

FINAL INDIVIDUAL ENVIRONMENTAL REPORT
CONTRACTOR FURNISHED BORROW MATERIAL #4
ORLEANS, ST. JOHN THE BAPTIST, AND ST. TAMMANY
PARISHES, LOUISIANA

IER #29



**US Army Corps
of Engineers®**

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1. INTRODUCTION

The U.S. Army Corps of Engineers (USACE) Mississippi Valley Division, New Orleans District (CEMVN), has prepared this Individual Environmental Report #29 (IER #29) to evaluate the potential impacts associated with the possible excavation of three proposed contractor-furnished borrow areas. The proposed borrow areas are located in southeastern Louisiana (figure 1). The term “borrow” is used in the fields of construction and engineering to describe material that is dug in one location for use at another location. The proposed contractor-furnished borrow areas could be used for construction of the Hurricane and Storm Damage Risk Reduction System (HSDRRS).

IER #29 has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and the Council on Environmental Quality’s (CEQ) Regulations (40 CFR §1500-1508), and the USACE Engineering Regulation (ER) 200-2-2, Environmental Quality, Procedures for Implementing the NEPA. The execution of an IER, in lieu of a traditional Environmental Assessment (EA) or Environmental Impact Statement (EIS), is provided for in ER 200-2-2 (33 CFR §230) and pursuant to the CEQ NEPA Implementation Regulations (40 CFR §1506.11).

The CEMVN implemented Alternative Arrangements on 13 March 2007, under the provisions of the Council on Environmental Quality Regulations for Implementing the NEPA (40 CFR §1506.11). The Alternative Arrangements were developed and implemented in the aftermath of Hurricanes Katrina and Rita in order to evaluate environmental impacts arising from HSDRRS projects in a timely manner, utilizing the NEPA emergency procedures found at 40 CFR 1506.11. The Alternative Arrangements were published on 13 March 2007 in 72 FR 11337, and are available for public review at www.nolaenvironmental.gov.

The Alternative Arrangements were implemented in order to expeditiously complete environmental analysis for any changes to the authorized HSDRRS, formerly known as the Hurricane Protection System (HPS), authorized and funded by Congress and the Administration. The proposed contractor-furnished borrow areas discussed in this IER are located in southeastern Louisiana and are part of the Federal effort to rebuild and complete construction of the HSDRRS in the New Orleans metropolitan area as a result of Hurricanes Katrina and Rita in 2005.

The draft IER was distributed for a 30-day public review and comment period on 22 July 2009. Comments were received during the public review and comment period from Federal resource agencies, an Indian tribe, and citizens (appendix B). A public meeting requested by a stakeholder was held on 13 August 2009; a summary of this meeting is included in appendix B. The CEMVN District Commander reviewed public and agency comments, and interagency correspondence. The District Commander’s decision on the proposed action is documented in the IER Decision Record.

Three potential contractor-furnished borrow areas investigated by the CEMVN Borrow Project Delivery Team (PDT) are discussed in this IER. The goal of the Borrow PDT is to locate suitable borrow material needed for improvements to the HSDRRS. The CEMVN’s engineers currently estimate that over 60,000,000 cubic yards of suitable material are required to complete HSDRRS levee and floodwall projects. Due to the importance of providing safety to the citizens of the New Orleans metropolitan area, and the amount of borrow needed to supply levee projects for the HSDRRS, multiple borrow IERs are being prepared as additional potential borrow sites are evaluated.

1.1 PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the proposed action is to locate suitable borrow material for use in the construction of the HSDRRS. The completed HSDRRS would lower the risk of harm to citizens and damage to infrastructure during a storm event. The safety of people in the region is the highest priority of the CEMVN. The proposed action results from the need to provide a total of over 60,000,000 cubic yards of suitable clay for the HSDRRS projects that include the construction and improvement to hurricane risk reduction levees and floodwalls in southeastern Louisiana. Raising existing levee elevations and completing new levees requires the excavation of material from borrow areas to ensure that the HSDRRS is constructed to the authorized levels of flood and storm damage risk reduction for local communities.

The term “100-year level of risk reduction,” as it is used throughout this document, refers to a level of risk reduction, which reduces the risk of hurricane surge and wave driven flooding that the New Orleans metropolitan area has a 1 percent chance of experiencing each year.

1.2 AUTHORITY FOR THE PROPOSED ACTION

The authority for the proposed action was provided as part of a number of hurricane and storm damage risk reduction projects spanning southeastern Louisiana, including the Lake Pontchartrain and Vicinity (LPV) Project and the West Bank and Vicinity (WBV) Project. Congress and the Administration granted a series of supplemental appropriation acts following Hurricanes Katrina and Rita in 2005 to repair and upgrade the project systems damaged by the storms. The supplemental appropriation acts gave additional authority to the USACE to construct all proposed HSDRRS projects.

The LPV project was authorized under the Flood Control Act of 1965 (Public Law [P.L.] 89-298, Title II, Section [Sec.] 204), which, as amended, authorized a “project for hurricane protection on Lake Pontchartrain, Louisiana ... substantially in accordance with the recommendations of the Chief of Engineers in House Document 231, Eighty-ninth Congress.” The original statutory authorization for the LPV Project was amended by the Water Resources Development Acts (WRDA) of 1974 (P.L. 93-251, Title I, Sec. 92), 1986 (P.L. 99-662, Title VIII, Sec. 805), 1990 (P.L. 101-640, Sec. 116), 1992 (P.L. 102-580, Sec. 102), 1996 (P.L. 104-303, Sec. 325), 1999 (P.L. 106-53, Sec. 324), and 2000 (P.L. 106-541, Sec. 432); and the Energy and Water Development Appropriations Acts of 1992 (P.L. 102-104, Title I, Construction, General), 1993 (P.L. 102-377, Title I, Construction, General), and 1994 (P.L. 103-126, Title I, Construction, General).

The Westwego to Harvey Canal Project was authorized by the WRDA of 1986 (P.L. 99-662, Sec. 401(b)). The WRDA of 1996 modified the project and added the Lake Cataouatche Project and the East of Harvey Canal Project (P.L. 104-303, Sec. 101(a)(17) & P.L. 104-303, 101(b)(11)). The WRDA of 1999 combined the three projects into one project under the West Bank and Vicinity Hurricane Protection Project (P.L. 106-53, Sec. 328).

The Department of Defense, Emergency Supplemental Appropriations to Address Hurricanes in the Gulf of Mexico, and Pandemic Influenza Act of 2006 (3rd Supplemental - P.L. 109-148, Chapter 3, Construction, and Flood Control and Coastal Emergencies) appropriated funds to accelerate the completion of the previously authorized project and to restore and repair the projects at full Federal expense. The Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery of 2006 (4th Supplemental - P.L. 109-234, Title II, Chapter 3,

Construction, and Flood Control and Coastal Emergencies) appropriated funds and added authority to raise levee heights where necessary, reinforce and replace floodwalls, and otherwise enhance the project to provide the levels of risk reduction necessary to achieve the certification required for participation in the National Flood Insurance Program. Additional Supplemental Appropriations include the U.S. Troop Readiness, Veterans' Care, Katrina Recovery, and Iraq Accountability Appropriations Act of 2007 (P.L. 110-28, Title IV, Chapter 3, Flood Control and Coastal Emergencies, section 4302) (5th Supplemental), and the 6th Supplemental (P.L. 110-252, Title III, Chapter 3, Construction).

1.3 PRIOR REPORTS

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

Lake Pontchartrain and Vicinity Project

- On 31 July 2009, the CEMVN signed a Decision Record for IER #28, entitled “Government-Furnished Borrow Material #4, Plaquemines, St. Bernard, and Jefferson Parishes, Louisiana.” The document was prepared to evaluate the potential impacts associated with approving government-furnished borrow areas for use in construction of the HSDRRS.
- On 30 June 2009, the CEMVN signed a Decision Record for IER #5, entitled “Lake Pontchartrain and Vicinity, Permanent Protection System for the Outfall Canals Project on 17th Street, Orleans Avenue, and London Avenue Canals, Jefferson and Orleans Parishes, Louisiana.” The document evaluates the potential impacts related to constructing permanent pumps on the 17th Street, Orleans Avenue, and London Avenue Canals to provide for 100-year level of risk reduction.
- On 29 June 2009, the CEMVN signed a Decision Record for IER Supplemental (IERS) #1, entitled “Lake Pontchartrain and Vicinity, LaBranche Wetlands Levee, St. Charles Parish, Louisiana.” The document evaluates the potential impacts related to modifications to actions approved in IER #1.
- On 25 June 2009, the CEMVN signed a Decision Record for IER #6, entitled “Lake Pontchartrain and Vicinity, New Orleans East, Citrus Lakefront Levee, Orleans Parish, Louisiana.” The document was prepared to evaluate the potential impacts associated with constructing improved levees on the south shore of Lake Pontchartrain in New Orleans East, Orleans Parish, Louisiana.
- On 23 June 2009, the CEMVN signed a Decision Record for IER #8, entitled “Lake Pontchartrain and Vicinity, Bayou Dupre Control Structure, St. Bernard Parish, Louisiana.” The document was prepared to evaluate the potential impacts associated with constructing a new flood control structure on Bayou Dupre.
- On 19 June 2009, the CEMVN signed a Decision Record for IER #7, entitled “Lake Pontchartrain and Vicinity, New Orleans East Lakefront to Michoud Canal, Orleans Parish, Louisiana.” The document evaluates the potential impacts associated with reconstructing levees, floodwalls, and floodgates around the Bayou Sauvage National Wildlife Refuge.

- On 26 May 2009, the CEMVN signed a Decision Record for IER #10, entitled “Lake Pontchartrain and Vicinity, Chalmette Loop Levee, St. Bernard Parish, Louisiana.” The document evaluates the impacts related to improving hurricane risk reduction structures in St. Bernard Parish, Louisiana.
- On 13 March 2009, the CEMVN signed a Decision Record for IER #4, entitled “Lake Pontchartrain and Vicinity, Orleans East Bank, New Orleans Lakefront Levee, West of Inner Harbor Navigation Canal to Eastbank of 17th Street Canal, Orleans Parish, Louisiana.” The document was prepared to evaluate the potential impacts associated with improving the Orleans lakefront hurricane risk reduction features.
- On 3 February 2009, the CEMVN signed a Decision Record on IER #25 entitled “Government-Furnished Borrow Material, Orleans, Plaquemines and Jefferson Parishes, Louisiana.” The document was prepared to evaluate the potential impacts associated with approving government-furnished borrow areas for use in construction of the HSDRRS.
- On 21 October 2008, the CEMVN signed a Decision Record on IER #11 Tier 2 Borgne entitled “Improved Protection on the Inner Harbor Navigation Canal, Tier 2 Borgne Orleans and St. Bernard Parishes, Louisiana.” The document was prepared to evaluate the potential impacts associated with constructing a surge barrier on Lake Borgne.
- On 20 October 2008, the CEMVN 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 as a result of excavating contractor-furnished borrow areas for use in construction of the HSDRRS.
- On 25 July 2008, the CEMVN signed a Decision Record on IER #3, entitled “Lake Pontchartrain and Vicinity, Lakefront Levee, Jefferson Parish, Louisiana.” The proposed action includes raising approximately nine and a half miles of earthen levees, completing upgrades to foreshore protection, replacing two floodgates, and completing fronting protection modifications to four existing pump stations in Jefferson Parish, Louisiana.
- On 18 July 2008, the CEMVN signed a Decision Record on IER #2, entitled “LPV, West Return Floodwall, Jefferson and St. Charles Parishes, Louisiana.” The proposed action includes replacing over 17,900 linear feet of floodwalls in Jefferson and St. Charles Parishes, Louisiana.
- On 9 June 2008, the CEMVN signed a Decision Record on IER #1, entitled “Lake Pontchartrain and Vicinity, La Branche Wetlands Levee, St. Charles Parish, Louisiana.” The proposed action includes raising approximately nine miles of earthen levees, replacing over 3,000 feet of floodwalls, rebuilding or modifying four drainage structures, closing one drainage structure, and modifying one railroad gate in St. Charles Parish, Louisiana.
- On 30 May 2008, the CEMVN signed a Decision Record on IER #22 entitled “Government-Furnished Borrow Material, Plaquemines and Jefferson Parishes, Louisiana.” The document was prepared to evaluate the potential impacts

associated with approving government-furnished borrow areas for use in construction of the HSDRRS.

- On 6 May 2008, the CEMVN 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 March 2008, the CEMVN signed a Decision Record on IER #11 (Tier 1) entitled "Improved Protection on the Inner Harbor Navigation Canal, Orleans and St. Bernard Parishes, Louisiana." The document was prepared to evaluate potential impacts associated with building navigable and structural barriers to prevent storm surge from entering the Inner Harbor Navigation Canal from Lake Pontchartrain and/or the Gulf Intracoastal Waterway-Mississippi River Gulf Outlet-Lake Borgne complex. Two Tier 2 documents discussing alignment alternatives and designs of the navigable and structural barriers, and the impacts associated with exact footprints, are being completed.
- On 21 February 2008, the CEMVN signed a Decision Record on IER #18 entitled “Government-Furnished Borrow Material, Jefferson, Orleans, Plaquemines, St. Charles, and St. Bernard Parishes, Louisiana.” The document was prepared to evaluate the potential impacts associated with approving government-furnished borrow areas for use in construction of the HSDRRS.
- On 14 February 2008, the CEMVN 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 approving contractor-furnished borrow areas for use in construction of the HSDRRS.
- In July 2006, the CEMVN signed a Finding of No Significant Impact (FONSI) on an EA #433 entitled, “USACE Response to Hurricanes Katrina & Rita in Louisiana.” The document was prepared to evaluate the potential impacts associated with the actions taken by the USACE as a result of Hurricanes Katrina and Rita.
- On 30 October 1998, the CEMVN signed a FONSI on EA #279 entitled “Lake Pontchartrain Lakefront, Breakwaters, Pump Stations 2 and 3.” The report evaluates the impacts associated with providing fronting protection for outfall canals and pump stations. It was determined that the action would not significantly impact resources in the immediate area.
- On 2 October 1998, the CEMVN signed a FONSI on EA #282 entitled “LPV, Jefferson Parish Lakefront Levee, Landside Runoff Control: Alternate Borrow.” The report investigates the impacts of obtaining borrow material from an urban area in Jefferson Parish. No significant impacts to resources in the immediate area were expected.
- On 2 July 1992, the CEMVN signed a FONSI on EA #169 entitled “LPV, Hurricane Protection Project, East Jefferson Parish Levee System, Jefferson Parish, Louisiana, Gap Closure.” The report addresses the construction of a

floodwall in Jefferson Parish to close a “gap” in the levee system. The area was previously leveed and under forced drainage, and it was determined that the action would not significantly impact the already disturbed area.

- On 22 February 1991, the CEMVN signed a FONSI on EA #164 entitled “LPV Hurricane Protection – Alternate Borrow Area for the St. Charles Parish Reach.” The report addresses the impacts associated with the use of borrow material from the Mississippi River on the left descending back in front of the Bonnet Carré Spillway Forebay for LPV construction.
- On 30 August 1990, the CEMVN signed a FONSI on EA #163 entitled “LPV Hurricane Protection – Alternate Borrow Area for Jefferson Parish Lakefront Levee, Reach III.” The report addresses the impacts associated with the use of a borrow area in Jefferson Parish for LPV construction.
- On 2 July 1991, the CEMVN signed a FONSI on EA #133 entitled “LPV Hurricane Protection – Alternate Borrow at Highway 433, Slidell, Louisiana.” The report addresses the impacts associated with the excavation of a borrow area in Slidell, Louisiana for LPV construction.
- On 12 September 1990, the CEMVN signed a FONSI on EA #105 entitled “LPV Hurricane Protection – South Point to Gulf Intracoastal Waterway, A. V. Keeler and Company Alternative Borrow Site.” The report addresses the impacts associated with the excavation of a borrow area in Slidell, Louisiana for LPV construction.
- On 12 March 1990, the CEMVN signed a FONSI on EA #102 entitled “LPV Hurricane Protection – 17th Street Canal Hurricane Protection.” The report addresses the use of alternative methods of providing flood protection for the 17th Street Outfall Canal in association with LPV activity. Impacts to resources were found to be minimal.
- On 4 August 1989, the CEMVN signed a FONSI on EA #89 entitled “LPV Hurricane Protection, High Level Plan - Alternate Borrow Site 1C-2B.” The report addresses the impacts associated with the excavation of a borrow area along Chef Menteur Highway, Orleans Parish for LPV construction. The material was used in the construction of a levee west of the Inner Harbor Navigation Canal.
- On 27 October 1988, the CEMVN signed a FONSI on EA #79 entitled “LPV Hurricane Protection – London Avenue Outfall Canal.” The report investigates the impacts of strengthening hurricane protection at an existing the London Avenue Outfall Canal.
- On 21 July 1988, the CEMVN signed a FONSI on EA #76 entitled “LPV Hurricane Protection – Orleans Avenue Outfall Canal.” The report investigates the impacts of strengthening hurricane protection at the Orleans Avenue Outfall Canal.
- On 26 February 1986, the CEMVN signed a FONSI on EA #52 entitled “LPV Hurricane Protection – Geohegan Canal.” The report addresses the impacts associated with the excavation of borrow material from an extension of the Geohegan Canal for LPV construction.

- Supplemental Information Report (SIR) #25 entitled “LPV Hurricane Protection – Chalmette Area Plan, Alternate Borrow Area 1C-2A” was signed by the CEMVN on 12 June 1987. The report addresses the use of an alternate contractor-furnished borrow area for LPV construction.
- SIR #27 entitled “LPV Hurricane Protection – Alternate Borrow Site for Chalmette Area Plan” was signed by the CEMVN on 12 June 1987. The report addresses the use of an alternate contractor-furnished borrow area for LPV construction.
- SIR #28 entitled “LPV Hurricane Protection – Alternate Borrow Site, Mayfield Pit” was signed by the CEMVN on 12 June 1987. The report addresses the use of an alternate contractor-furnished borrow area for LPV construction.
- SIR #29 entitled “LPV Hurricane Protection – South Point to GIWW Levee Enlargement” was signed by the CEMVN on 12 June 1987. The report discusses the impacts associated with the enlargement of the GIWW.
- SIR #30 entitled “LPV Hurricane Protection Project, Jefferson Lakefront Levee” was signed by the CEMVN on 7 October 1987. The report investigates impacts associated with changes in Jefferson Parish LPV levee design.
- SIR #17 entitled “LPV Hurricane Protection – New Orleans East Alternative Borrow, North of Chef Menteur Highway” was signed by the CEMVN on 30 April 1986. The report addresses the use of an alternate contractor-furnished borrow area for LPV construction.
- SIR #22 entitled “LPV Hurricane Protection – Use of 17th Street Pumping Station Material for LPHP Levee” was signed by the CEMVN on 5 August 1986. The report investigates the impacts of moving suitable borrow material from a levee at the 17th Street Canal in the construction of a stretch of levee from the Inner Harbor Navigation Canal to the London Avenue Canal.
- SIR #10 entitled “LPV Hurricane Protection, Bonnet Carré Spillway Borrow” was signed by the CEMVN on 3 September 1985. The report evaluates the impacts associated with using the Bonnet Carré Spillway as a borrow source for LPV construction, and found “no significant adverse effect on the human environment.”
- In December 1984, an SIR to complement the Supplement to final EIS on the LPV Hurricane Protection project was filed with the U.S. Environmental Protection Agency (USEPA).
- The final EIS for the LPV Hurricane Protection Project, dated August 1974. A Statement of Findings was signed by the CEMVN on 2 December 1974. Final Supplement I to the EIS, dated July 1984, was followed by a Record of Decision (ROD), signed by the CEMVN on 7 February 1985. Final Supplement II to the EIS, dated August 1994, was followed by a ROD signed by CEMVN on 3 November 1994.
- A report entitled “Flood Control, Mississippi River and Tributaries,” published as House Document No. 90, 70th Congress, 1st Session, submitted 18 December 1927, resulted in authorization of a project by the Flood Control Act of 1928. The project provided comprehensive flood control for the lower Mississippi Valley

below Cairo, Illinois. The Flood Control Act of 1944 authorized the USACE to construct, operate, and maintain water resources development projects. The Flood Control Acts have had an important impact on water and land resources in the proposed project area.

West Bank and Vicinity Project

- On 31 July 2009, the CEMVN signed a Decision Record for IER #28, entitled “Government-Furnished Borrow Material #4, Plaquemines, St. Bernard, and Jefferson Parishes, Louisiana.” The document was prepared to evaluate the potential impacts associated with approving government-furnished borrow areas for use in construction of the HSDRRS.
- On 12 June 2009, the CEMVN signed a Decision Record on IER #16, entitled “Western Tie-In, Jefferson and St. Charles Parishes, Louisiana.” The document describes the potential impacts associated with constructing a new levee to provide 100-year level of risk reduction for the project vicinity.
- On 18 February 2009, the CEMVN signed a Decision Record on IER #12, entitled "Gulf Intracoastal Waterway (GIWW), Harvey, and Algiers Levees and Floodwalls, Jefferson, Orleans, and Plaquemines Parishes, Louisiana." The document describes the potential impacts associated with construction of construct approximately 3 miles of levee and floodwall in the project vicinity.
- On 3 February 2009, the CEMVN signed a Decision Record on IER #25 entitled “Government-Furnished Borrow Material, Orleans, Plaquemines and Jefferson Parishes, Louisiana.” The document was prepared to evaluate the potential impacts associated with approving government-furnished borrow areas for use in construction of the HSDRRS.
- On 21 January 2009, the CEMVN signed a Decision Record on IER #17 entitled “Company Canal Floodwall, Jefferson Parish, Louisiana.” The document was prepared to evaluate the proposed construction and maintenance of the 100-year level of hurricane and storm damage risk reduction along the Company Canal from the Bayou Segnette State Park to the New Westwego Pumping Station.
- On 20 October 2008, the CEMVN 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 approving contractor-furnished borrow areas for use in construction of the HSDRRS.
- On 18 February 2009, the CEMVN signed a Decision Record on IER #12, entitled "Gulf Intracoastal Waterway (GIWW), Harvey, and Algiers Levees and Floodwalls, Jefferson, Orleans, and Plaquemines Parishes, Louisiana." The document describes the potential impacts associated with construction of construct approximately 3 miles of levee and floodwall in the project vicinity.
- On 26 August 2008, the CEMVN signed a Decision Record on IER #14, entitled “Westwego to Harvey, Levee Jefferson Parish, Louisiana.” The document was prepared to examine the potential environmental impacts associated with the proposed construction and maintenance of 100-year level of hurricane and storm damage risk reduction along the WBV, Westwego to Harvey Levee project area.

- On 12 June 2008, the CEMVN signed a Decision Record on IER #15, entitled “Lake Cataouatche Levee, Jefferson Parish, Louisiana.” The proposed action includes constructing a 100-year level of protection in the project area.
- On 30 May 2008, the CEMVN signed a Decision Record on IER #22 entitled “Government-Furnished Borrow Material, Plaquemines and Jefferson Parishes, Louisiana.” The document was prepared to evaluate the potential impacts associated with approving government-furnished borrow areas for use in construction of the HSDRRS.
- On 6 May 2008, the CEMVN 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 21 February 2008, the CEMVN signed a Decision Record on IER #18 entitled “Government-Furnished Borrow Material, Jefferson, Orleans, Plaquemines, St. Charles, and St. Bernard Parishes, Louisiana.” The document was prepared to evaluate the potential impacts associated with approving government-furnished borrow areas for use in construction of the HSDRRS.
- On 14 February 2008, the CEMVN 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 approving contractor-furnished borrow areas for use in construction of the HSDRRS.
- In July 2006, the CEMVN signed a FONSI on an EA #433 entitled, “USACE Response to Hurricanes Katrina & Rita in Louisiana.” The document was prepared to evaluate the potential impacts associated with the actions taken by the USACE as a result of Hurricanes Katrina and Rita.
- On 23 August 2005, the CEMVN signed a FONSI on EA #422 entitled “Mississippi River Levees – West Bank Gaps, Concrete Slope Pavement Borrow Area Designation, St. Charles and Jefferson Parishes, Louisiana.” The report investigates the impacts of obtaining borrow material from various areas in Louisiana.
- On 22 February 2005, the CEMVN signed a FONSI on EA #306A entitled “West Bank Hurricane Protection Project – East of the Harvey Canal, Floodwall Realignment and Change in Method of Sector Gate.” The report discusses the impacts related to the relocation of a proposed floodwall moved because of the aforementioned sector gate, as authorized by the LPV Project.
- On 5 May 2003, the CEMVN signed a FONSI on EA #337 entitled “Algiers Canal Alternative Borrow Site.”
- On 19 June-2003, the CEMVN signed a FONSI on EA #373 entitled “Lake Cataouatche Levee Enlargement.” The report discusses the impacts related to improvements to a levee from Bayou Segnette State Park to Lake Cataouatche.

- On 16 May 2002, the CEMVN signed a FONSI on EA #306 entitled “West Bank Hurricane Protection Project - Harvey Canal Sector Gate Site Relocation and Construction Method Change.” The report discusses the impacts related to the relocation of a proposed sector gate within the Harvey Canal, as authorized by the LPV Project.
- On 30 August 2000, the CEMVN signed a FONSI on EA #320 entitled “West Bank Hurricane Protection Features.” The report evaluates the impacts associated with borrow sources and construction options to complete the Westwego to Harvey Canal Hurricane Protection Project.
- On 18 August 1998, the CEMVN signed a FONSI on EA #258 entitled “Mississippi River Levee Maintenance - Plaquemines West Bank Second Lift, Fort Jackson Borrow Site.”
- The final EIS for the WBV, East of Harvey Canal, Hurricane Protection Project was completed in August 1994. A ROD was signed by the CEMVN in September 1998.
- The final EIS for the WBV, Lake Cataouatche, Hurricane Protection Project was completed. A ROD was signed by the CEMVN in September 1998.
- In December 1996, the USACE completed a post-authorization change study entitled, “Westwego to Harvey Canal, Louisiana Hurricane Protection Project Lake Cataouatche Area, EIS.” The study investigates the feasibility of providing hurricane surge protection to that portion of the west bank of the Mississippi River in Jefferson Parish between Bayou Segnette and the St. Charles Parish line. A Standard Project Hurricane (SPH) level of protection was recommended along the alignment followed by the existing non-Federal levee. The project was authorized by Section 101 (b) of the WRDA of 1996 (P. L. 104-303) subject to the completion of a final report of the Chief of Engineers, which was signed on 23 December 1996.
- On 12 January 1994, the CEMVN signed a FONSI on an EA #198 entitled, “West Bank of the Mississippi River in the Vicinity of New Orleans, Louisiana, Hurricane Protection Project, Westwego to Harvey Canal, Jefferson Parish, Louisiana, Proposed Alternate Borrow Sources and Construction Options.” The report evaluates the impacts associated with borrow sources and construction options to complete the Westwego to Harvey Canal Hurricane Protection Levee.
- In August 1994, the CEMVN completed a feasibility report entitled “WBV (East of the Harvey Canal).” The study investigates the feasibility of providing hurricane surge protection to that portion of the west bank of metropolitan New Orleans from the Harvey Canal eastwards to the Mississippi River. The final report recommends that the existing West Bank Hurricane Project, Jefferson Parish, Louisiana, authorized by the WRDA of 1986 (P.L. 99-662), approved November 17, 1986, be modified to provide additional hurricane protection east of the Harvey Canal. The report also recommends that the level of protection for the area east of the Algiers Canal deviate from the National Economic Development Plan’s level of protection and provide protection for the SPH. The Division Engineer’s Notice was issued on 1 September 1994. The Chief of Engineer’s report was issued on 1 May 1995. Preconstruction, engineering, and design was initiated in late 1994 and is continuing. The WRDA of 1996 authorized the project.

- On 20 March 1992, the CEMVN signed a FONSI on EA #165 entitled “Westwego to Harvey Canal Disposal Site.”
- In February 1992, the USACE completed a reconnaissance study entitled “West Bank Hurricane Protection, Lake Cataouatche, Louisiana.” The study investigated the feasibility of providing hurricane surge protection to that portion of the west bank of the Mississippi River in Jefferson Parish, between Bayou Segnette and the St. Charles Parish line. The study found a 100-year level of protection to be economically justified based on constructing a combination levee/sheetpile wall along the alignment followed by the existing non-Federal levee. Due to potential impacts to the Westwego to Harvey Canal project, the study is proceeding as a post-authorization change.
- On 3 June 1991, the CEMVN signed a FONSI on EA #136 entitled “West Bank Additional Borrow Site between Hwy 45 and Estelle PS.”
- On 15 March 1990, the CEMVN signed a FONSI on EA #121 entitled “West Bank Westwego to Harvey Changes to EIS.” The report addresses the impacts associated with the use of borrow material from Fort Jackson for LPV construction. The material was used for constructing the second life for the Plaquemines West Bank levee upgrade, as part of LPV construction.
- In December 1986, the USACE completed a Feasibility Report and EIS entitled, “West Bank of the Mississippi River in the Vicinity of New Orleans, La.” The report investigates the feasibility of providing hurricane surge protection to that portion of the west bank of the Mississippi River in Jefferson Parish between the Harvey Canal and Westwego, and down to the vicinity of Crown Point, Louisiana. The report recommends implementing a plan that would provide SPH level of protection to an area on the west bank between Westwego and the Harvey Canal north of Crown Point. The project was authorized by the WRDA of 1986 (P.L. 99-662). Construction of the project was initiated in early 1991.

1.4 INTEGRATION WITH OTHER IERS

In addition to evaluating proposed borrow sites in IERS, the CEMVN is preparing a draft Comprehensive Environmental Document (CED) that will describe all HSDRRS work completed and remaining to be constructed. The purpose of the draft CED is to document the work completed by the CEMVN on a system-wide scale. The draft CED will describe the integration of individual IERS into a systematic planning effort. Analysis of overall cumulative impacts, a finalized mitigation plan, and future operations and maintenance requirements will also be included. Additionally, the draft CED will contain updated information for any IER that had incomplete or unavailable data at the time it was available for public review.

The draft CED will be available for a 60-day public review period. The document will be posted on www.nolaenvironmental.gov, or can be requested by contacting the CEMVN. A notice of availability will be mailed/e-mailed to interested parties advising them of the availability of the draft CED for review. Additionally, a notice will be placed in national and local newspapers. Upon completion of the 60-day review period all comments will be compiled and appropriately addressed. Upon resolution of any comments received, a final CED will be prepared, signed by the District Commander, and made available to any stakeholders requesting a copy.

Compensatory mitigation for unavoidable impacts associated with this and other proposed HSDRRS projects will be documented in forthcoming mitigation IERs, which are being written concurrently with all other IERs. Mitigation will also be discussed in the CED.

1.5 PUBLIC CONCERNS

The CEMVN has provided numerous opportunities to the public to provide input and comments about the proposed HSDRRS work throughout the planning process through a number of outlets (i.e., public meetings; written and verbal comments; www.nolaenvironmental.gov). IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, and IER #28 discuss the impacts of borrow excavation related to the HSDRRS. These documents contain public comments regarding borrow issues (appendix B – all documents), and are available at www.nolaenvironmental.gov, or upon request.

The foremost public concern in the project area is reducing the risk of hurricane, storm, and flood damage for businesses and residences, and enhancing public safety during major storm events in the Greater New Orleans metropolitan area. Comments at public meetings indicated concern over the risk to current levees and floodwalls from overtopping from storm-induced tidal surges during major storm events, and the potential risk of levee or floodwall failure during a major storm event. A key concern of local officials is to increase public confidence in the HSDRRS so that the physical and economic recovery of the area can proceed. The scheduling of construction of the HSDRRS is also a concern. Local officials also want the public to be aware that the completed HSDRRS is not intended to invalidate evacuation measures.

Residents in the vicinity of proposed borrow areas have expressed concern over the potential or perceived impact on potential future development, land values, and public safety. Specifically, some residents of the Eastover subdivision in Orleans Parish, which is adjacent to the proposed Eastover Phase II borrow area discussed in this report, believe excavation of the proposed site would decrease the value of their homes; increase their homeowners insurance rates; impair the structural integrity of homes and foundations; increase the risk of flooding in the area; and adversely impact traffic, aesthetics, air quality, and noise quality in the area.

Some members of the public have stated that they would prefer that remaining land in coastal parishes either not be excavated, or should be developed as residential, commercial, or industrial areas. Members of the public have also said that they feel that borrow areas should be backfilled. Non-governmental organizations have commented on the importance of avoiding impacts to jurisdictional wetlands when looking for borrow sources. The CEMVN is currently avoiding impacts to all jurisdictional wetlands, as other reasonable alternatives are available (see section 2.1). Residents in the vicinity of proposed borrow areas are concerned about truck haulers causing traffic congestion and noise. The public is also concerned about safety issues during and after the borrow area is excavated. Finally, landowners are concerned about the USACE using their privately owned property as a source of borrow material and not being fairly compensated.

1.6 DATA GAPS AND UNCERTAINTIES

At the time of submission of this IER, geotechnical evaluations have not been completed for the proposed contractor-furnished borrow areas. Final selection and/or footprints of borrow areas could vary based on the results of these evaluations. Borrow area footprints would be decreased in the case of negative geotechnical findings; areas not included in this investigation would be discussed in subsequent IERs.

Transportation impacts and routes for the delivery of borrow material have not been fully determined, as it is currently uncertain to which construction sites each proposed contractor-furnished borrow area would provide material. Large quantities of material would be delivered to construction sites within the New Orleans metropolitan area. This could have localized short-term impacts to transportation corridors that cannot be quantified at this time. The CEMVN is completing a transportation study to determine potential impacts associated with the transporting of material to construction sites. This analysis will be discussed in the CED.

Cumulative noise impacts are not fully known at this time. Any additional noise impacts that have not been identified will be discussed in the CED. Once the impacts associated with the proposed sites described in this IER in addition to any additional currently unidentified noise and transportation impacts associated with all of the HSDRRS work are determined, an analysis will be discussed in the CED.

Details on environmental justice impacts from potential use of proposed borrow areas will be further analyzed when additional project planning data become available at the conclusion of small group neighborhood focus meetings. These details will be included in the CED.

The excavation of a contractor-furnished borrow areas is subject to compliance with local and state regulations or ordinances, including any local or state rules concerning backfilling excavated sites. It is the responsibility of the landowner to coordinate and secure appropriate permits from the local parish/county authority before starting any work on the property. Some unknown impacts due to backfilling activity may include traffic impacts, river dredging impacts, impacts to threatened and endangered species, stockpile/staging locations, sediment pipeline routes, and water quality impacts.

Air quality impacts from the excavation of the proposed contractor-furnished borrow areas are not fully known at this time, and additional or cumulative air impacts will be discussed in the CED.

Cumulative visual impacts from the excavation of the proposed contractor-furnished borrow areas are not fully known at this time. Additional or cumulative visual impacts will be discussed in the CED.

2. ALTERNATIVES

2.1 ALTERNATIVES DEVELOPMENT AND PRELIMINARY SCREENING CRITERIA

NEPA requires that in analyzing alternatives to a proposed action a Federal agency consider an alternative of “No Action.” Likewise, Section 73 of the WRDA of 1974 (P.L. 93-251) requires Federal agencies to give consideration to non-structural measures to reduce or prevent flood damage. This IER discusses the potential impacts associated with excavating three proposed contractor-furnished borrow areas, and as such there are no non-structural alternatives. Non-structural alternatives will be evaluated in the IERs discussing the construction of the HSDRRS levees, floodwalls, and structures.

The CEMVN is pursuing three avenues of obtaining the estimated amount of borrow material needed for construction of the HSDRRS. The three avenues being pursued by the CEMVN to obtain borrow material are government-furnished (the Government

acquires rights to property), pre-approved contractor-furnished (a CEMVN levee construction contractor works in partnership with a landowner to provide suitable borrow material from the landowner's property), and supply contract (a landowner or corporation delivers a pre-specified amount of suitable borrow material to a designated location for use by a CEMVN levee construction contractor). Two of the avenues being pursued (contractor furnished and supply contract) would allow a private individual(s) or corporation(s) to propose a site where borrow material could come from. It is possible that some of the government-furnished, contractor-furnished, and supply contract sources of borrow material may come from anywhere in the United States.

IER #18, IER #22, and IER #25 discuss approved government-furnished borrow alternatives. Approved contractor-furnished borrow areas are discussed in IER #19, IER #23, IER #26, and IER #28. IER #30 will discuss potential supply contract alternatives. This IER discusses potential contractor-furnished borrow areas. Additional borrow IERs will be prepared as future potential government-furnished, contractor-furnished, and supply contract borrow areas are identified.

The U.S. Fish and Wildlife Service (USFWS) supports the CEMVN's prioritization of selection for potential borrow areas in the following order: existing commercial areas, upland sources, previously disturbed/manipulated wetlands within a levee system, and low-quality wetlands outside a levee system (letter dated May 8, 2009, appendix D). The USFWS recommends that prior to utilizing borrow areas, every effort should be made to reduce impacts by using sheetpile and/or floodwalls to increase levee heights wherever feasible. The USFWS also recommends the following protocol be adopted and utilized to identify borrow sources in descending order of priority:

1. "Permitted commercial sources, authorized borrow sources for which environmental clearance and mitigation have been completed, or non-functional levees after newly constructed adjacent levees are providing equal protection.
2. Areas under forced drainage that are protected from flooding by levees, and that are:
 - a) non-forested (e.g., pastures, fallow fields, abandoned orchards, former urban areas and non-wetlands;
 - b) wetland forests dominated by exotic tree species (i.e., Chinese tallow) or non-forested wetlands (e.g., wetland pastures), excluding marshes;
 - c) disturbed wetlands (e.g., hydrologically altered, artificially impounded).
3. Areas that are outside a forced drainage system and levees, and that are:
 - a) non-forested (e.g., pastures, fallow fields, abandoned orchards, former urban areas) and non-wetlands;
 - b) wetland forests dominated by exotic tree species (i.e., Chinese tallow) or non-forested wetlands (e.g., wetland pastures), excluding marshes;
 - c) disturbed wetlands (e.g., hydrologically altered, artificially impounded)."

The USFWS is currently assisting the CEMVN in meeting this protocol.

2.2 DESCRIPTION OF THE ALTERNATIVES

Five alternatives were considered. These include the no action, the proposed action, use of government-furnished borrow material, and the use of borrow material from a supply contract.

No Action. Under the no action alternative, the proposed contractor-furnished borrow areas would not be used in connection with construction of the HSDRRS. The HSDRRS levee and floodwall projects would be built to authorized levels using government-furnished borrow areas and contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, and IER #28, or other sources yet to be identified. In IER #19, the 36.6-acre Eastover Phase I site was approved as a contractor-furnished borrow area. The Eastover Phase I site may be used as a contractor-furnished borrow area in the construction of the HSDRRS. The proposed Eastover Phase II site borders and surrounds the approved Eastover Phase I site (figure 5). In IER #26, the 64-acre Willow Bend Phase I site was approved as a contractor-furnished borrow area. The Willow Bend Phase I site may be used as a contractor-furnished borrow area in the construction of the HSDRRS. The proposed Willow Bend Phase II site borders and surrounds the approved Willow Bend Phase I site (figure 7).

Proposed Action. The proposed action consists of excavating the proposed Eastover Phase II, Tammany Holding, and Willow Bend Phase II contractor-furnished borrow areas, as discussed in section 2.3. If proposed sites are approved, a CEMVN levee contractor could select any of these sites for use in a contract for construction of the HSDRRS. If a levee contractor selected one of these proposed contractor-furnished borrow areas, he would work in partnership with the respective landowner to provide suitable borrow material from the selected borrow area.

Government-Furnished Borrow Material Alternative. The Government would acquire the rights to property, from which suitable borrow material could be used for construction of the HSDRRS. Government-furnished borrow alternatives are discussed in IER #18, IER #22, IER #25, and IER #28, and will be explored in future borrow IERs.

Contractor-Furnished Borrow Material Alternative. A CEMVN levee contractor would work in partnership with a landowner to obtain suitable pre-approved contractor-furnished borrow material from the landowner's property. Other contractor-furnished borrow alternatives are discussed in IER #19, IER #23, IER #26, and IER #28, and will be explored in future borrow IERs.

Supply Contract Borrow Material Alternative. The supply contract would allow a private individual(s) or corporation(s) to deliver a pre-specified amount of suitable borrow material from an area(s) anywhere in the United States. The individual or corporation would deliver the borrow material to a designated location for use by a CEMVN construction contractor. Supply contract alternatives will be discussed in IER #30.

2.3 PROPOSED ACTION

The proposed action (preferred alternative) consists of potentially excavating all suitable material from the proposed Eastover Phase II, Tammany Holding, Willow Bend Phase II contractor-furnished borrow areas for use in construction of the HSDRRS (figure 1). Material would be excavated by a CEMVN contractor who has made a financial arrangement with the contractor-furnished borrow site landowner. Once excavated and processed, the material would be transported to a HSDRRS construction site.

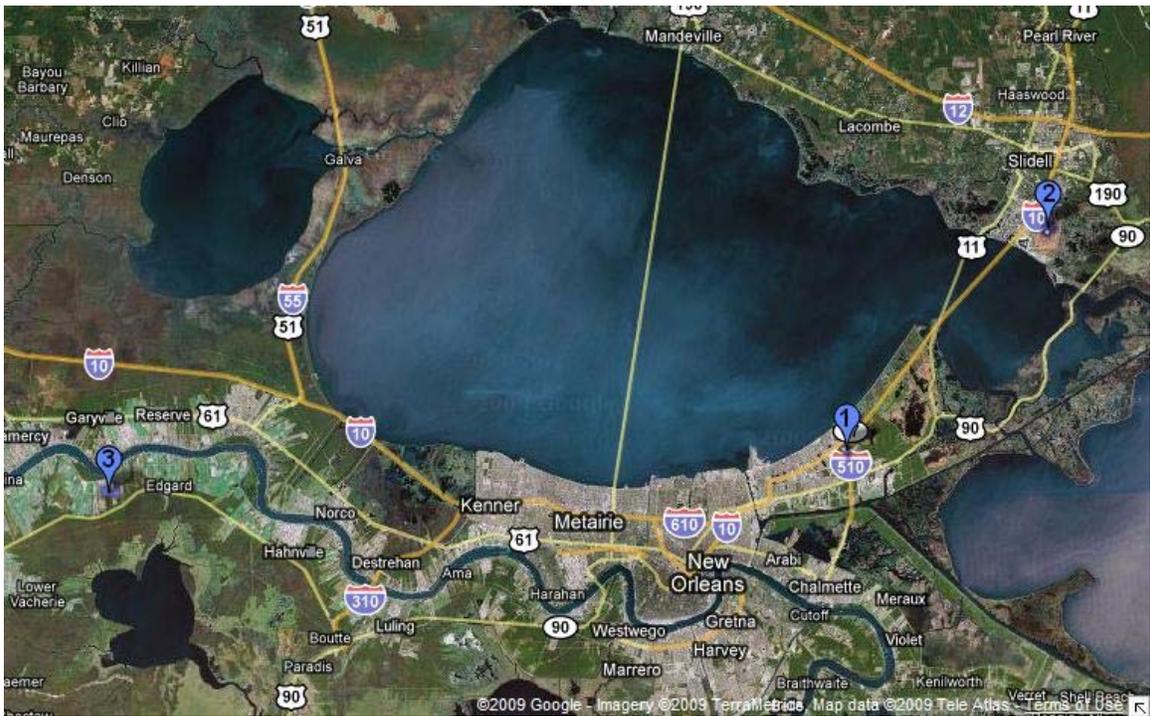


Figure 1: Proposed Borrow Areas
 1: Eastover Phase II / 2: Tammany Holding / 3: Willow Bend Phase II

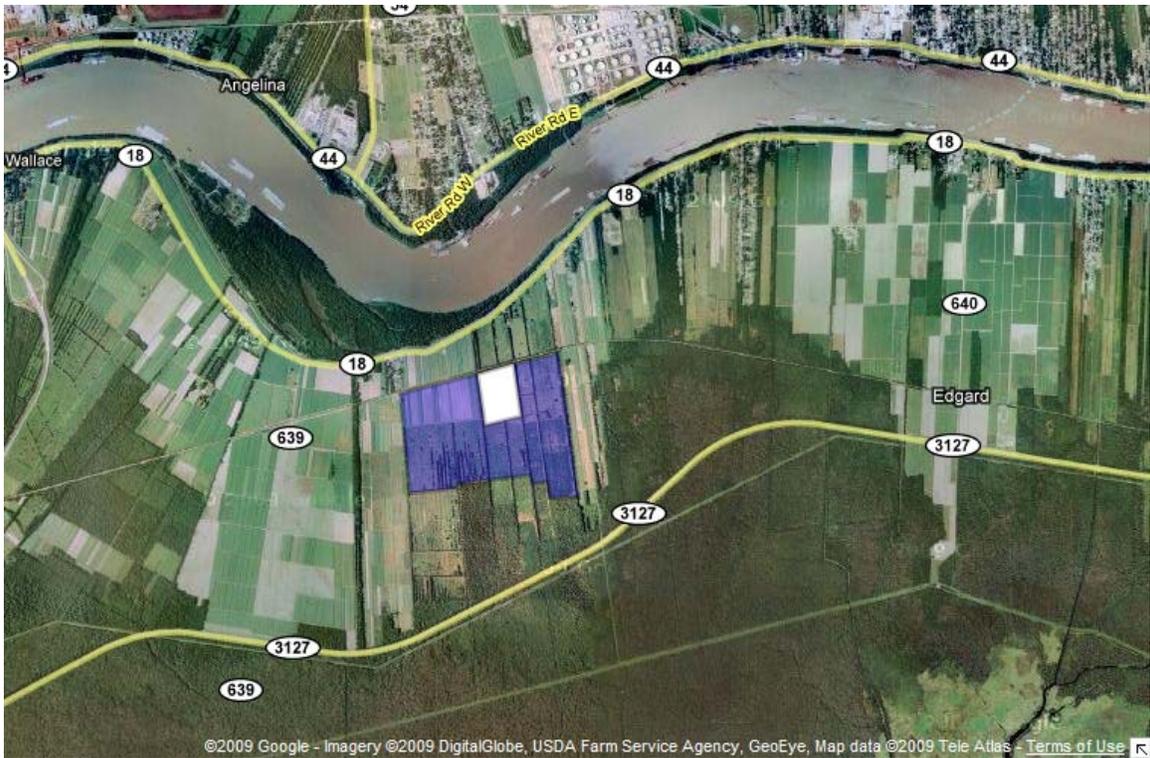


Figure 2: Area map of the proposed Willow Bend Phase II borrow area
 White area is the Willow Bend Phase I contractor-furnished site approved in IER #26.

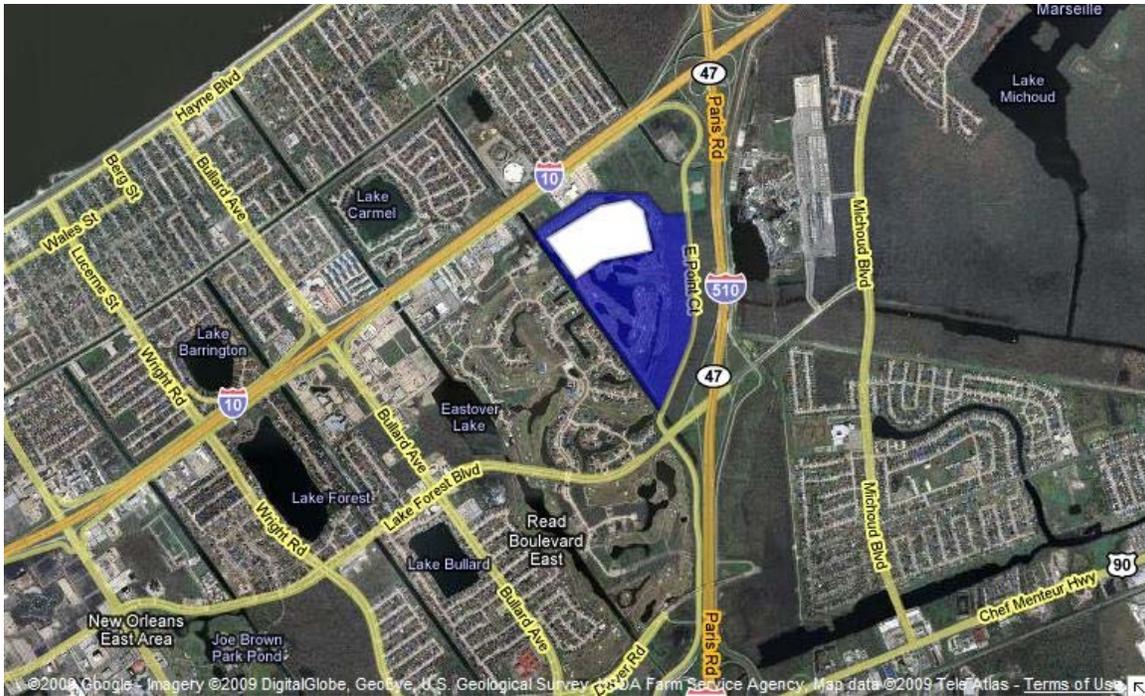


Figure 3: Area map of the proposed Eastover Phase II borrow area
 White area is the Eastover Phase I contractor-furnished site approved in IER #19.

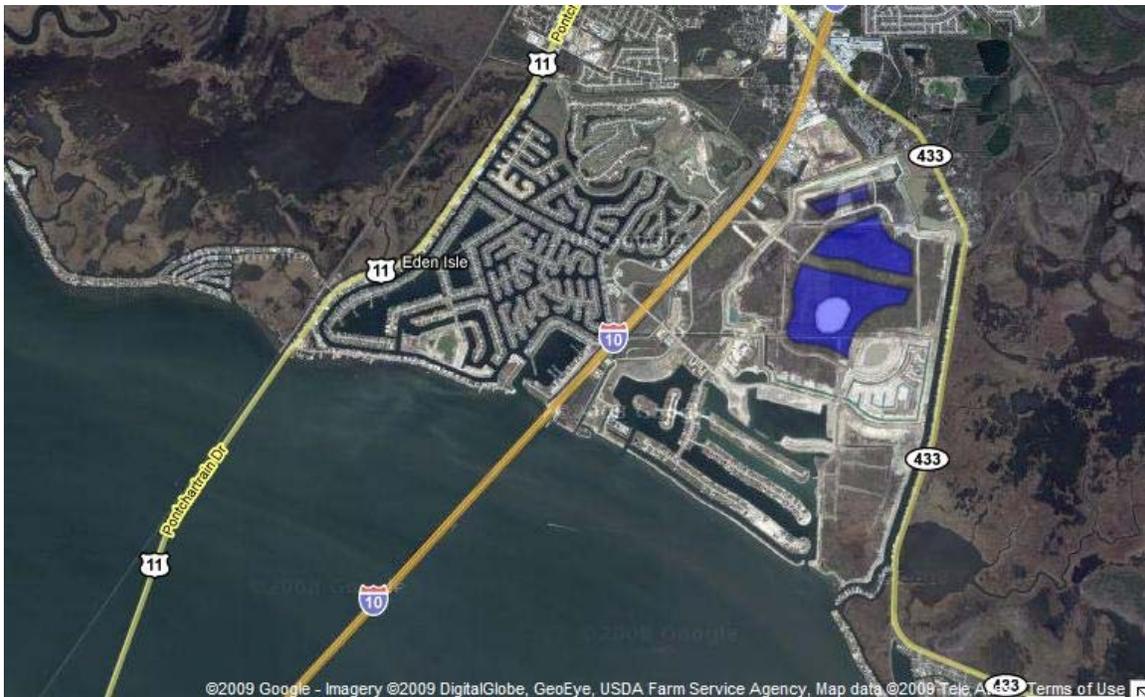


Figure 4: Area map of the proposed Tammany Holding borrow area
 White area is an existing borrow site not related to construction of the HSDRRS.

Eastover - Phase II Borrow Pit - Orleans Parish

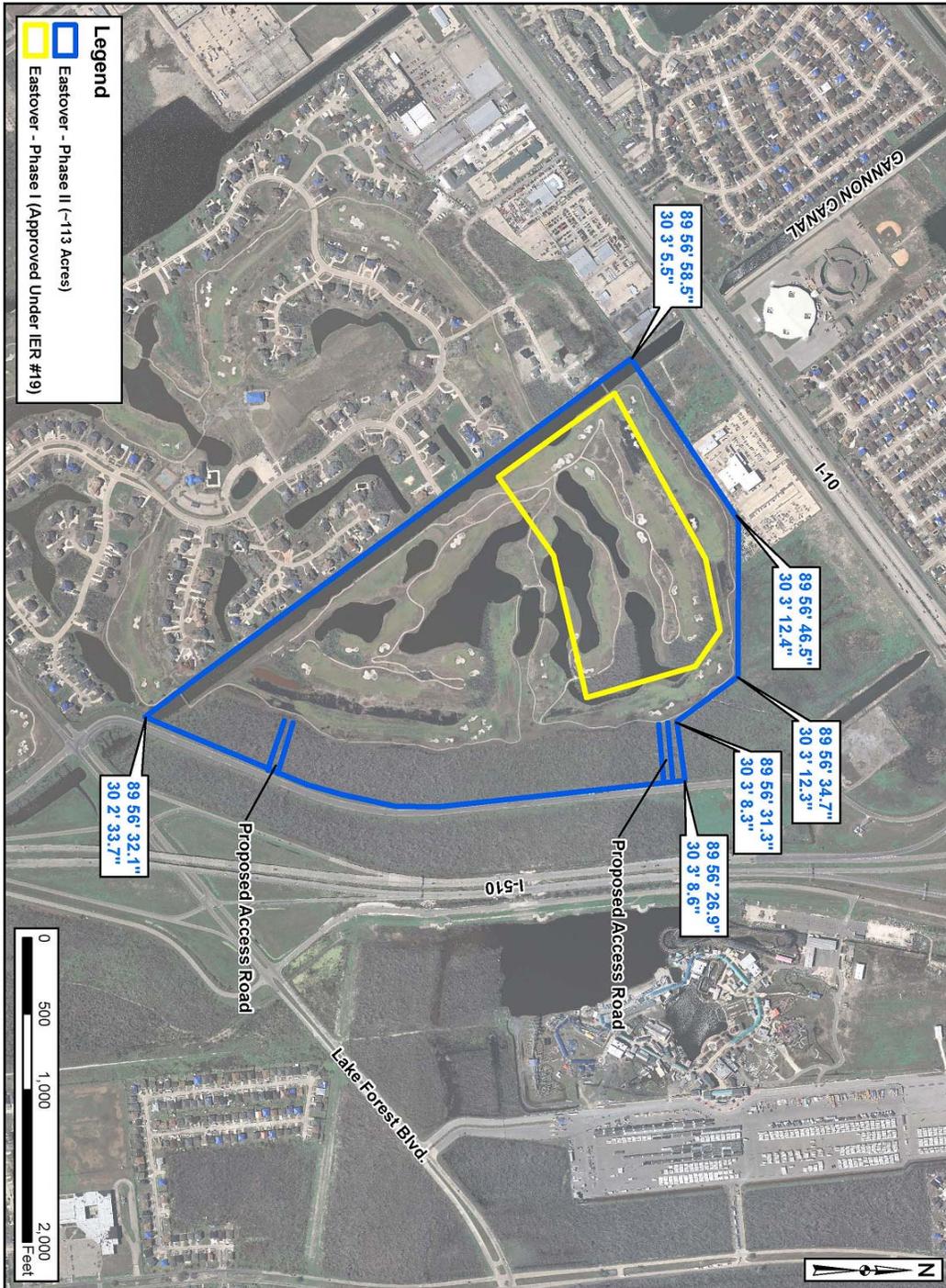


Figure 5: Site map of the proposed Eastover Phase II borrow area

Tammany Holding Corporation Borrow Area - St. Tammany Parish

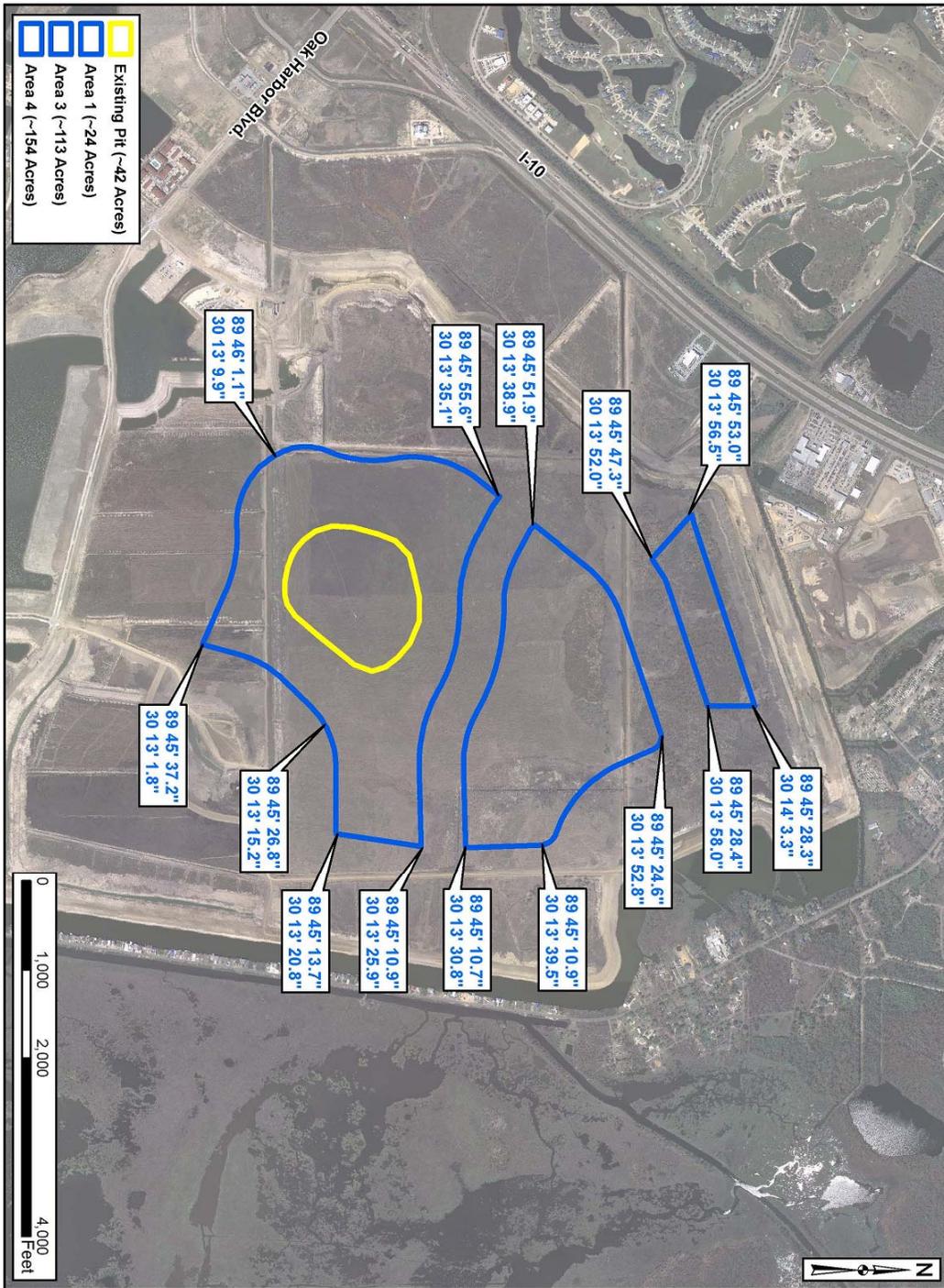


Figure 6: Site map of the proposed Tammany Holding borrow area

Willow Bend - Phase II Borrow Pit - St. John the Baptist Parish

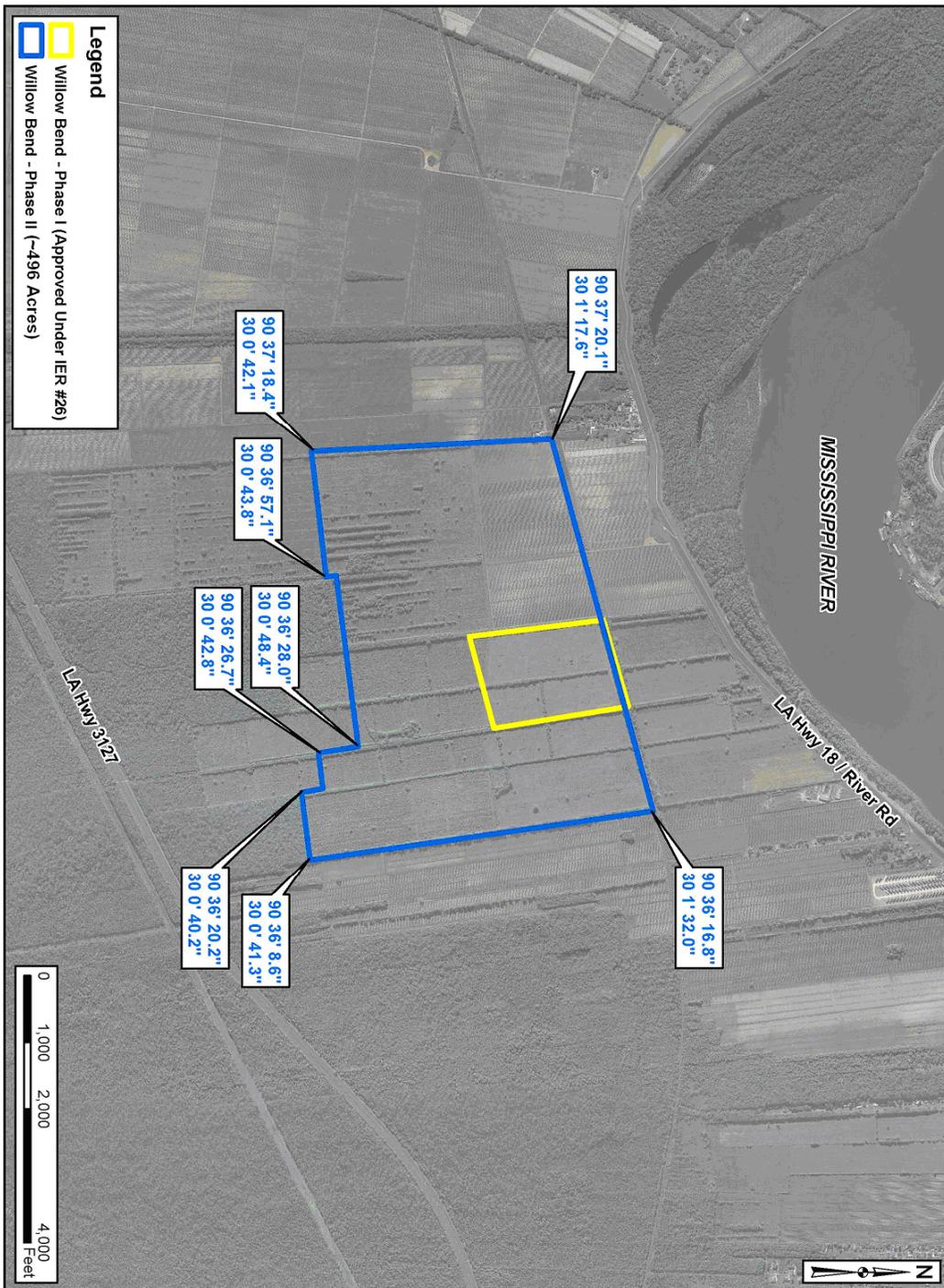


Figure 7: Proposed Willow Bend Phase II Borrow Area

In order to meet the borrow needs of the HSDRRS, personnel from the CEMVN Project Management, Engineering, Real Estate, Office of Counsel, Relocations, and Environmental Branches established a Borrow PDT. This team works closely with other CEMVN offices (Hurricane Protection Office, Protection and Restoration Office, and Regulatory Functions Branch) to accomplish its mission. The team's goal is to locate high quality clay borrow sources suitable for levee and floodwall construction in such a way as to be least damaging to both the natural and human environments within the project area.

The team investigated and completed environmental coordination of the proposed contractor-furnished borrow areas, and is currently investigating others. Future potential borrow areas will be discussed in future borrow IERs.

Proposed contractor-furnished borrow areas are initially evaluated by reviewing the contractor-provided information packet required for investigation of proposed contractor-furnished borrow areas. The contractor packet is considered complete if it consists of the following: 1) a signed right of entry; 2) maps showing the property boundaries and areas being proposed for use as a contractor-furnished borrow area; 3) an approved Jurisdictional Determination from the CEMVN Regulatory Functions Branch indicating no jurisdictional wetland impacts; 4) a Coastal Use Permit or Letter of No Objection from the Louisiana Department of Natural Resources, Coastal Management Division (LADNR) (or state agency equivalent if the borrow site is in a state other than Louisiana), and a local parish/county Coastal Use Permit, when applicable; 5) a concurrence letter from the U.S. Department of the Interior, USFWS indicating that no threatened or endangered (T&E) species or their critical habitat would be affected by the proposed action; 6) a cultural resources assessment; 7) a Phase I Environmental Site Assessment (ESA); and 8) geotechnical boring logs and soil analysis identifying the suitability of potential borrow material. These materials are incorporated by reference.

The proposed action consists of removing all suitable material from the following proposed three borrow areas.

- The Eastover Phase II site is located near the intersection of I-10 and I-510 in Orleans Parish (figures 3 and 5). The proposed Eastover Phase II site is 113 acres. The proposed site includes a portion of the Gannon Canal and a portion of the former Eastover golf course, as shown in figure 5. The Eastover community contains two former 18-hole golf courses that are currently closed. Hurricane Katrina in August of 2005 rendered Eastover's two 18-hole courses unplayable. In late March of 2007, nine holes of the Eastover golf course were reopened to members, and there were plans at the time to open an additional nine holes in the spring of 2008. However, the course's operators said they were unable to re-establish membership levels, according to an interview with *The Times-Picayune* in October of 2007. The golf course remains closed, and as of June 2009 the landowner has stated that he has no intention of reopening the portion of the golf course that contains the proposed Eastover Phase II contractor-furnished borrow area. The proposed Eastover Phase II site borders and surrounds the 36.6-acre Eastover Phase I site, which was approved as a potential contractor-furnished site in IER #19. The approved Eastover Phase I site is also located on a portion of the closed golf course.
- The Tammany Holding site is located off of I-10 near Lake Pontchartrain in St. Tammany Parish (figures 4 and 6). The site consists of three proposed borrow areas totaling 291 acres. Area 1 is 24 acres, Area 3 is 113 acres, and Area 4 is 154

acres. The site is currently cleared and being developed into a residential community.

- The Willow Bend Phase II area is located south of River Road in St. John the Baptist Parish, Louisiana (figures 2 and 7). The 496-acre site is mostly farmland, with tree lines in portions of the property. The proposed site is adjacent to the 64-acre Willow Bend Phase I site, which was approved as a potential contractor-furnished site in IER #26.

Some or all of the proposed contractor-furnished borrow areas may be used as stockpile or staging areas if needed by construction contractors.

2.4 ALTERNATIVES TO THE PROPOSED ACTION

The other alternatives to the proposed action that were considered were the no action, use of government-furnished borrow material, use of other contractor-furnished borrow areas, and use of borrow material from a supply contract. These alternatives are described in section 2.2.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 ENVIRONMENTAL SETTING

The proposed contractor-furnished borrow areas described in this report are located in southeastern Louisiana. The proposed Willow Bend Phase II borrow area is located in a rural area west of the New Orleans metropolitan area on the west bank of the Mississippi River in St. John the Baptist Parish. The proposed Willow Bend Phase II site borders and surrounds the 64-acre Willow Bend Phase I contractor-furnished borrow area, which was approved in IER #26. The proposed Eastover Phase II borrow area is located in a residential urban part of Orleans Parish referred to locally as New Orleans East. New Orleans East extends east of the Inner Harbor Navigational Canal, and is bordered to the south by the Gulf Intracoastal Waterway. The proposed Eastover Phase II site borders and surrounds the 36.6-acre Eastover Phase I contractor-furnished borrow area, which was approved in IER #19. The proposed Tammany Holding borrow area is located on the north shore of Lake Pontchartrain in St. Tammany Parish and east of I-10. For the purposes of this report, the project study area is defined as southeastern Louisiana.

Fauna and Flora

The Louisiana Coastal Plain area contains an extraordinary diversity of estuarine habitats that range from narrow natural levee and beach ridges to expanses of bottomland hardwood (BLH) forest, forested swamps and fresh, brackish, saline marshes, and pasturelands. The wetlands support various functions and values, including commercial fisheries, harvesting of furbearers, recreational fishing and hunting, ecotourism, critical wildlife habitat (including that for threatened and endangered species), water quality improvement, navigation and waterborne commerce, flood control, and buffering protection from storms.

Terrestrial animals that may inhabit some of the proposed contractor-furnished borrow areas include nutria, muskrat, raccoon, mink, and otter, which are harvested for their furs. White-tailed deer, feral hogs, rabbits, various small mammals, and a variety of birds,

reptiles, amphibians, and mosquitoes also occur in the study area. Agricultural crops grown in the vicinity of some of the proposed contractor-furnished borrow areas include sugar cane, citrus fruits, and truck crops.

Soils

The USACE HSDRRS Design Guidelines, of which the below-stated soil standards are a part, are reviewed and updated as necessary. Changes to the guidelines are reviewed and approved by USACE staff 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 the 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.

The term “borrow” is used in the fields of construction and engineering to describe material that is dug in one location for use at another location. The term “suitable” as it relates to borrow material is defined as meeting the following current criteria after 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 percent 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 percent sand content.

Clay Specifications

The earthen clay material shall be naturally occurring or contractor blended. Addition of lime, cement, or other soil amendments for any reason is not permitted. Soil that is classified in accordance with ASTM D 2487 and the Unified Soil Classification System as CH and CL are suitable. Soil classified as ML shall be considered unsuitable; however, minor amounts of ML may be suitably blended with CH or CL to formulate a material that classifies as a CL as per ASTM D 2487. Soil must be free from masses of organic matter, sticks, branches, roots, and other debris, including hazardous and regulated solid wastes. Soil from a contractor-supplied earthen clay material source may not contain excessive amounts of wood. However, isolated pieces of wood would not be considered objectionable in the embankment provided their length does not exceed 1 foot, their cross-sectional area is less than 4 square inches, and they are distributed throughout the fill. Not more than 1 percent (by volume) of objectionable material shall be contained in clay material ordered by the Government. Pockets and/or zones of wood shall not be acceptable. Material consisting of greater than 35 percent sands (by dry weight) or materials with a PI of less than 10 will not be accepted as well as material having an organic content exceeding 9 percent by weight. Under no circumstances shall frozen earth, snow, or ice in the material be considered acceptable.

The geotechnical analysis consists of the following:

1. A geotechnical report stamped and signed by a licensed civil engineer with a specialization in geotechnical engineering certifying that the proposed source contains suitable material meeting the specifications outlined in the CEMVN's Soil Boring Factsheet.

2. The geotechnical report must consist of a summary and conclusion section in the main body of the report with any supporting data attached separately. The licensed engineer shall determine the sub-surface investigations required. These investigations could include but are not limited to soil borings, test sites, or cone penetrometer tests.
3. Investigations shall be spaced according to the geotechnical engineer's sub-surface evaluation and be representative of the entire proposed source. The licensed engineer's test plan must provide a comprehensive sampling to at least 5 feet below the bottom of the proposed excavation.
4. All soil samples must be classified in accordance with the Unified Soil Classification system. The supporting data attached to the geotechnical report shall be comprehensive and include as a minimum all field logs, soil sampling and testing results and a detailed investigation location map with the location of the potential borrow source and all investigation locations superimposed. The soil investigation locations must include latitudes and longitudes for plotting purposes.

Laboratory tests include:

1. Soil classification shall be performed in accordance with the Unified Soil Classification System and ASTM D 2487.
2. Atterberg Limits Test shall be performed in accordance with ASTM D 4318.
3. Determination of moisture content shall be performed in accordance with ASTM D 2216 or ASTM D 4643.
4. Determination of organic content shall be performed in accordance with ASTM D 2974, Method C.
5. Control compaction curves shall be established in accordance with ASTM D 698 (Standard Proctor Compaction Tests). A control compaction curve is required for each soil type from each source. Where material is blended and stockpiled, a control compaction curve would be required for each resulting blend of material and would be utilized in lieu of those required for the "unblended materials."
6. Sand Content shall be determined by 200 wash in accordance with ASTM D 1140.

Test Procedures for borings include:

1. A moisture content determination shall be made and recorded on all samples classified as (CH), (CL), and (ML) at no less than 2 foot intervals.
2. For (CH), (CL), and (ML) soils, Atterberg Limits and Organic Content Testing (ASTM D 2974, Method C) is required every 5 feet (minimum).
3. Samples with moisture contents at 70 percent or higher or having a Liquid Limit of 70 or higher must be tested for organic content for that sample as well as for a sample 2 feet above and 2 feet below that sample.
4. Sand content tests would be required for samples that classify as CL (with a PI greater than 10) and for all clay samples (CH and CL) with greater than 10 percent coarse grain materials estimated by visual classification for 2 or more consecutive feet.

5. Sand content tests would be limited to one test every 5 feet of sampling and shall conform to ASTM D1140-00 (#200 sieve required).
6. Sand content tests would be required for samples that classify as a ML, but limited to one test every 5 feet of sampling.

The resulting classification, plasticity, water content, and organic content determinations and borrow area boring logs with GPS readings at the boring locations have been or will be analyzed for potential use by the CEMVN to determine the suitability of the soil. Geotechnical testing and soil analysis is ongoing at some of the areas, so it is possible that the area of suitable acreage may decrease as results are finalized.

Government-Furnished Sites

For potential government-furnished borrow areas, the CEMVN conducts site visits, performs soil borings and testing, acquires all pertinent environmental clearances, and is responsible for borrow site acquisition. Using this method, the landowner provides the CEMVN with a signed right-of-entry (ROE) form and the Government completes all required testing and analysis.

Contractor-Furnished Sites

For potential contractor-furnished borrow areas, individual landowners are responsible for soil boring and testing, and acquiring all applicable local, state, and Federal environmental clearances. Upon completing all required tasks, the landowner submits a complete package to the CEMVN for approval. The Government completes an analysis of the site and the material proposed for use based upon the information supplied to the Government by the landowner. Upon approval of the site by the Government, the potential borrow site would be placed on the complimentary list of potential pre-approved contractor-furnished borrow sources. The CEMVN may opt to provide in construction contracts a complimentary list of contractor-furnished clay sources that have been deemed to have material that meets geotechnical standards and to be environmentally acceptable. The CEMVN does, however, caution that it cannot vouch for the availability, suitability or quantity of borrow material from such listed sources. The construction contractor is not obligated to select a site from the contractor-furnished clay source list. However, if the contractor chooses to obtain borrow material elsewhere, then it must demonstrate that its source has undergone environmental clearance conforming to the CEMVN's requirements and that the source meets the CEMVN's geotechnical standards. Agreements for use of a contractor-furnished site would solely be between a construction contractor and the landowner, and at no point in time would the landowner have an agreement with the CEMVN. Additionally, there are no guarantees that the landowner will sell borrow material for construction of the HSDRRS. For a construction contractor to use borrow from the contractor-furnished clay source list, the contractor must reach an agreement with the site owner(s) and compensate the owner for the material used from the site, based on that agreement. Reaching the agreement and compensating the landowner are the responsibility of the construction contractor.

Supply Contract

The Government may secure borrow material through a supply contractor that would deliver material to the construction site and/or stockpile area for placement by a construction contractor. For potential supply contract borrow sites, individual bidders are responsible for geotechnical testing and acquiring state and Federal environmental clearances. Upon completing all required tasks, the landowner submits a complete package to the CEMVN for approval when requested, as per a contract Request For Proposal. Sites are evaluated by the CEMVN for environmental compliance and soil

suitability. If approved, the bidders would be allowed to participate in the supply contract process.

3.2 SIGNIFICANT RESOURCES

This section contains a list of the significant resources located in the vicinity of the proposed contractor-furnished borrow areas, and describes in detail those resources that may be impacted directly, indirectly, or cumulatively by the proposed action. Direct impacts are those that are caused by the action taken and occur at the same time and place (40 CFR §1508.8(a)). Indirect impacts are those that are caused by the action and are later in time or further removed in distance, but are still reasonably foreseeable (40 CFR §1508.8(b)). Cumulative impacts are impacts that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions (40 CFR §1508.7).

The resources described in this section are those recognized as significant by laws, executive orders, regulations, and other standards of Federal, state, or regional agencies and organizations; technical and scientific agencies, groups, and individuals; and the general public. Further detail on the significance of each of these resources can be found by contacting the CEMVN, or on www.nolaenvironmental.gov, which offers information on the ecological and human value of these resources, as well as the laws and regulations governing each resource. Search for “Significant Resources Background Material” in the website’s digital library for additional information. Table 1 shows those significant resources found within the project area, and notes whether they would be impacted by the proposed action.

This report assumes that under the no action alternative the proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified. Borrow material would be obtained at sites not discussed in this IER. Consequently, the impacts discussed in this report are those impacts specifically associated with utilizing the proposed Eastover Phase II, Tammany Holding, and Willow Bend Phase II contractor-furnished borrow areas.

Table 1: Significant Resources in the Project Area

Significant Resource	Impacted	Not Impacted
Jurisdictional Wetlands		X
Non-Jurisdictional Bottomland Hardwood Forest	X	
Upland Areas	X	
Prime and Unique Farmland	X	
Wildlife	X	
Threatened and Endangered Species		X
Cultural Resources		X
Recreational Resources	X	
Noise	X	
Air Quality	X	
Water Quality	X	
Aesthetics	X	
Socioeconomics	X	

3.2.1 Jurisdictional Wetlands

Existing Conditions

The CEMVN is working diligently to avoid impacts to jurisdictional wetlands (as defined by Section 404 of the Clean Water Act [CWA]) when investigating and approving potential borrow sites for use in construction of the HSDRRS. The CEMVN selection prioritization of potential borrow areas (section 2.1), as well as guidance from the USFWS (appendix D), relating to potential impacts to jurisdictional wetlands have been and will continue to be followed. The CEMVN will coordinate with governmental agencies and the public if jurisdictional wetlands may be impacted during future proposed government-furnished, contractor-furnished, or supply contract borrow activities.

During initial investigations, a jurisdictional wetland determination from the CEMVN Regulatory Functions Branch was completed for the three potential contractor-furnished borrow areas discussed in this IER.

- *Eastover Phase II*
The CEMVN jurisdictional wetland determination MVN-2007-1003-SU dated 29 March 2007 for the proposed Eastover Phase II contractor-furnished borrow area indicates that the site contains jurisdictional “404 other waters,” which for this site are manmade ponds on the former golf course. The ponds would be excavated during borrow site excavation. The CEMVN jurisdictional wetland determination indicates that no jurisdictional wetlands are located on the site.
- *Tammany Holding*
The CEMVN jurisdictional wetland determinations MVN-2002-1717-SU dated 7 May 2004, and MVN-2003-1346-SU dated 25 April 2005 for the proposed Tammany Holding residential development indicates the presence of jurisdictional wetlands on the site. The owners of the proposed Tammany Holding development received a USACE Section 404 permit to develop the site into a residential community (permit MVN-2002-1717-EFF). Wetlands located on the site have been destroyed as allowed under permit MVN-2002-1717-EFF for the proposed residential development, and the impacts were mitigated for by the landowner in accordance with the CEMVN’s CWA Section 404 regulatory program.

Currently, there are no jurisdictional wetlands located on the site.

- *Willow Bend Phase II*
The CEMVN jurisdictional wetland determination MVN-2008-00574-SU dated 29 May 2008 for the proposed Willow Bend Phase II contractor-furnished borrow area indicates that no jurisdictional wetlands are located on the site.

Discussion of Impacts

No Action

- *Eastover Phase II & Willow Bend Phase II*

Direct Impacts

Under the no action alternative, no direct impacts to jurisdictional wetlands would occur at the proposed Eastover Phase II or Willow Bend Phase II contractor-

furnished borrow areas. The proposed Eastover Phase II or Willow Bend Phase II sites would not be used as contractor-furnished borrow areas under the no action alternative.

Indirect Impacts

Under the no action alternative, there would be no indirect impacts to jurisdictional wetlands at the Eastover Phase II and Willow Bend Phase II sites. The proposed Eastover Phase II site and Willow Bend Phase II site would not be used as a contractor-furnished borrow area under the no action alternative.

Cumulative Impacts

Under the no action alternative, the proposed non-wetland Eastover Phase II and Willow Bend II sites would not be used as contractor-furnished borrow areas, and as such there would be no cumulative impacts to jurisdictional wetlands at either of these proposed sites or in the project area due to the proposed action. Under this alternative, the proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

Eastover Phase I and Willow Bend Phase I are potential contractor-furnished borrow areas approved in, respectively, IER #19 and IER #26. Use of any approved contractor-furnished borrow area, including the Eastover Phase I and Willow Bend Phase I sites, would also not contribute to the cumulative loss of jurisdictional wetlands in the project area, as none of the sites contain jurisdictional wetlands.

Cumulative impacts to jurisdictional wetlands would continue in the project area 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 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 non-governmental 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.

Human-induced impacts to wetlands have contributed the most to wetland loss in leveed areas. Most of these impacts have been associated with the conversion of wetland areas for agriculture and residential housing. These actions are regulated by the USACE CWA Section 404 regulatory program, and wetland losses are mitigated for through the program. It is expected that this historical trend of anthropogenic impacts would continue to impact non-protected leveed wetlands in the region.

Federal and non-Federal borrow activity has contributed to the loss of wetlands in the region. Historically, borrow material was taken from sources near levees, sometimes within wetland areas. At this time, it is the policy of the CEMVN not to impact wetlands when obtaining borrow for the proposed HSDRRS projects (section 2.1). Other Federal and non-Federal levee projects may incrementally impact wetlands for borrow acquisition and levee construction in the reasonably foreseeable future.

Historical and projected loss of wetlands in southeastern Louisiana has been analyzed and discussed in *Coast 2050: Towards a Sustainable Coastal Louisiana* (LCWCRTF, 1998), the final Louisiana Coastal Area (LCA), Louisiana - Ecosystem Restoration Study (USACE, 2004), Louisiana's Comprehensive Master Plan for a Sustainable Coast (LACPRA, 2007), and the ongoing USACE Louisiana Coastal Protection and Restoration project.

- *Tammany Holding*

Direct Impacts

Under the no action alternative, no direct impacts to jurisdictional wetlands would occur at the proposed Tammany Holding contractor-furnished borrow area due to the proposed action. Wetlands located on the site have been cleared as allowed under the USACE Section 404 permit, MVN-2002-1717-EFF, for the proposed residential development, and the impacts were mitigated for by the landowner in accordance with the terms of the permit. These impacts are not related to the proposed action.

Indirect Impacts

Under the no action alternative, no indirect impacts to jurisdictional wetlands would occur at the proposed Tammany Holding contractor-furnished borrow area due to the proposed action. Indirect impacts to jurisdictional wetlands may occur at the proposed Tammany Holding site due to the landowner's proposed residential development. The property has been cleared of wetland areas. This action may affect nearby jurisdictional wetlands by changing the hydrology and nutrient dynamics in the vicinity. These changes have not been quantified.

Cumulative Impacts

Under the no action alternative, the proposed Tammany Holding contractor-furnished site would not be used in the construction of the HSDRRS. The proposed contractor-furnished borrow area would not contribute to the cumulative loss of jurisdictional in the project area.

The landowner's excavation of jurisdictional wetlands at the proposed Tammany Holding site has contributed to the cumulative loss of this resource in the project area. These impacts were mitigated through CEMVN's CWA Section 404 regulatory program, and were not related to the proposed action.

Under the no action alternative, the proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

Cumulative impacts to jurisdictional wetlands would continue in the project area 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 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 non-governmental 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.

Human-induced impacts to wetlands have contributed the most to wetland loss in leveed areas. Most of these impacts have been associated with the conversion of wetland areas for agriculture and residential housing. These actions are regulated by the USACE Clean Water Act Section 404 regulatory program, and wetland losses are mitigated for through the program. It is expected that this historical trend of anthropogenic impacts would continue to impact non-protected leveed wetlands in the region.

Federal and non-Federal borrow activity has contributed to the loss of wetlands in the region. Historically, borrow material was taken from sources near levees, sometimes within wetland areas. At this time, it is the policy of the CEMVN not to impact wetlands when acquiring borrow for the proposed HSDRRS projects (section 2.1). Other Federal and non-Federal levee projects may incrementally impact wetlands for borrow acquisition and levee construction in the reasonably foreseeable future.

Historical and projected loss of wetlands in southeastern Louisiana has been analyzed and discussed in *Coast 2050: Towards a Sustainable Coastal Louisiana* (LCWCRTF, 1998), the final Louisiana Coastal Area (LCA), Louisiana - Ecosystem Restoration Study (USACE, 2004), Louisiana's Comprehensive Master Plan for a Sustainable Coast (LACPRA, 2007), and the ongoing USACE Louisiana Coastal Protection and Restoration project.

Proposed Action

- *Eastover Phase II*

Direct Impacts

No direct impacts to jurisdictional wetlands would occur at the proposed Eastover Phase II contractor-furnished borrow area with implementation of the proposed action. The manmade ponds, which are classified as jurisdictional "404 other waters," would be excavated. The term "other waters" is meant to differentiate the man-made golf course ponds and water traps found on the proposed Eastover Phase II site from CWA jurisdictional wetlands, which are not found on the project site, per 33 CFR 328.3. Any jurisdictional wetland areas outside of the proposed contractor-furnished borrow area would be avoided. The excavated area would be converted to ponds and small lakes if water is retained, or to a vegetated area if water is not retained. Additional potential direct impacts to jurisdictional wetlands depend on what the landowner decides to do with the Eastover Phase II site following excavation.

Indirect Impacts

Use of the proposed Eastover Phase II contractor-furnished borrow area may result in indirect wetland impacts. Excavation of the proposed borrow area may affect nearby jurisdictional wetlands by changing the hydrology and nutrient dynamics in the vicinity. These changes have not been quantified.

If ponds or small lakes form after excavation of the site, wetland habitat may form around them. Wetland species from nearby habitat would be expected to colonize the area.

Additional potential indirect impacts to jurisdictional wetlands depend on what the landowner decides to do with the Eastover Phase II site following excavation.

Cumulative Impacts

Excavation of the proposed Eastover Phase II contractor-furnished borrow area would not contribute to cumulative wetland impacts because the site does not contain jurisdictional wetlands. The approved 36.6-acre Eastover Phase I contractor-furnished borrow area, approved in IER #19, could also be used for construction of the HSDRRS. Use of the approved Eastover Phase I contractor-furnished borrow area would not contribute to the cumulative loss of jurisdictional wetlands in the project area because the approved Eastover Phase I does not contain any jurisdictional wetlands. Any additional potential cumulative impacts to jurisdictional wetlands depend on what the landowner decides to do with the approved Eastover Phase I and proposed Eastover Phase II sites following excavation.

Cumulative impacts to jurisdictional wetlands would continue in the project area 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 (LACOST, 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 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 non-governmental 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.

Human-induced impacts to wetlands have contributed the most to wetland loss in leveed areas. Most of these impacts have been associated with the conversion of wetland areas for agriculture and residential housing. These actions are regulated by the USACE CWA Section 404 regulatory program, and wetland losses are mitigated for through the program. It is expected that this historical trend of anthropogenic impacts would continue to impact non-protected leveed wetlands in the region.

Federal and non-Federal borrow activity has contributed to the loss of wetlands in the region. Historically, borrow material was taken from sources near levees, sometimes within wetland areas. At this time, it is the policy of the CEMVN not to impact wetlands when acquiring borrow for the proposed HSDRRS projects (section 2.1). Other Federal and non-Federal levee projects may incrementally impact wetlands for borrow acquisition and levee construction in the reasonably foreseeable future.

- *Tammany Holding*

Direct Impacts

No indirect impacts to jurisdictional wetlands would occur with use of the proposed Tammany Holding contractor-furnished borrow area. The landowner has excavated jurisdictional wetlands on the site; however, the wetland impacts from the landowner's excavation was a permitted activity associated with the landowner's planned residential development. Those wetland impacts have been mitigated by the landowner in accordance with his Clean Water Act Section 404 permit and are unrelated to the construction of the HSDRRS.

If the proposed contractor-furnished borrow area is excavated under the proposed action, the resulting area would be converted to large lakes if water is retained, or to a vegetated area if water is not retained. Additional potential direct impacts to jurisdictional wetlands depend on what the landowner decides to do with the Tammany Holding site following excavation.

Indirect Impacts

Use of the proposed Tammany Holding contractor-furnished borrow area may result in indirect wetland impacts. Excavation of the proposed borrow area may

affect nearby jurisdictional wetlands by changing the hydrology and nutrient dynamics in the vicinity. These changes have not been quantified.

If lakes form after excavation of the site, wetland habitat may form around them if the landowner allows. Wetland species from nearby habitat would be expected to colonize the area.

Additional potential indirect impacts to jurisdictional wetlands depend on what the landowner decides to do with the Tammany Holding site following excavation.

Cumulative Impacts

Excavation of the proposed Tammany Holding site would not contribute to cumulative wetland impacts because the site no longer contains jurisdictional wetlands. The landowner has mitigated for wetland impacts at the proposed Tammany Holding site associated with his permitted residential development. Additional potential cumulative impacts to jurisdictional wetlands depend on what the landowner decides to do with the Tammany Holding site following excavation.

Cumulative impacts to jurisdictional wetlands would continue in the project area 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 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 non-governmental 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.

Human-induced impacts to wetlands have contributed the most to wetland loss in leveed areas. Most of these impacts have been associated with the conversion of wetland areas for agriculture and residential housing. These actions are regulated by the USACE CWA Section 404 regulatory program, and wetland losses are mitigated for through the program. It is expected that this historical trend of anthropogenic impacts would continue to impact non-protected leveed wetlands in the region.

Federal and non-Federal borrow activity has contributed to the loss of wetlands in the region. Historically, borrow material was taken from sources near levees, sometimes within wetland areas. At this time, it is the policy of the CEMVN not to impact wetlands when acquiring borrow for the proposed HSDRRS projects (section 2.1). Other Federal and non-Federal levee projects may incrementally impact wetlands for borrow acquisition and levee construction in the reasonably foreseeable future.

- *Willow Bend Phase II*

Direct Impacts

No direct impacts to jurisdictional wetlands would occur with use of the proposed Willow Bend Phase II contractor-furnished borrow area because the site does not contain jurisdictional wetlands. Any jurisdictional wetland areas outside of the proposed contractor-furnished borrow area would be avoided. The area would be converted to ponds and small lakes if water is retained, or to a vegetated area if water is not retained. Additional potential direct impacts to jurisdictional wetlands depend on what the landowner decides to do with the Willow Bend Phase II site following excavation.

Indirect Impacts

Use of the proposed Willow Bend Phase II contractor-furnished borrow area may result in indirect wetland impacts. Excavation of the proposed borrow area may affect nearby jurisdictional wetlands by changing the hydrology and nutrient dynamics in the vicinity. These changes have not been quantified.

If ponds or small lakes form after excavation of the site, wetland habitat may form around them. Wetland species from nearby habitat would be expected to colonize the area.

Additional potential cumulative impacts to jurisdictional wetlands depend on what the landowner decides to do with the Willow Bend Phase II site following excavation.

Cumulative Impacts

Excavation of the proposed Willow Bend Phase II borrow area would not contribute to cumulative wetland impacts because the site does not contain jurisdictional wetlands. The approved 64-acre Willow Bend Phase I contractor-furnished borrow area could be used for construction of the HSDRRS. Use of the approved Willow Bend Phase I contractor-furnished borrow area would not contribute to cumulative impacts to jurisdictional wetlands in the project area, because the site does not contain any jurisdictional wetlands. Any additional potential cumulative impacts to jurisdictional wetlands depend on what the landowner decides to do with the approved Willow Bend Phase I and proposed Willow Bend Phase II sites following excavation.

Cumulative impacts to jurisdictional wetlands would continue in the project area 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 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 non-governmental 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.

Human-induced impacts to wetlands have contributed the most to wetland loss in leveed areas. Most of these impacts have been associated with the conversion of wetland areas for agriculture and residential housing. These actions are regulated by the USACE CWA Section 404 regulatory program, and wetland losses are mitigated for through the program. It is expected that this historical trend of anthropogenic impacts would continue to impact non-protected leveed wetlands in the region.

Federal and non-Federal borrow activity has contributed to the loss of wetlands in the region. Historically, borrow material was taken from sources near levees, sometimes within wetland areas. At this time, it is the policy of the CEMVN not to impact wetlands when acquiring borrow for the proposed HSDRRS projects (section 2.1). Other Federal and non-Federal levee projects may incrementally impact wetlands for borrow acquisition and levee construction in the reasonably foreseeable future.

3.2.2 Non-Jurisdictional Bottomland Hardwood Forest

Existing Conditions

Bottomland hardwood forest (BLH) is a habitat that is found throughout southeastern Louisiana. The typically productive forests are found in low-lying areas, and are usually dominated by deciduous trees such as hackberry, Chinese tallow tree, pecan, American elm, live oak, water oak, green ash, bald cypress, black willow, box elder, and red maple. Typical understory plants include dewberry, elderberry, ragweed, Virginia creeper, and poison ivy. Hard mast (nuts) and soft mast (samaras, berries) provide a valuable nutritional food source for birds, mammals, and other wildlife species.

The USACE has regulatory authority over jurisdictional Waters of the United States, including wetlands, pursuant to Section 404 of the CWA, as discussed in section 3.2.1. Non-jurisdictional BLH are those habitats that do not meet all three wetland criteria (hydrophytic vegetation, hydric soils, and wetland hydrology), and thus are out of the USACE's jurisdiction (USACE, 1987). Section 906(b) of WRDA 1986 requires mitigation for impacts to BLH caused by an USACE project.

- *Eastover Phase II*
The USFWS has determined that approximately 31.1 acres of the 113-acre proposed Eastover Phase II site is comprised of non-jurisdictional BLH.
- *Tammany Holding*
The proposed Tammany Holding site has been cleared as part of a residential development plan, and does not presently include any BLH habitat.
- *Willow Bend Phase II*
The USFWS has determined that approximately 76.2 acres of the 496-acre proposed Willow Bend Phase II borrow area is comprised of non-jurisdictional BLH, mostly as tree lines dividing parcels of unmaintained farmland and pastureland.

Staff from the CEMVN and the USFWS visited the proposed borrow areas to assess the value of these BLH habitats. Table 6 lists these values, as calculated by using a habitat evaluation model.

Discussion of Impacts

No Action

- *Eastover Phase II*

Direct Impacts

Under the no action alternative, no direct impacts to non-jurisdictional BLH would occur at the proposed Eastover Phase II contractor-furnished borrow area. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area under the no action alternative.

Indirect Impacts

Under the no action alternative, no indirect impacts to non-jurisdictional BLH would occur due to the proposed action. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area under the no action alternative.

Cumulative Impacts

Under the no action alternative, there would be no cumulative impacts to non-jurisdictional BLH at the proposed Eastover Phase II contractor-furnished borrow area. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area under the no action alternative.

Under the no action alternative, the proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The Eastover Phase I contractor-furnished borrow area was approved in IER #19 and could be used for construction of the HSDRRS. Use of the approved Eastover Phase I contractor-furnished borrow area would not contribute to the cumulative loss of non-jurisdictional BLH in the project area, because the Eastover Phase I borrow area does not contain any non-jurisdictional BLH.

Any additional potential cumulative impacts to non-jurisdictional BLH depend on what the landowner decides to do with the proposed Eastover Phase II site.

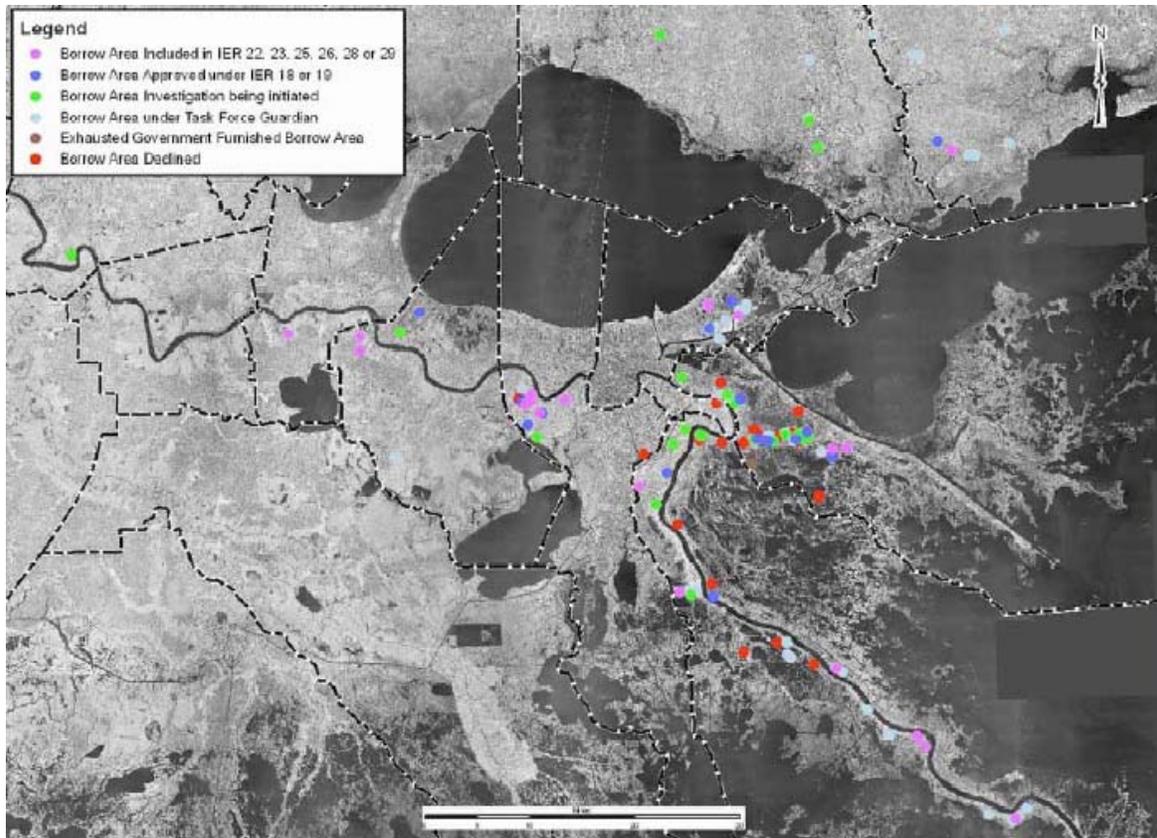


Figure 8: Potential HSDRRS Borrow Sources in Southeastern Louisiana

Cumulative impacts to non-jurisdictional BLH would continue in the project area under the no action alternative. The proposed action is one of several potential borrow areas in New Orleans East that were approved or are being investigated for use on the HSDRRS. The approved Eastover Phase I, Cummings North, Maynard, Stumpf Phase I, and Stumpf Phase II sites are located within three miles of the proposed action (figure 9). All but the Eastover Phase I site have non-jurisdictional BLH located on them. Additionally, the proposed Cummings South site, which contains non-jurisdictional BLH, is also in the vicinity. It is reasonably foreseeable that the approved sites could be used for construction of the HSDRRS, and their use would cumulatively impact non-jurisdictional BLH habitat in New Orleans East.

Other activities in New Orleans East have and will continue to change land use patterns, contributing to the cumulative loss of non-jurisdictional BLH habitat in the project area. Most of the area of New Orleans East was historically marsh and cypress, which was leveed and drained in the early 20th century. Major suburban and industrial development in New Orleans East began after World War II, and continued through the 1980s. The result was the conversion of most of the land, with the exception of the area that is now the Bayou Sauvage National Wildlife Refuge and the vacant land to the east of it, into higher density residential and commercial uses. New Orleans East is presently a residential and commercial area, with some industrial activity mostly located south of Chef Menteur Highway.

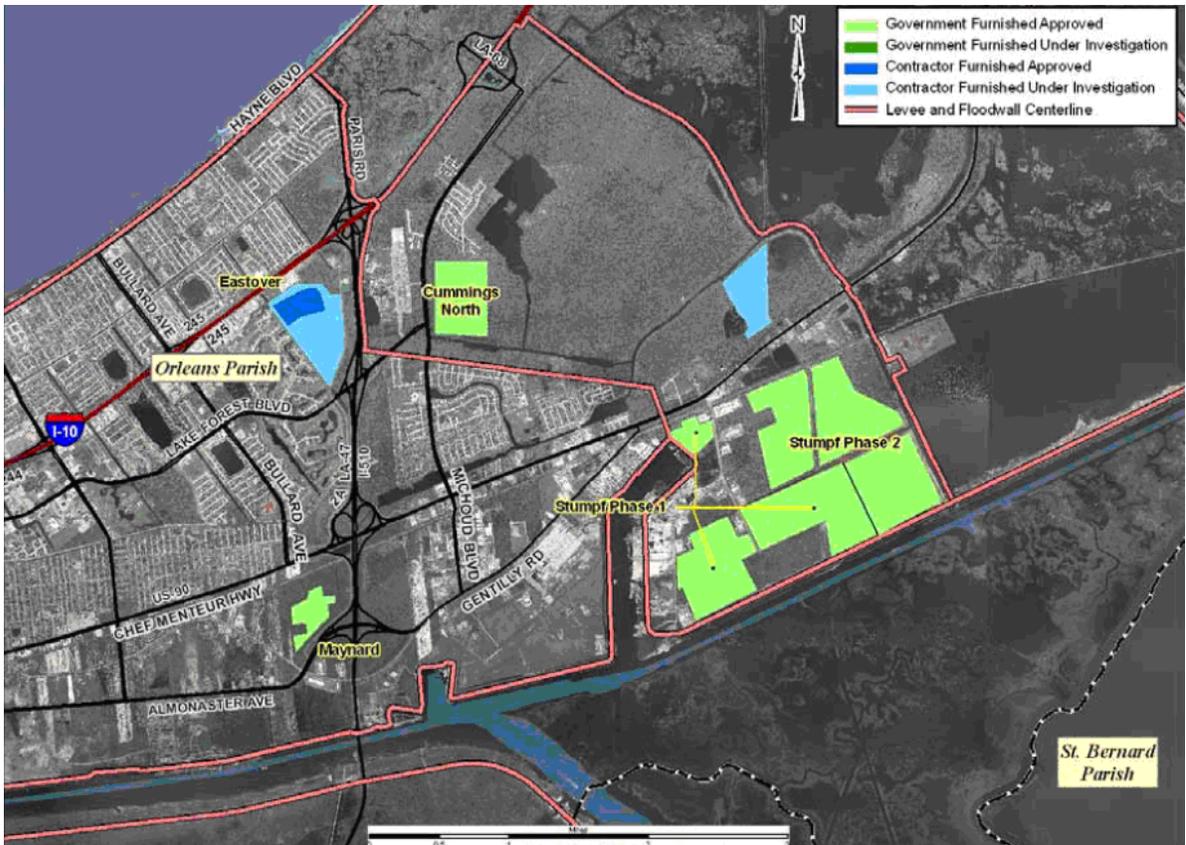


Figure 9: Potential HSDRRS Borrow Sources in New Orleans East

Non-jurisdictional BLH habitat in southeastern Louisiana has historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. It is expected that this historical trend would continue to impact non-jurisdictional BLH habitat in the region.

- *Tammany Holding*

Direct Impacts

Under the no action alternative, no direct impacts to non-jurisdictional BLH would occur at the proposed Tammany Holding contractor-furnished borrow area due to the proposed action. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area under the no action alternative.

Indirect Impacts

Under the no action alternative, no indirect impacts to non-jurisdictional BLH would occur at the proposed Tammany Holding contractor-furnished borrow area due to the proposed action. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area under the no action alternative.

Cumulative Impacts

Under the no action alternative, there would be no cumulative impacts to non-jurisdictional BLH at the proposed Tammany Holding contractor-furnished borrow area due to the proposed action. The proposed Tammany Holding site

would not be used as a contractor-furnished borrow area under the no action alternative.

Potential cumulative impacts to non-jurisdictional BLH associated with the landowner's planned residential development may occur. The cleared property may affect nearby non-jurisdictional BLH by changing the hydrology and nutrient dynamics in the vicinity. These changes have not been quantified.

The landowner of the proposed borrow area is currently developing it into a residential subdivision. Development of the site may cumulatively impact non-jurisdictional BLH in St. Tammany Parish. Features associated with increased population, including but not limited to roads, commercial districts, and schools to serve the new population could likely be built in the surrounding area. These activities may depend on the development of non-jurisdictional BLH areas.

Additional potential indirect impacts to non-jurisdictional BLH depend on what the landowner decides to do with the Tammany Holding site.

Under the no action alternative, the proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

Cumulative impacts to non-jurisdictional BLH would continue in the project area under the no action alternative. There are several potential borrow areas in St. Tammany Parish under investigation for use on the HSDRRS (figure 10). If these sites are approved for use in the HSDRRS, they could also contribute to cumulative non-jurisdictional BLH impacts in St. Tammany Parish.

Cumulative impacts to non-jurisdictional BLH would continue in the project area under the no action alternative. Other activities in St. Tammany Parish have and will continue to change land use patterns, contributing to the cumulative loss of non-jurisdictional BLH habitat in the project area. Areas near and including the proposed borrow area were historically marsh, which was leveed and drained at various points in the 20th century. Major development in the city of Slidell began after World War II, the result of which was the conversion of land into higher density residential and commercial uses. Slidell is presently a residential and commercial area, with areas of unleveed wetlands to the east and west. New residential and commercial development has increased since Hurricane Katrina in 2005 as the parish population increases (US Census, 2009). This continued expansion of the city would cumulatively contribute to non-jurisdictional BLH loss in the parish.

Non-jurisdictional BLH habitat in southeastern Louisiana has historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. It is expected that this historical trend would continue to impact non-jurisdictional BLH habitat in the region.

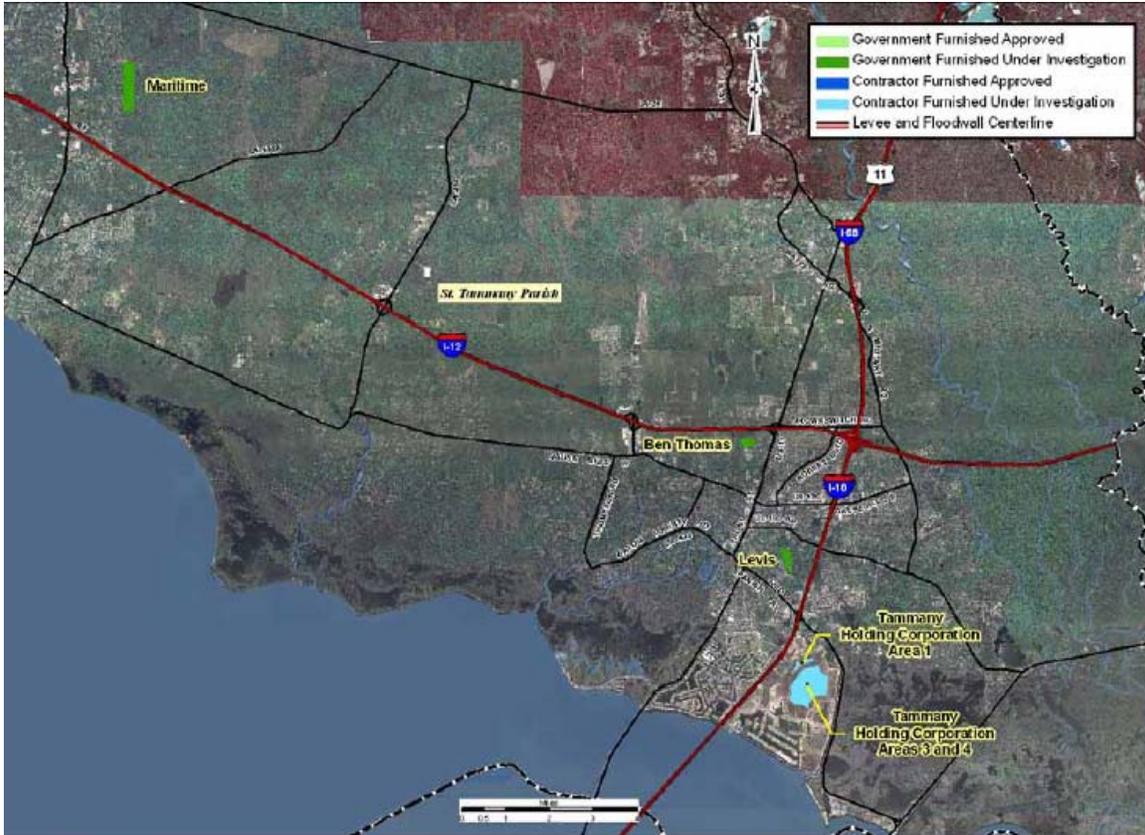


Figure 10: Potential HSDRRS Borrow Sources in St. Tammany Parish

- *Willow Bend Phase II*

Direct Impacts

Under the no action alternative, no direct impacts to non-jurisdictional BLH would occur at the proposed Willow Bend Phase II contractor-furnished borrow area due to the proposed action. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area under the no action alternative.

Indirect Impacts

Under the no action alternative, no indirect impacts would occur to non-jurisdictional BLH at the proposed Willow Bend Phase II contractor-furnished borrow area due to the proposed action. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area under the no action alternative.

Cumulative Impacts

Under the no action alternative, there would be no cumulative impacts to non-jurisdictional BLH from the proposed action. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The approved Willow Bend Phase I contractor-furnished borrow area could be used for construction of the HSDRRS. Use of the approved Willow Bend Phase I contractor-furnished borrow area would not contribute to the cumulative loss of non-jurisdictional BLH in the project area because it does not contain any non-jurisdictional BLH.

Potential cumulative impacts to non-jurisdictional BLH depend on what the landowner decides to do with the approved Willow Bend Phase I and proposed Willow Bend Phase II sites.

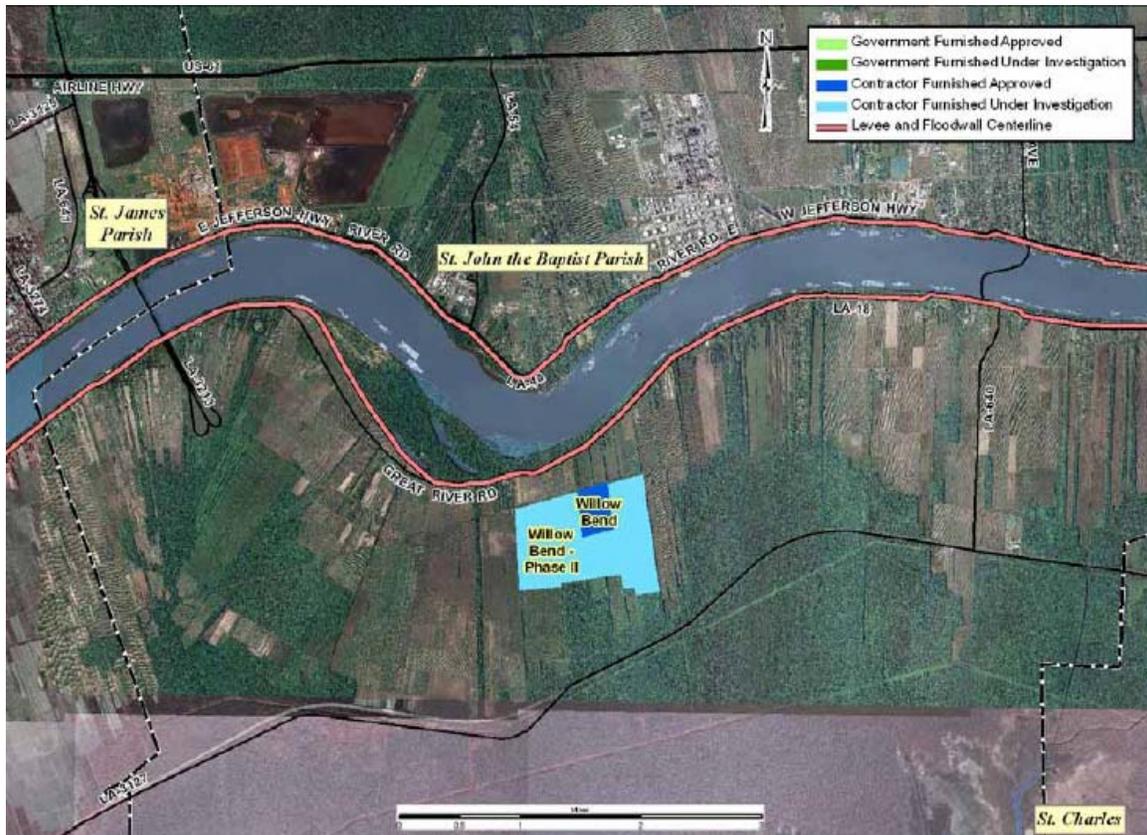


Figure 11: Potential HSDRRS Borrow Sources on the west bank of St. John the Baptist Parish

The approved 3C Riverside Phase I and Phase II sites are located within 5 miles of the approved Willow Bend Phase I and proposed Willow Bend Phase II sites (figure 11). It is reasonably foreseeable that use of the approved 3C Riverside Phase I and Phase II sites, which were historically farmed, could be used for construction of the HSDRRS, and their use would not cumulatively impact non-jurisdictional BLH habitat in the vicinity because none of the sites contain non-jurisdictional BLH.

Other activities in the vicinity have and will continue to change land use patterns, contributing to the cumulative loss of non-jurisdictional BLH habitat in the project area. Most of the area was once forested, and was converted to farmland and pastureland beginning in the 19th century. Most of the land in the vicinity between the Mississippi River and LA-3127 is presently under cultivation. Recent

residential and commercial developmental pressures may contribute to a decline in remaining non-jurisdictional BLH in the vicinity.

Land south of the proposed Willow Bend Phase II borrow area extends into extensive forested and wetland habitats, into the coastal communities and wetlands. These areas are experiencing developmental pressure and land loss, both of which would contribute to the decline of non-jurisdictional BLH in the region.

Non-jurisdictional BLH habitat in southeastern Louisiana has historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. It is expected that this historical trend would continue to impact non-jurisdictional BLH habitat in the region.

Proposed Action

The USFWS has assessed the environmental impacts of the proposed action, and has determined that the proposed action would have unavoidable impacts to a total of 107.3 acres and 48.6 Average Annualized Habitat Units (AAHUs) of non-jurisdictional BLH (table 6). Habitat Units (HU) represent a numerical combination of habitat quality (Habitat Suitability Index) and habitat quantity (acres) within a given area at a given point in time. AAHUs represent the average number of HUs within any given year over the project life for a given area. Mitigation for unavoidable impacts to non-jurisdictional BLH is discussed in section 7, and will be described under a separate IER.

- *Eastover Phase II*

Direct Impacts

Excavation of the proposed Eastover Phase II borrow area would directly impact approximately 31.1 acres of non-jurisdictional BLH. Approximately 31.1 acres of non-jurisdictional BLH at the proposed contractor-furnished site would be mechanically cleared. Mature trees would be cut down with the use of chainsaws or pushed down with bulldozers and excavators. Woody debris would be cleaned up and all berms would be leveled to eliminate hydrologic impacts. Mobile fauna would be expected to vacate the area during construction, most likely to similar habitat to the south of the site. All non-mobile fauna and flora would be destroyed. The area would be converted to ponds and small lakes if water is retained, or by vegetation and woody plants if water is not retained. Additional potential direct impacts to non-jurisdictional BLH depend on what the landowner decides to do with the Eastover Phase II site following excavation.

The landowner will complete mitigation for the loss of 31.1 acres of non-jurisdictional BLH if the proposed site is selected by a construction contractor for use on a HSDRRS project. Proof of mitigation for non-jurisdictional BLH impacts would be supplied to the CEMVN prior to excavation. If mitigation is completed by the landowner because the site is selected by a construction contractor for use on a HSDRRS project, the landowner's mitigation would be discussed in upcoming mitigation IERs and the CED.

Indirect Impacts

Use of the proposed Eastover Phase II borrow area may result in indirect impacts to non-jurisdictional BLH. The excavation of borrow material and the excavated borrow area at the proposed Eastover Phase II site may affect nearby non-

jurisdictional BLH by changing the hydrology and nutrient dynamics in the vicinity. These changes have not been quantified. Additional potential indirect impacts to non-jurisdictional BLH depend on what the landowner decides to do with the Eastover Phase II site following excavation.

Cumulative Impacts

Use of the proposed Eastover Phase II contractor-furnished borrow area would contribute to the cumulative loss of non-jurisdictional BLH in the project area.

The approved 36.6-acre Eastover Phase I contractor-furnished borrow area could be used for construction of the HSDRRS. However, use of the approved Eastover Phase I contractor-furnished borrow area would not contribute to cumulative impacts to non-jurisdictional BLH in the project area, because the Eastover Phase I borrow area does not contain any non-jurisdictional BLH. Additional potential cumulative impacts to non-jurisdictional BLH depend on what the landowner decides to do with the approved Eastover Phase I and proposed Eastover Phase II sites following excavation.

Cumulative impacts to non-jurisdictional BLH would continue in the project area under the proposed action. The proposed action is one of several potential borrow areas in New Orleans East that were approved or are being investigated for use on the HSDRRS. The approved Eastover Phase I, Cummings North, Maynard, Stumpf Phase I, and Stumpf Phase II sites are located within three miles of the proposed action (figure 9). All but the Eastover Phase I site have non-jurisdictional BLH located on them. Additionally, the proposed Cummings South site, which contains non-jurisdictional BLH, is also in the vicinity. It is reasonably foreseeable that the approved sites could be used for construction of the HSDRRS, and their use would cumulatively impact non-jurisdictional BLH habitat in New Orleans East.

Other activities in New Orleans East have and will continue to change land use patterns, contributing to the cumulative loss of non-jurisdictional BLH habitat in the project area. Most of the area of New Orleans East was historically marsh and cypress, which was leveed and drained in the early 20th century. Major suburban and industrial development in New Orleans East began after World War II, and continued through the 1980s. The result was the conversion of most of the land, with the exception of the area that is now the Bayou Sauvage National Wildlife Refuge and the vacant land to the east of it, into higher density residential and commercial uses. New Orleans East is presently a residential and commercial area, with some industrial activity mostly located south of Chef Menteur Highway.

Non-jurisdictional BLH habitat in southeastern Louisiana has historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. It is expected that this historical trend would continue to impact non-jurisdictional BLH habitat in the region.

- *Tammany Holding*

Direct Impacts

No direct impacts to non-jurisdictional BLH would occur with use of the proposed Tammany Holding contractor-furnished borrow area because the site does not contain any non-jurisdictional BLH.

Indirect Impacts

Use of the proposed Tammany Holding borrow area may result in indirect impacts to non-jurisdictional BLH. The excavation of borrow material and the excavated borrow site may affect nearby non-jurisdictional BLH by changing the hydrology and nutrient dynamics in the vicinity. These changes have not been quantified. Additional potential indirect impacts to non-jurisdictional BLH depend on what the landowner decides to do with the Tammany Holding site following excavation.

Cumulative Impacts

Use of the proposed Tammany Holding contractor-furnished borrow area would not contribute to the cumulative loss of non-jurisdictional BLH in the project area because the site does not contain any non-jurisdictional BLH.

Potential cumulative impacts to non-jurisdictional BLH associated with landowner's planned residential development may occur. The cleared property may affect nearby non-jurisdictional BLH by changing the hydrology and nutrient dynamics in the vicinity. These changes have not been quantified.

The landowner of the proposed borrow area is currently developing it into a residential subdivision. Development of the site may cumulatively impact non-jurisdictional BLH in St. Tammany Parish. Features associated with increased population, including but not limited to roads, commercial districts, and schools to serve the new population could likely be built in the surrounding area. These activities may depend on the development of non-jurisdictional BLH areas.

Additional potential indirect impacts to non-jurisdictional BLH depend on what the landowner decides to do with the Tammany Holding site following excavation.

Cumulative impacts to non-jurisdictional BLH would continue in the project area under the proposed action. There are several potential borrow areas in St. Tammany Parish under investigation for use on the HSDRRS (figure 10). If these sites are approved for use in the HSDRRS, they could also contribute to cumulative non-jurisdictional BLH impacts in St. Tammany Parish.

Other activities in St. Tammany Parish have and will continue to change land use patterns, contributing to the cumulative loss of non-jurisdictional BLH habitat in the project area. Areas near and including the proposed borrow area were historically marsh, which was leveed and drained at various points in the 20th century. Major development in the city of Slidell began after World War II, the result of which was the conversion of land into higher density residential and commercial uses. Slidell is presently a residential and commercial area, with areas of unleveed wetlands to the east and west. New residential and commercial development has increased since Hurricane Katrina in 2005 as the parish population increases (US Census, 2009). This continued expansion of the city would cumulatively contribute to non-jurisdictional BLH loss in the parish.

Non-jurisdictional BLH habitat in southeastern Louisiana has historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. It is expected that this historical trend would continue to impact non-jurisdictional BLH habitat in the region.

- *Willow Bend Phase II*

Direct Impacts

Excavation of the proposed Willow Bend Phase II contractor-furnished borrow area would directly impact approximately 76.2 acres of non-jurisdictional BLH. Mature trees would be cut down with the use of chainsaws or pushed down with bulldozers and excavators. Woody debris would be cleaned up and all berms would be leveled to eliminate hydrologic impacts. Mobile fauna would be expected to vacate the area during construction, most likely to similar habitat to the south of the site. All non-mobile fauna and flora would be destroyed.

The landowner will complete mitigation for the loss of 76.2 acres of non-jurisdictional BLH if the proposed site is selected by a construction contractor for use on a HSDRRS project. Proof of mitigation for non-jurisdictional BLH impacts would be supplied to the CEMVN prior to excavation. If mitigation is completed by the landowner because the site is selected by a construction contractor for use on a HSDRRS project, the landowner's mitigation will be discussed in upcoming mitigation IERs and the CED.

Indirect Impacts

Use of the proposed Willow Bend Phase II borrow area may result in indirect impacts to non-jurisdictional BLH. The excavation of borrow material and the excavated borrow area at the Willow Bend Phase II site may affect nearby non-jurisdictional BLH by changing the hydrology and nutrient dynamics in the vicinity. These changes have not been quantified. Additional potential indirect impacts to non-jurisdictional BLH depend on what the landowner decides to do with the Willow Bend Phase II site following excavation.

Cumulative Impacts

Use of the proposed Willow Bend Phase II contractor-furnished borrow area would contribute to the cumulative loss of non-jurisdictional BLH in the project area. In addition, the approved 64-acre Willow Bend Phase I contractor-furnished borrow area could be used for construction of the HSDRRS. Use of the approved Willow Bend Phase I contractor-furnished borrow area would not directly impact non-jurisdictional BLH in the project area, because the site does not contain any non-jurisdictional BLH. Additional potential cumulative impacts to non-jurisdictional BLH depend on what the landowner decides to do with the approved Willow Bend Phase I and proposed Willow Bend Phase II sites following excavation.

The approved 3C Riverside Phase I and Phase II sites are located within 5 miles of the approved Willow Bend Phase I and proposed Willow Bend Phase II sites (figure 11). It is reasonably foreseeable that use of the approved 3C Riverside Phase I and Phase II sites, which were historically farmed, could be used for construction of the HSDRRS, and their use would not cumulatively impact non-jurisdictional BLH habitat in the vicinity because none of the sites contain non-jurisdictional BLH.

Other activities in the vicinity have and will continue to change land use patterns, contributing to the cumulative loss of non-jurisdictional BLH habitat in the project area. Most of the area was once forested, and was converted to farmland and pastureland beginning in the 19th century. Most of the land in the vicinity between the Mississippi River and LA-3127 is presently under cultivation. Recent

residential and commercial developmental pressures may contribute to a decline in remaining non-jurisdictional BLH in the vicinity.

Land south of the proposed Willow Bend Phase II borrow area extends into extensive forested and wetland habitats, into the coastal communities and wetlands. These areas are experiencing developmental pressure and land loss, both of which would contribute to the decline of non-jurisdictional BLH in the region.

Non-jurisdictional BLH habitat in southeastern Louisiana has historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. It is expected that this historical trend would continue to impact non-jurisdictional BLH habitat in the region.

3.2.1 Upland Resources

For the purposes of this IER, upland resources are considered to be any non-wetland areas. Non-jurisdictional BLH habitat, although part of this definition, are discussed separately in section 3.2.2. Impacts to farmland and prime and unique farmland soils, which may be located in upland areas, are discussed in section 3.2.4. Upland areas include maintained and unmaintained pasture, and forested areas that are neither wetland nor non-jurisdictional BLH.

Existing Conditions

Some species identified in non-wet pasture areas include Johnson grass, yellow bristle grass, annual sumpweed, arrow-leaf sida, vasey grass, and Brazilian vervain. Scrub/shrub areas may be comprised of Chinese tallow tree, eastern false-willow, wax myrtle, giant ragweed, dewberry, elderberry, red mulberry, pepper vine, and dog fennel.

- *Eastover Phase II*
The proposed Eastover Phase II contractor-furnished borrow area is the site of a closed golf course. Approximately 69.8 acres are currently covered by grasses, with sporadic sand traps and ponds throughout the site. Approximately 31.1 acres is forested, as discussed in section 3.2.2. The proposed Eastover Phase II site borders and surrounds the approved Eastover Phase I site, which is also a part of the closed golf course and consists of 36.6 acres of uplands.
- *Tammany Holding*
The proposed 291-acre Tammany Holding contractor-furnished borrow area is currently a leveed non-wetland upland area. The site has been cleared and is currently being developed into a residential subdivision.
- *Willow Bend Phase II*
Approximately 419.8 acres of the 496-acre proposed Willow Bend Phase II contractor-furnished borrow area was recently used as farmland and pastureland. The proposed Willow Bend Phase II site borders and surrounds the approved Willow Bend Phase I site, which is currently 64 acres of cleared uplands.

Discussion of Impacts

No Action

- *Eastover Phase II*

Direct Impacts

Under the no action alternative, no direct impacts to upland areas would occur from the proposed action. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area.

Indirect Impacts

Under the no action alternative, no indirect impacts to upland areas would occur from the proposed action. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, there would be no cumulative impacts to uplands from the proposed action. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The approved 36.6-acre Eastover Phase I contractor-furnished borrow area, approved in IER #19, could be used for construction of the HSDRRS. Use of the approved Eastover Phase I contractor-furnished borrow area would contribute to the cumulative loss of uplands in the project area. Additional potential cumulative impacts to upland areas depend on what the landowner decides to do with the approved Eastover Phase I borrow area following excavation.

Other cumulative impacts to upland resources would continue in the project area under the no action alternative. There are several potential borrow areas in New Orleans East that were approved or are being investigated for construction of the HSDRRS. The approved non-wetland Eastover Phase I, Cummings North, Maynard, Stumpf Phase I, and Stumpf Phase II sites are located within three miles of the proposed action (figure 9). Additionally, the proposed non-wetland Cummings South site is also in the vicinity. It is reasonably foreseeable that the approved sites could be used for construction of the HSDRRS, and their use would cumulatively impact upland areas in New Orleans East.

Upland areas in southeastern Louisiana have historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. It is expected that this historical trend would continue to impact upland areas in the region.

- *Tammany Holding*

Direct Impacts

Under the no action alternative, no direct impacts to upland areas would occur from the proposed action. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area.

Indirect Impacts

No indirect impacts to upland areas would occur under the no action alternative. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, there would be no cumulative impacts to uplands from the proposed action. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

Potential cumulative impacts to upland areas from the Tammany Holding site depend on what the landowner decides to do with the site.

The recent clearing of the Tammany Holding site has contributed to the cumulative loss of uplands in the project area. The landowner of the proposed borrow area is currently developing the surrounding property into a residential subdivision.

Development of the site, which was historically marsh and is now leveed and mostly cleared, would cumulatively impact upland resources in the project area. Additionally, development of the site may cumulatively impact non-developed upland areas in St. Tammany Parish. Features associated with increased population, including but not limited to roads, commercial districts, and schools to serve the new population would likely be built in the surrounding area. These activities may depend on the development of upland areas.

There are several potential borrow areas in St. Tammany Parish under investigation for use on the HSDRRS (figure 10). If these sites are approved for use in the HSDRRS, they could also contribute to cumulative upland impacts in St. Tammany Parish.

Upland areas in southeastern Louisiana have historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. It is expected that this historical trend would continue to impact upland areas in the region.

- *Willow Bend Phase II*

Direct Impacts

Under the no action alternative, no direct impacts to upland areas would occur from the proposed action. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area.

Indirect Impacts

No indirect impacts to upland areas would occur under the no action alternative. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, there would be no cumulative impacts to uplands from the proposed action. The proposed Willow Bend Phase II contractor-furnished borrow area would not be used. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-

approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The approved 64-acre Willow Bend Phase I contractor-furnished borrow area, which was approved in IER #26, could be used for construction of the HSDRRS. Use of the approved Willow Bend Phase I contractor-furnished borrow area would contribute to the cumulative loss of uplands in the project area.

Additional potential cumulative impacts to upland areas depend on what the landowner decides to do with proposed Willow Bend Phase II site. Other cumulative impacts to upland resources would continue in the project area under the no action alternative.

The approved 3C Riverside Phase I and Phase II sites are located within 5 miles of the approved Willow Bend Phase I and proposed Willow Bend Phase II sites (figure 11). It is reasonably foreseeable that use of the approved 3C Riverside Phase I and Phase II contractor-furnished sites could be used for construction of the HSDRRS, and their use would cumulatively impact non-wetland/upland resources in the vicinity.

Upland areas in southeastern Louisiana have historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. It is expected that this historical trend would continue to impact upland areas in the region.

Proposed Action

- *Eastover Phase II*

Direct Impacts

Approximately 69.8 acres of former golf course would be directly impacted by use of the proposed Eastover Phase II contractor-furnished borrow area. The proposed Eastover Phase II site would be mechanically cleared and borrow material would be excavated. Additional potential direct impacts to upland areas depend on what the landowner decides to do with the proposed Eastover Phase II site following excavation.

Indirect Impacts

No indirect impacts to upland areas would occur with implementation of the proposed action.

Cumulative Impacts

Use of the proposed Eastover Phase II contractor-furnished borrow area would contribute to the cumulative loss of uplands in the project area by directly impacting 69.8 acres of uplands. In addition, the approved 36.6-acre Eastover Phase I contractor-furnished borrow area could be used for construction of the HSDRRS. Use of the approved Eastover Phase I contractor-furnished borrow area would also contribute to cumulative impacts to uplands in the project area by directly impacting 36.6-acres of uplands. Additional potential cumulative impacts to upland areas depend on what the landowner decides to do with the approved Eastover Phase I and proposed Eastover Phase II sites following excavation.

Other cumulative impacts to upland resources would continue in the project area. There are several potential borrow areas in New Orleans East that were approved or are being investigated for construction of the HSDRRS. The approved non-wetland Eastover Phase I, Cummings North, Maynard, Stumpf Phase I, and Stumpf Phase II sites are located within three miles of the proposed action (figure 9). Additionally, the proposed non-wetland Cummings South site is also in the vicinity. It is reasonably foreseeable that the approved sites could be used for construction of the HSDRRS, and their use would cumulatively impact upland areas in New Orleans East.

Upland areas in southeastern Louisiana have historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. It is expected that this historical trend would continue to impact upland areas in the region.

- *Tammany Holding*

Direct Impacts

Approximately 291 acres of upland area would be directly impacted by use of the proposed Tammany Holding contractor-furnished borrow area. Borrow material would be excavated from the proposed site.

The landowner of the proposed Tammany Holding site is currently developing the surrounding property into a residential subdivision. Upland areas have been mechanically cleared for this purpose. Under the proposed action, the borrow area would be excavated and would be expected to fill with water over time. The landowner plans to build a residential community around the resulting water features.

Indirect Impacts

No indirect impacts to upland areas would occur with implementation of the proposed action.

Cumulative Impacts

Use of the proposed Tammany Holding contractor-furnished borrow area would contribute to the cumulative loss of uplands in the project area by directly impacting 291 acres of uplands. The recent clearing of the Tammany Holding site has contributed to the cumulative loss of uplands in the project area. The landowner of the proposed borrow area is currently developing a residential subdivision.

Development of the site, which was historically marsh and is now leveed and mostly cleared, would cumulatively impact upland resources. Additionally, development of the site may cumulatively impact non-developed upland areas in St. Tammany Parish. Features associated with increased population, including but not limited to roads, commercial districts, and schools to serve the new population could likely be built in the surrounding area. These activities may depend on the development of upland areas.

There are several potential borrow areas in St. Tammany Parish under investigation for use on the HSDRRS (figure 10). If these sites are approved for

use in the HSDRRS, they could also contribute to cumulative upland impacts in St. Tammany Parish.

Upland areas in southeastern Louisiana have historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. It is expected that this historical trend would continue to impact upland areas in the region.

- *Willow Bend Phase II*

Direct Impacts

Approximately 419.8 acres of former agricultural fields would be directly impacted with implementation of the proposed alternative. The site would be mechanically cleared, and borrow material would be excavated. Additional potential direct impacts to upland areas depend on what the landowner decides to do with the Willow Bend Phase II site following excavation.

Indirect Impacts

No indirect impacts to upland areas would occur with implementation of the proposed action.

Cumulative Impacts

Use of the proposed Willow Bend Phase II contractor-furnished borrow area would contribute to the cumulative loss of uplands in the project area by directly impacting 419.8 acres of uplands. In addition, the approved 64-acre Willow Bend Phase I contractor-furnished borrow area could be used for construction of the HSDRRS. Use of the approved Willow Bend Phase I contractor-furnished borrow area would also contribute to cumulative impacts to upland areas in the project area by directly impacting 64 acres of uplands. Additional potential cumulative impacts to upland areas depend on what the landowner decides to do with the approved Willow Bend Phase I and proposed Willow Bend Phase II sites following excavation.

The approved 3C Riverside Phase I and Phase II sites are located within 5 miles of the approved Willow Bend Phase I and proposed Willow Bend Phase II sites (figure 11). It is reasonably foreseeable that use of the approved 3C Riverside Phase I and Phase II contractor-furnished sites could be used for construction of the HSDRRS, and their use would cumulatively impact non-wetland/upland resources in the vicinity.

Upland areas in southeastern Louisiana have historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. It is expected that this historical trend would continue to impact upland areas in the region.

3.2.2 Farmland & Farmland Soils

Existing Conditions

The National Resources Conservation Service (NRCS) uses a land evaluation and site assessment system to establish a farmland conversion impact rating score on proposed sites. This score is used by Federal agencies in assessing potential impacts to farmland

and farmland soils in potential project areas. As identified by the NRCS, the proposed Tammany Holding and Willow Bend Phase II contractor-furnished borrow areas contain prime, unique, statewide, or locally important farmland. The proposed Eastover Phase II contractor-furnished borrow area does not contain prime, unique, statewide, or locally important farmland. None of the three proposed borrow areas contain any unique soils as identified by the NRCS.

Discussion of Impacts

No Action

- *Eastover Phase II*

Direct Impacts

No direct impacts to farmland or prime farmland soils at the proposed Eastover Phase II contractor-furnished borrow area would occur under the no action alternative. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area.

Indirect Impacts

No indirect impacts to farmland or prime farmland soils would occur under the no action alternative. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, there would be no cumulative impacts to farmland soils from the proposed action. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The approved Eastover Phase I contractor-furnished borrow area could be used for construction of the HSDRRS. The approved Eastover Phase I site is not currently and has not historically been farmland. Thus, use of the approved Eastover Phase I borrow area would not cumulatively affect farmland or prime farmland soils.

There are several potential borrow areas in New Orleans East that were approved or are being investigated for construction of the HSDRRS. The approved non-wetland Eastover Phase I, Cummings North, Maynard, Stumpf Phase I, and Stumpf Phase II sites are located within three miles of the proposed action (figure 9). Additionally, the proposed non-wetland Cummings South site is also in the vicinity. It is reasonably foreseeable that the approved sites could be used for construction of the HSDRRS, and their use would not cumulatively impact farmland or farmland soils in New Orleans East because none of the sites contain farmland or farmland soils.

Most of the area of New Orleans East was historically marsh and cypress, which was leveed and drained in the early 20th century. New Orleans East is presently a residential and commercial area, with some industrial activity located mostly south of Chef Menteur Highway.

Farmed areas in southeastern Louisiana have historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. It is expected that this historical trend would continue to impact farmland in the region.

- *Tammany Holding*

Direct Impacts

No direct impacts to farmland or prime farmland soils at the proposed Tammany Holding contractor-furnished borrow area would occur under the no action alternative. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area.

Indirect Impacts

No indirect impacts to farmland, or prime farmland soils would occur under the no action alternative. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, there would be no cumulative impacts to farmland or farmland soils from the proposed action. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

There are several potential borrow areas in St. Tammany Parish under investigation for use on the HSDRRS (figure 10). If these sites are approved for use in the HSDRRS, they could also contribute to cumulative farmland impacts in St. Tammany Parish.

Farmed areas in southeastern Louisiana have historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. It is expected that this historical trend would continue to impact farmland in the region, especially with the current rapid growth of the Slidell area.

- *Willow Bend Phase II*

Direct Impacts

Under the no action alternative, no direct impacts to farmland or prime farmland soils would occur at the proposed Willow Bend Phase II contractor-furnished borrow area. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area.

Indirect Impacts

No indirect impacts to farmland, or prime farmland soils would occur under the no action alternative. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, there would be no cumulative impacts to farmland from the proposed action. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The approved 64-acre Willow Bend Phase I contractor-furnished borrow area, which was approved in IER #26, could be used for construction of the HSDRRS. The Willow Bend Phase I site was identified by the NRCS to contain prime farmland soils. It is reasonably foreseeable that use of the approved Willow Bend Phase I site could be used for construction of the HSDRRS, and its use would contribute to the cumulative loss of farmland and prime farmland soils in the project area. Additional potential cumulative impacts to farmland and farmland soils depend on what the landowner decides to do with the approved Willow Bend Phase I site following excavation.

The approved 3C Riverside Phase I and Phase II sites are located within 5 miles of the approved Willow Bend Phase I and proposed Willow Bend Phase II sites (figure 11). It is reasonably foreseeable that use of the approved 3C Riverside Phase I and Phase II sites, which contain prime farmland soils, could be used for construction of the HSDRRS. Their use would cumulatively impact prime and unique farmland in the vicinity.

Farmed areas in southeastern Louisiana have historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. It is expected that this historical trend would continue to impact farmland in the region.

Proposed Action

- *Eastover Phase II*

Direct Impacts

The excavation of the proposed Eastover Phase I contractor-furnished borrow area would not directly impact farmland or farmland soils because the proposed borrow area does not contain any farmland or farmland soils.

Indirect Impacts

No indirect impacts to farmland, or prime farmland soils would occur with due to excavation of the proposed Eastover Phase II contractor-furnished borrow area because the proposed borrow area does not contain any farmland or farmland soils.

Cumulative Impacts

Use of the proposed Eastover Phase II contractor-furnished borrow area would not contribute to the cumulative loss of farmland or farmland soils in the project area because the proposed borrow area does not contain any farmland or farmland soils. The approved 36.6-acre Eastover Phase I contractor-furnished borrow area could be used for construction of the HSDRRS. Use of the approved Eastover Phase I contractor-furnished borrow area would also not contribute to cumulative

impacts to farmland in the project area because the approved Eastover Phase I site does not contain any farmland or farmland soils.

There are several potential borrow areas in New Orleans East that were approved or are being investigated for construction of the HSDRRS. The approved non-wetland Eastover Phase I, Cummings North, Maynard, Stumpf Phase I, and Stumpf Phase II sites are located within three miles of the proposed action (figure 9). Additionally, the proposed non-wetland Cummings South site is also in the vicinity. It is reasonably foreseeable that the approved sites could be used for construction of the HSDRRS, and their use would not cumulatively impact farmland or farmland soils in New Orleans East because none of the sites contain farmland or farmland soils.

Most of the area of New Orleans East was historically marsh and cypress, which was leveed and drained in the early 20th century. New Orleans East is presently a residential and commercial area, with some industrial activity located mostly south of Chef Menteur Highway.

Farmed areas in southeastern Louisiana have historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. It is expected that this historical trend would continue to impact farmland in the region.

- *Tammany Holding*

Direct Impacts

The excavation of the proposed Tammany Holding contractor-furnished borrow area would directly impact prime farmland soils. The proposed contractor-furnished borrow area would be cleared and excavated. Removing soils from the proposed contractor-furnished borrow area would result in a direct permanent loss of prime and unique farmlands, and the area would no longer be available for farming. Additional potential direct impacts to farmland and farmland soils depend on what the landowner decides to do with the Tammany Holding site following excavation.

Indirect Impacts

No indirect impacts to farmland, or prime farmland soils would occur with implementation of the proposed action.

Cumulative Impacts

The excavation of prime farmland soils from the proposed Tammany Holding borrow area would contribute to the cumulative loss of farmland soils within the project area.

There are several potential borrow areas in St. Tammany Parish under investigation for use on the HSDRRS (figure 10). If these sites are approved for use in the HSDRRS, they could also contribute to cumulative farmland impacts in St. Tammany Parish.

Farmed areas in southeastern Louisiana have historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas

in the region. It is expected that this historical trend would continue to impact farmland in the region, especially with the current rapid growth of the Slidell area.

- *Willow Bend Phase II*

Direct Impacts

The excavation of the proposed Willow Bend Phase II contractor-furnished borrow area would directly impact prime farmland soils. The proposed contractor-furnished borrow area would be cleared and excavated. Removing soils from the proposed contractor-furnished borrow area would result in a direct permanent loss of prime and unique farmlands, and the area would no longer be available for farming. Additional potential direct impacts to farmland and farmland soils depend on what the landowner decides to do with the Willow Bend Phase II site following excavation.

Indirect Impacts

No indirect impacts to farmland, or prime farmland soils would occur with implementation of the proposed action.

Cumulative Impacts

The excavation of prime farmland soils from the proposed Willow Bend Phase II contractor-furnished borrow area would contribute to the cumulative loss of farmland soils in the project area.

The approved 64-acre Willow Bend Phase I contractor-furnished borrow area could be used for construction of the HSDRRS. Use of the approved Willow Bend Phase I contractor-furnished borrow area would also contribute to the cumulative loss of farmland and farmland soils in the project area. Additional potential cumulative impacts to upland areas depend on what the landowner decides to do with the approved Willow Bend Phase I and proposed Willow Bend Phase II sites.

The approved 3C Riverside Phase I and Phase II sites are located within 5 miles of the approved Willow Bend Phase I and proposed Willow Bend Phase II sites (figure 11). It is reasonably foreseeable that use of the approved 3C Riverside Phase I and Phase II sites, which contain prime farmland soils, could be used for construction of the HSDRRS. Their use would also cumulatively impact prime and unique farmland in the vicinity.

Farmed areas in southeastern Louisiana have historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. It is expected that this historical trend would continue to impact farmland in the region.

3.2.3 Wildlife

Existing Conditions

The study area contains a great variety of mammals, birds, reptiles, and amphibians. Species inhabiting the area include nutria, muskrat, mink, otter, raccoon, white-tailed

deer, skunks, rabbits, squirrels, armadillos, and a variety of smaller mammals. Wood ducks and some migratory waterfowl may be present during winter.

Non-game wading birds, shore birds, and sea birds including egrets, ibis, herons, sandpipers, willets, black-necked stilts, gulls, terns, skimmers, grebes, loons, cormorants, and white and brown pelicans are found in the project vicinity. Various raptors such as barred owls, red-shouldered hawks, northern harriers (marsh hawks), American kestrel, and red-tailed hawks may be present. Passerine birds in the areas include sparrows, vireos, warblers, mockingbirds, grackles, red-winged blackbirds, wrens, blue jays, cardinals, and crows. Many of these birds are present primarily during periods of spring and fall migrations. The areas may also provide habitat for the American alligator, salamanders, toads, frogs, turtles, and several species of poisonous and nonpoisonous snakes. The area currently provides suitable breeding habitat for various species of mosquitoes.

The bald eagle is a raptor that is found in various areas throughout the United States and Canada as well as throughout the study area. Bald eagles are Federally protected under the Bald Eagle Protection Act of 1940. The bald eagle feeds on fish, rabbits, waterfowl, seabirds, and carrion (Ehrlich et al., 1988). The main basis of the bald eagle diet is fish, but they will feed on other items such as birds and carrion depending upon availability of the various foods. Eagles require roosting and nesting habitat, which in Louisiana consists of large trees in fairly open stands (Anthony et al., 1982). Bald eagles nest in Louisiana from October through mid-May. Eagles typically nest in bald cypress trees near fresh to intermediate marshes or open water in the southeastern parishes.

Discussion of Impacts

No Action

- *Eastover Phase II*

Direct Impacts

Under the no action alternative, no direct impacts to wildlife or wildlife habitat would occur from the proposed action. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area.

Indirect Impacts

Under the no action alternative, no indirect impacts to wildlife or wildlife habitat would occur from the proposed action. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, there would be no cumulative impacts to wildlife or wildlife habitat from the proposed action. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The approved 36.6-acre Eastover Phase I contractor-furnished borrow area, approved in IER #19, could be used for construction of the HSDRRS. Use of the approved Eastover Phase I contractor-furnished borrow area could contribute to the cumulative loss of wildlife and wildlife habitat in the project area. Any

habitat at the site would be destroyed. However, the approved Eastover Phase I site, which is a portion of a former golf course, is not high quality wildlife habitat. Additional potential cumulative impacts to wildlife and wildlife habitat depend on what the landowner decides to do with the Eastover Phase I site following excavation.

Other cumulative impacts to wildlife and wildlife habitat would continue in the project area under the no action alternative. There are several potential borrow areas in New Orleans East that were approved or are being investigated for use on the HSDRRS. The approved Eastover Phase I, Cummings North, Maynard, Stumpf Phase I, and Stumpf Phase II sites are located within three miles of the proposed action (figure 9). Additionally, the proposed Cummings South site is also in the vicinity. It is reasonably foreseeable that the approved sites could be used for construction of the HSDRRS, and their use would cumulatively impact wildlife and wildlife habitat in New Orleans East.

Wildlife and wildlife habitat in southeastern Louisiana have historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. Additionally, the region is losing unleveed terrestrial wildlife habitat areas as coastal land loss continues. It is expected that this historical trend would continue to impact wildlife in the region. Additionally, the region is losing unleveed terrestrial wildlife habitat areas as coastal land loss continues.

- *Tammany Holding*

Direct Impacts

Under the no action alternative, no direct impacts to wildlife and wildlife habitat would occur from the proposed action. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area.

Indirect Impacts

Under the no action alternative, no indirect impacts to wildlife and wildlife habitat would occur from the proposed action. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, there would be no cumulative impacts to wildlife and wildlife habitat from the proposed action. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The landowner's planned residential development on the site will contribute to cumulative impacts on wildlife and wildlife habitat in the project area. The site is currently cleared and provides little to no habitat value to wildlife. During construction of the planned residential development, mobile wildlife would be displaced during construction, and non-mobile wildlife would be destroyed. Habitat would be permanently altered to a human-dominated landscape that

would provide little to no value to wildlife. Lakes and other proposed subdivision features may provide some habitat for wildlife.

Other cumulative impacts to wildlife and wildlife habitat would continue in the project area under the no action alternative. There are several potential borrow areas in St. Tammany Parish under investigation for use on the HSDRRS (figure 10). If these sites are approved for use in the HSDRRS, they could also contribute to cumulative wildlife and wildlife impacts in St. Tammany Parish.

Wildlife and wildlife habitat in southeastern Louisiana have historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. Additionally, the region is losing unleveed terrestrial wildlife habitat areas as coastal land loss continues. It is expected that this historical trend would continue to impact wildlife in the region.

- *Willow Bend Phase II*

Direct Impacts

Under the no action alternative, no direct impacts to wildlife and wildlife habitat would occur from the proposed action. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area.

Indirect Impacts

Under the no action alternative, no direct impacts to wildlife and wildlife habitat would occur from the proposed action. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, there would be no cumulative impacts to wildlife and wildlife habitat from the proposed action. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The approved 64-acre Willow Bend Phase I contractor-furnished borrow area, which was approved in IER #26, could be used for construction of the HSDRRS. Use of the approved Willow Bend Phase I contractor-furnished borrow area would contribute to the cumulative loss of wildlife and wildlife habitat in the project area. Additional potential cumulative impacts to wildlife and wildlife habitat depend on what the landowner decides to do with the approved Willow Bend Phase I site following excavation.

Other cumulative impacts to wildlife and wildlife habitat would continue in the project area under the no action alternative. The approved 3C Riverside Phase I and Phase II sites are located within 5 miles of the approved Willow Bend Phase I and proposed Willow Bend Phase II sites (figure 11). It is reasonably foreseeable that use of the approved 3C Riverside Phase I and Phase II sites could be used for construction of the HSDRRS. Their use would cumulatively impact wildlife in the vicinity. However, this impact would be temporary for mobile species. Wildlife would be expected to move temporarily or permanently into area habitat.

Wildlife and wildlife habitat in southeastern Louisiana have historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. Additionally, the region is losing unleveed terrestrial wildlife habitat areas as coastal land loss continues. It is expected that this historical trend would continue to impact wildlife in the region.

Proposed Action

- *Eastover Phase II*

Direct Impacts

Approximately 69.8 acres of former golf course would be directly impacted by use of the proposed Eastover Phase II contractor-furnished borrow area. The wildlife habitat value of the golfing greens is low. The approximately 31.1-acre forested area would provide higher habitat value than the upland golfing space. Both the upland and forested areas of the proposed Eastover Phase II borrow area would be directly impacted by mechanical clearing. Mobile wildlife are expected to vacate the area during construction, and return after borrow excavation is complete. Non-mobile wildlife would be destroyed by construction activities.

Habitat would be permanently changed from terrestrial to aquatic if borrow areas are not backfilled and are allowed to fill with water. Movement of wildlife, principally birds and small mammals, which currently inhabit the terrestrial habitat areas into surrounding, unimpacted habitats during construction would not be expected to result in exceedances of the carrying capacity of adjacent habitat, including the nearby Bayou Sauvage National Wildlife Refuge. Aquatic and semi-aquatic wildlife would be attracted to the sites, while terrestrial species would decline in numbers or, if mobile, travel to more suitable habitat. Additional potential direct impacts to wildlife and wildlife habitat depend on what the landowner decides to do with the Eastover Phase II site following excavation.

Indirect Impacts

Excavation of the proposed Eastover Phase II borrow area would indirectly impact wildlife and wildlife habitat in the project area. Following excavation, the proposed borrow area could become a pond or series of small lakes if water is retained, or a vegetated area if water is not retained. Aquatic and semi-aquatic species would be favored in the created lakes. Terrestrial species would be favored in vegetated areas.

Cumulative Impacts

Use of the proposed Eastover Phase II contractor-furnished borrow area would contribute to the cumulative loss of wildlife and wildlife habitat in the region. In addition, the approved 36.6-acre Eastover Phase I contractor-furnished borrow area could be used for construction of the HSDRRS. Use of the approved Eastover Phase I contractor-furnished borrow area would also contribute to cumulative impacts on wildlife and wildlife habitat in the project area. Because the excavated borrow site may provide habitat for wildlife, the detrimental cumulative impact to wildlife may be reduced.

Other cumulative impacts to wildlife and wildlife habitat would continue in the project area. There are several potential borrow areas in New Orleans East that

were approved or are being investigated for use on the HSDRRS. The approved Eastover Phase I, Cummings North, Maynard, Stumpf Phase I, and Stumpf Phase II sites are located within three miles of the proposed action (figure 9). Additionally, the proposed Cummings South site is also in the vicinity. It is reasonably foreseeable that the approved sites could be used for construction of the HSDRRS, and their use would cumulatively impact wildlife and wildlife habitat in New Orleans East.

Wildlife and wildlife habitat in southeastern Louisiana have historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. Additionally, the region is losing unleveed terrestrial wildlife habitat areas as coastal land loss continues. It is expected that this historical trend would continue to impact wildlife in the region.

- *Tammany Holding*

Direct Impacts

Excavation of the proposed Tammany Holding contractor-furnished borrow area would result in direct impacts to wildlife and wildlife habitat. Any wildlife habitat at the proposed borrow area would be directly impacted by mechanical clearing. Mobile wildlife are expected to vacate the area during construction, and return after borrow excavation is complete. Non-mobile wildlife would be destroyed by construction activities.

Habitat would be permanently changed from terrestrial to aquatic if borrow areas are not backfilled and are allowed to fill with water. Movement of wildlife, principally birds and small mammals, which currently inhabit the terrestrial habitat areas into surrounding, unimpacted habitats during construction would not be expected to result in exceedances of the carrying capacity of adjacent habitat. Aquatic and semi-aquatic wildlife would be attracted to the sites, while terrestrial species would decline in numbers or, if mobile, travel to more suitable habitat. Additional potential direct impacts to wildlife and wildlife habitat depend on what the landowner decides to do with the proposed Tammany Holding site following excavation.

Indirect Impacts

Excavation of the proposed Tammany Holding borrow area would indirectly impact wildlife and wildlife habitat in the project area. Following excavation, the proposed borrow area could become a pond or series of small lakes if water is retained, or a vegetated area if water is not retained. Aquatic and semi-aquatic species would be favored in the created lakes. Terrestrial species would be favored in vegetated areas.

Cumulative Impacts

Use of the proposed Tammany Holding contractor-furnished borrow area would contribute to the cumulative loss of wildlife and wildlife habitat in the region. Because the excavated borrow site may provide habitat for wildlife, the detrimental cumulative impact to wildlife may be reduced.

The landowner's planned residential development on the site would also contribute to cumulative impacts on wildlife and wildlife habitat in the project area. The Tammany Holding site is currently cleared and provides little to no habitat value to wildlife. During construction of the planned residential

development, mobile wildlife would be displaced during construction, and non-mobile wildlife would be destroyed. Habitat would be permanently altered to a human-dominated landscape that would provide little to no value to wildlife. Lakes and other proposed subdivision features may provide some habitat for wildlife.

There are several potential borrow areas in St. Tammany Parish under investigation for use on the HSDRRS (figure 10). If these sites are approved for use in the HSDRRS, they would also contribute to cumulative wildlife and wildlife habitat impacts in St. Tammany Parish.

Wildlife and wildlife habitat in southeastern Louisiana have historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. Additionally, the region is losing unleveed terrestrial wildlife habitat areas as coastal land loss continues. It is expected that this historical trend would continue to impact wildlife in the region.

- *Willow Bend Phase II*

Direct Impacts

Excavation of the proposed Willow Bend Phase II contractor-furnished borrow area would result in direct impacts to wildlife and wildlife habitat. Any wildlife habitat at the proposed borrow area would be directly impacted by mechanical clearing. Mobile wildlife are expected to vacate the area during construction, and return after borrow excavation is complete. Non-mobile wildlife would be destroyed by construction activities.

Habitat would be permanently changed from terrestrial to aquatic if borrow areas are not backfilled and are allowed to fill with water. Movement of wildlife, principally birds and small mammals, which currently inhabit the terrestrial habitat areas into surrounding, unimpacted habitats during construction would not be expected to result in exceedances of the carrying capacity of adjacent habitat. Semi-aquatic wildlife would be attracted to the sites, while terrestrial species would decline in numbers or, if mobile, travel to more suitable habitat. Additional potential direct impacts to wildlife and wildlife habitat depend on what the landowner decides to do with the proposed Willow Bend Phase II site following excavation.

Indirect Impacts

Excavation of the proposed Willow Bend Phase II borrow area would indirectly impact wildlife and wildlife habitat in the project area. Following excavation, the proposed borrow area could become a pond or series of small lakes if water is retained, or a vegetated area if water is not retained. Aquatic and semi-aquatic species would be favored in the created lakes. Terrestrial species would be favored in vegetated areas.

Cumulative Impacts

Use of the proposed Willow Bend Phase II contractor-furnished borrow area would contribute to the cumulative loss of wildlife and wildlife habitat in the region. The approved 64-acre Willow Bend Phase I contractor-furnished borrow area could be used for construction of the HSDRRS. Use of the approved Willow Bend Phase I contractor-furnished borrow area would also contribute to cumulative impacts on wildlife and wildlife habitat in the project area. Because

the excavated borrow sites may provide habitat for wildlife, the detrimental cumulative impact to wildlife may be reduced.

Other cumulative impacts to wildlife and wildlife habitat would continue in the project area. The approved 3C Riverside Phase I and Phase II sites are located within 5 miles of the approved Willow Bend Phase I and proposed Willow Bend Phase II sites (figure 11). It is reasonably foreseeable that use of the approved 3C Riverside Phase I and Phase II sites could be used for construction of the HSDRRS. Their use would cumulatively impact wildlife in the vicinity. However, this impact would be temporary for mobile species. Wildlife would be expected to move temporarily or permanently into area habitat.

Wildlife and wildlife habitat in southeastern Louisiana have historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. Additionally, the region is losing unleveed terrestrial wildlife habitat areas as coastal land loss continues. It is expected that this historical trend would continue to impact wildlife in the region.

3.2.4 Threatened and Endangered Species

Existing Conditions

Threatened and endangered species (T&E) are those recognized species that are legally protected in the United States through various conservation measures. The USFWS designates areas that have the physical and biological features that are essential to the conservation of T&E species or areas of habitat that are believed to be essential to a species' conservation as "critical habitat." Through this designation the USFWS is helping to manage the survival and proliferation of T&E species in the region. Although several Federal or state-listed T&E species are dependent on the habitat types present in the study areas, no endangered, threatened, or candidate species under USFWS jurisdiction presently occur in the proposed Eastover Phase II, Tammany Holding, or Willow Bend Phase II contractor-furnished borrow areas, as described below. No critical habitat for any T&E species was found in any of the proposed contractor-furnished borrow areas.

Discussion of Impacts

No Action

- *All Sites*

Direct Impacts

No direct impacts to T&E species or their critical habitat would occur under the no action alternative. The proposed Eastover Phase II, Tammany Holding, and Willow Bend Phase II sites would not be used as contractor-furnished borrow areas.

Indirect Impacts

No indirect impacts to T&E species or their critical habitat would occur under the no action alternative. The proposed Eastover Phase II, Tammany Holding, and Willow Bend Phase II sites would not be used as contractor-furnished borrow areas.

Cumulative Impacts

Under the no action alternative, there would be no cumulative impacts to T&E species or their critical habitat from the proposed action. The proposed Eastover Phase II, Tammany Holding, and Willow Bend Phase II sites would not be used as contractor-furnished borrow areas. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The approved Eastover Phase I and Willow Bend Phase I contractor-furnished borrow areas, which were approved in IER #19 and IER #26, respectively, could be used for construction of the HSDRRS. Use of the approved Eastover Phase I and Willow Bend Phase I sites would not contribute to the loss of T&E species or their critical habitat in the project area because neither of these approved sites contain any T&E species or critical habitat.

The region's T&E species depend on a variety of habitat that includes resources previously discussed in this IER, mainly jurisdictional wetlands and non-jurisdictional BLH. A discussion of the potential impacts to these resources can be found in, respectively, section 3.2.1 and section 3.2.2. Cumulative impacts to T&E species and wildlife habitat would continue in the project area under the no action alternative.

Proposed Action

No listed endangered, threatened, or candidate species are known to exist at the proposed sites. The USFWS concurred with the CEMVN that excavation of the proposed contractor-furnished borrow areas are not likely to adversely affect T&E species or their critical habitat, as described below.

- *Eastover Phase II*

Direct Impacts

No direct impacts to T&E species or their critical habitat would occur with excavation of the proposed Eastover Phase II borrow area. The USFWS concurred with the USACE's determination that implementation of the proposed action would not adversely affect any T&E species or their critical habitat in their letter dated 8 June 2009 (appendix D).

Indirect Impacts

No indirect impacts to T&E species or their critical habitat would occur with implementation of the proposed action.

Cumulative Impacts

Use of the proposed Eastover Phase II borrow area would not contribute to the loss of T&E species or their critical habitat in the project area because the proposed site does not contain any T&E species or critical habitat.

The approved Eastover Phase I contractor-furnished borrow area, which was approved in IER #19, could be used for construction of the HSDRRS. Use of the approved Eastover Phase I site would not contribute to the loss of T&E species or their critical habitat in the project area because the approved Eastover Phase I site does not contain any T&E species or critical habitat.

The region's T&E species depend on a variety of habitat that includes resources previously discussed in this IER, mainly jurisdictional wetlands and non-jurisdictional BLH. A discussion of the impacts to these resources can be found in, respectively, section 3.2.1 and section 3.2.2. Cumulative impacts to T&E species and wildlife habitat would continue in the project area.

- *Tammany Holding*

Direct Impacts

No direct impacts to T&E species or their critical habitat would occur with excavation of the proposed Tammany Holding borrow area. The USFWS concurred with the USACE's determination that implementation of the proposed action would not adversely affect any T&E species or their critical habitat in their letter dated 8 June 2009 (appendix D).

Indirect Impacts

No indirect impacts to T&E species or their critical habitat would occur with implementation of the proposed action.

Cumulative Impacts

Use of the proposed Tammany Holding borrow area would not contribute to the loss of T&E species or their critical habitat in the project area because the proposed site does not contain any T&E species or critical habitat.

The region's T&E species depend on a variety of habitat that includes resources previously discussed in this IER, mainly jurisdictional wetlands and non-jurisdictional BLH. A discussion on the impacts to these resources can be found in, respectively, section 3.2.1 and section 3.2.2. Cumulative impacts to T&E species and wildlife habitat would continue in the project area.

- *Willow Bend Phase II*

Direct Impacts

No direct impacts to T&E species or their critical habitat would occur with excavation of the proposed Willow Bend Phase II borrow area. The USFWS concurred with the USACE's determination that implementation of the proposed action would not adversely affect any T&E species or their critical habitat in their letter dated 17 June 2009 (appendix D).

Indirect Impacts

No indirect impacts to T&E species or their critical habitat would occur with implementation of the proposed action.

Cumulative Impacts

Use of the proposed Willow Bend Phase II borrow area would not contribute to the loss of T&E species or their critical habitat in the project area because the proposed site does not contain any T&E species or critical habitat.

The approved Willow Bend Phase I contractor-furnished borrow area, which was approved in IER #26, could be used for construction of the HSDRRS. Use of the approved Willow Bend Phase I site would not contribute to the loss of T&E

species or their critical habitat in the project area because the approved Willow Bend Phase I site does not contain any T&E species or critical habitat.

The region's T&E species depend on a variety of habitat that includes resources previously discussed in this IER, mainly jurisdictional wetlands and non-jurisdictional BLH. A discussion of potential the impacts to these resources can be found in, respectively, section 3.2.1 and section 3.2.2. Cumulative impacts to T&E species and wildlife habitat would continue in the project area.

3.2.5 Cultural Resources

Existing Conditions

The level of cultural resource investigations for each proposed contractor-furnished borrow area varies and depends on factors such as current and past land use, geomorphology, presence of known sites, and the probability of unknown sites located within the areas of potential effect (APE). This information is used to assess the likelihood that archaeological sites or historic structures could be affected by excavation or visual impacts of a proposed project. When sites are present within the APE, the project area boundaries may be adjusted to avoid impacts to historic properties, or sites may be investigated further to determine if they are eligible for inclusion on the National Register of Historic Places. Overall a range of cultural resource investigations were conducted for the three proposed contractor-furnished borrow areas including reconnaissance investigations, site identification (Phase I), and site evaluation (Phase II).

Section 106 of the National Historic Preservation Act of 1966, as amended, requires consideration of cultural resources prior to a federal undertaking and requires consultation with the State Historic Preservation Officer (SHPO) and Native Tribes that have an interest in the region, and in some cases the Advisory Council on Historic Preservation. Only sites, buildings, structures, or objects determined eligible for listing in or those listed in the National Register of Historic Places (NRHP) are afforded the safeguards of the National Historic Preservation Act. Table 2 summarizes the consultation efforts of the CEMVN for the proposed contractor-furnished borrow areas and the dates the organizations concurred with the CEMVN's findings and recommendations. The results of these investigations and consultation reveal that no known sites eligible for listing in or sites listed in the NRHP properties exist within the APE of each proposed contractor-furnished borrow area would be affected by the proposed actions. Section 106 consultation for the proposed actions is concluded. However, if any unrecorded cultural resources are determined to exist within the proposed project boundaries, then no work will proceed in the area containing these cultural resources until a CEMVN archaeologist has been notified and supplemental coordination with the SHPO and Indian Tribes has been completed.

In its evaluation of potential contractor-furnished borrow areas, the CEMVN seeks to avoid adverse impacts to historic properties. Cultural resource investigations have revealed the presence of both prehistoric and historic sites in the vicinity of the proposed contractor-furnished borrow areas. These prehistoric and historic sites are located outside the APEs for the proposed borrow areas. However, prehistoric archaeological sites, such as shell middens, hunting and gathering camps, habitation sites, villages, and mound sites tend to be located on active and abandoned distributary channel levee complexes, major beach ridges, and on older stable portions of the delta, and in association with freshwater marshes. Similarly, historic period sites, such as forts, plantations, and industrial features tend to be located on levees and waterways. The geologic processes associated with the Mississippi River including delta lobe formation, meander progressions, and alluvial sedimentation from floods greatly influence site location and preservation. For example,

the geological progression of the Mississippi River delta lobes suggests that the earliest archaeological sites near the proposed contractor-furnished borrow areas under consideration would date to approximately 5,000 years ago. In addition, flood sedimentation buries and preserves some sites, while channel erosion and subsidence obliterate other sites.

- *Eastover Phase II and Tammany Holding*
Two of the proposed contractor-furnished borrow areas, Tammany Holding and Eastover Phase II, are located in reclaimed marsh environs. The proposed Tammany Holding site was initially drained in the early part of 20th century, then allowed to revert to marsh, and subsequently drained in the 1960s for residential and commercial development.

The proposed Eastover Phase II site is located in Orleans Parish in an area locally known as New Orleans East. Portions of New Orleans East were converted to dry land following the completion of the LPV system in the late 1960s. The approved Eastover Phase I and proposed Eastover Phase II sites are on a portion of the closed Eastover golf course. The Eastover golf course was opened in the 1980s, and was flooded by Hurricane Katrina in 2005. While marsh habitats are rich in a variety of plants and animals and were likely exploited for subsistence during prehistoric and historic times, they are unlikely locations for habitation. Therefore the likelihood of archaeological sites predating the marsh reclamation activities remains low.

Archaeological survey of the proposed Tammany Holding (Cain and Buchner, 2008) and Eastover Phase II (Bonnmarito, 2008) sites failed to locate any cultural resources within the APEs.

- *Willow Bend Phase II*
The proposed Willow Bend Phase II contractor-furnished borrow area contains backswamp and natural levee soils. Backswamps were likely used for resource extraction during the prehistoric and historic periods; however, backswamps were not suitable for habitation. Forced drainage of the backswamps in the 19th century brought some areas into cultivation. Therefore, cultural resources in backswamps are expected to date to the 19th century or later and be related to agriculture. Natural levee deposits are typically the most elevated, driest, and arable sections of the river valley and served residential, agricultural, and industrial purposes. Levee soils are considered locations with a high probability for the presence of both prehistoric and historic period sites. The proposed Willow Bend Phase II contractor-furnished borrow area is also located in the vicinity of the “German Coast,” a short-lived 19th century German immigrant settlement. Given the short term occupation, archaeological deposits of the German Coast are expected to be ephemeral. During the 19th century plantations flourished within these river parishes. Plantation organization generally included parcels with river frontage and deep extensions into the backswamps that were transformed to agricultural fields, particularly for sugar cane production. Plantation homes were established along the rivers on the natural levees, outbuildings, slave or worker quarters tended to be located behind the big house. Sugar mills, another common plantation structure, tended to be constructed near or within the cane fields.

A cultural resource survey of the proposed Willow Bend Phase II borrow area revealed the remains of two sugar mills (16SJB14 and 16SJB15) within the Willow Bend property (McIntire, 1979; Rawls and Smith, 2008). A 290 foot buffer zone that incorporates a 3:1 slope will be placed around 16SJB15 as a

precautionary measure to avoid impacts to the site (Thorne, 2008). In 1979, the Shell Road site (16SJB14) was recommended as not eligible for inclusion in the National Register of Historic Places (McIntire, 1979), but a reconsideration of the site in 2008 led to the recommendation to either avoid the site or evaluate the site to determine its National Register status (Rawls and Smith, 2008). Additional excavations were conducted at the site between February and May 2008. Excavation of the Shell Road site revealed that this sugar mill began as an open-kettle sugar processing plant in the 1830s or 1840s and was quickly transformed into a mechanized, two-story steam sugar processing mill by the end of the 1840s or early 1850s. The results of the excavation contribute important information about antebellum sugar processing; however, the excavations also exhausted the future research potential of the site (Martin et al., 2008). The Shell Road site has been determined not eligible for the National Register of Historic Places through consultation with the SHPO (table 2), and there is no need to avoid the location of Shell Road site.

Discussion of Impacts

No Action

- *All Sites*

Direct Impacts

Under the no action alternative, no direct impacts to cultural resources at the proposed contractor-furnished borrow areas would be anticipated. Any undiscovered or unreported cultural resources or traditional cultural properties would remain intact and in their current state of preservation. The burial or subsidence of historic land surfaces would continue in the current pattern. All available information indicates that it is highly unlikely that under the no action alternative there would be any direct negative impacts to cultural resources.

Indirect Impacts

Under the no action alternative, no indirect impacts to cultural resources at the proposed contractor-furnished borrow areas are anticipated.

Cumulative Impacts

All available information indicates that it is highly unlikely that under the no action alternative there would be any cumulative negative impacts to cultural resources at the proposed contractor-furnished borrow areas.

Under the no action alternative, the proposed Eastover Phase II, Tammany Holding and Willow Bend Phase II sites would not be used. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The Eastover Phase I site and Willow Bend Phase I site are potential contractor-furnished borrow areas approved in, respectively, IER #19 and IER #26.

A cultural resource survey of the approved Eastover Phase I contractor-furnished borrow area was prepared and no cultural resources were identified within the site (Bommarito, 2007). A cultural resource survey of the approved Willow Bend Phase I contractor-furnished borrow area was prepared, and no cultural resources identified within the site (Rawls and Smith, 2008).

Use of the approved Eastover Phase I and Willow Bend Phase I sites are not likely to contribute to cumulative impacts to cultural resources in the project area because no cultural resources were identified within the approved borrow areas. Additionally, construction contractors are required to contact the CEMVN in the event that any apparent historical or archaeological properties are unearthed during excavation at an approved contractor-furnished borrow site.

Proposed Action

The results of recent cultural resources investigations revealed that no known historic properties eligible for listing on or currently listed on the National Register of Historic Places exist within the proposed contractor-furnished borrow areas or would be affected by the proposed actions. Consequently, the proposed excavation of borrow material from these three proposed contractor-furnished borrow areas would have no effect on historic properties.

- *Eastover Phase II*

Direct Impacts

All available information indicates that it is highly unlikely that cultural resources would be impacted by excavation of the proposed Eastover Phase II contractor-furnished borrow area. With implementation of the proposed action, any undiscovered cultural resources may be damaged during borrow excavation and construction operations. It is unlikely that such direct impacts would occur because cultural resource surveys have been completed in order to identify cultural resources within the proposed Eastover Phase II contractor-furnished borrow area and those surveys did not reveal the existence of any known historic properties that are eligible for the National Register of Historic Places within the proposed borrow site.

Construction contractors are required to contact the CEMVN in the event that any apparent historical or archaeological properties are unearthed during excavation of the proposed site. The items shall be carefully preserved, and the contractor shall leave the find undisturbed. Excavation would be halted until the SHPO is notified.

Indirect Impacts

With implementation of the proposed action, no indirect impacts to cultural resources would be anticipated.

Cumulative Impacts

If the proposed Eastover Phase II site is used as a contractor-furnished borrow area, it is highly unlikely that any cumulative negative impacts to cultural resources would occur from the site's excavation. Cultural resource surveys were completed for the proposed Eastover Phase II site and those surveys did not reveal the existence of any known historic properties that are eligible for the National Register of Historic Places within the proposed borrow site.

The approved Eastover Phase I borrow area was discussed in IER #19. A cultural resource survey of the Eastover Phase I borrow area was prepared and no cultural resources were identified within the approved borrow area (Bommarito, 2007). Use of the approved Eastover Phase I site is not likely to contribute to cumulative

impacts to cultural resources in the project area because no cultural resources were identified within the approved borrow area. Additionally, construction contractors are required to contact the CEMVN in the event that any apparent historical or archaeological properties are unearthed during excavation at an approved contractor-furnished borrow site.

- *Tammany Holding*

Direct Impacts

All available information indicates that it is highly unlikely that cultural resources would be impacted by excavation of the proposed Tammany Holding contractor-furnished borrow area. Cultural resource surveys were completed for the proposed Tammany Holding site and those surveys did not reveal the existence of any known historic properties that are eligible for the National Register of Historic Places within the proposed borrow site. With implementation of the proposed action, any undiscovered cultural resources may be damaged during borrow excavation and construction operations. It is unlikely that such direct impacts would occur because cultural resource surveys have been completed in order to identify cultural resources within the proposed contractor-furnished borrow area.

Construction contractors are required to contact the CEMVN in the event that any apparent historical or archaeological properties are unearthed during excavation of the proposed site. The items shall be carefully preserved, and the contractor shall leave the find undisturbed. Excavation would be halted until the SHPO is notified.

Indirect Impacts

With implementation of the proposed action, no indirect impacts to cultural resources would be anticipated.

Cumulative Impacts

If the proposed Tammany Holding site is used as a contractor-furnished borrow area, it is highly unlikely that any cumulative negative impacts to cultural resources would occur from the site's excavation. Cultural resource surveys were completed for the proposed Tammany Holding site and those surveys did not reveal the existence of any known historic properties that are eligible for the National Register of Historic Places within the proposed borrow site.

- *Willow Bend Phase II*

Direct Impacts

All available information indicates that it is highly unlikely that cultural resources would be impacted by excavation of the proposed Willow Bend Phase II contractor-furnished borrow area. Cultural resource surveys were completed for the proposed Willow Bend Phase II site and those surveys did not reveal the existence of any known historic properties that are eligible for the National Register of Historic Places within the proposed borrow site. With implementation of the proposed action, any undiscovered cultural resources may be damaged during borrow excavation and construction operations. It is unlikely that such direct impacts would occur because cultural resource surveys have been completed in order to identify cultural resources within the proposed contractor-furnished borrow area.

Construction contractors are required to contact the CEMVN in the event that any apparent historical or archaeological properties are unearthed during excavation of the proposed site. The items shall be carefully preserved, and the contractor shall leave the find undisturbed. Excavation would be halted until the SHPO is notified.

Indirect Impacts

With implementation of the proposed action, no indirect impacts to cultural resources would be anticipated.

Cumulative Impacts

If the proposed Willow Bend Phase II site is used as a contractor-furnished borrow area, it is highly unlikely that any cumulative negative impacts to cultural resources would occur from the site's excavation. Cultural resource surveys were completed for the proposed Willow Bend Phase II site and those surveys did not reveal the existence of any known historic properties that are eligible for the National Register of Historic Places within the proposed borrow site.

The approved Willow Bend Phase I borrow area was discussed in IER #26, and no cultural resources were identified within the approximate 64-acre proposed borrow area (Rawls and Smith, 2008).

Use of the approved Willow Bend Phase I site is not likely to contribute to cumulative impacts to cultural resources in the project area, because no cultural resources were identified within the approved borrow area. Additionally, construction contractors are required to contact the CEMVN in the event that any apparent historical or archaeological properties are unearthed during excavation at an approved contractor-furnished borrow site.

Table 2: Summary of Section 106 of NHPA correspondence

Agency/Tribe	Eastover Phase II		Tammany Holding		Willow Bend Phase II	
	CEMVN Letter Date	Response Date	CEMVN Letter Date	Response Date	CEMVN Letter Date	Response Date
SHPO	4/18/2008	5/8/2008	8/12/2008	1/6/2009	9/26/2008	10/22/2008
Chitimacha Tribe of Louisiana	4/18/2008	NR	8/12/2008	NR	9/26/2008	NR
Mississippi Band of Choctaw Indians	4/18/2008	NR	8/12/2008	NR	9/26/2008	NR
Choctaw Nation of Oklahoma	4/18/2008	4/23/2008	8/12/2008	9/17/2008	9/26/2008	10/8/2008
Alabama Coushatta Tribe of TX	4/18/2008	NR	8/12/2008	NR	9/26/2008	NR
Caddo Nation of OK	4/18/2008	NR	8/12/2008	NR	9/26/2008	10/1/2008
Coushatta Tribe of LA	4/18/2008	NR	8/12/2008		9/26/2008	
Jena Band of Choctaw Indians	4/18/2008	NR	8/12/2008	NR	9/26/2008	NR
Quapaw Tribe of OK	4/18/2008	NR	8/12/2008	NR	9/26/2008	NR
Seminole Nation of OK	4/18/2008	NR	8/12/2008	NR	9/26/2008	NR
Seminole Tribe of FL	4/18/2008	NR	8/12/2008	10/20/2009	9/26/2008	NR
Tunica-Biloxi Tribe of LA	4/18/2008	NR	8/12/2008	NR	9/26/2008	NR

* Response date reflects the end of the 30 day comment period. No response (NR) implies concurrence with the Corps finding of “no historic properties affected” as per 36 CFR 800.4(d).

3.2.6 Recreational Resources

Existing Conditions

- *Eastover Phase II*
There are no recreational resources in the immediate vicinity of the proposed Eastover Phase II borrow area. The proposed Eastover Phase II site and the approved Eastover Phase I site are located on a portion of the closed Eastover golf course. The Eastover golf course was originally opened in 1987 as 9 holes. A back nine holes opened in late 1987. In 2000, another 18 holes opened. Hurricane Katrina in August of 2005 rendered Eastover's two 18 hole courses unplayable. In late March of 2007, Eastover reopened nine holes to members with plans to open a back nine in the spring of 2008. However, operators said they were unable to re-establish membership levels, according to an interview with *The Times-Picayune* newspaper in October of 2007. The golf course remains closed and as of June 2009, and the landowner has stated there is no intention of reopening the portion of the golf course where the approved Eastover Phase I and proposed Eastover Phase II borrow areas are located.
- *Tammany Holding*
There are no recreational resources in the immediate vicinity of the proposed Tammany Holding borrow area. The Oak Harbor community is located to the south of the proposed borrow area, which includes homes on interior canals with boat access. Two marinas exist across I-10, well outside the immediate vicinity of the proposed borrow area.
- *Willow Bend Phase II*
There are no recreational resources in the immediate vicinity of the proposed Willow Bend Phase II borrow area. The proposed borrow area is currently used agriculturally, as is the surrounding land.

Discussion of Impacts

No Action

- *All Sites*

Direct Impacts

Under the no action alternative, no direct impacts to recreational resources would occur from the proposed action. The proposed Eastover Phase II, Tammany Holding, and Willow Bend Phase II sites would not be used as contractor-furnished borrow areas.

Indirect Impacts

Under the no action alternative, no indirect impacts to recreational resources would occur from the proposed action. The proposed Eastover Phase II, Tammany Holding, and Willow Bend Phase II sites would not be used as contractor-furnished borrow areas.

Cumulative Impacts

Under the no action alternative, there are no reasonably foreseeable cumulative impacts to recreational resources at the proposed contractor-furnished borrow

areas. The proposed Eastover Phase II, Tammany Holding, and Willow Bend Phase II sites would not be used as contractor-furnished borrow areas. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The proposed sites would remain intact in their current states and would not be excavated for use in the HSDRRS. Any future changes or alterations to the sites would evolve in a natural process over the course of time. The recreational environment around the areas of study would continue to flourish and expand in relation to population growth. Potential cumulative impacts to recreational resources in the project vicinity depend on what the landowners decide to do with the sites.

The Eastover Phase I and Willow Bend Phase I contractor-furnished borrow areas were approved in IER #19 and IER #26, respectively. The Eastover Phase I borrow area is 36.6-acres located on a portion of the closed Eastover golf course. If the approved Eastover Phase I site is excavated, it could contribute to cumulative impacts on recreational resources in the project area. The proposed action would replace part of a currently closed golf course with a borrow area that could become a recreational resource if, over time, it becomes filled with water and potentially viable fisheries. Additionally, the area could be an aesthetically-pleasing lake, which would offer passive recreational use opportunities.

The approved Willow Bend Phase I contractor-furnished borrow area could potentially contribute to cumulative recreational resources in the area. If the Willow Bend Phase I site is excavated, the resulting borrow area could fill with water and the habitat may be suitable to support some recreational activities (e.g., wildlife viewing and fishing). These benefits are expected to be minimal and this site would remain private, restricting its recreational value to the public.

Proposed Action

- *Eastover Phase II*

Direct Impacts

Excavation of the proposed Eastover Phase II contractor-furnished borrow area could result in some positive direct impacts to recreational resources depending on what the landowner does with the site following excavation. The proposed action would replace part of a closed golf course with a borrow area that could become a recreational resource if, over time, it becomes filled with water and potentially viable fisheries. Additionally, the area could be an aesthetically-pleasing lake, which would offer passive recreational use opportunities. Additional potential direct impacts to recreation depend on what the landowner decides to do with the proposed Eastover Phase II site following excavation.

Indirect Impacts

Indirect impacts to recreational resources are expected to be minimal. Construction activities could limit use of the surrounding area open space by joggers and walkers. This impact is expected to be temporary and occur during construction.

Cumulative Impacts

Excavation of the proposed Eastover Phase II borrow area would contribute to the completion of the HSDRRS, which would have beneficial cumulative impacts on recreational resources throughout the greater New Orleans metropolitan area. Both the approved Eastover Phase I borrow area and the proposed Eastover Phase II borrow area could be used by construction contractors in the ongoing Federal effort to reduce the risk to property posed by flooding through construction of the HSDRRS. The combined effects from construction of the multiple projects underway and planned for the HSDRRS reduce flood risk and storm damage to hundreds of recreation facilities and associated infrastructure and parks. Borrow areas needed for the HSDRRS could be converted to lakes following excavation and become viable recreational resources over time. However, decisions regarding the use of excavated contractor-furnished borrow areas rest with the owner of those sites.

- *Tammany Holding*

Direct Impacts

Excavation of the proposed Tammany Holding borrow area could result in some positive direct impacts to recreational resources depending on what the landowner does with the site following excavation. The landowner plans on incorporating the resulting borrow lakes into a planned community. 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 this site would remain private, restricting its recreational value to the public. Additional potential direct impacts to recreation depend on what the landowner decides to do with the Tammany Holding site following excavation.

Indirect Impacts

No indirect impacts to recreational resources would occur with implementation of the proposed action.

Cumulative Impacts

Excavation of the proposed Tammany Holding borrow area would contribute to the completion of the HSDRRS, which would have beneficial cumulative impacts on recreational resources throughout the greater New Orleans metropolitan area. The proposed Tammany Holding borrow area could be used by construction contractors in the ongoing Federal effort to reduce the risk to property posed by flooding through construction of the HSDRRS. The combined effects from construction of the multiple projects underway and planned for the HSDRRS reduce flood risk and storm damage to hundreds of recreation facilities and associated infrastructure and parks. However, the proposed borrow area is not within the HSDRRS, and would not receive the benefits provided by completion of the HSDRRS. Borrow areas needed for the HSDRRS could become viable recreational resources over time. However, decisions regarding the use of excavated contractor-furnished borrow areas rest with the owner of the sites.

- *Willow Bend Phase II*

Direct Impacts

Excavation of the proposed Willow Bend Phase II borrow area could result in some positive direct impacts to recreational resources depending on what the landowner does with the site following excavation. 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 this

site would remain private, restricting its recreational value to the public. Additional potential direct impacts to recreation depend on what the landowner decides to do with the Willow Bend Phase II site following excavation.

Indirect Impacts

No indirect impacts to recreational resources would occur with implementation of the proposed action.

Cumulative Impacts

Excavation of the proposed Willow Bend Phase II borrow area would contribute to the completion of the HSDRRS, which would have beneficial cumulative impacts on recreational resources throughout the greater New Orleans metropolitan area. Both the approved Willow Bend Phase I borrow area and the proposed Willow Bend Phase II borrow area could be used by construction contractors in the ongoing Federal effort to reduce the risk to property posed by flooding through the construction of the HSDRRS. The combined effects from construction of the multiple projects underway and planned for the HSDRRS reduce flood risk and storm damage to hundreds of recreation facilities and associated infrastructure and parks. However, the proposed borrow area is not within the HSDRRS, and would not receive these benefits. Borrow areas needed for the HSDRRS could become viable recreational resources over time. However, decisions regarding the use of excavated contractor-furnished borrow areas following excavation rest with the owner of those sites.

3.2.7 Noise Quality

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 (dBA). Sound on the decibel scale is referred to as the sound level. The threshold of discomfort or pain is around 120 dBA.

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

- *Eastover Phase II*

Noise levels at and surrounding the Eastover Phase II site are variable depending on the time of day and climatic conditions. The proposed Eastover Phase II borrow area borders and surrounds the approved 36.6-acre Eastover Phase I contractor-furnished borrow area. The area around the sites is an urban residential and commercial area with associated highways, commercial districts, and residential subdivisions. Undeveloped forest and wetlands are located to the east of the site.

I-10 and I-510 surround most of the site, and are expected to contribute to existing noise levels in the vicinity. The Eastover subdivision includes approximately 200 homes, and is located directly to the west of the site. Other residential subdivisions, and commercial areas are located in the vicinity. Noise associated with commercial and residential areas would be expected to come from vehicular traffic.

- *Tammany Holding*
Noise levels at and surrounding the Tammany Holding site are variable depending on the time of day and climatic conditions. In the vicinity of the site are I-10, LA-433, Lake Pontchartrain, commercial development, residential housing, and undeveloped marsh. Some of the property is currently being developed into residential housing, the construction of which contributes to the noise levels in the vicinity.

The six-lane I-10 is located approximately 1000 feet from Area 1, and is expected to contribute to existing noise levels in the vicinity. Traffic to and from local commercial and residential areas also impact noise levels. Noise associated with commercial and residential areas would be expected to come from vehicular traffic.

- *Willow Bend Phase II*
Noise levels at and surrounding the Willow Bend Phase II site are variable depending on the time of day and climatic conditions. In the vicinity of the site are the approved Willow Bend Phase I contractor-furnished borrow area, farms, undeveloped forest, the Mississippi River, and some residential housing. The site is located north of LA-3127, which is traveled by car and truck traffic that contribute to noise level in the area. Most times of elevated noise levels associated with traffic would be expected to be during daylight hours. There is a residential area near the northwestern corner of the site. This includes about a half dozen homes abutting the boundary of the site on Favorite Lane, and another approximately 50 houses and mobile homes off of West 4th Street and Goldmine Plantation Road. Noise associated with residential areas would be expected to come from vehicular traffic.

Local farms, forested areas, and traffic on the Mississippi River are not expected to greatly contribute to noise levels in the vicinity.

Discussion of Impacts

No Action

- *All Sites*

Direct Impacts

Under the no action alternative, there would be no direct impacts to noise quality due to the proposed actions. The proposed sites would not be used as contractor-furnished borrow areas.

Indirect Impacts

No indirect impacts to noise quality would occur under the no action alternative. The proposed sites would not be used as contractor-furnished borrow areas.

Cumulative Impacts

No cumulative impacts to noise quality would occur under the no action alternative. The proposed sites would not be used as contractor-furnished borrow areas. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The approved Eastover Phase I and Willow Bend Phase I contractor-furnished borrow areas could be used for construction of the HSDRRS. Noise levels would be cumulatively impacted by existing and reasonably foreseeable activity in the vicinity of the sites, including the potential excavation of the approved Eastover Phase I and Willow Bend Phase I contractor-furnished borrow areas. Private construction activities would also incrementally impact noise levels in the area. Additionally, construction of the HSDRRS levees and floodwalls would also cumulatively impact noise quality in the project areas. Cumulative noise impacts related to the construction of the HSDRRS will be discussed in the CED.

Proposed Action

- *All Sites*

Direct Impacts

Under the proposed action, temporary noise would occur during construction and hauling activities. The noise would affect wildlife during construction, causing them to avoid the area and return once construction ends. Residents of nearby residential areas may be impacted by noise associated with construction equipment such as bulldozers, excavators, and dump trucks. Noise would also directly impact employees constructing the borrow area.

Table 3 describes possible noise emission levels for construction equipment expected to be used during the proposed construction activities. Typical noise levels range from 80 dBA to 88 dBA at 50 foot range (FHWA, 2006). Noise levels would decrease as distance from the noise source increases.

Table 3: Possible Construction Equipment Noise Emission

Noise Source	Typical Noise Level (dBA) 50 feet from Source
Backhoe	80 dBA
Dozer	85 dBA
Dump Truck	84 dBA
Excavator	85 dBA
Truck	88 dBA

Source: FHWA 2006. "Highway Construction Noise Handbook"

It is assumed that excavation and hauling would be limited to daylight hours (10 – 14 hours per day) seven days a week. However, this may change due to construction schedules, weather conditions, and project borrow needs. Residents of nearby residential areas may be impacted by elevated noise elevations due to excavation and hauling. Actual noise impacts depend on construction schedules, which are dependant on weather conditions and project borrow needs, which are not known at this time.

Indirect Impacts

No indirect impacts to noise quality would occur because of excavation of the proposed contractor-furnished borrow areas.

Cumulative Impacts

Excavation of the proposed contractor-furnished borrow areas could temporarily contribute to cumulatively impacts on noise levels in the vicinity of the proposed sites. Hauling of borrow material would add to existing traffic and its related noise in the vicinity. Most times of elevated noise levels associated with traffic would be expected to be during construction hours. Cumulative noise impacts will be further discussed in the CED.

The approved Eastover Phase I and Willow Bend Phase I contractor-furnished borrow areas could be used for construction of the HSDRRS. Use of these sites would also temporarily contribute to cumulative noise levels in the project areas.

Private construction activities would incrementally impact noise levels in the project area. Construction of the HSDRRS would also cumulatively impact noise quality in the project area. Cumulative noise impacts will be further discussed in the CED.

3.2.8 Air Quality

Existing Conditions

Under the Clean Air Act, National Ambient Air Quality Standards (NAAQS) have been established for seven pollutants: carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), lead (Pb), ozone (O₃), particulate matter less than 10 microns in diameter (PM₁₀) and particulate matter less than 2.5 microns in diameter (PM_{2.5}). The NAAQS standards include primary and secondary standards. The primary standards were established at levels sufficient to protect public health with an adequate margin of safety. The secondary standards were established to protect the public welfare from the adverse effects associated with pollutants in the ambient air. The primary and secondary standards are presented in table 4.

Table 4: National Ambient Air Quality Standards

Pollutant and Averaging Time	Primary Standard		Secondary Standard	
	µg/m ³	parts per million (ppm)	µg/m ³	ppm
CO				
8-hour concentration	10,000 ¹	9 ¹	N/A	N/A
1-hour concentration	40,000 ¹	35 ¹		
NO ₂			same as primary standard	
Annual arithmetic mean	100	0.053		
SO ₂				
Annual arithmetic mean	80	0.03	-	-
24-hour concentration	365 ¹	0.14 ¹	-	-
3-hour concentration	-	-	1300 ¹	0.50 ¹
Pb			same as primary standard	
Quarterly arithmetic mean	1.5	-		
O ₃			same as primary standard	
8-hour concentration	157	0.08 ²		

PM ₁₀ <i>24-hour maximum</i>	150 ¹	-	same as primary standard
PM _{2.5} <i>Annual arithmetic mean</i>	15 ³	-	same as primary standard
<i>24-hour maximum</i>	35 ⁴	-	

¹ Not to be exceeded more than once per year.

² 3-year average of the 4th highest daily maximum 8-hour concentration may not exceed 0.08 ppm.

³ Based on 3-year average of annual averages.

⁴ Based on 3-year average of annual 98th percentile values.

Source: 40 CFR 50

Areas that meet the NAAQS for a criteria pollutant are designated as being “in attainment;” areas where a criteria pollutant level exceeds the NAAQS are designated as being “in “non attainment.” The parishes the proposed action may occur in- Orleans, St. John the Baptist, and St. Tammany- are currently in attainment of all NAAQS (USEPA, 2009).

Discussion of Impacts

No Action

- *Eastover Phase II*

Direct Impacts

Under the no action alternative, no direct impacts to air quality would occur from the proposed action. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area.

Indirect Impacts

Under the no action alternative, no indirect impacts to air quality would occur from the proposed action. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, there would be no cumulative impacts to air quality from the proposed action. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The approved 36.6-acre Eastover Phase I contractor-furnished borrow area, approved in IER #19, could be used for construction of the HSDRRS. Use of the approved Eastover Phase I contractor-furnished borrow area would contribute to the cumulative degradation of air quality in the project area. However, these impacts would be temporary and last through the period of excavation. Additional potential cumulative impacts to air quality depend on what the landowner decides to do with the approved Eastover Phase I site following excavation.

Other activities in the vicinity have and will continue to affect air quality in the project area. Most of these actions would be associated with emissions from vehicular traffic on local roads and residential energy emissions.

There are several potential borrow areas in New Orleans East that were approved or are being investigated for use on the HSDRRS. The approved Eastover Phase I, Cummings North, Maynard, Stumpf Phase I, and Stumpf Phase II sites are located within three miles of the proposed action (figure 9). It is reasonably foreseeable that the approved sites could be used for construction of the HSDRRS, and their use would cumulatively impact air quality in New Orleans East.

Other activities in New Orleans East have and will continue to impact air quality in the project area. New Orleans East is presently a residential and commercial area, with some industrial activity mostly located south of Chef Menteur Highway. The major activities that affect air quality in the project area are associated with emissions from vehicular traffic on local roads and residential energy emissions. It is expected that these impacts would continue in the project area.

Air quality in southeastern Louisiana has historically been affected by residential, commercial, and industrial development. It is expected that this historical trend would continue to impact air quality in the region.

Cumulative impacts to air quality will be further discussed in the CED.

- *Tammany Holding*

Direct Impacts

Under the no action alternative, no direct impacts to air quality would occur from the proposed action. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area.

Indirect Impacts

Under the no action alternative, no indirect impacts to air quality would occur from the proposed action. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, there would be no cumulative impacts to air quality from the proposed action. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

Impacts to air quality at the site would occur under the no action alternative due to the construction of the planned residential subdivision. During construction of the subdivision, a temporary increase in air emissions is expected in the project vicinity. These emissions could include exhaust emissions from operations of diesel dump trucks, various types of construction equipment (e.g., loaders), and fugitive dust due to excavation and clearing.

Cumulative impacts to air quality would continue in the project area. Other activities in the vicinity have and will continue to affect air quality in the project area. Most of these actions would be associated with emissions from vehicular traffic on local roads and residential energy emissions.

There are several potential borrow areas in St. Tammany Parish under investigation for use on the HSDRRS (figure 10). If these sites are approved for use in the HSDRRS, they would also contribute to cumulative air quality impacts in St. Tammany Parish.

Air quality in southeastern Louisiana has historically been affected by residential, commercial, and industrial development. It is expected that this historical trend would continue to impact air quality in the region.

Cumulative impacts to air quality will be further discussed in the CED.

- *Willow Bend Phase II*

Direct Impacts

Under the no action alternative, no direct impacts to air quality would occur from the proposed action. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area.

Indirect Impacts

Under the no action alternative, no indirect impacts to air quality would occur from the proposed action. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, there would be no cumulative impacts to air quality from the proposed action. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The approved 64-acre Willow Bend Phase I contractor-furnished borrow area, which was approved in IER #26, could be used for construction of the HSDRRS. Use of the approved Willow Bend Phase I contractor-furnished borrow area would contribute to the cumulative degradation of air quality in the project area. However, these impacts would be temporary and last through the period of excavation. Additional potential cumulative impacts to air quality depend on what the landowner decides to do with the approved Willow Bend Phase I site following excavation.

Other activities in the vicinity have and will continue to affect air quality in the project area. Most of these actions would be associated with emissions from vehicular traffic on local roads and residential energy emissions.

The approved 3C Riverside Phase I and Phase II sites are located within 5 miles of the approved Willow Bend Phase I and proposed Willow Bend Phase II sites (figure 11). It is reasonably foreseeable that use of the approved 3C Riverside Phase I and Phase II sites could be used for construction of the HSDRRS, and their use would cumulatively impact air quality in the vicinity.

Air quality in southeastern Louisiana has historically been affected by residential, commercial, and industrial development. It is expected that this historical trend would continue to impact air quality in the region.

Cumulative impacts to air quality will be further discussed in the CED.

Proposed Action

- *Eastover Phase II*

Direct Impacts

During excavation at the proposed Eastover Phase II borrow site, a temporary increase in air emissions is expected in the project vicinity. These emissions could include exhaust emissions from operations of diesel dump trucks, various types of construction equipment (e.g., loaders, excavators), and fugitive dust due to excavation and clearing.

The principal air quality concern associated with the proposed borrow site would be emission of fugitive dust near demolition and construction areas. The on-road trucks and private vehicles used to access the work area would also contribute to construction phase air pollution in the project vicinity when traveling along local roads and highways. Most instances of diminished air quality associated with excavation and truck hauling would be expected to be limited to daylight hours (10-14 hours a day) seven days a week. It is expected that these impacts would be temporary and limited to construction hours. Additional potential direct impacts to air quality depend on what the landowner decides to do with the site following excavation.

Indirect Impacts

Indirect impacts to air quality are not expected to occur with implementation of the proposed action.

Cumulative Impacts

Use of the proposed Eastover Phase II contractor-furnished borrow area would temporarily contribute to cumulative air quality impacts in the project area. In addition, the approved 36.6-acre Eastover Phase I contractor-furnished borrow area could be used for construction of the HSDRRS. Excavation of the approved Eastover Phase I contractor-furnished borrow area could also contribute to cumulative air quality impacts. However, these impacts would be temporary and would last through the excavation period. Additional potential cumulative impacts to air quality depend on what the landowner decides to do with the approved Eastover Phase I and proposed Eastover Phase II sites following excavation.

Other activities in the vicinity have and will continue to affect air quality in the project area. Most of these actions would be associated with emissions from vehicular traffic on local roads and residential energy emissions.

There are several potential borrow areas in New Orleans East that were approved or are being investigated for use on the HSDRRS. The approved Eastover Phase I, Cummings North, Maynard, Stumpf Phase I, and Stumpf Phase II sites are located within three miles of the proposed action (figure 9). It is reasonably foreseeable that the approved sites could be used for construction of the HSDRRS, and their use would cumulatively impact air quality in New Orleans East.

Other activities in New Orleans East have and will continue to impact air quality in the project area. New Orleans East is presently a residential and commercial area, with some industrial activity mostly located south of Chef Menteur Highway. The major activities that affect air quality in the project area are associated with emissions from vehicular traffic on local roads and residential energy emissions. It is expected that these impacts would continue in the project area.

Air quality in southeastern Louisiana has historically been affected by residential, commercial, and industrial development. It is expected that this historical trend would continue to impact air quality in the region.

Cumulative impacts to air quality will be further discussed in the CED.

- *Tammany Holding*

Direct Impacts

During excavation at the proposed Tammany Holding borrow site, a temporary increase in air emissions is expected in the project vicinity. These emissions could include exhaust emissions from operations of diesel dump trucks, various types of construction equipment (e.g., loaders, excavators), and fugitive dust due to excavation and clearing.

The principal air quality concern associated with the proposed borrow site would be emission of fugitive dust near demolition and construction areas. The on-road trucks and private vehicles used to access the work area would also contribute to construction phase air pollution in the project vicinity when traveling along local roads and highways. Most instances of diminished air quality associated with excavation and truck hauling would be expected to be limited to daylight hours (10-14 hours a day) seven days a week. It is expected that these impacts would be temporary and limited to construction hours. Additional potential direct impacts to air quality depend on what the landowner decides to do with the site following excavation.

Indirect Impacts

Indirect impacts to air quality are not expected to occur with implementation of the proposed action.

Cumulative Impacts

Use of the proposed Tammany Holding contractor-furnished borrow area would temporarily contribute to cumulative air quality impacts in the project area. However, these impacts would be temporary and would last through the excavation period. Additional potential cumulative impacts to air quality depend on what the landowner decides to do with the proposed Tammany Holding site following excavation.

Other activities in the vicinity have and will continue to affect air quality in the project area. Most of these actions would be associated with emissions from vehicular traffic on local roads and residential energy emissions.

There are several potential borrow areas in St. Tammany Parish under investigation for use on the HSDRRS (figure 10). If these sites are approved for use in the HSDRRS, they would also contribute to cumulative air quality impacts in St. Tammany Parish.

Air quality in southeastern Louisiana has historically been affected by residential, commercial, and industrial development. It is expected that this historical trend would continue to impact air quality in the region.

Cumulative impacts to air quality will be further discussed in the CED.

- *Willow Bend Phase II*

Direct Impacts

During excavation at the proposed Willow Bend Phase II borrow site, a temporary increase in air emissions is expected in the project vicinity. These emissions could include exhaust emissions from operations of diesel dump trucks, various types of construction equipment (e.g., loaders, excavators), and fugitive dust due to excavation and clearing.

The principal air quality concern associated with the proposed borrow site would be emission of fugitive dust near demolition and construction areas. The on-road trucks and private vehicles used to access the work area would also contribute to construction phase air pollution in the project vicinity when traveling along local roads and highways. Most instances of diminished air quality associated with excavation and truck hauling would be expected to be limited to daylight hours (10-14 hours a day) seven days a week. It is expected that these impacts would be temporary and limited to construction hours. Additional potential direct impacts to air quality depend on what the landowner decides to do with the site following excavation.

Indirect Impacts

Indirect impacts to air quality are not expected to occur with implementation of the proposed action.

Cumulative Impacts

Use of the proposed Willow Bend II contractor-furnished borrow area would temporarily contribute to cumulative air quality impacts in the project area. The approved 64-acre Willow Bend Phase I contractor-furnished borrow area could be used for construction of the HSDRRS. Excavation of the approved Willow Bend Phase I contractor-furnished borrow area could also contribute to cumulative air quality impacts. However, these impacts would be temporary and would last through the excavation period. Additional potential cumulative impacts to air quality depend on what the landowner decides to do with the approved Willow Bend Phase I and proposed Willow Bend Phase II sites following excavation.

Other activities in the vicinity have and will continue to affect air quality in the project area. Most of these actions would be associated with emissions from vehicular traffic on local roads and residential energy emissions. Additional cumulative impacts to air quality would be similar to those discussed for the no action alternative.

The approved 3C Riverside Phase I and Phase II sites are located within 5 miles of the approved Willow Bend Phase I and proposed Willow Bend Phase II sites (figure 11). It is reasonably foreseeable that use of the approved 3C Riverside Phase I and Phase II sites could be used for construction of the HSDRRS, and their use would cumulatively impact air quality in the vicinity.

Air quality in southeastern Louisiana has historically been affected by residential, commercial, and industrial development. It is expected that this historical trend would continue to impact air quality in the region.

Cumulative impacts to air quality will be further discussed in the CED.

3.2.9 Water Quality

Existing Conditions

The Louisiana Department of Environmental Quality (LADEQ) regulates both point and nonpoint source pollution. Most of the proposed contractor-furnished borrow areas are uplands with associated drainage features.

Discussion of Impacts

No Action

- *Eastover Phase II*

Direct Impacts

Under the no action alternative, no direct impacts to water quality would occur from the proposed action. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area.

Indirect Impacts

Under the no action alternative, no indirect impacts to water quality would occur from the proposed action. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, there would be no cumulative decreases in water quality from the proposed action. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The approved 36.6-acre Eastover Phase I contractor-furnished borrow area, approved in IER #19, could be used for construction of the HSDRRS. Excavation of the approved Eastover Phase I contractor-furnished borrow area would contribute to the cumulative decline of water quality within the region. However, such impacts would be temporary and last through the period of excavation of the approved Eastover Phase I site. Additional potential cumulative impacts to water quality depend on what the landowner decides to do with the approved Eastover Phase I site following excavation.

Other activities in the vicinity have and will continue to affect water quality in the project area. There are several potential borrow areas in New Orleans East that were approved or are being investigated for use on the HSDRRS. The approved Eastover Phase I, Cummings North, Maynard, Stumpf Phase I, and Stumpf Phase II sites are located within three miles of the proposed action (figure 9). It is reasonably foreseeable that the approved sites could be used for construction of

the HSDRRS, and their use would temporarily contribute to cumulative water quality impacts in New Orleans East.

Water quality in southeastern Louisiana has historically been affected by residential, commercial, and industrial development. Major contributors to decreases in water quality in the region include urban stormwater runoff, pollutants, sediment loading/runoff, nutrient loading, and dry weather flows. It is expected that this historical trend would continue to impact water quality in the region.

- *Tammany Holding*

Direct Impacts

Under the no action alternative, no direct impacts to water quality would occur from the proposed action. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area.

Indirect Impacts

Under the no action alternative, no indirect impacts to water quality would occur from the proposed action. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, there would be no cumulative impacts to water quality from the proposed action. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

Construction of the planned subdivision would contribute to the cumulative decline of water quality within the region. Water quality may be impacted by the construction of the planned subdivision. Despite the use of BMPs, any construction activities could likely result in some temporary direct impacts from disturbances to water quality in the immediate vicinity. Most of these impacts would be associated with sediments getting around installed silt fencing during high rain events, which would cause surface water turbidity in the immediate vicinity. These impacts would be localized and temporary.

Other activities in the vicinity have and will continue to affect water quality in the project area. There are several potential borrow areas in St. Tammany Parish under investigation for use on the HSDRRS (figure 10). If these sites are approved for use in the HSDRRS, they would also contribute to cumulative water quality impacts in St. Tammany Parish.

Water quality in southeastern Louisiana has historically been affected by residential, commercial, and industrial development. Major contributors to decreases in water quality in the region include urban stormwater runoff, pollutants, sediment loading/runoff, nutrient loading, and dry weather flows. It is expected that this historical trend would continue to impact water quality in the region.

- *Willow Bend Phase II*

Direct Impacts

Under the no action alternative, no direct impacts to water quality would occur from the proposed action. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area.

Indirect Impacts

Under the no action alternative, no indirect impacts to water quality would occur from the proposed action. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, there would be no cumulative impacts to water quality from the proposed action. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The approved Willow Bend Phase I contractor-furnished borrow area, which was approved for use in IER #26, could be used for construction of the HSDRRS. Excavation of the approved Willow Bend Phase I contractor-furnished borrow area would contribute to the cumulative decline of water quality within the region. However, such impacts would be temporary and last through the period of excavation of the approved Willow Bend Phase I site. Additional potential cumulative impacts to water quality depend on what the landowner decides to do with the approved Willow Bend Phase I site following excavation.

Other activities in the vicinity have and will continue to affect water quality in the project area. The approved 3C Riverside Phase I and Phase II sites are located within 5 miles of the approved Willow Bend Phase I and proposed Willow Bend Phase II sites (figure 11). It is reasonably foreseeable that use of the approved 3C Riverside Phase I and Phase II sites could be used for construction of the HSDRRS, and their use would temporarily contribute to cumulative water quality impacts in the vicinity.

Water quality in southeastern Louisiana has historically been affected by residential, commercial, and industrial development. Major contributors to decreases in water quality in the region include urban stormwater runoff, pollutants, sediment loading/runoff, nutrient loading, and dry weather flows. It is expected that this historical trend would continue to impact water quality in the region.

Proposed Action

- *Eastover Phase II*

Direct Impacts

Excavation of the proposed Eastover Phase II borrow area would result in some temporary direct water quality impacts from disturbances to water quality in the immediate vicinity of the proposed Eastover Phase II contractor-furnished borrow area. Most of these impacts would be associated with sediments getting around installed silt fencing during high rain events, which would cause surface water

turbidity in the immediate vicinity. Water quality in the Gannon Canal and connected water features would also potentially be negatively impacted during excavation. These impacts would be localized and temporary. If the borrow area is drained by use of a sump pump during construction water would be deposited outside of the borrow site, most likely into adjacent non-construction areas and the Gannon Canal. Depending on where water is directed, temporary impacts to water quality in these areas may occur.

The construction contractor would be required to secure all applicable Federal, state, and local permits required for potentially impacting water quality.

Indirect Impacts

Indirect impacts to water quality in adjacent areas depend on where water is directed during construction. These impacts would mostly be associated with increased turbidity, and would likely be temporary and confined to adjacent areas. Without additional action by the landowner following excavation of the site, it is expected that there will be no indirect impacts to water quality following excavation.

Cumulative Impacts

Excavation of the proposed Eastover Phase II contractor-furnished borrow area would temporarily contribute to the cumulative decline of water quality within the region. The approved 36.6-acre Eastover Phase I contractor-furnished borrow area could be used for construction of the HSDRRS. Use of the approved Eastover Phase I contractor-furnished borrow area would also temporarily contribute to the cumulative decline of water quality within the project area. However, such impacts would be temporary and last through the period of excavation of the approved Eastover Phase I and proposed Eastover Phase II borrow areas. Additional potential cumulative impacts to water quality depend on what the landowner decides to do with the approved Eastover Phase I and proposed Eastover Phase II sites following excavation.

Other activities in the vicinity have and will continue to affect water quality in the project area. There are several potential borrow areas in New Orleans East that were approved or are being investigated for use on the HSDRRS. The approved Eastover Phase I, Cummings North, Maynard, Stumpf Phase I, and Stumpf Phase II sites are located within three miles of the proposed action (figure 9). It is reasonably foreseeable that the approved sites could be used for construction of the HSDRRS, and their use would temporarily contribute to cumulative water quality impacts in New Orleans East.

Water quality in southeastern Louisiana has historically been affected by residential, commercial, and industrial development. Major contributors to decreases in water quality in the region include urban stormwater runoff, pollutants, sediment loading/runoff, nutrient loading, and dry weather flows. It is expected that this historical trend would continue to impact water quality in the region.

- *Tammany Holding*

Direct Impacts

Excavation of the proposed borrow area would result in some temporary direct water quality impacts from disturbances to water quality in the immediate vicinity of the proposed Tammany Holding contractor-furnished borrow area. Most of

these impacts would be associated with sediments getting around installed silt fencing during high rain events, which would cause surface water turbidity in the immediate vicinity. These impacts would be localized and temporary. If the borrow area is drained by use of a sump pump during construction water would be deposited outside of the borrow site, most likely into adjacent non-construction areas. Depending on where water is directed, temporary impacts to water quality in these areas may occur.

The construction contractor would be required to secure all applicable Federal, state, and local permits required for potentially impacting water quality.

Indirect Impacts

Indirect impacts to water quality in adjacent areas depend on where water is directed during construction. These impacts would mostly be associated with increased turbidity, and could likely be temporary and confined to adjacent areas. Without additional action by the landowner following excavation of the site, it is expected that there will be no indirect impacts to water quality following excavation.

Cumulative Impacts

Excavation of the proposed Tammany Holding contractor-furnished borrow area would temporarily contribute to the cumulative decline of water quality within the region.

Other activities in the vicinity have and will continue to affect water quality in the project area. Construction of the planned subdivision would contribute to the cumulative decline of water quality within the region. Water quality may be impacted by the construction of the planned subdivision. Despite the use of BMPs, any construction activities would likely result in some temporary direct impacts from disturbances to water quality in the immediate vicinity. Most of these impacts would be associated with sediments getting around installed silt fencing during high rain events, which would cause surface water turbidity in the immediate vicinity. These impacts would be localized and temporary.

There are several potential borrow areas in St. Tammany Parish under investigation for use on the HSDRRS (figure 10). If these sites are approved for use in the HSDRRS, they would also contribute to cumulative water quality impacts in St. Tammany Parish.

Water quality in southeastern Louisiana has historically been affected by residential, commercial, and industrial development. Major contributors to decreases in water quality in the region include urban stormwater runoff, pollutants, sediment loading/runoff, nutrient loading, and dry weather flows. It is expected that this historical trend would continue to impact water quality in the region.

- *Willow Bend Phase II*

Direct Impacts

Excavation of the proposed borrow site would result in some temporary direct water quality impacts from disturbances to water quality in the immediate vicinity of the proposed Willow Bend Phase II contractor-furnished borrow area. Most of these impacts would be associated with sediments getting around installed silt fencing during high rain events, which would cause surface water turbidity in the

immediate vicinity. These impacts would be localized and temporary. If the borrow areas is drained by use of a sump pump during construction water would be deposited outside of the borrow site, most likely into adjacent non-construction areas. Depending on where water is directed, temporary impacts to water quality in these areas may occur.

The construction contractor would be required to secure all applicable Federal, state, and local permits required for potentially impacting water quality.

Indirect Impacts

Indirect impacts to water quality in adjacent areas depend on where water is directed during construction. These impacts would mostly be associated with increased turbidity, and could likely be temporary and confined to adjacent areas. Without additional action by the landowner following excavation of the site, it is expected that there will be no indirect impacts to water quality following excavation.

Cumulative Impacts

Excavation of the proposed Willow Bend Phase II contractor-furnished borrow area would temporarily contribute to the cumulative decline of water quality within the region. In addition, the approved 64-acre Willow Bend Phase I contractor-furnished borrow area could be used for construction of the HSDRRS. Use of the approved Willow Bend Phase I contractor-furnished borrow area would also contribute to cumulative decline of water quality within the project area. However, such impacts would be temporary and last through the period of excavation of the approved Willow Bend Phase I and proposed Willow Bend Phase II borrow areas. Additional potential cumulative impacts to water quality depend on what the landowner decides to do with the approved Willow Bend Phase I and proposed Willow Bend Phase II sites following excavation

Other activities in the vicinity have and will continue to affect water quality in the project area. The approved 3C Riverside Phase I and Phase II sites are located within 5 miles of the approved Willow Bend Phase I and proposed Willow Bend Phase II sites (figure 11). It is reasonably foreseeable that use of the approved 3C Riverside Phase I and Phase II sites could be used for construction of the HSDRRS, and their use would temporarily contribute to cumulative water quality impacts in the vicinity.

Major contributors to decreases in water quality in the region include urban stormwater runoff, pollutants, sediment loading/runoff, nutrient loading, and dry weather flows. Water quality in southeastern Louisiana has historically been affected by residential, commercial, and industrial development. It is expected that this historical trend would continue to impact water quality in the region.

3.2.10 Aesthetic (Visual) Resources

Existing Conditions

- *Eastover Phase II*
The proposed Eastover Phase II contractor-furnished borrow area's landscape is heavily disturbed from the residential development master planning process in the immediate and adjacent areas. Currently, the proposed Eastover Phase II borrow area is a portion of a closed golf course with numerous man-made ponds, former golf fairways, and concrete paths. Other portions of the proposed borrow area are

disturbed by drainage, road-building, and other master planned community development infrastructure work, including the Gannon Canal. The proposed Eastover Phase II borrow area is visually remote and inaccessible to most as it is privately owned. However, the proposed borrow area is visually accessible to residents of the Eastover subdivision and to vehicles traveling on East Point Court.

- *Tammany Holding*
The proposed Tammany Holding contractor-furnished borrow area's landscape is heavily disturbed from the residential development process in the immediate and adjacent areas. Large portions of the site are completely disturbed by drainage, road-building, and other residential development infrastructure work. In addition, a large private borrow site has been dug in the central portion of the proposed site. The landscape lacks distinct qualities that would make it visually significant.
- *Willow Bend Phase II*
The proposed Willow Bend Phase II contractor-furnished borrow area's landscape contains cultivated land and forest in the immediate and adjacent areas, as well as the approved Willow Bend Phase I site, which has been cleared. As with Willow Bend Phase I, the proposed Willow Bend Phase II borrow area is visually remote and inaccessible to most as it is privately owned. The landscape lacks distinct qualities that would make it visually significant.

Discussion of Impacts

No Action

- *All Sites*

Direct Impacts

Under the no action alternative, no direct impacts to visual resources would occur at the proposed contractor-furnished borrow areas.

Indirect Impacts

Under the no action alternative, no indirect impacts to visual resources would occur at the proposed contractor-furnished borrow areas.

Cumulative Impacts

Under the no action alternative, there are no reasonably foreseeable cumulative impacts to visual resources at the proposed contractor-furnished borrow areas. The proposed Eastover Phase II, Tammany Holding and Willow Bend Phase II sites would not be used as a contractor-furnished borrow areas. The proposed sites would remain intact as in their current states and would not be excavated for use on the HSDRRS. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The Eastover Phase I and Willow Bend Phase I contractor-furnished borrow areas were approved in IER #19 and IER #26, respectively. The Eastover Phase I borrow area is 36.6-acres located on a portion of the closed Eastover golf course. If the approved Eastover Phase I site is excavated, it could contribute to cumulative impacts on visual resources in the project area. The excavation of the approved Eastover Phase I borrow area would produce a pond or body of water

that would be highly visible to the residents of the area, especially residents of the Eastover community, unless the landowner backfills the site.

The approved Willow Bend Phase I contractor-furnished borrow area could potentially contribute to cumulative visual resource impacts in the area. Excavation of the approved Willow Bend Phase I contractor-furnished borrow area would add to the number of borrow areas in the region. The visual impacts from excavation of the approved Willow Bend Phase I site are expected to be minimal and this site would remain private, restricting its recreational value to the public.

Any additional future changes or alterations to the site would evolve in a natural process over the course of time.

Proposed Action

- *Eastover Phase II*

Direct Impacts

With implementation of the proposed alternative, direct impacts to visual resources would occur at the proposed Eastover Phase II contractor-furnished borrow area. View sheds from the existing neighborhood, located to the west and southwest, would be altered from the implementation of the proposed action. The proposed borrow area also offers view sheds from East Point Court. These view sheds would be impacted by the proposed alternative.

Impacts from the excavation of the proposed borrow area would also impact the residents of the area, especially those closest to the proposed borrow area in the Eastover community. These visual impacts related to excavation would be temporary.

The end result of the proposed action would produce a pond or body of water that would be highly visible to the residents of the area unless the landowner backfills the site.

Indirect Impacts

With implementation of the no action alternative no indirect impacts to visual resources would occur.

Cumulative Impacts

Excavation of the proposed Eastover Phase II borrow area would add to the number of borrow areas in the region. In addition, the approved Eastover Phase I borrow area could be excavated. The excavation of the approved Eastover Phase I site and the proposed Eastover Phase II site could contribute to cumulative impacts on visual resources in the project area. The excavation of the approved Eastover Phase I and proposed Eastover Phase II borrow areas could produce a pond or body of water that will be highly visible to the residents of the area, especially residents of the Eastover community, unless the landowner backfills the site.

Other activities in the vicinity have and will continue to affect visual quality in the project area. Major contributors to decreases in visual quality in the region include other borrow sites, stockpile areas, and earthen levees blocking view sheds from major thoroughfares, backyards, and windows.

- *Tammany Holding*

Direct Impacts

With implementation of the proposed alternative no direct impacts to visual resources would occur at the proposed borrow area. The proposed borrow area's landscape lacks distinct qualities that would make it visually significant.

Indirect Impacts

With implementation of the no action alternative no indirect impacts to visual resources would occur.

Cumulative Impacts

Excavation of the proposed Tammany Holding borrow area would add to the number of borrow areas in the region. Cumulative impacts to the visual character would continue in the project area with implementation of the proposed alternative. Other activities in the vicinity have and will continue to affect visual quality in the project area. Major contributors to decreases in visual quality in the region include other borrow sites, stockpile areas, and earthen levees blocking view sheds from major thoroughfares, backyards, and windows.

- *Willow Bend Phase II*

Direct Impacts

With implementation of the proposed alternative no direct impacts to visual resources would occur at the proposed borrow area. The proposed borrow area is visually remote and inaccessible to most as it is privately owned.

Indirect Impacts

With implementation of the no action alternative no indirect impacts to visual resources would occur.

Cumulative Impacts

Excavation of the proposed Willow Bend Phase II borrow area would add to the number of borrow areas in the region. In addition, the approved Willow Bend Phase I borrow area could be excavated. The excavation of the approved Willow Bend Phase I site and the proposed Willow Bend Phase II site could contribute to cumulative impacts on visual resources in the project area. The excavation of the approved Willow Bend Phase I and proposed Willow Bend Phase II borrow areas could produce a pond or body of water that would not be highly visible because the borrow areas are visually remote and inaccessible to most.

Other activities in the vicinity have and will continue to affect visual quality in the project area. Major contributors to decreases in visual quality in the region include other borrow sites, stockpile areas, and earthen levees blocking view sheds from major thoroughfares, backyards, and windows.

3.3 SOCIOECONOMIC RESOURCES

The focus of this section is to evaluate the relative socioeconomic impacts of construction activities associated with three proposed contractor-furnished borrow areas in the vicinity

of the New Orleans metropolitan area. This borrow material could be used to construct proposed HSDRRS projects.

The 'No Action' alternative in this case includes the potential use of government-furnished and/or contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified. The 'Proposed Action' is to approve the potential use of the three privately-owned sites discussed in this report as proposed contractor-furnished borrow areas.

As previously stated, the purpose of the NEPA Emergency Alternative Arrangements (40 CFR 1506.11) is to expeditiously complete environmental analyses of impacts arising from HSDRRS efforts by allowing decisions on smaller groups of proposed actions to move forward sooner than under the traditional NEPA process (72 FR 1137). Because of the exigency of the Emergency Alternative Arrangements and the need to complete the HSDRRS, each IER can identify areas where data is incomplete, unavailable, as well as areas of potential controversy (72 FR 11339). Therefore, it is expected that earlier IERs will not contain the same amount of information, data and analyses as later IERs. The analysis contained in each IER builds off of the analysis contained in previous IERs. As information becomes available, more detailed analysis is successively presented in the IERs. Ultimately, at the conclusion of the IER process, the full cumulative effects analysis will be presented in a CED (Emergency Alternative Arrangements, Page 10). This is why IER #29 may contain additional information, data or analyses not contained in earlier IERs.

3.3.1 Population and Housing

Existing Conditions

- *Eastover Phase II*
The Eastover Phase II proposed borrow area is located in Orleans Parish near the Eastover subdivision. The Eastover Phase II site borders and surrounds the approved Eastover Phase I site, which was discussed in IER # 19. The proposed Eastover Phase II site was previously used as a golf course and includes the Gannon Canal, which is directly adjacent to several homes within the Eastover subdivision. It is located in census tract 17.32, group 5, block 5000. According to the 2000 U.S. Census, in 2000 there were 123 housing units with a population of 376 people in the vicinity of the proposed contractor-furnished borrow area.
- *Tammany Holding*
The proposed Tammany Holding parcels (Area 1, Area 3, and Area 4) are located in St. Tammany Parish between Howze Beach Road and Route 433. The site is located in census tract 408.03, group 5, block 5000. It was previously used for various agricultural purposes until as recently as 2000. The property owner has indicated the intention to develop the parcels as a residential subdivision. There are several subdivisions in the area, but no residential development exists in the immediate vicinity of the proposed borrow site.
- *Willow Bend Phase II*
The Willow Bend Phase II proposed area is located in St. John the Baptist Parish, between the towns of Wallace and Edgard. The Willow Bend Phase I site, which was approved as a potential contractor-furnished site and is discussed in IER # 26, is within the boundaries of the proposed Willow Bend Phase II site. The approved Willow Bend Phase I site and the proposed Willow Bend Phase II sites are located on land previously used for farming. The site is located in census

track 711, group 2, block 2023. There are some residences in the vicinity along West 4th Street and Goldmine Plantation Road, both off of River Road; though most of the houses lie on the other side of railroad tracks between the proposed borrow area and River Road. In 2000, according to the U.S. Census, there were 35 housing units with a population of 126 people within the vicinity of the proposed borrow area.

Discussion of Impacts

No Action

- *Eastover Phase II*

Direct Impacts

Under the no action alternative there would be no direct impacts to population and housing due to excavation of the proposed Eastover Phase II contractor-furnished borrow area. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area.

Indirect Impacts

Under the no action alternative, there would be no indirect impacts to population and housing around this potential contractor-furnished borrow area. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, the proposed Eastover Phase II site would not be used as a contractor-furnished borrow area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The approved Eastover Phase I site, which was approved in IER #19, could potentially be excavated for use on the HSDRRS. Potential cumulative impacts to population and housing associated with excavating the Eastover Phase I site are discussed in IER #19. These may include increased noise, degraded air quality, and increased congestion on neighboring roadways. All impacts would last only through the construction period. Additional potential cumulative impacts to population and housing depend on what the landowner decides to do with the approved Eastover Phase I site following excavation.

The effects of Hurricane Katrina on New Orleans East were extensive, with the area heavily flooded for weeks. As of September 2008 less than 60 percent of pre-Katrina residences were active. In the period between March and September 2008 the section of New Orleans East west of I-510 experienced the greatest increase of residences in the city (GNOCDC 2009). New Orleans East, to date, has the city's greatest number of properties that received Road Home funding to rebuild (GNOCDC 2009). Data for new residential construction permits without a corresponding demolition permit since Hurricane Katrina, suggesting new construction that is not a result of tear-downs and reconstruction of storm-damaged homes, was relatively low for the city (GNOCDC 2009). These data suggest that residential rebuilding efforts are likely confined to existing structures and neighborhoods. Because of the recent increase in population to the area, and

the lower flood risk to the New Orleans metropolitan area with completion of the HSDRRS, it is reasonable to assume that remaining non-developed parcels in New Orleans East would probably be impacted by new commercial or industrial activity, including potential use of the aforementioned approved borrow sites. This predicted trend is not inconsistent with the development trends experienced in New Orleans East, as well as most of the New Orleans metropolitan area.

Under the no action alternative, positive cumulative impacts to population and housing associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may enhance the desirability of living within the protected areas. As a result, a shift in the dispersion of population within the New Orleans Metropolitan Statistical Area, or beyond, may occur. Also, to the extent that the completion of the HSDRRS encourages regional economic growth, any additional jobs thus created may manifest itself in either in-migration to the area or an increase in commuting activity.

- *Tammany Holding*

Direct Impacts

There would be no direct impacts to population and housing around this proposed borrow area under the no action alternative. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area.

Indirect Impacts

There would be no indirect impacts to population and housing around this proposed borrow area under the no action alternative. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action scenario, the proposed Tammany Holding site would not be used as a contractor-furnished borrow area and would not contribute to cumulative impacts on population and housing in the project area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

Positive cumulative impacts to population and housing associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may enhance the desirability of living within the protected areas. As a result, a shift in the dispersion of population within the New Orleans Metropolitan Statistical Area, or beyond, may occur. Also, to the extent that the completion of the HSDRRS encourages regional economic growth, any additional jobs thus created may manifest itself in either in-migration to the area or an increase in commuting activity. This impact is not specific to the proposed Tammany Holding borrow area, since it lies outside the HSDRRS.

- *Willow Bend Phase II*

Direct Impacts

Under the no action alternative there would be no direct impacts to population and housing under this alternative. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area.

Indirect Impacts

There would be no indirect impacts to population and housing around this proposed borrow area under the no action alternative. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, the proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The approved Willow Bend Phase I site, which was approved in IER #26, could potentially be excavated for use in the HSDRRS. Potential impacts to population and housing associated with excavating the Willow Bend Phase I site are discussed in IER # 26. However, construction-related impacts to population and housing would be minimal and temporary, lasting only through the construction period.

Under the no action alternative, positive cumulative impacts to population and housing associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may enhance the desirability of living within the protected areas. As a result, a shift in the dispersion of population within the New Orleans Metropolitan Statistical Area, or beyond, may occur. Also, to the extent that the completion of the HSDRRS encourages regional economic growth, any additional jobs thus created may manifest itself in either immigration to the area or an increase in commuting activity. This impact is not specific to the proposed Willow Bend Phase II borrow area, since it lies outside the HSDRRS.

Proposed Action

- *Eastover Phase II*

Direct Impacts

The proposed Eastover Phase II borrow area is directly adjacent to the Eastover subdivision. Several homes in the Eastover subdivision border the Gannon Canal on the edge of the proposed contractor-furnished borrow area. Nearby residents may experience temporary, construction-related impacts such as degraded air quality, increased noise, and increased congestion on neighboring roadways. Trucks accessing the proposed contractor-furnished site would use East Point Court, which also serves as the I-10 East service road. Roads near the site that will also likely be used by trucks using the proposed Eastover Phase II borrow area are I-510 and Lake Forest Boulevard. Access to the site would not be provided from any of the residential streets inside the Eastover subdivision. Crews would likely work between 10 and 14 hours a day, 7 days a week, given the urgency of the task of completing the HSDRRS. The duration of construction is dependent on work schedules, weather conditions, and borrow need, none of

which are known at this time. Congestion impacts are discussed further in section 3.3.2.4.

The proposed Eastover Phase II borrow area could be designed to not directly or indirectly damage nearby structures, encourage borrow site sidewall erosion or increase flood risk. However, the landowner and his contractor, not the CEMVN, are responsible for borrow site design. If the borrow area is not designed by the landowner and his contractor in such a fashion, it could potentially cause damage to neighboring homes. Otherwise, no permanent impacts to population and housing are expected. Impacts to population would last only through the excavation period, and there would be no displacement of any population.

An open borrow area may also pose a safety hazard to neighboring population if no barrier is erected around it. An open borrow area could pose a potential safety hazard to children in the adjacent Eastover community. There is also a potential danger to persons driving along the road bordering the proposed borrow area. While the decision to fence off the proposed borrow area is that of the landowner and his contractor, not the CEMVN, neighboring residents should use caution around these areas.

Indirect Impacts

There would be no indirect impacts to population and housing in the vicinity of the proposed borrow area as a result of the proposed action.

Cumulative Impacts

Excavation of the proposed Eastover Phase II contractor-furnished borrow area could temporarily contribute to cumulative population and housing impacts in the project vicinity. In addition, the approved Eastover Phase I contractor-furnished borrow area could also temporarily contribute to cumulative population and housing impacts in the project vicinity. Nearby residents may experience temporary, construction-related impacts such as degraded air quality, increased noise, and increased congestion on neighboring roadways. All impacts would last only through the construction period. Potential cumulative impacts to population and housing depend on what the landowner decides to do with the approved Eastover Phase I and proposed Eastover Phase II borrow areas following excavation.

The effects of Hurricane Katrina on New Orleans East were extensive, with the area heavily flooded for weeks. As of September 2008 less than 60 percent of pre-Katrina residences were active. In the period between March and September 2008 the section of New Orleans East west of I-510 experienced the greatest increase of residences in the city (GNOCDC 2009). New Orleans East, to date, has the city's greatest number of properties that received Road Home funding to rebuild (GNOCDC 2009). Data for new residential construction permits without a corresponding demolition permit since Hurricane Katrina, suggesting new construction that is not a result of tear-downs and reconstruction of storm-damaged homes, was relatively low for the city (GNOCDC 2009). These data suggest that residential rebuilding efforts are likely confined to existing structures and neighborhoods. Because of the recent increase in population to the area, and the lower flood risk to the New Orleans metropolitan area with completion of the HSDRRS, it is reasonable to assume that remaining non-developed parcels in New Orleans East would probably be impacted by new commercial or industrial activity, including use of the aforementioned approved borrow sites. This

predicted trend is not inconsistent with the development trends experienced in New Orleans East, as well as most of the New Orleans metropolitan area.

Positive cumulative impacts to population and housing associated with the completion of the HSDRRS in its entirety may also occur. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may enhance the desirability of living within the protected areas. As a result, a shift in the dispersion of population within the New Orleans Metropolitan Statistical Area, or beyond, may occur. Also, to the extent that the completion of the HSDRRS encourages regional economic growth, any additional jobs thus created may manifest itself in either in-migration to the area or an increase in commuting activity.

- *Tammany Holding*

Direct Impacts

Since there is no residential development in the immediate vicinity of the proposed Tammany Holding borrow area, there would be no direct impacts to population and housing in the vicinity of the proposed borrow area as a result of the proposed action.

Indirect Impacts

There would be no indirect impacts to population and housing in the vicinity of the proposed borrow area as a result of the proposed action.

Cumulative Impacts

Because there is no residential development in the immediate vicinity of the proposed Tammany Holding borrow area, the proposed borrow area would not contribute to cumulative impacts on population and housing in the project area.

Positive cumulative impacts to population and housing associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may enhance the desirability of living within the protected areas. As a result, a shift in the dispersion of population within the New Orleans Metropolitan Statistical Area, or beyond, may occur. Also, to the extent that the completion of the HSDRRS encourages regional economic growth, any additional jobs thus created may manifest itself in either in-migration to the area or an increase in commuting activity. This impact is not specific to the proposed project area, since it lies outside the HSDRRS.

- *Willow Bend Phase II*

Direct Impacts

Residents along River Road may experience increased but temporary impacts with respect to the proposed Willow Bend II excavation. These may include degraded air quality, increased noise, and increased congestion on neighboring roadways. Congestion impacts will be discussed further in section 3.3.4.4. Crews would likely work between 10 and 14 hours a day, 7 days a week, given the urgency of the task of completing the HSDRRS. The duration of construction is dependent on work schedules, weather conditions, and borrow need, none of which are known at this time.

All impacts to population would last only through the excavation period, and there would be no displacement of any population.

The proposed Willow Bend Phase II borrow area could be designed to not directly or indirectly damage nearby structures, encourage borrow site sidewall erosion or increase flood risk. However, the landowner and his contractor, not the CEMVN, are responsible for borrow site design. Although, if the borrow area is not designed by the landowner and his contractor in such a fashion, it could potentially cause damage to neighboring homes. Otherwise, no permanent impacts to population and housing are expected. Impacts to population would last only through the excavation period, and there would be no displacement of any population.

An open borrow area may also pose a safety hazard to neighboring population if no barrier is erected around it. There is also a potential danger to children, in addition to automobiles if the proposed borrow area is very close to a roadway. While the decision to fence off the proposed borrow area is that of the landowner and his contractor, not the CEMVN, neighboring residents should use caution around these areas.

Indirect Impacts

No indirect impacts related to displacement of population and housing are expected to occur.

Cumulative Impacts

Excavation of the proposed Willow Bend Phase II contractor-furnished borrow area could temporarily contribute to cumulative population and housing impacts in the project vicinity. In addition, the approved Willow Bend Phase I contractor-furnished borrow area could also temporarily contribute to cumulative population and housing impacts in the project vicinity. Nearby residents may experience temporary, construction-related impacts such as degraded air quality, increased noise, and increased congestion on neighboring roadways. All impacts would be temporary, lasting only through the construction period. Additional potential cumulative impacts to population and housing depend on what the landowner decides to do with the approved Willow Bend Phase I and proposed Willow Bend Phase II borrow areas following excavation.

Positive cumulative impacts to population and housing associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may enhance the desirability of living within the protected areas. As a result, a shift in the dispersion of population within the New Orleans Metropolitan Statistical Area, or beyond, may occur. Also, to the extent that the completion of the HSDRRS encourages regional economic growth, any additional jobs thus created may manifest itself in either in-migration to the area or an increase in commuting activity. This impact is not specific to the proposed project area itself, since it lies outside the HSDRRS.

3.3.2 Impacts to Employment, Business, and Industry

Existing Conditions

- *Eastover Phase II*

The Eastover Phase II proposed borrow area was previously used as a part of a golf course, but has been closed since Hurricane Katrina. The proposed Eastover Phase II borrow area borders and surrounds the approved Eastover Phase I borrow area, which was also previously used as a part of the golf course. Currently, no specific, publicly available plan exists that would either revert the property to its former use as a golf course or redevelop the property for an alternative economic purpose.

- *Tammany Holding*
The Tammany Holding parcels were previously used for grazing until as recently as 2000, but the site is now mostly disturbed by ditching, fill, and road building. The property owner has indicated the intention to develop the parcels as a residential subdivision.
- *Willow Bend Phase II*
The Willow Bend Phase II proposed borrow area has been used exclusively as farmland for the last 130 years. It is presently used for sugar cane farming. Some of the site is forested.

Discussion of Impacts

No Action

- *Eastover Phase II*
Under the no action alternative there would be no direct impacts to employment, business, and industry in the vicinity of the Eastover Phase II proposed borrow area. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area.

Indirect Impacts

There would be no indirect impacts to employment, business, and industry in the vicinity of the Eastover Phase II proposed borrow area under the no action alternative. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, the proposed Eastover Phase II site would not be used as a contractor-furnished borrow area and would not contribute to cumulative impacts on employment, business and industry in the project area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The Eastover Phase I site, which was approved in IER #19, could potentially be excavated for use in the HSDRRS. Potential cumulative impacts to employment, business, and industry associated with excavating the Eastover Phase I site are discussed in IER # 19. No permanent impacts to business, employment, or industry are expected. Temporary impacts may occur to area businesses due to delays caused by increased traffic congestion.

Under the no action alternative, cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that

accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. As a result, an increase in the number of firms and the output of business and industry would likely manifest itself in such growth.

- *Tammany Holding*

Direct Impacts

There would be no direct impacts to employment, business, and industry in the vicinity of the Tammany Holding proposed borrow area under the no action alternative. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area.

Indirect Impacts

There would be no indirect impacts to employment, business, and industry in the vicinity of the Tammany Holding proposed borrow area under the no action alternative. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, the proposed Tammany Holding site would not be used as a contractor-furnished borrow area and would not contribute to cumulative impacts to employment, business and industry in the project area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

Under the no action alternative, cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. As a result, an increase in the number of firms and the output of business and industry would likely manifest itself in such growth. This impact is not specific to the proposed project area itself, since it lies outside the HSDRRS.

- *Willow Bend Phase II*

Direct Impacts

Under the no action alternative, there would be no direct impacts to employment, business, and industry in the vicinity of the Willow Bend Phase II proposed borrow area. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area.

Indirect Impacts

There would be no indirect impacts to employment, business, and industry in the vicinity of the Willow Bend Phase II proposed borrow area under the no action alternative. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, the proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area and would not contribute to cumulative impacts to employment, business and industry in the project area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The approved Willow Bend Phase I site, which was approved in IER #26, could potentially be excavated for use in the HSDRRS. Potential cumulative impacts to employment, business, and industry associated with excavating the Willow Bend Phase I site are discussed in IER # 26. The Willow Bend Phase I site would be unavailable for further farming uses under this alternative.

Under the no action scenario, cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. As a result, an increase in the number of firms and the output of business and industry would likely manifest itself in such growth. This impact is not specific to the proposed project area itself, since it lies outside the HSDRRS.

Proposed Action

- *Eastover Phase II*

Direct Impacts

As a result of the proposed action, the proposed Eastover Phase II site would no longer be available for alternative business-related uses, unless the landowner performs an appropriate amount of backfilling. If the owner performs the appropriate amount of backfilling, then the site can be used for alternative business-related purposes.

Temporary impacts may occur to area businesses due to delays caused by increased traffic congestion.

Indirect Impacts

There would be no indirect impacts to business, employment, or industry in the vicinity of the proposed Eastover Phase II area under the proposed action.

Cumulative Impacts

Excavation of the proposed Eastover Phase II borrow area could contribute to temporary cumulative impacts to area businesses due to delays caused by increased traffic congestion. The approved Eastover Phase I borrow area could also be used in the construction of the HSDRRS and could contribute to temporary cumulative impacts to area business due to delays caused by increased traffic congestion during the excavation period.

No permanent cumulative impacts to business, employment, or industry are expected from the possible excavation of the proposed Eastover Phase II contractor-furnished borrow area. As a result of the proposed action, the proposed Eastover Phase II borrow area would no longer be available for alternative business-related uses, unless the landowner performs an appropriate amount of

backfilling. If the owner performs the appropriate amount of backfilling, then the site can again be used for business purposes.

If the approved Eastover Phase I contractor-furnished borrow area is used in the construction of the HSDRRS, it would no longer be available for alternative business-related uses, unless the landowner performs an appropriate amount of backfilling. If the owner performs the appropriate amount of backfilling, then the site could be used for alternative business-related purposes.

Additional cumulative impacts to business, employment and industry are associated with the completion of the HSDRRS. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. As a result, an increase in the number of firms and the output of business and industry would likely manifest itself in such growth.

- *Tammany Holding*

Direct Impacts

As a result of the proposed action, the proposed Tammany Holding borrow area would no longer be available for alternative business-related uses, unless the landowner performs an appropriate amount of backfilling. If the owner performs the appropriate amount of backfilling, then the site could again be used for business purposes.

Temporary impacts may occur to area businesses due to delays caused by increased traffic congestion.

Indirect Impacts

There would be no indirect impacts to business, employment, or industry in the vicinity of the proposed Tammany Holding area under the proposed action.

Cumulative Impacts

Excavation of the proposed Tammany Holding borrow area could contribute to temporary cumulative impacts to area businesses due to delays caused by increased traffic congestion.

No permanent cumulative impacts to business, employment, or industry are expected from the possible excavation of the proposed Tammany Holding contractor-furnished borrow area. As a result of the proposed action, the proposed Tammany Holding borrow area would no longer be available for alternative business-related uses, unless the landowner performs an appropriate amount of backfilling. If the owner performs the appropriate amount of backfilling, then the site could again be used for business purposes.

Additional cumulative impacts to business, employment and industry are associated with the completion of the HSDRRS. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. As a result, an increase in the number of

firms and the output of business and industry would likely manifest itself in such growth. This impact is not specific to the proposed project area itself, since it lies outside the HSDRRS.

- *Willow Bend Phase II*

Direct Impacts

As a result of the proposed action, the Willow Bend Phase II site would no longer be available for alternative uses, such as farmland, unless the owner performs an appropriate amount of backfilling. If the owner performs the appropriate amount of backfilling, then the site could again be used for business purposes.

Temporary impacts may occur to area businesses due to delays caused by increased traffic congestion.

Indirect Impacts

There would be no indirect impacts to business, employment, or industry in the vicinity of the proposed Willow Bend Phase II area under the proposed action.

Cumulative Impacts

Excavation of the proposed Willow Bend Phase II borrow area could contribute to temporary cumulative impacts to area businesses due to delays caused by increased traffic congestion. The approved Willow Bend Phase I borrow area could also be used in the construction of the HSDRRS and could also contribute to temporary cumulative impacts to area business due to delays caused by increased traffic congestion during the excavation period.

No permanent cumulative impacts to business, employment, or industry are expected from the possible excavation of the proposed Willow Bend Phase II contractor-furnished borrow area. As a result of the proposed action, the proposed Willow Bend Phase II borrow area would no longer be available for alternative business-related uses, unless the landowner performs an appropriate amount of backfilling. If the owner performs the appropriate amount of backfilling, then the site can again be used for business purposes.

If the approved Willow Bend Phase I contractor-furnished borrow area is used in construction of the HSDRRS, it would no longer be available for alternative business-related uses, unless the landowner performs an appropriate amount of backfilling. If the owner performs the appropriate amount of backfilling, then the site could again be used for business purposes.

Additional cumulative impacts to business, employment and industry are associated with the completion of the HSDRRS. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. As a result, an increase in the number of firms and the output of business and industry would likely manifest itself in such growth. This impact is not specific to the proposed project area itself, since it lies outside the HSDRRS.

3.3.3 Availability of Public Facilities and Services

Existing Conditions

- *Eastover Phase II*
There are no public facilities in the vicinity of the proposed borrow area.
- *Tammany Holding*
There are no public facilities in the vicinity of the proposed borrow area.
- *Willow Bend Phase II*
There are no public facilities in the vicinity of the proposed borrow area.

Discussion of Impacts

No Action

- *All Sites*

Direct Impacts

There would be no direct impacts to the availability of public facilities and services under the no action alternative. The proposed sites would not be used as contractor-furnished borrow areas.

Indirect Impacts

There would be no indirect impacts to the availability of public facilities and services under the no action alternative. The proposed sites would not be used as contractor-furnished borrow areas.

Cumulative Impacts

Under the no action alternative, the proposed sites would not be used as a contractor-furnished borrow areas and would not contribute to cumulative impacts on public facilities in the project area. The approved Eastover Phase I and Willow Bend Phase I sites could be used in the construction of the HSDRRS. However, the approved Eastover Phase I and Willow Bend Phase I sites would not contribute to cumulative impacts on public facilities because there are no public facilities in the vicinity of the approved Eastover Phase I and Willow Bend Phase I borrow areas.

Cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may enhance the desirability of living within the protected areas. As a result, a shift in the dispersion of population within the New Orleans Metropolitan Statistical Area, or beyond, may occur. Also, to the extent that the completion of the HSDRRS encourages regional economic growth, any additional jobs thus created may manifest itself in either in-migration to the area or an increase in commuting activities. An increase in the demand for public facilities and services would follow the migration patterns of residents and workers in the region. This impact is not specific to the proposed Tammany Holding and Willow Bend Phase II project areas, because those proposed borrow areas lie outside the HSDRRS.

Proposed Action

- *All Sites*

Direct Impacts

There would be no direct impacts to public facilities and services under the proposed action, since there are no public facilities or services in the immediate vicinity of the proposed Eastover Phase II, Tammany Holding and Willow Bend Phase II borrow areas.

Indirect Impacts

There would be no indirect impacts to public facilities and services under the proposed action.

Cumulative Impacts

Excavation of the proposed Eastover Phase II, Tammany Holding and Willow Bend Phase II borrow areas would not contribute to cumulative impacts on public facilities because there are no public facilities in the vicinity of the proposed borrow areas. The approved Eastover Phase I and Willow Bend Phase I sites could also be used in the construction of the HSDRRS. However, the approved Eastover Phase I and Willow Bend Phase I sites would not contribute to cumulative impacts on public facilities because there are no public facilities in the vicinity of the approved Eastover Phase I and Willow Bend Phase I borrow areas.

Cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may enhance the desirability of living within the protected areas. As a result, a shift in the dispersion of population within the New Orleans Metropolitan Statistical Area, or beyond, may occur. Also, to the extent that the completion of the HSDRRS encourages regional economic growth, any additional jobs thus created may manifest itself in either in-migration to the area or an increase in commuting activities. An increase in the demand for public facilities and services would follow the migration patterns of residents and workers in the region. This impact is not specific to the proposed Tammany Holding and Willow Bend Phase II project areas, because those proposed borrow areas lie outside the HSDRRS.

3.3.4 Effects on Transportation

The CEMVN is currently developing information for an analysis of the transportation impacts associated with the HSDRRS project. A transportation report is being developed and will be released publicly once it is completed. Estimates on numbers of truckloads necessary to complete the HSDRRS borrow mission are provided in this section. These estimates were developed as a part of CEMVN's continuing analysis of the potential transportation impacts associated with the HSDRRS mission.

Existing Conditions

- *Eastover Phase II*
The Eastover Phase II site is located on East Point Court, which also serves as the I-10 East service road. Roads near the site that would also likely be used by truck using the proposed Eastover Phase II borrow area are I-510 and Lake Forest Blvd. Access to the site would not be provided from any of the residential streets inside the Eastover subdivision.
- *Tammany Holding*
The Tammany Holding parcels are located off of I-10 near Oak Harbor Boulevard. The sites are accessible using Oak Harbor Boulevard to Harbor Center Boulevard and Lakeshore Boulevard North, Howze Beach Road, or LA-433.

- *Willow Bend Phase II*
The Willow Bend Phase II proposed borrow area is located off of River Road in St. John the Baptist Parish. It is also located to the north of Highway 3127 and to the east of West 4th Street, Goldmine Plantation Road, and Highway 639.

Discussion of Impacts

No Action

- *Eastover Phase II*

Direct Impacts

Under the no action alternative there would be no direct impacts to transportation in the vicinity of the Eastover Phase II proposed borrow area. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area.

Indirect Impacts

Under the no action alternative there would be no indirect impacts to transportation in the vicinity of the Eastover Phase II proposed borrow area. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, the proposed Eastover Phase II site would not be used as a contractor-furnished borrow area and would not contribute to cumulative transportation impacts in the project area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

There are several approved borrow sites in the vicinity of the proposed Eastover Phase II site that could be used in the construction of the HSDRRS. These include the approved Eastover Phase I (approximately 75,600 truckloads of material), Cummings North (approximately 4,000,000 truckloads), Maynard (approximately 41,412 truckloads) and Stumpf Phases I and II (approximately 356,224 truckloads). The cumulative impact to transportation of these borrow sites would likely be moderate to severe congestion, decreases in levels of service, and degradation of local and major roadways around the borrow sites, including Chef Menteur Highway, I-510, and I-10.

Congestion impacts to the greater metropolitan area are likely to be moderate to severe as a result of HSDRRS construction. Decreases in levels of service on local roads could result due to the high number of truck trips required to transport the required amounts of construction material. Additionally, there could be a higher risk of traffic accidents and resulting damage to property as a result of the higher number of truck trips occurring on major transportation arteries within the metropolitan area.

There is also likely to be moderate to severe degradation of infrastructure as a result of wear and tear from transporting HSDRRS construction materials. These

impacts are likely to occur on local and feeder roads, as well as on local bridges. As a result of HSDRRS construction, rehabilitation to area infrastructure could be required sooner than would normally be expected.

On the other hand, there may emerge cumulative impacts associated with the completion of the HSDRRS in its entirety. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. An increase in the demand for transportation resources usually follows gains in economic activity and would thus be expected given any additional economic growth in the region.

- *Tammany Holding*

Direct Impacts

Under the no action alternative there would be no direct impacts to transportation in the vicinity of the Tammany Holding proposed borrow area. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area.

Indirect Impacts

Under the no action alternative there would be no indirect impacts to transportation in the vicinity of the Tammany Holding proposed borrow area. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, the proposed Tammany Holding borrow area would not be used as a contractor-furnished borrow area and would not contribute to cumulative transportation impacts in the project area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

Congestion impacts to the greater metropolitan area are likely to be moderate to severe as a result of HSDRRS construction. Decreases in levels of service on local roads could result due to the high number of truck trips required to transport the required amounts of construction material. Additionally, there is a higher risk of traffic accidents and resulting damage to property as a result of the higher number of truck trips occurring on major transportation arteries within the metropolitan area.

There is also likely to be moderate to severe degradation of infrastructure as a result of wear and tear from transporting HSDRRS construction materials. These impacts are likely to occur on local and feeder roads, as well as on local bridges. As a result of HSDRRS construction, rehabilitation to area infrastructure could be required sooner than would normally be expected.

On the other hand, there may emerge cumulative impacts associated with the completion of the HSDRRS in its entirety. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. An increase in the demand for transportation resources

usually follows gains in economic activity and would thus be expected given any additional economic growth in the region. This impact is not specific to the proposed Tammany Holding borrow area, since it lies outside the HSDRRS.

- *Willow Bend Phase II*

Direct Impacts

Under the no action alternative there would be no direct impacts to transportation in the vicinity of the Willow Bend Phase II proposed borrow area. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area.

Indirect Impacts

Under the no action alternative there would be no indirect impacts to transportation in the vicinity of the Willow Bend Phase II proposed borrow area. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, the proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area and would not contribute to cumulative transportation impacts in the project area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The approved Willow Bend Phase I site could potentially be excavated for use on the HSDRRS. Potential impacts to transportation associated with excavating the Willow Bend Phase I site are discussed in IER # 26. The site contains approximately 1,600,000 cubic yards of borrow material, and excavating it would require approximately 134,000 truckloads. Additionally, the previously approved 3C Riverside Phases I and II sites are also in the vicinity, and these could require up to 562,800 truckloads to excavate.

Impacts from Willow Bend Phase I may include increased congestion, decreased levels of service, accelerated wear and tear, and increased risk of traffic accidents on neighboring roadways such as Goldmine Plantation Road, River Road, Highway 3127. Due to the frequent heavy loads the projects could necessitate, local roadways around the project area would likely suffer degradation requiring rehabilitation that is sooner than would normally be expected.

Congestion impacts to the greater metropolitan area are likely to be moderate to severe as a result of HSDRRS construction. Decreases in levels of service on local roads could result due to the high number of truck trips required to transport the required amounts of construction material. Additionally, there is a higher risk of traffic accidents and resulting damage to property as a result of the higher number of truck trips occurring on major transportation arteries within the metropolitan area.

There is also likely to be moderate to severe degradation of infrastructure as a result of wear and tear from transporting HSDRRS construction materials throughout the Greater New Orleans area. These impacts are likely to occur on local and feeder roads, as well as on local bridges. As a result of HSDRSS

construction, rehabilitation to area infrastructure could be required sooner than would normally be expected.

On the other hand, there may emerge cumulative impacts associated with the completion of the HSDRRS in its entirety. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. An increase in the demand for transportation resources usually follows gains in economic activity and would thus be expected given any additional economic growth in the region. This impact is not specific to the proposed Willow Bend Phase II borrow area, since it lies outside the HSDRRS.

Proposed Action

- *Eastover Phase II*

Direct Impacts

Under the proposed action, there may be temporary, congestion-related impacts to the I-10 (East Point Court) and I-510 service roads, Lake Forest Boulevard, Chef Menteur Highway, as well as to I-10 and I-510 in Orleans Parish near the Eastover Phase II proposed borrow area due to an increased presence of construction vehicles. Congestion impacts and decreases in levels of service around the excavation area could be moderate to severe.

Excavation of the proposed Eastover Phase II site (approximately 4,000,000 cubic yards of borrow material) would require approximately 336,000 truckloads during the construction period. While it is uncertain which, if any, HSDRRS project the material will be delivered to, the material will be hauled out of the borrow area using the access roads leading to East Point Court. Roads inside the Eastover gated community would not be used for transportation of material out of the proposed borrow area.

Indirect Impacts

There could be increased congestion, decreased levels of service, accelerated wear and tear, and increased risk of traffic accidents on other major and local roads in the project area and throughout the Greater New Orleans area as borrow and other construction materials are transported to construction sites for use within the HSDRRS.

Cumulative Impacts

Approximately 336,000 truckloads would be required to complete excavation of the proposed Eastover Phase II contractor-furnished borrow area. The addition of approximately 336,000 truckloads contributes to the cumulative transportation impacts in the HSDRRS project area.

It is estimated that it would require approximately 4,000,000 truckloads to complete excavation of the borrow areas needed for completion of the HSDRRS. If the proposed Eastover Phase II site is used as a contractor-furnished borrow area for completion of the HSDRRS, the Eastover Phase II site could account for approximately 8.4 percent of the total amount of truckloads required to complete the HSDRRS borrow mission.

The approved Eastover Phase I site could require approximately 75,600 truckloads to complete excavation. If the approved Eastover Phase I site is used

as a contractor-furnished borrow area for completion of the HSDRRS, the Eastover Phase I site could account for approximately 1.9 percent of the total amount of truckloads required to complete the HSDRRS borrow mission.

If both the approved Eastover Phase I and proposed Eastover Phase II sites are used as contractor-furnished borrow areas for completion of the HSDRRS, those two sites would account for approximately 10.3 percent of the total amount of truckloads required to complete the HSDRRS borrow mission.

There are several other approved borrow sites in the vicinity of the proposed Eastover Phase II site that could be used in the construction of the HSDRRS. These include the approved Cummings North (approximately 4,000,000 truckloads), Maynard (approximately 41,412 truckloads) and Stumpf Phases I and II (approximately 356,224 truckloads). The cumulative impact to transportation of these borrow sites could likely be moderate to severe congestion, decreases in levels of service, and degradation of local and major roadways around the borrow sites, including Chef Menteur Highway, I-510, and I-10.

Congestion impacts to the greater metropolitan area are likely to be moderate to severe as a result of HSDRRS construction. Decreases in levels of service on local roads could result due to the high number of truck trips required to transport the required amounts of construction material. Additionally, there is a higher risk of traffic accidents and resulting damage to property as a result of the higher number of truck trips occurring on major transportation arteries within the metropolitan area.

There also could be moderate to severe degradation of infrastructure as a result of wear and tear from transporting HSDRRS construction materials. These impacts are likely to occur on local and feeder roads, as well as on local bridges. As a result of HSDRRS construction, rehabilitation to area infrastructure could be required sooner than would normally be expected.

On the other hand, there may emerge cumulative impacts associated with the completion of the HSDRRS in its entirety. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. An increase in the demand for transportation resources usually follows gains in economic activity and would thus be expected given any additional economic growth in the region.

- *Tammany Holding*

- Direct Impacts

- Under the proposed action, there may be temporary, congestion-related impacts Oak Harbor Boulevard, Harbor Center Boulevard, Lakeshore Boulevard North, Howze Beach Road, LA 433, and I-10 in the vicinity of the proposed borrow areas due to an increased presence of construction vehicles. Congestion impacts and decreases in levels of service around the excavation area could likely be moderate to severe. This site contains approximately 10,000,000 cubic yards of borrow material, and excavating it could require up to 840,000 truckloads. Due to the increased levels of truck traffic, and the movement of many truckloads of material, there could likely be increased wear and tear on these roads. Due to frequent heavy loads, local roadways around the project area could likely suffer degradation requiring rehabilitation that is sooner than would normally be

expected. Lastly, because of increased levels of truck traffic, there could be a higher risk of accidents, with resulting injuries, fatalities, and damage to property.

Indirect Impacts

There could be increased congestion, decreased levels of service, accelerated wear and tear, and increased risk of traffic accidents on other major and local roads in the project area and throughout the Greater New Orleans area as borrow and other construction materials are transported to construction sites for use within the HSDRRS. The roads used for HSDRRS construction may include I-10 and Highway 11.

Cumulative Impacts

Approximately 840,000 truckloads could be required to complete excavation of the proposed Tammany Holding contractor-furnished borrow area. The addition of approximately 840,000 truckloads contributes to the cumulative transportation impacts in the HSDRRS project area.

It is estimated that it could require approximately 4,000,000 truckloads to complete excavation of the borrow areas needed for completion of the HSDRRS. If the proposed Tammany Holding site is used as a contractor-furnished borrow area for completion of the HSDRRS, the Tammany Holding site could account for approximately 21 percent of the total amount of truckloads required to complete the HSDRRS borrow mission.

Congestion impacts to the greater metropolitan area are likely to be moderate to severe as a result of HSDRRS construction. Decreases in levels of service on local roads could result due to the high number of truck trips required to transport the required amounts of construction material. Additionally, there is a higher risk of traffic accidents and resulting damage to property as a result of the higher number of truck trips occurring on major transportation arteries within the metropolitan area.

There could likely be moderate to severe degradation of infrastructure as a result of wear and tear from transporting HSDRRS construction materials. These impacts are likely to occur on local and feeder roads, as well as on local bridges. As a result of HSDRRS construction, rehabilitation to area infrastructure could likely be required sooner than would normally be expected.

On the other hand, there may emerge cumulative impacts associated with the completion of the HSDRRS in its entirety. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. An increase in the demand for transportation resources usually follows gains in economic activity and would thus be expected given any additional economic growth in the region. This impact is not specific to the proposed Tammany Holding borrow area, since it lies outside the HSDRRS.

- *Willow Bend Phase II*

Direct Impacts

Under the proposed action, there may be temporary, congestion-related impacts to River Road, Highway 3127, West 4th Street, Goldmine Plantation Road, and Highway 639 due to an increased presence of construction vehicles. The magnitude of these impacts would be proportionally greater for the proposed

action as compared to the no action alternative. The Willow Bend Phase II site is about 10 times the size of the approved Willow Bend Phase I site, and may require up to 1,300,000 truckloads to excavate.

Congestion impacts and decreases in level of service around the excavation area could likely be moderate to severe. Additionally, due to the increased levels of truck traffic, and require the movement of many truckloads of material over the same local roads, there could likely be increased wear and tear on these same roads. Due to frequent heavy loads, local roadways around the project area could likely suffer degradation requiring rehabilitation that is sooner than would normally be expected. Lastly, because of increased levels of truck traffic, there would be a higher risk of accidents, with resulting injuries, fatalities, and damage to property.

Indirect Impacts

There would be increased congestion, decreased levels of service, accelerated wear and tear, and increased risk of traffic accidents on other major and local roads in the project area and throughout the Greater New Orleans area as borrow and other construction materials are transported to construction sites for use within the HSDRRS.

Cumulative Impacts

Approximately 1,300,000 truckloads are required to complete excavation of the proposed Willow Bend Phase II contractor-furnished borrow area. The addition of approximately 1,300,000 truckloads contributes to the cumulative transportation impacts in the HSDRRS project area.

It is estimated that it would require approximately 4,000,000 truckloads to complete excavation of the borrow areas needed for completion of the HSDRRS. If the proposed Willow Bend Phase II site is used as a contractor-furnished borrow area for completion of the HSDRRS, the Willow Bend Phase II site could account for approximately 32.5 percent of the total amount of truckloads required to complete the HSDRRS borrow mission.

The approved Willow Bend Phase I site could require approximately 134,000 truckloads to complete excavation. If the approved Willow Bend Phase I site is used as a contractor-furnished borrow area for completion of the HSDRRS, the Willow Bend Phase I site could account for approximately 3.3 percent of the total amount of truckloads required to complete the HSDRRS borrow mission.

If both the approved Willow Bend Phase I and proposed Willow Bend Phase II sites are used as contractor-furnished borrow areas for completion of the HSDRRS, those two sites could account for approximately 35.8 percent of the total amount of truckloads required to complete the HSDRRS borrow mission.

Congestion impacts to the greater metropolitan area are likely to be moderate to severe as a result of HSDRRS construction. Decreases in levels of service on local roads could result due to the high number of truck trips required to transport the required amounts of construction material. Additionally, there is a higher risk of traffic accidents and resulting damage to property as a result of the higher number of truck trips occurring on major transportation arteries within the metropolitan area.

There could likely be moderate to severe degradation of infrastructure as a result of wear and tear from transporting HSDRRS construction materials throughout the Greater New Orleans area. These impacts are likely to occur on local and feeder roads, as well as on local bridges. As a result of HSDRSS construction, rehabilitation to area infrastructure could likely be required sooner than would normally be expected.

On the other hand, there may emerge cumulative impacts associated with the completion of the HSDRRS in its entirety. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. An increase in the demand for transportation resources usually follows gains in economic activity and would thus be expected given any additional economic growth in the region. This impact is not specific to the approved Willow Bend Phase I borrow area and the proposed Willow Bend Phase II borrow area, since they lie outside the HSDRRS.

3.3.5 Disruption of Community and Regional Growth

Existing Conditions

Community and regional growth are generally influenced by national trends, but otherwise depend significantly upon relatively local attributes that allow it to be evaluated apart from the national economy. For the purposes of socioeconomic impact analysis, the project area is first described in summary terms with respect to prevailing trends in the growth of population, housing, income, and employment.

- *Eastover Phase II*

According to U.S. Census data from 1990 and 2000, the following trends were observed in Orleans Parish: population fell from 496,938 to 484,674; employment grew from 186,036 to 191,739; and median household income grew from \$18,477 to \$27,133.

Preliminary 2010 U.S. Census data will be available in 2011 at the earliest. However, intermediate estimates by the Greater New Orleans Data Center suggested decline in Orleans Parish since the 2005 storm events: 141,208 households in the parish are actively receiving mail, compared with 198,232 in July 2005. Population was estimated by the U.S. Census Bureau at 288,113 in 2007, as compared to 453,726 in July 2005.

- *Tammany Holding*

According to U.S. Census data from 1990 and 2000, the following trends were observed in St. Tammany Parish: population grew from 144,508 to 191,268; employment grew from 61,735 to 88,044; and median household income grew from \$30,656 to \$47,883.

Preliminary 2010 Census data will be available in 2011 at the earliest. However, intermediate census estimates reported by the Greater New Orleans Data Center indicated a population in St. Tammany Parish of 226,625 in 2007.

- *Willow Bend Phase II*

According to U.S. Census data from 1990 and 2000, the following trends were observed in St. John the Baptist Parish: population grew from 39,996 to 43,044; employment grew from 15,928 to 17,864; and median household income grew from \$29,035 to \$39,456.

Preliminary 2010 Census data will be available in 2011 at the earliest. However, intermediate estimates reported by the Greater New Orleans Data Center indicated a population in St. John the Baptist Parish of 47,684 in 2007.

Discussion of Impacts

No Action

- *Eastover Phase II*

Direct Impacts

Under the no action alternative, there would be no direct impact to community and regional growth in the vicinity of the proposed Eastover Phase II contractor-furnished borrow area. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area.

Indirect Impacts

Under the no action alternative, there would be no indirect impact to community and regional growth in the vicinity of the proposed Eastover Phase II contractor-furnished borrow area. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, the proposed Eastover Phase II site would not be used as a contractor-furnished borrow area and would not contribute to cumulative community and regional growth impacts in the project area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The proposed Eastover Phase II site borders and surrounds the Eastover Phase I site, which was approved as a potential contractor-furnished borrow area in IER # 19. The Eastover Phase I site could potentially be excavated for use in the HSDRRS. Potential cumulative impacts to community and regional growth associated with excavating the Eastover Phase I site are discussed in IER # 19. The approved Eastover Phase I site would be unavailable for further development following excavation unless the owner performs an appropriate amount of backfill. If the site is backfilled, no negative impact on community growth is expected.

There would be cumulative impacts associated with the completion of the HSDRRS in its entirety. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. In addition, the lower incidence of flooding that the HSDRRS is designed to achieve would reduce the propensity for disruption of community life.

- *Tammany Holding*

Direct Impacts

Under the no action alternative, there would be no direct impacts to community and regional growth in the vicinity of the Tammany Holding proposed borrow

area. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area.

Indirect Impacts

Under the no action alternative, there would be no indirect impacts to community and regional growth in the vicinity of the Tammany Holding proposed borrow area. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

The proposed Tammany Holding site would not be used as a contractor-furnished borrow area and would not contribute to cumulative community and regional growth impacts in the project area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

There would be cumulative impacts associated with the completion of the HSDRRS in its entirety. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. In addition, the lower incidence of flooding that the HSDRRS is designed to achieve would reduce the propensity for disruption of community life. This impact is not specific to the proposed project area itself, since it lies outside the HSDRRS.

- *Willow Bend Phase II*

Direct Impacts

Under the no action alternative there would be no direct impacts to community and regional growth in the vicinity of the Willow Bend Phase II proposed borrow area. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area.

Indirect Impacts

Under the no action alternative there would be no indirect impacts to community and regional growth in the vicinity of the Willow Bend Phase II proposed borrow area. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

Under the no action alternative, the proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area and would not contribute to cumulative community and regional growth impacts in the project area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The proposed Willow Bend Phase II area borders and surrounds the Willow Bend Phase I site, which was approved as a potential contractor-furnished borrow area in IER #26. The Willow Bend Phase I site could potentially be excavated for use in the HSDRRS. Potential impacts to community and regional growth associated with excavating the Willow Bend Phase I site are discussed in IER #26. The

approved Willow Bend Phase I site would be unavailable for further development following excavation unless the owner performs an appropriate amount of backfill. If the site is backfilled, no negative impact on community growth is expected. Using land for borrow purposes prevents it from being used for alternative, more productive purposes, unless the owner performs an appropriate amount of backfilling.

There would be cumulative impacts associated with the completion of the HSDRRS in its entirety. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. In addition, the lower incidence of flooding that the HSDRRS is designed to achieve would reduce the propensity for disruption of community life. This impact is not specific to the proposed Willow Bend Phase II borrow area, since it lies outside the HSDRRS.

Proposed Action

- *Eastover Phase II*

Direct Impacts

As a result of the proposed action, excavated land at the proposed Eastover Phase II site would not be available for future alternative uses normally associated with economic development, unless the owner performs the appropriate amount of backfill.

Indirect Impacts

Future community and regional growth may be negatively impacted by the proposed Eastover Phase II contractor-furnished borrow area being excavated as opposed to being available for other economic uses, unless the landowner performs an appropriate amount of backfilling. If the landowner performs that amount of backfilling, then the site will be available for further use contributing towards community and regional growth.

Cumulative Impacts

Under the proposed action, the proposed Eastover Phase II site could be used as contractor-furnished borrow area and could contribute to cumulative impacts on community growth. The proposed Eastover Phase II borrow area would be unavailable for further development unless the landowner backfills the site. If the sites are backfilled, no negative impact on community growth is expected. Using land for borrow purposes prevents it from being used for alternative, more productive purposes, unless the owner performs an appropriate amount of backfilling.

There would be cumulative impacts associated with the completion of the HSDRRS in its entirety. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. In addition, the lower incidence of flooding that the HSDRRS is designed to achieve would reduce the propensity for disruption of community life.

- *Tammany Holding*

Direct Impacts

As a result of the proposed action, excavated land at the proposed Tammany Holding borrow area would not be available for future alternative uses normally associated with economic development, unless the owner performs the appropriate amount of backfill. Excavation of the proposed Tammany Holding borrow area may encourage additional growth of the community around the proposed Tammany Holding borrow area by advancing the site further toward its intended use as part of a residential subdivision

Indirect Impacts

The proposed action may encourage additional growth of the community around the proposed borrow area by advancing the site further toward its intended use as part of a residential subdivision.

Cumulative Impacts

There would be cumulative impacts associated with the completion of the HSDRRS in its entirety. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. In addition, the lower incidence of flooding that the HSDRRS is designed to achieve would reduce the propensity for disruption of community life. This impact is not specific to the proposed project area itself, since it lies outside the HSDRRS.

- *Willow Bend Phase II*

Direct Impacts

If the proposed Willow Bend Phase II site is used as contractor-furnished borrow area, the site would be unavailable for further development unless the landowner backfills the sites. This could have a negative impact on community growth. If the site is backfilled, no negative impact on community growth is expected.

Indirect Impacts

Future community and regional growth may be negatively impacted by the proposed Willow Bend Phase II contractor-furnished borrow area being excavated as opposed to being used for other purposes.

Cumulative Impacts

Under the proposed action, the proposed Willow Bend Phase II site and could be used as contractor-furnished borrow area and could contribute to cumulative impacts on community growth. The proposed Willow Bend Phase II borrow area would be unavailable for further development unless the landowner backfills the site. The approved Willow Bend Phase I could also be used a contractor furnished borrow area and could contribute to cumulative impacts on community growth. Using land for borrow purposes prevents it from being used for alternative, more productive purposes, unless the owner performs an appropriate amount of backfilling.

There would be cumulative impacts associated with the completion of the HSDRRS in its entirety. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. In addition, the lower incidence of flooding that the HSDRRS is designed to achieve would reduce the propensity for disruption of community life. This

impact is not specific to the approved Willow Bend Phase I and proposed Willow Bend Phase II areas, since it lies outside the HSDRRS.

3.3.6 Impacts to Tax Revenues and Property Values

Existing Conditions

- *Eastover Phase II*
The Eastover Phase II proposed borrow area is located in census tract 17.32, group 5, where the median value for specified owner-occupied housing units was \$163,800 in 2000; values ranged from \$40,000 to \$750,000.
- *Tammany Holding*
The Tammany Holding proposed borrow areas are located in census tract 408.03, group 5, where the median value for specified owner-occupied housing units was \$191,900 in 2000; values ranged from \$60,000 to \$750,000.
- *Willow Bend Phase II*
The Willow Bend Phase II proposed borrow area is located in census tract 711, group 2, where the median value for specified owner-occupied housing units was \$79,400 in 2000; values ranged from \$10,000 to \$200,000.

Discussion of Impacts

No Action

- *Eastover Phase II*

Direct Impacts

Under the no action alternative, there would be no direct impacts to tax revenues and property values in the vicinity of the Eastover Phase II proposed borrow area. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area.

Indirect Impacts

Under the no action alternative, there would be no indirect impacts to tax revenues and property values in the vicinity of the Eastover Phase II proposed borrow area. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area and would not contribute to cumulative tax revenue and property value impacts in the project area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The proposed Eastover Phase II borrow area borders and surrounds the Eastover Phase I site, which was approved as a potential contractor-furnished borrow area in IER # 19. The approved Eastover Phase I site could potentially be excavated for use in the HSDRRS. Potential impacts to tax revenues and property values associated with excavating the Eastover Phase I site are discussed in IER #19.

The approved Eastover Phase I borrow area could be designed to not directly or indirectly damage nearby structures, encourage borrow site sidewall erosion, or increase flood risk. However, the landowner and his contractor, not the CEMVN, are responsible for borrow site design. At present there is no information about what engineering practices will be followed, or their potential impacts on nearby residences.

Under the no action alternative, cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. It follows that increases in tax revenues would ensue given additional economic growth. In addition, the lower incidence of flooding that the HSDRRS is designed to achieve would have the effect of preserving, if not enhancing, property values within the protected areas.

- *Tammany Holding*

Direct Impacts

Under the no action alternative, there would be no direct impacts to tax revenues and property values in the vicinity of the Tammany Holding proposed borrow area. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area.

Indirect Impacts

Under the no action alternative, there would be no indirect impacts to tax revenues and property values in the vicinity of the Tammany Holding proposed borrow area. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

The proposed Tammany Holding site would not be used as a contractor-furnished borrow area and would not contribute to cumulative tax revenue and property value impacts in the project area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

Under the no action alternative, cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. It follows that increases in tax revenues would ensue given additional economic growth. In addition, the lower incidence of flooding that the HSDRRS is designed to achieve would have the effect of preserving, if not enhancing, property values within the protected areas. This impact is not specific to the proposed Tammany Holding area, since it lies outside the HSDRRS.

- *Willow Bend Phase II*

Direct Impacts

Under the no action alternative, there would be no direct impacts to tax revenues and property values in the vicinity of the Willow Bend Phase II proposed borrow

area. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area.

Indirect Impacts

Under the no action alternative, there would be no indirect impacts to tax revenues and property values in the vicinity of the Willow Bend Phase II proposed borrow area. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area and would not contribute to cumulative tax revenue and property value impacts in the project area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The proposed Willow Bend Phase II area borders and surrounds the Willow Bend Phase I site, which was approved as a potential contractor-furnished borrow area in IER # 26. The Willow Bend Phase I site could potentially be excavated for use in the HSDRRS. Potential impacts to tax revenues and property values associated with excavating the Willow Bend Phase I site are discussed in IER # 26.

The borrow area could be designed to not directly or indirectly damage nearby structures, encourage borrow site sidewall erosion, or increase flood risk. However, the landowner and his contractor, not the CEMVN, are responsible for borrow area design. At present, there is no information about what engineering practices will be followed, or their impacts on nearby residences.

Cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. It follows that increases in tax revenues would ensue given additional economic growth. In addition, the lower incidence of flooding that the HSDRRS is designed to achieve would have the effect of preserving, if not enhancing, property values within the protected areas. This impact is not specific to the proposed Willow Bend Phase II area, since it lies outside the HSDRRS.

Proposed Action

- *Eastover Phase II*

Direct Impacts

The excavation of borrow material from the proposed Eastover Phase II site has the potential to impact property values of nearby residences, and is an issue about which members of the Eastover subdivision have expressed concern.

The temporary nature of construction activities translates into temporary adverse impacts, if any, to sellers of properties in terms of lower asking prices and more days on the market, and, correspondingly, positive impacts, if any, to buyers of such properties. The short-term nature of construction is not expected to change property values whatsoever for the purposes of property tax assessments, as the

appraisal methods used are currently highly generalized and use comparables that can extend beyond the affected areas.

Under the most likely future condition, the proposed Eastover Phase II borrow site would be excavated and afterwards left empty. There may be a decrease in property value for the borrow site itself as a result of land being excavated as opposed to being used for alternative, more productive uses. For adjacent properties, the market response with respect to property values is undetermined, although there would appear to be no likelihood that property value could be enhanced due to this action. Factors that could negatively impact property value on a temporary basis include the presence of construction-related activities, such as additional truck traffic on nearby roads, noise from excavating equipment (in any propagate to populated areas), or any degradation in air quality that may be observed at nearby residential or commercial locations.

Over the long-term, any perceived negative aesthetic attribute of a non-backfilled borrow area by the real estate market may have a negative effect on selling prices and property values. The degree of impact cannot be determined in advance and with any degree of confidence. However, the expectation is that any negative impact on selling prices attributable to undesirable aesthetics would be relatively small in comparison with the most significant drivers of real estate prices: property characteristics such as square footage, floor plan, lot size, condition, taxes, and insurance, and such neighborhood characteristics such as stability, historical significance, access to major thoroughfares, street condition, schools, lighting, and the absence of crime.

Depending on the choices and course of action that is taken by the landowner, there is the possibility that aesthetic treatments could be made to the proposed borrow area after excavation. The canal could be breached in order to form a pond or lake in the empty borrow area, around which a walking path could be constructed to add recreational value to the site. In this case, the proposed action has the potential to enhance the value of adjacent properties.

In either case, positive or negative impacts to nearby properties would most likely be more pronounced for those that are directly adjacent to the Gannon Canal and proposed Eastover Phase II borrow area.

The borrow area could be designed to not directly or indirectly damage nearby structures, encourage borrow site sidewall erosion, or increase flood risk. However, the landowner and his contractor, not the CEMVN, are responsible for borrow area design. At present there is no information about what engineering practices would be followed by the landowner or his contractor, or their impacts on nearby residences.

Indirect Impacts

Tax revenues for Orleans Parish may marginally decrease by a higher degree as compared to the no action alternative. Under the proposed action, it is possible that the proposed Eastover Phase II site would be used as contractor-furnished borrow area. The property values for the site could likely be lower due to excavation instead of the site being used for more productive purposes that would generate greater tax revenue.

Cumulative Impacts

Under the proposed action, it is possible that both the approved Eastover Phase I and proposed Eastover Phase II sites could be used as contractor-furnished borrow areas. If both sites are used as contractor-furnished borrow areas and the landowner does not backfill the sites, there may be a decrease in property value for the borrow sites as a result of land being excavated as opposed to being used for alternative, more productive uses.

For adjacent properties, the market response with respect to property values is undetermined, although there would appear to be no likelihood that property value could be enhanced due to this action.

Cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. It follows that increases in tax revenues would ensue given additional economic growth. In addition, the lower incidence of flooding that the HSDRRS is designed to achieve would have the effect of preserving, if not enhancing, property values within the protected areas.

- *Tammany Holding*

Direct Impacts

Property value for the borrow site itself could decrease as a result of borrow excavation. This is due to the lack of potential alternative uses once borrow material has been removed. Tax revenues may also marginally decrease as a result.

Indirect Impacts

The landowner has stated an intention to develop the site into a residential subdivision. In this case, if the landowner completes the residential subdivision, the property values of the new homes surrounding the excavated borrow sites, and tax revenues as a result, would increase.

Cumulative Impacts

Cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. It follows that increases in tax revenues would ensue given additional economic growth. In addition, the lower incidence of flooding that the HSDRRS is designed to achieve would have the effect of preserving, if not enhancing, property values within the protected areas. This impact is not specific to the proposed Tammany Holding borrow area, since it lies outside the HSDRRS.

- *Willow Bend Phase II*

Direct Impacts

Property values for the borrow site itself may decrease as its potential for use for alternative purposes are diminished in the future if the landowner backfills the site. For adjacent properties, the market response with respect to property values

is undetermined, although there would appear to be no likelihood that property value could be enhanced due to this action.

The borrow area could be designed to not directly or indirectly damage nearby structures, encourage borrow site sidewall erosion, or increase flood risk. However, the landowner and his contractor, not the CEMVN, are responsible for borrow area design. At present there is no information about what engineering practices would be followed by the landowner and his contractor, or their impacts on nearby residences.

Indirect Impacts

Tax revenues for St. John the Baptist Parish may marginally decrease, but by a higher degree compared to the no action alternative. Under the proposed action, it is possible that both the approved Willow Bend Phase I and proposed Willow Bend Phase II sites would be used as contractor-furnished borrow areas. The property values for the sites could likely be lower due to excavation instead of the sites being used for more productive purposes that would generate greater tax revenue.

Cumulative Impacts

Under the proposed action, it is possible that proposed Willow Bend Phase II site could be used as contractor-furnished borrow area. In addition, the approved Willow Bend Phase I borrow area could be used in construction of the HSDRRS. If both sites are used as contractor-furnished borrow areas and the landowner does not backfill the sites, there may be a decrease in property value for the borrow sites as a result of land being excavated as opposed to being used for alternative, more productive uses.

For adjacent properties, the market response with respect to property values is undetermined, although there would appear to be no likelihood that property value could be enhanced due to this action.

Cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. It follows that increases in tax revenues would ensue given additional economic growth. In addition, the lower incidence of flooding that the HSDRRS is designed to achieve would have the effect of preserving, if not enhancing, property values within the protected areas. This impact is not specific to the approved Willow Bend Phase I and proposed Willow Phase II areas, since they lie outside the HSDRRS.

3.3.7 Changes in Community Cohesion

Existing Conditions

Community cohesion refers to the common vision and sense of belonging within a community that is created and sustained by the extensive development of individual relationships that are social, economic, cultural, and historical in nature. The degree to which these relationships are facilitated and made effective is contingent upon the physical and spatial configuration of the community itself: the functionality of the community owes much to the physical landscape within which it is set. The viability of community cohesion is compromised to the extent to which these physical features are exposed to interference from outside sources.

- *Eastover Phase II*
The Eastover neighborhood is an enclosed subdivision and is characteristic of a private community that is separated from the rest of the area. As such, the community exists as a high-density, residential development. The uniform land use pattern of Eastover contributes to a strong identity.
- *Tammany Holding*
There are no homes in the immediate vicinity of the proposed borrow area whose patterns of interactions would be interrupted by borrow excavation.
- *Willow Bend Phase II*
While there are some homes in the vicinity of the proposed borrow area, most are separated from the site by railroad tracks. While there is a trailer park directly adjacent to the site, borrow excavation is not expected to encroach upon the park's boundaries.

Discussion of Impacts

No Action

- *Eastover Phase II*
Under the no action alternative, there would be no direct impacts to community cohesion in the vicinity of the Eastover Phase II proposed borrow area. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area.

Indirect Impacts

Under the no action alternative, there would be no indirect impacts to community cohesion in the vicinity of the Eastover Phase II proposed borrow area. The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

The proposed Eastover Phase II site would not be used as a contractor-furnished borrow area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The proposed Eastover Phase II area borders and surrounds the Eastover Phase I site, which was approved for use on the HSDRRS as described in IER #19. The Eastover Phase I site could potentially be excavated for use on the HSDRRS. Potential impacts to community cohesion associated with excavating the Eastover Phase I site are discussed in IER #19.

Construction-related impacts can be distinguished from project-related outputs, that is, the economic and social consequences that are specifically intended from the project design and that make it worthwhile to pursue. An increase in community cohesion can be seen as a specifically intended output from the project, as represented by the HSDRRS. This occurs since storm surge protection measures are designed to protect the community from the catastrophic effects of flooding, preserving the physical integrity of the developed landscape that promotes patterns of social interchange.

Under the no action alternative, cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of enhancing community cohesion. The reason for this is that the lower incidence of flooding reduces the likelihood that patterns of social interaction and communication within the community are interrupted or permanently altered.

- *Tammany Holding*

Direct Impacts

Under the no action alternative, there would be no direct impacts to community cohesion in the vicinity of the Tammany Holding proposed borrow area. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area.

Indirect Impacts

Under the no action alternative, there would be no indirect impacts to community cohesion in the vicinity of the Tammany Holding proposed borrow area. The proposed Tammany Holding site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

The proposed Tammany Holding site would not be used as a contractor-furnished borrow area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

Under the no action scenario, cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of enhancing community cohesion. The reason for this is that the lower incidence of flooding reduces the likelihood that patterns of social interaction and communication within the community are interrupted or permanently altered. This impact is not specific to the proposed Tammany Holding area, since it lies outside the HSDRRS.

- *Willow Bend Phase II*

Direct Impacts

Under the no action alternative, there would be no direct impacts to community cohesion in the vicinity of the Willow Bend Phase II proposed borrow area. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area.

Indirect Impacts

Under the no action alternative, there would be no indirect impacts to community cohesion in the vicinity of the Willow Bend Phase II proposed borrow area. The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area.

Cumulative Impacts

The proposed Willow Bend Phase II site would not be used as a contractor-furnished borrow area. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, or IER #28, or other sources yet to be identified.

The proposed Willow Bend Phase II area is adjacent to the Willow Bend Phase I site, which was approved for use on the HSDRRS as described in IER #26. Willow Bend Phase I site could potentially be excavated for use on the HSDRRS. Potential impacts to community cohesion associated with excavating the Willow Bend Phase I site are discussed in IER #26.

Under the no action alternative, cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of enhancing community cohesion. The reason for this is that the lower incidence of flooding reduces the likelihood that patterns of social interaction and communication within the community are interrupted or permanently altered. This impact is not specific to the proposed Willow Bend Phase II area, since it lies outside the HSDRRS.

Proposed Action

- *Eastover Phase II*

Direct Impacts

The impacts of excavation of the proposed Eastover Phase II contractor-furnished borrow area are typically adverse, such as noise and traffic congestion. But, some impacts have both negative and positive impacts. Yet, it is difficult to foresee any temporary construction-related impact that enhances community cohesion: such impacts are expected to be either adverse or, at a minimum, neutral.

Impacts on community cohesion are contingent upon the degree to which project construction is expected to encroach upon the physical landscape that directly or indirectly affects the patterns of social interrelationships. In the current analysis, the borrow sites are sufficiently distant from areas of development such that no spatial element of the community is impinged upon and the shared identity of the community materially threatened. This does not mean that adverse impacts, such as degraded aesthetic qualities or foregone economic opportunities, do not occur. Rather, the adverse impacts in other resource areas are not sufficiently large to affect community cohesion. The impact on community cohesion is first demonstrated by identifying a change in the pattern of social interaction, such as diminished contact due to physical separation, impediments to contact, interference in communication, dislocation, or voluntary migration. None of these conditions are present with the proposed action.

Indirect Impacts

There would be no indirect impacts to community cohesion under the proposed action.

Cumulative Impacts

Excavation of the proposed Eastover Phase II borrow area would not contribute to cumulative impacts on community cohesion. It is possible that the approved

Eastover Phase I borrow area may also be used in the construction of the HSDRRS. The approved Eastover Phase I borrow area would not contribute to cumulative impacts on community cohesion.

Impacts on community cohesion are contingent upon the degree to which project construction is expected to encroach upon the physical landscape that directly or indirectly affects the patterns of social interrelationships. In the current analysis, the borrow sites are sufficiently distant from areas of development such that no spatial element of the community is impinged upon and the shared identity of the community materially threatened. This does not mean that adverse impacts, such as degraded aesthetic qualities or foregone economic opportunities, do not occur. Rather, the adverse impacts in other resource areas are not sufficiently large to affect community cohesion. The impact on community cohesion is first demonstrated by identifying a change in the pattern of social interaction, such as diminished contact due to physical separation, impediments to contact, interference in communication, dislocation, or voluntary migration. None of these conditions are present with the proposed action.

Construction-related impacts can be distinguished from project-related outputs, that is, the economic and social consequences that are specifically intended from the project design and that make it worthwhile to pursue. An increase in community cohesion can be seen as a specifically intended output from the project, as represented by the HSDRRS. This occurs since storm surge protection measures are designed to protect the community from the catastrophic effects of flooding, preserving the physical integrity of the developed landscape that promotes patterns of social interchange.

Additional cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of enhancing community cohesion. The reason for this is that the lower incidence of flooding reduces the likelihood that patterns of social interaction and communication within the community are interrupted or permanently altered.

- *Tammany Holding*

Direct Impacts

The impacts of excavation of the proposed Tammany Holding contractor-furnished borrow area are typically adverse, such as noise and traffic congestion. But, some impacts have both negative and positive impacts. Yet, it is difficult to foresee any temporary construction-related impact that enhances community cohesion: such impacts are expected to be either adverse or, at a minimum, neutral.

Impacts on community cohesion are contingent upon the degree to which project construction is expected to encroach upon the physical landscape that directly or indirectly affects the patterns of social interrelationships. In the current analysis, the borrow sites are sufficiently distant from areas of development such that no spatial element of the community is impinged upon and the shared identity of the community materially threatened. This does not mean that adverse impacts, such as degraded aesthetic qualities or foregone economic opportunities, do not occur. Rather, the adverse impacts in other resource areas are not sufficiently large to affect community cohesion. The impact on community cohesion is first demonstrated by identifying a change in the pattern of social interaction, such as

diminished contact due to physical separation, impediments to contact, interference in communication, dislocation, or voluntary migration. None of these conditions are present with the proposed action.

Indirect Impacts

There would be no indirect impacts to community cohesion under the proposed action.

Cumulative Impacts

Excavation of the proposed Tammany Holding borrow area would not contribute to cumulative impacts on community cohesion.

Impacts on community cohesion are contingent upon the degree to which project construction is expected to encroach upon the physical landscape that directly or indirectly affects the patterns of social interrelationships. In the current analysis, the borrow sites are sufficiently distant from areas of development such that no spatial element of the community is impinged upon and the shared identity of the community materially threatened. This does not mean that adverse impacts, such as degraded aesthetic qualities or foregone economic opportunities, do not occur. Rather, the adverse impacts in other resource areas are not sufficiently large to affect community cohesion. The impact on community cohesion is first demonstrated by identifying a change in the pattern of social interaction, such as diminished contact due to physical separation, impediments to contact, interference in communication, dislocation, or voluntary migration. None of these conditions are present with the proposed action.

Construction-related impacts can be distinguished from project-related outputs, that is, the economic and social consequences that are specifically intended from the project design and that make it worthwhile to pursue. An increase in community cohesion can be seen as a specifically intended output from the project, as represented by the HSDRRS. This occurs since storm surge protection measures are designed to protect the community from the catastrophic effects of flooding, preserving the physical integrity of the developed landscape that promotes patterns of social interchange.

Additional cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of enhancing community cohesion. The reason for this is that the lower incidence of flooding reduces the likelihood that patterns of social interaction and communication within the community are interrupted or permanently altered. This impact is not specific to the proposed Tammany Holding area, since it lies outside the HSDRRS.

- *Willow Bend Phase II*

Direct Impacts

The impacts of excavation of the proposed Willow Bend Phase II contractor-furnished borrow area are typically adverse, such as noise and traffic congestion. But, some impacts have both negative and positive impacts. Yet, it is difficult to foresee any temporary construction-related impact that enhances community cohesion: such impacts are expected to be either adverse or, at a minimum, neutral.

Impacts on community cohesion are contingent upon the degree to which excavation of the proposed Willow Bend Phase II contractor-furnished borrow area is expected to encroach upon the physical landscape that directly or indirectly affects the patterns of social interrelationships. In the current analysis, the borrow sites are sufficiently distant from areas of development such that no spatial element of the community is impinged upon and the shared identity of the community materially threatened. This does not mean that adverse impacts, such as degraded aesthetic qualities or foregone economic opportunities, do not occur. Rather, the adverse impacts in other resource areas are not sufficiently large to affect community cohesion. The impact on community cohesion is first demonstrated by identifying a change in the pattern of social interaction, such as diminished contact due to physical separation, impediments to contact, interference in communication, dislocation, or voluntary migration. None of these conditions are present with the proposed action.

Indirect Impacts

There would be no indirect impacts to community cohesion under the proposed action.

Cumulative Impacts

Excavation of the proposed Willow Bend Phase II borrow area would not contribute to cumulative impacts on community cohesion. It is possible that the approved Willow Bend Phase I borrow area may also be used in the construction of the HSDRRS. The approved Willow Bend Phase I borrow area would not contribute to cumulative impacts on community cohesion.

Impacts on community cohesion are contingent upon the degree to which project construction is expected to encroach upon the physical landscape that directly or indirectly affects the patterns of social interrelationships. In the current analysis, the borrow sites are sufficiently distant from areas of development such that no spatial element of the community is impinged upon and the shared identity of the community materially threatened. This does not mean that adverse impacts, such as degraded aesthetic qualities or foregone economic opportunities, do not occur. Rather, the adverse impacts in other resource areas are not sufficiently large to affect community cohesion. The impact on community cohesion is first demonstrated by identifying a change in the pattern of social interaction, such as diminished contact due to physical separation, impediments to contact, interference in communication, dislocation, or voluntary migration. None of these conditions are present with the proposed action.

Construction-related impacts can be distinguished from project-related outputs, that is, the economic and social consequences that are specifically intended from the project design and that make it worthwhile to pursue. An increase in community cohesion can be seen as a specifically intended output from the project, as represented by the HSDRRS. This occurs since storm surge protection measures are designed to protect the community from the catastrophic effects of flooding, preserving the physical integrity of the developed landscape that promotes patterns of social interchange.

Additional cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to the much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of enhancing community cohesion. The reason for this is that the lower incidence of flooding reduces the likelihood that patterns of social interaction and

communication within the community are interrupted or permanently altered. This impact is not specific to the approved Willow Bend Phase I and proposed Willow Bend Phase II borrow areas, since they lie outside the HSDRRS.

3.4 ENVIRONMENTAL JUSTICE

Environmental Justice (EJ) is institutionally significant because of Executive Order 12898 of 1994 and the Department of Defense's Strategy on Environmental Justice of 1995, which direct Federal agencies to identify and address any disproportionately high adverse human health or environmental effects of Federal actions to minority and/or low-income populations. The U.S. Environmental Protection Agency (USEPA) defines EJ as the fair and equitable treatment (fair treatment and meaningful involvement) of all people with respect to environmental and human health consequences of federal laws, regulations, policies, and actions.

The methodology to accomplish this includes identifying low-income and minority populations within the HSDRRS project area using up to date economic statistics, aerial photographs, the 2000 U.S. Census, ESRI estimates, as well as conducting community outreach activities such as small neighborhood focus meetings.

The HSDRRS project, of which this IER study area is a subset, is considered the reference community of comparison, whose population is therefore considered the EJ reference population for comparison purposes. A potential disproportionate impact may occur when the percent minority and/or percent low-income population in an EJ study area are greater than those in the reference community. For purposes of this analysis, all Census Block Groups within a 1-mile radius of the project footprint are defined as the EJ study area.

The sources for the data used in the analysis include the 2000 U.S. Census and estimates from Environmental Systems Research Institute, Inc. (ESRI). Despite the 2000 U.S. Census being eight years old, it serves as a logical baseline of information for the following reasons:

- Census 2000 data is the most accurate source of data available due to the sample size of the Census decennial surveys. With one of every six households surveyed, the margin of error is negligible.
- The Census reports data at a much smaller geographic level than other survey sources, providing a more defined and versatile option for data reporting.
- Census information sheds light upon the demographic and economic framework of the area pre-Hurricane Katrina. By accounting for the absent population, the analysis does not exclude potentially low-income and minority families that wish to return home.

Due to the considerable impact of Hurricane Katrina upon the New Orleans metropolitan area, and the likely shift in demographics and income, the 2000 Census data are supplemented with more current data, including 2008 estimates and 2013 projections provided by ESRI.

Existing Conditions

For purposes of this analysis, portions of Census Block Groups located within 1-mile of the borrow area project footprint are defined as the EJ study area. Since the borrow areas

under this IER are located in multiple parishes the EJ study areas are described separately as follows.

- *Eastover Phase II*
The proposed Eastover Phase II contractor-furnished borrow area is located within Block Group 17.325 in Orleans Parish, which extends from the I-10 Service Road to Dwyer Road, and from I-510 to Read Boulevard. According to the 2000 U.S. Census, this area was a minority community in 2000, with 89.4 percent of the population a minority. This figure is higher than state and parish figures. The area was not a low-income community, with 9.8 percent of the population low-income, which is less than state or parish figures. According to 2008 estimates, the low-income and minority population increased slightly from 2000 to 2008. Therefore, it is probable the study area is a potential environmental justice area of interest. The proposed borrow area footprint is adjacent to a residential area within the Eastover community.
- *Tammany Holding*
The proposed Tammany Holding contractor-furnished borrow area is located within Block Group 408.035 in St. Tammany Parish, located between I-10 and Highway 433, south of Slidell and northeast of Howze Beach. According to the 2000 U.S. Census, this area was not a low-income or minority area in 2000, with 8 percent of the population a minority and 5.2 percent of the population low-income. These figures are less than parish or state figures. According to 2008 estimates, the minority population increased slightly and the low-income population decreased slightly from 2000 to 2008. Because estimated changes to the area's low-income and minority population were nominal, the area likely remains a non-minority, non-low income area. Therefore, it is probable the study area is not a potential environmental justice area of interest. The proposed borrow area footprint is not adjacent to any residential areas.
- *Willow Bend Phase II*
The proposed Willow Bend Phase II contractor-furnished borrow area is located within Block Group 711.02 in St. John the Baptist Parish, which extends from Goldmine Plantation Road to East 3rd Street, and from the Mississippi River to Highway 3127. According to the 2000 U.S. Census, this area was a low-income, minority area in 2000, with 93.6 percent of the population a minority and 34.7 percent of the population low-income. These figures are greater than parish and state figures. According to 2008 estimates, the minority population and low-income population changed little from 2000 to 2008, and the area likely remains a low-income, minority area. Therefore, it is probable the study area is a potential environmental justice area of interest. The northwest corner of the proposed borrow area footprint is adjacent to a small residential area along 4th Street.

Discussion of Impacts

No Action

- *Eastover Phase II*
The proposed contractor-furnished borrow area is adjacent to the non-low income, minority community of Eastover. Under the no action alternative, this community would not be impacted. The proposed Eastover Phase II contractor-furnished borrow area would not be excavated.
- *Tammany Holding*

Under the no action alternative, no minority or low-income populations would be adversely impacted by the proposed project. Under the no action alternative, the proposed Tammany Holding contractor-furnished borrow area would not be excavated.

- *Willow Bend Phase II*
The proposed Willow Bend Phase II borrow area is located near a low-income and minority community. Under the no action alternative, this community would not be impacted by the proposed action. The proposed Willow Bend Phase II contractor-furnished borrow area would not be excavated.

Proposed Action

- *Eastover Phase II*

The proposed Eastover Phase II contractor-furnished borrow area is adjacent to the approved Eastover Phase I borrow site. Analysis shows that the proposed borrow site could have an impact on the nearby non-low income and minority community of Eastover. With excavation of the approved Eastover Phase I and proposed Eastover Phase II borrow areas, temporary impacts from borrow site activities such as air quality, noise, and traffic could occur, but are usually limited to within 1-mile of the project area and are temporary in nature.

Open borrow areas may also pose a potential safety hazard to the neighboring populations should they remain undeveloped and if no barrier is erected around them. Pedestrians as well as persons operating motor vehicles along roads bordering proposed borrow sites should use caution at all times. It is the responsibility of the landowner and his contractor, not the CEMVN, to secure the borrow areas to reduce the risk of accidents at the sites. .

Long-term or permanent adverse impacts from the proposed site are undetermined at this time and depend on what the landowner decides to with the approved Eastover Phase I and proposed Eastover Phase II sites following excavation.

Any additional impacts would be the combination of impacts to minority and/or low-income communities by this and other Federal, state, local, and private efforts. All population groups inside the HSDRRS system would benefit equally from the completed risk reduction system.

- *Tammany Holding*
Analysis shows that no minority and/or low-income communities are located within 1-mile of the proposed borrow location. Use of the proposed Tammany Holding contractor-furnished borrow area would not impact low-income and/or minority communities. With implementation of the proposed action, adverse impacts from borrow site activities such as air quality, noise, and traffic could occur, but are usually limited to within 1-mile of the project area, are temporary in nature.

Open borrow areas may also pose a potential safety hazard to neighboring populations should they remain undeveloped and if no barrier is erected around them. Pedestrians as well as persons operating motor vehicles along roads bordering proposed borrow sites should use caution at all times. It is the responsibility of the landowner and their contractor, not the CEMVN, to secure the borrow areas to reduce the risk of accidents at the sites.

Long-term or permanent adverse impacts from the proposed site are undetermined at this time and depend on what the landowner decides to do with the Tammany Holding site following excavation.

Any additional impacts would be the combination of impacts to minority and/or low-income communities by this and other Federal, state, local, and private efforts.

- *Willow Bend Phase II*

The proposed Willow Bend Phase II contractor-furnished borrow area is located to the south of the Missouri Pacific Railroad and adjacent to the approved Willow Bend Phase I borrow site. The proposed Willow Bend Phase II borrow area could have an impact on low-income and/or minority communities. Analysis shows that the northwest corner of the proposed borrow area is adjacent to a small minority and/or low-income residential community along 4th Street. With excavation of the approved Willow Bend Phase I and proposed Willow Bend Phase II borrow areas, temporary impacts from borrow site activities such as air quality, noise, and traffic could occur, but are usually limited to within 1-mile of the project area, and are temporary in nature.

Open borrow areas may also pose a potential safety hazard to the neighboring populations should they remain undeveloped and if no barrier is erected around them. Pedestrians as well as persons operating motor vehicles along roads bordering proposed borrow sites should use caution at all times. It is the responsibility of the landowner and their contractor, not the CEMVN, to secure the borrow areas to reduce the risk of accidents at the sites.

Long-term or permanent adverse impacts from the proposed site are undetermined at this time and depend on what the landowner decides to do with the approved Willow Bend Phase I and proposed Willow Bend Phase II borrow areas following excavation.

Any additional impacts would be the combination of impacts to minority and/or low-income communities by this and other Federal, state, local, and private efforts.

3.5 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE

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

An ASTM E 1527-05 Phase I ESA was completed for each proposed borrow area. The Phase I ESA documented the Recognized Environmental Conditions (REC) for each proposed project areas. If a REC cannot be avoided, due to construction requirements, the CEMVN may further investigate the REC to confirm the presence or absence of contaminants and to recommend actions to avoid possible contaminants. Federal, state,

or local coordination may be required. Because the CEMVN plans to avoid RECs, the probability is low for encountering HTRW in the project area.

Copy of the Phase I Environmental Site Assessment (ESA) studies referenced below will be maintained on file at the CEMVN office, and is incorporated herein by reference. Copies of these reports are available by requesting them from the CEMVN, or accessing them at www.nolaenvironmental.gov.

Phase I HTRW ESAs have been completed for the following proposed borrow areas:

- The Phase I ESA for the proposed Eastover Phase II borrow area, entitled "Phase I Environmental Site Assessment Update, Eastover Country Club, Phase II, New Orleans, Orleans Parish, Louisiana," was completed in January 2008. No RECs were identified.
- The Phase I ESA for the proposed Tammany Holding borrow area, entitled "Phase I Environmental Site Assessment - Tammany Place," was completed on 23 July 2008. No RECs were identified.
- The Phase I ESA for the proposed Willow Bend Phase II borrow area, entitled "Hazardous, Toxic, and Radioactive Waste Assessment, Willow Bend Property Edgard, St. John the Baptist Parish, Louisiana," was dated 12 February 2009. No RECs were identified.

4. CUMULATIVE IMPACTS

NEPA requires a Federal agency to consider not only the direct and indirect impacts of a proposed action, but also the cumulative impacts of the action. A cumulative impact is defined as the "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 §CFR 1508.7)." Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. These actions include projects conducted by government agencies, businesses, or individuals that are within the spatial and temporal boundaries of the actions that are considered in this IER.

As indicated previously, in addition to this IER, the CEMVN is preparing a draft CED that will describe all HSDRRS work completed and the work remaining to be constructed, including borrow sources for the system. The purpose of the draft CED will be to document the work completed by the USACE on a system-wide scale. The draft CED will describe the integration of individual IERs into a systematic planning effort. Additionally, the draft CED will contain updated information for any IER that had incomplete or unavailable data at the time it was posted for public review. Overall cumulative impacts and future operations and maintenance requirements will also be included.

The discussion provided below describes an overview of Federal and non-Federal actions, projects, and occurrences that may contribute to the cumulative impacts previously discussed as it relates to matters of borrow source excavation. Projects that occur within the greater New Orleans area and southeastern Louisiana were considered collectively (as appropriate) for the evaluation of cumulative impacts. For a more in-depth discussion of cumulative impacts from structural HSDRRS projects (i.e., levee, floodwall, and pumping stations) please refer to IERs #1 through #17, and the CED.

Cumulative Impacts due to HSDRRS Projects

Borrow material has been obtained in the past by the CEMVN for HSDRRS and other projects in southeastern Louisiana. The CEMVN has been working at an accelerated schedule to rehabilitate and complete the HSDRRS system after Hurricanes Katrina and Rita, and has a goal of building the system to authorized levels by June 2011. Over 60,000,000 cubic yards of borrow material is estimated to be needed to complete authorized levels of protection. Borrow material will also be needed to perform levee lifts and maintenance for at least 50 years after construction is completed. The CEMVN is in the process of implementing construction projects to raise the hurricane protection levees associated with the Federal LPV, WBV, and New Orleans to Venice (NOV) projects to authorized elevations. This includes modifications to risk reduction projects covered in IERs #1 through #17. Levee and floodwall improvements throughout the area would require substantial amounts of borrow material, and some of the borrow areas needed have been identified in this document to provide adequate material in proximity to proposed risk reduction projects. Other potential borrow areas were identified and approved for use in IER #18, IER #19, IER #22, IER #23, #25, IER #26, and IER #28, (table 6). Depending on time, cost, and other factors, these and other potential borrow sources not yet identified may or may not be used for HSDRRS construction.

To date, there are 35 borrow sites approved for construction of the HSDRRS, and more than 20 sites under investigation in southeastern Louisiana (figure 1 and 12). HSDRRS borrow activity would cumulatively impact the significant resources discussed in this IER in southeastern Louisiana. Currently unidentified borrow sources may also incrementally impact the significant resources discussed in this IER in the project area.

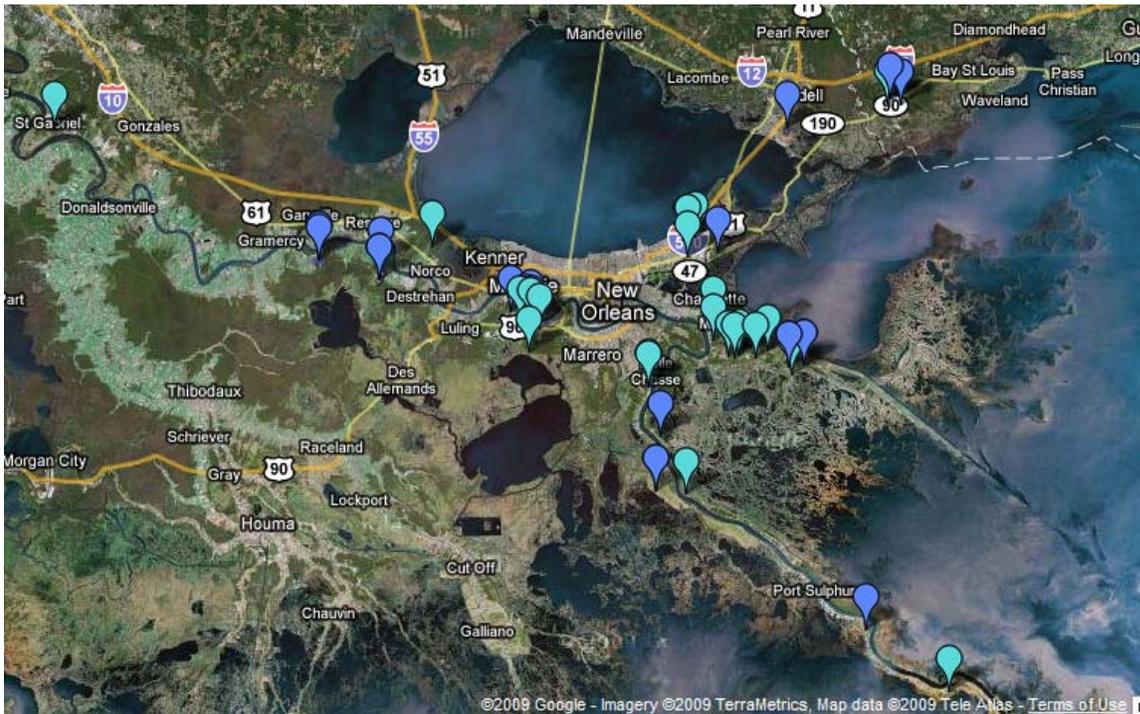


Figure 12: Potential approved borrow areas for use on the HSDRRS

IERs #18, IER #19, IER #22, IER #23, #25, IER #26, and IER #28. IER #29 also shown on this map.

Cumulative Impacts due to Borrow Needs for Other CEMVN Projects

Multiple current and upcoming CEMVN projects are expected to need suitable borrow material. Major civil works projects that may have a great requirement for borrow

material include the Morganza to the Gulf project, Donaldsonville to the Gulf project, Larose to Golden Meadow project, Alexandria to the Gulf project, Plaquemines Parish West Bank non-Federal levee construction, Grand Isle non-Federal levee construction, and Mississippi River levee maintenance. Additional projects authorized by the Water Resources Development Act (WRDA) of 2007 could also contribute to resource impacts, either adversely or with long-term positive impacts. It is expected that borrow material would be needed for a majority of these projects. However, needed quantities and location of potential borrow areas are not know at this time.

Other CEMVN projects, including most coastal restoration and mitigation projects, should not require “levee grade” borrow material from terrestrial sources.

Cumulative Impacts due to Borrow Needs for Non-Federal Projects

State and local levee and floodwall construction efforts are continuously being repaired, maintained, and upgraded. These include most of the local levee systems found in southeast Louisiana. It is expected that borrow material would be needed for a majority of these projects. However, needed quantities and location of potential borrow areas are not know at this time.

4.1 SUMMARY OF CUMULATIVE IMPACTS

The magnitude and significance of cumulative impacts were evaluated in section 3 of this IER by comparing the existing environment with the expected impacts of the proposed action when combined with the impacts of other proximate actions. As stated above, various Federal, state, and local ongoing and proposed actions may increase the need for borrow excavation in the study area. The potential borrow areas approved for use in IER #18, IER #19, IER #22, IER #23, #25, IER #26, and IER #28, (figure 1), and proposed for use in this IER could cumulatively impact land use patterns and transportation resources in southeastern Louisiana. Use of these potential borrow areas should not cumulatively impact jurisdictional wetlands, cultural resources, or T&E species and their critical habitat, as the CEMVN is currently avoiding direct or indirect impacts to these resources. The extent of potential cumulative impacts to other resources because of HSDRRS construction are not known at this time, and may be discussed in the CED.

The extent of land directly and indirectly affected by previous development activities, in combination with the excavation and use of the proposed borrow material for HSDRRS construction, would contribute cumulatively to land alteration and loss in southeastern Louisiana. Most of the proposed borrow areas described in IER #18, IER #19, IER #22, IER #23, #25, IER #26, IER #28, and IER #29 are upland areas. Over 1,500 acres of non-jurisdictional BLH, which provides habitat for a variety of wildlife, may be adversely impacted due to HSDRRS borrow activities.

After borrow area excavation, land may be converted to ponds and small lakes if not backfilled by the landowner. The landowner may be required to backfill per local ordinances in some areas. If the sites are not backfilled, the excavated sites would be unsuitable for farming, forestry, or urban development in the reasonably foreseeable future. Habitat would be changed to favor aquatic and semi-aquatic plant and animal species over the terrestrial ones that now occupy the areas. Borrow areas that do not retain water would be colonized by herbaceous vegetation and woody terrestrial plant species, which would favor terrestrial animal species. This would attract the same species that are currently found in the areas.

The construction of the proposed borrow areas would have short-term cumulative effects on transportation. It is anticipated that over 60,000,000 cubic yards of material would be needed to raise levee elevations regionally to meet the needs of the HSDRRS. The total number of truck trips required or haul routes for the movement of this quantity of material is currently unknown, but cumulative short-term impacts to transportation are expected to occur. The CEMVN is currently developing information for an analysis of the transportation impacts associated with the HSDRRS project. A transportation report is being developed and will be released publicly once it is completed. Estimates on numbers of truckloads necessary to complete the HSDRRS borrow mission are provided in this IER. These estimates were developed as a part of CEMVN's continuing analysis of the potential transportation impacts associated with the HSDRRS mission. The current estimate for the total number of truckloads necessary to complete the HSDRRS borrow mission is approximately 4,000,000. Additional information related to transportation impacts is being collected and will be discussed in the CED.

Based on historical human activities and land use trends in southeastern Louisiana, it is reasonable to anticipate that future activities would further contribute to cumulative degradation of land resources. It is anticipated that through the efforts taken to avoid and minimize effects on the project area and the mandatory implementation of a mitigation plan that functionally compensates unavoidable remaining impacts, the proposed borrow areas would not result in substantial direct, secondary or cumulative adverse impact on the environment. The mitigation plan is discussed in section 7.

Quantitative cumulative impacts to recreational resources, noise quality, air quality, water quality, and aesthetic resources are not fully known at this time, and will be discussed in the CED. Details on cumulative environmental justice impacts will be analyzed at the conclusion of environmental justice small-group meetings and will be included in the CED.

5. SELECTION RATIONALE

The proposed action consists of excavating the proposed Eastover Phase II, Tammany Holding, and Willow Bend Phase II contractor-furnished borrow areas. There is an identified need for over 60,000,000 cubic yards of borrow material to complete the HSDRRS, and the proposed action meets some of this demand. Because of this need, the CEMVN will continue to investigate all potentially viable borrow areas for the next few years. Government-Furnished borrow is an option that was explored in IER #18, IER #22, IER #25, and IER #28, and more potential areas may be discussed in future IERs. Other Contractor furnished borrow areas were investigated in IER #19, IER #23, IER #26, and more potential sites may be discussed in future IERs. Supply Contract borrow options will be discussed in IER #30. All of this identified borrow material may be used to complete the HSDRRS, which would lower the risk of harm to citizens and damage to infrastructure during a storm event.

6. COORDINATION AND CONSULTATION

6.1 PUBLIC INVOLVEMENT

Extensive public involvement has been sought in preparing this IER. The HSDRRS projects, including the proposed borrow areas analyzed in this IER, were publicly disclosed and described in the Federal Register on 13 March 2007, and on the website www.nolaenvironmental.gov. Scoping for HSDRRS projects were initiated on 12 March 2007, through placing advertisements and public notices in *USA Today* and *The New Orleans Times-Picayune*. Nine public scoping meetings were held throughout the New

Orleans metropolitan area to explain the scope and process of the Alternative Arrangements for implementing NEPA between 27 March and 12 April 2007, after which a 30-day scoping period was open for public comment submission. Additionally, the CEMVN has been hosting multiple monthly public meetings since March 2007 to keep the stakeholders advised of project status. Public input will be provided in appendix B.

Public meetings related to borrow started in July 2007, and will be continuing until the borrow quantities needed are fulfilled.

6.2 AGENCY COORDINATION

Preparation of this IER has been coordinated with appropriate Congressional, Federal, state, and local interests, as well as environmental groups and other interested parties. An interagency environmental team was established for this project in which Federal and state agency staff played an integral part in the project planning and alternative analysis phases of the project. Members of this team are listed in appendix C, and correspondence between governmental agencies and the CEMVN will be found in appendix D. This interagency environmental team was integrated with the CEMVN PDT to assist in the planning of this project and to complete a mitigation determination of the potential direct and indirect impacts of the proposed action. Monthly meetings with resource agencies were also held concerning this and other proposed IER projects. The following agencies, as well as other interested parties, received copies of the draft IER:

- U.S. Department of the Interior, Fish and Wildlife Service
- U.S. Department of the Interior, National Park Service
- U.S. Environmental Protection Agency, Region VI
- U.S. Department of Commerce, National Marine Fisheries Service
- U.S. Natural Resources Conservation Service
- Louisiana Advisory Council on Historic Preservation
- Governor's Executive Assistant for Coastal Activities
- Louisiana Department of Wildlife and Fisheries
- Louisiana Department of Natural Resources, Coastal Management Division
- Louisiana Department of Natural Resources, Coastal Restoration Division
- Louisiana Department of Environmental Quality
- Louisiana State Historic Preservation Officer

LADNR reviewed the proposed action for consistency with the Louisiana Coastal Resource Program. All proposed borrow activities discussed in this document were found by LADNR to be consistent with their Programs (table 5).

Table 5: LADNR Coastal Zone Consistency Determination Concurrence

Proposed Borrow Area	LADNR LACRP Consistency Permit Number
Eastover Phase II	P20070642
Tammany Holding	P20021241
Willow Bend Phase II	P20080242

The CEMVN received a draft Coordination Act Report (CAR) from the USFWS on 29 May 2009 and a final CAR on 03 September 2009 (appendix D). Recommendations of the USFWS, in accordance with the Fish and Wildlife Coordination Act, include:

Recommendation 1: “The private contractor shall provide... [mitigation] to compensate for the unavoidable, project-related loss of forested lands. Such mitigation can be obtained from any approved mitigation bank. Verification of purchased mitigation credits should be provided to the Service by the mitigation banker. The Service, National Marine Fisheries Service, Louisiana Department of Wildlife and Fisheries, and Louisiana Department of Natural Resources should be consulted regarding the adequacy of any proposed alternative mitigation sites.”

CEMVN Response 1: Concur.

Recommendation 2: “The protocol to identify and prioritize borrow sources provided in our August 7, 2006, Planning-aid letter... should be utilized as a guide for locating future borrow-sites and expanding existing sites.”

CEMVN Response 2: Concur.

Recommendation 3: “Any proposed change in borrow site features, locations or plans shall be coordinated in advance with [the USFWS], [the National Marine Fisheries Service], LAWLF, and LADNR.”

CEMVN Response 3: The CEMVN will coordinate with these agencies.

Recommendation 4: “Because of the potential for hydrologic modifications caused by borrow material excavation at the Willow Bend site to impact nearby, jurisdictional wetlands outside of the project area, the Service recommends that the Corps conduct an investigation to determine the extent of these potential impacts. The Service also recommends that a buffer zone of at least 100 feet be designated between the borrow site and any jurisdictional wetlands in which no excavation would be allowed.”

CEMVN Response: The CEMVN will work with the USWFS and Louisiana Department of Wildlife and Fisheries to resolve this issue.

Recommendation 5: “If a proposed borrow site is changed significantly or excavation is not implemented within one year, we recommend that [the CEMVN] notify the contractor to reinitiate coordination with... this office to ensure that the proposed project would not adversely affect any federally listed threatened or endangered species or their habitat.”

CEMVN Response 5: Concur.

7. MITIGATION

Mitigation for unavoidable impacts to the human and natural environment described in this and other IERs will be addressed in separate mitigation IERs. The CEMVN has partnered with Federal and state resource agencies to form an interagency mitigation team that is working to assess and verify these impacts, and to look for potential mitigation sites in the appropriate hydrologic basin. This effort is occurring concurrently with the IER planning process in an effort to complete mitigation work and construct mitigation projects expeditiously. As with the planning process of all other IERs, the public will have the opportunity to give input about the proposed work. These mitigation IERs will, as described in section 1 of this IER, be available for a 30-day public review and comment period.

All potential borrow areas described in this IER were assessed by the USFWS and the CEMVN under NEPA, the Fish and Wildlife Coordination Act, and under Section 906(b) WRDA 1986 requirements. It has been determined that use of the proposed borrow areas would not directly impact jurisdictional wetlands, and therefore no mitigation for this resource is necessary. Approximately 107.3 acres (48.6 AAHUs) of non-jurisdictional BLH would be impacted with use of the proposed borrow areas, and would be mitigated for by the landowners if the proposed sites are selected by construction contractors for use in building the HSDRRS.

Table 6 shows the cumulative impacts of all IERs which have been completed as of the date of publication. Further information on mitigation efforts will be available in forthcoming IERs.

Table 6. HSDRRS Impacts and Compensatory Mitigation to be Completed

IER	Parish		Non-wet	Non-wet	BLH	BLH	Swamp	Swamp	Marsh	Marsh	EFH
			acres	AAHUs	acres	AAHUs	acres	AAHUs	acres	AAHUs	acres
1 LPV, La Branch Wetlands Levee	St. Charles	Protected Side	-	-	-	-	137.05	73.99	-	-	-
		Flood Side	-	-	11.33	8.09	143.57	110.97	-	-	-
2 LPV, West Return Floodwall	St. Charles, Jefferson	Protected Side	-	-	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	33.40	9.00	-	-	-
3 LPV, Jefferson Lakefront Levee	Jefferson	Protected Side	-	-	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	26.00
4 LPV, Orleans Lakefront Levee	Orleans	Protected Side	-	-	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	-
5 LPV, Lakefront Pump Stations	Jefferson, Orleans	Protected Side	-	-	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	3.29
6 LPV, Citrus Lands Levee	Orleans	Protected Side	-	-	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	-
7 LPV, Lakefront Levee	Orleans	Protected Side	-	-	151.70	79.30	-	-	100.40	36.80	-
		Flood Side	-	-	30.00	11.90	-	-	70.00	37.20	-
8 LPV, Bayou Dupre Control Structure	St. Bernard	Protected Side	-	-	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	0.30
11 Tier 2 Borgne IHNC Protection	Orleans, St. Bernard	Protected Side	-	-	-	-	-	-	-	-	-
		Flood Side	-	-	15.00	2.59	-	-	186.00	24.33	-
12 GIWW, Harvey, Algiers	Jefferson, Orleans, Plaquemines	Protected Side	-	-	251.70	177.3	-	-	-	-	-
		Flood Side	-	-	2.30	1.90	74.90	38.50	-	-	-
14 WBV, Westwego to Harvey Levee	Jefferson	Protected Side	-	-	45.00	30.00	-	-	-	-	-
		Flood Side	-	-	45.50	18.58	29.75	17.02	-	-	-
15 WBV, Lake Cataouatche Levee	Jefferson	Protected Side	-	-	23.50	6.13	-	-	-	-	-
		Flood Side	-	-	3.60	1.35	-	-	-	-	-
16 WBV, Western Tie-in	Jefferson, St. Charles	Protected Side	-	-	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	62.00	29.85	-
17 Company Canal Floodwall	Jefferson	Protected Side	-	-	5.50	2.69	-	-	-	-	-
		Flood Side	-	-	-	-	19.00	17.09	-	-	-
18 GFBM	Jefferson, Plaquemines, St. Charles	Protected Side	-	-	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	-
18 GFBM	Orleans	Protected Side	226.00	68.79	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	-

IER	Parish		Non-wet	Non-wet	BLH	BLH	Swamp	Swamp	Marsh	Marsh	EFH
			acres	AAHUs	acres	AAHUs	acres	AAHUs	acres	AAHUs	acres
18 GFBM	St. Bernard	Protected Side	74.30	43.59	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	-
19 CFBM	Hancock County, MS; Iberville, Orleans, Plaquemines, St.	Protected Side	-	-	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	-
19 CFBM	Jefferson	Protected Side	-	-	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	-
22 GFBM	Jefferson	Protected Side	157.76	89.64	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	-
22 GFBM	Plaquemines	Protected Side	86.93	28.90	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	-
23 CFBM	Hancock County, MS; Plaquemines, St. Bernard, St. Charles	Protected Side	-	-	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	-
25 GFBM	Jefferson	Protected Side	78.30	40.90	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	-
25 GFBM	Orleans	Protected Side	873.00	231.00	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	-
25 GFBM	Plaquemines	Protected Side	17.70	12.10	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	-
26 CFBM	Jefferson, Plaquemines, St. John the Baptist; Hancock County, MS	Protected Side	-	-	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	-
28 GFBM	Jefferson, Plaquemines, St. Bernard	Protected Side	19.94	8.45	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	-
29 CFBM	Orleans, St. John the Baptist, St. Tammany	Protected Side	107.30	48.60	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	-
Totals		Protected Side	1600.33	571.97	477.40	295.42	137.05	73.99	100.40	36.80	00.00
		Flood Side	-	-	107.73	44.41	300.62	192.58	318.00	91.38	29.59
		Both	1610.33	571.97	585.13	339.83	437.67	266.57	418.40	128.18	23.59

- Not applicable to the IER or number impacted is 0

GFBM: Government-Furnished Borrow Material // CFBM: Contractor-Furnished Borrow Material

8. COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

Use of the proposed contractor-furnished borrow areas will not commence until the proposed action achieves environmental compliance with all applicable laws and regulations, as described below.

Environmental compliance for the proposed action will be achieved upon coordination of this IER with appropriate agencies, organizations, and individuals for their review and comments; USFWS and National Marine Fisheries Service confirmation that the proposed action would not adversely affect any T&E species or completion of Endangered Species Act Section 7 consultation; Louisiana Department of Natural Resources concurrence with the determination that the proposed action is consistent, to the maximum extent practicable, with the LACRP (table 5); coordination with the SHPO (table 2); receipt and acceptance or resolution of all Fish and Wildlife Coordination Act recommendations; and receipt and acceptance or resolution of all LADEQ comments on the air quality impact analysis documented in the IER. USFWS has determined that no T&E species or their critical habitat would be adversely affected by the proposed action. The SHPO has determined that cultural resources would not be adversely impacted by the proposed action.

9. CONCLUSIONS

9.1 FINAL DECISION

The proposed action consists of approving the Eastover Phase II, Tammany Holding, and Willow Bend Phase II sites for use as potential contractor-furnished borrow sites for use by construction contractors in the construction of the HSDRRS. This office has assessed the environmental impacts of the proposed action on jurisdictional wetlands, non-jurisdictional BLH, non-wetland/upland resources, wildlife, T&E species, cultural resources, recreational resources, noise quality, air quality, water quality, aesthetic resources, prime and unique farmland, and socioeconomic resources. The proposed action would have no significant effect on jurisdictional wetlands, cultural resources, or T&E species and their critical habitat. Potential and known RECs would be avoided. The interim decision is to approve the Eastover Phase II, Tammany Holding, and Willow Bend Phase II sites as potential contractor-furnished borrow areas for possible use by construction contractors in the construction of the HSDRRS.

9.2 PREPARED BY

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