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

REPLY TO ATTENTION OF

Planning, Programs, and
Project Management Division
Environmental Planning
and Compliance Branch

Decision Record

Individual Environmental Report #30
Contractor-Furnished Borrow Material #5
St. Bernard and St. James Parishes, Louisiana, and Hancock County, Mississippi

IER #30

Description of Proposed Action. The U.S. Army Corps of Engineers, Mississippi Valley Division, New Orleans District (CEMVN) proposes to approve three potential borrow sites to be used under the contractor-furnished borrow area program to supply levee building material to the CEMVN projects in the New Orleans area. The proposed borrow areas are located in St. Bernard and St. James Parishes, Louisiana, and Hancock County, Mississippi. Upon approval of these three sites, any suitable materials found at them could be utilized by a construction contractor to complete levee or floodwall projects for the proposed Greater New Orleans Hurricane and Storm Damage Risk Reduction System (HSDRRS).

On 14 August 2009, Draft Individual Environmental Report #30 (IER #30) and public notice for the subject proposed actions were distributed to the public, and comments were solicited. Written comments were received by the CEMVN from governmental agencies, a citizen, and an Indian tribe (appendix B, appendix D). A series of public meetings discussing proposed HSDRRS projects, including proposed borrow areas, have been held since March 2007.

Factors Considered in Determination. The CEMVN has assessed the impacts of the proposed action on significant resources in the proposed project areas, including jurisdictional wetlands, non-jurisdictional bottomland hardwood forest (BLH), upland resources, farmland, fisheries, wildlife, threatened and endangered species, cultural resources, recreational resources, noise quality, air quality, water quality, transportation, aesthetics, environmental justice, and socioeconomic resources.

Data gaps in the transportation, environmental justice, noise, air, and visual resource discussions in the IER will be discussed in the Cumulative Environmental Document (CED) as information becomes available.

Mitigation. It has been determined that the proposed action would not impact any jurisdictional wetlands. The proposed action would impact approximately 189.4 Average Annualized Habitat Units (AAHU) of non-jurisdictional BLH, the compensatory mitigation for which would be completed by the landowner of the Contreras Dirt (Cells E, F & Z) site before excavation, and will be addressed in future mitigation IERs.

Impacts to non-jurisdictional BLH forest were assessed in cooperation with the U.S. Fish and Wildlife Service (USFWS) and the CEMVN under the requirements of the National

Environmental Policy Act, Fish and Wildlife Coordination Act, and Section 906 (b) of the Water Resources Development Act of 1986. The impacts for the proposed action are shown in Table 1.

Table 1: BLH AAHUs of Mitigation Needed

Proposed Borrow Area	Parish	BLH Impacted (acres)	AAHUs Lost
Big Shake	St. James, LA	0.0	0.0
Henley	Hancock County, MS	0.0	0.0
Contreras Dirt (Cells E, F, & Z)	St. Bernard, LA	225.0	189.4
Total		225.0	189.4

Note: Mitigation values may decrease because of further geotechnical evaluation of proposed borrow areas (i.e., acreage with unsuitable soils will not be impacted).

Mitigation IERs will be prepared documenting and compiling the unavoidable impacts discussed in each IER. The mitigation IERs will implement compensatory mitigation as early as possible. All mitigation activities will be consistent with applicable laws, policies, and regulations.

Environmental Design Commitments. The CEMVN is coordinating with the USFWS to implement the recommendations laid out in the borrow selection Planning-Aid Letter (letter dated 7 August 2006, appendix D), programmatic Coordination Act Report (CAR) (letter dated 26 November 2007, appendix D), and the IER #30 CAR (draft CAR dated 11 August 2009, final CAR dated 23 September 2009, appendix D). The recommendations set forth in the CARs, and the CEMVN's responses, are found on pg. 137-138 of IER #30.

The Louisiana State Historic Preservation Officer (SHPO) requests that if any unrecorded cultural resources are determined to exist within the proposed borrow areas, then no work will proceed in the area containing these cultural resources until a CEMVN staff archeologist has been notified and final coordination with the SHPO and interested Tribal Historic Preservation Officers has been completed.

Colonial nesting wading birds (including herons, egrets, and Ibis), seabirds/water-birds (including terns, gulls, black skimmers, and brown pelicans) and bald eagles have the potential to nest in the proposed project area. The nesting birds and their nests will not be disturbed or destroyed. The CEMVN can provide additional information on bird species and known nesting sites to construction contractors, and should be contacted if any area within 650 feet of the construction zone would be disturbed.

Agency & Public Involvement. Governmental agencies, non-governmental organizations, and citizens were engaged throughout the preparation of IER #30. Agency staff from the USFWS, National Marine Fisheries Service (NMFS), U.S. Environmental Protection Agency, U.S. Geologic Survey, National Park Service, Louisiana Department of Environmental Quality (LaDEQ), Louisiana Department of Natural Resources, and Louisiana Department of Wildlife and Fisheries (LaDWF) are part of an interagency team that has and will continue to have input throughout the HSDRRS planning process (appendix C).

There have been over 100 public meetings since March 2007 about proposed HSDRRS work. Borrow issues have been discussed at most meetings, and a "borrow handout" has been available at all meetings since July 2007. The CEMVN sends out public notices in local newspapers, news releases (routinely picked up by television and newspapers in stories and scrolls), and mail notifications to stakeholders for each public meeting. In addition, the website www.nolaenvironmental.gov was set up to provide information to the public regarding proposed

HSDRRS work. The CEMVN also maintains a list of interested stakeholders that are notified by e-mail of the meetings. Public meetings will continue throughout the planning process.

Written comments were received during the public review period for IER #30. Copies are enclosed in the final IER (appendix B, appendix D). Letters were received from governmental agencies, an Indian tribe, and a member of the public.

Comments Received:

1. Agency Comments (found in appendix D)
    1. USFWS Planning-aid letter dated 07 August 2006
    2. USFWS Draft CAR dated 11 August 2009
    3. UWFWS Final CAR dated 23 September 2009
    4. UWFWS Comment letter dated 11 September 2009
    5. NMFS concurrence of no significant impact to essential fish habitat (EFH) dated 02 September 2009
    6. LaDWF comment letter dated 04 September 2009
    7. NRCS comment letter dated 08 September 2009
    8. LaDEQ comment letter dated 15 September 2009
    9. LaSHPO comment letter dated 16 September 2009
2. Public Comments (found in appendix B)
    1. Choctaw Nation of Oklahoma comment letter dated 21 August 2009
    2. Louis Barrett comment letter dated 10 September 2009

Decision. The CEMVN Environmental Planning and Compliance Branch has assessed the potential impacts on the human environment of the proposed action described in this IER, and has performed a review of the comments received during the public review period for the draft IER. Furthermore, all practicable means to avoid or minimize adverse environmental effects have been incorporated into the recommended plan. It has been determined that the proposed borrow areas do not contain any jurisdictional wetlands. The compensatory mitigation for impacts to non-jurisdictional BLH will be completed by the landowner of the Contreras Dirt (Cells E, F & Z) site before excavation, and will be addressed in a separate IER(s) specifically written for mitigation implementation. The public of the Greater New Orleans area will be best served by implementing the selected plan as described in IER #30 in accordance with the environmental considerations discussed previously.

The CEMVN will prepare a CED that may contain additional information related to IER #30 that becomes available after the execution of the final IER. The CED will provide a final mitigation plan, a comprehensive cumulative impacts analysis, and any additional information that addresses outstanding data gaps in the IERs.

I have reviewed IER #30, and have considered agency recommendations and comments received from the public during the scoping phase and comment periods. I find the recommended plan fully addresses the objectives as set forth by the Administration and Congress in the 3rd, 4th, and 5th Supplemental Appropriations.

The plan is justified, in accordance with environmental statutes, and it is in the public interest to approve the proposed contractor-furnished borrow areas as described in this document.

9-28-09
Date

Alvin B. Lee
Colonel, U.S. Army
District Commander

FINAL INDIVIDUAL ENVIRONMENTAL REPORT

CONTRACTOR-FURNISHED BORROW MATERIAL #5

ST. BERNARD AND ST. JAMES PARISHES, LOUISIANA, AND HANCOCK COUNTY, MISSISSIPPI

IER #30

US Army Corps of Engineers®

SEPTEMBER 2009

TABLE OF CONTENTS

TITLE **PAGE**

1. INTRODUCTION 5
   1.1 PURPOSE AND NEED FOR THE PROPOSED ACTION 6
   1.2 AUTHORITY FOR THE PROPOSED ACTION 6
   1.3 PRIOR REPORTS 7
   1.4 INTEGRATION WITH OTHER IERS 16
   1.5 PUBLIC CONCERNS 16
   1.6 DATA GAPS AND UNCERTAINTIES 17
2. ALTERNATIVES 18
   2.1 ALTERNATIVES DEVELOPMENT AND PRELIMINARY SCREENING CRITERIA 18
   2.2 DESCRIPTION OF THE ALTERNATIVES 19
   2.3 PROPOSED ACTION 20
   2.4 ALTERNATIVES TO THE PROPOSED ACTION 26
3. AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES 26
   3.1 ENVIRONMENTAL SETTING 26
   3.2 SIGNIFICANT RESOURCES 29
      3.2.1 Jurisdictional Wetlands 30
      3.2.2 Non-Jurisdictional Bottomland Hardwood Forest 37
      3.2.3 Upland Resources 45
      3.2.4 Farmland & Farmland Soils 50
      3.2.5 Wildlife 56
      3.2.6 Threatened and Endangered Species 64
      3.2.7 Cultural Resources 66
      3.2.8 Recreational Resources 72
      3.2.9 Noise Quality 74
      3.2.10 Air Quality 78
      3.2.11 Water Quality 84
      3.2.12 Aesthetic (Visual) Resources 89
   3.3 SOCIOECONOMIC RESOURCES 93
      3.3.1 Population and Housing 93
      3.3.2 Impacts to Employment, Business, and Industry 99
      3.3.3 Availability of Public Facilities and Services 103
      3.3.4 Effects on Transportation 107
      3.3.5 Disruption of Community and Regional Growth 114
      3.3.6 Impacts to Tax Revenues and Property Values 118
      3.3.7 Changes in Community Cohesion 123
   3.4 ENVIRONMENTAL JUSTICE 128
   3.5 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE 132
4. CUMULATIVE IMPACTS 132
   4.1 SUMMARY OF CUMULATIVE IMPACTS 135
5. SELECTION RATIONALE 136
6. COORDINATION AND CONSULTATION 136
   6.1 PUBLIC INVOLVEMENT 136
   6.2 AGENCY COORDINATION 136
7. MITIGATION 138
8. COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS 141
9. CONCLUSIONS 141
   9.1 FINAL DECISION 141
   9.2 PREPARED BY 141
   9.3 LITERATURE CITED 142

LIST OF TABLES

TITLE **PAGE**

Table 1: Significant Resources in the Project Area 30
Table 2: USFWS T&E Concurrence..... 65
Table 3. Summary of Section 106 of NHPA correspondence 73
Table 4: Possible Construction Equipment Noise Emission..... 77
Table 5: National Ambient Air Quality Standards 78
Table 6: Coastal Zone Consistency Determination Concurrence 137
Table 1. HSDRRS Impacts and Compensatory Mitigation to be Completed..... 139

LIST OF FIGURES

FIGURE TITLE PAGE

Figure 1: Area map of the proposed contractor-furnished borrow areas 21
Figure 2: Area map of the proposed Big Shake contractor-furnished borrow area 21
Figure 3: Area map of the proposed Henley contractor-furnished borrow area 22
Figure 4: Area map of the proposed Contreras Dirt (Cells E, F, & Z) contractor-furnished borrow area 22
Figure 5: Site map of the proposed Big Shake contractor-furnished borrow area..... 23
Figure 6: Site map of the proposed Henley contractor-furnished borrow area..... 24
Figure 7: Site map of the proposed Contreras Dirt (Cells E, F, & Z) contractor-furnished borrow area 25
Figure 8: Potential HSDRRS Borrow Sources in Hancock County 39
Figure 9: Potential HSDRRS Borrow Sources in St. Bernard Parish..... 41
Figure 10: Potential HSDRRS Borrow Sources in the Project Area 134

LIST OF APPENDICES

Appendix A: List of Acronyms and Definitions of Common Terms
Appendix B: Public Comment and Responses Summary
Appendix C: Members of Interagency Environmental Team
Appendix D: Interagency Correspondence
Appendix E: CEMVN Borrow Area Index Map

1. INTRODUCTION

The U.S. Army Corps of Engineers (USACE) Mississippi Valley Division, New Orleans District (CEMVN), has prepared this Individual Environmental Report #30 (IER #30) 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 and southwestern Mississippi (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 #30 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 southwestern Mississippi 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 14 August 2009. Comments were received during the public review and comment period from Federal and state resource agencies, state resource agencies, an Indian tribe, and a member of the public (appendix B, appendix D). 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 are discussed in this IER. The CEMVN's engineers currently estimate that over 31,000,000 cubic yards of suitable material would be required to complete HSDRRS 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 31,000,000 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 would require 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 enhance the project systems damaged by the storms.

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 projects 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 20 September 2009, the CEMVN District Commander signed a Decision Record on IER #29 entitled "Pre-Approved Contractor-Furnished Borrow Material #4, Orleans, St. John the Baptist, and St. Tammany Parishes, Louisiana." The document evaluates 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 31 July 2009, the CEMVN District Commander signed a Decision Record on IER #28 entitled "Government-Furnished Borrow Material #4, Plaquemines, St. Bernard, and Jefferson Parishes, Louisiana." The document evaluates the potential impacts associated with approving government-furnished borrow areas and an access route for use in construction of the HSDRRS.

- On 30 June 2009, the CEMVN District Commander 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 District Commander 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 District Commander signed a Decision Record for IER #6, entitled "Lake Pontchartrain and Vicinity, New Orleans East, Citrus Lakefront Levee, Orleans Parish, Louisiana." The document evaluates 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 District Commander signed a Decision Record for IER #8, entitled "Lake Pontchartrain and Vicinity, Bayou Dupre Control Structure, St. Bernard Parish, Louisiana." The document evaluates the potential

impacts associated with constructing a new flood control structure on Bayou Dupre.

- On 19 June 2009, the CEMVN District Commander 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 District Commander 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 District Commander 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 evaluates the potential impacts associated with improving the Orleans lakefront hurricane risk reduction features.

- On 3 February 2009, the CEMVN District Commander signed a Decision Record on IER #25 entitled "Government-Furnished Borrow Material, Orleans, Plaquemines and Jefferson Parishes, Louisiana." The document evaluates the potential impacts associated with approving government-furnished borrow areas for use in construction of the HSDRRS.

- On 21 October 2008, the CEMVN District Commander 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 District Commander 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 evaluates 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 District Commander 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 District Commander 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 District Commander 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 District Commander signed a Decision Record on IER #22 entitled “Government-Furnished Borrow Material, Plaquemines and Jefferson Parishes, Louisiana.” The document evaluates the potential impacts associated with approving government-furnished borrow areas for use in construction of the HSDRRS.

- On 6 May 2008, the CEMVN District Commander signed a Decision Record on IER #23 entitled “Pre-Approved Contractor-Furnished Borrow Material #2, St. Bernard, St. Charles, Plaquemines Parishes, Louisiana, and Hancock County, Mississippi.” The document evaluates the potential impacts associated with approving contractor-furnished borrow areas for use in construction of the HSDRRS.

- On 14 March 2008, the CEMVN District Commander 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 evaluates 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 District Commander signed a Decision Record on IER #18 entitled “Government-Furnished Borrow Material, Jefferson, Orleans, Plaquemines, St. Charles, and St. Bernard Parishes, Louisiana.” The document evaluates the potential impacts associated with approving government-furnished borrow areas for use in construction of the HSDRRS.

- On 14 February 2008, the CEMVN District Commander 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 evaluates the potential impacts associated with approving contractor-furnished borrow areas for use in construction of the HSDRRS.

- In July 2006, the CEMVN District Commander signed a Finding of No Significant Impact (FONSI) on an EA #433 entitled, “USACE Response to Hurricanes Katrina & Rita in Louisiana.” The document evaluates 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 District Commander 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 District Commander 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 District Commander 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 District Commander 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 District Commander 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 District Commander 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 District Commander 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 District Commander 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 District Commander 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 District Commander signed a FONSI on EA #79 entitled "LPV Hurricane Protection – London Avenue Outfall Canal." The report investigates the impacts of strengthening hurricane risk reduction at the London Avenue Outfall Canal.

- On 21 July 1988, the CEMVN District Commander signed a FONSI on EA #76 entitled "LPV Hurricane Protection – Orleans Avenue Outfall Canal." The report investigates-the impacts of strengthening hurricane risk reduction at the Orleans Avenue Outfall Canal.

- On 26 February 1986, the CEMVN District Commander 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 District Commander on 12 June 1987. The report addresses the used 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 District Commander 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 District Commander 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 District Commander 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 District Commander 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 District Commander 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 District Commander 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 District Commander 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 February1985. 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 20 September 2009, the CEMVN District Commander signed a Decision Record on IER #29 entitled "Pre-Approved Contractor-Furnished Borrow Material #4, Orleans, St. John the Baptist, and St. Tammany Parishes, Louisiana." The document evaluates 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 31 July 2009, the CEMVN District Commander signed a Decision Record on IER #28 entitled "Government-Furnished Borrow Material #4, Plaquemines, St. Bernard, and Jefferson Parishes, Louisiana." The document evaluates the potential impacts associated with approving government-furnished borrow areas and an access route for use in construction of the HSDRRS.

- On 12 June 2009, the CEMVN District Commander 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 District Commander 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 approximately 3 miles of levee and floodwall in the project vicinity.

- On 3 February 2009, the CEMVN District Commander signed a Decision Record on IER #25 entitled "Government-Furnished Borrow Material, Orleans, Plaquemines and Jefferson Parishes, Louisiana." The document evaluates the potential impacts associated with approving government-furnished borrow areas for use in construction of the HSDRRS.

- On 21 January2009, the CEMVN District Commander signed a Decision Record on IER #17 entitled "Company Canal Floodwall, Jefferson Parish, Louisiana." The document evaluates 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 District Commander 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 evaluates the potential impacts associated with approving contractor-furnished borrow areas for use in construction of the HSDRRS.

- On 18 February 2009, the CEMVN District Commander 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 District Commander 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 District Commander 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 District Commander 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 District Commander signed a Decision Record on IER #23 entitled "Pre-Approved Contractor-Furnished Borrow Material #2, St. Bernard, St. Charles, Plaquemines Parishes, Louisiana, and Hancock County, Mississippi." The document was prepared to evaluate the potential impacts associated with approving contractor-furnished borrow areas for use in construction of the HSDRRS.

- On 21 February 2008, the CEMVN District Commander 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 District Commander 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 District Commander 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 District Commander 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 District Commander 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 District Commander signed a FONSI on EA #337 entitled "Algiers Canal Alternative Borrow Site."

- On 19 June-2003, the CEMVN District Commander 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 District Commander 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 District Commander 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 District Commander 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 District Commander in September 1998.

- The final EIS for the WBV, Lake Cataouatche, Hurricane Protection Project was completed. A ROD was signed by the CEMVN District Commander 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 District Commander 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 District Commander 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 District Commander 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 District Commander signed a FONSI on EA #136 entitled "West Bank Additional Borrow Site between Hwy 45 and Estelle PS."

- On 15 March 1990, the CEMVN District Commander 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 areas 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, IER #28, and IER #29 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. 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 contractor-furnished borrow areas described in this IER in addition to any 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 the proposed 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 contractor-furnished proposed 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 proposed contractor-furnished borrow areas, and as such there are no non-structural alternatives. Non-structural alternatives have and 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 (contactor 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, IER #25, and IER #28 discuss the potential impacts related to use of approved government-furnished borrow areas. The potential impacts related to use of approved contractor-furnished borrow areas are discussed in IER #19, IER #23, IER #26, and IER #29. This IER discusses potential contractor-furnished alternatives. Additional borrow IERs will be prepared as future potential government-furnished and contractor-furnished 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

Two alternatives were considered. These include the no action and the proposed action.

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, IER #28, and IER #29, or other sources yet to be identified.

Proposed Action. The proposed action consists of excavating the proposed Big Shake, Henley, and Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow areas, as discussed in section 2.3.

The CEMVN is pursuing three avenues of obtaining the estimated amount of borrow material needed for construction of the HSDRRS. They include:

- Government-Furnished Borrow Material. 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. 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. The three proposed sites are potential contractor-furnished borrow areas. If the 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 borrow area landowner to provide suitable borrow material from the selected borrow area. Other contractor-furnished borrow alternatives are discussed in IER #19, IER #23, IER #26, and IER #29, and will be explored in future borrow IERs.

- Supply Contract Borrow Material. 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.

2.3 PROPOSED ACTION

The proposed action (preferred alternative) consists of potentially excavating all suitable material from the proposed Big Shake, Henley, and Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow areas for 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 area landowner. Once excavated and processed, the material would be transported to a HSDRRS construction site.

In order to meet the borrow needs of the HSDRRS, personnel from the CEMVN 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.

Landowners or their agents for the proposed borrow areas discussed in this IER submitted the following information to the CEMVN for review: 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 proposed 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.

This IER details the potential impacts related to the potential excavation of the proposed Big Shake, Henley, Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow areas.

- The Big Shake site is located in St. James Parish, Louisiana (figures 1 and 2). The proposed 441-acre borrow area is located between LA-44 and LA-3125 in a rural area. The site is currently actively-farmed sugarcane fields.

- The Henley site is located in Hancock County, Mississippi off of Kiln Picayune Road (figures 1 and 3). The proposed 197-acre borrow area is a mixture of pastureland and active private borrow pits.

- The Contreras Dirt (Cells E, F, and Z) site is in the rural town of Contreras in St. Bernard Parish, Louisiana south of LA-46 (figures 1 and 4). Cell E is 113 acres,

Cell F is 112 acres, and Cell Z is 38 acres. The proposed borrow area is a former sugarcane field that is now fallow.

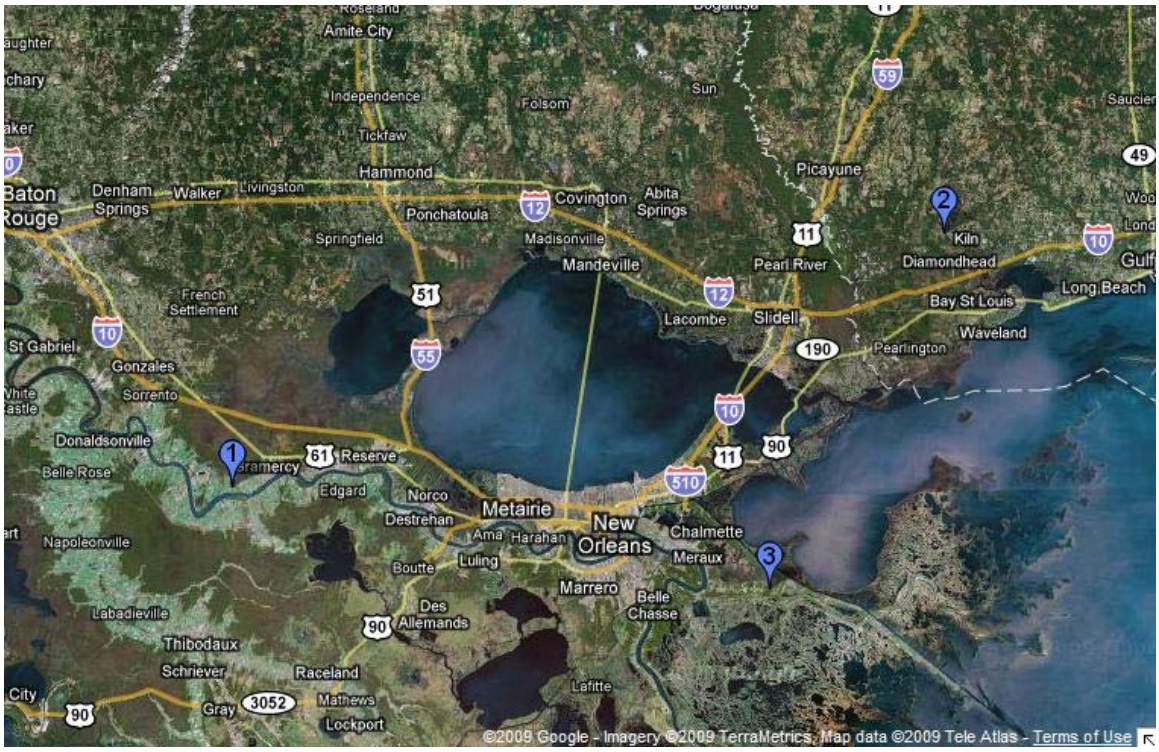

Figure 1: Area map of the proposed contractor-furnished borrow areas

Figure 2: Area map of the proposed Big Shake contractor-furnished borrow area

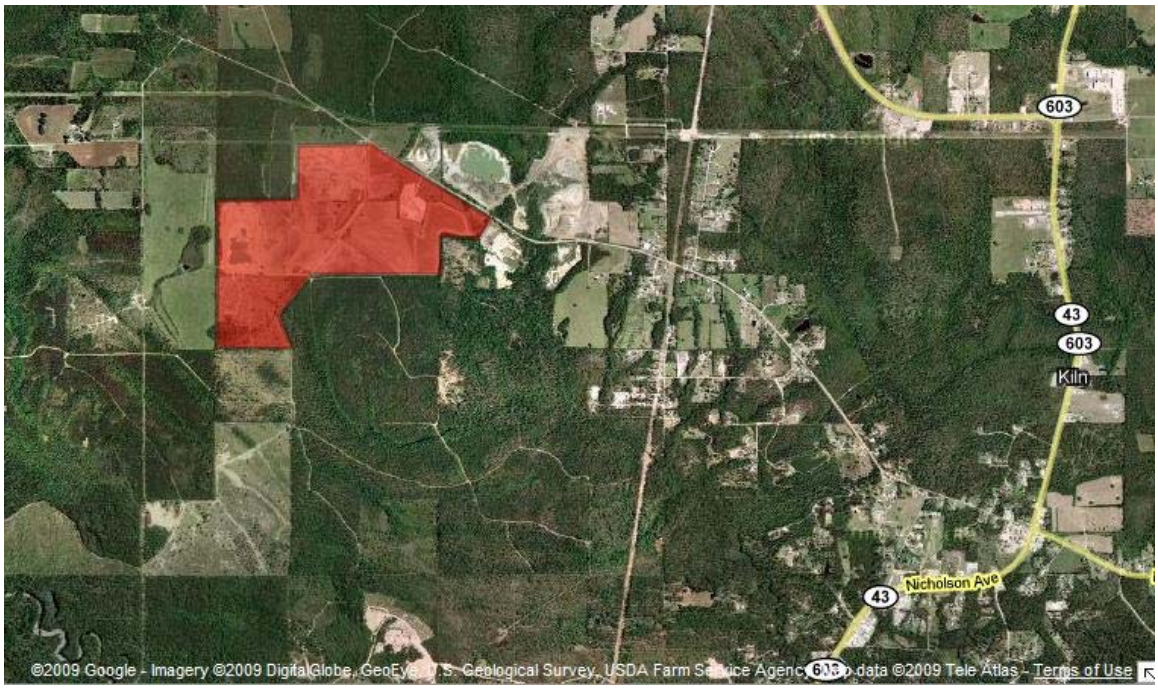

Figure 3: Area map of the proposed Henley contractor-furnished borrow area

Figure 4: Area map of the proposed Contreras Dirt (Cells E, F, & Z) contractor-furnished borrow area

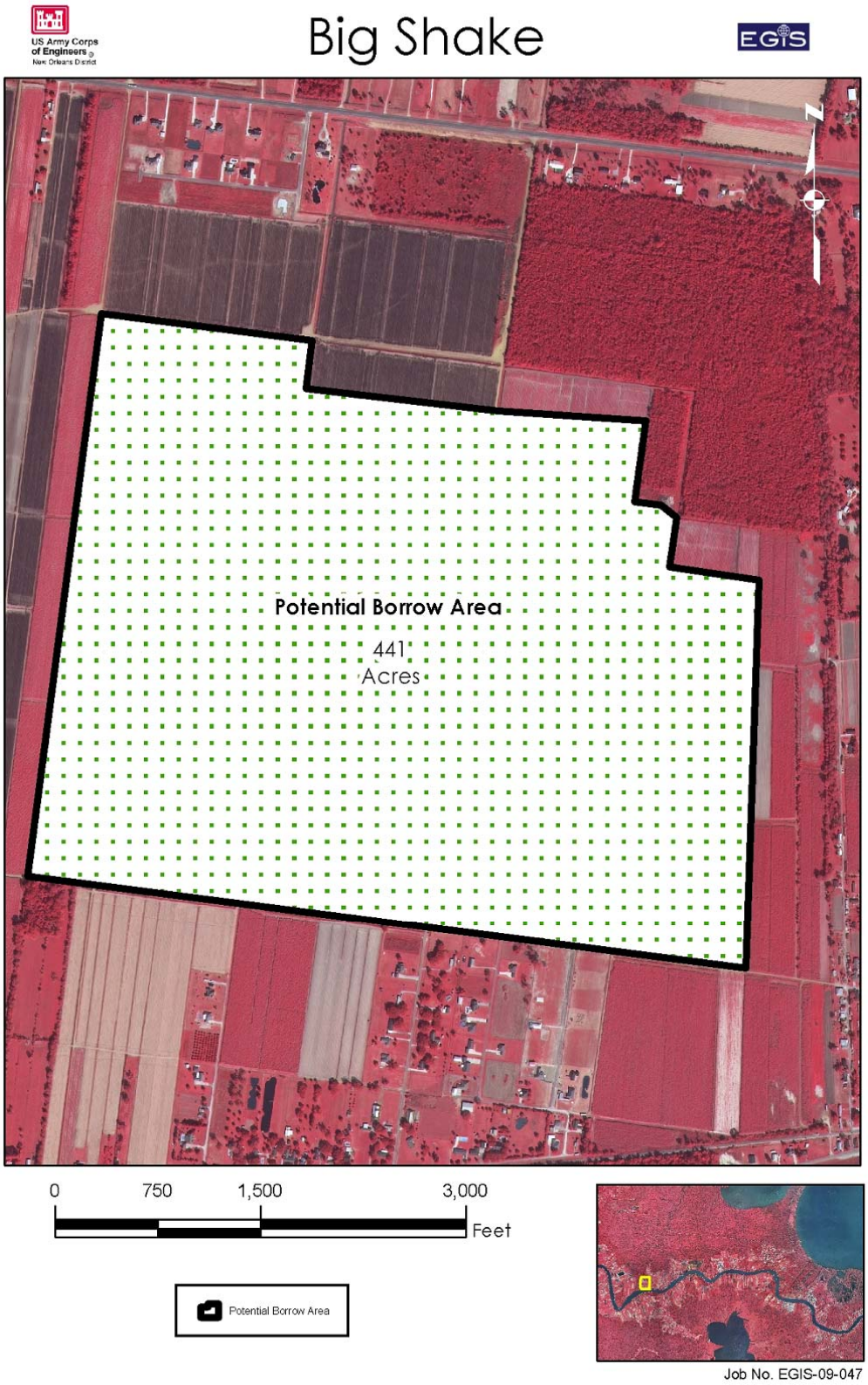

Figure 5: Site map of the proposed Big Shake contractor-furnished borrow area

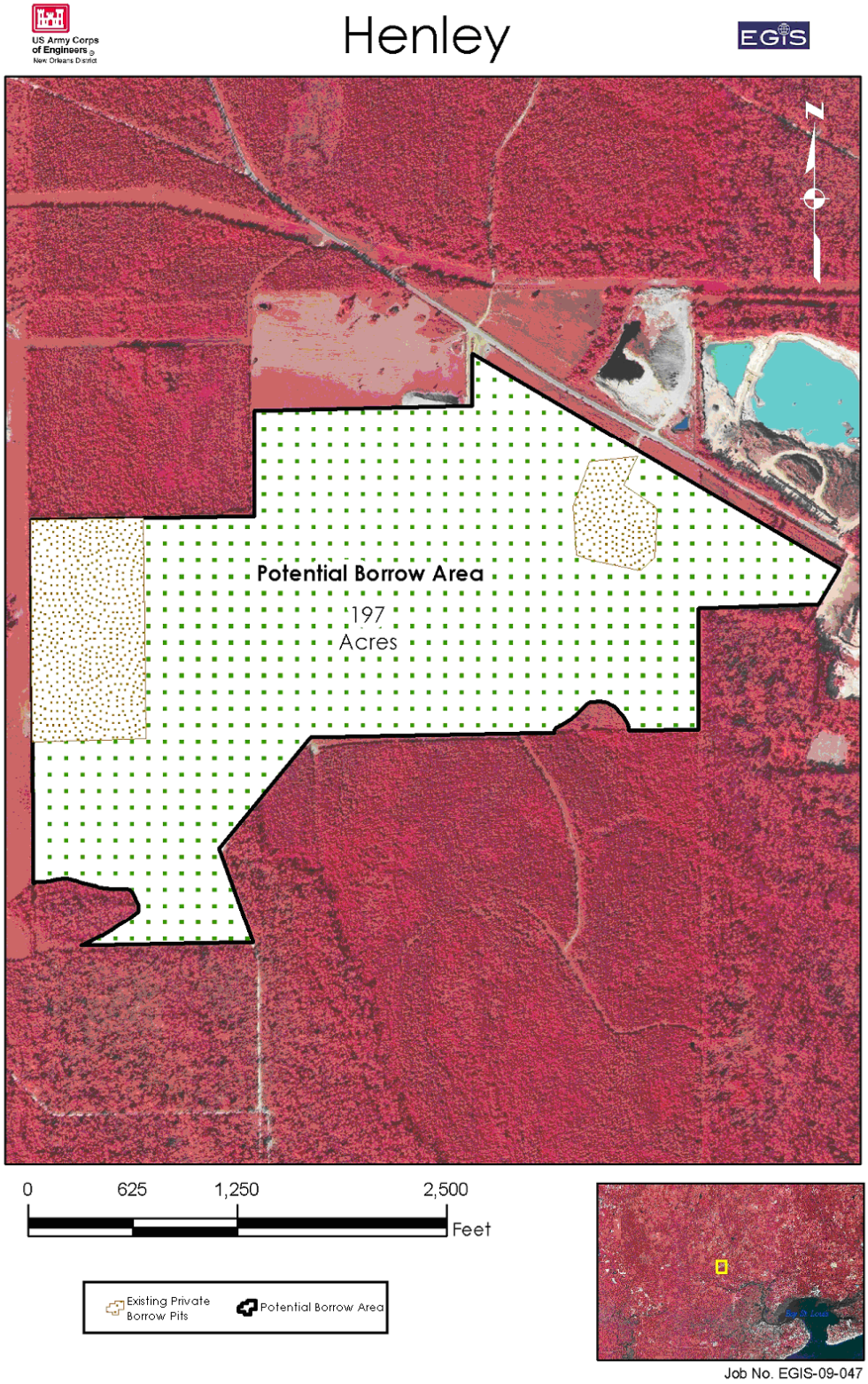

Figure 6: Site map of the proposed Henley contractor-furnished borrow area

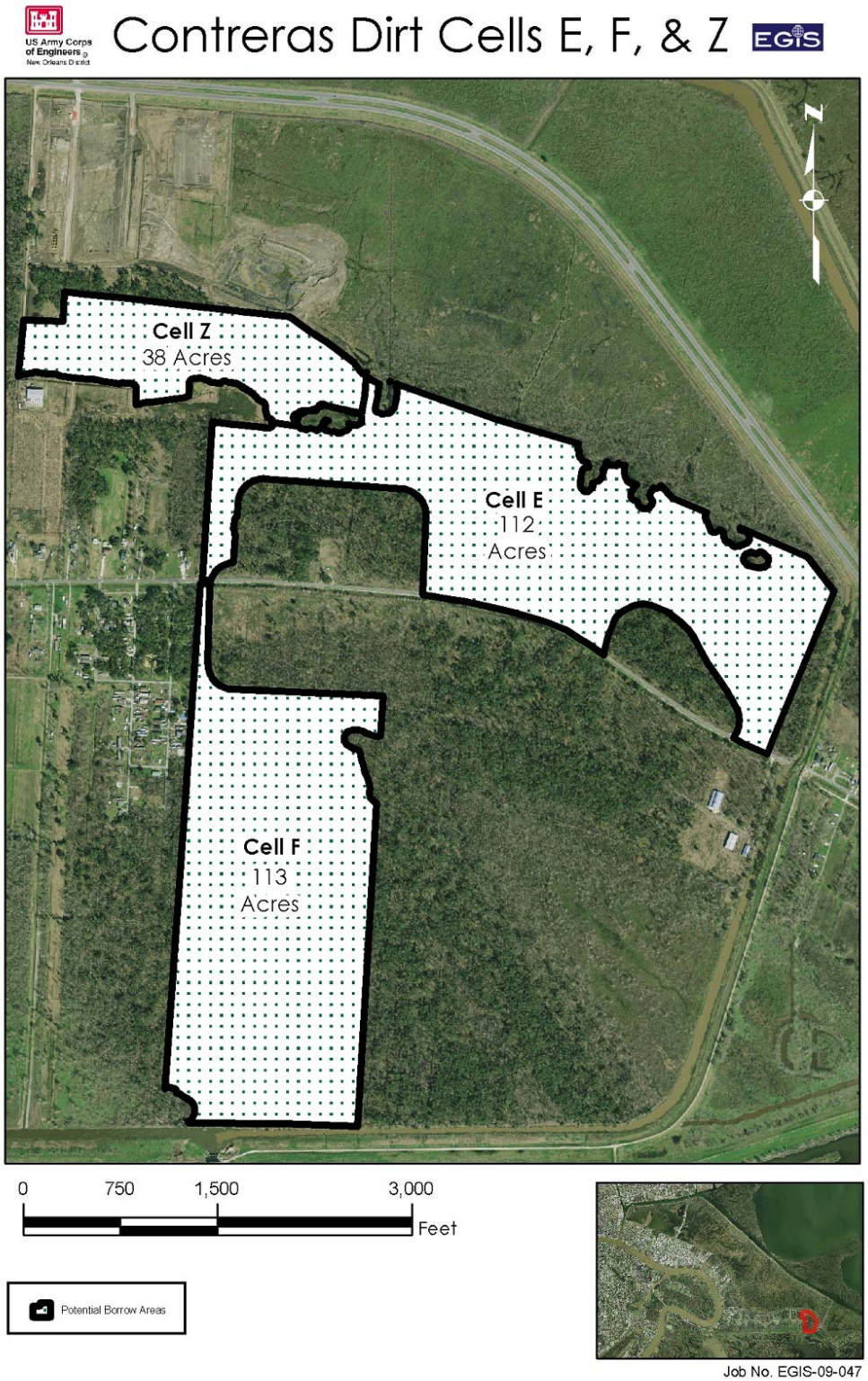

Figure 7: Site map of the proposed Contreras Dirt (Cells E, F, & Z) contractor-furnished borrow area

2.4 ALTERNATIVES TO THE PROPOSED ACTION

The alternative to the proposed action is the no action, as 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 and southwestern Mississippi. The proposed Big Shake contractor-furnished borrow area is located in a rural area west of the New Orleans metropolitan area on the east bank of the Mississippi River in St. James Parish. The proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area is located in a rural area east of the New Orleans metropolitan area in St. Bernard Parish, Louisiana. The proposed Henley contractor-furnished borrow area is located in a rural area north of New Orleans in Hancock County, Mississippi. For the purposes of this report, the project study area is defined as southeastern Louisiana and southwestern Mississippi.

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.

The impacts discussed in this report are those impacts specifically associated with utilizing the proposed Big Shake, Henley, and Contreras Dirt (Cells E, F, and Z) 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	
Farmland & Farmland Soils	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.

- *Big Shake*
  The CEMVN jurisdictional wetland determination MVN-2008-02364-SQ dated 29 July 2008 for the proposed Big Shake contractor-furnished borrow area

indicates that the site contains jurisdictional "404 other waters," which for this site are manmade drainage ditches. The ditches would be excavated during borrow site excavation. The CEMVN jurisdictional wetland determination MVN 2008-02364-SQ dated 29 July 2009 indicates that no jurisdictional wetlands are located on the site.

- *Henley*
  The USACE Mobile District (CESAM) jurisdictional wetland determination SAM-2008-1069-MFM dated 22 July 2008 for the proposed Big Shake contractor-furnished borrow area indicates the presence of jurisdictional wetlands on the site. The wetlands and buffer area were marked, and are not part of the proposed excavation area.

- *Contreras Dirt (Cells E, F and Z)*
  - *Cell E*
    The CEMVN jurisdictional wetland determination MVN-2008-101699-SU dated 31 July 2008 for the proposed Contreras Dirt Cell E contractor-furnished borrow area indicates the presence of jurisdictional wetlands on the site. The wetlands and buffer area were marked, and are not part of the proposed excavation area.

  - *Cell F*
    The CEMVN jurisdictional wetland determination MVN-2008-03839-SZ dated 28 January 2009 for the proposed Contreras Dirt Cell F contractor-furnished borrow area indicates the presence of jurisdictional wetlands on the site. The wetlands and buffer area were marked, and are not part of the proposed excavation area.

  - *Cell Z*
    Two jurisdictional determinations were given for the proposed Contreras Dirt Cell Z contractor-furnished borrow area. The CEMVN jurisdictional wetland determination MVN-2008-101697-SU dated 31 July 2008 for the proposed Contreras Dirt Cell Z contractor-furnished borrow area indicates the presence of jurisdictional wetlands on the site. The wetlands and buffer area were marked, and are not part of the proposed excavation area. Part of Cell Z was delineated with Cell E, the jurisdictional determination for which is cited previously.

Discussion of Impacts

No Action

- *All Sites*

  Direct Impacts
  Under the no action alternative, no direct impacts to jurisdictional wetlands would occur at the proposed Big Shake, Henley, and Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow areas. The proposed sites would not be used as contractor-furnished borrow areas. Any potential direct impacts to jurisdictional wetlands would depend on what the landowners decide to do with the proposed contractor-furnished borrow areas.

Indirect Impacts
Under the no action alternative, there would be no indirect impacts to jurisdictional wetlands at the proposed Big Shake, Henley, and Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow areas. The proposed sites would not be used as contractor-furnished borrow areas. Any potential indirect impacts to jurisdictional wetlands would depend on what the landowners decide to do with the proposed contractor-furnished borrow areas.

Cumulative Impacts
Under the no action alternative, the proposed Big Shake, Henley, and Contreras Dirt (Cells E, F, and Z) sites would not be used as contractor-furnished borrow areas, and as such there would be no cumulative impacts to jurisdictional wetlands at the proposed contractor-furnished borrow areas or in the project areas 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, IER #28, and IER #29, or other sources yet to be identified. Any potential cumulative impacts to jurisdictional wetlands would depend on what the landowners decide to do with the proposed contractor-furnished borrow areas.

Cumulative impacts to jurisdictional wetlands would continue in the project area under the no action alternative. Historical and present wetland losses and gains 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 losses of wetlands in southeastern Louisiana have 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

- *Big Shake*

Direct Impacts
No direct impacts to jurisdictional wetlands would occur at the proposed Big Shake contractor-furnished borrow area with implementation of the proposed action. The manmade drainage ditches, which are classified as jurisdictional "404 other waters," would be excavated. The term "other waters" is meant to differentiate the manmade ditches found on the proposed contractor-furnished borrow area from Clean Water Act Section 404 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 would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Indirect Impacts
Use of the proposed Big Shake contractor-furnished borrow area may result in indirect wetland impacts. Excavation of the proposed contractor-furnished 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 would depend on what the landowner decides to do with the Big Shake contractor-furnished borrow area following excavation.

Cumulative Impacts
Excavation of the proposed Big Shake contractor-furnished borrow area would not contribute to cumulative wetland impacts because the site does not contain jurisdictional wetlands. Any additional potential cumulative impacts to

jurisdictional wetlands would depend on what the landowner decides to do with the proposed Big Shake contractor-furnished borrow area following excavation.

Cumulative impacts to jurisdictional wetlands would continue in the project area under the no action alternative. Historical and present wetland losses and gains in southeastern Louisiana have 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 activities have 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.

- *Henley*

<u>Direct Impacts</u>
No direct impacts to jurisdictional wetlands would occur with use of the proposed Henley contractor-furnished borrow area. The wetlands found in the Henley contractor-furnished borrow area would be avoided, and would not be excavated. 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 would depend on what the landowner decides to do with the proposed Henley contractor-furnished borrow area following excavation.

Indirect Impacts
Use of the proposed Henley contractor-furnished borrow area may result in indirect wetland impacts. Excavation of the proposed contractor-furnished 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 would depend on what the landowner decides to do with the Henley site following excavation.

Cumulative Impacts
Excavation of the proposed Henley contractor-furnished borrow area would not contribute to cumulative wetland impacts because the site does not contain jurisdictional wetlands. Any potential cumulative impacts to jurisdictional wetlands would depend on what the landowner decides to do with the proposed Henley contractor-furnished borrow area following excavation.

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 activities have 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.

- *Contreras Dirt (Cells E, F, & Z)*

Direct Impacts
No direct impacts to jurisdictional wetlands would occur with use of the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area. The wetlands found in the cells would be avoided, and would not be excavated. Any jurisdictional wetland areas outside of the proposed contractor-furnished borrow area would be avoided. The excavated areas 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 would depend on what the landowner decides to do with the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area following excavation.

Indirect Impacts
Use of the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area may result in indirect wetland impacts. Excavation of the proposed contractor-furnished 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 sites, 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 would depend on what the landowner decides to do with the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area following excavation.

Cumulative Impacts
Excavation of the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area would not contribute to cumulative wetland impacts because the site does not contain jurisdictional wetlands. Any potential cumulative impacts to jurisdictional wetlands would depend on what the landowner decides to do with the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area following excavation.

Cumulative impacts to jurisdictional wetlands would continue in the project area under the no action alternative. Historical and present wetland losses and gains in southeastern Louisiana have 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 activities have 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 and southwestern Mississippi. 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 Clean Water Act (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.

- *Big Shake*
  The proposed Big Shake contractor-furnished borrow area is currently used for sugarcane farming, and does not presently include any BLH habitat.

- *Henley*
  The proposed Henley contractor-furnished borrow area is currently used as farmland and private borrow pits, and does not presently include any BLH habitat.

- *Contreras Dirt (Cells E, F, & Z)*
  The USFWS has determined that approximately 225 acres of the 263-acre proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area is comprised of non-jurisdictional BLH.

Staff from the CEMVN and the USFWS visited the proposed contractor-furnished borrow areas to assess the value of these BLH habitats. Table 7 lists these values, as calculated by using a habitat evaluation model.

Discussion of Impacts

No Action

- *Big Shake*

Direct Impacts
Under the no action alternative, no direct impacts to non-jurisdictional BLH would occur at the proposed Big Shake contractor-furnished borrow area. The proposed site would not be used as a contractor-furnished borrow area.

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

Cumulative Impacts
Under the no action alternative, no cumulative impacts to non-jurisdictional BLH would occur due to the proposed action. The proposed site would not be used as a contractor-furnished borrow area. 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, IER #28, and IER #29, or other sources yet to be identified.

Cumulative impacts to non-jurisdictional BLH would continue in the project area under the no action alternative. The proposed action is the only potential borrow area in St. James Parish that has been approved or is being investigated for use on the HSDRRS. Non-jurisdictional BLH would not be cumulatively impacted in St. James because of HSDRRS borrow activity or construction of the HSDRRS.

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-3213 is presently under cultivation. Recent residential and commercial developmental pressures may contribute to a decline in remaining non-jurisdictional BLH in the vicinity.

Non-jurisdictional BLH habitat in the project area 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.

- *Henley*

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

Indirect Impacts
Under the no action alternative, no indirect impacts to non-jurisdictional BLH would occur due to the proposed action. The proposed Henley contractor-furnished borrow area would not be used as a source of contractor-furnished borrow material under the no action alternative.

Cumulative Impacts

Under the no action alternative, no cumulative impacts to non-jurisdictional BLH would occur due to the proposed action. The proposed site would not be used as a contractor-furnished borrow area. 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, IER #28, and IER #29, or other sources yet to be identified.

The approved Frierson, Pearlington Dirt Phase I, and Pearlington Dirt Phase II contractor-furnished borrow areas are also located in Hancock County (figure 9). None of these sites contain non-jurisdictional BLH. It is reasonably foreseeable that these sites 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.

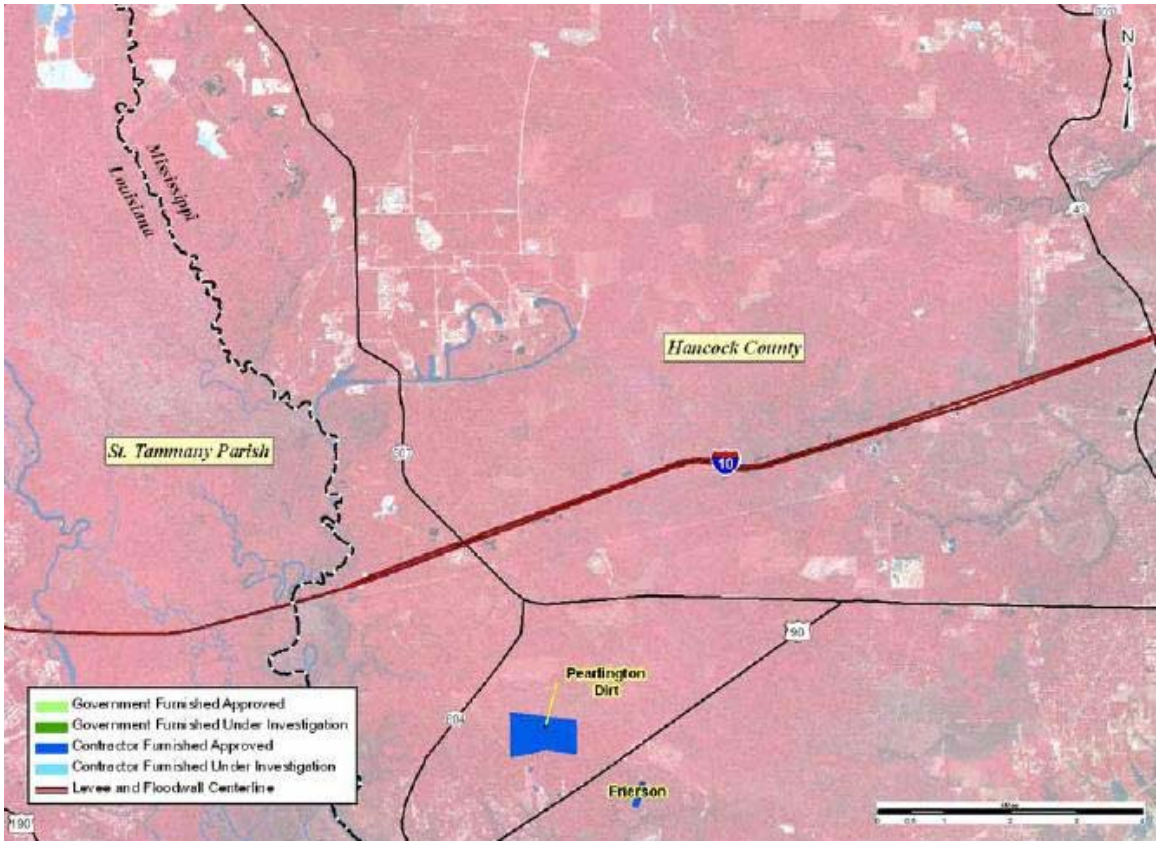

Figure 8: Potential HSDRRS Borrow Sources in Hancock County

Cumulative impacts to non-jurisdictional BLH would continue in the project area under the no action alternative. Other activities in Hancock County and the project area have and will continue to change land use patterns, contributing to the cumulative loss of non-jurisdictional BLH habitat in the project area. Non-jurisdictional BLH habitat in the region 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.

- *Contreras Dirt (Cells E, F, & Z)*

  Direct Impacts
  Under the no action alternative, no direct impacts to non-jurisdictional BLH would occur at the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area. The proposed site would not be used as a contractor-furnished borrow area. Any potential direct impacts to non-jurisdictional BLH would depend on what the landowner decides to do with the proposed contractor-furnished borrow area.

  Indirect Impacts
  Under the no action alternative, no indirect impacts to non-jurisdictional BLH would occur due to the proposed action. The proposed site would not be used as a contractor-furnished borrow area. Any potential indirect impacts to non-jurisdictional BLH would depend on what the landowner decides to do with the proposed contractor-furnished borrow area.

  Cumulative Impacts
  No cumulative impacts to non-jurisdictional BLH at the site would occur under the no action alternative. The proposed site would not be used as a contractor-furnished borrow area. 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, IER #28, and IER #29, or other sources yet to be identified. Any potential cumulative impacts to jurisdictional wetlands would depend on what the landowner decides to do with the proposed contractor-furnished borrow area.

  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. Bernard Parish that were approved or are being investigated for construction of the HSDRRS (figure 10). The approved Dockville, 910 Bayou Road, 1418/1420 Bayou Road, 1572 Bayou Road, 4001 Florissant Highway, Gatien Navy, Sylvia Guillot, DK Aggregates, 1025 Florissant Highway, Acosta, and Johnson/Crovetto sites are located within the parish. The Dockville, 1428/1420 Bayou Road, 1572 Bayou Road, and Johnson/Crovetto sites have non-jurisdictional BLH located on them. It is reasonably foreseeable that the approved sites would be used for construction of the HSDRRS, and their use would cumulatively impact non-jurisdictional BLH habitat in St. Bernard Parish.

  Other activities in St. Bernard Parish have and would 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 St. Bernard Parish was historically marsh and cypress. A majority of the parish's population is concentrated along natural levees associated with the Mississippi River, Bayou La Loutre, and Bayou Terre aux Boeuf because of their relatively high elevation. These natural levees were historically dominated by upland forests, a majority of which would likely be classified as non-jurisdictional BLH. Over the past 300 years portions of the parish were leveed and/or developed, including the project site. Land was converted for residential, commercial, and industrial uses. Current land uses of the parish mirror historical ones; most of the population of St. Bernard Parish is found on natural levees, and the parish is still dominated by marsh, cypress, and open water.

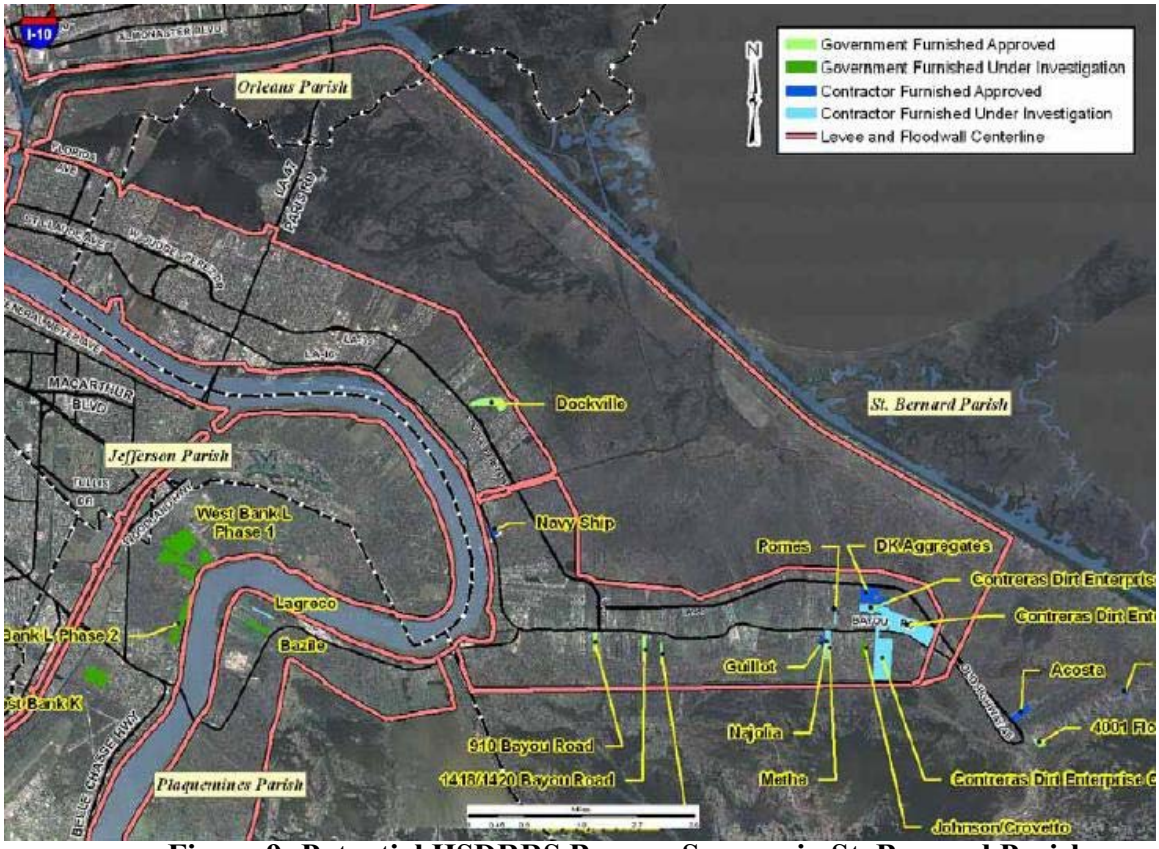

Figure 9: Potential HSDRRS Borrow Sources in St. Bernard Parish

The effects of Hurricane Katrina on St. Bernard were extensive, with most of the parish heavily flooded (CRS, 2005). As of June 2008 less than 50 percent of pre-Katrina residences were active (GNOCDC, 2009). The parish experienced an increase in population growth during the latter part of 2008, a trend that is expected to continue in the near future (GNOCDC, 2009). 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 St. Bernard Parish 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 St. Bernard Parish, as well as most of the New Orleans metropolitan area.

Non-jurisdictional BLH habitat in the project area 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. The agency has determined that the proposed action would have unavoidable impacts to a number of acres of non-jurisdictional BLH, which is quantified by Average Annualized Habitat Units (AAHUs) (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.

Use of the proposed Big Shake and Henley contractor-furnished borrow areas would not cause impact to non-jurisdictional BLH at the sites, as they do not contain any of this habitat type. Use of the proposed Contreras Dirt (Cells E, F, and Z) borrow area would cause unavoidable impacts to 225 acres (189.4 AAHUs) of non-jurisdictional BLH on the site. Mitigation for unavoidable impacts to non-jurisdictional BLH is discussed in section 7, and will be described under a separate IER.

- *Big Shake*

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

  Indirect Impacts
  Use of the proposed Big Shake contractor-furnished 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.

  Cumulative Impacts
  Use of the proposed Big Shake 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.

  Cumulative impacts to non-jurisdictional BLH would continue in the project area. The proposed action is the only potential borrow area in St. James Parish that has been approved or is being investigated for use on the HSDRRS. Non-jurisdictional BLH would not be cumulatively impacted in St. James because of HSDRRS borrow activity or construction of the HSDRRS.

  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-3213 is presently under cultivation. Recent residential and commercial developmental pressures may contribute to a decline in remaining non-jurisdictional BLH in the vicinity.

  Non-jurisdictional BLH habitat in the project area 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.

- *Henley*

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

  Indirect Impacts
  Use of the proposed Henley contractor-furnished 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.

  Cumulative Impacts
  Use of the proposed Henley 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.
  The approved Frierson, Pearlington Dirt Phase I, and Pearlington Dirt Phase II contractor-furnished borrow areas are also located in Hancock County (figure 8). None of these sites contain non-jurisdictional BLH. It is reasonably foreseeable that these sites 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.

  Cumulative impacts to non-jurisdictional BLH would continue in the project area under this alternative. Other activities in Hancock County and the project area have and will continue to change land use patterns, contributing to the cumulative loss of non-jurisdictional BLH habitat in the project area. Non-jurisdictional BLH habitat in the region 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.

- *Contreras Dirt (Cells E, F, and Z)*

  Direct Impacts
  Excavation of the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area would directly impact 225 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.

  Any additional potential direct impacts to non-jurisdictional BLH would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

  The landowner will complete mitigation for the loss of 225 acres of non-jurisdictional BLH if the proposed site is used for construction of the HSDRRS. Proof of mitigation for non-jurisdictional BLH impacts would be supplied to the

CEMVN prior to excavation. If this site is used as a contractor-furnished borrow area and mitigation is completed by the landowner, the landowner's mitigation will be discussed in upcoming mitigation IERs and the CED.

Indirect Impacts

Use of the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area may result in indirect impacts to non-jurisdictional BLH. The excavation of borrow material and the excavated borrow area at the Contreras Dirt (Cells E, F, and Z) 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 would depend on what the landowner decides to do with the Contreras Dirt (Cells E, F, and Z) site following excavation.

Cumulative Impacts

Use of the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area would contribute to the cumulative loss of non-jurisdictional BLH in the project area. Additional potential cumulative impacts to non-jurisdictional BLH would depend on what the landowner decides to do with the Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area following excavation.

Cumulative impacts to non-jurisdictional BLH would continue in the project area. There are several potential borrow areas in St. Bernard Parish that were approved or are being investigated for construction of the HSDRRS (figure 10). The approved Dockville, 910 Bayou Road, 1418/1420 Bayou Road, 1572 Bayou Road, 4001 Florissant Highway, Gatien Navy, Sylvia Guillot, DK Aggregates, 1025 Florissant Highway, Acosta, and Johnson/Crovetto sites are located within the parish. The Dockville, 1428/1420 Bayou Road, 1572 Bayou Road, and Johnson/Crovetto sites have non-jurisdictional BLH located on them. It is reasonably foreseeable that the approved sites would be used for construction of the HSDRRS, and their use would cumulatively impact non-jurisdictional BLH habitat in St. Bernard Parish.

Other activities in St. Bernard Parish have and would 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 St. Bernard Parish was historically marsh and cypress. A majority of the parish's population is concentrated along natural levees associated with the Mississippi River, Bayou La Loutre, and Bayou Terre aux Boeuf because of their relatively high elevation. These natural levees were historically dominated by upland forests, a majority of which would likely be classified as non-jurisdictional BLH. Over the past 300 years portions of the parish were leveed and/or developed, including the project site. Land was converted for residential, commercial, and industrial uses. Current land uses of the parish mirror historical ones; most of the population of St. Bernard Parish is found on natural levees, and the parish is still dominated by marsh, cypress, and open water.

The effects of Hurricane Katrina on St. Bernard were extensive, with most of the parish heavily flooded (CRS, 2005). As of June 2008 less than 50 percent of pre-Katrina residences were active (GNOCDC, 2009). The parish experienced an increase in population growth during the latter part of 2008, a trend that is expected to continue in the near future (GNOCDC, 2009). 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 St. Bernard Parish 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 St. Bernard, as well as most of the New Orleans metropolitan area.

Non-jurisdictional BLH habitat in the project area 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.

3.2.3 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 farmland and 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.

- *Big Shake*
  The proposed Big Shake contractor-furnished borrow area is the site of active farmland; impacts to farmland and farmland soils are discussed in section 3.2.4.

- *Henley*
  The proposed Henley contractor-furnished borrow area is currently being used as pastureland, and has several active private borrow pits on the site.

- *Contreras Dirt (Cells E, F, and Z)*
  All of Cells E, F, and Z of the proposed Contreras Dirt contractor-furnished borrow area are dominated by non-jurisdictional BLH; impacts to this habitat are discussed in section 3.2.2.

Discussion of Impacts

No Action

- Big Shake

  Direct Impacts

  Under the no action alternative, no direct impacts to upland areas at the proposed Big Shake site would occur due to the proposed action because the site does not contain any uplands. The proposed site would not be used as a contractor-furnished borrow area.

  Indirect Impacts

  Under the no action alternative, no indirect impacts to upland areas at the proposed Big Shake site would occur due to the proposed action because the site

does not contain any uplands. The proposed 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 because the site does not contain any uplands. The proposed Big Shake site would not be used as a contractor-furnished borrow area. Any potential cumulative impacts to upland areas would depend on what the landowner decides to do with the proposed contractor-furnished borrow area. 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, IER #28, and IER #29, or other sources yet to be identified.

Cumulative impacts to upland areas would continue in the project area under the no action alternative. The proposed action is the only potential borrow area in St. James Parish that has been approved or is being investigated for use on the HSDRRS. Upland areas would not be cumulatively impacted in St. James because of HSDRRS borrow activity or construction of the HSDRRS.

Other activities in the vicinity have and will continue to change land use patterns, contributing to the cumulative loss of upland areas 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-3213 is presently under cultivation. Recent residential and commercial developmental pressures may contribute to a decline in remaining upland areas in the vicinity.

Uplands in the project area 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 uplands in the region.

- Henley

Direct Impacts
Under the no action alternative, no direct impacts to upland areas would occur at the proposed Henley borrow site due to the proposed action. The proposed site would not be used as a contractor-furnished borrow area. Any potential direct impacts to upland areas would depend on what the landowner decides to do with the proposed contractor-furnished borrow area.

Indirect Impacts
Under the no action alternative, no indirect impacts to upland areas would occur at the proposed Henley site due to the proposed action. The proposed site would not be used as a contractor-furnished borrow area. Any potential indirect impacts to upland areas would depend on what the landowner decides to do with the proposed 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 Henley site would not be used as a

contractor-furnished borrow area. Any potential direct impacts to upland areas would depend on what the landowner decides to do with the proposed contractor-furnished borrow area. 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, IER #28, and IER #29, or other sources yet to be identified.

The approved Frierson, Pearlington Dirt Phase I, and Pearlington Dirt Phase II contractor-furnished borrow areas are also located in Hancock County (figure 8). These sites contain lolloby pine plantations. It is reasonably foreseeable that these sites could be used for construction of the HSDRRS, and their use would cumulatively impact forested upland areas in the vicinity.

Cumulative impacts to upland areas would continue in the project area under this alternative. Other activities in Hancock County and southeastern Louisiana have and will continue to change land use patterns, contributing to the cumulative loss of uplands habitat in the project area. Upland areas in the region 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 uplands in the region.

- Contreras Dirt (Cells E, F, and Z)

Direct Impacts
Under the no action alternative, no direct impacts to upland areas at the proposed Contreras Dirt (Cells E, F, and Z) site would occur due to the proposed action because the site does not contain any uplands. The proposed site would not be used as a contractor-furnished borrow source.

Indirect Impacts
Under the no action alternative, no indirect impacts to upland areas at the proposed Contreras Dirt (Cells E, F, and Z) site would occur due to the proposed action because the site does not contain any uplands. The proposed site would not be used as a contractor-furnished borrow source.

Cumulative Impacts
Under the no action alternative, there would be no cumulative impacts to uplands from the proposed action because the site does not contain any uplands. The proposed Contreras Dirt (Cells E, F, and Z) would not be used as a contractor-furnished borrow area. Any potential cumulative impacts to upland areas would depend on what the landowner decides to do with the proposed contractor-furnished borrow area. 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, IER #28, and IER #29, or other sources yet to be identified.

Cumulative impacts to upland resources would continue in the project area under the no action alternative. There are several potential borrow areas in St. Bernard Parish that were approved or are being investigated for construction of the HSDRRS (figure 9). The approved Dockville, 910 Bayou Road, 1418/1420

Bayou Road, 1572 Bayou Road, 4001 Florissant Highway, Gatien Navy, Sylvia Guillot, DK Aggregates, 1025 Florissant Highway, Acosta, and Johnson/Crovetto sites are located within the parish. The 910 Bayou Road, 4001 Florissant Highway, Gatien Navy, Sylvia Guillot, DK Aggregates, 1025 Florissant Highway, Acosta, and Johnson/Crovetto sites have pastureland and forested areas located on them. Additionally, the proposed Methe and Najolia sites contain upland areas and are also in the vicinity. It is reasonably foreseeable that the approved sites would be used for construction of the HSDRRS, and their use would cumulatively impact upland areas in St. Bernard Parish.

Other activities in St. Bernard Parish have and would continue to change land use patterns, contributing to the cumulative loss of upland areas in the project area. Most of the area of St. Bernard Parish was historically marsh and cypress. A majority of the parish's population is concentrated along natural levees associated with the Mississippi River, Bayou La Loutre, and Bayou Terre aux Boeuf because of their relatively high elevation. These natural levees were historically dominated by upland forests. Over the past 300 years portions of the parish were leveed and/or developed, including the project site. Land was converted for residential, commercial, and industrial uses. Current land uses of the parish mirror historical ones; most of the population of St. Bernard Parish is found on natural levees, and the parish is still dominated by marsh, cypress, and open water.

Upland areas in the project area 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

- Big Shake

Direct Impacts
No direct impacts to upland areas would occur due to the proposed action because the site does not contain any uplands.

Indirect Impacts
No indirect impacts to upland areas would occur due to the proposed action because the site does not contain any uplands.

Cumulative Impacts
There would be no cumulative impacts to uplands from the proposed action because the site does not contain any uplands.

Cumulative impacts to upland areas would continue in the project area under the no action alternative. The proposed action is the only potential borrow area in St. James Parish that has been approved or is being investigated for use on the HSDRRS. Upland areas would not be cumulatively impacted in St. James because of HSDRRS borrow activity or construction of the HSDRRS.

Other activities in the vicinity have and will continue to change land use patterns, contributing to the cumulative loss of upland areas 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-3213 is presently under cultivation. Recent residential and commercial developmental pressures may contribute to a decline in remaining upland areas in the vicinity.

Uplands in the project area 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 uplands in the region.

- Henley

Direct Impacts
Direct impacts to upland areas would occur at the proposed Henley borrow site due to the proposed action. The site would be mechanically cleared, and borrow material would be excavated. Additional potential direct impacts to upland areas would depend on what the landowner decides to do with the Henley site following excavation.

Indirect Impacts
No indirect impacts to upland areas at the Henley site would occur with implementation of the proposed action.

Cumulative Impacts
Use of the proposed Henley site would contribute to the cumulative loss of uplands in the project area by directly impacting 197 acres of uplands.

The approved Frierson, Pearlington Dirt Phase I, and Pearlington Dirt Phase II contractor-furnished borrow areas are also located in Hancock County (figure 8). These sites contain lolloby pine plantations. It is reasonably foreseeable that these sites could be used for construction of the HSDRRS, and their use would cumulatively impact forested upland areas in the vicinity.

Cumulative impacts to upland areas would continue in the project area under this alternative. Other activities in Hancock County and southeastern Louisiana have and will continue to change land use patterns, contributing to the cumulative loss of uplands habitat in the project area. Upland areas in the region 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 uplands in the region.

- Contreras Dirt (Cells E, F, and Z)

Direct Impacts
No direct impacts to upland areas at the proposed Contreras Dirt (Cells E, F, and Z) site would occur due to the proposed action because the site does not contain any uplands.

Indirect Impacts
No indirect impacts to upland areas at the proposed Contreras Dirt (Cells E, F, and Z) site would occur due to the proposed action because the site does not contain any uplands.

Cumulative Impacts
There would be no cumulative impacts to uplands from the proposed action because the proposed site does not contain any uplands.

Cumulative impacts to upland resources would continue in the project area under this alternative. There are several potential borrow areas in St. Bernard Parish that were approved or are being investigated for construction of the HSDRRS (figure 9). The approved Dockville, 910 Bayou Road, 1418/1420 Bayou Road, 1572 Bayou Road, 4001 Florissant Highway, Gatien Navy, Sylvia Guillot, DK Aggregates, 1025 Florissant Highway, Acosta, and Johnson/Crovetto sites are located within the parish. The 910 Bayou Road, 4001 Florissant Highway, Gatien Navy, Sylvia Guillot, DK Aggregates, 1025 Florissant Highway, Acosta, and Johnson/Crovetto sites have pastureland and forested areas located on them. Additionally, the proposed Methe and Najolia sites contain upland areas and are also in the vicinity. It is reasonably foreseeable that the approved sites would be used for construction of the HSDRRS, and their use would cumulatively impact upland areas in St. Bernard Parish.

Other activities in St. Bernard Parish have and would continue to change land use patterns, contributing to the cumulative loss of upland areas in the project area. Most of the area of St. Bernard Parish was historically marsh and cypress. A majority of the parish's population is concentrated along natural levees associated with the Mississippi River, Bayou La Loutre, and Bayou Terre aux Boeuf because of their relatively high elevation. These natural levees were historically dominated by upland forests. Over the past 300 years portions of the parish were leveed and/or developed, including the project site. Land was converted for residential, commercial, and industrial uses. Current land uses of the parish mirror historical ones; most of the population of St. Bernard Parish is found on natural levees, and the parish is still dominated by marsh, cypress, and open water.

Upland areas in the project area 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.

3.2.4 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 Big Shake, Henley, and Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow areas contain prime farmland soils. The Big Shake site is the only proposed contractor-furnished borrow area that is currently used for agriculture.

Discussion of Impacts

No Action

- Big Shake

Direct Impacts
Under the no action alternative, no direct impacts to farmland and farmland soils at the proposed Big Shake site would occur due to the proposed action. The proposed site would not be used as a contractor-furnished borrow area. Any potential direct impacts to farmland and farmland soils would depend on what the landowner decides to do with the proposed contractor-furnished borrow area.

Indirect Impacts
Under the no action alternative, no indirect impacts to farmland and farmland soils at the proposed Big Shake site would occur due to the proposed action. The proposed site would not be used as a contractor-furnished borrow area. Any potential indirect impacts to farmland and farmland soils would depend on what the landowner decides to do with the proposed contractor-furnished borrow area.

Cumulative Impacts
Under the no action alternative, there would be no cumulative impacts to farmland and farmland soils from the proposed action. The proposed Big Shake site would not be used as a contractor-furnished borrow area. Any potential cumulative impacts to farmland and farmland soils would depend on what the landowner decides to do with the proposed contractor-furnished borrow area. 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, IER #28, and IER #29, or other sources yet to be identified.

Cumulative impacts to farmland and farmland soils areas would continue in the project area under the no action alternative. The proposed action is the only potential borrow area in St. James Parish that has been approved or is being investigated for use on the HSDRRS. Farmland would not be cumulatively impacted in St. James because of HSDRRS borrow activity or construction of the HSDRRS.

Other activities in the vicinity have and will continue to change land use patterns, contributing to the cumulative loss of farmland 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-3213 is presently under cultivation. Recent residential and commercial developmental pressures may contribute to a decline in remaining farmland in the vicinity.

Farmland and farmland soils in the project area 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.

- Henley

  Direct Impacts
  Under the no action alternative, no direct impacts to farmland and farmland soils would occur at the proposed Henley borrow site due to the proposed action. The proposed site would not be used as a contractor-furnished borrow area. Any potential direct impacts to farmland and farmland soils would depend on what the landowner decides to do with the proposed contractor-furnished borrow area.

  Indirect Impacts
  Under the no action alternative, no indirect impacts to farmland and farmland soils would occur at the proposed Henley site due to the proposed action. The proposed site would not be used as a contractor-furnished borrow area. Any potential indirect impacts to farmland and farmland soils would depend on what the landowner decides to do with the proposed contractor-furnished borrow area.

  Cumulative Impacts
  Under the no action alternative, there would be no cumulative impacts to farmland and farmland soils from the proposed action. The proposed Henley site would not be used as a contractor-furnished borrow area. Any potential cumulative impacts to farmland and farmland soils would depend on what the landowner decides to do with the proposed contractor-furnished borrow area. 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, IER #28, and IER #29, or other sources yet to be identified.

  The approved Frierson, Pearlington Dirt Phase I, and Pearlington Dirt Phase II contractor-furnished borrow areas are also located in Hancock County (figure 8). These sites do not contain farmland and farmland soils. It is reasonably foreseeable that these sites could be used for construction of the HSDRRS, and their use would cumulatively impact forested farmland and farmland soils in the vicinity.

  Cumulative impacts to farmland and farmland soils would continue in the project area under this alternative. Other activities in Hancock County and southeastern Louisiana have and will continue to change land use patterns, contributing to the cumulative loss of farmland and farmland soils in the project area. Farmland in the region 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 farmland and farmland soils in the region.

- Contreras Dirt (Cells E, F, and Z)

  Direct Impacts
  Under the no action alternative, no direct impacts to farmland and farmland soils at the proposed Contreras Dirt (Cells E, F, and Z) site would occur due to the proposed action. The proposed site would not be used as a contractor-furnished borrow area. Any potential direct impacts to farmland and farmland soils would depend on what the landowner decides to do with the proposed contractor-furnished borrow area.

Indirect Impacts
Under the no action alternative, no indirect impacts to farmland and farmland soils at the proposed Contreras Dirt (Cells E, F, and Z) site would occur due to the proposed action. The proposed site would not be used as a contractor-furnished borrow area. Any potential indirect impacts to farmland and farmland soils would depend on what the landowner decides to do with the proposed contractor-furnished borrow area.

Cumulative Impacts
Under the no action alternative, there would be no cumulative impacts to farmland and farmland soils from the proposed action. The proposed Contreras Dirt (Cells E, F, and Z) would not be used as a contractor-furnished borrow area. Any potential indirect impacts to farmland and farmland soils would depend on what the landowner decides to do with the proposed contractor-furnished borrow area. 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, IER #28, and IER #29, or other sources yet to be identified.

Cumulative impacts to farmland resources would continue in the project area under the no action alternative. There are several potential borrow areas in St. Bernard Parish that were approved or are being investigated for construction of the HSDRRS (figure 9). The approved Dockville, 910 Bayou Road, 1418/1420 Bayou Road, 1572 Bayou Road, 4001 Florissant Highway, Gatien Navy, Sylvia Guillot, DK Aggregates, 1025 Florissant Highway, Acosta, and Johnson/Crovetto sites are located within the parish. All but the Dockville site contain prime farmland soils. It is unknown where or not prime farmland soils are located on proposed sites in the vicinity. It is reasonably foreseeable that the approved sites would be used for construction of the HSDRRS, and use of the Dockville site would cumulatively impact upland areas in St. Bernard Parish.

Other activities in St. Bernard Parish have and would continue to change land use patterns, contributing to the cumulative loss of farmland in the project area. Most of the area of St. Bernard Parish was historically marsh and cypress. A majority of the parish's population is concentrated along natural levees associated with the Mississippi River, Bayou La Loutre, and Bayou Terre aux Boeuf because of their relatively high elevation. These natural levees were historically dominated by upland forests. Over the past 300 years portions of the parish were leveed and/or developed, including the project site. Land was converted for residential, commercial, and industrial uses, including farming. Current land uses of the parish mirror historical ones; most of the population of St. Bernard Parish is found on natural levees, and the parish is still dominated by marsh, cypress, and open water.

Farmland and farmland soils in the project area 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 and farmland soils in the region.

Proposed Action

- Big Shake

Direct Impacts
Use of the proposed Big Shake contractor-furnished borrow area would directly impact approximately 441 acres of active farmland. The proposed contractor-furnished borrow area would be cleared and excavated, which would result in a direct permanent loss of farmland and prime farmland soils. Any additional potential direct impacts to farmland and farmland soils would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Indirect Impacts
No indirect impacts to farmland and farmland soils at the proposed Big Shake site would occur due to the proposed action. Any potential indirect impacts to farmland and farmland soils would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Cumulative Impacts
Use of the proposed Big Shake contractor-furnished borrow area would contribute to the cumulative loss of farmland soils in the region. Any additional potential cumulative impacts to farmland and farmland soils would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Cumulative impacts to farmland and farmland soils areas would continue in the project area under this alternative. The proposed action is the only potential borrow area in St. James Parish that has been approved or is being investigated for use on the HSDRRS. Farmland would not be cumulatively impacted in St. James because of HSDRRS borrow activity or construction of the HSDRRS.

Other activities in the vicinity have and will continue to change land use patterns, contributing to the cumulative loss of farmland 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-3213 is presently under cultivation. Recent residential and commercial developmental pressures may contribute to a decline in remaining farmland in the vicinity.

Farmland and farmland soils in the project area 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.

- Henley

Direct Impacts
Use of the proposed Henley site would directly impact approximately 197 acres of prime farmland soils. The proposed contractor-furnished borrow area would be cleared and excavated, which would result in a direct permanent loss of prime farmland soils. Any additional potential direct impacts to farmland and farmland soils would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Indirect Impacts
No indirect impacts to farmland and farmland soils at the proposed Henley site would occur due to the proposed action. Any additional potential indirect impacts to farmland and farmland soils would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Cumulative Impacts
Use of the proposed Henley contractor-furnished borrow area would contribute to the cumulative loss of farmland soils in the region. Any additional potential cumulative impacts to farmland and farmland soils would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Cumulative impacts to farmland and farmland soils areas would continue in the project area under this alternative. The approved Frierson, Pearlington Dirt Phase I, and Pearlington Dirt Phase II contractor-furnished borrow areas are also located in Hancock County (figure 8). These sites do not contain farmland and farmland soils. It is reasonably foreseeable that these sites could be used for construction of the HSDRRS, and their use would cumulatively impact forested farmland and farmland soils in the vicinity.

Cumulative impacts to farmland and farmland soils would continue in the project area under this alternative. Other activities in Hancock County and southeastern Louisiana have and will continue to change land use patterns, contributing to the cumulative loss of farmland and farmland soils in the project area. Farmland in the region 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 farmland and farmland soils in the region.

- Contreras Dirt (Cells E, F, and Z)

Direct Impacts
Use of the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area would directly impact approximately 264 acres of prime farmland soils. The proposed contractor-furnished borrow area would be cleared and excavated, which would result in a direct permanent loss of prime farmland soils. Any additional potential direct impacts to farmland and farmland soils would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Indirect Impacts
No indirect impacts to farmland and farmland soils at the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area would occur due to the proposed action. Any additional potential indirect impacts to farmland and farmland soils would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Cumulative Impacts
Use of the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area would contribute to the cumulative loss of farmland soils in the region. Any additional potential cumulative impacts to farmland and farmland

soils would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Cumulative impacts to farmland and farmland soils areas would continue in the project area under this alternative. There are several potential borrow areas in St. Bernard Parish that were approved or are being investigated for construction of the HSDRRS (figure 9). The approved Dockville, 910 Bayou Road, 1418/1420 Bayou Road, 1572 Bayou Road, 4001 Florissant Highway, Gatien Navy, Sylvia Guillot, DK Aggregates, 1025 Florissant Highway, Acosta, and Johnson/Crovetto sites are located within the parish. All but the Dockville site contain prime farmland soils. It is unknown where or not prime farmland soils are located on proposed sites in the vicinity. It is reasonably foreseeable that the approved sites would be used for construction of the HSDRRS, and use of the Dockville site would cumulatively impact upland areas in St. Bernard Parish.

Other activities in St. Bernard Parish have and would continue to change land use patterns, contributing to the cumulative loss of farmland in the project area. Most of the area of St. Bernard Parish was historically marsh and cypress. A majority of the parish's population is concentrated along natural levees associated with the Mississippi River, Bayou La Loutre, and Bayou Terre aux Boeuf because of their relatively high elevation. These natural levees were historically dominated by upland forests. Over the past 300 years portions of the parish were leveed and/or developed, including the project site. Land was converted for residential, commercial, and industrial uses, including farming. Current land uses of the parish mirror historical ones; most of the population of St. Bernard Parish is found on natural levees, and the parish is still dominated by marsh, cypress, and open water.

Farmland and farmland soils in the project area 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 and farmland soils in the region.

3.2.5 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. Colonial nesting wading birds (including herons, egrets, and Ibis), seabirds/water-birds (including terns, gulls, black skimmers, and brown pelicans) and bald eagles have the potential to nest in the proposed project area. 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.

- *Big Shake*
  The proposed Big Shake contractor-furnished borrow area is the site of active farmland, and has little or no habitat value for wildlife. Impacts to farmland and farmland soils are discussed in section 3.2.4.

- *Henley*
  The proposed Henley contractor-furnished borrow area is currently being used as pastureland, and has some habitat value for wildlife species typical of the area.

- *Contreras Dirt (Cells E, F, and Z)*
  All of Cells E, F, and Z of the Contreras Dirt contractor-furnished borrow area are dominated by non-jurisdictional BLH, which is of relatively high habitat value for wildlife species typical of the area. Impacts to this habitat are discussed in section 3.2.2.

Discussion of Impacts

No Action

- Big Shake

  Direct Impacts
  Under the no action alternative, no direct impacts to wildlife or wildlife habitat at the proposed Big Shake site would occur due to the proposed action. The proposed site would not be used as a contractor-furnished borrow area. Any potential direct impacts to wildlife and wildlife habitat would depend on what the landowner decides to do with the proposed contractor-furnished borrow area.

  Indirect Impacts
  Under the no action alternative, no indirect impacts to wildlife or wildlife habitat at the proposed Big Shake site would occur due to the proposed action. The proposed site would not be used as a contractor-furnished borrow area. Any potential indirect impacts to wildlife and wildlife habitat would depend on what the landowner decides to do with the proposed 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 Big Shake site would not be used as a contractor-furnished borrow area. Any potential cumulative impacts to wildlife and wildlife habitat would depend on what the landowner decides to do with the proposed contractor-furnished borrow area. 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, IER #28, and IER #29, or other sources yet to be identified.

Cumulative impacts to wildlife and wildlife habitat would continue in the project area under the no action alternative. The proposed action is the only potential borrow area in St. James Parish that has been approved or is being investigated for use on the HSDRRS. Wildlife or wildlife habitat would not be cumulatively impacted in St. James because of HSDRRS borrow activity or construction of the HSDRRS.

Other activities in the vicinity have and will continue to change land use patterns, contributing to the cumulative loss of wildlife and wildlife 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-3213 is presently under cultivation. Recent residential and commercial developmental pressures may contribute to a decline in remaining wildlife habitat in the vicinity.

Wildlife habitat in the project area 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 wildlife habitat in the region.

- *Henley*

Direct Impacts
Under the no action alternative, no direct impacts to wildlife or wildlife habitat would occur at the proposed Henley site due to the proposed action. The proposed site would not be used as a contractor-furnished borrow area. Any potential direct impacts to wildlife and wildlife habitat would depend on what the landowner decides to do with the proposed contractor-furnished borrow area.

Indirect Impacts
Under the no action alternative, no indirect impacts to wildlife or wildlife habitat would occur due to the proposed action. The proposed site would not be used as a contractor-furnished borrow area. Any potential indirect impacts to wildlife and wildlife habitat would depend on what the landowner decides to do with the proposed contractor-furnished borrow area.

Cumulative Impacts
Under the no action alternative, no cumulative impacts to wildlife or wildlife habitat would occur due to the proposed action. The proposed site would not be used as a contractor-furnished borrow area. Any potential cumulative impacts to wildlife and wildlife habitat would depend on what the landowner decides to do with the proposed contractor-furnished borrow area. 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, IER #28, and IER #29, or other sources yet to be identified.

The approved Frierson, Pearlington Dirt Phase I, and Pearlington Dirt Phase II contractor-furnished borrow areas are also located in Hancock County (figure 8). These sites contain lolloby pine plantations, which provide habitat for wildlife. It is reasonably foreseeable that these sites could be used for construction of the HSDRRS, and their use would cumulatively impact wildlife and wildlife habitat in the vicinity.

Cumulative impacts to wildlife and wildlife habitat would continue in the project area under the no action alternative. Other activities in Hancock County and southeastern Louisiana have and will continue to change land use patterns, contributing to the cumulative loss of wildlife habitat in the project area. Wildlife habitat in the region 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 wildlife and wildlife habitat in the region.

- *Contreras Dirt (Cells E, F, & Z)*

Direct Impacts
Under the no action alternative, no direct impacts to wildlife or wildlife habitat would occur at the proposed Contreras Dirt (Cells E, F, and Z) site. The proposed site would not be used as a contractor-furnished borrow area. Any potential direct impacts to wildlife and wildlife habitat would depend on what the landowner decides to do with the proposed contractor-furnished borrow area.

Indirect Impacts
Under the no action alternative, no indirect impacts to wildlife or wildlife habitat at the proposed site would occur due to the proposed action. The proposed site would not be used as a contractor-furnished borrow area. Any potential indirect impacts to wildlife and wildlife habitat would depend on what the landowner decides to do with the proposed contractor-furnished borrow area.

Cumulative Impacts
No cumulative impacts to wildlife or wildlife habitat at the proposed site would occur under the no action alternative. The proposed site would not be used as a contractor-furnished borrow area. Any potential cumulative impacts to wildlife and wildlife habitat would depend on what the landowner decides to do with the proposed contractor-furnished borrow area. 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, IER #28, and IER #29, or other sources yet to be identified.

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. Bernard Parish that were approved or are being investigated for construction of the HSDRRS (figure 9). The approved Dockville, 910 Bayou Road, 1418/1420 Bayou Road, 1572 Bayou Road, 4001 Florissant Highway, Gatien Navy, Sylvia Guillot, DK Aggregates, 1025 Florissant Highway, Acosta, and Johnson/Crovetto sites are located within the parish. Most of these sites, as well as proposed sites in the parish, provide habitat for wildlife. It is reasonably foreseeable that the approved sites would be used for construction of the HSDRRS, and their use would cumulatively impact wildlife and wildlife habitat in St. Bernard Parish.

Other activities in St. Bernard Parish have and would continue to change land use patterns, contributing to the cumulative loss of wildlife and their habitat in the project area. Most of the area of St. Bernard Parish was historically marsh and cypress that provided habitat for a variety of wildlife species. A majority of the parish's population is concentrated along natural levees associated with the Mississippi River, Bayou La Loutre, and Bayou Terre aux Boeuf because of their relatively high elevation. These natural levees were historically dominated by upland forests that served as wildlife habitat. Over the past 300 years portions of the parish were leveed and/or developed, including the project site. Land was converted for residential, commercial, and industrial uses. Current land uses of the parish mirror historical ones; most of the population of St. Bernard Parish is found on natural levees, and the parish is still dominated by marsh, cypress, and open water.

The effects of Hurricane Katrina on St. Bernard were extensive, with most of the parish heavily flooded (CRS, 2005). As of June 2008 less than 50 percent of pre-Katrina residences were active (GNOCDC, 2009). The parish experienced an increase in population growth during the latter part of 2008, a trend that is expected to continue in the near future (GNOCDC, 2009). 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 St. Bernard Parish 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 St. Bernard, as well as most of the New Orleans metropolitan area.

Wildlife habitat in the project area 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 wildlife and wildlife habitat in the region.

Proposed Action

Colonial nesting wading birds (including herons, egrets, and Ibis), seabirds/water-birds (including terns, gulls, black skimmers, and brown pelicans) and bald eagles have the potential to nest in the proposed project area. The nesting birds and their nests would not be disturbed or destroyed. The CEMVN can provide additional information on bird species and known nesting sites to construction contractors, and should be contacted if any area within 650 feet of the construction zone would be disturbed.

- Big Shake

  Direct Impacts

  With implementation of the proposed action, direct impacts from wildlife displacement would occur when the proposed Big Shake contractor-furnished borrow area is cleared and excavated. Non-mobile wildlife would be destroyed. Any additional potential direct impacts to wildlife and wildlife habitat would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Indirect Impacts
The excavated borrow area may be converted to ponds and small lakes, which could add to wildlife habitat in the vicinity. Aquatic vegetation may colonize the shallow littoral edge of the area, and wildlife (alligators, raccoons, wading birds, and ducks) adapted to an aquatic environment would be expected to expand their range into the new waterbodies. A variety of plant species may colonize adjacent to the water that could provide important wildlife habitat utilized for nesting, feeding, and cover. Any areas that remain dry would be expected to be colonized by vegetation and woody plants, which could provide habitat to wildlife. The dense vegetation could attract a variety of wildlife including birds, reptiles, amphibians, and small mammals. While the excavated borrow area has the potential to become a mosquito breeding area, the amount of surface acres of water is considered to be small compared to surrounding wetlands. However, local parish mosquito control programs, not the CEMVN, are responsible for mosquito control.

Any additional potential indirect impacts to wildlife and wildlife habitat would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Cumulative Impacts
Use of the proposed Big Shake site 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. Any additional potential cumulative impacts to wildlife and wildlife habitat would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Cumulative impacts to wildlife and wildlife habitat would continue in the project area under this alternative. The proposed action is the only potential borrow area in St. James Parish that has been approved or is being investigated for use on the HSDRRS. Wildlife or wildlife habitat would not be cumulatively impacted in St. James because of HSDRRS borrow activity or construction of the HSDRRS.

Other activities in the vicinity have and will continue to change land use patterns, contributing to the cumulative loss of wildlife and wildlife 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-3213 is presently under cultivation. Recent residential and commercial developmental pressures may contribute to a decline in remaining wildlife habitat in the vicinity.

Wildlife habitat in the project area 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 wildlife habitat in the region.

- *Henley*

Direct Impacts
With implementation of the proposed action, direct impacts from wildlife displacement would occur when the proposed Henley contractor-furnished borrow area is cleared and excavated. Non-mobile wildlife would be destroyed. Any

additional potential direct impacts to wildlife and wildlife habitat would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Indirect Impacts
The excavated borrow area may be converted to ponds and small lakes, which could add to wildlife habitat in the vicinity. Aquatic vegetation may colonize the shallow littoral edge of the area, and wildlife (alligators, raccoons, wading birds, and ducks) adapted to an aquatic environment would be expected to expand their range into the new waterbodies. A variety of plant species may colonize adjacent to the water that could provide important wildlife habitat utilized for nesting, feeding, and cover. Any areas that remain dry would be expected to be colonized by vegetation and woody plants, which could provide habitat to wildlife. The dense vegetation could attract a variety of wildlife including birds, reptiles, amphibians, and small mammals. While the excavated borrow area has the potential to become a mosquito breeding area, the amount of surface acres of water is considered to be small compared to surrounding wetlands. However, local parish mosquito control programs, not the CEMVN, are responsible for mosquito control.

Any additional potential indirect impacts to wildlife and wildlife habitat would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Cumulative Impacts
Use of the proposed Henley site 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. Any additional potential cumulative impacts to wildlife and wildlife habitat would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

The approved Frierson, Pearlington Dirt Phase I, and Pearlington Dirt Phase II contractor-furnished borrow areas are also located in Hancock County (figure 8). These sites contain lolloby pine plantations, which provide habitat for wildlife. It is reasonably foreseeable that these sites could be used for construction of the HSDRRS, and their use would cumulatively impact wildlife and wildlife habitat in the vicinity.

Cumulative impacts to wildlife and wildlife habitat would continue in the project area under the no action alternative. Other activities in Hancock County and southeastern Louisiana have and will continue to change land use patterns, contributing to the cumulative loss of wildlife habitat in the project area. Wildlife habitat in the region 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 wildlife and wildlife habitat in the region.

- *Contreras Dirt (Cells E, F, & Z)*

Direct Impacts
With implementation of the proposed action, direct impacts from wildlife displacement would occur when the proposed Contreras Dirt (Cells E, F, and Z)

contractor-furnished borrow area is cleared and excavated. Non-mobile wildlife would be destroyed. Any additional potential direct impacts to wildlife and wildlife habitat would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Indirect Impacts

The excavated borrow area may be converted to ponds and small lakes, which could add to wildlife habitat in the vicinity. Aquatic vegetation may colonize the shallow littoral edge of the areas, and wildlife (alligators, raccoons, wading birds, and ducks) adapted to an aquatic environment, would be expected to expand their range into the new waterbodies. A variety of plant species may colonize adjacent to the water that could provide important wildlife habitat utilized for nesting, feeding, and cover. Any areas that remain dry would be expected to be colonized by vegetation and woody plants, which could provide habitat to wildlife. The dense vegetation could attract a variety of wildlife including birds, reptiles, amphibians, and small mammals. While the excavated borrow area has the potential to become a mosquito breeding area, the amount of surface acres of water is considered to be small compared to surrounding wetlands. However, local parish mosquito control programs, not the CEMVN, are responsible for mosquito control.

Any additional potential indirect impacts to wildlife and wildlife habitat would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Cumulative Impacts

Use of the proposed Contreras Dirt (Cells E, F, and Z) 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. Any additional potential cumulative impacts to wildlife and wildlife habitat would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

There are several potential borrow areas in St. Bernard Parish that were approved or are being investigated for construction of the HSDRRS (figure 9). The approved Dockville, 910 Bayou Road, 1418/1420 Bayou Road, 1572 Bayou Road, 4001 Florissant Highway, Gatien Navy, Sylvia Guillot, DK Aggregates, 1025 Florissant Highway, Acosta, and Johnson/Crovetto sites are located within the parish. Most of these sites, as well as proposed sites in the parish, provide habitat for wildlife. It is reasonably foreseeable that the approved sites would be used for construction of the HSDRRS, and their use would cumulatively impact wildlife and wildlife habitat in St. Bernard Parish.

Other activities in St. Bernard Parish have and would continue to change land use patterns, contributing to the cumulative loss of wildlife and their habitat in the project area. Most of the area of St. Bernard Parish was historically marsh and cypress that provided habitat for a variety of wildlife species. A majority of the parish's population is concentrated along natural levees associated with the Mississippi River, Bayou La Loutre, and Bayou Terre aux Boeuf because of their relatively high elevation. These natural levees were historically dominated by upland forests that served as wildlife habitat. Over the past 300 years portions of the parish were leveed and/or developed, including the project site. Land was converted for residential, commercial, and industrial uses. Current land uses of

the parish mirror historical ones; most of the population of St. Bernard Parish is found on natural levees, and the parish is still dominated by marsh, cypress, and open water.

The effects of Hurricane Katrina on St. Bernard were extensive, with most of the parish heavily flooded (CRS, 2005). As of June 2008 less than 50 percent of pre-Katrina residences were active (GNOCDC, 2009). The parish experienced an increase in population growth during the latter part of 2008, a trend that is expected to continue in the near future (GNOCDC, 2009). 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 St. Bernard Parish 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 St. Bernard, as well as most of the New Orleans metropolitan area.

Wildlife habitat in the project area 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 wildlife and wildlife habitat in the region.

3.2.6 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 for 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 Big Shake, Henley, and Contreras Dirt (Cells E, F, and Z) 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 Big Shake, Henley, and Contreras Dirt (Cells E, F, and Z) 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 Big Shake, Henley, and Contreras Dirt (Cells E, F, and Z) 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 Big Shake, Henley, and Contreras Dirt (Cells E, F, and Z) sites would not be used as contractor-furnished borrow areas. 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, IER #28, and IER #29, or other sources yet to be identified.

Approved government-furnished and contractor-furnished borrow areas could be used for construction of the HSDRRS. Use of these approved sites would not contribute to the loss of T&E species or their critical habitat in the project area because none 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 (table 2).

Table 2: USFWS T&E Concurrence

Proposed Borrow Area	USFWS Concurrence
Big Shake	22 July 2008
Henley	22 July 2008
Contreras Dirt	12 June 2008

- *All Sites*

Direct Impacts
No direct impacts to T&E species or their critical habitat would occur with excavation of the proposed Big Shake, Henley, and Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow areas. The USFWS concurred with determinations that implementation of the proposed action would not adversely affect any T&E species or their critical habitat in their letters (table 2).

Indirect Impacts
No indirect impacts to T&E species or their critical habitat would occur with excavation of the proposed Big Shake, Henley, and Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow areas.

Cumulative Impacts
Use of the proposed Big Shake, Henley, and Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow areas would not contribute to the loss of T&E species

or their critical habitat in the project area because the proposed sites do 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.

3.2.7 Cultural Resources

Existing Conditions

The level of cultural resource investigations for each proposed contractor-furnished borrow area depends on factors such as current and past land use, geomorphology, presence of known sites, and the probability of unknown sites located within the areas of potential effect (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 (NRHP). Site identification (Phase I) cultural resource investigations were conducted for the three proposed contractor-furnished borrow areas.

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 Federally recognized Indian Tribes that have an interest in the region, and in some cases the Advisory Council on Historic Preservation and other consulting parties. Only sites, buildings, structures, or objects determined eligible for, or listed on, the NRHP are afforded the safeguards of the National Historic Preservation Act. Table 1 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 with an APE adjustment to avoid two significant archaeological sites, no known sites eligible for, or listed on, the NRHP exist within the APE of each proposed contractor-furnished borrow area. No historic properties would be adversely 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 would 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 contractor-furnished 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 natural 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.

- *Big Shake*
  The proposed Big Shake contractor-furnished borrow area is primarily a sugarcane field and the ground in much of the northern portion is saturated and exhibits areas of standing water. Due to the proximity of the Mississippi River and the historic Hester Plantation (16SJ11), the southern portion of the site is considered to have a high probability for containing archaeological resources. The remainder of the site is marginally lower in elevation, contains poorly drained soils and is a less desirable location for human habitation. Archaeological survey of the proposed Big Shake contractor-furnished borrow area (Nolan et al. 2008) failed to locate any cultural resources within the APE.

- *Henley*
  The proposed Henley contractor-furnished borrow area is primarily pasture land with clear-cut and adjacent wetland areas. Areas exhibiting a high potential for archaeological sites are located on relatively high ground where sandy or sandy loam soils are present along freshwater drainage areas, such as creeks and springheads. Low probability areas are found in lower floodplain locations, terrain removed from consistent freshwater sources and obviously disturbed areas. Archaeological survey of the proposed Henley contractor-furnished borrow area (Curren 2008) failed to locate any cultural resources within the APE.

- *Contreras Dirt (Cells E, F and Z)*
  The proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area primarily contains hardwoods and deciduous trees with dense undergrowth and sections of pasture land. High probability areas for archaeological sites are located on the relatively high natural levee deposits along Bayou Terre aux Boeufs and on other relatively high, isolated areas adjacent to smaller waterways. Brackish marsh and previously disturbed areas in the remainder of the borrow area exhibit a low potential for cultural resources.

  Plantations flourished along Bayou Terre aux Boeufs during the 19th century. Plantation organization generally included parcels with bayou frontage and deep extensions into the backswamps and marshes that were transformed to agricultural fields, particularly for sugar cane production. Plantation homes were established along the bayou's natural levee and 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.

  Beginning in the early 19th century, much of the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area was owned by Jacques Toutant Beauregard and later by his son Confederate General Pierre Gustave Toutant Beauregard. The property was named Contreras Plantation in honor of one of P.G.T. Beauregard's victories during the 1846-1848 Mexican War. Contreras Plantation was used for the production and granulation of sugar cane during the 19th and early 20th centuries. Associated structures included a sugar mill, a row of slave quarters, and an overseer's house. These structures were located near the principal house and on both sides of Bayou Terre aux Boeufs. No intact

structures remain in the proposed contractor-furnished borrow area, with the exception of a concrete step-pyramid memorial to General Beauregard and his family that was erected on or near the site of the Contreras Plantation house in 1962.

A series of individual Phase 1 archaeological surveys were conducted within the areas now designated Cells E, F, and Z (Eberwine et al. 2009, Handly et al. 2009, Heller et al. 2008). The results of these surveys are summarized below.

- *Cell E*
  Phase 1 field investigations within Cell E identified four newly recorded archaeological sites and four non-site cultural resources loci within the boundaries of Cell E (Eberwine 2009). Site 16SB162 is a multiple component historic site exhibiting artifacts dating from the 18th, 19th, and 20th centuries. Subsurface shovel tests indicate site deposits are mixed and lack both integrity and substantive research potential. The second site, 16SB163, is a low density surface scatter of 20th century artifacts. The site does not contain intact deposits and has limited to no research potential. Researchers conclude sites 16SB162 and 16SB163 are not eligible for listing on the NRHP and no further testing of these sites is recommended.

  Site 16SB164 represents the archaeological remains of Contreras Plantation, the family home of Confederate General P.G.T. Beauregard, a transcendent figure in American Civil War history. The site is located on both sides of Bayou Road and is marked by a concrete monument in a small park like area. Researchers identified four dense artifact scatters that appeared to be associated with Contreras Plantation. Three of these scatters are north of Bayou Road in the vicinity of Cell E. Investigations within the boundaries of one of these scatters recovered 110 historic period artifacts and intact subsurface cultural deposits. The archaeological deposits associated with Site 16SB164 are considered eligible for listing on the NRHP under Criterion A, B and D (Eberwine 2009).

  Site 16SB165 lies along the natural levee of Bayou Terre aux Boeufs in an area covered with hardwoods and deciduous trees along the northern edge of Bayou Road and is characterized as a low density surface and shallow subsurface scatter of historic period artifacts. Most of the artifacts dating from the late 18th and early 19th centuries were found in buried deposits and appear to exhibit temporal clustering within the site boundary. Based on these findings, researchers believe the site is eligible for listing on the NRHP under Criterion D (Eberwine 2009).

  A 200 foot buffer zone that incorporates a 3:1 slope would be placed around sites 16SB164 and 16SB165 as a precautionary measure to avoid impacts to these sites.

  The four non-site cultural resources loci located within the boundaries of Cell E were identified by researchers as containing modern debris, an isolated find, or light density surface scatters. None of these non-site loci warranted archaeological site status, nor did they possess research potential. These loci are not eligible for listing on the NRHP and no additional testing or evaluation is recommended.

- *Cell F*
  Phase 1 field investigations within Cell F identified a single historic archaeological site (16SB157) and a single historic locus (B-02). In addition, a portion of previously recorded archaeological Site 16SB160, the abandoned New Orleans and Southern Railroad grade, crosses through the northern portion of the cell (Handly et al. 2009). Researchers found that sites 16SB157, 16SB160, and locus B-02 did not possess the qualities necessary for listing on the NRHP (Handly et al. 2009, Heller et al. 2008). No further testing or evaluation of these cultural resources is recommended.

- *Cell Z*
  Two Phase I cultural resources investigations were conducted within the boundaries now defined as Cell Z (Eberwine et al. 2009, Handly 2009). Researchers visually inspected and systematically shovel tested the proposed contractor-furnished borrow area for the presence of cultural material and/or evidence of intact cultural deposits. Two newly recorded archaeological sites and a single non-site cultural resources locus were identified within the boundaries of Cell Z.

  Researchers describe Site 16SB158 as a low density surface and shallow subsurface scatter of brick fragments. No additional cultural material was observed or collected from the site. The absence of temporally diagnostic artifacts and intact deposits indicates the site lacks integrity and does not possess research potential. The site is not eligible for listing on the NRHP and no further testing or evaluation of this site is recommended.

  The artifacts present at Site 16SB159 likely represents a small late nineteenth to twentieth century refuse deposit. The site does not contain intact subsurface deposits and researchers believe the site does not possess research potential. The site is not eligible for listing on the NRHP and no further examination of 16SB159 is recommended.

  A single non-site cultural resources locus was identified within the south-central portion of Cell Z and only a single isolated Albany slip stoneware ceramic sherd was found. No additional artifacts or intact cultural resources deposits were identified. No additional testing or evaluation of Locus E-04-02 is warranted.

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 would be anticipated.

Cumulative Impacts
Under the no action alternative, the proposed Big Shake, Henley, and Contreras Dirt borrow sites would not be used and would not contribute to cumulative impacts on cultural resources. 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, IER #28, and IER #29, or other sources yet to be identified.

Proposed Action
The results of recent cultural resources investigations revealed that two historic properties (16SB164 and 16SB165) eligible for listing on the NRHP exist within the proposed Contreras Dirt contractor-furnished borrow area and could be affected by the proposed actions. However, measures would be taken to avoid impacts to these historic properties by placing a "no work area" buffer zone around each historic property. Consequently, the proposed excavation of borrow material from these three proposed contractor-furnished borrow areas would have no adverse effect on historic properties.

- *Big Shake*

Direct Impacts
All available information indicates that it is highly unlikely that cultural resources would be impacted by excavation of the proposed Big Shake 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 a cultural resource survey has been completed in order to identify cultural resources within the proposed Big Shake contractor-furnished borrow area and that survey did not reveal the existence of any known historic properties that are eligible for the NRHP 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 and Indian Tribes are notified.

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

Cumulative Impacts
If the proposed Big Shake 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. A cultural resource survey was completed for the proposed Big Shake site and that survey did not reveal the existence of any known historic properties that are eligible for the NRHP within the proposed borrow site.

- *Henley*

  Direct Impacts
  All available information indicates that it is highly unlikely that cultural resources would be impacted by excavation of the proposed Henley contractor-furnished borrow area. A cultural resource survey was completed for the proposed Henley site and that survey did not reveal the existence of any known historic properties that are eligible for the NRHP 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 a cultural resource survey has 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 and Indian Tribes are notified.

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

  Cumulative Impacts
  If the proposed Henley 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. A cultural resource survey was completed for the proposed Henley site and that survey did not reveal the existence of any known historic properties that are eligible for the NRHP within the proposed borrow site.

- *Contreras Dirt (Cells E, F and Z)*

  Direct Impacts
  All available information indicates that it is highly unlikely that cultural resources would be impacted by excavation of the proposed Contreras Dirt (Cells E, F and Z) contractor-furnished borrow area. Cultural resource surveys were completed for the proposed Contreras Dirt (Cells E, F and Z) site, and those surveys did reveal the existence of two historic properties within the proposed borrow site that are NRHP eligible. However, impacts to these two historic properties (sites 16SB164 and 16SB165) would be avoided by placing a 200 foot-wide "no work zone" with 3:1 slope around each site. Consequently, the proposed excavation of borrow material from this contractor-furnished borrow area would have no adverse effect on these historic properties. The SHPO and Indian Tribes have concurred with the CEMVN's "no adverse effect" finding (table 3). 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 and Indian Tribes are notified.

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

Cumulative Impacts
If the proposed Contreras Dirt (Cells E, F and Z) sites 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 Contreras Dirt (Cells E, F and Z) sites and those surveys did reveal the existence of two historic properties within the proposed borrow site that are NRHP eligible. However, measures would be taken to avoid impacts to these historic properties by placing a 200 foot-wide "no work zone" buffer area with 3:1 side slopes around each of the historic properties.

3.2.8 Recreational Resources

Existing Conditions
There are no recreational resources in the immediate vicinity of the proposed contractor-furnished borrow areas. The proposed Henley contractor-furnished borrow area includes active private borrow sites. Big Shake borrow site is agricultural as is the surrounding land and the Contreras Dirt (Cells E, F, and Z) site is unmaintained, forested land.

Discussion of Impacts

No Action

- *All Sites*

Direct Impacts
Under the no action alternative, no direct impacts to recreational resources would occur. The proposed sites would not be used as contractor-furnished borrow areas. Any potential direct impacts to recreational resources would depend on what the landowners decide to do with the proposed contractor-furnished borrow areas.

Indirect Impacts
Under the no action alternative, no indirect impacts to recreational resources would occur. The proposed sites would not be used as contractor-furnished borrow areas. Any potential direct impacts to recreational resources would depend on what the landowners decide to do with the proposed contractor-furnished borrow areas.

Table 3. Summary of Section 106 of NHPA correspondence

Agency/Tribe	Big Shake		Henley Borrow		Contreras Dirt Cell E		Contreras Dirt Cell F		Contreras Dirt Cell Z		Contreras Dirt Cell Z	
	CEMVN Letter Date	*Response Date*	*CEMVN Letter Date*	*Response Date*	*CEMVN Letter Date*	*Response Date*	*CEMVN Letter Date*	*Response Date*	*CEMVN Letter Date*	*Response Date*	*CEMVN Letter Date*	*Response Date*
SHPO	5/20/2009	6/15/2009	5/28/2009	6/24/2009	5/8/2009	6/10/2009	5/18/2009	7/10/2009	5/8/2009	6/10/2009	5/19/2009	7/10/2009
Chitimacha Tribe of Louisiana	5/20/2009	NR	5/28/2009	NR	5/8/2009	NR	5/18/2009	NR	5/8/2009	NR	5/19/2009	NR
Mississippi Band of Choctaw Indians	5/20/2009	NR	5/28/2009	NR	5/8/2009	NR	5/18/2009	NR	5/8/2009	NR	5/19/2009	NR
Choctaw Nation of Oklahoma	5/20/2009	NR	5/28/2009	NR	5/8/2009	5/26/2009	5/18/2009	NR	5/8/2009	5/26/2009	5/19/2009	NR
Alabama Coushatta Tribe of TX	5/20/2009	6/15/2009	5/28/2009	NR	5/8/2009	NR	5/18/2009	6/15/2009	5/8/2009	NR	5/19/2009	6/15/2009
Caddo Nation of OK	5/20/2009	5/26/2009	5/28/2009	NR	5/8/2009	5/26/2009	5/18/2009	5/19/2009	5/8/2009	5/26/2009	5/19/2009	5/19/2009
Coushatta Tribe of LA	5/20/2009	NR	5/28/2009	NR	5/8/2009	NR	5/18/2009	NR	5/8/2009	NR	5/19/2009	NR
Jena Band of Choctaw Indians	5/20/2009	NR	5/28/2009	NR	5/8/2009	NR	5/18/2009	NR	5/8/2009	NR	5/19/2009	NR
Quapaw Tribe of OK	5/20/2009	NR	5/28/2009	NR	5/8/2009	5/12/2009	5/18/2009	NR	5/8/2009	5/12/2009	5/19/2009	5/19/2009
Seminole Nation of OK	5/20/2009	NR	5/28/2009	NR	5/8/2009	NR	5/18/2009	6/17/2009	5/8/2009	NR	5/19/2009	NR
Seminole Tribe of FL	5/20/2009	6/17/2009	5/28/2009	NR	5/8/2009	5/27/2009	5/18/2009	NR	5/8/2009	5/27/2009	5/19/2009	6/17/2009
Tunica-Biloxi Tribe of LA	5/20/2009	NR	5/28/2009	NR	5/8/2009	NR	5/18/2009	NR	5/8/2009	NR	5/19/2009	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).

Cumulative Impacts
Under the no action alternative, there are no foreseen cumulative impacts to recreational resources. The three sites would remain intact in their current state. 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 expand in relation to population growth. 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, IER #28, and IER #29, or other sources yet to be identified.

Proposed Action

- *All Sites*

Direct Impacts
No direct impacts to recreational resources would occur with implementation of the proposed action. Any potential direct impacts to recreational resources would depend on what the landowners decide to do with the proposed contractor-furnished borrow areas following excavation.

Indirect Impacts
No indirect impacts to recreational resources would occur with implementation of the proposed action. Any potential indirect impacts to recreational resources would depend on what the landowners decide to do with the proposed contractor-furnished borrow areas following excavation.

Cumulative Impacts
Excavation of the proposed contractor-furnished borrow areas 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 three potential contractor-furnished borrow areas 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 Henley and Big Shake contractor-furnished borrow areas are 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.

3.2.9 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).

- *Big Shake*
  Noise levels at and surrounding the proposed Big Shake site are variable depending on the time of day and climatic conditions. In the vicinity of the site are farms, undeveloped forest, the Mississippi River, and residential developments. The site is located north of LA-44 and south of LA-3125, both which are 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 are residential areas to the south and east of the site. Noise associated with residential areas would be expected to come mostly 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.

- *Henley*
  Noise levels at and surrounding the proposed Henley site are variable depending on the time of day and climatic conditions. In the vicinity of the site are undeveloped forest, farms, and residential developments to the east. There are active private borrow sites in the vicinity of the proposed site. The site is located south of Kiln Picayune Road, 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 approximately a half mile to the east of the site. Noise associated with residential areas would be expected to come from vehicular traffic.

  Local farms and forested areas are not expected to greatly contribute to noise levels in the vicinity.

- *Contreras Dirt (Cells E, F, and Z)*
  Noise levels at and surrounding the Contreras Dirt (Cells E, F, and Z) site are variable depending on the time of day and climatic conditions. In the vicinity of the site is undeveloped forest, farms, and residential developments to the west. The site is located south of LA-46 and is intersected by Bayou Road (Old LA-46), roadways that are 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 to the west of the site. This includes homes on Gnell Drive and Bayou Road that are approximately 200 feet from the proposed site. Noise associated with residential areas would be expected to come from vehicular traffic.

  Local farms and forested areas 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 Big Shake, Henley, and Contreras Dirt (Cells E, F, and Z) sites would not be used as contractor-furnished borrow areas. Any potential direct impacts to noise quality would depend on what the landowners decide to do with the proposed 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. Any potential indirect impacts to noise quality would depend on what the landowners decide to do with the proposed 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. Any potential cumulative impacts to noise quality would depend on what the landowners decide to do with the proposed contractor-furnished borrow areas. 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, IER #28, and IER #29, or other sources yet to be identified.

Noise levels would be cumulatively impacted by existing and reasonably foreseeable activity in the vicinity of the proposed sites. 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 contractor-furnished borrow areas.

Table 4 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 4: 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 hours to 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.

Any additional potential direct impacts to noise quality would depend on what the landowners decide to do with the proposed contractor-furnished borrow areas following excavation.

Indirect Impacts

No indirect impacts to noise quality would occur because of excavation of the proposed Big Shake, Henley, and Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow areas. Any potential indirect impacts to noise quality would depend on what the landowners decide to do with the proposed contractor-furnished borrow areas following excavation.

Cumulative Impacts

Excavation of the proposed Big Shake, Henley, and Contreras Dirt (Cells E, F, and Z) 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. Any additional potential cumulative impacts to noise quality would depend on what the landowners decide to do with the proposed contractor-furnished borrow areas following excavation.

Cumulative noise impacts will be further discussed in the CED.

Approved 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.

3.2.10 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 (NO_2), sulfur dioxide (SO_2), lead (Pb), ozone (O_3), particulate matter less than 10 microns in diameter (PM_{10}) 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 5.

Table 5: National Ambient Air Quality Standards

Pollutant and Averaging Time	Primary Standard		Secondary Standard	
	µg/m³	**parts per million (ppm)**	**µg/m³**	**ppm**
CO *8-hour concentration* *1-hour concentration*	10,000[1] 40,000[1]	9[1] 35[1]	N/A	N/A
NO_2 *Annual arithmetic mean*	100	0.053	same as primary standard	
SO_2 *Annual arithmetic mean* *24-hour concentration* *3-hour concentration*	80 365[1] -	0.03 0.14[1] -	- - 1300[1]	- - 0.50[1]
Pb *Quarterly arithmetic mean*	1.5	-	same as primary standard	
O_3 *8-hour concentration*	157	0.08[2]	same as primary standard	
PM_{10} *24-hour maximum*	150[1]	-	same as primary standard	
$PM_{2.5}$ *Annual arithmetic mean* *24-hour maximum*	15[3] 35[4]	- -	same as primary standard	

[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 and county the proposed action may occur in- St. Bernard, St. James Parish, and Hancock County- are currently in attainment of all NAAQS (USEPA, 2009).

Discussion of Impacts

No Action

- *Big Shake*

Direct Impacts
Under the no action alternative, no direct impacts to air quality at the proposed Big Shake contractor-furnished borrow area would occur from the proposed action. The proposed site would not be used as a contractor-furnished borrow area. Any potential direct impacts to air quality would depend on what the landowner decides to do with the proposed contractor-furnished borrow area.

Indirect Impacts
Under the no action alternative, no indirect impacts to air quality at the proposed Big Shake contractor-furnished borrow area would occur from the proposed action. The proposed Big Shake site would not be used as a contractor-furnished borrow area. Any potential indirect impacts to air quality would depend on what the landowner decides to do with the proposed contractor-furnished borrow area.

Cumulative Impacts
Under the no action alternative, no cumulative impacts to air quality at the proposed Big Shake contractor-furnished borrow area would occur from the proposed action. The proposed Big Shake site would not be used as a contractor-furnished borrow area. Any potential indirect impacts to air quality would depend on what the landowner decides to do with the proposed contractor-furnished borrow area. 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, IER #28, and IER #29, or other sources yet to be identified.

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 proposed action is the only potential borrow area in St. James Parish that has been approved or is being investigated for use on the HSDRRS. Air quality would not be cumulatively impacted in St. James because of construction of the HSDRRS.

Air quality in the project area 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.

- *Henley*

Direct Impacts
Under the no action alternative, no direct impacts to air quality at the proposed Henley contractor-furnished borrow area would occur from the proposed action. The proposed site would not be used as a contractor-furnished borrow area. Any potential direct impacts to air quality would depend on what the landowner decides to do with the proposed contractor-furnished borrow area.

Indirect Impacts
Under the no action alternative, no indirect impacts to air quality at the proposed Henley contractor-furnished borrow area would occur from the proposed action. The proposed Henley site would not be used as a contractor-furnished borrow area. Any potential indirect impacts to air quality would depend on what the landowner decides to do with the proposed contractor-furnished borrow area.

Cumulative Impacts
Under the no action alternative, no cumulative impacts to air quality at the proposed Henley contractor-furnished borrow area would occur from the proposed action. The proposed Henley site would not be used as a contractor-furnished borrow area. Any potential cumulative impacts to air quality would depend on what the landowner decides to do with the proposed contractor-furnished borrow area. 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, IER #28, and IER #29, or other sources yet to be identified.

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 Frierson, Pearlington Dirt Phase I, and Pearlington Dirt Phase II contractor-furnished borrow areas are also located in Hancock County (figure 8). It is reasonably foreseeable that these sites could be used for construction of the HSDRRS, and their use would cumulatively impact air quality in the project area. However, these impacts would be temporary and would last through the excavation period.

Air quality in the project area 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.

- *Contreras Dirt (Cells E, F, & Z)*

Direct Impacts
Under the no action alternative, no direct impacts to air quality at the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area would occur from the proposed action. The proposed site would not be used as a contractor-furnished borrow area. Any potential direct impacts to air quality would depend on what the landowner decides to do with the proposed contractor-furnished borrow area.

Indirect Impacts
Under the no action alternative, no indirect impacts to air quality at the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area would occur from the proposed action. The proposed sites would not be used as a contractor-furnished borrow area. Any potential indirect impacts to air quality would depend on what the landowner decides to do with the proposed contractor-furnished borrow area.

Cumulative Impacts
Under the no action alternative, no cumulative impacts to air quality at the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area would occur from the proposed action. The proposed site would not be used as a contractor-furnished borrow area. Any potential cumulative impacts to air quality would depend on what the landowner decides to do with the proposed contractor-furnished borrow area. 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, IER #28, and IER #29, or other sources yet to be identified.

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. Bernard Parish that were approved or are being investigated for construction of the HSDRRS (figure 9). The approved Dockville, 910 Bayou Road, 1418/1420 Bayou Road, 1572 Bayou Road, 4001 Florissant Highway, Gatien Navy, Sylvia Guillot, DK Aggregates, 1025 Florissant Highway, Acosta, and Johnson/Crovetto sites are located within the parish. It is reasonably foreseeable that these sites could be used for construction of the HSDRRS, and their use would cumulatively impact air quality in the project area. In addition, construction of the HSDRRS in the vicinity would affect air quality. However, these impacts would be temporary and would last through the excavation period.

Air quality in the project area 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

- *Big Shake*

Direct Impacts
During excavation at the proposed Big Shake contractor-furnished borrow area, a temporary increase in air emissions would be 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 contractor-furnished borrow area 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 hours to 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 would depend on what the landowner decides to do with the site following excavation.

Indirect Impacts
Indirect impacts to air quality would not be expected to occur because of excavation of the proposed Big Shake contractor-furnished borrow area. Any potential indirect impacts to air quality would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Cumulative Impacts
Use of the proposed Big Shake 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 would depend on what the landowner decides to do with the 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.

Air quality in the project area 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.

- *Henley*

Direct Impacts
During excavation at the proposed Henley contractor-furnished borrow area, a temporary increase in air emissions would be 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 contractor-furnished borrow area 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 hours to 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 would depend on what the landowner decides to do with the site following excavation.

Indirect Impacts
Indirect impacts to air quality would not be expected to occur because of excavation of the proposed Henley contractor-furnished borrow area. Any potential indirect impacts to air quality would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Cumulative Impacts
Use of the proposed Henley 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 would depend on what the landowner decides to do with the 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 Frierson, Pearlington Dirt Phase I, and Pearlington Dirt Phase II contractor-furnished borrow areas are also located in Hancock County (figure 9). If these sites are used, they would also contribute to cumulative air quality impacts in Hancock County.

Air quality in the project area 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.

- *Contreras Dirt (Cells E, F, and Z)*

Direct Impacts
During excavation at the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area, a temporary increase in air emissions would 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 contractor-furnished borrow area 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 hours to 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 would depend on what the landowner decides to do with the site following excavation.

Indirect Impacts
Indirect impacts to air quality would not be expected to occur because of excavation of the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area. Any potential direct impacts to air quality would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Cumulative Impacts
Use of the proposed Contreras Dirt (Cells E, F, and Z) 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 would depend on what the landowner decides to do with the 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. Bernard Parish that were approved or are being investigated for construction of the HSDRRS (figure 9). The approved Dockville, 910 Bayou Road, 1418/1420 Bayou Road, 1572 Bayou

Road, 4001 Florissant Highway, Gatien Navy, Sylvia Guillot, DK Aggregates, 1025 Florissant Highway, Acosta, and Johnson/Crovetto sites are located within the parish. If these sites are used, they would also contribute to cumulative air quality impacts in St. Bernard Parish. In addition, construction of the HSDRRS in the vicinity would affect air quality. However, these impacts would be temporary and would last through the excavation period.

Air quality in the project area 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.

3.2.11 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

- *Big Shake*

Direct Impacts

Under the no action alternative, no direct impacts to water quality at the Big Shake contractor-furnished borrow area would occur from the proposed action. The proposed site would not be used as a contractor-furnished borrow area. Any potential direct impacts to water quality would depend on what the landowner decides to do with the proposed 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 Big Shake site would not be used as a contractor-furnished borrow area. Any potential indirect impacts to water quality would depend on what the landowner decides to do with the proposed 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 Big Shake site would not be used as a contractor-furnished borrow area. Any potential cumulative impacts to water quality would depend on what the landowner decides to do with the proposed contractor-furnished borrow area. 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, IER #28, and IER #29, or other sources yet to be identified.

Other activities in the vicinity have and will continue to affect water quality in the project area. Cumulative impacts to water quality would continue in the project area under this alternative. The proposed action is the only potential borrow area in St. James Parish that has been approved or is being investigated for use on the

HSDRRS. Water quality would not be cumulatively impacted in St. James because of HSDRRS borrow activity or construction of the HSDRRS.

Water quality in the project area 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.

- *Henley*

Direct Impacts
Under the no action alternative, no direct impacts to water quality at the Henley contractor-furnished borrow area would occur from the proposed action. The proposed site would not be used as a contractor-furnished borrow area. Any potential direct impacts to water quality would depend on what the landowner decides to do with the proposed 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 Henley site would not be used as a contractor-furnished borrow area. Any potential indirect impacts to water quality would depend on what the landowner decides to do with the proposed 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 Henley site would not be used as a contractor-furnished borrow area. Any potential direct cumulative to water quality would depend on what the landowner decides to do with the proposed contractor-furnished borrow area.

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, IER #28, and IER #29, or other sources yet to be identified.

Other activities in the vicinity have and will continue to affect water quality in the project area. The approved Frierson, Pearlington Dirt Phase I, and Pearlington Dirt Phase II contractor-furnished borrow areas are also located in Hancock County (figure 9). If these sites are used, they would also contribute to cumulative water quality impacts in Hancock County.

Water quality in the project area 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.

- *Contreras Dirt (Cells E, F, &Z)*

Direct Impacts

Under the no action alternative, no direct impacts to water quality at the Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area would occur from the proposed action. The proposed site would not be used as a contractor-furnished borrow area. Any potential direct impacts to water quality would depend on what the landowner decides to do with the proposed 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 Contreras Dirt (Cells E, F, and Z) site would not be used as a contractor-furnished borrow area. Any potential indirect impacts to water quality would depend on what the landowner decides to do with the proposed 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 Contreras Dirt (Cells E, F, and Z) sites would not be used as a contractor-furnished borrow area. Any potential cumulative impacts to water quality would depend on what the landowner decides to do with the proposed contractor-furnished borrow area. 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, IER #28, and IER #29, or other sources yet to be identified.

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. Bernard Parish that were approved or are being investigated for construction of the HSDRRS (figure 9). The approved Dockville, 910 Bayou Road, 1418/1420 Bayou Road, 1572 Bayou Road, 4001 Florissant Highway, Gatien Navy, Sylvia Guillot, DK Aggregates, 1025 Florissant Highway, Acosta, and Johnson/Crovetto sites are located within the parish. If these sites are used, they would also contribute to cumulative water quality impacts in St. Bernard Parish.

Water quality in the project area 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

- *Big Shake*

Direct Impacts

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

Any additional potential direct impacts to water quality would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

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.

Any additional potential indirect impacts to water quality would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Cumulative Impacts
Excavation of the proposed Big Shake contractor-furnished borrow area would temporarily contribute to the cumulative decline of water quality within the region.

Additional potential cumulative impacts to water quality would depend on what the landowner decides to do with the site following excavation.

Other activities in the vicinity have and will continue to affect water quality in the project area. Cumulative impacts to water quality would continue in the project area under this alternative. The proposed action is the only potential borrow area in St. James Parish that has been approved or is being investigated for use on the HSDRRS. Water quality would not be cumulatively impacted in St. James because of HSDRRS borrow activity or construction of the HSDRRS.

Water quality in the project area 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.

- *Henley*

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

Any additional potential direct impacts to water quality would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

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. Any additional potential indirect impacts to water quality would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Cumulative Impacts
Excavation of the proposed Henley contractor-furnished borrow area would temporarily contribute to the cumulative decline of water quality within the region. Any additional potential cumulative impacts to water quality would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Other activities in the vicinity have and will continue to affect water quality in the project area. The approved Frierson, Pearlington Dirt Phase I, and Pearlington Dirt Phase II contractor-furnished borrow areas are also located in Hancock County (figure 8). If these sites are used, they would also contribute to cumulative water quality impacts in Hancock County.

Water quality in the project area 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.

- *Contreras Dirt (Cells E, F, and Z)*

Direct Impacts
Excavation of the proposed Contreras Dirt (Cells E, F, and Z) borrow site would result in some temporary direct water quality impacts from disturbances to water quality in the immediate vicinity of the proposed 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 contractor-furnished borrow area is drained by use of a sump pump during construction water would be deposited outside of the borrow sites, 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.

Any additional potential direct impacts to water quality would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

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. Any additional potential direct impacts to water quality would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Cumulative Impacts
Excavation of the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area would temporarily contribute to the cumulative decline of water quality within the region. Any additional potential cumulative impacts to water quality would depend on what the landowner decides to do with the proposed contractor-furnished borrow area 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 St. Bernard Parish that were approved or are being investigated for construction of the HSDRRS (figure 9). The approved Dockville, 910 Bayou Road, 1418/1420 Bayou Road, 1572 Bayou Road, 4001 Florissant Highway, Gatien Navy, Sylvia Guillot, DK Aggregates, 1025 Florissant Highway, Acosta, and Johnson/Crovetto sites are located within the parish. If these sites are used, they would also contribute to cumulative water quality impacts in St. Bernard Parish.

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 the project area 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.

3.2.12 Aesthetic (Visual) Resources

Existing Conditions

- *Big Shake*
  The area around the proposed Big Shake contractor-furnished borrow area is primarily made up of agricultural crop fields and some minimal forestation. The area has substantial low density residential development approximately one quarter mile to the east and smaller residential development immediately to the south along Highway 44. The minimal forestation does not serve as an adequate buffer for these residential areas and leaves view sheds open from just about every direction.

  Highway 44 serves as the primary thoroughfare in the area. View sheds into the project site are available from this thoroughfare.

- *Henley*
  The area around the proposed Henley contractor-furnished borrow area is primarily made up of dense, mixed forestation with open spaces on a flat, coastal

plain. The area is very rural with little to no development other than some agricultural uses sporadically located in each direction of the site. Residential development does pick up approximately one half mile away to the southeast. The mixed forestation serves as a buffer for these residential areas and aids in creating a natural, serene setting for the residents.

Old Picayune Highway/ Kiln Picayune Road serves as the primary thoroughfare in the area. View sheds into the project site are available from this thoroughfare.

- *Contreras Dirt (Cells E, F, & Z)*
  The area around the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area is primarily made up of dense mixed forestation with some open agricultural lands. The area is relatively rural with minimal low density residential development located to the west and east of the project site. Other features include marshlands located to the south and north of the project site on the unprotected side of the local levee system. The mixed forestation serves as a buffer for those residential areas located to the west of the project site and aids in creating a natural, serene setting for the residents.

  To the north of the project site is Highway 46 which serves as the primary thoroughfare through the area. View sheds into the project site are available from this thoroughfare and minimal forestation, on the north side of the project site, offers little screening and/ or buffering.

Discussion of Impacts

No Action

- *All Sites*

  Direct Impacts
  Under the no action alternative, no direct impacts to aesthetic (visual) resources would occur at the proposed contractor-furnished borrow areas. Aesthetic (visual) resources would most likely evolve from existing conditions in a natural process, or change as dictated by future land use maintenance practices. The proposed sites would not be used as contractor-furnished borrow areas. The landowners could directly impact aesthetic quality at the sites; however, this would not be related to the proposed action.

  Indirect Impacts
  Under the no action alternative, no indirect impacts to aesthetic (visual) resources would occur at the proposed contractor furnished borrow areas. The proposed sites would not be used as contractor-furnished borrow areas. However, it is important to note that whatever the landowners would choose to do with the properties may have long lasting affects on the surrounding, adjacent areas.

  Cumulative Impacts
  Under the no action alternative, no foreseen cumulative impacts to aesthetic (visual) resources would occur at the proposed contractor-furnished borrow areas. The proposed sites would not be used as contractor-furnished borrow areas. 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, IER #28, and IER #29, or other sources yet to be identified.

Cumulative impacts to aesthetic (visual) resources, in the project vicinity, would depend on what the landowners would decide to do with the sites, and would not be associated with the proposed action. Any future changes or alterations to the sites would evolve in a natural process over the course of time.

Proposed Action

- *Big Shake*

Direct Impacts
The visual resources of the project corridor would be temporarily impacted by construction activities related to implementing the proposed action and by transport activities needed to move equipment and materials to and from the site. Beyond this, view sheds from Highway 44, backyards and kitchen windows will be further impacted from the implementation of the borrow site design. Further agitating the situation is the lack of forestation in the area for screening and buffering, especially at this project site.

Additional potential direct impacts to visual resources would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Indirect Impacts
With the implementation of the proposed action, indirect impacts could be derived from the loss of scenic quality in an area. Additional potential indirect impacts to visual resources would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Cumulative Impacts
Excavation of the proposed Big Shake site 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 action. Other activities in the vicinity have and would continue to affect visual quality in the project area. Major contributors to decreases in visual quality in the region include other borrow sites and stockpile areas disrupting view sheds from major thoroughfares, backyards, and kitchen windows.

Additional potential cumulative impacts to visual resources would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

- *Henley*

Direct Impacts
The visual resources of the project corridor would be temporarily impacted by construction activities related to implementing the proposed action and by transport activities needed to move equipment and materials to and from the site. Beyond this, view sheds from the Old Picayune Highway would be further impacted from the implementation of the borrow site design.

Additional potential direct impacts to visual resources would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Indirect Impacts
With the implementation of the proposed action, indirect impacts could be derived from the loss of scenic quality in an area. Additional potential indirect impacts to visual resources would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Cumulative Impacts
Excavation of the proposed Henley site 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 action. Other activities in the vicinity have and would continue to affect visual quality in the project area. Major contributors to decreases in visual quality in the region include other borrow sites and stockpile areas disrupting view sheds from major thoroughfares, backyards, and kitchen windows.

Additional potential cumulative impacts to visual resources would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

- *Contreras Dirt (Cells E, F, and Z)*

Direct Impacts
The visual resources of the project corridor would be temporarily impacted by construction activities related to implementing the proposed action and by transport activities needed to move equipment and materials to and from the site. Beyond this, view sheds from Highway 46, backyards and kitchen windows would be further impacted from the implementation of the borrow site design. Additional potential direct impacts to visual resources would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Indirect Impacts
With the implementation of the proposed action, indirect impacts could be derived from the loss of scenic quality in an area. Additional potential indirect impacts to visual resources would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

Cumulative Impacts
Excavation of the proposed Contreras Dirt (Cells E, F, and Z) site 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 action. Other activities in the vicinity have and would 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 mound levees disrupting view sheds from major thoroughfares, backyards, and kitchen windows.

Additional potential cumulative impacts to visual resources would depend on what the landowner decides to do with the proposed contractor-furnished borrow area following excavation.

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, IER #28, and IER #29, 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 IER as proposed contractor-furnished borrow areas.

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 #30 may contain additional information, data or analyses not contained in earlier IERs.

3.3.1 Population and Housing

- *Big Shake*
  The proposed Big Shake contractor-furnished borrow area is located near the towns of Grand Point and Paulina, in St. James Parish, Louisiana. There is residential development within the immediate vicinity of the proposed borrow area, with some residences located within 100 feet of the borrow area. The proposed borrow area is located in census tract 404, block group 3, blocks 3005 and 3007. Nearby residential development is also located in blocks 3004-3013 and 3015-3025, as well as in track 403, group 1, blocks 1029 and 1032-1037. According to the US Census, in 2000 this area had a population of 1089 within 359 housing units. Preliminary 2010 Census data will be available in 2011 at the earliest.

- *Henley*
  The proposed Henley contractor-furnished area is located on Kiln Picayune Road in the town of Kiln, within Hancock County, Mississippi. Kiln is in the vicinity of Gainesville, Diamondhead, and Bay St. Louis, Mississippi. The proposed borrow area is located in area of rural farmland. There is some residential development along Kiln Road in the vicinity. The proposed borrow area is located in census tract 306, block group 3, blocks 3071-3073. Nearby residential development is located in
  - tract 306, block group 3, blocks 3433, 3062, 3063, and 3070
  - tract 306, block group 4, block 4035, 4039-4040
  - tract 306, group 6, block 6016

According to the US Census, in 2000 there was a population of 485 within 202 housing units in this area. Preliminary 2010 Census data will be available in 2011 at the earliest.

- *Contreras Dirt (Cells E, F, and Z)*
  The proposed Contreras Dirt (Cells E, F, Z) contractor-furnished borrow area is located along between Highway 46 and Bayou Road in Contreras, Louisiana. Contreras is located in St. Bernard Parish between the towns of Kenilworth and Verret. The site is located in census tract 301.04, block group 1, block 1014, as well as in group 2, block 2000. Nearby residential development is also located in group 1, blocks 2001-2010. According to the US Census, in 2000 this area had a population of 467 within 183 housing units. Preliminary 2010 Census data will be available in 2011 at the earliest.

  The proposed Contreras Dirt (Cells E, F, Z) contractor-furnished borrow area borders the DK Aggregates contractor-furnished borrow area, which was approved in IER #19.

Discussion of Impacts

No Action

- *Big Shake*

Direct Impacts
There would be no direct impacts to population and housing around the proposed Big Shake contractor-furnished borrow area under the no action alternative.

Indirect Impacts
There would be no indirect impacts to population and housing around the proposed Big Shake contractor-furnished borrow area under the no action alternative.

Cumulative Impacts
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, IER #28, and IER #29, or other sources yet to be identified. Cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to 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 themselves 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.

- *Henley*

Direct Impacts
There would be no direct impacts to population and housing around the proposed Henley contractor-furnished borrow area under the no action alternative.

Indirect Impacts
There would be no indirect impacts to population and housing around the proposed Henley contractor-furnished borrow area under the no action alternative.

Cumulative Impacts
Under the no action alternative, cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. 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, IER #28, and IER #29, 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 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 themselves 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.

- *Contreras Dirt (Cells E, F, and Z)*

Direct Impacts
There would be no direct impacts to population and housing around the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area under the no action alternative.

Indirect Impacts
There would be no indirect impacts to population and housing around the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area under the no action alternative.

Cumulative Impacts
Under the no action alternative, the proposed Contreras Dirt (Cells E, F, and Z) 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, IER #28, and IER #29, or other sources yet to be identified.

The nearby approved DK Aggregates site, which was approved in IER #19, could potentially be excavated for use in the HSDRRS. Potential impacts to population and housing associated with excavating the DK Aggregates site are discussed in IER # 19. There may be temporary impacts to neighboring residents, including degraded air quality, increased noise, and increased congestion on neighboring roadways, and these may be increased due to there being several borrow areas in the vicinity. There are no residences immediately adjacent to the approved DK Aggregates borrow area, so air quality and noise impacts to population should be minimal. Congestion impacts will be discussed further in the transportation

section. 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 associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to 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 themselves in either in-migration to the area or an increase in commuting activity.

- *Big Shake*

Direct Impacts
Under the proposed action, borrow material would be excavated from the proposed Big Shake contractor-furnished borrow area for use within the HSDRRS. There may be temporary, construction-related impacts to residents in the immediate vicinity of the proposed borrow area, as well as on LA 44, Hester St., and LA 3125. These may include increased noise levels, degraded air quality, and increased congestion on neighborhood roadways. Congestion impacts will be discussed further in the transportation section. Crews would likely work between 10 hours 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.

The proposed Big Shake contractor-furnished borrow area could be designed to not directly or indirectly damage nearby structures, encourage borrow site sidewall erosion, or increase flood risk in the immediate area. However, the landowner and his contractor, not the CEMVN, are responsible for borrow site design. Otherwise, no permanent impacts to population and housing would be expected. Other 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 a potential danger to children, in addition to automobiles if the proposed 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 would be expected to occur under the proposed action.

Cumulative Impacts
Excavation of the proposed Big Shake contractor-furnished borrow area could 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 only last through the construction period. Additional potential cumulative impacts to population and housing would

depend on what the landowner decides to do with the proposed Big Shake borrow area following excavation.

Positive cumulative impacts to population and housing associated with completion of the HSDRRS in its entirety may also occur. The lower flood risk that accrues to 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 themselves 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.

- *Henley*

Direct Impacts
Under the proposed action, borrow material would be excavated from the proposed Henley contractor-furnished borrow area for use within the HSDRRS. There may be temporary, excavation-related impacts to the population in the vicinity. These may include increased noise levels, degraded air quality, and congestion on neighboring roadways. There are no residences immediately adjacent to the proposed borrow area, so air quality and noise impacts to population should be minimal. Congestion impacts will be discussed further in the transportation section. Crews would likely work between 10 hours 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.

The proposed Henley contractor-furnished borrow area could be designed to not directly or indirectly damage nearby structures, encourage borrow site sidewall erosion, or increase flood risk in the immediate area. However, the landowner and his contractor, not the CEMVN, are responsible for borrow area design. Otherwise, no permanent impacts to population and housing would be expected. Other 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 a potential danger to children, in addition to automobiles if the proposed 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 would be expected to occur.

Cumulative Impacts
Excavation of the proposed Henley contractor-furnished borrow area could 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 only last through the construction period. Additional potential cumulative impacts to population and housing would

depend on what the landowner decides to do with the proposed Henley borrow area following excavation.

Positive cumulative impacts to population and housing associated with completion of the HSDRRS in its entirety may also occur. The lower flood risk that accrues to 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 themselves 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.

- *Contreras Dirt (Cells E, F, and Z)*

Direct Impacts
Under the proposed action, there may be temporary, excavation-related impacts to the population in the vicinity of the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area. These may include increased noise levels, degraded air quality, and congestion on neighboring roadways. There are no residences immediately adjacent to the proposed Contreras borrow area, so air quality and noise impacts to population should be minimal. Crews would likely work between 10 hours 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 will be discussed further in the transportation section.

The proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area could be designed to not directly or indirectly damage nearby structures or encourage borrow site sidewall erosion. Otherwise, no permanent impacts to population and housing would be expected. Other 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 a potential danger to children, in addition to automobiles if the proposed 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
There would be no indirect impacts to population and housing in the vicinity of the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area as a result of the proposed action.

Cumulative Impacts
Excavation of the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area could temporarily contribute to cumulative population and housing impacts in the project vicinity. In addition, the nearby approved DK Aggregates 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 would depend on what the landowner decides to do with the proposed Contreras borrow area 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 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 themselves in either in-migration to the area or an increase in commuting activity.

3.3.2 Impacts to Employment, Business, and Industry

Existing Conditions

- *Big Shake*
  The proposed Big Shake borrow area is currently used as farmland. There is a grain elevator facility in the area on LA 44. The elevator is located approximately 4 miles from the proposed borrow area.

- *Henley*
  The proposed Henley site is currently used for pastureland, and two active private borrow pits are located on the site. There are several farms with pasture land along Kiln Picayune Road in the vicinity of the proposed Henley borrow area.

- *Contreras Dirt (Cells E, F, and Z)*
  The proposed Contreras borrow area was previously used as a sugar plantation but is currently overgrown. There are no other business facilities in the area.

Discussion of Impacts

No Action

- *Big Shake*

Direct Impacts
There would be no direct impacts to employment, business, and industry in the vicinity of the proposed Big Shake contractor-furnished borrow area under the no action alternative.

Indirect Impacts
There would be no indirect impacts to employment, business, and industry in the vicinity of the proposed Big Shake contractor-furnished borrow area under the no action alternative.

Cumulative Impacts
Under the no action alternative, the proposed Big Shake contractor-furnished borrow area 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, IER #28, and IER #29, 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 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.

- *Henley*

Direct Impacts
There would be no direct impacts to employment, business, and industry in the vicinity of the proposed Henley contractor-furnished borrow area under the no action alternative.

Indirect Impacts
There would be no indirect impacts to employment, business, and industry in the vicinity of the proposed Henley contractor-furnished borrow area under the no action alternative.

Cumulative Impacts
Under the no action alternative, the proposed Henley borrow area 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, IER #28, and IER #29, 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 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.

- *Contreras Dirt (Cells E, F, and Z)*

Direct Impacts
Under the no action alternative, there would be no direct impacts to employment, business, and industry in the vicinity of the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area. The proposed 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 proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area under the no action alternative.

Cumulative Impacts
Under the no action alternative, the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area 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, IER #28, and IER #29, or other sources yet to be identified.

There are several potential borrow areas in St. Bernard Parish that were approved or are being investigated for construction of the HSDRRS (figure 9). The approved Dockville, 910 Bayou Road, 1418/1420 Bayou Road, 1572 Bayou Road, 4001 Florissant Highway, Gatien Navy, Sylvia Guillot, DK Aggregates, 1025 Florissant Highway, Acosta, and Johnson/Crovetto sites are located within St. Bernard Parish. Temporary impacts to area businesses as a result of traffic congestion can be expected.

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 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.

Proposed Action

- *Big Shake*

Direct Impacts
As a result of the proposed action, the proposed Big Shake contractor-furnished 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 be used for business purposes.

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

Indirect Impacts
Minimal indirect impacts to business would be expected as a result of the proposed action. The grain elevator facility which is within four miles of the proposed Big Shake contractor-furnished borrow area may face access issues as a result of traffic congestion during excavation. However, these impacts would be expected to be temporary and negligible.

Cumulative Impacts
Under the proposed action alternative, the proposed Big Shake contractor-furnished borrow area would be used as a contractor-furnished borrow area and

could contribute to cumulative impacts to employment, business and industry in the project area.

Under the proposed action alternative, cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to 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.

- *Henley*

  Direct Impacts
  No permanent direct impacts to business, employment, or industry in the area are expected as a result of the proposed action. As a result of the proposed action, the proposed Henley contractor-furnished 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 be used for business purposes.

  Indirect Impacts
  There would be no indirect impacts to business, employment, or industry in the vicinity of the proposed Henley contractor-furnished borrow area under the proposed action.

  Cumulative Impacts
  Under the proposed action alternative, the proposed Henley contractor-furnished borrow area would be used as a contractor-furnished borrow area and could contribute to cumulative impacts to employment, business and industry in the project area.

  Under the proposed action alternative, cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to 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.

- *Contreras Dirt (Cells E, F, and Z)*

  Direct Impacts
  As a result of the proposed action, the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished 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 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 Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area under the proposed action.

Cumulative Impacts
Excavation of the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished 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 Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area. As a result of the proposed action, the proposed Contreras 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 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 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.

3.3.3 Availability of Public Facilities and Services

Existing Conditions

- *Big Shake*
  There are no public facilities in the vicinity of the proposed Big Shake contractor-furnished borrow area.

- *Henley*
  There is one post office as well as the Maintenance Headquarters of the Mississippi Department of Transportation within three miles of the project area on Highway 43/603. Additionally, there is an airport and a school several miles south of the proposed borrow area on Highway 43/603.

- *Contreras Dirt (Cells E, F, and Z)*
  There are no public facilities in the vicinity of the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area.

Discussion of Impacts

No Action

- *Big Shake*

Direct Impacts
There would be no direct impacts to the availability of public facilities and services under the no action alternative.

Indirect Impacts
There would be no indirect impacts to the availability of public facilities and services under the no action alternative.

Cumulative Impacts
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, IER #28, and IER #29, or other sources yet to be identified. Cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to 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 themselves 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 project area, because it lies outside the HSDRRS.

- *Henley*

Direct Impacts
There would be no direct impacts to the availability of public facilities and services under the no action alternative.

Indirect Impacts
There would be no indirect impacts to the availability of public facilities and services under the no action alternative.

Cumulative Impacts
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, IER #28, and IER #29, or other sources yet to be identified. Cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to 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 themselves 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 Henley project area itself, because it lies outside the HSDRRS.

- *Contreras Dirt (Cells E, F, and Z)*

Direct Impacts
There would be no direct impacts to the availability of public facilities and services under the no action alternative.

Indirect Impacts
There would be no indirect impacts to the availability of public facilities and services under the no action alternative.

Cumulative Impacts
Under the no action alternative, the proposed site would not be used as a contractor-furnished borrow area and would not contribute to cumulative impacts on public facilities in the project area. 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, IER #28, and IER #29, or other sources yet to be identified.

There are several potential borrow areas in St. Bernard Parish that were approved or are being investigated for construction of the HSDRRS (figure 9). The approved Dockville, 910 Bayou Road, 1418/1420 Bayou Road, 1572 Bayou Road, 4001 Florissant Highway, Gatien Navy, Sylvia Guillot, DK Aggregates, 1025 Florissant Highway, Acosta, and Johnson/Crovetto sites are located within the parish. No cumulative impacts to the availability of public facilities and services would be expected from excavation of the approved borrow areas.

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 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 themselves 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.

Proposed Action

- *Big Shake*

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 borrow area.

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

Cumulative Impacts
There would be no cumulative 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 borrow area.

Under the proposed action, cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to 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 themselves 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 project area, because it lies outside the HSDRRS.

- *Henley*

  Direct Impacts
  There would be no permanent direct impacts to public facilities and services under the proposed action. There may be temporary impacts, such as access problems, as a result of traffic congestion.

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

  Cumulative 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 borrow area.

  Under the proposed action, cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to 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 themselves 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 project area, because it lies outside the HSDRRS.

- *Contreras Dirt (Cells E, F, and Z)*

  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 Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area.

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

  Cumulative Impacts
  Excavation of the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area would not contribute to cumulative impacts on public

facilities because there are no public facilities in the immediate vicinity of the proposed borrow area.

Cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to 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 themselves 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.

3.3.4 Effects on Transportation

Existing Conditions

- *Big Shake*
  The Big Shake proposed borrow area is located between West Jefferson Highway (LA 44) and LA 3125 on Hester Street. This area is accessible from I-10 and Highway 61 through the use of LA 3215. However, in order to access LA 44, vehicles must use a very narrow road and cross a set of raised railroad tracks.

- *Henley*
  The Henley Borrow area is located on Kiln Picayune Road, alternatively referred to as Old Picayune Highway. This area is accessed via I-10 by way of Highway 43/603, which consists of one lane in either direction, and appears to have a fair amount of truck traffic. However, Kiln Picayune Road is a narrow, one-lane road that has not been well maintained. Alternatively, trucks can access the proposed borrow area by following Highway 43 when it splits off from Highway 603, and using Firetower Road to access the proposed borrow area. However, both routes consist of extremely narrow roadways with residential development nearby.

- *Contreras Dirt (Cells E, F, and Z)*
  The proposed Contreras borrow area is located off of Bayou Road, in the vicinity of Highway 46, in St. Bernard Parish. The site would be accessed through the use of Bayou Road, which has one lane in either direction and is not in very good condition. The road seems to not have been maintained very well in at least the past ten years. Bayou Road can be accessed by Highway 46.

Discussion of Impacts

No Action

- *Big Shake*

Direct Impacts
Under the no action alternative there would be no direct impacts to transportation in the vicinity of the Big Shake contractor-furnished proposed borrow area.

Indirect Impacts
Under the no action alternative, there would be no indirect impacts to transportation.

Cumulative Impacts
Under the no action alternative, the proposed Big Shake contractor-furnished 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, IER #28, and IER #29, or other sources yet to be identified.

Congestion impacts to the greater metropolitan area would be likely to be moderate to severe as a result of HSDRRS construction. Decreases in levels of service on local roads are likely 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 would also likely be moderate to severe degradation of infrastructure as a result of wear and tear from transporting HSDRRS construction materials. These impacts would be likely to occur on local and feeder roads, as well as on local bridges. As a result of HSDRSS construction, rehabilitation to area infrastructure would 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 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 project area itself, since it lies outside the HSDRRS.

- *Henley*

Direct Impacts
Under the no action alternative there would be no direct impacts to transportation in the vicinity of the proposed Henley contractor-furnished borrow area.

Indirect Impacts
Under the no action alternative, there would be no indirect impacts to transportation.

Cumulative Impacts
Under the no action alternative, the proposed Henley contractor-furnished 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, IER #28, and IER #29, or other sources yet to be identified.

There are several potential borrow areas in Hancock County that were approved or are being investigated for construction of the HSDRRS (figure 8). The

approved Frierson (containing approximately 52,000 truckloads of borrow material), Pearlington Dirt Phase I (approximately 210,000 truckloads), and Pearlington Dirt Phase II (approximately 320,000 truckloads) contractor-furnished borrow areas are also located in Hancock County.

Congestion impacts to the greater metropolitan area are would be likely to be moderate to severe as a result of HSDRRS construction. Decreases in levels of service on local roads would be likely due to the high number of truck trips required to transport the required amounts of construction material. Additionally, there would 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 would also likely to be moderate to severe degradation of infrastructure as a result of wear and tear from transporting HSDRRS construction materials. These impacts would be likely to occur on local and feeder roads, as well as on local bridges. As a result of HSDRSS construction, rehabilitation to area infrastructure would 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 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 project area itself, since it lies outside the HSDRRS.

- *Contreras Dirt (Cells E, F, and Z)*

<u>Direct Impacts</u>
Under the no action alternative there would be no direct impacts to transportation in the vicinity of the Contreras proposed borrow area.

<u>Indirect Impacts</u>
Under the no action alternative there would be no indirect impacts to transportation in the vicinity of the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area.

<u>Cumulative Impacts</u>
Under the no action alternative, the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished 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, IER #28, and IER #29, or other sources yet to be identified.

There are several potential borrow areas in St. Bernard Parish that were approved or are being investigated for construction of the HSDRRS (figure 9). The approved Dockville (containing approximately 82,000 truckloads of borrow material), 910 Bayou Road (approximately 9,800 truckloads), 1418/1420 Bayou Road (approximately 37,000 truckloads), 1572 Bayou Road (approximately 14,000 truckloads), 4001 Florissant Highway (approximately 18,000 truckloads),

Gatien Navy (approximately 21,000 truckloads), Sylvia Guillot (approximately 8,400 truckloads), DK Aggregates (approximately 118,000 truckloads), 1025 Florissant Highway (approximately 105,000 truckloads), Acosta (approximately 52,500 truckloads), and Johnson/Crovetto (approximately 17,000 truckloads) sites are located within the parish.

Congestion impacts to the greater metropolitan area would be likely to be moderate to severe as a result of HSDRRS construction. Decreases in levels of service on local roads would be likely due to the high number of truck trips required to transport the required amounts of construction material. Additionally, there would 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 would also likely to be moderate to severe degradation of infrastructure as a result of wear and tear from transporting HSDRRS construction materials. These impacts would be likely to occur on local and feeder roads, as well as on local bridges. As a result of HSDRSS construction, rehabilitation to area infrastructure would 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 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.

Proposed Action

- *Big Shake*

Direct Impacts
Under the proposed action, there may be temporary, congestion-related impacts to Hester Street, LA 3125, and LA 3213, as well as Highway 61 and I-10 in the vicinity of the proposed Big Shake borrow area. Congestion impacts and decreases in levels of service around the excavation area would likely be moderate to severe. To complete excavation of the entire 441-acre proposed Big Shake contractor-furnished borrow area, it is estimated that it would take approximately 920,000 truckloads. Due to the increased levels of truck traffic, and the movement of many truckloads of material, there would likely be increased wear and tear on these roads. Due to frequent heavy loads, local roadways around the project area would likely suffer degradation, thus 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 would be transported to construction sites for use within the HSDRRS.

Cumulative Impacts
Approximately 920,000 truckloads could be required to complete excavation of the proposed Big Shake contractor-furnished borrow area. The addition of approximately 920,000 truckloads would contribute to the cumulative transportation impacts in the HSDRRS project area.

It is estimated that it could require approximately 2,000,000 truckloads to complete excavation of the borrow areas needed for completion of the HSDRRS. If the proposed Big Shake site is used as a contractor-furnished borrow area for completion of the HSDRRS, the Big Shake site could account for approximately 46 percent of the total amount of truckloads required to complete the HSDRRS borrow mission.

Congestion impacts to the greater metropolitan area would likely to be moderate to severe as a result of HSDRRS construction. Decreases in levels of service on local roads would be likely as a result of 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 would also likely to be moderate to severe degradation of infrastructure as a result of wear and tear from transporting HSDRRS construction materials. These impacts would be likely to occur on local and feeder roads, as well as on local bridges. As a result of HSDRSS construction, rehabilitation to area infrastructure would 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 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 project area itself, since it lies outside the HSDRRS.

- *Henley*

Direct Impacts
Under the proposed action, there may be temporary, congestion-related impacts to Kiln Picayune Road, Firetower Road, Highway 43, Highway 43/603, and I-10 in the vicinity of the proposed Henley borrow area. Congestion impacts and decreases in levels of service around the excavation area would likely be moderate to severe. To complete excavation of the entire 197-acre proposed Henley borrow area, it is estimated that it would take approximately 410,000 truckloads. Due to these increased levels of truck traffic, there would be increased wear and tear on these same roads. Local roadways around the project area are not designed to handle frequent heavy loads as the project necessitates, and could suffer degradation requiring rehabilitation as a result of the alternatives 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.

While it is uncertain which, if any, HSDRRS project the material would be delivered to, the material would be hauled out of the borrow area using the roads mentioned previously, and then most likely hauled via I-10 to HSDRRS projects.

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 410,000 truckloads could be required to complete excavation of the proposed Henley contractor-furnished borrow area. The addition of approximately 410,000 truckloads would contribute to the cumulative transportation impacts in the HSDRRS project area.

It is estimated that it could require approximately 2,000,000 truckloads to complete excavation of the borrow areas needed for completion of the HSDRRS. If the proposed Henley site is used as a contractor-furnished borrow area for completion of the HSDRRS, the Henley site could account for approximately 20 percent of the total amount of truckloads required to complete the HSDRRS borrow mission.

Congestion impacts to the greater metropolitan area would likely to be moderate to severe as a result of HSDRRS construction. Decreases in levels of service on local roads would be likely as a result of 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 would also likely to be moderate to severe degradation of infrastructure as a result of wear and tear from transporting HSDRRS construction materials. These impacts would be likely to occur on local and feeder roads, as well as on local bridges. As a result of HSDRSS construction, rehabilitation to area infrastructure would 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 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 project area itself, since it lies outside the HSDRRS.

- *Contreras Dirt (Cells E, F, and Z)*

Direct Impacts
Under the proposed action, there may be temporary, congestion-related impacts; including decreased levels of service, to Bayou Road and Highway 46, as well as to Highway 39 and 47, in addition to I-510 and I-10 in the vicinity of the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area due

to an increased presence of construction vehicles. Congestion impacts and decreases in levels of service around the excavation area would likely be moderate to severe. To complete excavation of the entire 263-acre proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area, it is estimated that it would take approximately 548,000 truckloads. Due to the increased levels of truck traffic, and the movement of many truckloads of material, there would likely be increased wear and tear on these roads. Due to frequent heavy loads, local roadways around the project area would 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 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 548,000 truckloads could be required to complete excavation of the proposed Contreras Dirt contractor-furnished borrow area. The addition of approximately 548,000 truckloads would contribute to the cumulative transportation impacts in the HSDRRS project area.

It is estimated that it could require approximately 2,000,000 truckloads to complete excavation of the borrow areas needed for completion of the HSDRRS. If the proposed Contreras Dirt (Cells E, F, and Z) site is used as a contractor-furnished borrow area for completion of the HSDRRS, the Contreras Dirt site could account for approximately 28 percent of the total amount of truckloads required to complete the HSDRRS borrow mission.

Congestion impacts to the greater metropolitan area are would likely to be moderate to severe as a result of HSDRRS construction. Decreases in levels of service on local roads would be likely as a result of 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 HSDRSS construction, rehabilitation to area infrastructure will 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 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.

3.3.5 Disruption of Community and Regional Growth

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. Against this baseline, the relative effects of the proposed and alternative actions are evaluated.

Existing Conditions

- *Big Shake*
  According to U.S. Census data from 1990 and 2000 the following trends were observed in St. James Parish: population grew from 20,879 to 21,216, and median household income grew from $23,105 to $35,277. Between January 2001 and September 2008, employment increased from 7,173 to 7,938 (BLS).

  Preliminary 2010 Census data will be available in 2011 at the earliest.

- *Henley*
  According to U.S. Census data from 1990 and 2000 the following trends were observed in Hancock County, MS: population grew from 31,760 to 42,967; and median household income grew from $20,720 to $35,202. Employment increased from 13,045 in January 2001 to 13,597 in September 2008 (Bureau of Labor Statistics). Preliminary 2010 Census data will be available in 2011 at the earliest.

- *Contreras Dirt (Cells E, F, and Z)*
  According to U.S. Census data from 1990 and 2000 the following trends were observed in St. Bernard Parish: population grew from 66,631 to 67,229; and median household income grew from $25,482 to $35,989. Employment increased from 15,594 in January 2001 to 17,483 in August 2005 (Bureau of Labor Statistics). Preliminary 2010 Census data will be available in 2011 at the earliest. However, intermediate estimates by the Greater New Orleans Data Center suggested a decline in St. Bernard Parish since the 2005 storm events: 10,866 households in the parish are actively receiving mail, compared with 25,604 in July 2005. Population was estimated by the U.S. Census Bureau at 37,722 in 2008, as compared to 64,890 in July 2005.

Discussion of Impacts

No Action

- *Big Shake*

  Direct Impacts
  Under the no action alternative, there would be no direct impacts to community and regional growth in the vicinity of the Big Shake contractor-furnished proposed 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 Big Shake contractor-furnished proposed borrow area.

Cumulative Impacts
Under the no action alternative, borrow material in the required amount would be acquired from other locations in order that the HSDRRS is completed. 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, IER #28, and IER #29, 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 would accrue to 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.

- *Henley*

Direct Impacts
Under the no action alternative, there would be no direct impacts to community and regional growth in the vicinity of the proposed Henley 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 proposed Henley contractor-furnished borrow area.

Cumulative Impacts
Under the no action alternative, borrow material in the required amount would be acquired from other locations in order that the HSDRRS is completed. 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, IER #28, and IER #29, 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 would accrue to 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.

- *Contreras Dirt (Cells E, F, and Z)*

Direct Impacts
Under the no action alternative, there would be no direct impacts to community and regional growth in the vicinity of the proposed Contreras Dirt (Cells E, F, and Z) 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 proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area.

Cumulative Impacts
Under the no action alternative, borrow material in the required amount would be acquired from other locations in order that the HSDRRS is completed. 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, IER #28, and IER #29, or other sources yet to be identified.

There are several potential borrow areas in St. Bernard Parish that were approved or are being investigated for construction of the HSDRRS (figure 9). The approved Dockville, 910 Bayou Road, 1418/1420 Bayou Road, 1572 Bayou Road, 4001 Florissant Highway, Gatien Navy, Sylvia Guillot, DK Aggregates, 1025 Florissant Highway, Acosta, and Johnson/Crovetto sites are located within St. Bernard Parish. These sites will be unavailable for further alternative uses, including those normally associated with economic development, unless the owner performs the appropriate amount of backfilling.

There would be cumulative impacts associated with the completion of the HSDRRS in its entirety. The lower flood risk that would accrue to 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.

Proposed Action

- *Big Shake*

Direct Impacts
As a result of the proposed action, excavated land at the proposed Big Shake borrow area would not be available for future alternative uses normally associated with economic development unless the landowner backfills the site following excavation. This could have a negative impact on community growth. If the site is backfilled, no negative impact on community growth would be expected.

Indirect Impacts
Future community and regional growth may be negatively impacted by the proposed Big Shake borrow area being excavated as opposed to being used for other purposes.

Cumulative Impacts
Under the proposed action, the proposed Big Shake site could be used as a contractor-furnished borrow area and could contribute to cumulative impacts on community growth. The proposed Big Shake borrow area would be unavailable for further development unless the landowner backfills the site. 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 would accrue to 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, since it lies outside the HSDRRS.

- *Henley*

  Direct Impacts
  As a result of the proposed action, excavated land at the proposed Henley contractor-furnished borrow area would not be available for future alternative uses normally associated with economic development unless the landowner backfills the site following excavation. This could have a negative impact on community growth. If the site is backfilled, no negative impact on community growth would be expected.

  Indirect Impacts
  Future community and regional growth may be negatively impacted by the proposed Henley borrow area being excavated as opposed to being used for other purposes.

  Cumulative Impacts
  Under the proposed action, the proposed Henley site could be used as a contractor-furnished borrow area and could contribute to cumulative impacts on community growth. The proposed Henley borrow area would be unavailable for further development unless the landowner backfills the site. 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 would accrue to 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, since it lies outside the HSDRRS.

- *Contreras Dirt (Cells E, F, and Z)*

  Direct Impacts
  As a result of the proposed action, the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area would be excavated, and as a result would not be available for future alternative uses normally associated with economic development unless the landowner backfills the site following excavation. This could have a negative impact on community growth. If the site is backfilled, no negative impact on community growth would be expected.

  Indirect Impacts
  Future community and regional growth may be negatively impacted by the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area being excavated as opposed to being used for other purposes.

Cumulative Impacts
Under the proposed action, the proposed Contreras Dirt site could be used as a contractor-furnished borrow area and could contribute to cumulative impacts on community growth. The proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area would be unavailable for further development unless the landowner backfills the site. 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 would accrue to 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.

3.3.6 Impacts to Tax Revenues and Property Values

Existing Conditions

- *Big Shake*
  The Big Shake proposed borrow area is located in census tract 403, group 1, and in tract 404, group 3. The median values for specified owner-occupied housing units were $111,300 and $80,500, respectively, in the year 2000. Home values in this area ranged from less the $10,000 to $399,000.

- *Henley*
  The Henley proposed borrow area is located in census tract 306, group 3, where the median value for specified owner-occupied housing units was $83,300 in 2000; values ranged from $59,200 to $101,800.

- *Contreras Dirt (Cells E, F, and Z)*
  The Contreras proposed borrow area is located in census tract 301.04, groups 1 and 2, where the median values for specified owner-occupied housing units were $105,400 and $55,100, respectively, in 2000; values ranged from $15,000 to $400,000.

Discussion of Impacts

No Action

- *Big Shake*

Direct Impacts
Under the no action alternative, there would be no direct impacts to tax revenues and property values in the vicinity of the proposed Big Shake 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 proposed Big Shake contractor-furnished borrow area.

Cumulative Impacts

The proposed Big Shake 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, IER #28, and IER #29, 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 would accrue to 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 project area itself, since it lies outside the HSDRRS.

- *Henley*

  Direct Impacts
  Under the no action alternative, there would be no direct impacts to tax revenues and property values in the vicinity of the proposed Henley 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 proposed Henley contractor-furnished borrow area.

  Cumulative Impacts
  The proposed Henley 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, IER #28, and IER #29, 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 would accrue to 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 project area itself, since it lies outside the HSDRRS.

- *Contreras Dirt (Cells E, F, and Z)*

  Direct Impacts

Under the no action alternative, there would be no direct impacts to tax revenues and property values in the vicinity of the proposed Contreras Dirt (Cells E, F, and Z) 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 proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area.

Cumulative Impacts
The proposed Contreras Dirt 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, IER #28, and IER #29, or other sources yet to be identified.

There are several potential borrow areas in St. Bernard Parish that were approved or are being investigated for construction of the HSDRRS (figure 9). The approved Dockville, 910 Bayou Road, 1418/1420 Bayou Road, 1572 Bayou Road, 4001 Florissant Highway, Gatien Navy, Sylvia Guillot, DK Aggregates, 1025 Florissant Highway, Acosta, and Johnson/Crovetto sites are located within St. Bernard Parish.

The approved borrow areas could be designed to not directly or indirectly damage nearby structures, encourage borrow site sidewall erosion, or increase flood risk in the immediate area. However, the landowner and his contractor, not the CEMVN, are responsible for borrow site design.

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

Proposed Action

- *Big Shake*

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 does not backfill 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 in the immediate area. However, the landowner and his contractor, not the CEMVN, are responsible for borrow site design.

Indirect Impacts
Tax revenues for St. James Parish may marginally decrease as a result of the proposed action. Property value for the site would 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 proposed Big Shake site could be used as a contractor-furnished borrow area. If the proposed site is used as a contractor-furnished borrow area and the landowner does not backfill the site, there may be a decrease in property value for the borrow site 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 would accrue to 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 project area, since it lies outside the HSDRRS.

- *Henley*

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 does not to backfill 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 or encourage borrow site sidewall erosion. However, the landowner and his contractor, not the CEMVN, are responsible for borrow area design.

Indirect Impacts
Tax revenues for Hancock County may marginally decrease as a result of the property value for the proposed Henley borrow site being lower as a result of being used for borrow as opposed to other, more productive alternative uses.

Cumulative Impacts
Under the proposed action, it is possible that proposed Henley site could be used as a contractor-furnished borrow area. If the proposed site is used as a contractor-furnished borrow area and the landowner does not backfill the site, there may be a decrease in property value for the borrow site 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 would accrue to 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 project area, since it lies outside the HSDRRS.

- *Contreras Dirt (Cells E, F, and Z)*

Direct Impacts
Property values for the proposed site itself may decrease as its potential for use for alternative purposes are diminished in the future, if the landowner does not backfill the site. For adjacent properties, the market response with respect to property values is undetermined, although there would be appear to be no likelihood that property values could be enhanced due to this action.

The borrow area could be designed to not directly or indirectly damage nearby structures or encourage borrow site sidewall erosion. However, the landowner and his contractor, not the CEMVN, are responsible for borrow site design.

Indirect Impacts
Tax revenues for St. Bernard Parish may marginally decrease, but by a higher degree compared to the no action alternative. Property value for the site would 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 proposed Contreras Dirt (Cells E, F, and Z) site could be used as a contractor-furnished borrow area. If the proposed site is used as a contractor-furnished borrow area and the landowner does not backfill the site, there may be a decrease in property value for the borrow site 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 would accrue to 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.

3.3.7 Changes in Community Cohesion

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.

Discussion of Impacts

No Action

- *Big Shake*

While there are some homes in the vicinity of the proposed borrow area, the area to be excavated surrounds the community and would not be expected to encroach upon it. Approximately twelve homes are 1000 feet or less from the site.

Direct Impacts

Under the no action alternative, there would be no direct impacts to community cohesion in the vicinity of the proposed Big Shake 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 proposed Big Shake contractor-furnished borrow area.

Cumulative Impacts

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, IER #28, and IER #29, or other sources yet to be identified. Cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that would accrue to 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 project area itself, since it lies outside the HSDRRS.

- *Henley*

Direct Impacts

Under the no action alternative, there would be no direct impacts to community cohesion in the vicinity of the proposed Henley 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 proposed Henley contractor-furnished borrow area.

Cumulative Impacts

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, IER #28, and IER #29, or other sources yet to be identified. Cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that would accrue to 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 project area itself, since it lies outside the HSDRRS.

- *Contreras Dirt (Cells E, F, and Z)*

  Direct Impacts

  Under the no action alternative, there would be no direct impacts to community cohesion in the vicinity of the proposed Contreras Dirt (Cells E, F, and Z) 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 Contreras Dirt (Cells E, F, and Z) contractor-furnished proposed borrow area.

  Cumulative Impacts

  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, IER #28, and IER #29, or other sources yet to be identified. Cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that would accrue to 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.

  Proposed Action

- *Big Shake*

  Direct Impacts

  The impacts of excavation of the proposed Big Shake contractor-furnished borrow area would likely be 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 would be 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 site is 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 would be 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 Big Shake borrow area would not contribute to cumulative impacts on community cohesion.

Impacts on community cohesion are contingent upon the degree to which project construction would be expected to encroach upon the physical landscape that directly or indirectly affects the patterns of social interrelationships. In the current analysis, the borrow site is sufficiently distant from areas of development such that no spatial element of the community would be 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, would not occur. Rather, the adverse impacts in other resource areas would not be 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 would be 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 would accrue to 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 Big Shake area, since it lies outside the HSDRRS.

- *Henley*

Direct Impacts
The impacts of excavation of the proposed Henley contractor-furnished borrow area would likely be adverse, such as noise and traffic congestion. But, some

impacts would have both negative and positive impacts. Yet, it is difficult to foresee any temporary construction-related impact that enhances community cohesion: such impacts would be expected to be either adverse or, at a minimum, neutral.

Impacts on community cohesion are contingent upon the degree to which project construction would be expected to encroach upon the physical landscape that directly or indirectly affects the patterns of social interrelationships. In the current analysis, the borrow site is sufficiently distant from areas of development such that no spatial element of the community would be 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, would not occur. Rather, the adverse impacts in other resource areas would not be 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 would be 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 Henley contractor-furnished 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 site is sufficiently distant from areas of development such that no spatial element of the community would be 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, would 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 would be 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 wold accrue to 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 Henley area, since it lies outside the HSDRRS.

- *Contreras Dirt (Cells E, F, and Z)*

Direct Impacts
The impacts of excavation of the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area would likely be adverse, such as noise and traffic congestion. But, some impacts have both negative and positive impacts. Yet, it is difficult to foresee any construction-related impact that enhances community cohesion: such impacts would be 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 site is sufficiently distant from areas of development such that no spatial element of the community would be 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, would not be 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 would be 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 Contreras Dirt (Cells E, F, and Z) contractor-furnished 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 site is sufficiently distant from areas of development such that no spatial element of the community would be 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, would not occur. Rather, the adverse impacts in other resource areas would not be 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 would be 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 would accrue to 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.

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 Environmental Protection Agency (EPA) 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, Environmental Systems Research Institute, Inc. (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:

- 2000 U.S. Census 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 contractor-furnished borrow area project footprint are defined as the EJ study area. Each parish or county is considered the reference community for disproportionate impact analysis. The 2000 census data is utilized as the primary deciding variable per data accuracy and reliability as described previously. The 2008 estimates are utilized for reference purposes only. Since the contractor-furnished borrow areas in this IER are located in multiple parishes and/or counties, the EJ study areas are described separately as follows.

- *Big Shake*
  The proposed Big Shake contractor-furnished borrow area is located within Block Group 404 in St. James Parish, which extends from just below of LA 3125 to Belmont Avenue south and Joe Accardo Street east to Bend Street in St. James Parish. According to U.S. Census data, this area was a minority community in 2000, with 50.5 percent of the population a minority. This figure is higher than state and parish figures. The area was not a low income community, with 20.7 percent of the population low income, which is less than state figures. According to 2008 ESRI estimates, the low income and minority population changed insignificantly from 2000 to 2008. The proposed borrow site is adjacent to inhabited areas, and is within a 1-mile radius of a developing community. Therefore, it is probable that the area is a potential environmental justice area of interest.

- *Henley*
  The proposed Henley contractor-furnished borrow area is located within Block Group 306 in Hancock County, which extends just west of Nicholson Avenue and south of the Kiln Picayune Road. According to the U.S. Census, the proposed Henley borrow site area was not a low income or minority area in 2000. The minority population percentage was 11.9 percent, compared to the Mississippi State percentage of 39.3 percent. The percentage of persons living below the poverty line as of 2000 was 14.4 percent, compared to the Mississippi State percentage of 19.9 percent. These figures are less than county or state figures. The estimated low income population decreased from 2000 to 2008, while the estimated minority population increased from 2000 to 2008.

  Recent estimates provided by ESRI show that the demographic and economic background of Hancock County has changed very little since 2000. The proposed borrow site is not immediately adjacent to any inhabited areas, but is within a 1-mile radius of the developed northeast portion of the town of Kiln, MS.

  Since estimated changes to the low income and minority population was nominal during this period, the area's low income and minority population remains below county and state figures. Therefore, it is probable that the area is not considered a potential environmental justice area of interest.

- *Contreras Dirt (Cells E, F, and Z)*
  The proposed Contreras Dirt contractor-furnished borrow area is located within Block Group 301.04 in St. Bernard Parish, which extends just east of Callais Lane, west of Verrett Street and lies between LA 46 and Bayou Rd, extending south to an unnamed canal. According to the U.S. Census, the Contreras contractor-furnished borrow area was not a low income or minority area in 2000. The proposed contractor-furnished borrow area is adjacent to inhabited areas and is within a one-mile radius of the developed eastern portion of the town of Kenilworth, LA.

  The minority population percentage was 17.1 percent, compared to the Louisiana State percentage of 38.8 percent. The percentage of persons living below the poverty line as of 2000 was 13.1 percent, compared to the state percentage of 19.6 percent. These figures are less than parish or state figures. The low income and minority population changed insignificantly from 2000 to 2008. Therefore, it is probable that the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area is not considered potential EJ area of interest.

Discussion of Impacts

No Action

- *Big Shake*
  Under the no action alternative, the proposed Big Shake contractor-furnished borrow area would not be excavated and no minority or low-income populations would be adversely impacted by the proposed project.

- *Henley*
  Under the no action alternative, the proposed Henley contractor-furnished borrow area would not be excavated and no minority or low-income populations would be adversely impacted by the proposed project.

- *Contreras Dirt (Cells E, F, & Z)*
  Under the no action alternative, the proposed Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow area would not be excavated and no minority or low-income populations would be adversely impacted by the proposed project.

Proposed Action

- *Big Shake*
  Analysis shows that minority and/or low-income communities are located within 1-mile of the proposed borrow location. Use of the proposed Big Shake contractor-furnished borrow area would impact low-income and/or minority communities. With implementation of the proposed action, impacts from borrow site activities such as air quality, noise, and traffic could occur, but would usually be limited to within 1-mile of the project area, and would be temporary in nature. Open borrow areas may pose a potential safety hazard to the neighboring populations should they remain undeveloped and if no barrier is erected around it. 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 area to reduce the risk of accidents at the site.

Long-term or permanent adverse impacts from the proposed site are undetermined at this time and would depend on what the landowner decides to do with the Big Shake contractor-furnished borrow area 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.

- *Henley*
  Analysis shows that no minority and/or low-income communities are located within 1-mile of the proposed borrow location. Use of the proposed Henley 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 would usually be limited to within 1-mile of the project area, and would be temporary in nature. Open borrow areas may pose a potential safety hazard to the neighboring populations should they remain undeveloped and if no barrier is erected around it. 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 area to reduce the risk of accidents at the site.

  Long-term or permanent adverse impacts from the proposed site are undetermined at this time and would depend on what the landowner decides to do with the Henley contractor-furnished borrow area 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.

- *Contreras Dirt (Cells E, F, & Z)*
  Analysis shows that no minority and/or low-income communities are located within 1-mile of the proposed borrow location. Use of the proposed Contreras Dirt contractor-furnished borrow area would not impact low-income and/or minority communities. With implementation of the proposed action, impacts from borrow site activities such as air quality, noise, and traffic could occur, but would usually be limited to within 1-mile of the project area, and would be temporary in nature. Open borrow areas may pose a potential safety hazard to the neighboring populations should they remain undeveloped and if no barrier is erected around it. 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 area to reduce the risk of accidents at the site.

  Long-term or permanent adverse impacts from the proposed site are undetermined at this time and would depend on what the landowner decides to do with the Contreras Dirt contractor-furnished borrow area 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. In addition, all population groups inside the HSDRRS system would benefit equally from the completed risk reduction system.

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 contractor-furnished 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.

Copies of the Phase I Environmental Site Assessment (ESA) studies referenced below will be maintained on file at the CEMVN office, and are incorporated herein by reference. Copies of these reports are available by requesting them from the CEMVN, or accessing them at www.nolaenvironemtal.gov.

Phase I HTRW ESAs have been completed for the proposed contractor-furnished borrow areas:

- A Phase I ESA was prepared for the Big Shake property by Southern Earth Sciences, of Mobile, Alabama on 15 July 2008. No Recognized Environmental Conditions (RECs) were found on site or on neighboring properties. The probability of encountering HTRW during the course of this project is low, and no further study is recommended. If the project methods or location change, the HTRW probability may need to be re-evaluated.

- A Phase I ESA was prepared for the Henley property by Wetland Sciences, Inc. on 31 July 2008. No RECs were found on site or on neighboring properties within one mile. The probability of encountering HTRW during the course of this project is low, and no further study is recommended. If the project methods or location change the HTRW probability may need to be re-evaluated.

- A Phase I ESA was prepared for the Contreras Dirt property by Royal Engineers and Consultants, New Orleans, in July 2008. No RECs were found on site or on neighboring properties. The probability of encountering HTRW during the course of this project is low, and no further study is recommended. If the project methods or location change, the HTRW probability may need to be re-evaluated.

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 and southwestern Mississippi. 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 62,000,000 cubic yards of borrow material is estimated to be needed to complete authorized levels of protection for the HSDRRS and NOV projects. 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 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, IER #28 and IER #29 (table 7). 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 45 borrow sites approved for construction of the HSDRRS, and more than 20 sites under investigation in southeastern Louisiana and southwestern Mississippi (figure 10). HSDRRS borrow activity would cumulatively impact the significant resources discussed in this IER in the project area. Currently unidentified borrow sources may also incrementally impact the significant resources discussed in this IER in the project area.

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, construction necessary to raise levee heights and incorporate the Plaquemines Parish West Bank non-Federal levees into the NOV project, 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.

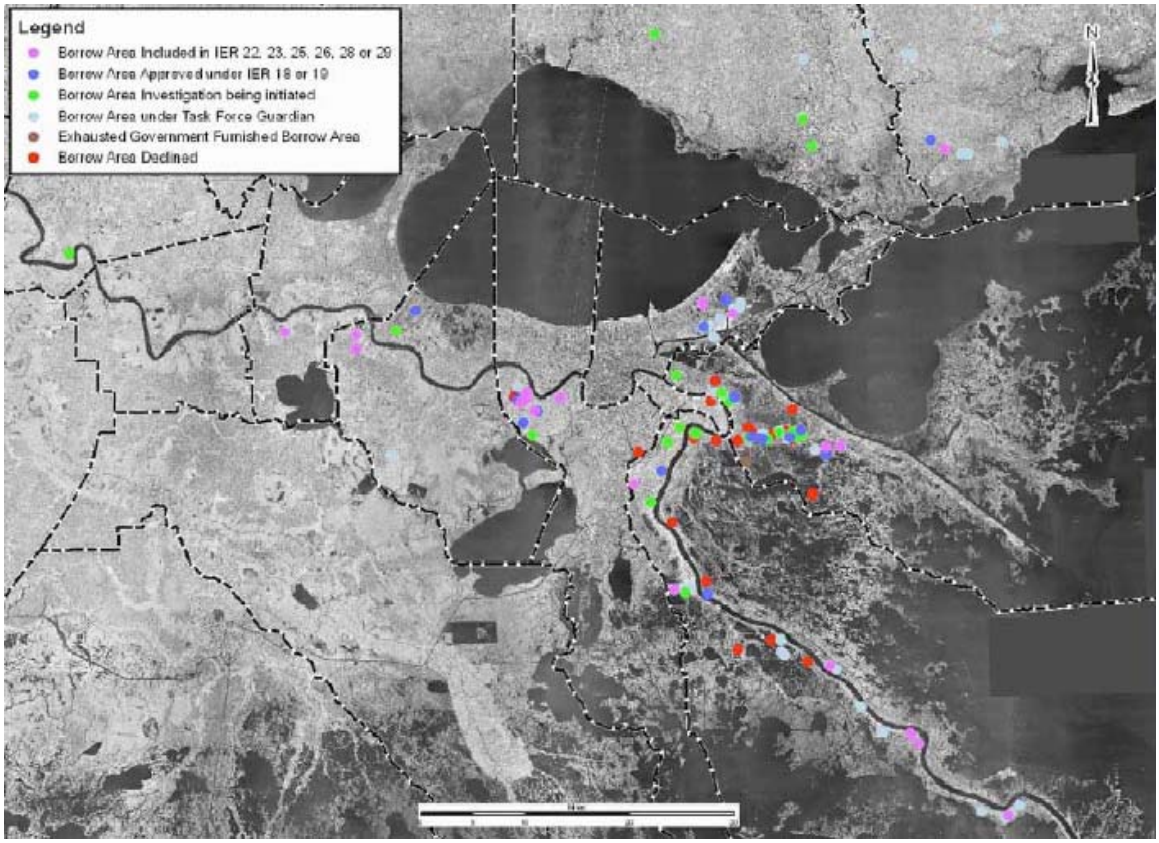

Figure 10: Potential HSDRRS Borrow Sources in the Project Area

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 previously, 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, IER #28, and IER #29 (figure 10), and proposed for use in this IER could cumulatively impact land use patterns and transportation resources in the project area. Use of these proposed contractor-furnished 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 the project area. 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 1,600 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 contractor-furnished borrow areas would have short-term cumulative effects on transportation. It is anticipated that over 62,000,000 cubic yards of material would be needed to raise levee elevations regionally to meet the needs of the HSDRRS and NOV projects. 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 2,000,000. 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 the project area, 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 contractor-furnished 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 Big Shake, Henley, and Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow areas. There is an identified need for over 31,000,000 cubic yards of borrow material to complete the HSDRRS projects, 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, IER #28, and more potential areas may be discussed in future IERs. Contractor-furnished borrow areas were investigated in IER #19, IER #23, IER #26, and IER #29, and more potential sites may be discussed in future IERs. 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 contractor-furnished 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 the HSDRRS projects was 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
Mississippi Department of Marine Resources
Mississippi State Historic Preservation Officer

LADNR and the Mississipi Department of Marine Resources (MDMR) reviewed the proposed action for consistency with the states' Coastal Resource Program. All proposed borrow activities discussed in this document were found by LADNR and MDNR to be consistent with their Programs (table 6). In addition, St. Bernard Parish Government determined that a Coastal Use Permit was not required for the proposed excavation of the Contreras Dirt (Cells E, F, and Z) site (appendix B). The St. James Parish Coastal Zone Management Committee had no objection to the proposed excavation of the Big Shake site (appendix B).

Table 6: Coastal Zone Consistency Determination Concurrence

Proposed Borrow Area	Consistency Permit Number
Big Shake	P20080985
Henley	DMR-090028
Contreras (Cells E, F, & Z)	P20061819

The CEMVN received a draft Coordination Act Report (CAR) from the USFWS on 11 August 2009 and a final CAR on 23 September 2009 (appendix D). Recommendations of the USFWS, in accordance with the Fish and Wildlife Coordination Act, include:

Recommendation 1: "The [Contreras Dirt] private contractor shall provide 189.4 AAHUs to compensate for the unavoidable, project-related loss of forested lands. Such compensation can be obtained from any approved mitigation bank. The [USFWS], 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 Contreras and Henley sites to impact nearby, jurisdictional wetlands outside of those project areas, 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 those borrow sites and any jurisdictional wetlands in which no excavation would be allowed.

CEMVN Response 4: The CEMVN will consider investigation into this.

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 contractor-furnished 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 contractor-furnished borrow areas would not directly impact jurisdictional wetlands, and therefore no mitigation for this resource is necessary. Approximately 225 acres 189.4 AAHUs) of non-jurisdictional BLH would be impacted with use of the proposed Contreras Dirt contractor-furnished borrow area, and would be mitigated for by the landowner if the proposed site is selected by construction contractors for use in building the HSDRRS.

Table 7 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 7. HSDRRS Impacts and Compensatory Mitigation to be Completed

IER	Parish		Non-wet	Non-wet BLH	BLH	BLH	Swamp	Swamp	Marsh	Marsh	Water Bottoms
			acres	*AAHUs*	*acres*	*AAHUs*	*acres*	*AAHUs*	*acres*	*AAHUs*	*acres*
1 LPV, La Branch Wetlands Levee	St. Charles	Protected Side	-	-	-	-	73.23	39.53	-	-	-
		Flood Side	-	-	-	-	38.48	29.73	-	-	
1 Supplemental LPV, La Branch Wetlands Levee	St. Charles	Protected Side	-	-	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	
2 LPV, West Return Floodwall	St. Charles, Jefferson	Protected Side	-	-	-	-	-	-	17.00	9.00	-
		Flood Side	-	-	-	-	-	-	17.00	9.00	
3 LPV, Jefferson Lakefront Levee	Jefferson	Protected Side	-	-	-	-	-	-	-	-	26.40
		Flood Side	-	-	-	-	-	-	-	-	
4 LPV, Orleans Lakefront Levee	Orleans	Protected Side	-	-	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	
5 LPV, Lakefront Pump Stations	Jefferson, Orleans	Protected Side	-	-	-	-	-	-	-	-	3.29
		Flood Side	-	-	-	-	-	-	-	-	
6 LPV, Citrus Lands Levee	Orleans	Protected Side	-	-	-	-	-	-	-	-	6.90
		Flood Side	-	-	-	-	-	-	4.00	-	
7 LPV, Lakefront Levee	Orleans	Protected Side	-	-	151.70	79.30	-	-	100.40	36.80	106.00
		Flood Side	-	-	30.00	11.90	-	-	70.00	37.20	
8 LPV, Bayou Dupre Control Structure	St. Bernard	Protected Side	-	-	-	-	-	-	-	-	0.30
		Flood Side	-	-	-	-	-	-	-	-	
10 LPV, Chalmette Loop	St. Bernard	Protected Side	-	-	38.32	16.44	-	-	106.55	57.31	95.00
		Flood Side	-	-	35.31	15.22	-	-	323.04	209.94	
11 Tier 2 Borgne IHNC	Orleans, St. Bernard	Protected Side	-	-	-	-	-	-	-	-	-
		Flood Side	-	-	15.00	2.59	-	-	122.00	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	-	-	-	-	-	-	137.80	66.30	
17 Company Canal Floodwall	Jefferson	Protected Side	-	-	5.50	2.69	-	-	-	-	-
		Flood Side	-	-	-	-	19.00	17.09	-	-	

IER	Parish		Non-wet	Non-wet BLH	BLH	BLH	Swamp	Swamp	Marsh	Marsh	Water Bottoms
			acres	*AAHUs*	*acres*	*AAHUs*	*acres*	*AAHUs*	*acres*	*AAHUs*	*acres*
18 GFBM	Jefferson, Orleans, Plaquemines, St. Bernard, St. Charles	Protected Side	379.30	152.32	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	
19 CFBM	Hancock County, MS; Iberville, Jefferson, Orleans, Plaquemines, St. Bernard	Protected Side	-	-	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	
22 GFBM	Jefferson, Plaquemines	Protected Side	244.69	118.54	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	
23 CFBM	Hancock County, MS; Plaquemines, St. Bernard, St. Charles	Protected Side	-	-	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	
25 GFBM	Jefferson, Orleans, Plaquemines	Protected Side	933.00	284.00	-	-	-	-	-	-	-
		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. Tammany, St. John the Baptist	Protected Side	107.30	48.60	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	
30 CFBM	St. Bernard and St. James; Hancock, MS	Protected Side	225.00	189.40	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	
Totals		Protected Side	1909.23	801.31	515.72	311.89	73.23	39.53	223.95	103.11	00.00
		Flood Side	-	-	131.71	51.54	162.13	102.34	673.84	346.77	230.99
		Both	1909.23	801.31	647.43	363.43	235.36	141.87	897.79	449.88	230.99

- 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 Big Shake, Henley, and Contreras Dirt (Cells E, F, and Z) contractor-furnished borrow areas could 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 (table 2); Louisiana Department of Natural Resources concurrence with the determination that the proposed action is consistent, to the maximum extent practicable, with the Louisiana and Mississippi Coastal Use Programs (table 6); coordination with the SHPO (table 3); 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. The 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 Big Shake, Henley, and Contreras Dirt (Cells E, F, and Z) for use as potential sources of contractor-furnished borrow material 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, 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. Any found RECs would be avoided. The interim decision is to approve the Big Shake, Henley, and Contreras Dirt (Cells E, F, and Z) sites as potential sources of contractor-furnished borrow material for use by construction contractors in the construction of the HSDRRS.

9.2 PREPARED BY

IER #30 was prepared by the following individuals. The address of the preparers is: U.S. Army Corps of Engineers, New Orleans District; Planning, Programs, and Project Management Division, CEMVN-PM; P.O. Box 60297; New Orleans, Louisiana 70160-0297.

Preparer	Title	Topic
Danielle Tommaso	Environmental Manager	NEPA compliance, document preparation
Gib Owen	HSDRRS Environmental Team Leader	Project coordination, document review
Christopher Brown, Ph.D.	Botanist	HTRW
Jennifer Darville	Editor	Document review
Thomas Keevin	Chief, Environmental Branch, St. Louis District, USACE	Internal technical review
Patricia Leroux	Environmental Resources Specialist	NEPA compliance
Jerica Richardson	Archaeologist	Environmental Justice
Michael Swanda	Archaeologist	Cultural Resources
Kelly McCaffrey	Landscape Architect	Aesthetic (Visual) Resources
Andrew Perez	Recreational Specialist	Recreational Resources
Laura Singer	Regional Economist	Socioeconomic Resources
Rita Trotter	Assistant District Counsel	Document review

Ph.D.: Doctor of Philosophy

9.3 LITERATURE CITED

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APPENDIX A: LIST OF ACRONYMS AND DEFINITIONS OF COMMON TERMS

AAHU	Average Annualized Habitat Unit
APE	Area of potential impact
ASTM	American Society of Testing and Materials
BLH	Bottomland Hardwood (Forest)
BMP	Best Management Practice
CAR	Coordination Act Report
CED	Comprehensive Environmental Document
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
Clay Classifications	CH: Fat clay CL: lean clay ML: Silt
dBA	Decibel
DNL	Day-night average sound level
EA	Environmental Assessment
EIS	Environmental Impact Statement
EJ	Environmental Justice
USEPA	U.S. Environmental Protection Agency
ER	Engineering Regulation
ESA	Environmental Site Assessment
ESRI	Environmental Systems Research Institute
FONSI	Finding of No Significant Impact
GIWW	Gulf Intracoastal Waterway
HSDRRS	Hurricane and Storm Damage Reduction System (formerly known as the Hurricane Protection System)
HPS	Hurricane Protection System (see HSDRRS)
HTRW	Hazardous, Toxic, and Radioactive Waste
HU	Habitat Unit
IER	Individual Environmental Report
IERS	Individual Environmental Report Supplemental
IPET	Interagency Performance Evaluation Team
LCA	Louisiana Coastal Area
LACRP	Louisiana Coastal Resource Program
LADEQ	Louisiana Department of Environmental Quality
LADNR	Louisiana Department of Natural Resources
LPV	Lake Pontchartrain and Vicinity Project
MDMR	Mississippi Department of Marine Resources
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NRCS	National Resources Conservation Service
NRHP	National Register of Historic Places
NO_x	Nitrogen oxides
NOV	New Orleans to Venice Project
O_3	Ozone
Pb	Lead
PDT	Project Delivery Team
PI	Plasticity index

PM	Particulate matter
PPM	Parts per million
P.L.	Public Law
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
ROD	Record of Decision
ROE	Right of Entry
Section 404 (of the Clean Water Act)	The Section 404 program for the evaluation of permits for the discharge of dredged or fill material was originally enacted as part of the Federal Water Pollution Amendments of 1972. The Secretary of Army acting through the Chief of Engineers may issue permits, after notice and opportunity for public hearings for the discharge of dredged or fill material into the navigable waters at specified disposal sites.
SHPO	State Historic Preservation Officer
SIR	Supplemental Information Report
SPH	Standard Project Hurricane
SO_x	Sulfur oxides
T&E	Threatened or Endangered Species
USACE	U.S. Army Corps of Engineers CEMVN: Mississippi Valley Division, New Orleans District
USDA	U.S. Department of Agriculture NRCS: Natural Resources Conservation Service
USFWS	U.S. Fish and Wildlife Service
WBV	West Bank and Vicinity Project
WRDA	Water Resources Development Act

APPENDIX B: PUBLIC COMMENT AND RESPONSES SUMMARY

Choctaw Nation of Oklahoma

P.O. Box 1210 • Durant, OK 74702-1210 • (580) 924-8280

Gregory E. Pyle
Chief

Gary Batton
Assistant Chief

August 21, 2009

Joan Exnicios
Dept of the Army
New Orleans District, Corp of Engineers
PO Box 60267
New Orleans, Louisiana 70160-0267

Dear Joan Exnicios:

We have reviewed the following proposed project (s) as to its effect regarding religious and/or cultural significance to historic properties that may be affected by an undertaking of the projects area of potential effect.

Project Description: ER #30" Contractor Furnished Borrow Material #5"

Comments: After review of the above-mentioned project(s), to the best of our knowledge, it will have no adverse effect on any historic properties in the project's area of potential effect. However, should construction activities exposed human remains, buried archaeological materials such as chipped stone, tools, pottery, bone, glass or metal items, or should it uncover evidence of buried historic building materials such as rock foundations, brick, or hand-poured concrete, this office should be contacted immediately at 1-800-522-6170 ext. 2137.

Sincerely,

Terry D. Cole
Tribal Historic Preservation Officer
Choctaw Nation of Oklahoma

By: Caren A. Johnson
Caren A. Johnson
Administrative Assistant

CAJ: vr

Louis Barrett
2533 Bayou Rd.
St. Bernard, La. 70085

Sept. 10, 2009

Mr. Gib Owen
U.S. Army Corps of Engineers
PM-RS
PO Box 60267
New Orleans, LA 70160-0267

Re: Individual Environmental Report #30

Dear Mr. Owen:

Please accept my following comments and concerns regarding the U.S. Army Corps of Engineers Individual Environmental Report #30. As a St. Bernard Parish resident, my comments are primarily constrained to its effects on St. Bernard Parish.

While recognizing that hurricane protection for the region is vital and urgent; I am also seriously concerned of the impact on the community by several parts of IER#30 as currently stated.

General Comments

First and foremost, I find the logic of digging borrow pits inside the levee system astounding. Why would you cannibalize the very area that you are building protection for? The eastern area of St. Bernard Parish (where the majority of the borrow pits are located or proposed) is the highest elevated portion of the parish. It defies logic to destroy so much of this prime land in this small area. This is the land that should be saved and protected for future use and development. There has to be a better alternative.

I have commented previously that the Corps of Engineers should be taking the position of being the premier guardian of the coastal parishes, instead of being a participant in their destruction. I actually thought this was happening with the announcement that the levees in St. Bernard would be completed with the T-wall design, which would minimize the need for more borrow material. Then I see that IER's for borrow material in St. Bernard Parish are continuing for some reason. I fail to see the reason in these conflicting actions, and fear that the reasons are not transparent.

Please note that the majority of my comments to IER's #18 & #19 also apply to this IER, particularly the historical awareness and the public notification. Contreras is one of the most historical sites in St. Bernard parish, and every effort should be made to preserve it. Also, like several of the sites in IER's #18 & #19, this IER proposes a borrow pit adjacent to a subdivision. A subdivision of people, who have returned, rebuilt and has increased in size since Katrina. Have the people of this subdivision

been individually notified and made aware that this borrow pit is proposed on the entire eastern side of their subdivision? Also, are these people aware that IER #28 proposes yet another borrow pit on the west side of their subdivision?

Thank you for the opportunity to comment on this IER#30. I look forward to your reply.

Respectfully,

Louis Barrett
2533 Bayou Rd.
St. Bernard, La. 70085

APPENDIX C: MEMBERS OF INTERAGENCY ENVIRONMENTAL TEAM

Kyle Balkum	Louisiana Dept. of Wildlife and Fisheries
Catherine Breaux	U.S. Fish and Wildlife Service
Mike Carloss	Louisiana Dept. of Wildlife and Fisheries
David Castellanos	U.S. Fish and Wildlife Service
Frank Cole	Louisiana Department of Natural Resources
Greg Ducote	Louisiana Department of Natural Resources
John Ettinger	U.S. Environmental Protection Agency
David Felder	U.S. Fish and Wildlife Service
Michelle Fischer	U.S. Geologic Survey
Deborah Fuller	U.S. Fish and Wildlife Service
Mandy Green	Louisiana Department of Natural Resources
Jeffrey Harris	Louisiana Department of Natural Resources
Richard Hartman	NOAA National Marine Fisheries Service
Brian Heimann	Louisiana Dept. of Wildlife and Fisheries
Jeffrey Hill	NOAA National Marine Fisheries Service
Christina Hunnicutt	U.S. Geologic Survey
Barbara Keeler	U.S. Environmental Protection Agency
Kirk Kilgen	Louisiana Department of Natural Resources
Tim Killeen	Louisiana Department of Natural Resources
Brian Lezina	Louisiana Dept. of Wildlife and Fisheries
Brian Marks	Louisiana Dept. of Wildlife and Fisheries
Ismail Merhi	Louisiana Department of Natural Resources
David Muth	U.S. National Park Service
Clint Padgett	U.S. Geologic Survey
Jamie Phillippe	Louisiana Dept. of Environmental Quality
Molly Reif	U.S. Geologic Survey
Kevin Roy	U.S. Fish and Wildlife Service
Manuel Ruiz	Louisiana Dept. of Wildlife and Fisheries
Reneé Sanders	Louisiana Department of Natural Resources
Angela Trahan	U.S. Fish and Wildlife Service
Nancy Walters	U.S. Fish and Wildlife Service
David Walther	U.S. Fish and Wildlife Service
Patrick Williams	NOAA National Marine Fisheries Service

APPENDIX D: INTERAGENCY CORRESPONDENCE

United States Department of the Interior

FISH AND WILDLIFE SERVICE
646 Cajundome Blvd.
Suite 400
Lafayette, Louisiana 70506

August 7, 2006

Colonel Richard P. Wagenaar
District Commander
U.S. Army Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Colonel Wagenaar:

As you know, the U.S. Fish and Wildlife Service (Service) is assisting the U.S. Army Corps of Engineers (Corps) in assessing impacts of, and mitigation requirements for, borrow sites which are needed to complete authorized improvements, and to construct Federal and non-Federal hurricane/flood protection levees in southern Louisiana. Those improvements to hurricane and flood control projects are authorized by the Emergency Supplemental Appropriations to Address Hurricanes in the Gulf of Mexico (Public Laws 109-148, PL 84-99 and PL 109 234 (4th supplemental)). This letter is provided in accordance with the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), Fish and Wildlife Coordination Act (FWCA, 48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), and the Migratory Bird Treaty Act (40 Stat. 755, as amended; 16 U.S.C. 703 et seq.), but it does not constitute the final report of the Secretary of the Interior as required by Section 2(b) of the Fish and Wildlife Coordination Act.

Through the efforts of Task Force Guardian, the Corps has restored Hurricane Katrina-damaged hurricane/flood protection projects to their authorized or previously permitted/constructed protection levels. Identification of borrow areas needed to complete those repairs utilized a protocol that prioritized selection of those sites in the following order: existing commercial pits, upland sources, previously disturbed/manipulated wetlands within a levee system, and low-quality wetlands outside a levee system. The Service supports the use of such protocols to avoid and minimize impacts to wetlands and bottomland hardwoods within project areas. Avoidance and minimization of those impacts helps to provide consistency with restoration strategies and compliments the authorized hurricane protection efforts. Such consistency is also required by Section 303(d)(1) of the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA).

Accordingly, the Service recommends that prior to utilizing borrow sites every effort should be made to reduce impacts by using sheetpile and/or floodwalls to increase levee heights wherever feasible. In addition, the Service recommends that the following protocol be adopted and utilized to identify borrow sources in descending order of priority:

We appreciate the opportunity to provide this planning-aid letter and would be pleased to assist your agency in further identification of potential borrow sources. Should you or your staff have any questions regarding this letter, please contact David Walther (337/291-3122) of this office.

Sincerely,

Russell C. Watson
Supervisor
Louisiana Field Office

Enclosure

cc: National Marine Fisheries Service, Baton Rouge, LA
EPA, Dallas, TX
LA Dept. of Wildlife and Fisheries, Baton Rouge, LA
LA Dept. of Natural Resources, CMD, Baton Rouge, LA
LA Dept. of Natural Resources, CRD, Baton Rouge, LA

[redacted]

[redacted]

July 17, 2008

RECEIVED
JUL 18 2008
FISH & WLDL. SERV
LAFAYETTE, LA.

Mr. Jim Gruhala
U.S. Fish and Wildlife Service
646 Cajundome Blvd., Suite 400
Lafayette, LA 70506

RE: Threatened and Endangered Species Survey
Big Shake Project, Approximately 484 Acres
Paulina, St. James Parish, Louisiana

Dear Mr. Gruhala:

A threatened and endangered species report and concurrence are needed in order to obtain the necessary environmental clearances to use approximately 484 acres of property in Paulina, St. James Parish, Louisiana as a borrow area for U.S. Army Corps of Engineers levee projects. Nearly the entire project site has been and is in use as a sugar cane field. Enclosed is a threatened and endangered species report which includes site location maps, an aerial photograph, and some photographs of the project site.

According to the Louisiana Natural Heritage Program website, Rare, Threatened, and Endangered Species and Natural Communities present in St. James Parish include: Swamp milkweed *(Asclepias incarnata)*, Cypress tupelo swamp, Bald eagle *(Haliaceetus leucocephalus)*, long-tailed weasel *(Mustela frenata)*, Correl's false dragon-head *(Physostegia correllii)*, manatee *(Trichechus manatus)* and waterbird nesting colony. None of these species or communities were observed on the project site, and the project site does not appear to contain suitable habitat for these species.

Therefore, we have concluded that this project would not result in adverse impacts to these species or their habitats. Please let us know if you have any comments regarding the resources under your protection that may be affected by this project. Please contact me if you have any questions or need any additional information [redacted] or [redacted]

Sincerely,

[redacted]

Derek A Fulk July 22 2008

Cc: Mr. Gary Lester- Louisiana Natural Heritage Program
Louisiana Department of Wildlife and Fisheries

[redacted]

[redacted]

RECEIVED
JUN 02 2008
FISH & WLDL. SERV
LAFAYETTE, LA

TRANSMITTAL SHEET

DATE: May 19, 2008

PROJECT: [redacted]
Threatened and Endangered Species Consultation

TO: Mr. Russell Watson
Attn: Mr. Josh Marceaux
US Fish and Wildlife Services
Lafayette Ecological Services Field Office
646 Cajun Dome Blvd., Suite 400
Lafayette Louisiana 70560-4290

Deborah A Fuller June 12, 2008

WE ARE SENDING YOU:

HEREWITH.....X

UNDER SEPARATE COVER.....

BY MESSENGER.....

COPIES EACH OF THE FOLLOWING:

- December 19, 2006 request
- Revised Site Map

WHICH ARE:

APPROVED.....X
APPROVED AS NOTED.....
RETURNED TO YOU FOR.....X
CORRECTION & RESUBMITTAL.....
FOR YOUR INFORMATION.....

COMMENTS:

Attached please find a December 19, 2006 request for a Threatened and Endangered Species review for the [redacted] We do not have a record of a map submitted with the original request. This request is to re-evaluate the original request as stated in the attached letter and amend the request to include the entire 777 acres as shown on the attached map.

Please feel free to contact me if you have any questions or require any additional information.

BY: [redacted]

[redacted]

The USACE solicitation will expire just after the first of the year so any help expediting this coordination is greatly appreciated.

If you have any questions regarding this assessment or if I can be of further service, please contact me at (228) 518-0905.

Sincerely,

Billy J. Culpepper

Enclosure

CC: DK Aggregates, LLC
USACE

United States Department of the Interior

FISH AND WILDLIFE SERVICE
646 Cajundome Blvd.
Suite 400
Lafayette, Louisiana 70506

August 11, 2009

Colonel Alvin B. Lee
District Engineer
U.S. Army Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Colonel Lee:

Please reference the Individual Environmental Report (IER) 30, entitled "Supply Contract Borrow Material, St. Bernard and St. James Parishes, Louisiana, and Hancock County, Mississippi." That IER addresses impacts resulting from the excavation of contractor-supplied borrow sites which will be used to increase hurricane protection within the Greater New Orleans area located in southeast Louisiana. Work associated with that IER is being conducted in response to Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4). That law authorized the Corps of Engineers (Corps) to upgrade the Westbank and Vicinity of New Orleans and Lake Pontchartrain and Vicinity hurricane protection projects in the Greater New Orleans area to provide protection against a 100-year hurricane event. This draft report contains an analysis of the impacts on fish and wildlife resources that would result from excavation of those borrow sites and provides recommendations to minimize and/or mitigate project impacts on those resources.

The proposed project was authorized by Supplemental 4 which directed the Corps to proceed with engineering, design, and modification (and construction where necessary) of the Lake Pontchartrain and Vicinity and the West Bank and Vicinity Hurricane Protection Projects so those projects would provide 100-year hurricane protection. Procedurally, project construction has been authorized in the absence of the report of the Secretary of the Interior that is required by Section 2(b) of the Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). In this case, the authorization process has prevented our agencies from following the normal procedures for fully complying with the FWCA. The FWCA requires that our Section 2(b) report be made an integral part of any report supporting further project authorization or administrative approval. Therefore, to fulfill the coordination and reporting requirements of the FWCA, the U.S. Fish and Wildlife Service (Service) will be providing post-authorization 2(b) reports for individual IERs.

This draft report incorporates and supplements our FWCA Reports that addressed impacts and mitigation features for the Westbank and Vicinity of New Orleans (dated November 10, 1986, August 22, 1994, November 15, 1996, and June 20, 2005) and the Lake Pontchartrain and Vicinity Hurricane (dated July 25, 1984, and January 17, 1992) Protection projects. It also supplements our August 7,

2006, Planning-aid Letter to the Corps providing recommendations for minimizing impacts to fish and wildlife resources from borrow site selection and use. This report, however, does not constitute the report of the Secretary of the Interior as required by Section 2(b) of the FWCA. This report has been provided to the Louisiana Department of Wildlife and Fisheries and the National Marine Fisheries Service; their comments will be incorporated into our final report.

DESCRIPTION OF THE STUDY AREA

The study area is primarily located within the Mississippi River Deltaic Plain of the Lower Mississippi River Ecosystem, with one site in south Mississippi. The Contreras site is located in southern St. Bernard Parish, Louisiana, between the Mississippi River Gulf Outlet (MRGO) and the Mississippi River. The Big Shake site is located along the east bank of the Mississippi River, approximately 4 miles southwest of the city of Gramercy, in St. James Parish, Louisiana. The Henley site is near the city of Kiln, approximately 5 miles north of Interstate 10 in Hancock County, Mississippi. The higher elevations in Louisiana occur on the natural levees of the Mississippi River and its distributaries. Developed lands are primarily associated with natural levees, but extensive wetlands have been leveed and drained to accommodate residential, commercial, and agricultural development. Federal, State, and local levees have been installed for flood protection purposes, often with negative effects on adjacent wetlands. Navigation channels such as the Gulf Intracoastal Waterway and the MRGO are also prominent landscape features, as are extensive oil and gas industry access channels and pipeline canals. Extensive wetlands and associated shallow open waters dominate the landscape outside the flood control levees. Major water bodies include Lake Pontchartrain located north of the main study area, the Mississippi River which bisects the main study area, and Lake Borgne which is located on the eastern edge of the main study area.

FISH AND WILDLIFE HABITATS AND RESOURCES

Habitat types at and in the vicinity of the borrow sites include forested wetlands (i.e., bottomland hardwoods and/or swamps), non-wet bottomland hardwoods, upland forests, scrub-shrub, marsh, open water, active agriculture, and developed areas. Due to urban development and a forced-drainage system within the levee system, the hydrology of much of the forested habitat has been altered. The forced-drainage system has been in operation for many years, and subsidence is evident throughout the area.

Wetlands (forested, marsh, and scrub-shrub) within the study area provide plant detritus to adjacent coastal waters and thereby contribute to the production of commercially and recreationally important fishes and shellfishes. Wetlands in the project area also provide valuable water quality functions such as reduction of excessive dissolved nutrient levels, filtering of waterborne contaminants, and removal of suspended sediment. In addition, coastal wetlands buffer storm surges reducing their damaging effect to man-made infrastructure within the coastal area.

Factors that will strongly influence future fish and wildlife resource conditions include freshwater input and loss of coastal wetlands. Depending upon the deterioration rate of marshes, the frequency of occasional short-term saltwater events may increase. Under that scenario, tidal action in the project area may increase gradually as the buffering effect of marshes is lost, and use of that area by estuarine-

dependent fishes and shellfish tolerant of saltwater conditions would likely increase. Regardless of which of the above factors ultimately has the greatest influence, freshwater wetlands within and adjacent to the project area will probably experience losses due to development, subsidence, and erosion.

Forested wetlands in the area are divided into two major types; bottomland hardwood forests and cypress-tupelo swamps. Bottomland hardwood forests are found at higher elevations (Mississippi River and former distributary channel levees) in the project area, while cypress-tupelo swamps are located along the flanks of larger distributary ridges as a transition zone between bottomland hardwoods and lower-elevation marsh, scrub-shrub habitats, or open water.

Non-wet bottomland hardwoods within the project area also provide habitat for wildlife resources. Between 1932 and 1984, the acreage of bottomland hardwoods in Louisiana declined by 45 percent (Rudis and Birdsey 1986). By 1970, Jefferson Parish (located approximately between St. James and St. Bernard Parishes) was classified as entirely urban or nonforested in the U.S. Forest Service's forest inventory with most of this loss resulting from development within non-wet areas inside the hurricane protection levees. A large percentage of the original bottomland hardwoods within the Mississippi River floodplain acreage in the Deltaic Plain are located within a levee system, especially those at higher elevations. However, losses of that habitat type are not regulated or mitigated with the exception of impacts resulting from Corps projects as required by Section 906(b) of the Water Resources Development Act of 1986.

Upland forests in the area are primarily comprised of pine forests. An ongoing trend within those forested areas is their conversion to loblolly pine plantations; such plantations provide lower quality wildlife habitat as compared to naturally regenerated pine forests.

Dead-end canals and small bayous are typically shallow and their bottoms may be filled in to varying degrees with semi-fluid organic material. Drainage canals enclosed within the hurricane protection projects or within developed areas are stagnant except when pumps are operating to remove rain water. Runoff from developed areas has likely reduced the habitat value of drainage canals by introducing various urban pollutants, such as oil, grease, and excessive nutrients. Clearing and development has eliminated much of the riparian habitat that would normally provide shade and structure for many aquatic species.

Some of the waterbodies in the study area meet criteria for primary and secondary contact recreation and partially meet criteria for fish and wildlife propagation; while others do not meet the latter criteria. Causes for not fully meeting fish and wildlife propagation criteria include excessive nutrients, organic enrichment, low dissolved oxygen levels, flow and habitat alteration, pathogens and noxious aquatic plants. Sources of those problems include hydromodification, habitat modification, recreational activities, and unspecified upstream inputs. Municipal point sources, urban runoff, storm sewers, and onsite wastewater treatment systems are also known contributors to poor water quality in the area.

Developed habitats in the study area include residential and commercial areas, as well as roads and existing levees. Those habitats do not support significant wildlife use. Most of the development is located on higher elevations of the project area; however, vast acreages of swamp and marsh have been

placed under forced drainage systems and developed. A smaller acreage of wetlands has been filled for development. Agricultural lands occur throughout the area; agriculture includes sugarcane farming, cattle production, and haying.

Endangered and Threatened Species

To aid the Corps in complying with their proactive consultation responsibilities under the Endangered Species Act (ESA), the Service provided a list of threatened and endangered species and their critical habitats within the coastal parishes of the New Orleans District. Private contractors have conducted ESA consultation on each borrow site as they were identified and determined that, at this time, no threatened or endangered species or their critical habitat were located within any proposed borrow site. If a proposed borrow site is changed significantly or relocated, or excavation is not implemented within 1 year, we recommend that the Corps request that the contractor 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.

Future Fish and Wildlife Resources

The combination of subsidence and sea level rise results in higher water levels, stressing most non-fresh marsh plants and forested wetlands leading to plant death and conversion to open water. Other major causes of wetland losses within the study area include altered hydrology, storms, saltwater intrusion (caused by marine processes invading fresher wetlands), shoreline erosion, herbivory, and development activities including the direct and indirect impacts of dredge and fill (Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority 1998). The continued conversion of wetlands and forested habitats to open water or developed land represents the most serious fish and wildlife-related problem in the study area. Habitat losses could be expected to cause declines in the area's carrying capacity for migratory waterfowl, wading birds, other migratory birds, alligators, furbearers, and game mammals.

ALTERNATIVES UNDER CONSIDERATION

The proposed borrow sites have been located in areas that minimize impacts to wetlands and impacts to non-wet bottomland hardwoods have also been avoided to the extent practicable. Use of adjacent borrow, the typical construction method, has been limited because of soil conditions (i.e., insufficient clay content), thus impacts resulting from expansion of borrow sites into wetlands has been avoided in some areas.

PROJECT IMPACTS

Excavation of borrow sites will result in the conversion of terrestrial habitat into open-water areas. Because agricultural, pasture, cleared land habitats have a reduced value to fish and wildlife resources and are not a declining or limited habitat type, impacts associated with conversion of those habitats to open-water were quantified only by acreage as part of the total site. The land type and acreage of each proposed borrow site is listed below (Table 1). The Corps' regulatory program has determined that the borrow sites of IER 30 do not contain any jurisdictional wetlands. However, non-wet bottomland

hardwood (BLH) at the Contreras site would be impacted; therefore, mitigation would be required.

FISH AND WILDLIFE CONSERVATION MEASURES

To minimize wetland and bottomland hardwood impacts, the Service recommends that prior to utilizing borrow sites, every effort should be made to reduce impacts by using sheetpile, floodwalls, geotextile, or some combination thereof, to increase levee heights wherever feasible. In addition, the Service recommends that the previous protocol to identify and prioritize borrow sources provided in our August 7, 2006, Planning-aid letter should continue to be utilized as a guide in locating future borrow-sites.

MITIGATION MEASURES

The President's Council on Environmental Quality defined the term "mitigation" in the National Environmental Policy Act regulations to include:

(a) avoiding the impact altogether by not taking a certain action or parts of an action; (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and (e) compensating for the impact by replacing or providing substitute resources or environments.

The Service supports and adopts this definition of mitigation and considers its specific elements to represent the desirable sequence of steps in the mitigation planning process. Based on current and expected future without-project conditions, the planning goal of the Service is to develop a balanced project, i.e., one that is responsive to demonstrated hurricane protection needs while addressing the co-equal need for fish and wildlife resource conservation.

The Service's Mitigation Policy (Federal Register, Volume 46, No. 15, January 23, 1981) identifies four resource categories that are used to ensure that the level of mitigation recommended by Service biologists will be consistent with the fish and wildlife resource values involved. Considering the high value of forested areas (wet and non-wet) and marsh for fish and wildlife, and the relative scarcity of those habitat types, they are usually designated as Resource Category 2 habitats, the mitigation goal for which is no net loss of in-kind habitat value. Degraded bottomland hardwood forest (e.g. dominated by exotic species) and any wet pastures that may be impacted, however, are placed in Resource Category 3 due to their reduced value to wildlife, fisheries and lost/degraded wetland functions. The mitigation goal for Resource Category 3 habitats is no net loss of habitat value.

The Service used the Habitat Assessment Methodology (HAM) to quantify the impacts to forested habitats. Those habitat assessment models utilized in this evaluation are modified from those developed in the Service's Habitat Evaluation Procedures (HEP). However, both models are community-level evaluations instead of the species-based approach used with HEP. For each habitat type, those models define an assemblage of variables considered important to the suitability of an area to support a diversity of fish and wildlife species (Louisiana Department of Natural Resources 1994; U.S. Fish and Wildlife Service 1980). A Habitat Suitability Index (HIS) is calculated from all of the

model variables to represent the overall value of the wetland habitat quality. The product of an HIS value and the acreage of available habitat for a given target year is known as the Habitat Unit (HU), and is the basic unit for measuring project effects on fish and wildlife habitat. HUs are annualized over the project life to determine the Average Annual Habitat Units (AAHUs) available for each habitat type. The change (increase or decrease) in AAHUs for the future with-project scenario, compared to the future without-project conditions, provides a measure of anticipated impacts. A net gain in AAHUs indicates that the project is beneficial to the fish and wildlife community within that habitat type; a net loss of AAHUs indicates that the project would adversely impact fish and wildlife resources. Further explanation of how impacts/benefits are assessed and an explanation of the assumptions affecting the HSI values for each target year are available for review at Service's Lafayette, Louisiana, field office.

Table 1: Supply Contract Borrow Sites

Site	Parish or County	Total Site Area (acres)	BLH Habitat Impacted (acres)	AAHUs Lost
Contreras	St. Bernard	263	225	189.4
Henley	Hancock	197	Cleared/Pasture land no BLH	0
Big Shake	St. James	441	Active Agriculture no BLH	0
Total		901	225	189.4

SERVICE POSITION AND RECOMMENDATIONS

Excavation of borrow sites result in the loss of 225 acres of bottomland hardwood forest for a loss of 189.4 AAHUs. The Service does not object to the use of the proposed borrow sites provided the following fish and wildlife recommendations are implemented concurrently with project implementation:

1. The private contractor shall provide 189.4 AAHUs to compensate for the unavoidable, project-related loss of forested lands. 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.

2. The protocol to identify and prioritize borrow sources provided in our August 7, 2006, Planning-aid letter (attached) should be utilized as a guide for locating future borrow-sites and expanding existing sites.

3. Any proposed change in borrow site features, locations or plans shall be coordinated in advance with the Service, NMFS, LDWF, and LDNR.

4. If a proposed borrow site is changed significantly or excavation is not implemented within one year, we recommend that the Corps notify the contractor to reinitiate coordination with

David Castellanos (337/291-3112) of this office to ensure that the proposed project would not adversely affect any federally listed threatened or endangered species or their habitat.

Sincerely,

James F. Boggs
Supervisor
Louisiana Field Office

cc: Ms. Danielle Tommaso, CEMVN-PM-RS, New Orleans, LA
EPA, Dallas, TX
NMFS, Baton Rouge, LA
LA Dept. of Wildlife and Fisheries, Baton Rouge, LA
LA Dept. of Natural Resources (CMD), Baton Rouge, LA
OCPR, Baton Rouge, LA

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
646 Cajundome Blvd.
Suite 400
Lafayette, Louisiana 70506

September 23, 2009

Colonel Alvin B. Lee
District Engineer
U.S. Army Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Colonel Lee:

Please reference the draft Individual Environmental Report (IER) 30, entitled "Contractor-Furnished Borrow Material #5, St. Bernard, and St. James Parishes, Louisiana, and Hancock County, Mississippi" (IER #30). That IER addresses impacts resulting from the excavation of contractor-furnished borrow sites which will be used to increase hurricane protection within the Greater New Orleans area located in southeast Louisiana. Work associated with that IER is being conducted in response to Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4). That law authorized the Corps of Engineers (Corps) to upgrade the Westbank and Vicinity of New Orleans and Lake Pontchartrain and Vicinity hurricane protection projects in the Greater New Orleans area to provide protection against a 100-year hurricane event. This draft report contains an analysis of the impacts on fish and wildlife resources that would result from excavation of those borrow sites and provides recommendations to minimize and/or mitigate project impacts on those resources.

The proposed project was authorized by Supplemental 4 which directed the Corps to proceed with engineering, design, and modification (and construction where necessary) of the Lake Pontchartrain and Vicinity and the West Bank and Vicinity Hurricane Protection Projects so those projects would provide 100-year hurricane protection. Procedurally, project construction has been authorized in the absence of the report of the Secretary of the Interior that is required by Section 2(b) of the Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). In this case, the authorization process has prevented our agencies from following the normal procedures for fully complying with the FWCA. The FWCA requires that our Section 2(b) report be made an integral part of any report supporting further project authorization or administrative approval. Therefore, to fulfill the coordination and reporting requirements of the FWCA, the U.S. Fish and Wildlife Service (Service) will be providing post-authorization 2(b) reports for individual IERs.

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2006, Planning-aid Letter to the Corps providing recommendations for minimizing impacts to fish and wildlife resources from borrow site selection and use. This constitutes the report of the Secretary of the Interior as required by Section 2(b) of the FWCA. This report has been provided to the Louisiana Department of Wildlife and Fisheries and the National Marine Fisheries Service, and their comments, if any, have been incorporated into this report.

DESCRIPTION OF THE STUDY AREA

The study area is primarily located within the Mississippi River Deltaic Plain of the Lower Mississippi River Ecosystem, with the exception of one site which is located in southeastern Mississippi. The Contreras site is located in southern St. Bernard Parish, Louisiana, between the Mississippi River Gulf Outlet (MRGO) and the Mississippi River. The Big Shake site is located along the east bank of the Mississippi River, approximately 4 miles southwest of the city of Gramercy, in St. James Parish, Louisiana. The Henley site is near the city of Kiln, approximately 5 miles north of Interstate 10 in Hancock County, Mississippi. The higher elevations in Louisiana occur on the natural levees of the Mississippi River and its distributaries. Developed lands are primarily associated with natural levees, but extensive wetlands have been leveed and drained to accommodate residential, commercial, and agricultural development. Federal, State, and local levees have been installed for flood protection purposes, often with negative effects on adjacent wetlands. Navigation channels such as the Gulf Intracoastal Waterway and the MRGO are also prominent landscape features, as are extensive oil and gas industry access channels and pipeline canals. Extensive wetlands and associated shallow open waters dominate the landscape outside the flood control levees. Major water bodies include Lake Pontchartrain located north of the main study area, the Mississippi River which bisects the main study area, and Lake Borgne which is located on the eastern edge of the main study area.

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Habitat types at and in the vicinity of the borrow sites include forested wetlands (i.e., bottomland hardwoods and/or swamps), non-wet bottomland hardwoods, upland forests, scrub-shrub, marsh, open water, active agriculture, and developed areas. Due to urban development and a forced-drainage system within the levee system, the hydrology of much of the forested habitat has been altered. The forced-drainage system has been in operation for many years, and subsidence is evident throughout the area.

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Factors that will strongly influence future fish and wildlife resource conditions include freshwater input and loss of coastal wetlands. Depending upon the deterioration rate of marshes, the frequency of occasional short-term saltwater events may increase. Under that scenario, tidal action in the project area may increase gradually as the buffering effect of marshes is lost, and use of that area by estuarine-

dependent fishes and shellfish tolerant of saltwater conditions would likely increase. Regardless of which of the above factors ultimately has the greatest influence, freshwater wetlands within and adjacent to the project area will probably experience losses due to development, subsidence, and erosion.

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Upland forests in southeastern Mississippi are primarily comprised of pine forests. An ongoing trend within those forested areas is their conversion to loblolly pine plantations; such plantations provide lower quality wildlife habitat as compared to naturally regenerated pine forests.

Dead-end canals and small bayous are typically shallow and their bottoms may be filled in to varying degrees with semi-fluid organic material. Drainage canals enclosed within the hurricane protection projects or within developed areas are stagnant except when pumps are operating to remove rain water. Runoff from developed areas has likely reduced the habitat value of drainage canals by introducing various urban pollutants, such as oil, grease, and excessive nutrients. Clearing and development has eliminated much of the riparian habitat that would normally provide shade and structure for many aquatic species.

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placed under forced drainage systems and developed. A smaller acreage of wetlands has been filled for development. Agricultural lands occur throughout the area; agriculture includes sugarcane farming, cattle production, and haying.

Endangered and Threatened Species

To aid the Corps in complying with their proactive consultation responsibilities under the Endangered Species Act (ESA), the Service provided a list of threatened and endangered species and their critical habitats within the coastal parishes of the New Orleans District. Private contractors have conducted ESA consultation on each borrow site as they were identified and determined that, at this time, no threatened or endangered species or their critical habitat were located within any proposed borrow site. If a proposed borrow site is changed significantly or relocated, or excavation is not implemented within 1 year, we recommend that the Corps request that the contractor 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.

Future Fish and Wildlife Resources

The combination of subsidence and sea level rise results in higher water levels, stressing most non-fresh marsh plants and forested wetlands leading to plant death and conversion to open water. Other major causes of wetland losses within the study area include altered hydrology, storms, saltwater intrusion (caused by marine processes invading fresher wetlands), shoreline erosion, herbivory, and development activities including the direct and indirect impacts of dredge and fill (Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority 1998). The continued conversion of wetlands and forested habitats to open water or developed land represents the most serious fish and wildlife-related problem in the study area. Habitat losses could be expected to cause declines in the area's carrying capacity for migratory waterfowl, wading birds, other migratory birds, alligators, furbearers, and game mammals.

ALTERNATIVES UNDER CONSIDERATION

The proposed borrow sites have been located in areas that minimize impacts to wetlands and impacts to non-wet bottomland hardwoods have also been avoided to the extent practicable. Use of adjacent borrow, the typical construction method, has been limited because of soil conditions (i.e., insufficient clay content), thus impacts resulting from expansion of borrow sites into wetlands has been avoided in some areas.

PROJECT IMPACTS

Excavation of borrow sites will result in the conversion of terrestrial habitat into open-water areas. Because agricultural, pasture, cleared land habitats have a reduced value to fish and wildlife resources and are not a declining or limited habitat type, impacts associated with conversion of those habitats to open-water were quantified only by acreage as part of the total site. The land type and acreage of each proposed borrow site is listed below (Table 1). The Corps' regulatory program has determined that the borrow sites of IER 30 do not contain any jurisdictional wetlands. However, non-wet bottomland

hardwood (BLH) at the Contreras site would be impacted; therefore, mitigation would be required.

As indicated in the IER, there is a potential for hydrologic modifications caused by borrow material excavation to impact nearby jurisdiction wetlands located outside of the project area at the Contreras and Henley sites. A reduction or interception of rainfall runoff could result in a decrease in downstream jurisdictional wetlands by conversion into less hydric habitat types. These effects may be difficult to describe and quantify; however, potential impacts due to hydrology modifications caused by borrow material excavation should be discussed here and in future borrow IERs because of the close proximity of wetlands, and other fish and wildlife habitat, to some proposed borrow sites. Therefore, the Service recommends an investigation to determine the extent of potential hydrologic changes due to borrow excavation. The Service would be pleased to participate in the effort.

To further protect jurisdictional wetlands, the Service also recommends the designation of a 100 foot "no excavation" buffer zone between the jurisdictional wetlands and the borrow site to help preserve the water quality of the wetlands.

FISH AND WILDLIFE CONSERVATION MEASURES

To minimize wetland and bottomland hardwood impacts, the Service recommends that prior to utilizing borrow sites, every effort should be made to reduce impacts by using sheetpile, floodwalls, geotextile, or some combination thereof, to increase levee heights wherever feasible. In addition, the Service recommends that the previous protocol to identify and prioritize borrow sources provided in our August 7, 2006, Planning-aid letter should continue to be utilized as a guide in locating future borrow-sites.

MITIGATION MEASURES

The President's Council on Environmental Quality defined the term "mitigation" in the National Environmental Policy Act regulations to include:

(a) avoiding the impact altogether by not taking a certain action or parts of an action; (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and (e) compensating for the impact by replacing or providing substitute resources or environments.

The Service supports and adopts this definition of mitigation and considers its specific elements to represent the desirable sequence of steps in the mitigation planning process. Based on current and expected future without-project conditions, the planning goal of the Service is to develop a balanced project, i.e., one that is responsive to demonstrated hurricane protection needs while addressing the co-equal need for fish and wildlife resource conservation.

The Service's Mitigation Policy (Federal Register, Volume 46, No. 15, January 23, 1981) identifies four resource categories that are used to ensure that the level of mitigation recommended by Service biologists will be consistent with the fish and wildlife resource values involved. Considering the high

value of forested areas (wet and non-wet) and marsh for fish and wildlife, and the relative scarcity of those habitat types, they are usually designated as Resource Category 2 habitats, the mitigation goal for which is no net loss of in-kind habitat value. Degraded bottomland hardwood forest (e.g. dominated by exotic species) and any wet pastures that may be impacted, however, are placed in Resource Category 3 due to their reduced value to wildlife, fisheries and lost/degraded wetland functions. The mitigation goal for Resource Category 3 habitats is no net loss of habitat value.

The Service used the Habitat Assessment Methodology (HAM) to quantify the impacts to forested habitats. That habitat assessment model utilized in this evaluation is modified from those developed in the Service's Habitat Evaluation Procedures (HEP). However, this model is a community-level evaluation instead of the species-based approach used with HEP. For each habitat type, that model defines an assemblage of variables considered important to the suitability of an area to support a diversity of fish and wildlife species (Louisiana Department of Natural Resources 1994; U.S. Fish and Wildlife Service 1980). A Habitat Suitability Index (HIS) is calculated from all of the model variables to represent the overall value of the wetland habitat quality. The product of an HIS value and the acreage of available habitat for a given target year is known as the Habitat Unit (HU), and is the basic unit for measuring project effects on fish and wildlife habitat. HUs are annualized over the project life to determine the Average Annual Habitat Units (AAHUs) available for each habitat type. The change (increase or decrease) in AAHUs for the future with-project scenario, compared to the future without-project conditions, provides a measure of anticipated impacts. A net gain in AAHUs indicates that the project is beneficial to the fish and wildlife community within that habitat type; a net loss of AAHUs indicates that the project would adversely impact fish and wildlife resources. Further explanation of how impacts/benefits are assessed and an explanation of the assumptions affecting the HSI values for each target year are available for review at Service's Lafayette, Louisiana, field office.

Table 1: Supply Contract Borrow Sites

Site	Parish or County	Total Site Area (acres)	BLH Habitat Impacted (acres)	AAHUs Lost
Contreras	St. Bernard	263	225	189.4
Henley	Hancock	197	Cleared/Pasture land, no BLH	0
Big Shake	St. James	441	Active Agriculture no BLH	0
Total		901	225	189.4

SERVICE POSITION AND RECOMMENDATIONS

Excavation of borrow sites result in the loss of 225 acres of bottomland hardwood forest for a loss of 189.4 AAHUs. The Service does not object to the use of the proposed borrow sites provided the following fish and wildlife recommendations are implemented concurrently with project implementation:

1. The private contractor shall provide 189.4 AAHUs to compensate for the unavoidable, project-related loss of forested lands. Such compensation 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.

2. The protocol to identify and prioritize borrow sources provided in our August 7, 2006, Planning-aid letter (attached) should be utilized as a guide for locating future borrow-sites and expanding existing sites.

3. Any proposed change in borrow site features, locations or plans shall be coordinated in advance with the Service, NMFS, LDWF, and LDNR.

4. Because of the potential for hydrologic modifications caused by borrow material excavation at the Contreras and Henley sites to impact nearby, jurisdictional wetlands outside of those project areas, 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 those borrow sites and any jurisdictional wetlands in which no excavation would be allowed.

5. If a proposed borrow site is changed significantly or excavation is not implemented within one year, we recommend that the Corps notify the contractor to reinitiate coordination with David Castellanos (337/291-3112) of this office to ensure that the proposed project would not adversely affect any federally listed threatened or endangered species or their habitat.

Sincerely,

James F. Boggs
Supervisor
Louisiana Field Office

cc: Ms. Danielle Tommaso, CEMVN-PM-RS, New Orleans, LA
EPA, Dallas, TX
NMFS, Baton Rouge, LA
LA Dept. of Wildlife and Fisheries, Baton Rouge, LA
LA Dept. of Natural Resources (CMD), Baton Rouge, LA
OCPR, Baton Rouge, LA

LITERATURE CITED

Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority. 1998. Coast 2050: Towards a Sustainable Coastal Louisiana. Louisianan Department of Natural Resources. Baton Rouge, LA. 161 p.

Louisiana Department of Natural Resources. 1994. Habitat assessment models for fresh swamp and bottomland hardwoods within the Louisiana coastal zone. Louisiana Department of Natural Resources, Baton Rouge, Louisiana. 10 pp.

Rudis, V. A., and Birdsey, R. A. 1986 Forest Resources and Current Conditions in the Lower Mississippi Valley. Resour. Bull. SO-116. New Orleans, La: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station. 7 p.

U.S. Fish and Wildlife Service. 1980. Habitat evaluation procedures. U.S. Fish and Wildlife Service, Division of Ecological Services, Washington, D.C. Ecological Services Manual

United States Department of the Interior

FISH AND WILDLIFE SERVICE
646 Cajundome Blvd.
Suite 400
Lafayette, Louisiana 70506

September 11, 2009

Colonel Alvin B. Lee
District Engineer
U.S. Army Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Colonel Lee:

The U.S. Fish and Wildlife Service (Service) has reviewed the August 14, 2009, draft Individual Environmental Report (IER), "Contractor-Furnished Borrow Material #5, St. Bernard, and St. James Parishes, Louisiana, and Hancock County, Mississippi" (IER #30), transmitted to our office via a letter from Ms. Joan M. Exnicios, Chief of your Environmental Planning and Compliance Branch. That study addresses impacts resulting from the excavation of borrow material at several sites that will be used to increase hurricane protection within the Greater New Orleans area located in southeast Louisiana. Work associated with that IER is being conducted in response to Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4). That law authorized the U.S. Army Corps of Engineers (Corps) to upgrade two existing hurricane protection projects (i.e., Westbank and Vicinity of New Orleans and Lake Pontchartrain and Vicinity) in the Greater New Orleans area to provide protection against a 100-year hurricane event. The Service submits the following comments in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), and the National Environmental Policy Act of 1969 (83 Stat. 852, as amended; 42 U.S.C. 4321- 4347).

The IER is well-written and provides a good description of fish and wildlife resources in the project area and project impacts on those resources. Bottomland hardwood (BLH) forest in the project area provides habitat for Federal trust species including wading birds and neotropical migrants. The proposed project would impact BLH; however, the Corps has indicated that mitigation for all impacts will be implemented.

Specific Comments

Section 3.2.1 Jurisdictional Wetlands; pages 31 through 37 - The Corps states that there is a potential at all sites for hydrologic modifications caused by borrow material excavation to impact nearby jurisdiction wetlands located outside of the project area. The Service is unaware of any jurisdictional wetlands near the Big Shake site; therefore, the following comments apply only to the Contreras and Henley sites. A reduction or interception of rainfall runoff could result in a decrease in downstream jurisdictional wetlands by conversion into less hydric habitat types.

These effects may be difficult to describe and quantify; however, potential impacts due to hydrology modifications caused by borrow material excavation should be discussed here and in future borrow IERs because of the close proximity of wetlands, and other fish and wildlife habitat, to some proposed borrow sites. Therefore, the Service recommends an investigation to determine the extent of potential hydrologic changes due to borrow excavation. The Service would be pleased to participate in the effort.

To further protect jurisdictional wetlands, the Service also recommends the designation of a 100 foot "no excavation" buffer zone between the jurisdictional wetlands and the borrow site to help preserve the water quality of the wetlands.

Section 7 Mitigation; Table 7; Page 140 – There are incorrect values for IER 30 in the table. The IER 30 Non-wet BLH acres and Non-wet BLH AAHUs columns should have the values 225 and 189.4, respectively.

The Service thus far does not object to the proposed features in IER #30. Thank you for the opportunity to provide comments on the draft IER. If you or your staff has any questions regarding our comments, please contact David Castellanos (337-291-3112) of this office.

Sincerely,

James F. Boggs
Supervisor
Louisiana Field Office

cc: Ms. Danielle Tommaso, CEMVN-PM-RS, New Orleans, LA
EPA, Dallas, TX
NMFS, Baton Rouge, LA
LA Dept. of Wildlife and Fisheries, Baton Rouge, LA
LA Dept. of Natural Resources (CMD), Baton Rouge, LA
OCPR, Baton Rouge, LA

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

September 2, 2009 F/SER46/RH:jk
225/389-0508

Mr. Gib Owen
Environmental Planning and Compliance Branch
Planning, Programs, and Management Division
New Orleans District, U.S. Army Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Mr. Owen:

NOAA's National Marine Fisheries Service (NMFS) has reviewed the draft **Individual Environmental Report (IER) #30** titled "Contractor Furnished Borrow Material #5; St. Bernard and St. James Parishes, Louisiana, and Hancock County, Mississippi." The draft IER evaluates and quantifies the impacts associated with the use of three contractor-furnished borrow sites to restore levees to the 100-year level of hurricane protection.

NMFS has reviewed the draft IER and agrees that none of the borrow sites are located in areas classified as essential fish habitat or supportive of marine fishery resources. As such, we have no comments to provide on the draft IER.

We appreciate the opportunity to review and comment on the draft IER.

Sincerely,

for Miles M. Croom
Assistant Regional Administrator
Habitat Conservation Division

c:
FWS, Lafayette - Walther
EPA, Dallas - Ettinger
LA DNR, Consistency - Ducote
F/SER46, - Swafford
Files

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
3737 Government Street
Alexandria, LA 71302

(318) 473-7795
Fax: (318) 473-7750

September 8, 2009

Mr. Gib Owen
U.S. Army Corps of Engineers
Planning, Programs, and Project Management Division
Environmental Planning and Compliance Branch
CEMVN-PM-RS
P.O. Box 60267
New Orleans, Louisiana 70160-0267

Dear Mr. Owen:

RE: **DRAFT INDIVIDUAL ENVIRONMENTAL REPORT # 30**
CONTRACTOR FURNISHED BORROW MATERIAL # 5
ST. BERNARD, ST. JAMES PARISHES, LOUISIANA
HANCOCK COUNTY, MISSISSIPPI

In response to your request for NRCS review of the referenced project site location to identify natural resource constraints, if any, that may impact design and permitting, I have reviewed the Farmland and Hydric Soil Classifications.

Farmland Classification

The Farmland Protection Policy Act (FPPA)-Subtitle I of Title XV, Section 1539-1549 of PL 97-98, final rules and regulations were published in the Federal Register on June 17, 1994. These rules state that projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a federal agency or with assistance from a federal agency. For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

NRCS policy clarifies the Rule by stating that activities not subject to FPPA include:

1. Federal permitting and licensing
2. Projects planned and completed without assistance of a federal agency
3. Projects on land already in urban development or used for water storage
4. Construction within an existing right-of-way purchased on or before August 4, 1984.
5. Construction for national defense purposes
6. Construction of on-farm structures needed for farm operations
7. Surface mining, where restoration to agricultural use is planned
8. Construction of new minor secondary structures, such as a garage or storage shed.

As indicated in IER # 30, the soils on the proposed action – Big Shake, Henley and Contreras Dirt (Cells, E, F and Z) contain Prime Farmland. Therefore, if federal funds are involved, this project, Draft IER # 30,Contractor Furnished Borrow Material # 5, will require a farmland conversion impact rating. The assessment is completed form AD-1006, Farmland Conversion Impact Rating. The sponsoring agency completes the site assessment portion of the AD-1006, which assesses non-soil related criteria such as the potential for impact on the local agricultural economy if the land is converted to non-farm use and compatibility with existing agricultural use. Agencies can obtain from AD-1006 from the NRCS.

Furthermore, NRCS does not believe that the proposed project will impact any NRCS work in the vicinity. However, NRCS does recommend that appropriate erosion control measures are employed during the construction of the project to minimize any adverse effect on the surrounding environment.

Should you have any questions regarding the above comments, feel free to contact Mike Trusclair, District Conservationist, in our Boutte Field Office at (985) 758-2162, Ext. 3, or Amanda York, District Conservationist, in our Donaldsonville Field office at (225) 473-7638, Ext. 3. They will be able to assist with the completion of the Farmland Conversion Impact Rating Form AD-1006.

Sincerely,

(acting for)

E.J. "Ed" Giering III, P.E.
State Conservation Engineer

cc: Mike Trusclair, District Conservationist, NRCS, Boutte, Louisiana
Amanda York, District Conservationist, NRCS, Donaldsonville, Louisiana

BOBBY JINDAL
GOVERNOR

State of Louisiana

DEPARTMENT OF WILDLIFE AND FISHERIES
OFFICE OF WILDLIFE

ROBERT J. BARHAM
SECRETARY

JIMMY L. ANTHONY
ASSISTANT SECRETARY

September 4, 2009

Attn: Gib Owen
Planning, Programs, and Project Management Division
Environmental Planning and Compliance Branch
United States Army Corps of Engineers
P. O. Box 60267
New Orleans, LA 70160-0267

RE: *Application Number: IER #30 Contractor Furnished Borrow Material #5*
Applicant: U.S. Army Corps of Engineers-New Orleans District
Notice Date: August 14, 2009.

Dear Mr. Owen:

The professional staff of the Louisiana Department of Wildlife and Fisheries has reviewed the above referenced notice. Based upon this review, the following has been determined:

> The United Sates Army Corps (USACE) should determine whether wetlands surround the proposed borrow sites. In the event that jurisdictional wetlands are adjacent to or within the immediate vicinity of the proposed borrow sites, USACE should work with other regulatory and resource agencies to determine if buffers or other measures should be required to assure that there will be no indirect impacts to these wetlands as a result of the proposed excavation.
>
> Adequate erosion/sediment control measures should be implemented to insure that no sediments or other activity related debris are allowed to enter waters of the state. Accepted measures include the proper use of vegetated buffers, silt fences or other Environmental Protection Agency construction site stormwater runoff control best management practices.

The Louisiana Department of Wildlife and Fisheries appreciates the opportunity to review and provide recommendations to you regarding this proposed activity. Please do not hesitate to contact Habitat Section biologist Matthew Weigel at 225-763-3587 should you need further assistance.

Sincerely,

Kyle F. Balkum
Biologist Program Manager

mw

c: Matthew Weigel, Biologist
LDEQ, Water Quality Certification Section
EPA Marine & Wetlands Section
USFWS Ecological Services

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

REPLY TO
ATTENTION OF:

August 14, 2009

Planning, Programs, and
Project Management Division
Environmental Planning
and Compliance Branch

No known historic properties will be affected by this undertaking. This effect determination could change should new information come to our attention.

Scott Hutcheson 9-16-09
Scott Hutcheson Date
State Historic Preservation Officer

Phil Boggan
SHPO, Dept. of Culture
Recreation and Tourism
P.O. Box 44247
Baton Rouge, LA 70804

Dear Mr. Boggan:

Draft Individual Environmental Report #30 (IER #30), titled, "Contractor Furnished Borrow Material #5, St. Bernard and St. James Parishes, Louisiana, and Hancock County, Mississippi" prepared by the U.S. Army Corps of Engineers, New Orleans District, is enclosed for your review and comment.

The proposed action consists of potentially excavating suitable borrow material from three proposed contractor-furnished borrow areas for use in construction of the Hurricane and Storm Damage Risk Reduction System. The three proposed sites discussed in IER #30 include the Big Shake site in St. James Parish, the Contreras Dirt (Cells E, F, and Z) site in St. Bernard Parish, and the Henley Borrow site in Hancock County, Mississippi.

The 30-day public review and comment period for Draft IER #30 will begin on Friday, August 14, 2009 and end on Saturday, September 12, 2009. All comments should be sent to Mr. Gib Owen; U.S. Army Corps of Engineers; Planning, Programs, and Project Management Division; Environmental Planning and Compliance Branch; CEMVN-PM-RS; P.O. Box 60267; New Orleans, Louisiana 70160-0267. An electronic copy of IER #30 can be viewed and commented on at http://www.nolaenvironmental.gov. Requests for additional hardcopies may also be made by mailing the above-stated address, by calling (504) 862-1337, by fax to (504) 862-2088, and by e-mail to mvnenvironmental@usace.army.mil

AUG 17 2009

From: Diane Hewitt
To: Owen, Gib A MVN
Sent: Tue Sep 15 09:22:09 2009
Subject: DEQ SOV: 90818/2050 USACE DRAFT IER #30

September 15, 2009

Gib Owen

USACE

PO Box 60267

New Orleans, LA 70160-0267

gib.a.owen@usace.army.mil

RE:

90818/2050

USACE DRAFT IER #30

Notice of Availability

Orleans, St. Bernard, St. James

Dear Mr. Owen:

The Department of Environmental Quality (LDEQ), Offices of Environmental Assessment and Environmental Services have received your request for comments on the above referenced project. Please take any necessary steps to obtain and/or update all necessary approvals and environmental permits regarding this proposed project.

There were no objections based on the information in the document submitted to us. However, the following comments have been included below. Should you encounter a problem during the implementation of this project, please notify LDEQ’s Single-Point-of-contact (SPOC) at (225) 219-3640.

The Office of Environmental Services/Permits Division recommends that you investigate the following requirements that may influence your proposed project:

* If your project results in a discharge to waters of the state, submittal of a Louisiana Pollutant Discharge Elimination System (LPDES) application may be necessary.
* If the project results in a discharge of wastewater to an existing wastewater treatment system, that wastewater treatment system may need to modify its LPDES permit before accepting the additional wastewater.
* LDEQ has stormwater general permits for construction areas equal to or greater than one acre. It is recommended that you contact the LDEQ Water Permit Division at (225) 219-3181 to determine if your proposed improvements require one of these permits.
* All precautions should be observed to control nonpoint source pollution from construction activities.
* If any of the proposed work is located in wetlands or other areas subject to the jurisdiction of the U.S. Army Corps of Engineers, you should contact the Corps directly to inquire about the possible necessity for permits. If a Corps permit is required, part of the application process may involve a water quality certification from LDEQ.
* All precautions should be observed to protect the groundwater of the region.
* Please be advised that water softeners generate wastewaters that may require special limitations depending on local water quality considerations. Therefore if your water system improvements include water softeners, you are advised to contact the LDEQ Water Permits to determine if special water quality-based limitations will be necessary.
* Any renovation or remodeling must comply with LAC 33:III.Chapter 28.Lead-Based Paint Activities, LAC 33:III.Chapter 27.Asbestos-Containing Materials in Schools and State Buildings (includes all training and accreditation), and LAC 33:III.5151.Emission Standard for Asbestos for any renovations or demolitions.
* If any solid or hazardous wastes, or soils and/or groundwater contaminated with hazardous constituents are encountered during the project, notification to LDEQ’s Single-Point-of-Contact (SPOC) at (225) 219-3640 is required. Additionally, precautions should be taken to protect workers from these hazardous constituents.

Currently, Orleans, St. Bernard, and St. James Parishes are classified as attainment parishes with the National Ambient Air Quality Standards for all criteria air pollutants.

Please forward all future requests to Ms. Diane Hewitt, LDEQ/Performance Management/ P.O. Box 4301, Baton Rouge, LA 70821-4301, and your request will be processed as quickly as possible.

If you have any questions, please feel free to contact me at (225) 219-4079 or by email at diane.hewitt@la.gov. Permitting questions should be directed to the Office of Environmental Services at (225) 219-3181.

Sincerely,

Diane Hewitt

Performance Management

LDEQ/Community and Industry Relations

Business and Community Outreach Division

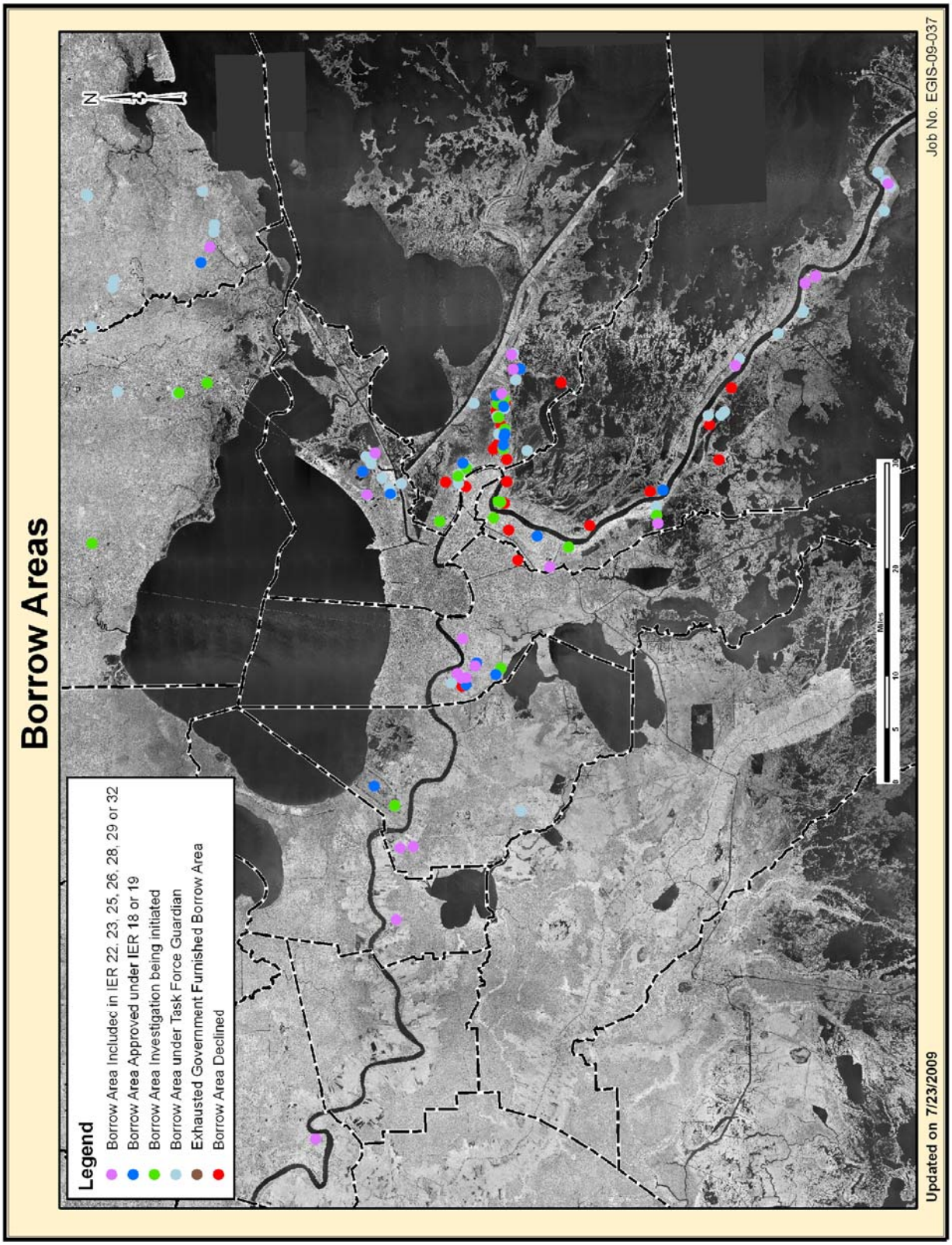
Office of the Secretary

P.O. Box 4301 (602 N. 5th Street)

Baton Rouge, LA 70821-4301

Phone: 225-219-4079

Fx: 225-325-8208

E-mail: diane.hewitt@la.gov

APPENDIX E: CEMVN BORROW AREA INDEX MAP