



Lessons Learned for Environmental Compliance and Planning During Flood Control Project Development

H-GAC NRAC | Jonathan Holley, CPESC, CPSWQ, Environmental Services Department
Manager

Harris County Flood Control District

- A special purpose district created in 1937 by the Texas Legislature in response to floods that devastated the Houston area in 1929 and 1935
- Serves as a local partner to leverage federal dollars for flood damage reduction
- Harris County Commissioners Court serves as our board of directors or governing body

Our Mission

Plan, implement, and maintain flood risk reduction projects guided by community and natural values.

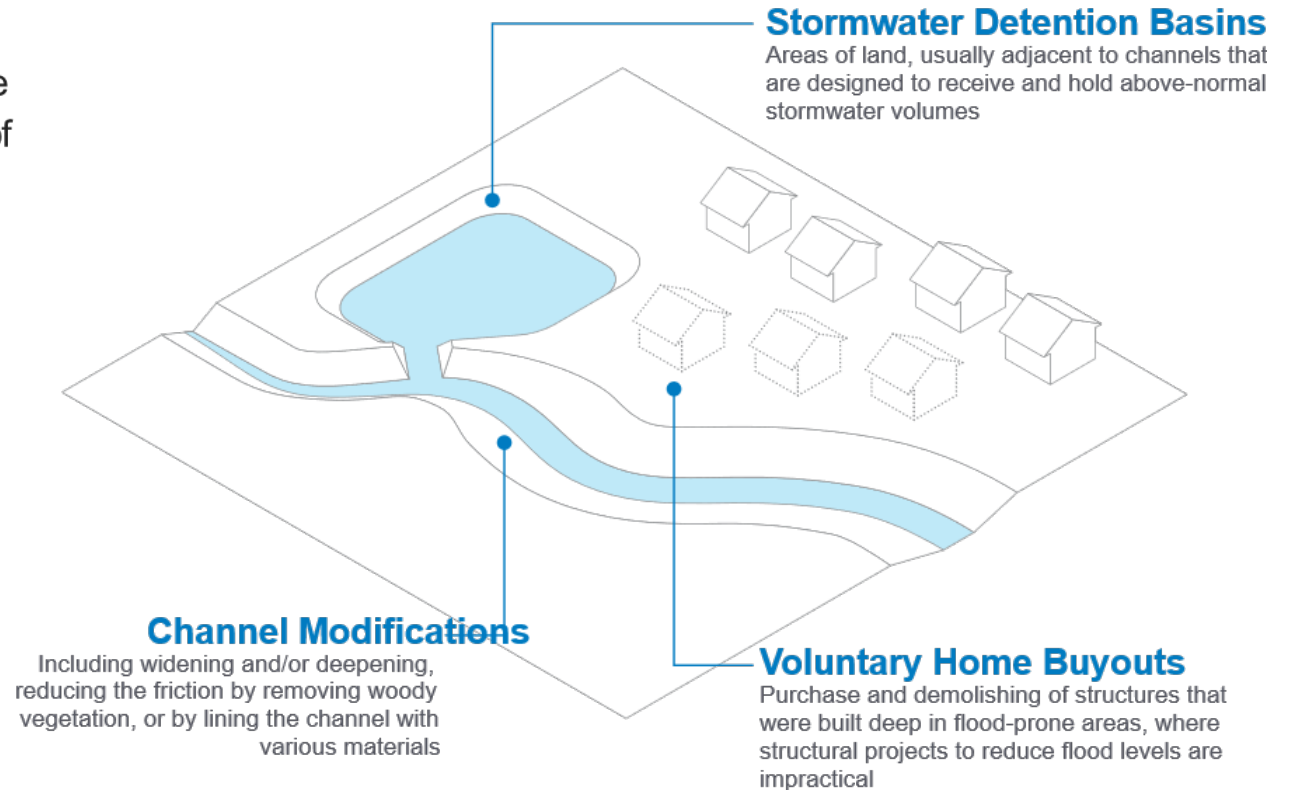
Outline

- Planning and Environmental Evaluation of Flood Control Alternatives
- Accelerating WOTUS Compliance
- NEPA Compliance Amidst Evolving Regulatory Policy
- Protected Species & Environmental Mitigation Measures

Planning and Environmental Evaluation

Flood Damage Reduction Tools

- **Channel modification:** Improve channel conveyance
- **Stormwater detention:** Provide temporary storage of rainwater
- **Diversion:** Redirect floodwater to a place with capacity
- **Bridge adjustment or replacement:** Remove obstructions to flow
- **Sediment removal:** Excavation of channel deposition
- **Nature-based solutions:** Mimic natural behavior and/or utilize natural materials
- **Floodplain acquisition or voluntary home buyouts:** Remove homes from the floodplain and help residents relocate



Not limited to this...



White Oak Bayou

Keith Weiss Stormwater Detention Basin



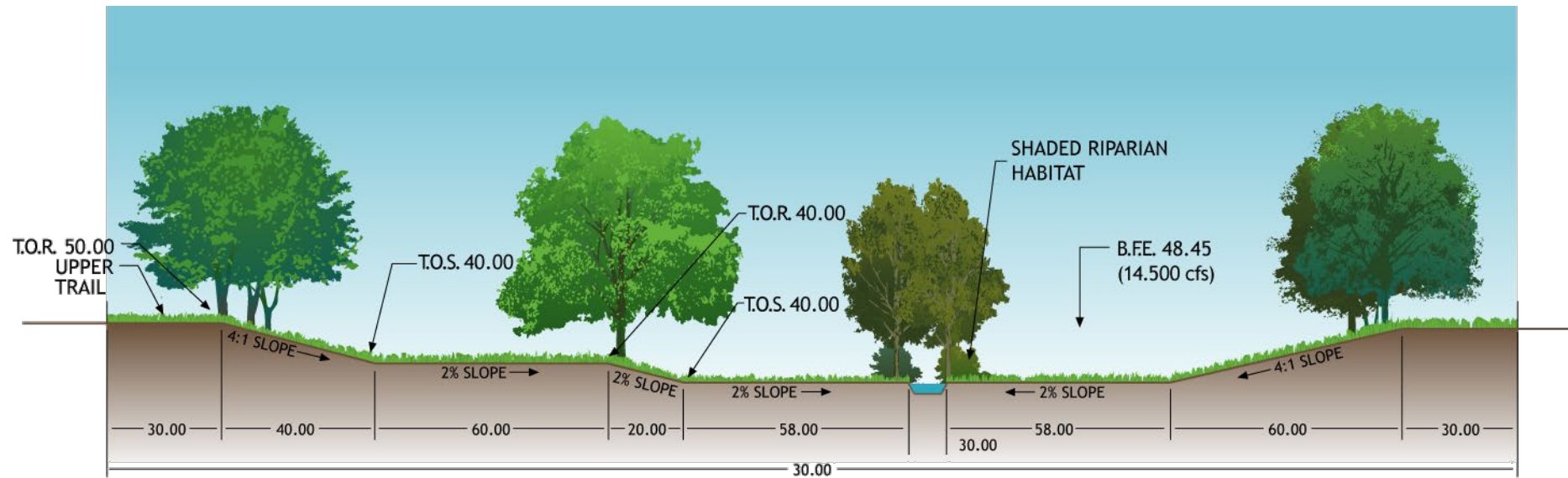


Basin Filled With Stormwater

Basin When Empty

As shown in this cutaway, stormwater detention basins can hold millions of gallons of stormwater.

Wetland plants help filter pollutants from stormwater runoff.

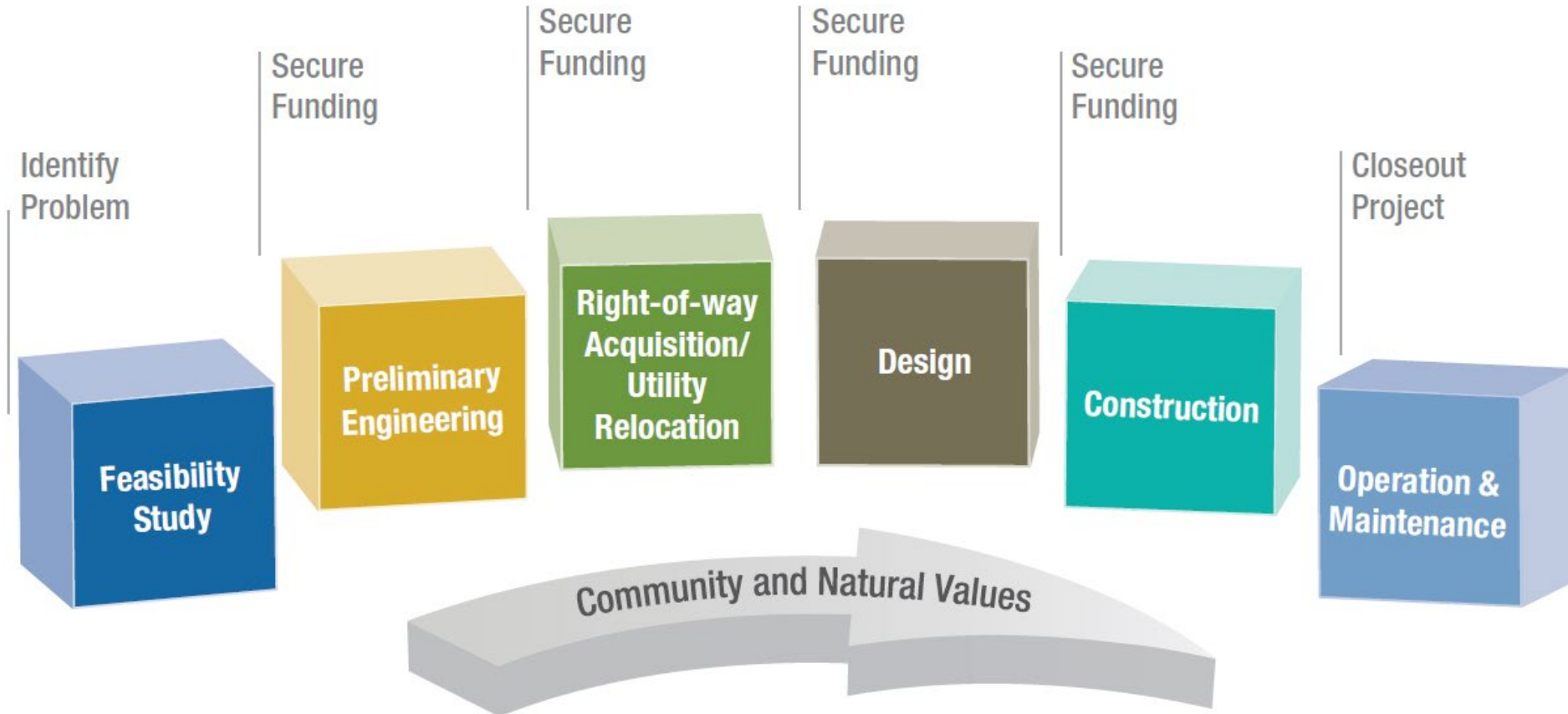


BASE CHANNEL WITH FLOOD BENCH



Accelerating WOTUS Compliance

Flood Damage Reduction Project Lifecycle



Approach to Resource Avoidance, Minimization, and Mitigation

Feasibility (Planning) Stage

- Use desktop resources supplemented by site visits for recommended alternatives to estimate the limits/amount of aquatic resources

Preliminary Engineering Stage

- Capital Improvement Projects – Perform formal delineations and request Jurisdictional Determinations
- Maintenance Projects – Assume jurisdiction for most existing maintained channel facilities

Design Stage

- Following 50% Design – Begin CWA Section 404 permitting

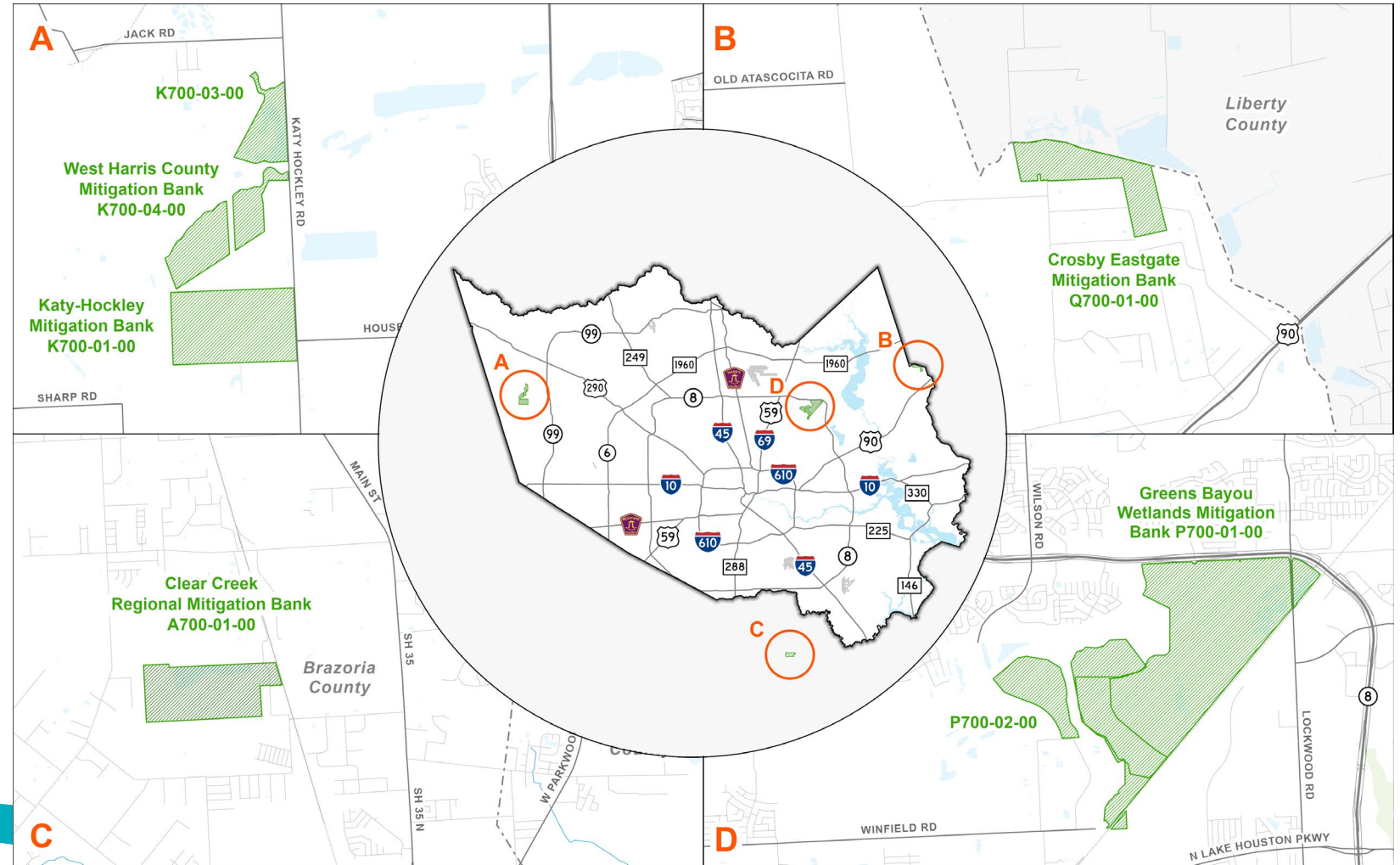
Avoidance and Minimization Strategies

- Request AJDs using WRDA 214 authorized agreement
- Excavate additional conveyance capacity or storage volume above OHWM
- Use Natural Channel Design techniques to create functional lift
- Phasing of 'projects' with independent utility and function

Compensatory Mitigation

- HCFCD operates two approved wetland mitigation banks
 - Greens Bayou Wetland Mitigation Bank (GBWMB) – PFO & PEM
 - Katy Hockley Mitigation Bank (KHMB) – PEM
- Three additional wetland mitigation banks in planning and design
- Stream credits reserved at Katy Prairie Stream Mitigation Bank

Mitigation Banking Program



Regional General Permit (RGP) for Maintenance

- First issued in 2009, reissued in 2014, 2020, and 2025
- Authorizes HCFCD to conduct work and place dredged and/or fill materials for the purpose of routine maintenance and emergency repair of existing stormwater management facilities
 - Same conditions as other NWP's
 - No limitations on fill quantities or lengths
- As-built drawings and/or previous permits are provided to demonstrate repair, rehabilitation, and replacement of existing features.
- Access and staging on existing maintenance berms.

NEPA Compliance Amidst Evolving Regulatory Policy

Regulatory Changes with Ongoing Effect



- FFRMS
- HUD Final Rule for FFRMS (April 23, 2024, effective May 23, 2024)
- USACE/EPA Joint CWA Memo (March 12, 2025)
- Environmental Justice EO 14008 Rescission (Feb. 16, 2025)
- BRIC pause/cancellation/judicial restoration (April 4/5, 2025 / Dec. 11, 2025 / Mar. 6, 2025)
- NEPA amendments in the Fiscal Responsibility Act of 2023 (June 16, 2025)

Federal Flood Risk Management Standard (FFRMS)



Key Citations: 44 CFR Part 9 (FEMA); 40 CFR § 35.10026 (EPA); 24 CFR § 55.2 (HUD); 33 CFR § 386.6 (USACE)

- Implemented in 2024 then **rescinded/rolled back** in 2025, by some but not all agencies
- Required evaluation of **future flood risk** beyond the 100-year floodplain
 - Flood elevation determined by: **climate-informed science (CISA)**, **+2–3 ft** freeboard value approach (**FVA**)-based on whether critical action, or the **0.2% annual chance** (500-year) flood Influenced **National Environmental Policy Act (NEPA)** reviews (alternatives, siting, mitigation, documentation)
- Increased **analytical + documentation burden** in EA/EIS floodplain reviews

Effect:

More conservative siting + stronger NEPA documentation requirements

HUD Final Rule for FFRMS

Implications for NEPA/Environmental Compliance

Expanded the floodplain of concern: 100-year becomes 500-year

Applied limitations on HUD assistance in floodplains/Triggers Part 55: No funding without protective covenants

Change in 8-step decision making process: Updated wetland mitigation standards

Additional public notification requirements: shorter posting periods with increased frequency and a shift to online postings.

Effect:

- + Cost of publication eliminated
- More detailed environmental review = starting EA later in design > delay in property acquisition and construction

USACE/EPA Joint CWA Memo

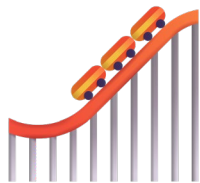
- **Clean Water Act protections narrowed:** Fewer wetlands and streams qualify as federally regulated waters
- **Focus on visible surface connections:** Waters/wetlands must be clearly connected to a relatively permanent water (RPW)
- **Reduced EPA role in AJDs:** Eliminates the 30-day EPA coordination step for Approved Jurisdictional Determinations
- **Permitting uncertainty:** Unexpected jurisdictional changes affect permitting approach

Effect: Longer response times for jurisdictional determinations initially, restructuring of USACE practices, and eventually quicker turnarounds, but both positive and negative permitting implications

From Pause to Play: BRIC Funding Rollercoaster

BRIC Program Key Events

April 4, 2025	FEMA announces pause/cancellation of FY 2024 BRIC funding
	Funds temporarily returned / NOFO canceled
August 5, 2025	Federal court issues preliminary injunction
	Blocks FEMA from reallocating BRIC funds
December 11, 2025	Court rules cancellation unlawful
	Orders FEMA to restore BRIC funding
March 6, 2026	Court enforcement order
	FEMA reopens program; issues FY 2024–2025 NOFO



Summary of Regulatory Impacts

Lesson Learned:

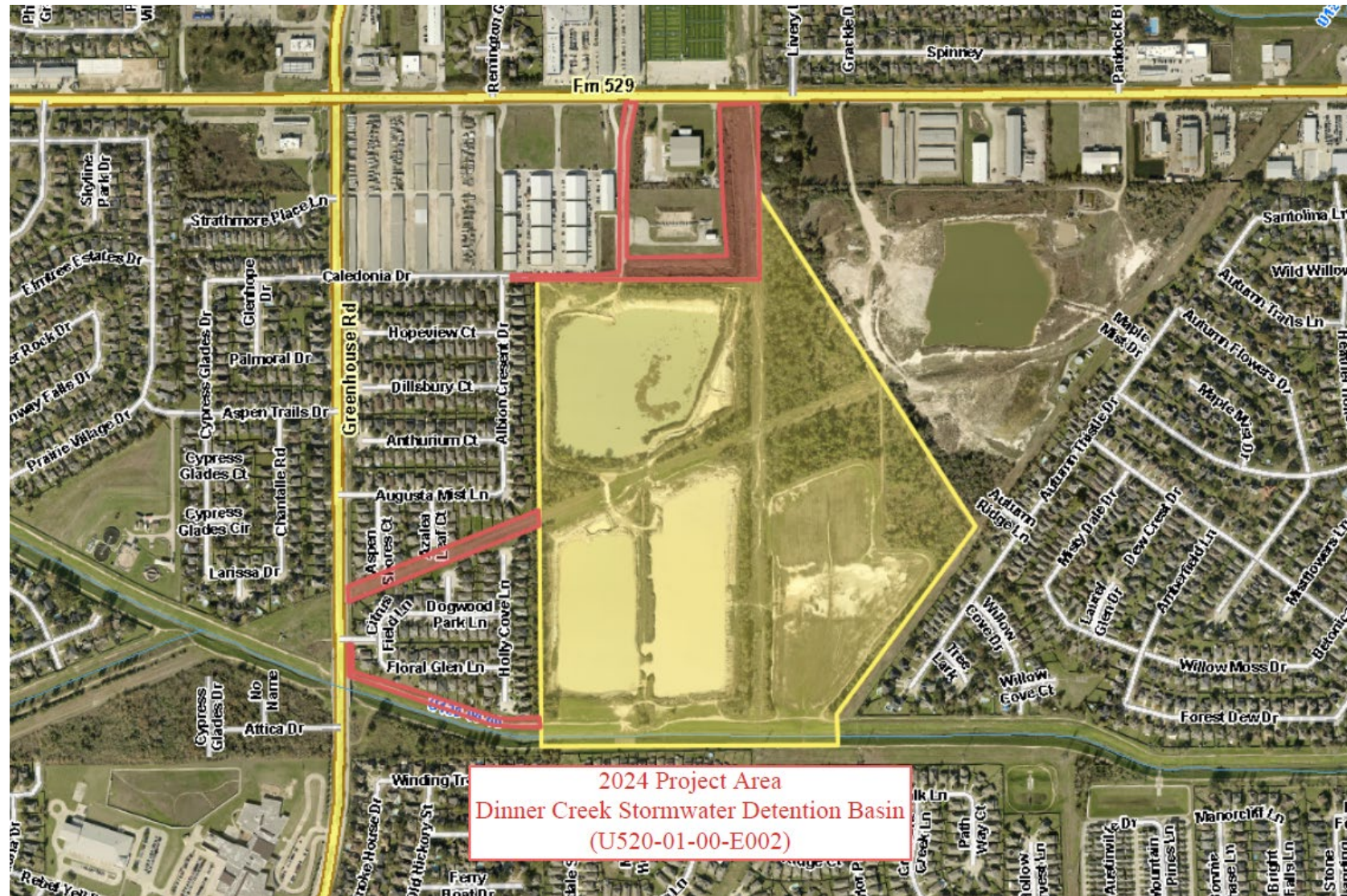
- Rapid **policy shifts** (implement → rescind) create **NEPA risk**
- **Regulatory uncertainty extends project planning and delivery time**
- Importance of **documenting assumptions + methodology**
- When allowed, **adopt** other agencies **CATEX**



WHAT
CAN YOU
DO

DO
WHAT YOU CAN
LET GO
OF THE REST.

#1 Establishing Project Area



#2 Indecision



Task	Activity	Target Schedule and/or Notes
Required Tasks		
A	Waters of US (WOTUS) Report	<u>Draft Report</u> : 5 weeks following receipt of right-of-entry <u>Final Report</u> : 2 weeks following receipt of comments by HCFCF <u>USACE-Verified Report</u> : Dependent on USACE review
B	Threatened and Endangered Species Report	<u>Draft Report</u> : 5 weeks following receipt of right-of-entry <u>Final Report</u> : 2 weeks following receipt of comments by HCFCF
C	Cultural Resources Desktop Report	<u>Draft</u> : 4 weeks following notice to proceed <u>Final</u> : 2 weeks following receipt of comments by HCFCF <u>THC response</u> : 30 days following submittal to the THC
Optional Task		
D	Archaeological Survey	<u>TAP application</u> : 3 weeks following notice to proceed on task from HCFCF, after Task C is complete, and after receipt of Project information (e.g., depth of impact) <u>TAP issuance</u> : 30 days following submittal <u>Field work</u> : 3 weeks following TAP issuance <u>Draft Report</u> : 10 weeks after completion of field work (weather permitting) <u>Draft Report for Submittal to THC</u> : 2 week after receipt of comments from HCFCF <u>THC review and concurrence</u> : 30 days after submittal <u>Final Report for HCFCF review</u> : 2 weeks after receipt of comments from THC <u>Final Report for Submittal to THC</u> : 2 weeks after receipt of comments from HCFCF

#3 Reluctance to Adapt the Project to Environmental Conditions



Protected Species & Environmental Mitigation Measures

Photo Credit: Florida FWC



Copyright T. Travis Brown



Alligator Snapping Turtle Eggs
Photo Credit: USFWS



Photo credit: Jonathon Bolton and the Turtle Survival Allowance

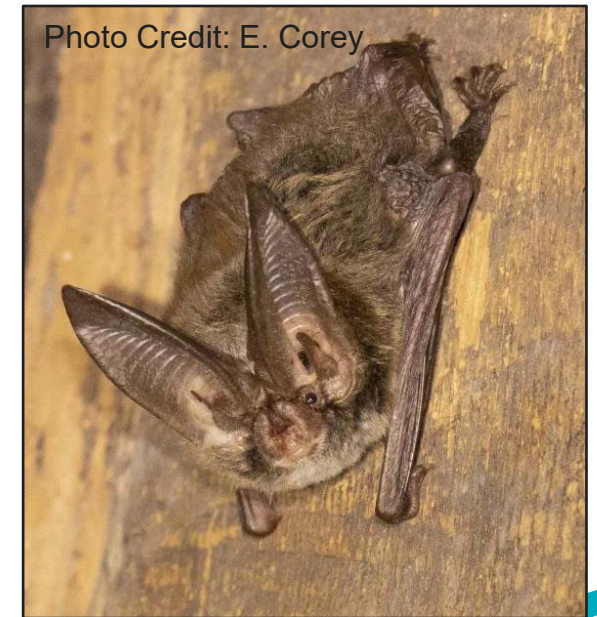


Photo Credit: E. Corey

Bat Protection Measures

- Limit tree clearing, especially in riparian corridors and old growth hard woods.
- Seasonal tree clearing avoidance between May 1 and Sept. 15
- Avoid structural removals when temperatures fall below 40 degrees
- Conduct emergence and roost surveys prior to demolition
- Coordinate with TPWD through the WHAB program
- Utilize ramp up technique to limit noise in sensitive habitat
- Buffer known roosts by 100 feet to avoid impacts
- Downcast lighting away from forested areas



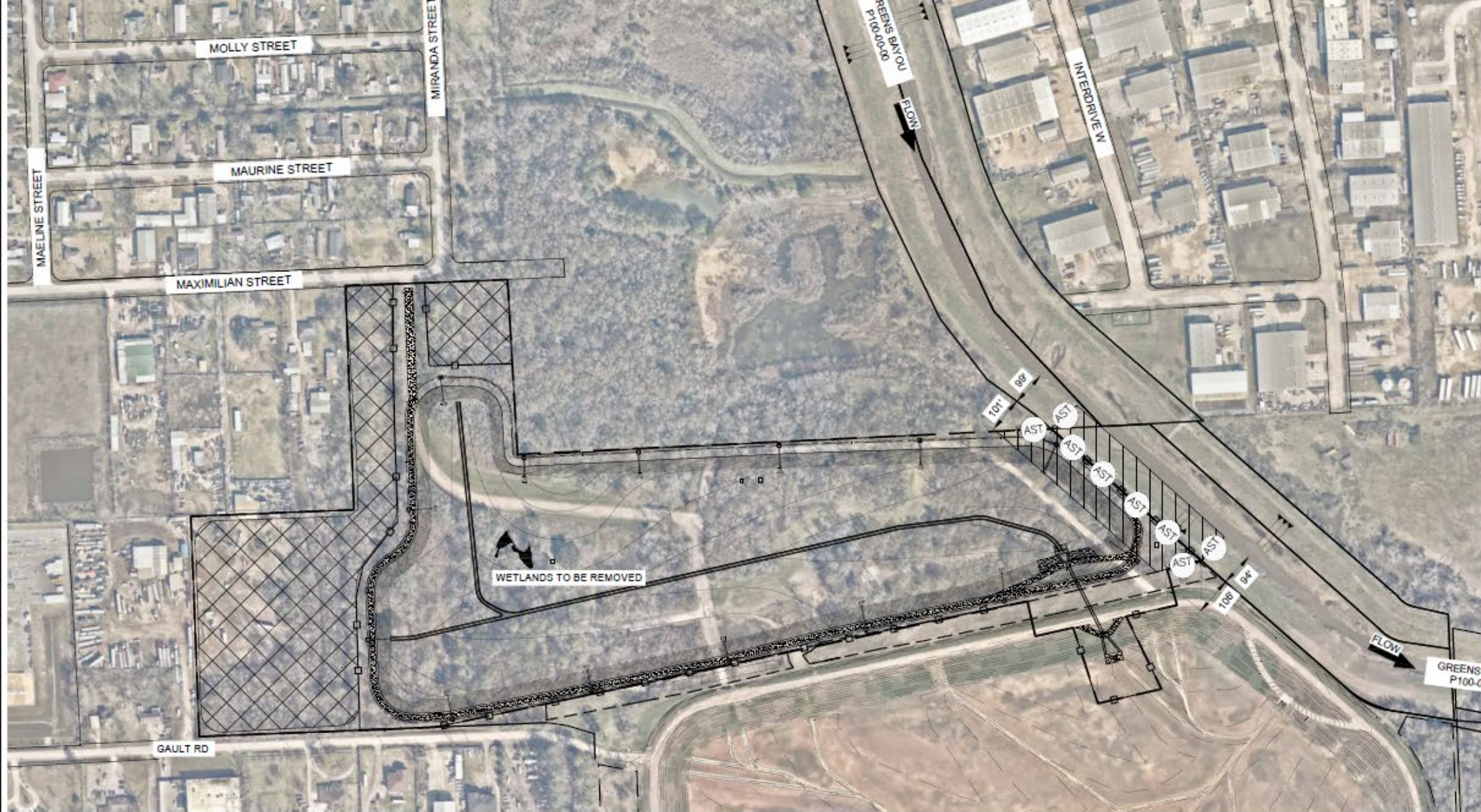
Photo Credit: Merlin D. Tuttle

AST Mitigation Measures

- **Seasonal avoidance in nesting habitat (200 feet from water's edge, on both sides of the channel) between May 1-June 30 and through hatching season, until Sept. 30th.**
- **Limit riparian clearing, replace trees in riparian areas when practicable.**
- **Bury erosion protection riprap 2-3 feet and revegetate for stability.**
- **Limit aquatic work, avoid use of rock filter dams**
- **Install Aquatic and Terrestrial Exclusion Fencing with Signage**
- **Provision of a biological monitor to oversee fencing installation, in water work, and relocations**
- **Coordinate with TPWD through the WHAB program**
- **Leave submerged stockpiles, stumps, rootballs in place or put back after construction in same place**
- **Develop internal guidance documents for the EOR, PM and Contractor**
 - ENV Awareness Training
 - Environmental Mitigation Measures (EMM) Plan Sheet
 - EMM Plan Sheets Notes Addendum to Summary of Work in Project Manual
 - AST Fencing Detail & Specification
 - AST Habitat Checklist Guide (in progress)



Photo Credit: Jonathon Bolton and the Turtle Survival Alliance



DESCRIPTION	
REV#	
PROJECT ID# P500-06-00-E007	
LAUDER STORMWATER DETENTION BASIN PHASE 2 COMPARTMENT 2	
ENVIRONMENTAL MITIGATION MEASURES	
PREPARED: AHA	
CHECKED: SQ	
APPROVED: YCS	
	
	

NOTES

1. CONTRACTOR MUST INSTALL AST EXCLUSION FENCE, AS NOTED ON THE PLAN SHEET, BEFORE INITIATION OF ANY CONSTRUCTION ACTIVITIES WITHIN THE PROJECT LIMITS, AND AS DIRECTED BY AN ONSITE BIOLOGICAL MONITOR, PROVIDED BY HCFCO.
2. CONTRACTOR SHALL NOT OPERATE BEYOND THE AST EXCLUSION FENCE, WITHIN THE TREE PRESERVATION AREA, OR PROTECTED RESOURCES, INDICATED BY PROTECTION FENCING. ACTIVITIES WITHIN THESE AREAS WILL CONSTITUTE A BREACH OF CONTRACT, UNLESS WRITTEN CONSENT IS GIVEN BY HCFCO ENVIRONMENTAL.
3. CONTRACTOR MAY NOT REMOVE OR MOVE THE AST EXCLUSION FENCE WITHOUT THE PRESENCE OF THE BIOLOGICAL MONITOR.
4. IF AST OR THEIR NESTS ARE FOUND ON SITE, CONTRACTOR MUST STOP ALL WORK AND CONTACT HCFCO TO DETERMINE FURTHER ACTION (SEE EMM SHEET NOTES IN PROJECT MANUAL).

LEGEND

- PROJECT LIMITS
- AST HABITAT AREA (2.74 ACRES)
- AST EXCLUSION FENCING
- WETLANDS TO BE REMOVED
- TREE PRESERVATION AREA (9.44 ACRES)
- CONSTRUCTION FENCING

FOR REVIEW ONLY

Not to be used for construction, bidding, permit or regulatory approved purposes. This document is released for the purpose of public review under the authority of:

YU-CHUN SU, CHUDU QU

BO302, 136890

August 22, 2025

LOCKWOOD, ANDREWS & NEWMAN, INC.

DATE: 09/12/2025

SCALE: 1"=300'

SHEET NUMBER



Questions?



H-GAC NRAC | Jonathan Holley, CPESC, CPSWQ
Environmental Services Department Manager
Harris County Flood Control District