US Army Corps of Engineers ®
Galveston District

Wallisville Lake Project
Chambers County, Texas

FINAL ENVIRONMENTAL ASSESSMENT

Operations and Maintenance
Trinity River Bank Protection

U.S. ARMY ENGINEER DISTRICT, GALVESTON
GALVESTON, TEXAS

SEPTEMBER 2010

FINDING OF NO SIGNIFICANT IMPACT

TRINITY RIVER BANK PROTECTION
WALLISVILLE LAKE PROJECT
CHAMBERS COUNTY, TEXAS

1. Purpose. This document addresses the Galveston District's (the District) proposed protection of an eroding section of the Trinity River in the Wallisville Lake Project, Chambers County Texas. A small section of the Trinity River bank, located approximately 0.75 miles south of Interstate Highway 10, has been damaged by high waters and high velocities associated with several recent tropical storms and hurricanes, beginning with Hurricane Rita in 2005. The purpose of the proposed project is to prevent the progression of river bank erosion and protect a road, adjacent wetlands and an archeological site from eventual damage by this erosion. The Final Environmental Assessment (EA) Operations and Maintenance Trinity River Bank Protection, incorporated by reference, was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and Council on Environmental Quality (CEQ) regulations to document finding concerning the environmental impacts of the proposed action.

2. Proposed Action. The proposed action consists of the construction of a sheetpile wall approximately 1,160 feet long to stabilize and protect the existing bankline. Approximately 1,000 cubic yards (cy) of fill material, placed between the sheetpile wall and the shoreline, will be sloped upward from the top of the sheetpile wall to meet the elevation of the bank adjacent to the road. The underwater toe of the sheetpile wall may need to be protected by approximately 4,700 tons of rock riprap, if determined necessary by the design/construction contractor. If riprap is needed, a horizontal platform will be prepared for the riprap placement by excavating approximately 5,300 cy of material from in front of the sheetpile wall to a depth of approximately 15 feet below mean low tide. If available, the excavated material will be used to fill behind the sheetpile wall and excess material will be trucked and placed in a dry, upland section of the West Non-Overflow Dam (WNOD) right-of-way that was previously excavated for fill material for prior projects. If the riprap protection and associated excavation is not necessary, fill material will be obtained by scavenging the surface of the WNOD with a bulldozer just west of the proposed placement location. The placement area would total approximately 0.5 acre, and if needed, the borrow area would total approximately 0.4 acre. The staging area for equipment, materials and private vehicle parking would be located in a previously disturbed 0.45-acre area adjacent to the construction site on the River Road.

3. Alternatives. The District considered six alternatives: the No Action alternative, one non-structural alternative, and four structural alternatives. The non-structural alternative consisted of the relocation of the road and the reestablishment of vegetation along the current river bank to retard erosion. The structural alternatives consisted of the installation of rock riprap, gabions, concrete maps or a sheetpile wall to prevent the progression of river bank erosion. The No Action and Sheetpile Wall Alternatives were carried forward and evaluated within the EA. The sheetpile wall was chosen as the Preferred Alternative because it would fulfill the purpose and need of the project, was the most cost effective of all the action alternatives, and was the most environmentally acceptable of all alternatives.

4. Coordination. The proposed project was coordinated with state and Federal resource agencies and the general public. A Draft EA was issued on July 21, 2010 and made available for public review for a period of 30 days. Correspondence between the District and resource agencies, along with comments on the Draft EA and the District's responses are included in the Final EA.

5. Environmental Effects. The District has taken every reasonable measure to evaluate the environmental, social, cultural, and economic impacts of the proposed project. Based on information provided in the EA and coordination with Federal, state, and local agencies, temporary and permanent effects of the proposed project are summarized in Section 9.0 of the Final EA. Aquatic habitat, water quality, fish and invertebrates in the immediate project area would be temporarily and/or negligibly affected during construction. These impacts were determined to be insignificant based on considerations of context and intensity as defined by 40 CFR 1508.27. Impacts would be limited to the immediate project area, and actual destruction of habitat would be limited to approximately 0.15 acres of river bank. No terrestrial habitats, historic properties, hazardous waste sites or recreational sites would be adversely affected. Emissions during construction would be below *de minimis* levels. No threatened or endangered species would be affected. No environmental justice concerns were identified as no minority or low-income population groups are located in the vicinity of the project area. Further, the District considered cumulative impacts and determined that the project would not have cumulatively significant impacts when added to other past, present, and reasonably fore seeable future actions. Since no significant impacts to natural, environmental, cultural, or social resources are expected to occur as a result of the construction of the Trinity River bank protection, no compensatory mitigation is necessary. Thus, it is the District' s conclusion that the proposed project will not have a significant impact on the environment or to the surrounding human population.

6. Determinations. The Trinity River Bank Protection, Wallisville Lake Project, was determined to be compliant with the following Federal legislation:

- National Environmental Policy Act
- Fish and Wildlife Coordination Act
- National Historic Preservation Act
- Endangered Species Act
- Clean Water Act
- Clean Air Act
- Protection of Wetlands, Executive Order (E.O.) 11990
- Environmental Justice, E.O. 12898
- Farmland Protection Policy Act and CEQ Memorandum on Prime or Unique Farmlands
- Magnuson-Stevens Fishery Conservation Management Act
- Coastal Zone Management Act
- Floodplain Management, E.O. 11988
- Galveston Bay National Estuary Program
- Memorandum of Agreement with the Federal Aviation Administration, the U.S. Air Force, the U.S. Army, the Environmental Protection Agency, the U.S. Fish and Wildlife Service, and the U.S. Department of Agriculture to Address Aircraft Wildlife Strikes

7. Findings. Based on my analysis of the Final EA and other information pertaining to the proposed project, I find that the Trinity River Bank Protection, Wallisville Lake Project, will not have a significant impact on the quality of the human environment. After consideration of the information presented in the Final EA, I have determined that an environmental impact statement is not required under the provisions of NEPA, Section 102, and other applicable regulations of the U.S. Army Corps of Engineers, and that the proposed project may be constructed.

03SEP10
Date

Edward P. Feigenbaum
Lt. Colonel, U.S. Army Corps of Engineers
Deputy District Engineer

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Trinity River Bank Protection

Wallisville Lake Project
Chambers County, Texas

SEPTEMBER 2010

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DRAFT ENVIRONMENTAL ASSESSMENT

TRINITY RIVER BANK PROTECTION PROJECT
CHAMBERS COUNTY, TEXAS

1.0 PROPOSED PLAN

1.1 *PROJECT SUMMARY*

The U. S. Army Corps of Engineers (USACE), Galveston District (the District) is proposing to protect an eroding section of the Trinity River in the Wallisville Lake Project, Chambers County Texas. A small section of the Trinity River bank has been damaged by high waters and high velocities associated with several recent tropical storms and hurricanes, beginning with Hurricane Rita in 2005. Authority for the project is provided by the Consolidated Security, Disaster Assistance, and Continuing Appropriations Act of 2009 (H.R.2638, 110th Congress). Division B, Title I of the Act provides funds for repair of Corps operations and maintenance projects that were damaged by natural disasters, like hurricanes Katrina and Rita, and other storms.

The proposed project area is located within the Wallisville Lake Project, originally authorized by the River and Harbor Act of 1962 (House Document 215, 87th Congress, 1st Session) to provide for five project purposes: navigation, salinity control, water supply, fish and wildlife enhancement and recreation. Project modifications were authorized by the Supplemental Appropriations Act of 1983 (PL 98-63) which provided for a smaller reservoir. As modified, the project consisted of a 5,600- acre reservoir, a navigation lock, two park sites, three water control structures and ancillary structures (USACE 1981; USACE 1990). Changes needed to control saltwater intrusion and eliminate the need to maintain a continuous 2-foot pool were documented in a 1995 Environmental Assessment (EA) (USACE 1995). Additional public recreation facilities (picnic sites, trails, boardwalks, and an observation tower) were added and later enhanced in 2000-2002 (USACE 2000; 2002). All project lands are owned in fee by the Federal Government and are managed by USACE for the project purposes listed above.

1.2 *PROJECT AREA*

The proposed project area is located entirely within the Wallisville Lake Project, on the west bank of the Trinity River, approximately 0.75 mile south of Interstate Highway (IH) 10 (Figure 1). The proposed project area focuses on an approximately 1,000-foot long section of bank on the west side of the Trinity River shown in Figure 2. The river bank is bounded on the south and east by the hard-packed, one-lane shell and caliche River Road, and by the Trinity River Bank on the water side. To the south and west of the River Road lies an old borrow area for the West Non-Overflow Dam (WNOD; a feature of the 1981 authorized project). The old borrow area is now filled with standing water and pockets of willow thickets and other aquatic vegetation. The old levees of the borrow area are visible in Figure 2 (see arrows indicating some bordering levees).

Figure 1: Project Area Vicinity Map

1.3 *NEED FOR PROJECT*

This section of the Trinity River Bank has been damaged by overbank flow associated with several recent tropical storms and hurricanes, beginning with Hurricane Rita in 2005. In this reach, the river bank is lower than the adjacent upstream and downstream banks. During tropical storms, heavy rainfall and high tides flood the old borrow area and flow into the river, eroding the narrow vegetated bank between the road and the river. The river bank is now encroaching into the roadway at the upstream and downstream ends of the eroding section. Bank protection for this reach of the Trinity River would protect the River Road and maintain needed access to downstream Wallisville Lake Project recreation features. The bank protection would also afford

Figure 2: Eroding Bank Section of the Trinity River

protection to marsh habitat that is developing within the old borrow area west of the road, and a cultural resource site (the remains of the Cummings Lumber Mill) near the downstream end of the eroding zone.

1.4 *PROPOSED WORK*

The proposed work is depicted in Figure 3. The work would consist of the construction of a sheetpile wall approximately 1,060 feet long to stabilize and protect the existing bankline. Although considered unlikely and thus not included in the project plan at this time, the ends of the sheetpile wall may need to be protected by rock riprap, extending approximately 50 feet from each end. With this added, the total length of the construction zone would be approximately 1,160 feet. The construction zone would extend approximately 20 feet from the bank into the river, and be no greater than 60 feet wide on land, extending from the river bank across the

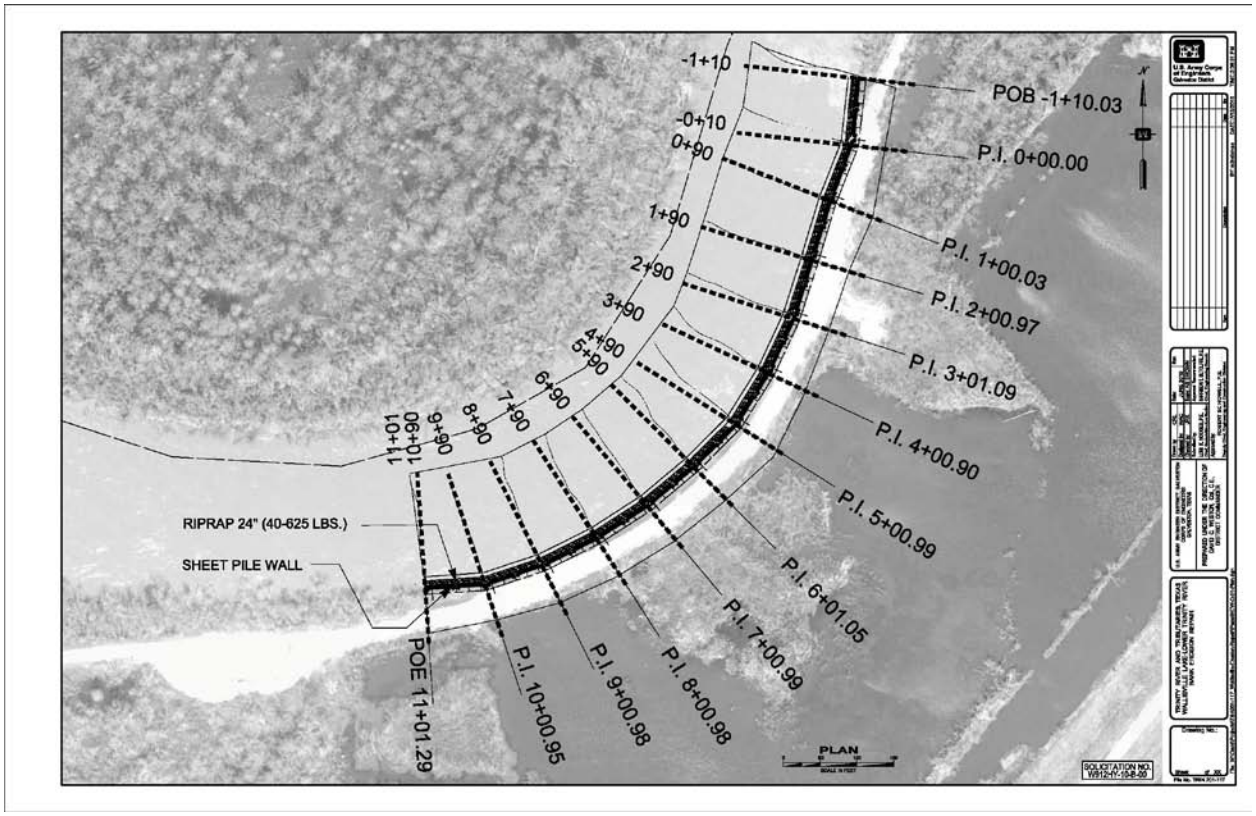

Figure 3: Proposed Sheetpile Wall

existing road. The construction zone, totaling approximately 2 acres in size, would not encroach into the adjacent old borrow area. The sheetpiling would be driven into the shoreline as close as possible to the existing bank. The sloping river bank below the wall would remain in place and provide the same habitat that it does today. Approximately 0.15 acre of river bank, between the sheetpile wall and top of bank, would be replaced by sheetpile wall and backfill. Due the irregular shape of the shoreline behind the top of the wall, some filling between the sheetpile wall and the shoreline would be necessary. The fill material would be sloped upward from the top of the sheetpile wall to meet the elevation of the bank adjacent to the road.

The underwater toe of the sheetpile wall may need to be protected by rock riprap, if determined necessary by the design/construction contractor. This protection would require that approximately 4,700 tons of 24-inch rock riprap be placed in the sloping river bank at the toe of the sheetpile wall. The riprap would be approximately 18 feet wide by 5 feet deep by 1,060 feet long. A horizontal platform would be prepared for riprap placement in the sloping shoreline by excavating approximately 5,300 cy of material from in front of the sheetpile wall to a depth of approximately 15 feet below mean low tide. In this case, part of the river bank would be replaced by riprap, which would itself serve as an alternative hard substrate habitat. Excavation would be conducted using a dragline crane and clam shell bucket. Approximately 1,000 cubic yards (cy) of the excavated material would be used to fill behind the sheetpile wall. Excess material would be trucked and placed in a dry, upland section of the WNOD right-of-way that was previously excavated for fill material for prior projects. If the riprap protection and

associated excavation is not necessary, then material to fill behind the sheetpile wall would be obtained by scavenging the surface of the WNOD with a bulldozer just west of the proposed placement location. The placement area would total approximately 0.5 acre, and if needed, the borrow area would total approximately 0.4 acre. The staging area for equipment, materials and private vehicle parking would be located in a previously disturbed 0.45-acre area adjacent to the construction site. The proposed placement area, borrow source and staging/parking area are shown on Figure 4.

Figure 4: Proposed Placement Area, Potential Borrow Source and Staging Area

2.0 ALTERNATIVES CONSIDERED

2.1 *NO ACTION ALTERNATIVE*

The No Action Alternative considers future conditions and impacts that would occur if no project was implemented. This alternative is the basis against which all other alternative plans are

measured. In the No Action Alternative, no bank stabilization or protection measures would be constructed, and this section of shoreline would continue to erode. Erosion is episodic and associated with tropical storm/hurricane events. Most climate change projections agree that more frequent high-intensity rainfall events are likely in the future (Nielsen-Gammon, 2009), and therefore an increase in runoff and the rate of erosion is likely. With the combined effects of continued erosion and RSL rise, the River Road would eventually be closed and access to this part of the project would be compromised. More significantly, erosion would create a break in the narrow landform that currently protects the interior, intermediate marshes in the old borrow area south and west of the Trinity River. If the narrow bank and road were breached, the Trinity River would flow into the 37-acre borrow area, and expose wetlands in the area to the higher salinity and velocity of the river flows. Intermediate marsh would be stressed or killed by the higher salinity water, and areas within the direct path of the new flow would be eroded by the higher velocity flows. The nearby historic property (the Cummings Lumber Mill site) would be threatened and possibly destroyed by the erosion caused by the breach. Relative sea level rise (RSLR) curves were calculated for the project area in conformance with EC 1165-2-211. It is estimated that RSLR could rise between 0.45 - 0.9 feet over 20 years, and between 1.0 – 2.8 feet over 50 years.

2.2 *NON-STRUCTURAL ALTERNATIVE*

One non-structural alternative was considered – reestablishing vegetation to slow erosion. Dense willow/tallow thickets immediately upstream and downstream of this reach help to hold the soil in place, slow overbank flows, and slow erosion. Reestablishing thickets along the erosional reach would require movement of the road to the south and west by a about 60 feet to provide room for vegetation plantings. This would require filling of a part of the borrow area that lies immediately adjacent to the road to provide sufficient right-of-way for the relocated road, and rehabilitation of the compacted soil that is now under the road to make it suitable for planting. Filling west and south of the road would not be threatened by high velocity river flows, but overbank flooding through this area during storm events would still occur and prevent the reestablishment of dense, mature vegetation to inhibit future erosion. In addition, filling of the magnitude required to move the road would result in significant impacts to the wetland vegetation that is beginning to reestablish itself within the old borrow area. It is estimated that construction would take approximately 90 calendar days and cost approximately $1,300,000.

2.3 *STRUCTURAL ALTERNATIVES*

Four structural alternatives were considered - rock riprap, gabions, concrete mats; and a sheetpile wall. Each of these alternatives is discussed in more detail below. A number of alternatives were evaluated based on the following criteria:

- Shoreline protection effectiveness
- Volume of river bank excavation (cy)
- Emergent wetland impacts (acres)
- Construction cost

2.3.1 ROCK RIPRAP

In this alternative, the river bottom, vertical river wall and vegetated bank would be reshaped to create the 1:4 slope needed to form a platform for riprap placement along the 1,060-foot long erosion zone. At the ends of the riprap zone, an additional 30 feet at each end would also be affected by construction impacts, making the total length of the construction zone 1,120 feet. A dragline crane with clam shell bucket would be used to excavate an approximately 80 feet wide area from the vertical river wall and underwater slope. The work zone on land would be approximately 120 feet wide, encroaching into the old borrow area, and requiring removal and relocation of the River Road approximately 60 feet to the south and west. It is estimated that a total of approximately 30,000 cy of dirt would be excavated to create the riprap platform. The dirt would be placed by dump truck into a dry, upland section of the WNOD right-of-way that was previously excavated for fill material for prior projects. Approximately 20,000 tons of 24" rock riprap would be placed on the newly prepared sloping shoreline. Given the large quantity of riprap needed, the riprap would need to be barged to the site and maintenance dredging would be needed to clear shoaled areas of the Trinity River channel for barge access. The staging area for equipment, materials and private vehicle parking would be located in a previously disturbed 0.45-acre area adjacent to the construction site. It is estimated that construction would take approximately 90 calendar days and cost approximately $2,050,000.

This alternative was ruled out because construction impacts in the water and on land would be much greater than other alternatives. The footprint of the construction zone is the largest of all structural alternatives. The amount of material to be excavated is also the highest of all alternatives and results in the greatest temporary impacts to water quality during construction. The slope cut would encroach through the River Road into the old borrow area, and cause the largest wetland impacts in the old borrow area. In addition, maintenance dredging in the river would be needed just to get the riprap to the site. Finally the cost for this alternative is twice that of cheaper alternatives.

2.3.2 GABIONS

In this alternative, the river bottom, vertical river wall and vegetated bank would be reshaped to create the 1:3 slope needed to form a platform for the placement of rock-filled gabions (each 30 feet x 6 feet x 12 feet in size) along the 1,060-foot long erosion zone. At the ends of the gabion zone, an additional 30 feet at each end would also be affected by construction impacts, making the total length of the construction zone 1,120 feet. A dragline crane with clam shell bucket would be used to excavate an approximately 80 feet wide area from the vertical river wall and underwater slope. The work zone on land would be approximately 80 feet wide, encroaching into the old borrow area, and requiring removal and relocation of the River Road approximately 20 feet to the south and west. It is estimated that a total of approximately 16,000 cy of dirt would be excavated to create the gabion platform. The dirt would be placed by dump truck into a dry, upland section of the WNOD right-of-way that was previously excavated for fill material for prior projects. A crawler crane would be used to fill the gabions with approximately 10,000 tons of rock and place the gabions on the newly shaped bank. Workers would then connect the emergent gabions to one another; divers would accomplish this for the underwater gabions. The staging area for equipment, materials and private vehicle parking would be located in a previously disturbed 0.45-acre area adjacent to the construction site. It is estimated that construction would take approximately 90 calendar days and cost approximately $1,050,000.

This alternative was ruled out due to impacts and safety concerns. Construction impacts in the water and on land would be greater than other alternatives, although less than the riprap alternative. The footprint of the construction zone and amount of material to be excavated would be less than the riprap alternative but larger than the concrete mat and sheetpile alternatives. It would therefore have higher temporary impacts to water quality during construction than most other options. The slope cut would encroach through the River Road into the old borrow area, and impact wetlands that have developed in the old borrow area. Divers would be needed to connect the underwater gabions, and given the low visibility conditions in the Trinity River, this would be considered a high risk activity.

2.3.3 CONCRETE MATS

In this alternative, the river bottom, vertical river wall and vegetated bank would be reshaped to create the 1:2 slope needed to form a platform for the concrete mats along the 1,060-foot long erosion zone. At the ends of the mat zone, an additional 30 feet at each end would also be affected by construction impacts, making the total length of the construction zone 1,120 feet. A dragline crane with clam shell bucket would be used to excavate an approximately 80 feet wide area from the vertical river wall and underwater slope. The work zone on land would be approximately 60 feet wide; encroachment into the old borrow area would not be necessary. It is estimated that a total of approximately 1,000 cy of dirt would be excavated to create the platform for the concrete mats. The dirt would be placed by dump truck into a dry, upland section of the WNOD right-of-way that was previously excavated for fill material for prior projects. The dragline crane would be used to place the mats on the newly shaped bank. The staging area for equipment, materials and private vehicle parking would be located in a previously disturbed 0.45-acre area adjacent to the construction site. It is estimated that construction would take approximately 90 calendar days and cost approximately $2,085,000.

This alternative was ruled out primarily because of cost and safety concerns, as construction impacts are roughly the same as the sheetpile wall (Preferred Alternative). The footprint of the construction zone is approximately the same as the sheetpile alternative, but the amount of material to be excavated is slightly larger. Therefore, this alternative would have slightly greater temporary water quality impacts than the sheetpile wall with riprap protection. No encroachment into the old borrow area would be necessary, and impacts to wetlands would be avoided. However, divers would be needed to connect the underwater mats, and given the low visibility conditions in the Trinity River, this would be considered a high risk activity. In addition, the estimated cost of this alternative is nearly twice that of the sheetpile wall.

2.3.4 SHEETPILE WALL (PREFERRED ALTERNATIVE)

This alternative would be implemented as the recommended plan. In this alternative, a pile driver would be used to install an approximately 1,060-foot long sheetpile wall. The sheetpiling would be driven into the sloping shoreline as close as possible to the existing bank. Due the irregular shape of the shoreline, some filling between the sheetpile wall and the top of bank would be necessary. The fill material would be sloped upward from the top of the sheet pile wall to meet the elevation of the bank adjacent to the road. The construction zone would extend approximately 20 feet from the bank into the river, and be no greater than 60 feet wide on land, extending from the river bank across the River Road. The construction zone would not encroach into the adjacent old borrow area. If deemed necessary by the contractor, the underwater toe of the sheetpile wall would be protected by approximately 4,700 tons of 24-inch rock riprap. This

protection would require that approximately 4,700 tons of 24-inch rock riprap be placed in the sloping river bank at the toe of the sheetpile wall. The riprap would be approximately 18 feet wide by 5 feet deep by 1,060 feet long. A horizontal platform would be prepared for riprap placement in the sloping shoreline by excavating approximately 5,300 cy of material from in front of the sheetpile wall to a depth of approximately 15 feet below mean low tide. Excavation would be conducted using a dragline crane and clam shell bucket. Approximately 1,000 cubic yards (cy) of the excavated material would be used to fill behind the sheetpile wall. Excess material would be trucked and placed in a dry, upland section of the WNOD right-of-way that was previously excavated for fill material for prior projects. If the riprap protection and associated excavation is not necessary, then material to fill behind the sheetpile wall would be obtained by scavenging the surface of the WNOD with a bulldozer just west of the proposed placement location. The placement area would total approximately 0.5 acre, and if needed, the borrow area would total approximately 0.4 acre. The staging area for equipment, materials and private vehicle parking would be located in a previously disturbed 0.45-acre area adjacent to the construction site. It is estimated that construction would take approximately 90 calendar days and cost approximately $1,010,000.

This alternative was selected based on impact and cost factors. The footprint of the construction zone is approximately the same as the concrete mat alternative, but the amount of material to be excavated is by far the least of all structural alternatives. Therefore, this alternative would have the lowest temporary water quality impacts of all alternatives considered. No encroachment into the old borrow area would be necessary, and impacts to wetlands would be avoided. In addition, the estimated cost of this alternative is lower than all other alternatives.

2.3 *COMPARISON OF ALTERNATIVES*

Table 1 contains a matrix that shows each alternative that was considered and the screening criteria for each alternative. Four of the alternatives were eliminated from further study. The recommended plan is the alternative that provides effective shoreline protection, is cost effective

Table 1: Alternatives and Screening Criteria Matrix

Alternative \ Screening Criteria	Shoreline Protection Effectiveness	Volume of river bank excavation (1,000 cy)	Emergent Wetland Impacts (acres)	Construction Cost ($1,000)
No Action Alternative (Future Without Project)	no	none	37	none
Non-structural Alternative (Revegetation)	no	none	1.7	$1,300
Rock Riprap Structural Protection	yes	30	1.4	$2,050
Gabion Structural Protection	yes	16	0.5	$1,050
Concrete Mat Structural Protection	yes	8	none	$2,085
Sheetpile Wall Structural Protection	yes	5.3	none	$1,010

and has the lowest river bottom and wetland impacts. Only the "no action" and Sheetpile Wall alternatives were carried forward for environmental impact analysis in Section 4.0.

3.0 AFFECTED ENVIRONMENT

3.1 *PHYSICAL CHARACTERISTICS AND PROCESSES*

The project area is located roughly in the center of the Trinity River delta at the head of Trinity Bay, the northeast lobe of the Galveston Bay system on the upper Texas Gulf coast. It is located on the cutbank (west) side of a large meander bend of the Trinity River just south of IH 10. A natural river levee follows the river course, and this levee was reinforced in the past by fill material used to construct and elevate the River Road. The river bank is a nearly vertical, eroding cut-bank extending approximately 4 feet above average water level. The Trinity River water depth at the bank is approximately 17 feet. Between the river and the road lies a narrow swath of vegetated shoreline. At both the upstream and downstream ends of the eroding section, the vegetated bank between the River Road and the river rises in elevation and widens quickly to thickly vegetated banks that are 50 feet and greater in width. In the eroded reach, the river bank is lower than the adjacent upstream and downstream banks. During tropical storms, heavy rainfall and high tides flood the old borrow area and flow across this low spot in the river bank, eroding the narrow vegetated bank and the road. The river bank is now encroaching into the roadway at both the upstream and downstream ends of the eroding section.

There is a consensus among ocean scientists that mean sea levels are rising due to various factors, including climate change. Any rise in mean sea levels will result in a corresponding rise in tide levels. Water level records collected at Galveston Pier 21 for a period of 98 years show a trend of 0.25 inch/year with a 95 percent confidence interval of ± 0.011 inch/year which is equivalent to a change of +2.10 feet per hundred years (NOAA, 2010). Engineer circular EC 1165-2-211 provides guidance for incorporating the direct and indirect physical effects of projected future sea-level change in planning, designing, constructing and maintaining of USACE projects. Accordingly, planning studies and engineering designs developed for this study have considered a range (low, medium, and high) of possible future rates of sea-level change. The low rate of sea-level change is the historically recorded change in mean sea level for the project area as recorded by NOAA's National Ocean Service tide data station at Pier 21 in Galveston, Texas. Based on this gage, the observed historical rate is 0.25 inch/year, the medium future rate would be 0.42 inch/year, and the high future rate would be 0.54 inch/year.

3.2 BIOLOGICAL COMMUNITIES

<u>Terrestrial Habitat</u>

The project area lies in the Gulf Prairies and Marshes vegetation area as delineated by Hatch et al. (1990). The Trinity River meanders through a flat, complex system of active and abandoned distributary channels, lakes, ponds, marshes and swamps. The vegetation of the overall Wallisville Lake Project is influenced by the topographically-dictated patterns of inundation and salinity, resulting in a complex mosaic of plant communities ranging from upland prairies,

pine/hardwood forests, bottomland hardwoods, cypress swamps, and fresh through brackish marshes.

Vegetated terrestrial areas located within the project construction area are limited to the narrow bank between the River Road and the river, and between the road and the edge of the old borrow area. Proposed borrow, placement and staging areas are all cleared areas that have been disturbed by prior construction projects. The vegetation along the Trinity River Bank consists of coastal bermudagrass, crabgrass (*Digitaria* sp.), goldenrod (*Solidago* spp.), verbena (*Verbena* sp.), ragweed (*Ambrosia* sp.), cocklebur, rattlebean (*Sesbania* spp.) and other annuals, with a few clusters of immature Chinese tallow (*Sapium sebiferum*) and black willow (*Salix negra*) scattered along the eroding section. At both ends of the eroding section, thickets of more mature tallow, willow and American elm (*Ulmus americana*) cover the bank. Vegetation between the road and the old borrow area is similar to that on the river bank. However, large areas of dead willow trees are present, the result of high saline waters trapped in the borrow pit after Hurricane Ike.

Wetlands

Most of the large delta south of IH 10 is covered by an extensive intermediate marsh system dominated by marshhay cordgrass (*Spartina alterniflora*) (USACE, 1996). However, these marshes do not extend into the project area. No marshes are present along the Trinity River shoreline because of the nearly vertical, eroding cutbank and fast flowing current. North of the project area and north of the meander bend, a small bald cypress (*Taxodium distichum*) swamp covers the lowland between the river and the River Road. None of this swamp system extends into the project area. Pockets of fresh and intermediate wetland vegetation, dominated by various bulrushes (*Scripus* spp.), arrowhead (*Sagittari lancifolia*), spikerushes (*Eliocharis* spp.) and various lilies (*Crinum americanum, hymenocallis* sp., *Nymphaea odorata*), are beginning to reestablish within the old borrow area.

Open Water

Open water areas can support diverse and abundant benthic invertebrate communities and provide food for fishery populations. Open water areas in the project are found in the adjacent Trinity River and in the old borrow area to the south and west of the project area. Water depths in the river are deep (17 -20 feet and more) in this meander bend and the bottom substrate is stiff clay. Submerged aquatic vegetation (SAV) is not present in the river along the bank; the deep, turbid water and moderately high current is not conducive to the growth of SAV. Oyster reefs are present well south of the project area in the Trinity River bird foot delta but none are known to be present in or near the project area. The diversity of mollusca in the general Wallisville area is low and probably related to the dynamic hydrographic changes that occur within the Trinity delta (USACE, 1996). Mollusca in the Wallisville Project area is dominated by common rangia clams (*Rangia cuneata*), however, no rangia beds have been observed in the project area. They prefer soft substrates and are not frequently found in areas with hard clay bottoms, such as those present in the Trinity River at this location (LaSalle and De La Cruz, 1982).

The old borrow area, originally excavated to a depth of approximately 4 feet, has since filled with ground and rain water. It is now essentially a sluggish pond covered with floating aquatic

vegetation such as alligatorweed *(Alternanthera philoxoides)* and water hyacinth *(Eichhornia crassipes)*, both of which are considered to be invasive and noxious weeds that displace native vegetation, retard water flow, lower dissolved oxygen levels, and increase sedimentation.

3.3 *WILDLIFE*

Because of the great variety of habitats provided by the delta, fish and wildlife species are diverse and numerous. Previous biological surveys recorded only 19 mammalian species due to overgrazing in the high marsh and prairies, saline soils, and large water fluctuations, but found at least 183 species of birds, 31 species of reptiles and amphibians, 116 species of freshwater and marine fish, and numerous invertebrate species (USACE, 1981; 1996). The Texas coast is a terminus or stopover for many migratory waterfowl and other birds traversing the Mississippi or Central Flyways. As a result, migratory game and non-game birds are found in large numbers during the winter months. Many bird species occur primarily as seasonal migrants, but the area also harbors large numbers of waterfowl in the winter and fish-eating birds in the summer. Several species of wading birds nest in rookeries in the general area, including the great blue heron (*Ardea herodias*), great egret (*Casmerodius albus*), snowy egret (*Egretta thula*), little blue heron (*Ardea herodias*), tricolored heron (*Egretta tricolor*), cattle egret (*Bubulcus ibis*), green heron (*Butorides striatus)*, and black-crowned night-heron (*Nycticorax nycticorax*). A heron rookery is located about one-half mile north of the project site, on the east bank of the Trinity River just south of IH 10. The rookery is buffered from the project location by a dense stand of cypress swamp.

3.4 *FISHERIES AND ESSENTIAL FISH HABITAT*

Estuaries such as the Wallisville Lake Project provide important nursery and feeding areas for commercial and sport species such as red drum (*Sciaenops ocellata*), black drum (*Pogonias cromis*), spotted seatrout (*Cynoscion nebulosus*), southern flounder (*Paralichthys lethostigma*), sheepshead (*Archosargus probatocephalus*), and croaker (*Micropogonias undulatus*). Other common fishes include gafftopsail catfish (*Bagre marinus*), mullet (*Mugil cephalus*), and bay anchovy (*Anchoa mitchili*). Brown shrimp (*Farfantepenaeus aztecus*), white shrimp (*Litopenaeus setiferus*) and blue crab (Callinectes sapidus) are important commercial crustaceans.

Congress enacted amendments to the Magnuson-Stevens Fishery Conservation and Management Act (PL 94-265) in 1996 that established procedures for identifying Essential Fish Habitat (EFH) and required interagency coordination to further the conservation of Federally managed fisheries. Rules published by the National Marine Fisheries Service (50 CFR Sections 600.805 - 600.930) specify that any Federal agency that authorizes, funds or undertakes, or proposes to authorize, fund, or undertake an activity which could adversely affect EFH is subject to the consultation provisions of the above mentioned act and identifies consultation requirements. This environmental assessment was prepared to serve as the EFH assessment.

EFH consists of those habitats necessary for spawning, breeding, feeding, or growth to maturity of the species managed by Gulf of Mexico Fishery Management Council Fishery Management Plan. Managed species that may occur in the project area include brown (*Farfantepenaeus aztecus*) and white shrimp (*Litopenaeus setiferus*), and red drum (*Sciaenops ocellatus*). EFH for these species does not extend into the Trinity River, and thus does not include the project area. Habitat Areas of Particular Concern have not been identified for the project area.

3.5 *THREATENED AND ENDANGERED SPECIES*

Federally-listed Species

Table 2 summarizes the U.S. Fish and Wildlife Service's (USFWS) list of threatened and endangered species for Chambers County. In addition to these species, the NMFS lists the endangered marine species in Table 3 as occurring in Texas. Table 4 includes NMFS's list of marine species of concern in Texas. The District has evaluated the potential impact of the proposed project on these species and has determined that there are no known Federally-listed threatened or endangered species likely to be present in the project area. The piping plover prefers sandy tidal flats that are present near the mouth of the Trinity River, but do not occur in the project area. The American black bear is listed because of its similarity in appearance to the Louisiana black bear, which historically inhabited east Texas, Louisiana and Mississippi, but now occurs only in small numbers in Mississippi and Louisiana (USFWS, 1992). Favoring the woodlands and swamps of East Texas, the American black bear is unlikely to occur in this coastal marshland. Of the five sea turtle species, Loggerhead, Kemp's ridley and Green sea turtles are most commonly found in the Galveston Bay system. Loggerheads prefer shallow inner-continental shelf waters and occur infrequently in the bays; thus, they would be unlikely to occur in the project area which is approximately 10 miles upstream of Trinity Bay. Kemp's ridley and Green sea turtles prefer shallow coastal and bay waters, but are also unlikely to travel this far upstream of their favored bay habitat. Likewise, the five whale species listed by NMFS are unlikely to occur this far up the Trinity River. The saltmarsh topminnow is endemic to the north-central Gulf coast from Galveston Bay eastward to western Florida. They tend to live in salt and brackish marshes, neither of which are present in the immediate project area. For the remaining listed species (Northern aplomado falcon, West Indian manatee, slender rush-pea, smalltooth sawfish) and species of concern (dusky shark, sand tiger shark, night shark, speckled hind, and Warsaw grouper, ivory tree coral), the likelihood of occurrence in the project area is very low, primarily due to the lack of suitable habitat in the project area or the project area's being outside of the known present or historical range and distribution of these species.

Table 2
USFWS List of Threatened and Endangered Species for Chambers County

Common Name (*Scientific Name*)	Listing Status
BIRDS	
Piping plover (*Charadrius melodus*)	Threatened
Northern aplomado falcon (*Falco femoralis septentrionalis*)	Endangered
TERRESTRIAL MAMMALS	
American black bear (Ursus americanus)	Similarity of Appearance (to LA black bear)
REPTILES	
Loggerhead sea turtle (*Caretta caretta*)	Threatened
Green sea turtle (*Chelonia mydas*)	Threatened
Kemp's Ridley sea turtle (*Lepidochelys kempii*)	Endangered
Hawksbill sea turtle (*Eretmochelys imbricata*)	Endangered
Leatherback sea turtle (*Dermochelys coriacea*)	Endangered
MARINE MAMMALS	
West Indian manatee (*Trichechus manatus*)	Endangered
PLANTS	
Slender rush-pea (*Hoffmannseggia tenella*)	Endangered

Source: USFWS 2010

Table 3
Endangered Marine Mammals and Fish in Texas

Common Name (*Scientific Name*)
MARINE MAMMALS
Blue whale (*Balaenoptera musculus*)
Finback whale (*Balaenoptera physalus*)
Humpback whale (*Megaptera novaengliae*)
Sei whale (*Balaenoptera borealis*)
Sperm whale (*Physeter macrocephalus*)
FISH
Smalltooth sawfish (*Pristis pectinata*)

Source: NMFS (2010)

Table 4
Marine Species of Concern in Texas

Common Name (*Scientific Name*)
FISH
Dusky shark (*Carcharhinus obscurus*)
Night shark (*Carcharhinus signatus*)
Saltmarsh topminnow (*Fundulus jenkensi*)
Sand tiger shark (*Carcharias taurus*)
Speckled hind (*Epinephelus drummondhayi*)
Warsaw grouper (*Epinephelus nigritus*)
INVERTEBRATES
Ivory tree coral (*Oculina varicosa*)

Source: NMFS (2010)

State-listed Species

Table 5 is a list of additional species that are listed as threatened or endangered by the Texas Parks and Wildlife Department (TPWD) and have the potential to sporadically be present at the project site.

Table 5
Potential State-Listed Species for Chambers County

Common Name (*Scientific Name*)	**State Status**
Swallow-tailed kite (*Elanoides forficatus*)	Threatened
Bald eagle (*Haliaeetus leucocephalus*)	Threatened
Wood stork (*Mycteria americana*)	Threatened
Brown pelican (*Pelecanus occidentalis*)	Endangered
White-faced Ibis (*Plegadis chihi*)	Threatened
Reddish egret (*Egretta rufescens*)	Threatened
Peregrine falcon (*Falco peregrinus*)	Threatened
American peregrine falcon (*Falco peregrinus anatum*)	Threatened
Louisiana pigtoe (*Pleurobema riddellii*)	Threatened
Timber/Canebrake rattlesnake (*Crotalus horridus*)	Threatened
Northern scarlet snake (*Cemophora coccinea copei*)	Threatened

The swallow-tailed kite prefers lowland forested regions, especially swampy areas, ranging into open woodlands, marshes, river corridors, lakes and ponds. It nests high in tall trees in clearings or on the forest woodland edge, usually in pine, cypress or various deciduous trees.

The bald eagle has been federally delisted but maintains the state listing status. It can be found primarily near rivers and large lakes, nesting in tall trees. Community roosts are possible, especially in winter.

The wood stork breeds in Mexico and moves into Gulf states in search of mudflats and other wetlands, even those associated with forested areas. It formerly nested in Texas but there have been no records of the species breeding in Texas since 1960. It forages in prairie ponds, flooded pastures or fields, ditches and other shallow standing water. It usually roosts communally in tall snags, sometimes in association with other wading birds.

The brown pelican has been federally delisted but maintains the state listing status. It is a common resident of coastal and nearshore areas, where it roosts and nests on islands and bare, elevated ground such as levees and spoil banks.

The white-faced ibis prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats. It nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

The reddish egret favors brackish marshes and shallow salt ponds and tidal flats. It nests on the ground or in trees or bushes, generally on dry coastal islands in brushy thickets of yucca and prickly pear.

The peregrine falcon and American peregrine falcon have been federally delisted but maintain the state listing status. There is a potential for the peregrine falcon or its subspecies to occur as migrants in the area. Both migrate across the state from more northern breeding areas in the United States and Canada to winter along the Gulf coast and farther south.

The Louisiana pigtoe is a freshwater mussel inhabiting streams and moderate-size rivers, usually in flowing water on muddy, sandy or gravel substrates. It is not generally found in impoundments. Historically, it ranged from Louisiana through the Trinity River watershed but in recent decades has been exceptionally rare. Small numbers of living specimens have been found in the Neches and Angelina watersheds.

The timber/canebrake rattlesnake prefers moist lowland forests and hilly woodlands or thickets near permanent water sources such as rivers, lakes, ponds, streams and swamps where tree stumps, logs and branches provide refuge.

The northern scarlet snake inhabits mixed hardwood scrub on sandy soils and is found primarily in counties close to the Louisiana state line. It feeds on reptile eggs and is active April through September.

3.6 *CULTURAL RESOURCES*

The project area has been previously investigated for Historic Properties on four separate occasions. These investigations have resulted in the identification of one archeological site within the project area (41CH263) and one archeological site adjacent to the project area (41CH243).

Site 41CH263 is a shell midden consisting of three stratigraphically separate lenses of rangia shell extending for approximately 45 meters along the Trinity River. The site was originally recorded by Stokes in 1983 (Stokes 1983). Testing by Coastal Environments, Inc. (CEI) in 1986 (Weinstein and Whelan 1987), determined that the upper lens was an isolated remnant of an eroded shell road which formerly ran along the Trinity River Bank. The origin of the lower two lenses could not be determined; however, neither lens contained artifacts or organic staining. The site was determined to be not eligible for inclusion in the National Register of Historic Places (NRHP) under all criteria.

Site 41CH243 is the archeological remains of the turn-of-the-century Cummings Lumber Mill recorded and tested by the Center for Archaeological Research in 1979 (Fox et al. 1980). This site is listed on the NRHP as a part of the Old Wallisville Townsite Archeological District. C.R. Cummings built a large steam operated lumber mill across from Wallisville in 1898 which was totally destroyed during the 1915 hurricane. Remains of brick walls and boiler foundations are visible on the surface in an area where one of the main buildings was located. Further testing and archival research by CEI in 1985 (Pearson et al. 1985) found that mill-related deposits are restricted to a small area immediately surrounding the exposed brick foundations.

3.7 *AIR QUALITY AND NOISE*

Although the project area is located within a large natural area, its ambient air quality is affected by the large Houston-Galveston metropolitan area located 40 miles to the west. Chambers County is included in the Houston-Galveston-Brazoria Area (HGA) non-attainment area, currently designated as severe non-attainment for O_3 and in attainment for the other criteria pollutants (TCEQ, 2010). O_3 is principally formed through chemical reactions of NO_x and VOC in the atmosphere, therefore, only emissions of NO_x and VOC are included in the analysis.

Because of the non-urban nature of the area and its status as federally-protected land, noise levels are relatively low. Human-generated ambient noise is primarily produced by boats and other vessels on the area's waterways, and by motor vehicles on the River Road. The nearest sensitive receptors of noise impacts in the project area would be residents in the small town of Wallisville, located approximately 1.5 miles to the east.

3.8 *WATER AND SEDIMENT QUALITY*

TCEQ has designated certain larger streams or bayous, or segments thereof, as "classified" segments for the purpose of developing water quality criteria (WQC) specific to each segment. The Trinity River adjacent to the project area is located in SegID: 0801 Trinity River Tidal. Water quality tests in 2006 and 2008 assessed this segment as fully supporting for Aquatic Life Use, fully supporting or no concern for General Use, and fully supporting of recreation use. Adequate data were available to evaluate most uses; however, levels of E. coli were not assessed.

Sediments in the project area are eroded sediments of the Beaumont and Lissie Formations, formed predominately of silt and clay. Sediments are not routinely tested in the lower Trinity River; there are no industrial plants located on the river in the general area, commercial navigation of the river is low and maintenance dredging of the river is very infrequent. Sources of pollution in the Wallisville Lake Project as a whole would be limited to the Lost Lake Oil Field, which is located in the Lost Lake watershed and does not affect the segment of the Trinity

River in the project area, and oil/gas pipelines which cross the Lake Project lands (USACE, 1996). There have been no major leaks from these pipelines and therefore the potential for contaminated sediments to be present is the project area is very low.

3.9 *HAZARDOUS, TOXIC AND RADIOACTIVE WASTE*

A Hazardous, Toxic and Radioactive Waste (HTRW) preliminary assessment was conducted for the Wallisville Lake Project in 1995 (USACE, 1996). The assessment revealed that potential HTRW sites are limited to the Lost Lake Oil and Gas Field, dry holes from prior oil/gas exploration activities, and three pipeline corridors that cross Project lands. None of these sites are located in the project area. The closest HTRW sites are a pipeline corridor that parallels IH 10, just north of that highway, and one that crosses east to west south of the WNOD. The assessment documented no major leaks from these pipelines and no leaks from the Lost Lake Field that could have affected the project area.

3.10 *SOCIOECONOMICS*

The project area is located near the center of 20,000 acres of federally fee-owned property in Chambers County, Texas. The largest nearby communities are the unincorporated towns of Wallisville and Cove. The largest of these communities is Cove; Wallisville is much smaller and no census data was available for this community individually. The most recent data available for Cove is from the 2000 Census (USCB, 2010). There were 323 people living in Cove and 125 households in the community. The racial makeup of the city was 92 percent white, 1.9 percent African American, and 4.6 percent Hispanic. The median income for a household was $49,286. About 6.7 percent of the family incomes were below the poverty line. Most of people in Cove were employed in manufacturing (38 percent), education/health/social services (17 percent), construction (13 percent) or retail/wholesale services (8 percent).

3.11 *ENVIRONMENTAL JUSTICE*

In compliance with Executive Order (EO) 12898, Federal Action to Address Environmental Justice in Minority and Low-Income Populations, an analysis was performed to determine whether the proposed project will have a disproportionate adverse impact on minority or low-income population groups in the vicinity of the project area. This analysis utilized characteristics of residential populations in the project area.

The breakdown of the population of Cove by ethnic group is provided in Table 6. For comparison, the breakdown for Chambers County and the state of Texas are also shown. The table also shows median income and the percent of families living below poverty level. Based on the census figures, the population of Cove consists of a lower percentage of minority and low income populations than Chambers County or the state. The reported median family income for is slightly lower than Chambers County, but higher than the state, and the percent of families living below the poverty line is lower than both the county and state.

Table 6
Demographic Information

	Cove	Chambers County	State of Texas
Ethnicity			
White	92.3 %	81.9 %	82.4 %
African American	1.9 %	9.8 %	11.9 %
Native American	0.3 %	0.5 %	0.8 %
Asian	0.0 %	0.7 %	3.5 %
Pacific Islander	0.0 %	0 %	0.1 %
Other	5.3 %	6.0 %	-
Two or more races	0.3 %	1.2 %	1.3 %
Hispanic or Latino Origin	4.6 %	10.8 %	36.5 %
Income & Poverty			
Median Family Income	$49,286	$52,986	$45,861
Families Below Poverty	6.7 %	8.3 %	12.0 %

Source: (USCB, 2010)

3.12 *PRIME AND UNIQUE FARMLANDS*

The soils in the marsh and riverine habitats are not suitable for farming without extensive and intensive draining, leveeing, and other soil conditioning work. In addition, the project area is located on federally-owned property that is managed for the preservation and enhancement of fish and wildlife resources; conversion to agricultural land would not be permitted by USACE.

3.13 *RECREATIONAL RESOURCES*

The Wallisville Lake Project contains lands and parks that are designated for low-density recreational activities by the visiting public. Activities such as fishing, hunting, hiking, boating, photography, and nature study are included. Facilities to support these activities include some roads, restrooms, playgrounds, boardwalks for hikers in wetland areas, picnic tables, canoe launches and overnight primitive camping sites. None of these facilities are located in the immediate project area, but the River Road does facilitate access to the River Road Trail and boardwalks which are located to the south and west of the project area.

4.0 ENVIRONMENTAL CONSEQUENCES OF THE PREFERRED ALTERNATIVE

4.1 *IMPACTS ON PHYSICAL CHARACTERISTICS AND PROCESSES*

The Preferred Alternative (proposed sheetpile wall) is intended to stabilize and protect the existing Trinity River Bank in the eroding section. The wall would not extend into the river or cause changes in Trinity River flow. The current elevation of the river bank would be maintained, so there would be no changes in the location or direction of overbank flooding. Under the No Action Alternative, erosion would continue, eventually removing the bank and

allowing unrestricted flow between the Trinity River and the old borrow area to the south. Other wetlands that are connected to this borrow area would also be exposed to the increased flow.

The modified NRC Curves I and III and equations 2 and 3 (EC 1165-2-211) were used to estimate the intermediate and high changes to RSL. These same changes would occur under both the No Action and Preferred Alternatives. Construction of the project is estimated to be completed in 2010. Figure 5 illustrates the range of predicted mean sea-level values for NOAA Station # 8771450 (located on Galveston Pier 21) for the planning period 2010 - 2060. This is the closest location for which appropriate data was available.

Under the Preferred Alternative, RSLR would not have any significant impacts during the 50-year project life for the historic and intermediate estimates but would increase maintenance costs at the highest rate. For Curve I (historic rate), it is estimated that RSLR would rise 0.45 feet over 20 years and 1.0 feet over 50 years. For Curve II (intermediate rate), it is estimated that RSLR would rise 0.6 feet over 20 years and 1.5 feet over 50 years. For Curve III, it is estimated that RSLR would rise 0.9 feet over 20 years and 2.8 feet over 50 years. Under the historic and intermediate scenarios, the only anticipated impact of RSLR on the Trinity River would be a small increase in average water elevation (between 1.0 - 1.5 feet), which would not have a significant effect on the stability of the sheetpile wall. The high rate (modified NRC Curve III) produces a significantly higher estimated MSL, with a potential increase of 2.8 feet from 2010 to 2060. The potential effects of this higher RSLR on the sheetpile wall would be increased maintenance costs. The average water elevation of the river would still be more than 1 foot below than the top of the sheetpile wall in the project area, but episodes of overtopping would increase, and additional maintenance would be required to maintain the bank behind and above the wall.

4.2 *IMPACTS ON BIOLOGICAL COMMUNITIES*

Terrestrial Habitat

Under the No Action Alternative, terrestrial habitat in the project area would not be affected by construction activities, but it would slowly be destroyed by continuing erosion. The impacts to terrestrial vegetation would ultimately be the same as the Preferred Alternative.

Under the Preferred Alternative, approximately 0.3 acre of grass and annual vegetation, and approximately 0.06 acre of willow/tallow/elm thicket would be removed during construction. Wildlife, especially birds, would be temporarily displaced. However the habitat would likely return following the completion of construction activities. Terrestrial habitat in the old borrow area would not be affected; construction activities would be restricted to the River Road and river bank. The Preferred Alternative would have no adverse impact in the proposed borrow, placement and staging areas since all are cleared, disturbed areas.

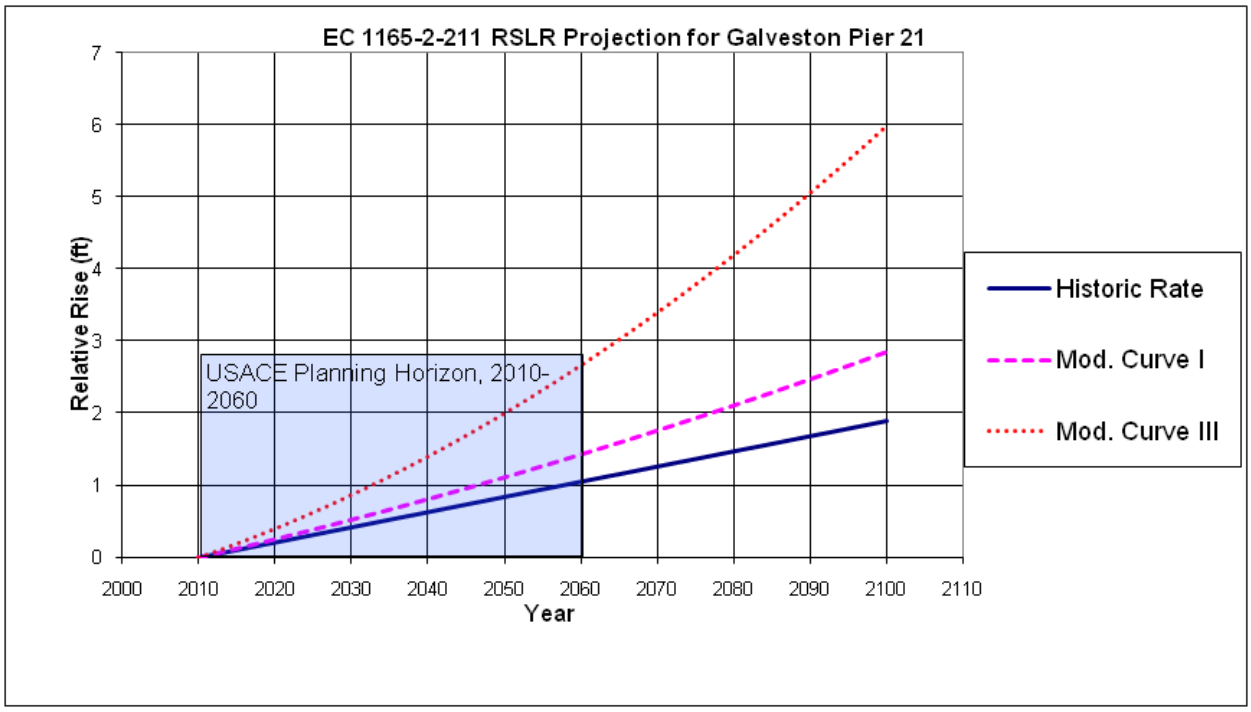

Figure 5: RSLR Projection for Galveston Pier 21

Wetlands

Under the No Action Alternative, erosion would continue and eventually result in a break in the narrow landform that currently protects the interior, intermediate marshes in the old borrow area south and west of the Trinity River. If the narrow bank and road were breached, the Trinity River would flow into the 37-acre borrow area, and expose wetlands in the area to the higher salinity and velocity of the river flows. Intermediate marsh would be stressed or killed by the higher salinity water, and areas within the direct path of the new flow would be eroded by the higher velocity flows. The nearby historic property (the Cummings Lumber Mill site) would be threatened and possibly destroyed by the erosion caused by the breach.

No impacts to wetlands would occur with construction of the Preferred Alternative. There are no wetlands in the Preferred Alternative's project site. Wetlands in the adjacent old borrow pit would be protected from runoff during construction by appropriate protective measures.

Open Water

The No Action Alternative would result in the creation of more open water as erosion removes the land barrier between the Trinity River and the old borrow area. Currently shallow open water in the borrow area would likely slowly deepen as unrestricted flows become established between the lower-lying river and the borrow area.

Construction of the Preferred Alternative would directly impact approximately 0.5 acre of open water habitat consisting of river bottom stiff clay substrate. The sheetpile wall would be driven into the bank as close to the existing shoreline as possible, but the potential excavation and installation of riprap protection at the toe of the sheetpile wall would destroy the habitat of any benthic organisms presently occupying the area. A minor amount of existing bottom habitat

would be eliminated but the rock riprap would serve as a new type of hard bottom habitat after construction. Organisms adapted to life in this shifting environment are also adapted to quickly re-colonize any new area or habitat in the area. Since the loss of this type of habitat represents an insignificant portion of total available habitat of this type in the project area, these impacts are considered to be minor.

4.3 *IMPACTS ON WILDLIFE*

The No Action Alternative would not have a significant impact on wildlife in the area as the terrestrial land bridge is eroded and replaced by open water. Terrestrial species would have time to relocate and aquatic species would colonize the new open water areas.

The Preferred Alternative would not have significant adverse impacts on wildlife in the area. There would be temporary, minor disturbance to marine species during construction but species that do not tolerate disturbance would avoid the area during this time. The project area does not contain any scarce or unique feeding or reproductive areas. The habitat in the project area is similar to the habitat found extensively in the region and does not represent a significant portion of this type of habit. Therefore, the temporary disturbance would be negligible.

4.4 *IMPACTS ON FISHERIES AND EFH*

The No Action Alternative would have a small impact on fisheries habitat in the area south and west of the Trinity River as existing marsh nursery areas for white and brown shrimp and juvenile red drum are stressed by higher salinity Trinity River flow and replaced by open water. Shallow and deep water habitat would increase in the short run as water replaces marsh, but could decrease over the long term as nutrients and minerals from marsh deterioration decrease.

The Preferred Alternative would cause short-term adverse impacts to fisheries in the immediate construction area. Approximately 0.5 acre of open water clay-bottom habitat would be converted to rock riprap. Benthic organisms presently occupying the proposed construction footprint would be eliminated. Bottom habitat would be temporarily eliminated but would eventually recover after construction. Equipment noise and activity would result in disturbance in the immediate construction area to some fish species. However, these effects would be temporary and would cease when construction activities are completed. Temporary increases in turbidity would be expected during installation of the wall and clam shell dredging at the toe of the wall to place the rock riprap protection, but this would be inconsequential. These impacts are considered to be minor and, overall, adverse impacts of the proposed action on fisheries also would be minor. The amount of bottom surface disturbed would be insignificant considering the amount of bottom habitat available in the area.

EFH for these species does not extend into the Trinity River, and thus does not include the project area. Habitat Areas of Particular Concern (HAPC) have also not been identified for the project area. Consultation with NMFS is thus not required.

4.5 *IMPACTS ON THREATENED AND ENDANGERED SPECIES*

The No Action Alternative would have no effect on federally-listed threatened and endangered species and species of concern in the project area as none of these species are likely to occur in this area.

The Preferred Alternative would have no effect on federally-listed threatened and endangered species and species of concern in the project area as none of these species are likely to occur in this area. No suitable habitat (or critical habitat) for the piping plover is present in the project area. Sea turtles are not likely to occur because the project site is located far upstream from Trinity Bay. In general, the likelihood that any of the listed species (or species of concern) would occur in the project area is low to very low, primarily due to the lack of suitable habitat or the project area's being outside of the known present or historical range and distribution of these species.

4.6 *IMPACTS ON CULTURAL RESOURCES*

Under the No Action Alternative, site 41CH263 would continue to erode into the Trinity River until it was completely destroyed. Site 41CH243, the Cummings Lumber Mill, would eventually be threatened and likely destroyed by continued erosion.

Under the Preferred Alternative, both sites (41CH243 and 41CH263) would be protected from continued erosion. While project activities would occur on and around site 41CH263, the site has already been determined not eligible for inclusion in the National Register of Historic Places and therefore is not subject to Section 106 of the National Historic Preservation Act. Site 41CH243 is located outside the project area and would not be affected by project activities.

4.7 *IMPACTS ON AIR QUALITY AND NOISE*

The No Action Alternative would have no effect on air or noise quality in the project area.

Temporary increases in exhaust emissions would occur during construction of the Preferred Alternative. These increases are minor in nature and would be temporary, occurring only during the 90-cay construction period. The proposed project would be constructed in Chambers County, Texas, which is part of the Houston-Galveston-Brazoria Area (HGA). This area is currently designated as severe non-attainment for O_3 and in attainment for the other criteria pollutants (TCEQ, 2010). O_3 is principally formed through chemical reactions of NO_x and VOC in the atmosphere, therefore, only emissions of NO_x and VOC are included in the analysis.

Threshold (*de minimis*) rates of emissions have been established for Federal actions with the potential to have significant air quality impacts. Based upon a preliminary air conformity analysis completed by USACE, it was determined that construction of the proposed plan would generate annual direct and indirect air emissions well below *de minimis* levels specified in 40 CFR 93.153(b)(1) for non-attainment areas 40 CFR 93.153(c)(1). NO_x emissions were determined to be less than 2.0 tons/year and VOC emissions were less than 0.05 tons/year. These emissions are also well below 10 percent of the total emissions inventory for each of these

criteria pollutants projected for this non-attainment area (USACE, 2007), and thus the Federal action would not be considered a "regionally significant" activity. Therefore, a formal conformity determination is not required.

Minor, temporary increases in noise would occur only during construction due to the operation of dredging and construction equipment. Dredging and pile driving equipment would be the primary sources of noise from the proposed activities. Noise-generating construction activities would only occur during 8-hour workdays for an estimated duration of 8 weeks.

4.8 *IMPACTS ON WATER AND SEDIMENT QUALITY*

The No Action Alternative would have no effect on water and sediment quality in the project area.

Except for increased turbidity, the Preferred Alternative would have no significant adverse impacts on water and sediment quality. Ordinarily, some elevation in turbidity is expected to result from the clam shell dredging activity. However, any re-suspension is expected to be intermittent and localized. After clamshell dredging operations are completed, the suspended materials would disperse. The dredged material consists of uncontaminated materials. Any impacts from the placement of materials are expected to be minor in nature and would be temporary, occurring only during the construction period.

4.9 *IMPACTS FROM HAZARDOUS, TOXIC AND RADIOACTIVE WASTE*

The No Action Alternative would have no effect on HTRW sites in the project area.

The potential for encountering HTRW during the implementation of the Preferred Alternative is low. No HTRW contamination at the project site or any sites or incidents near the project area was identified that would be of concern. During the operation of construction equipment, there is a slight potential for accidental spills of small amounts of fuel, lubricants, coolants, or hydraulic fluids. The contractor would be required to immediately contain and clean up any such spills.

4.10 *IMPACTS ON SOCIOECONOMICS*

The No Action Alternative would have no social or economic effects on the project area.

The Preferred Alternative is located on Federal property, and would not have any effect on the nearby local communities. All of the construction work would be performed along the Trinity River, well distant from these communities.

4.11 *IMPACTS RELATING TO ENVIRONMENTAL JUSTICE*

No minority or low-income population groups are located in the vicinity of the project area. Therefore, neither the No Action Alternative nor the Preferred Alternative would result in any environmental justice impacts.

4.12 *IMPACTS ON PRIME AND UNIQUE FARMLANDS*

No prime farmlands are located in the vicinity of the project area. Therefore, neither the No Action Alternative nor the Preferred Alternative would result in any impact to this resource.

4.13 *IMPACTS ON RECREATIONAL RESOURCES*

Under the No Action Alternative, erosion would continue and eventually remove a section of the River Road, thereby blocking land access to a portion of the River Road Trail and boardwalks.

The Preferred Alternative would prevent further erosion of the River Road, and provide a benefit by maintaining land access to a portion of the River Road Trail and boardwalks.

5.0 MITIGATION

The Preferred Alternative would not impact wetlands and all other impacts would be minimal and temporary. Therefore, compensatory mitigation would not be required.

6.0 CUMULATIVE IMPACTS

Cumulative impacts are defined by the Council on Environmental Quality's (CEQ) regulations for implementing the National Environmental Policy Act (NEPA) as the effects on the environment which result from the incremental effect of the action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time. Impacts include both direct effects (caused by an action, occurring at the same time and place as the action) and indirect effects (caused by the action, but removed in distance or later in time, and reasonably foreseeable). Ecological effects are those on natural resources and on the components, structures, and functioning of affected ecosystems, whether direct, indirect, or cumulative.

This assessment is limited to the general vicinity of the Preferred Alternative on Wallisville Lake Project lands. Key past, present, and reasonably foreseeable actions were included in the assessment.

6.1 *PAST ACTIONS*

<u>Channel to Liberty Navigation Channel</u>

The Channel to Liberty navigation channel evolved from a Federal project adopted in 1902 (House Document 409, 56th Congress) which provided for a 6-foot channel in the Trinity River from its mouth to Dallas by construction of 37 locks and dams and associated channel dredging. However, the difficulty of maintaining open river navigation between the widely separated navigation pools lead Congress to abandon the project in 1922, except for the 41-mile reach from the mouth of the river to Liberty and the Anahuac Channel. These channels are now intended to provide a 6-foot deep by 100-foot wide channel from Trinity Bay to Liberty. However, dredging of the channel section adjacent to the Preferred Alternative is not conducted because depths in

this reach of the river exceed the authorized 6-foot depth. This project predates the passage of NEPA; no impacts occurred on Wallisville Lake Project lands.

Originally Authorized Project

Approved in 1962, the originally authorized Wallisville Lake Project (House Document 215, 87th Congress, 1st Session) was 72 percent complete when construction was enjoined by the U.S. District Court in 1973. Authorized project features included a 39,000-foot long South Overflow Dam (SOD) south of Old River Lake, a navigation lock in the Trinity River, an approximately 4-foot deep freshwater impoundment about 19,700 acres in size, and various ancillary structures. The SOD, portions of the navigation lock and an access road on the east side of the Trinity River from IH 10 to the navigation lock had been completed when work was stopped. No mitigation was performed for this project as it was authorized prior to passage of NEPA. In 2000, sections of the abandoned SOD were removed to renourish delta marsh below the dam with flood flows, as occurred prior to project construction, and to remove two saltwater skimmer structures that were potential navigation hazards. None of these features is located in the Preferred Alternative's project area.

Post-Authorization Change Project

In the Supplemental Appropriations Act of 1983, Congress authorized construction of a modified project that consisted of a 5,600- acre reservoir, a navigation lock, two park sites, three water control structures and ancillary structures (USACE 1981; USACE 1990). Construction did not begin until 1991 after the project was redesigned to reduce the pool depth from 4 feet to 2 feet to reduce impacts to cypress swamp near Lake Charlotte. The WNOD dam and old borrow area that are immediately adjacent to the Preferred Alternative project area were authorized and constructed by this project. The 2-foot pool was never implemented due to changes in project operation that were approved in 1995. No environmental mitigation was required because project wetland impacts were considered to be offset by an agreement that the Federal government retain all lands acquired for the project and administer them jointly with the State of Texas for the benefit of fish and wildlife resources. None of the other project features authorized for this project are located near the Preferred Alternative's project area.

6.2 *PAST AND CURRENT ACTIONS*

Wallisville Lake Project Operations Changes

Changes to the operation of the Wallisville Lake Project were approved in 1995 to control saltwater intrusion with a tainter gate saltwater control structure in the Trinity River and two smaller saltwater control structures at the northern edges of the Project, eliminating the need to maintain a continuous 2-foot pool (USACE 1995). Additional public recreation facilities (picnic sites, trails, boardwalks, and an observation tower) were added and later enhanced in 2000-2002 (USACE 2000; 2002). The River Road Trail and associated boardwalks located just south of the Preferred Alternative project area were approved at this time. The tainter-gate is located next to the navigation locks, approximately 2.5 miles downstream. All significant environmental impacts were avoided in the construction of recreation features and the change in operation was

considered beneficial to existing forested wetlands; therefore no mitigation was required. All lands acquired for the originally-authorized project remain in Federal ownership and are administer jointly with the State of Texas for the benefit of fish and wildlife resources

IH 10 Trinity River Bridge Replacement

Replacement of the IH 10 bridge over the Trinity River is currently underway under Department of Army Permit No. 16219. Construction methods were modified to ensure only negligible impacts to wetlands adjacent to the bridge right-of-way. No mitigation was required because of minimal (1.2 acre) impacts.

6.3 *REASONABLY FORESEEABLE ACTIONS*

Closing of Sulphur Cut

Galveston District is currently evaluating a proposal to reestablish natural flood flows on the east side of the Trinity River above Lake Charlotte. Currently, sediment carried by the Trinity River is entering Lake Charlotte via the Sulfur Cut through the southern end of Mac Bayou. Sediment is accumulating where Mac Bayou enters Lake Charlotte. Here, a large island/delta (approximately 2 acres in size) is forming; it has increased about fivefold in size over a two year period. USACE and resource agencies are concerned that the Lake Charlotte swamp could completely fill in and be destroyed if the sediments flooding from the river continue for many more years.

Under consideration at this time is a preliminary plan that would close off the Sulfur Cut at its junction with the Trinity River. This would likely be accomplished by dredging sand from the Trinity River and placing it in the mouth of Sulfur Cut. This would prevent flood flows from bringing their high sediment load into Lake Charlotte, while maintaining flows between the Mac Bayou swamps north of the Sulphur Cut and Lake Charlotte. USACE is currently beginning preparation of an environmental assessment and initiating resource agency coordination. Construction would not occur before 2012. It is anticipated that the environmental impacts of this proposed project would be beneficial and that no mitigation would be required. This project area is located well north of the Preferred Alternative area.

6.4 *PROPOSED ACTION*

For the Preferred Alternative, the most significant resources that would potentially be adversely impacted are benthic resources and water quality. The project impact zone is in the middle of the federally-owned and managed Wallisville Lake Project. The impacts of the proposed project are expected to be localized, affecting only this limited area. The temporary impacts from sheetpile wall construction are not expected to last beyond the construction period.

The turbidity impacts that are anticipated to occur in association with construction activities would be temporary. Benthic organisms presently occupying the proposed construction footprint would be eliminated, but these impacts would be negligible, given the amount of these resources in the general area. No past projects have included bank protection in this general area, and no reasonably foreseeable bank protection projects are anticipated.

The proposed bank protection would have a positive effect on the adjacent marsh system and a nearby historic property. If erosion is allowed to proceed unchecked, higher salinity waters would be able to flow into the old borrow area and adjacent marsh system, stressing the marsh vegetation, leading to its eventual death and the expansion of open water areas within the marsh. In addition, areas within the direct path of the new flow would be eroded by the higher velocity flows. Furthermore, the nearby historic property (the Cummings Lumber Mill site) would be threatened and possibly destroyed by the erosion caused by the breach.

Based on this assessment, no adverse cumulative impacts to environmental resources are expected as a result of project implementation.

7.0 RELATIONSHIP TO OTHER FEDERAL PROJECTS

The Preferred Alternative would be constructed on Federal lands in the Wallisville Lake Project. All project purposes are consistent with the goals and objectives of the Resource Management Plans outlined in the Wallisville Lake Project Master Plan (USACE, 1996).

The project area is also located on the banks of the federally-authorized Channel to Liberty navigation project. The proposed bank protection would not extend into the existing navigation channel or in any other way affect the operation of this project.

8.0 COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS

This assessment has been prepared to satisfy the requirements of all applicable environmental laws and regulations, and has been prepared in accordance with the Council on Environmental Quality's implementing regulations for the National Environmental Policy Act (NEPA), 40 CFR Parts 1500 – 1508, and USACE Regulation ER 200-2-2, *Environmental Quality: Procedures for Implementing NEPA*. The planning and implementation of the proposed project is consistent with the U. S. Army Corps of Engineers' Environmental Operating Principles and Campaign Plan. The following is a list of applicable environmental laws and regulations that were considered in the planning of this project and the status of compliance with each:

<u>National Environmental Policy Act</u> - This environmental assessment has been prepared in accordance with Council on Environmental Quality regulations for implementing NEPA. The environmental and social consequences of the recommended plan have been analyzed in accordance with the Act and presented in the assessment.

<u>Fish And Wildlife Coordination Act Of 1958, As Amended</u> - The proposed plan is being coordinated with the U. S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and Texas Parks and Wildlife Department. A copy of this draft EA was provided to these agencies and information provided by these agencies on fish and wildlife resources was considered in the development of the final project plan. Agency comment letters are provided in Appendix E; no comments were received from the USFWS. The NMFS concurred, by letter dated July 26, 2010, that the proposed project will not have substantial adverse affects on living marine resources. The TPWD, by letter dated August 20, 2010,

disagreed about the cause of erosion and recommended that the USACE implement the non-structural alternative. USACE responses to TPWD comments are also presented in Appendix E.

Endangered Species Act of 1973, as amended – The District coordinated with the USFWS and NMFS regarding our assessment that the proposed project would not affect threatened, endangered or proposed species and their critical habitats. No response was received from either agency.

Magnuson-Stevens Fishery Conservation and Management Act - Congress enacted amendments to the Magnuson-Stevens Fishery Conservation and Management Act in 1996 that established procedures for identifying essential fish habitat and required interagency coordination to further the conservation of federally-managed fisheries. Rules published by the National Marine Fisheries Service (50 CFR 600.805 through 600.930) specify that any Federal agency that authorizes, funds or undertakes, or proposes to authorize, fund or undertake an activity that could adversely affect EFH be subject to the consultation provisions of the act. No significant impacts to living marine resources would occur as a result of the project and no EFH or BAPC is located in the project area (Sections 3.4 and 4.4). The draft EA was coordinated with NMFS. NMFS concurred, by letter dated July 26, 2010, that the proposed project will have not have a substantial adverse effect on designated essential fish habitat for federally managed species (Appendix E).

Clean Water Act of 1977 – The District evaluated the proposed action pursuant to Section 404(b)(1) of the Clean Water Act and this analysis is included in Appendix C. A Joint Public Notice has been issued with the Texas Commission on Environmental Quality (TCEQ) (Appendix A). The Commission is the state agency for issuing state water quality certifications pursuant to Section 401 of the Clean Water Act. TCEQ concurred, by letter dated August 20, 2010, that there is reasonable assurance that the project will be conducted in a way that will not violate water quality standards (Appendix C).

National Historic Preservation Act of 1966, as amended – Compliance with the National Historic Preservation Act of 1966, as amended, requires identification of all properties in the project area listed on, or eligible for listing on, the NRHP. For any adversely affected properties, mitigation measures must be developed in coordination with the SHPO and the Advisory Council on Historic Preservation. The District initiated coordination of the proposed project with the Texas SHPO in a July 19, 2010 letter. No impacts to historic properties have been identified. No response from the SHPO was received and, pursuant to the regulation, the District may proceed.

Coastal Zone Management Act of 1972 - This Act requires that all land-use changes in the project area be conducted in accordance with approved state coastal zone management programs. Any project that is located in, or which may affect land and water resources in the Texas coastal zone and that requires a federal license or permit, or is a direct activity of a federal agency, or is federally funded must be reviewed for consistency with the Texas Coastal Management Program (TCMP). The proposed action is within the coastal boundary defined by the TCMP. The District has determined that the proposed project would not adversely impact these resource areas and that the proposed activities are consistent with the goals and policies of the Texas Coastal Management Program to the maximum extent practicable. The District's consistency

review and the TCMP consistency determination are provided in Appendix D. By letter dated August 23, 2010, the Coastal Coordination Council concurred that the project is consistent with TCMP goals and policies.

Clean Air Act of 1977 - The Environmental Protection Agency established nationwide air quality standards to protect public health and welfare. The State of Texas has adopted the National Ambient Air Quality Standards as the state's air quality criteria. The project is located in the Houston-Galveston-Brazoria non-attainment area. Emissions from construction activities have been determined to be well below *de minimis* levels are not considered regionally significant (Sections 3.7 and 4.7). By letter dated August 5, 2010, TCEQ concurred that a general conformity analysis will not be required and that the project would pose no significant impact upon air quality standards (Appendix E).

Executive Order 11990, Protection of Wetlands - The proposed action has been analyzed for compliance with Executive Order 11990. The project area does not contain wetlands, nor would wetlands outside the project area be affected by the project. Therefore, the proposed project is in compliance with this Order (Sections 3.2 and 4.2).

Executive Order 11988, Floodplain Management - This Order directs Federal agencies to evaluate the potential effects of proposed actions in floodplains. The proposed project is situated in a floodplain. In accordance with this Order, a public notice (Appendix A) has been circulated to acquaint the public and all interested Federal, State and local agencies and organizations with details of the proposed action and provide opportunity for public hearing. The recommended plan would not induce increased flooding in developed areas and would not contribute to increased future flood damages.

Council on Environmental Quality Memorandum dated August 11, 1980, Prime or Unique Farmlands - Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses. Unique farmland is land other than prime farmland that is used for the production of specific high value food and fiber crops. The proposed project would not impact any lands considered prime or unique farmlands.

Executive Order 12898, Environmental Justice - This Order directs Federal agencies to achieve environmental justice to the greatest extent practicable and permitted by law, and consistent with the principles set forth in the report on the National Performance Review. Agencies are required to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. The proposed project would not have a disproportionate adverse impact on minority or low-income population groups within the project area (Sections 3.11 and 4.11).

Memorandum of Agreement (MOA) with the FAA to Address Aircraft-Wildlife Strikes - This MOA was executed between the Federal Aviation Administration, the U.S. Air Force, the U.S. Army, the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, and the U.S. Department of Agriculture. Through this MOA, the agencies establish procedures necessary to coordinate their missions to more effectively address existing and future

environmental conditions contributing to aircraft-wildlife strikes throughout the United States. These efforts are intended to minimize wildlife risks to aviation and human safety, while protecting the Nation's valuable environmental resources. A search was made to determine the proximity of airports to the project site. There are no airports located within 5 statute miles of the proposed project site. No further coordination is required.

9.0 CONCLUSIONS

The following specific conclusions summarize the findings of the EA, as detailed in the environmental analyses in Section 4.0:

- Aquatic habitat would be temporarily and/or negligibly affected during the construction activities, but these impacts do not represent significant impacts to the environment.

- No terrestrial habitats would be adversely affected by this proposed action.

- Fish and invertebrates may be affected locally in the project area, but this does not represent significant or adverse impacts to the environment.

- Threatened or endangered species would not be affected by the project.

- Historic properties or recorded archeological sites would not be affected by the proposed action.

- Emissions from construction activities would be below *de minimis* levels and would not be regionally significant.

- Implementation of the proposed action would not result in any significant or permanent noise impacts.

- There would be no long-term impacts to water quality from the proposed activities.

- There would be no hazardous and/or toxic waste impacts from the proposed action.

- There would no adverse impacts to recreation. Recreation activities would be facilitated by protecting access to a trail and boardwalk system.

- No significant or adverse impacts to environmental resources are expected to occur as a result of implementation of the proposed project. No adverse cumulative impacts to environmental resources are expected as a result of project implementation

- The U.S. Army Corps of Engineers finds that the proposed action is in compliance with the Texas Coastal Management Program.

The proposed project would not result in significant impacts to the human environment. Therefore, the preparation of an Environmental Impact Statement is not required.

10.0 LITERATURE CITED

Fox, A.A., D.W. Day, and L. Highley. 1980. Archaeological and Historical Investigations at Wallisville Lake, Chambers and Liberty Counties, Texas. Archaeological Survey Report No. 90. Center for Archaeological Research, the University of Texas at San Antonio.

Hatch, S.L., K.N. Gandhi, and L.E. Brown. 1990. Checklist of the vascular plants of Texas. MP-1655. The Texas Agricultural Experiment Station. Texas A&M University, College Station.

H.R. 2638--110th Congress: Consolidated Security, Disaster Assistance, and Continuing Appropriations Act, 2009." GovTrack.us (database of federal legislation). 2007. September 1, 2010 http://www.govtrack.us/congress/bill.xpd?tab=summary&bill=h110-2638

La Salle, M. W. and A. A. de la Cruz. 1985. Common Rangia, Species Profiles: Life Histories and Environmental Requirements of Coastal Fishes and Invertebrates (Gulf of Mexico). Biological Report 82 (11.31), TR EL-82-4. U.S. Fish and Wildlife Service and Coastal Ecology Group, Waterways Experiment Station, U.S. Army Corps of Engineers.

NOAA (National Oceanic and Atmospheric Administration). 2010. Mean Sea Level Trend 8771450 Galveston Pier 21, Texas. Available on the internet at: http://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?stnid=8771450 Galveston Pier 21, TX

Pearson, C. E., W.L. Fullen, M.S. Henson, and G.J. Castille. 1985. Cultural Resource Evaluation of the J.J. Mayes Farm and the Cummings Lumber Mill, Wallisville Lake Project Area, Texas. Coastal Environments, Inc. Baton Rouge, LA.

Stokes, J. 1983. In-House Survey Report for the First Increment of Construction, Wallisville Lake Project Borrow Areas 3, 4, and 5. U.S. Army Corps of Engineers, Galveston District.

TCEQ. 2008. Texas Water Quality Inventory and 303(d) List. Available on the internet at: http://www.tceq.state.tx.us/compliance/monitoring/water/quality/data/wqm/305_303.html #fy2008

--------. 2010. SIP Revision: Houston-Galveston-Brazoria 2007. Texas Commission on Environmental Quality. Available on the internet at: http://www.tceq.state.tx.us/implementation/air/sip/may2007hgb.html

USACE (U. S. Army Corps of Engineers). 1981. Final Environmental Impact Statement, Wallisville Lake Project, Texas. Galveston District, Southwestern Division. July 1981.

--------. 1990. Environmental Assessment for Implementing the Continuous Two-Foot Pool Operation at Wallisville Lake, Texas. Galveston District, Southwestern Division. September 1990.

--------. 1995. Environmental Assessment for Changes in Project Features and Operation, Wallisville Lake, Texas. Galveston District, Southwestern Division. June 1995.

--------. 1996. Master Plan: Wallisville Lake, Texas Project. Galveston District, Southwestern Division.

--------. 2000. Record of Environmental Consideration for Additions to Project Features Near IH-10 and West Non-Overflow Dam and Removal of a Navigation Hazard at the Abandoned South Overflow Dam. Galveston District, Southwestern Division. July 2000.

--------. 2002. Record of Environmental Consideration for Maintenance, Improvements, and Additions to Project Features, Wallisville Lake, Texas. Galveston District, Southwestern Division. July 2002.

--------. 2007. Texas City Channel Deepening Project, General Reevaluation Report and Environmental Assessment. US Army Corps of Engineers, Galveston District.

USCB (United States Census Bureau). 2010. American Fact Finder, 2000 Census Data. Available on the internet at: http://factfinder.census.gov/servlet/AdvSearchByPlacenameServlet

USFWS (U. S. Fish and Wildlife Service). 1992. Threatened status of the Louisiana black bear and related rules. Federal Register Vol. 57, No. 4.

-------. 2010. Southwest Region, Endangered Species List, Chambers County. Available on the internet at: http://www.fws.gov/southwest/es/EndangeredSpecies/lists/ListSpecies.cfm.

Weinstein, R.A. and J.P. Whelan, Jr. 1987. Archaeological Testing at Three Sites in the Wallisville Lake Project Area, Trinity River Delta, Chambers County, Texas. Coastal Environments, Inc., Baton Rouge, LA.

APPENDIX A

PUBLIC NOTICE AND PUBLIC COMMENTS

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON, TEXAS 77553-1229

July 21, 2010

Environmental Section

JOINT PUBLIC NOTICE
U.S. ARMY CORPS OF ENGINEERS, GALVESTON DISTRICT
AND
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

OPERATIONS AND MAINTENANCE
SECTION 5 OF THE ACT OF AUGUST 18, 1941 (33 USC 701n) AUTHORITY

TRINITY RIVER BANK PROTECTION
WALLISVILLE LAKE PROJECT
CHAMBERS COUNTY, TEXAS

PURPOSE

This public notice is to inform interested parties that the U.S. Army Corps of Engineers, Galveston District (the District) has prepared a draft Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA), Public Law 91-190, and regulations for implementing the Procedural Provisions of the NEPA, 40 Code of Federal Regulations 1500-1508. This notice is being distributed to interested State, Federal, and local agencies, private organizations, and individuals in order to assist in collecting facts and recommendations concerning the proposed plan to protect an eroding section of the Trinity River in Chambers County Texas.

PROJECT LOCATION

The proposed project area is located entirely within the federally-owned and managed Wallisville Lake Project, on the west bank of the Trinity River, approximately 0.75 mile south of Interstate Highway (IH) 10.

NEED FOR WORK

An approximately 1,060-foot long section of the Trinity River Bank has been damaged by overbank flow associated with several recent tropical storms and hurricanes, beginning with Hurricane Rita in 2005. In this reach, the river bank is lower than the adjacent upstream and downstream banks. During tropical storms, heavy rainfall and high tides flood the adjacent old borrow area and flow into the river, eroding the narrow vegetated bank between the road and the river. The river bank is now encroaching into the roadway at the upstream and downstream ends of the eroding section. Bank protection for this reach of the Trinity River would protect the

River Road and maintain needed access to downstream Wallisville Lake Project recreation features. The bank protection would also afford protection to marsh habitat that is developing within the old borrow area west of the road, and a cultural resource site (the remains of the Cummings Lumber Mill) near the downstream end of the eroding zone.

PROPOSED WORK

The proposed work would consist of the construction of a sheetpile wall approximately 1,060 feet long to stabilize and protect the existing bankline. The construction zone would extend approximately 20 feet from the bank into the river, and be no greater than 60 feet wide on land, extending from the river bank across the existing road. The construction zone would not encroach into the adjacent old borrow area. The sheetpile wall construction impact zone would be approximately 2 acres in size.

The sheetpiling would be driven into the shoreline as close as possible to the existing bank. Due to the irregular shape of the shoreline, some filling between the sheetpile wall and the shoreline would be necessary. The underwater toe of the sheetpile wall may need to be protected by rock riprap, if determined necessary by the design/construction contractor. This protection would require that approximately 4,700 tons of 24-inch rock riprap be placed in the sloping river bank at the toe of the sheetpile wall. The riprap would be approximately 18 feet wide by 5 feet deep by 1,060 feet long. A horizontal platform would be prepared for riprap placement in the sloping shoreline by excavating approximately 5,300 cy of material from in front of the sheetpile wall to a depth of approximately 15 feet below mean low tide. Excavation would be conducted using a dragline crane and clam shell bucket. Approximately 1,000 cubic yards (cy) of the excavated material would be used to fill behind the sheetpile wall.

Excess material would be trucked and placed in a dry, upland section of the West Non-Overflow Dam (WNOD) right-of-way that was previously excavated for fill material for prior projects. If the riprap protection and associated excavation is not necessary, then material to fill behind the sheetpile wall would be obtained by scavenging the surface of the WNOD with a bulldozer just west of the proposed placement location. The placement area would total approximately 0.5 acre, and if needed, the borrow area would total approximately 0.4 acre. The staging area for equipment, materials and private vehicle parking would be located in a previously disturbed 0.45-acre area adjacent to the construction site.

COMPLIANCE WITH LAWS AND REGULATIONS

This proposed plan is being coordinated with the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and other Federal, state, and local agencies. Our initial determination is that the proposed action would have no effect on federally-listed threatened and endangered species and species of concern in the project area as none of these species are likely to occur in this area. Regarding compliance with Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act,

our initial determination is that EFH for managed species does not extend into the Trinity River, and thus does not include the project area. Habitat Areas of Particular Concern have also not been identified for the project area.

The proposed placement of fill material will be evaluated with regard to the requirements of Section 404(b)(1) of the Clean Water Act, provided in Appendix C of the draft Environmental Assessment (EA). Water quality certification has been requested from the Texas Commission on Environmental Quality (TCEQ).

It is also our preliminary determination that the proposed action is consistent with the Texas Coastal Management Program (TCMP) to the maximum extent practicable (Appendix D in the draft EA).

The proposed activity is being coordinated with the Texas State Historic Preservation Officer (SHPO).

The following is a list of Federal, State, and local agencies with which these activities are being coordinated:

U.S. Environmental Protection Agency, Region 6
U.S. Department of Commerce (NMFS)
U.S. Department of the Interior (USFWS)
Eighth Coast Guard District
Budget and Planning Office, Office of the Governor of Texas
Texas Historical Commission (SHPO)
Texas Parks and Wildlife Department
Texas Commission on Environmental Quality
Texas General Land Office
Coastal Coordination Council
The Texas Office of State-Federal Relations
Texas Department of Transportation

STATE WATER QUALITY CERTIFICATION

TCEQ certification is required. The TCEQ is reviewing the proposed project under Section 401 of the Clean Water Act and in accordance with Title 31, Texas Administrative Code Section 279.1-13 to determine if the work would comply with State water quality standards. By virtue of an agreement between the U.S. Army Corps of Engineers and the TCEQ, this public notice is also issued for the purpose of advising all known interested persons that there is pending before the TCEQ a decision on water quality certification under such act. Any comments concerning this work may be submitted to the Texas Commission on Environmental Quality, Attention: 401 Coordinator, MC-150, P.O. Box 13087, Capitol Station, Austin, Texas 78711-13087. The public

comment period extends 30 days from the date of publication of this notice. A copy of the public notice with a description of work is made available for review in the TCEQ's Austin office.

The TCEQ may conduct a public meeting to consider all comments concerning water quality if requested in writing. A request for a public meeting must contain the following information: the name, mailing address, and telephone number of the person making the request; a brief description of the interest of the requester, or of persons represented by the requester; and a brief description of how the project would adversely affect such interest.

EVALUATION FACTORS

The decision whether to proceed with the proposed action will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources as well as public and environmental safety and economic concerns.

ENVIRONMENTAL DOCUMENTATION

The work described in this notice represents a change to the existing project. A preliminary review of this proposed plan indicates that an Environmental Impact Statement (EIS) is not required. This preliminary determination of EIS requirement will be changed if information brought forth in the coordination process is of a significant nature. Based on this determination, a draft EA has been prepared. The EA assesses potential impacts to the human and natural environment that would result from the proposed project. The document is available online at: http://www.swg.usace.army.mil.

PUBLIC COMMENT

Persons desiring to express their views or provide information to be considered in evaluating the impact of this work and the future maintenance operations are requested to mail their comments within 30 days of the date of this notice to:

District Engineer
U.S. Army Engineer District, Galveston
ATTN: CESWG-PE-PR
P.O. Box 1229
Galveston, Texas 77553-1229

The comments should make specific reference to Public Notice for the Trinity River Bank Protection Project.

Any person who has an interest that may be affected by this action may request a public hearing. The request must be submitted in writing within 30 days of the date of this notice and must

clearly set forth the interest that may be affected and the manner in which the interest may be affected by this activity.

Any questions concerning the proposed action may be directed to Ms. Janelle Stokes at (409) 766-3039 or Mr. Jerry Androy at (409) 766-3821.

Dolan Dunn
Chief, Planning, Environmental
and Regulatory Division
Galveston District

No public comments were received.

APPENDIX B

RESPONSES TO PUBLIC COMMENTS ON DRAFT ENVIRONMENTAL ASSESSMENT

No public comments were received.

APPENDIX C

CLEAN WATER ACT SECTION 404(B)(1) EVALUATION, AND WATER QUALITY CERTIFICATION

EVALUATION OF SECTION 404(b)(1) GUIDELINES (SHORT FORM)

PROPOSED PROJECT: GIWW Channel Improvements, Vicinity of Port Isabel

	Yes	No*
1. Review of Compliance (230.10(a)-(d))		
A review of the proposed project indicates that:		
a. The placement represents the least environmentally damaging practicable alternative and, if in a special aquatic site, the activity associated with the placement must have direct access or proximity to, or be located in the aquatic ecosystem, to fulfill its basic purpose (if no, see section 2 and information gathered for EA alternative).	**X**	
b. The activity does not appear to:		
1) Violate applicable state water quality standards or effluent standards prohibited under Section 307 of the Clean Water Act;	**X**	
2) Jeopardize the existence of Federally listed endangered or threatened species or their habitat; and	**X**	
3) Violate requirements of any Federally designated marine sanctuary (if no, see section 2b and check responses from resource and water quality certifying agencies).	**X**	
c. The activity will not cause or contribute to significant degradation of waters of the U.S. including adverse effects on human health, life stages of organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, aesthetic, an economic values (if no, see values, Section 2)	**X**	
d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem (if no, see Section 5)	**X**	

	Not Applicable	Not Significant	Significant*
2. Technical Evaluation Factors (Subparts C-F) (where a 'Significant' category is checked, add explanation below.)			
a. Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C)			
1) Substrate impacts		**X**	
2) Suspended particulates/turbidity impacts		**X**	
3) Water column impacts		**X**	
4) Alteration of current patterns and water circulation		**X**	
5) Alteration of normal water fluctuation/hydroperiod		**X**	
6) Alteration of salinity gradients		**X**	
b. Biological Characteristics of the Aquatic Ecosystem (Subpart D)			
1) Effect on threatened/endangered species and their habitat		**X**	
2) Effect on the aquatic food web		**X**	
3) Effect on other wildlife (mammals, birds, reptiles and amphibians)		**X**	

	Not Applicable	Not Significant	Significant*
2. Technical Evaluation Factors (Subparts C-F) (where a 'Significant' category is checked, add explanation below.)			
c. Special Aquatic Sites (Subpart E)			
1) Sanctuaries and refuges	**X**		
2) Wetlands	**X**		
3) Mud flats	**X**		
4) Vegetated shallows	**X**		
5) Coral reefs	**X**		
6) Riffle and pool complexes	**X**		
d. Human Use Characteristics (Subpart F)			
1) Effects on municipal and private water supplies	**X**		
2) Recreational and Commercial fisheries impacts		**X**	
3) Effects on water-related recreation	**X**		
4) Aesthetic impacts		**X**	
5) Effects on parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves		**X**	

	Yes
3. Evaluation of Dredged or Fill Material (Subpart G)	
a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material (check only those appropriate)	
1) Physical characteristics	X
2) Hydrography in relation to known or anticipated sources of contaminants	**N/A**
3) Results from previous testing of the material or similar material in the vicinity of the project	**N/A**
4) Known, significant sources of persistent pesticides from land runoff or percolation	**N/A**
5) Spill records for petroleum products or designated (Section 311 of Clean Water Act) hazardous substances	**X**
6) Other public records of significant introduction of contaminants from industries, municipalities or other sources	**X**
7) Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities	**X**
8) The material to be placed in the water consists of sand and rock. The material is considered to be exempt from contaminant testing.	**X**

List appropriate references:

USACE, 1996. Master Plan: Wallisville Lake, Texas Project. Galveston District, Southwestern Division.

	Yes	No
b. An evaluation of the appropriate information in 3a above indicates that there is reason to believe the proposed dredge or fill material is not a carrier of contaminants, or that levels of contaminants are substantively similar at extraction and placement sites and not likely to degrade the placement sites, or the material meets the testing exclusion criteria.	**X**	

	Yes
4. Placement Site Delineation (230.11(f))	
a. The following factors as appropriate, have been considered in evaluating the placement site:	
1) Depth of water at placement site	**N/A**
2) Current velocity, direction, and variability at placement site	**N/A**
3) Degree of turbulence	**N/A**
4) Water column stratification	**N/A**
5) Discharge vessel speed and direction	**N/A**
6) Rate of discharge	**N/A**
7) Fill material characteristics (constituents, amount, and type of material, settling velocities)	**X**
8) Number of discharges per unit of time	**X**
9) Other factors affecting rates and patterns of mixing (specify)	**N/A**

List appropriate references:

1) not applicable

	Yes	No
b. An evaluation of the appropriate factors in 4a above indicates that the placement site and/or size of mixing zone are acceptable.	**X**	

	Yes	No
5. Actions to Minimize Adverse Effects (Subpart H)		
All appropriate and practicable steps have been taken, through application of recommendations of 230.70-230.77 to ensure minimal adverse effects of the proposed discharge.	**X**	

List actions taken:

1) Best practices (silt curtain or other barrier) will be used to prevent run-off from the construction site into the old borrow pit.

2) Dredged material will consist of natural, uncontaminated bay bottom material.

	Yes	No*
6. Factual Determination (230.11)		
A review of appropriate information as identified in items 2-5 above indicates that there is minimal potential for short- or long-term environmental effects of the proposed discharge as related to:		
a. Physical substrate at the placement site (review Sections 2a. 3, 4, and 5 above)	**X**	
b. Water circulation, fluctuation and salinity (review Sections 2a. 3, 4, and 5)	**X**	
c. Suspended particulates/turbidity (review Sections 2a. 3, 4, and 5)	**X**	
d. Contaminant availability (review Sections 2a. 3, and 4)	**X**	
e. Aquatic ecosystem structure and function (review Sections 2b and c, 3, and 5)	**X**	
f. Placement site (review Sections 2, 4, and 5)	**X**	
g. Cumulative impacts on the aquatic ecosystem	**X**	
h. Secondary impacts on the aquatic ecosystem	**X**	

7. Evaluation Responsibility	
a. This evaluation was prepared by:	Janelle Stokes
Position:	Regional Environmental Specialist

8. Findings	Yes
a. The proposed placement site for discharge of or fill material complies with the Section 404(b)(1) Guidelines.	X
b. The proposed placement site for discharge of dredged or fill material complies with the Section 404(b)(1) Guidelines with the inclusion of the following conditions:	

List of conditions:

1) **not applicable**

c. The proposed placement site for discharge of dredged or fill material does not comply with the Section 404(b)(1) Guidelines for the following reason(s):	
1) There is a less damaging practicable alternative	
2) The proposed discharge will result in significant degradation of the aquatic ecosystem	
3) The proposed discharge does not include all practicable and appropriate measures to minimize potential harm to the aquatic ecosystem	

1 Sep 2010 Date	Janelle Stokes Janelle Stokes Regional Environmental Specialist

NOTES:

* A negative, significant, or unknown response indicates that the permit application may not be in compliance with the Section 404(b)(1) Guidelines.

Negative responses to three or more of the compliance criteria at the preliminary stage indicate that the proposed projects may not be evaluated using this "short form" procedure. Care should be used in assessing pertinent portions of the technical information of items 2a-e before completing the final review of compliance.

Negative response to one of the compliance criteria at the final stage indicates that the proposed project does not comply with the Guidelines. If the economics of navigation and anchorage of Section 404(b)(2) are to be evaluated in the decision-making process, the "short form" evaluation process is inappropriate.

Bryan W. Shaw, Ph.D., *Chairman*
Buddy Garcia, *Commissioner*
Carlos Rubinstein, *Commissioner*
Mark R. Vickery, P.G., *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

August 12, 2010

Ms. Janelle Stokes
U.S. Army Corps of Engineers
Galveston District CESWG-PE-RE
P.O. Box 1229
Galveston, Texas 77553-1229

Re: Trinity River Bank Protection - Wallisville Lake Project

Dear Ms. Stokes:

As described in the Joint Public Notice, dated July 21, 2010, the Galveston District of the U.S Army Corps of Engineers (Corps), proposes to protect an eroding section of the Trinity River in the Wallisville Lake Project. The proposed project would protect an approximately 1,060-feet long section of the river bank which has been damaged by overbank flow associated with several recent tropical storms and hurricanes. The public notice states that the project would stop erosion along the section of the river bank, maintain access to recreational facilities, protect marsh habitat from salinity intrusion, and protect a nearby historic property. The project area is located entirely within the federally-owned and managed Wallisville Lake Project, on the west bank of the Trinity River, approximately 0.75 mile south of Interstate Highway 10.

A Draft Environmental Assessment (DEA dated July 2010) was prepared by the Corps for this project and provided to the Texas Commission on Environmental Quality (TCEQ) for review. The proposed work would consist of the construction of a sheetpile wall approximately 1,060 feet long. The sheetpile wall construction impact zone would be approximately 2 acres in size. The sheetpiling would be driven into the shoreline as close as possible to the existing bank. Some filling between the sheetpile wall and the shoreline would be necessary. The undertoe of the sheetpile wall may need to be protected by riprap. Approximately 4700 tons of 24-inch rock riprap which would be placed in the sloping river bank at the toe. The riprap would be approximately 18 feet wide by 5 feet deep by 1,060 feet long.

In addition to the information contained in the public notice, the following information is needed for review of the proposed project. Responses to this letter may raise other questions that will need to be addressed before a water quality certification determination can be made.

1. Please explain how the preferred alternative (sheetpile wall) will affect bank erosion downstream of the project.

2. Section 5.0 of the DEA states that no compensatory mitigation is required because the project impacts would be minimal and temporary. The public notice states that the project would impact approximately 2 acres of river bank. The TCEQ recommends compensation for these impacts which may be achieved with appropriate placement of rip-rap or other structures. If the Corps disagrees, please explain why compensatory mitigation is not required.

3. Please indicate what Best Management Practices (BMPs) will be used to maintain water quality during construction and post construction of the project. BMPs for placement and borrow areas should also be described.

4. The formal consistency determination will be provided by a letter from the Coastal Coordination Council under the federal consistency determination process.

The TCEQ looks forward to receiving and evaluating other agency or public comments. Please provide any agency comments, public comments, as well as the applicant's comments, to Mr. John Trevino of the Water Quality Division MC-150, P.O. Box 13087, Austin, Texas 78711-3087. Mr. Trevino may also be contacted by e-mail at *jtrevino@tceq.state.tx.us*, or by telephone at (512) 239-4600.

Sincerely,

Charles W. Maguire, Director
Water Quality Division
Texas Commission on Environmental Quality

CWM/JT/evm

cc: Mr. Ben Rhame, Secretary, Coastal Coordination Council, P. O. Box 12873, Austin, Texas 78711-2873

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON, TEXAS 77553-1229

REPLY TO ATTENTION OF

August 13, 2010

Environmental Section

Mr. Charles W. Maguire
Director
Texas Commission on Environmental Quality
Water Quality Division MC-150
P.O. Box 13087
Austin, TX 78711-3087

Attention: Mr. John Trevino, Water Quality Division MC-150

Dear Mr. Maguire:

This letter provides additional information requested by your letter of August 12, 2010 regarding the proposed Trinity River Bank Protection, Wallisville Lake Project, Chambers County, Texas. A response to each of your questions is provided below.

1. The Galveston District's (District) preliminary engineering evaluation concluded that the preferred alternative (sheetpile wall) is not likely to increase bank erosion downstream of the project. However, the potential addition of erosion-control features is included in the Environmental Assessment (EA), in the event that the design/construction contractor determines them to be necessary. As described in the EA, construction impacts in the affected area (approximately 2 acres) include the potential installation of approximately 50 feet of riprap at each end of the sheetpile wall. Based upon this preliminary evaluation and the contingent inclusion of erosion control features, the proposed project is not expected to cause erosion downstream of the project.

2. The Texas Commission on Environmental Quality (TCEQ) recommends that impacts to the river bank be compensated by the placement or riprap or other structures. The District does not believe that compensation is necessary because no wetlands are present in the impact area, and because project impacts would be minimal and temporary. The 2 acres identified in the EA as the "construction impact zone" include the entire width of the roadway that would be used as a construction staging area, the emergent bank between the road and the river, and the submerged bank extending 20 feet into the Trinity River. The amount of river bank that would be impacted by construction is thus a fraction of the total 2-acre construction impact zone. The sheetpile wall would be driven into the sloping river bank as close to the emergent bank as possible. If riprap is not needed to protect the underwater toe of the wall, then the sloping river bank below the wall would remain in place and provide the same habitat that is does today. This will be clarified in section 1.4 of the EA. Approximately 0.15 acre of river bank, between the

sheetpile wall and the top of bank, would be replaced by the sheetpile wall and backfill. As already described in the EA, approximately 5,300 cubic yards of material would be excavated from in front of the sheetpile wall (if riprap installation is necessary) to prepare the platform for placement of the riprap. In this case, the river bank habitat would be replaced by riprap, which would itself serve as an alternative hard substrate habitat. This would be equivalent to the compensation proposed by TCEQ.

3. TCEQ asked that we identify what Best Management Practices would be used to maintain water quality during construction and post-construction. During project construction, silt curtains would be suspended from booms in the river around the construction site to control and reduce the release of suspended solids during construction. Silt curtains would also be installed on land around the immediate construction area, all construction staging areas, and potential borrow/placement areas. Post-construction, the curtains would be retained in place until suspended solids have settled to ambient levels.

In conclusion, we hope this additional information will be helpful in your review and prove sufficient for you to provide §401 State Water Quality Certification for this project. All public and agency comments on the draft EA and our responses will be available for your review when they are presented in the Final EA. If you have any further questions regarding this project, please contact Janelle Stokes at (409) 766-3039 or Janelle.S.Stokes@usace.army.mil.

Sincerely,

Carolyn Murphy

Carolyn Murphy
Chief, Environmental Section

Copy Furnished:

Ms. Tammy Brooks
Texas Coastal Coordination Council
P.O. Box 12873
Austin, Texas 78711-2873

Bryan W. Shaw, Ph.D., *Chairman*
Buddy Garcia, *Commissioner*
Carlos Rubinstein, *Commissioner*
Mark R. Vickery, P.G., *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

August 20, 2010

Ms. Janelle Stokes
U.S. Army Corps of Engineers
Galveston District CESWG-PE-RE
P.O. Box 1229
Galveston, Texas 77553-1229

Re: Trinity River Bank Protection-Wallisville Lake Project

Dear Ms. Stokes:

This letter is in response to the draft Environmental Assessment (EA) dated July 2010, on the proposed project to protect an eroding section of the Trinity River in the Wallisville Lake Project area. The proposed project would protect an approximately 1,060-feet long section of the river bank. The purpose of the project is to prevent erosion along the section of the river bank, maintain access to recreational facilities, protect marsh habitat from salinity intrusion, and protect a nearby historic property. The project area is located entirely within the federally-owned and managed Wallisville Lake Project, on the west bank of the Trinity River, approximately 0.75 mile south of Interstate Highway 10.

The Texas Commission on Environmental Quality (TCEQ) has reviewed the draft EA. Based on our evaluation of the information contained in these documents, the TCEQ certifies that there is reasonable assurance that the project will be conducted in a way that will not violate water quality standards.

The proposed work would consist of the construction of a sheetpile wall approximately 1,060 feet long. The sheetpile wall construction impact zone would be approximately 2 acres in size. The sheetpiling would be driven into the shoreline as close as possible to the existing bank. Some filling between the sheetpile wall and the shoreline would be necessary. The undertoe of the sheetpile wall may need to be protected by riprap. Approximately 4700 tons of 24-inch rock riprap which would be placed in the sloping river bank at the toe. The riprap would be approximately 18 feet wide by 5 feet deep by 1,060 feet long.

To maintain water quality, the applicant states that during project construction, silt curtains would be suspended from booms in the river around the construction site to control and reduce suspended solids. Silt curtains would also be installed on land around the immediate construction area, all staging areas, and borrow/placement areas.

The formal consistency determination will be provided by a letter from the Coastal Coordination Council under the federal consistency process.

No review of property rights, location of property lines, nor the distinction between public and private ownership has been made, and this certification may not be used in any way with regard to questions of ownership.

If you require additional information or further assistance, please contact Mr. John Trevino, Water Quality Assessment Section, Water Quality Division (MC-150), at (512) 239-4600.

Sincerely,

Charles W. Maguire, Director
Water Quality Division
Texas Commission on Environmental Quality

CWM/JT/ms

cc: Mr. Ben Rhame, Secretary, Coastal Coordination Council, P.O. Box 12873, Austin, Texas 78711-2873

APPENDIX D

COMPLIANCE WITH THE TEXAS COASTAL MANAGEMENT PLAN

CONSISTENCY WITH THE TEXAS COASTAL MANAGEMENT PROGRAM

TRINITY RIVER BANK PROTECTION
WALLISVILLE LAKE PROJECT, CHAMBERS COUNTY, TEXAS

INTRODUCTION

The State of Texas submitted the Texas Coastal Management Program (TCMP) to the National Oceanic and Atmospheric Administration for review pursuant to Section 306 of the Federal Coastal Zone Management Act of 1972, as amended (16 U.S.C. 1451 *et seq*.). The TCMP was approved by the Office of Ocean and Coastal Resource Management in 1996. Federal approval of the TCMP requires that federal actions occurring within the TCMP boundary be consistent, to the maximum extent practicable, with the goals and policies of the TCMP. To show compliance, Federal agencies responsible for these actions must prepare a consistency determination and submit it to the state for review.

This consistency determination for the proposed project is prepared in accordance with the "Texas Coastal Management Program Final Environmental Impact Statement," dated August 1996 (U.S. Department of Commerce, 1996). Details of the proposed project, as well as environmental impacts, are presented in previous sections of this EA and will be referenced in this determination. It is the intent of the Galveston District of the U.S. Army Corps of Engineers that all USACE projects be consistent to the maximum extent practicable with the goals and policies of the Texas Coastal Management Program.

IMPACT ON COASTAL NATURAL RESOURCES AREAS

A description of the project, an environmental description of the site, environmental impacts resulting from construction of the project, and results of a cultural resource investigation of the project area are presented in Sections 1.0, 3.0, and 4.0. Several of the Coastal Natural Resources Areas identified in the state program are found in the vicinity of the proposed project. Following are Coastal Natural Resource Areas that are associated with valuable coastal resources or vulnerable or unique coastal areas. Anticipated impacts to these resources from the proposed project and measures to minimize or avoid potential impacts are summarized for each of these resources.

- **Coastal Barriers**: The proposed project is not located within a designated Coastal barrier. The project would not jeopardize the integrity of any coastal barriers or result in adverse impacts.

- **Coastal Historic Areas**: The remains of the Cummings Lumber Mill (Site #) are located adjacent to the proposed project area and will be protected by project construction. No other historic properties are present in the project area.

- **Coastal Preserves**: There are no state coastal preserves in the project area.

- **Coastal Shore Areas**: This resource area is a strip of land from the high-water mark on coastal beaches to 100 feet inland. None of these resources are located near the project area.

- **Coastal Wetlands**: There are no coastal wetlands located in the immediate project area. Consideration of wetlands is described in Sections 3.2 and 4.2. Adverse impacts to wetlands are not anticipated from this project.

- **Critical Dune Areas**: There are no sand dunes located in the project area. No adverse impacts to sand dunes are expected.

- **Critical Erosion Areas**: These areas are designated by the land commissioner. There are no such areas in the project area.

- **Gulf Beaches**: The project is not located on a Gulf beach and would not result in adverse impacts to Gulf beaches.

- **Hard Substrate Reefs**: There are no naturally occurring rock outcrops or reefs occurring in or near the project area.

- **Oyster Reefs**: There are no oyster reefs occurring within or near the project area.

- **Special Hazard Areas**: These are low-lying, flood-prone areas as shown on federal Flood Hazard Boundary Maps or Flood Insurance Rate Maps. The project area is located on the water and in low lying areas on the Flood Insurance Rate Map for this area. Therefore, the area is considered a special hazard area. However, the proposed project would not induce increased flooding in developed areas and would not contribute to increased future flood damages in the region.

- **Submerged Lands**: The proposed sheetpile wall is located on the bank and submerged bottom of the Trinity River, which is submerged land. The impacts from these proposed activities are described in Section 4.0. Adverse impacts to submerged lands are not anticipated.

- **Submerged Aquatic Vegetation**: SAV is not present within the project area; no impacts to SAV are anticipated.

- **Tidal Sand or Mud Flats**: No tidal sand or mud flats are located in the project area.

- **Waters of the Open Gulf of Mexico**: The proposed project is not located on the Gulf of Mexico and would not result in any impacts to this resource.

- **Waters Under Tidal Influence**: The proposed project is located in open water that is influenced by tides. Construction activities would temporarily release suspended solids in the area. These impacts would cease once these activities are completed.

This impact is described in the Section 4.0 and judged to be minor and of short duration.

COMPLIANCE WITH GOALS AND POLICIES

The following goals and policies of the TCMP were reviewed for compliance.

- Section 501.23: Development in Critical Areas
- Section 501.26: Construction in The Beach/Dune System
- Section 501.15: Policy for Major Actions

Compliance with Section 501.23: Development in Critical Areas

The proposed project would not result in adverse impacts to any of these critical areas. The project would increase navigation safety on an existing federal channel and would not promote new development in critical areas. Sections 1.0, 3.0, and 4.0 of the EA demonstrate that the project complies with Section 501.23.

Compliance with Section 501.26: Construction in The Beach/Dune System

The proposed project is not located in within any beach or dune systems and would not have any impact on these resources.

Compliance with Section 501.15: Policy for Major Actions

In its Environmental Assessment, USACE determined that the proposed project will not result in significant impacts to the environment and that an Environmental Impact Statement is not necessary. Therefore, the proposed action is not a major federal action as defined in the TCMP and is in compliance with Section 501.15.

Coastal Coordination Council

P.O. Box 12873 ♦ Austin, Texas 78711-2873 ♦ (800) 998-4GLO ♦ FAX (512) 475-0680

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Texas Land Commissioner

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Robert R. Stickney
Sea Grant College Program

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Jerry Mohn
Coastal Business Representative

George Deshotels
Coastal Government Representative

Bob McCan
Agriculture Representative

♦

Tammy Brooks
Council Secretary

Jesse Solis, Jr.
Permit Service Center
Corpus Christi
1-866-894-3578

Permit Service Center
Galveston
1-866-894-7664

August 23, 2010

Ms. Carolyn Murphy
Chief, Environmental Section
US Army Corps of Engineers
PO Box 1229
Galveston Texas 77553-1229

Re: Trinity River Bank Stabilization within the Wallisville Lake Project, Chambers County, Texas.
CMP #: 10-0162-F2

Dear Ms. Murphy:

Pursuant to Section 506.20 of 31 TAC of the Coastal Coordination Act, the project referenced above has been reviewed for consistency with the Texas Coastal Management Program (CMP).

It has been determined that there are no significant unresolved consistency issues with respect to the project. Therefore, this project is consistent with the CMP goals and policies.

Sincerely,

Tammy S. Brooks
Consistency Review Coordinator
Texas General Land Office

cc: Janelle Stokes, COE
John Trevino, TCEQ

APPENDIX E

COORDINATION WITH OTHER AGENCIES

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue S
St. Petersburg, Florida 33701-5511

July 26, 2010

Ms. Carolyn Murphy
Chief, Environmental Section
Department of the Army, Corps of Engineers
P.O. Box 1229
Galveston, Texas 77553-1229

Dear Ms. Murphy:

The NOAA National Marine Fisheries Service (NMFS) has reviewed the Draft Environmental Assessment for the "Wallisville Lake Project, Texas, Trinity River Bank Protection" dated July 2010. We have reviewed the proposed plans and associated essential fish habitat assessment and NMFS concurs with the Corps of Engineers' determination that the proposed project will not have substantial adverse affect living marine resources or on areas that have been designated as essential fish habitat for federally managed fisheries. Therefore, NMFS has no comments to provide regarding the proposed plans and no further consultation with NMFS is required.

If we may be of further assistance, please contact or Mr. Rusty Swafford of our Galveston Facility at (409) 766-3699.

Sincerely,

Rusty Swafford

for

Miles M. Croom
Assistant Regional Administrator
Habitat Conservation Division

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Lee M. Bass
Chairman-Emeritus
Fort Worth

Carter P. Smith
Executive Director

August 20, 2010

District Engineer
U.S. Army Engineer District, Galveston
ATTN: CESWG-PE-PR, Ms. Carolyn Murphy
P.O. Box 1229
Galveston, Texas 77553-1229

Re: Public Notice – Draft Environmental Assessment for the Trinity River Bank Protection Project Chambers County, Texas

The Draft Environmental Assessment (EA) for the Trinity River Bank Protection Project, dated July, 2010, proposes to construct a sheetpile wall up to 1,160 feet long to stabilize and protect the existing bank of the Trinity River. The proposed project area is located within the Wallisville Lake Project, on the west bank of the Trinity River, approximately 0.75 mile south of Interstate 10 in Chambers County, Texas.

TPWD conducted a site visit on August 18, 2010. The project area is located on a large meander bend of the Trinity River. The eroding river bank was nearly vertical and was approximately four feet above the river's water level. Spotted gar (*Lepisosteus oculatus*), sunfish (*Lepomis* sp.), blue crab (*Callinectes sapidus*), and a school of small-bodied estuarine fishes were observed near shore in the Trinity River. A road is located along the river bank. Between the river and the road lies a narrow strip of vegetated shoreline consisting primarily of upland grasses and other herbaceous plant species. However, bank vegetation observed upstream and downstream of the eroded reach included the following tree species: black willow (*Salix nigra*), elm (*Ulmus* sp.), pecan (*Carya illinoinensis*), Chinese tallow (*Triadica sebifera*), oak (*Quercus* sp.), American sycamore (*Platanus occidentalis*), and bald cypress (*Taxodium distichum*). South and west of the road, an old borrow area consists of open water, emergent wetlands and areas of dead black willows. 1

The Trinity River is a large, perennial stream that provides habitat to ecologically and recreationally important fish species such as gar, white bass, largemouth bass, catfish, crappie, sunfish, minnows and, due to its tidal connection, estuarine species such as red drum, blue crab, and striped mullet. Side channels and backwater areas of perennial streams are essential breeding and nursery areas for riverine fishes and function as refuge from high stream velocities during flood events. Shallow areas near the shoreline function as feeding or breeding habitat for a variety of animals such as amphibians, aquatic snakes, wading birds, and river otters. Riparian forest provides a crucial stopover point for migratory songbirds, where birds can rest and refuel after crossing the Gulf of Mexico during spring migration. Large riparian tree species, such as bald cypress, serve as perching areas for raptors such as bald eagle and osprey.

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To manage and conserve the natural and cultural resources of Texas and to provide hunting, fishing and outdoor recreation opportunities for the use and enjoyment of present and future generations.

TPWD has concerns regarding the proposed project. Page 2 of the Draft EA, under Section 1.3 Need For Project, states, "This section of the Trinity River bank has been damaged by overbank flow associated with several recent tropical storms and hurricanes, beginning with Hurricane Rita in 2005. During tropical storms, heavy rainfall and high tides flood the old borrow area and flow into the river, eroding the narrow vegetated bank between the road and the river." TPWD disagrees with the above assessment as the cause of erosion. Overbank flow in and of itself, regardless of association with tropical cyclones, does not cause bank erosion such as that found in the project area. Indeed, the Trinity River is a large floodplain river which naturally experiences frequent flood events resulting in overbank flow. In addition, the text above from page 2 suggests that water flow from the old borrow area into the river erodes the bank. This is simply untrue. Receding floodwaters do not possess the high levels of energy required to cause erosion such as that present in the project area. Rather, it is the Trinity River's fluvial geomorphology in combination with the U.S. Army Corps of Engineers' (USACE) siting and excavation of the old borrow area that are the causes for the erosion. From a hydrologic perspective, it is the higher energies associated with river discharge (downstream flow) that are responsible for erosion in the project area, not lower energies associated with heavy rainfall into the borrow area (lateral flow) or high tides (upstream flow). The erosion is occurring on a large meander bend of the river. Under natural conditions, this meander would be able to absorb energies associated with higher river discharges. However, the excavation of the old borrow area resulted in a narrow strip of land constituting the river bank (see attached aerial photograph, dated January, 1995) at the point of the meander where the erosive force of river flow is likely at its highest. Excavation of the old borrow area destabilized the soil and eliminated the plant root systems which helped to hold the soil in place and slow erosion. Excavation of the old borrow area at this particular location was ill-advised due to the reasons described above. The indirect effects (i.e., erosion of remaining river bank) of this action were reasonably foreseeable. Clearly, the siting of the old borrow area was a glaring omission in the secondary impact assessments from the prior Environmental Impact Statement(s) and EAs associated with the Wallisville Lake Project. 2 3

The USACE's preferred alternative proposes to use a traditional engineering solution, a sheetpile wall, to stabilize the existing river bank. TPWD does not support the selection of the preferred alternative. Sheetpile prevents the dissipation of energy – the erosive force in streams. However, once the energy is able to be released, typically at the interface between the sheetpiled section and the non-sheetpiled section, accelerated erosion is likely to occur downstream (and possibly upstream as well). This in-effect results in sheetpile necessitating the need for even more bank stabilization solutions. As noted on page 27 of the Draft EA, no past projects have included bank protection in this general area, and no reasonably foreseeable bank protection projects are anticipated. Based on the reasons outlined above, it is likely that that the preferred alternative will cause additional bank failure thus necessitating additional bank protection measures. 4

In addition, page 4 of the Draft EA states, "The underwater toe of the sheetpile wall may need to be protected by rock riprap, if determined necessary by the design/construction contractor." It is unclear why the decision to use riprap has not been made upfront and that it will be left to the contractor. TPWD recommends USACE engineers make this determination so that a decision can be made regarding the use of riprap. TPWD has the same concerns regarding riprap as for sheetpile. Therefore, TPWD does not believe that the preferred alterative is the environmentally preferred alterative and will not fulfill the stated project purpose. 5

TPWD recommends the USACE implement the non-structural alternative – vegetation re-establishment. However, moving the road only 60 feet may not provide enough area during tree re-establishment if higher river flows continue to erode the existing bank. Therefore, TPWD recommends the road be moved 200 feet. TPWD recommends compensatory mitigation for any potential wetland impacts within the old borrow area as it is easier to mitigate for wetland impacts than it is to mitigate for non-wadeable river impacts. 6

Questions can be directed to Mr. Mike Morgan at (281) 534-0146 or Mr. Jamie Schubert at (281) 534-0135 in Dickinson, Texas.

Sincerely,

for

Rebecca Hensley
Regional Director, Ecosystem Resources Program
Science and Policy Branch
Coastal Fisheries Division

RH:WJS:MNM

Attachment: 1995 Aerial Photograph

Jan 18, 1995
Google
Imagery Date: Jan 19, 1995

Ms. Rebecca Hensley
Regional Director, Ecosystem Resources Program
Texas Parks and Wildlife Department
Science and Policy Branch
Coastal Fisheries Division
4200 Smith School Road
Austin, Texas 78744-3291

RESPONSE TO COMMENTS

Comment No.	Response
1.	Section 3.2 (Terrestrial Habitat) of the Environmental Assessment (EA) describes the vegetation that would be affected by construction of the proposed project. "The vegetation along the Trinity River Bank consists of coastal bermudagrass, crabgrass (*Digitaria* sp.), goldenrod (*Solidago* spp.), verbena (*Verbena* sp.), ragweed (*Ambrosia* sp.), cocklebur, rattlebean (*Sesbania* spp.) and other annuals, with a few clusters of immature Chinese tallow (*Sapium sebiferum*) and black willow (*Salix negra*) scattered along the eroding section. At both ends of the eroding section, thickets of more mature tallow, willow and American elm (*Ulmus americana*) cover the bank." Bank vegetation observed by TPWD upstream and downstream of the eroded section would not be affected by the project. The wider variety of species noted by TPWD is present outside of the impact area.
2.	EA Section 3.1 explains that the river bank in the eroded section is lower than the adjacent upstream and downstream banks. During tropical storms, heavy rainfall and high tides flood into the old borrow area through the lower bank section before flooding the entire landscape, and also flow across this low spot as the interior marshes drain, eroding the narrow vegetated bank and the road.
3.	Excavation of the borrow area did not destablized the soil and eliminate plants root systems along the eroding bank section. Clearly, these impacts occurred west of the road, not east of the road adjacent to the river bank.
4.	From a hydraulic standpoint, the USACE Preferred Alternative would provide an effective way to restrict the possible progression of erosion toward the nearby road without creating overland floodplain encroachments or inducing erosive flow velocities. Reestablished vegetation would be unlikely to effectively stop or restrict the erosion problem as effectively as a structural alternative. The sheet pile wall would help limit

channel widening due to erosion. It's top elevation would be even with the natural ground elevation; therefore, no floodplain encroachment above natural ground is expected from the wall or increases in flow velocity.

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5. Galveston District is proposing to use a “design/build” contract for this project. In this type of contract, the contractor prepares and proposes a design that complies with specified requirements, and the contractor builds the project after the District reviews and approves their plans. This type of contract has been found to be more cost effective for small projects of this type. A preliminary engineering evaluation was conducted by the District; it concluded that the Preferred Alternative (sheetpile wall) is not likely to increase bank erosion downstream of the project. However, the addition of riprap for erosion control is included in the potential impacts and evaluated in the EA in the event that the design/construction contractor determines that riprap for erosion control will be necessary. In this case, some river bank habitat would be replaced by riprap, which would itself serve as an alternative hard substrate habitat.

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6. The Preferred Alternative would provide the most effective solution to the erosion problem, and prevent the loss of wetlands that have developed in the old borrow area west of the road. Construction of this alternative would not result in the loss of any wetland habitat and would cause only negligible river bank impacts. No other resource agencies have considered this a significant impact, and no compensatory mitigation has been required. Relocating the road to a route through the old borrow area would result in significant wetland impacts requiring compensatory mitigation, and provide a less effective solution to the erosion problem.

Bryan W. Shaw, Ph.D., *Chairman*
Buddy Garcia, *Commissioner*
Carlos Rubinstein, *Commissioner*
Mark R. Vickery, P.G., *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

August 5, 2010

Ms. Carolyn Murphy, Chief, Environmental Section
Department of the Army
Galveston District, Corps of Engineers
PO Box 1229
Galveston, TX 77553-1229

Re: TCEQ Grant and Texas Review and Comment System (TRACS) #2010-399, City of Galveston, Chambers County - Wallisville Lake Project

Dear Ms. Murphy:

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above-referenced project and offers following comments:

A review of the project for General Conformity impact in accordance with 40 CFR Part 93 and Title 30, Texas Administrative Code § 101.30 indicates that the proposed project is located in Chambers County, which is currently classified as a severe ozone nonattainment area. Therefore, General Conformity rules apply.

The two criteria pollutants of concern as precursors to ozone formation are volatile organic compounds (VOCs) and nitrogen oxides (NO_x). An increase of 25 tons per year for VOCs or NO_x, resulting from the proposed project, could trigger general conformity analysis. However, the emissions from the proposed project are expected to be well below the 25 tons per year significance level. Therefore, a general conformity analysis will not be required.

Although any demolition, construction, rehabilitation or repair project will produce dust and particulate emissions, these actions should pose no significant impact upon air quality standards. Any minimal dust and particulate emissions should be easily controlled by the construction contractors using standard dust mitigation techniques.

Thank you for the opportunity to review this project. If you have any questions, please call Ms.Tangela Niemann at (512) 239-3786.

Sincerely,

Jim Harrison, Director
Intergovernmental Relations Division