

HOUSTON SHIP CHANNEL EXPANSION

Project 11

DREDGING INDUSTRY DAY NOTIFICATION AND UPDATE

May 26, 2021



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Agenda



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Rich Byrnes

Port Houston
Project 11 Importance



Lori Brownell

Port Houston
Project Overview



Dana Cheney

Joint Venture
Segments 1-2 Design



Neil McLellan

HDR Engineering
Segments 3-4 Design



Charlie Jenkins

Port Houston
Schedule & Questions

*Moderated by Tara Davis, Communications Specialist
Hollaway Environmental + Communications Services*

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Port Houston: Who We Are

We manage eight public terminals — including two container terminals

As the non-federal sponsor of the Houston Ship Channel, the nation's busiest waterway, we support the nearly 200 facilities along it

We help facilitate vital commerce through the port that keeps the local, state, and national economy moving



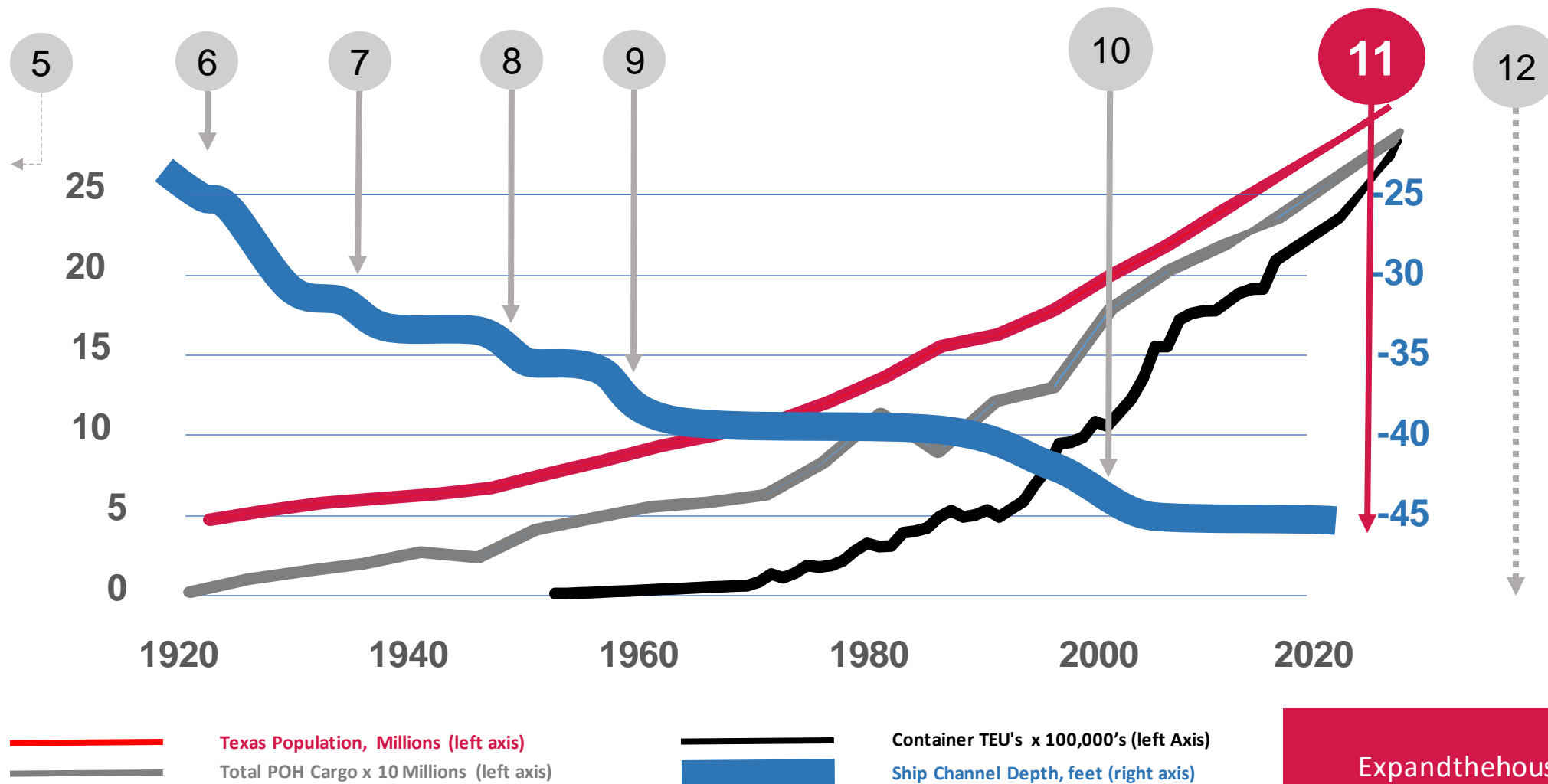
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Current Effort: Project 11



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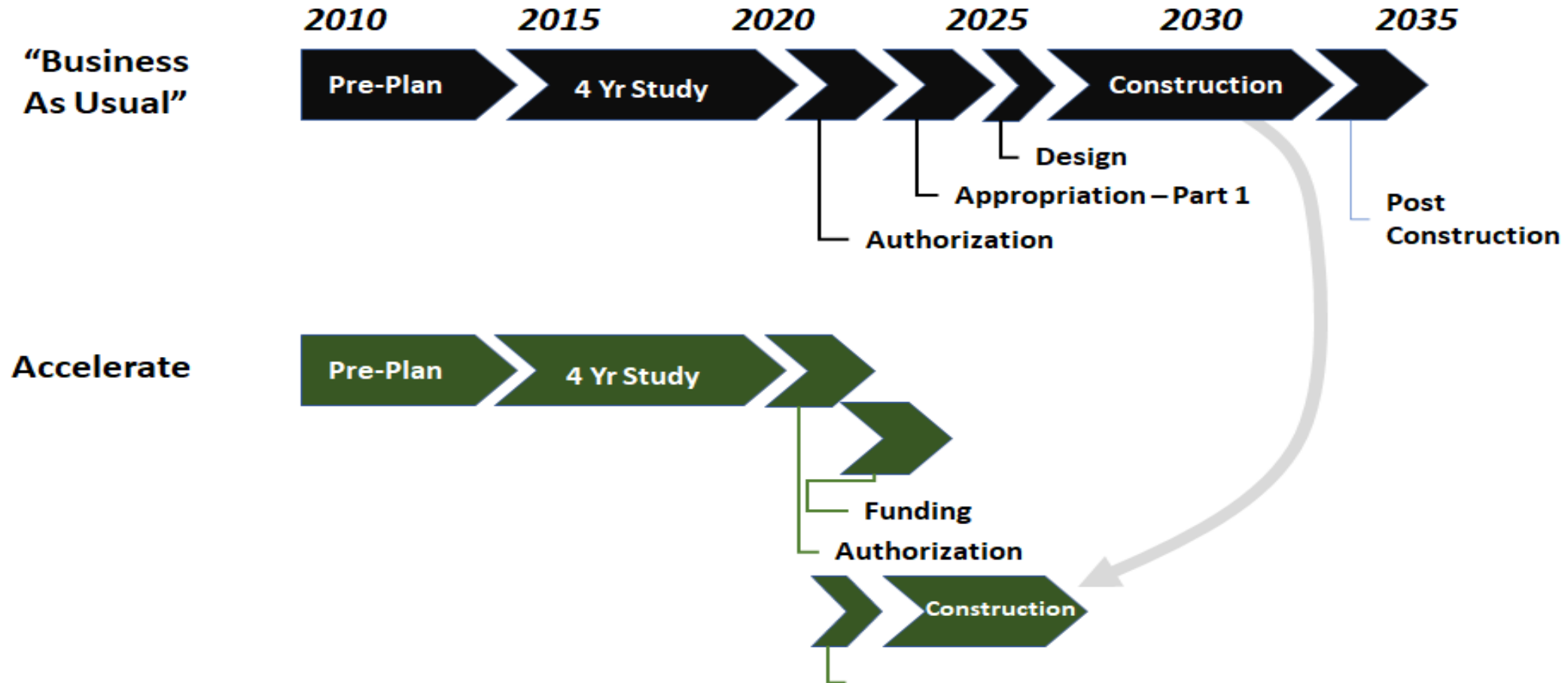


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Current Effort: Project 11 – Rethinking the traditional process



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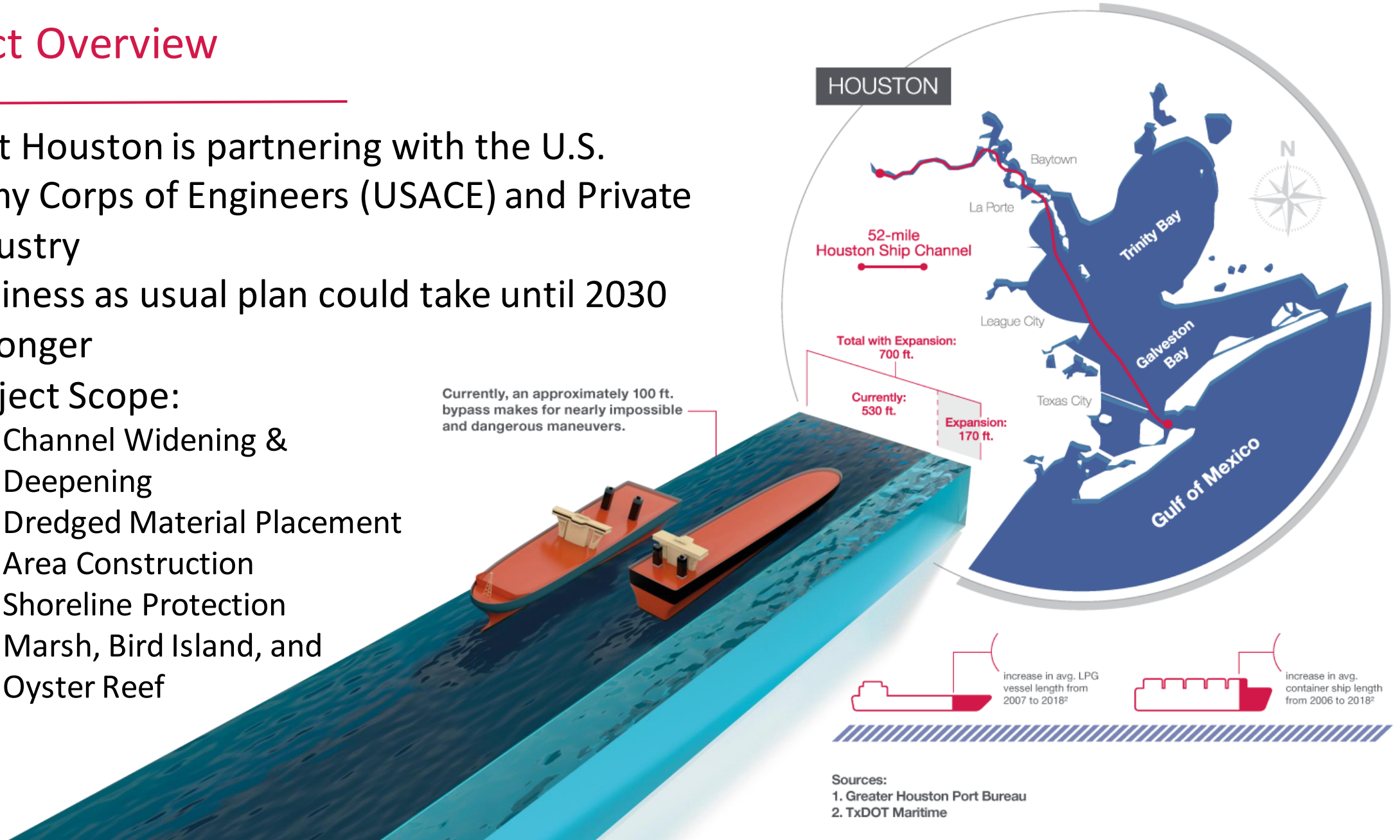
Success Requires Partnerships and Collaboration



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Project Overview

- Port Houston is partnering with the U.S. Army Corps of Engineers (USACE) and Private Industry
- Business as usual plan could take until 2030 or longer
- Project Scope:
 - Channel Widening & Deepening
 - Dredged Material Placement Area Construction
 - Shoreline Protection
 - Marsh, Bird Island, and Oyster Reef



Project Overview



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Bolivar Roads to Redfish

1A

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

Redfish to Bayport Ship Channel

1B

- 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*

Bayport Ship Channel to Barbours Cut

1C

- 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*

Bayport Ship Channel

2

- 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

Barbours Cut Ship Channel

3

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

Boggy Bayou (BW 8) to Sims Bayou

4

- 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)

Sims Bayou to IH 610

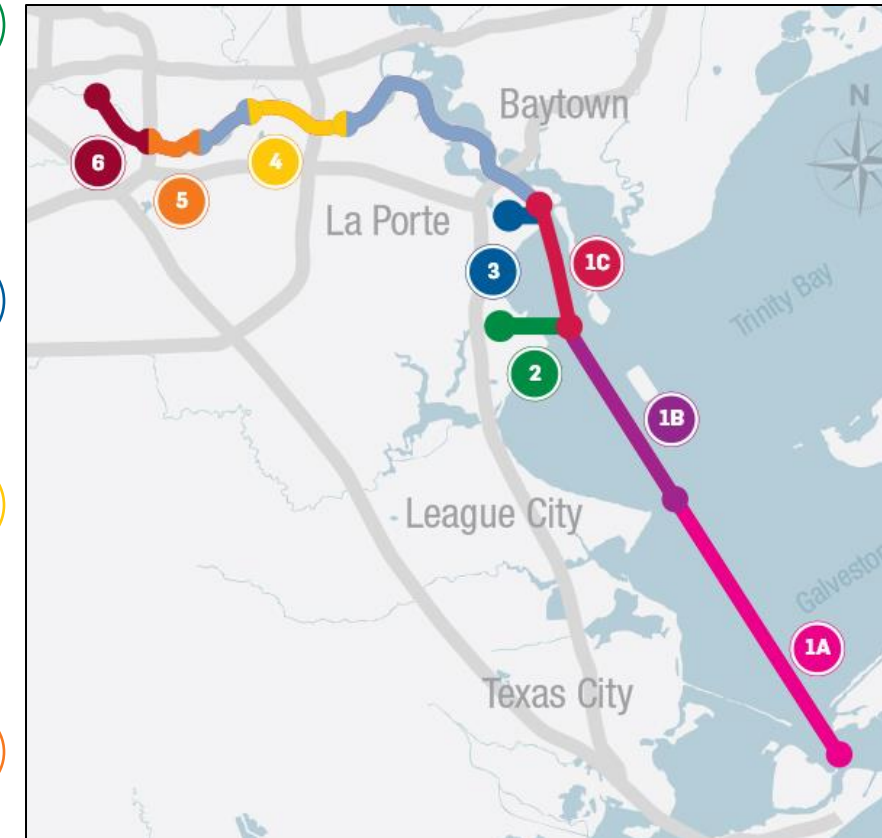
5

- Deepen from existing 37 feet to 41.5 feet

IH 610 to Turning Basin

6

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



No improvement planned in these areas

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Project Overview



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USACE

1

2

3/4A

4B/5

6

7

8

9

10

11

12

Bolivar Roads to Redfish Reef

Boggy Bayou to Sims Bayou

Bolivar Roads to Redfish

Redfish to Bayport

Bayport to Morgan's Point

Barbours Cut Ship Channel

Boggy Bayou to Hunting

Bayou Turning Basin

Sims to Turning Basin

Construct Dollar Reef Oyster beds

Prepare Beltway 8 Site

- Dredge Houston Ship Channel to 700-ft wide and relocate barge lanes
- Construct New Long Bird Island
- Offshore material disposal to ODMDS

- Dredge Houston Ship Channel to 700-ft wide and relocate barge lanes
- Dredge Bayport Ship Channel up to 455-ft wide
- Construct New Bird Island Marsh complex and oyster beds

- Dredge Houston Ship Channel to 700-ft wide and relocate barge lanes
- Construct Marsh 11
- Enhancement of Marsh 7/8/9 and Marsh 10

- Dredge Barbours Cut Ship Channel up to 455-ft wide
 - Barbours Cut Flare Relief
 - Cedar Bayou Sweep
 - Spilman Island & Morgan's Point Sheet Pile Wall
- Place in newly constructed Marsh Cell 12

Construct Beltway 8 and East-East Clinton placement areas

Dredge Boggy to Greens at 46.5-ft MLLW and 530-feet and Greens to Hunting at existing federal width to 46.5-ft MLLW

Prepare Glendale Placement Area

Prepare Filterbed Placement Area

Dredge Houston Ship Channel up to 41.5 ft MLLW

1A

4

1A

1B, 2

1C

3

4

4

5

6

5, 6

PHA/USACE

PHA

PHA

PHA

PHA

PHA

PHA

PHA

USACE

USACE

USACE

USACE

PHA

PHA

PHA

PHA

PHA

PHA

PHA

USACE

USACE

USACE

NA – Oyster Mitigation

NA – Clearing and Grubbing

3,600,000

5,900,000

4,000,000

2,800,000

NA – Site Preparation

4,247,000

NA – Site Preparation

NA – Site Preparation

Not Started

NOTE: Design Packages 4B/5 and 6 will likely have a separate abandoned pipeline removal package.

Total Dredged Volume:

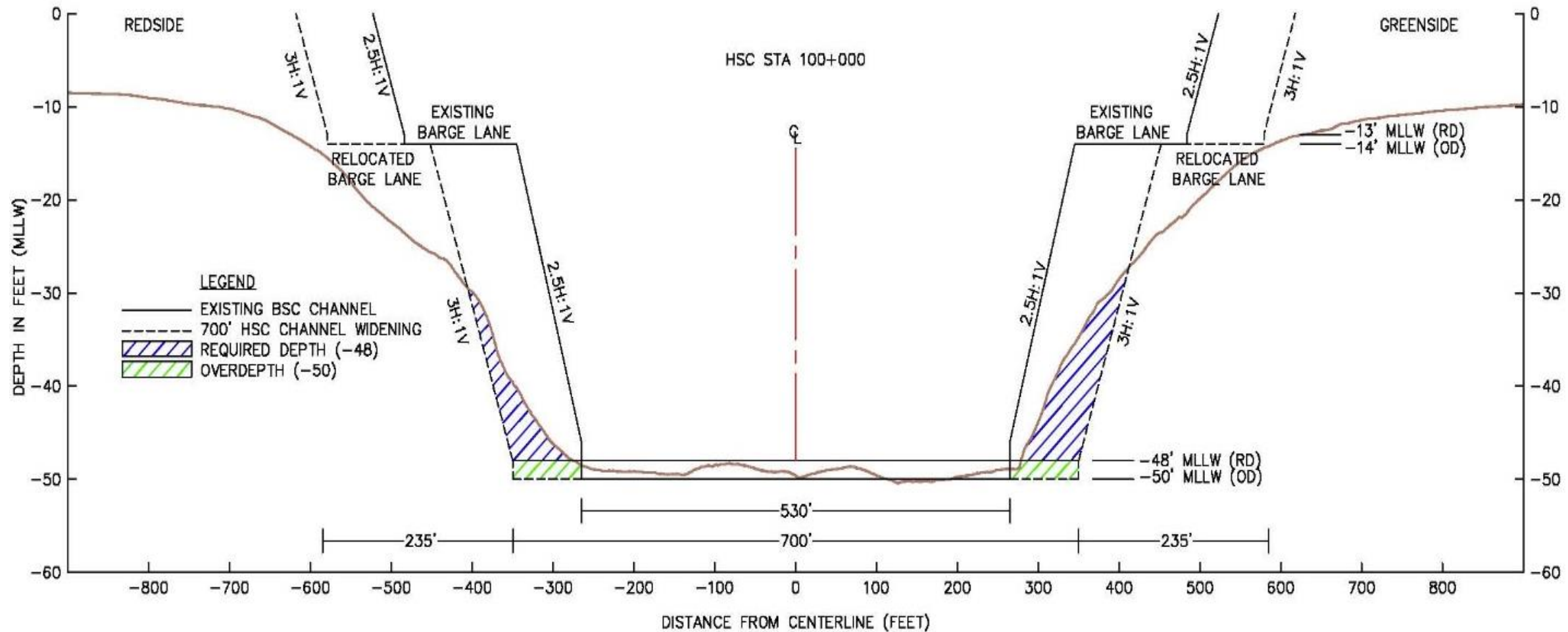
20,547,000

NOTE: Design Packages 4B/5 and 6 will likely have a separate abandoned pipeline removal package.

Houston Ship Channel, Typical Cross-Section



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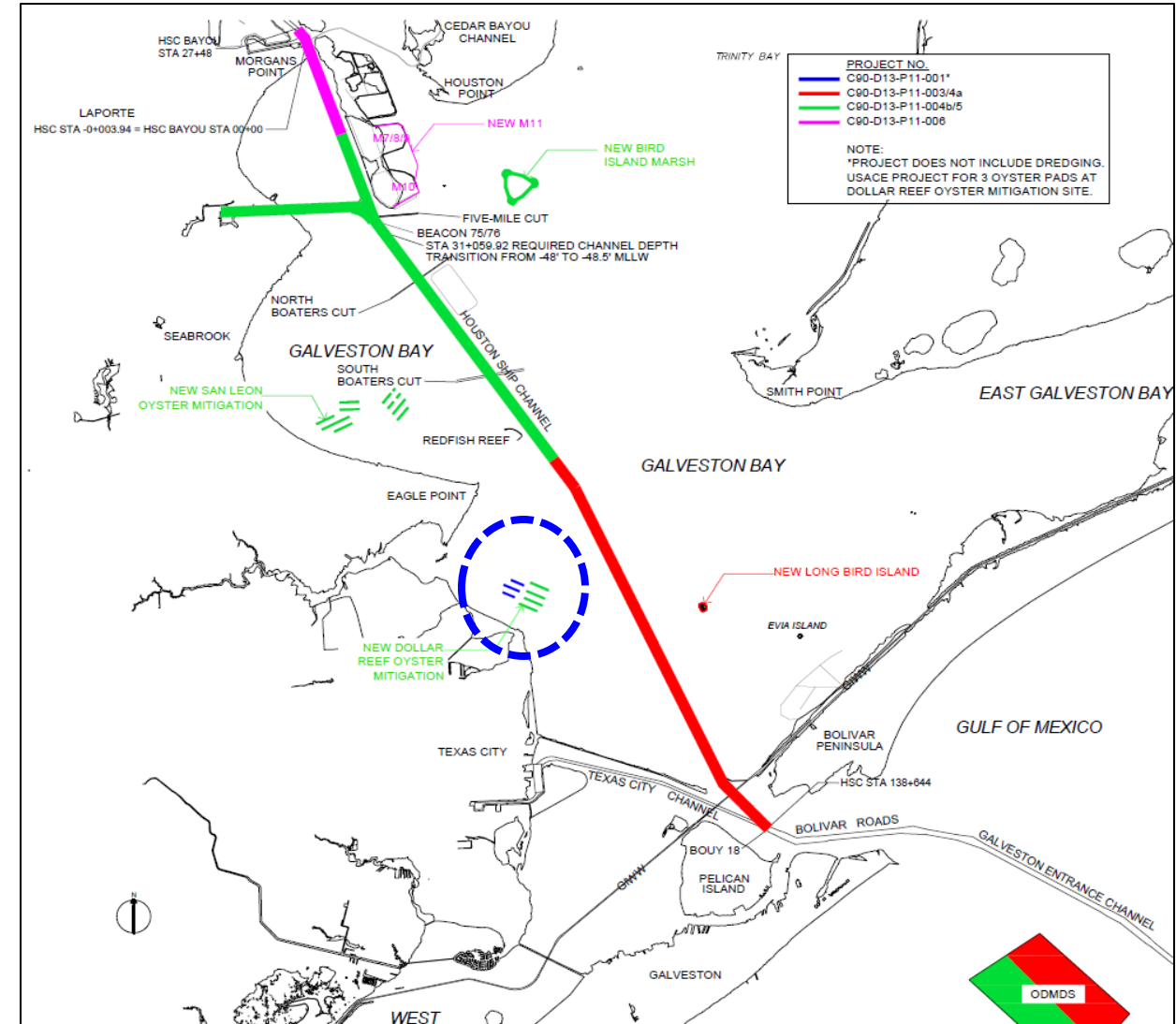
Design Package 1: Dollar Reef Oyster Mitigation



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Activities:

- USACE-led contracting and construction
- Standard rock construction using 270,000 tons of crushed limestone/no dredging activities
- New work dredging impacts to Segment 1A addressed
- Three options included



Design Package 3/4A: Bolivar Roads to Redfish

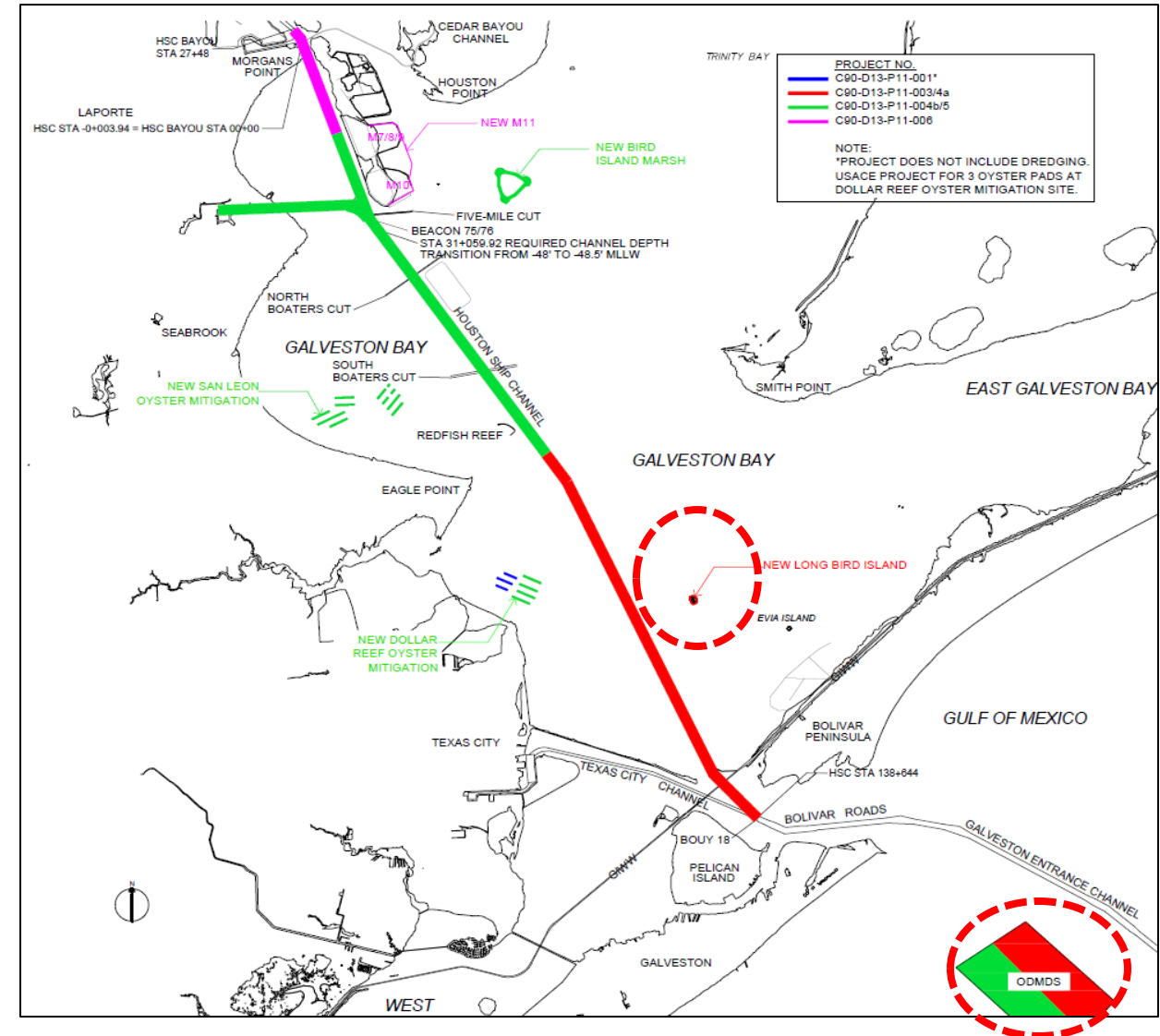
HSC Station 138+369 to 73+476



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Activities:

- Channel widening from 530 to 700 feet wide
- Dredging
 - Excavation of 1.7 million CY of dredged material
 - Excavation of 1.9 million CY of dredged material for placement at ODMDS
- Shoreline protection
 - 30,000 tons of material for rip-rap
- Bird island construction
 - New Long Bird Island
 - Maintenance via hopper dredge possible at beginning of contract



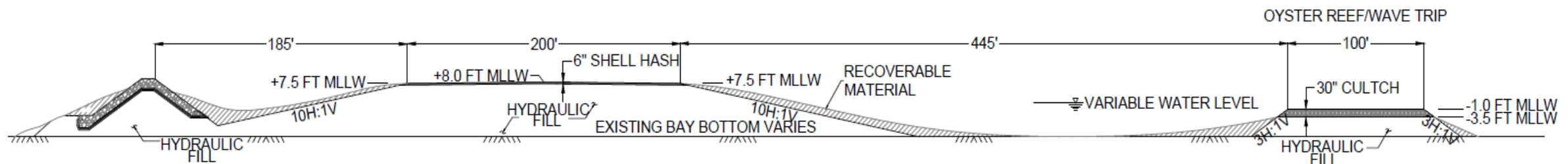
Design Package 3/4A: Bolivar Roads to Redfish

HSC Station 138+369 to 73+476



Activities:

- HSC Station 138+369 to 98+000
- Excavating 1.7 million CY of dredged material
- Shoreline protection
- 31,000 tons of material for armor stone
- 5,000 tons of blanket stone
- New Long Bird Island Construction
- Oyster mitigation
- 18,500 tons of crushed limestone utilized



Long Bird Island Typical Section

Design Package 3/4A: Bolivar Roads to Redfish

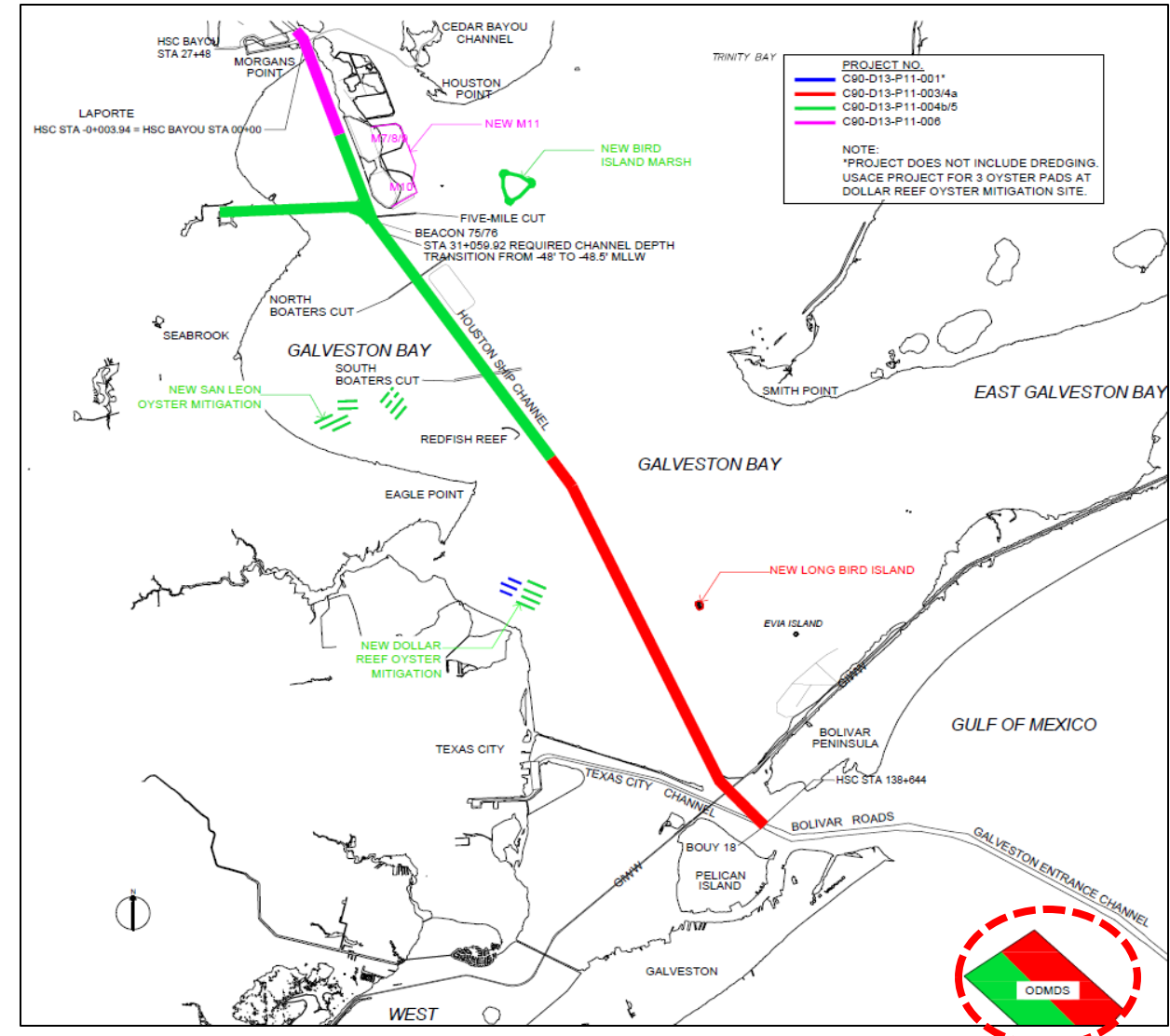
HSC Station 138+369 to 73+476



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Activities:

- HSC Station 98+000 to 73+476
- Excavating 1.9 million CY of dredged material
- Materials to be transported in scows to the ODMDS
- Materials may be dredged
- Hopper dredging is not permitted for new work

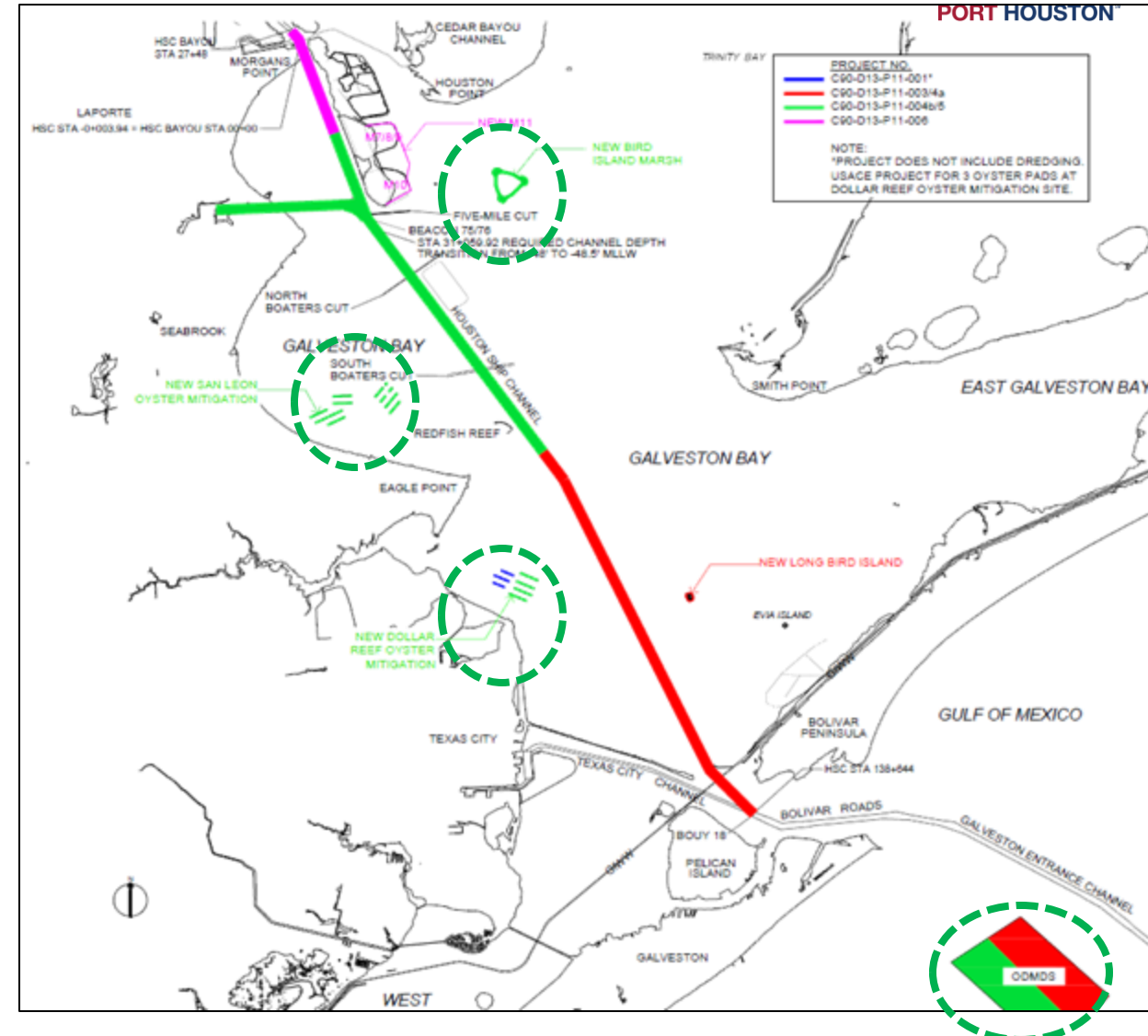


Design Package 4B/5: Redfish to Bayport; HSC Station 15+500 to HSC Station 28+605; BSC Station 24+187.21 to BSC Station 42+07.8

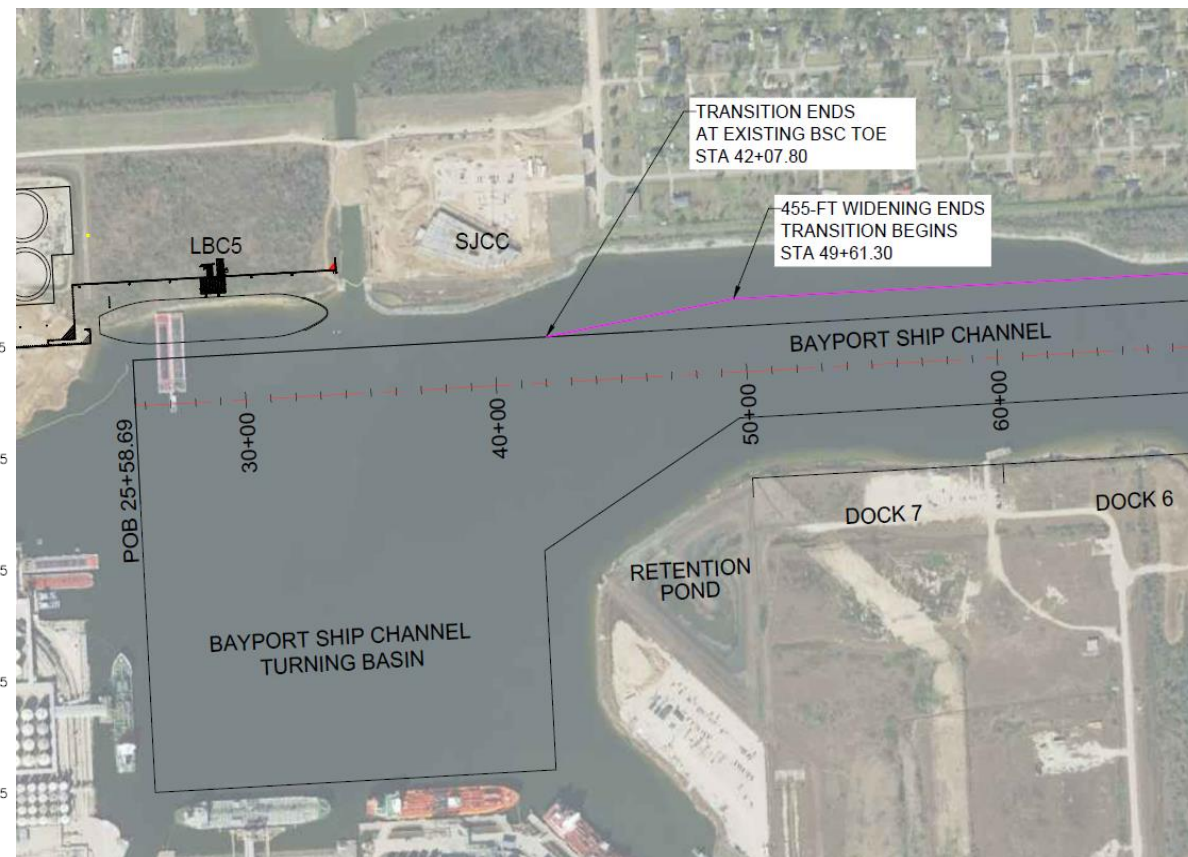
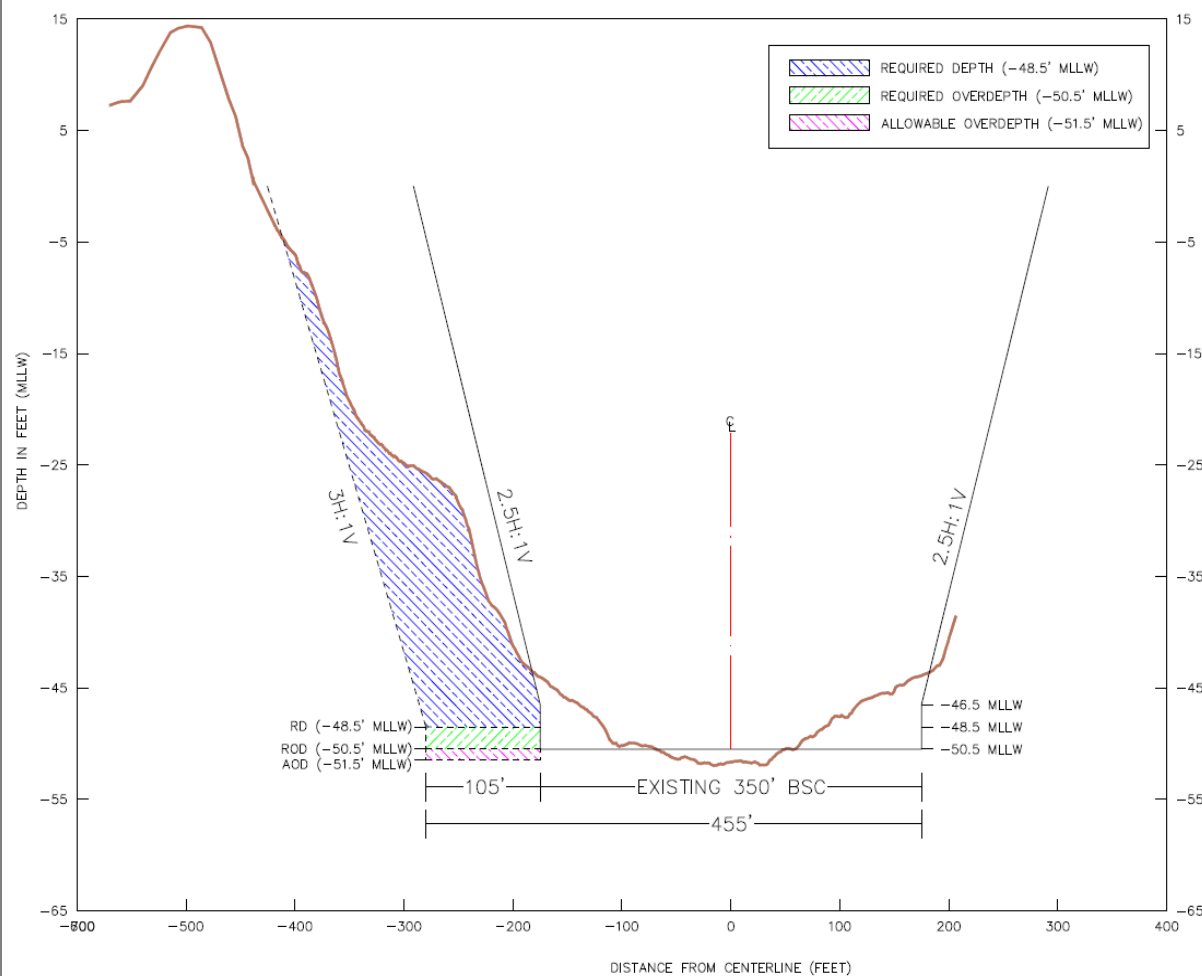


Activities:

- Channel widening from 530 to 700 feet (HSC) and 350/400 to 455 feet wide (BSC)
- Dredging
 - Excavating 5.9 million CY of dredged material (3.2 million CY HSC and 2.7 million CY BSC)
- Relocation of barge lanes (HSC)
- Shoreline protection
 - 95,000 tons of material to construct rip-rap
- Construct bird island/marsh complex and oyster mitigation beds
 - 400,000 tons of crushed limestone for 20 oyster mitigation pads placed as a veneer on a raised bed constructed with dredged material



Design Package 4B/5: Redfish to Bayport; HSC Station 15+500 to HSC Station 28+605; BSC Station 24+187.21 to BSC Station 42+07.8

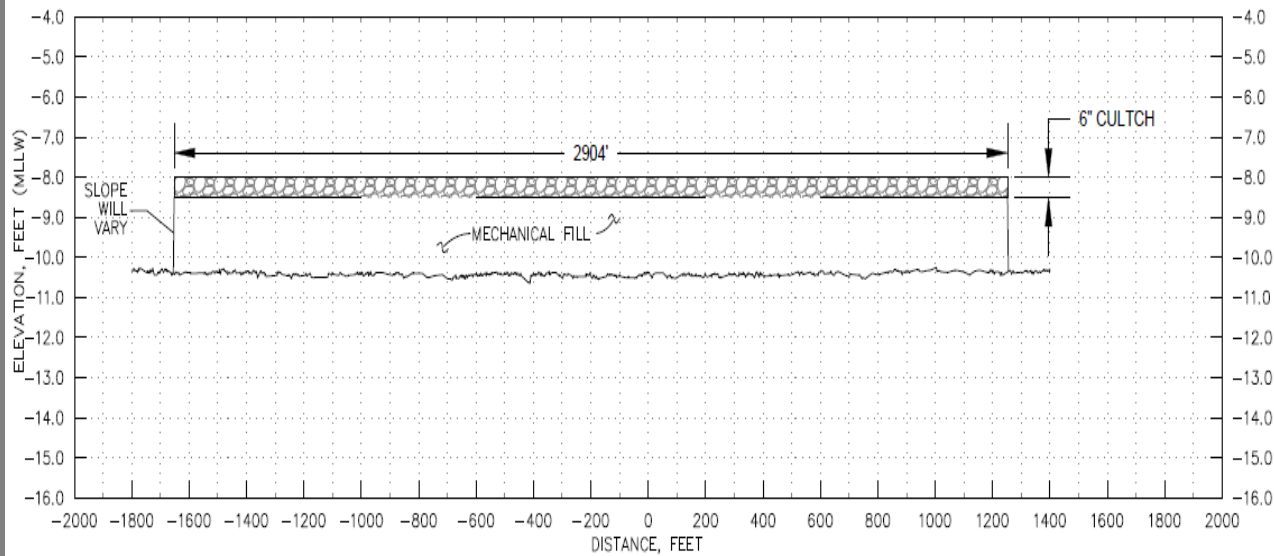


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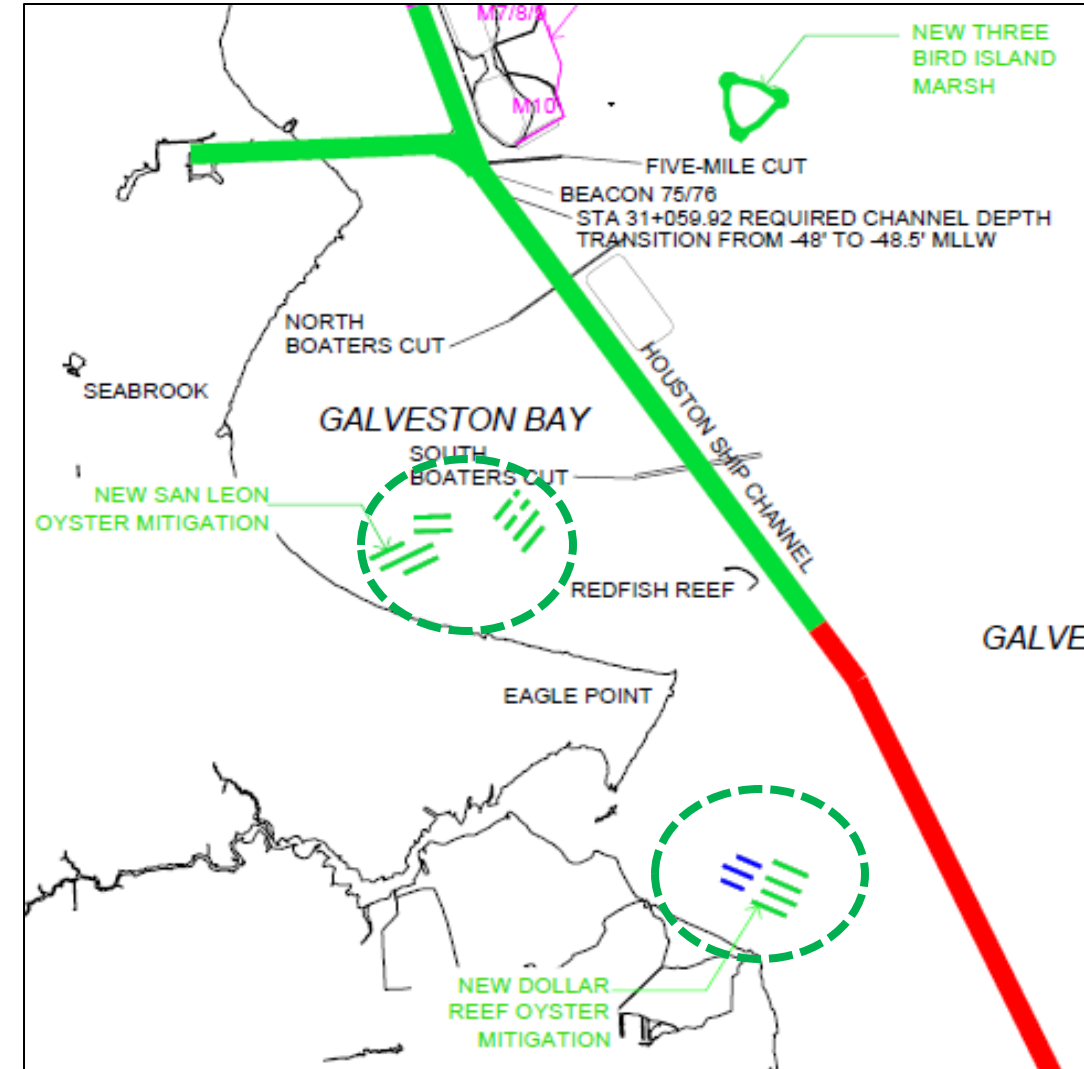
Design Package 4B/5: Redfish to Bayport; HSC Station 15+500 to HSC Station 28+605; BSC Station 24+187.21 to BSC Station 42+07.8



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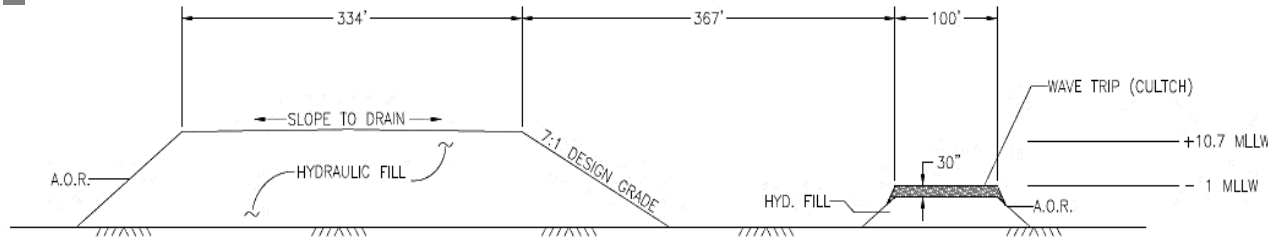
Mechanical Fill Oyster Pad Typical Section



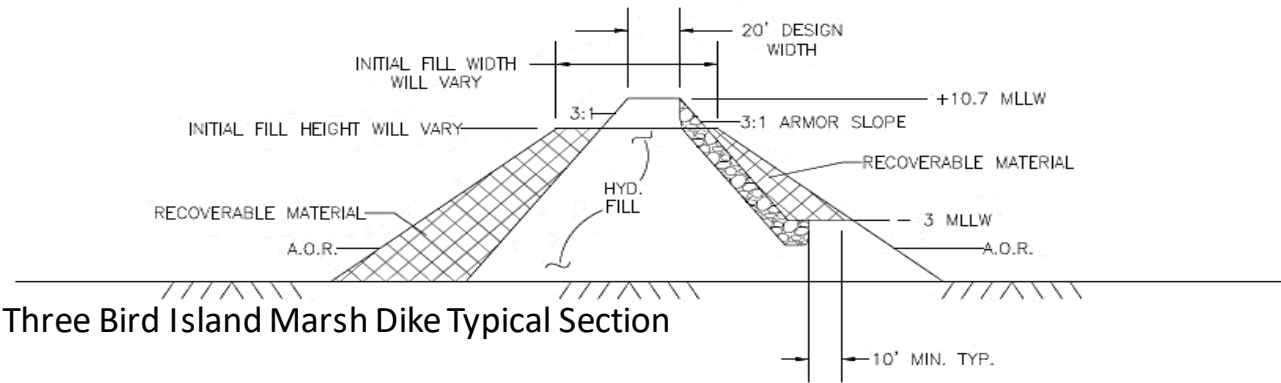
Design Package 4B/5: Redfish to Bayport; HSC Station 15+500 to HSC Station 28+605; BSC Station 24+187.21 to BSC Station 42+07.8



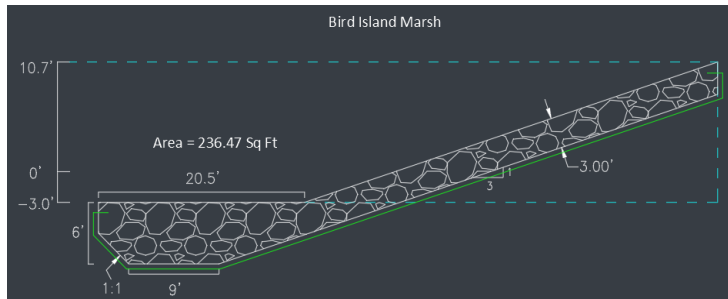
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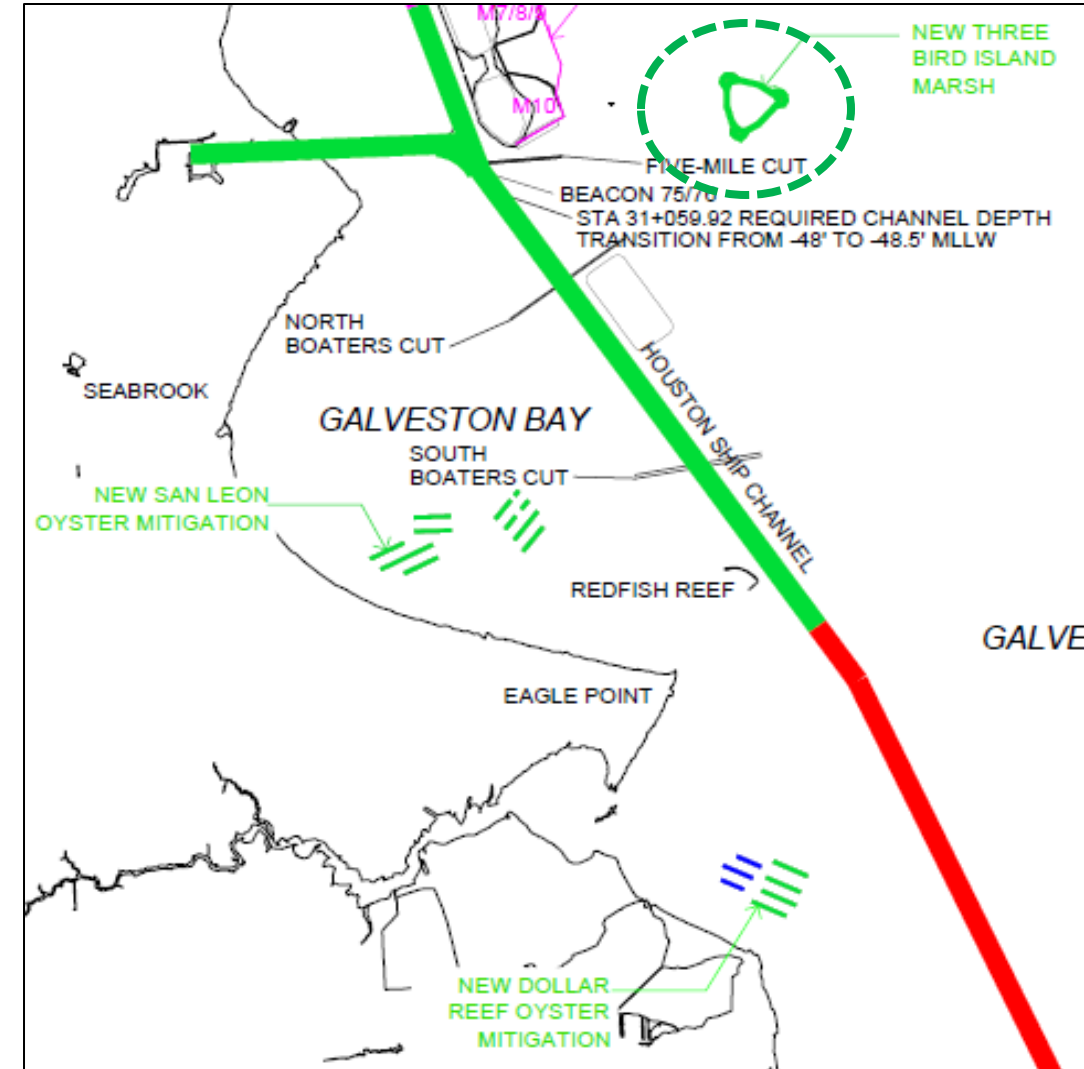
Three Bird Island Marsh Island and Wave Trip Typical Section



Three Bird Island Marsh Dike Typical Section



Typical Shore Protection Section at Three Bird Island Marsh



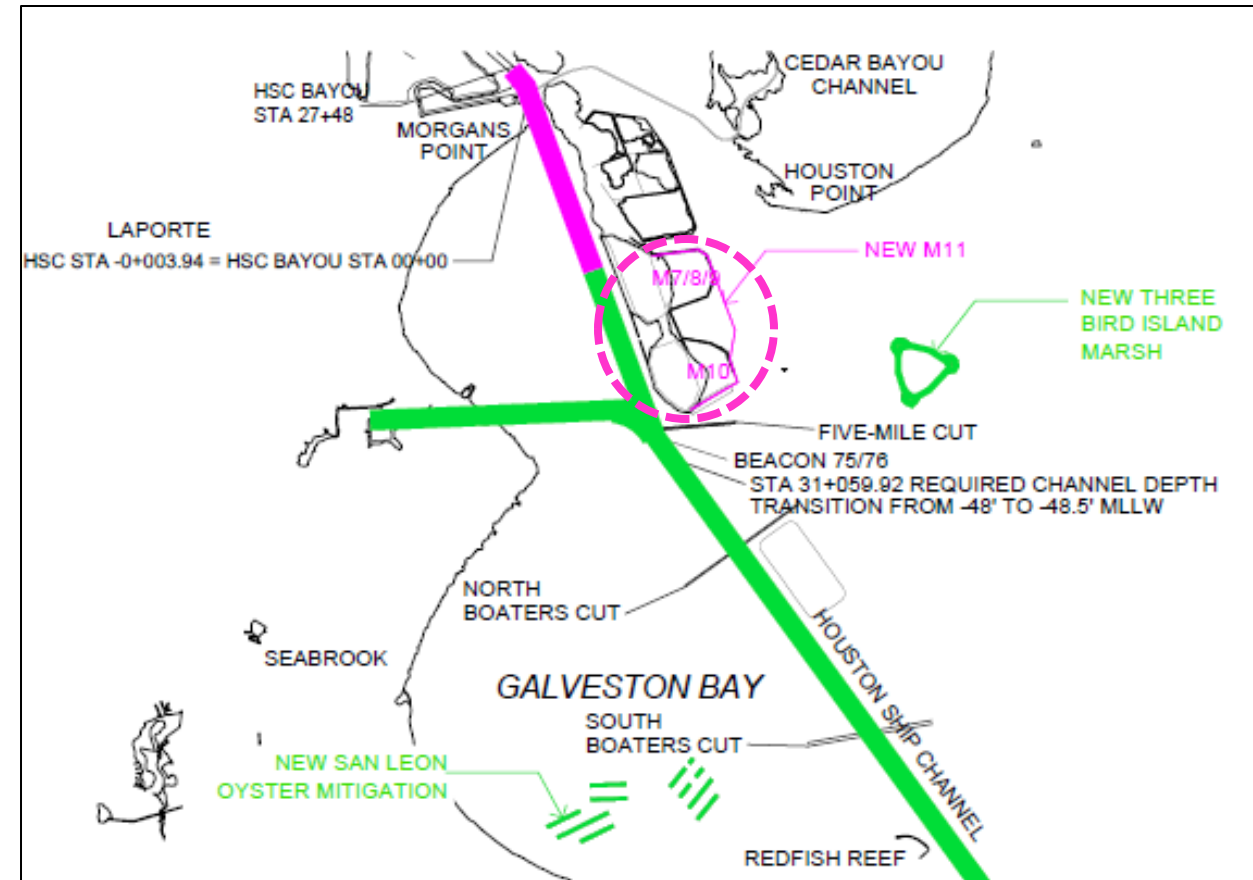
Design Package 6: Bayport to Morgan's Point HSC Station 28+605 to 0+00



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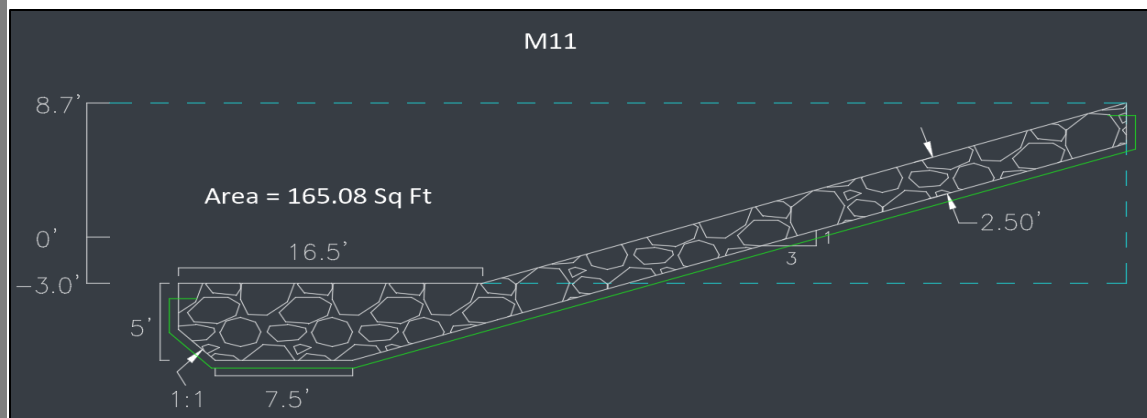
Activities:

- Relocation of barge lanes (HSC)
 - Excavating 4.0 million CY of dredged material
- Construction of Marsh Cell 11 and repair of existing dikes
- Shoreline protection
- Changes since Feasibility Study
- Elimination of shoaling attenuation feature
 - Material diverted to BIM and rock diverted to M10/7,8,9



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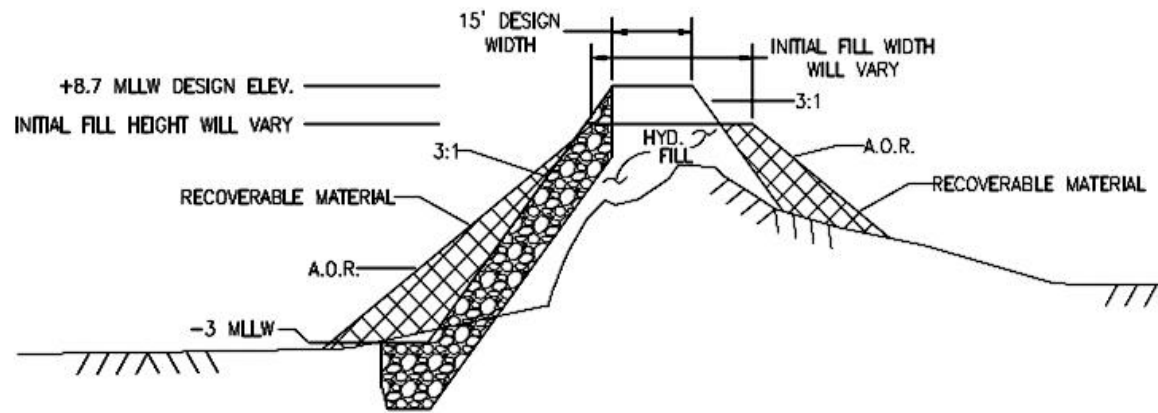
Typical Dike Section



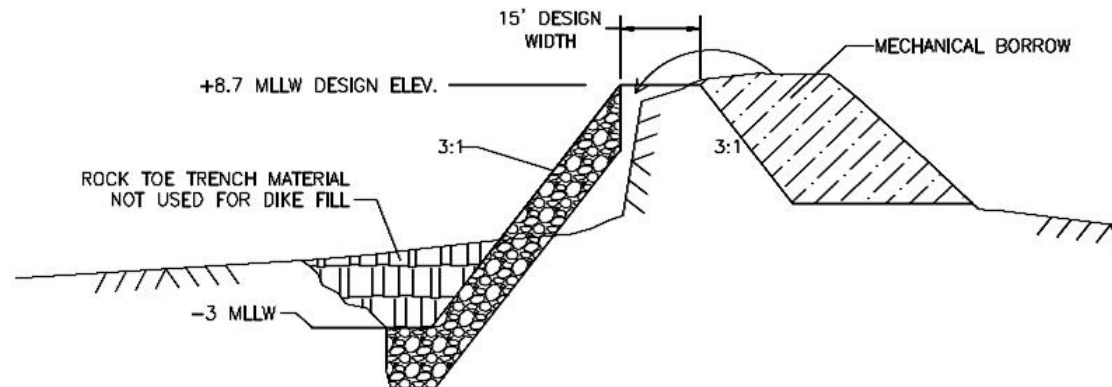
Design Package 6: Bayport to Morgan's Point HSC Station 28+605 to 0+00



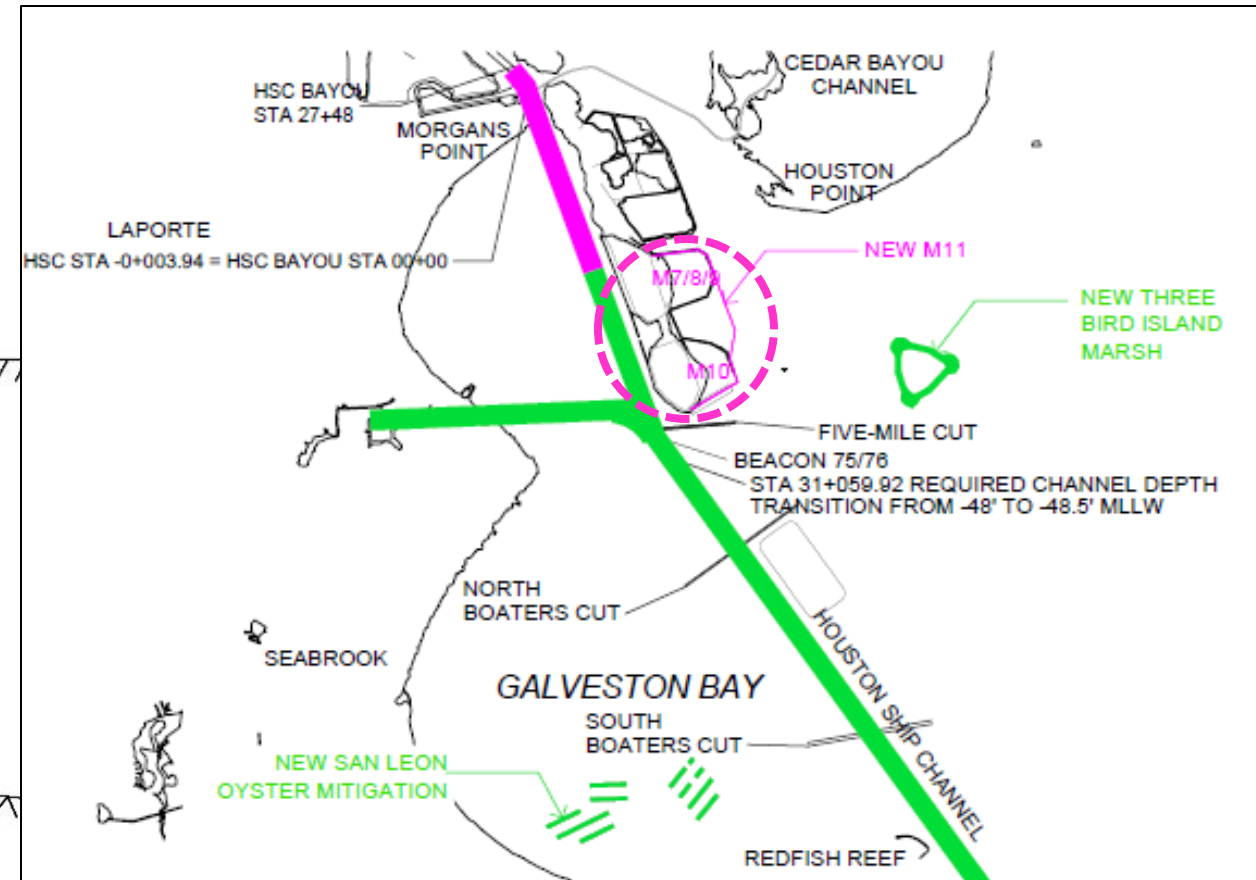
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Typical Dike Rehabilitation Section



M10 Dike Rehabilitation Typical Section



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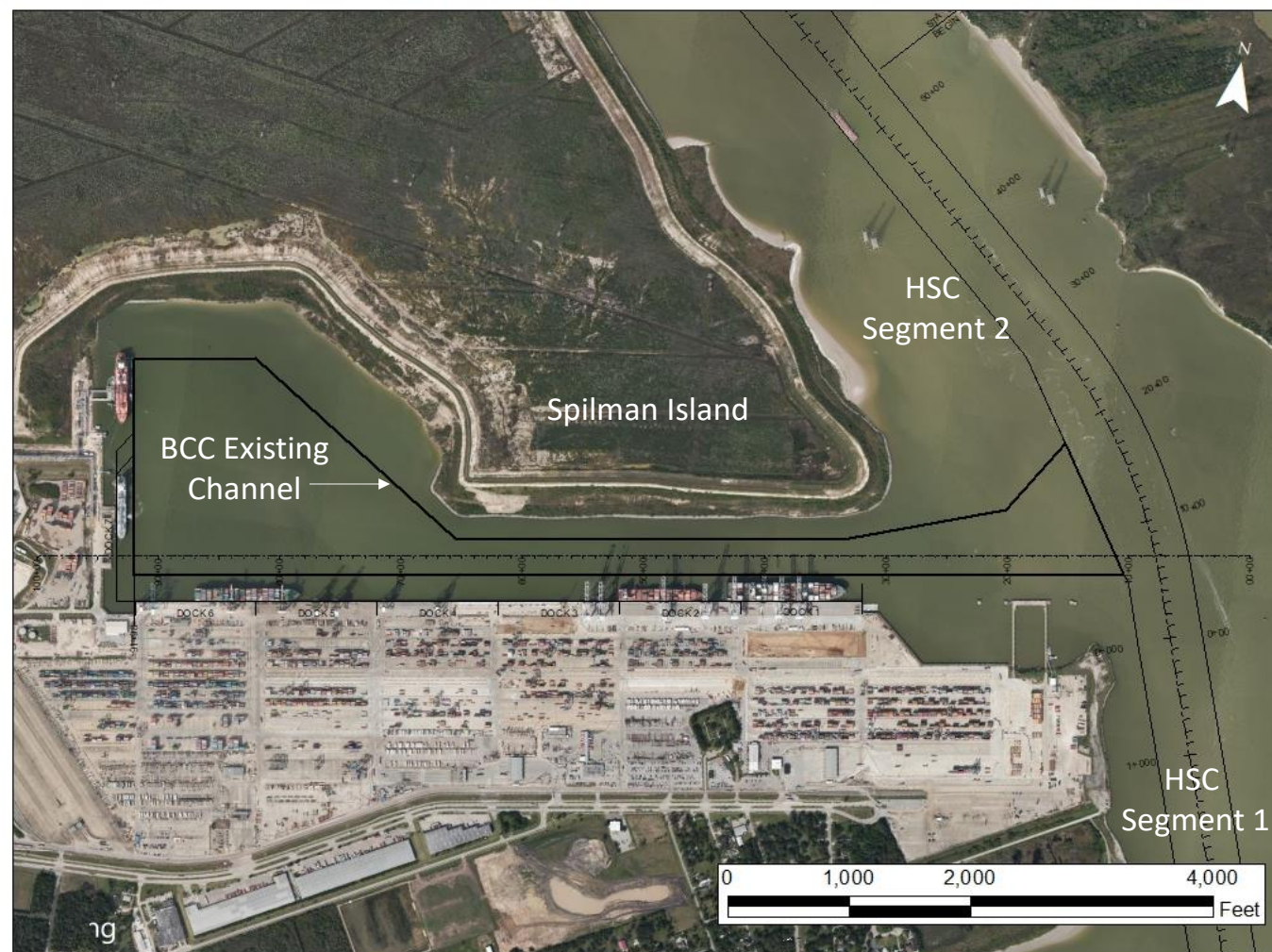
Design Package 7: Barbours Cut Channel

BCC Station 10+00 to 67+10.85



Activities:

- Channel widening by 155 feet
- Barbours Cut flare relief
- M12 Beneficial Use Site
- Cedar Bayou sweep
- Spilman Island improvements
- Morgan's Point shoreline stabilization



Design Package 7: Barbours Cut Channel

BCC Station 10+00 to 67+10.85

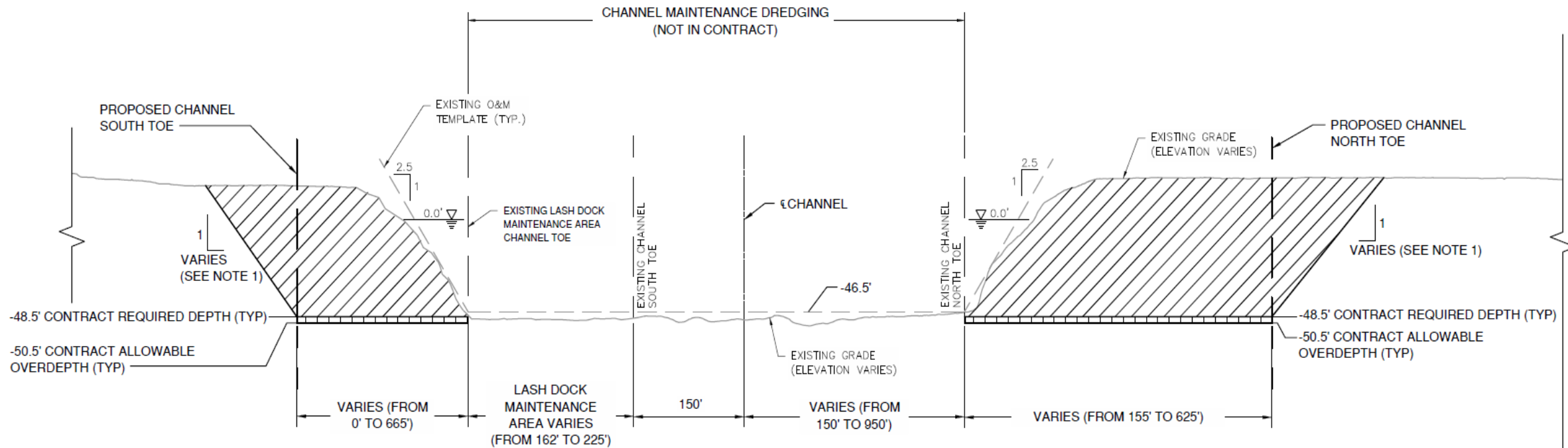
Activities

- 2.8M cy of dredging (below +4' MLLW)



Design Package 7: Barbours Cut Channel

BCC Station 10+00 to 67+10.85



Typical Cross Section, BCC

Design Package 7: BCC

BCC Station 10+00 to 67+10.85

Activities:

- Avoid impacts to Atkinson WMA
- Hydraulically placed Berm A and B
- Two Discharge Zones
- Install Outlet structure

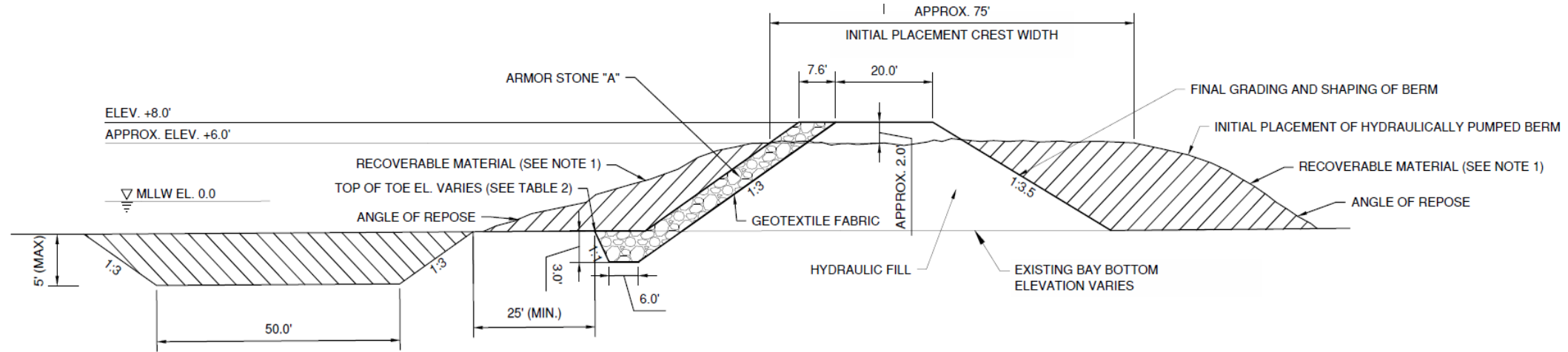


Design Package 7: Barbours Cut Channel

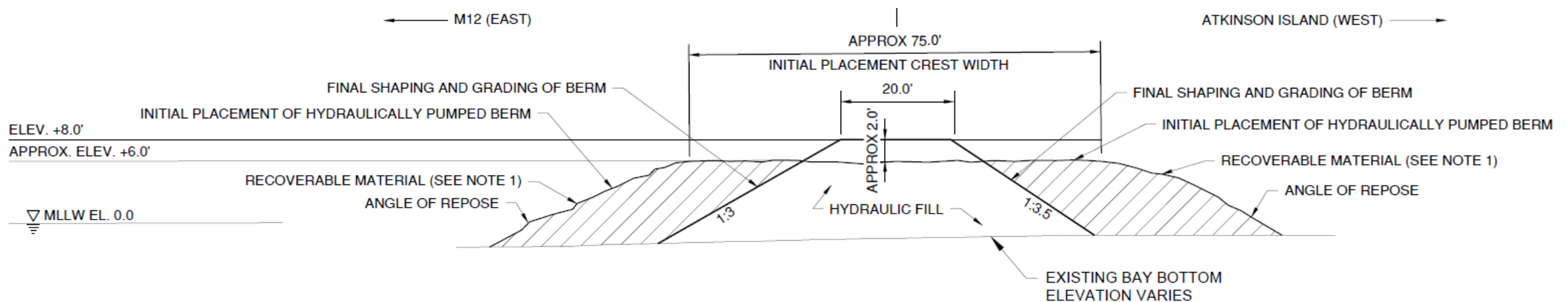
BCC Station 10+00 to 67+10.85 – M-12



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Typical Cross Section, M12 Berm A



Typical Cross Section, M12 Berm B

Design Package 7: Barbours Cut Channel

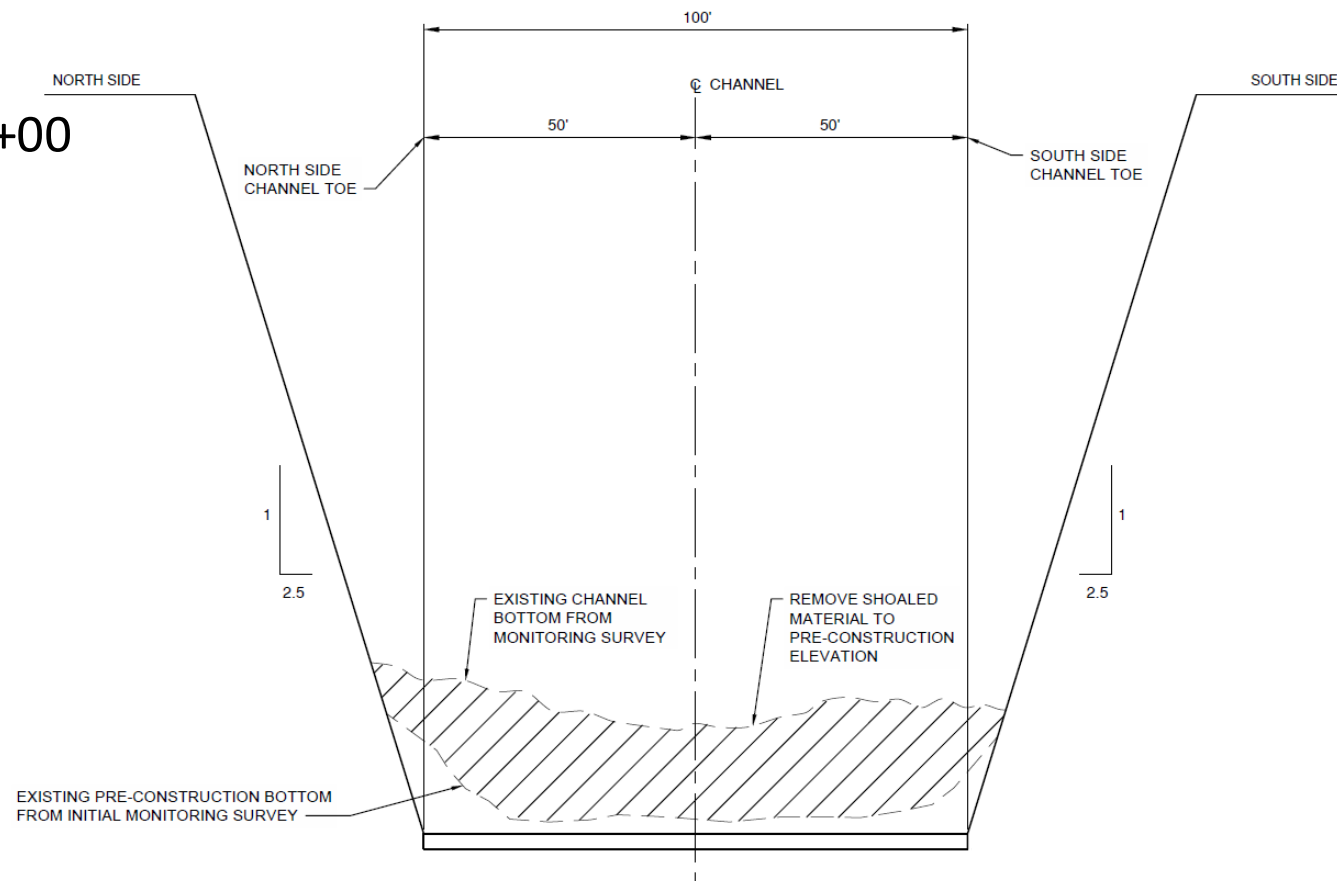
BCC Station 10+00 to 67+10.85 – Cedar Bayou



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Activities

- Cedar Bayou Maintenance – if required
- Monitoring surveys from STA 25+00 to 165+00
- Review for shoaling
- Hydraulic dredging to M12



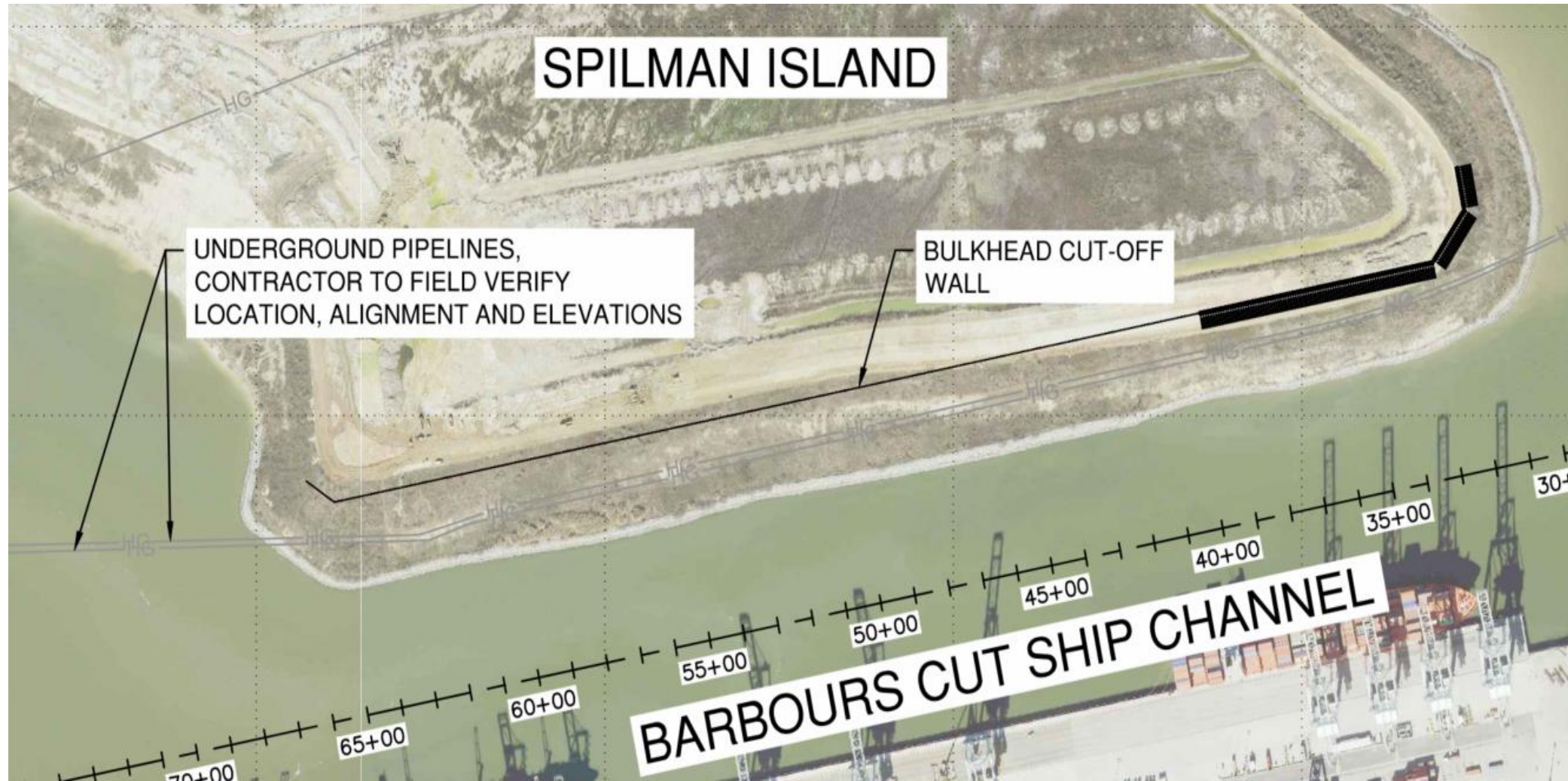
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Design Package 7: Barbours Cut Channel

BCC Station 10+00 to 67+10.85 – Spilman



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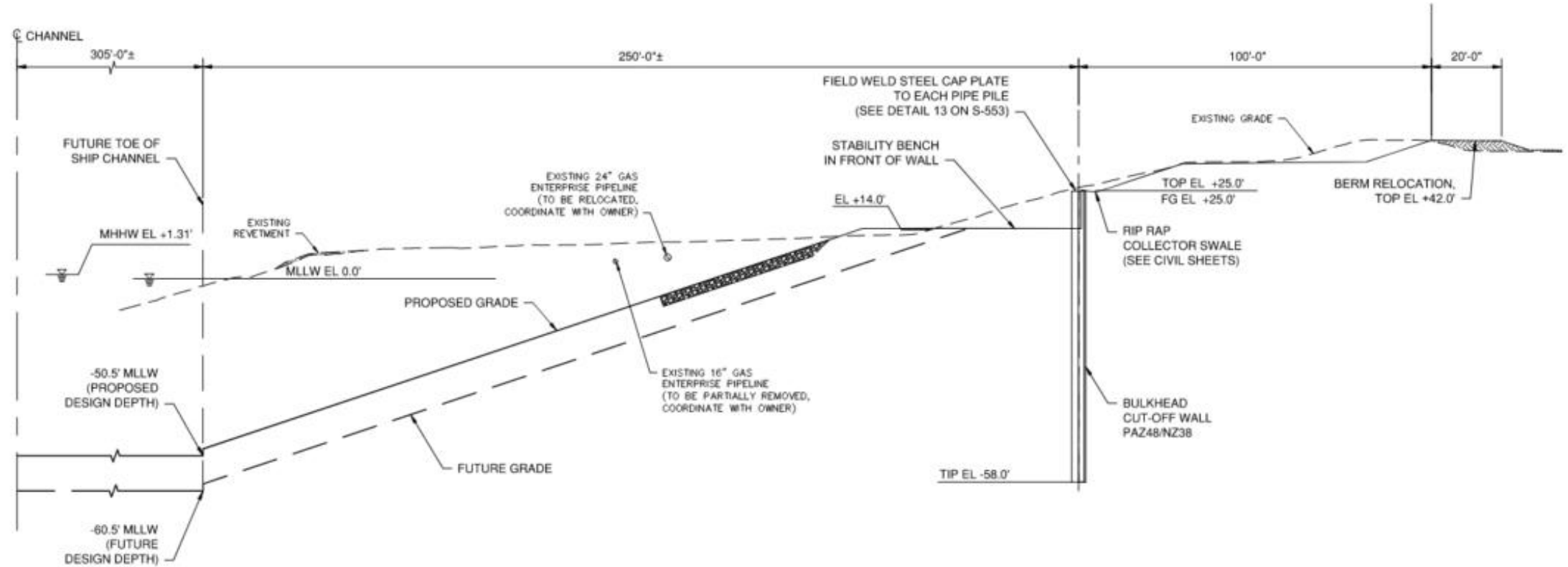


Design Package 7: Barbours Cut Channel

BCC Station 10+00 to 67+10.85 – Spilman



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A SECTION A - BULKHEAD CUT-OFF WALL (STA 101+60.12 TO STA 107+57.87)

SCALE: 1"=20'

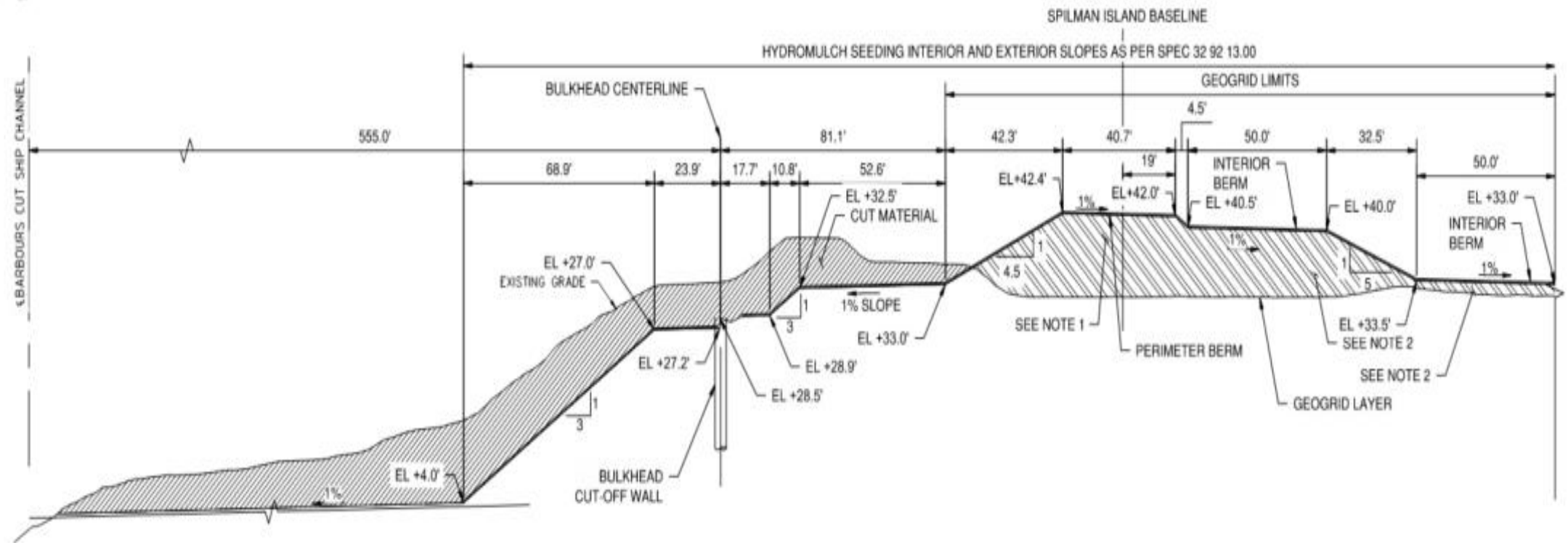


Design Package 7: Barbours Cut Channel

BCC Station 10+00 to 67+10.85 - Spilman



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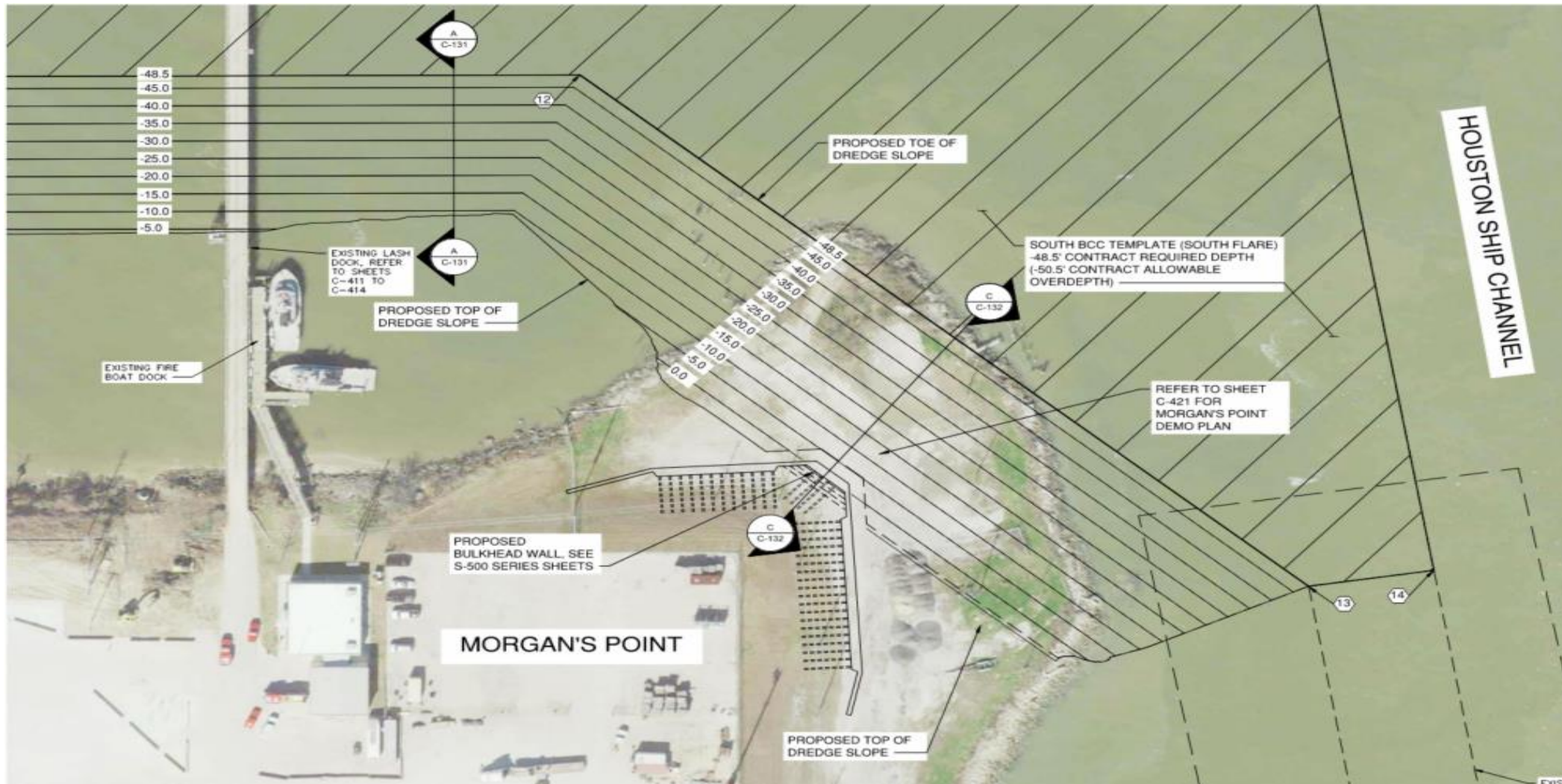


Design Package 7: Barbours Cut Channel

BCC Station 10+00 to 67+10.85 – Morgan's Point



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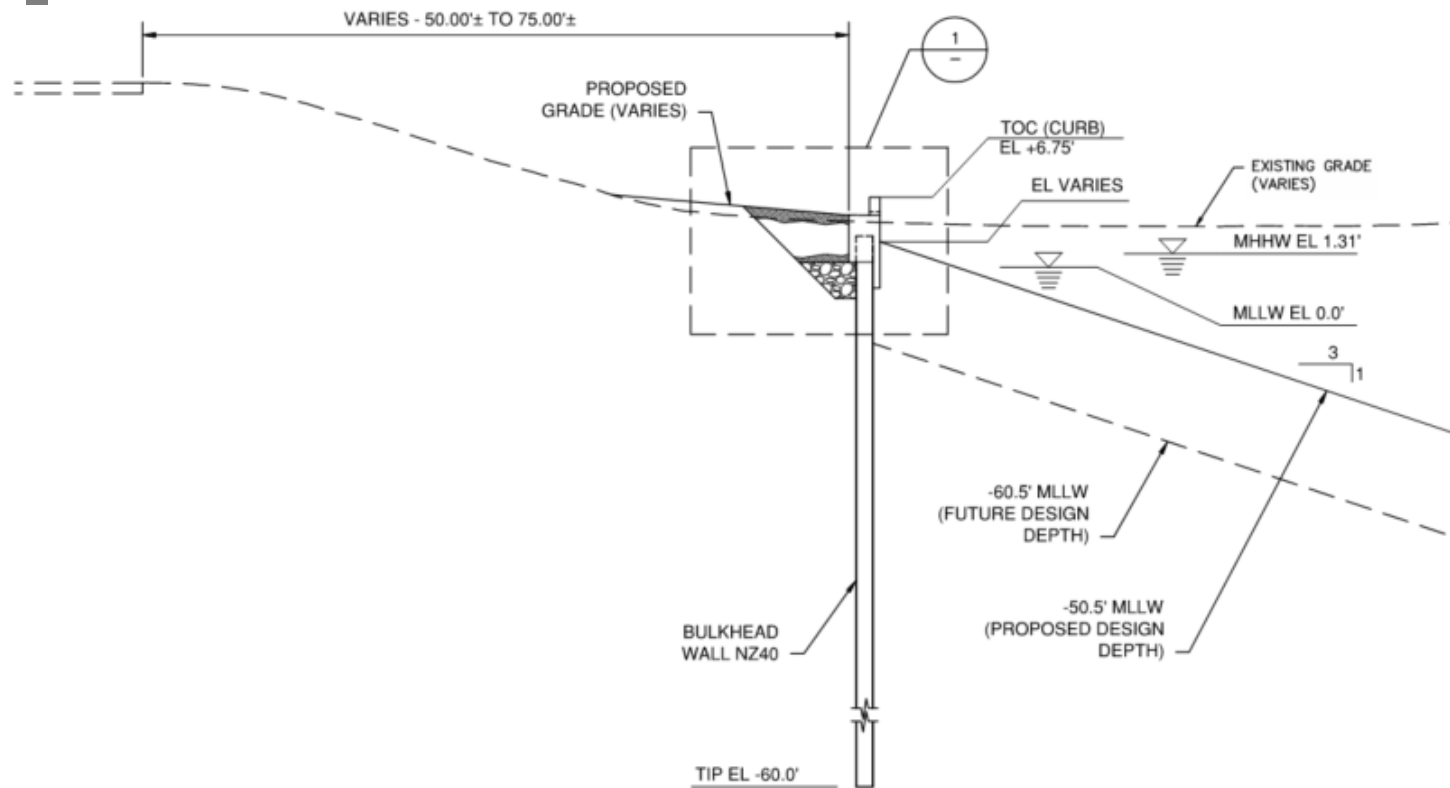


Design Package 7: Barbours Cut Channel

BCC Station 10+00 to 67+10.85 – Morgan's Point

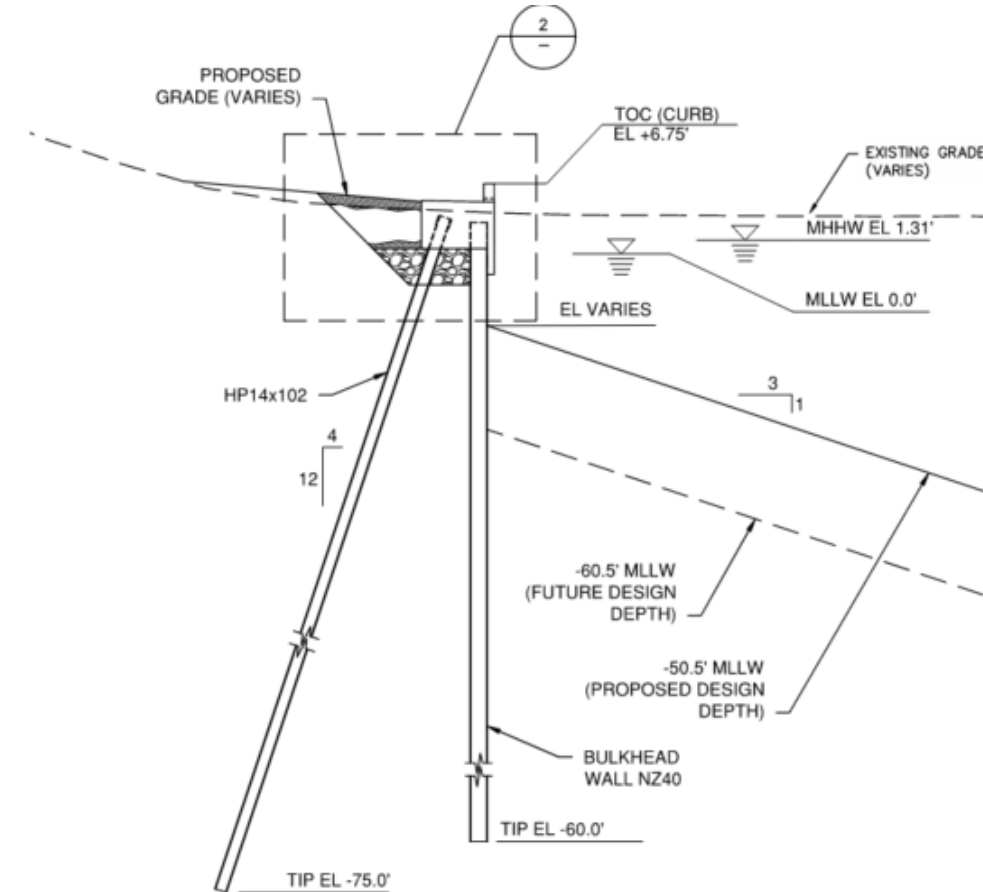


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A BULKHEAD 1 WALL SECTION

SCALE: 1" = 10'



B BULKHEAD 2 WALL SECTION

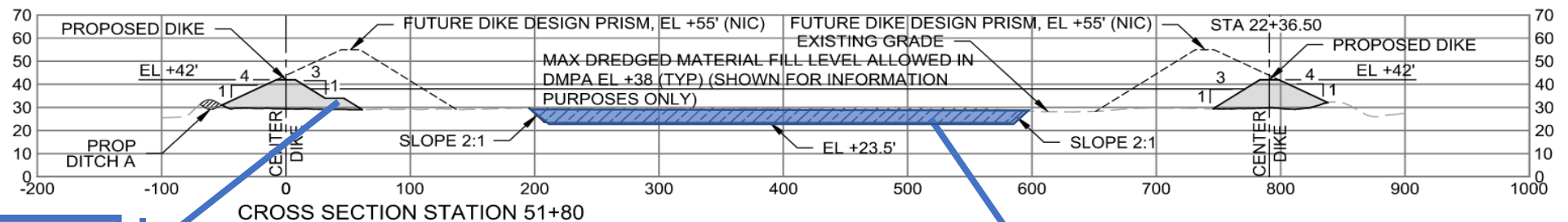
SCALE: 1" = 10'



Package 8: Boggy Bayou to Hunting Bayou Turning Basin Construct Placement Areas



Wetlands Discharge

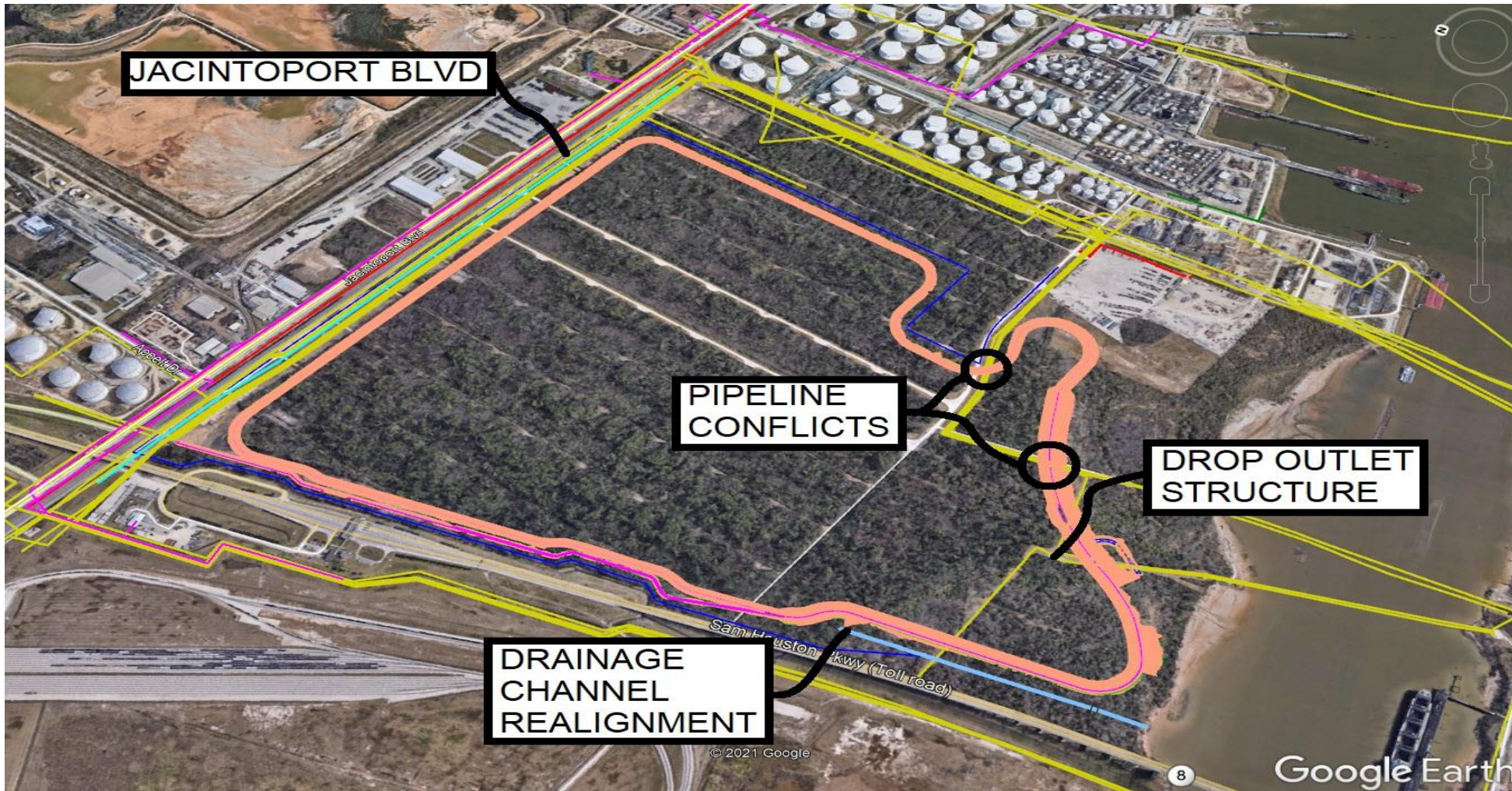
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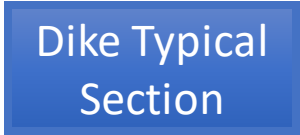
Representative
15' Stability Berm
where Req'd

Borrow Excavation for Dike

Package 8: Boggy Bayou to Hunting Bayou Turning Basin

Construct Placement Areas





Package 9: Boggy Bayou to Hunting Turning Basin

HSC Station 684+03.19 to 930+00



Activities:

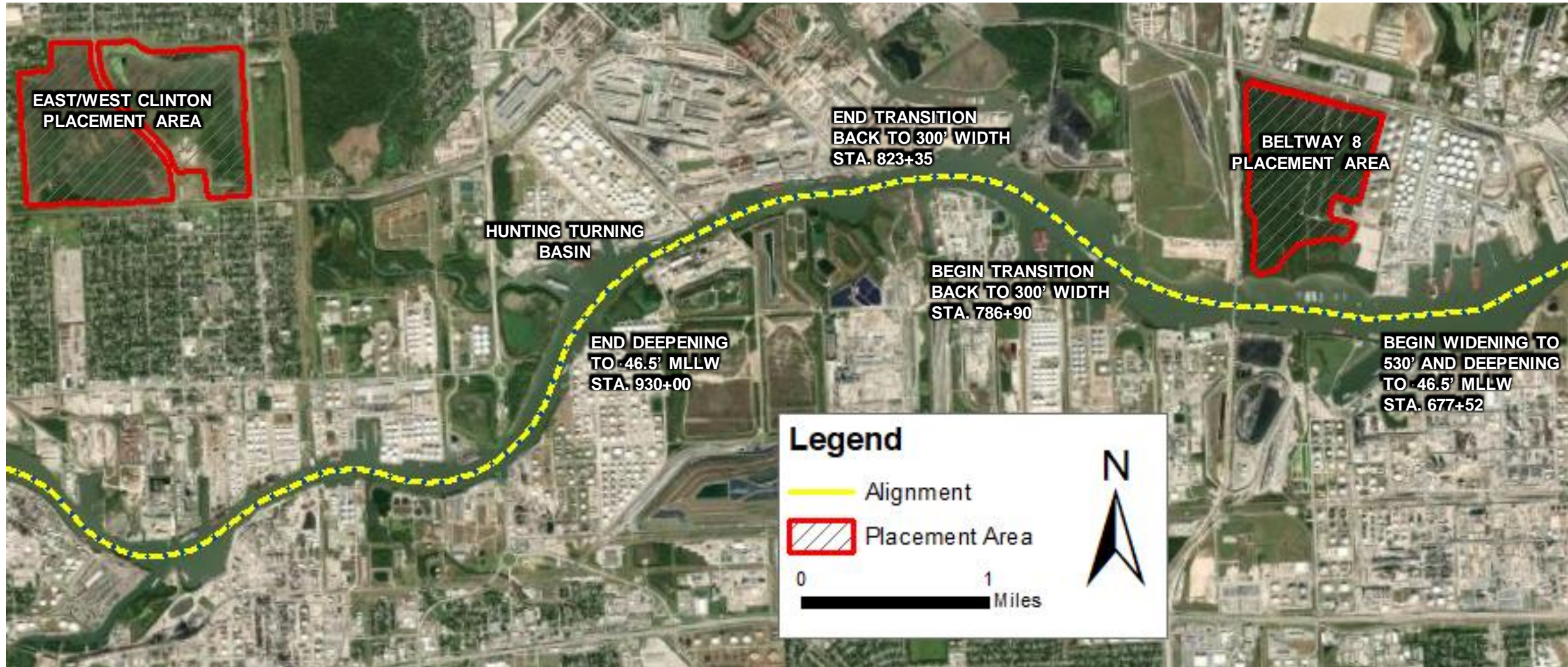
- Approximately 2.8 miles of channel deepening and selective widening
- Deepening from –41.5 feet to –46.5 feet MLLW from Boggy Bayou (STA 677+52) to Hunting Turning Basin (STA 930+00)
- Widening from 300 to 530 feet from Boggy Bayou (STA 677+52) to Greens Bayou (STA 823+35)
- No dredging between Hunting Turning Basin and Sims Bayou because the Washburn Tunnel is a nationally registered historic place
- New work material = 3,956,000 CY
Allowable overdepth = 510,000 CY
Total dredging = 4,466,000 CY

Package 9: Boggy Bayou to Hunting Turning Basin

HSC Station 684+03.19 to 930+00



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Schedule



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Design Packages:

- Package 1, USACE advertising October 2021
- Package 2, PHA awarded in April 2021
- Package 3, PHA advertising June 2021
- Packages 4-9 advertising — **pending balance of risk, schedule, and cost** — fourth quarter of 2021 or after
- Packages 10-12, advertising in 2024 or after



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Schedule (Tentative) – Design Package Summary



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Design Package			Dredged Volume (CY)	Existing DMPA	New DMPA	Tentative PHA Advertisement/Award	Tentative Completion	Pending Items
3/4A	Bolivar Roads to Redfish	<ul style="list-style-type: none"> Dredge Houston Ship Channel to 700-ft wide and relocate barge lanes Construct New Long Bird Island Offshore material disposal to ODMDS 	3,600,000	ODMDS	New Long Bird Island	June/September 2021	July 2022	USACE-PHA PPA
4B/5	Redfish to Bayport	<ul style="list-style-type: none"> Dredge Houston Ship Channel to 700-ft wide and relocate barge lanes Dredge Bayport Ship Channel up to 455-ft wide Construct New Bird Island Marsh complex and oyster beds 	5,900,000	--	Bird Island Marsh San Leon Oyster Dollar Reef Oyster	May/August 2022	August 2025	USACE-PHA PPA AOM Industry Financing
6	Bayport to Morgans Point	<ul style="list-style-type: none"> Dredge Houston Ship Channel to 700-ft wide and relocate barge lanes Construct Marsh 11 Enhancement of Marsh 7/8/9 and Marsh 10 	4,000,000	Dike rehabilitation of M7/8/9 & M10	M11	May/August 2023	June 2024	USACE-PHA PPA AOM Industry Financing
--	Redfish to Morgans Point	<ul style="list-style-type: none"> Removal of 4 abandoned pipelines in Design Packages 4B/5 and 6 	NA	--	--	December 2021/ March 2022	June 2022	AOM
7	Barbours Cut Ship Channel	<ul style="list-style-type: none"> Dredge Barbours Cut Ship Channel up to 455-ft wide Barbours Cut Flare Relief Cedar Bayou Sweep Spilman Island & Morgans Point Sheet Pile Wall Place in newly constructed Marsh Cell 12 	2,800,000	--	M12	January/April 2023	December 2025	USACE-PHA PPA Amendment 204b Industry Financing
8	Boggy Bayou to Hunting Bayou Turning Basin	<ul style="list-style-type: none"> Construct Beltway 8 (for one time use) and East 2 Clinton (for long-term maintenance) 	NA – Site Preparation	--	--	January/April 2023	July 2024	USACE-PHA PPA Amendment 204b Industry Financing Pipeline Relocation and Removal
9		<ul style="list-style-type: none"> Widen channel to 530 ft from STA 684+03 to 823+35.359 at -46.5 ft MLLW (required depth -49.5 ft MLLW) Deepen channel from -41.5 to -46.5 ft MLLW from STA 684+03.19 to 930+00 Length of Dredge – 4.7 miles Volume of Dredge – 4.7 MCY (including maintenance material and an allowance for 1 year of shoaling) 2.5 MCY to E/W Clinton, 2.2 MCY to BW8 DMPAs 	4,247,000	East-West Clinton DMPA	Beltway 8	January/April 2024	April 2025	



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Questions?



Visit the Project 11 Webpage

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



Email the Project 11 Team

Project11@PortHouston.com



Potential Bidders Register on BuySpeed

<https://buyspeed.poha.com/>