CHEF MENTEUR BRIDGE AND APPROACHES

ENVIRONMENTAL ASSESSMENT

Route US 90, Orleans Parish, Louisiana

Louisiana Department of Transportation and Development
State Project No. H.000263.2
Federal Aid Project No. H000263
Orleans Parish, Louisiana

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

U.S. Department of Transportation
Federal Highway Administration

October 15, 2014

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FEDERAL HIGHWAY ADMINISTRATION

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

FOR

STATE PROJECT NO. H.000263.2
F.A.P. NO. H000263
CHEF MENTEUR BRIDGE AND APPROACHES
ROUTE U.S. 90
ORLEANS PARISH, LOUISIANA

The FHWA has determined that this project will not have any significant impact on the human environment. This Finding of No Significant Impact (FONSI) is based on the Environmental Assessment, which has been independently evaluated by the FHWA and determined to adequately and accurately discuss the environmental issues and impacts of the proposed project. It provides sufficient evidence and analysis for determining that an environmental impact statement is not required.

APPROVED
Carl M. Highsmith
CARL M. HIGHSMITH
PROJECT DELIVERY TEAM LEADER
FEDERAL HIGHWAY ADMINISTRATION
DATE 8-21-14

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ENVIRONMENTAL DETERMINATION CHECKLIST

State Project No. H.000263.2
Federal Aid No. H000263
Name: Chef Menteur Bridge and Approaches
Route: U.S. 90
Parish: Orleans Parish

1. General Information

Status:
( ) Conceptual Layout
(√) Line and Grade
( ) Survey
( ) Plan-in-Hand
( ) Preliminary Plans
( ) Final Design

2. Class of Action

( ) Environmental Impact Statement (E.I.S.)
(√) Environmental Assessment (E.A.)
( ) Categorical Exclusion (C.E.)
( ) Programmatic C.E. (as defined in letter of agreement dated 03/15/95, does not require FHWA approval)

3. Project Description (use attachment if necessary)

The purpose of the project is to address bridge deficiencies related to the age and design of the existing movable bridge crossing Chef Menteur Pass. The project is needed in order to upgrade the bridge and roadway segment to current design standards for travel lane and shoulder widths, bridge width, stopping sight distances, design speed, and structural capacity. The proposed roadway segment and bridge improvements will also provide better accommodations for pedestrians and bicycle users.

4. Public Involvement

(√) Views were solicited on April 10, 2011.
Responses are provided in Appendix G.
( ) No adverse comments were received.
(√) Comments are addressed in attachment.
( ) Views were not solicited.
( ) A public hearing (P/H)/Opportunity is not required.
(√) An opportunity for requesting a P/H will be afforded upon your concurrence.
( ) Opportunity was afforded, with no requests for P/H.
(√) A Public Hearing was held on April 11, 2013.
(√) A Public Meeting was held on April 3, 2012.

5. Real Estate

	NO	YES
a. Will additional right-of-way be required?	( )	(√)
b. Will any relocations be required? (See Section 11)	( )	(√)
c. Are construction or drainage servitudes required?	( )	(√)
d. Will right-of-way be required from a Wetland Reserve Program (WRP) property?	(√)	( )

6. Cultural and 106 Impacts

		NO	YES
a.	**Section 4(f) or 6(f) lands**		
	Are any impacted by the project? (If so, list below).....	( )	(√)
	Are any adjacent to the project? (If so, list below).....	( )	(√)
b.	**Known Historic sites/structures**		
	Are any impacted by the project? (If so, list below).....	( )	(√)
	Are any adjacent to the project? (If so, list below).....	( )	(√)
c.	**Known Archaeological sites**		
	Are any impacted by the project? (If so, list site # below).....	( )	(√)
	Are any adjacent to the project? (If so, list site # below).....	( )	(√)
d.	**Cemeteries**		
	Are any impacted by the project? (If so, list below).....	(√)	( )
	Are any adjacent to the project? (If so, list below).....	(√)	( )
e.	**Historic Bridges**.....	( )	(√)

7. Wetlands

		NO	YES
a.	Are wetlands being affected?.....	( )	(√)
b.	Are other waters of the U.S. being affected?.....	( )	(√)
c.	Can C.O.E. Nationwide Permit be used?.....	(√)	( )

8. Natural Environment

		NO	YES
a.	Endangered/Threatened Species/Habitat.....	( )	(√)
b.	Within 100 Year Floodplain?.....	( )	(√)
	Is project a significant encroachment in Floodplain?.....	(√)	( )
c.	In Coastal Zone Management Area?.....	( )	(√)
	Is the project consistent with the Coastal Management Program?.....	( )	(√)
	Will a Coastal Use Permit be required?.....	( )	(√)
d.	Coastal Barrier Island (Grand Isle only).....	(√)	( )
e.	Farmlands (use form AD 1006 if necessary).....	(√)	( )
f.	Is project on Sole Source Aquifer?.....	(√)	( )
	Is coordination with EPA necessary?.....	(√)	( )
g.	Natural & Scenic Stream Permit required.....	(√)	( )
h.	Is project impacting a waterway?.....	( )	(√)
	Has navigability determination been made?.....	( )	(√)
	Will a US Coast Guard permit or amended permit be required?.....	( )	(√)

9. Physical Impacts

		NO	YES
a.	Is a noise analysis warranted (Type I project).....	( )	(√)
	Are there noise impacts based on violation of the (NAC)?.....	(√)	( )
	Are there noise impacts based on the 10 dBA increase?.....	(√)	( )
	Are noise abatement measures reasonable and feasible?.....	( )	( )
b.	Is an air quality study warranted?.....	(√)	( )
	Do project level air quality levels exceed the NAAQS for CO?.....	( )	( )
c.	Is project in a non-attainment area for Carbon monoxide (CO), Ozone (O_3), Nitrogen dioxide (NO_2), or Particulates (PM-10)?	(√)	( )
d.	Is project in an approved Transportation Plan, Transportation Improvement Program (TIP) and State Transportation Improvement Program (STIP)?.....	( )	(√)
e.	Are construction air, noise, & water impacts major?.....	(√)	( )
f.	Are there any known waste sites or U.S.T.s?.....	( )	(√)
	Will these sites require further investigation prior to purchase?	( )	(√)

10. Social Impacts

		NO	YES
a.	**Land use changes**……..	(√)	( )
b.	**Churches and Schools**		
	Are any impacted by the project? (If so, list below)……..	(√)	( )
	Are any adjacent to the project? (If so, list below)……..	( )	(√)
c.	**Title VI Considerations**……..	(√)	( )
d.	**Will any specific groups be adversely affected**		
	(i.e., minorities, low-income, elderly, disabled, etc.)? ……..	(√)	( )
e.	**Hospitals, medical facilities, fire police**		
	Are any impacted by the project? (If so, list below)……..	(√)	( )
	Are any adjacent to the project? (If so, list below)……..	( )	(√)
f.	**Transportation pattern changes**……..	( )	(√)
g.	**Community cohesion**……..	(√)	( )
h.	**Are short-term social/economic impacts due to construction**		
	considered major?.....	(√)	( )
I.	**Do conditions warrant special construction times**		
	(i.e., school in session, congestion, tourist season, harvest)?.....	( )	(√)
j.	**Were Context Sensitive Solutions considered?** (If so explain below)……..	( )	(√)
k.	**Will the roadway/bridge be closed? (If yes, answer questions below)**……..	(√)	( )
	Will a detour bridge be provided?.....	( )	( )
	Will a detour route be signed?.....	( )	( )

11. Other (Use this space to explain or expand answers to questions above.)

5b. **Relocations**: Alternative 2 real estate costs also include purchase and payment to the owner of the timber bridge crossing Michel Canal to relocate it outside the ROW.

6a. **Section 4(f) lands impacted:** Fort Macomb State Park; Fort Macomb Historic Site; Fort Macomb Archaeological Site (if determined eligible for the NRHP and warranting preservation-in-place); and Existing Historic Bridge.
Section 4(f) lands adjacent: Bayou Sauvage National Wildlife Refuge.

6b. **Known Historic sites/structures impacted:** Fort Macomb Historic Site (LHRI 36-01645) and Existing Historic Bridge (LHRI 36-01646).
Known Historic sites/structures adjacent: CSX Railroad Bridge (LHRI 36-01647).

6c. **Known Archaeological Sites Impacted:** Fort Macomb Archaeological Site (Portion of 16OR32 potentially eligible for NRHP) impacted by Alternative 1B; Archaeological Site (Portion of 16OR32 not eligible for NRHP) impacted by Alternative 2.
Known Archaeological sites adjacent: Archaeological Sites (16OR600 not eligible for NRHP and 16OR410 eligibility unknown) and shipwrecks (not inventoried).

10b. **Churches and Schools adjacent:** St. Nicholas of Myra Catholic Church (closed since 2005).

10e. **Hospitals, medical facilities, fire, police adjacent:** Venetian Isles Fire Department (under construction).

10j. **Context Sensitive Solutions:** Tightened horizontal curvatures; incorporated design features to keep Michel Canal open to recreational navigation; incorporated steel spans to reduce visual intrusiveness; proposed shared use of ROW for parking and roundabout for access to Fort Macomb State Park; and moved access road away from archaeological and residential features.

Preparer: Lynn Maloney-Mújica, AICP
Title: Associate Project Manager
ARCADIS U.S., Inc.
Date: October 15, 2014

Attachments

(√) S.O.V. and Responses: Appendix G
(√) Wetlands Finding: Sections 3.2.3 and 3.3.4
(√) Project Description Sheet: Section 1
(√) Conceptual Stage Relocation Plan: Section 3.3.9
(√) Noise Analysis: Section 3.1.4 and Appendix I
(√) Air Analysis: Section 3.1.3
(√) Exhibits and/or Maps
(√) 4(f) Evaluations: Appendices K and M
( ) Form AD 1006 (Farmlands)
(√) 106 Documentation: Sections 3.2.2 and 3.3.1, and Appendices E, H, K, and M
(√) Other: Visual Simulations (Appendix F); Estimated Costs of Build Alternatives (Appendix N)

Permits, Mitigation, and Environmental Commitments

Permits and Certifications

The following permits and/or certifications are required for the proposed project:

- A Jurisdictional Determination by the U.S. Army Corps of Engineers (USACE).

- A Coastal Use Permit issued in conjunction with a New Orleans District USACE Programmatic General Permit to satisfy Section 404, Coastal Zone Management Act, and Louisiana Coastal Resources Program requirements for temporary and permanent impacts from construction of the proposed project for wetlands and other waters of the U.S. determined to be jurisdictional.

- As a condition of the 404 permit approval, a Water Quality Certification from the Louisiana Department of Environmental Quality (LDEQ).

- Authorization under the Louisiana Pollutant Discharge Elimination System from LDEQ for Stormwater Discharge for Construction Activities over 5 Acres.

- U.S. Coast Guard (USCG) Bridge Permit for a new bridge crossing of Chef Menteur Pass, and USCG permit for the longitudinal crossing of Michel Canal to be included in the application package if Alternative 2 is selected for construction.

Commitments and Mitigation Measures

Commitments and mitigation measures required for the proposed project are arranged as follows:

I. General
II. Historic Chef Menteur Bridge
III. Fort Macomb Historic Site and State Park
IV. Fort Macomb Archaeological Site
V. Submerged Archaeological Resources
VI. Community Impacts
VII. Navigation
VIII. Natural Resources
IX. Threatened and Endangered Species

I. <u>General</u>

- Contractors will be required to follow guidelines provided in the current *Louisiana Standard Specifications for Roads and Bridges*.

- If any solid or hazardous wastes or soils and/or groundwater contaminated with hazardous constituents are encountered during the project, notification to LDEQ's Single Point of Contact at (225) 219 3640 is required. Additionally, precautions should be taken to protect workers from these hazardous constituents.

II. Historic Chef Menteur Bridge

- Prior to relocation or demolition of the Chef Menteur Bridge, the Louisiana Department of Transportation and Development (LADOTD) shall contact the State Historic Preservation Officer (SHPO) to determine the appropriate form of documentation and the appropriate state or local depository for the documentation. Unless otherwise agreed to by the SHPO, the Federal Highway Administration (FHWA) shall ensure that all documentation is completed and accepted by the SHPO prior to the relocation or demolition of the bridge.

- LADOTD shall make the Chef Menteur Bridge available to a state, local, or public entity that will agree to maintain the bridge and the features that make it significant and assume legal and financial responsibility for the bridge. The proposed use of the bridge will be subject to the approval of FHWA, LADOTD, and the SHPO. The method of advertisement shall be decided at a later date by LADOTD and the SHPO. A 30-day time period from the date of advertisement shall be allowed for interest to be expressed in the structure. If interest is expressed, 180 days will be allowed to complete arrangements for the structure's relocation.

III. Fort Macomb Historic Site and State Park

- Fort Macomb State Park will be established as a no-work zone except for areas within the required right-of-way (ROW).

- LADOTD will establish a vibration monitoring program prior to construction. As part of that program, seismic readings for vertical, radial, and transverse plane monitoring and frequency determination will be established to ensure no damage occurs to Fort Macomb during construction. If excessive vibrations occur, all construction causing the vibrations will be halted, and the contractor shall propose corrective measures for the affecting construction activity to ensure that vibration monitoring limits will not be exceeded again.

- The build alternative design will include frontage roads to maintain access to Fort Macomb State Park.

- The design of the bridge will include features, such as the number and placement of piers, to minimize its footprint within the Fort Macomb State Park property and to reduce visual impacts to the viewshed.

- Utilization of the ROW under the western bridge approach for Fort Macomb State Park parking will be considered.

- Other stipulations, as set forth in the Memorandum of Agreement (MOA) between FHWA, LADOTD, and the SHPO, will be implemented.

IV. Fort Macomb Archaeological Site

- If Alternative 1B is selected for construction, additional archaeological investigations will be conducted for the Fort Macomb Archaeological Site (16OR32) to determine if the portion within the required ROW is eligible for listing on the National Register of Historic Places. If the investigations determine

that the Alternative 1B portion is eligible, then Section 106 consultation will resume in order to modify the MOA, and the Section 4(f) evaluation and approval for this resource will be revisited.

V. Submerged Archaeological Resources

- A zone will be marked before construction of the bridge proceeds to protect possible shipwrecks in Chef Pass. The zone will be marked with buoys at the upstream and downstream limits with instructions to personnel to avoid disturbing the area with activities such as anchoring, dredging, or other underwater construction activities.

VI. Community Impacts

- The bridge and approaches will be designed to ensure that the facility is adequate for bicycle use, specifically limiting the shoulder cross slope to 2.5 percent.

- Acquisition of ROW will be handled in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and the Secretary's Policy and Procedure Memorandum No. 48: Underground Storage Tank (UST) and Contaminated Site Policy.

- Access to Chef Harbor Marina and other areas north of US 90 on the east side of Chef Pass; access to the University of New Orleans Research Center, the Tally Ho Club, CSX railroad, and other east side areas south of US 90; and connectivity between Venetian Isles, Elan Vital Condominiums, and the Yellow Store and High Tide Bar and Grill on the west side will be maintained.

- Construction sequencing and maintenance of traffic plan will be coordinated to minimize disruption of traffic on US 90 and navigation through Chef Menteur.

- An optional configuration for the frontage roads on the east (island) side of Chef Pass to address access issues will be considered during Phase 3 (Design).

- Incorporation of obstructions to prevent dumping of garbage near the water may be considered for the area under the bridge on the east side of Chef Pass.

VII. Navigation

- The USCG will be notified 3 weeks prior to commencement of work in order to notify mariners. A minimum horizontal clearance of 97.5 feet and a minimum vertical clearance of 75 feet above Mean High Water will be maintained for vessels at all times during construction.

- All waterway closure requirements are to be coordinated with the Marine Safety Office.

VIII. Natural Resources

- An approved compensatory mitigation plan to offset losses of wetland acres and EFH will be developed.

- Best Management Practices will be implemented to mitigate nonpoint source pollution from construction site runoff.

- The existing bridge will be surveyed for barn swallow and other migratory bird nests. The Lafayette Field Office of the U.S. Fish and Wildlife Service (USFWS) will be contacted if any are found. Active nests will be left undisturbed; inactive nests will not be removed until consultation with USFWS is completed.

IX. Threatened and Endangered Species

- Monitoring during all active in-water operations will be performed by all associated personnel as well as by trained wildlife observers.

- Operation of moving equipment within 50 feet of individual of protected species and/or blasting to cease when protected species sighted within 100 yards of active work zone; normal operating conditions resume only after individual leaves area of its own volition.

- Any sightings, collisions, injuries, and/or deaths of protected species to be reported to appropriate agencies as follows:

    - Manatee or Gulf sturgeon: USFWS, Lafayette Field Office (337-291-3110)

    - Sea turtles: National Marine Fisheries Service (NMFS) Southeast Regional Office, Tampa, Florida (727-824-5312) and Sea Turtle Strandings Network State Coordinator, Louisiana Department of Wildlife and Fisheries/Office of Fisheries (337-962-7092)

- All vessels will operate at “no wake/idle” speeds while in shallow waters (4 feet or less of clearance from bottom of vessel to waterbottom) and vessels to follow deep water routes whenever possible.

- Training of all contract, agency, and supervisory personnel will be completed regarding the following:

    - Presence of threatened and endangered species, specifically, Gulf sturgeon; West Indian manatee; and loggerhead, green, and Kemp’s ridley sea turtles;

    - Applicable criminal and civil penalties for harming, harassing, or killing species protected under the Endangered Species Act; and

    - Responsibility for implementation of protective measures including observation during water-related activities.

- Warning signs visible to vessel operators will be posted prior to and during all water-related activities.

- Siltation barriers, constructed of material that will not entangle species of concern, will be properly secured and regularly monitored to prevent entanglement.

- Existing bridge will be surveyed for barn swallow and other migratory bird nests. The Lafayette Field Office of USFWS (337-291-3110) will be contacted if any are found. Active nests will be left undisturbed; inactive nests will not be removed until consultation with USFWS is completed.

- If the proposed bridge replacement entails the use of pile jetting, explosives, excavation, and/or dredging activities, the following conditions apply:

  - Use of hopper dredges prohibited.

  - Blasting should be conducted at low tide, above the water line to the extent practicable; the lowest net explosive weight per detonation should be used and the use of delays should be maximized between blasts.

  - Condition for Pile Jetting:

    - A silt curtain should be installed around all pile jetting sites where water is less than 5 feet (1.5 meters) deep.

  - Conditions for Bucket Dredging:

    - When dredging in water less than 5 feet (1.5 meters) deep, a silt curtain should completely enclose the dredging and disposal sites.
    - When dredging in water deeper than 5 feet (1.5 meters), all open-water (or in-stream) disposal of bucket-dredged material should be done in water deeper than 40 feet (12.2 meters).
    - To discourage Gulf sturgeon from entering or remaining in the work area (no depth limitations) prior to dredging, the bucket should be dropped into the water and retrieved empty. After the bucket is retrieved empty, a 1-minute no-dredging period should be observed. If, at any time, more than 15 minutes elapse with no dredging, then the empty bucket/retrieval process should be conducted again prior to initiating dredging.

  - Conditions for Hydraulic Dredging Outside of Enclosed Cofferdams:

    - Hydraulic dredging outside of the enclosed cofferdam should only be allowed between November 1 to March 1.
    - All dredged material should be discharged at the surface with the use of a baffle plate. Open-water disposal should only be conducted in water depths greater than 40 feet (12.2 meters) deep.
    - The cutterhead should remain completely buried in the bottom material during dredging operations.
    - If pumping water through the cutterhead is necessary to dislodge material, or to clean the pumps or cutterhead, etc., the pumping rate should be reduced to the lowest rate possible until the cutterhead is at mid-depth, where the pumping rate can then be increased. During dredging, the pumping rates should be reduced to the slowest speed feasible while the cutterhead is descending to the channel bottom.

  - Conditions for Demolition of the Superstructure (out of water use of explosives):

    - Steel components of the superstructure will be cut down intact and floated off. Bridge approaches will be demolished using explosives with a barge located under the structure to catch debris. Debris scattered by blasting should be minimized with the use of blasting mats; retrieval of large-scale debris, if any, to be performed with methods that will minimize

waterbottom disturbances. Blasting should only be allowed during the period between November 1 to March 1 and detonations limited to daylight hours.

- In order to discourage any threatened and/or endangered species from entering or remaining in the work area, small scare charges (see following condition) should be detonated at 4 minutes, 3 minutes, 2 minutes, and 1 minute prior to detonating any demolition explosives.
- Each scare charge should increase in magnitude with consecutive charges of 22 grams (gm), 40 gm, 340 gm, and 680 gm of explosive. Two sets of scare charges should be evenly placed between all caissons and directly underneath the bridge that will be removed during the subsequent blasting operation.
- If more than 15 minutes elapse between demolition blasts, then additional scare charges should be placed and detonated in accordance with the above conditions.
- The demolition blasting sequence should start on the side of the bridge with the deepest water and proceed to the shallow side.

- Conditions for Demolition of the Substructure (underwater use of explosives)

  - Substructure to be demolished to mud line or channel bottom only. Debris from demolition of caissons to be used to fill scour hole. The waterbottom will be dragged only as necessary to make sure that no steel is protruding. Debris scattered by blasting should be minimized with use of blasting mats, and retrieval of large-scale debris, if any, to be performed with methods that will minimize waterbottom disturbances.
  - One week prior to blasting, USFWS, Lafayette Field Office (337-291-3110) and NMFS-Office of Protected Resources (OPR) (727-824-5350) personnel should be notified and invited to attend as observers.
  - Blasting should only be allowed during the period between November 1 to March 1 and detonations limited to daylight hours.
  - The required blasting plan should be formulated to minimize the size and number of charges used.
  - The use of a submerged detonation cord should be avoided; all “shock-tubes” and detonation wires to be recovered and removed after each blast.
  - Explosive charges should be placed into holes drilled in the caissons.
  - Each charged hole should be stemmed with angular material to suppress the escape of blast pressure from the hole.
  - If feasible, a minimum delay of at least 25 milliseconds should be used for each hole or set of holes to prevent cumulative blasting impact or overpressure as described below.
  - Subdividing of charges within each hole (i.e., decking) with delays should be implemented whenever feasible.
  - Air blasting sequence should start on the side of the bridge with the deepest water and pro bubble curtains should be placed around each caisson to absorb blast pressure. In order to achieve effective vertical air bubble flow, underwater demolition should only occur during slack tide periods or during low tidal flow periods. No equipment (barges, etc.) should be positioned across the bubble curtain at the time of demolition and timing of detonation should coincide with slack tide (i.e., minimal tide movement).
  - Maximum peak blast pressure should not exceed 120 pounds per square inch (psi) (830 kilopascal [kPa]) at a distance of 140 feet (42.7 meters), or outside of the bubble curtain if the bubble curtain is within 140 feet of the caisson.

- Blast pressure should be monitored at 140 feet (42.7 meters), or outside the bubble curtain if the bubble curtain is within 140 feet of the caisson. Maximum blast pressures should be reported immediately after each series of blasts.
- Average peak blast pressure should not exceed 70 pounds psi (483 kPa) at a distance of 140 feet (42.7 meters), or outside the bubble curtain if the bubble curtain is within 140 feet of the caisson.
- In order to discourage any threatened and/or endangered species from entering or remaining in the work area, small scare charges (see following condition) should be detonated at 4 minutes, 3 minutes, 2 minutes, and 1 minute prior to any demolition using explosives.
- Each scare charge should increase in magnitude with consecutive charges of 22 gm, 40 gm, 340 gm, and 680 gm of explosive. Two sets of scare charges should be placed on each caisson, and each set will be placed on opposite sides of the caisson.
- If more than 15 minutes elapse between demolition blasts, then additional scare charges should be detonated in accordance with the above conditions.
- The demolition blasting sequence should start on the side of the bridge with the deepest water and proceed to the shallow side.

Consultation and coordination with NMFS-OPR is ongoing pending finalization of a monitoring and blasting plan that incorporates other project-specific recommendations and measures to minimize harm to protected sea turtles.

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Environmental Determination Checklist **EDC-1**

Permits, Mitigation, and Environmental Commitments **EC-1**

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N Estimated Costs of the Build Alternative

O Lists of Agencies Consulted and Section 106 Consulting Parties

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AASHTO	American Association of State Highway and Transportation Officials
ACHP	Advisory Council on Historic Preservation
ACS	American Community Service
AED	Adverse Effects Documentation
CFR	Code of Federal Regulations
CPCNO	City Planning Commission of New Orleans
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ESA	Environmental Site Assessment
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
GIS	Geographic Information System
GIWW	Gulf Intracoastal Waterway
HAER	Historic American Engineering Record
HHS	U.S. Department of Health and Human Services
HREC	Historical Recognized Environmental Condition
I-10	Interstate 10
IHNC	Inner Harbor Navigation Canal
LADOTD	Louisiana Department of Transportation and Development
LDEQ	Louisiana Department of Environmental Quality
LDNR	Louisiana Department of Natural Resources
LDWF	Louisiana Department of Wildlife and Fisheries
MBTA	Migratory Bird Treaty Act
MHW	Mean high water
MOA	Memorandum of Agreement
mph	Miles per hour
NAC	Noise Abatement Criteria
NAVD	North American Vertical Datum
NEPA	National Environmental Policy Act
NFA	No Further Action
NHPA	National Historic Preservation Act
NLAA	Not Likely to Adversely Affect
NMFS	National Marine Fisheries Service
NOD	Notice of Deficiency
NOPDP	Notice of Potential Delivery Prohibition
NRCS	Natural Resources Conservation Service
NRPH	National Register of Historic Places

LIST OF ACRONYMS

NWR	National Wildlife Refuge
O&M	Operations and Maintenance
OPR	Office of Protected Resources
OSP	Office of State Parks
RECAP	Risk Evaluaiton/Corrective Action Program
ROW	Right of way
RPC	Regional Planning Commission
SHPO	State Historic Preservation Office/Officer
SA	Suburban Arterial
SS	Screening Standard
UC	Urban Collector
UNO	University of New Orleans
US 90	U.S. Highway 90
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
UST	Underground Storage Tank
WRP	Wetland Reserve Program

1. What is the Chef Menteur Bridge and Approaches Project?

The Louisiana Department of Transportation and Development (LADOTD) proposes to replace the existing Chef Menteur Pass Bridge located in Orleans Parish. As shown on **Figure 1**, the project is centered on U.S. Highway 90 (US 90) between logical termini at U.S. Highway 11 and Louisiana State Highway 433.

LADOTD is working in cooperation with the Federal Highway Administration (FHWA), the lead federal agency, on the proposed project. The U.S. Coast Guard (USCG), as the agency responsible for bridge permitting, is also acting as a cooperating agency.

1.1 What is the Purpose of and Need for the Project?

The narrow travel lanes and lack of shoulders on the Chef Menteur Bridge.

The purpose of the Chef Menteur Bridge and Approaches project is to address bridge deficiencies related to the age and design of the existing movable bridge crossing Chef Menteur Pass. The project is needed in order to upgrade the bridge and roadway segment to current design standards for travel lane and shoulder widths, bridge width, stopping sight distances, design speed, and structural capacity. The proposed roadway segment and bridge improvements will also provide better accommodations for bicycle users.

The Chef Menteur Bridge was built in 1929 to standards that no longer meet minimum American Association of State Highway and Transportation Officials and LADOTD guidelines. The bridge is classified as functionally obsolete, a term that identifies a bridge that does not perform adequately for its current use. A discussion of functional obsolescence and how it applies to the bridge is provided in **Appendix A**.

US 90 is classified as a minor arterial highway. Its location outside of urbanized areas allows for a design classification of suburban arterial (SA) or rural arterial. This design classification determines which standards will be applied. Because the SA classification would best accommodate the post-construction speed in the study area of 55 miles per hour (mph) on the main highway, it was selected for the proposed project. Urban collector (UC) standards were chosen for the frontage roads. Several key standards are compared to the existing bridge and roadway approaches in **Table 1**. Details of the SA classification and the selected standards are compared in **Appendix B.** Typical sections of the bridge and approaches are also provided in **Appendix B**.

Table 1. Comparison of Suburban Arterial Design Standards to Existing Bridge

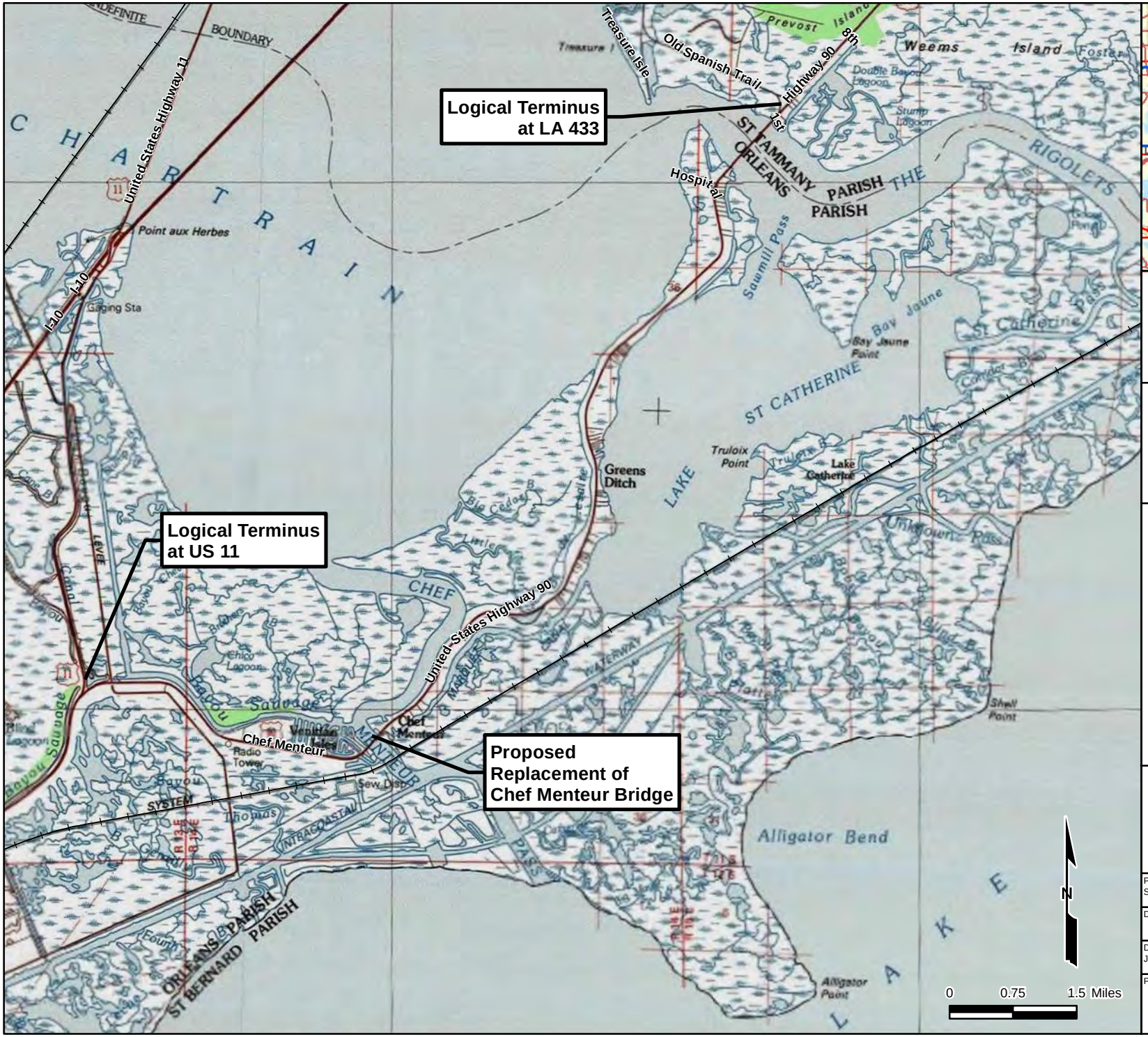
Design Standard	Proposed Project	Existing Bridge
Design Speeds (mph)	55	NA*
Number of Lanes	2 - undivided	2 - undivided
Travel Lane Width (feet)	12	10
Width of Roadway Shoulders (minimum feet)	8	varies
Width of Bridge Shoulders (minimum feet)	10	0
Road Shoulder Type	paved	paved / aggregate
Complete Streets Compatible	Yes	No
Stopping Sight Distance (vertical and horizontal in feet)	495 (minimum)	varies

*Facility predates design speed standards.

The most recent bridge inspection shows that the bridge is structurally deficient. Heavy maintenance including major repairs to the fender system has been performed to keep the bridge in service. The old timber fender system was severely damaged in 2005 by Hurricane Katrina storm surge and is being replaced with a steel fender system.

Interim measures to address bridge deficiencies include weight and speed limits.

Interim measures to address structural and operational deficiencies include a reduced speed limit of 25 mph and a live load posting of 25 tons. By restricting the speed and weight of the vehicles that can use the bridge, these two measures limit the usefulness of US 90 as a minor arterial highway for regional and interstate transportation of goods, services, and people.



PROJECT LOCATION MAP

Chef Menteur Bridge and Approaches
Route US 90
Orleans Parish

Federal Aid Project No. H.000263
State Project No. H.000263.2

REFERENCE:
USGS QUADRANGLE MAP
30 X 60 MINUTE SERIES
GULFPORT, MISSISSIPPI QUAD

FHWA

DOTD

PROJECT MANAGER: SH	CHECKED BY: LMM
DRAWING FILE:	GIS FILE:
DRAWING BY: JEC	DATE: 10/24/2012
PROJECT NUMBER: LA003024.0001	FIGURE NUMBER: 1

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The results of a traffic study for the bridge are presented in **Appendix C.** The results show that LADOTD projected 4,200 vehicles will use the bridge in 2017. Of those, 57.5 percent are passenger cars and 27.5 are pick-up trucks or sport utility vehicles. Less than 1 percent are motorcycles and approximately 15 percent are buses and medium to heavy trucks. Since replacement of the Rigolets Bridge to the northeast, Chef Menteur Bridge is the last segment of US 90 in this area that limits the speed and weight of vehicles traveling through the highway corridor. Replacement of the bridge will improve the operational efficiency of the highway.

A 1999 survey of the bridge found that the bridge was scour critical at that time. A 2004 scour analysis predicted that under design storm conditions, scour could reach a depth of greater than -100 feet, completely undermining the bridge piers. In 2006, the bridge approaches were replaced due to scour issues based on a report prepared by an independent engineering firm. A 2012 comparative analysis found that scour elevations continue to deepen. Pertinent data from all these reports are provided in **Appendix A**. As illustrated on **Figure 2**, scour elevations measured between 2010 and 2012 show that scour continues to undermine the bridge, particularly around Piers 2 and 3, where elevations approach -67 feet, which is the scour critical depth.

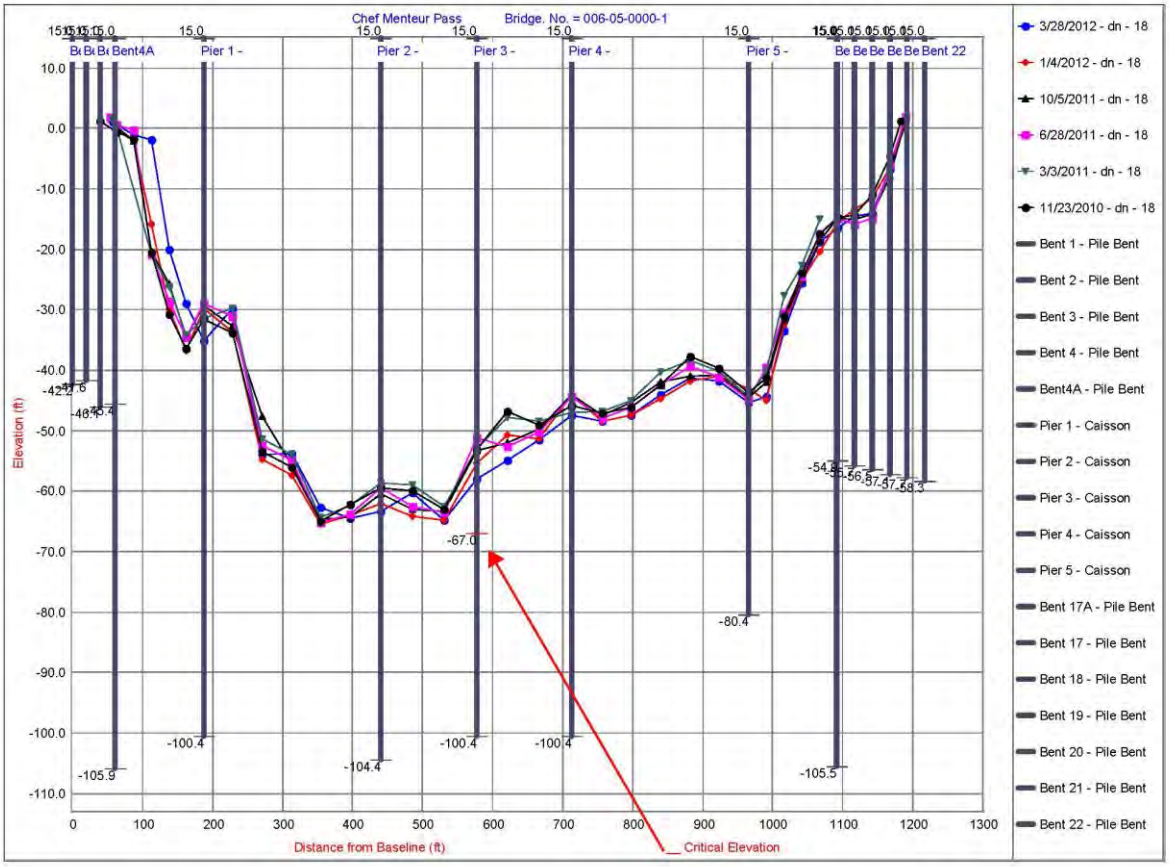

Figure 2 - Scour Surveys 2010-2012

1.2 What Other Needs Will be Addressed by the Project?

Water elevations from storm surge overtopped the bridge deck during Hurricane Katrina in 2005. Although raising the level of the roadway above that surge height is not the purpose of the project, it is a need that may be addressed by the proposed project. This adjustment will also improve the effectiveness of US 90 as a secondary evacuation route, and it will make the steel components of the bridge less susceptible to the corrosive effects of saltwater.

US 90 is also the only practical bicycle route to Slidell and points east because bicyclists are legally prohibited from using the interstate and unwilling to cross Lake Pontchartrain via the 5-mile US 11 bridge, which has no shoulders. The replacement bridge will provide shoulders that can be used by bicyclists.

Age and design have rendered the movable components of the bridge outmoded and degraded. These factors reduce the reliability of the opening and closing operations of the bridge. Numerous bridge vessel accidents have occurred over the life of the existing bridge causing bridge shutdowns in order to repair the damage to the movable swing span. Delays to waterway and highway traffic are common. A replacement bridge will improve reliability and reduce delays by incorporating design features such as moving bridge components out of harm's way and adding pier protection systems that meet current American Association of State Highway and Transportation Officials (AASHTO) vessel collision standards.

1.3 How Did the Project Originate and What Has Been Happening Since Then?

The project was initiated in 1998 by LADOTD. A number of alternative alignments and bridge types were developed at that time. A public meeting was held near the Venetian Isles Subdivision on April 20, 1999. Within this same timeframe, a survey of historic steel swing-span bridges (Woodward-Clyde International-Americas 1998) was submitted to the State Historic Preservation Officer (SHPO), who confirmed that the existing Chef Menteur Bridge was eligible for the National Register of Historic Places (NRHP). This determination signified that the adverse effect from the potential demolition of the bridge would require a Memorandum of Agreement (MOA) to demonstrate that FHWA and LADOTD have complied with Section 106 of the National Historic Preservation Act (NHPA).

The bridge was damaged by Hurricane Katrina in 2005 and the bridge approaches were replaced due to scour issues in 2006. In 2008, traffic barriers and the submarine cable were replaced. In 2009, LADOTD advised the SHPO that the bridge fender system and piles would have to be replaced. The replacement of the bridge fender system was bid in July 2011 and a steel fender system to replace the timber system is currently under construction. Because these repairs did not affect the parts of the bridge that made it eligible for the NRHP, these activities were deemed to have no adverse effect to the bridge.

In 2009, a feasibility study was completed (Peltier and Fossier 2009). The feasibility study phase is referred to as "Stage 0" of the six stages in the LADOTD project delivery process. The Stage 0 effort for this project developed a preliminary purpose and need for the project; outlined and compared several alternatives selected from those developed in 1998; and identified environmental, cultural, and socioeconomic resources that might be affected.

In 2010, LADOTD and FHWA initiated Stage 1 for this project. Stage 1, whose purpose is to refine the Stage 0 concept and evaluate effects of alternatives to the environment, is the planning and environmental phase of LADOTD's project delivery process. The Stage 1 phase is followed by Stage 2 (Funding), Stage 3 (Design), Stage 4 (Letting), Stage 5 (Construction), and Stage 6 (Operations and Maintenance).

1.4 What Is an Environmental Assessment?

The National Environmental Policy Act (NEPA) of 1969 directs federal agencies to conduct environmental reviews to consider the potential impacts from proposed federal undertakings. The NEPA process requires coordination with local, state, and federal agencies throughout planning and project development decision-making.

FHWA and LADOTD are committed to the practicable avoidance and minimization of potential impacts to the social and natural environment when considering approval of proposed transportation projects. NEPA project development must consider a range of alternatives that would serve the purpose of the project while balancing the impacts and benefits of the project.

The NEPA process is clearly documented to ensure transparency. Potentially affected communities and other stakeholders are offered the opportunity to ask questions and provide comments about proposals, alternatives, and environmental impacts. Public input is memorialized in the document as are the responses to public concerns and the choices made about the project.

When the significance of impacts from a proposed transportation project is uncertain, an Environmental Assessment (EA) is prepared. Unlike an Environmental Impact Statement (EIS), which is prepared when significant impacts are known, an EA is a concise public document that presents sufficient evidence and analysis for determining whether the impacts from the proposed action warrant further analysis in an EIS.

2. What Alternatives Were Considered?

Another NEPA requirement is that federal agencies consider "all reasonable alternatives." For FHWA, this may include roadway alternatives such as alternative locations or alignments. In the case of a bridge crossing, alternatives must also consider marine traffic, even though this issue is outside the purview of the FHWA. Although regulations do not specifically define the term reasonable alternative, it is generally understood to mean those technically and economically feasible project alternatives that would satisfy the primary objectives of the project (FHWA 2010).

A wide range of alternatives for the proposed bridge replacement has been considered since the inception of the project. Early concepts included various alignments, bridge heights, and bridge types as well as less conventional solutions, such as a tunnel crossing. This document describes how the early concepts were developed into preliminary alternatives, how the preliminary alternatives were analyzed, which preliminary alternatives were eliminated from detailed evaluation in the EA, and which ones will be retained. The range of early concepts and preliminary alternatives was intentionally broad in order to ensure that other agency issues, such as Section 106 of the NHPA and USCG bridge permitting, were addressed in concert with the environmental review process required by FHWA for NEPA compliance, including Section 4(f) of the Transportation Act of 1966 as amended.

As a rule, if an alternative does not satisfy the purpose and need for the action, it should not be included in the analysis as an apparently reasonable alternative. There are times when an alternative that is not apparently reasonable is included, such as when another agency requests inclusion due to public expectation. In such cases, it should be clearly explained why the alternative has been included, but has not been determined to be reasonable or practicable, and why it will not be selected. Several alternatives that do not meet the purpose and need for the project are analyzed in this document. Although an alternative that considers rehabilitation of the existing bridge is not apparently reasonable, this alternative is included in this analysis to satisfy Section 106 of the NHPA and Section 4(f) of the Transportation Act of 1966 regulations. A no build alternative is also included as required by NEPA. Alternative 3, the longest route with the greatest impacts to natural resources, was also included on the basis of public concerns about impacts to residences along the US 90 corridor.

2.1 What Early Concepts and Alternatives Were Considered?

LADOTD developed a series of early concepts and preliminary alternatives for the Chef Menteur Pass Bridge replacement.

2.1.1 Early Concepts

Both high-level and low-level bridges were considered and alignments were developed for each concept. Low-level bridges were conceived with movable spans to maintain the existing clearance, which is unlimited for navigation when the bridge is open. A range of vertical clearances were considered for the fixed-bridge type. To minimize impacts and reduce the amount of right-of-way (ROW) that would have to be acquired, alignments were located as close to the existing US 90 roadway as design standards and construction limits would allow.

In response to public comments about impacts to the Venetian Isles Subdivision and Elan Vital Condominiums, alignments far south were also developed. The black lines on **Figure 3** illustrate the various alternative alignments that have been developed since the earliest stages of the project.

Concepts also considered, but dismissed as infeasible or unreasonable, are:

- A new bridge on the existing alignment;
- A tunnel;
- A couplet system; and
- A ferry.

Although a new bridge on the existing alignment would reduce impacts to resources outside the US 90 ROW, the impacts would be severe during construction because the existing bridge would have to be closed to highway traffic. The trip between Venetian Isles Subdivision and Lake Catherine, which is located at the western foot of the Rigolets Bridge, would be 26 miles without the bridge compared to 9 miles with it. The need to detour would last for the period of demolition and construction unless a temporary crossing was put in place. Loss of this secondary route for evacuation purposes would be a major impact, particularly

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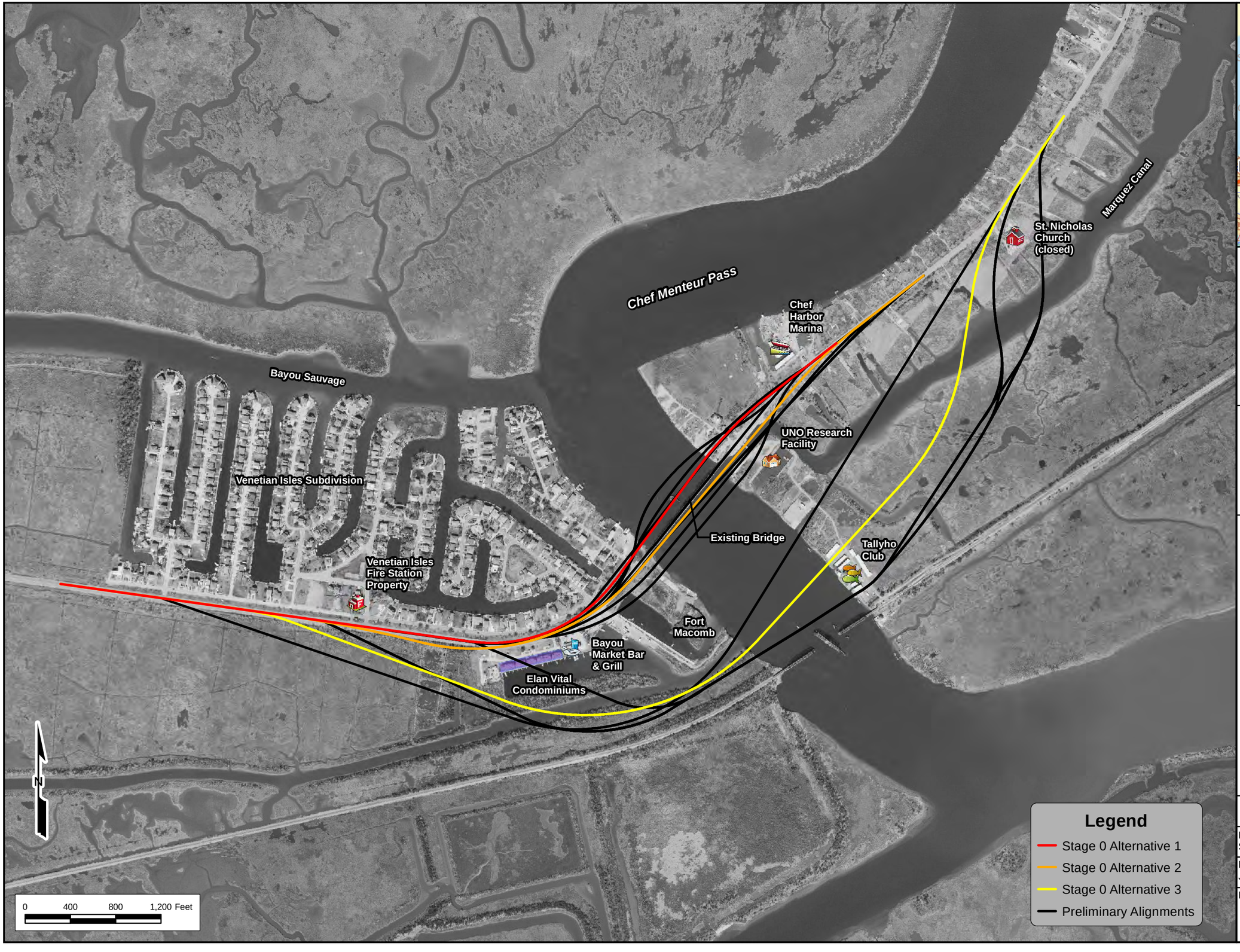

Legend

- Stage 0 Alternative 1
- Stage 0 Alternative 2
- Stage 0 Alternative 3
- Preliminary Alignments

PRELIMINARY ALIGNMENTS AND STAGE 0 ALTERNATIVES

Chef Menteur Bridge and Approaches
Route US 90
Orleans Parish
Federal Aid Project No. H.000263.2
State Project No. H.000263

REFERENCE:

2009 AERIAL PHOTOGRAPHY
FROM NEW ORLEANS REGIONAL PLANNING
COMMISSION, ACQUIRED IN 2011.

FHWA

LOUISIANA'S ON THE MOVE... DOTD BUILDS THE WAY

PROJECT MANAGER: SH	CHECKED BY: LMM
DRAWING BY: JWC	DATE: 10/24/2012
PROJECT NUMBER: LA003024.0001	FIGURE NUMBER: 3

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during hurricane season from June 1 to November 30. In order to avoid these impacts to highway traffic, it was decided that all replacement alternatives should be aligned away from the existing bridge, which would remain in place until construction of the new bridge is completed.

Although a tunnel is conceivable as shown by the Belle Chasse Tunnel crossing of the Gulf Intracoastal Waterway (GIWW) in Plaquemines Parish, Louisiana, a number of factors make this option infeasible for Chef Menteur Pass. The depth of the channel averages 50 to 60 feet compared to 12 to 20 feet for the GIWW, and the crossing width is more than 950 feet compared to 500 feet at Belle Chasse. Even if the construction costs were comparable to that of a bridge, operation and maintenance (O&M) costs would not be reasonable. Currently, the Belle Chasse Tunnel is being retrofitted with flood gates that will close the tunnel during storm events. This kind of protection at Chef Menteur Pass would not only increase the costs of construction and operation, but would also limit the use of US 90 as a secondary evacuation route.

A couplet system was conceived as a means of widening the travel lanes and providing shoulders with the addition of a second bridge. Although this option would address the design deficiencies, only half of the bridge would be structurally sufficient, but at more than twice the cost.

A ferry service was also considered, but dismissed because of operational and evacuation issues. Although LADOTD and several local governments continue to operate ferries as part of the roadway system, these services, such as the St. Francisville to New Roads Ferry, are being replaced with more reliable and efficient bridge crossings wherever possible.

2.1.2 Stage 0 Alternatives

The first stage of project development at LADOTD is a feasibility study to determine whether the project has sufficient merit to move forward into project delivery. Known as a Stage 0 Report, the study develops a preliminary purpose and need statement, an initial project concept to address the needs, and potential alternatives to the initial concept (LADOTD 2007). Three alignments of the alternatives that were determined to be the most feasible and reasonable in the Chef Menteur Bridge and Approaches Stage 0 Feasibility Study are illustrated on **Figure 3**.

Due to the proximity of the alignment of Alternative 1 of the Stage 0 study to Venetian Isles, a residential subdivision northwest of the bridge crossing, a swing-span bridge like the existing bridge was chosen because its lower height would be less visually intrusive. Alternative 2 and Alternative 3 of the Stage 0 study were conceived as high-level fixed bridges (Peltier and Fossier 2009).

2.2 How Were Preliminary Study Alternatives Developed?

As required by NEPA, the Stage 1 environmental process reviewed the 1998 concepts and Stage 0 alternatives for the proposed project in order to ensure that all reasonable and practicable alternatives were considered. Comments from appropriate federal, state, and local agencies were solicited and the responses combined with available environmental data were used to determine if preliminary alternatives were compliant with federal laws that protect certain resources, such as wetlands and historic sites.

This decision structure determined how preliminary alternatives were developed with regard to protected resources. Alternatives were also considered in accordance with LADOTD policies about issues such as roadway and bridge design, traffic noise, and air pollution. Cost and constructability were factors also used to develop the alternatives.

Resources and issues considered during preliminary alternatives development for the Chef Menteur Bridge and Approaches are listed below:

- Wetlands and Other Waters;
- Critical Habitat for Species of Concern and Fishery Resources;
- Historic Resources including Fort Macomb and the existing bridge;
- Parks and Recreational Resources including Fort Macomb State Park and Bayou Sauvage National Wildlife Refuge;
- Relocation of Structures;
- Maintenance of Traffic (Vehicular and Marine); and
- Visual Intrusiveness.

Technical documents were prepared to analyze the impact of the proposed project on these resources and issues. The technical documents are incorporated into the EA by reference, and copies are available at LADOTD Headquarters in Baton Rouge. Select data and excerpts from the reports are provided in the EA and in the appendices where relevant.

2.2.1 Alternative Bridge Types

Movable bridges are relatively low in height when closed and are designed to provide virtually unlimited vertical clearance for navigation when opened. Technological advances made construction of this bridge type the norm in the late 19th and early 20th century. The existing bridge is a low-level swing-span movable bridge. However, because this type of movable bridge does not operate well during severe weather conditions and requires extensive fendering to protect it from vessel bridge accidents, other movable bridge types were also considered. A brief summary of the comparative analysis of movable bridges is provided in **Appendix D.**

The middle span of the Chef Menteur Bridge swings open to provide unlimited vertical clearance for vessels navigating through the Pass.

Modern technology has made construction of high-level fixed bridges feasible. The USCG encourages construction of high-level fixed bridges, whenever practicable, to minimize potential conflict between land and waterborne modes of transportation (USCG 2004).

High-level fixed bridges, when designed with a sufficient vertical clearance, do not impede navigation and are not susceptible to storm surge. They are more reliable because they are not subject to mechanical failures or operator error, and O&M costs are much lower when compared to a movable bridge.

For these reasons, high-level fixed bridges are also generally preferred by highway and waterway users and other stakeholders. Further discussion of the differences between fixed and movable bridge types is provided in the *Alternatives Screening and Analysis Report* (ARCADIS 2012a).

Two bridge types were considered in the Stage 0 study: a fixed-span bridge and a swing-span bridge. The reason a movable bridge was considered is because its low height was thought to be less visually intrusive. A swing-span bridge does not operate well during severe weather conditions. Therefore, two additional movable-span bridge types were considered during preliminary alternative development: a single-leaf and a double-leaf bascule.

A single-leaf bascule bridge requires a longer span and consequently a larger and heavier structural beam, a heavier counterweight, larger pier, and larger foundation system increasing construction costs. The larger

counterweight also means that the draw span in the raised position extends down farther leading to additional structures and underwater construction to keep the system watertight. A double-leaf bascule bridge spanning the same navigational opening has a lighter draw span that is only half as long. Thus the counterweights, piers, and foundations do not extend as far down into the pier and underwater construction is not as deep. For this reason, the single-leaf bascule was eliminated from further consideration.

2.2.2 Preliminary Alternatives by Alignment and Bridge Type

As illustrated on **Figure 4**, several alignments in addition to the alignments chosen for the Stage 0 Feasibility Study were considered as part of the Stage 1 process. During subsequent preliminary alternatives development, alignments were adjusted to avoid buildings, sensitive natural resources, and protected cultural resources. Curves and distances were reviewed and refinements to the alignments were made to meet current design standards. Alternative bridge types were considered for each alignment.

2.2.2.1 Alternatives 1A, 1B, and 1C

Three bridge types were considered on the alignment for Alternative 1. The alignment for Stage 0 Alternative 1 was generally retained with some modifications for each bridge type. The Stage 0 concept of a swing-span bridge was designated Alternative 1A, a double-leaf bascule was designated 1B, and a high-level fixed bridge was designated 1C. Because of different approach requirements for the fixed bridge, the alignment of Alternative 1C is slightly different than that of Alternatives 1A and 1B. The centerlines of Alternatives 1A and 1B remain near the existing US 90 roadway. The Alternative 1C centerline is north, encroaching on the residential lots along Old Spanish Trail (**Figure 4**).

2.2.2.2 Alternative 2

The alignment of Alternative 2 remained generally in the location planned in the Stage 0 study, but the curve of the western approach was tightened in order to avoid impacting Bayou Sauvage National Wildlife Refuge (NWR). Given that distance would mitigate any visual effects from a high-level bridge, a movable bridge was not considered for the alignment of Alternative 2, which is farther away from the Venetian Isles Subdivision than the alignment for Alternatives 1A, 1B, and 1C (**Figure 4**).

2.2.2.3 Alternative 3

The alignment for Alternative 3 was adjusted several times to avoid the Tally Ho Club and a deep scour hole that was identified during the underwater survey. In order to avoid these areas, as well as Fort Macomb State Park, and to minimize impacts to the NWR while still meeting standards for the curve radius, the alignment for Alternative 3 had to be located even farther to the south than originally planned in the Stage 0 study. Marine interests and highway users expressed a preference for a fixed bridge instead of a movable bridge because of reliability issues. Given that distance would mitigate any visual effects from a high-level bridge, a movable bridge was not considered for the alignment of Alternative 3, which is farther away from the Venetian Isles Subdivision than the alignment for Alternative 1 (**Figure 4**).

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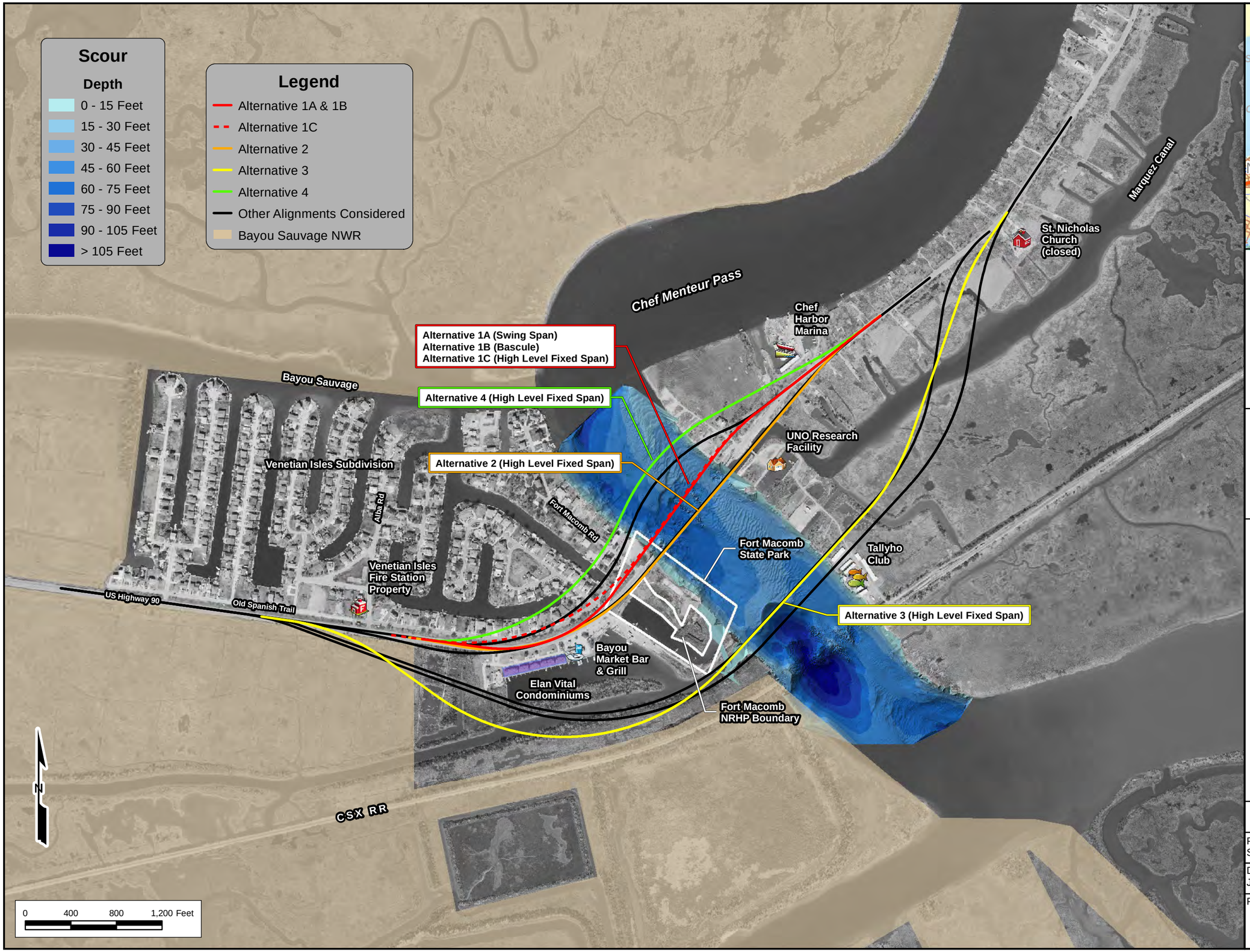

ALIGNMENTS CONSIDERED FOR PRELIMINARY ALTERNATIVES ANALYSIS

Chef Menteur Bridge and Approaches
Route US 90
Orleans Parish
Federal Aid Project No. H.000263.2
State Project No. H.000263

REFERENCE:

2009 AERIAL PHOTOGRAPHY
FROM NEW ORLEANS REGIONAL PLANNING COMMISSION, ACQUIRED IN 2011.

2011 BAYOU SAUVAGE STATUS BOUNDARY, U.S. FISH AND WILDLIFE SERVICE.

STATE PARKS PROPERTY BOUNDARY
FROM USFWS, MODIFIED BY ARCADIS USING ORLEANS PARISH TAX ASSESSOR PARCEL DATA.

FORT MACOMB NRHP BOUNDARY FROM COASTAL ENVIRONMENTS, INC.

2011 BATHYMETRY, T. BAKER SMITH, LLC.

FHWA

LOUISIANA'S ON THE MOVE DOTD BUILDS THE WAY

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2.2.2.4 Alternative 4

Section 4(f) of the Department of Transportation Act of 1966 as amended established the requirement for avoidance of parks and recreational lands, wildlife and waterfowl refuges, and historic sites of national, state, or local significance. Five Section 4(f) properties are located within the Chef Bridge study area. Three are identified on **Figure 4**: Bayou Sauvage NWR, Fort Macomb State Park property, and the Fort Macomb property that is listed on the National Register of Historic Places (NRHP). The existing historic bridge is identified on **Figure 5.** A fifth property containing archaeological artifacts related to Fort Macomb has been identified in the area. Its full extent has not been determined, but it is generally contained within the state park property boundary.

The boundaries of the state park and the historic site are not the same. **Figure 5** illustrates in detail how Fort Macomb State Park includes the entire extent of land between Chef Pass and a canal that wraps around the fort from the Pass to US 90. The state park boundary also contains a part of the US 90 ROW and a remnant of the park property to the northeast. The historic site boundary is completely contained within the state park property. This historic site includes the fort and a strip of land that extends from the fort northwest to the existing US 90 ROW. The boundary for the strip of land does not extend all the way to the Chef Pass bank and does not include any land northwest of the highway. On the southwest, this boundary generally follows the northeast bank of the canal.

Figure 5 – Details of the Fort Macomb Section 4(f) Boundaries

The existing bridge is historic, eligible for the NRHP, and protected under Section 106 of the NHPA. The Fort Macomb Historic Site is also protected under Section 106 of the NHPA, which requires that impacts to these resources be avoided and minimized to the extent possible. The portion of the archaeological site within the ROW for Alternative 2 was determined to be ineligible for the NRHP; the portion within the ROW of Alternative 1B was found to be potentially eligible. Correspondence regarding the NRHP eligibility of these and other cultural resources in the study area is provided in **Appendix E**.

To avoid impacting these protected resources, a fourth alignment was developed. Two lines shown on **Figure 4** that cross Chef Pass farthest to the northwest would avoid the NWR, the state park property, and the Fort Macomb NRHP boundary. Like the other alternatives, the fourth alternative would avoid the existing bridge. However, the purpose of the project requires replacement or extensive rehabilitation of the bridge. The issues related to avoiding adverse effects to the existing historic bridge are discussed in **Section 2.2.3**. In order to ensure access to the Venetian Isles Subdivision, the western approach of the bridge had to be maintained at a sufficient height to allow vehicles to pass beneath it. For this reason, a high-level fixed bridge was considered the best type for Alternative 4.

2.2.3 Other Preliminary Alternatives

To satisfy regulatory requirements, several other alternatives were considered for addition to the range of preliminary alternatives. The bridge itself is eligible for the NRHP, and the only way to avoid adverse effects to this resource, which is protected under Section 4(f) and Section 106, would be to preserve its historical significance. Two means to achieve this end were studied. The first concept considered was to abandon the bridge for highway use and allow it to remain in place or to be relocated. The second concept was rehabilitation.

Building a new bridge and allowing the existing historic bridge to remain in place or be relocated would satisfy the purpose and need for the project and also protect the bridge from the adverse effects of replacement or extensive rehabilitation. However, LADOTD is only able to take responsibility for a bridge that remains in service as a part of the highway transportation network. A new sponsor for the existing historic bridge would have to be found who would be willing and capable of operating and maintaining it. The bridge would have to be operated or relocated in a manner that would not obstruct navigation, and it would have to be maintained in order to preserve its historic integrity. Finding a new sponsor willing to accept all the O&M costs including the legal liabilities is an unlikely scenario, but until the bridge is marketed and it is determined whether an interested sponsor exists, this alternative remains an option within the range of preliminary alternatives. This is not an independent project alternative because a bridge replacement must be built whether or not a new sponsor is found. For this reason, each of the build alternatives being brought forward for evaluation in the EA also includes an obligation to market the bridge.

2.2.3.1 Rehabilitation Alternative

Bridge rehabilitation was included in the list of preliminary alternatives as the only potential means of preserving the historical significance of the bridge. Two forms of rehabilitation were considered. Rehabilitation to the original condition without changing the 1930 bridge design features such as lane widths and lack of shoulders was one form of rehabilitation considered. The second was a rehabilitation scenario

with modifications sufficient enough to address bridge deficiencies related to its age and design, which is a facet of the purpose and need of the project.

2.2.3.2 No Build Alternative

NEPA requires that doing nothing be considered during the environmental review process. This alternative was designated as the No Build Alternative, signifying that no new structures or major construction would take place. Maintenance of the existing bridge has included extensive and costly repairs of the fendering systems and replacement of the bridge approaches. Numerous bridge vessel accidents have occurred over the life of the existing bridge causing bridge shutdowns in order to repair the damage to the swing span. This kind of repair work along with routine maintenance would continue under the No Build Alternative. Although this alternative does not meet the purpose and need for the project because it would not address bridge deficiencies related to its age and design, it will be considered in detail in the EA as a baseline for comparison.

2.3 Which Preliminary Alternatives Were Eliminated and Why?

In order to focus on the least environmentally damaging alternatives in the EA, the preliminary build alternatives were screened based on engineering feasibility as well as criteria developed in coordination with agencies, the public, and Section 106 Consulting Parties due to the presence of several sites protected under Section 106 of the NHPA. Input from these groups and details of ongoing coordination undertaken are discussed in **Section 4.**

2.3.1 First Screening

An analysis was prepared for the first public meeting on April 3, 2012, that compares preliminary alternatives on the basis of impacts to identified resources, constructability, and maintenance of highway and marine traffic. The tabulated results provided in **Table 2** show the first set of criteria that was used to initiate the process of eliminating alternatives and determining which ones would be chosen for full evaluation in the EA.

Because build alternatives were not fully designed prior to the first public meeting, a Geographic Information System (GIS) was used to create a 100-foot-wide buffer (50 feet on both sides of centerline) representing the approximate ROW needed for each build alternative alignment. As shown on **Figure 6**, the buffer was used to compare impacts to resources such as Bayou Sauvage NWR and Fort Macomb State Park as well as existing structures and wetlands.

Based on the analysis presented in **Table 2** and input received from agencies and the public, it was decided to confirm the elimination of Alternatives 1A, 1C, and 3, as presented at the public meeting. Alternative 4 and rehabilitation were retained for further analysis due to Section 106 concerns. Details of the coordination activities that guided these decisions are discussed in **Section 4.**

2.3.1.1 Elimination of Alternative 1A

Three alternative bridge types were conceived on the Alternative 1 alignment and compared. Alternative 1A, a swing-span bridge, was eliminated from further evaluation in the EA due to O&M issues, storm vulnerability, and general reliability as documented in the *Alternatives Screening and Analysis Report* (ARCADIS 2012a).

2.3.1.2 Elimination of Alternative 1C

Alternative 1C was eliminated because it offered no relative value when compared to Alternative 1B and Alternative 2. Using the 100-foot wide buffer shown on **Figure 6**, impacts among the alternatives were compared. This analysis showed that Alternative 1C would potentially impact four structures, which is the greatest number of any alternative except Alternative 4. Potential impacts to wetlands using the buffer laid over National Wetlands Inventory data were also compared. As shown on **Figure 6**, impacts from Alternatives 1A, 1B, and 1C would be the same at 0.9 acre. Impacts from Alternative 2 would be slightly less. Alternatives 3 and 4 would impact the most wetlands.

Comparison of visual effects was also undertaken to compare and eliminate preliminary alternatives. Marine interests, highway stakeholders, and some agencies expressed a preference for a fixed bridge instead of a movable bridge because of reliability, lack of conflict between waterway and highway modes of travel, O&M considerations, and other issues. To meet the reasonable needs of navigation, it was determined that a fixed bridge would have to provide a minimum of 75 feet of vertical clearance. This height is much greater than that of a movable bridge and its proximity to an established residential neighborhood was a matter of concern. During the public meeting held on April 20, 1999, for the Stage 0 process, several persons representing the Venetian Isles Subdivision expressed a preference for the alignment that was later designated Alternative 3 because of the effects to the “beautiful view” from Old Spanish Trail and concerns about looking at “the underside of a bridge” (LADOTD 1999).

Alternative 1A was eliminated as described in **Section 2.3.1.1**, and three bridges, Alternatives 1B, 1C, and 2, were compared for visual effects. As illustrated on **Figure 7**, the highest point on the Alternative 1B bridge would be 35.5 feet North American Vertical Datum (NAVD). The highest point on the bridges of Alternatives 1C and 2 would be 88.2 feet NAVD. As the bridges approach the western shore, where the residential subdivision is located, the height of Alternative 1B would drop to less than 30 feet, but the height of Alternatives 1C and 2 would remain elevated at approximately 75 feet. As shown in the visual simulations provided in **Appendix F**, before Alternative 1B reaches the intersection of San Marco Road and US 90, it has dropped back to grade and cannot be seen from the perspective point at Naples Street. On the other hand, the Alternative 2 approach can be seen clearly from San Marco Road and Alternative 1C would be at approximately the same height, but about 140 feet closer. Therefore, out of the three alternatives compared, Alternative 1C would be much more visually intrusive than Alternative 1B and slightly more intrusive than Alternative 2.

Although site screening to mitigate for visual impacts was originally recommended in the Adverse Effects Documentation (Coastal Environments 2012), this measure was deleted from the executed MOA as unnecessary because it was determined that the project would have no adverse effects on the Fort Macomb historic property.

Table 2: First Screening of Preliminary Alternatives, Chef Menteur Bridge and Approaches Route US 90, Environmental Assessment, Orleans Parish, Louisiana.

Alternative	Screening Criteria and Comparison of Impacts													
	Purpose and Need	Historic Bridge	Bayou Sauvage (Acres)	Fort Macomb (Structure)	State Parks Property Boundary (Acres)	Wetlands[C] (Acres)	Chef Pass Crossing (Linear Feet)	Other Channel Crossings	Wildlife and Biological Resources[D]	Essential Fish Habitat	Structures Impacted	Constructability / Maintenance of Traffic during Construction	Visual Changes	Marine Traffic
No Build	No	None	None	None	None	None	No Change	None	None	None	None	None	None	Will continue to have operational issues
Conceptual Bridge Rehabilitation	Not likely	Potential Adverse Effect	None	None	None	None	None	None	Potential during construction	None	None	Minor constructability issues / severe impacts on traffic	Potentially wider deck	Improves equipment reliability
Alternative 1A Low Level Swing Span North	Yes	Adverse Effect[A]	None	None	1.4	0.9	968	None	Temporarily during construction	Equivalent to impacts to wetlands and slack waters	1	Minor constructability issues / moderate impacts on traffic	Same as existing bridge, closer to residential community	Improves equipment reliability
Alternative 1B Low Level Bascule North	Yes	Adverse Effect[A]	None	None	1.4	0.9	968	None	Temporarily during construction	Equivalent to impacts to wetlands and slack waters	1	Minor constructability issues / moderate impacts on traffic	Drawbridge, closer to residential community	Improves equipment reliability
Alternative 1C High Level Fixed Span North	Yes	Adverse Effect[A]	None	None	1.1	0.9	971	None	Temporarily during construction	Equivalent to impacts to wetlands and slack waters	4	Minor constructability issues / moderate impacts on traffic	75-foot concrete span, closer to residential community	Eliminates reliability issues related to operators and equipment
Alternative 2 High Level Fixed South	Yes	Adverse Effect[A]	None	None	1.6	0.8	989	1 additional crossing of 610 feet	Temporarily during construction	Equivalent to impacts to wetlands and slack waters	None	Minor constructability issues / moderate impacts on traffic	75-foot concrete span, closer to Fort Macom	Eliminates reliability issues related to operators and equipment
Alternative 3 High Level Fixed Far South	Yes	Adverse Effect[A]	2.1	Vibration	None	11.4	1,063	6 additional crossings of 1,244 linear feet	Temporarily during construction	Equivalent to impacts to wetlands and slack waters	1	Within 750 feet of deep scour hole near railroad bridge; best alternative for maintenance of traffic	75-foot concrete span	Eliminates reliability issues related to operators and equipment
Alternative 4 High Level Fixed Far North (Avoidance Alternative)	Yes	None[B]	None	None	None	1.3	998	2 additional crossings of 378 linear feet	Temporarily during construction	Equivalent to impacts to wetlands and slack waters	15	Minor constructability issues / moderate impacts on traffic	75-foot concrete span, closest to residential community	Eliminates reliability issues related to operators and equipment

Shaded alternatives have been eliminated from further consideration.

[A]Assumes that bridge must be removed.

[B]Assumes bridge can remain in place.

[C]Based on NWI data only and centerline buffered by 50 feet on each side; not field verified.

[D]Gulf Sturgeon; Green, Kemp's Ridley, and Loggerhead Sea Turtles; West Indian Manatee; Barn Swallow.

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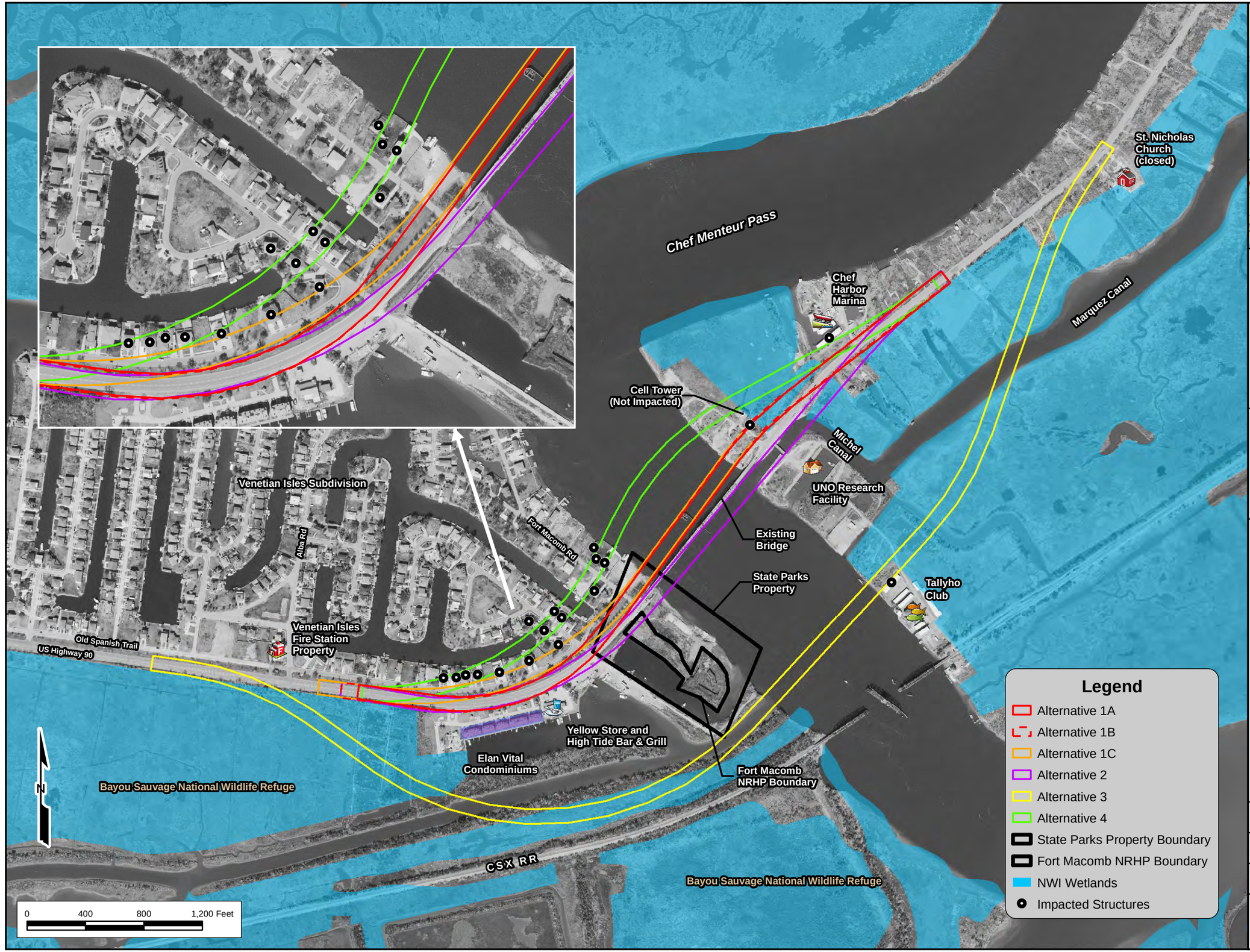

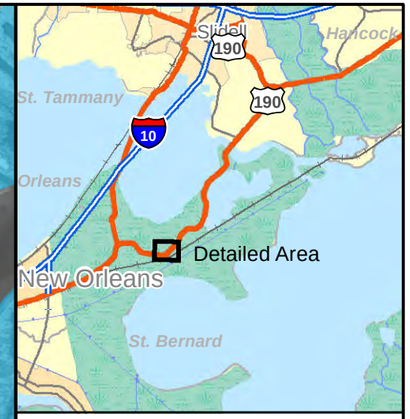

Legend

- Alternative 1A
- Alternative 1B
- Alternative 1C
- Alternative 2
- Alternative 3
- Alternative 4
- State Parks Property Boundary
- Fort Macomb NRHP Boundary
- NWI Wetlands
- Impacted Structures

COMPARISON OF IMPACTS FROM PRELIMINARY STUDY ALTERNATIVES

Chef Menteur Bridge and Approaches
Route US 90
Orleans Parish
Federal Aid Project No. H.000263.2
State Project No. H.000263

REFERENCE:

2009 AERIAL PHOTOGRAPHY
FROM NEW ORLEANS REGIONAL PLANNING COMMISSION, ACQUIRED IN 2011.

NATIONAL WETLANDS INVENTORY
FROM USFWS, DATED 1988.

STATE PARKS PROPERTY BOUNDARY
FROM USFWS, MODIFIED BY ARCADIS USING ORLEANS PARISH TAX ASSESSOR PARCEL DATA.

FORT MACOMB NRHP BOUNDARY FROM COASTAL ENVIRONMENTS, INC.

FHWA

LOUISIANA'S ON THE MOVE
DOTD
BUILDS THE WAY

PROJECT MANAGER: SH	CHECKED BY: LMM
DRAWING BY: JWC	DATE: 07/16/2013
PROJECT NUMBER: LA003024.0001	FIGURE NUMBER: 6

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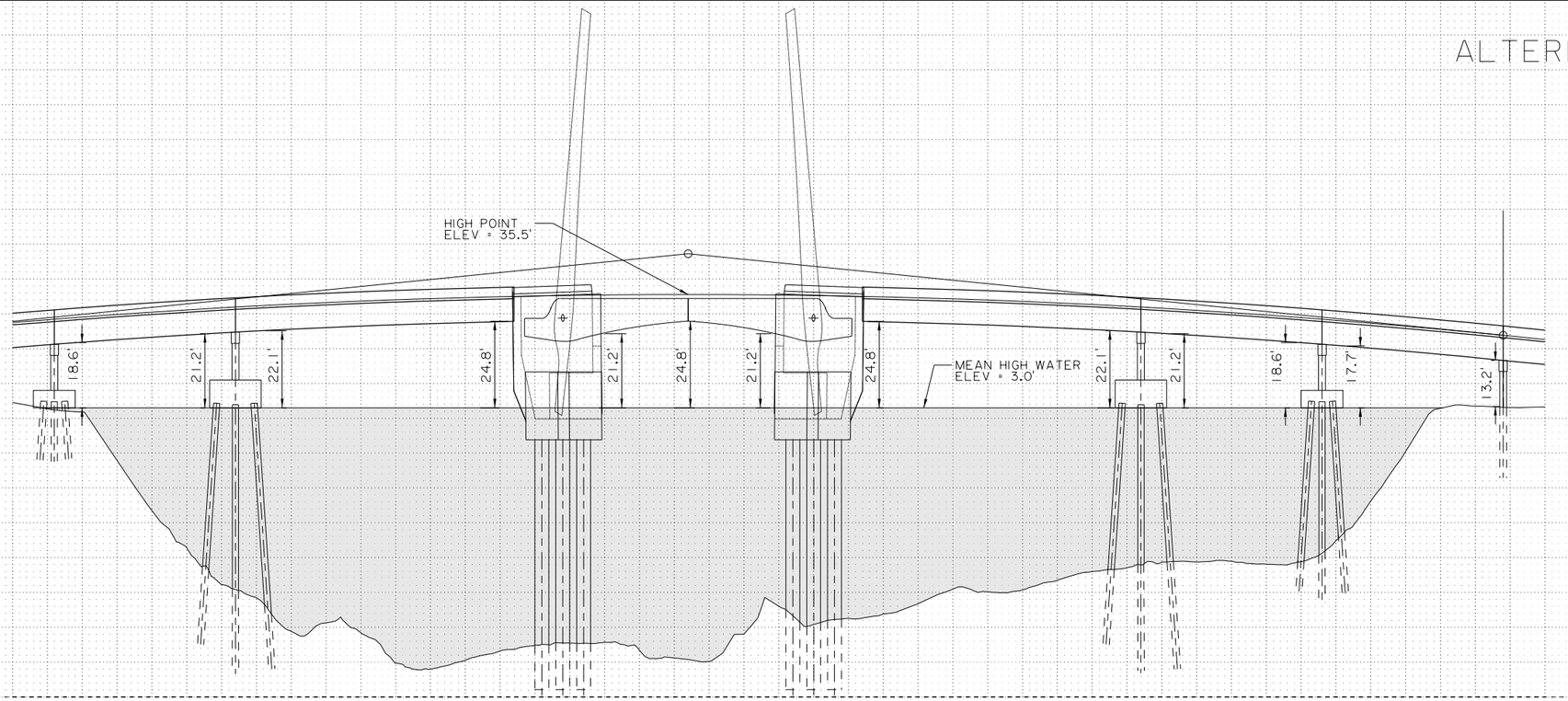
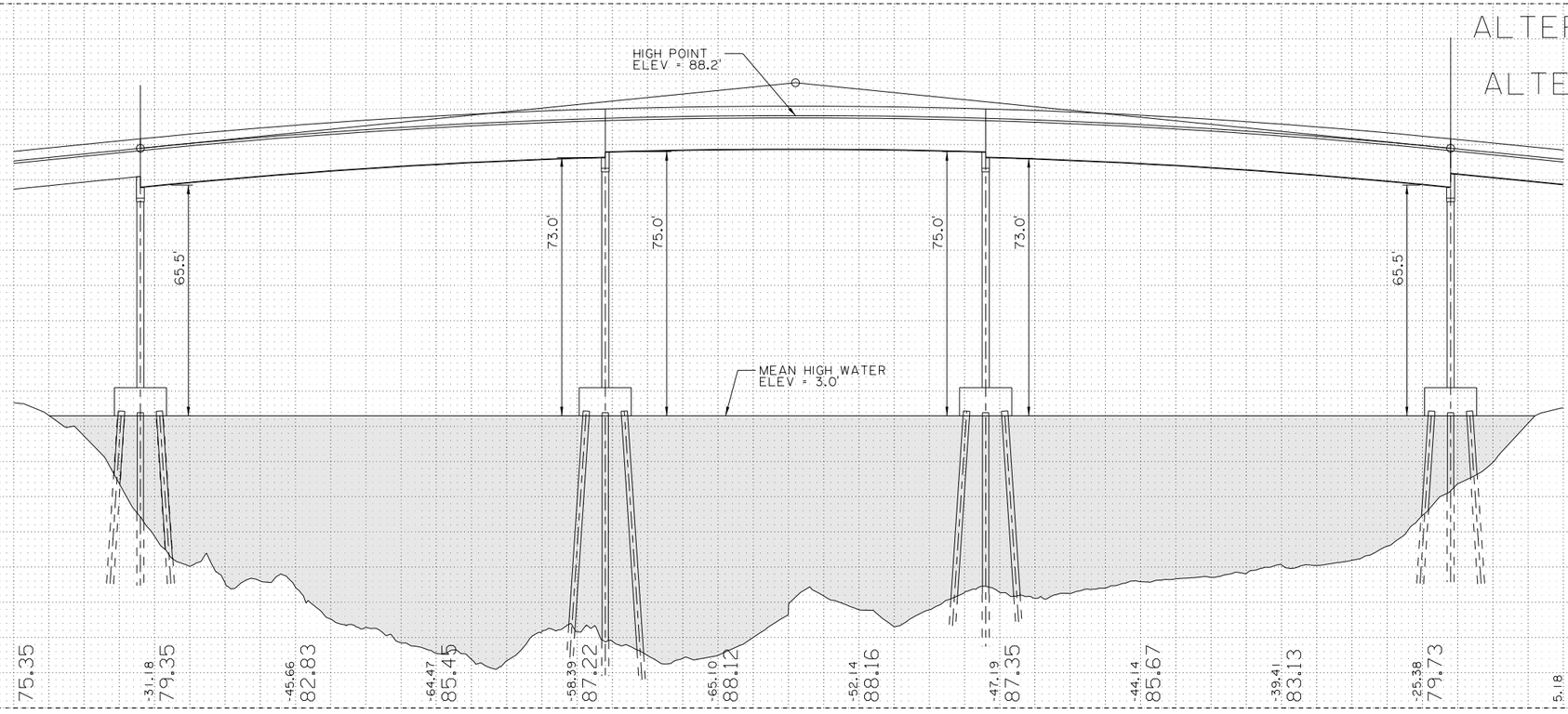
ALTERNATIVE IB



ALTERNATIVE IC & ALTERNATIVE 2



SHEET NUMBER: FIG. 7

PARISH: ORLEANS
FEDERAL PROJECT: BR-61-07(020)
STATE PROJECT: H.000263.2

DESIGNED
CHECKED
DETAILED
CHECKED
DATE: 25 JUL 2013
SHEET: 1 OF 1

NO.	REVISION DESCRIPTION	DATE	BY

STATE OF LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

BRIDGE PROFILE COMPARISON
CHEF MENTEUR PASS BRIDGE
ALTERNATIVES IB, IC, & 2

CHEF MENTEUR BRIDGE AND APPROACHES

ARCADIS
3850 N. CAUSEWAY BLVD., SUITE 1600
METAIRIE, LOUISIANA 70002
T. 504 832 4174 | F. 504 832 2145

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Without any factors to offset the potential structure and visual impacts from Alternative C, this alternative was eliminated from further consideration.

2.3.1.3 Elimination of Alternative 3

Alternative 3 was eliminated from detailed evaluation in the EA because of several issues including the magnitude of impacts to natural resources. A GIS buffer representing the ROW for each alternative was laid over U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory shape files to calculate the relative impacts to wetlands among the alternatives.

As shown in **Table 2** and on **Figure 6**, wetland impacts from Alternative 3 were estimated to be the greatest. Calculations using the buffer estimated that impacts from Alternative 3 would exceed 11 acres, which is more than twice the number of acres that would be impacted by any of the other build alternatives. This alternative would also require the longest crossing of Chef Menteur Pass, would require the highest number of navigable canal crossings, would come closest to a deep scour hole located near the existing railroad bridge. Due to its proximity to the fort structure, Alternative 3 is the only alternative where vibration from construction would be a serious concern (**Figure 4**).

A letter from the National Marine Fisheries Service (NMFS) Habitat Conservation Division is provided in **Appendix G**, which states its concern about impacts to wetlands and Essential Fish Habitat (EFH) from the Alternative 3 alignment. The letter states that the two alignments closest to the existing bridge, i.e., the alignments for Alternative 1 and Alternative 2, would cause fewer impacts to wetlands than the alignment farther south for Alternative 3. Although other natural resource agencies did not state a preference, the magnitude of impacts to wetlands and other waters clearly marked Alternative 3 as the least preferred alternative from this perspective.

2.3.2 Second Screening

Table 3 provides a comparison of the remaining alternatives. All of these alternatives lie close to the existing ROW, thus minimizing impacts to natural resources in the study area. Therefore, criteria for this screening focused on historic and recreational resources protected under Section 4(f) of the Transportation Act of 1966 as amended within these footprints. Historic and cultural resources listed or eligible for listing on the NRHP are also protected under Section 4(f). The Fort Macomb Historic Site and the historic bridge fall into this category because, as stated by the SHPO in a letter dated July 16, 2012 (**Appendix E**), Fort Macomb is listed and the bridge is eligible. Bayou Sauvage and Fort Macomb State Park are recreational resources protected under Section 4(f). A fifth resource, the portion of the archaeological site that is within the ROW of Alternative 1B, was investigated, but according to the July 16, 2012, letter from the SHPO provided in **Appendix E**, its eligibility for the NRHP is undetermined. Further investigations may find deposits eligible for listing; therefore, this portion of the archaeological site is also potentially eligible for protection under Section 4(f) and Section 106.

The term “use” is specific to Section 4(f) analyses and can mean the permanent incorporation of land into the proposed transportation facility; the temporary occupancy of land that results in adverse effects; or proximity impacts severe enough to impair the activities, features, or attributes that qualify the resource for protection. Feasible and prudent avoidance alternatives are those that avoid using any Section 4(f) property

and do not cause other severe problems of a magnitude that substantially outweigh the importance of protecting the Section 4(f) property (FHWA 2012).

Section 106 regulations published in 36 Code of Federal Regulations (CFR) 800.5(1) state that an adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects may include physical destruction or alteration (including rehabilitation or repair) of a historic site; removal of a property from the setting that contributes to its historic significance; or the introduction of elements—visual, noise, or air quality—that diminish the integrity of the significant historic features of the site.

Due to the known presence of historic sites and the potential for adverse effects from the proposed project, a Section 106 Consultation was initiated. As established in the regulations, Consulting Parties including the SHPO, Indian tribes, and other interested parties were invited to participate in the alternatives screening process, assessment of effects to cultural resources, and development of mitigation to address adverse effects. The Advisory Council on Historic Preservation (ACHP) was notified about the adverse effects on the properties listed or eligible for listing on the NRHP. Upon review of the notification and supporting documentation, the ACHP concluded that their participation was not needed. The ACHP response also states that a final MOA developed in consultation with the SHPO and other Consulting Parties filed with the ACHP is required to complete the requirements of Section 106 of the NHPA. The required MOA developed to address adverse effects to the existing bridge and Fort Macomb Historic Site along with correspondence with the ACHP is provided in **Appendix H**. These documents signify that the requirements of Section 106 of the NHPA have been satisfied.

2.3.2.1 Elimination of Alternative 4

Alternative 4 was developed as an avoidance alternative, i.e., an alternative that avoids using any Section 4(f) property. As shown in **Table 3**, Fort Macomb State Park, Bayou Sauvage NWR, the portion of the archaeological site within Alternative 1B ROW (if deemed eligible for the NRHP), and the Fort Macomb NRHP property would be avoided by Alternative 4. **Figure 6** identifies all these sites except for the archaeological site. This alternative could only avoid adversely affecting the existing bridge by locating a new sponsor who would take responsibility for operation and maintenance of the bridge and preserve its historic integrity.

The number of structures that would be impacted by this alternative is listed in **Table 3** and illustrated on **Figure 6**. As shown, the impacts to Venetian Isles are sufficiently severe to render Alternative 4 invalid as a feasible and prudent avoidance alternative. Therefore, FHWA and LADOTD decided to eliminate this alternative from further consideration.

A meeting of Section 106 Consulting Parties was convened on July 11, 2012. At that meeting, all participants concurred with the elimination of Alternative 4 if it would not serve as an avoidance alternative.

Table 3. Second Screening of Preliminary Alternatives, Chef Menteur Bridge and Approaches Route US 90, Environmental Assessment, Orleans Parish, Louisiana.

	Screening Criteria and Comparison of Impacts													
	Purpose and Need		Section 4(f) Resources		Section 106 Resources									
	Design Deficiencies	Structural Deficiencies	State Parks Property Boundary (Acres)	Bayou Sauvage (Acres)	Historic Bridge	Fort Macomb Historic Site	Fort Macomb Archaeological Site[E]	Structures Impacted	Visual Changes	Noise	Air Quality	Constructability / Maintenance of Roadway Traffic during Construction	Operation and Maintenance (O&M)	Effects on Navigation / Maintenance of Marine Traffic during Construction
No Build[A]	Does not address	Does not address	None	None	No Effect	No Effect	No Effect	None	No change	None	None quantified, but idling from delays increase emissions	None	Increasing O&M costs and extensive repairs	No improvement to equipment or operational reliability / continued operational issues
Alternative 1B Low-Level Bascule North	Does address	Does address	Incorporation of 2.4 net acres; *de minimis* impact	None	Adverse Effect[B]	No Effect	Potential Effect	None	Closer to residential community, lower profile when closed, higher when open	None modeled but open grate has potential to increase noise levels	None quantified, but idling from delays increase emissions	Minor constructability issues / moderate impacts on traffic	Higher O&M costs normal to movable bridges	Improvement to reliability from equipment upgrade / moderate effect on marine traffic
Alternative 2 High-Level Fixed South	Does address	Does address	Incorporation of 3.1 net acres; *de minimis* impact	None	Adverse Effect[B]	No Adverse Effect	No Effect	None	Longer elevated section, highest when closed	NA	None	Minor constructability issues / moderate impacts on traffic	Lower O&M costs normal to fixed bridges	Improved reliability by elimination of need for equipment and operators / moderate effect on marine traffic
Alternative 4 High-Level Fixed Far North (Avoidance Alternative)	Does address	Does address	None	None	No Effect[C,D]	No Effect[D]	No Effect[D]	15	Alignment cuts through residential subdivision	NA	None	Minor constructability issues / moderate impacts on traffic	Lower O&M costs normal to fixed bridges	Improved reliability by elimination of need for equipment and operators / moderate effect on marine traffic
Bridge Rehabilitation To the original condition	Does not address	Does not address	None	None	No Effect[D]	No Effect[D]	No Effect[D]	None	None	NA	None quantified, but idling from delays increase emissions	Major constructability issues / severe impacts on traffic	Increasing O&M costs and extensive repairs	No improvement to equipment or operational reliability / moderate effect on marine traffic
Bridge Rehabilitation To address deficiencies	Does address	Does address	Incorporation of additional acres from widening of approaches, but quantity unknown	None	Adverse Effect[D]	Potential Effect[D]	Potential Effect[D]	None	Potential effects from raising and widening	NA	None quantified, but idling from delays increase emissions	Major constructability issues / severe impacts on traffic	Higher O&M costs normal to movable bridges	Potential improvement to reliability from equipment upgrade / Moderate effect on marine traffic

Shaded alternatives were eliminated from further consideration after concurrence was received from pertinent agencies and Section 106 Consulting Parties.

[A]Will be evaluated in the EA as a baseline, even though it does not meet the purpose and need.

[B]Assumes that bridge must be removed.

[C]Assumes bridge can remain in place and another entity assumes liability and cost.

[D]Assumed effect not coordinated with State Historic Preservation Office.

[E]If Site is found eligible

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2.3.2.2 Elimination of the Rehabilitation Alternative

Bridge rehabilitation sufficient to allow the bridge to remain in service was included in the preliminary alternatives analysis as the only concept that would avoid use of all the Section 4(f) properties by not replacing the bridge. Keeping the bridge in service as a part of the US 90 transportation network could avoid any adverse effects. However, to remain in service, the bridge deficiencies related to its age and design must be addressed.

Two forms of rehabilitation were considered. Rehabilitation to the original condition without changing the 1930 bridge design features such as lane widths and lack of shoulders was one form of rehabilitation considered. The second was a rehabilitation scenario that necessitated modifications sufficient enough to address bridge deficiencies related to its age and design, which is the purpose of the project.

However, bridge rehabilitation can be considered an avoidance alternative that satisfies Section 4(f) requirements only if both of the following conditions can be met:

1. The elements that make the bridge historically significant are preserved.

2. Structural and functional deficiencies are addressed (a facet of the purpose and need of the project).

An analysis of whether the existing bridge can be improved to an acceptable level in a feasible and prudent manner is documented in the *Alternatives Screening and Analysis Report* (ARCADIS 2012a) and in the *Section 106 Adverse Effect Documentation* (AED; Coastal Environments 2012). The analysis demonstrates that the form of rehabilitation which would maintain the historical significance of the bridge would not sufficiently address structural and operational deficiencies or scour issues. Correction of structural and operational deficiencies would entail removal or replacement of significant historic elements, such as trusses and pivot piers. In addition, to be protected from storm surge, the bridge must be raised, which would also affect its technologically significant swing-span operations.

This analysis of rehabilitation as an alternative was presented to the SHPO and Section 106 Consulting Parties at a meeting on July 11, 2012. At that meeting, all parties agreed that the Rehabilitation Alternative should be eliminated from further consideration.

2.4 Which Alternatives Were Selected to be Evaluated in Detail and Why?

Based on the preliminary alternatives screening and analysis, two build alternatives and the No Build Alternative, an alternative that entails continuing to maintain and repair the existing bridge, but doing nothing else, were chosen for detailed evaluation in the EA.

2.4.1 No Build Alternative

The No Build Alternative will be considered in the EA for purposes of a baseline comparison, but this alternative does not meet the purpose and need for the proposed project.

2.4.2 Alternative 1B – Low-Level Double-Leaf Bascule Bridge

Alternative 1B, a double-leaf bascule or drawbridge, was determined to be the most suitable design on this alignment. As shown on **Figure 7**, the highest point on the roadway, when closed, would reach approximately 35 feet NAVD in elevation with a clearance for vessels ranging from 21.2 to 24.8 feet above mean high water (MHW). The profile was set at this height in order to raise the opening in the bascule above 18.2 feet NAVD, which is the maximum wave crest elevation modeled for Hurricane Katrina (Moffat & Nichol 2007). This height protects the bridge machinery from inundation. The bascule leaf would extend above 100 feet NAVD when open and the vertical clearance for vessels would be unlimited. Further analysis will determine the spacing and design of the piers and bents, design and construction of bridge spans, and whether the bridge span will be constructed of steel or concrete. If this alternative had been selected, ways to avoid, minimize, and mitigate effects to cultural resources would have been developed through the Section 106 consultation process and implemented by the MOA provided in **Appendix H**. The overall plan proposed for Alternative 1B is presented on **Figure 8**.

2.4.3 Alternative 2 – High-Level Fixed Bridge

Alternative 2, a high-level fixed bridge made with water level footings, was determined to be the most suitable design on this alignment. As shown on **Figure 7**, the highest point of the roadway would be close to 90 feet NAVD. The vertical clearance for vessels would be set at 75 feet above MHW. Further analysis will determine the spacing and design of the piers and bents and whether the bridge span will be constructed of steel or concrete. Because this alternative has been selected for implementation, ways to avoid, minimize, and mitigate effects to cultural resources were developed through the Section 106 consultation process and implemented by the MOA provided in **Appendix H**. The overall plan that is proposed for Alternative 2 is presented on **Figure 9**.

3. What Resources are in the Study Area and How Will They Be Affected?

The effects from each of the three alternatives chosen for detailed evaluation across a number of resources and issues were compared. The impacts analyses used to compare the alternatives are detailed in a series of technical documents that are incorporated by reference into the EA. These documents, listed in **Section 7**, are available at LADOTD Headquarters in Baton Rouge.

3.1 What Resources and Issues in the Study Area are Not Affected or Not Relevant?

NEPA regulations require that certain issues and resources be considered. In order to demonstrate that none of the concerns specified in the regulations are overlooked, brief descriptions of these resources and issues that will not be affected by the proposed project are provided in this subsection. Some resources are not found in the study area and, therefore, are not relevant. Others do exist in the study area but will not be adversely affected. Relative benefits from the three alternatives are compared when applicable.

SHEET NUMBER FIG. 8

PARISH ORLEANS

FEDERAL PROJECT BR-61-07(020)

STATE PROJECT H.000263.2

DATE 07 MAY 2012

CHEF MENTEUR PASS BRIDGE
ALTERNATIVE 1B
LOW-LEVEL MOVEABLE
OVERALL PLAN

CHEF MENTEUR BRIDGE AND APPROACHES

ARCADIS

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Scale : 1" = 200'

3,760,500 | 89°49' 0" | 3,761,000 | 3,761,500 | 89°48'45" | 3,762,000 | 3,762,500 | 3,763,000 | 89°48'30" | 3,763,500 | 3,764,000 | 89°48'15" | 3,764,500 | 3,765,000 | 3,765,500 | 89°48' 0" | 3,766,000

575,000 | 574,500 | 30°04'15" | 574,000 | 573,500 | 573,000 | 30°04' 0" | 572,500 | 572,000

BAYOU SAUVAGE NATIONAL WILDLIFE REFUGE

CHEF MENTEUR PASS

TO LAKE PONCHARTRAIN

GRAND CANAL

BURTON ROAD

BARRIOS CANAL

VERONESE ROAD

TITIAN WEST

GENOA ROAD

MURANO ROAD

CAPRI WATERWAY

ALBA ROAD

SAN REMO DRIVE

ALBA ROAD EAST

FRANCESCO ROAD

LIDO WATERWAY

LIDO WEST

LIDO EAST

NAPLES STREET

TITIAN WATERWAY

FORT MACOMB ROAD

REQ'D ROW

SAN MARCO DRIVE

ALBA ROAD WEST

LUCRINO DRIVE

MURANO ROAD

VENETIAN ISLES SUBDIVISION

OLD SPANISH TRAIL

US 90 TO NEW ORLEANS

97° 58' 36.00"

100° 28' 20.95"

CURVE NO. 1

Δ = 2° 29' 44.98" RT
D = 1° 05' 28.85"
T = 114.36'
L = 228.69'
R = 5250.00'

CURVE NO. 2

Δ = 13° 39' 49.58" LT
D = 4° 45' 0.00"
T = 144.51'
L = 287.66'
R = 1206.23'

CURVE NO. 3

Δ = 46° 28' 29.97" LT
D = 3° 15' 0.00"
T = 756.97'
L = 1430.00'
R = 1762.95'

CURVE NO. 4

Δ = 11° 41' 59.98" RT
D = 2° 15' 0.00"
T = 260.91'
L = 520.00'
R = 2546.48'

CHEF HARBOR MARINA

US 90 TO MISSISSIPPI

32° 02' 01.39"

CURVE NO. 4

ENTERGY GAS SUBSTATION

REQ'D ROW

CHEF ALLEY

MICROWAVE TOWER

MICHEL CANAL

MARQUES CANAL

40° 20' 01.41"

CONTROL SECTION 006-90

UNO COASTAL EDUCATION AND RESEARCH FACILITY

EXISTING BRIDGE (CIRCA 1927)

NEW BRIDGE (EST. 2017)

MARQUEZ ROAD

USACE GAGE (85750)

TALLY-HO CLUB

CHEF MENTEUR PASS

TO LAKE BORGNE

CONTROL SECTION 006-05

FORT MACOMB STATE HISTORICAL SITE

CSX RAILROAD

EXISTING BRIDGE (CIRCA 1927)

PALM VILLAGE MARINA

BAYOU BAR & GRILL

ELAN VITAL CONDOMINIUMS

OUTFALL CANAL

FORMER LOUISVILLE & NASHVILLE RAILROAD

ALTERNATIVE 2 DESCRIPTION:

EXISTING BRIDGE LENGTH = 979.58 FT
PROPOSED BRIDGE LENGTH = 4310.00 FT

PROPOSES HIGH-LEVEL FIXED SPAN BRIDGE TO REPLACE THE EXISTING SWING SPAN BRIDGE WHICH WOULD UTILIZE OLD SPANISH TRAIL AS A FRONTAGE ROAD AND ESTABLISH A NEW SOUTHERN FRONTAGE ROAD.

Preliminary Plans
Subject to Change
Road Design

SHEET NUMBER FIG. 9

PARISH	FEDERAL PROJECT	STATE PROJECT
ORLEANS	BR-61-07(020)	H.000263.2

DESIGNED | DETAILED | CHECKED | DATE SHEET: 07 MAY 2012

NO.	DATE	REVISION DESCRIPTION	BY

STATE OF LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

CHEF MENTEUR PASS BRIDGE
ALTERNATIVE 2
HIGH-LEVEL FIXED SPAN
OVERALL PLAN

CHEF MENTEUR BRIDGE AND APPROACHES

ARCADIS
3850 N. CAUSEWAY BLVD., SUITE 1600
METAIRIE, LOUISIANA 70002
T. 504.832.4174 | F. 504.832.2145

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3.1.1 Land Use

The land within the study area is primarily residential or undeveloped. The area on the west side of the bridge is the most developed part of the study area with a residential subdivision, a condominium, a convenience store, fueling station for boats and autos, and a restaurant.

Land use on the east side is primarily home or camp sites. A marina, research center, and sportsman's club are also located in this area. None of these properties will be adversely affected by the proposed project alternatives and land use will not change.

3.1.2 Community Facilities and Services

A new fire station is being built on a property at Alba Street and Old Spanish Trail in the Venetian Isles Subdivision. The only other community facility in the study area is St. Nicholas of Myra Catholic Church that has been closed since Hurricane Katrina. Neither the fire station nor the church will be negatively affected by the proposed project.

No schools, police stations, hospitals, medical facilities, or cemeteries are located in the study area.

Emergency response from the fire station to the east side of the bridge would benefit from the improved reliability of the updated design of the movable bridge proposed for Alternative 1B and its new operating equipment. Emergency response times would be even more improved by the fixed bridge proposed for Alternative 2. Either of these alternatives would be preferred over the No Build Alternative, which would be the least reliable of the alternatives being considered.

3.1.3 Air Quality

As stated in the correspondence from LDEQ provided in **Appendix G**, Orleans Parish is classified as an attainment parish with the National Ambient Air Quality Standards. Localized air pollution is affected by idling combustion engines propelling automotive vehicles and marine vessels as they wait for the bridge to open and close. Both vehicles and vessels would have to wait for the movable bridge proposed for **Alternative 1B** at certain times during the day as they do for the existing bridge. These waits would continue to cause localized air pollution, although the improved efficiency of bridge operations would reduce the wait times. The fixed bridge proposed for **Alternative 2** would eliminate the wait for the bridge to open and close.

Either of the build alternatives would be preferred over the **No Build Alternative**, which would cause the longest idling times of the alternatives being considered.

3.1.4 Noise

Noise measurements were taken in 2011 to determine existing sound levels for identified land uses in the study area. The results of the field measurements were used to quantify the existing acoustic environment and to provide a basis for assessing the impact of future sound level changes in the year 2037. Traffic noise impact occurs when the predicted traffic sound levels either: (a) equal or exceed the LADOTD Noise

Abatement Criteria (NAC); or (b) exceed existing sound levels by 10 A-weighted decibels. Details of the LADOTD Traffic Noise Policy, methodologies for noise measurements and future traffic noise predictions, and the technical results of the analysis are provided in the *Noise Analysis Technical Report* (ARCADIS 2013a). Pertinent text of the noise analysis report is provided in **Appendix I**.

The results of the analysis show that in each alternative analyzed no receivers would experience noise levels that exceed the NAC, and no receivers would experience a substantial increase in traffic-related noise over the 2011 existing conditions noise levels. It should be noted that the bascule leafs of the **Alternative 1B** bridge would be constructed with open grate metal bridge decking. This type of bridge decking is likely to generate additional traffic-related noise when compared to traffic noise from the asphalt or concrete bridge deck proposed for **Alternative 2**. The traffic noise model does not have the ability to predict the difference in noise levels between a smooth surface and the metal-grated deck. Therefore, actual noise levels for **Alternative 1B** may be higher than those predicted by the model (ARCADIS 2013a).

3.1.5 Recreational and Cultural Resources Not Protected by Section 4(f) or Section 106

The cultural identity of the people who inhabit the area is based on fishing, boating, and hunting in the network of waterways and marshes surrounding Chef Pass, whether for commercial purposes or for recreation. Any negative effects on fishing and boating will be limited to the period of construction.

Typical local commercial fishing vessel.

Access for vessels through Chef Menteur Pass, Michel Canal, and an inlet leading to the marine fueling station at the Yellow Store and High Tide Bar and Grill may be temporarily interrupted during specific construction activities for brief periods of time. Chef Pass is a heavily navigated channel and is not used for fishing or trawling except near the banks. Near-bank fishing may be temporarily impacted by construction noise, particularly during demolition activities, but these periods of disturbance will be brief.

Hunting is allowed on the east side of the Pass and several hunting camps are located there. Hunting activities nearest the highway corridor may be temporarily interrupted by construction noise, but waterfowl hunting in the marshes to the south will not be affected. Access from US 90 to Chef Harbor Marina on the northeast side of the study area will be maintained as will access on the southeast for the University of New Orleans (UNO) Research Center and the Tally Ho Club, a sportsman's club.

A marine survey was conducted to determine if any submerged cultural resources are present within the study area. Evidence of possible shipwrecks was found in Chef Pass, but in a location outside of the build alignments. No determination of eligibility for protection under Section 4(f) of the Transportation Act of 1966 or Section 106 of the NHPA was made, but to ensure that these cultural resources are not disturbed, a zone will be marked before construction of the bridge proceeds and maintained throughout the construction period.

The **No Build Alternative** and **Alternative 1B** would not directly impact Michel Canal (**Figure 8**). **Alternative 2**, on the other hand, requires that the approach span be located directly overhead with the required ROW encompassing the water bottom (**Figure 9**). Features such as special piers and/or pier placement incorporated into the final design to keep the Michel Canal channel clear of new obstructions in the water are proposed for **Alternative 2** and the small timber bridge crossing the canal will be relocated to an area outside the required ROW.

3.1.6 Section 6(f) Resources

Section 6(f) of the Land and Water Conservation Act requires that unavoidable conversion of lands or facilities acquired or developed with Land and Water Conservation Act funds be replaced in kind or coordinated with the Department of the Interior. In its response to the SOV, the Office of State Parks (OSP), the administrator of Section 6(f) resources, did not identify any Section 6(f) resources in the study area **(Appendix G)** and none were identified in the Statewide Comprehensive Outdoor Recreation Plan. Therefore, no Section 6(f) resources would be impacted by the proposed project.

3.1.7 Scenic Rivers

The National Wild and Scenic Rivers Act of 1968 protects certain rivers with outstanding natural, cultural, and recreational values, and the Louisiana Natural and Scenic Rivers System was developed for the purpose of preserving, protecting, developing, reclaiming, and enhancing certain free-flowing Louisiana streams. Correspondence from the Louisiana Natural Heritage Program states that no scenic rivers are located in the study area (**Appendix G**). A review of the list of natural and scenic rivers of Louisiana confirmed the finding that none of the waterways within the study area are designated scenic rivers or streams.

3.1.8 Wetlands Reserve Program and Prime Farmlands

The National Resources Conservation Service (NRCS) has developed a number of programs and policies to protect and preserve agricultural lands. The Wetlands Reserve Program (WRP) supports landowners who wish to protect, restore, and enhance wetlands on their property. Any federal undertaking must consider impacts to lands enrolled in the WRP. The Farmland Protection Act of 1981 requires federal agencies to minimize adverse effects related to irreversible conversion of farmland to non-agricultural use. No lands in the study area have been enrolled in the WRP, and no lands have been identified as prime farmlands by the NRCS. Correspondence from the NRCS regarding prime farmlands is provided in **Appendix G**.

3.1.9 Mineral Resources

No oil/gas wells were identified within a 1-mile radius of the proposed project ROW (ARCADIS 2012b).

3.1.10 Sole Source Aquifer

Correspondence from the U.S. Environmental Protection Agency (**Appendix G**) states that the proposed project does not lie within the boundaries of any sole source aquifer.

3.2 Which Resources and Issues are Relevant to the Project and How Might They Be Affected?

This section discusses relevant environmental resources and issues that have the potential to be affected by the activities related to each of the alternatives that is studied in detail in the EA. A description of resources found within the study area and how they shape the human, built, and natural environments is provided as a baseline condition. How these resources could be changed by the proposed action is the foundation of the NEPA decision-making process. In cases where adverse effects cannot be avoided, consideration must be given to minimizing and mitigating them.

3.2.1 The Human Environment

Human activity within the study area falls into three main categories: residential living, fishing and boating, and regional transportation of people, goods, and services. Tending the bridge-opening operations is one of the few regular employment opportunities in the immediate area. A small commercial center and an adjacent condominium complex also provide several jobs on the west side of the bridge. A marina and the Tally Ho Club on the east side maintain small staffs. The UNO Research Center and CSX railroad personnel travel to the area as needed. Because most of the population is employed outside the study area or as commercial fishermen, residents are extremely dependent upon US 90 and Chef Pass for their livelihoods.

Land-based transportation routes within the study area are limited in number by surrounding water and marshlands. These are vital connections for interstate commerce and evacuation as well as local travel. US 90 and Interstate 10 (I-10) are the main federal highways in the study area. US 90, between the Inner Harbor Navigation Canal (IHNC) and the Mississippi state line, is the only roadway connecting Lake

Catherine, a coastal island, with New Orleans to the west and Slidell to the east. The Chef Menteur Bridge is located at the western end of Lake Catherine Island.

3.2.1.1 Population Characteristics and Environmental Justice

The population of the study area is completely contained within Census Tract 17.34. **Table 4** illustrates the population change between 2000 and 2010 for the tract compared to New Orleans/Orleans Parish. The acute decline in population in the study area is attributed to storm surge and wind impacts from Hurricane Katrina in 2005 that destroyed homes in the area. Repopulation in the study area notably lags behind the rate of recovery being experienced by New Orleans.

Table 4. Population Change

Geographic area	Total Population		
	2000	2010	Percent Change
Orleans Parish / City of New Orleans	484,674	343,829	-29.1%
Census Tract 17.34	1,760	892	-49.3%

Source: U.S. Census Bureau 2012a; 2012b.

Table 5 shows how the number of housing units has changed as a consequence of the storm.

Table 5. Changes in Number of Housing Units

Geographic Area	Housing Units								
	All Housing Units			Occupied			Vacant		
	2000	2010	Percent Change	2000	2010	Percent Change	2000	2010	Percent Change
Orleans Parish / City of New Orleans	215,091	189,896	-11.7%	188,251	142,158	-24.5%	26,840	47,738	77.9%
Census Tract 17.34	1187	507	-57.3%	788	365	-53.7%	399	142	-64.4%

Source: U.S. Census Bureau 2012a; 2012b.

Title VI of the Civil Rights Act (42 United States Code 2000) and Executive Order 12898 - Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (1994) require an environmental justice review, which entails a thorough evaluation of project effects to persons belonging to the following minority groups at a minimum: Black, Asian, American Indian and Alaskan Native, Native Hawaiian or Other Pacific Islander (added by the Office of Management and Budget in its Bulletin No. 00-02, "Guidance on Aggregation and Allocation of Data on Race for Use in Civil Rights Monitoring and Enforcement," issued March 9, 2000), and Hispanic (of any race). The environmental justice review also requires an evaluation of project effects belonging to low-income populations, which are defined as groups whose median household income is at or below the U.S. Department of Health and Human Services (HHS) poverty guidelines.

Chart 1 compares the race and ethnicity composition of the population in Census Tract 17.34, which contains the study area, with New Orleans. The study area has a lower percentage of minorities than the city, 15.6 percent compared to 69.5 percent. However, to ensure that no minority ethnic or racial group would be impacted disproportionately by the proposed project, the blocks along the US 90 project corridor were also reviewed.

All blocks except for Block 1267 contain a White majority. Block 1267 is 69.4 percent minority, but numbers only 13 persons. The other block with a relatively high proportion of minorities is Block 1264 with 33.3 percent.

Census Block 1248, which encompasses most of the Venetian Isles Subdivision, is the largest block in terms of population and geographic area. This block is relatively racially and ethnically diverse with 16.7 percent of the population belonging to a racial or ethnic minority.

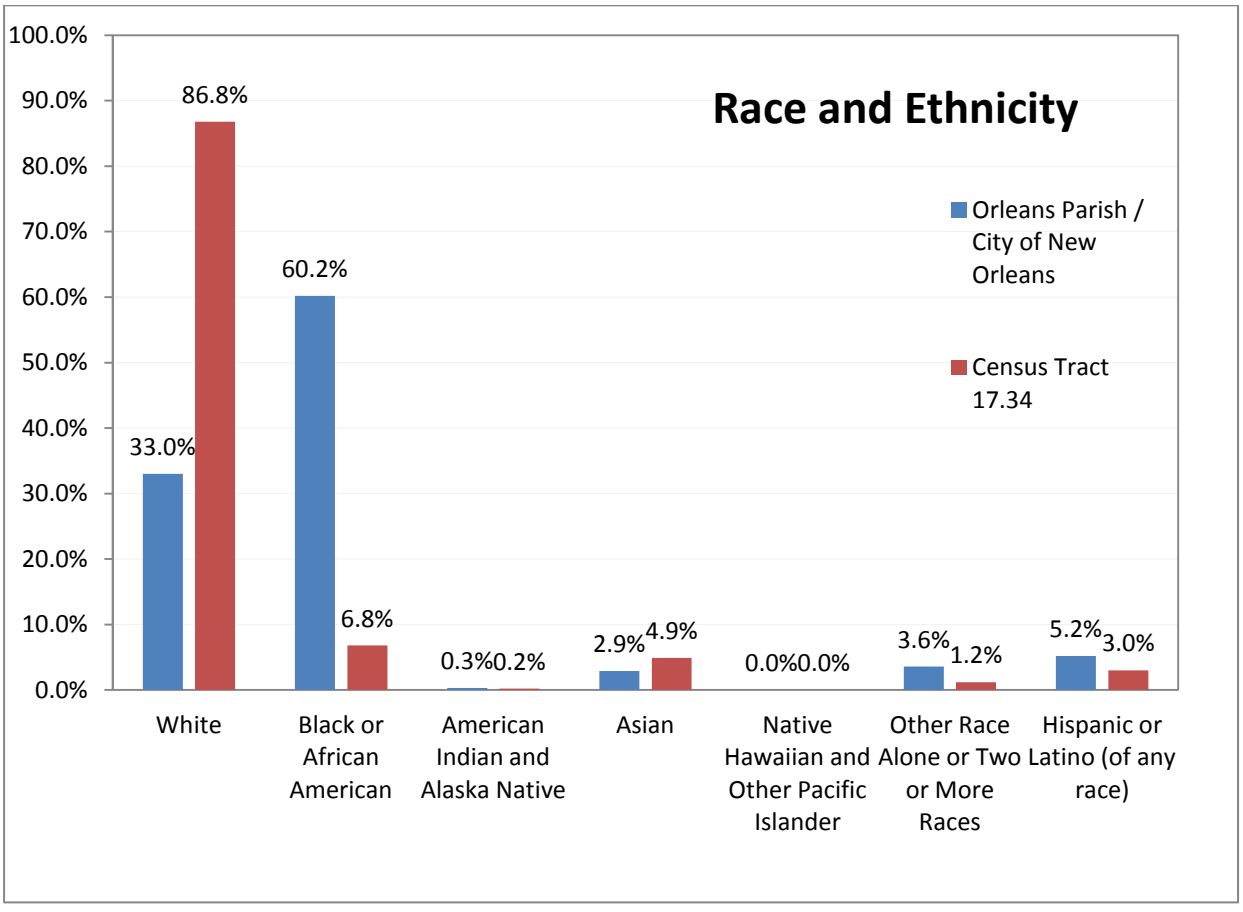

Chart 1. Race and Ethnicity of the Study Area

Source: U.S. Census Bureau 2012b.

Table 6 compares income statistics for New Orleans/Orleans Parish and the census tract that contains the study area. Census Tract 17.34 contains only one block group, so the data for the census tract and block group are the same. Income and poverty data are not available at the block level.

Table 6. Household Income

Geographic Area	Income in the Last 12 months (in 2010 Inflation-adjusted dollars)						
	Median Household Income	Total Households	Income less than $10,000	Income $10,000 to $14,999	Income $15,000 to $24,999	Income $25,000 to $34,999	Income above $34,999
Orleans Parish / City of New Orleans	$37,468	116,638	16,155 13.9%	9,274 8.0%	16,361 14.0%	13,606 11.7%	61,242 52.5%
Census Tract 17.34 / Block Group 1	$42,574	265	0 0.0%	12 4.5%	71 26.8%	39 14.7%	143 54.0%

Source: U.S. Census Bureau 2012c.

As shown in the table, it is estimated that 4.5 percent of the households in the study area received income less than $14,999 in 2010 compared to 21.9 percent in New Orleans/Orleans Parish. No households in the study area received income less than $10,000; 13.9 percent of households in New Orleans received this level of income.

Poverty guidelines calculated by HHS used to define low-income populations for program eligibility as well as environmental justice review are provided in **Table 7**. These income levels are compared to the poverty thresholds calculated by the U.S. Census Bureau to estimate the number of persons with incomes below the poverty level within Census geographies.

Table 7. Comparison of HHS Poverty Guidelines and Census Bureau Poverty Thresholds

Size of Household or Family	Census Bureau Poverty Thresholds	HHS Poverty Guidelines
One person	$ 11,139	$10,830
Two people	$ 14,218	$ 14,570
Three people	$ 17,374	$ 18,310
Four people	$ 22,314	$ 22,050
Five people	$ 26,439	$ 25,790
Six people	$ 29,897	$ 29,530
Seven people	$ 34,009	$ 33,270
Eight people	$ 37,934	$ 37,010
Nine people or more	$ 45,220	$ 40,750

Source: U.S. Department of Health and Human Services 2010 and U.S. Census Bureau 2010.

Poverty status is determined by the U.S. Census Bureau for all people except institutionalized people, people in military group quarters, people in college dormitories, and unrelated individuals under 15 years old. If total income reported through the American Community Survey (ACS) for the past 12 months is less

than the Census Bureau poverty threshold, then all individuals within the household are considered to be living in poverty.

Results of the 2010 poverty determination for the study area are provided in **Table 8**. Based on ACS data compiled for the 5 years from 2006 to 2010, the percent of population below the poverty level in the study area is extremely low compared to the level of poverty in the city. Windshield surveys and these data indicate that low-income households would not likely be disproportionately affected by the proposed project.

Table 8. Poverty

Geographic Area	Persons for whom the Poverty Status is Determined	Persons with Income in the past 12 months below Poverty Level	% of Persons below Poverty Level
Orleans Parish / City of New Orleans	285,497	69,685	24.40%
Census Tract 17.34 / Block Group 1	557	22	3.90%

Source: U.S. Census Bureau 2012d.

3.2.1.2 Emergency Response and Evacuation

US 90 is designated as a secondary evacuation route. For major storms, the bridge is locked in the closed position to allow for unimpeded automotive travel across Chef Menteur Bridge. During Hurricane Katrina, storm surge flooded the deck of the existing bridge. Although prevention of roadway flooding is not the purpose of the project, both build alternatives would be designed to ensure that the roadway on the bridge deck is built above the surge elevation recorded during Hurricane Katrina.

Due to the unreliability of the existing bridge openings, fire stations on both sides of Chef Pass, one at Venetian Isles and one at Lake Catherine, are maintained. Hurricane Katrina destroyed the fire station at the Venetian Isles Subdivision and, since that time, it has been operated out of temporary quarters west of the study area. Plans were approved in 2011 and a new station is currently under construction at the original location at Alba Road and Old Spanish Trail. The Lake Catherine Volunteer Fire Department was refurbished after Hurricane Katrina and sustained some damage during Hurricane Isaac in 2012.

3.2.1.3 Navigation and Regional Economic Activity

Local commerce is limited to real estate transactions and activities at the small commercial center on the west and the marina on the east, but regional economics are well supported by the natural environment of the study area. The largest employers near the study area are water-dependent, regional enterprises including a water- and land-craft manufacturer, several tug boat builders and operators, and construction suppliers and contractors. Commercial fishing contributes to the local economy, but serves national and regional customers as well.

The *Navigation Height Study* prepared by LADOTD in 2007 was updated in May 2012 (ARCADIS 2012e). Navigation activities in Chef Pass by frequency and vessel type between 2007 and 2011 from the updated study are summarized in **Table 9**.

Table 9. Number of Vessel Trips through Chef Menteur Pass

	2007	2008	2009	2010	2011
January	75	NA	116	109	53
February	92	192	68	52	93
March	143	41	92	70	139
April	116	82	105	75	167
May	202	118	370	182	355
June	276	66	295	524	250
July	216	249	168	218	199
August	326	371	397	372	248
September	381	190	236	544	NA
October	354	222	214	347	NA
November	239	392	NA	268	NA
December	196	191	NA	166	NA
Total	**2,616**	**2,114**	**2,061**	**2,927**	**1,504**
Monthly Average	**218**	**176**	**206**	**244**	**188**

Source: ARCADIS 2012e.

Table 10 demonstrates that the most frequent user of Chef Pass is commercial fishing vessels followed by towing vessels. The maximum height reported for commercial fishing vessels was 65 feet. The maximum height for towing vessels was 80 feet.

Table 10. Frequency of Trips through Chef Menteur Pass by Service Type

Service Type	Total Trips	Average Trips per Month	Percent of Total Trips	Minimum Height Reported (feet)	Maximum Height Reported (feet)
Barge*	5	0.3	0.11%	15	25
Commercial Fishing Vessel	2,676	133.8	60.4%	15	65
Industrial Vessel	48	2.4	1.1%	25	60
Offshore Supply Vessel	76	3.8	1.7%	20	40
Passenger	161	8.1	3.6%	14	40
Recreational	133	6.7	3.0%	15	65
Towing Vessel	1,058	52.9	23.9%	15	80

Service Type	Total Trips	Average Trips per Month	Percent of Total Trips	Minimum Height Reported (feet)	Maximum Height Reported (feet)
Unspecified	274	13.7	6.2%	15	50
Totals	4,431	221.6	100.0%	14	80

*Assumed to be self-propelled. Source: ARCADIS 2012e.

Survey data collected for the *Addendum to the 2007 Navigation Height Study* (ARCADIS 2012e) reveal that maritime interests prefer a fixed bridge even if it were to prevent some vessels from using Chef Pass for navigation. In some instances, operational delays may trap vessels between Chef Menteur Bridge and the CSX Railroad Bridge to the south, a navigation position that is difficult to maintain. The overall benefit of a fixed bridge to navigation was expressed as a function of reliability by survey respondents. Vessel owners who live and/or work in the US 90 corridor stated a preference for a fixed bridge because they also value travel reliability on the highway.

Alternative 1B would improve reliability by upgrading the operating equipment and design of a movable bridge. In the open position, **Alternative 1B** would provide unlimited vertical clearance for navigation. In the closed position, 23 feet of vertical clearance would be provided. No commercial vessels can pass under the existing bridge, which has a vertical clearance of 11 feet when closed (ARCADIS 2012e). Based on the data compiled for the study and shown on **Chart 2**, approximately 50 percent of the vessels that used Chef Pass for navigation in January 2010 through August 2011 had a height of less than 23 feet. This statistic suggests that the movable bridge as designed for **Alternative 1B** would reduce the number of openings by half compared to the current situation.

Alternative 2 would provide 75 feet of vertical clearance for navigation. As shown on **Chart 2**, this clearance would accommodate at least 99 percent of the vessels that used Chef Pass for navigation in 2010-2011. A statistical analysis of data collected for 2004 and 2011 predicts that only 3.6 vessel trips per year would be unable to navigate Chef Pass if the vertical clearance were set at 75 feet. Towing vessels are the only service type that would be affected by this clearance. According to the survey conducted for the study, the 80-foot height represents specialized construction equipment being transported on deck barges. Operators surveyed indicated that use of the IHNC was a viable option; they also expressed a preference for a fixed bridge (ARCADIS 2012e).

Although **Alternative 1B** would reduce the number of openings and improve reliability for US 90 travel and Chef Pass navigation, transportation reliability from **Alternative 2**, as designed, would be guaranteed for almost 100 percent of users.

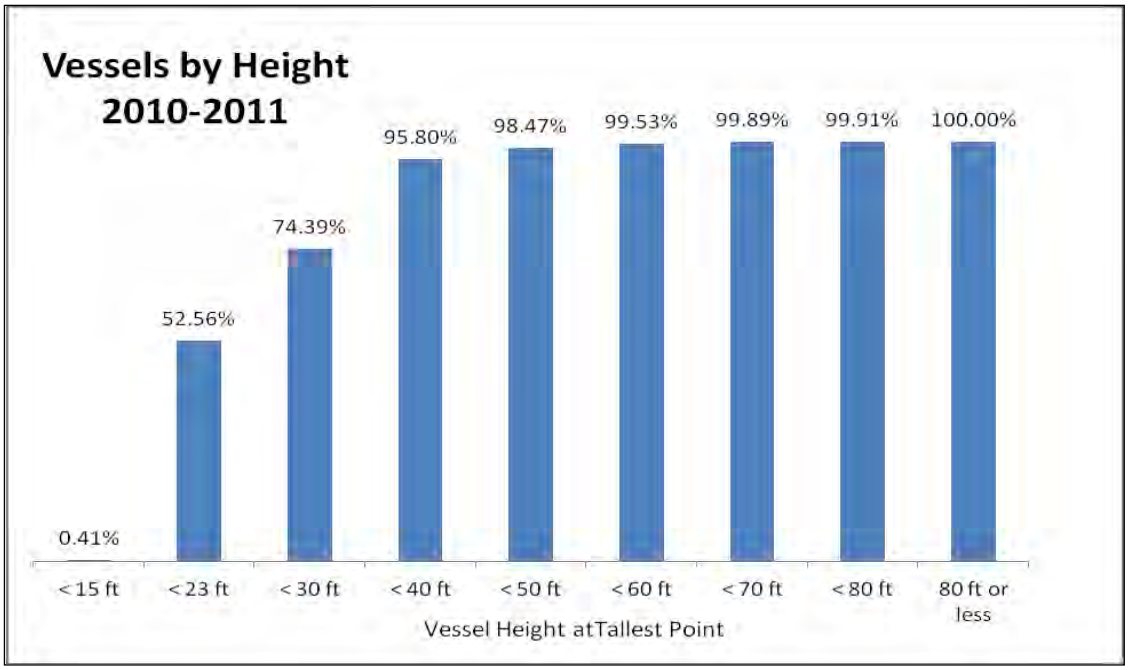

Chart 2. Percentage of Vessels by Height

3.2.1.4 Travel Patterns, Public Safety, and Complete Streets

Travel within the study area utilizes US 90, an east-west arterial also known as Chef Menteur Highway. Circulation of local traffic also depends upon US 90 for access to the various commercial and residential properties fronting on the highway. On the west side of Chef Menteur Pass, most traffic moves between the Venetian Isles properties and destinations toward New Orleans and Slidell. Residents on the east of Chef Menteur Pass also travel to these destinations. Travel to and from destinations in Mississippi are predominantly commercial haulers, who encounter weight limitations at the Chef Menteur Bridge. The Venetian Isles Subdivision, Elan Vital Condominiums, and the commercial area that includes the Yellow Store and High Tide Bar and Grill are the primary traffic generators and destinations on the west side of the Pass.

Intersection capacity analyses were performed for the implementation year 2017 and design year 2037. The analyses showed for both peak periods (AM and PM) that intersections between US 90 at US 11 and US 90 at LA 433 will function at a level of service (LOS) B or better for the implementation and design years. We also performed unsignalized capacity analyses at the intersections of US 90 at US 11 and US 90 at LA 433. The results showed that these intersections will function at LOS C or better for the implementation year, but signalization may be required for the design year 2037.

Access to commercial businesses along US 90 is uncontrolled along their frontages with no well-defined ingress/egress points. The intersection of US 90 and Fort Macomb Road is in an undesirable location and does not meet current sight distance standards. The location of the undeveloped access point to the Fort Macomb State Park is also undesirable and does not meet current standards.

All build alternatives consider access needs and have been designed with frontage roads that meet federal and state standards. Streets and properties that are accessible from US 90 would continue to be accessible with the proposed build alternative frontage roads. **Figure 8** illustrates the frontage road configurations proposed for **Alternative 1B** and **Figure 9** illustrates configurations proposed for **Alternative 2**. An optional configuration was developed for the frontage roads on the east side of Chef Pass in response to a comment received after the public hearing. A drawing of this concept, which will be considered during Phase 3 (Design), is provided in **Appendix J**.

An analysis of bicycling and pedestrian facilities was completed for the proposed project in accordance with the LADOTD Complete Streets Policy (2010) in order to consider the impact on safety for all users and make all reasonable attempts to mitigate negative impacts on non-motorized modes. Coordination with the public and other parties with an interest in pedestrian and bicycle use of the bridge was undertaken at the outset of the project to gauge the need for accommodation of these transportation modes.

The City Planning Commission of New Orleans (CPCNO) specifically requested inclusion of a shoulder for bike access in its SOV response dated May 4, 2010 (**Appendix G)**. The letter also notes that US 90 was identified on the Louisiana Bicycle Map as a suggested cross-state route and that the Regional Planning Commission (RPC) bicycle master plan supports US 90 as a bike route.

A briefing was held on December 6, 2011, for representatives of the New Orleans biking interests to introduce the proposed project and to solicit input about pedestrian and biking in the region. The briefing was attended by:

- Jennifer Ruley, City of New Orleans Bike and Pedestrian Engineer
- Jason Tudor, AARP Community Outreach and Education Coordinator for New Orleans
- Jamie Wine, Executive Director for Bike Easy (formerly Metro Bicycle Coalition)
- Dan Jatres, Pedestrian and Bicycle Program Coordinator for RPC

Comments received confirm that US 90 is used by bicyclists as a regional route to the state line. Bicyclists are prohibited by law from using I-10, and although US 11 is a legal route, the condition of the roadway shoulders and speed limit of 50 mph make it unattractive for biking. In addition, the US 11 bridge crossing of Lake Pontchartrain has no shoulders and is 5 miles long. Therefore, despite the longer travel distance on US 90, it is still the preferred bike route to Slidell (Dan Jatres, pers. com., January 2012).

Sidewalks were also mentioned in the letter from CPCNO, but no other support for pedestrian facilities was demonstrated. The Complete Streets Policy stipulates that the appropriate facility type should be determined by the context of the roadway. The policy states that where there is a demonstrated absence of need or prudence, sidewalks and bikeways will generally not be provided (LADOTD 2010). Given the rural context and long travel distances to US 90 destinations, sidewalks were not deemed warranted. However, an engineering review determined that bicycling needs would be met by paving 8 feet of the 10-foot shoulder. This pavement was already included in the design and will make the facility adequate for bicycle use at no additional cost. A minimum of 4 feet 9 inches of paved width will be available. The design also

limits the shoulder cross slope to 2.5 percent, the appropriate standard for bicyclists. Pavement markings for bicycles may be added as deemed appropriate.

This design was provided at the April 3, 2012, public meeting. None of the invited bicycle/pedestrian representatives attended and no comments about the recommendations were received.

3.2.2 The Built Environment

The study area is relatively undeveloped except for the homes in the Venetian Isles Subdivision and Elan Vital Condominiums on the west side of Chef Pass. A small commercial center adjacent to the condominiums includes a gas station, vessel fueling dock, convenience store, and restaurant. The number of structures on the east side of the bridge has been severely reduced since Hurricane Katrina in 2005. A few structures remain including a new raised residence/camp, a microwave tower, a pumping station, boathouses at the Chef Harbor Marina, and new facilities of the Tally Ho Club. A research center operated by UNO and the Tally Ho Club are accessible from US 90 by a low timber bridge crossing Michel Canal. St. Nicholas of Myra Church was not reopened after the storm, but the Venetian Isles Fire Station is being rebuilt. Other notable features of the built environment are US 90, the existing Chef Menteur swing-span bridge, the CSX railroad and bridge, and Fort Macomb, which was built in the 19th century to protect New Orleans from attack by water.

3.2.2.1 Section 4(f) Resources and Section 106 Resources

Section 4(f) of the Department of Transportation Act of 1966 as amended protects parks and recreational lands, wildlife and waterfowl refuges, and historic sites. Section 106 of the NHPA requires federal agencies to take into account effects of the proposed project, including noise and visual impacts, on properties listed on or eligible for inclusion on the NRHP.

Bayou Sauvage NWR and Fort Macomb State Park are parks and recreational lands eligible for protection under Section 4(f). None of the build alternatives will impact the Bayou Sauvage NWR. The existing bridge and the Fort Macomb Historic Site are protected under both Section 4(f) and Section 106 of the NHPA. The NWR, bridge, park, and historic site are illustrated on **Figures 4** and **6**. How these resources were considered during the development and refinement of the build alternatives is discussed in **Sections 2.2** and **2.3**.

The boundaries of an archaeological site were extended as a result of the cultural resources survey performed for this project. This resource, which is located within the ROW of **Alternative 1B**, was investigated and found potentially eligible for the NRHP and, therefore, may also be potentially eligible for protection under Section 4(f) and Section 106 if selected.

<u>Bayou Sauvage National Wildlife Refuge</u>

The proposed ROW for the build alternatives would not incorporate any land from the NWR. The proposed build alternatives would not impact air quality, and noise levels within the property would not change. The proposed roadway adjacent to the property would remain at-grade and no visual impacts would occur.

Therefore, it was determined that the Bayou Sauvage NWR will not be used and that Section 4(f) does not apply.

Existing Historic Bridge

The existing US 90 bridge was determined eligible for listing on the NRHP in 1999; the SHPO concurred with this finding in a letter dated July 16, 2012. **Alternatives 1B** and **2** both require that the bridge be replaced. In a letter dated October 30, 2012, the SHPO concurred with the findings in the AED (Coastal Environments 2012) that these alternatives would adversely affect the Chef Menteur Bridge because they would require its removal or demolition. The referenced correspondence is provided in **Appendix E**. In addition, the AED states that the repair and rehabilitation necessary to implement the **No Build Alternative**, combined with any alterations necessary to improve the safety of the crossing, could result in an adverse effect to the property. Appropriate treatment measures for these adverse effects are provided in the MOA signed by FHWA, SHPO, and LADOTD with concurrence from the OSP and the Choctaw Nation of Oklahoma (**Appendix H**).

The proposed project meets all the applicability criteria specified in the *Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges* and may be approved for transportation use based on the programmatic evaluation provided in **Appendix K**.

Fort Macomb State Park

Fort Macomb State Park is a state-owned park property and historic site. The OSP, the authority with jurisdiction over the site, has provided details regarding hours of operation and future plans for the park. Therefore, the park is a significant recreational resource eligible for protection under Section 4(f).

As shown on **Figure 5**, the existing ROW for US 90 crosses a portion of the 16-acre Fort Macomb State Park property. The US 90 ROW and use of the park property predates current Section 4(f) regulations and divides the property into two areas: a remnant consisting of approximately 1.25 acres to the northwest, and approximately 13 acres of property to the southeast where the fort is located. This transportation use from the ROW would not change under a **No Build Alternative** scenario.

The two build alternatives being considered would shift and widen the ROW and change the location and quantity of land incorporated into the transportation facility. **Alternative 1B** would shift the ROW to the north; **Alternative 2** would shift the ROW to the south.

Impacts of the proposed project on Fort Macomb State Park may be determined to be *de minimis* if the project does not result in an adverse effect on the activities, features, or attributes that qualify the park for protection after avoidance, minimization, or enhancement measures are incorporated (FHWA 2012). A *de minimis* impact determination also requires public involvement as specified in 23 CFR 774.5(b). The regulations also require the agency with jurisdiction over the property to concur with the *de minimis* impact determination. The public notice and opportunity for comment as well as the concurrence may be combined with similar actions undertaken as part of the NEPA process.

The essential activity of Fort Macomb State Park is visitation of the fort itself, which is the central feature of the park. Currently the fort is only available to the public through scheduled tours. The OSP has plans to reopen the site to daily operations and visitation as a fully operational historic site in the future as funds allow.

There would be no adverse effect to the fort, scheduled tours, or future visitation because access from US 90 is maintained for either **Alternative 1B** or **Alternative 2.**

A letter advising the OSP that FHWA intended to make the *de minimis* determination for **Alternative 1B** and for **Alternative 2** was sent on September 27, 2012. The OSP responded with a letter dated October 5, 2012, concurring with the determination. These letters are provided in **Appendix L**. A Section 4(f) evaluation statement for Fort Macomb State Park was prepared and is provided in **Appendix M**.

Fort Macomb Historic Site

The Fort Macomb Historic Site boundary was listed on the NRHP in 1978. The Historic Site NRHP boundary includes the fort and a strip of land that extends from the fort northwest to the existing US 90 ROW (**Figure 5**). The boundary for the strip of land does not extend all the way to the Chef Pass bank; it does not include any land northwest of the highway. On the southwest, the boundary is generally coterminous with the Fort Macomb State Park boundary.

Alternative 1B would not incorporate any Fort Macomb Historic Site land into the required ROW or result in other adverse impacts (Coastal Environments 2012).

Alternative 2 would permanently incorporate approximately 0.13 acre of land from the Fort Macomb Historic Site into the required ROW. The portion of the NRHP property within the required ROW for **Alternative 2** is currently overgrown with weeds and does not include any historic plantings or cultural features, such as earthworks or moats. Although the highest point of the bridge deck of **Alternative 2** would be more elevated than the existing span, it would be supported with a series of piers widely spaced to create a much more open viewshed at eye level from the fort than is afforded by the existing span. Therefore, although construction of **Alternative 2** would permanently incorporate additional land into the facility, the AED determined that it will not adversely affect the resource's integrity after implementation of measures to minimize harm (Coastal Environments 2012).

As shown in the correspondence provided in **Appendix E**, on October 30, 2012, the SHPO concurred with the findings of "no adverse effect" in the AED and signed the MOA, which concluded the Section 106 consultation.

Impacts of the proposed project may be determined to be *de minimis* if, during the Section 106 process, FHWA has considered the views of Consulting Parties, received written concurrence from the SHPO on a finding of no adverse effect, and informed the SHPO of the intent do make a *de minimis* finding based on such concurrence. A letter informing the SHPO of such intent was sent on February 1, 2013 (**Appendix E**). A Section 4(f) evaluation prepared for this resource is provided in **Appendix M.**

Fort Macomb Archaeological Site

Two areas of the Fort Macomb archaeological site within the proposed ROW for the build alternatives were investigated to determine if archaeological deposits eligible for listing on the NRHP were present. The area within the required ROW for **Alternative 2** was determined to be ineligible for listing. Eligibility for the area within the ROW for **Alternative 1B** was undetermined (Coastal Environments 2012). In its October 30, 2012, letter (**Appendix E**), the SHPO concurred with the finding that there would be no adverse effects to the portion of the archaeological site within the required ROW for **Alternative 2**, the alternative that was selected for implementation. This selection and the SHPO concurrence signify that Section 4(f) does not apply.

However, the assessment of adverse effects was not completed for the portion of the site within the required ROW for **Alternative 1B.** If this alternative had been selected for construction, additional archaeological investigations would have been conducted. If no eligible archaeological deposits were identified, then the project would cause no adverse effects. If eligible deposits were identified within the **Alternative 1B** ROW and this alternative were selected for implementation, then adverse effects to these deposits would be addressed through a supplement to the MOA provided in **Appendix H**.

3.2.2.2 Visual Impacts

Computerized renderings of each build alternative were prepared to illustrate how the view from certain vantage points would look. Visual impacts from **Alternative 1B** would be less intrusive because of the lower height of the approach spans immediately in front of the Elan Vital Condominiums, the Yellow Store and High Tide Bar and Grill, and the homes along Old Spanish Trail from a point east of Alba Road to the bank of Chef Pass. The **No Build Alternative** would be the least visually intrusive. The height of **Alternative 2** would be taller than **Alternative 1B** except when the bridge is open.

Computerized images of the build alternatives as exhibited at the public meeting held on April 3, 2012, are provided in **Appendix F**.

3.2.2.3 Potential Hazardous Waste Sites

A Phase I Environmental Site Assessment (ESA) was performed in general accordance with ASTM International E 1527-05 *Standard Practice for Environmental Site* Assessments*: Phase I Environmental Site Assessment Process*.

According to the analysis provided in the Phase I ESA document (ARCADIS 2012b), very little business risk is associated with the acquisition of the proposed project ROW. Some unauthorized dump sites and pole-mounted transformers were found during the site investigations, but only one site was identified as warranting further consideration during ROW acquisition.

The Yellow Store and High Tide Bar and Grill (formerly known as the Bayou Market Bar & Grill) is located at 20824 Chef Menteur Road next to the Elan Vital Condominiums (**Figure 10**). According to the documentation in the Phase I ESA, the site has four active underground storage tanks (USTs): three 3,000-gallon gasoline USTs and a 3,000-gallon diesel UST. The location of the USTs is behind the building, near the water. The USTs were installed in 1985 (ARCADIS 2012b).

Louisiana Department of Environmental Quality (LDEQ) records document several releases. In 2000, a release occurred from the area near the fuel dispensers. Monitoring and remediation were conducted and a letter of No Further Action (NFA) was issued in 2004. In 2005, a 200-gallon aboveground storage tank leaked, impacting soil and water. Site investigations and cleanup followed; an NFA was issued in 2008. Since that time, the facility has had a few non-compliance issues and a conveyance notice has been attached to the property. This condition is considered to be a Recognized Environmental Condition (REC).

The fueling station at the Yellow Store and High Tide Bar and Grill (former Bayou Market Bar & Grill).

Figure 10 illustrates that the USTs at this facility are located outside the ROW that will be required for either **Alternative 1B** or **Alternative 2**. Although the proposed ROWs shown on **Figure 10** appear to impact the fueling station canopy, the final designs shown on **Figures 8** and **9** were refined to ensure that the proposed ROWs for both build alternatives completely avoid the fueling island. Therefore, although the existence of the REC on this property warrants further consideration during ROW acquisition, the property is not expected to impact the proposed project.

The Phase I ESA identified a Historical Recognized Environmental Condition (HREC) at 20844 Chef Menteur Road. A review of LDEQ records found a property named Barney Johnson with 13 UST program files dated 1986 to 2000. This facility removed four 3,000-gallon USTs on August 24, 2000. After the tanks were removed, confirmation sampling was conducted and no further action was required. As shown on **Figure 10**, this property is east of the Yellow Store and High Tide Bar and Grill. This HREC is not considered to be a concern because the records indicate that the site has been properly closed.

3.2.2.4 Real Estate and Right-of-Way Acquisition

The proposed project build alternatives will not displace any residences or businesses. The required ROW of both build alternative alignments will require acquisition of land from some unimproved waterfront residential/camp site lots, residential properties, condominium property, and improved commercial properties only. Minor improvements such as concrete parking and drives, landscaping, subdivision signs, and some privacy fencing that currently exist within the proposed required ROW of both alternatives may be

taken. The build alternatives have been refined to ensure that the required ROW avoids the fueling island shown on **Figure 10.**

Real estate costs are provided in the *Conceptual Stage Relocation Plan* prepared by Quest Acquisitions (2012). Costs include permanent acquisition of required ROW and temporary servitudes for construction staging areas. **Alternative 2** real estate costs also include purchase and payment to the owner of the timber bridge crossing Michel Canal to relocate it outside the ROW. Due to the need to relocate this bridge, the cost of real estate for **Alternative 1B** is much less than the cost of real estate for **Alternative 2**.

3.2.3 The Natural Environment

The Louisiana Geological Survey defines the ecological province of the general project area as the Deltaic Coastal Marshes and Barrier Islands Level IV Ecoregion of the Mississippi Alluvial Plains Ecoregion of Louisiana. The Deltaic Coastal Marshes and Barrier Islands Ecoregion is described as consisting of freshwater and saline marshes, rivers, lakes, bayous, and various other water bodies, with few to no trees and vegetated marshes comprised of grasses, sedges, and rushes. Organic deposits can be found below sea level within permanently flooded areas, which can cause mucky Histosols to develop. Geological characteristics of this ecological subregion consist of quaternary alluvial, deltaic, interdeltaic coastal, and shallow marine sediments of sand, silt, and clay with comparatively high organic content (Louisiana Geological Survey 2012).

The marshes of Bayou Sauvage National Wildlife Refuge.

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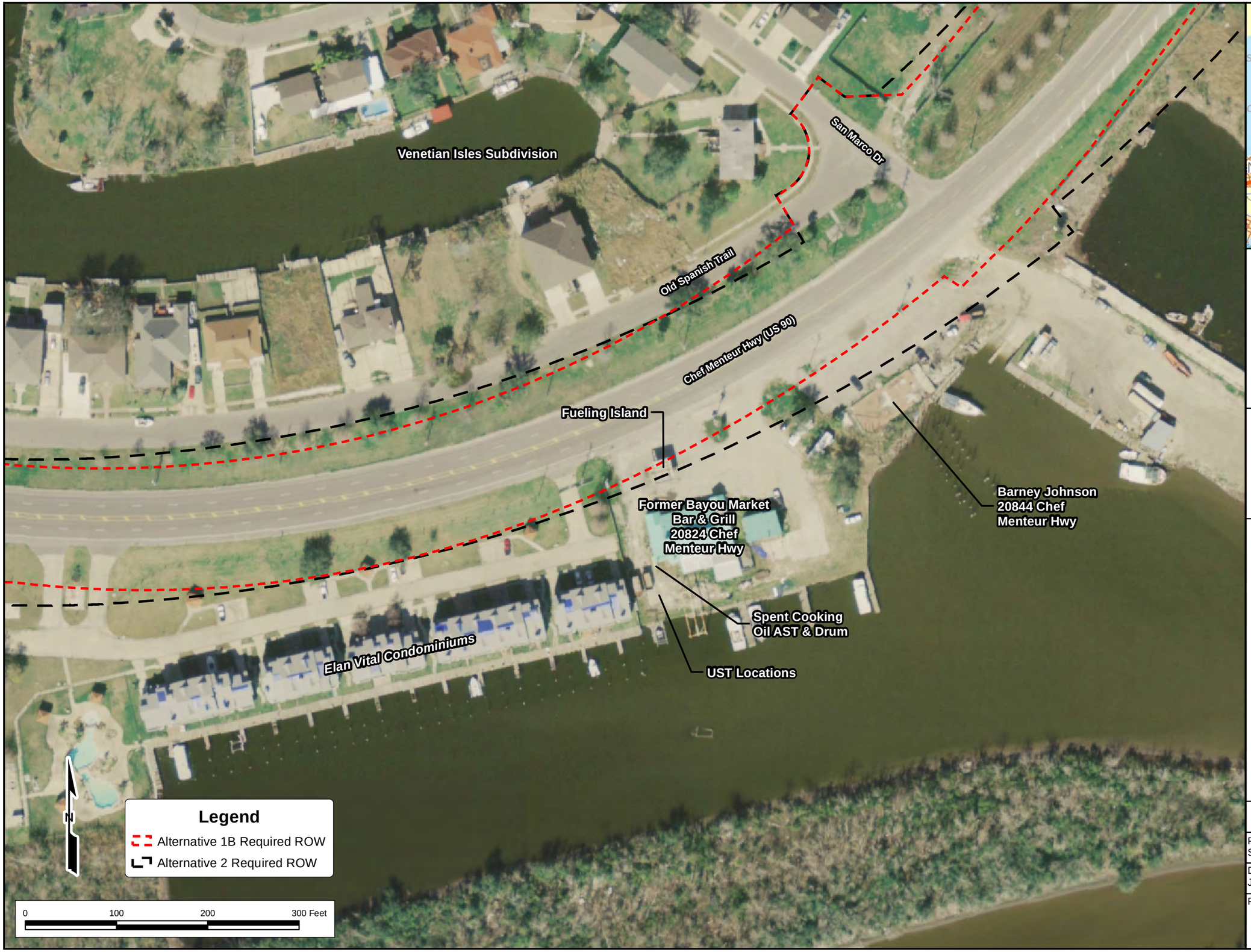

BAYOU MARKET BAR & GRILL

Chef Menteur Bridge and Approaches
Route US 90
Orleans Parish
Federal Aid Project No. H.000263.2
State Project No. H.000263

REFERENCE:

2009 AERIAL PHOTOGRAPHY
FROM NEW ORLEANS REGIONAL PLANNING
COMMISSION, ACQUIRED IN 2011.

FHWA

LOUISIANA'S ON THE MOVE... DOTD BUILDS THE WAY

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Tidal marshes of Bayou Sauvage NWR dominate the western side of the study area. Lake Catherine, a coastal island, also contains tidally influenced marshes. Aquatic systems on both sides of the study area experience salinities typical of brackish marsh habitats that support a more diverse range of waterfowl and aquatic species than salt marshes, but less diversity than the intermediate and freshwater marshes located outside the study area.

3.2.3.1 Wetlands and Other Waters

Section 404 of the Clean Water Act charges the U.S. Army Corps of Engineers (USACE) with the regulation of dredging, filling, and discharging of materials into wetlands and other waters of the United States. A *Wetlands Findings Report* was prepared for the proposed project (ARCADIS 2012c). Observations and data about the location type and condition of wetlands and other waters of the United States within the study area collected during field surveys are detailed in that report.

Land cover observations made during field surveys confirmed the presence of vegetation, hydrology, and soils typical of tidal marshes. Soil types found in the study area include Aquents, Clovelly muck, Gentilly muck, and Lafitte muck. All are listed as hydric (soils developed under sufficiently wet conditions to support the growth and regeneration of wetlands vegetation) by the NRCS (U.S. Department of Agriculture [USDA] 2012a).

Wetland 1A – Brackish Marsh.

Wetland 4A – Shrubby Emergent.

Marshes in the study area are dominated by grasses such as coastal salt grass (*Distichlis spicata*), saltmeadow cordgrass (*Spartina patens*), also known as marshhay cordgrass or wiregrass, Roemer's rush (*Juncus roemerianus*), and saltwater cordgrass (Spartina *alterniflora*). However, vegetation within areas for the required ROW for the two build alternatives is less typical of brackish marsh due to sporadic occurrences of upland species associated with prior fill impacts in the shrub layer. For this reason, wetlands that would be impacted by the proposed project are classified primarily as shrubby emergent systems.

Brackish canals in the study area appear to have been constructed to connect residential areas to Chef Menteur Pass, Bayou Sauvage, and Lake St. Catherine. Because the project proposes to remain near to the ROW for the approaches and existing bridge, only two waterbodies would be affected by the proposed build alternatives: Chef Pass and Michel Canal. This man-made canal runs parallel to the US 90 ROW linking Marquez Canal and Lake St. Catherine to Chef Pass. A timber bridge crossing from US 90 to an

access road south of the canal provides 10 feet of horizontal clearance and between 6.5 and 7.5 feet of vertical clearance above MHW. This low height limits vessel traffic through the bridge to small recreational vessels without fixed tops. Tidally influenced and somewhat impaired by channel constriction and minor erosion, the banks of Michel Canal are lined in some areas by bulkheads, stone riprap, and a wooden dock.

Five contiguous wetlands systems were observed during the field surveys. These systems are listed in **Table 11** by type, condition, and dominant vegetation. Some of the systems were observed to contain both brackish marsh and shrubby emergent and are identified accordingly. Wetland 4B was observed to be in a state of transition between the two types. **Figure 11** identifies the location of each wetland and illustrates how they would be impacted by either build alternative.

Table 11. Wetlands of the Study Area

Wetlands Identification	Type	Condition	Dominant Vegetation
Wetland 1A	Brackish Marsh	Class 2	saltmeadow cordgrass (*Spartina patens*)
Wetland 1B	Shrubby Emergent	Class 4	common reed (*Phragmites australis*); giant cane (*Arundinaria gigantea*)
Wetland 2A	Shrubby Emergent	Class 3	common reed (*Phragmites australis*); saltmeadow cordgrass (*Spartina patens*); southern bayberry (*Morella cerifera*)
Wetland 2B	Brackish Marsh	Class 3	saltmeadow cordgrass (*Spartina patens*); common reed (*Phragmites australis*)
Wetland 3	Shrubby Emergent	Class 4	fall panic grass (*Panicum dichotomiflorum*); switch grass (*Panicum virgatum*); southern bayberry (*Morella cerifera*)
Wetland 4A	Shrubby Emergent	Class 3	common reed (*Phragmites australis*); saltmeadow cordgrass (*Spartina patens*); southern bayberry (*Morella cerifera*); giant cane (*Arundinaria gigantea*)
Wetland 4B	Transitional Marsh	Class 3	saltmeadow cordgrass (*Spartina patens*)
Wetland 5	Brackish Marsh	Class 1	saltmeadow cordgrass (*Spartina patens*)

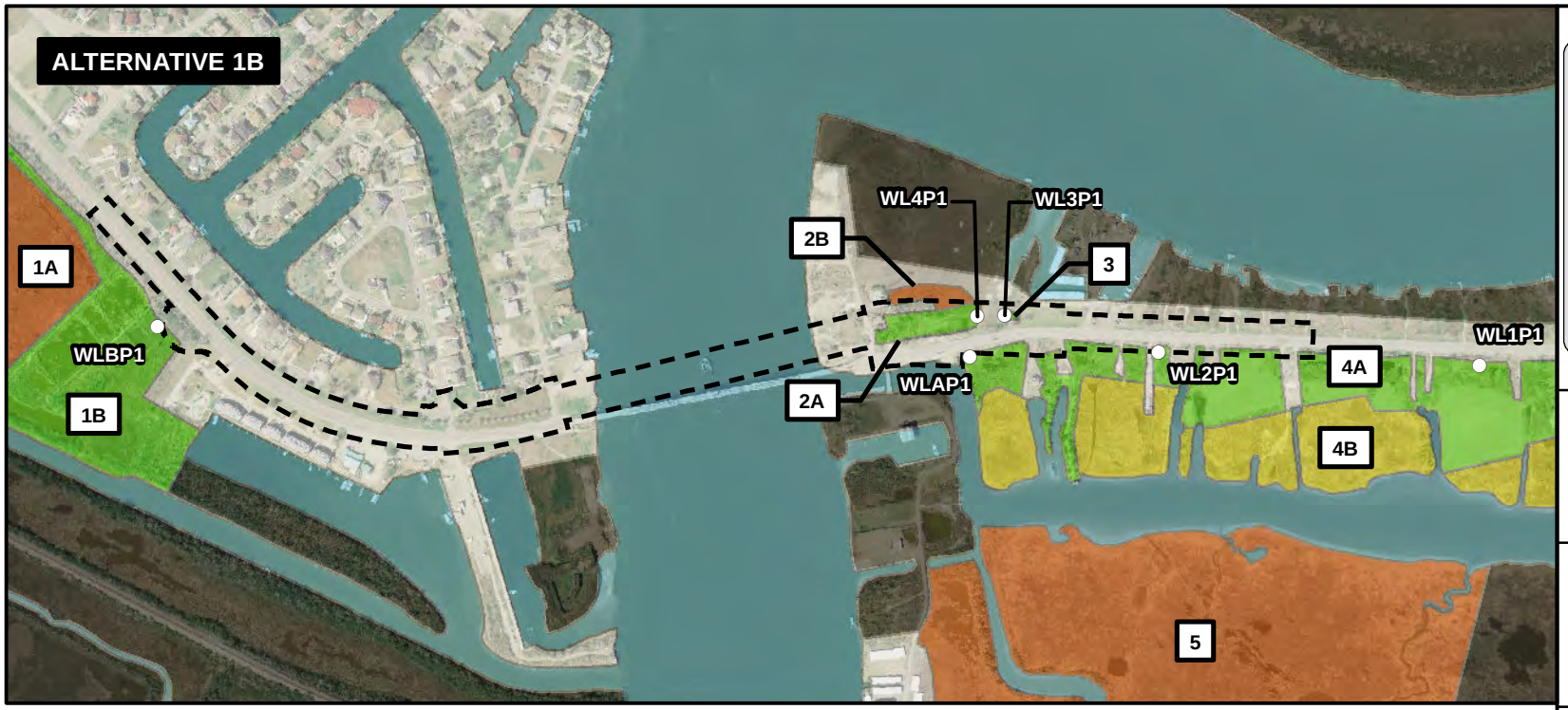
Source: ARCADIS 2012c.

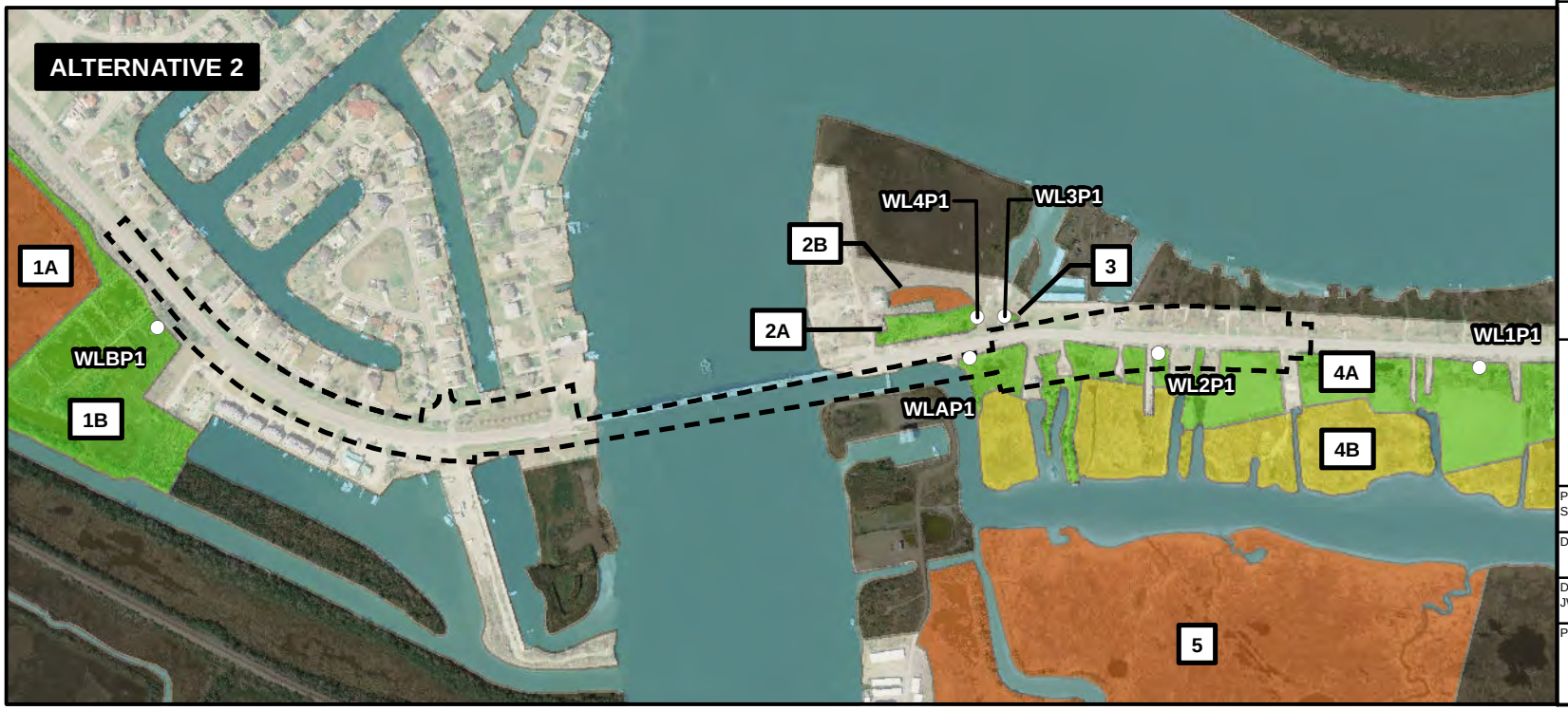
Class 1 – These features are fully functional, with no alterations, and mature, uninterrupted extents of marsh grasses.

Class 2 – These features have minor aquatic impacts that may naturally recover with extents of marsh grasses occasionally interrupted by open water.

Class 3 – These features have minor aquatic impacts, with marsh grasses mixed with woody plants and other vegetation in the shrub layer. These features will need human assistance to recover their original functional status.

Class 4 – These features have major aquatic impacts that will require much human assistance to recover their original functional status. These wetlands may be clear-cut and may have early successional growth dominating the wetland area.





Legend

- Wetland Plot Points
- Alternative 1B & 2 Required ROW

Field Determined Wetlands

- Shrubby Emergent
- Brackish Marsh
- Shrubby Emergent /Marsh Transitional Area
- Water
- Upland
- Not Field Verified

FIELD DETERMINED WETLANDS AND ALTERNATIVE 1B AND 2 REQUIRED ROW

Chef Menteur Bridge and Approaches
Route US 90
Orleans Parish

Federal Aid Project No. H.000263
State Project No. H.000263.2

0 500 1,000 Feet

REFERENCE:

2009 AERIAL PHOTOGRAPHY
FROM NEW ORLEANS REGIONAL PLANNING COMMISSION, ACQUIRED IN 2011.

WETLAND DELINEATION SURVEY BY ARCADIS, 2012.

FHWA

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A calculation of the acres of impacts to each of the wetlands and other waters in the study area from the required ROW for the two build alternatives was performed using GIS. **Table 12** demonstrates the results of the calculations.

Table 12 Illustrates the impacts to the wetlands and other waters of the study area by each of the build alternatives.

Table 12. Impacts to Wetlands and Other Waters

Feature Name	Feature Type	Existing Condition	Type of Impact by Acres					
			Alternative 1B			Alternative 2		
			Cleared	Filled	Shaded	Cleared	Filled	Shaded
Wetland 5	Brackish Marsh	Class 1	-	-	-	-	-	-
Wetland 1A	Brackish Marsh	Class 2	-	-	-	-	-	-
Wetland 2B	Brackish Marsh	Class 3	0.08	0.01	-	-	-	-
Wetland 4B	Transitional Marsh	Class 3	-	-	-	0.10	-	-
Impacts to Marsh			**0.08**	**0.01**	**-**	**0.10**	**-**	**-**
Wetland 2A	Shrubby Emergent	Class 3	0.57	0.38	0.15	-	-	-
Wetland 4A	Shrubby Emergent	Class 3	0.72	0.06	-	1.81	0.68	0.39
Wetland 1B	Shrubby Emergent	Class 4	-	0.08	-	-	-	-
Wetland 3	Shrubby Emergent	Class 4	0.03	0.02	-	-	-	-
Impacts to Shrubby Emergent			**1.32**	**0.54**	**0.15**	**1.81**	**0.68**	**0.39**
Total Wetlands Impacts			**2.10**			**2.98**		
Impacts to Other Waters			-	0.42	3.02	-	0.49	3.02

Source: ARCADIS 2012c.

3.2.3.2 Essential Fish Habitat

EFH includes all types of aquatic habitat where fish spawn, breed, feed, or grow to maturity. The 1996 amendments to the Magnuson-Stevens Fishery and Conservation Act direct NMFS to identify and protect important marine and anadromous fisheries habitat. According to NMFS, the majority of coastal Louisiana, including all offshore waters, is categorized as EFH. In its response to the solicitation of views provided in **Appendix G**, the NMFS Habitat Conservation Division specifically identified wetlands in the study area as brackish marsh. Tidally influenced wetlands were identified by the division as EFH for several species of brown shrimp, white shrimp, and red drum. Wetlands and water bottoms in the study area also provide

nursery and foraging habitats for a variety of economically important marine fishery species and produce components of the aquatic food web.

Figure 12 illustrates the two types of EFH in the study area that were field verified. As shown, with the exception of areas of development, most of the study area qualifies as EFH. Impacts to the open water habitats of Chef Pass and Michel Canal are limited to fill from bridge piers and abutments and shading from the bridge deck. These impacts were calculated and are quantified in **Table 12** as less than 0.5 acre of fill and approximately 3 acres of shading. Impacts to marsh EFH equate to the impacts to tidally influenced wetlands. Wetlands 2A, 2B, and 3 do not qualify as EFH because they are surrounded by development as illustrated and not subject to tidal inundation except during extreme storm events (ARCADIS 2013b).

3.2.3.3 Federally Protected Species and Critical Habitats

Section 7 of the Endangered Species Act of 1973 requires federal agency actions (e.g., project approvals, funding, other actions) to be implemented so that species listed as protected are not jeopardized in terms of their existence or habitat. USFWS, NMFS Habitat Conservation Division, and NMFS Office of Protected Resources (OPR) were consulted regarding species within the study area. **Table 13** lists the federally protected species that were determined to be likely to occur in the study area along with the designated federal status and state rank.

Table 13. Federally Listed Species Likely to Occur within the Study Area

Species	Common Name	State Rank	State Status	Federal Status
Acipenser oxyrinchus desotoi	Gulf Sturgeon	S1, S2	T	T
Caretta caretta	Loggerhead Sea Turtle[1]	S1	T	T
Chelonia mydas	Green Sea Turtle[2]	SNA	T	T
Haliaeetus leucocephalus	Bald Eagle[3]	S2N, S3B	E	Delisted
Lepidochelys kempii	Kemp's Ridley Sea Turtle	SNA	E	E
Trichechus manatus	West Indian Manatee	SNA	E	E

[1] Northwest Atlantic Ocean (NWA) DPS. On September 22, 2011, NMFS and USFWS issued a final rule changing the listing of loggerhead sea turtles from a single, threatened species to nine distinct population segments (DPSs) listed as either threatened or endangered (FR 76 58868). The NWA DPS was listed as threatened.

[2] Green turtles are listed as threatened, except for breeding populations of green turtles in Florida and on the Pacific Coast of Mexico, which are listed as endangered.

[3] Although delisted from the Endangered Species Act, the bald eagle is protected under the Bald and Golden Eagle Protection Act.

S1 - Critically imperiled in Louisiana because of extreme rarity (5 or fewer known extant populations) or because of some factor(s) making it especially vulnerable to extirpation.

S2 - Imperiled in Louisiana because of rarity (6 to 20 known extant populations) or because of some factor(s) making it very vulnerable to extirpation.

S3 - Rare and local throughout the state or found locally (even abundantly at some of its locations) in a restricted region of the state, or because of other factors making it vulnerable to extirpation (21 to 100 known extant populations).

B or N - When used as qualifier of ranks, indicates whether the occurrence is breeding or nonbreeding.

SNA - State ranking is not applicable because the element is not a suitable target for conservation (e.g., a hybrid species).

SH - A species is of historical occurrence in Louisiana, but no recent records verified within the last 20 years; formerly part of the established biota, possibly still persisting.

T – A species that is listed as threatened. These species are likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

E - A species that is listed as endangered. Taking or harassment of these species is a violation of state and federal laws.

Source: ARCADIS 2013b.

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Legend

- Alternative 1B Alignment
- Alternative 2 Alignment
- Alternative 3 Alignment
- Alternative 4 Alignment

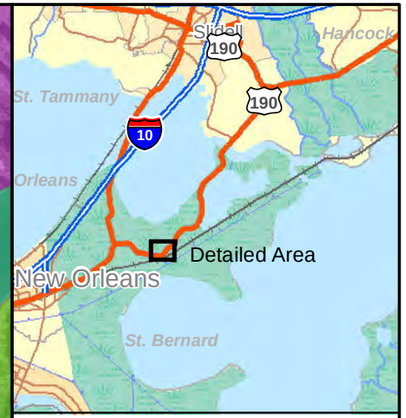
Essential Fish Habitat

- EFH - Open Water
- EFH - Marsh Habitat
- Not Field Verified

Bayou Sauvage National Wildlife Refuge
Chef Menteur Pass
St. Nicholas Church (closed)
Chef Harbor Marina
Marquez Canal
Bayou Sauvage
Venetian Isles Subdivision
Alba Rd
Fort Macomb Rd
UNO Research Facility
Existing Bridge
Tallyho Club
Old Spanish Trail
Venetian Isles Fire Station Property
Fort Macomb
Bayou Market Bar & Grill
Elan Vital Condominiums
Bayou Sauvage National Wildlife Refuge
CSX RR
Bayou Sauvage National Wildlife Refuge

N

0 400 800 1,200 Feet



ESSENTIAL FISH HABITAT

Chef Menteur Bridge and Approaches
Route US 90
Orleans Parish
Federal Aid Project No. H.000263.2
State Project No. H.000263

REFERENCE:

2009 AERIAL PHOTOGRAPHY
FROM NEW ORLEANS REGIONAL PLANNING COMMISSION, ACQUIRED IN 2011.

ESSENTIAL FISH HABITAT FROM GULF OF MEXICO FISHERY MANAGEMENT COUNCIL, NOAA NMFS, 2005 (BOUNDARY GEOMETRY ADJUSTED BY ARCADIS TO MATCH AERIAL PHOTOGRAPHY).

FHWA

LOUISIANA'S ON THE MOVE... DOTD BUILDS THE WAY

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Responses to the SOV from natural resource agencies regarding the likelihood of federally listed candidate, threatened and endangered, or species of concern in the study area are provided in **Appendix G**. Details of the biological field survey and findings summarized here can be found in the *Biological Survey Report* (ARCADIS 2013b) along with additional agency correspondence.

Critical and Suitable Habitats

The study area was assessed for the existence of suitable habitats of federally listed species through review of available data and aerial imagery. Desktop findings were confirmed during the field surveys. No suitable Gulf sturgeon spawning habitat occurs within the study area, but Chef Pass is likely used as a thoroughfare during semiannual migrations between freshwater and marine habitats and could be used as foraging grounds. The 2003 Gulf sturgeon critical habitat boundaries established by 50 CFR 226 do not include Chef Menteur Pass. Any effects from the proposed project, such as turbidity or noise, on adjacent designated habitats would be minimized by distance and tidal flux. It is assumed that Gulf sturgeons could forage within the study area. However, it is important to note that prey availability appears abundant within areas of designated critical habitat located north and south of the study area.

No evidence of suitable habitat for the West Indian manatee was observed within the study area during the field survey. Although sightings of manatee have been recorded near the study area, it is unlikely that manatees use Chef Menteur Pass to access upstream habitats due to strong currents within the Pass. Coordination with NMFS confirmed that West Indian manatees more likely use smaller access points with less influence by strong currents to access areas of known sightings.

Shallow, muddy-bottom, neritic habitats suitable for foraging adult Kemp's ridley turtles are available in locations in and near the study area. These areas of potentially suitable foraging habitats are sheltered from high winds and waves and may also be suitable for juvenile loggerheads. Benthic habitats of the study area may be suitable for foraging by late juvenile or adult green turtles, although beds of submerged aquatic vegetation are more abundant in Lakes Borgne and Pontchartrain.

No critical habitat for protected species would be adversely affected by the proposed project. Suitable foraging habitat within Chef Menteur Pass for Kemp's ridley, loggerhead, and green turtles and Gulf sturgeon would not be permanently affected by the proposed project. However, individuals migrating and foraging through Chef Pass could be temporarily affected by turbidity, noise, and other in-water activities from the bridge demolition and construction of either build alternative.

Gulf Sturgeon

The Gulf sturgeon is federally listed as threatened and has known occurrences within the Lake Pontchartrain watershed. USFWS noted that Gulf sturgeon sightings have been reported at Rigolets Pass located east of the study area and within other rivers, lakes, and estuaries of the Lake Pontchartrain basin.

Gulf sturgeons begin traveling from freshwater rivers as juveniles, venturing into upper estuarine habitats to forage throughout the year for benthic invertebrates. Migratory behavior between riverine and marine habitats begins once sturgeons reach sub-adult status. Spawning begins at 7 to 12 years of age and takes place in freshwater rivers. After spawning, sturgeons remain in downriver summer holding areas through

late autumn, but do not feed until they return to the estuary and Gulf of Mexico habitats in late fall/early winter.

Sub-adult and adult Gulf sturgeons migrating and foraging through Chef Pass could be temporarily affected by turbidity, noise, and other in-water activities from demolition and construction of the bridge for either build alternative.

West Indian Manatee

The West Indian manatee is federally listed as endangered. USFWS notes that West Indian manatees occasionally enter Lakes Pontchartrain and Maurepas, as well as associated coastal waters and streams, during the summer months (June through September). Manatee occurrences appear to be increasing, and they have been regularly reported in the Amite, Blind, Tchefuncte, and Tickfaw rivers, as well as canals within coastal marshes adjacent to these rivers. Occasional observations have been reported elsewhere along the Louisiana Gulf coast. This slow-moving species is generally restricted to rivers, estuaries, and other shallow bodies of water. As a migratory species, manatees travel through waters with varying degrees of salinity to feed on aquatic vegetation primarily found in waterways with dense submerged aquatic beds or floating vegetation. The manatee has declined in numbers due to collisions with boats and barges, entrapment in flood control structures, poaching, habitat loss, and pollution. Cold weather and outbreaks of red tide may also adversely affect these animals.

West Indian manatees traveling through Chef Menteur Pass could be temporarily affected by turbidity, noise, and other in-water activities from demolition and construction of the bridge for either build alternative.

Kemp's Ridley Turtle

Kemp's ridley sea turtles are listed as endangered by USFWS and NMFS OPR. Nesting generally takes place on the Gulf coasts of Texas and Mexico. Shallow water benthic feeders with a diet of swimming crabs, jellyfish, mollusks, and other invertebrates, mature Kemp's ridleys are typically confined to neritic zones within the Gulf of Mexico. These habitats typically consist of muddy or sandy bottoms where prey can be found. No critical habitat for Kemp's ridley foraging occurs within the study area, but this species will shift, depending upon resource availability, to locations shallower than 50 meters that are sheltered from high winds and waves (WildEarth Guardians 2010). One stranding of a Kemp's ridley was documented in the study area between January 2011 and May 2012. Another Kemp's ridley stranding was observed near the Rigolets in 2011. All other documented Kemp's ridley turtle strandings near the study area were documented along the Gulf coasts of Louisiana and Mississippi (Sea Turtle Stranding and Salvage Network 2012). Although the probability of any Kemp's ridley turtles being found in the study area is extremely low, any individuals in Chef Pass could be temporarily affected by turbidity, noise, and other in-water activities from demolition and construction of the bridge for either build alternative.

Loggerhead Turtle

Loggerhead sea turtles are listed as threatened by USFWS and NMFS OPR. They have large heads and powerful jaws that allow them to feed on prey with hard shells such as whelks and conch. Loggerheads

nest on Gulf or ocean beaches, generally preferring high energy, relatively narrow, steeply sloped, coarse-grained beaches. There are no suitable nesting beaches for loggerheads in the study area.

Oceanic juveniles migrate to neritic coastal areas and continue maturing until adulthood. Although the study area neritic zones represent crucial habitat for juveniles, most of the bays, sounds, and estuaries along the Atlantic and Gulf coasts of the U.S. from Massachusetts to Texas are infrequently used by adults. Seasonal migrations of adult loggerheads along the mid- and southeast U.S. coasts have also been documented.

No loggerhead turtle strandings were documented in the study area between January 2011 and May 2012 (Sea Turtle Stranding and Salvage Network 2012). Although the probability of any loggerhead turtles being found in the study area is extremely low, any individuals in Chef Pass could be temporarily affected by turbidity, noise, and other in-water activities from demolition and construction of the bridge for either build alternative.

Green Turtle

Green turtles outside Florida and Mexico's Pacific coast breeding colonies are listed as threatened by USFWS and NMFS OPR. Peak nesting usually takes place on mainland or island beaches during the summer months in which females can lay an average of five clutches. There are no suitable nesting beaches for green turtles in the study area. Once the juveniles reach a certain age/size range, they travel to near-shore or inshore foraging grounds. Adult green turtles are almost exclusively herbivores, feeding on sea grasses and algae.

No green turtle strandings were documented in the study area between January 2011 and May 2012. One stranding was documented on the north shore of Lake Pontchartrain near Slidell, Louisiana, in 2012 (Sea Turtle Stranding and Salvage Network 2012). Although the probability of any green turtles being found in the study area is extremely low, any individuals in Chef Pass could be temporarily affected by turbidity, noise, and other in-water activities from demolition and construction of the bridge for either build alternative.

3.2.4 Other Wildlife and Vegetation

No rookeries or large tracts of naturally vegetated congregational areas for migratory birds were observed within the study area, but migratory species are abundant. The field survey occurred outside the growing season, but scrub-shrub vegetation and landscaping plants dominate in the disturbed areas. Marsh grasses are predominant beyond the highway corridor.

3.2.4.1 Bald Eagle

Although the bald eagle is no longer federally listed as threatened or endangered, it remains protected under the Bald and Golden Eagle Protection Act. No agency contacted recorded sightings of bald eagle nests in the study area. Although eagle activities such as foraging, soaring, and straight-line flight commonly occur over marshes, a lack of appropriate trees, such as baldcypress (*Taxodium distichum*) or live oaks (*Quercus virginiana*), within the study area limits its suitability for nesting.

3.2.4.2 Migratory Birds

The only migratory bird species listed by the Migratory Bird Treaty Act (MBTA) with a potential for project-related adverse effects is the barn swallow (*Hirundo rustica*). These birds typically return to the same nesting site every year and most reuse their nest from the previous year. Migration to preferred nesting areas commences in mid-March and ends in October. Barn swallows, like other migratory birds, are protected from "take" by the MBTA. Take is defined as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or any attempt to carry out these activities", but does not include destruction or alteration of habitat, as long as there is not a direct taking of birds, nests, eggs, or part thereof. Per guidance from the U.S. Department of Transportation, FHWA recommends that inactive migratory bird nests not be removed before consultation with the USFWS office with jurisdiction of the study area (Lafayette, Louisiana, Field Office) is completed.

3.2.5 State-Listed Natural Communities

State-listed species and natural communities have no protection under the Endangered Species Act, but actions which may adversely affect these species or natural communities would require coordination with the Louisiana Department of Wildlife and Fisheries (LDWF) prior to construction commencement. Four natural communities were identified in the Species by Parish List (LNHP 2012) with a potential for occurrence in Orleans Parish:

- Coastal Live-Oak Hackberry Forest;
- Estuarine Submergent Vascular Vegetation;
- Intermediate Marsh; and
- Live Oak Natural Levee Forest.

None of these communities of concern were identified through agency coordination or during field surveys.

3.2.5.1 State-Listed Flora

Two state-listed floral species of concern were identified by the LDWF database as having known occurrences in Orleans Parish. The first of these sensitive species is the Southern umbrella-sedge (*Fuirena scirpoidea*). This perennial sedge is state-ranked as an S1 species, which is defined as critically imperiled within Louisiana due to its extreme rarity. This branched plant contains rhizomes and can grow to be 60 centimeters (23.6 inches) tall. It has leaves that mostly consist of bladeless sheaths. Southern umbrella-sedges are normally associated with sandy soil found near the edge of a fresh or intermediate marsh area (USDA 2012b).

The saw palmetto (*Serenoa repens*) is another S1-ranked species that has a known occurrence within the study area according to LDWF. This low prostrate shrub has palm-like, fan-shaped leaves that are yellow-green to green in color and look similar to saw blades. The larger leaves on this species can grow as large as 60 centimeters (23.6 inches) long by 90 centimeters (35.4 inches) wide. Its three-part flowers are

white, and its fruit is an oblong black drupe. This species occurs along the barrier islands and to the east of New Orleans, Louisiana (USDA 2012b).

Either build alternative has the potential to permanently affect Southern umbrella-sedge and saw palmetto from clearing or construction of the bridge approaches. Temporary effects could be caused by construction staging and heavy equipment movements in vegetated areas.

3.2.5.2 State-Listed Fauna

The big brown bat (*Eptesicus fuscus*), diamondback terrapin (*Malaclemys terrapin)*, glossy ibis (*Plegadis falcinellus*), and paddlefish (*Polyodon spathula*) are state-listed species identified by LDWF in the Species by Parish database (LNHP 2012). All of these species, with the exception of the paddlefish, have a state rank of S2 (the brown bat has an S1, S2 rank). A species with an S2 rank is described as an imperiled Louisiana species because of its rarity within the state and its vulnerability to extirpation. The paddlefish has a state rank of S3. A species with an S3 rank is described as a rare and local species throughout the state or found locally in a restricted region of the state, which makes it vulnerable to extirpation.

The existing US 90 bridge may be suitable for summer roosting, but it is not suitable for winter hibernation or as big brown bat maternity colony habitat. The bat could be affected by demolition of the existing bridge. Paddlefish in Chef Pass could be affected by turbidity, noise, and other in-water activities from demolition and construction of the bridge for either build alternative. Terrapin could be affected by clearing or construction of the bridge approaches and loss of some habitat, but highly mobile ibises are found in a variety of wetlands including marshes, estuaries, coastal bays, flooded fields, and swamps and would not be affected.

3.2.5.3 Floodplains

The study area is not protected by levees or other flood protection structures. The entire study area is in the floodplain, and storm-related flooding from tidal surge is common. The proposed project would not increase the amount of impervious surface and therefore would not have a discernible effect on the floodplain. The approaches for either build alternative will rise to a higher elevation than the existing bridge approaches above the floodplain.

3.2.6 Indirect Effects and Cumulative Impacts

Although most through traffic has been using I-10 since its completion in 1970, US 90 and the existing swing-span bridge provide an alternate route in the event of delays on I-10. The proposed project may provide an indirect effect of reducing transportation costs throughout the area for both businesses and residential users if travel on I-10 is restricted due to construction or an accident. The project is not expected to induce additional average daily traffic or an increase in land development.

Cumulative impacts will be limited to improved air quality and a more reliable highway and waterway network. Because the project is not expected to induce new traffic or increase land development, no cumulative affect on the natural environment would occur.

3.3 What Can be Done to Mitigate Impacts?

NEPA regulations (40 CFR 1508.20) define mitigation as:

- Avoiding the impact altogether by not taking a certain action or parts of an action.
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- Compensating for the impact by replacing or providing substitute resources or environments.

Agreements regarding mitigation measures for unavoidable impacts as discussed in this section have been established in coordination with pertinent agencies. Commitments agreed upon by FHWA and LADOTD are listed in the **Permits, Mitigation, and Environmental Commitments** section found at the front of this document and in the MOA provided in **Appendix H**.

3.3.1 Section 4(f) and Section 106 Resources

For federally protected resources such as historic resources or recreational sites, impact determinations are based on the degree of impact after consideration of any measure(s) to minimize harm. These may include strategies listed above as well as measures that will enhance the affected environment.

3.3.1.1 Existing Historic Bridge

The existing bridge is federally protected under both Section 4(f) of the Transportation Act of 1966 as amended and Section 106 of the NHPA as a historic property eligible for the NRHP.

As specified in the *Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges* (FHWA 1983), the requirements to assess whether there is a feasible and prudent avoidance alternative and whether all possible planning has been included in the evaluation were applied to ensure that mitigation of adverse effects that would result in replacement of the bridge was considered.

Bridge Documentation

Because the bridge cannot be rehabilitated to meet the purpose and need of the project without adversely affecting its historic integrity, it must be taken out of service for US 90 either by relocation or demolition. As mitigation for this adverse effect, prior to relocation or demolition of the bridge, LADOTD shall contact the SHPO to determine the appropriate form of Historic American Engineering Record (HAER) documentation and the appropriate state or local depository for the documentation. Unless otherwise agreed to by the SHPO, FHWA shall ensure that all documentation is completed and accepted by the

SHPO prior to the relocation or demolition of the bridge. This mitigation measure applies to either build alternative.

Possible Use and Maintenance of the Bridge by a New Sponsor

LADOTD shall make the bridge available to a state, local, or public entity that will agree to maintain the bridge and features that make it significant and assume legal and financial responsibility for the bridge. The proposed use of the bridge will be subject to the approval of FHWA, LADOTD, and SHPO. The method of advertisement shall be decided at a later date between LADOTD and SHPO. A 30-day time period from the date of advertisement shall be allowed for interest to be expressed in the structure. If interest is expressed, 180 days will be allowed to complete arrangements for the structure's preservation.

If a new owner cannot be found to preserve the Chef Menteur Bridge, it shall remain the property of the State of Louisiana and will be demolished based upon project requirements, provided the requirements of HAER documentation have been completed.

3.3.1.2 Fort Macomb State Park

Fort Macomb State Park is protected under Section 4(f) of the Transportation Act of 1966 as a recreational site.

Design Elements

A letter from the OSP provided in **Appendix L** requests that the designs of the bridge for both alternatives consider minimization of the footprint and reduction of visual impacts. Incorporation of appropriate design elements such as the number and placement of piers will be considered in coordination with the OSP. In addition to these measures, the proposed build alternatives have been designed with frontage roads that maintain access to the park property.

Shore Stabilization

The OSP also requested integration of stabilization to protect the fort site from shore erosion. The shoreline will not be impacted by either alternative; therefore, this measure does not constitute minimization of harm to the park or required mitigation. Because it is beyond the scope of the project, shoreline stabilization is not eligible for Federal-aid Highway Funding. However, the OSP may request utilization of concrete debris from demolition activities for either alternative and make arrangements for permitting, design, and construction for stabilization independent of the proposed project.

Shared Use of the ROW

The OSP requested permission to utilize the ROW under the western bridge approach for parking as mitigation for impacts to the park property by either alternative. LADOTD has agreed to consider this request.

No-Work Zone

Fort Macomb State Park will be established as a no-work zone except for areas within the required ROW.

3.3.1.3 Fort Macomb Historic Site

Fort Macomb Historic Site is protected under both Section 4(f) of the Transportation Act of 1966 and Section 106 of the NHPA. **Alternative 1B** would not use the historic site property. The following measure for minimizing harm from **Alternative 2** was agreed upon at the Section 106 Consulting Parties meeting held on November 29, 2012. Consultation subsequent to the selection of **Alternative 2** for implementation resulted in the list of measures stipulated in the MOA executed by FHWA, SHPO, and LADOTD and signed by the OSP and the Choctaw Nation of Oklahoma as concurring parties (**Appendix H**).

Vibration Monitoring

Another action identified in the letter from the SHPO is vibration monitoring to measure potential effects on the fort from construction activities such as pile driving and the movement of heavy construction equipment. LADOTD will establish a vibration monitoring program prior to construction. As part of that program, seismic readings for vertical, radial, and transverse plane monitoring and frequency determination will be established to ensure no damage occurs to Fort Macomb (LHRI 36-01645) during construction. If excessive vibrations occur beyond the allowable limit, all construction causing the vibrations will be halted, and the contractor shall propose corrective measures for the affecting construction activity to ensure that vibration monitoring limits will not be exceeded again. This measure applies to either build alternative.

3.3.1.4 Fort Macomb Archaeological Site

Alternative 2, which has been selected for implementation, does not use the portion of the archaeological site that may contain eligible archaeological deposits. If **Alternative 1B** had been selected for construction, then archaeological investigations would be required to determine whether the portion of the site to be incorporated into the transportation facility contains eligible deposits. If eligible deposits were identified, then Section 106 consultation would resume in order to modify the MOA, and the Section 4(f) evaluation and approval for this resource will be revisited. Mitigation for impacts to the portion of the site within the ROW for **Alternative 1B** would likely involve an intensive data recovery effort (Coastal Environments 2012).

3.3.2 Protected Species

Correspondence with the regulatory agencies that have jurisdiction over species listed in **Table 13** is provided in **Appendix G**. No permanent adverse effects are likely to be caused by either proposed build alternative, but construction activities may cause temporary impacts to threatened and endangered species that use Chef Pass for migration and foraging. The agencies recognize that incorporation of suitable preventive measures would substantially reduce the potential for project-related impacts to these species and that incorporation of these measures allows for a determination of “not likely to adversely affect” (NLAA).

Consultation and coordination with the USFWS and NMFS-OPR identified measures and conditions that are protective of the Gulf sturgeon and West Indian manatee. Accordingly, LADOTD committed to incorporate these measures into its construction plans and requested concurrence from the USFWS and NMFS-OPR on the determination of NLAA. Generalized mitigation measures and conditions for construction activities agreed upon are listed in **Table 14.** Specified measures are detailed in the **Permits, Mitigation, and Environmental Commitments** section at the front of this document. Letters from the USFWS and NMFS-OPR concurring with the determination of NLAA are provided in **Appendix G.**

Table 14. Summary of Mitigation Measures to be Used During Demolition and Construction Activities

Mitigation Measure	Gulf Sturgeon	West Indian Manatee	Sea Turtles	Barn Swallow
Monitoring during all active in-water operations by all associated personnel as well as trained wildlife observers.	--	Yes	Yes	--
Special operating conditions implemented when species sighted near active work zone; any sightings reported to appropriate agency; normal operating conditions resume only after individual leaves area.	--	Yes	Yes	Yes
All vessels operate at "no wake/idle" speeds and vessels to follow deep water routes whenever possible.	--	Yes	Yes	--
Training of all contract personnel regarding the presence of species of concern and the responsibility for protective measures including observation during water-related activities.	Yes	Yes	Yes	Yes
Posting of warning signs prior to and during all water-related activities including signs visible to vessel operators.	Yes	Yes	Yes	--
Jetting and dredging in water less than 5 feet deep will require use of siltation barriers completely enclosing activity areas including disposal sites.	Yes	Yes	Yes	--
Siltation barriers constructed of material that will not entangle species of concern; properly secured and regularly monitored to prevent entanglement.	Yes	Yes	Yes	--
Dredging, demolition, and use of explosives to be conditioned as detailed in the USFWS letter (**Appendix G**) and the **Permits, Mitigation, and Environmental Commitments** section.	Yes	Yes	Yes	--
Existing bridge will be surveyed for barn swallow and other migratory bird nests. The Lafayette Field Office of USFWS will be contacted if any are found. Active nests will be left undisturbed; inactive nests will not be removed until consultation with USFWS is completed.	--	--	--	Yes

3.3.3 Potential Waste Sites

Acquisition of ROW from the Yellow Store and High Tide Bar and Grill will be handled in accordance with the Secretary's *Policy and Procedure Memorandum No. 48: Underground Storage Tank (UST) and Contaminated Site Policy*. If any solid or hazardous wastes or soils and/or groundwater contaminated with hazardous constituents are encountered during the project, notification to LDEQ's Single Point of Contact at

(225) 219 3640 will be made. Additionally, precautions will be taken to protect workers from these hazardous constituents.

3.3.4 Wetlands and Essential Fish Habitat

In order to comply with the federal policy of ensuring that there is no net loss of wetlands acres, unavoidable and permanent wetlands impacts along the corridor will be compensated according to an approved mitigation plan. A mitigation calculation for the 2 to 3 acres impacted by the build alternatives will be prepared by the Louisiana Department of Natural Resources (LDNR), as the Coastal Zone Manager, in cooperation with the USACE. This calculation will determine the number of mitigation credits to be purchased from an approved mitigation bank and what type of credits, marsh or bottomland hardwoods, are appropriate. If credits are not available for purchase at a mitigation bank, then credits may be purchased from the LDNR Trust Fund.

The implementing regulations of the Magnuson-Stevens Act state that all EFH assessments must include proposed mitigation. As part of the approved mitigation plan for impacts to wetlands, mitigation for impacts to marsh, if any, will be established. As stated by NMFS-Habitat Conservation in its correspondence of April 4, 2013 (**Appendix G**), purchase of mitigation credits at a bank that sells marsh mitigation, such as the Chef Menteur Bank, would also serve as mitigation for EFH. Coordination with NMFS-Habitat Conservation will continue until the exact compensatory mitigation actions are established and the agency is able to determine if impacts to EFH would be offset by implementation of the mitigation plan.

3.3.5 Water Quality

To mitigate impacts from erosion and nonpoint source pollution from runoff into surface waters from the construction activities for the proposed project, best management practices will be implemented. LDEQ monitors these practices through the Section 401 Water Quality Certification program, which is integrated into the Section 404 wetlands permit.

3.3.6 Traffic Disruptions

Temporary impacts to traffic will be experienced during construction of either alternative. There are no reasonable alternate routes for detouring so maintaining traffic will be required within the existing corridor. Construction phasing and methods will dictate traffic detours around the work. The existing bridge will remain in service throughout construction until the new bridge is usable. It is expected that Old Spanish Trail will be one of the primary construction detour roadways along with newly constructed frontage roads as they become available.

Upon completion of construction, local travelers will experience an adjustment to the revised circulation patterns of the permanent improvements. It is expected that with increased safety for vehicles and pedestrians provided by a grade separation between mainline traffic from the local circulation, disruption to local travel will be short lived.

3.3.7 Traffic Noise

No impacts to noise were projected. Therefore, noise abatement measures were not deemed necessary (see **Appendix I**).

3.3.8 Disruptions and Obstructions to Navigation

As documented in the *Addendum to the 2007 Navigation Height Study* (ARCADIS 2012e), the vertical clearance of the bridge would be set at a minimum of 75 feet above MHW, affecting less than four trips, on average, through the bridge per year. Based on surveys conducted for the Study, these affected trips would be a minor disruption to navigation which towing vessel operators said could be remedied by using the IHNC. During construction, the existing bridge would continue to operate as usual until the new bridge is opened to automobile traffic. A minimum horizontal clearance of 97 feet, which is the same as the clearance of the existing bridge, will be maintained between the piers of the new bridge at all times. Temporary disruptions to vessel traffic will occur from the movement of construction equipment, demolition, and construction activities. Increased traffic may cause some delays in navigating through Chef Pass, but these too will be temporary.

A zone will be marked before construction of the bridge proceeds to protect possible shipwrecks in Chef Pass. The zone will be marked with buoys at the upstream and downstream limits of the wrecks with instructions to the personnel to avoid disturbing the area with activities such as anchoring, dredging, or other underwater construction activities. This zone would not obstruct normal navigation in the Pass.

3.3.9 Right-of-Way Acquisition Policy

LADOTD updated the ROW Acquisition and Relocation document on August 15, 2012. This document outlines policies that implement federal regulations promulgated under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

No relocations would be required for either build alternative; therefore, a Conceptual Stage Relocation Plan is not required. However, portions of property will be required for the build alternative ROW. The ROW Acquisition and Relocation document stipulates LADOTD will usually purchase only the amount of property needed. The agency must state the amount to be paid for the part to be acquired, and an amount will be stated separately for damages, if any, to the portion of the property that the property owner will keep. If the agency determines that the remainder property will have little or no value or use, LADOTD will offer to purchase it.

3.3.10 Accessibility

Currently, accessibility along Chef Menteur Highway is poorly managed. For vehicular travelers, access to roadside facilities is uncontrolled and requires a familiarity with the ingresses/egresses to avoid traffic. For pedestrians, access between the residential sites and the commercial sites requires crossing of the high-speed facility without traffic control provisions for their safe crossing. The proposed project will provide safer pedestrian and vehicle crossings under the main highway. Proposed access ramps and roads will also make entering and exiting US 90 safer.

3.3.11 Construction Impacts

Construction of either build alternative may require removal of the existing bridge either by relocation or demolition unless a new sponsor willing and capable of operating and maintaining it can be found. Demolition of structures in or under the water may employ mechanical cutting, impacting, or vibration techniques. Much of the demolition work will require the use of explosives. Both hydraulic and bucket dredging may be used to excavate the water bottom, but the use of hopper dredges will be prohibited. The clamshell bucket will also be used to remove demolished pieces of the structure from the waterway. Most construction work for construction of the bridge will be performed from floating barges. On land, demolition and reconstruction of the roadway will employ impact and vibration techniques, pile driving, earth moving, and other heavy equipment activities.

Demolition and construction activities will last for a period of 3 to 4 years. To minimize impacts, LADOTD will require its contractors to follow certain guidelines. Many of these are outlined in *Louisiana Standard Specifications for Roads and Bridges* (2006). Coordination with appropriate agencies is the overarching mitigation principle along with the commitment to maintain traffic flow on US 90 and across the Pass, access to homes and businesses, and access for navigation.

Utilities will be relocated as needed. Any disruptions to service will be minor and temporary.

Detailed mitigation plans will be outlined in the construction and bridge plans prepared during Phase 3 (Design). Measures will include scheduling of certain activities, limiting blasting pressures and timing, reducing discharge to waters and wetlands, and restoring natural areas after construction. Mitigation commitments for the proposed project are listed in the **Permits, Mitigation, and Environmental Commitments** section found at the front of this document. Coordination and consultation with pertinent agencies has been completed as documented in the correspondence provided in Appendix G.

4. Public, Agency, and Tribal Coordination

4.1 Public Outreach

The following describes how the public has been involved to date and what comments have been received, and the Summary of Open House Meeting Held on April 3, 2012 (ARCADIS 2012d) details the comments received at the public meeting. Because the public is considered a Section 106 consulting party, the regulations allow the public meeting and hearing to be designated as additional points of Section 106 consultation. Therefore, additional parties and members of the public were given an opportunity to request to be a consulting party at the April 3 public meeting.

Public input was considered for the preliminary alternatives analysis. A series of meetings was held with small groups of stakeholders including the residents of Venetian Isles and landowners on the east side of Chef Pass. Preliminary alternatives and the impacts analysis were presented to the public on April 3, 2012. A summary of that public meeting including subsequent comments was distributed to agencies and elected officials as well as key stakeholders on May 18, 2012. The summary document was also made available to the public through copies sent to city and state libraries.

The comments received at the meeting and during the subsequent 2-week comment period are tabulated in **Table 15.**

Table 15. Summary of Comments Received at the Public Meeting

Alternative	Number of Comments			Total	Notes
	Written Comment Only[1]	Verbal Comment Only	Written and Verbal Comment		
1B	6	1	1	8	--
2	22	3	8	33	--
No Build	1	--	--	1	--
Other	--	2	--	2	Rehabilitation, Alternative 3
Total	**29**	**6**	**9**	**44**	--
No Preference Indicated	3	2	2	7	--

[1] Includes written comments from the public meeting, mailed, and e-mailed.
Five attended the public meeting and commented but did not sign in.
Eighteen attended the public meeting and did not comment.

Comments on this EA document were solicited upon its distribution. Copies were made available at public and state libraries as well as the LADOTD District Office in Orleans Parish. No comments were received from the public during the comment period.

The public hearing – which is another form of public involvement in the NEPA process – was held on April 11, 2013. The hearing also served as an opportunity for the public and others to comment on the EA as well as participate in the Section 106 Consulting Parties process. Comments received are documented in the *Public Hearing (Open House) Summary with Transcript Held April 11, 2013 (ARCADIS 2013c)*. Ten individuals made comments. Five made verbal comments; five provided written comments after the hearing. Six comments specify a preference for Alternative 2, the high-level fixed bridge that was identified as the Preferred Alternative at the public hearing. No comment was made in favor of Alternative 1B. Other comments and how they are addressed in the EA are listed in **Table 16**.

Table 16. Summary of Comments Received at the Public Hearing and Responses

Comment	Response	Section of Document
Suggested changes to the frontage roads on the east side of Chef Pass.	LADOTD has committed to consider an optional concept during Phase 3 (Design) of the project.	Permits, Mitigation, and Environmental Commitments Section VI, Section 3.2.1.4 (Travel Patterns, Public Safety, and Complete Streets), and **Appendix J**.
Would like the break down for right-of-way acquisition on the Island (east) side of the bridge and how land costs were calculated.	Real estate areas and costs provided in the Opinion of Probable Cost (**Appendix N**) are best estimates that are subject to change during the design and ROW acquisition phases of the project.	Section 3.2.2.4 (Real Estate and Right-of-Way Acquisition).
Requests that measures to reduce damage to the western bank of Chef Pass and nearby docks from construction vibration be considered before construction begins; suggests using old concrete to line the shore.	Comment noted.	
Pleased to know that the old bridge will remain in service until the new one opens.	Comment noted.	Section 3.3.6 (Traffic Disruptions).
Access on Marquez Canal side needs a fence to prevent dumping and trespassing.	Incorporation of obstructions to prevent dumping of garbage near the water may be considered.	Permits, Mitigation and Environmental Commitments Section VI.
Wants to be sure that access between Chef Pass and Marquez Canal will be maintained to keep shortest boat trip to Lake Catherine.	Any negative effects on fishing and boating will be limited to the period of construction. Access for vessels through Chef Menteur Pass, Michel Canal, and an inlet leading to the marine fueling station at the Yellow Store and High Tide Bar and Grill may be temporarily interrupted during specific construction activities for brief periods of time. Features such as special piers and/or pier placement incorporated into the final design to keep the Michel Canal channel clear of new obstructions in the water are proposed.	Section 3.1.5 (Recreational and Cultural Resources Not Protected by Section 4(f) or Section 106).

Comment	Response	Section of Document
Concerned about inconveniences such as noise and dust during construction.	To minimize impacts, LADOTD will require its contractors to follow certain guidelines. Many of these are outlined in *Louisiana Standard Specifications for Roads and Bridges* (2006).	Section 3.3.11 (Construction Impacts).

4.2 Interagency Coordination

Interagency coordination played an important role in making decisions regarding the proposed project. Federal and state agencies were first consulted through a solicitation of views letter sent by LADOTD on April 1, 2010. A copy of the letter, mailing list, and responses is provided in **Appendix G**. A complete list of agencies consulted is provided in **Appendix O**.

An interagency meeting was held on October 13, 2011. The Stage 0 alignments were presented, and resources and issues that would affect alternatives development were identified. The methodology for the screening of the preliminary alternatives was also discussed. Individual agency coordination related to specific issues was also carried out prior to the public meeting that was held on April 3, 2012.

The OSP, the authority with jurisdiction over Fort Macomb State Park, was consulted in a series of meetings regarding impacts to the park. Pertinent correspondence with the OSP is provided in **Appendix L**. The SHPO, who is responsible for application of Section 106 protections to the Fort Macomb NRHP property and the existing historic bridge, was also consulted. Pertinent correspondence with the SHPO is provided in **Appendix E**. Follow-up coordination with natural resource agencies such as Bayou Sauvage NWR, LDWF, USFWS, NMFS, USCG, and USACE was also conducted by phone and e-mail prior to the public meeting.

A summary of the April 3, 2012, public meeting was distributed to all pertinent agencies.

No comments on the public meeting summary were received from the agencies subsequent to its distribution. None of the agencies commented on the proposal to eliminate Alternatives 1A and 3 presented at the public meeting. The USACE provided comments on the elimination of Alternative 1C. These concerns are addressed in **Section 2.3.1.2** of this document. With the elimination of Alternative 3, it was determined that Bayou Sauvage NWR would not be impacted. Therefore, the NWR was dropped from the list of potentially impacted Section 4(f) resources, and coordination with NWR managers was deemed complete.

At a meeting on April 9, 2012, representatives from the OSP and SHPO reviewed the decision to eliminate Alternatives 1A, 1C, and 3 and discussed the alternatives that had not been screened out, namely, Alternative 1B, Alternative 2, Alternative 4, and the Rehabilitation Alternatives.

A meeting held on July 11, 2012, for the Section 106 Consulting Parties also included discussions with the USCG and USACE regarding navigation issues. A meeting with the OSP was held on September 10, 2012, to discuss impacts to Fort Macomb State Park, access issues, and designation of a preferred alternative.

A meeting with OSP on September 10, 2012, resulted in the OSP concurring with a *de minimis* determination for the Fort Macomb State Park and with a stated preference for Alternative 2 (**Appendix L**). A Section 106 Consulting Parties meeting was held on November 29, 2012, to review the AED findings and initiate the development of the draft MOA. The draft MOA was circulated to Section 106 Consulting Parties including the SHPO and OSP on Monday, February 4, 2013. Revisions to the document provided by the SHPO on February 5, 2013, were incorporated into a revised version of the MOA, which was made available at the public hearing on April 11, 2013. The final MOA was circulated to the Section 106 Consulting Parties on May 20, 2013. The MOA was executed by LADOTD, SHPO, and FHWA and is provided in **Appendix H**.

Navigation issues including the USCG bridge permit were also discussed at the November 29, 2013, meeting. The OSP also requested integration of stabilization to protect the fort site from shore erosion. The shoreline will not be impacted by either alternative; therefore, this measure does not constitute minimization of harm to the park or required mitigation. Because it is beyond the scope of the project, shoreline stabilization is not eligible for Federal-aid Highway Funding. However, the OSP may request utilization of concrete debris from demolition activities for either alternative and make arrangements for permitting, design, and construction for stabilization independent of the proposed project.

Consultation and coordination with the USFWS identified measures and conditions that are protective of the Gulf sturgeon and West Indian manatee. Accordingly, LADOTD committed to incorporate these measures into its construction plans and requested concurrence from USFWS on the determination of NLAA. A letter from USFWS concurring with the determination of NLAA is provided in **Appendix G.**

Consultation and coordination with NMFS-OPR identified measures and conditions that are protective of the Gulf sturgeon and sea turtles. Accordingly, LADOTD committed to incorporate these measures into its construction plans and requested concurrence from NMFS-OPR on the determination of NLAA. A letter from USFWS concurring with the determination of NLAA is provided in **Appendix G.**

A Section 404 permit will be secured after the Finding of No Significant Impact (FONSI) is issued and an approved mitigation plan will be developed to address impacts to wetlands and other waters as well as EFH. Coordination with the USACE and NMFS-Habitat Conservation, the agency with jurisdiction over EFH, will continue until the exact compensatory mitigation actions are established and the agencies are able to determine if impacts to EFH would be offset by implementation of the mitigation plan.

4.3 Section 106 Consultation

Section 106 of the NHPA requires consultation with the SHPO during the environmental review process and identification of other potential Consulting Parties if historic resources protected under Section 106 are potentially affected. This section describes how the Section 106 Consulting Parties process was initiated and how the parties, both agencies and the public, were involved in the preliminary alternatives development and screening and other decisions.

Due to the fact that several properties within the study area are listed in the NRHP or meet the criteria for listing, a Section 106 consultation with the SHPO was initiated on September 14, 2011.

Other potential Consulting Parties including tribes and agencies were identified and invited to participate in the Section 106 consultation in March 2012. The public meeting on April 3, 2012, was announced as another opportunity for any interested parties from the public to request participation in Section 106 consultation. A form to sign up for participation was provided at the meeting.

At a meeting on April 9, 2012, representatives from the OSP and SHPO reviewed the decision to eliminate Alternatives 1A, 1C, and 3 and discussed the alternatives that had not been screened out, namely, Alternative 1B, Alternative 2, Alternative 4, and the Rehabilitation Alternatives.

A Section 106 Consulting Parties meeting was held on July 11, 2012, to present the alternatives screening and analysis to date, the range of alternatives presented at the public meeting, and information about the rehabilitation alternative. At this meeting, the elimination of rehabilitation as an alternative was confirmed, along with the elimination of Alternatives 1A, 1C, and 3, and all participants concurred with the elimination of Alternative 4 if it would not serve as an avoidance alternative. The meeting also initiated discussions about mitigation of the alternatives chosen for detailed analysis in the EA from a Section 106 standpoint.

An archaeological investigation was completed for two areas related to the Fort Macomb Historic Site which determined that the area within the required ROW of Alternative 1B was potentially eligible for the NRHP and that the area within the required ROW of Alternative 2 was not. The potentially eligible archaeological site is listed in **Table 17** as an additional site protected under both Section 106 and Section 4(f). The AED (Coastal Environments 2012), which details the adverse effects to this site, the existing Chef Menteur Pass Bridge, and the NRHP-listed Fort Macomb site, was prepared. The SHPO concurred with these findings (**Appendix E**).

A Section 106 Consulting Parties meeting was held on November 29, 2012, to review the AED findings and initiate the development of the draft MOA. At that meeting, no parties objected to Alternative 2 as the preferred alternative. It was also agreed that the Public Hearing would provide another opportunity for the public to review the proposed measures. A draft of the MOA was circulated by e-mail to Section 106 Consulting Parties on Monday, February 4, 2013. Revisions to the document provided by the SHPO on February 5, 2013, were incorporated into the final version of the MOA including elimination of site screening as a mitigation measure. The revised version was circulated by e-mail on April 26, 2013. Additional comments were received from the SHPO on May 10, 2013. The Choctaw Nation of Oklahoma sent comments on May 17, 2013, including a request to be a concurring party signatory on the document. The version incorporating these comments was circulated on May 20, 2013. Subsequently, the OSP was invited to sign the MOA as a concurring party. The executed MOA is provided in **Appendix H**.

5. How Do the Alternatives Compare and Which was Selected for Implementation?

Alternative 2, a high-level fixed bridge, was identified as the **Preferred Alternative** in the EA, at the Public Hearing, and in communications to the agencies. Subsequent to the public hearing, **Alternative 2** was selected for implementation. A description of the differences between the two build alternatives and the **No Build Alternative** is provided in this section along with the reasoning behind the identification of **Alternative 2** as the **Preferred Alternative** and the alternative selected for implementation.

Table 17. Comparison of Impacts

Criteria	No Build	Alternative 1B	Alternative 2*
Wetlands, Marsh (acres)			
Filled	-	0.01	-
Cleared	-	0.08	0.10
Shaded	-	-	-
Total Impacts to Marsh	-	0.09	0.10
Wetlands, Shrubby Emergent (acres)			
Filled	-	0.54	0.68
Cleared	-	1.32	1.81
Shaded	-	0.15	0.39
Total Impacts to Shrubby Emergent	-	2.01	2.88
Other waters (acres)			
Filled (piers and bents)	-	0.42	0.49
Shaded	-	3.02	3.02
Total Impacts to other waters	-	3.44	3.51
Essential Fish Habitat (marsh+other waters) (acres)	-	3.53	3.61
Threatened and Endangered Species	-	NLAA	NLAA
Vessels Accommodated	100%	100%	99.9%
Relocations	-	-	-
Noise Impacts, as total number of receivers (dwelling units) impacted			
Category B	-	-	-
Category C	-	-	-
Right-of-Way Acquisition (square feet)			
Commercial Lots	-	12,250	36,644
Waterfront Residential/Camp Lots	-	152,800	258,766
Fort Macomb State Park	-	23,812	41,810
Total ROW Acquisition	-	188,862	337,220
Section 4(f) Properties in ROW			
Fort Macomb State Park	No	Yes	Yes
Fort Macomb Historic Site**	No	No	Yes
Fort Macomb Archaeological Site**	No	Yes	Yes
Chef Menteur Bridge	No	Yes	Yes
Other Structures in ROW			
Michel Canal Timber Bridge	No	No	Yes
Cost of Construction	Ongoing O&M	$122.3 million	$115.0 million

*Selected Alternative.
**Also protected under Section 106.
NLAA – Not likely to adversely affect based upon incorporation of suitable mitigation measures during construction.

Both build alternatives are on slightly different alignments. The alignment for **Alternative 1B** is north of the existing bridge alignment, and **Alternative 2** is slightly south. The existing bridge and **Alternative 1B** are movable bridges; **Alternative 2** is a fixed bridge.

The existing bridge is low in elevation. The high point of the roadway is approximately 20 feet NAVD in elevation with the trusses adding approximately 20 feet to the height. The Chef Pass Bridge approaches are on an embankment that rises slightly above the existing grade. Vertical clearance for vessels, when closed, is only 11 feet above MHW. Horizontal clearance is 97 feet.

Figure 7 illustrates that, when closed, the top point of the roadway for **Alternative 1B** would be approximately 35 feet in elevation. Guard rails would add another 5 feet. When open, the bascule leafs would exceed 110 feet NAVD. Vertical clearance, when closed, would range from 21.2 to 24.8 feet above MHW and be unlimited when open. Horizontal clearance would be approximately 110 feet between the piers. **Figure 8** identifies the points where the elevated bridge approaches would return to grade. The touchdown point for **Alternative 1B** is near San Marco Drive on the west side and near the 90-degree bend in Michel Canal on the east.

Alternative 2 has the highest roadway elevation (**Figure 7**). Its highest point is approximately 90 feet NAVD; guard rails would add approximately 5 feet. Vertical clearance would be set at 75 feet above MHW as established in the *Addendum to the 2007 Navigation Height Study* (ARCADIS 2012e). Specific pier locations established during the design phase of the project would provide a horizontal clearance for vessels of 97 feet or greater. **Alternative 2** approaches would begin to rise from ground level farther west and east than **Alternative 1B** from a point near the western boundary of the Elan Vital Condominiums on the west and a point well past the Chef Harbor Marina on the east (**Figure 9**).

The reliability for vessel and vehicular traffic using the **No Build Alternative** and **Alternative 1B** would continue to depend upon mechanical equipment and operators. The increased vertical clearance of **Alternative 1B** would make it less susceptible to bridge vessel accidents than the **No Build Alternative**, but **Alternative 2** would be the least susceptible to this kind of damage because of its greater vertical and horizontal clearances. The designs of both **Alternative 1B** and **Alternative 2** would incorporate pier protection systems that meet current AASHTO vessel collision standards.

Access from the **No Build Alternative** to adjacent properties would continue to be unrestricted. Access to adjacent properties from **Alternative 1B** and **Alternative 2** would be altered by the elevation of the approaches and frontage road layout. **Alternative 2** has a more extensive network of one- and two-lane frontage roads with multiple connections between the north and south sides of US 90.

5.1 What are the Comparative Advantages and Disadvantages of the Alternatives?

Table 17 illustrates the comparative advantages and disadvantages of the **No Build Alternative, Alternative 1B, and Alternative 2**.

5.2 What is the Rationale for Selection of Alternative 2 for Implementation?

NEPA requires that all reasonable and feasible alternatives that meet the purpose of the project be considered. For some projects, the best alternative becomes apparent early in the planning process and an official position can be stated.

Identification of a preferred alternative is a statement of preference, not a decision. In the interest of public transparency, identification of a preferred alternative affords the public, stakeholders, and agencies an opportunity to focus comments on the preferred alternative before any decision is made. Comments provided in this manner serve to inform the decision of which alternative will be selected for implementation. The alternative selected for implementation is then presented in the decision document, which, in the case of an EA, is called a Finding of No Significant Impact or FONSI.

After being identified as the **Preferred Alternative** at the public hearing, **Alternative 2** was selected for implementation due to its inherent reliability for both highway and waterway traffic. **Alternative 2** was preferred by most of the local residents who participated in the April 3, 2012, public meeting and the April 11, 2013, public hearing. Local marine interests also expressed a preference for **Alternative 2**. Due to the lower O&M costs of a fixed bridge, LADOTD also prefers **Alternative 2**. Correspondence provided in **Appendix L** states that the OSP concurred with selection of **Alternative 2** as the **Preferred Alternative** prior to the public hearing**.** The letter also identified mitigation measures that the OSP would like to have implemented. While **Alternative 2** has a slightly greater impact on natural resources than **Alternative 1B,** the difference is minor and acceptable to the agencies because of the advantages of **Alternative 2** listed below:

1. As a fixed bridge, **Alternative 2** is more reliable for both highway and waterway traffic than **Alternative 1B**, a movable bridge.
2. O&M costs are less for **Alternative 2** than for **Alternative 1B**.
3. High-level fixed bridges like **Alternative 2** minimize potential conflict between land and waterborne modes of transportation.
4. Evacuation planning and operations will be simplified by **Alternative 2**, a fixed bridge, because it will not be inundated or become inoperable.
5. A fixed bridge like **Alternative 2** is less susceptible to storm and wind damage, and the safety of bridge personnel is not put at risk.
6. A high-level fixed bridge like **Alternative 2** can be designed with longer spans to adjust the spacing and number of piers needed to elevate the approaches, thus opening up the view at eye level, making it less visually intrusive than **Alternative 1B**.
7. **Alternative 2** will allow the approaches crossing Fort Macomb State Park to be set higher, making the property better connected.
8. The space under the **Alternative 2** approaches is more ample and can better accommodate shared uses of the ROW than **Alternative 1B**.

9. **Alternative 2** can be designed with fewer piers in the water than **Alternative 1B**, thus reducing the occurrence of bridge scour.
10. Maritime interests and agencies who expressed a preference preferred **Alternative 2**.
11. **Alternative 2** has the greatest public support.
12. **Alternative 2** is less costly to construct than **Alternative 1B**.

For these reasons, **Alternative 2**, a high-level fixed bridge on an alignment slightly south of the existing bridge, was selected for implementation and will move forward into the next phases of the project, including funding, final design, and ROW acquisition.

5.3 What are the Proposed Project Costs?

The proposed project costs for **Alternatives 1B** and **2** are $124.4 million and $115.4 million, respectively. These costs include bridge and roadway construction, ROW acquisition and temporary construction easements, environmental mitigation, and utility relocation. An itemization of cost items is provided in **Appendix N**.

5.4 What is the Proposed Implementation Schedule?

The project is currently planned to let for construction in 2019-2020 and should be completed by 2024.

6. List of Preparers

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Associate Project Manager	Lynn Maloney-Mújica, AICP
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Coastal Environments, Inc.	
Cultural Resources	David Kelley
Quest Acquisitions, Inc.	
Real Estate and ROW Acquisition	Robert Cane Bill Bowman

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Appendix A

Bridge Functionality and Condition Data

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Appendix A: Bridge Functionality and Condition Data

US 90 and the Highway Network

The Chef Menteur Bridge is a 1,175-foot, steel truss, swing-span type built in 1930 to provide a crossing of Chef Menteur Pass for U.S. Highway 90 (US 90) traffic. US 90 is an arterial highway that is the only eastern route out of the City of New Orleans that does not include a lengthy crossing over the open waters of Lake Pontchartrain. It is an alternate to Interstate 10 and U.S. Highway 11 (US 11) for emergency evacuation.

Functional Obsolescence

The Chef Menteur Bridge was built to standards that no longer meet minimum American Association of State Highway and Transportation Officials and Louisiana Department of Transportation and Development guidelines. Because the bridge has two 10-foot travel lanes, no shoulders, and bridge approach roadway alignments that are geometrically sub-standard, it is rated as functionally obsolete (Bridge Inspection Definitions).

The classification of functional obsolescence does not mean that the bridge is inherently unsafe. It is a term that identifies a bridge that does not perform adequately for its current use and that measures should be taken to improve functionality. In the case of Chef Menteur Bridge, the speed limit is posted at 25 miles per hour (mph) to address its functionally obsolete features. Functional obsolescence is also a term that assigns priority status for federal funding for bridge replacement and rehabilitation (Bridge Inspection Definitions).

Structural Deficiencies

Bridges are classified as structurally deficient if they have a general condition rating for the deck, superstructure, substructure, or culvert of 4 or less. The structurally deficient classification is “a reminder that the bridge may need further analysis that may result in load posting, maintenance, rehabilitation, replacement, or closure” (Minnesota Department of Transportation n.d.).

According to the attached Bridge Inspection Report issued on February 2012, the overall rating of Chef Menteur Bridge was 4. Its superstructure and overall ratings are 4. These ratings do not imply that Chef Menteur Bridge is unsafe. It means that in order to remain open, the bridge has been posted with reduced weight limits that restrict the gross weight of vehicles using the bridge to 25 tons and heavy maintenance is ongoing. The fender system was replaced in 2009-2010. The project proposes to replace the existing bridge before it gets to the point of closure.

The reduced speed limit of 25 mph and live load posting of 25 tons on Chef Menteur Bridge restrict the usefulness of US 90 as an arterial highway for interstate transportation of goods and people. With the replacement of the Rigolets Bridge to the northeast, Chef Menteur Bridge is the last segment of US 90 in this area that limits mobility through the corridor and reduces the highway’s operational efficiency.

Scour Analysis

The bridge is seriously affected by scour, a condition that undermines the piers and bents that hold up the bridge. According to a scour analysis conducted in 1999, due to the lack of existing foundation embedment for some of the bents and all of the piers, the bridge was assessed as scour critical. The bridge has been retrofitted in the past with additional piles and bents to address the situation. Rip-rap composed of rock and chunks of concrete have also been deposited into the areas where the water bottom is scoured. However, the most recent (2012) survey shows that the piers and bents continue to be seriously undermined, particularly in the area around Pier #2. Both scour reports are attached.

Appendix A: Bridge Functionality and Condition Data

Bridge Sufficiency Rating

Another indication of the insufficiency of Chef Menteur Bridge to remain in service is its bridge sufficiency rating. This rating takes many factors into account including structural adequacy and safety, serviceability and functional obsolescence, and essentiality for public use. A sufficiency rating of 80 or below qualifies the bridge for rehabilitation funding. A sufficiency rating of 50 or below qualifies it for replacement funding (FHWA 2006). The most recent bridge sufficiency rating for Chef Menteur Bridge is 41.4, a clear signal that the bridge is ready for replacement.

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PHASE 2 - SCOUR ANALYSIS OF SCOUR SUSCEPTIBLE BRIDGES

STATE PROJECT NUMBER: 700-99-0142
F.A.P. NUMBER: BR-NBIS(874)NM
January 20, 1999

STRUCTURE INFORMATION

District: 02 Parish: Orleans (36) Recall Number: 001390 Year Built: 1930/1960/1978
Structure Number: 006-05-00.00-1 Route: US 90 Beginning Station: 8+43.77
Stream Crossing: Chef Menteur Pass Bridge Length (m): 367.29 Finished Grade Elev: 5.91
Drainage Basin: East Mississippi River Delta AADT not listed Year of AADT:

FOUNDATION INFORMATION

Pile Length (m): 15.24 Pile Penetration (m): 1.65* Percent Penetration (%): 9*

* These numbers are for bent 14's original concrete piles. Bent 14 has been rehabilitated (steel H piles added) but pile length documentation could not be found.

NBIS RATING

Item 113 Code: 2

HYDRAULIC DATA TABLE (METRIC)

Drainage Area (km^2): N/A*
Basin Slope (m/km): N/A

* tidal

Flood Frequency (years)	Design Year	Worst Case Event – Imminent Approach Overtopping	PREDICTED SCOUR: Flood Frequency (years)	PREDICTED SCOUR: Worst Case Event – Imminent Approach Overtopping
Discharge (m^3/s)		14400 508 531 cfs	Discharge (m^3/s)	14400
Design Water Surface Elev. (m/MSL)		1.52 5 Ft	Contraction Scour Depth (m)	1.76 5.8 ft
Average Velocity (m/s)		3.06 10.04 ft/s	Maximum Pier Scour Depth (m)	13.86 45.5 ft
Area of Opening (m^2)		4709 50687 ft²	Abutment Scour Depth (m)	2.66 8.7 ft
Backwater (m)		0.00	Bridge Scour Elev. (m/MSL)	-36.4

Prepared By: Steve Yochum Checked By: Concetta

R. Barry Pierce LA 20274

Confirming Engineer P.E. Number

STATE OF LOUISIANA
RONALD BARRY PIERCE
REG. No. 20274
REGISTERED
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING

Signature & Seal

SUMMARY OF FINDINGS

The US 90 crossing of Chef Menteur Pass is hydraulically complex. Storm surges from the gulf are possible as well as wind setup events across both Lake Borgne or Lake Pontchartrain - large discharges can be expected through this channel in either direction. Additionally, this bridge crosses one of the two primary release channels for numerous rivers draining into Lake Pontchartrain.

For this simplified hydraulic analysis it is assumed that Chef Menteur is flowing north to south, with an upstream boundary 427 m (1400 ft) north of the crossing. The approach embankment elevation for the bridge is in excess of 1.5 m (5 ft) but falls below this 1219 m (4000 ft) to the west. It is assumed that significant relief will occur at 1.5 m in elevation and this is taken as the upstream boundary condition. A railroad embankment is located 457 m (1500 ft) to the southeast of the US 90 crossing. The model's downstream boundary is located 305 m (1000 ft) downstream of this structure with a boundary condition of 0.

This bridge has had scour problems in the past, with significant settling at numerous bents. As a result, four bents (7, 8, 14, 16) have been retrofitted with additional piles. New pile lengths for bents 7 and 16 are included in the scour summary pages in the scour computations section but pile length documentation for bents 8 and 14 could not be found.

For this imminent approach overtopping event the live bed contraction scour was calculated to be 1.76 m (5.76 ft). Live bed equations were used because the critical velocity for incipient motion (0.59m/s) was less than the average velocity. Maximum bent scour was found to be 2.54 m (8.33 ft). Maximum pier scour was found to be 13.86 m (45.47 ft). This large pier scour estimate is due to high velocities and the large caisson diameter of 8.2 m (27 ft). (The HEC-18 equations have been known to overestimate scour for large pier widths.) These scour depths result in three piers and one bent being undermined and the remaining two piers having only 4 and 9% penetration. Two adjacent bents (8 & 15) with unknown pile tip elevations may also be in trouble in this post-scour scenario. However, the one bent (14) that was shown to be undermined has been retrofitted with additional bents but pile length documentation has not been found and the undermining may only apply to the original piles.

Notes:

- **Foundation information on the proceeding page was changed to reflect conditions found during the field review.**
- **The above calculations were developed based upon soundings taken during the underwater bridge inspection and merged with quadrangle maps to develop cross-sections.**
- **Soil samples were analyzed based upon visual comparisons, not a detailed analysis.**
- **Bed material is fine sand. Vegetation along channel banks consists of grass, shrubs and trees.**
- **Angle of attack is zero.**

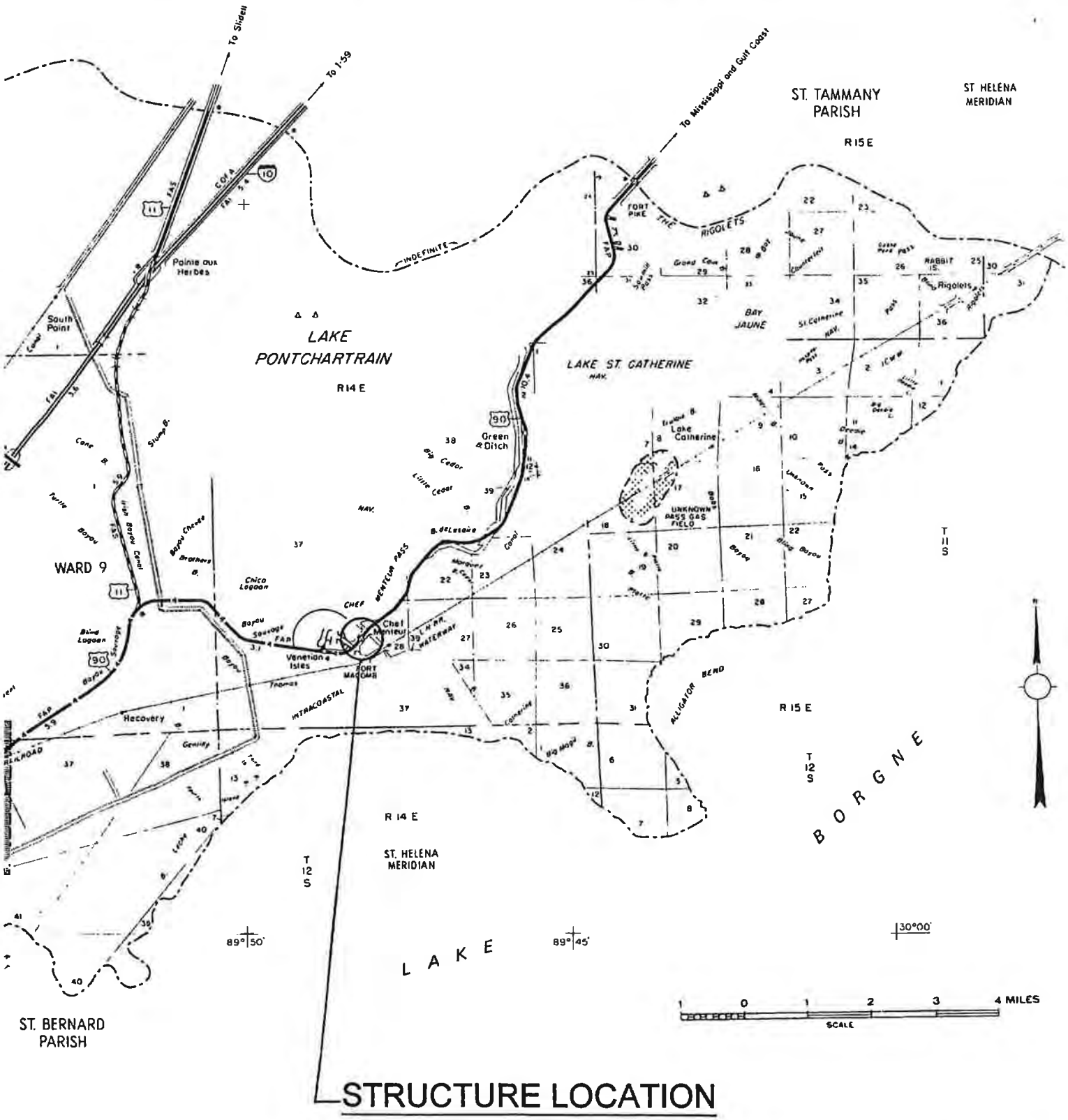
RECOMMENDATIONS

The simplified hydraulic analysis indicates that high velocities can be expected through this opening. This results in large scour estimates, especially for the wide piers of the main structure. Due to the lack of existing foundation embedment for some of the bents and all of the piers (especially pier 2 @ 29%) and the large amount of projected scour and resulting undermining of numerous piers and bents, this bridge is considered scour critical and is given an Item 113 rating of 2. A more detailed hydraulic analysis is necessary to better simulate the complex flow possibilities at this bridge. Additionally, a structural analysis is necessary to evaluate the existing stability as well as a post scour scenario.

MATERIALS AND DOCUMENTATION

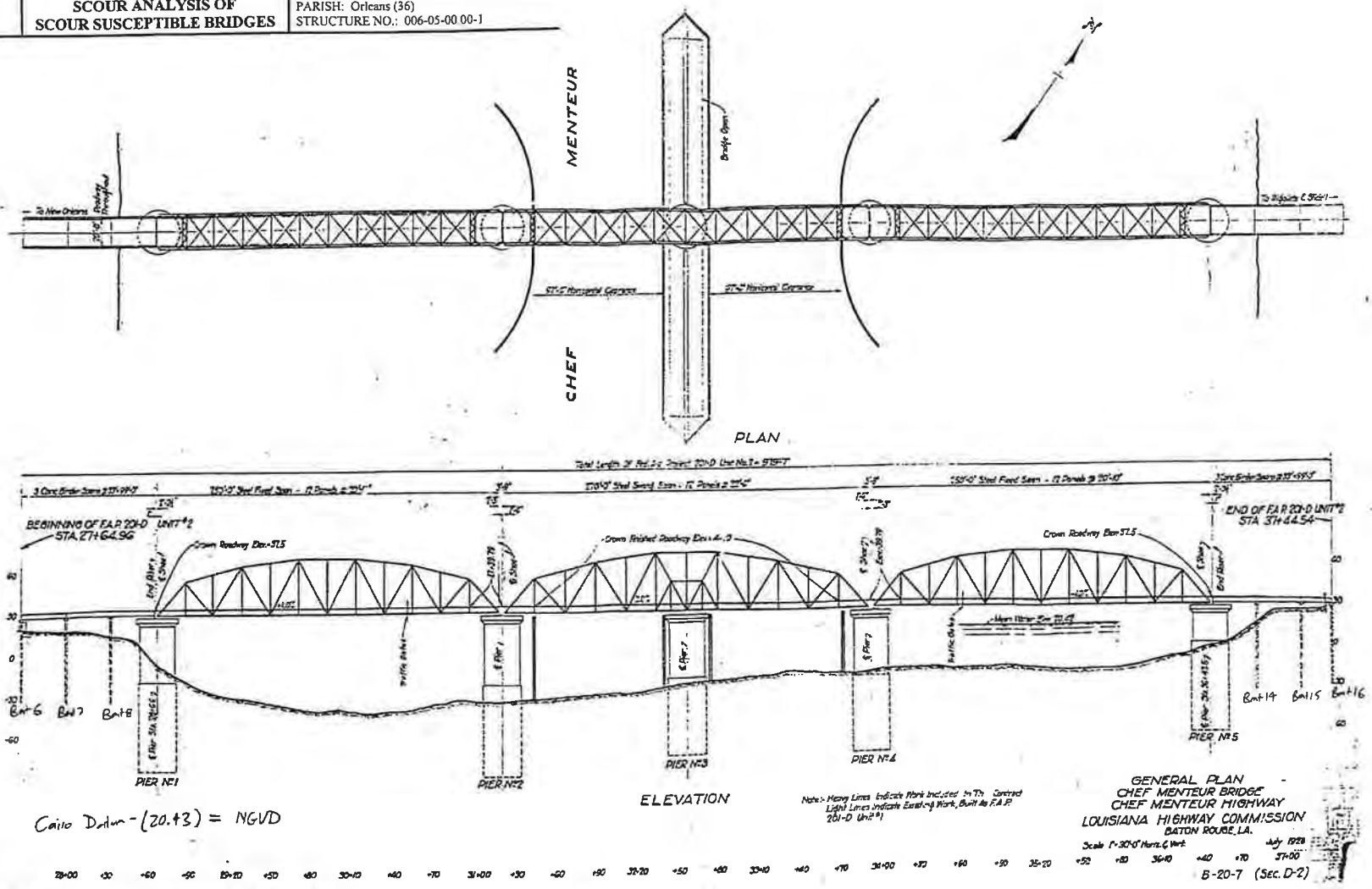
The following information and materials were used in this evaluation:

- **1930, 1960, 1978 As-Built Plans.**
- **USGS Map of Chef Menteur, LA.**
- **Field Review, conducted 5/28/98.**

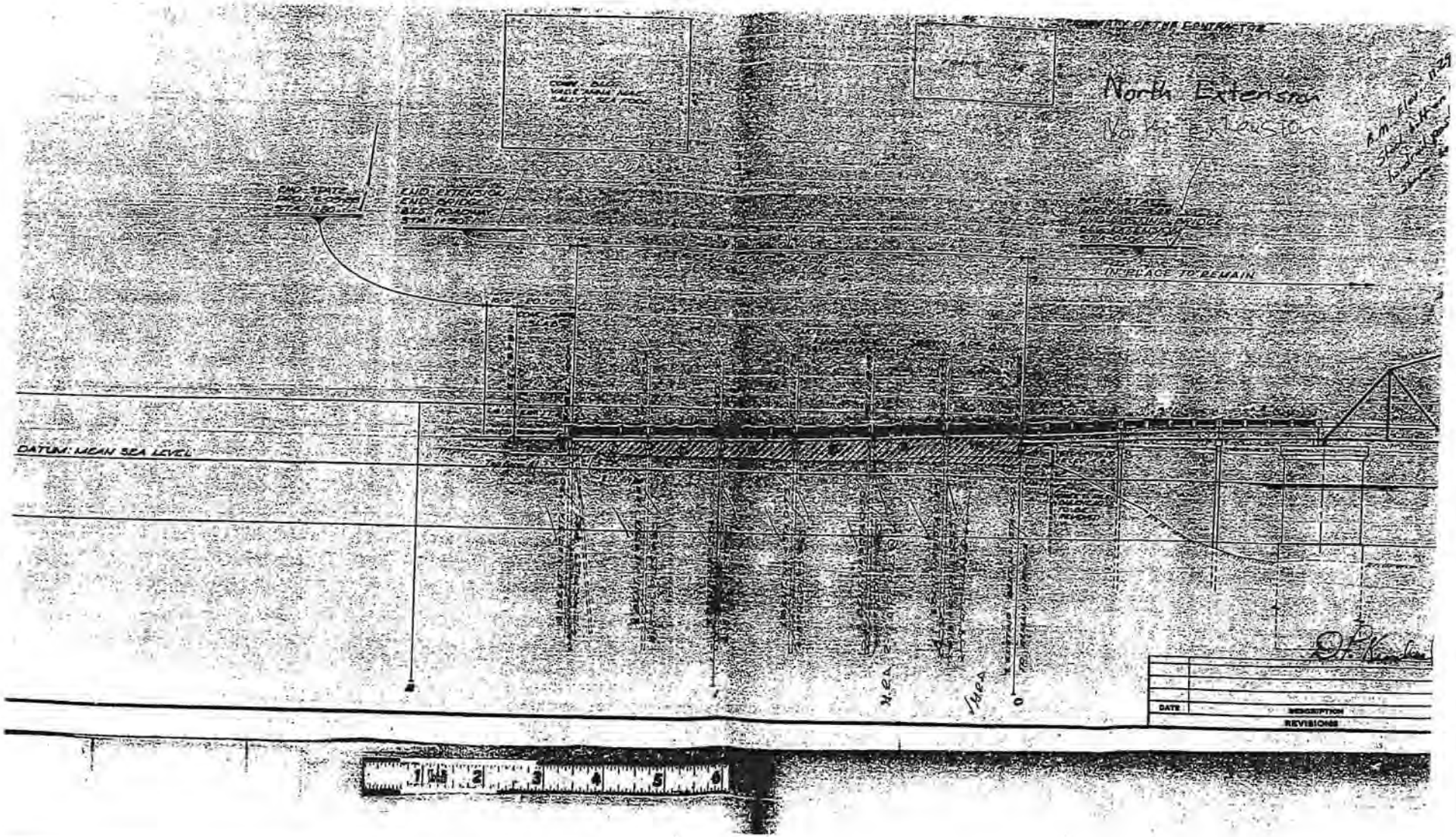


STRUCTURE LOCATION

S.P. No. 700-99-0142 F.A.P. No.: BR-NBIS(874)NM January 20, 1999	**PHASE 2** **SCOUR ANALYSIS OF** **SCOUR SUSCEPTIBLE BRIDGES**	DISTRICT: 02 PARISH: Orleans (36) STRUCTURE NO.: 006-05-00 00-1



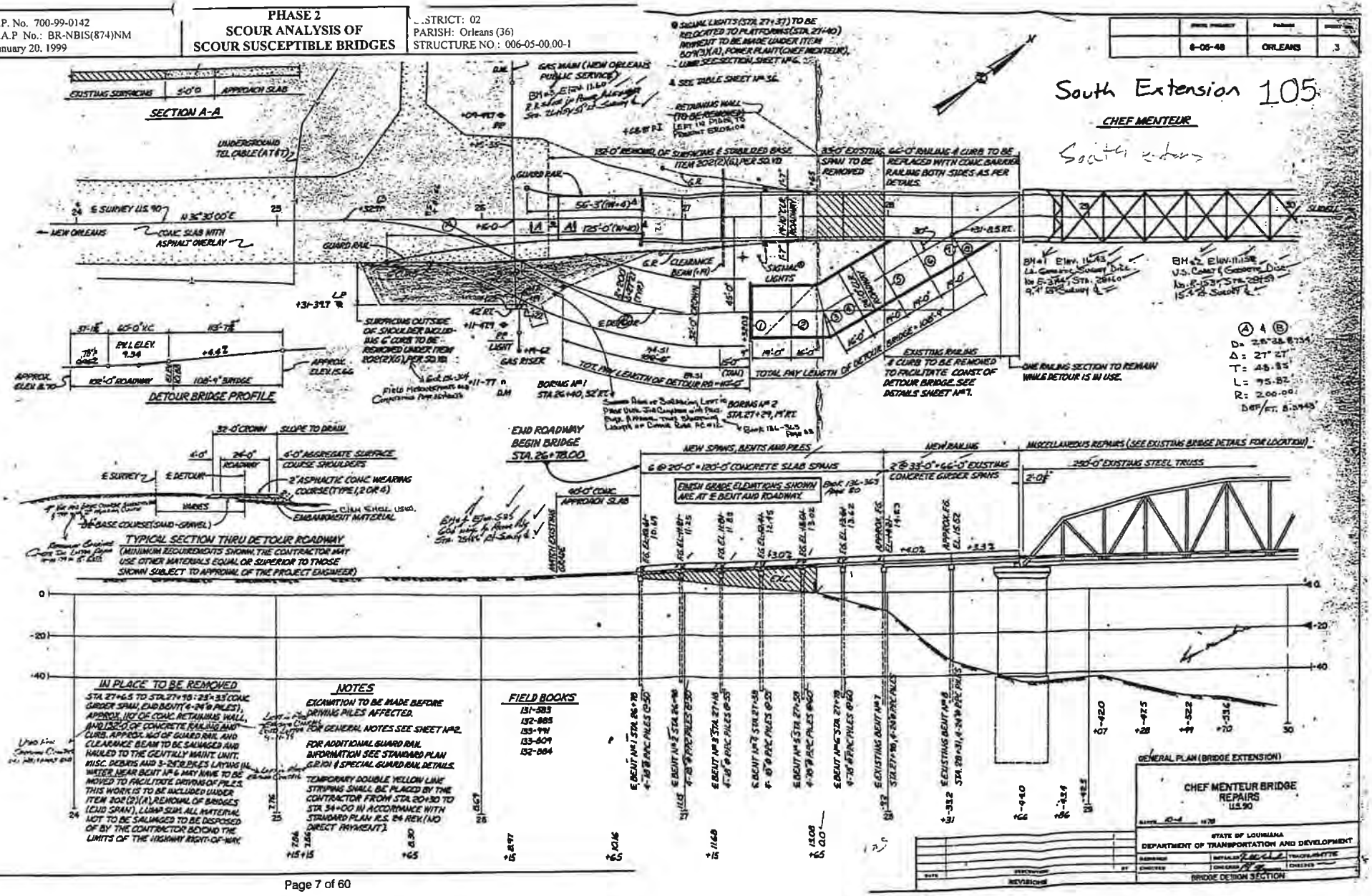
FINAL TRACINGS


North Extension
IN PLACE TO REMAIN
DATUM: MEAN SEA LEVEL
DATE
DESCRIPTION
REVISIONS

S.P. No. 700-99-0142
F.A.P No.: BR-NBIS(874)NM
January 20, 1999

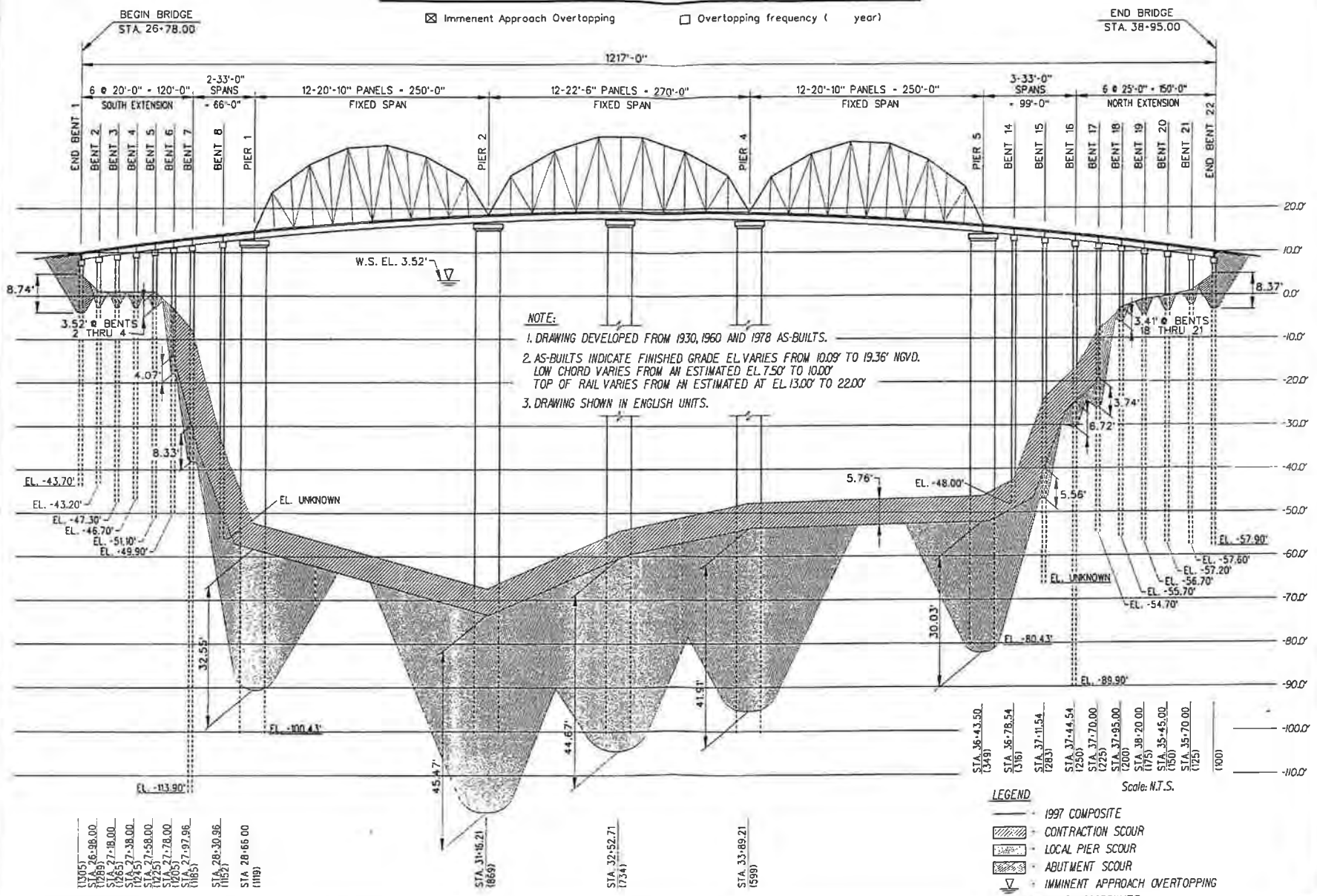
PHASE 2
SCOUR ANALYSIS OF
SCOUR SUSCEPTIBLE BRIDGES

DISTRICT: 02
PARISH: Orleans (36)
STRUCTURE NO.: 006-05-00.00-1



TOTAL SCOUR ESTIMATE FOR DESIGN FLOOD PEAK DISCHARGE

☒ Immenent Approach Overtopping ☐ Overtopping frequency (year)



NOTE:

1. DRAWING DEVELOPED FROM 1930, 1960 AND 1978 AS-BUILTS.
2. AS-BUILTS INDICATE FINISHED GRADE EL. VARIES FROM 10.09' TO 19.36' NGVD.
   LOW CHORD VARIES FROM AN ESTIMATED EL. 7.50' TO 10.00'
   TOP OF RAIL VARIES FROM AN ESTIMATED AT EL. 13.00' TO 22.00'
3. DRAWING SHOWN IN ENGLISH UNITS.

S.P. No. 700-99-0142
F.A.P. No.: BR-NBIS(874)NM
JANUARY 20, 1999

PHASE 2
SCOUR ANALYSIS OF
SCOUR SUSCEPTIBLE BRIDGES

DISTRICT: 02
PARISH: ORLEANS (38)
STRUCTURE No.: 008-06-00.00-1

HYDRAULIC CALCULATIONS

PARSONS BRINCKERHOFF COMPUTATION SHEET

Page 1 of 1
Made by Steve Yochum
Date 1/18/1999
Checked by
Date

Subject LA Scour, Phase 2
Chef Menteur Pass @ US90, 006-05-00.00-1

Hydraulics Summary

worst-case velocity event

Freq ?

$Q = 509{,}000$ cfs

$WSEL_{APR, unconst.} = 5.00$ ft

$WSEL_{APR, const.} = 4.99$ ft

Backwater $= 4.99$ ft $- 5.00$ ft $=$ ~~-0.01 ft~~ 0 ft

NWS $= 5.00$ ft

DWSE $=$ NWS $+$ Backwater $= 5.00$ ft

$Area_{DWSE} = 50{,}688\ ft^2 = 4709\ m^2$

$Velocity_{DWSE} = \frac{Q}{Area} = \frac{509{,}000\ ft^3/s}{50{,}688\ ft^2} = 10.04$ ft/s

V = 10.04 ft/s. High!

① TRW Stage analysis
H.W. Elev.
@ Bridge
@ R.R. Crossing

error check:

$Area_{NWS, BR} = 50688\ ft^2$

$Area_{event, BR} = 48462\ ft^2$

$error = \frac{50688 - 48462}{50688} \times 100\% = 4.4\% < 10\%$ ok

WSPRO INPUT/OUTPUT

Disk No. 9
from PB

```
T1        Bridge Scour - Phase 2  S.P.N. 700-99-0142
T2        LaDOTD Structure Number 006-05-00.00-1
T3        Chef Menteur Pass @ US 90, menteur.dat
*
*         Discharge for worst case velocity
Q         509000
*         Downstream Boundary Assumed to be 0 ft NGVD
WS        0
*         Very little bed data is currently available for this hydraulic analysis.
*         For this "rough" hydraulic model the cross-section at the bridge, the
*         only location in which data is available, is used at all locations.  At
*         the railroad crossing the cross-section was decreased to reflect the
*         width of the actual opening, 1070 ft.
*
*         Downstream Limit - 1000 ft D/S of RR Bridge
XS    SecA 1000
GR        100,5.0 125,1.0 150,1.0 175,1.0 200,1.0 225,-1.5 250,-10.2 283,-20.1
GR        316,-40.3 349,-42.6 599,-45.8 734,-54.2 869,-62.3 1119,-50.1
GR        1152,-34.8 1185,-7.2 1205,-2.5 1225,1.0 1245,1.0 1265,1.0 1285,1.0
GR        1305,5.0
N         0.10     0.06     0.10
SA             215      1215
*
XS    SecB 1300
GR        100,5.0 125,1.0 150,1.0 175,1.0 200,1.0 225,-1.5 250,-10.2 283,-20.1
GR        316,-40.3 349,-42.6 599,-45.8 734,-54.2 869,-62.3 1119,-50.1
GR        1152,-34.8 1185,-7.2 1205,-2.5 1225,1.0 1245,1.0 1265,1.0 1285,1.0
GR        1305,5.0
*
XS    SecC 1600
GR        100,5.0 125,1.0 150,1.0 175,1.0 200,1.0 225,-1.5 250,-10.2 283,-20.1
GR        316,-40.3 349,-42.6 599,-45.8 734,-54.2 869,-62.3 1119,-50.1
GR        1152,-34.8 1185,-7.2 1205,-2.5 1225,1.0 1245,1.0 1265,1.0 1285,1.0
GR        1305,5.0
*
XS    SecD 1900
GR        100,5.0 125,1.0 150,1.0 175,1.0 200,1.0 225,-1.5 250,-10.2 283,-20.1
GR        316,-40.3 349,-42.6 599,-45.8 734,-54.2 869,-62.3 1119,-50.1
GR        1152,-34.8 1185,-7.2 1205,-2.5 1225,1.0 1245,1.0 1265,1.0 1285,1.0
GR        1305,5.0
*
*         Railroad Crossing @ H.W work
XS    SecE 2000
GR        225,7.0 250,-10.2 283,-20.1 316,-40.3 349,-42.6 599,-45.8 734,-54.2
GR        869,-62.3 1119,-50.1 1152,-34.8 1185,-7.2 1205,-2.5 1225,1.0
GR        1245,1.0 1265,1.0 1285,1.0 1295,7.0
*
XS    EX   2100
GR        100,5.0 125,1.0 150,1.0 175,1.0 200,1.0 225,-1.5 250,-10.2 283,-20.1
GR        316,-40.3 349,-42.6 599,-45.8 734,-54.2 869,-62.3 1119,-50.1
GR        1152,-34.8 1185,-7.2 1205,-2.5 1225,1.0 1245,1.0 1265,1.0 1285,1.0
GR        1305,5.0
*
*         Downstream Face of US 90 Bridge
XS    FV1  3700
GR        100,5.0 125,1.0 150,1.0 175,1.0 200,1.0 225,-1.5 250,-10.2 283,-20.1
```

```
GR          316,-40.3 349,-42.6 599,-45.8 734,-54.2 869,-62.3 1119,-50.1
GR          1152,-34.8 1185,-7.2 1205,-2.5 1225,1.0 1245,1.0 1265,1.0 1285,1.0
GR          1305,5.0
*
BR    BR    3700 7.5 0 0.5 0.3
GR          100,7.5 101,5.0 125,1.0 150,1.0 175,1.0 200,1.0 225,-1.5 250,-10.2
GR          283,-20.1 316,-40.3 349,-42.6 599,-45.8 734,-54.2 869,-62.3
GR          1119,-50.1 1152,-34.8 1185,-7.2 1205,-2.5 1225,1.0 1245,1.0
GR          1265,1.0 1285,1.0 1304,5.0 1305,7.5 1119,15.1 869,17.6 599,17.6
GR          349,15.1 100,7.5
CD          3 24 2 7.5
*
XR    RD    3712 24
GR          100,8.6 349,17.07 599,19.57 869,19.57 1119,17.07 1305,8.6
*
*           Upstream Limit
AS    APR   5100
GR          100,5.0 125,1.0 150,1.0 175,1.0 200,1.0 225,-1.5 250,-10.2 283,-20.1
GR          316,-40.3 349,-42.6 599,-45.8 734,-54.2 869,-62.3 1119,-50.1
GR          1152,-34.8 1185,-7.2 1205,-2.5 1225,1.0 1245,1.0 1265,1.0 1285,1.0
GR          1305,5.0
*
HP 0 BR     4.99 0.1 4.99
HP 0 BR     5.00 0.1 5.00
HP 1 BR     3.52 0.1 3.52 509000
HP 1 APR    4.99 0.1 4.99 509000
*
EX
ER
```

WSPRO INPUT/OUTPUT (for velocity distribution estimate)

```
T1        Bridge Scour - Phase 2  S.P.N. 700-99-0142
T2        LaDOTD Structure Number 006-05-00.00-1
T3        Chef Menteur Pass @ US 90, menteur2.dat
*
*         Discharge for velocity distribution estimate.
Q         99999
*         Downstream Boundary set so that WSEL at bridge is consistent.
WS        3.41
*         Very little bed data is currently available for this hydraulic analysis.
*         For this "rough" hydraulic model the cross-section at the bridge, the
*         only location in which data is available, is used at all locations.  At
*         the railroad crossing the cross-section was decreased to reflect the
*         width of the actual opening, 1070 ft.
*
*         Downstream Limit - 1000 ft D/S of RR Bridge
XS    SecA 1000
GR        100,5.0 125,1.0 150,1.0 175,1.0 200,1.0 225,-1.5 250,-10.2 283,-20.1
GR        316,-40.3 349,-42.6 599,-45.8 734,-54.2 869,-62.3 1119,-50.1
GR        1152,-34.8 1185,-7.2 1205,-2.5 1225,1.0 1245,1.0 1265,1.0 1285,1.0
GR        1305,5.0
N         0.10      0.06      0.10
SA             215       1215
*
XS    SecB 1300
GR        100,5.0 125,1.0 150,1.0 175,1.0 200,1.0 225,-1.5 250,-10.2 283,-20.1
GR        316,-40.3 349,-42.6 599,-45.8 734,-54.2 869,-62.3 1119,-50.1
GR        1152,-34.8 1185,-7.2 1205,-2.5 1225,1.0 1245,1.0 1265,1.0 1285,1.0
GR        1305,5.0
*
XS    SecC 1600
GR        100,5.0 125,1.0 150,1.0 175,1.0 200,1.0 225,-1.5 250,-10.2 283,-20.1
GR        316,-40.3 349,-42.6 599,-45.8 734,-54.2 869,-62.3 1119,-50.1
GR        1152,-34.8 1185,-7.2 1205,-2.5 1225,1.0 1245,1.0 1265,1.0 1285,1.0
GR        1305,5.0
*
XS    SecD 1900
GR        100,5.0 125,1.0 150,1.0 175,1.0 200,1.0 225,-1.5 250,-10.2 283,-20.1
GR        316,-40.3 349,-42.6 599,-45.8 734,-54.2 869,-62.3 1119,-50.1
GR        1152,-34.8 1185,-7.2 1205,-2.5 1225,1.0 1245,1.0 1265,1.0 1285,1.0
GR        1305,5.0
*
*         Railroad Crossing
XS    SecE 2000
GR        225,7.0 250,-10.2 283,-20.1 316,-40.3 349,-42.6 599,-45.8 734,-54.2
GR        869,-62.3 1119,-50.1 1152,-34.8 1185,-7.2 1205,-2.5 1225,1.0
GR        1245,1.0 1265,1.0 1285,1.0 1295,7.0
*
XS    EX   2100
GR        100,5.0 125,1.0 150,1.0 175,1.0 200,1.0 225,-1.5 250,-10.2 283,-20.1
GR        316,-40.3 349,-42.6 599,-45.8 734,-54.2 869,-62.3 1119,-50.1
GR        1152,-34.8 1185,-7.2 1205,-2.5 1225,1.0 1245,1.0 1265,1.0 1285,1.0
GR        1305,5.0
*
*         Downstream Face of US 90 Bridge
XS    FV1  3700
GR        100,5.0 125,1.0 150,1.0 175,1.0 200,1.0 225,-1.5 250,-10.2 283,-20.1
```

```
GR          316,-40.3 349,-42.6 599,-45.8 734,-54.2 869,-62.3 1119,-50.1
GR          1152,-34.8 1185,-7.2 1205,-2.5 1225,1.0 1245,1.0 1265,1.0 1285,1.0
GR          1305,5.0
*
BR    BR    3700 7.5 0 0.5 0.3
GR          100,7.5 101,5.0 125,1.0 150,1.0 175,1.0 200,1.0 225,-1.5 250,-10.2
GR          283,-20.1 316,-40.3 349,-42.6 599,-45.8 734,-54.2 869,-62.3
GR          1119,-50.1 1152,-34.8 1185,-7.2 1205,-2.5 1225,1.0 1245,1.0
GR          1265,1.0 1285,1.0 1304,5.0 1305,7.5 1119,15.1 869,17.6 599,17.6
GR          349,15.1 100,7.5
CD          3 24 2 7.5
*
XR    RD    3712 24
GR          100,8.6 349,17.07 599,19.57 869,19.57 1119,17.07 1305,8.6
*
*           Upstream Limit
AS    APR   5100
GR          100,5.0 125,1.0 150,1.0 175,1.0 200,1.0 225,-1.5 250,-10.2 283,-20.1
GR          316,-40.3 349,-42.6 599,-45.8 734,-54.2 869,-62.3 1119,-50.1
GR          1152,-34.8 1185,-7.2 1205,-2.5 1225,1.0 1245,1.0 1265,1.0 1285,1.0
GR          1305,5.0
*
HP 2 BR     3.52 0.1 3.52 99999
*
EX
ER
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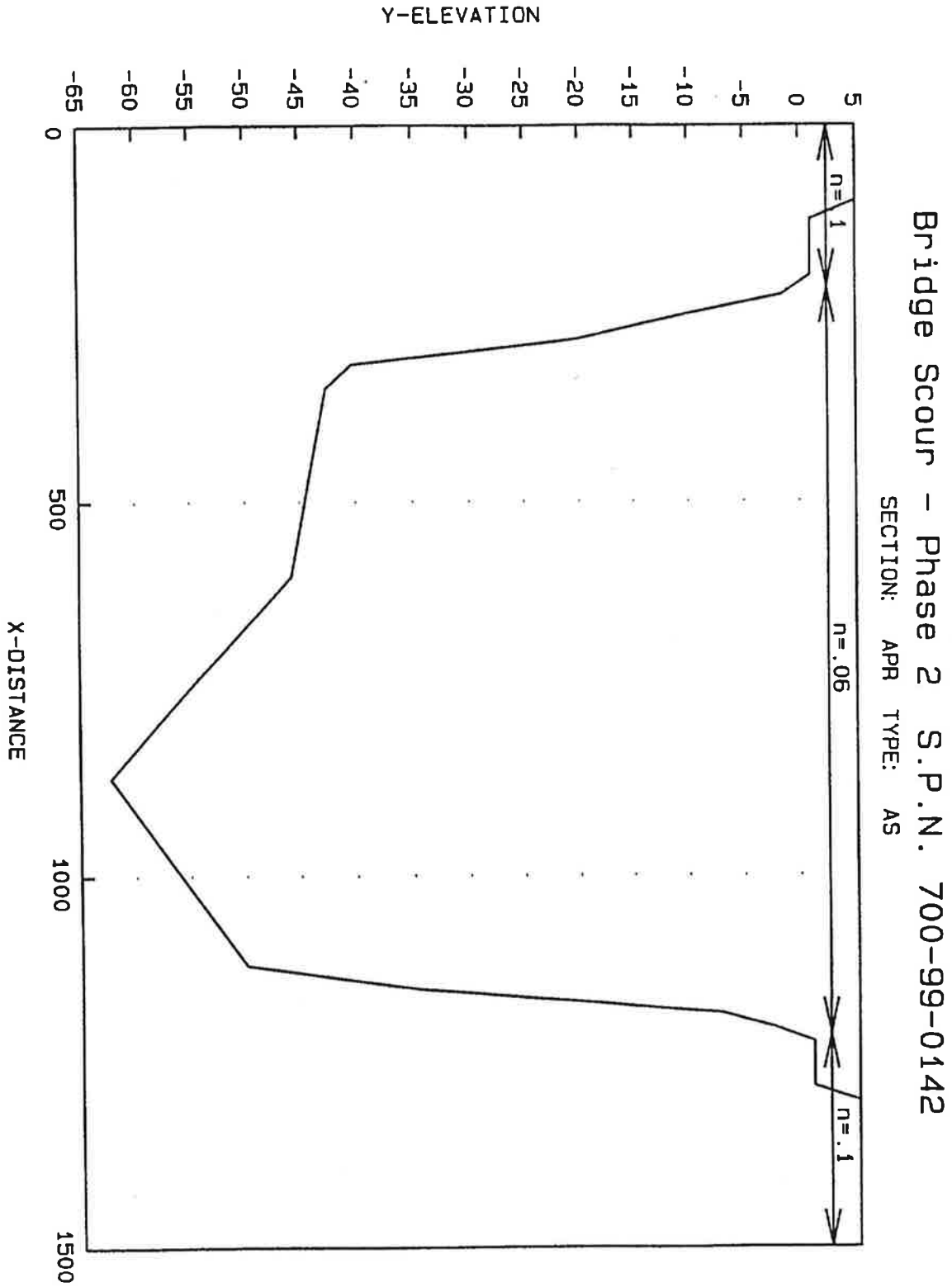
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-55
-50
-45
-40
-35
-30
-25
-20
-15
-10
-5
0
5
0
500
1000
1500
X-DISTANCE
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n=.06
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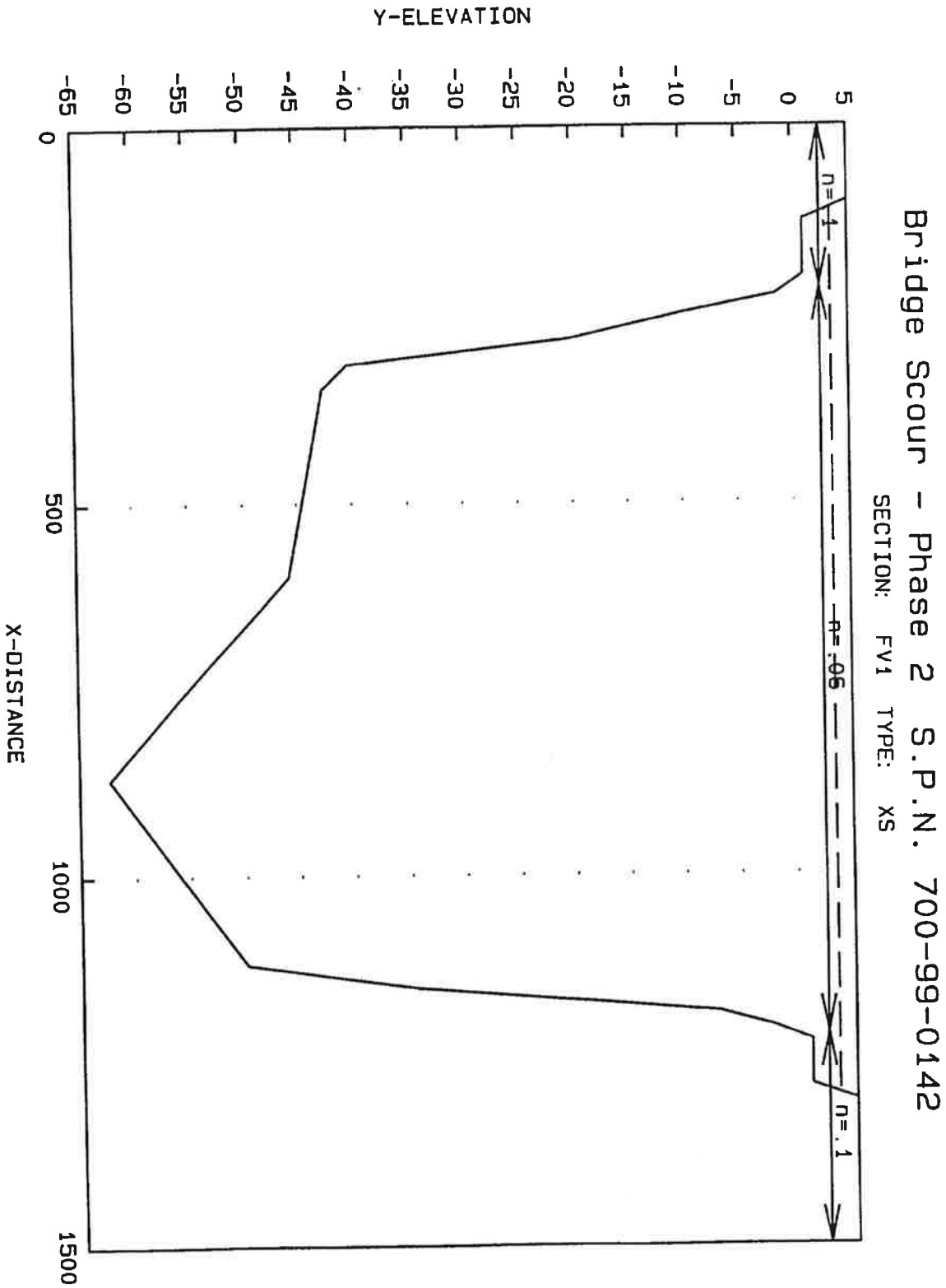
Bridge Scour - Phase 2 S.P.N. 700-99-0142
SECTION: APR TYPE: AS


Y-ELEVATION
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-55
-50
-45
-40
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-30
-25
-20
-15
-10
-5
0
5
0
500
1000
1500
X-DISTANCE
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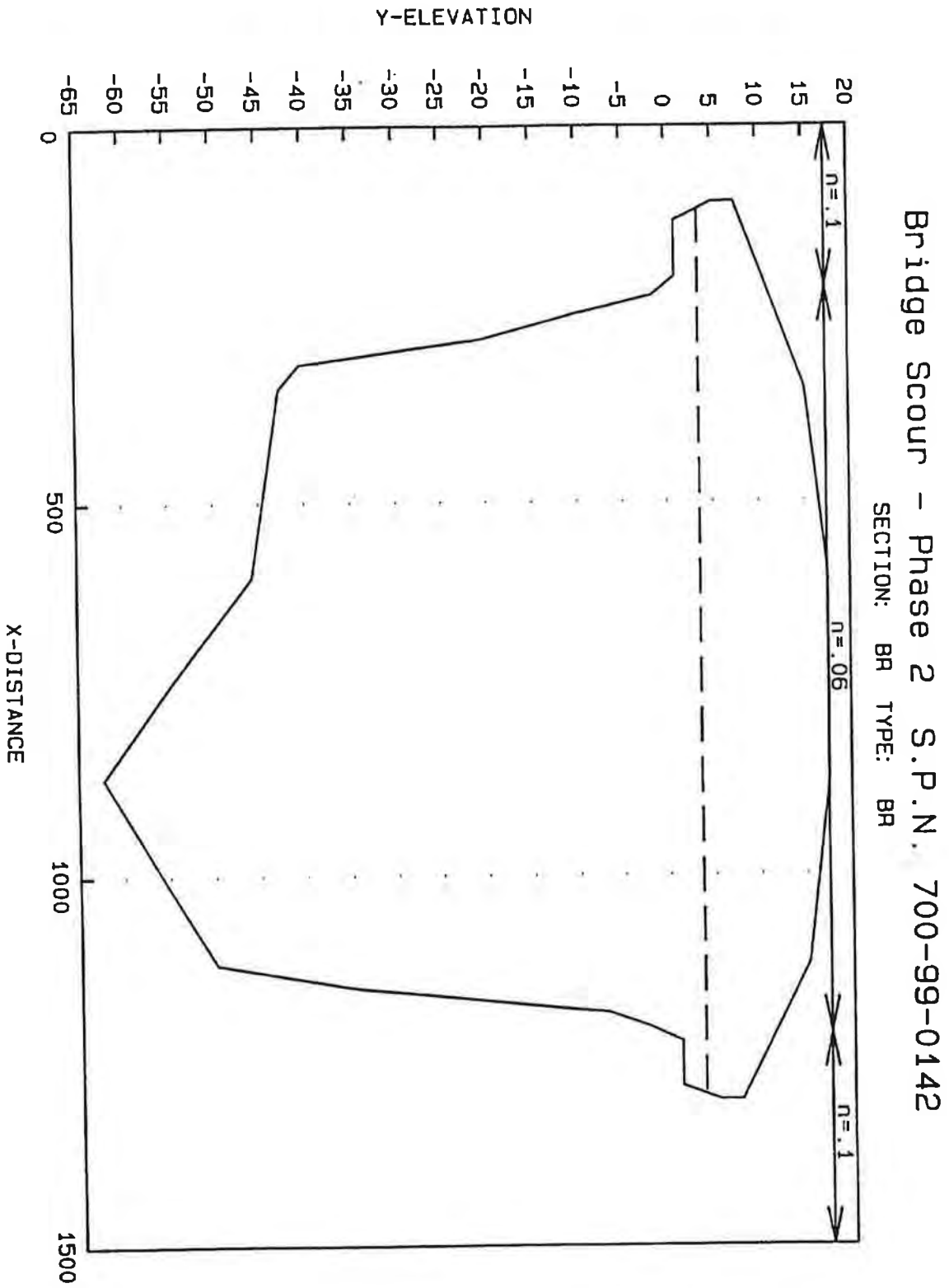
Bridge Scour - Phase 2 S.P.N. 700-99-0142
SECTION: FV1 TYPE: XS


Y-ELEVATION
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-55
-50
-45
-40
-35
-30
-25
-20
-15
-10
-5
0
5
10
15
20
0
500
1000
1500
X-DISTANCE
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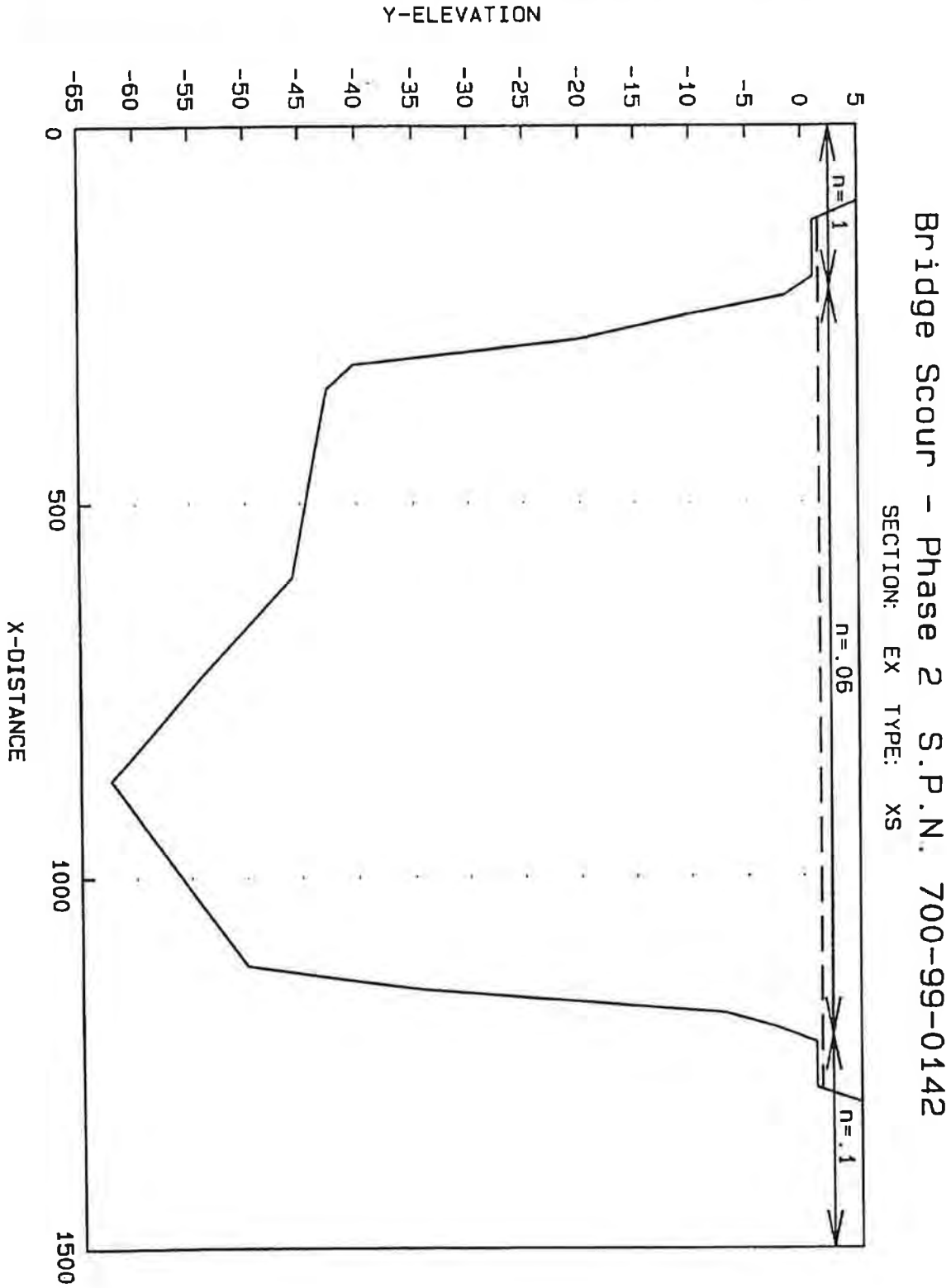
n=.1
Bridge Scour - Phase 2 S.P.N. 700-99-0142
SECTION: BR TYPE: BR


Y-ELEVATION
-65
-60
-55
-50
-45
-40
-35
-30
-25
-20
-15
-10
-5
0
5
0
500
1000
1500
X-DISTANCE
n=.1
n=.06
n=.1
Bridge Scour - Phase 2 S.P.N. 700-99-0142
SECTION: EX TYPE: XS

SCOUR CALCULATIONS

PARSONS BRINCKERHOFF COMPUTATION SHEET

Subject: LA Scour, Phase 2
Chef Menteur Pass @ US 90, 006-05-00.00-1

Page 1 of 9
Made by Steve Yochum
Date 1/19/99
Checked by
Date

Contraction Scour - Imminent Overtopping Event

Q = 509,000 cfs
approach, constricted WSEL = 4.99 ft
bridge WSEL = 3.52 ft

Main Channel (Sta 215 ⇒ Sta 1215)

bridge:

$$Q = \frac{k_{channel}}{k_{total}}(Q_{total}) = \frac{15749250}{15761580}(509{,}000\ cfs) = 508{,}600\ cfs$$

$$v = \frac{Q}{Area} = \frac{508{,}600\ cfs}{48462\ ft^2} = 10.49\ ft/s$$

$$y = \frac{area}{width} = \frac{48462\ ft^2}{1000\ ft} = 48.46\ ft$$

caisson diameter = 27 ft, bent size = 18"
width = 1000 ft − (5(27) + 7(1.5)) = 854.5 ft

approach:

$$Q = \frac{k_{channel}}{k_{total}}(Q_{total}) = \frac{16553480}{16579820}(509{,}000\ cfs) = 508{,}190\ cfs$$

$$v = \frac{Q}{Area} = \frac{508{,}190\ cfs}{49932} = 10.18\ ft/s$$

width = 1000 ft, $y = \frac{49932\ ft^2}{1000\ ft} = 49.93\ ft$

Critical velocity:

bed material = fine sand, $d_{50} = 0.2mm = 0.000656\ ft$

$$v_c = 11.52\, y^{1/6} D_{50}^{1/3} = 11.52(49.93)^{1/6}(0.000656)^{1/3} = 1.92\ ft/s$$

$v_c = 1.92\ ft/s < v = 10.18\ ft/s$

∴ live bed scour exists

energy grade line slope $= \frac{6.60 - 5.20}{5100 - 3700} = 0.0010$

Overbank flows represent < 0.08% of the total flow. It is not significant - contraction scour in the overbank is not computed.

2 of 9

PARSONS BRINCKERHOFF

Chef Menteur Pass @ US 90, 006-05-00.00-1

CONTRACTION SCOUR COMPUTATIONS, WORST CASE EVENT
LIVE-BED

	NOTE	UNITS	ENGLISH	UNITS	METRIC
Q_1 = FLOW IN MAIN CHANNEL	1	ft^3/s	508190	m^3/s	14391
Q_2 = FLOW IN CONTRACTED SECTION	2	ft^3/s	508600	m^3/s	14402
W_1 = MAIN CHANNEL WIDTH	3	ft	1000	m	305
W_2 = CONTRACTED SECTION WIDTH	4	ft	855	m	260
y_1 = AVERAGE MAIN CHANNEL DEPTH	5	ft	49.93	m	15
S_1 = ENERGY GRADELINE SLOPE	6	ft/ft	0.0010	m/m	0.0010
D_{50} - BED MATERIAL	7	mm	0.20	mm	0.20
w - FALL VELOCITY D_{50} BED MATERIAL	8	ft/s	0.085	m/s	0.03
$(Q_2 / Q_1)^{6/7}$			1.00		
$V^* = \text{SHEAR VELOCITY} = [g(y_1)(S_1)]^{0.5}$		ft/s	1.27		
V^* / w			14.92		
k_1			0.69		
$(W_1 / W_2)^{K1}$			1.11		
$y_2/y_1 = (Q_2 / Q_1)^{(6/7)}(W_1 / W_2)^{K1}$			1.12		
Y_s = SCOUR DEPTH = $y_2 - y_1$	9	ft	5.76	m	1.76

NOTES:
1. FLOW IN UPSTREAM CHANNEL TRANSPORTING SEDIMENT
2. FLOW IN CONTRACTED CHANNEL (AT BRIDGE)
3. WIDTH OF CHANNEL TRANPORTING SEDIMENT
4. WIDTH AT CONTRACTED CHANNEL
5. DEPTH OF FLOW IN CHANNEL TRANSPORTING SEDIMENT
6. SLOPE BETWEEN CHANNEL CARRYING SEDIMENT AND CONTRACTED SECTION
7. OBTAIN FROM BORING OR GIVEN DATA.
8. USING THE D_{50} VALUE AND FIGURE 3 IN THE HEC-18 MANUAL.
9. FOR CONSISTENCY, THE METHOD AS DESCRIBED IN HEC18--3RD EDITION IS USED

PARSONS BRINCKERHOFF COMPUTATION SHEET

Subject: LA Scour, Phase 2
Chef Menteur Pass 006-05-00.00-1

Page 3 of 9
Made by Steve Vochum
Date 1/19/99
Checked by
Date

Pier Scour - Imminent Overtopping Event

Assumptions / Comments:

- pier velocities were taken from a manipulated velocity distribution (since WSPRO can only handle flows to 99,999 cfs).
- skew angle = 0°
- caisson diameters = 27 ft
- piles for bents assumed to be 18" square and 24" square with various alterations for the retrofitted bents.

To attain an approximate velocity distribution for the 509,000 cfs event, the following procedure was followed:

(1) Run a flow of 99,999 cfs through the model, keeping a consistent WSEL at the bridge (352 ft).
   - the average velocity at our bridge is 2.04 ft/s

(2) Run the velocity distribution subroutine for the 99,999 cfs flow, keeping the same WSEL at the cross-section.

(3) The average velocity for the 509,000 cfs event is 10.41 ft/s. Dividing this velocity by the other $\left(\frac{10.41 \text{ ft/s}}{2.04 \text{ ft/s}}\right)$ gives 5.10. This value is used as a multiplication factor on all of the velocities provided in the 99,999 cfs model run, providing an approximate velocity distribution for the 509,000 cfs event.

PARSONS BRINCKERHOFF COMPUTATION SHEET

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Made by Steve Yochum
Date 1/19/99
Checked by
Date

Subject LA Scour, Phase 2
Chef Menteur Pass @ US90, 006-05-00.00-1

Station Range (ft)	99,999 cfs Velocity (ft/s)	509,000 cfs Velocity (ft/s)		Average Depth (ft)
			banks 16, 15, 14, 13, 12, 11, 10, 9	
109.9 → 376.0	1.00	5.10	pier 5	depths taken at individual bents (large variation)
376.0 → 428.2	2.05	10.46		
428.2 → 480.6	2.01	10.25		
480.6 → 529.9	2.11	10.76		
529.9 → 579.0	2.09	10.66		
579.0 → 626.3	2.12	10.81	pier 4	49.8
626.3 → 669.9	2.19	limit velocities to 12 fps. 11.17		
669.9 → 709.8	2.28	↓ 11.63		
709.8 → 746.6	2.37	12 ~~12.09~~	pier 3	57.3
746.6 → 781.1	2.43	12 ~~12.39~~		
781.1 → 814.5	2.43	12 ~~12.39~~		
814.5 → 847.9	2.36	12 ~~12.04~~		
847.9 → 879.4	2.43	12 ~~12.39~~	pier 2	65.3
879.4 → 910.8	2.47	12 ~~12.60~~		
910.8 → 943.8	2.40	12 ~~12.24~~		
943.8 → 978.5	2.35	11.99		
978.5 → 1014.0	2.36	12.04		
1014.0 → 1050.9	2.34	11.93		
1050.9 → 1089.4	2.32	11.83		
1089.4 → 1297.0	1.15	5.87	pier 1 banks 8, 7, 6, 5, 4, 3, 2	depths taken at individual bents (large variation)

PARSONS BRINCKERHOFF

Chef Menteur Pass, 006-05-00.00-1

PIER SCOUR COMPUTATIONS, WORST CASE EVENT
NORMAL PIER - NO FOOTING OR EXPOSED PILE CAP

	UNITS	NOTE	Bent 21 (NE)	Bent 20	Bent 19	Bent 18	Bent 17	Bent 16	Bent 15	Bent 14	Pier 5	Pier 4 (SW)
SKEW ANGLE	Degrees		0	0	0	0	0	0	0	0	0	0
a - PIER WIDTH	ft.		1.50	1.50	1.50	1.50	1.50	3.00	2.00	2.50	27.00	27.00
L - PIER LENGTH	ft.		1.50	1.50	1.50	1.50	1.50	2.00	2.00	2.50	27.00	27.00
L/a	ft.		1.00	1.00	1.00	1.00	1.00	0.67	1.00	1.00	1.00	1.00
K_1 - CORRECTION PIER NOSE SHAPE		1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0
K_2 - CORRECTION ANGLE OF ATTACK		2	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
K_3 - CORRECTION BED FORMS		3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
K_4 - CORRECTION ARMORING		4	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
V_1 - VELOCITY, UPSTREAM	ft./s		5.10	5.10	5.10	5.10	5.10	5.10	5.10	5.10	5.10	10.81
Y_1 - DEPTH, UPSTREAM	ft.		2.5	2.5	2.5	2.5	5.0	13.7	23.6	43.8	46.1	49.8
Fr_1 - FROUDE NUMBER			0.57	0.57	0.57	0.57	0.40	0.24	0.18	0.14	0.13	0.27
$[a/Y_1]^{0.65}$			0.71	0.71	0.71	0.71	0.46	0.37	0.20	0.16	0.71	0.67
$Y_S/Y_1 = 2*K_1*K_2*K_3*K_4*(a/Y_1)^{0.65}(Fr_1)^{0.43}$			1.35	1.35	1.35	1.35	0.75	0.49	0.24	0.16	0.65	0.84
Y_S - SCOUR DEPTH	ft.		3.41	3.41	3.41	3.41	3.74	6.72	5.56	6.99	30.03	41.91
	m		1.04	1.04	1.04	1.04	1.14	2.05	1.69	2.13	9.15	12.77

NOTES:

1. ONLY USE IF ANGLE OF ATTACK IS 5 DEGREES OR LESS. SEE HEC-18, PAGE 37, TABLE 2, IN '95 VERSION; TABLE 2, PAGE 40 IN '93 VERSION.
2. K_2 CALCULATED USING HEC-18 EQUATION (23), PAGE 37 IN '95 VERSION; TABLE 3, PAGE 40 IN '93 VERSION.
3. MAXIMUM SCOUR MAY BE 10% TO 30% GREATER THAN EQUILIBRIUM SCOUR. SEE HEC-18, PAGE 37, TABLE 4 FOR BED FACTORS IN '95 VERSION; PAGE 39 IN '93 VERSION.
4. ARMORING OF THE SCOUR HOLE OCCURS FOR D_{50} > 0.20 ft.. IF D_{50} < 0.20ft., THEN K_4 = 1.0. IF D_{50} > 0.20 ft. THEN SEE HEC-18 PAGES 37 & 38 TO SOLVE FOR K_4. IF D_{50} > 0.20 ft., THEN A CONSERVATIVE VALUE FOR K_4 IS 0.70 IN '95 VERSION; '93 VERSION DOES NOT USE.

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PARSONS BRINCKERHOFF

Chef Menteur Pass, 006-05-00.00-1

PIER SCOUR COMPUTATIONS, WORST CASE EVENT (continued)
NORMAL PIER - NO FOOTING OR EXPOSED PILE CAP

	UNITS	NOTE	Pier 3 (NE)	Pier 2	Pier 1	Bent 8	Bent 7	Bent 6	Bent 5	Bent 4	Bent 3	Bent 2 (SW)
SKEW ANGLE	Degrees		0	0	0	0	0	0	0	0	0	0
a - PIER WIDTH	ft.		27.00	27.00	27.00	2.50	4.00	1.50	1.50	1.50	1.50	1.50
L - PIER LENGTH	ft.		27.00	27.00	27.00	2.00	2.00	1.50	1.50	1.50	1.50	1.50
L/a	ft.		1.00	1.00	1.00	0.80	0.50	1.00	1.00	1.00	1.00	1.00
K_1 - CORRECTION PIER NOSE SHAPE		1	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1
K_2 - CORRECTION ANGLE OF ATTACK		2	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
K_3 - CORRECTION BED FORMS		3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
K_4 - CORRECTION ARMORING		4	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
V_1 - VELOCITY, UPSTREAM	ft./s		12.00	12.00	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87
Y_1 - DEPTH, UPSTREAM	ft.		57.3	65.3	53.6	38.3	10.7	6.0	2.5	2.5	2.5	2.5
Fr_1 - FROUDE NUMBER			0.28	0.26	0.14	0.17	0.32	0.42	0.65	0.65	0.65	0.65
$[a/Y_1]^{0.65}$			0.61	0.56	0.64	0.17	0.53	0.41	0.71	0.71	0.71	0.71
$Y_S/Y_1 = 2*K_1*K_2*K_3*K_4*(a/Y_1)^{0.65}(Fr_1)^{0.43}$			0.78	0.70	0.61	0.19	0.78	0.68	1.44	1.44	1.44	1.44
Y_S - SCOUR DEPTH	ft.		44.67	45.47	32.55	7.29	8.33	4.07	3.62	3.62	3.62	3.62
	m		13.62	13.86	9.92	2.22	2.54	1.24	1.10	1.10	1.10	1.10

NOTES:
1. ONLY USE IF ANGLE OF ATTACK IS 5 DEGREES OR LESS. SEE HEC-18, PAGE 37, TABLE 2, IN '95 VERSION; TABLE 2, PAGE 40 IN '93 VERSION.
2. K_2 CALCULATED USING HEC-18 EQUATION (23), PAGE 37 IN '95 VERSION; TABLE 3, PAGE 40 IN '93 VERSION.
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4. ARMORING OF THE SCOUR HOLE OCCURS FOR D_{50} > 0.20 ft.. IF D_{50} < 0.20ft., THEN K_4 = 1.0. IF D_{50} > 0.20 ft. THEN SEE HEC-18 PAGES 37 & 38 TO SOLVE FOR K_4. IF D_{50} > 0.20 ft., THEN A CONSERVATIVE VALUE FOR K_4 IS 0.70 IN '95 VERSION; '93 VERSION DOES NOT USE.

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PARSONS BRINCKERHOFF COMPUTATION SHEET

Subject: LA Scour, Phase 2
Chef Menteur Pass @ US90, 006-05-00.00-1

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Made by Steve Yochum
Date 1/19/99
Checked by
Date

Abutmat Scour

HIRE equation:

$$\frac{y_s}{y_1} = 4\,Fr^{0.33}\,\frac{k_1}{0.55}$$

y_s = scour depth
y_1 = depth of flow at the abutment
Fr = froude # = $\frac{v}{\sqrt{gd}}$ (unitless)
k_1 = abutment shape coef. = 0.55

Northeast Abutment (bent 17)

$v = 5.10$ ft/s, $d = 3.52$ ft $- 1.0$ ft $= 2.52$ ft

$$Fr = \frac{5.10}{\sqrt{(32.2)(2.52)}} = 0.57$$

$$y_s = (2.52)(4)(0.57)^{0.33}\left(\frac{0.55}{0.55}\right) = 8.37 \text{ ft}$$

Southwest Abutment (bent 1)

$v = 5.87$ ft/s, $d = 3.52$ ft $- 1.0$ ft $= 2.52$ ft

$$Fr = \frac{5.87}{\sqrt{(32.2)(2.52)}} = 0.65$$

$$y_s = (2.52)(4)(0.65)^{0.33}\left(\frac{0.55}{0.55}\right) = 8.74 \text{ ft}$$

Chef Menteur Pass @ US 90, 006-05-00.00-1

Scour Results, Worst Case Event

Bent NE	WSPRO Stationing (ft.)	Scour Estimate				Bottom Elevation of Pile Cap (ft NGVD)	Minimum Bed Elevation (ft. NGVD)	Minimum Pile/Caisson Length (ft.)	Approximate Pile/Caisson Tip Elevation (ft. NGVD)	Maximum Scour Elevation (ft. NGVD)
		Contraction (ft.)	Pier (ft.)	Abutment (ft.)	Total (ft.)					
Bent 22	100	----	----	8.37	8.37	6.6	5.0	65.0	-57.9	-3.4
Bent 21	125	----	3.41	----	3.41	6.9	1.0	65.0	-57.6	-2.4
Bent 20	150	----	3.41	----	3.41	7.3	-0.3	65.0	-57.2	-3.7
Bent 19	175	----	3.41	----	3.41	7.8	-1.0	65.0	-56.7	-4.4
Bent 18	200	----	3.41	----	3.41	8.8	-2.8	65.0	-55.7	-6.2
Bent 17	225	5.76	3.74	----	9.50	9.8	-8.1	65.0	-54.7	-17.6
Bent 16	250	5.76	6.72	----	12.48	9.6	-17.0	100.0	-89.9	-29.5
Bent 15	283	5.76	5.56	----	11.32	10.6	-23.7	unknown	unknown	-35.0
Bent 14	316	5.76	6.99	----	12.75	11.6	-42.6	60	-48	-55.4
Pier 5	349	5.76	30.03	----	35.79	N/A	-46.3	92	-80.43	-82.1
Pier 4	599	5.76	41.91	----	47.67	N/A	-47.8	112	-100.43	-95.5
Pier 3	734	5.76	44.67	----	50.43	N/A	-54.2	112	-100.43	-104.6
Pier 2	869	5.76	45.47	----	51.23	N/A	-67.4	112	-100.43	-118.6
Pier 1	1119	5.76	32.55	----	38.31	N/A	-52.3	112	-100.43	-90.6
Bent 8	1152	5.76	7.29	----	13.05	11.6	-34.2	unknown	unknown	-47.3
Bent 7	1185	5.76	8.33	----	14.09	10.6	-7.8	125.0	-113.9	-21.9
Bent 6	1205	5.76	4.07	----	9.83	9.6	-2.7	60.0	-49.9	-12.5
Bent 5	1225	----	3.62	----	3.62	8.4	1.0	60.0	-51.1	-2.6
Bent 4	1245	----	3.62	----	3.62	7.8	1.0	55.0	-46.7	-2.6
Bent 3	1265	----	3.62	----	3.62	7.2	1.0	55.0	-47.3	-2.6
Bent 2	1285	----	3.62	----	3.62	6.3	1.0	50.0	-43.2	-2.6
Bent 1 SW	1305	----	----	8.74	8.74	5.8	5.0	50.0	-43.7	-3.7

NOTES: (1) Pile/Caisson Tip Elevation for Bent 14 and Pier 5 from DOTD memo dated 11/12/1993
(2) Bottom of footing elevations for Piers 1-5 are from LADOTD memo dated 1/11/89.
(3) Pile lengths for bents 7 and 16 are for the added H pile bents. Bents 8 and 14 also rehabilitated but pile length documentation not found.

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Bent	Pre-Scour Pile Penetration	Pre-Scour Percent Penetration	Remaining Pile Penetration (ft.)	Exposed Pile Length (ft.)	Percent Penetration	Percent of Existing Embedment Scoured
NE						
Bent 22	62.9	97	54.5	10.5	84	13.3
Bent 21	58.6	90	55.2	9.8	85	5.8
Bent 20	56.9	88	53.5	11.5	82	6.0
Bent 19	55.7	86	52.3	12.7	80	6.1
Bent 18	52.9	81	49.5	15.5	76	6.4
Bent 17	46.6	72	37.1	27.9	57	20.4
Bent 16	72.9	73	60.4	39.6	60	17.1
Bent 15	unknown	unknown	unknown	unknown	unknown	unknown
Bent 14	5.4	9	-7.4	60.0	0	100.0
Pier 5	34.1	37	-1.7	93.7	0	100.0
Pier 4	52.6	47	5.0	107.0	4	90.6
Pier 3	46.2	41	-4.2	112.0	0	100.0
Pier 2	33.0	29	-18.2	112.0	0	100.0
Pier 1	48.1	43	9.8	102.2	9	79.6
Bent 8	unknown	unknown	unknown	unknown	unknown	unknown
Bent 7	106.1	85	92.0	33.0	74	13.3
Bent 6	47.2	79	37.4	22.6	62	20.8
Bent 5	52.1	87	48.5	11.5	81	6.9
Bent 4	47.7	87	44.1	10.9	80	7.6
Bent 3	48.3	88	44.7	10.3	81	7.5
Bent 2	44.2	88	40.6	9.4	81	8.2
Bent 1	48.7	97	40.0	10.0	80	17.9
SW						

SCOUR ANALYSIS SUMMARY

All values given in the table below should be depths and not elevations.

		DESIGN FLOOD SCOUR EVENT		CHECK FLOOD SCOUR EVENT		GOVERNING SCOUR EVENT
		☐ 100 year	Overtopping ☐ year	☐ 500 year	Overtopping ☐ year	Worst Case Event –Imminent Approach Overtopping
Discharge (m^3/s):						14400
Contraction Scour (m):	Left Overbank:					0
	Main Channel:					1.76
	Right Overbank:					0
Maximum Pier Scour (m):	Worst Pier: (With Lowest Scour Elevation): (Pier No: 2)					13.86
	Worst Pier (With Least Remaining Pile Embedment): (Pier/Bent No: 2)					13.87
Abutment Scour (m):	Left Abutment:					2.55
	Right Abutment:					2.66
MAXIMUM TOTAL SCOUR (m):						15.62

REFERRED TO

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

INTRADEPARTMENTAL CORRESPONDENCE

___ REFERRED FOR ACTION
___ ANSWER FOR MY SIGNATURE
___ FOR FILE
___ FOR YOUR INFORMATION
___ FOR SIGNATURE
___ RETURN TO ME
___ PLEASE SEE ME
___ PLEASE TELEPHONE ME
___ FOR APPROVAL
___ PLEASE ADVISE ME

BY _____ DATE _____
BY _____ DATE _____
BY _____ DATE _____

IN REPLY REFER TO
FILE NO.

Phone: (225) 379-1723

September 19, 2012

STATE PROJECT NO. 700-30-0025 (H.008768)
BRIDGE NO. 006-05-0000-1
CONTROL SECTION: 6-05
NAME: CHEF MENTEUR PASS
ROUTE: US 90
PARISH: ORLEANS

MEMORANDUM TO:

MR. WILLIAM RAY
HYDRAULICS DESIGN ENGINEER ADMINISTRATOR

ATTENTION: Mr. Tingzong Guo

Transmitted herewith are the preliminary comparison chart and the sketch showing obstructions and approximate water's edge location of the current hydrographic survey made for the captioned structure.

It is recommended that you have someone who is experienced in analyzing this type of work check the preliminary comparison chart being furnished against current and past field hydrographic survey data to determine if any significant scour condition exists at this structure.

There is a strong current with no drift around piers.

Eric Lanier
Location & Survey Administrator

By: Carl Hultgren, P.L.S.
Surveyor 4

CWH/cwh

w/attachments E-mail

Cc: Mr. Michael Stack
Ms. Stephanie Cavalier
Mr. John Guidry
Mr. Tyler Hodges
Attn: Mr. Buzzy Wegener

RECOMMENDED FOR APPROVAL _____ DATE _____

RECOMMENDED FOR APPROVAL _____ DATE _____

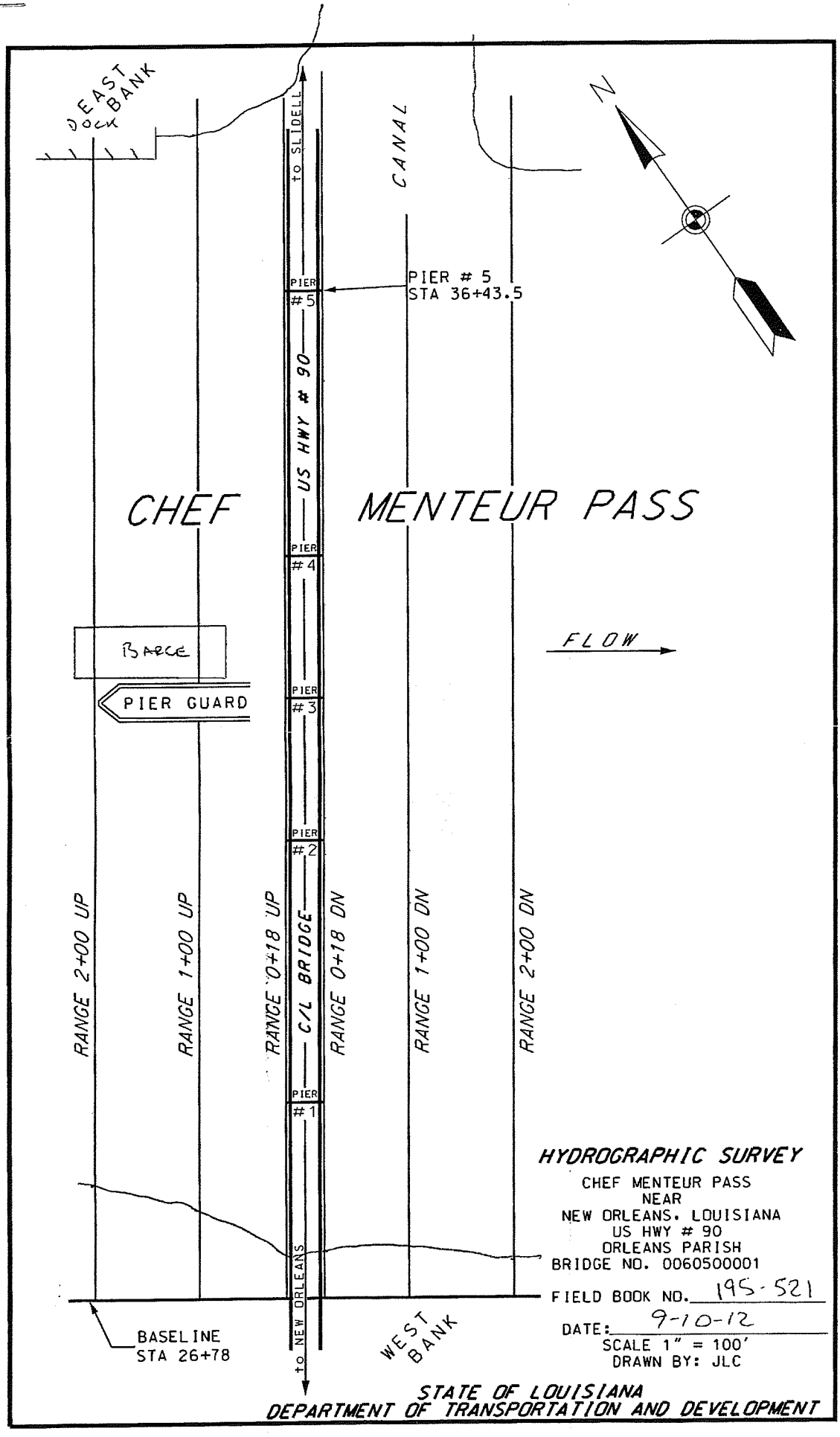
RECOMMENDED FOR APPROVAL _____ DATE _____

APPROVED _____ DATE _____

BRIDGE NO. 0060500001								US 90 ORLEANS PARISH			
CHEF MENTEUR PASS BRIDGE AT NEW ORLEANS								LAST SURVEY		07/02/12	
CONTROL SECTION 6-05			STRUCTURE TYPE 60					CURRENT SURVEY		09/10/12	
PIER	PIER	RANGE	ORIG	FIRST	EXIST	TOTAL	PREV.	CHANGE	TOP OF	BOTTOM	BOTTOM
NO.			BOT.	SURVEY	ELEV.	SCOUR -	ELEV.	LAST	FOOTING	FOOTING	PILE
TO	NO.		ELEV.	ELEV.		BUILD +		SURVEY	ELEV.	ELEV.	ELEV.
BENT	14	UP 2+00		-16.3		N/A		N/A			
	5	UP 2+00		-34.0	-38.8	-4.8	-38.7	-0.1		-80.4	
	4	UP 2+00		-38.0	-46.6	-8.6	-47.7	1.1		-100.4	
	3	UP 2+00		-54.0	-63.6	-9.6	-54.6	-9.0		-100.4	
	2	UP 2+00		-65.0	-72.4	-7.4	-54.3	-18.1		-100.4	
2	1	UP 2+00		-51.1	-40.1	11.0	-63.2	23.1			
	1	UP 2+00		-30.0		N/A	-39.5	N/A		-100.4	
BENT	8	UP 2+00		-26.4		N/A		N/A			
BENT	7	UP 2+00		-10.0		N/A		N/A			
BENT	15	UP 1+00		-13.2		N/A		N/A			
BENT	14	UP 1+00		-30.4		N/A		N/A			
	5	UP 1+00		-30.0	-40.8	-10.8	-41.5	0.7		-80.4	
	4	UP 1+00		-30.0	-49.5	-19.5	-51.5	2.0		-100.4	
	3	UP 1+00		-41.0		N/A	-60.6	N/A		-100.4	
	2	UP 1+00		-55.0	-73.0	-18.0	-64.7	-8.3		-100.4	
	1	UP 1+00		-27.0	-45.9	-18.9		N/A		-100.4	
BENT	8	UP 1+00		-27.4		N/A		N/A			
BENT	7	UP 1+00		-3.2		N/A		N/A			
	4	UP 0+58		-36.0		N/A		N/A			
	3	UP 0+58		-47.5		N/A		N/A			
	2	UP 0+58		-59.6		N/A		N/A			
	1	UP 0+58		-40.3		N/A		N/A			
BENT	8	UP 0+58		-26.0		N/A		N/A			
BENT	7	UP 0+58		-18.0		N/A		N/A			
BENT	6	UP 0+58		-8.0		N/A		N/A			
BENT	5	UP 0+58		-3.1		N/A		N/A			
	5	UP 0+38		-41.9		N/A		N/A		-80.4	
	4	UP 0+38		-36.8		N/A		N/A		-100.4	
	3	UP 0+38		-49.4		N/A		N/A		-100.4	
	2	UP 0+38		-58.7		N/A		N/A		-100.4	
	1	UP 0+38		-34.6		N/A		N/A		-100.4	
BENT	8	UP 0+38		-23.5		N/A		N/A			
BENT	7	UP 0+38		-12.0		N/A		N/A			
BENT	6	UP 0+38		0.0		N/A		N/A			
BENT	5	UP 0+38		0.0		N/A		N/A			
BENT	4	UP 0+38		0.0		N/A		N/A			
BENT	17	UP O+18		-0.3	-5.2	-4.9		N/A			
BENT	16	UP O+18		-7.2		N/A		N/A			
BENT	15	UP O+18		-18.5		N/A		N/A			
BENT	14	UP O+18		-38.5		N/A		N/A			
	5	UP O+18	-17.0		-39.4	-22.4	-42.2	2.8		-80.4	
	4	UP O+18	-30.0		-45.6	-15.6	-46.2	0.6		-100.4	
	3	UP O+18	-38.0		-53.2	-15.2		N/A		-100.4	
3	2	UP O+18		-67.5	-69.6	-2.1	-68.4	-1.2			
	2	UP O+18	-50.0		-62.1	-12.1	-61.2	-0.9		-100.4	

BRIDGE NO. 0060500001								US 90 ORLEANS PARISH			
CHEF MENTEUR PASS BRIDGE AT NEW ORLEANS								LAST SURVEY		07/02/12	
CONTROL SECTION 6-05			STRUCTURE TYPE 60					CURRENT SURVEY		09/10/12	
PIER NO. TO	PIER NO.	RANGE	ORIG BOT. ELEV.	FIRST SURVEY ELEV.	EXIST ELEV.	TOTAL SCOUR - BUILD +	PREV. ELEV.	CHANGE LAST SURVEY	TOP OF FOOTING ELEV.	BOTTOM FOOTING ELEV.	BOTTOM PILE ELEV.
	1	UP O+18	-21.5		-25.1	-3.6	-27.5	2.4		-100.4	
BENT	8	UP O+18		-28.0		N/A		N/A			
BENT	7	UP O+18		-5.4		N/A		N/A			
BENT	6	UP O+18		-0.8		N/A		N/A			
BENT	19	DN 0+18		-1.2	-12.1	-10.9	-17.2	5.1			
BENT	18	DN 0+18		-0.7	-14.6	-13.9	-14.2	-0.4			
BENT	17	DN 0+18		-12.7	-17.3	-4.6	-16.8	-0.5			
BENT	16	DN 0+18		-16.9		N/A		N/A			
BENT	15	DN 0+18		-22.5		N/A		N/A			
BENT	14	DN 0+18		-37.2		N/A		N/A			
	5	DN 0+18	-17.0		-43.9	-26.9	-44.9	1.0		-80.4	
	4	DN 0+18	-30.0		-45.3	-15.3	-49.8	4.5		-100.4	
	3	DN 0+18	-38.0		-56.4	-18.4	-62.2	5.8		-100.4	
3	2	DN 0+18		-53.7	-67.4	-13.7	-64.8	-2.6			
	2	DN 0+18	-50.0		-63.3	-13.3	-61.0	-2.3		-100.4	
2	1	DN 0+18		-68.1	-65.0	3.1	-66.4	1.4			
	1	DN 0+18	-21.5		-36.2	-14.7	-37.2	1.0		-100.4	
BENT	8	DN 0+18		-35.6		N/A		N/A			
BENT	7	DN 0+18		-11.9		N/A		N/A			
BENT	6	DN 0+38		-2.5		N/A		N/A			
BENT	21	DN 0+38		-4.5		N/A		N/A			
BENT	20	DN 0+38				N/A		N/A			
BENT	19	DN 0+38				N/A		N/A			
BENT	18	DN 0+38				N/A		N/A			
BENT	17	DN 0+38				N/A		N/A			
BENT	16	DN 0+38				N/A		N/A			
BENT	15	DN 0+38				N/A		N/A			
BENT	14	DN 0+38				N/A		N/A			
	5	DN 0+38				N/A		N/A		-80.4	
	4	DN 0+38				N/A		N/A		-100.4	
	3	DN 0+38				N/A		N/A		-100.4	
	2	DN 0+38				N/A		N/A		-100.4	
	1	DN 0+38				N/A		N/A		-100.4	
BENT	8	DN 0+38				N/A		N/A			
BENT	7	DN 0+38				N/A		N/A			
BENT	6	DN 0+38				N/A		N/A			
BENT	5	DN 0+38				N/A		N/A			
BENT	4	DN 0+38				N/A		N/A			
BENT	22	DN 0+58				N/A		N/A			
BENT	21	DN 0+58				N/A		N/A			
BENT	20	DN 0+58				N/A		N/A			
BENT	19	DN 0+58				N/A		N/A			
BENT	18	DN 0+58				N/A		N/A			
BENT	17	DN 0+58				N/A		N/A			
BENT	16	DN 0+58				N/A		N/A			

BRIDGE NO. 0060500001								US 90 ORLEANS PARISH			
CHEF MENTEUR PASS BRIDGE AT NEW ORLEANS								LAST SURVEY		07/02/12	
CONTROL SECTION 6-05				STRUCTURE TYPE 60				CURRENT SURVEY		09/10/12	
PIER	PIER	RANGE	ORIG	FIRST	EXIST	TOTAL	PREV.	CHANGE	TOP OF	BOTTOM	BOTTOM
NO.			BOT.	SURVEY	ELEV.	SCOUR -	ELEV.	LAST	FOOTING	FOOTING	PILE
TO	NO.		ELEV.	ELEV.		BUILD +		SURVEY	ELEV.	ELEV.	ELEV.
BENT	15	DN 0+58				N/A		N/A			
BENT	14	DN 0+58				N/A		N/A			
	5	DN 0+58				N/A		N/A		-80.4	
	4	DN 0+58				N/A		N/A		-100.4	
	3	DN 0+58				N/A		N/A		-100.4	
	2	DN 0+58				N/A		N/A		-100.4	
	1	DN 0+58				N/A		N/A		-100.4	
BENT	8	DN 0+58				N/A		N/A			
BENT	7	DN 0+58				N/A		N/A			
BENT	6	DN 0+58				N/A		N/A			
BENT	5	DN 0+58				N/A		N/A			
BENT	4	DN 0+58				N/A		N/A			
BENT	16	DN 1+00				N/A		N/A			
BENT	15	DN 1+00		-15.3		N/A		N/A			
BENT	14	DN 1+00		-31.0		N/A		N/A			
	5	DN 1+00		-32.0	-37.8	-5.8	-37.5	-0.3		-80.4	
	4	DN 1+00		-39.0	-47.1	-8.1	-46.6	-0.5		-100.4	
	3	DN 1+00		-53.0	-52.4	0.6	-49.2	-3.2		-100.4	
	2	DN 1+00		-57.0	-60.9	-3.9	-60.8	-0.1		-100.4	
2	1	DN 1+00		-64.3	-67.4	-3.1	-65.5	-1.9			
	1	DN 1+00		-35.0	-46.4	-11.4	-42.2	-4.2		-100.4	
BENT	8	DN 1+00		-39.0		N/A		N/A			
BENT	7	DN 1+00		-17.2		N/A		N/A			
BENT	6	DN 1+00		-3.7		N/A		N/A			
BENT	14	DN 2+00		-17.2		N/A		N/A			
	5	DN 2+00		-27.0	-32.5	-5.5	-33.1	0.6		-80.4	
	4	DN 2+00		-36.0	-44.5	-8.5	-45.0	0.5		-100.4	
	3	DN 2+00		-42.0	-55.5	-13.5	-55.3	-0.2		-100.4	
	2	DN 2+00		-57.0	-64.3	-7.3	-65.8	1.5		-100.4	
2	1	DN 2+00		-63.0	-67.2	-4.2	-68.0	0.8			
	1	DN 2+00		-37.0	-53.6	-16.6	-51.1	-2.5		-100.4	
BENT	8	DN 2+00		-46.2		N/A		N/A			
BENT	7	DN 2+00		-24.9		N/A		N/A			
BENT	6	DN 2+00		-4.7		N/A		N/A			
BENT	5	DN 2+00		-0.7		N/A		N/A			


EAST BANK
to SLIDELL
CANAL
N
PIER #5
PIER # 5
STA 36+43.5
US HWY # 90
CHEF
MENTEUR PASS
PIER #4
BARGE
PIER GUARD
FLOW
PIER #3
PIER #2
C/L BRIDGE
PIER #1
RANGE 2+00 UP
RANGE 1+00 UP
RANGE 0+18 UP
RANGE 0+18 DN
RANGE 1+00 DN
RANGE 2+00 DN
to NEW ORLEANS
WEST BANK
BASELINE
STA 26+78
HYDROGRAPHIC SURVEY
CHEF MENTEUR PASS
NEAR
NEW ORLEANS. LOUISIANA
US HWY # 90
ORLEANS PARISH
BRIDGE NO. 0060500001
FIELD BOOK NO. 195-521
DATE: 9-10-12
SCALE 1" = 100'
DRAWN BY: JLC
STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

By J Hestevan Date: 10/29/04 (67)

Checked [illegible] Date: 11/3/04

US90 Chef Menteur Bridge
Scour Analysis of Existing Pier Foundations

Pier Foundation Data

Pier No.	Station	Roadway Crown		Pier Top		Pier Stem Bottom (Plan)	Pier Stem Bottom (As-Built)	Pier Base (Plan)	Pier Base (As-Built)
		Cairo Datum	MSL Datum	Cairo Datum	MSL Datum	MSL Datum	MSL Datum	MSL Datum	MSL Datum
Bent 8	28+31.00								
Pier 1	28+66.00	+37.50	+17.07	+32.09	+11.66	-14.00	-37.00	-80.00	-103.00
Pier 2	31+18.25	+40.00	+19.57	+32.97	+12.54	-18.00	-39.00	-84.00	-105.00
Pier 3	32+54.75	+40.00	+19.57	+31.90	+11.47	-14.00	-35.00	-80.00	-91.00
Pier 4	33+91.25	+40.00	+19.57	+32.97	+12.54	-20.00	-35.00	+80.00	-91.00
Pier 5	36+43.50	+37.50	+17.07	+32.09	+11.66	+0.00	-15.00	-60.00	-81.00
Bent 14	36+76.50								

Pier No.	Span Lengths Supported				Pier Stem Length	Pier Bottom Length	Normal Mudline Elev (Yr 2002)	Pier Mudline Embed-ment	Predicted Scour Elev
	Back	Ahead	Sum	Swing Span Position			MSL Datum		MSL Datum
	(ft)	(ft)	(ft)		(ft)	(ft)		(ft)	
Pier 1	17.50	126.13	143.63	Either	48.66	66.00	-47.00	56.00	-108.00
Pier 2	126.13	68.25	194.38	Closed	51.54	66.00	-58.00	47.00	-118.00
Pier 3	136.50	136.50	273.00	Open	46.47	56.00	-47.00	44.00	-111.00
Pier 4	68.25	126.13	194.38	Closed	47.54	56.00	-38.00	53.00	-102.00
Pier 5	126.13	17.50	143.63	Either	26.66	66.00	-43.00	38.00	-112.00

4.0 Executive Summary

For additional description of the geotechnical analyses performed for the existing main pier foundations, refer to Appendix C, Geotechnical Analysis.

Under AASHTO Group I loading, for scour of about 20 feet below the Phase II existing mudline elevation at Pier 3 (i.e. to El. -47 minus 20 feet = El. -67, or about 31 percent of the predicted 64 foot scour depth under design storm conditions), with no wind load and with lateral loads from full velocity stream flow load effects only acting at the same time, the probable lateral displacement at the top of the pier is approximately 2 inches, with simultaneous downward pier displacement of approximately 3/4 inches. This degree of lateral displacement, produced by AASHTO Group I loading under 20 feet of scour depth, matches the maximum limiting evaluation criterion value for lateral displacement, and therefore the critical scour depth for the structure is 20 feet.

Critical Scour Evaluations

The Phase II hydraulic report states that the appropriate design storm for making predictions of maximum credible scour has a return period of approximately 50 years, and that such a storm produces a water level of El. +14 at the US-90 Chef Menteur Pass Bridge. At that elevation, the storm surge water level is higher than the top of the piers foundations, but slightly lower than the bottom of the lowest members of the truss structures that support the bridge deck.

The hydraulic study predicts that the design storm would produce a total depth scour at Pier 3 of approximately 64 feet below the recent normal stream bed level of El. -47, or scour of stream bed soils down to El. -111. Scour to that depth would extend well below the as-built base levels of the Pier 3 caisson foundation, resulting in its total undermining.

See Appendix C and Appendix E for additional information concerning the critical scour evaluations.

Recommendations

The "remaining scour depth" for Pier 3 of the Chef Menteur is equal to the Phase II mudline elevation minus the critical scour elevation, or El. -47 minus El. -67, or a remaining scour depth of 20 feet (equal to the critical scour depth). Available geotechnical data indicates that the soils in that subsurface horizon near Pier 3 consist primarily of approximately 15 feet of soft river sediments, which in turn consists of a heterogonous mix of silts, sands, clay, and organic muck. overlying a approximately 5 feet of medium stiff to stiff clay to sandy clay. It should be born in mind in making these assessments, however, that the available subsurface information at Pier 3 and the other main piers is quite limited.

Referring to the scour countermeasures criteria table already presented above, although the remaining scour depth is greater than 4 feet, the soils within the remaining scour depth consist primarily of highly scour susceptible river sediments overlying a lesser thickness of moderately scour susceptible clays. PB therefore recommends that scour countermeasures be implemented for main piers of the Chef Menteur Pass Bridge.

Historically, scour has produced severe adverse effects at Chef Menteur Pass Bridge, but these effects appear to have been limited to the approach embankments and approach spans, not the

main spans. There is no information available to PB to indicate that the main piers have been adversely affected enough from the past measured actual scour of up to about 20 feet (i.e. to El. -67) to require any remedial repairs or adjustments, even though major reconstruction and reconfiguration of the bridge approach embankments and approach piers has been repeatedly required.

It should be noted, however, that PB has been provided no other information about the degree of measured scour nor the specifics of any adverse effects that the US-90 Chef Menteur Pass Bridge underwent during the August 2005 Hurricane Katrina event, other than that the bridge has been closed since a few days after the storm, apparently because of approach span stability concerns again. Our recommendations, therefore, do not have the advantage of information about the scour depths that developed nor how the Chef Menteur Pass Bridge performed during Hurricane Katrina.

As stated above, PB does recommend that scour countermeasures be implemented for the main piers and because the river sediments of the 20 foot thick remaining scour depth at Pier 3 are highly scour susceptible. However, until the approach embankments and the approach piers are effectively counter measured, there will be little benefit to scour countermeasures around the main piers.

Although there has been no observed debris build-up at the Chef Menteur Pass Bridge based on the independent Phase II site observations and the review of the past inspection reports, it is recommended that the bridge be monitored until its eventual replacement for potential debris build-up.

It is recommended that once the bridge is reopened, debris build-up and scour conditions be monitored no less frequently than on a biennial basis, as well as during or immediately after any unusually high flow conditions in Chef Menteur Pass.

It is also recommended that item 113 of the National Bridge Inventory System (NBIS) be coded 2 (two) for the US-90 Chef Menteur Pass Bridge. The reasons for this recommendation are that A) each of the main piers are unstable for the predicted Phase II scour elevation, and are susceptible to lateral displacement of two inches or more at a scour depth of 20 feet, and B) the approach embankments and approach spans apparently again experienced significant adverse affects during Hurricane Katrina in August 2005, and the bridge has apparently been closed since Hurricane Katrina for that reason.

5.0 Glossary

AASHTO	American Association of State Highway and Transportation Officials
Abutment/End Bent	Support between end spans and pavement
As-Built	As originally constructed
Bents/Pier	Supports for more than one span; also referred to as "intermediate bents" or "main span support"

BOBBY JINDAL
GOVERNOR

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
P.O. Box 94245
Baton Rouge, Louisiana 70804-9245
www.dotd.la.gov
(225) 242-4502

WILLIAM D. ANKNER, Ph.D.
SECRETARY

August 17, 2009

STATE PROJECT NOS. 006-05-0087 & 006-05-0092
F.A.P. NOS. ER-ERP1 (103) & ER-ERP3 (003)
NAME: CHEF MENTEUR BRIDGE FENDER SYSTEM REPAIRS
ROUTE: US 90
PARISH: ORLEANS

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

SUBJECT: No Historic Properties Affected

Dear Mr. Hutcheson:

The Louisiana Department of Transportation and Development (DOTD) proposes to repair the fender system at piers 2, 3, and 4 at the Chef Menteur Bridge (Structure No.02360060500001) on US 90 in Orleans Parish (see attached map). Built in 1930, this bridge is a 1,175-foot long high steel truss swing span bridge with two 10-foot wide travel lanes (see attached figures). LADOTD determined that the existing bridge is eligible for the National Register of Historic Places (NRHP) under Criterion A and C. The SHPO, in a letter dated May 12, 1998, concurred with this finding.

Revised Identification and Evaluation Survey of Historic High Steel Swing-Span Bridges in Louisiana, prepared for LADOTD in January and February 1998 by Woodward-Clyde International-Americas, was consulted for information on the Chef Menteur Bridge. This bridge is significant under Criterion A since it is exemplifies the progressive transportation policies supported in Louisiana in the late 1920's, particularly by Governor Huey P. Long. Furthermore, the Chef Menteur Bridge served as the first permanent crossing located at this site. With regards to Criterion C, this bridge is significant in the area of engineering as it is a good representation of a center-bearing Warren truss with verticals swing-span bridge. Also, the bridge is indicative of the engineering solutions required to successfully build bridges in soft soil areas of Louisiana. The survey also stated that the fender system of the Chef Menteur Bridge has been repaired numerous times due to the effects of weathering and collisions with water-borne vessels.

This project will involve replacing the existing fender system with new treated timber and treated timber piles at piers 2, 3, & 4. The proposed work will not affect the qualities of this bridge that make it eligible for the NRHP under Criterion A and C. Therefore, FHWA, in conjunction with DOTD, has determined that no historic properties will be affected by the proposed project. We request your concurrence.

If you have any questions or comments, please call Nikki Leon at (225) 242-4514.

Sincerely,

Noel Ardoin
Environmental Engineer Administrator

Attachments
NA/nl
cc. Chad Turner

Appendix B

Current Design Standards and Typical Sections

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ARCADIS
10352 Plaza Americana Drive
Baton Rouge, LA 70816
t. 225.292.1004 f. 225.218.9677

Geometric Design Criteria

(Compiled December 7, 2012)

US90 – Chef Menteur Pass Bridge

Environmental Assessment

LaDOTD Project No: H.000263

Item No.	Item	Mainline Highway Suburban SA-2	Design Exception Required
1	Design Speed (mph)	55	No
2	Level of Service[1]	C	No
3	Number of Lanes (minimum)	2 (min) – 4 (typ)	No
4	Width of Travel Lanes (ft)	12	No
5	Width of Shoulders (ft)[2]		
	(a) Inside	4	No
	(b) Outside	8	No
6	Shoulder Type	Paved	No
7	Width of Parking Lanes (where used) (ft)		
8	Width of Median on Multilane Facilities(minimum) (ft)		
	(a) Depressed	42	No
	(b) Raised	30	No
	(c) Two-way Left Turn Lane	n/a	No
9	Width of Sidewalk (minimum) (where used) (ft)[3,4]		
	(a) When offset from curb	4	
	(b) When adjacent to curb	n/a	
10	Fore Slope (vertical – horizontal)	1:6	No
11	Back Slope (vertical-horizontal)	1:4	No
12	Pavement Cross Slope (%)	2.5	No
13	Minimum Stopping Sight Distance (ft)	495	No
14	Maximum Superelevation (%)	6	No
15	Minimum Radius (ft)[5,6]		
	(a) With Normal Crown (-2.5% cross-slope)	19,700	No
	(b) With 2.5% Superelevation	5,250	No
	(c) With Full Superelevation	1,100	No
16	Maximum Grade (%)	4	No
17	Minimum Vertical Clearance (ft)	16[7]	No
18	Minimum Clear Zone (ft)		
	(a) From edge of through travel lane	24	No
	(b) Outside from back of curb (when curb is used)	14	No
	(c) Median from back of curb[8] (when curb is used)	18	No
19	Bridge Design Live Load[9]	AASHTO	No
20	Minimum Width of Bridges (face to face of bridge rail at gutter line)		
	(a) Curbed facilities (without sidewalks)	Roadway Width	No
	(b) Shoulder facilities	Roadway Width	No
21	Guardrail Required at Bridge Ends	Yes	No

[1] Level of Service D can be used in urban areas.
[2] As a two lane facility, where curb is used on the Chef Menteur Pass Bridge and approaches, it will be placed at the edge of shoulder. See EDSM II.2.1.7. Curb will not be placed in front of guardrail.
[3] Where sidewalks are used, sidewalks will be separated from shoulder.
[4] For the mainline highway, sidewalks should be placed as near the right of way line as possible. They should desirably be placed outside the minimum clear zone shown in Item 18.
[5] It may be necessary to increase the radius of the curve and/or increase the shoulder width (maximum of 12 feet) to provided adequate stopping sight distance on structure.
[6] At divisional islands a radius of 5,750' and Degree of Curve of 1°00' shall be used (specific to this design speed).
[7] An additional 6 inches should be added for additional future surfacing.
[8] Where left turn lanes are provided or where the median is less than 6 feet in width, the minimum clearance will be 1.5 feet from back of curb. For median slopes steeper than 1:6, a clear zone as outlined in the AASHTO Roadside Design Guide shall be provided.
[9] LRFD for bridge design.

ARCADIS
10352 Plaza Americana Drive
Baton Rouge, LA 70816
t. 225.292.1004 f. 225.218.9677

Geometric Design Criteria

(Compiled December 7, 2012)

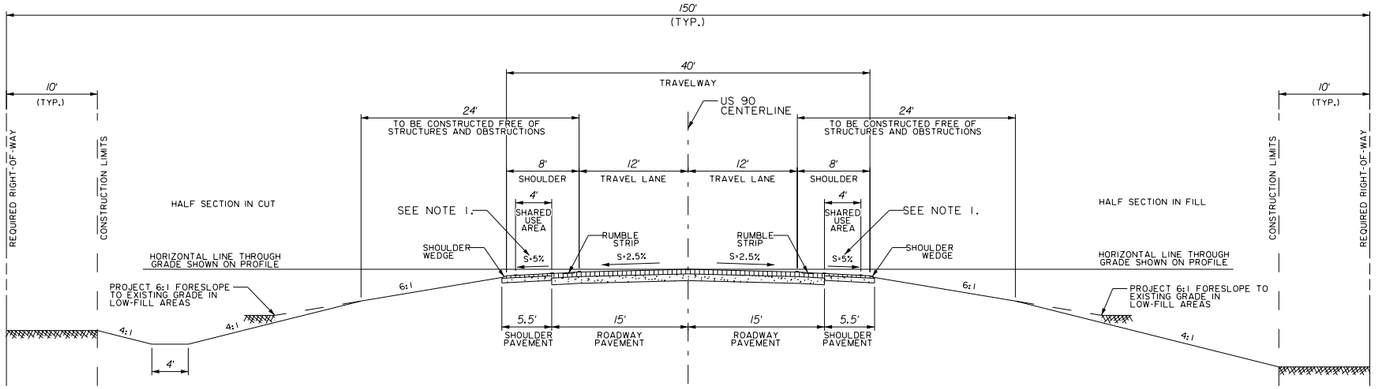
US90 – Chef Menteur Pass Bridge

Environmental Assessment

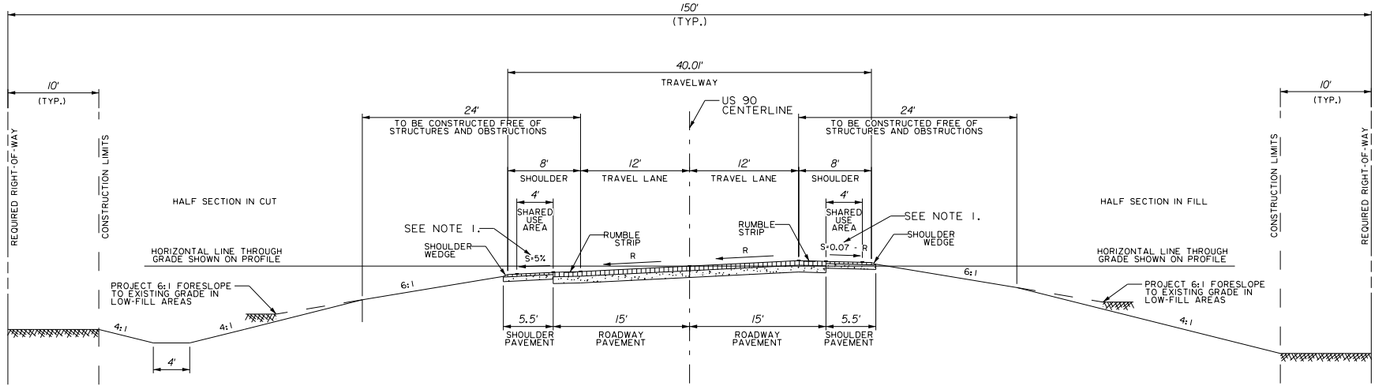
LaDOTD Project No: H.000263

Item No.	Item	Frontage Roads West of Chef Pass SC-1	Frontage Roads East of Chef Pass RC-1	Design Exception Required
1	Average Daily Traffic	N/A	Under 400	No
2	Design Speed (mph)	40	40	No
3	Number of Lanes (minimum)	2 – 4	2	No
4	Width of Travel Lanes (ft)	11	11	No
5	Width of Shoulders (ft)[1]			
	(a) Inside	N/A	N/A	No
	(b) Outside	4 - 5[2,3]	2[4]	No
6	Shoulder Type	Paved	Paved	No
7	Width of Parking Lanes (where used) (ft)	7 - 10[5]	N/A	
8	Width of Median on Multilane Facilities(minimum) (ft)			
	(a) Depressed	N/A	N/A	No
	(b) Raised	4 (min) – 30 (des)	N/A	No
	(c) Two-way Left Turn Lane	11 – 14 typ.[6]	N/A	No
9	Width of Sidewalk (minimum) (where used) (ft)[7,8]			
	(a) When offset from curb	4	N/A	No
	(b) When adjacent to curb	6	N/A	No
10	Fore Slope (vertical – horizontal)	1:4[9]	1:4	No
11	Back Slope (vertical-horizontal)	1:3	1:4[10]	No
12	Pavement Cross Slope (%)	2.5	2.5	No
13	Minimum Stopping Sight Distance (ft)	305	305	No
14	Maximum Superelevation (%)	4	10	No
15	Minimum Radius (ft)[11,12]			
	(a) With Normal Crown (-2.5% cross-slope)	700	11,625	No
	(b) With 2.5% Superelevation	550	3,250	No
	(c) With Full Superelevation	500	450	No
16	Maximum Grade (%)	7	7	No
17	Minimum Vertical Clearance (ft)[13]	15	15	No
18	Minimum Clear Zone (ft)			
	(a) From edge of through travel lane	10	10	No
	(b) Outside from back of curb (when curb is used)	1 (min) – 6 (des)		No
	(c) Median from back of curb[14] (when curb is used)	1 (min) – 6 (des)		No
19	Bridge Design Live Load[15]	AASHTO	AASHTO	No
20	Minimum Width of Bridges (face to face of bridge rail at gutter line)			
	(a) Curbed facilities (without sidewalks)	Traveled Way[16] plus 8’		No
	(b) Shoulder facilities	Roadway Width	30’	No
21	Guardrail Required at Bridge Ends		[16]	No

[1] As a two lane facility, where curb is used on the Chef Menteur Pass Bridge and approaches, it will be placed at the edge of shoulder. See EDSM II.2.1.7. Curb will not be placed in front of guardrail.
[2] Per Exhibit 6-5 on page 425 in the '2004 AASHTO Policy on Geometric Design of Highway and Streets', for an ADT under 400 the shoulder may be reduced to 2 feet.
[3] Curb may be used instead of shoulder.
[4] Where bicycle activity is observed, a 4-foot shoulder should be provided.
[5] The project frontage roads front along residential areas and a width of 8 feet may be used for 40 mph.
[6] Cannot be used on multilane roadways (with four or more through lanes) without Chief Engineer's approval.
[7] Where sidewalks are used, sidewalks will be separated from shoulder.
[8] For the mainline highway, sidewalks should be placed as near the right of way line as possible. They should desirably be placed outside the minimum clear zone shown in Item 18.
[9] Where shoulders are used, 1:4 minimum fore slopes are required through the limits of minimum clear zone.
[10] 1:3 backslopes are allowed where right-of-way restrictions dictate.
[11] It may be necessary to increase the radius of the curve and/or increase the shoulder width (maximum of 12 feet) to provided adequate stopping sight distance on structure.
[12] At divisional islands a radius of 2,900' and Degree of Curve of 2°00' shall be used (specific to this design speed).
[13] Where the roadway dips to pass under a structure, a higher vertical clearance may be necessary. An additional 6 inches should be added for additional future surfacing.
[14] Where left turn lanes are provided or where the median is less than 6 feet in width, the minimum clearance will be 1.5 feet from back of curb. For median slopes steeper than 1:6, a clear zone as outlined in the AASHTO Roadside Design Guide shall be provided.
[15] LRFD for bridge design.
[16] Refer to EDSM II.3.1.4 when sidewalks will be provided and for guardrail requirements.



A 3c,3d TYPICAL FINISHED SECTION - SUBURBAN ARTERIAL (SA-2)



B 3c,3d SUPERELEVATED SECTION (SA-2)

SUPERELEVATION DETAILS (IN FEET)
WITH REFERENCE TO GRADE SHOWN ON PROFILE

Degree of Curve	R*	TRANSITION LENGTH	INSIDE SHOULDER RATE	OUTSIDE SHOULDER RATE
0° 00' - 0° 15'	N.C.	-	0.05	0.050
0° 15' - 1° 00'	R.C.	130	0.05	0.045
1° 00' - 1° 30'	0.030	140	0.05	0.040
1° 30' - 2° 00'	0.035	150	0.05	0.035
2° 00' - 2° 30'	0.039	160	0.05	0.031
2° 30' - 3° 00'	0.042	170	0.05	0.028
3° 00' - 3° 30'	0.045	180	0.05	0.025
3° 30' - 4° 00'	0.047	190	0.05	0.023
4° 00' - 4° 30'	0.049	190	0.05	0.021
4° 30' - 5° 00'	0.050	190	0.05	0.020

R* = Rate per ft.
Design Speed = 55 mph

N.C. = Normal Crown
R.C. = Remove Crown

DESIGN DATA:
CLASSIFICATION: SA-2
SECTION: 2-LANE UNDIVIDED W/SHOULDERS
DESIGN SPEED: 55 MPH
ADT 2017: 4200
ADT 2037: 5100
D: 55%
K: 10%
T: 10%
DHV: 510

NOTES:

1. SHOULDER SLOPES TO BE 5% EXCEPT WHERE THE COMPLETE STREETS POLICY REQUIRES PROVIDING FOR BICYCLE ACCESS. WHERE BICYCLE ACCESS IS ACCOMODATED THE SHOULDER SLOPE SHALL BE 2.5%.

2. ROADWAY PAVEMENT EXTENDED 3' BEYOND TRAVEL LANE DUE TO HEAVY TRUCK TRAFFIC.

Preliminary Plans
Subject to Change
Road Design

SHEET NUMBER 2

PARISH: ORLEANS
FEDERAL PROJECT: BR-61-07(020)
STATE PROJECT: H.000263.2

DESIGNED: W. JACOBS
CHECKED:
DETAILED: M. JOHNSON
CHECKED: D. FULKS
DATE: 07 MAY 2012
SHEET: 1 OF 8

NO.	REVISION DESCRIPTION	DATE	BY

TYPICAL SECTION
CHEF MENTEUR PASS BRIDGE
US 90

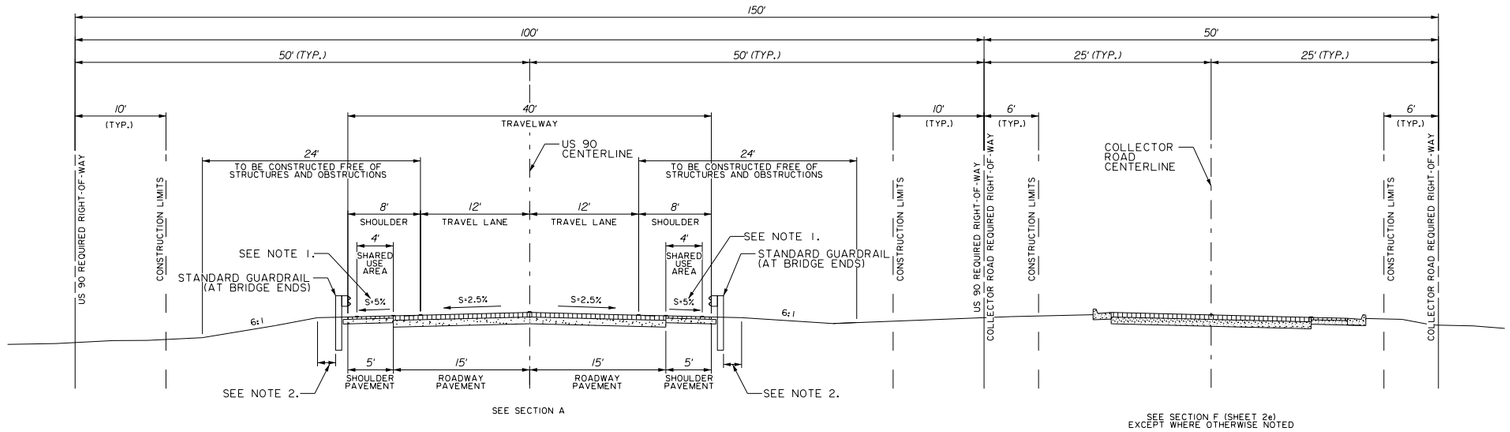
CHEF MENTEUR BRIDGE AND APPROACHES

ARCADIS
3939 N. CAUSEWAY BLVD., SUITE 1400
METAIRIE, LOUISIANA 70002
T. 504.832.4174 | F. 504.832.3145

NOTES:

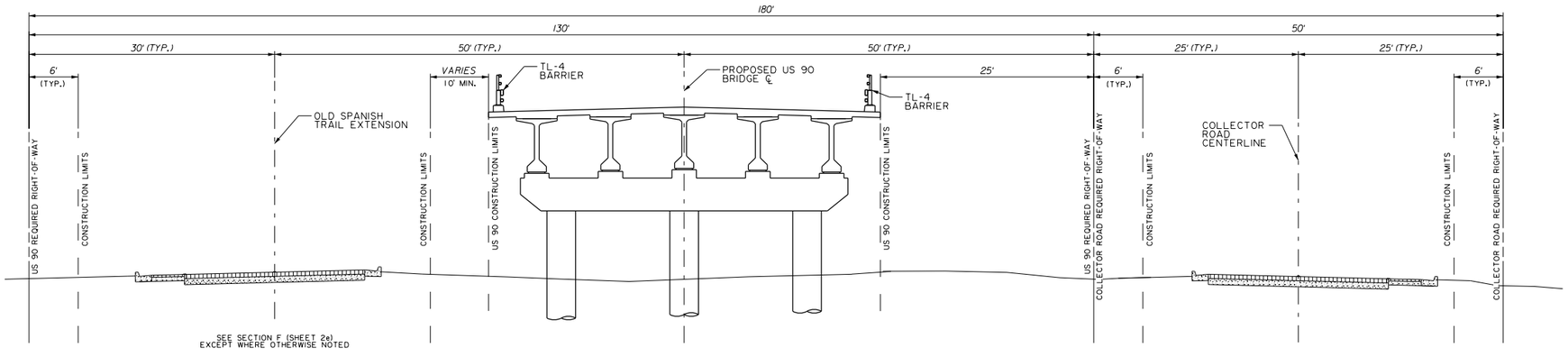
1. SHOULDER SLOPES TO BE 5% EXCEPT WHERE THE COMPLETE STREETS POLICY REQUIRES PROVIDING FOR BICYCLE ACCESS. WHERE BICYCLE ACCESS IS ACCOMODATED THE SHOULDER SLOPE SHALL BE 2.5%.

2. WHERE GUARDRAILS ARE REQUIRED THE PAVEMENT SHALL BE EXTENDED AND THE EMBANKMENT WIDENED IN ACCORDANCE WITH THE STANDARD DRAWING FOR GUARDRAIL EMBANKMENT WIDENING.



US 90 AND PROPOSED SOUTHERN FRONTAGE ROAD TYPICAL FINISHED SECTION

C 3,3a



OLD SPANISH TRAIL EXTENSION, LOW-LEVEL BRIDGE AND PROPOSED SOUTHERN FRONTAGE ROAD TYPICAL FINISHED SECTION

D 3,3a

Preliminary Plans
Subject to Change
Road Design

SHEET NUMBER	2a
PARISH	ORLEANS
FEDERAL PROJECT	BR-61-07(020)
STATE PROJECT	H.000263.2
DESIGNED	D. FULKS
CHECKED	W. JACOBS
DETAILED	M. JOHNSON
CHECKED	D. FULKS
DATE	07 MAY 2012
SHEET	2 OF 8

NO.	DATE	REVISION DESCRIPTION	BY

TYPICAL SECTION
CHEF MENTEUR PASS BRIDGE
ALT. 1 WEST FRONTAGE ROADS

CHEF MENTEUR BRIDGE AND APPROACHES

ARCADIS
3850 N. CAUSEWAY BLVD., SUITE 1600
METAIRIE, LOUISIANA 70002
T: 504 832 4174 | F: 504 832 2145

CHECK PRINTS

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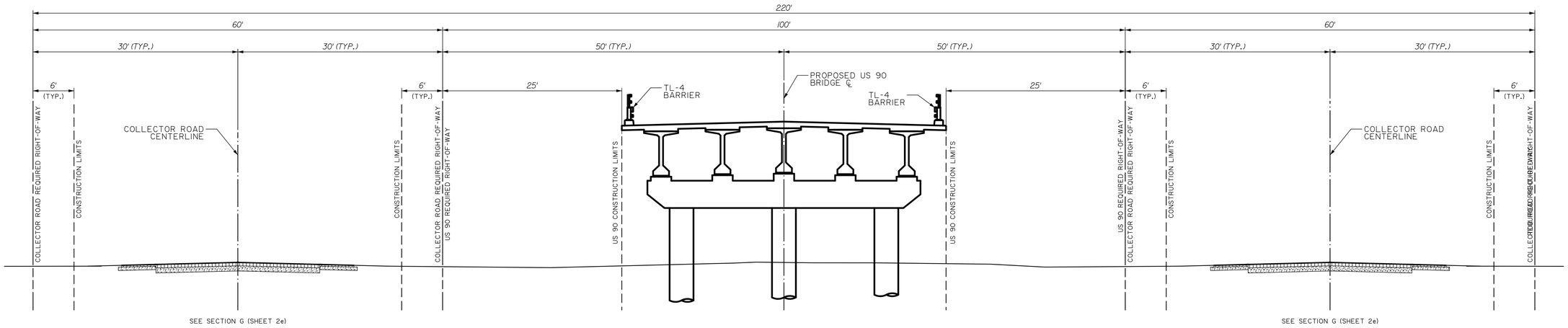


PROPOSED NORTHERN FRONTAGE ROAD AND BRIDGE SPAN TYPICAL FINISHED SECTION

E 3.3b

Preliminary Plans
Subject to Change
Road Design

SHEET NUMBER	2b
PARISH	ORLEANS
FEDERAL PROJECT	BR-61-07(020)
STATE PROJECT	H.000263.2
DESIGNED	D. FULKS
CHECKED	W. JACOBS
DETAILED	M. JOHNSON
CHECKED	D. FULKS
DATE	07 MAY 2012
SHEET	3 OF 8

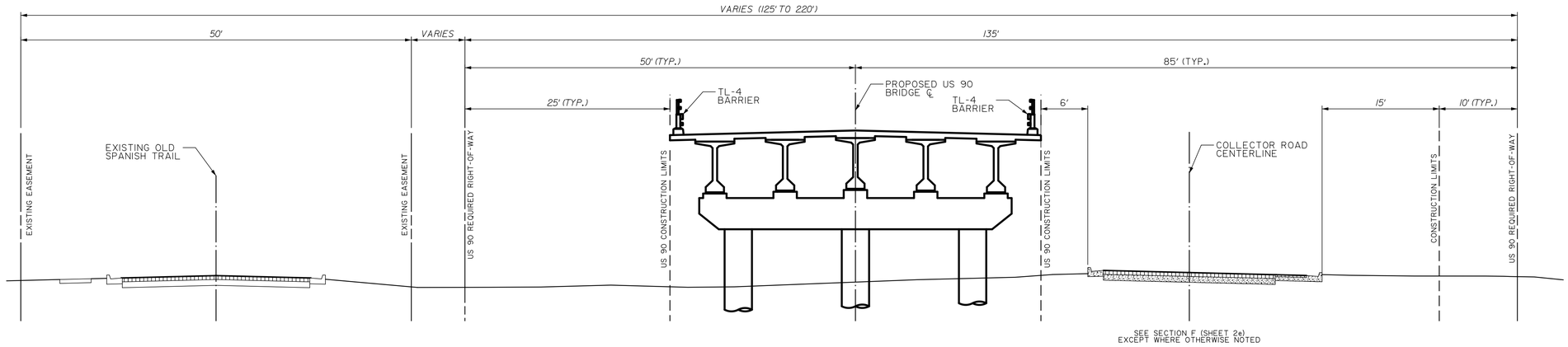
NO.	DATE	REVISION DESCRIPTION	BY

STATE OF LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

TYPICAL SECTION
CHEF MENTEUR PASS BRIDGE
ALT. I EAST FRONTAGE ROADS

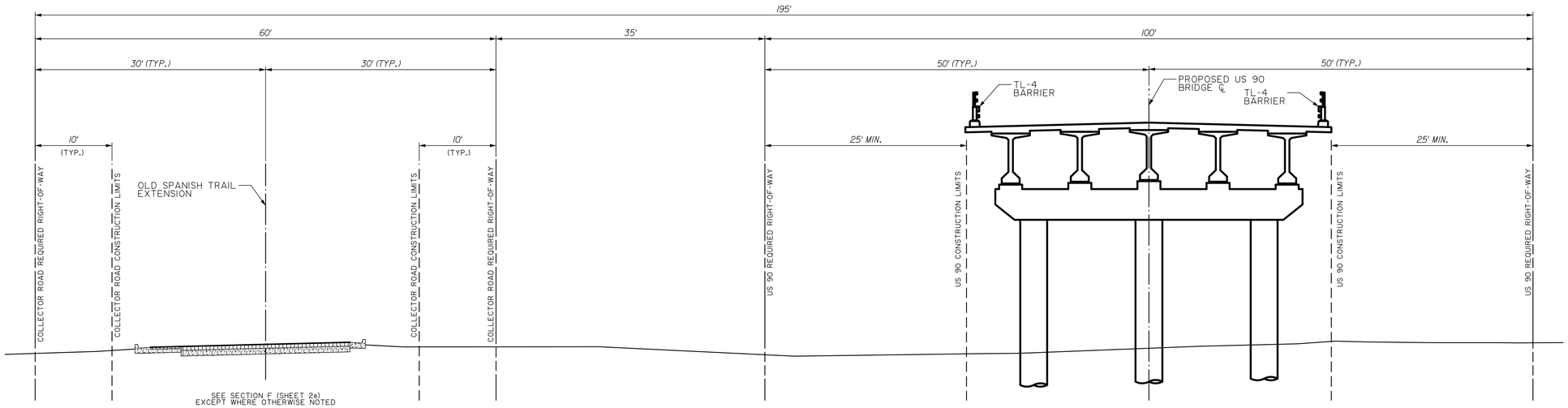
CHEF MENTEUR BRIDGE AND APPROACHES

ARCADIS
3850 N. CAUSEWAY BLVD., SUITE 1600
METAIRIE, LOUISIANA 70002
T. 504 832 4174 | F. 504 832 2145



EXISTING OLD SPANISH TRAIL, BRIDGE SPAN, AND NEW SOUTHERN FRONTAGE ROAD TYPICAL FINISHED SECTION

C
3c,3d



OLD SPANISH TRAIL EXTENSION AND BRIDGE SPAN TYPICAL FINISHED SECTION

D
3c,3d

Preliminary Plans
Subject to Change
Road Design

SHEET NUMBER 2c

PARISH	FEDERAL PROJECT	STATE PROJECT
ORLEANS	BR-61-07(020)	H.000263.2

DESIGNED	D. FULKS	
CHECKED	W. JACOBS	
DETAILED	M. JOHNSON	
CHECKED	D. FULKS	
DATE	07 MAY 2012	
SHEET	4 OF 8	

NO.	DATE	REVISION DESCRIPTION	BY

STATE OF LOUISIANA — DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

TYPICAL SECTION
CHEF MENTEUR PASS BRIDGE
ALT. 2 WEST FRONTAGE ROADS

CHEF MENTEUR BRIDGE AND APPROACHES

ARCADIS
3850 N. CAUSEWAY BLVD., SUITE 1600
METAIRIE, LOUISIANA 70002
T. 504 832 4174 | F. 504 832 2145

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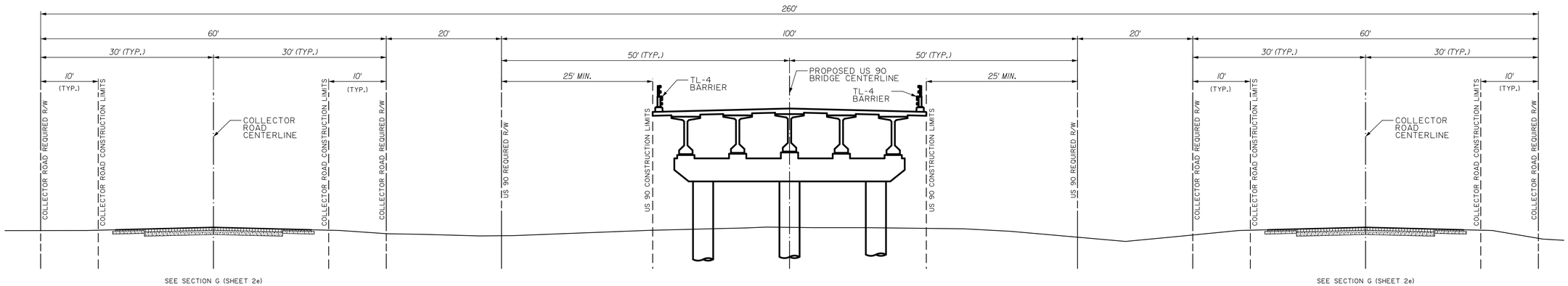


PROPOSED NORTHERN FRONTAGE ROAD AND BRIDGE SPAN TYPICAL FINISHED SECTION

(E 3c,3e)

Preliminary Plans

Subject to Change

Road Design

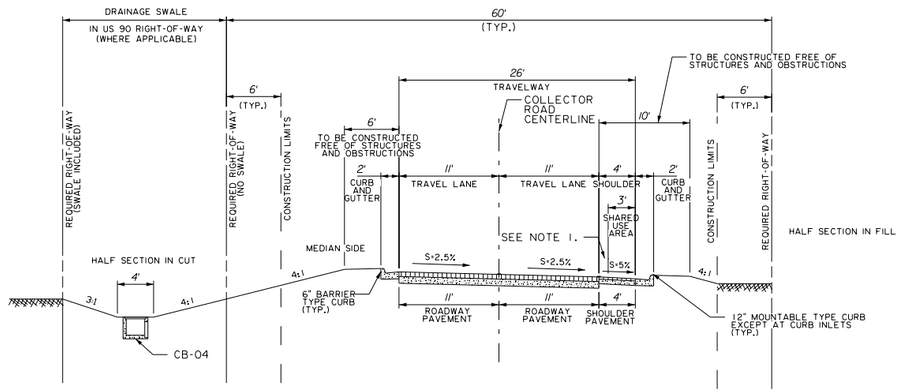
SHEET NUMBER	2d
PARISH	ORLEANS
FEDERAL PROJECT	BR-61-07(020)
STATE PROJECT	H.000263.2
DESIGNED D. FULKS / CHECKED W. JACOBS	
DETAILED M. JOHNSON / CHECKED D. FULKS	
DATE 07 MAY 2012 / SHEET 5 OF 8	

NO.	DATE	REVISION DESCRIPTION	BY

TYPICAL SECTION
CHEF MENTEUR PASS BRIDGE
ALT. 2 EAST FRONTAGE ROADS

CHEF MENTEUR BRIDGE AND APPROACHES

ARCADIS
3850 N. CAUSEWAY BLVD., SUITE 1600
METAIRIE, LOUISIANA 70002
T. 504 832 4174 | F. 504 832 2145



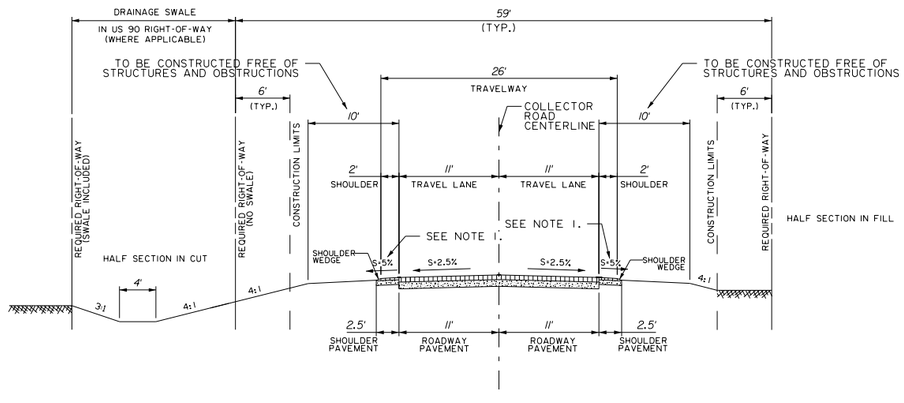
F TYPICAL FINISHED SECTION - SUBURBAN COLLECTOR ROAD (SC-1)

SOUTH FRONTAGE ROAD SHOWN,
MIRROR FOR NORTH FRONTAGE ROAD

DESIGN DATA:
CLASSIFICATION: SC-1
SECTION: 2-LANE UNDIVIDED W/SHOULDERS
DESIGN SPEED: 40 MPH
ADT 2017: T.B.D.
ADT 2037: T.B.D.
D: 50% (assumed per EDSM II.2.1.12)
K: 10% (assumed)
T: 4% (assumed)
DHV: T.B.D.

NOTES:

1. SHOULDER SLOPES TO BE 5% EXCEPT WHERE THE COMPLETE STREETS POLICY REQUIRES PROVIDING FOR BICYCLE ACCESS. WHERE BICYCLE ACCESS IS ACCOMODATED THE SHOULDER SLOPE SHALL BE 2.5%.



G TYPICAL FINISHED SECTION - RURAL COLLECTOR ROAD (RC-1)

DESIGN DATA:
CLASSIFICATION: RC-1
SECTION: 2-LANE UNDIVIDED W/SHOULDERS
DESIGN SPEED: 40 MPH
ADT 2017: T.B.D.
ADT 2037: T.B.D.
D: 50% (assumed per EDSM II.2.1.12)
K: 10% (assumed)
T: 4% (assumed)
DHV: T.B.D.

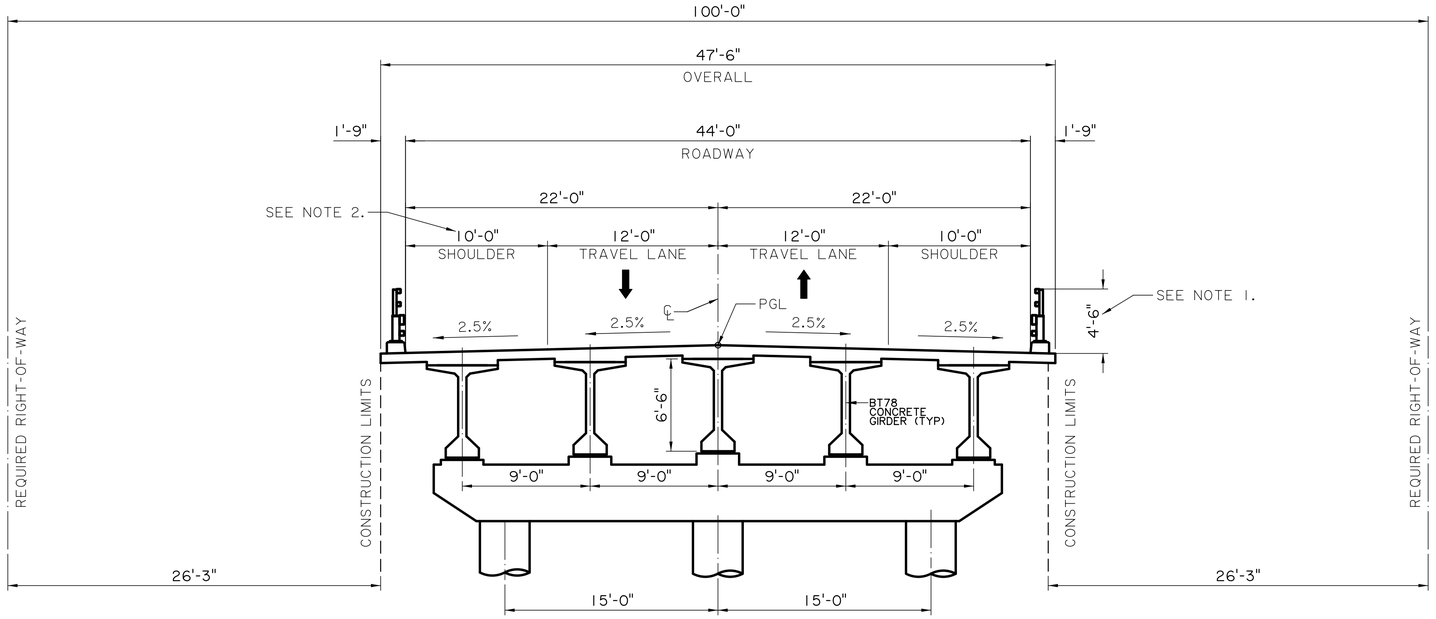
Preliminary Plans
Subject to Change
Road Design

SHEET NUMBER 2e
PARISH ORLEANS
FEDERAL PROJECT BR-61-07(020)
STATE PROJECT H.000263.2
DESIGNED D. FULKS
CHECKED W. JACOBS
DETAILED M. JOHNSON
CHECKED D. FULKS
DATE 07 MAY 2012
SHEET 6 OF 8
BY
REVISION DESCRIPTION
NO. DATE

TYPICAL SECTION
CHEF MENTEUR PASS BRIDGE
COLLECTOR ROADS

CHEF MENTEUR BRIDGE AND APPROACHES

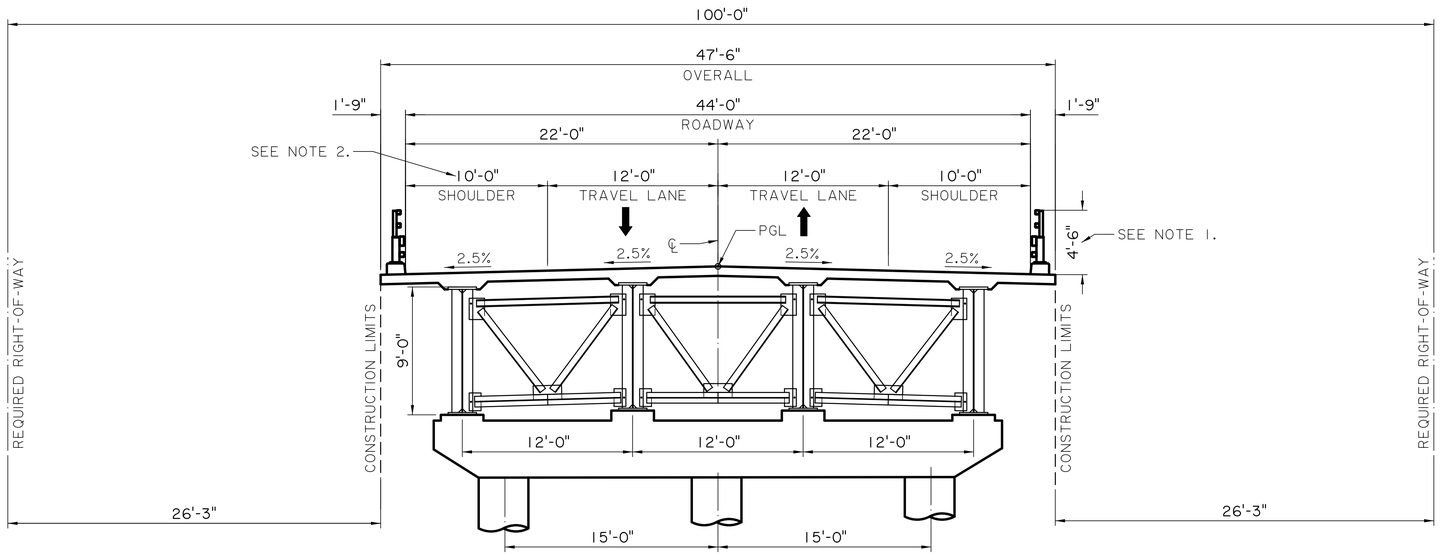
ARCADIS
3850 N. CAUSEWAY BLVD., SUITE 1600
METAIRIE, LOUISIANA 70002
T: 504 832 4174 | F: 504 832 2145



H
3-3c,3e
TYPICAL SECTION - APPROACH SPAN

NOTES:

1. BARRIER RAILS TO BE STANDARD BARRIER RAIL SECTION 2'-8" IN HEIGHT EXCEPT WHERE THE COMPLETE STREETS POLICY REQUIRES PROVIDING FOR BICYCLE ACCESS. WHERE BICYCLE ACCESS IS ACCOMODATED THE BARRIER RAIL SHALL BE A STEEL TUBE SECION 4'-6" IN HEIGHT AS SHOWN.
2. INSIDE SHOULDER WIDTH MAY BE INCREASED TO 12' TO MEET STOPPING SIGHT DISTANCE REQUIREMENTS.



I
3c
TYPICAL SECTION - FIXED SPAN

Preliminary Plans
Subject to Change
Road Design

SHEET NUMBER 2f

PARISH	FEDERAL PROJECT	STATE PROJECT
ORLEANS	BR-61-07(020)	H.000263.2

DESIGNED	D. FULKS	
CHECKED	W. JACOBS	
DETAILED	M. JOHNSON	
CHECKED	D. FULKS	
DATE	07 MAY 2012	
SHEET	7 OF 8	

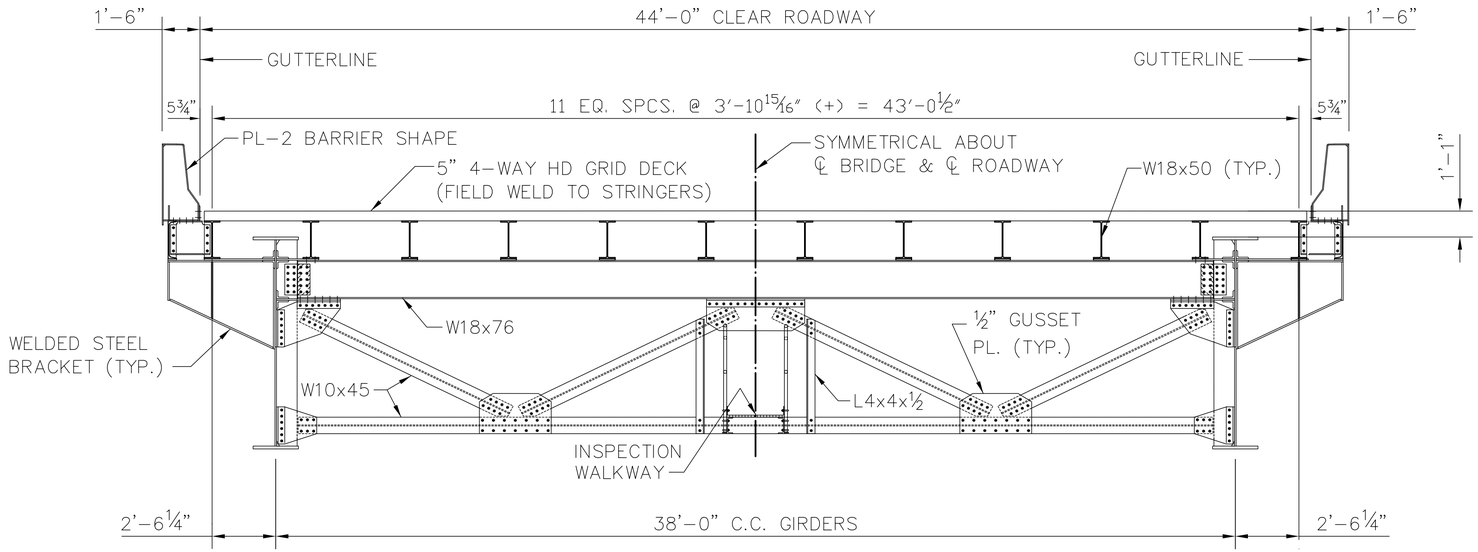
NO.	DATE	REVISION DESCRIPTION	BY

STATE OF LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

TYPICAL SECTION
CHEF MENTEUR PASS BRIDGE
GIRDER SPANS

CHEF MENTEUR BRIDGE AND APPROACHES

ARCADIS
3850 N. CAUSEWAY BLVD., SUITE 1600
METAIRIE, LOUISIANA 70002
T. 504 832 4174 | F. 504 832 2145



I/3 BASCULE SPAN – TYPICAL SECTION

MAIN GIRDERS
2 FLGS 1" TO 2¼"x18"
1 WEB ¾"x78" TO 138"

Preliminary Plans
Subject to Change
Road Design

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SHEET NUMBER 2g
PARISH ORLEANS
FEDERAL PROJECT BR-61-07(020)
STATE PROJECT H.000263.2
DESIGNED B. PETERSON
CHECKED D. SORGENFREI
DETAILED Z. PRUCZ
CHECKED B. PETERSON
DATE 07 MAY 2012
SHEET 8 OF 8

NO.	DATE	REVISION DESCRIPTION	BY

TYPICAL SECTION
CHEF MENTEUR PASS BRIDGE
LOW LEVEL MOVEABLE SPAN
CHEF MENTEUR BRIDGE AND APPROACHES

MODJESKI—MASTERS
1055 ST. CHARLES AVE., SUITE 400
NEW ORLEANS, LOUISIANA 70130
T. 504 542 4344 | F. 504 561 1229

Appendix C

Results of Traffic Study

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DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
DATA COLLECTION AND ANALYSIS SECTION
P. O. BOX 94245
BATON ROUGE, LOUISIANA 70804-9245
(225) 379-1925

TRAFFIC ASSIGNMENT

DATE:	16-Mar-11
PROJECT NO.	006-05-0067
NAME:	FAP NO. BR-67-07(020)
DESCRIPTION:	Chef Menteur Bridge and Approaches
ROUTE:	US 90
FUNCTIONAL CLASS:	Urban Minor Arterial
PARISH:	Orleans

2017 ADT =	4,200	ANN. GROWTH	1.0%
2037 ADT =	5,100		

D =	55%
K =	10%
T =	10%

AXLE DISTRIBUTION

VEHICLE TYPE	PERCENT	2017 ADT	2037 ADT	MEDIAN YEAR
1 MOTORCYCLES	0.20%	8	10	9
2 PASSENGER CARS	57.50%	2,415	2,933	2,674
3 2A-4T SINGLE UNIT	27.50%	1,155	1,403	1,279
4 BUSES	4.70%	197	240	219
5 2A-6T SINGLE UNIT	1.10%	46	56	51
6 3A SINGLE UNIT	1.10%	46	56	51
7 4A SINGLE UNIT	0.10%	4	5	5
8 4A SINGLE TRAILER	2.10%	88	107	98
9 5A SINGLE TRAILER	4.90%	206	250	228
10 6A SINGLE TRAILER	0.50%	21	26	23
11 5A MULTI-TRAILER	0.10%	4	5	5
12 6A MULTI-TRAILER	0.10%	4	5	5
13 7A MULTI-TRAILER	0.10%	4	5	5
TOTALS		4,200	5,100	4,650

The above traffic data is an estimate based on data available at the time of preparation.

SUBMIT TO:	Timothy W. Nickel	SECTION:	34
COPY TO:	Jeff Lambert	SECTION:	67
PREPARED BY:	Dan Broussard/ John Spragio		

FHWA Vehicle Classes

No.	Heading	Description
1	Cycles	motorcycle
2	PC	passenger car
3	2A-4T	pickup truck/sports utility
4	BUS	full size school and transit busses
5	2A-6T	2 axle six tire, delivery type van or heavy duty pick up
6	3A-SU	3 axle single unit, short haul delivery truck, dump truck
7	4A-SU	4 axle single unit, short haul delivery truck, concrete truck
8	4A-ST	< 5 axle tractor/single trailer, medium haul delivery
9	5A-ST	5 axle tractor/single trailer, "18 Wheeler"
10	6A-ST	> 5 axle tractor/single trailer, tanker truck, logging truck
11	5-MT	< 6 axle multi trailer truck
12	6A-MT	6 axle multi trailer truck
13	7A-MT	> 6 axle multi trailer truck
	TRUCKS	FHWA Class 4-13
	MEDIUMS	Single Unit truck (FHWA Vehicle Class 4-7)
	HEAVIES	Tractor-trailer truck (FHWA Vehicle Class 8-13)

Appendix D

Comparison of Movable Bridge Types

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Comparison of Movable Bridge Types

A full range of movable bridge types was considered and the results of the comparison are provided in the attached table.

Swing-Span Bridge

The existing bridge is a swing-span bridge, but an assessment by the LADOTD District 02 Bridge Maintenance Engineer identified a number of design and operational issues with this type of movable bridge. The results of the analysis shown in the table below identified another reason to dismiss the swing-span bridge type: an extensive fender system is required to protect the rest pier, which is located in the center of the bridge within the deepest waters of the channel. This issue causes excessive operational and maintenance costs not found with other types of movable bridges.

Lift Type

The analysis studied a rolling lift bascule type and a vertical lift type, but dismissed these types as not the norm for highway bridges because of the limitations on vehicle height. These types are also the most visually intrusive.

Bascule Bridges

Two bascule type bridges were also compared. A single-leaf bascule bridge requires a longer span and consequently a larger and heavier structural beam, a heavier counterweight, larger pier, and larger foundation system increasing construction costs. The larger counterweight also means that the draw span in the raised position extends down farther leading to additional structures and underwater construction to keep the system watertight.

A double-leaf bascule bridge spanning the same navigational opening has a lighter draw span that is only half as long. Thus the counterweights, piers, and foundations do not extend as far down into the pier and underwater construction is not as deep and the visual extent of the leaves, when opened, is half the height for a double-leaf bascule. To keep the counterweights out of the water, the vertical height of a single-leaf bascule would have to be raised a minimum of 29 feet above the profile grade of the Stage 0 swing-span compared to only 10 feet for the double-leaf bascule.

COMPARISON OF MOVABLE BRIDGE TYPES - CHEF MENTEUR

ITEMS	SWING SPAN	SINGLE LEAF BASCULE	DOUBLE LEAF BASCULE	ROLLING LIFT BASCULE (1)	VERTICAL LIFT
MARINE VERTICAL CLEARANCE	Unllimited	Unllimited	Unllimited	Unllimited	Limited
VEHICULAR VERTICAL CLEARANCE	Unllimited	Unllimited	Unllimited	Limited	Can be limited if superstructure type is a truss or if lifting tower has cross struts
SUPERSTRUCTURE TYPE	Girder	Girder	Girder	Truss	Girder
COUNTER WEIGHT LOCATION	Below roadway	Below roadway	Below roadway	Above roadway	Above roadway
FOUNDATION TYPE - MAIN PIER	Caisson	Caisson	Caisson	Caisson	Caisson (support both legs of tower)
FOUNDATION TYPE - REST PIER	Caisson or drilled shaft with water level sub-cap	Caisson or drilled shaft with water level sub-cap	Not Applicable	Caisson or drilled shaft with water level sub-cap	Not Applicable
REQUIRED VERTICAL INCREASE TO STAGE 0 PROFILE GRADE TO KEEP COUNTERWEIGHT OUT- OF WATER	None	29.1 feet minimum (2)	10.1 feet minimum (2)	None	None
VESSEL PROTECTION	Main Pier: Protection cells at each end of swing span in the open position. Extensive fender system in deep water to protect swing span in open position. Rest Pier: Protection cells required both sides of pier and pier designed for lateral vessel impact load.	Protection cells required both sides both piers. Piers designed for lateral vessel impact load.	Protection cells required both sides both piers. Piers designed for lateral vessel impact load.	Protection cells required both sides both piers. Piers designed for lateral vessel impact load.	Protection cells required both sides both piers. Piers designed for lateral vessel impact load.
VISUAL APPEARANCE	Low to water. Not "visually large".	Main piers can be shaped to make attractive, but they will be large. Height and size will be further increased if profile grade is raised vertically.	Main piers can be shaped to make attractive, but they will be large. Height and size will be further increased if profile grade is raised vertically.	Superstructure may be considered not as attractive as a single of double leaf bascule bridge or a swing bridge. Taller structure visible for considerable distance.	Superstructure and lifting tower may be considered not as attractive as a single of double leaf bascule bridge or a swing bridge. Tall towers visible for considerable distance.
SPAN LENGTHS	One long span	One long span	Two shorter spans	One long span	One long span

COMMENTS

(1) Rolling lift bascule bridges are not commonly used for highway bridges.

(2) The vertical increase in grade is not required. If not done or less than the value shown is used, then the counterweight well will have to be made watertight and include sump pumps to keep it dry.

Appendix E

Correspondence with SHPO

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JAY DARDENNE
LIEUTENANT GOVERNOR

State of Louisiana

OFFICE OF THE LIEUTENANT GOVERNOR
DEPARTMENT OF CULTURE, RECREATION & TOURISM
OFFICE OF CULTURAL DEVELOPMENT

CHARLES R. DAVIS
DEPUTY SECRETARY

PAM BREAUX
ASSISTANT SECRETARY

16 July 2012

Noel Ardoin
Environmental Engineer Admin
Dept. of Transportation and Development
PO Box 94245
Baton Rouge, La 70804-9245

Re: Management Summary
La Division of Archaeology Report No. 22-4056
Phase I Cultural Resources Investigations of the Chef Menteur Bridge and Approaches, Orleans Parish, Louisiana

Dear Ms. Ardoin:

We acknowledge receipt of your letter dated 28 June 2012 and two copies of the above-referenced report. We have completed our review of this report and have no comments to offer. This is a very nice report that provides a significant amount of historical and documentary evidence for the project area.

We concur that site 16OR600 is not eligible for nomination to the National Register of Historic Places, and that the portions of site 16OR32 within the proposed Alternate 1 alignment is undetermined with respect to its eligibility for nomination to the National Register. We further concur that the possible shipwrecks identified in the marine survey currently lie outside of the proposed alignments. These areas should be marked as no-work zones should construction of the bridge proceed. This marking could consist of two buoys marking the upstream and downstream limits of the shipwrecks with instructions to the construction crews to stay at least 100 m from the buoys.

We also concur that the properties identified in Louisiana Cultural Resources Inventory form numbers 36-01634 through -1644 and 36-01648 through -1650 do not meet the criteria for listing in the National Register. We concur with your assessment that the Chef Menteur Pass Bridge and the CSX Railroad Bridge meet the criteria for listing in the National Register and the proposed project would have no Adverse Effect on the CSX Railroad Bridge. Also, we concur with your opinion that there is the potential for the proposed project to have an Adverse Effect on Fort Macomb, a property that is listed in the National Register. However, we are of the opinion that the proposed project would have an Adverse Effect on the Chef Menteur Pass Bridge as defined in the Section 106 Regulations (36CFR800.5). As such, we invite you to consult further with our office in order to begin the Memorandum of Agreement Process.

We look forward to receiving two bound copies of the final report, along with a pdf of the report. If you have any questions, please contact Chip McGimsey in the Division of Archaeology by email at cmcgimsey@crt.la.gov or by phone at 225-219-4598, or Mike Varnado in the Division of Historic Preservation at mvarnado@crt.la.gov or 225-219-4596.

Sincerely,

Pam Breaux

Pam Breaux
State Historic Preservation Officer

JAY DARDENNE
LIEUTENANT GOVERNOR

State of Louisiana

OFFICE OF THE LIEUTENANT GOVERNOR
DEPARTMENT OF CULTURE, RECREATION & TOURISM
OFFICE OF CULTURAL DEVELOPMENT

CHARLES R. DAVIS
DEPUTY SECRETARY

PAM BREAUX
ASSISTANT SECRETARY

30 October 2012

Noel Ardoin
Environmental Engineer
Dept of Transportation and Development
PO Box 94245
Baton Rouge, LA 70804-9245

Re: Draft Report
La Division of Archaeology Report No. 22-4114
Section 106 Adverse Effect Documentation, Chef Menteur Bridge and Approaches, Route US Highway 90, Orleans Parish, Louisiana

Dear Ms. Ardoin:

We acknowledge receipt of your letter dated 27 September 2012 and two copies of the above-referenced report. We have completed our review of this report and have no comments to offer.

Our office concurs that there will be an adverse effect to the existing US 90 bridge at Chef Menteur Pass due to the removal or demolition of that bridge, and that this effect will be addressed through development of a Memorandum of Agreement specifying appropriate treatment measures. We further concur that there will be no adverse effect to Fort Macomb, pending development of a Memorandum of Agreement to address site screening and vibration monitoring. We also concur that there will be no adverse effects on site 16OR32 if Alternate 2 is selected, and that the assessment of adverse effects if Alternate 1B is selected is pending the results of additional archaeological investigations. If no eligible archaeological deposits are identified in the project right-of-way, the construction will have no adverse effect on 16OR32; if eligible deposits are identified in the right-of-way, the adverse effects to these deposits caused by construction of the new bridge will be addressed through development of a Memorandum of Agreement.

We are accepting the draft report as a final with submittal of a report pdf. If you have any questions, please contact Chip McGimsey in the Division of Archaeology by email at cmcgimsey@crt.la.gov or by phone at 225-219-4598, or Mike Varnado in the Division of Historic Preservation by email at mvarnado@crt.la.gov or by phone at 225-219-4596.

Sincerely,

Pam Breaux

Pam Breaux
State Historic Preservation Officer

PB:crm

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Ms. Pam Breaux, State Historic Preservation Officer
Office of Cultural Development
Louisiana Department of Culture, Recreation, and Tourism
P.O. Box 44247
Baton Rouge, Louisiana 70804-9245

Subject:
Section 4(f) Evaluations of Fort Macomb Historic and Archaeological Sites
Chef Menteur Bridge and Approaches
Route US 90
Orleans Parish, Louisiana
State Project No. H.000263.2
Federal Aid Project No. H000263

INFRASTRUCTURE

Date:
1 February 2013

Contact:
Lynn Maloney-Mújica

Extension:
256

Email:
lynn.maloney@arcadis-us.com

Our ref:
LA003024.0001.00004
LDOTD/3024.1/C/39/jk

Dear Ms. Breaux:

As presented at the November 29, 2012, meeting for parties participating in the Section 106 of the National Historic Preservation Act process for the above-captioned project, two build alternatives are being considered for the proposed project. At that meeting, Alternative 2 was identified as the alternative preferred by several agencies and public for implementation.

The meeting also showed participating parties that Alternative 1B would not incorporate any land from the Fort Macomb Historic Site and Alternative 2 would permanently incorporate 0.13 acre of land from the site. Alternative 1B would incorporate land from the portion of Archaeological Site 16OR32 that may contain deposits eligible for the National Register of Historic Places. Alternative 2 would not incorporate any land from the portion of Site 16OR32 that may contain eligible deposits. The eligibility of Site 16OR32 archaeological deposits remains undetermined at this time.

If Alternative 1B were selected, further investigations would be necessary to determine whether the archaeological deposits are eligible, and if so, the Memorandum of Agreement (MOA) will be amended to address any adverse effects to this site. There will be no effect to Site 16OR32 from Alternative 2.

In a letter dated October 30, 2012, your office concurred with the findings stated above. The letter also concurred that there would be no adverse effect from Alternative 2 to the Fort Macomb Historic Site, pending development of an MOA to address site screening and vibration monitoring. The MOA and the Environmental Assessment (EA) documenting these treatment measures are in process.

Based on the October 30 concurrence letter from your office, the Federal Highway Administration (FHWA) intends to prepare a *de minimis* impact determination for the Fort Macomb Historic Site and approve the transportation use of the 0.13 acre of land for the Alternative 2 right-of-way. FHWA has met the requirements for making this determination in accordance with Section 4(f) of the Transportation Act of 1966 as amended by 1) considering the views of the parties participating in the Section 106

consultation; 2) documenting the determination of “no adverse effect” on the property with written concurrence from the State Historic Preservation Officer (SHPO); and 3) informing the SHPO of the intent to use a *de minimis* determination based on their concurrence.

The SHPO, public, and other Section 106 consulting parties will be afforded another opportunity for review and comment on the *de minimis* determination to Fort Macomb after distribution of the draft EA document. Although this means that the Section 106 consultation is ongoing, it is expected that the process will result in confirmation of the finding of “no adverse effect” to this resource.

We appreciate the time and collaboration provided by your staff for the Chef Menteur Bridge project. Although your written concurrence regarding the *de minimis* determination for Fort Macomb Historic Site is not required by law, we would be pleased to include such a letter in the EA administrative record.

Sincerely,

ARCADIS U.S., Inc.

Lynn Mahoney-Mújica, AICP
Associate Project Manager

Scott L. Hoffeld, C.E.P.
Senior Project Manager/Associate Vice President

LMM:SLH:jk

Copies:
N. Leon/LADOTD
B. Mahoney/FHWA
J. Pitts/FHWA
M. Stinson/FHWA
M. Varnado/SHPO – Historic Preservation
C. McGimsey/SHPO – Archaeology
D. Kelley/CEI

Appendix F

Visual Simulations of the Build Alternatives

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AERIAL PERSPECTIVE - ALTERNATIVE 1

ENVIRONMENTAL ASSESSMENT
CHEF MENTEUR BRIDGE AND APPROACHES
ROUTE US 90 ORLEANS PARISH, LOUISIANA

ARCADIS

MARCH 2012

PERSPECTIVE FROM HIGH TIDE BAR AND GRILL ALTERNATIVE 1

ENVIRONMENTAL ASSESSMENT
CHEF MENTEUR BRIDGE AND APPROACHES
ROUTE US 90 ORLEANS PARISH, LOUISIANA

ARCADIS

MARCH 2012

PERSPECTIVE FROM INTERSECTION OF NAPLES ST & SAN MARCO RD

ALTERNATIVE 1

ENVIRONMENTAL ASSESSMENT
CHEF MENTEUR BRIDGE AND APPROACHES
ROUTE US 90 ORLEANS PARISH, LOUISIANA

DOTD

FHWA

ARCADIS

MARCH 2012

AERIAL PERSPECTIVE - ALTERNATIVE 2

ENVIRONMENTAL ASSESSMENT
CHEF MENTEUR BRIDGE AND APPROACHES
ROUTE US 90 ORLEANS PARISH, LOUISIANA

ARCADIS

MARCH 2012

PERSPECTIVE FROM HIGH TIDE BAR AND GRILL ALTERNATIVE 2

ENVIRONMENTAL ASSESSMENT
CHEF MENTEUR BRIDGE AND APPROACHES
ROUTE US 90 ORLEANS PARISH, LOUISIANA

ARCADIS

MARCH 2012

PERSPECTIVE FROM INTERSECTION OF NAPLES ST & SAN MARCO RD

ALTERNATIVE 2

ENVIRONMENTAL ASSESSMENT
CHEF MENTEUR BRIDGE AND APPROACHES
ROUTE US 90 ORLEANS PARISH, LOUISIANA

ARCADIS

MARCH 2012

Appendix G

Solicitation of Views, Responses, and Other Agency Coordination

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STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
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Baton Rouge, Louisiana 70804-9245
www.dotd.la.gov
225-242-4502

BOBBY JINDAL
GOVERNOR

SHERRI H. LEBAS, P.E.
INTERIM SECRETARY

April 1, 2010

STATE PROJECT NO.: 006-05-0067
FEDERAL AID PROJECT NO.: BR-61-07 (019)
CHEF MENTEUR BRIDGE AND APPROACHES
ROUTE: US 90
PARISH: ORLEANS

SUBJECT: **SOLICITATION OF VIEWS**

Early in the planning stages of a transportation facility, views from federal, state, and local agencies, organizations, and individuals are solicited. The special expertise of these groups can assist DOTD with the early identification of possible adverse economic, social, or environmental effects or concerns. Your assistance in this regard will be appreciated.

Due to the earliness of this request for your views, very limited data concerning the proposed project exists. We have, however, attached a sketch map showing the general location of the proposed project, along with a preliminary project description.

It is requested that you review the attached information and furnish us with your views and comments by **May 7, 2010**. Replies should be addressed to LA DOTD; Environmental Engineer Administrator; P.O. Box 94245; Baton Rouge, Louisiana 70804-9245. Please reference the State Project Number in your reply. If you require additional information, please contact Nikki Leon at 242-4514.

for Sincerely,

Noel Ardoin
Environmental Engineer Administrator

Attachments
NA/nl

cc: District Administrator

PROJECT DESCRIPTION

STATE PROJECT NO. 006-05-0067
FEDERAL PROJECT NO: BR-61-07 (019)
CHEF MENTEUR PASS BRIDGE
ROUTE: US 90
ORLEANS PARISH

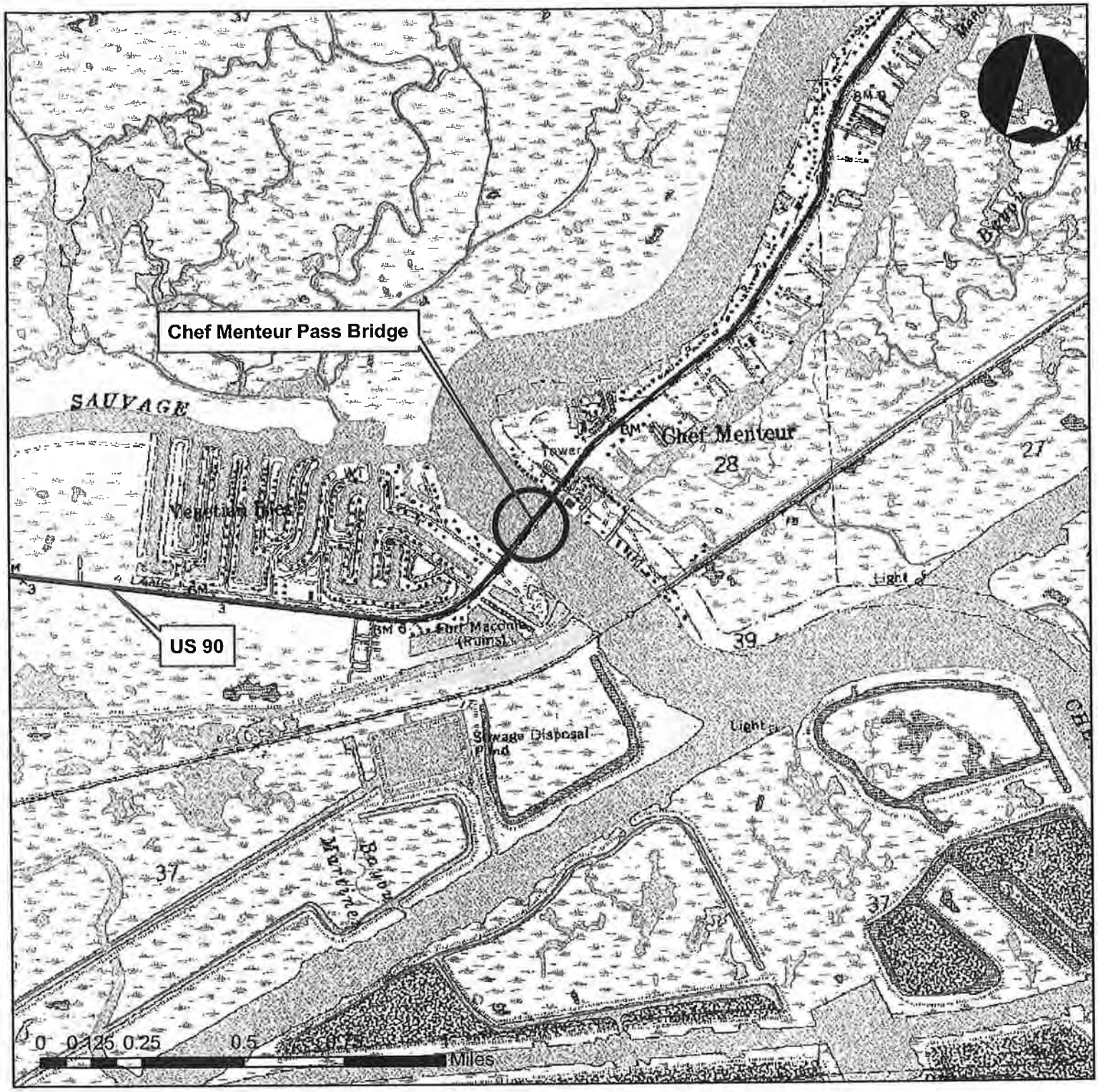
The Louisiana Department of Transportation and Development (LADOTD) is proposing to replace the existing Chef Menteur Pass Bridge (Structure No.02360060500001), located in Orleans Parish, on US 90. Built in 1930, this bridge is a 1,175-foot long high steel truss swing span bridge with two 10-foot wide travel lanes. The structure qualifies for federal bridge replacement funds. The proposed project calls for a replacement that meets current design standards.

Currently, there are three proposed alternatives preliminary in nature and subject to change. Alternate 1 involves a semi-low level movable bridge on new alignment slightly north of the existing bridge. The main span would be a 270-foot long unequal arm swing span bridge with steel plate girder approach spans. It would provide a 125-foot long horizontal clearance and unlimited vertical clearance. Alternate 2 involves a high level fixed bridge on new alignment just south of the existing bridge. This main span would have a vertical clearance of 73 feet and a horizontal clearance of 150 feet. The bridge would consist of a prestressed concrete spliced bulb tree or plate girder main span with prestressed concrete girder approaches. Alternate 3 involves a high level fixed bridge on new alignment approximately 1,000 feet south of the existing bridge. This bridge's main spans are similar to that of Alternate 2.

Depending on the alternative, several resources in the vicinity of the project area might be impacted. Among these are the existing Chef Menteur Bridge, which is eligible for the National Register of Historic Places (NRHP), Fort Macomb, which is listed on the NRHP, the Bayou Sauvage National Wildlife Refuge, and wetlands. There are also commercial, industrial, and residential areas adjacent to the project vicinity.

The existing bridge will be used to maintain traffic during construction; temporary closures are expected as well. Additional right-of-way and relocations are anticipated.

This project will be environmentally processed as an Environmental Assessment.



STATE PROJECT NO. 006-05-0067
F.A.P. NO. BR-61-07 (019)
CHEF MENTEUR PASS BRIDGE AND APPROACHES
US 90
ORLEANS PARISH

STATE MAILING LIST
UPDATED September 9, 2009

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SOLICIT VIEWS ON-LINE

LA DEPT OF NATURAL RESOURCES
COASTAL MANAGEMENT DIVISON

MITCHELL J. LANDRIEU
LIEUTENANT GOVERNOR

State of Louisiana
OFFICE OF THE LIEUTENANT GOVERNOR
DEPARTMENT OF CULTURE, RECREATION & TOURISM
OFFICE OF STATE PARKS

PAM BREAUX
SECRETARY

STUART JOHNSON, PH.D.
ASSISTANT SECRETARY

April 9, 2010

LA DOTD
Environmental Engineer Administrator
P.O. Box 94245
Baton Rouge, LA 70804-9245

Re: State Project No. 006-05-0067
Chef Menteur Bridge and Approaches

To Whom It May Concern:

I am in receipt of the solicitation of views request for Chef Menteur Bridge and approaches on U.S. 90 in Orleans Parish.

The Division of Outdoor Recreation in the Louisiana Office of State Parks administers the Land and Water Conservation Fund program for Louisiana. In this capacity we compile an inventory of recreational sites within the state for publication in the Statewide Comprehensive Outdoor Recreation Plan (SCORP) published periodically. The most recent SCORP was published for the period of 2009-2014 with an inventory developed in 2009.

As you have identified in your solicitation of views, Fort Macomb could be impacted by this project. Alternatives two and three would likely have a significant negative impact on Fort Macomb. Without more detailed information on the project, it is impossible to provide a full evaluation of impact. I encourage project planners to open a line of communications with our department as this project moves forward.

Sincerely,

Cleve Hardman
Director of Outdoor Recreation

C. RAY NAGIN
MAYOR

CITY OF NEW ORLEANS
DEPARTMENT OF PUBLIC WORKS
1300 PERDIDO STREET - STE. 6W03 - NEW ORLEANS - LA 70112
(504) 658-8001 - FAX 658-8007

ROBERT MENDOZA
DIRECTOR

April 13, 2010

Mr. Noel Ardoin
Environmental Engineer Administrator
DEPARTMENT OF TRANSPORTATION & DEVELOPMENT
P.O. Box 94245
Baton Rouge, LA 70804-9245

Re: SOLICITATION OF VIEWS

State Project No. **006-05-0067**
CHEF MENTEUR BRIDGE AND APPROACHES
ROUTE: US 90 – ORLEANS PARISH

Dear Mr. Ardoin:

The Department of Public Works (DPW) has received your letter dated April 1, 2010 requesting our views and comments on the above referenced project. Based on the available information enclosed with your letter, we do not foresee any possible adverse effects associated with the implementation of this project.

Therefore, this department has no objections to the proposed construction shown on the project description. If we can be of further assistance, please advise.

Sincerely,

Robert Mendoza
DIRECTOR

cc: Nguyen Phan
Bao Vu

U.S. Department of Homeland Security

United States Coast Guard

Commandant
United States Coast Guard
Hale Boggs Federal Building

500 Poydras Street, Room 1313
New Orleans, LA 70130-3310
Staff Symbol: dpb
Phone: (504) 671-2128
Fax: (504) 671-2133

16591A
April 19, 2010

State of Louisiana, Department of Transportation
And Development
Attn: Ms. Noel Ardoin
P.O. Box 94245
Baton Rouge, LA 70804-9245

State Project No. 006-05-0067
FAP No. BR-61-07 (019)
US 90, Chef Menteur Bridge and Approaches
Orlenas Parish

Dear Ms. Ardoin:

We have received your solicitation of views dated April 1, 2010 regarding the US 90 Chef Menteur Bridge and Approaches, Orleans Parish, Louisiana. The United States Coast Guard will act as a cooperating agency in the preparation of the environmental documentation as requested.

If we can be of further assistance, please contact this office.

Sincerely,

DAVID M. FRANK
Chief, Bridge Administration Branch
U.S. Coast Guard
By direction

United States Department of the Interior

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

April 22, 2010

Ms. Noel Ardoin
Environmental Engineer Administrator
Louisiana Department of Transportation and Development
Post Office Box 94245
Baton Rouge, Louisiana 70804-9245

Dear Ms. Ardoin:

Please reference your April 1, 2010, letter, received by this office on April 8, 2010, regarding the Louisiana Department of Transportation and Development's proposal to replace the Chef Menteur Pass Bridge [State Project No. 006-05-0067, Federal Aid Project No. BR-61-07(019)] in Orleans Parish, Louisiana. The U.S. Fish and Wildlife Service has reviewed the information provided, and offers the following comments in accordance with provisions of the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

According to our records, the proposed project area may be inhabited by the West Indian manatee (*Trichechus manatus*), federally listed as an endangered species. West Indian manatees occasionally enter Lakes Pontchartrain and Maurepas, and associated coastal waters and streams during the summer months (i.e., June through September). Manatee occurrences appear to be increasing, and they have been regularly reported in the Amite, Blind, Tchefuncte, and Tickfaw Rivers, and in canals within the adjacent coastal marshes of Louisiana. They have also been occasionally observed elsewhere along the Louisiana Gulf coast. The manatee has declined in numbers due to collisions with boats and barges, entrapment in flood control structures, poaching, habitat loss, and pollution. Cold weather and outbreaks of red tide may also adversely affect these animals.

All contract personnel associated with the project should be informed of the potential presence of manatees and the need to avoid collisions with manatees, which are protected under the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973. All construction personnel are responsible for observing water-related activities for the presence of manatee(s). Temporary signs should be posted prior to and during all construction/dredging activities to remind personnel to be observant for manatees during active construction/dredging operations or within vessel movement zones (i.e., work area), and at least one sign should be placed where it is visible to the vessel operator. Siltation barriers, if used, should be made of material in which manatees could not become entangled, and should be properly secured and monitored. If a manatee is sighted within 100 yards of the active work zone, special operating conditions should be implemented, including: no operation of moving equipment within 50 feet of a manatee; all vessels should operate at no wake/idle speeds within 100 yards of the work area; and siltation barriers, if used, should be re-secured and monitored. Once the manatee has left the 100-yard buffer zone around the work area on its own accord, special operating conditions are no longer necessary, but careful observations would be resumed. Any manatee sighting should be immediately reported to the Service's Lafayette, Louisiana Field Office (337/291-3100) and the Louisiana Department of Wildlife and Fisheries, Natural Heritage Program (225/765-2821).

The proposed project area may also be inhabited by the Gulf sturgeon (*Acipenser oxyrhynchus desotoi*), federally listed as a threatened species. In Louisiana, Gulf sturgeon have been reported at Rigolets Pass, rivers and lakes of the Lake Pontchartrain basin, and adjacent estuarine areas. Spawning occurs in coastal rivers between late winter and early spring (i.e., March to May). Adults and sub-adults may be found in those rivers and streams until November, and in estuarine or marine waters during the remainder of the year. Sturgeon less than two years old appear to remain in riverine habitats and estuarine areas throughout the year, rather than migrate to marine waters. If the proposed bridge replacement entails the use of pile jetting, explosives, and/or excavation/dredging activities, we recommend the following to avoid potential adverse impacts to Gulf sturgeon:

CONDITION FOR PILE JETTING:

- A silt curtain should be installed around all pile jetting sites where water is less than 5-feet (1.5 meters) deep.

CONDITIONS FOR DREDGING:

BUCKET DREDGING:

- When dredging in water less than 5-feet (1.5 meters) deep, a silt curtain should completely enclose the dredging and disposal sites.
- When dredging in water deeper than 5 feet (1.5 meters), all open-water (or in-stream) disposal of bucket-dredged material should be done in water deeper than 40 feet (12.2 meters).
- To discourage Gulf sturgeon from entering or remaining in the work area (no depth limitations) prior to dredging, the bucket should be dropped into the water and retrieved empty. After the bucket is retrieved empty, a one-minute no-dredging period should be observed. If, at any time, more than fifteen minutes elapse with no dredging, then the empty bucket/retrieval process should be conducted again prior to initiating dredging.

HYDRAULIC DREDGING OUTSIDE OF ENCLOSED COFFERDAMS:

- Hydraulic dredging outside of the enclosed cofferdam should only be allowed between November 1 to March 1.
- All dredged material should be discharged at the surface with the use of a baffle plate. Open-water disposal should only be conducted in water depths greater than 40 feet (12.2 meters) deep.
- The cutterhead should remain completely buried in the bottom material during dredging operations.
- If pumping water through the cutterhead is necessary to dislodge material, or to clean the pumps or cutterhead, etc., the pumping rate should be reduced to the lowest rate possible until the cutterhead is at mid-depth, where the pumping rate can then be increased. During dredging, the pumping rates should be reduced to the slowest speed feasible while the cutterhead is descending to the channel bottom.

CONDITIONS FOR DEMOLITION OF THE EXISTING BRIDGE:

- Blasting should only be allowed during the period between November 1 to March 1.
- In order to discourage any threatened and/or endangered species from entering or remaining in the work area, small scare charges (see following condition) should be detonated at 4 minutes, 3 minutes, 2 minutes, and 1 minute prior to detonating any demolition explosives.
- Each scare charge should increase in magnitude with consecutive charges of 22 grams (gm), 40 gm, 340 gm, and 680 gm of explosive. Two sets of scare charges should be evenly placed between all caissons and directly underneath the bridge that will be removed during the subsequent blasting operation.
- If more than 15 minutes elapse between demolition blasts, then additional scare charges should be placed and detonated in accordance with above conditions.
- The demolition blasting sequence should start on the side of the bridge with the deepest water and proceed to the shallow side.

CONDITIONS FOR UNDERWATER DEMOLITION USING EXPLOSIVES:

- One week prior to blasting, LDWF and/or Service personnel should be notified and invited to attend as observers.
- Blasting should only be allowed during the period between November 1 to March 1.
- The required blasting plan should be formulated to minimize the size and number of charges used.
- The use of a submerged detonation cord should be avoided.
- Explosive charges should be placed into holes drilled in the caissons.
- Each charged hole should be stemmed with angular material to suppress the escape of blast pressure from the hole.
- If feasible, a minimum delay of at least 25 milliseconds (msec) should be used for each hole or set of holes to prevent cumulative blasting impact or overpressure as described below.
- Subdividing of charges within each hole (i.e., decking) with delays should be implemented, whenever feasible.
- Air bubble curtains should be placed around each caisson to absorb blast pressure. In order to achieve effective vertical air bubble flow, underwater demolition should only occur during slack tide periods or during low tidal flow periods. No equipment (e.g., barges, etc.) should be positioned across the bubble curtain at the time of demolition and timing of detonation should coincide with slack tide (i.e., minimal tide movement).
- Maximum peak blast pressure should not exceed 120 pounds per square inch (psi) (830 kPa) at a distance of 140 feet (42.7 meters), or outside of the bubble curtain if the bubble curtain is within 140 feet of the caisson.
- Blast pressure should be monitored at 140 feet (42.7 meters), or outside the bubble curtain if the bubble curtain is within 140 feet of the caisson. Maximum blast pressures should be reported immediately after each series of blasts.
- Average peak blast pressure should not exceed 70 pounds psi (483 kPa) at a distance of 140 feet (42.7 meters), or outside the bubble curtain if the bubble curtain is within 140 feet of the caisson.

- In order to discourage any threatened and/or endangered species from entering or remaining in the work area, small scare charges (see following condition) should be detonated at 4 minutes, 3 minutes, 2 minutes, and 1 minute prior to any demolition using explosives.
- Each scare charge should increase in magnitude with consecutive charges of 22 gm, 40 gm, 340 gm and 680 gm of explosive. Two sets of scare charges should be placed on each caisson, and each set will be placed on opposite sides of the caisson.
- If more than 15 minutes elapse between demolition blasts, then additional scare charges should be detonated in accordance with the above conditions.
- The demolition blasting sequence should start on the side of the bridge with the deepest water and proceed to the shallow side.

Incorporation of the above conditions would substantially reduce the potential for project-related impacts to threatened Gulf sturgeon. Nevertheless, the permitting agency has the affirmative responsibility to determine whether permit issuance is "likely, or not likely, to adversely affect" Gulf sturgeon, and to request our concurrence with that determination in accordance with the applicable consultation provisions of the ESA.

The proposed project may also impact wetlands. For a complete jurisdictional wetland delineation of the proposed project, please contact Mr. Robert Heffner (504/862-2274) at the New Orleans District, U.S. Army Corps of Engineers (Corps). If the Corps determines that the proposed project is within their regulatory jurisdiction, official U.S. Fish and Wildlife Service comments will be provided in response to the corresponding Public Notice.

We appreciate the opportunity to provide comments in the planning stages of this proposed project. If you need further assistance, please contact Joshua Marceaux (337/291-3110) of this office.

Sincerely,

Brad S. Rieck
Deputy Supervisor
Lafayette Field Office

cc: Corps of Engineers, New Orleans, LA
USFWS, Southeast Louisiana Refuges Complex, Lacombe, LA
LDWF, Natural Heritage Program, Baton Rouge, LA
LDWF, Lacombe, LA

BOBBY JINDAL
GOVERNOR

State of Louisiana
DEPARTMENT OF WILDLIFE AND FISHERIES
OFFICE OF WILDLIFE

ROBERT J. BARHAM
SECRETARY
JIMMY L. ANTHONY
ASSISTANT SECRETARY

Date	April 23, 2010
Name	Noel Ardoin
Company	LA DOTD
Street Address	P.O. Box 94245
City, State, Zip	Baton Rouge, LA 70804-9245
Project	Chef Menteur Bridge and Approaches US 90
Project ID	1022010
Invoice Number	10042309

Personnel of the Habitat Section of the Coastal & Nongame Resources Division have reviewed the preliminary data for the captioned project. After careful review of our database, no impacts to rare, threatened, or endangered species or critical habitats are anticipated for the proposed project. No state or federal parks, wildlife refuges, scenic streams, or wildlife management areas are known at the specified site within Louisiana's boundaries.

The Louisiana Natural Heritage Program (LNHP) has compiled data on rare, endangered, or otherwise significant plant and animal species, plant communities, and other natural features throughout the state of Louisiana. Heritage reports summarize the existing information known at the time of the request regarding the location in question. The quantity and quality of data collected by the LNHP are dependent on the research and observations of many individuals. In most cases, this information is not the result of comprehensive or site-specific field surveys; many natural areas in Louisiana have not been surveyed. This report does not address the occurrence of wetlands at the site in question. Heritage reports should not be considered final statements on the biological elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. LNHP requires that this office be acknowledged in all reports as the source of all data provided here. If at any time Heritage tracked species are encountered within the project area, please contact the LNHP Data Manager at 225-765-2643. If you have any questions, or need additional information, please call 225-765-2357.

Sincerely,

for Gary Lester, Coordinator
Natural Heritage Program

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
263 13th Avenue, South
St. Petersburg, Florida 33701

April 27, 2010 F/SER46/RH:jk
225/389-0508

Mr. Noel A. Ardoin
Environmental Engineer Administrator
Louisiana Department of Transportation and Development
Post Office Box 94245
Baton Rouge, Louisiana 70804-9245

Dear Mr. Ardoin;

NOAA's National Marine Fisheries Service (NMFS) has reviewed the project information transmitted in the Solicitation of Views (SOV) for State Project number **006-05-0067** dated April 1, 2010. The Louisiana Department of Transportation and Development (LDOTD) is proposing to replace the existing Chef Menteur Pass bridge on US Highway 90 in Orleans Parish, Louisiana. Information transmitted with the SOV indicates that three different alignments and bridge alternatives are being considered: a low movable span slightly north; a high fixed span slightly south; and a high fixed span 1,000 ft south, of the existing bridge. In your SOV, you requested the identification of possible adverse environmental effects or concerns.

NMFS staff conducted a field inspection of the project area on April 16, 2010. Wetlands in the project area consist of brackish marsh vegetated primarily with marshhay cordgrass and smooth cordgrass. These wetlands and the water bottoms in the project area are categorized as essential fish habitat (EFH) under provisions of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). Aquatic and tidally influenced wetland habitats in the project area are designated as EFH for post larval and juvenile life stages of brown shrimp, white shrimp, red drum, and Gulf stone crab. Fishery management plans for these species have been developed by the Gulf of Mexico Fishery Management Council (GMFMC). Detailed information on federally-managed fisheries and their EFH is provided in the 2005 generic amendment of the fishery management plan for the Gulf of Mexico prepared by the GMFMC. The generic amendment was prepared as required by the Magnuson-Stevens Act.

In addition to being designated as EFH for various federally managed species, wetlands and water bottoms in the project area provide nursery and foraging habitats for a variety of economically important marine fishery species such as blue crab, gulf menhaden, spotted seatrout, sand seatrout, southern flounder and striped mullet. Some of these species serve as prey for other fish species managed under the Magnuson-Stevens Act by the GMFMC (e.g., mackerels, snappers, and groupers) and highly migratory species managed by NMFS (e.g., billfishes and sharks). Wetlands in the project area also produce nutrients and detritus, important components of the aquatic food web, which contribute to the overall productivity of the Breton Sound estuary.

While no information was provided in the SOV on how approaches to each bridge alternative would be designed, NMFS assumes that roadways and approaches to the existing bridge would be utilized to the

maximum extent practicable for the two alignments closest to that bridge. Lacking the exact footprint of such project components, NMFS is unable to determine precisely the likely magnitude of impacts to EFH. However, based on the field investigation, the two alignments closest to the existing bridge will likely result in much less impact to wetlands, a more productive category of EFH, than the alternative to be sited 1,000 ft to the south. NMFS recommends LDOTD concentrate on those two alternatives unless real estate and other issues render them infeasible. If it is determined that the alternative sited 1,000 ft south of the existing bridge is the most feasible alignment, detailed information justifying that decision should be provided to NMFS for our review.

As identified above, this project has the potential to adversely impact wetland habitats categorized as EFH. Provisions of the Clean Water Act require sequential efforts to avoid and then reduce impacts to wetlands to the maximum extent practicable. LDOTD should evaluate all alternatives in an effort to minimize wetland impacts and, after selecting an alternative, evaluate construction methods and designs that would further reduce adverse impacts. Once all efforts have been completed to avoid or minimize wetland impacts, a compensatory mitigation plan should be developed to completely offset project related impacts to EFH and associated marine fishery resources. The Environmental Assessment to be developed for this project should thoroughly describe all resources potentially impacted by bridge construction activities, detail all efforts to avoid and minimize wetland impacts, and describe the mitigation plan to be used to compensate for all adverse impacts to resources of concern.

Provisions of the Magnuson-Stevens Act require coordination with NMFS on any federal action, including funding of an action, which has the potential to adversely impact EFH. As identified above, this project has that potential to adversely impact EFH. If more than one federal agency is responsible for an action, one of those agencies can be designated as a lead agency responsible for fulfilling coordination requirements. In this case, it is likely that the Federal Highway Administration would be providing funds to help pay for the bridge and the Corps of Engineers will be responsible for permitting of the bridge under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Therefore, coordination requirements can be fulfilled through our review of the Environmental Assessment for this project, or through the Clean Water Act permitting process and either agency could be responsible for fulfilling EFH coordination requirements. If LDOTD will be responsible for fulfilling EFH coordination requirements, that designation should be provided to NMFS in writing.

We appreciate the opportunity to provide early input into this project. If you have questions regarding our comments, please contact Richard Hartman of my staff at (225) 389-0508, extension 203.

Sincerely,

for Miles M. Croom
Assistant Regional Administrator
Habitat Conservation Division

c:
FWS, Lafayette, Walther
EPA, Dallas, Mick
FHA, Mahoney
NOD Regulatory, Serio
LDNR Consistency, Ducote
Files

Nikki Leon

From: Noel Ardoin
Sent: Wednesday, April 28, 2010 7:31 AM
To: Nikki Leon
Subject: FW: DEQ SOV: 006-05-0067/0735 Chef Menteur Bridge & Approaches

From: Diane Hewitt
Sent: Tuesday, April 27, 2010 4:17 PM
To: Noel Ardoin
Subject: DEQ SOV: 006-05-0067/0735 Chef Menteur Bridge & Approaches

April 27, 2010

Noel Ardoin
LA DOTD
PO Box 94245
Baton Rouge, LA 70804-9245
Noel.Ardoin@la.gov

RE:
006-05-0067/0735 Chef Menteur Bridge & Approaches
Rt. US 90; LDOTD funding
Orleans Parish

Dear Ms. Ardoin:

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

Please note: the approach areas that may have or have had industrial activities should be examined for any potential hazardous materials.

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

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

- If your project results in a discharge to waters of the state, submittal of a Louisiana Pollutant Discharge Elimination System (LPDES) application may be necessary.
- If the project results in a discharge of wastewater to an existing wastewater treatment system, that wastewater treatment system may need to modify its LPDES permit before accepting the additional wastewater.
- LDEQ has stormwater general permits for construction areas equal to or greater than one acre. It is recommended that you contact the LDEQ Water Permit Division at (225) 219-3181 to determine if your proposed improvements require one of these permits.
- All precautions should be observed to control nonpoint source pollution from construction activities.
- If any of the proposed work is located in wetlands or other areas subject to the jurisdiction of the U.S. Army Corps of Engineers, you should contact the Corps directly to inquire about the possible necessity for permits. If a Corps permit is required, part of the application process may involve a water quality certification from LDEQ.
- All precautions should be observed to protect the groundwater of the region.

- Please be advised that water softeners generate wastewaters that may require special limitations depending on local water quality considerations. Therefore if your water system improvements include water softeners, you are advised to contact the LDEQ Water Permits to determine if special water quality-based limitations will be necessary.
- Any renovation or remodeling must comply with LAC 33:III.Chapter 28.Lead-Based Paint Activities, LAC 33:III.Chapter 27.Asbestos-Containing Materials in Schools and State Buildings (includes all training and accreditation), and LAC 33:III.5151.Emission Standard for Asbestos for any renovations or demolitions.
- If any solid or hazardous wastes, or soils and/or groundwater contaminated with hazardous constituents are encountered during the project, notification to LDEQ's Single-Point-of-Contact (SPOC) at (225) 219-3640 is required. Additionally, precautions should be taken to protect workers from these hazardous constituents.

Currently, Orleans Parish is classified as an attainment parish with the National Ambient Air Quality Standards.

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

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

Sincerely,

Diane Hewitt
Performance Management
LDEQ/Community and Industry Relations
Business and Community Outreach Division
Office of the Secretary
P.O. Box 4301 (602 N. 5th Street)
Baton Rouge, LA 70821-4301
Phone: 225-219-4079
Fx: 225-325-8208
E-mail: **diane.hewitt@la.gov**

CITY OF NEW ORLEANS
CITY PLANNING COMMISSION

MAYOR MITCHELL J. LANDRIEU

YOLANDA W. RODRIGUEZ
EXECUTIVE DIRECTOR

LESLIE T. ALLEY
DEPUTY DIRECTOR

May 4, 2010

LA DOTD
Environmental Engineer Administrator
P.O. Box 94245
Baton Rouge, LA 70804-9245

Dear Environmental Engineer Administrator,

The New Orleans City Planning Commission (CPC) is in receipt of the Solicitation of Views that you sent on April 1, 2010 regarding the following project:

State Project No.: 006-05-0067
Federal Aid Project No.: BR-61-07 (019)
Chef Menteur Bridge and Approaches
Route: US 90
Parish: Orleans

After reviewing the limited information provided our office would like to raise the following concerns:

1. *Bayou Sauvage and wetland impacts*
   The CPC is concerned about the bridge replacement's impacts on surrounding wetlands and Bayou Sauvage. The CPC requests that a full environmental impacts statement in compliance with NEPA requirements be prepared and a copy forwarded to the CPC office our files. Should significant impacts be identified, the CPC would like to request that mitigation measures be carried out (i.e. wetland restoration in other parts of New Orleans East or along the Chef Menteur land bridge).

2. *Historic Fort Macomb impacts*
   The CPC is concerned about impacts to Fort Macomb. An alternative that preserves this historic resource is preferred.

3. *Chef Menteur Bridge Adaptive Reuse*
   The CPC strongly encourages DOTD to preserve the existing Chef Menteur Bridge The Bridge is eligible for the National Register of Historic Places and could easily be converted to a bicycle/pedestrian route with a lookout area and a fishing pier.

4. *Adjacent properties impacts*
   The CPC is concerned about the impacts that the bridge replacement will have on surrounding neighbors and property owners. It appears that the first alternative to construct the replacement bridge to the north of the existing bridge could involve the relocation of a residential neighborhood. Additionally, the CPC is concerned about the noise, traffic and air quality impacts on nearby residents and businesses. The CPC requests that DOTD provide a lead community outreach coordinator that can serve as a direct contact for residents. This coordinator can prepare a timeline and other outreach materials for residents who will be displaced or impacted by construction activities.

5. *Inclusion of a shoulder for bike access*
   The CPC would like to encourage the inclusion of a shoulder on the bridge that would be wide enough to accommodate bicycle and pedestrian traffic. The *Louisiana Bicycle Map* published by LA DOTD in Spring 2005 shows US-90 as a "suggested cross-state route." A paved shoulder will make it safer and more conducive for bicycle and pedestrian travel. The Regional Planning Commission's 2005 regional bicycle master plan also supports US-90 as a bike route.

Thank you for the opportunity to provide feedback. If you need any additional information from the City Planning Commission, please let us know.

Sincerely,

Yolanda Rodriguez,
Executive Director
City Planning Commission

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

MAY 05 2010

REPLY TO
ATTENTION OF

Operations Division
Operations Manager,
Completed Works

Mr. Noel Ardoin
LA DOTD
Post Office Box 94245
Baton Rouge, Louisiana 70804-9245

Dear Mr. Ardoin:

This is in response to your Solicitation of Views request dated April 1, 2010, concerning the work on the Chef Menteur Bridge and approaches, at New Orleans, Louisiana, in Orleans Parish.

We have reviewed your request for potential Department of the Army regulatory requirements and impacts on any Department of the Army projects.

We do not anticipate any adverse impacts to any Corps of Engineers projects.

Based on the limited information provided, we have determined that information and signatures obtained from recent maps, aerial photography, and local soil surveys concerning a portion of the proposed project are indicative of the occurrence of waters of the U.S., including wetlands. Department of the Army (DA) permits are required prior to the deposition and/or redistribution of dredged or fill material into jurisdictional waters and wetlands. More detailed project drawings should be submitted for a final decision regarding impacts.

Please be advised that this property is in the Louisiana Coastal Zone. For additional information regarding coastal use permit requirements, contact Ms. Christine Charrier, Coastal Management Division, Louisiana Department of Natural Resources at (225) 342-7953.

This preliminary determination is advisory in nature. If an approved delineation is needed, please furnish us with the detailed field data concerning vegetation, soils, and hydrology that we require for all jurisdictional decisions. The fact that a field wetland delineation/determination has not been completed does not alleviate your responsibility to obtain the proper DA permits prior to working in jurisdictional wetlands or waters occurring on this property.

Off-site locations of activities such as borrow, disposals, haul-and detour-roads and work mobilization site developments may be subject to Department of the Army regulatory requirements and may have an impact on a Department of the Army project.

You should apply for said permit well in advance of the work to be performed. The application should include sufficiently detailed maps, drawings, photographs, and descriptive text for accurate evaluation of the proposal.

Please contact Mr. Robert Heffner, of our Regulatory Branch by telephone at (504) 862-1288, or by e-mail at Robert.A.Heffner@usace.army.mil for questions concerning wetlands determinations or need for on-site evaluations. Questions concerning regulatory permit requirements may be addressed to Mr. Michael Farabee by telephone at (504) 862-2292 or by e-mail at Michael.V.Farabee@usace.army.mil.

Future correspondence concerning this matter should reference our account number MVN-2010-00889-SB. This will allow us to more easily locate records of previous correspondence, and thus provide a quicker response.

Sincerely,

Karen L. Oberlies

Karen L. Oberlies
Solicitation of Views Manager

Copy Furnished:

Ms. Christine Charrier
Coastal Zone Management
Department of Natural Resources
Post Office Box 44487
Baton Rouge, Louisiana 70804-4487

BOBBY JINDAL
GOVERNOR

State of Louisiana
DEPARTMENT OF NATURAL RESOURCES
OFFICE OF CONSERVATION

SCOTT A. ANGELLE
SECRETARY

JAMES H. WELSH
COMMISSIONER OF CONSERVATION

May 6, 2010

TO: Ms. Noel Ardoin
Environmental Engineer Administrator
LA DOTD
P.O. Box 94245
Baton Rouge, Louisiana 70804-9245

RE: Solicitation of Views
State Project No.: 006-05-0067
Federal Aid Project No.: BR-61-07 (019)
Chef Menteur Bridge and Approaches
Route: US 90
Parish: Orleans

Dear Ms. Ardoin:

In response to your letter dated April 1, 2010, concerning the referenced matter, please be advised that the Office of Conservation collects and maintains many types of information regarding oil and gas exploration, production, distribution, and other data relative to the petroleum industry as well as related and non-related injection well information, surface mining and ground water information and other natural resource related data. Most information concerning oil, gas and injection wells for any given area of the state, including the subject area of your letter can be obtained through records search via the SONRIS data access application available at:

http://www.dnr.state.la.us/CONS/Conserv.ssi

A review of our computer records for the referenced project area indicates no oil, gas or injection wells located within or adjacent to the project area. However, the LADOTD database indicates that there are registered water wells in the vicinity of the project area. Due care should be taken to locate any water wells installed in the area before registration was required.

The Office of Conservation maintains records of all activities within its jurisdiction in paper, microfilm or electronic format. These records may be accessed during normal business hours, Monday through Friday, except on State holidays or emergencies that require the Office to be closed. Please call 225-342-5540 for specific contact information or for directions to the Office of Conservation, located in the LaSalle Building, 617 North Third Street, Baton Rouge, Louisiana. For pipelines and other underground hazards, please contact Louisiana One Call at 1-800-272-3020 prior to commencing operations. Should you need to direct your inquiry to any of our Divisions, you may use the following contact information:

Division	Contact	Phone No.	E-mail Address
Engineering	Jeff Wells	225-342-5638	jeff.wells@la.gov
Pipeline	Steven Giambrone	225-342-2989	steven.giambrone@la.gov
Injection & Mining	Laurence Bland	225-342-5515	laurence.bland@la.gov
Geological	Mike Kline	225-342-3335	mike.kline@la.gov
Environmental	Tony Duplechin	225-342-5528	tony.duplechin@la.gov

If you have difficulty in accessing the data via the referenced website because of computer related issues, you may obtain assistance from our technical support section by selecting "Help" on the SONRIS tool bar and submitting an email describing your problems and including a telephone number where you may be reached.

Sincerely,

James H. Welsh
Commissioner of Conservation

JHW:MBK

SCOTT ANGELLE
LIEUTENANT GOVERNOR

State of Louisiana
OFFICE OF THE LIEUTENANT GOVERNOR
DEPARTMENT OF CULTURE, RECREATION & TOURISM
OFFICE OF CULTURAL DEVELOPMENT
DIVISION OF HISTORIC PRESERVATION

PAM BREAUX
SECRETARY

May 6, 2010

Ms. Noel Ardoin
Environmental Engineer Administrator
LDOTD
P.O. Box 94245
Baton Rouge, LA 70804-9245

RE: State Project No. 006-05-0067
F.A.P. No. BR-61-07 (019)
Chef Menteur Bridge and Approaches
Route US 90
Orleans Parish, LA

Dear Ms. Ardoin:

Thank you for your letter of April 1, 2010, concerning the above-referenced project. We concur with your assessment that the Chef Menteur Bridge is eligible for listing in the National Register of Historic Places and that the proposed project could have an impact on it and the NRHP-listed Fort Macomb.

We look forward to further consultation with you concerning the proposed bridge replacement. If you have any questions, please contact Mike Varnado in the Division of Historic Preservation at (225) 219-4596.

Sincerely,

Phil Boggan
Deputy State Historic Preservation Officer

PB:MV:s

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
3737 Government Street
Alexandria, LA 71302

318-473-7751
318-473-7626

May 6, 2010

Noel Ardoin
Environmental Administrator
P.O. Box 94245
Baton Rouge, Louisiana 70804-9245

RE: Chef Menteur Bridge & Approaches, State Project No. 006-05-0067

Noel:

I have reviewed your request for comments relative to impacts to Prime Farmland or Farmland of Statewide Importance resulting from construction of roadway enhancements for the following project in Orleans, Louisiana:

1. Chef Menteur Bridge & Approaches, State Project No. 006-05-0067

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

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

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

The project map(s) submitted with your request, indicate that the proposed construction areas are within urban areas. Therefore, the third exception item listed above can be

cited as reason to determine that both the proposed project(s) are exempt from the rules and regulations of the Farmland Protection Policy Act (FPPA)—Subtitle I of Title XV, Section 1539-1549.

There is no prime farmland in the vicinity of any of these projects and it appears the projects will not impact any NRCS work in the immediate area.

Further, we do not believe there will be an adverse effect on the surrounding environment provided appropriate erosion control measures are taken during construction.

NRCS has no objection to this project and it does not appear that it will affect any of our work in the immediate vicinity.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

All of the soils within the 'CHEF MENTEUR PASS BRIDGE AND APPROACHES' project are classified as "PARTIALLY HYDRIC/OR HYDRIC SOIL". Although hydric soil is only one of the three parameters required for an area to be classified as a wetland, there is high probability that the project area would be classified as wetland, and may be subject to the wetland regulations cited by Section 404 of the National Clean Water Act. There may be a slight to significant alteration to wetlands during construction. Mitigation maybe required. NRCS recommends that the Project Sponsor contact the Corps of Engineers for determination of any requirements.

There will be a slight to significant alteration to wetlands during construction. Mitigation may be required. This project should be coordinated with the permit section of the Corps of Engineers for determination of any requirements

Please direct all future correspondence to me at the address shown above.

Respectfully,

ACTING FOR

Kevin D. Norton
State Conservationist

Bobby Jindal
GOVERNOR

Alan Levine
SECRETARY

State of Louisiana

Department of Health and Hospitals
Office of Public Health

May 7, 2010

LA DOTD
Environmental Engineer Administrator
P.O. Box 94245
Baton Rouge, LA 70804-9245

Re: State Project No. 006-05-0067

This office is in receipt of a Solicitation of View regarding the above referenced project(s).

Based upon the information received from the applicant we have no objection to the referenced project(s) at this time. The applicant shall be aware of and comply with any and all applicable Louisiana State Sanitary Code regulations (LAC 51, as applicable). Furthermore, should additional project data become available to this office that in any way amend the information upon which this office's response has been based, we reserve the right of additional comment on the referenced project(s).

In the event of any future discovery of evidence of non-compliance with the Louisiana Administrative Code Title 51 (Public Health-Sanitary Code) and the Title 48 (Public Health-General) regulations or any applicable public health laws or statutes which may have escaped our awareness during the course of this cursory review, please be advised that this office's preliminary determination on this Solicitation of View of the project(s) shall not be construed as absolving the applicant of responsibility, if any, with respect to compliance with the Louisiana Administrative Code Title 51 (Public Health-Sanitary Code) and the Title 48 (Public Health-General) regulations or any other applicable public health laws or statutes.

Respectfully,

Johan Forsman
Geologist
Engineering Services Section
Center for Environmental Health Services
Telephone: (225) 342-7309
Electronic mail: johan.forsman@la.gov

BOBBY JINDAL
GOVERNOR

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
P.O. Box 94245
Baton Rouge, Louisiana 70804-9245
www.dotd.la.gov
225-274-4354

SHERRI LEBAS
INTERIM SECRETARY

May 20, 2010

STATE PROJECT NO.: 006-05-0067
F.A.P. NO.: BR-61-07-(019)
NAME: CHEF MENTEUR PASS BRIDGE
LOCATION: US 90
PARISH: ORLEANS

Ms. Noel Ardoin
Environmental Engineer Administrator
P.O. Box 94245
Baton Rouge, LA 70804-9245

Subject: Solicitation of Views

Dear Ms. Ardoin:

Enclosed is a copy of the Flood Insurance Rate Map (FIRM) for Orleans Parish indicating the proposed project area.

During and after the project, consideration must be given for the occurrence of a base flood inundation. At this time, consideration should also be given to the responsibility for clearing debris and keeping the area cleared so as not to interfere with its function.

In order to assure compliance with Orleans Parish requirements for the National Flood Insurance Program (NFIP), and so that appropriate permits are obtained, please contact the floodplain administrator for Orleans Parish. The contact person is: Mr. Pat Trainor, 1300 Perdido Street, 7E05, New Orleans, LA, 70112, and telephone no. 504-658-7200.

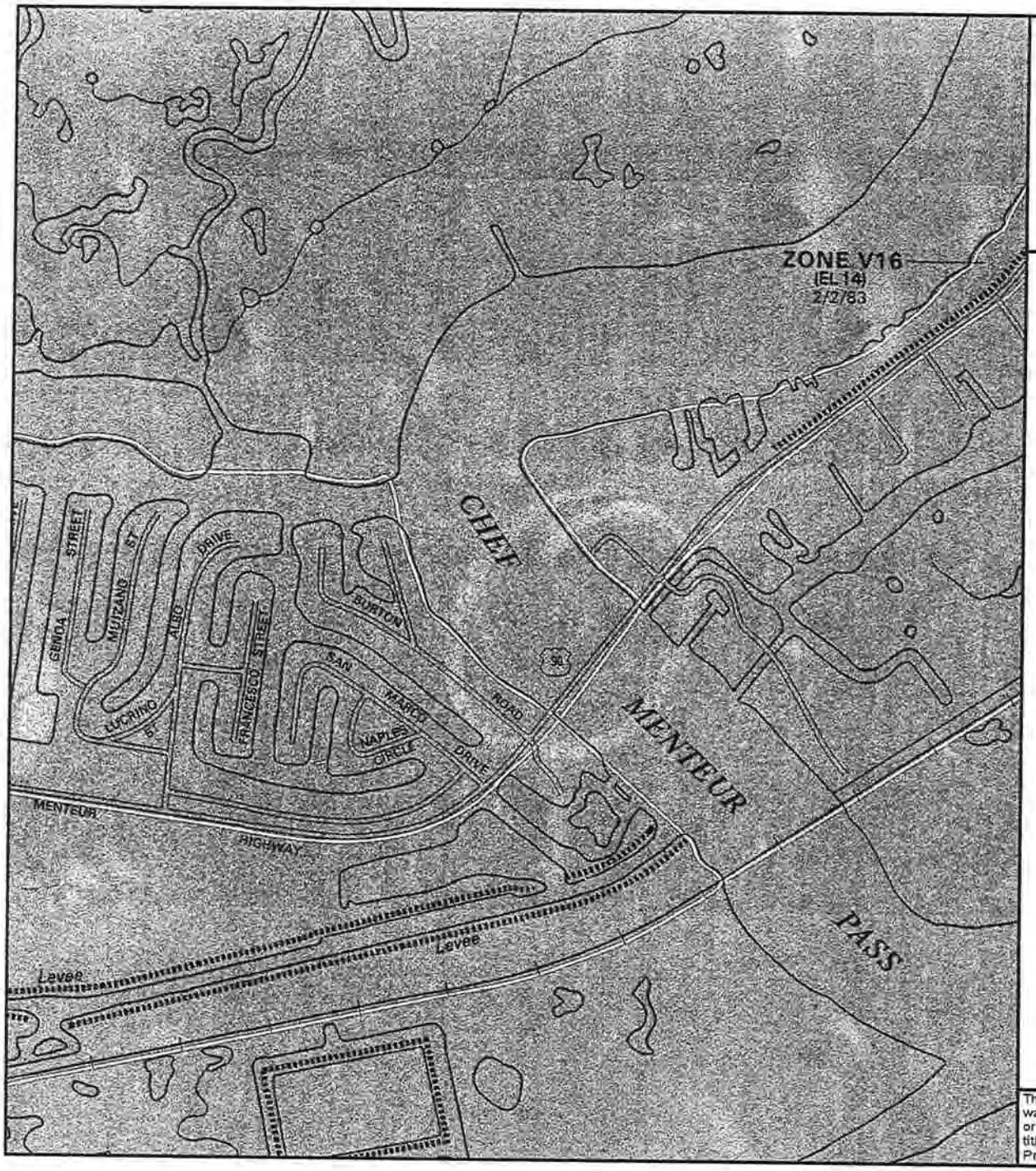
We thank you for the opportunity to comment on this project. If you need additional information, please contact our office, (225) 274-4354.

Sincerely,

Susan Veillon

Susan Veillon, CFM
Floodplain Management Program Coordinator

pc: Mr. Pat Trainor



APPROXIMATE SCALE

1000 0 1000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

CITY OF
NEW ORLEANS AND
ORLEANS PARISH,
LOUISIANA

PANEL 130 OF 185
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
225203 0130 E

MAP REVISED:
MARCH 1, 1984

Federal Emergency Management Agency

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

June 14, 2010

Ms. Noel Ardoin
Environmental Engineer Administrator
State of Louisiana
Department of Transportation and
Development
P.O. Box 94245
Baton Rouge, LA 70804-9245

Dear Ms. Ardoin:

We have received your June 4, 2010, email requesting our evaluation of the potential environmental impacts which might result from the following project:

Bridge Replacement
STP No. 006-05-0067
FAP No. BR-61-07(019)
US 90
Orleans Parish, Louisiana

In administering the sole source aquifer (SSA) program under Section 1424 of the Safe Drinking Water Act our Office performs evaluations of projects with federal financial assistance which are located over a designated sole source aquifer.

Based on the information provided, we have concluded that the project does not lie within the boundaries of a designated sole source aquifer and is thus not eligible for review under the SSA program; however we would like to review the Environmental Assessment Report, when available.

If you did not include the Parish/County; a legal description; project location and the latitude and longitude if available, please do so in future Sole Source Aquifer correspondence. To view a map of the Sole Source Aquifer delineation(s) for your state go to the following website. http://www.epa.gov/region6/water/swp/ssa/maps.htm

If you have any questions on this letter or the sole source aquifer program please contact me at (214) 665-7133.

Sincerely yours,

Michael Bechdol, Coordinator
Sole Source Aquifer Program
Ground Water/UIC Section

cc: Howard Fielding, LDEQ

BOBBY JINDAL
GOVERNOR

KRISTY H. NICHOLS
INTERIM SECRETARY

State of Louisiana

Department of Social Services
Office of Management and Finance

June 15, 2010

LA DOTD
Environmental Engineer Administrator
P.O. Box 942245
Baton Rouge, LA 70804-9245

Re: State Project No. 006-05-0067
Chef Menteur Bridge and approaches
LA Route US 90 Road Base in Orleans Parish

To Whom It May Concern:

The Department of Social Services has reviewed the proposed project information supplied in the Department of Transportation's April 1, 2010 Solicitation of Views. We have determined that the project will not adversely impact the operations of our agencies or their delivery of services to our consumers who reside in the affected area.

We offer no objection to this undertaking and look forward to its successful completion.

Sincerely,

Bridget M. Depland
Deputy Undersecretary

C: Ruth Johnson

U.S. Department of Homeland Security

United States Coast Guard

Commander
Eighth Coast Guard District
Hale Boggs Federal Building

500 Poydras Street, Rm 1313
New Orleans, LA 70130-3310
Staff Symbol: (dpb)
Phone: (504) 671-2128
Fax: (504) 671-2133

16591A
June 18, 2010

Louisiana Department of Transportation and
Development
Attn: Ms. Noel Ardoin
P.O. Box 94245
Baton Rouge, Louisiana 70804-9245

Dear Ms. Ardoin:

This refers to your letter of June 4, 2010, requesting the Coast Guard's response to a Solicitation of Views for the clearance requirements for a replacement bridge across Chef Menteur Pass, in New Orleans, Orleans Parish, Louisiana. This is the Louisiana Department of Transportation and Development Project No. 006-05-0067; F.A.P. No. BR-61-07 (019).

The clearances of the existing bridge are: horizontal - 97.6 feet; vertical - 11 feet in the closed to navigation position and unlimited in the open to navigation position. There is only one other bridge on the waterway, the CSX railroad swing bridge. The clearances of the CSX bridge are: horizontal - 104 feet; vertical - 10 feet in the closed to navigation position and unlimited in the open to navigation position above mean high water.

The clearances of your proposed bridge should be increased to accommodate vessels presently using the waterway. Your environmental review of the project should include a section covering the proposed replacement from the standpoint of navigation. You should insure that vessels with clearance requirements of greater than those existing do not wish to use the waterway. If your research shows that larger vessels wish to use the waterway or for the safety of present navigation clearances greater than those which exist are necessary, then you will be required to provide greater clearances.

At a minimum, your horizontal clearance should be similar to that of the CSX bridge. It would appear prudent to increase the clearance of that bridge to those similar to that of the Rigolets Pass bridge at Mile 6.20, Orleans and St. Tammany Parish: horizontal - 200 feet; vertical – 66.6 feet above mean high water. If you feel that a solicitation of views from mariners and other interested parties would be of any value, our office will be happy to assist you in this effort.

As indicated by your letter, FHWA will be the lead federal agency for the purposes of NEPA. The Coast Guard will be a cooperating agency. Coast Guard permitting action is limited to approval of the location of the bridge and approaches.

If you have any further questions, please contact our office as listed above.

Sincerely,

DAVID M. FRANK
Chief, Bridge Administration Branch
U.S. Coast Guard
By direction

Copy LDOTD, Ms. Nikki Leon

dog:D8Shares:dpb:\Coordination Needed Ltrs LA\Chef Menteur Pass, US 90 sov 6-18-10

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
3737 Government Street
Alexandria, LA 71302

318-473-7751
318-473-7626

July 1, 2010

Noel Ardoin
Environmental Engineer Administrator
State of Louisiana – DOTD
P.O. Box 94245
Baton Rouge, Louisiana 70804-9245

RE: Chef Mentuer Bridge & Approaches

Noel Ardoin:

I have reviewed your request for comments relative to impacts to Prime Farmland or Farmland of Statewide Importance resulting from construction of roadway enhancements for the following project in Lafayette parish, Louisiana:

1. Chef Mentuer Bridge & Approaches

Because the information provided is preliminary, the exact route of the new bridge is undetermined. The statements tagged cover the different possibilities.

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

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

- Construction within an existing right-of-way purchased on or before August 4, 1984.

The project map(s) submitted with your request, indicate that the proposed construction areas are within urban areas. Therefore, the third exception item listed above can be cited as reason to determine that both the proposed project(s) are exempt from the rules and regulations of the Farmland Protection Policy Act (FPPA)—Subtitle I of Title XV, Section 1539-1549.

There is no prime farmland in the vicinity of any of these projects and it appears the projects will not impact any NRCS work in the immediate area.

Further, we do not believe there will be an adverse effect on the surrounding environment provided appropriate erosion control measures are taken during construction.

NRCS has no objection to this project and it does not appear that it will affect any of our work in the immediate vicinity.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to

develop anaerobic conditions in the upper part (Federal Register 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

All of the soils within the 'CHEF MENTEUR PASS BRIDGE AND APPROACHES' project are classified as "PARTIALLY HYDRIC/OR HYDRIC SOIL". Although hydric soil is only one of the three parameters required for an area to be classified as a wetland, there is high probability that the project area would be classified as wetland, and may be subject to the wetland regulations cited by Section 404 of the National Clean Water Act. There may be a slight to significant alteration to wetlands during construction. Mitigation maybe required. NRCS recommends that the Project Sponsor contact the Corps of Engineers for determination of any requirements.

Because the information provided is preliminary, wetlands may be disturbed in the construction area.

There will be a slight to significant alteration to wetlands during construction. Mitigation may be required. This project should be coordinated with the permit section of the Corps of Engineers for determination of any requirements

Please direct all future correspondence to me at the address shown above.

Respectfully,

Kevin D. Norton
State Conservationist

Attachments

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

July 1, 2010

Mr. Noel Ardoin
Environmental Engineer Administrator
LA DOTD
P. O. Box 94245
Baton Rouge, LA 70804-9245

RE: State Project No. 006-05-0067

Dear Mr. Ardoin:

The Environmental Protection Agency (EPA) Region 6 has received your correspondence, dated June 4, 2010, regarding the proposed improvement to the Chef Menteur Bridge in Orleans Parish. In accordance with the National Environmental Policy Act, our agency is providing the following comments to assist you in developing your NEPA documents:

- There may be rare, threatened, or endangered species or habitat near the proposed project. You should contact your state wildlife agency or US Fish and Wildlife Service for more specific information.
- There is at least one regulated facility within 1000m of the proposed project (i.e., Venetian Isles/Chef Menteur Area).
- The proposed project is located in the 100 year floodplain.
- A property listed on the National Register of Historic Places (i.e., Fort MaComb) is approximately 245m from the proposed project.
- The proposed project is within 500m of a wildlife area or park (i.e., Fort MaComb, Bayou Sauvage National Wildlife Refuge.
- The proposed project is located within a 1-hour ozone maintenance area.
- The intracoastal waterway (LA-041601) is listed on the 2004 Clean Water Act 303(d) list as impaired for total and fecal coliform.

Thank you for your coordination and don't hesitate to contact Dr. Sharon L. Osowski, of my staff, at 214-665-7506 or osowski.sharon@epa.gov should you have any questions regarding this letter.

Sincerely,

Cathy Gilmore

Cathy Gilmore, Chief
Office of Planning and Coordination
Compliance Assurance and Enforcement Division

Maloney-Mujica, Lynn

From: Nikki Leon [Nikki.Leon@LA.GOV]
Sent: Wednesday, October 12, 2011 11:13 AM
To: Maloney-Mujica, Lynn
Subject: FW: FW: Request for SOV response from Protected Species Division
Attachments: eric_hawk.vcf

From: Eric G. Hawk [mailto:Eric.Hawk@noaa.gov]
Sent: Monday, June 06, 2011 10:51 AM
To: Nikki Leon
Subject: Re: FW: Request for SOV response from Protected Species Division

yes, that list is complete. given the project location, you can dispense with analyses for hawksbill and leatherback sea turtles.

Nikki Leon wrote:
Hey Eric,

Thanks so much for your input last week. From the conversation we had, I decided to work on the assumption that a Biological Assessment on the following species and/or critical habitat (falling under NMFS Protected Species Division) ***might*** be necessary for this project:

Gulf sturgeon
Gulf sturgeon critical habitat
Kemp's ridley sea turtle
loggerhead sea turtle
green sea turtle

I have also added a 6th item: the West Indian manatee per USFWS response.

Could you please confirm this list is accurate per our discussion so that I may have this as a form of response from NMFS Protected Species Division?

Thanks so much for your continued help.

Nikki

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
P.O. Box 94245
Baton Rouge, Louisiana 70804-9245
www.dotd.la.gov
225-242-4502

BOBBY JINDAL
GOVERNOR

SHERRI H. LEBAS, P.E.
SECRETARY

March 7, 2013

Mr. Brad S. Rieck
Deputy Supervisor, Lafayette Field Office
U.S. Department of the Interior
Fish and Wildlife Service
646 Cajundome Boulevard
Lafayette, LA 70506

STATE PROJECT NO. H.000263.2
F.A.P. NO. H000263
CHEF MENTEUR BRIDGE AND APPROACHES
ROUTE: US 90
PARISH: ORLEANS

SUBJECT: Environmental Assessment: Threatened and Endangered Species Consultation and Coordination

Dear Mr. Rieck:

On behalf of the Federal Highway Administration (FHWA), the Louisiana Department of Transportation and Development (LADOTD) is transmitting a copy of the Environmental Assessment (EA) document for your review and comment on the captioned project. As you will see in the Permits, Mitigation, and Environmental Commitments section at the front of the document, LADOTD and FHWA have committed to implementing all the measures and conditions stipulated in your letter dated April 22, 2010. These measures are specifically focused on protection of the West Indian manatee (*Trichechus manatus*), federally listed as an endangered species, and the Gulf sturgeon (*Acipenser oxyrhynchus*), federally listed as a threatened species. Measures protective of sea turtles are also listed, but have not been finalized with National Marine Fisheries Service (NMFS) Office of Protected Resources at this time as formal consultation with them will commence upon their receipt and review of the EA. Your comments on the draft Biological Survey Report (provided to your staff and that of NMFS on 7 June 2012) have been addressed in the EA to the extent possible.

Based on the alternatives screening analysis completed to date, which involves public and agency input, LADOTD and FHWA anticipate Alternative 2 will be selected as the preferred alternative for reasons stated in the EA. Following a public hearing, finalization of the EA and Biological Survey Report will commence. Should your office require revisions to mitigation measures or commitments, or should those that presently appear in the EA be modified based on comments received from the public hearing and other agencies, consultation with your office will continue. However, if your review of the EA finds the listed measures and commitments appropriate for protection of the West Indian manatee and the Gulf sturgeon, we request your concurrence on the finding of Not Likely to Adversely Affect.

Sincerely,

Robert Hott

for Noel Ardoin
Environmental Engineer Administrator

Copy to: R. Mahoney/FHWA
Joshua Marceaux/USFWS
Robert V. Smith/USFWS
Enclosure
CE NA/nl

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
P.O. Box 94245
Baton Rouge, Louisiana 70804-9245
www.dotd.la.gov
225-242-4502

BOBBY JINDAL
GOVERNOR

SHERRI H. LEBAS, P.E.
SECRETARY

March 7, 2013

Mr. Jason Rueter
National Marine Fisheries Service
Southeast Regional Office
Office of Protected Resources
263 13th Avenue South
St. Petersburg, FL 33701

STATE PROJECT NO. H.000263.2
F.A.P. NO. H000263
CHEF MENTEUR BRIDGE AND APPROACHES
ROUTE: US 90
PARISH: ORLEANS

SUBJECT: Environmental Assessment: Threatened and Endangered Species Consultation and Coordination

Dear Mr. Rueter:

On behalf of the Federal Highway Administration (FHWA), the Louisiana Department of Transportation and Development (LADOTD) is transmitting a copy of the Environmental Assessment (EA) document for your review and comment on the captioned project. Please accept this letter as our formal request to commence consultation on the proposed project. As you will see in the Permits, Mitigation, and Environmental Commitments section at the front of the document, LADOTD and FHWA propose to implement measures and conditions during construction that are protective of three species: loggerhead sea turtle *(Caretta caretta),* green sea turtle *(Chelonia mydas)*, and Kemp's Ridley sea turtle *(Lepidochelys kempii)*. The first two species are federally listed as threatened and the third one is federally listed as endangered. These measures and conditions are grouped in the Environmental Commitments section with those stipulated by the US Fish and Wildlife Service (USFWS) in a letter dated April 22, 2010. These measures are designed to protect the West Indian manatee (*Trichechus manatus*) and the Gulf sturgeon (*Acipenser oxyrhynchus*). It is anticipated that once the USFWS reviews the EA and the mitigation commitments, they will concur with a finding that the proposed project is not likely to adversely affect any sturgeon or manatee. Your comments on the draft Biological Survey Report (provided to your staff on 7 June 2012) have been addressed in the EA to the extent possible.

Based on the alternatives screening analysis completed to date, which involves public and agency input, LADOTD and FHWA anticipate Alternative 2 will be selected as the preferred alternative for reasons stated in the EA. Following a public hearing, finalization of the EA and Biological Survey Report will commence. Should your office require revisions to mitigation measures or commitments, or should those that presently appear in the EA be modified based on comments received from the public hearing and agencies, consultation with your office will continue. However, if your review of the listed mitigation measures and commitments identified for sea turtles finds these measures appropriate, we request your concurrence on the finding of Not Likely to Adversely Affect.

Sincerely,

Robert Hof

for Noel Ardoin
Environmental Engineer Administrator

Copy to: R. Mahoney/FHWA
Enclosure
CE NA/nl

United States Department of the Interior

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

March 29, 2013

Ms. Noel Ardoin
Environmental Engineer Administrator
Louisiana Department of Transportation and Development
Post Office Box 94245
Baton Rouge, Louisiana 70804-9245

Dear Ms. Ardoin:

Please reference your March 7, 2013, Environmental Assessment (EA), received by this office on March 8, 2013, regarding the Louisiana Department of Transportation and Development's (LADOTD) proposal to replace the Chef Menteur Bridge in Orleans Parish, Louisiana. That EA requests our concurrence with your determination that the proposed project is not likely to adversely affect the endangered West Indian manatee (*Trichechus manatus*) and the threatened Gulf sturgeon (*Acipenser oxyrhyncus desotoi*). The Fish and Wildlife Service (Service) has reviewed this information, and offers the following comments in accordance with provisions of the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

In a letter dated April 22, 2010, the Service provided guidance and recommendations/conditions in an effort to substantially reduce potential project-related impacts to manatees and Gulf sturgeon. According to the EA, all of those recommendations/conditions would be incorporated into project plans. Therefore, the Service concurs with your determination that the proposed project is not likely to adversely affect West Indian manatees and Gulf sturgeon.

We appreciate the opportunity to provide comments on the proposed project. If you need further assistance please contact Joshua Marceaux (337/291-3110) of this office.

Sincerely,

Jeffrey D. Weller
Field Supervisor
Louisiana Ecological Services Field Office

cc: USACE, Regulatory Branch, New Orleans, LA
FHWA, Baton Rouge, LA
NOAA/NMFS, Baton Rouge, LA
LDWF, Natural Heritage Program, Baton Rouge, LA

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

April 4, 2013 F/SER46/LA:jk
225/389-0508

Ms. Lynn Maloney-Mújica
ARCADIS U.S., Inc.
10352 Plaza Americana Drive
Baton Rouge, Louisiana 70816

Dear Ms. Maloney- Mújica;

NOAA's National Marine Fisheries Service (NMFS) has received your letter dated March 5, 2013, transmitting the draft Environmental Assessment (EA) titled "**Chef Menteur Bridge and Approaches, Orleans Parish, Louisiana.**" The Louisiana Department of Transportation and Development (LADOTD) is proposing to replace the existing Chef Menteur bridge on US Highway 90 in Orleans Parish, Louisiana. Four different alignments were considered; Alternative 2, a high-level fixed bridge, was selected as the Preferred Alternative.

Based on our review of the draft EA, NMFS has the following revisions which we recommend be incorporated into the final EA prior to the signing of a Findings of No Significant Impact.

Section VII, Natural Resources

Page EC-3. The draft EA states temporary impacts to jurisdictional wetlands from construction staging areas will be managed by the contractor, who will be required to restore the ground to its natural contour allowing for one complete growing season for natural restoration of vegetation. The final EA should include a monitoring plan which would be sufficient to identify areas in the temporary workspaces which had not revegetated with the appropriate wetland vegetation. Specifically, the center of each temporary workspace, or staging area, should be documented using Global Positioning Service (GPS) capabilities and on-the-ground photographs should be taken in all four directions to document pre-project conditions and vegetative recovery. The GPS and photographs should be taken prior to project initiation and after one complete growing season. Copies of all monitoring results should be provided to the regulatory and natural resource agencies. The final EA should indicate mitigation would be provided for all adverse impacts to wetlands if warranted by the results of the monitoring effort.

3.2.3.2, Essential Fish Habitat

Page 61. The Gulf stone crab, or "stone crab", is identified as having essential fish habitat (EFH) in the project area. On October 24, 2011, the Final Rule to repeal the fishery management plan for Gulf stone crab in the Gulf of Mexico became effective. As such, the draft EA should be revised to delete all mention of Gulf stone crab EFH in the project area.

Section 3.3.4, Wetlands and Essential Fish Habitat

Page 74. The third paragraph states compensatory mitigation is not required to compensate for impacts to EFH. The Magnuson-Stevens Fishery Conservation and Management Act's implementing regulations (50 CFR 600.920(e)(3)) state that all EFH assessments must include proposed mitigation, if applicable. As such, this statement in the final EA should be revised. In addition, this paragraph suggests the purchase of credits from a mitigation bank, such as the Chef Menteur Bank, would serve to offset impacts to EFH. Lacking a defined mitigation plan, NMFS is unable to determine impacts to EFH would be offset by the implementation of such a mitigation plan. The final EA should identify exactly what compensatory mitigation actions will be implemented to offset impacts to approximately three acres of EFH. NMFS agrees that the Chef Menteur Bank would be the most appropriate for this project.

We appreciate the opportunity to review and comment on the draft EA. If you have questions regarding comments provided above, please direct your questions to Lisa Abernathy at lisa.abernathy@noaa.gov or by phone at (225) 389-0508, extension 209.

Sincerely,

Virginia M. Fay

Virginia M. Fay
Assistant Regional Administrator
Habitat Conservation Division

c:
FWS, Lafayette, Walther
EPA, Dallas, Keeler
LA DNR, Consistency, Lovell
F/SER46, Swafford
F/SER4, Rolfes
Files

Maloney-Mujica, Lynn

From: Jason Rueter - NOAA Federal <jason.rueter@noaa.gov>
Sent: Friday, June 07, 2013 12:53 PM
To: Maloney-Mujica, Lynn
Cc: Carl Winter (Carl.Winter@LA.GOV); robert.mahoney@fhwa.dot.gov
Subject: Re: Chef Pass EA H.000263.2: Mitigation Measures for Protected Sea Turtles

Lynn,
Your email summarizes our conversation perfectly and our stance on the project.
Thanks,
Jason

On Friday, June 7, 2013, Maloney-Mujica, Lynn <Lynn.Maloney-Mujica@arcadis-us.com> wrote:
> Jason
>
>
>
> This email confirms our phone conversation regarding the Environmental Assessment (EA) for the Chef Menteur Bridge project on US 90 in New Orleans, Louisiana transmitted to you on March 7, 2013 followed by distribution of the final Biological Survey Report in April 2013.
>
>
>
> We understand that the documents are still in review and the consultation will continue until the review is completed, at which time your office will provide the Louisiana Department of Transportation and Development with a concurrence on a determination of Not Likely to Adversely Affect (NLAA) protected sea turtles.
>
>
>
> You indicated that the mitigation measures proposed are appropriate for protection of the identified sea turtles and that a concurrence on the NLAA determination is likely. In order to execute a Finding of No Significant Impact (FONSI), a response to this email confirming your satisfaction with the proposed mitigation measures would be appreciated by close of business next Friday, June 14, 2013.
>
>
>
> Best regards,
>
>
>
> Lynn
>
>
>
> Lynn A. Maloney-Mújica, AICP | Senior Planner/Senior Scientist | lynn.maloney@arcadis-us.com
>
> ARCADIS U.S., Inc. | 10352 Plaza Americana Drive | Baton Rouge, LA 70816
>
> T. 225.292.1004| M. 225.802.2086| F. 225.218.9677

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>

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Jason Rueter
Gulf Sturgeon Coordinator
Protected Resources
NOAA Fisheries SERO

“The good thing about science is that it’s true whether or not you believe in it.”

- Neil deGrasse Tyson

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505
http://sero.nmfs.noaa.gov

F/SER3: EGH
SER-2013-10935

DEC 11 2013

Ms. Noel Ardoin
Environmental Engineer Administrator
State of Louisiana
Department of Transportation and Development
P.O. Box 94245
Baton Rouge, Louisiana 70804-9245

Mr. David Frank
Eighth Coast Guard District (dpb)
Hale Boggs Federal Building
500 Poydras Street
New Orleans, Louisiana 70130-3310

Ref.: Upgrades to Chef Menteur Bridge and Approaches – Federal Aid Project No. H.000263 (State Project No. H.000263.2), Route US 90, Orleans Parish, Louisiana

Dear Ms. Ardoin and Mr. Frank:

This serves as response to Ms. Ardoin's March 7, 2013, letter and draft environmental assessment (DEA) dated March 5, 2013, submitted to National Marine Fisheries Service (NMFS) pursuant to Section 7 of the Endangered Species Act (ESA) for the above-referenced project. The Louisiana Department of Transportation and Development (LADOTD)has requested concurrence from NMFS with its findings that the proposed project may affect but is not likely to adversely affect the federally-listed sea turtles *Caretta caretta* (loggerhead), *Chelonia mydas* (green), and *Lepidochelys kempii* (Kemp's ridley), as well as the Gulf sturgeon, *Acipenser oxyrhynchus*. Our findings regarding the effects of the proposed action are based on the description of the action provided in your documents and this informal consultation. Any changes to the proposed action may negate the finding of this consultation and may require reinitiating of consultation with NMFS. This consultation is being conducted with LADOTD as the nonfederal representative designated by the Federal Highway Administration (FHWA), Louisiana Division Office (letter dated April 14, 2003, included herein by reference), pursuant to 50 CFR 402.08. The U.S. Coast Guard , as the agency responsible for bridge permitting, is also an action agency for purposes of Section 7 consultation.

Project Location, Purpose, and Proposed Action
The project is centered over Chef Menteur Pass at approximate position 30.067586°N, 89.804367°W, North American Datum 1983, on U.S. Highway 90 between U.S. Highway 11 and Louisiana State Highway 433, northeast of the city of New Orleans. The purpose of the project is to address deficiencies related to the age and design of the existing Chef Menteur Bridge over Chef Menteur Pass. LADOTD has classified the present bridge, a 1,175-ft steel

truss swing-span structure completed in 1930, as functionally obsolete since it does not perform adequately for its current use. The old, two-lane, low-level, swing-span bridge will be replaced with a new, four-lane, high-level, fixed-span bridge and the old bridge demolished. The replacement bridge will be built close alongside the existing bridge.

Figure 1. Overview of Chef Menteur Pass, Pass Rigolets, Lake Pontchartrain, and Lake Borgne.

Chef Menteur Pass is the smaller of two major navigable arteries from Lake Pontchartrain into the Gulf of Mexico via Lake Borgne (Figure 1). These natural tidal passes, Chef Menteur Pass and Pass Rigolets, connect Lake Pontchartrain to Lake Borgne, which is then open to the Gulf. The passes undergo a diurnal tide, or both a high tide and a low tide within one day, with a mean tidal range of 0.36 feet.

Chef Menteur Pass has a total length of 6.4 miles, an average depth of 41.0 feet, and an average cross-sectional area of 39,400 feet. Pass Rigolets has a total length of 8.5 miles, an average depth of 33.8 feet, and an average cross-sectional area of 82,200 feet.

Chef Menteur Pass and the action area are characterized by high tidal currents and turbid conditions. The pass is approximately 1,000 feet wide at the project site. Figures 1 and 2 show the pass and project site in relation to Lake Pontchartrain, Pass Rigolets, and the Gulf of Mexico. Figure 3 shows a close-up view of the existing bridge over the pass and the railroad bridge located approximately 1,500 feet to the southeast.

Figure 2. Pass location in relation to Lake Pontchartrain, New Orleans, and the Gulf of Mexico.

Figure 3. Chef Menteur Bridge over Chef Menteur Pass.

The vertical clearance of the new bridge will be 75 feet above Mean High Water. Its highest point is approximately 90 feet (North American Vertical Datum). Specific pier (bridge span support structures) locations established during the design phase of the project will provide a

horizontal clearance of at least 97 feet for passage of commercial barge traffic. The project is expected to take several years to complete.

Conservation Measures

Bridge construction/demolition contractors will be required by LADOTD to follow guidelines provided in the current *Louisiana Standard Specifications for Roads and Bridges*. Best management practices described therein will be implemented to mitigate nonpoint source pollution from construction site runoff. In addition, LADOTD will implement/enforce the following conservation measures, including, but not limited to:

1. Use of trained wildlife observers during all active in-water construction/demolition.
2. Training of construction personnel in how to avoid protected species interactions.
3. Stopping operating equipment if a protected species is spotted within 50 feet.
4. Mandating no wake/idle speeds of construction vessels operating in shallow waters.
5. Prohibiting the use of hopper dredging.
6. Construction standards for (and monitoring of) turbidity barriers to prevent potential protected species entanglement.
7. Requiring silt curtain installation around piles to be jetted in waters less than 5 feet deep.
8. Requiring safety precautions associated with hydraulic or bucket dredging to prevent protected species interactions, including incorporation of the U.S. Fish and Wildlife Service-developed bucket-drop procedure for Gulf sturgeon—to discourage Gulf sturgeon from entering or remaining in the work area—and limiting any hydraulic dredging outside of cofferdams to November-February, the time frame when water temperatures are generally coldest and sea turtles are least likely to be present.
9. Restricting any necessary blasting to daylight-hours-only, to maximize observers' effectiveness.
10. Specific, limited use and conditions/specifications for use of small "scare" charges detonated to deter/frighten protected species from the area prior to detonating larger explosive charges.[1]
11. Restricting all necessary blasting to November-February and daytime only.
12. Requiring the stemming of all charges (i.e., packing the drill hole containing the explosive with angular material to suppress the escape of blast pressure from the hole upon detonation), using the smallest possible charges to achieve the required result, and using delays between blasts, to minimize possible underwater noise concussive effects and prevent cumulative blasting impact or overpressure effects on protected species that may be present.

---

[1] The discussion of explosive underwater demolition is discussed on pages 21-13 of the Biological Survey Report (April 22, 2013) prepared for the proposed project. The conditions specifically related to scare charges include (1) in order to discourage any threatened and/or endangered species from entering or remaining in the work area, small scare charges (see following condition) should be detonated at 4 minutes, 3 minutes, 2 minutes, and 1 minute prior to any demolition using explosives; (2) each scare charge should increase in magnitude with consecutive charges of 22 gm, 40 gm, 340 gm, and 680 gm of explosive; (3) two sets of scare charges should be placed on each caisson, and each set will be placed on opposite sides of the caisson; (4) if more than 15 minutes elapse between demolition blasts, then additional scare charges should be detonated in accordance with the above conditions; (5) the demolition blasting sequence should start on the side of the bridge with the deepest water and proceed to the shallow side.

13. Requiring the use of bubble curtains around each caisson (old bridge support) to be blasted to further absorb escaping blast pressure.
14. Requiring that any blasting be conducted at low tide, above the water to the extent practicable, to minimize the amount of water column ensonified.
15. Requiring that any blasting be done only during slack tide events to maximize the effectiveness of the bubble curtains.
16. Requiring real-time monitoring of blast pressures.
17. Requiring that maximum peak blast pressure of the largest detonation not exceed 120 pounds per square inch (psi) at a distance of 140 feet, and the average peak blast pressure must not exceed 70 psi at a distance of 140 feet.

Details of these and other protected species conservation measures are found on pages EC-4 through EC-7 of the DEA, incorporated herein by reference.

Species Affected and Analysis of Potential Project Effects

We concur with your analysis that the only ESA-listed species under NMFS's purview that are likely to occur in the action area in Chef Menteur Pass are loggerhead, green, and Kemp's ridley sea turtles, and Gulf sturgeon. Hawksbill and leatherback sea turtles, although common in the Gulf of Mexico, are unlikely to be present because of the location of the site, and these species' very specific life history and foraging: hawksbills are closely associated with coral reefs and leatherbacks are a pelagic, deepwater species not frequently encountered inshore. Although the eastern half of Lake Pontchartrain has been designated as critical habitat for Gulf sturgeon, there is no designated critical habitat in or near the action area and none will be affected.

We have analyzed the proposed action to determine the potential routes of adverse effects to these species and determined that these they are not likely to be adversely affected. We believe these effects are limited to:

1. Potential physical injuries or death resulting from contact/collision with operating construction machinery or materials (e.g., pile drivers, support vessels, support barges, anchoring of support barges, pilings being driven or removed, hydraulic or bucket-type dredging equipment, etc.).
2. Physical injuries, death, or harassment from the underwater pressure wave effects from the detonation of explosives used to break up the existing caissons/bridge supports of the old bridge.
3. Temporary loss of potential foraging or sheltering habitat due to site avoidance by these species during construction due to construction noise (drilling, jetting, dredging, vessel noise, terrestrial equipment noise, detonation of scare charges and explosives, etc.) and exclusion by turbidity curtains put in place to limit sedimentation effects.

We believe sea turtles and Gulf sturgeon are unlikely to be adversely affected by any aspects of the proposed action, and that all project effects will be discountable and/or insignificant, for the following reasons:

1. Sea turtle abundance in the action area will be relatively low during in-water construction because the winter in-water work "window" proposed by LADOTD (November-February) for in-water (outside of cofferdams) hydraulic cutterhead dredging and blasting

corresponds with a time of the year when water temperatures are relatively cool compared to the rest of the year and sea turtles are more likely to be offshore.[2] Consequently, we would expect lower sea turtle abundance during the in-water work window than during March-October, when these species are more likely to be present in the project area because of warmer water temperatures. Sea turtles are rarely taken by hydraulic dredges (these unusual events have involved previously compromised (e.g., cold-stunned) turtles. NMFS has no reports of Gulf sturgeon take by hydraulic dredges, and this species is not susceptible to the type of cold stunning that makes sea turtles vulnerable to being impacted by dredges.

2. Although the new bridge will be approximately three times wider than the old bridge, it will be built alongside the old bridge location. Significant "additional" effects to potential refuge and foraging habitat are not expected. Foraging habitat in the vicinity for sea turtles and Gulf sturgeon does not appear to be limiting, based on aerial photographs, as ample alternate similar habitat exists nearby (see Figures 1-3). We believe protected species avoiding the action area during construction or demolition would find suitable substitute foraging/sheltering areas nearby. Thus, we would expect any effects from their forced "relocation" to be insignificant.

3. Operating construction machinery can physically strike and harm sea turtles and sturgeon. The possibility of this occurring is discountable given the species' mobility, ability to detect noise and underwater perturbations, expected noise/activity avoidance behavior if disturbed, and the in-water work moratorium that limits when in-water work can take place to when sea turtles are less likely to be present. Therefore, the risk of direct construction impacts (i.e., sea turtles or Gulf sturgeon being struck by machinery or materials) is discountable.

4. Underwater explosions could injure Gulf sturgeon and sea turtles as they are known to occur in Lake Pontchartrain and likely use the pass as a route to and from the Gulf of Mexico during different life stages. We believe the risk of injury to Gulf sturgeon and sea turtles from explosive detonations underwater will be discountable because of (a) the likelihood of individuals of these species being present in the project area coincident with blasting is low for a number of reasons, including the width and depth of the river at the site, the overall rarity of the species, and the strong currents in the area which would quickly move an individual through the action area; (b) the mandatory presence of trained wildlife observers (and construction workers) watching for their presence; (c) the daytime-only requirement and November-to-February-only window on all blasting; (d) the measures taken to dampen the in-water explosive effects (use of scare charges prior to explosive detonations, low tide/slack tide only, use of the smallest charge necessary to break up the caissons, stemming the charges, use of bubble curtains, monitored limits on allowable peak and average blast pressures, etc.); (e) there are nearby alternate pathways to Lake Pontchartrain and the Gulf of Mexico, such as Pass Rigolets.

[2] Decline of the Sea Turtles: Causes and Prevention. 1990. Committee on Sea Turtle Conservation, Commission on Life Sciences, Division on Earth and Life Studies, National Research Council. National Academy Press.

5. In the event these species are present when unrestricted in-water construction is allowed, including underwater detonations, they are still able to avoid construction noise and activity (noise effects are discussed below) and likely to do so if disturbed. Given the width of the pass at the construction site (approximately 1,000 feet), there is no impediment to their transit out of and around the active construction zone, either up the pass towards Lake Pontchartrain or down the pass towards the open Gulf.

6. Gulf sturgeon migrate upriver in the spring, then downstream shortly thereafter. Peak numbers in Florida's Suwanee River, the largest subpopulation of Gulf sturgeon in the Gulf of Mexico (3,000-5,000 individuals), have been observed in March and April. Gravid Gulf sturgeon from the Pearl River subpopulation (estimated at about 200 individuals) en route from the Gulf of Mexico to winter spawning grounds use Chef Menteur Pass (and Pass Rigolets) as a migratory pathway to Lake Pontchartrain and from there into the Pearl River system on the northeast side of the lake, where they are known to spawn. However, their presence in the action area would be transitory and temporary and they would likely exit the area rapidly, limiting their potential exposure to construction effects. In addition, given the width of the pass at the construction site (approximately 1,000 feet), there is no impediment to their transit out of and around the active construction zone, either up the pass towards Lake Pontchartrain or down the pass towards the open Gulf.

7. Spawners enroute to the Pearl River system on the north shore of Lake Pontchartrain are unlikely to be deterred by construction noise or explosions for the aforementioned reasons including implementation of conservation measures, the width of the pass at the construction site, the low likelihood that a protected species would be present and undetected during the detonation of charges (and would have remained in the area despite the previous setting off of noninjurious, low-level scare charges), etc. Also, nearby Pass Rigolets is an alternate (and larger) migratory available to them. Thus, we believe all effects of construction noise from jetting, dredging, and detonating charges will be insignificant and discountable.

8. Turbidity generated during in-water construction, embankment grading, work bridge construction, etc. will have insignificant effects on Gulf sturgeon and sea turtle foraging because turbidity controls (part of LADOTD's best management practices) will be used to contain disturbed sediments, and because of the availability of nearby, suitable, alternate, undisturbed foraging habitat.

9. Loud levels of intermittent or continuous construction noise could harm Gulf sturgeon or sea turtles if they were close to the noise source for prolonged periods, or forced to move away from foraging habitat. However, the pass is over 1,000 feet wide at the construction site, affording ample room for these species to pass well distant from the project site. Jetting for installation of new piles or bridge support structures, or during removal of old bridge piles, as well as mechanical or cutterhead dredging, generate continuous but low-level noise that is unlikely to cause more than noninjurious, insignificant, behavioral effects to highly mobile sea turtles and Gulf sturgeon, if it affects them at all. As well, the moratorium limits in-water construction to November-

February (when sea turtles are less likely to be present), sea turtles and Gulf sturgeon have the ability to avoid the construction area if disturbed by noise, and there is alternate similar habitat available to them nearby. Based on the above, we believe noise effects will be discountable and insignificant to these species.

10. The project will impact only a very small portion of the available foraging habitat for sea turtles and Gulf sturgeon and these effects will be temporary, aside from the actual area of bottom actually displaced by the new bridge support structures, which will occur largely in the footprint of (and will be partially offset by the removal of) the old bridge support structures. Therefore, project effects on foraging habitat will be insignificant.

Based on the above, NMFS believes that all effects of the proposed action are discountable or insignificant, and thus the proposed action is not likely to adversely affect sea turtles or Gulf sturgeon.

This concludes your consultation responsibilities under the ESA for species under NMFS's purview. A new consultation must be initiated if a take occurs or new information reveals effects of the action not previously considered, or the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat in a manner or to an extent not previously considered, or if a new species is listed or critical habitat designated that may be affected by the identified action.

We have enclosed additional relevant information for your review. If you have any questions, please contact Eric Hawk, consultation biologist, at (727) 551-5773 or by e-mail at Eric.Hawk@noaa.gov. Thank you for your continued cooperation in the conservation of ESA-listed species.

Sincerely,

Miles M. Croom

for Roy E. Crabtree, Ph.D.
Regional Administrator

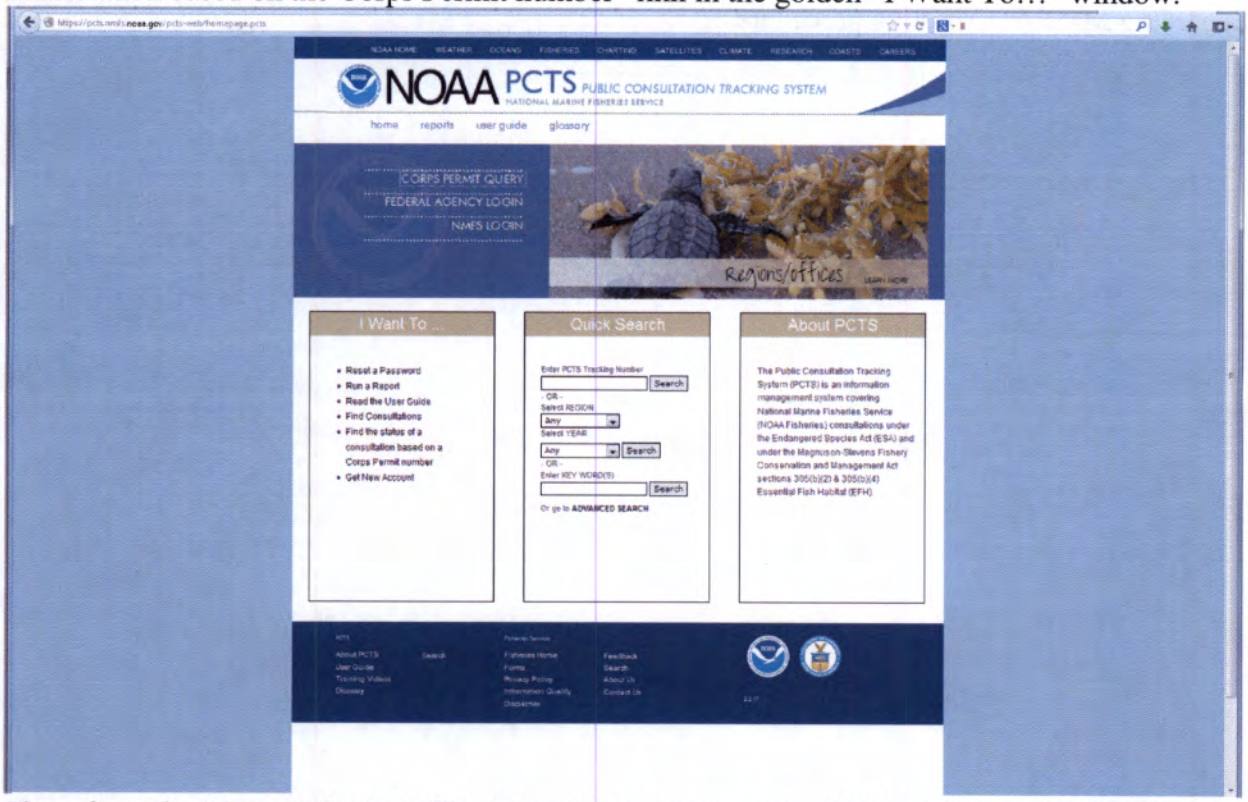
Enc.: 1. *PCTS Access and Additional Considerations for ESA Section 7 Consultations* (Revised June 11, 2013)

File: 1514-22.L.7.LADOTD

PCTS Access and Additional Considerations for ESA Section 7 Consultations
(Revised 6-11-2013)

Public Consultation Tracking System (PCTS) Guidance: PCTS is a Web-based query system at **https://pcts.nmfs.noaa.gov/** that allows all federal agencies (e.g., U.S. Army Corps of Engineers - USACE), project managers, permit applicants, consultants, and the general public to find the current status of NMFS's Endangered Species Act (ESA) and Essential Fish Habitat (EFH) consultations which are being conducted (or have been completed) pursuant to ESA Section 7 and the Magnuson-Stevens Fishery Conservation and Management Act's (MSA) Sections 305(b)2 and 305(b)(4). Basic information including access to documents is available to all.

The PCTS Home Page is shown below. For USACE-permitted projects, the easiest and quickest way to look up a project's status, or review completed ESA/EFH consultations, is to click on either the "Corps Permit Query" link (top left); or, below it, click the "Find the status of a consultation based on the Corps Permit number" link in the golden "I Want To…" window.



Then, from the "Corps District Office" list pick the appropriate USACE district. In the "Corps Permit #" box, type in the 9-digit USACE permit number identifier, with no hyphens or letters. Simply enter the year and the permit number, joined together, using preceding zeros if necessary after the year to obtain the necessary 9-digit (no more, no less) number. For example, the USACE Jacksonville District's issued permit number SAJ-2013-0235 (LP-CMW) must be typed in as 201300235 for PCTS to run a proper search and provide complete and accurate results. For querying permit applications submitted for ESA/EFH consultation by other USACE districts, the procedure is the same. For example, an inquiry on Mobile District's permit MVN201301412 is entered as 201301412 after selecting the Mobile District from the "Corps District Office" list. PCTS questions should be directed to Eric Hawk at Eric.Hawk@noaa.gov or (727) 551-5773.

EFH Recommendations: In addition to its protected species/critical habitat consultation requirements with NMFS' Protected Resources Division pursuant to Section 7 of the ESA, prior to proceeding with the proposed action the action agency must also consult with NMFS' Habitat Conservation Division (HCD) pursuant to the MSA requirements for EFH consultation (16 U.S.C. 1855 (b)(2) and 50 CFR 600.905-.930, subpart K). The action agency should also ensure that the applicant understands the ESA and EFH processes; that ESA and EFH consultations are separate, distinct, and guided by different statutes, goals, and time lines for responding to the action agency; and that the action agency will (and the applicant may) receive separate consultation correspondence on NMFS letterhead from HCD regarding their concerns and/or finalizing EFH consultation.

Marine Mammal Protection Act (MMPA) Recommendations: The ESA Section 7 process does not authorize incidental takes of listed or non-listed marine mammals. If such takes may occur an incidental take authorization under MMPA Section 101 (a)(5) is necessary. Please contact NMFS' Permits, Conservation, and Education Division at (301) 713-2322 for more information regarding MMPA permitting procedures.

Appendix H

Correspondence with ACHP and
Copy of Executed MOA

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U.S. Department of Transportation
Federal Highway Administration

FHWA Louisiana Division Office

5304 Flanders Drive, Suite A
Baton Rouge, Louisiana 70808
(225) 757-7600
(225) 757-7601 Fax

November 16, 2012

In Reply Refer To:
HDA-LA

Charlene Dwin Vaughn, Assistant Director
Federal Permitting, Licensing, and Assistance Section
Advisory Council of Historic Preservation
Old Post Office Building
1100 Pennsylvania Avenue, NW, Suite 803
Washington, DC 20004

SUBJECT: FPN: H000263, SPN: H.000263.2,Finding Of Adverse Effect,
Chef Menteur Bridge and Approaches Project
Route US 90,Orleans Parish

Attention: Ms. Carol Legard FHWA, Liaison Office of Planning and Review
Federal Assistance and Permitting Section

Dear Ms. Vaughn:

Pursuant to Section 106 of the National Historic Preservation Act 36 CFR 800.6, the Federal Highway Administration (FHWA) would like to notify you of a proposed undertaking that has been determined to pose an adverse affect to an identified historic property, the existing Chef Menteur Bridge. The Chef Menteur Pass Bridge, built in 1929, has been determined eligible for the National Register of Historic Places (NRHP) under Criteria A, for its association with Huey P. Long's progressive transportation policies of the late 1920s in Louisiana, and C, as an example of a high swing span bridge with three Warren trusses with polygonal top chords.

Due to available data and engineering analysis, FHWA, The Louisiana Department of Transportation and Development (LDOTD), and the Section 106 Consulting Parties have determined that the rehabilitation of the Chef Menteur Pass Bridge will not prove to be a feasible option and would itself have an adverse affect if rehabilitated to meet current design standards – a facet of the Purpose and Need of the project. Therefore, LADOTD and FHWA anticipate a replacement project that calls for a structure with two 12-foot wide travel lanes with 10 foot wide shoulders.

Enclosed is a copy of the Adverse Affect Documentation, which also provides affect findings for two other identified historic properties – Fort Macomb and an associated archaeological site. Fort Macomb was listed on the National Register in 1978 under Criterion C, for military architecture. Also enclosed is a copy of the State Historic Preservation Office's concurrence letter on the findings.

Section 106 Consultation has been ongoing throughout the Environmental Assessment process, and if you would like to participate in this consultation please let us know within 15 days of receipt of this notice.

The second consulting party meeting is scheduled for November 29, 2012 in Room 302-AA at the LDOTD headquarters building in Baton Rouge, LA from 2:15 to 4:00 PM central time. The purpose of the meeting will be to initiate the Memorandum of Agreement process to resolve adverse effects to historic and cultural resources. If you are not able to attend in person, you may use the conference number and code provided below to join us by phone:

Call in Number: 855-201-9213

Code Number: 458-662-0406

The following is the proposed agenda:

1. Safety Moment

2. Adverse Effects Documentation and State Historic Preservation Office (SHPO) response

3. Presentation of the Alternatives Screening and Analysis and selection of the Preferred Alternative

4. Discussion of Mitigation and the Memorandum of Agreement

5. Discussion of Final Coordination among the parties.

If additional information is needed, please contact Bob Mahoney at Robert.Mahoney@dot.gov or by phone at (225)757-7624.

Sincerely yours,

Carl M. Highsmith
Project Delivery Team Leader

Enclosures (2): Adverse Affect Documentation & SHPO Concurrence

cc: David Frank, USCG
Noel Ardoin, LDOTD
Ms. Pam Breaux, SHPO
Ms. MaryAnn Naber, FHWA

Preserving America's Heritage

January 2, 2013

Robert Mahoney
Environmental Coordinator
FHWA – Louisiana Division
5304 Flanders Drive, Suite A
Baton Rouge, LA 70808

Ref: *Proposed Chef Menteur Pass Bridge Replacement Project*
Federal Aid Project Number: H.000263
Orleans Parish, Louisiana

Dear Mr. Mahoney:

The Advisory Council on Historic Preservation (ACHP) has received your notification and supporting documentation regarding the adverse effects of the referenced undertaking on a property or properties listed or eligible for listing in the National Register of Historic Places. Based upon the information provided, we have concluded that Appendix A, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, of our regulations, "Protection of Historic Properties" (36 CFR Part 800), does not apply to this undertaking. Accordingly, we do not believe that our participation in the consultation to resolve adverse effects is needed. However, if we receive a request for participation from the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer, affected Indian tribe, a consulting party, or other party, we may reconsider this decision. Additionally, should circumstances change, and it is determined that our participation is needed to conclude the consultation process, please notify us.

Pursuant to 36 CFR §800.6(b)(1)(iv), you will need to file the final Memorandum of Agreement (MOA), developed in consultation with the Louisiana State Historic Preservation Office (SHPO), and any other consulting parties, and related documentation with the ACHP at the conclusion of the consultation process. The filing of the MOA, and supporting documentation with the ACHP is required in order to complete the requirements of Section 106 of the National Historic Preservation Act.

Thank you for providing us with the notification of adverse effect. If you have any questions or require further assistance, please contact Ms. Najah Duvall-Gabriel at 202-606-8585 or at ngabriel@achp.gov.

Sincerely,

LaShavio Johnson

LaShavio Johnson
Historic Preservation Technician
Office of Federal Agency Programs

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MEMORANDUM OF AGREEMENT
AMONG THE
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION,
THE LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT,
AND THE
LOUISIANA STATE HISTORIC PRESERVATION OFFICER
(LOUISIANA OFFICE OF CULTURAL DEVELOPMENT)
REGARDING REPLACEMENT OF THE
CHEF MENTEUR BRIDGE AND APPROACHES
ROUTE U.S. HIGHWAY 90
ORLEANS PARISH, LOUISIANA

WHEREAS, the U.S. Department of Transportation, Federal Highway Administration (FHWA) administers the Federal Aid Highway Program in Louisiana authorized by 23 United States Code (U.S.C.) 101 et seq. through the Louisiana Department of Transportation and Development (LADOTD) (23 U.S.C. 315); and

WHEREAS, the existing Chef Menteur Bridge, Route U.S. Highway 90, Orleans Parish, Louisiana, is scheduled for replacement due to the age, configuration, and condition of the structure and, under Federal Aid Project No. H000263 (State Project No. H.000263.2) (Undertaking), will be replaced with a high-level fixed span structure because the existing swing span structure is an impediment to marine traffic; and

WHEREAS, FHWA in consultation with the Louisiana State Historic Preservation Office (SHPO), has determined the Area of Potential Effect encompasses 518 acres as shown in Attachment 1; and

WHEREAS, the Chef Menteur Bridge, completed in 1930 (High Steel Swing Truss), on Route U.S. Highway 90, is eligible for the *National Register of Historic Places* under Criteria A as a physical embodiment of the progressive transportation policies supported in Louisiana in the late 1920s, particularly by Governor Huey P. Long, and as the first permanent crossing located at this site; and under Criterion C as a good representative example of a center-bearing Warren truss with verticals swing-span structure; and because the Chef Menteur Bridge cannot be modified to meet current design standards, it will be removed after a new structure is built; and

WHEREAS, FHWA has determined that the proposed project will have an adverse effect upon the Chef Menteur Bridge and has consulted with SHPO on this issue pursuant to 36 Code of Federal Regulations (CFR) 800, regulations implementing Section 106 of the National Historic Preservation Act (NHPA) (16 U.S.C. 470(f)); and

WHEREAS, the proposed right-of-way for the new Chef Menteur Bridge, Route U.S. Highway 90, will affect a portion of Fort Macomb (LHRI 36-01645), a property listed on the *National Register of Historic Places* under Criteria A for Military History and C for Architecture; and

WHEREAS, FHWA has determined that the proposed project will not have an adverse effect upon the Fort Macomb property and has consulted with SHPO on this issue pursuant to 36 CFR Part 800, regulations implementing Section 106 of NHPA (16 U.S.C. 470(f)); and

WHEREAS, the Chitimacha Tribe of Louisiana, the Coushatta Tribe of Louisiana, the Jena Band of Choctaw Indians, the Mississippi Band of Choctaw Indians, the Tunica-Biloxi Tribe of Louisiana, the Alabama-Coushatta Tribe of Texas, the Choctaw Nation of Oklahoma, the Seminole Tribe of Florida, the Seminole Nation of Oklahoma, and the Quapaw Tribe of Oklahoma are federally recognized sovereign Indian Nations that have a government-to-government relationship with the United States and an interest in the lands included in the Undertaking, and FHWA has invited these Tribes to participate in the consultation; and

WHEREAS, the Choctaw Nation of Oklahoma has participated in this consultation and is invited to sign as a Concurring Party; and

WHEREAS, the Louisiana Office of State Parks manages Fort Macomb (LHRI 36-01645), has participated in this consultation, and is invited to sign as a Concurring Party; and

WHEREAS, in keeping with 36 CFR 800.2(d), FHWA solicited and considered the views of the public, and presented an overview of the Section 106 compliance responsibilities at the National Environmental Policy Act (NEPA) scoping meeting and summarized those responsibilities at the NEPA public meeting; and

WHEREAS, in accordance with 36 CFR Section 800.6(a)(1), FHWA has notified the Advisory Council on Historic Preservation (Council) of its adverse effect determination with the specified documentation and the Council has chosen not to participate in the consultation pursuant to 36 CFR Section 800.6(1)(1)(iii); and

NOW, THEREFORE, FHWA, LADOTD, and SHPO acknowledge and agree that the execution of this Memorandum of Agreement (MOA) evidences compliance with Section 106 of the NHPA in accordance with 36 CFR 800.6(c).

STIPULATIONS

FHWA will ensure that the following stipulations are carried out in order to take into account the effect of the undertaking on historic properties:

I. Chef Menteur Bridge

1. Prior to relocation or demolition of the Chef Menteur Bridge, LADOTD shall prepare Historic American Engineering Record (HAER) documentation of the Chef Menteur Bridge. LADOTD shall prepare the appropriate HAER recordation material in consultation with the National Park Service (NPS) for NPS acceptance and submission to the Library of Congress, as NPS deems appropriate. Unless otherwise agreed to by SHPO, FHWA shall ensure that all documentation is completed and accepted by SHPO prior to the relocation or demolition of the Chef Menteur Bridge. LADOTD will provide SHPO with the following: One original set of HAER documentation for the Louisiana State Archives; one bound photocopied set, and one digital copy of the original drawings, photos (in TIFF format), and written historical and descriptive data for the Louisiana State Library; and one digital copy for SHPO.

2. Prior to relocation or demolition, LADOTD shall make the Chef Menteur Bridge available to a state, local, or a public entity that will agree to maintain the Chef Menteur Bridge and the features that make it significant and assume legal and financial responsibility for the Chef Menteur Bridge. The proposed use of the Chef Menteur Bridge will be subject to the approval of FHWA, LADOTD, and SHPO. The method of advertisement shall be decided at a later date between LADOTD and SHPO. A sixty (60) day time period from the date of advertisement shall be allowed for interest to be expressed in the

Chef Menteur Bridge. If interest is expressed, one hundred eighty (180) days will be allowed to complete arrangements for preservation of the Chef Menteur Bridge.

3. If a new owner cannot be found to preserve the Chef Menteur Bridge, it shall remain the property of the State of Louisiana and will be demolished upon project requirements, provided the requirements of Stipulation Number 1 above have been completed.

II. Fort Macomb (LHRI 36-01645)

1. LADOTD will establish a vibration monitoring program prior to constructing the new structure. The monitoring program will be submitted to FHWA and SHPO for a 30-day review and comment period prior to finalizing the program. As part of that program, seismic readings for vertical, radial, and transverse plane monitoring and frequency determination will be established to ensure no damage occurs to Fort Macomb during construction. If excessive vibrations occur beyond the allowable limit, all construction causing the vibrations will be halted, and the contractor shall propose corrective measures for the affecting construction activity to ensure that vibration monitoring limits will not be exceeded again. Said corrective measures to be reviewed and approved by the LADOTD Project Engineer after providing an opportunity for SHPO and FHWA to comment.

III. Unanticipated Discoveries

1. If potential historic properties are discovered or anticipated effects on historic properties are found during any phase of the Undertaking, LADOTD shall notify SHPO within 48 hours of the discovery. LADOTD and/or their contractors shall immediately secure the find location and suspend work in the vicinity of the affected resource. LADOTD will consult with SHPO to resolve these effects.

2. If human skeletal remains are uncovered during the Undertaking, LADOTD shall immediately notify the Orleans Parish Sheriff's Office and the Orleans Parish Coroner's Office and secure the find location and suspend work in the vicinity of the remains. The local law enforcement officials shall assess the nature and age of the human skeletal remains. LADOTD shall ensure that the notice of the discovery required by the Louisiana Unmarked Human Burial Sites Preservation Act (R.S. 8:671 *et seq*) is given to the Louisiana Culture, Recreation & Tourism (CRT) Secretary or the Secretary's designee by contacting the Louisiana Division of Archeology at 225-342-8170 within seventy-two (72) hours of the discovery. If the coroner determines that the human skeletal remains are older than fifty (50) years of age, the CRT Secretary has jurisdiction over the remains. LADOTD shall work with SHPO and the Louisiana Division of Archaeology to ensure compliance with this State law, other applicable laws, and this MOA. In addition, LADOTD shall require that the guidelines contained in the ACHP's 2007 "Policy Statement Regarding Burial Sites, Human Remains, and Funerary Objects" or any subsequent Policy Statements that are issued after the execution of this MOA are followed.

3. If human remains are determined to be Native American, the Choctaw Nation of Oklahoma as well as other federally recognized Tribes that would have a historic or cultural interest in this area will be contacted immediately. Protective measures will be put in place to protect the remains and any associated artifacts from environmental damage or looting of the site. Construction will be halted in this area until mitigation with Tribes can be completed.

IV. Administrative Stipulations

1. If measures specified in the previous section have not been implemented by the year 2024 (ten [10] years), FHWA, LADOTD, SHPO, and the Council shall review this MOA to determine whether revisions are needed. If revisions are needed, FHWA, LADOTD, SHPO, and the Council will consult in accordance with 36 CFR Part 800 to make such revisions.

2. Should any party to this MOA object to any action carried out or proposed pursuant to this MOA, FHWA and LADOTD shall consult with SHPO to resolve the objection. If FHWA and LADOTD determine that the objection cannot be resolved, FHWA and LADOTD shall forward all documentation relevant to the dispute to the Council. Within thirty (30) days after receipt of all pertinent documentation, the Council will either:

   A. Provide FHWA and LADOTD with recommendations, which FHWA and LADOTD will take into account in reaching a final decision regarding the dispute; or

   B. Notify FHWA and LADOTD that it will comment pursuant to 36 CFR 800.6(b), and proceed to comment. Any Council comment provided in response to such a request will be taken into account by FHWA and LADOTD in accordance with 36 CFR 800.6(c)(2) with reference only to the subject dispute; FHWA's and LADOTD's responsibility to carry out all actions under this MOA that are not the subjects of the dispute will remain unchanged.

   C. At any time during implementation of the measures stipulated in this MOA, should any objection to any such measure or this manner of implementation be raised by a member of the public, FHWA and LADOTD shall take the objection into account and consult as needed with the objecting party, SHPO, or the Council to resolve the objection.

   D. Any party to this MOA may propose to the other parties that it be amended, whereupon the parties will consult in accordance with 36 CFR 800.6(c)(7) to consider such an amendment.

   E. Any party to this MOA may terminate it by providing thirty (30) days' written notice to the other parties provided that the parties will consult during this period prior to termination to seek agreement on amendments or other actions that will avoid termination. In the event of termination, FHWA and LADOTD in consultation with the Council and SHPO will determine how to carry out the applicable provisions of 36 CFR Part 800.

Execution of this Memorandum of Agreement by the Federal Highway Administration, the Louisiana Department of Transportation and Development, and the Louisiana State Historic Preservation Office and implementation of its terms evidence that the Federal Highway Administration has afforded the Advisory Council on Historic Preservation an opportunity to comment on the replacement of the Chef Menteur Bridge, Route U.S. Highway 90, and has accounted for the effects of the undertaking on historic properties.

SIGNATORIES
Approved: Federal Highway Administration

By: _____ 7/24/2014
Charles Bolinger, Division Administrator — Date

Approved: Louisiana Department of Transportation and Development

By: _____ 8/4/14
Sherri H. LeBas, Secretary — Date

Approved: Louisiana State Historic Preservation Office

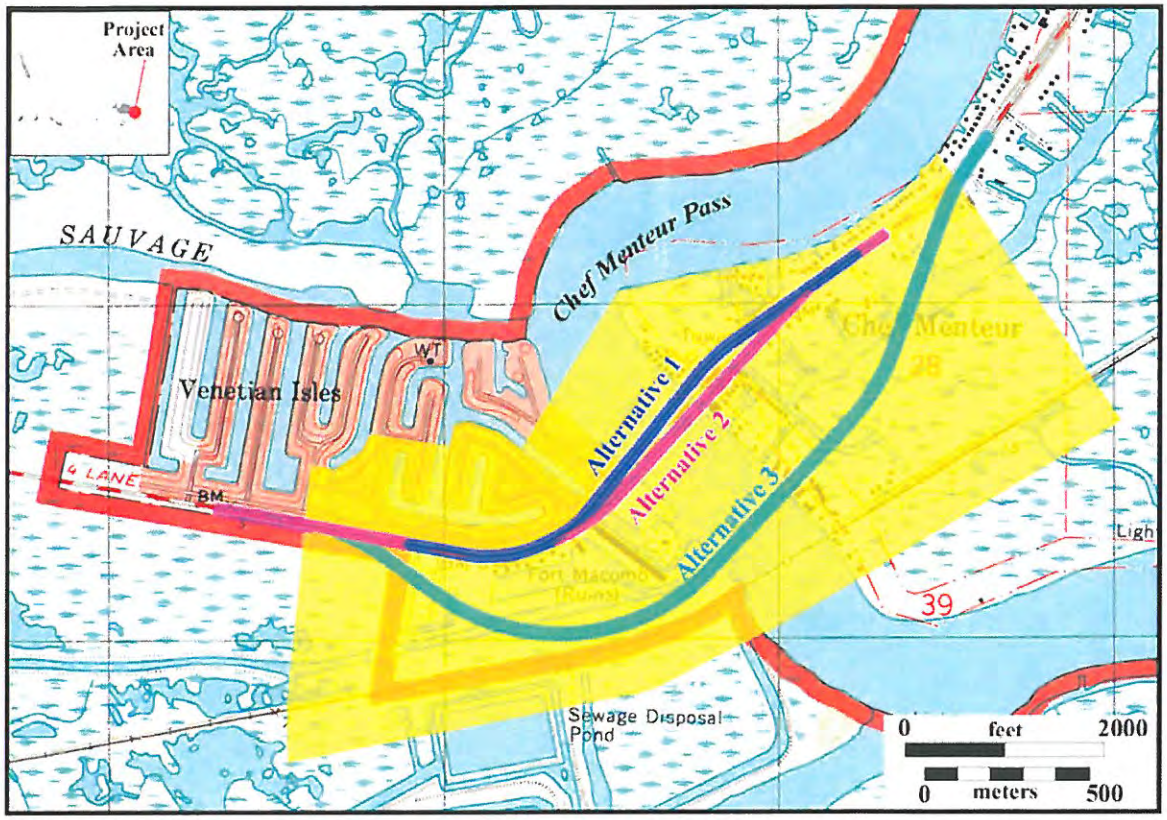
By: _____ 7-23-14
Pam Breaux, State Historic Preservation Officer — Date

Concurring Party: Louisiana Office of State Parks

By: _____ 8/5/14
Stuart Johnson, Ph.D., Assistant Secretary — Date

Concurring Party: Choctaw Nation of Oklahoma

By: _____ 8/9/14
Ian Thompson, Ph.D., Tribal Historic Preservation Officer — Date



Attachment 1. Alignment Alternatives and Area of Potential Effects.

Appendix I

Selected Text of the Noise Analysis

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1. Introduction

ARCADIS U.S., Inc. (ARCADIS) has been retained by the Louisiana Department of Transportation and Development (LADOTD) to complete the Environmental Assessment for proposed improvements to the Chef Menteur Bridge and Approaches. This report summarizes the results of the traffic noise impact analysis performed as part of the Environmental Assessment.

The proposed project includes replacing the existing Chef Menteur Pass Bridge and Approaches, located in Orleans Parish, on U.S. Highway 90 (US 90). Built in 1930, the existing bridge is a 1,175-foot-long high steel truss swing span bridge with two 10-foot-wide asphalt paved travel lanes. The project calls for a replacement bridge with two 12-foot-wide travel lanes with 10-foot-wide shoulders on each side. The logical termini (study area) have been approved by the Federal Highway Administration (FHWA). The study area extends along US 90 from US 11 to Louisiana Highway 433.

A Feasibility Study was previously prepared for this project. ARCADIS analyzed several alternatives under this project. Two proposed alternative alignments were approved by LADOTD and FHWA for further consideration and a more comprehensive analysis. A description of the two proposed alternatives is provided below.

Alternative 1B involves a movable bridge on a new alignment north of the existing bridge. The main span would be a double-leaf bascule bridge with a clear opening width of 125 feet and American Association of State Highway and Transportation Officials (AASHTO) Type IV and Bulb-Tee prestressed concrete girder approach spans. This bridge type provides for a near grade crossing of highway traffic and unlimited vertical clearance to marine traffic. Alternative 2 involves a high-level fixed bridge on a new alignment south of the existing bridge. The main span would be a 270-foot-long plate girder span with AASHTO Type IV and Bulb-Tee prestressed concrete girder approaches. It would provide a clear opening width of 150 feet and 73 feet of vertical clearance.

ARCADIS performed a traffic noise impact analysis for 2011 existing conditions, 2037 no build conditions, and two 2037 build condition alternatives. The limits for noise modeling for this project are as follows:

- On US 90, 1,720 feet west of its intersection with San Trovaso Street and 1.2 miles east of its intersection with Fort Macomb Road.

A project location map with these limits is provided as Figure 1.

Noise contours were developed along US 90 from the eastern logical terminus to the western logical terminus. The noise contours were extended to evaluate the impacts to receivers located between the logical termini but outside of the immediate project area. The potential future noise impacts at these receivers were evaluated by noise contours because of the rural setting, non-shifting alignment, and same traffic volumes between no-build and build conditions.

1.1 Highway Traffic Noise Policy

LADOTD established its policy and procedures for noise studies and abatement measures for the development of federal aid projects approved in accordance with Title 23, United States Code (USC) and for construction of new control of access facilities funded solely by LADOTD or on authority of LADOTD. The requirements for noise studies and abatement measures comply with the noise standards mandated by 23 USC 109(i) and are consistent with procedural requirements codified by 23 Code of Federal Regulations (CFR) Part 772. The current LADOTD Highway Traffic Noise Policy (Noise Policy) became effective on July 13, 2011, and this traffic noise analysis complies with the directives of that policy.

The Noise Policy is designed to help protect the public health and welfare, to supply criteria for the identification of highway traffic noise impacts, and to provide local officials with information for use in the planning of development adjacent to highways.

As prescribed by the Noise Policy, this traffic noise analysis includes the following elements:

- Identification of existing activities, developed lands, and undeveloped lands for which development is planned which may be affected by noise from the proposed highway project;
- Determination of existing noise levels;
- Prediction of traffic noise levels in the future;
- Determination of traffic noise impacts; and
- Examination and evaluation of alternative noise abatement measures for reducing or eliminating the noise impacts.

Type I Project Noise Assessment Criteria

The Noise Policy (LADOTD 2011) defines a Type I project as follows:

1. The construction of a highway on new location; or

2. The physical alteration of an existing highway where there is either:

    a. Substantial Horizontal Alteration. A project that halves the distance between the traffic noise source and the closest receptor between the existing condition to the future build condition; or

    b. Substantial Vertical Alteration. A project that removes shielding therefore exposing the line-of-sight between the receptor and the traffic noise source. This is done either by altering the vertical alignment of the highway or by altering the topography between the highway traffic noise source and the receptor.

3. The addition of a through-traffic lane(s). This includes the addition of a through-traffic lane that functions as a high-occupancy vehicle lane, high-occupancy toll lane, bus lane, or truck climbing lane; or

4. The addition of an auxiliary lane, except when the auxiliary lane is a turn lane; or

5. The addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange; or

6. Restriping of existing pavement for the purpose of adding a through-traffic lane or an auxiliary lane, except when the auxiliary lane is a turn lane; or

7. The addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot or toll plaza.

The proposed improvements to the Chef Menteur Bridge and Approaches would be a Type I project.

1.2 Characteristics of Noise

Noise is defined as unwanted sound. It is emitted from many sources, including airplanes, factories, railroads, power generating plants, and highway vehicles.

Highway noise, or traffic noise, is usually a composite of noises from engine exhausts, drive trains, and tire-roadway interaction.

The magnitude of noise is usually described by its sound pressure. Because the range of sound pressure varies greatly, a logarithmic scale is used to relate sound pressures to some common reference level, particularly the decibel. Sound pressures described in decibels are called sound pressure levels and are often defined in terms of frequency-weighted scales (A, B, C, or D).

The weighted-A scale is used almost exclusively in vehicle noise measurements because it places most emphasis on the frequency characteristics that correspond to a human's subjective response to noise (1,000 to 6,000 Hertz). Sound levels measured using A-weighting are often expressed as dBA. Throughout this report, references will be made to dBA, which means an A-weighted decibel level. Several examples of noise pressure levels in dBA are listed in Table 1.

Table 1 Common Sound/Noise Levels

Outdoor	dBA	Indoor
Pneumatic hammer	100	Subway train
Gas lawn mower at 1 meter		
	90	Food blender at 1 meter
Downtown (large city)	80	Garbage disposal at 1 meter
		Shouting at 1 meter
Lawn mower at 30 meters	70	Vacuum cleaner at 3 meters
Commercial area		Normal speech at 1 meter
Air conditioning unit	60	Clothes dryer at 1 meter
Babbling brook		Large business office
Quiet urban (daytime)	50	Dishwasher (next room)
Quiet urban (nighttime)	40	Library

Source: Adapted from Transportation Noise Reference Book (Rice 1987).

Table 1 indicates that individuals are exposed to fairly high noise levels from many sources as they go about their daily activities. The degree of disturbance or annoyance from unwanted sound depends essentially on three factors: the amount and nature of the intruding noise; the relationship between the background noise and the intruding noise; and the type of activity occurring when the intruding noise is heard.

In considering the first factor, it is important to note that individuals have different hearing sensitivities to noise. Loud noises bother some individuals more than others and some individuals become angered if an unwanted noise persists. The time patterns of noise also enter into a person's judgment of whether a noise is objectionable. For example, noises occurring during sleeping hours are usually considered to be more objectionable than the same noises during waking hours.

With regard to the second factor, individuals tend to judge the annoyance of an unwanted sound in terms of its relationship to noise from other sources (background noise). The blowing of a car or truck horn at night, when background noise levels are approximately 45 dBA, would generally be much more objectionable than the blowing of a car or truck horn in the afternoon, when background noise levels might be 55 dBA.

The third factor is related to the extent to which noise disrupts an individual's activities. In a 60-dBA environment, normal conversation would be possible, while sleep might be difficult. Work activities requiring high levels of concentration may be interrupted by loud noises, while activities requiring manual effort may not be interrupted to the same degree.

Over a period of time, individuals tend to accept the noises that intrude into their daily lives, particularly if the noises occur at predicted times or intervals. In referencing actual decibel levels, a 3-dBA difference in sound is barely perceptible by a young ear while a 5-dBA difference is readily noticeable and a 10-dBA increase is perceived as twice as loud. Attempts have been made to regulate many of these types of noises including airplane noise, factory noise, railroad noise, and highway traffic noise.

2. Methodology

In relation to highway traffic noise, methods of analysis and control have developed rapidly over the past few years. The methodology used to conduct this traffic noise analysis conforms to the policy and procedures established by LADOTD and FHWA.

2.1 Existing Land Use

Information on existing land use patterns that may be affected by noise from the highway was collected and analyzed by ARCADIS using different sources such as aerial imagery and field verification. Land uses were categorized into Categories A through G as defined in the LADOTD Noise Policy.

2.2 Determination of Existing Noise Levels for TNM Calibration

Noise measurements were taken in the study area to determine existing sound levels for identified land uses. Existing sound levels are defined in the Noise Policy as the noise resulting from natural and mechanical sources and human activity that is usually present in a particular area. The results of the field measurements were used to quantify the existing acoustic environment and to provide a base for assessing the impact of future sound level changes.

Field measurements were taken in intervals no shorter than 15 minutes and no longer than 1 hour using a Rion NL-31 Meter, Class 1, UC-53 Microphone, NH-21 Preamplifier. A log was kept noting the time of day, meteorological conditions, calibration results, and any unusual noises experienced during each measurement. Actual traffic counts were made during each field measurement and recorded in the log. The counts were categorized by the vehicle type including passenger cars, medium trucks, heavy trucks, buses, and motorcycles.

Sites selected for field measurements were approved by LADOTD. Field measurements were taken to represent exterior activities only and were taken at peak and off peak times. Peak hours were the hours with the highest sound levels, not necessarily the hours with the highest traffic volumes. However, results from the site visit showed that peak traffic volumes do not appear to reduce travel speeds and noise. Therefore, the peak noise period was assumed to be the peak traffic period for this study area. The field studies were used to determine peak hour L_{eq}, defined as the equivalent steady-state sound level, which in a stated period of time contains the same acoustic energy as a time-varying sound level during the same period.

2.3 Prediction of Traffic Noise Levels

The FHWA Traffic Noise Model version 2.5 (TNM 2.5) was used to predict future sound levels and determine traffic noise impacts. Existing sound levels were used to calibrate and validate the TNM results. It is common practice to compare field-measured and TNM-calculated existing sound levels to establish the reliability of the model. If the difference is not more than ±3 dBA, the TNM results for future noise calculations will be acceptable. Differences in dBA levels can be attributed to “bunching” of vehicles, low traffic volumes, and actual vehicle speeds versus the computer’s “evenly spaced” vehicles and single vehicular speed.

TNM was also used to compare predicted sound levels for the 2011 existing year and 2037 design year sound levels to determine if traffic noise impacts can be expected from the proposed project.

2.4 Identification of Traffic Noise Impacts

Traffic noise impacts occur when the predicted traffic sound levels equal or exceed the LADOTD Noise Abatement Criteria (NAC), or when the predicted traffic sound levels exceed existing levels by 10 dBA. Where traffic noise impacts are predicted, the traffic noise analysis includes an evaluation of noise abatement measures for reducing or eliminating the noise impacts.

2.5 Noise Abatement Criteria

Table 2 explains the NAC established by LADOTD. These criteria are consistent with FHWA NAC (23 CFR Part 772) allowing for consideration of traffic noise impacts 1 dBA below the FHWA criteria.

Table 2 LADOTD Noise Abatement Criteria

Activity Category	L_{eq} (hour)[1]	Activity Category Description
A	56 (exterior)	Land on which serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	66 (exterior)	Residential.
C	66 (exterior)	Active sports areas, amphitheaters, auditoriums, campgrounds, cemeteries, daycare centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	51 (interior)	Auditoriums, daycare centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	71 (exterior)	Hotels, motels, offices, restaurants/bars, and other developed land, properties or activities not included in A through D or F.
F	–	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	–	Undeveloped land that is not permitted.

[1]Hourly A-weighted equivalent noise level in dBA.

Source: LADOTD 2011.

3. Traffic Noise Analysis

3.1 Existing and Permitted Land Uses

Land use activity around the proposed project is predominantly residential attributed to the Venetian Isles subdivision on the north side of US 90. Near the existing Chef Menteur Bridge, there are a few commercial and recreational land uses. There are no Category A activities in study area. Also, there are two Category C activities that fall into the 4(f) classification. These sites are the Bayou Sauvage Wildlife Refuge and the Fort Macomb Historical Site.

3.2 Determination of Existing Noise Levels

Noise measurements were taken in the field in November 2011. The location where each field measurement was taken is shown on Figure 2. The dominant noise source at each site was existing traffic including automobiles, heavy trucks, and medium trucks. Sound levels were calculated using the FHWA TNM 2.5 and compared to field-measured sound levels to validate the model. As illustrated in Table 3, the calculated difference is within the acceptable range of ±3 dBA at all locations where existing measurements were taken.

Table 3 Field-Measured Noise and Model Validation

Traffic Noise Site ID	Receiver No.	Description of Traffic Noise Site	Activity Category	Field-Measured Sound Level (dBA)	TNM-Calculated Sound Level (dBA)	Calculated Difference
B1	R4	200 feet west of the intersection of Old Spanish Trail and San Trovaso Street	B	59.0	56.2	-2.8
B3	R62	380 feet east of the intersection of Old Spanish Trail and Alba Road	B	59.9	57.0	-2.9
B4 Peak	R90	1,200 feet east of the intersection of US 90 and Alba Road	B	51.4	51.7	+0.3
B4 Off Peak	R90	1,200 feet east of the intersection of US 90 and Alba Road	B	53.6	52.6	-1.0
B5 Peak	R34	200 feet north of the intersection of San Remo Street and Old Spanish Trail	B	52.9	50.0	-2.9
B5 Off Peak	R106	500 feet south of the intersection of US 90 and Fort Macomb Road	B	49.0	46.8	-2.2
C1	R119	At the cul-de-sac on the North end of San Georgio Street	B	48.1	For Background Noise Level	For Background Noise Level
C2	R120	At the cul-de-sac on the North end of San Veronese Street	B	48.5	For Background Noise Level	For Background Noise Level
C3 Peak	R114	650 feet east of the intersection of US 90 and Marques Road at a Marina	F	55.7	53.5	-2.2

Traffic Noise Site ID	Receiver No.	Description of Traffic Noise Site	Activity Category	Field-Measured Sound Level (dBA)	TNM-Calculated Sound Level (dBA)	Calculated Difference
C3 Off Peak	R114	650 feet east of the intersection of US 90 and Marques Road at a Marina	F	54.8	55.4	+0.6
C5	R95	400 feet south of the intersection of Fort Macomb Road and US 90 Near Fort Macomb	E	49.0	47.6	-1.4
E1	R93	430 feet west of the intersection of San Marco Drive and US 90	E	57.8	55.7	-2.1

dBA A-weighted decibels.

In addition, two sites were also chosen away from the immediate project limits to measure background sound levels that are not traffic related. Background noise levels in the project are were found to be approximately 48.0 dBA. The field measurement data are provided in Appendix A. The TNM input and output files for both the peak hour and off peak hour calibration models are included in Appendix B.

3.3 Prediction of Future Noise Levels

TNM 2.5 was used to model and predict 2011 existing year and 2037 design year sound levels in the study area. TNM 2.5 uses the number and type of vehicles on the planned roadway, their speeds, the physical characteristics of the road (curves, hills, depressions, elevations, etc.), receiver location and height, and, if applicable, barrier type, barrier ground elevation, and barrier top elevation.

3.3.1 Traffic

The noise predictions in this report are highway-related noise predictions for traffic conditions during the respective analysis years. The 2011 existing year and 2037 design year sound levels were calculated using the existing year and design year peak hour traffic volumes in the study area. The traffic volumes used for the noise models are provided in Appendix C.

3.3.2 Roadways

ARCADIS analyzed two alternative alignments to predict future sound levels. The alternative alignments are designated as Alternative 1B (Figure 3) and Alternative 2 (Figure 4). A description of the two proposed alternatives is included in Section 1 of this report.

3.4 Receivers

There are 118 noise receivers (representing a total of 143 dwelling units) within the study area, of which 107 receivers (representing 132 dwelling units) are classified as Activity Category B, 2 receivers (representing 2 dwelling units) are classified as Activity Category C, 5 receivers (representing 5 dwelling units) are classified as Activity Category E, and 4 receivers (representing 4 dwelling units) are classified as Activity Category F. These locations were identified to determine the noise impacts of the proposed project. Of the 107 receivers in Activity Category B, 100 receivers are classified as single-family homes and 7 receivers are classified as townhomes or condominiums. Of the 4 receivers in Activity Category F, 1 receiver is the Venetian Isles Fire Station. This receiver was classified as Activity Category F because it is an emergency service structure. Receiver points were defined at a height of 5 feet above the ground elevation. Noise receivers by activity category included for the noise analysis are shown on Figure 5.

3.5 Impact Determination Analysis

Traffic noise impact occurs when the predicted traffic sound levels either: (a) equal or exceed the LADOTD NAC; or (b) exceed the existing sound levels by 10 dBA. Consideration for noise abatement measures must be given to receivers that fall in either category.

Table 4 summarizes the results of the impact determination for the no build and two build alternatives. The TNM output with detailed noise impact data by alternative is included in Appendices D through G.

Table 4 Traffic Noise Impact Summary by Alternative

	2011 Existing Conditions	2037 No Build Conditions	2037 Alternative 1B Build Conditions	2037 Alternative 2 Build Conditions
Total Number Receivers/Dwelling Units	118 / 143	118 / 143	118 / 143	118 / 143
Approaching or Exceeding LADOTD NAC Receivers/Dwelling Units	0 / 0	0 / 0	0 / 0	0 / 0
Impacted under Substantial Increase Criteria Receivers/Dwelling Units	0 / 0	0 / 0	0 / 0	0 / 0
Total Impacted Receivers/Dwelling Units	0 / 0	0 / 0	0 / 0	0 / 0

As shown in Table 4, the 2011 existing condition exterior sound levels at all of the receiver locations do not approach or exceed the NAC. Therefore, there are no impacted receivers and no impacted dwelling units.

In the 2037 No Build condition, growth in traffic volumes will not cause exterior sound levels to equal or exceed the NAC resulting in no impacted dwelling units.

In the 2037 Alternative 1B build condition noise analysis, growth in traffic volumes and the proposed changes in horizontal and vertical alignment will not cause exterior sound levels to equal or exceed the NAC. Therefore, there are no impacted dwelling units.

The main span of the Alternative 1B proposed structure is a 270-foot-long bascule bridge constructed using open grate metal bridge decking. It is anticipated that this type of bridge decking will generate additional traffic-related noise when compared to traffic on a traditional asphalt or concrete bridge deck. However, TNM does not have the ability to predict the additional traffic-related noise generated from the open grate metal bridge decking.

One approach used to analyze the potential impact of the open grate metal bridge decking was to run the Alternative 1B TNM file using a 10-dBA adjustment factor. This adjustment factor was applied only to the TNM elements representing the portion of the proposed structure that is open grate metal bridge deck. This TNM model showed an increase in noise levels at 12 receivers. The noise level increase was very minor, ranging from 0.1 dBA to 0.5 dBA.

The final Alternative 1B TNM file modeled this portion of the structure as “average pavement,” per the TNM user guide, instead of using the 10-dBA adjustment factor. The model accurately predicts noise levels as traffic crosses the proposed structure but does not account for increased traffic noise due to the open grate metal bridge decking. Therefore, actual noise levels experienced in the field potentially may be higher than predicted noise levels in the 2037 Alternative 1B build condition model.

In the 2037 Alternative 2 build condition noise analysis, growth in traffic volumes and the proposed changes in horizontal and vertical alignment will not cause exterior sound levels to equal or exceed the NAC. Therefore, there are no impacted dwelling units.

A comparative analysis showing the receivers and their impacts in design year 2037 is illustrated on Figures 6 through 8. A complete list showing the noise levels at each receiver, by alternative, is included in Appendix H.

For future planning, traffic noise contours were generated along US 90 to determine appropriate zoning limits for residential and commercial properties. Table 5 summarizes the results of the noise contour analysis. The values in the right column indicate the approximate minimum distance a receiver of the appropriate land use type may be located from the centerline of the highway to obtain noise levels that meet the FHWA NAC.

Table 5 Land Use Category Critical Distances

TNM Model	NAC Land Use Type	NAC Noise Level (dBA) in $L_{eq}(h)$	Distance from the Centerline US 90[1]
2011 Existing	B	66	100 feet
	C	71	40 feet
2037 No Build	B	66	110 feet
	C	71	50 feet
2037 Build Alternative 1B	B	66	110 feet
	C	71	50 feet
2037 Build Alternative 2	B	66	110 feet
	C	71	50 feet

[1]The distances for the study area are provided for planning purposes only. To find more accurate distances for different segments and locations in the project area, please refer to Figures 9a through 12f.
dBA A-weighted decibels.
NAC Noise Abatement Criteria.

4. Examination and Evaluation of Traffic Noise Abatement Measures

The LADOTD Noise Policy requires that noise abatement measures which will be incorporated into the project be identified if they are reasonable and feasible. The dimensions and locations of any proposed noise barriers are to be described. Noise impacts for which no apparent solution is available are also identified in accordance with the LADOTD Noise Policy.

4.1 Noise Insulation of Public Use or Non-Profit Institutional Structures

In determining and abating traffic noise impacts, primary consideration is to be given to exterior areas. In those situations where there are no exterior activities to be affected by the traffic noise, or where exterior activities are far from or physically shielded from the roadway in a manner that prevents an impact on exterior activities, the interior criterion may be used as the basis for determining noise impacts. Table 2 indicates that only land uses designated as Activity Category D (public use or non-profit institutional structures) are considered for analysis of interior noise levels.

The NAC for this type of interior noise analysis (Activity Category D) is 51 dBA. According to *Procedures for Abatement of Traffic Highway Noise and Construction Noise* (23 CFR Part 772), the structure itself will block noise and cause a 10-dBA noise reduction from exterior to interior. When windows are closed, the minimum noise reduction factor is 20 dBA. Masonry buildings with single glaze (pane) windows offer a noise reduction of 25 dBA. In the project area, buildings are equipped with air conditioning; therefore, the noise reduction factor includes closed windows.

There are no Activity Category D (public use structures, such as churches, or non-profit institutions) land uses in the study area. Therefore, no noise abatement measures were necessary for the proposed project because there would be no impacts.

5. Vacant/Undeveloped Parcel Information

Vacant and undeveloped parcels are studied to provide local planning officials with the tools they need for compatible land use planning. Eleven vacant parcels were identified using both the City of New Orleans Geographic Information Systems (GIS) website and the Orleans Parish GIS website. These 11 parcels were included in the noise analysis modeled as undeveloped land. Portions of vacant and undeveloped land within the project limits where no property information was available online have not been modeled. Each modeled undeveloped land area is represented by noise receivers UD1-1 through UD11-6. The first receiver, UD1-1, is located 50 feet from the proposed edge of pavement. The second receiver, UD1-2, is located 100 feet from receiver UD1-1, and each subsequent receiver is set back an additional 100 feet.

The last receiver modeled for each undeveloped parcel is located at least 500 feet from the proposed edge of pavement or at the end of the parcel. Predicted noise levels for undeveloped land in both the 2037 Alternative 1B and 2037 Alternative 2 build conditions are summarized in Table 6 and depicted on Figure 13. The TNM output with detailed noise impact data by alternative is included in Appendices I and J.

Table 6 Predicted Noise Levels for Undeveloped Land (Activity Category G) Receivers

Noise Receiver ID	Distance from Edge of Pavement (Feet)	Predicted Noise Level (2037 Alternative 1B Build Conditions)	Predicted Noise Level (2037 Alternative 2 Build Conditions)
UD1-1	50	66.2	66.4
UD1-2	150	61.2	61.3
UD1-3	250	58.1	58.3

Noise Receiver ID	Distance from Edge of Pavement (Feet)	Predicted Noise Level (2037 Alternative 1B Build Conditions)	Predicted Noise Level (2037 Alternative 2 Build Conditions)
UD1-4	350	54.5	54.7
UD1-5	450	51.7	52.0
UD1-6	550	49.4	49.8
UD1-7	650	47.5	47.9
UD1-8	750	46.0	46.5
UD1-9	850	44.8	45.4
UD2-1	50	67.3	67.7
UD2-2	150	60.9	60.8
UD2-3	250	57.0	56.7
UD2-4	350	54.0	53.9
UD2-5	450	51.5	51.5
UD2-6	550	49.4	49.4
UD2-7	650	47.7	47.8
UD2-8	750	46.2	46.4
UD2-9	850	45.1	45.4
UD3-1	50	67.6	67.6
UD3-2	150	60.3	60.9
UD3-3	250	56.3	56.9
UD3-4	350	53.5	54.3
UD3-5	450	51.2	52.3
UD3-6	550	49.4	50.7
UD3-7	650	47.9	49.3
UD3-8	750	46.6	48.2
UD3-9	850	45.7	47.1
UD4-1	50	59.0	61.6
UD4-2	150	55.9	58.1
UD4-3	250	53.4	55.1
UD4-4	350	51.4	53.0
UD4-5	450	49.6	51.3

Noise Receiver ID	Distance from Edge of Pavement (Feet)	Predicted Noise Level (2037 Alternative 1B Build Conditions)	Predicted Noise Level (2037 Alternative 2 Build Conditions)
UD4-6	550	48.2	49.9
UD4-7	650	46.9	48.6
UD5-1	50	57.9	61.4
UD5-2	150	54.9	57.9
UD5-3	250	52.8	55.0
UD5-4	350	50.9	52.8
UD5-5	450	49.3	51.1
UD5-6	550	47.7	49.6
UD6-1	50	Displaced by Proposed Roadway	60.9
UD6-2*	150	Displaced by Proposed Roadway	61.0
UD7-1	50	Displaced by Proposed Roadway	60.0
UD7-2*	150	Displaced by Proposed Roadway	60.0
UD8-1	50	61.8	58.5
UD8-2*	150	62.4	58.5
UD9-1	50	60.1	57.5
UD9-2*	150	60.8	57.5
UD10-1	50	58.5	56.4
UD10-2*	150	59.2	56.5
UD11-1	50	62.4	64.4
UD11-2	150	59.0	61.7
UD11-3	250	56.0	60.0
UD11-4	350	53.5	58.0
UD11-5	450	51.7	56.1
UD11-6	550	49.7	54.2

*Receiver located at the end of the property.

6. Construction Noise

Construction of the proposed project would result in temporary noise increases within the project area. Primary noise generators would be from heavy equipment used in hauling materials and building the proposed roadway and proposed structure. Sensitive areas located close to the construction may temporarily experience increased sound levels.

The construction contractor has the responsibility for protection of the public in all aspects of construction throughout the duration of the project. All construction equipment will be required to comply with Occupational Safety and Health Administration regulations as they apply to the employees' safety and in accordance with LADOTD Standard Specifications. All construction equipment used during the construction phase should be properly muffled and all motor panels should be closed during operation. To minimize the potential for impacts of construction noise on local residents, the contractor should operate, whenever possible, between the hours of 7 a.m. and 5 p.m.

7. Summary

The 2011 existing conditions assessment and the 2037 no build conditions assessment both indicate that none of the receivers are impacted under FHWA NAC. Noise levels under the 2011 existing conditions range from 48.6 dBA to 64.2 dBA. Noise levels under the 2037 no build conditions would range from 50.0 dBA to 65.6 dBA. Finally, the results indicate that future traffic-related noise levels would range from 50.6 dBA to 65.9 dBA under 2037 Alternative 1B build conditions and 50.9 dBA to 63.5 dBA under 2037 Alternative 2 build conditions within the entire study area.

The results show that in each alternative analyzed, no receivers (representing 0 dwelling units) will experience noise levels that exceed FHWA NAC and no receivers (representing 0 dwelling units) will experience a substantial increase in traffic-related noise over the 2011 existing conditions noise levels.

The predicted changes in traffic-related noise levels between the 2037 no build and 2037 Alternative 1B build conditions range from a -3.5-dBA reduction to a 7.5-dBA increase. The reduction in noise levels at some of the receiver locations in the 2037 Alternative 1B build conditions as compared to the 2037 no build conditions is due to a

slight shift in the horizontal alignment of the proposed bridge, which moves traffic away from some receivers.

The predicted changes in traffic-related noise levels between the 2037 no build and 2037 Alternative 2 build conditions range from a -4.2-dBA reduction to an 8.3-dBA increase. The reduction in noise levels at some of the receiver locations in the 2037 Alternative 2 build conditions as compared to the 2037 no build conditions is due to a slight shift in the horizontal alignment of the proposed bridge, which moves traffic away from some receivers.

No noise abatement measures were necessary for the proposed project because there would be no noise impacts.

8. References

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Orleans Parish. 2001. http://qpublic.net/la/orleans/search.html. Last accessed June 6, 2012.

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Appendix J

Optional Frontage Road
Configuration Concept

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Frontage Road Conceptual Design

Final design to be determined during Stage 3 - Design

Preliminary Plans

Subject to Change

Road Design

SHEET NUMBER 3e

PARISH: ORLEANS
FEDERAL PROJECT: BR-61-07(020)
STATE PROJECT: H.000263.2
DESIGNED
CHECKED
DETAILED
CHECKED
DATE SHEET: 07 MAY 2012

NO.	DATE	REVISION DESCRIPTION	BY

STATE OF LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

EAST APPROACH PLAN
CHEF MENTEUR PASS BRIDGE
HIGH LEVEL ALTERNATIVE 2

CHEF MENTEUR BRIDGE AND APPROACHES

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

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Appendix K

Programmatic Section 4(f) Evaluation
for Use of Existing Historic Bridge

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U.S. Department of Transportation
Federal Highway Administration

Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges

Chef Menteur Bridge and Approaches
Route 90, Orleans Parish, Louisiana
State Project No. H.000263.2
Federal Aid Project No. H000263

Introduction

This Section 4(f) programmatic evaluation has been completed for the Chef Menteur Bridge, US 90, Orleans Parish, Louisiana, project in accordance with *Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges* (Federal Highway Administration [FHWA] 1983). This approval is made pursuant to Section 4(f) of the Department of Transportation Act of 1966, 49 United States Code (USC) 303, and Section 18(a) of the Federal-Aid Highway Act of 1968, 23 USC 138.

This document has been prepared to demonstrate the following:

- There are no feasible and prudent alternatives to the use of the Chef Menteur Bridge over Chef Menteur Pass.
- The project includes all possible planning to minimize harm resulting from the use of the Chef Menteur Bridge over Chef Menteur Pass.
- The project meets the applicability criteria for the programmatic Section 4(f) evaluation for projects that necessitate the use of historic bridges, issued by FHWA.

Use

Even though the Chef Menteur Bridge is eligible for inclusion on the National Register of Historic Places (NHRP), it must perform as an integral part of the modern transportation system. When unable to maintain system continuity and integrity, the result is bridge rehabilitation or replacement. For this programmatic Section 4(f) evaluation, the proposed action will "use" a bridge that is eligible for inclusion on the NHRP and the historic integrity of the bridge will be impaired by demolition.

Applicability

This programmatic Section 4(f) evaluation may be applied by FHWA to the proposed project because it meets the following criteria:

1. The bridge is to be replaced or rehabilitated with federal funds.
2. The project will require the use of a historic bridge structure which is on or is eligible for listing on the NRHP.
3. The bridge is not a National Historic Landmark.

4. The FHWA Division Administrator has determined that the facts of the project match those set forth in this document.

5. Agreement among the FHWA, the State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation (ACHP) has been reached through procedures pursuant to Section 106 of the National Historic Preservation Act (NHPA; FHWA 1983).

Project Purpose and Need

The purpose of the Chef Menteur Bridge and Approaches project is to address bridge deficiencies related to the age and design of the existing movable bridge crossing Chef Menteur Pass. The project is needed in order to upgrade the bridge and roadway segment to current design standards for travel lane and shoulder widths, bridge width, stopping sight distances, design speed, and structural capacity.

Description of Section 4(f) Property

The Chef Menteur Bridge, built in 1929, has been determined eligible for the NRHP under Criterion A, for its association with Huey P. Long's progressive transportation policies of the late 1920s in Louisiana, and under Criterion C, as an example of a high, steel swing-span bridge with three Warren trusses with polygonal top chords. The original mechanical motor was replaced with an electric motor along with the bridge tender house in 1955. Three concrete girder spans on either end of the trusses were replaced after Hurricane Katrina in 2005, and the wooden fender system has been replaced with a steel system. However, the two fixed-span Warren trusses and swing-span Warren truss that make up the center of the bridge remain intact and operational.

The Chef Menteur Bridge was built to standards that no longer meet minimum FHWA, American Association of State Highway and Transportation Officials (AASHTO), and Louisiana Department of Transportation and Development (LADOTD) guidelines. Because the bridge has two 10-foot travel lanes, no shoulders, and bridge approach roadway alignments that are geometrically sub-standard, it is rated as functionally obsolete. The classification of functional obsolescence does not mean that the bridge is inherently unsafe. It is a term that identifies a bridge that does not perform adequately for its current use and means that measures should be taken to improve functionality. Functional obsolescence is also a term that assigns priority status for federal funding for bridge replacement and rehabilitation. A March 2012 LADOTD bridge inspection report provides an evaluation of the superstructure and substructure according to National Bridge Inspection condition ratings. The general condition ratings are an overall assessment of the physical condition of the deck, the superstructure, substructure, or culverts and range from 0 (failed condition) to 9 (excellent condition). The superstructure includes the load-carrying members such as beams or trusses that support the driving surface (deck). The substructure includes abutments and piers.

The inspection recorded an overall rating of 4, which indicates poor condition with advanced section loss, deterioration, spalling, or scour. A rating of 4 was recorded for the superstructure. A bridge is classified as "structurally deficient" with a general condition rating of 4 or less for the deck, superstructure, and substructure or if the approaches regularly overtop due to flooding. To remain open to traffic, a structurally deficient bridge is often posted with reduced weight limits for vehicles using the bridge. The live load posting for the Chef Menteur Bridge has been reduced to 25 tons along with a reduced speed

limit of 25 miles per hour (mph). Both of these reductions restrict the usefulness of US 90 as an arterial highway for interstate transportation of goods and people. With the replacement of the Rigolets Bridge to the northeast, Chef Menteur Bridge is the last segment of US 90 in this area that limits mobility through the corridor and reduces the highway's operational efficiency.

A further indication of the insufficiency of the Chef Menteur Bridge to remain in service is its bridge sufficiency rating. This rating takes many factors into account including structural adequacy and safety, serviceability and functional obsolescence, and essentiality for public use. A sufficiency rating of 80 or below qualifies the bridge for rehabilitation funding. A sufficiency rating of 50 or below qualifies it for replacement funding (FHWA 2006). The most recent bridge sufficiency rating for Chef Menteur Bridge is 22.3, a clear signal that the bridge is ready for replacement.

Description of Proposed Action

The Preferred Alternative, as identified in the Chef Menteur Bridge and Approaches Environmental Assessment (EA), distributed in March 2013, is a new bridge designed to meet current standards located on an alignment south of the existing bridge alignment. The design is a high-level fixed bridge constructed with water level footings. The overall height of the bridge will be 80 feet above mean high water with vertical clearance for vessels set at a minimum height of 75 feet. The superstructure of the bridge will be supported by reinforced concrete abutments founded on pile supported foundations. The bridge will provide two 12-foot through-lanes and two 8-foot shoulders that may be increased to 12 feet to meet stopping sight distance requirements.

Alternatives and Findings

In order to determine the applicability of this programmatic Section 4(f) evaluation to the proposed project, each of the following alternatives were considered.

1. Do nothing.

2. Build a new structure at a different location without affecting the historic integrity of the existing bridge, as determined by procedures implementing the NHPA.

3. Rehabilitate the historic bridge without affecting the historic integrity of the structure, as determined by procedures implementing the NHPA.

This list is all-inclusive. No reasonable and feasible alternative was found that would avoid use of the Chef Menteur Bridge.

Either rehabilitation or replacement of the existing bridge is necessary to ensure public safety while maintaining system continuity and integrity. Because either rehabilitation or replacement of the bridge will impair the historic integrity of the bridge, it has been concluded that all reasonable and feasible alternatives considered would constitute a transportation use of the bridge.

1. *Do Nothing*

The Do Nothing alternative is identified in the EA as the No Build Alternative. The National Environmental Policy Act (NEPA) requires that doing nothing be considered during the environmental review process. This alternative was designated as the No Build Alternative, signifying that no new structures or major construction would take place.

Maintenance of the existing bridge has required extensive repair of the fendering system, replacement of concrete girder spans, and implementation of measures to address bridge scour. This kind of repair work along with routine maintenance would continue under the No Build Alternative. In addition, the height of the bridge subjects the steel to continual contact with corrosive saltwater spray and the deck to occasional inundation from storm surge. All in-service bridges, regardless of the date of construction or original design capacity, are required to carry a load based on a specified design vehicle and be consistent with the road network it services (AASHTO 2007). The bridge was not designed for current vehicular live loads as specified by AASHTO in the Load and Resistance Factor Design (LRFD) Specifications and the Louisiana Design Vehicle Live Load 11. Interim measures have been implemented including posting reduced gross weight limits for vehicles using the bridge to 25 tons, which is inconsistent with the normal maximum load of 40 tons on this segment of US 90.

The No Build Alternative does not address the stated deficiencies related to its age and design. Geometry, load-carrying capacity, and safety cannot be substantially improved, and high operational and maintenance costs will continue. For these reasons, it has been determined that doing nothing is not feasible and prudent.

2. *Build on New Location without Using the Existing Bridge*

Ways to build a new structure at a different location without affecting the historic integrity of the existing bridge were evaluated. Utilization of the existing structure as a parallel bridge adjacent to a new similar structure would not resolve the functional obsolescence, substandard roadway geometric features, and operational problems of the existing bridge. The parallel bridge could be designed to allow the existing swing-span to operate, but the existing bridge would continue to require extensive investments in operation and maintenance. Scour and surge issues of the existing bridge would not be addressed.

Another alternative that would allow the Chef Menteur Bridge to remain in its current location would be to take the bridge out of service and find another party to operate and maintain it. In order to prevent obstructions to navigation, the existing bridge would have to provide sufficient vertical clearance either by continuing to open or by removal of at least one of the center truss spans.

Alignments to the far south and far north of the existing bridge were developed as part of the NEPA process in the EA. The far south alternative was dismissed due to disproportionate impacts to natural resources and other 4(f) properties, proximity to a deep scour hole, and excessive construction costs. The far north alignment was dismissed due to excessive impacts to residences. Alternatives located close to the existing bridge alignment were determined to be the

least damaging and most practicable. However, leaving the existing bridge in place so close to the new bridge would exacerbate bridge scour that is already a serious concern.

For these reasons, it was determined that building a new bridge and keeping the existing bridge in place is not a prudent and feasible alternative.

3. *Bridge Rehabilitation Preserving Historical Status*

Bridge rehabilitation sufficient to allow the bridge to remain in service was considered as the only concept that would not replace the bridge. By keeping the bridge in service as a part of the US 90 transportation network, the bridge would not have to be moved or replaced. However, to remain in service, the bridge deficiencies related to its age and design must be addressed.

Two forms of rehabilitation were considered: rehabilitation to the original condition of the bridge and rehabilitation sufficient to meet the purpose and need for the project. Bridge rehabilitation can be considered feasible and prudent only if both of the following conditions can be met:

- The elements that make the bridge historically significant are preserved.
- Structural and functional deficiencies are addressed.

It was determined that the two conditions cannot be met at the same time. Rehabilitation to its original condition would maintain the historical significance of the bridge, but would not sufficiently address structural and operational deficiencies, scour issues, or surge protection.

In order to determine geometric adequacy, consideration must be given to the number of travel lanes, roadway width, approach roadway, vertical and horizontal clearances, sight distances, and functional classifications of the roadway. The existing bridge is classified as urban minor arterial. Current standards and guidelines for this functional classification require, at a minimum, 12-foot travel lanes and 8-foot shoulders, as well as adequate sight distances. Additionally, sudden shifts in the vertical alignment make it difficult for vehicles to maintain contact with the roadway at all times. The recommended speed limit for the roadway classification is 55 mph, but the posted speed limit is 25 mph. None of these issues can be addressed through rehabilitation, and the bridge would still be vulnerable to storm surge damage.

Many members of the existing truss system are not designed to carry the design live load and the additional dead load from the wider/larger superstructure as specified in the current edition of the AASHTO LRFD bridge design specifications. The existing trusses would have to be completely replaced if the bridge were widened and the substructure would have to be modified to accommodate the higher loads from the superstructure.

Correction of structural and operational deficiencies sufficient enough to meet the purpose and need would entail removal or replacement of significant historic elements, such as trusses and pivot piers. In addition, to be protected from storm surge, the bridge must be raised, which would also affect its technologically significant swing-span operations. Therefore, neither form of rehabilitation was determined to be a prudent and feasible alternative.

Measures to Minimize Harm

This programmatic Section 4(f) evaluation and approval may be used only for projects where the FHWA Division Administrator, in accordance with this evaluation, ensures that the proposed action includes all possible planning to minimize harm. The following criteria are applied to make this determination:

1. For bridges that are to be rehabilitated, the historic integrity of the bridge is preserved, to the greatest extent possible, consistent with unavoidable transportation needs, safety, and load requirements;

2. For bridges that are to be rehabilitated to the point that the historic integrity is affected or that are to be moved or demolished, FHWA ensures that, in accordance with Historic American Engineering Record (HAER) standards, or other suitable means developed through consultation, fully adequate records are made of the bridge;

3. For bridges that are to be replaced, the existing bridge is made available for an alternative use, provided a responsible party agrees to maintain and preserve the bridge; and

4. For bridges that are adversely affected, agreement among the SHPO, ACHP, and FHWA is reached through the Section 106 process of the NHPA on measures to minimize harm and those measures are incorporated into the project. This programmatic Section 4(f) evaluation does not apply to projects where such an agreement cannot be reached.

For the Chef Menteur Bridge, criteria 2, 3, and 4 are applicable. The SHPO confirmed that the existing Chef Menteur Bridge was eligible for the NRHP in 1999 and reconfirmed this finding in 2011. A Memorandum of Agreement (MOA) between FHWA, LADOTD, and the SHPO has been executed to mitigate the adverse effect of demolishing the bridge. This MOA includes a commitment for recordation of the bridge utilizing HAER standards and an agreement to market the bridge to a sponsor who agrees to maintain and preserve the bridge in a manner that will not obstruct navigation.

The MOA is the culmination of the Section 106 consultation and is documented in the EA with Finding of No Significant Impact (FONSI).

Conclusions

As noted in the introduction, the objective of this Section 4(f) programmatic evaluation is to show that the proposed project complies with Section 4(f) of the Department of Transportation Act of 1966 by meeting the following conditions:

- There are no feasible and prudent alternatives to the use of the Chef Menteur Bridge over Chef Menteur Pass.

- The project includes all possible planning to minimize harm resulting from the use of the Chef Menteur Bridge over Chef Menteur Pass.

- The project meets the applicability criteria for the programmatic Section 4(f) evaluation for projects that necessitate the use of historic bridges, issued by FHWA.

Given the information presented in this Section 4(f) programmatic evaluation and approval, it is concluded that the proposed project meets the above-noted conditions and thereby complies with Section 4(f) of the Transportation Act of 1966.

FEDERAL HIGHWAY ADMINISTRATION

By _____ Date 7/24/2014

Charles Bollinger
Division Administrator

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AASHTO, Standing Committee on the Environment. 2007. Guidelines for Historic Bridge Rehabilitation and Replacement. March.

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Appendix L

Correspondence with OSP

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Mr. Stuart Johnson, Assistant Secretary
Office of State Parks
Louisiana Department of Culture, Recreation, and Tourism
P.O. Box 44426
Baton Rouge, Louisiana 70804-4426

Subject:
Section 4(f) Evaluation of Fort Macomb State Park
Chef Menteur Bridge and Approaches
Route US 90
Orleans Parish, Louisiana
State Project No. H.000263.2
Federal Aid Project No. H.000263

INFRASTRUCTURE

Date:
27 September 2012

Contact:
Lynn Maloney-Mújica

Extension:
256

Email:
lynn.maloney@arcadis-us.com

Our ref:
LA003024.0001.00004
LDOTD/3024.1/C/32/jk

Dear Mr. Johnson:

The existing right-of-way (ROW) for U.S. Highway 90 (US 90) crosses a portion of the 16-acre Fort Macomb State Park property, which is located south of US 90 at Chef Menteur Pass in eastern Orleans Parish. The US 90 ROW is an existing use that permanently incorporates approximately 1.5 acres of park property into the transportation facility. The use predates Section 4(f) of the Department of Transportation Act of 1966 that protects significant national, state, and local resources including publicly owned parks and recreational areas. The ROW divides the property into two areas: a remnant consisting of approximately 1.25 acres to the northwest and approximately 13 acres of property to the southeast where the fort is located.

Two build alternatives are being considered for replacement of the Chef Menteur Bridge that will shift and widen the required ROW. Alternative 1B would shift the ROW to the north; Alternative 2 would shift the ROW to the south. Drawings for each alternative are attached showing how the Fort Macomb State Park Property would be affected. Please note that the location of the access road connecting San Marco Drive and Fort Macomb Road will be moved to a position south of the line of trees shown on the drawing. This minor change will bring the access road closer to the mainline of the proposed bridge and reduce impacts to the residences nearby.

The impacts of the proposed project on Fort Macomb State Park may be determined to be *de minimis* if the project, including any mitigation or enhancement measures, does not adversely affect the activities, features, or attributes that qualify the resource for protection under Section 4(f) of the Transportation Act of 1966. The essential activity of Fort Macomb State Park is visitation of the fort, which is the central feature of the park. Currently, the fort is only available to the public through scheduled tours. The Office of State Parks (OSP) has informed the Federal Highway Administration (FHWA) and the Louisiana Department of Transportation (LADOTD) that the OSP has plans to reopen the site to daily operations and visitation as a fully operational historic site in the future, when economic conditions allow. The project would cause no adverse effect to the fort, scheduled tours, or future visitation, and access roads are proposed that would enhance access to the park property.

A *de minimis* impact determination also requires agency coordination and public involvement. Coordination and outreach is an ongoing process that has been undertaken as part of the National Environmental Policy Act process for the Chef Menteur Bridge project. Several meetings have been held with the OSP; the most recent meeting took place on September 10, 2012. The public has been afforded an opportunity to review and comment on the effects of the proposed project on the protected activities, features, and attributes of the park at a public meeting on April 3, 2012. A summary of that meeting with the public comments was mailed to the OSP on May 18, 2012.

Based on the facts presented above, FHWA intends to make a determination of *de minimis* impacts to Fort Macomb State Park for Alternative 1B and for Alternative 2 and requests a written concurrence with this finding from the OSP, as the agency with jurisdiction over the property.

FHWA and LADOTD would also like to document their understanding that the OSP prefers Alternative 2 over Alternative 1B. This preference is based upon the fact that the higher elevation of Alternative 2 moves the structure farther outside of sight lines, reduces the number of structures in view, and provides better access for vehicles.

We appreciate the time and collaboration provided by the staff of the OSP for the Chef Menteur Bridge project and we look forward to receiving your written concurrence regarding the *de minimis* determination for Fort Macomb State Park at your earliest convenience.

Sincerely,

ARCADIS U.S., Inc.

Lynn Mahoney-Mújica, AICP
Associate Project Manager

Scott L. Hoffeld, C.E.P.
Senior Project Manager

Copies:
N. Leon/LADOTD
B. Mahoney/FHWA
J. Pitts/FHWA
M. Stinson/FHWA
M. Aleshire/OSP

ARCADIS

Attachment

Drawings of Alternatives 1B and 2

Alternative 1b (Bascule)

Alternative 2 (Fixed-Span)

OCT 1 0 2012

JAY DARDENNE
LIEUTENANT GOVERNOR

State of Louisiana
OFFICE OF THE LIEUTENANT GOVERNOR
DEPARTMENT OF CULTURE, RECREATION & TOURISM
OFFICE OF STATE PARKS

CHARLES R. DAVIS
DEPUTY SECRETARY

STUART JOHNSON, PH.D.
ASSISTANT SECRETARY

October 5, 2012

Mr. Scott Hoffeld, CEP
ARCADIS U. S., Inc.
10352 Plaza Americana Drive
Baton Rouge, LA 70816

Re: Section 4(f) Evaluation of Fort Macomb State Historic Site
Chef Menteur Bridge and Approaches
State Project No. H.0002636.2
F.A.P. No. H.0002636
Route US 90, Orleans Parish, Louisiana

Dear Mr. Hoffeld:

The Office of State Parks has reviewed the information presented in the September 27, 2012 letter. This agency concurs with your assessment that the project will be de minimis to Fort Macomb State Historic Site under the criteria of the Section 4(f) Evaluation and per our current and planned operation of the site.

We do view Alternative 2 (fixed-span) as the preferred alternative. We ask that you continue considering design elements that minimize the bridge foot print and visual intrusion such as longer spans section with fewer bridge bents. The integration of shore erosion measures protecting the historic fort site would be greatly appreciated.

We appreciate opportunity to comment and look forward to remaining involved. If you have any questions, please call me at (225) 342-8111, or Mitchell Aleshire at (225) 342-8102.

Sincerely,

Stuart Johnson, Ph. D.
Assistant Secretary

SJ:cd

Appendix M

Section 4(f) De Minimis Impact Determination for Fort Macomb State Park and Fort Macomb Historic Site

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U.S. Department of Transportation
Federal Highway Administration

***De Minimis* Impact Determination for**
FHWA Projects that use Section 106 and 4(f) Resources

Chef Menteur Bridge and Approaches
Route 90, Orleans Parish, Louisiana
State Project No. H.000263.2
Federal Aid Project No. H000263

Introduction

This *de minimis* impact determination has been prepared for the Chef Menteur Bridge, US 90, Orleans Parish, Louisiana, project in accordance with Section 4(f) of the U.S. Department of Transportation Act of 1966. This *de minimis* impact determination serves as approval for the Federal Highway Administration (FHWA) to use Section 4(f) properties.

This determination has been prepared to demonstrate the following:

- The use of property from the Fort Macomb State Park will not adversely affect the activities, features, or attributes of the park.

- The use of the Section 106 Fort Macomb National Register of Historic Places (NRHP) Site will not adversely affect the historic property or the historic site.

Use of Section 4(f) Property, Fort Macomb State Park

Both preliminary alignments for Alternatives 1B and 2 require expansion of existing right-of-way (ROW) along US 90. Existing ROW on the west bank of Chef Menteur Pass bisects Fort Macomb State Park into the area that is commonly recognized as the state park (south of US 90) and a small tract north of US 90. The existing US 90 ROW consists of approximately 1.5 acres between the two park tracts. The combined area of these two tracts is approximately 14 acres.

The change in required ROW for Alternative 1B would require permanent use of an additional 1.0 acre of Fort Macomb State Park less approximately 0.3 acre from existing US 90 ROW that would be returned to Fort Macomb State Park (**Figure 1**). Total use of state park property would be approximately 2.2 acres, compared to 1.5 acres in the existing ROW.

The change in required ROW for Alternative 2 would require permanent use of an additional 0.5 acre from Fort Macomb State Park less approximately 0.4 acre of existing US 90 ROW that would be returned to Fort Macomb State Park (**Figure 2**), for a total use of 1.6 acres.

Use of Section 106 Property, Fort Macomb Historic Site (LHRI 36-01645)

The Fort Macomb (LHRI 36-01645) NRHP property lies completely within the boundaries of the Fort Macomb State Park (**Figure 3**). The NRHP boundary encircles Fort Macomb and extends northwest where it terminates at the existing US 90 ROW. Because Alternative 1B would not require expansion of existing ROW to the southeast, there would be no need for use of Fort Macomb NRHP property for this alignment.

Alternative 2 would expand to the east of existing US 90 ROW and would require permanent use of approximately 0.1 acre from the 3.3-acre Fort Macomb NRHP property (**Figure 4**).

De Minimis Determination

1. Section 4(f) Property - Park, Recreation Area, or Wildlife and Waterfowl Refuge

Section 4(f) of the Transportation Act of 1966 as amended states that to make a *de minimis* determination for a park, recreation area, or wildlife and waterfowl refuge that qualifies for Section 4(f) protection, FHWA must ensure that:

- The transportation use of the Section 4(f) resource, together with any impact avoidance, minimization, and mitigation or enhancement measures incorporated into the project, does not adversely affect the activities, features, and attributes that qualify the resource for protection under Section 4(f);

- The official(s) with jurisdiction over the property are informed of FHWA's intent to make the *de minimis* impact finding based on their written concurrence that the project will not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f); and

- The public has been afforded an opportunity to review and comment on the effects of the project on the protected activities, features, and attributes of the Section 4(f) resource.

The primary function of Fort Macomb State Park is visitation to the fort itself, which is the central feature of the park. The fort is only available to the public through scheduled guided tours. Because the project does not require use of the fort itself and only an additional 1.0 acre of land for Alternative 1B and an additional 0.1 acre of land for Alternative 2 adjacent to the existing ROW, the project will not adversely affect the activities, features, and attributes that qualify the park under Section 4(f).

The Louisiana Office of State Parks (OSP) was notified of FHWA's intent to make a *de minimis* determination for the Fort Macomb State Park at a meeting on September 10, 2012, and in writing on September 27, 2012 (**Attachment 1**). The OSP responded with written concurrence on October 5, 2012 (**Attachment 2)**.

The public was informed of FHWA's *de minimis* determination at the public hearing for the project held on April 11, 2013.

2. Section 106 Property - Historic Site

Section 4(f) as amended states that for FHWA to make a *de minimis* determination for transportation use on a historic site:

- The Section 106 process of the National Historic Preservation Act [should] result in the *determination* of "no adverse effect" or "no historic properties affected" with the concurrence of the State Historic Preservation Officer (SHPO) and/or Tribal Historic Preservation Officer (THPO), and the Advisory Council on Historic Preservation (ACHP) if participating in the Section 106 consultation;

- The SHPO and/or THPO, and ACHP if participating in the Section 106 consultation, is informed of FHWA's or the Federal Transit Administration's intent to make a *de minimis* impact finding based on their written concurrence in the Section 106 determination; and

- FHWA has considered the views of any consulting parties participating in the Section 106 consultation.

Alternative 1B would not incorporate any Fort Macomb NRHP property into the required ROW or result in other adverse impacts for this project.

As stated above, Alternative 2 would permanently incorporate approximately 0.1 acre of land from the Fort Macomb NRHP property into the required ROW. The *Section 106 Adverse Effect Documentation* (AED) states

> That portion of the historic property is currently overgrown with weeds and does not include any historic plantings or cultural features (e.g. earthworks, moats, etc.) …and the loss of that area will not diminish the integrity of the property's significant historic features. Although [the build of] Alternative 2 would be visible from the historic property, the bridge's design would provide a more open viewshed at eye level than is currently afforded by the existing span (Coastal Environments Inc. 2012).

Therefore, although construction of Alternative 2 would permanently incorporate additional land into the facility, the AED prepared as part of the Section 106 process determined that it will not adversely affect the resource's integrity after implementation of measures to minimize harm.

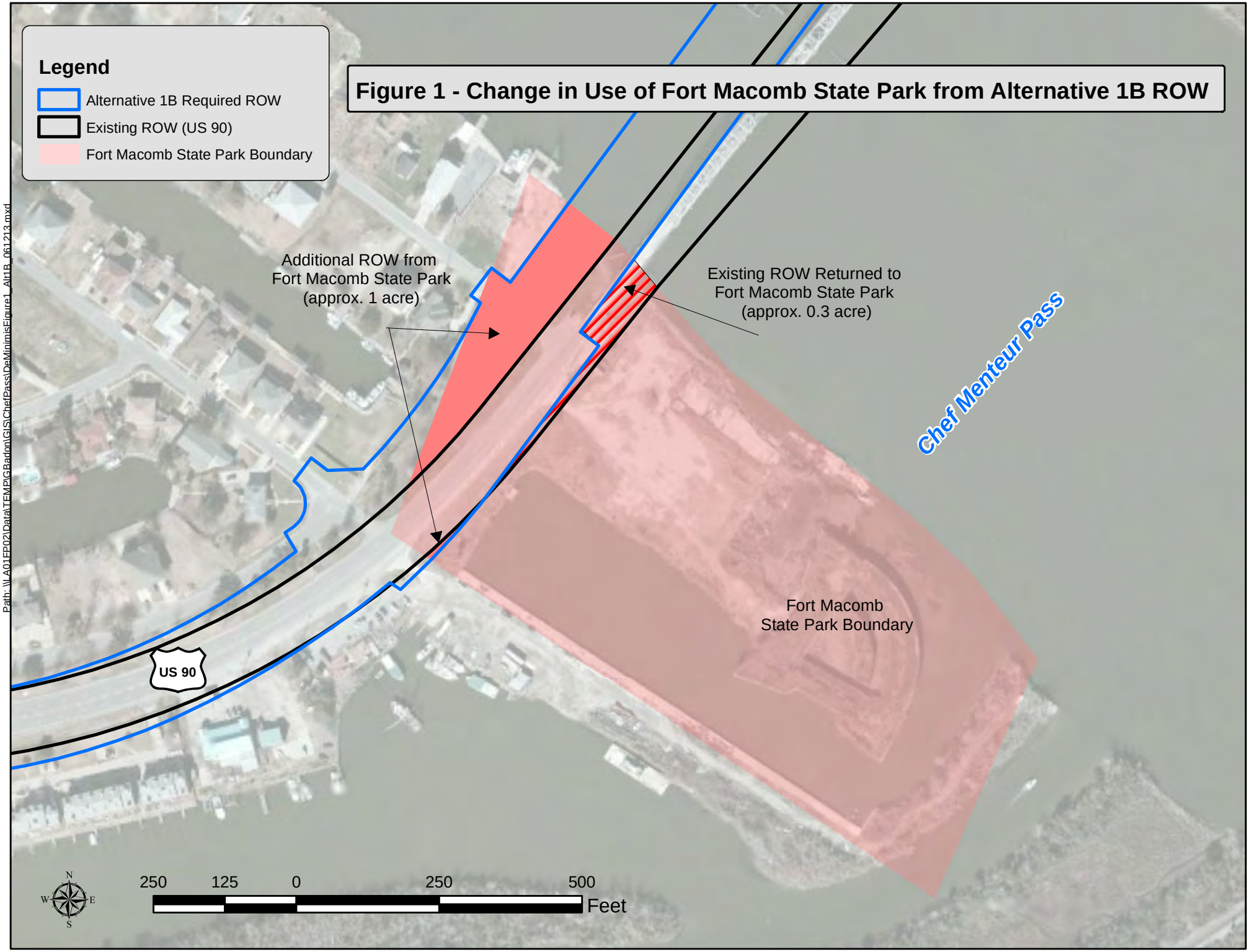
The SHPO concurred with the findings of "no adverse effect" in the AED on October 30, 2012. The letter of concurrence is included in **Attachment 3**. The SHPO was informed in writing of FHWA's intent to make a de *minimis* impact finding to the Fort Macomb NRHP property in a letter dated February 1, 2013. That letter is included in **Attachment 4**.

The Section 106 process was initiated with consulting agencies in March 2012. An opportunity to request participation in the process was announced at the public meeting on April 3, 2012. Subsequent meetings were held on July 11 and November 29, 2012. A final opportunity for Section 106 consulting parties to make comments was provided at the public hearing on April 11, 2013. A Memorandum of Agreement (MOA) was prepared to reflect appropriate treatment measures for affects to historic properties as requested by the SHPO and other consulting parties. The signed MOA is provided in **Attachment 5.** In addition to the SHPO, Louisiana Department of Transportation and Development, and FHWA, the MOA was also signed by the OSP and the Choctaw National of Oklahoma as concurring parties.

Final Considerations

As noted in the introduction, the objective of this *De Minimis* Impact Determination is to provide support for FHWA's decision to approve a transportation use of properties protected under Section 4(f) of the Transportation Act of 1966, as amended, and Section 106 of the NHPA. Following *de minimis* determination procedures and determining that the project will have no adverse effects to the activities of the park or no adverse effects to the historic site, it is concluded that the proposed project meets the above-noted conditions and thereby complies with the Section 4(f) of the Transportation Act of 1966.

Figures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Alternative 1B Required ROW
Existing ROW (US 90)
Fort Macomb State Park Boundary
Figure 1 - Change in Use of Fort Macomb State Park from Alternative 1B ROW
Additional ROW from
Fort Macomb State Park
(approx. 1 acre)
Existing ROW Returned to
Fort Macomb State Park
(approx. 0.3 acre)
Chef Menteur Pass
Fort Macomb
State Park Boundary
US 90
N
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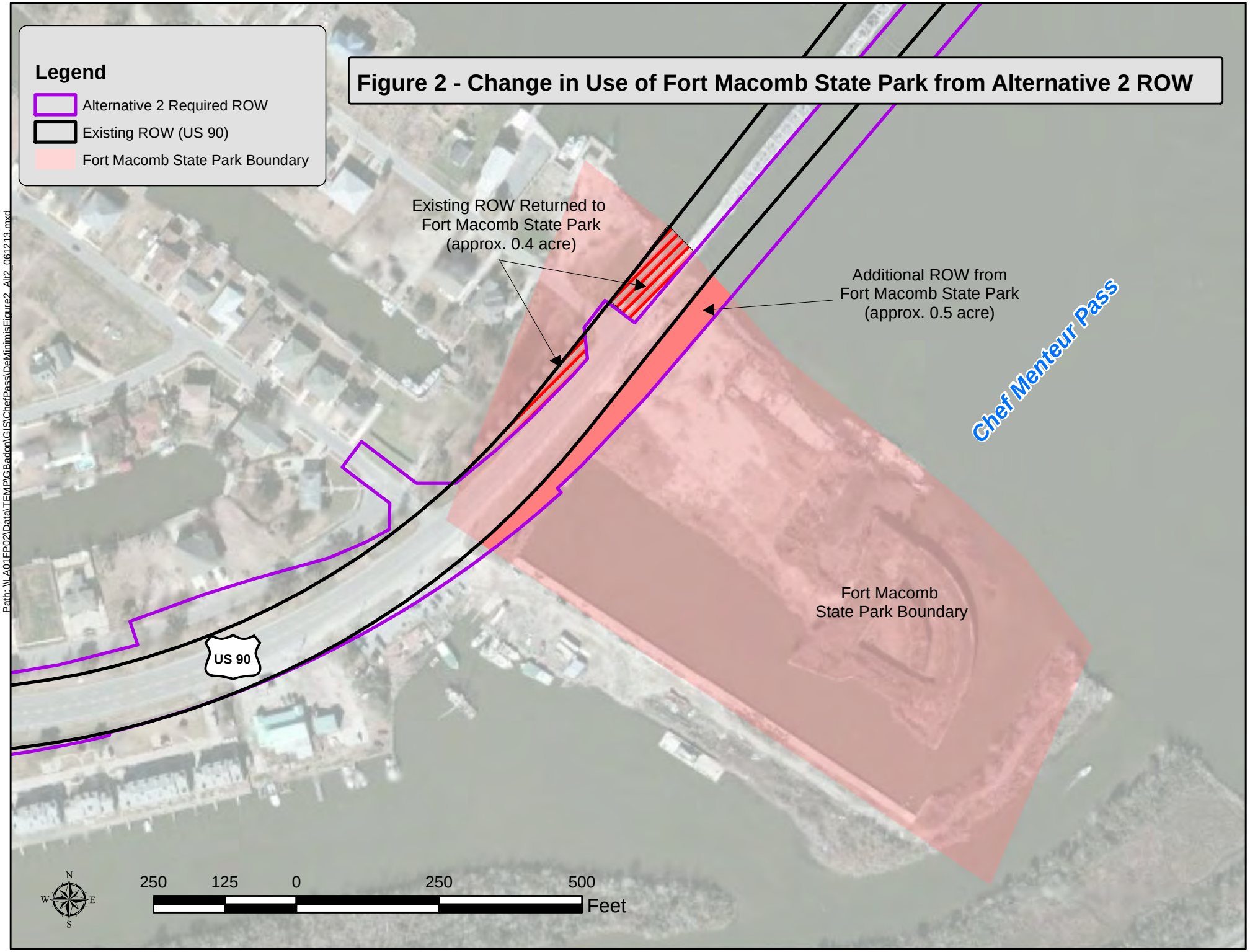
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Alternative 2 Required ROW
Existing ROW (US 90)
Fort Macomb State Park Boundary
Figure 2 - Change in Use of Fort Macomb State Park from Alternative 2 ROW
Existing ROW Returned to
Fort Macomb State Park
(approx. 0.4 acre)
Additional ROW from
Fort Macomb State Park
(approx. 0.5 acre)
Chef Menteur Pass
Fort Macomb
State Park Boundary
US 90
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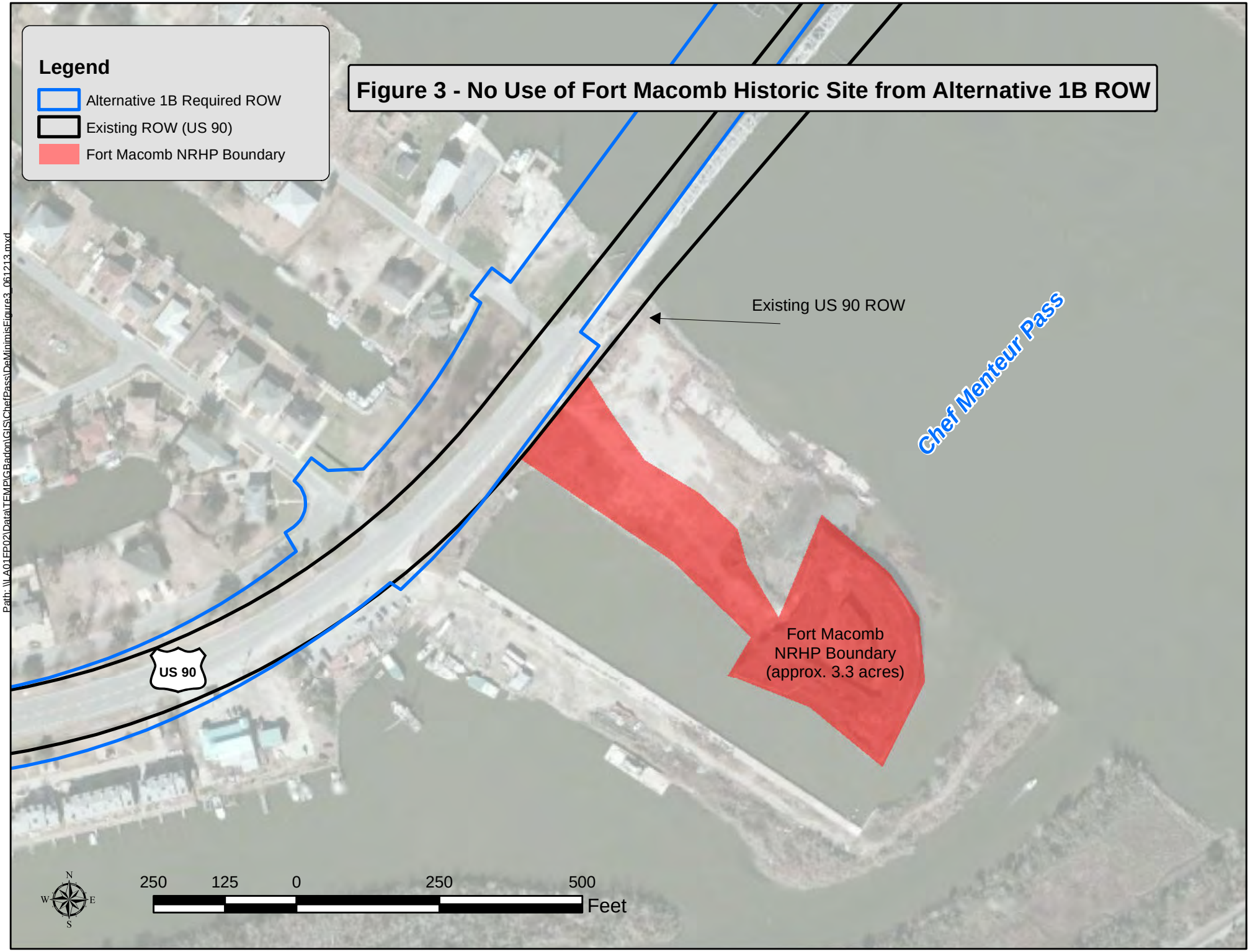
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Alternative 1B Required ROW
Existing ROW (US 90)
Fort Macomb NRHP Boundary
Figure 3 - No Use of Fort Macomb Historic Site from Alternative 1B ROW
Existing US 90 ROW
Chef Menteur Pass
Fort Macomb
NRHP Boundary
(approx. 3.3 acres)
US 90
N
W
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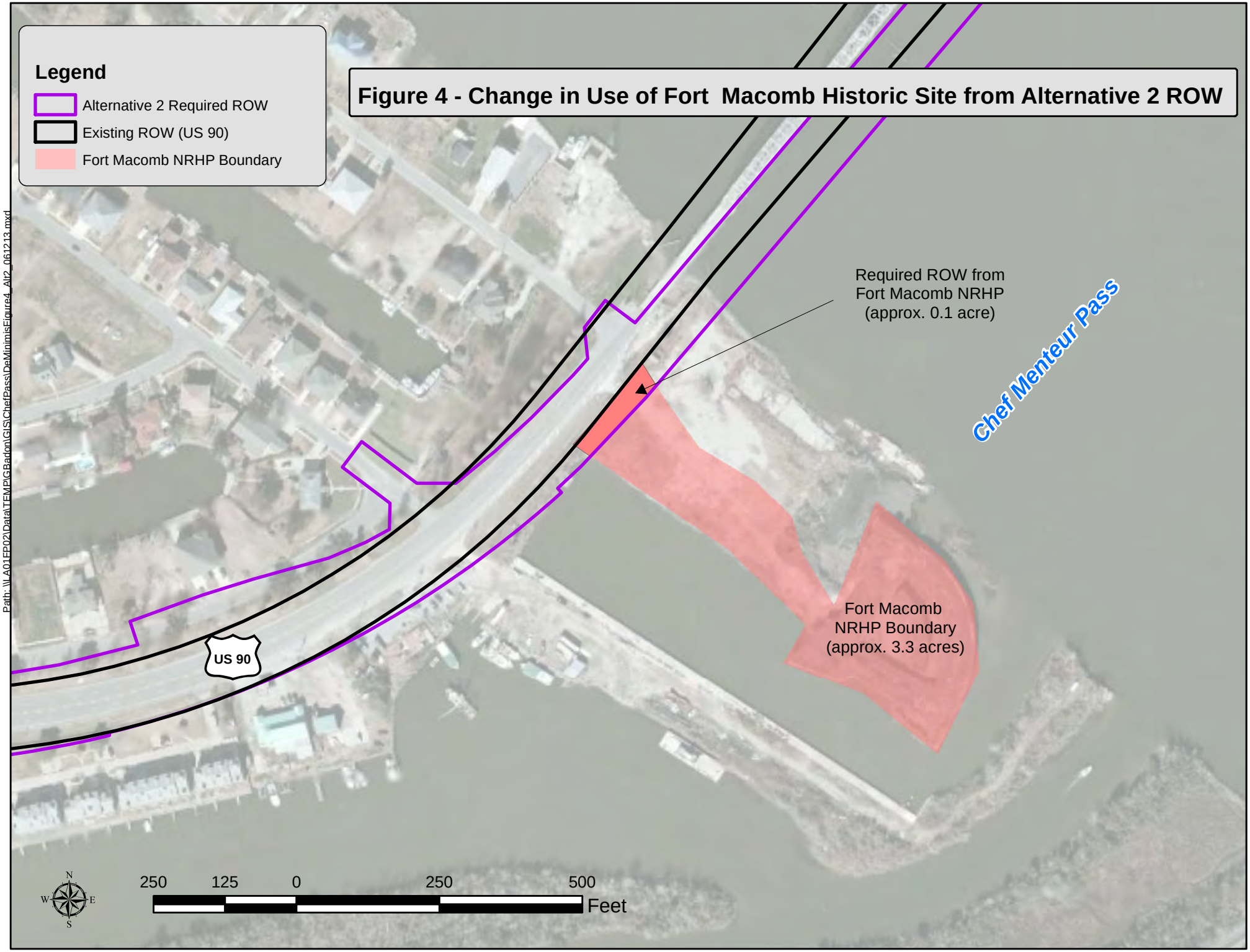
Legend
Alternative 2 Required ROW
Existing ROW (US 90)
Fort Macomb NRHP Boundary
Figure 4 - Change in Use of Fort Macomb Historic Site from Alternative 2 ROW
Required ROW from
Fort Macomb NRHP
(approx. 0.1 acre)
Chef Menteur Pass
Fort Macomb
NRHP Boundary
(approx. 3.3 acres)
US 90
N
W
E
S
250
125
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250
500
Feet
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Attachment 1

OSP Correspondence
with Attachments

ARCADIS
Infrastructure · Water · Environment · Buildings

ARCADIS U.S., Inc.
10352 Plaza Americana Drive
Baton Rouge
Louisiana 70816
Tel 225.292.1004
Fax 225.218.9677
www.arcadis-us.com

Mr. Stuart Johnson, Assistant Secretary
Office of State Parks
Louisiana Department of Culture, Recreation, and Tourism
P.O. Box 44426
Baton Rouge, Louisiana 70804-4426

Subject:
Section 4(f) Evaluation of Fort Macomb State Park
Chef Menteur Bridge and Approaches
Route US 90
Orleans Parish, Louisiana
State Project No. H.000263.2
Federal Aid Project No. H.000263

INFRASTRUCTURE

Date:
27 September 2012

Contact:
Lynn Maloney-Mújica

Extension:
256

Email:
lynn.maloney@arcadis-us.com

Our ref:
LA003024.0001.00004
LDOTD/3024.1/C/32/jk

Dear Mr. Johnson:

The existing right-of-way (ROW) for U.S. Highway 90 (US 90) crosses a portion of the 16-acre Fort Macomb State Park property, which is located south of US 90 at Chef Menteur Pass in eastern Orleans Parish. The US 90 ROW is an existing use that permanently incorporates approximately 1.5 acres of park property into the transportation facility. The use predates Section 4(f) of the Department of Transportation Act of 1966 that protects significant national, state, and local resources including publicly owned parks and recreational areas. The ROW divides the property into two areas: a remnant consisting of approximately 1.25 acres to the northwest and approximately 13 acres of property to the southeast where the fort is located.

Two build alternatives are being considered for replacement of the Chef Menteur Bridge that will shift and widen the required ROW. Alternative 1B would shift the ROW to the north; Alternative 2 would shift the ROW to the south. Drawings for each alternative are attached showing how the Fort Macomb State Park Property would be affected. Please note that the location of the access road connecting San Marco Drive and Fort Macomb Road will be moved to a position south of the line of trees shown on the drawing. This minor change will bring the access road closer to the mainline of the proposed bridge and reduce impacts to the residences nearby.

The impacts of the proposed project on Fort Macomb State Park may be determined to be *de minimis* if the project, including any mitigation or enhancement measures, does not adversely affect the activities, features, or attributes that qualify the resource for protection under Section 4(f) of the Transportation Act of 1966. The essential activity of Fort Macomb State Park is visitation of the fort, which is the central feature of the park. Currently, the fort is only available to the public through scheduled tours. The Office of State Parks (OSP) has informed the Federal Highway Administration (FHWA) and the Louisiana Department of Transportation (LADOTD) that the OSP has plans to reopen the site to daily operations and visitation as a fully operational historic site in the future, when economic conditions allow. The project would cause no adverse effect to the fort, scheduled tours, or future visitation, and access roads are proposed that would enhance access to the park property.

A *de minimis* impact determination also requires agency coordination and public involvement. Coordination and outreach is an ongoing process that has been undertaken as part of the National Environmental Policy Act process for the Chef Menteur Bridge project. Several meetings have been held with the OSP; the most recent meeting took place on September 10, 2012. The public has been afforded an opportunity to review and comment on the effects of the proposed project on the protected activities, features, and attributes of the park at a public meeting on April 3, 2012. A summary of that meeting with the public comments was mailed to the OSP on May 18, 2012.

Based on the facts presented above, FHWA intends to make a determination of *de minimis* impacts to Fort Macomb State Park for Alternative 1B and for Alternative 2 and requests a written concurrence with this finding from the OSP, as the agency with jurisdiction over the property.

FHWA and LADOTD would also like to document their understanding that the OSP prefers Alternative 2 over Alternative 1B. This preference is based upon the fact that the higher elevation of Alternative 2 moves the structure farther outside of sight lines, reduces the number of structures in view, and provides better access for vehicles.

We appreciate the time and collaboration provided by the staff of the OSP for the Chef Menteur Bridge project and we look forward to receiving your written concurrence regarding the *de minimis* determination for Fort Macomb State Park at your earliest convenience.

Sincerely,

ARCADIS U.S., Inc.

Lynn Mahoney-Mújica, AICP
Associate Project Manager

Scott L. Hoffeld, C.E.P.
Senior Project Manager

Copies:
N. Leon/LADOTD
B. Mahoney/FHWA
J. Pitts/FHWA
M. Stinson/FHWA
M. Aleshire/OSP

ARCADIS

Attachment

Drawings of Alternatives 1B and 2

Alternative 1b (Bascule)

Alternative 2 (Fixed-Span)

Attachment 2

OSP Concurrence

OCT 1 0 2012

JAY DARDENNE
LIEUTENANT GOVERNOR

State of Louisiana
OFFICE OF THE LIEUTENANT GOVERNOR
DEPARTMENT OF CULTURE, RECREATION & TOURISM
OFFICE OF STATE PARKS

CHARLES R. DAVIS
DEPUTY SECRETARY

STUART JOHNSON, PH.D.
ASSISTANT SECRETARY

October 5, 2012

Mr. Scott Hoffeld, CEP
ARCADIS U. S., Inc.
10352 Plaza Americana Drive
Baton Rouge, LA 70816

Re: Section 4(f) Evaluation of Fort Macomb State Historic Site
Chef Menteur Bridge and Approaches
State Project No. H.0002636.2
F.A.P. No. H.0002636
Route US 90, Orleans Parish, Louisiana

Dear Mr. Hoffeld:

The Office of State Parks has reviewed the information presented in the September 27, 2012 letter. This agency concurs with your assessment that the project will be de minimis to Fort Macomb State Historic Site under the criteria of the Section 4(f) Evaluation and per our current and planned operation of the site.

We do view Alternative 2 (fixed-span) as the preferred alternative. We ask that you continue considering design elements that minimize the bridge foot print and visual intrusion such as longer spans section with fewer bridge bents. The integration of shore erosion measures protecting the historic fort site would be greatly appreciated.

We appreciate opportunity to comment and look forward to remaining involved. If you have any questions, please call me at (225) 342-8111, or Mitchell Aleshire at (225) 342-8102.

Sincerely,

Stuart Johnson, Ph. D.
Assistant Secretary

SJ:cd

Attachment 3

SHPO Response to Adverse Effect Documentation

JAY DARDENNE
LIEUTENANT GOVERNOR

State of Louisiana

OFFICE OF THE LIEUTENANT GOVERNOR
DEPARTMENT OF CULTURE, RECREATION & TOURISM
OFFICE OF CULTURAL DEVELOPMENT

CHARLES R. DAVIS
DEPUTY SECRETARY

PAM BREAUX
ASSISTANT SECRETARY

30 October 2012

Noel Ardoin
Environmental Engineer
Dept of Transportation and Development
PO Box 94245
Baton Rouge, LA 70804-9245

Re: Draft Report
La Division of Archaeology Report No. 22-4114
Section 106 Adverse Effect Documentation, Chef Menteur Bridge and Approaches, Route US Highway 90, Orleans Parish, Louisiana

Dear Ms. Ardoin:

We acknowledge receipt of your letter dated 27 September 2012 and two copies of the above-referenced report. We have completed our review of this report and have no comments to offer.

Our office concurs that there will be an adverse effect to the existing US 90 bridge at Chef Menteur Pass due to the removal or demolition of that bridge, and that this effect will be addressed through development of a Memorandum of Agreement specifying appropriate treatment measures. We further concur that there will be no adverse effect to Fort Macomb, pending development of a Memorandum of Agreement to address site screening and vibration monitoring. We also concur that there will be no adverse effects on site 16OR32 if Alternate 2 is selected, and that the assessment of adverse effects if Alternate 1B is selected is pending the results of additional archaeological investigations. If no eligible archaeological deposits are identified in the project right-of-way, the construction will have no adverse effect on 16OR32; if eligible deposits are identified in the right-of-way, the adverse effects to these deposits caused by construction of the new bridge will be addressed through development of a Memorandum of Agreement.

We are accepting the draft report as a final with submittal of a report pdf. If you have any questions, please contact Chip McGimsey in the Division of Archaeology by email at cmcgimsey@crt.la.gov or by phone at 225-219-4598, or Mike Varnado in the Division of Historic Preservation by email at mvarnado@crt.la.gov or by phone at 225-219-4596.

Sincerely,

Pam Breaux

Pam Breaux
State Historic Preservation Officer

PB:crm

Attachment 4

SHPO Concurrence Request

ARCADIS U.S., Inc.
10352 Plaza Americana Drive
Baton Rouge
Louisiana 70816
Tel 225.292.1004
Fax 225.218.9677
www.arcadis-us.com

Ms. Pam Breaux, State Historic Preservation Officer
Office of Cultural Development
Louisiana Department of Culture, Recreation, and Tourism
P.O. Box 44247
Baton Rouge, Louisiana 70804-9245

Subject:
Section 4(f) Evaluations of Fort Macomb Historic and Archaeological Sites
Chef Menteur Bridge and Approaches
Route US 90
Orleans Parish, Louisiana
State Project No. H.000263.2
Federal Aid Project No. H000263

INFRASTRUCTURE

Date:
1 February 2013

Contact:
Lynn Maloney-Mújica

Extension:
256

Email:
lynn.maloney@arcadis-us.com

Our ref:
LA003024.0001.00004
LDOTD/3024.1/C/39/jk

Dear Ms. Breaux:

As presented at the November 29, 2012, meeting for parties participating in the Section 106 of the National Historic Preservation Act process for the above-captioned project, two build alternatives are being considered for the proposed project. At that meeting, Alternative 2 was identified as the alternative preferred by several agencies and public for implementation.

The meeting also showed participating parties that Alternative 1B would not incorporate any land from the Fort Macomb Historic Site and Alternative 2 would permanently incorporate 0.13 acre of land from the site. Alternative 1B would incorporate land from the portion of Archaeological Site 16OR32 that may contain deposits eligible for the National Register of Historic Places. Alternative 2 would not incorporate any land from the portion of Site 16OR32 that may contain eligible deposits. The eligibility of Site 16OR32 archaeological deposits remains undetermined at this time.

If Alternative 1B were selected, further investigations would be necessary to determine whether the archaeological deposits are eligible, and if so, the Memorandum of Agreement (MOA) will be amended to address any adverse effects to this site. There will be no effect to Site 16OR32 from Alternative 2.

In a letter dated October 30, 2012, your office concurred with the findings stated above. The letter also concurred that there would be no adverse effect from Alternative 2 to the Fort Macomb Historic Site, pending development of an MOA to address site screening and vibration monitoring. The MOA and the Environmental Assessment (EA) documenting these treatment measures are in process.

Based on the October 30 concurrence letter from your office, the Federal Highway Administration (FHWA) intends to prepare a *de minimis* impact determination for the Fort Macomb Historic Site and approve the transportation use of the 0.13 acre of land for the Alternative 2 right-of-way. FHWA has met the requirements for making this determination in accordance with Section 4(f) of the Transportation Act of 1966 as amended by 1) considering the views of the parties participating in the Section 106

consultation; 2) documenting the determination of “no adverse effect” on the property with written concurrence from the State Historic Preservation Officer (SHPO); and 3) informing the SHPO of the intent to use a *de minimis* determination based on their concurrence.

The SHPO, public, and other Section 106 consulting parties will be afforded another opportunity for review and comment on the *de minimis* determination to Fort Macomb after distribution of the draft EA document. Although this means that the Section 106 consultation is ongoing, it is expected that the process will result in confirmation of the finding of “no adverse effect” to this resource.

We appreciate the time and collaboration provided by your staff for the Chef Menteur Bridge project. Although your written concurrence regarding the *de minimis* determination for Fort Macomb Historic Site is not required by law, we would be pleased to include such a letter in the EA administrative record.

Sincerely,

ARCADIS U.S., Inc.

Lynn Mahoney-Mújica, AICP
Associate Project Manager

Scott L. Hoffeld, C.E.P.
Senior Project Manager/Associate Vice President

LMM:SLH:jk

Copies:
N. Leon/LADOTD
B. Mahoney/FHWA
J. Pitts/FHWA
M. Stinson/FHWA
M. Varnado/SHPO – Historic Preservation
C. McGimsey/SHPO – Archaeology
D. Kelley/CEI

Attachment 5

Chef Menteur Bridge Executed
Memorandum of Agreement

MEMORANDUM OF AGREEMENT
AMONG THE
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION,
THE LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT,
AND THE
LOUISIANA STATE HISTORIC PRESERVATION OFFICER
(LOUISIANA OFFICE OF CULTURAL DEVELOPMENT)
REGARDING REPLACEMENT OF THE
CHEF MENTEUR BRIDGE AND APPROACHES
ROUTE U.S. HIGHWAY 90
ORLEANS PARISH, LOUISIANA

WHEREAS, the U.S. Department of Transportation, Federal Highway Administration (FHWA) administers the Federal Aid Highway Program in Louisiana authorized by 23 United States Code (U.S.C.) 101 et seq. through the Louisiana Department of Transportation and Development (LADOTD) (23 U.S.C. 315); and

WHEREAS, the existing Chef Menteur Bridge, Route U.S. Highway 90, Orleans Parish, Louisiana, is scheduled for replacement due to the age, configuration, and condition of the structure and, under Federal Aid Project No. H000263 (State Project No. H.000263.2) (Undertaking), will be replaced with a high-level fixed span structure because the existing swing span structure is an impediment to marine traffic; and

WHEREAS, FHWA in consultation with the Louisiana State Historic Preservation Office (SHPO), has determined the Area of Potential Effect encompasses 518 acres as shown in Attachment 1; and

WHEREAS, the Chef Menteur Bridge, completed in 1930 (High Steel Swing Truss), on Route U.S. Highway 90, is eligible for the *National Register of Historic Places* under Criteria A as a physical embodiment of the progressive transportation policies supported in Louisiana in the late 1920s, particularly by Governor Huey P. Long, and as the first permanent crossing located at this site; and under Criterion C as a good representative example of a center-bearing Warren truss with verticals swing-span structure; and because the Chef Menteur Bridge cannot be modified to meet current design standards, it will be removed after a new structure is built; and

WHEREAS, FHWA has determined that the proposed project will have an adverse effect upon the Chef Menteur Bridge and has consulted with SHPO on this issue pursuant to 36 Code of Federal Regulations (CFR) 800, regulations implementing Section 106 of the National Historic Preservation Act (NHPA) (16 U.S.C. 470(f)); and

WHEREAS, the proposed right-of-way for the new Chef Menteur Bridge, Route U.S. Highway 90, will affect a portion of Fort Macomb (LHRI 36-01645), a property listed on the *National Register of Historic Places* under Criteria A for Military History and C for Architecture; and

WHEREAS, FHWA has determined that the proposed project will not have an adverse effect upon the Fort Macomb property and has consulted with SHPO on this issue pursuant to 36 CFR Part 800, regulations implementing Section 106 of NHPA (16 U.S.C. 470(f)); and

WHEREAS, the Chitimacha Tribe of Louisiana, the Coushatta Tribe of Louisiana, the Jena Band of Choctaw Indians, the Mississippi Band of Choctaw Indians, the Tunica-Biloxi Tribe of Louisiana, the Alabama-Coushatta Tribe of Texas, the Choctaw Nation of Oklahoma, the Seminole Tribe of Florida, the Seminole Nation of Oklahoma, and the Quapaw Tribe of Oklahoma are federally recognized sovereign Indian Nations that have a government-to-government relationship with the United States and an interest in the lands included in the Undertaking, and FHWA has invited these Tribes to participate in the consultation; and

WHEREAS, the Choctaw Nation of Oklahoma has participated in this consultation and is invited to sign as a Concurring Party; and

WHEREAS, the Louisiana Office of State Parks manages Fort Macomb (LHRI 36-01645), has participated in this consultation, and is invited to sign as a Concurring Party; and

WHEREAS, in keeping with 36 CFR 800.2(d), FHWA solicited and considered the views of the public, and presented an overview of the Section 106 compliance responsibilities at the National Environmental Policy Act (NEPA) scoping meeting and summarized those responsibilities at the NEPA public meeting; and

WHEREAS, in accordance with 36 CFR Section 800.6(a)(1), FHWA has notified the Advisory Council on Historic Preservation (Council) of its adverse effect determination with the specified documentation and the Council has chosen not to participate in the consultation pursuant to 36 CFR Section 800.6(1)(1)(iii); and

NOW, THEREFORE, FHWA, LADOTD, and SHPO acknowledge and agree that the execution of this Memorandum of Agreement (MOA) evidences compliance with Section 106 of the NHPA in accordance with 36 CFR 800.6(c).

STIPULATIONS

FHWA will ensure that the following stipulations are carried out in order to take into account the effect of the undertaking on historic properties:

I. Chef Menteur Bridge

1. Prior to relocation or demolition of the Chef Menteur Bridge, LADOTD shall prepare Historic American Engineering Record (HAER) documentation of the Chef Menteur Bridge. LADOTD shall prepare the appropriate HAER recordation material in consultation with the National Park Service (NPS) for NPS acceptance and submission to the Library of Congress, as NPS deems appropriate. Unless otherwise agreed to by SHPO, FHWA shall ensure that all documentation is completed and accepted by SHPO prior to the relocation or demolition of the Chef Menteur Bridge. LADOTD will provide SHPO with the following: One original set of HAER documentation for the Louisiana State Archives; one bound photocopied set, and one digital copy of the original drawings, photos (in TIFF format), and written historical and descriptive data for the Louisiana State Library; and one digital copy for SHPO.

2. Prior to relocation or demolition, LADOTD shall make the Chef Menteur Bridge available to a state, local, or a public entity that will agree to maintain the Chef Menteur Bridge and the features that make it significant and assume legal and financial responsibility for the Chef Menteur Bridge. The proposed use of the Chef Menteur Bridge will be subject to the approval of FHWA, LADOTD, and SHPO. The method of advertisement shall be decided at a later date between LADOTD and SHPO. A sixty (60) day time period from the date of advertisement shall be allowed for interest to be expressed in the

Chef Menteur Bridge. If interest is expressed, one hundred eighty (180) days will be allowed to complete arrangements for preservation of the Chef Menteur Bridge.

3. If a new owner cannot be found to preserve the Chef Menteur Bridge, it shall remain the property of the State of Louisiana and will be demolished upon project requirements, provided the requirements of Stipulation Number 1 above have been completed.

II. Fort Macomb (LHRI 36-01645)

1. LADOTD will establish a vibration monitoring program prior to constructing the new structure. The monitoring program will be submitted to FHWA and SHPO for a 30-day review and comment period prior to finalizing the program. As part of that program, seismic readings for vertical, radial, and transverse plane monitoring and frequency determination will be established to ensure no damage occurs to Fort Macomb during construction. If excessive vibrations occur beyond the allowable limit, all construction causing the vibrations will be halted, and the contractor shall propose corrective measures for the affecting construction activity to ensure that vibration monitoring limits will not be exceeded again. Said corrective measures to be reviewed and approved by the LADOTD Project Engineer after providing an opportunity for SHPO and FHWA to comment.

III. Unanticipated Discoveries

1. If potential historic properties are discovered or anticipated effects on historic properties are found during any phase of the Undertaking, LADOTD shall notify SHPO within 48 hours of the discovery. LADOTD and/or their contractors shall immediately secure the find location and suspend work in the vicinity of the affected resource. LADOTD will consult with SHPO to resolve these effects.

2. If human skeletal remains are uncovered during the Undertaking, LADOTD shall immediately notify the Orleans Parish Sheriff's Office and the Orleans Parish Coroner's Office and secure the find location and suspend work in the vicinity of the remains. The local law enforcement officials shall assess the nature and age of the human skeletal remains. LADOTD shall ensure that the notice of the discovery required by the Louisiana Unmarked Human Burial Sites Preservation Act (R.S. 8:671 *et seq*) is given to the Louisiana Culture, Recreation & Tourism (CRT) Secretary or the Secretary's designee by contacting the Louisiana Division of Archeology at 225-342-8170 within seventy-two (72) hours of the discovery. If the coroner determines that the human skeletal remains are older than fifty (50) years of age, the CRT Secretary has jurisdiction over the remains. LADOTD shall work with SHPO and the Louisiana Division of Archaeology to ensure compliance with this State law, other applicable laws, and this MOA. In addition, LADOTD shall require that the guidelines contained in the ACHP's 2007 "Policy Statement Regarding Burial Sites, Human Remains, and Funerary Objects" or any subsequent Policy Statements that are issued after the execution of this MOA are followed.

3. If human remains are determined to be Native American, the Choctaw Nation of Oklahoma as well as other federally recognized Tribes that would have a historic or cultural interest in this area will be contacted immediately. Protective measures will be put in place to protect the remains and any associated artifacts from environmental damage or looting of the site. Construction will be halted in this area until mitigation with Tribes can be completed.

IV. Administrative Stipulations

1. If measures specified in the previous section have not been implemented by the year 2024 (ten [10] years), FHWA, LADOTD, SHPO, and the Council shall review this MOA to determine whether revisions are needed. If revisions are needed, FHWA, LADOTD, SHPO, and the Council will consult in accordance with 36 CFR Part 800 to make such revisions.

2. Should any party to this MOA object to any action carried out or proposed pursuant to this MOA, FHWA and LADOTD shall consult with SHPO to resolve the objection. If FHWA and LADOTD determine that the objection cannot be resolved, FHWA and LADOTD shall forward all documentation relevant to the dispute to the Council. Within thirty (30) days after receipt of all pertinent documentation, the Council will either:

   A. Provide FHWA and LADOTD with recommendations, which FHWA and LADOTD will take into account in reaching a final decision regarding the dispute; or

   B. Notify FHWA and LADOTD that it will comment pursuant to 36 CFR 800.6(b), and proceed to comment. Any Council comment provided in response to such a request will be taken into account by FHWA and LADOTD in accordance with 36 CFR 800.6(c)(2) with reference only to the subject dispute; FHWA's and LADOTD's responsibility to carry out all actions under this MOA that are not the subjects of the dispute will remain unchanged.

   C. At any time during implementation of the measures stipulated in this MOA, should any objection to any such measure or this manner of implementation be raised by a member of the public, FHWA and LADOTD shall take the objection into account and consult as needed with the objecting party, SHPO, or the Council to resolve the objection.

   D. Any party to this MOA may propose to the other parties that it be amended, whereupon the parties will consult in accordance with 36 CFR 800.6(c)(7) to consider such an amendment.

   E. Any party to this MOA may terminate it by providing thirty (30) days' written notice to the other parties provided that the parties will consult during this period prior to termination to seek agreement on amendments or other actions that will avoid termination. In the event of termination, FHWA and LADOTD in consultation with the Council and SHPO will determine how to carry out the applicable provisions of 36 CFR Part 800.

Execution of this Memorandum of Agreement by the Federal Highway Administration, the Louisiana Department of Transportation and Development, and the Louisiana State Historic Preservation Office and implementation of its terms evidence that the Federal Highway Administration has afforded the Advisory Council on Historic Preservation an opportunity to comment on the replacement of the Chef Menteur Bridge, Route U.S. Highway 90, and has accounted for the effects of the undertaking on historic properties.

SIGNATORIES
Approved: Federal Highway Administration

By: _____ 7/24/2014
Charles Bolinger, Division Administrator — Date

Approved: Louisiana Department of Transportation and Development

By: _____ 8/4/14
Sherri H. LeBas, Secretary — Date

Approved: Louisiana State Historic Preservation Office

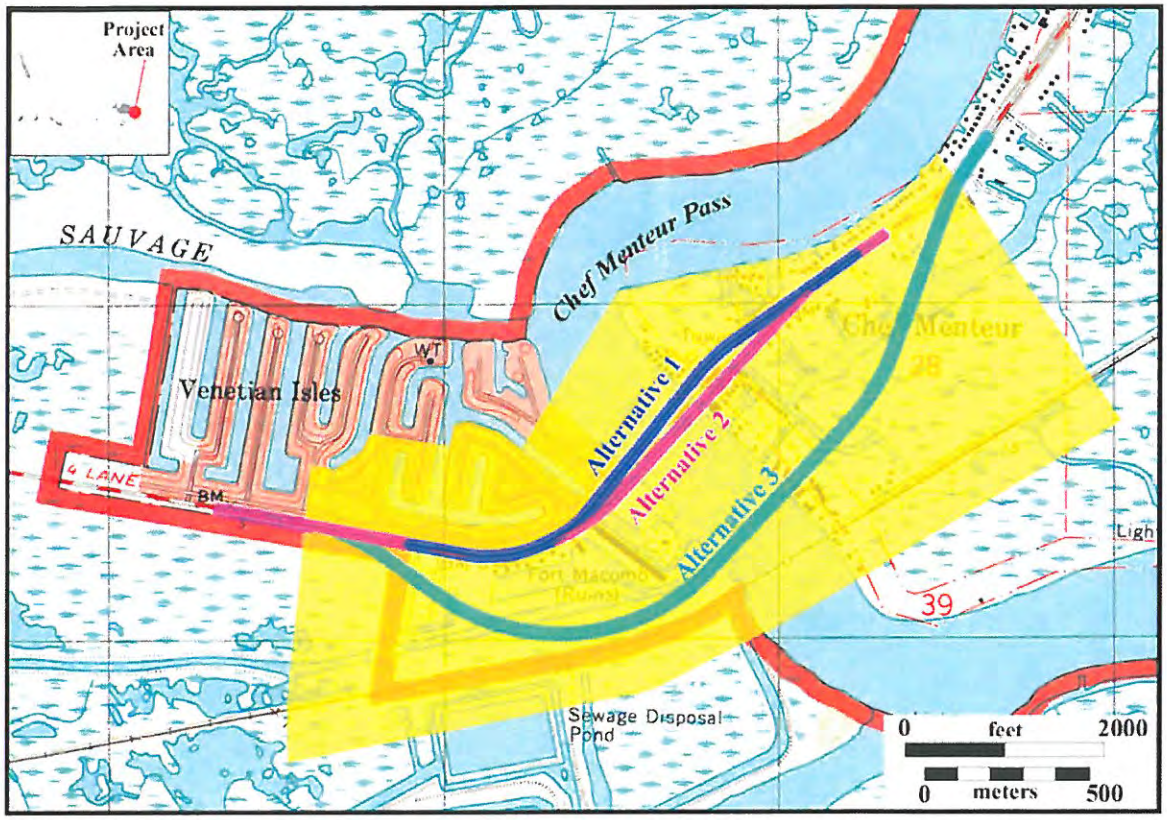
By: _____ 7-23-14
Pam Breaux, State Historic Preservation Officer — Date

Concurring Party: Louisiana Office of State Parks

By: _____ 8/5/14
Stuart Johnson, Ph.D., Assistant Secretary — Date

Concurring Party: Choctaw Nation of Oklahoma

By: _____ 8/9/14
Ian Thompson, Ph.D., Tribal Historic Preservation Officer — Date



Attachment 1. Alignment Alternatives and Area of Potential Effects.

Appendix N

Estimated Costs of the Build Alternatives

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ARCADIS
10352 Plaza Americana Drive
Baton Rouge, LA 70816
t. 225.292.1004 f. 225.218.9677

Engineer's Opinion of Probable Cost

(Revised April 3, 2013)

US 90 - Chef Menteur Pass Bridge

Environmental Assessment

LaDOTD Project No. H.000263

Alt. 1B: Low Level Moveable Bridge (Bascule)

Item Description	Quantity	Unit	Unit Price	PROBABLE (Cost)
Roadways, Mainline Highway	0.6	Mile	$ 2,000,000.00	$ 1,200,000.00
Roadways, Frontage Roads	0.6	Mile	$ 2,000,000.00	$ 1,200,000.00
Approach Slab, pile supported	11400	SF	$ 55.00	$ 627,000.00
Slab Span; over land	15200	SF	$ 100.00	$ 1,520,000.00
Girder Span (Type III, PPC); over land	22800	SF	$ 150.00	$ 3,420,000.00
Girder Span (BT, PPC); over channel	24700	SF	$ 255.00	$ 6,298,500.00
Girder Span (Steel Plate Girder); over channel	19000	SF	$ 275.00	$ 5,225,000.00
Bascule Piers	1	LS	$ 40,350,000.00	$ 40,350,000.00
Bascule Pier Deflectors	1	LS	$ 2,550,000.00	$ 2,550,000.00
Bascule Superstructure	1	LS	$ 8,420,000.00	$ 8,420,000.00
Bascule Mechanical & Electrical	1	LS	$ 9,550,000.00	$ 9,550,000.00
Escalation (8 years @ 2.5%/annum)	20%			$ 16,072,100.00
Construction Cost (2020)				**$ 96,432,600.00**
Environmental Mitigation	1	LS	$ 255,000.00	$ 255,000.00
Right-of-Way Acquisition Costs				
Commercial Land	12250	SF	$ 2.00	$ 24,500.00
Residential Land	152800	SF	$ 2.32	$ 354,496.00
Improvements in Required Right of Way	1	LS	$ 56,751.00	$ 56,751.00
Temporary Construction Servitude	87120	SF	$ 2.32	$ 202,118.40
Right of Way Acquisition Consultant Costs	1	LS	$ 166,020.00	$ 166,020.00
Utility Relocation				
Water Main (8" AC)	2400	LF	$ 60.00	$ 144,000.00
Sewer Main (8" VC)	250	LF	$ 25.00	$ 6,250.00
Fiber Optic Comm (96 Fiber, Siecor, Single Armor, LEAF)	0.6	Mile	$ 95,000.00	$ 57,000.00
Overhead Telephone (AT&T)	0.2	Mile	$ 15,000.00	$ 3,000.00
Overhead Power (3-phase distribution)	0.5	Mile	$ 50,000.00	$ 25,000.00
Utility Poles (45' wood poles)	17	EA	$ 5,000.00	$ 85,000.00
Project Cost (2020)				**$ 97,811,735.40**
Contingency	25%			$ 24,452,933.85
Project Budget (YEAR 2020)				**$ 122,264,669.25**
Project Budget (YEAR 2012)				$ 101,887,000.00

1. All construction pricing information herein was based on typical costs per square foot for various bridge span configuration and roadway construction.

2. Right-of-way costs estimated using comparable sales data in the area of the project.

3. Temporary Construction Servitude cost based upon 10% of fair market value per year for a period of 4 years.

4. Utility relocation pricing is based upon RSMeans 2010 Heavy Construction Costbook values for new installations.

5. An annual escalation of 2.5% has been used based upon average historical cost indices between 1992-2012.

6. A budgetary contingency of 25% has been applied due to the conceptual nature of the current stage of the project development.

ARCADIS
10352 Plaza Americana Drive
Baton Rouge, LA 70816
t. 225.292.1004 f. 225.218.9677

Engineer's Opinion of Probable Cost

(Revised April 3, 2013)

US 90 - Chef Menteur Pass Bridge

Environmental Assessment

LaDOTD Project No. H.000263

Alt. 2: High Level Fixed Span Bridge (Steel Plate Girder)

Item Description	Quantity	Unit	Unit Price	PROBABLE (Cost)
Roadways, Mainline Highway	0.3	Mile	$ 2,000,000.00	$ 600,000.00
Roadways, Frontage Roads	0.85	Mile	$ 2,000,000.00	$ 1,700,000.00
Approach Slab, pile supported	3800	SF	$ 55.00	$ 209,000.00
Slab Span; over land	22800	SF	$ 100.00	$ 2,280,000.00
Girder Span (Type III, PPC); over land	22800	SF	$ 150.00	$ 3,420,000.00
Girder Span (BT, PPC); over land	24700	SF	$ 180.00	$ 4,446,000.00
Girder Span (Steel Plate Girder); over land	54150	SF	$ 240.00	$ 12,996,000.00
Girder Span (Steel Plate Girder); over canal straddle bent	32062.5	SF	$ 360.00	$ 11,542,500.00
Girder Span (Steel Plate Girder); over channel	44175	SF	$ 850.00	$ 37,548,750.00
Escalation (8 years @ 2.5%/annum)	20%			$ 14,948,450.00
Construction Cost (2020)				**$ 89,690,700.00**
Environmental Mitigation	1	LS	$382,500.00	$382,500.00
Right-of-Way Acquisition Costs				
Commercial Land	36644	SF	$2.00	$ 73,288.00
Residential Land	288766	SF	$2.32	$ 669,937.12
Improvements in Required Right of Way	1	LS	$632,637.00	$ 632,637.00
Temporary Construction Servitude	114998	SF	$2.00	$ 229,996.00
Right of Way Acquisition Consultant Costs	1	LS	$166,020.00	$ 166,020.00
Utility Relocation				
Water Main (8" AC)	700	LF	$ 60.00	$ 42,000.00
Gas Main (4" HDPE)	250	LF	$ 35.00	$ 8,750.00
Sewer Main (8" VC)	500	LF	$ 25.00	$ 12,500.00
Fiber Optic Comm (96 Fiber, Siecor, Single Armor, LEAF)	0.5	Mile	$ 95,000.00	$ 47,500.00
Overhead Tele (AT&T)	0.65	Mile	$ 15,000.00	$ 9,750.00
Overhead Power (Entergy)	0.25	Mile	$ 50,000.00	$ 12,500.00
Utility Poles	6	EA	$ 5,000.00	$ 30,000.00
Project Cost (2020)				**$ 92,008,078.12**
Contingency	25%			$ 23,002,019.53
Project Budget (YEAR 2020)				**$ 115,010,097.65**
Project Budget (YEAR 2012)				$ 95,842,000.00

1. All construction pricing information herein was based on typical costs per square foot for various bridge span configuration and roadway construction.

2. Right-of-way costs estimated using comparable sales data in the area of the project.

3. Temporary Construction Servitude cost based upon 10% of fair market value per year for a period of 4 years.

4. Utility relocation pricing is based upon RSMeans 2010 Heavy Construction Costbook values for new installations.

5. An annual escalation of 2.5% has been used based upon average historical cost indices between 1992-2012.

6. A budgetary contingency of 25% has been applied due to the conceptual nature of the current stage of the project development.

Appendix O

Lists of Agencies Consulted and Section 106 Consulting Parties

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List of Agencies

Category	Full Name	Position	Agency	Address1	Address2	City	State	Zip Code
Federal	Miles Croom	Assistant Regional Administrator	National Oceanic Atmospheric Administration Fisheries	263 13th Avenue South		St. Petersburg	FL	33701
Federal	Karen Oberlies	Solicitation of Views Manager	United States Army Corps of Engineers - MVN	P.O. Box 60267		New Orleans	LA	70160-0267
Federal	David Frank	Chief, Bridge Administration Branch	United States Coast Guard*	500 Poydras Street	Room 1313	New Orleans	LA	70130-3310
Federal	Cathy Gilmore	Office of Planning and Coordination	United States Environmental Protection Agency	1445 Ross Avenue	Suite 1200	Dallas	TX	75202-9245
Federal	Michael Bechdol	Coordinator	United States Environmental Protection Agency/Sole Source Aquifer	1445 Ross Avenue	Suite 1200	Dallas	TX	75202-2733
Local	Robert Mendoza	Director of Outdoor Recreation	Department of Public Works / New Orleans	1300 Perdido Street	Suite 6W03	New Orleans	LA	70112
Local	Yolanda Rodriquez	Executive Director	New Orleans Planning Commission	1340 Poydras Street	Suite 900	New Orleans	LA	70112
State	Johan Forsman	Geologist	Department of Health and Hospitals	P.O. Box 4489		Baton Rouge	LA	70821-4489
State	Bridget Depland	Deputy Undersecretary	Department of Social Services	P.O. Box 3776		Baton Rouge	LA	70821
State	Diane Hewitt	Performance Management	Louisiana Department of Environmental Quality	P.O. Box 4301		Baton Rouge	LA	70821-4301
State	Susan Veillon	Floodplain Management Program Coordinator	Louisiana Department of Transportation and Development/Floodplain Mgt	P.O. Box 94245		Baton Rouge	LA	70804-9245
State	Gary Lester	Coordinator	Louisiana Natural Heritage Program	P.O. Box 98000		Baton Rouge	LA	70898-9000
State	Kevin Norton	State Conservationist	Natural Resources Conservation Service	3737 Government Street		Alexandria	LA	71302
State	Phil Boggan	Assistant Secretary	State Historic Preservation Officer	P.O. Box 44247	Capital Static	Baton Rouge	LA	70804
State	Cleve Hardeman	Director of Outdoor Recreation	Office of State Parks	P.O. Box 44426		Baton Rouge	LA	70804
State	Brad Rieck	Deputy Supervisor	United States Fish and Wildlife Service / Lafayette Field Office	646 Cajundome Blvd	Suite 400	Lafayette	LA	70506
State	Christine Charrier	Coastal Zone Management	Louisiana Department of Natural Resources	P. O. Box 44487		Baton Rouge	LA	70804-4487
*Cooperating Agency								

SECTION 106 PARTICIPANTS LIST

1. AGENCIES

I. FHWA

Mr. Bob Mahoney
Environmental Specialist
Federal Highway Administration
5304 Flanders Drive, Suite A
Baton Rouge, Louisiana 70808
robert.mahoney@fhwa.dot.gov

II. LADOTD

Ms. Noel Ardoin
Environmental Engineer Administrator
P.O. Box 94245
Baton Rouge, LA 70804
Attn: Nikki Leon, Environmental Impact Specialist
Nikki.leon@la.gov

III. USCG

Mr. David Frank
Bridge Administration Branch Chief
United States Coast Guard 8th District
500 Poydras St. Room 1313
New Orleans, LA 70130
david.m.frank@uscg.mil

IV. SHPO

Ms. Pam Breaux
State Historic Preservation Officer
Attn: Dr. Chip McGimsey: State Archaeologist, Division of Archaeology, cmcgimsey@crt.la.gov
Attn: Mr. Mike Varnado: Architectural Historian, Division of Historic Preservation, mvarnado@crt.la.gov
Department of Culture, Recreation and Tourism
Office of Cultural Development
P.O. Box 44247, Capitol Station
Baton Rouge, LA 70804

V. COE

Mr. Furcy Zeringue
USACE DOTD Point of Contact
United States Army Corps of Engineers, New Orleans District
P.O. Box 60267
New Orleans, LA 70160
Furcy.J.Zeringue@usace.army.mil

2. SECTION 106 REQUESTS TO BE CONSULTING PARTIES

I. Tribes

a. Choctaw Nation of Oklahoma

Dr. Ian Thompson
Director, Historic Preservation Department
THPO, NAGPRA Specialist
Choctaw Nation of Oklahoma
PO Drawer 1210
Durant, OK 74701
1-800-522-6170 ext. 2216
ithompson@choctawnation.com

b. Chahta Tribe

Chief Elwin Warhorse Gillum
61357 Dixe Ranch Rd
Slidell 70460
(985) 781-7650
chiefwarhorse@aol.com

II. Additional Consulting Parties with a Demonstrated Interest

a. Paula Stuckart

4340 Fort Macomb Road
New Orleans, LA 70129
504-255-0351
pdstuckart@hotmail.com

b. Roy G. Heyl

25920 Chef Menteur Highway
New Orleans, LA 70129
504-430-2054
serenity7114@att.net

c. Terry & Wendy Borne

4501 Veronese Road
New Orleans, LA 70129
504-254-4305
TBorne6@cox.net

d. Carlee Whiteley

55480 Chef Menteur Highway
New Orleans, LA 70129
504-524-5777
c.whiteley@kanner-law.com

III. Public Officials

a. Julio Davila

Assistant to the Mayor
Office of Mayor Mitch Landrieu
1300 Perdido Street, Suite 2E04,
New Orleans, LA 70112
504-658-4954 (o) | 504-658-4938 (f)
jadavila@nola.gov

3. THE PUBLIC

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