

# HOUSTON SHIP CHANNEL EXPANSION: *SEGMENT 3 – BARBOURS CUT CHANNEL IMPROVEMENT*

## PROJECT 11

WEDA Webinar  
February 24, 2023

Visit: [www.expandthehoustonshipchannel.com](http://www.expandthehoustonshipchannel.com)



# PROJECT 11

## 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 Three Bird Island Marsh in Galveston Bay
- Mitigate for oyster habitat loss

1C

### Bayport Ship Channel to Barbours Cut

- Approximately 5 miles in length
- Widen Channel to 700 feet
- Construct additional marshes on Atkinson Island
- Mitigate for oyster habitat loss

2

### Bayport Ship Channel

- Approximately 4 miles in length
- Widen Channel to approximately 455 feet
- Construct Three Bird Island Marsh 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

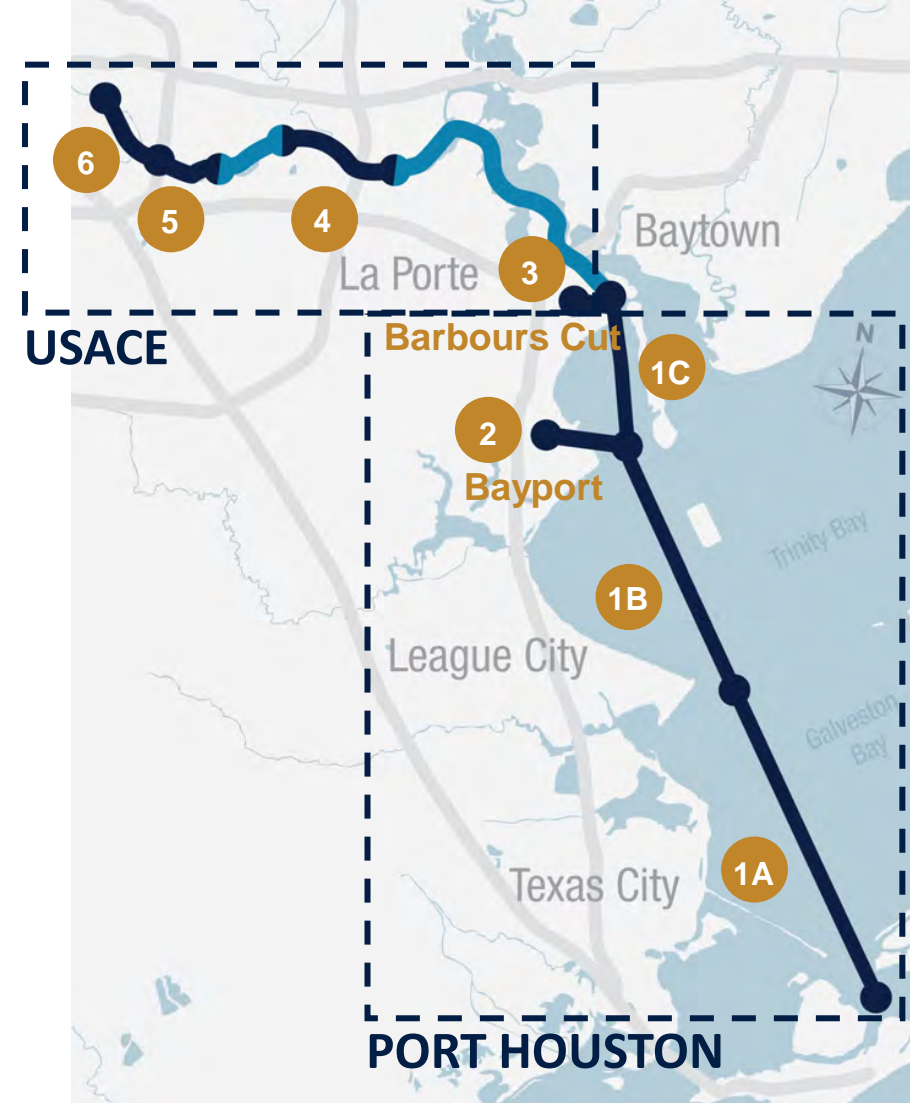
### Sims Bayou to IH 610

- 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



# HOUSTON SHIP CHANNEL, A FEDERAL WATERWAY



**1.35  
MILLION**  
JOBS IN TEXAS



**3.2  
MILLION**  
JOBS NATIONWIDE



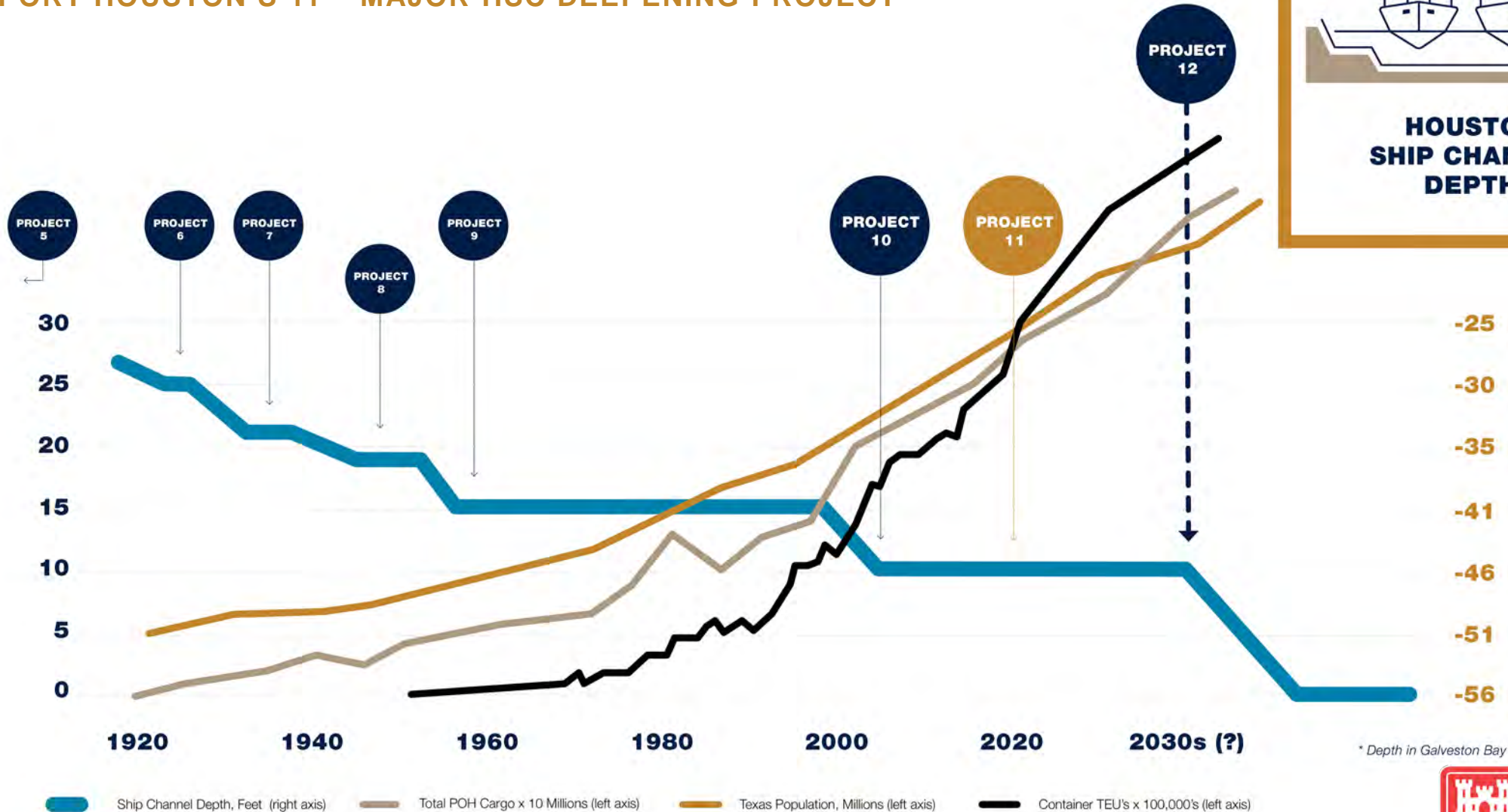
**\$339  
BILLION**  
ECONOMIC IMPACT  
IN TEXAS



**\$802  
BILLION**  
ECONOMIC IMPACT ACROSS THE U.S.

# PROJECT 11

PORT HOUSTON'S 11<sup>TH</sup> MAJOR HSC DEEPENING PROJECT



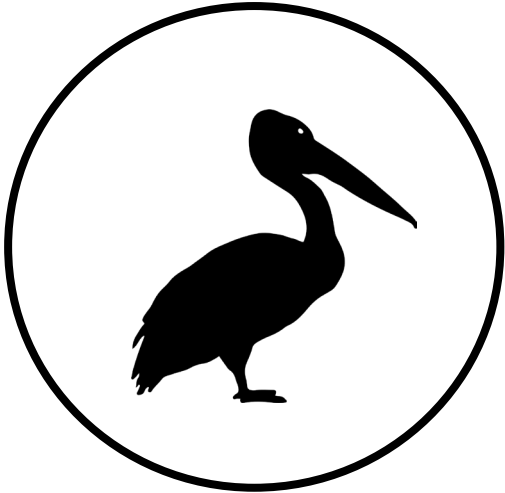
■ Ship Channel Depth, Feet (right axis)  
 ■ Total POH Cargo x 10 Millions (left axis)  
 ■ Texas Population, Millions (left axis)  
 ■ Container TEUs x 100,000's (left axis)

\* Depth in Galveston Bay



# PROJECT 11

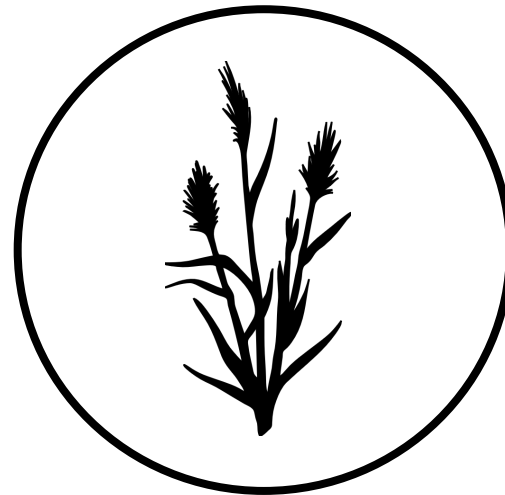
## ENVIRONMENTAL FOCUS



Bird Islands



Oyster Reefs



Marsh



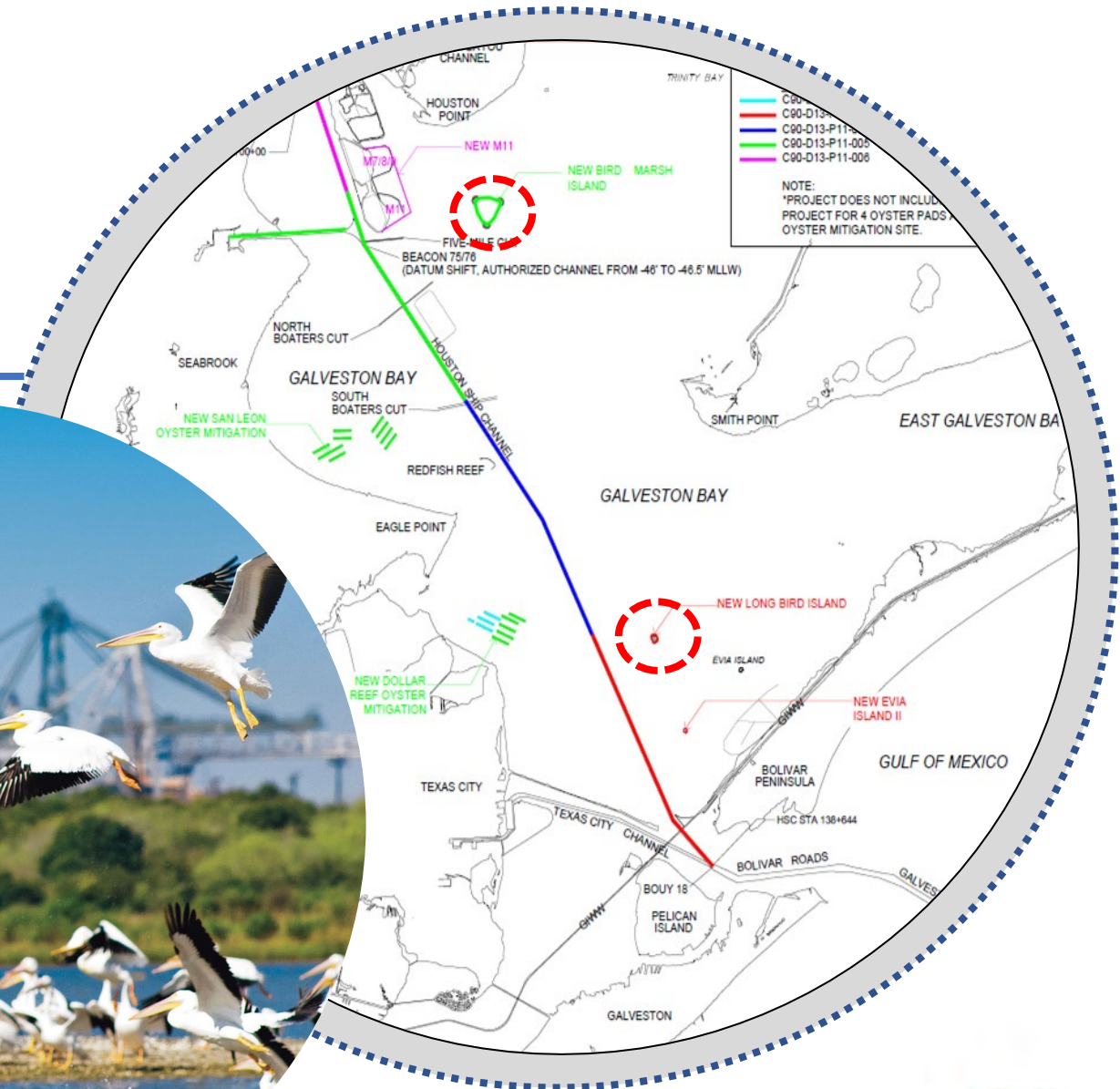
Air Quality



# PROJECT 11

## BIRD ISLANDS

- Foraging and nesting habitat
- New Bird Islands
  - Three Bird Island Marsh Complex
  - New Long Bird Island

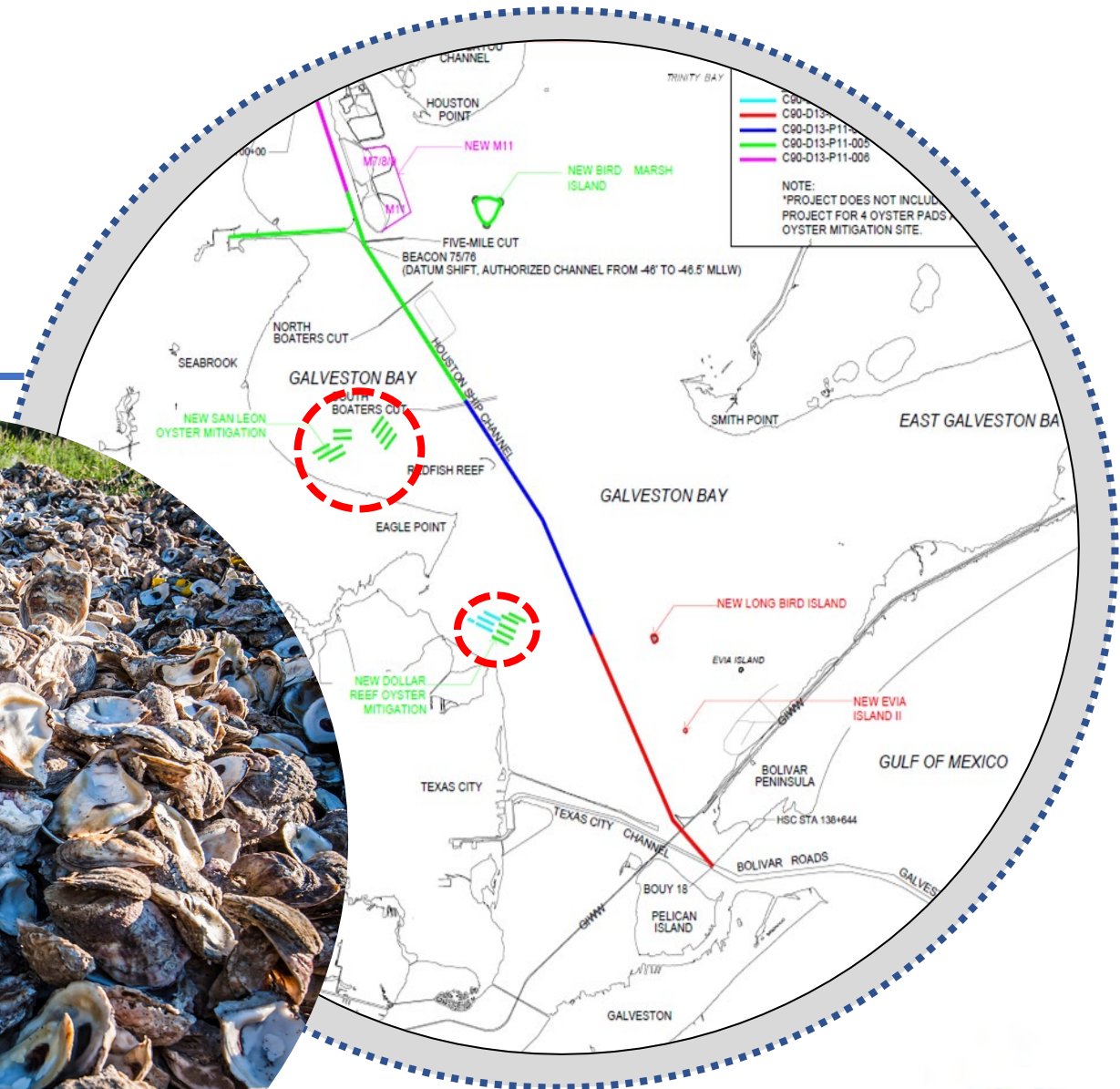


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# PROJECT 11

## OYSTER REEFS

- Up to 376 acres of replacement oyster reef pads
- New Oyster Reef Areas
  - San Leon Reef
  - Dollar Reef

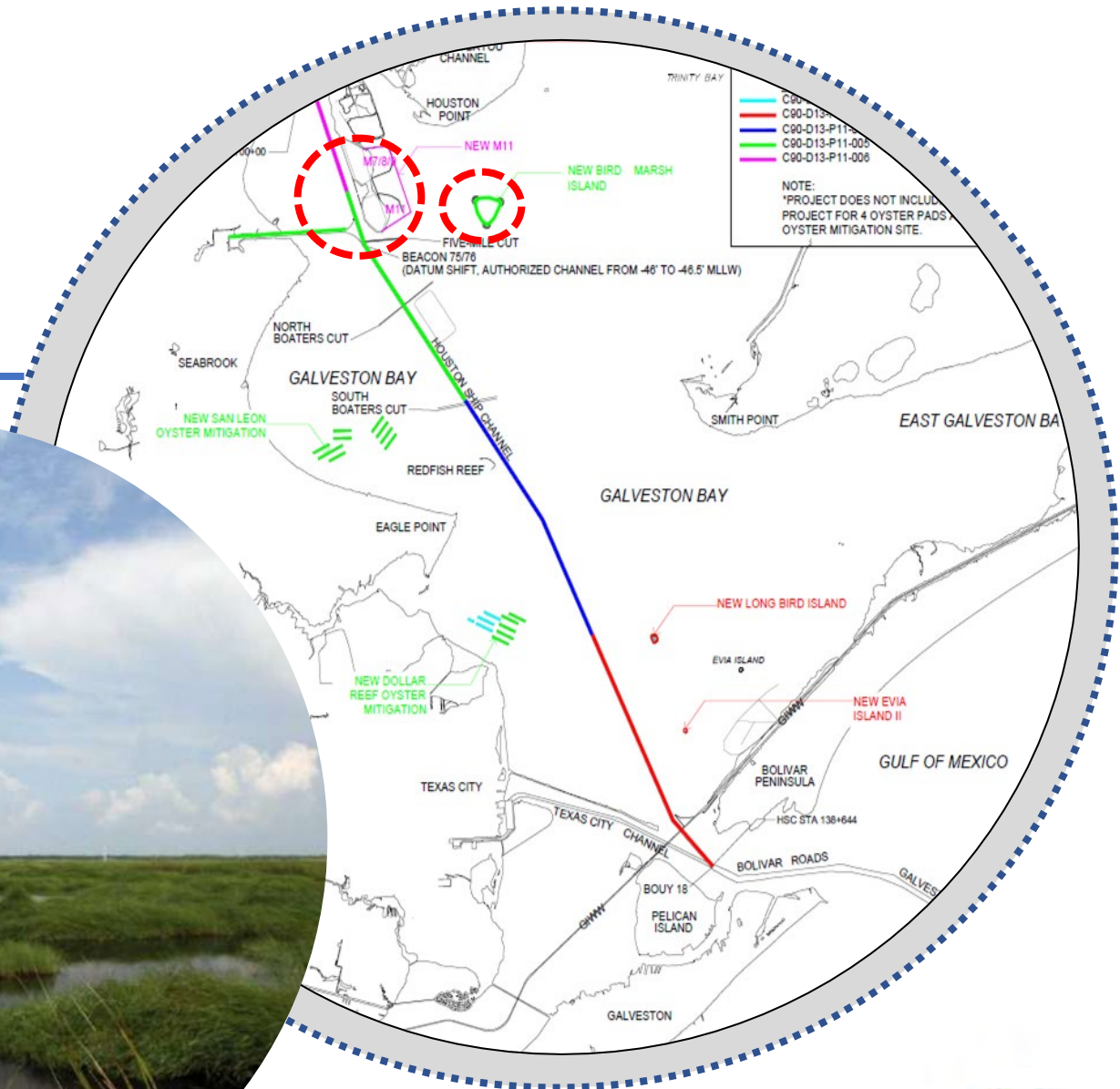


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# PROJECT 11

## MARSHES

- Provide wetlands and shallow open-water habitat
- New Marsh Areas
  - Three Bird Island Marsh Complex
  - M11
  - M12



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# PROJECT 11

## AIR QUALITY

- Initial 3% reduction of NOx from vessel emissions
- Wider, deeper safer channel results in fewer transits, shorter wait times, and decreased turn-around distance
- Over the next 11 years – after project implementation – expect to incrementally reduce air emissions by 7% annually



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# Segment 3 Design & Construction Components

- Segment 3 – Barbours Cut Channel
  - Widen and expanded Turning Basin
- Upland Impacts
  - Spilman Island DMPA
  - Morgan's Point
- Dredged Material Placement – M12
- Cedar Bayou Sweep

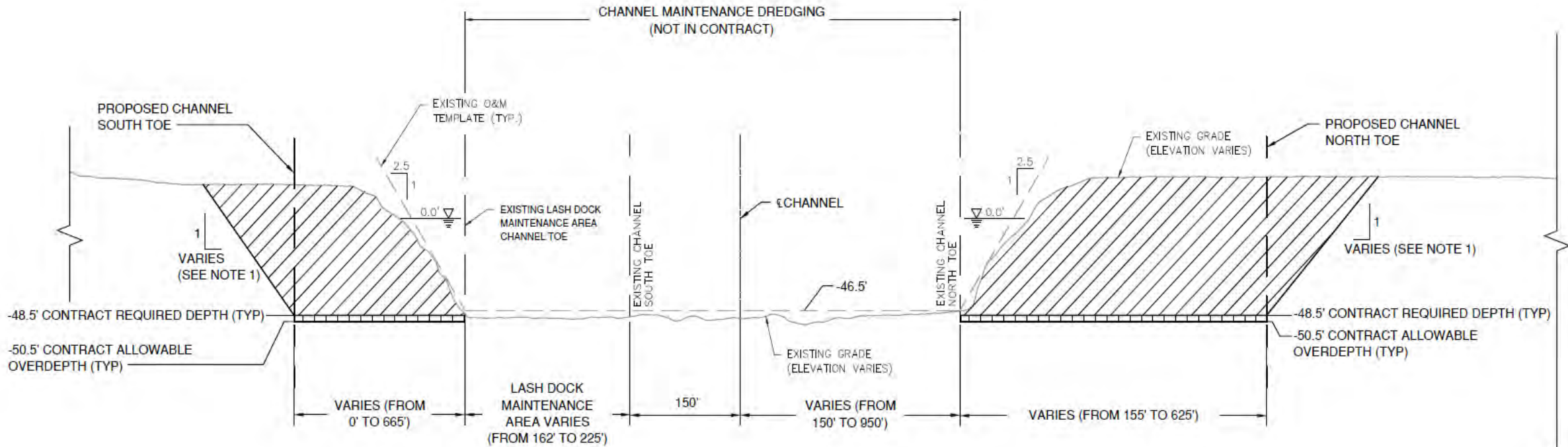


# Segment 3 Dredging

- Segment 3 – Barbour's Cut Channel
  - Widen channel to 455 ft
  - Turning Basin to 1,800 ft diameter
- New work material
- Debris and demolition
- Flare adjustments – lower wall cost
- Ship simulations

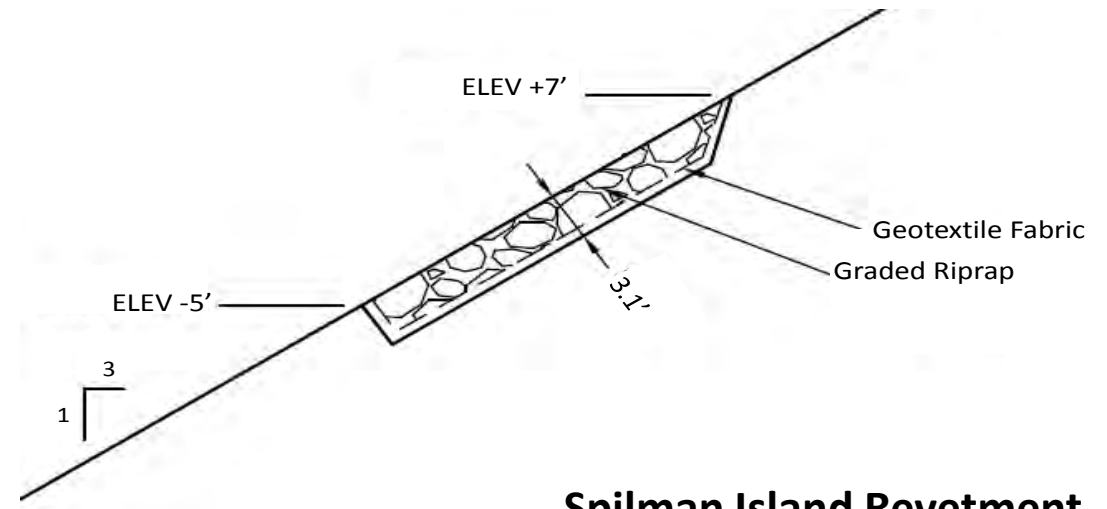
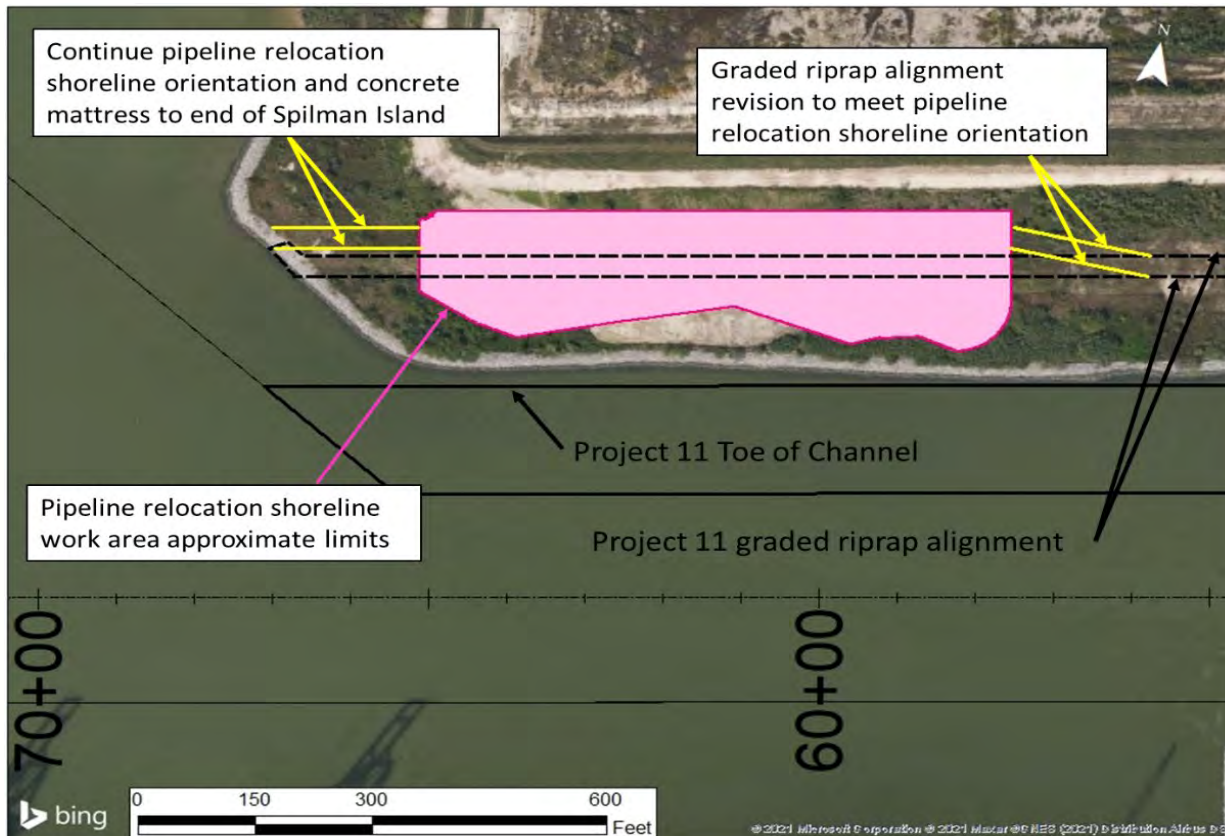


# Dredge Template

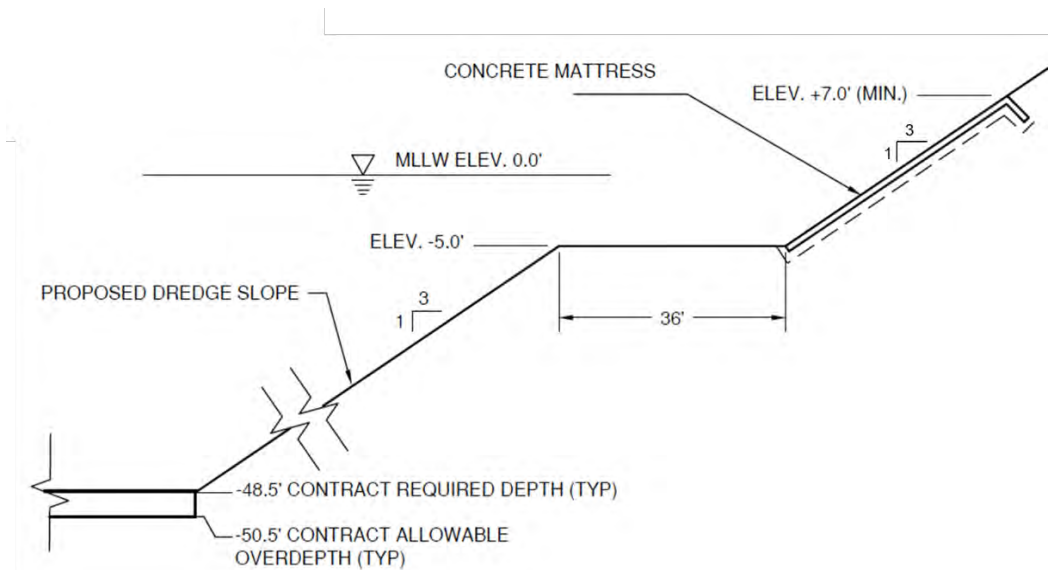


# Shoreline Protection

- Use existing riprap
- Supplement/replace (Morgan's Point)
- Concrete Mattress (west end of BCC)



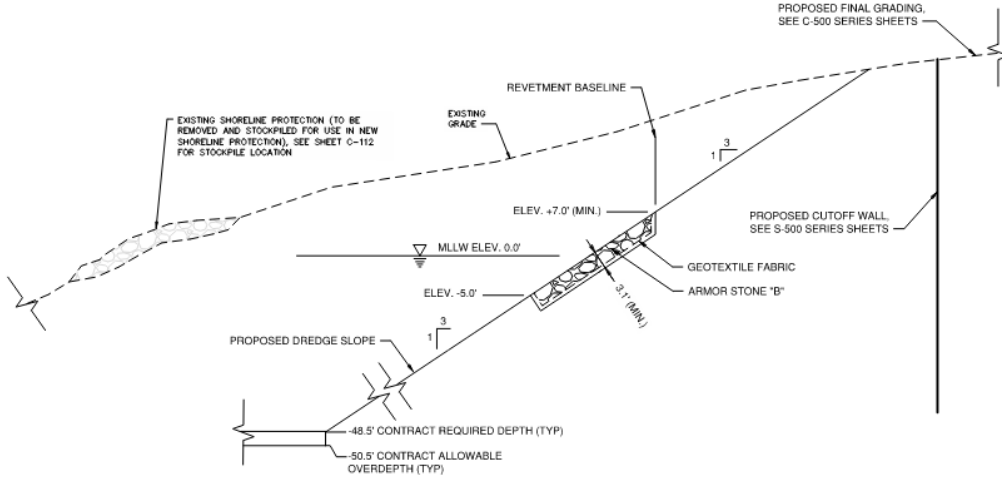
**Spilman Island Revetment**



**Spilman Island Cross-Section**



# Shoreline Protection



# M12

- Dredged material used to create new beneficial use area
- New marsh cell at Atkinson Island
- Hydraulically place berms
- Review impacts to Atkinson Island and tidal connections



# M12

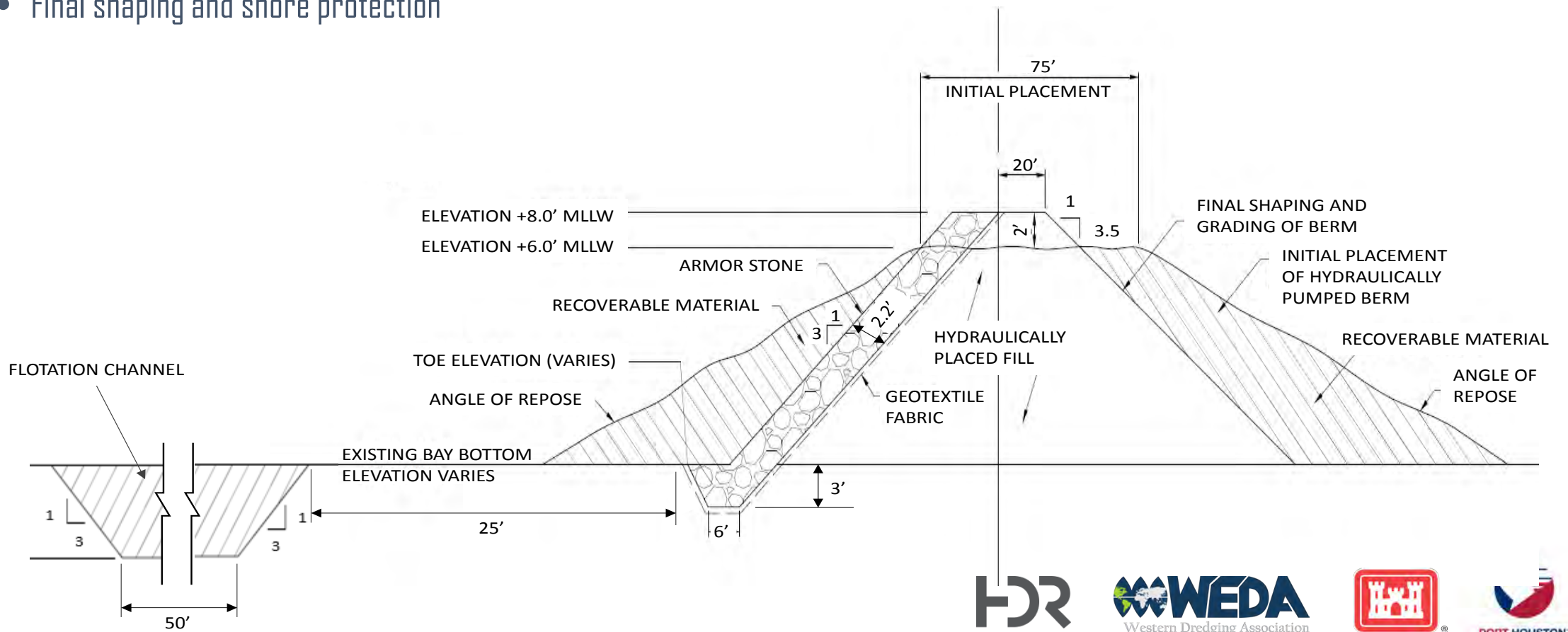
- Geotech showed firmer bay bottom
- Used retention formulas (HVJ)
- Berms volume less than dredge volume
- Internal placement of excess dredged material
- Upland and marsh areas





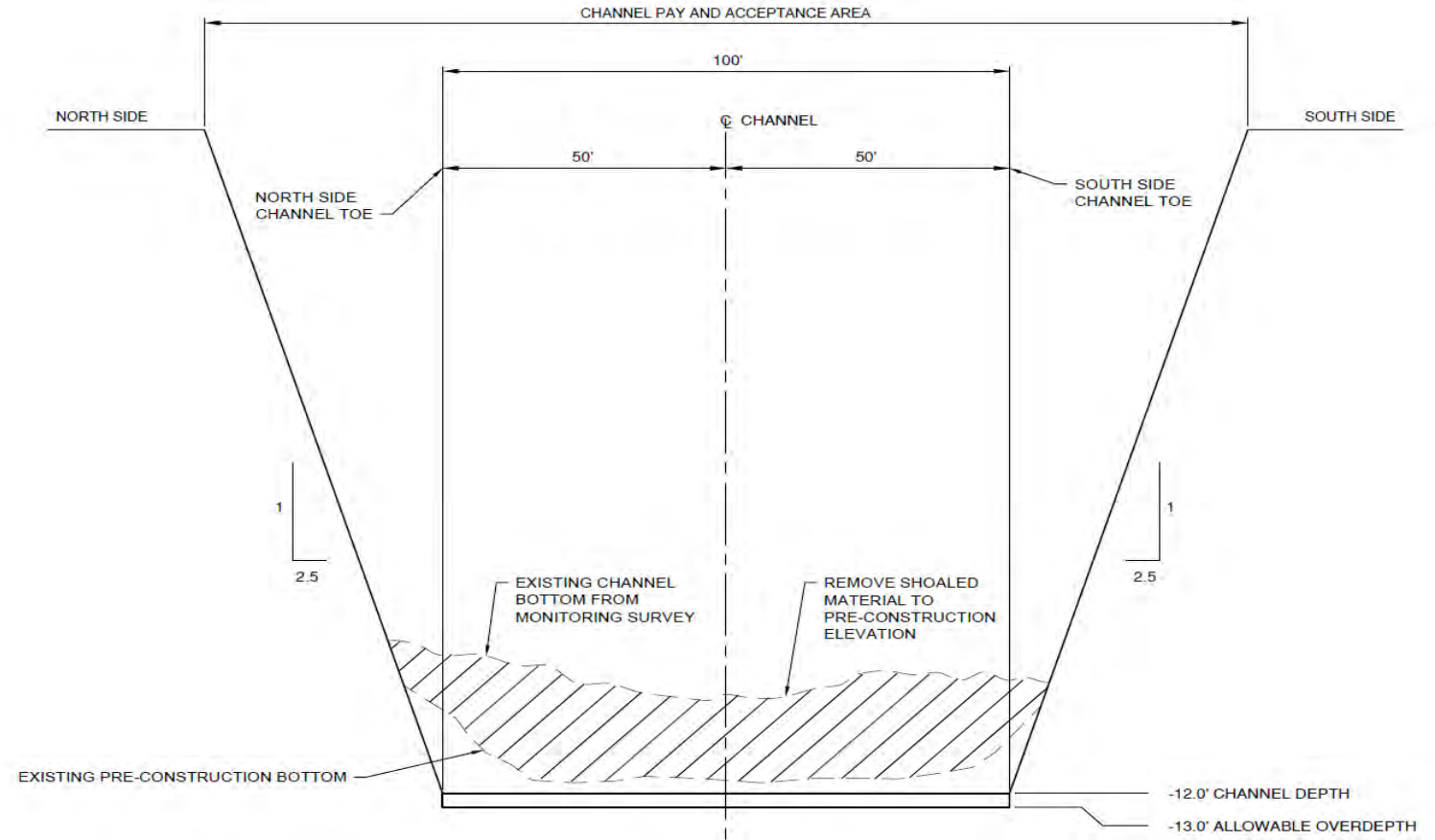
# M12

- Initial placement
- Final shaping and shore protection



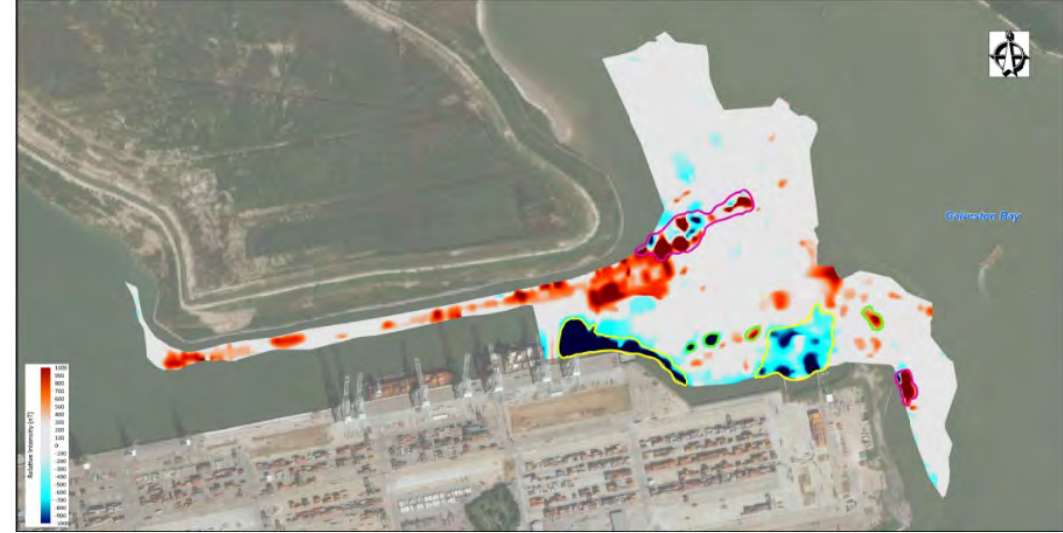
# Cedar Bayou Sweep

- Potential sedimentation due to berm construction
- Monitoring surveys
- Remove sedimentation from project
- Place within M12



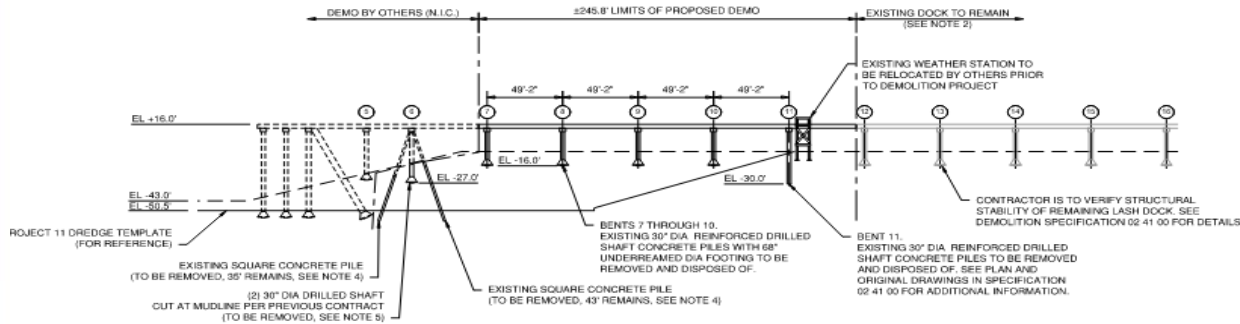
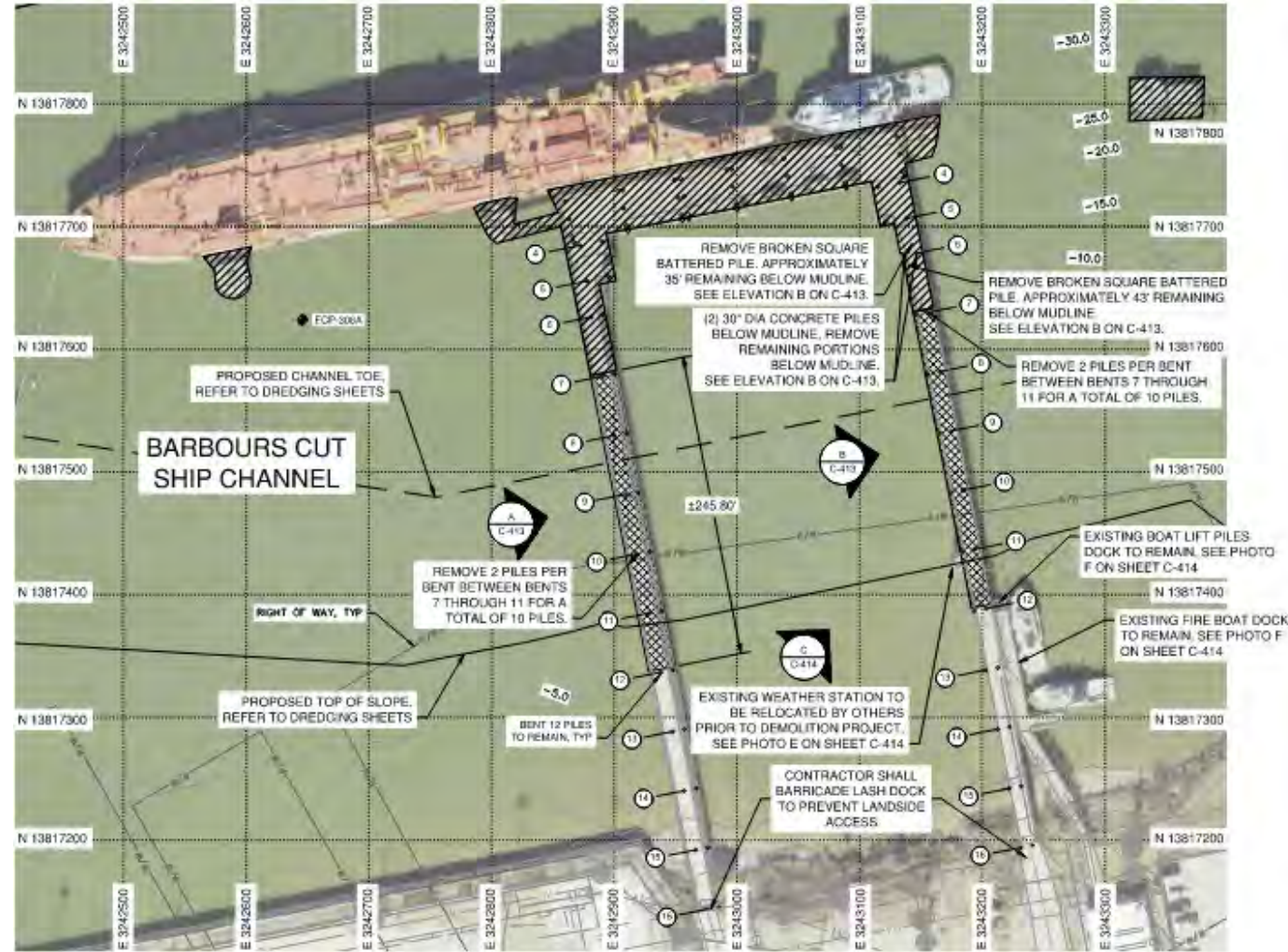
# Debris Removal – Channel

- Relic infrastructure along channel
- Past projects – historical aerial photos
- Structures at Morgan's Point
- Performed magnetometer/side scan sonar surveys
- Providing information to contractors



# Lash Dock Demolition

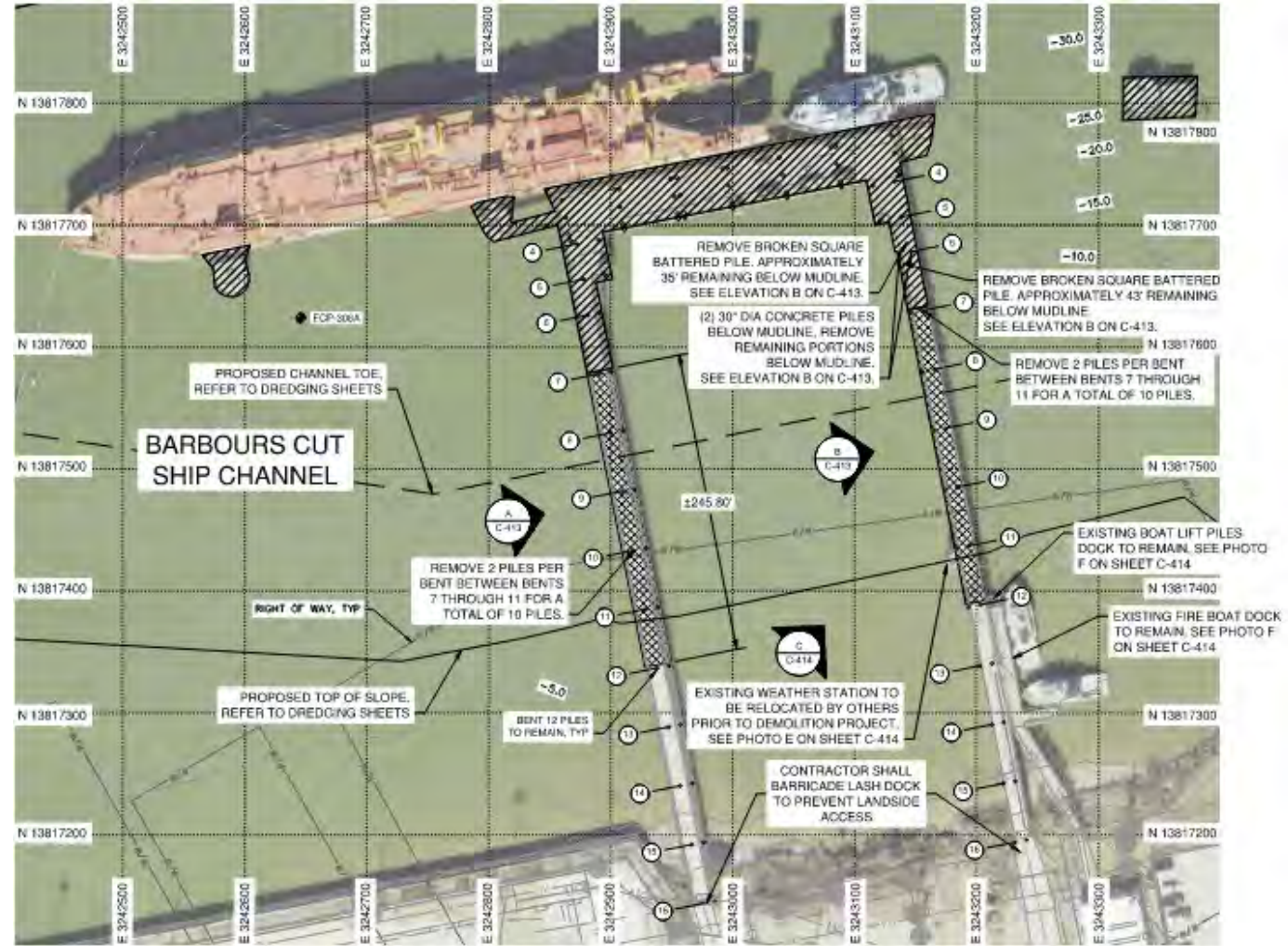
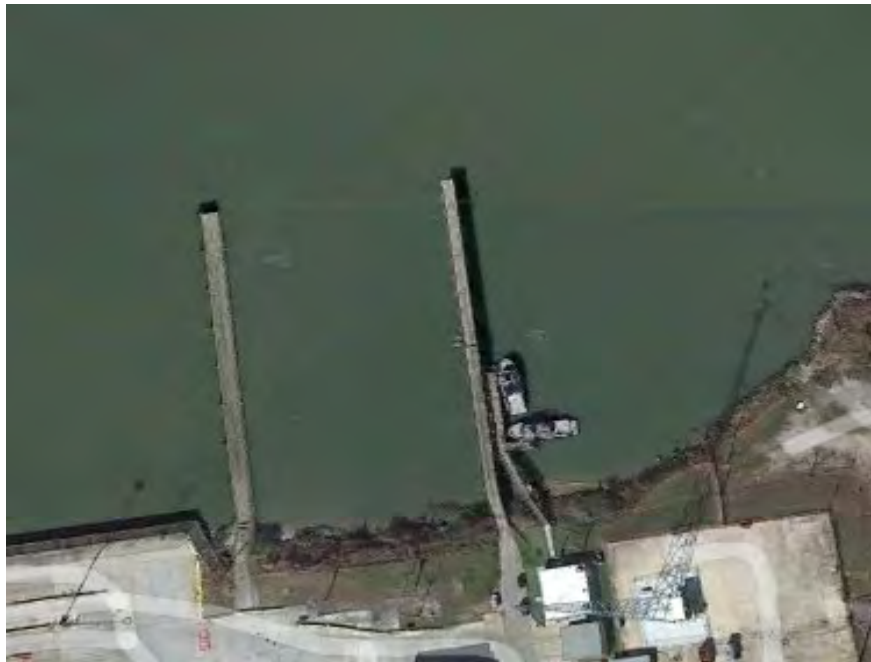
- Partial demolition was performed in 2020
- A portion of the remaining dock to be demolished for dredge template
- Required relocation of weather station



**B** ELEVATION-LASH DOCK EAST APPROACH  
SCALE: 1" = 40'

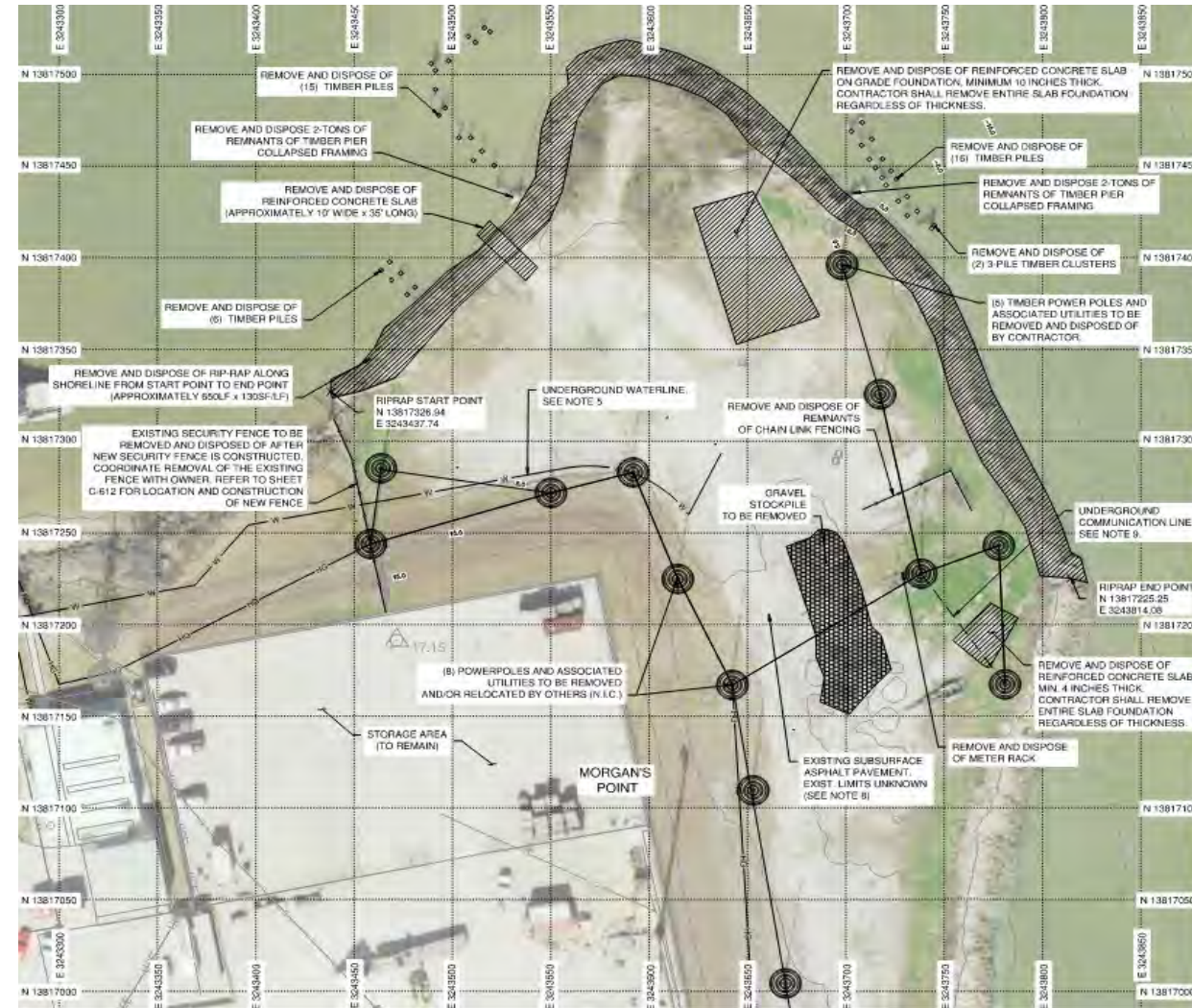


PORT HOUSTON

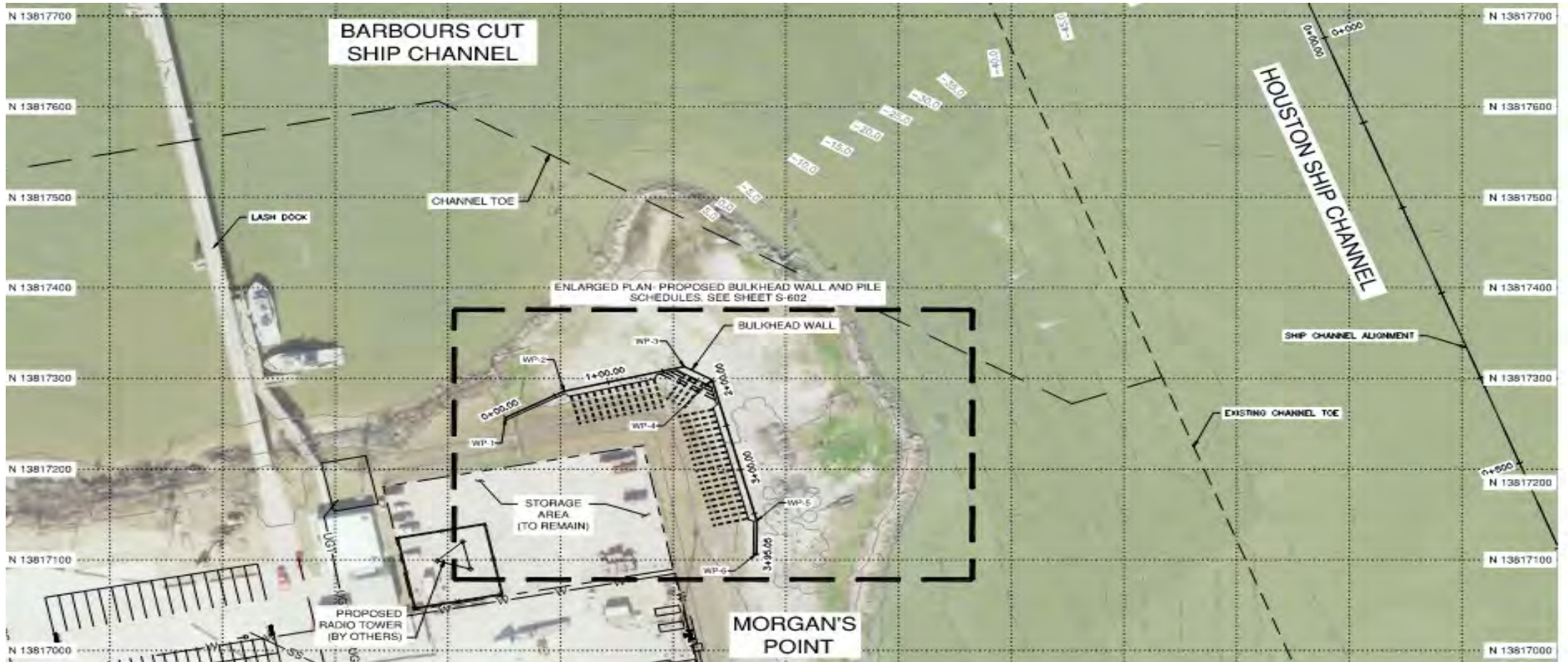


# Debris/Demo – Morgan’s Point

- Existing utilities, timber pier remnants, and existing features for previous buildings
- Required removal for bulkhead wall construction and/or dredge template

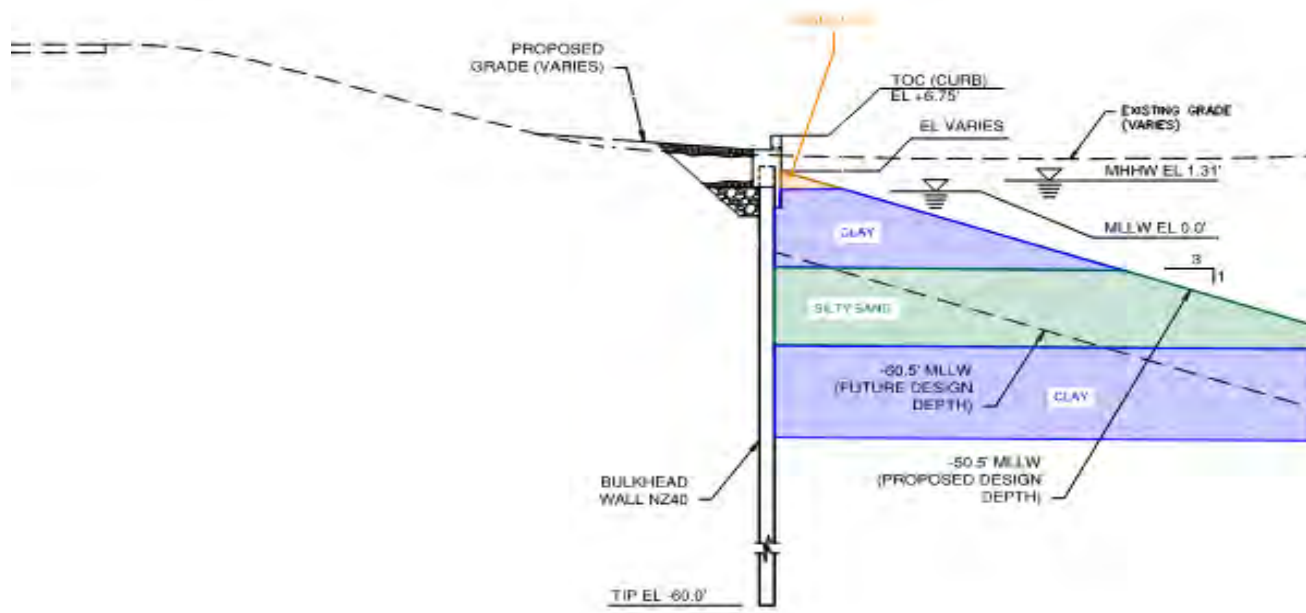


# Morgan's Point Bulkhead

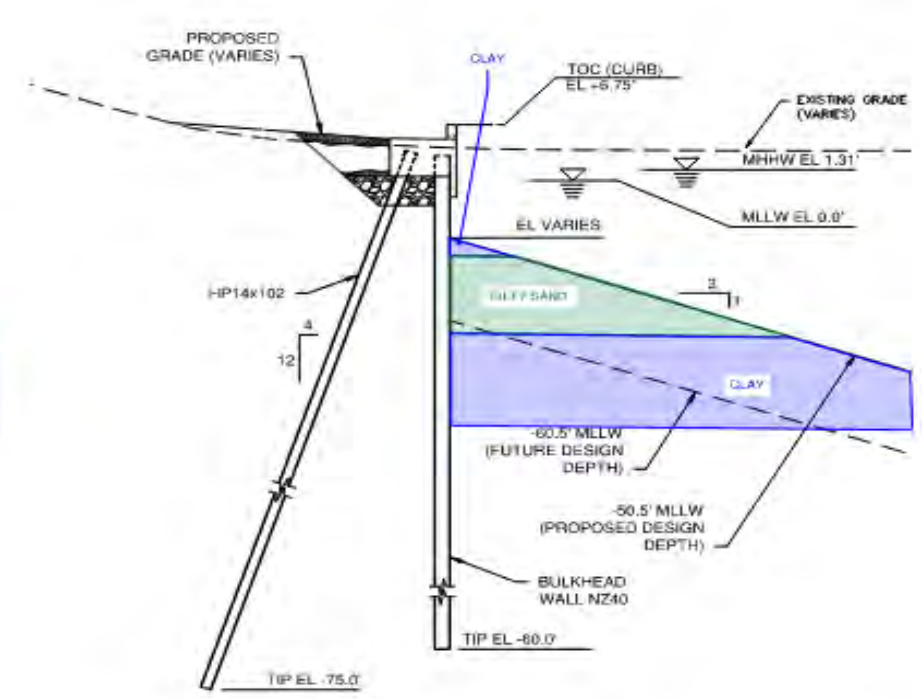


# Morgan's Point Bulkhead

- High scour and erosion allowance due to sandy soils



**A** BULKHEAD 1 WALL SECTION  
SCALE: 1" = 10'



**B** BULKHEAD 2 WALL SECTION  
SCALE: 1" = 10'





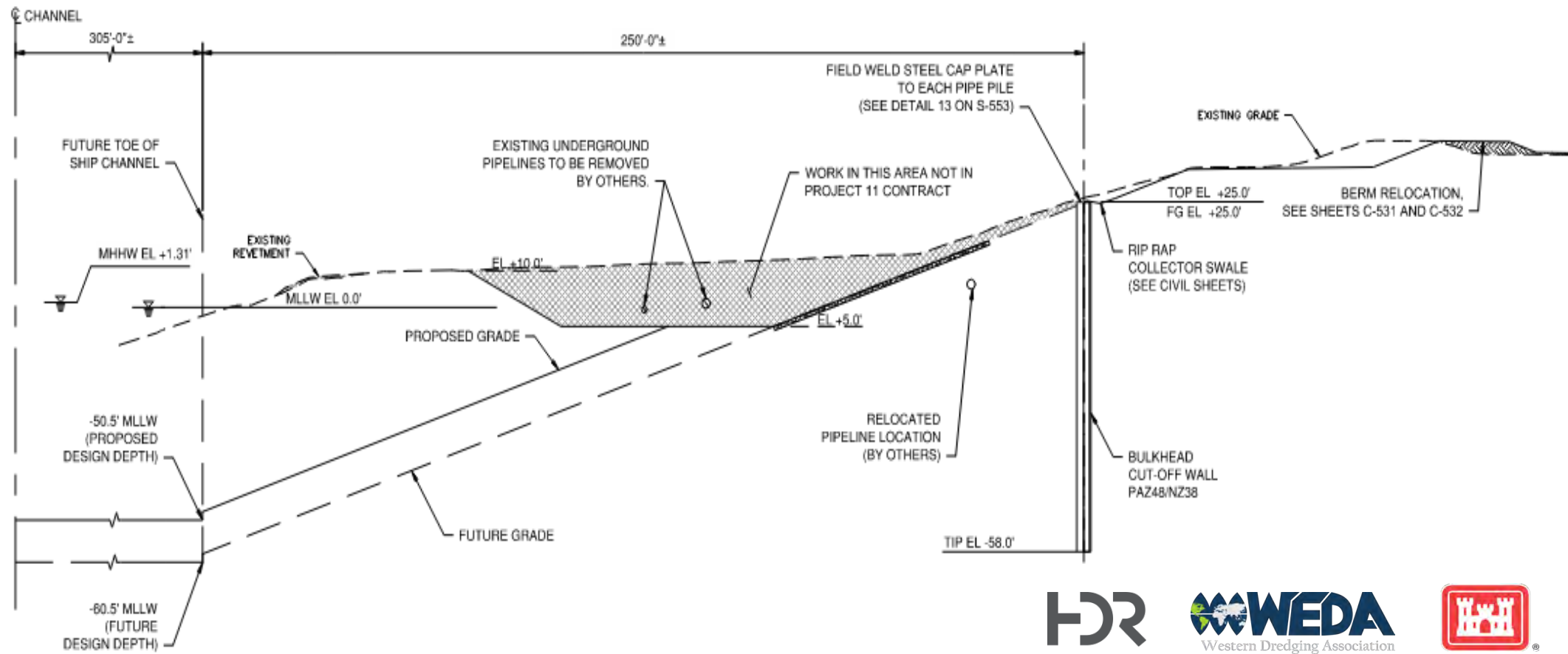
# Spilman Island Bulkhead Cut-Off Wall

- Design for future deepening and future berm raise
- Require berm relocation and realignment
- Cantilevered and Anchored Wall
- Varying FEMA flood zones



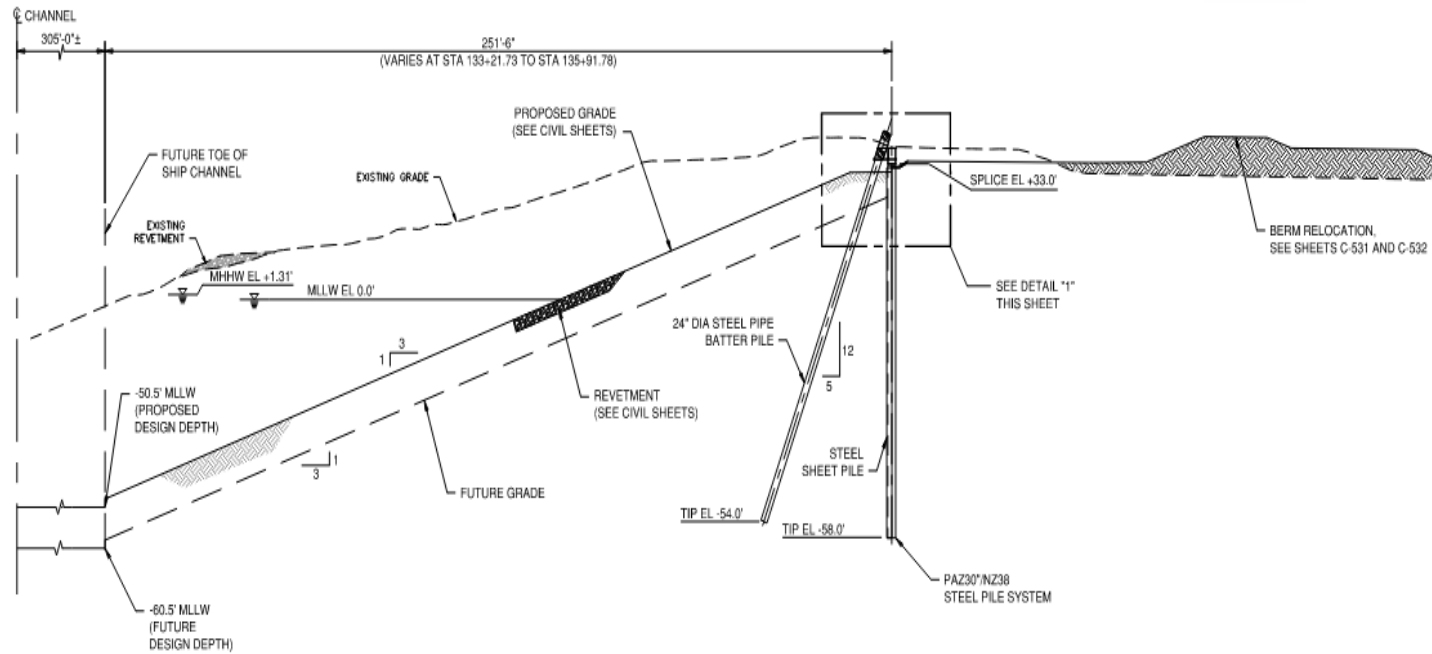
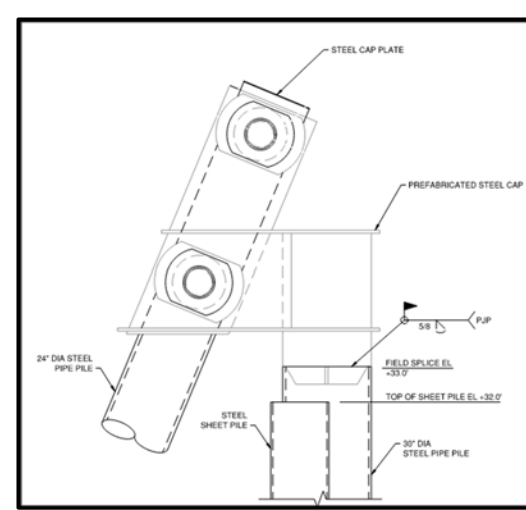
# Spilman Island Bulkhead Cut-Off Wall

- Cantilevered Wall (Section at West End)

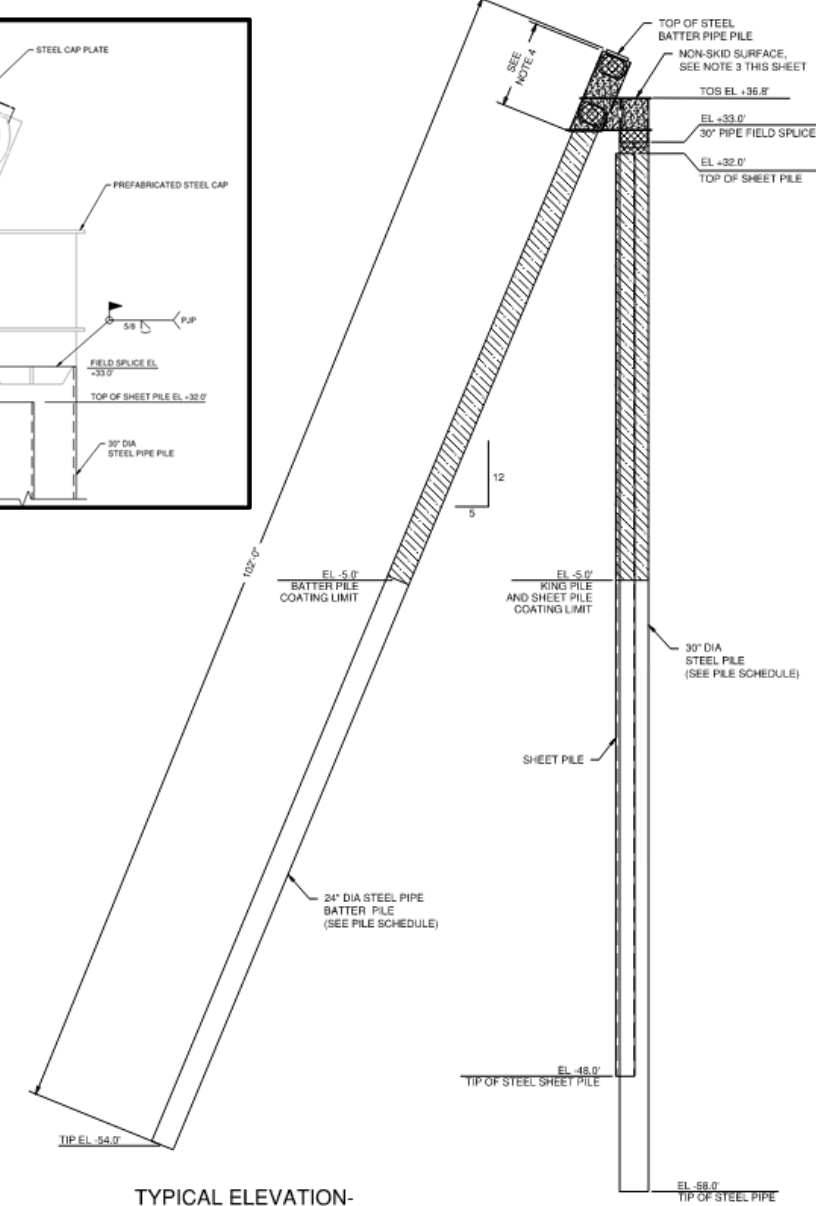


# Spilman Island Bulkhead Cut-Off Wall

- East End Corner Anchored Wall
- Pre-fabricated Steel Cap with sleeve for batter pile



SPILMAN  
DMPA



TYPICAL ELEVATION-

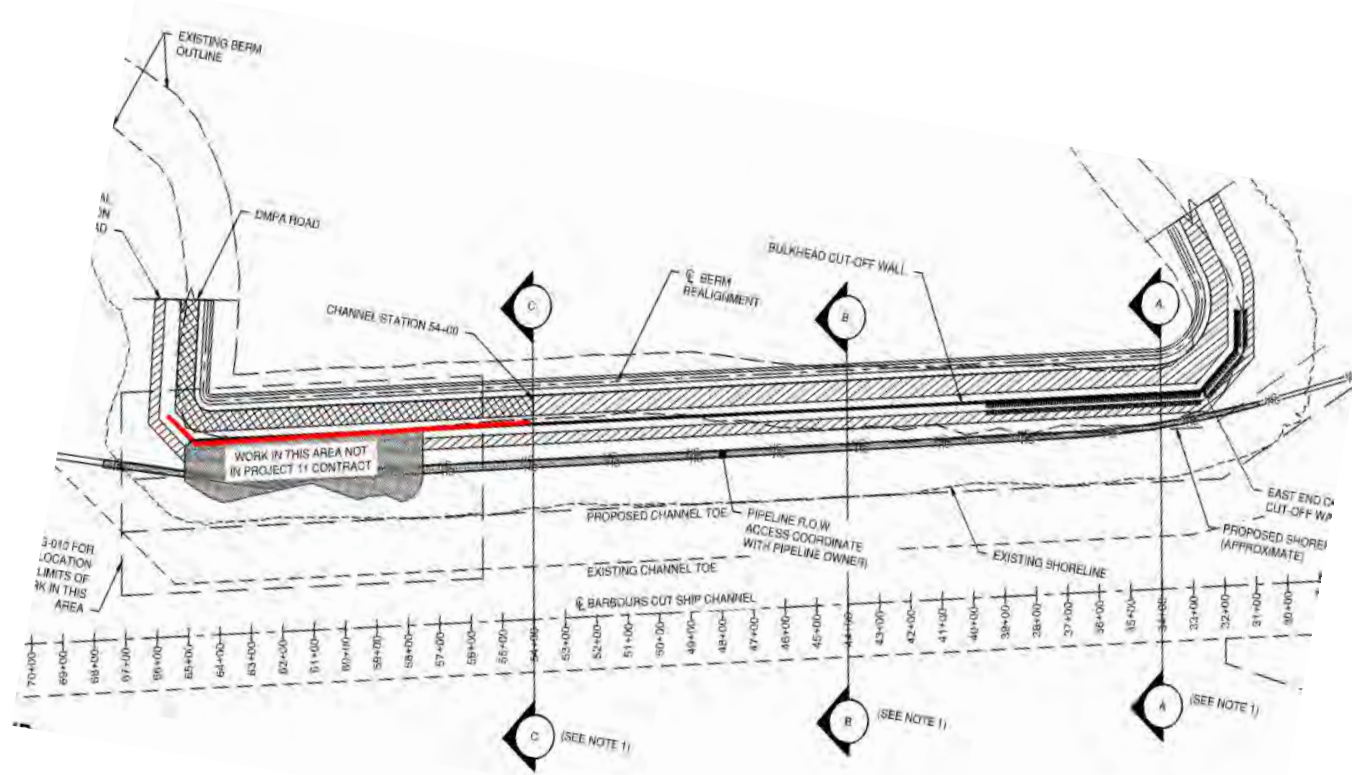
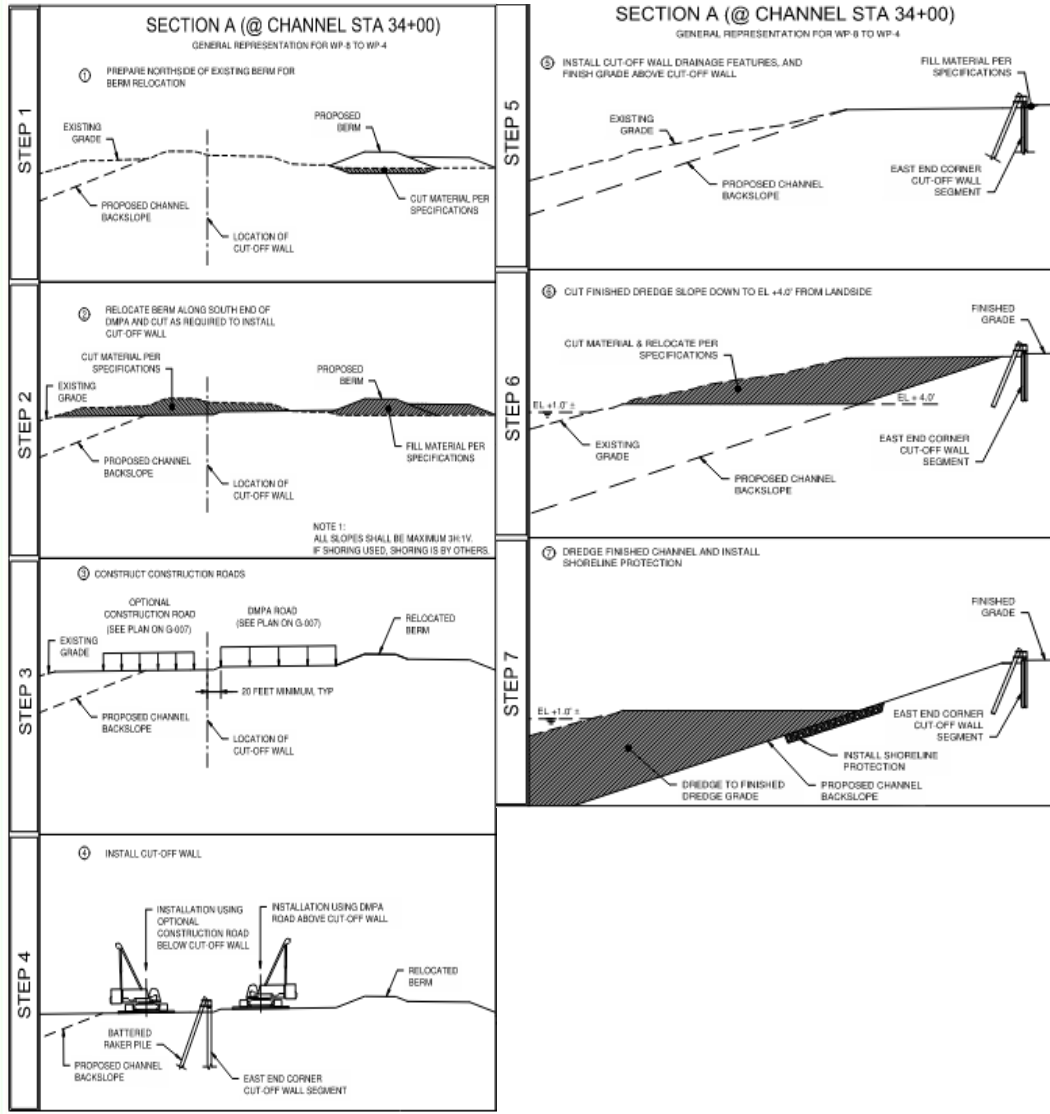


# Main Design & Construction Challenges

- Coordinating wall design/layout with dredging
- Excavation and placement within Spilman – dredge template
- Sequencing

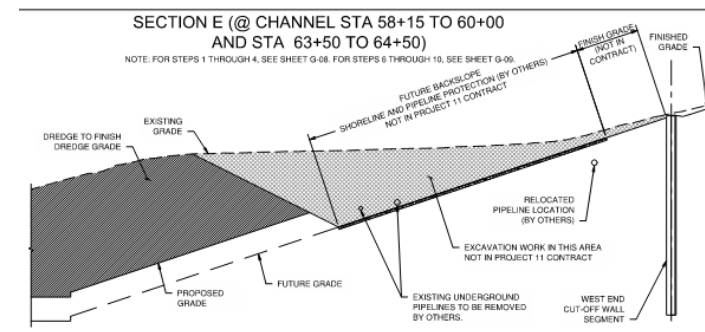
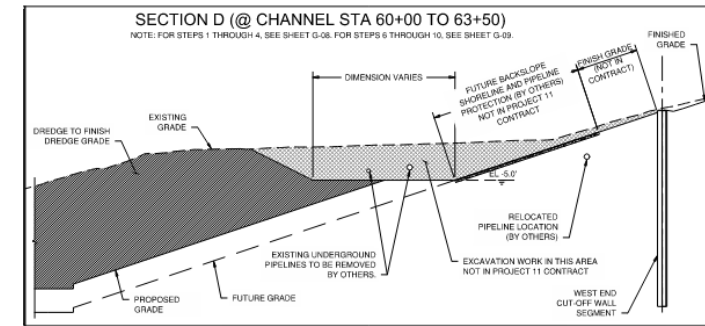
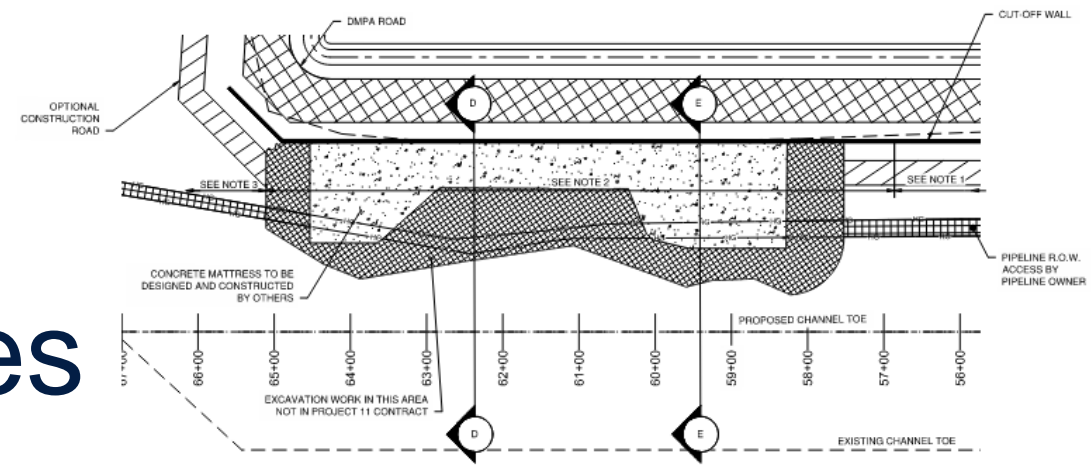
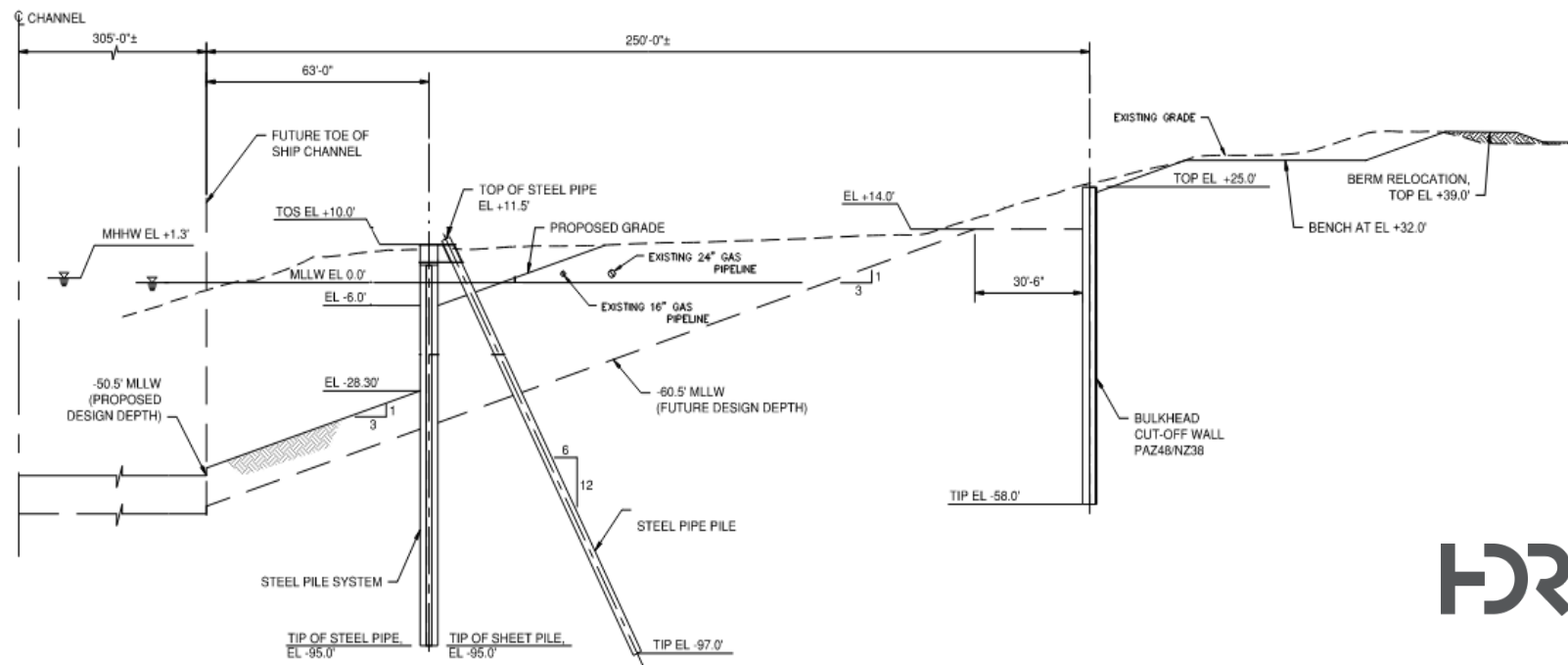


# Spilman Island Bulkhead Seq. (Suggested)



# Main Design & Construction Challenges

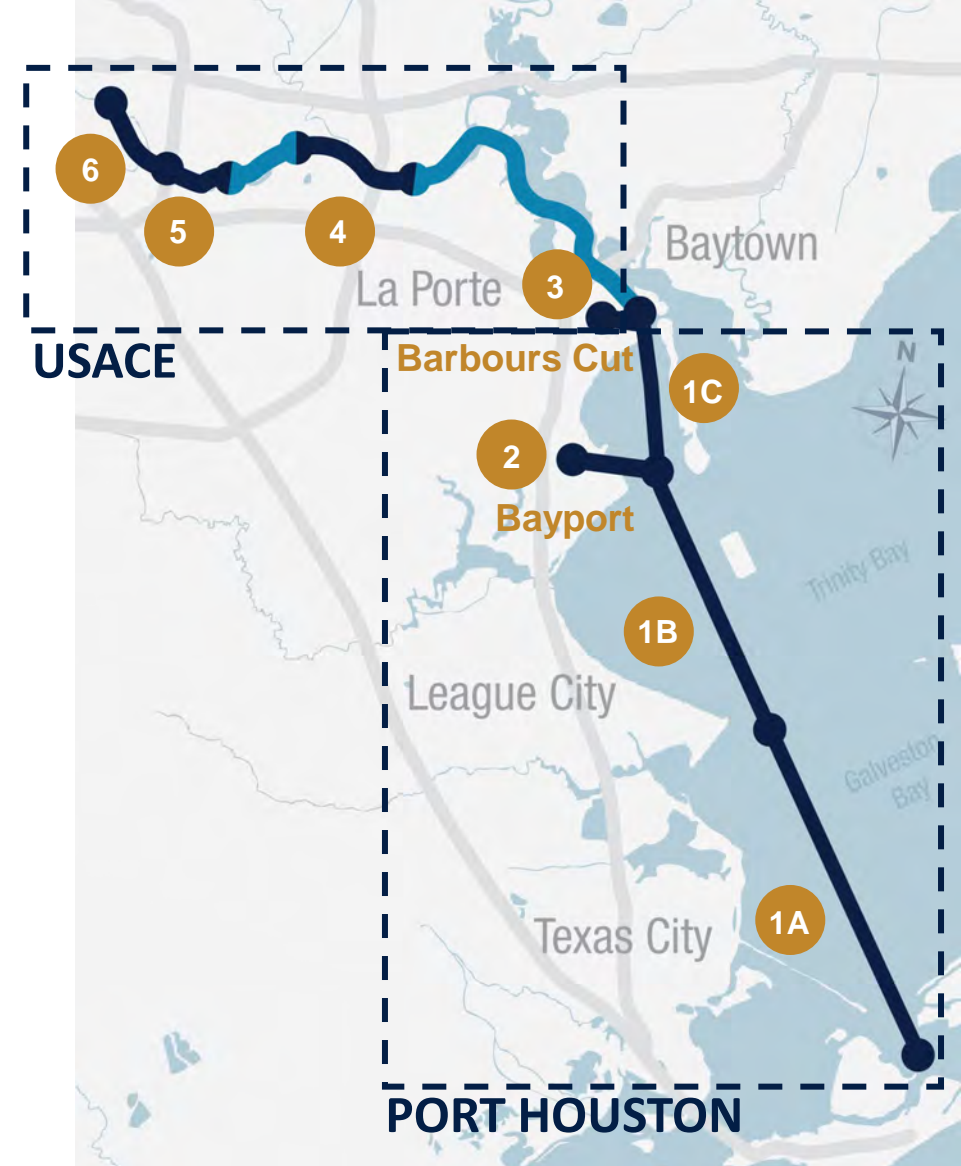
- Pipeline protection/relocation coordination
  - Initial design included protection wall
  - Revised to allow relocation



# HSC ECIP / PROJECT 11

## SEGMENT 3 TENTATIVE PROCUREMENT AND CONSTRUCTION SCHEDULE

- Invitation for Bid
- **SAM.GOV:** <https://sam.gov/opp/618456f3936643759ca9b83cd4513f18/view>
- Procurement Timeline
  - Advertise: June 28, 2023
  - Bid Opening: August 1, 2023
  - Award: September 28, 2023
- Contracting Office Address
  - KO Contracting Division
  - 2000 Fort Point Road
  - Galveston, TX 77550-1229 USA
- Primary Points of Contact
  - Jaclyn Yocum, [jaclyn.c.yocum@usace.army.mil](mailto:jaclyn.c.yocum@usace.army.mil)
  - Aldrich Antonia Nichols, [aldrich.a.nichols@usace.army.mil](mailto:aldrich.a.nichols@usace.army.mil)
  - Phone Number 409.766.3963
  - Fax Number 409.766.3010



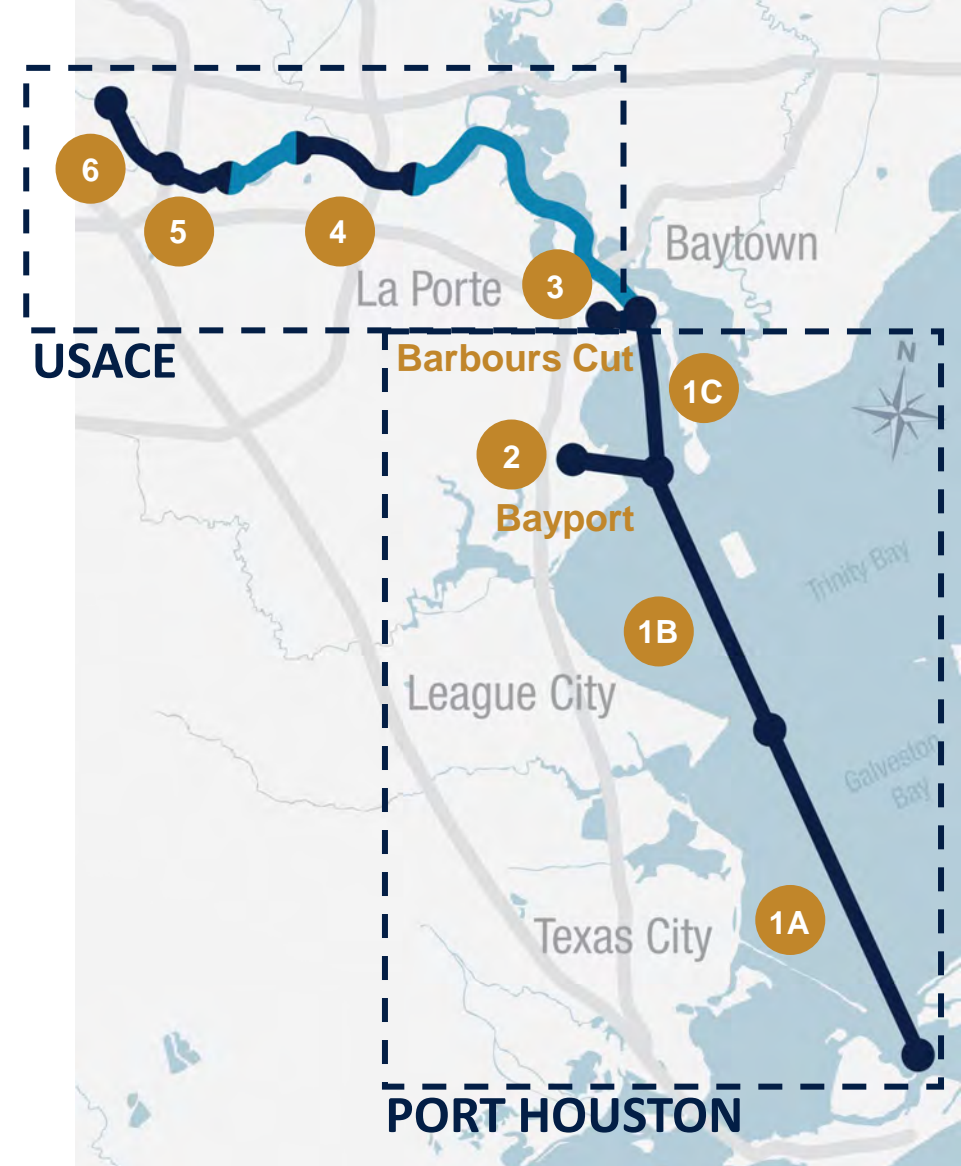
 No work planned in these areas



# HSC ECIP / PROJECT 11

## SEGMENT 1-6 TENTATIVE PROCUREMENT AND CONSTRUCTION SCHEDULE

Package		Segment	Advertise	Construction	
Completed	1	1A	Aug 2021	USACE	Jan - Oct 2022
	2	4	Feb 2021	Port	Jun 2021 - Jun 2022
	Abandoned Pipeline Removal	1A, 1B, 1C	Aug 2021	Port	Jan - Jul 2022
Under Contract	3/4A	1A	Jul 2021	Port	Feb 2022 - Feb 2023
	4B/5	1B, 1C, 2	Nov 2021	Port	Oct 2022 - Aug 2024
Funded	6	1C	Jun 2023	Port	Sep 2023 - Sep 2024
	7	3	Jun 2023	USACE	Oct 2023 - Oct 2025
Pending Federal Appropriations	8	4	Nov 2023	USACE	Jan 2024 - May 2025
	9	4	Mar 2025	USACE	Aug 2025 - Mar 2026
	10, 11	5, 6	Jul 2024	USACE	Nov 2024 - Sep 2025
	12	5, 6	Oct 2025	USACE	Jan 2026 - Dec 2026



 No work planned in these areas





# QUESTIONS?

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**Visit** the Project 11 Webpage

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

**Visit** the USACE SWG Webpage

<https://www.swg.usace.army.mil/Missions/Projects/>.

## Contact

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