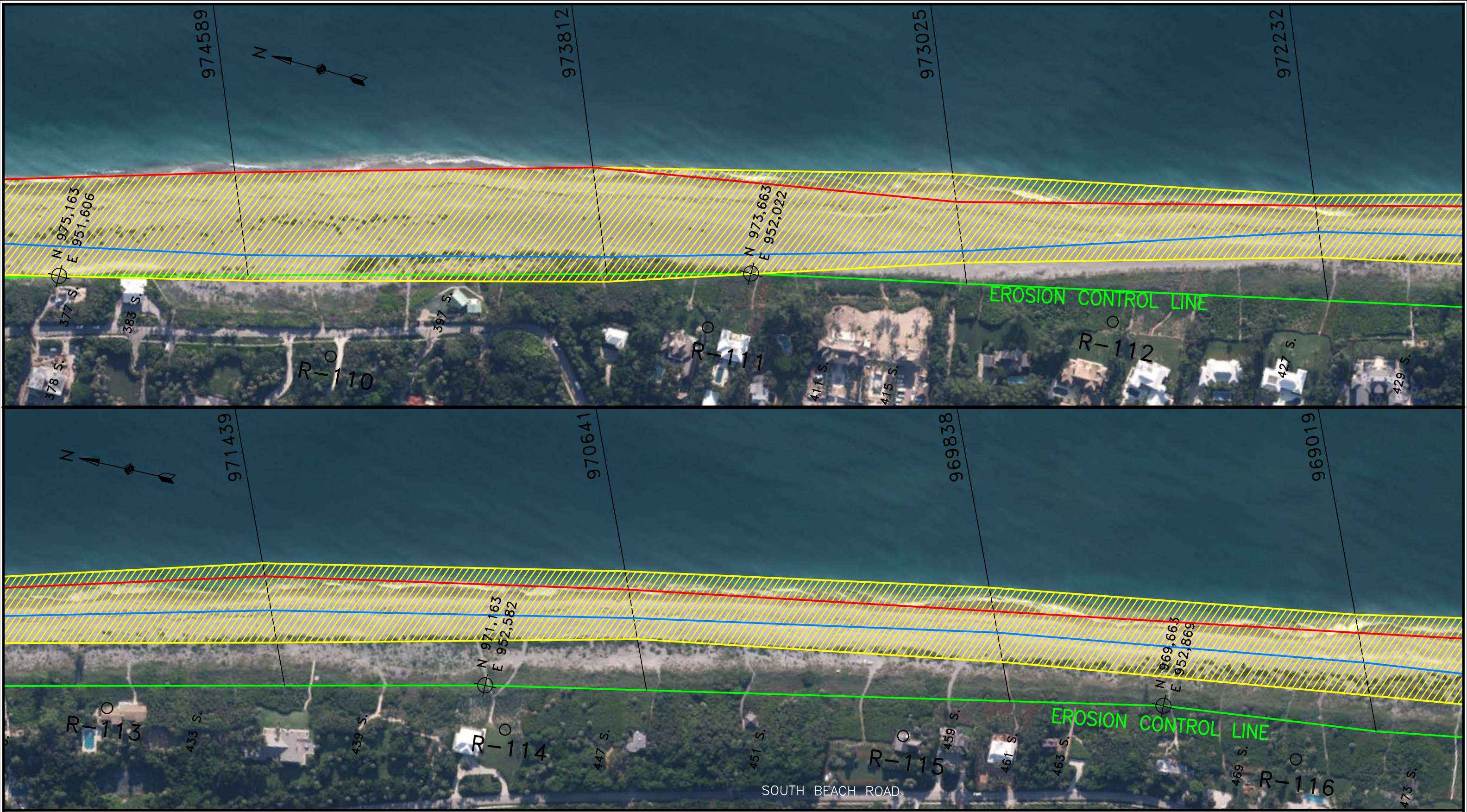


CONDITION SURVEY	
SURVEY DATE:	JULY 2020
HORIZ. PROJECTION:	U.S. STATE PLANE, NAD 83
ZONE:	FLORIDA - EAST ZONE 0901
VERT. REFERENCE:	N.A.V.D. 88
SURVEY UNITS:	U.S. SURVEY FEET
VESSEL:	FIRST LIGHT
SOUNDER:	ODOM ECHOTRAC MKIII
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS481 RTK GPS

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FL P.E. NO. 43882

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TOWN OF JUPITER ISLAND			
SHORELINE LOCATIONS 1995 - 2020			
PLANVIEW			
DWG DATE:	OCTOBER 2020	DWG NAME:	SHORELINE CHANGE LINES 1995-2020 SPLT.DWG
DRAWN:	M. FORD	CHECKED:	C. BRYANT
SCALE:	AS SHOWN	SHEET:	6 OF 8
		ENGR:	C. BRYANT
		REV:	0

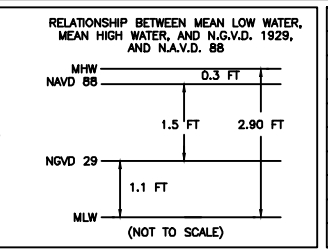


REV	REVISIONS	DATE	APP

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0 100' 200'
GRAPHIC SCALE

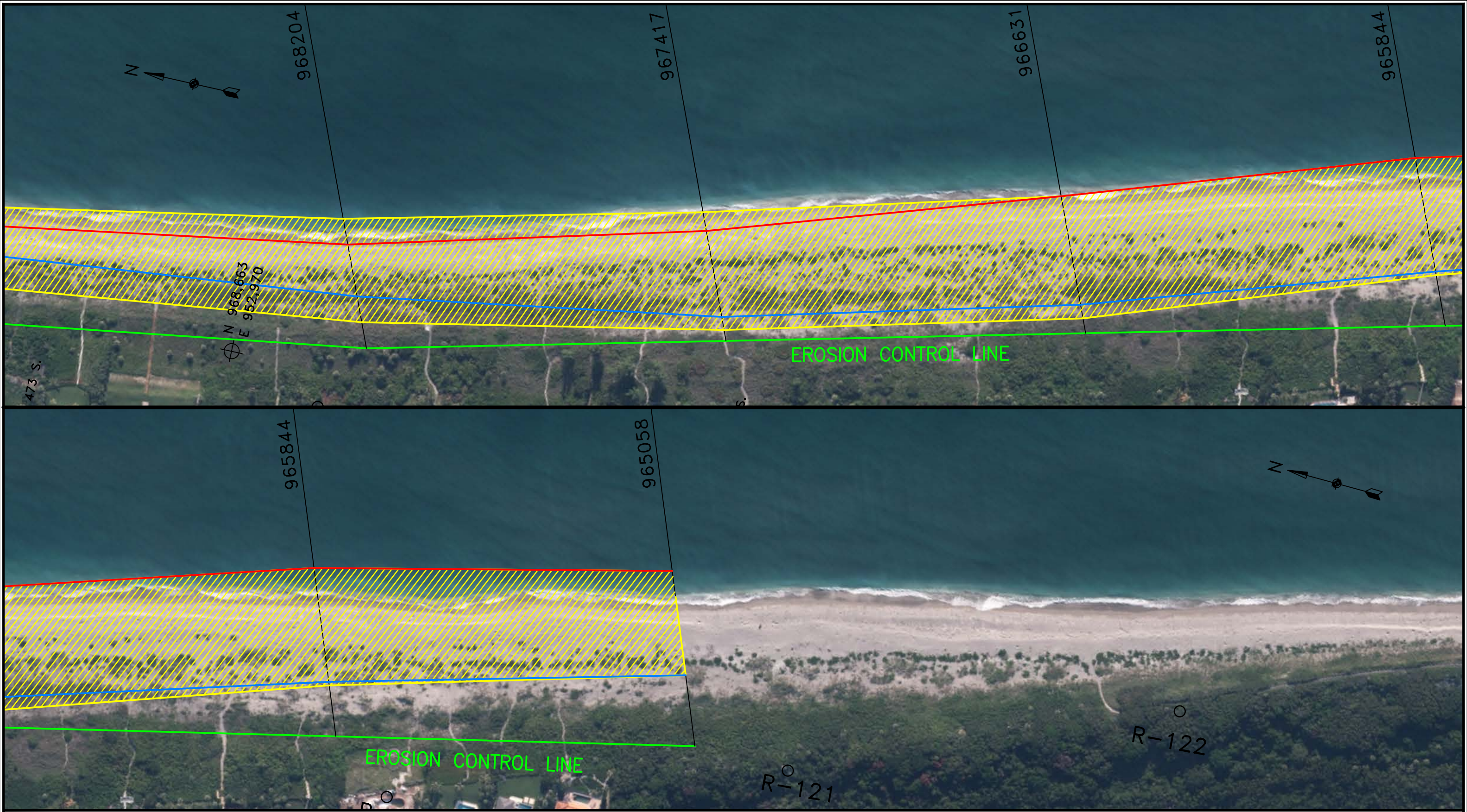


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PLANVIEW			
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DRAWN:	M. FORD	CHECKED:	C. BRYANT
SCALE:	AS SHOWN	SHEET:	7 OF 8
		ENGR:	C. BRYANT
		REV:	0

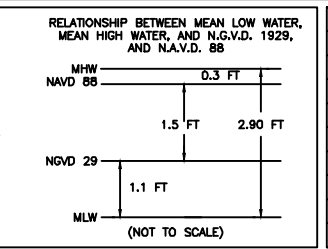


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— SHORELINE POSITION 1995
— SHORELINE POSITION JULY 2020
▨ SHORELINE RANGE 1995 TO 2020

0 100' 200'
GRAPHIC SCALE



CONDITION SURVEY	
SURVEY DATE:	JULY 2020
HORIZ. PROJECTION:	U.S. STATE PLANE, NAD 83
ZONE:	FLORIDA - EAST ZONE 0901
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DRAWN:	M. FORD	CHECKED:	C. BRYANT
SCALE:	AS SHOWN	SHEET:	8 OF 8
		ENGR:	C. BRYANT
		REV:	0

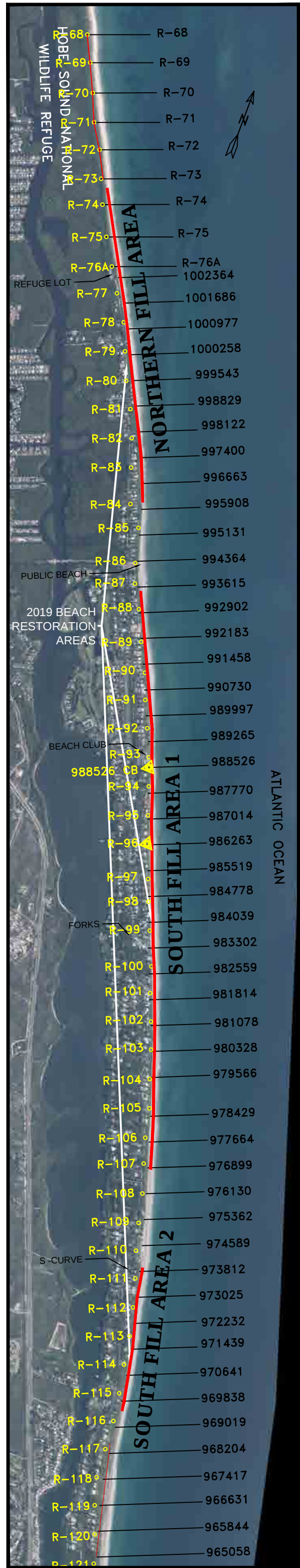
APPENDIX G
Survey Drawings
July 2020

Town of Jupiter Island

BEACH AND NEARSHORE

SUMMER MONITORING SURVEY

JULY 2020

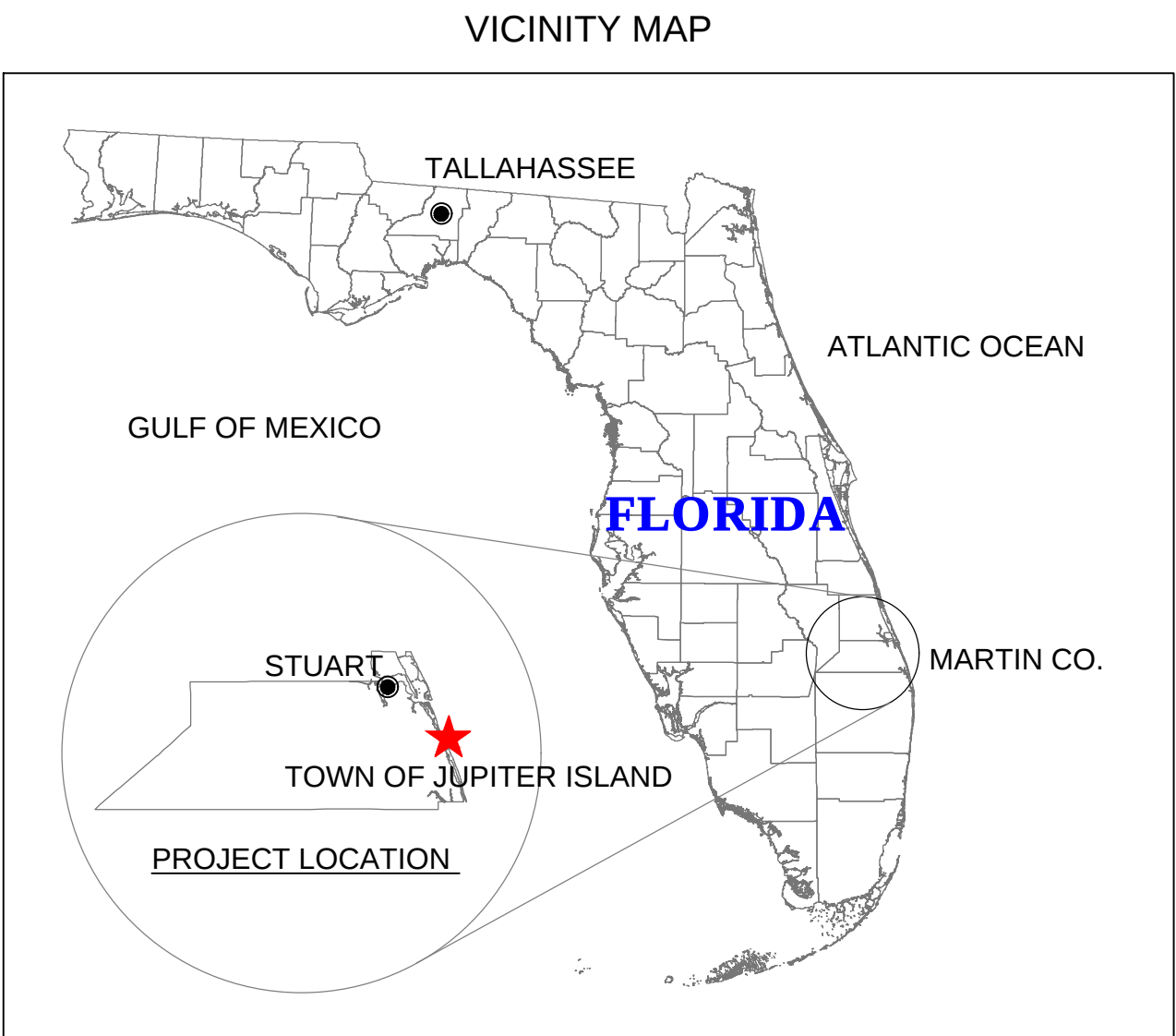


Jupiter Island Beach Profiles
Monitoring Survey Lines

PROFILE STATION		BASELINE P.I.	
		Northing	Easting
1	R-68	1,009,215.41	936,801.18
2	R-69	1,008,432.59	937,191.18
3	R-70	1,007,587.85	937,597.57
4	R-71	1,006,748.58	937,964.94
5	R-72	1,006,013.97	938,419.69
6	R-73	1,005,218.11	938,856.30
7	R-74	1,004,518.56	939,248.05
8	R-75	1,003,629.89	939,745.72
9	R-76A	1,002,820.36	940,199.06
10	1,002,364	1,002,527.53	940,378.01
11	1,001,686	1,001,849.53	940,832.28
12	1,000,977	1,001,140.53	941,210.04
13	1,000,258	1,000,421.53	941,563.86
14	999,543	999,706.53	941,927.08
15	998,829	998,992.53	942,295.13
16	998,122	998,285.53	942,676.36
17	997,400	997,563.53	943,024.64
18	996,663	996,826.53	943,335.66
19	995,908	996,071.53	943,604.58
20	995,131	995,294.52	943,819.55
21	994,364	994,527.52	944,059.30
22	993,615	993,778.52	944,342.31
23	992,902	993,065.52	944,708.51
24	992,183	992,346.52	945,063.35
25	991,458	991,621.52	945,402.65
26	990,730	990,893.52	945,735.80
27	989,997	990,160.52	946,058.33
28	989,265	989,428.52	946,380.41
29	988,526	988,689.52	946,686.04
30	987,770	987,933.52	946,952.74

PROFILE STATION		BASELINE P.I.	
		Northing	Easting
31	987,014	987,177.51	947,219.78
32	986,263	986,426.51	947,496.97
33	985,519	985,682.51	947,789.97
34	984,778	984,941.51	948,091.81
35	984,039	984,202.51	948,399.29
36	983,302	983,465.51	948,709.82
37	982,559	982,722.51	949,006.41
38	981,814	981,977.51	949,300.08
39	981,078	981,241.51	949,612.75
40	980,328	980,491.51	949,892.18
41	979,566	979,729.51	950,145.18
42	978,429	978,592.50	950,534.82
43	977,664	977,827.50	950,779.62
44	976,899	977,062.50	951,023.12
45	976,130	976,293.50	951,259.20
46	975,362	975,525.50	951,494.99
47	974,589	974,752.50	951,720.10
48	973,812	973,975.50	951,935.60
49	973,025	973,188.49	952,128.53
50	972,232	972,395.49	952,306.17
51	971,439	971,602.49	952,483.80
52	970,641	970,804.49	952,650.64
53	969,838	970,001.48	952,804.29
54	969,019	969,182.47	952,917.73
55	968,204	968,367.47	953,042.67
56	967,417	967,580.46	953,235.49
57	966,631	966,794.45	953,428.06
58	965,844	966,007.45	953,620.88
59	965,058	965,221.44	953,813.45

- NOTES:
- 1) Stationing refers to the Y coordinate of the intersection of the profile line and the Erosion Control Line (ECL) historically referenced to NAD '27. Lines R-73 to R76A are referenced to 2019 project baseline. Lines R-68 to R-72 are referenced to the respective R-Monument coordinates. All other lines are referenced to the ECL.
 - 2) The ECL and baseline are referenced at range 0, with range values increasing seaward.
 - 3) Profile azimuths for R-68 to R-76A are 69° grid. All other profile azimuths are 67°17'54" grid.
 - 4) Coordinates refer to Florida State Plane, East Zone, NAD '83



NOT TO SCALE

SHEET INDEX	
DESCRIPTION	SHEET NO.
COVER	1
NEARSHORE BATHYMETRY	2 - 9
PROFILE CROSS-SECTIONS_BEACH & NEARSHORE	10 - 16
PROFILE CROSS-SECTIONS_BEACH TEMPLATE AREA	17 - 23
BORROW SITE B BATHYMETRY	24
BORROW SITE B EXPANSION BATHYMETRY	25

SURVEY MONUMENTATION			
PLANE COORDINATES NAD83			ELEVATION NAVD88
MONUMENT	NORTHING	EASTING	
DET4RM2	998,449.63	942,293.85	7.78'
988526 CB	988,675.21	946,651.34	11.76'
R-96	986,444.36	947,437.22	16.17'

* NOT CERTIFIED WITHOUT SURVEY REPORT TITLED "TOWN OF JUPITER ISLAND BEACH AND NEARSHORE MONITORING SURVEY REPORT JULY 2020".



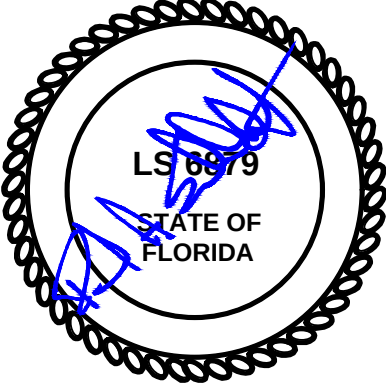
FDEP PERMIT # 0186991-008-JC

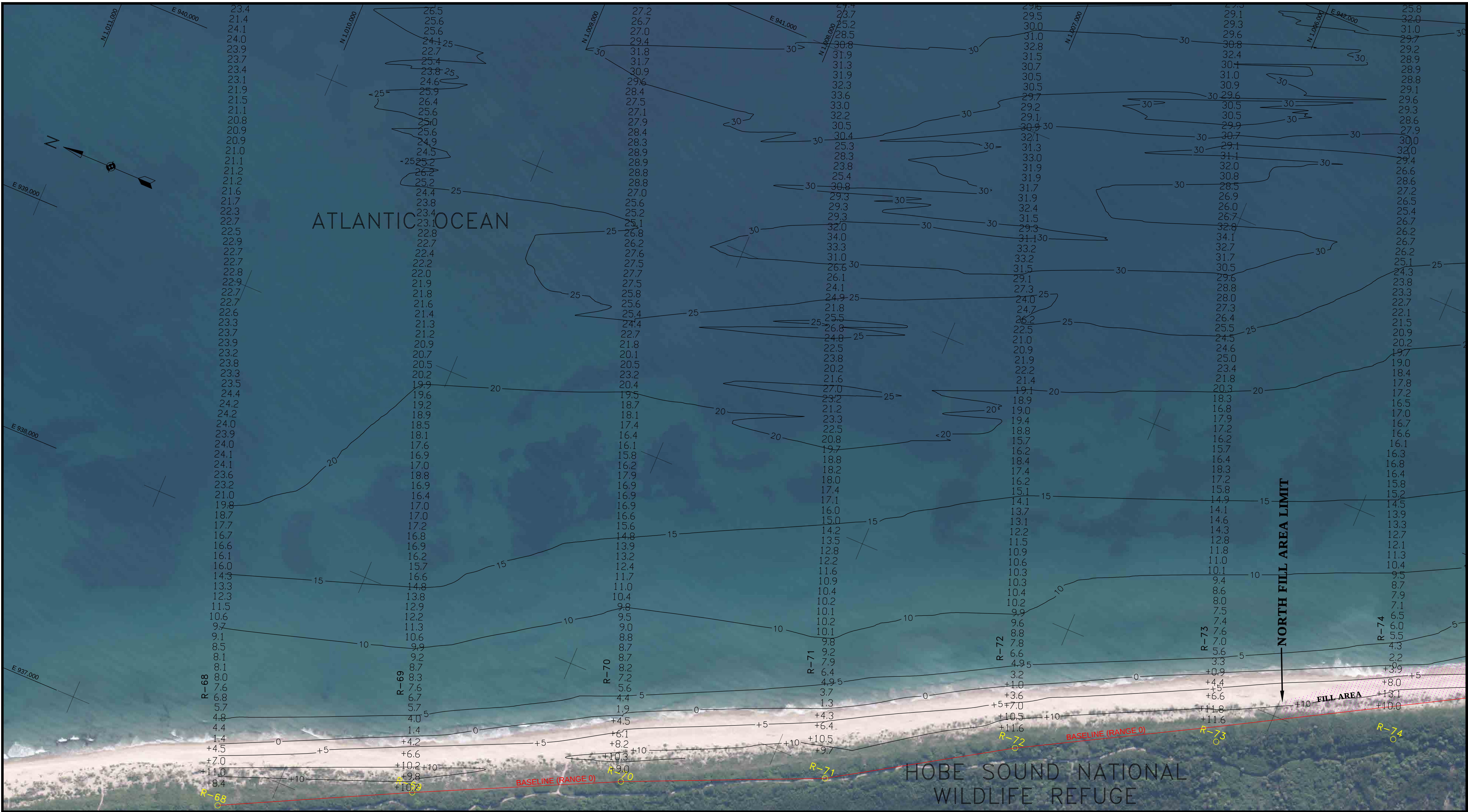
STATE OF FLORIDA SURVEYOR & MAPPER BUSINESS LICENSE #LB7959

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SUITE B-22
TAMPA, FLORIDA 33629
PHONE: (813) 831-4408
FAX: (813) 831-4216
WWW.GBA-INC.COM

P. SEABOLDT
FLORIDA PSM #6879





REV	REVISIONS	DATE	APP

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7. PROFILE AZIMUTHS ARE 89° GRID FOR R-68 TO R-76A. ALL OTHER PROFILE AZIMUTHS ARE 67°1754" GRID.
8. DATE OF SURVEY: JULY 15 - 16 AND JULY 28 - 29, 2020.
9. DATE OF AERIAL PHOTOGRAPHY: JULY 2018.

○ R-#

— D.E.P. MONUMENT

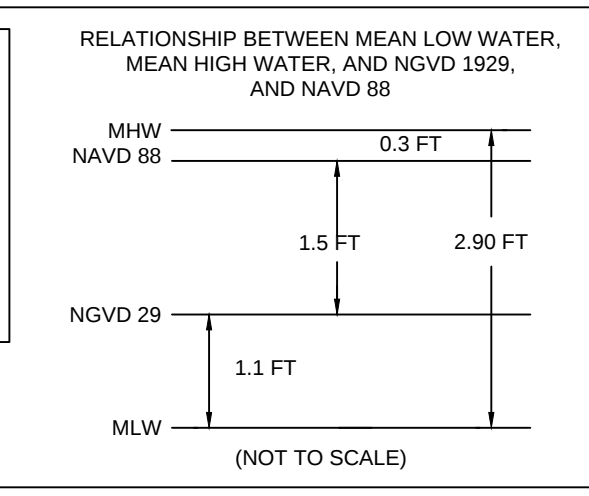
— BASELINE

BEACH FILL AREA

5 5-FT CONTOURS

0 200' 400'

GRAPHIC SCALE



CONDITION SURVEY	
SURVEY DATE:	JULY 15-16 AND JULY 28-29, 2020
HORIZ. PROJECTION:	U.S. STATE PLANE, NAD 83
ZONE:	FLORIDA - EAST ZONE 0901
VERT. REFERENCE:	NAVD 88
SURVEY UNITS:	U.S. SURVEY FEET
VESSEL:	RIISING TIDE
SOUNDER:	ODOM CV 200
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS461 RTK GPS

PAUL SEABOLDT
FLORIDA PSM #6879

* NOT CERTIFIED WITHOUT SURVEY REPORT TITLED "TOWN OF JUPITER ISLAND BEACH AND NEARSHORE SUMMER MONITORING SURVEY REPORT JULY 2020".

GBA

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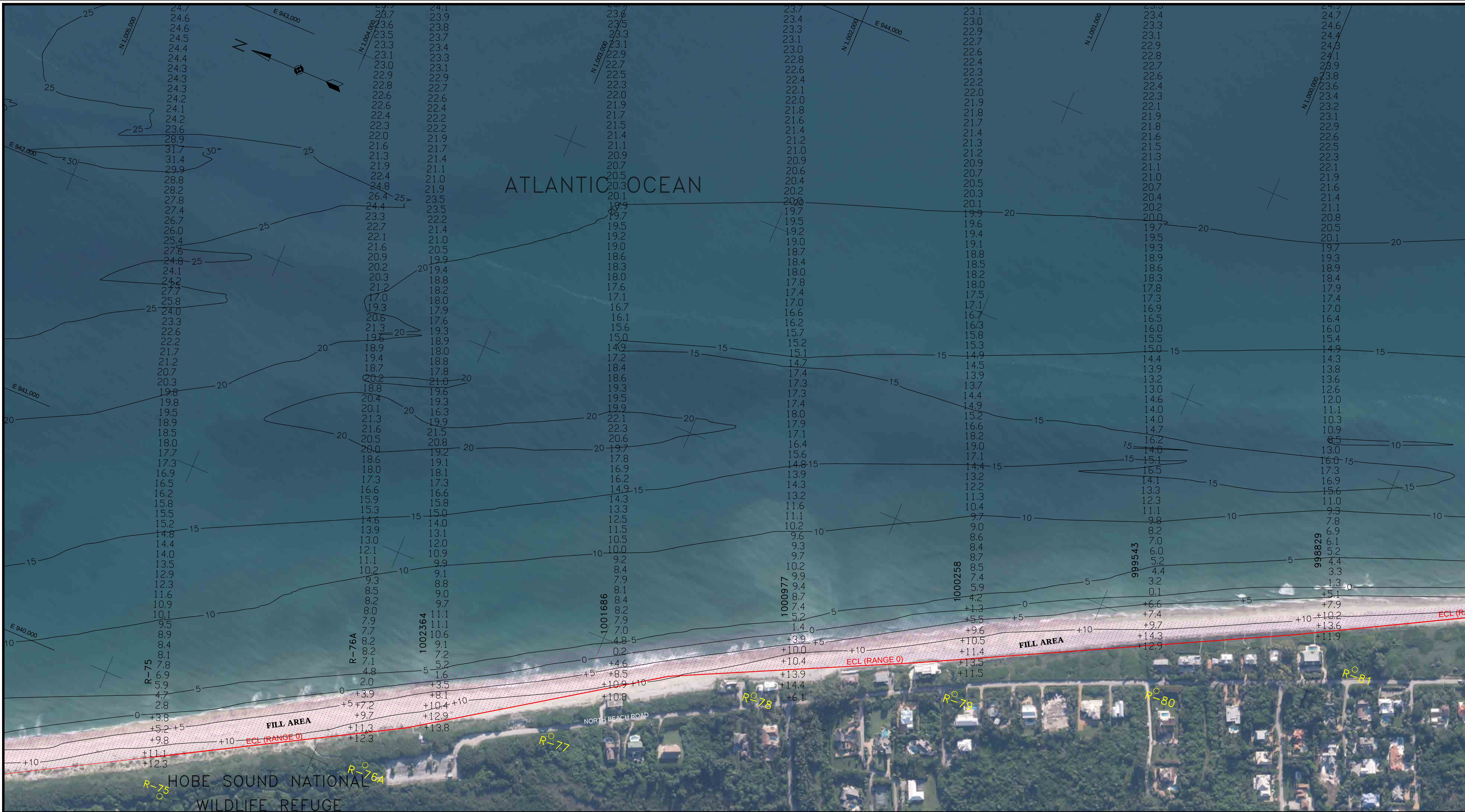
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FL SURVEYOR & MAPPER BUSINESS LICENSE #LB7959

TOWN OF JUPITER ISLAND

2020 SUMMER MONITORING SURVEY
NEARSHORE BATHYMETRY

R-68 TO R-74

DWG DATE:	AUGUST 13, 2020	DWG NAME:	Jupiter Island_2020_Summer Monitoring-Survey.dwg		
DRAWN:	M. FORD	CHECKED:	P. SEABOLDT	ENGR:	C. BRYANT
SCALE:	AS SHOWN	SHEET:	2 OF 25	REV:	0



REV	REVISIONS	DATE	APP

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7. PROFILE AZIMUTHS ARE 69° GRID FOR R-68 TO R-76A. ALL OTHER PROFILE AZIMUTHS ARE 67°1754° GRID.
8. DATE OF SURVEY: JULY 15 - 16 AND JULY 28 - 29, 2020.
9. DATE OF AERIAL PHOTOGRAPHY: JULY 2018.

LEGEND

- R-# D.E.P. MONUMENT
- EROSION CONTROL LINE
- BEACH FILL AREA
- 5 5-FT CONTOURS

0 200' 400'

GRAPHIC SCALE

RELATIONSHIP BETWEEN MEAN LOW WATER, MEAN HIGH WATER, AND NGVD 1929, AND NAVD 88

MHW
NAVD 88 0.3 FT

1.5 FT

2.90 FT

NGVD 29 1.1 FT

MLW (NOT TO SCALE)

CONDITION SURVEY

SURVEY DATE: JULY 15-16 AND JULY 28-29, 2020

HORIZ. PROJECTION: U.S. STATE PLANE, NAD 83

ZONE: FLORIDA - EAST ZONE 0901

VERT. REFERENCE: NAVD 88

SURVEY UNITS: U.S. SURVEY FEET

VESSEL: RISING TIDE

SOUNDER: ODOM CV 200

SOUNDER FREQ.: 200KHz

POSITIONING: TRIMBLE SPS461 RTK GPS

PAUL SEABOLDT
FLORIDA PSM #6879

* NOT CERTIFIED WITHOUT SURVEY REPORT TITLED "TOWN OF JUPITER ISLAND BEACH AND NEARSHORE SUMMER MONITORING SURVEY REPORT JULY 2020".

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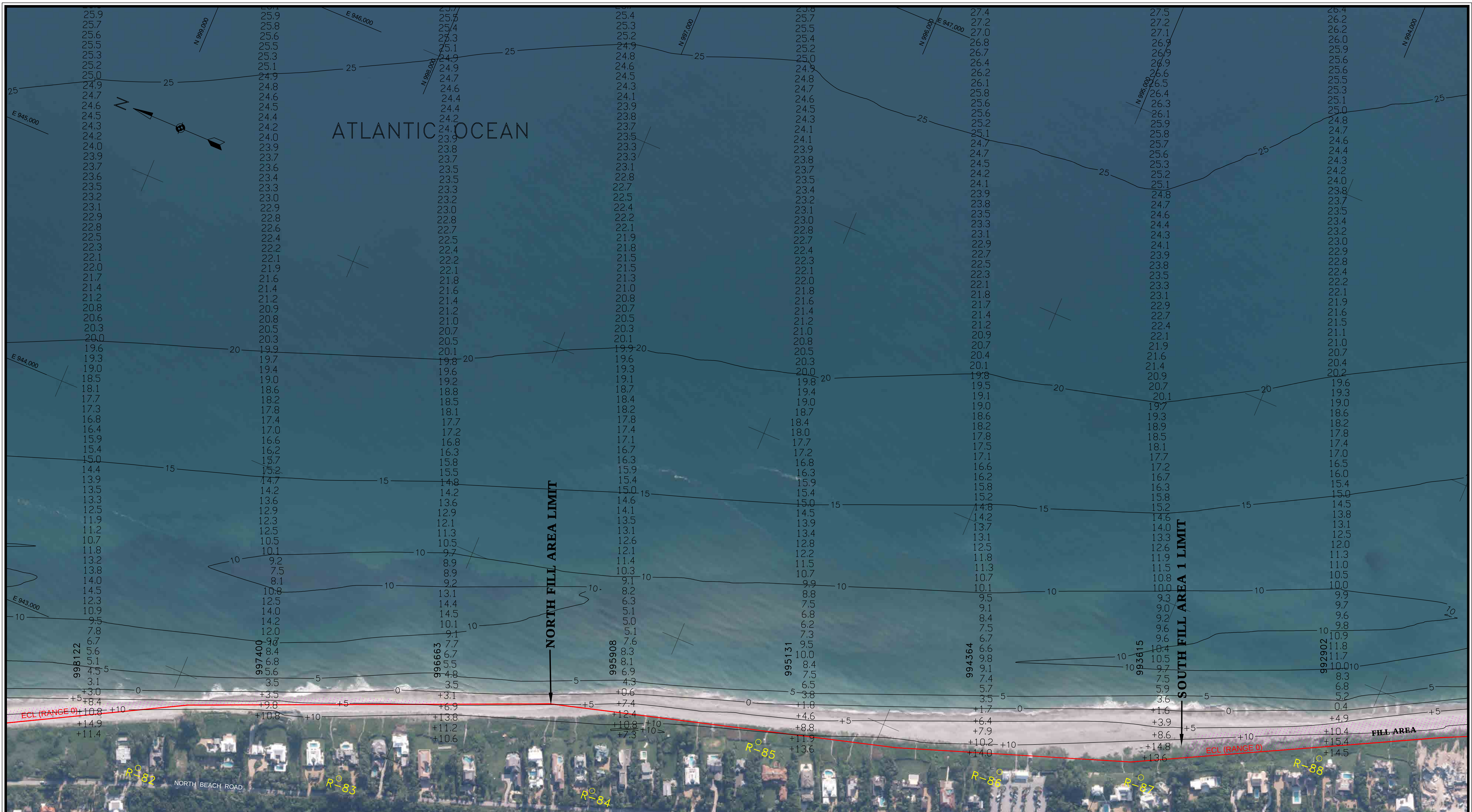
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TOWN OF JUPITER ISLAND

2020 SUMMER MONITORING SURVEY
NEARSHORE BATHYMETRY

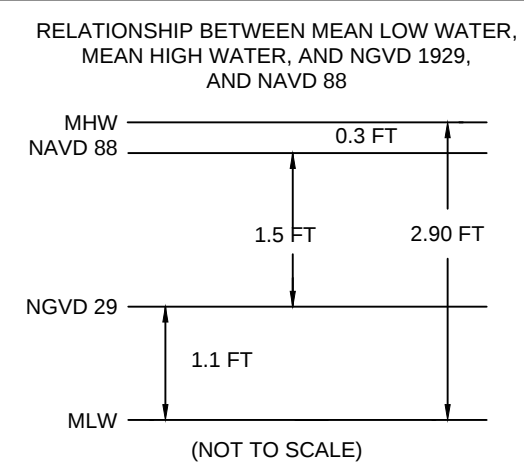
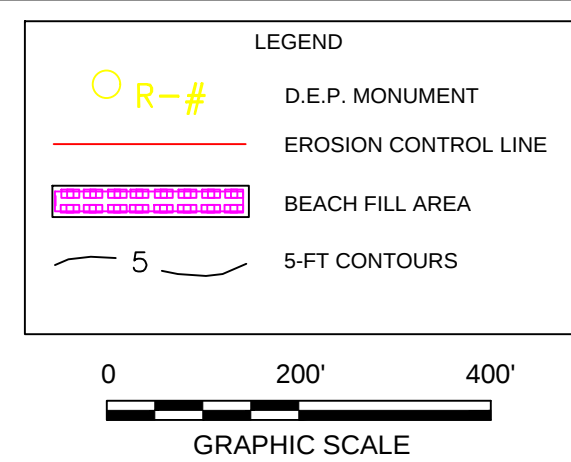
R-75 TO 998,829

DWG DATE:	AUGUST 13, 2020	DWG NAME:	Jupiter Island_2020_Summer Monitoring-Survey.dwg		
DRAWN:	M. FORD	CHECKED:	P. SEABOLDT	ENGR:	C. BRYANT
SCALE:	AS SHOWN	SHEET:	3 OF 25	REV:	0

[illegible]

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3. ELEVATIONS ARE IN U.S. FEET AND ARE REFERENCED TO NAVD83.
4. ELEVATIONS ARE ROUNDED TO THE NEAREST TENTH AND ARE BELOW THE REFERENCE PLANE.
5. LINES PREPARED BY A PLUS (+) SIGN.
6. ELEVATIONS SHOWN ARE PART OF A LARGER DATA SET, WHICH HAS BEEN REDUCED FOR CLARITY ON THIS MAP.
7. HYDROGRAPHIC DATA WAS ACQUIRED USING AN ODOM OV200 DUAL FREQUENCY ECHOSOUND. TOPOGRAPHIC DATA WAS ACQUIRED USING TRIMBLE REAL TIME KINEMATIC (RTK) EQUIPMENT.
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9. DATE OF SURVEY: JULY 15 - 16 AND JULY 28 - 29, 2020.
10. DATE OF AERIAL PHOTOGRAPHY: JULY 2018.



CONDITION SURVEY	
SURVEY DATE:	JULY 15-16 AND JULY 28-29, 2020
HORIZ. PROJECTION:	U. S. STATE PLANE, NAD 83
ZONE:	FLORIDA - EAST ZONE 0901
VERT. REFERENCE:	NAVD 88
SURVEY UNITS:	U. S. SURVEY FEET
VESSEL:	RIISING TIDE
SOUNDER:	ODOM CV 200
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SP5461 RTK GPS

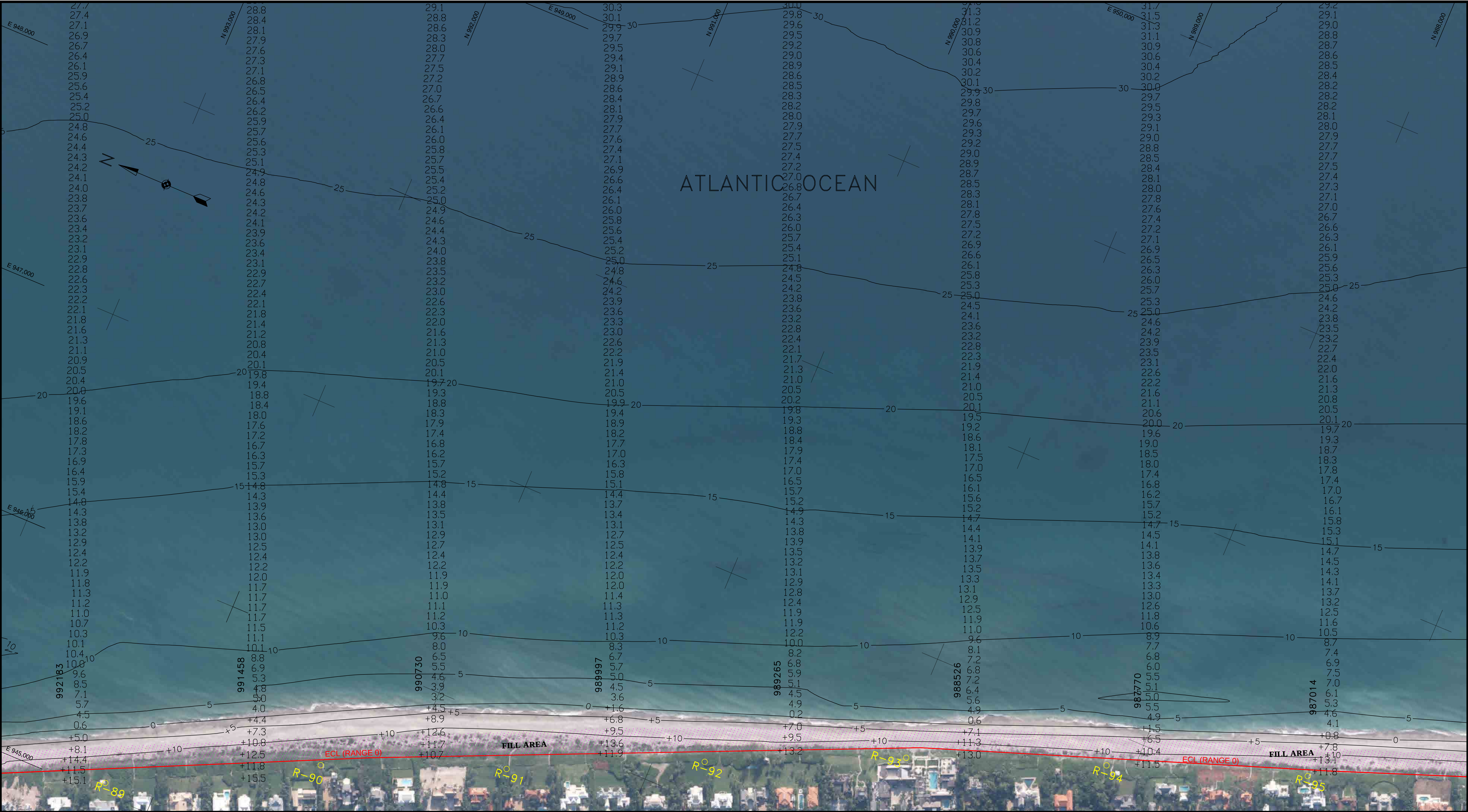
PAUL SEABOLDT
FLORIDA PSM #6879

* NOT CERTIFIED WITHOUT SURVEY
REPORT TITLED "TOWN OF JUPITER
ISLAND BEACH AND NEARSHORE
SUMMER MONITORING SURVEY
REPORT JULY 2020".

PAUL SEABOLDT
FLORIDA PSM #6879



TOWN OF JUPITER ISLAND				
2020 SUMMER MONITORING SURVEY NEARSHORE BATHYMETRY				
998,122 TO 992,902				
DWG DATE:		AUGUST 13, 2020	DWG NAME: Jupiter Island_2020_Summer Monitoring-Survey.dwg	
DRAWN:	M. FORD	CHECKED:	P. SEABOLDT	ENGR: C. BRYANT
SCALE:	AS SHOWN	SHEET:	4 OF 25	REV: 0



REV	REVISIONS	DATE	APP

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8. DATE OF SURVEY: JULY 15 - 16 AND JULY 28 - 29, 2020.
9. DATE OF AERIAL PHOTOGRAPHY: JULY 2018.

LEGEND

- R-# D.E.P. MONUMENT
- EROSION CONTROL LINE
- BEACH FILL AREA
- 5 5-FT CONTOURS

0 200' 400'

GRAPHIC SCALE

RELATIONSHIP BETWEEN MEAN LOW WATER, MEAN HIGH WATER, AND NAVD 88

MHW NAVD 88 0.3 FT

1.5 FT

2.90 FT

NGVD 29 1.1 FT

MLW

(NOT TO SCALE)

CONDITION SURVEY			
SURVEY DATE:	JULY 15-16 AND JULY 28-29, 2020		
HORIZ. PROJECTION:	U.S. STATE PLANE, NAD 83		
ZONE:	FLORIDA - EAST ZONE 0901		
VERT. REFERENCE:	NAVD 88		
SURVEY UNITS:	U.S. SURVEY FEET		
VESSEL:	RISING TIDE		
SOUNDER:	ODOM CV 200		
SOUNDER FREQ.:	200KHz		
POSITIONING:	TRIMBLE SPS461 RTK GPS		

PAUL SEABOLDT
FLORIDA PSM #6879

* NOT CERTIFIED WITHOUT SURVEY REPORT TITLED "TOWN OF JUPITER ISLAND BEACH AND NEARSHORE SUMMER MONITORING SURVEY REPORT JULY 2020".

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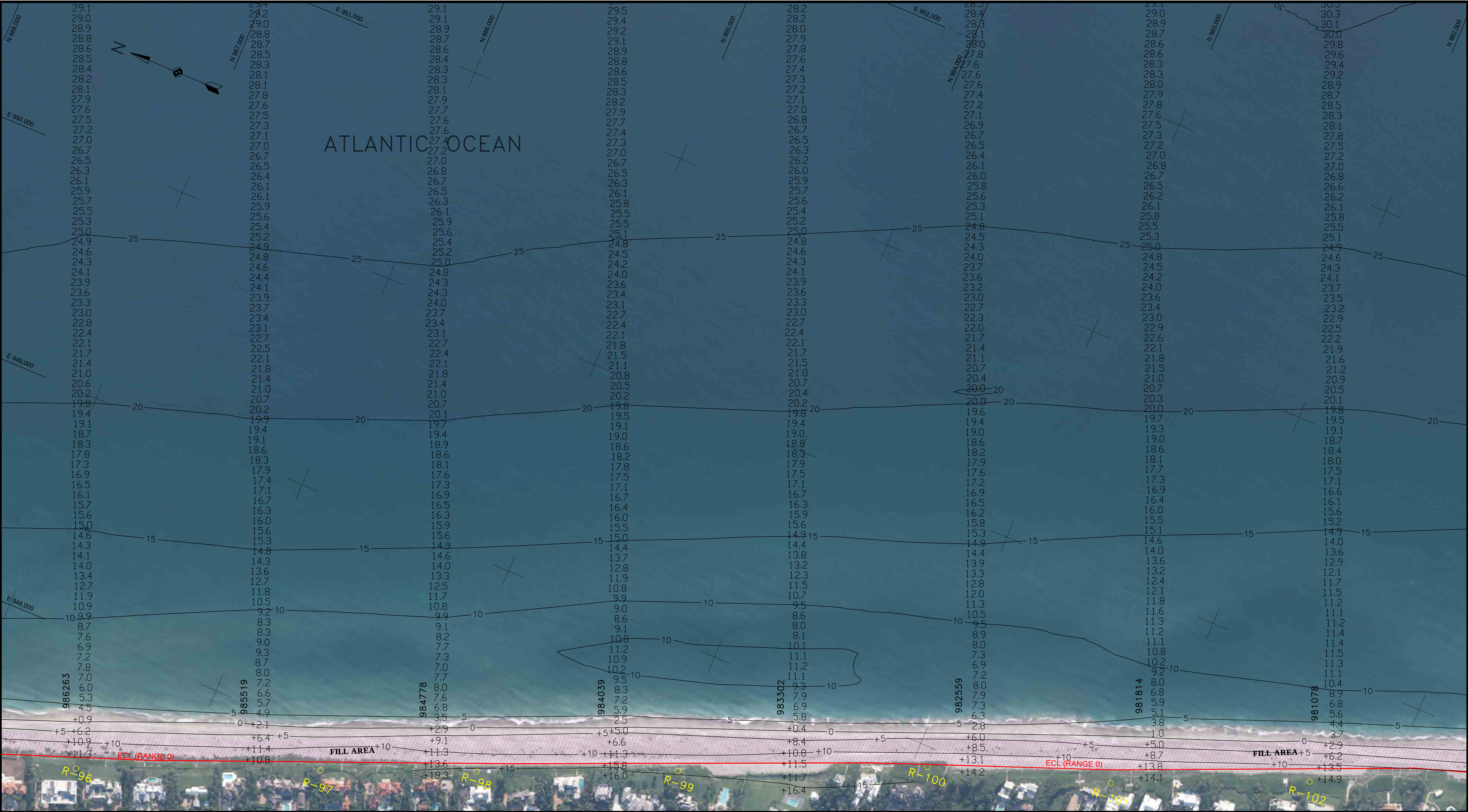
GAHAGAN & BRYANT ASSOCIATES, INC.
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FL SURVEYOR & MAPPER BUSINESS LICENSE #LB7959

TOWN OF JUPITER ISLAND

2020 SUMMER MONITORING SURVEY
NEARSHORE BATHYMETRY

992,183 TO 987,104

DWG DATE:	AUGUST 13, 2020			DWG NAME:	Jupiter Island_2020_Summer Monitoring-Survey.dwg		
DRAWN:	M. FORD	CHECKED:	P. SEABOLDT	ENGR:	C. BRYANT		
SCALE:	AS SHOWN	SHEET:	5 OF 25	REV:	0		



REV	REVISIONS	DATE	APP

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9. DATE OF AERIAL PHOTOGRAPHY: JULY 2018.

R-#

D.E.P. MONUMENT

EROSION CONTROL LINE

BEACH FILL AREA

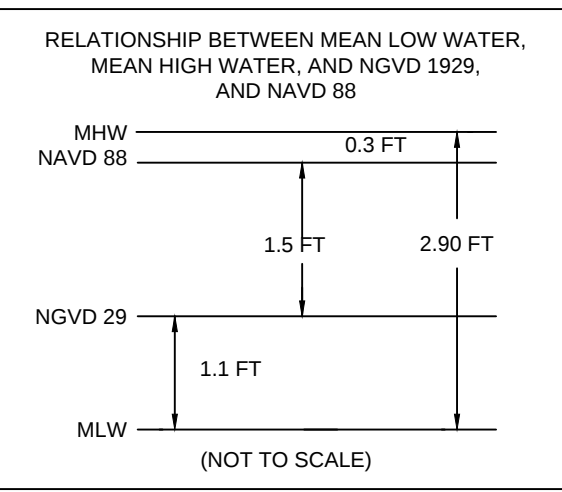
5-FT CONTOURS

0

200'

400'

GRAPHIC SCALE



CONDITION SURVEY	
SURVEY DATE:	JULY 15-16 AND JULY 28-29, 2020
HORIZ. PROJECTION:	U.S. STATE PLANE, NAD 83
ZONE:	FLORIDA - EAST ZONE 0901
VERT. REFERENCE:	NAVD 88
SURVEY UNITS:	U.S. SURVEY FEET
VESSEL:	RIISING TIDE
SOUNDER:	ODOM CV 200
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS461 RTK GPS

PAUL SEABOLDT
FLORIDA PSM #6879

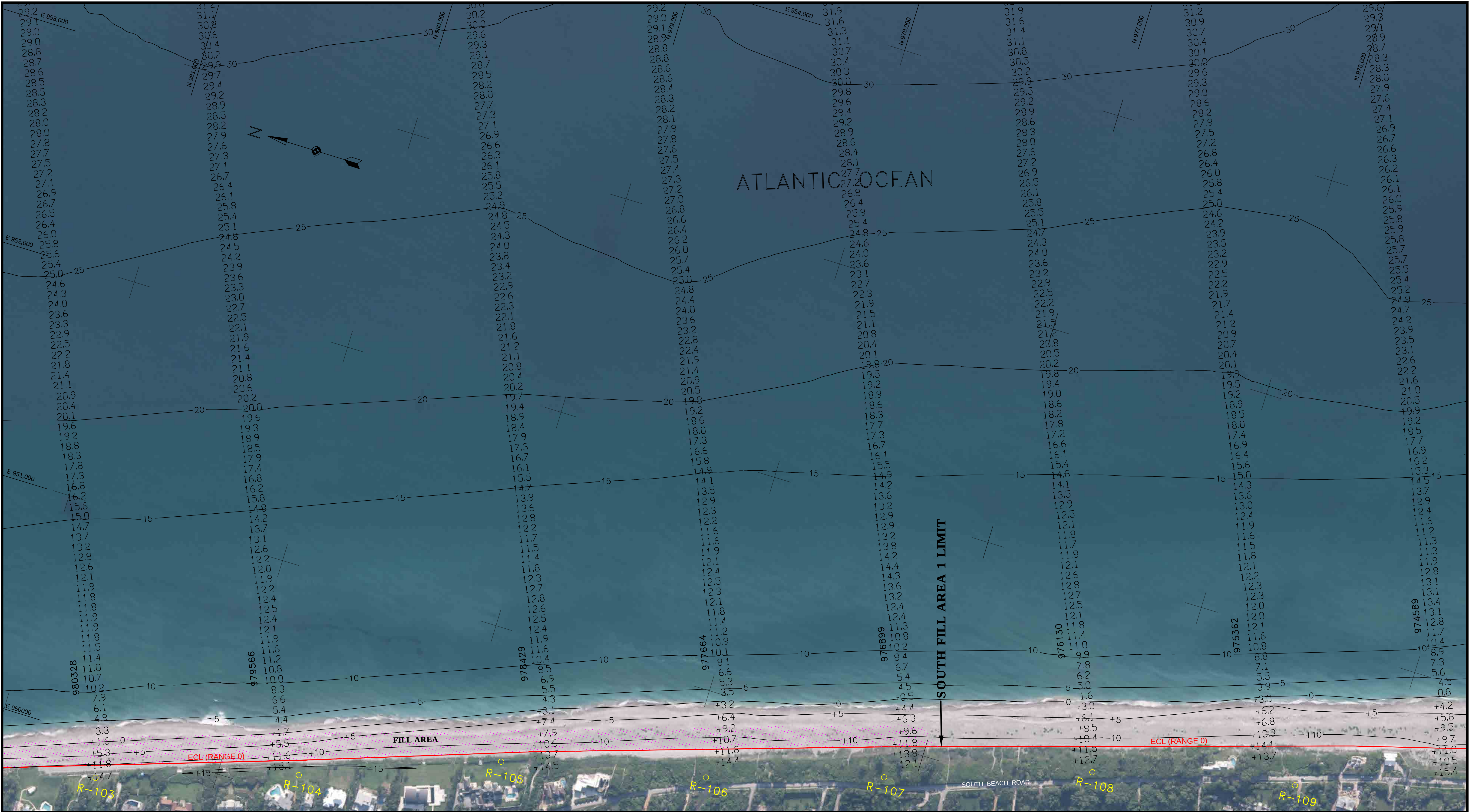
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TOWN OF JUPITER ISLAND			
2020 SUMMER MONITORING SURVEY NEARSHORE BATHYMETRY			
986,263 TO 981,078			
DWG DATE:	AUGUST 13, 2020	DWG NAME: Jupiter Island_2020_Summer Monitoring-Survey.dwg	
DRAWN:	M. FORD	CHECKED:	P. SEABOLDT
SCALE:	AS SHOWN	SHEET:	6 OF 25
		ENGR:	C. BRYANT
		REV:	0



REV	REVISIONS	DATE	APP

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LEGEND

- R-# D.E.P. MONUMENT
- EROSION CONTROL LINE
- BEACH FILL AREA
- 5 5-FT CONTOURS

0 200' 400'

GRAPHIC SCALE

RELATIONSHIP BETWEEN MEAN LOW WATER, MEAN HIGH WATER, AND NAVD 88

MHW NAVD 88 0.3 FT

1.5 FT

2.90 FT

NGVD 29 1.1 FT

MLW

(NOT TO SCALE)

CONDITION SURVEY

SURVEY DATE:	JULY 15-16 AND JULY 28-29, 2020
HORIZ. PROJECTION:	U.S. STATE PLANE, NAD 83
ZONE:	FLORIDA - EAST ZONE 0901
VERT. REFERENCE:	NAVD 88
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VESSEL:	RIISING TIDE
SOUNDER:	ODOM CV 200
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS461 RTK GPS

PAUL SEABOLDT
FLORIDA PSM #6879

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GBA
ENGINEERS ★ SURVEYORS

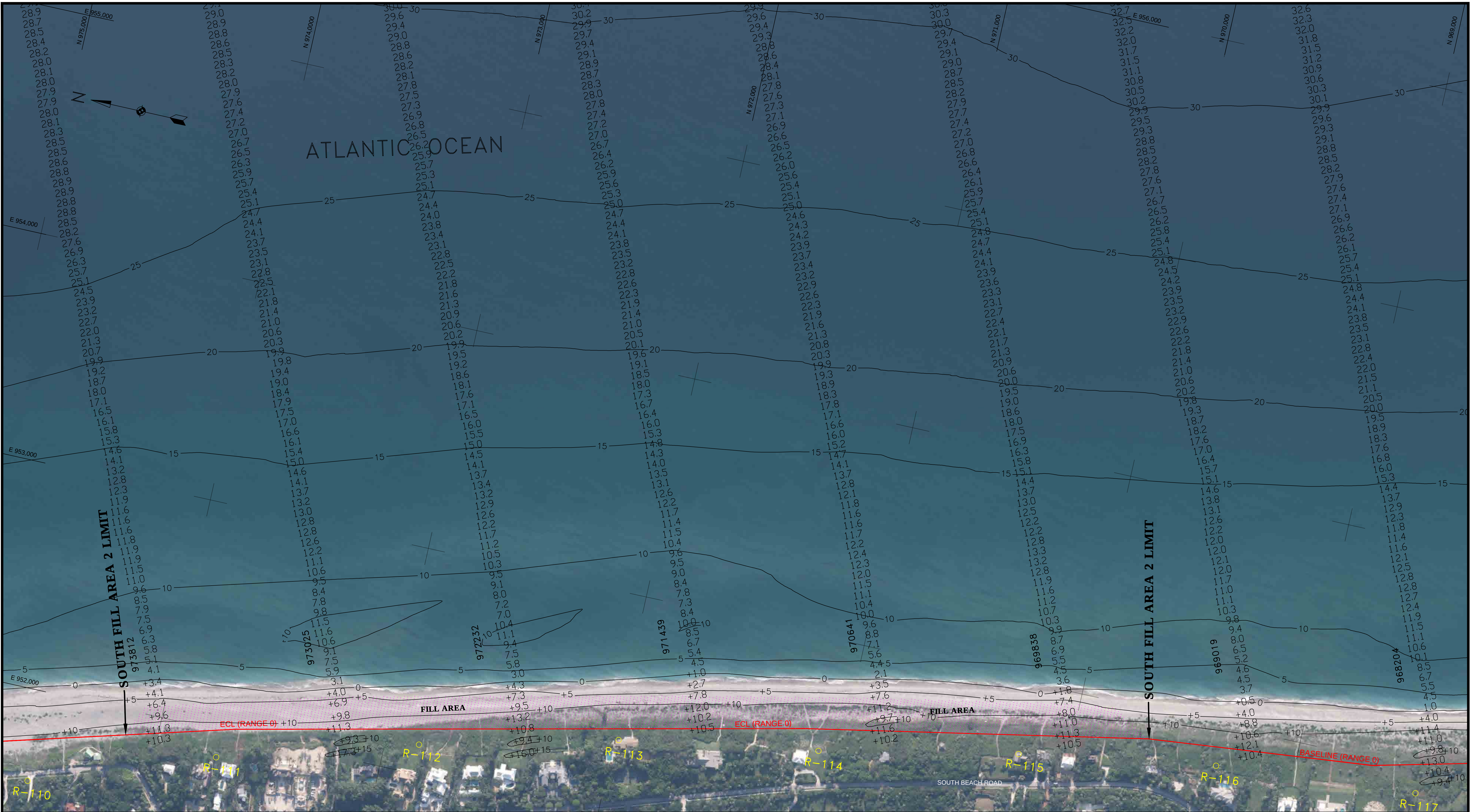
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TOWN OF JUPITER ISLAND

2020 SUMMER MONITORING SURVEY
NEARSHORE BATHYMETRY

980,328 to 974,589

DWG DATE:	AUGUST 13, 2020	DWG NAME:	Jupiter Island_2020_Summer Monitoring-Survey.dwg		
DRAWN:	M. FORD	CHECKED:	P. SEABOLDT	ENGR:	C. BRYANT
SCALE:	AS SHOWN	SHEET:	7 OF 25	REV:	0



REV	REVISIONS	DATE	APP

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9. DATE OF AERIAL PHOTOGRAPHY: JULY 2018.

○ R-#

— EROSION CONTROL LINE

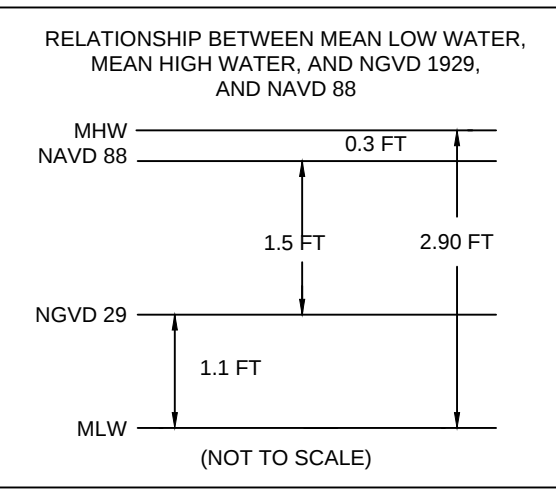
5 5-FT CONTOURS

0

200'

400'

GRAPHIC SCALE



CONDITION SURVEY	
SURVEY DATE:	JULY 15-16 AND JULY 28-29, 2020
HORIZ. PROJECTION:	U.S. STATE PLANE, NAD 83
ZONE:	FLORIDA - EAST ZONE 0901
VERT. REFERENCE:	NAVD 88
SURVEY UNITS:	U.S. SURVEY FEET
VESEL:	RIISING TIDE
SOUNDER:	ODOM CV 200
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS461 RTK GPS

PAUL SEABOLDT
FLORIDA PSM #6879

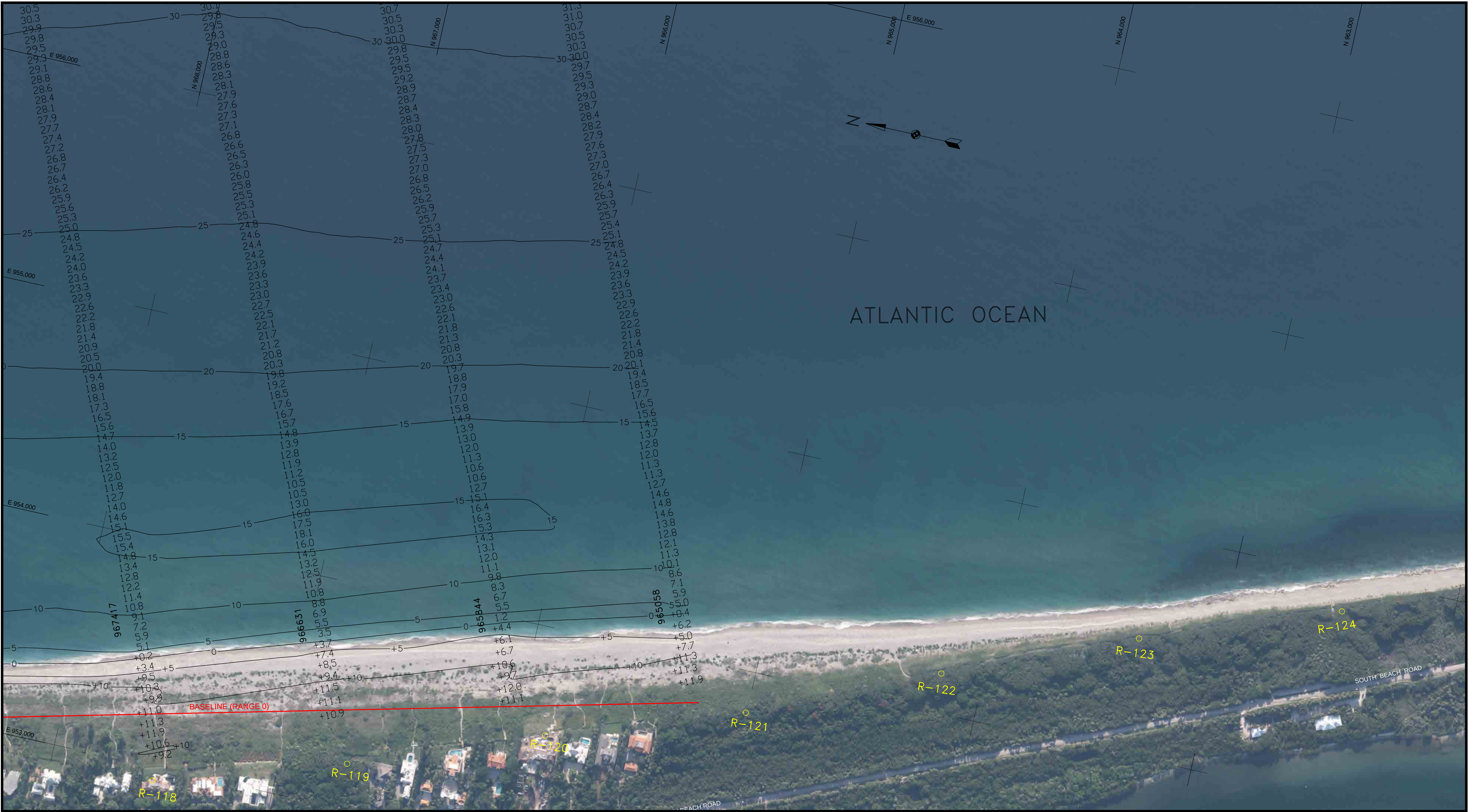
*** NOT CERTIFIED WITHOUT SURVEY REPORT TITLED "TOWN OF JUPITER ISLAND BEACH AND NEARSHORE SUMMER MONITORING SURVEY REPORT JULY 2020".**

GBA

ENGINEERS ★ SURVEYORS

GAHAGAN & BRYANT ASSOCIATES, INC.
3802 WEST BAY TO BAY BOULEVARD, STE B-22
TAMPA, FLORIDA 33629
TEL: (813) 831-4408
FAX: (813) 831-4216
WWW.GBA-INC.COM
FL SURVEYOR & MAPPER BUSINESS LICENSE
#LB7959

TOWN OF JUPITER ISLAND			
2020 SUMMER MONITORING SURVEY			
NEARSHORE BATHYMETRY			
973,812 TO 968,204			
DWG DATE:	AUGUST 13, 2020	DWG NAME:	Jupiter Island_2020_Summer Monitoring-Survey.dwg
DRAWN:	M. FORD	CHECKED:	P. SEABOLDT
SCALE:	AS SHOWN	ENGR:	C. BRYANT
SHEET:	8 OF 25	REV:	0



REV	REVISIONS	DATE	APP

GENERAL NOTES:

1. THE INFORMATION DEPICTED HERE REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATE INDICATED, AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITION EXISTING AT THAT TIME.

2. HORIZONTAL COORDINATES ARE IN U.S. SURVEY FEET AND ARE REFERENCED TO U.S. STATE PLANE FLORIDA EAST (901), NAD 83.

3. ELEVATIONS ARE IN U.S. FEET AND ARE REFERENCED TO NAVD88.

4. ELEVATIONS ARE ROUNDED TO THE NEAREST TENTH AND ARE BELOW THE REFERENCE PLANE UNLESS PRECEDED BY A PLUS (+) SIGN.

5. ELEVATIONS SHOWN ARE PART OF A LARGER DATA SET, WHICH HAS BEEN REDUCED FOR CLARITY ON THIS MAP.

6. HYDROGRAPHIC DATA WAS ACQUIRED USING AN ODOM CV200 DUAL FREQUENCY ECHOSOUNDER. TOPOGRAPHIC DATA WAS ACQUIRED USING TRIMBLE REAL-TIME KINEMATIC (RTK) EQUIPMENT.

7. PROFILE AZIMUTHS ARE 69° GRID FOR R-88 TO R-76A. ALL OTHER PROFILE AZIMUTHS ARE 67°1754" GRID.

8. DATE OF SURVEY: JULY 15 - 16 AND JULY 28 - 29, 2020.

9. DATE OF AERIAL PHOTOGRAPHY: JULY 2018.

LEGEND

○ R-# D.E.P. MONUMENT

— EROSION CONTROL LINE

— 5 5-FT CONTOURS

RELATIONSHIP BETWEEN MEAN LOW WATER, MEAN HIGH WATER, AND NAVD 88

MHW NAVD 88 0.3 FT

1.5 FT

2.90 FT

NGVD 29 1.1 FT

MLW

(NOT TO SCALE)

CONDITION SURVEY

SURVEY DATE: JULY 15-16 AND JULY 28-29, 2020

HORIZ. PROJECTION: U.S. STATE PLANE, NAD 83

ZONE: FLORIDA - EAST ZONE 0901

VERT. REFERENCE: NAVD 88

SURVEY UNITS: U.S. SURVEY FEET

VESSEL: RISING TIDE

SOUNDER: ODOM CV 200

SOUNDER FREQ.: 200KHz

POSITIONING: TRIMBLE SPS461 RTK GPS

PAUL SEABOLDT
FLORIDA PSM #6879

* NOT CERTIFIED WITHOUT SURVEY REPORT TITLED "TOWN OF JUPITER ISLAND BEACH AND NEARSHORE SUMMER MONITORING SURVEY REPORT JULY 2020".

GBA
ENGINEERS ★ SURVEYORS

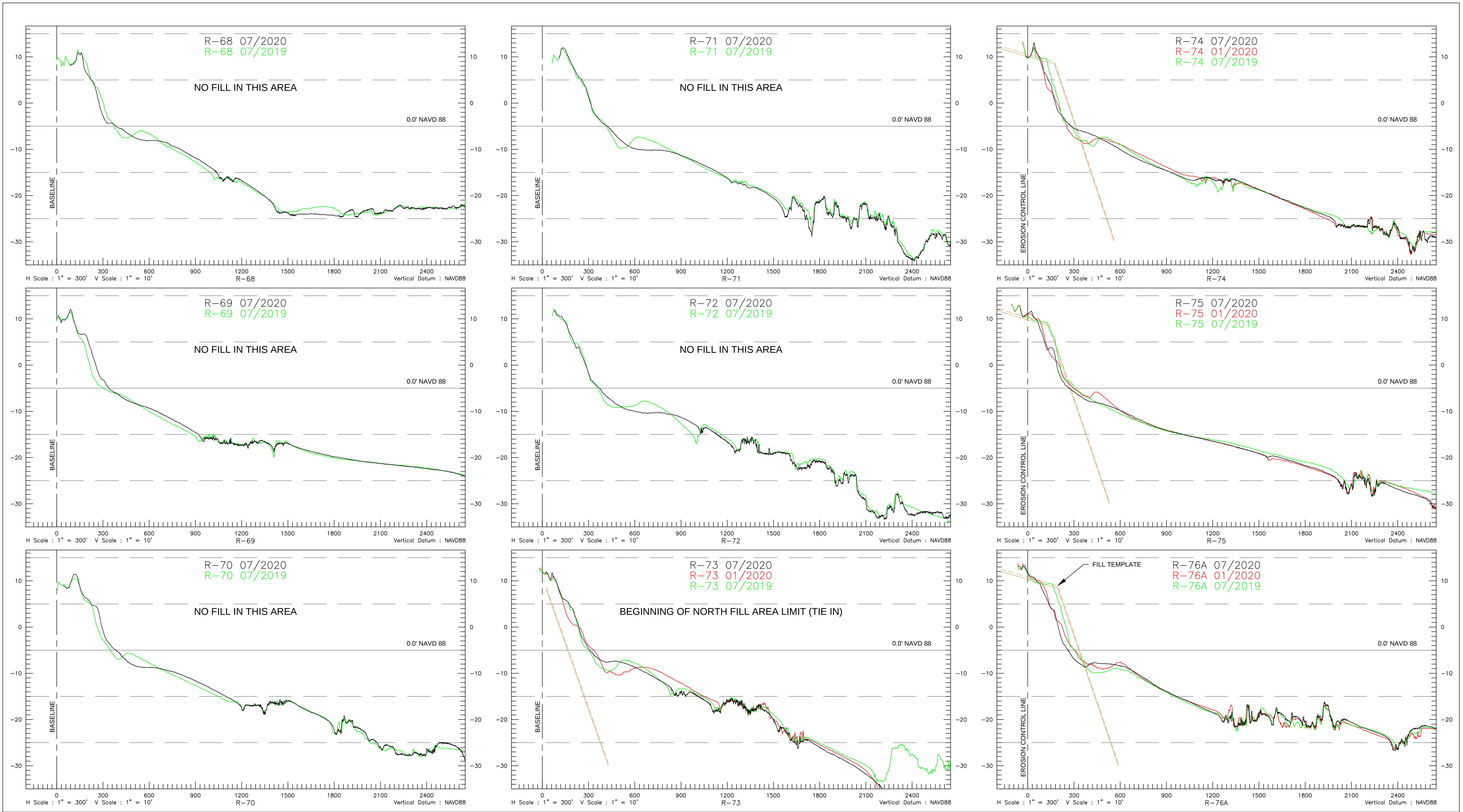
GAHAGAN & BRYANT ASSOCIATES, INC.
3802 WEST BAY TO BAY BOULEVARD, STE B-22
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TOWN OF JUPITER ISLAND

2020 SUMMER MONITORING SURVEY
NEARSHORE BATHYMETRY

967,417 TO 965,058

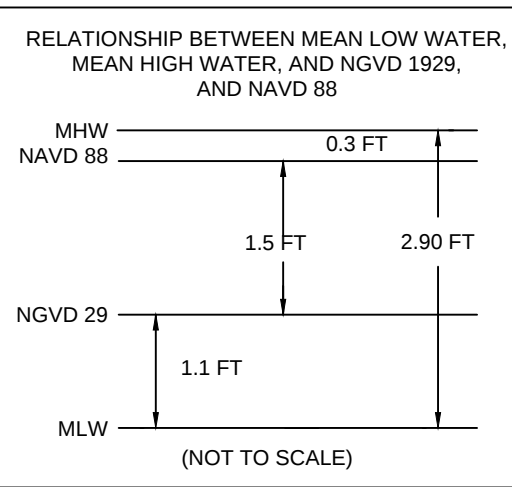
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DRAWN:	M. FORD	CHECKED:	P. SEABOLDT
SCALE:	AS SHOWN	SHEET:	9 OF 25
		ENGR:	C. BRYANT
		REV:	0



REV	REVISIONS	DATE	APP

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5. PROFILE AZIMUTHS ARE 69° GRID FOR R-68 TO R-76A. ALL OTHER PROFILE AZIMUTHS ARE 67°17'54" GRID.
6. DATE OF SURVEY: JULY 15 - 16 AND JULY 28-29, 2020.

LEGEND	
	EROSION CONTROL LINE
	GRADE FILL TEMPLATE
	+0.5' FILL TOLERANCE
	JULY 2020 (MONITORING)
	JAN 2020 (POST DORIAN)
	JULY 2019 (MONITORING)



CONDITION SURVEY	
SURVEY DATE:	JULY 15-16 & JULY 28-29, 2020
HORIZ. PROJECTION:	U.S. STATE PLANE, NAD 83
ZONE:	FLORIDA - EAST ZONE 0901
VERT. REFERENCE:	NAVD 88
SURVEY UNITS:	U.S. SURVEY FEET
VESSEL:	RIISING TIDE
SOUNDER:	ODOM CV 200
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SP5461 RTK GPS

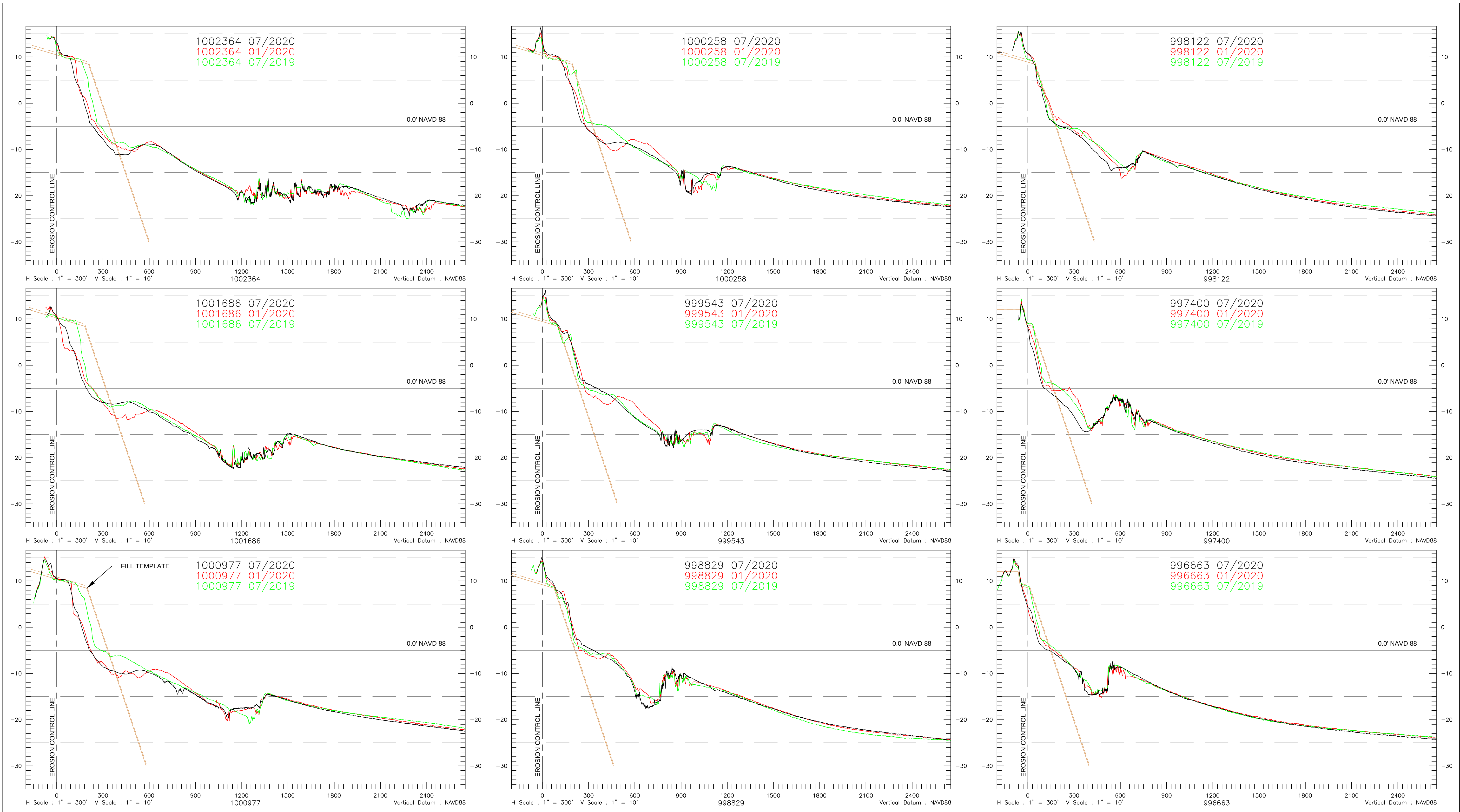
PAUL SEABOLDT
FLORIDA PSM #6879

*** NOT CERTIFIED WITHOUT SURVEY REPORT TITLED "TOWN OF JUPITER ISLAND BEACH AND NEARSHORE SUMMER MONITORING SURVEY REPORT JULY 2020".**

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ENGINEERS ★ SURVEYORS

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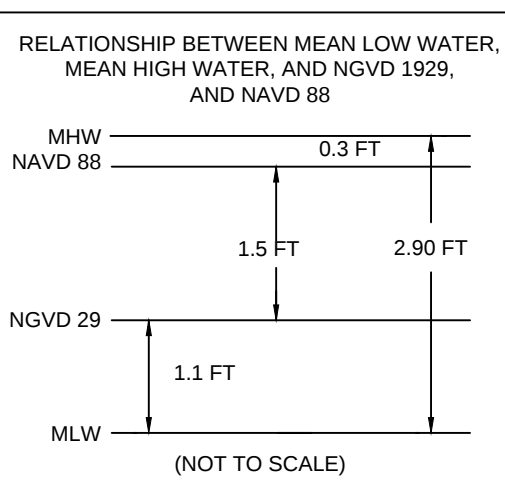
TOWN OF JUPITER ISLAND			
2020 SUMMER MONITORING SURVEY CROSS-SECTIONS			
R-68 TO R-76A			
DWG DATE:	AUGUST 13, 2020	DWG NAME:	Jupiter Island_2020_Summer Monitoring-Survey.dwg
DRAWN:	M. FORD	CHECKED:	P. SEABOLDT
SCALE:	AS SHOWN	ENGR:	C. BRYANT
SHEET:	10 OF 25	REV:	0



REV	REVISIONS	DATE	APP

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3. ELEVATIONS ARE IN U.S. FEET AND ARE REFERENCED TO NAVD88.
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5. PROFILE AZIMUTHS ARE 89° GRID FOR R-68 TO R-76A. ALL OTHER PROFILE AZIMUTHS ARE 87° 17'54" GRID.
6. DATE OF SURVEY: JULY 15 - 16 AND JULY 28-29, 2020.

LEGEND	
---	EROSION CONTROL LINE
---	GRADE FILL TEMPLATE
---	+0.5' FILL TOLERANCE
---	JULY 2020 (MONITORING)
---	JAN 2020 (POST DORIAN)
---	JULY 2019 (MONITORING)



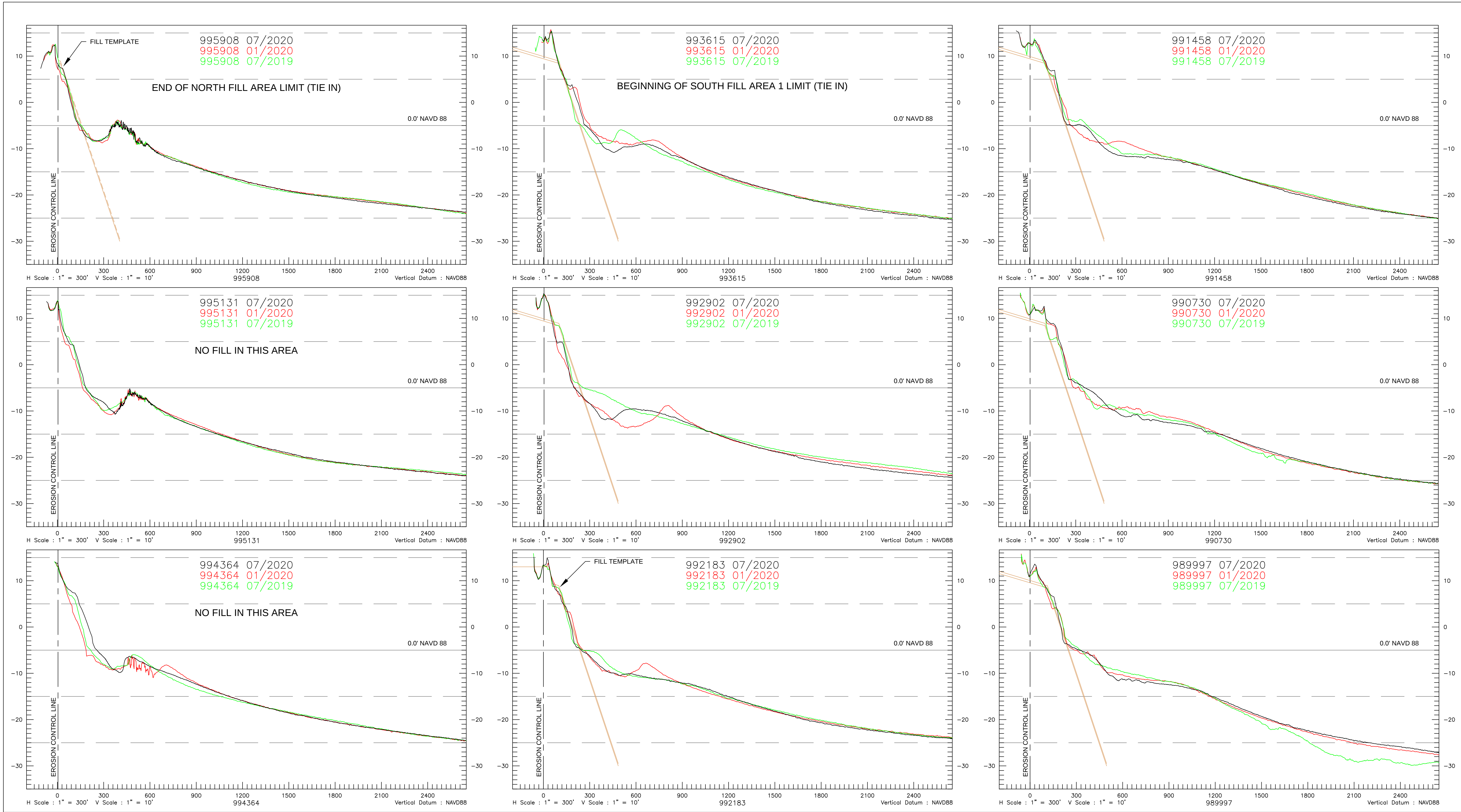
CONDITION SURVEY	
SURVEY DATE:	JULY 15-16 & JULY 28-29, 2020
HORIZ. PROJECTION:	U.S. STATE PLANE, NAD 83
ZONE:	FLORIDA - EAST ZONE 0901
VERT. REFERENCE:	NAVD 88
SURVEY UNITS:	U.S. SURVEY FEET
VESSEL:	RIISING TIDE
SOUNDER:	ODOM CV 200
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS461 RTK GPS

PAUL SEABOLDT
FLORIDA PSM #6879

* NOT CERTIFIED WITHOUT SURVEY REPORT TITLED "TOWN OF JUPITER ISLAND BEACH AND NEARSHORE SUMMER MONITORING SURVEY REPORT JULY 2020".

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ENGINEERS ★ SURVEYORS
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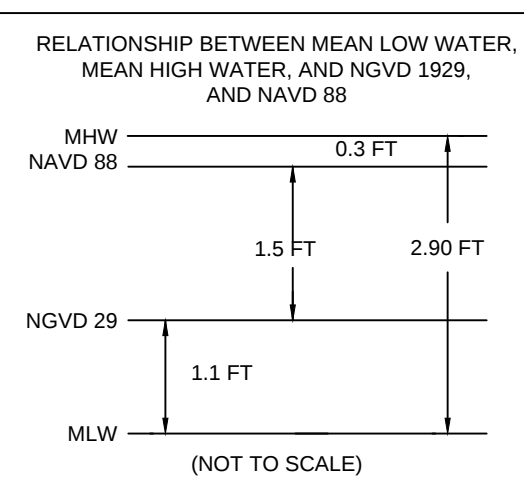
TOWN OF JUPITER ISLAND			
2020 SUMMER MONITORING SURVEY CROSS-SECTIONS			
996,663 TO 1,002,364			
DWG DATE:	AUGUST 13, 2020	DWG NAME:	Jupiter Island_2020_Summer Monitoring-Survey.dwg
DRAWN:	M. FORD	CHECKED:	P. SEABOLDT
SCALE:	AS SHOWN	SHEET:	11 OF 25
ENGR:	C. BRYANT	REV:	0



REV	REVISIONS	DATE	APP

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6. DATE OF SURVEY: JULY 15 - 16 AND JULY 28-29, 2020.

LEGEND
--- EROSION CONTROL LINE
--- GRADE FILL TEMPLATE
--- +0.5' FILL TOLERANCE
--- JULY 2020 (MONITORING)
--- JAN 2020 (POST DORIAN)
--- JULY 2019 (MONITORING)



CONDITION SURVEY
SURVEY DATE: JULY 15-16 & JULY 28-29, 2020
HORIZ. PROJECTION: U.S. STATE PLANE, NAD 83
ZONE: FLORIDA - EAST ZONE 0901
VERT. REFERENCE: NAVD 88
SURVEY UNITS: U.S. SURVEY FEET
VESSEL: RISING TIDE
SOUNDER: ODOM CV 200
SOUNDER FREQ.: 200KHz
POSITIONING: TRIMBLE SPS461 RTK GPS

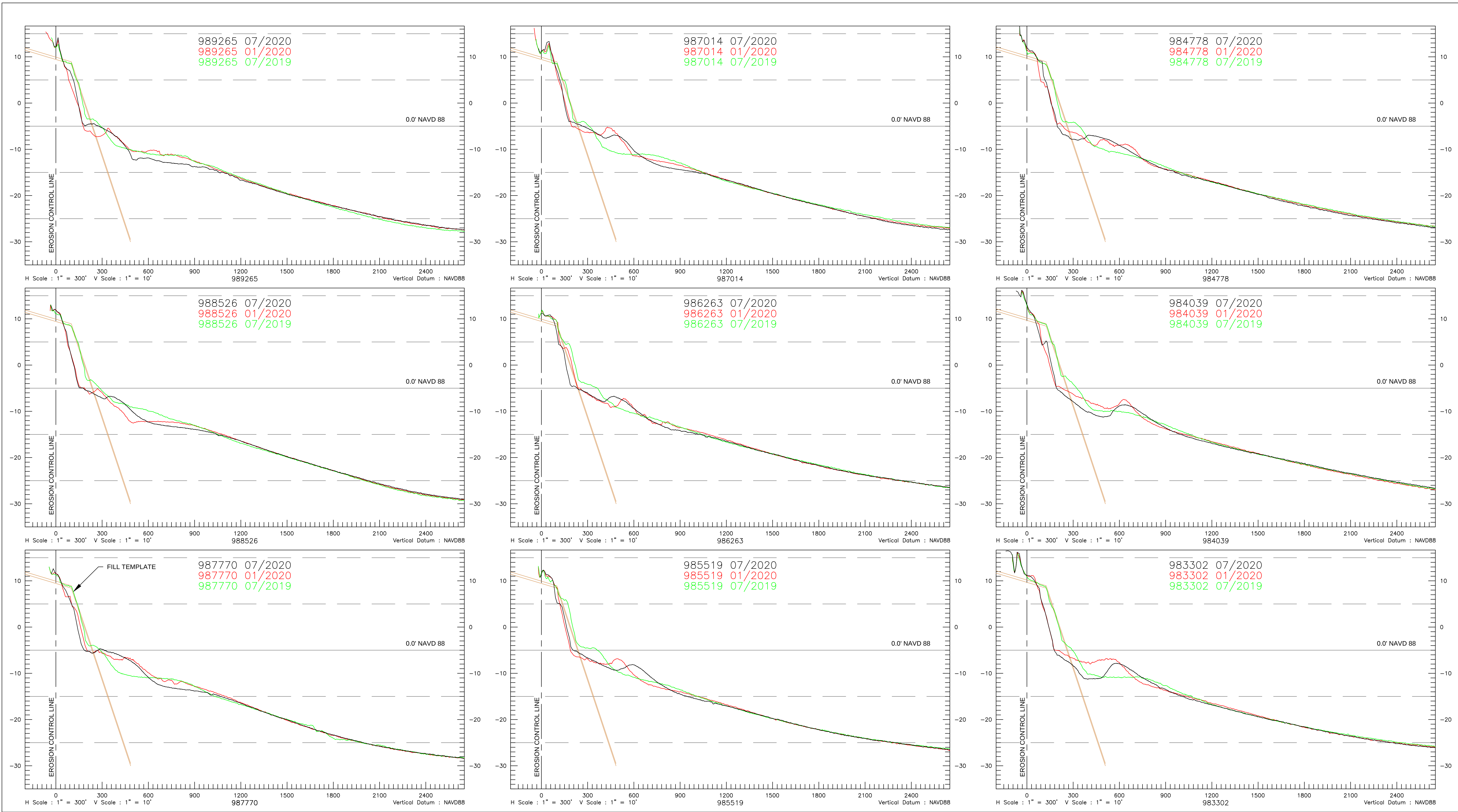
PAUL SEABOLDT
FLORIDA PSM #6879

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ENGINEERS ★ SURVEYORS

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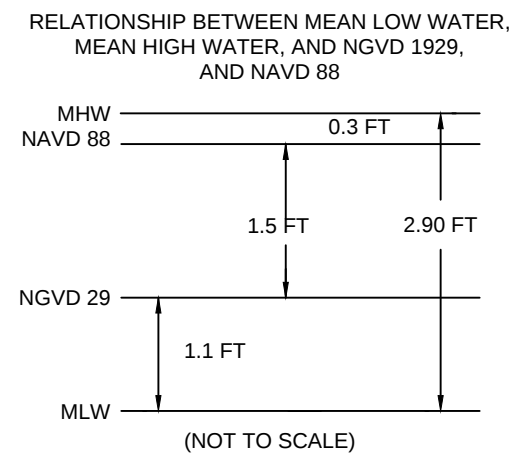
TOWN OF JUPITER ISLAND			
2020 SUMMER MONITORING SURVEY CROSS-SECTIONS			
989,997 TO 995,908			
DWG DATE:	AUGUST 13, 2020	DWG NAME:	Jupiter Island_2020_Summer Monitoring-Survey.dwg
DRAWN:	M. FORD	CHECKED:	P. SEABOLDT
SCALE:	AS SHOWN	SHEET:	12 OF 25
		ENGR:	C. BRYANT
		REV:	0



REV	REVISIONS	DATE	APP

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6. DATE OF SURVEY: JULY 15 - 16 AND JULY 28-29, 2020.

LEGEND	
---	EROSION CONTROL LINE
---	GRADE FILL TEMPLATE
---	+0.5' FILL TOLERANCE
---	JULY 2020 (MONITORING)
---	JAN 2020 (POST DORIAN)
---	JULY 2019 (MONITORING)



CONDITION SURVEY	
SURVEY DATE:	JULY 15-16 & JULY 28-29, 2020
HORIZ. PROJECTION:	U.S. STATE PLANE, NAD 83
ZONE:	FLORIDA - EAST ZONE 0901
VERT. REFERENCE:	NAVD 88
SURVEY UNITS:	U.S. SURVEY FEET
VESEL:	RIISING TIDE
SOUNDER:	ODOM CV 200
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS461 RTK GPS

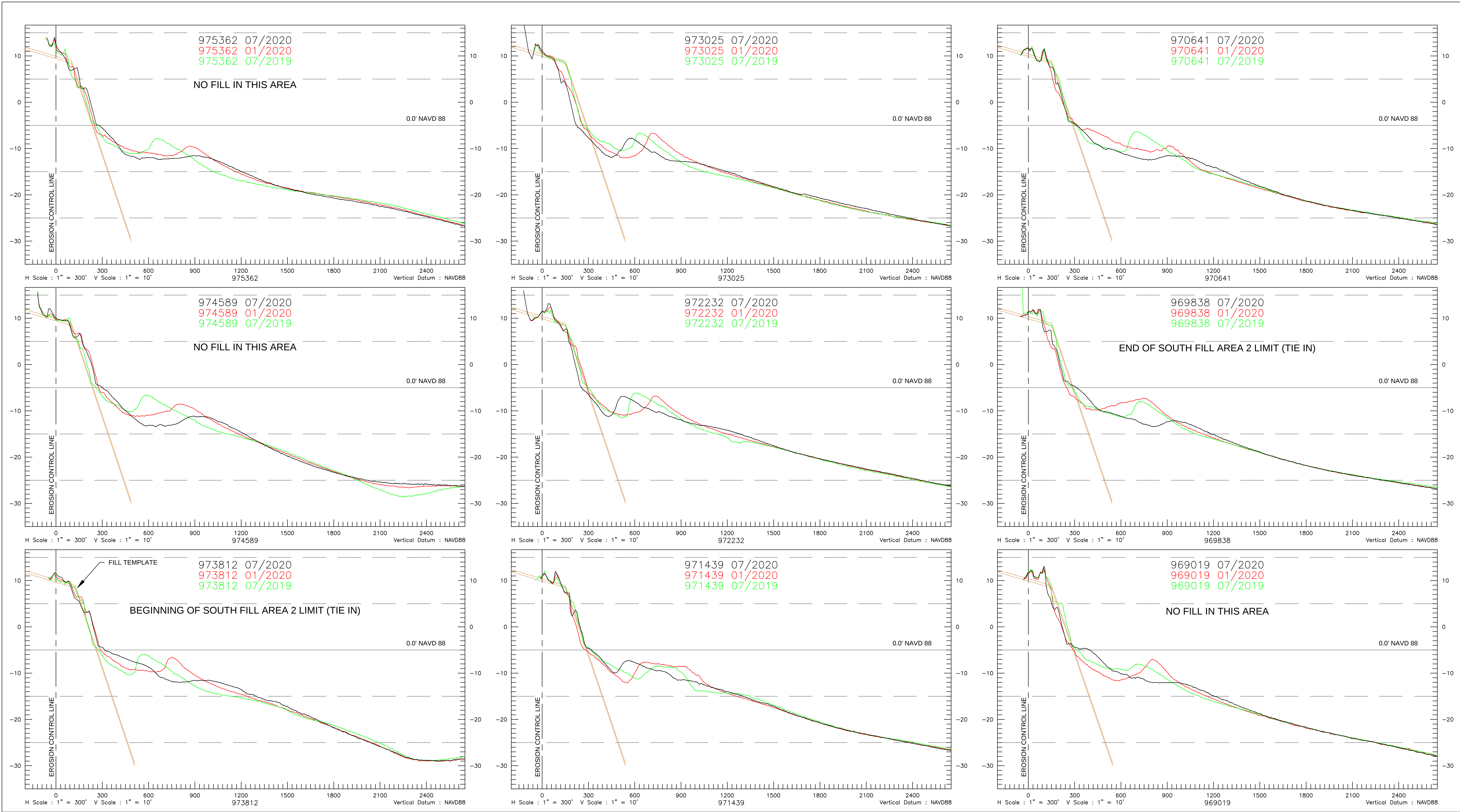
PAUL SEABOLDT
FLORIDA PSM #6879

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ENGINEERS ★ SURVEYORS

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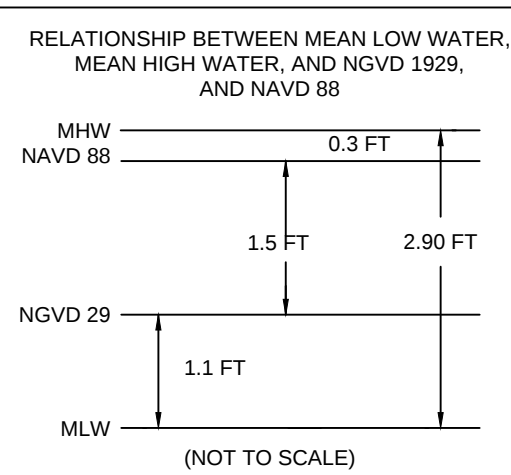
TOWN OF JUPITER ISLAND			
2020 SUMMER MONITORING SURVEY CROSS-SECTIONS			
983,302 TO 989,265			
DWG DATE:	AUGUST 13, 2020	DWG NAME:	Jupiter Island_2020_Summer Monitoring-Survey.dwg
DRAWN:	M. FORD	CHECKED:	P. SEABOLDT
SCALE:	AS SHOWN	SHEET:	13 OF 25
ENGR:	C. BRYANT	REV:	0



REV	REVISIONS	DATE	APP

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6. DATE OF SURVEY: JULY 15 - 16 AND JULY 28-29, 2020.

LEGEND	
---	EROSION CONTROL LINE
---	GRADE FILL TEMPLATE
---	+0.5' FILL TOLERANCE
---	JULY 2020 (MONITORING)
---	JAN 2020 (POST DORIAN)
---	JULY 2019 (MONITORING)



CONDITION SURVEY	
SURVEY DATE:	JULY 15-16 & JULY 28-29, 2020
HORIZ. PROJECTION:	U.S. STATE PLANE, NAD 83
ZONE:	FLORIDA - EAST ZONE 0901
VERT. REFERENCE:	NAVD 88
SURVEY UNITS:	U.S. SURVEY FEET
VESSEL:	RIISING TIDE
SOUNDER:	ODOM CV 200
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS461 RTK GPS

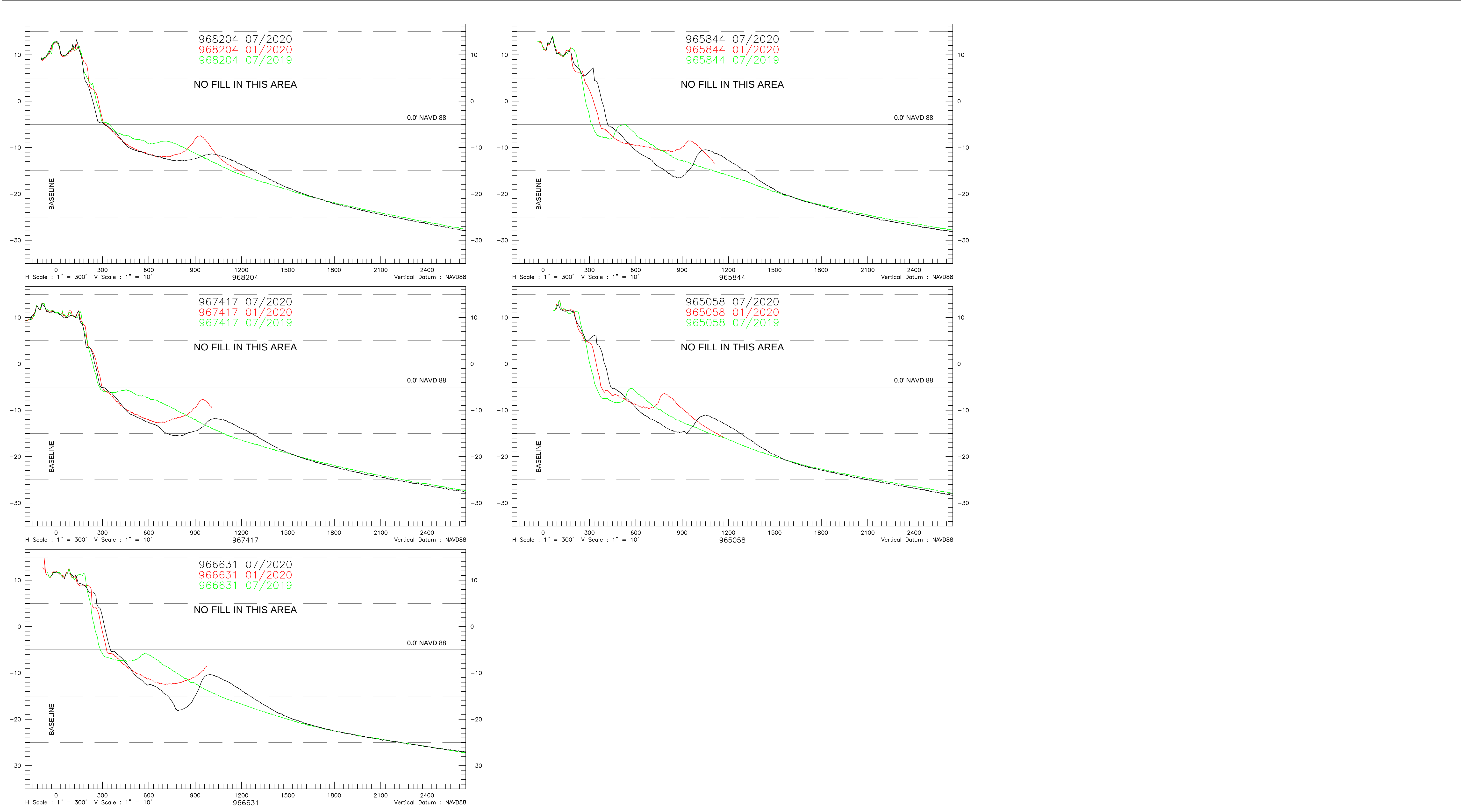
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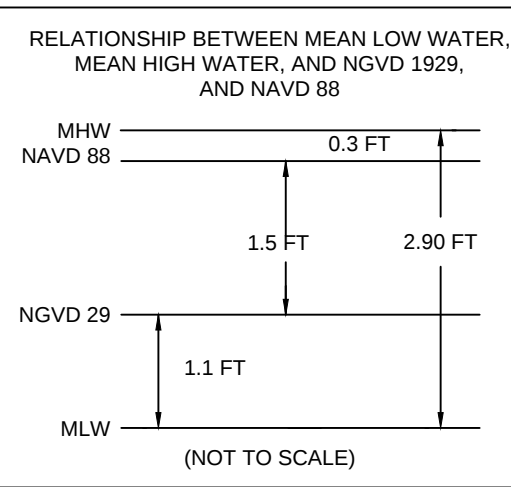
TOWN OF JUPITER ISLAND			
2020 SUMMER MONITORING SURVEY CROSS-SECTIONS			
969,019 TO 975,362			
DWG DATE:	AUGUST 13, 2020	DWG NAME:	Jupiter Island_2020_Summer Monitoring-Survey.dwg
DRAWN:	M. FORD	CHECKED:	P. SEABOLDT
SCALE:	AS SHOWN	SHEET:	15 OF 25
ENGR:	C. BRYANT	REV:	0



REV	REVISIONS	DATE	APP

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LEGEND	
	EROSION CONTROL LINE
	GRADE FILL TEMPLATE
	+0.5' FILL TOLERANCE
	JULY 2020 (MONITORING)
	JAN 2020 (POST DORIAN)
	JULY 2019 (MONITORING)



CONDITION SURVEY	
SURVEY DATE:	JULY 15-16 & JULY 28-29, 2020
HORIZ. PROJECTION:	U.S. STATE PLANE, NAD 83
ZONE:	FLORIDA - EAST ZONE 0901
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SURVEY UNITS:	U.S. SURVEY FEET
VESSEL:	RIISING TIDE
SOUNDER:	ODOM CV 200
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS461 RTK GPS

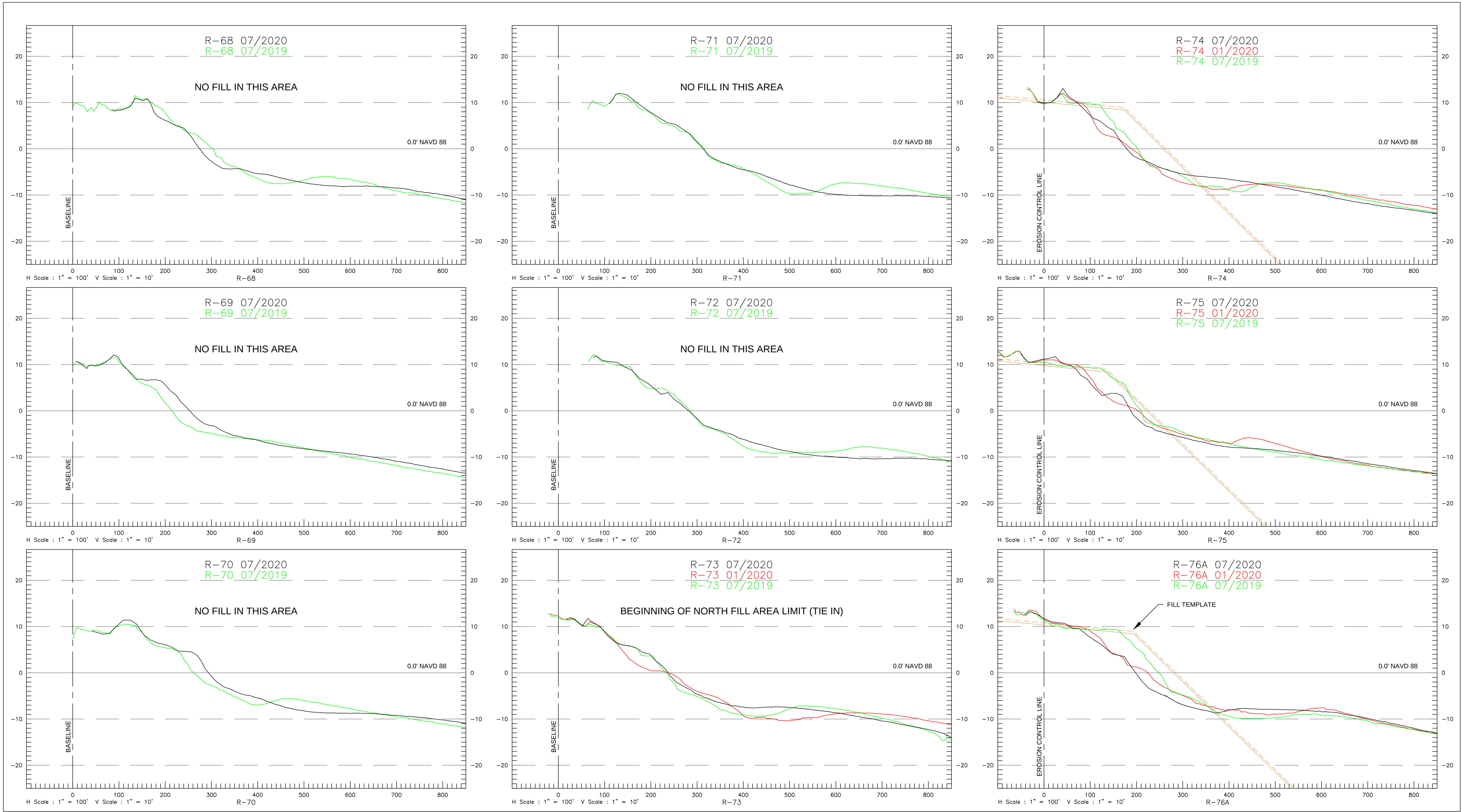
PAUL SEABOLDT
FLORIDA PSM #6879

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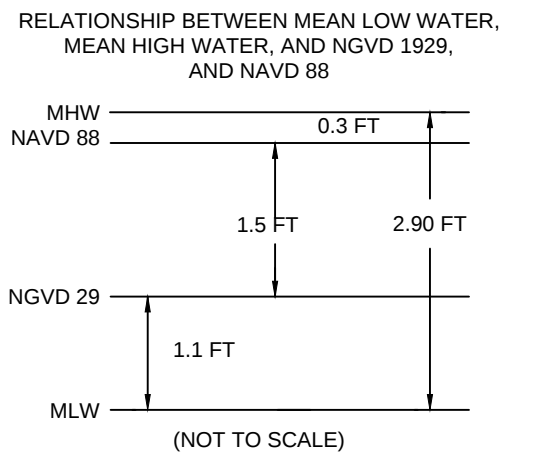
TOWN OF JUPITER ISLAND			
2020 SUMMER MONITORING SURVEY CROSS-SECTIONS			
965,058 TO 968,204			
DWG DATE:	AUGUST 13 , 2020	DWG NAME: Jupiter Island_2020_Summer Monitoring-Survey.dwg	
DRAWN:	M. FORD	CHECKED:	P. SEABOLDT
SCALE:	AS SHOWN	SHEET:	16 OF 25
		ENGR:	C. BRYANT
		REV:	0



REV	REVISIONS	DATE	APP

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LEGEND	
	EROSION CONTROL LINE
	GRADE FILL TEMPLATE
	+0.5' FILL TOLERANCE
	JULY 2020 (MONITORING)
	JAN 2020 (POST DORIAN)
	JULY 2019 (MONITORING)



CONDITION SURVEY	
SURVEY DATE:	JULY 15-16 & JULY 28-29, 2020
HORIZ. PROJECTION:	U.S. STATE PLANE, NAD 83
ZONE:	FLORIDA - EAST ZONE 0901
VERT. REFERENCE:	NAVD 88
SURVEY UNITS:	U.S. SURVEY FEET
VESSEL:	RIISING TIDE
SOUNDER:	ODOM CV 200
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS461 RTK GPS

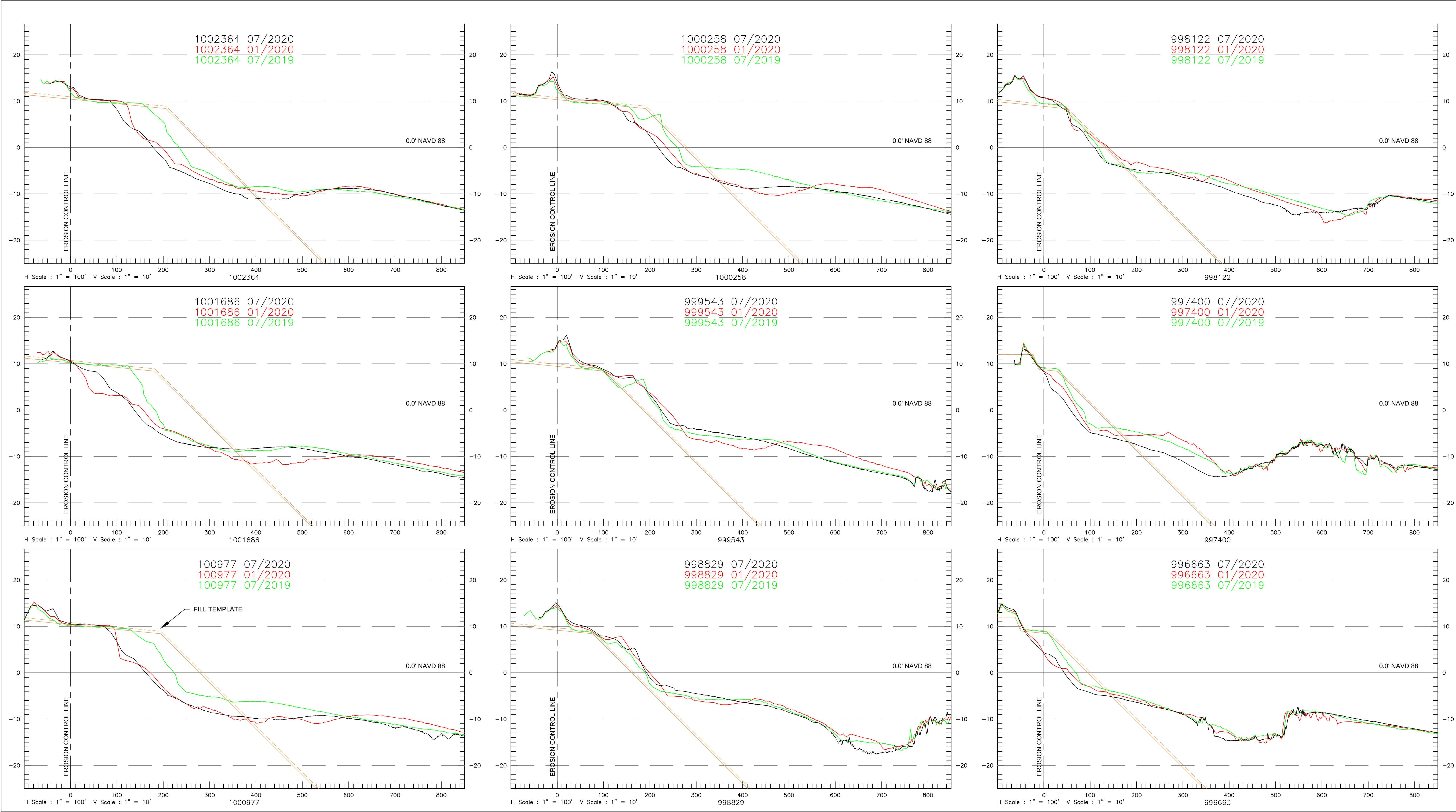
PAUL SEABOLDT
FLORIDA PSM #6879

* NOT CERTIFIED WITHOUT SURVEY REPORT TITLED "TOWN OF JUPITER ISLAND BEACH AND NEARSHORE SUMMER MONITORING SURVEY REPORT JULY 2020".

ENGINEERS ★ SURVEYORS

GAHAGAN & BRYANT ASSOCIATES, INC.
3802 WEST BAY TO BAY BOULEVARD, STE B-22
TAMPA, FLORIDA 33629
TEL: (813) 831-4408
FAX: (813) 831-4216
WWW.GBA-INC.COM
FL SURVEYOR & MAPPER BUSINESS LICENSE #LB7959

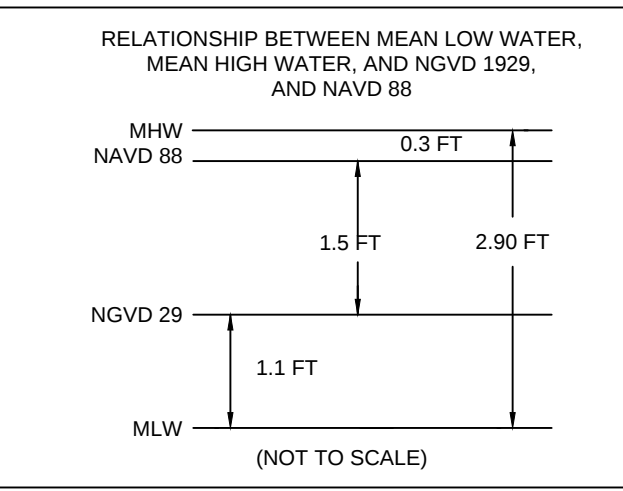
TOWN OF JUPITER ISLAND			
2020 SUMMER MONITORING SURVEY CROSS-SECTIONS			
R-68 TO R-76A			
DWG DATE:	AUGUST 13, 2020	DWG NAME:	Jupiter Island_2020_Summer Monitoring-Survey.dwg
DRAWN:	M. FORD	CHECKED:	P. SEABOLDT
SCALE:	AS SHOWN	SHEET:	17 OF 25
		ENGR:	C. BRYANT
		REV:	0



REV	REVISIONS	DATE	APP

GENERAL NOTES:
1. THE INFORMATION DEPICTED HERE REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATE INDICATED, AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITION EXISTING AT THAT TIME.
2. HORIZONTAL COORDINATES ARE IN U.S. SURVEY FEET AND ARE REFERENCED TO U.S. STATE PLANE FLORIDA EAST (901), NAD 83.
3. ELEVATIONS ARE IN U.S. FEET AND ARE REFERENCED TO NAVD88.
4. HYDROGRAPHIC DATA WAS ACQUIRED USING AN ODOM CV200 ECHOSOUNDER. TOPOGRAPHIC DATA WAS ACQUIRED USING TRIMBLE REAL-TIME KINEMATIC (RTK) EQUIPMENT.
5. PROFILE AZIMUTHS ARE 68° GRID FOR R-68 TO R-76A. ALL OTHER PROFILE AZIMUTHS ARE 67°17'54" GRID.
6. DATE OF SURVEY: JULY 15 - 16 AND JULY 28-29, 2020.

LEGEND	
---	EROSION CONTROL LINE
- - -	GRADE FILL TEMPLATE
- - -	+0.5' FILL TOLERANCE
---	JULY 2020 (MONITORING)
---	JAN 2020 (POST DORIAN)
---	JULY 2019 (MONITORING)



CONDITION SURVEY	
SURVEY DATE:	JULY 15-16 & JULY 28-29, 2020
HORIZ. PROJECTION:	U.S. STATE PLANE, NAD 83
ZONE:	FLORIDA - EAST ZONE 0901
VERT. REFERENCE:	NAVD 88
SURVEY UNITS:	U.S. SURVEY FEET
VESSEL:	RIISING TIDE
SOUNDER:	ODOM CV 200
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS461 RTK GPS

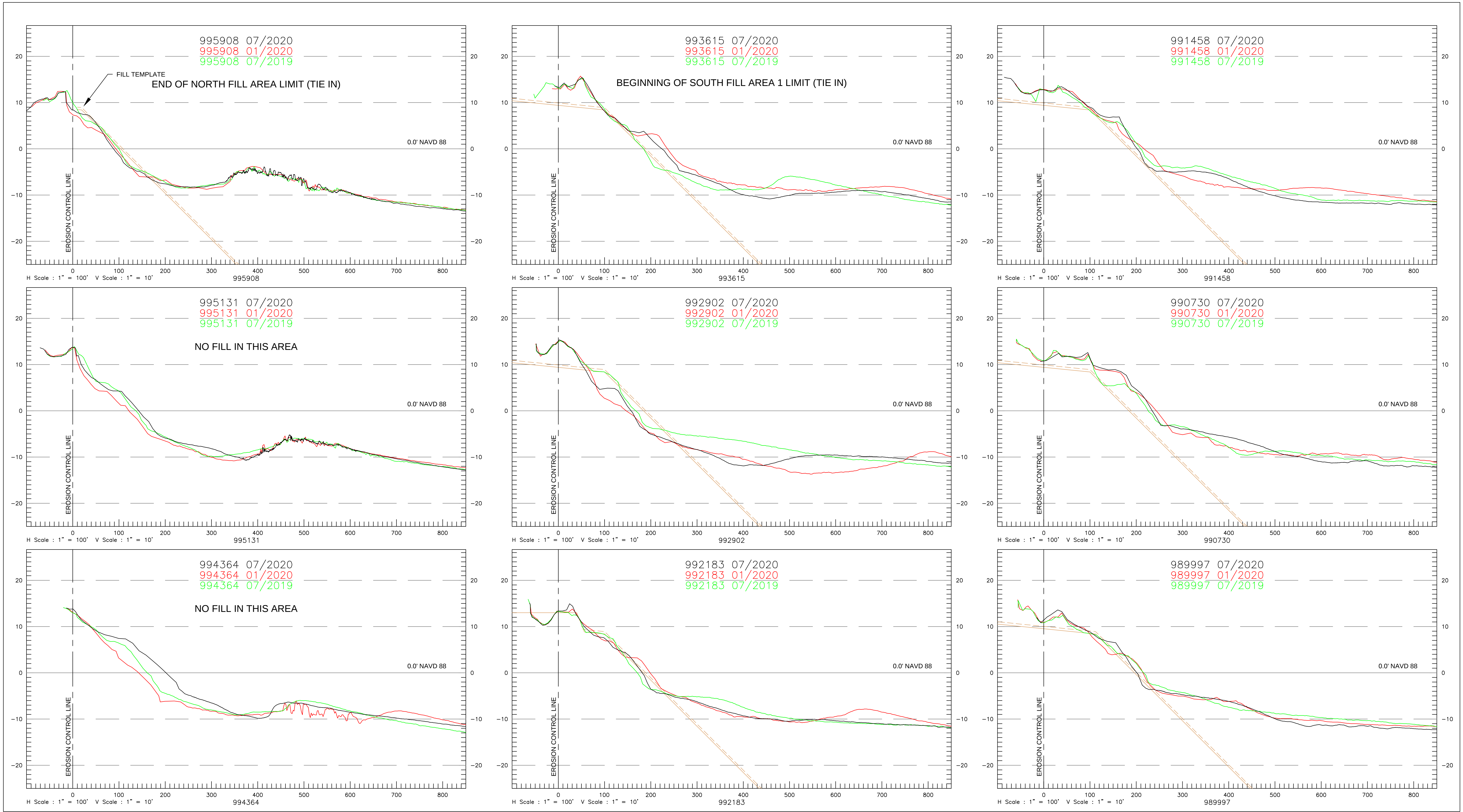
PAUL SEABOLDT
FLORIDA PSM #6879

* NOT CERTIFIED WITHOUT SURVEY REPORT TITLED "TOWN OF JUPITER ISLAND BEACH AND NEARSHORE SUMMER MONITORING SURVEY REPORT JULY 2020".

GBA
ENGINEERS ★ SURVEYORS

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FL SURVEYOR & MAPPER BUSINESS LICENSE #LB7959

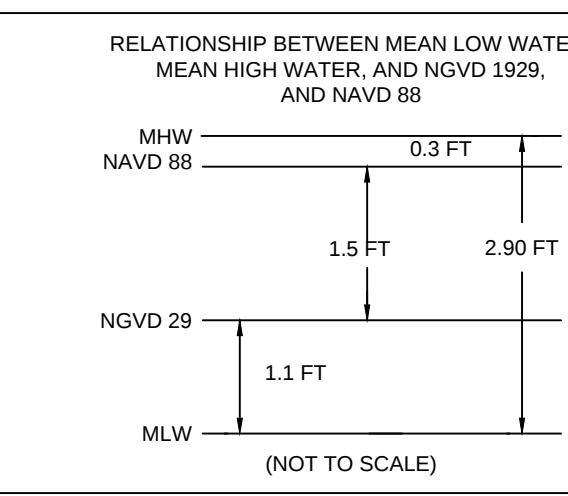
TOWN OF JUPITER ISLAND			
2020 SUMMER MONITORING SURVEY CROSS-SECTIONS			
996,663 TO 1,002,364			
DWG DATE:	AUGUST 13, 2020	DWG NAME:	Jupiter Island_2020_Summer Monitoring-Survey.dwg
DRAWN:	M. FORD	CHECKED:	P. SEABOLDT
SCALE:	AS SHOWN	SHEET:	18 OF 25
ENGR:	C. BRYANT	REV:	0



REV	REVISIONS	DATE	APP

GENERAL NOTES:
1. THE INFORMATION DEPICTED HERE REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATE INDICATED, AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITION EXISTING AT THAT TIME.
2. HORIZONTAL COORDINATES ARE IN U.S. SURVEY FEET AND ARE REFERENCED TO U.S. STATE PLANE FLORIDA EAST (901), NAD 83.
3. ELEVATIONS ARE IN U.S. FEET AND ARE REFERENCED TO NAVD88.
4. HYDROGRAPHIC DATA WAS ACQUIRED USING AN ODOM CV200 ECHOSOUNDER. TOPOGRAPHIC DATA WAS ACQUIRED USING TRIMBLE REAL-TIME KINEMATIC (RTK) EQUIPMENT.
5. PROFILE AZIMUTHS ARE 69° GRID FOR R-68 TO R-76A. ALL OTHER PROFILE AZIMUTHS ARE 67°17'54" GRID.
6. DATE OF SURVEY: JULY 15 - 16 AND JULY 28-29, 2020.

LEGEND
EROSION CONTROL LINE
GRADE FILL TEMPLATE
+0.5' FILL TOLERANCE
JULY 2020 (MONITORING)
JAN 2020 (POST DORIAN)
JULY 2019 (MONITORING)



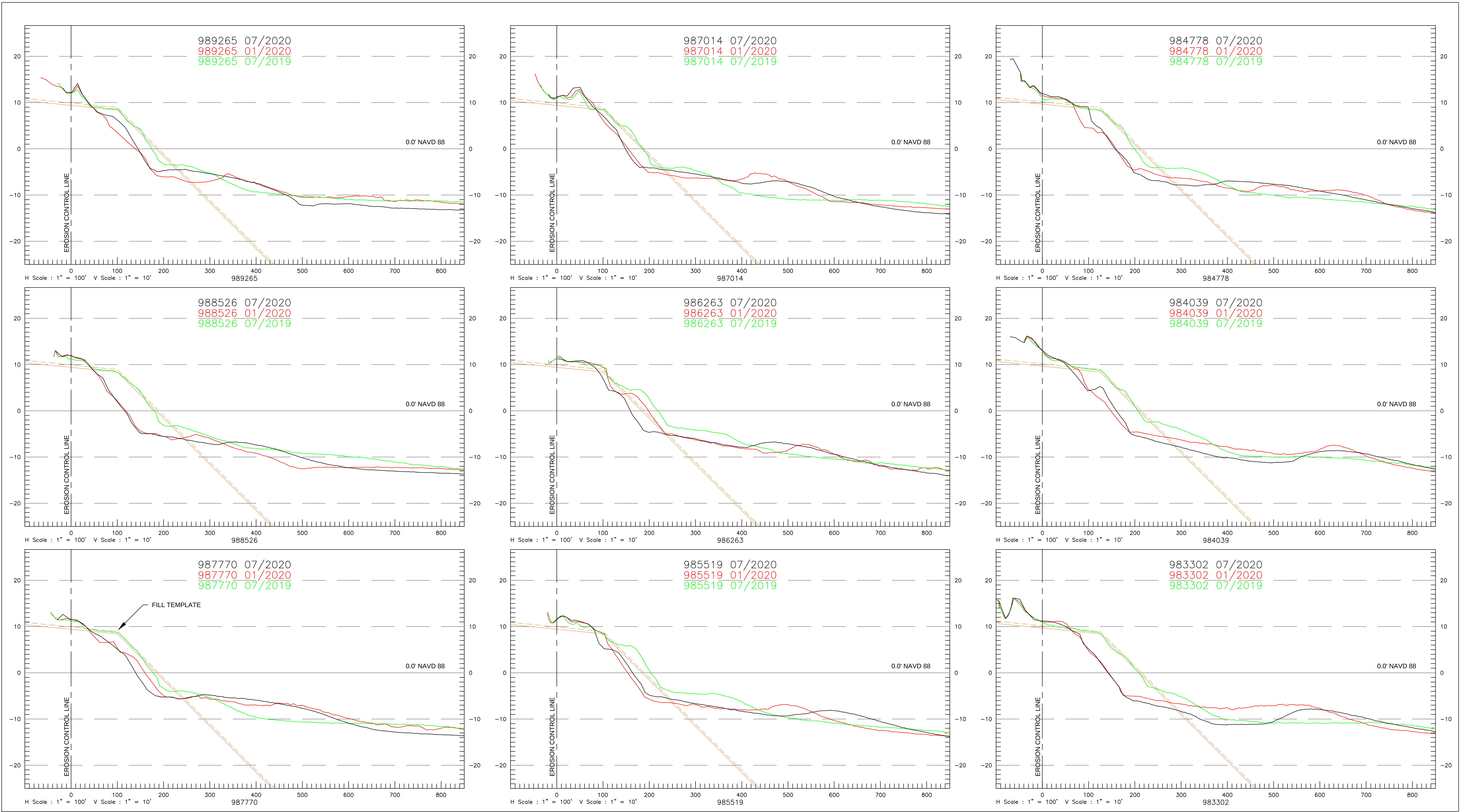
CONDITION SURVEY
SURVEY DATE: JULY 15-16 & JULY 28-29, 2020
HORIZ. PROJECTION: U.S. STATE PLANE, NAD 83
ZONE: FLORIDA - EAST ZONE 0901
VERT. REFERENCE: NAVD 88
SURVEY UNITS: U.S. SURVEY FEET
VESSEL: RISING TIDE
SOUNDER: ODOM CV 200
SOUNDER FREQ.: 200KHz
POSITIONING: TRIMBLE SPS461 RTK GPS

PAUL SEABOLDT
FLORIDA PSM #6879

* NOT CERTIFIED WITHOUT SURVEY REPORT TITLED "TOWN OF JUPITER ISLAND BEACH AND NEARSHORE SUMMER MONITORING SURVEY REPORT JULY 2020".

GBA
ENGINEERS ★ SURVEYORS
GAHAGAN & BRYANT ASSOCIATES, INC.
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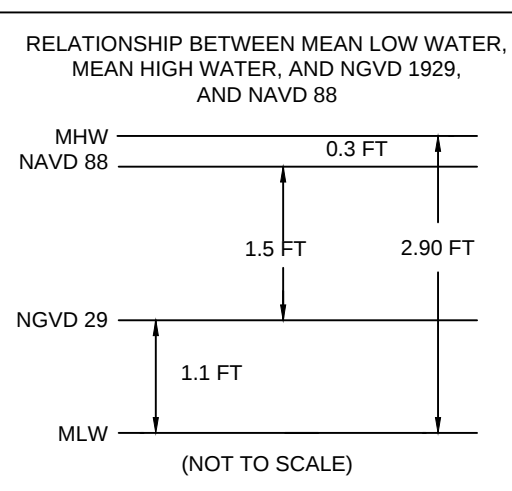
TOWN OF JUPITER ISLAND			
2020 SUMMER MONITORING SURVEY CROSS-SECTIONS			
989,997 TO 995,908			
DWG DATE:	AUGUST 13, 2020	DWG NAME:	Jupiter Island_2020_Summer Monitoring-Survey.dwg
DRAWN:	M. FORD	CHECKED:	P. SEABOLDT
SCALE:	AS SHOWN	SHEET:	19 OF 25
ENGR:	C. BRYANT	REV:	0



REV	REVISIONS	DATE	APP

GENERAL NOTES:
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2. HORIZONTAL COORDINATES ARE IN U.S. SURVEY FEET AND ARE REFERENCED TO U.S. STATE PLANE FLORIDA EAST (901), NAD 83.
3. ELEVATIONS ARE IN U.S. FEET AND ARE REFERENCED TO NAVD88.
4. HYDROGRAPHIC DATA WAS ACQUIRED USING AN ODOM CV200 ECHOSOUNDER. TOPOGRAPHIC DATA WAS ACQUIRED USING TRIMBLE REAL-TIME KINEMATIC (RTK) EQUIPMENT.
5. PROFILE AZIMUTHS ARE 69° GRID FOR R-68 TO R-76A. ALL OTHER PROFILE AZIMUTHS ARE 67°1754" GRID.
6. DATE OF SURVEY: JULY 15 - 16 AND JULY 28-29, 2020.

LEGEND	
---	EROSION CONTROL LINE
---	GRADE FILL TEMPLATE
---	+0.5' FILL TOLERANCE
---	JULY 2020 (MONITORING)
---	JAN 2020 (POST DORIAN)
---	JULY 2019 (MONITORING)



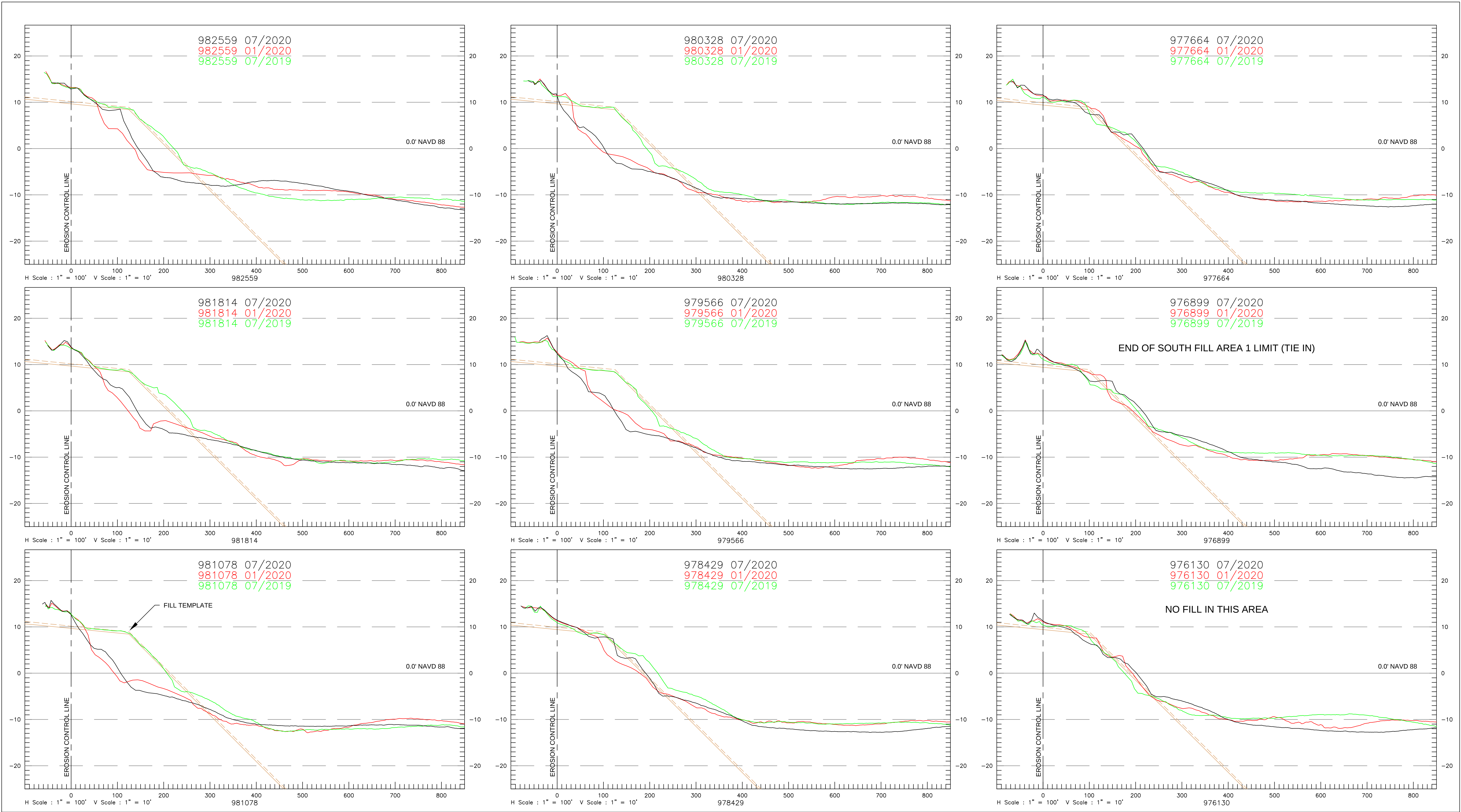
CONDITION SURVEY	
SURVEY DATE:	JULY 15-16 & JULY 28-29, 2020
HORIZ. PROJECTION:	U.S. STATE PLANE, NAD 83
ZONE:	FLORIDA - EAST ZONE 0901
VERT. REFERENCE:	NAVD 88
SURVEY UNITS:	U.S. SURVEY FEET
VESSEL:	RIISING TIDE
SOUNDER:	ODOM CV 200
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS461 RTK GPS

PAUL SEABOLDT
FLORIDA PSM #6879

* NOT CERTIFIED WITHOUT SURVEY REPORT TITLED "TOWN OF JUPITER ISLAND BEACH AND NEARSHORE SUMMER MONITORING SURVEY REPORT JULY 2020".

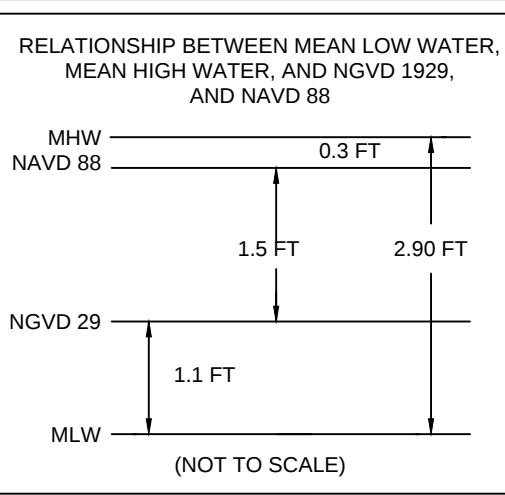
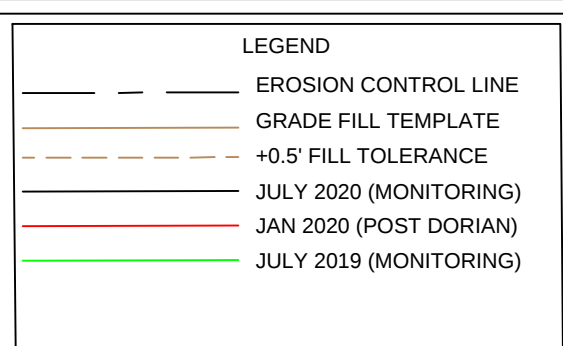
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TOWN OF JUPITER ISLAND			
2020 SUMMER MONITORING SURVEY CROSS-SECTIONS			
983,302 TO 989,265			
DWG DATE:	AUGUST 13, 2020	DWG NAME:	Jupiter Island_2020_Summer Monitoring-Survey.dwg
DRAWN:	M. FORD	CHECKED:	P. SEABOLDT
SCALE:	AS SHOWN	SHEET:	20 OF 25
ENGR:	C. BRYANT	REV:	0



REV	REVISIONS	DATE	APP

GENERAL NOTES:
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5. PROFILE AZIMUTHS ARE 69° GRID FOR R-68 TO R-76A. ALL OTHER PROFILE AZIMUTHS ARE 67°17'54" GRID.
6. DATE OF SURVEY: JULY 15 - 16 AND JULY 28-29, 2020.



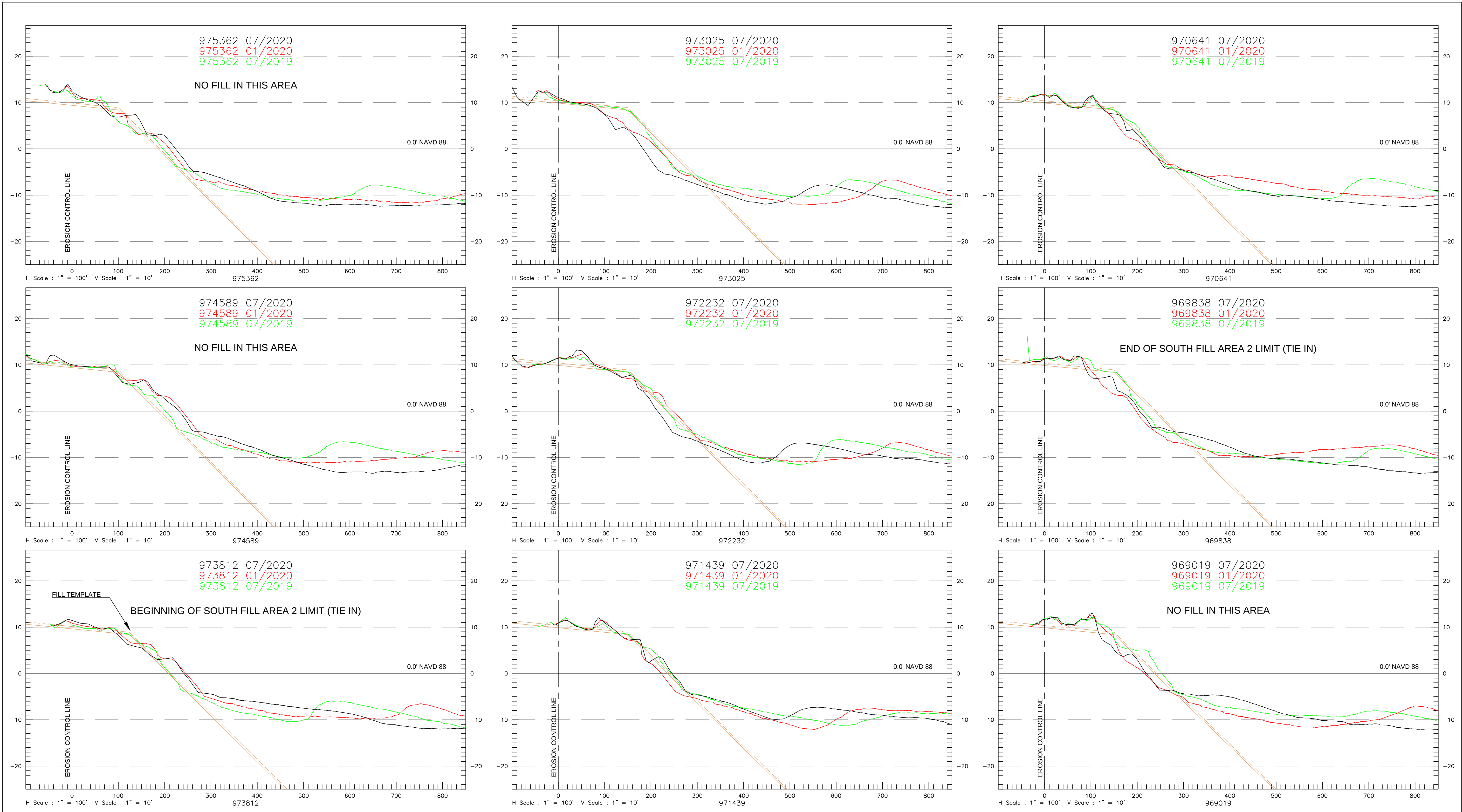
CONDITION SURVEY	
SURVEY DATE:	JULY 15-16 & JULY 28-29, 2020
HORIZ. PROJECTION:	U.S. STATE PLANE, NAD 83
ZONE:	FLORIDA - EAST ZONE 0901
VERT. REFERENCE:	NAVD 88
SURVEY UNITS:	U.S. SURVEY FEET
VESSEL:	RISEING TIDE
SOUNDER:	ODOM CV 200
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SP5461 RTK GPS

PAUL SEABOLDT
FLORIDA PSM #6879

* NOT CERTIFIED WITHOUT SURVEY REPORT TITLED "TOWN OF JUPITER ISLAND BEACH AND NEARSHORE SUMMER MONITORING SURVEY REPORT JULY 2020".

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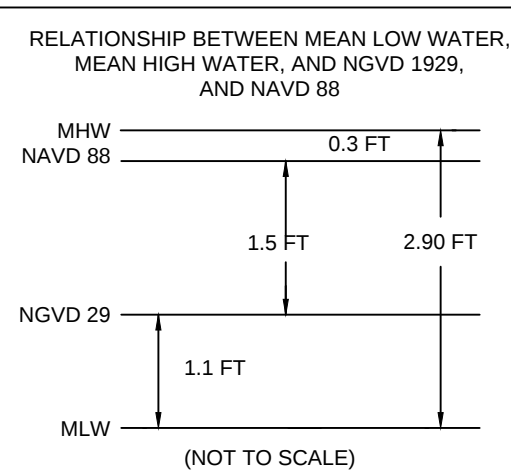
TOWN OF JUPITER ISLAND			
2020 SUMMER MONITORING SURVEY CROSS-SECTIONS			
976,130 TO 982,559			
DWG DATE:	AUGUST 13, 2020	DWG NAME: Jupiter Island_2020_Summer Monitoring-Survey.dwg	
DRAWN:	M. FORD	CHECKED:	P. SEABOLDT
SCALE:	AS SHOWN	SHEET:	21 OF 25
		ENGR:	C. BRYANT
		REV:	0



REV	REVISIONS	DATE	APP

GENERAL NOTES:
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5. PROFILE AZIMUTHS ARE 68° GRID FOR R-68 TO R-76A. ALL OTHER PROFILE AZIMUTHS ARE 67°17'54" GRID.
6. DATE OF SURVEY: JULY 15 - 16 AND JULY 28-29, 2020.

LEGEND	
---	EROSION CONTROL LINE
- - -	GRADE FILL TEMPLATE
- - -	+0.5' FILL TOLERANCE
---	JULY 2020 (MONITORING)
---	JAN 2020 (POST DORIAN)
---	JULY 2019 (MONITORING)



CONDITION SURVEY	
SURVEY DATE:	JULY 15-16 & JULY 28-29, 2020
HORIZ. PROJECTION:	U.S. STATE PLANE, NAD 83
ZONE:	FLORIDA - EAST ZONE 0901
VERT. REFERENCE:	NAVD 88
SURVEY UNITS:	U.S. SURVEY FEET
VESSEL:	RIISING TIDE
SOUNDER:	ODOM CV 200
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS461 RTK GPS

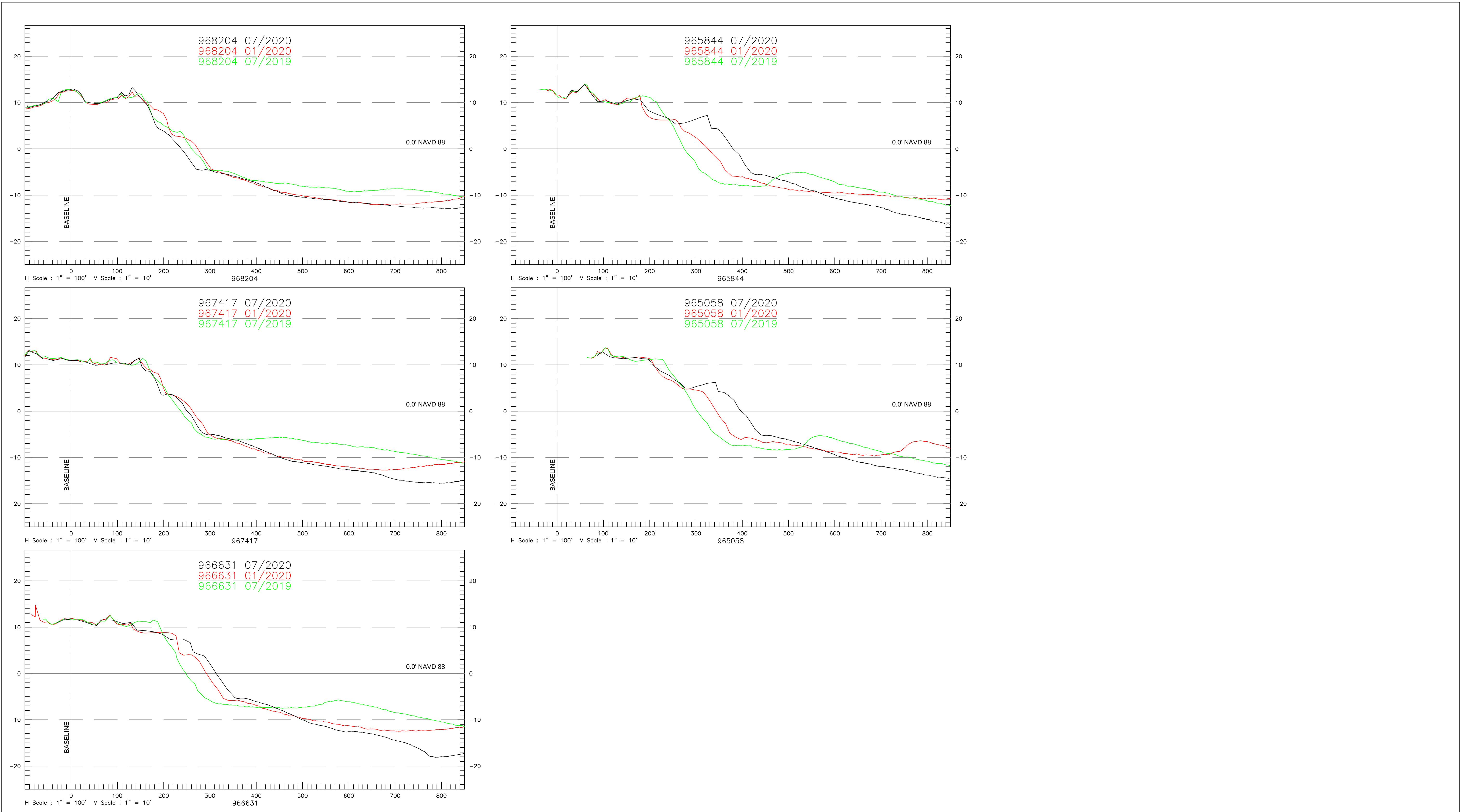
PAUL SEABOLDT
FLORIDA PSM #6879

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ENGINEERS ★ SURVEYORS

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TEL: (813) 831-4408
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WWW.GBA-INC.COM
FL SURVEYOR & MAPPER BUSINESS LICENSE #LB7959

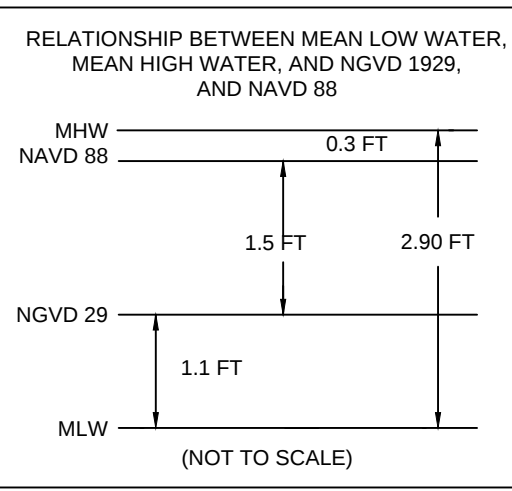
TOWN OF JUPITER ISLAND			
2020 SUMMER MONITORING SURVEY CROSS-SECTIONS			
969,019 TO 975,362			
DWG DATE:	AUGUST 13, 2020	DWG NAME:	Jupiter Island_2020_Summer Monitoring-Survey.dwg
DRAWN:	M. FORD	CHECKED:	P. SEABOLDT
SCALE:	AS SHOWN	SHEET:	22 OF 25
ENGR:	C. BRYANT	REV:	0



REV	REVISIONS	DATE	APP

GENERAL NOTES:
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3. ELEVATIONS ARE IN U.S. FEET AND ARE REFERENCED TO NAVD88.
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5. PROFILE AZIMUTHS ARE 69° GRID FOR R-68 TO R-76A. ALL OTHER PROFILE AZIMUTHS ARE 67°17'54" GRID.
6. DATE OF SURVEY: JULY 15 - 16 AND JULY 28-29, 2020.

LEGEND	
	EROSION CONTROL LINE
	GRADE FILL TEMPLATE
	+0.5' FILL TOLERANCE
	JULY 2020 (MONITORING)
	JAN 2020 (POST DORIAN)
	JULY 2019 (MONITORING)



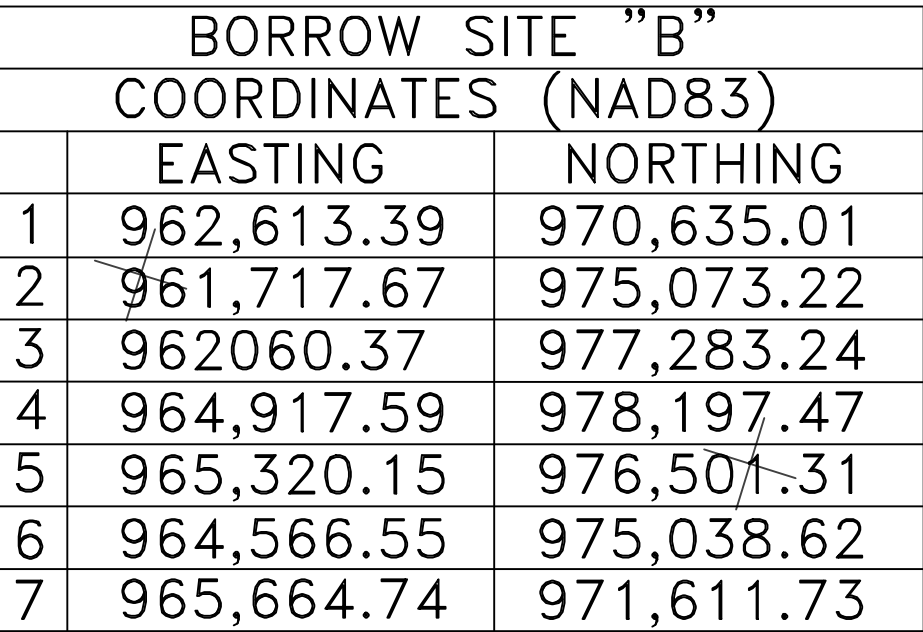
CONDITION SURVEY	
SURVEY DATE:	JULY 15-16 & JULY 28-29, 2020
HORIZ. PROJECTION:	U.S. STATE PLANE, NAD 83
ZONE:	FLORIDA - EAST ZONE 0901
VERT. REFERENCE:	NAVD 88
SURVEY UNITS:	U.S. SURVEY FEET
VESSEL:	RISING TIDE
SOUNDER:	ODOM CV 200
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS461 RTK GPS

PAUL SEABOLDT
FLORIDA PSM #6879

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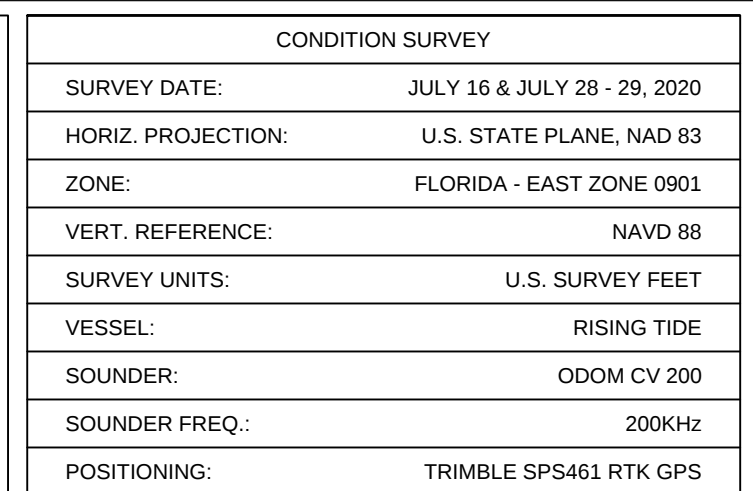
GAHAGAN & BRYANT ASSOCIATES, INC.
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TAMPA, FLORIDA 33629
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TOWN OF JUPITER ISLAND			
2020 SUMMER MONITORING SURVEY CROSS-SECTIONS			
965,058 TO 968,204			
DWG DATE:	AUGUST 13, 2020	DWG NAME: Jupiter Island_2020_Summer Monitoring-Survey.dwg	
DRAWN:	M. FORD	CHECKED:	P. SEABOLDT
SCALE:	AS SHOWN	SHEET:	23 OF 25
ENGR:	C. BRYANT	REV:	0



GENERAL NOTES:

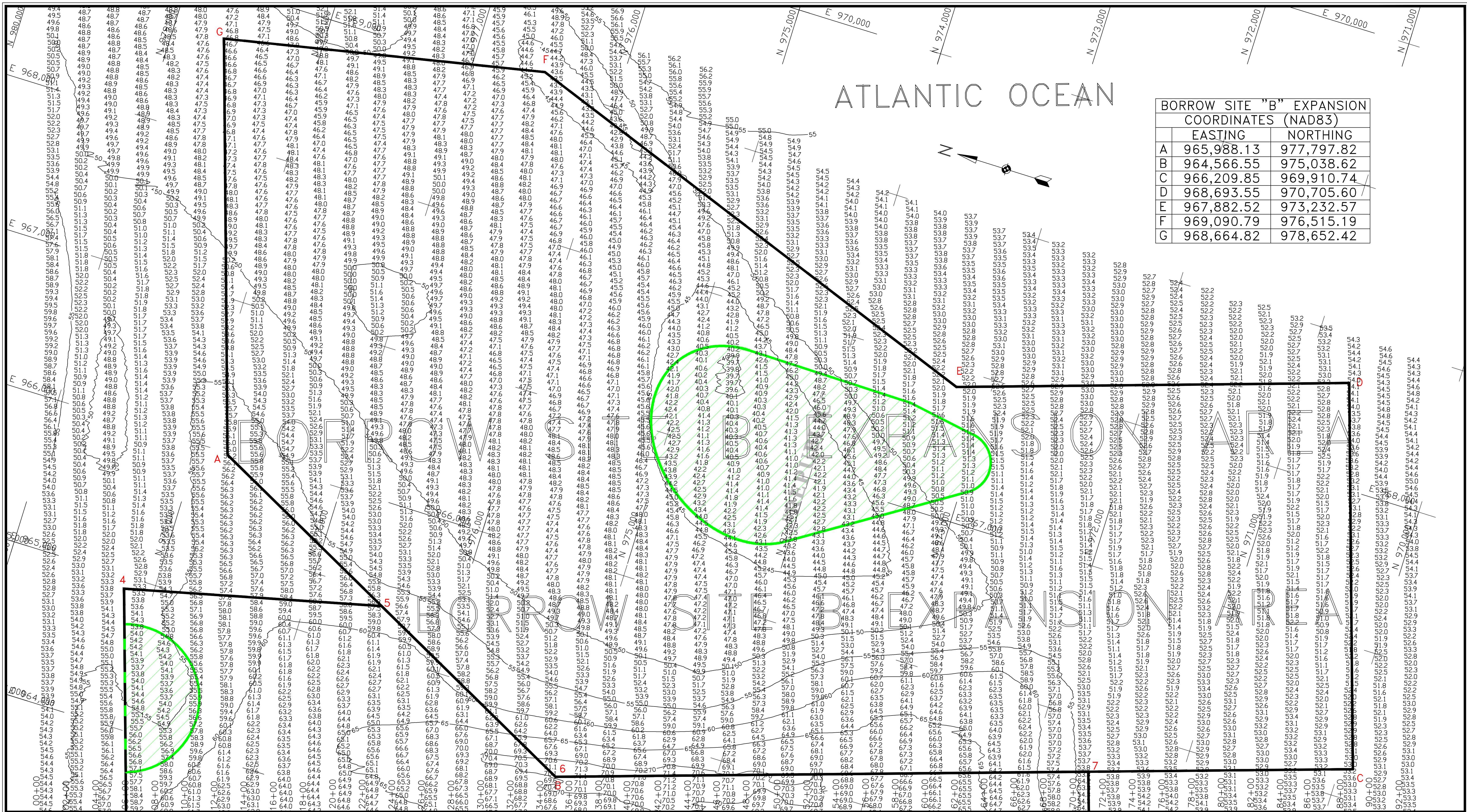
1. THE INFORMATION DEPICTED HERE REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATE INDICATED, AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITION EXISTING AT THAT TIME.
2. ALL BOUNDARY COORDINATES ARE IN U.S. SURVEY FEET AND ARE REFERENCED TO U.S. STATE PLANE FLORIDA STATE (901), NAD 83.
3. ELEVATIONS ARE IN U.S. FEET AND ARE REFERENCED TO NAVD83.
4. ELEVATIONS ARE ROUNDED TO THE NEAREST TENTH AND ARE BELOW THE REFERENCE PLANE UNLESS PRECEDED BY A PLUS (+) SIGN.
5. ELEVATIONS SHOWN ARE PART OF A LARGER DATA SET, WHICH HAS BEEN REDUCED FOR CLARITY ON THIS MAP.
6. HYDROGRAPHIC DATA WAS ACQUIRED USING AN ODOM CV200 DUAL FREQUENCY ECHOSOUNDER OPERATING AT 200KHZ.
7. PROFILE AZIMUTHS ARE 73°13'36" GRID.
8. DATE OF SURVEY: JULY 16 AND 28 OF 2017 - 28, 2020.



GBA
ENGINEERS ★ SURVEYORS

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TAMPA, FLORIDA 33629
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#LB7959

TOWN OF JUPITER ISLAND			
2020 SUMMER MONITORING SURVEY			
BORROW SITE "B"			
BATHYMETRY			
DWG DATE:	AUGUST 13, 2020	DWG NAME: Jupiter Island_2020_Summer Monitoring-Survey.dwg	
DRAWN: M. FORD	CHECKED: P. SEABOLDT	ENGR: C. BRYANT	
SCALE: AS SHOWN	SHEET: SHEET: 24 OF 25	REV: 0	

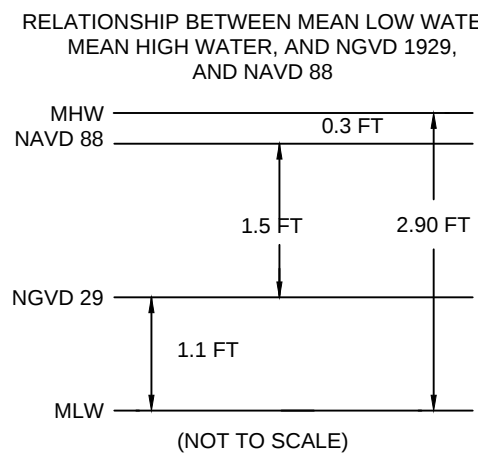
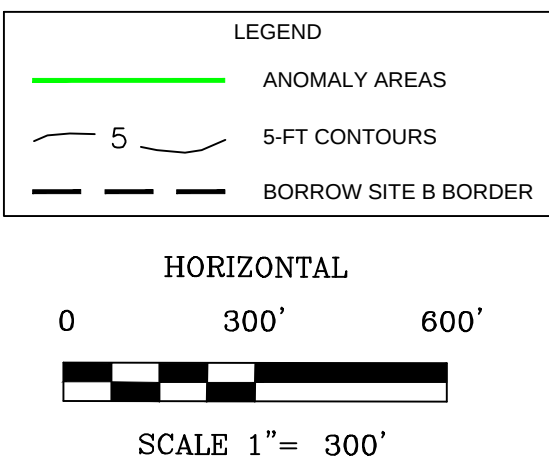


BORROW SITE "B" EXPANSION		
COORDINATES (NAD83)		
	EASTING	NORTHING
A	965,988.13	977,797.82
B	964,566.55	975,038.62
C	966,209.85	969,910.74
D	968,693.55	970,705.60
E	967,882.52	973,232.57
F	969,090.79	976,515.19
G	968,664.82	978,652.42

[illegible]

GENERAL NOTES:

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2. HORIZONTAL COORDINATES ARE IN U.S. SURVEY FEET AND ARE REFERENCED TO U.S. STATE PLANE FLORIDA EAST 8001, NAD 83.
3. ELEVATIONS ARE IN U.S. FEET AND ARE REFERENCED TO NAVD83.
4. ELEVATIONS ARE ROUNDED TO THE NEAREST TENTH AND ARE BELOW THE REFERENCE PLANE, UNLESS PRECEDED BY A "+" SIGN.
5. ELEVATIONS SHOWN ARE PART OF A LARGER DATA SET, WHICH HAS BEEN REDUCED FOR THIS MAP.
6. HYDROGRAPHIC DATA WAS ACQUIRED USING AN ODOM CV200 DUAL FREQUENCY ECHOSOUNDER OPERATING AT 200KHZ.
7. PROFILE AZIMUTHS ARE 72°21'36" GRID.
8. DATE OF SURVEY: JULY 16 AND JULY 28 - 29, 2020.



CONDITION SURVEY	
SURVEY DATE:	JULY 16 & JULY 28 - 29, 2020
HORIZ. PROJECTION:	U. S. STATE PLANE, NAD 83
ZONE:	FLORIDA - EAST ZONE 0901
VERT. REFERENCE:	NAVD 88
SURVEY UNITS:	U. S. SURVEY FEET
VESSEL:	RISEING TIDE
SOUNDER:	ODOM CV 200
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS461 RTK GPS

PAUL SEABOLDT
FLORIDA PSM #6879

*** NOT CERTIFIED WITHOUT SURVEY
REPORT TITLED "TOWN OF JUPITER
ISLAND BEACH AND NEARSHORE
SUMMER MONITORING SURVEY
REPORT JULY 2020".**

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WWW.GBA-INC.COM
L SURVEYOR & MAPPER BUSINESS LICENSE
#LB7959

TOWN OF JUPITER ISLAND				
2020 SUMMER MONITORING SURVEY BORROW SITE "B" EXPANSION AREA				
BATHYMETRY				
DWG DATE:		AUGUST 13, 2020		DWG NAME: Jupiter Island_2020_Summer Monitoring-Survey.dwg
DRAWN:	M. FORD	CHECKED:	P. SEABOLDT	ENGR: C. BRYANT
SCALE:	AS SHOWN	SHEET:	25 OF 25	REV: 0