



REPLY TO
ATTENTION OF

CEMVD-DE

DEPARTMENT OF THE ARMY
MISSISSIPPI VALLEY DIVISION, CORPS OF ENGINEERS
POST OFFICE BOX 80
VICKSBURG, MISSISSIPPI 39181-0080

11 OCT '16

**ENVIRONMENTAL ASSESSMENT #549
WESTBANK AND VICINITY (WBV) –
LEVEE LIFTS PRIOR TO ARMORING
WBV-09.A, WBV-12, WBV-14B.2, WBV-14C.2, WBV-14E.2, WBV-15A.2, WBV-18.2
JEFFERSON AND PLAQUEMINES PARISHES, LOUISIANA**

FINDING OF NO SIGNIFICANT IMPACT

I have reviewed the Environmental Assessment (EA) #549 for the proposed levee lifts for the West Bank and Vicinity (WBV) – WBV-09.a, WBV-12, WBV-14b.2, WBV-14c.2, WBV-14e.2, WBV-15a.2, WBV-18.2, Hurricane Storm Damage Risk Reduction System (HSDRRS) at the Lakefront Levee, Jefferson Parish, Louisiana. This finding incorporates by reference all discussions and conclusions contained in the EA enclosed hereto.

The proposed action was submitted under 33 USC 408 at the request of the Southeast Louisiana Flood Protection Authority–West (SLFPA-W), Plaquemines Parish, and the Coastal Protection and Restoration Authority Board of Louisiana (CPRAB); collectively referred to herein as the “requester”. The proposed action (requester’s preferred alternative) consists of raising approximately 18.8 miles of WBV HSDRRS reaches. The purpose of the HSDRRS levee lifts is to extend the time period for which the levee reaches would be above the design elevation, if only for a short period of time.

The requester intends to raise the levee reaches to elevations ranging from 13 to 15.5 feet NAVD88 prior to CEMVN’s placement of armoring material on the levee reach to increase resiliency of the levee. The increase in elevation ranging from 0.5 to 4.5 feet NAVD88 would not have an adverse impact on the performance of the project and would extend the period of performance prior to the next required levee lift, which is anticipated to be in the next 5-7 years.

The requester estimates the proposed levee lifts would require approximately 712,284 cubic yards of earthen borrow material in place, with roughly twice that amount required from a borrow site (1,425,568 cubic yards). Levee material would be provided from borrow sources previously assessed as indicated in the EA. Borrow sites that may be utilized for the source of borrow material include: Woodland South, Idlewild 1, Myrtle Grove, Plaquemines Dirt and Clay, 3C Riverside Borrow Areas 1, 2 and 3, Willow Bend Borrow Area Phases I and II, River Birch Phases 1, 2 and Landfill Expansion, and South Kenner Road. If another borrow site were determined to be suitable for obtaining borrow material, additional environmental evaluations would be required for that site to

determine compliance with all applicable Federal and State environmental laws and regulations.

Based on information analyzed in the EA, reflecting pertinent information obtained from agencies having jurisdiction by law/or special expertise, I conclude that the proposed action will not significantly impact the quality of the human environment and does not require an Environmental Impact Statement. Reasons for this conclusion are in summary:

a. No significant adverse impacts were identified to uplands, wetlands, wildlife, cultural resources, recreational resources, transportation, air quality, noise quality, water quality, or aesthetic resources. Adequate erosion/sediment control measures would be implemented to ensure that no sediments or other activity-related debris are allowed to enter adjacent wetlands or waters.

b. The proposed action has been coordinated with the U.S. Fish and Wildlife Service in accordance with the Endangered Species Act. Through this coordination, it was determined that the proposed action would have no effect on any threatened or endangered species, or critical habitat. Construction of the proposed action would comply with the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act.

c. This proposed action would not impact waters of the U.S. and therefore no further coordination is necessary.

d. The proposed action has been coordinated with the Louisiana Department of Natural Resources. Coastal use permits were issued for the proposed action. Each proposed borrow site has previously been issued a CUP. Since the latest CUP issuance, the borrow sites have been active with no change to scope or described activity and therefore no further coordination is required.

e. ASTM E 1527-05 Phase 1 Environmental Site Assessments (ESA), HTRW 15-01 were completed for the Jefferson Parish reaches in January 2016, and for the Plaquemines Parish reaches in March 2016. The probability of encountering HTRW for the proposed action is low based on the initial site assessments.

f. In accordance with Executive Order 11988 Floodplain Management, it has been determined that the proposed action would not accelerate development of the floodplain.

g. Due to the presence of bird nesting colonies located within one mile of the proposed project site locations, if work commences during nesting season, a field visit by a qualified biologist would be conducted within two weeks of the start of construction to determine if nesting colonies are present. If colonies containing nesting wading birds (i.e. herons, egrets, night-herons, ibis, roseate spoonbills, anhingas, and/or cormorants) are present, all project activities that would occur within 300 meters of an active nesting colony would be restricted to the non-nesting period (September 1 through February 15). If colonies containing nesting gulls, terns, and/or black skimmers are present, all project activities that would occur within 400 meters (700 meters for brown pelicans) of

an active nesting colony would be restricted to the non-nesting period (September 16 through April 1). Additional coordination with the U.S. Fish and Wildlife Service may result in a reduction or relaxing of these no-work distances depending on the species of birds found nesting at the work site and specific site conditions.

h. The proposed action would not result in any direct, indirect or cumulative impacts to cultural resources.

A 15-day Public Notice was published in the Baton Rouge and New Orleans Advocate beginning May 24, 2016 and ending on June 8, 2016. One comment, from the Louisiana Department of Wildlife and Fisheries (LDWF), was received. LDWF's comments pertained to the use of adequate erosion/sediment control measures and the presence of bird nesting colonies within close proximity to the proposed project areas and the restriction of activities to non-nesting periods. All comments have been addressed.

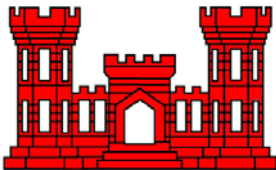
In consideration of the information summarized, I find the proposed action would not significantly affect the human environment and does not require an Environmental Impact Statement.



MICHAEL C. WEHR
Major General, USA
Commanding

ENVIRONMENTAL ASSESSMENT (EA #549)

**WESTBANK AND VICINITY (WBV) – LEVEE LIFTS PRIOR TO ARMORING
WBV-09.A, WBV-12, WBV-14B.2, WBV-14C.2, WBV-14E.2,
WBV-15A.2, WBV-18.2
JEFFERSON AND PLAQUEMINES PARISHES, LOUISIANA**



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

June 2016

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ENVIRONMENTAL ASSESSMENT #549

WESTBANK AND VICINITY (WBV) – LEVEE LIFTS PRIOR TO ARMORING WBV-09.A, WBV-12, WBV-14B.2, WBV-14C.2, WBV-14E.2, WBV-15A.2, WBV-18.2 JEFFERSON AND PLAQUEMINES PARISHES, LOUISIANA

1.0 INTRODUCTION

The Southeast Louisiana Flood Protection Authority–West (SLFPA-W), Plaquemines Parish, and the Coastal Protection and Restoration Authority Board of Louisiana (CPRAB) (referred to collectively as the requester), have jointly requested permission from the United States Army Corps of Engineers (USACE) to construct alterations to multiple West Bank and Vicinity (WBV), Jefferson Parish and Plaquemines Parish, Louisiana projects to increase the system’s current level of hurricane and storm damage risk reduction. Based upon information provided by SLFPA-W and Plaquemines Parish, the USACE, Mississippi Valley Division, New Orleans District (CEMVN) is ensuring compliance with applicable Federal laws, executive orders, regulations, policies and ordinances, and in that capacity is soliciting input regarding the requesters’ proposed alteration, referred to herein as the requesters’ preferred alternative.

This Environmental Assessment (EA #549) has been prepared based upon information provided by the requester, to analyze the impacts of altering multiple reaches of the WBV Project by raising the elevation of certain reaches of the WBV levee system. These actions are commonly referred to as levee lifts.

WBV-09.a

The WBV-09.a reach is located on the south bank of the Hero Canal and runs east until it ties into the Mississippi River Levee (MRL) system, excluding the WBV 09.c crossing of Louisiana State Highway (LA) 23, in Plaquemines Parish, Louisiana. The reach is described in Individual Environmental Report (IER) #13 titled “West Bank and Vicinity, Hero Canal Levee and Eastern Tie-In, Plaquemines Parish, Louisiana.” The Decision Record for IER #13 was approved by the CEMVN District Commander on December 4, 2009. The approved action as described in the Final IER #13 and the Addendum to the Final IER #13 consisted of enlarging the Hero Canal levee and the construction of the Eastern Tie-In portion of the WBV Project as part of the Hurricane and Storm Damage Risk Reduction System (HSDRRS). The Hero Canal project was divided into two reaches in the Final IER #13. Reach 1 consisted of improvements to the existing levee north of the Hero Canal and Reach 2 consisted of providing a levee/floodwall system south of the Hero Canal. The proposed action assessed in this EA would take place within the footprint of Reach 2 within the earthen levee portion of reach WBV-09.a, referred to as “WBV-9a” in IER #13. IER #13 can be found at:

http://www.nolaenvironmental.gov/nola_public_data/projects/usace_levee/docs/original/

[FinalIER13.pdf. The Final IER #13](#) and the Addendum to Final IER #13 and its Decision Record are hereby incorporated by reference.

WBV-12

The WBV-12 reach is located adjacent to the north bank of the Hero Canal in Plaquemines Parish, Louisiana, as described in IER #13 titled “West Bank and Vicinity, Hero Canal Levee and Eastern Tie-In, Plaquemines Parish, Louisiana.” The Decision Record for IER #13 was approved by the CEMVN District Commander on December 4, 2009. The approved action as described in the Final IER #13 and the Addendum to the Final IER #13 consisted of enlarging the Hero Canal levee and the construction of the Eastern Tie-In portion of the West Bank and Vicinity Project as part of the HSDRRS. The Hero Canal project was divided into two reaches in the Final IER #13. Reach 1 consisted of improvements to the existing levee north of the Hero Canal and Reach 2 consisted of providing a levee/floodwall system south of the Hero Canal. The proposed action assessed in this EA would take place within the footprint of Reach 1 within the earthen levee portion of WBV-12. IER #13 can be found at: http://www.nolaenvironmental.gov/nola_public_data/projects/usace_levee/docs/original/FinalIER13.pdf. The Final IER #13 and the Addendum to Final IER #13 and its Decision Record are hereby incorporated by reference.

WBV-14b.2

The WBV-14b.2 reach is located between the abandoned Orleans Village Pump Station and LA 45 in Jefferson Parish, Louisiana, as described in IER #14 titled “Westwego to Harvey Levee, Jefferson Parish, Louisiana.” The Decision Record for IER #14 was approved by the CEMVN District Commander on August 26, 2008. The approved action for levee reach WBV-14b.2 in IER #14 consisted of construction of an earthen levee enlargement with a flood side shift within the existing levee Right-of-Way (ROW). The proposed action assessed in this EA would take place within the footprint of the earthen levee portion of reach 14b.2, referred to as “WBV-14b” in IER #14. IER #14 can be found at: http://www.nolaenvironmental.gov/nola_public_data/projects/usace_levee/docs/original/FinalIER14_26Aug08.pdf. IER #14 and its Decision Record are hereby incorporated by reference.

WBV-14c.2

The WBV-14c.2 reach is located north of reach 14b.2, running from the western end of the Westwego Pump Station #2 to the abandoned Orleans Village Pump Station in Jefferson Parish, Louisiana, as described in IER #14 titled “Westwego to Harvey Levee, Jefferson Parish, Louisiana.” The Decision Record for IER #14 was approved by the CEMVN District Commander on August 26, 2008. The approved action for the WBV-14c.2 reach in IER #14 consisted of the construction of an earthen levee enlargement with a protected side shift within the existing ROW. The proposed action assessed in

this EA would take place within the footprint of the earthen levee portion of reach 14c.2, referred to as “WBV-14c” in IER #14. IER #14 can be found at: http://www.nolaenvironmental.gov/nola_public_data/projects/usace_levee/docs/original/FinalIER14_26Aug08.pdf. IER #14 and its Decision Record are hereby incorporated by reference.

WBV-14e.2

The WBV-14e.2 reach is located between LA 3134 and its terminus on the eastern end of the V-line levee in Jefferson Parish, Louisiana, as described in IER #14 titled “Westwego to Harvey Levee, Jefferson Parish, Louisiana.” The Decision Record for IER #14 was approved by the CEMVN District Commander on August 26, 2008. The approved action for the WBV-14e.2 reach in IER #14 consisted of the construction of an earthen levee enlargement with a protected side shift, partially outside the existing ROW. The proposed action assessed in this EA would take place within the footprint of the earthen levee portion of reach 14e.2, referred to as “WBV-14e” in IER #14. IER #14 can be found at:

http://www.nolaenvironmental.gov/nola_public_data/projects/usace_levee/docs/original/FinalIER14_26Aug08.pdf. IER #14 and its Decision Record are hereby incorporated by reference.

WBV-15a.2

The WBV-15a.2 reach is located within the Lake Cataouatche Levee and runs from Cataouatche Pumping Station No. 2 to the Bayou Segnette State Park, as described in IER #15 titled “Lake Cataouatche Levee, Jefferson Parish, Louisiana.” The Decision Record for IER #15 was approved by the CEMVN District Commander on June 12, 2008. The approved action for reach 15a.2 in IER #15 consisted of the construction uniform-design, protected-side shift of levee entirely within the existing construction ROW and area of previous and recent disturbance. The proposed action assessed in this EA would take place within the footprint of the earthen levee portion of reach 15a.2, referred to as “Reach 2” in IER #15. IER #15 can be found at:

http://www.nolaenvironmental.gov/nola_public_data/projects/usace_levee/docs/original/FinalIER15.pdf. IER #15 and its Decision Record are hereby incorporated by reference.

WBV-18.2

The WBV-18.2 reach is located within the Lake Cataouatche Levee and runs from the BFI Landfill to Cataouatche Pumping Station No. 2, as described in IER #15 titled “Lake Cataouatche Levee, Jefferson Parish, Louisiana.” The Decision Record for IER #15 was approved by the CEMVN District Commander on June 12, 2008. The approved action for reach 18.2 in IER #15 consisted of the construction uniform-design, protected-side shift of levee entirely within the existing construction ROW and area of previous and recent disturbance. The proposed action assessed in this EA would take place within the footprint of the earthen levee portion of reach 18.2, referred to as “Reach 2” in

IER #15. IER #15 can be found at:

http://www.nolaenvironmental.gov/nola_public_data/projects/usace_levee/docs/original/FinalIER15.pdf. IER #15 and its Decision Record are hereby incorporated by reference.

EA #549 has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and the Council on Environmental Quality (CEQ) Regulations (40 CFR 1500-1508), as reflected in the USACE Engineering Regulation, ER 200-2-2.

1.1 Project Name and Location

Project Name: Westbank and Vicinity – Levee Lifts Prior to Armoring, WBV-09.a, WBV-12, WBV-14b.2, WBV-14c.2, WBV-14e.2, WBV-15a.2, WBV-18.2.

Project Location: The proposed action is located in both Jefferson and Plaquemines Parishes, Louisiana. In Plaquemines Parish, the proposed action would take place within the footprint of the earthen levee portion of the WBV-09.a and WBV-12 projects (Figure 1). In Jefferson Parish, the proposed action would take place within the footprint of the earthen levee portion of the WBV-14b.2, WBV-14c.2, WBV-14e.2, WBV-15a.2, and WBV-18.2 projects (Figures 2, 3, 4, and 5). (See Figure 24 for a map depicting all of the Jefferson Parish proposed project locations.)



Figure 1. WBV-09.a and WBV-12 Project Locations



Figure 2. WBV-14b.2 and WBV-14c.2 Project Locations

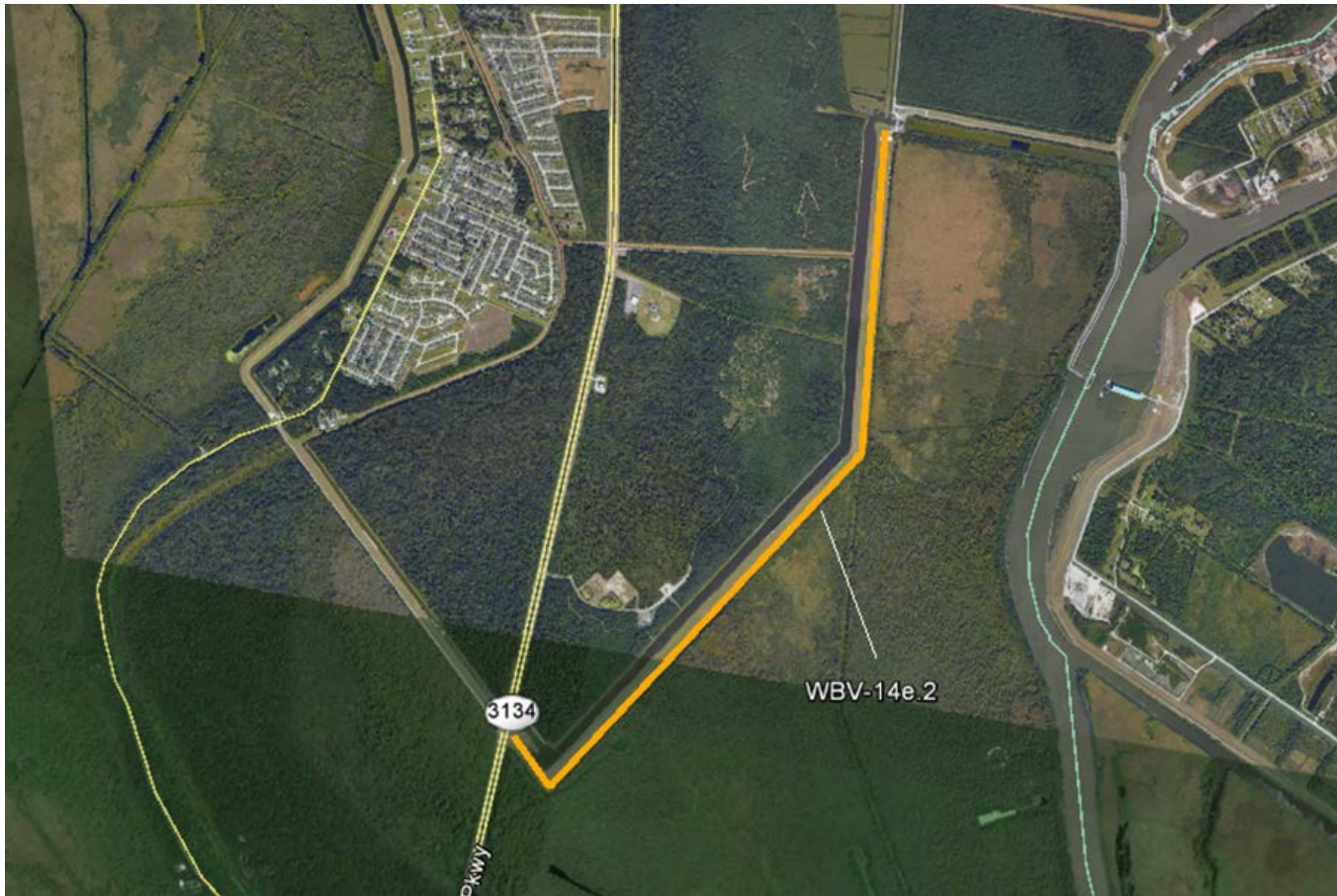


Figure 3. WBV-14e.2 Project Location



Figure 4. WBV-15a.2 Project Location



Figure 5. WBV-18.2 Project Location

1.2 Requested Permission Authority

The requested permission authority is Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C. 408).

1.3 Purpose and Need for the Proposed Action

The purpose of the earthen levees discussed in this document is to provide the required 100-year level of risk reduction associated with the WBV project. The elevations required for these earthen levee reaches to provide the required level of risk reduction is shown in Table 1.

Table 1: Required Elevations for Levee Lifts by Reach		
Reach	Elevation (feet NAVD88)	
	2007	2057
WBV-14b.2	10.5	14
WBV-14c.2		
WBV-14e.2		
WBV 15a.2	11.5	15.5
WBV-18.2		
WBV-09.a	10.5	14
WBV-12		

NAVD88-North American Vertical Datum of 1988

The increase in elevation in 2057 accounts for projected subsidence and sea level rise for the 50-year period of analysis.

Due to subsidence and consolidation since the actions carried out as described in IER #13, #14 and #15, the current levee elevations are at or below the required elevation to provide the designed 100-year level of risk reduction afforded by the HSDRRS. If the proposed levee lifts are not performed, the levees would continue to settle and would not provide the required level of risk reduction to meet Federal Emergency Management Agency (FEMA) accreditation requirements.

The requester intends to raise the levee reaches to elevations ranging from 13 to 15.5 feet NAVD88 prior to CEMVN's placement of armoring material on the levee reach to increase resiliency of the levee. The increase in elevation ranging from 0.5 to 4.5 feet NAVD88 would not have an adverse impact on the performance of the project and would extend the period of performance prior to the next required levee lift, which is anticipated to be in the next 5-7 years.

1.4 Prior Reports

The CEMVN and others have prepared a number of studies and reports on water resources development in the vicinity of the WBV project. The most recent reports pertinent to the levee lifts evaluated in this document are listed below and are incorporated by reference.

- On 25 March 2016, the CEMVN Commander signed a Finding of No Significant Impact (FONSI) on Supplemental Environmental Assessment (SEA) #537 entitled “New Orleans to Venice Hurricane Risk Reduction Project: Changes to the Non-Federal Levees Project, Oakville to St. Jude, Plaquemines Parish, Louisiana.” The document was prepared to evaluate potential impacts from changes to the non-Federal back levees (NFL) project design with modifications not addressed in the Final Environmental Impact Statement (FEIS) for incorporation of the NFL into the New Orleans to Venice (NOV) Federal levee system.
- On 13 June 2014, the CEMVN Commander signed a Decision Record on Programmatic IER (PIER) #37 entitled “West Bank and Vicinity Hurricane and Storm Damage Risk Reduction System Mitigation, Jefferson, Lafourche, Plaquemines, and St. Charles Parishes, Louisiana.” The document was prepared to evaluate alternatives for mitigating the impacts associated with the construction of the WBV HSDRRS.
- On 31 October 2011, the CEMVN Commander signed a Record of Decision for the Final Environmental Impact Statement (FEIS) entitled “New Orleans to Venice Louisiana Hurricane Risk Reduction Project: Incorporation of Non-Federal Levees from Oakville to St. Jude, Plaquemines Parish, Louisiana.” The document was prepared to evaluate potential impacts from the replacement and modification of existing NFL for incorporation into the NOV Federal levee system.
- On 7 September 2011, the CEMVN Commander signed a Decision Record on the Final IER Supplemental (IERS) #15.a entitled, “Addendum Individual Environmental Report Supplemental, West Bank and Vicinity, Lake Cataouatche Levee, Jefferson Parish, Louisiana.” This document evaluated the potential impacts from relocation of a pipeline and construction of a new access road and bridge in the Lake Cataouatche Lee project area within the WBV 15a.2 levee reach.
- On 21 April 2011, The CEMVN Commander signed a Decision Record on IERS #13.a entitled, “Temporary Closure of Hero Canal, West Bank and Vicinity, Gulf Intracoastal Waterway (GIWW), Harvey and Algiers Levees and Floodwalls, and

Hero Canal Levee and Eastern Tie-In, Plaquemines Parish, Louisiana.” This document evaluated the impacts associated with closing the Hero Canal to vessel traffic for 30-60 days in order to provide the 1% level of protection by the 2011 hurricane season.

- On 22 February 2011, the CEMVN Commander signed a Decision Record for IER Supplemental #12.a entitled “GIWW, Harvey, and Algiers Levees and Floodwalls, Jefferson, Orleans, and Plaquemines Parishes, Louisiana.” This document evaluates the impacts of an earthen levee enlargement of the V-Line Levee.
- On 2 February 2011, the CEMVN Commander signed a Decision Record for IER Supplemental #12/13 entitled “GIWW, Harvey, and Algiers Levees and Floodwalls and Hero Canal Levee and Eastern Tie-In, Plaquemines Parishes, Louisiana.” This document evaluates the impacts of a modification to the no action alternative discussed in IER #12 and #13.
- On 9 February 2010, the CEMVN Commander signed a Decision Record on the Final IERS #14.a entitled “West Bank and Vicinity, Westwego to Harvey Levee, Jefferson Parish, Louisiana.” This document addressed the potential impacts from proposed revisions to two of the five component reaches, WVB-14.b and WBV 14.c.2, originally evaluated in IER #14.
- On 18 February 2009, the CEMVN Commander signed a Decision Record on IER #12 entitled “GIWW, Harvey, and Algiers Levees and Floodwalls, Jefferson, Orleans, and Plaquemines Parishes, Louisiana.” IER #12 evaluated the potential impacts associated with raising and/or constructing levees, floodwalls, and other structures to meet the 100-year level of risk reduction for Harvey-Westwego, Gretna-Algiers, and Belle Chase areas.
- On 4 December 2009, the CEMVN Commander signed a Decision Record on IER #13 and the Addendum to IER #13 entitled “West Bank and Vicinity (WBV) Hero Canal Levee and Eastern Tie-In, Plaquemines Parish, Louisiana.” The document was prepared to evaluate potential impacts from enlargement of the Hero Canal levee and construction of a tie-in to the MRL as part of the WBV HSDRRS.
- On 26 August 2008, the CEMVN Commander signed a Decision Record on IER #14 entitled “Westwego to Harvey Levee, Jefferson Parish, Louisiana.” IER #14 evaluated the potential impacts associated with earthen levee enlargements to meet the 100-year level of risk reduction.
- On 12 June 2008, the CEMVN Commander signed a Decision Record on IER #15, entitled “Lake Cataouatche Levee, Jefferson Parish, Louisiana.” The

proposed action included constructing a 100-year level of protection in the project area.

- On 25 January 1988, a Record of Decision (ROD) was signed for the Final Supplement II to the EIS for the project entitled “New Orleans to Venice Hurricane Protection Project.” This document discussed additional impacts for the west bank Mississippi River Levee.
- On 27 June 1985, ROD was signed for the Final Supplement I to the EIS for the project entitled “New Orleans to Venice Hurricane Protection Project.” This document discussed the deficiencies of the 1974 FEIS and also the enlargement of the locally construction west bank back from City Price to Venice.
- In 1985, a document entitled “Mitigation Report, New Orleans to Venice Hurricane Protection Project” was prepared to evaluate migration for the back levees from Tropical Bend to Venice.
- On 9 December 1974, a ROD was signed for the FEIS entitled, “New Orleans to Venice, Louisiana, Hurricane Protection, US Army Engineer District, New Orleans.” This document discussed the enlargement of the west bank back levee from City Price to Venice.

Prior Reports related to borrow material include:

- On 22 January 2010, the CEMVN Commander signed a Decision Record on IER #32 entitled “Contractor-Furnished Borrow Material #6, Ascension, Plaquemines, and St. Charles Parishes, Louisiana.” The document was prepared to evaluate the potential impacts associated with the actions taken by commercial contractors as a result of excavating contractor-furnished borrow areas for use in construction of the HSDRRS.
- On 29 October 2010, the CEMVN Commander signed a Decision Record on IER #31 entitled “Contractor-Furnished Borrow Material #7, East Baton Rouge, Jefferson, Lafourche, Plaquemines, St. Bernard, and St. Tammany Parishes, Louisiana and Hancock County, Mississippi.” The document was prepared to evaluate the potential impacts associated with the actions taken by commercial contractors as a result of excavating contractor-furnished borrow areas for use in construction of the HSDRRS.
- On 20 September 2009, the CEMVN Commander signed a Decision Record on IER #29 entitled “Pre-Approved Contractor-Furnished Borrow Material #4, Orleans, St. John the Baptist, and St. Tammany Parishes, Louisiana.” The document was prepared to evaluate the potential impacts associated with the actions taken by commercial contractors as a result of excavating contractor-furnished borrow areas for use in construction of the HSDRRS.

- On 20 October 2008, the CEMVN District Engineer signed a Decision Record on IER #26 entitled “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 the actions taken by commercial contractors to excavate borrow material for use in construction of the HSDRRS.
- On 6 May 2008, the CEMVN Commander signed a Decision Record on IER #23 entitled “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 approving contractor-furnished borrow areas for use in construction of the HSDRRS.
- On 14 February 2008, the CEMVN District Engineer signed a Decision Record on IER #19 entitled “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 to excavate borrow material for use in construction of the HSDRRS.

2.0 ALTERNATIVES (INCLUDING THE PROPOSED ACTION)

Two alternatives were considered. These include the proposed action (also referred to as the requesters’ preferred alternative) and the no action alternative, which NEPA requires Federal agencies to consider in analyzing alternatives. The no action alternative represents the Future Without Project (FWOP) condition for use in comparing action alternatives considered in detail. The FWOP describes a baseline condition essential for impact assessment and alternatives analysis.

2.1 Proposed Action

Typical cross-sections of each levee lift reach are provided in Figures 6-15. Some levee reaches will have more than one typical cross-section, representing various levee lift configuration which would be used on various portions of the levee to meet HSDRRS design guidelines.

WBV-09.a

The requester proposes to raise the elevation of WBV Levee Reach 09.a. The existing levee crown varies in elevation throughout the reach, having settled to approximately 10.5 feet NAVD88. This levee lift is located in Plaquemines Parish and would extend from Station 4+28, south of the Hero Canal at the floodgate tie-in to Station 30+26.31, just west of the pump station; then from Station 34+53.69 on the east side of the pump station to Station 49+66 just west of the LA 23 floodgate; and then from Station

57+69.24 at the west tie-in to the LA 23 floodwall to Station 62+11.76 where the WBV ties into the MRL.

The section from Station 4+28 to Station 30+26.31 would be raised to 15.5 feet NAVD88. The other two sections would be raised to 15 feet NAVD88. All construction would occur within previously disturbed areas within the existing levee authority ROW described in IER #13, and all ingress and egress to the project would occur on existing access roads running from LA 23 on the east end of the project and around the landfill along the south bank of Hero Canal at the north end of the project.

During construction, the existing 12-foot wide gravel access road located at the protected side levee toe would be removed from Station 5+50.00 to Station 29+00.00 and would be replaced with compacted fill. A new gravel access road will be constructed adjacent to the new levee toe during the USACE levee armoring contract.

The existing 30 foot wide gravel ramp at Station 28+50.00 would be removed, embankment placed, and the ramp reconstructed at the same location.

No wetlands or trees (woody vegetation) would be impacted by this proposed action. All staging of equipment and materials would take place within previously disturbed footprints within the existing levee ROW and within the ROW for the LA 23 floodwall on the eastern end of the project area. These staging areas were cleared and surfaced with aggregate previously. Current use by USACE contractors for projects in the area has kept the staging areas generally clear of vegetation, which is limited to herbaceous species that have volunteered where opportunities allow.

The proposed levee lift would require approximately 2,052 cubic yards of material to be removed from the existing levee embankment to prepare the site for placement of fill material or borrow. The levee lift would require approximately 29,889 cubic yards of earthen borrow material in place, with roughly twice that amount required from a borrow site (59,778 cubic yards). Additionally, 566 cubic yards of gravel material would be hauled to the project site for the access ramp located at Sta. 28+50.00. Equipment that may be used during construction include compactors, sheep's foot rollers, bulldozers, front-end loaders, job site trailers, on-road dump trucks, off-road haul/dump trucks, service trucks, skid steer loaders (including tracked type), pick-up trucks, and on-site water trucks. Haul trucks would be entering and exiting the areas on a daily basis during the period of construction.

Existing turf on the levee would be cleared and existing embankment foundation cavities and depressions would be broken down to flatten out the slope. The entire area of embankment to be raised would be broken to a depth of six inches and benched in order to place and compact newly placed embankment material. The existing concrete scour protection and grouted rip-rap would either remain in place or would be removed, hauled off-site and properly disposed of by the Contractor, and replaced with embankment at the MRL tie-in. The crushed stone material used for the existing access

road located at the protected side levee toe would be removed during levee construction, hauled off-site by the Contractor, and replaced by the USACE during upcoming levee armoring projects.

Silt fencing would be used along the entire reach to control stormwater run-off from the project site. The fencing would be placed at an appropriate distance from the construction limits and in a manner to avoid impacting trees and other woody vegetation within the ROW. Additional protections, including hay bales, would be employed to prevent run-off from discharging into wetlands or other special aquatic sites. Any material hauled off-site would be properly disposed of, in compliance with applicable federal, state, and local laws. Once the required levee elevation is obtained through addition and grading of embankment material, the levee section would be seeded and fertilized to establish turf. Any water applied during the establishment and irrigation of grass on the embankment, or to control dust on access roads and in staging areas, would be supplied with water from a municipal water supply. No trees (woody vegetation) or wetlands would be impacted by this proposed action. Additional details are provided in Appendix A.

An active rookery was identified approximately 100 feet from the toe of the existing WBV 09.a levee reach during the spring of 2016. Construction work within 1,000 feet of the rookery would be avoided during the nesting season, which is generally from February to September. Monitoring of the rookery and additional coordination with USFWS may determine that the nesting season for the colonial wading birds identified using the rookery is shorter.

The extent of this work would comprise an area of approximately 22.6 acres.

WBV-12

The requester proposes to raise the elevation of WBV Levee Reach 12 to 13 feet NAVD88. The existing levee crown varies in elevation throughout the reach, having settled to approximately 10.5 feet NAVD88. This levee lift is located in Plaquemines Parish on the north side of Hero Canal and would extend from Station 244+90 on the west end of the project to Station 124+35, where it ties into the Hero Canal floodgate. In addition, the requester intends to also raise a required stability berm by 22 inches on the protected side of WBV-12 from Stations 151+55 to 176+05. All construction would occur within existing levee authority ROW within areas previously disturbed by activities described in IER #13, and all ingress and egress to the project would occur on existing access roads that extend from Walker Road.

No wetlands or trees (woody vegetation) would be impacted by the proposed action. All staging of equipment and materials would take place within previously disturbed footprints within the existing levee ROW on the protected side of the levee from Station 180+00.00 to Station 183+00.00.

The proposed levee lift would require approximately 85,992 cubic yards of earthen borrow material in place, with roughly twice that amount required from a borrow site (171,984 cubic yards). 4,500 cubic yards of borrow material in place would be required to raise the stability berm, in addition to 1,190 cubic yards of gravel material for the access ramp located at Sta. 177+94.00. Equipment that may be used during construction include compactors, sheep's foot rollers, bulldozers, front-end loaders, job site trailers, on-road dump trucks, off-road haul/dump trucks, service trucks, skid steer loaders (including tracked type), pick-up trucks, and on-site water trucks. Haul trucks would be entering and exiting the areas on a daily basis during the period of construction.

Existing turf on the levee would be cleared and existing embankment foundation cavities and depressions would be broken down to flatten out the slope. The entire area of embankment to be raised would be broken to a depth of six inches and benched in order to place and compact newly placed embankment material. Existing concrete scour protection and a section of grouted rip rap at the end of the earthen levee section adjacent to the floodwall tie-in would be removed and replaced with grouted rip-rap and concrete scour protection to achieve a proper tie-in. The existing scour protection has settled with the adjacent levee, and the new scour protection will tie-in to the new levee at El. 13. The requester estimates approximately 90 cubic yards of grouted rip-rap would be required for this work. The crushed stone material used for the existing access road would be removed during levee construction and replaced by the USACE during upcoming levee armoring projects.

Silt fencing would be used along the entire reach to control stormwater run-off from the project site. The fencing would be placed at an appropriate distance from the construction limits and in a manner to avoid impacting trees and other woody vegetation within the ROW. Additional protections, including hay bales, would be employed to prevent run-off from discharging into wetlands or other special aquatic sites. Any material hauled off-site would be properly disposed of, in compliance with applicable federal, state, and local laws. Once the required levee elevation is obtained through addition and grading of embankment material, the levee section would be seeded and fertilized to establish turf. Any water applied during the establishment and irrigation of grass on the embankment, or to control dust on access roads and in staging areas, would be supplied with water from a municipal water supply. No wetlands or trees (woody vegetation) would be impacted by the proposed action. Additional details are provided in Appendix A.

The extent of this work would comprise an area of approximately 56.5 acres.

WBV-14b.2

The requester proposes to raise the elevation of WBV Levee Reach 14b.2 to elevation 14.5 feet NAVD88. The existing levee crown varies in elevation throughout the reach, ranging in elevation from approximately 11.5 to 13.5 feet. This levee lift would extend

from Station 930+81, just south of the abandoned Orleans Village Pump Station, to Station 1094+09, just east of LA 45 in Jefferson Parish, Louisiana. All construction would occur within existing levee authority ROW within areas previously disturbed by activities described in IER #14, and all ingress and egress to the project would occur on existing access roads running from Lapalco Boulevard to the north and from LA 45 on the south end of the project. No wetlands or trees (woody vegetation) would be removed or impacted.

Three locations of existing ramps are to be degraded (stone removed and hauled off-site for disposal), the levee lifted, and new ramps installed at the same three locations as existing. There would be two diagonal ramps, angle matching existing alignment, at Sta. 1021+46.66 and 1024+96.66; and one perpendicular ramp at Sta. 1005+38.70.

All staging of equipment and materials would take place within previously disturbed footprints within the existing levee right-of-way adjacent to the west bank of the Millaudon Canal on the northern end of the WBV-14b.2 project area, and also within previously disturbed footprints within the existing levee right-of-way adjacent to LA 45 on the southern end of the project area. The proposed levee lift would require approximately 89,347 cubic yards of earthen borrow material in place, with roughly twice that amount required from a borrow site (179,694 cubic yards). Additionally, 147 cubic yards of gravel material would be hauled to the project site for ramps. Equipment that may be used during construction include compactors, sheep's foot rollers, service trucks, skid steer loaders (including tracked type), pick-up trucks, and on-site water trucks. Haul trucks would be entering and exiting the areas on a daily basis during the period of construction.

Existing turf on the levee would be cleared. After clearing, the cleared area would be thoroughly broken to a depth of six inches, parallel to the centerline of the levee in order to place and compact newly placed embankment material. Silt fencing would be used along the entire reach to control stormwater run-off from the project site. The fencing would be placed at an appropriate distance from the construction limits and in a manner to avoid impacting trees and other woody vegetation within the ROW. Additional protections, including hay bales, would be employed to prevent run-off from discharging into wetlands or other special aquatic sites. Any material hauled off-site would be properly disposed of, in compliance with applicable federal, state, and local laws. Once the required levee elevation is obtained through addition and grading of embankment material, the levee section would be seeded and fertilized to establish turf. Any water applied during the establishment and irrigation of grass on the embankment, or to control dust on access roads and in staging areas, would be supplied with water from a municipal water supply. No wetlands or trees (woody vegetation) would be removed or disturbed by the proposed action. Additional details are provided in Appendix A.

The extent of this work would comprise an area of approximately 44 acres.

WBV-14c.2

The requester proposes to raise the elevation of WBV Levee Reach 14c.2 to elevation 14.0 feet NAVD88 between Station 745+88 and Station 798+96, elevation 14.5 feet NAVD88 between Station 799+86 and Station 805+31, and elevation 14.0 feet NAVD88 between Station 806+20 and Station 926+16. The existing levee crown varies in elevation throughout the reach, ranging in elevation from approximately 10.5 to 12.0 feet. This levee lift would extend from Station 745+88, just west of the Westwego Pump Station #2, to Station 926+16, just east of the abandoned Orleans Village Pump Station in Jefferson Parish, Louisiana. All construction would occur within existing levee authority ROW within areas previously disturbed by activities described in IER #14, and all ingress and egress to the project would occur on existing access roads running from Lapalco Boulevard at the northern and southern termini of the WBV-14c.2 project area.

All staging of equipment and materials would take place within previously disturbed footprints within the existing levee right-of-way adjacent to Lapalco Boulevard on the northern end of the project area, and also within previously disturbed footprints within the existing levee right-of-way adjacent to the Grand Cross Canal on the southern end of the project area. The proposed levee lift would require approximately 176,350 cubic yards of earthen borrow material in place, with roughly twice that amount required from a borrow site (352,700 cubic yards). Additionally, 4,430 cubic yards of gravel or crushed stone would be hauled to the project site for ramps. Equipment that may be used during construction include compactors, sheep's foot rollers, bulldozers, front-end loaders, job site trailers, on-road dump trucks, off-road haul/dump trucks, service trucks, skid steer loaders (including tracked type), pick-up trucks, and on-site water trucks. Haul trucks would be entering and exiting the areas on a daily basis during the period of construction.

Existing turf on the levee would be cleared. After clearing, the cleared area would be thoroughly broken to a depth of six inches, parallel to the centerline of the levee in order to place and compact newly placed embankment material. Existing surfacing and any underlying fabric on existing ramps would be removed prior to placement of new fill material. Ramps would be replaced. Silt fencing would be used along the entire reach to control stormwater run-off from the project site. The fencing would be placed at an appropriate distance from the construction limits and in a manner to avoid impacting trees and other woody vegetation within the ROW. Additional protections, including hay bales, would be employed to prevent run-off from discharging into wetlands or other special aquatic sites. Any material hauled off-site would be properly disposed of, in compliance with applicable federal, state, and local laws. Once the required levee elevation is obtained through addition and grading of embankment material, the levee section would be seeded and fertilized to establish turf. Any water applied during the establishment and irrigation of grass on the embankment, or to control dust on access roads and in staging areas, would be supplied with water from a municipal water supply. No wetlands or trees (woody vegetation) would be impacted by the proposed action. Additional details are provided in Appendix A.

The extent of this work would comprise an area of approximately 58 acres.

WBV-14e.2

The requester proposes to raise the elevation of WBV Levee Reach 14e.2 to elevation 14.5 feet NAVD88 between Station 1316+12 and Station 1327+60, and elevation 14.0 feet NAVD88 between Station 1328+11 and Station 1466+93. The existing levee crown varies in elevation throughout the reach, ranging in elevation from approximately 10.0 to 13.5 feet. This levee lift would extend from Station 1316+12, just south of LA 3134, to Station 1466+93, just west of the Old Estelle Pump Station in Jefferson Parish, Louisiana. All construction would occur within existing levee authority ROW within areas previously disturbed by activities described in IER #14, and all ingress and egress to the project would occur on an existing access road running from LA 3134.

All staging of equipment and materials would take place within areas previously disturbed within the existing levee right-of-way adjacent to LA 3134 and the interior drainage canal at the northern end of the WBV-14e.2 project area. The proposed levee lift would require approximately 111,500 cubic yards of earthen borrow material in place, with roughly twice that amount required from a borrow site (223,000 cubic yards). Additionally, 2,350 cubic yards of gravel or crushed stone would be hauled to the project site for ramps. Equipment that may be used during construction include compactors, sheep's foot rollers, bulldozers, front-end loaders, job site trailers, on-road dump trucks, off-road haul/dump trucks, service trucks, skid steer loaders (including tracked type), pick-up trucks, and on-site water trucks. Haul trucks would be entering and exiting the areas on a daily basis during the period of construction.

Existing turf on the levee would be cleared. After clearing, the cleared area would be thoroughly broken to a depth of six inches, parallel to the centerline of the levee in order to place and compact newly placed embankment material. Existing surfacing and any underlying fabric on existing ramps would be removed prior to placement of new fill material. Ramps would be replaced. Silt fencing would be used along the entire reach to control stormwater run-off from the project site. The fencing would be placed at an appropriate distance from the construction limits and in a manner to avoid impacting trees and other woody vegetation within the ROW. Additional protections, including hay bales, would be employed to prevent run-off from discharging into wetlands or other special aquatic sites. Any material hauled off-site would be properly disposed of, in compliance with applicable federal, state, and local laws. Once the required levee elevation is obtained through addition and grading of embankment material, the levee section would be seeded and fertilized to establish turf. Any water applied during the establishment and irrigation of grass on the embankment, or to control dust on access roads and in staging areas, would be supplied with water from a municipal water supply. No trees or other vegetation outside of the limits of the currently maintained levee section and staging areas would be disturbed. Additional details are provided in Appendix A.

The extent of this work would comprise an area of approximately 30 acres.

Because of the sensitivity and significance of the Bayou aux Carpes 404(c) area, every effort would be made to minimize impacts during construction. Mandatory training of all construction supervisors and workers would be undertaken by the contractor before work begins. This training would include an explanation of the importance of Bayou aux Carpes area and the regulatory authority for its protection; identification of the boundaries of protected and regulated areas; and the ecological and legal ramifications of encroachment, spills, and other violations of the laws and measures that protect this EPA-designated area.

WBV-15a.2

The requester proposes to raise the elevation of WBV Levee Reach 15a.2 to elevation 14.0 feet NAVD88. The existing levee crown varies in elevation throughout the reach, ranging in elevation from approximately 10.9 to 13.75 feet. This levee lift would extend from Station 426+91, just east of existing Cataouatche Pumping Station No. 2, to Station 625+15, just west Bayou Segnette in Jefferson Parish, Louisiana. All construction would occur within existing levee authority ROW within areas previously disturbed by activities described in IER #15, and all ingress and egress to the project would occur on an existing access road running south from the eastern terminus of Segnette Boulevard and adjacent to the Bayou Segnette.

All staging of equipment and material would take place at either end of the levee lift, at existing cleared and maintained areas adjacent to the levee on the protected side between the levee and the adjacent wooded areas. This proposed levee lift would require approximately 88,733 cubic yards of material to be removed from the existing levee embankment to prepare the site for placement of fill material, or borrow. The levee lift would require approximately 131,606 cubic yards of earthen borrow material in place, with roughly twice that amount required from a borrow site (263,212 cubic yards). Equipment that may be used during construction include compactors, sheep's foot rollers, bulldozers, front-end loaders, job site trailers, on-road dump trucks, off-road haul/dump trucks, service trucks, skid steer loaders (including tracked type), pick-up trucks, and on-site water trucks. Haul trucks would be entering and exiting the areas on a daily basis during the period of construction.

Existing turf on the levee would be cleared. After clearing, the cleared area would be thoroughly broken to a depth of six inches, parallel to the centerline of the levee in order to place and compact newly placed embankment material. Silt fencing would be used along the entire reach to control stormwater run-off from the project site. The fencing would be placed at an appropriate distance from the construction limits and in a manner to avoid impacting trees and other woody vegetation within the ROW. Additional protections, including hay bales, would be employed to prevent run-off from discharging into wetlands or other special aquatic sites. Any material hauled off-site would be properly disposed of, in compliance with applicable federal, state, and local laws. Once the required levee elevation is obtained through addition and grading of embankment material, the levee section would be seeded and fertilized to establish turf. Any water

applied during the establishment and irrigation of grass on the embankment, or to control dust on access roads and in staging areas, would be supplied with water from a municipal water supply. No trees or other vegetation outside of the limits of the currently maintained levee section and staging areas would be disturbed.

Additional details are provided in Appendix A.

The extent of this work would comprise an area of approximately 110 acres.

WBV-18.2

The requester proposes to raise the elevation of WBV Levee Reach 18.2 to elevation 15.0 feet NAVD88. The existing levee crown varies in elevation throughout the reach, ranging in elevation from approximately 11.5 to 14.0 feet. This levee lift would extend from Station 500+97.28, just east of the BFI Landfill, to Station 640+38.17, just west of the Cataouatche Pumping Station No. 2, in Jefferson Parish, Louisiana. All construction would occur within existing levee authority ROW within areas previously disturbed by activities described in IER #15, and all ingress and egress to the project would occur on an existing access roads running to the Lake Cataouatche Pump Station.

All staging of equipment and materials would take place within existing ROW at either end of the levee lift. This proposed levee lift would require approximately 21,724 cubic yards of material to be removed from the existing levee embankment to prepare the site for placement of fill material, or borrow. The levee lift would require approximately 87,600 cubic yards of earthen borrow material in place, with roughly twice that amount required from a borrow site (175,200 cubic yards). Additionally, 3,610 cubic yards of gravel or crushed stone would be hauled to the project site for ramps. Equipment that may be used during construction include compactors, sheep's foot rollers, bulldozers, front-end loaders, job site trailers, on-road dump trucks, off-road haul/dump trucks, service trucks, skid steer loaders (including tracked type), pick-up trucks, and on-site water trucks. Haul trucks would be entering and exiting the areas on a daily basis during the period of construction.

Existing turf on the levee would be cleared. After clearing, the cleared area would be thoroughly broken to a depth of six inches, parallel to the centerline of the levee in order to place and compact newly placed embankment material. Existing surfacing and any underlying fabric on existing ramps would be removed prior to placement of new fill material. Ramps would be replaced. Silt fencing would be used along the entire reach to control stormwater run-off from the project site. The fencing would be placed at an appropriate distance from the construction limits and in a manner to avoid impacting trees and other woody vegetation within the ROW. Additional protections, including hay bales, would be employed to prevent run-off from discharging into wetlands or other special aquatic sites. Any material hauled off-site would be properly disposed of, in compliance with applicable federal, state, and local laws. Once the required levee elevation is obtained through addition and grading of embankment material, the levee

section would be seeded and fertilized to establish turf. Any water applied during the establishment and irrigation of grass on the embankment, or to control dust on access roads and in staging areas, would be supplied with water from a municipal water supply. No trees or other vegetation outside of the limits of the currently maintained levee section and staging areas would be disturbed. Additional details are provided in Appendix A.

The extent of this work would comprise an area of approximately 27 acres.

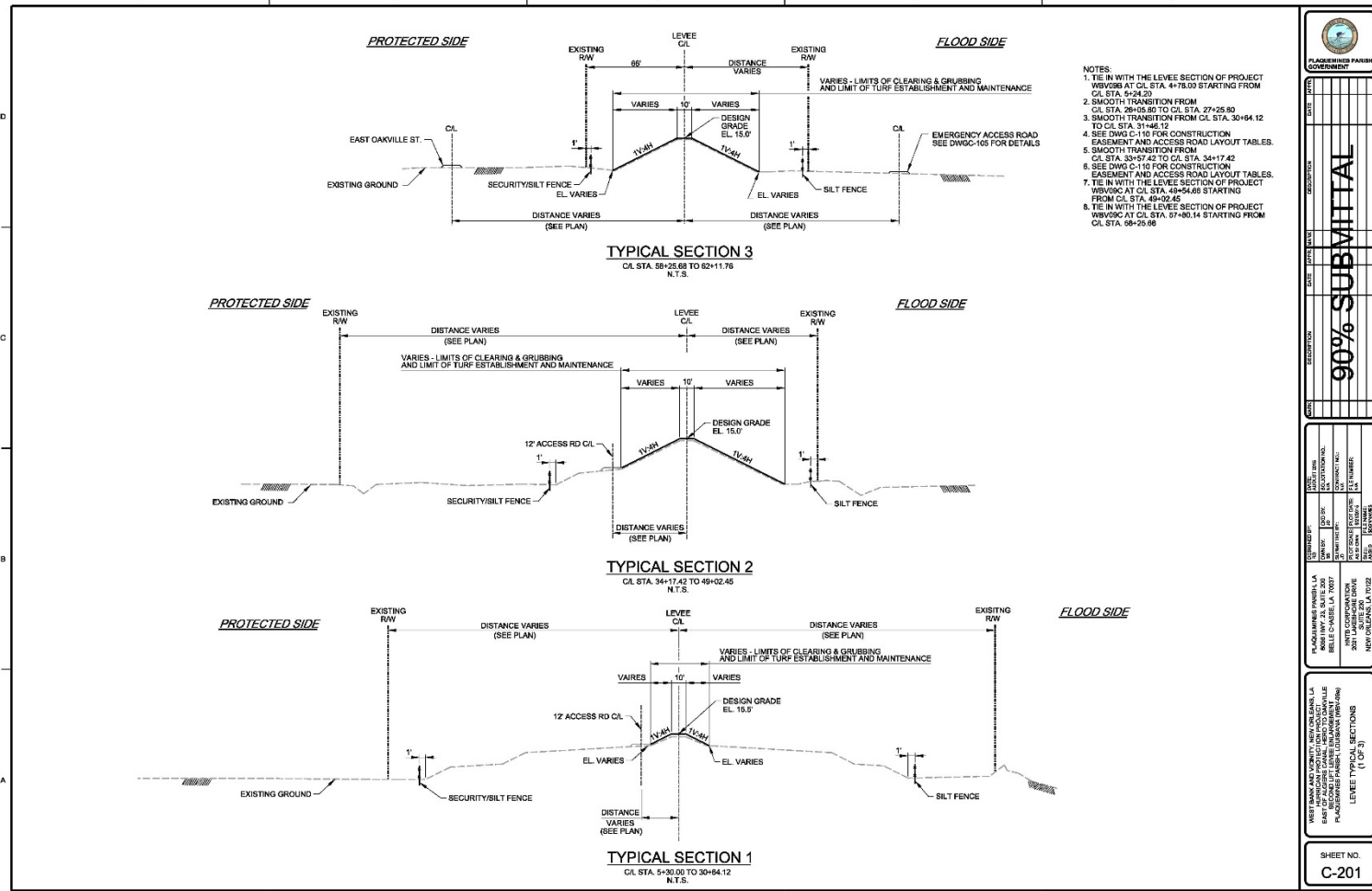
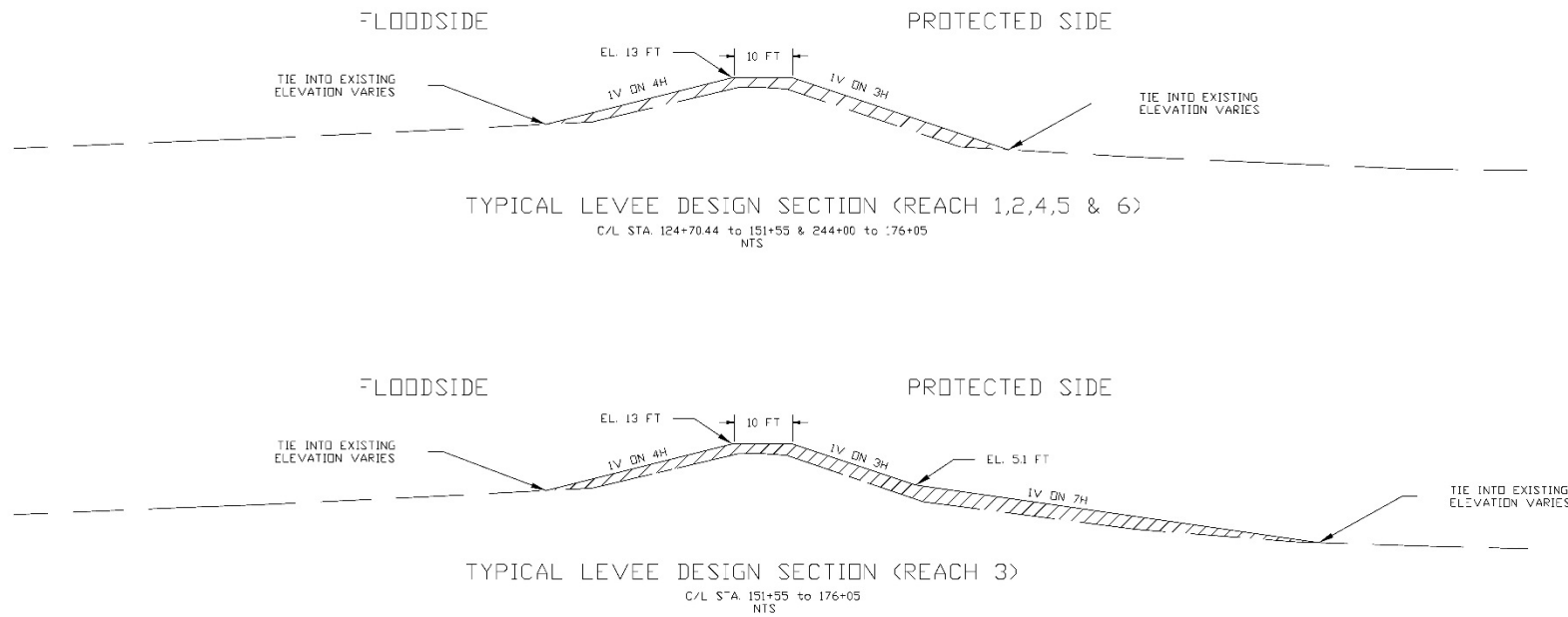


Figure 6. Typical Levee Cross Sections (Sections 1 – 3), WBV-09.a

ANALYZED DESIGN SECTION
WBV-12



6-2

Figure 7. Typical Levee Cross Sections (Reaches 1 – 6), WBV-12

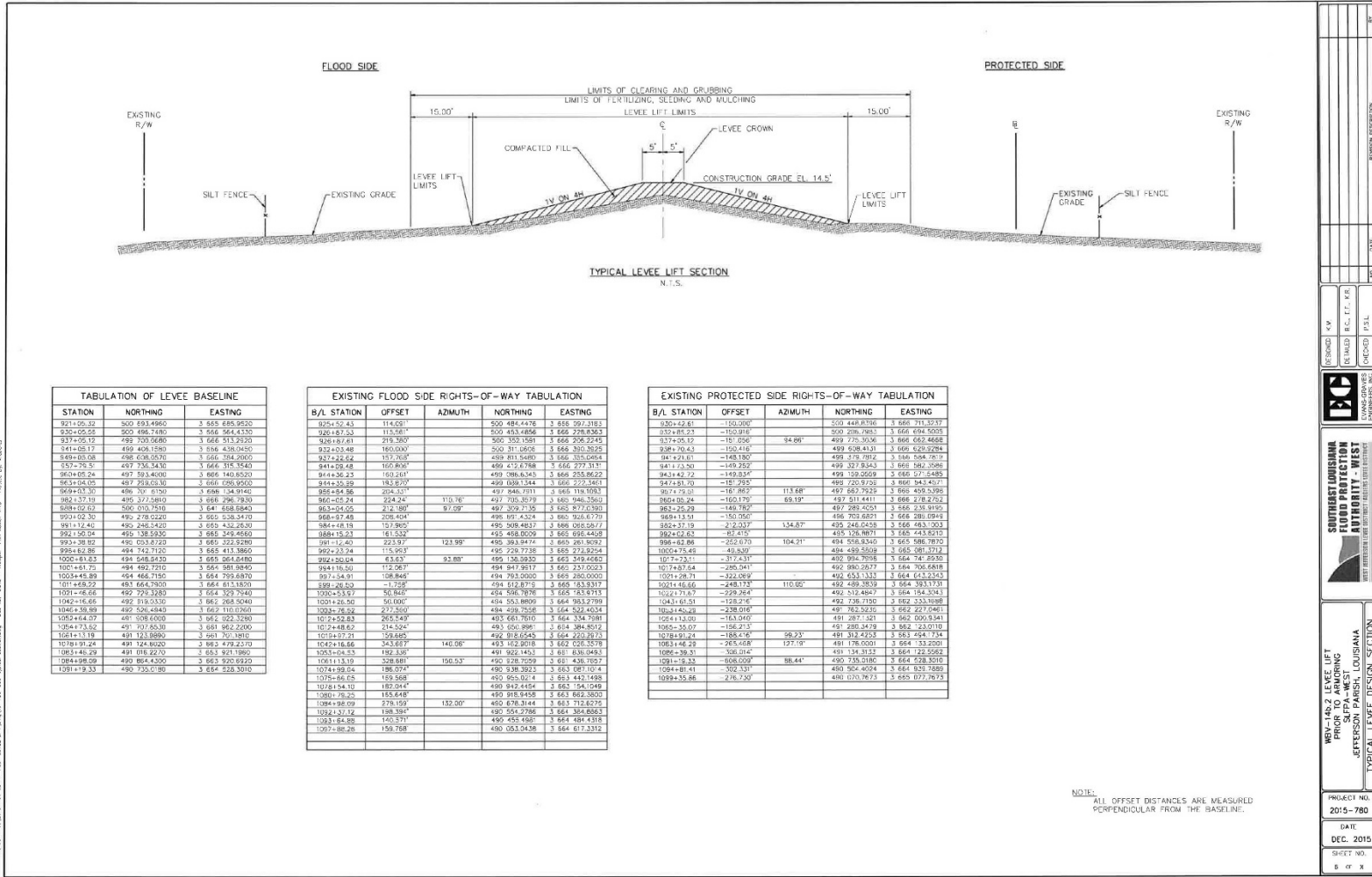


Figure 8. Typical Levee Cross Section, WBV-14b.2

EA #549 WBV-09.a, WBV-12, WBV-14b.2, WBV-14c.2, WBV-14e.2, WBV-15a.2, WBV-18.2
Levee Lifts Prior to Armoring, Jefferson and Plaquemines Parishes, LA

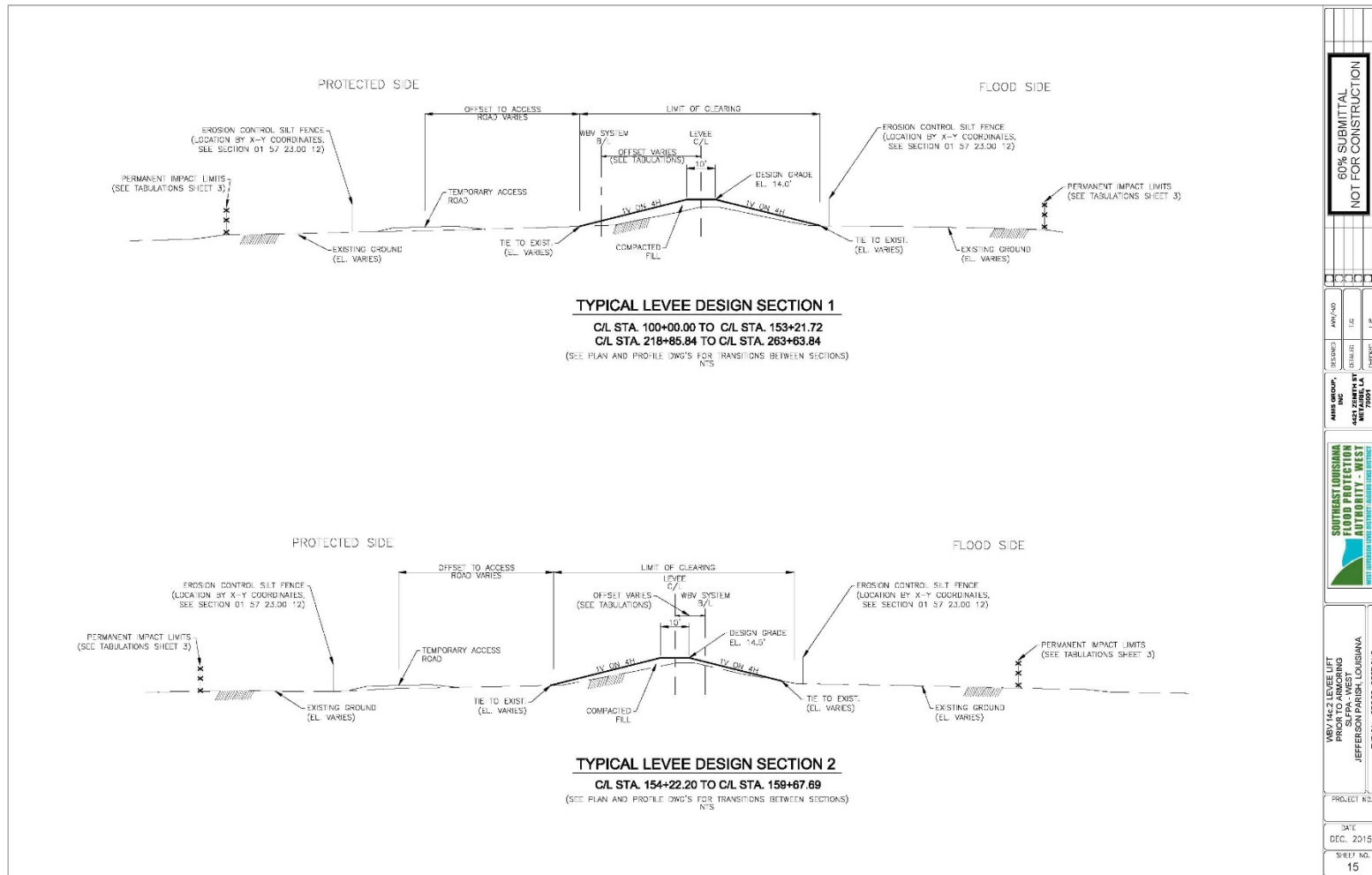
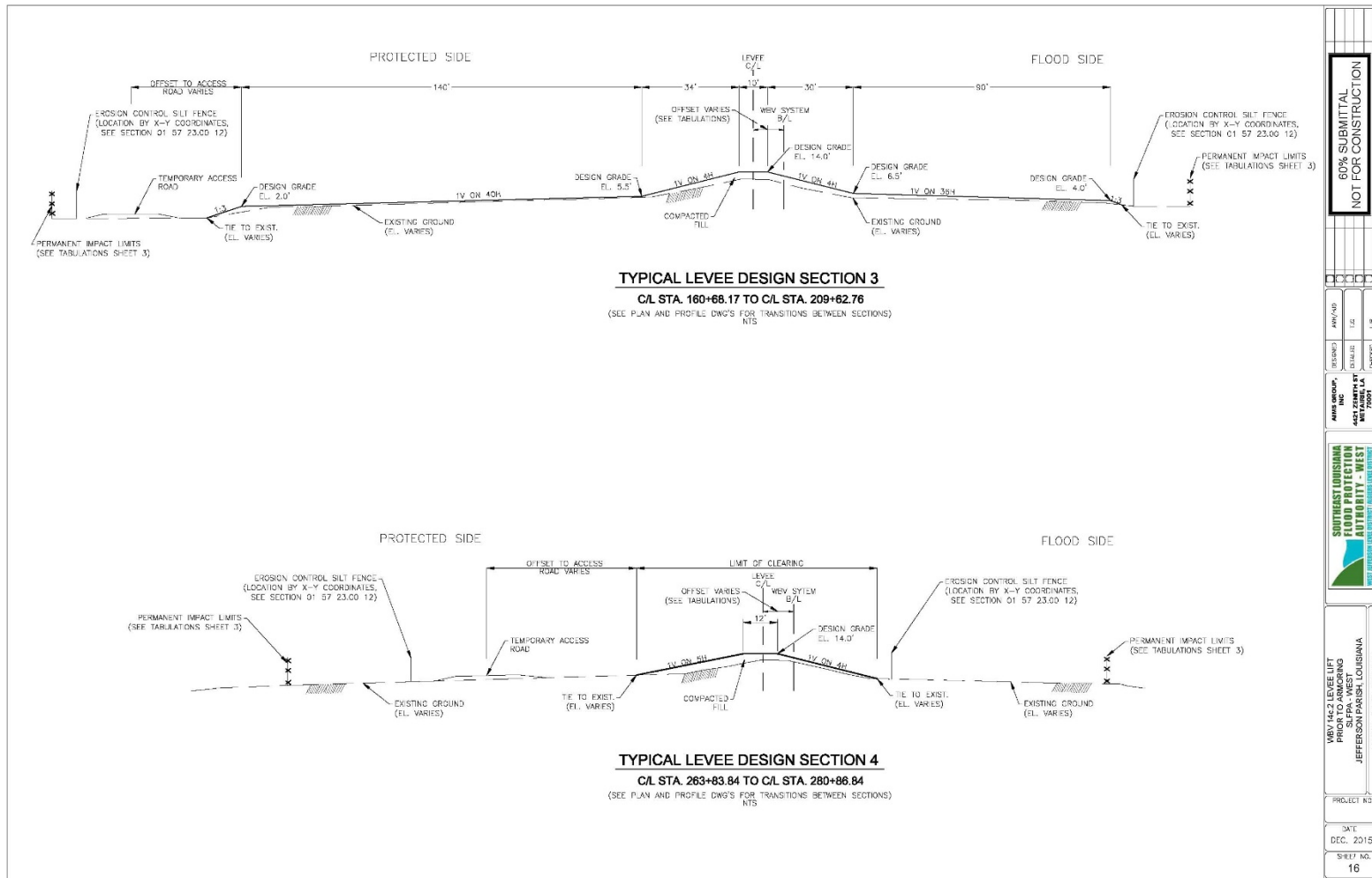


Figure 9. Typical Levee Cross Sections (Sections 1 and 2), WBV-14c.2



80% SUBMITTAL NOT FOR CONSTRUCTION	
DATE	SCALE
REVISED	DATE
DESIGNED	CHECKED
WBV 14c.2 LEVEE LIFT PRIOR TO ARMORING JEFFERSON PARISH, LOUISIANA TYPICAL CROSS SECTIONS	
PROJECT NO.	
DATE	DEC. 2015
SHEET NO.	16

Figure 10. Typical Levee Cross Sections (Sections 3 and 4), WBV-14c.2

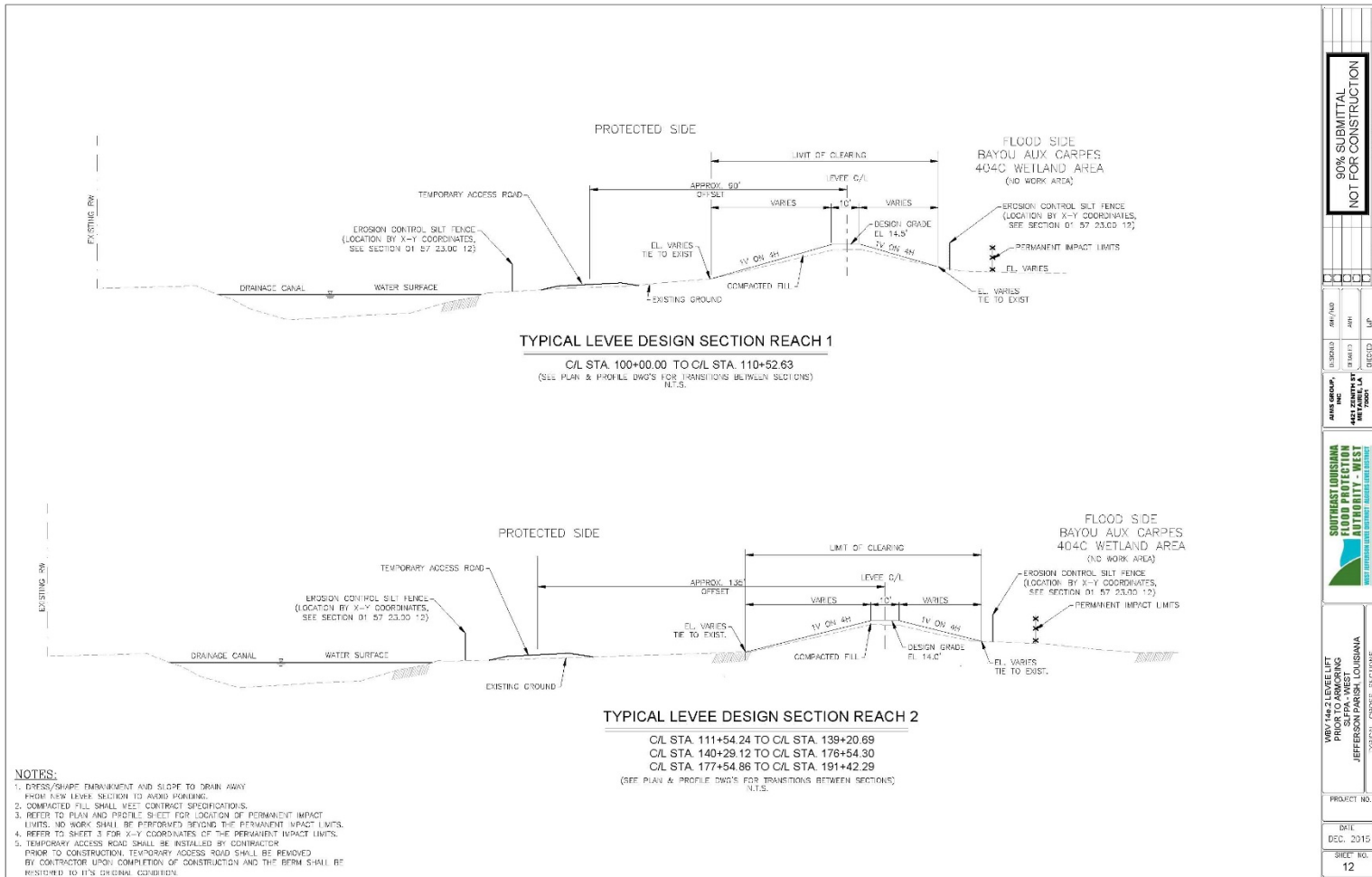


Figure 11. Typical Levee Cross Sections (Reaches 1 and 2), WBV-14e.2

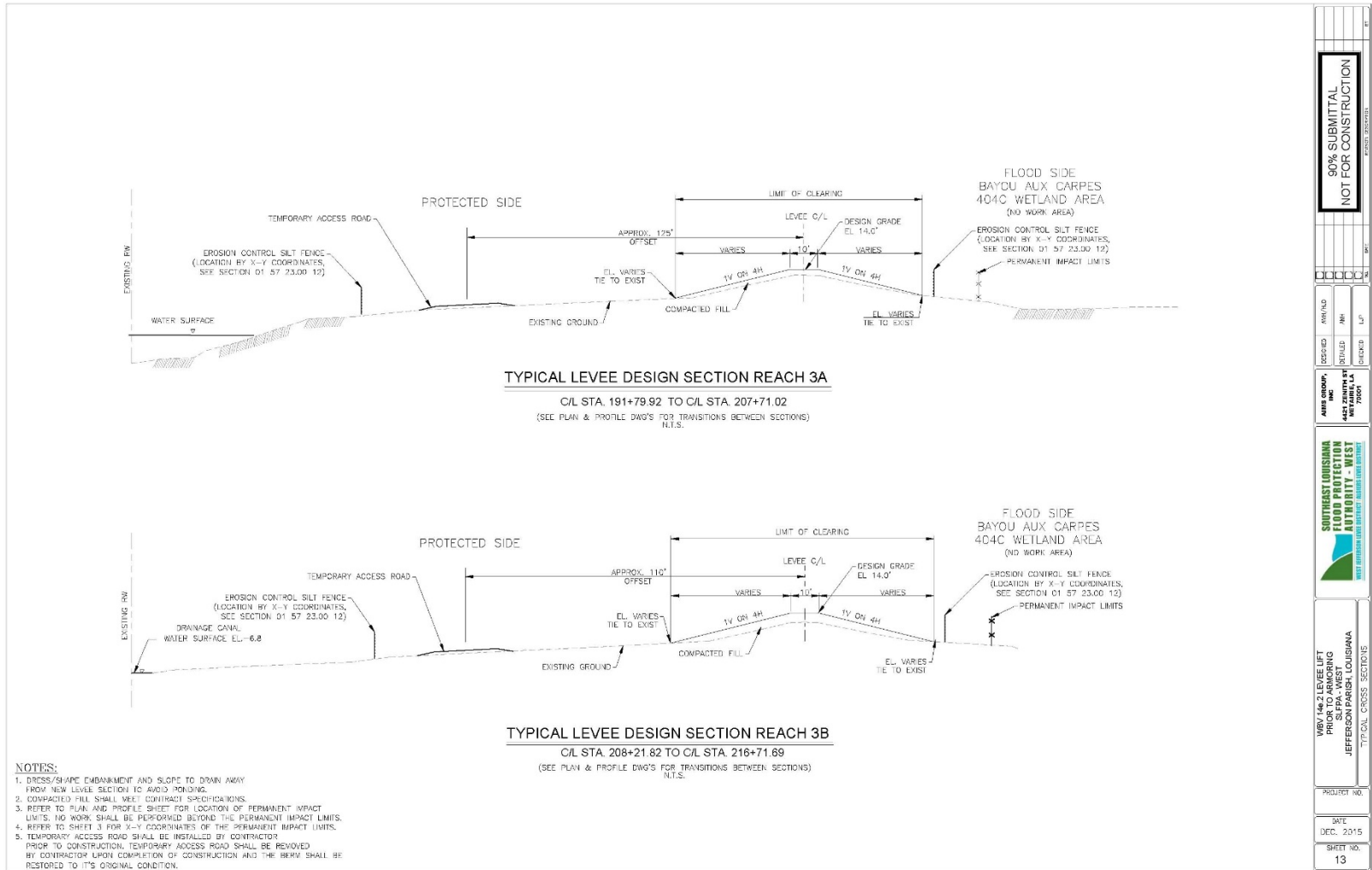


Figure 12. Typical Levee Cross Sections (Reaches 3A and 3B), WBV-14e.2

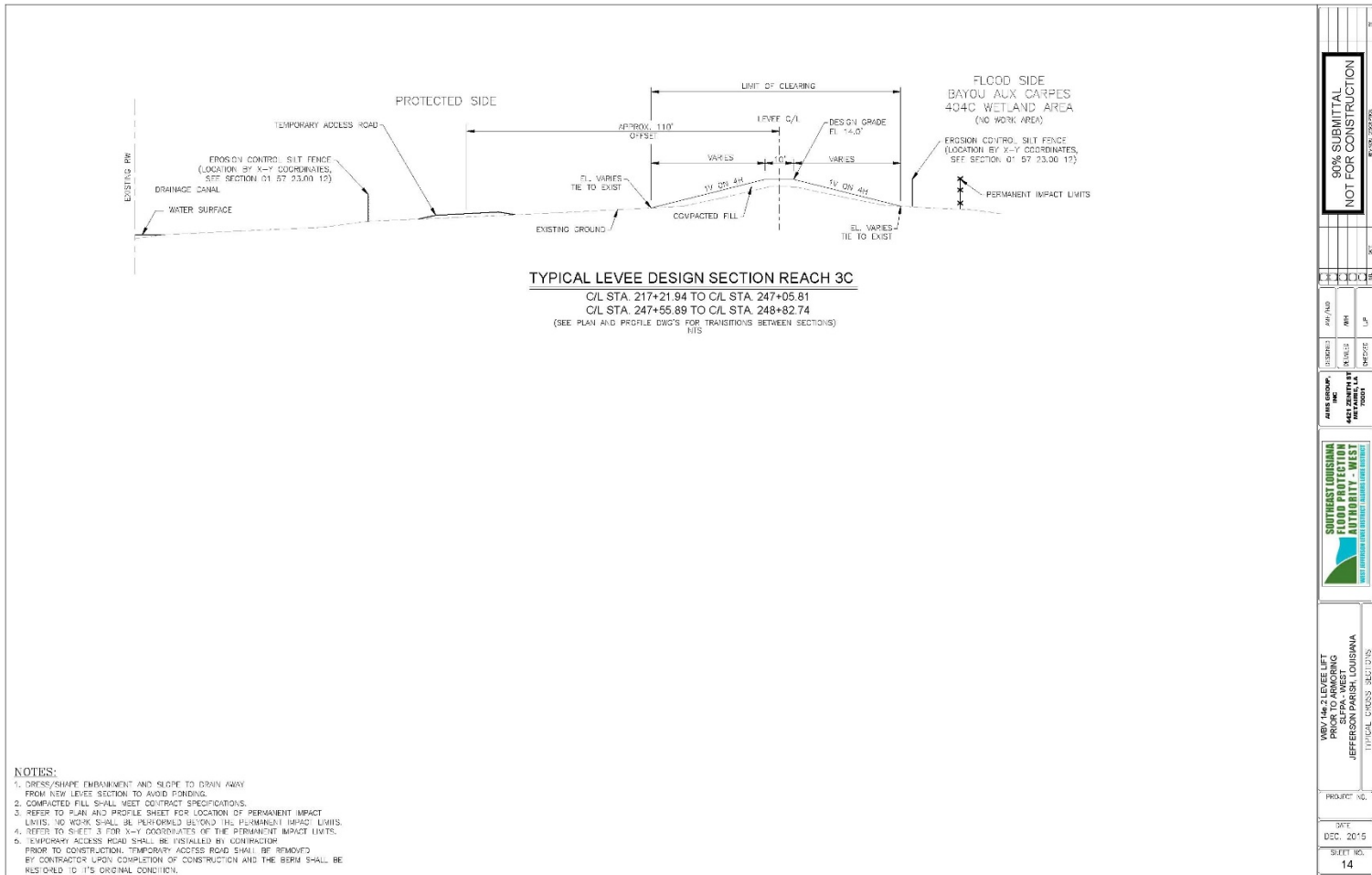


Figure 13. Typical Levee Cross Sections (Reach 3C), WBV-14e.2

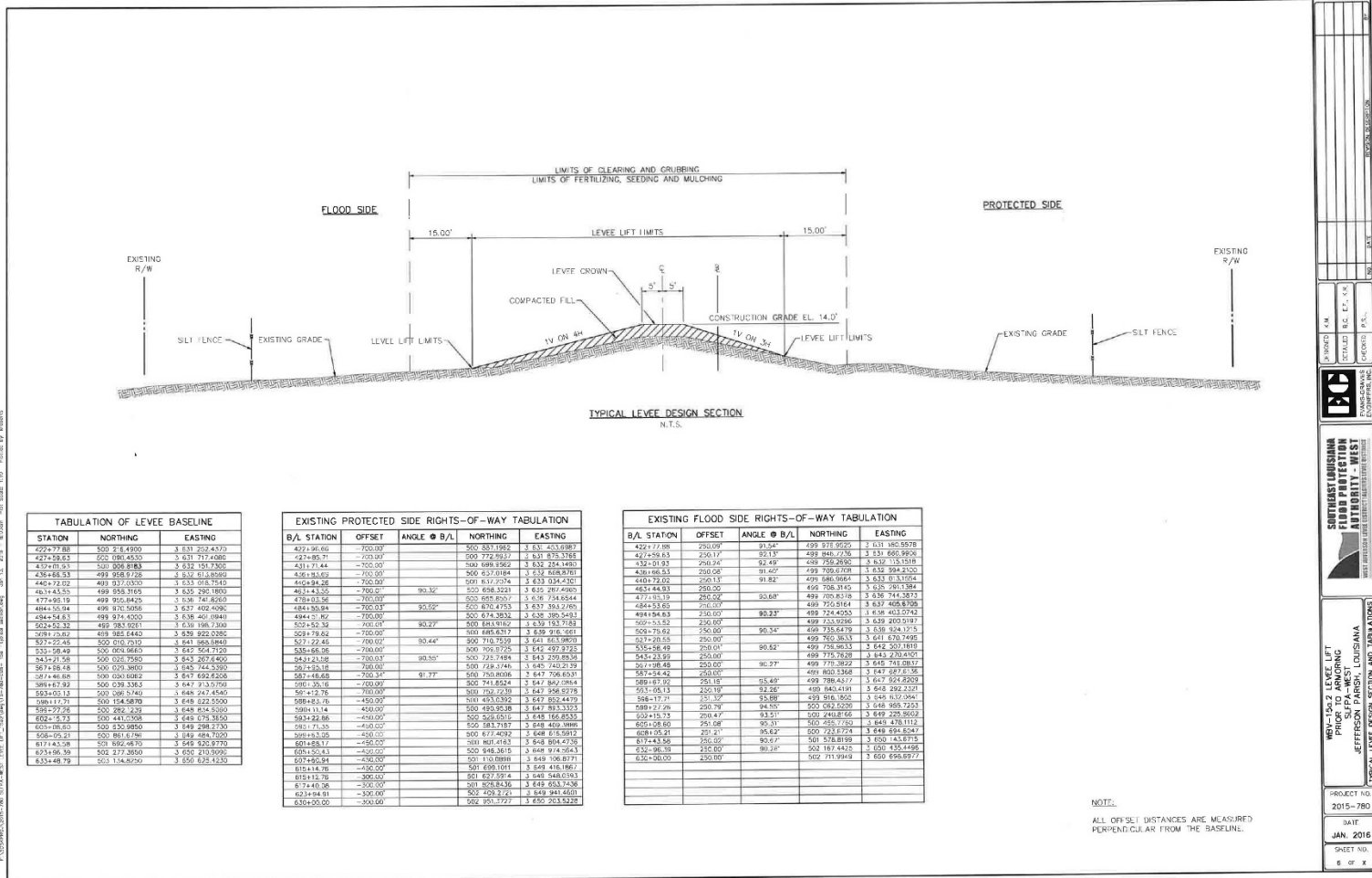
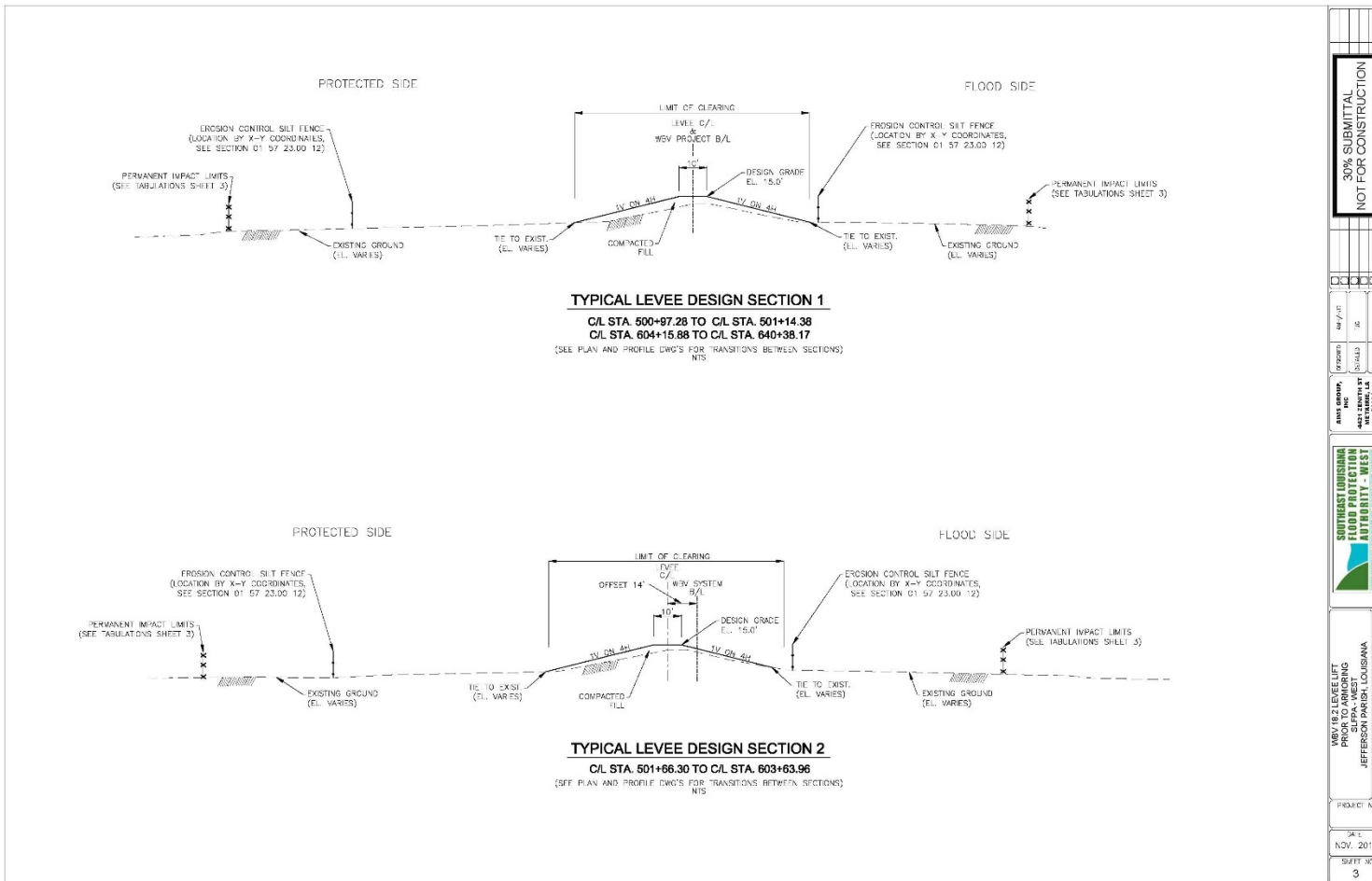


Figure 14. Typical Levee Cross Section, WBV-15a.2

EA #549 WBV-09.a, WBV-12, WBV-14b.2, WBV-14c.2, WBV-14e.2, WBV-15a.2, WBV-18.2
Levee Lifts Prior to Armoring, Jefferson and Plaquemines Parishes, LA



30% SUBMITTAL NOT FOR CONSTRUCTION	
DATE	08/11/15
BY	08/11/15
CHKD	08/11/15
DESIGNED	08/11/15
CHECKED	08/11/15
PROJECT NO.	15-00000000
DATE	NOV 2015
SHEET NO.	3

Figure 15. Typical Levee Cross Sections (Sections 1 and 2), WBV-18.2

Borrow Material

Fill material would be provided from one or more borrow sources, which were previously assessed in prior NEPA documents and that are in compliance with all applicable permits and regulations.

One or more of the following borrow sites may be selected and utilized by the construction contractor for the source of borrow material under the requesters' preferred alternative:

1. Citrus Lands (now known as Woodland South) is located on LA 23 in Plaquemines Parish, LA. This borrow site is approximately 20 miles from the WBV-09.a and WBV-12 proposed levee work (Figure 16).
 - a. Woodland South – IER #32 previously approved approximately 476 acres for excavation. No bottomland hardwoods (BLH) are associated with this site, but the site includes approximately 254 acres of jurisdictional wetlands that would be avoided. The site was approved for use by CEMVN contractors in 2010 and has previously been excavated. The jurisdictional determination was updated in 2014. Figure 16 illustrates where wetlands were determined and what areas are proposed for excavation of borrow.

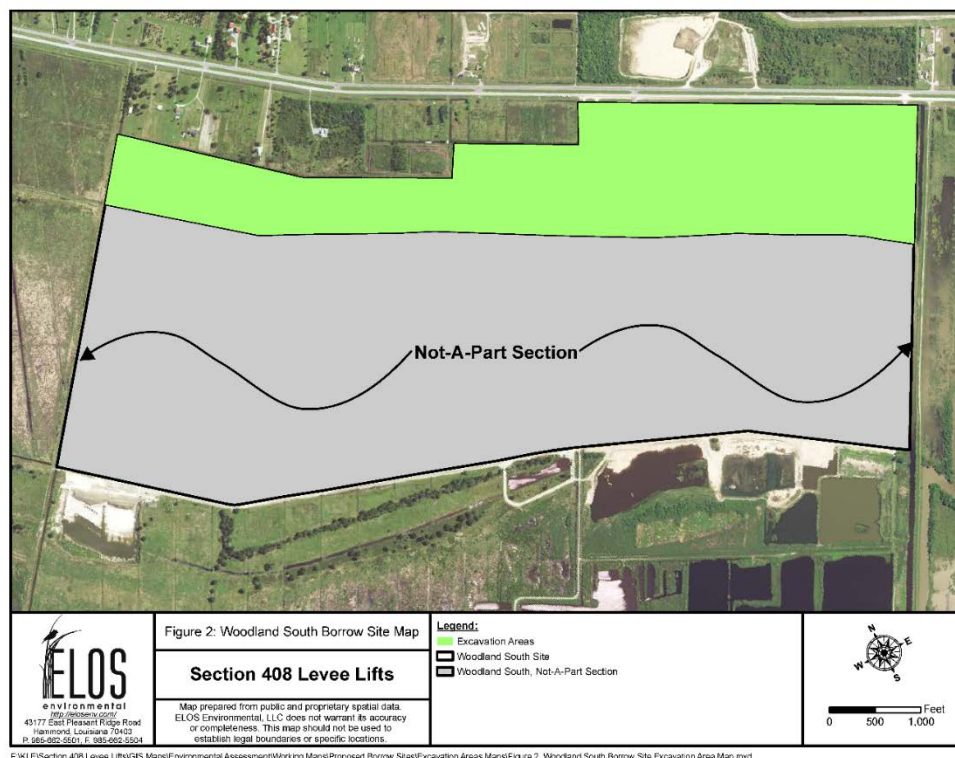


Figure 16: Existing Woodland South Borrow Site

2. The Idlewild 1 Borrow Area is located off LA 23 in Plaquemines Parish, LA. This borrow site is approximately one mile from the WBV-09.a and WBV-12 proposed levee work (Figure 17).
 - a. Idlewild 1 – IER #32 previously approved approximately 129 acres for excavation. No BLH or jurisdictional wetlands are associated with this site. This site was approved for use by CEMVN contractors in 2010 and has previously been excavated.

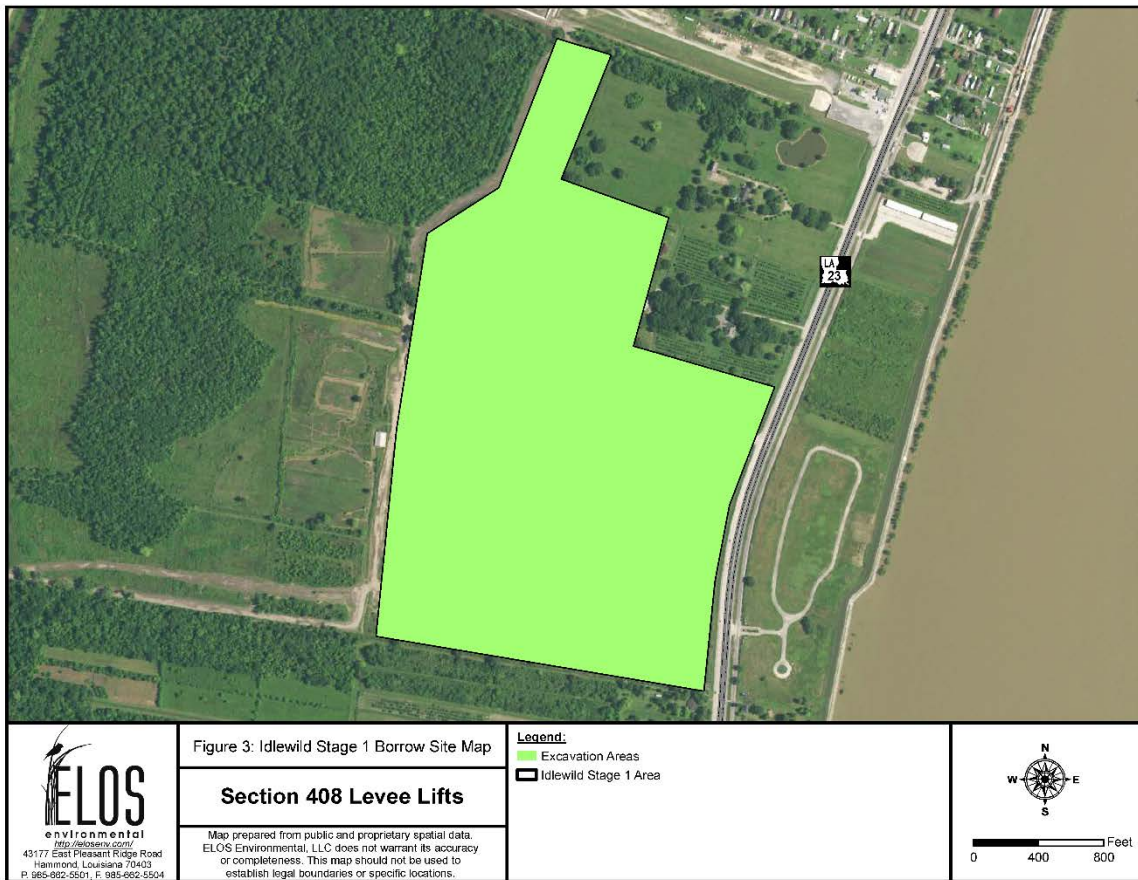


Figure 17: Existing Idlewild Stage 1 Borrow Site

3. Myrtle Grove located on West Ravenna Road in Plaquemines Parish, LA. This borrow site is approximately 7.5 miles from WBV-09.a and WBV-12 proposed levee work (Figure 18).

- a. Myrtle Grove - IER #23 previously approved approximately 271 acres for excavation. No BLH or jurisdictional wetlands are associated with this site. The site was approved for use by CEMVN contractors in 2008 and has previously been excavated.

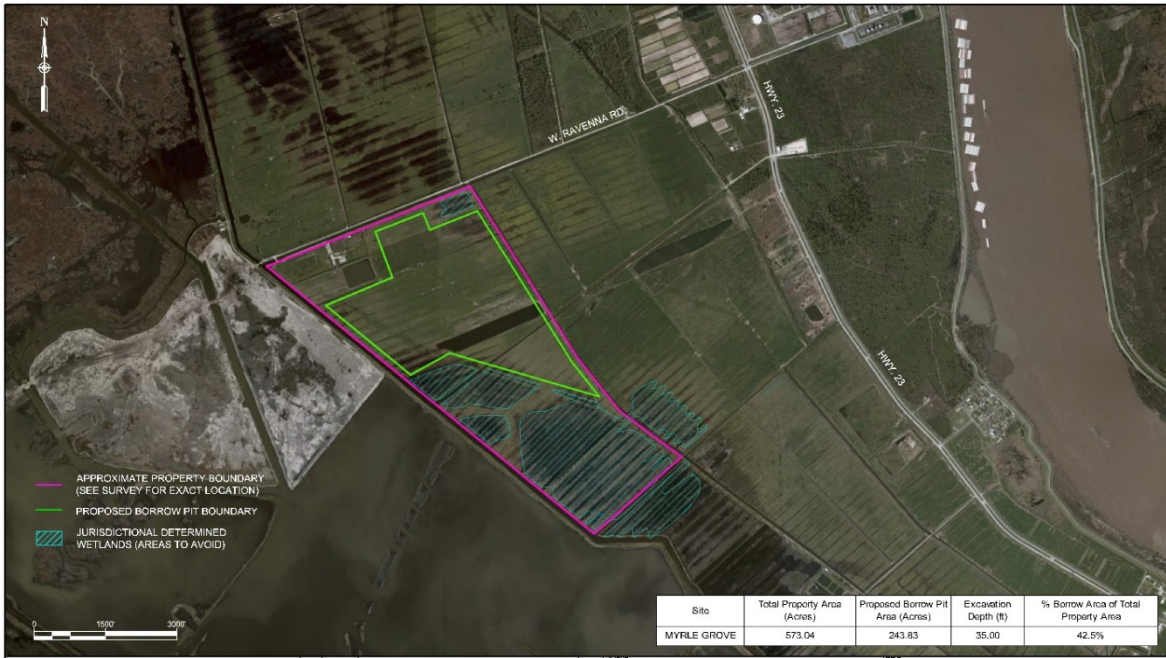


Figure 18: Existing Myrtle Grove Borrow Site

- 4. Plaquemines Dirt and Clay located off LA 23 in Plaquemines Parish, LA. This borrow site is approximately 21 miles from the WBV-09.a and WBV-12 proposed levee work (Figure 19).
 - a. Plaquemines Dirt and Clay – IER #32 previously approved approximately 321 acres for excavation. No BLH are associated with this site. Approximately 239 acres of jurisdictional would be avoided. The site was approved for use by CEMVN contractors in 2010 and has previously been excavated. Jurisdictional determinations were updated in 2014 and 2015. Figure 19 illustrates where wetlands were determined and what areas are proposed for excavation of borrow.



Figure 19: Existing Plaquemines Dirt and Clay Borrow Site

5. The 3C Riverside Borrow Area is located off LA 3127 in St. Charles Parish, Louisiana. This borrow site is approximately 24 miles from the proposed WBV-14b.2 project, 22 miles from the proposed WBV-14c.2 project, 27 miles from the proposed WBV-14e.2 project, 18.5 miles from the proposed WBV-15a.2 project, and 16 miles from the proposed WBV-18.2 project.
 - a. 3C Riverside Phase 1 – IER #23 previously approved approximately 118 acres for excavation. There are no bottomland hardwoods or jurisdictional wetlands associated with this site. This site was approved for use by CEMVN contractors in 2008 and has since been excavated.
 - b. 3C Riverside Phase 2 – IER #23 previously approved approximately 146 acres for excavation. There are no bottomland hardwoods located on this site. There is a canal on the southeastern portion of this property that is designated as Section 404 water. It would not be impacted by this proposed action. This site was approved for use by CEMVN contractors in 2008 and has since been excavated.

- c. 3C Riverside Phase 3 – IER #32 cleared approximately 253 acres for excavation in 2010. The site includes approximately 174.6 acres of non-jurisdictional bottomland hardwoods. The removal of BLH for this proposed action is not authorized.

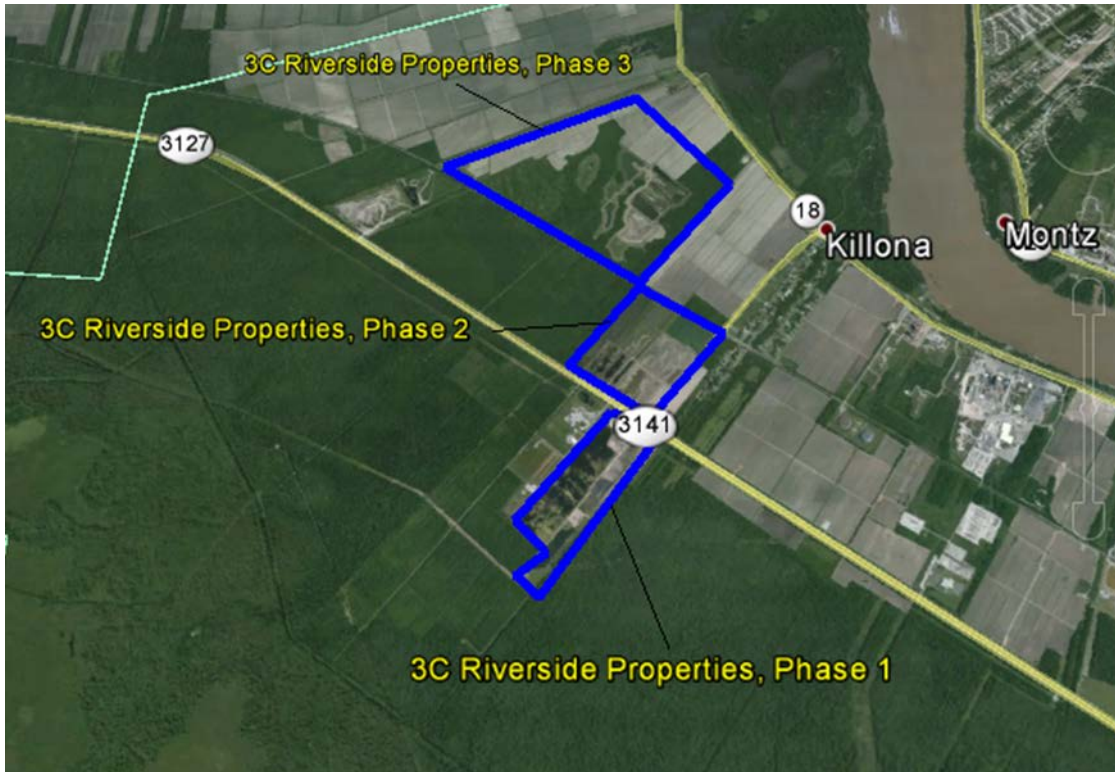


Figure 20. Existing Riverside Properties Borrow Sites

- 6. The Willow Bend Borrow Area is located south of River Road in St. John the Baptist Parish, Louisiana. This borrow site is approximately 31 miles from the proposed WBV-14b.2 project, 28.5 miles from the proposed WBV-14c.2 project, 34 miles from the proposed WBV-14e.2 project, 25 miles from the proposed WBV-15a.2 project, and 22 miles from the proposed WBV-18.2 project.
 - a. Willow Bend Phase I – IER #26 previously approved approximately 64 acres of farmland for excavation. This site was approved for use by CEMVN HSDRRS contractors in 2008 and has been previously excavated.
 - b. Willow Bend Phase II – IER #29 previously approved approximately 496 acres of farmland for excavation. The site includes approximately 76.2 acres of non-jurisdictional BLH in portions of the property. The removal of BLH for this proposed action is not authorized. This site was approved for use by CEMVN HSDRRS contractors in 2009 and has been previously excavated.



Figure 21. Existing Willow Bend Borrow Site

7. The River Birch Borrow Area is located in Jefferson Parish, Louisiana. There are four sites owned by River Birch Incorporated and Hwy. 90, LLC that will eventually be utilized as a landfill. The landfill is the primary use of the site and borrow excavation is considered a secondary use. The Phase 1 and Phase 2 sites are located on US 90, approximately 0.7 miles west of Live Oak Boulevard in Jefferson Parish, Louisiana. The Landfill Expansion site is located adjacent to the Phase 1 and Phase 2 sites on US 90, approximately 0.2 miles west of Live Oak Boulevard in Jefferson Parish, Louisiana. These three borrow site are approximately 8.5 miles from the proposed WBV-14b.2 project, 7 miles from the proposed WBV-14c.2 project, 11.5 miles from the proposed WBV-14e.2 project, 3.5 miles from the proposed WBV-15a.2 project, and 1 mile from the proposed WBV-18.2 project. The South Kenner Road Borrow Area is located on South Kenner Road in Jefferson Parish, Louisiana. The South Kenner Road borrow site is approximately 9.5 miles from the proposed WBV-14b.2 project, 7 miles from the proposed WBV-14c.2 project, 13 miles from the proposed WBV-14e.2 project, 4.5 miles from the proposed WBV-15a.2 project, and 1.7 miles from the proposed WBV-18.2 project.
 - a. River Birch Phase 1 – The IER #19 cleared approximately 9.7 acres for excavation. This site was approved for use by CEMVN HSDRRS contractors in 2008 and has been previously excavated.
 - b. River Birch Phase 2 – The IER #19 cleared approximately 79.4 acres for excavation. This site was approved for use by CEMVN HSDRRS contractors in 2008 and has been previously excavated.
 - c. South Kenner Road – IER #26 previously approved approximately 240 acres of maintained land for excavation. This site was approved for use by CEMVN HSDRRS contractors in 2008 and has previously been excavated.

- d. River Birch Landfill Expansion – IER #31 cleared approximately 196 acres for excavation. This site was approved for use by CEMVN HSDRRS contractors in 2010 and has since been excavated.



Figure 22. Existing River Birch Borrow Sites

If another borrow site were determined to be more suitable for obtaining borrow material, additional evaluations would be required to determine compliance with all applicable federal, state, and local environmental laws and regulations.

2.3 No Action Alternative (Future Without Project)

Under the no action alternative, the area would continue a trend of land loss caused by both environmental factors such as subsidence, erosion, tropical storms and sea level rise, as well as human factors such as flood risk reduction, canal dredging, development, interruption of accretion processes and oil and gas exploration.

Under this alternative, the 100-year level of risk reduction would not be provided in these reaches of the WBV project. The WBV-09.a, WBV-12, WBV-14b.2, WBV-14c.2, WBV-14e.2, WBV-15a.2, and WBV-18.2 levee reaches have settled below the 100-year base flood elevation according to geotechnical analyses utilizing settlement curves.

Without implementing the proposed levee lifts, these levee reaches would continue to settle and reach an elevation below the 100 year level of risk reduction by year 2057.

The proposed borrow locations are existing operating businesses in business to sell dirt. The sites are actively utilized by private individuals, non-Federal and Federal entities seeking borrow material. Under the no action alternative, these borrow locations are anticipated to remain active into the future until excavation of the material is exhausted.

2.4 Data Gaps and Uncertainties

The excavation of the proposed contractor-furnished borrow areas is subject to compliance with local and state regulations or ordinances, including local or state rules concerning backfilling of excavated sites. It is the responsibility of the landowner and/or operator of the borrow site to coordinate and secure appropriate permits from the local parish authority before starting any work on the property. Some unknown impacts due to backfilling activity, although not a part of the proposed action, may include traffic impacts, river dredging impacts, potential wetland and water quality impacts, and impacts to stockpile/staging locations.

It is not known what amount of borrow material remains available at each of the proposed borrow areas, which borrow area the requester would select to meet the proposed borrow requirements, or whether the requester would obtain borrow material from one or more borrow areas. Additionally, seasonal rainfall could impact quality or availability of borrow material at one or more of the borrow areas, affecting borrow area selection. Impacts to environmental resources related to the transport of borrow to the project site are also dependent upon the proximity of the project area to the selected borrow areas.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Environmental Setting

The proposed project areas for levee reaches WBV-14b.2, WBV-14c.2, WBV-14e.2, WBV-15a.2 and WBV-18.2 are located on the west bank of the Mississippi River and are within Jefferson Parish, Louisiana and the Barataria Basin.

The proposed project areas for levee reaches WBV-09.a and WBV-12 are located on the west bank of the Mississippi River and are within Plaquemines Parish, Louisiana and the Barataria Basin.

The borrow areas are on both sides of the river, in Plaquemines, Jefferson, St. Charles and St. John the Baptist Parishes.

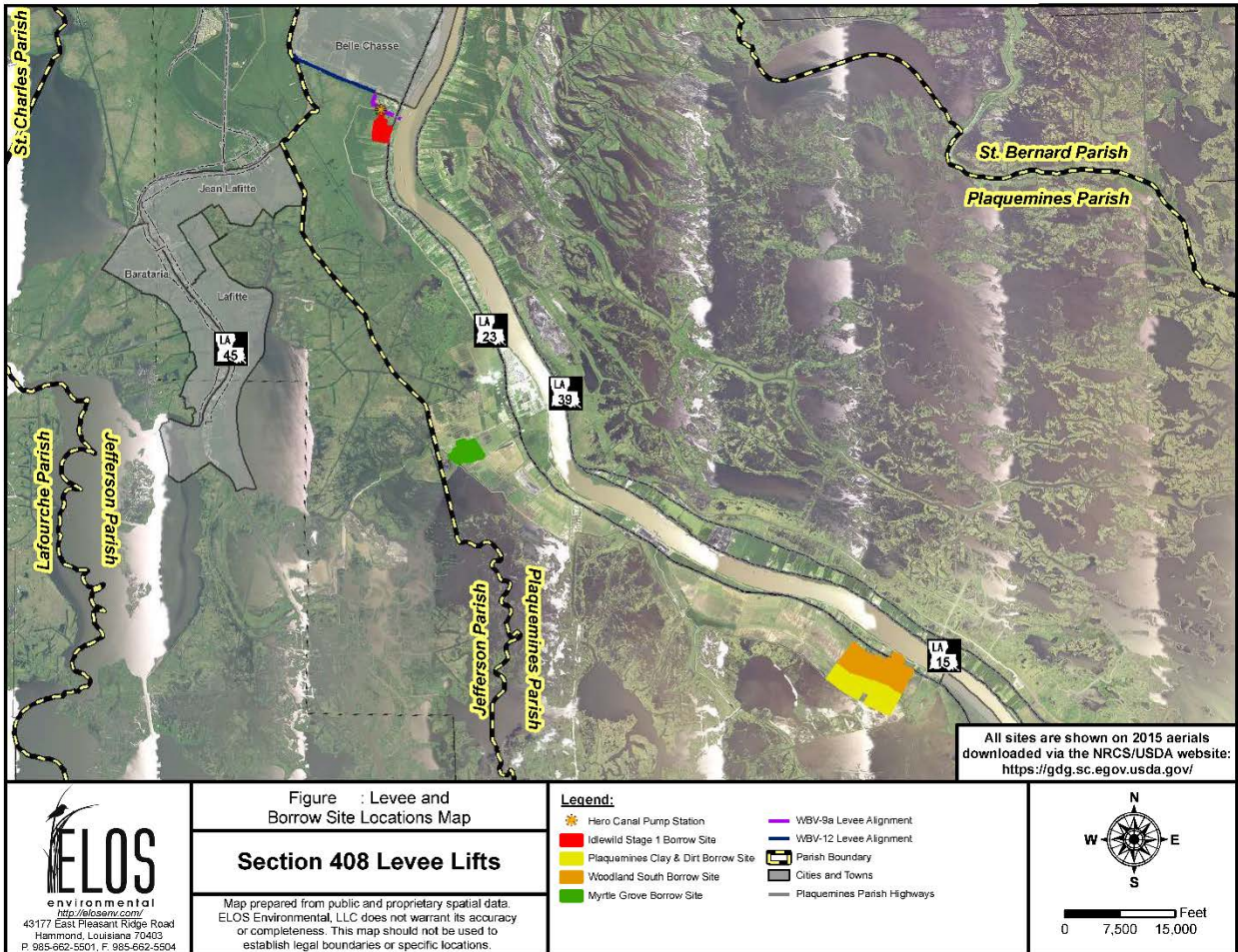


Figure 23: Plaquemines Parish Levee and Borrow Site Locations Map

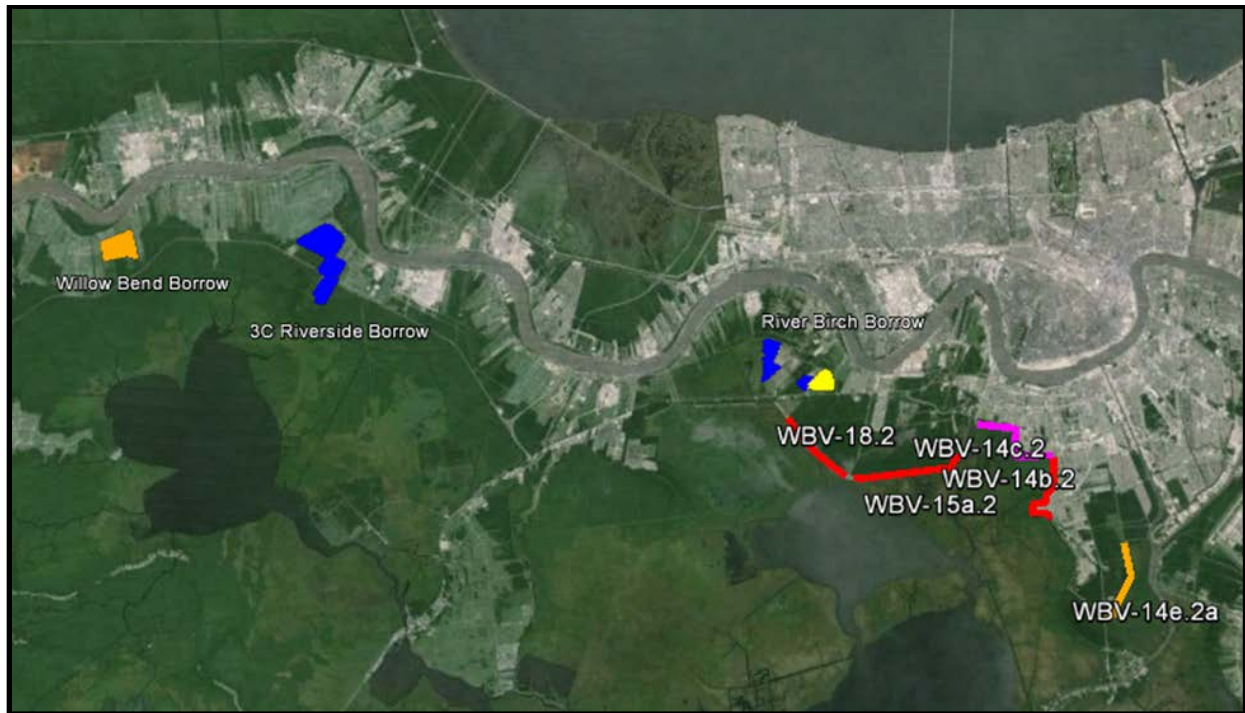


Figure 24. Jefferson Parish Levee and St John the Baptist, St Charles, and Jefferson Parish Borrow Site Locations Map

WBV-14e.2, WBV-14b.2, WBV-14c.2, WBV-15a.2, WBV-18.2

The proposed project areas for these levee reaches are located within Jefferson Parish, Louisiana on the West Bank of the Mississippi River. The WBV levees extend from Westwego on the western end to Harvey Canal on the eastern end and are in the vicinity of the Mississippi River to the north; Barataria Bay and the Gulf of Mexico to the south; Harvey Canal to the east; and Jean Lafitte National Historical Park and Preserve and Lakes Salvador and Cataouatche to the west. Both Lakes Salvador and Cataouatche are estuaries that connect to the Gulf of Mexico through Barataria Bay. Tidal waters can be carried into the area through these lakes and through canals in the vicinity. Freshwater is introduced into the area from direct rainfall, waters pumped out of leveed areas, and from the Mississippi River via the Harvey and Algiers Locks and the Davis Pond Diversion Canal.

WBV-09.a, WBV-12

Levee Reach WBV-12 extends westward from the Mississippi River along the Hero Canal to the eastern bank of the Gulf Intracoastal Waterway (GIWW). Freshwater is introduced from the Mississippi by way of the Algiers and Harvey Canals that converge to form the GIWW. Other freshwater inputs include rainfall and runoff pumped into the canals by pump stations. Tidal influence from the Gulf of Mexico and Barataria Bay to the south by way of Barataria Bay Waterway and other canals can increase salinities in the marshes and forested wetlands on the unprotected sides of the existing levees. The area that is located inside the levees is largely developed. Natural habitats are limited to scrub-shrub

and remnants of bottomland hardwood (BLH) forests in these areas. The WBV-12 is located near the southern boundary of Belle Chasse. WBV-09.a includes the community of Oakville (Figure 1). The entire area is protected from flooding from the Mississippi River by the MRL. Flooding originating in the Gulf of Mexico can travel north through the many natural and man-made channels and across the marsh to threaten the developed parts of the project area including the communities of Belle Chasse and Oakville.

Borrow Sites

The 3C Riverside Borrow sites are located in a rural area of St. Charles Parish off LA 3127 (Figure 20). The Willow Bend Borrow areas are located in a rural area on the west bank of the Mississippi River in St. John the Baptist Parish (Figure 21). The River Birch Borrow Sites Phase 1, Phase 2, South Kenner Road, and Landfill Expansion are expansions of an existing landfill in Jefferson Parish (Figure 22).

Prior to the excavation of borrow for the HSDRRS, most of the Plaquemines Parish borrow sites on the west bank—Idlewild 1 (Figure 17), Myrtle Grove (Figure 18), Citrus Lands (now Woodland South), Plaquemines Dirt and Clay (Figures 16 and 20) were agricultural fields used for hay and citrus production and livestock grazing.

Before back levees on the west bank were constructed in the early 1900s in Plaquemines Parish to protect the land from flooding, the only areas that were suitable for agricultural use were the ones closest to the natural levee of the Mississippi River. After the back levees were built, a system of internal drainage ditches was constructed and the swamplands inside the protected area were drained for agricultural use. The borrow areas on the west bank are encircled and leveed. In recent years, pump stations were added to force drainage. The Myrtle Grove and Plaquemines Dirt and Clay sites are adjacent to the back levees; the Idlewild 1 and Citrus Lands sites are adjacent to LA 23, which parallels the MRL.

3.2 Terrain

The proposed project area is located within the Central Gulf Coastal Plain, specifically, within the deltaic plain of the Mississippi River immediately south of New Orleans in an area of low relief. Dominant physiographic features include the Mississippi River, natural levees, abandoned distributaries, crevasse channels, Lakes Cataouatche and Salvador, the GIWW, Harvey, and Algiers Canals, the Barataria Basin, and a network of natural bayous and man-made canals that criss-cross the low-lying swamps and marshlands.

The project areas have little relief, which is characteristic of an alluvial plain. Land elevations slope gently from elevations of 10-15 feet NAVD88 along the levees to about 3 feet NAVD88. Natural ground elevations in the un-leveed marshes in the southern part of the project areas average 0.5 to 1.0 foot NAVD88. Pumping inside the levees to an artificially low water table provides additional flood protection in the form of increased water storage capacity, but has promoted soil consolidation and decay of the exposed organic materials. As a consequence, land elevations inside the protected area have

subsided and may be lower than the water surface elevations of adjoining bayous and lakes outside the protected areas.

3.3 Geology and Soils

The proposed project area is located on the west bank of the Mississippi River in the north-central portion of the Lower Mississippi River deltaic plain. The underlying geology of the area is composed of extremely recent sediments deposited by the Mississippi River and its various tributaries. Levee construction has created a permanent path for the Mississippi River and has greatly limited flooding.

Groundwater is artificially lowered within the protection levees by forced drainage and is at or near the surface outside the levees.

Long-term relative subsidence resulting mainly from compaction of Holocene sediments, and possibly from movement on the downthrown side of growth faults, is estimated at 0.5 ft per century. Eustatic sea level is predicted to rise an additional 1.3 ft over the next century (Intergovernmental Panel on Climate Change, 2001). Therefore, the natural, long-term, relative subsidence rate at the project site is estimated to be 1.8 ft per century. Ground subsidence related to artificial lowering of the water table far exceeds the natural rate of subsidence and could reach several feet in areas south of the project site. Calculations based on EC 1165-2-212 determined that the initial Water Surface Elevation at the low, intermediate and high rates of RSLR at 2070 are 1.81 feet, 2.32 feet, and 3.95 feet, respectively.

WBV-14b.2, WBV-14c.2, WBV-14e.2, WBV-15a.2, WBV-18.2

The project area for these reaches is located south of the Mississippi River, and east of Lakes Cataouatche and Salvador, in the north-central portion of the Mississippi River deltaic plain. Dominant physiographic features in the vicinity include Lakes Cataouatche and Salvador, Bayou Segnette, Bayou des Familles, and freshwater swamps.

The shallow subsurface beneath, and immediately adjacent to, the protection levee is composed of natural levee, swamp, abandoned course, point bar, interdistributary, and prodelta deposits. Natural levee deposits at the surface and shallow subsurface are associated with Bayou Segnette, an abandoned distributary, and Bayou des Familles, an abandoned course. Natural levee deposits are generally less than 10 feet thick and are composed of medium to stiff, oxidized clays and silt with minor organics. Swamp deposits are found at the surface and in the shallow subsurface and are approximately 20 feet thick. Swamp deposits are composed of soft to medium clays with some silt, peat, and wood. Abandoned course and point bar deposits are found at the southern end and are associated with Bayou des Familles. These deposits generally consist of sand at the base, grading to clays and silt at the top. These deposits are up to 80 feet thick. Interdistributary deposits approximately 30 feet thick are found beneath swamp deposits. Interdistributary deposits are characterized by very soft to soft clay with silt strata and

shells. Prodelta deposits up to 20 feet thick are located below interdistributary deposits. Prodelta deposits are generally composed of medium clay with minor amounts of silt.

The soils within the area include Sharkey-Commerce, Barbary and Kenner-Allemands series. The Sharkey-Commerce series consist of level, poorly drained and somewhat poorly drained soils that have a clayey or loamy surface layer and clayey subsoil or that are loamy throughout. The Barbary series include level, very poorly drained soils that have a thin mucky surface layer and clayey underlying material in swamps. The Kenner-Allemands series include level, very poorly drained soils that have a moderately thick mucky surface layer and mucky and clayey underlying material and are found in freshwater marshes (US Soil Conservation Service, 1981).

WBV-09.a, WBV-12

Along the Hero Canal, the soil surface is largely composed of artificial levee material that ranges from 10 to 24 feet thick. Beneath the artificial levee deposits lie swamp deposits that are composed of organic clays, fat clays, and peats with occasional sand and silt layers. Swamp deposits are generally between 10 and 20 feet thick. Peat layers are common in the swamp deposits between 10 and 20 feet in elevation. Natural levee deposits are located between 4 and 28 feet in elevation and range in thickness from 4 to 24 feet. Interdistributary deposits are located beneath the natural levee and swamp deposits. Intradelta deposits are typically coarse material with interbedded layers of silt, silty sand, and sand with some clay layers. Beneath the interdistributary deposits lie nearshore gulf sediments that are composed predominantly of sand and silty sand with clay layers and shell fragments and prodelta deposits that are mainly clay.

The area south of Hero Canal is mostly Allemands muck, very frequently flooded, and Barbary muck, frequently flooded. Allemands soils are rapidly permeable in the organic materials and very slowly permeable in the underlying clay horizons. These soils are found on the landward side of low coastal freshwater marshes and formed in decomposed herbaceous material over alluvial sediments (USDA, 2004). Barbary soils are found in low, large, ponded backswamps of the lower Mississippi River and other smaller river or distributary flood plains. They formed in clays that were deposited in water and were never air dried (USDA, 2013a). The area north of the canal consists almost entirely of Rita mucky clay that consists of very deep, poorly drained, very slowly permeable soils in fresh water coastal marshes that have been protected from flooding by a system of levees and pumps. These soils formed in a thin layer of herbaceous organic material overlying semi-fluid clayey sediments that dried and consolidated in the upper part as the result of artificial drainage (USDA, 2001). None of these soils are classified as prime farmland.

Borrow Areas

The term “suitable” as it relates to borrow material discussed in this document is defined as meeting the following current soil criteria prior to placement as levee fill:

- Soils classified as clays (CH or CL) are allowed as per the Unified Soils Classification System;
- Soils with organic contents greater than 9% are not allowed;

- Soils with plasticity indices (PI) less than 10 are not allowed;
- Soils classified as Silts (ML) are not allowed;
- Clays will not have more than 35% sand content.

The USACE HSDRRS Design Guidelines, of which the soil standards previously discussed are a part, are reviewed and updated as necessary to ensure that the Corps is constructing the safest levees possible. Changes to the guidelines are reviewed and approved by USACE experts at the local, regional and headquarters level; additional reviews are completed by academia and private individuals who are recognized experts in their fields. Additionally, the guidelines being utilized by CEMVN have been reviewed by members of the Interagency Performance Evaluation Team (IPET). The design guidelines may be updated from time to time to respond to new engineering analysis of improved technology, innovative processes, or new data.

Geotechnical borings were collected at each borrow area to determine the suitability of the material for levee construction use. The borings were spaced to adequately define the material in the pit, but in no case spaced greater than 500 feet on center. Borings along the proposed borrow area boundaries were located no further than one-half of the boring spacing in the area or 250 feet, whichever was less.

The soils were classified, logged, and recorded within seven days of obtaining the samples in the field. The Unified Soil Classification System was used in classifying the soils. A water content determination was made and recorded on all samples classified as fat clay (CH), lean clay (CL), and silt (ML) at one foot intervals (recommended) or two foot intervals (required). For CH, CL, and ML soils, Atterberg Limits and Organic Content Testing (American Society of Testing and Materials [ASTM] D 2974, Method C), was required every five feet (minimum). Samples with moisture contents at 70% or higher or having a Liquid Limit of 70 or higher were tested for organic content, as well as for a sample two feet above and two feet below that sample (2.5 feet also acceptable). Grain size distribution determinations including both sieve (#200 sieve required) and hydrometer testing was required for samples that classify as CL with a plasticity index (PI) greater than 10 for 2 or more consecutive feet, but not more than one test every 5 feet of sampling.

The resulting classification, plasticity, water content, and organic content determinations and borrow area boring logs with Geographic Positioning System (GPS) readings at the boring locations were analyzed for potential borrow use by CEMVN to determine the suitability of the soil.

4.0 RELEVANT RESOURCES

This section contains a description of the relevant resources that could be impacted by the proposed project (Table 2). The resources discussed 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. Table 3 provides summary information of the institutional, technical, and public importance of these resources. The relevant resources discussed include: upland resources, wetlands, wildlife, threatened and endangered species, cultural resources, recreation resources, transportation, air quality and noise.

Resources initially considered but determined to not exist in the project area or determined to not be affected by the proposed action include: fisheries, essential fish habitat, environmental justice, socioeconomics, soils and hydrology. These resources will not be carried forward for further discussion. Although wetlands, threatened and endangered species, water quality and cultural resources are not impacted by the proposed action, they are nonetheless discussed in the following sections to demonstrate compliance with applicable law.

Table 2. Relevant Resources in Project Area

Significant Resource	Impacted	Not Impacted
Upland Resources	X	
Wetlands		√
Wildlife	X	
Threatened & Endangered		X
Transportation	X	
Air Quality		X
Water Quality		X
Cultural Resources		X
Recreational Resources	X	
Aesthetics		X
Noise Quality	X	

Table 3: Relevant Resources Description

Resource	Institutionally Important	Technically Important	Publicly Important
Wetlands	Coastal Barrier Resources Act of 1982; Coastal Zone Management Act of 1972; Emergency Wetlands Resources Act of 1986; Estuary Protection Act of 1968; Fish and Wildlife Conservation Act of 1980; Fish and Wildlife Coordination Act of 1958; NEPA of 1969; North American Wetlands Conservation Act of 1989; the Water Resources Development Acts of 1976, 1986, 1990, and 1992; Executive Order 13186 - Migratory Bird Habitat Protection.	Technically significant because they are a critical element of the barrier shoreline habitats. Vegetation resources serve as the basis of productivity, contribute to ecosystem diversity, provide various habitat types for fish and wildlife, and are an indicator of the health of coastal habitats.	Publicly significant because of the high priority that the public places on their aesthetic, recreational, and commercial value.
Wildlife Resources	NEPA of 1969; Coastal Zone Management Act of 1972; Estuary Protection Act of 1968; Fish and Wildlife Coordination Act of 1958; Migratory Bird Conservation Act of 1929; Migratory Bird Treaty Act of 1918; Endangered Species Act of 1973; Fish and Wildlife Conservation Act of 1980; North American Wetlands Conservation Act of 1989; Executive Order 13186 - Migratory Bird Habitat Protection; Marine Mammal Protection Act of 1972.	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.

Table 3: Relevant Resources Description

Resource	Institutionally Important	Technically Important	Publicly Important
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.
Cultural and Historic 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; as well as federal implementing regulations; additional statutory and regulatory requirements; other applicable cultural resource-related laws; and USACE policies and procedures.	Cultural resources are finite and non-renewable resources that include, but are not limited to both prehistoric and historic archaeological sites, historic standing structures, landscapes, and other culturally valued aspects of the environment, as well as sociocultural attributes, such as social cohesion, social institutions, lifeways, religious practices, and other cultural institutions. Historic properties include districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places, and federal agencies are required to consider the effects of their actions on such properties.	Humans relate to their environment through their culture, and historic and cultural resources provide insights into ways of life, both past and present. The protection and enhancement of historic and cultural resources is in the best interest of the public, and federal agencies also have trust and treaty responsibilities to Tribes, which are partially fulfilled through the preservation and protection of trust resources and the consideration of potential effects on natural and cultural resources.

Table 3: Relevant Resources Description			
Resource	Institutionally Important	Technically Important	Publicly Important
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 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.
Socio-Economic Resources - Transportation	National Environmental Policy Act of 1969; Estuary Protection Act of 1968; Clean Water Act of 1972; Rivers and Harbors Act of 1899; Watershed Protection and Storm Damage Protection Act of 1954.	Technically significant because the social and economic welfare of the Nation may be positively or adversely impacted by the proposed action; the social and economic welfare of minority and low-income populations may be positively or disproportionately impacted by proposed actions.	Public's concern for health, welfare, and economic and social well-being from water resources projects; also public concerns about the fair and equitable treatment of all people

Table 3: Relevant Resources Description

Resource	Institutionally Important	Technically Important	Publicly Important
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.
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.

Table 3: Relevant Resources Description

Resource	Institutionally Important	Technically Important	Publicly Important
Upland Resources	Food Security Act of 1985, as amended; the Farmland Protection Policy Act of 1981; the Fish and Wildlife Coordination act of 1958, as amended.	The habitat provided for both open and forest-dwelling wildlife, and the provision or potential provision of forest products and human and livestock food products.	The present economic value or potential for future economic value.

4.1 Upland Resources

4.1.1 Existing Conditions

The habitat within all of the levee footprints is grass turf. The project areas of all reaches have been highly disturbed as a result of the HSDRRS construction. The levee reaches were replanted with grass turf following completion of HSDRRS levee construction and are maintained by periodic mowing. Herbaceous woody vegetation is not allowed to take root within the levee footprint or the “vegetation-free zone” which extends 15 feet past the toe of each levee reach. Access roads are paved with aggregate and staging areas have been previously cleared of vegetation. All proposed work would remain within these already disturbed areas.

Non-jurisdictional bottomland hardwoods (BLH) are those upland habitats containing hardwood species but do not meet all three wetland criteria (hydrophytic vegetation, hydric soils, and wetland hydrology), and thus fall outside the USACE’s regulatory jurisdiction (USACE, 1987). However, Section 906(b) of WRDA 1986 requires mitigation for impacts to BLH caused by any USACE civil works project.

WBV-09.a, WBV 12

Upland BLH forests are found north of Hero Canal on the protected side of WBV-12.

WBV-14b.2, WBV-14c.2, WBV-14e.2, WBV-15a.2, WBV-18.2

Upland BLH forests in the general project area are contained almost exclusively within the Bayou Des Familles ridge system and associated narrow elevated finger ridges on the flood side of the levee within reach WBV 14c.2 and on the protected side within reach WBV 14e.2.

Borrow Locations

The proposed borrow locations are excavated borrow pits that are heavily impacted by borrow activities. The Willow Bend Phase II borrow site has approximately 76.2 acres of the 496-acre borrow site designated as non-jurisdictional BLH, mostly as tree lines dividing the parcels of unmaintained farmland and pastureland. The 3C Riverside Phase 3 includes approximately 174.6 acres of non-jurisdictional BLH. Before borrow operations began, the Citrus Lands Borrow Area (now Woodland South), Idlewild 1, Myrtle Grove, and Plaquemines Dirt and Clay formerly consisted of pasturelands and/or citrus groves. Very small remnants of non-wet BLH may be found at the fringes of these sites.

4.1.2 Discussion of Impacts

Future Conditions with No Action

All reaches

There would be no direct or indirect impacts to uplands within the project area if the levee lifts were not constructed. The levee reach would be maintained to keep turf grass growing and woody species from establishing. The levee would be mowed routinely as necessary.

Borrow Locations

The sites are actively utilized by non-Federal and Federal entities seeking borrow material. This activity would be expected to continue in the FWOP condition. These resources may be impacted by actions of the landowner in the future.

Cumulative impacts to non-jurisdictional BLH from the excavation of borrow at the borrow sites identified to have BLH would likely continue under the no action alternative.

The removal of non-jurisdictional BLH for the purpose of this proposed action is not permitted; however, the removal of this habitat type could occur for borrow activities under taken by non-Federal and private entities which do not require a Federal permit. This loss of BLH would be a cumulative impact in addition to other upland habitat conversion throughout the greater New Orleans metropolitan area. Residential, commercial and industrial development in the New Orleans Metropolitan area has changed and would be expected to continue to change land use patterns, contributing to the cumulative loss of upland habitat and non-jurisdictional BLH habitat in the region. Non-jurisdictional BLH in rural areas such as St. John the Baptist parish may continue to be lost due to the conversion of forested lands for development.

Future Conditions with the Proposed Action

All reaches

Direct impacts would result from the clearing of approximately 348 acres of the existing levee turf grass and associated organic material. The waste material would be disposed of in compliance with all applicable Federal, state and local laws. Following the completion of construction, the levee slopes would be revegetated and turf grasses maintained similar to pre-construction conditions. Because all levee construction would occur within the previously cleared and maintained ROW, no BLH would be impacted.

Borrow Locations

The proposed borrow sites are active excavated borrow pits that are heavily impacted by daily borrow activities. No impacts to BLH would be caused by the proposed action.

4.2 Wetlands

4.2.1 Existing Conditions

All Reaches

Most of the project area consists of wetlands or previously drained wetland habitats retaining some wetland characteristics. Several locations within the project area have experienced changes in hydrology due to the construction of levees and pump stations. Regionally, the cypress/tupelo swamp, BLH and marsh habitats to the south of the WBV reaches and outside the levees function as part of a large and highly-productive estuary complex consisting of the Bayou aux Carpes 404(c) area, Jean Lafitte National Historical Park and Preserve, Barataria Bay, and the greater Gulf of Mexico. The Bayou aux Carpes Section 404(c) site is adjacent to the floodside of WBV-14e.2 and just west of WBV-09.a and WBV-12, and the Jean Lafitte National Historical Park and Preserve is adjacent to the floodside of WBV-15a.2, WBV-14b.2 and WBV-14e.2.

The varied wetland habitat in the project area, primarily on the floodside of these reaches, provides feeding, resting, nesting, and escape habitat to numerous species of game and non-game mammals and commercially important furbearers, as well as songbirds, raptors, migratory and resident waterfowl, wading birds, woodpeckers, and many species of amphibians and reptiles. The whole system has been affected by subsidence, saltwater impacts from Katrina storm surge, and high winds from Hurricane Isaac in 2012.

The wetlands north of WBV-09.a, WBV-12, on the protected side of WBV-14e.2, WBV-15a.2 and WBV-18.2, and on the floodside of WBV-14b.2, WBV-14c.2, WBV-15a.2, and WBV-18.2 are characterized by the NWI as freshwater palustrine forests. Those forested wetlands on the protected side of the levees are classified as temporarily flooded and hydrologically modified, while the forested wetlands on the floodside are classified as semi-permanently flooded. Wetlands overstory vegetation in these areas is dominated by secondary growth water oak (*Quercus nigra*), live oak (*Quercus virginiana*), black willow (*Salix nigra*), swamp red maple (*Acer rubrum* var. *drummondii*), green ash (*Fraxinus pennsylvanica*), hickory species (*Carya* spp.) and hackberry species (*Celtis* spp.). The cypress-tupelo swamp overstory is dominated by bald cypress (*Taxodium distichum*), swamp red maple and tupelo (*Nyssa aquatica*), with a relatively sparse and flooded understory dominated by dwarf palmetto (*Sabal minor*). Cleared areas still retain vegetative characteristics of historic BLH-forested wetlands, but lack wetlands hydrology and soils. At the fringes of development on the protected side, scrub/scrub habitat with an understory of soft rush (*Juncus effusus*), marsh morning glory (*Ipomea sagittata*), sedges (*Carex* spp.), poison ivy (*Toxicodendron radicans*), wax myrtle (*Myrica cerifera*), and buttonbush (*Cephalanthus occidentalis*) may still be observed. A fringe of riverine wetland habitat on the north side of the Hero Canal at the toe of the unprotected side of the levee consists of black willow, elephant ear (*Colocasia antiquorum*), bulltongue (*Sagittaria lancifolia*), *Sesbania* spp., and soft

rush among others. These areas are heavily invaded by Chinese tallow (*Sapium sebiferum*).

The floodside of the WBV-09.a, WBV-15a.2, and WBV-18.2 transition into fresh emergent marsh, which is dominated by smartweed (*Polygonum spp.*), bulltongue, pennywort (*Hydrocotyle spp.*), and softstem bullrush (*Scirpus validus*). Semi-permanently flooded, and tidally connected, these areas provide spawning and nursery habitat for larval and juvenile fish, and shellfish of both freshwater and estuarine habitats such as sunfish (*Lepomis spp.*), menhaden (*Brevoortia sp.*), blue crabs (*Callinectes sapidus*), and bay anchovies (*Anchoa mitchilli*).

Borrow Locations

The jurisdictional wetland habitat types in the land surrounding proposed borrow areas may include pasture wetlands and jurisdictional BLH. The jurisdictional wetlands contain hydrophytic vegetation, hydric soils, and hydrology indicators. Pasture wetlands are comprised of soft rushes, flat sedges, smartweed, alligator weed, and other wetland grasses. Jurisdictional BLH forests include hackberry, Chinese tallow tree, pecan, American elm, live oak, water oak, green ash, bald cypress, black willow, box elder, and red maple. Some understory species include dewberry, lizard's tail, and poison ivy.

During initial investigations for borrow material during construction of the HSDRRS, a jurisdictional wetland determination from the CEMVN Regulatory Functions Branch was completed for each site.

- 3C Riverside 1 - The CEMVN jurisdictional wetland determination MVN-2013-00083-SY dated 17 Jan 2013 indicated no jurisdictional wetlands are located on the 118 acre site. A canal located on the southeastern property is designated as a Section 404 water of the U.S. Best management practices are utilized to ensure no indirect impacts to the canal.
- 3C Riverside, Area 2 - The CEMVN jurisdictional wetland determination MVN-2007-1839-SY dated 26 June 2007, indicated no jurisdictional wetlands are located on the 146 acre site.
- 3C Riverside, Phase 3 - The CEMVN jurisdictional wetland determination MVN-2008-00414-SU dated 9 June 2008 indicates that approximately 97 acres jurisdictional wetlands are located on the site. The size of the approved borrow area was minimized to avoid direct impacts and potential indirect impacts to jurisdictional wetland areas.
- Willow Bend Phase I - The CEMVN jurisdictional wetland determination MVN-2007-0232-SU dated 14 March 2007 indicated no jurisdictional wetlands located on the site.
- Willow Bend Phase II - The CEMVN jurisdictional wetland determination MVN-2008-00574-SU dated 29 May 2008 found no jurisdictional wetlands located on the site.

- South Kenner Road – The CEMVN jurisdictional wetland determinations MVN-2006-1442-SU dated 15 June 2006 and MVN-2006-3862-SU dated 20 November 2006 indicated no jurisdictional wetlands are located on the site.
- River Birch Phase 1 - The CEMVN jurisdictional wetland determination at River Birch Phase 1 indicated 0.30 acres of jurisdictional wetlands and 0.10 acres of jurisdictional other waters are located on the site. A Section 404 (NOD-22) permit was issued (MVN-2004-2721, 28 June, 2004) for the purpose of constructing a landfill. Impacts to wetlands are related solely to landfill construction; the availability of levee material from this site is considered to be a secondary use of the site. Wetland impacts resulting from the landowners actions were mitigated by the landowner.
- River Birch Phase 2 – The site had 6.4 acres of BLH subject to Clean Water Act jurisdiction. A Section 404 permit was issued (MVN-2004-2721, 9 August, 2007) for the construction of a landfill. Impacts to wetlands are related to landfill construction. The permit indicates wetland impacts were mitigated for by the landowner.
- River Birch Landfill Expansion – The site was dominated by wetlands prior to being cleared for landfill development, and is currently being used as a borrow pit for non-CEMVN work. Compensatory mitigation for impacts to wetlands was completed via the CEMVN Section 404 regulatory program.
- Citrus Lands Borrow Area (now Woodland South) –The site formerly consisted of pasturelands. Jurisdictional determination (JD) MVN-2014-00275-SK dated 2/18/14 identified no wetlands on the first phase of the site, which is adjacent to LA 23. Preliminary JD MVN-2014-01217-SK dated 8/1/14, which was an update of JD MVN-2009-00532-SZ dated 3/24/2004, identified approximately 250 acres of jurisdictional wetlands on the second phase of the site. These wetlands will be avoided.
- Idlewild 1 –The site formerly consisted of pasturelands. Preliminary JD MVN-2014-02865-SE dated 1/26/2015, which updated JD MVN-2008-03510-SZ dated 2/10/2009, identified no jurisdictional wetlands on the 129-acre site.
- Myrtle Grove Borrow Area –The site formerly consisted of agricultural fields that transitioned to scrub-shrub before being excavated for borrow. JD MVN 2012-02514-SE dated 11/21/2012 identified jurisdictional wetlands on the southeastern portion of the original 573-acre site; these wetlands were separated from the borrow area. The JD found that the 244 acres to the northwest did not contain wetlands; this portion of the site is the only area where borrow is being excavated.
- Plaquemines Dirt and Clay Borrow Area –The site formerly consisted of pasturelands. JD MVN-2014-00112-SE dated 4/4/2014 identified approximately 239 acres of jurisdictional wetlands on the approximately 560-acre site. These wetlands will be avoided.

4.2.2 Discussion of Impacts

Future Conditions with No Action

All reaches

Without implementation of the proposed action, there would be no actions taken to lift the WBV levee reaches. However, maintenance activities would continue to occur. As no vegetated wetlands exist in the project footprints, no wetlands would be impacted by such continued maintenance.

Cumulative impacts to jurisdictional wetlands throughout the Greater New Orleans Metro area would continue under the no action alternative. Historical and present wetland loss and gain in southeastern Louisiana has been caused by a multitude of natural and anthropogenic actions (Barras et al., 2004). Coastal wetland loss has occurred for thousands of years in Louisiana, and has until the 20th century been balanced by various natural wetland building processes (LACOAST, 1997). Multiple factors have been associated with coastal land loss, including the inhibition of sediment movement into coastal systems due to levee systems along the Mississippi River; man-made canals and their associated hydrologic changes (i.e., saltwater intrusion); a decline of suspended sediments coming from the Mississippi River due to upriver dams and other projects; erosion caused by wave action and boating activity; geologic compaction and faulting; storm events, including hurricanes; and relative sea level rise (Boesch et al., 1994). Public and private wetland creation and restoration projects have contributed to wetland gain in southeastern Louisiana. Major programs and initiatives include the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) program; the Beneficial Use of Dredged Material program; WRDA restoration projects (e.g., Davis Pond Freshwater Diversion, Caernarvon Freshwater Diversion); vegetation restoration projects (e.g., National Resources Conservation Service Plant Materials Center); Louisiana state restoration projects; the Louisiana Parish Coastal Wetland Restoration Program; Federal Emergency Management Agency restoration projects; public and private parties' initiatives, including those of nongovernmental organizations and corporations; and private mitigation banks. It is expected that the trend of wetland loss would continue, the rate of which would be slowed by the previously mentioned wetland creation and restoration initiatives.

Borrow Locations

Under the no action alternative, the WBV levee lifts would not occur and therefore no borrow areas would be utilized for this purpose. Because the borrow pits described in this EA are already active borrow excavation sites, the sites will likely continue to be actively utilized by private individuals, non-Federal and Federal entities seeking borrow. However, jurisdictional wetlands impacts are not permitted for borrow operations, so no impacts to wetlands would be realized in any of the borrow sites. Any jurisdictional wetlands impacted under a USACE permit for other activities on these sites have been fully mitigated. Once the areas are no longer being excavated they would likely be

converted to ponds and small lakes if water is retained, or to a vegetated area if water is not retained.

Future Conditions with the Proposed Action

All reaches

The proposed action would not encroach on any wetland areas because there are no jurisdictional wetlands within the footprint of WBV levee lifts; the proposed action would increase the height of the levees within the existing, previously disturbed right-of-way. Best management practices would be implemented to ensure adjacent wetlands and waters of the United States are not impacted by runoff during construction. Therefore, the levee lifts would not have any direct, indirect or cumulative impact on wetlands.

Because of the sensitivity and significance of the Bayou aux Carpes 404(c) area, every effort would be made to minimize impacts during construction. Training of all construction supervisors and workers would be undertaken by the contractor before work begins. This training would include an explanation of the importance of Bayou aux Carpes area and the regulatory authority for its protection; identification of the boundaries of protected and regulated areas; and the ecological and legal ramifications of encroachment, spills, and other violations of the laws and measures that protect this EPA-designated area. Employees would be trained prior to working on site. The contractor would be required to supply 404c hard hat stickers which will serve as recognition that training has been completed.

Borrow Locations

No jurisdictional wetlands would be impacted by this proposed action, as no direct, indirect or cumulative impact to these resources were authorized in previous environmental compliance documentation (IERs) prepared by USACE for any of the approved borrow pits. Any jurisdictional wetland impacted under a USACE permit for other activities on these sites have been fully mitigated.

No excavation or work areas will be permitted in the area designated as wetlands. The designated wetlands are not part of the proposed or approved borrow source and will be protected through implementation of best management practices (BMPs). These practices include Installation of a silt fence around areas of excavation and maintaining a 100-foot buffer between the fence and wetlands areas in order to prevent surface runoff discharge into the wetlands. A storm water prevention plan (SWPPP) and daily inspections by borrow personnel are other BMPs designed to protect wetlands as necessary.

4.3 Wildlife

4.3.1 Existing Conditions

All Reaches

The diversity and abundance of wildlife inhabiting this area is largely dependent on the quality and extent of suitable habitat present. Fish and wildlife habitats are comprised of a patchwork of developed and natural areas. Coastal wetlands, marshes, and forests on the unprotected side of the levees support statewide fish and wildlife resources by directly providing permanent habitat or indirectly acting as breeding and nesting refuges necessary to many economically important species. Wetlands, swamps, and marsh habitats inside the levees exist in a fragmented state that limits wildlife species diversity. Dredged canals, drainage conveyances, catch basins, and borrow ponds within the area contain poor quality surface waters, but still provide habitat for wading birds, some fish species, and other wildlife.

Areas on the unprotected side of the levees are important contributors to the local and regional fisheries. Water bodies within the project areas provide habitat for resident populations of numerous species. The canals and surrounding marshes support bowfin (*Amia calva*), spotted gar (*Lepisosteus spatula*), shads (*Alosa spp.*), mosquitofish (*Gambusia affinis*), and channel catfish (*Ictalurus punctatus*), among others. Analysis of samples collected in 1985 in the Bayou aux Carpes 404(c) area, which is a protected ecosystem near the center of the project areas, indicated that forage species (e.g. mosquitofish, threadfin shad [*Dorosoma petenense*], and golden top minnow [*Fundulus chrysotus*]) were the most abundant fish species in the area. These areas provide valuable spawning, feeding, and nursery habitat for recreationally-important freshwater fish such as large-mouth bass (*Micropterus dolomieu*), bowfin, and sunfish; crustaceans such as crawfish and grass shrimp and the blue crab (*Callinectes sapidus*). Consequently, the area on the flood side of these reaches are considered major contributors to the greater Barataria Bay Estuary, providing sensitive habitat for both freshwater and marine species. These wetland estuaries are critical to maintaining sustainable populations of commercially important marine and freshwater species, such as speckled trout (*Cynoscion nebulosus*), redfish (*Sebastes spp.*), flounder (*Paralichthys lethostigma*), croaker (*Micropogonias undulates*), and numerous shellfish, by functioning as nurseries.

The project areas are located within Bird Conservation Region (BCR) #37, known as the Gulf Coastal Prairie. This BCR features one of the greatest concentrations of colonial waterbirds in the world with breeding reddish egret (*Egretta rufescens*), roseate spoonbill (*Platalea ajaja*), brown pelican (*Pelecanus occidentalis*), and large numbers of herons and egrets that utilize the nearby canals and roost in trees. The forests, swamps, marshes, and pastures may provide in-transit habitat for migrating shorebirds, including the American oystercatcher (*Haematopus palliatus*), and for neotropical migrants such as the prothonotary warbler (*Protonotaria citrea*), Nelson's (sharp-tailed) sparrow (*Ammodramus nelsoni*), and the sedge wren (*Cistothorus platensis*). The

peregrine falcon (*Falco peregrinus*), listed as threatened and endangered by the state of Louisiana, winters in the area, while the bald eagle (*Haliaeetus leucocephalus*) may utilize area habitats for breeding and nesting.

A colonial nesting wading/water bird rookery exists adjacent to WBV 09.a. The rookery contains yellow crown night herons, little blue egrets, great egrets and cattle egrets. These birds are protected through the Migratory Bird Treaty Act (MBTA) and should not be disturbed in any way. These birds typically utilize the same nesting site year to year. USFWS and LDWF have developed work zone buffers for nesting birds. Wading/water birds require a 1,000 foot buffer during nesting season which ranges from February 15 to September 1. Close coordination with USFWS and LDWF is necessary in order to be compliant with the MBTA.

A bald eagle nest was documented in the nearby Bayou aux Carpes area in 2007 and other nests may exist in the area. The bald eagle was removed from the Federal List of Threatened and Endangered (T&E) Species but continues to be protected under the Bald and Golden Eagle Protection Act and by the Migratory Bird Treaty Act. Recommendations to minimize potential project impacts to eagles and their nests are provided by the USFWS in their National Bald Eagle Management Guidelines publication.

Winter numbers of waterfowl in BCR #37 are among the highest on the continent. The most important waterfowl habitats of the area are coastal marsh, shallow estuarine bays and lagoons, and wetlands on agricultural lands of the rice prairies. Species include dabbling ducks, especially northern pintail (*Anas acuta*) and Gadwall (*Anas strepera*); diving ducks, Redhead (*Aythya Americana*), Lesser Scaup (*Aythya affinis*); and White-fronted Geese (*Anser albifrons*) from both the Central and the Mississippi Flyways. Mottled duck (*Anas fulvigula*), fulvous whistling-duck (*Dendrocygna bicolor*), and purple gallinule (*Porphyrio martinicus*) may breed in wetlands in the vicinity of the project. Wetland game birds that occur in the project area are the wood duck (*Aix sponsa*), Wilson's snipe (*Gallinago delicata*), and American woodcock (*Scolopax minor*).

Amphibians likely to occur in these habitats include the southern dusky salamander (*Desmognathus auriculatus*), dwarf salamander (*Eurycea quadridigitata*), central newt (*Notophthalmus viridescens louisianensis*), three-toed amphiuma (*Amphiuma tridactylum*), western lesser siren (*Siren intermedia nettingi*), gulf coast toad (*Bufo valliceps*), and northern cricket frog (*Acris crepitans crepitans*), (Conant and Collins 1998, Felley 1992, Wigley and Lancia 1998).

Reptiles that typically utilize habitats such as those of the project area include the common snapping turtle (*Chelydra serpentina*), green anole (*Anolis carolinensis*), broadhead skink (*Eumeces laticeps*), and western cottonmouth (*Agkistrodon piscivorus leucostoma*).

Mammals that may occur in the habitats of the project areas include the nutria (*Myocastor coypus*), muskrat (*Ondatra zibethicus*), mink (*Mustela vison*), swamp rabbit (*Sylvilagus aquaticus*), cotton mouse (*Peromyscus gossypinus*), fox squirrel (*Sciurus niger*), and raccoon (*Procyon lotor*). White-tailed deer (*Odocoileus virginianus*) are common in the BLH forests and on properties where hunters and land managers purposefully attract them.

Borrow Locations

The lands surrounding the borrow areas contain a variety of mammals, birds, reptiles, and amphibians. Species likely inhabiting the area include nutria, muskrat, raccoon, white-tailed deer, rabbits, squirrels, and a variety of smaller mammals.

Despite poor water quality, forced drainage, and disturbance from cattle grazing and other human activities, drainage canals and open waters, where water quality is relatively good and floating aquatic vegetation is not too thick, do support use by herons and egrets. Wood ducks and migratory waterfowl may also utilize some of these waters. Lands surrounding open waters and borrow pits may offer habitat to mammals, birds, reptiles, and amphibians; however, wildlife habitat within the borrow areas is extremely limited.

4.3.2 Discussion of Impacts

Future Conditions with No Action

All reaches

Without implementation of the proposed action, there would be no actions taken to lift the WBV levees. However, maintenance activities would continue to occur. Wildlife that currently utilize the levees would continue to do so with negligible temporary disturbance from maintenance activities. Therefore, no direct, indirect or cumulative impacts would result from taking no action.

Borrow Locations

Under the no action alternative, no borrow areas would be utilized for the improvement of WBV levees. However, because all of the proposed borrow sites are existing operating businesses in business to sell dirt, these borrow sites may continue to be used for other activities. As the sites are excavated, wildlife would be temporarily displaced. Once the sites have been fully excavated, they may be converted to ponds and small lakes. A variety of plant types may develop adjacent to the water that could provide important wildlife habitat utilized for nesting, feeding, and cover. Aquatic vegetation may colonize the shallow littoral edge of the pits, and wildlife (otters, alligators, wading birds, and ducks) adapted to an aquatic environment would be expected to expand their range into the new water bodies. These pits have the potential to become mosquito breeding areas; however, the area of water is considered to be

small compared to surrounding wetlands and would be managed under local parish mosquito control programs.

Any excavated pits that remain dry would be expected to be colonized by vegetation and woody plants, which could offset some habitat loss. As vegetation density increases, the pit could attract a variety of wildlife including birds, reptiles, amphibians, and small mammals.

Future Conditions with the Proposed Action

All reaches

Wildlife in the vicinity of the project area may be temporarily stressed as a result of construction from increases in noise and traffic. Mobile wildlife species, such as rodents and birds would be expected to leave the area during construction activities. Mortality rates for smaller, less mobile wildlife species such as amphibians and reptiles, may increase during turf removal and grading activities on the levees. Following completion of construction, occasional direct and indirect impacts to less mobile species would continue to occur during routine maintenance.

The habitat value of the maintained levees is limited, and large wildlife species, predominantly birds and small mammals that hunt and forage in the levee turf grass and adjacent vegetation, do not generally shelter or nest there. These species would be expected to move to nearby habitat for these activities during construction. Given the extent of similar or higher quality habitats in the vicinity of the levee lifts, wildlife movement would not result in impacts to the carrying capacity of nearby environments. Revegetating the area with turf grass would restore this temporarily lost terrestrial habitat, and wildlife species would return once construction activities are complete. Thus, the potential cumulative impacts on wildlife from the proposed action in conjunction with other construction projects in the region would be negligible and temporary.

Close coordination with USFWS and LDWF is necessary in order to avoid disturbance of the existing rookery adjacent to WBV 09a. Activity windows, buffer zones and/or nesting abatement measures would need to be implemented in order to remain compliant with the MBTA. The construction activity window would be September through January, the no work buffer zone during nesting season is 1,000 feet, and if a nesting abatement plan is necessary it should be developed and implemented in close coordination with USFWS and LDWF.

Borrow Locations

These sites are actively utilized by private, non-Federal and Federal entities seeking borrow. As the sites are excavated, wildlife would be displaced. Impacts are expected to be similar to the no action alternative.

4.4 Threatened and Endangered Species.

4.4.1 Existing Conditions

All reaches

Several federally listed threatened and endangered (T&E) species are known to occur in Jefferson and Plaquemines Parishes. Located in BCR #37, the parish also contains many potential areas useful to migratory birds. The brown pelican (*Pelecanus occidentalis*) and the American peregrine falcon (*Falco peregrinus anatum*) have been de-listed due to recovery.

USFWS updated its T&E list in September 2015 identifying species that are known to occur in Plaquemines and Jefferson Parishes. These species are listed in Table 4.

Table 4: Federally-listed Threatened and Endangered Species for Jefferson and Plaquemines Parishes, Louisiana

Scientific Name	Common Name	Federal Status	Potential to Occur In Project Footprint
<i>Charadrius melodus</i>	pipin plover	Threatened*	No
<i>Calidris canutus rufa</i>	red knot	Threatened	No
<i>Trichechus manatus</i>	manatee	Endangered	No
<i>Acipenser oxyrhynchus</i> (<i>ssp. Desotoi</i>)	Atlantic (Gulf) sturgeon	Threatened	No
<i>Scaphirhynchus albus</i>	pallid sturgeon	Endangered	No

*Critical Habitat in Plaquemines and Jefferson Parishes

Source: http://www.fws.gov/lafayette/pdf/LA_T&E_Species_List.pdf

The piping plover is a migratory shorebird that winters in coastal Louisiana. It forages on intertidal beaches, mudflats, sand flats, algal flats, and wash-over passes with no or very sparse emergent vegetation. They roost in unvegetated or sparsely vegetated areas, which may have debris, detritus, or micro-topographic relief offering refuge to plovers from high winds and cold weather. They also forage and roost in wrack (i.e., seaweed or other marine vegetation) deposited on beaches. The red knot is a migratory shorebird that breeds in Canada but can be found in Louisiana during spring and fall migrations and the winter months. It forages along sandy beaches, tidal mud flats, salt marshes, and peat banks (USFWS, 2015). The project area is a freshwater system with no beaches and do not contain suitable habitat for piping plovers or red knots. Accordingly, the plover and red knot are not evaluated further in this EA.

The Florida manatee and Gulf sturgeon are species that could potentially exist in the vicinity of the project. However, because these species are aquatic and no activities are proposed within the aquatic habitat in which they could be found, these species are not further evaluated in this EA.

In addition to the species listed in Table 4, five federally protected sea turtle species listed as threatened or endangered forage in the near shore waters, bays and estuaries of Louisiana: the green sea turtle (*Chelonia mydas*); hawksbill sea turtle (*Eretmochelys imbricata*); Kemp's ridley sea turtle (*Lepidochelys kempii*); leatherback sea turtle (*Dermochelys coriacea*); and loggerhead sea turtle (*Caretta caretta*). Two species, the loggerhead and Kemp's ridley, could potentially nest in Louisiana. However, because no aquatic or wetland habitat will be impacted by the proposed action, these species are not further evaluated in this EA.

Borrow Locations

There are no known T&E species, or critical habitats, within the proposed borrow areas.

4.4.2 Discussion of Impacts

Future Conditions with No Action

All Reaches

Without implementation of the proposed action, there would be no modification of the WBV levees and therefore, no direct, indirect or cumulative impact would occur under the FWOP condition.

Borrow Locations

There are no known T&E species or critical habitats in the borrow sites and therefore no direct, indirect or cumulative impacts would occur under the no action alternative, regardless of whether these borrow pits are utilized for projects other than the proposed action. USFWS concurred that the excavation of borrow would not likely adversely affect T&E species or their critical habitat (Table 5 and Appendix B).

Table 5. USFWS T&E Concurrence

Proposed Borrow Area	USFWS Concurrence
3C Riverside 1, 2 and 3	24 February 2016
Willow Bend I	30 September 2015
Willow Bend II	30 September 2015
River Birch Phase 1, 2 and South Kenner Road	28 March 2016
Citrus Lands (Woodland South)	11 February 2016
Idlewild 1	5 November 2015
Myrtle Grove	26 October 2015
Plaquemines Dirt and Clay	21 October 2015

Future Conditions with the Proposed Action

WBV-09.a, WBV-12

In correspondence dated November 23, 2015, USFWS stated that the proposed project is not an activity that would affect a federally listed threatened or endangered species; nor is there proposed or designated critical habitat present within Plaquemines Parish. Therefore, a "no effect" conclusion is appropriate (Appendix B).

WBV-14e.2, WBV-14b.2, WBV-14c.2, WBV-15a.2, WBV-18.2

In correspondence dated January 31, 2016, The USFWS stated that the proposed action for these reaches is not an activity that would affect a federally listed threatened or endangered species; nor is there proposed or designated critical habitat present within Jefferson Parish. Therefore, a "no effect" conclusion is appropriate (Appendix B).

Borrow Locations

All of the Borrow Areas listed in this document provided documentation from USFWS regarding a finding of "no effect" on T&E species. Table 5 identifies the borrow sites and date of most recent update of T&E coordination with USFWS. Documentation is provided in Appendix B.

4.5 Transportation

4.5.1 Existing Conditions

All Reaches

I-10 is the closest interstate highway in the vicinity of the levee lift project areas. This highway is a multi-lane divided freeway. It connects the New Orleans Metropolitan Area with Baton Rouge and is a major east-west route along the northern Gulf Coast that loops south into the city of New Orleans. I-610 is a short connector route that by-passes the

heart of the city and is primarily used by through traffic. The east-west highway closest to the project areas is United States Highway (US) 90 Business, located on the west bank of the Mississippi River within the New Orleans Metropolitan Area. It is built at-grade from the Jefferson Parish line to Westwego, US 90 Business connects to the east bank via the Huey P. Long Bridge at near Harahan and Elmwood. Elevated from Westwego to the Crescent City Connection Bridge, US 90 Business then crosses the river east to join I-10 and US 90 in the New Orleans Central Business District. US 90 Business is a multi-lane controlled access highway that is functionally classified as an urban freeway. It runs parallel to I-10 and primarily serves local travel between the east and west banks, while I-10 and I-610 generally serve regional traffic.

WBV-09.a, WBV-12

The WBV-09.a and WBV-12 projects are located to the east of the Gulf Intracoastal Waterway (GIWW) and to the west of the Mississippi River south of Belle Chasse in Plaquemines Parish. The area adjacent to the north of the two project areas in Plaquemines Parish is developed with residential, recreational, and commercial land uses. Areas south and west of the WBV-09.a and WBV-12 reaches contain mostly marshlands with few roads and little development.

LA 23 is a north-south state highway that turns west in Belle Chasse and intersects US 90 Business near Gretna in Jefferson Parish. Locally referred to as Belle Chasse Highway, LA 23 crosses the GIWW via two crossings; southbound traffic uses the Belle Chasse Tunnel, a narrow crossing that does not allow passing; northbound traffic uses the Judge Perez Bridge, a vertical-lift bridge. This road is the closest principal arterial to the WBV-09.a and WBV-12 project sites, but is reclassified as a minor arterial at its intersection with Walker Road. Walker Road up to the landfill is also classified as a minor arterial (Louisiana Department of Transportation and Development [LADOTD], 2006).

The most recent traffic volumes available from the LADOTD are from 2012, 2013, and 2014 (LADOTD, 2014). Traffic counts from 2013 and 2014 at stations on US 90 Business near the intersection of LA 23 in Jefferson Parish remained within the same range as counts from the previous five years. Alternatively, traffic counts at stations positioned on LA 23 between US 90 Business in Jefferson Parish and the WBV-09.a and WBV-12 project areas in Plaquemines Parish from 2012 showed a decrease in average daily traffic (ADT) from the previous five years.

The 2013 and 2014 ADT on US 90 Business east of LA 23 ranged between 52,058 and 83,199 vehicles per day (vpd). The 2014 ADT on US 90 Business west of LA 23 ranged between 49,114 and 71,486 vpd. ADT in 2014 on LA 23 to the south of U.S. 90 Business in Jefferson Parish was 29,841 vpd. In 2012, ADT at traffic stations on LA 23 between the Plaquemines Parish line and the WBV-09.a and WBV-12 project areas ranged between 25,936 and 35,580 vpd.

WBV-14b.2, WBV-14c.2

The WBV-14b.2 and WBV-14c.2 projects are located to the south of Lapalco Boulevard and to the west of Barataria Boulevard/LA 45 near the town of Estelle in Jefferson Parish. The areas adjacent to the north and east of the project areas are fully developed with residential, recreational, and commercial land uses. West and south of the project areas are Bayou Segnette and the Jean Lafitte National Historical Park and Preserve, which are mostly marshlands with few roads and little development.

Lapalco Boulevard is a six-lane principal arterial that splits off from US 90 in Avondale and runs through Jefferson Parish, terminating at Belle Chasse Highway. Barataria Boulevard/LA 45 is another six-lane facility in the WBV-14b.2 and WBV-14c.2 project vicinity. This north to south highway is classified as a minor arterial between Lapalco Boulevard and Ames Boulevard. From that point it drops down to a two-lane undivided highway and is reclassified as a major collector. Lapalco Boulevard generally runs parallel to the WBV-14c.2 levee reach, while Barataria Boulevard/LA 45 generally runs parallel to the WBV-14b.2 reach. Other major roadways in the project vicinity are the Leo Kerner-Lafitte Pkwy/LA 3134, Ames Boulevard, and Destrehan Avenue. A large number of local streets are adjacent to the project areas, but many are residential subdivisions with limited connectivity (LADOTD, 2006).

The most recent traffic volumes available from the LADOTD for the project area are from 2014. Traffic counts at stations on US 90 near the intersection of Lapalco Boulevard and on Barataria Boulevard/LA 45 near the project areas remained within the same range as traffic counts from the previous five years. The 2014 ADT on Barataria Boulevard/LA 45 at the Leo Kerner-Lafitte Pkwy junction was approximately 32,088 vpd.

WBV-14e.2

The WBV-14e.2 project is located south of Destrehan Avenue and to the east of Barataria Boulevard/LA 45 and Leo Kerner-Lafitte Pkwy/LA 3134, near the town of Estelle in Jefferson Parish. The areas adjacent to the project area are mostly marshlands that have few roads and little developed lands. Bayou Anx and Barataria Waterway lie to the east between the project area and the Mississippi River. Bayou Segnette and the Jean Lafitte National Historical Park and Preserve are adjacent to the project area.

Lapalco Boulevard is a six-lane principal arterial that splits off from US 90 in Avondale and runs through Jefferson Parish terminating at Belle Chasse Highway. Leo Kerner-Lafitte Pkwy/LA 3134 is a four-lane divided highway that runs north to south, generally parallel to the WBV-14e.2a project. Other major roadways in the project vicinity are Barataria Boulevard/LA45, Ames Boulevard, and Destrehan Avenue. Because of the remote location of the project, a limited number of local streets are adjacent to the project area (LADOTD, 2006).

The most recent traffic volumes available from the LADOTD for the project area are from 2014. Traffic counts at stations on Leo Kerner-Lafitte Pkwy/LA 3134 near the project area remain within the same range as traffic counts from the previous five years. The 2014 ADT on Leo Kerner-Lafitte Pkwy near the Barataria Boulevard/LA 45 junction was approximately 8,831 vpd.

WBV-15a.2, WBV-18.2

The WBV-15a.2 and WBV-18.2 projects are located to the south of Lapalco Boulevard and US 90 on the shoreline of Lake Cataouatche near the town of Avondale in Jefferson Parish. The area adjacent to the north of the project areas is lightly developed with residential, recreational, and commercial land uses. Adjacent to the west, east, and south of the project areas are Lake Cataouatche and the Bayou Segnette State Park. These areas are mostly marshlands with few roads and little developed land.

Lapalco Boulevard ends at its intersection with US 90 north of the WBV-15a.2 and WBV-18.2 reaches in Avondale in Jefferson Parish. These two principal arterials are the only highways in the vicinity of the project area. WBV-15a.2 can be accessed from US 90 from the northwest and both reaches can be accessed by Avondale Garden Road, which connects to the levee at the pump station. Nicolle Boulevard connects the Avondale Homes Subdivision to Lapalco at Segnette Boulevard but does not connect to Avondale Garden Road. Other local streets are residential with limited connectivity (LADOTD, 2006).

The most recent traffic volumes available from the LADOTD for the project area are from 2014. Traffic counts at stations on US 90 near the intersection of Lapalco Boulevard remain within the same range as traffic counts from the previous five years. The 2014 ADT on US 90 to the north of the project areas ranged between 20,448 to 28,723 vpd.

Borrow Locations

The Idlewild Borrow Site is located on the west side of LA 23 in a rural area of Plaquemines Parish. Traffic on LA 23 in the vicinity of the Idlewild Borrow Sites has been stable since 2006 at a rate of 14,940 vpd in 2012.

The Myrtle Grove Borrow Site is located adjacent to the east of LA 23 in rural Plaquemines Parish. 2012 traffic counts in the vicinity of this area of Plaquemines Parish were stable at approximately 9,271 vpd on LA 23.

The Woodland South Borrow Site is located adjacent to the east of LA 23 near Port Sulphur in rural Plaquemines Parish. 2012 traffic counts in the vicinity of this area of Plaquemines Parish were stable at approximately 6,684 vpd on LA 23.

The Plaquemines Dirt & Clay Borrow Site is located adjacent to the east of the Woodland South Borrow Site, which is adjacent to LA 23 near Port Sulphur in

Plaquemines Parish. 2012 traffic counts in the vicinity of this area of Plaquemines Parish were approximately 6,684 vpd on LA 23.

The 3C Riverside Borrow Sites are located in Killona, Louisiana on LA 3127 and LA 18. The Phase 1 site is located across from the intersection of LA 3127 and LA 3141 on the south side. The 3C Riverside Phase 2 Borrow Site is located north of the intersection at LA 3127 and LA 3141. The 3C Riverside Phase 3 Borrow Site is located southwest of the intersection at LA 18 and LA 3141. 2013 traffic counts in this area of St. Charles Parish range from 7,000 vpd on LA 3127 to approximately 1,500 vpd on LA 3141.

The Willow Bend Borrow Sites are located on the south side of River Road in St. John the Baptist Parish. The borrow sites have been operating since 2008 so there is routine haul truck traffic on river road and main highways leading to and from the borrow site. Traffic on LA 3127 in the vicinity of Willow Bend has seen an increase in traffic since 2005, reaching a level of nearly 6,000 vpd in 2014.

The River Birch Borrow sites, adjacent to US 90, currently experience truck traffic associated with operations to and from the existing River Birch landfill. The South Kenner Road Borrow Site is located on South Kenner Road in Jefferson Parish, just north of US 90 and west of the River Birch Borrow sites. US 90 in the vicinity of these borrow sites has seen a reduction in ADT since 2005, remaining between 20,000 and 22,000 vpd between 2008 and 2014, down from the approximately 25,000 vpd experienced in 2005.

The transportation analysis conducted by CEMVN for the Comprehensive Environmental Document, Phase II (yet to be published) to address the overall cumulative impacts of construction and future operations and maintenance for the HSDRRS describes and characterizes the environmental impacts of transporting the materials necessary to construct the 100-year HSDRRS for New Orleans, Louisiana. The analysis addressed the effects of using the public highways and waterways to supply earthen borrow, structural steel (e.g., sheetpile, pipe pile, H-pile), ready-mix concrete, concrete pile, aggregate, and rock to over 150 different construction projects for the Lake Pontchartrain and Vicinity (LPV) and WBV Projects.

The database of projects used to analyze quantities, trips, and timing of trips contains 150 projects, which were analyzed in 19 previous IERs. In total, 150 projects used the following material quantities:

Table 6. Truck Trips by Quantities of Material

Material	Quantity	Units
Earthen Fill	17,319,700	cubic yards
Concrete	1,559,500	cubic yards
Aggregate	2,979,300	tons
Sheet Pile	11,479,800	square feet
H-Pile	10,368,800	linear feet
Pipe Pile	845,500	linear feet
Concrete Pile	1,592,200	linear feet
Rock	3,043,500	tons

According to the transportation analysis, an estimated 1.5 million truck trips are estimated to have been needed to deliver the quantity of material presented in the above table to construct the HSDRRS. In addition, 814 barge trips delivered some of the material, mainly rock.

Two methods of analysis are under development to get a better understanding of how the number of trips taken to deliver the materials necessary to build the HSDDRS impacted the roadways. A Congestion Management Index is under development that provides a relative assessment of the changes in traffic due to the addition of trucks related to HSDDRS. The Truck Trip Threshold method is also used to increase the understanding and improve the communication of truck congestion resulting from materials delivery. This method identifies individual, highly utilized roads that exceeded a certain use standard, depending on the class of the road. The thresholds are used as a proxy to suggest the level of truck traffic at which the roadway users and adjacent property owners would likely perceive an increase in traffic and identifies which specific roads exceeded those thresholds. This type of information can assist in community-level planning and public awareness, and will be used to analyze the perceived impact of increased traffic during construction of the HSDRRS.

4.5.2 Discussion of Impacts

Future Conditions with No Action

All Reaches

Under the no action alternative, the levee lifts would not occur. The routine maintenance of public roads around the project area would continue. It is anticipated that there would be no direct, indirect or cumulative impacts to transportation as the result of taking no action.

Borrow Locations

These sites are actively utilized by private individuals, non-Federal and Federal entities seeking borrow. The use of these borrow areas is anticipated to continue until they have exhausted the borrow supply, and the current impact of borrow pit use on area roads would continue until the pit is exhausted. It is anticipated that there would be no new direct, indirect or cumulative impacts to transportation as the result of taking no action.

Future Conditions with the Proposed Action

All Reaches

Use of the area's roads would increase during construction due to the presence of construction related vehicles and activities. Approximately 49,123 truck trips would be required to haul approximately 712,284 cubic yards of in place borrow material to the project sites. The number of miles for each truck trip would depend upon the borrow pit selected by the contractor for each reach. The increase in truck traffic would have a short-term temporary impact on the direct travel routes to/from the borrow sites and would result in localized congestion at the construction site.

Construction equipment such as bulldozers and graders would need to be delivered to the site. Haul trucks would be entering and exiting the areas on a daily basis during the period of construction. The truck hauling would temporarily impede vehicle traffic and result in minimal reduction of the level of service on some local road segments. Flagmen, signage, cones, barricades, and detours would be used where required to facilitate the movement of heavy equipment and local traffic on affected road segments. Appropriate measures to ensure safety and facilitate the movement of traffic would be implemented at all approved borrow areas. Any increase in traffic would be moderate and temporary. After construction is complete, transportation would return to pre-construction levels.

Borrow Locations

With implementation of the proposed action, haul trucks would be entering and exiting the areas on a daily basis during the period of construction. The truck hauling would temporarily impede vehicle traffic and result in a minimal reduction of the level of service on some local road segments.

4.6 Air Quality

4.6.1 Existing Conditions

All Reaches and Borrow Locations

As of June 15, 2005, the 1-hour ozone standard for the Metropolitan New Orleans area (Orleans, Jefferson, St. Bernard, Plaquemines, St. Charles and St. John the Baptist parishes) was revoked and replaced by an 8-hour standard. The New Orleans area is

currently not subject to any conformity requirements of the Clean Air Act. These parishes, with the exception of St. Bernard Parish, are attainment areas that meet the 8-hour ozone standard and all other criteria pollutant National Ambient Air Quality Standards (NAAQS). This classification is the result of area-wide air quality modeling studies.

4.6.2 Discussion of Impacts

Future Conditions with No Action

All Reaches

Under the no action alternative, there would be no potential for direct, indirect or cumulative effects to air quality because construction of the proposed action would not occur, and the attainment area status for Plaquemines and Jefferson Parishes is not anticipated to change from current conditions.

Borrow Locations

These sites are actively utilized by private individuals, non-Federal and Federal entities seeking borrow. On-going air quality impacts from activities at the borrow sites would include temporary diesel and gasoline emissions from the operation of construction equipment and creation of particulate matter in the form of fugitive dust during excavation and clearing activities. Particulate emissions (fugitive dust) are generated by activities that disturb and suspend soils, including the excavation and transfer of borrow material and the operation of equipment on disturbed ground. However, the attainment area status of Plaquemines, Jefferson, St. John the Baptist, and St. Charles parishes is not anticipated to change from current conditions.

Future Conditions with the Proposed Action

All Reaches

Direct impacts include minor increases in air pollution that would occur for a short duration from the use of construction equipment and vehicles including: bulldozers, haul trucks, cranes, excavators, and compactors. These emissions could include 1) exhaust emissions from operations of dump trucks and various types of non-road construction equipment such as graders, and 2) fugitive dust due to transfer and disturbance of earthen materials. Operation of construction equipment and support vehicles would generate volatile organic compounds (VOCs), Particulate Matter (PM)₁₀, PM_{2.5}, Nitrogen Oxides (NO_x), Carbon Monoxide (CO), Ozone (O₃), and Sulfur Oxides (SO_x) emissions from diesel engine combustion. These emissions are from mobile sources for which emissions performance standards are applicable to source manufacturers and are not regulated under the Clean Air Act air permit regulations. Therefore, it is not necessary to quantify these emissions given the lack of ambient emissions thresholds that could be used to make the determination of air quality impact significance from these mobile sources. No indirect impacts to air quality are anticipated, but cumulative effects might

be noticeable in the Oakville area, which is between the WBV-09.a and WBV-12 construction zones and Idlewild 1 Borrow Site, if construction activities and borrow operations are conducted simultaneously. Cumulative effects might also be detected by residents around Estelle during activities at WBV.

Site-specific construction effects would be temporary and dust emissions would be controlled using standard best management practices. For instance, application of water to control dust and periodic street sweeping and/or wetting down of paved surfaces could aid in preventing fugitive dust from becoming airborne.

Long term, there is no anticipated effect to air quality. Regional air quality standards would not be violated. The proposed project would be in conformance with NAAQS. The contribution of emissions from the levee lift projects to cumulative air emissions from other area sources such as vehicles would not be expected to alter the attainment status of Jefferson or Plaquemines Parish.

Borrow Locations

Impacts resulting from implementation of the proposed action would be expected to be similar to the no action alternative conditions with potentially greater intensity at some sites if more than one project were being supplied at the same time. Direct impacts to air quality would be temporary and controlled by implementation of best management practices (BMP) including dust suppression and emissions controls on vehicles and equipment. Impacts on ambient air quality are expected to be minor and are not expected to cause or contribute to a violation of Federal or State ambient air quality standards. Duration of the impacts to air quality would depend upon the daily frequency of trucks, weather, and the amount of borrow available.

No indirect impacts on air quality are anticipated. Temporary cumulative effects might be noticeable in the Oakville area, which is between the WBV-09.a and WBV-12 construction zones and Idlewild 1 Borrow Site, if construction activities and borrow operations are conducted simultaneously. Similarly, if adjacent borrow areas such as Plaquemines Dirt and Clay and Woodland South or construction activities at WBV-14c.2 and 14b.2 are taking place at the same time, the communities of Myrtle Grove and Estelle might perceive increases in emissions and fugitive dust. However, the status of attainment of air quality for Plaquemines, Jefferson, St. John the Baptist, and St. Charles parishes is not anticipated to change from current conditions.

4.7 Water Quality

4.7.1 Existing Conditions

All reaches

Section 303(d) of the Clean Water Act (CWA) requires states to identify waterbodies that are not meeting water quality standards. In its 2014 Integrated Water Report of

Water Quality in Louisiana

(<http://www.deq.louisiana.gov/portal/DIVISIONS/WaterPermits/WaterQualityStandardsAssessment/WaterQualityInventorySection305b/2014IntegratedReport.aspx>), the Department of Environmental Quality (LDEQ) reported that all the sub-segments of the GIWW and Barataria Waterway in the vicinity of the area were fully supportive of their designated uses of swimming, boating, and fishing. These waterways are connected to the Hero Canal, which is directly adjacent to the WBV-12 levee reach. Water quality in the canal, which terminates at LA 23, is impacted by industrial and heavy commercial operations on both the northern and southern banks.

Two waterbodies within the area of the WBV reaches within Jefferson Parish have been classified as Water Quality Limited in the 2014 Integrated Water Report. These waters include: Lake Salvador, to the southwest of WBV-14b.2 and 14c.e, and south of WBV-15a.2 and 18.2; and the Sauls, Avondale and Main Canals, which are on the protected side of WBV-15a.2 and 18.2. None of these waterbodies currently support their designated use of fishing. Lake Salvador is designated as non-supportive due to the presence of non-native aquatic plants and turbidity. The Sauls, Avondale, and Main Canals are designated as non-supportive due to their levels of chloride, nitrate, phosphorus, dissolved oxygen, and total suspended solids.

Borrow Locations

The borrow locations are existing operating businesses in the business to sell dirt. The sites are actively utilized by private individuals, non-Federal and Federal entities seeking borrow. Louisiana Department of Environmental Quality (LDEQ) regulates both point and nonpoint source pollution. Many of the proposed borrow areas are uplands with associated drainage features.

4.7.2 Discussion of Impacts

Future Conditions with No Action

All Reaches

There would be no direct, indirect or cumulative impacts to water quality as a result of not constructing the levee lifts. The existing levee would continue to be operated and maintained into the future.

Borrow Locations

The borrow areas are existing operating businesses in business to sell dirt. The sites are actively utilized by private individuals, non-Federal and Federal entities seeking borrow and heavily impacted. Best management practices are utilized during the clearing and excavation of borrow materials. Silt fencing and hay bales are utilized around the perimeter of the borrow areas to control runoff. To make optimal use of available material, excavation occurs at one end of the borrow area and is continuous across the width of the areas to the required borrow depths, to provide surface drainage

to the low side of the borrow pit as excavation proceeds. Excavation for semi-compacted fill is not permitted in water nor is excavated material scraped, dragged, or otherwise moved through water. Occasionally, borrow areas may need to be drained with the use of a sump pump.

Future Conditions with Proposed Action

All reaches

Work within waterbodies is not part of the proposed actions. Earth-moving activities during construction disturb soils and might create water quality effects in the event of uncontrolled runoff and poor sediment control practices during construction. However, constructing the levee lifts, with best management practices in place during construction, would be expected to limit effects on water quality in area waterways. Any direct and indirect impacts on water quality in adjacent waterways such as Hero Canal would be temporary and minor, and minimized using best management practices. Cumulative effects on any waterbody would be negligible.

Borrow Locations

Impacts to water quality would be the same as those indicated in the no action alternative. Disturbance of water quality would be temporary and confined to the borrow pit.

4.8 Cultural Resources

4.8.1 Existing Conditions

The proposed action would have no impacts on historic or cultural resources. The Section 106 process for the proposed undertakings has been completed, as detailed below. However, if any previously unidentified cultural resources are determined to exist within the proposed project boundaries, either prior to or during construction, then no work shall proceed in the area containing these cultural resources until a CEMVN archaeologist has been notified and consultation with the SHPO and Indian Tribes has been completed.

IER #13 – WBV-09.a, WBV-12

The project areas have been examined and coordinated for cultural resources. This occurred for IER#13 and again for Wells et al. (2010). Site 16PL169 was located within the WBV-09.a project footprint, but this site was determined not eligible for the National Register of Historic Places before the initial construction began. No other cultural resources were recorded, or suspected to exist undetected, within the current project area. No impacts to cultural resources are expected as result of this project.

In our initial letter sent to the State Historic Preservation Officer (SHPO) and Indian Tribes dated January 26, 2009, the CEMVN provided project documentation, evaluated cultural resources in the alternative 1 alignment, and found that the proposed action

would have no impact on significant cultural resources. The SHPO, Choctaw Nation of Oklahoma and the Alabama Coushatta Tribe of Texas concurred with our "no historic properties affected" finding in letters dated February 18, 2009, February 5, 2009 and February 24, 2009 respectively. No other Indian Tribes responded to our first request for comment. In a second letter sent to SHPO and Indian Tribes dated February 17, 2009, the CEMVN evaluated the potential for cultural resources in newly expanded portions of the alternative 1 alignment and again found that the proposed action would have no impact on cultural resources. The SHPO and the Quapaw Tribe of Oklahoma concurred with our second "no historic properties affected" finding in letters dated March 30, 2009 and February 18, 2009 respectively. No other Indian Tribes responded to our second request for comments.

IER #14 – WBV-14e.2, WBV-14b.2, WBV-14c.2

The proposed action would be restricted to the existing project right of way, which was subjected to ground disturbance with the construction of WBV-14. This project area has been coordinated for cultural resources by IER #15 and the cultural resources surveys referenced therein. The project area is most recently discussed for cultural resources in Wells et al. (2010; State Report 22-3560). No historic resources are recorded within the current project areas, and no known historic resources will be affected by this project.

On December 12, 2007 and response January 23, 2008, CEMVN coordinated a "no historic properties affected" finding with the SHPO. CEMVN received a response of agreement to that conclusion from the Choctaw Nation of Oklahoma and from the Chitimacha Tribe of Louisiana, on December 26, 2007 and December 27, 2007 respectively.

IER #15 – WBV-15a.2, WBV-18.2

The proposed action would be restricted to the existing project right of way, which was subjected to ground disturbance with the construction of WBV-15 and WBV-18. This project area has been coordinated for cultural resources by IER #15 and the cultural resources surveys referenced therein. The project area is most recently discussed for cultural resources in Wells et al. (2010; State Report 22-3560). No historic resources are recorded within the current project areas, and no known historic resources will be affected by this project. On November 1, 2007 and response December 11, 2007, CEMVN coordinated a "no historic properties affected" finding with the SHPO. No responses from Tribes were received.

Borrow Locations

The 3C Riverside Borrow Area

The proposed action would be restricted to previously approved and/or utilized borrow areas and would have no impacts on historic or cultural resources. 3C Riverside Phase 1 and 3C Riverside Phase 2 are located within the APE for IER #23, and 3C Riverside Phase 3 is located within the APE for IER #32. The Section 106 process for the proposed undertaking was completed in 2008.

Please refer to Final IERs #23 and #32 for a detailed discussion of historic and cultural resources. Phase 1 cultural resources investigations of 3C Riverside Phase 1 and Phase 2 did not identify any cultural resources (Lackowicz 2007). Phase I cultural resources investigations of 3C Riverside Phase 3 (Handley et al. 2008) did not identify any significant cultural resources. One historic archaeological site (16SC85, Locus A-01 and C-01) and one historic structure (3C-HSS-01) were recommended ineligible for inclusion on the NRHP.

A “no historic properties affected” finding was coordinated on October 24, 2007, for 3C Riverside Phase 1 and Phase 2, and a “no adverse effect” finding was coordinated on August 18, 2008, for 3C Riverside Phase 3, with the SHPO, 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, Quapaw Tribe of Oklahoma, Seminole Nation of Oklahoma, Seminole Tribe of Florida, and the Tunica-Biloxi Tribe of Louisiana. The SHPO and the Choctaw Nation of Oklahoma concurred with the effect finding for 3C Riverside Phase 1 and Phase 2 in letters dated December 6, 2007, and November 30, 2007, respectively. In a letter dated September 8, 2008, the SHPO agreed with the recommendations presented in the management summary (Handley et al. 2008). In a letter dated August 27, 2008, the Seminole Tribe of Florida requested a copy of the management summary, which was provided on September 16, 2008. The Alabama-Coushatta Tribe of Texas, Seminole Tribe of Florida and the Choctaw Nation of Oklahoma concurred with the effect finding in letters dated September 10, 2008, October 20, 2009, and December 16, 2009, respectively. No additional responses were received.

Willow Bend Borrow Area

The proposed action would be restricted to previously approved and/or utilized borrow areas and would have no impacts on historic or cultural resources with the implementation of a 290-foot buffer zone around site 16SJB15. Willow Bend Phase I is located within the APE for IER #26, and Willow Bend Phase II is located within the APE for IER #29. The Section 106 process for the proposed undertaking was completed in 2008.

Please refer to Final IERs #26 and #29 for a detailed discussion of historic and cultural resources. A reconnaissance investigation of the Willow Bend Phase I borrow area completed in 2008 (Rawls and Smith 2008) updated an earlier Phase I cultural resources investigation (McIntire 1979). Three historic archaeological sites (16SJB14, 16SJB15, and 16SJB65) and an isolated find were identified within the boundaries of the Willow Bend property. Site 16SJB14 was considered “potentially” eligible for listing in the NRHP, but Phase II investigations of the sugar mill (Martin et al. 2008) exhausted the property’s archaeological data potential, and it is not considered to be eligible for listing in the NRHP. Site 16SJB15 is of undetermined NRHP eligibility, and the implementation of a 290-foot buffer zone that incorporates a 3:1 slope will avoid impacts

to the site (Thorne 2008). Site 16SJB65 is located outside of the APE. The isolated historic find is not eligible for listing in the NRHP.

A “no historic properties affected” finding was coordinated on February 22, 2008, for Willow Bend Phase I, and on September 26, 2008, for Willow Bend Phase II with the SHPO, 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, Quapaw Tribe of Oklahoma, Seminole Nation of Oklahoma, Seminole Tribe of Florida, and the Tunica-Biloxi Tribe of Louisiana. In a letter dated March 6, 2008, the SHPO concurred with the finding of “no historic properties affected” for Willow Bend Phase I. The Choctaw Nation of Oklahoma concurred with the effect finding in a letter dated March 5, 2008. In a letter dated September 25, 2008, the Alabama-Coushatta Tribe of Texas concurred that there would be “no significant effect on cultural resources.” In a letter dated October 22, 2008, the SHPO concurred with the finding of “no historic properties affected” for Willow Bend Phase II provided that a buffer zone be placed around site 16SJB15. Existence of the 290 foot buffer was verified in a site visit by a MVN archaeologist during May of 2010. The Caddo Nation of Oklahoma concurred with the effect finding in an email dated October 1, 2008. In a letter dated October 8, 2008, the Seminole Nation of Oklahoma notified the Corps that the Tribe had no interest in the borrow area, but that the Tribe would like to reserve the right to participate in future consultation should resources of significance to the Tribe be identified. No additional responses were received.

River Birch Phase 1, Phase 2

The proposed action would be restricted to previously approved and/or utilized borrow areas and would have no impacts on historic or cultural resources. River Birch Phase 1 and Phase 2 are located within the APE for IER #19. The Section 106 process for the proposed undertaking was completed in 2006.

Please refer to Final IER #19 for a discussion of historic and cultural resources. A literature review completed in 2002 did not identify any significant cultural resources within the APE.

SHPO determinations of “no historic properties affected” are dated March 21, 2002, and December 11, 2006, in response to letters from the contractor dated February 21, 2002, and November 16, 2006, respectively. A SHPO determination of “no historic properties affected” is dated September 6, 2006, in response to a letter from CEMVN dated August 1, 2006. On December 14, 2006, CEMVN confirmed with the SHPO that River Birch Phase 1 and Phase 2 were previously disturbed borrow sources and that no historic properties would be affected.

South Kenner Road

The proposed action would be restricted to previously approved and/or utilized borrow areas and would have no impacts on historic or cultural resources. Please refer to Final IER #26 for a discussion of historic and cultural resources. Phase I cultural resources

investigations of South Kenner Road did not identify any cultural resources (Eberwine 2008).

A “no historic properties affected” finding was coordinated on April 11, 2008, with the SHPO, 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, Quapaw Tribe of Oklahoma, Seminole Nation of Oklahoma, Seminole Tribe of Florida, and the Tunica-Biloxi Tribe of Louisiana. In a letter dated May 5, 2008, the SHPO concurred with the findings of the management summary (Eberwine 2008). In a letter dated April 28, 2008, the Choctaw Nation of Oklahoma determined that there would be no adverse effect on any historic properties in the APE. In an email dated April 21, 2008, the Mississippi Band of Choctaw Indians indicated that the Tribe had no concerns. No additional responses were received. In a letter dated September 25, 2008, the Alabama-Coushatta Tribe of Texas concurred that there would be “no significant effect on cultural resources.”

In addition to the above coordination efforts, the draft and final CED Phase I was coordinated with the Alabama-Coushatta Tribe of Texas, Caddo Nation of Oklahoma, Chickasaw Nation, Chitimacha Tribe of Louisiana, Choctaw Nation of Oklahoma, Coushatta Tribe of Louisiana, Jena Band of Choctaw Indians, Mississippi Band of Choctaw Indians, Quapaw Tribe of Oklahoma, Seminole Nation of Oklahoma, Seminole Tribe of Florida, Tunica-Biloxi Tribe of Louisiana, LA Governor’s Office of Indian Affairs, and the United South and Eastern Tribes, Inc., in letters and emails dated February 5, 2013, and February 13, 2013, and May 22, 2013, and May 23, 2013.

River Birch Landfill Expansion

Please refer to Final IER #31 for a discussion of historic and cultural resources. A Phase 1 cultural resources study was completed of the borrow area, and no cultural resources were located. SHPO coordination of “no historic properties affected” was received on June 25, 2010. Coordination from the Alabama Coushatta Tribe of Texas for “no historic properties affected” was received on May 28, 2010.

Citrus Lands (Woodland South)

Please refer to Final IER #32 for a discussion of historic and cultural resources. A Phase I cultural resources survey of the proposed Citrus Lands contractor furnished borrow area was conducted of these lands and recorded three new cultural loci associated with Woodland Plantation (16PL157). Two of these cultural resources loci were determined not to be eligible for the National Register. Previously recorded site 16PL153 is located at the edge of this property and on the border of the proposed Plaquemines Dirt and Clay borrow pit. This site initially had a 100 meter (328 feet) buffer zone established to protect it from damages during excavation of the proposed borrow property (coordination referenced below), but in 2012 Phase II investigations

were coordinated with the SHPO to find this site ineligible for the National Register of Historic Places, and the need for a protective buffer was removed.

A Letter of Coordination for use of the Citrus Lands borrow area was received from SHPO on May 8, 2009. Subsequently, in a letter dated September 11, 2012 the SHPO agreed with findings that site 16PL153 was not eligible for the NRHP and that a protective buffer area was not necessary. Letters of coordination were sent to federally recognized Tribes and a response was received from the Choctaw Nation of Oklahoma on July 23, 2009. No other responses from federal recognized tribes were received

Idlewild 1

Please refer to Final IER #32 for a discussion of historic and cultural resources. A Phase I cultural resources survey was undertaken on the proposed Idlewild Stage 1 contractor-furnished borrow area. The area includes three loci associated with Sarah Plantation (16PL170) that are not eligible for inclusion on the National Register of Historic Places. A Letter of Coordination for use of the Idlewild 1 borrow area was received from SHPO on May 14, 2009. Letters of coordination were sent to federally recognized Tribes and a response was received from the Alabama Coushatta on July 16, 2009, the Caddo of Oklahoma on June 19, 2009, and the Seminole Tribe of Florida on July 24, 2009.. No other responses from federal recognized tribes were received

Myrtle Grove

Please refer to Final IER 23 for a discussion of historic and cultural resources. A Reconnaissance Survey of the proposed Myrtle Grove borrow area was undertaken in 2007. Coordination for use of the Myrtle Grove borrow area was completed with SHPO in a letter dated December 9, 2006. Letters of coordination were sent to federally recognized Tribes on November 16, 2007 and no responses were received.

Plaquemines Dirt and Clay

Please refer to Final IER #32 for a discussion of historic and cultural resources. A Phase I cultural resources investigation was undertaken of the proposed Plaquemine Dirt & Clay contractor-furnished borrow area, and located three cultural resources loci associated with the Woodland Plantation (site 16PL157). These loci were determined to not be eligible for the National Register. Previously recorded site 16PL153 is located at the edge of this property and on the border of the proposed Citrus Lands borrow pit. This site initially had a 100 meter (328 feet) buffer zone established to protect it from damages during excavation of the proposed borrow property (coordination referenced below), but in 2012 Phase II investigations were coordinated with the SHPO to find this site ineligible for the National Register of Historic Places, and the need for a protective buffer was removed.

A Letter of Coordination for use of the Citrus Lands borrow area was received from SHPO on April 23, 2008. Subsequently, in a letter dated September 11, 2012 the SHPO agreed with findings that site 16PL153 was not eligible for the NRHP and that a protective buffer area was not necessary. Letters of coordination were sent to federally

recognized Tribes and a response was received from the Chitimacha Tribe of Louisiana on April 9, 2008 and the Choctaw Nation of Oklahoma on April 3, 2008. No other responses from federal recognized tribes were received.

4.8.2 Discussion of Impacts

Future Conditions with No Action

IER #13 – WBV-09.a, WBV-12

Without implementation of the proposed action this reach would not be modified. Routine maintenance of the existing levee would have no effect on cultural resources. There would be no direct, indirect or cumulative impacts from taking no action.

IER #14 – WBV-14e.2, WBV-14b.2, WBV-14c.2

Without implementation of the proposed action, this reach would not be modified. Routine maintenance of the existing levee would have no effect on cultural resources. There would be no direct, indirect or cumulative impacts from taking no action.

IER #15 – WBV-15a.2, WBV-18.2

Without implementation of the proposed action, this reach would not be modified. Routine maintenance of the existing levee would have no effect on cultural resources. There would be no direct, indirect or cumulative impacts from taking no action.

Borrow Locations

Without implementation of the proposed action, no further excavation from the borrow source would occur as a result of the proposed action. No undiscovered cultural resources could potentially be impacted by excavations for the proposed action. It is anticipated that there would be no direct, indirect or cumulative impacts from taking no action.

Future Conditions with Proposed Action

IER #13 – WBV-09.a, WBV-12

With implementation of the proposed action, no additional footprint of these reaches would be modified. No historic resources are known to exist or suspected within the work area, and no historic properties would be affected by the proposed action.

IER #14 – WBV-14e.2, WBV-14b.2, WBV-14c.2

With implementation of the proposed action, no additional footprint of these reaches would be modified. No historic resources are known to exist or suspected within the work area, and no historic properties would be affected by the proposed action.

IER #15 – WBV-15a.2, WBV-18.2

With implementation of the proposed action, no additional footprint of these reaches would be modified. No historic resources are known to exist or suspected within the work area, and no historic properties would be affected by the proposed action.

Borrow Locations

With implementation of the proposed action, borrow material would be removed from the borrow locations. Any undiscovered cultural resources could be impacted by borrow activities. Cultural resources surveys have been conducted within the borrow locations and any identified potentially significant cultural resources have been avoided or mitigated. No impacts to cultural resources are anticipated as a result of the proposed action.

4.9 Recreation

4.9.1 Existing Conditions

All reaches

Three major recreational areas of significance on the West Bank are the Lake Cataouatche, Lake Salvador complex (which includes the Salvador Wildlife Management Area), the Jean Lafitte National Historical Park and Preserve and the Bayou Segnette State Park. Recreational activities in the area mainly consist of water-oriented sports such as fishing and boating, but also include hiking, camping, picnicking, photography, and hunting.

The Jean Lafitte National Historical Park and Preserve occupies a core area of approximately 8,600 acres south and west of WBV 14b.2 and 14c.2. This area includes four major management zones: the natural zone, the cultural resource zone, the park development zone, and the other use zone. The park's authorizing legislation designated an 11,400 acre park protection zone north of the core area that was indicated to help preserve the core area's natural values. The park development zone consists of a day use parking area, various canoe launching areas and hiking trails.

Bayou Segnette State Park is a 580-acre facility located adjacent to Bayou Segnette and along the West Bank Expressway, just northeast of WBV 15a.2, on the protected side of the WBV levee system.

Hero Canal and the GIWW are used infrequently for recreational fishing, boating, water skiing, crabbing and swimming. A community park in Oakville provides a ball field, a playground, a covered picnic area, and a basketball court. Both sides of Hero Canal near LA 23 are dedicated to industrial and heavy commercial activities that do not invite public access, but it is possible to walk on the WBV-12 levee from the floodgate west to the GIWW. A dirt boat launch that appears to be accessible to the public is located on the north side of the canal at the levee toe near the midpoint of the WBV-12 levee reach. Bank fishing in this area is possible.

Borrow Locations

No recreational facilities are located within or accessed through the borrow areas. The Myrtle Grove Marina is adjacent to the Woodland South and Plaquemines Dirt and Clay Borrow Sites.

4.9.2 Discussion of Impacts

Future Conditions with No Action

All Reaches and Borrow Locations

Under the no action alternative, the WBV levee lifts would not occur. No direct, indirect or cumulative impacts would occur to recreational uses or facilities in the project area from this alternative. Routine maintenance would continue causing negligible interference with recreational activities in the vicinity of the WBV project area. Borrow operations would continue at the various sites.

Future Conditions with Proposed Action

WBV-09.a, WBV-12, Plaquemines Borrow Locations

Work for the proposed action alternative would be confined to the existing levee right-of-way and would not directly impact recreational facilities, which are far enough from the work areas to avoid noise impacts. Walking on the levee reaches would be prohibited temporarily during construction and access for bank fishing might be limited. Increases in traffic during construction may indirectly affect access to recreational activities, but the effect would be minor and temporary. Cumulative impacts from construction might be noticeable to individuals who use the levees for walking or access to bank fishing, but park, field, and trail users would only be affected if a major event generating a lot of traffic were held at the same time that construction traffic is on the roads. Myrtle Grove Marina users would likely not notice a difference in activity levels from borrow operations at Plaquemines Dirt and Clay or Woodland South.

WBV-14e.2, WBV-14b.2, WBV-14c.2, WBV-15a.2, WBV-18.2

Under the proposed action, the levee lifts would be constructed within the existing ROW and there would be no direct impacts on any of the recreational sites near the project area. However, there may be temporary congestion of traffic corridors in the vicinity of the activity during the construction phase. Additionally, noise from construction activities could cause minimal impact to recreational use within the Jean Lafitte National Historical Park and Preserve. The conditions would restore to normal after the construction activity is completed. There would be no indirect impacts to recreational resources in this reach.

Jefferson, St. Charles, St. John the Baptist Borrow Locations

These sites are actively utilized by private individuals, non-Federal and Federal entities seeking borrow and heavily impacted. In some cases, depending on how the end site is left, the habitat may be suitable to support some recreational activities (e.g. wildlife viewing and fishing). These benefits are expected to be minimal and sites would remain private, restricting their recreational value to the public. Therefore, there would be no direct, indirect or cumulative impacts to recreational resources in the region.

4.10 Aesthetics

4.10.1 Existing Conditions

WBV-09.a, WBV-12

Visually, the project area exhibits a natural landscape altered by scattered development. Views from the western end of the WBV-12 reach towards the south extend across the Hero Canal to the marshlands beyond. These views are the least disturbed by human activities and wildlife can be seen in the distance. The roadways on the north side of the levee are lined with trees interrupted by views of commercial driveways and overhead electric utility poles and lines.

At the eastern end of the WBV-12 reach, development is more apparent with less vegetation to mask the visual clutter of utility lines, debris piles, along with industrial fencing, structures, and equipment. The new floodwall and marine vessels are visible in the canal and on its banks. Inside the floodwall, looking south across Hero Canal, the dominant feature is the landfill; however, views of the forested swamps to the southwest from atop the WBV-09.a reach are attractive and undisturbed.

The community of Oakville borders LA 23, which is a typical highway corridor with relatively low visual appeal. The other three viewsheds from Oakville are buffered somewhat by surrounding trees. Commercial and industrial areas can be seen through the trees to the north and the WBV-09.a levee can be seen in the distance to the south. With its low relief and maintained vegetation, the levee is aesthetically unobtrusive. The most pleasant view from Oakville is to the west, across the ballfields in the community park with its backdrop of thick forest, which shields the neighborhood from viewing the landfill, pump station, and commercial activities around Hero Canal.

WBV-14e.2, WBV-14b.2, WBV-14c.2

Visually, the floodside project area is characterized by wetlands and freshwater marsh, occasionally interspersed with natural ridges and man-made levees in an area of low relief. Construction of channels through the wetlands and marsh to enhance navigation and mineral extraction has resulted in spoil banks that are not naturally found within the project area. The marsh and wooded wetlands comprise a mixed bottomland hardwoods/cypress swamp dominated by a canopy of bald cypress and tupelo gum trees. Other dominant vegetation generally consists of black willow, red maple,

buttonbush, palmetto, and wax myrtle. The protected side of these reaches is residential, with the exception of 14e.2, which is wooded on both the flood and protected sides.

WBV-15a.2, WBV-18.2

Visually, the project area's landscape is characterized by flood protection measures, which include an earthen berm levee and previous borrow areas for levee building material. The existing earthen berm levee is long, monotonous and its appearance is unnatural. The levee dominates a landscape where the focus on manmade structures is strengthened by vegetation along the linear canals that surround the levee. This focus is enhanced by the strong textual contrast of the turf that blankets the levee and the vegetation surrounding it. Construction of borrow areas adjacent to the earthen berm levee has also resulted in canals whose geometric lines and forms are not naturally found within the project area.

Borrow Locations

The Willow Bend, 3C Riverside, and River Birch Borrow areas are existing borrow pits with limited aesthetic value as compared to the rural and undeveloped landscapes surrounding them. The visual resources within the Willow Bend area include relatively uninterrupted, rural, open landscape consisting of managed agricultural lands, interspersed with rows of trees serving as windbreaks between agricultural fields. This agricultural landscape is visually interrupted by the existing borrow pit operations. However, this visual disturbance is more than 1,500 feet from the closest public road (River Road), minimizing the visual impact of the operation from the public viewshed.

Visual resources within the 3C Riverside Borrow areas are similar to the Willow Bend area, as some of the surrounding viewshed includes agricultural fields. However, in addition to the visual disruption of the borrow pits, the 3C Riverside viewshed also includes more residential and industrial development, further interrupting the rural open landscape features.

Visual resources within the River Birch Borrow areas contain similar land use patterns (i.e., former- or presently-cultivated land or existing borrow areas) in the immediate and adjacent areas and are visually remote and inaccessible. Generally, the sites lack distinct qualities to make them visually significant.

All the borrow areas in Plaquemines Parish are active. Before borrow operations began Citrus Lands Borrow Area (now Woodland South), Idlewild 1, Myrtle Grove, and Plaquemines Dirt and Clay formerly consisted of pasturelands and/or citrus groves on flat terrain. The trees and surface vegetation have been cleared and several of the excavated borrow cells have converted to open water habitat. The water quality within the cells is degraded and not supportive of much wildlife; otherwise, the borrow area, as seen from the highway, have a look of plowed fields and agricultural ponds, not inconsistent with the surrounding flat and open landscapes.

4.10.2 Discussion of Impacts

Future Conditions with No Action

All Reaches

Under the no action alternative, the proposed action would not be constructed. Visual resources would not change from existing conditions.

Borrow Locations

All of the proposed borrow sites are actively utilized by private individuals, non-Federal and Federal entities seeking borrow and are visually unappealing. No change to aesthetic values from the no action alternative would be expected.

Future Conditions with Proposed Action

All Reaches

The visual attributes of the project areas would be temporarily impacted by construction activities at the project site and by transport activities needed to move equipment and materials to and from the site. The levees would be similar in design and scale to the existing conditions and therefore permanent impacts would be negligible. Turf grass would be re-established on the levees after construction, and the appearance of the levees would remain similar to the existing conditions.

Borrow Locations

These sites are actively utilized by private individuals, non-Federal and Federal entities seeking borrow and are visually unappealing. Impacts to aesthetic values would not differ from those described for the no action alternative. The borrow areas would continue to be utilized until depleted, but the visual aspects of these sites would not change significantly from current conditions.

4.11 Noise Quality

4.11.1 Existing Conditions

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 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 the USEPA 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 the USEPA as a level below which there is no adverse impact (USEPA, 1974).

Noise levels occurring at night generally produce a greater annoyance than do the same levels occurring during the day. It is generally agreed that people perceive intrusive noise at night as being 10 dBA louder than the same level of noise during the day. This perception is largely because background environmental sound levels at night in most areas are also about 10 dBA lower than those during the day.

Noise levels surrounding the project areas are variable depending on the time of day and climatic conditions. Land use on the protected side of WBV 14b.2 and 14c.2 is primarily single-family residential, whereas the other reaches are primarily natural landscapes, with small residential communities on the protected side of the Plaquemines WBV reaches.

The U.S. Federal Transit Administration (FTA) has established noise impact criteria founded on well-documented research on community reaction to noise based on change in noise exposure using a sliding scale (USFTA, 1995). The FTA Noise Impact Criteria groups noise sensitive land uses into the following three categories:

- Category 1: Buildings or parks where quiet is an essential element of their purpose,
- Category 2: Residences and buildings where people normally sleep (e.g., residences, hospitals, and hotels with high nighttime sensitivity), and
- Category 3: Institutional buildings with primarily daytime and evening use (e.g., schools, libraries, and churches).

Lands adjacent to WBV 14b.2, 14c.2, 09.a and 12 contain both Category 1 and 2 lands, whereas the other reaches discussed in this EA are dominated by Category 1 lands. The borrow pits include Category 1 and Category 2 properties.

4.11.2 Discussion of Impacts

Future Conditions with No Action

All reaches

Noise impacts would be similar to those under existing conditions because there would be no direct or indirect impacts from construction equipment. Future maintenance activities could result in a slight increase in noise levels from equipment and activities

associated with maintenance activities but any increase in noise levels is anticipated to be temporary.

Borrow Locations

These sites are actively utilized by private individuals, non-Federal and Federal entities seeking borrow. Noise levels would be expected to be similar to existing conditions.

Future Conditions with the Proposed Action

All reaches

Noise along the levee right-of-way would increase due to the temporary operation of equipment and vehicles used in the construction the WBV levee lifts. While noise impacts may cause a temporary inconvenience to residents and facilities in the immediate area, noise levels associated with construction activities would be temporary and monitored to ensure acceptable standards are maintained.

Table 7 describes noise emission levels for construction equipment that would be expected to be used during the proposed construction activities. As can be seen from this table, the anticipated noise levels at 50 foot range from 76 dBA to 83 dBA based on data from the Federal Highway Administration ([FHWA] (FHWA, 2009). All construction is anticipated during daytime hours.

Table 7. Weighted (dBA) Sound Levels of Construction Equipment and Modeled Attenuation at Various Distances*

Noise Source	50 ft	100 ft	200 ft	500 ft	1,000 ft
Dump Truck	76	70	64	56	50
Compactor/Roller	83	77	71	63	57
Excavator	81	75	69	61	55
*dBA at 50 ft is a measured noise emission. The 100 ft to 1,000 ft results are modeled estimates. Source: FHWA (2009), Highway Construction Noise Handbook.					

After completion of the proposed action, noise levels would be expected to return to pre-action levels. Future maintenance activities could result in a slight temporary increase in noise levels from maintenance equipment such as mowers, but would be the same as the currently existing conditions.

Borrow Locations

Noise levels would be expected to be at the same levels as they are during the no action alternative as these proposed borrow sites are existing, operating borrow pits.

5.0 CUMULATIVE IMPACTS

The Council on Environmental Quality's ("CEQ") regulations (40 CFR 1500-1508) implementing the procedural provisions of the National Environmental Policy Act ("NEPA") of 1969, as amended (42 U.S.C. 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."

Maintaining the WBV reaches at the 100-year level of risk reduction would contribute to the reduction of risk to life and physical and environmental damage. Significant flooding often results in contamination of drinking water supplies, dispersion of HTRW, and dispersion of large quantities of solid waste that require clean up and disposal. Experience has shown that vast quantities of debris (e.g., homes, vehicles, mobile homes, etc.) and sediment must be collected and hauled away after a flooding event. Hauling the collected debris to a local municipal landfill requires significant transportation and involves large quantities of solid waste that fill available landfill space. Providing the 100-year level of risk reduction significantly reduces the probability that such environmental consequences from flooding would occur.

Additional levee lifts are proposed for other levee reaches within the LPV basin (in Orleans, Jefferson and St. Charles Parishes) & WBV basin (Reach WBV 16.2), as well as potentially on the Mississippi River Levee in Plaquemines Parish (MRL 6.1).

The work on the WBV reaches discussed in this EA, combined with work on the additional reaches in Orleans, Jefferson, St. Charles and Plaquemines Parish, could impact similar wildlife species. However, the displacement of wildlife from this turf grass habitat would be temporary during the construction period, and the displaced individuals likely would return following project completion. Secondly, this habitat is similar to that which covers extensive areas in the New Orleans region, such as residential lawns and parks and is not expected to exceed the carrying capacity of this adjacent habitat, so cumulative impacts to wildlife are expected to be minimal. Lastly, the reaches discussed in this EA are not in close enough proximity to the majority of the other reasonably foreseeable levee lifts, so they are not likely impact the same local populations of wildlife utilizing the levees in those other levee lifts.

The WBV reaches discussed in this EA, when considered along with the additional levee lifts in Orleans, Jefferson, St. Charles and Plaquemines, could contribute to cumulative impacts on transportation on major roads such as Interstate 10. However, this cumulative impact would be short term and is not considered significant given the existing high traffic volumes present on these major roads.

If one or more of the levee lift projects in Jefferson, Orleans, St. Charles or Plaquemines Parishes used the same borrow pit at the same time as the WBV reaches, local roads in the immediate vicinity of the borrow pit would see a cumulative impact of a further reduction in level of service or traffic congestion. This cumulative impact would be temporary and would return to pre-project conditions once the hauling of material for the levee lifts is complete.

The limited temporal and quantitative contribution of emissions from the WBV reaches levee lift to cumulative air emissions from other area sources such as vehicles and other potential levee lifts in Jefferson, Orleans, St. Charles or Plaquemines Parishes would not be expected to alter the attainment status of these parishes.

Borrow material has been utilized by the CEMVN for the construction of the HSDRRS and other projects in southeastern Louisiana. Over 17,319,700 cubic yards of borrow material is estimated to have been obtained for the HSDRRS construction effort. Approximately 1.5 million truck trips are estimated to have been necessary to deliver the quantity of material presented in Table 6. In addition, an estimated 814 barge trips delivered some of the material, mainly rock.

These borrow sites previously approved by numerous IER's would likely be the source of borrow material needed to perform levee lifts and maintenance for at least 50 years into the future. Levee improvements throughout the LPV and WBV projects would require substantial amounts of borrow material.

Other projects of the CEMVN, such as Larose to Golden Meadows, Plaquemines NOV/NFL, maintenance of the Mississippi River levees and other civil works projects would require suitable borrow material. State and local levee and floodwall construction efforts will require borrow material as well. The Mississippi River and Tributaries Projects would utilize borrow material for levee repairs, replacements, lifts, and berms. The construction and operation of the borrow areas has resulted in and would continue to add to the long-term cumulative effects on transportation.

6.0 COORDINATION AND PUBLIC INVOLVEMENT

A 15-day Public Notice was published in the Baton Rouge and New Orleans Advocate beginning May 24, 2016 and ending on June 8, 2016. The public notice and comment are located in Appendix B. Below is a summary of the comment received:

- Louisiana Department of Wildlife and Fisheries: LDWF does not object to the proposed project provided that adequate erosion/sediment control measures are implemented to insure that no sediments or other activity related debris are allowed to enter adjacent wetlands or waters.

LDWF also stated that their database indicates the presence of bird nesting colonies within one mile of the proposed project. Therefore, if work will

commence during nesting season, a field visit must be conducted within two weeks of the start of construction to determine if nesting colonies are present.

For colonies containing nesting wading birds (i.e. herons, egrets, night-herons, ibis, roseate spoonbills, anhingas, and/or cormorants), all project activities occurring within 300 meters of an active nesting colony should be restricted to the non-nesting period (i.e. September 1 through February 15).

For colonies containing nesting gulls, terns, and/or black skimmers, all project activity occurring within 400 meters (700 meters for brown pelicans) of an active nesting colony should be restricted to the non-nesting period (i.e. September 16 through April 1).

The requester would abide by these and all requirements laid forth in the comment letter from LDWF (Appendix B).

7.0 MITIGATION

No activities have been identified during the preparation of this EA that would require mitigation.

8.0 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. A 15-day public notice of the Requester's proposed action closed on June 8, 2016. The LDWF provided comments as indicated above. Environmental compliance is achieved upon conclusion of the 15-day public notice and approval of the associated Finding of No Significant Impact.

Executive Order (E.O.) 11988 Floodplain Management

This EO deals with minimizing or avoiding adverse impacts associated with the base floodplain unless there are no practicable alternatives. It also involves giving public notice of proposed actions that may affect the base floodplain. The proposed action would not accelerate development of the floodplain as conditions conducive for development were established when the area was initially levied and forced drainage was initiated in the middle 1960's.

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 parishes which are 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

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 states the IER #13, IER #14 and #15 approved projects do not violate established effluent limitations and water quality standards. State Water Quality Certification JP 080213-04 for IER #14 and JP 080213-05 for IER #15 were issued on March 4, 2008. State Water Quality Certification 090128-01 for IER #13 was issued on March 6, 2009. This proposed action would not impact waters of the U.S. and therefore no further coordination is necessary. The proposed borrow sites would not impact waters of the U.S. and therefore no further coordination is necessary.

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 connection with IER #13, CEMVN received a consistency determination (C200900082) on March 13, 2009. In connection with IER #14 and #15, CEMVN received a consistency determination (C20080048 and C20080049) on March 10, 2008. In connection with the requesters' preferred alternative, Coastal use permits were received on the following dates:

Table 8. Levee Reach CUPs

Levee Reach	CUP #	Date
WBV 09a	P20150969	22 October 2015
WBV 12	P20151291	11 February 2016
WBV 14b.2	P20160093	29 February 2016
WBV 14c.2	P20160043	4 February 2016
WBV 14e.2	P20160042	28 January 2016
WBV 15a.2	P20160069	1 March 2016
WBV 18.2	P20160090	4 February 2016

Each proposed borrow site was issued a CUP from Louisiana Department of Natural Resources (Appendix B). Since the latest CUP was issued, the borrow sites have been active with no change to scope or described activity and therefore no further coordination is required.

Table 9. Borrow Site CUPs

Proposed Borrow Site	LDNR LCRP Consistency Permit Number
Woodland South	P20080865
Idlewild 1	P20090188
Myrtle Grove	P20121542
Plaquemines Dirt & Clay	P20090144
3C Riverside 1	P20070558
3C Riverside 2	P20070558
3C Riverside 3	P20090069
Willow Bend 1	P20080242
Willow Bend 2	P20080242
River Birch Phase I	P20030454
River Birch Phase II	P20061802
South Kenner Road	P20071264
River Birch Landfill Expansion	P20070851

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. By letters dated 23 November 2015 and 31 January 2016, USFWS stated that the proposed project is not an activity that would affect a federally listed threatened or endangered species; nor is there proposed or designated critical habitat present within Jefferson or Plaquemines Parish (Appendix B). The borrow activities each received concurrence that proposed borrow activities would not affect any listed species on the dates listed in Table 5 (Appendix B).

Migratory Bird Treaty Act

If construction will commence during nesting season, a field visit will be conducted within two weeks of the start of construction to determine if nesting colonies are present. For colonies containing nesting wading birds (i.e. herons, egrets, night-herons, ibis, roseate spoonbills, anhingas, and/or cormorants), all project activities occurring within 300 meters of an active nesting colony would be restricted to the non-nesting period (i.e. September 1 through February 15). For colonies containing nesting gulls, terns, and/or black skimmers, all project activity occurring within 400 meters (700 meters for brown pelicans) of an active nesting colony would be restricted to the non-nesting period (i.e. September 16 through April 1). Coordination by the requester with the U.S. Fish and Wildlife Service may result in a reduction or relaxing of these no-work distances depending on the species of birds found nesting at the work site and specific site conditions.

Hazardous, Toxic and Radioactive Waste (HTRW)

The USACE is obligated under Engineer Regulation (ER) 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 proposed actions. ER

1165-2-132 identifies that HTRW policy is to avoid the use of project funds for HTRW removal and remediation activities.

ASTM E 1527-05 Phase 1 Environmental Site Assessments (ESA), HTRW 15-01 were completed for the project areas. A copy of the Phase 1 ESAs will be maintained on file at the U.S. Army Corps of Engineers, New Orleans District Headquarters. The probability of encountering HTRW for the proposed actions is low based on the initial site assessments. If a recognized environmental condition is identified in relation to the project site, the U.S. Army Corps of Engineers, New Orleans District would take the necessary measures to avoid the recognized environmental condition so that the probability of encountering or disturbing HTRW would continue to be low.

Woodland South (formerly Citrus Lands) – The most recent update to the Phase I ESA for this borrow site was completed on 17 July 2015. The site is active.

Idlewild 1 – The most recent update to the Phase I ESA for this borrow site was completed on 07 August 2015. No RECs were identified. The site is active.

Myrtle Grove – The Phase I ESA for this borrow site was completed on 17 December 2012. No RECs were identified. The site has been actively used since its approval in 2012 and therefore an update to the ESA is not required.

Plaquemines Dirt & Clay – The most recent update to the Phase I ESA for this borrow site was completed on 25 February 2011. No RECs were identified. The site has been actively used since its approval in 2010 and therefore further updates to the ESA is not required.

3C Riverside Phase 1, 2, 3 - A Phase I ESA for the 3C Riverside property was completed 26 January 1999. This investigation concluded that previous Recognized Environmental Conditions (RECs) on the property have been cleaned and removed. No current RECs were found. A second ESA was completed for 3C Riverside Phase 2 on 23 July 2007. No RECs were found. A third Phase I ESA was completed for 3C Riverside Phase 3 on 24 July 2008. No RECs were found. The site has been actively used since its approval in 2008 and therefore an update to the ESA is not required.

Willow Bend Phase I and II – The Phase I ESA for Willow Bend Phase I was completed on January 2008. The Phase I ESA for Willow Bend Phase II was completed 12 February 2009. No RECs were identified on either site. The site has been actively used since its approval in 2009 and therefore an update to the ESA is not required.

South Kenner Road – The Phase I ESA for South Kenner Road was completed on 09 August 2007. No RECs were identified. The site has been actively used since its approval in 2008 and therefore an update to the ESA is not required.

River Birch Phase 1, 2, Landfill Expansion – The Phase I ESA was completed on 10 August 2006. The site was revisited on 13 September 2007. CEMVN determined no significant changes in the area since the Phase I ESA was completed. A Phase I ESA for River Birch Phase 2 was completed on 10 August 2006. The site was revisited on 13 September 2007. A Phase I ESA for River Birch Landfill Expansion was completed on 27 October 2010. No RECs were identified on any of the sites. All of these borrow sites have been actively used since its approval and therefore an update to the ESA is not required.

National Historic Preservation Act of 1966

The project areas have been examined and coordinated for cultural resources with the Louisiana State Historic Preservation Officer (SHPO). This occurred via letters referenced within IER for these reaches, and again with submission of a Final Cultural Resources Report for the WBV HSDRRS footprints (Wells et al. 2010 State Report 22-3560). No significant or potentially significant cultural resources exist within the current project footprint, and no special actions must be taken to avoid a known cultural resource. No impacts to cultural resources are expected as result of this project.

9.0 CONCLUSION

The requesters' preferred alternative consists of an increase in levee height for seven reaches within the WBV HSDRRS, in both Jefferson and Plaquemines Parish. All clearing and embankment placement would take place within existing, previously cleared ROW.

Due to subsidence and consolidation since the actions carried out as described in IER #13, #14 and #15, the current levee elevations are at or below the required elevation to provide the designed risk reduction afforded by the HSDRRS. If the proposed levee lifts are not performed, the levees would continue to settle and would not provide the required level of risk reduction to meet Federal Emergency Management Agency (FEMA) accreditation requirements.

The requester intends to raise these levee sections to elevations ranging from 13 to 15.5 feet NAVD88 prior to CEMVN's placement of armoring material on the levee section to increase resiliency of the levee. The increase in elevation, ranging from 0.5 to 4.5 feet NAVD88, would not have an adverse impact on the performance of the project and would extend the period of performance prior to the next required levee lift, which is anticipated to be in the next 5-7 years.

CEMVN has assessed the environmental impacts of the proposed action on relevant resources. The project as proposed would have only temporary short term impacts on air quality from heavy equipment operations during construction; short term temporary impacts to adjacent areas from construction noise; temporary transportation impacts

from transporting of construction equipment and hauling of borrow materials and scrap materials to/from the construction site.

10.0 PREPARED BY

This EA #549 and the associated FONSI were prepared using information provided by the Southeast Louisiana Flood Protection Authority-West and the Plaquemines Parish Government.

11.0 LITERATURE CITED

- Barras, J., Beville, S., Britsch, D., Hartley, S., Hawes, S., Johnston, J., Kemp, P., Kinler, Q., Martucci, A., Porthouse, J., Reed, D., Roy, K., Sapkota, S., and Suhayda, J. 2003. Historical and projected coastal Louisiana land changes: 1978-2050: USGS Open File Report 03-334, 39 p. (Revised January 2004).
- Boesch, D.F., M.N. Josselyn, A.J. Mehta, J.T. Morris, W.K. Nuttle, C.A. Simenstad, D.J.P. Swift. 1994. Scientific Assessment of coastal wetland loss, restoration and management in Louisiana. *Journal of Coastal Research*, Special Issue No. 20. 84 pg.
- Conant, R., and J. T. Collins. 1998. *A Field Guide to Reptiles & Amphibians*. Eastern and Central North America. Third Edition, Expanded. Houghton Mifflin Company, Boston. 616 pp.
- Eberwine, J. 2008. Phase I Cultural Resources Survey and Archeological Inventory of the 97.6 ha (241.1 ac) River Birch Landfill Borrow Area, Jefferson Parish, Louisiana. Management Summary prepared for River Birch Inc./Highway 90 LLC, Westwego, Louisiana. R. Christopher Goodwin & Associates. New Orleans, Louisiana.
- Federal Highway Administration (FHWA). 2009. "FHWA Highway Construction Noise Handbook." Accessed June 2009 from <http://www.fhwa.dot.gov/environment/noise/handbook/index.htm>
- Felley, J.D. 1992. Medium-low gradient streams of the Gulf Coastal Plain. P. 233-269. *In* C.T. Hackney, S.M. Adams, and W.H. Martin (ed.) *Biodiversity of the southeastern United States: Aquatic communities*. John Wiley & Sons, New York.
- Handly, M. L. Blair, B. Price, and C. Lee. 2008. Phase I Cultural Resources Investigation, 3C Riverside Properties, LLC – Phase III Project, Killona, St. Charles Parish, Louisiana. URS. Baton Rouge, Louisiana.

- Intergovernmental Panel on Climate Change (IPCC). 2001. IPCC Third Assessment Report: Climate Change 2001. Accessed January 2016 from www.ipcc.ch/ipccreports/assessments-reports.htm
- Lackowicz, R. 2007. Phase I Cultural Resources Field Survey and Archaeological Inventory of a 105 ha (260 ac) Parcel near Killona in St. Charles Parish, Louisiana. R. Christopher Goodwin and Associates, Inc. New Orleans, Louisiana.
- Louisiana Department of Transportation and Development (LADOTD). 2006. Functional Systems, based on 2000 Census. A map published by LADOTD, Office of Planning and Programming.
- Louisiana Department of Transportation and Development (LADOTD), 2014, Estimated Annual Average Daily Traffic Counts. Accessed November 2015 from <http://wwwapps.dotd.la.gov/engineering/tatv/>
- Louisiana Coastal Wetlands Conservation and Restoration Task Force Breaux Act Website (LACOAST). 1997. "Wetland Functions and Values." Accessed May 2009 from <http://www.lacoast.gov/education/functions.htm>
- Martin, T.O., M.K. Shuman, C. Kuttruff, and M.G. Wiedenfeld. 2008. Phase II National Register Testing of 16SJB14, The Shell Road Site, St. John the Baptist Parish, Louisiana. Surveys Unlimited Research Associates, Inc. Baton Rouge.
- McIntire, W.G. 1978. Archaeological/Historical: Shell Oil's Proposed Willow Bend Chemical Complex Study. Report on file at the Louisiana Division of Archaeology, Baton Rouge, Louisiana.
- Rawls, J. and R. Smith. 2008. Reconnaissance Survey of the Willow Bend Property, St. John the Baptist Parish, Louisiana. Earth Search, Inc. New Orleans, Louisiana.
- Thorne, R.M. 2007. A Phase I Cultural Resources Assessment of Two Proposed Mining Sites in Sections 7, 13, and 14, T9S, R16W, Hancock County, Mississippi. Pickering Environmental Consultants, Inc. Jackson, Mississippi.
- U.S. Army Corps of Engineers (USACE). 1987. Corps of Engineers Wetland Delineation Manual. Technical Report Y-87-1. Accessed at <http://el.erdc.usace.army.mil/elpubs/pdf/wlman87.pdf>
- U.S. Department of Agriculture (USDA), Soil Conservation Service, 1981. Soil Survey of Jefferson Parish, Louisiana
- U.S. Department of Agriculture (USDA). 2001. Rita Series. Accessed October 12, 2015 at https://soilseries.sc.egov.usda.gov/OSD_Docs/R/RITA.html

- U.S. Department of Agriculture (USDA). 2004. Allemands Series. Accessed October 12, 2015 at https://soilseries.sc.egov.usda.gov/OSD_Docs/A/ALLEMANDS.html
- U.S. Department of Agriculture (USDA). 2013a. Barbary Series. Accessed October 12, 2015 at https://soilseries.sc.egov.usda.gov/OSD_Docs/B/BARBARY.html
- U.S. Department of Agriculture (USDA). 2013b. Cancienne Series. Accessed October 12, 2015 at https://soilseries.sc.egov.usda.gov/OSD_Docs/C/CANCIENNE.html
- U.S. Department of Agriculture (USDA). 2013c. Carville Series. Accessed October 12, 2015 at https://soilseries.sc.egov.usda.gov/OSD_Docs/C/CARVILLE.html
- U.S. Department of Agriculture (USDA). 2013d. Schriever Series. Accessed October 12, 2015 at https://soilseries.sc.egov.usda.gov/OSD_Docs/S/SCHRIEVER.html
- U.S. Environmental Protection Agency (USEPA). 1974. "Information on Levels of Environmental to Protect Public Health and Welfare with an Adequate Margin of Safety." Accessed June 2009 at [Http://www.nonoise.org/library/levels74/levels74.htm](http://www.nonoise.org/library/levels74/levels74.htm)
- U.S. Federal Transit Administration (USFTA). 1995. Transit Noise and Vibration Impact Assessment. FTA Report DOT-T-95-16, April 1995.
- U.S. Fish and Wildlife Service (USFWS). 2015. Habitat Descriptions. Accessed December 2014 at http://www.fws.gov/lafayette/pdf/PDC_Habitat_Descriptions.pdf
- Wells, D.C., S.A. Hahn, and T.H.G. Hahn III. 2010. Cultural Resources Survey and Testing of Items Related to the West Bank and Vicinity Hurricane Protection Levees, Jefferson, Orleans, Plaquemines, and St. Charles Parishes, Louisiana. Coastal Environments, Inc. Baton Rouge.
- Wigley, T.B., and R.A. Lancia. 1998. Wildlife communities. In: Messina, M.G.; Conner, W.H., eds. Southern forested wetlands: ecology and management. Boca Raton, FL: CRC Press LLC: 205-236