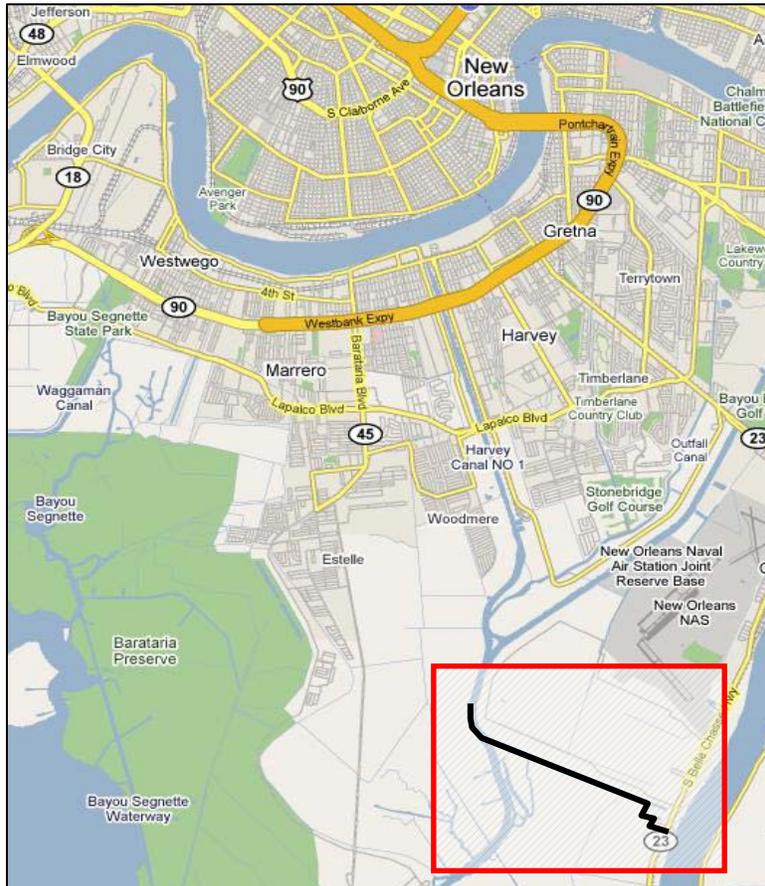


APPENDICES

IER # 13 WEST BANK AND VICINITY HERO CANAL LEVEE AND EASTERN TERMINUS PLAQUEMINES PARISH, LOUISIANA



**US Army Corps
of Engineers®**

April 2009

IER # 13 APPENDICES TABLE OF CONTENTS

Appendix A: List of Acronyms and Definitions of Common Terms - 3 -

Appendix B: Public Comment and Responses Summary - 7 -

Appendix C: Members of Interagency Environmental Team - 8 -

Appendix D: USFWS T&E Concurrence - 9 -

Appendix E: LaDNR LCRP Consistency Determination - 13 -

Appendix F: LaDEQ Water Quality Certification - 15 -

Appendix G: Detailed Engineering Plates - 17 -

Appendix H: LaSHPO Cultural Resource Concurrence - 31 -

Appendix I: USFWS Fish and Wildlife Coordination Act Report - 35 -

Appendix J: NRCS Farmland Conversion Impact Rating - 67 -

Appendix K: Air Emissions - 71 -

Appendix L: Detailed Demographic and Census Data - 76 -

Appendix A: List of Acronyms and Definitions of Common Terms

AAHU	-	Average Annualized Habitat Units
ACB	-	Articulated Concrete Block
ASTM	-	American Society of Testing Materials
BLH	-	Bottomland Hardwood Forest
BMPs	-	Best Management Practices
BOD	-	Biological Oxygen Demand
CAA	-	Clean Air Act
CED	-	Comprehensive Environmental Document
CEMVN	-	United States Army Corps of Engineers, Mississippi Valley Division, New Orleans District
CEQ	-	Council on Environmental Quality
CERCLA	-	Comprehensive Environmental Response, Compensation, and Liability Act
CFBM	-	Contractor Furnished Borrow Material
cfs	-	cubic feet per second
CMSA	-	Consolidated Metropolitan Statistical Area
COD	-	Chemical Oxygen Demand
CWA	-	Clean Water Act
CWPPRA	-	Coastal Wetlands Planning, Protection and Restoration Act
CZM	-	Coastal Zone Management Program
dBA	-	Decibels
DNL	-	Day-Night Sound Level
DO	-	Dissolved Oxygen
DoD	-	Department of Defense
EA	-	Environmental Assessment
EAR	-	Engineering Alternatives Report

EIS	-	Environmental Impact Statement
El.	-	Elevation
EM	-	Engineering Manual
EO	-	Executive Order
EPA	-	Environmental Protection Agency
ER	-	Engineer Regulation
ERDC	-	Engineering Research and Development Center
ESA	-	Environmental Site Assessment
ESRI	-	Environmental Systems research institute, Inc.
FEMA	-	Federal Emergency Management Agency
FHWA	-	Federal Highway Administration
FONSI	-	Finding of No Significant Impact
FPPA	-	Farmland Protection Policy Act
FWCA	-	Fish and Wildlife Coordination Act
GFBM	-	Government Furnished Borrow Material
GIWW	-	Gulf Intracoastal Waterway
gpm	-	gallons per minute
HSDRRS	-	Greater New Orleans Hurricane and Storm Damage Risk Reduction System
HPS	-	Hurricane Protection System
HTRW	-	Hazardous, Toxic, and Radioactive Waste
ID	-	Identification numbers
IER	-	Individual Environmental Report
JLNHPP	-	Jean Lafitte National Historic Park and Preserve
LA	-	Louisiana
LA 23	-	Louisiana State Highway 23
LACPR	-	Louisiana Coastal Protection and Restoration
LaSHPO	-	Louisiana State Historic Preservation Office

LCRP	-	Louisiana Coastal Resource Program
LaDEQ	-	Louisiana Department of Environmental Quality
LaDNR	-	Louisiana Department of Natural Resources
LaDWF	-	Louisiana Department of Wildlife and Fisheries
LaNHP	-	Louisiana Natural Heritage Program
LF	-	Linear Feet
LORR	-	Level of Risk Reduction
LPV	-	Lake Pontchartrain and Vicinity
MBTA	-	Migratory Bird Treaty Act
MRL	-	Mississippi River Levee
MSA	-	Metropolitan Statistical Area
MSL	-	Mean Sea Level
NAA	-	Non-Attainment Area
NAAQS	-	National Ambient Air Quality Standards
NAVD88	-	North American Vertical Datum of 1988
NEPA	-	National Environmental Policy Act
NFIP	-	National Flood Insurance Program
NHPA	-	National Historic Preservation Act
NGO	-	Non-Governmental Organization
NMFS	-	National Marine Fisheries Service
NOAA	-	National Oceanic and Atmospheric Association
NOGCR	-	New Orleans Gulf Coast Railway
NOV	-	New Orleans to Venice
NPS	-	National Park Service
NRCS	-	Natural Resources Conservation Service
NRHP	-	National Register of Historic Places
NWI	-	National Wetland Inventory
NWR	-	National Wildlife Refuge

O&M	-	Operation and Maintenance
OMRR&R	-	Operation, Maintenance, Repair, Replacement and Rehabilitation
PA	-	Programmatic Agreement
PDT	-	Project Delivery Team
PIIESA	-	Phase II Environmental Site Assessment
PL	-	Public Law
PM	-	Particulate Matter
PPA	-	Project Partnering Agreement
psi	-	Pounds per square inch
RCRA	-	Resource Conservation and Recovery Act
REC	-	Recognized Environmental Conditions
ROD	-	Record of Decision
ROW	-	Right-of-Way
SIP	-	State Implementation Plan
SPH	-	Standard Project Hurricane
SWPPPs	-	Storm Water Pollution Prevention Plans
T&E	-	Threatened and Endangered
TMDL	-	Total Maximum Daily Load
TRM	-	Turf Reinforcement Mattress
U.S.	-	Unites States of America
USACE	-	United States Army Corps of Engineers
USCG	-	United States Coast Guard
USDA	-	United States Department of Agriculture
USFWS	-	United States Fish and Wildlife Service
WBV	-	West Bank and Vicinity of New Orleans
WRDA	-	Water Resources Development Act
WVA	-	Wetland Value Assessment

Appendix B: Public Comment and Responses Summary

This section will be completed once it is sent out for public review.

Appendix C: Members of Interagency Environmental Team

Kyle Balkum	Louisiana Department of Wildlife and Fisheries
Elizabeth Behrens	U.S. Army Corps of Engineers, MVN
Catherine Breaux	U.S. Fish and Wildlife Service
Michael Brown	U.S. Army Corps of Engineers, MVN
David Castellanos	U.S. Fish and Wildlife Service
Mike Carlross	Louisiana Department of Wildlife and Fisheries
Frank Cole	Louisiana Department of Natural Resources
Getrisc Coulson	U.S. Army Corps of Engineers, MVN
Jennifer Darville	U.S. Army Corps of Engineers, MVN
Greg Ducote	Louisiana Department of Natural Resources
Robert Dubois	U.S. Fish and Wildlife Service
John Ettinger	U.S. Environmental Protection Agency
Michelle Fischer	U.S. Geologic Survey
Deborah Fuller	U.S. Fish and Wildlife Service
Mandy Green	La Coastal Protection and Restoration Authority
Tom Griggs	Louisiana Department of Environmental Quality
Jeffrey Harris	Louisiana Department of Natural Resources
Richard Hartman	NOAA National Marine Fisheries Service
Brian Heinmann	Louisiana Dept. of Wildlife and Fisheries
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
Patricia Leroux	U.S. Army Corps of Engineers, MVN
Brian Lezina	Louisiana Dept. of Wildlife and Fisheries
Lissa Lyncker	U.S. Army Corps of Engineers, MVN
Brian Marcks	Louisiana Department of Natural Resources
Ismail Merhi	La Coastal Protection and Restoration Authority
David Muth	U.S. National Park Service
Beth Nord	U.S. Army Corps of Engineers, MVN
Bonnie Obiol	U.S. Army Corps of Engineers, MVN
Gib Owen	U.S. Army Corps of Engineers, MVN
Jamie Phillipe	Louisiana Dept. of Environmental Quality
Jim Rives	Louisiana Department of Natural Resources
Kevin Roy	U.S. Fish and Wildlife Service
Manuel Ruiz	Louisiana Dept. of Wildlife and Fisheries
Renee Sanders	La Coastal Protection and Restoration Authority
Sandra Stiles	U.S. Army Corps of Engineers, MVN
Danielle Tommaso	U.S. Army Corps of Engineers, MVN
Angela Trahan	U.S. Fish and Wildlife Service
Lee Walker	U.S. Army Corps of Engineers, MVN
Nancy Walters	US Park service
David Walther	U.S. Fish and Wildlife Service
Laura Lee Wilkinson	U.S. Army Corps of Engineers, MVN
Patrick Williams	NOAA National Marine Fisheries Service

Appendix D: USFWS T&E Concurrence

03/11/2009 06:18 FAX 3372914149

US Fish&Wildlife Service

001

**US Army Corps of Engineers
New Orleans District**

March 9, 2009

Mr. Jim Boggs
US Fish & Wildlife Services
646 Cajundome Boulevard, Suite 400
Lafayette, Louisiana 70506

RE Individual Environmental Report (IER) – 13
United States Army Corps of Engineers (USACE)
Hero Canal Levees and Floodwalls
Plaquemines Parish, Louisiana

Dear Mr. Boggs:

Please accept this communication as our official request to reinitiate Threatened and Endangered Species coordination with your agency. We previously coordinated with you beginning in July of 2007 and received correspondence stating US Fish and Wildlife Service records indicated no threatened or endangered species existed in the proposed project area.

We would like to receive updated correspondence confirming the status of the IER 13 project area as described in our July 2007 letter. The following questions cover our main concerns:

- 1) Is the site located in an officially designated wilderness area?
- 2) Is the site located in an officially designated wildlife preserve?
- 3) Will rehabilitation of the site affect listed, threatened or endangered species or designated critical habitats?
- 4) Will development of the site jeopardize the continued existence of any proposed threatened or endangered species or result in the destruction or adverse modification of proposed critical habitats?

The proposed action consists of earthen levees, gate structures, and floodwalls. The majority of the proposed levee footprint (along Walker Road) will include a right of way of straddling the centerline of the existing levee. The western and northern reach of the project area appears to be pasture or young forested wetland. The entire area appears to have been extensively disturbed through grazing and timber harvest. The eastern reach of the project area includes light industrial and a landfill.

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL

of pages = 2

To <i>Gigi Coulson</i> Dept./Agency	From <i>A. Trahan</i> Phone # 337 291 3137
Fax # 504 862-2088	Fax # 3139

NSN 7540-01-317-7358

5099-101

GENERAL SERVICES ADMINISTRATION

03/11/2009 06:18 FAX 3372914149

US Fish&Wildlife Service

002

**US Army Corps of Engineers
New Orleans District**

For your reference, we have enclosed a shapefile with the location of the site in question and some site maps.

Please make your response in written form for inclusion in the IER.

If you have any questions or require additional information, please feel free to contact me at 504-862-1095.

Sincerely,

s//Getrisc Coulson

Environmental Manager
US Army Corps of Engineers

This project has been reviewed for effects to Federal trust resources under our jurisdiction and currently protected by the Endangered Species Act of 1973 (Act). The project, as proposed,
 Will have no effect on those resources
 Is not likely to adversely affect those resources.
This finding fulfills the requirements under Section 7(a)(2) of the Act.

Debra A. Fulle
Acting Supervisor
Louisiana Field Office
U.S. Fish and Wildlife Service

Date: *March 10, 2009*

*Should the project not be constructed
with 1 year, please reinitiate coordination.*

Appendix E: LaDNR LCRP Consistency Determination

BOBBY JINDAL
GOVERNOR



SCOTT A. ANGELLE
SECRETARY

State of Louisiana
DEPARTMENT OF NATURAL RESOURCES
OFFICE OF COASTAL RESTORATION AND MANAGEMENT

March 13, 2009

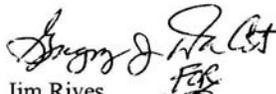
Elizabeth Wiggins
Chief, Environmental Planning and Compliance Branch
U.S. Army Corps of Engineers, New Orleans District
PO Box 60267
New Orleans, Louisiana 70160-0267

RE: **C20090082**, Coastal Zone Consistency
U.S. Army Corps of Engineers, New Orleans District
Direct Federal Action
IER #13 – West Bank and Vicinity, Hero Canal Levee and Eastern Terminus
Plaquemines and Jefferson Parishes, Louisiana

Dear Ms. Wiggins:

The above referenced project has been reviewed for consistency with the approved Louisiana Coastal Resource Program (LCRP) as required by Section 307 of the Coastal Zone Management Act of 1972, as amended. The project, as proposed in the application, is consistent with the LCRP. If you have any questions concerning this determination please contact Carol Crapanzano of the Consistency Section at (225)342-9425.

Sincerely,


Jim Rives,
Administrator

JR/JDH/cmc

cc: Getrisc Coulson, COE-NOD
David Butler, LDWF
Albertine Kimble, Plaquemines Parish
Jason Smith, Jefferson Parish
Frank Cole, CMD FI

Coastal Management Division • Post Office Box 44487 • Baton Rouge, Louisiana 70804-4487
(225) 342-7591 • Fax (225) 342-9439 • <http://www.dnr.state.la.us>
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Appendix F: LaDEQ Water Quality Certification

BOBBY JINDAL
GOVERNOR



HAROLD LEGGETT, Ph.D.
SECRETARY

State of Louisiana
DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL SERVICES

MAR 06 2009

U.S. Army Corps of Engineers- New Orleans District
P.O. Box 60267
New Orleans, LA 70160-0267

Attention: Gigi Coulson

RE: Water Quality Certification (WQC 090128-01/AI 162810/CER 20090001)
Individual Environmental Report (IER) #13
Hero Canal Levee & Eastern Terminus
Plaquemines Parish

Dear Ms. Coulson:

The Department has reviewed your application for the construction of the Hero Canal Levee & Eastern Terminus project (IER #13), in the vicinity of Belle Chasse, Louisiana.

The requirements for Water Quality Certification have been met in accordance with LAC 33:IX.1507.A-E. Based on the information provided in your application, we have determined that the placement of the fill material will not violate the water quality standards of Louisiana provided for under LAC 33:IX.Chapter 11. Therefore, the Department has issued a Water Quality Certification.

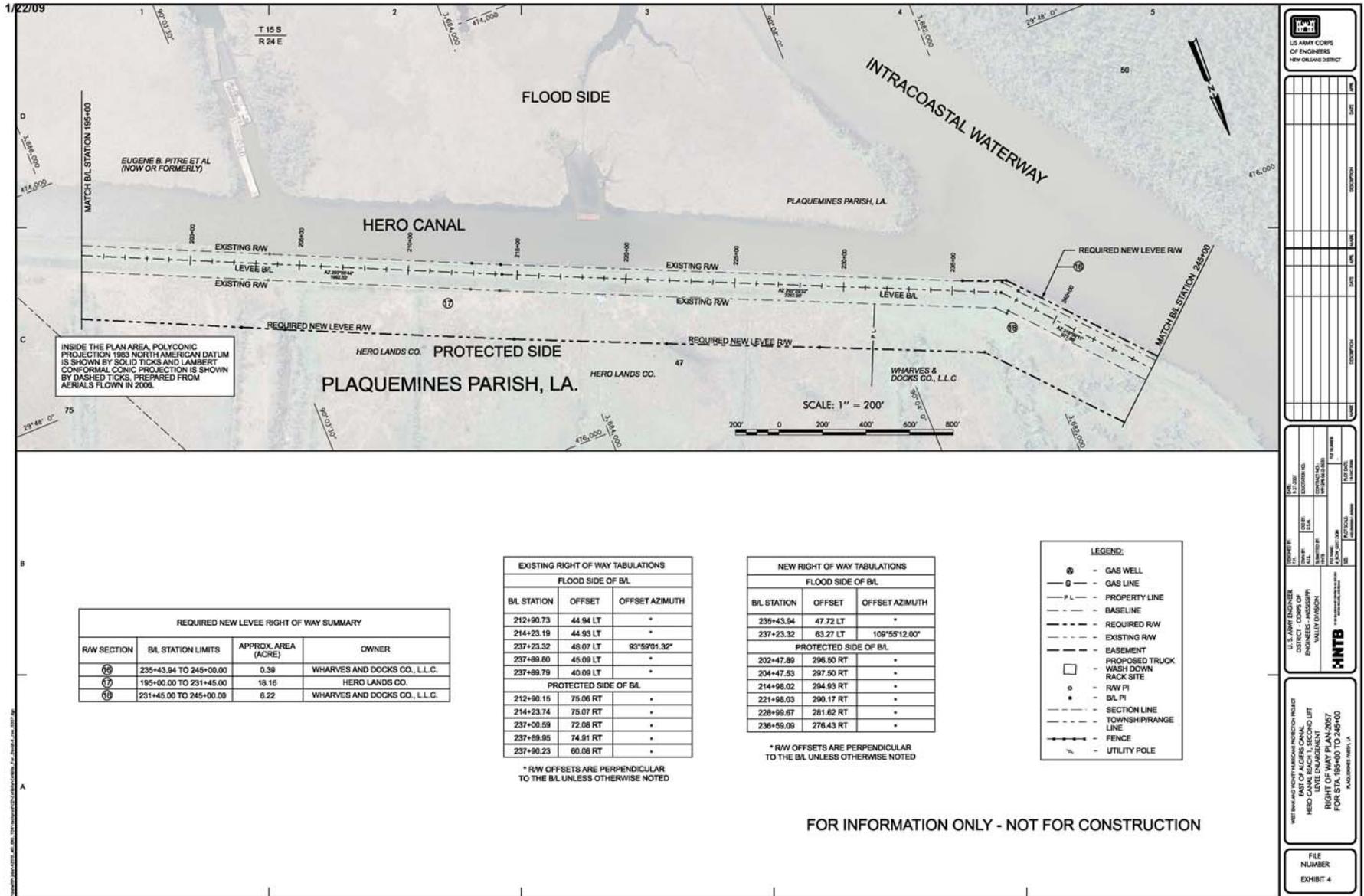
Sincerely,

A handwritten signature in black ink, appearing to read "Thomas F. Harris".

Thomas F. Harris
Administrator
Waste Permits Division

TFH/jjp

Appendix G: Detailed Engineering Plates



INSIDE THE PLAN AREA POLYCONIC PROJECTION 1983 NORTH AMERICAN DATUM IS SHOWN BY SOLID TICKS AND LAMBERT CONFORMAL CONIC PROJECTION IS SHOWN BY DASHED TICKS, PREPARED FROM AERIALS FLOWN IN 2006.

REQUIRED NEW LEVEE RIGHT OF WAY SUMMARY			
R/W SECTION	B/L STATION LIMITS	APPROX. AREA (ACRE)	OWNER
16	235+43.94 TO 245+00.00	0.39	WHARVES AND DOCKS CO., L.L.C.
17	195+00.00 TO 231+45.00	18.16	HERO LANDS CO.
19	231+45.00 TO 245+00.00	8.22	WHARVES AND DOCKS CO., L.L.C.

EXISTING RIGHT OF WAY TABULATIONS		
FLOOD SIDE OF B/L		
B/L STATION	OFFSET	OFFSET AZIMUTH
212+90.73	44.94 LT	*
214+23.19	44.93 LT	*
237+23.32	48.07 LT	93°59'01.32"
237+89.80	45.09 LT	*
237+89.79	40.09 LT	*
PROTECTED SIDE OF B/L		
212+90.15	75.06 RT	*
214+23.74	75.07 RT	*
237+00.59	72.08 RT	*
237+89.95	74.91 RT	*
237+90.23	60.08 RT	*

* RW OFFSETS ARE PERPENDICULAR TO THE B/L UNLESS OTHERWISE NOTED

NEW RIGHT OF WAY TABULATIONS		
FLOOD SIDE OF B/L		
B/L STATION	OFFSET	OFFSET AZIMUTH
235+43.94	47.72 LT	*
237+23.32	63.27 LT	109°55'12.00"
PROTECTED SIDE OF B/L		
202+47.89	296.50 RT	*
204+47.53	297.50 RT	*
214+96.02	294.93 RT	*
221+96.03	290.17 RT	*
228+99.67	281.62 RT	*
236+59.09	276.43 RT	*

* RW OFFSETS ARE PERPENDICULAR TO THE B/L UNLESS OTHERWISE NOTED

LEGEND:

- ⊙ - GAS WELL
- - GAS LINE
- P—L— - PROPERTY LINE
- - - - - BASELINE
- - - - - REQUIRED RW
- - - - - EXISTING RW
- - - - - EASEMENT
- - PROPOSED TRUCK WASH DOWN RACK SITE
- - RW PI
- - B/L PI
- - - - - SECTION LINE
- - - - - TOWNSHIP/RANGE LINE
- - - - - FENCE
- - - - - UTILITY POLE

FOR INFORMATION ONLY - NOT FOR CONSTRUCTION

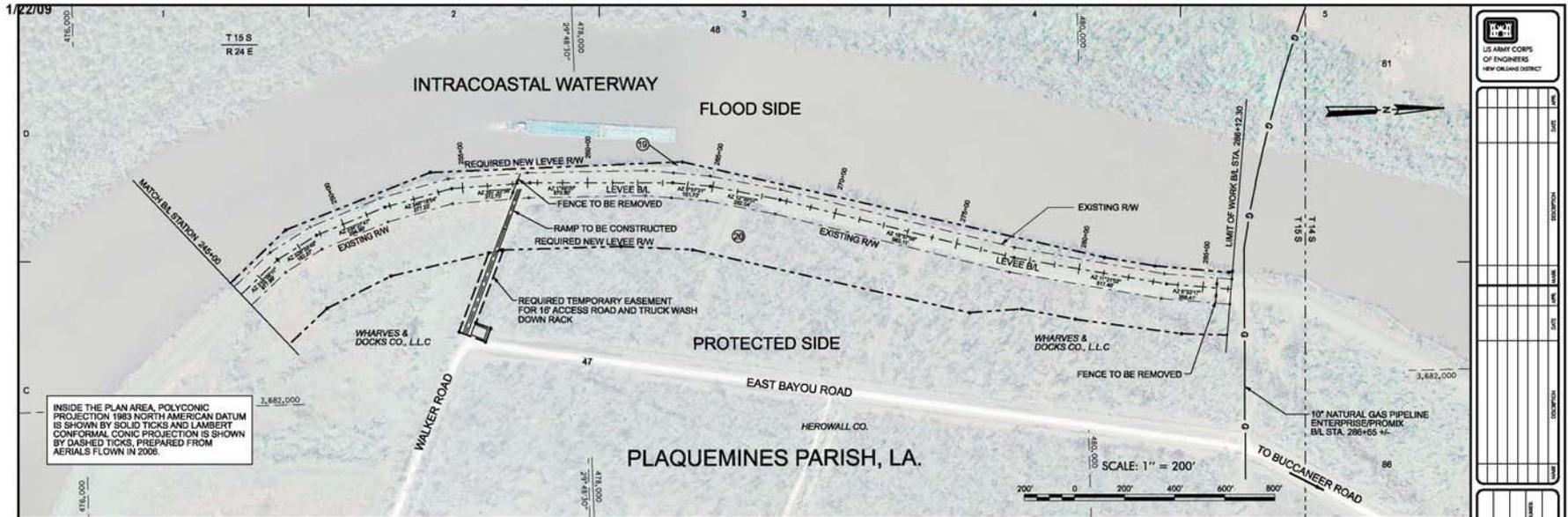
US ARMY CORPS OF ENGINEERS
 NEW ORLEANS DISTRICT

PROJECT: HERO CANAL LEVEE AND EASTERN TERMINUS
 DRAWING: RIGHT OF WAY PLAN 2057
 FOR STA. 195+00 TO 245+00
 PLACQUEMINES PARISH, LA.

DATE: 10/20/2017

FILE NUMBER: EXHIBIT 4

Spencers Optimized 30 foot shift
 Protected Side



TEMPORARY EASEMENT TABULATIONS		
B/L STATION	OFFSET	OFFSET AZIMUTH
255+84.08	286.98 RT	*
253+32.46	559.09 RT	*
255+44.57	619.93 RT	*
255+68.95	587.42 RT	*
255+11.98	540.97 RT	*
256+42.71	259.43 RT	*

* EASEMENT OFFSETS ARE PERPENDICULAR TO THE B/L UNLESS OTHERWISE NOTED

REQUIRED NEW LEVEE RIGHT OF WAY SUMMARY			
R/W SECTION	B/L STATION LIMITS	APPROX. AREA (ACRE)	OWNER
19	245+00.00 TO 286+12.30	2.67	WHARVES AND DOCKS CO., L.L.C.
20	245+00.00 TO 286+12.30	17.31	WHARVES AND DOCKS CO., L.L.C.

FACILITIES LOCATED WITHIN RIGHT OF WAY				
UTILITY, PIPELINE OR STRUCTURE	APPROXIMATE B/L STATION	ELEVATION	OWNER AND REPRESENTATIVE TO BE NOTIFIED	DISPOSITION
FENCE	257+14 285+54	+8.0±	UNKNOWN	TO BE REMOVED BY OWNER PRIOR TO CONSTRUCTION

EXISTING RIGHT OF WAY TABULATIONS		
FLOOD SIDE OF B/L		
B/L STATION	OFFSET	OFFSET AZIMUTH
246+88.35	41.33 LT	*
248+80.32	41.20 LT	*
251+74.13	40.80 LT	*
254+52.95	41.34 LT	*
257+62.97	40.40 LT	*
262+34.57	48.10 LT	*
263+39.55	40.00 LT	94°01'40.08
264+86.26	40.69 LT	*
267+67.43	40.37 LT	*
277+28.13	39.52 LT	*
283+36.18	38.74 LT	*
286+12.33	40.00 LT	*
PROTECTED SIDE OF B/L		
246+88.76	58.68 RT	*
248+72.14	58.66 RT	*
251+68.54	59.22 RT	*
254+43.55	58.70 RT	*
257+60.15	59.60 RT	*
262+31.30	50.98 RT	*
263+33.86	59.73 RT	*
264+81.59	59.34 RT	*
267+64.87	59.64 RT	*
277+31.59	60.48 RT	*
283+42.58	61.27 RT	*
286+12.25	60.00 RT	*

* R/W OFFSETS ARE PERPENDICULAR TO THE B/L UNLESS OTHERWISE NOTED

FOR INFORMATION ONLY - NOT FOR CONSTRUCTION

NEW RIGHT OF WAY TABULATIONS		
FLOOD SIDE OF B/L		
B/L STATION	OFFSET	OFFSET AZIMUTH
247+90.88	82.91 LT	*
253+91.06	85.41 LT	*
253+69.28	86.69 LT	*
280+52.41	62.05 LT	*
282+56.12	62.78 LT	*
285+97.87	65.99 LT	*
286+12.35	70.98 LT	*
PROTECTED SIDE OF B/L		
247+66.12	269.45 RT	*
250+97.10	263.61 RT	*
256+34.56	259.06 RT	*
261+33.99	253.71 RT	*
264+43.19	258.87 RT	*
276+15.84	256.20 RT	*
278+01.63	196.96 RT	*
280+18.79	200.37 RT	*
284+29.66	193.11 RT	*
286+13.87	182.73 RT	*

LEGEND:

- G - GAS WELL
- L - GAS LINE
- P L - PROPERTY LINE
- - - - - BASELINE
- - - - - REQUIRED RW
- - - - - EXISTING RW
- - - - - EASEMENT
- - - - - PROPOSED TRUCK WASH DOWN RACK SITE
- o - RW PI
- - B/L PI
- - - - - SECTION LINE
- - - - - TOWNSHIP/RANGE LINE
- - - - - FENCE
- - - - - UTILITY POLE

US ARMY CORPS OF ENGINEERS
NEW ORLEANS DISTRICT

ENGINEER: []
 CHECKED: []
 DATE: []

U.S. ARMY ENGINEER DISTRICT - CORPS OF ENGINEERS
 EAST OF ALGIBS CANAL
 HERO CANAL LEVEE AND EASTERN TERMINUS
 RIGHT OF WAY PLAN 2057
 FOR STA. 245+00 TO 286+94.73
 PLAQUEMINES PARISH, LA.

FILE NUMBER
EXHIBIT 5

Spencers Optimized 30 foot shift
Protected Side



US Army Corps
of Engineers
New Orleans District

WEST BANK & VICINITY, NEW ORLEANS, LOUISIANA
HURRICANE PROTECTION PROJECT
WEST OF ALGIERS CANAL
HERO TO OAKVILLE, PHASE II,(WBV 09a,b,c)
FIRST LIFT LEVEE ENLARGEMENT
RIGHT-OF-WAY
PLAQUEMINES PARISH, LA

FEBRUARY 2009

 US Army Corps of Engineers NEW ORLEANS DISTRICT	
U.S. ARMY CORPS OF ENGINEERS NEW ORLEANS DISTRICT NEW ORLEANS, LOUISIANA	DATE: 02/09/09 DRAWN BY: J. J. [unreadable] CHECKED BY: [unreadable] PROJECT: HERO TO OAKVILLE, PHASE II, (WBV 09a,b,c) FIRST LIFT LEVEE ENLARGEMENT RIGHT-OF-WAY PLAQUEMINES PARISH, LOUISIANA
U.S. ARMY CORPS OF ENGINEERS NEW ORLEANS DISTRICT NEW ORLEANS, LOUISIANA	SHEET IDENTIFICATION R-01





Appendix H: LaSHPO Cultural Resource Concurrence



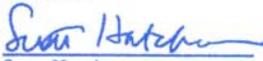
DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
P.O. BOX 60267
NEW ORLEANS, LOUISIANA 70160-0267

REPLY TO
ATTENTION OF:

February 17, 2009

Planning, Programs, and
Project Management Division
Environmental Planning
and Compliance Branch
Attn: CEMVN-PM-RN

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

 3-30-09
Date
Scott Hutcheson
State Historic Preservation Officer

Mr. Scott Hutcheson
State Historic Preservation Officer
Office of Cultural Development
Department of Culture, Recreation, and Tourism
P.O. Box 44247
Baton Rouge, Louisiana 70804

RE: Request to Continue Consultation Under Section 106 of the National Historic Preservation Act for the West Bank and Vicinity Hurricane Protection Project, Hero Canal Levee and Eastern Terminus, Individual Environmental Report #13, Plaquemines Parish, Louisiana.

Dear Mr. Hutcheson:

The U.S. Army Corps of Engineers, Mississippi Valley Division, New Orleans District, is amending the Area of Potential Effects (APE) for the project area currently being studied under Individual Environmental Report #13, West Bank and Vicinity Hurricane Protection Project, Hero Canal Levee and Eastern Terminus, Plaquemines Parish, Louisiana. This amendment expands the APE into additional areas located along the Hero Canal levee and Eastern terminus. In our letter to your office dated January 26, 2009, the District provided project documentation and a finding of "no historic properties affected" for the original APE. A copy of our letter is attached herein.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), the District, in consultation with the State Historic Preservation Officer (SHPO) and Indian Tribes, will determine if the amended area of potential effects (APE) established for IER #13 contains historic properties. The amended APE includes additional parcels shown as hatched areas on the attached maps (Figures #1 and #2). These parcels include 1) construction staging areas, 2) pile servitude area, 3) existing railroad and highway right of way, 4) new levee right of way, 5) existing Mississippi River levee right of way, 6) new vehicular evacuation route along existing right of way, 7) new floodgate bypass channel area and 8) new gate/levee tie-in area. A floodgate, instead of a vehicular bridge, is proposed for the alignment crossing at Highway 90.

-2-

In the recent cultural resources investigation conducted by Coastal Environments, Inc., researchers utilized background research, previous cultural resource investigation review, soil and topographic analyses, and field reconnaissance, Phase 1 and Phase 2 data to identify and assess historic structures and archaeological sites in the study area (Coastal Environments, Inc. 2009). The study area includes the expanded portions of the APE. The investigation management summary was submitted to your office as an attachment to our January 26, 2009 letter.

Researchers identified four cultural resources in the study area. One of these sites, the Mahoney-Crouere Site (16PL169), is located in the expanded portion of the APE. However, recent Phase 1 and Phase 2 cultural resources investigations found no intact architectural or subsurface features, or undisturbed cultural deposits at the site. Researchers determined the site is not eligible for listing on the National Register of Historic Places. The remaining parcels in the expanded APE exhibiting a high potential for cultural resources were investigated during Phase 1 field work and no cultural resources were identified. Parcels in the expanded APE exhibiting a low potential for cultural resources, including the frequently flooded locations adjacent to the Hero Canal and the existing parking lots and highway and railroad right of ways along the Eastern terminus, were not investigated. The likelihood for intact and undisturbed cultural resources in these areas is considered extremely minimal. Previously identified cultural resources, including the Idlewild Plantation Site (16PL115), Oakville Site (16PL169), and the Sarpy House (38-00008), are located outside of the expanded APE and will not be impacted by proposed construction.

Based on a review of the information summarized above, it is our view that the proposed project activities in the expanded APE will not impact significant cultural resources. However, in the event that cultural resources are encountered during construction activities, work will be halted and your office will be contacted for further consultation. Any resources encountered will be recorded and documented, and state archaeological site forms will be provided.

Please review the enclosed project documentation and provide this office with your opinion regarding our "no historic properties affected" finding within 30 days of receipt of this letter. If you have any questions and/or concerns, please contact Mr. Michael Swanda at (504) 862-2036.

Sincerely,



Joan Exnicios
Acting Chief, Environmental Planning
and Compliance Branch

Enclosures

-3-

CF: Klima, Advisory Council on Historic Preservation
Rivet, Louisiana State Historic Preservation Office
Varnado, Louisiana State Historic Preservation Office

References Cited

- Coastal Environments, Inc.
2009 *Management Summary: Reconnaissance Survey and Phase II Testing of Items Related to the Belle Chasse Segment (IER 13), West Bank and Vicinity Hurricane Protection Levee, Plaquemines Parish, Louisiana.* Coastal Environments, Inc., Baton Rouge. Submitted to U.S. Army Corps of Engineers, New Orleans District.

Appendix I: USFWS Fish and Wildlife Coordination Act Report



United States Department of the Interior

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



March 20, 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:

Enclosed is the Draft Fish and Wildlife Coordination Act Report for Individual Environmental Report (IER) 13 for the proposed Westbank and Vicinity of New Orleans Hurricane Protection Project, East of Algiers Canal, Hero Canal to Oakville Tie-In in Plaquemines Parish, Louisiana. This draft report is transmitted under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), and is being coordinated with the Louisiana Department of Wildlife and Fisheries and the National Marine Fisheries Service. Comments by those agencies will be attached to our final report.

Should your staff have any questions regarding the enclosed draft report, please have them contact Angela Trahan of this office at 337/291-3137.

Sincerely,

James F. Boggs
Supervisor
Louisiana Field Office

Enclosures

cc: EPA, Dallas, TX
FWS, Atlanta, GA (ES/HC)
NMFS, Baton Rouge, LA
LDWF, Baton Rouge, LA
LDNR, CMD, Baton Rouge, LA
OCPR, Baton Rouge, LA

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Draft
Fish and Wildlife Coordination Act Report
West Bank and Vicinity Hurricane Protection Project
East of Algiers Canal, Hero Canal to Oakville (TieIn)
Individual Environmental Report (IER) 13



PROVIDED TO
NEW ORLEANS DISTRICT
U.S. ARMY CORPS OF ENGINEERS
NEW ORLEANS, LOUISIANA

PREPARED BY
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FISH AND WILDLIFE BIOLOGIST

U.S. FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
LAFAYETTE, LOUISIANA

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U.S. FISH AND WILDLIFE SERVICE – SOUTHEAST REGION

TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION.....	1
DESCRIPTION OF THE STUDY AREA.....	1
FISH AND WILDLIFE RESOURCES.....	2
ALTERNATIVES UNDER CONSIDERATION.....	5
EVALUATION METHOD.....	6
PROJECT IMPACTS.....	7
FISH AND WILDLIFE CONSERVATION AND MITIGATION MEASURES	8
SERVICE POSITION AND RECOMMENDATIONS	9
LITERATURE CITED.....	12

APPENDICES

Appendix A - WVA Analysis	A-1
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FIGURES

Figure 1. IER 13 Study Area, WBV, Plaquemines Parishes, Louisiana, and Existing Hurricane and Flood Protection Features.	2
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TABLES

Table 1: Potential Estimated Impacts for the Preferred Alternative.....	7
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Executive Summary

The U.S. Fish and Wildlife Service (Service) has prepared this draft Fish and Wildlife Coordination Act Report (FWCAR) for the proposed Westbank and Vicinity of New Orleans (WBV) Hurricane Protection Project, East of Algiers Canal, Hero Canal to Oakville Tie-In, Individual Environmental Report (IER) 13. The Corps of Engineers, New Orleans District (Corps) is preparing IERs under the approval of the Council on Environmental Quality (CEQ). Those IERs will partially fulfill the Corps compliance with the National Environmental Policy Act of 1969 (83 Stat. 852, as amended; 42 U.S.C. 4321- 4347). IERs are a CEQ approved alternative arrangement for compliance with NEPA that would allow expedited implementation of improved hurricane protection measures. Work proposed in those IERs would be conducted under the authority of 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 to upgrade two existing hurricane protection projects (i.e., WBV and Lake Pontchartrain and Vicinity) in the Greater New Orleans area in southeast Louisiana.

This report contains a description of the existing fish and wildlife resources of the project area, discusses future with- and without-project habitat conditions, identifies fish and wildlife-related impacts of the proposed project, and provides recommendations for the proposed project. This 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) Hurricane Protection project, and the November 26, 2007, Draft Programmatic FWCA Report that addresses the hurricane protection improvements authorized in Supplemental 4. Impacts and mitigation needs resulting from government and contractor provided borrow areas have been addressed in an October 25, 2007, and a November 1, 2007, FWCA reports, respectively, therefore this report will not address those project features. This draft document does not constitute the report of the Secretary of the Interior as required by Section 2(b) of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). This draft report has been provided to the Louisiana Department of Wildlife and Fisheries (LDWF) and the National Oceanic and Atmospheric Administration's, National Marine Fisheries Service (NOAA's NMFS), and their comments will be incorporated in the final report.

The IER 13 study area is located in the upper Barataria Basin and includes the Belle Chasse sub-basin along the west bank of the Mississippi River in Plaquemines Parishes, Louisiana. Hero Canal defines the southern boundary of the Belle Chasse sub-basin and portions of the study area, and Oakville is the southernmost community to be included in the study area. Study area wetlands support nationally important fish and wildlife resources including bottomland hardwood wetlands, cypress swamp, and fresh marsh. Factors that will strongly influence future fish and wildlife resource conditions outside of the protection levees include freshwater and sediment input and loss of coastal wetlands. Regardless of which of the above factors ultimately has the greatest influence, emergent wetlands within, and adjacent to, the project area will probably experience losses due to development, subsidence, erosion, and relative sea-level rise. Bottomland hardwood wetlands in the study area are likely to transition to more water tolerant species such as ash and maple.

During the alternatives analysis, the no-action alternative and the alternative to raise the existing hurricane protection system to a 100-year level of protection (i.e., reducing risk from a storm surge that has a 1% chance of being equaled or exceeded in any given year) were considered. The no-action alternative would not be implemented because it fails to provide the authorized level of protection. Several additional alternative alignments were evaluated that would afford protection to a combination of the community of Oakville, businesses along Louisiana Highway 23, and/or the Industrial Pipe Inc., landfill.

The preferred alternative includes a combination of earthen levees and “T”-walls, and includes a protected side shift of the existing levee north of Hero Canal. The proposed alignment would cross Hero Canal with a 56-foot-wide stop log gate just west of the Industrial Pipe Inc. landfill. A new levee alignment is proposed south of Hero Canal that would provide the landfill and the community of Oakville the 100-year level of protection. South of the landfill the proposed levee alignment would follow the existing Plaquemines Parish Non-Federal Levee alignment for approximately 780 feet. The proposed levee alignment then turns east to cross Louisiana Highway 23 and the New Orleans and Gulf Coast Railway Company railroad track with a multi-floodgate structure and then connects with the Mississippi River and Tributaries (MRT) flood protection system. An emergency bypass road is proposed around the multi-floodgate structure, and two pump stations are proposed to facilitate stormwater drainage within the proposed area of protection.

Implementation of the preferred alternative would directly impact 19 and 13 acres of wet and hydrologically-altered (i.e., non-wet) bottomland hardwood habitat, respectively. Approximately 39 acres of swamp habitat would also be directly impacted. According to our Habitat Assessment Methodology (HAM) and Wetland Value Assessment (WVA) analyses, the preferred alternative would result in the direct loss of 18.39 and 28.27 average annual habitat units (AAHUs), of bottomland hardwood forest and swamp, respectively. Mitigation for unavoidable losses of wet and non-wet bottomland hardwood and swamp habitat caused by project features will be evaluated through a complementary comprehensive mitigation IER.

The Service does not object to providing improved hurricane protection to the greater New Orleans area provided the following fish and wildlife conservation recommendations are incorporated into future project planning and implementation:

1. To the greatest extent possible, design (e.g., implementation of “T”-walls in levee designs) and position flood protection features so that destruction of wetlands and non-wet bottomland hardwoods are avoided or minimized.
2. The proposed Oakville pump station should be redesigned to pump storm water into the adjacent forested wetlands as a storm water treatment measure and to enhance those degraded wetlands.
3. The Corps shall fully compensate for any unavoidable losses to wet and non-wet bottomland hardwood habitat (18.39 AAHUs) and swamp habitat (28.27 AAHUs) caused

by project features.

4. Minimize enclosure of wetlands with new levee alignments. When enclosing wetlands is unavoidable, acquire non-development easements on those wetlands, or maintain hydrologic connections with adjacent, un-enclosed wetlands to minimize secondary impacts from development and hydrologic alteration.
5. If a proposed project feature is changed significantly or is not implemented within one year of the March 10, 2009, Endangered Species Act consultation letter, we recommend that the Corps reinitiate coordination with each office to ensure that the proposed project would not adversely affect any Federally listed threatened or endangered species or their habitat.
6. Avoid adverse impacts to bald eagle nesting locations and wading bird colonies through careful design of project features and timing of construction. A qualified biologist should inspect the proposed work site for the presence of undocumented wading bird nesting colonies and bald eagles during the nesting season (i.e., February 16 through October 31 for wading bird nesting colonies, and October through mid-May for bald eagles).
7. To minimize disturbance to colonies containing nesting wading birds (i.e., herons, egrets, night-herons, ibis, and roseate spoonbills), anhingas, and/or cormorants, all activity occurring within 1,000 feet of a rookery should be restricted to the non-nesting period (i.e., September 1 through February 15, exact dates may vary within this window depending on species present). In addition, we recommend that on-site contract personnel be informed of the need to identify colonial nesting birds and their nests, and should avoid affecting them during the breeding season.
8. If a bald eagle nest is discovered within or adjacent to the proposed project area, then an evaluation must be performed to determine whether the project is likely to disturb nesting bald eagles. That evaluation may be conducted on-line at: <http://www.fws.gov/southeast/es/baldeagle>. Following completion of the evaluation, that website will provide a determination of whether additional consultation is necessary and those results should be forwarded to this office.
9. Forest clearing associated with project features should be conducted during the fall or winter to minimize impacts to nesting migratory birds, when practicable.
10. Acquisition, habitat development, maintenance and management of mitigation lands should be allocated as first-cost expenses of the project, and the local project-sponsor should be responsible for operational costs. If the local project-sponsor is unable to fulfill the financial mitigation requirements for operation, then the Corps should provide the necessary funding to ensure mitigation obligations are met on behalf of the public interest.
11. Further detailed planning of project features (e.g., Design Documentation Report,

Engineering Documentation Report, Plans and Specifications, or other similar documents) should be coordinated with the Service and other State and Federal natural resource agencies, and shall be provided an opportunity to review and submit recommendations on the all work addressed in those reports.

12. If mitigation lands are purchased for inclusion within Federally or State managed lands, those lands must meet certain requirements; therefore the land manager of that management area should be contacted early in the planning phase regarding such requirements.
13. If applicable, a General Plan should be developed by the Corps, the Service, and the managing natural resource agency in accordance with Section 3(b) of the FWCA for mitigation lands.
14. Flood protection water control structures in any watercourse should maintain pre-project cross section in width and depth to the maximum extent practicable.
15. Any flood protection water control structure sited in a canal, bayou, or navigation channel that does not maintain the pre-project cross section should be designed and operated with multiple openings within the structure. This should include openings near both sides of the channel as well as an opening in the center of the channel that extends to the bottom.
16. Flood protection water control structures should remain completely open except during storm events, unless otherwise determined by the natural resource agencies.
17. Flood protection structures within a waterway should include shoreline baffles and/or ramps (e.g., rock rubble, articulated concrete mat) that slope up to the structure invert to enhance organism passage. Various ramp designs should be considered, and coordination should continue with the natural resource agencies to ensure fish passage features are incorporated to the fullest extent practicable.
18. A report documenting the status of mitigation implementation and maintenance should be prepared every three years by the managing agency and provided to the Corps, the Service, NMFS, U.S. Environmental Protection Agency (EPA), Louisiana Department of Natural Resources (LDNR), and LDWF. That report should also describe future management activities, and identify any proposed changes to the existing management plan.

INTRODUCTION

The U.S. Army Corps of Engineers, New Orleans District (Corps) is preparing an Individual Environmental Report (IER 13) for 100-year level of protection for the Westbank and Vicinity of New Orleans (WBV) Hurricane Protection Project, East of Algiers Canal, Hero Canal to Oakville, Plaquemines Parishes, Louisiana. This section of the Greater New Orleans Hurricane and Storm Damage Risk Reduction System (GNOHSDRRS) would also tie into the Mississippi River and Tributaries (MRT) levee system. IER 13 is being prepared under the approval of the Council on Environmental Quality (CEQ) that will partially fulfill the Corps compliance with the National Environmental Policy Act (NEPA) of 1969 (83 Stat. 852, as amended; 42 U.S.C. 4321-4347). IERs are a CEQ approved alternative arrangement for compliance with NEPA that would allow expedited implementation of improved hurricane protection measures. Work proposed in IERs would be conducted under the authority of Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4) and Public Law 110-28, U.S. Troop Readiness, Veterans' Care, Katrina Recovery, and Iraq Accountability Appropriations Act, 2007 (5th Supplemental). Those laws authorized the Corps to upgrade two existing hurricane protection projects [i.e., WBV and Lake Pontchartrain and Vicinity (LPV)] in the Greater New Orleans area in southeast Louisiana.

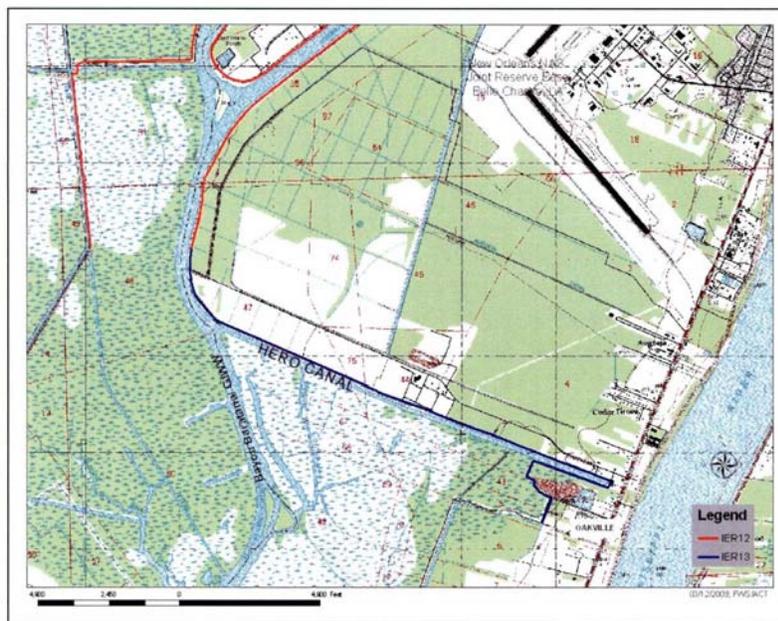
This report contains a description of the existing fish and wildlife resources of the project area, discusses future with- and without-project habitat conditions, identifies fish and wildlife-related impacts of the proposed project, and provides recommendations for the proposed project. This report incorporates and supplements our Fish and Wildlife Coordination Act (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 November 26, 2007, Draft Programmatic FWCA Report that addresses the hurricane protection improvements authorized in Supplemental 4. Impacts and mitigation needs resulting from government and contractor provided borrow areas have been addressed in an October 25, 2007, and a November 1, 2007, FWCA report, respectively, therefore this report will not address those project features. This draft document does not constitute the report of the Secretary of the Interior as required by Section 2(b) of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). This draft report has been provided to the Louisiana Department of Wildlife and Fisheries (LDWF) and the National Oceanic and Atmospheric Administration's, National Marine Fisheries Service (NOAA's NMFS), and their comments will be incorporated in the final report.

DESCRIPTION OF THE STUDY AREA

The IER 13 study area is located in the upper Barataria Basin and includes the Belle Chasse sub-basin along the west bank of the Mississippi River in Plaquemines Parishes, Louisiana. The study area is about 5 miles south of the city of Belle Chasse and is defined by the Mississippi River and Louisiana Highway 23 to the east and the Gulf Intracoastal Waterway (GIWW) to the west. Hero Canal defines the southern boundary of the Belle Chase sub-basin and portions of the study area. Oakville is the southernmost community to be included in the study area. A forested and emergent marsh complex is situated west of Oakville and south of Hero Canal. Within the

existing WBV hurricane protection system, natural levees and lower lying wetlands have been leveed and drained to accommodate residential, commercial, and agricultural development. While most of the land within the hurricane protection system along Hero Canal and within the Plaquemines Parish Levee in the vicinity of Oakville has been leveed and drained, a majority of that land remains undeveloped. The Industrial Pipe Incorporated landfill is located adjacent to the community of Oakville and has been involved in Clean Water Act, Section 404 violations due to encroachment into the adjacent swamp habitat.

Figure 1. IER 13 Study Area, WBV, Plaquemines Parishes, Louisiana, and Existing Hurricane and Flood Protection Features.



FISH AND WILDLIFE RESOURCES

Habitat types in the study area include wet and non-wet bottomland hardwood habitat, cypress and tupelo swamp, scrub-shrub habitat, fresh marsh, open water, and developed areas. Open water areas are associated with the Hero Canal, the GIWW (Bayou Barataria), and interspersed open water areas within the fresh marsh and swamp habitat. Due to urban development and a forced-drainage system, the hydrology of most of the forested habitat within the levee system has been altered. The forced-drainage system has been in operation for many years, and subsidence is evident throughout the areas enclosed by levees.

Wetlands (forested, marsh, and scrub-shrub) within the study area provide plant detritus to coastal waters downstream and thereby contribute to the production of commercially and

recreationally important fishes and shellfishes. They 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 outside of the protection levees include freshwater and sediment input and loss of coastal wetlands. Regardless of which of the above factors ultimately has the greatest influence, emergent wetlands within, and adjacent to, the project area will probably experience losses due to development, subsidence, erosion, and relative sea-level rise. Bottomland hardwood wetlands outside of the hurricane protection system will transition to more water tolerant species such as ash and maple.

The Service has provided a FWCA Report for the authorized WBV hurricane protection project. That report contains a thorough discussion of the significant fish and wildlife resources (including those habitats) that occur within the study area. For brevity, that discussion is incorporated by reference herein, but the following information is provided to update the previously mentioned reports and provide IER specific information and recommendations.

On March 10, 2009, the Service determined that the proposed activities would not significantly affect listed or proposed threatened or endangered species. Our concurrence is based on information that indicates no known threatened or endangered species or their critical habitat are within the study area. Therefore, no further consultation will be required unless there are changes in the scope or location of the project, or construction has not been initiated within one year. If the project has not been initiated within one year, follow-up consultation should be accomplished with this office prior to making expenditures for construction. If the scope or location of the proposed work is changed, consultation should occur as soon as such changes are made.

The project-area forested wetlands do, however, provide nesting habitat for the bald eagle (*Haliaeetus leucocephalus*), and an active bald eagle nest was documented in the vicinity of the study area and west of the Plaquemines Parish levee in 2008. The bald eagle was officially removed from the List of Endangered and Threatened Species on August 8, 2007. Bald eagles nest in Louisiana from October through mid-May. Eagles typically nest in mature trees (e.g., bald cypress, sycamore, willow, etc.) near fresh to intermediate marshes or open water in the southeastern Parishes. Areas with high numbers of nests include the Lake Verret Basin south to Houma, the north shore of Lake Pontchartrain, and the Lake Salvador area. Major threats to this species include habitat alteration, human disturbance, and environmental contaminants (i.e., organochlorine pesticides and lead).

Breeding bald eagles occupy "territories" that they will typically defend against intrusion by other eagles, and that they likely return to each year. A territory may include one or more alternate nests that are built and maintained by the eagles, but which may not be used for nesting in a given year. Potential nest trees within a nesting territory may, therefore, provide important alternative bald eagle nest sites. Nest sites typically include at least one perch with a clear view of the water or area where the eagles usually forage. Shoreline trees or snags located near large water bodies provide the visibility and accessibility needed to locate aquatic prey. Bald eagles

are vulnerable to disturbance during courtship, nest building, egg laying, incubation, and brooding. Disturbance during this critical period may lead to nest abandonment, cracked and chilled eggs, and exposure of small young to the elements. Human activity near a nest late in the nesting cycle may also cause flightless birds to jump from the nest tree, thus reducing their chance of survival.

Although the bald eagle has been removed from the List of Endangered and Threatened Species, it continues to be protected under the MBTA and the BGEPA. The Service developed the National Bald Eagle Management (NBEM) Guidelines to provide landowners, land managers, and others with information and recommendations to minimize potential project impacts to bald eagles, particularly where such impacts may constitute "disturbance," which is prohibited by the BGEPA. A copy of the NBEM Guidelines is available at: <http://www.fws.gov/southeast/es/baldeagle/NationalBaldEagleManagementGuidelines.pdf>. Those guidelines recommend: (1) maintaining a specified distance between the activity and the nest (buffer area); (2) maintaining natural areas (preferably forested) between the activity and nest trees (landscape buffers); and (3) avoiding certain activities during the breeding season. On-site personnel should be informed of the possible presence of nesting bald eagles within the project boundary, and should identify, avoid, and immediately report any such nests to this office. If a bald eagle nest is discovered within or adjacent to the proposed project area, then an evaluation must be performed to determine whether the project is likely to disturb nesting bald eagles. That evaluation may be conducted on-line at: <http://www.fws.gov/southeast/es/baldeagle>. Following completion of the evaluation, that website will provide a determination of whether additional consultation is necessary. The Division of Migratory Birds for the Southeast Region of the Service (phone: 404/679-7051, e-mail: SEmigratorybirds@fws.gov) has the lead role in conducting such consultations. Should you need further assistance interpreting the guidelines or performing an on-line project evaluation, please contact this office.

The study area forested wetlands may also support colonial nesting waterbirds. Colonies may be present that are not currently listed in the database maintained by the LDWF. That database is updated primarily by monitoring the colony sites that were previously surveyed during the 1980s. Until a new, comprehensive coast-wide survey is conducted to determine the location of newly-established nesting colonies, we recommend that a qualified biologist inspect the proposed work site for the presence of undocumented nesting colonies during the nesting season. To minimize disturbance to colonies containing nesting wading birds (i.e., herons, egrets, night-herons, ibis, and roseate spoonbills), anhingas, and/or cormorants, all activity occurring within 1,000 feet of a rookery should be restricted to the non-nesting period (i.e., September 1 through February 15, exact dates may vary within this window depending on species present). In addition, we recommend that on-site contract personnel be informed of the need to identify colonial nesting birds and their nests, and should avoid affecting them during the breeding season.

Future Fish and Wildlife Resources

The combination of subsidence and sea level rise is called submergence or land sinking. As the land sinks the wetlands become inundated with higher water levels, stressing most non-fresh

marsh plants, bottomland hardwood plants and even cypress-tupelo swamps 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 habitat to open water or developed land represent the most serious fish and wildlife-related problems in the study area. Those losses could be expected to cause significant declines in coastal fish and shellfish production and in the study area's carrying capacity for numerous migratory waterfowl, wading birds, other migratory birds, alligators, furbearers, and game mammals. Wetland losses will also reduce storm surge protection of developed lands, and will likely contribute to water quality degradation associated with excessive nutrient inputs.

ALTERNATIVES UNDER CONSIDERATION

During the alternatives analysis, the no-action alternative and the alternative to raise the existing hurricane protection system to a 100-year level of protection (i.e., reducing risk from a storm surge that has a 1% chance of being equaled or exceeded in any given year) were considered. The no-action alternative would not be implemented because it fails to provide the authorized level of protection. Several additional alternative alignments were evaluated that would afford protection to a combination of the community of Oakville, businesses along Louisiana Highway 23, and/or the Industrial Pipe Inc., landfill.

Proposed Action

The preferred alternative includes a protected side shift of the existing levee north of Hero Canal. For this alternative, a new levee alignment is also proposed south of Hero Canal to provide the landfill and the community of Oakville the 100-year level of protection. The levee segment north of Hero Canal would be raised to approximately 14 to 16 feet elevation [i.e., North American Vertical Datum of 1988 (NAVD 88)] with a 10-foot-wide crown, with a vertical to horizontal distance ratio of 1 to 3 foot (i.e., 1:3) side slopes on the flood side, and 1:4 foot side slopes on the protected side. Approximately 19,000 linear feet of existing levee would be raised. Proposed elevations are based on a target year 2057 design elevations and includes overbuild for settlement.

As proposed, the new levee alignment would cross Hero Canal just west of the Industrial Pipe Inc. landfill. A 56-foot-wide stop log gate would be constructed and would connect to the earthen levees north and south of the gate by "T"-walls. Top elevation would be 14-16 feet (NAVD 88) with a bottom elevation of approximately -12 feet (NAVD 88). A bypass channel would not be required during the construction of the navigational gate, and it is anticipated that barge traffic accessing the Industrial Pipe Inc. landfill would not be interrupted for more than one month on this dead-end canal.

South of the proposed Hero Canal gate a 600-foot-wide earthen levee would be constructed and configured within a cypress swamp and bottomland hardwood wetland complex to incorporate

the Industrial Pipe Inc. landfill and the community of Oakville within the hurricane protection system. This alignment was previously approved for the West Bank and Vicinity hurricane protection project; however, due to improved post-Katrina design standards, the levee design would need to be expanded to a higher elevation and a wider footprint to achieve the 100-year level of protection. The earthen levee would be set back from the landfill approximately 150 feet to the west and 150 feet to the south. The proposed levee alignment would follow along the southern boundary of the landfill and connect to the existing Plaquemines Parish Non-Federal levee, which would also be reconstructed to the 100-year level of protection (i.e., approximately 14 to 16 foot elevation NAVD 1988) using the centerline of the existing parish levee. After reconstructing 780 feet of the non-federal levee, the alignment turns east as an earthen levee for approximately 1,600 feet then transitions into a “T”-wall. The “T”-wall turns south and then immediately east (i.e., doglegs) before connecting with a multi-floodgate structure.

The multi-floodgate structure would include two proposed vehicular gates across Louisiana Highway 23 (a divided state highway) and a railroad gate across the New Orleans and Gulf Coast Railway Company railroad track. Further east the levee transitions into an earthen levee to connect with the Mississippi River and Tributaries (MRT) levee system. An emergency bypass road is proposed around the gate along existing private and local roadways and along the MRT levee system. This emergency bypass road would detour traffic when the proposed Louisiana Highway 23 floodgates close during a major storm event. Roads incorporated into the emergency bypass would be widened and paved.

Two pump stations are proposed along this section of the hurricane protection system. A 70-cubic-foot-per-second (cfs) pump station would be incorporated at the proposed Hero Canal navigational gate. Closure of the navigational gate and use of this pump station would only be necessary during a major storm event. A 150-cfs pump station is proposed at the southernmost point of the proposed reconstructed non-federal levee segment. This pump station would be designed to facilitate interior drainage during a normal 10-year storm event and would discharge into the existing Oakville drainage canal.

EVALUATION METHOD

Direct impacts to bottomland hardwood and swamp habitat were quantified by acreage and habitat quality (i.e., average annual habitat units or AAHUs) by the Service and are presented in Table 1. The Service used the Louisiana Department of Natural Resources (LDNR) Habitat Assessment Methodology (HAM) to quantify the impacts of proposed project features on non-wet and wet bottomland hardwood habitat and used the Wetland Value Assessment (WVA) methodology to quantify impacts on swamp habitat. The habitat assessment models for bottomland hardwoods within the Louisiana Coastal Zone utilized in this evaluation were modified from those developed in the Service’s Habitat Evaluation Procedures (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. The WVA is used to evaluate proposed CWPPRA projects, and is similar to the Service’s HEP, in that habitat quality and quantity (acreage) are measured for baseline conditions, and predicted for future without-project and future with-project conditions. As with HEP, the WVA provides a quantitative

estimate of project-related impacts to fish and wildlife resources; however, the WVA is based on separate models for fresh/intermediate marsh, brackish marsh, saline marsh, and cypress swamp. Further explanation of how impacts/benefits are assessed with the HAM and WVA and an explanation of the assumptions affecting habitat suitability (i.e., quality) index (HSI) values for each target year for impacts to bottomland hardwood and swamp habitat are available for review at the Service’s Lafayette, Louisiana, field office.

Table 1: Potential Estimated Impacts for the Preferred Alternative

PFO2 (swamp)		PFO1R (tidal BLH)		PFO1Ad (hydrologically altered BLH)		Total	
Acres	AAHUs	Acres	AAHUs	Acres	AAHUs	Acres	AAHUs
39	-28.27	19	-10.59	13	-7.80	71	-46.66

Revised acreage values estimated using 2007 aerial photography in ArcGIS and rounded to nearest acre.

As indicated in Table 1, based on our HAM and WVA analyses (Appendix A) project implementation would result in the direct loss of 32 and 39 acres, and 18.39 and 28.27 AAHUs, of bottomland hardwood forest and swamp, respectively.

PROJECT IMPACTS

Proposed project impacts associated with the preferred alternative would result primarily from the construction of new levees, the expansion of the levee right-of-way, and associated features. Although some construction will occur in cleared areas and on existing levees, project implementation will directly impact wet and non-wet bottomland hardwoods and cypress swamp habitat that provide a variable degree of medium to high quality habitat value for diverse fish and wildlife resources (e.g., refugia, food resources, and nesting habitat) depending on the area of influence. Construction staging and processing areas would be sited essentially in cleared areas and on existing levees minimizing impacts to forested habitats. Other alternatives evaluated would avoid impacts to the tidally-influenced forested wetlands all together; however, those alternatives were not considered practicable as they would not provide protection to the landfill or the community of Oakville.

Direct impacts to 13 acres (-7.80 AAHUs) of hydrologically-altered (i.e., non-wet) bottomland hardwood habitat would occur as a result of the preferred alternative. Impacts would be associated with expanding the existing levee along the protected side of the north bank of Hero Canal and expanding the non-federal levee south of the landfill. These impacts are primarily associated with small forested tracts segregated by pasture and rural development which appear to be stressed as a result of hurricane and storm-induced damage.

Direct impacts to 19 acres (-10.59 AAHUs) of tidally-influenced bottomland hardwood habitat and 39 acres (-28.27 AAHUs) of swamp habitat would occur as a result of constructing a new levee west and south of the landfill and expanding the footprint of the non-federal levee to the west. The proposed new levee alignment would be set back 150 feet from the landfill potentially

leaving a forested buffer between the landfill and the proposed levee. This acreage was considered in the WVA impacts analysis as it is unclear of the project intent of the 150-foot setback and due to expected induced development associated with the landfill. Project design goals intended to minimize direct impacts to forested wetlands by aligning the proposed levee along the periphery of the landfill and residential development; however, increased post-Katrina design standards and a 150-foot setback have resulted in an increased flood protection easement and increased impacts. Forested wetlands impacted by this segment provide a high degree of habitat value as well as storm buffering and water quality benefits.

Construction of a navigational gate on Hero Canal would minimally disrupt riparian habitat along the canal and aquatic habitat associated with that man-made dead end canal. Riparian habitats are valuable to wildlife as transition zones between aquatic and forested habitats, and contribute vital elements to fishery resources in the form of detritus, shade, and in-stream cover.

FISH AND WILDLIFE CONSERVATION AND 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.

Direct and indirect impacts have been minimized by selecting alternative 1 over alternative 3, which extended further west into swamp habitat and enclosed additional forested wetlands. Alternative 1 follows the wetland-non wetland interface to the maximum extent practicable under the post-Katrina design constraints. However, the preferred alternative continues to impact tidally-influence forested wetlands, and the levee footprint has increased from a 500-foot-wide levee during initial analysis to a 750-foot-wide levee since the implementation of the new design criteria. To further minimize impacts to forested wetlands the footprint could be reduced by implementing "T"-walls into the design rather than having the levees constructed of earthen

material along this segment, and by reducing the 150-foot-wide setback as much as safely practicable. The Service recommends that these alternatives be evaluated further.

Currently, the community of Oakville directs storm water runoff into the Oakville drainage canal located within the Plaquemines Non-Federal Levee protection system. As proposed, a pump station would be constructed in the new hurricane protection system and would continue to discharge storm water into that canal. Wetlands function as natural storm water filtration systems. The uptake of nutrients by wetlands would not only treat storm water runoff but would also enhance the quality of the receiving wetlands (e.g., increasing biomass). Those wetlands are deprived of nutrients due to hydrological alteration resulting from the Mississippi River flood protection system. Directing storm water runoff into the adjacent forested wetlands would also maintain those wetlands and their storm buffering qualities providing long-term protection to the proposed flood protection system and to the community of Oakville. We recommend that the pump station be modified to direct storm water into the adjacent wetlands outside of the flood protection system as a means to rectifying degraded swamp habitat.

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 wetlands for fish and wildlife and the relative scarcity of that habitat type, those wetlands are usually designated as Resource Category 2 habitats, the mitigation goal for which is no net loss of in-kind habitat value. Remaining direct and indirect (i.e., 150-foot set back) project impacts to forested wetlands should be mitigated via in-kind compensatory replacement of the habitat values lost. Degraded (i.e., non-wet) bottomland hardwood forest 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. Project impacts to wetlands will be minimized to some extent by hauling in material for the levee. The mitigation goal for Resource Category 3 habitats is no net loss of habitat value. Mitigation for unavoidable losses of wet and non-wet bottomland hardwoods and swamp habitat, caused by project features will be evaluated through a complementary comprehensive mitigation IER.

SERVICE POSITION AND RECOMMENDATIONS

Construction of the WBV, Hero to Oakville hurricane protection system would result in direct impacts to 18.39 and 28.27 AAHUs, of bottomland hardwood forest and swamp, respectively. The Service does not object to providing improved hurricane protection to the greater New Orleans area provided the following fish and wildlife conservation recommendations are incorporated into future project planning and implementation:

1. To the greatest extent possible, design (e.g., implementation of "T"-walls in levee designs) and position flood protection features so that destruction of wetlands and non-wet bottomland hardwoods are avoided or minimized.

2. The proposed Oakville pump station should be redesigned to pump storm water into the adjacent forested wetlands as a storm water treatment measure and to enhance those degraded wetlands.
3. The Corps shall fully compensate for any unavoidable losses to wet and non-wet bottomland hardwood habitat (18.39 AAHUs) and swamp habitat (28.27 AAHUs) caused by project features.
4. Minimize enclosure of wetlands with new levee alignments. When enclosing wetlands is unavoidable, acquire non-development easements on those wetlands, or maintain hydrologic connections with adjacent, un-enclosed wetlands to minimize secondary impacts from development and hydrologic alteration.
5. If a proposed project feature is changed significantly or is not implemented within one year of the March 10, 2009, Endangered Species Act consultation letter, we recommend that the Corps reinitiate coordination with each office to ensure that the proposed project would not adversely affect any Federally listed threatened or endangered species or their habitat.
6. Avoid adverse impacts to bald eagle nesting locations and wading bird colonies through careful design of project features and timing of construction. A qualified biologist should inspect the proposed work site for the presence of undocumented wading bird nesting colonies and bald eagles during the nesting season (i.e., February 16 through October 31 for wading bird nesting colonies, and October through mid-May for bald eagles).
7. To minimize disturbance to colonies containing nesting wading birds (i.e., herons, egrets, night-herons, ibis, and roseate spoonbills), anhingas, and/or cormorants, all activity occurring within 1,000 feet of a rookery should be restricted to the non-nesting period (i.e., September 1 through February 15, exact dates may vary within this window depending on species present). In addition, we recommend that on-site contract personnel be informed of the need to identify colonial nesting birds and their nests, and should avoid affecting them during the breeding season.
8. If a bald eagle nest is discovered within or adjacent to the proposed project area, then an evaluation must be performed to determine whether the project is likely to disturb nesting bald eagles. That evaluation may be conducted on-line at: <http://www.fws.gov/southeast/es/baldeagle>. Following completion of the evaluation, that website will provide a determination of whether additional consultation is necessary and those results should be forwarded to this office.
9. Forest clearing associated with project features should be conducted during the fall or winter to minimize impacts to nesting migratory birds, when practicable.
10. Acquisition, habitat development, maintenance and management of mitigation lands

should be allocated as first-cost expenses of the project, and the local project-sponsor should be responsible for operational costs. If the local project-sponsor is unable to fulfill the financial mitigation requirements for operation, then the Corps should provide the necessary funding to ensure mitigation obligations are met on behalf of the public interest.

11. Further detailed planning of project features (e.g., Design Documentation Report, Engineering Documentation Report, Plans and Specifications, or other similar documents) should be coordinated with the Service and other State and Federal natural resource agencies, and shall be provided an opportunity to review and submit recommendations on the all work addressed in those reports.
12. If mitigation lands are purchased for inclusion within Federally of State managed lands, those lands must meet certain requirements; therefore the land manger of that management area should be contacted early in the planning phase regarding such requirements.
13. If applicable, a General Plan should be developed by the Corps, the Service, and the managing natural resource agency in accordance with Section 3(b) of the FWCA for mitigation lands.
14. Flood protection water control structures in any watercourse should maintain pre-project cross section in width and depth to the maximum extent practicable.
15. Any flood protection water control structure sited in a canal, bayou, or navigation channel that does not maintain the pre-project cross section should be designed and operated with multiple openings within the structure. This should include openings near both sides of the channel as well as an opening in the center of the channel that extends to the bottom.
16. Flood protection water control structures should remain completely open except during storm events, unless otherwise determined by the natural resource agencies.
17. Flood protection structures within a waterway should include shoreline baffles and/or ramps (e.g., rock rubble, articulated concrete mat) that slope up to the structure invert to enhance organism passage. Various ramp designs should be considered, and coordination should continue with the natural resource agencies to ensure fish passage features are incorporated to the fullest extent practicable.
18. A report documenting the status of mitigation implementation and maintenance should be prepared every three years by the managing agency and provided to the Corps, the Service, NMFS, EPA, LDNR and LDWF. That report should also describe future management activities, and identify any proposed changes to the existing management plan.

LITERATURE CITED

Louisiana Coastal Wetland Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority. 1998. Coastal 2050: Toward a Sustainable Coastal Louisiana. Louisiana Department of Natural Resources. Baton Rouge, LA. 70898.

Appendix A

WVA Analysis

COMMUNITY HABITAT SUITABILITY MODEL
Bottomland Hardwoods

Project..... IER 13 PF01Ad impacts

Acres: 13

Condition: Future With Project

Variable		TY 0		TY 1		TY 20		
		Class/Value	SI	Class/Value	SI	Class/Value	SI	
V1	Species Assoc.	Class 4	0.80	Class 1		Class 1		
V2	Maturity (input age or dbh, not both)	Age 15.04	0.67	Age 1	0.01	Age 1	0.01	
V3	Understory / Midstory	Understory % 54 Midstory % 58	0.96	Understory % 0 Midstory % 0		Understory % 0 Midstory % 0		1.00 0.92
V4	Hydrology	Class 2	0.50	Class 2	0.50	Class 2	0.50	
V5	Forest Size	Class 2	0.40	Class 1		Class 1		
V6	Surrounding Land Use	Values % 60 Forest / marsh Abandoned Ag Pasture / Hay Active Ag Development 2 14	0.70	Values % 60 24 2 14	0.70	Values % 60 24 2 14	0.70	
V7	Disturbance Type Distance	Class 2 Class 1	0.26	Class 2 Class 1	0.26	Class 2 Class 1	0.26	
		HSI = 0.64		HSI = 0.07		HSI = 0.07		

Project..... IER 13 PF01Ad impacts
 FWP

Variable		TY 50		TY		TY		
		Class/Value	SI	Class/Value	SI	Class/Value	SI	
V1	Species Assoc.	Class 1		Class		Class		
V2	Maturity (input age or dbh, not both)	Age 1	0.01	Age		Age		
V3	Understory / Midstory	Understory % 0 Midstory % 0		Understory % Midstory %		Understory % Midstory %		0.10 0.10
V4	Hydrology	Class 2	0.50	Class		Class		
V5	Forest Size	Class 1		Class		Class		
V6	Surrounding Land Use	Values % 60 Forest / marsh Abandoned Ag Pasture / Hay Active Ag Development 2 14	0.70	Values %		Values %		
V7	Disturbance Type Distance	Class 2 Class 1	0.26	Class Class		Class Class		
		HSI = 0.07		HSI =		HSI =		

3/18/2009

Bottomland Hardwoods

Project..... IER 13 PFO1R, BLH seasonally tidal (20090310) Acres: 19

Condition: Future With Project

Variable		TY 0		TY 1		TY 50				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class 4	0.80	Class 1		Class 1				
V2	Maturity (input age or dbh, not both)	Age dbh 13.33	0.53	Age dbh 0.1	0.00	Age dbh 0.1	0.00			
V3	Understory / Midstory	Understory % 83		Understory % 0		Understory % 0		0.77	0.10	0.10
		Midstory % 29	0.89	Midstory % 0		Midstory % 0		1.00	0.10	0.10
V4	Hydrology	Class 3	1.00	Class 1	0.10	Class 1	0.10			
V5	Forest Size	Class 4	0.80	Class 1		Class 1				
V6	Surrounding Land Use	Values %		Values %		Values %				
	Forest / marsh	60	0.69	60	0.69	60	0.69			
	Abandoned Ag									
	Pasture / Hay	20		20		20				
	Active Ag	3		3		3				
	Development	17		17		17				
V7	Disturbance	Class 1	0.01	Class 1	0.01	Class 1	0.01			
	Type	Class 1		Class 1		Class 1				
	Distance	Class 1		Class 1		Class 1				
		HSI =	0.55	HSI =	0.01	HSI =	0.01			

Project..... IER 13 PFO1R, BLH seasonally tidal (20090310)
 FWP

Variable		TY		TY		TY				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class		Class		Class				
V2	Maturity (input age or dbh, not both)	Age dbh		Age dbh		Age dbh				
V3	Understory / Midstory	Understory %		Understory %		Understory %				
		Midstory %		Midstory %		Midstory %				
V4	Hydrology	Class		Class		Class				
V5	Forest Size	Class		Class		Class				
V6	Surrounding Land Use	Values %		Values %		Values %				
	Forest / marsh									
	Abandoned Ag									
	Pasture / Hay									
	Active Ag									
	Development									
V7	Disturbance	Class		Class		Class				
	Type	Class		Class		Class				
	Distance	Class		Class		Class				
		HSI =		HSI =		HSI =				

3/18/2009

COMMUNITY HABITAT SUITABILITY MODEL
Bottomland Hardwoods

Project..... IER 13 PFO1R, BLH seasonally tidal (20090310) Acres: 19

Condition: Future Without Project

Variable		TY 0		TY 1		TY 20				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class 4	0.80	Class 4	0.80	Class 4	0.80			
V2	Maturity (input age or dbh, not both)	Age 13.33	0.53	Age 13.56	0.56	Age 11.42	0.34			
V3	Understory / Midstory	Understory % 83		Understory % 80		Understory % 20		0.77	0.80	0.70
		Midstory % 29	0.89	Midstory % 30	0.90	Midstory % 60	0.80	1.00	1.00	0.90
V4	Hydrology	Class 3	1.00	Class 3	1.00	Class 3	1.00			
V5	Forest Size	Class 4	0.80	Class 4	0.80	Class 4	0.80			
V6	Surrounding Land Use	Values %		Values %		Values %				
	Forest / marsh	60	0.69	60	0.69	60	0.69			
	Abandoned Ag	20		20		20				
	Pasture / Hay	3		3		3				
V7	Disturbance	Active Ag		17		17				
		Development								
V7	Type	Class 1	0.01	Class 1	0.01	Class 1	0.01			
	Distance	Class 1		Class 1		Class 1				
		HSI =	0.55	HSI =	0.56	HSI =	0.49			

Project..... IER 13 PFO1R, BLH seasonally tidal (20090310)
 FWP

Variable		TY 50		TY		TY				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class 5	1.00	Class		Class				
V2	Maturity (input age or dbh, not both)	Age 18.32	0.89	Age		Age				
V3	Understory / Midstory	Understory % 35		Understory %		Understory %		1.00		
		Midstory % 35	1.00	Midstory %		Midstory %		1.00		
V4	Hydrology	Class 3	1.00	Class		Class				
V5	Forest Size	Class 4	0.80	Class		Class				
V6	Surrounding Land Use	Values %		Values %		Values %				
	Forest / marsh	60	0.69							
	Abandoned Ag	20								
	Pasture / Hay	3								
V7	Disturbance	Active Ag								
		Development								
V7	Type	Class 1	0.01	Class		Class				
	Distance	Class 1		Class		Class				
		HSI =	0.69	HSI =		HSI =				

3/18/2009

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project..... IER 13, Alt 1 revised 20090310

Project Area.....

39

Condition: Future Without Project

Variable		TY 0		TY 1		TY 20	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		25		25		35	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		24		24		30	
Herbaceous		Herbaceous		Herbaceous			
81		81		75			
Class		Class		Class			
1		1	0.10	2		0.20	
V2	Stand Maturity	Cypress %		Cypress %		Cypress %	
		79		79		71	
		Cypress dbh		Cypress dbh		Cypress dbh	
		19		19		24	
		Tupelo et al. %		Tupelo et al. %		Tupelo et al. %	
		21		21		29	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
7.87	0.91	8.13	0.92	13.87	1.00		
Basal Area		Basal Area		Basal Area			
58.3	0.36	58	0.37	93.6	0.60		
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Moderate		Moderate		Moderate	
		Flooding Duration		Flooding Duration		Flooding Duration	
Permanent	0.45	Permanent	0.45	Permanent	0.45		
V4	Mean High Salinity		3.0		0.1		3.0
			0.1		0.1		0.1
		HSI =	0.22	HSI =	0.22	HSI =	0.30

Project..... IER 13, Alt 1 revised 20090310
 FWOP

Variable		TY 50		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		45					
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		25					
Herbaceous		Herbaceous		Herbaceous			
70							
Class		Class		Class			
2	0.20						
V2	Stand Maturity	Cypress %		Cypress %		Cypress %	
		60					
		Cypress dbh		Cypress dbh		Cypress dbh	
		33					
		Tupelo et al. %		Tupelo et al. %		Tupelo et al. %	
		40					
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
22.67	1.00						
Basal Area		Basal Area		Basal Area			
156.9	0.80						
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Moderate					
		Flooding Duration		Flooding Duration		Flooding Duration	
Permanent	0.45						
V4	Mean High Salinity		3.0				
			0.1				
		HSI =	0.33	HSI =	#VALUE!	HSI =	#VALUE!

3/18/2009

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project..... IER 13, alt 1 revised 20090310

Project Area.....

39

Condition: Future With Project

Variable		TY 0		TY 1		TY 50	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		25		Scrub-shrub		Scrub-shrub	
		Scrub-shrub		Herbaceous		Herbaceous	
		24		Herbaceous		Herbaceous	
		Herbaceous		Class		Class	
		81		1	0.10	1	0.10
		Class					
		1	0.10				
V2	Stand Maturity	Cypress %		Cypress %		Cypress %	
		79		0		0	
		Cypress dbh		Cypress dbh		Cypress dbh	
		19		0		0	
		Tupelo et al. %		Tupelo et al. %		Tupelo et al. %	
		0		0		0	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		0	0.79	0	0.00	0	0.00
		Basal Area		Basal Area		Basal Area	
		58.3	0.32	0	0.00	0	0.00
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Moderate		None		None	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Permanent	0.45	Permanent	0.10	Permanent	0.10
V4	Mean High Salinity		3.0		0.0		1
			0.1		1		0.0
		HSI =	0.21	HSI =	0.00	HSI =	0.00

Project..... IER 13, Alt 1 revised 20090310
 FWP

0.25

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress %		Cypress %		Cypress %	
		Cypress dbh		Cypress dbh		Cypress dbh	
		Tupelo et al. %		Tupelo et al. %		Tupelo et al. %	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Basal Area		Basal Area		Basal Area	
		V3	Water Regime	Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Mean High Salinity						
		HSI =	#VALUE!	HSI =	#VALUE!	HSI =	#VALUE!

3/18/2009

AAHU CALCULATION

Project: IER 13, Alt 1 revised 20090310

Future Without Project			Total HUs	Cummulative HUs
TY	Acres	x HSI		
0	39	0.22	8.46	
1	39	0.22	8.48	8.47
20	39	0.30	11.80	192.65
50	39	0.33	12.68	367.19
		#VALUE!		
			Total CHUs =	568.31
			AAHUs =	28.42

Future With Project			Total HUs	Cummulative HUs
TY	Acres	x HSI		
0	39	0.21	8.16	
1	0	0.00	0.00	2.72
50	0	0.00	0.00	0.00
		#VALUE!		
			Total CHUs =	2.72
			AAHUs =	0.14

NET CHANGE IN AAHUs DUE TO PROJECT		
A. Future With Project AAHUs =		0.14
B. Future Without Project AAHUs =		28.42
Net Change (FWP - FWOP) =		-28.28

-28.27

MEMORANDUM

DATE: 11 March
 TO: File IER 13
 FROM: Angela Trahan
 SUBJECT: Revisions for IER 13 WVA

On March 9, 2009, the Corps provided a revised footprint for their preferred alternative which includes new design criteria using SLOPE/W (also known as Spencer’s Method), a slope stability software that computes the factor of safety of earth and rock slopes. The new design criterion requires a larger 600-foot-wide earthen levee around the Oakville landfill for the preferred alignment (i.e., Alternative 1). A 150-foot set back from the landfill has also been proposed situating the alignment further out into swamp habitat. The initial footprint along the north bank of Hero Canal has been reduced from 250 feet of additional levee width to an average of approximately 60 feet additional levee width. A staging area has also been modified to including non-forested areas. Potential impacts associated with the revised footprint were updated using 2007 aerial photography.

In addition to the revised footprint, modifications were made to some of the habitat variables. Those impacts are noted below for each section.

Swamp Habitat Assessment (PF02)

Variable V₂ – Stand maturity was revised to include an average dbh of canopy-codominant trees (maple et al). See dbh spreadsheet attached.

Seasonally Tidal BLH Habitat Assessment (PF01R)

Note in the previous Alternative 3 WVA, project acreage for FWOP was entered as 4 acres rather than 21 acres. The revised WVA analyzes future-with and future-without project to 19 acres of seasonally tidal BLH habitat for Alternative 1.

Also, riparian habitat along Hero Canal and along the MS River was considered in the impacts. Shoreline erosion was evaluated and no noticeable changes were detected along the bankline of Hero Canal.

Table: Potential Estimated Impacts

Alternative	PFO2 (swamp)		PFO1R (tidal BLH)		PFO1Ad (impounded BLH)		Total	
	Acres	AAHUs	Acres	AAHUs	Acres	AAHUs	Acres	AAHUs

Revised 1	39	-28.28	19	-10.59	13	-7.80	71	-46.67
Previous 1	17	-11.20	12	-6.69	30	-18.01	59	-35.90

Revised acreage values estimated using 2007 aerial photography in ArcGIS and rounded to nearest acre.

Previous acreage values estimated using 2005 aerial photography.

Fish and Wildlife Conservation Measure

While the Corps has proposed an earthen levee along this section of the hurricane protection system, implementation of floodwalls would reduce proposed impacts to valuable swamp and associated fish and wildlife habitat.

Appendix J: NRCS Farmland Conversion Impact Rating



RECEIVED
MAY 12 2008
GAI CONSULTANTS INC.
PROJ. NO _____

APR 03 2008

March 24, 2008

Project C070597.00

Mr. Mike Trusclair
District Conservationist
United States Department of Agriculture
Natural Resource Conservation Service
Boutte Service Center
14246 Highway 90
Boutte, Louisiana 70039-3516

United States Army Corps of Engineers
WBV: Hero Canal Levee and Eastern Terminus Flood Protection Project
Plaquemines Parish, Louisiana

Dear Mr. Trusclair:

GAI Consultants, Inc. (GAI) is assisting Aerostar Environmental Services, Inc. in providing environmental support to the United States Army Corps of Engineers regarding the West Bank Vicinity: Hero Canal Levee and Eastern Terminus Flood Protection Project (Project). The Project will raise the existing flood protection along the Hero Canal, near Oakville in Plaquemines Parish, to provide 100-year level storm-surge protection.

GAI has previously reviewed soil survey information for the Project study area and has identified prime farmland soils as crossed by various project alignments. In accordance with the Farmland Protection Policy Act, GAI is submitting a United States Department of Agriculture Farmland Conversion Impact Rating Form (AD-1006). Three copies of the AD-1006 forms, along with figures depicting seven potential Project alignments and right-of-way (ROW) requirements, are attached as instructed.

GAI is requesting your review of project alignment ROWs, and the completion of parts II, IV and V of the AD-1006 forms.

Thank you for your assistance. Please contact Mr. Anthony Baumert or myself at 412-476-2000 if should you require further information or have questions.

Sincerely,
GAI Consultants, Inc.

John M. Mores, AICP
Project Manager

JMM:AJB/scg
07597-LTR-NRCS-AJB/scg d1

Attachments

cc: Mr. Bobby Boudet – Aerostar Environmental Services, Inc.

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request 3/20/08			
Name Of Project WBV: Hero Canal Levee and Eastern Terminus		Federal Agency Involved United States Army Corps of Engineers			
Proposed Land Use Flood Protection System		County And State Plaquemines Parish, Louisiana			
PART II (To be completed by NRCS)		Date Request Received By NRCS 4/3/08			
Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply - do not complete additional parts of this form).		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Acres Irrigated	Average Farm Size
Major Crop(s) Soybeans		Farmable Land In Govt. Jurisdiction Acres: %		Amount Of Farmland As Defined in FPPA Acres: 29,000 % 4.6	
Name Of Land Evaluation System Used Plaquemines Parish		Name Of Local Site Assessment System none		Date Land Evaluation Returned By NRCS 4/30/08	
PART III (To be completed by Federal Agency)		Alternative Site Rating			
		Site 1	Site 2	Site 3	Site 4
A. Total Acres To Be Converted Directly		167.9	168.0	171.3	155.4
B. Total Acres To Be Converted Indirectly		0.0	0.0	0.0	0.0
C. Total Acres In Site		167.9	168.0	171.3	155.4
PART IV (To be completed by NRCS) Land Evaluation Information					
A. Total Acres Prime And Unique Farmland		3	3	3	8.7
B. Total Acres Statewide And Local Important Farmland		0	0	0	0
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted		.0001	.0001	.0001	.0003
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value		100	100	100	100
PART V (To be completed by NRCS) Land Evaluation Criterion					
Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)		0	85	0	85
PART VI (To be completed by Federal Agency)		Maximum Points			
Site Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))					
1. Area In Nonurban Use		15	15	15	15
2. Perimeter In Nonurban Use		10	10	10	9
3. Percent Of Site Being Farmed		10	1	1	0
4. Protection Provided By State And Local Government		20	20	20	20
5. Distance From Urban Builtup Area		0	0	0	0
6. Distance To Urban Support Services		0	0	0	0
7. Size Of Present Farm Unit Compared To Average		10	0	0	0
8. Creation Of Nonfarmable Farmland		25	0	0	0
9. Availability Of Farm Support Services		5	5	5	5
10. On-Farm Investments		20	6	6	0
11. Effects Of Conversion On Farm Support Services		25	0	0	0
12. Compatibility With Existing Agricultural Use		10	0	0	0
TOTAL SITE ASSESSMENT POINTS		160	57	57	49
PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)		100	85	85	85
Total Site Assessment (From Part VI above or a local site assessment)		160	57	57	49
TOTAL POINTS (Total of above 2 lines)		260	57 142	57 142	56 141
Site Selected:		Date Of Selection		Was A Local Site Assessment Used? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Reason For Selection:					

(See Instructions on reverse side)

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Form AD-1006 (10-83)

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request 3/20/08			
Name Of Project WBV: Hero Canal Levee and Eastern Terminus		Federal Agency Involved United States Army Corps of Engineers			
Proposed Land Use Flood Protection System		County And State Plaquemines Parish, Louisiana			
PART II (To be completed by NRCS)		Date Request Received By NRCS 4/3/08			
Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply - do not complete additional parts of this form).		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Acres Irrigated	Average Farm Size
Major Crop(s) Soybeans		Farmable Land In Govt. Jurisdiction Acres: %		Amount Of Farmland As Defined In FPPA Acres: 29,000 % 4.6	
Name Of Land Evaluation System Used Plaquemines Parish.		Name Of Local Site Assessment System none		Date Land Evaluation Returned By NRCS 4/30/08	
PART III (To be completed by Federal Agency)		Alternative Site Rating			
		Site 5	Site 6	Site 7	
A. Total Acres To Be Converted Directly	166.9	167.9	158.3		
B. Total Acres To Be Converted Indirectly	0.0	0.0	0.0		
C. Total Acres In Site	166.9	167.9	158.3	0.0	
PART IV (To be completed by NRCS) Land Evaluation Information					
A. Total Acres Prime And Unique Farmland	3	14.3	9.7		
B. Total Acres Statewide And Local Important Farmland	0	0	0		
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	.00001	.00005	.00003		
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	100	100	100		
PART V (To be completed by NRCS) Land Evaluation Criterion					
Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)		0 85	0 85	0 85	0
PART VI (To be completed by Federal Agency)		Maximum Points			
Site Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))					
1. Area In Nonurban Use	15	15	15	15	
2. Perimeter In Nonurban Use	10	7	7	8	
3. Percent Of Site Being Farmed	20	1	1	0	
4. Protection Provided By State And Local Government	20	20	20	20	
5. Distance From Urban Builtup Area	0	0	0	0	
6. Distance To Urban Support Services	0	0	0	0	
7. Size Of Present Farm Unit Compared To Average	10	0	0	0	
8. Creation Of Nonfarmable Farmland	25	0	0	0	
9. Availability Of Farm Support Services	5	5	5	5	
10. On-Farm Investments	20	6	6	6	
11. Effects Of Conversion On Farm Support Services	25	0	0	0	
12. Compatibility With Existing Agricultural Use	10	0	0	0	
TOTAL SITE ASSESSMENT POINTS	160	54	54	54	0
PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)		100 85	85	85	0
Total Site Assessment (From Part VI above or a local site assessment)		160 54	54	54	0
TOTAL POINTS (Total of above 2 lines)		260 54 139	54 139	54 139	0
Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Reason For Selection:					

(See Instructions on reverse side)

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Form AD-1006 (10-83)

Appendix K: Air Emissions

Levee Construction Air Emissions

Equipment	Estimated Numbers of Equipment	Equipment HP	VOCs (grams /HP-hour)	CO (grams /HP-hour)	NOx (grams /HP-hour)	PM (grams /HP-hour)	VOCs (tons)	CO (tons)	NOx (tons)	PM (tons)	Fugitive PM (tons)
Case Dozer	1	100	0.99	3.49	6.9	0.722	0.170	0.600	1.187	0.124	3.072
Caterpillar	4	150	0.68	2.7	8.38	0.402	0.702	2.786	8.648	0.415	16.011
Pickup Trucks	6	300	0.68	2.7	8.38	0.402	2.105	8.359	25.943	1.245	10.724
Air Compressor, 250 cfm	2	100	0.99	3.49	6.9	0.722	0.341	1.200	2.373	0.248	7.375
Excavator	4	300	0.68	2.7	8.38	0.402	1.403	5.572	17.295	0.830	29.501
Mack Truck	2	350	0.68	2.7	8.38	0.402	0.819	3.251	10.089	0.484	6.145
Utility Truck	1	350	0.68	2.7	8.38	0.402	0.409	1.625	5.044	0.242	2.779
Wood Chipper	1	10	1.5	5.0	10.0	1.0	0.026	0.086	0.172	0.017	0.387
Generator	2	15	1.7	5.0	8.5	0.9	0.088	0.258	0.439	0.046	0.774
Welder	1	35	1.8	5.0	6.9	0.8	0.108	0.301	0.415	0.048	1.090

Total Emissions Per Work Day (tons)							0.040	0.154	0.459	0.024	0.499
Total Emissions - Calendar year (tons)							6.17	24.04	71.61	3.70	77.86
										TOTAL PM (tons):	81.56

Notes:

1.

Daily Work Schedule (hours)	10	
Weekly Work Schedule (10-hour days)	6	(Approx. 156 days of operations, 1560 hours of operation.)
Project Length (weeks)	26	(Approx. Jan-Dec, 26 weeks average work time - see note 3)

2. Emissions Factors from *Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, NR-009c*, (EPA420-P-04-009), April 2004. The Base or Tier 0 Technology Type was used to determine the emission factor.

3. HP for equipment engines obtained from *Rental Rate Blue Book for Construction Equipment*, Dataquest, 2006.

4. Equipment usage estimates based on a twelve-month construction period, however, not all equipment will run every day of the construction period. Use 10-hour days, six days per week, for 26 weeks as an average time for equipment usage.

5. Fuel type for all equipment used is diesel.

6. Totals by pollutant for project activity in bold.

7. Fugitive PM from Table 2 - Plaquemines Parish Fugitive Air Emissions, Levee Construction.

Levee Fugitive Air Emissions

Equipment	Estimated Numbers of Equipment	Equipment HP	W (Mean Vehicle Weight) [tons]	S (Surface material Silt Content) [%]	E (Emission Factor based on Total Suspended Particle) [lb/VMT]	VMT (Vehicle Miles Traveled) [m/day]	Fugitive Dust Emission per vehicle [lbs/day]	Fugitive Dust Emission per total vehicles [lbs/day]	Fugitive PM per day (tons)
Case Dozer	1	100	10	15	9.85	4	39.4	39.4	0.020
Caterpillar	4	150	18	15	12.83	4	51.3	205.3	0.103
Pickup Trucks	6	300	3	15	5.73	4	22.9	137.5	0.069
Air Compressor, 250 cfm	2	100	15	15	11.82	4	47.3	94.5	0.047
Excavator	4	300	70	15	23.64	4	94.6	378.2	0.189
Mack Truck	2	350	10	15	9.85	4	39.4	78.8	0.039
Utility Truck	1	350	8	15	8.91	4	35.6	35.6	0.018
Wood Chipper	1	10	0.1	15	1.24	4	5.0	5.0	0.002
Generator	2	15	0.1	15	1.24	4	5.0	9.9	0.005
Welder	1	35	1	15	3.49	4	14.0	14.0	0.007

Total Emissions Per Work Day (lbs)							470.6	998.2	0.499
Total Emissions (tons)									77.86

Notes:

1.

Daily Work Schedule (hours)	10	
Weekly Work Schedule (10-hour days)	6	(Approx. 156 days of operations, 1560 hours of operation.)
Project Length (weeks)	26	(Approx. Jan-Dec, 26 weeks average work time - see note 3)

2. Based on the USEPA AP-42, dated October 2001, Chapter 13, 13.2.2. Unpaved Roads.

3. Assumed 4 miles traveled per day.

4. HP and Mean Vehicle Weight for equipment engines obtained from *Rental Rate Blue Book for Construction Equipment*, Dataquest, 2006.

5. Equipment usage estimates based on a twelve-month construction period; however, not all equipment will run every day of the construction period. Use 10-hour days, six days per week, for 26 weeks as an average time for equipment usage.

Appendix L: Detailed Demographic and Census Data

Table 12: IER 13 EJ Project Area – Demographic and Income Data

General	2000	2008	2013
Population	1,165	1,519	1,629
Households	402	541	584
Families	298	392	420
Average Household Size	2.89	2.80	2.78
Owner Occupied Housing Units	362	501	537
Renter Occupied Housing Units	40	40	47
Median Age	35.1	38.5	40.0

Households by Income	2000		2008		2013	
	Number	Percent	Number	Percent	Number	Percent
< \$15,000	157	41.1%	182	33.6%	174	29.8%
\$15,000 - \$24,999	53	13.9%	105	19.4%	120	20.5%
\$25,000 - \$34,999	55	14.4%	70	12.9%	63	10.8%
\$35,000 - \$49,999	30	7.9%	42	7.8%	52	8.9%
\$50,000 - \$74,999	55	14.4%	79	14.6%	88	15.1%
\$75,000 - \$99,999	9	2.4%	29	5.4%	43	7.4%
\$100,000 - \$149,999	6	1.6%	12	2.2%	19	3.3%
\$150,000 - \$199,999	0	0.0%	0	0.0%	1	0.2%
\$200,000+	17	4.5%	22	4.1%	24	4.1%

Race and Ethnicity	2000		2008		2013	
	Number	Percent	Number	Percent	Number	Percent
White Alone	313	26.9%	377	24.8%	413	25.4%
Black Alone	616	52.9%	853	56.2%	905	55.6%
American Indian Alone	179	15.4%	213	14.0%	231	14.2%
Asian Alone	8	0.7%	9	0.6%	9	0.6%
Pacific Islander Alone	0	0.0%	0	0.0%	0	0.0%
Some Other Race Alone	13	1.1%	17	1.1%	17	1.0%
Two or More Races	36	3.1%	50	3.3%	54	3.3%
Hispanic Origin (Anv Race)	4	0.3%	6	0.4%	6	0.4%

Source: ESRI Business Analyst, 2008

Table 13: Plaquemines Parish – Demographic and Income Data

General	2000	2008	2013
Population	26,757	29,240	31,631
Households	9,021	10,143	11,073
Families	6,999	7,810	8,466
Average Household Size	2.89	2.83	2.81
Owner Occupied Housing Units	7,117	8,052	8,700
Renter Occupied Housing Units	1,904	2,091	2,373
Median Age	33.7	34.2	35.1

Households by Income	2000		2008		2013	
	Number	Percent	Number	Percent	Number	Percent
< \$15,000	1,918	21.3%	1,817	17.9%	1,818	16.4%
\$15,000 - \$24,999	1,137	12.6%	1,102	10.9%	1,150	10.4%
\$25,000 - \$34,999	1,100	12.2%	1,272	12.5%	1,169	10.6%
\$35,000 - \$49,999	1,671	18.6%	1,612	15.9%	1,554	14.0%
\$50,000 - \$74,999	1,584	17.6%	2,092	20.6%	2,572	23.2%
\$75,000 - \$99,999	902	10.0%	1,095	10.8%	1,328	12.0%
\$100,000 - \$149,999	479	5.3%	838	8.3%	1,072	9.7%
\$150,000 - \$199,999	76	0.8%	136	1.3%	193	1.7%
\$200,000+	134	1.5%	178	1.8%	214	1.9%

Median Household Income	\$38,090	\$44,371	\$48,626
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Race and Ethnicity	2000		2008		2013	
	Number	Percent	Number	Percent	Number	Percent
White Alone	18,668	69.8%	20,408	69.8%	22,078	69.8%
Black Alone	6,258	23.4%	6,863	23.5%	7,424	23.5%
American Indian Alone	553	2.1%	564	1.9%	610	1.9%
Asian Alone	700	2.6%	674	2.3%	728	2.3%
Pacific Islander Alone	4	0.0%	7	0.0%	9	0.0%
Some Other Race Alone	194	0.7%	250	0.9%	270	0.9%
Two or More Races	380	1.4%	474	1.6%	512	1.6%
Hispanic Origin (Any Race)	433	1.6%	602	2.1%	653	2.1%

Source: ESRI Business Analyst, 2008

Table 14: Jefferson Parish – Demographic and Income Data

General	2000	2008	2013
Population	455,466	446,686	471,866
Households	176,234	172,601	182,882
Families	120,183	116,402	122,095
Average Household Size	2.56	2.57	2.56
Owner Occupied Housing Units	112,549	111,806	116,614
Renter Occupied Housing Units	63,685	60,795	66,268
Median Age	35.9	37.7	38.5

Households by Income	2000		2008		2013	
	Number	Percent	Number	Percent	Number	Percent
< \$15,000	30,234	17.1%	25,166	14.6%	23,950	13.1%
\$15,000 - \$24,999	24,862	14.1%	20,649	12.0%	21,517	11.8%
\$25,000 - \$34,999	25,357	14.4%	23,095	13.4%	21,003	11.5%
\$35,000 - \$49,999	30,474	17.3%	29,008	16.8%	29,177	16.0%
\$50,000 - \$74,999	33,426	18.9%	35,616	20.6%	39,582	21.6%
\$75,000 - \$99,999	15,893	9.0%	18,556	10.8%	22,235	12.2%
\$100,000 - \$149,999	10,439	5.9%	13,733	8.0%	17,282	9.5%
\$150,000 - \$199,999	2,518	1.4%	2,994	1.7%	3,703	2.0%
\$200,000+	3,221	1.8%	3,777	2.2%	4,426	2.4%

Median Household Income \$38,563 \$43,828 \$47,540

Race and Ethnicity	2000		2008		2013	
	Number	Percent	Number	Percent	Number	Percent
White Alone	318,002	69.8%	279,942	62.7%	295,723	62.7%
Black Alone	104,121	22.9%	124,474	27.9%	131,490	27.9%
American Indian Alone	2,032	0.4%	2,153	0.5%	2,274	0.5%
Asian Alone	14,065	3.1%	20,010	4.5%	21,138	4.5%
Pacific Islander Alone	154	0.0%	171	0.0%	180	0.0%
Some Other Race Alone	9,239	2.0%	10,737	2.4%	11,343	2.4%
Two or More Races	7,853	1.7%	9,199	2.1%	9,718	2.1%
Hispanic Origin (Any Race)	32,418	7.1%	35,976	8.1%	38,003	8.1%

Source: ESRI Business Analyst, 2008

Table 15: State of Louisiana – Demographic and Income Data

General	2000	2008	2013
Population	4,468,976	4,500,627	4,717,658
Households	1,656,053	1,683,990	1,776,640
Families	1,156,438	1,173,672	1,228,557
Average Household Size	2.62	2.60	2.58
Owner Occupied Housing Units	1,125,135	1,174,441	1,227,519
Renter Occupied Housing Units	530,918	509,549	549,121
Median Age	34.0	35.6	36.6

Households by Income	2000		2008		2013	
	Number	Percent	Number	Percent	Number	Percent
< \$15,000	400,016	24.1%	345,777	20.5%	328,952	18.5%
\$15,000 - \$24,999	248,488	15.0%	223,858	13.3%	228,647	12.9%
\$25,000 - \$34,999	223,409	13.5%	216,003	12.8%	204,638	11.5%
\$35,000 - \$49,999	260,622	15.7%	260,976	15.5%	263,254	14.8%
\$50,000 - \$74,999	274,550	16.6%	308,014	18.3%	352,696	19.9%
\$75,000 - \$99,999	126,752	7.6%	160,294	9.5%	186,087	10.5%
\$100,000 - \$149,999	80,237	4.8%	116,016	6.9%	147,051	8.3%
\$150,000 - \$199,999	19,502	1.2%	24,720	1.5%	31,396	1.8%
\$200,000+	23,531	1.4%	28,284	1.7%	33,869	1.9%

Median Household Income \$32,809 \$38,063 \$41,758

Race and Ethnicity	2000		2008		2013	
	Number	Percent	Number	Percent	Number	Percent
White Alone	2,856,161	63.9%	2,791,775	62.0%	2,886,476	61.2%
Black Alone	1,451,944	32.5%	1,512,095	33.6%	1,610,621	34.1%
American Indian Alone	25,477	0.6%	29,914	0.7%	33,139	0.7%
Asian Alone	54,758	1.2%	70,991	1.6%	80,555	1.7%
Pacific Islander Alone	1,240	0.0%	1,530	0.0%	1,728	0.0%
Some Other Race Alone	31,131	0.7%	36,450	0.8%	40,357	0.9%
Two or More Races	48,265	1.1%	57,872	1.3%	64,782	1.4%
Hispanic Origin (Any Race)	107,738	2.4%	122,882	2.7%	134,490	2.9%

Source: ESRI Business Analyst, 2008

Table 16: Demographic and Income Data Comparisons

	IER 13 EJ Project		Plaquemines and Jefferson		Louisiana	
	Number	Percentage	Number	Percentage	Number	Percentage
Individuals Living below the Poverty Line	352	30.0%	66,290	13.9%	851,113	19.60%
Disability Status*	714	61.3%	167,893	34.8%	1,615,523	38.90%
5-15 years old	6	0.5%	7,211	1.5%	68,916	1.70%
16-64 years old	387	33.2%	110,062	22.9%	1,055,200	25.40%
65+ years old	321	27.6%	50,620	10.5%	491,407	11.80%
Private vehicle	290	89.8%	202,678	92.3%	1,679,782	91.7%
Drove Alone	192	59.4%	172,381	78.4%	1,430,142	78.1%
Carpooled	98	30.3%	30,297	13.8%	249,640	13.6%
Other means (incl. worked at home)	33	10.2%	17,007	7.7%	151,275	8.3%
Linguistically isolated households	5	1.2%	4,845	2.6%	28,552	1.70%
Population whose primary language is not English	135	12.1%	30,549	15.2%	382,364	9.20%
Spanish	0	0.0%	14,566	7.3%	105,189	2.50%
Other-Indo-European languages	135	12.1%	10,392	5.2%	225,750	5.40%
Asian or Pacific Islander	0	0.0%	4,623	2.3%	41,963	1.00%
Other languages	0	0.0%	968	0.5%	9,462	0.20%

Source: U.S. Census Bureau, Census 2000; Summary File 1 (SF-1) and Summary File 3 (SF-3)

* SF-3 P41 File of all disabilities tallied for total non-institutionalized civilian population 5 year and over; universe defined as total population