Isle of Palms Beach Management Update

Aug 26, 2025

USACE Project

- Work paused the past few weeks to allow equipment to move to a new disposal island
- Contractor is changing construction method to directly dredge material from within the island
- Pumping expected to resume later next week
- New areas expected to contain better sand material
- ~300,000 cy remain to be placed

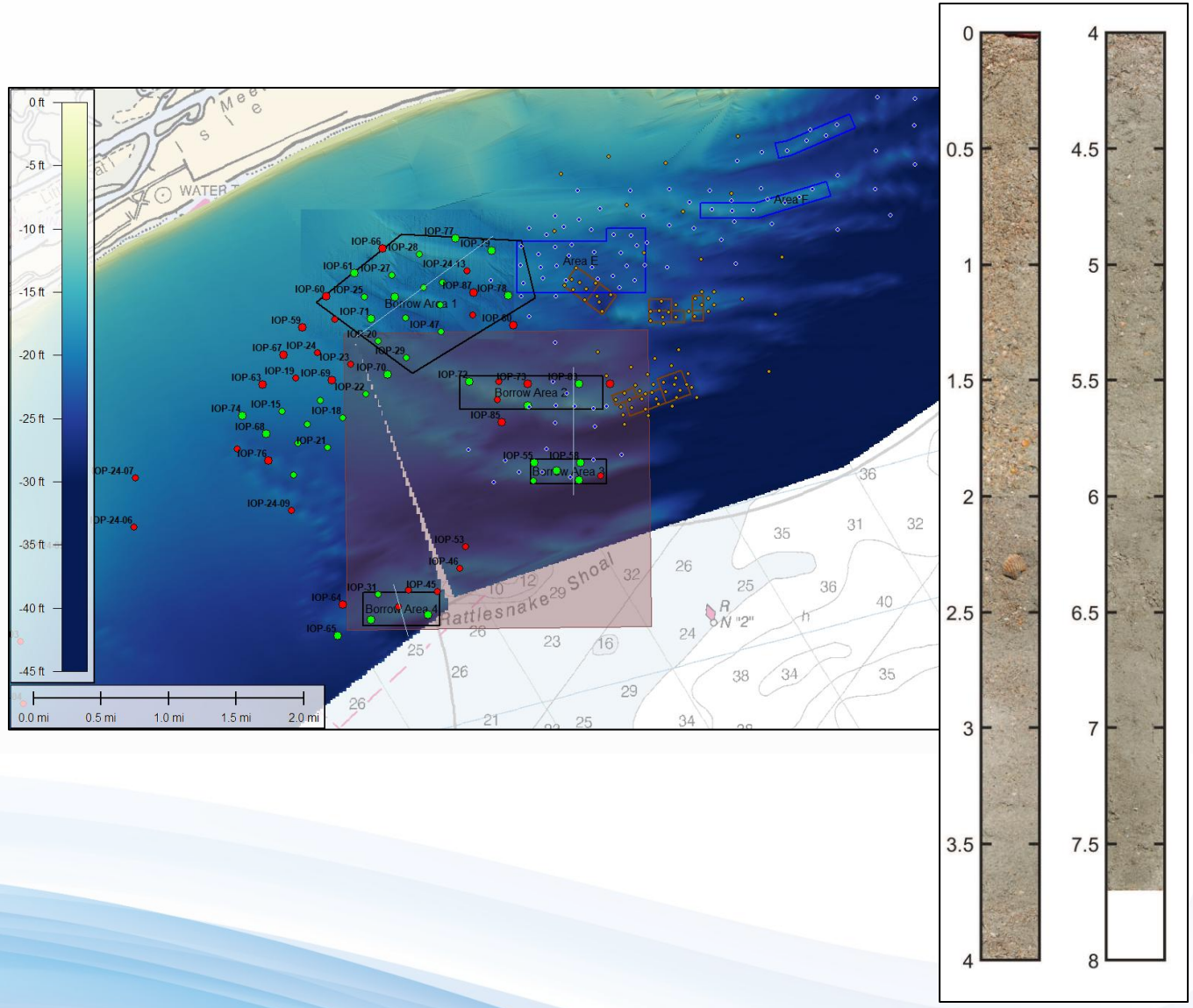
- AIWW project is out for bid
- Anticipated to add an additional ~350,000 cy
- Project likely to start around in early 2026
- Material placement 4-7th Avenues

Large-scale Nourishment – Permit Status

- Permit application ready to submit next week
- Coordinating with SHPO for identification of suitable borrow area
- Documents Include
  - Permit Drawings
  - Permit Narrative
  - List of Adjacent Owners
  - Biological Assessment
  - Essential Fish Habitat Assessment
- First likely construction window fall 2026/early 2027

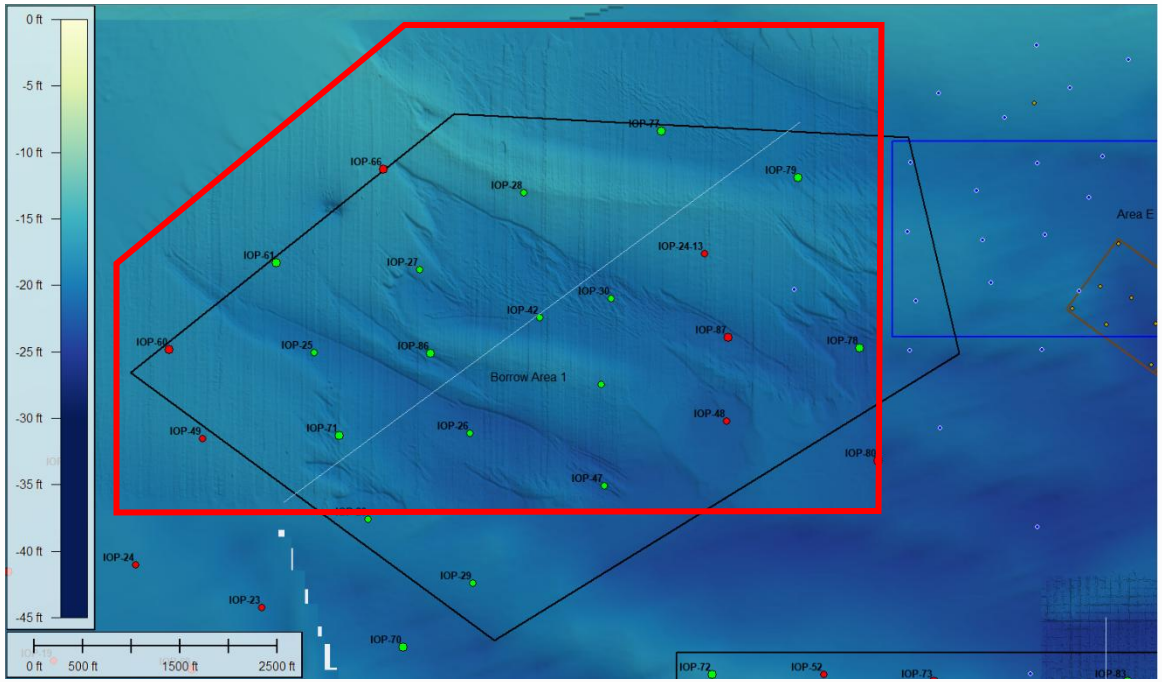
Offshore Inventory – Scope of Study

- 23,000 acres bathymetry
- 5,000 acres geophysical
- 265 borings
  - 91 specifically in 2024-2025 for current effort



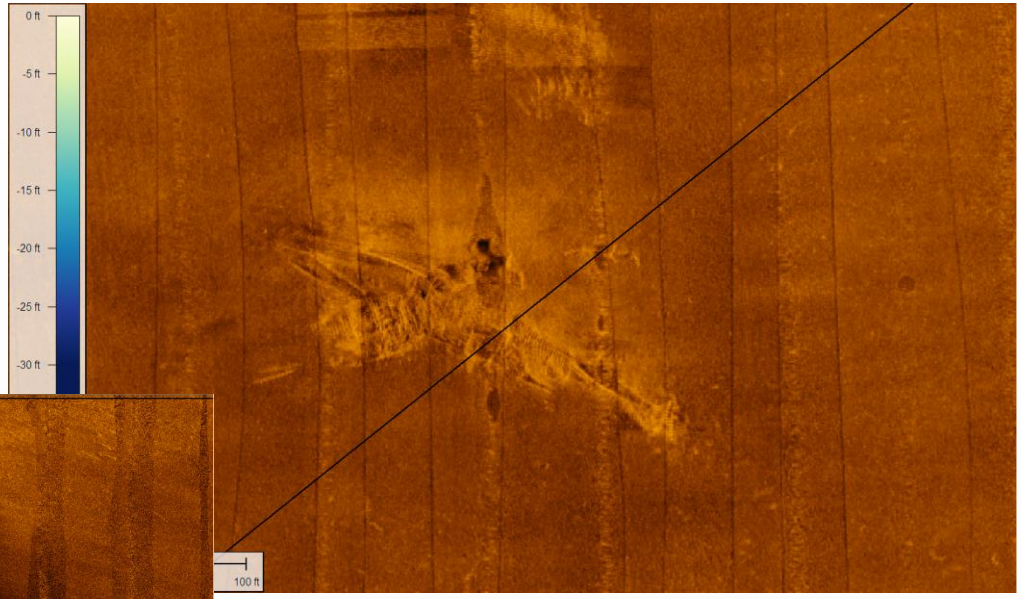
Offshore Inventory – Scope of Study

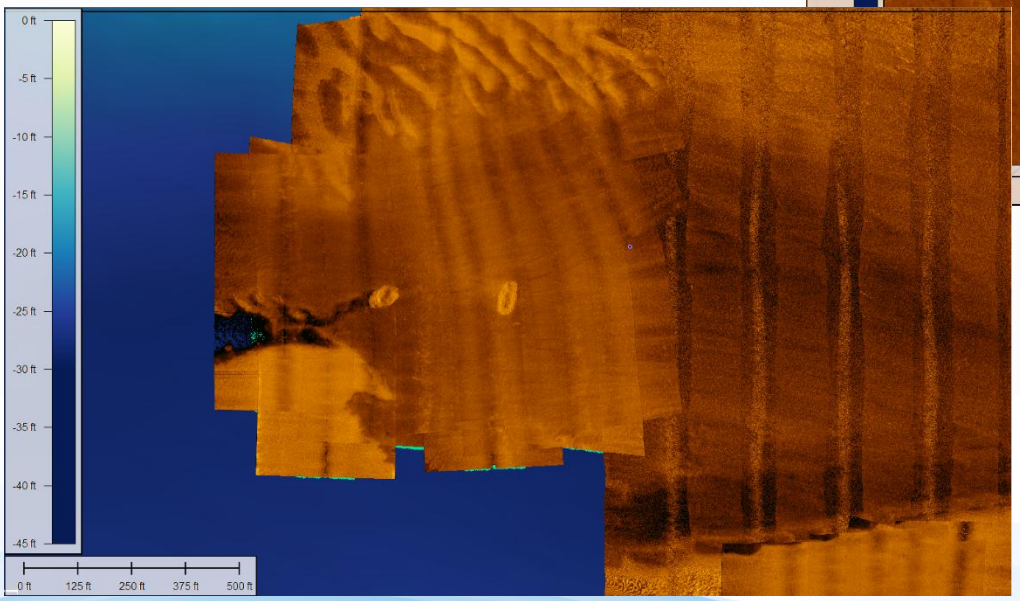
- 23,000 acres bathymetry
  - Includes single- and multibeam systems
  - Multibeam collected in red box, offers much higher resolution
  - Used to identify underwater features indicating sandy material (ripples, shoals, etc)



Offshore Inventory – Scope of Study

- 5,000 acres geophysical
  - Includes side-scan SONAR and site-specific multibeam
  - Used to identify cultural resources like wrecks and ballast mounds shown here:



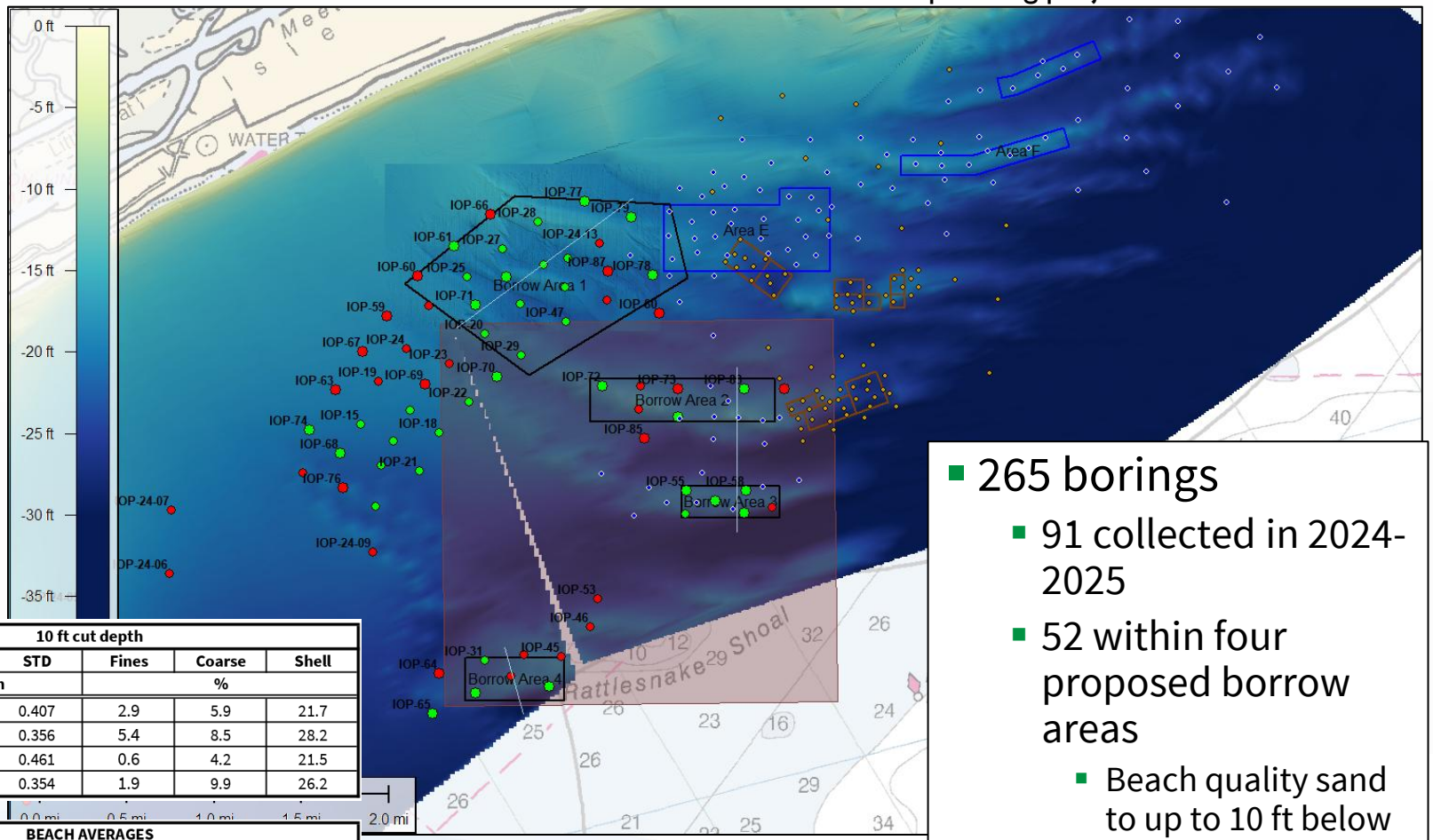


Offshore Inventory

2008 project

2018 project

upcoming project



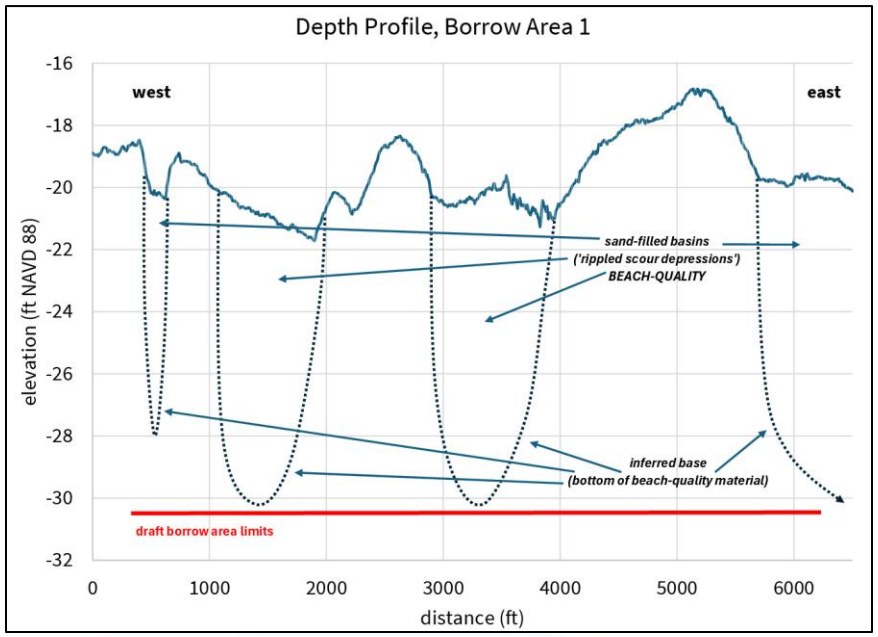
10 ft cut depth					
Borrow Area	Mean	STD	Fines	Coarse	Shell
	mm		%		
1	0.276	0.407	2.9	5.9	21.7
2	0.329	0.356	5.4	8.5	28.2
3	0.284	0.461	0.6	4.2	21.5
4	0.363	0.354	1.9	9.9	26.2

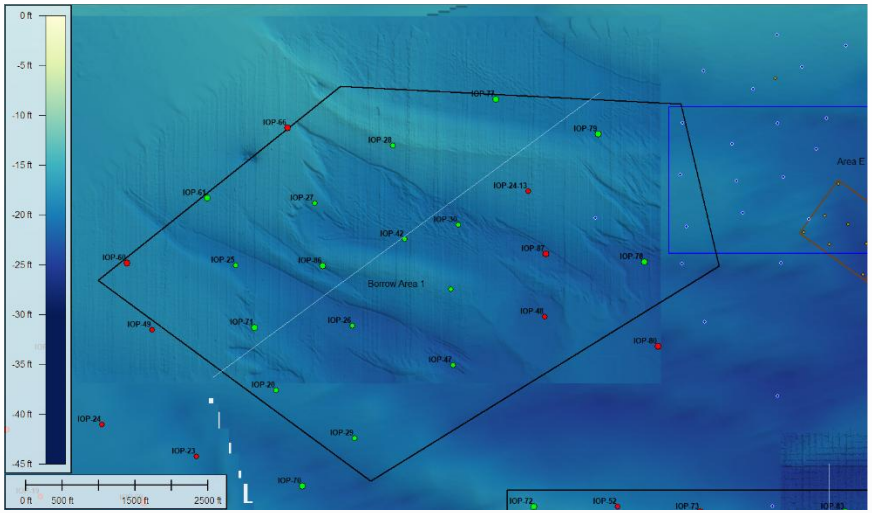
BEACH AVERAGES					
Beach	Mean	STD	Fines	Coarse	Shell
	mm		%		
Jul-17	0.199	0.689	0.0	0.5	6.2
Mar-18	0.445	0.442	0.1	9.1	25.9
Oct-18	0.340	0.488	0.3	1.8	6.3
ALL	0.328	0.540	0.1	3.8	12.8

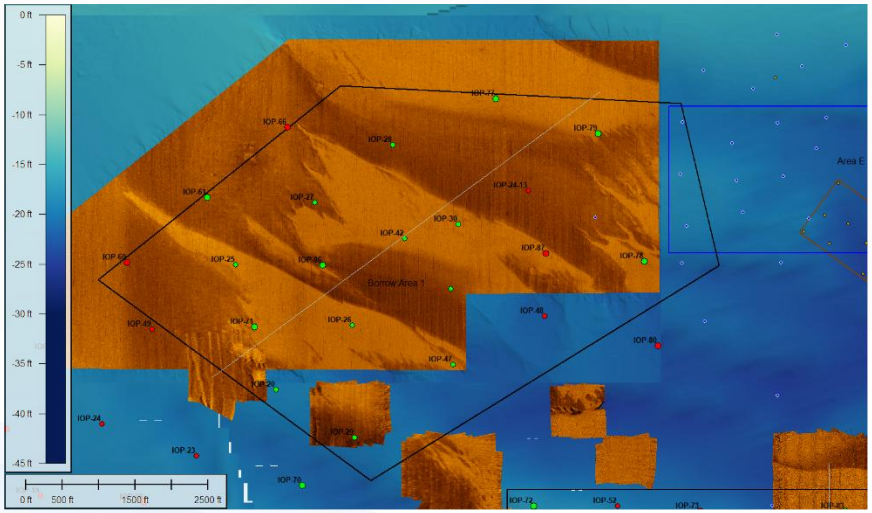
- 265 borings
  - 91 collected in 2024-2025
  - 52 within four proposed borrow areas
    - Beach quality sand to up to 10 ft below grade (see below):

Offshore Inventory

- Borrow Area 1

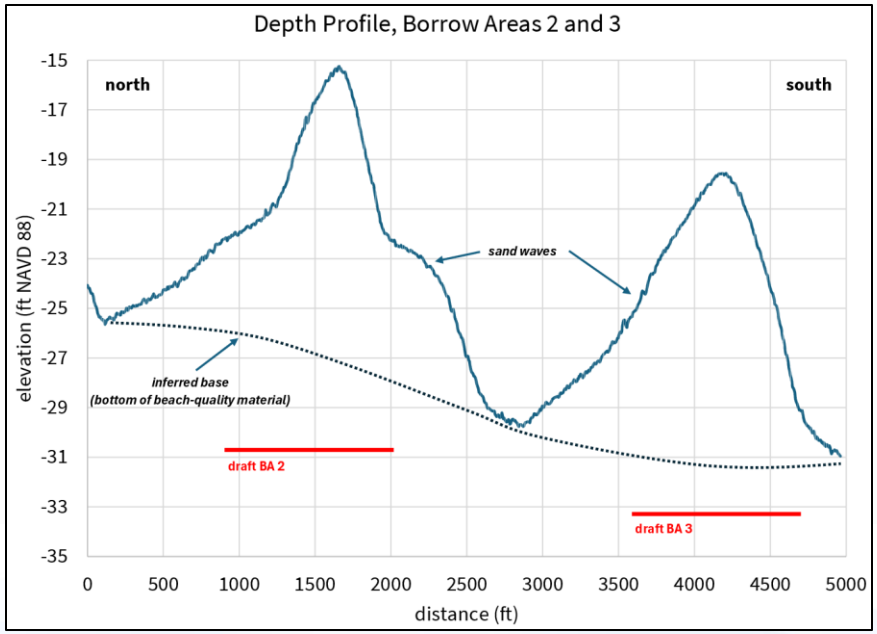


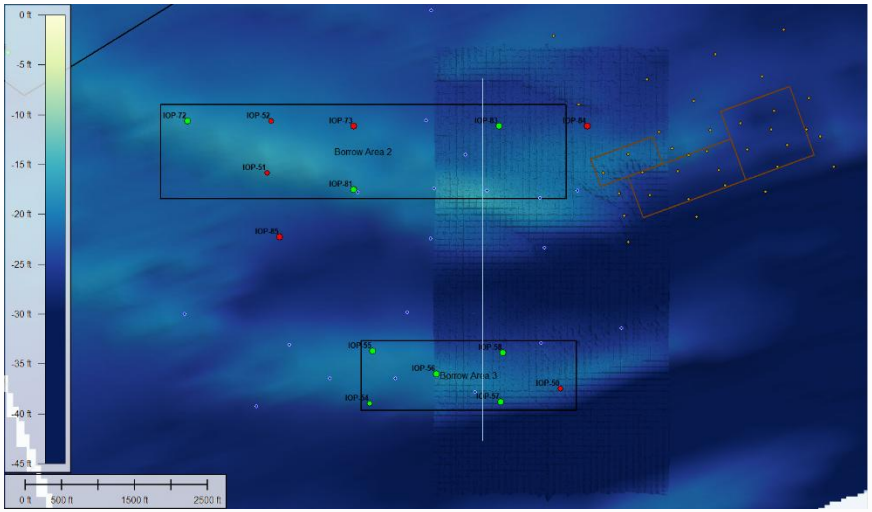


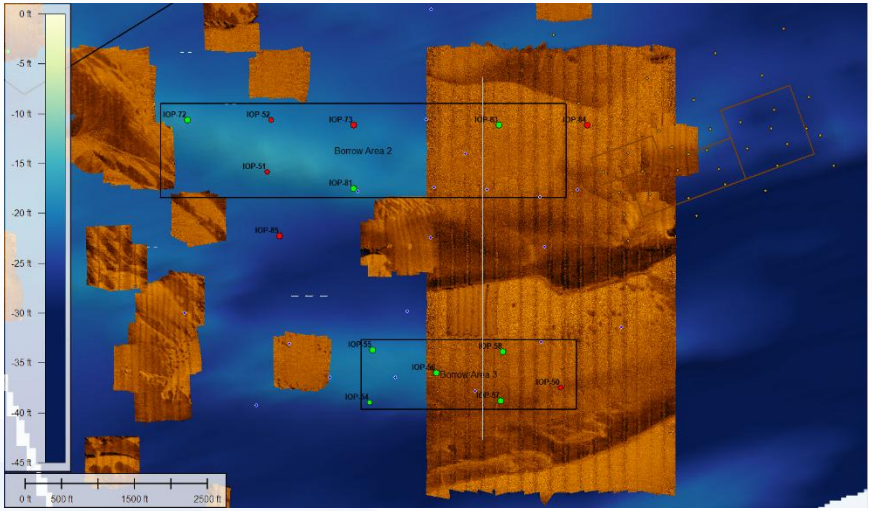


Offshore Inventory

- Borrow Areas 2 and 3

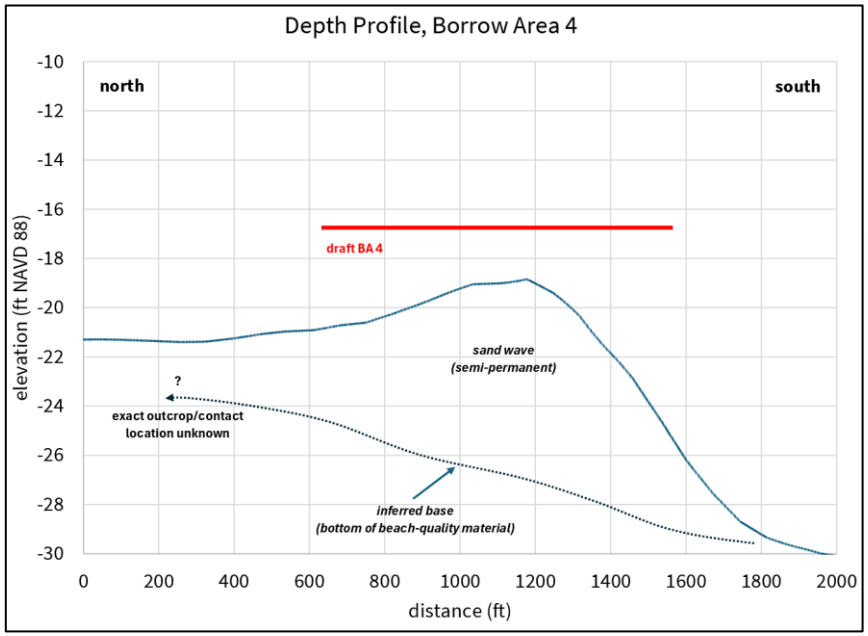


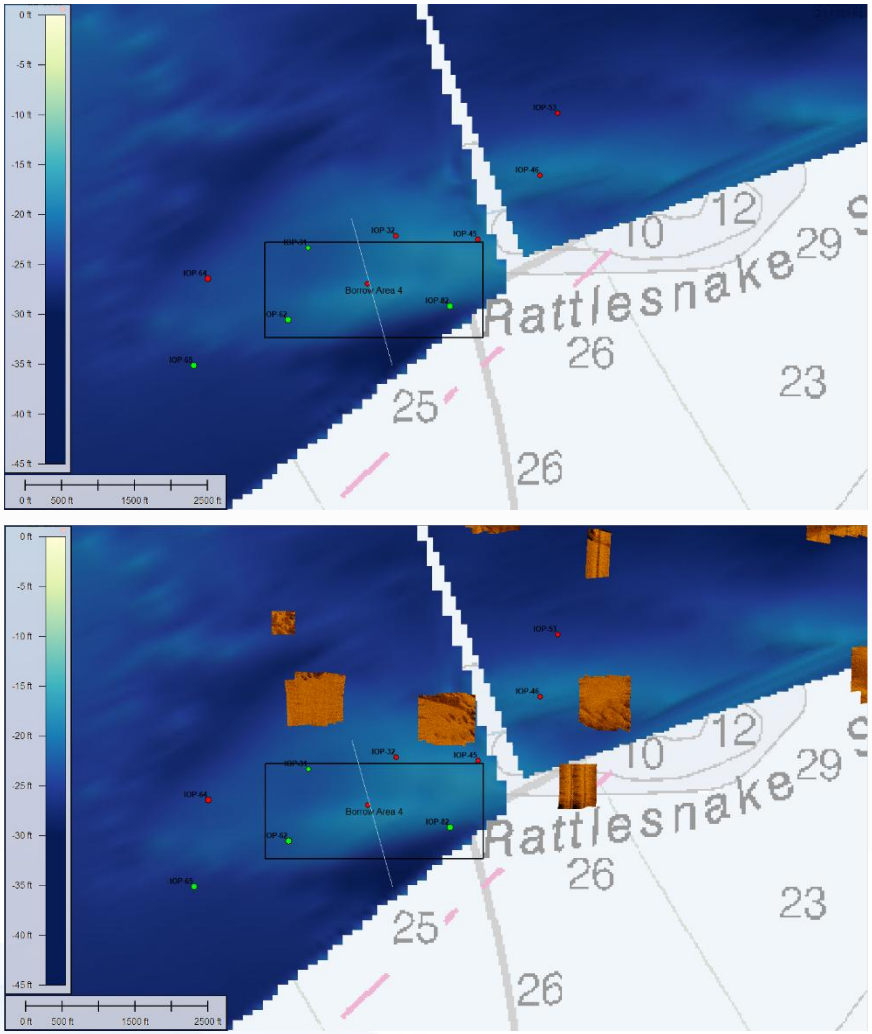




Offshore Inventory

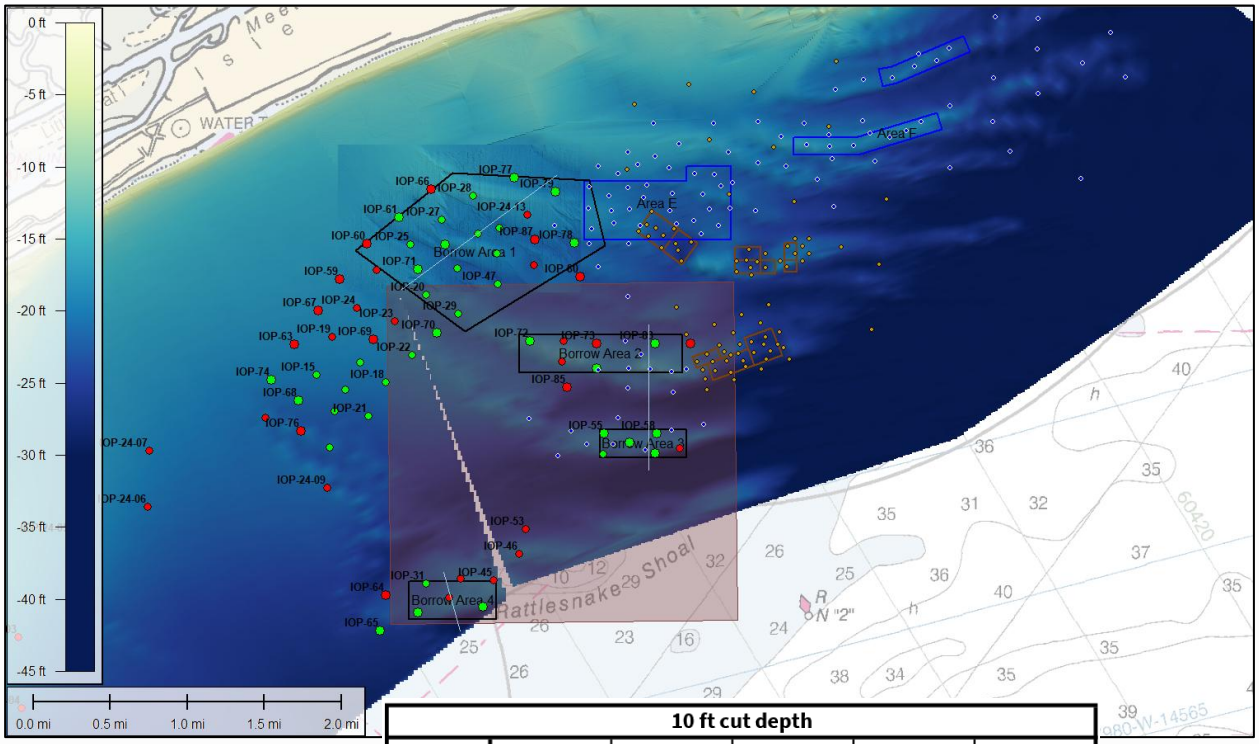
- Borrow Area 4





Offshore Inventory – Preliminary Findings

- Four Borrow Areas
  - Contain up to ~15.5 million cy of beach quality sand
- Dozens of cultural resource exclusion areas (in red box at right)
- Confirms that sufficient sand resources exist for several more projects
- Future work would look further offshore or infilled prior areas



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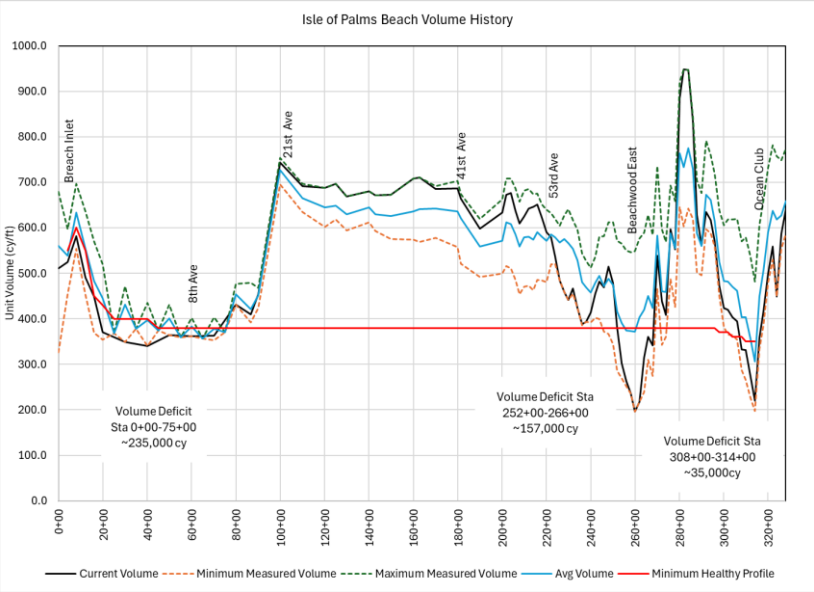
Borrow Area (acreage)		Volume by Cut Depth (cy)				Core Length (avg)
		4 ft	6 ft	8 ft	10 ft	
1	650	4,193,800	6,290,700	8,387,600	10,484,500	9.2
2	160	1,032,320	1,548,480	2,064,640	2,580,800	9.1
3	60	387,120	580,680	774,240	967,800	9.0
4	90	580,680	871,020	1,161,360	1,451,700	9.7

Nourishment Plan – South End



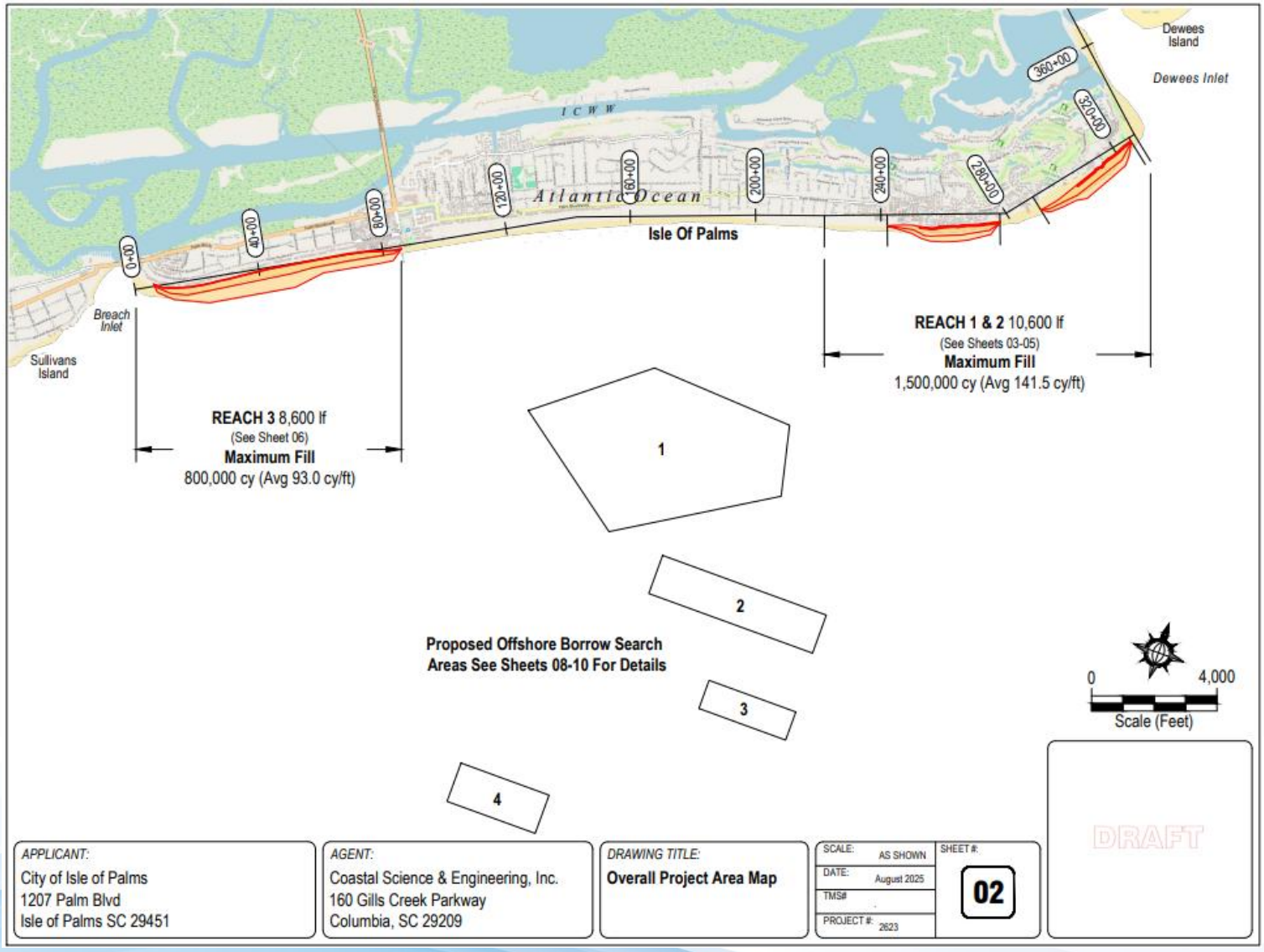
- Deficit volume established with Beach Management Committee
- South End Deficit – 235,000 cy
- Deficit up to 60 cy/ft

- Background losses assume 55,000 cy/yr
- 8-yr project design requires ~675,000 cy

Nourishment Plan – North End

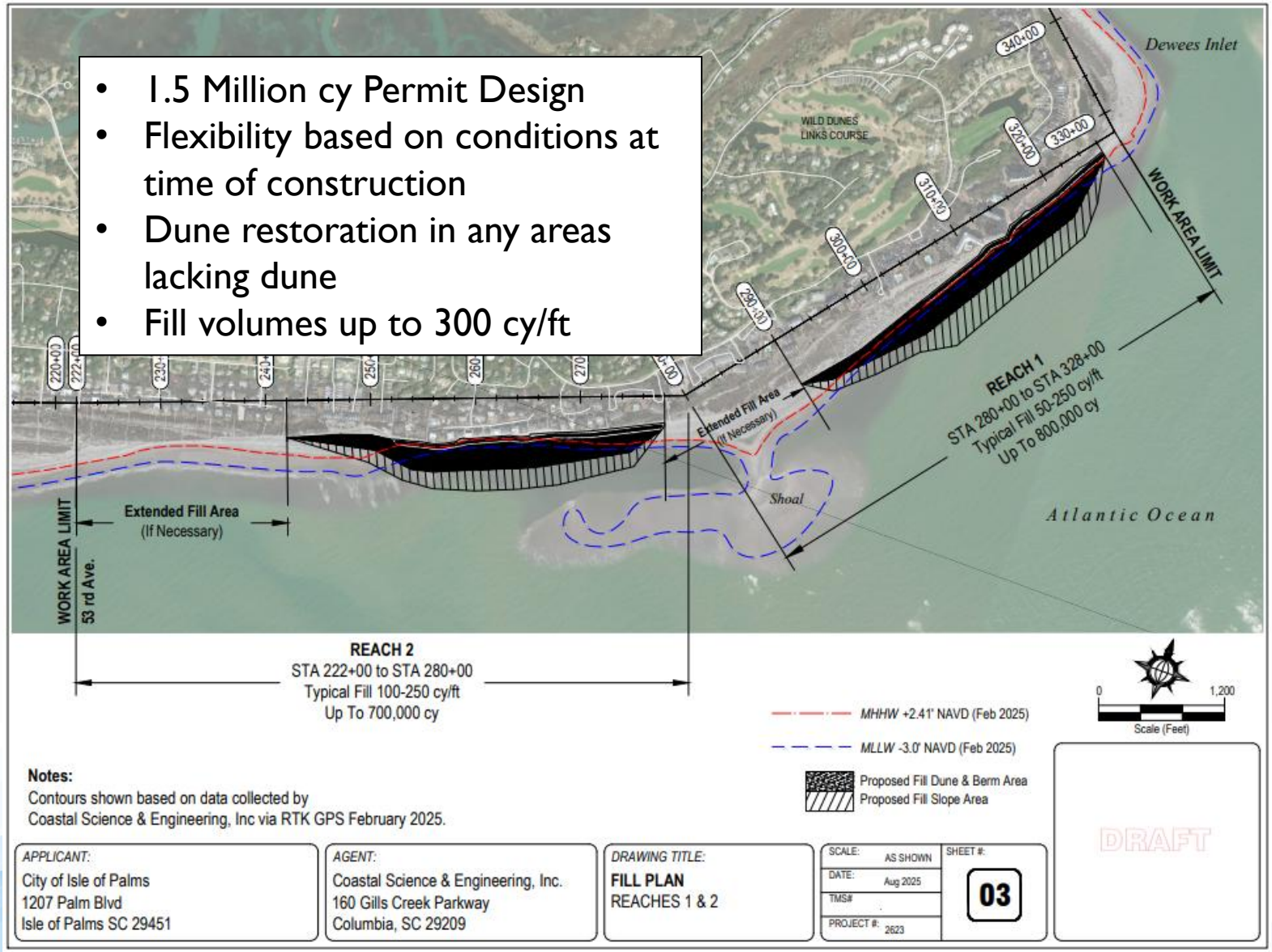
- Two deficit areas total 191,000cy
- Background losses assume 150,000 cy/yr
- 8-yr project design requires ~1.2 million + 191,000 cy
- Total Project volume ~1.4 million cy

Permit Plan


Dewees Island
Dewees Inlet
ICWW
Atlantic Ocean
Isle Of Palms
Breach Inlet
Sullivans Island
0+00
40+00
80+00
120+00
160+00
200+00
240+00
280+00
320+00
360+00
REACH 3 8,600 lf
(See Sheet 06)
Maximum Fill
800,000 cy (Avg 93.0 cy/ft)
REACH 1 & 2 10,600 lf
(See Sheets 03-05)
Maximum Fill
1,500,000 cy (Avg 141.5 cy/ft)
1
2
3
4
Proposed Offshore Borrow Search Areas See Sheets 08-10 For Details
0
4,000
Scale (Feet)
APPLICANT:
City of Isle of Palms
1207 Palm Blvd
Isle of Palms SC 29451
AGENT:
Coastal Science & Engineering, Inc.
160 Gills Creek Parkway
Columbia, SC 29209
DRAWING TITLE:
Overall Project Area Map
SCALE: AS SHOWN
DATE: August 2025
TMS#
PROJECT #: 2623
SHEET #: 02
DRAFT

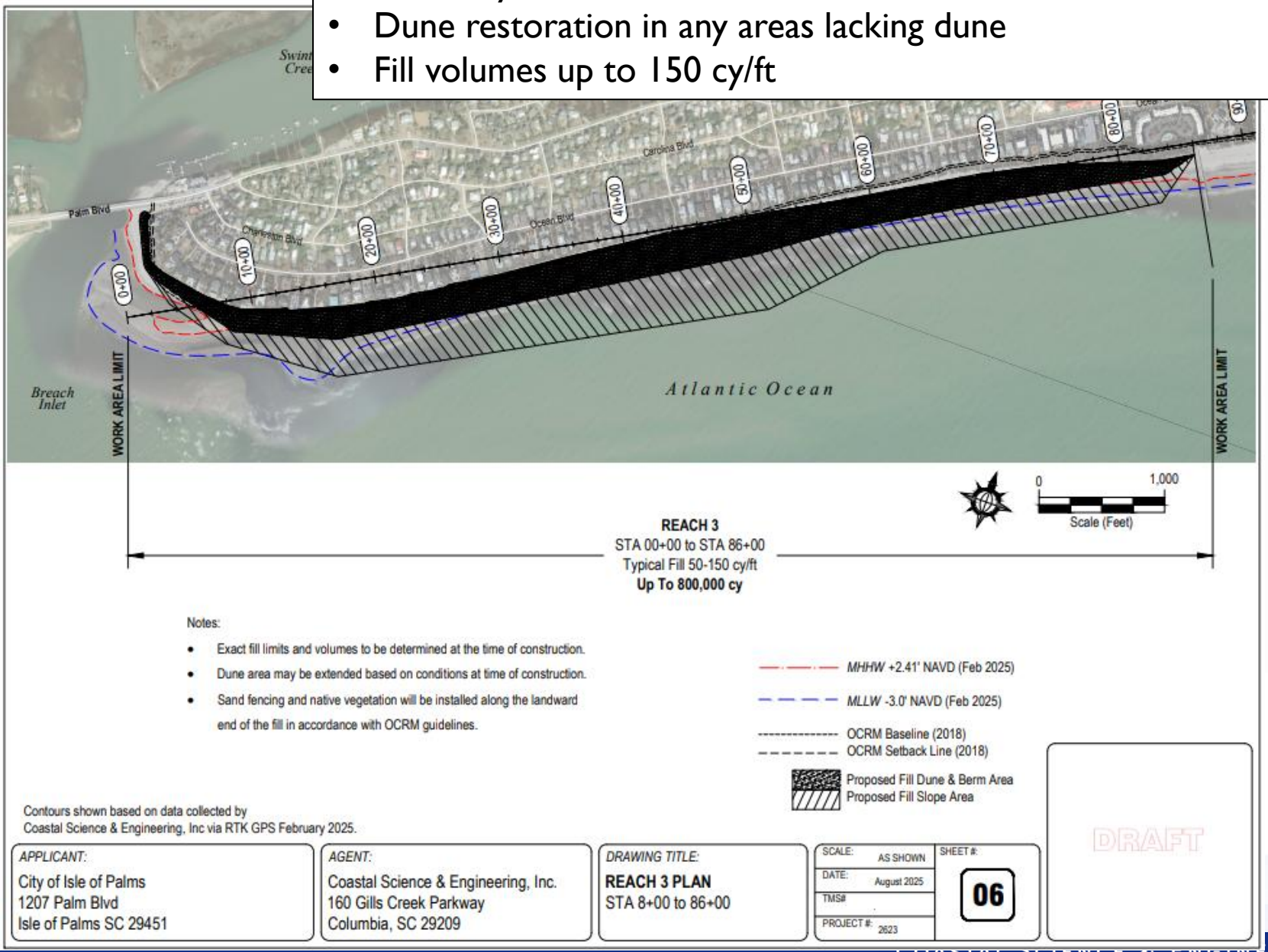
Fill Areas 1 and 2

- 1.5 Million cy Permit Design
- Flexibility based on conditions at time of construction
- Dune restoration in any areas lacking dune
- Fill volumes up to 300 cy/ft



Fill Area 3

- 800,000 cy Permit Design
- Flexibility based on conditions at time of construction
- Dune restoration in any areas lacking dune
- Fill volumes up to 150 cy/ft



Assumptions

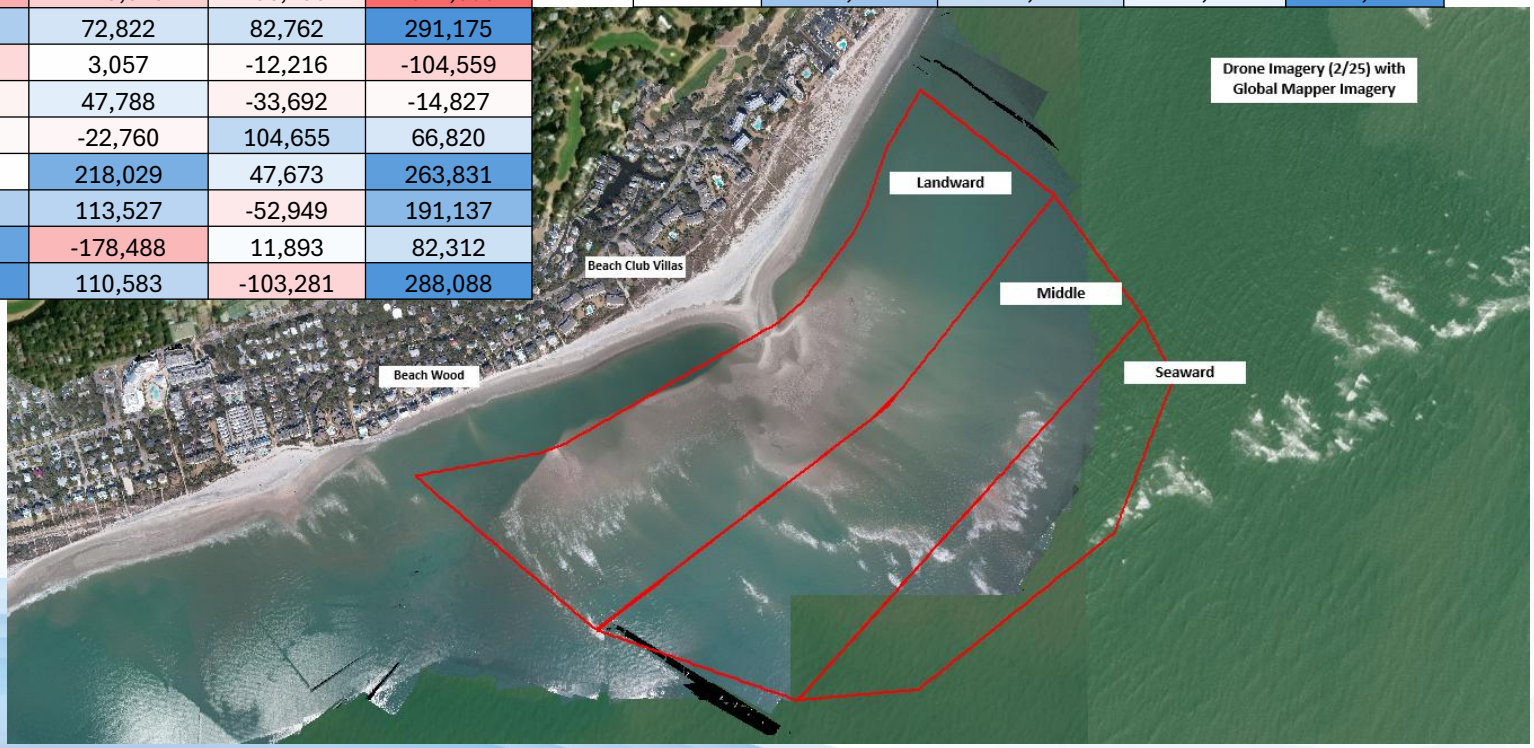
- South end plan does not include any benefits of placement by the USACE
- By project construction, the USACE will have added ~800,000 cy of sand to the system
- Benefits of that sand still TBD

- Volumes based on Feb 2025 condition
- Incoming shoal contains 600,00-800,000 cy
- Shoal is attached and will fully merge over next two years
- Majority of sand is expected to accumulate south of WD Property Owners Beach House though accretion north is expected
- Area around Seascape/Ocean Club/Golf course gained ~200,000 naturally during 2016-2018 shoal spreading

Shoal Bypass Volumes

Yearly Differences in Shoal Volume (Annualized)				
	Land	Middle	Sea	Total
08-09	61,647	-67,108	5,955	493
09-10	-82,798	-18,053	86,481	-14,371
10-11	-190,380	98,459	116,309	24,388
11-12	10,655	290,304	-22,416	278,544
13-14	202,335	430	-59,588	143,177
13-14	155,020	-53,297	-62,002	39,721
14-15	57,248	-178,470	-4,996	-126,217
15-16	-287,635	-82,540	50,713	-319,462
16-17	-201,660	-119,529	-56,199	-377,388
17-18	135,591	72,822	82,762	291,175
18-19	-95,400	3,057	-12,216	-104,559
19-20	-28,923	47,788	-33,692	-14,827
20-21	-15,075	-22,760	104,655	66,820
21-22	-1,870	218,029	47,673	263,831
22-23	130,559	113,527	-52,949	191,137
23-24	248,908	-178,488	11,893	82,312
24-25	280,786	110,583	-103,281	288,088

Shoal Volume Compared to 2017 (Lowest Shoal Area Volume)				
	Land	Middle	Sea	Total
17-18	123,332	66,238	75,280	264,850
17-19	9,898	69,873	60,755	140,526
17-20	-18,946	117,530	27,155	125,739
17-21	-35,053	93,211	138,978	197,136
17-22	-37,139	336,328	192,136	491,325
17-23	85,551	443,012	142,378	670,942
17-24	366,510	241,541	155,802	763,853
17-25	489,595	290,016	110,528	890,138



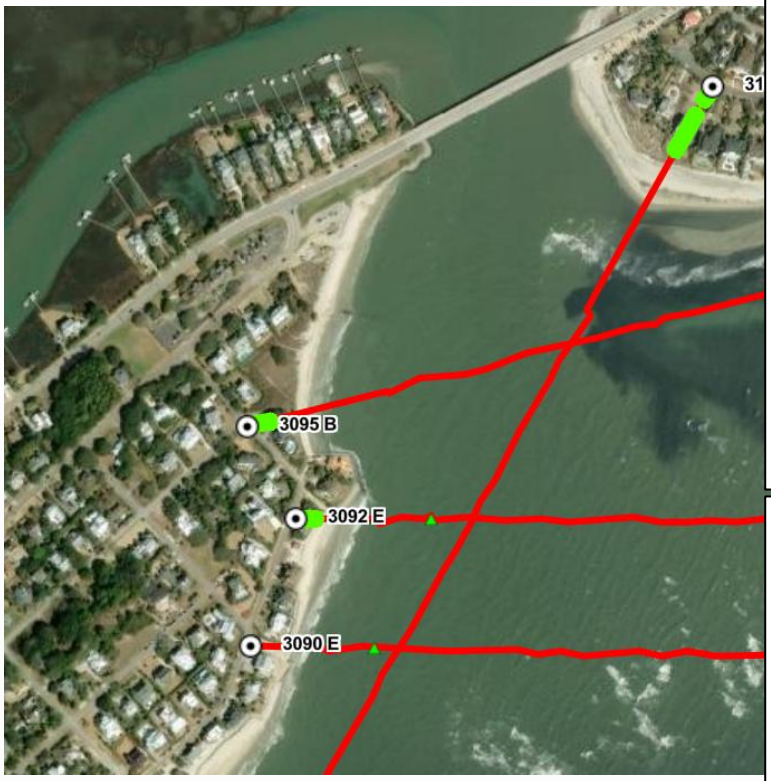
Erin

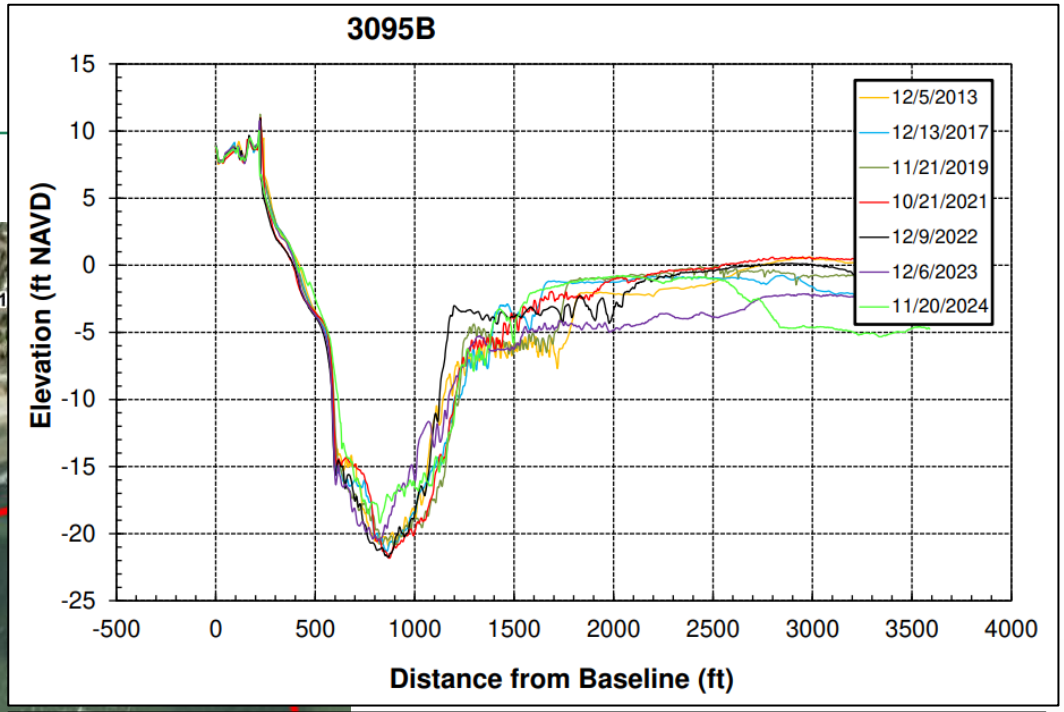
- Large swell from Erin impacted the SC coast
- Water levels remain ~1ft above predicted tides, with nearly an 8ft tide on Sunday
- Overall, beach held up well but hotspot areas were impacted

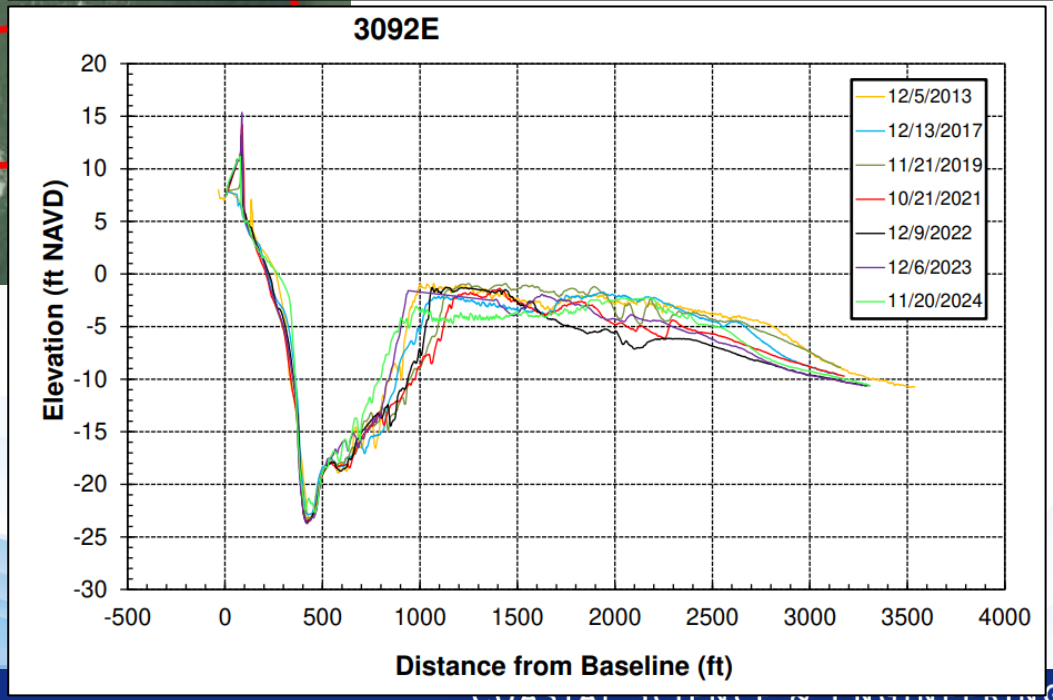
Breach Inlet

Impacts of Flood Channel

Breach Inlet







South End Emergency Measures/Options

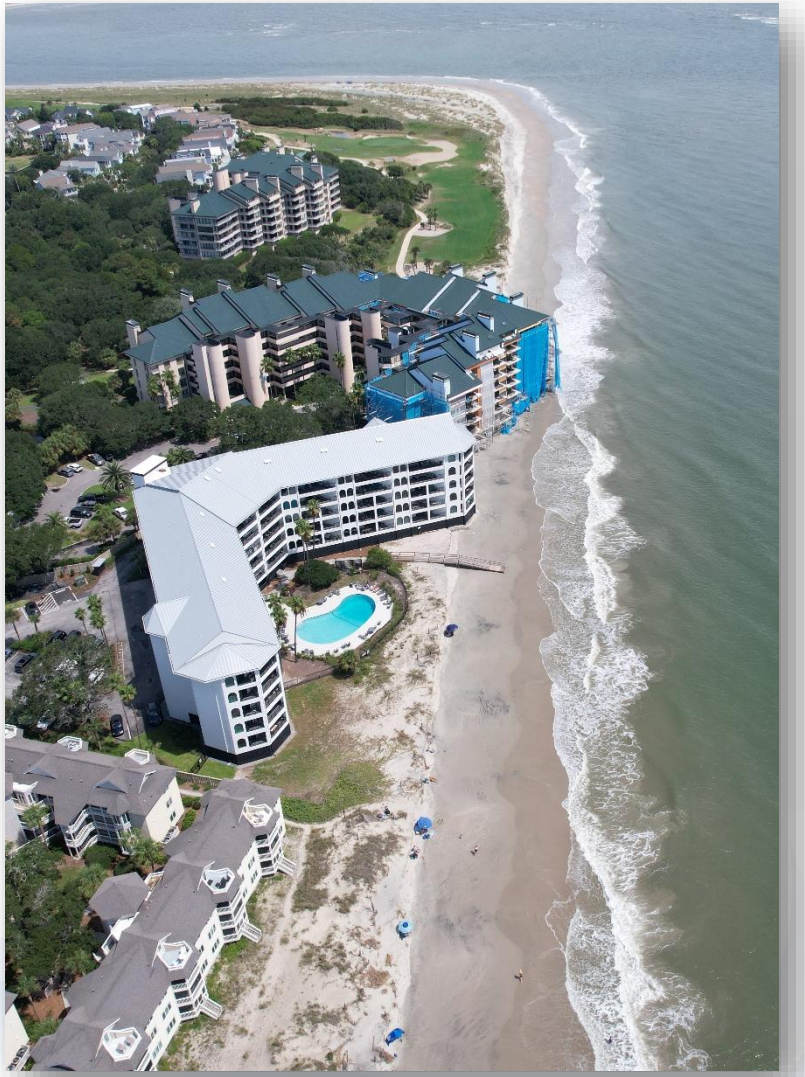
- Presently around 8 properties (700 ft) impacted south of 2nd Ave
- Erosion linked to channel encroachment from marginal flood channel

Alternatives

- Beach scraping along areas where high tide is within 20' of structures (~$10-15k)
- Supplemental dune work under exiting permit for redistribution of USACE material (~15,000 cy @ $130,000)
- Sandbags (Initially 4 rows over 700 ft; ~500 bags or $225,000)
- Recommendation – Sandbags offer more certainty for protection, but may require additional maintenance. Dune work will look more natural, but no guarantees with current position of flood channel. Should channel shift further offshore, sand would be preference. Both options could be considered (bury bags temporarily)

North End Alternatives

- Beach scraping not preferred due to narrow intertidal beach width
- Maintain/Improve sandbag revetment
  - Seascape and Ocean Club impacted
  - ~500 ft or up to 500-750 total sandbags ($250-350k)
- Continue shoal management effort
  - -Approximately 40,000 cy were placed in prior shoal project
  - Was fairly stable until past two weeks
  - An additional 40,000 cy would cost ~$350k
- Recommendation dependent on construction risk around scaffolding and structure of Seascape foundation



Shoal Project Placement Area

North End Alternatives - Beachwood

- Maintain/Improve sandbag revetment
  - 3-4 properties mostly affected
  - Significant sandbag revetment remains buried
  - A portion of shoal project sand remains
  - 250 sandbags required (~$125k)
  - Possible future maintenance
- Continue shoal management effort
  - -Supplement the 80,000 cy completed in spring with additional sand in highly affected areas
  - Additional 40,000 cy would cost ~$350k
- Recommendation – Restore sandbag revetment in areas that need maintenance
- Area will recover quickly once western arm of shoal attaches

- End of slides

Breach Inlet

2021 – Large Channel
Breach Occurs