Draft Environmental Assessment

Westador Stormwater Detention Basin (K500-27-00-E001)

LPDM-PJ-06-TX-2022-006

Harris County, Texas

March 2025

FEMA

U.S. Department of Homeland Security
Federal Emergency Management Agency
Region 6
Federal Region Center
800 North Loop 288
Denton, TX 76201-3698

Table of Contents

Appendices

Figures

Tables

Acronyms and Abbreviations

AMM	avoidance and minimization measure
APE	Area of Potential Effect
ASR	Archaeological Survey Report
AST	alligator snapping turtle
BA	biological assessment
BMP	Best Management Practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CPC	Concrete Pilot Channel
CWA	Clean Water Act
DHS	U.S. Department of Homeland Security
EA	Environmental Assessment
EFH	essential fish habitat
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESD	Emergency Services District
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	finding of no significant impact
HCFCD	Harris County Flood Control District
H-GAC	Houston-Galveston Area Council
IPaC	Information for Planning and Consultation
MBTA	Migratory Bird Treaty Act
MUD	Municipal Utility District
N/A	Not Applicable
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act

NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OSHA	Occupational Safety and Health Administration
PDM	Pre-Disaster Mitigation Grant
PM	particulate matter
REC	recognized environmental condition
ROW	right-of-way
SWPPP	Stormwater Pollution Prevention Plan
TAC	Texas Administrative Code
TCB	tricolored bat
TCEQ	Texas Commission on Environmental Quality
TDEM	Texas Division of Emergency Management
THC	Texas Historical Commission
TPWD	Texas Parks and Wildlife Department
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USFWS	U.S. Fish and Wildlife Service
WWTF	wastewater treatment facility
WWTP	wastewater treatment plant

SECTION 1. Introduction

The Harris County Flood Control District (Flood Control District) submitted a Legislative Pre-Disaster Mitigation (PDM) grant application to the Federal Emergency Management Agency (FEMA) requesting funding for the Westador Stormwater Detention Basin project (HCFCD Project ID K500-27-00-E001) in Harris County, Texas. The Texas Division of Emergency Management (TDEM) is FEMA's Recipient under this program. The PDM Grant Program is authorized under Section 203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act 42 United States Code (U.S.C.) 5133, as amended by the Disaster Recovery Reform Act of 2018. The PDM funds were made available through congressionally directed spending in the 2022 Department of Homeland Security Appropriations Act (Pub. L. No. 117-103).

The Flood Control District proposes to construct a wet-bottom stormwater detention basin in the upper part of the Cypress Creek watershed, north of the Houston metro area (**Figure 1.1**). The proposed basin would be constructed adjacent to Cypress Creek in the Westador neighborhood between Bamwood Road and Red Oak Drive at latitude and longitude, respectively, 30.03373, -95.45587 (**Figure 1.2**).

This environmental assessment (EA) was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended; the Council on Environmental Quality (CEQ) regulations to implement NEPA (Title 40 of the Code of Federal Regulations [C.F.R.] Parts 1500 to 1508); the U.S. Department of Homeland Security's Instruction 023-01-001; FEMA Instruction 108-01-1 and Executive Orders (EOs) 11988 and 11990. FEMA is required to evaluate and consider potential environmental impacts before funding or approving actions and projects that are federally funded. The purpose of this EA is to analyze the potential environmental consequences of the proposed project and alternatives, including a No Action alternative. FEMA will use the findings in this EA to determine whether to prepare an environmental impact statement or to issue a finding of no significant impact (FONSI).

FEMA is aware of the November 12, 2024, decision in *Marin Audubon Society v. Federal Aviation Administration*, No. 23-1067 (D.C. Cir. Nov. 12, 2024). To the extent that a court may conclude that the CEQ regulations implementing NEPA are not judicially enforceable or binding on this agency action, FEMA has nonetheless elected to follow those regulations at 40 C.F.R. Parts 1500–1508, in addition to the U.S. Department of Homeland Security (DHS) and FEMA's procedures implementing NEPA found in DHS Directive 023-01-01, DHS Instruction 023-01-001-01, FEMA Directive 108-1, and FEMA Instruction 108-1-1 to meet the agency's obligations under NEPA, 42 U.S.C. §§ 4321 et seq.

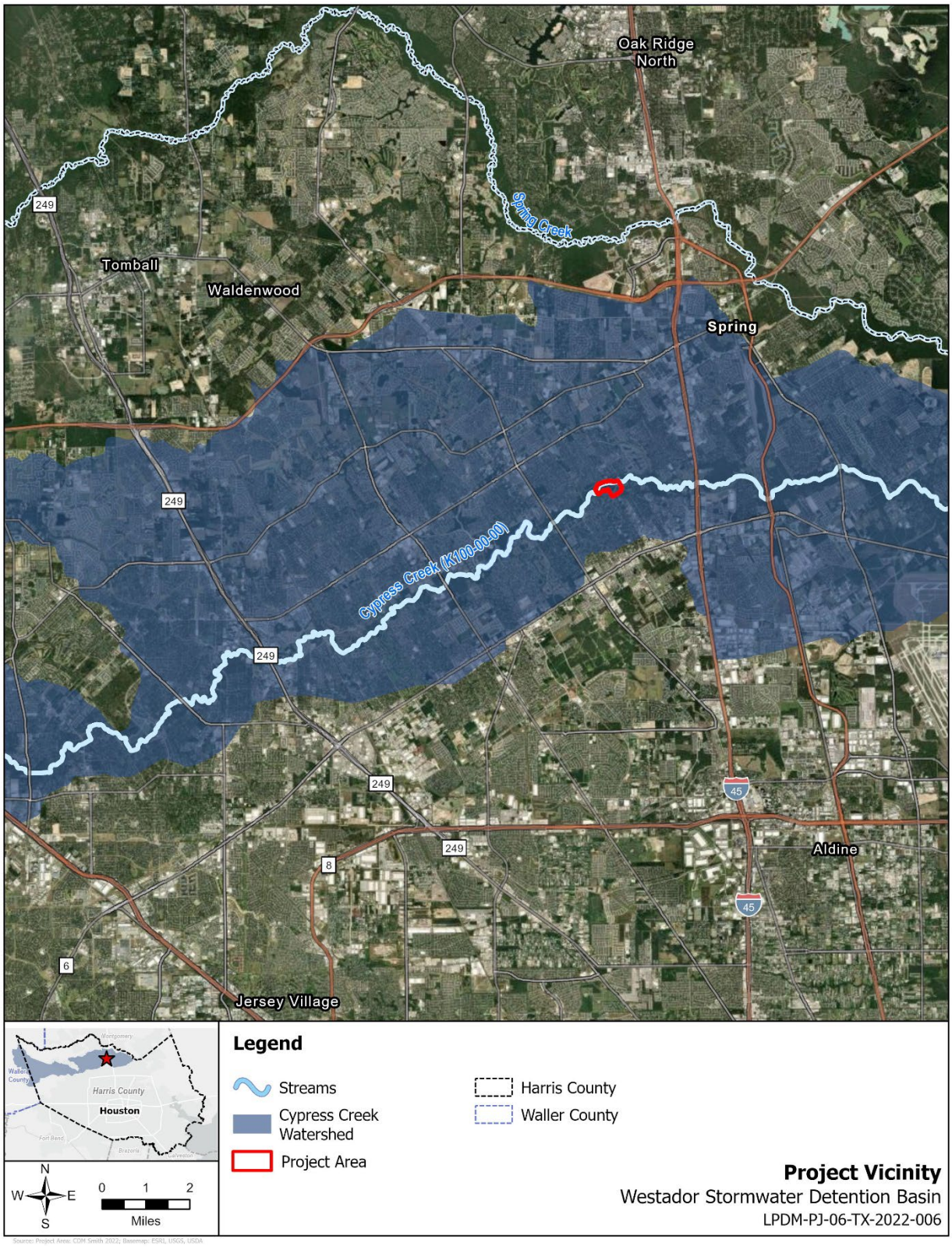


Figure 1.1. Project Vicinity for HCFCD K500-27-00-E001

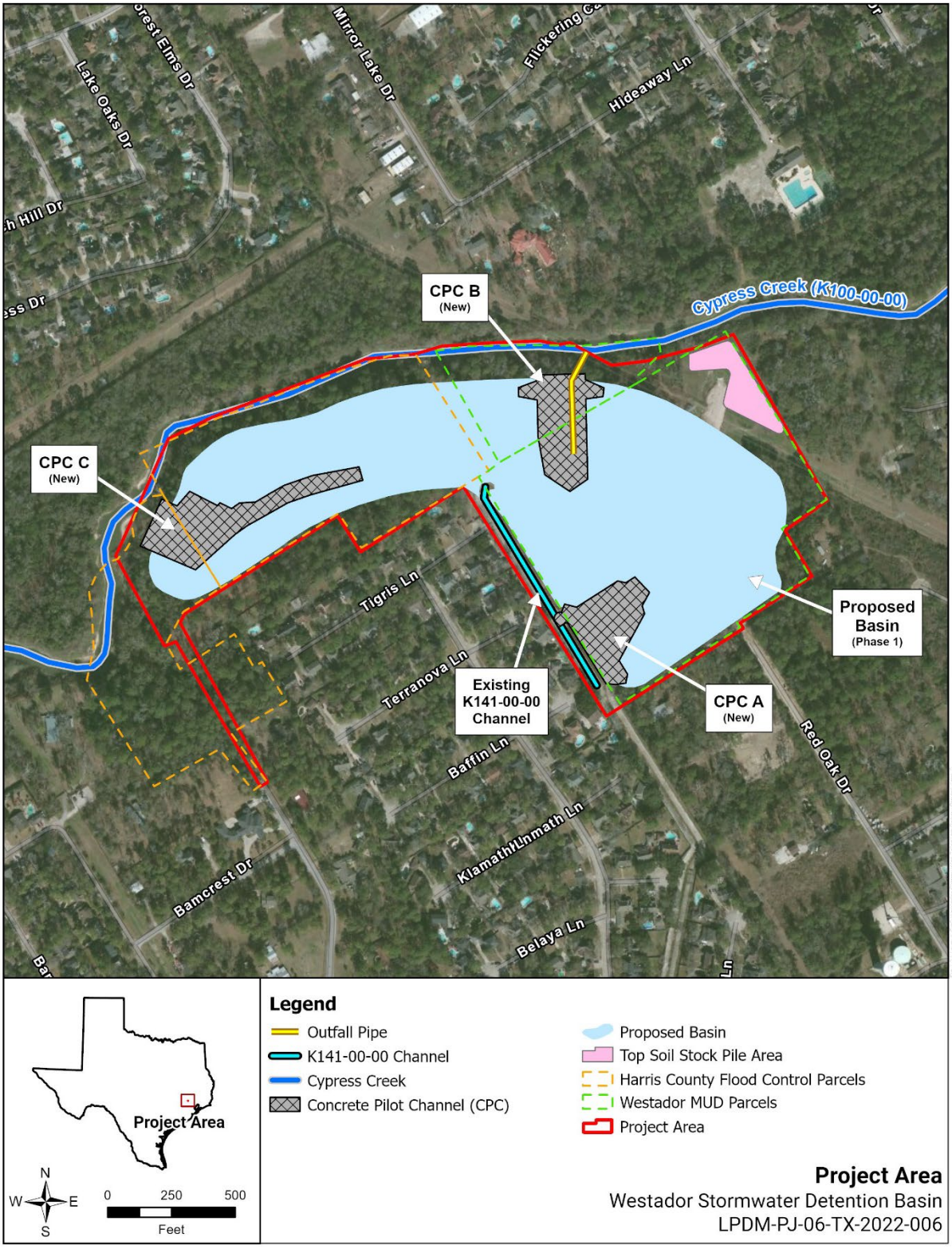


Figure 1.2. Project Area

1.1. Background

The Flood Control District is a special purpose district created by the Texas Legislature in 1937 and governed by the Harris County Commissioners Court. It was created in response to devastating floods that struck the region in 1929 and 1935. There are 23 primary watersheds within Harris County's boundaries, and each watershed has its own independent flooding problems. Capital projects reduce flooding risks and damage by expanding channels to create floodplain capacity, constructing new detention basins, or buying out flood-prone homes. Bond funding, federal grants, and local partnerships help finance these projects.

The Cypress Creek Watershed Major Tributaries Regional Drainage Plan Update, Cypress Creek Report (HCFCD 2020a), found that flooding along tributaries of Cypress Creek is predominately caused by stormwater raising the levels of the creek and backing up into tributaries, rather than a lack of sufficient stormwater conveyance or drainage capacity on the tributaries themselves (HCFCD 2020a). The study recommended nearly 26,500 acre-feet of additional stormwater detention and concluded that a series of regularly spaced detention basins along the main stem of Cypress Creek could provide the storage volumes needed to reduce flooding in the watershed. The Cypress Creek Program Implementation Plan (Implementation Plan) then identified 22 stormwater detention basin sites in 11 different areas along Cypress Creek that could hold up to 14,200 acre-feet of excess stormwater to reduce the backwater issue (HCFCD 2021).

The proposed project area is on the southern banks of the main stem of Cypress Creek in the Westador Municipal Utility District (MUD), approximately 20 miles north of downtown Houston. Located within the eastern part of the project area, on a MUD parcel, and partially within the Tigres Lane right-of-way (ROW), is an existing concrete-lined flood control channel called Cypress Creek tributary K141-00-00. The channel bisects the proposed basin site and would be incorporated into the stormwater basin. K141-00-00 currently conveys stormwater flows to a cleared area on MUD property via the existing Concrete Pilot Channel (CPC) A for flood relief and to Cypress Creek through an existing outfall. This parcel was granted to the Flood Control District through an Interlocal Agreement for the development of the proposed flood reduction facility (HCFCD 2020c). The west side of the project area is composed of an Flood Control District-owned parcel (**Figure 1.2**).

There is a need to reduce the downstream impact of rainfall associated with storm events and to minimize localized flooding. Over the past 20 years, residential and commercial structures have been significantly impacted by flooding. Based on hydrologic and hydraulic modeling results completed in late 2021, it is estimated that approximately 7,456 acres of land adjacent to Cypress Creek and its tributaries in the Westador area currently flood during a 10 percent storm event and approximately 17,447 acres of land floods during a 100-year (1 percent) storm event (HCFCD 2022a).

In 2018, Harris County voters approved a bond program that included more than $291 million to fund 13 projects in the Cypress Creek watershed, including maintenance projects, channel improvements, stormwater detention basins, and ROW acquisitions and buyouts (HCFCD 2021). The addition of stormwater detention basins along the Cypress Creek channel is expected to be more

effective than other types of structural approaches to flood risk reduction in the watershed and is necessary to reduce future flood events (HCFCD 2020b). Because of the volume of flood mitigation projects that have been proposed under the bond program and other grant programs, the Flood Control District has taken a watershed-wide approach to develop a plan for efficiently and strategically implementing all of the projects within the Cypress Creek watershed, including the Proposed Action, by creating the Implementation Plan.

SECTION 2. Purpose and Need

The objective of FEMA's PDM Grant Program is to make federal funds available to eligible state, local, tribal, and territorial entities to implement sustainable cost-effective measures designed to reduce the risk to individuals and property from future natural hazards, while also reducing reliance on federal funding from future disasters. The purpose of the Proposed Action is to reduce flood risk along the main stem of Cypress Creek (K100-00-00) within the Westador area.

Because of its topography and location within the eastern (downstream) portion of the Cypress Creek watershed, the Westador neighborhood is prone to inland flooding. The Cypress Creek watershed extends across northwest Harris County and into Waller County and has a drainage area of approximately 170,880 acres that contains over 250 miles of open waterways (HCFCD 2021). Much of the development within the areas of the eastern portion of the watershed occurred before the enactment of modern regulations for developing floodplains, whereas the western (upstream) portion of the watershed was developed later, with more robust development regulations requiring stormwater detention infrastructure (HCFCD 2022a). The risks associated with developing the floodplains of the eastern portion of the watershed were exposed during Hurricane Harvey in 2017, Hurricane Ike in 2008, and Tropical Storm Allison in 2001 when communities within the eastern portion suffered more damage than those in the western portion because of heavy rainfall and inadequate stormwater management infrastructure (HCFCD 2021). Storms are expected to increase in intensity and size, which will subsequently increase local flooding within the Cypress Creek watershed. There is a need to reduce future flooding risk to the Westador neighborhood during heavy rain events.

SECTION 3. Alternatives

This section describes the No Action alternative, Proposed Action, and alternatives that were considered but dismissed from further evaluation in this EA. Alternatives are evaluated for their ability to address the purpose and need, hazard mitigation goals (i.e., does the Proposed Action mitigate flooding impacts), and engineering constraints (i.e., is the Proposed Action feasible to construct).

3.1. No Action Alternative

The No Action alternative is included to describe potential future conditions if no action is taken to reduce flooding hazards. Under this alternative, no FEMA-funded construction of a stormwater detention basin within the Westador neighborhood would occur. With no change to the flood elevations along Cypress Creek, flooding within the surrounding residential subdivisions would not be reduced. Residential and commercial properties along Cypress Creek and its tributaries would continue to flood, resulting in repetitive damage to property and infrastructure, and public health and safety would continue to be at risk. In addition, the intensity and frequency of storms are increasing, and severe rain events that result in flooding are also expected to increase in frequency and intensity, which would lead to more prolonged and damaging floods in the vicinity under the No Action alternative.

Because current flood hazards in the project area may not be substantially reduced under the No Action alternative, the probability of loss of life and property in the event of a flood would continue to be high, and essential access roads to and from the community would continue to be vulnerable.

3.2. Proposed Action

Under the Proposed Action, the Flood Control District would reduce flood levels along Cypress Creek in the Westador area by constructing a stormwater detention basin adjacent to the main stem of Cypress Creek on parcels of land owned separately by MUD and the Flood Control District. An interlocal agreement was entered into whereby MUD has granted the Flood Control District a permanent drainage easement on two tracts of land for use in the project. The project would be composed of two cells, a wet-bottom basin (Phase 1) and a 1,200-foot channel (Phase 2), with both parts constructed together under the Proposed Action (**Figure 1.2**).

In Phase 1, an approximately 164-acre-feet wet-bottom storage basin would be constructed at the east end of the project area on two contiguous MUD parcels. The basin would contain CPCs A and B and a 36-inch-diameter outfall to Cypress Creek. An existing concrete-lined stormwater channel identified as Cypress Creek tributary K141-00-00, would be redirected into the detention basin through CPC A to provide freshwater into the wet-bottom pond. An outfall from Cypress Creek tributary K141-00-00, consisting of a three-barrel 8-by-5-foot box culvert, would be constructed at CPC A and modified to a finished width of approximately 16 feet. The portion of the existing concrete channel north of CPC A would be removed, and the existing ditch would be filled during construction

of the basin and berm. The east cell would consist of a 6:1 side slope above the static pool elevation (70 feet), and an 8:1 side slope below the pool elevation. The bottom of the basin would be constructed to an elevation of 62 feet.

A new CPC B would also be constructed on the north side of the basin near Cypress Creek, which would direct the inflow from Cypress Creek into the basin. A new 36-inch-diameter outfall pipe to Cypress Creek would also be constructed at CPC B. On the northwest corner of the basin, a second overflow concrete pilot channel (CPC C) would be constructed between two bends in the creek to convey inflow into the new basin.

Part of an existing 8-inch waterline that is within the basin footprint would be relocated to the maintenance berm along the southern boundary of the detention basin. The existing waterline is part of a looped water supply network that connects Red Oak Drive to Tigris Lane. Temporary service interruptions would occur for a short duration during construction.

The detention basin would be constructed by excavating soil to achieve the proposed depth and side slope configuration. A temporary stockpile area for all soils would be in the northeast corner of the Area of Potential Effect (APE). The soil excavated for the basin would be used to construct the berm around the outer perimeter of the basin and basin side slope topsoil. The basin footprint of Phase I would be approximately 29 acres and would have a storage capacity of approximately 164 acre-feet (HCFCD 2022a). The basin would be constructed in accordance with the HCFCD *Wet Bottom Detention Basins with Water Quality Features: Design Guidelines for HCFCD Wet Bottom Detention Basins with Water Quality Features* (HCFCD 2014). A wet-bottom basin contains a permanent pool of water throughout the year and can support aquatic vegetation (HCFCD 2014) (**Figure 3.1**). The Proposed Action would provide approximately a 0.31-foot reduction during the 5-year event and a 0.39-foot flood reduction during the 10-year storm event (HCFCD 2022a). The basin would be broadcast seeded with approved vegetative species suitable for establishing vegetation based on the planting season. Some existing trees and vegetation would be preserved within an 80-foot-wide buffer zone between the berm and Cypress Creek (HCFCD 2022a). The berm surrounding the basin would be 30 feet wide and would be used for maintenance access. The top of the berm would be at an elevation of approximately 93 feet. An approximate 60-by-60-foot road ROW segment at the east end of Tigris Lane would be transferred from Harris County to the Flood Control District because part of the basin would encroach onto the ROW.

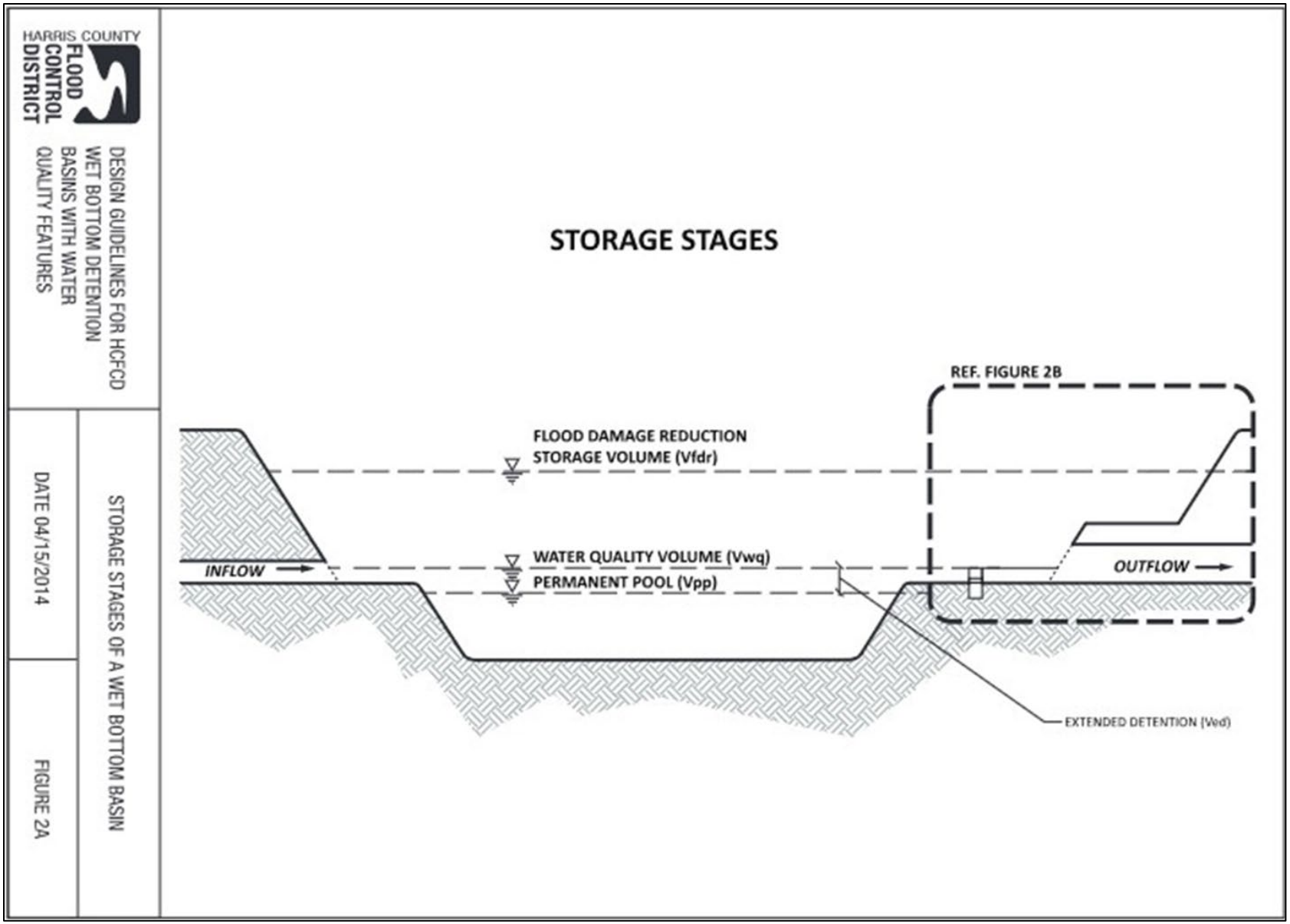


Figure 3.1. Stormwater Storage Stages of a Wet-Bottom Basin

Phase 2 would be constructed at the west end of the basin and would be located on a narrow swath of land composed of two the Flood Control District-owned parcels. The west cell would consist of a new channel that would be created upstream of the wet-bottom basin and parallel to Cypress Creek and would be approximately 1,200 feet long. This dry bottom extension connects to the Phase 1 basin above the permanent water pool and would drain into the pool. A second overflow CPC (C) would be constructed between two bends in the creek to convey inflow into the new basin. Phase 2 would provide approximately 37 acre-feet of storage for an approximate total overall storage of 201 acre-feet. A new permanent access road for maintenance would be constructed on the southern edge of the channel.

The construction of the proposed project would result in a 100-year level of service that would remove 1.5 miles of roadway, 80 structures, and 95.8 acres of land from the floodplain.

3.2.1. PROJECT MAINTENANCE

The Interlocal Agreement between the Flood Control District and MUD identifies that the Flood Control District would fund, design, and construct the Proposed Action and would maintain the stormwater basin once it is complete. It also states that the Flood Control District would conduct ongoing maintenance of the basin in accordance with their current routine maintenance policies and practices, which consist of mowing two to three times per year. the Flood Control District would obtain an easement, approximately 1,300 feet long by 20 feet wide, from MUD along the southern and western boundary of the MUD parcel for maintenance access. MUD granted a permanent drainage easement on the two tracts of land included in the project area of the Proposed Action (HCFCD/MUD 2020a).

3.3. Additional Action Alternatives Considered and Dismissed

An alternative to the Proposed Action was considered; this alternative would be a third cell (Phase 3) added to the basin system. This additional cell would be located south of the east cell. The Phase 3 cell would be constructed in conjunction with the proposed basin cells and would provide 97 acre-feet of additional storage. However, restrictions on available space in the project vicinity would impact an existing cell tower and require the acquisition of five privately owned residential parcels and the displacement of multiple residents. If Phase 3 was implemented, a new access route would need to be constructed to the cell tower location and the relocation of additional utilities would be required. The Phase 3 basin would contribute only an additional 0.01-foot reduction of water-surface elevation during a 100-year storm event and would not contribute meaningfully to the flood control benefits of the basin. This alternative was dismissed from further consideration because it was determined to not be cost-effective, and it does not contribute substantive flood reduction that would meet the purpose and need for the project.

SECTION 4. Affected Environment, Potential Impacts, and Mitigation

4.1. Methodology

This section describes the environment potentially affected by the alternatives, evaluates potential environmental impacts, and recommends measures to avoid or reduce those impacts. When possible, quantitative information is provided to establish potential impacts, and the significance of potential impacts is evaluated qualitatively based on the criteria listed in Table 5.1. The study area generally includes the project area along with the access and staging areas needed for the Proposed Action. If the study area for a particular resource category is different from the project area, the differences will be described in the appropriate subsection.

Table 5.1. Evaluation Criteria for Potential Impacts

Impact Scale	Criteria
None/Negligible	The resource area would not be affected, or changes or benefits would be either nondetectable or would have effects that would be slight and local if detected. Impacts would be well below regulatory standards, as applicable.
Minor	Changes to the resource would be measurable, although the changes would be small and localized. Impacts or benefits would be within or below regulatory standards, as applicable. Mitigation measures would reduce any potential adverse effects.
Moderate	Changes to the resource would be measurable and have either localized or regional-scale impacts/benefits. Impacts would be within or below regulatory standards, but historical conditions would be altered on a short-term basis. Mitigation measures would be necessary, and the measures would reduce any potential adverse effects.
Major	Changes would be readily measurable and would have substantial consequences on a local or regional level. Impacts would exceed regulatory standards. Mitigation measures to offset the adverse effects would be required to reduce impacts, though long-term changes to the resource would be expected.

4.2. Resources Not Affected and Not Considered Further

The resources in Table 5.2 would not be affected by either the No Action alternative or the Proposed Action because they do not exist in the project area or the alternatives would have no effect on the resource. These resources have been removed from further consideration in this EA.

Table 5.2. Resources Eliminated from Further Consideration

Resource Topic	Reason for Elimination
Designated Farmland Soils (Farmland Protection Policy Act)	The project area is in an urbanized and developed area and does not contain farmland. No conversion of farmland would occur per Title 7, CFR, Part 658.2(a).
Executive Order 12699: Seismic Safety	According to the U.S. Geological Survey Earthquake Hazard Program, the project area is not in a seismically active area. Therefore, the alternatives would not affect seismic activity or be affected by seismic hazards.
Wild and Scenic Rivers Act	The closest wild and scenic river is the Saline Bayou in Louisiana, approximately 209 miles to the northwest. The alternatives would have no effect on a wild and scenic river.
Sole Source Aquifers	According to EPA's Sole Source Aquifer mapper, the project area is not above a sole source aquifer; therefore, the alternatives would have no effect on a sole source aquifer.
Land Use and Zoning	The project area is already owned by the Flood Control District for flood control purposes as part of the larger Cypress Creek Watershed Program. The alternatives would not alter the land use.
Coastal Resources	This project area is not in the Coastal Zone Boundary designated by the State of Texas (The Texas General Land Office n.d.) or within a Coastal Barrier Resources Unit (U.S. Fish and Wildlife Service [USFWS] 2019).
Essential Fish Habitat	Species managed by the National Marine Fisheries Service (NMFS) do not occur in the project area.

4.3. Soils, Topography, and Geology

A geotechnical investigation was conducted that included field exploration, soil borings to collect samples, laboratory testing, engineering analyses, and recommendations for further study and development of the basin (HCFCD 2022b).

The project area is mapped within the Pleistocene to Quaternary Aged Lissie Formation, which generally comprises predominately fluviatile clay, silt, sand, and a minor amount of gravel. The topography of the project area is flat with few features except for numerous pimple mounds and shallow depressions (HCFCD 2022b).

Based on the Natural Resources Conservation Service (NRCS) Soil Survey for Harris County, Texas, the project area contains the following mapped soil units: Clodine-Urban land complex (Ce) 0 to 1 percent slopes on 26.3 percent of the site area, Hatliff-Pluck-Klan complex (HatA) 0 to 1 percent slopes on 66 percent of the site area, and Texla silt loam (TelB) 0 to 2 percent slopes on 2.8 percent of the site area (NRCS 2022). The project area is on the depositional side of a meander of Cypress Creek and influences the stratigraphy of the soils. Project area soils consist of permeable granular soils with layers of clays, silts, and sands, which are subject to erosion. Groundwater depths range

from 3.5 feet to 44.5 feet below ground surface. Fluctuations in groundwater levels are expected and largely dependent on precipitation and surface water elevation changes in Cypress Creek throughout the year (HCFCD 2022b).

Based on EPA, Ecoregions of Texas, and the United States Geological Survey's Texas Geology Web Map, the project area is in the Northern Humid Gulf Coastal Prairies part of the West Gulf Coast Plan ecoregion. This area is characterized by elevated sandy ridges between waterways with the elevation of the project area approximately between 90 to 95 feet above mean sea level (Terracon 2022). A geotechnical investigation was conducted for the project area with 12 sample borings being drilled. The geotechnical soil stratigraphy was found to consist primarily of permeable granular soils with interbedded, discontinuous layers of clays. No bedrock was identified (CivilTech 2021).

4.3.1. NO ACTION ALTERNATIVE

Under the No Action alternative, a stormwater detention basin would not be constructed. While there would be no construction-related short-term impact on topography, geology, or soils in the project area, the risk of flooding would not be reduced. Flooding would not be expected to affect geography or alter topography because of the gentle slopes in the area. During flood and storm events, erosion would continue to occur in areas consisting of clays, silts, and sands, which could result in soil loss and sediment deposition in other areas.

Therefore, the No Action alternative would have a minor long-term adverse effect on soils in the project area and the vicinity.

4.3.2. PROPOSED ACTION

The Proposed Action would change the topography in the project area by constructing a large basin below the existing ground surface and building up the top elevation of the berm surrounding the new basin. Construction of the basin would require a maximum excavation depth between approximately 20 to 27 feet below the existing ground surface. The bottom elevation of the basin would be approximately 62 feet above sea level, the static pool elevation would be approximately 70 feet above sea level, and the top of the berm would be approximately 93 feet above sea level.

The Proposed Action would require excavation and soil disturbance to construct the basin, which could result in erosion of exposed soils during rain and wind events. Excavated soils would be classified as topsoil, natural cohesive soils, or granular soils, and each type of soil would be stockpiled separately and reused where feasible. Wet sands and silts would likely be encountered at the bottom of the basin at some locations. During excavation, the wet sandy/silty soils would likely become destabilized, causing them to flow. This would require over-excavation of the wet soils and filling these areas with granular soils and/or installing sumps, sump pumps, or other dewatering systems to depressurize the wet soils. A Stormwater Pollution Prevention Plan (SWPPP) describing erosion and sediment control best management practices (BMPs) would be implemented during construction in compliance with the Clean Water Act (CWA) Section 402 National Pollutant Discharge Elimination System (NPDES) Construction General Permit for Texas. These BMPs would include silt fencing and other sediment runoff and wind controls. Areas temporarily disturbed during

construction would be stabilized once construction is completed to prevent erosion. Excavated soils that cannot be reused on-site would be removed and reused and/or disposed of off-site in accordance with applicable regulations. The Proposed Action would result in a minor short-term adverse impact on soils because of erosion that would be mitigated by the implementation of erosion and sediment control BMPs. The Proposed Action would result in a minor short-term adverse impact on topography from excavation and grading.

During the operation of the basin, there would be the potential for seepage and erosion between the basin and the creek channel, which could lead to the failure of the detention basin slopes. The berm for the basin would be 30 feet wide, and a uniform 80-foot-wide forested buffer zone would exist between Cypress Creek and the basin, helping to reduce the risk of potential erosion and assist in the stability of the berm. The finished side slopes of the basin would be constructed to a maximum slope of 6.3:1 horizontal to vertical. The static pool elevation could fluctuate during operation because of drought or other circumstances affecting the Cypress Creek and K141-00-00 surface water elevations, thus decreasing slope stability on the lower slopes (HCFCD 2022b). The slope stability of the basin would be monitored regularly to identify areas of instability and erosion in need of maintenance. Therefore, there would be a minor long-term adverse impact on the slope stability and erosion of the basin, berm, soils, and topography. There would be no long-term impact on geology.

The water storage provided by the basin provides 0.24 feet of water-surface elevation reduction in Cypress Creek within the vicinity of the project, thus reducing erosion and sediment deposition within the creek. In the entire watershed, the floodplain is removed from 1.5 miles of roadway, 80 structures, and 95.8 acres of land. This reduction is anticipated to accommodate a 100-year storm event, thus providing long-term beneficial impacts (CivilTech 2021).

4.4. Air Quality

The Clean Air Act, as amended, requires the U.S. Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards (NAAQS) for six pollutants harmful to human and environmental health, including ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, lead, and particulate matter (PM) (including PM that is less than 10 micrometers in diameter [PM_{10}] and fine PM less than 2.5 micrometers in diameter [$PM_{2.5}$]) (EPA 2016a). Fugitive dust, which is considered a component of PM, also can affect air quality. Fugitive dust is released into the air by wind or human activities, such as construction, and can have human and environmental health impacts.

Federally funded actions in nonattainment and maintenance areas for these pollutants are subject to conformity regulations (40 CFR Parts 51 and 93) to ensure that emissions of air pollutants from planned federally funded activities would not cause any violations of the NAAQS, increase the frequency or severity of NAAQS violations, or delay timely attainment of the NAAQS or any interim milestone.

Under the general conformity regulations, a general conformity determination for federal actions is required for each criteria pollutant or precursor in nonattainment or maintenance areas. Specifically, areas where the Proposed Action's direct and indirect emissions have the potential to emit one or more of the six criteria pollutants at rates equal to or exceeding the prescribed de minimis rates for that pollutant would require a conformity determination.

According to the EPA's Green Book (October 2024), Harris County is classified as a severe 15 nonattainment area for 8-hour ozone under the 2008 rule and a serious nonattainment area for 8-hour ozone under the 2015 rule. Harris County is in attainment for all other criteria pollutants (EPA 2024).

4.4.1. NO ACTION ALTERNATIVE

Under the No Action alternative, there would be no construction-related short-term impacts on air quality within the project area. Continued flooding would result in flood-related damage to residential and commercial properties near the project area. Therefore, there would be a continued negligible and temporary impact on air quality from vehicle and equipment emissions resulting from equipment used for flood-related repairs for future storm events. There would be no long-term impact on air quality because no new permanent air emissions source would be created.

4.4.2. PROPOSED ACTION

The Proposed Action would have minor short-term impacts on air quality from equipment and vehicle use. Emissions from on-site construction equipment, on-road construction-related vehicles, and dust-generating construction activities have the potential to affect air quality. Heavy equipment and earth-moving machinery could temporarily increase the levels of some pollutants, including carbon monoxide, volatile organic compounds, nitrogen dioxide, ozone, and particulate matter. The Proposed Action would take approximately 18 months to construct; thus, vehicle and equipment use in the project area would be temporary and localized. Temporary impacts on air quality would be reduced through the implementation of BMPs, including running vehicles and equipment as little as possible and covering or wetting areas of exposed soil to reduce fugitive dust. Further, all construction equipment would be required to meet current EPA emissions standards (EPA 2016b). Thus, FEMA anticipates that air emissions would not increase to the extent that a general conformity analysis would be required for the Proposed Action. There would be no long-term impact on air quality because no new air emissions source would be created.

4.5. Surface Waters and Water Quality

The CWA of 1977, as amended, regulates the discharge of pollutants into water with sections of the CWA falling under the jurisdiction of the U.S. Army Corps of Engineers (USACE) and EPA. Section 404 of the CWA establishes the USACE permit requirements for discharging dredged or fill materials into waters of the United States. Under NPDES, the Texas Commission on Environmental Quality (TCEQ) regulates both point and nonpoint pollutant sources, including stormwater and stormwater runoff. Activities that disturb one or more acres of ground are required to apply for a Stormwater General

Permit for Construction Activities permit through TCEQ, as authorized by EPA under the NPDES program.

Relevant state regulations include the Texas Surface Water Quality Standards (30 Texas Administrative Code [TAC] §307), which maintains the quality of surface water by controlling pollution.

The project area is in the Little Cypress Creek-Cypress Creek watershed, hydrologic unit code 1204010201. Cypress Creek is classified by the USFWS National Wetlands Inventory (NWI) as a riverine, lower perennial unconsolidated bottom, permanently flooded feature (USFWS 2022a). The part of Cypress Creek within the project area is part of Segment 1009 as designated by TCEQ. Segment 1009 flows east from the confluence of Snake Creek and Mound Creek in Waller County to the confluence with Spring Creek in Harris County. Spring Creek flows into the San Jacinto River which flows into Lake Houston, approximately 11.5 miles east of the project area. The beneficial uses designated for Segment 1009 include primary contact recreation, such as swimming; aquatic life for its highly diverse habitat; and public water supply subcategory of domestic supply, indicating that it is either used as the supply source for public water systems or exhibits characteristics that would permit its use (30 TAC §307.10(1)). Cypress Creek indirectly serves as a public water supply source by augmenting the water supply in Lake Houston through Spring Creek and the West Fork of the San Jacinto River (Houston-Galveston Area Council [H-GAC] 2021).

A wetland and water body delineation conducted in September 2021 identified one stream within the project area, Cypress Creek, two shallow ephemeral swales that only have water flow as a direct result of precipitation, and four wetlands (HCFCD 2022b). Only Cypress Creek is jurisdictional, and other wetlands in the project area are non-jurisdictional.

In compliance with CWA Section 303(d), TCEQ maintains a list of water quality impaired waters, also known as the 303(d) list, and none of the waterbodies in the project area are listed as impaired in the 303(d) list for 2022 (TCEQ 2022). Although Segment 1009 is not included on the 303(d) list, it has a contact recreation impairment for *E. coli* (EPA 2022a). In July 2021, EPA accepted the Cypress Creek Watershed Protection Plan, which outlines strategies to address fecal waste levels in Cypress Creek and its tributaries (H-GAC 2021). The sources of fecal waste levels in the watershed are "widespread, diffuse, and diverse in origin, making them more difficult to address through traditional approaches focusing on single entities and regulation" (H-GAC 2021). The primary sources of fecal waste contamination are pet waste, human sewage, and livestock (H-GAC 2021).

4.5.1. NO ACTION ALTERNATIVE

Under the No Action alternative, no construction would occur and there would be no short-term construction-related impacts on water quality. However, continued flooding along Cypress Creek could lead to minor impacts on water quality. Flooding along the tributaries of Cypress Creek is primarily caused by stormwater backing up from the main stem of Cypress Creek into the tributaries (HCFCD 2020a). Under the No Action alternative, there would be no efforts to reduce flood risk, and continued flooding could result in an increase in erosion and sedimentation. The transport of sediment could increase turbidity and total suspended solids, which could adversely impact aquatic

life and other water quality parameters including temperature and dissolved oxygen (EPA 2021). Continued flooding could also result in the transport of contaminants such as oils and other pollutants from surface streets, contaminants from residential and commercial structures, and other pollutants such as *E. coli*, which could exacerbate Cypress Creek's *E. coli* impairment. Further, sediments and pollutants could be carried downstream to Lake Houston and have a minor adverse impact on the drinking water supply, including increasing treatment costs. Thus, the No Action alternative would have a minor adverse effect on water quality in the project area and vicinity.

4.5.2. PROPOSED ACTION

Construction activities associated with the Proposed Action would have the potential to impact water quality in the short-term during construction, including site preparation and excavation. The most common pollutants in surface waters from construction sites are sediment and turbidity (EPA 2009). Activities would be temporary, and the Flood Control District would implement a SWPPP that includes erosion and sediment control practices and BMPs such as silt fencing in accordance with the TCEQ Stormwater General Permit for Construction Activities. In addition, the project would protect an 80-foot forested buffer between the construction zone and Cypress Creek, which would protect water quality in the creek during and following construction.

The Proposed Action would require a nationwide permit in accordance with Section 404 of the CWA for the detention basin outfall into Cypress Creek and wetland impacts. A small riprap pad would be placed at the end of the outfall to dissipate the energy of water coming from the outfall pipe and prevent scour along the bank of Cypress Creek. The riprap area would be approximately 350 square feet and would partially extend into Cypress Creek.

Groundwater in the project area was encountered at depths ranging from approximately 3.5 feet to 44.5 feet below ground surface, although fluctuations in groundwater levels are expected and largely dependent on precipitation and surface water elevation changes in Cypress Creek throughout the year (HCFCD 2022b). The maximum excavation depth of the detention basin would be approximately 20 to 27 feet below the existing ground surface, and therefore, construction activities could encounter groundwater. Groundwater controls during construction could include depressurization of well points (HCFCD 2022a). Dewatering measures would be implemented to keep groundwater levels 5 feet or more below the bottom of the excavation. Groundwater control activities would adhere to appropriate control measures as specified in the TCEQ Stormwater General Permit for Construction Activities. Areas where soil allows groundwater to flow into the basin may be over-excavated and the soils replaced with clay or sodium bentonite fill to prevent infiltration of the basin with groundwater. Therefore, the Proposed Action would have short-term negligible adverse impacts on water quality. The Flood Control District is responsible for coordinating with and obtaining any required Section 404 Permit(s) from USACE and/or any Section 401/402 Permit(s) from the state before initiating work. The applicant must comply with all conditions of the required permit(s). All coordination pertaining to these activities should be retained as part of the project file in accordance with the respective grant program instructions.

In the long term, the Proposed Action would reduce peak flows and slow runoff velocity. Thus, the Proposed Action would protect the project area and surrounding neighborhood from erosion and sedimentation during storm events. Reducing flooding would decrease the potential for pollutants to be carried into surface waters and result in a minor beneficial effect on water quality.

The wet-bottom detention basin would include stormwater treatment opportunities such as emergent vegetation, submerged vegetation, a permanent deep pool, adequate distance between the inflow and outflow structures to increase circulation time, varying side slopes, and floatable material control devices as seen in **Figure 5.1** (HCFCD 2022b). The detention basin would slow stormwater and allow suspended sediments to settle out before the stormwater is discharged back into the creek system, preventing sedimentation into surface waters. Therefore, the operation of the Proposed Action would result in a minor long-term benefit on water quality.

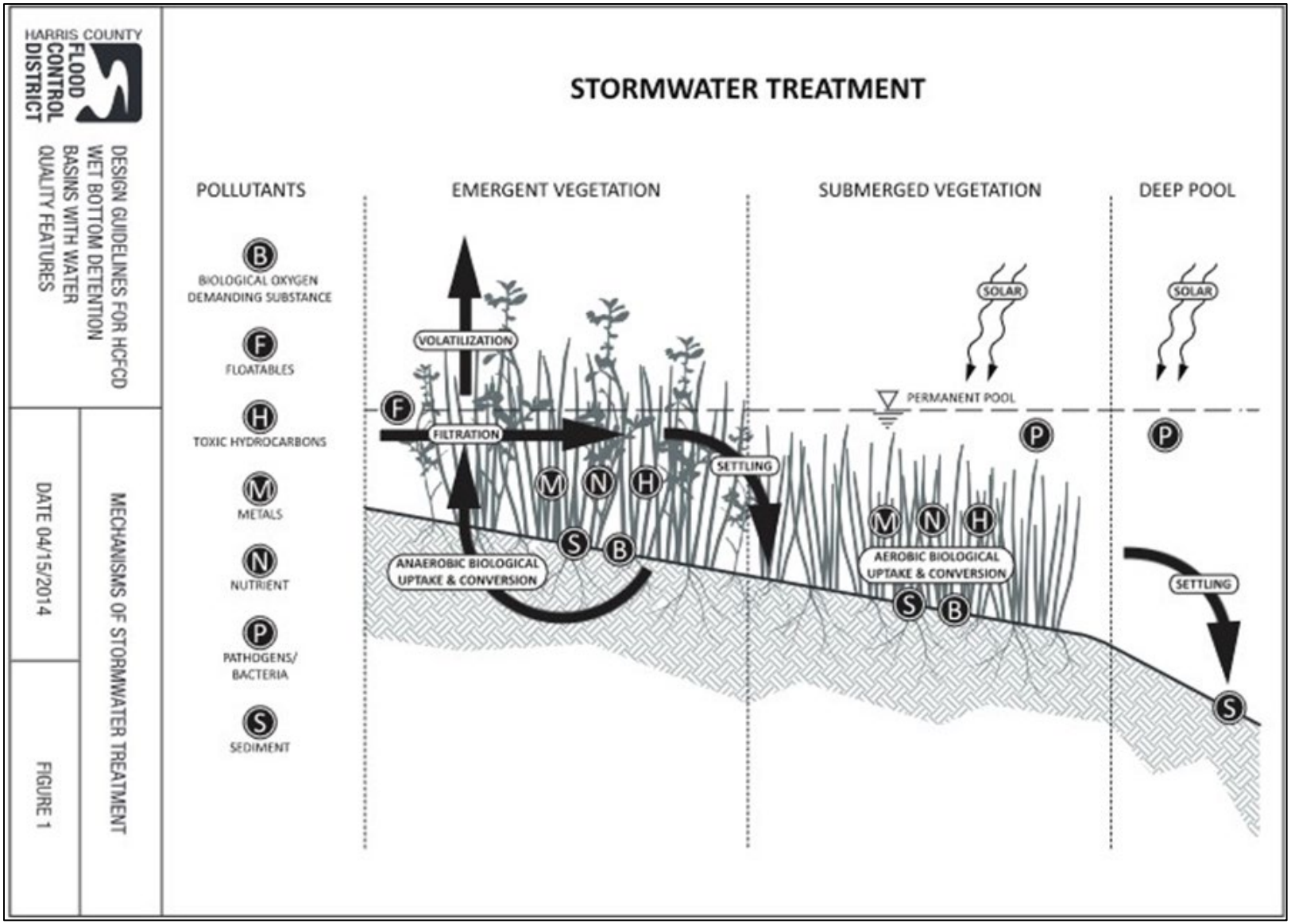


Figure 5.1. Stormwater Treatment Mechanisms in Wet-Bottom Basins

4.6. Wetlands

EO 11990, Protection of Wetlands, requires federal agencies to consider alternatives to work in wetlands and limits potential impacts on wetlands if there are no practicable alternatives. FEMA regulation 44 CFR Part 9, Floodplain Management and Protection of Wetlands, sets forth the policy, procedures, and responsibilities to implement and enforce EO 11990 and prohibits FEMA from funding activities in a wetland unless no practicable alternatives are available. FEMA uses the eight-step decision-making process to evaluate potential impacts and mitigate impacts on wetlands, in compliance with EO 11990 and 44 CFR Part 9. Under Section 404 of the CWA, USACE regulates the discharge of fill into Waters of the United States, including some types of wetlands.

Wetlands are present within the project area (**Figure 5.2**). Based on a review of NWI mapping and a wetland delineation conducted by Terracon Consultants Inc. in 2023, approximately 0.97 acres of forested, broad-leaved deciduous, temporary flooded wetlands occur within the project area (Terracon 2023a). The project area also contains approximately 0.09 acres of palustrine, unconsolidated bottom, permanently flooded, excavated human-made freshwater ponds (Terracon 2023a). Other wetlands present in the project area include 0.34 acres of ephemeral streams (Terracon 2023a). The wetlands, freshwater pond, and ephemeral streams were determined to be non-jurisdictional under the 33 CFR 328.3(b)(8) exclusion (as of March 18, 2025, the Flood Control District was awaiting final documentation from USACE). The project area is bounded on the north by Cypress Creek (3.1 acres).

4.6.1. NO ACTION ALTERNATIVE

The No Action alternative would have no impact on wetlands in the short and long term as no construction would occur within the project area, and existing hydrological conditions that may support wetlands in the vicinity would not be altered. Under the No Action alternative, there would be no construction-related vegetation removal or disturbance of wetlands and no adverse or beneficial impact on wetlands. Adverse impacts on water quality would occur from periodic flooding, as discussed in **Section 5.5.1**.

4.6.2. PROPOSED ACTION

Under the Proposed Action, approximately 1.4 acres of non-jurisdictional wetlands would be removed during grading and construction of the basin. Wetland forest vegetation would be cleared for the construction of the basin. Because the area of wetland habitat is small, there would be a short-term minor adverse effect on wetlands from the loss of the forested wetland area and functions.

Figure 5.2. Delineated and NWI Wetlands

The detention basin would be constructed with a wet bottom that would include native plant species, including wetland emergent and submerged vegetation, following the Flood Control District design standards. While the Proposed Action would result in the creation of approximately 1.3 acres of new wetland habitat (**Figure 5.3**), the functionality of a wetland would be limited and temporary. . Also, the fluctuating water levels associated with storm events would not provide adequate habitat for species adapted to natural wetlands. Therefore, the Proposed Action would have long-term negligible adverse impacts on existing wetlands.

4.7. Floodplains

EO 11988, Floodplain Management requires federal agencies to avoid, to the extent possible, short- and long-term, adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. FEMA regulations (44 CFR Part 9.7) use the 1-percent-annual-chance flood as the minimal area for floodplain impact evaluation. FEMA follows an eight-step decision-making process to ensure compliance with EO 11988, which requires the evaluation of alternatives to the use of a floodplain before funding the action (**Appendix A**).

FEMA uses the 1-percent floodplain as the minimum area for the floodplain impact evaluation. FEMA defines a 1-percent-annual-chance floodplain (i.e., the 100-year floodplain) as an area subject to inundation from a flood that has a 1-percent chance of being equaled or exceeded in any given year. The elevation of the surface water resulting from a 1-percent-chance flood is known as the base flood elevation.

Based on FEMA Flood Insurance Rate Map panels 48201C0265M, effective October 16, 2013, the entire proposed project area falls within Zone AE with a base flood elevation of 98 feet above sea level (**Figure 5.4**). The part of the project area adjacent to the creek is also within the regulatory floodway for Cypress Creek. Residential and commercial properties within and near the project area have been severely and repeatedly impacted by flooding that follows heavy precipitation, tropical storms, and hurricanes. The Flood Control District currently manages an existing concrete ditch (K141-00-00) that conveys stormwater flow to a cleared area on the Westador MUD property through existing CPC A, which is then discharged to Cypress Creek.

Figure 5.3. Wet-Bottom Area in Proposed Basin

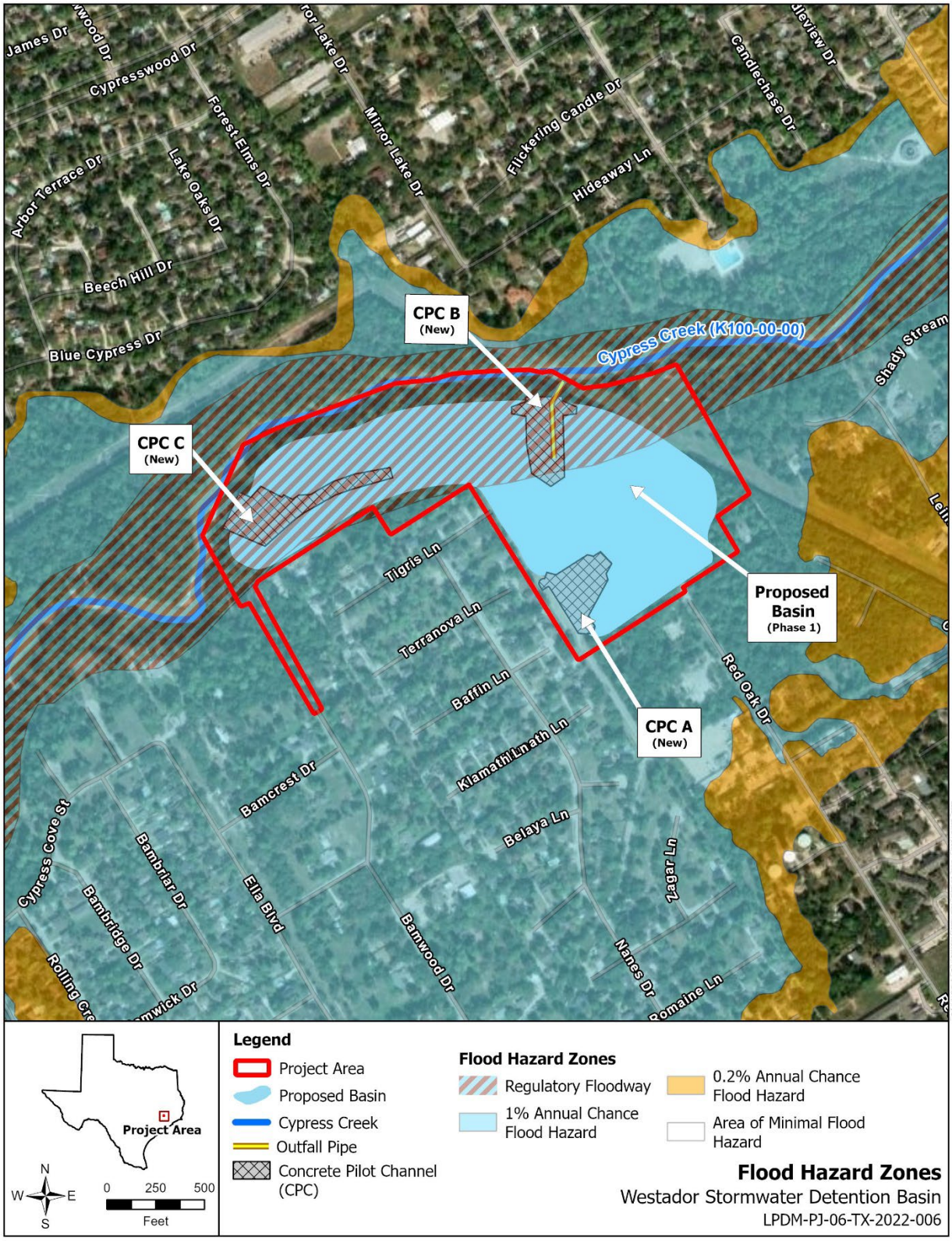


Figure 5.4. Flood Hazard Zones

The Cypress Creek Implementation Plan (Implementation Plan) established targets for flood risk reduction projects in the Cypress Creek watershed based on the Cypress Creek Watershed and Major Tributaries Regional Drainage Plan. The Drainage Plan recommended a target of 56,500 acre-feet of stormwater detention to mitigate the large flows from Little Cypress Creek (30,000 acre-feet) and Upper Cypress Creek (26,500 acre-feet) that drain into Cypress Creek (HCFCD 2020a). The Implementation Plan identified that approximately 14,000 acre-feet of stormwater detention volume may reduce flooding risk by removing the floodplains for 39 percent, 21 percent, and 19 percent of structures in the 10-, 50-, and 100-year floodplains, respectively. Accordingly, the six highest priority catchment areas, which include the Proposed Action, have the most structures that would benefit from reduced flooding risks when the associated stormwater detention basins are complete. The estimated 2020 HCAD market value excluding land value is approximately $2.9 billion for benefited structures with the 100-year floodplain removed (HCFCD 2021).

A drainage report that includes hydrologic and hydraulic analysis completed by the Flood Control District for the Proposed Action determined that, under existing conditions, Cypress Creek can convey less than the 10-year storm event within the study area, which included areas both upstream and downstream of the project area (HCFCD 2022b). Under existing conditions, 3,246 structures within the study area would be flooded in a 100-year storm event, and 10,886 structures within the study area would be flooded in a 500-year storm event (HCFCD 2022b).

4.7.1. NO ACTION ALTERNATIVE

Under the No-Action alternative, there would be no change in the flow or drainage patterns of Cypress Creek or its floodplain. The project area, project vicinity, and downstream of Cypress Creek would continue to flood during major storm events. The flood storage capacity in the Cypress Creek watershed would not be increased, and public safety, property, and infrastructure would continue to be at risk from floods. Floodwaters can carry pollutants, excess nutrients, and sediments from upland areas into floodplain areas and creeks, which can adversely affect vegetation, fish, and wildlife in the floodplain. Floodwaters can also result in erosion and scour of natural drainageways or infrastructure.

Under the No Action alternative, the Flood Control District would not meet the flood risk reduction targets along Cypress Creek in accordance with the Cypress Creek Watershed Implementation Plan. The No Action alternative would have an adverse impact on public safety, property, and infrastructure from continued periodic flooding.

4.7.2. PROPOSED ACTION

During construction of the basin, vegetation would be removed, and soils would be exposed, which could result in erosion and sedimentation of floodplain areas if there is precipitation or windy conditions during construction. Construction activities could also cause an accidental release of hazardous waste (e.g., fuels) from equipment use that could enter water bodies and wetlands in the project area and Cypress Creek. As described in Section 5.3 and Section 5.5, BMPs and a SWPPP would be implemented to reduce the potential impacts on soils and water quality in the floodplain

during construction. Therefore, there would be minor short-term adverse impacts on the floodplain from the construction of the basin.

Under the Proposed Action, the new stormwater detention basin would be constructed within the 100-year floodplain. The basin would improve floodplain storage capacity by capturing high flows from Cypress Creek through the concrete pilot channels and provide approximately 201 acre-feet of storage that would otherwise flood the surrounding and downstream areas. During storm events, the water-surface elevations near the project area would decrease because of the increased capacity in the floodplain as compared to existing conditions. As flows in the creek recede, water stored in the basin would slowly outfall back into the creek without increasing water surface elevations downstream. As the basin drains, the storage capacity would become available again for future storm flows. Following construction, the risk of flooding would be reduced. According to the hydraulic modeling conducted by the Flood Control District, the Proposed Action would remove 80 structures from the 100-year floodplain as compared to existing conditions (HCFCD 2022b)

The basin's side slopes would be stabilized to prevent erosion during basin operations. The detention basin would slow stormwater and allow suspended sediments to settle out before the stormwater is discharged back into the floodplain and creek system, preventing sedimentation of the floodplain. The basin bottom would be vegetated, which would stabilize bottom sediments and provide some water quality benefits by removing excess nutrients from stormwater in the basin. The areas where the basin outlet discharges onto the creek bank would also be stabilized with a riprap energy dissipation pad to prevent erosion and scour of the creek around the outlet. Although approximately 24 acres of forests would be removed from the floodplain (Section 5.8), an 80-foot-wide buffer along Cypress Creek would be maintained and would continue to provide riparian habitat benefits in the floodplain. Furthermore, approximately 6 acres of trees would be replanted, resulting in a cumulative reduction of 18 acres of forest cover.

Therefore, the Proposed Action would have a minor adverse impact on floodplain functions related to habitat and vegetation but would benefit floodplain functions related to flood storage capacity and water quality (i.e., removal of sediments and nutrients). There would be a moderate long-term benefit related to floodplains from the reduced risk of flooding and associated risk of injury and damage to the people and property. The project would help to meet the flood risk reduction targets along Cypress Creek in accordance with the Cypress Creek Watershed Implementation Plan.

The Flood Control District is required to coordinate with the local floodplain administrator and obtain required permits before initiating work, including any necessary certifications that encroachments within the adopted regulatory floodway would not result in any increase in flood levels within the community during the occurrence of the base flood discharge. The applicant must comply with any conditions of the permit and all coordination pertaining to these activities should be retained as part of the project file in accordance with the respective grant program instructions.

4.8. Vegetation

The project area is in the Gulf Plains and Marshes ecoregion (Texas Parks and Wildlife Department [TPWD] n.d.-a). Predominant vegetative communities include salt grass marshes, tall woodlands, oak mottes and parklands, and remnants of tallgrass prairies (TPWD n.d.-a). The Buffalo-San Jacinto watershed have been highly modified by residential, commercial, and industrial development altering vegetative communities.

The project area comprises approximately 39 acres of agricultural and woodland land use within the Buffalo-San Jacinto watershed. (Terracon 2024). The project area is surrounded by residential development and is currently maintained as open space. The project area has been previously disturbed by historical agricultural uses and more recent residential development. Residential properties with their associated driveways, lawns, and landscaping border the project area.

Based on site surveys conducted in 2021, terrestrial habitat within the project area predominately consists of upland forest interspersed with small patches of forested wetland (Terracon 2024; Hollaway Environmental and Communications 2022). The dominant tree species within the forested portions of the project area are water oak (*Quercus nigra*) and loblolly pine (*Pinus taeda*). Forested areas are generally characterized by a dense understory dominated by Chinese privet (*Ligustrum sinense*). The eastern part of the project area includes a linear tract of land corresponding to an existing stormwater control feature that is devoid of trees and dominated by herbaceous vegetation largely composed of Bahia grass (*Paspalum notatum*) (Terracon 2024).

Invasive Species

EO 13112, Invasive Species, requires federal agencies to prevent to the extent practicable the introduction of invasive species, provide for their control, and minimize the economic, ecological, and human health impacts that invasive species cause. Invasive species prefer disturbed habitats and generally possess high dispersal abilities, enabling them to outcompete native species.

Common invasive plant species in the Gulf Coast Prairies and Marshes ecoregion include giant salvinia (*Salvinia molesta*), Chinese tallow tree (*Triadica sebifera*), salt cedar (*Tamarix ramosissima*), deep-rooted sedge (*Cyperus entrerianus*), Brazilian peppertree (*Schinus terebinthifolius*), Chinaberry tree (*Melia azedarach*), Japanese honeysuckle (*Lonicera japonica*), Chinese privet (*Ligustrum sinense*), common water hyacinth (*Eichhornia crassipes*), alligatorweed (*Alternanthera philoxeroides*), trifoliate orange (*Poncirus trifoliata*), and guineagrass (*Urochloa maxima*) (Texas Invasive Species Institute n.d.).

4.8.1. NO ACTION ALTERNATIVE

The No Action alternative would have no impact on vegetation in the short-term because no excavation and construction would occur within the project area, and existing vegetation would not be disturbed. Vegetation population composition is expected to shift over time. Large flood events, which can cause redistribution and accumulation of debris, could disturb or damage vegetation. Equipment used for debris removal could also disturb existing vegetation. Additionally, large flood events can have adverse effects on water quality that could impact the quality of vegetation present

in the project area. Therefore, the No Action alternative would have a long-term minor adverse impact on vegetation.

Under the No Action alternative, existing invasive species would continue to persist in the project area as there would be no vegetation removal because of construction. Frequent flooding would continue to mobilize and disperse invasive plant seeds and other viable plant parts. If native vegetation is damaged from flood events, invasive species may spread easily in disturbed areas. Therefore, the No Action alternative would have a long-term minor adverse impact on vegetation related to invasive species.

4.8.2. PROPOSED ACTION

The Proposed Action would remove approximately 24 acres of existing vegetation that includes a high percentage of invasive species such as Chinese tallow and privet, during the grading and construction of the basin, and upland and wetland forests would be cleared for the construction of the basins (Figure 5.5). Although this does not represent a substantial amount of habitat loss, this habitat is in an urbanized, fractured environment, and the construction of the basin would exacerbate the habitat and vegetative fragmentation. The bottom of the detention basin would be planted with native plant species that include both emergent and submerged vegetation, following the Flood Control District design standards. The vegetative environment affected by the construction of the temporary part of the access road would be restored to preconstruction activities. Additionally, upon completion of the project, approximately 6.2 acres of a variety of large and small trees and shrubs would be planted to offset the vegetation loss. Trees reestablished along the access road in previously disturbed areas would require years to reach maturity. Therefore, the Proposed Action would have a short-term moderate adverse impact on vegetation, with a cumulative loss of 18 forested acres of vegetation. There would be a long-term minor adverse impact on vegetation from the permanent loss of forest vegetation around the basin.

Vegetation removal associated with the Proposed Action would include the removal of existing invasive species at the project site. Plant species used for the stabilization of the project would be selected to ensure that they do not include invasive species. BMPs such as cleaning equipment entering and exiting the project area would be implemented to reduce the spread of viable plant propagules of invasive species. No invasive plant species would be introduced to the project area, either in erosion control materials, seed blends, or live plants as part of revegetation activities associated with the project. The Proposed Action would have a long-term minor beneficial impact related to invasive species because native species planted during revegetation activities would become established with active maintenance so that invasive species would not be able to recolonize the area.

Figure 5.5. Area of Vegetation Removal

4.9. Fish and Wildlife

Fish and wildlife include the species that occupy, breed, forage, rear, rest, hibernate, or migrate through the project areas. Regulations relevant to fish and wildlife include the Migratory Bird Treaty Act (MBTA), the Bald and Golden Eagle Protection Act, and the Magnuson-Stevens Fishery Conservation and Management Act. **Section 5.10** evaluates threatened and endangered fish and wildlife species separately.

The MBTA of 1918, as amended (16 U.S.C. 703–711), provides protection for migratory birds and their nests, eggs, and body parts from harm, sale, or other injurious actions except under the terms of a valid permit issued pursuant to federal regulations. USFWS is the lead federal agency for implementing the MBTA. All native birds are protected by the MBTA, and existing habitat in the project area has the potential to support a variety of native bird species. The project area is within the Central Flyway, and migratory bird species could occur in the forested and vegetated areas within the project area with nesting typically occurring between April 1 and September 15 (USFWS 2022b).

The Bald and Golden Eagle Protection Act of 1940 prohibits the take, possession, sale, or other harmful action of any gold or bald eagle, alive or dead, including any part, nest, or egg unless allowed by permit (16 U.S.C. 668[a]). This act requires consultation with the USFWS to ensure that proposed federal actions do not adversely affect bald or golden eagles. In the project area, bald eagles may occur as the Texas Natural Diversity Database indicates an occurrence within a 10-mile radius of the project area (Terracon 2024). Golden eagles are not likely to occur regionally or in the project area as they prefer mountainous habitats and nesting in rocky cliffs. They do not occur commonly in southeastern Texas (Audubon n.d.-a).

Under the Magnuson-Stevens Fishery Conservation and Management Act, the NMFS designates essential fish habitat (EFH), which is those waters and substrate necessary for federally managed species to spawn, breed, feed, and/or grow to maturity. All federal agencies are required to assess the potential effects of proposed actions on EFH and to consult with NMFS on any actions that could adversely affect EFH. No NMFS-managed species have been identified for the project area, and there is no EFH present.

The Gulf Coast Prairies and Marshes ecoregion hosts a variety of wildlife. Wildlife communities within the project area likely consist of urban-adapted generalist species that can live in semidisturbed, altered habitats. Examples of these species include opossums (*Didelphis marsupialis*), raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), chipmunks (*Tamias striatus*), squirrels (*Sciuridae* sp.), whitetail deer (*Odocoileus virginianus*), eastern cottontail (*Sylvilagus floridanus*), and passerine birds such as northern cardinals (*Cardinalis cardinalis*) and Carolina chickadees (*Poecile carolinensis*) (TPWD n.d.-a). Reptile and amphibian species found at the project site during a site visit conducted in 2021 included the plain-bellied watersnake (*Nerodia erythrogaster*) and the three-toed box turtle (*Terrapene carolina triunguis*) (Terracon 2024). The wetland and stream habitats near the project area have the potential to support several species and may provide a corridor for movement between other terrestrial and aquatic habitats along Cypress Creek.

The USFWS Information for Planning and Consultation (IPaC) was used to identify nine migratory bird species as birds of particular concern because they occur on the USFWS Birds of Conservation Concern list or because they warrant attention in the project area, per a query conducted on October 4, 2024 (USFWS 2024a). Of the nine species, the wood thrush (*Hylocichla mustelina*), swallow-tailed kite (*Elanoides forficatus*), American kestrel (*Falco sparverius paulus*), bald eagle (*Haliaeetus leucocephalus*), brown-headed nuthatch (*Sitta pusilla*), prothonotary warbler (*Protonotaria citrea*), and Chuck-will's-widow (*Antrostomus carolinensis*) have a low probability of occurring at the project site with potential site occurrence during the breeding season. Two species, the chimney swift (*Chaetura pelagica*) and red-headed woodpecker (*Melanerpes erythrocephalus*), have high probabilities of occurring during the breeding season according to the IPaC Probability of Presence Summary (USFWS 2024a). The site visit identified that the swallow-tailed kite (*Elanoides forficatus*) had the potential to be present in the project area (Terracon 2024).

4.9.1. NO ACTION ALTERNATIVE

Under the No Action alternative, there would be no short-term adverse impact on fish and wildlife or their habitats. However, in the long term, flood events would damage native forests by washing out present habitat features, such as undergrowth, and creating openings subsequently colonized by invasive plant species, as discussed in Section 5.8.1. Invasive plant species would not provide suitable habitat for native birds, migratory birds, and other wildlife species. Therefore, the No Action alternative would have a long-term minor adverse impact on fish and wildlife, including migratory birds.

4.9.2. PROPOSED ACTION

Under the Proposed Action, existing vegetation, which currently provides habitat for wildlife species, would be removed during grading and construction of the basin; however, an 80-foot-wide forested buffer would remain between Cypress Creek and the proposed stormwater detention basin. In the short term, 24 acres of upland and wetland forests would be cleared for construction of the basin, removing habitat and displacing wildlife. Excavation of the basin would likely disturb and displace ground-dwelling terrestrial and subterrestrial wildlife. Construction and excavation would also produce noise, which would disturb wildlife not otherwise directly impacted by construction activities, affecting their ability to forage and conduct life activities. Dust produced from the construction activity would also have the potential to impact surrounding wildlife by disrupting or impairing vision. Vegetation that is used as wildlife habitat would also potentially be impacted if dust settling on the vegetation reduced the photosynthetic ability of the plants. Dust generated from construction activities can also increase sedimentation in aquatic environments. BMPs and conservation measures would be implemented to minimize the impacts of construction. Specified BMPs and conservation measures would be employed to minimize sedimentation to surrounding aquatic habitats including installing silt fencing and avoiding construction activities during rainy conditions.

Birds are mobile and can readily fly away from construction noise and disturbance. However, if construction occurs during the migratory bird breeding season (i.e., March through July), related activities could impact bird species protected by the MBTA because vegetation removal could result in nest destruction and loss of eggs and young. Given the potential for the take of migratory birds to occur, the Proposed Action would be subject to the prohibitions of the MBTA, and the City would be responsible for obtaining and complying with federal and state laws for the protection of birds before starting work. Given that the Flood Control District would comply with the MBTA, the Proposed Action would have a negligible, short-term impact on species protected under the MBTA if vegetation removal were to occur during the nesting season. BMPs and AMMs also include nest surveying that would be conducted within 5 days of any vegetation removal to mitigate any disturbance to bird species, including migratory birds and bald eagles. If nests are encountered, a species buffer would be applied, and the nest would be avoided until no longer occupied.

Although wetland vegetation would be planted in the bottom of the basin and some trees would be planted on the outside edges of the basin in disturbed areas, the existing forest cover would be permanently altered. In the long term, the Proposed Action would result in a permanent upland and wetland forest habitat loss of 18 acres. However, an 80-foot-wide buffer would be retained between Cypress Creek and either basin of the Proposed Action to limit habitat fragmentation and maintain available habitat to wildlife species.

The Proposed Action would reduce the effects of flooding on wildlife habitat surrounding the project area. Flooding can carry sediments downstream that smother vegetation and wildlife habitats when they settle out of floodwaters. Flooding may also result in scour of creek bottoms and banks and the transport of sediments and pollutants that damage and impair aquatic habitats. These impacts are expected to worsen as flooding increases. The Proposed Action would reduce these impacts downstream of the project area by reducing future flooding and moderating flood flows in Cypress Creek. The wet-bottom detention basin would treat stormwater runoff by allowing suspended sediments to settle. Additionally, associated aquatic vegetation can provide treatment through the uptake of nutrients and other pollutants.

Therefore, the Proposed Action would have a short-term minor adverse impact on wildlife and migratory birds from vegetation disturbance and removal and construction noise and activity. However, proposed BMPs and AMMs would help mitigate potential effects on wildlife and migratory birds. The project would have a minor long-term adverse impact on wildlife and migratory birds from the conversion of approximately 18 acres of forested habitat to stormwater basin within the project area. There would be a long-term negligible beneficial effect on aquatic habitats from the reduction in flooding and scour, from the creation of aquatic habitat for potential waterfowl and migratory birds, and from improved water quality to Cypress Creek through the treatment of stormwater runoff in the basin..

4.10. Threatened and Endangered Species and Critical Habitat

The Endangered Species Act (ESA) of 1973 gives USFWS and NMFS authority for the protection of threatened and endangered species. This protection includes a prohibition on direct take (e.g., killing, harassing) and indirect take (e.g., destruction of habitat). Section 7 of the ESA requires federal agencies to consider impacts of their actions on listed species and consult with USFWS and/or NMFS if the proposed action may affect a threatened or endangered species or designated critical habitat. Proposed and candidate species are not fully protected by the ESA, and it is the action agency's discretion as to whether conference with the USFWS or NMFS is warranted.

The ESA defines the action area as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action" (50 CFR 402.02). Therefore, the action area where effects on listed species must be evaluated may be larger than the project area where project activities would occur. The action area includes the area surrounding the project area and considers such factors as noise, vibration, dust, stormwater runoff, construction vehicle and equipment traffic, waste, and spills, and construction fencing and silt fences. Construction noise was determined to be the effect that would extend the farthest from the project area. To account for potential noise impacts, the action area includes a 0.25-mile buffer extending from the project area (**Figure 5.6**). This distance is based on buffer requirements for active roost trees for the northern long-eared bat (U.S. Forest Service 2014).

Federally Listed Species

The USFWS IPaC was accessed on October 4, 2024, to identify proposed, threatened, and endangered species in the action area. Five federally listed species have the potential to occur in the project area including the eastern black rail, piping plover, red knot, whooping crane, and Texas prairie dawn-flower, as shown in **Table 5.3** (USFWS 2024a). The alligator snapping turtle (AST), proposed for listing as threatened under the ESA, has the potential to occur within the project area. Additionally, the tricolored bat (TCB), proposed for listing as endangered under the ESA, has the potential to occur within the project area. Based on an assessment of the suitability of habitats within the project area for these seven species, only the AST and TCB have the potential to occur in the project area. The Proposed Action would not affect species under the jurisdiction of NMFS.

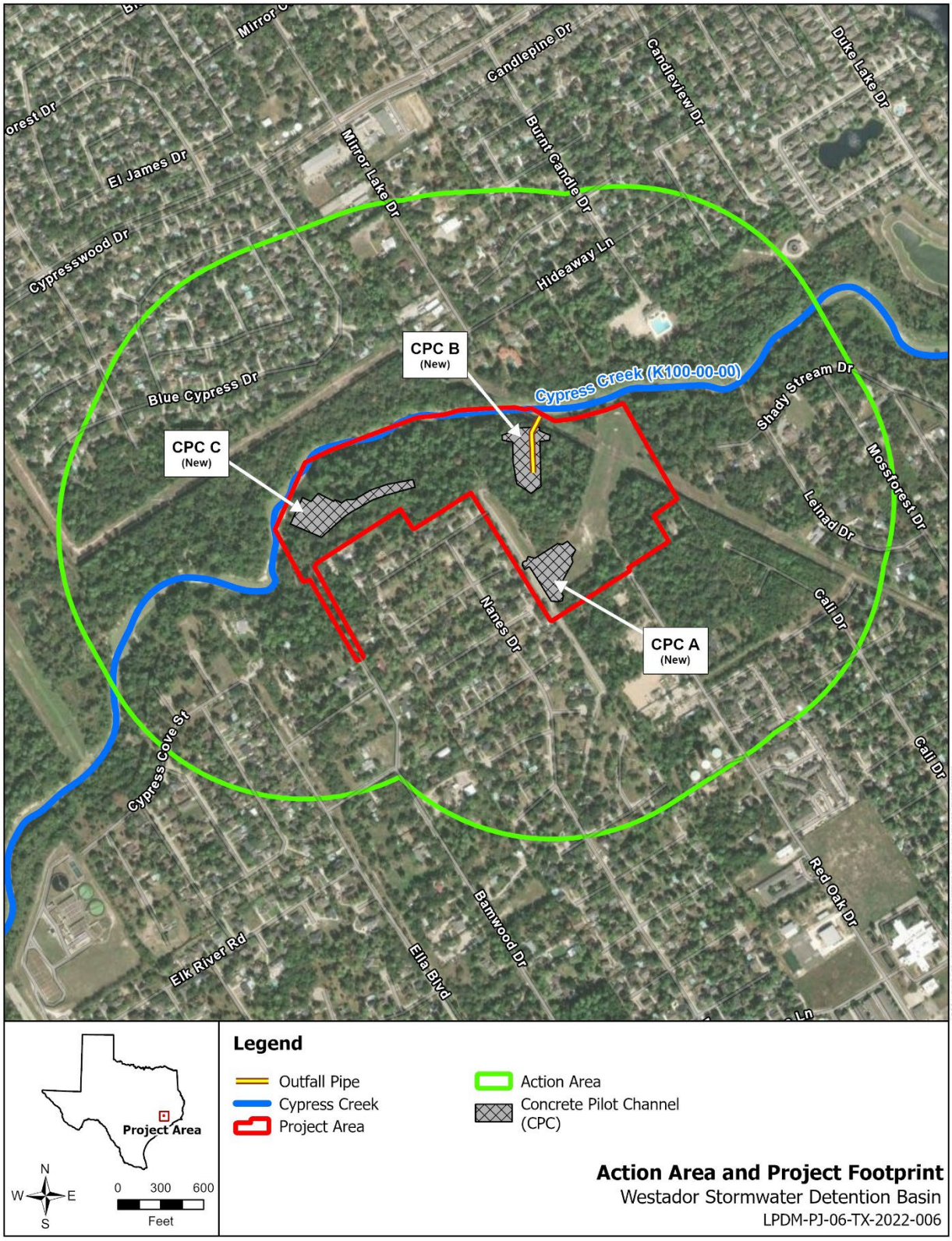


Figure 5.6. Action Area and Project Footprint

Table 5.3. Federally Listed Species Identified in IPaC for the Project Area

Common Name	Scientific Name	Status
Birds		
Eastern black rail	*Laterallus jamaicensis ssp. jamaicensis*	Threatened
Piping plover	*Charadrius melodus*	Threatened
Red knot	*Calidris canutus rufa*	Threatened
Whooping crane	*Grus americana*	Endangered
Plants		
Texas prairie dawn-flower	*Hymenoxys texana*	Endangered
Reptiles		
AST	*Macrochelys temminckii*	Proposed Threatened
Mammals		
TCB	*Perimyotis subflavus*	Proposed Endangered

Source: USFWS 2024

Federally Listed Species Descriptions

Eastern Black Rail: This species occupies wetland habitats, ranging from salt, brackish, and freshwater marshes to wet meadows and pond edges. Roosting and nesting occur in dense marsh grasses and *Salicornia* species. The current project site conditions do not provide the coastal salt or brackish marshes with dense cover, or the inland meadows and marshes required for the species (Terracon 2024).

Piping Plover: This species is commonly found along sandflats, beaches, barrier islands, and associated dunes. The project site lacks sandflats, beaches, and tidal algal mats required for piping plover habitat (Terracon 2024).

Red Knot: This species roosts in its winter range along Texas seacoasts, including tidal flats, beaches, and shorelines. The project area lacks a suitable habitat (Terracon 2024).

Whooping Crane: This species migrates biannually from summer habitats in central Canada to the salt marshes and tidal flats in the Aransas National Wildlife Refuge on the Texas coast in the winter. The project area lacks this suitable habitat (Terracon 2024).

Texas Prairie Dawn Flower: This species occupies habitats that are otherwise sparsely vegetated in the Gulf Prairie and Marshes ecoregions. Compacted, fine-sandy loams are preferred, but this species can also be found in saline barren habitats. The project area lacks a suitable habitat (Terracon 2024).

AST: This species is the largest freshwater turtle in North America and is found in freshwater habitats including backwater swamps, rivers, and lakes and occasionally in low-salinity brackish environments. Potential habitat exists on-site in Cypress Creek and the associated forested upland areas (Terracon 2024). AST breeding and nesting season occurs April 1 through June 30. Adult female ASTs may nest up to 656 feet away from streams, rivers, canals, and swamps (USFWS 2021a). However, according to information provided by the TPWD and USFWS, ASTs in the region typically establish nests within approximately 200 feet of the water's edge with many nests established within 12 to 26 feet of the water's edge (TPWD 2022; USFWS 2021a).

TCB: This species roosts in both live and dead leaf clusters of live or recently dead deciduous hardwood trees during the spring, summer, and fall seasons, and hibernates in culverts, tree cavities, and abandoned water wells during winter (USFWS 2021b). Female TCB can exhibit site fidelity and form maternity colonies, switching roost trees regularly, while males roost alone (USFWS 2021b, 2023). Maternity colonies can range in abundance, from 5 to 56 females and pups in a colony roost (USFWS 2021b), generally averaging 35 or fewer females and pups in a roost (TPWD n.d.-b). TCB exhibits high site fidelity for roost site and hibernaculum (USFWS 2021b). Potential habitat exists on-site in associated forested areas (Terracon 2024).

State-Listed Species

Rafinesque's big-eared bat is state-listed threatened, and its habitat is associated with lowland pine and hardwood forests with large hollow trees. This species roosts in tree cavities of bottomland hardwoods, concrete culverts, and abandoned human-made structures. Potential habitat exists on-site in associated concrete culverts and abandoned man-made structures (Terracon 2024).

The swallow-tailed kite is state-listed threatened, and its habitat is associated with lowland forested regions, especially swampy areas, ranging into open woodland and marshes and regions along rivers, lakes, and ponds. They nest high in tall trees in clearings or on forest woodland edges, usually in pine, cypress, or various deciduous trees. Potential habitat exists on-site in the associated riverine feature (Terracon 2024).

A freshwater mussel reconnaissance survey was conducted on May 23, 2023, for the area around the proposed outfall into Cypress Creek following TPWD protocols for freshwater mussel surveys. The survey determined whether state-listed mussel species identified in **Table 5.4** were potentially present and evaluated the potential suitability of habitat around each outfall location. The survey concluded that native freshwater mussel species are not likely to occur within the survey areas because of the presence of unstable sands and hard-packed clay substrates with extensive bank erosion. Furthermore, no evidence of live or dead mussels either on the bank or in the stream was observed. On November 1, 2023, TPWD concurred with this assessment and agreed that no further surveys were necessary for the project because of poor habitat and lack of recently observed freshwater mussel species (Terracon 2023b).

Table 5.4. State-Listed Mussel Species Potentially Occurring in Harris County

Common Name	Scientific Name	Status
False Spike	*Quadrula mitchelli*	Threatened
Golden Orb	*Quadrula aurea*	Threatened
Louisiana Pigtoe	*Pleurobema ridellii*	Threatened
Mexican Fawnsfoot	*Truncilla cognata*	Threatened
Salina Mucket	*Potamilus metnecktayi*	Threatened
Sandbank Pocketbook	*Lampsilis satura*	Threatened
Smooth Pimpleback	*Quadrula houstonesis*	Threatened
Southern Hickorynut	*Obovaria jacksoniana*	Threatened
Texas Fatmucket	*Lampsilis bracteate*	Threatened
Texas Fawnsfoot	*Truncilla macrodon*	Threatened
Texas Heelsplitter	*Potamilus amphichaenus*	Threatened
Texas Hornshell	*Popenaias popeii*	Threatened
Texas Pigtoe	*Fusconaia askewi*	Threatened
Texas Pimpleback	*Quadrula petrina*	Threatened
Triangle Pigtoe	*Fusconaia lananensis*	Threatened

4.10.1. NO ACTION ALTERNATIVE

Alligator Snapping Turtle

Under the No Action alternative, there would be no short-term impacts on the AST. Over the long term, flood events would continue to impact the area. Flood events would potentially degrade AST habitat, causing scour that would steepen the creek bank and wash out woody debris preferred by AST. Flood events would also potentially result in nest flooding, causing egg asphyxiation and subsequent nest failure (Jackson and Ewert 2023). Therefore, the No Action alternative would have a long-term minor adverse impact on AST.

Tricolored Bat

Under the No Action alternative, there would be no short-term or long-term adverse or beneficial impacts on the TCB.

4.10.2. PROPOSED ACTION

Alligator Snapping Turtle

FEMA has determined the proposed action would not jeopardize the continued existence of the proposed AST. Construction of the Proposed Action may adversely affect the AST because the project area contains potentially suitable habitat for the AST, which may be present during construction.

Proposed AMMs would be implemented to reduce potential impacts on the AST and would include pre-construction surveys, seasonal avoidance, wildlife exclusion fencing, entrapment prevention, best practices when encountering the AST, environmental awareness training of construction workers, and erosion and sediment control measures around the perimeter of active construction areas (detailed in Section 7.3). The proposed AST-specific AMMs include the presence of a biological monitor, habitat avoidance and relocation when avoidance is not possible, seasonal avoidance during peak nesting and breeding times, best practices for encounters with the AST, and site restrictions in place to minimize impacts on the AST. An AST exclusion fence will be installed along the outer edge of the 80-foot-wide tree buffer (the edge closest to the proposed construction), and the 80-foot forested buffer will be preserved to protect habitat along Cypress Creek.

ASTs on land during construction may be adversely affected either by direct interaction with construction workers and equipment or by becoming trapped in excavated areas. Exclusion fencing around the project area and sloped excavation trenches to facilitate animal escape would reduce the potential for AST to be entrapped within the project area. Avoiding clearing forested areas within 656 feet of Cypress Creek during the nesting season (April 1 through June 30) would further reduce the potential for AST to encounter construction workers or equipment because they spend most of their time in aquatic habitats during the rest of the year. With the implementation of the proposed AMMs, the Proposed Action would have a short-term minor adverse impact on ASTs by reducing the area available for AST nesting.

Noise from construction activities is not expected to impact ASTs that may occur in the adjacent stretch of Cypress Creek because turtles have poor sensitivity to airborne sound and any ASTs occupying aquatic habitat in the vicinity would be minimally exposed to airborne noise sources because ASTs spend most of their time underwater. Hence, construction-related noise is not expected to trigger a behavioral response in ASTs occurring in adjacent aquatic habitats or result in auditory masking that could impair their normal behaviors in the aquatic environment (Christensen-Dalsgaard et al. 2012). Furthermore, with the implementation of the proposed erosion and sediment control measures and the avoidance of work during rainy or wet conditions, construction work would not appreciably impact water quality in Cypress Creek, which serves as a potential AST habitat.

Construction of the basin and access road of the Proposed Action would impact approximately 20 acres of potential upland nesting habitat for AST, and 12 acres would be restored with sandy soils to serve as potential AST upland nesting habitat. In total, 8 acres, or approximately 26 percent, of the suitable potential nesting habitat in the project area would be permanently impacted. Most of this area occurs on the fringe of the potential nesting habitat (furthest from Cypress Creek), where potential AST females are less likely to nest because they prefer sites closer to aquatic habitat (TPWD 2022; USFWS 2021a). The protected 80-foot-wide forested buffer between the creek and the basin would retain its existing habitat characteristics and be available for nesting during and in the years following construction. Within the project area, approximately 22 acres of suitable nesting habitat within 656 feet of Cypress Creek would remain upon the completion of the Proposed Action. The Proposed Action would not disrupt aquatic and creek bank habitat features except for the installation of the riprap energy dissipater at the basin outfall totaling approximately 0.008 acres (349 square feet). Observations of another Texas urban AST population suggest that the number of

AST potentially affected would be low and that AST occurring in fragmented urban habitats may not be strongly affected by changes in the configuration of available habitat (Munscher et al. 2023a, 2023b). Cypress Creek runs approximately 85 kilometers (53 miles) in length (H-GAC 2005). Assuming a population density of approximately 7 AST per kilometer (USFWS 2024c), the AST population of Cypress Creek is approximately 598 turtles. The Proposed Action would potentially impact 2 to 5 turtles, which represents 0.08 percent of the Cypress Creek AST population.

The Proposed Action would have a short-term minor adverse impact on the AST by reducing potential nesting habitat and slightly reducing creek bank habitat. The Proposed Action would have a long-term minor beneficial impact on the AST by reducing flood events that could cause egg asphyxiation in AST nests and that could degrade existing AST habitat. Additionally, the constructed wet-bottom detention basin would treat stormwater runoff by allowing suspended sediments to settle. Furthermore, associated aquatic vegetation would provide treatment through the uptake of nutrients and other pollutants (HCFCD 2014).

Tricolored Bat

FEMA has determined the proposed action would not jeopardize the continued existence of the proposed TCB. Construction of the Proposed Action may adversely affect the TCB because the project area contains potentially suitable habitat for the TCB, and the species may be present during construction. However, this wooded area represents a fragmented habitat, and the project area is adjacent to residential properties and some cleared utility corridors and was observed to contain a younger, less diverse forested habitat than other forested areas along Cypress Creek. Additionally, bat occupancy is negatively impacted by noise generated from an urban environment, even if suitable habitat and water sources are available (Lehrer et al. 2021). These features potentially make the project area less favorable to the TCB.

Should the TCB become officially listed by USFWS during project implementation, the Flood Control District will coordinate with FEMA to assess ESA Section 7 obligations based on the status of construction and remaining work to be completed. The Flood Control District may be required to employ AMMs similar to those below as warranted depending on project completion status at the time of listing and on consultation with USFWS, if required by FEMA.

Potential AMMs would include pre-construction surveys, seasonal avoidance, and environmental awareness training of construction workers (detailed in **Section 7.3**). Potential TCB-specific AMMs may include habitat avoidance during active season, seasonal avoidance during active roosting and mating, best practices for encounters with the TCB, and to the maximum extent possible, tree removal restrictions in place to minimize impacts on the TCB.

Noise from the Proposed Action would negatively impact the TCB in the action area. To account for potential noise impacts, the action area includes a 0.25-mile buffer extending from the project area (**Figure 5.6**). Heavy machinery and equipment that would be used for the Proposed Action would be well maintained, have sound-control devices no less effective than those provided on the original equipment, and have muffled exhaust.

Other effects on the TCB from the Proposed Action tree removal during the active season include potential injury or mortality of individuals or maternal colonies roosting in trees that are removed, especially pups that cannot fly. Individuals may be injured or killed while fleeing disturbance during daylight hours because of an increased likelihood of predation. If a roost tree were to be cut during the active season and alternate roosts remain in the project vicinity, impacts associated with the loss of individual roost trees would include additional energy expended traveling to the alternate roost tree. However, removing a primary roost tree might disrupt colony cohesion, increase stress, and increase energy demands through searching for a new roost, which might decrease reproductive success. Effects on TCB from tree removal include loss of foraging, commuting, and roosting habitat. Should the TCB become listed during project implementation, to minimize potential effects on TCB, all tree and vegetation removal would take place outside of the active season (i.e., tree removal would be minimized between March 26 and September 30 and not occur from May 1 through July 15), and any unnecessary tree removal would be minimized to reduce habitat loss that would be caused by the Proposed Action. Habitat similar to the project area would remain adjacent to the project area and within the project area, represented by the 80-foot vegetative buffer that would remain between Cypress Creek and the stormwater detention basin. This could serve as a potential habitat for displaced TCB if it were unoccupied. Although a cumulative 18 acres of forested vegetation would be removed, nighttime foraging could continue in the 80-foot vegetative buffer that would remain between Cypress Creek and the stormwater detention basin. If the TCB are disrupted by tree removal activities, individuals would not have to fly extensive distances to find similar habitats.

The implementation of the Proposed Action would result in a reduction of potential TCB roosting habitat within the action area, totaling approximately 18 acres. However, this wooded area represents a fragmented habitat, and the project area is adjacent to residential properties and some cleared utility corridors and was observed to contain a younger, less diverse forested habitat than other forested areas along Cypress Creek, reducing its suitability as TCB habitat. Furthermore, a similar habitat would remain available adjacent to the project area for potential TCB use. Additionally, it has been demonstrated that habitat availability is not a limiting factor for this species (Silvis et al. 2016), and the white-nose syndrome is the main threat to the TCB (USFWS 2021b). The potential for injury or mortality of TCBs to result from the Proposed Action would be minimized through the implementation of the general and species-specific AMMs, if the species is listed and per further coordination with FEMA, described in Section 7.3. If the TCB remains unlisted, the Proposed Action would not jeopardize the continued existence of the proposed TCB. If the TCB is listed, with the implementation of the additional measures, the potential for the Proposed Action to result in injury or mortality of TCBs would be negligible. The Proposed Action would have a short-term minor adverse impact on the TCB and a long-term negligible impact on the TCB.

FEMA submitted a Biological Assessment (BA) to initiate conferencing with the USFWS for the TCB and AST on December 13, 2024. On January 22, 2025, FEMA and USFWS met to discuss progress and timelines for the conference. At that time, USFWS explained that given workload and staffing shortages, the Texas Coastal and Central Plains Ecological Service Field Office would be prioritizing Section 7 efforts related to threatened and endangered species and as of mid-January, would not be

able to conference on proposed species, unless the project had the potential to result in jeopardy. Because the Westador BA was submitted prior to the cutoff date, FEMA had the opportunity to continue consultation. However, in coordination with the Flood Control District, FEMA decided to withdraw the conference in the interest of timing for project execution. If the AST becomes listed before completion of the Proposed Action, the Proposed Action would be likely to adversely affect the AST. If the TCB becomes listed before the completion of the Proposed Action, the Proposed Action would be not likely to adversely affect the TCB.

4.11. Cultural Resources

In accordance with Section 106 of the National Historic Preservation Act (NHPA), as amended and implemented by 36 CFR Part 800, FEMA must consider the potential effects of its actions upon cultural resources before engaging in any undertaking. The NHPA of 1966 defines a historic property as "any prehistoric or historic district, site, building, structure, or object included on, or eligible for inclusion on the National Register." Eligibility criteria for listing a property on the National Register of Historic Places (NRHP) are detailed in 36 CFR Part 60.

Pursuant to 36 CFR 800.4(a)(1), the APE is the geographic area(s) within which the undertaking may directly or indirectly affect cultural resources. Within the APE, effects on cultural resources are evaluated before the undertaking for both standing structures (aboveground resources) and archaeology (belowground resources). The APE for this undertaking consists of all areas of ground disturbance, including staging and access areas not on hardened surfaces. This consists of the area of ground disturbance associated with the construction of the stormwater detention basin, an area of approximately 60 acres that includes both the construction of the basin, the spoil bank, and the permanent access road.

Detention Basin

In September 2021, the Flood Control District initiated cultural resources studies of the project APE in compliance with the Antiquities Code of Texas (Texas Natural Resources Code, Title 9, Chapter 191). Initially, Terracon Consultants Inc. conducted a Cultural Resource Desktop Assessment for the project using the Texas Historical Commission (THC) Archaeological Sites Atlas database and all relevant background information sources to identify historic properties within the APE. The technical report concluded that approximately half of the project area was previously investigated, and no known archaeological sites are present within the APE. A review of the Archaeological Sites Atlas database indicated that there are no NRHP-eligible or listed properties, State Antiquities Landmarks, cemeteries, or Registered Texas Historic Landmarks within the APE. Terracon recommended that part of the project area should be subject to a mechanically assisted archaeological survey suited for targeting deeply buried sediments because of significant soil disturbances that would result from the proposed excavation of the detention basin. The THC reviewed the Cultural Resource Desktop Assessment technical report and issued electronic review comments on November 4, 2021. The THC concurred with the report recommendations regarding aboveground resources and indicated that no further review was required under the Antiquities Code of Texas unless this project included any federal involvement. In that event, an additional consultation with THC under Section 106 of the

NHPA would be required. For archaeology, THC concurred with the report information and requested that an archaeological survey be conducted.

On August 9, 2022, Terracon Consultants Inc. completed an additional, intensive archaeological survey that excavated a total of 16 trenches within the APE. The survey resulted in the identification of a single historic archaeological site (41HR1264), a single prehistoric site (41HR1265), and two isolated finds (IF01 and IF02). Terracon determined these sites do not meet the significance or integrity requirements to be eligible for listing in the NRHP and recommended no further archaeological investigation. On September 9, 2022, the THC concurred with the recommendations. Should any artifacts be identified during construction, THC requires that all work cease in the area of the inadvertent discovery, and the THC Archaeology Division be contacted to develop a plan.

FEMA consulted with THC and Native American tribes with ancestral ties to Harris County, under Section 106 of the NHPA. FEMA submitted its initial finding that the Proposed Action would have "no effect" on historic properties to the THC and Tribal Historic Preservation Offices on October 21, 2022. On November 22, 2022, the THC's office concurred with FEMA's findings. Consultation with the Kiowa Tribe, Tonkawa Tribe, Comanche Nation, and Alabama-Coushatta Tribe of Texas was conducted per 36 CFR §800.2(c)(2)(i)(B). On November 2, 2022, the Comanche Nation concurred that the proposed project would not adversely affect traditional, religious, or culturally significant sites. The Kiowa Tribe, Tonkawa Tribe, and Alabama-Coushatta Tribe of Texas did not provide comments within 30 days or declined to comment.

Spoil Bank

On February 28, 2024, FEMA submitted a continuing consultation to the THC to clarify and update the APE to include the spoil and staging area to the northeast of the previous APE. The original draft Cultural Resources Survey (dated February 25, 2022) included the spoil area in the investigation; however, the final report eliminated the spoil area and was not part of the consultation process for the detention basin. FEMA's initial finding was that the Proposed Action would have "No Effect" on historic properties. On March 15, 2024, THC concurred with the report recommendations regarding aboveground resources and indicated that no further review was required. For archaeology, THC requested that an archaeological survey be conducted. On July 18, 2024, Richard Grubb & Associates conducted an Intensive Archaeological Survey Report (ASR) for the Topsoil Stockpile area of the detention basin. FEMA notified the Tribal Historic Preservation Offices on February 22, 2024, regarding the expanded APE and asked for any comments or questions. No responses were received. FEMA submitted the final ASR to THC on September 9, 2024, with a "No Effect" finding for historic properties. On October 1, 2024, THC concurred with the aboveground and belowground recommendations.

Access Road

A new site access road, located on the southern boundary of the basin from the terminus of Bamwood Road to the western portion of the project site, was added to the Proposed Action. On June 4, 2024, the Flood Control District consulted with THC requesting confirmation that the results of the prior background study and archaeological study were sufficient and that no additional work

was necessary. On August 28, 2024, THC concurred that no aboveground resource was present or would be affected by the project and that no historic archaeological properties were anticipated to be encountered. The Flood Control District consultation with THC meets FEMA's Section 106 requirements, and a separate consultation for this project was not required. Consultation with the Kiowa Tribe, Tonkawa Tribe, Comanche Nation, and Alabama-Coushatta Tribe of Texas was submitted by FEMA on October 8, 2024. On October 15, 2024, the Comanche Nation concurred that the proposed project would not adversely affect traditional, religious, or culturally significant sites. The Kiowa Tribe, Tonkawa Tribe, and Alabama-Coushatta Tribe of Texas did not provide comments within 30 days or declined to comment (**Appendix B**).

4.11.1. NO ACTION ALTERNATIVE

Under the No Action alternative, there would be no effect on historic standing structures and archaeological sites from FEMA-funded grant activities. THC concurred that there are no historic properties within the project APE; therefore, under the No Action alternative, the flooding of Cypress Creek into the surrounding neighborhood during storm events would not affect cultural resources within the direct APE for the project. However, with no change to the flood elevations along Cypress Creek, flooding of residential and commercial properties along Cypress Creek and its tributaries beyond the APE would not be reduced. These structures along Cypress Creek and its tributaries would continue to flood resulting in repetitive damage to property and infrastructure, including loss of historic resources. In addition, the intensity and frequency of storms are increasing, and severe rain events that result in flooding are expected to increase in frequency and intensity, which would lead to more prolonged and damaging floods in the vicinity.

4.11.2. PROPOSED ACTION

FEMA consulted with the THC and Native American tribes with ancestral ties to Harris County under Section 106 of the NHPA and determined that the project would have No Effect on historic properties within the direct APE. Construction of the Westador Stormwater Detention Basin would alleviate flooding near Westador along the Cypress Creek flood zone where undocumented or unassessed cultural resources may be located. With reduced flood impacts, there could be minor to moderate, long-term, beneficial effects on historic structures and archaeological sites beyond the APE, because the surrounding area would no longer be exposed to flood damage and erosion during storm events.

4.12. Hazardous Materials

Hazardous materials are those substances defined by the Comprehensive Environmental Response, Compensation, and Liability Act, as amended by the Superfund Amendments and Reauthorization Act, and the Toxic Substances Control Act. The Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, which was further amended by the Hazardous and Solid Waste amendments, defines hazardous wastes. In general, both hazardous materials and waste include substances that, because of their quantity, concentration, physical, chemical, or infectious characteristics, may present substantial danger to public health or to the environment when released or otherwise improperly managed.

Hazardous materials may be encountered in the course of a project, or they may be generated by the project activities. To determine whether any hazardous waste facilities exist in the vicinity or upgradient of the project area or whether there is a known and documented environmental issue or concern that could affect the proposed treatment area, a search for Superfund sites, toxic release inventory sites, industrial water dischargers, hazardous facilities or sites, and multiactivity sites was conducted using EPA's NEPA Assist website (EPA 2022c). According to a Phase I Environmental Site Assessment conducted by Terracon Consultants Inc. in 2021, the assessment did not identify any recognized environmental conditions (RECs) in connection with the project area (HCFCD 2022b). A REC indicates the presence or the likely presence of hazardous substances or petroleum products at the subject property because of a release to the environment or conditions that pose a material threat of a future release to the environment (ASTM International 2021). A review of federal and state environmental regulatory databases and responses from state and local regulatory agencies did not identify any listed facilities within the project area (HCFCD 2022b). Two water dischargers including a wastewater treatment plant (WWTP) and a wastewater treatment facility (WWTF) are present within a 0.5-mile radius of the project area: Candlelight Hills WWTF and Ponderosa Joint Powers Agency WWTP (EPA 2022b). These facilities have obtained NPDES permits under the CWA to discharge pollutants into the waters of the United States (EPA 2022b).

4.12.1. NO ACTION ALTERNATIVE

Under the No Action alternative, there would be no construction of flood reduction measures and thus, no short-term potential to generate construction-related hazardous materials or expose contaminated materials through ground-disturbing activities. However, continued flooding could inundate streets and buildings that could contain hazardous substances, such as fuels and commercial and industrial chemicals (Brennan et al. 2021). As mentioned in Section 5.5.1, receding floodwaters could carry pollutants such as oil into Cypress Creek. Equipment used for flood-related repairs may also result in leaks of fuels and oils. Thus, there would be a minor long-term impact from the continued risk of flooding and damage that could lead to the dispersal of hazardous materials.

4.12.2. PROPOSED ACTION

The Proposed Action would include the use of mechanical equipment, such as graders and excavators, which could release fuels, oils, and lubricants through inadvertent leaks and spills. Construction activities would be temporary, and the use of equipment in good condition and compliance with BMPs and conditions specified in the TCEQ Stormwater General Permit for Construction Activities would reduce the threat of leaks and spills. Although subsurface hazardous materials are not anticipated to be present, excavation activities could expose or otherwise affect previously undetected subsurface hazardous wastes or materials. Any hazardous materials discovered, generated, or used during the implementation of the Proposed Action would be disposed of and handled by the Subapplicant in accordance with applicable local, state, and federal regulations. Therefore, there would be a negligible short-term adverse impact from the use of vehicles and equipment and the potential for inadvertent exposure to previously unknown hazardous materials.

Post-construction, the Proposed Action would reduce the risk of flooding, thereby reducing the risk that pollutants and hazardous materials would be transported by floodwaters into Cypress Creek. According to hydrologic and hydraulic modeling, the water-surface elevation from Kuykendahl Road to Interstate Highway 45 would be reduced by 0.24 feet during the 100-year flood event (HCFCD 2022b). The Ponderosa Joint Powers Agency WWTP is located within the 100-year flood zone (EPA 2022b). The reduction of flood risk provided by the Proposed Action would lower the extent to which this facility would be flooded during the 100-year event, thereby reducing the risk that hazardous materials could be transported to Cypress Creek. Reduced flooding would also decrease the need for flood-related repairs that require construction equipment and the associated risk of leaks and spills of hazardous materials. Therefore, there would be a minor long-term benefit related to hazardous materials from the reduced risk of flooding.

4.13. Noise

EPA developed federal noise emission standards in accordance with the Noise Control Act of 1972. EPA identified major sources of noise and determined appropriate noise levels for activities that would infringe on public health and welfare in accordance with the law. EPA identifies a 24-hour exposure level of 70 decibels as the level of environmental noise that would prevent any measurable hearing loss over a lifetime (EPA 1974). Noise levels of 55 decibels outdoors and 45 decibels indoors are identified as "preventing activity interference and annoyance" (EPA 1974). Sounds that disrupt normal activities or otherwise diminish the quality of the environment are considered noise. Noise events that occur during the night (10 p.m. to 7 a.m.) are more annoying than those that occur during normal waking hours (7 a.m. to 10 p.m.). Assessment of noise impacts includes the proximity of the proposed action to sensitive receptors. A sensitive receptor is an area of frequent human use that would benefit from a lowered noise level. Typical sensitive receptors include residences, schools, churches, hospitals, nursing homes, and libraries. The Federal Highway Administration (FHWA) identified noise levels and ranges for construction equipment that typically would not need noise attenuation measures (FHWA 2006), and the Occupational Safety and Health Administration (OSHA) established thresholds for occupational noise exposure to protect the health and safety of workers (29 CFR 1926.52).

The City regulates noise levels through the Houston, Texas Code of Ordinances, Chapter 30: Noise and Sound Level Regulation. Between the hours of 7 a.m. and 8 p.m., any sound produced by construction efforts cannot exceed a level of 68 decibels A. Land uses that are considered sensitive to noise effects are called "sensitive receptors." Noise-sensitive receptors consist of but are not limited to schools, residences, libraries, hospitals, and other care facilities.

The project area is in suburban Houston and typical noise sources include cars, trucks, sirens, and construction noise. The closest noise-sensitive receptors to the project area include the residential and commercial areas approximately 400 feet from the northern and southern ends of the project area.

4.13.1. NO ACTION ALTERNATIVE

No construction would occur under the No Action alternative. Therefore, this alternative would have no short-term noise impacts. However, the risk of flooding in the project area and vicinity would not be reduced; periodic flooding could result in damage that must be repaired. Construction activities to repair flood damage would temporarily increase noise levels in the immediate vicinity of the work. Any construction that may occur would not exceed EPA standards or regulatory thresholds for noise established by the FHWA, OSHA, and the City. Thus, there would be a negligible long-term adverse impact because the continued risk of flooding would periodically generate associated construction noise from repairs.

4.13.2. PROPOSED ACTION

Under the Proposed Action, construction activities would temporarily increase noise levels in the project vicinity. Based on the type of construction equipment proposed for use (**Section 5.4.2**), construction noise would be expected to attenuate with distance to the background noise levels expected in an urban commercial/industrial area within 500 feet of the equipment use. Residential homes are present within 500 feet of the project vicinity. Heavy machinery and equipment that would be used for the Proposed Action would be well maintained, have sound-control devices no less effective than those provided on the original equipment, and have muffled exhaust. Further, construction would comply with the City's noise ordinance. Therefore, there would be a negligible short-term adverse impact on sensitive receptors related during construction. Post-construction, noise levels would return to pre-construction levels, and the risk of flooding would be reduced, thus reducing occasional increases in noise from flood-related repairs. Therefore, the Proposed Action would have a negligible long-term benefit on noise levels.

4.14. Transportation

Regional access to the project area is provided by Interstate Highway 45. The segment of Interstate Highway 45 near the project area has an average annual daily traffic count of 160,783 (Texas Department of Transportation 2020). Other main roadways in the project vicinity include Farm-to-Market Road 1960 and Kuykendahl Road. Local roads, such as Red Oak Drive and Tigris Lane, would provide access to the project area (**Figure 1.2**).

The Metropolitan Transit Authority of Harris County provides transit service to the City of Houston and Harris County. Several bus routes operate to the south of the project area along Farm-to-Market Road 1960 (Metropolitan Transit Authority of Harris County 2022), but no transit stops are located within the project area. No impact on this public service would be anticipated.

4.14.1. NO ACTION ALTERNATIVE

Under the No Action alternative, there would be no construction equipment or personnel accessing the project area. Thus, there would be no short-term impact on transportation from construction-related traffic.

However, flood risk in the area would not be reduced. Continued periodic flooding could inundate roadways, requiring road closures and detours. In 2017 during Hurricane Harvey, the highwater mark elevation in Cypress Creek exceeded the bank elevation at Kuykendahl Road by 19.5 feet and at Interstate Highway 45 by 12 feet, impacting both local and regional transportation (HCFCD 2022b). Therefore, the No Action alternative would have a minor adverse long-term impact on transportation in the project vicinity because of periodic flooding and associated detours and roadway closure.

4.14.2. PROPOSED ACTION

Under the Proposed Action, construction equipment and personnel would access the project area using existing roadways, which would result in additional traffic on roadways surrounding the project area. The Proposed Action would take approximately 18 months to construct. No roadway closures or detours are expected. Increases in traffic from construction equipment and personnel would be temporary and localized, affecting a small number of roadways within the Westador subdivision. Therefore, there would be a minor short-term adverse impact on transportation from construction-related traffic.

In the long term, the Proposed Action would result in the reduced risk of flooding and associated damage to and closure of transportation infrastructure. The Proposed Action would reduce the total miles of inundated roadway in the Cypress Creek watershed by 1.5 miles during the 100-year flooding event (HCFCD 2022b). This would also reduce the number of detours required as a result of flooding. Therefore, the Proposed Action would have a minor long-term benefit on transportation in the project area and the vicinity from the reduced risk of closures caused by flooding and flood damage.

4.15. Utilities and Public Services

Most of the project area is undeveloped forested land with drainage and flood control facilities. There are no utility pipelines present within the project area. A cell tower belonging to CTI Towers and CenterPoint Electrical Transmission easement is adjacent to the project area. Two buried AT&T Communication lines were identified within the project limits. A powerline easement traverses the northeast corner of the parcel with several towers located in the overlapping area. There are three overhead electric lines owned by CenterPoint Energy within the project area including a transmission line that crosses Cypress Creek, a distribution line immediately northwest of Bamwood Drive, and a second distribution line that crosses Cypress Creek and parallels Red Oak Drive. There are no buried electric lines within the project area. Two gas lines owned by CenterPoint Energy were identified within the project area. One 2-inch gas line runs within its own easement along the southern edge of the Flood Control District drainage easement, and one 2-inch gas line runs along the east side of Red Oak Drive. An 8-inch waterline owned by Westador MUD crosses Tigris Lane within its easement and continues to Red Oak Drive. Several unofficial trails exist within the project area that are not managed by the Flood Control District or any other entity.

The spillway, CPC A, the concrete-lined flood control channel K141-00-00, and the outfall of K141-00-00 to Cypress Creek comprise the existing flood control facility (Figure 1.2). HCFCD Unit K141-00-00 is a concrete-lined channel that bisects the site and will be incorporated into the stormwater basin by allowing flow from the channel to discharge to the wet-bottom side of the stormwater basin. This will provide the pool with the necessary fresh water source and reduce stagnation of the pool. The existing spillway, CPC A along K141-00-00 will be modified to function with the proposed maintenance berm, keeping the same spillway elevation and length with a proposed width of 16 feet. A three-barrel, 8 by 5-foot box culvert will be provided to accommodate the design storm for K141-00-00 and will replace the existing outfall of K141-00- 00 to Cypress Creek.

4.15.1. NO ACTION ALTERNATIVE

No construction or restoration activities would occur under the No Action alternative; therefore, this alternative would not disrupt or increase demand for public services or utilities in the project area in the short term. Under this alternative, the existing flood control facility HCFCD Unit K141-00-00 would remain in use, and the risk of flooding and flood-related impacts would not be reduced. Flooding could impact infrastructure that provides utilities to the surrounding residential area, and potential road closures related to flooding could restrict the ability of utility providers to access those homes quickly to complete repairs. As such, the No Action alternative would have minor adverse impacts on public utilities and services in the long term.

4.15.2. PROPOSED ACTION

The proposed basin design was modified to avoid impacting the cell tower located on the eastern boundary. A 1,300-foot-long, 20-foot-wide easement is proposed along the southern boundary of the Westador parcel, generally adjacent to the proposed maintenance access road of the detention basin. The 8-inch waterline would be taken offline during construction and rerouted along the southern boundary of the stormwater basin and along K141-00-00 in the maintenance berm, reconnecting at Tigres Lane. Earthwork and grading in the area with the waterline would be completed as soon as possible to minimize downtime for the waterline. No other utilities or public services would be disrupted or relocated during construction. Thus, the Proposed Action would have negligible to minor short-term adverse impacts on public services and utilities in the project area.

Implementation of the Proposed Action would reduce the risk of flooding and provide stormwater attenuation for future flood events, reducing the likelihood that public services and nearby utility infrastructure would be impacted by future flooding. The Proposed Action would likely also incorporate rough graded surfaces along the maintenance access berm for future trails and other recreational features. According to the Wet Bottom Detention Basins with Water Quality Features guidelines, detention facilities can often also serve as recreational sites, including features such as hike-and-bike trails, boardwalks, fishing piers, and interpretive signage. Preliminary design plans for the basin include pedestrian trails, benches, and exercise stations (HCFCD 2014). Therefore, the Proposed Action would result in a minor long-term benefit to public services and utilities.

4.16. Public Health and Safety

EO 13045, Protection of Children from Environmental Health Risks and Safety Risks, mandates that federal agencies identify and assess health and safety risks that may disproportionately affect children. Public health and safety are also related to accessibility to police, fire, and medical services, and the response times for those providers to reach people in need.

The project area is within Precinct 4 for police services. The project area is within Emergency Services District (ESD) 11, which is the governing entity responsible for providing emergency medical services to the residents and visitors of the district. The project area is within ESD 28 for fire response services, with the Ponderosa Fire Department 1.4 miles from the project site (Harris County 2022). The closest hospital is HCA Houston Healthcare Northwest, located 1.2 miles southeast of the project site.

The project site in its current state poses safety risks because of flooding from Cypress Creek; safety issues related to flooding can be found in Section 5.7. The project site currently has floodplains that extend into adjacent residential streets, causing delays or road closures for personal and emergency vehicles.

4.16.1. NO ACTION ALTERNATIVE

Under the No Action alternative, flooding would continue to cause road closures, which could increase emergency response times, cause power outages, and back up sewage lines, thus exposing people to health hazards. Property and infrastructure would continue to be at risk for damage from flooding. Therefore, there would be a minor recurring long-term impact on public health and safety from periodic flooding.

4.16.2. PROPOSED ACTION

Under the Proposed Action, the stormwater detention basin and staging areas would be constructed away from existing streets and roadways. To minimize risks to safety and human health during construction, all construction activities would be performed using qualified personnel trained in the proper use of equipment, including all safety precautions. Additionally, all activities would be conducted in accordance with the standards specified in the OSHA regulations. Therefore, the Proposed Action would have negligible short-term adverse impacts on public safety in the project area, and these impacts would not disproportionately impact children.

Implementation of the Proposed Action would reduce damages sustained by adjacent residential and commercial areas from future repetitive flood events and would assist in managing downstream flood elevations. Construction of the basin would not require street closures that could increase emergency response times, nor would it require additional police or emergency vehicle presence. Post-construction, the Proposed Action would reduce the risk of flooding and associated public health and safety concerns such as the rerouting of emergency vehicles around flooded areas, backup of combined sewer systems, and other health hazards from flooding. A minor long-term benefit would result from the reduced risk of flooding and associated public health and safety

concerns. Therefore, the Proposed Action would result in major long-term benefits to the safety and security of residents, including children, and would protect property in and around the project area. As the wet-bottom basin and channel may be a potential hazard for animals or children, mitigation measures that include signage or fencing to restrict entrance into the basin are recommended.

4.17. Summary of Effects and Mitigation

Table 5.5 provides a summary of the potential environmental effects of implementation of the Proposed Action, any required agency coordination efforts or permits, and any applicable proposed mitigation or BMPs.

The following are standard BMPs, mitigation measures, and conditions applicable to the Proposed Action:

- The Flood Control District is responsible for obtaining and complying with all required local, state, and federal permits and approvals.
- The Flood Control District would monitor ground disturbance during the construction phase. Should human skeletal remains or historical or archaeological materials be discovered during construction, all ground-disturbing activities on the project site shall cease and the applicant shall notify the coroner's office (in the case of human remains), FEMA, and the State Historic Preservation Office.
- If deviations from the proposed scope of work result in substantial design changes, the need for additional ground disturbance, additional removal of vegetation, or any other unanticipated changes to the physical environment, the Flood Control District must contact FEMA so that the revised project scope can be evaluated for compliance with NEPA and other applicable environmental laws.

Table 5.5. Summary of Impacts and Mitigation

Affected Resource Area	Potential Impacts	Agency Coordination or Permits	Mitigation/BMPs
Soils and Topography	Minor short-term impact on soils. Minor impact on slope stability during operations. Long-term beneficial impacts reducing erosion and sediment deposition within Cypress Creek.	Not Applicable (N/A)	• Temporary erosion control including silt fencing. • Temporary sediment runoff and dust controls. • Regular monitoring of slope stability during operations.
Air Quality	There would be temporary short-term adverse impacts because of construction activities; no long-term impact is anticipated.	N/A	• Minimize run times of construction equipment and vehicles. • Wet exposed soils to control dust. • Meet EPA construction equipment emission standards.
Surface Waters and Water Quality	Negligible short-term adverse impact on water quality because of construction site preparation and excavation. Minor long-term benefit on water quality.	TCEQ Stormwater General Permit	• Temporarily control erosion including silt fencing. • Temporarily control sediment runoff and dust.
Wetlands	Because the area of wetland habitat is small, there would be a short-term minor adverse effect on wetlands from the loss of the forested wetland area and functions. Long-term negligible adverse impacts on existing wetlands would occur from the fluctuating water levels associated with storm events as the basin would not provide adequate habitat for species adapted to natural wetlands.	N/A	• Temporarily control erosion measures including silt fencing. • Reintroduce native species to minimize the spread of invasive species.
Floodplains	Minor short-term adverse impacts; moderate long-term beneficial impacts because of flood reduction.	Permit from local floodplain administrator	• Implement stormwater BMPs and SWPPP. • Obtain and comply with the floodplain permit.

Affected Resource Area	Potential Impacts	Agency Coordination or Permits	Mitigation/BMPs
Vegetation	Moderate, short-term, adverse impact because of vegetation removal and loss of forest cover. Minor long-term adverse impact because of permanent vegetation removal for the basin. However, long-term, minor, beneficial impacts from the removal of invasive plant species, reestablishment of native plant species, and the reduction of invasive vegetation spread.	N/A	• Reintroduce native species to minimize the spread of invasive species.
Fish and Wildlife	Minor short-term adverse impact on wildlife and migratory birds from vegetation/habitat removal, construction noise, and dust; negligible short-term impact on eagles. Minor long-term adverse impact attributed to permanent upland and wetland forested habitat. Minor long-term beneficial impact to aquatic species through water quality improvement and flood reduction.	N/A	• Implement measures to maintain wildlife habitat features after the construction of basin, as described in Section 5.9, to the maximum extent practicable. • Maintain an 80-foot-wide habitat buffer between basin and Cypress Creek. • Avoid bird nests and buffer around occupied nests.

Affected Resource Area	Potential Impacts	Agency Coordination or Permits	Mitigation/BMPs
Threatened and Endangered Species	FEMA has determined the Proposed Action will not jeopardize the continued existence of the proposed AST and TCB.	USFWS Coordination	• Conduct preconstruction surveys. • Avoid seasonal nesting schedules for listed species. • Install wildlife exclusion fencing. • Prevent entrapment. • Use best practices when encountering AST. • Provide environmental awareness training for the AST. • Practice erosion control measures where suitable AST aquatic habitat is present.
Cultural Resources	No adverse effect on historic properties within the APE. Minor to major, long-term, beneficial effects beyond the APE, because the area surrounding the basin would experience less flooding and erosion during storm events.	THC, Alabama-Coushatta Tribe of Texas, Comanche Nation, Kiowa Tribe, Tonkawa Tribe of Indians of Oklahoma	• If any archaeological resources are discovered during project implementation, work would immediately cease, the area would be secured, and the Flood Control District would notify the THC and FEMA for further evaluation.
Hazardous Materials	Negligible short-term impact from the use of vehicles and equipment and from the potential inadvertent exposure to previously unknown hazardous materials. Reduced flooding will have a minor long-term benefit.	TCEQ Stormwater General Permit	• Comply with BMPs specified in the TCEQ Stormwater General Permit for Construction Activities.
Noise	Minor short-term increase in noise levels during construction and negligible long-term beneficial impact on noise levels from a reduction in periodic flood repairs.	N/A	N/A
Transportation	Negligible short-term impact because of construction. Minor long-term benefit because of reduction of flooding and flood-related detours and closures.	N/A	N/A

Affected Resource Area	Potential Impacts	Agency Coordination or Permits	Mitigation/BMPs
Utilities and Public Services	Negligible short-term impact on public services and utilities because of construction activity and a minor long-term benefit to public services and utilities from the potential incorporation of future trails and other recreational features.	N/A	N/A
Public Health and Safety	Negligible short-term adverse impacts because of construction activities, and a minor long-term benefit from the reduced risk of flooding and public health and safety concerns.	N/A	N/A

SECTION 5. Cumulative Effects

This section addresses the potential cumulative impacts associated with the implementation of the Proposed Action. Cumulative effects represent the "impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions". Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.1). CEQ's regulations for implementing NEPA require an assessment of cumulative effects during the decision-making process for federal projects.

In addition to NEPA, other statutes require federal agencies to consider cumulative effects. These include the CWA Section 404(b)(1) guidelines, the regulations implementing the conformity provisions of the Clean Air Act, the regulations implementing Section 106 of the National NHPA, and the regulations implementing Section 7 of the ESA.

The Proposed Action and other flood reduction projects are ongoing or planned as part of the Cypress Creek Watershed Program (the Program) and Cypress Creek Watershed Implementation Plan (Implementation Plan). The Implementation Plan recommends the construction of stormwater detention basins at 23 different sites within the Cypress Creek watershed upstream and downstream of the Proposed Action. These stormwater detention basin sites are prioritized into Tier 1, Tier 2, and Tier 3 groups. Tier 1 basins, including the Proposed Action, are actively seeking funding; Tier 2 basins will continue with development as funding and other opportunities arise; and Tier 3 basins require further study. It is expected to take approximately 10 years to complete the implementation of the projects as funding becomes available and land acquisitions are completed (HCFCD 2021). Two of the Tier I sites proposed under the Implementation Plan are in the same vicinity as the Proposed Action. T.C. Jester Stormwater Detention Basin is less than 2 miles west of the Proposed Action and is also adjacent to Cypress Creek. The Halls Bayou Blue Bell Detention Basin is approximately 10 miles south of the Proposed Action, adjacent to Halls Bayou.

Other stormwater detention basin projects described in the Implementation Plan would have similar environmental impacts as those described in the Proposed Action. These impacts include short-term minor construction-related impacts on soils, air quality, water quality, wetlands, floodplains, vegetation, fish and wildlife, threatened and endangered species, noise, and transportation, and minor long-term benefits to soils, wetlands, fish and wildlife, hazardous materials, transportation, and public health and safety. Construction-related impacts would generally not be cumulative as they would occur at different times in different parts of the watershed. The Implementation Plan would result in a long-term net cumulative benefit by incrementally reducing the potential for flood damage to property with each new project. Therefore, there would be a long-term cumulative benefit related to the reduction in flood risk from the construction and operation of stormwater detention basins under the Implementation Plan.

SECTION 6. Agency Coordination, Public Involvement, and Permits

This section provides a summary of the agency coordination efforts and public involvement process for the proposed Westador Stormwater Detention Basin. In addition, an overview of the permits that would be required under the Proposed Action is included.

6.1. Agency Coordination

Section 7(a)(2) of the ESA requires the lead federal agency to consult with either USFWS or NMFS, depending on which agency has jurisdiction over the federally listed species. When a federally funded project may have the potential to adversely affect a federally listed species or a federal action occurs within or may have the potential to impact designated critical habitat, FEMA must consult with USFWS or NMFS. Proposed and candidate species are not fully protected by the ESA, and it is the action agency's discretion as to whether conference with the USFWS or NMFS is warranted. FEMA initiated conference with USFWS December 13, 2024, but withdrew from conference following a January 23, 2025, meeting with USFWS regarding priority and timelines for Section 7 reviews. FEMA has determined the proposed action will not result in jeopardy to the proposed AST or TCB. If these species are listed during project implementation, the Flood Control District will coordinate with FEMA upon any further Section 7 consultation obligations with USFWS.

Under Section 106 of the NHPA, FEMA consulted with THC and Native American tribes with ancestral ties to Harris County, regarding the construction of the stormwater basin. These tribes included the Tonkawa Tribe of Indians of Oklahoma, the Comanche Nation, the Kiowa Tribe, and the Alabama-Coushatta Tribe of Texas. FEMA submitted its initial finding that the Proposed Action would have "No Effect" on historic properties to all parties on October 21, 2022. On November 22, 2022, the THC concurred that the project would have no effect on the historic resources within the project area. On November 11, 2022, the Comanche Nation concurred that the proposed project would not adversely affect traditional, religious, or culturally significant sites. The Kiowa Tribe, Tonkawa Tribe, and Alabama-Coushatta Tribe of Texas either did not provide comments within 30 days or declined to comment.

A second consultation was conducted with THC and Native American tribes for an expanded APE that included a spoil bank area to the northeast of the detention basin. FEMA submitted a finding of No Historic Properties Affected on February 28, 2024. On March 15, 2024, THC responded and requested that an archaeological survey be conducted. On September 9, 2024, FEMA submitted an ASR to THC that identified that no cultural resources were found and no additional archaeology investigation was required. THC concurred on October 1, 2024.

A third consultation was conducted with THC and Native American tribes for an expanded APE that included a new maintenance access road along the southwest border of the basin. The Flood Control District submitted a consultation to THC on June 4, 2024, requesting confirmation that the results of

both the prior background study and the archaeological survey were sufficient and that no additional work would be necessary within the site access area to maintain compliance with the Antiquities Code of Texas regarding the expanded APE. On October 8, 2024, THC concurred that no historic properties for both aboveground and belowground resources would be affected. The Flood Control District consultation with THC met FEMA's Section 106 requirements, and a separate consultation for this project was not required. Tribal consultation with the Kiowa Tribe, Tonkawa Tribe, Comanche Nation, and Alabama-Coushatta Tribe of Texas was submitted by FEMA on October 8, 2024. On October 15, 2024, the Comanche Nation concurred that the proposed project would not adversely affect traditional, religious, or culturally significant sites. The Kiowa Tribe, Tonkawa Tribe, and Alabama-Coushatta Tribe of Texas did not provide comments within 30 days or declined to comment

6.2. Public Participation

The Flood Control District seeks to provide transparent and meaningful project engagement for all members of affected communities, including any overburdened communities, by holding community engagement meetings near the beginning of project development to solicit public comments. These meetings are typically held virtually and outside of standard work hours to increase the likelihood that all community members are able to attend (HCFCD 2022c). The Flood Control District held a public information session in September 2020 to discuss the Proposed Action and the T.C. Jester Stormwater Detention Basin Project, and a virtual community engagement meeting was held for this project on February 3, 2022 (HCFCD 2022c).

The Flood Control District applied for the U.S. Department of Housing and Urban Development Community Development Block Grant–Mitigation funds received by the state of Texas for the development of the Cypress Creek Watershed Implementation Program. The Texas General Land Office is the designated administrator of the grant funds. Extensive public engagement has been pursued for the Cypress Creek Watershed Implementation Program and project-specific public engagement opportunities. The public comment period for the Community Development Block Grant application was open from October 3 through October 16, 2020. The Flood Control District presented the Proposed Action at a public information session on September 22, 2020. A virtual community engagement meeting facilitated by the Flood Control District was conducted on February 3, 2022, specifically for the Proposed Action. In addition, a virtual community engagement meeting facilitated by the Flood Control District was held on March 9, 2022, to solicit additional public comment about the entire Cypress Creek Watershed Implementation Program.

In accordance with NEPA, this draft EA will be released to the public and resource agencies for a 30-day public review and comment period. This draft EA reflects the evaluation and assessment of the federal government, the decision-maker for the federal action. However, FEMA will take into consideration any substantive comments received during the public review period to inform the final decision regarding grant approval and project implementation. If no substantive comments are received from the public or agency reviewers, this draft EA will be assumed to be final and a FONSI will be issued by FEMA (**Appendix D**).

The Flood Control District will post the draft EA notice at Barbara Bush Library, provide a printed copy at Brookhollow Building-9900 Northwest Freeway, Houston TX 77092, and make the EA available digitally on its website at https://www.hcfcd.org/Activity/Projects/Cypress-Creek/F-88-Westador-Stormwater-Detention-Basin-K500-27-00. The EA will also be available upon request from FEMA. Hard copies of the draft EA will be made available at the Flood Control District Brookhollow Building, 9900 Northwest Freeway, Houston, TX 77092, from 8 a.m. to 5 p.m., and they can be requested from Dorothy Cook, FEMA Region 6, via email at dorothy.cook@fema.dhs.gov. The comment period for the draft EA would start when the public notice of EA availability is posted and would extend for 30 days (**Appendix C**). Comments on the draft EA may be submitted by email to dorothy.cook@fema.dhs.gov (include "Westador Stormwater Detention Basin" in the subject line). Comments also may be submitted via mail to Dorothy Cook, Senior Environmental Protection Specialist, FEMA Region 6, 800 N Loop 288, Denton, TX 76209.

6.3. BMPs, Mitigation Measures, and Permits

The following are standard BMPs, mitigation measures, and conditions applicable to the Proposed Action:

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other laws and Executive Orders.
- This review does not address all federal, state, and local requirements. Acceptance of federal funding requires the recipient to comply with all federal, state, and local laws. Failure to obtain all appropriate federal, state, and local environmental permits and clearances may jeopardize federal funding.
- If ground-disturbing activities occur during construction, the applicant will monitor ground disturbance and will immediately cease construction in that area and notify the State and FEMA if any potential archaeological resources are discovered.

The following specific conditions are also applicable to the Proposed Action:

- Areas of exposed soils will be kept wet or covered to reduce fugitive dust.
- All construction equipment will meet current EPA emissions standards.
- The Flood Control District must implement an SWPPP that includes erosion and sediment control practices and BMPs in accordance with the TCEQ Stormwater General Permit for Construction Activities.
- The Flood Control District is responsible for coordinating with and obtaining any required Section 404 Permit(s) from USACE and/or any Section 401/402 Permit(s) from the State before initiating work. The applicant must comply with all conditions of the required permit(s), including any mitigation for loss of jurisdictional wetlands. All coordination pertaining to these activities should be retained as part of the project file in accordance with the respective grant program instructions.

- The Flood Control District is required to coordinate with the local floodplain administrator and obtain required permits before initiating work, including any necessary certifications that encroachments within the adopted regulatory floodway would not result in any increase in flood levels within the community during the occurrence of the base flood discharge. The Applicant must comply with any conditions of the permit, and all coordination pertaining to these activities should be retained as part of the project file in accordance with the respective grant program instructions.
- If the AST or TCB are listed under the ESA as threatened or endangered during project implementation, the Flood Control District will coordinate with FEMA regarding potential revised requirements related to Section 7 of the Act.
- General AMMs must be implemented including the following:
    - AMM 1 Erosion and Sediment Control Measures: Silt fencing made of woven non-monofilament geotextile fabric will be installed along the perimeter of active construction areas to minimize erosion and sedimentation into the aquatic environment. Silt fence installation will be installed such that it is buried to a depth of 6 inches (0.15 meters) and has a height of 24 inches (0.61 meters). Silt fencing in flood-prone areas will be removed when a major storm event is anticipated but will be replaced after the storm passes. The biological monitor will inspect the silt fencing for trapped wildlife before construction begins each day. Hydro-mulching and hydro-seeding will be used for final site stabilization. The hydro-mulch used will not contain microplastics.
    - AMM 2 Bank Stabilization: After the riprap is installed to stabilize stream banks beneath the proposed detention basin outfalls, the riprap will be covered with the native soil material displaced during the installation activities.
    - AMM 3 Bird Nest Avoidance: A bird nest survey will be conducted within 5 days of any vegetation disturbance, regardless of the time of year. Any nests found will receive a species-specific buffer, be monitored biweekly, and be avoided until the nest is no longer occupied.
    - AMM 4 Rain Event Limitations: Construction activities will not occur when there is a rain event that releases more than 2 inches of precipitation over a 24-hour period, at which point construction may resume.
    - AMM 5 Environmental Awareness Training: Employees and contractors, with the exception of truck drivers, will be provided with environmental awareness training by a qualified biologist. This training will familiarize personnel with the species and their habitats that may occur on-site, measures to be implemented to protect this species and project boundaries. Because truck drivers change daily, it is impracticable to ensure all truck drivers are provided with this training. Therefore, the use of disposal material trucks within 80 feet (24.4 meters) of Cypress Creek will be prohibited. Signage will be posted on-site, and plans will identify where signs will be placed for truck exclusion areas.

- AST AMMs must be implemented including the following:
    - AST AMM 1 Biological Monitor: A permitted biological monitor (e.g. authorized TPWD scientific collection permit for AST and Service Section 10 permit if the species is listed) will be on-site during all activities that may result in encounters with ASTs (e.g., during any clearing or construction work within 656 feet [200 meters] of Cypress Creek if work starts before installation of wildlife exclusion fencing and within 200 feet [61 meters] for work starting after installation of the exclusion fence [AST AMM 4]). The biological monitor will be responsible for surveys to look for adults, juveniles, hatchlings, and nests before initiating mechanical removal of woody and brush vegetation. They will also be responsible for inspecting exclusion fencing or any open trenches daily to ensure that the fence is not compromised or breached and that no turtles are entangled or trapped in fences or open trenches.
        - The biological monitor will also be responsible for surveying any in-water work areas before construction. The biological monitor should first survey the submerged areas visually for AST surfacing for normal respiration (once every 20 to 60 minutes).
        - The applicant will provide pre-construction education and training for construction crews by providing educational materials developed by the biological monitor on the identification of AST and avoidance requirements of this conference opinion or biological opinion (if listed) during construction activities.
    - AST AMM 2 Habitat Avoidance: Construction personnel will be directed to avoid impacts on logs, cutbanks, root balls, and similar in-water structural features typically used by AST for cover. If avoidance is not feasible, existing in-water structural features will be removed temporarily and relocated as near as possible to where the in-water structure originated during post construction activities. The on-site permitted biological monitor will advise construction personnel of structures to avoid impacts to the in-water structure and where to relocate any in-water structural features that cannot be avoided.
    - AST AMM 3 Seasonal Avoidance: Construction activities within 200 feet (61 meters) of the water's edge where exclusion fencing is installed will be avoided during the peak AST nesting and breeding season (i.e., April 1 through June 30).
    - AST AMM 4 Wildlife Entrapment Prevention: Wildlife exclusion fencing will be installed along the outer edge of the 80-foot-wide (24.4-meter-wide) forested buffer (the edge closest to the proposed construction within the AST nesting habitat), in the water directly adjacent to where shoreline protection is being installed, and around the perimeter of any open trenches to prevent AST from entering construction areas. Trench walls will be excavated at 30-degree angles to allow AST or other animals to escape if they enter the trench. Wildlife exclusion fencing will consist of 16-foot (4.9-meter) by 4-foot (1.2-meter) feedlot panels with 4-inch (0.1-meter) by 4-inch (0.1-meter) openings made of 4 to 14.5-gauge galvanized wire or similar materials that will not collapse and do not have the potential to entangle wildlife. Fence posts (4 feet [1.2 meters] tall) will be installed at 6-foot (0.15-meters) intervals to support and secure the fencing. The fencing will be buried 1 foot (0.3 meters) deep so that the aboveground portion is 3-feet (0.9 meters) high. This type of exclusion fence must be

inspected daily to ensure that it is not compromised or breached. Any necessary exclusion fence repairs or replacements will be made immediately. The on-site permitted biological monitor will inspect exclusion fences and open trenches daily for trapped wildlife before construction can begin each day.

- AST AMM 5 Encounters with the Species: Each encounter with an AST will be treated on a case-by-case basis. If an AST is found, the following will apply:
  - If an AST is detected within 200 feet (61 meters) of work activities in the action area (terrestrial or aquatic environments) that may result in the harm, injury, or death of the animal, all work activities will cease immediately, and the on-site permitted biological monitor will be notified immediately. The permitted biological monitor will then notify TPWD and USFWS before taking any action.
  - Based on the professional judgment of the permitted biological monitor, if project activities can be conducted without harming or injuring the AST, the individual may be left at the location of discovery and monitored by the biological monitor until AST moves out of the action area. All project personnel will be notified of the finding and at no time will work occur within 200 feet (61 meters) of an AST without the biological monitor being present.
  - Based on the professional judgment of the permitted biological monitor, if project activities cannot be conducted without harming or injuring the AST, all work will cease until the AST leaves the area (e.g., the turtle crawls back to the water and swims at least 200 feet [61 meters] away from construction activities). Under no circumstances should the AST or other wildlife be harmed or harassed (e.g., herded back into water) by construction crews or the permitted biological monitor.
  - If an AST is observed or found within the construction area that will not leave on its own accord within 4 hours of detection, then the permitted biological monitor will notify TPWD's Kelly Norrid at (281) 908-3569 to provide guidance or assistance on the individual's capture and arrangements for release at a designated relocation site within the Cypress Creek watershed.
  - ASTs that are captured during construction activities will be detained individually in a large plastic or similar container, with at least 3 inches (0.08 meters) of water and covered with branches or vegetation to calm it until relocation to a designated holding site or release site is arranged. If project work takes place in summer temperatures above 80°F (26.6°C) or winter temperatures below 60°F (15.6°C), the turtle will be kept in a shaded or protected area to avoid overheating or exposure to the elements. ASTs may not be handled or detained on-site without a permitted biological monitor present. ASTs may not be stored in vehicles or closed containers. If more than one AST is detained during construction, then AST relocations may need to occur at a frequency greater than once per day.
- AST AMM 6 Site Restrictions: The following site restrictions will be implemented to avoid or minimize effects on the AST:
  - Trash, food, food containers, and food waste will be secured at all times by individual workers or placed in animal-proof trash containers placed at the work site. The contents of trash containers will be transferred from the work site at the end of each day.

- AST AMM 7 Habitat Restoration: The applicant will restore 12 acres of AST nesting habitat within the detention basin and restore all temporary roads and workspaces to the former AST nesting habitat.

- TCB AMMs may be implemented if the TCB is listed during project implementation and coordination with FEMA, and potentially USFWS, results in such a requirement. AMMs may include all or a subset of the following, or other similar measures that may be developed based on project construction status at the time of listing:
  - AMM-1 TCB Roosting and Foraging Habitat: All operators, employees, and contractors (with the exception of truck drivers) working in the project area for more than 1 day, including access roads and staging areas, will be educated on TCB and informed of all applicable AMMs.
  - AMM-2 TCB Tree Removal: Only the number of trees necessary to implement project construction activities safely would be removed during all phases/aspects of the project (e.g., basin, access road alignments, temporary work areas). Approximately 24 acres out of 30 acres of potential TCB forested habitat would be removed during all phases/aspects of the project (e.g., basin, access road, temporary work areas).
  - AMM-3 TCB Tree Removal: Tree clearing will not occur during pupping season (May 1 to July 15) when juveniles cannot fly.
  - AMM-4 TCB Tree Removal: Tree removal activities within TCB suitable habitat or travel corridors will be timed to avoid summer occupancy season (March 15 to July 15) when bats are present and roosting in trees on their summer home range and/or roosting in colonies. If tree removal must occur during the summer occupancy season, a pre-construction acoustic survey, using Service-recommended protocols, will be conducted by a qualified biologist to identify maternal roosts potentially containing flightless pups, at least one month before the proposed tree removal action. If a maternal roost is identified, no trees may be removed within 1,000 feet (305 meters) of the roost tree for a period of 4 weeks or until a subsequent acoustic survey confirms that all pups have left the maternal roost.
  - AMM-5 TCB Tree Removal: Tree removal will be limited to the areas specified in project plans and clearing limits will be marked in the field (e.g., install brightly colored flagging/fencing before any tree clearing to ensure contractors stay within clearing limits). All contractor personnel will be directed to stay out of exclusion areas. Approximately 6 acres out of 30 acres of potential TCB forested habitat will be preserved throughout the Proposed Action.
  - AMM-6 TCB Culvert Removal or Replacement: Before any project related culvert modification, a culvert survey using Service-recommended survey protocols for culvert surveys (USFWS 2024b, Appendix K) would be conducted by a qualified biologist to identify the presence or absence of hibernating or roosting TCBs. If TCBs are found within the culvert, then the culvert is being used for winter torpor or the culvert is being used as an incidental roost site by bats outside of torpor periods. If TCBs are positively identified during a culvert survey assessment or if species identification cannot be verified at a culvert with evidence of use, the applicant will coordinate with TCCPESFO within 24 hours to determine next steps. For other species of

bat identified, the applicant will coordinate with the appropriate state agency (TPWD). If TCB are found in the culvert during winter season (December 15 to February 15), then culvert removal or replacement activities will be delayed until the applicant conducts subsequent surveys and provides evidence that no bats are present before commencing construction activities. The qualified biologist will continue to monitor the culvert for TCBs until the replacement or removal operation is complete. The applicant will not exclude TCBs from roosting in existing culverts in the action area.

  - AMM-7 TCB Stop Work Order: Within the part of TCB range where bats remain active year-round and continue to roost in trees during the winter, and where mean winter temperatures fall below 40°F (4.4°C) for 3 consecutive days between December 15 and February 15, the tree clearing activities will immediately halt until temperatures reach above 40°F and remain above 40°F (4.4°C) for a 24-hour period after the initial temperature drop.

- For all ground-disturbing activities occurring near the identified archaeological site, the Flood Control District must retain a Secretary of Interior Standards-qualified archaeologist to perform archaeological monitoring during these activities. If potential archaeological features or artifacts are observed, the Flood Control District would immediately cease construction in that area and notify TDEM and FEMA. FEMA would work with the THC Archaeology Division and federally recognized tribes with interests in the project area to develop a plan. An appropriate buffer radius would be placed around the identified area, and no construction activities may resume in the buffer area until FEMA, in consultation with the THC Archaeology Division and federally recognized tribes with interests in the project area, has provided written notification to resume construction. Archaeological monitoring is not required on the remainder of the APE; however, should any artifacts be identified during construction, the same process will apply. At the completion of the archaeological monitoring, an archaeological monitoring report detailing the results of the effort will be prepared and submitted to FEMA.
- Any hazardous materials discovered, generated, or used during the implementation of the Proposed Action must be handled and disposed of in accordance with applicable local, state, and federal regulations.
- Heavy machinery and equipment will be well maintained. Sound-control devices and mufflers will be used.

SECTION 7. List of Preparers

The following is a list of preparers who contributed to the development of the Westador Stormwater Detention Basin draft EA for FEMA. The individuals listed below had principal roles in the preparation of this document. Many others contributed, including senior managers, administrative support personnel, and technical staff, and their efforts in developing this EA are appreciated.

Federal Emergency Management Agency

Reviewers	Title
Leger-Taylor, LaToya	Regional Environmental Officer
Cook, Dorothy	Senior Environmental Protection Specialist
McComb, Angela	Archeologist

CDM Smith

Preparers	Experience and Expertise	Role in Preparation
Argiroff, Emma	Environmental Planner	Technical Review
Condon, Emily	Water Resources Engineer	NEPA Documentation
Jadhav, Ajay	Geographic Information System Specialist	GIS
Looney, Mary	PhD, Environmental Scientist, Biologist	Biological Assessment
McLaughlin, Aislinn	Environmental Scientist	NEPA Documentation
Nelson, Tracy	Senior Cultural Resource Specialist, SOIS Qualified Reviewer	NEPA Documentation, NHPA Consultation
Quan, Jenna	Environmental Planner	NEPA Documentation
Stenberg, Kate	PhD, Senior Biologist, Senior Planner	Project Manager, Technical Review
Wilkins, Suzanne	Environmental Planner	NEPA Documentation
Wilson, Devin	Environmental Scientist, Biologist	NEPA Documentation

This document was prepared by CDM Smith under Contract No.: 70FA6023A00000006, Task Order: 70FA6021F00000045.

SECTION 8. References

ASTM International. 2021. Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. Accessed August 15, 2022. Available at: https://compass.astm.org/document/?contentCode=ASTM%7CE1527-21%7Cen-US.

Audubon. n.d.-a. "Golden Eagle." Accessed October 27, 2022. Available at: https://www.audubon.org/field-guide/bird/golden-eagle.

———.n.d.-b. "Piping Plover." Accessed October 27, 2022. Available at: https://www.audubon.org/field-guide/bird/piping-plover.

———.n.d.-c. "Red Knot." Accessed October 27, 2022. Available at: https://www.audubon.org/field-guide/bird/red-knot.

Bayou Preservation Association. n.d. "Paddle Trips." Accessed November 2, 2022. Available at: https://www.hcfcd.org/Activity/Projects/Cypress-Creek

Brennan, T., G. Cole., and B. Stephens. 2021. *Report to the U.S. Environmental Protection Agency on Guidance Documents to Safely Clean, Decontaminate, and Reoccupy Flood-Damaged Houses*. Accessed October 10, 2022. Available at: https://www.epa.gov/sites/default/files/2018-10/documents/flood-related_cleaning_contractor_report-final-508_8.31.18.pdf.

Christensen-Dalsgaard, J., C. Brandt, K.L. Willis, C.B. Christensen, D. Ketten, P. Edds-Walton, R.R. Fay, P.T. Madsen, and C.E. Carr. 2012. "Specialization for underwater hearing by the tympanic middle ear of the turtle, *Trachemys scripta elegans*." *Proceedings of the Royal Society B* 279, no. 1739: 2816–2824.

CivilTech. 2021. Westador Stormwater Detention Basin PER Phase K500-27-00-E001, Final Drainage Report. December 2021.

Cypress Creek Cultural District. n.d.-a. "Cypress Creek Greenway Hike and Bike Trails." Accessed November 2, 2022. Available at: https://www.alltrails.com/trail/us/texas/cypress-creek-hike-bike-trail

———. n.d.-b. "Cypress Creek Cultural District Location." Accessed November 2, 2022. Available at: https://www.guidestar.org/profile/20-5411545.

Environmental Protection Agency (EPA). 2024. Nonattainment Areas for Criteria Pollutants (Green Book). Accessed December 2, 2024. Available at: https://www.epa.gov/green-book.

———. 2022a. How's My Waterway? Waterbody Report for Cypress Creek. Accessed October 25, 2022. Available at: https://mywaterway.epa.gov/waterbody-report/TCEQMAIN/TX-1009_03/2022.

———. 2022b. NEPAssist. Accessed October 31, 2022. Available at: https://nepassisttool.epa.gov/nepassist/nepamap.aspx.

_____. 2022c. NEPAssist. Accessed October 31, 2022. Available at: https://nepassisttool.epa.gov/nepassist/nepamap.aspx.

———. 2021. Factsheet on Water Quality Parameters: Turbidity. Accessed October 24, 2022. Available at: https://www.epa.gov/system/files/documents/2021-07/parameter-factsheet_turbidity.pdf.

———. 2016a. NAAQS Table. Accessed December 4, 2022. Available at: https://www.epa.gov/criteria-air-pollutants/naaqs-table.

———. 2016b. All EPA Emission Standards. Accessed November 13. 2024. Available at: https://www.epa.gov/emission-standards-reference-guide/all-epa-emission-standards.

———. 2009. *Environmental Impact and Benefits Assessment for Final Effluent Guidelines and Standards for the Construction and Development Category.* Accessed October 10, 2022. Available at: https://www.epa.gov/sites/default/files/2015-06/documents/cd_envir-benefits-assessment_2009.pdf.

———. 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. EPA/ONAC 550/9-74-004. Accessed January 15, 2024. Available at: http://nepis.epa.gov/Exe/ZyPDF.cgi/2000L3LN.PDF?Dockey=2000L3LN.PDF.

Federal Emergency Management Agency (FEMA). 2022a. Consultation letter from FEMA to Mark Wolfe, Texas State Historic Preservation Officer. Section 106 Review Consultation, Harris County Flood Control District (HCFCD)–Westador Stormwater Detention Basin. Dated October 21, 2022.

———. 2022b. Consultation concurrence letter from Mark Wolfe, Texas State Historic Preservation Officer to FEMA. Section 106 Review Consultation, Harris County Flood Control District (HCFCD)–Westador Stormwater Detention Basin. Dated October 12, 2022.

———. 2022c. Consultation letter from FEMA to Tonkawa Tribe of Indians of Oklahoma. Section 106 Review Consultation, Harris County Flood Control District (HCFCD)–Westador Stormwater Detention Basin. Dated October 21, 2022.

———. 2022d. Consultation letter from FEMA to Comanche Nation. Section 106 Review Consultation, Harris County Flood Control District (HCFCD)–Westador Stormwater Detention Basin. Dated October 21, 2022.

———. 2022e. Consultation letter from FEMA to Kiowa Tribe. Section 106 Review Consultation, Harris County Flood Control District (HCFCD)–Westador Stormwater Detention Basin. Dated October 21, 2022.

———. 2022f. Consultation letter from FEMA to Alabama-Coushatta Tribe of Texas. Section 106 Review Consultation, Harris County Flood Control District (HCFCD)–Westador Stormwater Detention Basin. Dated October 21, 2022.

———. 2013. FEMA's National Flood Hazard Layer Viewer. Accessed November 3, 2022. Available at: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd.

Federal Highway Administration (FHWA). 2006. Construction Noise Handbook. Accessed January 15, 2024. Available at: https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/.

Harris County. 2022. Jurisdiction & Precinct Maps. *Harris Votes.* Accessed October 5, 2022. Available at: https://www.hctax.net/voter/votermaps

Harris County Flood Control District (HCFCD). 2022a. "Cypress Creek." Accessed October 27, 2022. Available at: https://www.hcfcd.org/Activity/Active-Projects/Cypress-Creek.

———. 2022b. Westador Stormwater Detention Basin, PER Phase K500-27-00-E001, *Final Draft Preliminary Engineering Report*. Prepared by CivilTech. March 2022.

———. 2022c. "Community Engagement and Public Meetings." Accessed November 1, 2022. Available at: https://www.hcfcd.org/Community/Community-Engagement-and-Public-Meetings/page/2.

———. 2021. Cypress Creek Program Implementation Plan (K100-00-00-P007). Accessed October 31, 2022. Available at: https://www.hcfcd.org/Portals/62/Watershed/Clear-Creek/01-Cypress%20Creek%20Implementation%20Plan%20(K100-00-00-P007)%20rev-2%20SEALED%20REPORT.pdf?ver=d30SM1v7XbDrwQ2Re34gNg%3d%3d.

———. 2020a. Cypress Creek Watershed Major Tributaries Regional Drainage Plan Update. Accessed October 31, 2022. Available at: https://www.hcfcd.org/Portals/62/Watershed/Cy-Creek/CC_Major_Tributaries_Update_Report_Combined_02242020_Reduced.pdf.

———. 2020b. *2020 Standard Construction Specifications and Details*. Accessed October 27, 2022. Available at: https://www.hcfcd.org/Portals/62/Technical_Document_Library/Standard

%20Specifications%20and%20Related%20Drawings/2020%20Standard%20Specifications%20FINAL.pdf?ver=zPvTvAlGCCjddtca3JTXpg%3d%3d&timestamp=1666899597892.

———. 2020c. Interlocal Agreement between Harris County Flood Control District and Westador Municipal Utility District (MUD).

———. 2014. *Design Guidelines for HCFCD Wet Bottom Detention Basins with Water Quality Features*. April 2014. Accessed October 15, 2022. Available at: https://www.hcfcd.org/Resources/Technical-Manuals/Design-Guidelines-for-HCFCD-Wet-Bottom-Detention-Basins-With-Water-Quality-Features?folderId=16296&view=gridview&pageSize=10.

H-GAC. 2021. Cypress Creek Watershed Protection Plan. Accessed August 15, 2022. Available at: https://attains.epa.gov/attains-public/api/documents/actions/TCEQMAIN/TX_NP24_CypressCrWPP/206616.

———. 2005. Cypress Creek Source Identification Study. Final Report. Available at: https://www.h-gac.com/getmedia/aac18153-60d3-4435-a317-b70cf38d5a59/bacteria_cypress_creek_source_identification_study.pdf.

Hollaway Environmental Communications. 2022. Tree Inventory Report: Westador Basin HCFCD Project ID K500-27-00-E001.

Jackson, D.R., and M.A. Ewert. 2023. "Nesting Ecology of the Alligator Snapping Turlte (Macrochelys temminckii) along the Lower Apalachicola River, Florida." Southeastern Naturalist 22(12):311–334. Available at: https://doi.org/10.1656/058.022.0sp1219

Lehrer, E.W., T. Gallo, M. Fidino, R.J. Kilgour, P.J. Wolff, and S.B. Magle. 2021. "Urban bat occupancy is highly influenced by noise and the location of water: Considerations for nature-based urban planning." *Landscape and Urban Planning* 210: 104063.

Metropolitan Transit Authority of Harris County. 2022. Transit System Map. Accessed October 26, 2022. Available at: https://transit.harriscountytx.gov/Bus-Routes.

Munscher, E.C., S. Gabriela, C.M. Brown, A.G. Lawrence, D. Rivers, J. Stein, K. Norrid, and A. Walde. 2023a. "First documented observation of nesting in an urban habitat by an Alligator Snapping Turtle, *Macrochelys temminckii* Troost in Harlan, 1835." *Herpetology Notes* 16: 275–279.

Munscher, E.C., J.D. Riedle, A. Tuggle, J. Gray, D.B. Ligon, V. Gladkaya, C. Drake, R. Couvillon, J. Bolton, M. Morrison, B.P. Butterfield, and A.D. Walde. 2023b. "Demography of an Urban Population of Alligator Snapping Turtles (Macrochelys temminckii) in Texas." *Southeastern Naturalist* 22(12): 221–235.

National Marine Fisheries Service (NMFS). 2022. Essential Fish Habitat Mapper. Accessed November 1, 2022. Available at: https://www.habitat.noaa.gov/apps/efhmapper/.

National Resources Conservation Service (NRCS). 2022. Web Soil Survey, Westador Basin Soil Map. Accessed October 26, 2022. Available at: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

Silvis, A., R.W. Perry, and W.M. Ford. 2016. *Relationships of Three Species of Bats Impacted by White-nose Syndrome to Forest Condition and Management*. General Technical Report SRS–214. USDA Forest Service, Southern Research Station, Asheville, NC.

Texas Commission on Environmental Quality (TCEQ). 2022. *Texas Integrated Report*. Accessed October 10, 2022. Available at: https://www.tceq.texas.gov/downloads/water-quality/assessment/integrated-report-2022/2022-303d.pdf.

Terracon. 2024. Threatened and Endangered Species Habitat Assessment Report: Westador Stormwater Detention Basin HCFCD Project ID K500-27-00-E001.

———. 2023a. Pre-USACE Verified Water of the United States Delineation Report Revised 10-23-2023. HCFCD Project ID K500-27-00-E001.

———. 2023b. Freshwater Mussel Reconnaissance Survey: Cypress Creek (K100-00-00): Westador Stormwater Detention Basin HCFCD Project ID K500-27-00-E001.

———. 2022. Cultural Resources Survey: Proposed Westador Stormwater Detention Basin, HCFCD Project ID K500-27-00-E001.

Texas Department of Transportation. 2020. Traffic Count Database System. Accessed October 26, 2022. Available at: https://txdot.public.ms2soft.com/tcds/tsearch.asp?loc=Txdot&mod=TCDS.

Texas Invasive Species Institute. n.d. Invasives Database. Accessed October 28, 2022. Available at: https://www.texasinvasives.org/i101/ecoalert_detail.php?ecoregion_id=2.

TPWD. n.d-a. "Texas Ecoregions." Accessed October 18, 2022. Available at: https://tpwd.texas.gov/education/hunter-education/online-course/wildlife-conservation/texas-ecoregions.

———. n.d-b. "Tricolored Bat (*Perimyotis subflavus*)." Accessed December 8, 2023. Available at: https://tpwd.texas.gov/huntwild/wild/species/easpip/.

———. 2022. Request for Review and Comment–Mercer Stormwater Detention Basin; Harris County, Texas. Austin, Texas: TPWD.

U.S. Army Corps of Engineers (USACE). 2022. Approved Jurisdictional Determination Form SWG-2021-00784. Available at: https://www.swg.usace.army.mil/Portals/26/docs/regulatory/JDs/SWG202100784.pdf.

U.S. Forest Service. 2014. Biological Assessment for Activities Affecting Northern Long-Eared Bats on Southern Region National Forests. Available at: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3843091.pdf.

U.S. Fish & Wildlife Service (USFWS). 2024a. Information for Planning and Consultation (IPaC). Accessed January 9, 2024. Available at: https://ecos.fws.gov/ipac/.

———. 2024b. Range-wide Indiana Bat & Northern Long-eared Bat Survey Guidelines. Accessed September 1, 2024. Available at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

———. 2024c. Correspondence with Dr. Jan Culbertson, Fish and Wildlife Biologist. May 8, 2024.

———. 2023. *Programmatic Conference Opinion NCDOT Program Effects on the Tricolored Bat in Divisions 1-8*. Raleigh, North Carolina: USFWS Raleigh Field Office.

———. 2022a. National Wetlands Inventory. Accessed November 13, 2022. Available at: https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/.

———. 2022b. Migratory Bird Program Administrative Flyways. Accessed November 1, 2022, Available at: https://www.fws.gov/partner/migratory-bird-program-administrative-flyways.

———. 2021a. Species Status Assessment Report for the Alligator Snapping Turtle (*Macrochelys temminckii*). Atlanta, Georgia: FWS Southeast Region.

———. 2021b. Species Status Assessment Report for the Tricolored Bat (*Perimyotis subflavus*). Hadley, Massachusetts: USFWS Northeast Region.

———. 2020. Migratory Bird Treaty Act of 1918. Accessed October 25, 2022. Available at: https://www.fws.gov/media/list-birds-protected-migratory-bird-treaty-act-2020.

Appendix A

8-Step Checklist for Wetlands and Floodplain

Westador Stormwater Detention Basin
Executive Order 11988 and 11990 – Floodplain Management and Wetland Protection
Eight-Step Decision Making Process

Executive Order (EO) 11988 (Floodplain Management) requires federal agencies "to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of the floodplain and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative." Similarly, EO 11990 requires federal agencies "to avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative." FEMA's implementing regulations are codified under 44 CFR Part 9, which includes an eight-step decision-making process for compliance with this part.

This eight-step process is applied to the proposed Westador Stormwater Detention Basin. The proposed project area is within the 100-year floodplain of Cypress Creek Watershed. The steps in the decision-making process are as follows:

Step 1 Determine if the proposed action is located in the Base Floodplain and Wetland.

The Westador Stormwater Detentions Basin involves the construction of two cells, a wet-bottom basin (Phase 1) and a 1,200-foot channel (Phase 2), with both parts constructed together under the Proposed Action. The basin is adjacent to Cypress Creek in the Westador neighborhood between Bamwood Road and Red Oak Drive in Harris County, Texas (Latitude: 30.03373; Longitude: -95.45587). The proposed project site consists of 164 acres along the southern bank of Cypress Creek and a new permanent access road for maintenance that would be constructed on the southern edge of the channel. *The Cypress Creek Watershed Major Tributaries Regional Drainage Plan Update, Cypress Creek Report* found that stormwater raises the water level of Cypress Creek, causing floodwaters to back into the creek's tributaries resulting in floodwaters overtopping the tributary banks. The stormwater detention basin would reduce flood risk and damage during heavy rain events by safely storing excess stormwater and slowly releasing it back into the creek when the flooding has passed.

The proposed project, referred to as the Proposed Action, would be comprised of two stormwater detention basins composed of two cells adjacent to the main stem of Cypress Creek, on parcels of land owned separately by the Municipal Utility District (MUD) and the Harris County Flood Control District (Flood Control District). In Phase 1, an approximately 164-acre-feet wet-bottom storage basin would be constructed at the east end of the project area on two contiguous MUD parcels. The basin would contain Concrete Pilot Channels (CPCs) A and B and a 36-inch-diameter outfall to Cypress Creek. An existing concrete-lined stormwater channel identified as Cypress Creek tributary K141-00-00, would be redirected into the detention basin through CPC A to provide freshwater into the wet-bottom pond. An outfall from Cypress Creek tributary K141-00-00, consisting of a three-barrel 8-by-5-foot box culvert, would be constructed at CPC A and modified to a finished width of approximately 16 feet. The portion of the existing concrete channel north of CPC A would be removed, and the existing ditch would be filled during construction of the basin and berm. A wet-bottom basin is designed to contain a permanent pool of water throughout the year that can support the growth of aquatic vegetation. The Proposed Action would require tree and vegetation removal and grading within the footprints of the basin.

A new CPC B would also be constructed on the north side of the basin near Cypress Creek, which would direct the inflow from Cypress Creek into the basin. A new 36-inch-diameter outfall pipe to Cypress Creek would also be constructed at CPC B. On the northwest corner of the basin, a second overflow CPC (CPC C) would be constructed between two bends in the creek to convey inflow into the new basin.

Part of an existing 8-inch waterline that is within the basin footprint would be relocated to the maintenance berm along the southern boundary of the detention basin. The existing waterline is part of a looped water supply network that connects Red Oak Drive to Tigris Lane. Temporary service interruptions would occur for a short duration during construction.

Phase 2 would be constructed at the west end of the basin and would be located on a narrow swath of land composed of two Flood Control District-owned parcels. The west cell would consist of a new channel that would be created upstream of the wet-bottom basin and parallel to Cypress Creek and would be approximately 1,200 feet long. This dry bottom extension connects to the Phase 1 basin above the permanent water pool and would drain into the pool. A second overflow CPC (CPC C) would be constructed between two bends in the creek to convey inflow into the new basin. Phase 2 would provide approximately 37 acre-feet of storage for an approximate total overall storage of 201 acre-feet. A new permanent access road for maintenance would be constructed on the southern edge of the channel.

The detention basin would be constructed by excavating soil to achieve the proposed depth and side slope configuration. A temporary stockpile area for all soils would be in the northeast corner of the Area of Potential Effect (APE). The soil excavated for the basin would be used to construct the berm around the outer perimeter of the basin and basin side slope topsoil. The basin footprint of Phase I would be approximately 29 acres and would have a storage capacity of approximately 164 acre-feet. The Proposed Action would provide approximately a 0.31-foot reduction during the 5-year event and a 0.39-foot flood reduction during the 10-year storm event.

The basin would be broadcast seeded with approved vegetative species suitable for establishing vegetation based on the planting season. Some existing trees and vegetation would be preserved within an 80-foot-wide buffer zone between the berm and Cypress Creek. The berm surrounding the basin would be 30 feet wide and would be used for maintenance access. The top of the berm would be at an elevation of approximately 93 feet. An approximate 60-by-60-foot road ROW segment at the east end of Tigris Lane would be transferred from Harris County to the Flood Control District because part of the basin would encroach onto the ROW.

Based on FEMA Flood Insurance Rate Map panels 48201C0265M, effective October 16, 2013, retrieved from the FEMA RiskMAP6 website (http://www.riskmap6.com) on September 12, 2023, the entire proposed project area falls within Zone AE with a base flood elevation of 98 feet above sea level (Figure 1). The portion of the project area adjacent to the creek is also within the Regulatory Floodway for Cypress Creek.

Wetlands are present within the project area (Figure 2). Based on a review of NWI mapping and a wetland delineation conducted by Terracon Consultants Inc. in 2023, approximately 0.97 acres of forested, broad-leaved deciduous, temporary flooded wetlands occur within the project area. The project area also contains approximately 0.09 acres of palustrine, unconsolidated bottom, permanently flooded, excavated human-made freshwater ponds (Terracon 2023a). Other

wetlands present in the project area include 0.34 acres of ephemeral streams (Terracon 2023a). The wetlands, freshwater pond, and ephemeral streams were determined to be non-jurisdictional under the 33 CFR 328.3(b)(8) exclusion (as of March 18, 2025, the Flood Control District was awaiting final documentation from USACE). The project area is bounded on the north by Cypress Creek (3.1 acres).

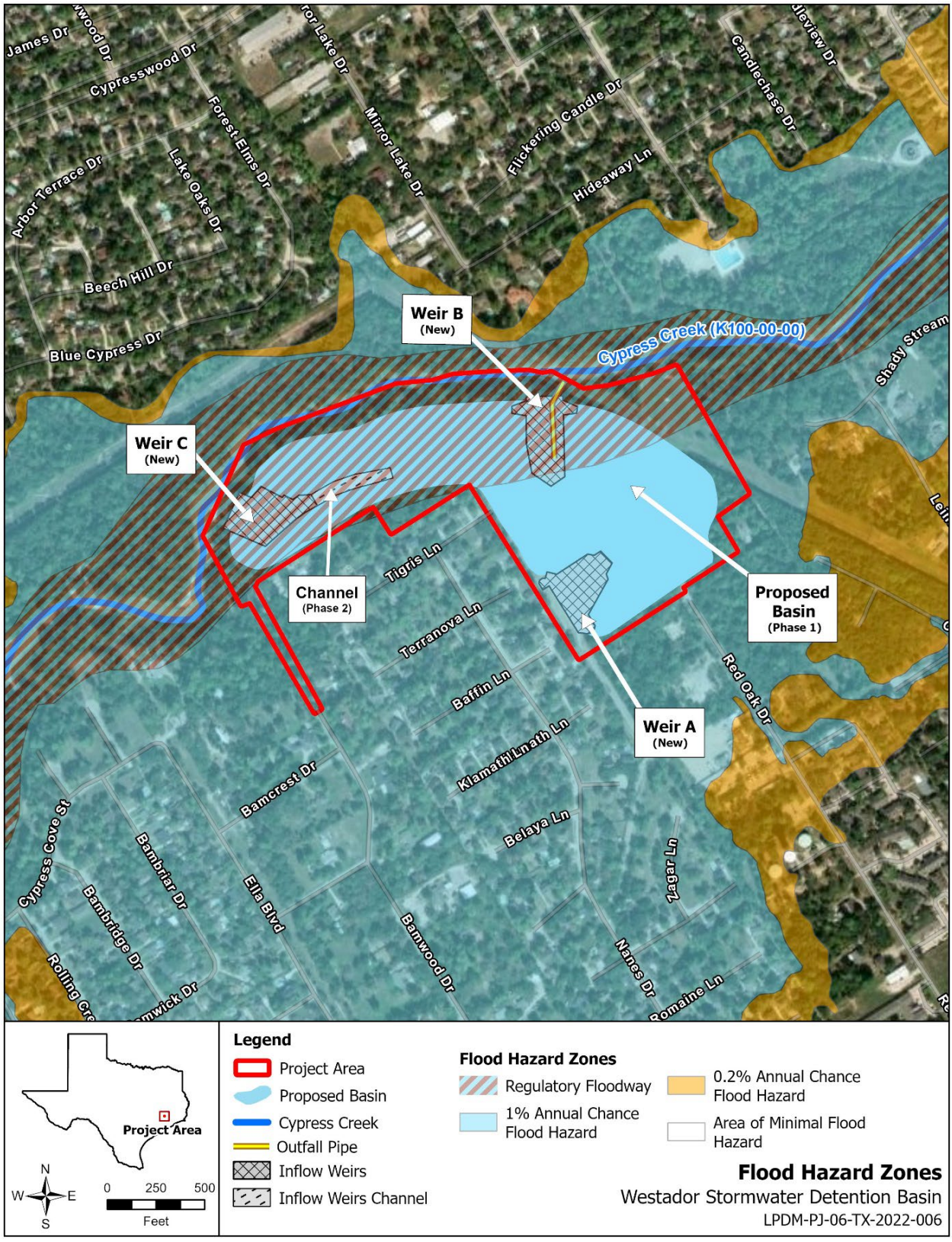


Figure 1: Project Area Floodplain

Figure 2: Wet-Bottom area in Proposed Basin

Step 2 **Early public notice (Preliminary Notice).**

The Proposed Action was presented at a public information session on September 22, 2020. A virtual community engagement meeting facilitated by the Harris County Flood Control District was conducted on February 3, 2022, specifically for the Proposed Action.

Step 3 **Identify and evaluate alternatives to locating in the base floodplain and wetland.**

Two alternatives were identified and evaluated under the Environmental Assessment (EA) for the Proposed Action; the No Action alternative and the Proposed Action.

Under the No Action alternative, there would be no FEMA funding for the construction of the stormwater detention basin adjacent to Cypress Creek in the Westador neighborhood between Bamwood Road and Red Oak Drive. Without the new stormwater detention, there would be no change to the flood elevations along Cypress Creek. Flooding within the surrounding residential neighborhood and commercial properties along Cypress Creek and its tributaries would continue, resulting in repetitive damage to property and infrastructure, and public health and safety would continue to be at risk. In addition, the intensity and frequency of storms are increasing, and severe rain events that result in flooding are also expected to increase in frequency and intensity, which would lead to more prolonged and damaging floods in the vicinity under the No Action alternative.

Under the Proposed Action, the Flood Control District would construct two stormwater detention basins adjacent to the main stem of Cypress Creek on parcels of land owned separately by MUD and the Flood Control District. The project would be composed of two cells, a wet-bottom basin (Phase 1) and a 1,200-foot channel (Phase 2), with both parts constructed together under the Proposed Action. A wet-bottom basin is designed to contain a permanent pool of water throughout the year that can support the growth of aquatic vegetation. The Proposed Action would require tree and vegetation removal and grading within the footprints of the basins. The construction of the proposed project would result in a 100-year level of service that would remove 1.5 miles of roadway, 80 structures, and 95.8 acres of land from the floodplain.

Alternatives Considered Outside the Floodplain – There are no practicable alternatives outside the floodplain. The purpose of the proposed project is to reduce damage from flooding in the Cypress Creek Watershed. This area is heavily developed, and it is not practicable to move existing streets, utilities, and private development outside of the floodplain.

Step 4 **Identify the impacts of proposed action associated with occupancy or modification of the floodplain and wetland.**

Per 44 CFR 9.10 FEMA must consider whether the proposed action will result in an increase in the useful life of any structure or facility in question, maintain the investment at risk and exposure of lives to the flood hazard, or forego an opportunity to restore the natural and beneficial values served by floodplains or wetlands. FEMA should specifically consider and evaluate impacts associated with the modification of floodplains; additional impacts that may occur when certain types of actions may support subsequent actions that have additional impacts of their own; adverse impacts of the proposed actions on lives and property and natural and beneficial floodplain values; and these three categories of factors: flood hazard-related factors, natural values-related factors, and factors relevant to a proposed action's effects on the survival and quality of wetlands.

Natural values-related factors include water resource values (natural moderation of floods, water quality maintenance, and groundwater recharge); living resource values (fish and wildlife and biological productivity); cultural resource values (archaeological and historic sites, and open space recreation and green belts); and agricultural, aquacultural and forestry resource values. Factors relevant to a proposed action's effects on the survival and quality of wetlands include public health, safety, and welfare, including water supply, quality, recharge, and discharge; pollution; flood and storm hazards; and sediment and erosion; maintenance of natural systems, including conservation and long term productivity of existing flora and fauna, species and habitat diversity and stability, hydrologic utility, fish, wildlife, timber, and food and fiber resources; and other uses of wetlands in the public interest, including recreational, scientific, and cultural uses.

Under the Proposed Action the new stormwater detention basin and channel would be constructed within the 100-year floodplain. The basins would improve floodplain function by capturing high flows from Cypress Creek through CPCs and the approximately 29 acres of the project footprint would have a stormwater storage capacity of approximately 164 acre-feet. During storm events, the water surface elevations within the area would decrease due to the increased capacity in the floodplain compared to existing conditions. As flows recede water stored in the basin above the static pool would slowly outfall back into the creek increasing the storage capacity in the basin for flood relief during future storms.

The functions of the floodplain are to provide flood storage and conveyance, filter nutrients and impurities from runoff, reduce flood velocities, reduce flood peaks, moderate the temperature of water, reduce sedimentation, promote infiltration and aquifer recharge, and reduce frequency and duration of low surface flows would remain intact after the implementation of the project. Construction activities associated with the Proposed Action would have the potential to impact water quality in the short term during construction, including site preparation and excavation. The most common pollutants in surface waters from construction sites are sediment and turbidity. Activities would be temporary and a stormwater pollution protection plan would include erosion and sediment control practices and BMPs such as silt fencing in accordance with the TCEQ Stormwater General Permit for Construction Activities. Construction access entrances would be stabilized with granular fill over a geotextile layer to reduce tracking of soils onto nearby roadways where they could wash off into surface waters.

By reducing peak flows and slowing runoff velocity, the Proposed Action would protect the project area and surrounding neighborhood from erosion and sedimentation during storm events. Reducing flooding would reduce the potential for pollutants to be carried into surface waters and downstream resulting in a minor beneficial effect on water quality. The wet-bottom detention basin would include stormwater treatment opportunities such as emergent vegetation, submerged vegetation, a permanent deep pool, adequate distance between the inflow and outflow structures to increase circulation time, varying side slopes, and floatable materials control devices as seen in. Therefore, the operation of the Proposed Action would result in a minor long-term benefit to water quality.

Wetlands are present within and adjacent to the project area. USFWS NWI wetlands are identified using high-altitude aerial imagery, which includes some margin of error. Based on a review of NWI mapping and a wetland delineation in 2023, approximately 0.97 acres of forested, broad-leaved deciduous, temporary flooded wetlands occur within the project area. The project area also contains approximately 0.09 acres of palustrine, unconsolidated bottom, permanently flooded,

excavated human-made freshwater ponds. Other wetlands present in the project area include 0.34 acres of ephemeral streams. Under the Proposed Action, approximately 1.4 acres of non-jurisdictional wetlands would be removed during grading and construction of the basin. Wetland forest vegetation would be cleared for the construction of the basin. Because the area of wetland habitat is small, there would be a short-term minor adverse effect on wetlands from the loss of the forested wetland area and functions.

Step 5 **Design or modify the proposed action to minimize threats to life and property and preserve its natural and beneficial floodplain and wetland values.**

Best management practices (BMPs), included in Section 7.3 of the EA, outline standard BMPs, mitigation measures, and conditions applicable to the Proposed Action. Implementation of Section 7.3 is a requirement of the EA's Finding of No Significant Impact (FONSI). As explained above, construction of the stormwater detention basins would improve floodplain function by capturing high flows from Cypress Creek, it will not increase flood hazard to other structures or encourage further development in the floodplain.

The Proposed Action would remove approximately 24 acres of existing vegetation during the grading and construction of the basin, and upland and wetland forests would be cleared for the construction of the basins. Although this does not represent a substantial amount of habitat loss, this habitat is in an urbanized, fractured environment, and the construction of the basin would exacerbate the habitat and vegetative fragmentation. The bottom of the detention basin would be planted with native plant species that include both emergent and submerged vegetation, following Flood Control District design standards. The vegetative environment affected by the construction of the temporary part of the access road would be restored to preconstruction activities. Additionally, upon completion of the project, approximately 6.2 acres of a variety of large and small trees and shrubs would be planted to offset the vegetation loss. Trees reestablished along the access road in previously disturbed areas would require years to reach maturity. Therefore, the Proposed Action would have a short-term moderate adverse impact on vegetation, with a cumulative loss of 18 forested acres of vegetation. There would be a long-term minor adverse impact on vegetation from the permanent loss of forest vegetation around the basin.

44 CFR 9.11.d(1) for Mitigation, which further defines Step 5 requirements, states that "there shall be no new construction or substantial improvement in a Floodway except for (i) a functionally dependent use; or (ii) a structure or facility which facilitates an open space use." FEMA has determined that the proposed detention basin constitutes new construction of a facility that facilitates open space use.

Step 6 **Re-evaluate the proposed action.**

The project will not expose any segment of the population to flood hazards and will instead afford the population additional protection from future flood hazards. The action will not facilitate development in the floodplains to any greater degree than in non-floodplain areas of the community. The project will not disrupt floodplain values because it will not change water levels in the floodplain, but it will remove 1.4 acres of non-jurisdictional wetlands during grading and construction of the basin. Alternatives consisting of locating the project outside the floodplain and wetland or taking "no action" are not practicable.

Step 7 **Final Notification**

In accordance with 44 CFR § 9.12, final floodplain public notice will be incorporated into the notice of availability for the Draft EA.

Step 8 **Implement the action**

The proposed Westador Stormwater Detention Bain will be constructed in accordance with applicable floodplain development requirements, and USACE permit conditions, and adhere to the grant conditions outlined in this decision document and the EA.

Appendix B

Agency Correspondence

Robol, Ryan (Flood Control)

From: noreply@thc.state.tx.us
Sent: Thursday, November 4, 2021 2:30 PM
To: Hogan, Michael N; reviews@thc.state.tx.us
Subject: Section 106 Submission

Re: Project Review under the Antiquities Code of Texas
THC Tracking #202201482
Date: 11/04/2021
Westador Stormwater Detention Basin
N/A
Houston,TX

Description: Desktop assessment for a proposed HCFCD detention basin.

Dear Michael Hogan:
Thank you for your submittal regarding the above-referenced project. This response represents the comments of the Executive Director of the Texas Historical Commission (THC), pursuant to review under the Antiquities Code of Texas.

The review staff, led by Bill Martin, Caitlin Brashear, has completed its review and has made the following determinations based on the information submitted for review:

Above-Ground Resources

- No further review of potential effects to above-ground historic resources is required under the Antiquities Code of Texas. However, should this project ultimately include any federal involvement, additional consultation with THC/SHPO under Section 106 of the National Historic Preservation Act will be required.

Archeology Comments

- THC/SHPO concurs with information provided.
- An archeological survey is required You may obtain lists of archeologists in Texas through the Council of Texas Archeologists and the Register of Professional Archaeologists. Please note that other qualified archeologists not included on these lists may be used. If this work will occur on land owned or controlled by a state agency or political subdivision of the state, a Texas Antiquities Permit must be obtained from this office prior to initiation of fieldwork All fieldwork should meet the Archeological Survey Standards for Texas. A report of investigations is required and should meet the Council of Texas Archeologists Guidelines for Cultural Resources Management Reports and the Texas Administrative Code. In addition, any state-owned buildings 50 years old or older that are located on the tract should be documented with photographs and included in the report. Shapefiles of the area surveyed must be emailed to archeological_projects@thc.texas.gov concurrently with submission of the draft report to facilitate review and make project information available through the Texas Archeological Sites Atlas.

We look forward to further consultation with your office and hope to maintain a partnership that will foster effective historic preservation. Thank you for your cooperation in this review process, and for your efforts to preserve the irreplaceable heritage of Texas. If the project changes, or if new historic properties are found, please contact the review staff. If you have any questions concerning our review or if we can be of further assistance, please email the following reviewers: bill.martin@thc.texas.gov, caitlin.brashear@thc.texas.gov.

This response has been sent through the electronic THC review and compliance system (eTRAC). Submitting your project via eTRAC eliminates mailing delays and allows you to check the status of the review, receive an electronic response, and generate reports on your submissions. For more information, visit http://thc.texas.gov/etrac-system.

Sincerely,

for Mark Wolfe, State Historic Preservation Officer
Executive Director, Texas Historical Commission

Please do not respond to this email.

U.S. Department of Homeland Security
FEMA Region 6
800 N. Loop 288
Denton, TX 76209

FEMA

October 21, 2022

Mark Wolfe
State Historic Preservation Officer
Texas Historical Commission
P.O. Box 12276
Austin, TX 78711-2276

RE: Section 106 Review Consultation
Harris County Flood Control District (HCFCD) - Westador Stormwater Detention Basin
Harris County, Texas
FEMA Project Number: LPDM-PJ-06-TX-2022-006
THC Tracking Number: 202201482
(latitude 30.033971; longitude -95.457234)

Dear Mr. Wolfe:

The Federal Emergency Management Agency (FEMA) will be providing funds authorized under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, P.L. 93-288, as amended, to the Harris County Flood Control District (HCFCD) for the above-referenced project in the City of Houston, Harris County, Texas (Figures 1 and 2). FEMA is initiating Section 106 review for the project in accordance with the Texas Programmatic Agreement among FEMA, the Texas Historical Commission (SHPO), the Texas Division of Emergency Management (TDEM); and participating Tribes dated March 22, 2022 (2022 Texas PA).

It is proposed that federal funding through FEMA's Hazard Mitigation Technical Assistance Pre-Disaster Mitigation grant program will be provided to the HCFCD (Applicant) to construct a stormwater detention basin adjacent to the main stem of Cypress Creek in the Westador neighborhood of Harris County (Undertaking). The purpose of the project is to reduce flooding risks and damages during heavy rain events by safely storing excess stormwater and slowly releasing it back to the creek when the flooding has passed. Both residential and commercial properties along the Cypress Creek and its tributaries have been severely impacted by flooding in the last two decades.

FEMA has determined that the Area of Potential Affects (APE) for the proposed Undertaking is the footprint of the project limits of disturbance, which includes approximately 35.7 acres on the southern side of Cypress Creek, centered at latitude 30.033971; longitude -95.457234 (see Figures 1 and 2).

In September 2021, the HCFCD initiated cultural resources studies of the project APE in compliance with the Antiquities Code of Texas (Texas Natural Resources Code, Title 9, Chapter 191). Initially,

Terracon Consultants, Inc. conducted a Cultural Resource Desktop Assessment for the project using the Texas Historical Commission (THC) Archaeological Sites Atlas database and associated site files, photographs, and maps and all relevant background information resources to identify historic properties within the APE (Terracon Consultants, Inc. 2021). The technical report concluded that approximately half of the project area was previously investigated and no known archeological sites are present within the APE. Review of the Archaeological Sites Atlas database indicated that there are no National Register of Historic Places (NRHP)-eligible or listed properties, State Antiquities Landmarks (SALs), cemeteries, or Registered Texas Historic Landmarks within the APE. Terracon recommended that a portion of the project area should be subject to a mechanically assisted archeological survey suited for targeting deeply buried sediments due to significant soil disturbances resulting from the proposed excavation of the detention basin. The THC reviewed the Cultural Resource Desktop Assessment technical report and issued electronic review comments on November 4, 2021. The THC concurred with the report recommendations regarding archaeology, and indicated that no further review of potential effects to above-ground historic resources is required under the Antiquities Code of Texas. However, should this project include any federal involvement, additional consultation with THC/SHPO under Section 106 of the National Historic Preservation Act would be required.

In January 2022, Terracon Consultants, Inc. completed the additional intensive archaeological survey and excavated a total of 16 trenches within the APE (Terracon Consultants, Inc. 2022). The survey resulted in the identification of an historic archeological site (41HR1264), a prehistoric site (41HR1265), and two isolated finds (IF01 and IF02). Historic site 41HR1264 includes two nearly identical brick chimneys, and brick-and-lumber pies that were structural elements of a former home along Cypress Creek dating to between the early 1970s and the early 1980s. Research concluded that the home was likely occupied by the family of Robert Christian “Bob” Eckhardt who was a member of the Texas State House of Representatives between 1958 and 1966 and then served in the U.S. House of Representatives between 1967 and 1981. The site was recommended ineligible for the NRHP due to lack of integrity. Prehistoric site 41HR1265 is a deeply buried deposit of five (5) lithic flakes recovered between 60 and 180 centimeters below surface (cmbs) in two adjacent backhoe trenches. No diagnostic artifacts or cultural features were identified in association with the flakes, limiting the potential for the site to inform important research questions in Texas prehistory (NRHP Criterion D). In addition, because the lithic flakes were found in soils that are subject to pedoturbation resulting from insects, roots, and other soil developing processes, the site was assessed as ineligible for the NRHP due to lack of stratigraphic integrity. The isolated finds (IF01 and IF02) included one or two flakes of chert, and do not qualify as archaeological sites due to the limited number of artifacts.

In a technical report it was concluded that neither of the newly identified archeological sites are eligible for inclusion on the NRHP or for designation as a SAL due to minimal research value (Terracon Consultants, Inc. 2022). No further work was recommended. On September 9, 2022, the THC issued electronic review comments for the report and concurred with the recommendations. Should any artifacts be identified during construction, THC requires that all work cease in the area of the inadvertent discovery, and the THC Archaeology Division be contacted to develop a plan.

Therefore, based on the combined survey efforts, the proposed project’s APE has been adequately documented within the defined limits. If the proposed project were to expand outside of the previously surveyed limits, FEMA would submit a revised scope of work as a continuing consultation.

Based on the completed cultural resource surveys and THC/SHPO concurrence, FEMA has determined that there are **No Historic Properties Affected** as a result of the undertaking.

Conditions to be included in FEMA's determination of No Historic Properties Affected include:

- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.

We respectfully request your review of this Undertaking within 15 days in accordance with Stipulation I.D.3 of the 2014 Texas PA. Your prompt review of this project is greatly appreciated. Should you need additional information please contact Dorothy Cook, Senior Environmental Protection Specialist, at dorothy.cook@fema.dhs.gov or (940) 383-7250.

Sincerely,

KEVIN R JAYNES

Digitally signed by KEVIN R JAYNES
Date: 2022.10.21 09:05:49 -05'00'

Kevin Jaynes
Regional Environmental Officer
FEMA Region 6

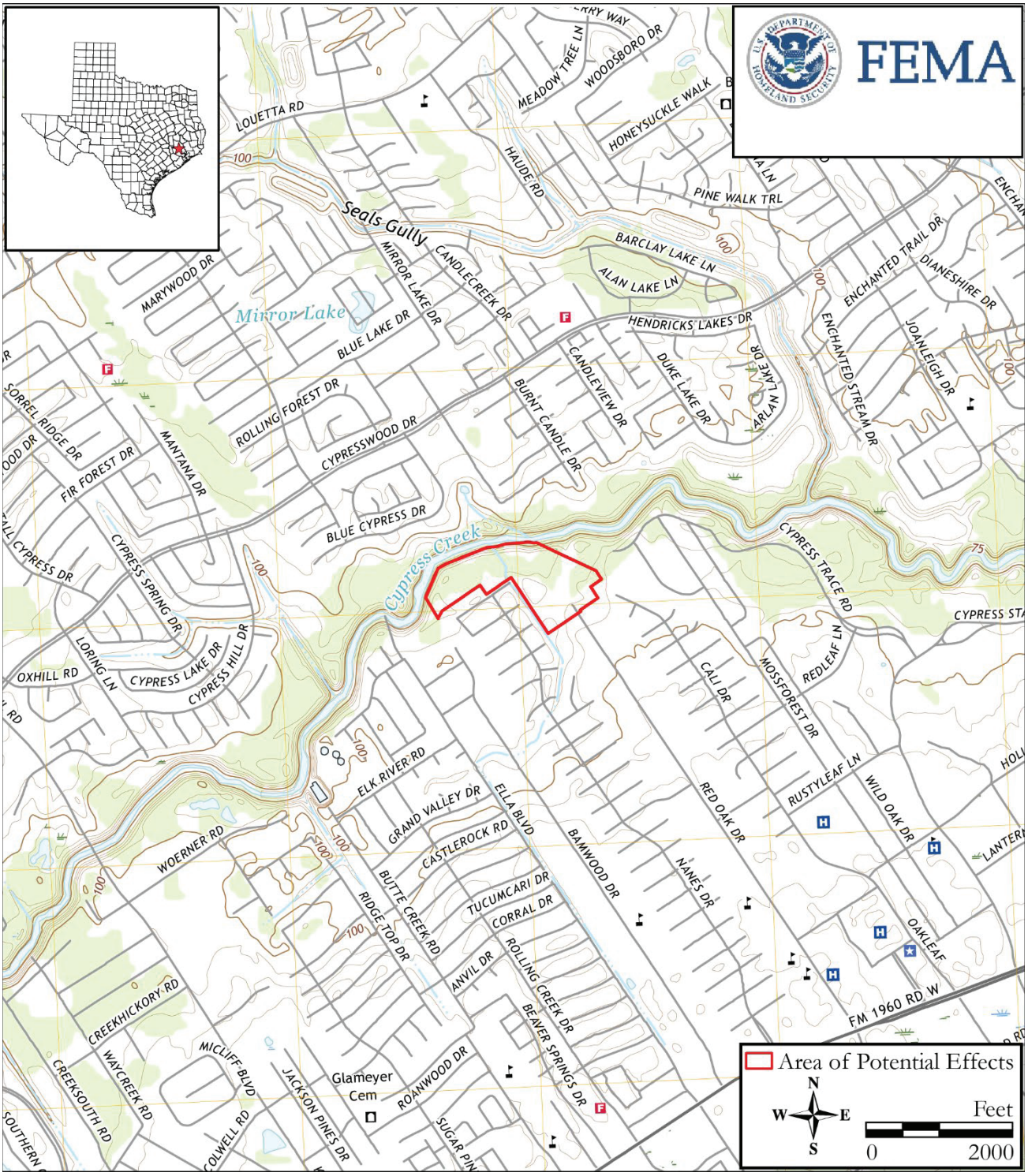


Figure 1. Excerpt from the Spring, Texas 7.5 Minute Series USGS topographic quadrangle map (2019) showing the location of the Westador Stormwater Detention Basin APE.

Figure 2. Aerial image showing the location of the Westador Stormwater Detention Basin APE.

Cook, Dorothy

Subject: RE: Texas Historic Commission Section 106 Concurrence: Westador Stormwater Detention Basin

From: noreply@thc.state.tx.us <noreply@thc.state.tx.us>
Sent: Tuesday, November 22, 2022 2:48 PM
To: Emily Dale <EDale@rgaincorporated.com>; reviews@thc.state.tx.us
Subject: Section 106 Submission

Re: Project Review under Section 106 of the National Historic Preservation Act
THC Tracking #202301680
Date: 11/22/2022
Westador Stormwater Detention Basin, FEMA HMTAP, Harris County Flood Control District
Westador Neighborhood adjacent to Cypress Creek
Houston,TX 77090

Description: Previously reviewed under THC Tracking No. 202201482 and 202213368

Dear Emily Dale:
Thank you for your submittal regarding the above-referenced project. This response represents the comments of the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission (THC), pursuant to review under Section 106 of the National Historic Preservation Act.

The review staff, led by Bill Martin, Emily McCuistion and Jonathan Moseley, has completed its review and has made the following determinations based on the information submitted for review:

Above-Ground Resources

- No historic properties are present or affected by the project as proposed. However, if historic properties are discovered or unanticipated effects on historic properties are found, work should cease in the immediate area; work can continue where no historic properties are present. Please contact the THC's History Programs Division at 512-463-5853 to consult on further actions that may be necessary to protect historic properties.

Archeology Comments

- No historic properties affected. However, if cultural materials are encountered during construction or disturbance activities, work should cease in the immediate area; work can continue where no cultural materials are present. Please contact the THC's Archeology Division at 512-463-6096 to consult on further actions that may be necessary to protect the cultural remains.
- THC/SHPO concurs with information provided.

We look forward to further consultation with your office and hope to maintain a partnership that will foster effective historic preservation. Thank you for your cooperation in this review process, and for your efforts to preserve the irreplaceable heritage of Texas. If the project changes, or if new historic properties are found, please contact the review staff. If you have any questions concerning our review or if we can be of further assistance, please email the following reviewers: bill.martin@thc.texas.gov, Emily.McCuistion@thc.texas.gov , Jonathan.Moseley@thc.texas.gov.

This response has been sent through the electronic THC review and compliance system (eTRAC). Submitting your project via eTRAC eliminates mailing delays and allows you to check the status of the review, receive an electronic response, and generate reports on your submissions. For more information, visit http://thc.texas.gov/etrac-system.

Sincerely,

for Mark Wolfe, State Historic Preservation Officer
Executive Director, Texas Historical Commission

Please do not respond to this email.

U.S. Department of Homeland Security
FEMA Region 6
800 N. Loop 288
Denton, TX 76209

FEMA

February 28, 2024

Edward Lengel, Ph.D.
State Historic Preservation Officer
Texas Historical Commission
P.O. Box 12276
Austin, TX 78711-2276

RE: Section 106 Review Consultation
LPDM-PJ-06-TX-2022-006, Harris County Flood Control District (HCFCD) - Westador Stormwater Detention Basin, Harris County, Texas
eTrac: 202201482, 202301680, 202213368
(Latitude: 30.033971; Longitude: -95.457234)

Dear Dr. Lengel:

The Federal Emergency Management Agency (FEMA) will be providing funds authorized under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, P.L. 93-288, as amended, to the Harris County Flood Control District (HCFCD) for the above-referenced project in the City of Houston, Harris County, Texas. FEMA is continuing Section 106 review for the project in accordance with the Texas Programmatic Agreement among FEMA, the Texas Historical Commission (SHPO), the Texas Division of Emergency Management (TDEM); and participating Tribes dated March 22, 2022 (2022 Texas PA).

It is proposed that federal funding through FEMA's Hazard Mitigation Technical Assistance Pre-Disaster Mitigation grant program will be provided to the HCFCD (Applicant) to construct a stormwater detention basin adjacent to the main stem of Cypress Creek in the Westador neighborhood of Harris County (Undertaking). The purpose of the project is to reduce flooding risks and damages during heavy rain events by safely storing excess stormwater and slowly releasing it back to the creek when the flooding has passed. Both residential and commercial properties along the Cypress Creek and its tributaries have been severely impacted by flooding in the last two decades.

Harris County Flood Control District initiated consultation on the subject project in the fall of 2021. On September 28, 2021, on behalf of HCFCD, Terracon Consultants, Inc submitted a Cultural Resources Desktop Assessment of the project area, which recommended a "mechanically assisted archaeological survey for targeting deeply buried sediment due to the significant soil disturbances at depth from the excavation of the detention basin." THC responded on November 4, 2021, requesting an archaeological survey of the project area, and noting that if Federal funding were included, additional consultation with THC under Section 106 of the National Historic Preservation Act would be required.

On August 9, 2022, Terracon Consultants, Inc. performed an archaeological survey (TAC Permit #30442), which identified a single historic archaeological site, a single prehistoric archaeological site, and two isolated finds; Terracon determined these sites do not meet the significance or integrity requirements to be eligible for listing in the National Register of Historic Places. Terracon recommended the project continue as planned with no further archaeological investigation. THC responded on September 9, 2022 (eTrac #202213368), concurring with the results of the intensive survey.

The purpose of this continuing consultation letter is to clarify and update the Area of Potential Effects to include the spoil and staging area to the northeast of the previous APE. The original draft Cultural Resources Survey (dated February 25, 2022) included the spoil area in the investigation; however, the final report eliminated the spoil area.

FEMA has determined that the Area of Potential Affects (APE) for the proposed Undertaking is the footprint of the project limits of disturbance, which includes approximately 35.7 acres on the southern side of Cypress Creek, centered at latitude 30.033971; longitude -95.457234 (see Figures 1 and 2).

Based on the completed cultural resource surveys and previous THC/SHPO concurrence, FEMA has determined that there are **No Historic Properties Affected** as a result of the undertaking.

Conditions to be included in FEMA's determination of No Historic Properties Affected include:

- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.

We respectfully request your review of this Undertaking within 30 days in accordance with Stipulation I.D.3 of the 2014 Texas PA. Your prompt review of this project is greatly appreciated. Should you need additional information please Angela A. McComb, Historic Preservation Specialist, at angela.mccomb@fema.dhs.gov or (202) 717-1443.

Sincerely,

LaToya Leger-Taylor
Regional Environmental Officer
FEMA Region 6

Figure 1: Planview map of the project's potential area of disturbance or Area of Potential Effects (APE). This APE erroneously eliminated the spoils area in the northeast portion of the project, along Cypress Creek. Image via Terracon, August 2022.

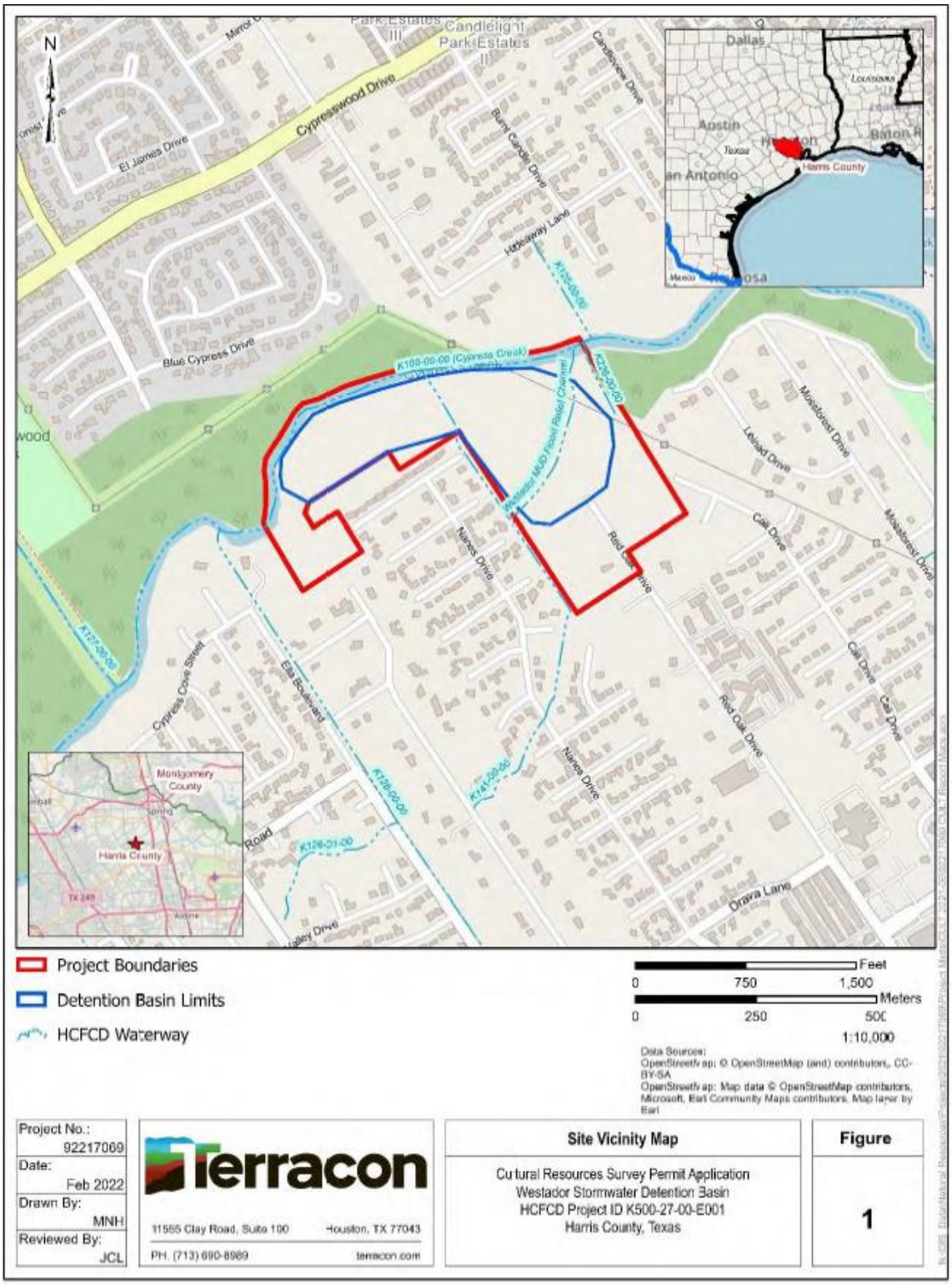


Figure 2: Planview map of the project's potential area of disturbance or APE. This APE correctly includes the area for spoil and storage at the northeastern portion of the project, along Cypress Creek. Image via Terracon February 2022.

From: noreply@thc.state.tx.us
To: FEMA-R6-EHP; reviews@thc.state.tx.us
Subject: Westador Stormwater Detention Basin
Date: Friday, March 15, 2024 11:50:16 AM

Re: Project Review under Section 106 of the National Historic Preservation Act and/or the Antiquities Code of Texas
THC Tracking #202406780
Date: 03/15/2024
Westador Stormwater Detention Basin
(Latitude: 30.033971; Longitude: -95.457234)
Houston,TX

Description: Continuing consultation to update/clarify APE of previously submitted reports. Associated eTrac Numbers: 202201482, 202301680, 202213368

Dear FEMA Region6 EHP:
Thank you for your submittal regarding the above-referenced project. This response represents the comments of the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission (THC), pursuant to review under Section 106 of the National Historic Preservation Act and the Antiquities Code of Texas.

The review staff, led by Justin Kockritz and Emily McCuistion , has completed its review and has made the following determinations based on the information submitted for review:

Above-Ground Resources

- No historic properties are present or affected by the project as proposed. However, if historic properties are discovered or unanticipated effects on historic properties are found, work should cease in the immediate area; work can continue where no historic properties are present. Please contact the THC's History Programs Division at 512-463-5853 to consult on further actions that may be necessary to protect historic properties.

Archeology Comments

- An archeological survey is required. You may obtain lists of archeologists in Texas through the Council of Texas Archeologists and the Register of Professional Archaeologists. Please note that other qualified archeologists not included on these lists may be used. If this work will occur on land owned or controlled by a state agency or political subdivision of the state, a Texas Antiquities Permit must be obtained from this office prior to initiation of fieldwork. All fieldwork should meet the Archeological

Survey Standards for Texas. A report of investigations is required and should be produced in conformance with the Secretary of the Interior's Guidelines for Archaeology and Historic Preservation and submitted to this office for review. Reports for a Texas Antiquities Permit should also meet the Council of Texas Archeologists Guidelines for Cultural Resources Management Reports and the Texas Administrative Code. In addition, any buildings 45 years old or older that are located on or adjacent to the tract should be documented with photographs and included in the report. To facilitate review and make project information available through the Texas Archeological Sites Atlas, we appreciate the submittal of survey area shapefiles via the Shapefile tab on eTRAC concurrently with submission of the draft report. Please note that while appreciated for Federal projects this is required for projects conducted under a Texas Antiquities Permit. For questions on how to submit these, please visit our video training series at: https://www.youtube.com/playlist?list=PLONbbv2pt4cog5t6mCqZVaEAx3d0MkgQC

We have the following comments: Archeological survey of the spoils areas is required due to the potential for precontact and historic period archeological resources in the area of potential effects.

We look forward to further consultation with your office and hope to maintain a partnership that will foster effective historic preservation. Thank you for your cooperation in this review process, and for your efforts to preserve the irreplaceable heritage of Texas. If the project changes, or if new historic properties are found, please contact the review staff. If you have any questions concerning our review or if we can be of further assistance, please email the following reviewers: justin.kockritz@thc.texas.gov, Emily.McCuistion@thc.texas.gov .

This response has been sent through the electronic THC review and compliance system (eTRAC). Submitting your project via eTRAC eliminates mailing delays and allows you to check the status of the review, receive an electronic response, and generate reports on your submissions. For more information, visit http://thc.texas.gov/etrac-system.

Sincerely,

for Edward G. Lengel, Ph.D
State Historic Preservation Officer

Please do not respond to this email.

U.S. Department of Homeland Security
FEMA Region 6
800 N. Loop 288
Denton, TX 76209

FEMA

September 9, 2024

Joseph Bell
State Historic Preservation Officer
Texas Historical Commission
P.O. Box 12276
Austin, TX 78711-2276

RE: Section 106 Review Consultation
Harris County Flood Control District (HCFCD) - Westador Topsoil Stockpile Area
City of Houston, Harris County, Texas
FEMA Project Number: LPDM-PJ-06-TX-2022-006
THC Tracking #202406780
Associated eTrac Numbers: 202201482, 202301680, 202213368
(latitude 30.033971; longitude -95.457234)

Dear Mr. Bell:

The Federal Emergency Management Agency (FEMA) will be providing funds authorized under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, P.L. 93-288, as amended, to the Harris County Flood Control District (HCFCD) for the above-referenced project in the City of Houston, Harris County, Texas (Figures 1 and 2). FEMA is initiating a Section 106 review for the project in accordance with the Texas Programmatic Agreement among FEMA, the Texas Historical Commission (SHPO), the Texas Division of Emergency Management (TDEM); and participating Tribes dated March 22, 2022 (2022 Texas PA)

It is proposed that federal funding, through FEMA's Hazard Mitigation Technical Assistance Pre-Disaster Mitigation grant program, will be provided to the HCFCD (Applicant) to construct a stormwater detention basin adjacent to the main stem of Cypress Creek in the Westador neighborhood of Harris County (Undertaking). The purpose of the project is to reduce flooding risks and damages during heavy rain events by safely storing excess stormwater and slowly releasing it back into the creek when the flooding has passed. Both residential and commercial properties along Cypress Creek and its tributaries have been severely impacted by flooding in the last two decades.

FEMA submitted a continuing consultation to THC on February 28, 2024, to update the stormwater basin APE to include the soil and staging area in the northeast corner of the previous APE (Figure 1 and Figure 2). The original draft Cultural Resources Survey (dated February 25, 2022) included the spoil area in the investigation but the final report eliminated the area proposed for staging and topsoil stockpiling. FEMA submitted its initial finding that the Proposed Action would have "No Effect" on

historic properties. On March 15, 2024, THC concurred with the No Effect finding for above-ground resources but requested an archaeological survey be conducted for the spoil bank area. The purpose of this continuing consultation is to provide THC with the findings of the intensive archaeological survey that was conducted for the expanded APE.

On August 28, 2024, Richard Grubb & Associates completed an Intensive Archaeological Survey Report for the Topsoil Stockpile Area by conducting 12 shovel test pits in the expanded area (Figure 3). Excavations revealed that the stratigraphy was consistent with that identified in Terracon's 2022 adjacent survey and is interpreted as recent layers of alluvial sediment. No cultural material (historic or pre-contact Native American) or features were identified. It was recommended that if the vertical limits of disturbance for this area were altered, an additional archaeological survey incorporating deep trenching be conducted.

Based on the completed intensive archeological survey and previous THC consultation and concurrence, FEMA has determined that there are **No Historic Properties Affected** as a result of the undertaking.

Conditions to be included in FEMA's determination of No Historic Properties Affected include:

- If ground-disturbing activities occur during construction, the applicant will monitor ground disturbance and if any potential archeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.

We respectfully request your review of this Undertaking within 30 days in accordance with Stipulation I.D.3 of the 2022 Texas PA. Your prompt review of this project is greatly appreciated. Should you need additional information please contact Dorothy Cook, Senior Environmental Protection Specialist, at dorothy.cook@fema.dhs.gov or (940) 383-7250.

Sincerely,

DWC for LaToya Leger-Taylor
Regional Environmental Officer
FEMA Region 6

Attachment:
LPDM-PJ-06-TX-2022-006_Westador Intensive Archaeological Survey

Figure 1. Excerpt from the Spring, Texas 7.5 Minute Series USGS topographic quadrangle map (2019) showing the location of the Westador Stormwater Detention Basin APE.

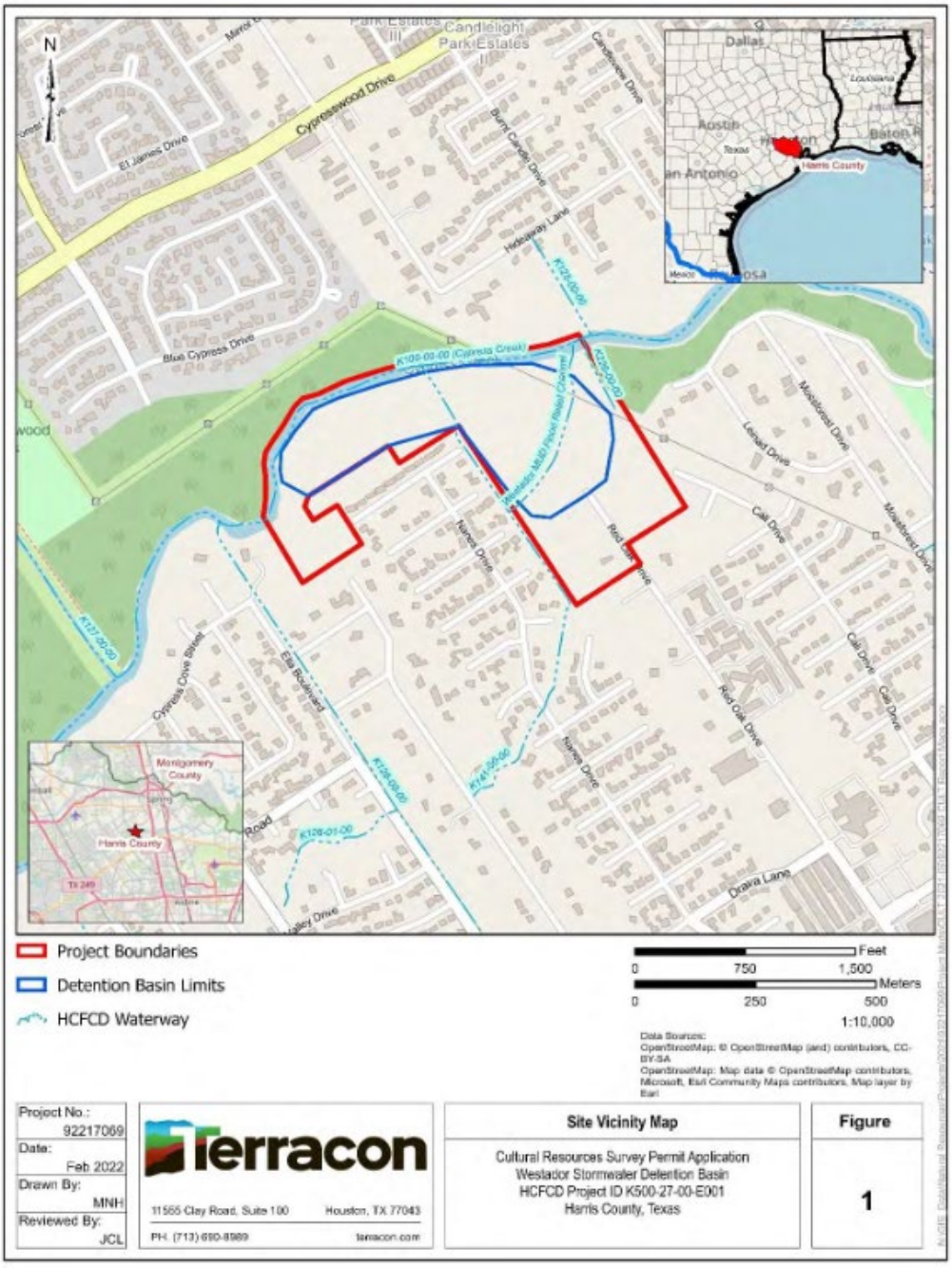


Figure 2. Excerpt from the Spring, Texas 7.5 Minute Series USGS topographic quadrangle map (2019) showing the expanded APE in the NE corner of the Westador Stormwater Detention Basin APE.

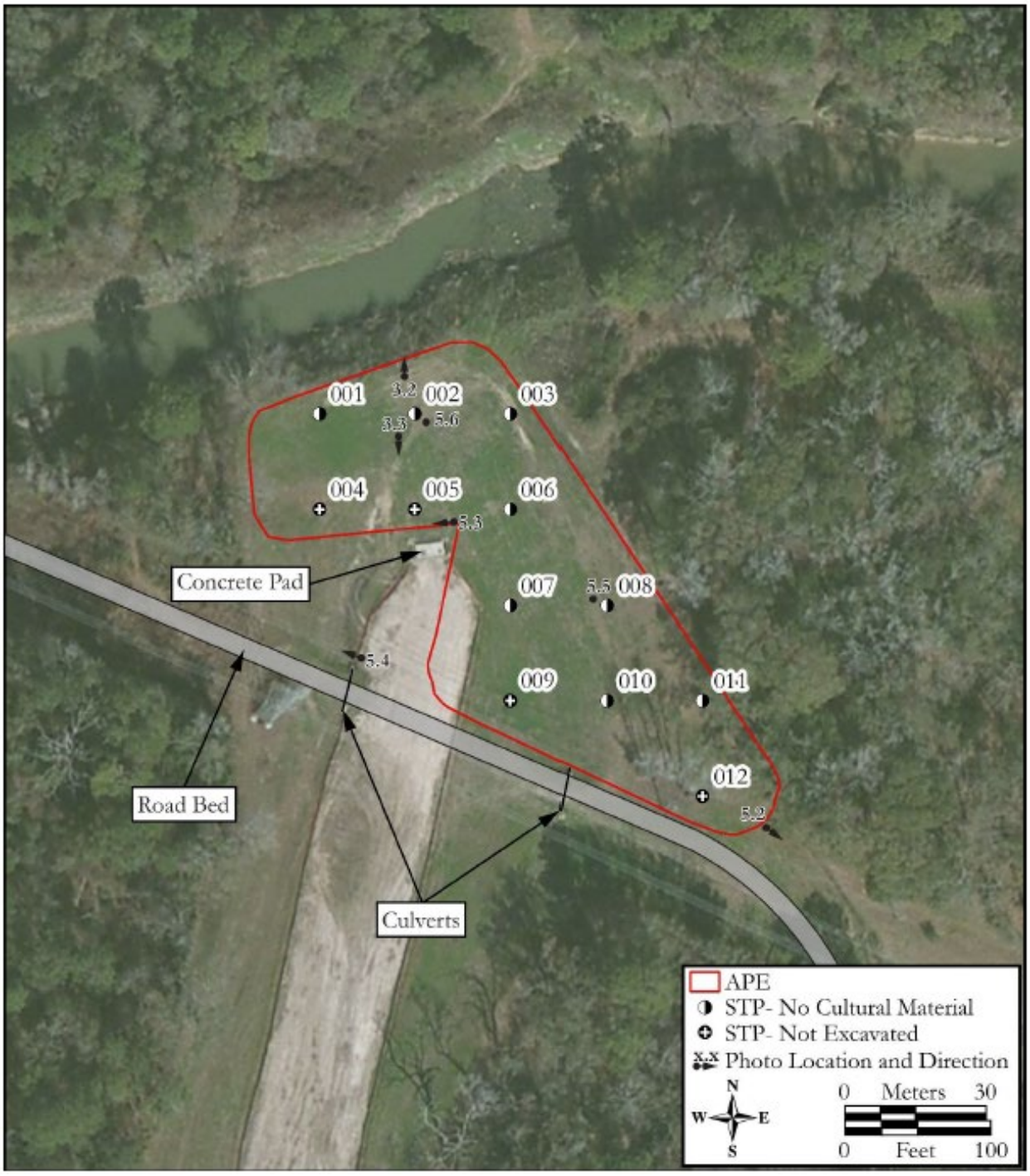


Figure 3. Aerial image of shovel test pits (Source: Esri 2024)

From: noreply@thc.state.tx.us
To: FEMA-R6-EHP; reviews@thc.state.tx.us
Subject: Westador Stormwater Detention Basin
Date: Tuesday, October 1, 2024 1:23:21 PM

Re: Project Review under Section 106 of the National Historic Preservation Act and/or the Antiquities Code of Texas
THC Tracking #202500230
Date: 10/01/2024
Westador Stormwater Detention Basin (Permit 31833)
(Latitude: 30.033971; Longitude: -95.457234)

Description: Continuing consultation on Westador Topsoil Stockpile Area, Cultural Resources Survey performed as requested

Dear FEMA Region6 EHP:
Thank you for your submittal regarding the above-referenced project. This response represents the comments of the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission (THC), pursuant to review under Section 106 of the National Historic Preservation Act and the Antiquities Code of Texas.

The review staff, led by Justin Kockritz and Emily Dylla, has completed its review and has made the following determinations based on the information submitted for review:

Above-Ground Resources

- THC/SHPO concurs with information provided.
- No historic properties are present or affected by the project as proposed. However, if historic properties are discovered or unanticipated effects on historic properties are found, work should cease in the immediate area; work can continue where no historic properties are present. Please contact the THC's History Programs Division at 512-463-5853 to consult on further actions that may be necessary to protect historic properties.

Archeology Comments

- No historic properties affected. However, if cultural materials are encountered during construction or disturbance activities, work should cease in the immediate area; work can continue where no cultural materials are present. Please contact the THC's Archeology Division at 512-463-6096 to consult on further actions that may be necessary to protect the cultural remains.
- THC/SHPO concurs with information provided.

We look forward to further consultation with your office and hope to maintain a partnership that will foster effective historic preservation. Thank you for your cooperation in this review process, and for your efforts to preserve the irreplaceable heritage of Texas. If the project changes, or if new historic properties are found, please contact the review staff. If you have any questions concerning our review or if we can be of further assistance, please email the following reviewers: justin.kockritz@thc.texas.gov, emily.dylla@thc.texas.gov.

This response has been sent through the electronic THC review and compliance system (eTRAC). Submitting your project via eTRAC eliminates mailing delays and allows you to check the status of the review, receive an electronic response, and generate reports on your submissions. For more information, visit http://thc.texas.gov/etrac-system.

Sincerely,

for Bradford Patterson
Chief Deputy State Historic Preservation Officer

Please do not respond to this email.

SENT VIA THC eTRAC - NO HARDCOPY TO FOLLOW

June 4, 2024

Ms. Emily Dylla, PhD
Program Coordinator, Archeology Review and Compliance
Archeology Division
Texas Historical Commission
P.O. Box 12276
Austin, Texas 78711-2276

RE: Westador Stormwater Detention Basin
HCFCD Project ID K500-27-00-E001
THC Tracking #202213368

Dear Ms. Dylla:

Your office had previously reviewed both an Archeological Background Study (September 28, 2021) and an Archeological Survey Report (August 9, 2022) prepared by our consultant, Terracon, for the development of the Westador Stormwater Detention Basin. The project is located south of Cypress Creek between Kuykendahl Road and Interstate Highway 45 in Harris County, Texas. Concurrence was issued by your office for the background study on November 4, 2021 (THC Tracking #202201482) and concurrence was issued by your office for the survey report with the consultant's recommendation of "No Further Survey Required" on September 9, 2022 (THC Tracking #202213368). Both concurrence emails and reports are attached for reference.

The project now requires the addition of site access (approximately 590-feet long by 60-feet wide [0.81 acres]) from the terminus of Bamwood Road to the western portion of the project site to facilitate construction. The proposed site access was not included in the study area for the archeological survey, although the majority of it was included in the study area for the background study. The attached exhibit depicts the boundary of the background study (red polygon), archeological survey (yellow polygon), and proposed site access (blue polygon).

Currently, the site access consists of an existing dirt trail road with adjacent roadside ditch and forested vegetation (see attached photos). Proposed work within the site access area would be limited to minimal shallow (less than 3-feet deep) grading with stabilization overlaid. We want to confirm that the results of both the prior background study and archeological survey are sufficient and that no additional work would be necessary within the site access area to maintain compliance with the Antiquities Code of Texas.

Please contact Ryan Robol of my staff at 346-286-4884 to coordinate any additional project review needs. **Please reference the HCFCD Project ID K500-27-00-E001 on any future correspondence.**

Sincerely,

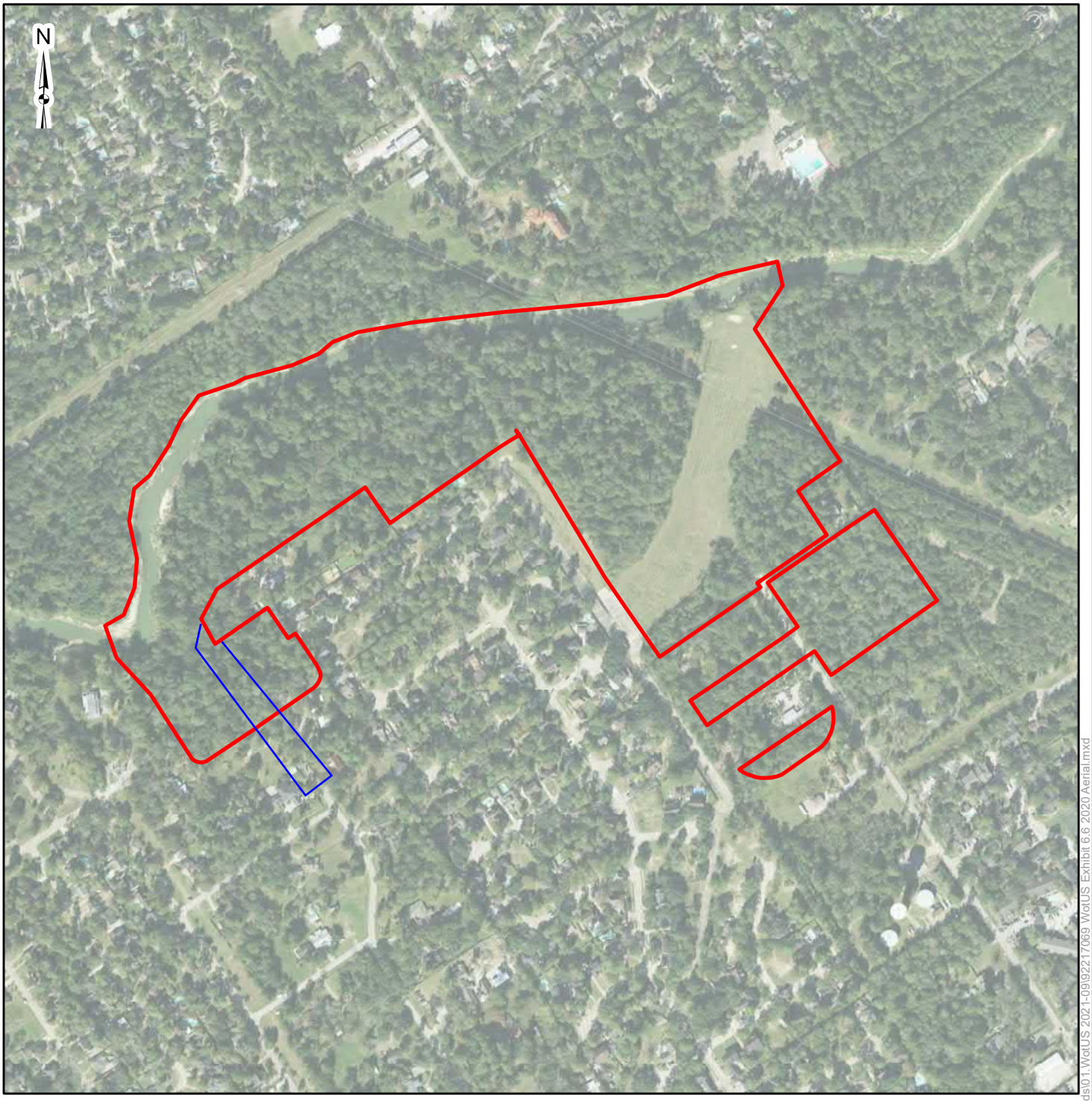
Jonathan Holley
Environmental Services Dept. Manager

JWH:RKR:rop

Attachments: 2022 Aerial Photograph with Site Access Limits and Prior Study Boundaries
2024 Site Access Ground Photographs
2021 Archeological Background Study w/ THC Concurrence
2022 Archeological Survey Report w/ THC Concurrence

cc: Osayuki Daniels, HCFCD
Project File

S:\Planningdiv\Environmental Services\Regulatory Compliance\USACE Permitting\2024 Correspondence\24-L6-4thc K500-27-00-E001 Access Additions.Docx



Project Limits, ±52 Acres

0 250 500 1,000 et

DATA SOURCES:
United States Department of Agriculture (USDA). Texas NAIP Imagery, 2020-04-01.

Project No.:	92217069
Date:	Sep 2021
Drawn By:	REW
Reviewed By:	KDS

Terracon
11555 Clay Road, Suite 100 Houston, TX 77043
PH. (713) 690-8989 terracon.com

2020 Aerial Photograph

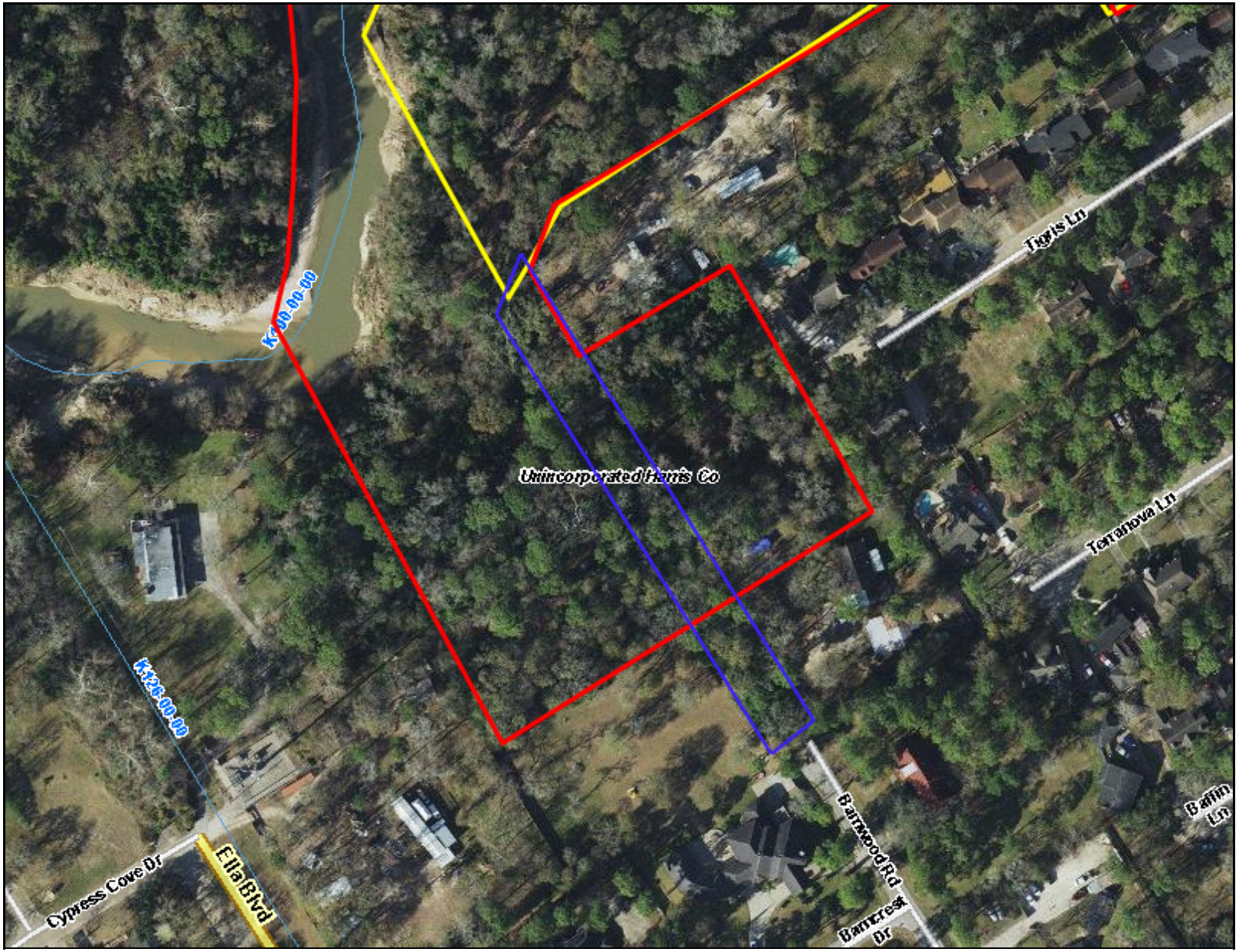
Waters of the U.S. Assessment
Westador Stormwater Detention Basin
HCFCD Project ID K500-27-00-E001
Houston, Harris County, Texas

Exhibit

6.6

N:\GIS_Data\Natural Resources\Projects\2021\92217069\Project Mxds\01.WotUS 2021-09\92217069 WotUS Exhibit 6.6 2020 Aerial.mxd

Westador Stormwater Detention Basin (K500-27-00-E001)



Legend

Site Access

Cultural Desktop Study Boundary

Pedestrian Survey Boundary

Web DST Layers

11_R.O.W. (grantee)

- HCFCD
- Other
- Other
- Other
- Other
- Other
- Other
- Other
- Other
- Other
- Other
- Other

0 50 100 ft

Ditch and unmaintained trail road within Site Access

Forested vegetation within Site Access

Forested vegetation within Site Access

From: noreply@thc.state.tx.us <noreply@thc.state.tx.us>
Sent: Wednesday, August 28, 2024 1:13 PM
To: Robol, Ryan (Flood Control) <Ryan.Robol@hcfcd.hctx.net>; reviews@thc.state.tx.us
Subject: Westador Stormwater Detention Basin (K500-27-00-E001)

Re: Project Review under Section 106 of the National Historic Preservation Act
THC Tracking #202412897
Date: 08/28/2024
Westador Stormwater Detention Basin (K500-27-00-E001) (Permit 30442)
Terminus of Red Oak Drive

Description: In recent email correspondence with Emily, she noted that some of the files that I had submitted with my original request did not get uploaded correctly. I am uploading a letter that she indicated was missing from the files that I had intended to submit.

Dear Ryan Robol:
Thank you for your submittal regarding the above-referenced project. This response represents the comments of the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission (THC), pursuant to review under Section 106 of the National Historic Preservation Act.

The review staff, led by Justin Kockritz, Emily Dylla and Emily McCuistion , has completed its review and has made the following determinations based on the information submitted for review:

Above-Ground Resources

- No historic properties are present or affected by the project as proposed. However, if historic properties are discovered or unanticipated effects on historic properties are found, work should cease in the immediate area; work can continue where no historic properties are present. Please contact the THC's History Programs Division at 512-463-5853 to consult on further actions that may be necessary to protect historic properties.

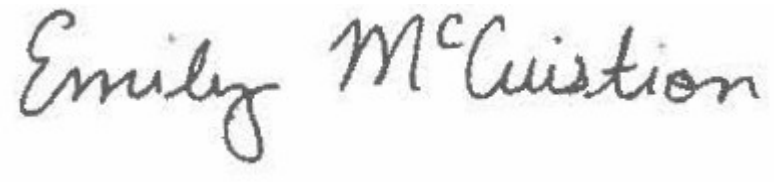
Archeology Comments

- No historic properties affected. However, if cultural materials are encountered during construction or disturbance activities, work should cease in the immediate area; work can continue where no cultural materials are present. Please contact the THC's Archeology Division at 512-463-6096 to consult on further actions that may be necessary to protect the cultural remains.

We look forward to further consultation with your office and hope to maintain a partnership that will foster effective historic preservation. Thank you for your cooperation in this review process, and for your efforts to preserve the irreplaceable heritage of Texas. If the project changes, or if new historic properties are found, please contact the review staff. If you have any questions concerning our review or if we can be of further assistance, please email the following reviewers: justin.kockritz@thc.texas.gov, emily.dylla@thc.texas.gov, Emily.McCuistion@thc.texas.gov .

This response has been sent through the electronic THC review and compliance system (eTRAC). Submitting your project via eTRAC eliminates mailing delays and allows you to check the status of the review, receive an electronic response, and generate reports on your submissions. For more information, visit http://thc.texas.gov/etrac-system.

Sincerely,



for Bradford Patterson
Chief Deputy State Historic Preservation Officer

Please do not respond to this email.

U.S. Department of Homeland Security
FEMA Region 6
800 N. Loop 288
Denton, TX 76209

FEMA

October 21, 2022

RE: Section 106 Review Consultation
Harris County Flood Control District (HCFCD) - Westador Stormwater Detention Basin
City of Houston, Harris County, Texas
FEMA Project Number: LPDM-PJ-06-TX-2022-006
THC Tracking Number: 202201482
(latitude 30.033971; longitude -95.457234)

To: Representatives of Federally recognized Tribes with Interest in this Project Area

The Federal Emergency Management Agency (FEMA) will be providing funds authorized under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, P.L. 93-288, as amended, to the Harris County Flood Control District (HCFCD) for the above-referenced project in Harris County, Texas. FEMA is initiating Section 106 review for the above referenced project based on your Tribe's ancestral interest in the project area.

It is proposed that federal funding through FEMA's Hazard Mitigation Technical Assistance Pre-Disaster Mitigation program will be provided to the HCFCD (Applicant) to construct a stormwater detention basin composed of two cells, on the main stem of Cypress Creek in the Westador neighborhood of Harris County (Undertaking). The purpose of the project is to reduce flooding risks and damages during heavy rain events by safely storing excess stormwater and slowly releasing it back to the creek when the flooding has passed. Both residential and commercial properties along the Cypress Creek and its tributaries have been severely impacted by flooding in the last two decades.

FEMA has determined that the Area of Potential Effect (APE) for the proposed Undertaking shall include the footprint of the project based on the scale and nature of the undertaking, as well as the area reasonably required to stage materials. The APE includes approximately 35.7 acres on the southern side of Cypress Creek, centered at latitude 30.033971; longitude -95.457234.

We are writing to request your comments on historic properties of cultural or religious significance to your Tribe that may be affected by the proposed Undertaking. Any comments you may have on FEMA's findings and recommendations should also be provided.

In September 2021, the HCFCD initiated cultural resources studies of the project APE in compliance with the Antiquities Code of Texas (Texas Natural Resources Code, Title 9, Chapter 191). Initially, Terracon Consultants, Inc. conducted a Cultural Resource Desktop Assessment for the project using the Texas Historical Commission (THC) Archaeological Sites Atlas database and associated site files, photographs, and maps and all relevant background information resources to identify historic properties within the APE (Terracon Consultants, Inc. 2021). The technical report concluded that approximately half of the project area was previously investigated, and no known archeological sites are present within the APE. Review of the Archaeological Sites Atlas database indicated that there are no National Register of Historic Places (NRHP)-eligible or listed properties, State Antiquities Landmarks (SALs),

cemeteries, or Registered Texas Historic Landmarks within the APE. Terracon recommended that a portion of the project area should be subject to a mechanically assisted archeological survey suited for targeting deeply buried sediments due to significant soil disturbances resulting from the proposed excavation of the detention basin. The THC reviewed the Cultural Resource Desktop Assessment technical report and issued electronic review comments on November 4, 2021. The THC concurred with the report recommendations regarding archaeology and indicated that no further review of potential effects to above-ground historic resources is required under the Antiquities Code of Texas. However, should this project include any federal involvement, additional consultation with THC/SHPO under Section 106 of the National Historic Preservation Act would be required.

In January 2022, Terracon Consultants, Inc. completed the additional intensive archaeological survey and excavated a total of 16 trenches within the APE (Terracon Consultants, Inc. 2022). The survey resulted in the identification of an historic archeological site (41HR1264), a prehistoric site (41HR1265), and two isolated finds (IF01 and IF02). Historic site 41HR1264 includes two nearly identical brick chimneys, and brick-and-lumber pies that were structural elements of a former home along Cypress Creek dating to between the early 1970s and the early 1980s. Research concluded that the home was likely occupied by the family of Robert Christian "Bob" Eckhardt who was a member of the Texas State House of Representatives between 1958 and 1966 and then served in the U.S. House of Representatives between 1967 and 1981. The site was recommended ineligible for the NRHP due to lack of integrity. Prehistoric site 41HR1265 is a deeply buried deposit of five (5) lithic flakes recovered between 60 and 180 centimeters below surface (cmbs) in two adjacent backhoe trenches. No diagnostic artifacts or cultural features were identified in association with the flakes, limiting the potential for the site to inform important research questions in Texas prehistory (NRHP Criterion D). In addition, because the lithic flakes were found in soils that are subject to pedoturbation resulting from insects, roots, and other soil developing processes, the site was assessed as ineligible for the NRHP due to lack of stratigraphic integrity. The isolated finds (IF01 and IF02) included one or two flakes of chert, and do not qualify as archaeological sites due to the limited number of artifacts.

In the technical report it was concluded that neither of the newly identified archeological sites are eligible for inclusion on the NRHP or for designation as a SAL due to minimal research value (Terracon Consultants, Inc. 2022). No further work was recommended. On September 9, 2022, the THC issued electronic review comments for the report and concurred with the recommendations. Should any artifacts be identified during construction, THC requires that all work cease in the area of the inadvertent discovery, and the THC Archaeology Division be contacted to develop a plan.

Therefore, based on the combined survey efforts, the proposed project's APE has been adequately documented within the defined limits. If the proposed project were to expand outside of the previously surveyed limits, FEMA would submit a revised scope of work as a continuing consultation.

Based on the available information gathered to date through this review process, there are no archeological sites listed in or eligible for listing in the NRHP within the project APE, and it is unlikely that the Undertaking would impact any intact archeological deposits. FEMA has determined that there will be **No Historic Properties Affected** as a result of the Undertaking.

Conditions to be included in FEMA's determination of No Historic Properties Affected include:

- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.

Please provide your comments within 30 days of receipt of this letter. If you concur with FEMA's determination, please sign below. If you notify us that your review identifies cultural properties within the APE, or project work discloses the presence of archeological deposits, FEMA will contact your Tribe to continue consultation.

An aerial view (Figure 1), and a topographic map (Figure 2), showing the project location and APE are attached. Your prompt review of this project is greatly appreciated. Should you need additional information please contact Robert Scoggin, EHP Tribal Liaison at Robert.w.scoggin@fema.dhs.gov (202) 716-4139.

Sincerely,

Kevin Jaynes
Regional Environmental Officer
FEMA Region 6

_____ _____

Concurrence by: Date:

_____

Tribe

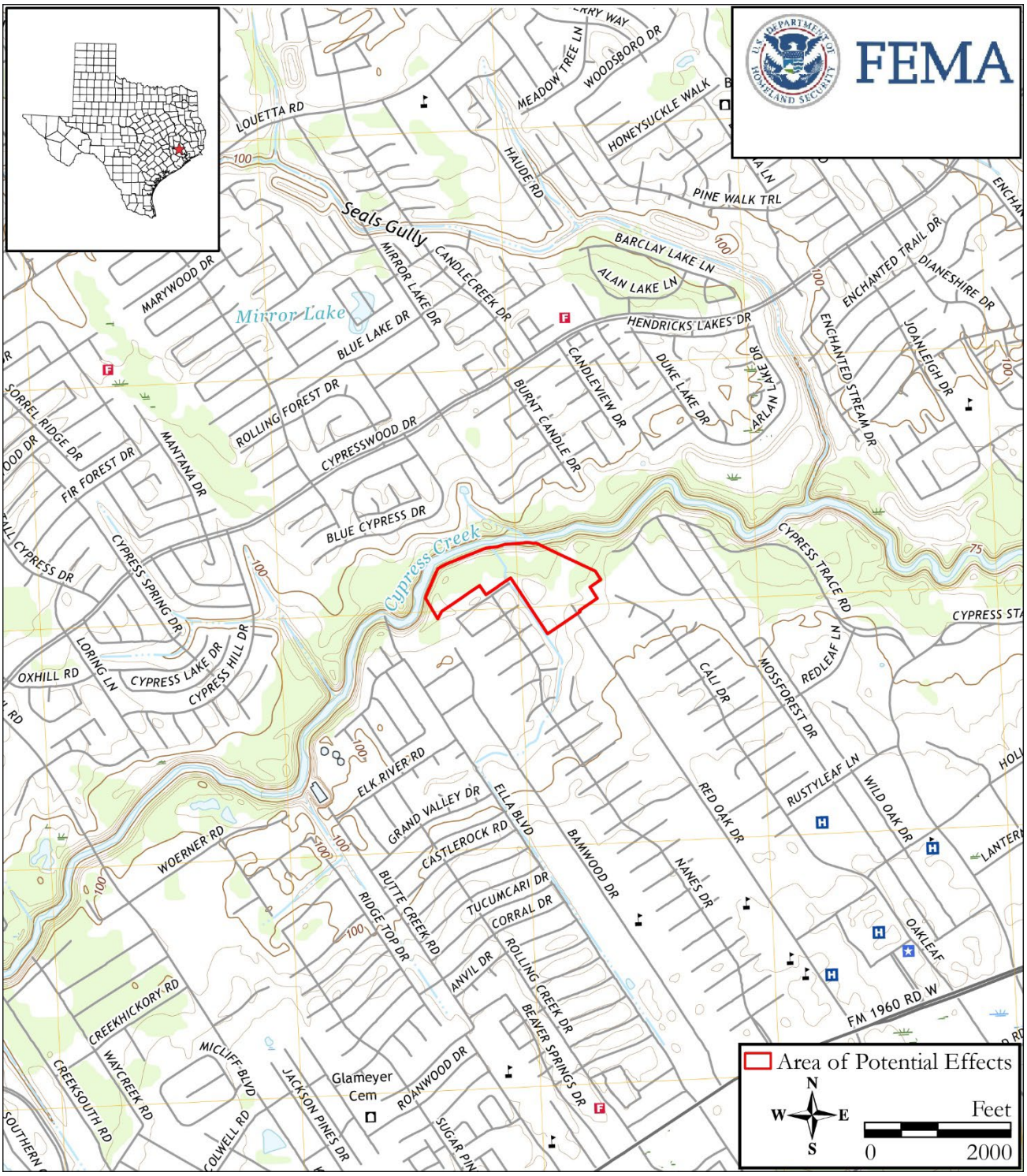


Figure 1. Excerpt from the Spring, Texas 7.5 Minute Series USGS topographic quadrangle map (2019) showing the location of the Westador Stormwater Detention Basin APE.

Figure 2. Aerial image showing the location of the Westador Stormwater Detention Basin APE.

COMANCHE NATION

U.S. Department of Homeland Security-FEMA Region 6
Attn: Mr. Robert W. Scoggin
800 N. Loop 288
Texas 76209

November 1, 2022

Re: Section 106 Review Consultation
Harris County Flood Control District (HCFCD)-Westador Stormwater Detention Basin
City of Houston, Harris County, TX.,FEMA Project Number :LPDM-PJ-06-TX.-2022-006
THC Tracking Number : 202201482

Dear Mr. Scoggin :

In response to your request, the above reference project has been reviewed by staff of this office to identify areas that may potentially contain prehistoric or historic archeological materials. The location of your project has been cross referenced with the Comanche Nation site files, where an indication of ***"No Properties"*** have been identified. (IAW 36 CFR 800.4(d)(1)).

Please contact this office at (580) 492-1153) if you require additional information on this project.

This review is performed in order to identify and preserve the Comanche Nation and State cultural heritage, in conjunction with the State Historic Preservation Office.

Regards

Comanche Nation Historic Preservation Office
Theodore E. Villicana , Technician
#6 SW "D" Avenue, Suite C
Lawton, OK. 73502

Consult Response delayed due to Covid-19 work conditions.

From:	Scoggin, Robert
To:	johnson.devlin@actribe.org; Comanche Nation THPO; Theodore Villicana; ahill@kiowatribe.org; Tonkawa Tribe THPO
Subject:	FEMA_Section 106_PJ-06-TX-2022-006_Westador Stormwater Detention_Final Archaeological Survey Report
Date:	Thursday, February 22, 2024 10:24:00 AM
Attachments:	2022-08-09 Cultural Resource Report-Final_Submitted to THC.pdf Draft Cultural Resources Survey K500-27-00-E001 Westador SWDB.pdf image002.png

Good Morning,

FEMA has received the final archaeological survey report for the Westador Stormwater Detention Basin project for the construction of detention ponds in Harris County. FEMA initiated consultation with the Alabama-Coushatta Tribe of Texas, Comanche Nation, Kiowa Tribe and Tonkawa Tribe of Indians of Oklahoma on October 21, 2022. During the original consultation FEMA did not include a proposed spoils area in the Area of Potential Effect (APE) sent to Tribes. A draft archaeological survey report was completed and submitted to FEMA following the consultation, which did include the proposed spoils area in the northwestern portion of the project area. That archaeological survey report has now been finalized and erroneously eliminates the spoils area from the map of the APE for the project. FEMA EHP has been informed that the proposed spoils area continues to be included in this project and would like to ensure that all consulting partners are made aware of the APE discrepancy.

The proposed spoils area is largely disturbed and was included in the original archeological survey, as noted in the draft archeological report. The inclusion of the proposed spoils area in the continuing consultation for this project does not change the archaeological analysis, as supported in the archeological report, or FEMA's determination that there are No Historic Properties Affected. The map of the APE as found in the draft report, which includes the proposed spoils area, represents the final APE for the project. Please let me know if you any questions.

Respectfully,

Robert W. Scoggin, MA
EHP Tribal Liaison|Environmental and Historic Preservation Branch | Mitigation Division |Region 6
Mobile: (202) 716-4139
robert.w.scoggin@fema.dhs.gov

Federal Emergency Management Agency
fema.gov

COMANCHE NATION

U.S. Department of Homeland Security
FEMA Region 6
Attn: Mr. Robert Scoggin
800 N. Loop 288
Texas 76209

October 2,2024

Re: FEMA-Section 106 PJ-06-TX-2022-006 Westador Stormwater,
Topsoil Stockpile Area Archaeological Survey Report

Dear Mr. Scoggin:

In response to your request, the above reference project has been reviewed by staff of this office to identify areas that may potentially contain prehistoric or historic archeological materials. The location of your project has been cross referenced with the Comanche Nation site files, where an indication of ***"No Properties"*** have been identified. (IAW 36 CFR 800.4(d)(1)).

Please contact this office at (580) 492-1153) if you require additional information on this project.

This review is performed in order to identify and preserve the Comanche Nation and State cultural heritage, in conjunction with the State Historic Preservation Office.

Regards

Comanche Nation Historic Preservation Office
Theodore E. Villicana , Technician
#6 SW "D" Avenue, Suite C
Lawton, OK. 73502

U.S. Department of Homeland Security
FEMA Region 6
800 N. Loop 288
Denton, TX 76209

FEMA

October 8, 2024

RE: Section 106 Review Consultation,
LPDM-PJ-06-TX-2022-006
Harris County Flood Control District (HCFCD) – New Access Road, Westador Stormwater Detention Basin Project
City of Houston, Harris County, Texas
(latitude 30.0319; longitude -95.4609) Terminus of Bamwood Road

To: Representatives of Federally recognized Tribes with Interest in this Project Area

The Federal Emergency Management Agency (FEMA) will be providing funds authorized under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, P.L. 93-288, as amended, to the Harris County Flood Control District (HCFCD) for the above-referenced project in Harris County, Texas. FEMA is continuing Section 106 review for the above-referenced project based on your Tribe's ancestral interest in the project area. FEMA originally notified your Tribe regarding the proposed project on October 21, 2022, but the project has since expanded, therefore we are asking for your review and reconsideration of the expanded project.

It is proposed that federal funding through FEMA's Pre-Disaster Mitigation (PDM) grant program be provided to the HCFCD (Applicant) to construct a stormwater detention basin composed of two cells, on the main stem of Cypress Creek in the Westador neighborhood of Harris County (Undertaking).

The proposed Undertaking has been subsequently expanded as the project now requires the addition of site access (approximately 590 feet long by 60 feet wide [0.81 acres]) from the terminus of Bamwood Road to the western portion of the project site to facilitate construction. Currently, the site access consists of an existing dirt trail road with an adjacent roadside ditch and forested vegetation. The proposed work within the site access areas would be limited to minimal shallow (less than 3 feet deep) grading with stabilization overlaid.

FEMA has determined that the Area of Potential Affect (APE) for the proposed Undertaking is the footprint of the project limits of disturbance, which originally included approximately 35.7 acres on the southern side of Cypress Creek. FEMA has determined that the Undertaking's APE should be expanded to incorporate the limits of disturbance footprint for the new access road (see Figures 1 and 2).

We are writing to request your comments on historic properties of cultural or religious significance to your Tribe within the expanded APE identified above, that may be affected by the proposed Undertaking. Any comments you may have on FEMA's findings and recommendations should also be provided.

On June 4, 2024, HCFCD submitted a desktop cultural resources assessment for the expanded APE to the Texas Historical Commission (THC). This assessment referred back to a prior Cultural Resource Desktop Assessment completed in September 2021, by Terracon Consultants, Inc. on behalf of

HCFCD using the THC Archaeological Sites Atlas database and associated site files, photographs, and maps and all relevant background information resources to identify historic properties within the APE of the original Undertaking. The technical report concluded that approximately half of the project area was previously investigated and no known archeological sites are present within the APE. Review of the Archaeological Sites Atlas database indicated that there are no National Register of Historic Places (NRHP)-eligible or listed properties, State Antiquities Landmarks (SALs), cemeteries, or Registered Texas Historic Landmarks within the APE. Terracon recommended that a portion of the project area should be subject to a mechanically assisted archeological survey suited for targeting deeply buried sediments due to significant soil disturbances resulting from the proposed excavation of the detention basin. The currently proposed access road footprint falls outside of the area that was recommended for survey.

Based on the previously completed cultural resources surveys for the project area and the information above, FEMA has determined that **No Historic Properties** will be **Affected** in the expanded APE as a result of the Undertaking.

Please provide your comments within 30 days of receipt of this letter. If you notify us that your review identifies cultural properties within the APE, or project work discloses the presence of archeological deposits, FEMA will contact your Tribe to continue consultation.

Your prompt review of this project is greatly appreciated. Should you need additional information please contact Robert Scoggin, EHP Tribal Liaison at Robert.w.scoggin@fema.dhs.gov, or (202) 716-4139.

Sincerely,

LaToya Leger-Taylor
Regional Environmental Officer
FEMA Region 6

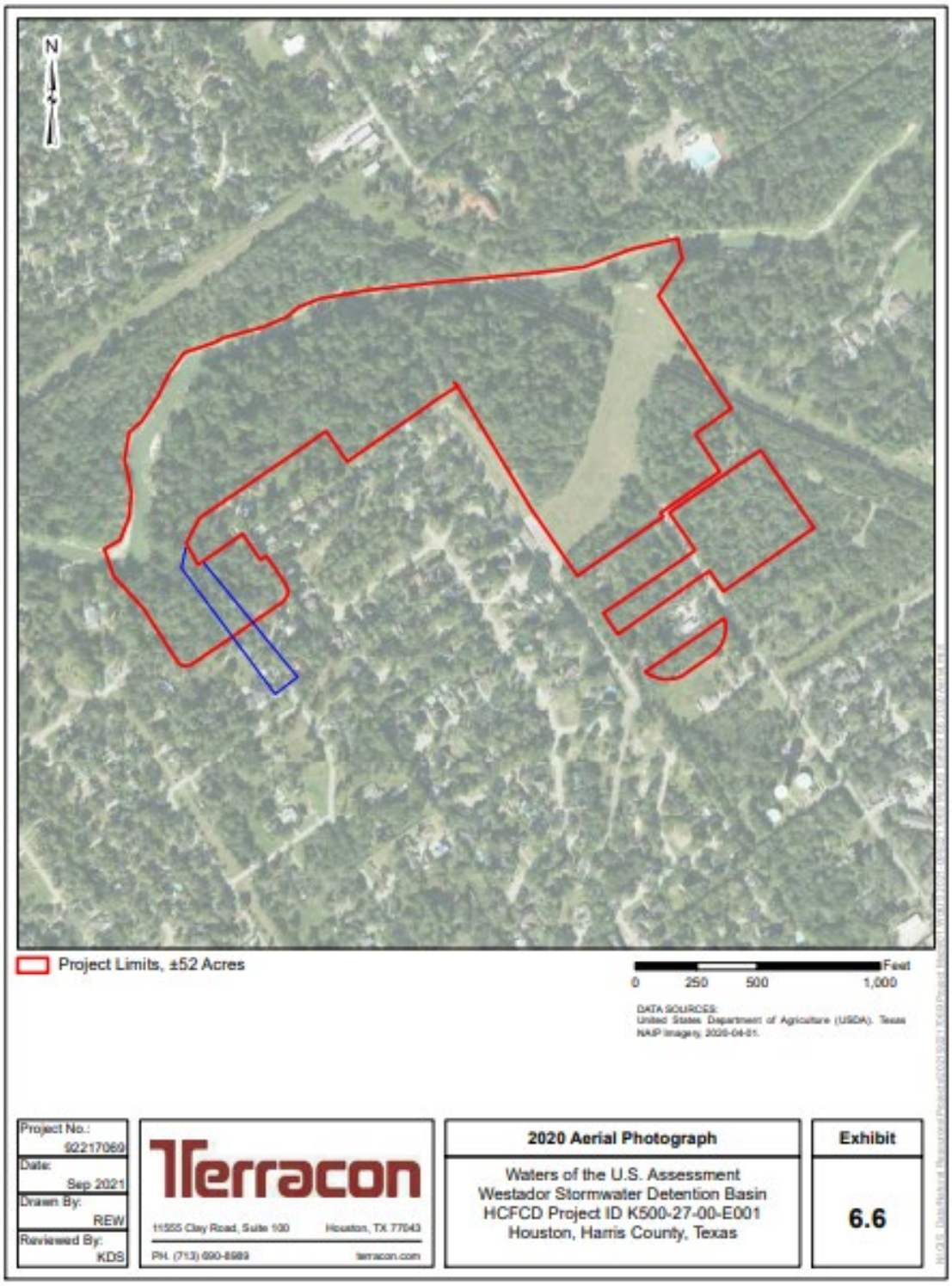


Figure 1. Aerial Photograph (2020) showing the expanded APE for the Westador Stormwater Detention Basin Access Road.

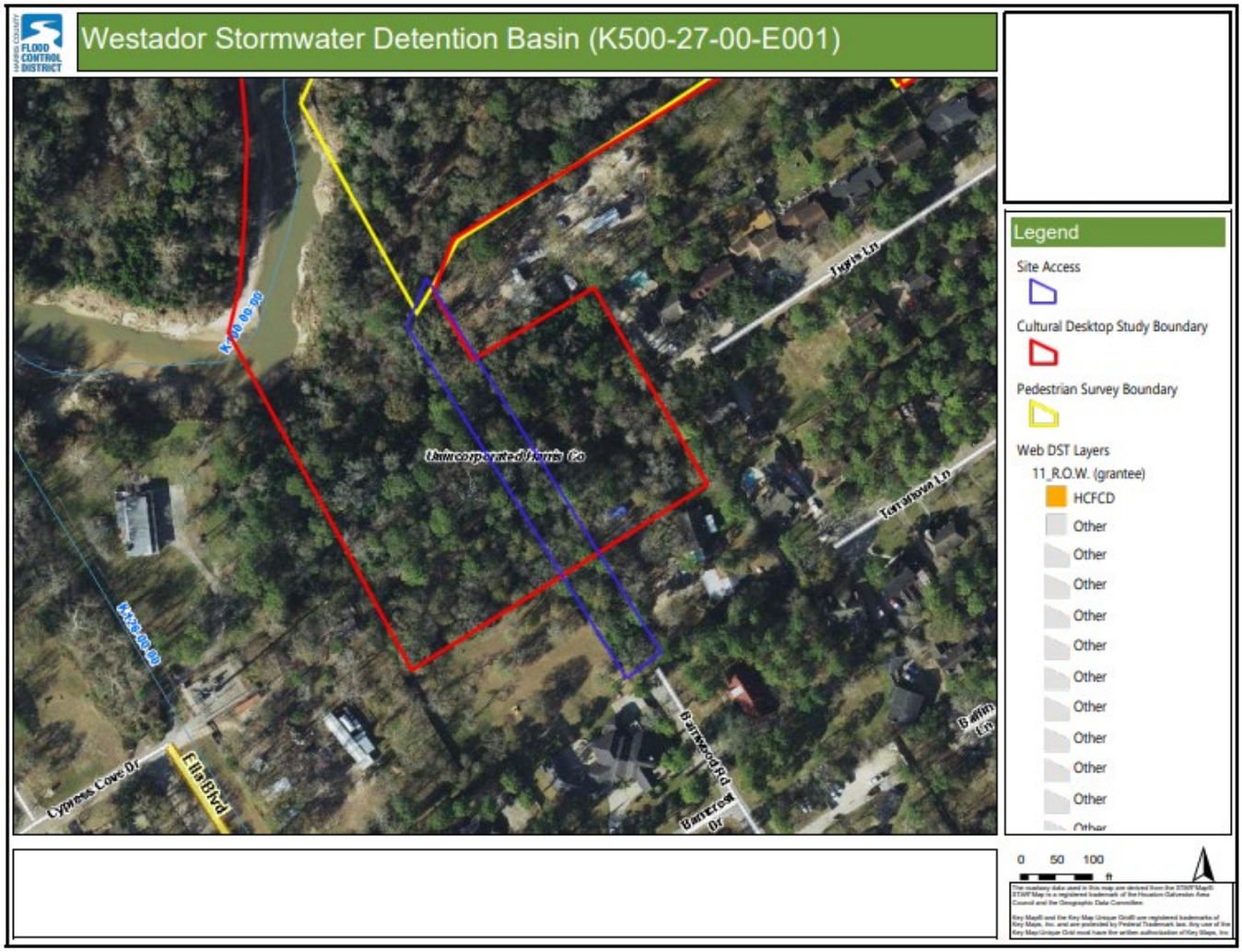


Figure 2. Aerial image showing the expanded APE of the Westador Stormwater Detention Basin Access Road.

.

COMANCHE NATION

U.S. Department of Homeland Security
FEMA Region 6
Attn: Mr. Robert Scoggin
800 N. Loop 288
Texas 76209

October 15,2024

Re: FEMA Section 106 Review Consultation,
LPDM-PJ-06-TX-2022-006
Harris County Flood Control District (HCFCD) – New Access Road,
Westador Stormwater Detention Basin Project, City of Houston, Harris County, Texas
(latitude 30.0319, longitude -95.4609) Terminus of Bam wood Road

Dear Mr. Scoggin:

In response to your request, the above reference project has been reviewed by staff of this office to identify areas that may potentially contain prehistoric or historic archeological materials. The location of your project has been cross referenced with the Comanche Nation site files, where an indication of ***"No Properties"*** have been identified. (IAW 36 CFR 800.4(d)(1)).

Please contact this office at (580) 492-1153) if you require additional information on this project.

This review is performed in order to identify and preserve the Comanche Nation and State cultural heritage, in conjunction with the State Historic Preservation Office.

Regards

Comanche Nation Historic Preservation Office
Theodore E. Villicana , Technician
#6 SW "D" Avenue, Suite C
Lawton, OK. 73502

Appendix C

Public Notice

Federal Emergency Management Agency
PUBLIC NOTICE

Notice of Availability of the Draft Environmental Assessment for the Harris County Flood Control District, Westador Stormwater Detention Basin Project, LPDM-PJ-06-TX-2022-006.

Interested persons are hereby notified that the Harris County Flood Control District (Flood Control District) has applied to the Federal Emergency Management Agency (FEMA), through the Texas Division of Emergency Management (TDEM) for Legislative Pre-Disaster Mitigation (LPDM) grant funding as authorized by Section 203 of the Stafford Act. LPDM is designed to assist states, territories, federally-recognized tribes, and local communities to implement a sustained pre-disaster natural hazard mitigation program to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on federal funding in future disasters. This notice also serves as FEMA's final notice under Executive Order 11988 for Floodplain Management and Executive Order 11990 for Protection of Wetlands as the proposed action affects floodplain and wetland resources.

FEMA proposes to provide funding to the Flood Control District to construct two cells, a wet-bottom basin (Phase 1) and a 1,200-foot channel (Phase 2), with both parts constructed together under the Proposed Action. The basin is adjacent to Cypress Creek in the Westador neighborhood between Bamwood Road and Red Oak Drive in Harris County, Texas. Under the Cypress Creek Watershed Implementation Program, the Flood Control District would construct of a series of stormwater detention basins and other drainage infrastructure along Cypress Creek and its tributaries, for flood relief in the vicinity, which includes residential and commercial properties.

(1) Under the No Action alternative, there would be no FEMA funding for the construction of the stormwater detention basin adjacent to Cypress Creek in the Westador neighborhood between Bamwood Road and Red Oak Drive. Without the new stormwater detention, there would be no change to the flood elevations along Cypress Creek. Flooding within the surrounding residential neighborhood and commercial properties along Cypress Creek and its tributaries would continue, resulting in repetitive damage to property and infrastructure, and public health and safety would continue to be at risk. In addition, the intensity and frequency of storms are increasing, and severe rain events that result in flooding are also expected to increase in frequency and intensity, which would lead to more prolonged and damaging floods in the vicinity under the No Action alternative.

(2) Under the Proposed Action, the Flood Control District would construct two stormwater detention basins adjacent to the main stem of Cypress Creek on parcels of land owned separately by Westador Municipal Utility District and the Flood Control District. The project would be composed of two cells, a wet-bottom basin (Phase 1) and a 1,200-foot channel (Phase 2), with both parts constructed together under the Proposed Action. A wet-bottom basin is designed to contain a permanent pool of water throughout the year that can support the growth of aquatic vegetation. The Proposed Action would require tree and vegetation removal and grading within the footprints of the basins. The construction of the proposed project would result in a 100-year level of service that would remove 1.5 miles of roadway, 80 structures, and 95.8 acres of land from the floodplain.

A draft Environmental Assessment (EA) has been prepared to assess the potential impacts of the proposed action and alternatives on the human and natural environment in accordance with the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR Parts 1500 – 1508), FEMA's Instruction 108-1-1 for implementing NEPA, the National Historic Preservation Act, Executive Order 11988, Executive Order 11990, and 44 CFR Part

9. The draft EA evaluates alternatives that provide for compliance with applicable environmental laws. The alternatives evaluated include 1) No Action; 2) Proposed Action as described above.

The draft EA is available for review and comment from March X to April X, 2025, at the Flood Control District Brookhollow Building, 9900 Northwest Freeway, Houston, TX 77092, from 8:00 A.M. to 5:00 P.M. Monday through Friday. An electronic or hard copy version of the draft EA can be requested from Dorothy Cook, FEMA Region 6, Email: dorothy.cook@fema.dhs.gov or viewed on Flood Control District's website at https://www.hcfcd.org/Activity/Active-Projects/Cypress-Creek/F-88-Westador-Stormwater-Detention-Basin-K500-27-00.

The comment period will end 30 days from the initial notice publication date. Written comments on the draft EA can be mailed or emailed to Dorothy Cook, Senior Environmental Protection Specialist, FEMA Region 6, 800 N Loop 288, Denton, TX 76209; Email: dorothy.cook@fema.dhs.gov. If no substantive comments are received, the draft EA will become final and a Finding of No Significant Impact (FONSI) will be issued for the project. Substantive comments will be addressed as appropriate in the final documents.

Appendix D

Draft Finding of No Significant Impact

U. S. Department of Homeland Security
FEMA Region 6
800 North Loop 288
Denton, TX 76209

FEMA

FINDING OF NO SIGNIFICANT IMPACT
HARRIS COUNTY FLOOD CONTROL DISTRICT
WESTADOR STORMWATER DETENTION BASIN PROJECT
K500-27-00-E001
HARRIS COUNTY, TEXAS
LPDM-PJ-06-TX-2022-006

BACKGROUND

In accordance with the Federal Emergency Management Agency's (FEMA) Instruction 108-1-1, an Environmental Assessment (EA) has been prepared pursuant to Section 102 of the National Environmental Policy Act (NEPA) of 1969, as implemented by the regulations promulgated by the President's Council on Environmental Quality (CEQ; 40 CFR Parts 1500-1508). The purpose of the Project is to reduce future flooding risk to the Westador neighborhood in during heavy rain events within the Cypress Creek watershed in Harris County, Texas. This EA informed FEMA's decision on whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

Harris County Flood Control District (Flood Control District) has applied through the Texas Division of Emergency Management (TDEM) for FEMA Legislative Pre-Disaster Mitigation (LPDM) funding under project LPDM-PJ-06-TX-2022-006, to reduce flooding within the surrounding residential neighborhood and commercial properties along Cypress Creek and its tributaries; reduce repetitive damage to property and infrastructure; and improve public health and safety within the Westador area in Harris County, Texas. Through LPDM, FEMA provides funds to eligible state, local, tribal and territorial entities to implement sustainable cost-effective measures designed to reduce the risk to individuals and property from future natural hazards, while also reducing reliance on federal funding from future disasters. The PDM Grant Program is authorized under Section 203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act 42 United States Code (U.S.C.) 5133, as amended by the Disaster Recovery Reform Act of 2018. These LPDM funds were made available through Congressionally directed spending in the 2022 Department of Homeland Security Appropriations Act (Pub. L. No. 117-103).

Two project alternatives were evaluated in this EA: 1) No Action Alternative; 2) Proposed Action Alternative.

Under the No Action Alternative, there would be no FEMA funding for the construction of a stormwater detention basin within the Westador neighborhood of Houston, Harris County, TX. With no change to the flood elevations along Cypress Creek, flooding within the surrounding residential subdivisions would not be reduced. Residential and commercial properties along

Cypress Creek and its tributaries would continue to flood, resulting in repetitive damage to property and infrastructure, and public health and safety would continue to be at risk. The probability of loss of life and property in the event of a flood would continue to be high, and essential access roads to and from the community would continue to be vulnerable. The No Action Alternative would not meet the purpose and need of the proposed project.

Under the Proposed Action Alternative, the Flood Control District would reduce flood levels along Cypress Creek in the Westador area by constructing a stormwater detention basin adjacent to the main stem of Cypress Creek on parcels of land owned separately by Westador Municipal Utility District (MUD) and the Flood Control District. The project would be composed of two cells, a wet-bottom basin (Phase 1) and a 1,200-foot channel (Phase 2), with both parts constructed together under the Proposed Action.

In Phase 1, an approximately 164-acre-feet wet-bottom storage basin would be constructed at the east end of the project area on two contiguous MUD parcels. The basin would contain Concrete Pilot Channels (CPCs) A and B and a 36-inch-diameter outfall to Cypress Creek. An existing concrete-lined stormwater channel identified as Cypress Creek tributary K141-00-00, would be redirected into the detention basin through CPC A to provide freshwater into the wet-bottom pond. An outfall from Cypress Creek tributary K141-00-00, consisting of a three-barrel 8-by-5-foot box culvert, would be constructed at CPC A and modified to a finished width of approximately 16 feet. The portion of the existing concrete channel north of CPC A would be removed, and the existing ditch would be filled during construction of the basin and berm. The east cell would consist of a 6:1 side slope above the static pool elevation (70 feet), and an 8:1 side slope below the pool elevation. The bottom of the basin would be constructed to an elevation of 62 feet.

A new CPC B would also be constructed on the north side of the basin near Cypress Creek, which would direct the inflow from Cypress Creek into the basin. A new 36-inch-diameter outfall pipe to Cypress Creek would also be constructed at CPC B. On the northwest corner of the basin, a second overflow CPC (CPC C) would be constructed between two bends in the creek to convey inflow into the new basin.

Part of an existing 8-inch waterline that is within the basin footprint would be relocated to the maintenance berm along the southern boundary of the detention basin. The existing waterline is part of a looped water supply network that connects Red Oak Drive to Tigris Lane. Temporary service interruptions would occur for a short duration during construction.

The detention basin would be constructed by excavating soil to achieve the proposed depth and side slope configuration. A temporary stockpile area for all soils would be in the northeast corner of the Area of Potential Effect (APE). The soil excavated for the basin would be used to construct a 30-ft wide maintenance berm around the outer perimeter of the basin and basin side slope topsoil. The basin footprint of Phase I would be approximately 29 acres and would have a storage capacity of approximately 164 acre-feet. A wet-bottom basin contains a permanent pool of water throughout the year and can support aquatic vegetation. The Proposed Action would provide approximately a 0.31-foot reduction during the 5-year event and a 0.39-foot flood

reduction during the 10-year storm event. The basin would be broadcast seeded with approved vegetative species suitable for establishing vegetation based on the planting season. Some existing trees and vegetation would be preserved within an 80-foot-wide buffer zone between the berm and Cypress Creek. The top of the berm would be at an elevation of approximately 93 feet. An approximate 60-by-60-foot road ROW segment at the east end of Tigris Lane would be transferred from Harris County to the Flood Control District because part of the basin would encroach onto the ROW.

Phase 2 would be constructed at the west end of the basin and would be located on a narrow swath of land composed of two Flood Control District-owned parcels. The west cell would consist of a new channel that would be created upstream of the wet-bottom basin and parallel to Cypress Creek and would be approximately 1,200 feet long. This dry bottom extension connects to the Phase 1 basin above the permanent water pool and would drain into the pool. A second overflow CPC C would be constructed between two bends in the creek to convey inflow into the new basin. Phase 2 would provide approximately 37 acre-feet of storage for an approximate total overall storage of 201 acre-feet. A new permanent access road for maintenance would be constructed on the southern edge of the channel.

The construction of the proposed project would result in a 100-year level of service that would remove 1.5 miles of roadway, 80 structures, and 95.8 acres of land from the floodplain.

A public notice was posted at the local library and on the Flood Control District's website. The draft EA was made available for public comment for 30 days on the Flood Control District's website, upon request in hard or electronic copy from FEMA, and in hard copy in publicly accessible locations identified in the public notice. No comments were received from the public during the comment period.

FINDING OF NO SIGNIFICANT IMPACT

The Proposed Action as described in the EA would not significantly impact cultural resources. During construction, short-term, minor/negligible impacts to soils, air quality, surface water quality, hazardous materials, transportation, and noise are anticipated. The project would result in short-term minor adverse effect on wetlands from the loss of forested wetland areas and functions. FEMA has determined the proposed action will not jeopardize the continued existence of the alligator snapping turtle and tri colored bat. No long-term significant adverse impacts are anticipated, however there would be minor, long-term adverse effects on vegetation, wildlife, and migratory birds. There would be a long-term negligible beneficial effect on aquatic habitats from the reduction in flooding and scour, from the creation of aquatic habitat for potential waterfowl and migratory birds, and from improved water quality to Cypress Creek through the treatment of stormwater runoff in the basin. All adverse impacts to the proposed project site and surrounding areas would be minimized and/or mitigated through required project conditions. The project would result in long term beneficial impacts to invasive species, floodplain function, utilities and public services, and public health and safety.

CONDITIONS

The following conditions must be met as part of this project. Failure to comply with these conditions may jeopardize the receipt of federal funding.

1. Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.

2. This review does not address all federal, state, and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize federal funding.

3. Areas of exposed soils will be kept wet or covered to reduce fugitive dust.

4. All construction equipment will meet current EPA emissions standards.

5. The Flood Control District must implement a Stormwater Pollution Prevention Plan (SWPPP) that includes erosion and sediment control practices and best management practices (BMPs) in accordance with the TCEQ Stormwater General Permit for Construction Activities.

6. The Flood Control District is responsible for coordinating with and obtaining any required Section 404 Permit(s) from the United States Army Corps of Engineers (USACE) and/or any Section 401/402 Permit(s) from the State prior to initiating work. The applicant must comply with all conditions of the required permit(s), including any mitigation for loss of jurisdictional wetlands. All coordination pertaining to these activities should be retained as part of the project file in accordance with the respective grant program instructions.

7. The Flood Control District is required to coordinate with the local floodplain administrator and obtain required permits prior to initiating work, including any necessary certifications that encroachments within the adopted regulatory floodway would not result in any increase in flood levels within the community during the occurrence of the base flood discharge. Applicant must comply with any conditions of the permit and all coordination pertaining to these activities should be retained as part of the project file in accordance with the respective grant program instructions.

8. If the alligator snapping turtle (AST) or tri colored bat (TBC) are listed under the Endangered Species Act as threatened or endangered during project implementation, the Flood Control District will coordinate with FEMA regarding potential revised requirements related to Section 7 of the Act.

9. Avoidance and Minimization Measure (AMM) 1 Erosion and Sediment Control Measures: Silt fencing made of woven non-monofilament geotextile fabric will be

installed along the perimeter of active construction areas to minimize erosion and sedimentation into the aquatic environment. Silt fence installation will be installed such that it is buried to a depth of 6 inches (0.15 meters) and has a height of 24 inches (0.61 meters). Silt fencing in flood-prone areas will be removed when a major storm event is anticipated but will be replaced after the storm passes. The biological monitor (AST AMM 1, BA Subsection 2.5.2) will inspect the silt fencing for trapped wildlife before construction begins each day. Hydro-mulching and hydro-seeding will be used for final site stabilization. The hydro-mulch used will not contain microplastics.

10. AMM 2 Bank Stabilization: After the riprap is installed to stabilize stream banks beneath the proposed detention basin outfalls, the riprap will be covered with the native soil material displaced during the installation activities.

11. AMM 3 Bird Nest Avoidance: A bird nest survey will be conducted within 5 days of any vegetation disturbance, regardless of the time of year. Any nests found will receive a species-specific buffer, be monitored biweekly, and be avoided until the nest is no longer occupied.

12. AMM 4 Rain Event Limitations: Construction activities will not occur when there is a rain event that releases more than 2 inches of precipitation over a 24-hour period, at which point construction may resume.

13. AMM 5 Environmental Awareness Training: Employees and contractors, with the exception of truck drivers, will be provided with environmental awareness training by a qualified biologist. This training will familiarize personnel with the species and their habitats that may occur on-site, measures to be implemented to protect this species and project boundaries. Because truck drivers change daily, it is impracticable to ensure all truck drivers are provided with this training. Therefore, the use of disposal material trucks within 80 feet (24.4 meters) of Cypress Creek will be prohibited. Signage will be posted on-site, and plans will identify where signs will be placed for truck exclusion areas.

14. AST AMM 1 Biological Monitor: A permitted biological monitor (e.g. authorized TPWD scientific collection permit for AST and Service Section 10 permit if the species is listed) will be on-site during all activities that may result in encounters with ASTs (e.g., during any clearing or construction work within 656 feet [200 meters] of Cypress Creek if work starts before installation of wildlife exclusion fencing and within 200 feet [61 meters] for work starting after installation of the exclusion fence [AST AMM 4]). The biological monitor will be responsible for surveys to look for adults, juveniles, hatchlings, and nests before initiating mechanical removal of woody and brush vegetation. They will also be responsible for inspecting exclusion fencing or any open trenches daily to ensure that the fence is not compromised or breached and that no turtles are entangled or trapped in fences or open trenches.

- The biological monitor will also be responsible for surveying any in-water work areas before construction. The biological monitor should first survey the submerged areas visually for AST surfacing for normal respiration (once every 20 to 60 minutes).
- The applicant will provide pre-construction education and training for construction crews by providing educational materials developed by the biological monitor on the identification of AST and avoidance requirements of this conference opinion or biological opinion (if listed) during construction activities.

15. AST AMM 2 Habitat Avoidance: Construction personnel will be directed to avoid impacts on logs, cutbanks, root balls, and similar in-water structural features typically used by AST for cover. If avoidance is not feasible, existing in-water structural features will be removed temporarily and relocated as near as possible to where the in-water structure originated during post construction activities. The on-site permitted biological monitor will advise construction personnel of structures to avoid impacts to the in-water structure and where to relocate any in-water structural features that cannot be avoided.

16. AST AMM 3 Seasonal Avoidance: Construction activities within 200 feet (61 meters) of the water's edge where exclusion fencing is installed will be avoided during the peak AST nesting and breeding season (i.e., April 1 through June 30).

17. AST AMM 4 Wildlife Entrapment Prevention: Wildlife exclusion fencing will be installed along the outer edge of the 80-foot-wide (24.4-meter-wide) forested buffer (the edge closest to the proposed construction within the AST nesting habitat), in the water directly adjacent to where shoreline protection is being installed, and around the perimeter of any open trenches to prevent AST from entering construction areas. Trench walls will be excavated at 30-degree angles to allow AST or other animals to escape if they enter the trench. Wildlife exclusion fencing will consist of 16-foot (4.9-meter) by 4-foot (1.2-meter) feedlot panels with 4-inch (0.1-meter) by 4-inch (0.1-meter) openings made of 4 to 14.5-gauge galvanized wire or similar materials that will not collapse and do not have the potential to entangle wildlife. Fence posts (4 feet [1.2 meters] tall) will be installed at 6-foot (0.15-meters) intervals to support and secure the fencing. The fencing will be buried 1 foot (0.3 meters) deep so that the aboveground portion is 3-feet (0.9 meters) high. This type of exclusion fence must be inspected daily to ensure that it is not compromised or breached. Any necessary exclusion fence repairs or replacements will be made immediately. The on-site permitted biological monitor will inspect exclusion fences and open trenches daily for trapped wildlife before construction can begin each day.

18. AST AMM 5 Encounters with the Species: Each encounter with an AST will be treated on a case-by-case basis. If an AST is found, the following will apply:

- If an AST is detected within 200 feet (61 meters) of work activities in the action area (terrestrial or aquatic environments) that may result in the harm, injury, or death of the animal, all work activities will cease immediately, and the on-site permitted

biological monitor will be notified immediately. The permitted biological monitor will then notify TPWD and USFWS before taking any action.

- Based on the professional judgment of the permitted biological monitor, if project activities can be conducted without harming or injuring the AST, the individual may be left at the location of discovery and monitored by the biological monitor until AST moves out of the action area. All project personnel will be notified of the finding and at no time will work occur within 200 feet (61 meters) of an AST without the biological monitor being present.
- Based on the professional judgment of the permitted biological monitor, if project activities cannot be conducted without harming or injuring the AST, all work will cease until the AST leaves the area (e.g., the turtle crawls back to the water and swims at least 200 feet [61 meters] away from construction activities). Under no circumstances should the AST or other wildlife be harmed or harassed (e.g., herded back into water) by construction crews or the permitted biological monitor.
- If an AST is observed or found within the construction area that will not leave on its own accord within 4 hours of detection, then the permitted biological monitor will notify TPWD's Kelly Norrid at (281) 908-3569 to provide guidance or assistance on the individual's capture and arrangements for release at a designated relocation site within the Cypress Creek watershed.
- ASTs that are captured during construction activities will be detained individually in a large plastic or similar container, with at least 3 inches (0.08 meters) of water and covered with branches or vegetation to calm it until relocation to a designated holding site or release site is arranged. If project work takes place in summer temperatures above 80°F (26.6°C) or winter temperatures below 60°F (15.6°C), the turtle will be kept in a shaded or protected area to avoid overheating or exposure to the elements. ASTs may not be handled or detained on-site without a permitted biological monitor present. ASTs may not be stored in vehicles or closed containers. If more than one AST is detained during construction, then AST relocations may need to occur at a frequency greater than once per day.

19. AST AMM 6 Site Restrictions: The following site restrictions will be implemented to avoid or minimize effects on the AST:

- Trash, food, food containers, and food waste will be secured at all times by individual workers or placed in animal-proof trash containers placed at the work site. The contents of trash containers will be transferred from the work site at the end of each day.

20. AST AMM 7 Habitat Restoration: The applicant will restore 12 acres of AST nesting habitat within the detention basin and restore all temporary roads and workspaces to the former AST nesting habitat.

21. For all ground-disturbing activities occurring near the identified archaeological site, the Flood Control District must retain a Secretary of Interior Standards-qualified archaeologist to perform archaeological monitoring during these activities. If potential archaeological features or artifacts are observed, the Flood Control District

would immediately cease construction in that area and notify TDEM and FEMA. FEMA would work with the THC Archaeology Division and federally recognized tribes with interests in the project area to develop a plan. An appropriate buffer radius would be placed around the identified area, and no construction activities may resume in the buffer area until FEMA, in consultation with the THC Archaeology Division and federally recognized tribes with interests in the project area, has provided written notification to resume construction. Archaeological monitoring is not required on the remainder of the APE; however, should any artifacts be identified during construction, the same process will apply. At the completion of the archaeological monitoring, an archaeological monitoring report detailing the results of the effort will be prepared and submitted to FEMA.

22. Any hazardous materials discovered, generated, or used during the implementation of the Proposed Action must be handled and disposed of in accordance with applicable local, state, and federal regulations.

23. Heavy machinery and equipment will be well maintained. Sound-control devices and mufflers will be used.

CONCLUSION

Based on the findings of the EA, coordination with the appropriate agencies, comments from the public, and adherence to the project conditions set forth in this FONSI, FEMA has determined that the proposed project qualifies as a major federal action that will not significantly affect the quality of the natural and human environment, nor does it have the potential for significant cumulative effects. As a result of this FONSI, an EIS will not be prepared (FEMA Instruction 108-1-1) and the proposed project as described in the attached EA may proceed.

APPROVAL AND ENDORSEMENT

La Toya Leger-Taylor
Regional Environmental Officer
FEMA Region 6

Marty Chester
Hazard Mitigation Assistance Non-Disaster Branch Chief
FEMA Region 6