

PROJECT 11 – REDFISH TO BAYPORT



Western Dredging Association
2023 Dredging Summit & Expo
Wednesday, July 19, 2023

Visit: www.expandthehoustonsipchannel.com



PORT HOUSTON

WHO WE ARE

We manage eight public terminals — including two container facilities we operate and six others for which we're the landlord

As the advocate and a strategic leader of the Houston Ship Channel, we support the more than 200 facilities and the neighboring communities along it by working with the federal government

We facilitate vital commerce through the port that helps keep the local and state economy moving



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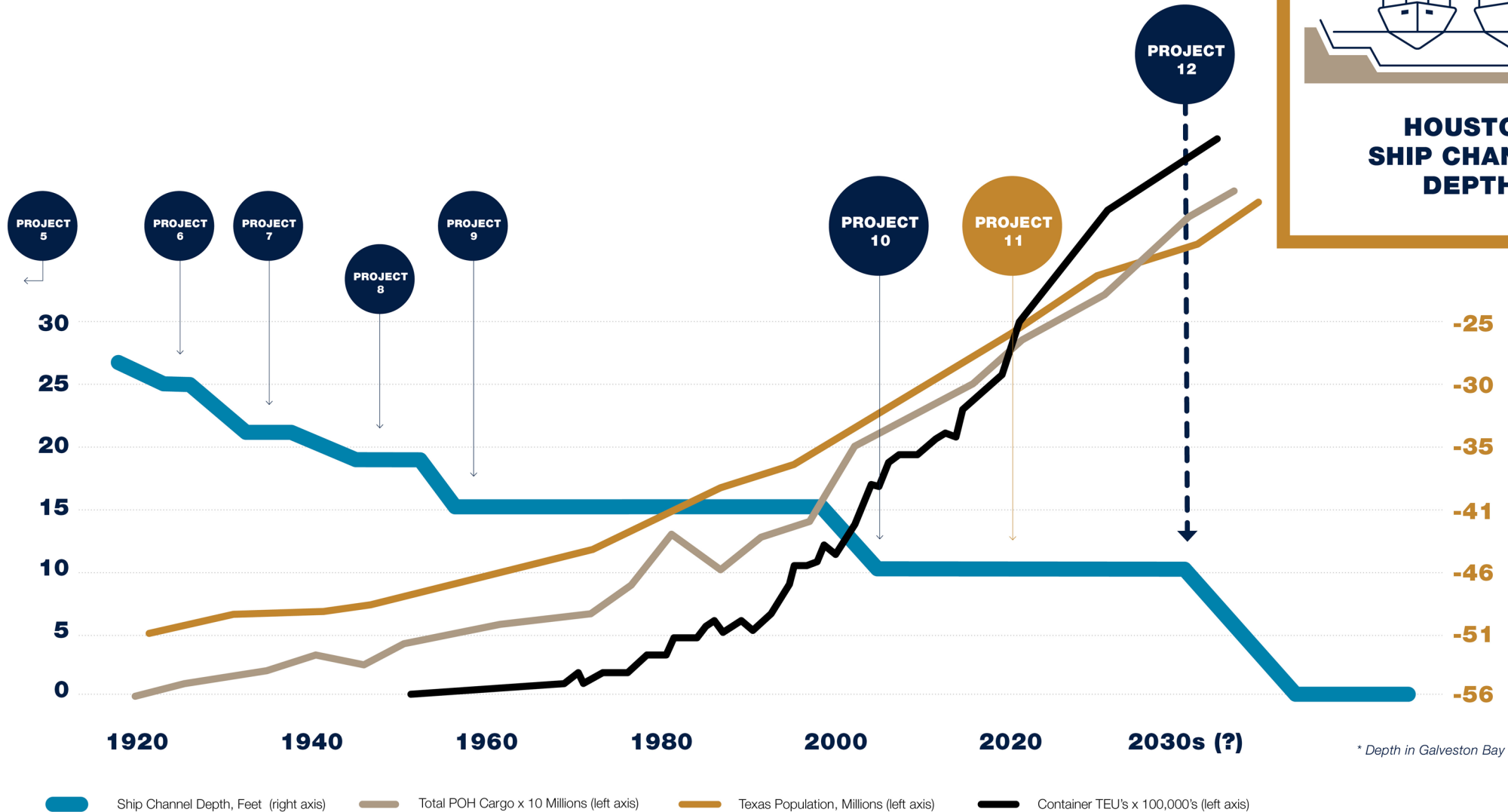
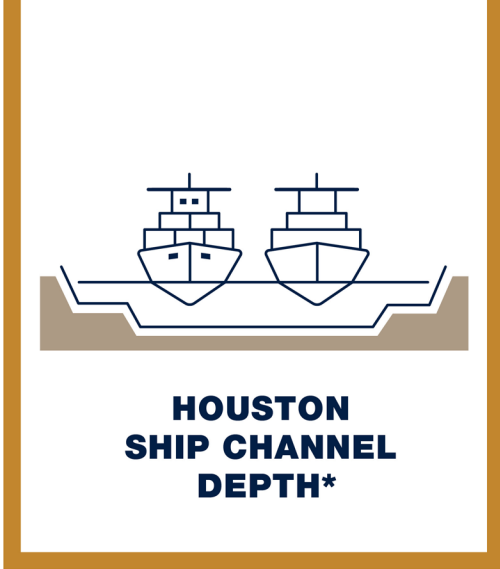
What makes the Houston Ship Channel unique from a navigation safety perspective?

- Traffic density (busiest US port by ship transit)
- Narrowest channel relative to vessel beam in US (max beam size = 165', 530' wide channel)
- Shoaling
- Length (52 miles from sea to upper turning basin)



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PORT HOUSTON'S 11TH MAJOR HSC DEEPENING PROJECT



* Depth in Galveston Bay

■ Ship Channel Depth, Feet (right axis)
 ■ Total POH Cargo x 10 Millions (left axis)
 ■ Texas Population, Millions (left axis)
 ■ Container TEU's x 100,000's (left axis)

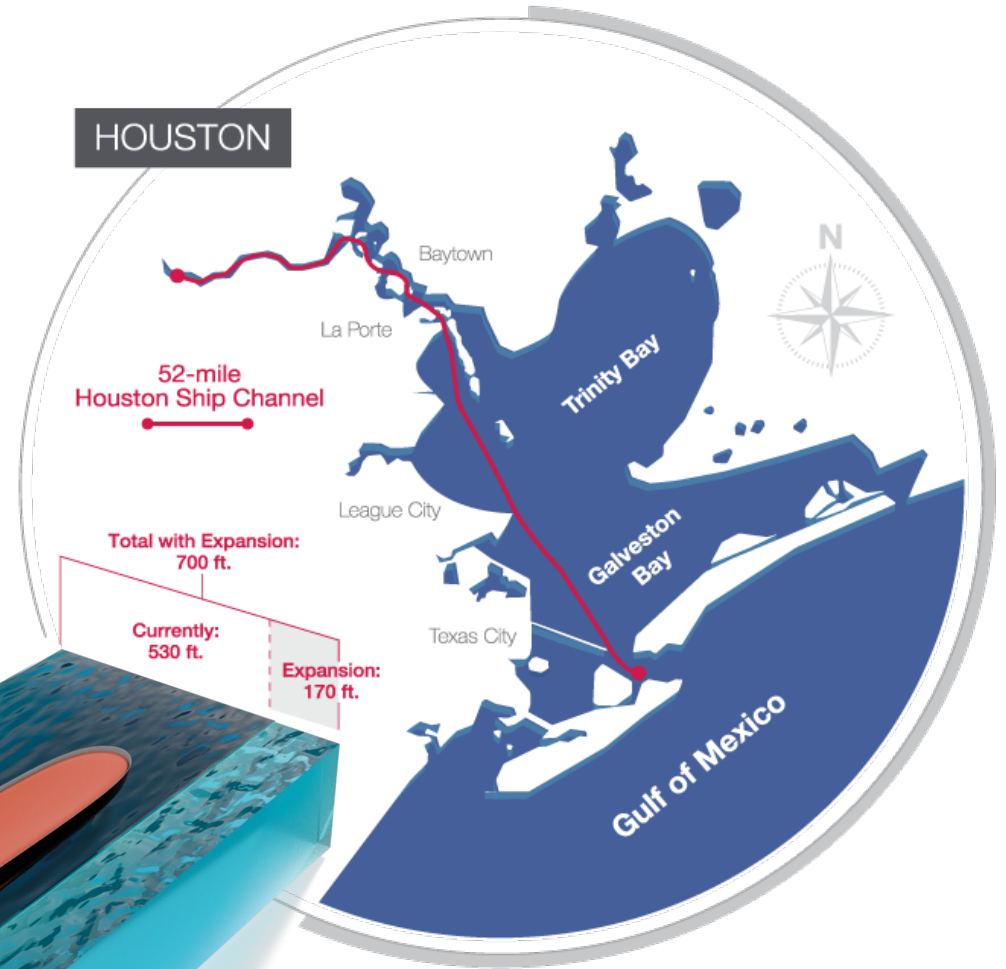


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GALVESTON BAY CHANNEL TEMPLATE



Currently, an approximately 100 ft. bypass makes for nearly impossible and dangerous maneuvers.



increase in avg. LPG vessel length from 2007 to 2018²



increase in avg. container ship length from 2006 to 2018²

Sources:

1. Greater Houston Port Bureau
2. TxDOT Maritime



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PROJECT OVERVIEW

1A

Bolivar Roads to Redfish

- Approximately 11.5 miles in length
- Widen Channel to 700 feet
- Bend easing
- Construct New Bird Island
- Mitigate for oyster habitat loss

1B

Redfish to Bayport Ship Channel

- Approximately 8.3 miles in length
- Widen Channel to a minimum of 700 feet
- Bend easing
- Construct marshes and three bird islands in Galveston Bay
- Mitigate for oyster habitat loss
- Currently not in the proposed federal plan, so must be built by local interests

1C

Bayport Ship Channel to Barbours Cut

- Approximately 5 miles in length
- Widen Channel to 700 feet
- Construct additional marshes
- Mitigate for oyster habitat loss
- Currently not in the proposed federal plan, so must be built by local interests

2

Bayport Ship Channel

- Approximately 4 miles in length
- Widen Channel to approximately 455 feet
- Construct marshes and three bird islands in Galveston Bay
- Mitigate for oyster habitat loss
- Modify channel entrance to reduce shoaling

3

Barbours Cut Ship Channel

- Widen Channel to approximately 455 feet
- Construct additional marshes on Atkinson Island
- Modify channel entrance

4

Boggy Bayou (BW 8) to Sims Bayou

- Widen Channel to approximately 530 feet through Greens Bayou confluence
- Deepen from existing 41 feet to 46.5 feet from Boggy Bayou to Hunting Bayou (last Turning Basin before reaching Washburn Tunnel)

5

Sims Bayou to IH 610

- Deepen from existing 37 feet to 41.5 feet

6

IH 610 to Turning Basin

- Deepen from existing up to 41.5 feet
- Increase Brady Island Turning Basin

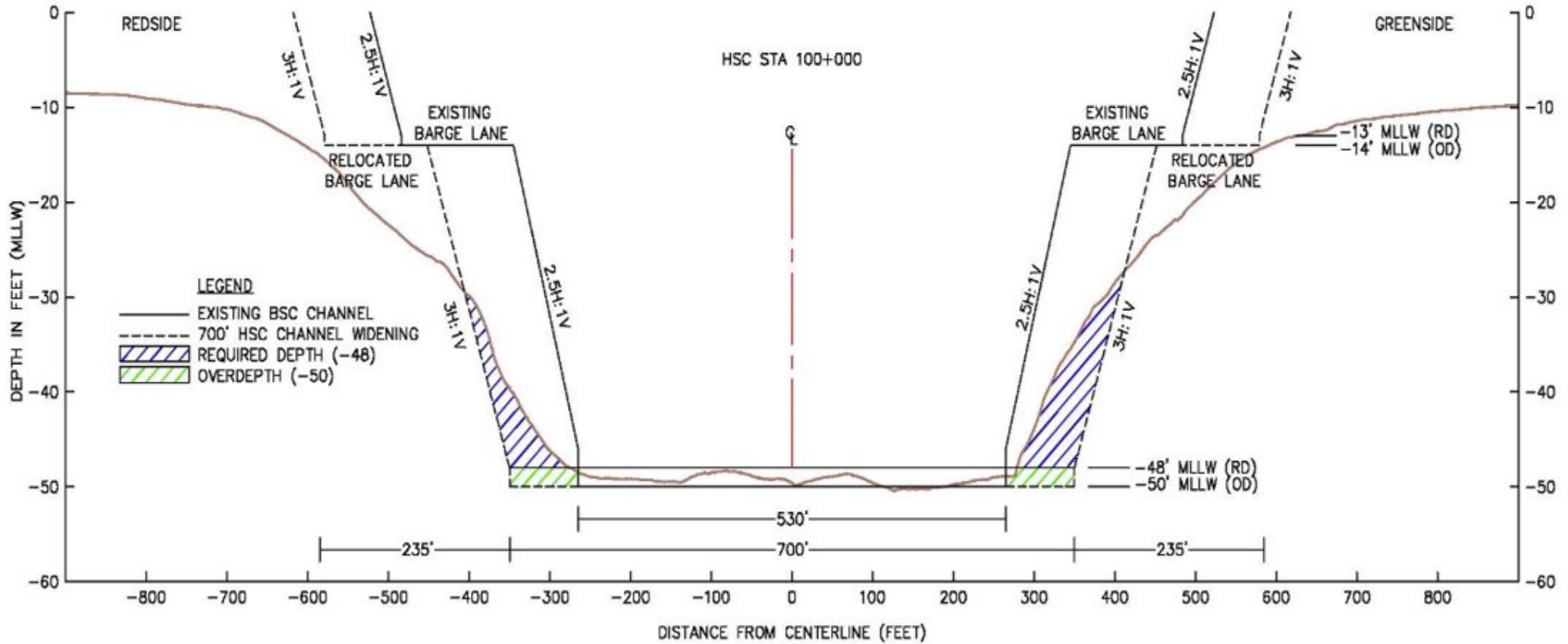


 No work planned in these areas



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SEGMENT TEMPLATE



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BENEFICIAL USE



Bird Islands



Oyster Reefs



Marsh



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DREDGED MATERIAL IS A RESOURCE.

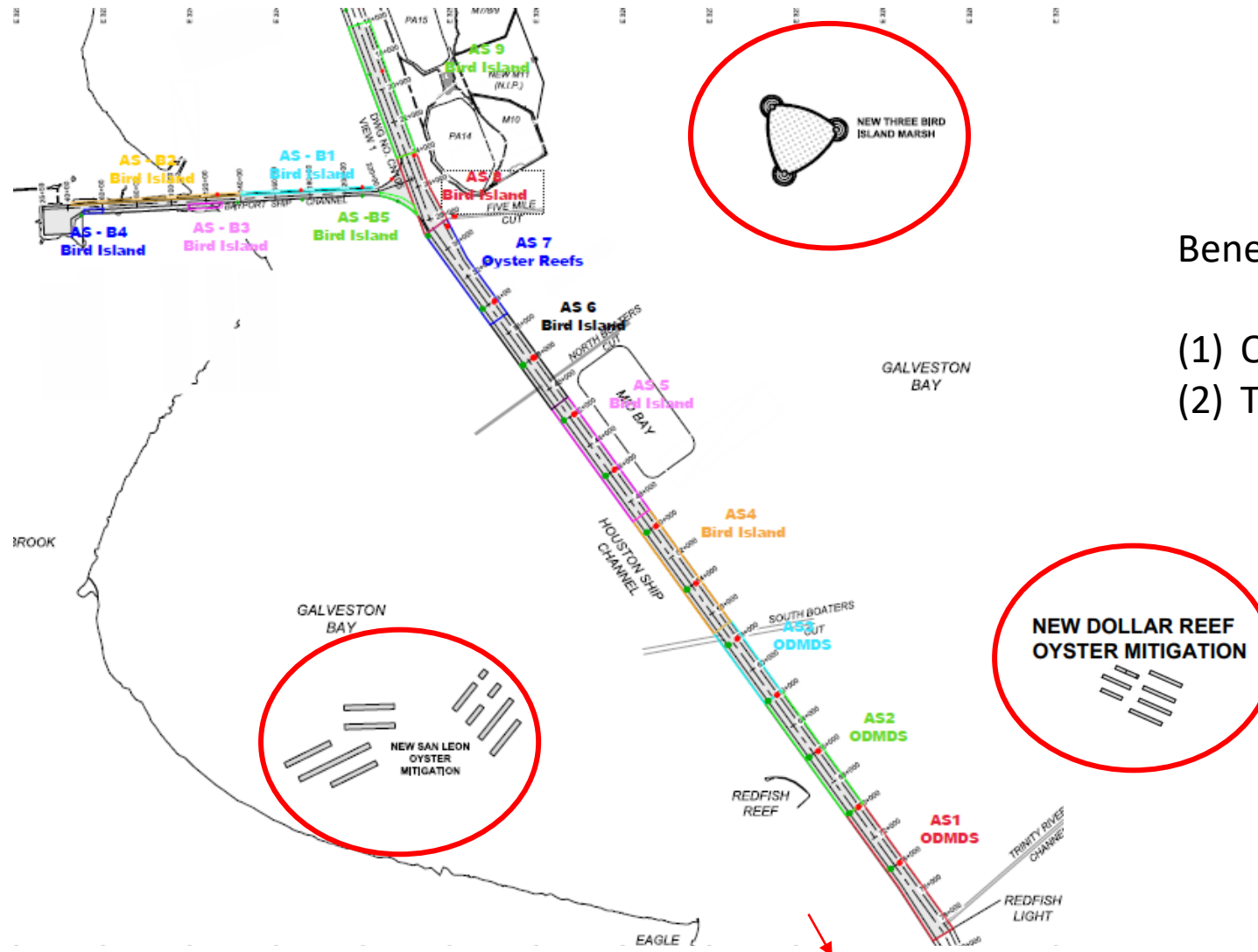
Port Houston along with the state and federal resource agencies that make up the Beneficial Uses Group (BUG) have committed to utilize dredged materials in a beneficial manner where feasible.



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SEGMENT 1B, 2, & 1C



Beneficial Use Created:

- (1) Oyster Mitigation
- (2) Three Bird Island Marsh



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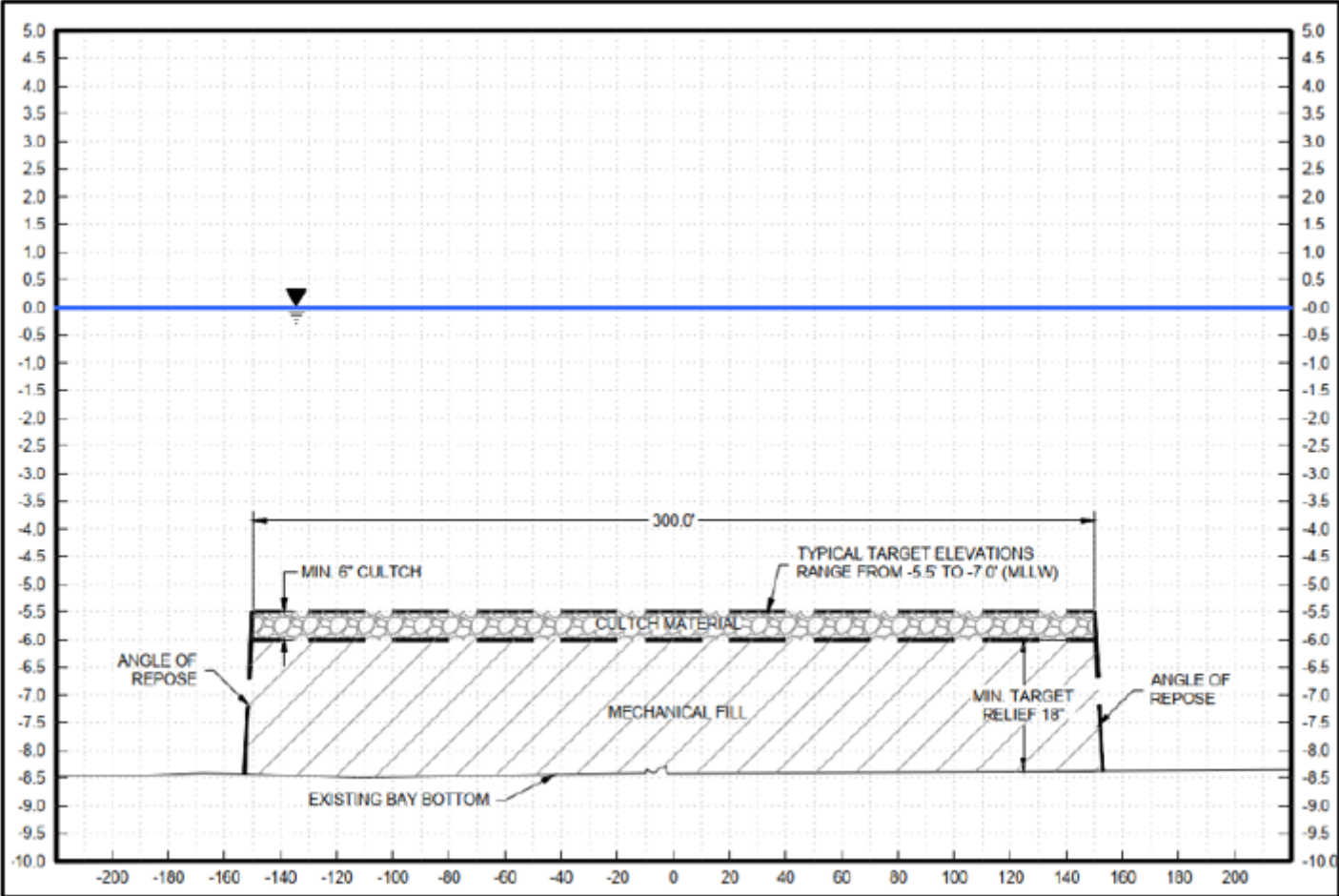
TYPICAL OYSTER MITIGATION PROCESS



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SEGMENT 1B - OYSTER MITIGATION



Construction Template



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Advertisement

NOV 2021

Construction

DEC 2022 – SEP 2024

Contractors

Curtin Maritime / Weeks Marine



D.B. Avalon



C.R. McCaskill

1.5 MCY transported to create Oyster Reefs
7.9 MCY pumped to create Three Bird Island Marsh



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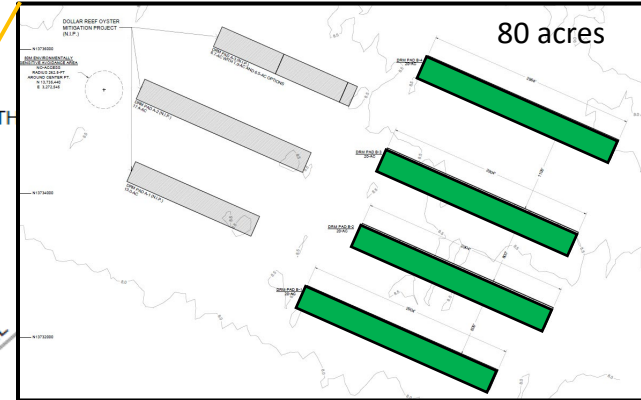
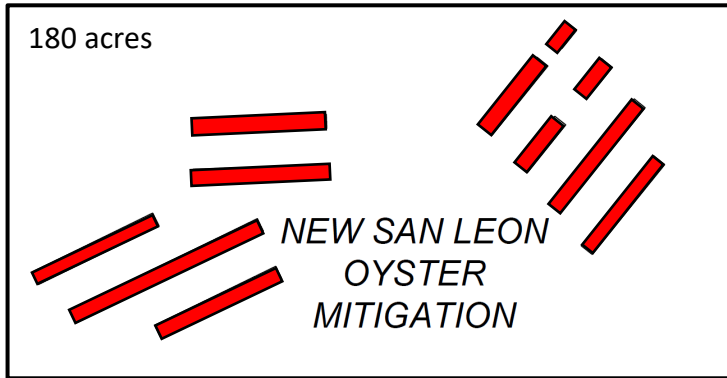
SEGMENT 1B – OYSTER MITIGATION



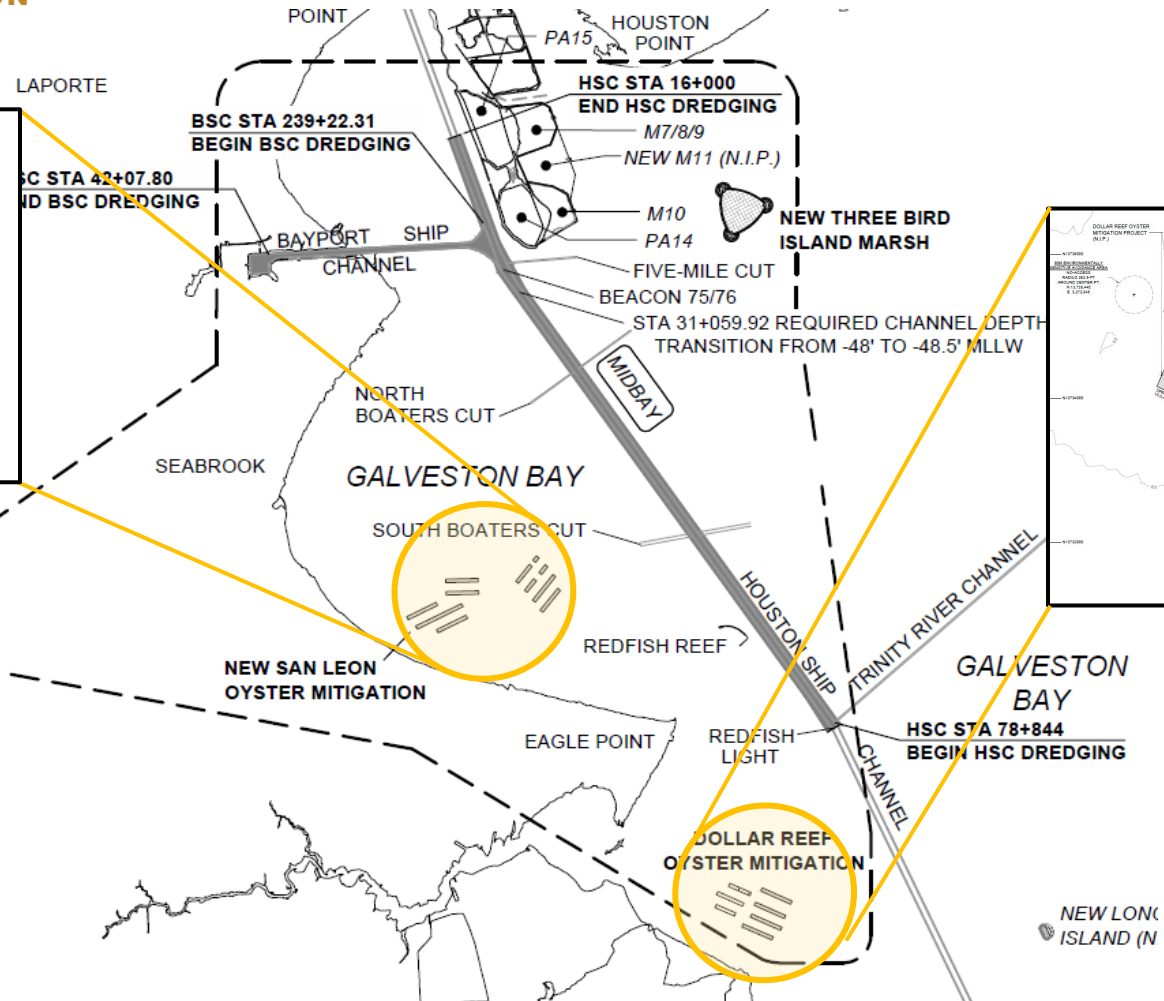
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SEGMENT 1B - OYSTER MITIGATION



PROJECT LOCATION:
 HOUSTON SHIP CHANNEL
 EXPANSION CHANNEL IMPROVEMENT PROJECT
 PROJECT 11 - REDFISH TO BAYPORT HSC STA 78+844 TO HSC STA 16+000 AND BAYPORT SHIP CHANNEL - BSC 239+22.31 TO BSC STA 42+07.80 (SEE SHT CN101 FOR PROJECT LIMITS AND KEY MAPS)



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SEGMENT 1B – OYSTER MITIGATION

Load Scow



Transport Scow



Marked Pads

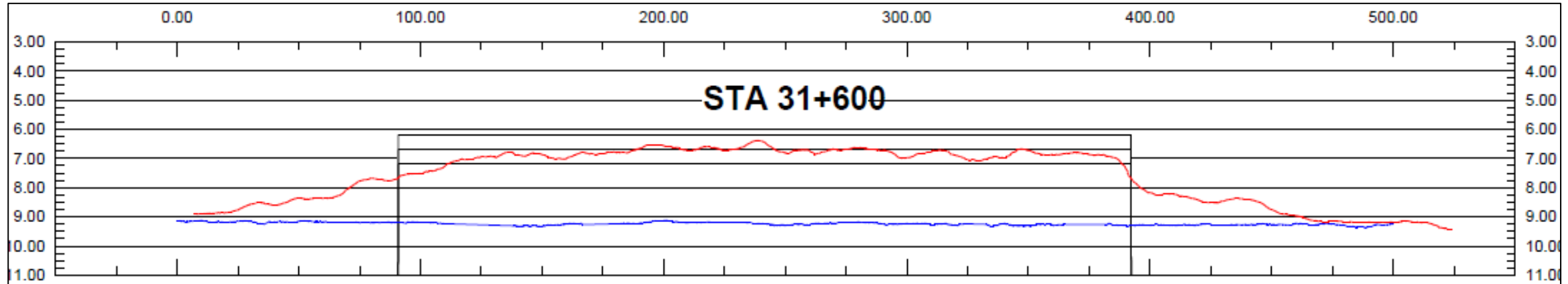


Bottom Dump



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SEGMENT 1B - OYSTER MITIGATION

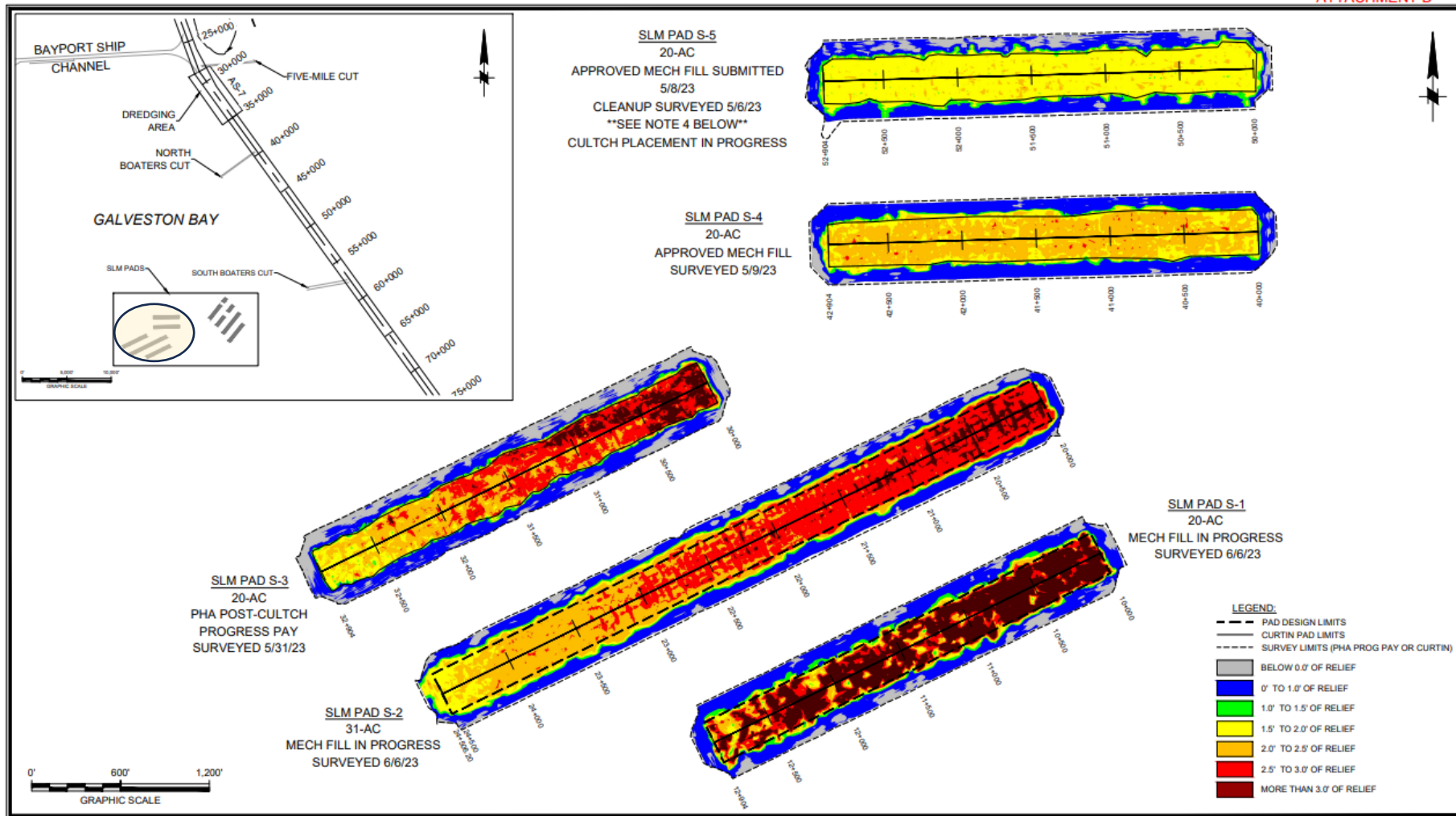


Drag Barge



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SEGMENT 1B - OYSTER MITIGATION



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SEGMENT 1B - OYSTER MITIGATION



Limestone



River Rock



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SEGMENT 1B – OYSTER MITIGATION

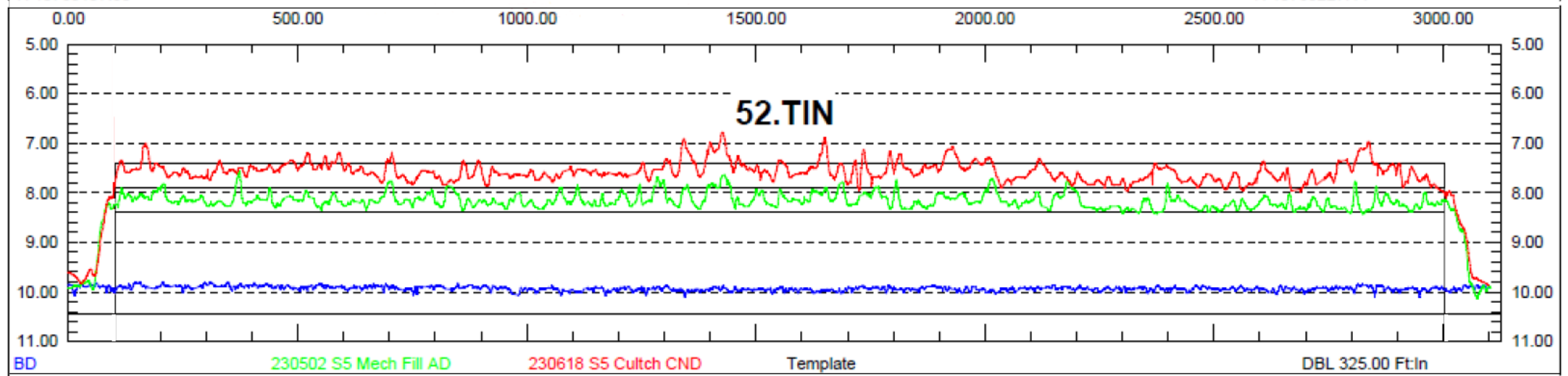


Cultch Placement Process



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SEGMENT 1B - OYSTER MITIGATION



Cultch thickness checks

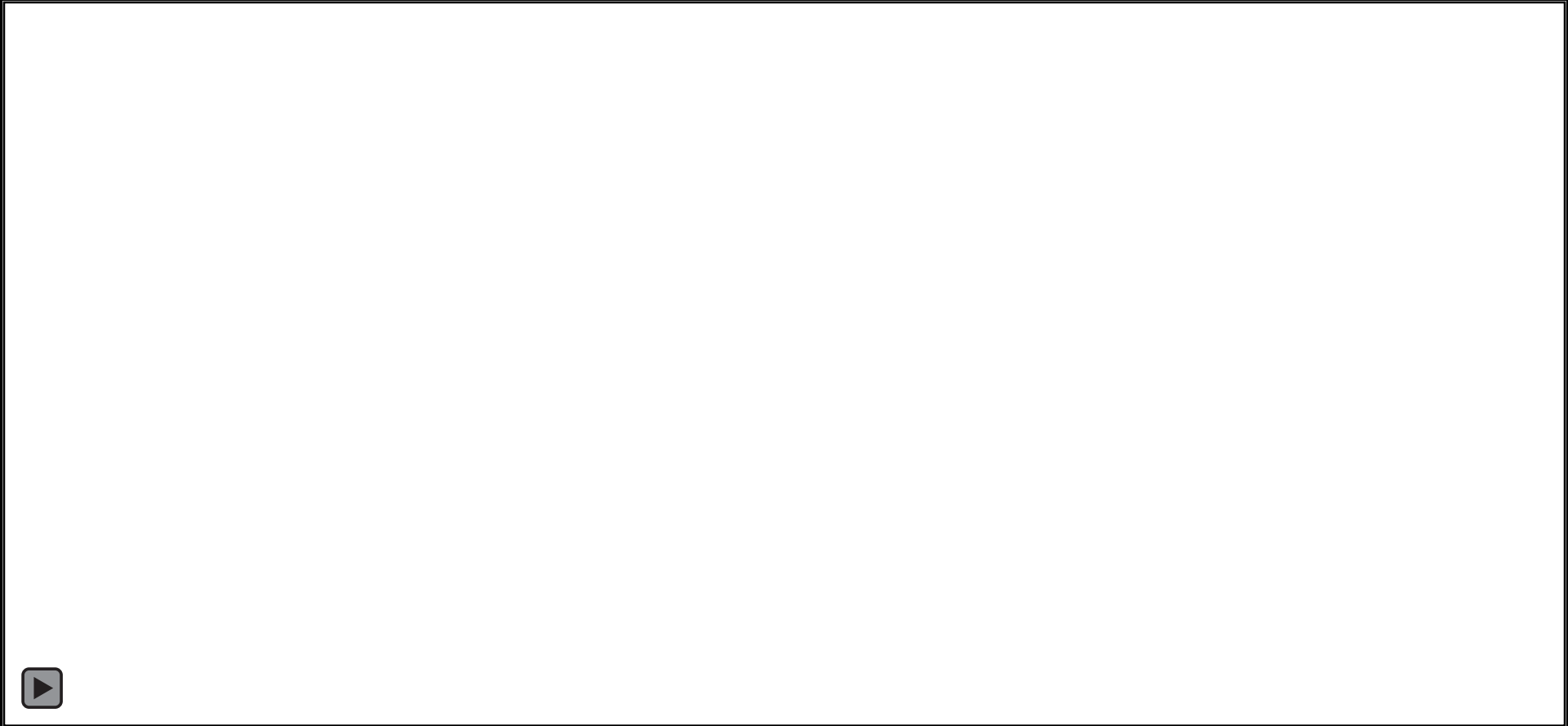
- Manually with rod
- Hydraulic surveys



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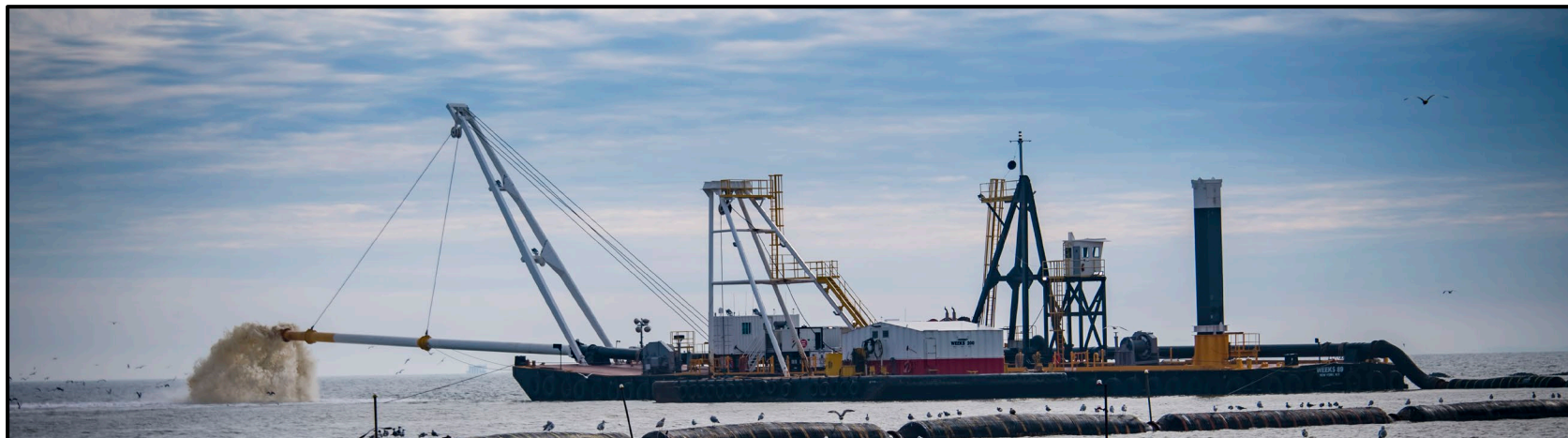
SEGMENT 1B, 2 & 1C – BIRD ISLAND, OYSTER MITIGATION AND MARSH



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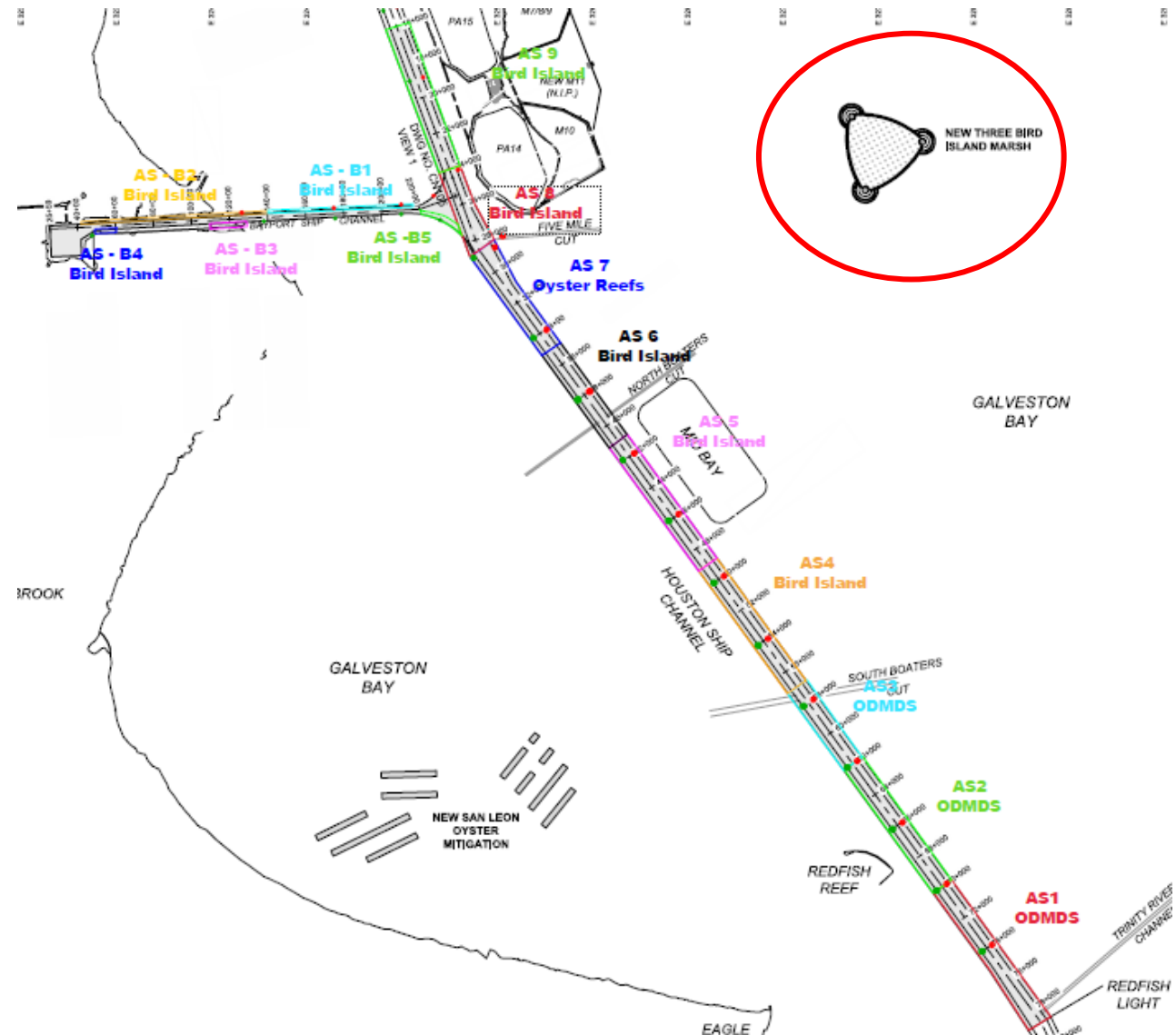
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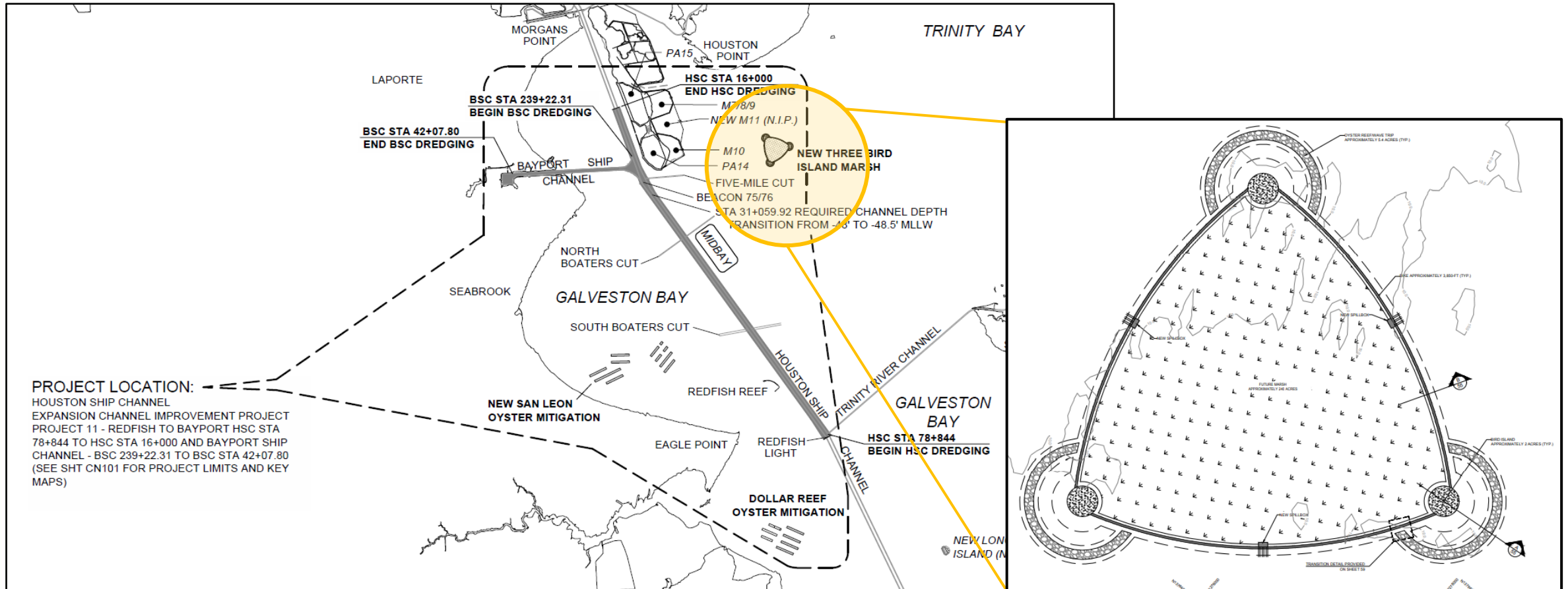
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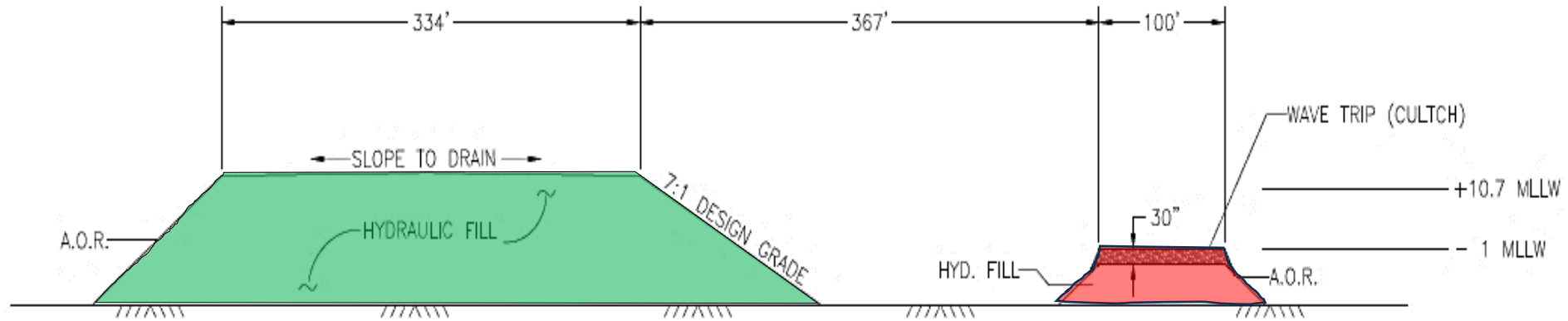
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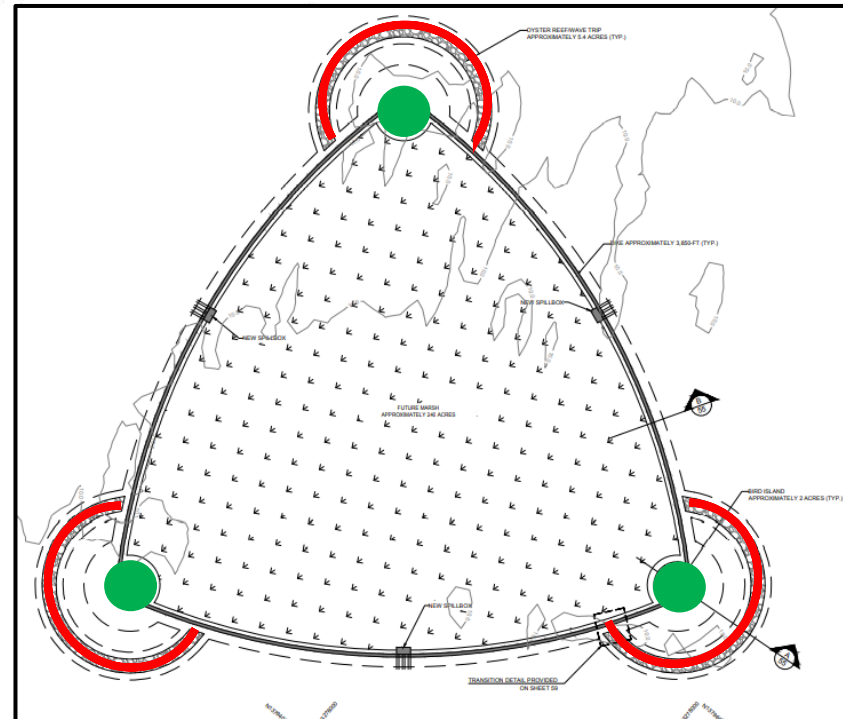


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SEGMENT 1B, 2 & 1C – BIRD ISLAND, OYSTER MITIGATION AND MARSH



Three Bird Island Marsh Island and Wave Trip Typical Cross Section



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SEGMENT 1B, 2 & 1C – BIRD ISLAND, OYSTER MITIGATION AND MARSH

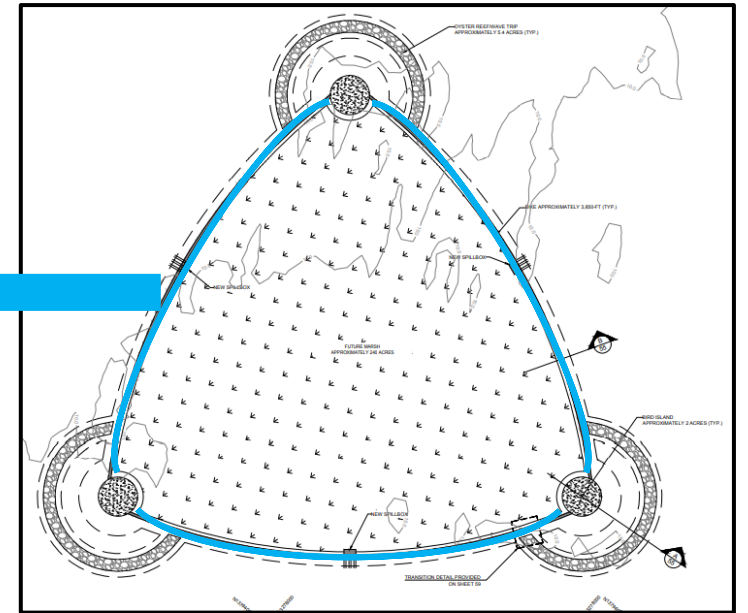
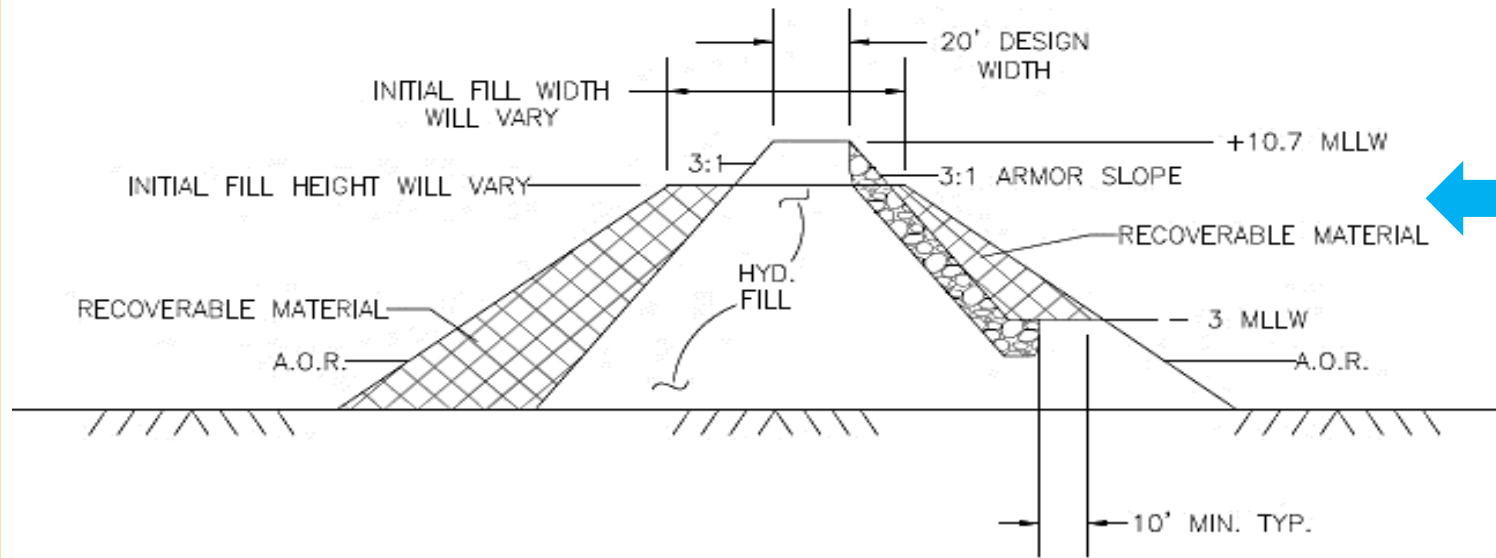


February



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SEGMENT 1B, 2 & 1C – BIRD ISLAND, OYSTER MITIGATION AND MARSH



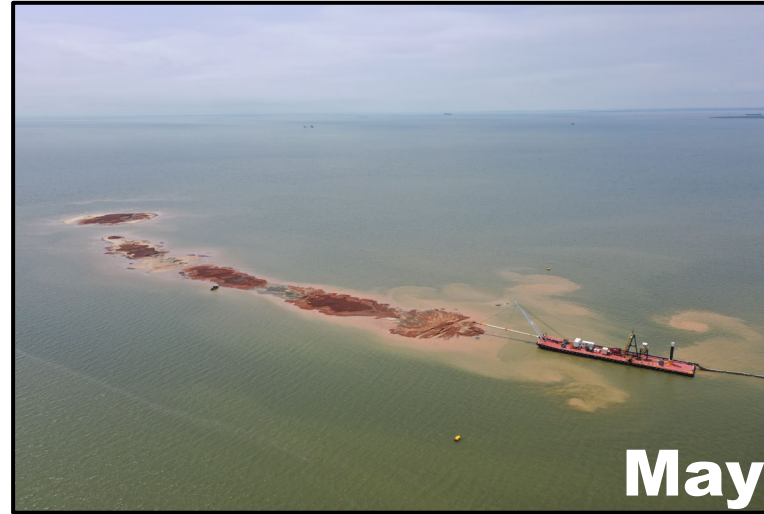
Three Bird Island Marsh Dike Typical Cross Section



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SEGMENT 1B, 2 & 1C – BIRD ISLAND, OYSTER MITIGATION AND MARSH



PROJECT 11 – REDFISH TO BAYPORT

PROJECT 11 BENEFICIAL USE BREAKDOWN



Segment	Description	Beneficial Use Feature	Number of Features: Area (Acre) Created	Approximate Dredge Material (CY) for Construction	Available Dredge Volume (CY)	% volume used for BU
1A	Bolivar to Redfish	Long Bird Island	<p>Bird Islands 1: 3.9-acre island (20 acres with all features including dike, circulation channel, and oyster reef wave trip)</p> <p>Oysters 1: 4.1 acres oyster reef wave trip</p>	1,664,000	3,646,000	46%
1B, 2, 1C	Redfish to Bayport	Three Bird Island	<p>Bird Islands 3: 2-acre island (6 acres)</p> <p>Marshes 1: 240-acre marsh (constructed via three 3,850ft curved armored dikes)</p> <p>Oysters 3: 5.4 acres oyster reef wave trip (16.2ac) 9: 20-acre pads (180 acres) 2: 13-acre pads (26 acres) 2: 17.4-acre pads (34.8 acres) 1: 6.7-acre pad, w/1-acre and 6.5ac extension 1: 6-acre pad 1: 9-acre pad 1: 3.4-acre pad</p>	9,313,000	13,450,000	69%

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Segment	Description	Beneficial Use Feature	Number of Features: Area (Acre) Created	Approximate Dredge Material (CY) for Construction	Available Dredge Volume (CY)	% volume used for BU
1C	Bayport to Morgans	M7/8/9 and M10 Rehab and construct new M11	Marsh 1: 368 acres of future maintenance capacity (constructed with an approx. 1.3-mile dike connecting M7/8/9 and M10)	3,142,000	3,142,000	100%
3	Barbours Cut	M12	Marsh 1: 276 acres of instant intertidal marsh (constructed with an approx. 2.7m dike on north end of Atkinson Island)	2,833,000	2,833,000	100%



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PROJECT 11 BENEFICIAL USE BREAKDOWN



Segment	Description	Beneficial Use Feature	Number of Features: Area (Acre) Created	Approximate Dredge Material (CY) for Construction	Available Dredge Volume (CY)	% volume used for BU
		<p>Total Project 11 Beneficial Use Features:</p>	<p>Bird Islands: 10 acres</p> <p>Marshes: 276 acres</p> <p>Oysters: 324 acres</p> <p>Future Operation & Maintenance Capacity: 644 acres, 12.4 MCY</p>	<p>16,952,000</p>	<p>23,071,000</p>	<p>73%</p>



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QUESTIONS?

Visit the Project 11 Webpage

<https://www.expandthehoustonshipchannel.com/>

Email the Project 11 Team

Project11@PortHouston.com

Contact Information Leiá Wilson

LWilson@PortHouston.com | 713.670.1540



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