

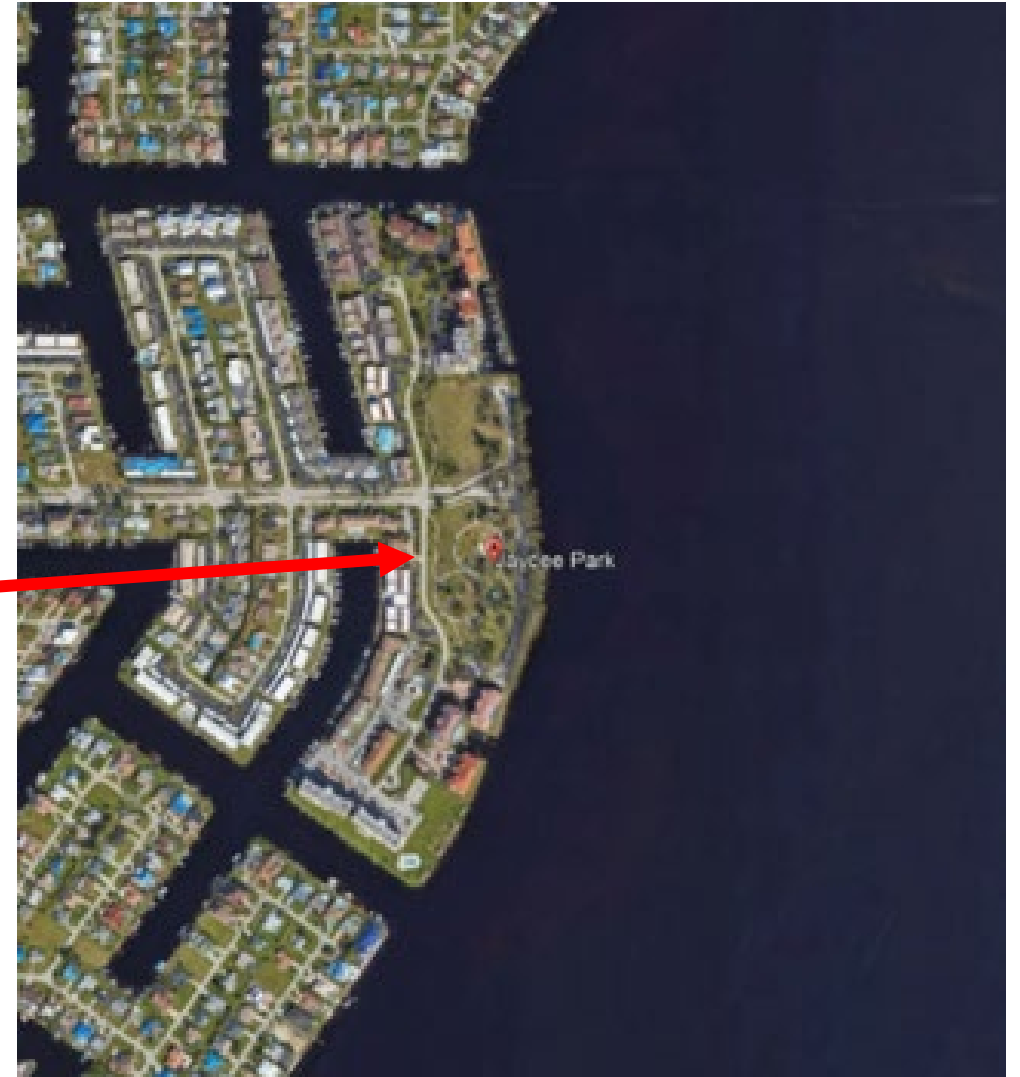
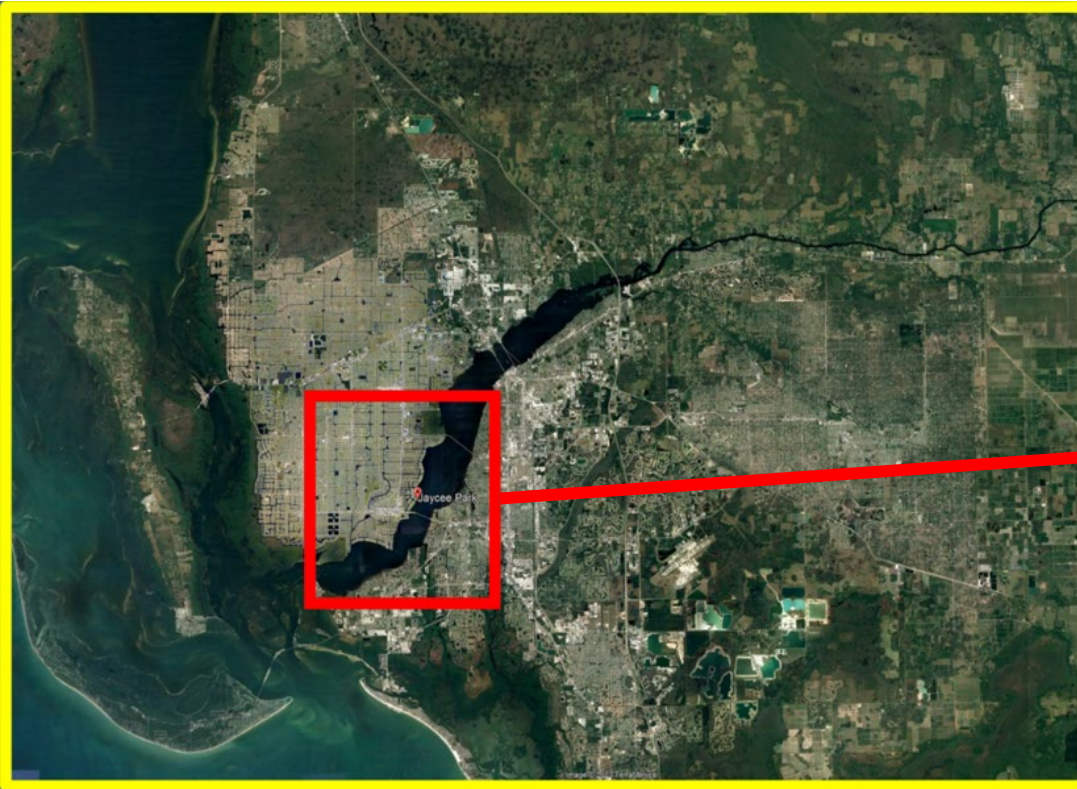
Jaycee Park Dock Concepts

Geoffrey Parker, P.E.

November 12, 2025

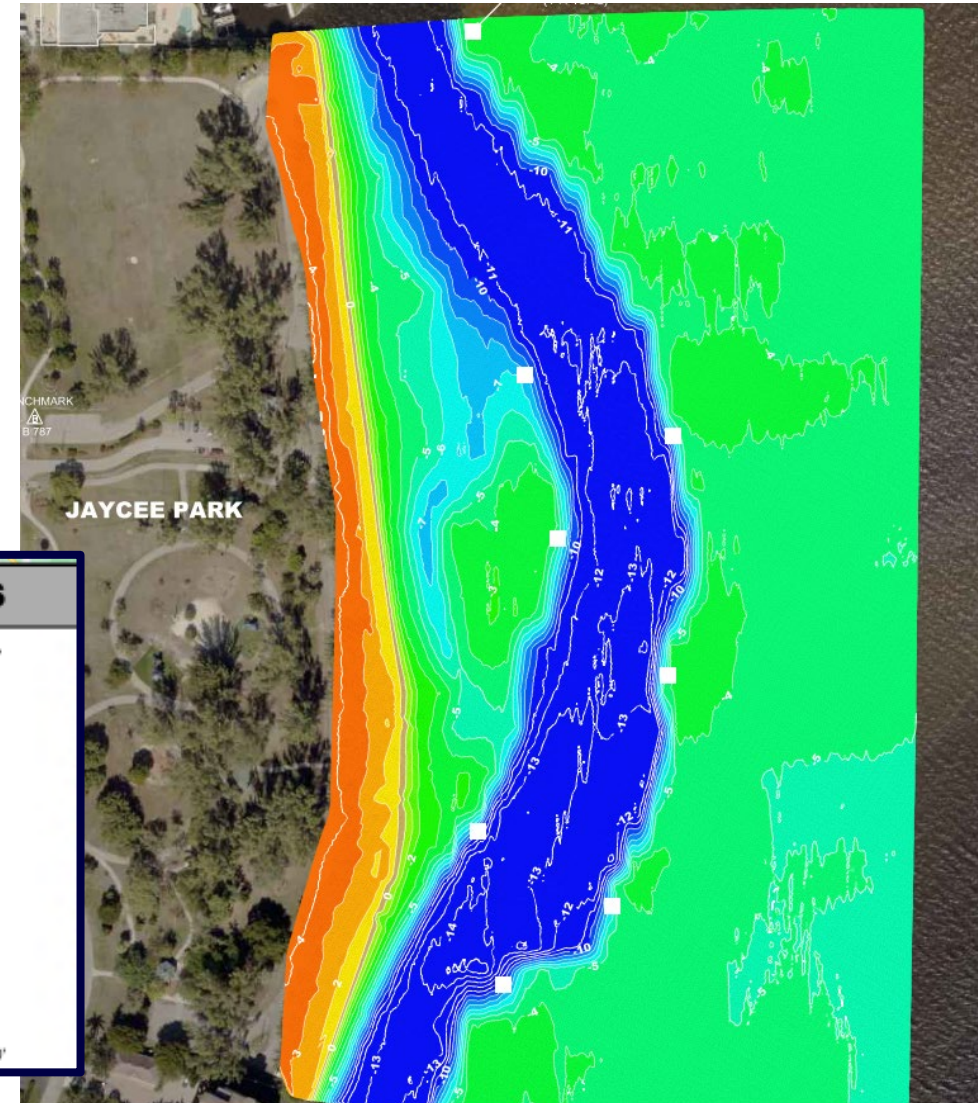
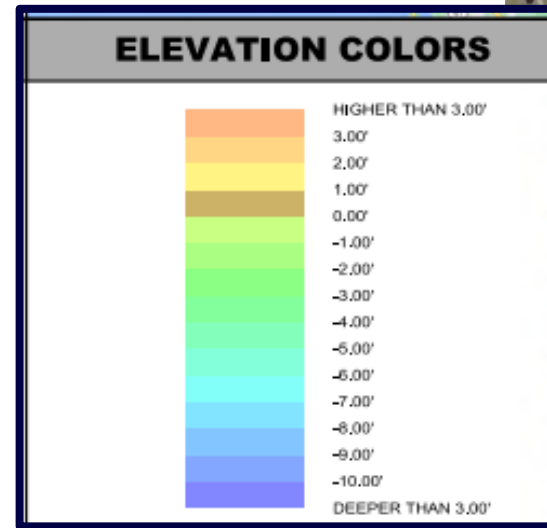


Project Location and Master Park Plan



Design Parameters & Site Conditions

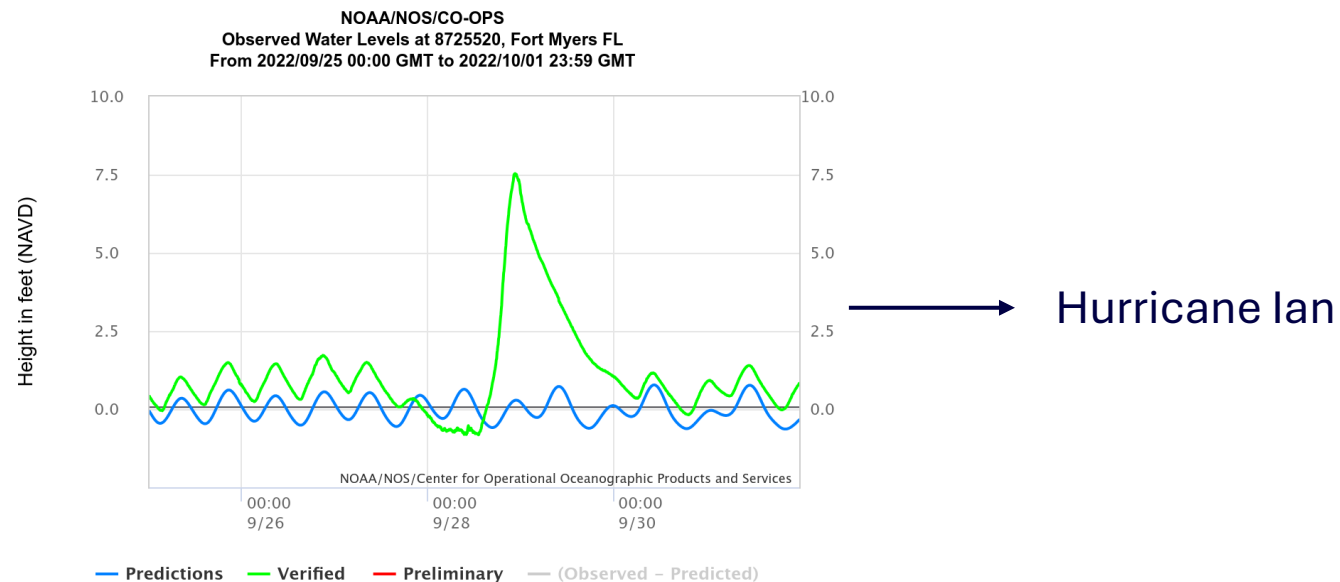
- Up to (24) total vessels; 40' max. length
- Transient dock facility
- Occupied conditions: winds up to 40 mph & normal tide ranges
- Extreme conditions: winds up to 145 mph w/ tides, surge, SLR
- Water depths up to EL. -13' NAVD
- Dead load
- Live load: 100 psf
- Overwater geotechnical conditions



A rim channel along the park shoreline measures 150 feet wide with specific depth ranges.

Current and Future Water Levels

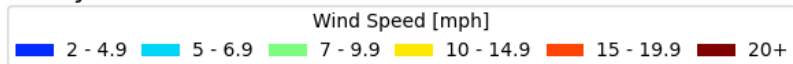
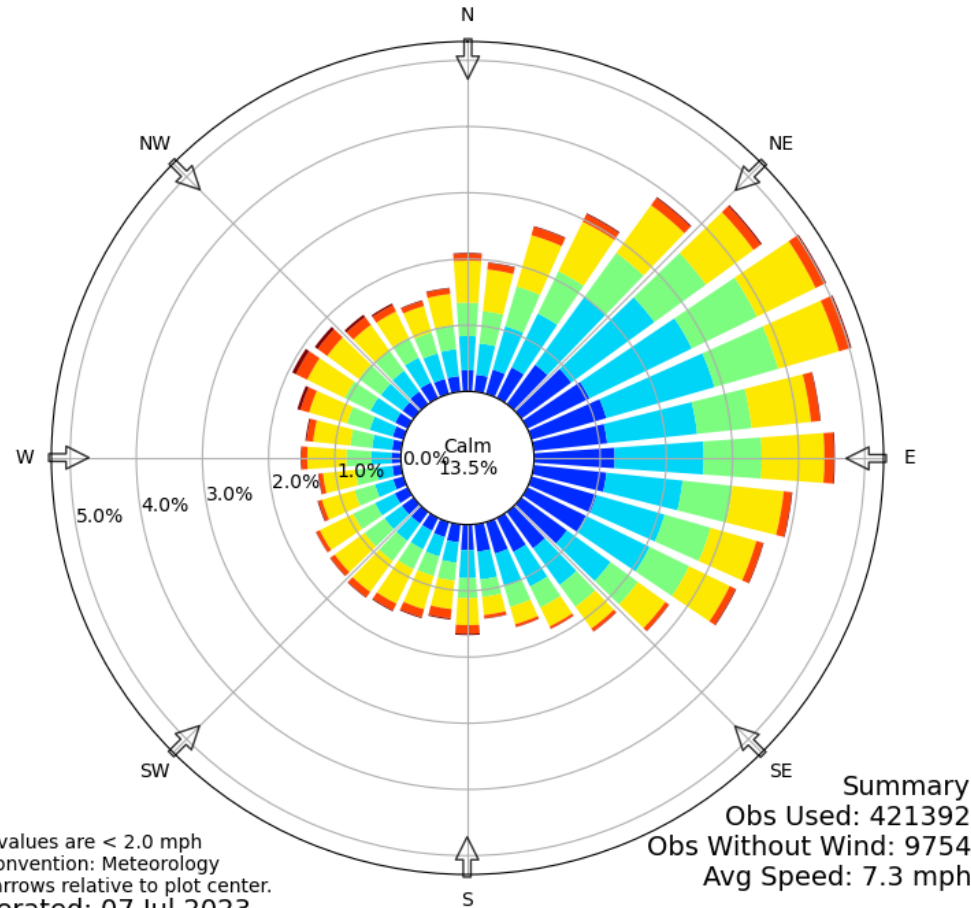
Datum	Current	Year 2050		Year 2070	
	(ft, NAVD)	Int. Low (ft, NAVD)	Int. High (ft, NAVD)	Int. Low (ft, NAVD)	Int. High (ft, NAVD)
MHHW	0.6	1.2	1.5	1.6	2.8
MHW	0.4	1.0	1.3	1.4	2.6
MSL	-0.1	0.5	0.8	0.9	2.1
MLW	-0.6	0.0	0.3	0.5	1.6
MLLW	-0.7	-0.2	0.2	0.3	1.5



Wind Conditions



Windrose Plot for [FMY] FORT MYERS/PAGE FLD
Obs Between: 01 Jan 1970 04:00 AM - 06 Jul 2023 08:53 PM America/New_York



Annual Wind Patterns

The typical wind directions in Fort Myers are from the east and northeast, with strong winds from the northwest.

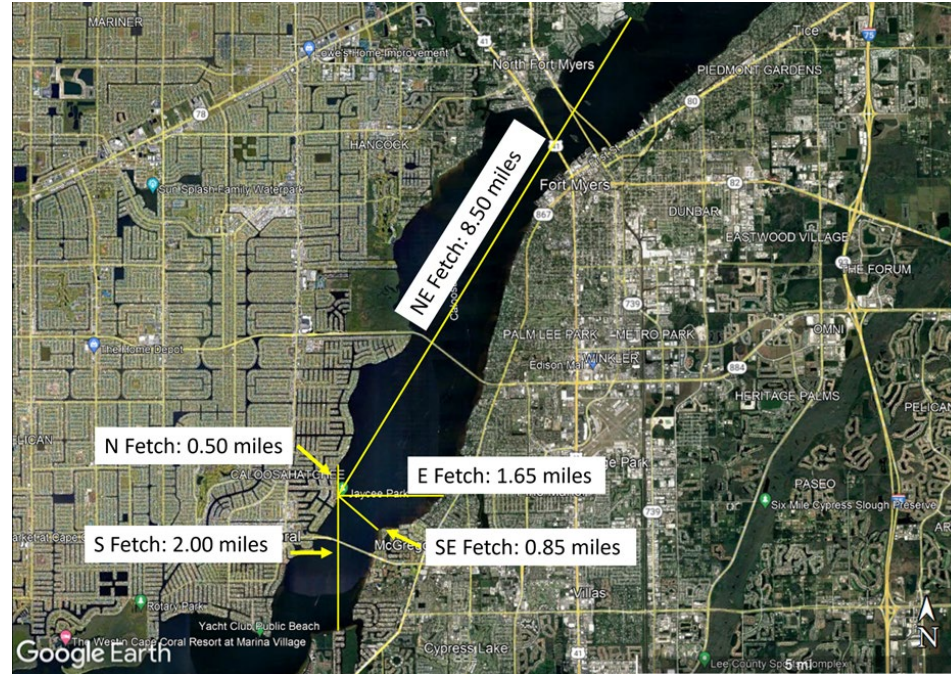
Summer Wind Conditions

During the summer months, wind speeds average around 6.0 mph, with predominant winds from east and southeast.

Winter Wind Conditions

In winter, wind speeds increase to an average of 8.3 mph, with winds mainly from the north and northwest.

Wind Generated Waves



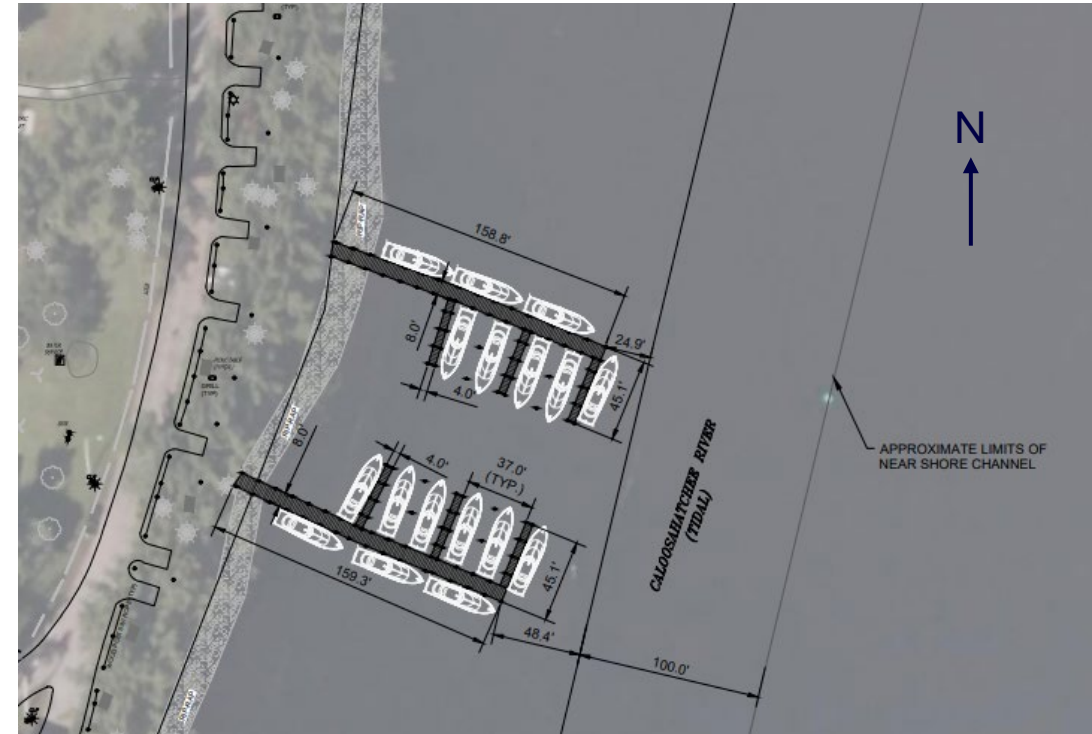
Direction	Fetch Length (miles)	Depth (ft)	Wind Speeds (mph)					
			[2.0 – 4.9]	[5.0 – 6.9]	[7.0 – 9.9]	[10.0 – 14.9]	[15.0 – 19.9]	[20.0+]
			Maximum Wave Height (ft)					
N	0.5	10	0.1	0.2	0.4	0.6	0.9	1.0
NE	8.5	10	0.2	0.8	1.4	2.2	3.1	3.5
E	1.65	10	0.2	0.4	0.6	1.1	1.6	1.9
SE	0.85	10	0.1	0.3	0.5	0.8	1.1	1.4
S	2	10	0.2	0.5	0.7	1.2	1.7	2.0

Dock Concept – v1 *(based upon 2021 bathymetric)*



v1 Option A:

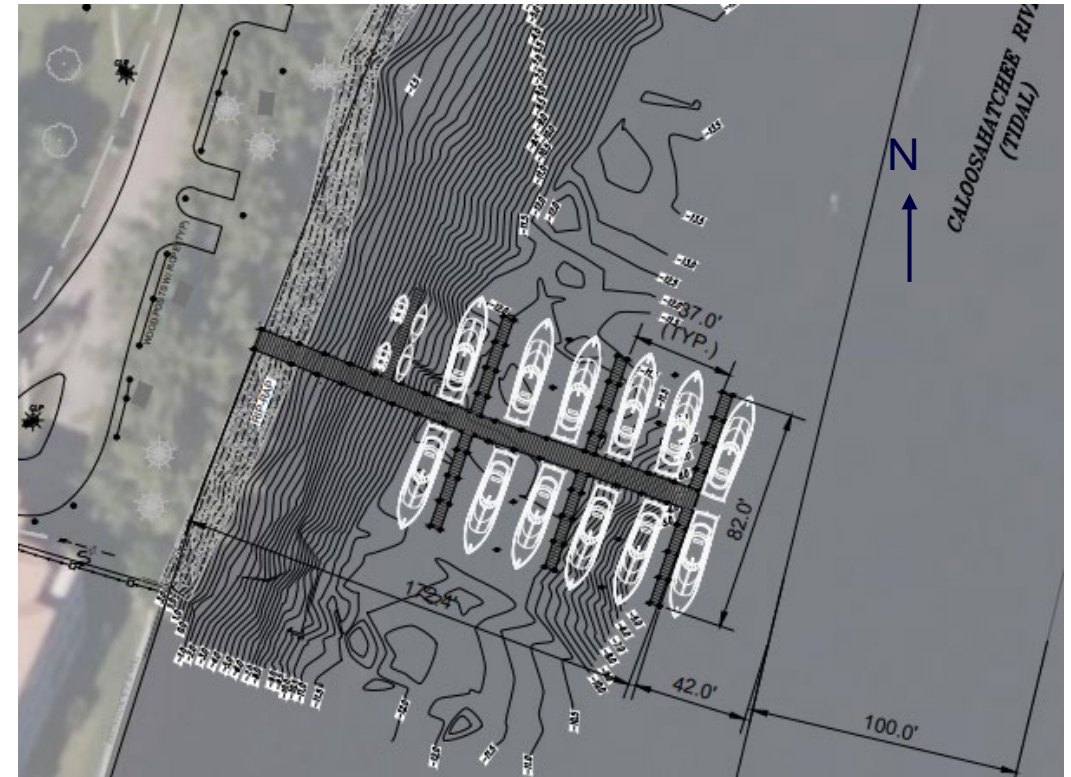
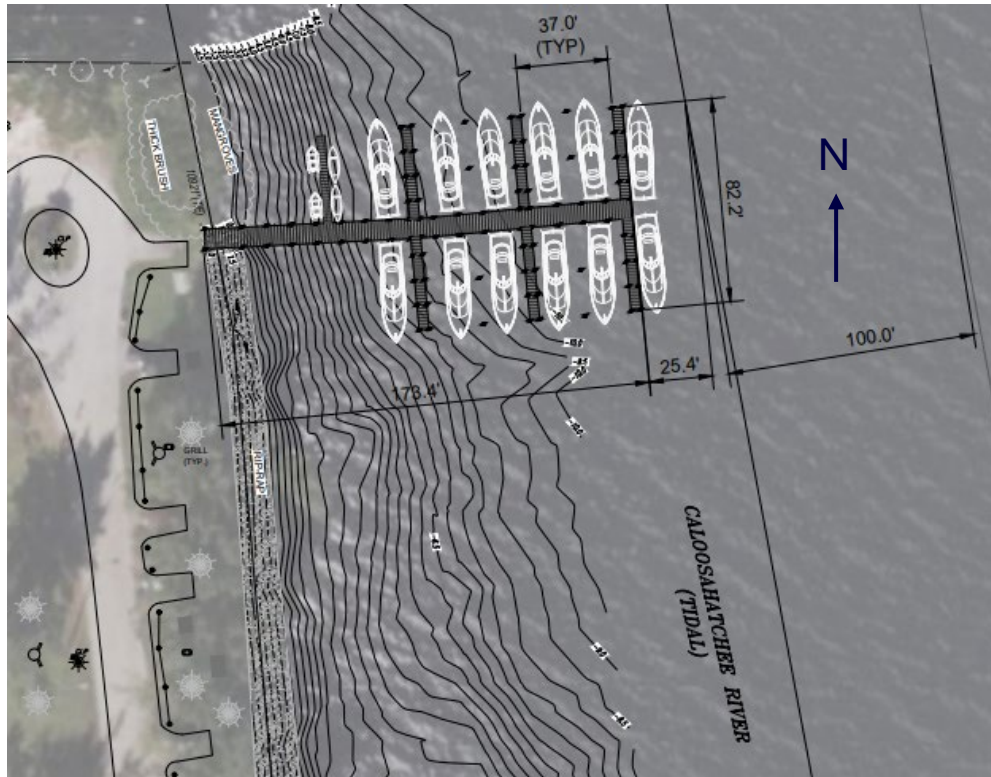
- Marginal layout, single location @ north end
- Fixed or floating docks
- (16) total vessels; 40' max. length
- Pro: Can incorporate wave attenuation
- Pro: Less encroachment w/ rim channel
- Con: Long, single dock
- Con: Not all vessels protected
- Con: Necessitates dredging



v1 Option B:

- Enclosed layout, single location @ south end
- Fixed or floating docks
- (17) total vessels; 40' max. length
- Pro: Can incorporate wave attenuation
- Pro: More vessels protected
- Con: More encroachment w/ rim channel
- Con: Additional dredging vs. Option A

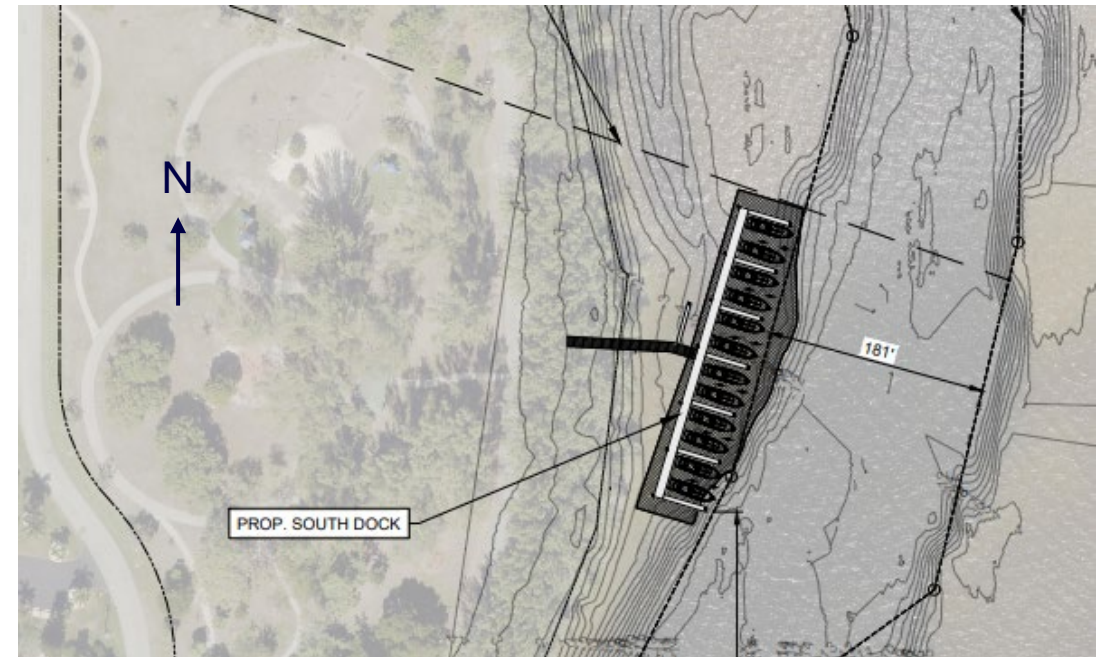
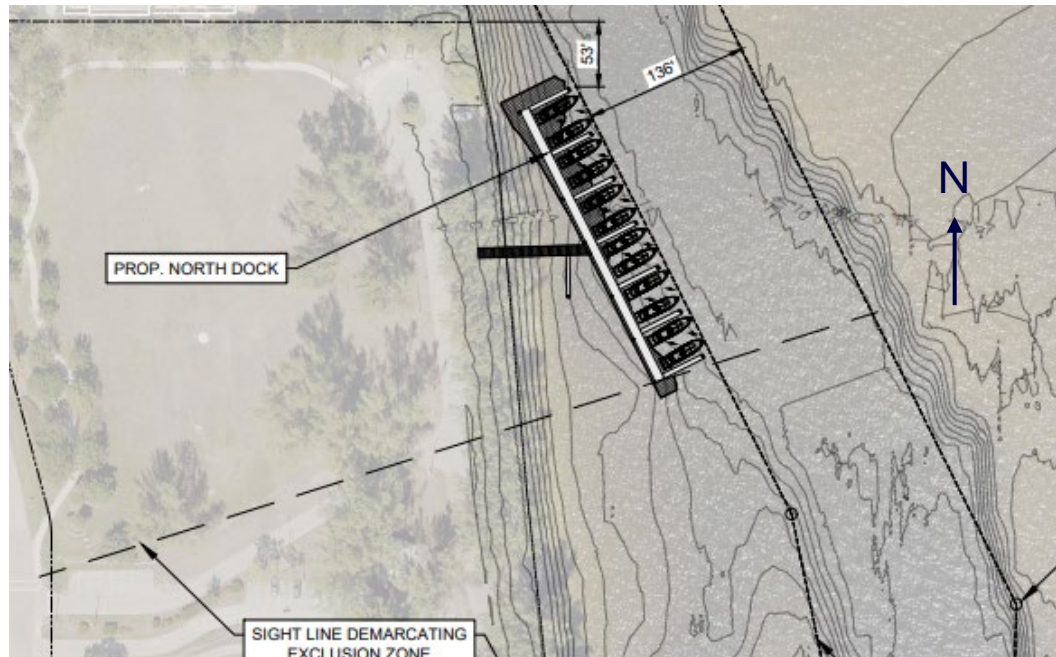
Dock Concept –v2 *(based upon 2021 bathymetric)*



v2:

- Tee layout, fixed docks
- (24) total vessels; 40' max. length
- Included kayak float
- Split into North & South docks
- Pro: Reduced dredge footprint
- Con: More encroachment w/ rim channel
- Con: Minimal wave attenuation capabilities

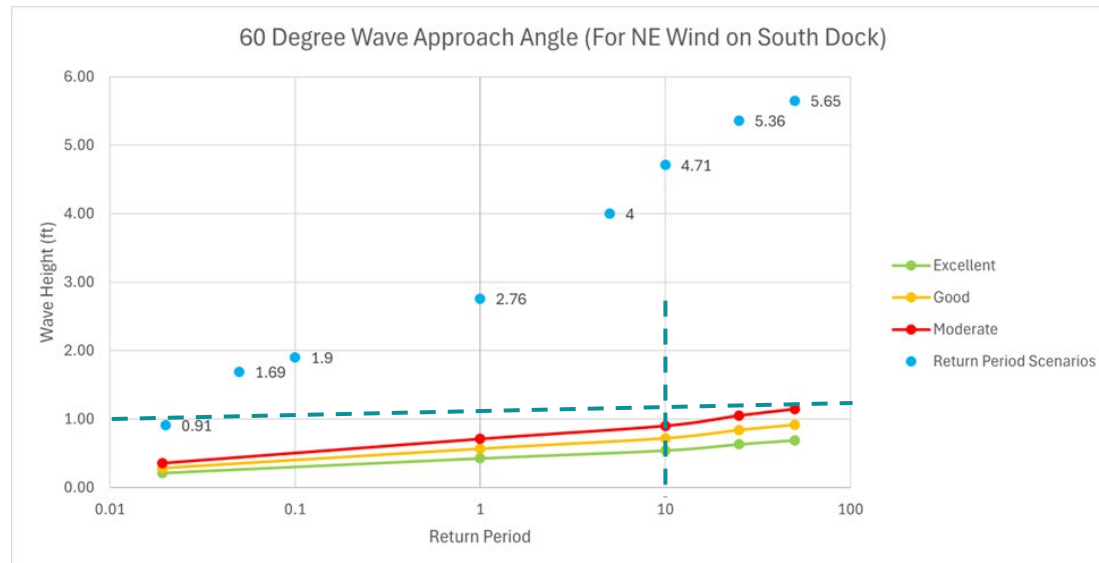
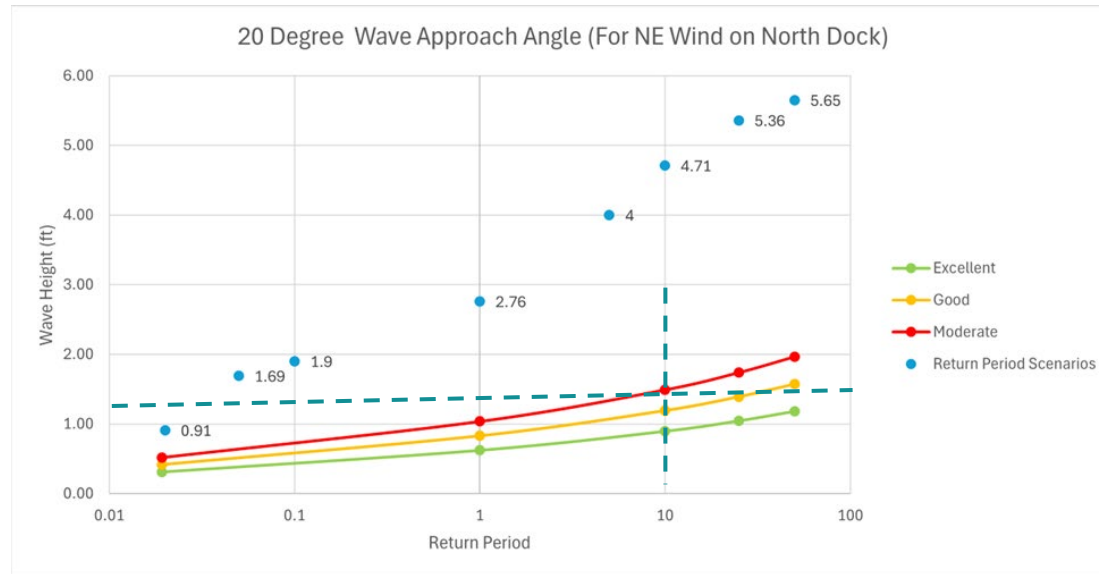
Dock Concept – v3 *(based upon updated 2023 bathymetric)*



v3:

- Marginal layout, fixed or floating docks
- (24) total vessels; 40' max. length
- Included kayak float
- Split into North & South docks
- Pro: Minimal dredge footprint
- Pro: Minimal encroachment w/ rim channel
- Con: Minimal wave attenuation capabilities

Berthing Tranquility Analysis



Berthing Tranquility Classification

- Three levels of berthing tranquility classification are based on wave climate: Excellent, Good, and Moderate.
- Based on orientation of moored vessels to incident waves

Wave Climate Analysis

Analysis involves calculating wave heights and exceedance probabilities for wind speeds affecting berthing tranquility.

Berthing Tranquility Classification

A maximum wave height threshold of 1.1 ft was determined for the North and South Docks for 'Moderate' mooring conditions within the docks.

Berthing Tranquility Analysis

Direction	Threshold Wave Height for Moderate (ft.)	Wind Speed (mph)							Number of Days	Number of Days Less than "Moderate"
		Calm	[2.0 – 4.5]	[5.0 – 6.9]	[7.0 – 9.9]	[10.0 – 14.9]	[15.0 – 19.9]	[20.0-100]		
N	0.7	44	7	9	8	11	2	0	37	35
NE	1.0		12	19	12	13	2	0	59	43
E	1.0		23	24	15	17	3	0	83	80
S	0.7		12	11	7	7	1	0	37	29
S E	0.7		7	7	5	8	2	0	30	27
SW	-		4	4	5	8	1	0	23	23
W	-		4	5	6	11	2	0	28	28
NW	-		4	5	5	7	2	1	24	24
All Directions	-	44	72	85	64	82	15	3	365	334

- Favorable Berthing Conditions
- Unfavorable Berthing Conditions

Floating Breakwater Consideration

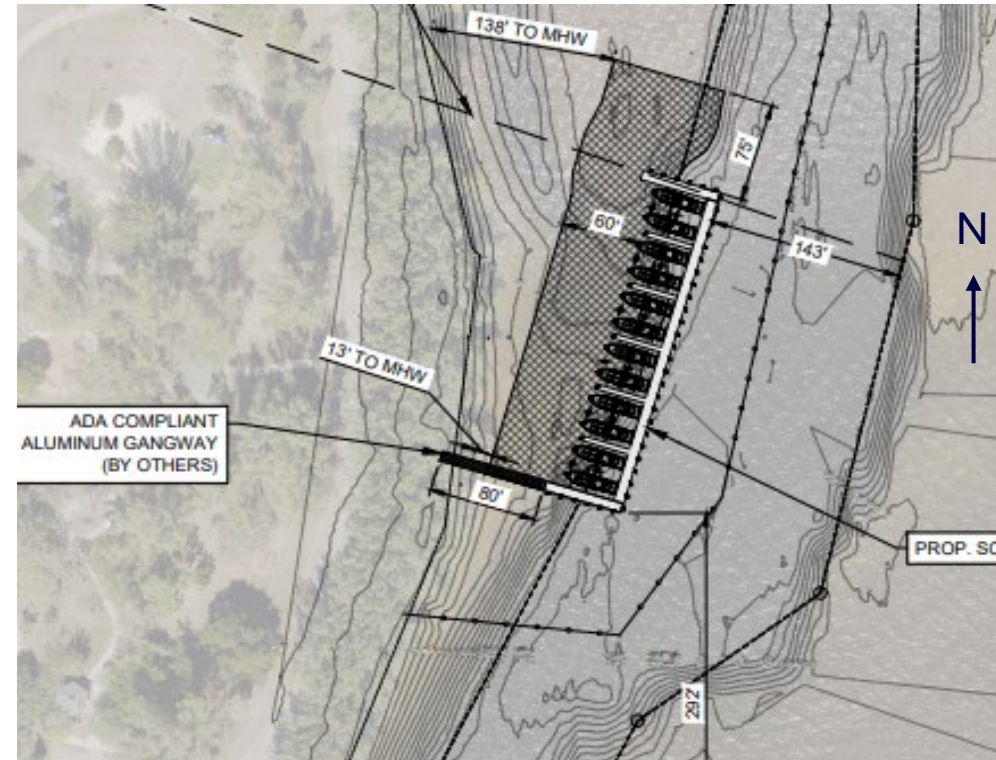
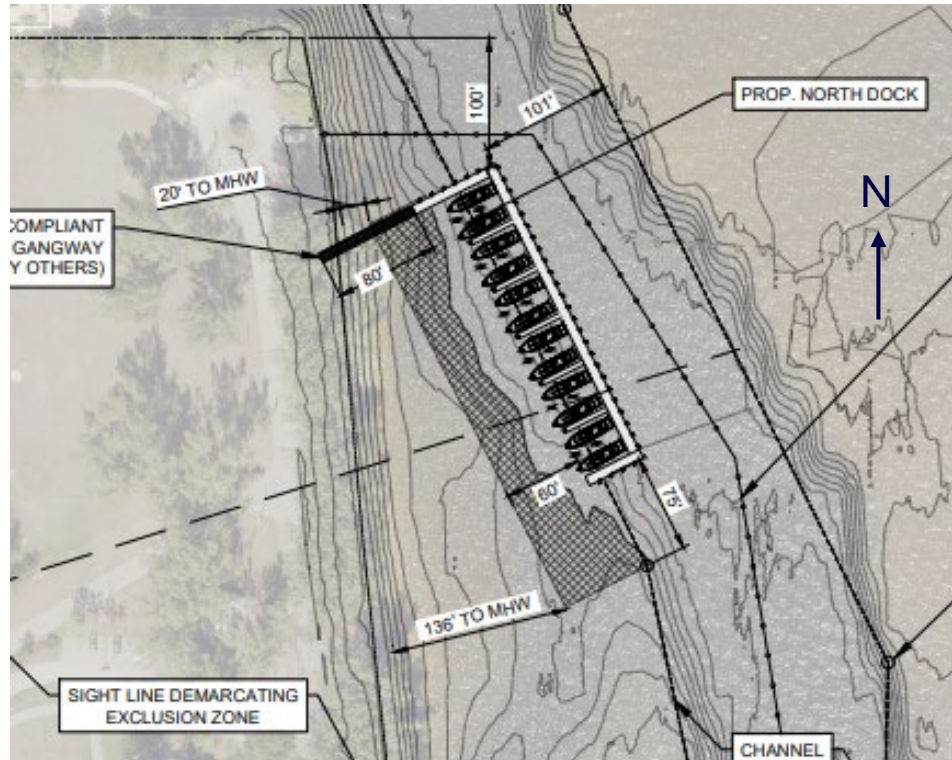
- Proposed floating docks are expected to function as floating breakwaters, dissipating wave energy effectively.
- Floating Dock of 8' width and 2' draft considered

Direction	Threshold Wave Height for Moderate (ft.)	Wind Speed (mph)							Number of Days	Number of Days Less than "Moderate"
		Calm	[2.0 – 4.5]	[5.0 – 6.9]	[7.0 – 9.9]	[10.0 – 14.9]	[15.0 – 19.9]	[20.0-100]		
N	0.7	44	7	9	8	11	2	0	37	35
NE	0.7		12	19	12	13	2	0	59	31
E	1.1		23	24	15	17	3	0	83	80
S	0.7		12	11	7	7	1	0	37	29
S E	0.9		7	7	5	8	2	0	30	30
SW	-		4	4	5	8	1	0	23	23
W	-		4	5	6	11	2	0	28	28
NW	-		4	5	5	7	2	1	24	24
All Directions	-	44	72	85	64	82	15	3	365	324

Annual Wave Conditions

- Estimated number of days with wave conditions below 'Moderate' indicates the berthing environment's stability.
- Moderate Conditions (# of Days):
 - North Dock: 334 days
 - South Dock: 324 days

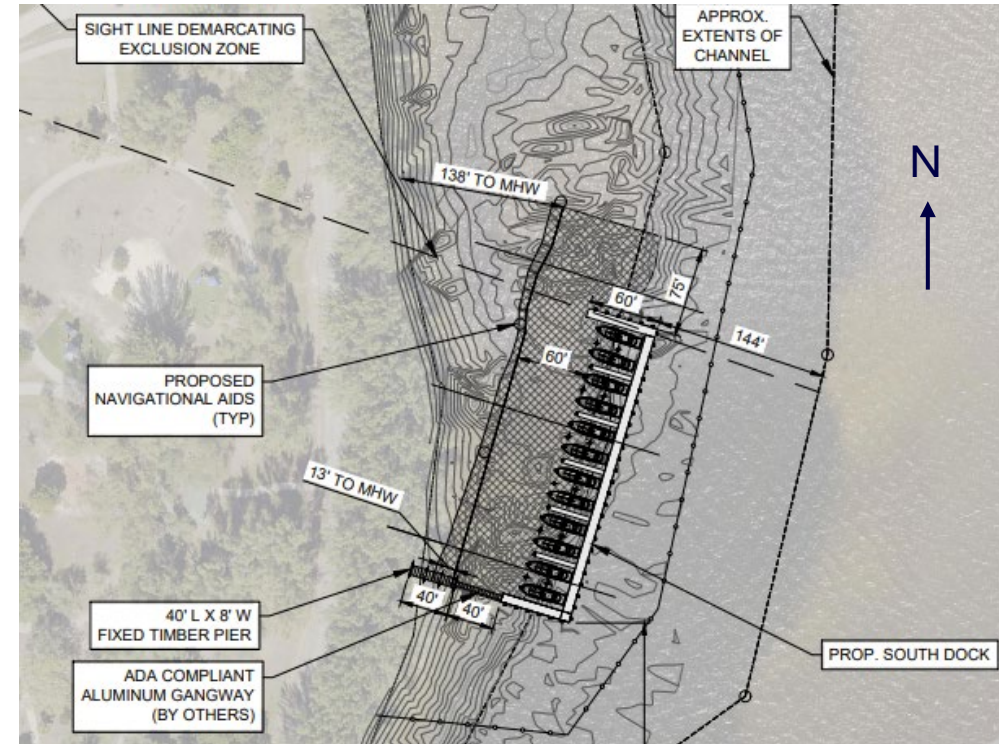
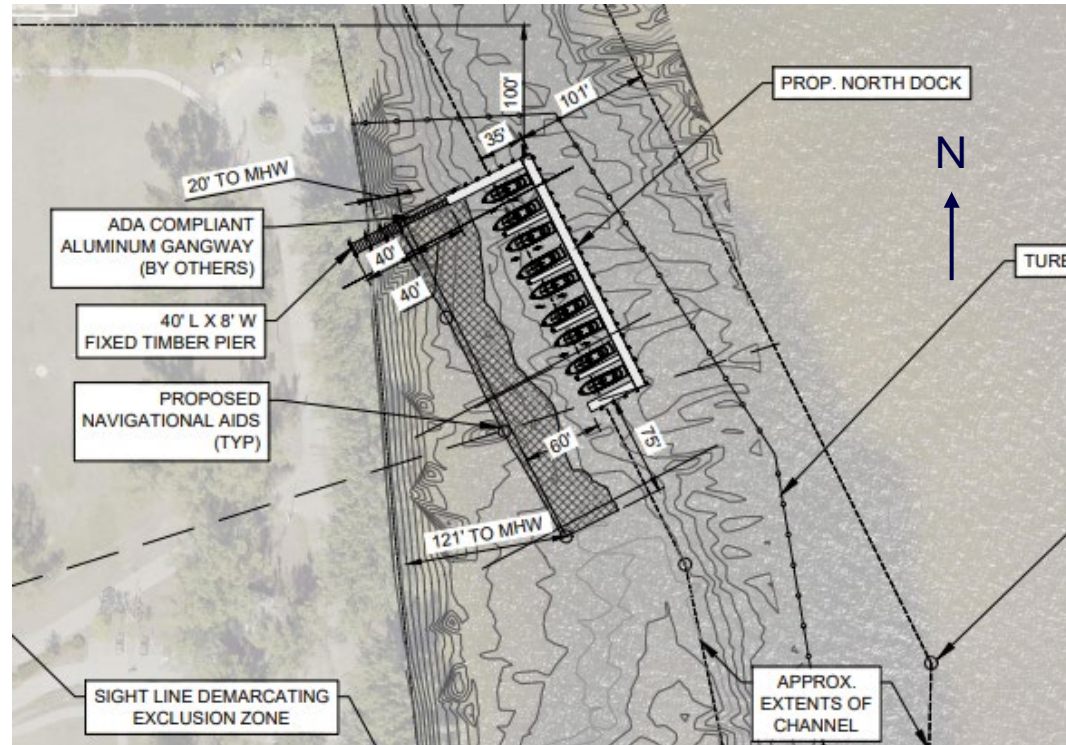
Dock Concept –v4 *(based upon updated 2023 bathymetric)*



v4:

- Marginal layout, floating docks
- Split into North & South docks
- Eliminated kayak float
- (24) total vessels; 40' max. length
- Split into North & South docks
- Pro: Can incorporate wave attenuation
- Pro: All vessels protected
- Pro: Minimizes encroachment w/ rim channel
- Con: Encroaches w/ park sight lines at North Dock
- Con: Additional dredging vs v3

Dock Concept –v5 *(Current, based upon updated 2025 bathymetric)*



v5:

- Marginal layout, floating docks, fixed approach pier
- (21) total vessels; 40' max. length
- Split into North & South docks
- Eliminated kayak float
- Pro: Can incorporate wave attenuation
- Pro: All vessels protected
- Pro: Minimizes encroachment w/ rim channel
- Pro: Clear park sight lines at North Dock
- Pro: Reduced dredge footprint at North dock
- Con: Reduced number of vessels

Next Steps

- I. Consensus of Council on preferred slip design
- II. Move forward with Design and Permitting services (Included in existing Pennoni contract)
- III. Review and permit approval will be required from the SFWMD, FWC (for oyster relocation), and the USACE. These agencies will confer with commenting agencies (FWC, FWS, NMFS) as needed. Timeline is anticipated to take approximately 18 months due to anticipated consultation for smalltooth sawfish.

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Questions?