**DEPARTMENT OF THE ARMY**
**U.S. ARMY CORPS OF ENGINEERS, NEW ORLEANS DISTRICT**
**7400 LEAKE AVE**
**NEW ORLEANS, LA 70118-3651**

Regional Planning and Environment
Division South
Environmental Planning Branch

# FINDING OF NO SIGNIFICANT IMPACT (FONSI)

## SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT (SEA) #498A

## WEST BANK AND VICINITY
## HURRICANE PROTECTION PROJECT
## IMPLEMENTATION OF PREVIOUSLY AUTHORIZED MITIGATION PLANS
## ST. CHARLES, LOUISIANA

**Description of Recommended Plan**: The U.S. Army Corps of Engineers, New Orleans District (CEMVN), has prepared this Supplemental Environmental Assessment (SEA) #498A, incorporated by reference herein, to evaluate alternatives that would modify the previously authorized mitigation plan. The recommended plan would enhance and re-establish bottomland hardwood (BLH) and swamp habitat adjacent to the Salvador Wildlife Management Area which has been named the St. Charles Acquisition Area (STC). Acquisition, preservation and management would remain as described in SEA #498. This mitigation plan was formulated and documented in three feasibility reports/environmental impact statements (FR/EISs) issued in 1986, 1994, and 1996. Details regarding these FR/EISs are contained in SEA #498 (2012) and SEA #498A, which are incorporated by reference herein.

The recommended plan would modify the previously developed and approved mitigation plan to enhance and re-establish swamp and BLH habitat due to changes at the STC site. The recommended plan would achieve the same amount of mitigation but requires additional actions due to changes in conditions at the mitigation site. Since the release of SEA #498 in 2012, there has been obvious tree mortality. This mortality seems to have been induced by increased inundation over time due to a new pumping station and the existing berm impeding sheet-flow. Therefore, modifications to the plan are required for the STC mitigation site to achieve adequate mitigation. The goal of the recommended plan is to improve hydrology across the 1,321 acre site and re-establish approximately 74 acres of BLH and swamp tree species native to southern Louisiana.

Actions to restore the hydrology of the mitigation site and maintain the prescribed habitat for mitigation includes constructing twelve 100 foot cuts in the existing berm at 500 feet intervals to improve the sheet-flow of water. To address the current loss of trees, approximately 74 acres of BLH and swamp species would be planted in areas described

in section 2.3 of SEA #498A. Acquisition, preservation and management would remain as described in SEA #498.

**Factors Considered in Determination:** This office has assessed the impacts of the recommended plan and the no action alternative on relevant resources, including: 1) wetlands, 2) aquatic resources/fisheries, 3) wildlife, 4) threatened, endangered, and other protected species, 5) air quality, 6) water quality, 7) noise, 8) cultural resources, 9) recreational resources, 10) aesthetics, 11) hazardous, toxic and radioactive waste, and 12) hydraulics and hydrology. No significant adverse impacts were identified for any of the relevant resources. No impacts were identified that would require additional compensatory mitigation. By letter dated June 24, 2020, the U.S. Fish and Wildlife Service determined that the proposed minor modification will not require a supplemental Fish and Wildlife Coordination Act Report. A Coastal Zone Consistency Determination was received from LDNR, OCM on June 29, 2020 (C20110476 Mod 02). A Water Quality Certificate was received from LDEQ on May 21, 2020 (WQC 200519-01/AI 101235/CER 20200004). A Clean Water Act 404(b)(1) evaluation was released for public review concurrent with the SEA #498A, No comments on the 404(b)(1) were received and it was signed on August 4, 2020. Concurrence with a recommendation of no effect on historic properties was received from the SHPO on April 15, 2020, and the Muscogee (Creek) Nation on March 19, 2020. The risk of encountering HTRW is low. The recommended plan does not affect any threatened or endangered species as none are present in the area.

**Environmental Design Commitments.** The following commitments are an integral part of the recommended plan:

1) If the recommended plan is changed significantly or is not implemented within one year, the New Orleans District will coordinate with the U.S. Fish and Wildlife Service to ensure that the recommended plan would not affect any Federally-listed threatened or endangered species, or their habitat.

2) In coordination with USFWS, a qualified biologist would inspect the proposed worksite for the presence of undocumented nests during the nesting seasons and/or prior to construction. To minimize disturbance to colonies containing nesting waterbirds (if present), all activity occurring within 1,000 feet of a rookery would be restricted to the non-nesting period. To minimize disturbance to nesting eagles (if present), the guidelines found in SEA #498A, Appendix D would be followed during construction.

3) Preparation of a Stormwater Pollution Prevention Plan (SWPPP) is required prior to construction.

4) Inadvertent Discovery and Unexpected Effects: If during the course of work, archaeological artifacts (prehistoric or historic) are discovered or unexpected effects to historic properties, including architecture, architectural elements, and/or archaeology, are

identified, the contractor shall stop work in the general vicinity of the discovery or unexpected effect and take all reasonable measures to avoid or minimize harm to the artifacts(s) or affected property. The contractor will ensure that the discovery is secured and stabilized, as necessary, and access to the area is restricted. The contractor will inform CEMVN. Furthermore, if during the course of work, Native American artifacts or human remains are encountered CEMVN will immediately contact Tribes. The contractor would not proceed with work until CEMVN completes consultation with the Louisiana SHPO, Tribes, and others, as appropriate.

5) Louisiana Unmarked Human Burial Sites Preservation Act: If human bone or unmarked grave(s) are present within the Work area, compliance with the Louisiana Unmarked Human Burial Sites Preservation Act (R.S. 8:671 et seq.) is required. The contractor shall notify the law enforcement agency of the jurisdiction where the remains are located within twenty-four hours of the discovery. The contractor shall also notify CEMVN and the Louisiana Division of Archaeology within seventy-two hours of the discovery. Discoveries of unmarked graves, burials, human remains, or items of cultural patrimony on Federal or Tribal lands shall be subject to the Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. §3001-3013, 18 U.S.C. § 1170) and the Archaeological Resources Protection Act of 1979 (ARPA)(16 U.S.C. §470aa – 470mm). Tribes will be contacted as soon as possible in the event Native American artifacts or human remains are encountered.

**Public Involvement**. The recommended plan has been coordinated with appropriate Federal, state, and local agencies and businesses, organizations, and individuals through release of SEA #498A on July 8, 2020 for 15-day review and comment. The draft SEA and a draft FONSI was provided to the resource agencies for review. SEA #498A is attached hereto and made a part of this FONSI. Five (5) comments were received during the 15-day public comment period:

Two data request comments from the general public

Two comments were received from State resource agencies:

- Louisiana Department of Wildlife and Fisheries commented on Best Management Practices for a Storm Water Pollution Prevention Plan (SWPPP) for the recommended plan, and mentioned caution to consider Live Oak forest habitat.
- Louisiana Department of Forestry called to concur with the recommended plan.

One four part comment was received in a letter from St. Charles Parish;

- two comments regarding Rights of Way to be routed through Lafourche Basin Levee District,
- one comment regarding the recent history of degraded habitat at the site before installation of the Willowridge pump station, and
- one comment regarding the effect of the recommended plan on the existing permit for the Willowridge pump station.

The comments received and the Corp's responses are enclosed in Appendix I of the SEA #498A. All comments received from local, state and federal agencies have been addressed.

**Decision.** The recommended plan would satisfy CEMVN requirements to mitigate for impacts related to the West Bank and Vicinity Project as authorized prior to Hurricane Katrina. This office has assessed the potential environmental impacts of the recommended plan and the "no action" alternatives. Based on this assessment, which is attached hereto and made a part hereof, a review of the comments made on SEA #498A, and the implementation of the environmental design commitments listed above, a determination has been made that the recommended plan would have no significant impact on the human environment and is the environmentally preferable plan.

Based on the above-described evaluation and coordination, the proposed action in SEA #498A is the Recommended Plan for implementation. The plan is justified and complies with relevant environmental statutes. All practicable means to avoid and minimize environmental harm with respect to the recommended plan have been incorporated. It is in the public interest to implement the Recommended Plan.

08 September 2020
Date

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Stephen F. Murphy
COL, EN
Commanding

# SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

## WEST BANK & VICINITY
## HURRICANE PROTECTION PROJECT
## IMPLEMENTATION OF PREVIOUSLY AUTHORIZED MITIGATION PLANS

## ST. CHARLES, LOUISIANA

## SEA #498A

**U.S. Army Corps of Engineers**
**Mississippi Valley Division**
**Regional Planning and Environment Division South**
**New Orleans District**

**August 2020**

**Lead Agency**

United States Army Corps of Engineers
Mississippi Valley Division
New Orleans District
Regional Planning and Environmental Division, South

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**PUBLIC COMMENT PERIOD**

The public comment period for this document began on July 8, 2020 and ended on July 23, 2020. Written comments on this document were submitted through the project website https://www.mvn.usace.army.mil/Missions/Environmental/NEPA-Compliance-Documents/Project-Pages/Mitigation/, or by mail, email, or phone to the following addressee:

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## TABLES



## APPENDICES

# 1 INTRODUCTION

## 1.1 Proposed Action

The proposed action would modify the St. Charles Mitigation plan discussed in accordance with Supplemental Environmental Assessment #498 (SEA #498). In SEA #498 the proposed action for mitigation at the St. Charles (STC) site was:

> "…the STC site would include preserving through acquisition alone approximately 1,211 acres of existing cypress Swamp/BLH [bottomland hardwood], while an additional 90.9 acres would be preserved through active management activities after acquisition. Management construction activities would include selective tree removal and tree girdling and/or injection to enhance snag numbers, as well as planting with desirable species in selected areas. Additionally approximately 12.8 acres of BLH dry species would be planted in areas previously cleared for roads as part of the Willowridge subdivision, Phase 6... A total of 1,321 acres would be acquired at the STC site." (USACE 2012)

The STC project was approved and authorized with a Finding of No Significant Impact (FONSI) on July 13, 2012. SEA #498 is herein incorporated by reference and can be found in Appendix F.

The new proposed action would modify the previously developed and approved mitigation plan to enhance, and re-establish swamp and BLH habitat due to changes at the STC site. The proposed action would achieve the same amount of mitigation but requires additional actions due to changes in conditions at the mitigation site. Since the release of SEA #498 (2012) there has been obvious tree mortality. This mortality seems to have been induced by increased inundation over time due to a new pumping station and the existing berm impeding water exchange. Therefore, modifications to the plan are required for the STC mitigation site to achieve mitigation. The goal of the proposed action is to improve hydrology, and re-establish approximately 74 acres of BLH and swamp tree species native to southern Louisiana.

Actions to restore the hydrology of the mitigation site and maintain the prescribed habitat for mitigation includes, constructing twelve 100 foot cuts in the existing berm at 500 feet intervals to improve the exchange of water. Additionally, to address the current loss of trees, approximately 74 acres of BLH and swamp species would be planted in areas described in section 2.3 and in Figure 3 of Appendix A. Acquisition, preservation and management would remain as described in SEA #498.

## 1.2 Purpose and Need for the Proposed Action

The purpose of the proposed action is to restore the exchange of water within the wetlands by constructing berm cuts and to plant approximately 74 acres of BLH and swamp species to re-establish BLH and swamp species lost to mortality. These actions

would satisfy the mitigation requirements related to the West Bank and Vicinity Project as authorized prior to Hurricane Katrina.

Mitigation requirements, plans, and designs were originally defined in the three FR/FEIS for the West Bank and Vicinity, New Orleans, Louisiana Hurricane Protection Project and in SEA #498 (2012). Changes in the environment since the release of SEA #498 have necessitated a reassessment of the mitigation plan at the St. Charles site. This SEA supplements SEA #498 (USACE 2012).

## 1.3 Authority for the Proposed Action

Authority for the mitigation of environmental impacts caused by water resources projects is provided to the Secretary of the Army by the WRDA 1986 Section 906, as amended, along with other statutes, including NEPA, Clean Water Act (CWA), and Fish & Wildlife Coordination Act. Additionally, mitigation features are project features of construction projects, which here is WBV, that generate mitigation requirements. Therefore, the mitigation features are governed by the WBV project authorities and associated PPA, under which the project is being executed. For full discussion of original project authorities, please see section 1.3 of SEA #498 which is incorporated by reference.

## 1.4 Prior NEPA Reports

A number of studies and reports on water resources development in the proposed project area have been prepared by the USACE, other Federal, state, and local agencies, research institutes, and individuals. A comprehensive list of pertinent studies, reports, and projects are listed in Section 1.4 of SEA #498.

USACE. 2012. West Bank and Vicinity Hurricane Protection Project, Implementation of Previously Authorized Mitigation Plans, St. Charles and Jefferson Parishes, Louisiana, SEA #498.

## 1.5 Public Concerns

The public is concerned about bottomland hardwood (BLH) and swamp loss, and anthropogenic development (i.e., sprawl) in the vicinity of the project. These concerns have been discussed in detail by researchers, non-governmental organizations (NGO), local outreach groups, and the press. The public realizes the importance of the mitigation area to compensate damage that cannot be reduced or avoided when constructing civil works. The public also recognizes the importance of BLH and swamps, not only for their habitat value to the animals within them, but for their ability to cleanse water, and form a buffer against storm surge and strong winds.

# 2 ALTERNATIVE FORMULATION

## 2.1 Other Alternatives Eliminated From Further Consideration

Four action alternatives to the proposed action were considered. The initial list of alternatives was screened based on inability to meet project purpose and need, planning constraints, technical feasibility, and likelihood for implementation. The alternatives screened out initially are:

1. Culverts installed along the berm were screened out due to the lack of performance of the normal exchange of water across a healthy BLH/swamp forest. Culverts would cause channels and streams to form whereas BLH and swamp require a shallow and broad exchange of water to keep a majority of the soil moist. Therefore installation of culverts will not meet the purpose of the project.
2. Complete removal of the berm was screened out due to the cost of soil disposal. The improvement of water exchange with complete removal was minimal in comparison with the Tentatively Selected Plan (TSP).
3. Multiple smaller cuts were screened out after hydrologic modeling showed minimal restoration of water exchange across the BLH forest in comparison with the TSP.
4. Addition of an earthen deflection berm within the property to deflect water toward the selected water flow improvement (berm cuts and culverts) to reduce the inflow from the pumping station. Hydrologic evaluation indicated that deflection would not be effective because low water velocity and low volume and would cause pooling in the area.

## 2.2 No Action Alternative Description

In the No-Action Alternative, or Future without Project (FWOP), the proposed action would not be constructed. The previously approved plan of preservation and management would likely not be successful as inundation would continue to change the habitat from BLH and swamp to swamp and marsh, respectively. This would not satisfy the required mitigation authorized in SEA #498.

## 2.3 Proposed Action Description

The proposed action, or tentatively selected plan (TSP), would modify previously developed mitigation plans to enhance and re-establish swamp and BLH habitat at the St. Charles site. Since the release of SEA #498 (2012), there has been obvious tree mortality within the mitigation area. This mortality seems to have been induced by inundation caused by time, a new pumping station, and the existing berm. Therefore, modifications to the plan are required for the STC mitigation site to achieve mitigation. The goal of the proposed action is to improve hydrology by constructing cuts in the berm, and re-establishing approximately 74 acres of BLH and swamp species native to southern Louisiana.

*Clearing*
The existing berm is currently forested and includes a two-track path on the crown. The footprint of the berm must be cleared of woody vegetation prior to excavation of the cuts. Some trees on the western side of the berm may need to be trimmed; if so it should be done by a certified arborist. The debris from the vegetation clearing shall be chipped and sidecast onto mitigation property to the east to a depth not to exceed 6 inches. Disposal of stumps and large tree trunks is at the discretion of the contractor with options to get a slash pile burn permit, dispose offsite at an authorized disposal site, and/or completely submerge the stumps into the ditch to the east of the existing berm.

*Excavation of Cuts*
The berm is approximately 7,000 feet in length and 4 ft. high and prevents water from draining from the mitigation site. Twelve 100 foot cuts would be made in the existing berm at 500 foot intervals. The berm would be excavated to match the elevations found in the existing forested area, which is an elevation of approximately (-) 1.5 NAVD88. Cuts would be excavated to a bottom length of 100 feet. The ends of each cut must be graded to the existing elevation of the berm to retain access for recreational vehicles. The bottom of the cuts will be covered with an aggregate base so the two-track path on the crown of the berm can continue to serve recreationalists. The berm was originally constructed from borrow material immediately adjacent to the north/east side of the berm, creating a shallow ditch. The material from the cuts in the berm will be disposed of on-site, first filling the ditch, then by spreading the material to a distance reachable by the equipment, and not to exceed the elevation of the bottom of the cuts. The excavated material would be smoothed to maintain water exchange across the area. Should there be excess excavated material, it should be disposed of off-site at a properly licensed facility for the material. The contractor should construct cuts in a manner to assure that complete water interchange is afforded between the cut and existing swamp upon completion of excavation and installation of crushed stone. The equipment for the excavation and crushed stone placement would use the existing berm footprint to traverse the site to reduce damage to the surrounding environment. Corps' engineers estimate that 3,000 cubic yards of material will be removed from the berm in twelve 100 foot cuts.

*Tree Planting and Invasive Species Treatment*
The current tree mortality would be compensated by planting approximately 74 acres of BLH and swamp species in appropriate locations within the mitigation site (see Figure 5 in Appendix A). BLH species (e.g., Green Ash, Overcup Oak, and Bald Cypress) and swamp species (Bald Cypress and Tupelo Gum) would be planted in accordance with the planting plan located in Appendix C. The planting would be accomplished by using hand planting techniques. ATVs might be used for access as the soils may not support larger vehicles without damaging the environment. The success of the plantings would be evaluated in accordance with the monitoring plan located in Appendix C. After construction, and before planting, the area to be planted would be treated with herbicide to reduce invasive and nuisance species. This would likely be a hack and squirt process as the area is currently forested and aerial application would impact the existing vegetation.

*Staging Area*
The construction team would stage materials, equipment and vehicles to the east of the pump station (Figures 4 and 6 in Appendix A). No supplies or equipment would be stored on the existing levee. The construction contractor and tree planters would utilize the same staging area. The staging area has two segments: a 20 foot by 400 foot area would be designated between the pump station access road eastward to the protected side toe of the existing hurricane protection levee, and a 20 foot by 40 foot area between the pump station and the pump station access road. The area would be returned to its existing condition following construction.

*Access*
A temporary "earthen bridge" would be constructed across the outflow channel to allow passage of equipment and personnel from the protected side of the levee to the existing berm during construction. Temporary culverts would be placed to maintain outflow from the pump station and an "earthen bridge" would be placed atop the culverts to allow vehicles and equipment to cross the outflow (Figure 4 in Appendix A). This temporary bridge will only be present during the clearing and excavation, but not during the planting. The area would be returned to its existing condition following construction. Access to the southern planting area would be from the staging area, around the retention pond to the west side of the pump station, and would utilize the existing berm access behind the sheet pile wall (Figure 6 in Appendix A). Access to the northern planting area would be from one of two paths and the planting crew would use either: the levee top from the entrance near Lafayette Drive to the connection of Cypress Drive and the levee, or from the staging area to enter Lafayette Drive turning left to Willowridge Drive then right onto Cypress Drive to the gate at the levee. Both approaches would utilize the existing two-track that proceeds down the levee and into the wooded lot to access the planting area. The area would be returned to its existing condition following construction.

**Table 1: Equipment Listing**

| Equipment Type | Approximate Duration |
|---|---|
| Small Track Excavator | 21 weeks |
| Georgia Concrete Buggy | 21 weeks |
| Skid Steer | 21 weeks |
| Large/medium Wood Chipper | 15 weeks |
| Side-by-side Polaris Cart | 21 weeks |
| Chain Saws | 15 weeks |
| Lowboy Semi-truck | 6 weeks |

# 3 AFFECTED ENVIRONMENT

## 3.1 Environmental Setting

The proposed project area is located in St. Charles Parish in southeastern Louisiana. The proposed mitigation site is within the north-central portion of the Mississippi River deltaic

plain. Depositional environments in the area are related to the St. Bernard Delta which was active in this area approximately 4000 years ago. Dominant physiographic features in the area include Bayous Couba and Bardeaux, Lakes Cataouatche and Salvador, and marsh.

### 3.1.1 Description of the Watershed

The Barataria Basin is an irregularly shaped area bounded on each side by a distributary ridge formed by the present and a former channel of the Mississippi River. A chain of barrier islands separates the basin from the Gulf of Mexico. In the northern half of the basin, which is segregated by the Gulf Intracoastal Waterway (GIWW), several large lakes occupy the sump position approximately half-way between the ridges. The southern half of the basin consists of tidally influenced marshes connected to a large bay system behind the barrier islands. The basin contains 152,120 acres of swamp, 173,320 acres of fresh marsh, 59,490 acres of intermediate marsh, 102,720 acres of brackish marsh, and 133,600 acres of saline marsh.

Within the Barataria Basin, wetland loss rates averaged nearly 5,700 acres per year between 1974 and 1990. During this period, the highest rates of loss occurred in the Grande Cheniere and Bay Regions. Wetland loss within the Barataria Basin is attributed to the combination of natural erosional processes of sea-level rise, subsidence, winds, tides, currents, and herbivory, and the human activities of channelization, levee construction, and development.

Freshwater and sediment input to the Barataria Basin was virtually eliminated by the erection of flood protection levees along the Mississippi River and the closure of Bayou Lafourche at Donaldsonville; therefore, the only significant source of fresh water for the basin is rainfall. Only a small amount of riverine input, designed to mimic a natural crevasse, is introduced into the basin's wetlands through the recently completed siphons at Naomi and West Pointe a la Hache. This lack of fresh water, and the loss of the accompanying sediments, nutrients, and hydrologic influence, forms the most critical problem of the Barataria Basin. (CWPPRA 2020)

### 3.1.2 Climate

The climate in the project area is humid, subtropical with a strong maritime character. Warm, moist southeasterly winds from the Gulf of Mexico prevail throughout most of the year, with occasional cool, dry fronts dominated by northeast high pressure systems. The influx of cold air occurs less frequently in autumn and only rarely in summer. Tropical storms and hurricanes are likely to affect the area 3 out of every 10 years, with severe storm damage approximately once every 2 or 3 decades. The majority of these occur between early June and November. The largest recent hurricanes were Katrina and Rita in 2005 which caused damage in the project area. Hurricanes Gustav and Ike in 2008, and more recently, Isaac in 2012, caused additional damage in the project area. Summer thunderstorms are common, and tornadoes strike occasionally. Average annual temperature in the area is 67°F, with mean monthly temperatures ranging from 82°F in

August to 52°F in January. Average annual precipitation is 57.0 inches, varying from a monthly average of 7.5 inches in July, to an average of 3.5 inches in October. (http://www.srcc.lsu.edu/).

### 3.1.3 Geology

The Mississippi River Delta complex was formed by river deposits between 700 and 7,400 years ago. The Natural Resources Conservation Service (NRCS) classifies soils within the proposed project area as typically peat, mucks, and clays mixed with organic matter, and silts derived from river deposits. The soil composition is subject to change as floodwaters and storm surges deposit new sediments. They are composed predominantly by Balize and Larose soil types. These soils are classified as continuously flooded deep, poorly drained and permeable mineral clays and mucky clays. Marsh and swamp deposits are found in the vicinity of the river from New Orleans to the Heads of Passes at the Gulf of Mexico. Marsh deposits are primarily organic, consisting of 60 percent or more by volume of peat and other organic material with the remainder being a composition of various types of clays. Total organic thickness is normally 10 feet, with variances less than one foot. Inland swamp deposits are composed of approximately 70 percent clay and 30 percent peat and organic materials. The percentage of sand and sandy silts increases with proximity to the open waters of the Gulf of Mexico. (USACE 1974)

### 3.1.4 Sea Level Rise and Climate Change

ER 1100-2-8162 states potential relative sea level change must be considered in every USACE coastal activity as far inland as the extent of estimated tidal influence. Relative sea-level rise (RSLR) was measured and determined during the preparation of SEA #498. A RSLR rate of 7.0 mm/year was determined for the project area. Relative sea-level rise rates at any given location within the Basin can vary widely, both higher or lower, depending on many natural and anthropogenic factors (Penland et al. 2002). A rise in sea level would enable saltwater to penetrate farther inland and upstream in rivers, bays, wetlands, and aquifers, which would be harmful to some aquatic plants and animals, and would threaten human uses of water. Increased salinity has already been cited as a contributing factor for converting cypress swamps in Louisiana to open lakes.

The 2014 USACE Climate and Resiliency Policy Statement states the “USACE shall continue to consider potential climate change impacts when undertaking long-term planning, setting priorities, and making decisions affecting its resources, programs, policies, and operations.” Extreme changes in climate (temperature, rain, evaporation, and wind) could result in conditions that cannot support the types of habitat re-established, enhanced, and/or preserved, reducing the effectiveness of the mitigation plan. Extreme climate change could essentially eliminate the benefits of vegetative plantings and hydrological enhancement, if the change resulted in tree mortality. The monitoring plan (Appendix C) for this project would monitor the success of any vegetative plantings and includes provisions for replanting if mortalities become such that meeting the required success criteria is in jeopardy.

## 3.2 Relevant Resources

This section contains a description of relevant resources that could be impacted by the proposed project. The important resources described are those recognized by laws, executive orders, regulations, and other standards of National, state, or regional agencies and organizations; technical or scientific agencies, groups, or individuals; and the general public. Appendix B provides summary information of the institutional, technical, and public importance of these resources.

A wide selection of resources were initially considered and determined not to be affected by the project—mainly due to the remote and uninhabited nature of the project area and general lack of significant populated areas in the vicinity. Socioeconomic resources, including land use, population, transportation, oil and gas, environmental justice, environmental health and safety, community cohesion, desirable community growth, tax revenues, property values, public facilities and services, business activity and employment, and displacement of people, would not be affected by the proposed project. The objectives of Executive Order 11988 (Floodplain Management) were considered; however, CEMVN has determined that floodplain impacts, if any, from the proposed action would be mainly positive (i.e., improving the adjacent flood plain and associated habitats, and thus, maintaining their natural and beneficial values). No prime or unique farmlands, as defined and protected by the Farmland Protection Policy Act, would be affected by the proposed project. No portion of the project area has been designated a Louisiana Natural and Scenic River; therefore, a Scenic Rivers permit is not warranted. With no navigable waters in or near the project area, a Section 10 consultation is not required. There is no Essential Fish Habitat (EFH) within or directly connected to the project's area of effect. The above mentioned resources will not be discussed in this SEA. The following relevant resources are discussed in this report: wetlands; aquatic resources/fisheries; wildlife; threatened, endangered and other protected species; water quality; noise; air quality; Hazardous, Toxic, and Radioactive Waste (HTRW); cultural resources; recreational resources; visual resources (aesthetics); and hydrology.

### 3.2.1 Wetlands

BLH are alluvial-forested wetlands and are found at higher ground elevations than surrounding swamp habitats and are therefore inundated less frequently. More information can be found at http://water.epa.gov/type/wetlands/bottomland.cfm (USEPA, 2006). They are occasionally flooded, which builds up the alluvial soils. In Louisiana the productivity of BLH depends on a reliable wet-dry cycle. The rains come to the Mississippi delta's hardwoods in the late winter and early spring. The rest of the year the forests are drier with the moisture and nutrients to encourage healthy growth. BLH grow best when nature follows this regime. If there is a change to the regime, the trees become stressed, and their productivity falters. With an increase of water input without an increase in drainage, the environment becomes more wet. The wet environment stresses BLH species (e.g. Overcup Oak, Green Ash, Red Maple) and are replaced by swamp species (e.g. Bald Cypress, Tupelo Gum) or an opportunistic invasive species.

Swamps are characterized by saturated soils during the growing season and standing water during certain times of the year. The highly organic soils of swamps form a thick, black, nutrient-rich environment for the growth of water-tolerant trees such as Bald Cypress (Taxodium spp.) and Tupelo Gum (Nyssa aquatica) which are the dominant swamp species at the STC site. More information can be found at https://www.epa.gov/wetlands/classification-and-types-wetlands#swamps. The swamp environment at the STC site is dependent on the canopy species (e.g. Bald Cypress, Tupelo Gum) which support and protect the understory foliage and wildlife. The loss of this woody vegetation is causing a shift to freshwater marsh species (e.g. cattail, duckweed, cutgrass), although continued loss could allow invasive species to become established.

The current condition of the project area, which was to be preserved through acquisition of approximately 1,321 acres of existing BLH and swamp, is in a successional state of conversion into swamp and marsh, respectively, due to an increase in retained water and increased inflow from a pumping station built after the mitigation site was chosen and authorized. (USACE 2012) The adjacent property (to the west) consists of BLH and swamp, intermixed in a similar fashion to the mitigation site, but is maintaining its canopy and species composition as it is not impounded. The re-introduction of flow through the construction of berm cuts to the area would enhance the nutrient and moisture cycle to both areas.

### 3.2.2 Aquatic Resources/Fisheries

The swamp areas at the STC site provide productive habitat for a wide range of fisheries species including bass, bream, crappie, catfish, fresh water drum, garfish, bowfin, and numerous minnows. Plankton communities serve an important role in the coastal waters of Louisiana. Phytoplankton is the primary producer in the water column, and forms the base of the food web. Zooplankton provides the link between the phytoplankton and intermediate level consumers such as aquatic invertebrates, larval fish, and smaller forage fish species. Within swamp, aquatic and wetland invertebrates are critical components of the food web. Of these, benthic macroinvertebrates tend to dominate deep-water swamp invertebrate communities. Characteristic species include crayfish, clams, worms, snails, freshwater shrimp, midges, amphipods, and various immature insects. There are no aquatic resources or fisheries in the BLH areas of the STC site.

### 3.2.3 Wildlife

Numerous wildlife resources are located within the project area. Many migratory waterfowl such as mallard, teal, wood ducks, and coot utilize the swamp for feeding and resting areas. The largest concentrations of waterfowl typically occur during the winter months. In addition to waterfowl, a wide range of wading birds including egrets, herons, ibis, and other common birds such as boat tailed grackle, rail, gallinule, snipe, and red-winged blackbird are residents of the swamp. Other animals that utilize or are dependent on wetland habitats within the site include deer, rabbit, squirrel, alligator, nutria, muskrat,

raccoon, mink, opossum, otter, and various other reptiles and amphibians. Both bald eagles and ospreys have been sighted in the area.

### 3.2.4 Threatened, Endangered, and other Protected Species

Based on a parish search conducted on the US Fish and Wildlife Service (USFWS) endangered species website (http://www.fws.gov/endangered) on April 7, 2020, there are five Threatened and Endangered (T&E) species listed in St. Charles Parish (Table 2). Based on a site specific search conducted on the USFWS website (https://ecos.fws.gov/ipac/location) on April 7, 2020, only the West Indian manatee has the potential of being found near the project site. The habitat types present at the project site are not conducive to supporting any of the T&E species within St. Charles Parish, including the West Indian manatee.

**Table 2: Listed species found in St. Charles Parish, LA.**

| Species | Desired Habitat Type |
|---|---|
| **Whooping crane (*Grus Americana)* | Shallow wetlands and prairies |
| Gulf sturgeon (*Acipenser oxyrinchus desotoi)* | Open water |
| Pallid sturgeon (*Scaphirhynchus albus)* | Open water |
| West Indian Manatee (*Trichechus manatus)* | Open water |
| Gopher tortoise (*Gopherus polyphemus*) | Longleaf pine forests, sandy soils |

**This is a non-essential population which is considered “threatened”. However, the ESA’s Section 7 consultation regulations do not apply.

Historically, there have been several bald eagle nest sites and bald eagle sightings in the wetland complex surrounding the St. Charles project area. The bald eagle was officially removed from the List of Endangered and Threatened Species on August 8, 2007. However, the bald eagle is protected under the Bald and Golden Eagle Protection Act (BGEPA), and the Migratory Bird Treaty Act ((MBTA) 40 Stat. 755, as amended; 16 U.S.C. 703 et seq.). In southeastern Louisiana parishes, eagles typically nest in mature trees (e.g., bald cypress, sycamore, willow, etc.) near fresh to intermediate marshes or open water from the months of October through mid-May.

The project area is also located in an area where colonial nesting waterbirds may be present. Colonial nesting waterbirds are protected under the Migratory Bird Treaty Act ((MBTA) 40 Stat. 755, as amended; 16 U.S.C. 703 et seq.). Colonial nesting waterbirds are generally considered all species of herons, egrets, night herons, ibis, roseate spoonbill, anhinga and cormorants. These birds typically nest and forage in wetlands and open water areas from the months of March through August. However, on December 16, 2019, CEMVN biologists conducted a site visit and determined that there was no indication of nesting birds within 1,000 feet of the proposed berm cuts.

### 3.2.5 Air Quality

The Clean Air Act General Conformity Rule requires a conformity review be performed when a Federal action generates air pollutants in a region that has been designated a

non-attainment or maintenance area for a NAAQS. The conformity rule was established to ensure Federal actions do not hamper local pollution control. St. Charles is in attainment (USEPA 2020) for the designated priority pollutants so no detailed conformity review for the proposed action is required. The STC site is undeveloped but is just south of populated areas.

### 3.2.6 Water Quality

Surface waters near the site consist of bayous, ponds, wetlands, and canals. Many of the inputs are sources of pollution that degrade water quality. These sources include urban, commercial, industrial, and agricultural inputs. The types of pollutants include ammonia, nutrients, pathogen indicators (fecal coliform), metals, oil and grease, and turbidity. Freshwater swamps such as those within the study area have been observed to be both sources and sinks of nutrients, particularly nitrogen. (USACE 2012)

### 3.2.7 Noise

The Noise Control Act of 1972 both regulates and promotes an environment for all Americans free from noise that jeopardizes their health or welfare. The Occupational Safety and Health Standards (29 CFR, part 1910) set standards regarding protection against the effects of noise exposure. Noise levels exceeding sound pressure levels are technically significant because noise can negatively affect the physiological or psychological well-being of an individual (Kryter, 1994). These effects can range from annoyance to adverse physiological responses, including permanent or temporary loss of hearing, and other types of disturbance to humans and animals, including disruption of colonial nesting birds. Noise is publicly significant because of the public's concern for the potential annoyance and adverse effects of noise on humans and wildlife.

Noise is generally described as unwanted sound, which can be based either on objective effects (hearing loss, damage to structures, etc.) or subjective judgments (such as community annoyance). Sound is usually represented on a logarithmic scale with a unit called the decibel (dB). Sound on the decibel scale is referred to as sound level. The low threshold of human hearing is approximately 0 dB, and the threshold of discomfort or pain is around 120 dB.

Noise levels are computed over a 24-hour period and adjusted for nighttime annoyances to produce the day-night average sound level (DNL). DNL is the community noise metric recommended by EPA and has been adopted by most Federal agencies (USEPA 1974). A DNL of 65 weighted decibels (dBA) is the level most commonly used for noise planning purposes and represents a compromise between community impact and the need for activities like construction. Areas exposed to a DNL above 65 dBA are generally not considered suitable for residential use. A DNL of 55 dBA was identified by EPA as a level below which there is no adverse impact (USEPA 1974).

Loud noise sources common to the site are all terrain vehicles (ATVs), gun fire, people’s voices, and traffic on local streets (subdivision) and state highways.

### 3.2.8 Cultural Resources

The consideration of impacts to historic and cultural resources is mandated under Section 101(b)4 of the NEPA as implemented by 40 CFR, Parts 1501-1508. Under NEPA, Federal agencies are required to assess whether proposed actions have the potential to significantly affect the human environment. Additionally, Section 106 of the National Historic Preservation Act (NHPA), as amended (54 U.S.C. § 300101 et seq.), requires Federal agencies to take into account their effects on historic properties and provide the Advisory Council on Historic Preservation (ACHP) an opportunity to comment. The goal of the Section 106 process is to identify and avoid, minimize, or mitigate adverse effects on historic properties. Historic properties are defined as any prehistoric or historic districts, sites, buildings, structures, or objects included in, or eligible for inclusion in, the National Register of Historic Properties (NRHP). Section 106 has four basic and sequential steps: 1) establish the undertaking and area of potential effects (APE), 2) identify and evaluate historic properties, 3) assess effects to historic properties, and 4) resolve any adverse effects. The federal agency must consult with the appropriate State Historic Preservation Officers (SHPO), Tribal Historic Preservation Officers (THPO) and/or tribal officials, state and local officials, non-federal sponsors/applicants, and any other consulting parties in identifying historic properties, assessing effects, and resolving adverse effects, and provide for public involvement. Additionally, it is the policy of the federal government to consult with Indian Tribal Governments on a Government-to-Government basis as required in Executive Order (EO) 13175.

Background and literature review was conducted by CEMVN staff in January and February 2020. A review of the NRHP database, the Louisiana Division of Archaeology *Louisiana Cultural Resources Map*, historic map research, and a review of cultural resources survey reports were analyzed to determine the presence or absence of built resources within the area of potential effects (APE).

Background research identified four previously completed cultural resources investigations that examined areas within one mile of the proposed APE. The four reports on file with the LA SHPO are: 22-0491 (McIntire 1979), 22-1615 (Jones et al. 1994), 22-2854 (Shuman 2006), and 22-3763 (Rawls et al. 2011). No previously recorded built resources were identified within or adjacent to the current APE.

For 22-0491 in 1979, no cultural resources were identified as a result of the proposed Shell pipeline route survey effort and no further investigation of the survey project was recommended (McIntire 1979). In 1994, a cultural resources survey (22-1615) was conducted by Earth Search, Inc. (ESI) for the Davis Pond Freshwater Diversion Project on behalf of the USACE, CEMVN (Jones et al. 1994). Four sites were identified during survey; only prehistoric Site 16SC76 is located within 1.0 mi of the proposed APE. Site 16SC76 was recommended not eligible for the NRHP due to disturbance and lack of research potential. In 2011, ESI conducted a Phase I cultural resources survey (22-3763) of a proposed three mile hurricane storm survey protection levee in St. Charles Parish, Louisiana, on behalf of GCR and Associates, Inc. and the St. Charles Parish Public Works Department (Rawls et al. 2011). Approximately 80 acres (32.4 ha) were surveyed. No

cultural resources were identified as a result of the survey effort and no further investigation of the survey project was recommended.

In 2006, Malcolm Shuman of Surveys Unlimited Research Associates, Inc. (SURA, Inc.) conducted a Phase I cultural resources survey (22-2854) of a proposed hurricane protection levee in St. Charles Parish, Louisiana, on behalf of Shread-Kuyrkendall and Associates, Inc. (Shuman 2006). The proposed hurricane protection levee construction servitude included the majority of the current APE. The 250 ft. wide survey was conducted along a 4.1 mile servitude from west of the Willowridge Estates subdivision to the Willowdale Pump Station at the southeast end of the Willowdale Country Club. The methodology during this investigation included literature search, pedestrian survey, and shovel testing. A total of 227 shovel tests were excavated. No cultural resources were identified within the project boundaries and no further investigation of the survey project was recommended.

The St. Charles BLH/Swamp Mitigation Project is located south of the Willowridge Estates circa (circa 1990) and Willowdale (circa 1972) subdivisions in Luling, Louisiana (NETR 1965, 1972, 1992). The Willowridge Levee and the Willowridge Pump Station are located directly south of the Willowridge Estates subdivision property boundaries. Both of these features were completed circa 2015-2017 as part of the St. Charles Parish West Bank Hurricane Protection Levee project. The staging area located adjacent to the pump station was not subject to survey, but had previously been disturbed by the construction of the pump station in circa 2015-2017.

### 3.2.9 Recreational Resources

The project is adjacent to the Salvador Wetland Management Area. The project area is swamp with no recreational development, although the area is utilized by hunters.

### 3.2.10 Aesthetics

The only aesthetic features are structures in the area that are in the residential community located adjacent to, and to the north of the project site.

### 3.2.11 Hazardous, Toxic, and Radioactive Waste

The USACE is obligated under Engineer Regulation 1165-2-132 to assume responsibility for the reasonable identification and evaluation of all Hazardous, Toxic, and Radioactive Waste (HTRW) contamination within the vicinity of the proposed action. ER 1165-2132 identifies our HTRW policy to avoid the use of project funds for HTRW removal and remediation activities. Costs for necessary special handling or remediation of wastes (e.g., Resource Conservation and Recovery Act, 42 U.S.C. 6901 et seq. (RCRA) regulated), pollutants and other contaminants, which are not regulated under the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. 9601 et seq. (CERCLA), will be treated as project costs if the requirement is the result of a validly promulgated Federal, state or local regulation.

An ASTM E 1527-05 Phase I Hazardous, Toxic, or Radioactive Waste Environmental Site Assessment (ESA), entitled “West Bank and Vicinity Mitigation Areas, St. Charles Parish, Louisiana” (HTRW-11-17) was completed on August 26, 2011. An update to the Phase I ESA was completed on May 14, 2020. A copy of the updated Phase I ESA is maintained on file at MVN. Neither the Phase I ESA nor the subsequent Phase I ESA Update identified any Recognized Environmental Conditions (RECs). Three dry and plugged oil/gas wells were noted near the project vicinity; however, they should not have any negative effects on the proposed project. There is a low probability that HTRW would affect the proposed project, personnel working on the project, members of the public, or the environment in the project area.

### 3.2.12 Hydrology

Major water bodies in the Basin include the Mississippi River, Bayou Lafourche, Bayou Verret, Lake Salvador, Lac des Allemands, and Lake Cataouatche. Inflow sources consist of tributary flows, Davis pond diversion, direct rainfall on the lakes, and storm water that is pumped from the west bank of the New Orleans urban area. The outflows consist of the net flow to the Gulf of Mexico and evaporation from lakes’ surfaces.

Surface waters at the site consist of bayous, ponds, and wetlands. The inputs are rainfall and the Willowridge pumping station. These sources include urban, and agricultural (golf course) inputs through the Willowridge pumping station. The hydraulics and hydrology model indicates existing conditions allow a flow of 1.5 cubic feet per second through existing breaks through the berm after the maximum input for the model (pump + precipitation). It takes approximately 30 days to drain the excess water from the site under the maximum model run. For Hydraulic model assumptions and results, see Appendix H: H&H Report.

# 4 ENVIRONMENTAL CONSEQUENCES

Table 3 presents a summary of relevant resources in the proposed project area that would or would not be impacted by the project.

**Table 3: Relevant Resources and their impact status, both adverse and beneficial**

| Important Resource | Impacted | Not Impacted |
|---|---|---|
| Wetlands | X | |
| Aquatic Resources/Fisheries | X | |
| Wildlife | X | |
| Threatened, Endangered and Protected Species | X | |
| Air Quality | X | |
| Water Quality | X | |
| Noise | X | |
| Cultural Resources | | X |
| Recreational Resources | X | |

| Important Resource | Impacted | Not Impacted |
|---|---|---|
| Aesthetics | X | |
| Hazardous, Toxic and Radioactive Waste | | X |
| Hydraulics and Hydrology | X | |

## 4.1 Wetlands

*No Action Alternative - Direct, Indirect, and Cumulative Impacts*

Under the no action alternative, the area would convert to a wetter environment deteriorating the BLH and swamp forests, and the water would continue to be isolated from the surrounding wetland environment. This change could allow invasive species to become established on the mitigation site. These potential results would not satisfy the mitigation requirements set forth in SEA #498.

*Proposed Action (TSP) - Direct, Indirect, and Cumulative Impacts*

With the construction of the proposed action, there would be minimal direct impact to less than an acre of BLH species located along the length of the berm. The disturbance would be temporary with the replanting of native species and interconnecting the mitigation area with the surrounding wetlands, restoring the habitat to a beneficial effect. The invasive species treatments and planting of approximately 74 acres of BLH and swamp species would have a positive effect on the STC mitigation site. Cumulatively the effects of the proposed action on wetlands would be positive with the enhancement, preservation and re-establishment of habit.

### 4.2 Aquatic Resources/Fisheries

*No Action Alternative - Direct, Indirect, and Cumulative Impacts*

Under the no action alternative, no direct, indirect, or cumulative impacts are expected to the aquatic resources/fisheries in the mitigation area. Aquatic resources/fisheries would remain in their current condition.

*Proposed Action - Direct, Indirect, and Cumulative Impacts*

With construction of the proposed action, there would be no direct impacts to aquatic resources/fisheries. There would be the indirect positive impact that the swamps at the STC site would be enhanced, re-established, interconnected, and preserved for a cumulative positive effect for aquatic resources/fisheries. There are no aquatic resources/fisheries in the BLH areas of the STC site.

### 4.3 Wildlife

*No Action Alternative - Direct, Indirect, and Cumulative Impacts*

The no action alternative would not directly affect wildlife, but the environment would continue to change to a more open canopy reducing cover and nesting for wildlife, causing negative indirect and cumulative impacts. As the environment changes to a disconnected and wet regime, the wildlife that would use the mitigation site would change. This alternative would not satisfy the mitigation requirements set forth in SEA #498.

*Proposed Action - Direct, Indirect, and Cumulative Impacts*

With construction of the proposed action, indirect benefits to wildlife would result from the preservation, re-establishment and enhancement of approximately 1,321 acres of BLH and swamp habitat. Construction activities would cause temporary direct impacts such as removal of all non-native trees and smaller trees on parts of the berm, noise, and vibration that could disturb wildlife in and near the project. These animals would temporarily avoid portions of the project area during the construction period but would likely return after construction is completed. Cumulatively the effects of the proposed action on wildlife would be positive with the enhancement, preservation and re-establishment of habitat.

## 4.4 Threatened and Endangered and other Protected Species.

*No Action Alternative - Direct, Indirect and Cumulative*

There are no Threatened and Endangered (T&E) species or critical habitat within, or in the immediate vicinity of, the proposed project area and therefore there would be no direct, indirect or cumulative impacts to T&E species under the no action alternative. Indirect impacts to bald eagles and colonial nesting waterbirds would be the continued loss of potential nesting and roosting opportunities due to tree mortality in the project area. This would contribute cumulatively to the habitat loss already being experienced by these species.

*Proposed Action - Direct, Indirect and Cumulative*

There are no T&E species or critical habitat within, or in the immediate vicinity of the proposed project area and therefore there would be no direct, indirect or cumulative impacts to T&E species. CEMVN has made a “no effect” determination under the Endangered Species Act (ESA). No consultation under the ESA would be required for the proposed action. No known eagle’s nests or waterbird colonies exist within 1,000 feet of the proposed project activities. However, in coordination with USFWS, a qualified biologist would inspect the proposed worksite for the presence of undocumented nests during the nesting seasons and/or prior to construction. Through careful design of the berm reduction, timing of construction and the implementation of best management practices, direct adverse impacts to nesting bald eagles and/or waterbird nesting colonies would be avoided. Additionally, to minimize disturbance to colonies containing nesting waterbirds (if present), all activity occurring within 1,000 feet of a rookery would be restricted to the non-nesting period. To minimize disturbance to nesting eagles (if present), the guidelines found in Appendix D would be followed during construction.

The planting of approximately 74 acres of swamp and BLH species would indirectly benefit eagles and waterbirds by providing additional opportunities for nesting and roosting in the future. This project, when added to other past, present, and reasonably foreseeable ecosystem restoration and mitigation projects, would help lessen the loss of habitats utilized by protected species.

## 4.5 Air Quality

*No Action Alternative - Direct, Indirect, and Cumulative Impacts*

Under the no action alternative, potential direct and indirect air quality impacts associated with the construction and operation of the mitigation project would not occur. Air quality would not be predicted to change from existing conditions and therefore would have no change cumulatively on air quality.

*Proposed Action - Direct, Indirect, and Cumulative Impacts*

Direct impacts to air quality would include emissions from the operation of construction equipment that would be used to put cuts into the berm and to treat the invasive species. Emissions from this construction equipment would occur throughout the approximately 180 calendar day construction period. These direct impacts would be anticipated to be localized and temporary. During and after construction, however, air quality would continue to be in attainment of pollutant standards set by NAAQS.

The indirect effects to air quality would be related to the emissions from the transportation of personnel, construction materials, and equipment to the work site on a daily or routine basis until construction of the project is complete to the extent those emissions go beyond the project area. Cumulatively, the effects would be temporary and would not affect NAAQS attainment.

The cumulative effects to air quality would be the combined emissions from constructing the proposed action, when added to other regional emission sources. Those sources would include vehicles utilizing the local roads and highways. It is not expected that there would be a significant change in air quality cumulatively due to this project.

## 4.6 Water Quality

*No Action Alternative - Direct, Indirect, and Cumulative Impacts*

Under the no action alternative, there would be no changes in impacts to this resource. Without implementation of the proposed action, water quality would not be predicted to change from existing conditions. Point source and nonpoint source pollution inputs would continue to impact and degrade water quality. There would be no cumulative impacts to water quality from implementation of this alternative.

*Proposed Action - Direct, Indirect, and Cumulative Impacts*

Suspended sediments transported in runoff from the project site may temporarily degrade surface water quality to a limited degree during initial mitigation activities (berm construction, clearing of invasive plants, etc.). This impact would be minimized through the use of appropriate best management practices - containing the impact to the project footprint. The exchange of the water across the BLH habitat would result in some positive indirect impacts because of wetlands' capacity to act as sinks (reservoir that accumulates and stores) for nutrients, thus improving local water quality. No negative cumulative effects to water quality would be anticipated from construction of the proposed project.

## 4.7 Noise

*No Action Alternative - Direct, Indirect, and Cumulative Impacts*

Under the no action alternative, there would be no change in the existing impacts due to sound levels. Birds and other animals would continue to be flushed when ATVs approach, and noise comes from the subdivision and highways.

*Proposed Action - Direct, Indirect, and Cumulative Impacts*

With construction of the proposed action, there would be a temporary increase in noise levels during construction and maintenance activities. This project would move its equipment through a neighborhood, but the construction area is shielded from the neighborhood by trees and a large infrastructure levee. Typical construction equipment (Table 1) that would be used on this project produce noise ranging from 75 decibels (dBA) to 100 dBA measured at 100 ft. Sound levels dissipate quickly with distance and screens. The proposed mitigation features are beyond 1,000 feet of a subdivision at the STC site. Off-site areas could experience higher than ambient noise levels during initial mitigation activities (e.g., construction of berms and surface water management features). Wildlife and fish would be directly and indirectly impacted and would vacate the vicinity during construction due to noise and vibration. Once construction is complete, the wildlife and fish would likely return to the vicinity. There should be no long term cumulative impacts from the noise and vibration.

## 4.8 Cultural Resources

*No Action Alternative - Direct, Indirect, and Cumulative Impacts*

Without implementation of the proposed action, conditions within the existing environment would remain largely the same as present; therefore, there would be “No Effect” to historic properties.

*Proposed Action - Direct, Indirect, and Cumulative Impacts*

No impacts to historic properties, cultural resources, or tribal resources would occur as a result of implementing the proposed action. CEMVN consulted with the LA SHPO in a letter on March 9, 2020, and consulted with the Alabama-Coushatta Tribe of Texas (ACTT), the Chitimacha Tribe of Louisiana (CTL), the Choctaw Nation of Oklahoma (CNO), the Coushatta Tribe of Louisiana (CT), the Jena Band of Choctaw Indians (JBCI), the Mississippi Band of Choctaw Indians (MBCI), the Muscogee (Creek) Nation (MCN), the Seminole Nation of Oklahoma (SNO), and the Tunica-Biloxi Tribe of Louisiana (TBTL) via letter on March 17, 2020, with a determination of “No Historic Properties Affected” for the proposed undertaking. SHPO concurred with this determination on April 15, 2020. The MCN provided concurrence with this determination via email dated March 19, 2020. No other comments were received. In accordance with 36 CFR 800.4 (d)(1)(i), CEMVN has fulfilled its consultation responsibilities.

## 4.9 Recreational Resources

*No Action Alternative - Direct, Indirect, and Cumulative Impacts*

Without implementation of the proposed action, the conditions within the recreational environment, such as for hunting, would continue as they have in the past and would be dictated by the natural land use patterns and processes that have dominated the area in the past. Direct, indirect, and cumulative impacts would be negligible.

*Proposed Action - Direct, Indirect, and Cumulative Impacts*

Direct impacts to recreation would be the interruption of hunting activities during construction. There would be the potential for recreation opportunities such as hunting, hiking, wildlife viewing, and bird watching with the change of land status from private to public if the local sponsor designates the area for public use.

## 4.10 Aesthetics

*No Action Alternative - Direct, Indirect, and Cumulative Impacts*

With the no action alternative, the proposed project area and its landscapes would remain on their current trajectory. Future changes to the local environment would be dictated by future maintenance and land use practices. The most likely scenario would be that the landscapes would evolve according to natural processes, such as continued tree mortality, over time.

*Proposed Action - Direct, Indirect, and Cumulative Impacts*

With the proposed action, there are no foreseen, long term, direct, indirect, or cumulative impacts to Aesthetic (visual) Resources at or near the proposed project area. The scenic character and visual quality of the proposed project area have not been recognized by any national or state designation. Although the proposed project area is remote, there is a residential community located adjacent to, and to the north of the project site that may be disturbed temporarily during construction due to the presence of construction equipment. It is expected that the area would return to pre-construction conditions soon after completion of the project.

## 4.11 Hazardous, Toxic, and Radioactive Waste

A Phase I Environmental Site Assessment (ESA) for the West Bank and Vicinity Mitigation Area, near Luling, St. Charles Parish, Louisiana, was prepared by USACE-MVN personnel on 26 August 2011. The Assessment Team performed a Phase I ESA of the proposed mitigation site, in St. Charles Parish, Louisiana, in conformance with the scope and limitations of ASTM E 1527. This assessment revealed no evidence of recognized environmental conditions (RECs) that would affect the project.

On May 13, 2020 personnel from USACE-MVN conducted an additional data base search of the proposed mitigation area to investigate a modification in SEA #498, mainly the addition of the clearing and excavation of portions of the existing two-track road to lower the road surface, allowing laminar flow across the area, and restoring the BLH qualities

of the site. Three dry and plugged oil/gas wells were noted in the vicinity of the proposed clearing and excavation; however, they are not located within the footprint of the proposed work and are not expected to affect the project.

Aerial photographs and topographic maps were reviewed. The proposed mitigation area is still undeveloped and no signs of unusual items of concern were noted. Based on the results of the original ESA Phase I and this update, the probability of encountering HTRW during the course of this project is low.

No further evaluation of HTRW is recommended at this time for the West Bank and Vicinity Mitigation Area.

### 4.12 Hydrology

*No Action Alternative - Direct, Indirect, and Cumulative Impacts*

Under the no action alternative, there would be no changes in impacts to this resource. The STC site would remain inundated for extended periods (30+ days) after rainfall and pumping from the pump station would continue.

*Proposed Action - Direct, Indirect, and Cumulative Impacts*

The hydraulics and hydrology modeling indicated the duration to return to average water elevation (Appendix H). Using the maximum inputs (pump + precipitation), the proposed action would reduce the inundation time by 10+ days. The reduced time of inundation would have a positive impact on the BLH forest and swamp habitats. The re-introduction of flow to the area would enhance the nutrient and moisture cycles to the mitigation site and the adjacent property having positive indirect and cumulative effects.

## 5 MITIGATION

The appropriate application of mitigation is to formulate an alternative that first avoids, then minimizes, and lastly, compensates for unavoidable adverse impacts. Formulation for this mitigation plan was completed in SEA #498. This SEA evaluation indicates there would be minimal/insignificant adverse impacts to resources due to construction that would be offset by the beneficial mitigation being performed. The proposed modifications to the mitigation project which consists of BLH and swamp enhancement, and re-establishment west of the Davis Pond guide levee and adjacent to the Salvador Wetland Management Area (WMA), St. Charles Parish mitigate for pre-Katrina impacts from the construction of the West Bank and Vicinity Hurricane Protection Project (WBV). This document serves as the mitigation plan required by 33 CFR 332.4(c) and 40 CFR 230.92.4(c). The twelve components of a compensatory mitigation plan are located in various sections of this document

| Components | Description |
|---|---|
| 1. Objectives | The three original WBV EIS, SEA #498; SEA #498A section 1.1 |
| 2. Site Selection | The three original WBV EIS; SEA #498 sections 1.2, 2.2 |

| | |
|---|---|
| 3. Site Protection Instrument | The land was acquired in fee, excluding oil and gas with restrictions on the use of the surface. The non-Federal sponsor would be responsible for operation, maintenance, repair, rehabilitation, and replacement of the mitigation site in perpetuity. |
| 4. Baseline Information | SEA #498A section 3 |
| 5. Determination of Credits | The three original WBV EIS and SEA #498 section 1.6. |
| 6. Mitigation Work Plan | SEA #498A section 2.3 and Appendix C: “Planting Plan, “Success Criteria and Monitoring Plan”. Coordination with the Interagency Team (including USFWS, NMFS, and LDWF) and the Sponsor has and will continue to occur in the development of the mitigation plan. |
| 7. Maintenance Plan | Maintenance for this project would entail invasive and nuisance species control, maintaining the cuts in the berm to the design elevation, and keeping the cuts in the berm clear of debris; the maintenance plan will be further outlined in the OMRR&R Manual to be developed at a later date. |
| 8. Performance Standards | Appendix C |
| 9. Monitoring Requirements | Appendix C |
| 10. Long-Term Management Plan | CEMVN is responsible for this mitigation project for the duration of the construction phase and until initial success criteria are met, to verify mitigation success and to complete project features if necessary. The non-Federal sponsor shall be responsible for OMRR&R of functional portions of work as they are completed. The non-Federal sponsor shall be responsible for maintaining the mitigation site in perpetuity. |
| 11. Adaptive Management Plan | In the event reports in component 9 (Appendix C) submitted to CEMVN reveal that any success criteria have not been met during OMRR&R phase, the non-Federal sponsor, or its assigns, after consultation with CEMVN and other appropriate agencies, would take all necessary measures to modify management practices in order to achieve these criteria in the future.<br><br>If the results of the monitoring program support the need for physical modifications to the project, CEMVN would determine and implement the appropriate corrections subject to availability of funds and relevant cost-sharing requirements and in accordance with current authority and budgetary and other guidance, including the potential to consider implementing corrective measures under separate authority.<br><br>If high mortality is apparent within the mitigation site, CEMVN or its assigns would take appropriate actions to address the causes of mortality and replace all dead trees in accordance with cost sharing applicable to the project and subject to the availability of funds. |

| | |
|---|---|
| 12. Financial Assurances | Financial assurances are required to ensure that the compensatory mitigation project would be successful. In this case the WBV Project Cooperation Agreement between the CPRA of Louisiana and the Federal Government provides the required financial assurance for this mitigation project. In the event that the non-Federal sponsor fails to perform, the CEMVN has the right to complete, operate, maintain, repair, rehabilitate or replace any project feature, including mitigation features, but such action would not relieve CPRA of its responsibility to meet its obligations and would not preclude the US from pursuing any remedy at law or equity to ensure CPRA's performance. |

# 6 COORDINATION AND PUBLIC INVOLVEMENT

A Public Notice for SEA #498A was published in the New Orleans Advocate for 15 days beginning July 8, 2020 and ending July 23, 2020.

Preparation of this SEA and FONSI was coordinated with appropriate Congressional, Federal, state, and local interests, as well as environmental groups and other interested parties. The following agencies, as well as other interested parties, have received copies of this draft SEA:

U.S. Department of the Interior, Fish and Wildlife Service

U.S. Environmental Protection Agency, Region VI

U.S. Department of Commerce, National Marine Fisheries Service

U.S. Natural Resources Conservation Service, State Conservationist

Governor's Executive Assistant for Coastal Activities

Louisiana Department of Wildlife and Fisheries

Louisiana Department of Natural Resources, Coastal Management Division

Louisiana Department of Natural Resources, Coastal Restoration Division

Louisiana Department of Environmental Quality, PER-REGC

Louisiana Department of Environmental Quality, EP-SIP

Louisiana State Historic Preservation Officer

# 7 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

There are many Federal and state laws pertaining to the enhancement, management and protection of the environment. Federal projects must comply with environmental laws, regulations, policies, rules and guidance. Compliance with laws was accomplished upon

the conclusion of a 15-day public and agency review of this SEA #498A and associated Finding of No Significant Impact.

**Clean Air Act of 1972**
The Clean Air Act (CAA) sets goals and standards for the quality and purity of air. It requires the Environmental Protection Agency to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The Project Area is in St. Charles Parish, which is currently in attainment of NAAQS. The Louisiana Department of Environmental Quality is not required by the CAA and Louisiana Administrative Code, Title 33 to grant a general conformity determination.

**Clean Water Act of 1972 – Section 401 and Section 404**
The Clean Water Act (CWA) sets and maintains goals and standards for water quality and purity. Section 401 requires a Water Quality Certification from the Louisiana Department of Environmental Quality (LDEQ) that a proposed project does not violate established effluent limitations and water quality standards. Clean Water Act of 1972 Water Quality Certification application was submitted May 15, 2020 and can be found in Appendix E. On May 21, 2020, Louisiana Department of Environmental Quality issued WQC 200519-01, AI Number 101235, activity CER20200004 for the proposed project. Requirements under the Clean Water Act of 1972, Section 401 have been met. (Appendix E)

As required by Section 404(b)(1) of the Clean Water Act (CWA), an evaluation to assess the short- and long-term impacts associated with the discharge of dredged and fill materials into waters of the United States resulting from this Project has been completed. Section 404(b)(1) public notice was mailed out for public review comment period concurrent with this SEA beginning July 8, 2020 and ending July 23, 2020. No comments were received on the 404(b)(1) and it was signed on August 4, 2020. (Appendix G)

**Coastal Zone Management Act of 1972**
The Coastal Zone Management Act (CZMA) requires that "each federal agency conducting or supporting activities directly affecting the coastal zone shall conduct or support those activities in a manner which is, to the maximum extent practicable, consistent with approved state management programs." In accordance with Section 307, a Consistency Determination was prepared for the proposed Project and was coordinated with the Louisiana Department of Natural Resources (LADNR) in a letter dated May 5, 2020. A Coastal Zone Consistency Determination was received on June 29, 2020 (C20110476 Mod 02). (Appendix E)

**Endangered Species Act of 1973**
The Endangered Species Act (“ESA”) is designed to protect and recover threatened and endangered (“T&E”) species of fish, wildlife and plants. Based on a parish search conducted on the US Fish and Wildlife Service (USFWS) endangered species website (http://www.fws.gov/endangered) on April 7, 2020, there are five Threatened and Endangered (T&E) species listed in St. Charles Parish. Based on a site specific search conducted on the USFWS website (https://ecos.fws.gov/ipac/location) on April 7, 2020,

only the West Indian manatee has the potential of being found near the project site. There are no T&E species or critical habitat within, or in the immediate vicinity of, the proposed project area and therefore the CEMVN has made a “no effect” determination under the Endangered Species Act (ESA). No consultation under the ESA would be required for the proposed action.

**Fish and Wildlife Coordination Act of 1934**

The Fish and Wildlife Coordination Act (“FWCA”) provides authority for the USFWS involvement in evaluating impacts to fish and wildlife from proposed water resource development projects. It requires that fish and wildlife resources receive equal consideration to other project features. It requires Federal agencies that construct, license or permit water resource development projects to first consult with the USFWS, NMFS and state resource agencies regarding the impacts on fish and wildlife resources and measures to mitigate these impacts. Section 2(b) requires the USFWS to produce a Coordination Act Report (“FWCAR”) that details existing fish and wildlife resources in a project area, potential impacts due to a proposed project and recommendations for a project. The Service has determined in a June 24, 2020 letter that the proposed minor modification will not require a supplemental Fish and Wildlife Coordination Act Report. The Service has previously provided comments on the subject mitigation plan in letters dated April 29, 2011, June 6, 2011, September 9, 2011, October 7, 2011, October 19, 2011, November 21, 2011, May 16, 2012 and May 28, 2020. Those documents adequately address the Service's position regarding the proposed modification and the Service has no additional comments and concurs with the actions in SEA #498A without further comment. (Appendix E)

**Hazardous, Toxic, and Radioactive Waste**

The discharge of dredged material into waters of the United States is regulated under the Clean Water Act (CWA). In the absence of a known Hazardous, Toxic, and Radioactive Waste (HTRW) concern, the proposed action would not qualify for an HTRW investigation.

Engineer Regulation (ER 1165-2-132) provides that in the Planning, Engineering and Design Phase that, for proposed project in which the potential for HTRW problems has not been considered, an HTRW initial assessment, as appropriate for a reconnaissance study, should be conducted as a first priority. If the initial assessment indicates the potential for HTRW, testing, as warranted and analysis similar to a feasibility study should be conducted prior to proceeding with the project design. The NFS will be responsible for planning and accomplishing any HTRW response measures, and will not receive credit for the costs incurred.

Aerial photographs and topographic maps were reviewed. The proposed mitigation area is still undeveloped and no signs of unusual items of concern were noted. Based on the results of the original ESA Phase I and this update, the probability of encountering HTRW during the course of this project is low.

An ASTM E 1527-05 Phase I Hazardous, Toxic, or Radioactive Waste Environmental Site Assessment (ESA), entitled “West Bank and Vicinity Mitigation Areas, St. Charles Parish, Louisiana” (HTRW-11-17) was completed on August 26, 2011. An update to the Phase I ESA was completed on May 14, 2020. A copy of the updated Phase I ESA is maintained on file at MVN. Neither the Phase I ESA nor the subsequent Phase I ESA Update identified any Recognized Environmental Conditions (RECs). Three dry and plugged oil/gas wells were noted near the project vicinity; however, they should not have any negative effects on the proposed project. There is a low probability that HTRW would affect the proposed project, personnel working on the project, members of the public, or the environment in the project area. No further evaluation of HTRW is recommended at this time for the West Bank and Vicinity Mitigation Area.

**Migratory Bird Treaty Act**

The Migratory Bird Treaty Act of 1918 (MBTA) is the domestic law that affirms, or implements, the United States' commitment to four international conventions with Canada, Japan, Mexico, and Russia for the protection of shared migratory bird resources. The MBTA governs the taking, killing, possessing, transporting, and importing of migratory birds, their eggs, parts, and nests. The project area is located in an area where colonial nesting waterbirds may be present, although no nesting is currently apparent so MVN finds that implementation of the proposed actions would have no effect on colonial nesting waterbirds. Colonial nesting waterbirds are generally considered all species of herons, egrets, night herons, ibis, roseate spoonbill, anhinga and cormorants. To minimize disturbance to colonies containing nesting waterbirds (if present) all activity occurring within 1,000 feet of a rookery would be restricted to the non-nesting period.

**Bald and Golden Eagle Protection Act**

The bald eagle was removed from the List of Endangered and Threatened Species in August 2007 but continues to be protected under the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act of 1918, as amended (MBTA). During nesting season, construction must take place outside of USFWS/LDWF buffer zones. A Corps Biologist and USFWS Biologist would survey for nesting eagles prior to the start of construction. To minimize disturbance to nesting eagles (if present), the guidelines found in Appendix D would be followed during construction.

**National Historic Preservation Act of 1966**

Section 106 of the National Historic Preservation Act of 1966, as amended, requires Federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. The procedures in 36 CFR Part 800 define how Federal agencies meet these statutory responsibilities. The Section 106 process seeks to accommodate historic preservation concerns with the needs of Federal undertakings through consultation among the agency official and other parties with an interest in the effects of the undertaking on historic properties, including the State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO) and any Tribe that attaches religious or cultural significance to historic properties that may be affected by an undertaking. The goal of consultation is to identify historic properties potentially

affected by the undertaking, assess its effects and seek ways to avoid, minimize or mitigate any adverse effects on historic properties. Consultation pursuant to Section 106 has been completed and a finding of no historic properties affected, was coordinated for the original Project goals as presented in SEA #498, with a letter dated March 9, 2020 to the SHPO, and a response dated April 15, 2020 (Appendix E). In a letter dated April 15, 2020, SHPO concurred that the actions of this Supplemental EA are determined as having no additional potential to cause effect to any potential cultural resources.

**Tribal Consultation**

NEPA, Section 106 of the National Historic Preservation Act, EO 13175 (Consultation and Coordination with Indian Tribal Governments), the American Indian Religious Freedom Act, and related statutes and policies have a consultation component. In accordance with CEMVN's responsibilities under NEPA, Section 106, and EO 13175, CEMVN offered the following federally-recognized Indian Tribes the opportunity to review and comment on the potential of the proposed action to significantly affect protected tribal resources, tribal rights, or Indian lands: Alabama-Coushatta Tribe of Texas, Caddo Nation of Oklahoma, Chitimacha Tribe of Louisiana, Choctaw Nation of Oklahoma, Coushatta Tribe of Louisiana, Jena Band of Choctaw Indians, Mississippi Band of Choctaw Indians, Seminole Nation of Oklahoma, Seminole Tribe of Florida, and Tunica-Biloxi Tribe of Louisiana. On March 17, 2020, letters were mailed to the tribal leaders requesting input regarding the proposed action. The Muscogee (Creek) Nation concurred with the determination of "no adverse effect to historic property" on March 19, 2020. The 30 day consultation period ended on April 15, 2020 and no other comments were received.

# 8 CONCLUSION AND RECOMMENDATIONS

The proposed action would restore the hydrology at the STC mitigation site, returning the water regime to a water exchange indicative of BLH and swamp habitats, maintaining the required habitat for the mitigation. The tree losses will be re-established by planting approximately 74 acres of BLH and swamp species on the site. With the TSP the previously authorized WBV compensatory mitigation requirements would be satisfied.

With this proposed action wetlands, wildlife, recreation, and water quality are expected to incur minimum and temporary adverse impacts during activities, and experience beneficial impacts indirectly and cumulatively due to the improved habitat. Air quality, noise, and aesthetics would be temporarily adversely impacted during construction activities with no indirect or cumulative effects, as the area would return to pre-construction conditions soon after completion of the project. There would be beneficial impacts to aquatic resources/fisheries, other protected species, and hydraulics and hydrology due to the project's improved habitat and access. Threatened and Endangered species are not present in the area and would not be impacted, although site surveys would still be conducted. There would be no impact to cultural resources by the proposed action. The probability of encountering HTRW in the WBV Mitigation Areas is very low.

Based on the following criteria: engineering effectiveness, economic efficiency, and environmental and social acceptability, the TSP provides the required mitigation, is cost

effective, and has a shorter construction duration than the other alternatives. The no action alternative would not provide the needed mitigation authorized in SEA #498 in 2012.

This office has assessed the environmental impacts of the proposed action and has determined that the proposed action would have no significant adverse impacts on the human and natural environment.

### 8.1 Recommended Decision

Recommend approval of the TSP which fulfills the previously authorized WBV compensatory mitigation requirements.

## 9 LIST OF PREPARERS

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# Appendix A: Figures

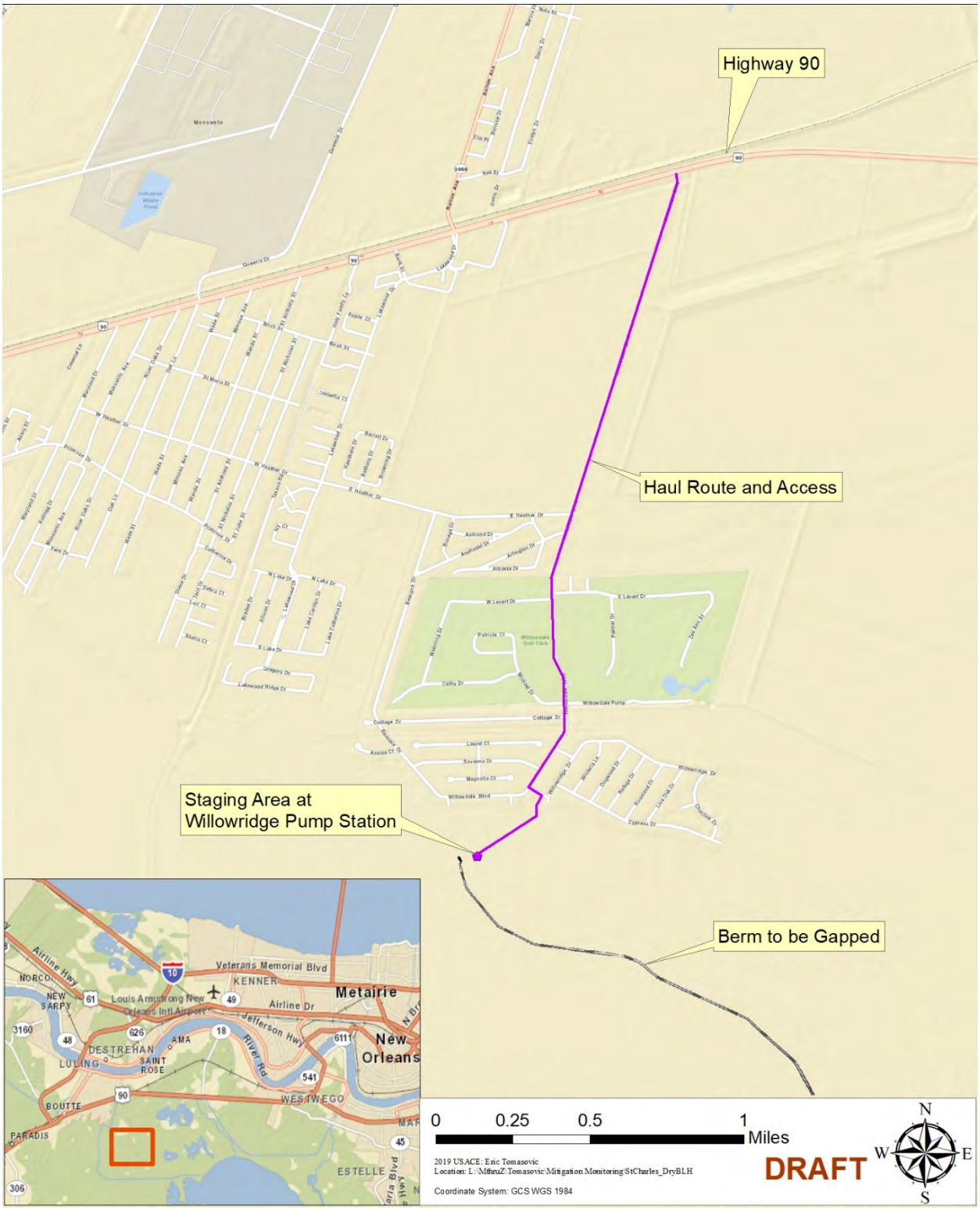


Figure 1. St. Charles BLH/swamp Mitigation Site, St. Charles, Louisiana.

Figure 2: St. Charles Mitigation property boundaries.

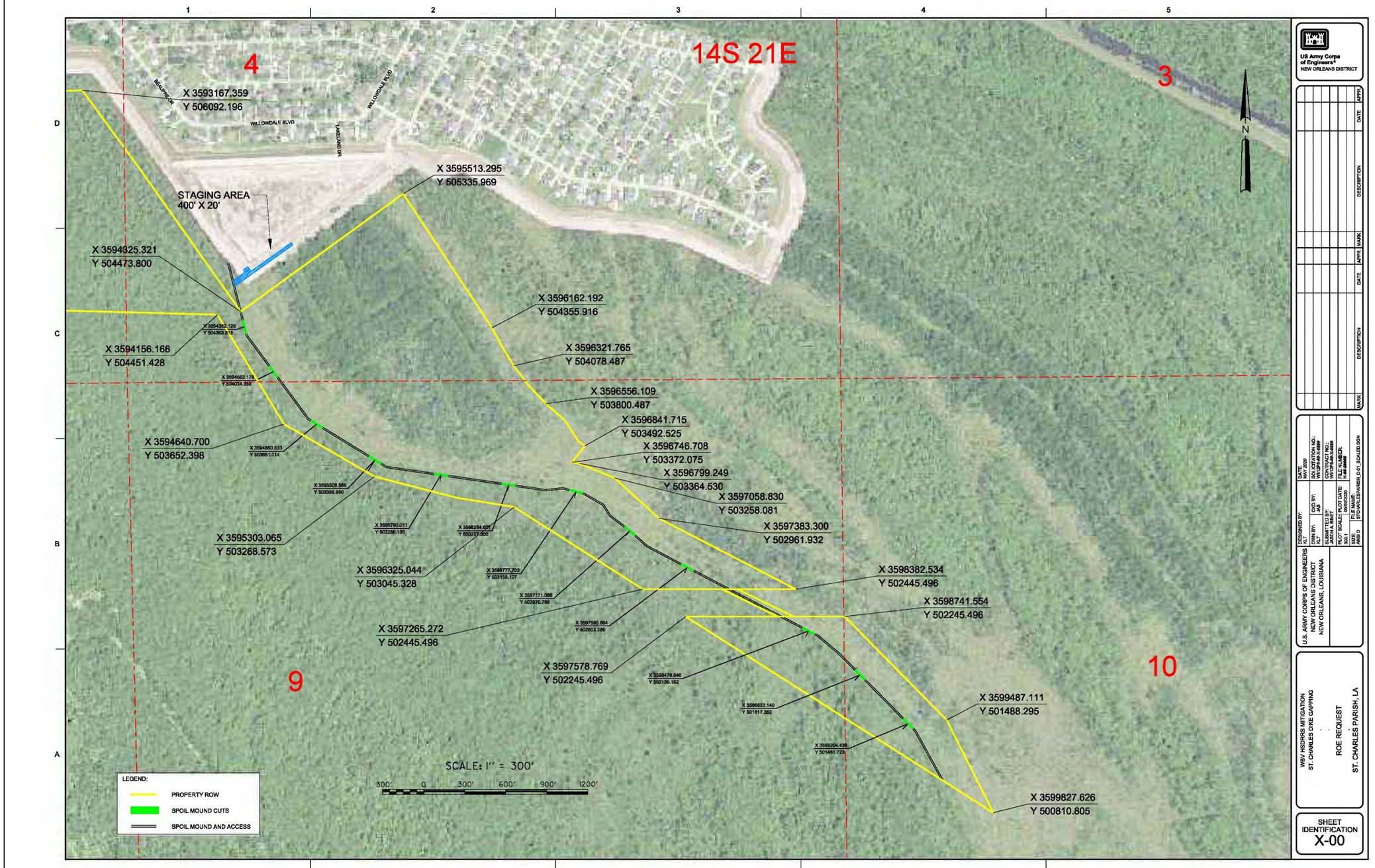



Figure 3. CAD design of cuts, and the existing berm.


Figure 4. Staging area at the pump station, including outflow crossing.

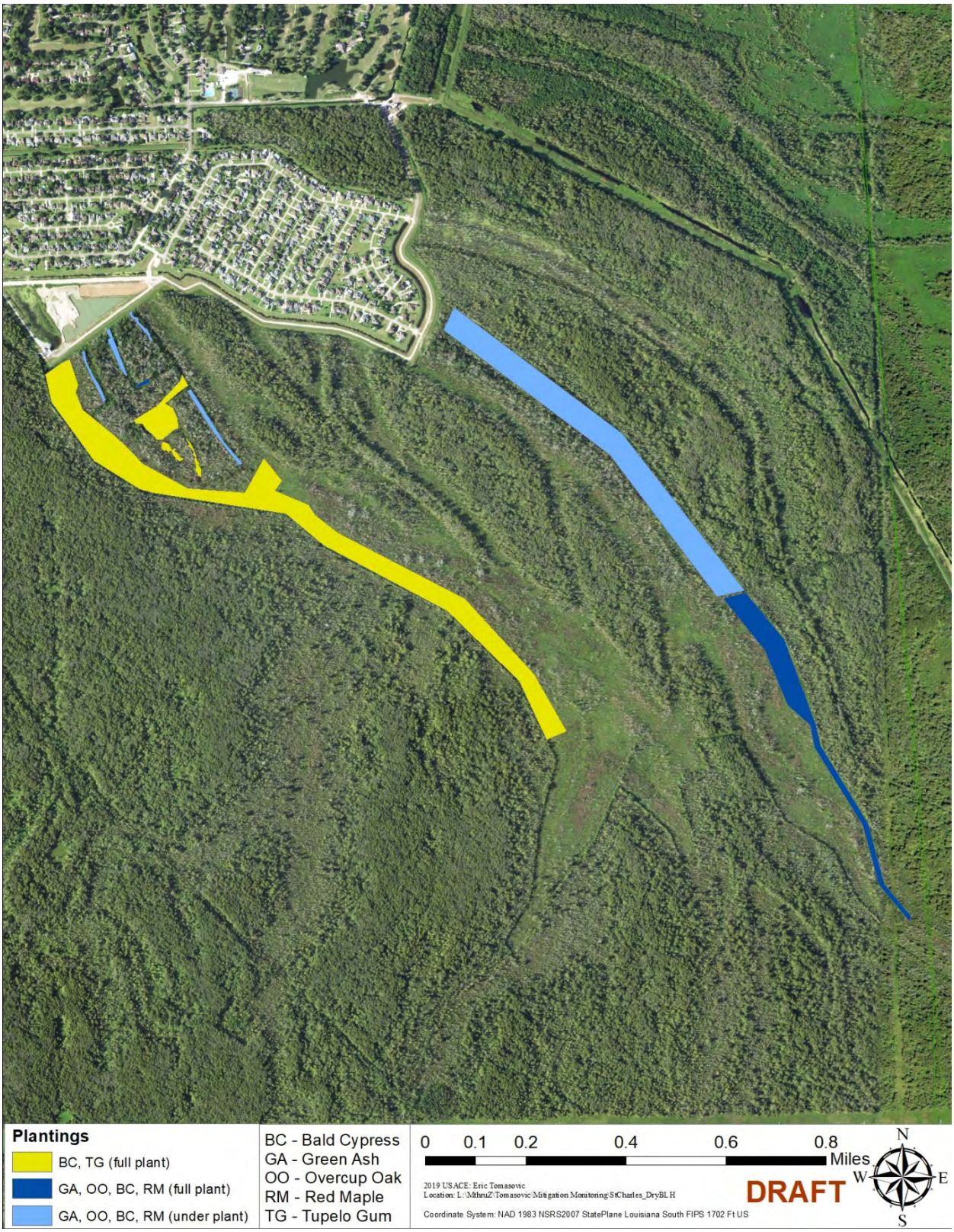


Figure 5. St Charles BLH/swamp Mitigation tree planting locations by species and technique.


Figure 6. St. Charles BLH/swamp Mitigation tree planting staging areas and access.

# Appendix B: Relevant Resources and Their Institutional Importance

## Table 1: Relevant Resources and Their Institutional, Technical and Public Importance

| Resource | Institutionally Important | Technically Important | Publicly Important |
|---|---|---|---|
| **Wetlands** | Clean Water Act of 1977, as amended; Executive Order 11990 of 1977, Protection of Wetlands; Coastal Zone Management Act of 1972, as amended; and the Estuary Protection Act of 1968., EO 11988, and Fish and Wildlife Coordination Act. | They provide necessary habitat for various species of plants, fish, and wildlife; they serve as ground water recharge areas; they provide storage areas for storm and flood waters; they serve as natural water filtration areas; they provide protection from wave action, erosion, and storm damage; and they provide various consumptive and non-consumptive recreational opportunities. | The high value the public places on the functions and values that wetlands provide. Environmental organizations and the public support the preservation of marshes. |
| **Bottomland Hardwood Forest** | Section 906 of the Water resources Development Act of 1986 and the Fish and Wildlife Coordination Act of 1958, as amended. | Provides necessary habitat for a variety of plant, fish, and wildlife species; it often provides a variety of wetland functions and values; it is an important source of lumber and other commercial forest products; and it provides various consumptive and non-consumptive recreational opportunities. | The high priority that the public places on its esthetic, recreational, and commercial value. |
| **Aquatic Resources/ Fisheries** | Fish and Wildlife Coordination Act of 1958, as amended; Clean Water Act of 1977, as amended; Coastal Zone Management Act of 1972, as amended; and the Estuary Protection Act of 1968. | They are a critical element of many valuable freshwater and marine habitats; they are an indicator of the health of the various freshwater and marine habitats; and many species are important commercial resources. | The high priority that the public places on their esthetic, recreational, and commercial value. |
| **Soils and Water Bottoms** | Fish and Wildlife Coordination Act, Marine Protection, Research, and Sanctuaries Act of 1990 | State and Federal agencies recognize the value of water bottoms for the production of benthic organisms. | Environmental organizations and the public support the preservation of water quality and fishery resources. |
| **Essential Fish Habitat (EFH)** | Magnuson-Stevens Fishery Conservation and Management Act of 1996, Public Law 104-297 | Federal and state agencies recognize the value of EFH. The Act states, EFH is "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." | Public places a high value on seafood and the recreational and commercial opportunities EFH provides. |
| **Wildlife** | Fish and Wildlife Coordination Act of 1958, as amended and the Migratory Bird Treaty Act of 1918 | They are a critical element of many valuable aquatic and terrestrial habitats; they are an indicator of the health of various aquatic and terrestrial habitats; and many species are important commercial resources. | The high priority that the public places on their esthetic, recreational, and commercial value. |
| **Threatened and Endangered Species** | The Endangered Species Act of 1973, as amended; the Marine Mammal Protection Act of 1972; and the Bald Eagle Protection Act of 1940. | USACE, USFWS, NMFS, NRCS, EPA, LDWF, and LDNR cooperate to protect these species. The status of such species provides an indication of the overall health of an ecosystem. | The public supports the preservation of rare or declining species and their habitats. |
| **Cultural Resources** | National Historic Preservation Act of 1966, as amended; the Native American Graves Protection and Repatriation Act of 1990; and the Archeological Resources Protection Act of 1979 | State and Federal agencies document and protect sites. Their association or linkage to past events, to historically important persons, and to design and construction values; and for their ability to yield important information about prehistory and history. | Preservation groups and private individuals support protection and enhancement of historical resources. |
| **Recreation Resources** | Federal Water Project Recreation Act of 1965 as amended and Land and Water Conservation Fund Act of 1965 as amended | Provide high economic value of the local, state, and national economies. | Public makes high demands on recreational areas. There is a high value that the public places on fishing, hunting, and boating, as measured by the large number of fishing and hunting licenses sold in Louisiana; and the large per-capita number of recreational boat registrations in Louisiana. |
| **Aesthetics** | USACE ER 1105-2-100, and National Environmental Policy Act of 1969, the Coastal Barrier Resources Act of 1990, Louisiana's National and Scenic Rivers Act of 1988, and the National and Local Scenic Byway Program. | Visual accessibility to unique combinations of geological, botanical, and cultural features that may be an asset to a study area. State and Federal agencies recognize the value of beaches and shore dunes. | Environmental organizations and the public support the preservation of natural pleasing vistas. |
| **Air Quality** | Clean Air Act of 1963, Louisiana Environmental Quality Act of 1983. | State and Federal agencies recognize the status of ambient air quality in relation to the NAAQS. | Virtually all citizens express a desire for clean air. |

| Resource | Institutionally Important | Technically Important | Publicly Important |
|---|---|---|---|
| **Water Quality** | Clean Water Act of 1977, Fish and Wildlife Coordination Act, Coastal Zone Mgt Act of 1972, and Louisiana State & Local Coastal Resources Act of 1978. | USACE, USFWS, NMFS, NRCS, EPA, and State DNR and wildlife/fishery offices recognize value of fisheries and good water quality and the national and state standards established to assess water quality. | Environmental organizations and the public support the preservation of water quality and fishery resources and the desire for clean drinking water. |
| **Prime and unique Farmland** | Farmland Protection Policy Act | State and Federal agencies recognize the value of farmland for the production of food, feed and forage. | Public places a high value on food and feed production. |
| **Noise Quality** | USACE ER 1105-2-100, and National Environmental Policy Act of 1969, Noise Control Act of 1972, Quiet Communities Act of 1978 | Unwanted noise has an adverse effect on human beings and their environment, including land, structures, and domestic animals and can also disturb natural wildlife and ecological systems. | The EPA must promote an environment for all Americans free from noise that jeopardizes their health and welfare. |
| **Socio-economics** | USACE ER 1105-2-100, and National Environmental Policy Act of 1969 | When an environmental document is prepared and economic or social and natural or physical environmental effects are interrelated, then the environmental document will discuss all of these effects on the human environment. | Government programs, policies and projects can cause potentially significant changes in many features of the socioeconomic environment. |
| **Navigation** | Rivers and Harbors Act of 1899 and River and Harbor Flood Control Act of 1970 (PL 91-611). | The Corps provides safe, reliable, efficient, and environmentally sustainable waterborne transportation systems (channels, harbors, and waterways) for movement of commerce, national security needs, and recreation. | Navigation concerns affect area economy and are of significant interest to community. |

# Appendix C: Planting Plan, Success Criteria and Monitoring Plan

**Planting Plan**
**St Charles BLH and swamp Mitigation**

Approximately 74 total acres approximately 302 trees/acre

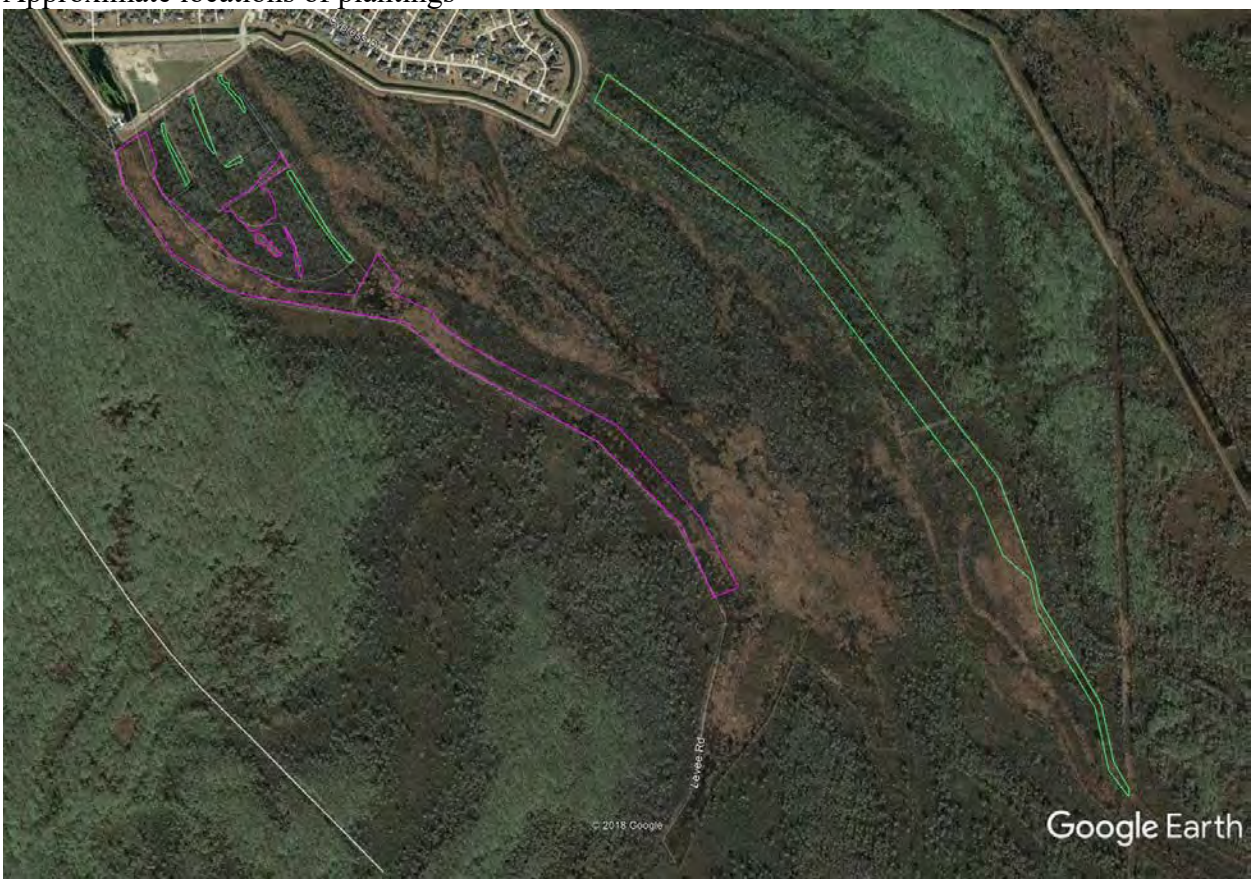
BLH (approximately 35 acres)
*At least 60% hard mast required for BLH plantings.*

Potential species for planting
- Overcup oak (hard)
- Water hickory (hard)
- Green ash (soft)
- Pumpkin ash (soft)
- Bald cypress (soft)
- Red maple (soft)

Swamp (approximately 39 acres)
*50% Bald cypress required for swamp plantings.*
- Bald cypress (soft)
- Tupelo gum (soft)

Areas where apparent tree mortality has occurred have been identified for planting. Some areas will be a full plant while others will be under-planting. The exact locations and spacing of plantings have not been determined at this time. These determinations will be made in the field at the time of planting and would be dependent on site conditions (i.e. canopy openings, standing water, etc.) It is anticipated that the site will not support consistent spacing as the goal is to plant wherever there is canopy openings due to tree mortality.

Approximate locations of plantings



**ST CHARLES MITIGATION PROJECT**
**MITIGATION SUCCESS CRITERIA**

## 1. MITIGATION CONSTRUCTION

**Criterion 1A**: Complete construction of the cuts in the existing berm and planting of swamp and BLH species, in general accordance with the construction plans.

## 2. NATIVE VEGETATION

**Criterion 2A:**

Initial, Intermediate and Long-term success criteria

- Demonstrate that the forest stand structure resembles what existed prior to tree mortality.

## 3. INVASIVE & NUISANCE VEGETATION

**Criterion 3A**: maintain the mitigation area such that the average percent cover of invasive plant species and the average percent cover of nuisance plant species typically each account for $\leq 5\%$ of the average total plant cover (e.g cover by native, invasive, and nuisance species combined; cover by all species in all strata combined).

## 4. TOPOGRAPHY

**Criterion 4A**: After completion of their construction, the cuts established in the existing berm must have an average bottom elevation of (-)1.5 NAVD88, and must have an average bottom width 100 feet. These criteria will be applicable throughout the remainder of the project life following initial construction completion.

## ADDITIONAL MITIGATION GOALS

One of the secondary goals of the St Charles Mitigation Project is that natural regeneration of the dominant native trees in the mitigation area will once again be supported through improvement of hydrologic connection with the adjacent wetlands. The data collected during project monitoring events should allow evaluation of whether this goal is being realized.

# ST CHARLES MITIGATION PROJECT
# DRAFT MONITORING PLAN

**1. Introduction**

The entire St Charles Mitigation Project is approximately 1,320 acres. Of that 1,320 acres, approximately 74 acres would be planted and the rest would be preservation and/or management only. Management would be in the form of invasive species control, selective tree removal and tree girdling, and/or injection to enhance snag numbers as well as planting with desirable species in selected areas. Another aspect of this project is the hydrological enhancement of the area to restore proper water flow within the wetlands (the mitigation site and the existing wetlands to the west).

*Initial construction activities include:*

Conducting herbicide treatments
Constructing 12, 100 foot cuts within the existing berm

*Final construction activities include:*

Planting approximately 39 acres of swamp species
Planting approximately 35 acres of BLH-wet species

**2. Baseline Monitoring Report (First Monitoring Report)**

After completion of all final mitigation activities, the mitigation site will be monitored and a baseline monitoring report will be prepared. Monitoring and reporting requirements for the first report include the following items:

A. A discussion of all mitigation activities completed thus far.

B. A description of the various features and habitats/vegetation associations within the mitigation area.

C. Drawing(s) of the mitigation site showing the approximate boundaries of different mitigation features (BLH and swamp planting areas; cuts in the existing berm.), permanent monitoring plots, permanent photo stations.

D. Drawing(s) showing an as-built survey of the 12 berm cuts as initially constructed, as well as drawing(s) showing the topography of the cuts near the time of monitoring. In addition, representative cross-sections of these cuts will be provided.

E. Photographs documenting conditions in the mitigation site at the time of monitoring. Photos will be taken at one permanent photo station in the center of each of permanent monitoring plots. Four photos will be taken at each permanent photo station with the view of these photos always oriented north, south, east, and west. During the monitoring event, additional photos may be taken at other non-permanent locations if deemed warranted to show areas of concern, etc.

F. A discussion of the methodology used in conducting the subject mitigation monitoring at the project site, the type of data collected, processing of the data, and other observations and documentation made during the course of field monitoring.

G. Presentation of the results of the monitoring activities and a discussion of the results, particularly focusing on whether the monitoring indicates applicable mitigation success criteria have been achieved and whether general mitigation goals may be attained.

H. A brief description of anticipated maintenance/management work to be conducted during the period from the current monitoring report to the next monitoring report. In addition, recommended actions to help meet mitigation and management/maintenance goals and mitigation success criteria.

I. Quantitative plant data gathered during the monitoring event will include the following:

(1) Data collected from permanent monitoring plots measuring approximately 80 feet X 80 feet in size. Data recorded throughout each plot will include:

a. The species and diameter at breast height (DBH) of each living native tree in the canopy stratum. As used herein, the term "canopy stratum" refers to the vegetation stratum that consists of all woody plants (excluding vines) having a DBH ≥ 3 inches and having a height > 20 feet (approximately).

b. The species and DBH of each living native woody species in the midstory stratum having a DBH of at least 1.0 inch and less than 3 inches, along with the total number of each such species. For non-woody species, the total number of each species. As used herein, the term "midstory stratum" refers to the vegetation stratum that consists of all woody plants (excluding vines) having a DBH < 3 inches and having a height ranging from approximately 3 feet to 20 feet.

(2) Data collected at each of the four corners of the permanent monitoring plots and at the center of each of these plots by establishing an imaginary sampling circle having a radius of approximately 15 feet. Data recorded within each of the sampling circles will include:

a. For the canopy stratum, estimates of the percent cover accounted for by living native species, by invasive species, and by nuisance species. When doing this, record the 4 to 5 most dominant species comprising each category (e.g. native, invasive, nuisance).

b. For the midstory stratum, estimates of the percent cover accounted for by living native species, by invasive species, and by nuisance species. When doing this, record the 4 to 5 most dominant species comprising each category (e.g. native, invasive, nuisance).

(3) Data collected at each of the four corners of the permanent monitoring plots and at the center of each of these plots using a temporary 1 meter X 1 meter sampling quadrat. Data recorded within each of the sampling plots will include each species of living plants in the groundcover stratum whose total cover is at least 2%. For each of these plant species, the cover occupied by the species will be estimated and each species will be classified as a native, invasive, or nuisance plant species. As used herein, the term "groundcover stratum" refers to the vegetation stratum that consists of all herbaceous plants, all vines, and all woody plants that are less than approximately 3 feet tall

J. Qualitative observations recorded during the monitoring event will include the following:

(1) General estimates of the average percent cover by native plant species in the canopy, midstory, and groundcover strata in each enhancement area.
(2) General observations concerning the growth of native canopy and midstory species

(3) General condition of native plants in the canopy and midstory strata.
(5) Signs of regeneration of native plants that are dominant members of the canopy stratum.
(6) Trends in the composition of plant communities.
(7) Wildlife utilization of the site.
(8) Potential problem areas/zones (including mapping rough estimate limits of such areas if feasible).
(9) Percent cover of invasive and nuisance species

K. At the time of monitoring, daily rainfall data recorded during the year preceding the monitoring event will be obtained from a National Oceanic and Atmospheric Administration rainfall gage at the Louis Armstrong International Airport.

M. The quantitative plant data gathered during field monitoring will be processed to generate the following values/data for the monitoring report:

a. The average density (number) of each living native tree species in the canopy stratum and for all living native trees in the canopy stratum combined.
b. The average density of each living native plant species in the midstory stratum and for all living plants in the midstory stratum combined.
c. The average DBH (in inches) of each living native tree species in the canopy stratum and for all living native trees in this stratum combined.
d. The average DBH (in inches) of each native tree species in the midstory stratum and for all native trees in this stratum combined.
e. The average percent cover accounted for by living native, invasive, and nuisance plant species in canopy stratum separately, the average total percent cover by all living plants in this stratum, and the percentage of average total living plant cover in this stratum accounted for by invasive species and by nuisance plant species.
f. The average percent cover accounted for by living native, invasive, and nuisance plant species in midstory stratum separately, the average total percent cover by all living plants in this stratum, and the percentage of average total living plant cover in this stratum accounted for by invasive species and by nuisance plant species.
g. For the groundcover stratum using data from the sampling plots, the average percent cover occupied by each species, the average total percent cover by all living plants in this stratum, and the percentage of average total living plant cover in this stratum accounted for by invasive species and by nuisance plant species.
h. For all three vegetative strata (canopy, midstory, groundcover) combined:
    - The average total plant cover
    - The average percentage of the total plant cover accounted for by native species
    - The average percentage of the total plant cover accounted for by invasive species
    - The average percentage of the total plant cover accounted for by nuisance species

(4) For the collected local rainfall data, compute the total weekly rainfall and the total monthly rainfall over the period of time covered by the data (preferably 1 year). Use these data to prepare graphs for the weekly and monthly totals, with the monthly totals compared to historic monthly rainfall totals for the general area.

**3. Additional Monitoring Reports**

A. All monitoring reports generated after the baseline/initial report will include the following information unless otherwise noted:

(1). All items listed for the baseline/initial monitoring report.

(2). A brief description of maintenance and/or management and/or mitigation work performed since the previous monitoring report along with a discussion of any other significant occurrences at the mitigation site.

(3). Although not proposed as part of the initial implementation of this mitigation project, in the future planting of certain areas within the mitigation site may be necessary to ensure attainment of applicable native vegetation success criteria and implemented under the project's Contingency Management Plan. Any monitoring report submitted following completion of a planting event must include a detailed inventory of the number of each species planted and the stock size used. It must also include a depiction of the areas re-planted, cross-referenced to a listing of the species and number of each species planted in each area. Monitoring reports prepared after completion of a planting event will also need to monitor and evaluate the overall improvement of the habitat within the mitigation area.

**4. General Notes**

Field monitoring activities will usually be conducted sometime during the late summer/early fall.

# Appendix D: National Bald Eagle Management Guidelines

# NATIONAL BALD EAGLE MANAGEMENT GUIDELINES

**U.S. Fish and Wildlife Service**

**May 2007**

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## INTRODUCTION

The bald eagle (*Haliaeetus leucocephalus*) is protected by the Bald and Golden Eagle Protection Act (Eagle Act) and the Migratory Bird Treaty Act (MBTA). The MBTA and the Eagle Act protect bald eagles from a variety of harmful actions and impacts. The U.S. Fish and Wildlife Service (Service) developed these National Bald Eagle Management Guidelines to advise landowners, land managers, and others who share public and private lands with bald eagles when and under what circumstances the protective provisions of the Eagle Act may apply to their activities. A variety of human activities can potentially interfere with bald eagles, affecting their ability to forage, nest, roost, breed, or raise young. The Guidelines are intended to help people minimize such impacts to bald eagles, particularly where they may constitute "disturbance," which is prohibited by the Eagle Act.

The Guidelines are intended to:

(1) Publicize the provisions of the Eagle Act that continue to protect bald eagles, in order to reduce the possibility that people will violate the law,

(2) Advise landowners, land managers and the general public of the potential for various human activities to disturb bald eagles, and

(3) Encourage additional nonbinding land management practices that benefit bald eagles (see Additional Recommendations section).

While the Guidelines include general recommendations for land management practices that will benefit bald eagles, the document is intended primarily as a tool for landowners and planners who seek information and recommendations regarding how to avoid disturbing bald eagles. Many States and some tribal entities have developed state-specific management plans, regulations, and/or guidance for landowners and land managers to protect and enhance bald eagle habitat, and we encourage the continued development and use of these planning tools to benefit bald eagles.

Adherence to the Guidelines herein will benefit individuals, agencies, organizations, and companies by helping them avoid violations of the law. However, the Guidelines themselves are not law. Rather, they are recommendations based on several decades of behavioral observations, science, and conservation measures to avoid or minimize adverse impacts to bald eagles.

The U.S. Fish and Wildlife Service strongly encourages adherence to these guidelines to ensure that bald and golden eagle populations will continue to be sustained. The Service realizes there may be impacts to some birds even if all reasonable measures are taken to avoid such impacts. Although it is not possible to absolve individuals and entities from liability under the Eagle Act or the MBTA, the Service exercises enforcement discretion to focus on those individuals, companies, or agencies that take migratory birds without regard for the consequences of their actions and the law, especially when conservation measures, such as these Guidelines, are available, but have not been implemented. The Service will prioritize its enforcement efforts to focus on those individuals or entities who take bald eagles or their parts, eggs, or nests without implementing appropriate measures recommended by the Guidelines.

The Service intends to pursue the development of regulations that would authorize, under limited circumstances, the use of permits if “take” of an eagle is anticipated but unavoidable. Additionally, if the bald eagle is delisted, the Service intends to provide a regulatory mechanism to honor existing (take) authorizations under the Endangered Species Act (ESA).

During the interim period until the Service completes a rulemaking for permits under the Eagle Act, the Service does not intend to refer for prosecution the incidental “*take*” of any bald eagle under the MBTA or Eagle Act, if such take is in full compliance with the terms and conditions of an incidental take statement issued to the action agency or applicant under the authority of section 7(b)(4) of the ESA or a permit issued under the authority of section 10(a)(1)(B) of the ESA.

The Guidelines are applicable throughout the United States, including Alaska. The primary purpose of these Guidelines is to provide information that will minimize or prevent violations only of *Federal* laws governing bald eagles. In addition to Federal laws, many states and some smaller jurisdictions and tribes have additional laws and regulations protecting bald eagles. In some cases those laws and regulations may be more protective (restrictive) than these Federal guidelines. If you are planning activities that may affect bald eagles, we therefore recommend that you contact both your nearest U.S. Fish and Wildlife Service Field Office (see the contact information on p.16) and your state wildlife agency for assistance.

## LEGAL PROTECTIONS FOR THE BALD EAGLE

### The Bald and Golden Eagle Protection Act

The Eagle Act (16 U.S.C. 668-668c), enacted in 1940, and amended several times since then, prohibits anyone, without a permit issued by the Secretary of the Interior, from “taking” bald eagles, including their parts, nests, or eggs. The Act provides criminal and civil penalties for persons who “take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof.” The Act defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” “Disturb’’ means:

> "Disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle=s return, such alterations agitate or bother an eagle to a degree that injures an eagle or substantially interferes with normal breeding, feeding, or sheltering habits and causes, or is likely to cause, a loss of productivity or nest abandonment.

A violation of the Act can result in a criminal fine of $100,000 ($200,000 for organizations), imprisonment for one year, or both, for a first offense. Penalties increase substantially for additional offenses, and a second violation of this Act is a felony.

**The Migratory Bird Treaty Act**
The MBTA (16 U.S.C. 703-712), prohibits the taking of any migratory bird or any part, nest, or egg, except as permitted by regulation. The MBTA was enacted in 1918; a 1972 agreement supplementing one of the bilateral treaties underlying the MBTA had the effect of expanding the scope of the Act to cover bald eagles and other raptors. Implementing regulations define "take" under the MBTA as "pursue, hunt, shoot, wound, kill, trap, capture, possess, or collect."

Copies of the Eagle Act and the MBTA are available at: http://permits.fws.gov/ltr/ltr.shtml.

**State laws and regulations**
Most states have their own regulations and/or guidelines for bald eagle management. Some states may continue to list the bald eagle as endangered, threatened, or of special concern. If you plan activities that may affect bald eagles, we urge you to familiarize yourself with the regulations and/or guidelines that apply to bald eagles in your state. Your adherence to the Guidelines herein does not ensure that you are in compliance with state laws and regulations because state regulations can be more specific and/or restrictive than these Guidelines.

## NATURAL HISTORY OF THE BALD EAGLE

Bald eagles are a North American species that historically occurred throughout the contiguous United States and Alaska. After severely declining in the lower 48 States between the 1870s and the 1970s, bald eagles have rebounded and re-established breeding territories in each of the lower 48 states. The largest North American breeding populations are in Alaska and Canada, but there are also significant bald eagle populations in Florida, the Pacific Northwest, the Greater Yellowstone area, the Great Lakes states, and the Chesapeake Bay region. Bald eagle distribution varies seasonally. Bald eagles that nest in southern latitudes frequently move northward in late spring and early summer, often summering as far north as Canada. Most eagles that breed at northern latitudes migrate southward during winter, or to coastal areas where waters remain unfrozen. Migrants frequently concentrate in large numbers at sites where food is abundant and they often roost together communally. In some cases, concentration areas are used year-round: in summer by southern eagles and in winter by northern eagles.

Juvenile bald eagles have mottled brown and white plumage, gradually acquiring their dark brown body and distinctive white head and tail as they mature. Bald eagles generally attain adult plumage by 5 years of age. Most are capable of breeding at 4 or 5 years of age, but in healthy populations they may not start breeding until much older. Bald eagles may live 15 to 25 years in the wild. Adults weigh 8 to 14 pounds (occasionally reaching 16 pounds in Alaska) and have wingspans of 5 to 8 feet. Those in the northern range are larger than those in the south, and females are larger than males.

**Where do bald eagles nest?**

Breeding bald eagles occupy "territories," areas they will typically defend against intrusion by other eagles. In addition to the active nest, a territory may include one or more alternate nests (nests built or maintained by the eagles but not used for nesting in a given year). The Eagle Act prohibits removal or destruction of both active and alternate bald eagle nests. Bald eagles exhibit high nest site fidelity and nesting territories are often used year after year. Some territories are known to have been used continually for over half a century.

Bald eagles generally nest near coastlines, rivers, large lakes or streams that support an adequate food supply. They often nest in mature or old-growth trees; snags (dead trees); cliffs; rock promontories; rarely on the ground; and with increasing frequency on human-made structures such as power poles and communication towers. In forested areas, bald eagles often select the tallest trees with limbs strong enough to support a nest that can weigh more than 1,000 pounds. Nest sites typically include at least one perch with a clear view of the water where the eagles usually forage. Shoreline trees or snags located in reservoirs provide the visibility and accessibility needed to locate aquatic prey. Eagle nests are constructed with large sticks, and may be lined with moss, grass, plant stalks, lichens, seaweed, or sod. Nests are usually about 4-6 feet in diameter and 3 feet deep, although larger nests exist.



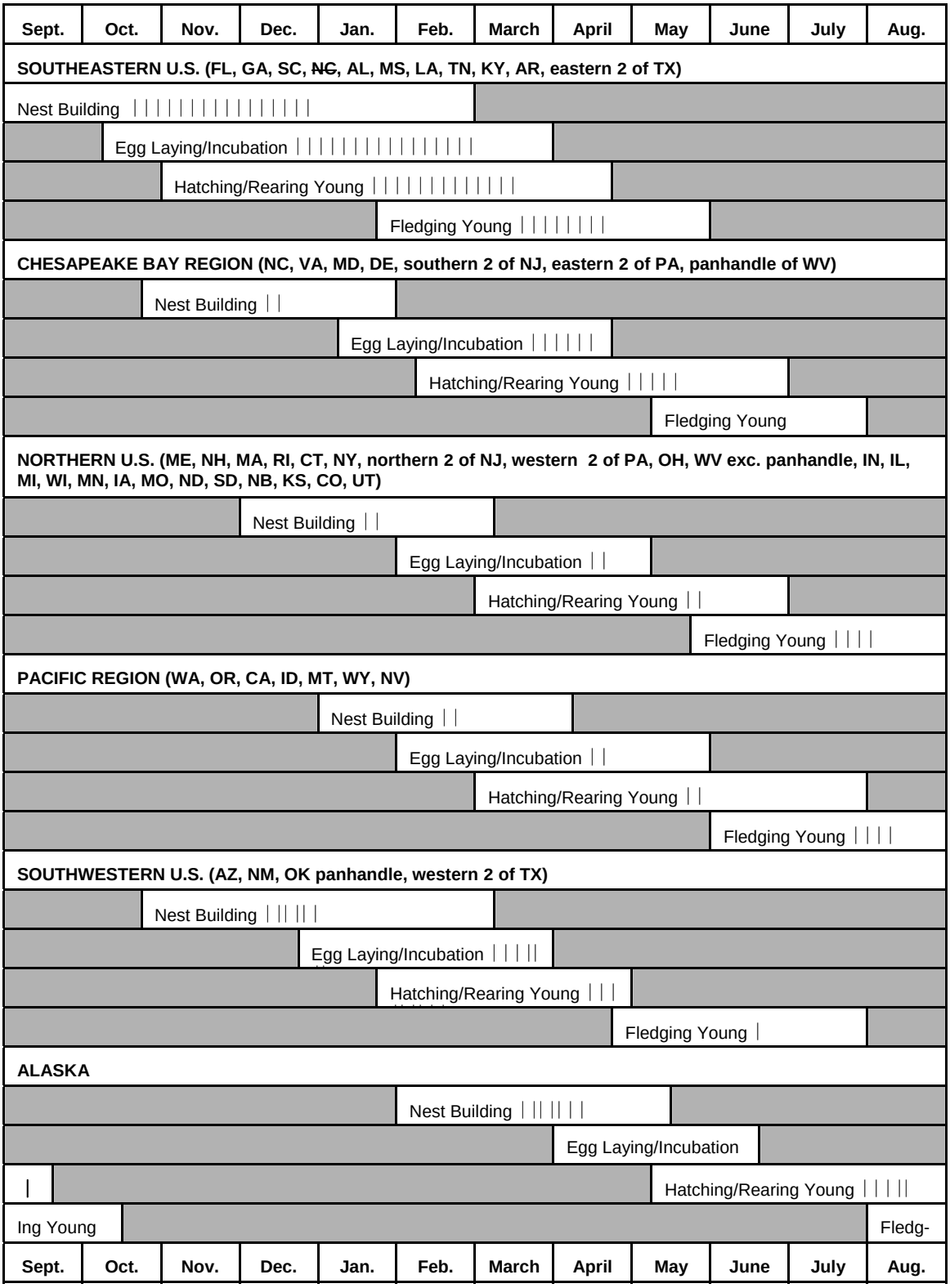

**The range of breeding bald eagles in 2000 (shaded areas). This map shows only the larger concentrations of nests; eagles have continued to expand into additional nesting territories in many states. The dotted line represents the bald eagle's wintering range.**

**When do bald eagles nest?**

Nesting activity begins several months before egg-laying. Egg-laying dates vary throughout the U.S., ranging from October in Florida, to late April or even early May in the northern United States. Incubation typically lasts 33-35 days, but can be as long as 40 days. Eaglets make their first unsteady flights about 10 to 12 weeks after hatching, and fledge (leave their nests) within a few days after that first flight. However, young birds usually remain in the vicinity of the nest for several weeks after fledging because they are almost completely dependent on their parents for food until they disperse from the nesting territory approximately 6 weeks later.

The bald eagle breeding season tends to be longer in the southern U.S., and re-nesting following an unsuccessful first nesting attempt is more common there as well. The following table shows the timing of bald eagle breeding seasons in different regions of the country. The table represents the range of time within which the majority of nesting activities occur in each region and does not apply to any specific nesting pair. Because the timing of nesting activities may vary within a given region, you should contact the nearest U.S. Fish and Wildlife Service Field Office (see page 16) and/or your state wildlife conservation agency for more specific information on nesting chronology in your area.

Chronology of typical reproductive activities of bald eagles in the United States.



**How many chicks do bald eagles raise?**
The number of eagle eggs laid will vary from 1-3, with 1-2 eggs being the most common. Only one eagle egg is laid per day, although not always on successive days. Hatching of young occurs on different days with the result that chicks in the same nest are sometimes of unequal size. The overall national fledging rate is approximately one chick per nest, annually, which results in a healthy expanding population.

**What do bald eagles eat?**
Bald eagles are opportunistic feeders. Fish comprise much of their diet, but they also eat waterfowl, shorebirds/colonial waterbirds, small mammals, turtles, and carrion. Because they are visual hunters, eagles typically locate their prey from a conspicuous perch, or soaring flight, then swoop down and strike. Wintering bald eagles often congregate in large numbers along streams to feed on spawning salmon or other fish species, and often gather in large numbers in areas below reservoirs, especially hydropower dams, where fish are abundant. Wintering eagles also take birds from rafts of ducks at reservoirs and rivers, and congregate on melting ice shelves to scavenge dead fish from the current or the soft melting ice. Bald eagles will also feed on carcasses along roads, in landfills, and at feedlots.

During the breeding season, adults carry prey to the nest to feed the young. Adults feed their chicks by tearing off pieces of food and holding them to the beaks of the eaglets. After fledging, immature eagles are slow to develop hunting skills, and must learn to locate reliable food sources and master feeding techniques. Young eagles will congregate together, often feeding upon easily acquired food such as carrion and fish found in abundance at the mouths of streams and shallow bays and at landfills.

**The impact of human activity on nesting bald eagles**
During the breeding season, bald eagles are sensitive to a variety of human activities. However, not all bald eagle pairs react to human activities in the same way. Some pairs nest successfully just dozens of yards from human activity, while others abandon nest sites in response to activities much farther away. This variability may be related to a number of factors, including visibility, duration, noise levels, extent of the area affected by the activity, prior experiences with humans, and tolerance of the individual nesting pair. The relative sensitivity of bald eagles during various stages of the breeding season is outlined in the following table.

**Nesting Bald Eagle Sensitivity to Human Activities**

| Phase | Activity | Sensitivity to Human Activity | Comments |
|---|---|---|---|
| **I** | Courtship and Nest Building | Most sensitive period; likely to respond negatively | Most critical time period. Disturbance is manifested in nest abandonment. Bald eagles in newly established territories are more prone to abandon nest sites. |
| **II** | Egg laying | Very sensitive period | Human activity of even limited duration may cause nest desertion and abandonment of territory for the breeding season. |
| **III** | Incubation and early nestling period (up to 4 weeks) | Very sensitive period | Adults are less likely to abandon the nest near and after hatching. However, flushed adults leave eggs and young unattended; eggs are susceptible to cooling, loss of moisture, overheating, and predation; young are vulnerable to elements. |
| **IV** | Nestling period, 4 to 8 weeks | Moderately sensitive period | Likelihood of nest abandonment and vulnerability of the nestlings to elements somewhat decreases. However, nestlings may miss feedings, affecting their survival. |
| **V** | Nestlings 8 weeks through fledging | Very sensitive period | Gaining flight capability, nestlings 8 weeks and older may flush from the nest prematurely due to disruption and die. |

If agitated by human activities, eagles may inadequately construct or repair their nest, may expend energy defending the nest rather than tending to their young, or may abandon the nest altogether. Activities that cause prolonged absences of adults from their nests can jeopardize eggs or young. Depending on weather conditions, eggs may overheat or cool too much and fail to hatch. Unattended eggs and nestlings are subject to predation. Young nestlings are particularly vulnerable because they rely on their parents to provide warmth or shade, without which they may die as a result of hypothermia or heat stress. If food delivery schedules are interrupted, the young may not develop healthy plumage, which can affect their survival. In addition, adults startled while incubating or brooding young may damage eggs or injure their young as they abruptly leave the nest. Older nestlings no longer require constant attention from the adults, but they may be startled by loud or intrusive human activities and prematurely jump from the nest before they are able to fly or care for themselves. Once fledged, juveniles range up to ¼ mile from the nest site, often to a site with minimal human activity. During this period, until about six weeks after departure from the nest, the juveniles still depend on the adults to feed them.

**The impact of human activity on foraging and roosting bald eagles**

Disruption, destruction, or obstruction of roosting and foraging areas can also negatively affect bald eagles. Disruptive activities in or near eagle foraging areas can interfere with feeding, reducing chances of survival. Interference with feeding can also result in reduced productivity (number of young successfully fledged). Migrating and wintering bald eagles often congregate at specific sites for purposes of feeding and sheltering. Bald eagles rely on established roost sites because of their proximity to sufficient food sources. Roost sites are usually in mature trees where the eagles are somewhat sheltered from the wind and weather. Human activities near or within communal roost sites may prevent eagles

from feeding or taking shelter, especially if there are not other undisturbed and productive feeding and roosting sites available. Activities that permanently alter communal roost sites and important foraging areas can altogether eliminate the elements that are essential for feeding and sheltering eagles.

Where a human activity agitates or bothers roosting or foraging bald eagles to the degree that causes injury or substantially interferes with breeding, feeding, or sheltering behavior and causes, or is likely to cause, a loss of productivity or nest abandonment, the conduct of the activity constitutes a violation of the Eagle Act's prohibition against disturbing eagles. The circumstances that might result in such an outcome are difficult to predict without detailed site-specific information. If your activities may disturb roosting or foraging bald eagles, you should contact your local Fish and Wildlife Service Field Office (see page 16) for advice and recommendations for how to avoid such disturbance.

## RECOMMENDATIONS FOR AVOIDING DISTURBANCE AT NEST SITES

In developing these Guidelines, we relied on existing state and regional bald eagle guidelines, scientific literature on bald eagle disturbance, and recommendations of state and Federal biologists who monitor the impacts of human activity on eagles. Despite these resources, uncertainties remain regarding the effects of many activities on eagles and how eagles in different situations may or may not respond to certain human activities. The Service recognizes this uncertainty and views the collection of better biological data on the response of eagles to disturbance as a high priority. To the extent that resources allow, the Service will continue to collect data on responses of bald eagles to human activities conducted according to the recommendations within these Guidelines to ensure that adequate protection from disturbance is being afforded, and to identify circumstances where the Guidelines might be modified. These data will be used to make future adjustments to the Guidelines.

To avoid disturbing nesting bald eagles, we recommend (1) keeping a distance between the activity and the nest (distance buffers), (2) maintaining preferably forested (or natural) areas between the activity and around nest trees (landscape buffers), and (3) avoiding certain activities during the breeding season. The buffer areas serve to minimize visual and auditory impacts associated with human activities near nest sites. Ideally, buffers would be large enough to protect existing nest trees and provide for alternative or replacement nest trees.

The size and shape of effective buffers vary depending on the topography and other ecological characteristics surrounding the nest site. In open areas where there are little or no forested or topographical buffers, such as in many western states, distance alone must serve as the buffer. Consequently, in open areas, the distance between the activity and the nest may need to be larger than the distances recommended under Categories A and B of these guidelines (pg. 12) if no landscape buffers are present. The height of the nest above the ground may also ameliorate effects of human activities; eagles at higher nests may be less prone to disturbance.

In addition to the physical features of the landscape and nest site, the appropriate size for the distance buffer may vary according to the historical tolerances of eagles to human activities in particular localities, and may also depend on the location of the nest in relation

to feeding and roosting areas used by the eagles. Increased competition for nest sites may lead bald eagles to nest closer to human activity (and other eagles).

Seasonal restrictions can prevent the potential impacts of many shorter-term, obtrusive activities that do not entail landscape alterations (e.g. fireworks, outdoor concerts). In proximity to the nest, these kinds of activities should be conducted only outside the breeding season. For activities that entail both short-term, obtrusive characteristics and more permanent impacts (e.g., building construction), we recommend a combination of both approaches: retaining a landscape buffer *and* observing seasonal restrictions.

For assistance in determining the appropriate size and configuration of buffers or the timing of activities in the vicinity of a bald eagle nest, we encourage you to contact the nearest U.S. Fish and Wildlife Service Field Office (see page 16).

**Existing Uses**

Eagles are unlikely to be disturbed by routine use of roads, homes, and other facilities where such use pre-dates the eagles' successful nesting activity in a given area. Therefore, in most cases *ongoing* existing uses may proceed with the same intensity with little risk of disturbing bald eagles. However, some *intermittent, occasional, or irregular* uses that pre-date eagle nesting in an area may disturb bald eagles. For example: a pair of eagles may begin nesting in an area and subsequently be disturbed by activities associated with an annual outdoor flea market, even though the flea market has been held annually at the same location. In such situations, human activity should be adjusted or relocated to minimize potential impacts on the nesting pair.

## ACTIVITY-SPECIFIC GUIDELINES

The following section provides the Service=s management recommendations for avoiding bald eagle disturbance as a result of new or intermittent activities proposed in the vicinity of bald eagle nests. Activities are separated into 8 categories (A – H) based on the nature and magnitude of impacts to bald eagles that usually result from the type of activity. Activities with similar or comparable impacts are grouped together.

In most cases, impacts will vary based on the visibility of the activity from the eagle nest and the degree to which similar activities are already occurring in proximity to the nest site. Visibility is a factor because, in general, eagles are more prone to disturbance when an activity occurs in full view. For this reason, we recommend that people locate activities farther from the nest structure in areas with open vistas, in contrast to areas where the view is shielded by rolling topography, trees, or other screening factors. The recommendations also take into account the existence of similar activities in the area because the continued presence of nesting bald eagles in the vicinity of the existing activities indicates that the eagles in that area can tolerate a greater degree of human activity than we can generally expect from eagles in areas that experience fewer human impacts. To illustrate how these factors affect the likelihood of disturbing eagles, we have incorporated the recommendations for some activities into a table (categories A and B).

First, determine which category your activity falls into (between categories A – H). If the activity you plan to undertake is not specifically addressed in these guidelines, follow the recommendations for the most similar activity represented.

If your activity is under A or B, our recommendations are in table form. The vertical axis shows the degree of visibility of the activity from the nest. The horizontal axis (header row) represents the degree to which similar activities are ongoing in the vicinity of the nest. Locate the row that best describes how visible your activity will be from the eagle nest. Then, choose the column that best describes the degree to which similar activities are ongoing in the vicinity of the eagle nest. The box where the column and row come together contains our management recommendations for how far you should locate your activity from the nest to avoid disturbing the eagles. The numerical distances shown in the tables are the closest the activity should be conducted relative to the nest. In some cases we have included additional recommendations (other than recommended *distance* from the nest) you should follow to help ensure that your activity will not disturb the eagles.

**Alternate nests**

For activities that entail permanent landscape alterations that may result in bald eagle disturbance, these recommendations apply to both active and alternate bald eagle nests. Disturbance becomes an issue with regard to alternate nests if eagles return for breeding purposes and react to land use changes that occurred while the nest was inactive. The likelihood that an alternate nest will again become active decreases the longer it goes unused. If you plan activities in the vicinity of an alternate bald eagle nest and have information to show that the nest has not been active during the preceding 5 breeding seasons, the recommendations provided in these guidelines for avoiding disturbance around the nest site may no longer be warranted. The nest itself remains protected by other provisions of the Eagle Act, however, and may not be destroyed.

If special circumstances exist that make it unlikely an inactive nest will be reused before 5 years of disuse have passed, and you believe that the probability of reuse is low enough to warrant disregarding the recommendations for avoiding disturbance, you should be prepared to provide all the reasons for your conclusion, including information regarding past use of the nest site. Without sufficient documentation, you should continue to follow these guidelines when conducting activities around the nest site. If we are able to determine that it is unlikely the nest will be reused, we may advise you that the recommendations provided in these guidelines for avoiding disturbance are no longer necessary around that nest site.

This guidance is intended to minimize disturbance, as defined by Federal regulation. In addition to Federal laws, most states and some tribes and smaller jurisdictions have additional laws and regulations protecting bald eagles. In some cases those laws and regulations may be more protective (restrictive) than these Federal guidelines.

**Temporary Impacts**

For activities that have temporary impacts, such as the use of loud machinery, fireworks displays, or summer boating activities, we recommend seasonal restrictions. These types of activities can generally be carried out outside of the breeding season without causing disturbance. The recommended restrictions for these types of activities can be lifted for alternate nests within a particular territory, including nests that were attended during the current breeding season but not used to raise young, after eggs laid in another nest within the territory have hatched (depending on the distance between the alternate nest and the active nest).

In general, activities should be kept as far away from nest trees as possible; loud and disruptive activities should be conducted when eagles are not nesting; and activity between the nest and the nearest foraging area should be minimized. If the activity you plan to undertake is not specifically addressed in these guidelines, follow the recommendations for the most similar activity addressed, or contact your local U.S. Fish and Wildlife Service Field Office for additional guidance.

If you believe that special circumstances apply to your situation that increase or diminish the likelihood of bald eagle disturbance, or if it is not possible to adhere to the guidelines, you should contact your local Service Field Office for further guidance.

**Category A:**
Building construction, 1 or 2 story, with project footprint of ½ acre or less.
Construction of roads, trails, canals, power lines, and other linear utilities.
Agriculture and aquaculture – new or expanded operations.
Alteration of shorelines or wetlands.
Installation of docks or moorings.
Water impoundment.

**Category B:**
Building construction, 3 or more stories.
Building construction, 1 or 2 story, with project footprint of more than ½ acre.
Installation or expansion of marinas with a capacity of 6 or more boats.
Mining and associated activities.
Oil and natural gas drilling and refining and associated activities.

| | ***If there is no similar activity within 1 mile of the nest*** | ***If there is similar activity closer than 1 mile from the nest*** |
|---|---|---|
| ***If the activity will be visible from the nest*** | 660 feet. Landscape buffers are recommended. | 660 feet, or as close as existing tolerated activity of similar scope. Landscape buffers are recommended. |
| ***If the activity will not be visible from the nest*** | Category A:<br>330 feet. Clearing, external construction, and landscaping between 330 feet and 660 feet should be done outside breeding season.<br><br>Category B:<br>660 feet. | 330 feet, or as close as existing tolerated activity of similar scope. Clearing, external construction and landscaping within 660 feet should be done outside breeding season. |

The numerical distances shown in the table are the closest the activity should be conducted relative to the nest.

**Category C. Timber Operations and Forestry Practices**

- Avoid clear cutting or removal of overstory trees within 330 feet of the nest at any time.

- Avoid timber harvesting operations, including road construction and chain saw and yarding operations, during the breeding season within 660 feet of the nest. The distance may be decreased to 330 feet around alternate nests within a particular territory, including nests that were attended during the current breeding season but not used to raise young, after eggs laid in another nest within the territory have hatched.

- Selective thinning and other silviculture management practices designed to conserve or enhance habitat, including prescribed burning close to the nest tree, should be undertaken outside the breeding season. Precautions such as raking leaves and woody debris from around the nest tree should be taken to prevent crown fire or fire climbing the nest tree. If it is determined that a burn during the breeding season would be beneficial, then, to ensure that no take or disturbance will occur, these activities should be conducted only when neither adult eagles nor young are present at the nest tree (i.e., at the beginning of, or end of, the breeding season, either before the particular nest is active or after the young have fledged from that nest). Appropriate Federal and state biologists should be consulted before any prescribed burning is conducted during the breeding season.

- Avoid construction of log transfer facilities and in-water log storage areas within 330 feet of the nest.

**Category D. Off-road vehicle use** (including snowmobiles). No buffer is necessary around nest sites outside the breeding season. During the breeding season, do not operate off-road vehicles within 330 feet of the nest. In open areas, where there is increased visibility and exposure to noise, this distance should be extended to 660 feet.

**Category E. Motorized Watercraft use** (including jet skis/personal watercraft). No buffer is necessary around nest sites outside the breeding season. During the breeding season, within 330 feet of the nest, (1) do not operate jet skis (personal watercraft), and (2) avoid concentrations of noisy vessels (e.g., commercial fishing boats and tour boats), except where eagles have demonstrated tolerance for such activity. Other motorized boat traffic passing within 330 feet of the nest should attempt to minimize trips and avoid stopping in the area where feasible, particularly where eagles are unaccustomed to boat traffic. Buffers for airboats should be larger than 330 feet due to the increased noise they generate, combined with their speed, maneuverability, and visibility.

**Category F. Non-motorized recreation and human entry** (e.g., hiking, camping, fishing, hunting, birdwatching, kayaking, canoeing). No buffer is necessary around nest sites outside the breeding season. If the activity will be visible or highly audible from the nest, maintain a 330-foot buffer during the breeding season, particularly where eagles are unaccustomed to such activity.

**Category G. Helicopters and fixed-wing aircraft**.
Except for authorized biologists trained in survey techniques, avoid operating aircraft within 1,000 feet of the nest during the breeding season, except where eagles have demonstrated tolerance for such activity.

**Category H. Blasting and other loud, intermittent noises**.
Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area. This recommendation applies to the use of fireworks classified by the Federal Department of Transportation as Class B explosives, which includes the larger fireworks that are intended for licensed public display.

## RECOMMENDATIONS FOR AVOIDING DISTURBANCE AT FORAGING AREAS AND COMMUNAL ROOST SITES

1. Minimize potentially disruptive activities and development in the eagles' direct flight path between their nest and roost sites and important foraging areas.

2. Locate long-term and permanent water-dependent facilities, such as boat ramps and marinas, away from important eagle foraging areas.

3. Avoid recreational and commercial boating and fishing near critical eagle foraging areas during peak feeding times (usually early to mid-morning and late afternoon), except where eagles have demonstrated tolerance to such activity.

4. Do not use explosives within ½ mile (or within 1 mile in open areas) of communal roosts when eagles are congregating, without prior coordination with the U.S. Fish and Wildlife Service and your state wildlife agency.

5. Locate aircraft corridors no closer than 1,000 feet vertical or horizontal distance from communal roost sites.

## ADDITIONAL RECOMMENDATIONS TO BENEFIT BALD EAGLES

The following are additional management practices that landowners and planners can exercise for added benefit to bald eagles.

1. Protect and preserve potential roost and nest sites by retaining mature trees and old growth stands, particularly within ½ mile from water.

2. Where nests are blown from trees during storms or are otherwise destroyed by the elements, continue to protect the site in the absence of the nest for up to three (3) complete breeding seasons. Many eagles will rebuild the nest and reoccupy the site.

3. To avoid collisions, site wind turbines, communication towers, and high voltage transmission power lines away from nests, foraging areas, and communal roost sites.

4. Employ industry-accepted best management practices to prevent birds from colliding with or being electrocuted by utility lines, towers, and poles. If possible, bury utility lines in important eagle areas.

5. Where bald eagles are likely to nest in human-made structures (e.g., cell phone towers) and such use could impede operation or maintenance of the structures or jeopardize the safety of the eagles, equip the structures with either (1) devices engineered to discourage bald eagles from building nests, or (2) nesting platforms that will safely accommodate bald eagle nests without interfering with structure performance.

6. Immediately cover carcasses of euthanized animals at landfills to protect eagles from being poisoned.

7. Do not intentionally feed bald eagles. Artificially feeding bald eagles can disrupt their essential behavioral patterns and put them at increased risk from power lines, collision with windows and cars, and other mortality factors.

8. Use pesticides, herbicides, fertilizers, and other chemicals only in accordance with Federal and state laws.

9. Monitor and minimize dispersal of contaminants associated with hazardous waste sites (legal or illegal), permitted releases, and runoff from agricultural areas, especially within watersheds where eagles have shown poor reproduction or where bioaccumulating contaminants have been documented. These factors present a risk of contamination to eagles and their food sources.

## CONTACTS

The following U.S. Fish and Wildlife Service Field Offices provide technical assistance on bald eagle management:

| | | |
|---|---|---|
| Alabama | Daphne | (251) 441-5181 |
| Alaska | Anchorage | (907) 271-2888 |
| | Fairbanks | (907) 456-0203 |
| | Juneau | (907) 780-1160 |
| Arizona | Phoenix | (602) 242-0210 |
| Arkansas | Conway | (501) 513-4470 |
| California | Arcata | (707) 822-7201 |
| | Barstow | (760) 255-8852 |
| | Carlsbad | (760) 431-9440 |
| | Red Bluff | (530) 527-3043 |
| | Sacramento | (916) 414-6000 |
| | Stockton | (209) 946-6400 |
| | Ventura | (805) 644-1766 |
| | Yreka | (530) 842-5763 |
| Colorado | Lakewood | (303) 275-2370 |
| | Grand Junction | (970) 243-2778 |
| Connecticut | (See New Hampshire) | |
| Delaware | (See Maryland) | |
| Florida | Panama City | (850) 769-0552 |
| | Vero Beach | (772) 562-3909 |
| | Jacksonville | (904) 232-2580 |
| Georgia | Athens | (706) 613-9493 |
| | Brunswick | (912) 265-9336 |
| | Columbus | (706) 544-6428 |
| Idaho | Boise | (208) 378-5243 |
| | Chubbuck | (208) 237-6975 |
| Illinois/Iowa | Rock Island | (309) 757-5800 |
| Indiana | Bloomington | (812) 334-4261 |
| Kansas | Manhattan | (785) 539-3474 |
| Kentucky | Frankfort | (502) 695-0468 |
| Louisiana | Lafayette | (337) 291-3100 |
| Maine | Old Town | (207) 827-5938 |
| Maryland | Annapolis | (410) 573-4573 |
| Massachusetts | (See New Hampshire) | |
| Michigan | East Lansing | (517) 351-2555 |
| Minnesota | Bloomington | (612) 725-3548 |
| Mississippi | Jackson | (601) 965-4900 |
| Missouri | Columbia | (573) 234-2132 |
| Montana | Helena | (405) 449-5225 |
| Nebraska | Grand Island | (308) 382-6468 |
| Nevada | Las Vegas | (702) 515-5230 |
| | Reno | (775) 861-6300 |
| New Hampshire | Concord | (603) 223-2541 |
| New Jersey | Pleasantville | (609) 646-9310 |
| New Mexico | Albuquerque | (505) 346-2525 |
| New York | Cortland | (607) 753-9334 |
| | Long Island | (631) 776-1401 |
| North Carolina | Raleigh | (919) 856-4520 |
| | Asheville | (828) 258-3939 |
| North Dakota | Bismarck | (701) 250-4481 |
| Ohio | Reynoldsburg | (614) 469-6923 |
| Oklahoma | Tulsa | (918) 581-7458 |
| Oregon | Bend | (541) 383-7146 |
| | Klamath Falls | (541) 885-8481 |
| | La Grande | (541) 962-8584 |
| | Newport | (541) 867-4558 |
| | Portland | (503) 231-6179 |
| | Roseburg | (541) 957-3474 |
| Pennsylvania | State College | (814) 234-4090 |
| Rhode Island | (See New Hampshire) | |
| South Carolina | Charleston | (843) 727-4707 |
| South Dakota | Pierre | (605) 224-8693 |
| Tennessee | Cookeville | (931) 528-6481 |
| Texas | Clear Lake | (281) 286-8282 |
| Utah | West Valley City | (801) 975-3330 |
| Vermont | (See New Hampshire) | |
| Virginia | Gloucester | (804) 693-6694 |
| Washington | Lacey | (306) 753-9440 |
| | Spokane | (509) 891-6839 |
| | Wenatchee | (509) 665-3508 |
| West Virginia | Elkins | (304) 636-6586 |
| Wisconsin | New Franken | (920) 866-1725 |
| Wyoming | Cheyenne | (307) 772-2374 |
| | Cody | (307) 578-5939 |

National Office
U.S. Fish and Wildlife Service
Division of Migratory Bird Management
4401 North Fairfax Drive, MBSP-4107
Arlington, VA 22203-1610
(703) 358-1714
http://www.fws.gov/migratorybirds

### State Agencies

To contact a state wildlife agency, visit the Association of Fish & Wildlife Agencies' website at http://www.fishwildlife.org/where_us.html

## GLOSSARY

The definitions below apply to these National Bald Eagle Management Guidelines:

**Communal roost sites** – Areas where bald eagles gather and perch overnight – and sometimes during the day in the event of inclement weather. Communal roost sites are usually in large trees (live or dead) that are relatively sheltered from wind and are generally in close proximity to foraging areas. These roosts may also serve a social purpose for pair bond formation and communication among eagles. Many roost sites are used year after year.

**Disturb** – To agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.

In addition to immediate impacts, this definition also covers impacts that result from human-caused alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle=s return, such alterations agitate or bother an eagle to a degree that injures an eagle or substantially interferes with normal breeding, feeding, or sheltering habits and causes, or is likely to cause, a loss of productivity or nest abandonment.

**Fledge** – To leave the nest and begin flying. For bald eagles, this normally occurs at 10-12 weeks of age.

**Fledgling** – A juvenile bald eagle that has taken the first flight from the nest but is not yet independent.

**Foraging area** – An area where eagles feed, typically near open water such as rivers, lakes, reservoirs, and bays where fish and waterfowl are abundant, or in areas with little or no water (i.e., rangelands, barren land, tundra, suburban areas, etc.) where other prey species (e.g., rabbit, rodents) or carrion (such as at landfills) are abundant.

**Landscape buffer** – A natural or human-made landscape feature that screens eagles from human activity (e.g., strip of trees, hill, cliff, berm, sound wall).

**Nest** – A structure built, maintained, or used by bald eagles for the purpose of reproduction. An **active** nest is a nest that is attended (built, maintained or used) by a pair of bald eagles during a given breeding season, whether or not eggs are laid. An **alternate** nest is a nest that is not used for breeding by eagles during a given breeding season.

**Nest abandonment** – Nest abandonment occurs when adult eagles desert or stop attending a nest and do not subsequently return and successfully raise young in that nest for the duration of a breeding season. Nest abandonment can be caused by altering habitat near a nest, even if the alteration occurs prior to the breeding season. Whether the eagles migrate during the non-breeding season, or remain in the area throughout the non-breeding season, nest abandonment can occur at any point between the time the eagles return to the nesting site for the breeding season and the time when all progeny from the breeding season have

dispersed.

**Project footprint** – The area of land (and water) that will be permanently altered for a development project, including access roads.

**Similar scope** – In the vicinity of a bald eagle nest, an existing activity is of similar scope to a new activity where the types of impacts to bald eagles are similar in nature, and the impacts of the existing activity are of the same or greater magnitude than the impacts of the potential new activity. Examples: (1) An existing single-story home 200 feet from a nest is similar in scope to an additional single-story home 200 feet from the nest; (2) An existing multi-story, multi-family dwelling 150 feet from a nest has impacts of a greater magnitude than a potential new single-family home 200 feet from the nest; (3) One existing single-family home 200 feet from the nest has impacts of a lesser magnitude than three single-family homes 200 feet from the nest; (4) an existing single-family home 200 feet from a communal roost has impacts of a lesser magnitude than a single-family home 300 feet from the roost but 40 feet from the eagles' foraging area. The existing activities in examples (1) and (2) are of similar scope, while the existing activities in example (3) and (4) are not.

**Vegetative buffer** – An area surrounding a bald eagle nest that is wholly or largely covered by forest, vegetation, or other natural ecological characteristics, and separates the nest from human activities.

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# Appendix E: Agency Coordination

JOHN BEL EDWARDS
GOVERNOR

THOMAS F. HARRIS
SECRETARY

# State of Louisiana

**DEPARTMENT OF NATURAL RESOURCES**

**OFFICE OF COASTAL MANAGEMENT**

June 29, 2020

Marshal K. Harper
Chief, NOD Environmental Branch
Corps of Engineers- New Orleans District
7400 Leake Avenue
New Orleans, LA 70118
*Via email*: Marshal.K.Harper@usace.army.mil

RE: **C20110476 Mod 02,** Coastal Zone Consistency
**New Orleans District, Corps of Engineers**
Direct Federal Action
Additional Actions to Manage Previously Authorized Mitigation Project
**St. Charles Parish**

Dear Mr. Harper:

The above referenced project has been reviewed for consistency with the Louisiana Coastal Resources Program in accordance with Section 307 (c) of the Coastal Zone Management Act of 1972, as amended. The project, as proposed in this application, is consistent with the LCRP.

If you have any questions concerning this determination please contact Jim Bondy of the Consistency Section at (225) 342-3870 or james.bondy@la.gov.

Sincerely,

**/S/ Charles Reulet**
Administrator
Interagency Affairs/Field Services Division

CR/MH/jab

cc: Michael Morris, COE-NOD
Eric Tomasovic, COE-NOD
Dave Butler, LDWF

**DEPARTMENT OF THE ARMY**
**CORPS OF ENGINEERS, NEW ORLEANS DISTRICT**
**7400 LEAKE AVE**
**NEW ORLEANS LA 70118-3651**

Regional Planning and
Environment Division, South

Charles Reulet
Interagency Affairs
Louisiana Department of Natural Resources
Field Services Division
P.O. Box 44487 Capital Station
Baton Rouge, LA 70804-4487

Dear Mr. Reulet:

The U.S. Army Corps of Engineers, New Orleans District requests your concurrence with the enclosed Coastal Zone Consistency Determination prepared for the proposed Supplemental Environmental Assessment (SEA), West Bank & Vicinity, Hurricane Protection Project, Implementation of Previously Authorized Mitigation Plan, ST. Charles, Louisiana.

The proposed action would revise the St. Charles Mitigation plan discussed in SEA #498. The proposed action would achieve the same amount of mitigation as discussed in SEA #498, but requires additional actions. The area currently shows signs of stress including tree mortality. The current cause of tree mortality is believed to be due to inundation in the area caused by a raised berm which runs from the Willowridge pump station in a southern/southeastern direction (see figure 1 attached). This berm limits hydrologic movement within the forested area.

Active management to restore the hydrology of the mitigation site and maintain the prescribed habitat for preservation includes the construction of twelve 100 foot cuts in the existing berm at 500 foot intervals. To address the current loss of trees, approximately 74 acres of BLH and swamp species would be planted in areas depicted in figure 3 (attached). Acquisition and management would remain as described in SEA #498.

Comments should be mailed to the attention of Mr. Eric Tomasovic; U.S. Army Corps of Engineers; Regional Planning and Environment Division, South; Environmental Planning and Compliance Branch; CEMVN-PDS-C; P.O. Box 60267; New Orleans, Louisiana 70160-0267. Comments may also be provided by e-mail to Eric.Tomasovic@usace.army.mil. Mr. Tomasovic may be contacted at (504) 862-1266.

Sincerely,

HARPER.MARSHALL.KEVIN.1536114358

Digitally signed by HARPER.MARSHALL.KEVIN.1536114358
Date: 2020.05.04 08:06:35 -05'00'

Marshall K. Harper
Chief, New Orleans District
Environmental Branch

Enclosure

**Louisiana Administrative Code**

**Title 43**

**NATURAL RESOURCES**

**Part I. Office of the Secretary**

**Chapter 7. Coastal Management**

**Subchapter B. Coastal Use Guidelines**

Coastal use guidelines as approved by the House Natural Resources Committee on July 9, 1980, the Senate Natural Resources Committee on July 11, 1980, and the governor on July 24, 1980.

## §701. Guidelines Applicable to All Uses

A. The guidelines must be read in their entirety. Any proposed use may be subject to the requirements of more than one guideline or section of guidelines and all applicable guidelines must be complied with.

B. Conformance with applicable water and air quality laws, standards and regulations, and with those other laws, standards and regulations which have been incorporated into the coastal resources program shall be deemed in conformance with the program except to the extent that these guidelines would impose additional requirements.

C. The guidelines include both general provisions applicable to all uses and specific provisions applicable only to certain types of uses. The general guidelines apply in all situations. The specific guidelines apply only to the situations they address. Specific and general guidelines should be interpreted to be consistent with each other. In the event there is an inconsistency, the specific should prevail.

D. These guidelines are not intended to nor shall they be interpreted so as to result in an involuntary acquisition or taking of property.

E. No use or activity shall be carried out or conducted in such a manner as to constitute a violation of the terms of a grant or donation of any lands or waterbottoms to the state or any subdivision thereof. Revocations of such grants and donations shall be avoided.

F. Information regarding the following general factors shall be utilized by the permitting authority in evaluating whether the proposed use is in compliance with the guidelines:

1. type, nature, and location of use;

2. elevation, soil, and water conditions and flood and storm hazard characteristics of site;

3. techniques and materials used in construction, operation, and maintenance of use;

4. existing drainage patterns and water regimes of surrounding area including flow, circulation, quality, quantity, and salinity; and impacts on them;

5. availability of feasible alternative sites or methods of implementing the use;

6. designation of the area for certain uses as part of a local program;

7. economic need for use and extent of impacts of use on economy of locality;

8. extent of resulting public and private benefits;

9. extent of coastal water dependency of the use;

10. existence of necessary infrastructure to support the use and public costs resulting from use;

11. extent of impacts on existing and traditional uses of the area and on future uses for which the area is suited;

12. proximity to and extent of impacts on important natural features such as beaches, barrier islands, tidal passes, wildlife and aquatic habitats, and forest lands;

13. the extent to which regional, state, and national interests are served including the national interest in resources and the siting of facilities in the coastal zone as identified in the coastal resources program;

14. proximity to, and extent of impacts on, special areas, particular areas, or other areas of particular concern of the state program or local programs;

15. likelihood of, and extent of impacts of, resulting secondary impacts and cumulative impacts;

16. proximity to and extent of impacts on public lands or works, or historic, recreational, or cultural resources;

17. extent of impacts on navigation, fishing, public access, and recreational opportunities;

18. extent of compatibility with natural and cultural setting;

19. extent of long term benefits or adverse impacts.

Response: Acknowledged. The guidelines have been read in their entirety, and have been addressed through the preparation of responses to the guidelines contained within the specific use categories.

G. It is the policy of the coastal resources program to avoid the following adverse impacts. To this end, all uses and activities shall be planned, sited, designed, constructed, operated, and maintained to avoid to the maximum extent practicable significant:

1. reductions in the natural supply of sediment and nutrients to the coastal system by alterations of freshwater flow;

Response: No reductions anticipated. Restoration of BLH-Wet and swamp habitat and reconnection of the project area to the coastal zone would slightly increase the natural supply of sediment and nutrients into the coastal system.

2. adverse economic impacts on the locality of the use and affected governmental bodies;

Response: There would be no significant adverse economic impacts.

3. detrimental discharges of inorganic nutrient compounds into coastal waters;

Response: No inorganic nutrients would be discharged with the proposed action

4. alterations in the natural concentration of oxygen in coastal waters;

Response: No alterations are anticipated as the STC project has been designed to avoid such alterations.

5. destruction or adverse alterations of streams, wetland, tidal passes, inshore waters and waterbottoms, beaches, dunes, barrier islands, and other natural biologically valuable areas or protective coastal features;

Response: Concur. Material from the berm will be placed in the adjacent ditch in order to enhance the surrounding wetlands.

6. adverse disruption of existing social patterns;

Response: None anticipated.

7. alterations of the natural temperature regime of coastal waters;

Response: None anticipated.

8. detrimental changes in existing salinity regimes;

Response: None anticipated.

9. detrimental changes in littoral and sediment transport processes;

Response: None anticipated.

10. adverse effects of cumulative impacts;

Response: None anticipated.

11. detrimental discharges of suspended solids into coastal waters, including turbidity resulting from dredging;

Response: Not applicable.

12. reductions or blockage of water flow or natural circulation patterns within or into an estuarine system or a wetland forest;

Response: The proposed project will re-establish the water flow in the area.

13. discharges of pathogens or toxic substances into coastal waters;

Response: No pathogens or toxic substances would be discharged.

14. adverse alteration or destruction of archaeological, historical, or other cultural resources;

Response: All archaeological, historical, or other cultural resources would be avoided.

15. fostering of detrimental secondary impacts in undisturbed or biologically highly productive wetland areas;

Response: The mitigation project would benefit the surrounding wetlands.

16. adverse alteration or destruction of unique or valuable habitats, critical habitat for endangered species, important wildlife or fishery breeding or nursery areas, designated wildlife management or sanctuary areas, or forestlands;

Response: The mitigation project would be of benefit to wildlife, fisheries and forestlands.

17. adverse alteration or destruction of public parks, shoreline access points, public works, designated recreation areas, scenic rivers, or other areas of public use and concern;

Response: There would be no alteration of these resources.

18. adverse disruptions of coastal wildlife and fishery migratory patterns;

Response: None anticipated.

19. land loss, erosion, and subsidence;

Response: The project would help prevent land loss, erosion, and subsidence by creating forested wetlands.

20. increases in the potential for flood, hurricane and other storm damage, or increases in the likelihood that damage will occur from such hazards;

Response: Not anticipated.

21. reduction in the long term biological productivity of the coastal ecosystem.

Response: The project would enhance the long term biological productivity of the coastal ecosystem by creating forested wetlands.

H. 1. In those guidelines in which the modifier "maximum extent practicable" is used, the proposed use is in compliance with the guideline if the standard modified by the term is complied with. If the modified standard is not complied with, the use will be in compliance with the guideline if the permitting authority finds, after a systematic consideration of all pertinent information regarding the use, the site and the impacts of the use as set forth in Subsection F above, and a balancing of their relative significance, that the benefits resulting from the proposed use would clearly outweigh the adverse impacts resulting from noncompliance with the modified standard and there are no feasible and practical alternative locations, methods, and practices for the use that are in compliance with the modified standard and:

a. significant public benefits will result from the use; or

b. the use would serve important regional, state, or national interests, including the national interest in resources and the siting of facilities in the coastal zone identified in the coastal resources program, or;

c. the use is coastal water dependent.

2. The systematic consideration process shall also result in a determination of those conditions necessary for the use to be in compliance with the guideline. Those conditions shall assure that the use is carried out utilizing those locations, methods, and practices which maximize conformance to the modified standard; are technically, economically, environmentally, socially, and legally feasible and practical; and minimize or offset those adverse impacts listed in §701.G and in the Subsection at issue.

Response: Acknowledged.

I. Uses shall to the maximum extent practicable be designed and carried out to permit multiple concurrent uses which are appropriate for the location and to avoid unnecessary conflicts with other uses of the vicinity.

Response: Acknowledged.

J. These guidelines are not intended to be, nor shall they be, interpreted to allow expansion of governmental authority beyond that established by R.S. 49:214.21-49:214.42, as amended; nor shall these guidelines be interpreted so as to require permits for specific uses legally commenced or established prior to the effective date of the coastal use permit program nor to normal maintenance or repair of such uses.

Response: Acknowledged.

AUTHORITY NOTE: Promulgated in accordance with R.S. 49:214.27

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of the Secretary, LR 6:493 (August 1980).

### §703. Guidelines for Levees

Not Applicable, The proposed project does not involve levee construction; therefore, these guidelines are not applicable to the project.

AUTHORITY NOTE: Promulgated in accordance with R.S. 49:214.27.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of the Secretary, LR 6:493 (August 1980).

### §705. Guidelines for Linear Facilities

Not Applicable, The proposed project does not involve the construction of a linear facilities; therefore, these guidelines are not applicable to the project.

AUTHORITY NOTE: Promulgated in accordance with R.S. 49:214.27.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of the Secretary, LR 6:493 (August 1980).

## §707. Guidelines for Dredged Spoil Deposition

A. Spoil shall be deposited utilizing the best practical techniques to avoid disruption of water movement, flow, circulation, and quality.

Response: Concur, Spoil will be placed in a manner to enhance water movement, flow, circulation, and quality.

B. Spoil shall be used beneficially to the maximum extent practicable to improve productivity or create new habitat, reduce or compensate for environmental damage done by dredging activities, or prevent environmental damage. Otherwise, existing spoil disposal areas or upland disposal shall be utilized to the maximum extent practicable rather than creating new disposal areas.

Response: Concur, Spoil will be place in a manner to enhance the hydrology of the surrounding wetlands.

C. Spoil shall not be disposed of in a manner which could result in the impounding or draining of wetlands or the creation of development sites unless the spoil deposition is part of an approved levee or land surface alteration project.

Response: Concur, Spoil will be place in a manner to enhance flow and reduce current impoundment.

D. Spoil shall not be disposed of on marsh, known oyster or clam reefs, or in areas of submersed vegetation to the maximum extent practicable.

Response: Concur. Material from the berm will be placed in the adjacent ditch to enhance the surrounding wetlands.

E. Spoil shall not be disposed of in such a manner as to create a hindrance to navigation or fishing, or hinder timber growth.

Response: Concur. The area does not support fishing or navigation.

F. Spoil disposal areas shall be designed and constructed and maintained using the best practical techniques to retain the spoil at the site, reduce turbidity, and reduce shoreline erosion when appropriate.

Response: Concur. The best practical technique would be implement to retain the spoil at the site.

G. The alienation of state-owned property shall not result from spoil deposition activities without the consent of the Department of Natural Resources.

Response: Concur.

AUTHORITY NOTE: Promulgated in accordance with R.S. 49:214.27.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of the Secretary, LR 6:493 (August 1980).

### §709. Guidelines for Shoreline Modification

Not Applicable, The proposed project does not involve the modification of shorelines; therefore, these guidelines are not applicable to the project.

### §711. Guidelines for Surface Alterations

A. Industrial, commercial, urban, residential, and recreational uses are necessary to provide adequate economic growth and development. To this end, such uses will be encouraged in those areas of the coastal zone that are suitable for development. Those uses shall be consistent with the other guidelines and shall, to the maximum extent practicable, take place only:

1. on lands 5 feet or more above sea level or within fast lands; or

2. on lands which have foundation conditions sufficiently stable to support the use, and where flood and storm hazards are minimal or where protection from these hazards can be reasonably well achieved, and where the public safety would not be unreasonably endangered, and:

a. the land is already in high intensity of development use; or

b. there is adequate supporting infrastructure; or

c. the vicinity has a tradition of use for similar habitation or development.

Response: Concur. This is a forested wetland restoration and enhancement project, and would not allow for Industrial, commercial, urban, or residential uses. Hunting, hiking, bird watching etc. may potentially be allowed at the mitigation site.

B. Public and private works projects such as levees, drainage improvements, roads, airports, ports, and public utilities are necessary to protect and support needed development and shall be encouraged. Such projects shall, to the maximum extent practicable, take place only when:

1. they protect or serve those areas suitable for development pursuant to §711.A; and

2. they are consistent with the other guidelines; and

3. they are consistent with all relevant adopted state, local, and regional plans.

Response: Not applicable. This is a forested wetland restoration and enhancement project not a public works project

C. Reserved.

D. To the maximum extent practicable wetland areas shall not be drained or filled. Any approved drain or fill project shall be designed and constructed using best practical techniques to minimize present and future property damage and adverse environmental impacts.

Response: Concur. The proposed project would fill portions of the adjacent ditch and wetlands which would benefit the surrounding wetlands and would support the proposed plantings of BLH and swamp species.

E. Coastal water dependent uses shall be given special consideration in permitting because of their reduced choice of alternatives.

Response: Concur. The mitigation being planned at the STC site is required to be in the coastal zone because of the need to compensate for impacts inside the coastal zone.

F. Areas modified by surface alteration activities shall, to the maximum extent practicable, be revegetated, refilled, cleaned, and restored to their predevelopment condition upon termination of the use.

Response: Concur. Re-vegetation is a primary component to this mitigation plan.

G. Site clearing shall to the maximum extent practicable be limited to those areas immediately required for physical development.

Response: Concur. The existing berm currently contains some woody vegetation. The footprint must be cleared of this woody vegetation prior to excavation of the cuts. This approach for access was determined to be the least impactful to the wetland habitat. As approximately 74 acres of trees would be planted in the area, the impacts due to this clearing would be de minimis.

H. Surface alterations shall, to the maximum extent practicable, be located away from critical wildlife areas and vegetation areas. Alterations in wildlife preserves and management areas shall be conducted in strict accord with the requirements of the wildlife management body.

Response: Concur. The berm does include some vegetation whcih would be impacted, however the project has added the planting of 74.6 acres of BLH and swamp species. The site is not located on a wildlife preserve or management area.

I. Surface alterations which have high adverse impacts on natural functions shall not occur, to the maximum extent practicable, on barrier islands and beaches, isolated cheniers, isolated natural ridges or levees, or in wildlife and aquatic species breeding or spawning areas, or in important migratory routes.

Response: Concur.

J. The creation of low dissolved oxygen conditions in the water or traps for heavy metals shall be avoided to the maximum extent practicable.

Response: Concur.

K. Surface mining and shell dredging shall be carried out utilizing the best practical techniques to minimize adverse environmental impacts.

Response: Not Applicable.

L. The creation of underwater obstructions which adversely affect fishing or navigation shall be avoided to the maximum extent practicable.

Response: Not Applicable.

M. Surface alteration sites and facilities shall be designed, constructed, and operated using the best practical techniques to prevent the release of pollutants or toxic substances into the environment and minimize other adverse impacts.

Response: Concur.

N. To the maximum extent practicable only material that is free of contaminants and compatible with the environmental setting shall be used as fill.

Response: Concur. A 404(b)(1) has been prepared and a Water Quality Certification request has been submitted.

AUTHORITY NOTE: Promulgated in accordance with R.S. 49:214.27.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of the Secretary, LR 6:493 (August 1980).

**§713. Guidelines for Hydrologic and Sediment Transport Modifications**

A. The controlled diversion of sediment-laden waters to initiate new cycles of marsh building and sediment nourishment shall be encouraged and utilized whenever such diversion will enhance the viability and productivity of the outfall area. Such diversions shall incorporate a plan for monitoring and reduction and/or amelioration of the effects of pollutants present in the freshwater source.

Response: Not applicable.

B. Sediment deposition systems may be used to offset land loss, to create or restore wetland areas or enhance building characteristics of a development site. Such systems shall only be utilized as part of an approved plan. Sediment from these systems shall only be discharged in the area where the proposed use is to be accomplished.

Response: Not applicable.

C. Undesirable deposition of sediments in sensitive habitat or navigation areas shall be avoided through the use of the best preventive techniques.

Response: Concur.

D. The diversion of freshwater through siphons and controlled conduits and channels, and overland flow to offset saltwater intrusion and to introduce nutrients into wetlands shall be encouraged and utilized whenever such diversion will enhance the viability and productivity of the outfall area. Such diversions shall incorporate a plan for monitoring

and reduction and/or amelioration of the effects of pollutants present in the freshwater source.

Response: Not applicable.

E. Water or marsh management plans shall result in an overall benefit to the productivity of the area.

Response: Concur. The proposed project would re-establish water flow within the existing wetlands to combat the current impoundment.

F. Water control structures shall be assessed separately based on their individual merits and impacts and in relation to their overall water or marsh management plan of which they are a part.

Response: Concur. The cuts in the berm were assessed using H&H models and the impacts, both beneficial and adverse, are assessed in SEA #498A.

G. Weirs and similar water control structures shall be designed and built using the best practical techniques to prevent "cut arounds," permit tidal exchange in tidal areas, and minimize obstruction of the migration of aquatic organisms.

Response: Concur.

H. Impoundments which prevent normal tidal exchange and/or the migration of aquatic organisms shall not be constructed in brackish and saline areas to the maximum extent practicable.

Response: Not applicable.

I. Withdrawal of surface and ground water shall not result in saltwater intrusion or land subsidence to the maximum extent practicable.

Response: Not applicable.

AUTHORITY NOTE: Promulgated in accordance with R.S. 49:214.27.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of the Secretary, LR 6:493 (August 1980).

**§715. Guidelines for Disposal of Wastes**

Response: Not applicable. The proposed action would not involve the disposal of wastes

**§717. Guidelines for Uses that Result in the Alteration of Waters Draining into Coastal Waters**

Response: Not applicable. The proposed action would not result in the alteration of waters draining into coastal waters.

AUTHORITY NOTE: Promulgated in accordance with R.S. 49:214.27.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of the Secretary, LR 6:493 (August 1980).

### §719. Guidelines for Oil, Gas, and Other Mineral Activities

Response: Not applicable. The proposed action would not involve oil, gas, and other mineral activities.

AUTHORITY NOTE: Promulgated in accordance with R.S. 49:214.27.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of the Secretary, LR 6:493 (August 1980).

## OTHER STATE POLICIES INCORPORATED INTO THE PROGRAM

Section 213.8A of Act 361 directs the Secretary of DOTD, in developing the LCRP, to include all applicable legal and management provisions that affect the coastal zone or are necessary to achieve the purposes of Act 361 or to implement the guidelines effectively. It states:

The Secretary shall develop the overall state coastal management program consisting of all applicable constitutional provisions, laws and regulations of this state which affect the coastal zone in accordance with the provisions of this Part and shall include within the program such other applicable constitutional or statutory provisions, or other regulatory or management programs or activities as may be necessary to achieve the purposes of this Part or necessary to implement the guidelines hereinafter set forth.

## CONSISTENCY DETERMINATION

The constitutional provisions and other statutory provisions, regulations, and management and regulatory programs incorporated into the LCRP are identified and described in Appendix 1. A description of how these other authorities are integrated into the LCRP and coordinated during program implementation is presented in Chapter IV. Since all of these policies are incorporated into the LCRP, federal agencies must ensure that their proposed actions are consistent with these policies as well as the coastal use guidelines. (CZMA, Section 307)

The proposed action conforms to all the relevant guidelines. Based on this evaluation, the U. S. Army Corps of Engineers, New Orleans District, has determined that the proposed is consistent, to the maximum extent practicable, with the State of Louisiana's Coastal Resources Program.

PROJECT DESCRIPTION

WEST BANK & VICINITY
HURRICANE PROTECTION PROJECT
IMPLEMENTATION OF PREVIOUSLY AUTHORIZED MITIGATION PLANS
ST. CHARLES, LOUISIANA

In SEA #498 the proposed action for mitigation was:

> …preserving through acquisition of approximately 1,211 acres of existing cypress swamp/BLH. Approximately 12.8 acres of BLH dry species would be planted in a previously disturbed area of the Willowridge subdivision. An additional 90.9 acres of BLH would be preserved and managed. (USACE 2012)

The STC project was approved and authorized with a Finding of No Significant Impact (FONSI) on 13 July 2012.

The New Proposed Action would revise previously developed mitigation plans to enhance and preserve swamp and BLH habitat as adaptive management at the Saint Charles (STC) site. Since the release of SEA #498 (2012) there has been obvious tree mortality within the mitigation area. This mortality seems to have been induced by inundation caused by time, a new pumping station, and the existing berm. Therefore, adaptive management (as discussed in SEA #498 Section 1.2) is required for the STC mitigation site to achieve adequate mitigation. The goal of the adaptive management is to improve hydrology, and restore 74.6 acres of BLH and swamp species native to southern Louisiana.

The existing berm is currently forested with a small access path across the crown. The footprint must be cleared of woody vegetation prior to excavation of the cuts. Some trees on the western side of the berm may need to be trimmed, if so it should be done by a certified arborist. The debris from the vegetation clearing shall be chipped and sidecast onto mitigation property to the east to a depth not to exceed 6 inches. Disposal of stumps and large tree trunks is at the discretion of the contractor with options to; get a slash pile burn permit, dispose offsite at an authorized disposal site, and or completely submerge the stumps into the ditch to the east of the existing berm.

The berm (see figure 1), is approximately 7,000 feet in length and 4 ft. high and prevents water from draining from the mitigation site. Twelve, 100 foot cuts would be made in the existing berm at 500 foot intervals. The berm would be excavated to match the elevations found in the existing forested area, which is an elevation of approximately (-)1.5 NAVD88. Cuts would be excavated to a bottom length of 100 feet. The ends of each cut must be graded to the existing elevation of the berm to retain access for recreational vehicles. The berm was originally constructed from borrow material

immediately adjacent to the north/east side of the berm, creating a shallow ditch. The material from the cuts in the berm will be disposed of on-site, first filling the ditch, then by spreading the material to a distance reachable by the equipment, and not to exceed the elevation of the bottom of the cuts. The excavated material would be smoothed not to exceed the elevation of the bottom cuts to maintain sheet-flow across the area. Should there be excess excavated material, it shall be disposed of off-site at a properly licensed facility for the material. Contractor shall construct cuts in a manner to assure that complete water interchange is afforded between the cut and existing swamp upon completion of excavation and installation of crushed stone. The equipment for the excavation and crushed stone placement would use the existing berm footprint to traverse the site to reduce damage to the surrounding environment. Engineering estimates that 3,000 cubic yards of material will be removed from the berm in twelve 100 foot cuts. The bottom of the cuts will be covered with an aggregate base consisting of approximately 19 cubic yards of crushed stone so the two-track path on the crown of the berm can continue to serve recreationalists.

The current tree mortality would be compensated by planting approximately 74.6 acres of bottomland hardwood and swamp species in appropriate locations (see figure 3) within the mitigation site to rehabilitate the forest composition, Bottomland Hardwood species (Green Ash, Overcup Oak, Bald Cypress and Red Maple) and swamp species (Bald Cypress and Tupelo Gum) would be planted in accordance with the planting plan. The planting would be accomplished by using hand planting techniques. ATVs and UTVs might be used for access as the soils may not support larger vehicles without damaging the environment. The success of the plantings would be evaluated in accordance with the monitoring plan. After construction, and before planting, the area to be planted would be treated with herbicide to reduce invasive and nuisance species. This would likely be a hack and squirt process as the area is currently forested.

The construction team would stage materials, equipment and vehicles to the east of the pump station. No supplies or equipment would be stored on the existing levee. The tree planters would also utilize the area east of the pump station to organize plant shipments and prepare their field installation. A 20 foot by 400 foot staging area would be designated between the Willowridge pump station access road eastward to the protected side toe of the existing hurricane protection levee, and a 20 foot by 40 foot staging area between the Willowridge pump station and the pump station access road (see figure 2). The area would be returned to its existing condition following construction.

A temporary “earthen bridge” would be constructed across the outflow channel to allow passage of equipment and personnel from the protected side of the levee to the existing berm. Culverts would be placed to maintain outflow from the pump station and an “earthen bridge” would be placed atop the culverts to allow vehicles and equipment to cross the outflow. Access to the Southern planting area, would be from the staging area, around the retention pond to the west side of the pump station, and would utilize

the existing berm access behind the sheet pile wall. Access to the Northern planting area would be from one of two paths. The planting crew would use either; the levee top from the entrance near Lafayette Drive to the connection of Cypress Drive and the levee, or from the staging area to enter Lafayette Drive turning left to Willowridge Drive then right onto Cypress Drive to the gate at the levee. Both approaches would utilize the existing two-tracks that proceeds down the levee and into the wooded lot to access the planting area. The temporary connection between the staging area, the existing berm, and areas impacted by the planting staging and installation shall be removed after construction and restored to its original condition.

Figure 1. St. Charles BLH/swamp Mitigation berm cut locations to increase laminar flow.


Figure 2. Staging area at the pump station, including outflow crossing.

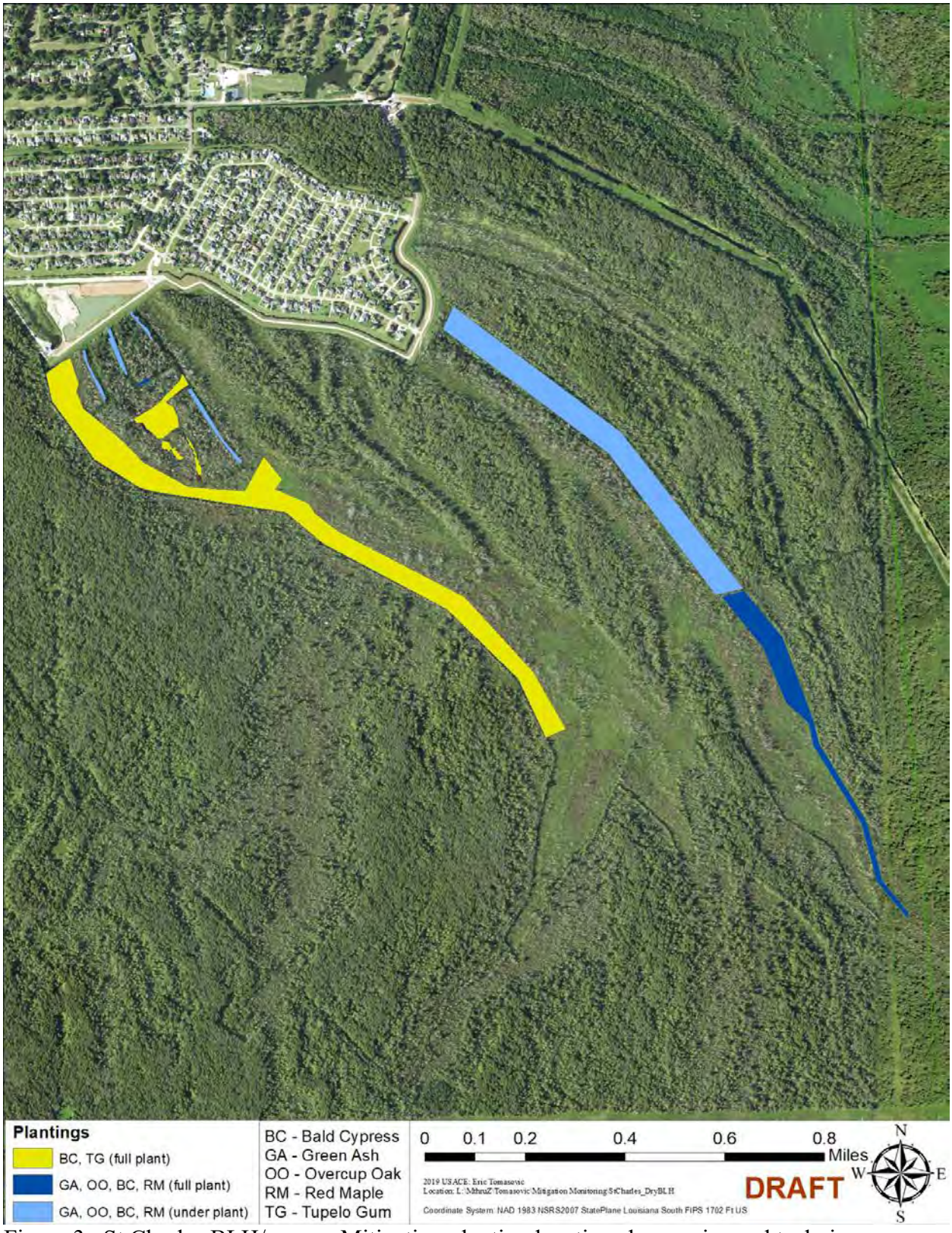

Figure 3. St Charles BLH/swamp Mitigation planting locations by species and technique.

**From:** Bordelon, Seth
**To:** Tomasovic, Eric CIV USARMY CEMVN (USA); Gilmore, Tammy F CIV USARMY CEMVN (USA)
**Cc:** Walther, David
**Subject:** [Non-DoD Source] USFWS Coordination regarding SEA#498A
**Date:** Wednesday, June 24, 2020 9:21:43 AM

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The Service has determined that the proposed minor modification will not require a supplemental Fish and Wildlife Coordination Act Report. The Service has previously provided comments on the subject mitigation plan in letters dated April 29, 2011, June 6, 2011, September 9, 2011, October 7, 2011, October 19, 2011, November 21, 2011, May 16, 2012 and May 28, 2020. Those documents adequately address the Service's position regarding the proposed modification and the Service has no additional comments and concur with the actions in SEA #498A without further comment.

Seth Bordelon
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# United States Department of the Interior

FISH AND WILDLIFE SERVICE
Louisiana Ecological Services
200 Dulles Drive
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May 28, 2020

Colonel Stephen Murphy
District Commander
U.S. Army Corps of Engineers
7400 Leake Avenue
New Orleans, LA 70118-3651

Dear Colonel Murphy:

The U.S. Army Corps of Engineers (USACE) is currently revising the Supplemental Environmental Assessment (SEA 498) titled " West Bank and Vicinity Hurricane Protection Project, Implementation of Previously Authorized Mitigation Plans, St. Charles and Jefferson Parishes, Louisiana". The proposed revision is to modify the previously developed mitigation plans at the Saint Charles Mitigation Site. The Fish and Wildlife Service (Service) offers the following comments in response to the draft revisions (attached) that were provided to our office. These comments are provided in accordance with the National Environmental Policy Act of 1969, as amended.

Since the release of SEA 498 in 2012, there has been significant tree mortality due to excessive flooding in the St. Charles mitigation area. The Service has been working with the USACE to identify remedies to reduce on-site flooding and re-establish the lost tree species in order to meet the mitigation goals. The proposed action includes excavating twelve 100-foot gaps at 500-foot intervals along an existing man-made berm to allow drainage and restore the site's historical hydrological conditions, treating the site with herbicides to reduce invasive and nuisance species, and planting approximately 74 acres with flood tolerant bottomland hardwood and swamp tree species.

The Service supports the proposed action as a means to restore the functions and values that have been lost due to excessive flooding and tree mortality. We appreciate the USACE's coordination throughout this process. Please contact Seth Bordelon (337/291-3138) of this office if you have any questions or need additional assistance.

Sincerely,

Joseph A. Ranson
Field Supervisor
Louisiana Ecological Services Office

**SEA #498A St. Charles Mitigation (WBV EVM-03)**

The Proposed Action, or TSP, would modify previously developed mitigation plans to enhance and re-establish swamp and BLH habitat at the Saint Charles (STC) site. Since the release of SEA #498 (2012), there has been obvious tree mortality within the mitigation area. This mortality seems to have been induced by inundation caused by time, a new pumping station, and the existing berm. Therefore, modifications to the plan are required for the STC mitigation site to achieve adequate mitigation. The goal of the proposed action is to improve hydrology, and re-establish approximately 74 acres of BLH and swamp tree species native to southern Louisiana.

*Clearing*

The existing berm is currently forested and includes a two-track path on the crown. The footprint of the berm must be cleared of woody vegetation prior to excavation of the cuts. Some trees on the western side of the berm may need to be trimmed, if so it should be done by a certified arborist. The debris from the vegetation clearing shall be chipped and sidecast onto mitigation property to the east to a depth not to exceed 6 inches. Disposal of stumps and large tree trunks is at the discretion of the contractor with options to; get a slash pile burn permit, dispose offsite at an authorized disposal site, and or completely submerge the stumps into the ditch to the east of the existing berm.

*Excavation of Cuts*

The berm, is approximately 7,000 feet in length and 4 ft. high and prevents water from draining from the mitigation site. Twelve, 100 foot cuts would be made in the existing berm at 500 foot intervals. The berm would be excavated to match the elevations found in the existing forested area, which is an elevation of approximately (-)1.5 NAVD88. Cuts would be excavated to a bottom length of 100 feet. The ends of each cut must be graded to the existing elevation of the berm to retain access for recreational vehicles. The bottom of the cuts will be covered with an aggregate base so the two-track path on the crown of the berm can continue to serve recreationalists. The berm was originally constructed from borrow material immediately adjacent to the north/east side of the berm, creating a shallow ditch. The material from the cuts in the berm will be disposed of on-site, first filling the ditch, then by spreading the material to a distance reachable by the equipment, and not to exceed the elevation of the bottom of the cuts. The excavated material would be smoothed to maintain sheet-flow across the area. Should there be excess excavated material, it should be disposed of off-site at a properly licensed facility for the material. Contractor should construct cuts in a manner to assure that complete water interchange is afforded between the cut and existing swamp upon completion of excavation and installation of crushed stone. The equipment for the excavation and crushed stone placement would use the existing berm footprint to traverse the site to reduce damage to the surrounding environment. Engineering estimates that 3,000 cubic yards of material will be removed from the berm in twelve 100 foot cuts.

*Tree Planting and Invasive Species Treatment*

The current tree mortality would be compensated by planting approximately 74 acres of bottomland hardwood and swamp species in appropriate locations within the mitigation site (see Figure 5). Bottomland Hardwood species (Green Ash, Overcup Oak, Bald Cypress and Red Maple) and swamp species (Bald Cypress and Tupelo Gum) would be planted in accordance

with the planting plan located in Appendix A. The planting would be accomplished by using hand planting techniques. ATVs might be used for access as the soils may not support larger vehicles without damaging the environment. The success of the plantings would be evaluated in accordance with the monitoring plan located in Appendix H. After construction, and before planting, the area to be planted would be treated with herbicide to reduce invasive and nuisance species. This would likely be a hack and squirt process as the area is currently forested and aerial application would impact the existing vegetation.

*Staging Area*

The construction team would stage materials, equipment and vehicles to the east of the pump station (Figures 4 and 6). No supplies or equipment would be stored on the existing levee. The tree planters would also utilize the area east of the pump station to organize plant shipments and prepare their field installation. A 20 foot by 400 foot staging area would be designated between the Willowridge pump station access road eastward to the protected side toe of the existing hurricane protection levee, and a 20 foot by 40 foot staging area between the Willowridge pump station and the pump station access road. The area would be returned to its existing condition following construction.

*Access*

A temporary "earthen bridge" would be constructed across the outflow channel to allow passage of equipment and personnel from the protected side of the levee to the existing berm. Culverts would be placed to maintain outflow from the pump station and an "earthen bridge" would be placed atop the culverts to allow vehicles and equipment to cross the outflow (Figure 4). This temporary bridge will only be present during the clearing and excavation, not during the planting. Access to the Southern planting area, would be from the staging area, around the retention pond to the west side of the pump station, and would utilize the existing berm access behind the sheet pile wall (Figure 6). Access to the Northern planting area would be from one of two paths. The planting crew would use either; the levee top from the entrance near Lafayette Drive to the connection of Cypress Drive and the levee, or from the staging area to enter Lafayette Drive turning left to Willowridge Drive then right onto Cypress Drive to the gate at the levee. Both approaches would utilize the existing two-track that proceeds down the levee and into the wooded lot to access the planting area. The temporary connection between the staging area, the existing berm, and areas impacted by the planting staging and installation shall be removed after construction and restored to its original condition.

*Equipment Utilized*

Table 1. Equipment used. Indicates equipment expected to be utilized during the construction portion of St. Charles Mitigation.

| Equipment Type | Approximate Duration |
|---|---|
| Small Track Excavator | 21 weeks |
| Georgia Concrete Buggy | 21 weeks |
| Skid Steer | 21 weeks |
| Large/medium Wood Chipper | 15 weeks |
| Side-by-side Polaris Cart | 21 weeks |
| Chain Saws | 15 weeks |
| Lowboy Semi-truck | 6 weeks |

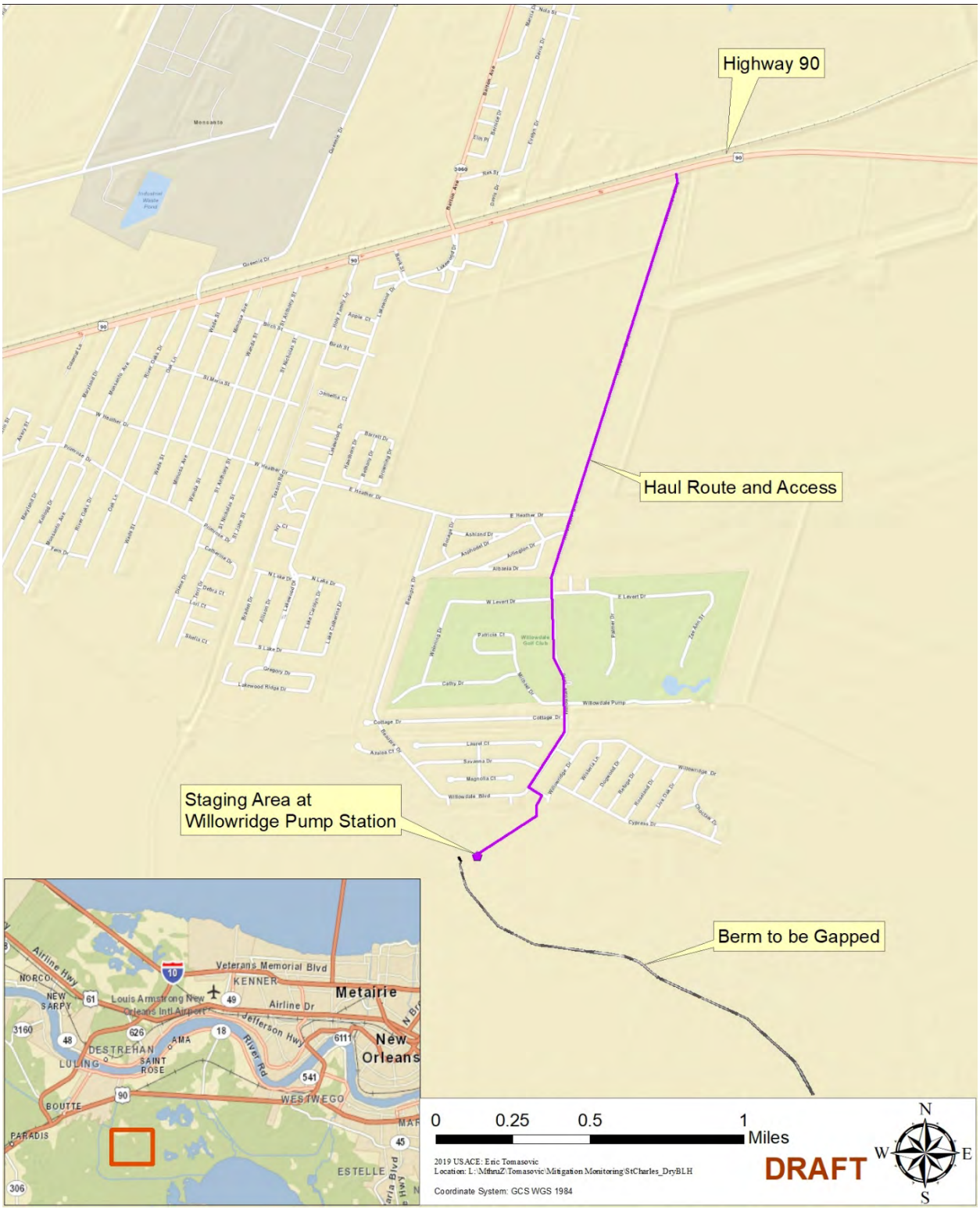


Figure 1. St. Charles BLH/swamp Mitigation Site, St. Charles, Louisiana.

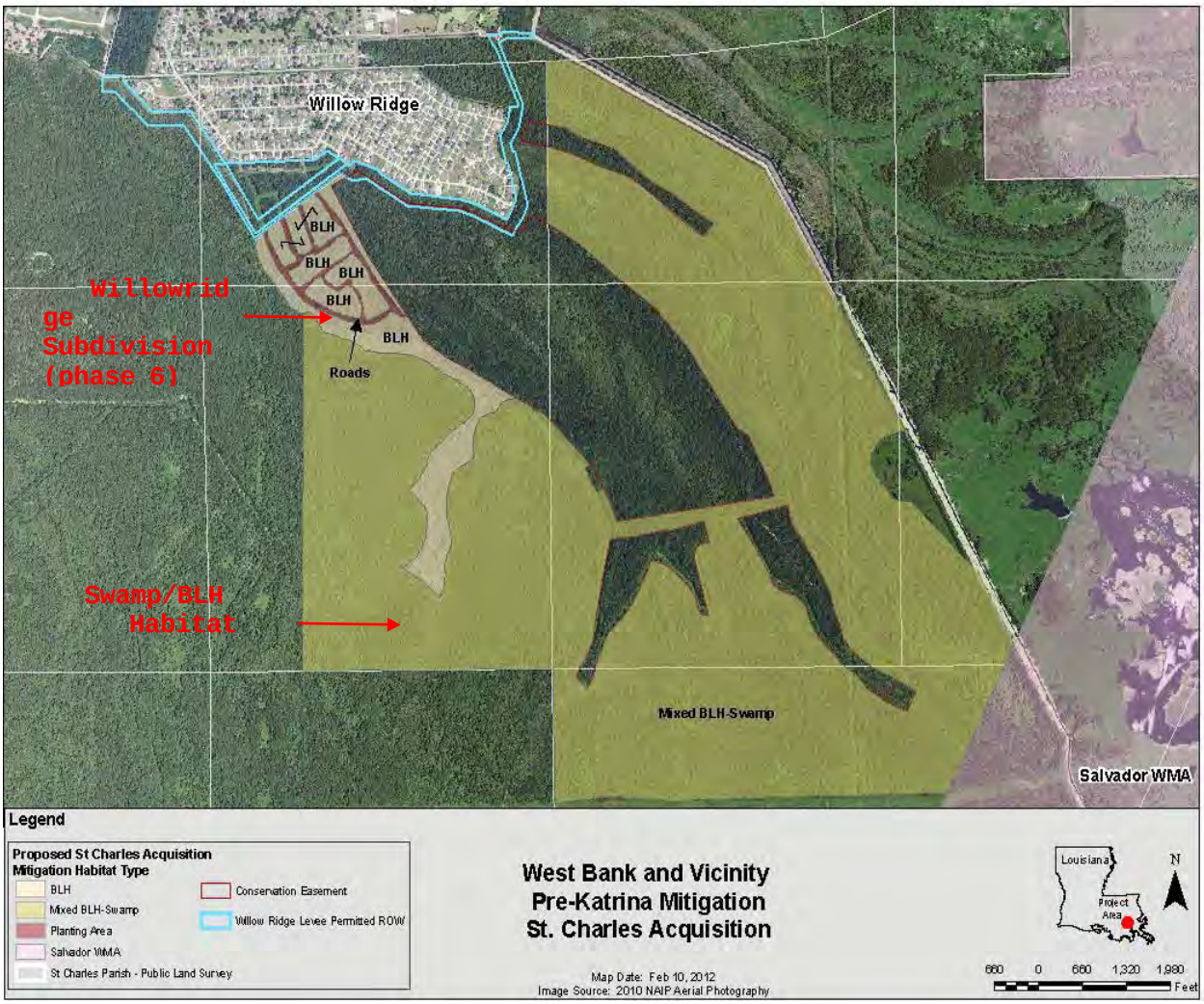



Figure 2: Project location. Mitigation site adjacent to the Salvador Wildlife Management Area (STC) (USACE 2012).

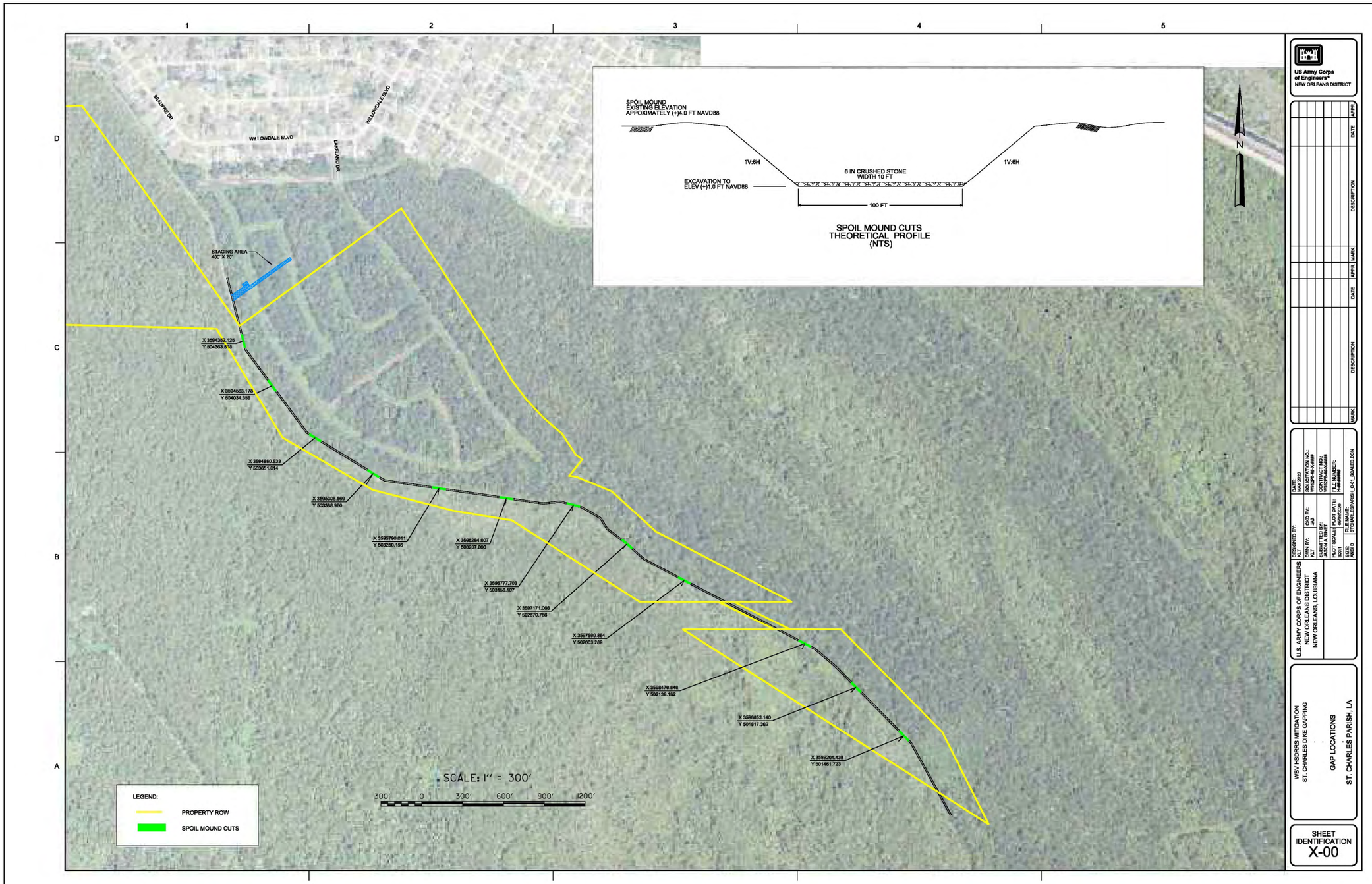



Figure 3. CAD design of cuts, and the existing berm.


Figure 4. Staging area at the pump station, including outflow crossing.

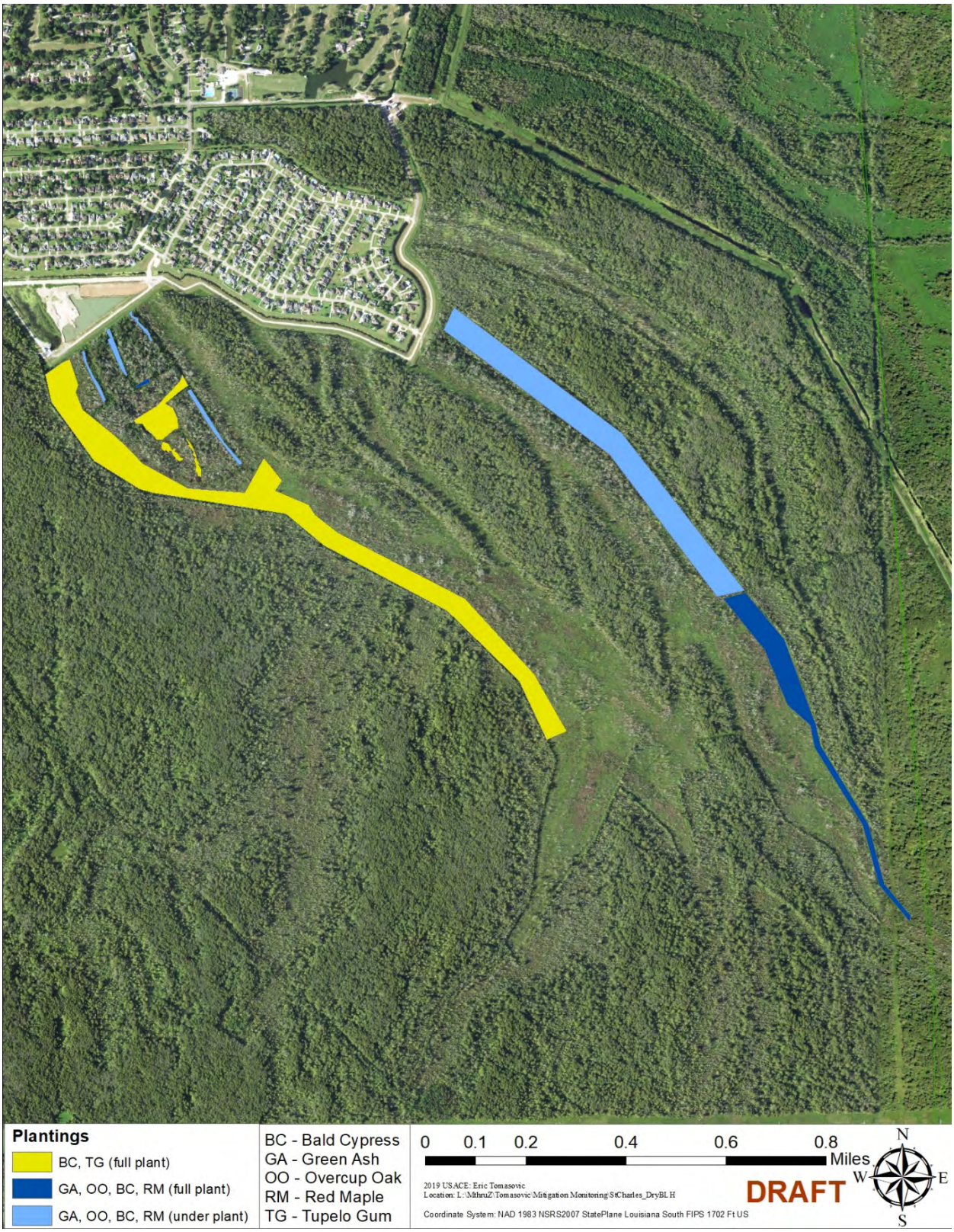


Figure 5. St Charles BLH/swamp Mitigation tree planting locations by species and technique.


Figure 6. St. Charles BLH/swamp Mitigation tree planting staging areas and access.

**DEPARTMENT OF THE ARMY**
**CORPS OF ENGINEERS, NEW ORLEANS DISTRICT**
**7400 LEAKE AVE**
**NEW ORLEANS LA 70118-3651**

March 9, 2020

No known historic properties will be affected by this undertaking. Therefore, our office has no objection to the implementation of this project. This effect determination could change should new information come to our attention.

Kristin P. Sanders
State Historic Preservation Officer
Date 04/15/2020

Regional Planning and
Environment Division, South
Environmental Planning Branch
Attn: CEMVN-PDS-N

Kristin Sanders, SHPO
LA State Historic Preservation Officer
P.O. Box 44247
Baton Rouge, LA 70804-4241

**RE: Section 106 Review Consultation**
**Undertaking:** St. Charles Bottomland Hardwood and Swamp Mitigation, Luling, St. Charles Parish, Louisiana
Project Coordinates:
Center Point of Project: 29.882431, -90.339474
**Determination: No Historic Properties Affected**

Dear Ms. Sanders:

The U.S. Army Corps of Engineers (USACE), New Orleans District (CEMVN) is evaluating potential impacts associated with implementing previously developed mitigation plans consisting of bottomland hardwood (BLH) enhancement, BLH preservation and management, and swamp/BLH preservation for impacts resulting from the West Bank and Vicinity Hurricane Protection Project authorized prior to Hurricane Katrina. Changes in the St. Charles BLH/Swamp Mitigation Project design since the original feasibility reports/final environmental impact statements (FR/FEIS) have necessitated a reassessment of the impacts that require mitigation. As part of CEMVN's evaluation and in partial fulfillment of responsibilities of the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act (NHPA), CEMVN offers you the opportunity to review and comment on the potential of the proposed action to affect historic properties.

**Description of the Undertaking**

The St. Charles BLH/Swamp Mitigation Project is located south of the Willowridge Estates subdivision in Luling, St. Charles Parish, Louisiana (Figure 1). The proposed action would consist of clearing and cutting 100 ft. gaps at 500 ft. intervals to the existing berm to allow water from the present swamp area to drain. Staging areas would include a 20 ft. by 40 ft. area directly south of the existing Willowridge Pump Station and a 20 ft. by 400 ft. area south of the existing pump station access road. Both staging areas would be returned to their current conditions after mitigation. A temporary "bridge" would be constructed from the St. Charles Parish Hurricane Protection levee to the existing berm to allow passage of equipment and personnel. Culverts would be used to maintain outflow from the pump station and an earthen "bridge" would be placed atop the culverts to allow vehicles and equipment to access the

existing berm. The temporary road would be removed and restored to its current conditions after mitigation.

Additionally, approximately 76 acres of BLH and swamp species would be planted within the mitigation site. BLH species (Green Ash, Overcup Oak, Bald Cypress and Red Maple) and swamp species (Bald Cypress and Tupelo Gum) would be installed using hand tools. Staging areas for the tree plantings would be the same areas near the existing Willowridge Pump Station. Access for the western planting area would be from the staging areas via an existing UTV path to the existing berm. Access for the northern planting area would be from either the existing levee road or from Cypress Drive to the existing levee gate. Both approaches would utilize the existing two-track that proceeds down the levee and into the wooded lot to access the planting area. Areas impacted by the planting staging and installation would be returned to their existing condition following mitigation.

**Area of Potential Effects**

This letter serves as consultation for the Area of Potential Effects (APE) in accordance with 36 CFR § 800.16(d). The APE for direct and indirect effects is represented by a red outline in Figure 1. The APE for the proposed action includes the existing berm, tree planting areas, and staging and access areas. The total APE for direct and indirect effects measures approximately 220 acres (89 ha) in size.

**Identification and Evaluation**

Background and literature review was conducted by CEMVN staff in January and February 2020. A review of the National Register of Historic Places (NRHP) database, the Louisiana Division of Archaeology (LDOA), *Louisiana Cultural Resources Map* (LDOA Website), historic aerial photographs, historic map research, and a review of cultural resources survey reports were analyzed to determine the presence or absence of built resources within the APE.

Background research identified four previously completed cultural resources investigations that examined areas within one mile (1.6 km) of the proposed APE in St. Charles Parish, Louisiana (McIntire 1979; Jones et al. 1994; Shuman 2006; Rawls et al. 2011) (Figure 2). The literature review revealed that one previous cultural resources survey (Shuman 2006; Report #22-2854) examined the majority of the present APE and resulted in no cultural resources being identified. One archaeological site, Site 16SC76, recommended not eligible due to disturbance and lack of research potential, has been recorded within one mile (1.6 km) of the current APE (Jones et al. 1994; Report #22-1615). No previously recorded built resources were identified within or adjacent to the current APE.

The St. Charles BLH/Swamp Mitigation Project is located south of the Willowridge Estates (ca. 1990) and Willowdale (ca. 1972) subdivisions in Luling, Louisiana (NETR 1965, 1972, 1992). The Willowridge Levee and the Willowridge Pump Station are located directly south of the Willowridge Estates subdivision property boundaries. Both of these features were completed ca. 2015-2017 as part of the St. Charles Parish West Bank Hurricane Protection Levee project. The two staging areas located adjacent to the Willowridge Pump Station were not subject to survey, but have been previously disturbed by the construction of the Willowridge Pump Station in ca. 2015-2017.

In 1979, William G. McIntire conducted a cultural resources survey of the proposed Shell pipeline route from northeast of Galliano, Louisiana, to Norco, Louisiana (McIntire 1979; Report #22-0491). No cultural resources were identified that would be impacted by the proposed pipeline. One newly identified archeological site (Clovelly) located adjacent to the pipeline route was recorded but determined would not be affected by the proposed pipeline. No further investigations of the proposed pipeline was recommended.

A cultural resources survey was conducted by Earth Search, Inc. (ESI) for the Davis Pond Freshwater Diversion Project on behalf of the USACE, CEMVN in 1994 (Jones et al. 1994; Report #22-1615). One historic site (Site 16SC73) was identified within the construction corridor and recommended not eligible for the NRHP due to disturbance and lack of research potential. One historic site (Site 16SC74) and one prehistoric site (Site 16SC76) were located adjacent but outside the construction corridor. Site 16SC74 was recommended as potentially eligible while Site 16SC76 was recommended not eligible due to disturbance and lack of research potential. Excavations also were conducted at Site 16SC27, Pump Canal site. Only Site 16SC76 is located within 1.0 mi (1.6 km) of the proposed APE; none of these sites are located within the proposed APE.

In 2006, Malcolm Shuman of Surveys Unlimited Research Associates, Inc. (SURA, Inc.) conducted a Phase I cultural resources survey of a proposed hurricane protection levee in St. Charles Parish, Louisiana, on behalf of Shread-Kuyrkendall and Associates, Inc. (Shuman 2006; Report #22-2854). The proposed hurricane protection levee construction servitude included the majority of the current APE (Figure 2). The 250 ft. wide survey was conducted along a 4.1 mile servitude from west of the Willowridge Estates subdivision to the Willowdale Pump Station at the southeast end of the Willowdale Country Club. The methodology during this investigation included literature search, pedestrian survey, and shovel testing. A total of 227 shovel tests were excavated. No cultural resources were identified within the project boundaries and no further investigation of the survey project was recommended.

In 2011, ESI conducted a Phase I cultural resources survey of a proposed 3 mile (5 km) hurricane storm survey protection levee in St. Charles Parish, Louisiana, on behalf of GCR and Associates, Inc. and the St. Charles Parish Public Works Department (Rawls et al. 2011; Report #22-3763). Approximately 80 acres (32.4 ha) were surveyed. No cultural resources were identified as a result of the survey effort and no further investigation of the survey project was recommended.

**Assessment of Effects to Historic Properties**

Based on the information presented in this letter, CEMVN has determined that there are no historic properties, as defined in 36 CRF 800.16 (l), in the APE. Therefore, CEMVN is making a finding of **No Historic Properties Affected** for this undertaking and submitting it to you for review and comment. This project will be subject to the standard change in scope of work, unexpected discovery, and unmarked human burial sites act provisions. CEMVN requests your comments within 30 days.

We look forward to your concurrence with this determination. Should you have any questions or need additional information with this undertaking, please contact Jill Enersen, Architectural Historian, at (504)862-1741 or Jill.A.Enersen@usace.army.mil.

Sincerely,

*Digital signature on file at CEMVN*

MARSHALL K. HARPER
Chief, Environmental Planning Branch

CC: File
LA SHPO
An electronic copy of this letter with enclosures will be provided to the Section 106 Inbox, section106@crt.la.gov.

**References**


Jones, Kenneth R., Herschel A. Franks, and Tristram R. Kidder
1994 *Cultural Resources Survey and Testing for Davis Pond Freshwater Diversion, St. Charles Parish, Louisiana.* Earth Search, Inc. for the U.S. Army Corps of Engineers, New Orleans District. Report No. 22-1615, on file with the Louisiana Division of Archaeology.

McIntire, William G.
1979 Cultural Resource Survey Shell's Proposed Pipeline from Clovelly Oil and Gas Field to Norco, Louisiana. William G. McIntire for Shell Oil. Report No. 22-0491, on file with the Louisiana Division of Archaeology

NETR Online (NETR)
Var. Historic aerials, USGS maps. Accessed online February 2020 at https://www.historicaerials.com/viewer.

Rawls, John, Dan Brown, Tegan Hanson, and Rhonda L. Smith
2011 Negative Findings Report for the Phase I Survey, Ellington Plantation III, West Bank Protection Levee, St. Charles Parish, Louisiana. Earth Search, Inc. for GCR and Associates, Inc. and the St. Charles Parish Public Works Department. Report No. 22-3763, on file with the Louisiana Division of Archaeology.

Shuman
2006 Cultural Resources Survey of the Proposed Servitude for a Hurricane Protection Levee, Luling, St. Charles Parish, Louisiana. Surveys Unlimited Research Associates, Inc. for Shread-Kuyrkendall and Associates, Inc. Report No. 22-2854, on file with the Louisiana Division of Archaeology.

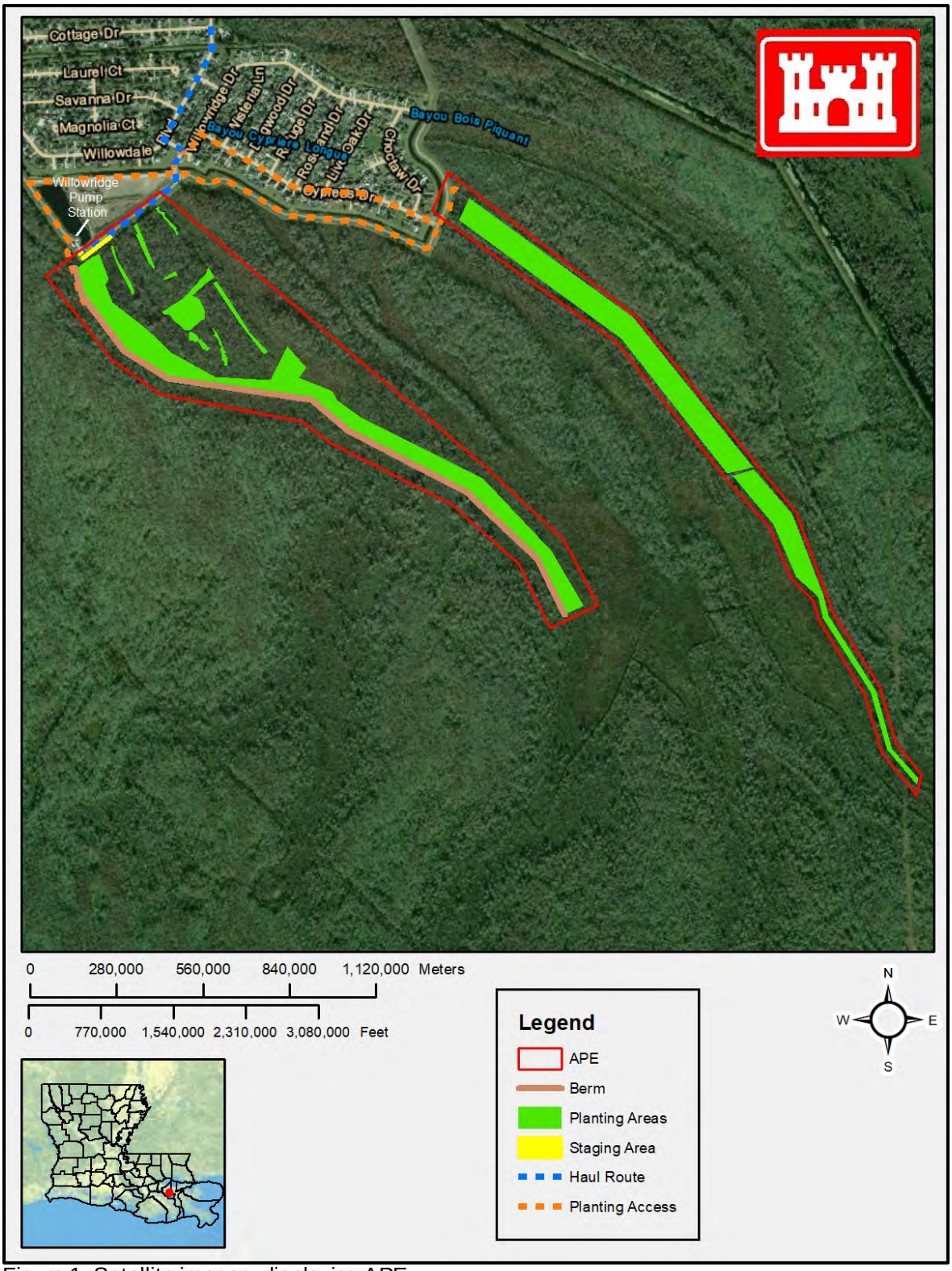


Figure 1. Satellite imagery displaying APE.

| | |
|---|---|
| **From:** | Section106 |
| **To:** | Enersen, Jill A CIV USARMY CEMVN (USA) |
| **Subject:** | [Non-DoD Source] RE: Section 106 Review Consultation: St. Charles Bottomland Hardwood and Swamp Mitigation, Luling, St. Charles Parish, Louisiana (UNCLASSIFIED) |
| **Date:** | Thursday, March 19, 2020 2:21:19 PM |

---

Jill A. Enersen, M.P.S.
Architectural Historian, Cultural & Social Resources Analysis Section (CEMVN-PDS-N)
Regional Planning and Environment Division, South
U.S. Army Corps of Engineers, New Orleans District

Ms. Enersen:

The Muscogee (Creek) Nation has received the U.S. Corps of Engineers St. Charles Bottomland Hardwood and Swamp Mitigation, Luling, St. Charles Parish, Louisiana. Upon review of the information received, the Muscogee (Creek) Nation is unaware of any religious or culturally significant sites within the project area. We concur with the determination of "no adverse effect to historic property". Thank you.

David J. Proctor

Historic and Cultural Preservation Department, Traditional Cultural Advisor

Muscogee (Creek) Nation

P.O. Box 580 / Okmulgee, OK 74447

T 918.732.7642

F 918.758.0649

djproctor@mcn-nsn.gov <mailto:djproctor@mcn-nsn.gov>

Blockedhttp://www.muscogeenation-nsn.gov/ <Blockedhttp://www.muscogeenation-nsn.gov/>

From: Enersen, Jill A CIV USARMY CEMVN (USA) [mailto:Jill.A.Enersen@usace.army.mil]
Sent: Tuesday, March 17, 2020 2:56 PM
To: Section106
Cc: Emery, Jason A CIV USARMY CEMVN (USA); Williams, Eric M CIV USARMY CEMVN (USA)
Subject: Section 106 Review Consultation: St. Charles Bottomland Hardwood and Swamp Mitigation, Luling, St. Charles Parish, Louisiana (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

Dear Principal Chief Hill,

CEMVN is evaluating potential impacts associated with implementing previously developed mitigation plans consisting of bottomland hardwood (BLH) enhancement, BLH preservation and management, and swamp/BLH preservation for impacts resulting from the West Bank and Vicinity Hurricane Protection Project authorized prior to Hurricane Katrina. Changes in the St. Charles BLH/Swamp Mitigation Project design since the original feasibility reports/final environmental impact statements have necessitated a reassessment of the impacts that require mitigation. As part of CEMVN's evaluation and in partial fulfillment of responsibilities of the NEPA and Section 106 of the NHPA, CEMVN offers you the opportunity to review and comment on the potential of the proposed action to affect historic properties.

Section 106 Review Consultation
Undertaking: St. Charles Bottomland Hardwood and Swamp Mitigation, Luling, St. Charles Parish, Louisiana
Project Coordinates: Center Point of Project: 29.882431, -90.339474
Determination: No Historic Properties Affected

We look forward to your concurrence with this determination. Should you have any questions or need additional information with this undertaking, please let me know.

Thanks,

Jill A. Enersen, M.P.S.
Architectural Historian, Cultural & Social Resources Analysis Section (CEMVN-PDS-N)
Regional Planning and Environment Division, South
U.S. Army Corps of Engineers, New Orleans District
Email: Jill.A.Enersen@usace.army.mil <mailto:Jill.A.Enersen@usace.army.mil>
Office: 504-862-1741

CLASSIFICATION: UNCLASSIFIED

JOHN BEL EDWARDS
GOVERNOR

CHUCK CARR BROWN, PH.D.
SECRETARY

# State of Louisiana

## DEPARTMENT OF ENVIRONMENTAL QUALITY
## ENVIRONMENTAL SERVICES

MAY 21 2020

Mr. Eric Tomasovic
U.S. Army Corps of Engineers
Regional Planning and Environmental Division South
CEMVN-PDS-C
7400 Leake Avenue
New Orleans, Louisiana 70118

AI No.: 101235
Activity No.: CER20200004

RE: West Bank and Vicinity Hurricane Protection Project, (SEA #498A)
Water Quality Certification WQC 200519-01
St. Charles Parish

Dear Mr. Tomasovic:

The Louisiana Department of Environmental Quality, Water Permits Division (LDEQ), has reviewed the application to clear, grade, excavate, and place fill to construct wetland enhancement and preservation projects necessary to improve hydrology, re-establish approximately 74 acres of bottomland hardwoods (BLH) and native swamp species, and preserve 1,247 acres of BLH forest and swamp near Luling, St. Charles Parish.

The information provided in the application has been reviewed in terms of compliance with State Water Quality Standards, the approved Water Quality Management Plan and applicable state water laws, rules and regulations. LDEQ determined that the requirements for a Water Quality Certification have been met. LDEQ concludes that the discharge of fill will not violate water quality standards as provided for in LAC 33:IX.Chapter 11. Therefore, LDEQ hereby issues U.S. Army Corps of Engineers Water Quality Certification, WQC 200519-01 for the West Bank and Vicinity Hurricane Protection Project, (SEA #498A).

Should you have any questions concerning any part of this certification, please contact Elizabeth Hill at (225) 219-3225 or by email at elizabeth.hill@la.gov. Please reference Agency Interest (AI) number 101235 and Water Quality Certification 200519-01 on all future correspondence to this Department to ensure all correspondence regarding this project is properly filed into the Department's Electronic Document Management System.

Sincerely,

Scott Guilliams
Administrator
Water Permits Division

c: IO-W

ec: eric.tomasovic@usace.army.mil

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, NEW ORLEANS DISTRICT
7400 LEAKE AVENUE
NEW ORLEANS, LOUISIANA 70118

REPLY TO
ATTENTION OF

Regional Planning and Environment
Division South

Scott Guilliams
Louisiana Dept. of Env. Quality
Administrator of Water Permits Div.
P.O. Box 4313
Baton Rouge, LA 70821-4313

Dear Mr. Guilliams:

A modification to the existing State Water Quality Certificate, WQC 900402-22/AI 101235/CER 2011000825 October 2012, prepared by the U.S. Army Corps of Engineers, New Orleans District (CEMVN), for the Supplemental Environmental Assessment #498A, West Bank and Vicinity Hurricane Protection Project, Implementation of Previously Authorized Mitigation Plans, St. Charles, Louisiana, (SEA #498A) is enclosed along with a project map and description. The CEMVN staff request that a water quality certification be completed, pursuant to Section 401 of the Clean Water Act of 1977, as amended (33 U.S.C., Section 1341).

The proposed project consists of bottomland hardwoods and swamp re-establishment and enhancement located in the Barataria Basin, Luling, St. Charles Parish, Louisiana. To the best of our knowledge, any dredge/fill material will be free of contaminants. Please provide the Public Notice for publication in the Advocate of Baton Rouge. In addition to sending us the hard copy of your documents, we request that an e-mail with your transmittal letter and the public notice attached be sent to Eric.Tomasovic@usace.army.mil.

Please address any comments to the attention of Mr. Eric Tomasovic; U.S. Army Corps of Engineers; Regional Planning and Environmental Division South; CEMVN-PDS-C; 7400 Leake Avenue; New Orleans, Louisiana 70118.

Sincerely,

HARPER.MARSHALL.KEVIN.1536114358
Digitally signed by HARPER.MARSHALL.KEVIN.1536114358
Date: 2020.05.18 15:17:02 -05'00'

Marshall K. Harper
Chief, Environmental Planning Branch

Enclosures

# APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

*(33 CFR 325)*

***OMB APPROVAL NO. 0710-003***
***Expires October 1996***

***Public reporting burden for this collection of information is estimated to average 5 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Service Directorate of Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003), Washington, DC 20503. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.***

*PRIVACY ACT STATEMENT*

*Authority: 33 USC 401, Section 10; 1413, Section 404. Principal Purpose: These laws require permits authorizing activities in, or affecting, navigable waters of the United States, the discharge of dredged of fill material into waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters. Routine Uses: Information provided on this form will be used in evaluating the application or a permit. Disclosure: Disclosure of requested information is voluntary. If information is not provided, however, the permit application cannot be processed nor can a permit be issued.*

*One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.*

***(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)***

| ***1. APPLICATION NO.*** | ***2. FIELD OFFICE CODE*** | ***3. DATE RECEIVED*** | ***4. DATE APPLICATION COMPLETED*** |
|---|---|---|---|
| | | | |

***(ITEMS BELOW TO BE FILLED BY APPLICANT)***

| | |
|---|---|
| ***5. APPLICANT'S NAME***<br>US Army Corps of Engineers, New Orleans District | *8. AUTHORIZED AGENT'S NAME AND TITLE (an agent is not required)*<br>Same as Applicant |
| ***6. APPLICANT'S ADDRESS***<br>Planning , Programs and Programs and Project Management Division<br>CEMVN-PDS-C<br>P.O. Box 60267<br>New Orleans, LA 70160-0267 ATTN: | ***9. AGENT'S ADDRESS*** |
| *7. APPLICANT'S PHONE NOS. W/AREA CODE* | *10. AGENT'S PHONE NOS. W/AREA CODE* |
| ***a. Residence***<br>***b. Business*** (504) 862-1266 | *a. Residence*<br>*b. Business* |

***11. STATEMENT OF AUTHORIZATION***

_____

*APPLICANT'S SIGNATURE* *DATE*

*NAME, LOCATION AND DESCRIPTION OF PROJECT OR ACTIVITY*

***12. PROJECT NAME OR TITLE (see instructions)***
Supplemental Environmental Assessment #498A, West Bank and Vicinity Hurricane Protection Project, Implementation of Previously Authorized Mitigation Plans, St. Charles, Louisiana, (SEA #498A)

| ***13. NAME OF WATERBODY, IF KNOWN (if applicable)*** | *14. PROJECT STREET ADDRESS (if applicable)* |
|---|---|
| *N/A* | |
| *15. LOCATION OF PROJECT*<br>*COUNTY* *STATE*<br>Luling, St. Charles Parish, Louisiana | |

*16. OTHER LOCATION DESCRIPTIONS, IF KNOWN, (see instructions)*
Centroid at 29.882431, -90.339474, WGS84.

*17. DIRECTIONS TO THE SITE*
Access to the site from US-90(Figure 1): Turn south onto Willowdale Blvd. Turn left onto Lafayette Drive. Take the next right to enter the gate and cross the canal toward the Willowridge pump station.

*18. Nature of Activity (Description of project, include all features.)*
The Proposed Action would modify previously developed mitigation plans to enhance and re-establish swamp and BLH habitat at the Saint Charles (STC) site. Since the release of SEA #498 (2012), there has been tree mortality within the mitigation area. This mortality seems to have been induced by inundation caused by time, a new pumping station, and the existing berm. Therefore, modifications to the plan are required for the STC mitigation site to achieve adequate mitigation. The goal of the proposed action is to improve hydrology, and re-establish approximately 74 acres of BLH and swamp species native to southern Louisiana, and preserve 1,247 acres of bottomland hardwood forest and swamp. See the attached Project Description for details.

*19. Project Purpose (Describe the reason or purpose of the project, (see instruction.)*
The purpose of this action is to satisfy the mitigation requirements related to the West Bank and Vicinity Project as authorized prior to Hurricane Katrina.

*USE BLOCKS 20-22 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED*

*20. Reason(s) for Discharge*
In order to restore the natural hydrology, to the maximum extent possible, portions of the berm need to be removed and portions of the ditch filled. Both of these actions would be to the elevation of the surrounding wetlands (-1.5 NAVD88).

*21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Years.*
A total of approximately 3,000 cubic yards would be excavated and placed into the adjacent ditch where berm material originated.

*22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)*
Estimated 3.7 acres of the adjacent ditch would be filled.

*23. Is Any Portion of the Work Already Complete? Yes _____ No __X___ IF YES, DESCRIBE THE COMPLETED WORK*

*24. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (If more than can be entered here, please attach a supplemental list)*
Rathborne Land Company, LCC. 100 Pailet Drive, Harvey, LA 70058

*25. List of Other Certifications or Approvals/Denials Received from other Federal, State or Local Agencies for Work Described in This Application.*

| ***AGENCY*** | ***TYPE APPROVAL*** | ***IDENTIFICATION NO.*** | ***DATE APPLIED*** | ***DATE APPROVED*** | ***DATE DENIED*** |
|---|---|---|---|---|---|
| LDNR, OCM | CZ Consistency Determination | C20110476 mod 02 COE-NOD | May 4, 2020 | Pending | |
| SHPO | 106/NHPA | | March 9, 2020 | April 15, 2020 | |
| USACE | 404(b)(1) | | Pending | | |

*To the best of my knowledge the proposed activity described in my permit application complies with and will be conducted in a manner that is consistent with the LA Coastal management Program.*
**Would include but is not restricted to zoning, building and flood plain permits.*

*26. Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.*

*Digital Signature on file at CEMVN* _____ _____ _____ _____
*SIGNATURE OF APPLICANT* *DATE* *SIGNATURE OF AGENT* *DATE*

*The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.*

***18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency The United States knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than five years, or both.***

# Appendix F: SEA #498

**DEPARTMENT OF THE ARMY**
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
P. O. BOX 60267
NEW ORLEANS, LOUISIANA 70160-0267

REPLY TO
ATTENTION OF

Regional Planning and Environment
Division South
Environmental Planning Branch

# FINDING OF NO SIGNIFICANT IMPACT (FONSI)

## WEST BANK AND VICINITY HURRICANE PROTECTION PROJECT IMPLEMENTATION OF PREVIOUSLY AUTHORIZED MITIGATION PLANS

## ST. CHARLES AND JEFFERSON PARISHES, LOUISIANA

## SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT (SEA) #498

Description of Proposed Action: The U.S. Army Corps of Engineers, New Orleans District (MVN), proposes to implement previously authorized mitigation plans to enhance bottomland hardwood (BLH) and preserve swamp/BLH habitat at two general locations. BLH preservation and management and swamp/BLH habitat preservation are proposed adjacent to the Salvador Wildlife Management Area which has been named the St. Charles Acquisition Area (STC) for this project. Enhancement of BLH habitat is proposed at both the STC and adjacent to the Bayou Segnette State Park, which has been named Bayou Segnette Enhancement Area (BAS). These mitigation plans were formulated and documented in three feasibility reports/ environmental impact statements (FR/EISs) issued in 1986, 1994, and 1996. Details regarding these FR/EISs are contained in SEA #498, which is incorporated by reference herein.

The proposed action for the BAS would consist of implementing an invasive species control plan on 125 acres and then planting these acres with BLH wet species. Details of the planting can be found in SEA 498. A water retention dike (WRD) would be constructed to restore wetland hydrology in the BAS mitigation area. Construction of the WRD would be offset from an existing drainage canal by 25-feet and would be approximately 3,250-feet long with a 20-foot crown width and a side slope of 1-foot vertical for every 4-feet horizontal (1v:4h). The WRD would run from point A (figure 1 and plate 4 in SEA 498), through point B to point D (originally part of Alternative 1 and 2 in the SEA). At point D, this alignment deviates from the Alternative 1 and 2 by veering south to point 12 and heading southwest along the Chevron Pipeline across the Inner Cataouatche Canal to tie-in to the Cataouatche Hurricane Protection Levee (CHPL) at point 13. The total bottom width of the dike would be 36 feet wide resulting in a total foot print for the WRD of approximately 3 acre; approximately 37,500 cubic yards of earthen material would be required for construction. This material would be delivered by truck

from the Bonnet Carre government furnished borrow site. Existing borings for the CHPL were used to design the dike and for seepage calculation. It was determined no additional seepage cutoff would be needed. The portion of the dike that crosses the Inner Cataouatche Canal is designed as an earthen core with separator geotextile over the crown and slope. This proposed part of the mitigation plan includes use of the CHPL reach of the WBV levee system to retain water along the southern portion of the proposed project area. The CHPL is designed with seepage cutoff in the constructed levee and berm. Pig exclusion fencing would be constructed around the planting areas at the BAS site to protect newly planted trees until sufficiently mature to resist destruction by feral pigs. This fence would be a combination of a physical barrier and an electrical deterrent. There would be approximately 16,000 linear feet of fencing installed prior to planting. The height of the fence is 24 inches.

The proposed action for STC would include preserving through acquisition of approximately 1,211 acres of existing cypress swamp/BLH. Additionally approximately 12.8 acres of BLH dry species would be planted in a previously disturbed area of the Willowridge subdivision (phase 6). An additional 90.9 acres of BLH would be preserved and managed. BLH management objectives would be accomplished through selective seedling underplanting and tree removal/snag enhancement by cutting, tree girdling, and/or injection. A small area of emergent wetlands (6.3 acres) has been added to the acquisition area. Because this area is in the middle of the site with no road access, if not acquired as part of this mitigation project, the area would be permanently isolated with little access, potentially creating an uneconomic remnant. A total of 1,321 acres would be acquired at the STC site.

Factors Considered in Determination: This office has assessed the impacts of the proposed action, two alternatives to the proposed action (as detailed in the SEA) and the no action alternative on relevant resources, including: 1) hydrology, hydraulics and water quality, 2) wetlands, 3) aquatic resources/fisheries, 4) wildlife, 5) threatened and endangered species, 6) air quality, 7) noise and vibrations, 8) cultural, 9) recreation, 10) aesthetics, 11) socio-economic, and 12) environmental justice. The following are true for the proposed action. No significant adverse impacts were identified for any of the relevant resources. The risk of encountering HTRW is low. No impacts were identified that would require additional compensatory mitigation. By letter dated 09 September 2011 the U.S. Fish and Wildlife Service confirmed that the proposed action is not likely to adversely affect any endangered or threatened species. A letter from the Louisiana Department of Natural resources dated 23 May 2012 stated that "*The project, as proposed in this application, is consistent with the LCRP.*" Therefore a modification of the existing concurrence (C20110476 14 December 2011) was granted. An e-mail from Louisiana Department of Environmental Quality (17 May2012) confirmed "*The originally issued WQC is still valid.*" (WQC 900402-22/AI 101235/CER 20110008 25 October 2012). Public review of the Section 404(b)(1) Public Notice was completed on 28 November 2012. The Section 404(b)(1) evaluation was signed on 28 June 2012 . Concurrence with a recommendation of no effect on historic properties was received from the SHPO on 09 November 2012 and the Choctaw Nation of Oklahoma on 03 November 2012. This office has concurred with, or resolved, all but three Fish and Wildlife Coordination Act recommendations contained in letters from the U.S. Fish and Wildlife Service, dated 19 October 2011 and 16 May 2012. Two of these comments express concerns that the notice of construction completion occurs before initial success criteria have been achieved. The third comment requests that the USACE deposit funds

into an escrow account to ensure the long term success of the mitigation project. There were no comments on the air quality impact analysis documented in the SEA received from Louisiana Department of Environmental Quality. The proposed action does not affect any essential fish habitat.

Environmental Design Commitments. The following commitments are an integral part of the proposed action:

1) If the proposed action is changed significantly or is not implemented within one year, the New Orleans District will reinitiate coordination with the U.S. Fish and Wildlife Service to ensure that the proposed action would not adversely affect any Federally-listed threatened or endangered species, or their habitat. [09 September 2011]

2) If any unrecorded cultural resources are determined to exist within the proposed project boundaries, then no work will proceed in the area containing these cultural resources until a New Orleans District staff archeologist has been notified and final coordination with the State Historic Preservation Officer and Tribal Historic Preservation Officer has been completed.

3) The non-Federal sponsor would be responsible for protecting and maintaining lands contained within the mitigation sites in perpetuity.

4) On a cost shared basis, USACE will monitor completed mitigation to determine whether additional construction, invasive species control, and/or planting are necessary to achieve mitigation success. USACE will undertake additional actions necessary to achieve mitigation success in accordance with cost sharing applicable to the project and subject to the availability of funds. Once USACE determines that the mitigation has achieved initial success criteria, monitoring will be performed by the Non-Federal Sponsor as part of its OMRR&R obligations.

5) The non-Federal sponsor shall be responsible for OMRR&R of functional portions of work as they are completed.

6) In the event that the hydraulic modifications do not result in meeting appropriate wetland performance standards and BLH-wet habitat is not created, additional hydraulic modification may be needed or alternative mitigation would have to be developed.

Public Involvement. The proposed action has been coordinated with appropriate Federal, state, and local agencies and businesses, organizations, and individuals through release of SEA #498 on 21 October 2011 for 30-day review and comment. A revised SEA and a draft FONSI was provided to the resource agencies for review. SEA #498 is attached hereto and made a part of this FONSI.

Conclusion. This office has assessed the potential environmental impacts of the proposed action. Based on this assessment, which is attached hereto and made a part hereof, a review of the comments made on SEA #498, and the implementation of the environmental design commitments listed above, a determination has been made that the proposed action would have

no significant impact on the human environment and is the environmentally preferable plan. Therefore, a Supplemental Environmental Impact Statement will not be prepared.

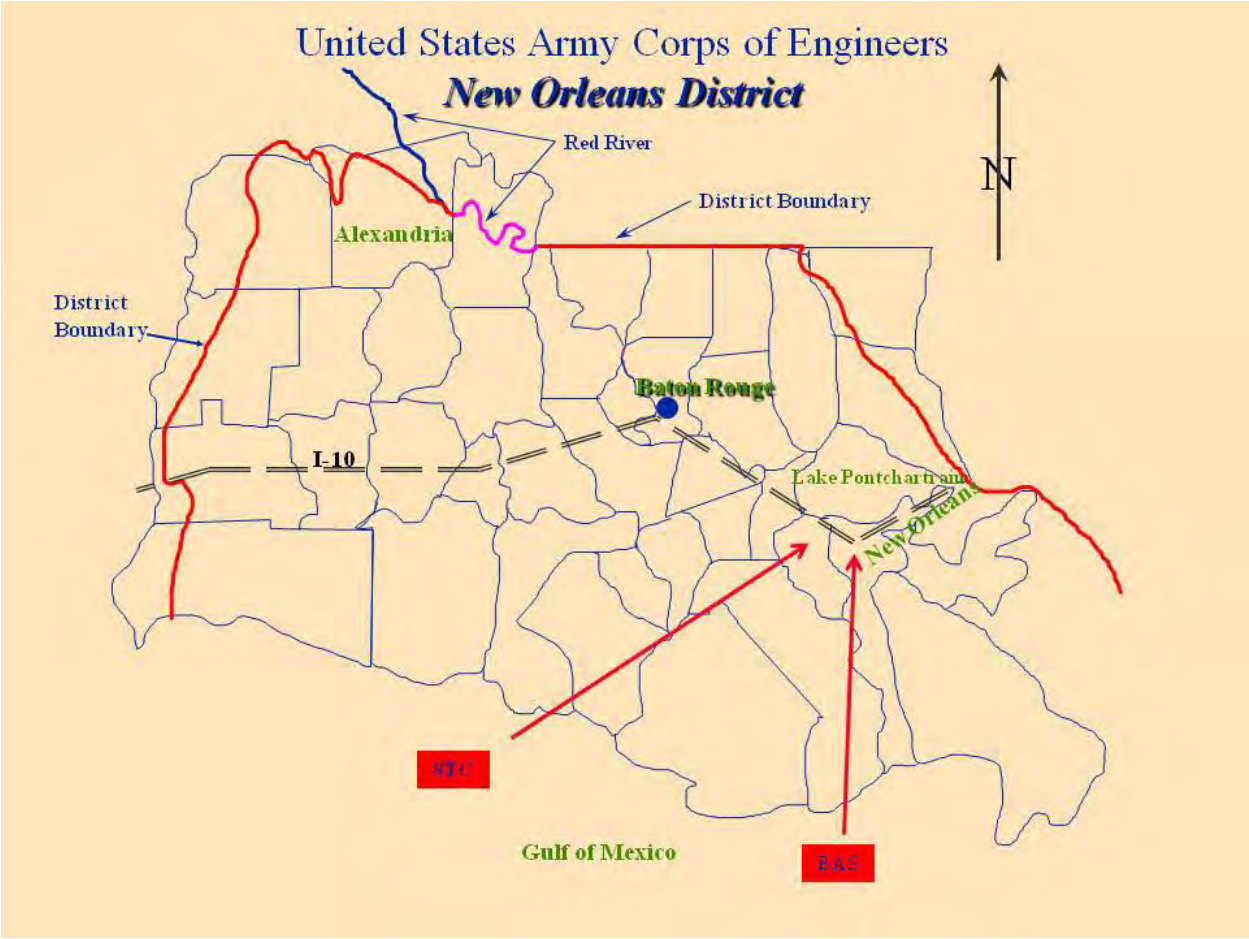
13 July 2012
Date

Edward R. Fleming
Colonel, U.S. Army
District Commander

# Revised SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
# SEA 498

# WEST BANK AND VICINITY
# HURRICANE PROTECTION PROJECT
# IMPLEMENTATION OF PREVIOUSLY AUTHORIZED MITIGATION PLANS

## ST. CHARLES AND JEFFERSON PARISHES, LOUISIANA




**U.S. Army Corps of Engineers**
**Mississippi Valley Division**
**Regional Planning and Environment Division South**

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**HURRICANE PROTECTION PROJECT**
**IMPLEMENTATION OF PREVIOUSLY AUTHORIZED MITIGATION PLANS**

**ST. CHARLES AND JEFFERSON PARISHES, LOUISIANA**

## 1.0 INTRODUCTION

The U.S. Army Corps of Engineers (USACE), Mississippi Valley Division, Regional Planning and Environment Division South, Environmental Planning Branch (CEMVN-PDN) prepared this Supplemental Environmental Assessment (SEA) for the Mississippi Valley Division, New Orleans District (CEMVN), to evaluate the potential impacts associated with implementing a mitigation plan consisting of bottomland hardwood (BLH) enhancement, BLH preservation and management, and swamp/BLH preservation to compensate for impacts resulting from the previously authorized West Bank & Vicinity (WBV) Hurricane Protection Projects. The proposed location for enhancement of BLH would be adjacent to Bayou Segnette State Park, Jefferson Parish, LA (figure 1) (BAS), and adjacent to the Willowridge subdivision (phase 6) site, St. Charles Parish, LA. The proposed location for the preservation and management of BLH and the preservation of swamp/BLH would be west of the Davis Pond Diversion guide levee adjacent to the Salvador Wildlife Management Area (WMA), St Charles Parish, LA (figure 2) (STC). A list of acronyms can be found in appendix A. Appendix B is a list of members of interagency environmental team.

The current WBV Project was originally three separate projects identified as 1) the 1986 West Bank of the Mississippi River in the Vicinity of New Orleans, LA Environmental Impact Statement. New Orleans, LA; 2) the 1994 West Bank of the Mississippi River in the Vicinity of New Orleans, LA (East of the Harvey Canal): Environmental Impact Statement, New Orleans, LA, and 3) the 1996 Westwego to Harvey Canal, Louisiana Hurricane Protection Project, Lake Cataouatche Area: Environmental Impact Statement, New Orleans, LA. The Water Resource Development Act (WRDA) of 1999 combine these three projects into a single project under the name, the West Bank and Vicinity, New Orleans, Hurricane Protection Project. The original design features, environmental impacts, and mitigation requirements as defined in the three separate feasibility reports/final environmental impact statements (FR/FEIS) are supplemented by this SEA. The three WBV Hurricane Protection Project EISs are incorporated into this document by reference and are briefly summarized in Section 1.4 and 1.6.2. The WBV project is distinct from the Post-Katrina 100 year West Bank and Vicinity, New Orleans, LA Hurricane and Storm Damage Risk Reduction System (WBV-HSDRRS) project.

After the Draft SEA went to the public for comment, an additional alternative was developed. This new alternative will provide the same benefits as the original proposed action, but at a reduced cost. This cost savings is realized by the lack of a need for a temporary water retention

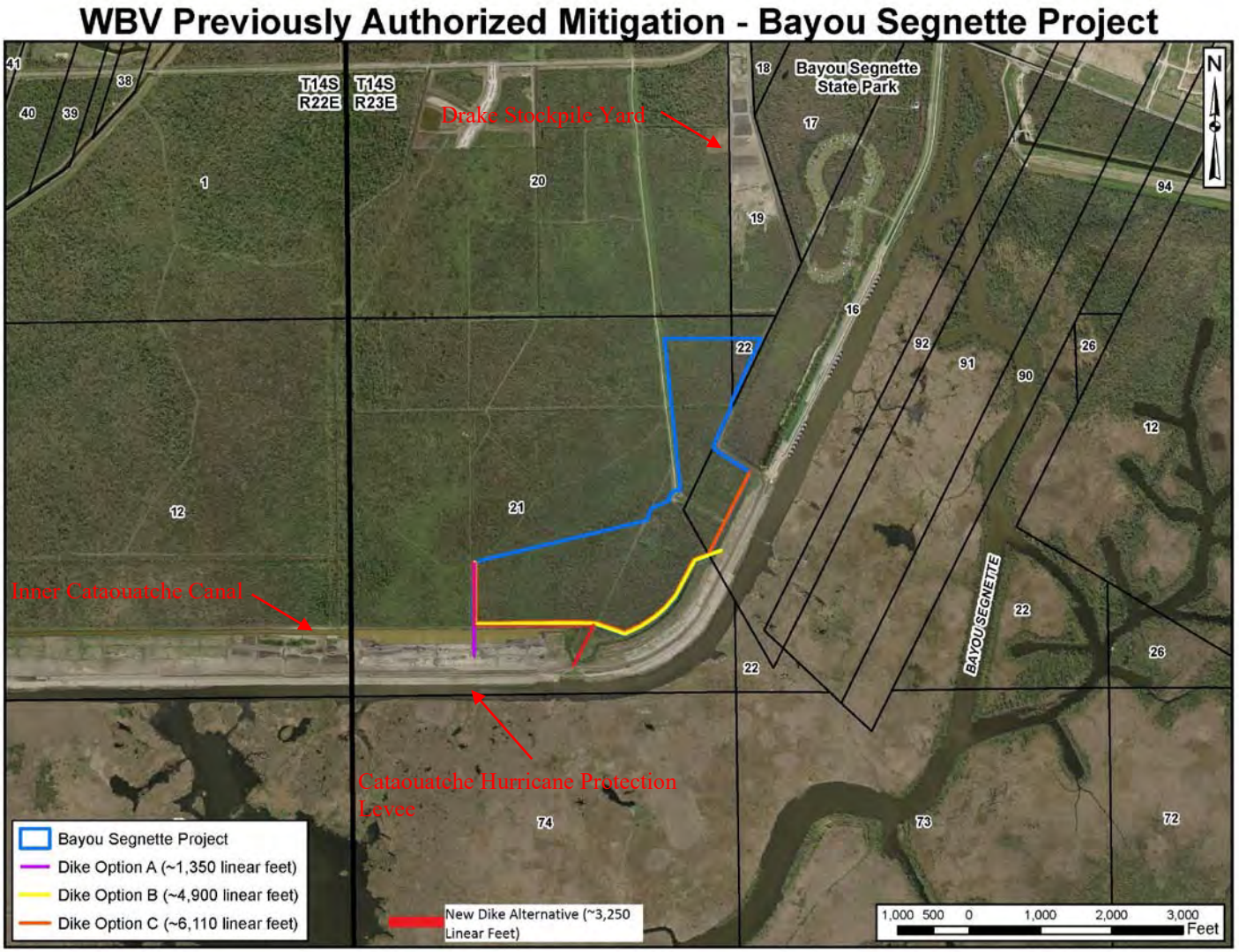


**Figure 1: Mitigation area adjacent to Bayou Segnette State Park (BAS)**

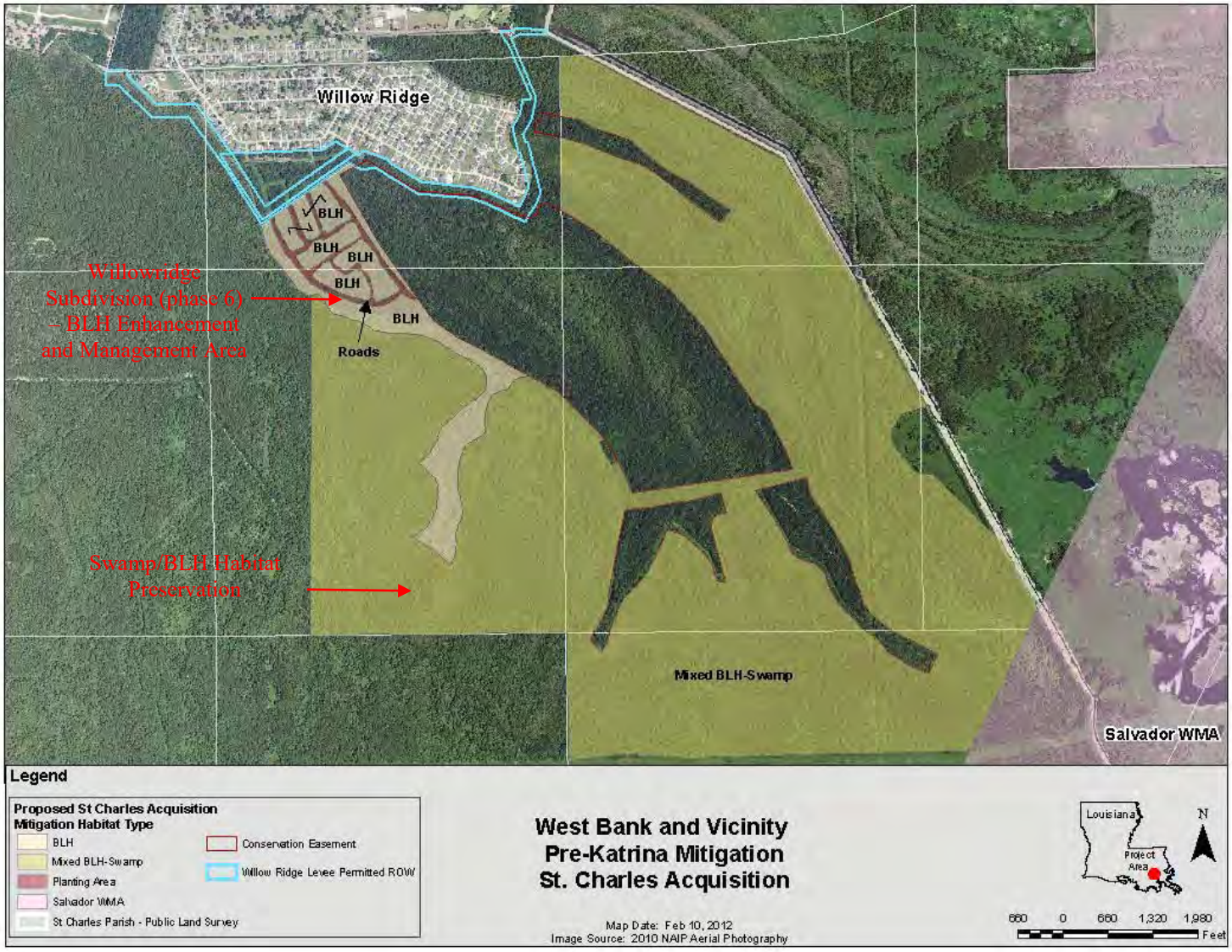


**Figure 2: Mitigation site adjacent to the Salvador Wildlife Management Area (STC)**

structure to allow construction of the portion of the Water Retention Dike (WRD) that crosses the Inner Cataouatche Canal at the BAS site and the lack of a need for stone armoring at the new point where the structure will cross the canal. Because the new location is significantly shallower than the originally proposed crossing point, the construction can be done in the wet. Additionally, due to the shallow depth of the canal at the new location, only minimal amounts of water would be expected to overtop the WRD, thereby eliminating the need for stone armoring. This new alternative has become the new proposed action at the BAS site.

This SEA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and the Council on Environmental Quality's (CEQ) Regulations (40 Code of Federal Regulations (CFR) 1500-1508), as reflected in the USACE Engineering Regulation ER 200-2-2. This document includes the mitigation plan required by Section 2036(a) of the WRDA of 2007 and relevant regulations (33 CFR 332.4(c)/40 CFR 230.94(c)). This SEA and mitigation plan provides sufficient information on the potential adverse and beneficial environmental effects to allow the CEMVN Commander to make an informed decision on the appropriateness of an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

## 1.1 Purpose and Need for the Proposed Action

The purpose of the proposed action is to address unfulfilled mitigation requirements and to propose mitigation project design changes related to the West Bank and Vicinity Project as authorized prior to Hurricane Katrina. Mitigation requirements, plans, and designs were originally defined in the three FR/FEIS for the West Bank and Vicinity, New Orleans, Louisiana Hurricane Protection Project and in subsequent project reports. Changes in the design since the original FR/EIS's have necessitated a reassessment of the impacts that require mitigation. Some portions of the WBV hurricane storm damage risk reduction elements which were authorized prior to Hurricane Katrina are still under construction, and are estimated to be completed in autumn of 2012. Implementation of mitigation projects to address unmitigated impacts associated with this construction is scheduled to begin in autumn 2012. This mitigation project does not include impacts associated with the WBV-HSDRRS project. The mitigation plan for the WBV-HSDRRS project will be included in IER 37 which is anticipated to available to the public in later part of 2012.

One portion of the original WBV mitigation requirement was addressed by the construction of a tire/timber breakwater and preservation of wetlands, completed in 1991, within the Salvador Wildlife Management Area at a location known as the Netherlands (Section 1.6.3). The remaining mitigation requirement addresses impacts to wet bottomland hardwood (BLH-Wet), dry bottomland hardwood (BLH-Dry), and swamp habitats. The original mitigation plans include mitigation features to address these requirements adjacent to Bayou Segnette State Park and near the Salvador Wildlife Management Area. As a result of design changes to the originally authorized WBV levee, the remaining mitigation requirement associated with the previously authorized mitigation plans is 1,211 acres of swamp/BLH preservation; 12.8 acres of BLH-Dry restoration; 90.9 acres of BLH acquisition, preservation, and management; and 125 acres of BLH-Wet enhancement.

Proposed changes to the previously approved mitigation requirements and mitigation project designs are listed below:

- Documentation of reductions in impacts and therefore reductions in mitigation requirements due to the realignment of proposed levees and floodwalls from Hero to Oakville.
- The addition of a BLH-Dry restoration component to the previously approved mitigation plan for the East of Harvey Canal segment of the WBV project.
- Clarification of the mitigation acreage required adjacent to Bayou Segnette State Park.
- Disclosure of design details associated with the previously approved mitigation project adjacent to Bayou Segnette State Park.

1.2 New Proposed Action

The New Proposed Action would be to implement previously developed mitigation plans to enhance BLH and preserve swamp/BLH habitat at two general locations. The BLH preservation and management and Swamp/BLH habitat preservation (figure 2) are proposed adjacent to the Salvador WMA which has been named the St. Charles Acquisition Area (STC) for this project. Enhancement of BLH habitat is proposed at both the STC (figures 2 and 3) and adjacent to the Bayou Segnette State Park (figure 1), which has been named Bayou Segnette Enhancement Area (BAS). Both areas are more fully described below.

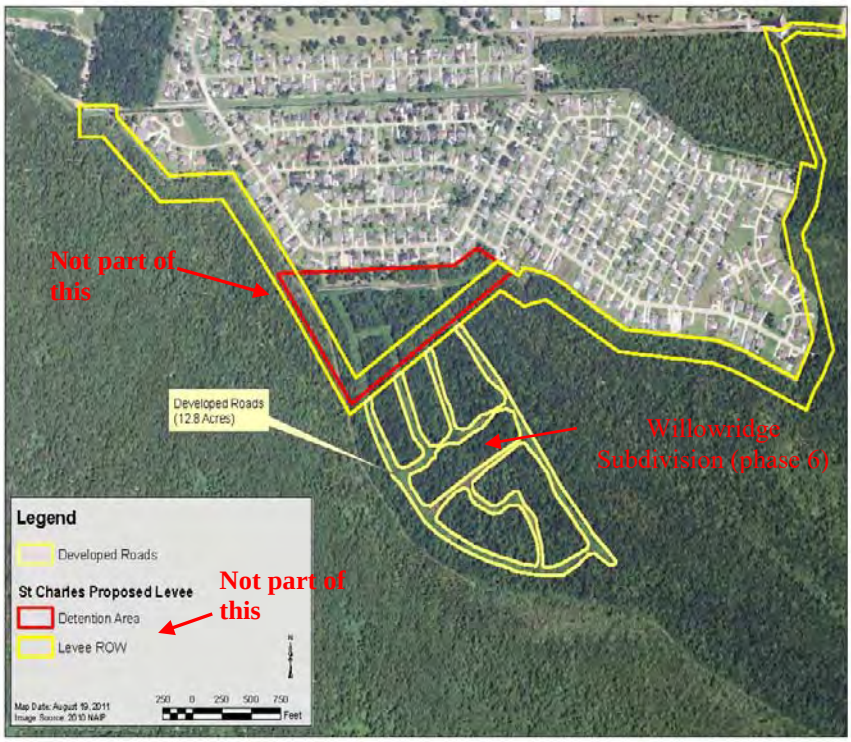


**Figure 3: BLH planting area at St. Charles site (STC)**

Mitigation Plan Summary:

The proposed mitigation actions would include construction (summarized for each site below), with the Non-Federal Sponsor responsible for operation and maintenance of functional portions of work as they are completed. On a cost shared basis, USACE would monitor completed mitigation to determine whether additional construction, invasive species control, and/or planting are necessary to achieve mitigation success. USACE would undertake additional actions necessary to achieve mitigation success in accordance with cost sharing applicable to the project and subject to the availability of funds. Once USACE determines that the mitigation has achieved initial success criteria, monitoring would be performed by the Non-Federal Sponsor as part of its OMRR&R obligations. If, after meeting initial success criteria, the mitigation fails to meet its intermediate and/or long-term ecological success criteria, USACE would consult with other agencies and the Non-Federal Sponsor to determine whether operational changes would be sufficient to achieve ecological success criteria. If, instead, structural changes are deemed necessary to achieve ecological success, USACE would implement appropriate adaptive management measures in accordance with the contingency plan and subject to cost sharing requirements, availability of funding, and current budgetary and other guidance.

Summary of Initial Construction Phase for BAS Mitigation Site:

The new proposed action for the BAS site would include the enhancement and preservation of wet BLH forests on 125 acres. The initial construction phase would include: 1) the eradication of invasive species and implementation of an invasive species control plan (Section 1.2.3); 2) earthwork and related site preparation construction to prepare the site for planting BLH; 3) a water retention dike would be constructed to restore wetland hydrology in the mitigation area along an adjacent drainage canal as described in detail in Section 1.2.1; 4) pig fencing would be erected to protect young trees from foraging and destruction by the feral pigs inhabiting the area (Section 1.2.5); and 5) the site would be planted with BLH wet species (Section 1.2.4).
Summary of Initial Construction Phase for STC Mitigation Site:

The proposed action for the STC site would include preserving through acquisition alone approximately 1,211 acres (figure 2) of existing cypress swamp/BLH, while an additional 90.9 acres would be preserved through active management activities after acquisition. Management construction activities would include selective tree removal and tree girdling and/or injection to enhance snag numbers, as well as planting with desirable species in selected areas. Additionally approximately 12.8 acres of BLH dry species would be planted in areas previously cleared for roads as part of the Willowridge subdivision, Phase 6. These roads (figure 3) previously had been cleared in anticipation of residential development that never occurred. Earthwork and related site preparation construction would occur prior to planting within these previously cleared areas. A small area of emergent wetlands (6.3 acres) has been added to the acquisition area. Because this area is in the middle of the site with no road access, if not acquired as part of this mitigation project, the area would be permanently isolated with little access, potentially creating an uneconomic remnant. A total of 1,321 acres would be acquired at the STC site.

### 1.2.1Water Retention Dike

A new location to tie the water retention dike (WRD) into the Cataouatche Hurricane Protection Levee was analyzed after the Draft SEA went to the public for comment. This new tie-in location is being incorporated into the proposed action. This paragraph reflects the changes to the proposed action. These changes to the proposed action only affect the recommended plan at the BAS mitigation site.

Construction of the WRD (Plate 5, page 93) at the BAS site would be offset from an existing drainage canal by 25-feet; the WRD would be approximately 3,250-feet long with a 20-foot crown width and a side slope of 1-foot vertical for every 4-feet horizontal (1v:4h). The WRD would run from point A (figure 1 and plate 5), through point B to point D (originally part of Alternative 1 and 2 in the Draft SEA). At point D, this alignment deviates from the Alternative 1 and 2 by veering south to point 12 and heading southwest along the Chevron Pipeline across the Inner Cataouatche Canal to tie-in to the Cataouatche Hurricane Protection Levee (CHPL) at point 13. This reach is identified in red on figure 1 and by points on plate 5. The WRD would be constructed to an elevation of minus 6.0-foot North Atlantic Vertical Datum (NAVD88) with the assumption that the average existing ground elevation is minus 8.0-foot NAVD88. The total bottom width of the dike would be 36 feet wide resulting in a total foot print for the WRD of approximately 3 acres. Approximately 37,500 cubic yards of earthen material would be required for construction of the retention dike and would be delivered by truck from the Bonnet Carre government furnished borrow site. Existing boring for the CHPL were used to design the dike and seepage calculation. It was determined no additional seepage cutoff would needed. The portion of the dike that crosses the Inner Cataouatche Canal is designed as an earthen core with separator geotextile over the crown and slope. This proposed part of the mitigation plan includes use of the CHPL reach of the WBV levee system to retain water along the southern portion of the proposed project area. The CHPL is designed with seepage cutoff in the constructed levee and berm. No dike work would be needed at the STC site.

### 1.2.2 Access Routes:

Access to the BAS mitigation site would be through the West Jefferson Levee District's Drake Stockpile Yard (figure 1) accessible from Nicole Boulevard. There is an existing stone road from Nicole Boulevard to the CHPL. The current access road is in excellent condition and would not need to be upgraded for implementation of the proposed action. The access would continue down the toe of the CHPL. The access to the STC would be on local roads through the Willowridge subdivision. There is also a levee road that extends off of Texaco Road that may be usable.

### 1.2.3 Eradication of Invasive and Nuisance Plant Species

The eradication of invasive and nuisance plant species would incorporate a variety of eradication methods (http://www.fleppc.org/Manage_Plans/Tallow_Plan.pdf). The best time to initiate herbicidal control measures on Chinese tallow would be during the spring months when there are no seeds being produced, the trees are breaking dormancy, and the sap is rising. Regardless of

the methods involved, care would be exercised to avoid damage to desirable native species to the greatest extent practicable. The following steps would be followed at the BAS:

Step 1 - Physical clearing/eradication. A hydro-axe or similar equipment would be used to cut down trees and shrubs. Larger desirable species would be left undisturbed where feasible. During the initial eradication process, large quantities of felled materials would be chipped on-site and left as a thin layer. A mulch layer of 3-4-inches thick has been shown to be beneficial in helping control regeneration of tallow, likely due to heat effects on seeds. Felled woody plants may also be gathered and stacked "teepee" style in scattered locations and then removed from the mitigation features and/or disposed by burning or in a duly-licensed facility.

Step 2 - Ground herbicide allow a minimum of 2 months (during the growing season) for root resprouting to occur after start of physical clearing (crews could follow clearing operations). Chemical treatment should occur in the late summer or fall, when plant resources are being transported to the roots; this increases the likelihood of a complete "root-kill." The acceptable chemical treatment period is June 1 through October 15, with the optimum period occurring September 1 through October 15. To ensure effectiveness, the treatment must occur before the leaves begin to change color for the autumn season. Allow adequate time for seed germination/sprouting to occur (i.e., a second growing season). Most seeds that did not genninate during the first year of site preparation, should germinate during the second growing season.

•Use a tractor with boom-sprayer to apply chemicals to the Chinese tallow-tree resprouts. With this method, more cost-effective alternatives to Clearcast® may be used (if a foliarapplication chemical is used, then it would not be necessary to use a discriminant/selective chemical such as Clearcast®).

•Basal Bark Application - Basal bark applications are made by applying herbicide directly to the bark around the circumference of the tree up to 15 inches (38 cm.) above the ground. Thorough wetting of the indicated area is necessary for good control. Hand-held equipment (paintbrush), or backpack sprayers, are usually used for the application. Trees that have stems less than 6 inches in basal diameter, apply up to a 5 percent Triclopyr solution mixed with spray adjuvant oil. Trees exceeding 6 inches in basal diameter can be successfully controlled with a 15-20 percent Triclopyr/oil solution. Old or rough bark requires more spray than smooth young bark.

•Cut Stump Treatment - To control resprouting of freshly cut stumps, a 20 percent solution of Triclopyr would provide control. Spray the root collar area, sides of the stump, and the outer portion of the cut surface including the cambium until thoroughly wet, but not to the point of runoff. No more than 1/2 hour should elapse between cutting and applying herbicide. This method should not be used during the fall when seeds or "popcorn" fruits are present since the chance of spreading viable seed increase.

Step 4 - Plant bare-root seedlings during the following dormant season (December 15 – March 15). This would allow a minimum of 2 months between the second chemical treatment and the planting of seedlings..

Step 5 - Another follow-up ground herbicide application would occur after planting and would be highly directed as to avoid new plants.

At the STC site invasive and nuisance species could be eliminated selectively as part of the management area during OMMRR&R.

1.2.4 BLH planting

The BLH planting plan is similar for both mitigation sites and is described as follows:

1) At the BAS site, 125 acres would be planted to restore BLH wet habitat. Approximately 2 months after completion of the initial eradication of invasive and nuisance plants at the BAS site (no invasive species control is required at the STC site), native canopy (upper tree layer) species would be planted on 9-foot centers (average) to achieve a minimum initial stand density of 538 seedlings (trees) per acre. Midstory (layer of trees whose branch are neither at ground level nor in the canopy) species would be planted on 20-foot centers (average) to achieve a minimum initial stand density of 109 seedlings per acre.

2) At the STC site, 12.8 acres would be planted to restore BLH dry habitat. The STC site can be planted at any time because no initial invasive species control is required at the STC site. The site would be planted in accordance with the standards set forth above.

The plants to be planted at both sites would meet the standards established by the Natural Resources Conservation Service for seedling selection (e.g., 3/8"- diameter root collar, 12" - 18" stem height plus 8" - 10" root length, and 4 - 8 lateral roots), and must be obtained from a registered licensed regional nursery/grower and of a regional eco-type species properly stored and handled to ensure viability (healthy growth and survivability). The plants would typically be installed from December through March 15 (planting season/dormant season). The seedlings would be installed in a manner that that avoids monotypic (rows of one type of plant) rows of canopy and midstory species (i.e. goal is to have spatial diversity and mixture of planted species). If herbivores (plant eating – deer, nutria, etc) threaten survival of the newly planted seedlings, seedling protection devices such as chicken-wire fencing, corrugated drain pipe, or plastic seedling protectors would be installed around each planted seedling. A detailed preliminary planting plan would be developed during the Preliminary Engineering and Design phase. This plan would be refined after the eradication of invasive and nuisance plant species at the BAS site when the remaining native species coverage can be identified. Coordination with the interagency team and the sponsor will occur in the development of this planting plan.

Bottomland Hardwood Habitats Wet (BLH-Wet Habitats) Species:

The canopy species planted would be in accordance with the species lists provided in tables 1A and 1B. BLH-Wet species plantings would consist of approximately 60 percent hard mast-producing species (table 1A) and approximately 40 percent soft mast-producing species (table 1B). The species composition for each of the two groups of canopy species (e.g. hard mast species and soft mast species) would mimic the percent composition guidelines indicated in tables 1A and 1B; however, site conditions (factors such as hydrologic regime, soils, composition of existing native canopy species in nearby undisturbed BLH-Wet habitats, etc.) and planting stock availability could necessitate deviating from the species lists and/or the percent composition guidelines indicated in tables 1A and 1B. In general, the greatest number of species possible should be planted; however, a minimum of three hard mast species and a minimum of three soft mast species would be planted.

**Table 1A: Preliminary Planting List for Wet Bottomland Hardwood Habitat, Hard Mast-Producing Canopy Species (60 percent of Total Canopy Species)**

| Common Name | Scientific name | Percent Composition |
|---|---|---|
| Nuttall oak | *Quercus nuttalli* | 30% - 40% |
| Willow oak | *Quercus phellos* | 30% - 40% |
| Water oak | *Quercus nigra* | 5% |
| Overcup oak | *Quercus lyrata* | 10% - 20% |
| Swamp chestnut oak | *Quercus michauxii* | 10% - 20% |
| Water hickory | *Carya aquatic* | 10% - 20% |

**Table 1B: Preliminary Planting List for Wet Bottomland Hardwood Habitat, Soft Mast-Producing Canopy Species (40 percent of Total Canopy Species)**

| Common Name | Scientific name | Percent Composition |
|---|---|---|
| Drummond red maple | *Acer rubrum* var. *drummondii* | 15% - 25% |
| Sugarberry | *Celtis laevigata* | 15% - 25% |
| Green ash | *Fraxinus pennsylvanica* | 15% - 25% |
| Sweetgum | *Liquidambar styraciflua* | 10% - 20% |
| American elm | *Ulmus americana* | 10% - 20% |
| Common persimmon | *Diospyros virginiana* | 10% -20% |
| Bald cypress | *Taxodium distichum* | 5% - 15% |

The midstory species would be selected from the species list provided in table 2. Plantings would consist of the greatest number of species practicable, but at least three different species. The species used and the proportion of the total midstory plantings represented by each species (percent composition) would be dependent on various factors including site conditions and planting stock availability.

| Table 2: Preliminary Planting List for Wet Bottomland Hardwood Habitat, Midstory Species | | |
|---|---|---|
| **Common Name** | **Scientific name** | **Percent Composition** |
| Buttonbush | *Cephalanthus occidentalis* | TBD |
| Mayhaw | *Crataegus opaca* | TBD |
| Green hawthorn | *Crataegus viridis* | TBD |
| Common persimmon | *Diospyros virginiana* | TBD |
| Possumhaw | *Ilex deciduas* | TBD |
| Yaupon | *Ilex vomitoria* | TBD |
| Red mulberry | *Morus rubra* | TBD |
| Wax myrtle | *Myrica cerifera* | TBD |

Bottomland Hardwood Habitats Dry (BLH-Dry Habitats) Species:

The canopy species planted would be in accordance with the species lists provided in tables 3A and 3B. Plantings would be conducted such that the total number of plants installed in a given area consists of approximately 60 percent hard mast-producing species (table 3A) and approximately 40 percent soft mast-producing species (table 3B). The species composition for each of the two groups of canopy species (e.g. hard mast species and soft mast species) would mimic the percent composition guidelines indicated in tables 3A and 3B; however, site conditions (factors such as hydrologic regime, soils, composition of existing native canopy species, etc.) and planting stock availability could necessitate deviations from the species lists and/or the percent composition guidelines indicated in these tables. In general, the greatest number of species practicable should be planted; however a minimum of three hard mast species and a minimum of three soft mast species would be utilized.

| Table 3A: Preliminary Planting List for Dry Bottomland Hardwood Habitat, Hard Mast-Producing Canopy Species (60 percent of Total Canopy Species) | | |
|---|---|---|
| **Common Name** | **Scientific name** | **Percent Composition** |
| Nuttall oak | *Quercus nuttalli* or *Q. texana* | 10% |
| Willow oak | *Quercus phellos* | 10% |
| Water oak | *Quercus nigra* | 10% |
| Live oak | *Quercus virginiana* | 20% |
| Cherrybark oak | *Quercus pagoda* | 5% |
| Sweet Pecan | *Carya illinoensis* | 20% |

| Table 3B: Preliminary Planting List for Dry Bottomland Hardwood Habitat, Soft Mast-Producing Canopy Species (40 percent of Total Canopy Species) | | |
|---|---|---|
| **Common Name** | **Scientific name** | **Percent Composition** |
| Drummond red maple | *Acer rubrum* var. *drummondii* | 10% |
| Sugarberry | *Celtis laevigata* | 15% |

| | | |
|---|---|---|
| Green ash | *Fraxinus pennsylvanica* | 15% |
| Sweetgum | *Liquidambar styraciflua* | 20% |
| American elm | *Ulmus americana* | 10% - 20% |
| Common persimmon | *Diospyros virginiana* | 15% |
| American sycamore | *Platanus occidentalis* | 0 - 5% |
| River birch | *Betula nigra* | 0 - 5% |
| Honey locust | *Gleditsia triacanthos* | 0 – 5% |

The midstory species installed would be selected from the species list provided in table 4. Plantings would consist of the greatest number of species practicable, and at least three different species. The species used and the proportion of the total midstory plantings represented by each species (percent composition) would be dependent on various factors including site conditions (composition and frequency of existing native midstory species, hydrologic regime, soils, etc.) and planting stock availability.

**Table 4: Preliminary Planting List for Dry Bottomland Hardwood Habitat, Midstory Species**

| Common Name | Scientific name | Percent Composition |
|---|---|---|
| Mayhaw | *Crataegus opaca* | TBD |
| Green hawthorn | *Crataegus viridis* | TBD |
| Deciduous holly | *Ilex deciduas* | TBD |
| Yaupon | *Ilex vomitoria* | TBD |
| Southern wax myrtle | *Morella cerifera* | TBD |
| Southern crabapple | *Malus angustifolia* | TBD |
| Eastern red cedar | *Juniperus virginiana* var. *virginiana* | TBD |
| Red mulberry | *Morus rubra* | TBD |

Deviations from Typical Planting Guidelines

Since the initial enhancement activities would include the eradication of invasive and nuisance plant species, some native canopy and/or midstory species may remain, but in a landscape layout that leaves relatively large "gaps" of open area. In such cases, areas measuring approximately 625 ft² (e.g., 25 by 25 feet) that are devoid of native canopy species and areas measuring approximately 2,025 ft² (e.g., 45 by 45 feet) that are devoid of native midstory species would be planted.

There may be areas where several native canopy and/or midstory species remain, thereby altering the general guidelines described above regarding the spacing, the species, and/or the percent composition of planted species. Given these uncertainties, initial planting plans specific to the mitigation feature would be required and would be specified in the Mitigation Work Plan for the site. The initial planting plans would be developed by the USACE in cooperation with the

Interagency Team. This plan would be developed after the clearing of the invasive and nuisance plant species.

1.2.5 Feral Pig Exclusion Fencing

Due to the significant signs for feral pigs in the area, pig exclusion fencing would be constructed around the planting areas at the BAS site. This fence would be a combination of a physical barrier and an electrical deterrent. The design for fencing would be based on research from the U.S. Dept. of Agriculture (Reidy, et. al.) and the Natural Heritage Trust of the Australian Government (Long, 2004). There would be approximately 16,000 linear feet of fencing installed prior to planting. After discussions with NRCS about the eclectic fence used to protect seedlings at the Belle Chasse air station the height of the fence was lowered to 24 inches.

1.2.6 Management of Select Bottom Land Hardwood Forests

Approximately 91.9 acres of BLH habitat has been identified for management at the STC site. The specific area is identified in tan on figure 2. Approximately 50 of those acres would be the ridge area surrounding the roads to be planted. The remaining acreage would be found on ridges in the area. Management activities would be implemented with the goal of increasing the value of bottomland hardwood ridges for the various wildlife species. The management objectives on the ridges would be to establish and maintain a high diversity of mast- and fruit-producing trees and shrubs, establish and maintain a diversity of age classes within the overstory (slightly skewed toward the older age classes), maximize herbaceous and shrub-layer canopy cover while maintaining a semi-mature to mature bottomland hardwood-timber stand, and maintain adequate numbers of snags.

BLH management objectives would be accomplished through selective seedling underplanting and tree removal/snag enhancement by cutting, tree girdling, and/or injection.

That stocking rate would be sufficient to maintain a semi-mature to mature bottomland hardwood forest providing mast trees for gray squirrels, snags for downy woodpeckers, and a moderate amount of herbaceous cover for swamp rabbits.

Selective cutting, tree girdling, and/or injection would remove overstory tree species of lower value to wildlife, particularly where individuals of such species compete with, or suppress, mast- and fruit-producing trees. Removal of such trees would increase the vigor of remaining trees, and reduce overstory canopy closure, in turn stimulating increased herbaceous and shrub-layer growth. However, it is anticipated that such removal or clearing would not be widespread. Basal area would be maintained at 90 to 110 square feet per acre. Tree girdling and/or injection would be used to enhance snag numbers if necessary; those activities would be carried out on species of low wildlife value, thus contributing to the achievement of overall management objectives. However, snag numbers are anticipated to reach optimum levels simply as a result of maintaining a mature to semi-mature BLH forest.

During project construction the overstory canopy closure and basal area would be reduced over a limited area on the ridges through selective cutting and tree girdling. Selected areas would be underplanted with swamp chestnut oak, nuttal oak and sweet pecan seedlings.

1.2.7 Acquisition

Any private lands within both sites would be acquired in fee, excluding oil and gas with restrictions on use of the surface. Any land that is owned, claimed, or controlled by the State or any other nonfederal governmental entity must be brought to the project by the sponsor, Louisiana Coastal Protection and Restoration Authority (CPRA), via an Authorization for Entry. Any Federal lands would be brought to the project via a Special Use Permit or otherwise. The USACE would be responsible for private land acquisition. The non-Federal sponsor would be responsible for OMRR&R activities within the mitigation site in perpetuity beginning at the time each functional portion of the work is complete.

Approximately 1,321 acres would be acquired at the STC site for the mitigation needed. About 13 of those acres would be planted with BLH species, while approximately 91 of those acres would be preserved and managed. The remaining 1, 211 acres would be preserved only. Because of the restorative nature of the work to be done on this site, it is not anticipated that any unknown, existing easements encumbering the property would have any negative impact on the project.

Approximately 139 acres would be acquired at the BAS sites. Approximately, 125 of these acres would be planted with BLH species. The remaining approximately 14 acres would be acquired but not planted. Three of these acres would be occupied by the WRD. The other approximately 11 acres are presently encumbered with existing pipeline and powerline easements that appear to be held by Chevron and Entergy, respectively. There may be other unknown easements in the 11 acre area as well as within the remaining 125 acres. Typically the fee acquisition is subject to existing easements for public roads and highways, public utilities, railroads and pipelines. However, the CEMVN would need to examine the existing easements in the land to ascertain whether or not they would impact the proposed mitigation project, including maintenance of surface water flow for the benefit of the project. If necessary, to ensure the integrity of the project, the CEMVN would secure subordinations from the pertinent third party interests.

1.2.8 Operations Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)

The proposed mitigation project involves construction components which are discussed separately in the following sections in regards to anticipated future OMRR&R requirements. The local sponsor, CPRA, would be responsible for OMRR&R of functional portions of work as they are completed.

<u>Water retention dike</u>

The CEMVN assumes replacement of 10 percent of the original dike quantity every 5 years for the southern portion only, approximately 325 linear feet. Settlement is assumed to be negligible.

Ultimate settlement could be included in the first lift. No future lifts are assumed. But if a lift in the future is needed, it would involve returning the originally constructed feature back to the required grade. Future lifts would be constructed with earthen materials obtained from Bonnet Carre' Spillway. As borrow would not be obtained from within the site and water retention dike would be returned to original required grade, i.e. not larger, there would be no impacts to resources when performing future lifts. The dike can also be planted with trees. Trees would help offset erosion caused by overflow into the Inner Cataouatche Canal.

Pig Fence

Currently CEMVN is including an electronic fence in the design. The fence would only be needed until trees are mature enough to resist pig damage (approximately 18 months). Annual maintenance and monthly monitoring of the electric fence is assumed for the first 2 years of the NFS' OMRR&R. At the end of the two years, the power would be eliminated and the fence would be allowed to deteriorate in place.

Invasive Species Control

There would be a need for at least two ground herbicide applications per year for the first 4 years following initial planting. Additional yearly applications may be needed if site conditions warrant the need. Table 9 Components 8 section 3B contains the trigger based on % of the total plant cover.

Management of Select Bottom Land Hardwood

Monitoring every 5 years would determine the need for management practices. The monitoring plots should be approximately 10 percent of the mitigation site for the first 20 years then reduced by 50 percent if mitigation is progressing successfully. Management practices would continue at a level necessary to maintain overall stand basal area between approximately 80 and 100 square feet per acre and overstory canopy closure at approximately 80 percent. Underplanting would continue where necessary to increase the future density of hard-mast producing species as well as the control of exotic species. It is anticipated that approximately 15 - 20 percent of the area would need exotic species control every 5 years.

1.2.9 Data Gaps and Uncertainties

Final selection and engineering details of the proposed action could vary based on the final engineering report. Surveys including existing water surface elevations are needed. The CEMVN does not have legal descriptions of either the Chevron pipeline or the Entergy easements and, therefore, assumes easement width equals the width of existing cleared area. In addition, there is an unknown feature located approximately 205 feet east of the Chevron easement. The feature is located at latitude 29° 52' 29.59" North, longitude 90° 10' 20.81" West. Current aerial photos show the area as cleared. The clearing is cross shaped with the east/west portion approximately 560 feet long and the width varying between 20 to 30 feet. The North/south portion is approximately 440 feet long and the width varying between 30 and 65

feet. The East of Harvey Canal (EOH) FR/FEIS 1994 noted that swamp habitat, i.e. functional wetlands, could be utilized to mitigate for impacts to drained BLH in addition to swamp losses. If the required 90.9 acres of BLH cannot be found in the project area up to 118.2 acres of swamp or a combination of BLH and swamp may be required for preservation and management. This would require additional NEPA documentation. Any other substantial changes to the proposed action resulting in further impact to the natural or human environment would be addressed in a supplemental EA. There are no other known data gaps.

## 1.3 Authority for the Proposed Action

The funding authority for the proposed action was provided by the Department of Defense (DoD) Emergency Supplemental Appropriations to Address Hurricanes in the Gulf of Mexico, and the Pandemic Influenza Act of 2006 (PL 109-148, Chapter 3, Construction, and Flood Control and Coastal Emergencies) which appropriated funds to accelerate the completion of the previously authorized West Bank and Vicinity, New Orleans, Hurricane Protection Project.

The Westwego to Harvey Canal Hurricane Protection Project was authorized by the WRDA of 1986 (PL 99-662, Sec. 401(b)). The WRDA of 1996 (Public Law (PL) 104-303, Sections 101(a)(17) and 101(b)(11)) modified the project and added the Lake Cataouatche area to the project. WRDA 1996 also authorized the East of Harvey Canal Hurricane Protection Project. These authorizations were based upon the three FR/FEIS and accompanying Chief's Reports which are listed in section 1.4 (Prior Reports). WRDA 1999 (PL 106-53, Sec. 328) combined the three projects under the name, the West Bank and Vicinity, New Orleans, Hurricane Protection Project.

The DoD Emergency Supplemental Appropriations to Address Hurricanes in the Gulf of Mexico, and the Pandemic Influenza Act of 2006 (PL 109-148, Chapter 3, Construction, and Flood Control and Coastal Emergencies) or "3rd Supplemental," appropriated funds to accelerate the completion of the previously authorized project, and to restore and repair the project at full Federal expense. In July 2006, the Corps Mississippi Valley Division approved an Abbreviated Project Information Report to use funds appropriated to accelerate the completion of the previously authorized project for implementation of mitigation adjacent to the western side of the Lake Salvador Wildlife Management Area and at the Bayou Segnette State Park.

In May 2007, the U.S. Troop Readiness, Veterans' Care, Katrina Recovery, and Iraq Accountability Appropriations Act, 2007 (PL 110-28, Title IV, Chapter 3, Flood Control and Coastal Emergencies and Sec. 4302) or "5th Supplemental," provided $1,300,000,000 to carry out projects and measures for the WBV and Lake Pontchartrain projects as described in PL 109-148 above, and provided flexibility to the Secretary to reallocate un-obligated funds from the PL 109-234 projects funded under the Flood Control and Coastal Emergencies heading, subject to coordination with the House and Senate Committees on Appropriation. The 5th Supplemental also provided additional appropriations to accelerate the completion of the previously authorized project.

Authority for the mitigation of environmental impacts caused by water resources projects is provided to the Secretary of the Army by the WRDA 1986 Section 906, as amended, along with other statutes, including NEPA, Clean Water Act (CWA), and Fish & Wildlife Coordination Act. Additionally, mitigation features are project features of the construction project which generated the mitigation requirements-in this case WBV. Therefore, the mitigation features are governed by the WBV project authorities and associated PPA, under which the project is being executed.

1.4 Prior Reports

A number of studies and reports on water resources development in the proposed project area have been prepared by the USACE, other Federal, state, and local agencies, research institutes, and individuals. Pertinent studies, reports, and projects are listed in this section.

The current West Bank and Vicinity Project was originally three separate projects. However, the Water and Resource Development Act of 1999 authorized the USACE to combine these three projects into a single project. Although, the project is now known as the West Bank and Vicinity, New Orleans, Louisiana Hurricane Protection Project, the original design features, environmental impacts, and mitigation requirements are defined in three separate FR/FEIS. These are:

USACE. 1986. West Bank of the Mississippi River in the Vicinity of New Orleans, LA. Feasibility Report and Environmental Impact Statement. New Orleans, LA. Volumes 1 and 2. (and accompanying Chief's Report and Record of Decision)

USACE. 1994. West Bank of the Mississippi River in the Vicinity of New Orleans, LA (East of the Harvey Canal): Feasibility Report and Environmental Impact Statement. New Orleans, LA. Volumes 1 and 2. (and accompanying Chief's Report and Record of Decision)

USACE. 1996. Westwego to Harvey Canal, Louisiana Hurricane Protection Project, Lake Cataouatche Area: Feasibility Report and Environmental Impact Statement. New Orleans, LA. Volumes 1 and 2. (and accompanying Chief's Report and Record of Decision)

Since the issuance of these feasibility documents, several design changes have occurred over the years as portions of this project have been implemented. These changes have been documented in the following reports:

USACE. 1988. Westwego to Harvey Canal, Louisiana, Hurricane Protection Project. Design Memorandum No.1, General Design, Advance Supplement-Harvey Canal Floodwall.

USACE. 1989. Westwego to Harvey Canal, Louisiana, Hurricane Protection Project. Design Memorandum No.1, General Design, Reduced Scope.

USACE. 1990. Westwego to Harvey Canal, Louisiana, Hurricane Protection Project. Design Memorandum No.1, General Design, Supplement No.2.

USACE. 1990. West Bank of the Mississippi River in the Vicinity of New Orleans, LA (Westwego to Harvey Canal) Hurricane Protection Project. Environmental Assessment (EA) #121.

USACE. 1991. West Bank of the Mississippi River in the Vicinity of New Orleans, LA (Westwego to Harvey Canal) Hurricane Protection Project. EA #136.

USACE. 1992. West Bank Hurricane Protection Levee, Jefferson Parish, LA (Westwego to Harvey Canal) Hurricane Protection Project: Disposal Site. EA #165.

USACE. 1994. West Bank of the Mississippi River in the Vicinity of New Orleans, LA (Westwego to Harvey Canal) Hurricane Protection Project: Jefferson Parish, LA. EA #198.

USACE. 2000. Harvey Canal Hurricane Protection Features, Jefferson Parish, LA. EA #320.

USACE. 2002. West Bank and Vicinity, New Orleans, LA Hurricane Protection Project: Harvey Canal Sector Gate Site Relocation and Construction Methodology Change, Jefferson Parish, LA. EA #306.

USACE. 2003. West Bank & Vicinity, New Orleans, Louisiana Hurricane Protection Project: Algiers Canal Levee Alternate Borrow Site. Plaquemines Parish, LA. EA #337.

USACE. 2003. West Bank & Vicinity, New Orleans, Louisiana Hurricane Protection Project: Lake Cataouatche Area Levee Improvement, Jefferson Parish, LA. EA #373.

USACE. 2005. West Bank & Vicinity, New Orleans, Louisiana, East of Harvey Canal, Floodwall Realignment and Change in Method of Sector Gate. SEA #306A.

USACE. August 23, 2005, Mississippi River Levees – West Bank Gaps, Concrete Slope Pavement Borrow Area Designation, St. Charles and Jefferson Parishes, Louisiana. EA #422.

USACE. 2006. West Bank & Vicinity, New Orleans, Louisiana Hurricane Protection Project: Lake Cataouatche Area Levee Improvement, Jefferson Parish, LA. EA #437.

USACE. 2006. USACE Response to Hurricanes Katrina & Rita in Louisiana. EA #433.

USACE. 2006. West Bank & Vicinity, New Orleans, Louisiana, East of Harvey Canal, Final Floodwall Realignment. SEA #306b.

USACE. 2007. West Bank & Vicinity, New Orleans, Louisiana Hurricane Protection Project: Westwego to Harvey Canal Highway 45 Borrow Pits, Jefferson Parish, LA. EA #439.

The following Individual Environmental Reports (IER) documented WBV-HSDRRS impacts:

On February 14, 2008, the CEMVN Commander signed a Decision Record on IER #19, Pre-approved Contractor Furnished Borrow Material, Jefferson, Orleans, St. Bernard, Iberville, and Plaquemines Parishes, Louisiana and Hancock County, Mississippi. The document was prepared to evaluate the potential impacts associated with the actions taken by commercial contractors as results of excavating borrow areas for use in construction of the WBV-HSDRRS.

On February 21, 2008, the CEMVN Commander signed a Decision Record on IER #18, Government Furnished Borrow Material, Jefferson, Orleans, Plaquemines, St. Charles, and St. Bernard Parishes, Louisiana. The document was prepared to evaluate the potential impacts associated with the actions taken by the USACE as results of excavating borrow areas for use in construction of the WBV-HSDRRS.

On May 6, 2008, the CEMVN Commander signed a Decision Record on IER #23, Pre-approved Contractor Furnished Borrow Material #2, St. Bernard, St. Charles, Plaquemines Parishes, Louisiana, and Hancock County, Mississippi. The document was prepared to evaluate the potential impacts associated with the actions taken by commercial contractors excavating borrow areas for use in construction of the WBV-HSDRRS.

On May 30, 2008, the CEMVN Commander signed a Decision Record on IER #22, Government Furnished Borrow Material, Plaquemines and Jefferson Parishes, Louisiana. The document was prepared to evaluate the potential impacts associated with excavating of prospective borrow areas for use in construction of the WBV-HSDRRS.

On June 12, 2008, the CEMVN Commander signed a Decision Record on IER #15, Lake Cataouatche Levee, Jefferson Parish, LA. The proposed action includes providing 100-year level of risk reduction in the project area.

On August 26, 2008, the CEMVN Commander signed a Decision Record on IER #14, Westwego to Harvey, Levee Jefferson Parish, LA. The document was prepared to examine the potential environmental impacts associated with the proposed construction and maintenance of 100-year level of risk reduction along the WBV, Westwego to Harvey Levee project area.

On October, 20 2008, the CEMVN Commander signed a Decision Record on IER #26, Pre-Approved Contractor Furnished Borrow Material #3, Jefferson, Plaquemines, and St. John the Baptist Parishes, Louisiana, and Hancock County, Mississippi. The document was prepared to evaluate the potential impacts associated with commercial contractors excavating of prospective borrow areas for use in construction of the WBV-HSDRRS.

On January 21, 2009, the CEMVN Commander signed a Decision Record on IER #17, Company Canal Floodwall, Jefferson Parish, LA. The proposed action includes providing 100-year level of risk reduction in the project area.

On February 3, 2009, the CEMVN Commander signed a Decision Record on IER #25, Government Furnished Borrow Material, Orleans, Plaquemines and Jefferson Parishes,

Louisiana. The document was prepared to evaluate the potential impacts associated with excavating of prospective borrow areas for use in construction of the WBV-HSDRRS.

On February 18, 2009, the CEMVN Commander signed a Decision Record on IER #12, Gulf Intracoastal Waterway (GIWW), Harvey and Algiers Levees and Floodwalls, Jefferson, Orleans, and Plaquemines Parishes, Louisiana. The proposed action includes providing 100-year level of risk reduction in the project area.

On June 12, 2009, the CEMVN Commander signed a Decision Record on IER #16, Western Tie-In, Jefferson and St. Charles Parishes, Louisiana. IER #16 evaluates the potential impacts associated with constructing levees, floodwalls and a closure structure to meet the 100-year level of risk reduction from the Lake Cataouatche Levee westerly to the Davis Pond Freshwater Diversion's east guide levee.

On July 31, 2009, the CEMVN Commander signed a Decision Record on IER #28, Government-Furnished Borrow Material #4, Plaquemines, St. Bernard and Jefferson Parishes, Louisiana." The document evaluates the potential impacts associated with approving government-furnished borrow areas and an access route for use in construction of the WBV-HSDRRS.

On September 20, 2009, the CEMVN Commander signed a Decision Record on IER #29, Pre-Approved Contractor-Furnished Borrow Material #4, Orleans, St. John the Baptist, and St. Tammy Parishes, Louisiana." The document evaluates the potential impacts associated with the action taken by commercial contractors as a result of excavating contractor furnished borrow areas for use in construction for WBV-HSDRRS.

On September 28, 2009, the CEMVN Commander signed a Decision Record on IER #30, Contractor-Furnished Borrow Material #5, St. Bernard and St. James Parishes, Louisiana, and Hancock County, Mississippi." The document evaluates the potential impacts associated with the action taken by commercial contractors as a result of excavating contractor furnished borrow areas for use in construction for WBV-HSDRRS.

On December 4, 2009, the CEMVN Commander signed a Decision Record on IER #13, Hero Canal Levee and Eastern Tie-In, Plaquemines Parish, LA. The document evaluates the potential impacts associated with the enlargement of the Hero Canal Levee and construction of the eastern tie-in south of the canal to the Mississippi River Levee to meet the 100-year level of risk reduction to Belle Chase, Oakville and other unincorporated areas of Plaquemines Parish.

On August 24, 2010, the CEMVN Commander signed a Decision Record on IER Supplemental #16.a, Western Tie-in Jefferson and St. Charles Parishes, Louisiana.

On September 3, 2010, the CEMVN Commander signed a Decision Record on IER Supplemental #12, GIWW, Harvey and Algiers Levees and Floodwalls, Jefferson, Orleans and Plaquemines Parishes, Louisiana. The document was prepared to evaluate the potential impacts associated with the use of the Site N borrow site for disposal. During the public review time

frame some modifications were made resulting in the preparation on an Addendum to the report, which also was released for a 30-day public comment period.

On November 20, 2010, the CEMVN Commander signed a Decision Record on IER Supplement #12, GIWW, Harvey and Algiers Levees and Floodwalls, Jefferson, Orleans and Plaquemines Parishes, Louisiana. The document was prepared to evaluate the potential impacts associated with the temporary closure of the Belle Chase Tunnel.

On February 2, 2011, the CEMVN Commander signed a Decision Record on IER Supplemental #12/13 Waterline, West Bank and Vicinity, Gulf Intracoastal Water Way (GIWW), Harvey and Algiers Levees and Floodwalls and Hero Canal Levee and Eastern Tie-In, Plaquemines Parish, LA. The document was prepared to evaluate the potential impacts associated with the installation of 16,000 linear ft of waterline to provide water for the operations and maintenance of the West Closure Complex.

On February 22, 2011, the CEMVN Commander signed a Decision Record on IER Supplemental #12.a, GIWW, Harvey and Algiers Levees and Floodwalls, Jefferson, Orleans and Plaquemines Parishes, Louisiana. The document was prepared to evaluate the potential impacts associated with the construction of an access road, the use of a pontoon bridge in the V-Line Levee Canal and the placement of rip rap along an 800 foot length of the V-Line Levee Canal.

On April 21, 2011, the CEMVN Commander signed a Decision Record on IER Supplement #13a, West Bank and Vicinity, Hero Canal Levee and Eastern Tie-in, Plaquemines Parish, LA, Temporary Closure of Hero Canal.

## 1.5 Public Concerns

The public is concerned about BLH and swamp loss, and anthropogenic development (i.e., sprawl) in the vicinity of the project. These concerns have been discussed in detail by researchers, local outreach groups, and the press.

The public realizes the importance of the area's BLH and swamps and there are several non-governmental organizations (NGO) that are concerned about their fate (e.g., Sierra Club, America's Wetland, and National Audubon Society).

## 1.6 WBV Mitigation History

### 1.6.1 Background

The details of the changes in mitigation requirements as a result of various project design changes are discussed in the following sections. The net change from the original mitigation requirement, in part, is the result of changes from the original levee alignment to the constructed alignment (See plates 3 and 4 for alignment changes, page 91 and 92).

WBV previously authorized impacts were calculated using both species-based Habitat Evaluation Procedure (HEP) and Wetland Value Assessment (WVA) community model methods for a 100-year period of analysis. Recent assessments use WVA with an output of Average Annual Habitat Units (AAHUs). Outputs from the HEP are considered to be equivalent to AAHU outputs from the WVA.

The WVA methodology is a quantitative habitat-based assessment methodology developed for use in determining wetland benefits of project proposals submitted for funding under the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA). The WVA quantifies changes in fish and wildlife habitat quality and quantity that are expected to result from a proposed project in wetlands. The results of the WVA, measured in AAHUs, can be combined with cost data to provide a measure of the effectiveness of a proposed project in terms of annualized cost per AAHU gained. In addition, the WVA methodology provides an estimate of the number of acres benefited, or enhanced, by the project and the net acres of habitat proposed for improvement. The WVA is a modification of the HEP developed by the USFWS. HEP is widely used by the USFWS and other Federal and State agencies in evaluating the impacts of development projects on fish and wildlife resources. A notable difference exists between the two methodologies, however, in that HEP generally uses a species-oriented approach, whereas the WVA utilizes a community approach.

The WVA model is completing model certification in accordance with EC 1105-2-407, May 2005 Planning Models Improvement Program: Model Certification. The model has undergone external review which is documented in the July 8, 2009, Draft Model Certification Review Report for the Wetland Value Assessment Models prepared by the Battelle Memorial Institute for the U.S. Army Corps of Engineers, Ecosystem Planning Center of Expertise.

### 1.6.2 Feasibility Stage Impacts and Mitigation Plans

Although the V-Levee South alignment was recommended in the FR/FEIS, the V-Levee North alignment was selected, as documented in the Chief's Report and Record of Decision, to avoid project construction within the Jean Lafitte National Historical Park and the Bayou aux Carpes 404(c) area. Habitat losses detailed in the 1986 FR/FEIS for the Westwego to Harvey Canal (WWHC) project for the V-Levee North standard project hurricane were 15 acres (or 61.03 AAHUs) of marsh, 294 acres (or 108.19 AAHUs) of medium to high value woodland (drained swamp), 72 acres (or 26.57 AAHUs) of drained and undrained BLH, and 433 acres (or 291.3 AAHUs) of high value wooded wetlands (undrained swamp). The mitigation plan developed in the 1986 FR/FEIS for the WWHC project would compensate for these impacts via two preservation projects (tables 5 and 6). The two part mitigation plan detailed (1) construction of a stone dike at the mouth of Baie du Cabanage on the Salvador WMA to mitigate for all marsh and medium to high value woodland impacts, and (2) the acquisition of high value wooded wetlands (including a minimum of 62 acres of BLH) in close proximity to the project area, possibly adjacent to the Salvador WMA, to mitigate for project losses to BLH and undrained swamp.

Habitat losses detailed in the 1994 FR/FEIS for the East of Harvey Canal (EHC) project totaled 279 acres (or 116 AAHUs) including 233 acres (95 AAHUs) of drained BLH and 46 acres (21

AAHUs) of undrained swamp impacts (table 6). The EHC project mitigation plan consisted of the acquisition, preservation and management of 312 acres of high quality wooded lands, including wetlands, in the Bayou Bois Piquant finger-ridge area just south of U.S. Highway 90 near the Salvador Wildlife Management Area in St. Charles Parish or other suitable locations.

Habitat losses detailed in the 1996 FR/FEIS for the Lake Cataouatche (LCAT) project totaled 57 acres (or 15 AAHUs) of drained BLH impacts (table 6). The mitigation plan for the LCAT project consisted of the acquisition of 39 acres of early successional stage bottomland hardwood wetlands adjacent to Bayou Segnette State Park and included habitat development and management as high quality wooded wetlands.

1.6.3 Rationale for Selection of the Previously Authorized Mitigation Plans

The previously authorized mitigation plan for WWHC BLH and undrained swamp impacts consists of preservation, and the previously authorized mitigation plan for EHC BLH drained and undrained swamp impacts consists of acquisition, preservation, and management of high value/quality wooded lands in the Bayou Bois Piquant finger-ridge area of St. Charles Parish, LA or other suitable locations. Rationale presented in the FR/FEISs for selection of the mitigation plans included cost effectiveness, size of the proposed preservation tract, and adjacency to other publically managed lands. Mitigation of both swamp and BLH impacts in a single contiguous location on the floodside of the levee system would yield increased habitat value as compared to other mitigation alternatives considered. The Bayou Bois Piquant area's contiguity with the authorized Davis Pond freshwater diversion project, the WBV levee, and the Salvador WMA was also cited as an advantage for future management of the mitigation project.

The 1986 WWHC FR/FEIS describes the STC mitigation site as one of the most outstanding natural areas in southeast Louisiana according to the report by Burk and Associates in 1977. These undrained wetlands were considered to be a Resource Category 2, which means that they provide high value to wildlife and are relatively scarce within the ecoregion or nation. The FR/FEIS noted that bottomland hardwoods are among the most productive fish and wildlife habitats in the United States, and the acreage of that cover type in the Lower Mississippi Alluvial Plain had decreased by more than 50 percent over the last 50 years (preceding 1986). In 1986, forested wetlands in the Lower Mississippi Alluvial Plain ecoregion covered about 20 percent of their original acreage. MacDonald et al (1979) found that Louisiana lost approximately 982,000 acres of BLH and 323,000 acres of wooded swamp and shrub swamp habitat between 1957 and 1977; Jefferson Parish lost about 13,000 acres of swamp over the same time period. The mitigation area contains numerous elevated natural levee ridges interspersed with wooded swamps. Adjacent to this area, approximately half of the bottomland hardwood finger ridges had already been developed in 1986, and a portion of the area had been leveed. Preservation credit for BLH was derived, in part, for protection from the threat of development, but the preservation credit for swamp was based primarily on preservation of the quality of the habitat as opposed to preservation from development.

The 1994 EHC FR/FEIS noted that the mitigation area was unique and highly valuable for fish and wildlife. This area had also been identified as a priority site for preservation by the

Louisiana Nature Conservancy. The FR/FEIS further noted that the mitigation area was composed of a complex mixture of swales and ridges extending into the swamp that eventually grade into the marshes near Lake Salvador, and that the ecotones and diversity of habitat are unprecedented in the West Bank area and perhaps in southeast Louisiana.

The 1994 EHC FR/FEIS stated that between 1978 and 1989 about 170 acres of ridge BLH were developed. Analysis of development rates in the 1994 FR/FEIS indicated that development rates predicted in the 1986 FR/FEIS were reasonably correct. The 1994 FR/FEIS identified the following development inducing activities which were viewed as reasons why use of preservation to satisfy compensatory mitigation requirements was desirable: the reconnaissance investigation by the New Orleans District concerning the possibility of constructing a hurricane protection project near the Lake Cataouatche portion of the West Bank area, the completion of Interstate Highway 310 with a river bridge connecting Interstate Highway 10 located north of the Mississippi River (a major access route to and from New Orleans and the surrounding metropolis) and U.S. Highway 90 immediately north of the proposed mitigation area, and additional recent activities occurring in the vicinity that are usually viewed as being associated with anticipated development of an area. Further, it was noted that without some form of restriction on property rights, preservation of the land and the associated natural resources could not be guaranteed.

The Lake Salvador Wildlife Management Area (WMA) is located southeast of the proposed mitigation area. Therefore, the lands purchased could be licensed to the LDWF and added to the Lake Salvador WMA. The Louisiana Department of Wildlife and Fisheries in their letter of response to the Draft Feasibility Report and DEIS indicated support for the mitigation plan through their no objection to the proposed West Bank of the Mississippi River in the Vicinity of New Orleans, Louisiana, East of Harvey Canal, Draft EIS provided it contained the recommended Bayou Bois Piquant mitigation plan. Additionally, their letter of supplemental comments relative to this concern indicated their full capability and willingness to operate and manage the area if requested.

Protecting this high quality habitat area would ensure provision of optimum habitat for indicator species, by expanding the habitat protected in the adjacent WMA, it would protect critical geomorphic features in the watershed, and it would add to the natural areas available in the area for public access. The high value of these wetlands and ridges, and continued encroachment by development prompted the Department of Justice to place a conservation servitude prohibiting development on a portion of the site in 1999. The area has been further impacted by construction and operation of the Davis Pond freshwater diversion project. As a result of activities since 1986, the habitat has become scarcer both nationally and locally. Levee construction by St. Charles Parish may also adversely impact habitat in the area.

The previously authorized mitigation plan for Lake Cataouatche BLH (drained) is acquisition and subsequent development and management of high quality wooded wetlands at BAS. The 1996 FR/FEIS noted that forested and scrub/shrub habitats in the project area had moderate value to fish and wildlife resources due to previous hydrological modification, isolation and proximity to human disturbances (borrow pits, landfills, pasture, and residences). The BAS site was a

marsh which was subsequently enclosed within the WBV levee and subjected to forced drainage. The site is currently invaded by Chinese tallow. The Chinese tallow would be eradicated and high-quality BLH species planted and managed. Rationale presented in the FR/FEIS for selection of the mitigation plan included cost effectiveness, habitat improvement, and potential future management by the Office of State Parks. The FR/FEIS states that the mitigation plan would increase fish and wildlife resource values in early successional bottomland hardwood habitat, and would adequately offset direct, construction-related habitat losses. The FR/FEIS further states that the tract could be annexed to the existing state park.

1.6.4 Post-Feasibility Design Changes to WWHC Mitigation Features

Post-feasibility design changes to the WWHC resulted in implementation of a mitigation project at the Netherlands area rather than at the Baie du Cabanage area of the Salvador WMA. In addition to mitigating for all fisheries, marsh, and drained swamp impacts documented in the FR/FEIS, the WBV Netherlands Mitigation Project also mitigated for impacts documented in EA 121 and EA 136 (see table 5). EA121 recorded 35 acres (or 23.8 AAHUs) of additional impacts and EA136 recorded 50 acres (or 15.6 AAHUs) of additional impacts. Since the dike at Baie du Cabanage had already been constructed by the LDWF prior to the implementation of the original 1986 FR/FEIS mitigation plan, the WWHC mitigation plan was changed in EA 121 and EA 136 to include construction of a dike to preserve the Netherlands area of the Salvador WMA (see figure 4).


**Figure 4. Location of the Netherlands Area Mitigation Project (Image Source: 1998 DOQQ Imagery)**

| Table 5: West Bank and Vicinity Impacts Mitigated by the Netherlands Area Mitigation Project | | |
|---|---|---|
| **Document** | **Impact Acres** | **Impact AAHUs** |
| EIS (1986) Drained Swamp (Category 3) and Drained Marsh Requirement | 309 | 169.22 |
| EA 121 (1990) | 35 | 23.8 |
| EA 136 (1991) | 50 | 15.6 |
| EA 165 (1992) | 12 | Not assessed/No mitigation required |
| **SUBTOTAL** | **406** | **208.62** |
| | | |
| **Implemented WBV Mitigation** | **Mitigation Acres (WBV only)** | **Mitigation AAHUs (WBV only)** |
| WBV Netherlands Area Mitigation Project (1991) | 562.5 | 351 |
| | | |
| **Texaco Mitigation** | **Mitigation Acres (Texaco only)** | **Mitigation AAHUs (Texaco only)** |
| Texaco Mitigation Project (1991) | 134.5 | 84 |

As part of the mitigation for a February 4, 1991, oil spill, Texaco joined forces with the Corps of Engineers to extend the proposed WBV Netherlands mitigation breakwater from 3,495 feet in length to 4,330 feet in length. Approximately 835 feet of the breakwater was constructed to preserve approximately 134.5 acres (84 AAHUs) of aquatic bed to fulfill the Texaco mitigation requirement associated with the oil spill. The remainder of the breakwater was constructed as part of the WBV mitigation to preserve approximately 562.5 acres (351 AAHUs) of habitat in the Netherlands area to compensate for 208.62 impact AAHUs. The combined WBV Netherlands Mitigation and Texaco Mitigation Project were completed in late 1991. More information on the combined WBV Netherlands Mitigation and Texaco Mitigation Project is included in appendix C.

The CEMVN notified the West Jefferson Levee District via a letter dated January 30, 1992 that construction of the WBV Netherlands Mitigation Project was complete and that the West Jefferson Levee District was to begin operation and maintenance of the project. Maintenance was construed as "keeping all completed works in first-class condition to serve the purpose for which they were designed."

### 1.6.5 Post-Feasibility Impact Adjustments

Table 6 details post-feasibility changes to mitigation requirements that were not mitigated through the 1991 WBV Netherlands Mitigation Project.

Table 6: Outstanding Mitigation Requirements for the Previously authorized West Bank and Vicinity, New Orleans Hurricane and Storm Damage Risk Reduction Project (100-year period of analysis).

| **Westwego to Harvey Canal (Wooded Acquisition Requirement)** | **Totals** | | |
|---|---|---|---|
| | **Impact Acres** | **Impact AAHUs** | **Mitigation Acres** |
| EIS (1986) Wooded Acquisition Requirement | 505 | 317.87 | 1,024 |
| EA 198 (1994) | -64 | Not Assessed | No Adjustment |
| Wooded Acquisition Requirement Total | **441** | **317.87** | **1,024** |
| Changes since EIS | -64 | 0 | 0 |
| **East of Harvey Canal** | **Totals** | | |
| | **Impact Acres** | **Impact AAHUs** | **Mitigation Acres** |
| EIS (1994) | 279 | 116 | 312 |
| EA 306 (2002) | -120 | -49 | -134 |
| IER 13 (2009)/EA 498 (2011) Swamp* | -46 | -21 | -70 |
| IER 13 (2009)/EA 498 (2011) Drained BLH* | -4 | -0.64 | -1.6 |
| EA 498 (2011) Mitigation benefit change to STC BLH restore (0.775 AAHU/ac) and to STC BLH acquisition, preservation, and management (0.39 AAHU/ac) | 0 | 0 | -2.7 |
| ***Cumulative Total*** | **109** | **45.36** | **103.7** |
| Changes since EIS | -170 | -70.64 | -208.3 |
| **Lake Cataouatche** | | | **Totals** |
| | **Impact Acres** | **Impact AAHUs** | **Mitigation Acres** |
| EIS (1996) | 57 | 15 | 39 |
| EA 373 (2003) Impact adjustment** | 117 | 30 | 80 |
| EA 373 (2003) Mitigation benefit adjustment** | 0 | 0 | 6 |

| | | | |
|---|---|---|---|
| ***Cumulative Total*** | **174** | **45** | **125** |
| Changes since EIS | 117 | 30 | 86 |
| **Total Outstanding Mitigation Requirements** | | | **Totals** |
| | **Impact Acres** | **Impact AAHUs** | **Mitigation Acres** |
| | **724** | **408.23** | **1252.7** |

*Hero to Oakville alignment change and associated new impacts are documented in IER 13. Associated new impacts will be mitigated through the WBV-HSDRRS Mitigation Plan. Impacts associated with the previously authorized alignment, which was not constructed, are credited back to the Previously authorized mitigation requirement in table 6 based on 0.39 AAHUs per mitigation acre for BLH and 0.3 AAHUs per acre for swamp. This crediting eliminates all swamp impacts and associated mitigation requirements for East of Harvey Canal. Crediting is documented in the letterdated October 7, 2011 from USFWS (appendix D).

**The required mitigation acres associated with the impacts documented in EA 373 (80 net acres) was derived by applying 0.38 AAHUs of mitigation benefit at the BAS; however, the FONSI states a cumulative mitigation requirement of approximately 132 acres at BAS. The 132 acres reflected an adjustment to 0.36 AAHUs per acre of mitigation benefit at the BAS site and the addition of some mitigation requirements for Westwego to Harvey Canal and East of Harvey Canal that were anticipated to be moved from STC to BAS. In table 6, these Westwego to Harvey Canal and East of Harvey Canal requirements are not displayed in the Cumulative Total for Lake Cataouatche.

The following is an account of documents detailing post-feasibility project mitigation changes (plates 3 and 4):

General Design Memorandum, Supplement #2, dated February 1990, (WWHC) included, among other things, a change of "adjacent cast" borrow from the protected side of the levee to the flood side. This engineering document and subsequent revisions described the changes as minimal from an environmental standpoint and as having little change in acres impacted.

EA #121, prepared in March 1990, (WWHC) disclosed a Westwego area levee tie-in, some levee and borrow changes, and a change in the mitigation plan to include the Netherlands Area Mitigation Project. The associated action resulted in an additional 35 net acres of habitat impacts. The 35 acres impacted were mitigated in 1991 by the construction of the Netherlands Area Mitigation Project (USACE, 1990). Detailed in plates 3 and 4.

EA #136, prepared in June 1991, (WWHC) disclosed additional borrow impacts adjacent to the V-levee from the "vertex" to the Estelle Pump Station. The associated action resulted in an additional 30 acres of wooded land and 20 acres of drained marsh impacted. The 50 acres

impacted were mitigated in 1991 by the construction of the Netherlands Area Mitigation Project (USACE, 1991).

EA #165, prepared in March 1992, (WWHC) disclosed additional borrow impacts resulting from stockpiling unsuitable excavated materiel adjacent to the V-levee near the Estelle Pump Station. The associated action resulted in 12 acres of additional impact to drained marsh. No mitigation for the 12 acres of impact was required (USACE, 1992).

EA #198, prepared in January 1994, (WWHC) disclosed a change from continuous "adjacent cast" floodside borrow in several segments of the hurricane protection system to a more centralized floodside borrow location near a levee segment adjacent to Highway 45. This change resulted in a net reduction of 64 acres of wooded land impacted. The mitigation plan was not adjusted due to this reduction in impacts (USACE, 1994).

EA #306, prepared in April 2002, (EHC) disclosed a change in the Harvey Canal Sector Gate Relocation and Construction Methodology. The change resulted in a significant reduction in wooded land impacted of 120 acres. The mitigation requirement for EHC was reduced due to this reduction in impacts (USACE, 2002). Detailed in plates 3 and 4.

Supplemental EA #306A, prepared in February 2005, (EHC) disclosed an additional section of floodwall to be constructed and a change in the construction method for the Harvey Canal gate. No change in impacts resulted from the implementation of this action (USACE, 2005). Detailed in plates 3 and 4.

EA #320, prepared in August 2002, (WWHC and EHC) disclosed a change to erosion prevention modifications along the Harvey Canal and a change of disposal location regarding some of the Cousins Pump Station area features. No change in impacts resulted from the implementation of this action (USACE, 2002).

EA #373, prepared in January 2003, (LCAT) disclosed an expansion of the borrow area from the Lake Cataouatche Pump Station to the Bayou Segnette State Park. The change resulted in additional impacts of 117 acres of lower quality wooded lands which increased the overall LCAT mitigation requirement (USACE, 2003).

EA #437, prepared in 2006, (LCAT) disclosed a change to the protected side borrow area for the Lake Cataouatche Pump Station to Hwy 90 reach. The change resulted in additional impacts of 162 acres of early successional BLH which will be mitigated as part of the WBV-HSDRRS Mitiagtion Plan (USACE, 2006). Detailed in plates 3 and 4.

EA #439, prepared in 2007, (WWHC) disclosed the widening of a borrow area, for which construction began in 1997, along the west side of Highway 45. The action resulted in an additional 110 acres of mixed BLH and cypress swamp impact (USACE, 2007).

IER #16, Western Tie-In, Jefferson and St. Charles Parishes, Louisiana. IER #16 evaluates the potential impacts associated with constructing levees, floodwalls and a closure structure to meet

the 100-year level of risk reduction from the Lake Cataouatche Levee westerly to the Davis Pond Freshwater Diversion's east guide levee. This construction activity resulted in a change from the original alignment. No habitat impacts were associated with the original alignment. Impacts associated with the new alignment will be mitigated as part of the WBV-HSDRRS Mitigation Plan. Detailed in plates 3 and 4.

IER #13, Hero Canal Levee and Eastern Tie-In, Plaquemines Parish, LA. The document evaluates the potential impacts associated with the enlargement of the Hero Canal Levee, which resulted in a change from the original alignment. A mitigation credit associated with the original alignment, which was never constructed, was calculated by USFWS, and is applied in table 6 (see appendix D for USFWS correspondence). Impacts associated with the new alignment will be mitigated through the WBV-HSDRRS Mitigation Plan. Detailed in plates 3 and 4.

Impacts associated with EA 437, EA 439, and all the IERs were subject to a different period of analysis than the original FR/FEIS per changes to ER 1105-2-100, and will be mitigated as part of the WBV-HSDRRS Mitigation Plan.

1.6.6 Remaining Mitigation Requirement

Total impacts associated with previously authorized WBV mitigation plans that have not been implemented are 724 impact acres (or 408.23 AAHUs). These impacts are to be compensated with 1,211 acres of swamp/BLH preservation at STC, 12.8 acres of BLH-D restoration at STC, 90.9 acres of BLH preservation, and management at STC, and 125 acres of BLH-W enhancement at BAS. See table 6 for more information.

Mitigation acreage is based on AAHUs per acre as follows: 1) STC preservation for Westwego to Harvey Canal impacts of 0.3 AAHUs per acre for swamp and 0.5 AAHUs per acre for BLH, 2) STC BLH restoration at approximately 0.77 AAHUs per acre for BLH-D, 3) STC acquisition, preservation, and management of BLH for East of Harvey Canal impacts at 0.39 AAHUs per acre, 4) BAS BLH enhancement at approximately 0.36 AAHUs per acre (appendix D for more information).

## 2.0 ALTERNATIVES TO THE PROPOSED ACTION

2.1 Alternative Development and Preliminary Screening Criteria

NEPA requires that in analyzing alternatives to the proposed action, a Federal agency consider an alternative of "No Action". Likewise, under Section 2036(c)(1) of the WRDA of 2007, where appropriate, the USACE is obligated to consider the use of a mitigation bank to fulfill compensatory mitigation requirements for Federal project.

Determinations of losses as well as appropriate mitigation plans were described in the 1986, 1994, and 1996 FR/FEISs. Several alternatives for mitigation were analyzed and detailed within each of these documents and recommended mitigation plans were selected. This included multiple alternatives that were eliminated from future consideration. The proposed action

implements the mitigation plans identified in the FR/FEIS; however, impacts have been adjusted to reflect actual rather than projected construction impacts. The detailed design of the mitigation areas has been refined since the original FR/FEIS.

Mitigation Banking

As discussed above, the proposed mitigation plans were formulated in Feasibility Reports and EIS's produced for the respective WBV projects in 1986 (WWHC), 1994 (EHC) and 1996 (LCAT). In 2007, Congress passed legislation requiring that, where appropriate, the USACE should consider the use of a mitigation bank to compensate for wetland impacts that occur within its service area. See WRDA 2007, Section 2036(c).

For several reasons, consideration of mitigation bank credits to compensate for project impacts is not appropriate in this instance. First, these mitigation plans were developed and most of the project construction impacts occurred prior to the WRDA 2007 requirement. Additionally, the mitigation features are part of the previously-authorized WBV project; the 3rd Supplemental appropriated funds to complete the previously-authorized project - not to re-formulate it. Further, the mitigation features were previously subject to alternatives analyses designed to select the mitigation alternative that would best compensate for project impacts and that would provide important ecological benefits for the watershed, taking into account the relevant trends in habitat loss and conversion and anticipated development trends in the area. These considerations and analyses remain valid today.

## 2.2 Alternatives to the New Proposed Action

Four alternatives to the new proposed action were considered in detail for the BAS area and one for the STC area. These alternatives are needed because of the uncertainty of the depth of the existing water table; more hydraulic modification may be needed to accomplish the goal of BLH-Wet. These alternatives provide different amounts of seepage cutoff and would raise the water table in the mitigation area to different heights. The alternatives for BAS were 1) extending the dike to Tie-In K or 2) extending the dike to Tie-In J (figure 1 and plate 2, page 93), no action, and the original proposed alternative (figure 1 and plate 1, page 92). For STC only the no action alternative was considered.

### 2.2.1 Alternative 1 – Extending the Dike to Tie-In K with no changes at STC

Under this alternative the dike at the BAS area would include the segments AB, BD, DE, EF, FG, GH, HI, and IK which are shown on plates 1 and 2. The total length of the dike is approximately 4,898 lf and has a foot print of 4 acres and would take 10,159 CY of earthen material to build. An additional one acre would be needed to be acquired at BAS site for a total 152 acres. All other aspects of the mitigation plan would be the same as the proposed action.

2.2.2 Alternative 2 – Extending the Dike to Tie-In J with no changes at STC

Under this alternative the dike at the BAS area would include the segments AB, BD, DE, EF, FG, GH, HI, and IJ which are shown on plates 1 and 2. The total length of the dike is approximately 6,105 lf and has a foot print of 5 acres and would take 12,662 CY of earthen material to build. An additional two acres would be needed to be acquired at BAS site for a total 153 acres. All other aspects of the mitigation plan would be the same as the proposed action.

2.2.3 No Action

Under the no action alternative, the proposed action would not be constructed by the CEMVN. Habitat would not be preserved nor restored. As such, the required compensatory mitigation for the WBV previously authorized project, as prescribed in the previously noted project documents, would not be complete. The CEMVN would be required to plan, design, and implement a different mitigation project to compensate for the WBV habitat losses.

2.2.4 Originally Proposed Action Alternative

Under this alternative the dike at the BAS area would include the segments AB, and BC, which are shown on plates 1. The total length of the dike is approximately 1,340 lf and has a foot print of 1.1 acres and would take 3,500 CY of earthen material to build. A total 151 acres would be acquired at this site. A temporary retention structure would be needed to build this section. The crown of the WRD would be stone armored and designed to reach an elevation of minus 6.0-feet NAVD88. The stone armoring would not block drainage and would provide scour protection to the WRD and act as an overflow weir.

Operations Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)

Overflow Weir

WBV-HSDRRS design for the relocated Inner Cataouatche Canal included a bottom elevation of minus 12.0 ft NAVD88. The design includes a weir crest elevation of minus 6.0 ft NAVD88. In the originally-proposed action, the weir would be armored with stone to prevent erosion. Initially, stone would allow water passage above elevation minus 6.0 ft NAVD88. As the weir settles over time, magnitude to be determined during Preliminary Engineering and Design Phase (PED), the stone armoring would be backfilled with sediment. It is assumed that the settlement and natural backfilling over the stone eliminate the need for future lifts of the weir.

For the new proposed action, the weir would not require stone armoring and future lifts are not anticipated. Future settlement would be considered in determining the crown elevation at initial construction. Additional height would be added to offset any need for future lifts. All other aspects of the mitigation plan would be the same as the proposed action.

## 3.0 AFFECTED ENVIRONMENT

The NEPA, 40 CFR Part 1500 et seq., provides guidance for the preparation of environmental impact statements. The Affected Environment chapter includes a description of the existing environment within the study area as well as more specific description of conditions within the proposed project area. Guidance for preparation of the Affected Environment chapter is contained in Section 1502.15 of the CEQ regulations. The regulation states that this section shall contain data and analysis "commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced."

Within this section is a description of the physical, biological, and socioeconomic environments occurring within the study area as a result of past and present actions. Emphasis is placed on those resources of particular concern such as water quality, hydrology, wetlands, fisheries, threatened and endangered species and associated critical habitat. The affected environment is part of an area that has, for the past century, encountered major habitat change and altered hydrology due to subsidence, flood control, and canal construction. The original design features, environmental impacts, and mitigation requirements are defined in the three separate feasibility reports/final environmental impact statements and this SEA is a supplement to those three original EISs. The three WBV Hurricane Protection Project EISs are incorporated in this document by reference and are briefly summarized in Section 1.01.

### 3.1 Environmental Setting

#### 3.1.1 General

The project is located in two general locations: adjacent to Bayou Segnette State Park (BAS) (figure 1), and the St. Charles Acquisition Area (STC) adjacent to the Salvador WMA (figure 2). Both of these sites are on the west bank of the Mississippi River and in the northern portion Barataria Basin in southeastern Louisiana. Details about the basin can be found at the following websites: http://lacoast.gov/new/About/Basin_data/ba/Default.aspx , http://www.btnep.org/BTNEP/home.aspx , and http://www.ngi.lsu.edu/ngi/shell/barataria/barataria1.html.

#### 3.1.2 Site-Specific Description

The BAS site is southwest of Westwego off of Nicolle Blvd and just north and inside of the CHPL. The property is characterized by flat, low topography and a series of canals cross the property. Due to the altered hydrology of the area the invasive species Chinese tallow has become predominate.

The STC site is south east of Boutte and off of Willowdale Blvd and west of the Davis pond guide levee. There are several natural levee ridges associated with abandoned distributaries trending north-south at the proposed mitigation site which are typically covered in BLH. The rest of the area is predominately a cypress swamp.

## 3.2 Relative Sea-Level Rise

USACE guidance on sea level rise is found in EC1165-2-211 which directs the consideration of three different scenarios for sea level rise into the planning process. A historic relative sea-level rise (RSLR) rate of 7.0 mm/year (2.3 feet over the 100-year period of analysis) was measured. This rate is considered to be representative of the RSLR in the project area and was originally developed by evaluation of the Bayou Barataria at Barataria Gage (gage #82750). This rate was published in the draft document "Atlas of U. S. Army Corps of Engineers Historic Daily Tide Data in Coastal Louisiana" submitted to the Louisiana Coastal Area Science and Technology office earlier this year. However, a more recent analysis of gage #82750 revealed that a shift may have been missed very early in the record and the latest Relative Sea level rise (RSLR) value for this gage is thought to be 6.5 mm/year. Also, a recent analysis of the Bayou Des Allemands at Des Allemands gage (gage #82700, not published in the Atlas) revealed a RSLR rate of 7.7 mm/year. Given all of this and the errors inherent in the gage data and poor records of gage adjustments, the original 7.0 mm/year value used for the calculations is still considered a valid representative historic RSLR rate for the project area for purposes of development of RSLR projections.

Intermediate and high sea level rises were calculated to be 3.38 and 6.91 feet over the 100-year period of analysis), respectively. Relative sea-level rise rates at any given location within the Basin can vary widely, both higher or lower, depending on many natural and anthropogenic factors (Penland *et al.* 2002).

A rise in sea level would enable saltwater to penetrate farther inland and upstream in rivers, bays, wetlands, and aquifers, which would be harmful to some aquatic plants and animals, and would threaten human uses of water. Increased salinity has already been cited as a contributing factor for converting cypress swamps in Louisiana to open lakes. The high rate of sea level rise would likely result in a total collapse of the cypress habitat within at the STC site. The WBV CHPL that was built south of the BAS site was designed before EC1165-2-211 and used a sea level rise of 2 feet at the end of it 50 year period of analysis. This is between the intermediate and high that was calculated for this project. The BAS site should not be significantly affected by any of the sea level rise rates used in this study, because of the being inside the levee system.

## 3.3 Climate

Annual average temperatures range from 19°C to 21°C (66°F to 69°F), with July averaging 28°C (82°F) and January averaging 12°C (53°F) (Penland *et al.* 2002). Snow rarely falls in the southern sections of the Basin and only small snowfalls are ever recorded in the northern areas. The statewide annual rainfall is about 142 centimeters (cm) (56 inches [in]) a year, with the northern regions averaging 117 cm (46 in) and some of the southern coastal parishes averaging as high as 167 cm (66 in) of rainfall a year (Penland *et al.* 2002).

Frequent and sometimes very heavy rains are typical for this area. During the past 100 years, an average of 120 days of measurable rain per year occurred at an observation site in New Orleans with the annual amount averaging 153.5 cm (60.44 in). A fairly definite rainy period is from

mid-December to mid-March. Precipitation during this period is most likely to be steady rain. May, October, and November are generally dry, but there have been some extremely heavy showers in those months (Penland *et al.* 2002).

Almost daily sporadic afternoon thunderstorms from mid-June through September keep the temperature from rising much above 30°C (90°F). There is only an average of about 7 days per year when the temperature reaches 35°C (95°F). From about mid-November to mid-March, the area is subjected alternately to the southerly flow of warm tropical air and to the northerly flow of cold continental air in periods of varying lengths. The usual track of winter storms is to the north of New Orleans, but occasionally one moves this far south, bringing large and sudden drops in temperature. However, the cold spells seldom last over 3 days or 4 days (Penland *et al.* 2002).

## 3.4 Geology

The geology of the study area is heavily influenced by the Mississippi River and its delta plain, a complex of abandoned and actives deltas of the Mississippi River. The Mississippi River laid down sediments from 100 to 200 meters thick at each delta (Penland et all. 1988). The abandoned deltas formed generally from the west to the east in chronological sequence starting about 9000 years before present and ending less than 100 year ago (Sevier1990).

After delta abandonment occurs, sediments slowly deteriorate as they subside under their own weight. In addition sea level has been rising throughout this time by 5 to 8 m (Mossa et al 1990). Historically, the cycle of delta growth and destruction took about 5,000 years (Gosselink, 1984). However, because of a variety of factors (most notable human), delta destruction is taking place in a few human generations rather than thousands of years.

BAS

The proposed mitigation site is within the north-central portion of the Mississippi River deltaic plain. Depositional environments in the area are related to the St. Bernard Delta which was active in this area approximately 4000 years ago. Dominant physiographic features in the area include the Mississippi River and its associated natural levee, Bayous Verret and Segnette, Lake Cataouatche, swamp, and marsh.

Elevations generally decrease from north to south in the proposed project area. Elevations are highest on the natural levees of the Mississippi River, Bayou Savage, and adjacent to abandoned distributaries in the central portion of the proposed mitigation area. Spoil banks along drainage canals, flood protection levees, and access roads also have higher elevations than the surrounding swamp and marsh areas.

Boring and map data show that the majority of the surface contains swamp and marsh deposits characterized by organic clays and silty clay with peat and wood. These deposits are approximately 10 feet thick. Interdistributary deposits underlie swamp and marsh deposits. They are composed of very soft to medium clays and silty clay and are approximately 30 feet

thick. There are several natural levee ridges associated with abandoned distributaries in the central portion of the proposed mitigation site that originated at the Mississippi River and flowed south. Natural levee deposits are composed mainly of soft to medium silty clay and silt and are generally less than 10 feet thick.

STC

The proposed mitigation site is within the north-central portion of the Mississippi River deltaic plain. Depositional environments in the area are related to the St. Bernard Delta which was active in this area approximately 4000 years ago. Dominant physiographic features in the area include Bayous Couba and Bardeaux, Lakes Cataouatche and Salvador, and marsh.

Boring and map data in the vicinity shows that the surface and shallow subsurface contain marsh deposits characterized by very soft organic clays and peat with roots. These deposits are approximately 10 feet thick. Interdistributary deposits underlie marsh deposits. They are composed of very soft to medium clays and silty clay and are approximately 30 feet thick. There are several natural levee ridges associated with abandoned distributaries trending north-south at the proposed mitigation site west of Lake Cataouatche. Natural levee deposits associated with these distributaries are composed mainly of soft to medium silty clay and silt and are generally less than 10 feet thick.

## 3.5 Relevant Resources

The existing conditions of the affected environment represent the baseline conditions against which future conditions are evaluated. The affected environment is described by resource categories either in general and/or by subcategory as appropriate**.**

This section contains a description of relevant resources that could be impacted by the proposed project. The relevant resources (table 7) described in this section are those recognized by laws, executive orders, regulations, and other standards of National, state, or regional agencies and organizations; technical or scientific agencies, groups, or individuals; and the general public. An important resource often addressed in an EA for this region, essential fish habitat, does not occur in the proposed project area (and therefore is not applicable to this EA).

### 3.5.1 Hydrology, Hydraulics, and Water quality

Existing Conditions

Major water bodies in the Basin include the Mississippi River, Bayou Lafourche, Bayou Verret, Lake Salvador, Lac des Allemands, and Lake Cataouatche. Inflow sources consist of tributary flows, Davis pond diversion, direct rainfall on the lakes, and storm water that is pumped from the west bank of the New Orleans urban area. The outflows consist of the net flow to the Gulf of Mexico and evaporation from lakes surface.

| Table 7: Relevant Resources | | | |
|---|---|---|---|
| **Resource** | **Institutionally Important** | **Technically Important** | **Publicly Important** |
| **Hydrology, Hydraulics, and Water Quality** | Clean Water Act of 1977, Fish and Wildlife Coordination Act, Coastal Zone Mgt Act of 1972, and La State & Local Coastal Resources Act of 1978. | USACE, USFWS, NMFS, NRCS, USEPA, and State DNR and wildlife/fishery offices recognize value of fisheries and good water quality. the national and state standards established to assess water quality | Environmental organizations and the public support the preservation of water quality and fishery resources and the desire for clean drinking water. |
| **Wetlands** | Clean Water Act of 1977, as amended; Executive Order 11990 of 1977, Protection of Wetlands; Coastal Zone Management Act of 1972, as amended; and the Estuary Protection Act of 1968., EO 11988, and Fish and Wildlife Coordination Act. | They provide necessary habitat for various species of plants, fish, and wildlife; they serve as ground water recharge areas; they provide storage areas for storm and flood waters; they serve as natural water filtration areas; they provide protection from wave action, erosion, and storm damage; and they provide various consumptive and non-consumptive recreational opportunities. | The high value the public places on the functions and values that wetlands provide. Environmental organizations and the public support the preservation of marshes. |
| **Aquatic Resources/ Fisheries** | Fish and Wildlife Coordination Act of 1958, as amended. | They are a critical element of many valuable freshwater and marine habitats; they are an indicator of the health of the various freshwater and marine habitats; and many species are important commercial resources. | The high priority that the public places on their esthetic, recreational, and commercial value. |
| **Wildlife** | Fish and Wildlife Coordination Act of 1958, as amended and the Migratory Bird Treaty Act of 1918 | They are a critical element of many valuable aquatic and terrestrial habitats; they are an indicator of the health of various aquatic and terrestrial habitats; and many species are important commercial resources. | The high priority that the public places on their esthetic, recreational, and commercial value. |
| **Threatened and Endangered Species** | The Endangered Species Act of 1973, as amended; the Marine Mammal Protection Act of 1972; and the Bald Eagle Protection Act of 1940. | USACE, USFWS, NMFS, NRCS, USEPA, *LDWF, and LADNR* cooperate to protect these species. The status of such species provides an indication of the overall health of an ecosystem. | The public supports the preservation of rare or declining species and their habitats. |
| **Air Quality** | Clean Air Act of 1963, Louisiana Environmental Quality Act of 1983. | State and Federal agencies recognize the status of ambient air quality in relation to the NAAQS. | Virtually all citizens express a desire for clean air. |

| Table 7: Relevant Resources | | | |
|---|---|---|---|
| **Resource** | **Institutionally Important** | **Technically Important** | **Publicly Important** |
| **Noise and Vibrations** | In the United States there are federal standards for highway and aircraft noise; states and local governments typically have very specific statutes on building codes, urban planning, and roadway development. Noise laws and ordinances vary widely among municipalities and indeed do not even exist in some cities. An ordinance may contain a general prohibition against making noise that is a nuisance, or it may set out specific guidelines for the level of noise allowable at certain times of the day and for certain activities. | This unwanted sound can damage physiological and psychological health in humans. Noise pollution can cause annoyance and aggression, hypertension, high stress levels, tinnitus, hearing loss, sleep disturbances, and other harmful effects. Noise can have a detrimental effect on animals, increasing the risk of death by changing the delicate balance in predator or prey detection and avoidance, and interfering the use of the sounds in communication especially in relation to reproduction and in navigation. Acoustic overexposure can lead to temporary or permanent loss of hearing | Noise pollution is excessive, displeasing human, animal, or machine-created environmental noise that disrupts the activity or balance of human or animal life. |
| **Cultural Resources** | National Historic Preservation Act of 1966, as amended; the Native American Graves Protection and Repatriation Act of 1990; and the Archeological Resources Protection Act of 1979 | State and Federal agencies document and protect sites. Their association or linkage to past events, to historically important persons, and to design and construction values; and for their ability to yield important information about prehistory and history. | Preservation groups and private individuals support protection and enhancement of historical resources. |
| **Recreation Resources** | Federal Water Project Recreation Act of 1965 as amended and Land and Water Conservation Fund Act of 1965 as amended | Provide high economic value of to local, state, and national economies. | Public makes high demands on recreational areas. There is a high value that the public places on fishing, hunting, and boating, as measured by the large number of fishing and hunting licenses sold in Louisiana; and the large per-capita number of recreational boat registrations in Louisiana. |
| **Aesthetics** | USACE ER 1105-2-100, and the NEPA of 1969, the Coastal Barrier Resources Act of 1990, Louisiana's National and Scenic River's Act of 1988, and the National and Local Scenic Byway Program. | Visual accessibility to unique combinations of geological, botanical, and cultural features that may be an asset to a study area. State and Federal agencies recognize the value of beaches and shore dunes. | Environmental organizations and the public support the preservation of natural pleasing vistas. |

| Table 7: Relevant Resources | | | |
|---|---|---|---|
| **Resource** | **Institutionally Important** | **Technically Important** | **Publicly Important** |
| **Socio-Economic Resources** | River and Harbor Flood Control Act of 1970 (PL 91-611). | N/A | Social concerns and items affecting area economy are of significant interest to community. |
| **Environmental Justice** | Executive Order 12898 and the Department of Defense's Strategy on Environmental Justice of 1995, | The social and economic welfare of minority and low-income populations may be positively or disproportionately impacted by the tentatively selected plans. | Public concerns about the fair and equitable treatment (fair treatment and meaningful involvement) of all people with respect to environmental and human health consequences of federal laws, regulations, policies, and actions. |

BAS Site:

Existing conditions within the BAS site comprising this alternative consist of forested uplands subject to forced drainage (regional pumping), with surface flows generally draining from north to south. All proposed features are on the protected side of the West Bank and Vicinity levee system.

Approximately 125 acres of the alternative would consist of BLH-Wet enhancement. The water table is being held artificially low due to the parish pumping station.

STC Site:

The STC site is tidally connected and presently has a hydro period that is conducive to the growth of Cypress swamp.

Surface waters at both sites consist of bayous, ponds, wetlands, and canals. Many of the inputs are sources of pollution that degrade water quality. These sources include urban, commercial, industrial, and agricultural inputs. The types of pollutants include ammonia, nutrients, pathogen indicators (fecal coliform), metals, oil and grease, and turbidity. Freshwater swamps such as those within the study area have been observed to be both sources and sinks of nutrients, particularly nitrogen.

3.5.2 Wetlands

Existing Conditions

Louisiana contains 40 percent of the continental United States' coastal wetlands (Gosselink 1984) and wetlands are certainly a prevalent characteristic in the study area. Louisiana contains 40 percent of the continental United States coastal wetlands (Gosselink 1984) and wetlands are certainly a prevalent characteristic in the study area. The wetlands in the mitigation areas include BLH-Wet, BLH-Dry, and swamp.

Fresh Marsh

The salinity of the environment is the major determinate of wetland type. Fresh marshes are the least saline of these wetland types with vegetation and wildlife types vary accordingly. There are no areas of fresh marsh in the STC area.

The Inner Cataouatche Canal ranges in width from 180 feet wide and 20 feet deep at the western side of the BAS project area to being a 30 foot wide swell on the eastern side. The central area near where the Chevron Pipeline crosses is approximately 52 feet wide and approximately 1 foot deep. The fresh marsh on the western and central area consists of a fringe marsh (less than a foot wide) along the Inner Cataouatche Canal (figure 5). The dominate species are the broadleaf duckpotato, and broadleaf cattail with flat sedge, pink hibiscus, alligator weed, giant foxtail,

maidencane, and rosseau cane mixed in. In some areas along the canal there are stands of the duckpotato that extend out into the canal, but are dependent on the depth (6 to 12 inches).

Vegetative production of duckpotato peaks in July, but by mid fall the emergent plant parts annually die back to the root crown. The fresh marsh on the eastern side of the project area is located in the Inner Cataouatche Canal swell (figure 6). The major species include cattail, flat sedge, pink hibiscus, alligator weed, giant foxtail, maidencane, and rosseau cane. The area transitions to higher ground with willow and Chinese tallow.

**Figure 6: Fresh Marsh along Inner Cataouatche Canal (east side)**

Bottomland Hardwoods

BLH are alluvial-forested wetlands and are found at higher ground elevations than surrounding swamp habitats and are therefore inundated less frequently. More information can be found at http://water.epa.gov/type/wetlands/bottomland.cfm (USEPA, 2006). They are occasionally flooded, which builds up the alluvial soils. The current forest at the BAS site is dominated by Chinese tallow rather than the typical BLH plants. In Louisiana the productivity of BLH depends on a reliable wet-dry cycle. The rains come to the Mississippi delta's hardwoods in the late winter and early spring. The rest of the year the forests are drier with the right amount of moisture and nutrients to encourage healthy growth. BLH grow best when nature follows this regime. Change the regime, the trees become stressed, and their productivity falters. With pumping, water levels drop, the forest becomes drier, the hardwoods–green ash, bitter pecan, and Nuttal oak–disappear, replaced by Chinese tallow. At the STC site there are approximately 65 acres of BLH-Dry on the ridge where a developer had begun unauthorized development of phase 6 of the Willowrigde subdivision.

Bald Cypress – Tupelo Swamp

Swamp (figure7) occupies the rest of the STC site. There is no swamp in the BAS site. The cypress and tupelo of the swamps are adapted to continuous flooding, though the cypress would only germinate on moist mud flats, not in standing water. Mixed in with the cypress can be black willow, water elm, water ash, and buttonbush. Water hickory, red maple, green ash, and river birch occupy the slightly drier land of the lower hardwood swamp forest. Royal fern, jewelweed, and butterweed cover the understory. The flats, where sweetgum, sycamore, laurel oak, and willow oak form the canopy, are only seasonally saturated. Woody vines–poison ivy, greenbriers, and trumpet creeper–wrap the trunks.


**Figure 7: Cypress swamp in Project Area**

Although not easily quantified, wetlands provide a number of market and non-market values. They serve as spawning, feeding, and nursery areas for many important commercial and recreational species of fish, shellfish, and furbearers. Wetlands also perform many important biological functions: primary production, aquifer recharge, and nutrient and carbon cycling (Mitsch and Gosselink 2000). Wetlands provide value as recreation areas. These areas are used for fishing, hunting, and boating (Costanza *et al.* 1989). In addition, wetlands may provide

storm protection for human development. They create surface friction for both tidal surges and winds. They may also aid in reducing the heat source which provides energy to storms, which may result in a reduction in storm surge levels and wind velocities of the storms (Costanza *et al.* 1989).

### 3.5.3 Aquatic Resources/Fisheries

Existing Conditions

The swamp areas at the STC site provide productive habitat for a wide range of fisheries species including bass, bream, crappie, catfish, fresh water drum, garfish, bowfin, and numerous minnows. Plankton communities serve an important role in the coastal waters of Louisiana. Phytoplankton are the primary producers of the water column, and form the base of the food web. Zooplankton provide the link between the phytoplankton and intermediate level consumers such as aquatic invertebrates, larval fish, and smaller forage fish species. Within swamp, aquatic and wetland invertebrates are critical components of the food web. Of these, benthic macroinvertebrates tend to dominate deepwater swamp invertebrate communities. Characteristic species include crayfish, clams, worms, snails, freshwater shrimp, midges, amphipods, and various immature insects. There are no aquatic resources in the BLH areas of either STC or BAS.

### 3.5.4 Wildlife

Existing Conditions

Numerous wildlife resources are located within the project area. Many migratory waterfowl such as mallard, teal, wood ducks, and coot utilize the swamp for feeding and resting areas. The largest concentrations of waterfowl typically occur during the winter months. In addition to waterfowl, a wide range of wading birds including egrets, herons, ibis, and other common birds such as boat tailed grackle, rail, gallinule, snipe, and red-winged blackbird are resident of the swamp. Other animals that utilize or are dependent on wetland habitats within the two sites include deer, rabbit, squirrel, alligator, nutria, muskrat, raccoon, mink, opossum, otter, and various other reptiles and amphibians. Both bald eagles and ospreys have been sighted in the area. The BAS site has a large population of feral pigs.

There are several bald eagle nest sites in the wetland complex surrounding the St. Charles Acquisition Area, the closest of which is approximately 1,400 feet south of the proposed preservation area boundary. The bald eagle was officially removed from the List of Endangered and Threatened Species on August 8, 2007. Bald eagles nest in Louisiana from October through mid-May. Eagles typically nest in mature trees (e.g., bald cypress, sycamore, willow, etc.) near fresh to intermediate marshes or open water in the southeastern parishes. Major threats to this species include habitat alteration, human disturbance, and environmental contaminants.

Although the bald eagle has been removed from the List of Endangered and Threatened Species, it continues to be protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle

Protection Act (BGEPA). The Service developed the National Bald Eagle Management (NBEM) Guidelines to provide landowners, land managers, and others with information and recommendations to minimize potential project impacts to bald eagles, particularly where such impacts may constitute "disturbance," which is prohibited by the BGEP. A copy of the NBEM Guidelines is available at: *http://www*.fws.gov/southeast/es/baldeagle/N ationalBaldEagleManagementGuidelines.pdf. St. Charles Acquisition Area would also be located in an area where colonial nesting waterbirds may be present.

3.5.5 Threatened and Endangered Species

Existing Conditions

The CEMVN has assessed the environmental impacts of the proposed action on Threatened and Endangered (T&E) species in the project vicinity (http://www.fws.gov/endangered). The black bear is listed as threatened and could potentially be found at both sites, but neither site is in the designated black bear critical habitat (http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A08F). The habitats at the two mitigation sites are not conducive for the rest of the known or possible listed species for either Jefferson or St. Charles Parishes. Most of the species listed are all aquatic and need significant open water areas except for the piping plover. The only critical habitat in the Barataria Basin for the plover is on the barrier island (http://www.fws.gov/plover/facts.html) which is not within the study area. The potential for the plover to be found in either of the mitigation areas is very low.

3.5.6 Air Quality

Existing Conditions

The US Environmental Protection Agency (USEPA) is required by the Clean Air Act to set National Ambient Air Quality Standards (NAAQS) (40 CFR part 50), which establishes air quality standards for six principle pollutants (ozone, particulate matter, carbon monoxide, sulfur dioxide, nitrogen oxides, and lead). As of June 15, 2005, the 1-hour ozone standard for Louisiana was revoked and replaced by an 8-hour standard (http://www.epa.gov/ozonedesignations/index.htm).

The Clean Air Act General Conformity Rule requires a conformity review be performed when a Federal action generates air pollutants in a region that has been designated a non-attainment or maintenance area for a NAAQS. The conformity rule was established to ensure Federal actions do not hamper local pollution control. Because St. Charles and Jefferson Parishes are designated as an attainment area (USEPA 2007) for the designated priority pollutants, no detailed conformity review for the proposed action is required. The BAS and STC are undeveloped but are just south of populated areas. Any air quality impacts would be the result of emissions from those developed areas.

### 3.5.7 NOISE AND VIBRATIONS

Existing Conditions

Sources of noise and vibration that have the potential to affect wildlife include human voices, aircraft, motorboats, automobile traffic, and heavy machinery and equipment. The study of animal response to noise is a function of many variables including characteristics of the noise and duration, life history characteristics of the species, habitat type, season and current activity of the animal, sex and age, previous exposure, and whether there are other physical stressors. Responses vary among species of animals and birds and among individuals of a particular species. Minor responses include head-raising and body-shifting. More disturbed mammals would trot short distances; birds may walk around flapping wings. Panic and escape behavior results from more severe disturbances (National Park Service, 1994).

Loud noise sources common to the site are all terrain vehicles (ATVs), gun fire, people's voices, and traffic on local streets (subdivision) and state highways. The noise from streets is limited due to the distance (approximately 2.5 miles) from the highways and the limited speed and number of vehicles on the local streets. At the BAS site the construction of and then the future operation of the NOLA Motorsports Park (http://www.nolamotor.com/) would be a significant source of ambient noise in the area. Also a source of voices would be from the camp grounds at the Bayou Segnette State Park.

### 3.5.8 CULTURAL RESOURCES

Existing Conditions

The level of cultural resource investigations for any project area depends on factors such as current and past land use, geomorphology, presence of known sites, and the probability of unknown sites located within the areas of potential effect. This information is used to assess the likelihood that archaeological sites or historic structures could be affected by excavation or visual impacts of a proposed project. Section 106 of the National Historic Preservation Act of 1966, as amended, (NHPA) requires consideration of cultural resources prior to a federal undertaking and requires consultation with the Louisiana State Historic Preservation Officer (SHPO) and federally recognized Indian Tribes (Tribes) that have an interest in the region, and in some cases the Advisory Council on Historic Preservation (ACHP) and other consulting parties. Only sites, buildings, structures, or objects determined eligible for, or included on, the National Register of Historic Places (NHRP) are afforded the safeguards of the NHPA.

The proposed project areas are located south of Bayou Segnette State Park (BAS) and south of the Willowridge subdivision (STC). The BAS portion of the project is located in an area of bottom land hardwood ecosystem. One site, 16JE26, is located in the northeast corner of the proposed project. Site 16JE26 is described as a wooden platform and support timbers, iron hardware such as pulleys, spools, chains, etc. It has not been evaluated for National Register eligibility.

The STC project is located in approximately 1,211 acres of existing cypress swamp and bottom land hardwood ecosystems. There are no cultural resources recorded in or near the project area. This project area would be considered to have a low probability for cultural resources

### 3.5.9 RECREATIONAL RESOURCES

This resource is institutionally important because of the Federal Water Project Recreation Act of 1965, as amended, and the Land and Water Conservation Fund Act of 1965, as amended. Recreational resources are technically important because of the high economic value of recreational activities and their contribution to local, state, and national economies. Recreational resources are publicly important because of: the high value that the public places on fishing, hunting, and boating, as measured by the large number of fishing and hunting licenses sold in Louisiana; and the large per-capita number of recreational boat registrations in Louisiana.

Existing Conditions

BAS: The project area is adjacent to Bayou Segnette State Park. There is no recreational development within the project area.

STC Parish: The project is adjacent to the Salvador Wetland Management Area. The project area is swamp with no recreational development.

### 3.5.10 AESTHETICS (VISUAL RESOURCES)

This resource is institutionally important because of the laws and policies that affect visual resources, most notably the 1969 NEPA and USACE Engineering Regulation 1105-2-100. Visual resources are technically important because of the high value placed on the preservation of unique geological, botanical, and cultural features. Aesthetic resources are publically important in that environmental organizations and the public support the preservation of naturally pleasing vistas.

Existing Conditions

**BAS State Park Mitigation Area**

Existing Structures: Structures include those associated with the State Park. These are limited to camping facilities, the guest center, administrative offices, and maintenance facilities. These facilities are established well outside of the immediate project vicinity

Water: The Louisiana Scenic Rivers Act of 1988 was established to preserve, protect, and enhance the wilderness qualities, scenic beauties, and ecological regimes of rivers and streams in the state. There are no known Scenic Rivers in or near the project area.

The primary water features of the area include Waggaman Canal and Bayou Segnette, both of which are located to the east and south of the project area, on the flood side of the levee system.

Land Use: The dominant Eco-Region (according to the State of Louisiana Eco-Region Map, ref. "Louisiana Speaks" and "US Geological Service Eco-Region Map", U.S. Geological Survey (map scale 1:1,000,000) is Coastal Marshes, which essentially covers the majority of southeast Louisiana. Other, nearby Eco-Regions include Southern Holocene Meander Belts which typically follow the watersheds of the Mississippi River and its major tributaries. Both of these Eco-Regions are a part of the Mississippi Alluvial Plain.

The vicinity of the project area is characteristic of the Coastal Marshes, with a variety of vegetation present that includes open fields and vast tracks of wet and dry forest. Coastal Marshes also typically feature flat terrain lifting into low lying ridges and small hills, and in some cases, natural levee systems near major waterways.

Land use in the area appears to be primarily vacant, but does have a parks and recreation setting, most likely due to such a close proximity to the state park.

Landform and Vegetation: The surrounding habitat is composed primarily of deep forests composed of both hardwoods and invasive species. The hurricane and flood protection levees (to the south and east of the sites) are the dominant landform features in the area.
The landscape of the project areas is scenic, but lacks those visual qualities and characteristics that make it memorable or unique compared to the surrounding area. There are no known specifically identified protected trees or other plant materials in the immediate area.

Access: There is no public access to the project sites. The nearest thoroughfare is Nicolle Blvd, which sits well to the north of the project sites. There is no visual access to the sites from this thoroughfare due to sheer distance and heavy screening from the local landscape.

**STC Parish Mitigation Area**

Existing Structures: The only structures in the area are those in the residential community located adjacent to, and to the north, of the project site.

Water: The Louisiana Scenic Rivers Act of 1988 was established to preserve, protect, and enhance the wilderness qualities, scenic beauties, and ecological regimes of rivers and streams in the state. There are no known Scenic Rivers in or near the project area.

The primary water features of the area include a few small canals and a large borrow pond (located well to the west of the project site).

Land Use: The dominant Eco-Region (according to the State of Louisiana Eco-Region Map, ref. "Louisiana Speaks" and "USGS Eco-Region Map", U.S. Geological Survey (map scale 1:1,000,000) is Inland Swamps. Other, nearby Eco-Regions include Southern Holocene Meander Belts and Coastal Marshes. All of these Eco-Regions are a part of the Mississippi Alluvial Plain.

The vicinity of the project area is characteristic of the Inland Swamps with a variety of vegetation present that includes vast tracks of wet and dry forest and periods of inundation. Like Coastal Marshes, Inland Swamps also typically feature flat terrain lifting into low lying ridges and small hills that are typically covered in hardwoods.

Land use in the area appears to be primarily vacant with a moderate sized single-family residential development located adjacent to, and to the north of the project site.

Landform and Vegetation: The surrounding habitat is composed primarily of deep forests composed of hardwoods, water tolerant trees and plants, and other invasive species. The landscape of the project areas is scenic, but lacks those visual qualities and characteristics that make it memorable or unique compared to the surrounding area. There are no known specifically identified protected trees or other plant materials in the immediate area.

Access: There is no public access to the project sites. The nearest thoroughfares are the local streets associated with the residential development adjacent to the project area. There is no visual access to the sites from the thoroughfares and backyards associated with the residential development due to sheer distance and heavy screening from the local landscape.

### 3.5.11 SOCIO-ECONOMIC RESOURCES

The focus of this section is to evaluate the relative socioeconomic impacts, if any, of construction and post-construction activities associated with the proposed mitigation project to mitigate for previously authorized impacts from the construction of the WBV. The proposed action involves mitigation at two general locations: adjacent to Bayou Segnette State Park in Jefferson Parish, and adjacent to the Salvador WMA, located in St Charles Parish. In addition to examining the socioeconomic impacts of activities related to the actions proposed in this SEA, this section also addresses the socioeconomic impacts of the 'No Action' alternative for both areas as well as two alternatives for the Bayou Segnette area.

**Population and Housing**

Existing Conditions

The areas of the proposed action described in this report are located in Jefferson and St. Charles Parishes. In Jefferson Parish, the Bayou Segnette site is located adjacent to Bayou Segnette State Park in Block 1064, Group 1, Census Tract 276.02. This is an unpopulated area north of Barataria Preserve with no housing units. In St. Charles Parish, the study area is located adjacent to the Salvador WMA in a forested area in the southern portion of the Luling census-designated place (CDP), northwest of Lake Cataouatche. The Luling CDP had a population of 12,119 in 2010 with a total of 4,559 housing units. No housing units fall within the boundaries of the study area. However, the northern boundary of the study area abuts the Willowridge subdivision.

**Employment, Businesses, and Industrial Activity**

Existing Conditions

There are no businesses or industrial activity within or near the footprint of either the BAS or STC mitigation site.

**Public Facilities and Services**

Existing Conditions

There are no public facilities within or near the footprint of either the BAS or STC mitigation site.

**Transportation**
Existing Conditions

Construction of the retention dike at the Bayou Segnette site would require earthen material to be brought in from the Bonnet Carrie borrow area by truck. Construction access to the site would be via West Jefferson Levee District's Drake Stockpile Yard. The Drake Stockpile Yard is accessible from Nicolle Boulevard. There is an existing stone road from Nicolle Boulevard to the CHPL. Roughly seven pickup trucks with flat beds would be required for the planting of BLH dry species at the Salvador WMA site. Access to the site would likely occur via local roads running through the Willowridge subdivision.

**Tax Revenues and Property Values**

Existing Conditions

The proposed mitigation sites are located in Jefferson and St. Charles Parishes. According to U.S. Census data, the average median value for specified owner-occupied housing units in Jefferson Parish in the 2005-2009 period was $170,000 and $160,500 in St. Charles Parish. However no housing units exist within either of the sites. Tax revenues and property values for the sites are based on unimproved property values.

**Community and Regional Growth**

Existing Conditions

According to U.S. Census data from 2000 to the 2005-2009 period, the following trends were observed in Jefferson Parish: population declined from 455,466 to 440,134, per capita personal income increased from $19,953 to $25,196, and employment declined from 212,477 to 209,974. In St. Charles Parish, population increased from 48,072 to 51,410, per capita personal income increased from $19,054 to $25,216, and employment increased from 31,446 to 35,524.

**Community Cohesion**

Existing Conditions

Community cohesion refers to the common vision and sense of belonging within a community that is created and sustained by the extensive development of individual relationships that are social, economic, cultural, and historical in nature. The degree to which these relationships are facilitated and made effective is contingent upon the physical and spatial configuration of the community itself: the functionality of the community owes much to the physical landscape within which it is set. The viability of community cohesion is compromised to the extent to which these physical features are exposed to interference from outside sources.

The Bayou Segnette site is located in an unpopulated area, and the Salvador WMA site is located near the Willowridge subdivision community.

3.5.12 ENVIRONMENTAL JUSTICE

Environmental Justice (EJ) is institutionally significant because of Executive Order 12898 of 1994 (EO 12898) and the Department of Defense's Strategy on Environmental Justice of 1995, which direct Federal agencies to identify and address any disproportionately high adverse human health or environmental effects of Federal actions to minority and/or low-income populations. Minority populations are those persons who identify themselves as Black, Hispanic, Asian American, American Indian/Alaskan Native, and Pacific Islander. A minority population exists where the percentage of minorities in an affected area either exceeds 50 percent or is meaningfully greater than in the general population. Low-income populations as of 2010 are those whose income are $22,050.00 for a family of four and are identified using the Census Bureau's statistical poverty threshold. The Census Bureau defines a "poverty area" as a Census tract with 20 percent or more of its residents below the poverty threshold and an "extreme poverty area" as one with 40 percent or more below the poverty level. This resource is technically significant because the social and economic welfare of minority and low-income populations may be positively or disproportionately impacted by the proposed actions. This resource is publicly significant because of public concerns about the fair and equitable treatment (fair treatment and meaningful involvement) of all people with respect to environmental and human health consequences of Federal laws, regulations, policies, and actions.

A potential disproportionate impact may occur when the percent minority in the study area exceeds 50 percent and/or the percent low-income exceeds 20 percent of the population. Additionally, a disproportionate impact may occur when the percent minority and/or low-income in the study area are meaningfully greater than those in the reference community. For purposes of this analysis, the Census Block Groups within which the mitigation sites are located are defined as the EJ study area. The proposed mitigation sites are located in Jefferson and St. Charles Parish which, for the purposes of this analysis, are considered the reference communities of comparison.

The methodology, consistent with EO 12898, to accomplish this EJ analysis includes identifying low-income and minority populations within the study area using up-to-date economic statistics, aerial photographs, 2010 U.S. Census records, the 2005-2009 U.S. Census Bureau's American Community Survey (ACS) estimates, as well as conducting community outreach activities such as public meetings.

The 2010 U.S. decennial Census data will be used in the current analysis as the primary deciding variable to determine whether the study area exceeds the minority threshold and therefore potentially disproportionately impacts minority population groups. The U.S. Census Bureau is now only providing population (including minority status) and housing characteristics in the decennial censuses. Other social characteristics (e.g., low-income) will now be provided in the ACS. The ACS provides estimates of social characteristics based on data collected over five years. The 2005-2009 estimates represent the latest data regarding the average characteristics over the 5-year period of time. For this reason, the current analysis uses the 2005-2009 ACS data to determine whether the study area exceeds the low-income threshold and therefore potentially disproportionately impacts low-income populations.

Existing Conditions

The proposed mitigation sites are located in Jefferson and St. Charles Parish. According to the 2010 decennial Census, Jefferson Parish had a minority population of 44.0 percent in 2010. The 2005-2009 ACS data indicate that Jefferson Parish had a low-income population of 13.8 percent during that period. Within Jefferson Parish, the Bayou Segnette site is located in Block 1064, Group 1, Census Tract 276.02. According to U.S. Census data, there are no residents located within the boundaries of the Bayou Segnette site and therefore no minority or low-income populations would be adversely impacted. St. Charles Parish had a minority population of 33.8 percent according to the 2010 decennial Census and a low-income population of 13.0 percent according to the 2005-2009 ACS data. The Luling CDP, within which the Salvador WMA site is located, had a minority population of 23.0 percent and a low-income population of 10.1 percent.

Analyses of the above information show that the two mitigation sites exceed neither the 50 percent minority threshold nor the 20 percent low-income threshold. These sites do not qualify as Environmental Justice study areas.

## 4.0 ENVIRONMENTAL CONSEQUENCES

Table 8 presents a summary of relevant resources in the proposed project area that would be impacted or would not be impacted by the project.

| Table 8: Relevant Resources in Proposed Project Areas | | |
|---|---|---|
| **Important Resource** | **Impacted** | **Not Impacted** |
| Hydrology, Hydraulics, and Water Quality | X | |
| Wetlands - Fresh | X | |
| Wetlands - Swamp | | X |
| Wetlands –BLH wet | X | |
| Wetlands –BLH Dry | X | |
| Aquatic Resources/Fisheries | | X |
| Wildlife | X | |
| Threatened and Endangered Species | X | |
| Air Quality | X | |
| Noise and Vibrations | X | |
| Cultural Resources | X | |
| Recreational Resources | X | |
| Aesthetics | X | |
| Socioeconomics | | |
| Population and Housing | | X |
| Employment, Business and Industry | | X |
| Availability of Public Facilities and Services | | X |
| Transportation | X | |
| Tax Revenues and Property Values | | X |
| Disruption of Community and Regional Growth | | X |
| Community Cohesion | | X |
| Environmental Justice | | X |
| Hazardous, Toxic and Radioactive Waste | | X |

4.1 Hydrology, Hydraulics, and Water quality

Future Conditions with No Action

*Direct, Indirect, Cumulative Impacts*

Under the no action alternative, there would be no changes in impacts to this resource. The BAS site would continue to be managed under a forced drainage system while the STC site would remain tidally connected. There would be no changes to the existing water quality. Without implementation of the proposed action, water quality would not be predicted to change from existing conditions. Point source and nonpoint source pollution inputs would continue to impact and degrade water quality. Sewage outfalls would be expected to continue to contribute to eutrophication of lake waters and high fecal coliform counts would be expected to continue to be found at outfalls of canals and tributaries. The direct and indirect water quality impacts, including temporary increases in turbidity associated with the construction of the mitigation project would not occur. There would be no cumulative impacts to water quality from implementation of this alternative.

Future Conditions with the New Proposed Action

*Direct, Indirect, Cumulative Impacts*

With construction of the proposed action, there would be direct impact on the water table and indirect impacts on the soil moisture, water retention time, and water quality at the BAS site. It is expected that with the project in place that the water table would be within a foot ((-) 9.0ft NAVD88) of the surface for a least fourteen consecutive days per year; this would allow water to be held in the area for longer and allow the plants to uptake any pollutants. This would be the minimal standard that would need to be met for BLH wet habitat. This would provide positive cumulative impacts on all aspects of this resource.

The STC site would remain tidally connected and would have no direct, indirect, or cumulative impact changes. This alternative would not result in any long-term impacts to water quality.

Suspended sediments transported in runoff from the project site may temporarily degrade surface water quality to a limited degree during initial mitigation activities (berm construction, clearing of invasive plants, etc.). This impact would be minimized through the use of appropriate best management practices. The increased resident time of the water in the BLH habitat would result in some positive indirect impacts because of wetlands' capacity to act as sinks (reservoir that accumulates and stores) for nutrients, thus improving local water quality. No negative cumulative effects to water quality would be anticipated from construction of the proposed project.

Future Conditions with Alternative 1 – Extending to Tie-In K

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be similar to the proposed alternative. There water table may be held slightly higher or for a longer time period providing positive impacts. Extending the time that the water table is within a foot ((-) 9.0ft NAVD88) of the surface provides for long term beneficial impacts to BLH wet species by limiting competition from non native and non wet species. The longer construction duration would cause a slightly longer period of initial construction runoff.

Future Conditions with Alternative 2 – Extending to Tie-In J

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be similar to the alternative 1. There water table may be held slightly higher or for longer time period providing positive impacts. Extending the time that the water table is within a foot ((-) 9.0ft NAVD88) of the surface provides for long term beneficial impacts to BLH wet species by

limiting competition from non native and non wet species. The longer construction duration would cause a slightly longer period of initial construction runoff.

Future Conditions with the Original Proposed Action

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be similar to the proposed action. There water table may be held slightly lower or for shorter time period providing positive impacts. The shorter construction duration would cause a slightly shorter period of initial construction runoff.

4.2 Wetlands

Future Conditions with No Action

*Direct, Indirect, Cumulative Impacts*

Under the no action alternative, no direct, indirect, or cumulative impacts are expected to the fresh marsh, BLH, or swamps in the two mitigation areas. The BLH at BAS site would continue to be dominated by Chinese tallow. And both sites would still be under the potential pressure from development. With this alternative previously authorized mitigation requirements would not be accomplished and reformulation would have to occur.

Future Conditions with the New Proposed Action

*Direct, Indirect, Cumulative Impacts*

With construction of the proposed action, there would be no direct impacts to swamps; there would be the indirect impact of guaranteeing that the swamps at the STC site would be preserved. At the BAS site there would be a direct impact to fringe fresh marsh of approximately 0.03 acres where the WRD crosses the Inner Cataouatche Canal adjacent to the Chevron pipeline. At both sites there would be direct impact to BLH. At the STC there would be an additional 12.8 acres of BLH-Dry created from open areas, while at the BAS site 139 acres of Chinese tallow would be eliminated and planted with 125 acres of BLH-Wet. Three acre of the Chinese tallow would be converted to the water retention dike. There would be a short term direct impact on the habitat value during the construction when all non-native species are removed. This would recover quickly with the planting of BLH species. Management of 90.9 acres of BLH at STC would show general improvements in habitat quality. With this alternative, the WBV pre-Katarina compensatory mitigation requirements would be satisfied. Cumulatively, this project would reduce the conversion of BLH to non native species.

Future Conditions with Alternative 1 – Extending to Tie-In K

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be similar to the proposed alternative. At the BAS site there would be a direct impact to fresh marsh of approximately 0.03 acres where the WRD crosses the Inner Cataouatche Canal swell on the eastern side of the project area. With this alternative, the WBV pre-Katarina compensatory mitigation requirements would be satisfied. A total of four acres of the Chinese tallow would be converted to the water retention dike. Extending the time that the water table is within a foot ((-) 9.0ft NAVD88) of the surface provides for long term beneficial impacts to BLH wet species by limiting competition from non native and non wet species.

Future Conditions with Alternative 2 – Extending to Tie-In J

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be similar to the proposed alternative. At the BAS site there would be no direct impact to fresh marsh since this alternative does not cross the Inner Cataouatche Canal. With this alternative, the WBV pre-Katarina compensatory mitigation requirements would be satisfied. A total of five acres of the Chinese tallow would be converted to the water retention dike. Extending the time that the water table is within a foot ((-) 9.0ft NAVD88) of the surface provides for long term beneficial impacts to BLH wet species by limiting competition from non native and non wet species.

Future Conditions with the Original Proposed Action

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be similar to the proposed alternative. At the BAS site there would be a direct impact to fresh marsh of approximately 0.03 acres where the WRD crosses the Inner Cataouatche Canal on the western side of the project area. With this alternative, the WBV pre-Katarina compensatory mitigation requirements would be satisfied. Only one acre of the Chinese tallow would be converted to the water retention dike.

4.3 Aquatic Resources/Fisheries

Future Conditions with No Action

*Direct, Indirect, Cumulative Impacts*
Under the no action alternative, no direct, indirect, or cumulative impacts are expected to the aquatic resources in the two mitigation areas. The swamp would still provide the existing habitat

for aquatic species. With this alternative previously authorized mitigation requirements to benefit aquatic species would not be accomplished and reformulation would have to occur.

Future Conditions with the New Proposed Action

*Direct, Indirect, Cumulative Impacts*

With construction of the proposed action, there would be no direct impacts to aquatic resources; there would be the indirect impact of guaranteeing that the swamps at the STC site would be preserved and would not be converted to other uses or otherwise impacted by development trends. With this alternative, the WBV pre-Katarina compensatory mitigation requirements to benefit aquatic species would be satisfied.

Future Conditions with Alternative 1 – Extending to Tie-In K

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be same as the proposed alternative. With this alternative, the WBV pre-Katarina compensatory mitigation requirements to benefit aquatic species would be satisfied.

Future Conditions with Alternative 2 – Extending to Tie-In J

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be same as the proposed alternative. With this alternative, the WBV pre-Katarina compensatory mitigation requirements to benefit aquatic species would be satisfied.

Future Conditions with the Original Proposed Action

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be same as the proposed alternative. With this alternative, the WBV pre-Katarina compensatory mitigation requirements to benefit aquatic species would be satisfied.

4.4 WILDLIFE

Future Conditions with No Action

*Direct, Indirect, Cumulative Impacts*

Under the no action alternative, no direct, indirect, or cumulative impacts are expected to the wildlife resource in the two mitigation areas. The swamp and BLH would still provide the

existing habitat for wildlife species. The Chinese tallow would continue to provide substandard habitat. With this alternative previously authorized mitigation requirements to benefit wildlife species would not be accomplished and reformulation would have to occur.

Future Conditions with the New Proposed Action

*Direct, Indirect, Cumulative Impacts*

With construction of the proposed action, 138 acres of wildlife habitat would be directly, positively impacted because they would be enhanced by either conversion from Chinese tallow or open area into BLH habitat. Additional indirect benefits to wildlife would result from the preservation of approximately 1,211acres of swamp habitat and the management of 90.9 acres of BLH. With this alternative the compensatory mitigation requirements of the previously authorized WBV project would be satisfied. Construction activities would cause temporary impacts such as removal of all non-native trees, noise, and vibration that would disturb wildlife in and near the project. These animals would avoid portions of the project area during the construction period and until the planted trees have grown to provide coverage and food. The pig exclusion fence may prevent some species (raccoons, armadillos, etc) from completely access the BLH area, but they would return shortly after removal of the fence.

Future Conditions with Alternative 1 – Extending to Tie-In K

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be similar to the proposed alternative. There would be an increase in the indirect impact due to noise and vibration due to the longer dike. With this alternative, the WBV pre-Katarina compensatory mitigation requirements to benefit wildlife species would be satisfied.

Future Conditions with Alternative 2 – Extending to Tie-In J

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be similar to the proposed alternative. There would be an increase in the indirect impact due to noise and vibration due to the longer dike. With this alternative, the WBV pre-Katarina compensatory mitigation requirements to benefit wildlife species would be satisfied.

Future Conditions with the Original Proposed Action

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be similar to the proposed alternative. There would be a decrease in the indirect impact due to noise and vibration due to the shorter dike. With this alternative, the WBV pre-Katarina compensatory mitigation requirements to benefit wildlife species would be satisfied.

## 4.5 Threatened and Endangered Species

### Future Conditions with No Action

*Direct, Indirect, Cumulative Impacts*

Under the no action alternative, no direct, indirect, or cumulative impacts are expected to the black bears in the two proposed mitigation areas. The swamp and BLH would still provide the existing habitat for black bears. The Chinese tallow would continue to provide substandard habitat.

### Future Conditions with the New Proposed Action

*Direct, Indirect, Cumulative Impacts*

With construction of the proposed action, 138 acres of habitat would be directly, positively impacted because they would be enhanced by either conversion from Chinese tallow or open area into BLH habitat. Additional indirect benefits to any black bears in the area would result from the preservation of approximately 1,211acres of swamp habitat and the management of 90.9 acres of BLH. Construction activities would cause temporary impacts such as removal of all non-native trees, noise, and vibration that would disturb black bears in and near the project areas. These animals would avoid the project area during the construction period and until the planted trees have grown to provide coverage and food. The pig exclusion fence may prevent the bears from complete access to the BLH area, but they would return shortly after removal of the fence. There would be no direct, indirect, or cumulative impacts to black bear critical habitat. In a letter from USFWS dated September 9, 2011 the service stated that *"At this time, the Service is unaware of any threatened or endangered species or their critical habitat within, or in the immediate vicinity of, the proposed project area. No further endangered species consultation with the Service would be required for the proposed action, unless there are changes in the scope or location of the proposed project or the project has not been initiated one year from the date of this letter."*

### Future Conditions with Alternative 1 – Extending to Tie-In K

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be similar to the proposed alternative. There would be an increase in the indirect temporary impacts due to noise and vibration due to the construction of the longer dike.

Future Conditions with Alternative 2 – Extending to Tie-In J

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be similar to the proposed alternative. There would be an increase in the indirect temporary impacts due to noise and vibration due to the construction of the longer dike

Future Conditions with the Original Proposed Action

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be similar to the proposed alternative. There would be a decrease in the indirect impact due to noise and vibration due to the shorter dike. With this alternative, the WBV pre-Katarina compensatory mitigation requirements to benefit wildlife species would be satisfied.

4.6 Air Quality

Future Conditions with No Action

*Direct, Indirect, Cumulative Impacts*

Under the no action alternative, potential direct and indirect air quality impacts associated with the construction and operation of the mitigation project would not occur. Air quality would not be predicted to change from existing conditions and therefore would have no change cumulatively on air quality.

Future Conditions with the New Proposed Action

*Direct Impacts*

Direct impacts to air quality would include emissions from the operation of heavy construction equipment that would be used to build the dike, to remove the invasive species and to drill holes for the fence posts as well as from the aircraft used for herbicide spraying. Emissions from this construction equipment and air craft would occur throughout the approximately 180 calendar days construction period. These direct impacts would be anticipated to be localized and temporary. During and after construction, however, air quality would continue to be in attainment of pollutant standards set by NAAQS.

*Indirect Impacts*

The indirect effects to air quality would be related to the emissions from the transportation of personnel, construction materials, and equipment to the work site on a daily or routine basis until

construction of the project is complete to the extent those emissions go beyond the project area. As with direct impacts, the effects would be temporary and would not affect NAAQS attainment.

*Cumulative Impacts*

The cumulative effects to air quality would be the combined emissions from constructing the proposed action, when added to other regional emission sources. Those sources would include vehicles utilizing the local roads and highways. It is not expected that there would be a significant change in air quality due to the cumulative effects of this project.

Future Conditions with Alternative 1 – Extending to Tie-In K

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be similar to the proposed alternative. There would be an increase in the direct temporary impacts due to the construction of the longer dike.

Future Conditions with Alternative 2 – Extending to Tie-In J

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be similar to the proposed alternative. There would be an increase in the direct temporary impacts due to the construction of the longer dike.

Future Conditions with the Original Proposed Action

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be similar to the proposed alternative. There would be a decrease in the indirect impact due to construction of the shorter dike. With this alternative, the WBV pre-Katarina compensatory mitigation requirements to benefit wildlife species would be satisfied.

4.7 Noise and Vibration

Future Conditions with No Action

*Direct, Indirect, Cumulative Impacts*

Under the no action alternative, there would be no change in the existing impacts due to sound levels. Birds would continue to be flushed when ATVs approach, or noise comes from the race track, and other animals would respond in similar ways.

Future Conditions with the New Proposed Action

*Direct, Indirect, Cumulative Impacts*

With construction of the proposed action, there would be a temporary increase in noise levels during construction and maintenance activities. Typical construction equipment (cranes, backhoes, ATVs, etc.) that would be used on this project produce noise ranging from 75 decibels (dBA) to 100 dBA measured at 100 ft. Sound levels dissipate quickly with distance and screens. The proposed mitigation features are within 1,000 feet of a campground area within Bayou Segnette State Park and a subdivision at the STC site. These off-site areas could experience higher than ambient noise levels during initial mitigation activities (construction of berms and surface water management features, mechanized clearing of invasive plant species). Wildlife and fish would be directly and indirectly impacted and would vacate the vicinity during construction. There should be no long term cumulative impacts from the noise and vibration.

Future Conditions with Alternative 1 – Extending to Tie-In K

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be similar to the proposed alternative. There would be an increase in the direct temporary impacts due to the construction of the longer dike.

Future Conditions with Alternative 2 – Extending to Tie-In J

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be similar to the proposed alternative. There would be an increase in the direct temporary impacts due to the construction of the longer dike.

Future Conditions with the Original Proposed Action

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be similar to the proposed alternative. There would be a decrease in the indirect impact due to noise and vibration due to the shorter dike. With this alternative, the WBV pre-Katarina compensatory mitigation requirements to benefit wildlife species would be satisfied.

4.8 Cultural Resources

Future Conditions with No Action

*Direct, Indirect, Cumulative Impacts*

Under the No Action alternative there would be no impact to properties eligible to the NRHP.

Future Conditions with the New Proposed Action

*Direct, Indirect, Cumulative Impacts*

Under the proposed BAS action, one site, 16JE26, would be affected. To mitigate against any adverse effect the proposed action will avoid 16JE26.

Under the proposed STC action there would be no adverse effect to any cultural resources.

On October 6, 2011 letters were sent to the SHPO and to the Tribes expressing the opinion that the undertaking is of a type of activity that does not have the potential to cause effects on historic properties as per the promulgating regulations of the NHPA 36 CFR § 800.3(a)(1). The SHPO responded on November 9, 2011 that "No known historic properties will be affected by this undertaking." and the Choctaw Nation of Oklahoma responded on November 3, 2011 "The Choctaw Nation of Oklahoma has reviewed the above project(s) and based on the information provide we concur that it will have **no** adverse effect on any historic properties in the project's area of potential effect." No other Tribes responded during the 30 days.

Future Conditions with Alternative 1 – Extending to Tie-In K

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be same as the proposed alternative.

Future Conditions with Alternative 2 – Extending to Tie-In J

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be same as the proposed alternative.

Future Conditions with the Original Proposed Action

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be same as the proposed alternative.

4.9 Recreation Resources

Future Conditions with No Action

Without implementation of the proposed action, the conditions within the recreational environment would continue as they have in the past and would be dictated by the natural land use patterns and processes that have dominated the area in the past. Direct, indirect, and cumulative impacts would be negligible.

Future Conditions with the New Proposed Action

BAS: There would be the potential for recreation opportunities such as hiking, wildlife viewing, and bird watching with the planting of BLH and the change of land status from private to public if the local sponsor designates the area for public use.

STC Parish: There would be the potential for recreation opportunities such as hiking, wildlife viewing, and bird watching with the change of land status from private to public if the local sponsor designates the area for public use.

Future Conditions with Alternative 1 – Extending to Tie-In K

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the impact to recreation would be the same as those for the proposed action.

Future Conditions with Alternative 2 – Extending to Tie-In J

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the impact to recreation would be the same as those for the proposed action.

Future Conditions with the Original Proposed Action

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the direct, indirect, and cumulative impacts would be same as the proposed alternative.

4.10 Aesthetic (Visual) Resources

Future Conditions with No Action

**Both proposed Mitigation Sites**

Without implementation of the proposed action, the proposed project areas and their respective landscapes would remain as they are. Future changes to the local environment would be dictated by future maintenance and land use practices. In the absence of development or timber harvest, the most likely scenario would be that the landscapes would evolve according to natural processes, over time.

If mitigation projects such as the proposed action were not implemented across Louisiana and the nation to account for loss of natural environment, then there would be a dramatic change to the landscape and view sheds as a whole. This would not be desirable on a neighborhood or national level. The no action alternative, in this case, brings impacts to the areas that are detrimental to the ecological redevelopment of coastal Louisiana.

Future Conditions with the Proposed Action

**BAS State Park Mitigation Area**

With the proposed action, there are no foreseen direct, indirect, or cumulative impacts to Visual (Aesthetic) Resources at or near the proposed project area. The scenic character and visual quality of the proposed project area have not been recognized by any national or state designation. The proposed project area is remote and visually inaccessible.

**STC Parish Mitigation Area**

With the proposed action, there are no foreseen, long term, direct, indirect, or cumulative impacts to Visual (Aesthetic) Resources at or near the proposed project area. The scenic character and visual quality of the proposed project area have not been recognized by any national or state designation. The proposed project area is remote and visually inaccessible.

Some temporary impacts that would occur during the construction process may include increased truck traffic through the residential neighborhood located to the north. The dust and noise level would also most likely increase in the area, covering cars and windows. It is expected that the area would return to pre-construction conditions soon after completion of the project.

Future Conditions with Alternative 1 – Extending to Tie-In K

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the impact to aesthetic would be the similar to those for the proposed action, but slightly greater direct impacts due to the longer dike length.

Future Conditions with Alternative 2 – Extending to Tie-In J

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the impact to aesthetic would be the similar to those for the proposed action, but slightly greater direct impacts due to the longer dike length.

Future Conditions with the Original Proposed Action

*Direct, Indirect, Cumulative Impacts*

With construction of this alternative, the impact to aesthetic would be the similar to those for the proposed action, but slightly less direct impacts due to the shorter dike length.

4.11 Socio-Economic Resources

**Population and Housing**

Future Conditions with No Action

*Direct, Indirect, Cumulative Impacts*

Under the no action alternative, there would be no direct, indirect, or cumulative impacts to population and housing in the two study areas under this alternative, however, impacts to population and housing could occur in other locations if alternate areas are chosen for mitigation of WBV habitat losses by the CEMVN.

Future Conditions with the New Proposed Action

*Direct, Indirect, Cumulative Impacts*

The use of the two sites would not cause the displacement of any population or housing. No direct, indirect, or cumulative impacts to population or housing would be expected at the BAS site due to the site's distance from any populated areas. The planting of BLH dry species is not expected to cause any direct, indirect, or cumulative impacts to population or housing in the vicinity of STC site despite its proximity to residences in the Willowridge subdivision other than minor, temporary traffic congestion (discussed in the Transportation section). Completion of the

proposed action would satisfy the compensatory mitigation requirement for the WBV habitat losses by preserving and restoring habitat.

Future Conditions with Alternative 1 – Extending to Tie-In K

*Direct, Indirect, Cumulative Impacts*

Under this alternative, the water retention dike at the Bayou Segnette site would be extended to Tie-In K. All other aspects of the mitigation plan would be the same as the proposed action. The impacts to population and housing under this alternative would be expected to be the same as under the proposed action.

Future Conditions with Alternative 2 – Extending to Tie-In J

*Direct, Indirect, Cumulative Impacts*

Under this alternative, the water retention dike at the Bayou Segnette site would be extended to Tie-In J. All other aspects of the mitigation plan would be the same as the proposed action. The impacts to population and housing under this alternative would be expected to be the same as under the proposed action.

Future Conditions with the Original Proposed Action

*Direct, Indirect, Cumulative Impacts*

The impacts to population and housing under this alternative would be expected to be the same as under the proposed action.

**Employment, Businesses, and Industrial Activity**

Future Conditions with No Action

*Direct, Indirect, Cumulative Impacts*

Under the no action alternative, there would be no direct, indirect, or cumulative impacts to employment, businesses, or industrial activity in the two study areas under this alternative, however, impacts to employment, businesses, or industrial activity could occur in other locations if alternate areas are chosen for mitigation of WBV habitat losses by the CEMVN.

Future Conditions with the New Proposed Action

*Direct, Indirect, Cumulative Impacts*

No direct, indirect, or cumulative impacts to businesses or industrial activity would be expected to occur under the proposed action. There may be a temporary, minor increase in employment as a result of construction activity. No indirect or cumulative impacts to employment would be

expected to occur. Completion of the proposed action would satisfy the compensatory mitigation requirement for the WBV habitat losses by preserving and restoring habitat.

Future Conditions with Alternative 1 – Extending to Tie-In K

*Direct, Indirect, Cumulative Impacts*

Under this alternative, the water retention dike at the Bayou Segnette site would be extended to Tie-In K. All other aspects of the mitigation plan would be the same as the proposed action. The impacts to employment, businesses, or industrial activity under this alternative would be expected to be the same as under the proposed action.

Future Conditions with Alternative 2 – Extending to Tie-In J

*Direct, Indirect, Cumulative Impacts*

Under this alternative, the water retention dike at the Bayou Segnette site would be extended to Tie-In J. All other aspects of the mitigation plan would be the same as the proposed action. The impacts to employment, businesses, or industrial activity under this alternative would be expected to be the same as under the proposed action.

Future Conditions with the Original Proposed Action

*Direct, Indirect, Cumulative Impacts*

The impacts to employment, businesses, or industrial activity under this alternative would be expected to be the same as under the proposed action.

**Public Facilities and Services**

Future Conditions with No Action

*Direct, Indirect, Cumulative Impacts*

Under the no action alternative, there would be no direct, indirect, or cumulative impacts to public facilities or services in the two study areas under this alternative, however, impacts to public facilities or services could occur in other locations if alternate areas are chosen for mitigation of WBV habitat losses by the CEMVN.

Future Conditions with the New Proposed Action

*Direct, Indirect, Cumulative Impacts*

No direct, indirect, or cumulative impacts to public facilities or services would be expected to occur under the proposed action. Completion of the proposed action would satisfy the

compensatory mitigation requirement for the WBV habitat losses by preserving and restoring habitat.

Future Conditions with Alternative 1 – Extending to Tie-In K

*Direct, Indirect, Cumulative Impacts*

Under this alternative, the water retention dike at the Bayou Segnette site would be extended to Tie-In K. All other aspects of the mitigation plan would be the same as the proposed action. The impacts to public facilities or services under this alternative would be expected to be the same as under the proposed action.

Future Conditions with Alternative 2 – Extending to Tie-In J

*Direct, Indirect, Cumulative Impacts*

Under this alternative, the water retention dike at the Bayou Segnette site would be extended to Tie-In J. All other aspects of the mitigation plan would be the same as the proposed action. The impacts to public facilities or services under this alternative would be expected to be the same as under the proposed action.

Future Conditions with the Original Proposed Action

*Direct, Indirect, Cumulative Impacts*

The impacts to public facilities or services under this alternative would be expected to be the same as under the proposed action.

**Transportation**

Future Conditions with No Action

*Direct, Indirect, Cumulative Impacts*

Under the no action alternative, there would be no direct impacts to transportation in the two study areas under this alternative, however, impacts to transportation could occur in other locations if alternate areas are chosen for mitigation of WBV habitat losses by the CEMVN.

Future Conditions with the New Proposed Action

*Direct, Indirect, Cumulative Impacts*

Under the proposed action, borrow may be trucked from Bonnet Carre Spillway to the BAS site. This may increase congestion on US 61, I-310, I-10, US 90, and Lapalco Boulevard if these

major thoroughfares would be used to haul the material. Additionally, segments of Nicolle Boulevard near the mitigation site would be expected to experience temporary, congestion-related impacts. The increased levels of truck traffic, and the movement of many truckloads of material, would likely increase wear and tear on these roads. Local roads in the Willowridge subdivision may experience minor, temporary congestion during the transport of BLH dry species to the STC site. Completion of the proposed action would satisfy the compensatory mitigation requirement for the WBV habitat losses by preserving and restoring habitat.

Future Conditions with Alternative 1 – Extending to Tie-In K

*Direct, Indirect, Cumulative Impacts*

Under this alternative, the water retention dike at the Bayou Segnette site would be extended to Tie-In K. All other aspects of the mitigation plan would be the same as the proposed action. The impacts to transportation under this alternative would be expected to be the same as under the proposed action.

Future Conditions with Alternative 2 – Extending to Tie-In J

*Direct, Indirect, Cumulative Impacts*

Under this alternative, the water retention dike at the Bayou Segnette site would be extended to Tie-In J. All other aspects of the mitigation plan would be the same as the proposed action. The impacts to transportation under this alternative would be expected to be the same as under the proposed action.

Future Conditions with the Original Proposed Action

*Direct, Indirect, Cumulative Impacts*

The impacts to transportation under this alternative would be expected to be the same as under the proposed action.

**Tax Revenues and Property Values**

Future Conditions with No Action

*Direct, Indirect, Cumulative Impacts*

Under the no action alternative, there would be no direct, indirect, or cumulative impacts to tax revenues and property values in the two study areas under this alternative, however, impacts to tax revenues and property values could occur in other locations if alternate areas are chosen for mitigation of WBV habitat losses by the CEMVN.

Future Conditions with the New Proposed Action

*Direct, Indirect, Cumulative Impacts*

No direct, indirect, or cumulative impacts to tax revenues and property values would be expected to occur under the proposed action. Completion of the proposed action would satisfy the compensatory mitigation requirement for the WBV habitat losses by preserving and restoring habitat.

Future Conditions with Alternative 1 – Extending to Tie-In K

*Direct, Indirect, Cumulative Impacts*

Under this alternative, the water retention dike at the Bayou Segnette site would be extended to Tie-In K. All other aspects of the mitigation plan would be the same as the proposed action. The impacts to tax revenues and property values under this alternative would be expected to be the same as under the proposed action.

Future Conditions with Alternative 2 – Extending to Tie-In J

*Direct, Indirect, Cumulative Impacts*

Under this alternative, the water retention dike at the Bayou Segnette site would be extended to Tie-In J. All other aspects of the mitigation plan would be the same as the proposed action. The impacts to tax revenues and property values under this alternative would be expected to be the same as under the proposed action.

Future Conditions with the Original Proposed Action

*Direct, Indirect, Cumulative Impacts*

The impacts to tax revenues and property values under this alternative would be expected to be the same as under the proposed action.

**Community and Regional Growth**

Future Conditions with No Action

*Direct, Indirect, Cumulative Impacts*

Under the no action alternative, there would be no direct, indirect, or cumulative impacts to community and regional growth under this alternative, however, impacts to community and regional growth could occur if alternate areas are chosen for mitigation of WBV habitat losses by the CEMVN.

Future Conditions with the New Proposed Action

*Direct, Indirect, Cumulative Impacts*

No direct, indirect, or cumulative impacts to community or regional growth would be expected to occur under the proposed action. Completion of the proposed action would satisfy the compensatory mitigation requirement for the WBV habitat losses by preserving and restoring habitat.

Future Conditions with Alternative 1 – Extending to Tie-In K
*Direct, Indirect, Cumulative Impacts*

Under this alternative, the water retention dike at the Bayou Segnette site would be extended to Tie-In K. All other aspects of the mitigation plan would be the same as the proposed action. The impacts to community and regional growth under this alternative would be expected to be the same as under the proposed action.

Future Conditions with Alternative 2 – Extending to Tie-In J

*Direct, Indirect, Cumulative Impacts*

Under this alternative, the water retention dike at the Bayou Segnette site would be extended to Tie-In J. All other aspects of the mitigation plan would be the same as the proposed action. The impacts to community and regional growth under this alternative would be expected to be the same as under the proposed action.

Future Conditions with the Original Proposed Action

*Direct, Indirect, Cumulative Impacts*

The impacts to community and regional growth under this alternative would be expected to be the same as under the proposed action.

**Community Cohesion**

Future Conditions with No Action

*Direct, Indirect, Cumulative Impacts*

Under the no action alternative there would be no direct, indirect, or cumulative impacts to community cohesion in the two study areas under this alternative, however, impacts to community cohesion could occur in other locations if alternate areas are chosen for mitigation of WBV habitat losses by the CEMVN.

Future Conditions with the New Proposed Action

*Direct, Indirect, Cumulative Impacts*

No direct, indirect, or cumulative impacts to community cohesion would be expected to occur under the proposed action. Completion of the proposed action would satisfy the compensatory mitigation requirement for the WBV habitat losses by preserving and restoring habitat.

Future Conditions with Alternative 1 – Extending to Tie-In K

*Direct, Indirect, Cumulative Impacts*

Under this alternative, the water retention dike at the Bayou Segnette site would be extended to Tie-In K. All other aspects of the mitigation plan would be the same as the proposed action. The impacts to community cohesion under this alternative would be expected to be the same as under the proposed action.

Future Conditions with Alternative 2 – Extending to Tie-In J

*Direct, Indirect, Cumulative Impacts*

Under this alternative, the water retention dike at the Bayou Segnette site would be extended to Tie-In J. All other aspects of the mitigation plan would be the same as the proposed action. The impacts to community cohesion under this alternative would be expected to be the same as under the proposed action.

Future Conditions with the Original Proposed Action

*Direct, Indirect, Cumulative Impacts*

The impacts to community cohesion under this alternative would be expected to be the same as under the proposed action.

## 4.12 ENVIRONMENTAL JUSTICE

Future Conditions with No Action

*Direct, Indirect, Cumulative Impacts*

Under the no action alternative, there would be no direct, indirect, or cumulative adverse impacts to minority and/or low-income populations in the two study areas under this alternative, however, impacts to minority or low-income populations could occur in other locations if alternate areas are chosen for mitigation of WBV habitat losses by the CEMVN.

Future Conditions with the New Proposed Action

*Direct, Indirect, Cumulative Impacts*

No direct, indirect, or cumulative adverse impacts to minority and/or low-income populations would be expected to occur under the proposed action. Completion of the proposed action would satisfy the compensatory mitigation requirement for the WBV habitat losses by preserving and restoring habitat.

Future Conditions with Alternative 1 – Extending to Tie-In K

*Direct, Indirect, Cumulative Impacts*

Under this alternative, the water retention dike at the Bayou Segnette site would be extended to Tie-In K. All other aspects of the mitigation plan would be the same as the proposed action. The impacts to minority and/or low-income populations under this alternative would be expected to be the same as under the proposed action.

Future Conditions with Alternative 2 – Extending to Tie-In J

*Direct, Indirect, Cumulative Impacts*

Under this alternative, the water retention dike at the Bayou Segnette site would be extended to Tie-In J. All other aspects of the mitigation plan would be the same as the proposed action. The impacts to minority and/or low-income populations under this alternative would be expected to be the same as under the proposed action.

Future Conditions with the Original Proposed Action

*Direct, Indirect, Cumulative Impacts*

The impacts to minority and/or low-income populations under this alternative would be expected to be the same as under the proposed action.

## 4.13 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE

The USACE is obligated under Engineer Regulation (ER) 1165-2-132 for the reasonable identification and evaluation of all Hazardous, Toxic, and Radioactive Waste (HTRW) contamination within the vicinity of a proposed action. ER 1165-2-132 specifies that USACE HTRW policy is to avoid the use of project funds for HTRW removal and remediation activities. Two ASTM E 1527-05 Phase 1 Environmental Site Assessments (ESAs) have been prepared for the project area. The first is entitled "West Bank and Vicinity Mitigation Areas, St. Charles Parish, Louisiana" (HTRW-11-17, dated 26 August 2011). The second ESA is entitled "West Bank and Vicinity Mitigation Areas, Bayou Segnette, Marrero, Jefferson Parish, Louisiana" (HTRW-11-21, dated 19 October 2011). Copies of the Phase 1 ESAs will be maintained on file

at CEMVN. The probability of encountering HTRW for the proposed actions is low, based on the Environmental Site Assessments.

## 4.14 CUMULATIVE EFFECTS

The CEQ's regulations (40 CFR 1500-1508) implementing the procedural provisions of the National Environmental Policy Act (NEPA) of 1969, as amended (42 US Code 4321 et seq.) define cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative Effects can result from individually minor, but collectively significant actions taking place over a period of time.

There would be no positive cumulative impacts due to the no action alternative. There would be no negative cumulative impacts due to the proposed action. There may be some minor positive cumulative impacts due to the proposed action in conjunction with other actions because of the effects of converting areas of invasive species to BLH and preserving areas that are susceptible to development or logging in their natural state.

## 5.0 COORDINATION

Preparation of this EA and draft FONSI is being coordinated with appropriate Congressional, Federal, state, and local interests, as well as environmental groups and other interested parties. The following agencies, as well as other interested parties, have recieved copies of this draft EA:

U.S. Department of the Interior, Fish and Wildlife Service
U.S. Environmental Protection Agency, Region VI
U.S. Department of Commerce, National Marine Fisheries Service
U.S. Natural Resources Conservation Service, State Conservationist
Governor's Executive Assistant for Coastal Activities
Louisiana Department of Wildlife and Fisheries
Louisiana Department of Natural Resources, Coastal Management Division
Louisiana Department of Natural Resources, Coastal Restoration Division
Louisiana Department of Environmental Quality, PER-REGC
Louisiana Department of Environmental Quality, EP-SIP
Louisiana State Historic Preservation Officer

**Recommendations of the U.S. Fish and Wildlife Service in accordance with the Fish and Wildlife Coordination Act.**

The following is an excerpt from the draft project-specific Coordination Act Report (CAR) that was received from USFWS by letter dated October 19, 2011.The complete draft CAR can be found in appendix D.

*"CONCLUSIONS AND RECOMMENDATIONS*

*In spite of the Netherlands Mitigation Project implementation, there remain 724 acres of impact from the WBV Hurricane Protection Project that require compensatory mitigation. Based on analyses in our previous FWCA reports for the WBV Hurricane Protection Project, 1,252.70 acres (408.23 AAHUs) are required to offset the remaining impacts from that project. The Service would not object to the implementation of the Bayou Segnette Enhancement Area and St. Charles Acquisition Site mitigation projects to offset those remaining WBV Hurricane Protection Project impacts, provided that the following fish and wildlife conservation recommendations are implemented:*

1) *The Corps shall develop and implement a comprehensive monitoring plan to determine the success or failure of the restoration and enhancement activities proposed for the Bayou Segnette Enhancement Area. Monitoring activities should be established to effectively measure vegetative and hydrologic conditions (via official wetland determinations/delineations, installation and maintenance of piezometers, and any other conventional monitoring method that may be appropriate for determining the success of this project). The Service, NMFS, and LDWF should be involved in the development of any proposed monitoring plan, and in determining the success or failure of the proposed project based on those monitoring results.*

2) *The Corps shall develop and implement detailed bottomland hardwood planting specifications that are consistent with previously provided Service recommendations regarding bottomland hardwood restoration associated with HSDRRS mitigation; recommendations regarding site-appropriate species, species ratios, planting density, and seedling quality have been provided for the HSDRRS mitigation proposals and should be applied to the current projects.*

3) *The Corps shall develop, and incorporate into their long-term monitoring plan, adaptive management provisions that would address potential problems with the proposed mitigation projects that could otherwise jeopardize their success if not resolved in a timely manner. The Service, NMFS, and LDWF should be involved in the development of any plans and in determining the adequacy of such provisions.*

4) *The Corps shall involve the Service, NMFS, and LDWF in the development of any additional plan details that may be*

*forthcoming for the subject mitigation proposals (regarding such issues as bottomland hardwood restoration specifications, reconfiguration of the proposed preservation area, forest management activities proposed for the preservation area, etc.).”*

**USACE Response to USFWS Recommendations from CAR**

1. Concur, component 9 of twelve components of a compensatory mitigation plan (table 9) lists the items included in the monitoring plan. The addition of wetland determination/delineation to this plan is acceptable to MVN. A scope of work to place Piezometers and surveys has been developed. The locations of these devices were determined from the surveys. The Piezometers are in place. Coordination with the Interagency Team (including USFWS, NMFS, and LDWF) and the non –Federal sponsor has and will continue to occur in the development of the monitoring plan.

2. Concur, a detailed preliminary planting plan for each site will be developed during the Preliminary Engineering and Design phase. This plan will be refined after the eradication of invasive and nuisance plant species when the remaining native species coverage can be identified for the BAS site. Section 1.2.4 of this SEA utilized the USFWS previously provided recommendations regarding site-appropriate species, species ratios, planting density, and seedling quality.

3. Concur, components 10 and 11 of twelve components of a compensatory mitigation plan (table 9) discuss the long-term management plan and adaptive management plan. Coordination with the Interagency Team (including USFWS, NMFS, and LDWF) and the non-Federal sponsor has and will continue to occur in the development of these plans.

4. Concur, coordination with the Interagency Team (including USFWS, NMFS, and LDWF) and the non-Federal sponsor has and will continue to occur in the development of any additional plan details that may be forthcoming for the subject mitigation proposals.

The following is an excerpt from a revision letter to the draft project-specific Coordination Act Report (CAR) that was received from USFWS by letter dated May 16, 2012. The complete letter can be found in appendix D.

***“General Comments on the EA***
*We appreciate the Corps' written concurrence (Page 80, Section 5.0, USACE Response to USFWS Recommendations from CAR) with the four specific recommendations provided in our Fish and Wildlife Coordination Act report. Those recommendations emphasized the need to continue coordination during detailed mitigation plan development and monitoring phases. We also appreciate the coordination provide by the review of this RSEA. However, during our review of the RSEA we noted that of our 16 comments on the previous SEA (our November 21, 2011 letter), approximately only half of our comments were*

*incorporated into the RSEA. We believe that all of our comments should be addressed and coordinated with us prior to signing the Finding of No Significant Impact (FONSI). Of those comments, two are of special concern to the Service; one pertains to the need to modify the initial method of controlling invasive species (see first specific comment). The other concern is related to the proposal to turn Operation, Maintenance, Repair, Replacement, and Rehabilitation over to the local sponsor following initial plantings and prior to achievement of the 4-year [interim] success criteria (fourth and second to last specific comments). Specific concerns and proposed modifications are presented below.*

***Specific comments on the EA***

*Page 11 and 12, Section 1.2.3, Eradication of Invasive and Nuisance Plant Species - Based on the extensive professional experience of our resident forester with the eradication of Chinese tallow-trees on habitat restoration sites, the Service recommends that the techniques and chronology of the proposed invasive plant species control plan be modified. During early planning the Service may have supported the method proposed in the SEA and RSEA, however, methods to control Chinese tallow-tree control have recently been changed to improve their likelihood of success; those new methods should be implemented and the tallow-trees on the site have matured Therefore, we recommend that the site be mechanically cleared prior to the application of any chemical. Chemically treating the stand as it currently exists may prove largely unsuccessful due to the relatively uneven canopy structure, which would result in an uneven application, leaving many midstory and understory stems completely untreated. Mechanical clearing of the site 1 month after chemical treatment, as proposed, would not allow sufficient time for chemicals to be fully transported to the roots (significantly increasing the likelihood of root-sprouting). The proposed timeline for applying ground herbicide following mechanical clearing may also be ineffective because most of the future resprouting would take longer than 1 week to occur.*

*In order to increase the success of the proposed Chinese tallow-tree eradication, the Service recommends the following sequence of actions (they are listed in chronological order):*

*1) Mechanically clear the site with a hydro-axe or similar equipment. We support the tree disposal and mulching techniques discussed in "Step 2" in this section of the RSEA.*

*2) Allow a minimum of 2 months (during the growing season) for root resprouting to occur.*

*3) Use a tractor with boom-sprayer to apply chemicals to the Chinese tallow-tree resprouts. With this method, more cost-effective alternatives to Clearcast® may be used (if a foliar-application chemical is used, then it would not be necessary to use a discriminant/selective chemical such as Clearcast®). For the treatment of larger stumps, we support the "Cut*

*Stump Treatment" techniques discussed in "Step 3" in this section of the SEA. Chemical treatment should occur in the late summer or fall, when plant resources are being transported to the roots; this increases the likelihood of a complete "root-kill." The acceptable chemical treatment period is June 1 through October 15, with the optimum period occurring September 1 through October 15. To ensure effectiveness, the treatment must occur before the leaves begin to change color for the autumn season.*
*4) Allow adequate time for seed germination/sprouting to occur (i.e., a second growing season). Most seeds that did not germinate during the first year of site preparation, should germinate during the second growing season. Chemically treat the site as described in "3" above.*
*5) Plant bare-root seedlings during the following dormant season (December 15 – March 15). This would allow a minimum of 2 months between the second chemical treatment and the planting of seedlings.*

*Page 13, Section 1.2.4, BLH Planting, Paragraph 3 - We recommend using standards established by the Natural Resources Conservation Service for seedling selection (e.g., 3/8"- diameter root collar, 12" - 18" stem height plus 8" - 10" root length, and 4 - 8 lateral roots). Those standards (NRCS, Code 612, "Establishment Specifications - Tree/Shrub Establishment") were provided in an attachment to a June 9, 2011, electronic mail message from our office, and can be supplied again, if necessary. The second sentence of this paragraph states that planting could be delayed until late spring or early summer. The Service strongly recommends against the planting of bare-root seedlings beyond the standard March 15 deadline. Based on our experience, we would anticipate very high mortality rates for bare-root seedlings that are not dormant when planted.*

*Page 14, Table IB and Table 2 - We recommend the following modifications consistent with our previous informal suggestions regarding the Corps document titled "Guidelines – Wet Bottomland Hardwood Habitat Enhancement, Swamp Habitat Restoration, and Swamp Habitat Enhancement":*

*- Roughleaf dogwood, and honey locust should be removed from Table 2, based on factors such as site suitability, likelihood of natural regeneration, value to wildlife, and commercial availability of seedlings.*

*Page 16, Table 4 - We recommend the Corps remove elderberry from this table because of the likelihood of natural regeneration and recruitment.*

*Page 18, Section 1.2.8, Operations Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R) - We recommend that this section state that the Corps would maintain full responsibility for the mitigation project for a minimum of 4-years post planting. That would allow the 4-year success criteria to be evaluated (in accordance with the performance standards listed on pages 81 - 83 of the RSEA), prior to turning operation and maintenance responsibilities over to the local sponsor. Based on our experience, it would be virtually impossible to*

*reasonably forecast the likely future success of the mitigation project based solely on mitigation activities accomplished during year one. The second monitoring event, performed 4 years after the initial mitigation activities, would provide significantly more insight into the continued development, success, and effectiveness of the implemented features. Because mitigation is a project feature, we believe that waiting for the 4 year monitoring event is analogous to waiting for the completion of a levee lift to start OMRR&R; prior to that, the determination of success or completeness of a project (or project feature) would be lacking.*

*Page 19, Section 1.2.8, Invasive Species Control- We recommend identifying a specific level of Chinese tallow-tree abundance that would trigger the requirement for additional herbicide application. We also recommend including the potential for aerial applications of a discriminant/selective chemical such as Clearcast® should Chinese tallow-tree stem counts reach levels that may not be effectively treated via targeted ground herbicide application.*

*Page 19, Section 1.2.9, Data Gaps and Uncertainties – If the Corps is unable to implement the suggested modifications to Section 1.2.3. Eradication of Invasive and Nuisance Species, we recommend the Corps acknowledge the uncertainty associated with using the RSEA proposed method to control exotic species in regard to the achievement of the initial and possibly the 4-year success criteria.*

*Page 83, Section 6.0, Mitigation, Table 9: Twelve Components of a Compensatory Mitigation Plan, Component 8 - Performance Standards, Part 4 - Hydrology, Subpart A, Sentence 2 – Because wetland determinations are not based solely on hydrology, we recommend that the requirement for demonstrating that the area is a wetland be moved from the above-referenced section to the initial paragraph under Component 8 - Performance Standards. An alternative would be to create a new section that would be added within this component labeled specifically for the wetland determination requirements. The remaining criteria for determining a wetland should be included. We also recommend that a brief explanation of the wetland determination criteria be provided per the 1989 Federal Manual for Identifying and Delineating Jurisdictional Wetlands.*

*Page 83, Section 6.0, Mitigation, Table 9: Twelve Components of a Compensatory Mitigation Plan, Component 9 - Monitoring Requirements - The Service recommends that more specificity regarding monitoring be included in this section of the RSEA, such as the number of required sampling plots (for seedling survival, species ratios, presence of exotics, etc.), size of the sampling plots, identification of permanent sampling plots, establishment of sampling transects, frequency of comprehensive floristic surveys, and the general format of monitoring reports. We recommend consulting a recently approved wetland mitigation banking instrument/agreement (within the Corps New Orleans District) for detailed mitigation monitoring and reporting protocols and continue to coordinate this with the natural resource agencies.*

*Page 84, Section 6.0, Mitigation, Table 9: Twelve Components of a Compensatory Mitigation Plan, Component 9 - Monitoring Requirements, Paragraph 3, Sentence 1 - It states that after monitoring responsibilities are transferred to the local sponsor, the next monitoring event would occur 4 years after the initial planting. Under that scenario, it appears that the Corps would only be required to implement the project (i.e., achieve the first year success criteria). We again recommend that the Corps maintain full responsibility for the mitigation project for a minimum of 4-years post planting, which would allow the 4-year success criteria to be evaluated prior to delegating operation and maintenance responsibilities to the local sponsor. Data gathered during the 4-year post implementation monitoring effort would provide significantly more insight into the likelihood of long-term success of the implemented features. Please also refer to our comments on Page 18, Section 1.2.8, Operations Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R).*

*Page 85, Section 6.0, Mitigation, Table 9: Twelve Components of a Compensatory Mitigation Plan, Component 12 - Financial Assurances - Due to the prevalence of Chinese tallow-tree, the influence of an existing forced-drainage system, recent droughts, as well as other potential natural and anthropogenic factors, it appears likely that certain corrective actions may be required to ensure the long-term success of the proposed mitigation projects. The Service is concerned that, without guaranteed funds dedicated to the success of those projects, future budget shortfalls could preclude the Corps and the local sponsor from performing such remedial actions, if necessary. We, therefore, recommend that the Corps develop a reasonable estimate of likely expenditures (for actions such as recurring Chinese tallow-tree control, repairs to the proposed water retention dike, maintenance of fencing and posting, and replanting of seedlings) that would be necessary to ensure the long-term , success of the mitigation project, and deposit those funds into an escrow account or into an account with a third-party non-profit conservation foundation (such as the Wildlife and Fisheries Foundation - http://www.wlf.1ouisiana.gov/lwff).”*

**USACE Response to USFWS Recommendations from a revision letter to the draft project-specific CAR**

General Comment – Partial Concur please see our specific responses below.

Specific Comments on the EA

1. Concur - Modification of the eradication of invasive and nuisance plant species has been made to include mechanically clearing prior to the use of chemicals, and changing the timing of chemical treatment and planting.

2. Concur - Modified planting section to use standards establish by NRCS.

3. Concur - Table has been modified to remove species.

4. Concur - Table has been modified to remove species.

5. Do Not Concur - Although the NFS is responsible for operation and maintenance of functional portions of the mitigation work as they are complete, USACE will continue its involvement in the project at least until the project achieves its initial success criteria. After initial construction, invasive species control and planting, USACE will perform monitoring and will undertake additional actions (including additional construction, invasive species control and/or planting) as necessary until the project achieves its initial success criteria subject to relevant cost-sharing and availability of funds. After initial success criteria are reached, USACE will continue to support the NFS's operation and maintenance of the mitigation project features as follows; if the project is not achieving its performance milestones, USACE will consult with the NFS and other agencies, to consider operational changes to the mitigation plan and/or adaptive management measures to be implemented in accordance with relevant guidance, cost-sharing requirements and subject to availability of funds.

6. Concur - Modification of the section to point to Table 9 where a 5% plant cover trigger is discussed.

7. Concur - See comment 1 above

8. Concur – Section was modified to remove wetland delineation from the hydrology section and also to provide links to where the delineation manual and regional supplement can be found.

9. Concur – Section was modified to include approximate number of stations and miles of transects that would be required for monitoring.

10 Do Not Concur –Although the NFS is responsible for operation and maintenance of functional portions of the mitigation work as they are complete, USACE will continue its involvement in the project at least until the project achieves its initial success criteria. After initial construction, invasive species control and planting, USACE will perform monitoring and will undertake additional actions (including additional construction, invasive species control and/or planting) as necessary until the project achieves its initial success criteria subject to relevant cost-sharing and availability of funds. After initial success criteria are reached, USACE will continue to support the NFS's operation and maintenance of the mitigation project features as follows; if the project is not achieving its performance milestones, USACE will consult with the NFS and other agencies, to consider operational changes to the mitigation plan and/or adaptive management measures to be implemented in accordance with relevant guidance, cost-sharing requirements and subject to availability of funds.

11 Do Not Concur -At this time, USACE does not require the NFS to establish an escrow account to ensure continuing success of the mitigation features of USACE civil works projects and USACE doesn not establish such accounts. In accordance with WRDA 1986 and WRDA

2007 (33 USC Sec 2283), USACE implements appropriate mitigation to compensate for project impacts to fish and wildlife resources. As with other project features, the on-going operation, and maintenance of such mitigation features is governed by the relevant Project Partnership Agreement and the project O&M manual.

## 6.0 MITIGATION

The appropriate application of mitigation is to formulate an alternative that first avoids, then minimizes, and lastly, compensates for unavoidable adverse impacts. This SEA evaluates the potential impacts associated with the proposed mitigation project which consists of BLH enhancement (BAS) adjacent to Bayou Segnette State Park, Jefferson Parish, the Willowridge subdivision phase 6 site (STC), St. Charles Parish and the preservation of swamp west of the Davis Pond guide levee and adjacent to the Salvador Wetland Management Area (WMA), St Charles Parish to mitigate for pre-Katrina impacts from the construction of the West Bank and Vicinity Hurricane Protection Project (WBV). The northern boundary of the BAS site was moved south to avoid potential impacts to a known cultural site. This document serves as the mitigation plan required by33 CFR 332.4(c) and 40 CFR 230.92.4(c). The twelve components of a compensatory mitigation plan are located in various sections of this document (Table 9).

**Table 9: Twelve Components of a Compensatory Mitigation Plan**

| **Components** | **Sections** |
|---|---|
| 1. Objectives | The three original WBV EIS, SEA section 1.2 |
| 2. Site Selection | The three original WBV EIS; SEA sections 1.2, 2.1.1, and 2.1.5 |
| 3. Site Protection Instrument | Any private lands within both sites would be acquired in fee, excluding oil and gas with restrictions on the use of the surface. Any land that is owned, claimed, or controlled lands by the State or any other nonfederal governmental entity will be brought to the project via an Authorization for Entry. Any Federal lands would be brought to project, whether via a Special Use Permit or otherwise. The non-Federal sponsor would be responsible for operation, maintenance, repair, rehabilitation, and replacement of the mitigation site in perpetuity. |
| 4. Baseline Information | SEA section 3.0, piezometers. |
| 5. Determination of Credits | The three original WBV EIS and various SEAs, SEA sections 1.6. |
| 6. Mitigation Work Plan | SEA section 1.2 (1.2.1 to 1.2.9). Coordination with the Interagency Team (including USFWS, NMFS, and LDWF) and the Sponsor has and will continue to occur in the development of the mitigation plan. |
| 7. Maintenance Plan | SEA sections 1.2.8; also to be outlined in OMRR&R Manual |
| 8. Performance Standards | Performance Standards are established to measure achievement of planned compensation for unavoidable impacts to wetland and wildlife habitat. The mitigation sites must be shown to progress from their current state towards vegetated BLH. Elements that can be measured to show this progression include: depth below surface of the water table, # of days water table is less than 1 foot below land surface, % plant cover, and demonstrate that the area would be delineated as a wetland (The delineation manual and regional supplement can be found at |

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| | http://www.mvn.usace.army.mil/ops/regulatory/wlman87.pdf and http://www.mvn.usace.army.mil/ops/regulatory/Regional%20Supplement%20to%20manual%20Atlantic%20Gulf%20Coast%20Ver%202%200%20Nov2010%20FINAL.pdf).<br><br>The success (performance) criteria described herein are applicable to both proposed BLH-Wet habitats and BLH-Dry habitats, unless otherwise indicated. Success Criteria are as follows:<br>1. General Construction - complete all necessary initial earthwork and related construction activities in Mitigation TY1 (BAS site only).<br>2. Native Vegetation<br>A. Complete initial planting of canopy and midstory species.<br>B. 1 Year Following Completion of Initial Plantings (at end of first growing season following plantings) –<br>• Achieve a minimum average survival of 50% of planted canopy species (i.e. achieve a minimum average canopy species density of 269 seedlings/ac.). The surviving plants must approximate the species composition and the species percentages specified in the initial plantings component of the Mitigation Work Plan. These criteria would apply to the initial plantings as well as any subsequent replantings necessary to achieve this initial success requirement.<br>• Achieve a minimum average survival of 85% of planted midstory species (i.e. achieve a minimum average midstory species density of 93 seedlings/ac.). The surviving plants must approximate the species composition percentages specified in the initial plantings component of the Mitigation Work Plan. These criteria would apply to the initial plantings as well as any subsequent replantings necessary to achieve this initial success requirement.<br>C. 4 Years Following Completion of Initial Plantings –<br>• Achieve a minimum average density of 300 living native canopy species per acre (planted trees and/or naturally recruited native canopy species).<br>• Achieve a minimum average density of 120 living, native, hard mast-producing species in the canopy stratum but no more than approximately 150 living hard-mast producing species in the canopy stratum (planted trees and/or naturally recruited native canopy species). The remaining trees in the canopy stratum must be comprised of soft-mass producing native species. These criteria would thereafter remain in effect for the duration of the overall monitoring period. Modifications to these criteria could be necessary for reasons such as avoidance of tree thinning if thinning is not warranted and the long-term effects of sea level rise on tree survival. Proposed modifications must first be approved by the USACE in coordination with the Interagency Team.<br>• Achieve a minimum average density of 85 living native midstory species per acre (planted midstory and/or naturally recruited native midstory species).<br>• For BLH-Wet habitats only -- Demonstrate that vegetation satisfies USACE hydrophytic vegetation criteria. This criterion would thereafter remain in effect for the duration of the overall monitoring period.<br>D. Within 10 Years Following Completion of Initial Plantings –<br>• Attain a minimum average cover of 80% by planted canopy species and/or naturally recruited native canopy species. This criterion would thereafter remain in effect for the duration of the overall monitoring period.<br>E. 15 Years Following Completion of Initial Plantings – |

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| | • Achieve a minimum average density of 75 living native plants per acre in the midstory stratum (planted midstory and/or naturally recruited native midstory species).<br>F. 25 Years Following Completion of Initial Plantings –<br>• Average cover by native species in the midstory stratum must be greater than 20% but cannot exceed 50%. This criterion would thereafter remain in effect for the duration of the overall monitoring period.<br>• Average cover by native species in the understory stratum must be greater than 30% but cannot exceed 60%. This criterion would thereafter remain in effect for the duration of the overall monitoring period.<br>Note: The requirement that the above criteria remain in effect following attainment of initial success may need to be modified later due to factors such as the effect of sea level rise on vegetative cover. Proposed modifications must first be approved by the USACE in coordination with the Interagency Team.<br>3. Invasive and Nuisance Vegetation<br>A. Complete the initial eradication of invasive and nuisance plant species.<br><br>B. Maintain all areas such that they are essentially free from invasive and nuisance plant species immediately following a given maintenance event and such that the total vegetative cover accounted for by invasive and nuisance species each constitute less than 5% of the total plant cover during periods between maintenance events. Note - These criteria must be satisfied throughout the duration of the overall monitoring period.<br>4. Hydrology (applicable to BLH-Wet habitats only)<br>A. 1 Year Following Completion of WRD (a year having essentially normal rainfall), demonstrate that the water table is less than or equal to 12 inches below the soil surface for a period of at least 14 consecutive days (data from piezometers).<br>B. If the mitigation program includes actions intended to enhance site hydrology or hydroperiod, demonstrate that the affected site is irregularly inundated or soils are saturated to the soil surface for a period ranging from 7% to approximately 13% of the growing season during a year having essentially normal rainfall. The Mitigation Work Plan for a specific site may establish more specific hydrologic enhancement goals. If this is the case, demonstrate attainment of the specific goals identified in the plan. Every 5 years verify wetland determination/delineation.<br>For management area STC site: overall stand basal area between 80 and 100 square feet per acre and overstory canopy closure at 80 percent. |
| 9. Monitoring Requirements | Monitoring would typically take place in late summer of the year of monitoring, but may be delayed until later in the growing season due to site conditions or other unforeseen circumstances. Monitoring reports would be submitted by December 31 of each year of monitoring. Monitoring reports would be provided to the USACE, the Sponsor, and the agencies comprising the Interagency Team. The Interagency Team will participate in developing the site specific monitoring plan, which will include number, size, and location of permanent sampling plots and transects, before the first monitoring event. Approximately one permanent monitoring station for every 20 acres of the actively managed areas of the mitigation site (Approximately 6 stations in the BAS site and 5 stations in the STC site). Transect should cover approximately 3% of the total number the initial plantings and arranged so that a representative sample of the entire site is obtained (Approximately 5 miles in the BAS site 1 mile in the STC site). |

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| | The USACE would be responsible for conducting the monitoring events and preparing the associated monitoring reports until such time that the following mitigation success criteria are achieved (criteria follow numbering system used in success criteria section):<br>1. General Construction – 1.A or 1.B, as applicable.<br>2. Native Vegetation – A and B.<br>3. Invasive & Nuisance Vegetation – A plus B<br>4. Hydrology – A, as applicable, or B, as applicable.<br><br>Monitoring events associated with the above would include the "time zero" (first or baseline) monitoring event plus annual monitoring events until USACE determines that the mitigation has achieved initial success criteria, thereafter monitoring will be performed by the Non-Federal Sponsor as part of its OMRR&R obligations. The years applicable to these monitoring events would vary depending on the type of mitigation involved (restoration or enhancement) and site conditions present at the time mitigation activities are initiated. For example, the first monitoring event may occur in 2014 (TY2) for certain mitigation sites while this event may not occur until 2015 (TY3) for other mitigation sites.<br><br>The Sponsor would be responsible for conducting the required monitoring events and preparing the associated monitoring reports after the USACE has demonstrated the mitigation success criteria listed above have been achieved. The overall responsibility for OMRR&R of the mitigation would be transferred to the Sponsor as the functional portions of work are completed. .<br><br>Once monitoring responsibilities have been transferred to the Sponsor, the next monitoring event would take place during the year that attainment of success criterion 2.C (native vegetation criterion applicable 4 years after completion of initial plantings) must be demonstrated. Thereafter, monitoring would be conducted every 5 years throughout the life or the mitigation project (based on 100-year project life beginning in 2013 (TY0) and ending in 2113 (TY100)).<br><br>If the initial survival criteria for planted canopy and midstory species are not achieved (i.e. the 1-year survival criteria specified in success criteria 2.B), a monitoring report would be required for each consecutive year until two annual sequential reports indicate that all survival criteria have been satisfied (i.e. that corrective actions were successful). The USACE would be responsible for conducting this additional monitoring and preparing the monitoring reports. The USACE would also be responsible for the purchase and installation of supplemental plants needed to attain these success criteria in accordance with cost sharing applicable to the project and subject to the availability of funds.<br><br>If the native vegetation success criteria specified for 4 years following completion of initial plantings are not achieved (i.e. success criteria 2.C) , a monitoring report would be required for each consecutive year until two annual sequential reports indicate that these criteria have been satisfied. The Sponsor would be responsible for conducting this additional monitoring and preparing the monitoring reports. The Sponsor would also be responsible for the purchase and installation of supplemental plants needed to attain |

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| | these success criteria.<br><br>The year in which mitigation features are first planted, a key milestone triggering the start of mitigation monitoring, may vary depending on the type of mitigation involved and the mitigation construction activities involved. In certain cases, it is also possible that the BLH mitigation features may be established along with other mitigation features like swamp or marsh habitats at the same mitigation site. Such factors make it necessary to develop a reasonable and efficient monitoring schedule at the time final mitigation plans are generated. This schedule must be in general accordance with the guidance provided above and would be prepared by the USACE in coordination with the Interagency Team and the Sponsor.<br><br>Once monitoring responsibilities have transferred to the Sponsor, the Sponsor would retain the ability to modify the monitoring plan and the monitoring schedule should this become necessary due to unforeseen events or to improve the information provided through monitoring. Twenty years following completion of initial plantings, the number of monitoring plots and/or monitoring transects that must be sampled during monitoring events may be reduced substantially if it is clear that mitigation success is proceeding as anticipated. Any significant modifications to the monitoring plan or the monitoring schedule must first be approved by the USACE in coordination with the Interagency Team. |
| 10. Long-Term Management Plan | CEMVN is responsible for this mitigation project for the duration of the initial construction phase to verify mitigation success and to complete project features if necessary. The non-Federal sponsor shall be responsible for OMRR&R of functional portions of work as they are completed. The non-Federal sponsor shall be responsible for maintaining the mitigation site in perpetuity. SEA section 1.2.8 |
| 11. Adaptive Management Plan | In the event reports in component 9 submitted to CEMVN reveal that any success criteria have not been met during OMRR&R phase, the non-Federal sponsor, or its assigns after consultation with CEMVN and other appropriate agencies, would take all necessary measures to modify management practices in order to achieve these criteria in the future.<br><br>If the results of the monitoring program support the need for physical modifications to the project, CEMVN would determine and implement the appropriate corrections subject to availability of funds and relevant cost-sharing requirements and in accordance with current authority and budgetary and other guidance, including the potential to consider implementing corrective measures under separate authority.<br><br>If, one year after planting, survival is less than 50 percent of the initial number of plants, as determined by sampling or by observing high mortality at any location within the planted tract, CEMVN, or its assigns, would take appropriate actions to address the causes of mortality and replace all dead plants in accordance with cost sharing applicable to the project and subject to the availability of funds.<br><br>In the event that the hydraulic modifications does not result in meeting the performance standards and BLH-wet habitat is not created, additional hydraulic modification may be needed or alternative mitigation would have to be developed. |
| 12. Financial | Financial assurances are required to ensure that the compensatory mitigation project |

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| Assurances | would be successful. In this case the WBV Project Cooperation Agreement between the CPRA of Louisiana and the Federal Government provides the required financial assurance for this mitigation project. In the event that the non-Federal sponsor fails to perform, the CEMVN has the right to complete, operate, maintain, repair, rehabilitate or replace any project feature, including mitigation features, but such action would not relieve CPRA of its responsibility to meet its obligations and would not preclude the US from pursuing any remedy at law or equity to ensure CPRA's performance. |

## 7.0 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

Environmental compliance for the proposed action would be achieved upon: coordination of this EA and draft FONSI with appropriate agencies; USFWS (September 9, 2011) confirmed that the proposed action would not adversely affect any endangered or threatened species. A request for modification of the existing concurrence (C20110476 14 December 2011) has been sent to the Louisiana Department of Natural Resources with the determination that the proposed action is consistent, to the maximum extent practicable, with the Louisiana Coastal Resources Program. A modification of the existing State Water Quality Certificate WQC 900402-22/AI 101235/CER 20110008 25 October 2011) has been requested from the Louisiana Department of Environmental Quality. Public review of the Section 404(b)(1) Public Notice was completed on 28 November 2011. The Section 404(b)(1) evaluation will not be signed until the end of the review period of this SEA. Letters of consultation with federally recognized tribes and the Louisiana State Historic Preservation Officer were sent on October 6, 2011 with a recommendation of no effect on historic properties. The Choctaw Nation of Oklahoma and the State Historic Preservation Officer provided concurrence with the no adverse effects determination in letters both dated 09 November 2011. This office has concurred with, or resolved, all Fish and Wildlife Coordination Act recommendations contained in a letter from the U.S. Fish and Wildlife Service, dated 19 October 2011. This office will concur with, or resolve, any comments on the air quality impact analysis documented in the EA, received from Louisiana Department of Environmental Quality. The proposed action does not affect any essential fish habitat. The draft FONSI will not be signed until the proposed action achieves environmental compliance with applicable laws and regulations, as described above. Appendix D lists the dates of interagency correspondence and contains copies of the above cited correspondence.

## 8.0 CONCLUSION

The proposed action which consists of BLH enhancement (BAS) adjacent to Bayou Segnette State Park, Jefferson Parish, and at the Willowridge subdivision phase 6 site (STC), St. Charles Parish and the preservation of swamp/BLH and management of BLH west of the Davis Pond guide levee and adjacent to the Salvador Wetland Management Area (WMA), St Charles Parish. The CEMVN has assessed the environmental impacts of the proposed action and has determined that the proposed action would have the following impacts.

Minor short term impacts to air quality, water quality, noise and vibration, wildlife, fisheries T&E Species, recreation resources, aesthetics, and socioeconomics. There would be a minor direct impact to fresh marsh. There would be no direct negative impact to cultural resources by

the proposed action. There would be no disproportionate negative impacts to minority or low-income populations due to the proposed action. The probability of encountering HTRW in the WBV Mitigation Areas is very low. Approximately 125 acres of Chinese tallow would be converted to BLH as well as13 acres of open field. The proposed action would preserve approximately 1,211acres if swamp/BLH and mange 90.9 acres of BLH. With the proposed alternative the previously authorized WBV compensatory mitigation requirements would be satisfied.

Based on the following criteria: engineering effectiveness, economic efficiency, and environmental and social acceptability, the proposed alternative provides the required mitigation, is cost effective, and has a shorter duration than the other alternatives. The no action alternative would not provide the needed mitigation.

## 9.0 PREPARERS

SEA-498 and the associated draft FONSI were prepared by:

| | |
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| Recreational Resources | Debra Wright, CEMVN |
| Environmental Justice | Kayla Fontenot, CEMVN |
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## 10.0 REFERENCES

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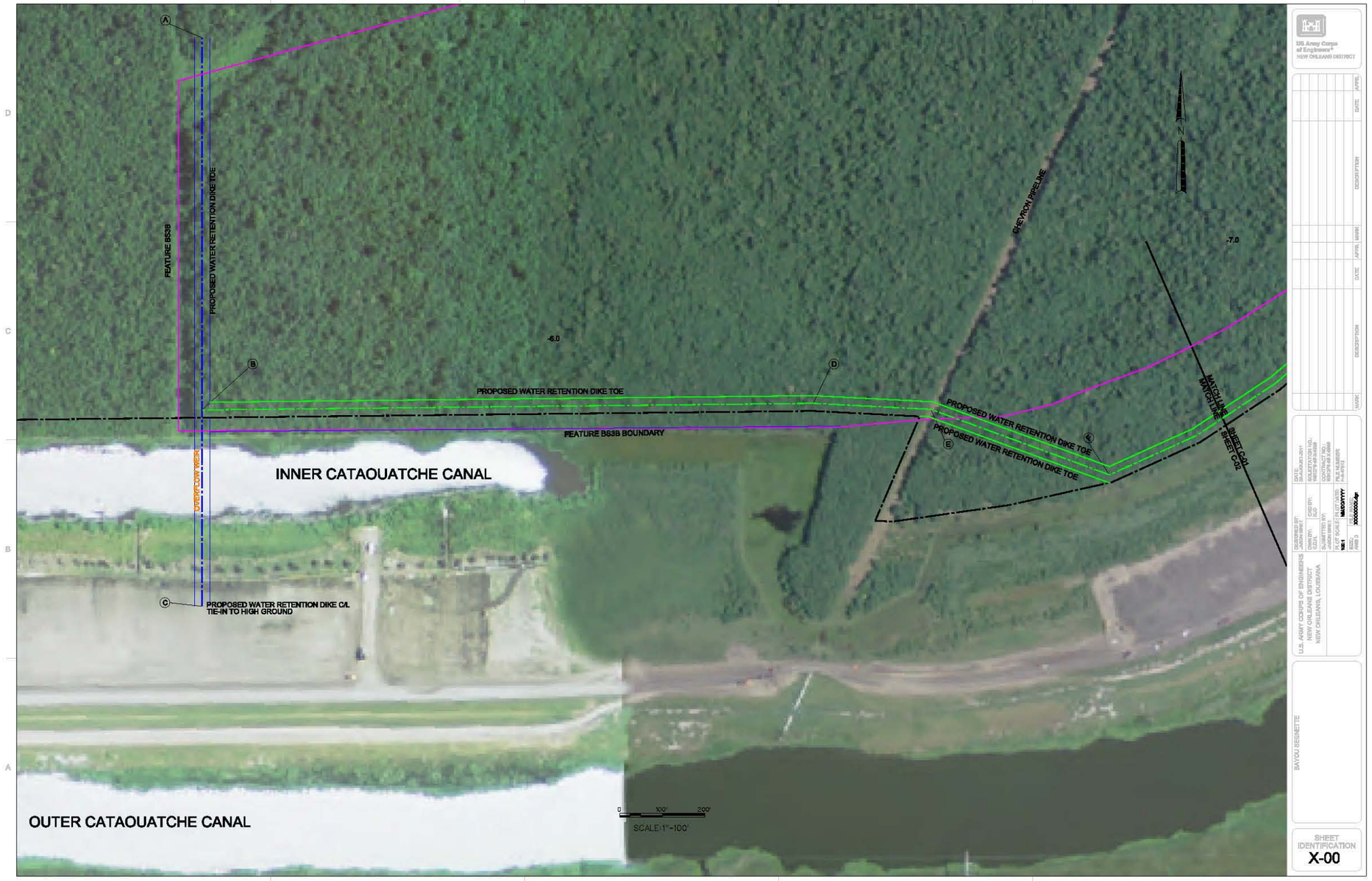


**Plate 1: Water Retention Dike - Western Side (Tie-In C)**


**Plate 2: Water Retention Dike – Eastern Side (Tie-Ins J and K)**


**Plate 3: WBV-HSDRRS – Original and Constructed Alignments**

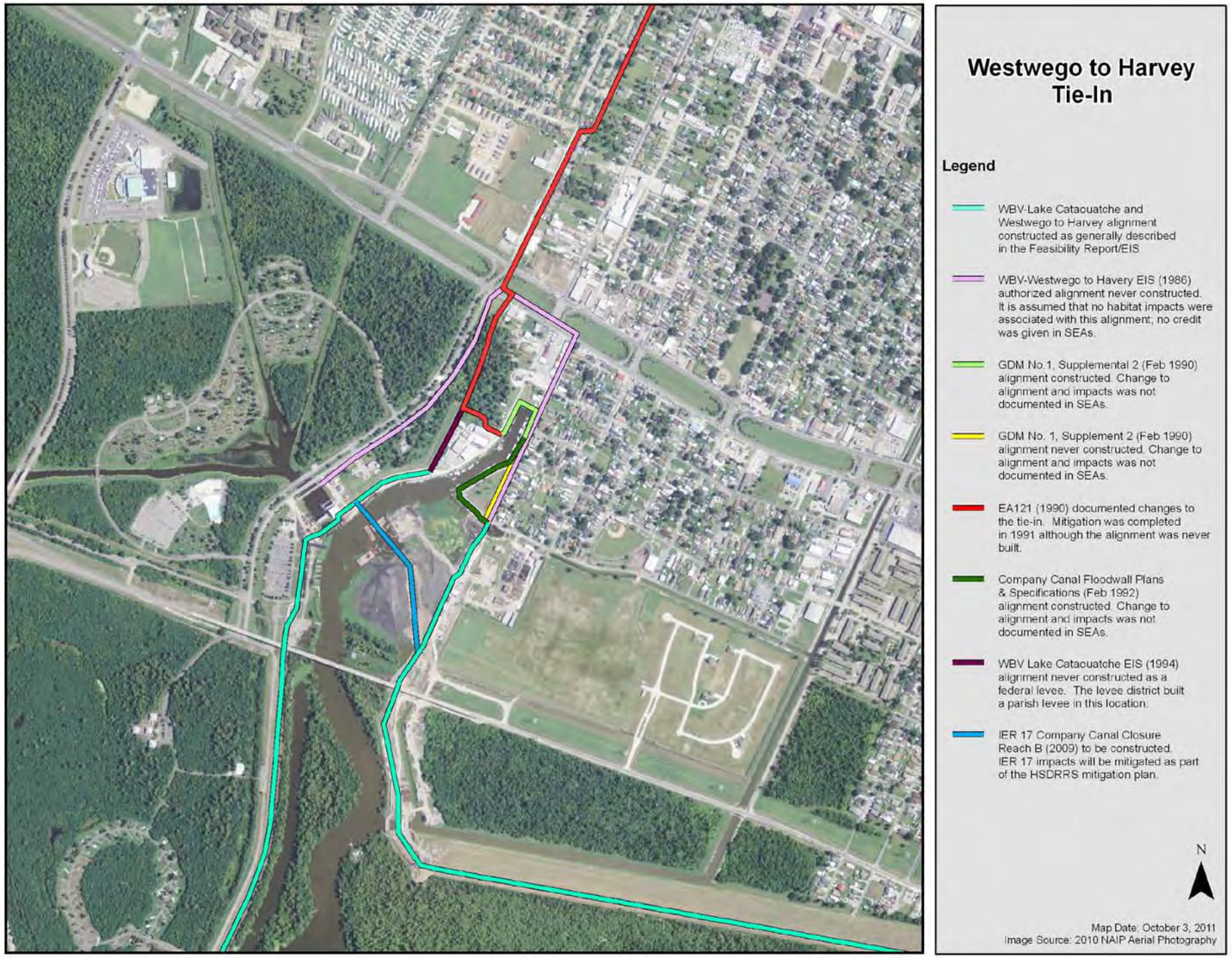


**Plate 4: WBV-HSDRRS – Original and Constructed Alignments – Westwego to Harvey Tie-In**

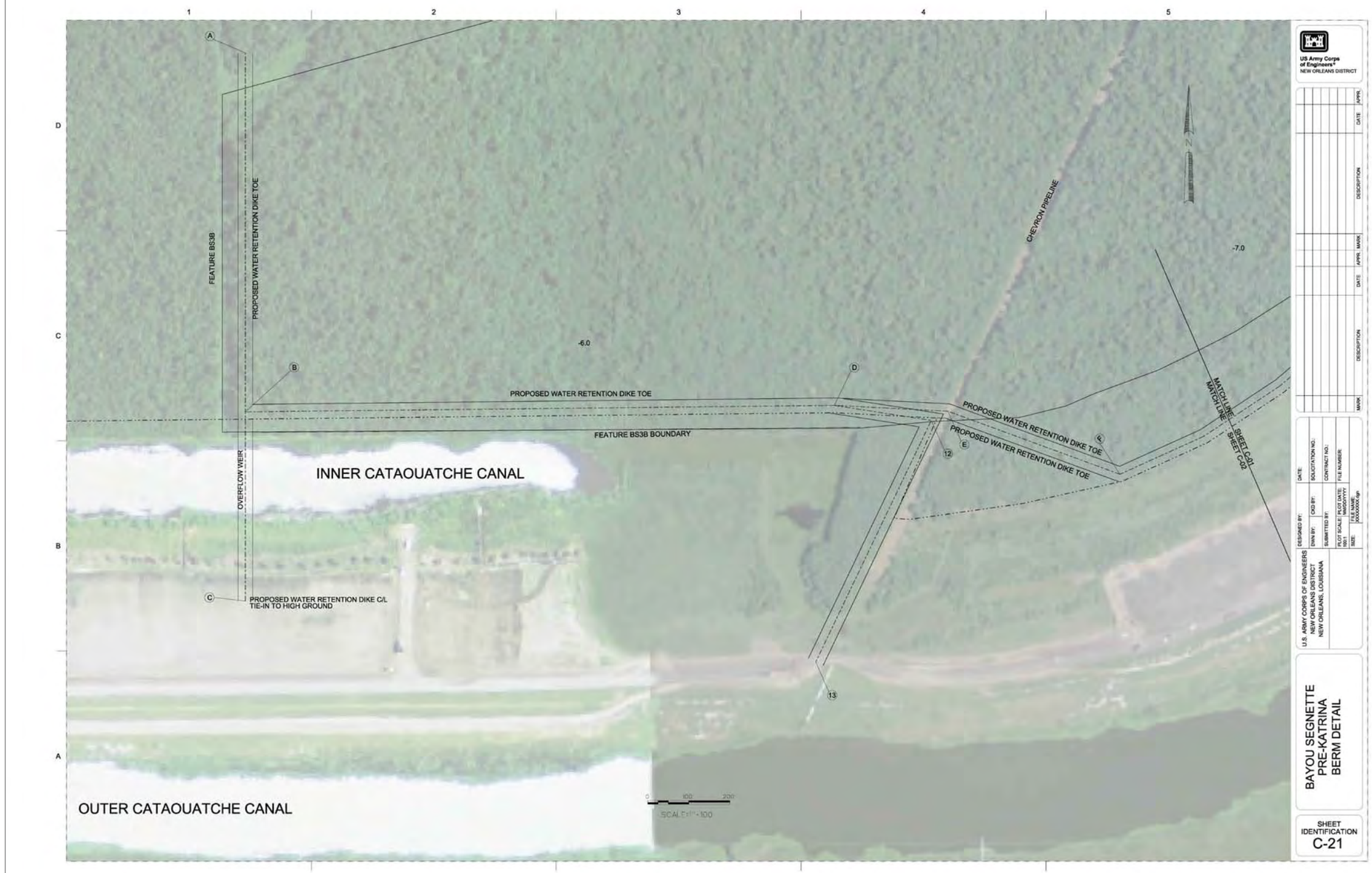


**Plate 5: Water Retention Dike - Western Side (Tie-In 13) New Alternative Tie-in**

# Appendix G: 404(b)(1)

**US Army Corps of Engineers,**
**New Orleans District**

To: File

From: Eric Glisch, CEMVN-EDH

CC:

Date: May 15, 2020

Re: 404(b)(1) Evaluation for the Proposed WBV St. Charles Parish Mitigation, St. Charles Parish, Louisiana

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A short form 404 (b)(1) evaluation of the Federal actions for the subject project was performed by ED-H for water quality, hydraulics, and hydrologic impacts. Existing data were used to make factual determinations for the subject actions. The following summarizes the review process and comments noted:

## I. Subpart B – Review of Compliance

a. *230.10 (b) (1)*: After consideration of disposal site dilution and dispersion, there are no expected violations of State water quality from the proposed Federal actions.

## II. Subpart C – Physical and Chemical Characteristics of the Aquatic Ecosystem

a. *230.20 - Substrate Impacts*: The proposed project includes degrading twelve 100 ft sections of a roadbed/berm 7,000 ft in length and approximately 4 ft high. The sections to be degraded would be excavated to an elevation of approximately -1.5 ft NAVD88. Material excavated would be placed into the adjacent drainage ditch where berm material originated. A total of approximately 3,000 cubic yards would be excavated and placed into the canal. The USDA National Resources Conservation Service Web Soil survey indicates berm materials are likely to be poorly drained clays, primarily a combination of Shriever clay and Cancienne silty clay loam (USDA-NRCS 2020). A total of 19 cubic yards of crushed stone would be placed over excavated sections to allow the roadbed along the berm to remain continuous.

In addition, a temporary earthen bridge would be constructed across the pump station outfall channel to allow construction access to the roadbed, and would be removed following construction activities.

The disposal of berm material in the adjacent drainage ditch would adversely affect

any immobile organisms present in the canal, which would be smothered by dredged material. Following project construction activities, the infilled ditch is expected to be transition to wetlands habitat, and organisms suited to this habitat type would gradually establish within its footprint.

b. *230.21 – Suspended Particulates/Turbidity Impacts*: The proposed actions are not expected to directly result in significant, long-term impacts to water column suspended particulate and turbidity levels.

*c.* *230.22 – Water Column Impacts*: Material placement is expected to result in short-term and localized impacts to water column suspended particulates and turbidity levels. See also IV.a.

d. *230.23 – Alteration of Current Patterns and Water Circulation*: The proposed project is intended to encourage sheet flow, beneficially altering project area hydrology. Alterations to current patterns and water circulation from berm gapping are described in USACE 2019. The temporary earthen bridge over the pump station outfall canal would include culverts to minimize temporary impacts to current patterns and water circulation.

e. *230.24 – Alteration of Normal Water Fluctuations/Hydroperiod*: The proposed project is intended to encourage sheet flow, beneficially altering project area hydrology. Alterations to normal water levels and hydroperiod from berm gapping are described in USACE 2019. The temporary earthen bridge over the pump station outfall canal would include culverts to minimize temporary impacts to water levels.

f. *230.25 – Alteration of Salinity Gradients:* Due to the small size and location of the proposed project, it would have negligible effects on salinity gradients.

## III. Subpart F – Human Use Characteristics

a. *230.50 – Effects on Municipal and Private Water Supplies*: N/A; there are no known municipal or private water supplies in the project area.

## IV. Subpart G – Evaluation of Dredged or Fill Material

a. *230.61 (a) – Considerations in Evaluating the Biological Availability of Possible Contaminants in Dredged or Fill Material:* Fill material used for temporary earthen bridge construction and crushed stone placed for roadbed continuity is not expected to be contaminated.

No sediment or water quality data is available for the project area. Material to be degraded and used to backfill the adjacent drainage ditch is from a remote area that experiences very little road traffic. The EPA MyEnvironment map interface does not suggest there are any industrial point sources of pollution to sediment or surface waters in the immediate vicinity (USEPA 2020). However, the adjacent drainage ditch has been receiving stormwater inflows via pump station from a combined residential

and undeveloped forested area east of Boutte, Louisiana over a long period. Pollutants from stormwater discharges from this community are likely to include fertilizers and pesticides used for lawn care and pest control, oil and grease from automobiles and machinery, and other household chemicals. Because of the nature of the area, any pollutants that do not infiltrate into residential soils and are not degraded are likely to be washed from surfaces during rainfall events and conveyed by drainage ditches and canals to the pump station, whence they are discharged into project area surface waters and wetlands. Roadbed material, particularly material near or below typical surface water elevations in the vicinity, may contain pollutants associated with stormwater runoff. However, waterbottom sediments within the adjacent ditch are likely to also contain these pollutants. The placement of roadbed material into the ditch is therefore not anticipated to appreciably alter the chemical nature of material within the ditch footprint. Filling in the ditch would modify hydrology such that in the future, pollutants associated with stormwater runoff would likely be dispersed over a larger area compared to existing conditions.

In addition, there are several industrial facilities within five miles of the project area to the north in Luling and Destrehan which produce industrial air emissions and inject chemicals underground. The facility with the largest emissions and injections in 2018 was Monsanto Co. in Luling, Louisiana. The chemicals with the largest air emissions near the project area included n-Hexane (462,606 lbs), ammonia (78,620 lbs), formaldehyde (14,900 lbs), chloromethane (10,480 lbs), and chlorine (10,368 lbs), and the chemicals with the largest underground injections included formaldehyde (11,000,000 lbs), formic acid (7,100,000 lbs), ammonia (456,400 lbs), methanol (190,000 lbs), and chloromethane (72,000 lbs). The effects of air emissions on sediment and surface water quality in project area would depend on the fate of chemicals during emissions and once in the atmosphere, and the sensitivity of organisms exposed to these chemicals in synergy with other compounds present in water and sediment. Migration of chemicals from underground injection wells into the project area is another possible route of exposure to industrial chemical waste. Aerial imagery of the project area does not suggest severe pollution by industrial or other sources.

Additionally, spill reports from 2015 to the time this memo was prepared (May 14th 2020) were reviewed for the zip code 70070 (USCG 2020). Five spills were included in the reports, three of which were from the Monsanto Company, one from Expert Oil and Gas, and one from Magnolia Fleet. The three spills reaching water were for very small quantities of chemicals: 1 cup of well bar oil, 1 lb of sewage, and 1 teaspoon of hydraulic oil. Also reported were a spill of sulfuric acid to soil and a release to air of methyl chloride, quantities for which were not included in the reports.

**Appropriate references: See VIII below**

*b.* An evaluation of the appropriate information in VI(a) above indicates that there is reason to believe the proposed dredge or fill material is not a carrier of contaminants, or the material meets the testing exclusion criteria: Yes. Roadbed material is not

expected to be appreciably different from ditch waterbottom material, and roadbed material was originally borrowed from the ditch.

## V. Disposal Site Delineation

a. *230.11 (f) – Considerations in Evaluating the Disposal Site:* See II.b-c.

b. An evaluation of the appropriate factors in V(a) above indicates that the disposal site and/or size of mixing zone are acceptable:

## VI. Subpart H - Actions to Minimize Adverse Effects

All appropriate and practicable steps have been taken, through application of the recommendations of *230.70 – 230.77* to ensure minimal adverse effects of the proposed discharge:

## VII. Factual Determinations

A review of appropriate information as identified in items I - VI above indicates that there is minimal potential for short- or long-term environmental effects of the proposed discharge:

a. Physical substrate at the disposal site (review sections II, IV, V, and VI above): Yes

b. Water circulation, fluctuation and salinity (review sections II, IV, V, and VI): Yes

c. Suspended particulates (review sections II, IV, V, and VI): Yes

d. Contaminant availability (review sections II, IV, and V): Yes

## VIII. References


a. U.S. Army Corps of Engineers, New Orleans District (USACE-NOD). 2019. WBV-03 St. Charles Parish Hydraulic Model Fact Sheet.
b. U.S. Coast Guard (USCG). 2020. National Response Center. https://nrc.uscg.mil
c. U.S. Environmental Protection Agency (USEPA). 2020. MyEnvironment. https://www3.epa.gov/myem/envmap/find.html
d. U.S. Department of Agriculture, Natural Reosurces Conservation Service (USDA-NRCS). Web Soil Survey. https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

The following short form 404(b)(1) evaluation follows the format designed by the Office of the Chief of Engineers, (OCE). As a measure to avoid unnecessary paperwork and to streamline regulation procedures while fulfilling the spirit and intent of environmental statutes, New Orleans District is using this format for all proposed project elements requiring 404 evaluation, but involving no adverse significant impacts.

PROJECT TITLE. St. Charles Parish Swamp and Bottomland Hardwoods Mitigation, St. Charles Parish, Louisiana

PROJECT DESCRIPTION. The New Proposed Action would revise previously developed mitigation plans to enhance and preserve swamp and bottomland hardwoods habitat as adaptive management at the Saint Charles West Bank and Vicinity (WBV) mitigation site (Figure 1). Since 2012, there has been obvious tree mortality within the mitigation area. Adaptive management is required at the site to to improve hydrology to benefit approximately 74 acres of bottomland hardwood and swamp species native to southern Louisiana.

**Excavation of Cuts.** The existing berm is approximately 7,000 feet in length and 4 ft high with a two-track path, and prevents water from draining from the mitigation site. The berm was originally constructed from borrow material immediately adjacent to the northeast side of the berm, which is presently a shallow ditch.

Twelve 100 foot cuts would be made in the existing berm at 500 foot intervals (Figure 2) to improve drainage. The berm would be excavated to match the elevations found in the existing forested area, which is an elevation of approximately -1.5 ft NAVD88. Cuts would be excavated to a bottom length of 100 feet. The ends of each cut must be graded to the existing elevation of the berm to retain access for recreational vehicles.

The material from the cuts in the berm will be disposed of on-site, first filling the ditch, then by spreading the material to a distance reachable by the equipment, and not to exceed the elevation of the bottom of the cuts. The excavated material would be smoothed not to exceed the elevation of the bottom cuts to maintain sheet-flow across the area. Should there be excess excavated material, it should be disposed of off-site at a properly licensed facility for the material. Contractor should construct cuts in a manner to assure that complete water interchange is afforded between the cut and existing swamp upon completion of excavation and installation of crushed stone.

Approximately 3,000 cubic yards of material will be removed from the berm. The bottom of the cuts will be covered with an aggregate base consisting of approximately 19 cubic yards of crushed stone so the two-track path on the crown of the berm can continue to serve recreationalists. The equipment for the excavation and crushed stone placement would use the existing berm footprint to traverse the site to reduce damage to the surrounding environment.

**Staging Area.** The construction team would stage materials, equipment and vehicles to the east of the pump station (Figure 3). The area would be returned to its existing condition following construction.

**Access**. A temporary earthen bridge would be constructed across the outflow channel to allow passage of equipment and personnel from the protected side of the levee to the existing berm (Figure 3). Culverts would be placed to maintain outflow from the pump station and an earthen bridge would be placed atop the culverts to allow vehicles and equipment to cross the outflow. The temporary connection between the staging area and the existing berm will be removed after construction and restored to its original condition.

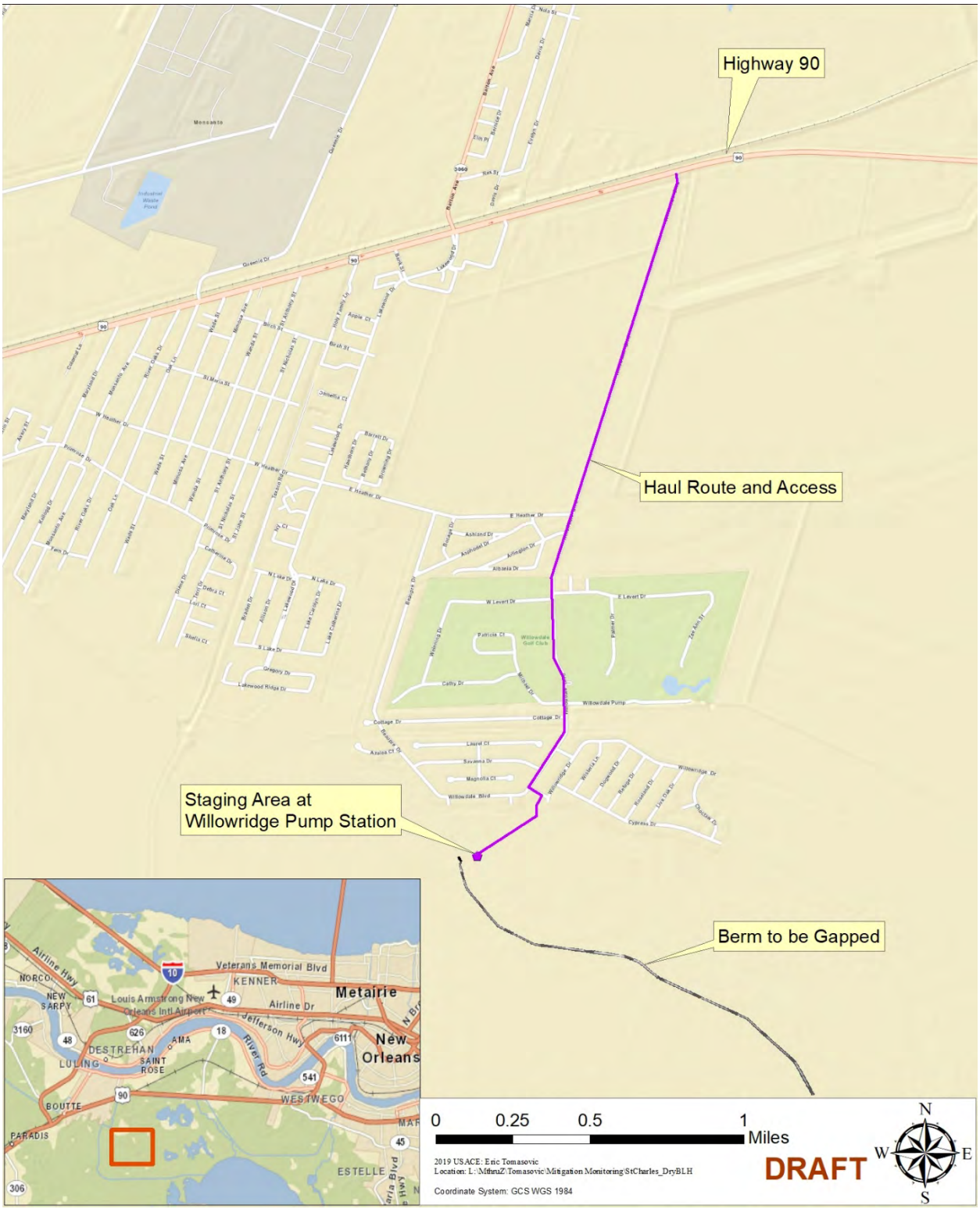

Figure 1. St. Charles BLH/swamp Mitigation Site, St. Charles, Louisiana.

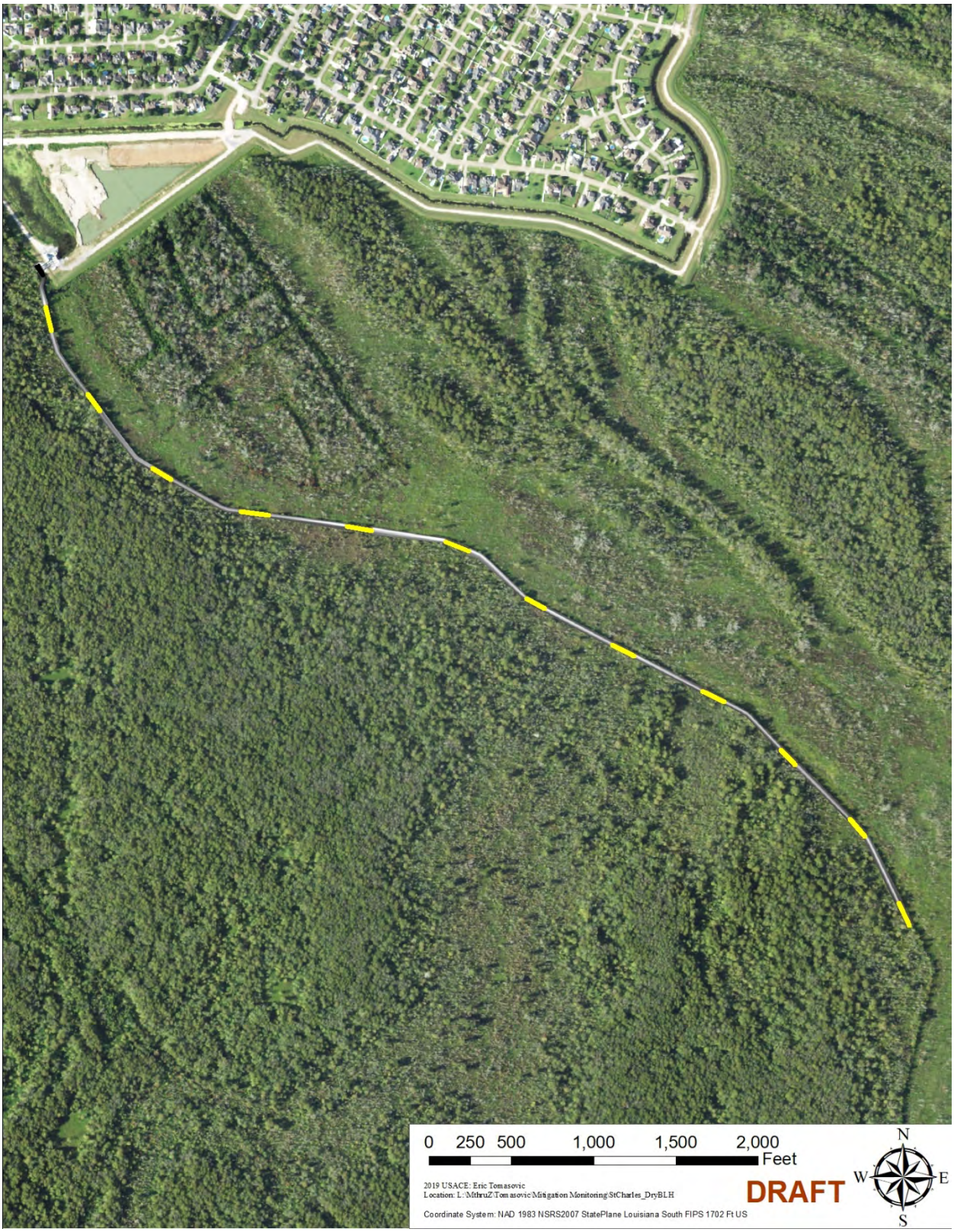

Figure 2. Berm (grey) and proposed cuts (yellow)


Figure 3. Staging area and outflow crossing

**Summary:** As of 4 October, 2019 the objective of this project is to move forward with the removal of the berm along the property line USACE property line (See figure 1 for point where berm was removed). The goal of these findings is to identify if a flowage easement will be required once the berm is removed due to the re-introduction of water from USACE property to the neighboring land.

**Assumptions:** The probability that a high precipitation event, the stage of whiskey canal greater than 50% exceedance (1.15ft), and simultaneously running the pump is very low. Therefore, as a conservative assumption, HH&C ran the model with the following variables:

1. 50% exceedance (1.15ft) for whiskey canal
2. 10yr rainfall event (0.7in of rainfall for 1 day)
3. Pump Engaged

HH&C also ran three different variations of these variables:

1. Pump on and Precipitation
2. Pump off and Precipitation
3. Pump on and No Precipitation

A summary of these results may be seen in Table 1 below. Tables 2 and 3 depict the duration analyses for Whiskey Canal which were used to select the 1.15ft above to run the model (Table 3).

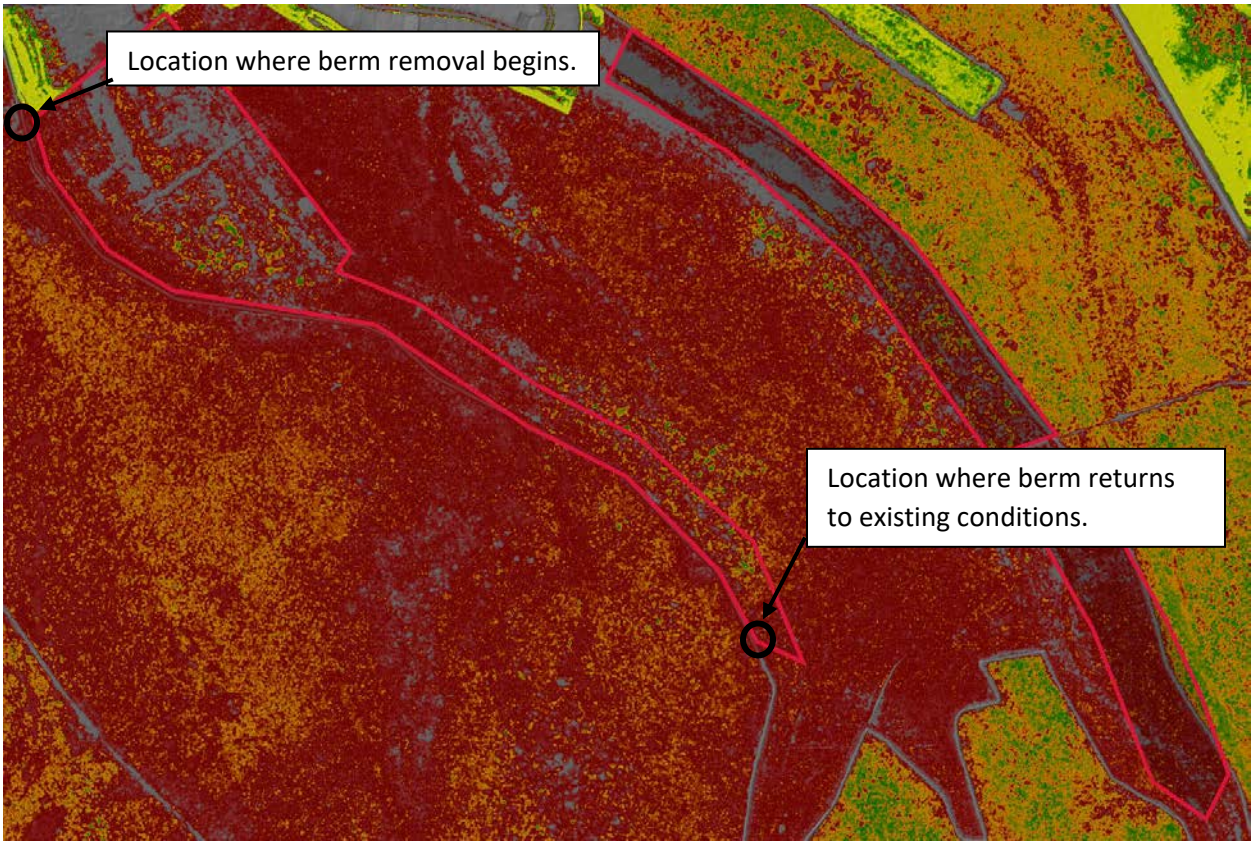


**Figure 1:** Site location that denotes beginning and end of berm removal which was run in the model

**Questions:** Following the last meeting, the below questions were asked which would help in determining if a flowage easement is necessary. HH&C responses may be seen in red.

*1. What is the frequency of inundating the area once the berms are flattened?*
The frequency of inundation in the area adjacent to USACE property is dependent on the precipitation event, the stage of whiskey canal, and if the pump is being run. With that being said, how often the subject area becomes inundated depends on these environmental conditions. You may view Tables 2 and 3 to get a better idea of historical patterns in Whiskey Canal.
*2. What is the duration we can expect?*
The duration of inundation of the areas of plantings and the adjacent property is dependent on the rainfall event, stage of whiskey canal, and if the pump is engaged and discharging into the property. The anticipated duration that can be expected for the given scenario is listed in Table 1.
*3. What is the amount of water that will cross on to lands we do not own once the berms are flattened?*
See Table 1 for breakdown of what each run allows to cross over into the adjacent land.
*4. How much water is pooling on the roadway?*
View the Table 1 for approximate pooling on roadway.

**Table 1:** Summary of HH&C results to the above questions

| **SCP Mitigation 10 yr storm event (0.7in of precipitation for 1 day)** | | | |
|---|---|---|---|
| **Run Conditions** | **Flow over Roadway to Non-Federal Land (cfs)** | **Avg depth water pooled on roadway at maximum depth during rainfall (in)** | **Duration to return to average <0.1 ft of Inundation (days)** |
| **Existing Conditions** *(Pump + Precipitation)* | 1.5* | N/A | 30 |
| **Berm Removed** *(Pump + Precipitation)* | 4 | 3 | 10 |
| **Berm Removed** *(No Pump + Precipitation)* | 2 | 1.5 | 10 |
| **Berm Removed** *(Pump + No Precipitation)* | 2.5 | 0 | 3 |
| **Flow during existing conditions is through breaks of berm* | | | |

**Table 2:** Whiskey Canal Duration Analysis January 2019-October 2019

| January 2019 - October 2019 | | |
|---|---|---|
| **Percent Time Exceeded** | **Stage (ft)** | **Elevation (ft-NAVD88)** |
| 95 | 4.29 | 0.98 |
| 90 | 4.41 | 1.1 |
| 80 | 4.56 | 1.25 |
| 50 | 4.87 | 1.56 |
| 25 | 5.13 | 1.82 |
| 15 | 5.29 | 1.98 |
| 10 | 5.39 | 2.08 |
| 5 | 5.53 | 2.22 |
| 2 | 6.05 | 2.74 |
| 1 | 6.67 | 3.36 |
| 0.1 | 7.31 | 4 |

**Table 3:** Whiskey Canal Duration Analysis November 2000-October 2019. 50% time exceeded (1.15ft) was chosen for run conditions.

| November 2000-October 2019 | | |
|---|---|---|
| **Percent Time Exceeded** | **Stage (ft)** | **Elevation (ft-NAVD88)** |
| 95 | 3.22 | -0.09 |
| 90 | 3.47 | 0.16 |
| 80 | 3.81 | 0.5 |
| 50 | 4.46 | 1.15 |
| 25 | 5.05 | 1.74 |
| 15 | 5.34 | 2.03 |
| 10 | 5.51 | 2.2 |
| 5 | 5.79 | 2.48 |
| 2 | 6.08 | 2.77 |
| 1 | 6.31 | 3 |
| 0.1 | 7.24 | 3.93 |

**Conclusions:** HH&C's findings show that there is not significant water volumes transitioning from USACE owned property to the adjacent property. It should be noted that had this levee not been built by the property owner in the first place, the patterns of water migration would not be any different compared to the conditions once the berm is removed. Additionally, these runs were very conservative in that the likelihood of the given precipitation event, stage of Whiskey Canal, and running the pump in unison is low.

1. Review of Compliance (§230.10 (a)-(d))

A review of this project indicates that:

| | Preliminary[1] | | Final[2] | |
|---|---|---|---|---|
| | Yes | No | Yes | No |
| a. The discharge represents the least environmentally damaging practicable alternative and if in a special aquatic site, the activity associated with the discharge 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 environmental assessment alternative) | X | | | |
| b. The activity does not appear to: **i.** violate applicable state water quality standards or effluent standards prohibited under Section 307 of the Clean Water Act; **ii.** jeopardize the existence of Federally listed endangered or threatened species or their habitat; and **iii.** violate requirements of any Federally designated marine sanctuary (if no, see section 2b and check responses from resource and water quality certifying agencies) | x[4] | | | |
| c. The activity will not cause or contribute to significant degradation of waters of the United States including adverse effects on human health, life stages of organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, esthetic, and economic values (if no, see 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 | | | |

2. Technical Evaluation Factors (Subparts C-F)

a. Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C)

| | N/A | Not Significant | Significant [3,5] |
|---|---|---|---|
| i. Substrate impacts | | x | |
| ii. Suspended particulates/turbidity impacts. | | x | |
| iii. Water column impacts | | x | |
| iv. Alteration of current patterns and water circulation | | x | |
| v. Alteration of normal water fluctuations/ hydroperiod | | x | |
| vi. Alteration of salinity gradients | | x | |

b. Biological Characteristics of the Aquatic Ecosystem (Subpart D)

| | | | |
|---|---|---|---|
| i. Effect on threatened/endangered species and their habitat | X | | |
| ii. Effect on the aquatic food web | X | | |
| iii. Effect on other wildlife (mammals, birds, reptiles, and amphibians) | | X | |

c. Special Aquatic Sites (Subpart E)

| | | | |
|---|---|---|---|
| i. Sanctuaries and refuges | X | | |
| ii. Wetlands | | X | |
| iii. Mud flats | X | | |
| iv. Vegetated shallows | X | | |
| v. Coral reefs | X | | |
| vi. Riffle and pool complexes | X | | |

d. Human Use Characteristics (Subpart F)

| | | | |
|---|---|---|---|
| i. Effects on municipal and private water supplies | x | | |
| ii. Recreational and commercial fisheries impacts | X | | |
| iii. Effects on water-related recreation. | X | | |
| iv. Esthetic impacts | | X | |
| v. Effects on parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves | X | | |

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.

| | | |
|---|---|---|
| i. | Physical characteristics | x |
| ii. | Hydrography in relation to known or anticipated sources of contaminants | x |
| iii. | Known, significant sources of persistent pesticides from land runoff or percolation | x |
| iv. | Spill records for petroleum products or designated (Section 311 of CWA) hazardous substances | x |
| v. | Other public records of significant introduction of contaminants from industries, municipalities, or other sources | X |
| vi. | 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 |
| vii. | Other sources (specify) | |

Appropriate references: See Encl 2

b. An evaluation of the appropriate information in 3.a above indicates that there is reason to believe the proposed dredge or fill material is not a carrier of contaminants, or the material meets the testing exclusion criteria.[6]

| Yes | No[3] |
|---|---|
| x | |

4. Disposal Site Delineation (§230.11(f))

a. The following factors, as appropriate, have been considered in evaluating the disposal site.

| | |
|---|---|
| i. Depth of water at disposal site | x |
| ii. Current velocity, direction, and variability at disposal site | x |
| iii. Degree of turbulence | x |
| iv. Water column stratification | x |
| v. Discharge vessel speed and direction | |
| vi. Rate of discharge | |
| vii. Dredged material characteristics (constituents, amount, and type of material, settling velocities) | x |
| viii. Number of discharges per unit of time | |
| ix. Other factors affecting rates and patterns of mixing (specify) | |

Appropriate references: See Encl 2

| | Yes | No[3] |
|---|---|---|
| b. An evaluation of the appropriate factors in 4a above indicates that the disposal site and/or size of mixing zone are acceptable | x | |

5. Actions to Minimize Adverse Effects (Subpart H)

| | Yes | No[3] |
|---|---|---|
| All appropriate and practicable steps have been taken, through application of the recommendations of §230.70-230.77 to ensure minimal adverse effects of the proposed discharge | X | |

Actions taken:
Designing the discharge of dredged or fill material to minimize or prevent the creation of standing bodies of water in areas of normally fluctuating water levels.
Controlling runoff and other discharges from activities to be conducted on the fill.

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:

| | Yes | No[3] |
|---|---|---|
| a. Physical substrate at the disposal 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. Disposal site (review sections 2, 4, and 5) | X | |
| g. Cumulative impact on the aquatic ecosystem | X | |
| h. Secondary impacts on the aquatic ecosystem | X | |

[1] Negative responses to three or more of the compliance criteria at this stage indicates 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-d, before completing the final review of compliance.

[2] Negative responses to one of the compliance criteria at this 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.

[3] A negative, significant, or unknown response indicates that the project may not be in compliance with the Section 404(b)(1) Guidelines.

[4] For 1.b., review is for i. only (i.e., The activity does not appear to violate applicable state water quality standards or effluent standards prohibited under Section 307 of the Clean Water Act)

[5] Where a check is placed under the significant category, the preparer has attached explanation.

[6] If the dredged or fill material cannot be excluded from individual testing, the "short form" evaluation process is inappropriate.

7. Evaluation Responsibility

a. Prepared by:

Eric Glisch
Environmental Engineer
U.S. Army Corps of Engineers, New Orleans District
May 15, 2020

b. Reviewed by:

Jerry Shih
Supervisor Hydraulic Engineer
U.S. Army Corps of Engineers, New Orleans District
May 15, 2020

8. Findings

| | | |
|---|---|---|
| a. | The proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) guidelines. | X |
| b. | The proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) guidelines with the inclusion of the following conditions. | |
| c. | The proposed disposal site for discharge of dredged or fill material does not comply with the Section 404(b)(1) guidelines for the following reason(s): | |
| | i. There is a less damaging practicable alternative | |
| | ii. The proposed discharge will result in significant degradation of the aquatic ecosystem | |
| | iii. The proposed discharge does not include all practicable and appropriate measures to minimize potential harm to the aquatic ecosystem | |

Date: *4 August 2020*

*Harper, Marshall Kevin*
*Digital Signature on file at CEMVN*
Chief, Environmental Planning and Compliance Branch

# Appendix H: H&H Report

**Summary:** As of 4 October, 2019 the objective of this project is to move forward with the removal of the berm along the property line USACE property line (See figure 1 for point where berm was removed). The goal of these findings is to identify if a flowage easement will be required once the berm is removed due to the re-introduction of water from USACE property to the neighboring land.

**Assumptions:** The probability that a high precipitation event, the stage of whiskey canal greater than 50% exceedance (1.15ft), and simultaneously running the pump is very low. Therefore, as a conservative assumption, HH&C ran the model with the following variables:

1. 50% exceedance (1.15ft) for whiskey canal
2. 10yr rainfall event (0.7in of rainfall for 1 day)
3. Pump Engaged

HH&C also ran three different variations of these variables:

1. Pump on and Precipitation
2. Pump off and Precipitation
3. Pump on and No Precipitation

A summary of these results may be seen in Table 1 below. Tables 2 and 3 depict the duration analyses for Whiskey Canal which were used to select the 1.15ft above to run the model (Table 3).

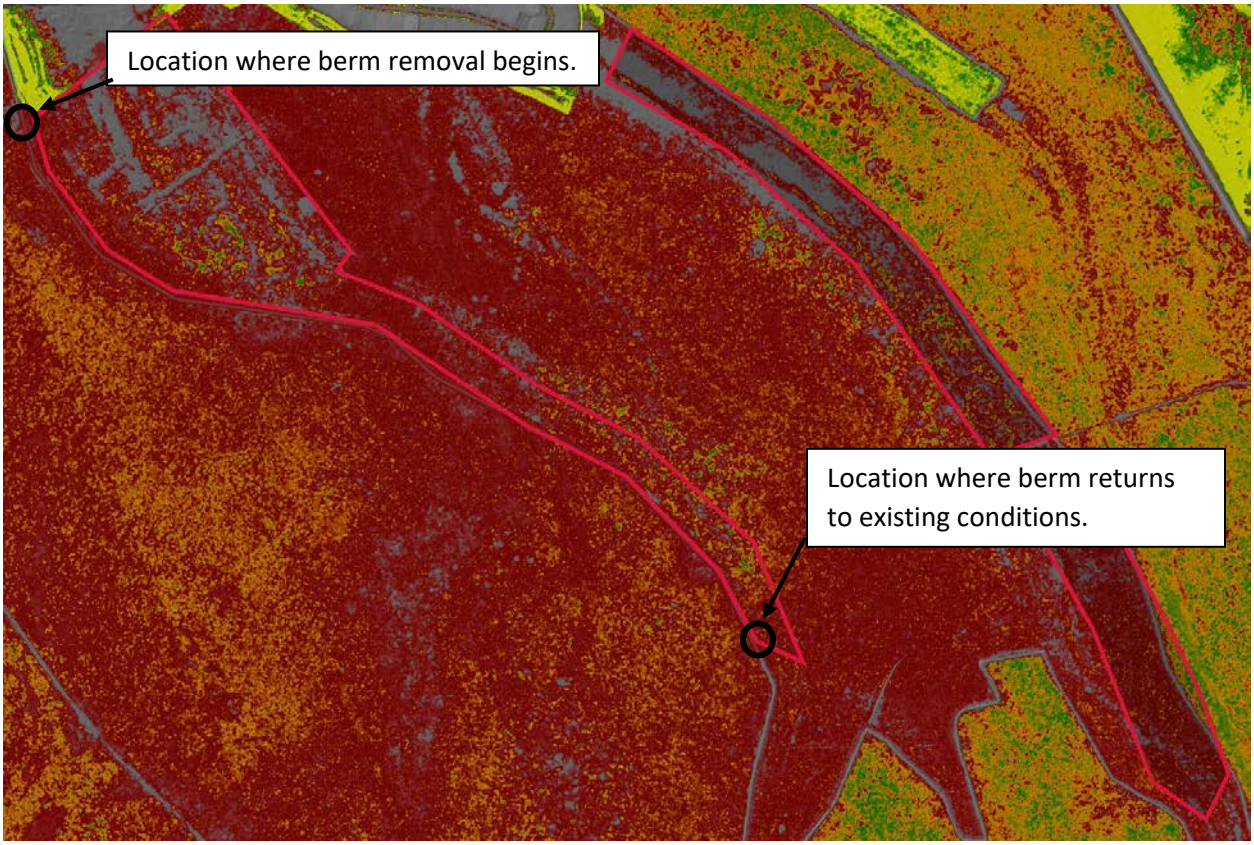


**Figure 1:** Site location that denotes beginning and end of berm removal which was run in the model

**Questions:** Following the last meeting, the below questions were asked which would help in determining if a flowage easement is necessary. HH&C responses may be seen in red.

*1. What is the frequency of inundating the area once the berms are flattened?*
The frequency of inundation in the area adjacent to USACE property is dependent on the precipitation event, the stage of whiskey canal, and if the pump is being run. With that being said, how often the subject area becomes inundated depends on these environmental conditions. You may view Tables 2 and 3 to get a better idea of historical patterns in Whiskey Canal.
*2. What is the duration we can expect?*
The duration of inundation of the areas of plantings and the adjacent property is dependent on the rainfall event, stage of whiskey canal, and if the pump is engaged and discharging into the property. The anticipated duration that can be expected for the given scenario is listed in Table 1.
*3. What is the amount of water that will cross on to lands we do not own once the berms are flattened?*
See Table 1 for breakdown of what each run allows to cross over into the adjacent land.
*4. How much water is pooling on the roadway?*
View the Table 1 for approximate pooling on roadway.

**Table 1:** Summary of HH&C results to the above questions

| **SCP Mitigation 10 yr storm event (0.7in of precipitation for 1 day)** | | | |
|---|---|---|---|
| **Run Conditions** | **Flow over Roadway to Non-Federal Land (cfs)** | **Avg depth water pooled on roadway at maximum depth during rainfall (in)** | **Duration to return to average <0.1 ft of Inundation (days)** |
| **Existing Conditions** *(Pump + Precipitation)* | 1.5* | N/A | 30 |
| **Berm Removed** *(Pump + Precipitation)* | 4 | 3 | 10 |
| **Berm Removed** *(No Pump + Precipitation)* | 2 | 1.5 | 10 |
| **Berm Removed** *(Pump + No Precipitation)* | 2.5 | 0 | 3 |
| **Flow during existing conditions is through breaks of berm* | | | |

**Table 2:** Whiskey Canal Duration Analysis January 2019-October 2019

| January 2019 - October 2019 | | |
|---|---|---|
| **Percent Time Exceeded** | **Stage (ft)** | **Elevation (ft-NAVD88)** |
| 95 | 4.29 | 0.98 |
| 90 | 4.41 | 1.1 |
| 80 | 4.56 | 1.25 |
| 50 | 4.87 | 1.56 |
| 25 | 5.13 | 1.82 |
| 15 | 5.29 | 1.98 |
| 10 | 5.39 | 2.08 |
| 5 | 5.53 | 2.22 |
| 2 | 6.05 | 2.74 |
| 1 | 6.67 | 3.36 |
| 0.1 | 7.31 | 4 |

**Table 3:** Whiskey Canal Duration Analysis November 2000-October 2019. 50% time exceeded (1.15ft) was chosen for run conditions.

| November 2000-October 2019 | | |
|---|---|---|
| **Percent Time Exceeded** | **Stage (ft)** | **Elevation (ft-NAVD88)** |
| 95 | 3.22 | -0.09 |
| 90 | 3.47 | 0.16 |
| 80 | 3.81 | 0.5 |
| 50 | 4.46 | 1.15 |
| 25 | 5.05 | 1.74 |
| 15 | 5.34 | 2.03 |
| 10 | 5.51 | 2.2 |
| 5 | 5.79 | 2.48 |
| 2 | 6.08 | 2.77 |
| 1 | 6.31 | 3 |
| 0.1 | 7.24 | 3.93 |

**Conclusions:** HH&C's findings show that there is not significant water volumes transitioning from USACE owned property to the adjacent property. It should be noted that had this levee not been built by the property owner in the first place, the patterns of water migration would not be any different compared to the conditions once the berm is removed. Additionally, these runs were very conservative in that the likelihood of the given precipitation event, stage of Whiskey Canal, and running the pump in unison is low.

**Summary:** As of 18 October, 2019 the objective of this project is to move forward with the removal of 100ft gaps along the existing berm (See figure 1 for point where berm was removed). These 100ft gaps are spaced out every 500ft along the extents of the berm. The goal of these findings is to identify if a flowage easement will be required once berm gaps are placed to aid in the re-introduction of water from USACE property to the neighboring land. A summary of the results may be seen in Table 1 below. Table 2 represents the results in the terrain if the entire western berm is removed. Tables 3 and 4 depict the duration analyses for Whiskey Canal which were used to select the 1.15ft above to run the model.

**Assumptions:** The probability that a high precipitation event, the stage of whiskey canal greater than 50% exceedance (1.15ft), and simultaneously running the pump is low. Therefore, as a conservative assumption, HH&C ran the model with the following variables:

1. 50% exceedance (1.15ft) for whiskey canal
2. 10yr rainfall event
3. Pump Engaged

HH&C also ran three different variations of these variables:

1. Pump on and Precipitation
2. Pump off and Precipitation
3. Pump on and No Precipitation

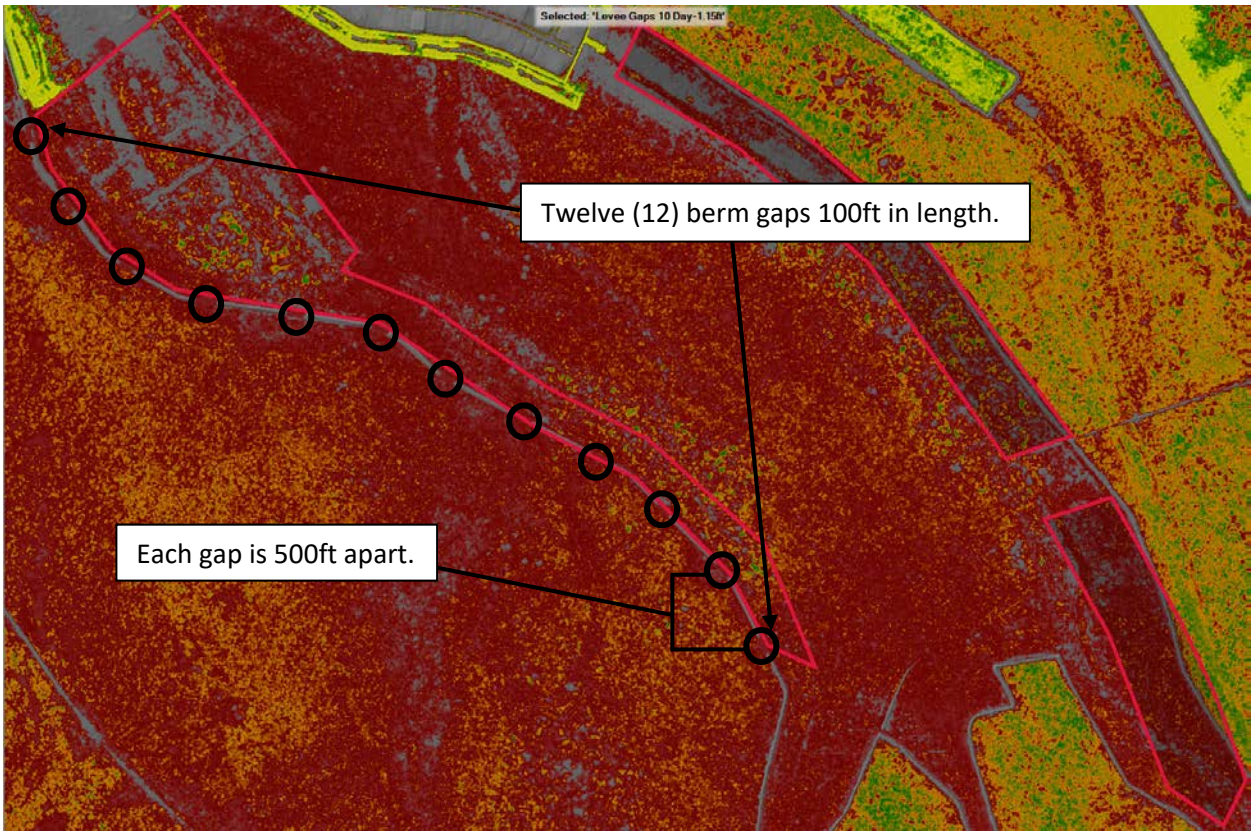


**Figure 1:** Site location that denotes 12 total berm gaps

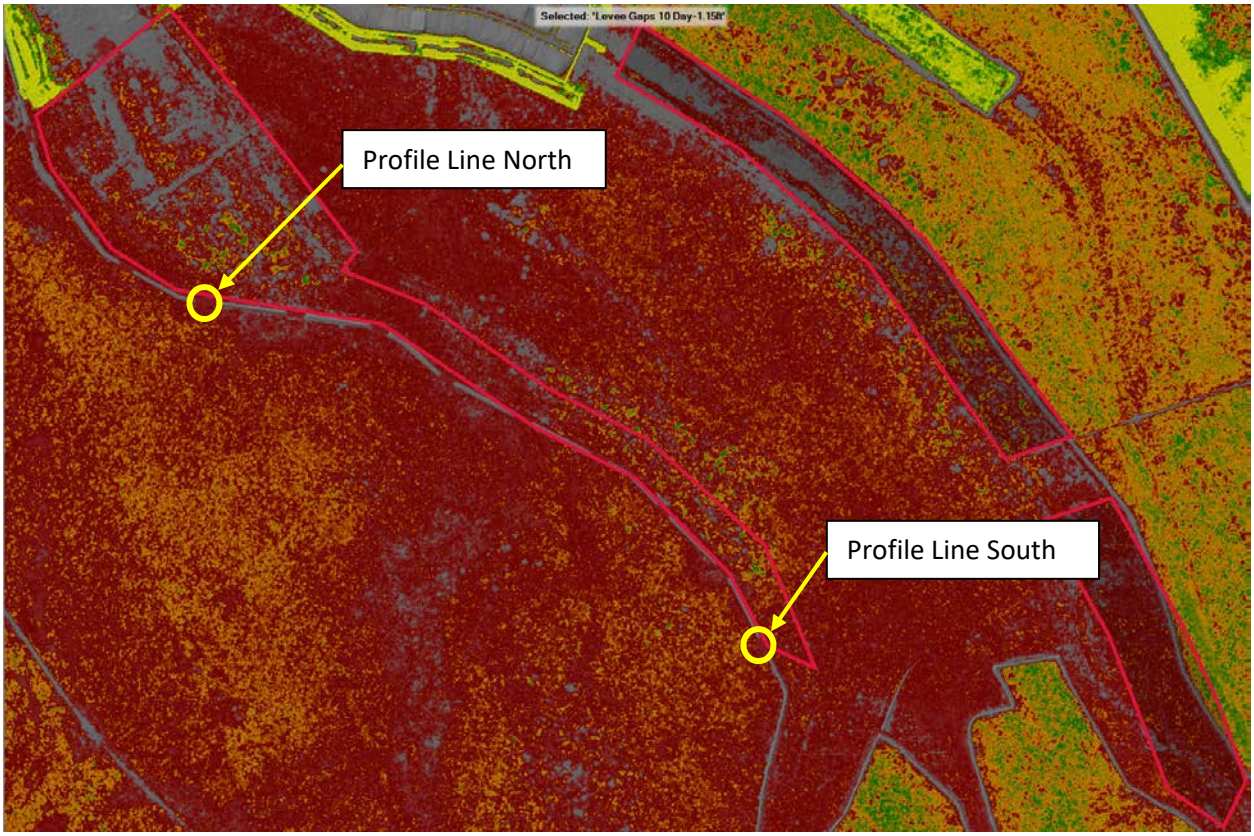


**Figure 2:** Locations where flow through berm is measured; values are recorded in Table 1

**Questions:** The following questions aid in determining if a flowage easement is necessary. HH&C responses may be seen in red.

*1. What is the duration of inundation that can be expected once the berm gaps are created?*
The duration of inundation of the areas of plantings and the adjacent property is dependent on the rainfall event, stage of whiskey canal, and if the pump is engaged and discharging into the property. The anticipated duration that can be expected for the given scenario is listed in Table 1. Note these durations are approximate.
*2. What is the amount of water that will cross on to lands we do not own once the berm gaps are created?*
See Table 1 for breakdown of what each run allows to cross over into the adjacent land.
*3. How much water is pooling in the berm gaps?*
View Table 1 for approximate pooling in berm gaps.

**Table 1:** Summary of HH&C results for 100ft gapping of the western berm every 500ft.

| SCP Mitigation 10 yr storm event – Berm Gapping | | | | |
|---|---|---|---|---|
| **Run Conditions** | **Flow through Profile Line North (CFS)** | **Flow through Profile Line South (CFS)** | **Avg depth water pooled in berm gaps (in)** | **Duration to return to average <0.1 ft of Inundation (days)** |
| **Existing Conditions** *(Pump + Precipitation)* | 1.5* | <0.25 | N/A | +30 |
| **12 Berm Gaps** *(Pump + Precipitation)* | 7.4 | 3.5 | 4.32 | 20 |
| **12 Berm Gaps** *(No Pump + Precipitation)* | 5.1 | 3.0 | 3.6 | 10 |
| **12 Berm Gaps** *(Pump + No Precipitation)* | 2.9 | 0 | 1.56 | <5 |
| **16 Berm Gaps**** *(Pump + Precipitation)* | 6.5 | 1.5 | 3.4 | 15-20 |
| **Flow during existing conditions is through breaks of berm*<br>***16 Berm Gaps includes gaps all the way down the western the berm (passes the USACE area of concern for plantings)* | | | | |

**Table 2:** Summary of HH&C Results for removal of entire western Berm (can be seen on previous Factsheet dated 15 October 2019)

| SCP Mitigation 10 yr storm event – Entire Berm Removal | | | |
|---|---|---|---|
| **Run Conditions** | **Flow over Roadway to Non-Federal Land (CFS)** | **Avg depth water pooled on roadway at maximum depth during rainfall (in)** | **Duration to return to average <0.1 ft of Inundation (days)** |
| **Existing Conditions** *(Pump + Precipitation)* | 1.5* | N/A | 30 |
| **Berm Removed** *(Pump + Precipitation)* | 4 | 3 | 10 |
| **Berm Removed** *(No Pump + Precipitation)* | 2 | 1.5 | 10 |
| **Berm Removed** *(Pump + No Precipitation)* | 2.5 | 0 | 3 |
| **Flow during existing conditions is through breaks of berm* | | | |

**Table 2:** Whiskey Canal Duration Analysis January 2019-October 2019

| January 2019 - October 2019 | | |
|---|---|---|
| **Percent Time Exceeded** | **Stage (ft)** | **Elevation (ft-NAVD88)** |
| 95 | 4.29 | 0.98 |
| 90 | 4.41 | 1.1 |
| 80 | 4.56 | 1.25 |
| 50 | 4.87 | 1.56 |
| 25 | 5.13 | 1.82 |
| 15 | 5.29 | 1.98 |
| 10 | 5.39 | 2.08 |
| 5 | 5.53 | 2.22 |
| 2 | 6.05 | 2.74 |
| 1 | 6.67 | 3.36 |
| 0.1 | 7.31 | 4 |

**Table 3:** Whiskey Canal Duration Analysis November 2000-October 2019. 50% time exceeded (1.15ft) was chosen for run conditions.

| November 2000-October 2019 | | |
|---|---|---|
| **Percent Time Exceeded** | **Stage (ft)** | **Elevation (ft-NAVD88)** |
| 95 | 3.22 | -0.09 |
| 90 | 3.47 | 0.16 |
| 80 | 3.81 | 0.5 |
| 50 | 4.46 | 1.15 |
| 25 | 5.05 | 1.74 |
| 15 | 5.34 | 2.03 |
| 10 | 5.51 | 2.2 |
| 5 | 5.79 | 2.48 |
| 2 | 6.08 | 2.77 |
| 1 | 6.31 | 3 |
| 0.1 | 7.24 | 3.93 |

**Conclusions:** HH&C's findings show that gapping the berm does cause more pooling of water in the areas of interest for plantings than the removal of the entirety of the Western berm. 100ft long gaps was chosen in lieu of 50ft to facilitate more movement of water and ease construction efforts. Given the scale of the site, gaps placed every 500ft drain the area enough to meet water depths for plantings.

# Appendix I: Public Comments

Comments received by phone.

9 July 2020 14:39
Phone # 850-274-XXXX
Question: “From the link provided, how do I access the SEA and supporting documents?”

Response: “From the web page indicated in the mailing or advertisement, scroll down to Mitigation, click on ‘USACE Mitigation’, then click on the year ‘2020’, then click on ‘SEA#498A’."

Secondary question: “How are the West Banks’ SEAs and EAs connected/correlated/related to each other?” “Why are there so many?”

Response: All flood risk management and mitigation projects on the west bank are considered “West Bank and Vicinity” and are within the same watershed. Therefore, the cumulative impacts, both beneficial and adverse, are within that watershed. The reports listed date back to 1986 and include all modifications and or supplements to the original reports.

14 July 2020 13:04
“LA Dept of Forestry”
Phone # 225-952-8000
Called to state “No Comment on SEA#498A”
The caller indicated that they had surveyed the area previously and mentioned the die off of Water Hickory, Pumpkin Ash and Cypress. I asked for their opinion “if this seemed a feasible solution”. Their response was “It couldn’t hurt. The forest looked healthy on the west side of the levee but on the east side the Water Hickory, Pumpkin ash and cypress – even the larger more mature trees were showing signs of stress. The important piece is that there were no new saplings, and this [project] should help the area produce more young trees.”

Phone conversations are paraphrased from notes taken during the call.

**From:** Dave Butler
**To:** MVN Environmental
**Subject:** [Non-DoD Source] SEA #498 FONSI
**Date:** Thursday, July 23, 2020 1:40:40 PM
**Attachments:** image001.png

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To Whom It May Concern:

The permittee shall properly install adequate erosion/siltation control measures around construction areas that require land based earthwork (i.e. excavation and/or deposition of fill materials, land contouring, machinery rutting, fill maneuvering and redistribution, etc.), to ensure that no project related sediments, debris and other pollutants enter adjacent wetlands or waters. Acceptable measures include but are not limited to the proper use and positioning of temporary silt fences, straw bales, fiber/core logs, wooden barriers, seeding or sodding of exposed soils, or other approved EPA construction site storm-water runoff control and best practices. Control techniques shall be installed prior to the commencement of earthwork activities and maintained until the project is complete and/or the subject areas are stabilized.

Our database indicates that a Live Oak Forest is located within the proposed project area. This community is considered critically imperiled in Louisiana with an S1 state rank. This community provides habitat for many unique species of plants and acts as a migratory staging/stopover site for Neotropical migratory birds. We advise you to take the necessary measures to avoid any impacts to this ecological community. If you have any questions or need additional information, please contact Chris Doffitt at 318-487-5885.

Thanks,

Dave Butler

Permits Coordinator
Louisiana Department of Wildlife and Fisheries

2000 Quail Drive

Baton Rouge, LA 70808

(504) 286-4173 New Orleans Office

(225) 763-3595 Baton Rouge Office

(225) 765-2625 Fax

Response to:
Dave Butler
Permits Coordinator
Louisiana Department of Wildlife and Fisheries
2000 Quail Drive
Baton Rouge, LA 70808

Response to comments:
USACE will develop and comply with Storm Water Pollution Prevention Plans (SWPPP) and utilize appropriate run-off protection during and following the construction phase of this project. The SWPPP has been added as an Environmental Design Commitment to the Finding of No Significant Impact (FONSI).

There are no Live Oak within the footprint of construction. Caution will be taken to reduce impact to the surrounding environment during construction, especially for species of concern, including Live Oak.

Comment:
Comment and comment author redacted due to legal disclaimer on the source email.

Response to comment:
This is a USACE internal active management activity of a mitigation project between authorization and turnover to the local sponsor. USACE employees from the Operations Division will be performing the construction. The plantings will be purchased and performed through a service contract at the Vicksburg USACE office.

# ST. CHARLES PARISH

OFFICE OF THE PARISH PRESIDENT

MATTHEW JEWELL
PARISH PRESIDENT

RECHELL CHAMPAGNE
EXECUTIVE ASSISTANT


July 17, 2020

Mr. Eric Tomasovic
U.S. Army Corps of Engineers
New Orleans District
7400 Leake Avenue
New Orleans, LA 70118
VIA EMAIL: Eric.Tomasovic@usace.army.mil

RE: West Bank & Vicinity Hurricane Protection Project
Implementation of Previously Authorized Mitigation Plans
St. Charles, Louisiana
SEA #498A

Dear Mr. Tomasovic:

Reference is made to the Draft Supplemental Environmental Assessment, dated July 2020, and associated documents for the West Bank & Vicinity Hurricane Protection Project Implementation of Previously Authorized Mitigation Plans in St. Charles, Louisiana (SEA #498A). Further reference is made to content in the Draft Supplemental Environmental Assessment regarding tree mortality induced by inundation due to a new pumping station.

St. Charles Parish notes that prior to construction of the Willowridge Levee ("levee") and the referenced Willowridge Pump Station ("pump station") rising tidal influence resulted in water being pushed back into the ditches and streets of the adjacent neighborhoods for a number of years. Construction of the levee began in 2014. Construction sequencing for the levee was developed with the higher tide water in mind. Prior to construction of the levee, a dewatering berm was built within the permitted and mitigated levee footprint so that the then present standing water in the area could drain prior to construction of the levee. The elevations of the water levels prior to the construction of the levee were, and continue to be, impacted by tidal movement. Construction of the pump station began in 2015. The pump station was completed and commenced operation in 2018. The pump station is operating as designed and the flows are as permitted, i.e., through the canals and channels. Note that review of aerial imagery shows perceptible loss of habitat and impacts to the area south of the pump station

about ten years prior to the construction of the Willowridge Levee and pump station.

Prior to construction of the levee and pump station, St. Charles Parish obtained a Coastal Use Permit from the Louisiana Department of Natural Resources (LDNR) and Section 404 Permit from the U.S. Army Corps of Engineers (USACE). Hydrologic analysis was conducted by both LDNR and USACE as part of the permitting process. Discussions among representatives of St. Charles Parish, LDNR, and USACE specifically focused on the discharge of the pumps at the pump station in order to minimize impacts to wetlands.

Pursuant to those discussions, the pump station was designed to discharge into the existing ditch south of the pump station area to avoid additional impacts to wetlands. Currently, the pump station discharges into that designated channel in a distinct pattern. As such, there are no additional impacts to the wetlands caused by the permitted discharges. However, the implementation and construction of your proposed mitigation plan ("the project") by the USACE will alter the flow pattern that was permitted. If the USACE implements that which it is now proposing, namely breaks in the berm and filling that existing ditch, it will modify the permitted discharge pattern from channel flow to overland flow. The resulting modified flow pattern that you cause by this proposed project will have a higher probability of impacting adjacent properties . As such, the USACE may be responsible for impacting adjacent properties.

Reference is made to the Staging Area within the levee right of way. The Lafourche Basin Levee District (LBLD) holds the servitudes for Willowridge Levee Right of Way. Prior to the project moving forward, a request for Right of Entry for the staging areas and for access should be sent to LBLD. Any parties that currently have access to the pump station access road will need access during the course of the project.

Further reference is made to the proposed temporary earthen bridge that would be constructed across the outflow channel to allow passage of equipment and personnel from the protected side of the levee to the existing berm during construction of the project. Any request for access and modification to existing facilities within the Willowridge Levee Right of Way should be directed to LBLD. Any sitework constructed for the project within the Willowridge Levee Right of Way would need to be restored to the satisfaction of LBLD following completion of the project.

Should you have any questions or require further clarification regarding these comments, please contact Sam Scholle, Senior Projects Manager with St. Charles Parish at (504) 235-7180 or sscholle@stcharlesgov.net.

Sincerely,

Matthew Jewell
Parish President

cc: Ms. Daimia Jackson, Project Manager, United States Army Corps of Engineers
Mr. Donald Ray Henry, Executive Director, Lafourche Basin Levee District
Mr. James Jasmine, President, Lafourche Basin Levee District
Mr. Mike Palamone, Chief Administrative Officer, St. Charles Parish
Mr. Billy Raymond, Deputy Chief Administrative Officer, St. Charles Parish
Mr. Corey Oubre, Parish Attorney, St. Charles Parish
Mr. Robert Raymond, Parish Attorney, St. Charles Parish
Mr. Sam Scholle, Senior Projects Manager, St. Charles Parish