HOUMA NAVIGATION CANAL (HNC) LOCK COMPLEX (TE-113)

2014 STATE OF THE COAST

MARCH 19, 2014

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A FEW FEATURES TO KNOW

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Morganza to Gulf of Mexico (TE-64)
Large Series of Flood Protection Projects in Terrebonne Parish

Bubba Dove Flood Gate
Flood/Barge gate built by Terrebonne Levee Conservation District

Morganza To Gulf of Mexico USACE Design Documentation Report.
USACE analysis and selection of preferred HNC Lock Complex

Increase Atchafalaya Flow to Eastern Terrebonne (TE-110).
Project to get freshwater into Terrebonne Parish.

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What is the HNC Lock Complex (TE-113)?

The Houma Navigation Canal (HNC) Lock Complex is a hydrologic project consisting of a lock, floodgate, and floodwall. The complex is a part of the Morganza to the Gulf Project (TE-64) and the Increase Atchafalaya Flow to Eastern Terrebonne Project (TE-110).

Purposes:

1) Reduce salt water intrusion.

2) Distribute freshwater within the Terrebonne Basin.

3) Provide storm surge protection as a part of the Morganza to Gulf project.

4) Continue navigation in the HNC for commercial and recreational uses.

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WHAT IS THE HNC?

- Provides marine access from Houma/GIWW to Gulf of Mexico for Oil & Gas Industry, commercial shipping, commercial and recreational fishing.

- Constructed: 1958-1962

- Depth: -15 NGVD
- Width: 150 FT.

- Port of Terrebonne works closely with Port Fourchon.

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Importance of the Houma Navigation Channel

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State of Louisiana
The Honorable Bobby Jindal, Governor

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Louisiana's Comprehensive Master Plan for a Sustainable Coast

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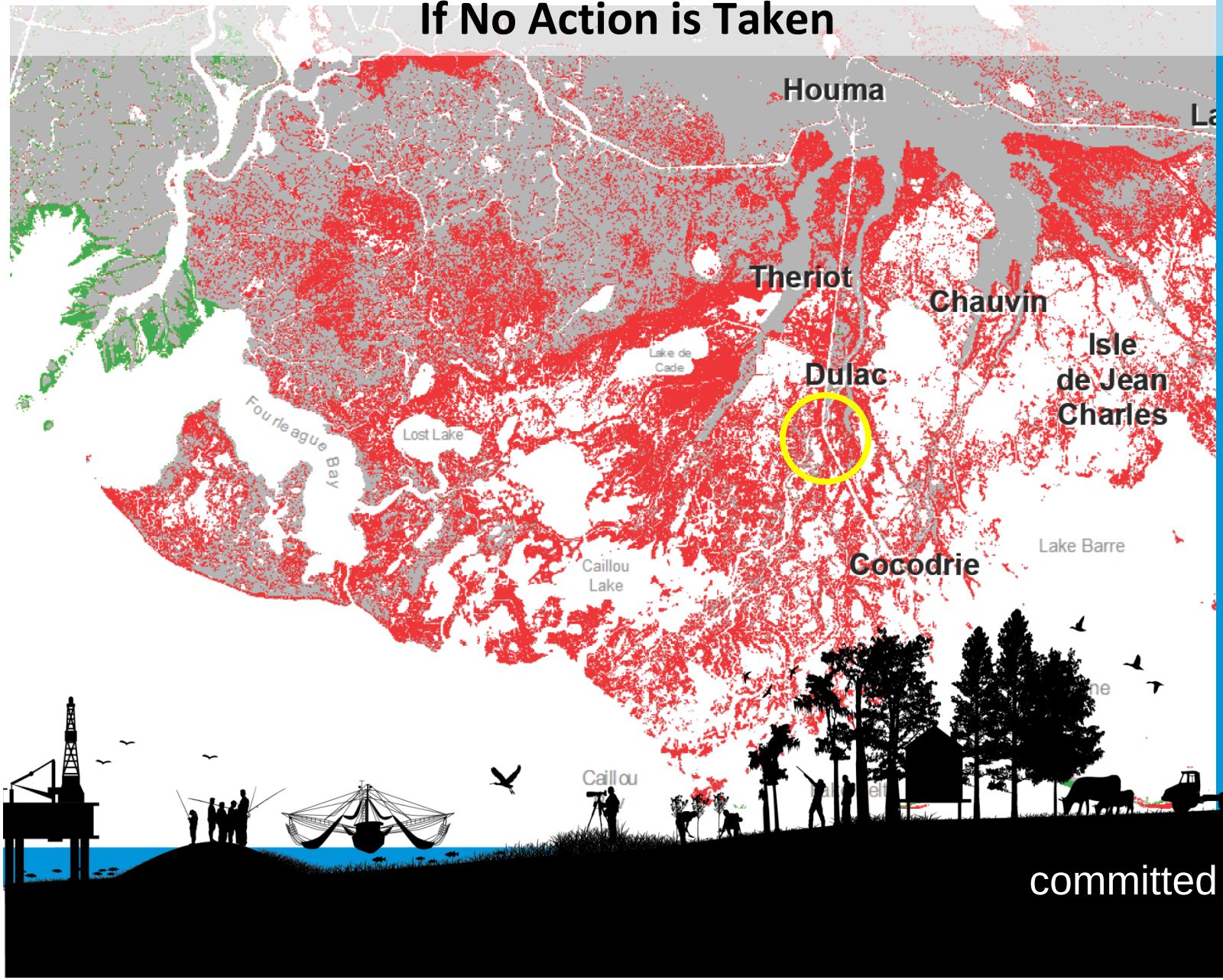
Predicted Land Change Over the Next 50 Years
If No Action is Taken



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Morganza to the Gulf of Mexico
Hurricane Protection Project (TE-64)

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- **PROJECT PURPOSE:** Provide Storm Surge Protection in Terrebonne and parts of Lafourche Parishes
- **PROJECT FEATURES:** levees, T-walls, navigation structures, water control structures, and floodgates.
- **PROJECT LENGTH**: 98 miles

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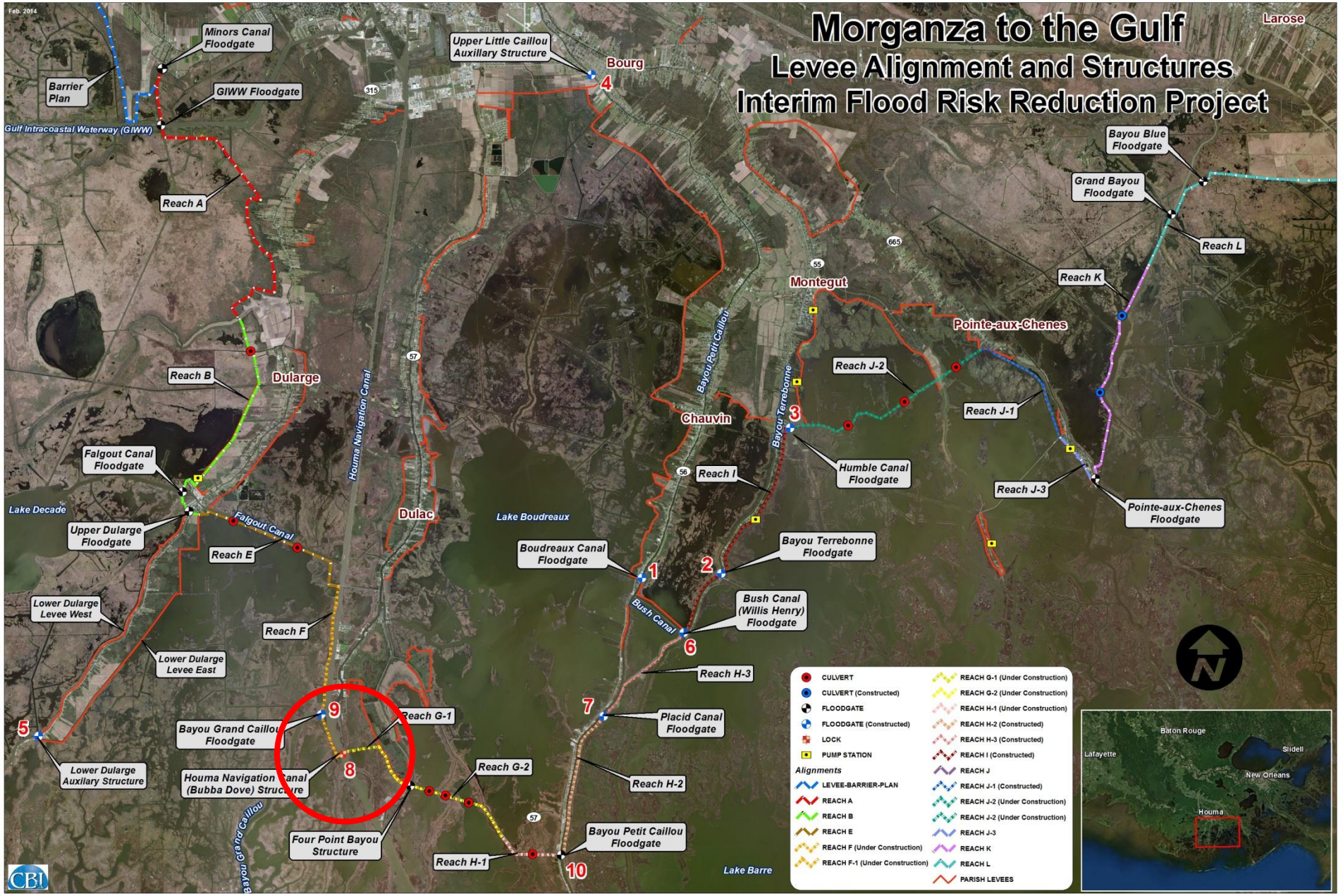
Feb. 2014
Morganza to the Gulf
Levee Alignment and Structures
Interim Flood Risk Reduction Project
Larose
Minors Canal Floodgate
Barrier Plan
GIWW Floodgate
Gulf Intracoastal Waterway (GIWW)
Upper Little Caillou Auxillary Structure
Bourg
4
Reach A
Bayou Blue Floodgate
Grand Bayou Floodgate
Reach L
Reach K
Montegut
Pointe-aux-Chenes
Reach J-2
Reach J-1
Reach J-3
Pointe-aux-Chenes Floodgate
Reach B
Dularge
Houma Navigation Canal
Bayou Petit Caillou
Bayou Terrebonne
Chauvin
3
Humble Canal Floodgate
Falgout Canal Floodgate
Reach I
Lake Decade
Upper Dularge Floodgate
Falgout Canal
Dulac
Lake Boudreaux
Reach E
Boudreaux Canal Floodgate
1
2
Bayou Terrebonne Floodgate
Lower Dularge Levee West
Bush Canal
Bush Canal (Willis Henry) Floodgate
6
Reach F
Lower Dularge Levee East
Reach H-3
7
Placid Canal Floodgate
5
9
Reach G-1
Bayou Grand Caillou Floodgate
Lower Dularge Auxilary Structure
8
Houma Navigation Canal (Bubba Dove) Structure
Reach G-2
Reach H-2
Four Point Bayou Structure
Bayou Grand Caillou
Bayou Petit Caillou Floodgate
Reach H-1
10
Lake Barre
CULVERT
CULVERT (Constructed)
FLOODGATE
FLOODGATE (Constructed)
LOCK
PUMP STATION
Alignments
LEVEE-BARRIER-PLAN
REACH A
REACH B
REACH E
REACH F (Under Construction)
REACH F-1 (Under Construction)
REACH G-1 (Under Construction)
REACH G-2 (Under Construction)
REACH H-1 (Under Construction)
REACH H-2 (Constructed)
REACH H-3 (Constructed)
REACH I (Constructed)
REACH J
REACH J-1 (Constructed)
REACH J-2 (Under Construction)
REACH J-2 (Under Construction)
REACH J-3
REACH K
REACH L
PARISH LEVEES
Baton Rouge
Slidell
Lafayette
New Orleans
Houma
CBI

Increase Atchafalaya Flow to Eastern Terrebonne (TE-110)

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- **PROJECT PURPOSE:** Divert freshwater from the Atchafalaya River into Terrebonne Basin.

- **PROJECT FEATURES:** Water control structures, channel modifications.

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Suggested Flows by Increase Atchafalaya Flow To Terrebonne Parish

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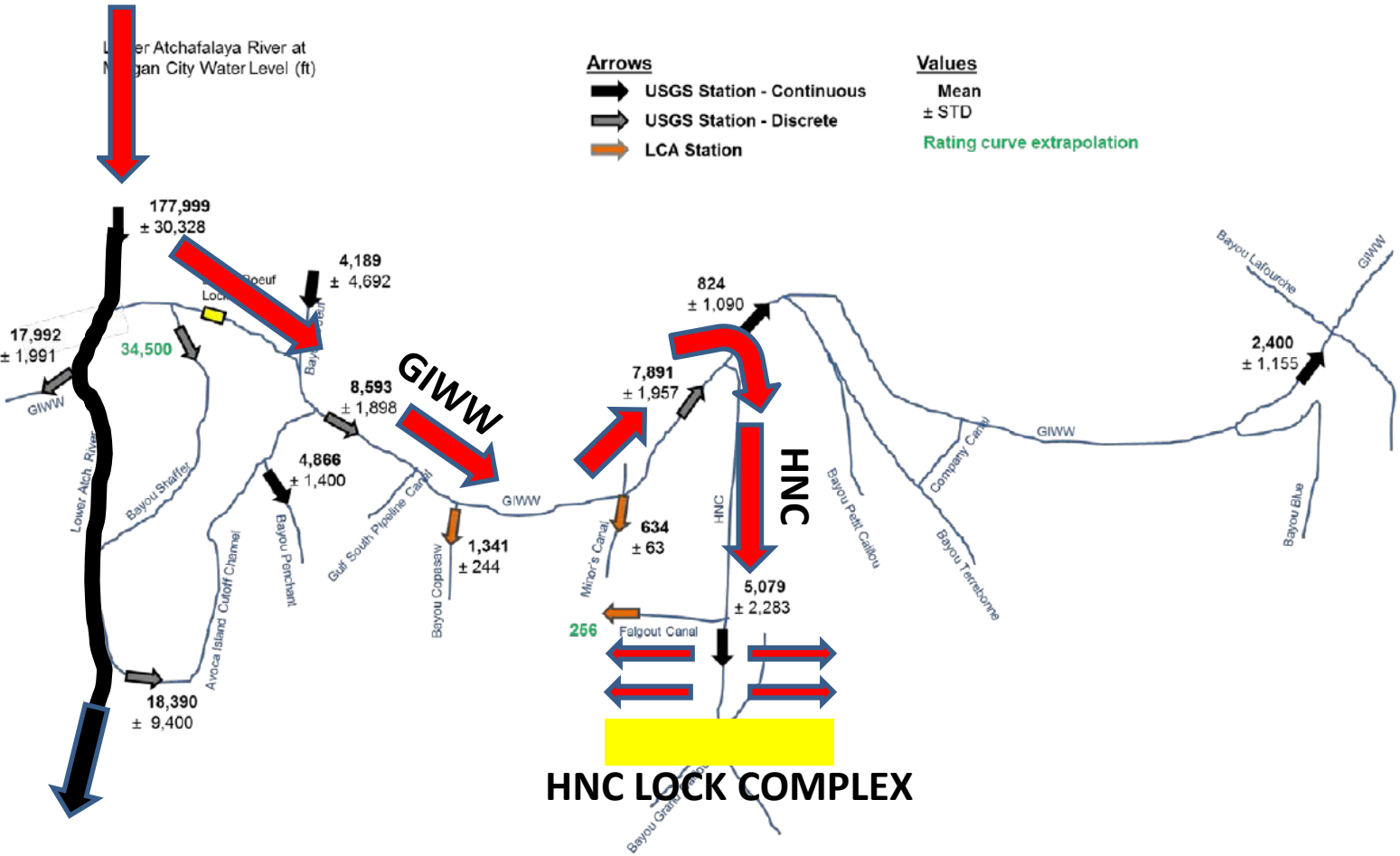
ATCHAFALAYA RIVER



HNC LOCK COMPLEX

Design of HNC Lock Complex (TE-113)
SITE REQUIREMENTS

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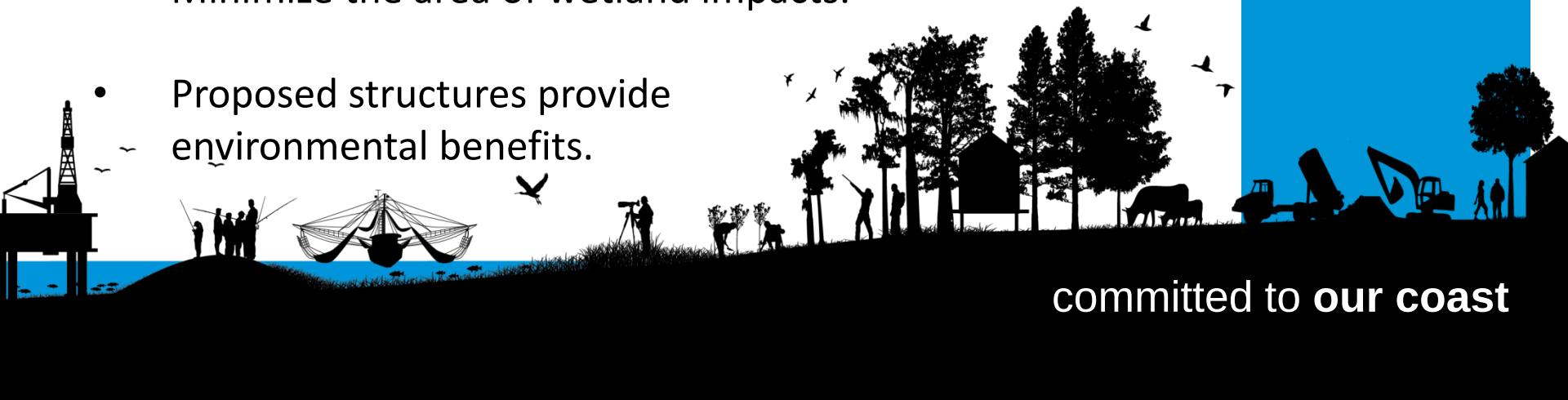
- Unrestricted land access from east to all features.
- Maintain flood protection during Construction.
- Keep HNC open for navigation all times during Construction.
- Keep existing Bubba Dove barge gate.
- Design for 1% (100 year/22.5 ft) & 2% (50 year/21.0 ft) elevations.
- Minimize the area of wetland impacts.
- Proposed structures provide environmental benefits.



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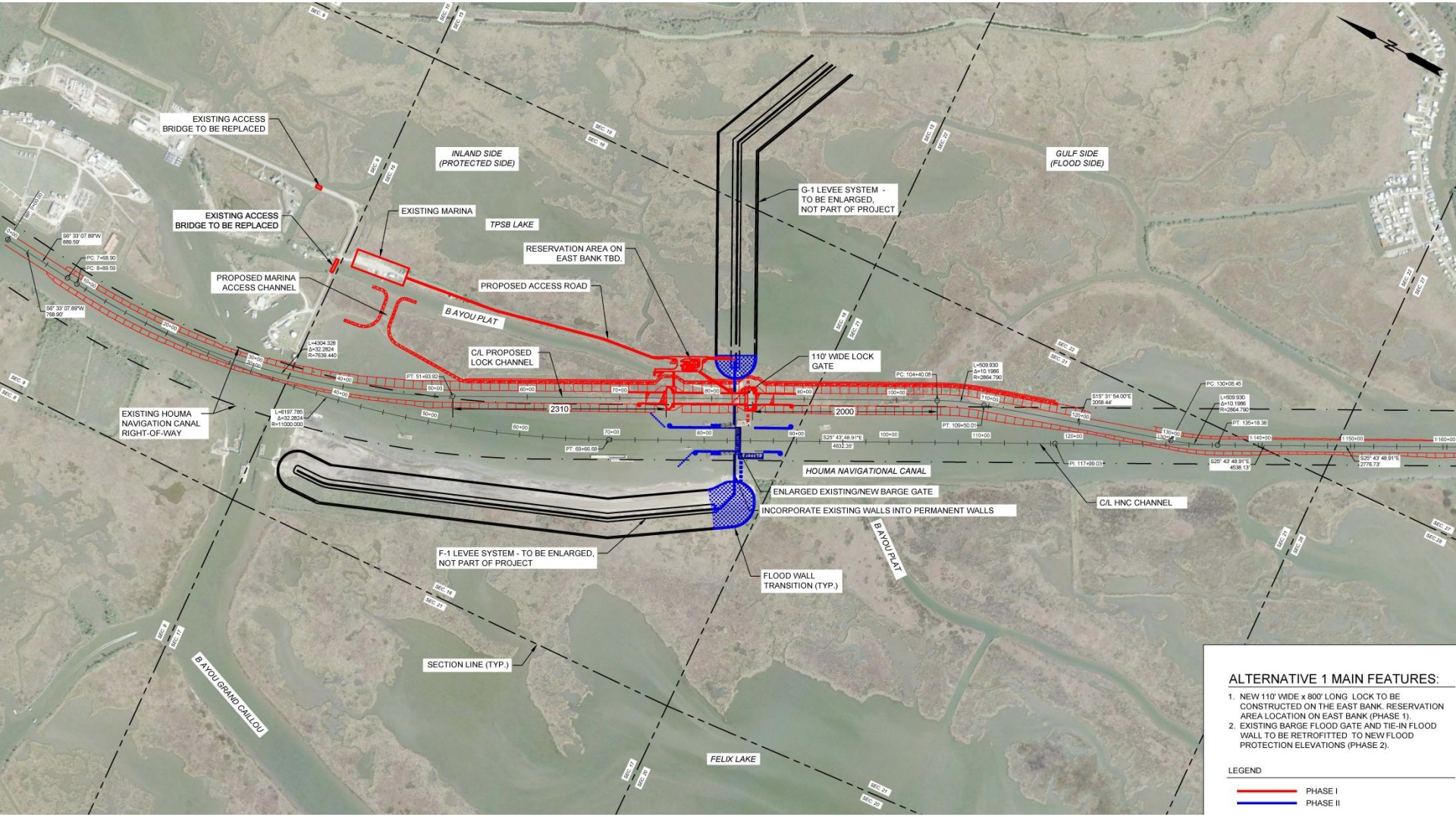
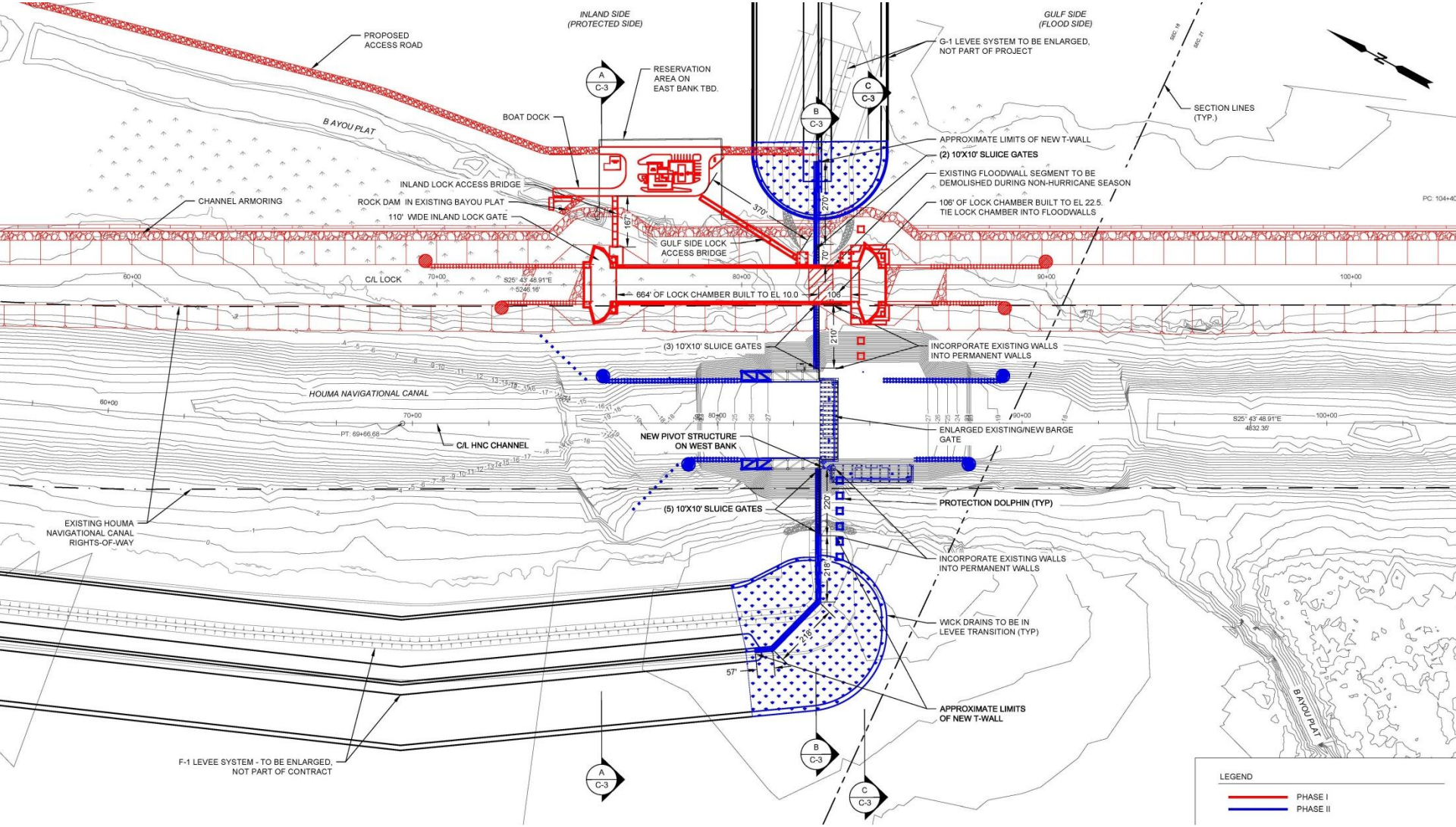
ALTERNATIVE 1 OVERVIEW MAP



ALTERNATIVE 1 SITE DETAIL MAP



Alternative 1 CONSIDERATIONS

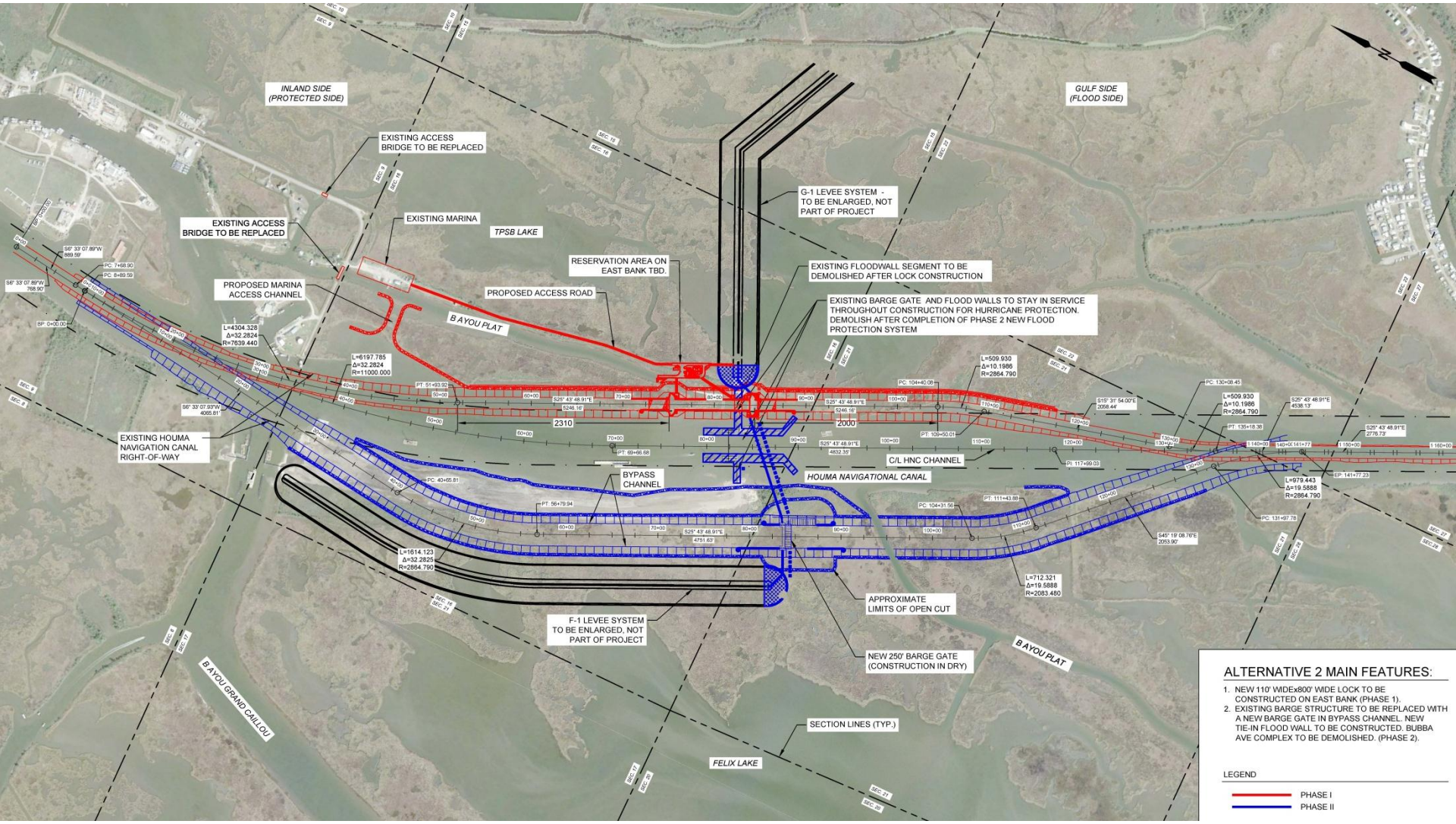
PROS:

- **Utilizes Bubba Dove Receiving Structure.**
- **Lock on east side of HNC (land access).**
- **HNC Open during construction (bypass channel not required).**
- **Phased Construction.**

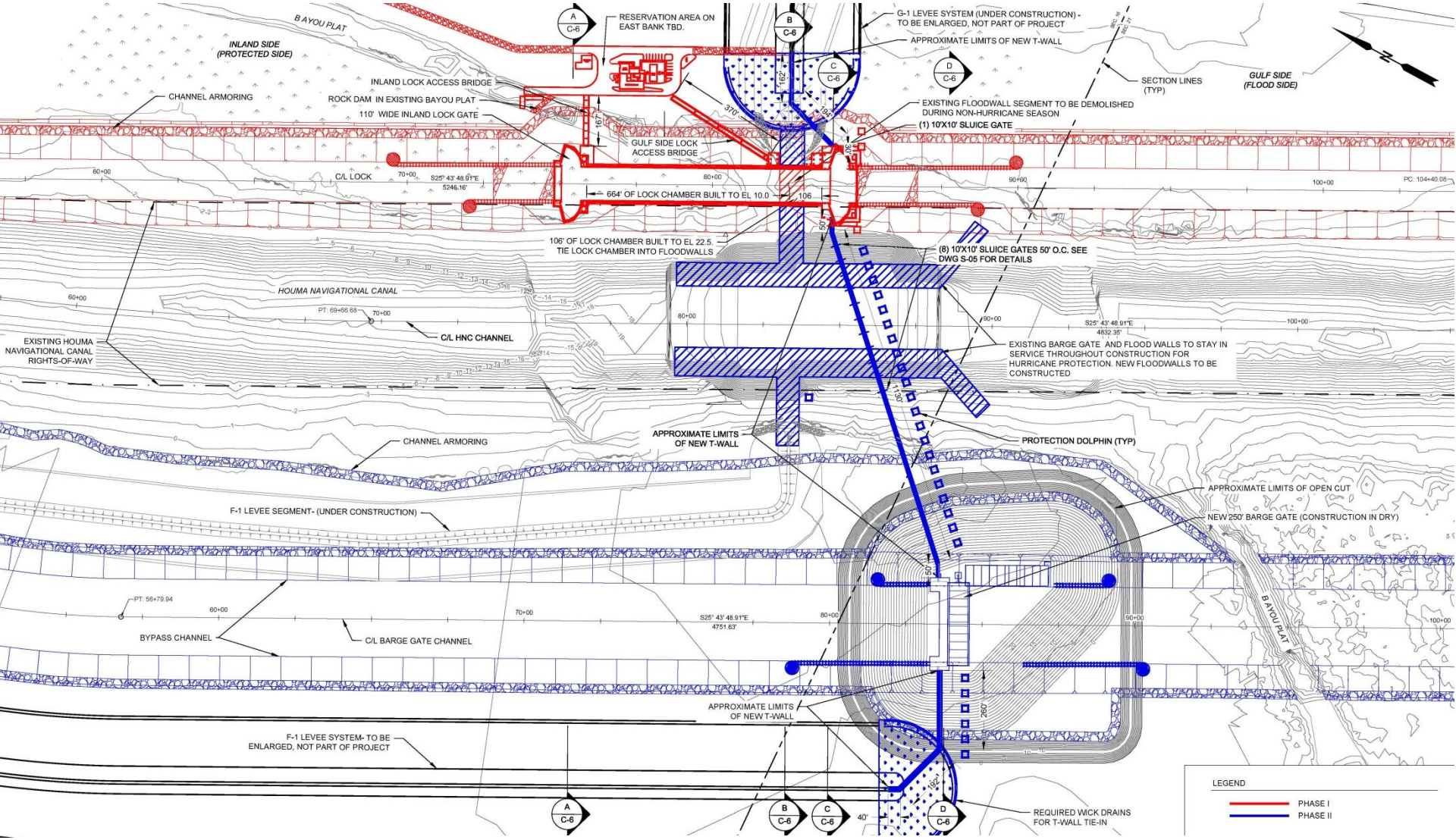
CONS:

- **Does not meet HSDRRS standards - not certifiable.**
- **Need new barge.**
- **Likely needs a modified EIS.**

ALTERNATIVE 2 OVERVIEW MAP



ALTERNATIVE 2 SITE DETAIL MAP



Alternative 2 CONSIDERATIONS

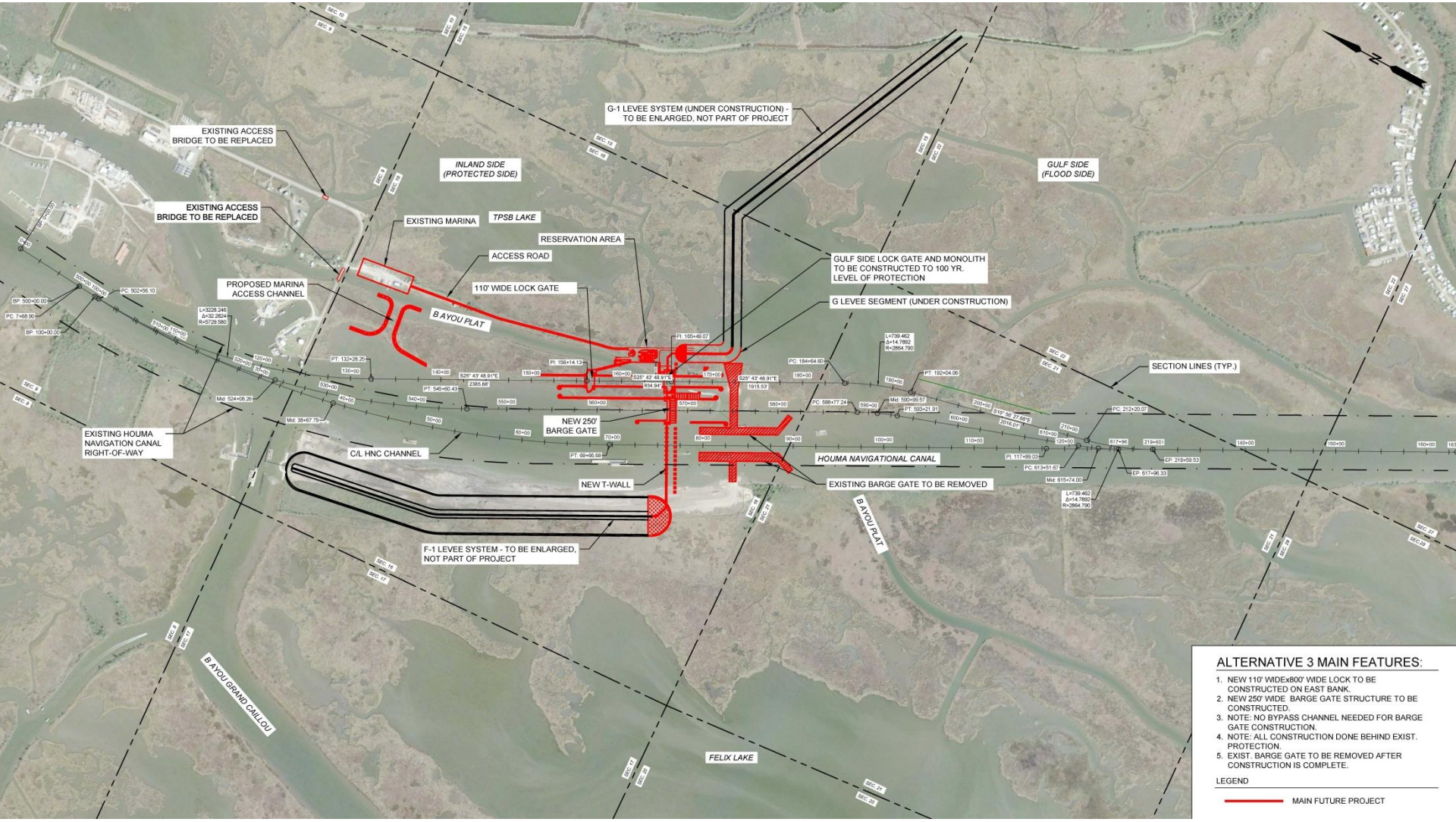
PROS:

- **HNC Open during construction.**
- **Lock on east side of HNC.**
- **Meets HSDRRS standards – certifiable.**

CONS:

- **Likely needs a modified EIS.**
- **Higher environmental impacts.**
- **Need permanent by-pass channel (HNC demolition for Phase II).**
- **Reach F levee will require relocation.**

ALTERNATIVE 3 OVERVIEW MAP



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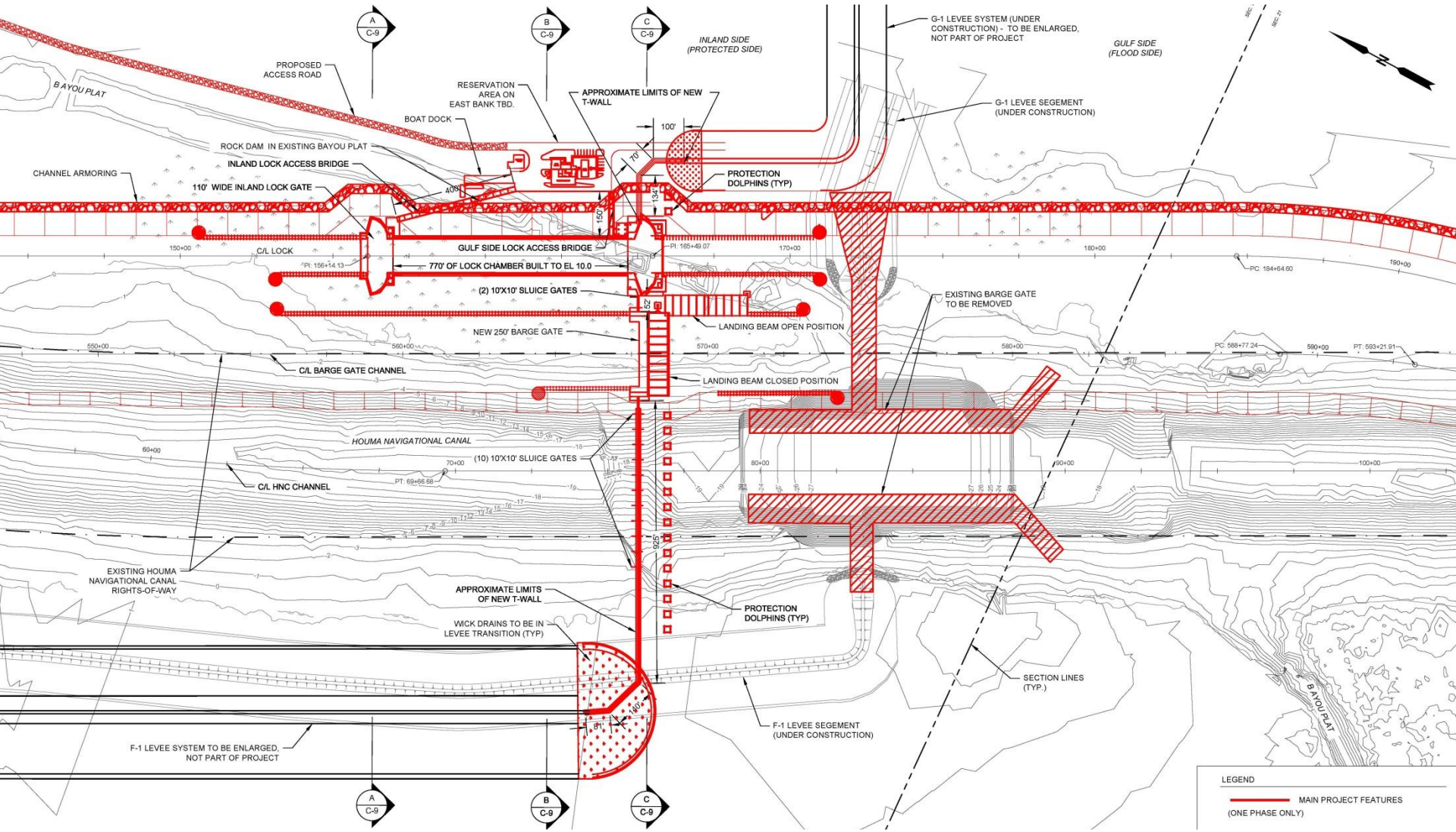
ALTERNATIVE 3 SITE DETAIL MAP



Alternative 3 CONSIDERATIONS

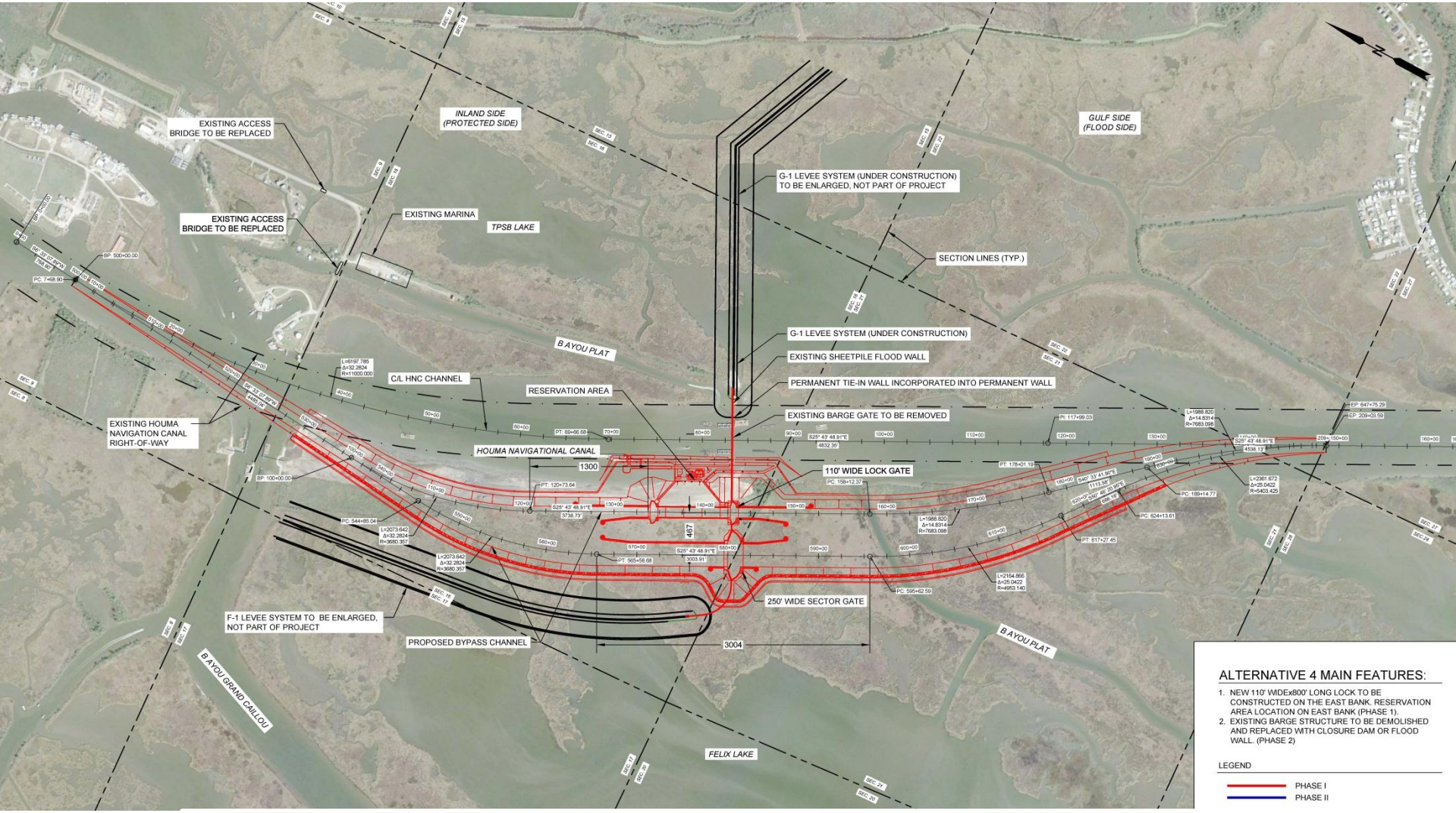
PROS:

- Meets HSDRRS standards – certifiable.
- Minimal environmental impacts.
- Single Phase construction.
- HNC Open during construction, maintain flood protection at all times.
- Lock on east side of HNC (land access).
- No bypass channel needed.

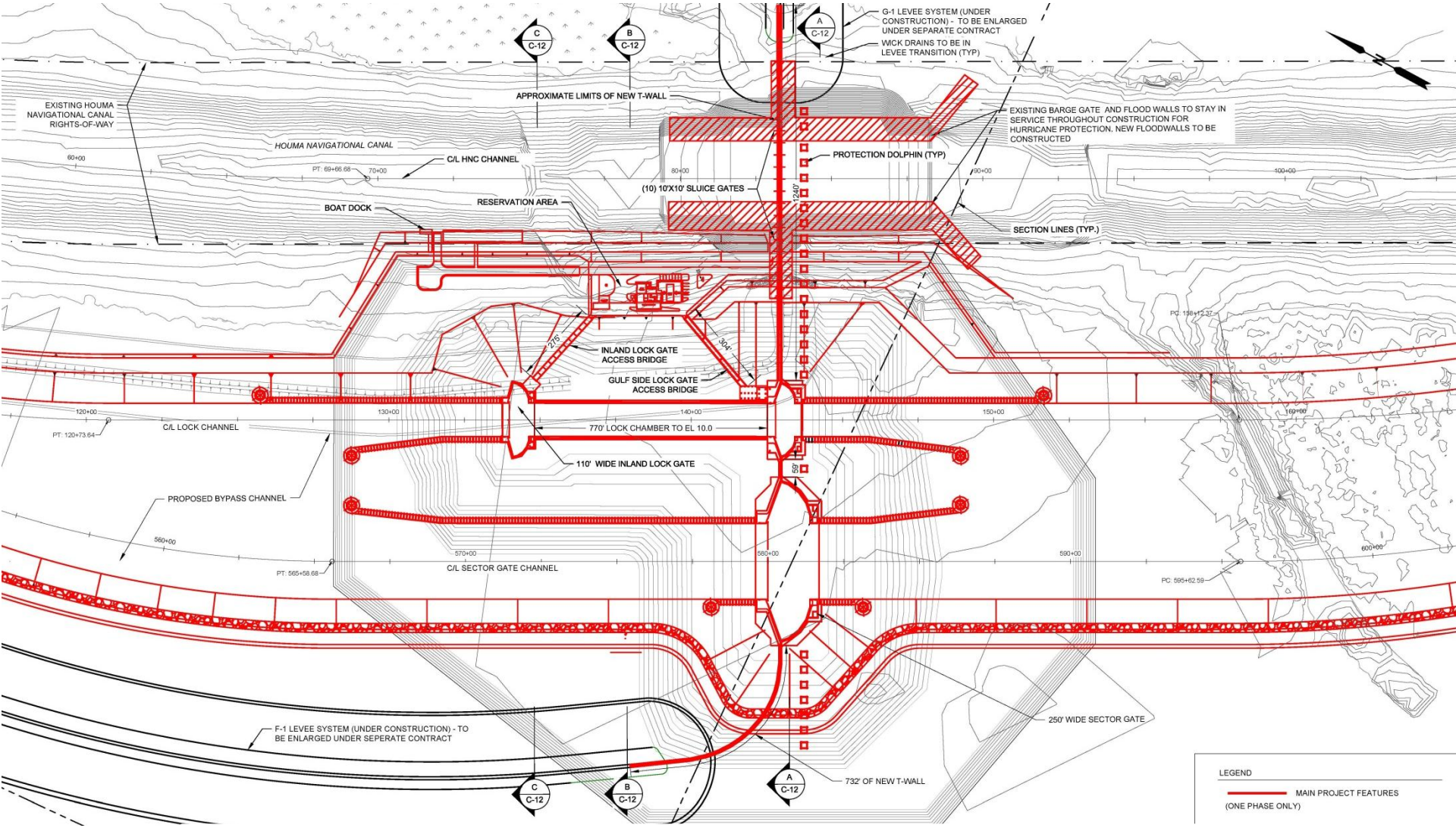
CONS:

- More Expensive.
- Likely needs a modified EIS.

ALTERNATIVE 4 OVERVIEW MAP



ALTERNATIVE 4 SITE DETAIL MAP



Alternative 4 CONSIDERATIONS

PROS:

- USACE Preferred Option.
- Meets HSDRRS standards – certifiable.
- EIS is approved.
- Single Phase construction.
- HNC Open during construction.

CONS

- Least preferred by TLCD.
- Highest environmental impacts.
- Reach F levee will require relocation.
- Lock on west side of HNC, no land access.

CONCLUSIONS AND RECOMMENDATION

Alternative 3 is recommended
(Construct lock and barge gate to 1% AEP Elev.)

- **Meets HSDRRS standards – certifiable.**
- **Likely one-time funding opportunity.**
- **Minimal environmental impacts.**
- **Single Phase construction.**
- **HNC Open during construction, maintain flood protection at all times.**
- **Lock on east side of HNC (land access).**
- **No bypass channel needed.**

HNC Lock Complex (TE-113) Operations

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- The Operations of the HNC Lock Complex will be important to the success of the project.

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HNC Lock Complex (TE-113) Status:

- Begin Engineering and Design 2014.
- Engineering and Design to take 3-4 years. Construction to follow.
- Meet with stakeholders.
- Coordinate with Increase Atchafalaya Flow To Eastern Terrebonne project.

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QUESTIONS/DISCUSSION???

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