



REPLY TO
ATTENTION OF

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

Regional Planning South
Environmental Branch

Decision Record

Individual Environmental Report Supplemental 15.a
Lake Cataouatche Levee
Jefferson Parish, Louisiana

IERS 15.a

Description of the Proposed Action The New Orleans District, US Army Corps of Engineers (CEMVN) proposes to relocate an existing 24-inch natural gas pipeline that currently crosses up and over a portion of the Hurricane and Storm Damage Risk Reduction System (HSDRRS), specifically the Lake Cataouatche Levee, and construct a new access road and bridge within the West Bank and Vicinity (WBV), Lake Cataouatche Levee project area in Jefferson Parish, Louisiana. The CEMVN is mandated by Congress to implement hurricane storm damage risk reduction measures to provide 100-year flood risk reduction for the residents and businesses in the New Orleans metropolitan area. As a result of the Congressional mandate, construction is underway to raise the height of the entire levee system to meet the new U.S. Army CEMVN of Engineering Design Standards. The Lake Cataouatche Levee is currently under construction to be raised and enlarged, and the pipeline in its current configuration interferes with the levee construction on the 15a.2 levee reach.

The portion of the Chevron Pipe Line Company (Chevron) pipeline that crosses the Lake Cataouatche Levee segment currently under construction must be relocated within the next 90 days to allow construction completion of the levee by January 2012. The CEMVN and Chevron propose to relocate the pipeline by horizontal directional drill (HDD).

Horizontal Directional Drill Pipeline Relocation Under the proposed action, Chevron's 24-inch gas pipeline will be relocated from its current up and over configuration on the surface of the levee crown and slope to 170-ft under the levee via horizontal directional drill. This relocation method will require both truck and barge access to reach the temporary relocation work sites on either side of the Lake Cataouatche Levee and a Special Use Permit (SUP) issued by the Jean Lafitte National Historic Park and Preserve (JLNHPP). The pipeline, in its current configuration, interferes with the approved construction on the WBV 15a.2 levee reach.

The proposed work would include the placement of 800 cubic yards (cy) of limestone on the West Jefferson Parish Drake Yard road measuring 12 ft wide by 5,625 ft long to allow heavy construction equipment to travel and pass safely. From the Parish road to the drilling entry point, clearing, grubbing and filling of low quality freshwater forested wetlands would be required to construct a 16 ft by 1,601 ft long temporary board road and two "wings" to provide an adequate turn radius for heavy equipment. At the south end of the constructed board road, clearing, grubbing and filling of low quality freshwater forested wetlands would be required to construct the 200 ft by 200 ft temporary drill pad/work site and 20 ft by 20 ft drill pit. Approximately

13,482 cy of fill on the protected side of the levee would be necessary for construction of the access road and drill pad/work site.

The directional drill hole required for the new pipeline would be drilled from north to south to a depth of 170 ft; meaning the drill pipe would enter the hole on the north side of the levee and emerge out of a hole on the south side of the levee on the JLNHPP. Once the drill hole is complete, 2,900 ft of new pipeline (waiting in position) would be “back-strung” (welded to the drill pipe) and pulled into the drill exit site through the drilled hole and emerge out of the drill entrance point on the protected side of the levee. This relocation method would require both truck and barge access to reach the temporary relocation work sites (drill entrance and exit sites) on either side of the Lake Cataouatche Levee.

Clearing, grubbing, excavation and stockpile would be required the length of the pipe on both sides. The excavated area would be approximately 15 to 25 ft wide on each side and 7 to 8 ft deep for the length of the pipeline except for the levee crossing and specific work sites. There would be no excavation where the pipeline currently crosses the levee, and there would be more excavation in those places where placement of the new pipeline would require a greater excavated work site such as inside the JLNHPP at the drill exit, where the total excavated width would reach a maximum of 83 ft. The width of the adjacent temporary stockpile sites would range from 60 ft to 130 ft as necessary and the width of the entire construction area would range from 116 to 250 ft. Note: these are worst case excavation and stockpile estimates. Best management practices would be used to minimize impacts to the maximum extent practicable throughout construction.

Approximately 4,326 cy of water bottoms would be dredged in the Outer Cataouatche Canal to provide barge access to the work site south of the Levee. An approximate 70 ft wide access route would be dredged in the Canal to 15 ft in depth and side-cast for 3,620 ft to a height of 1.5 ft. Just south of the levee at the point where the pipeline crosses the water bottom of the Cataouatche canal, a 20 ft by 365 ft channel would be excavated to 15 ft depth parallel to the pipeline on both sides.

Within the JLNHPP, a 40 ft wide flotation channel running parallel with the pipeline would be excavated for 1,350 ft to provide barge access to a temporary work site. The work site would consist of a 200 ft by 200 ft drill pad and 20 ft by 20 ft drill pit. Through excavation of the flotation channel, flotant marsh would be carefully excavated and temporarily placed adjacent to the canal in disposal sites approximately 35 ft by 60 ft wide. Once the vegetated mat is carefully placed, the sediments would be excavated and spread thinly across the flotant marsh in a scattered pattern and/or stockpiled in tall piles with narrow footprints to the left and right of the excavated site. Excavated material may also be placed in the shallow water area where the Chevron pipeline within the JLNHPP meets the Outer Cataouatche canal. There is a shallow water area there that could potentially hold excavated material from either the access channel to be excavated within the JLNHPP and/or the dredged material that would be side cast adjacent to the pipeline that crosses the Outer Cataouatche canal. At the onset of construction, the stockpile method that would result in the least impacts would be selected by the National Park Service (NPS) and the relocation contractor. If stockpiling within the shallow water area is selected, some type of shoreline armoring within the JLNHPP where the Chevron pipeline meets the Outer Cataouatche canal would be constructed to prevent erosion and scouring of the stockpiled material. If required, a plug will be constructed.

Further south from the work pad, a “back-string” site will be required to accommodate the pipe before the drilling is completed. The “back-string” site will require excavating a 14 ft wide, 3,035 ft long, and 7 ft deep channel. The excavated floatant marsh and sediments will be handled in the same manner as described above. Once the underground drilling is complete from north to south (inside of levee system to flood side of the levee system (in JLNHPP)), the new section of pipeline will be pulled through the drill hole from south to north. Approximately 41,615 cy of sediments will be excavated for flotation channel, drill pad, drill pit and “back-string” site.

Best management practices will be used during drilling to prevent drill fluid leakage such as building a 20 ft by 20 ft ring levee around the drill entry and exit points and pumping the returned drilling fluids into holding tanks for recycling. Should a hydraulic fracture and release of drilling fluids occur, standard practice will be to move the return pit to the fracture site and pump. The drill path will be regularly patrolled to check for hydraulic fractures, and fluid returns to the drilling rig will be monitored.

Relocation of the pipeline will impact approximately 8 acres of low quality bottomland hardwood wetlands on the protected side, north of the Lake Cataouatche Levee, approximately 12.9 acres of water bottoms in the Outer Cataouatche Canal, and approximately 14.5 acres of high quality semi-buoyant freshwater estuarine wetlands within the JLNHPP (table 1).

Immediate Site Restoration

Immediately following construction, the impacted area within the JLNHPP will be restored to its original state to the maximum extent practicable. Once construction is complete, a blade on the excavator will scrape the stockpiled sediments (placed on adjacent marsh or in the shallow water area) back into the excavated channel to a height equal to adjacent marsh. If the shallow water stockpile site is selected because it will result in the least impacts to adjacent marsh, any stockpiled material remaining once the excavated channel is backfilled to the appropriate height may be left to increase the elevation of the shallow water area equal to adjacent marsh if NPS deems this beneficial. The plug at the Outer Cataouatche canal to retain the stockpiled material will also remain to ensure the material will not erode or slough out of the shallow water area in the future. Following the return of sediments to the excavated access channel, the excavator will carefully replace the excavated floatant marsh mats back on the returned sediments. Backfilling excavated canals and other measures deemed necessary will be implemented as project features immediately following construction in order to restore the impacted environment and maintain the quality of the area that existed prior to construction.

Temporary Access Road and Pontoon Bridges A temporary access road will be constructed for use in transporting construction equipment and materials to WBV15a.2. The primary use of the temporary road will be for hauling fill material from Churchill Farms borrow site to the project site which will allow a substantial decrease in haul distance, minimization of fuel consumption and minimization of road maintenance. The temporary access road will be approximately 800 ft long by 40 ft wide and require two temporary canal crossings. The Avondale Canal and the Cataouatche Canal crossings will each consist of an approximately 40ft wide by 110ft long pontoon bridge. There are sections of the proposed temporary road alignment that are currently cleared; however, the remaining section of the road alignment must be cleared and grubbed.

A small temporary staging area would also be required for access road construction. The staging area would be used as a working area (equipment staging) to construct the crossing. Additionally, the staging area would be used for storage of equipment used in the crossing

construction. The temporary access road, staging area and pontoon bridges would impact previously cleared area and approximately 0.29 acres of low quality, non-wet bottomland hardwood habitat (table 1). Even though there is an adjacent approved access road, this temporary access would be required to avoid multiple contractors using one access point. Multiple contractors using a single access point would likely result in projects delays, increased costs, safety hazards and claims made by the contractors.

Table 1: Proposed Impacts

| The Proposed Action | Acres | Earthen Material (cy) | Limestone (cy) |
|---|-------|-----------------------|----------------|
| Existing Access road | N/A | N/A | 800 |
| *Area north of Lake Cataouatche Levee to be temporarily cleared, grubbed, excavated and stockpiled (including site parallel to pipeline, board road, work site/drill pad, drill pit and all excavation and stockpiling) | 8 | 13,482 | N/A |
| **Outer Cataouatche Canal crossing temporary excavation and adjacent stockpile | 0.4 | 4,326 | N/A |
| **Outer Cataouatche Cana temporary access channel wheel wash/dredging | 5.8 | 14,077 | N/A |
| **Temporary Access wheel wash/dredging stockpile | 6.7 | N/A | N/A |
| ***Area south of Lake Cataouatche Levee to be temporarily excavated and stockpiled in the National Park (flotation channel, area parallel to pipeline, back string area) | 14.5 | 41,615 | N/A |
| Access road near Lake Cataouatche PS | 0.29 | N/A | N/A |
| ****Total project impacts | 35.7 | 73,500 | 800 |
| * Impacts off-Preserve on protected side to low quality intermittently drained forested wetlands ** Water bottom *** Impacts within the Preserve to high quality semi-buoyant freshwater estuarine wetlands. **** This total represents impacts to all habitat types and does not represent total impacts to wetland | | | |

The proposed action, as described in Individual Environmental Supplemental 15 (IERS 15.a) and further supported by a more extensive alternative analyses presented in the Addendum to the IERS 15.a, will be instrumental in providing 100-year level of risk reduction for Jefferson Parish,

Louisiana. This proposed action was developed to ensure the most engineeringly feasible, least damaging, and cost effective alternative was brought forward for construction.

Factors Considered in Determination

CEMVN has assessed the impacts of the proposed actions on significant resources in the project areas including wetlands, bottomland hardwood forest (BLH), non-wetland/upland resources, prime and unique farmland, fisheries, wildlife, threatened and endangered (T&E) species, cultural resources, recreational resources, noise quality, air quality, water quality, transportation, aesthetics, Hazardous, Toxic and Radioactive Waste (HTRW) and socioeconomic resources.

All BLH forest and jurisdictional wetland impacts were assessed by the US Fish and Wildlife Service (USFWS) and CEMVN under the National Environmental Policy Act (NEPA), Fish and Wildlife Coordination Act, and Section 906 (b) WRDA 1986 requirements. As discussed in IER 15.a, referenced and incorporated herein, the impacts for the proposed actions are as follows:

Wetlands

- 8 acres of intermittently drained, forested wetlands habitat on the protected side, north of the Lake Cataouatche levee and approximately
- 14.5 acres of high quality wetlands on the flood side, south of the Lake Cataouatche levee within the JLNHPP

Non-wetland/upland resources

- 0.29 acres of non-wet, low quality, BLH.

Wildlife

- The greatest potential for effects on wildlife associated with the implementation of the proposed action will occur during the initial clearing and grubbing. The presence of construction-related activity, machinery, and noise will be expected to cause most wildlife to avoid the area during the construction period. Impacts from construction will disturb wildlife, but most of these impacts will be short-term. Adjacent habitat is anticipated to stabilize after the construction is complete allowing species to return. Most wildlife within the adjacent wetland habitats are anticipated to return with the cessation of noise and construction activities associated with relocation project. Wildlife displaced by the temporary loss of the wetland required for the proposed action would move into the extensive adjacent wetland habitat.
- Recently disturbed areas on the protected side that are utilized for construction have little to no wildlife habitat function. Direct effects to wildlife within the footprint of disturbance from implementing the proposed action will be minimal. Some

disturbance-tolerant wildlife species are expected to be permanently displaced or destroyed during construction. As such, constructing the proposed action will have temporary disturbance on species within the edge and aquatic habitat, and will create only temporary effects to wildlife.

Fisheries

- 12.9 acres of open canal bottom within the Outer Cataouatche Canal.
- Less than 0.2 acres of open water, canal bottom due to pontoon bridge construction.
- The dredging, stockpiling and bridge construction are expected to destroy the immobile and less-mobile species in the filled area. Most mobile species within the canal will avoid the areas impacted by construction and are expected to move from areas being temporarily filled by the proposed action to adjacent wetland and canal habitat.
- Impacts on less-mobile benthic populations from construction activities will be short-term with turbidity effects potentially lasting up to several months after completion. The area that will be disturbed for the proposed action is a small proportion of the similar aquatic habitat available in the vicinity. Once the proposed action is complete, it is expected that sediment will settle, benthos will repopulate, and other mobile aquatic species will return.

Threatened and Endangered (T&E) species

- No threatened and endangered species would be impacted

Cultural resources

- No cultural resources would be impacted

Recreational resources

- Temporary impacts associated with implementation of the proposed action.
- Long term beneficial impacts associated with visitor use and experience within the park as the pipeline would not impede recreational use of the area.

Noise

- With implementation of the proposed action there will be a temporary elevation of noise in the vicinity of the project area. The noise will be associated with construction equipment such as bulldozers, excavators, haul trucks, and/or chainsaws. Construction will be limited to daytime hours.

Air Quality

- There will be temporary direct impacts to air quality through the proposed actions at the WBV 15a.2 Levee Reach. Temporary increases in air pollution will occur from the use of construction equipment and vehicles including: haul trucks, bull dozers, cranes, and excavators. Construction could temporarily be a source of fugitive dust including 10 and 2.5 micron particulate matter (PM). Local weather patterns and mandatory dust controls implemented during construction will determine the extent of this temporary condition. Construction equipment and vehicles could generate NO₂, CO, O₃, and SO₂ from combustion in diesel engines. Long term, no change will be expected to air quality. Regional air quality standards will not be violated. The proposed project will be in conformance with NAAQS.

Water Quality

- 12.9 acres of open canal bottom within the Outer Cataouatche Canal causing a temporary impact to water quality.
- There is the potential for temporary adverse impacts to water quality due to increased turbidity in the Outer Cataouatche Canal during the pipeline relocation; however, adherence to best management practices will aid in minimizing the impacts of these water quality effects. (Best management practices are effective, practical, structural or nonstructural methods which prevent or reduce the movement of sediment, nutrients, pesticides and other pollutants from the land to surface or ground water, or which otherwise protect water quality from potential adverse effects of construction activities.)
- Potential for a minimal adverse impact to water quality associated with a temporary increase in turbidity within the Avondale and Cataouatche canals during construction and use of the two pontoon bridges for the access road near the Lake Cataouatche pump stations 1 and 2. Each bridge will impact > 0.1 acres.
- Water quality in construction areas will be managed utilizing BMPs to the maximum extent practicable.

Aesthetic (Visual) Resources

- Long term beneficial impacts associated with visitor use and experience within the park as the pipeline would not impede aesthetics within the area.

Socioeconomic resources

- Long term socioeconomic beneficial impacts associated with relocating the pipeline and HSDRRS completion in the WBV area.
- Adjacent neighborhoods are further secured and stabilized with increased flood risk reduction.

- The proposed action would result in major beneficial impacts to citizens within the Lake Cataouatche hydrologic basin and the West Bank and vicinity area as a whole as it would allow for certification of the 100-year level of protection by the Federal Emergency Management Agency. A reduction in insurance rates and the potential costs resulting from flood damage could be expected if the proposed action were implemented. Population and long-term employment and income levels in Jefferson Parish would be expected to increase if the raised levees stimulated growth in urban development in the protected area. Although the proposed action would reduce but not eliminate the risk of flooding, it would have beneficial impacts on population, long-term employment and income levels in the parish.

Transportation

No adverse impacts

Environmental Justice

No adverse impacts

Mitigation

Mitigation IERs are currently being prepared to document and compile the unavoidable impacts discussed in each individual IER. The mitigation IERs will implement compensatory mitigation as early as possible. All mitigation activities will be consistent with standards and policies established in the Clean Water Act Section 404 Regulatory Program, Water Resources Development Act 2007, and the appropriate USACE policies and regulations governing this activity.

The CEMVN worked closely with the NPS and Chevron to determine the pipeline relocation method and configuration that was the most feasible, would have the least adverse impacts to the environment, and would be the most time and cost effective. This alternative evaluation process took into consideration the rigid engineering standards and schedule for construction of the HSDRRS as well as technical requirements for relocating the pipeline segment in this given location. Though the proposed action would impact approximately 14.5 acres of wetlands within the JLNHPP, this impact estimate is conservative. Chevron would minimize impacts to the maximum extent practicable throughout construction. The following avoidance and minimization actions would be implemented during construction to reduce adverse impacts.

The CEMVN and NPS places a strong emphasis on avoiding, minimizing, and mitigating potentially adverse environmental impacts. To help ensure the protection of natural and cultural resources and the quality of the visitor experience, the mitigation measures identified in Table 1 will be implemented as part of the selected alternative. The NPS will implement an appropriate

level of monitoring throughout the construction process to help ensure that protective measures are being properly implemented and are achieving their intended results.

| Resource | Mitigations |
|------------------|--|
| General Measures | <ul style="list-style-type: none">• Chevron will advise the park Superintendent at least 72 hours in advance of initial project activities and will coordinate all activities inside the Preserve with the Superintendent or a designated representative.• A training program will be developed on the sensitive nature of the Preserve modeled after the CEMVN training program for work on the nearby Bayou aux Carpes 404(c) area. The training program will be required for all personnel working on the Preserve. No personnel will be allowed on the project site without participating in the training program. Elements from the training program will be periodically reinforced as the project progresses at safety meetings and the like.• Third-party environmental monitors will be hired at Chevron's expense to ensure compliance with the special use permit. Only a neutral third party not associated with the proposed project will be considered for the third party monitoring. The third party monitor will be qualified to insure compliance with the special use permit and document project impacts. The NPS will approve the monitor and specify certain terms of Chevron's contract with the third-party monitor as follows. Chevron's contract with the third party monitor will include a provision requiring the third party to report directly to the NPS, and not to Chevron, its subcontractors, or the CEMVN, and will identify the frequency of reports (daily, weekly, monthly). Environmental monitors will be available at all times during the project and will be present before certain activities such as ground disturbance in the Preserve could proceed.• If third-party monitors observe activities that are believed to constitute a significant threat to Preserve resources, the monitors will immediately contact the park Superintendent or their representative and report the threat to the NPS and Chevron.• To minimize possible petrochemical spills from construction equipment, Chevron will regularly monitor and check equipment to identify and repair any leaks.• Spill containment materials will be staged near the action area for use in containing or collecting any accidental fuel or chemical spills from construction equipment.• Upon discovery, any fuel or chemical spills associated with construction activities will be immediately contained and reported to the NPS.• Fueling of equipment will take place outside the Preserve whenever possible; if fueling within the Preserve is required, no less than two persons will attend these activities, and fueling will be completed over a physical barrier, such as a tarp, and absorbent materials.• Chevron's contractor, Sunland Construction, Inc. has prepared and submitted to the NPS a Spill Prevention and Response Plan.• Chevron will provide the NPS with information on the drilling fluid system proposed for use before the start of construction, and best management practices will be used during drilling to prevent drill fluid leakage. A 20 x 20 foot ring levee will be built around the drill entry & exit points. Drilling fluid returns will be pumped into holding tanks for recycling and closely monitored. Should a fracture and loss of fluid returns occur, the standard practice will be to move the return pit to the fracture site & pump from that point. In addition to monitoring drilling fluid returns, Chevron will regularly patrol the drill path to check for hydraulic fractures.• All cans, bottles, paper, and other trash will be removed from the Preserve daily.• All equipment and debris incidental to the pipeline relocation (survey markers, sediment fencing, etc.) will be removed from the project area as soon as it is no longer required for operations.• All work will be conducted during daylight hours. |

| Resource | Mitigations |
|----------|---|
| | <ul style="list-style-type: none">• To reduce or eliminate impacts outside of the immediate project area, equipment access will be confined to excavated areas within the project footprint as proposed.• All precautions will be observed to control nonpoint source pollution from construction activities.• All precautions will be observed to protect the groundwater of the region.• If any solid or hazardous wastes, or soils and/or groundwater contaminated with hazardous constituents are encountered during the project, LDEQ's Single-Point-of-Contact (SPOC) will be notified. Precautions will be taken to protect workers from these hazardous constituents.• monitor pre and post-construction in the pipeline ROW and the drill exit point work area to ensure they are restored to pre-existing conditions and to help determine the need for additional, mitigation actions.• on ground photographs should be taken prior to initiation of work efforts, and one growing season post construction at 200ft intervals, in both directions, along the pipeline ROW to document the effectiveness of the restoration effort. That information should be provided to staff of the natural resource agencies and the NPS to determine if additional mitigation will be necessary to offset impacts to wetlands on the Preserve.• implement adequate erosion/sediment control measures to insure that no sediment or other activity related debris is allowed to enter wetland areas located adjacent to construction areas. Accepted measures include the proper use of vegetated buffers, silt fences or other Environmental Protection Agency construction site storm-water runoff control best management practices.• use clean fill material during construction of temporary access roads in wetlands areas. Upon abandonment, the affected areas shall be restored to pre-project conditions. One 24 inch culvert shall be installed every 250 feet when constructing access roads through wetlands. Culverts should be maintained to ensure that existing flow of surface water is uncompromised. All forested vegetation cleared during construction activities is to be removed and hauled offsite to a non-wetlands disposal location, or chipped and spread on site in a manner that is beneficial to the surrounding environment (i.e., placed in thin layers not to exceed 4 inches).• develop a mitigation plan designed to off-set impacts to fish and wildlife resources.• The mitigation plan shall be approved by the resources and regulatory agencies. Mitigation should occur simultaneously with the construction activities in order to ensure that all necessary mitigation is carried out. <ul style="list-style-type: none">• Forest clearing associated with project features should be conducted during fall or winter to minimize impacts to nesting migratory birds, when practicable.• Further detailed planning of project features (e.g., Design Document Report, Engineering Documentation Report, Plans and Specifications, or similar documents) should be coordinated with the Service, NMFS, LDWF, Environmental Protection Agency (EPA), NPS, and Louisiana Department of Natural Resources (LDNR). The service shall be provided an opportunity to review and submit recommendations on all the work addressed in those reports.• If a proposed project feature is changed significantly or not implemented within one year of the date of our Endangered Species Act consultation letter, we recommend that the CEMVN reinstate coordination with this office to ensure that the proposed action will not adversely affect any federally listed threatened or endangered species or their habitat.• To further reduce impacts to the JLHNP all excavated material within the freshwater marshes should be used to backfill the proposed dredged channel. No disposed excavated material should remain above the marsh surface. Dredged material used to backfill should |

| Resource | Mitigations |
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| | <p>be replaced to the approximate same elevation as the adjacent marshes. Replanting of the disturbed site should be conducted according to JLNHPP specifications, if requested.</p> <ul style="list-style-type: none"> • Acquisition, habitat development, maintenance, and management of mitigation lands should be allocated as first-cost expenses of the project, and the local project sponsor should be responsible for operational costs. If the local project-sponsor is unable to fulfill the financial mitigation requirements for operation, then the CEMVN should provide the necessary funding to endure mitigation obligations are met on behalf of the public interest. • Any proposed change in mitigation features or plans should be coordinated in advance with the Service, JLNHPP, NMFS, LDWF, EPA and LDNR. |
| Vegetation | <ul style="list-style-type: none"> • Invasive species control measures (e.g., cleaning/washing of vehicles/vessels, equipment, and personal equipment before entering/re-entering the Preserve) will be implemented to help minimize the potential for the introduction and spread of nonnative species. |
| Fish and Wildlife/ Special Status Species | <ul style="list-style-type: none"> • Construction activities will be timed to avoid nesting activities of bird species, including if any work with heavy machinery is within 0.2 miles of an active rookery (colonial nesting place for herons, egrets, and similar water birds), or within 1 mile of an active bald eagle nest. • Employees of Chevron and its subcontractors will be notified that harassing, injuring, or destroying wildlife in the Preserve is prohibited (including all snakes), and that it is illegal to damage or destroy nests or dens of wildlife. Appropriate measures will be employed to avoid these areas. • An incidental take of a federally listed species will be immediately reported to the NPS and USFWS. Incidental take of all other species, including special status species, will be immediately reported to the NPS. • Prior to construction, the project area will be inspected by USFWS or other qualified personnel for the presence of nesting colonies during the nesting season. Construction-related activities that will occur within 1,000 ft of a colony will be restricted to the non-nesting period, which in this region generally extends from September 1 to February 15, depending on the species present. This 1,000-ft buffer will be maintained unless coordination with FWS indicates that the buffer zone may be reduced based on the species present and other specifics of the situation. • Prior to construction, the project area will be inspected by USFWS or other qualified personnel for the presence of Bald Eagle nest trees, including both active and alternate nests. Construction-related activities that will occur within 660 ft of a nest will be performed outside the bald eagle nesting season, which in this region generally extends from October 1 to May 15. This 660-ft buffer will be maintained unless coordination with USFWS indicates that the buffer zone may be reduced based on the specifics of the situation. Damage to nest trees will be avoided, including damage to their root systems through soil disturbance or compaction. |
| Water Resources | <ul style="list-style-type: none"> • Boats operating in the canals during activities will use only four stroke engines. |
| Wetlands | <p>Planning emphasis for the project was first to avoid impacts to wetland resources. Where impacts to wetlands are unavoidable, design and construction implementation will minimize impacts and use best management practices to the greatest extent possible. Approximately 14.5 acres of wetlands (fresh, floating marsh and open water habitat) will be temporarily impacted during the pipeline relocation.</p> <ul style="list-style-type: none"> • Pieces of the floating marsh mat and substrate material will be carefully excavated and stockpiled. Once construction is complete, the impacted site will be backfilled to approximate the elevation of the adjacent marsh, and the excavated floatant marsh mats will be carefully placed in the backfilled channel. |

| Resource | Mitigations |
|--------------------|--|
| | <ul style="list-style-type: none"> • The NPS will work with Chevron and its contractors to determine the site specific methods for excavation and stockpiling least damaging to wetland soils or vegetation when dredging for the project begins. Goals will include reducing the overall area of impact, reducing the number of times material, especially excavated flotant mat, is handled, preventing the compression or sinking of the marsh under the weight of the stockpiled materials, and reducing the impacts to stockpile areas that will result from backfilling. • Chevron, its contractors, NPS staff, and the third party monitors will regularly monitor to ensure non-excavated surrounding wetland vegetation is not damaged during relocation activities. • Chevron will implement adequate erosion/sediment control measures to ensure that no sediment or other activity related debris are allowed to enter wetland areas located adjacent to construction areas. • To the greatest extent possible, materials will be stored on barges to minimize impacts to flotant marsh. • Ground crews will be instructed by park staff on how to avoid damaging any part or whole of wetland vegetation in the Preserve |
| Cultural Resources | <ul style="list-style-type: none"> • A qualified third-party monitor will observe ground disturbing activities during construction. • In the event previously undiscovered cultural materials are observed during project activities, work will cease, and qualified NPS staff will help the park Superintendent determine a course of action in consultation with the SHPO and any potentially affected Indian Tribes. |
| Visitor Experience | <ul style="list-style-type: none"> • Temporary canal closures will be put into place in areas where construction activities are occurring to eliminate any potential impacts to the health and safety of Preserve visitors. |

Compensatory Mitigation

Approximately 14.5 acres of semi-buoyant estuarine freshwater wetlands (flotant marsh) within the JLNHPP would be impacted during construction activities associated with the pipeline relocation. Compensation for wetland impacts is necessary pursuant to NPS Director’s Order 77-1, and other laws regulations and policies. As a practice, restoring the same habitat as the habitat impacted is preferred to restoring another habitat type than what was impacted to compensate for the lost functions and values of the impacted habitat. The proposed impacts are to 14.5 acres of high quality semi-buoyant fresh water estuarine wetlands within the JLNHPP. Thus, the proposed mitigation plan is to create freshwater estuarine wetland habitat. To compensate for this impact, 14.5 acres of fresh marsh wetlands would be restored. The marsh restoration area (the mitigation site) would be located in the northwestern portion of Yankee Pond. Yankee Pond was historically an agricultural field that subsided and was abandoned. Presently it is a shallow open water body surrounded with a few forested ‘islands’ where portions of the levee system around the field remain.

Mitigation construction activities are expected to begin late in the third quarter or in the early part of the fourth quarter of 2013. It is estimated that it would take approximately 1 year for the borrow material placed in the mitigation site to settle to the desired target grade. No planting of the mitigation site is proposed after construction completion. Based on the CEMVN’s experience

conducting similar fresh marsh restoration projects, it is anticipated that desirable fresh marsh vegetation would rapidly colonize the site through natural recruitment. However, adaptive management plans for the mitigation effort include planting of native marsh species should the mitigation success criteria for native vegetation cover not be achieved through natural recruitment.

The mitigation plan described would fully compensate for the wetland impacts generated by the proposed action (e.g. the Chevron pipeline relocation). The mitigation ratio achieved would be 1:1 (acres of wetland restoration mitigation provided: acres of wetlands impacted), which is consistent with NPS policy (see Section 5.2.3 of NPS Procedural Manual #77-1 Wetland Protection).

Environmental Design Commitments

- In a letter dated January 27, 2011, NMFS recommended that provisions be included to monitor pre and post-construction in the pipeline right of way (ROW) and the drill exit point work area to ensure they are restored to pre-existing conditions and to help determine the need for additional, mitigation actions. In addition, on ground photographs should be taken prior to initiation of work efforts, and one growing season post construction of at 200 ft intervals, in both directions, along the pipeline ROW to document the effectiveness of the restoration effort. That information should be provided to staff of the natural resource agencies and the NPS to determine if additional mitigation would be necessary to offset impacts to wetlands on the JLNHPP.
- The Louisiana Department of Wildlife and Fisheries (LDWF) in a letter dated January 11, 2011, made the following recommendations to CEMVN:
 - (a) Implement adequate erosion/sediment control measures to insure that no sediment or other activity related debris is allowed to enter wetland areas located adjacent to construction areas. Accepted measures include the proper use of vegetated buffers, silt fences or other Environmental Protection Agency construction site storm-water runoff control best management practices.
 - (b) Use clean fill material during construction of temporary access roads in wetlands areas. Upon abandonment, the affected areas shall be restored to pre-project conditions.
 - (c) One 24-inch culvert shall be installed every 250 ft when constructing access roads through wetlands. Culverts should be maintained to ensure that existing flow of surface water is uncompromised. All forested vegetation cleared during construction activities is to be removed and hauled offsite to a non-wetlands disposal location, or chipped and spread on site in a manner that is beneficial to the surrounding environment (i.e., placed in thin layers not to exceed 4 inches).
 - (d) Develop a mitigation plan designed to off-set impacts to fish and wildlife resources.

- The mitigation plan shall be approved by the resources and regulatory agencies. Mitigation should occur simultaneously with the construction activities in order to ensure that all necessary mitigation is carried out.
- The USFWS, per coordination in accordance with the Fish and Wildlife Coordination Act and the Endangered Species Act reviewed the CEMVN draft supplement to IER 15a.2. In a Planning Aid letter dated 9 July 2010, stated that the USFWS is unaware of any known threatened or endangered species in the proposed project area. The draft Coordination Act Report was received by CEMVN on January 12, 2011. USFWS project specific recommendations include:
 - (a) All Feasible alternatives to HDD that would reduce impacts to the JLNHPP should be investigated to ensure impacts to public lands are avoided or minimized. The results of that investigation should be presented in the IERS.
 - (b) To the greatest extent possible, situate flood protection features so that destruction of wetlands and non-wet bottomland hardwoods are avoided and minimized.
 - (c) Forest clearing associated with project features should be conducted during fall or winter to minimize impacts to nesting migratory birds, when practicable.
 - (d) Further detailed planning of project features (e.g., Design Document Report, Engineering Documentation Report, Plans and Specifications, or similar documents) should be coordinated with the Service, NMFS, LDWF, Environmental Protection Agency (EPA), NPS, and Louisiana Department of Natural Resources (LDNR). The service shall be provided an opportunity to review and submit recommendations on all the work addressed in those reports.
 - (e) The CEMVN should avoid impacts to NPS lands, if feasible. If not feasible, the CEMVN should establish and continue coordination with the NPS staff until construction of that feature is complete and prior to any subsequent maintenance. Unavoidable impacts, when permissible by that agency, should be minimized and appropriately mitigated on NPS lands.
 - (f) If a proposed project feature is changed significantly or not implemented within one year of the date of our Endangered Species Act consultation letter, we recommend that the CEMVN reinitiate coordination with this office to ensure that the proposed action would not adversely affect any federally listed threatened or endangered species or their habitat.
 - (g) The CEMVN shall fully compensate for any unavoidable losses of wetland habitat or non-wet bottomland hardwoods caused by project features.
 - (h) To further reduce impacts to the JLNHPP all excavated material within the freshwater marshes should be used to backfill the proposed dredged channel. No disposed excavated material should remain above the marsh surface. Dredged material used to backfill should be replaced to the approximate same elevation as

the adjacent marshes. Replanting of the disturbed site should be conducted according to JLHNPP specifications, if requested.

(i) Acquisition, habitat development, maintenance, and management of mitigation lands should be allocated as first-cost expenses of the project, and the local project sponsor should be responsible for operational costs. If the local project-sponsor is unable to fulfill the financial mitigation requirements for operation, then the CEMVN should provide the necessary funding to endure mitigation obligations are met on behalf of the public interest.

(j) Any proposed change in mitigation features or plans should be coordinated in advance with the Service, JLNHPP, NMFS, LDWF, EPA and LDNR.

- If any unrecorded cultural resources are determined to exist within the proposed project site, then no work will proceed in the area containing these cultural resources until a CEMVN staff archeologist has been notified and final coordination with the Louisiana State Historic Preservation Officer (SHPO) and the Tribal Preservation Office has been completed.

Agency and Public Involvement

Various governmental agencies, non-governmental organizations (NGOs) and citizens were engaged throughout the preparation of Draft IER 15, Draft IER Supplemental 15.a and this Addendum to Draft IER Supplemental 15.a. Agency staff from USFWS, NMFS, the EPA, US Geological Survey, NPS, and the LDNR were part of an interagency team that has and will continue to have input throughout the HSDRRS planning process.

The CEMVN has hosted more than 130 public meetings since February 2007 to discuss proposed and planned HSDRRS work throughout the area. CEMVN placed public notices in local and national newspapers, distributes news releases (routinely picked up by television, radio, electronic and printed media), and mails printed notifications to stakeholders for each public meeting. In addition, www.nolaenvironmental.gov was established to provide information to the public regarding proposed HSDRRS work. CEMVN also distributes notifications of the meetings to approximately 3000 stakeholders. Public meetings will continue throughout the planning process.

Internal Scoping

Monthly interagency meetings were held with LDNR, LDEQ, USFWS, NPS, LDWF, and EPA present to review ongoing and HSDRRS projects and discuss new issues that could result in environmental impacts. The pipeline relocation was discussed at these internal interagency meetings monthly since April 2010 and input on the document scope was solicited from all Federal and state agencies.

Project Specific Public Meetings

The CEMVN also hosts quarterly non-governmental organization meetings in which all NGO's are invited to receive updates on ongoing and proposed HSDRRS projects. Within these meetings, comments, concerns, document scopes, and other information are solicited from the NGO's. This pipeline relocation was discussed at 3 NGO meetings as of April 2011.

Additionally, public input, comments and concerns are solicited during public meetings held after business hours in local, easily accessible, neighborhood civic centers and/or schools to provide the public that could possibly be impacted by the project a forum to voice their concerns. The CEMVN hosted multiple meetings within the West Bank area to discuss ongoing and proposed work in the area. Specifically, a public meeting was held December 9, 2010 to discuss the pipeline relocation and all associated impacts. The CEMVN also released Draft IERS 15a.2 which discussed this pipeline relocation for public review January 14, 2011. The NPS considers all of the aforementioned internal and public meetings to discuss this project and the public review of the same project within IERS 15.a as scoping for this document.

Draft IERS 15.a, which detailed the impacts of the proposed actions, was released for public review on January 14, 2011. Stakeholders had until February 13, 2011 to comment on the document. Substantive comments from the NPS, LDNR and Region 6 of the EPA required the preparation of an addendum to draft IERS 15.a to present a more extensive alternative evaluation. The NPS also prepared an Environmental Assessment (EA) for the proposed action relative to impacts to park resources. The NPS EA was released for public review from June 30 through July 14, 2011; however, the review period was extended until July 29, 2011 due to requests to extend the comment period. The Addendum to Draft IERS 15.a, which provided more extensive alternative analyses for the proposed pipeline relocation, was released for public review from July 11, 2011 through August 10, 2011.

Agency Coordination

Endangered Species Act Section 7 concluded (USFWS): July 9, 2010.

Coastal Zone Management Consistency Determination issued: May 3, 2011.

Clean Water Act Section 401 Water Quality Certification issued June 23, 2010

Clean Water Act Section 404(b)(1) signed: April 21, 2011.

Section 106 of the National Historic Preservation Act, as amended, requires consultation with SHPO and Native American tribes. SHPO reviewed the proposed action and determined that it would not adversely affect any cultural resources by letter dated 22 February 2010. Eleven Federally recognized tribes that have an interest in the region were given the opportunity to review and comment on the proposed action. One tribe responded there are no known impacts associated with the proposed action in a letter dated 4 May 2010. Another tribe responded on April 28, 2011 there are no known impacts associated with the proposed action.

Comments/Correspondence

Draft IER Supplemental 15.a Public Review Period

- A. Agency Correspondence (Appendix C IERS 15.a)
 - SHPO: letter dated February 22, 2010
 - Alabama Coushatta Tribe of Texas: letter dated May 4 , 2010
 - LADEQ: letter dated June 23, 2011
 - USFWS: letter dated July 9, 2011
 - LDNR: comments provided in email dated January 11, 2011
 - LDWF: comment letter dated January 11, 2011
 - USFWS: letter dated January 12, 2011
 - NMFS: comment letter dated January 27, 2011
 - NPS: comment letter dated February 7, 2011
 - US EPA Region 6: comment letter dated: February 8, 2011
 - The Chickasaw Nation: letter dated April 28, 2011

- B. Public/Other Comments (Appendix B IERS 15.a)
 - No public comments were received.

Addendum to Draft IER Supplemental 15.a Public Review Period

- A. Agency Correspondence (Addendum to Draft IER Supplemental 15.a Appendix D)
 - USFWS: T&E Concurrence March 2, 2011; CAR dated April 15, 2011
 - LADNR: Coastal Zone Consistency Modification May 3, 2011

- B. Public/Other Comments (Addendum to Draft Supplemental IER 15.a Appendix D)

- C. The list of individuals or organizations that commented is enclosed in the Addendum to Supplemental IER 15.a Appendix B

Decision

The CEMVN Environmental Branch has assessed the potential environmental impacts of the proposed action described in the IERS 15.a, coordinated the proposed action with other agencies as described above and performed a review of the comments received during the public review periods.

A range of all reasonable alternatives were considered. Subsequent analysis of these alternatives resulted in the elimination of four alternatives, sleeve through a floodwall, up and over configuration (lying on levee surface), pipeline bridge over the levee, and re-routing the pipeline outside NPS. Upon taking into consideration the socioeconomic impacts (risk of loss of life and property), the HSDRRS reliability and accreditation process, project constructability, natural

resource impacts, minimization and mitigation factors, time to construct, and cost of the remaining alternatives; the CEMVN, in coordination with the NPS and Chevron, selected the HDD alternative as the preferred alternative.

The selected alternative pipeline relocation by horizontal directional drill meets the project objective to relocate the existing 24-inch gas pipeline within a time frame that would allow for construction completion before the end of 2011 and accreditation of the Lake Cataouatche Polder and HSDRRS in January 2012 while avoiding and minimizing adverse environmental impacts to JLNHPP resources and values to the greatest extent practicable.

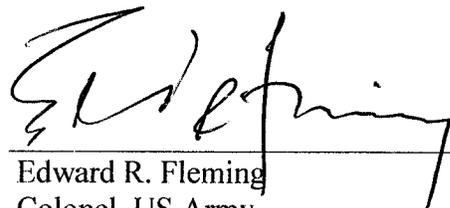
The No Action alternative was considered and assessed in the Draft Supplement to IER 15.a. Furthermore, all practicable means to avoid or minimize adverse environmental effects have been incorporated into the recommended plan. The public interest will be best served by implementing the selected plan as described in the Draft Supplement to IER 15.a in accordance with the environmental considerations discussed above. The Draft Supplement to IER 15.a is incorporated herein by reference.

CEMVN is preparing a Comprehensive Environmental Document (CED) that may contain additional information related to the Draft Supplement to IER 15.a that becomes available after the execution of the Final Addendum to the IER Supplement. The CED will provide a final mitigation plan, comprehensive cumulative impact analysis, and any additional information that addresses outstanding data gaps in any of the IERs in accordance with the Federal Register notice dated March 13, 2007.

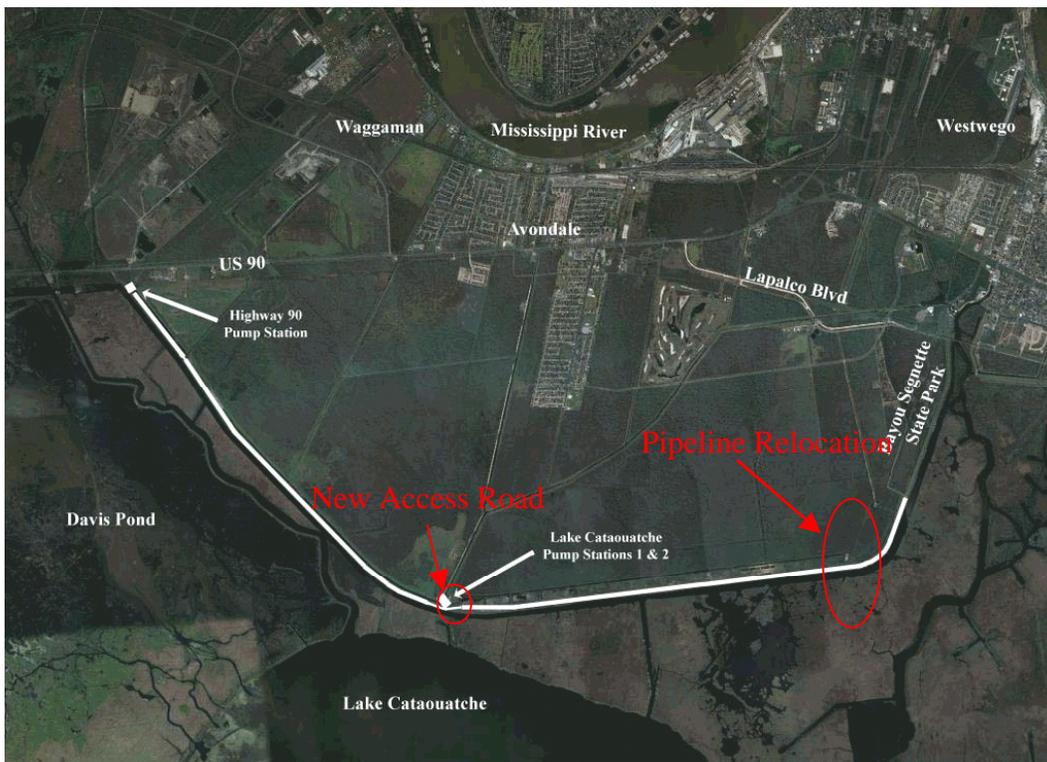
I have reviewed the Addendum to Supplement to IER 15.a. I have considered agency recommendations and comments received from the public during the scoping phase and comment periods, and I find the recommended plan fully addresses the objectives as set forth by the Administration and Congress in the 3rd, 4th and 5th Supplemental Appropriations.

The plan is justified, in accordance with environmental statutes, and it is in the public interest to construct the actions as described in this Decision Record and associated IERS 15.a.

7 September 2011
Date


Edward R. Fleming
Colonel, US Army
District Commander

ADDENDUM
INDIVIDUAL ENVIRONMENTAL REPORT SUPPLEMENTAL
WEST BANK AND VICINITY
LAKE CATAOUCHE LEVEE
JEFFERSON PARISH, LOUISIANA
IERS 15.a



**US Army Corps
of Engineers®**

August 2011

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1. INTRODUCTION

1.1 Background

The U.S. Army Corps of Engineers (USACE), Mississippi Valley Division, New Orleans District (CEMVN) is preparing this addendum to Individual Environment Report Supplement 15 (IERS 15.a) to evaluate alternatives considered but eliminated from further evaluation in IERS 15.a and evaluate additional alternatives recently brought forward by the Jean Lafitte National Historical Park and Preserve (JLNHPP) for the proposed relocation of a 24-inch pipeline owned by the Chevron Pipeline Company (Chevron) within the West Bank and Vicinity (WBV), Lake Cataouatche Levee project area. Individual Environment Report Supplement 15.a, which identified and assessed the Horizontal Directional Drill (HDD) alternative as the preferred alternative was released for public review from January 14, 2011 through February 13, 2011, but was not finalized due to the National Park Service (NPS) National Environmental Policy Act (NEPA) process and significant comments received during the 30-day public comment period.

As described in IERS 15.a, a Special Use Permit (SUP) was required for the portion of the pipeline relocation that would occur on the Barataria Preserve Unit owned and managed by the JLNHPP. Unknown at the time of the public review of IERS 15.a, was NPS' intention to conduct its own environmental assessment of the proposed action in accordance with the National Environmental Policy Act (NEPA).

IERS #15.a Addendum has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and the Council on Environmental Quality's Regulations (40 CFR §1500-1508), as reflected in the USACE Engineering Regulation, ER 200-2-2. The execution of an IER, in lieu of a traditional Environmental Assessment (EA) or Environmental Impact Statement (EIS), is provided for in ER 200-2-2, Environmental Quality (33 CFR §230) Procedures for Implementing the NEPA and pursuant to the Council on Environmental Quality (CEQ) NEPA Implementation Regulations (40 CFR §1506.11).

The CEMVN implemented the CEQ-approved Alternative Arrangements on March 13, 2007 under the provisions of the CEQ Regulations for Implementing the NEPA (40 CFR §1506.11). This process was implemented in order to expeditiously complete environmental analysis for any changes to the authorized system and the 100-year level of the Hurricane and Storm Damage Risk Reduction System (HSDRRS), formerly known as the Hurricane Protection System (HPS) authorized and funded by Congress and the Administration. The proposed actions are located in southeastern Louisiana and are part of the Federal effort to rebuild and complete construction of the WBV HSDRRS in the New Orleans Metropolitan area as a result of Hurricanes Katrina and Rita. The Alternative Arrangements can be found at www.nolaenvironmental.gov, and are herein incorporated by reference.

The CEMVN is releasing this addendum to IERS 15.a for a 30-day public review, which will partially overlap the NPS EA 15-day review. Both IER 15 and IERS 15.a are hereby incorporated by reference into this amended supplemental document. Copies of the original IER 15, IERS 15.a and other supporting information are available upon request or at www.nolaenvironmental.gov.

Environmental compliance documents completed under the alternative NEPA arrangements important to the consideration of this action are WBV, Lake Cataouatche Levee, Jefferson Parish, IER 15 and IERS 15.a. On June 12, 2008, the District Commander signed the Decision Record for IER 15. Individual Environment Report 15 includes, among other things, the purpose and need for the proposed action, authority for the proposed action and a description of the environmental setting.

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

1.1 The Purpose of the Addendum

The purpose of this Addendum is to further evaluate the alternatives initially considered in IERS 15.a but eliminated and evaluate additional alternatives identified by the NPS recently brought forward for the proposed pipeline relocation within the WBV, Lake Cataouatche Levee project area (figure 1). The proposed action is located in Jefferson Parish, Louisiana.

Currently, the pipeline owner, Chevron, has Right of Way (ROW) on the Barataria Preserve unit of the JLNHPP which allows Chevron access to the existing pipeline. On February 17, 2011, Chevron submitted a SUP request to the NPS requesting permission to relocate the company’s existing 24-in pipeline (figure 2). Relocating the pipeline is necessary in order for CEMVN to complete construction of the Lake Cataouatche levee to provide permanent 100-year level of risk reduction in the Cataouatche Polder.

To be certified by the Federal Emergency Management Agency (FEMA) for participation in the National Flood Insurance Program, the Hurricane Storm Damage Risk Reduction System (HSDRRS) must provide 100 year level of risk reduction to the areas within the system. Currently, interim measures are being constructed at the location where the pipeline crosses the levee to provide 100-year level of risk reduction during the 2011 hurricane season. Final permanent measures must be constructed within the Lake Cataouatche Polder so the HSDRRS can be accredited.

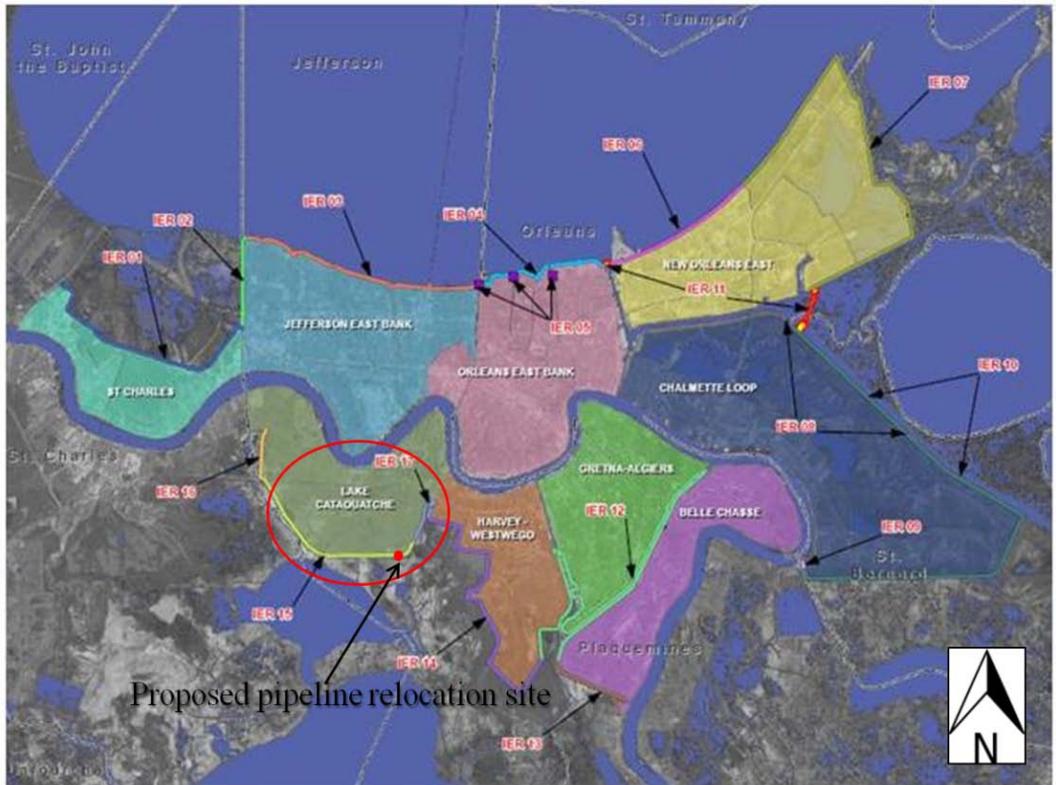


Figure 1: Lake Cataouatche Levee System



Figure 2: WBV Lake Cataouatche Project Area, oil/gas pipeline relocation site and new access road location

Failure to complete construction on any HSDRRS feature, including the Lake Cataouatche levee, could delay or jeopardize FEMA's accreditation of the entire HSDRRS. The accreditation process is scheduled to begin in January 2012. Failure to achieve accreditation could result in the FEMA's invoking a requirement for communities to begin using the advisory Base Flood Elevation (BFE) maps which would have an adverse affect on flood insurance rates.

This Addendum to IERS 15.a, as well as the NPS EA, document the consideration of the environmental impacts associated with Chevron's proposed relocation of the gas pipeline. This addendum is being released for public review at the same time as the NPS EA to present additional analysis derived during the preparation of the NPS EA. The preferred alternative identified in the IERS 15.a, and the NPS EA, is consistent with the HDD being proposed in this Addendum to IERS 15.a. The NPS EA can be found at <http://parkplanning.nps.gov/jel>. IERS 15.a and supporting documentation can be found at www.nolaenvironmental.gov.

1.2 Authority

Authorities for the proposed action discussed in draft Addendum IERS 15.a are the same as for the WBV project as discussed in Section 1.2 of IER #15.

1.3 Prior Reports

A number of studies and reports in the proposed project area have been prepared by the CEMVN, other Federal, state, and local agencies, research institutes, and individuals. Pertinent studies, reports and projects since the release of IER 15 and IERS 15.a are discussed below. All other relevant reports are listed in the original IER 15 and are incorporated herein by reference.

West Bank and Vicinity Relevant Reports:

- On April 21, 2011, the CEMVN Commander signed a Decision Record on the IER Supplemental #13a entitled "West Bank and Vicinity Hero Canal Levee and Eastern Tie-In, Plaquemines Parish, Louisiana". IERS #13a contains a modification to the original plan which includes the potential closing of the Hero Canal for a maximum of approximately 60 days and a minimum of approximately 30 days within a 90 day time frame. The proposed action is located in Plaquemines Parish near New Orleans, Louisiana.
- On February 22, 2011, the CEMVN Commander signed a Decision Record on the IER Supplemental #12.a entitled "GIWW, Harvey and Algiers Levees and Floodwalls, Jefferson, Orleans and Plaquemines Parishes, Louisiana". The document was prepared to evaluate the potential impacts associated with the construction of an

access road, the use of a pontoon bridge in the V-Line Levee Canal and the placement of rip rap along an 800 foot length of the V-Line Levee Canal.

- On February 2, 2011, the CEMVN Commander signed a Decision Record on the IERS #12/13 Waterline entitled “GIWW, Harvey and Algiers Levees and Floodwalls/ Hero Canal Levee and Eastern Tie-In, Plaquemines Parish, Supplemental IER #12/13 Waterline”. The document was prepared to evaluate the potential impacts associated with the installation of 16,000 linear ft of waterline to provide water for the operations and maintenance of the West Closure Complex.

2. MODIFICATIONS AND CLARIFICATIONS

At the time of completion of the original IER 15 report, all engineering designs and necessary actions had not been finalized. Since that time, engineering details and additional required actions (e.g., gas pipeline relocation and an access road near Lake Cataouatche pump stations 1 and 2) have been determined. The changes that could result in further impact to the natural or human environment were addressed in IERS 15.a. This Addendum to IERS 15.a is being prepared to present additional analysis for relocation alternatives originally considered but eliminated from further consideration as well as alternatives developed through the NPS process that were not discussed in the supplement. Along with the JLNHPP environmental considerations, the CEMVN, as levee designers and constructors, and Chevron, the pipeline owner, operator and maintainer, both have rigid standards that require consideration when determining the pipeline relocation method and design in this given location.

2.1 Alternative Evaluation

NEPA requires that Federal agencies explore a range of reasonable alternatives and provide an analysis of the impacts the alternatives would have on the human environment (the natural and physical environment and the relationship of people with that environment). The alternatives under consideration must include a “no action” alternative as prescribed by 40 CFR 1502.14.

A range of reasonable alternatives were considered in a study conducted by CEMVN that resulted in the elimination of four alternatives and brought forward the HDD alternative as the preferred alternative. Additional potential alternatives considered but dismissed from further analysis are identified in this Addendum, including re-routing the pipeline outside the JLNHPP parallel to an existing drainage channel and directionally drilling beneath the JLNHPP to Lake Cataouatche.

Several criteria were considered in the formulation process to evaluate and compare the alternatives to determine the preferred alternative. The criteria included engineering risk and reliability, environmental impacts, cost, constructability, and the level of operations and maintenance for the levee reach. Based on these criteria, when compared to all other

alternatives considered, the HDD presents the least engineering risk, the greatest engineering reliability, a relatively moderate degree of environmental impacts, the lowest cost, the ability to be constructed before January 2012, and nominal operation and maintenance requirements. The NPS concurs with CEMVN and has identified the proposed HDD as their preferred alternative as well.

2.2 Environmentally Preferred Alternative

The environmentally preferred alternative is defined by the CEQ as “the alternative that will promote the national environmental policy as expressed in the National Environmental Policy Act [Section 101 (b)].” Generally, these criteria define the environmentally preferred alternative as the alternative that causes the least damage to the biological and physical environment and that best protects, preserves, and enhances historic, cultural, and natural resources.

2.3 Description of the Alternatives

Proposed Action: The proposed action would be instrumental in providing 100-year level of risk reduction for Jefferson Parish, Louisiana. This proposed action was developed to ensure the most engineeringly feasible, least damaging, and cost effective alternative would be brought forward for construction.

2.3.1 Pipeline Relocation via Horizontal Directional Drill

Under the proposed action alternative, NPS would issue a SUP in response to the February 17, 2011 application submitted by Chevron, which would allow the permanent relocation of the gas pipeline approximately 170-ft underground, beneath the levee, via directional drilling. This relocation method would require both truck and barge access to reach the temporary relocation work sites on either side of the Lake Cataouatche Levee (figure 3).

The proposed action starts off in the northern most aspect of the project area, at the Nichole Blvd/access road intersection and ends at the very southern end of the JLNHPP where the pipe would be “backstrung” (welded to the drill pipe and then pulled back through the drill exit site through the newly drilled hole and would emerge back out of the drill entrance point on the protected side of the levee), or placed in position to be “threaded” through the drill hole prior to drilling. The new HDD pipeline hole would be drilled north to south with the drill pipe emerging in the southern work site, which is located inside park lands. Once the hole is drilled, the new pipeline, which would be waiting in position, would be backstrung.

Work occurring off the JLNHPP property includes the resurfacing of a permanent existing 12-ft wide by 5,625-ft long road north of the Lake Cataouatche Levee. Limestone would be used to resurface the road in order to withstand heavy truckloads

during construction. A temporary board road, 16-ft wide by 1,601-ft long would be constructed at the end of the existing road to enable truck traffic to continue the rest of the way to reach the relocation work site. There would be two small areas, “wings,” where the limestone access road meets the board road and again where the board road meets the work site. These two “wings” would be temporarily cleared, grubbed and filled to provide an adequate turnaround space for large trucks. A temporary work site/staging area (a 200-ft by 200-ft drill pad and a 20-ft by 20-ft drill pit) would be constructed and would require temporary clearing, grubbing, filling and stockpiling of the area.

The area parallel to both sides of the segment of the pipeline to be relocated would require temporary clearing, grubbing, excavation and stockpile. The excavated area would be approximately 20-ft to 25-ft wide and 7-ft to 8-ft deep for most of the length of the pipeline except for certain areas, such as at the levee crossing and near specific work sites. There would be no excavation where the pipeline currently crosses the levee, and there would be more excavation in those places where placement of the new pipeline would require a greater excavated work site such as on the south end on Preserve. The width of the temporary excavation parallel to the pipeline would range from 20-ft in most places to 70-ft in some places depending on the required activity. The width of the adjacent temporary stockpile sites would range from 60-ft to 130-ft as necessary. ***Note: these are worst case excavation and stockpile estimates. Best management practices would be used to minimize impacts to the maximum extent practicable throughout construction.***

Temporary excavation and dredging would also be required in the Outer Cataouatche Canal outside of the JLNHPP. A 20-ft by 365-ft area would be excavated on both sides of the pipeline as it crosses the open water bottom of the canal. Dredging would be required in the Outer Cataouatche Canal to provide barge access to the work site south of the Lake Cataouatche Levee. An approximate 70-ft wide by 3,620-ft long access route would be cleared in the Outer Cataouatche Canal to allow for the barge draft. Prop washing, in which a tugboat would clear bottom sediment using propeller thrust, would be used first in an attempt to merely spread the sediment without actually dredging. In the event prop washing is not effective, bottom sediment would be dredged and placed adjacent the entire length of the required dredged area. The material would be temporarily stockpiled to a height of approximately 1.5-ft in a stockpile site adjacent to the dredged area.

A flotation channel, approximately 40-ft wide by 1,350-ft long, running parallel with the pipeline would be required for the barge to reach the temporary work site, a 200-ft by 200-ft drill pad and 20-ft by 20-ft drill pit south of the Lake Cataouatche Levee on the JLNHPP. Material would be temporarily excavated and placed in approximately 35-ft to 60-ft wide temporary disposal sites on either side of the newly created flotation channel. A 14-ft wide by 3,035-ft long area further south from the temporary work site and flotation channel would also require temporary excavation. Adjacent stockpiling in an approximately 38-ft to 60-ft wide by 3,035-ft long area would be needed to accommodate the pipe before the drilling is completed. Once the underground drilling from the

protected side to the flood side of the levee is completed, the actual pipe would then be threaded back through the drill hole from south to north.

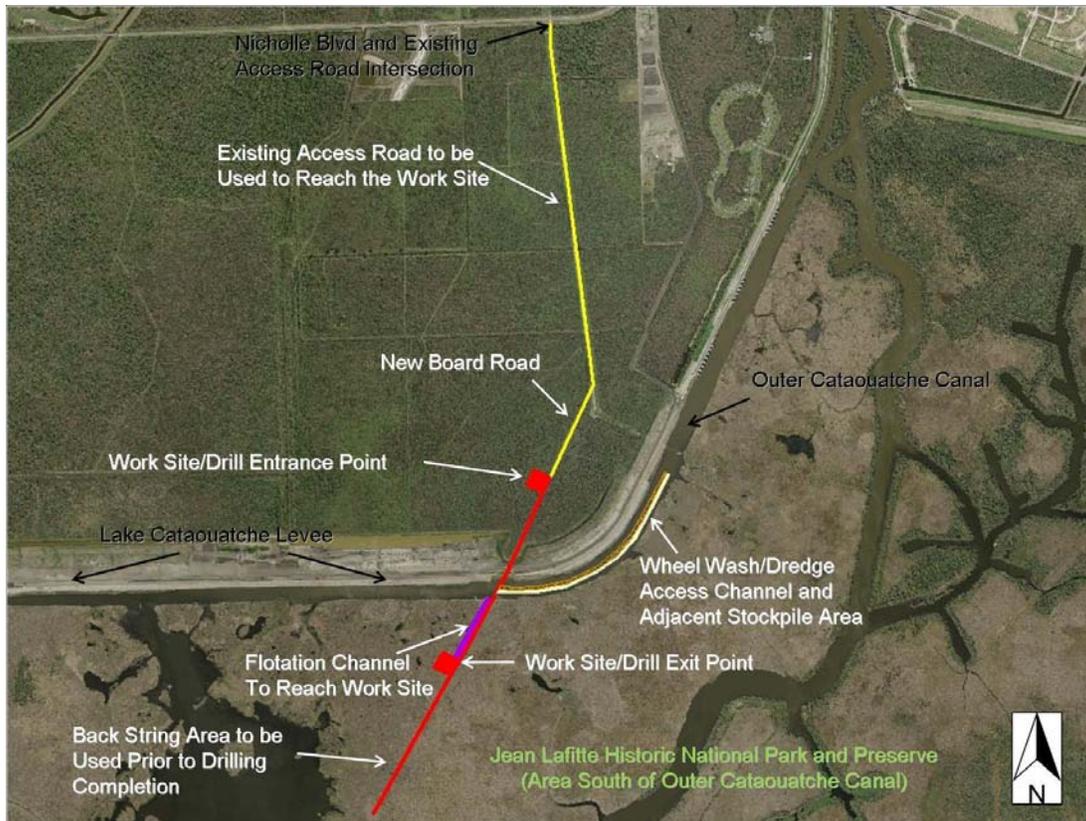


Figure 3: Pipeline relocation construction areas

Floating marsh habitat would be carefully excavated and placed adjacent to the construction site in a manner to minimize impacts to the excavated vegetation during construction. Once construction is complete, the impacted site would be backfilled to the approximate same elevation as the adjacent marsh and the excavated flotant marsh mats would be carefully placed in the backfilled flotation channel.

Once the vegetated mat is carefully placed within the temporary stockpile sites, the sediments would be excavated and spread thinly across the flotant marsh in a scattered pattern and/or stockpiled in tall piles with narrow footprints to the left and right of the excavated site. Excavated material may also be placed in the shallow water area where the Chevron pipeline within the JLNHPP meets the Outer Cataouatche Canal. There is a shallow water area there that could potentially hold excavated material from either the access channel to be excavated within JLNHPP lands and/or the dredged material that would otherwise be sidecast adjacent to the pipeline at the Outer Cataouatche Canal

crossing. At the onset of construction, the stockpile method resulting in the least impacts would be selected by the NPS and the relocation contractor. If stockpiling within the shallow water area is selected, some type of shoreline armoring within JLNHPP where the Chevron pipeline meets the Outer Cataouatche canal would be constructed to prevent erosion and scouring of the stockpiled material. If required, a plug would be constructed.

Relocation of the pipeline would temporarily impact approximately 8 acres of intermittently drained, forested wetlands habitat on the protected side, north of the Lake Cataouatche Levee, approximately 12.9 acres of open canal bottom within the Outer Cataouatche Canal, and approximately 14.5 acres of high quality freshwater floatant marsh south of the Lake Cataouatche Levee within the JLNHPP (table 1).

Multiple meetings were conducted with the CEMVN, NPS and Chevron to ensure adverse impacts, especially impacts to high quality wetlands within the park, were minimized to the maximum extent practicable. The CEMVN agrees that all impacts occurring within the JLNHPP would be mitigated for within the preserve. In addition, as a project feature, the impacted area within the JLNHPP would be restored to its original state to the maximum extent practicable. Backfilling, planting, and other measures deemed necessary would be implemented in the park as project features immediately following construction in order to quickly restore the impacted environment and maintain the quality of the area that existed prior to construction.

Best management practices would be used during drilling to prevent drill fluid leakage. The best management practice for drilling fluid leakage is to build a 20-ft by 20-ft ring levee around the drill entry and exit points and pump the return drilling fluids into holding tanks for recycling. Should a fracture occur, the standard practice would be to move the return pit to the fracture site and pump. The drill path would be regularly patrolled to check for hydraulic fractures.

When assessing risk and reliability among the alternatives with respect to the Federal levee system, this alternative is the most reliable and would be most effective in the reduction of risk. The HDD alternative removes the pipeline from coming in contact with the levee system, and since the pipeline would be relocated below the levee, no conflicts would be anticipated with any potential foreseeable future levee lifts. This alternative does not introduce transition points into the levee system and would only require this one time relocation and all entailed efforts. This alternative would incur the least cost when considering foreseeable future events such as future Federal levee lifts, and would not impede levee operations and maintenance. This alternative requires temporary access channels and work sites that would go outside of the existing pipeline ROW and would require a SUP for a temporary construction servitude.

Table 1: IERS 15.a Proposed Impacts

| Impacts Associated with Pipeline Relocation Activities | Acres | Earthen Material (cy) | Limestone (cy) |
|--|-------|-----------------------|----------------|
| Existing Access road | N/A | N/A | 800 |
| *Area north of Lake Cataouatche Levee to be temporarily cleared, grubbed, excavated and stockpiled (including site parallel to pipeline, board road, work site/drill pad, drill pit and all excavation and stockpiling) | 8 | 13,482 | N/A |
| **Outer Cataouatche Canal crossing temporary excavation and adjacent stockpile | 0.4 | 4,326 | N/A |
| **Outer Cataouatche Cana temporary access channel wheel wash/dredging | 5.8 | 14,077 | N/A |
| **Temporary Access wheel wash/dredging stockpile | 6.7 | N/A | N/A |
| ***Area south of Lake Cataouatche Levee to be temporarily excavated and stockpiled in the National Park (flotation channel, area parallel to pipeline, back string area) | 14.5 | 41,615 | N/A |
| ****Total project impacts | 35.7 | 73,500 | 800 |
| * Impacts off-Preserve on protected side to low quality intermittently drained forested wetlands ** Water bottom *** Impacts within the Preserve to high quality semi-buoyant freshwater estuarine wetlands. **** This total represents impacts to all habitat types and does not represent total impacts to wetland. | | | |

2.3.2 Temporary Access Road and Pontoon Bridges

The temporary access road would be constructed for use in transporting construction equipment and materials to levee reach WBV15a.2 and are incorporated by reference into this addendum (figures 4 and 5). The primary use of the temporary road would be for hauling fill material from the Churchill Farms borrow site to the project site which would allow a substantial decrease in haul distance, minimization of fuel consumption, and minimization of road maintenance. There are sections of the proposed temporary road

alignment that are currently cleared; however, the remaining section of the road alignment must be cleared and grubbed. The Contractor shall dispose of cleared and grubbed organics offsite to an approved site in accordance with the governing jurisdiction. The anticipated impacts for the access road were discussed in detail in IERS 15.a.

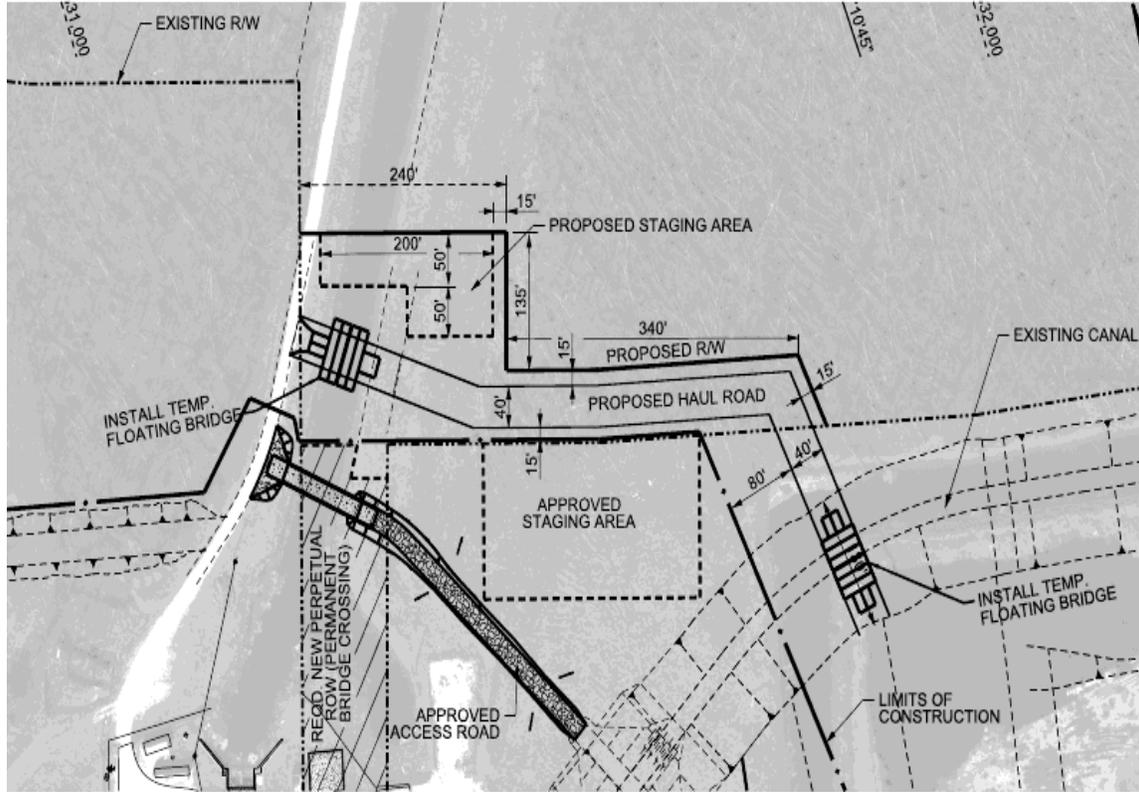


Figure 4: Proposed access road, staging area and pontoon bridges near the Lake Cataouatche Pump Stations 1 and 2



Figure 5: Proposed temporary access road for WVB 15a.2 (aerial photo)

2.4 NPS Preferred Alternative

The NPS, in coordination with CEMVN and Chevron, has identified permitting the alternative for horizontal directional drilling as the preferred alternative when taking into consideration socioeconomic factors (risk of loss of life and property) surrounding the WBV hurricane levee system; risk and reliability concerns of the levee segment to defend against a 100-year storm event; project constructability; avoidance, minimization and mitigation of natural resource impacts; and time and cost.

The pipeline located in the WBV 15a.2 levee reach currently rests upon the surface of the existing levee crown and slope in an Up and Over configuration (figure 6). The Lake Cataouatche levee is currently being raised and enlarged to meet the requirements of the HSDRRS, and the pipeline, in its current configuration, would interfere with the approved construction on that levee segment. Construction to improve this segment of the Lake Cataouatche Levee is stalled until the pipeline can be relocated; however, engineered alternative measures are currently being constructed at this location to reduce the risk of a 100-year storm event during the 2011 hurricane season only. The complete upgraded levee system feature at this location is still required for levee certification, despite the temporary construction of engineered alternative measures. As soon as the pipeline relocation takes place, the engineered alternative measures will be removed during or after the construction of the final Lake Cataouatche Levee system feature at this location. The Chevron pipeline is a primary supplier to Entergy's Nine Mile Point Power

Plant, which is one of three power plants that supply the southeastern grid system. Chevron is contractually obligated to provide Entergy with fuel and therefore, the line cannot be taken out of service.



Figure 6: The existing pipeline is going up and over the existing, non-upgraded levee

2.5 Alternatives to the Proposed Action

2.5.1 No-Action Alternative

Without implementation of the proposed action, the Government's action, which was approved in IER 15, described as the no action alternative in this Addendum document, would be constructed.

Should the no action alternative be selected, the JLNHPP would continue current management in the preserve, Chevron would not be granted the SUP, the relocation of the pipeline via HDD under the WBV 15a.2 levee could not be accomplished and the CEMVN would not be able to upgrade the remaining levee segment of WBV 15a.2 for completion of that portion of the Federal levee system by 2011. Additionally CEMVN would not be able to obtain the system-wide levee and floodwall certification and accreditation in January 2012.

2.5.2 Up and Over

The “up and over” alternative reflects the current configuration of the pipeline, which means the gas pipeline would cross up and over the raised levee section. In order to enlarge the Cataouatche Levee to meet the 100-year level of protection, the pipeline would have to be temporarily relocated adjacent to its current location in an “up and over” configuration until the earth work on the levee is complete and then the pipeline would be moved back into place and constructed in its final location to rest on concrete piles, covered with dirt and seeded with grass. A small bridge would be constructed over the pipeline to allow for vehicular crossing.

To provide barge access to the work site south of the Lake Cataouatche Levee, an approximate 70-ft wide by 3,620-ft long channel would be dredged in the Outer Cataouatche Canal. A 20-ft by 365-ft channel would be excavated on both sides of the pipeline on the water bottom of the canal (Figure 7). Prop washing, in which a tugboat would clear bottom sediment using propeller thrust, would be used first in an attempt to merely spread the sediment without actually dredging. In the event prop washing is not effective, bottom sediments would be dredged and side-cast adjacent the excavated channel. The dredged sediments would be stockpiled to a height of approximately 1.5-ft and returned to the excavated canal when construction is complete.

In the future, as the soils consolidate and the levee settles, additional lifts to the levee would be required to maintain the 100-year level of protection. Preliminary analysis indicates that by the year 2017, the levee would have settled enough to require a lift. Between the year 2011 and 2057, approximately 3 levee lifts are anticipated to maintain the 100-year level of protection. It is conceivable to assume that the levee crown would be shifted toward the protected side to eliminate or reduce impacts to the Outer Cataouatche Canal and JLNHPP.

There are minimal environmental impacts with this first levee lift; however, with each additional levee lift greater environmental impacts would result.

Initially this alternative would impact 12.9 acres of water bottoms and would remain within the existing ROWs; however, with each levee lift, the distance at which the pipeline would begin to arch over the levee would increase due to the pipelines physical constraints and lack of flexibility. Over time, the pipeline could no longer be relocated to lay on the levee surface and would require some other relocation method potentially directional drilling beneath the levee. This would result in additional impacts to the JLNHPP in the future that may be as much as the HDD alternative. By the 2nd lift proposed in the year 2031 approximately 35.4 acres would be impacted if it became necessary to relocate the pipeline via HDD.

The up and over method of relocation was not chosen because of its negative impacts to time, cost, and operation and maintenance over the life of the project. With the up and over configuration, there are higher risks to the system associated with increased potential for scouring and levee failure. A pipeline lying on levee slope and crown adds transitions into the levee system that causes turbulence with the earthen levee. The

transitions are the result of the bulge caused by the pipeline with material on top of it which does not allow for a completely flat levee surface.

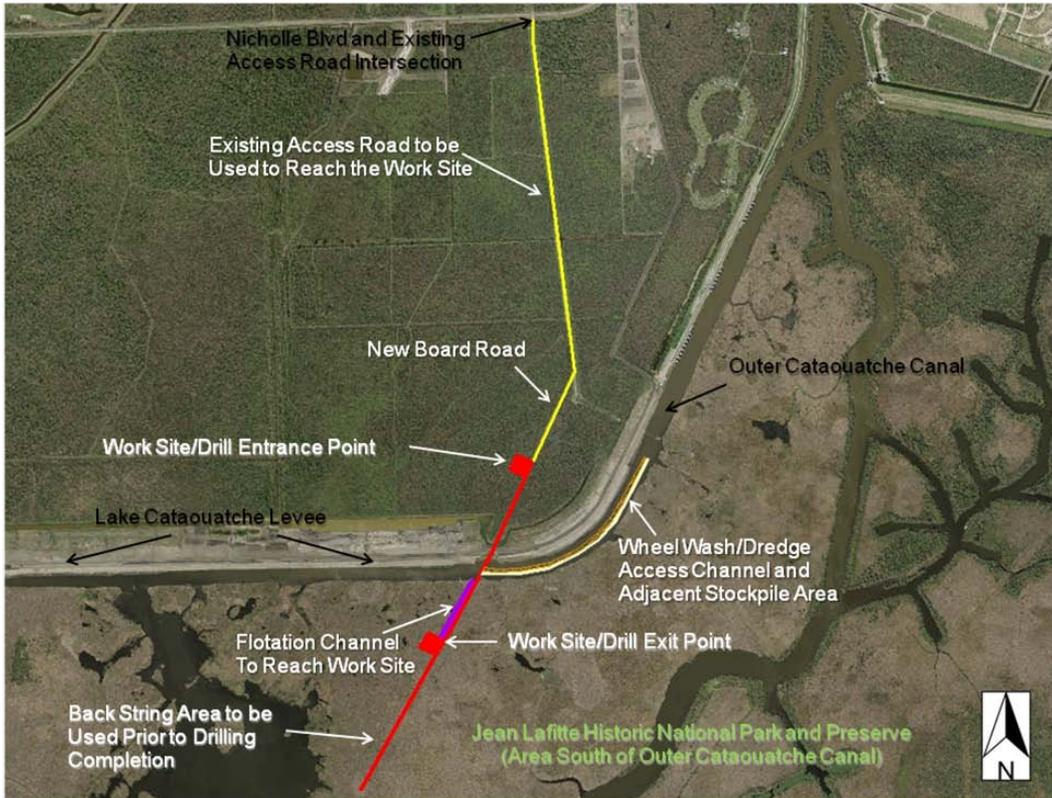


Figure 7: Pipeline Relocation Construction Areas

To construct another up and over configuration on the new levee would result in the need for future pipeline relocations due to planned future levee lifts. With each future levee lift, a relocation would be required, which could delay future lifts due to repeated relocation coordination, and additional costs would be incurred to have the utility company each time remove the pipe from the levee and place the pipe back over the levee once construction is complete. The up and over configuration would also add an additional expense for the Non-Federal Sponsor and impede their ability to operate and maintain the levee as the pipeline lying on top of the levee would be an obstruction in the levee section.

2.5.3 Floodwall and Sleeve

With this method the pipeline would be relocated by running the pipeline through a “sleeve” in a newly constructed floodwall (figures 8 and 9). This method would require degrading the existing levee segment and constructing a floodwall consisting of T-wall sheet-pile in its place. The pipeline would remain in place while the levee around it is degraded. The T-wall would then be driven into the levee using the “jack-in-place” method.

The angle of the intersection of the pipeline and the levee make it difficult to reach an appropriate Factor of Safety. As a result, the length of the T-wall needed for this location to stabilize the levee on either side of the T-wall would be 1,300-ft by 15.5-ft high. The length of T-wall required is a longer stretch, 1,300-ft as opposed to 150-ft to 200-ft, than what is typically required for older levees due to unstable soil conditions and stability concerns at this location. Soil borings taken from the Cataouatche Levee indicate the soils are soft clay and have relatively low strength. The low strength is thought to be due to the fact that the Cataouatche Levee was constructed in the past more recently using dredged material from the Outer Cataouatche Canal, and has not had the years of consolidation and strengthening typical of older levee reaches within the HSDRRS.

There is higher risk associated with constructing a floodwall adjacent to a waterway because they add transition points, potential points of failure, where the levee transitions to a floodwall. System failures during Hurricane Katrina were primarily due to floodwall failure. As a result of lessons learned following Hurricane Katrina, the USACE has attempted to reduce the number of levee transition points throughout the system by reducing the construction of floodwalls.



Figure 8: Sleeve through floodwall Configuration



Figure 9: Sleeve through Floodwall Construction

Below is an excerpt from an Independent Peer Evaluation Team (IPET) report concerning the increased risk of transitions in the levees (ASCE NSG Report Assessment):

"A common problem observed throughout the flood protection system was the scour and washout found at the transition between structural features and earthen levees. In some cases, the structural features were at a higher elevation than the connecting earthen levee, resulting in scour and washout of the levee at the end of the structural feature. At these sites, it appears the dissimilar geometry concentrated the flow of water at the intersection of the levee with the structural feature, causing turbulence that resulted in the erosion of the weaker levee soil. A practical approach to integrating protection in these transitions would reduce vulnerability of failure in the future."

2.6 Alternatives Eliminated from Further Consideration

Although the following alternatives would have no impacts within the JLNHPP itself, none of these alternatives meet the ultimate necessity of relocating the pipeline to allow improving the levee reach to the 100-year hurricane risk reduction level and achieving certification and accreditation by January 2012.

The alternate route alternatives were eliminated due to greater natural and human impacts, cost and the inability to complete the work to achieve accreditation by 2012. Failure to meet accreditation in 2012 would jeopardize certification of the entire HSDRRS and threaten participation in the NFIP. Public Law 109-23 directs the USACE to achieve certification for participation in the NFIP; therefore, for these reasons the aforementioned alternatives were eliminated from further consideration.

2.6.1 Revisited Alternatives

2.6.1.1 Pipeline Bridge over Levee

Under the Bridge over the Levee Alternative, the gas pipeline would be relocated via a bridge that would cross over the levee and the outer Cataouatche Canal (figures 10 and 11). This alternative would require both truck and barge access for construction of two bridge anchors on either side of the Lake Cataouatche Levee.

The scope of the impacts from this alternative would be similar in nature to the HDD alternative with the exception that it would require the construction of permanent bridge anchors. The bridge would cross over from the protected side of the levee and the Outer Cataouatche Canal to the JLNHPP requiring the acquisition of permanent ROW from the NPS. A permanent bridge foundation would be required on both sides of the levee.

Relocation of the pipeline would temporarily impact approximately 7 acres and permanently impact approximately 1 acre of low quality drained Bottomland Hardwood (BLH) forested wetlands on the protected side and approximately 12.9 acres of canal water bottom within the Outer Cataouatche Canal. It would also temporarily impact approximately 13.5 acres and permanently impact approximately 1 acre of semi-buoyant estuarine freshwater wetlands (flotant marsh) south of the Lake Cataouatche Levee within the JLNHPP. This alternative has similar environmental impacts to the HDD alternative, but due to the required permanent bridge foundation there would be 1 acre of impact that would be permanent rather than temporary. In addition, the permanent bridge crossing the Outer Cataouatche Canal would reduce aesthetics and recreation potential in the area.

When assessing risk and reliability among the alternatives with respect to the Federal levee system, this alternative is comparable to the HDD alternative as both remove the pipeline from coming in contact with the levee system. This alternative would not introduce transition points into the levee system and would only require this one time relocation. With this alternative, the pipeline would be relocated well above the levee and presents no foreseeable conflicts with future levee lifts. However, this relocation method would expose the pipeline to environmental factors such as wind and water loading, which would require the largest amount of pipeline operation and maintenance when compared with all of the other alternatives. This alternative would not impede levee operations and maintenance.



Figure 10: Pipeline Bridge Over Levee



Figure 11: Pipeline Bridge Over a Canal

Implementing this option would not allow the Corps to complete the levee construction by the December 2011 milestone and the January 2012 accreditation milestone. Therefore, this relocation method would not meet the purpose and need of this project; minimize environmental impacts over time; reduce construction costs or operations and maintenance; and meet the December 2011 construction deadline. It does meet the risk/reliability standards, but was deemed not practicable as compared to the preferred alternative and dismissed from further consideration.

2.6.2 New Alternatives

2.6.2.1 Re-Route Pipeline Outside of NPS Property

The pipeline re-route via route 1 or route 2 alternative is not a feasible alternative due to the time and cost required to conduct the extensive landowner negotiations required to obtain new ROW and the additional permitting that would be required. This alternative would require approximately 90 days to redesign the levee from a total earthen levee to a levee with a T-wall in the WBV 15a.2 reach. Construction of either route in this alternative would take approximately 200 – 250 days and could not be completed prior to the December 2011 certification milestone and the January 2012 accreditation

Alternate Route 1

The pipeline would be re-routed to tie-in to the existing pipeline north of the Upper Canal. The pipeline would have to go west approximately 3.25 miles and then south 1.75 miles to tie-in to the Chevron 22-inch Mail Line in Lake Cataouatche (figure 12). The new route would end a total of 5 miles from the current pipeline position.

The following would be required:

- a) 16,500 feet of new right-of-way
- b) 3.25 additional miles of clearing
- c) Levee crossing (HDD) 3.25 miles west of the existing levee crossing
- d) Tie-in in Lake Cataouatche via anchored barges
- e) New surveys
- f) New soil borings
- g) New permits



Figure 12: Pipeline Re-Routing Alternatives

Alternate Route 2

The pipeline would be re-routed to tie-in to the existing pipeline south of Nicole Blvd., then west and south 3.75 miles and then south 1.75 miles to tie-in to the Chevron 22-inch Mail Line in Lake Cataouatche. The new route would end a total of 5.5 miles from the current pipeline position.

The following would be required:

- a) 33,000 feet of new right-of-way
- b) 3.75 miles of additional clearing
- c) Levee crossing (HDD) 3.25 miles west of the existing levee crossing
- d) Tie-in in Lake Cataouatche
- e) New surveys
- f) New soil borings
- g) New permits

The contractor would cut a ditch to a minimum of 6 ft below the bottom of Lake Cataouatche for the new pipeline, strip back (500 ft each way) along the 22 in pipeline to allow it to be raised above water to make the new tie-in. The pipeline section in the JLNHPP would be abandoned in place. However, the abandoned line would need to be grouted to remove any potential liability due to the large diameter of the pipe and sensitivity of the area surrounding the line. Grouting would involve cutting the pipeline near the south bank of the Outer Cataouatche Canal, which lies within the marsh, and pumping cement into the line. This would require a 350 ft hole be dug back into the preserve in order to expose the pipeline so that it may be picked up the pipe above the water and cut for the grouting procedure. The piping north of the cut would be removed.

The pipeline would then be re-routed outside of the JLNHPP and would require HDD where the pipeline would intersect with the levee. If the pipeline is re-routed, this alternative would impact approximately 30 acres of forested wetlands, 8 acres of non-forested wetlands, and 26 acres of open water bottoms. Grouting would adversely impact approximately 1.5 acres within the existing pipeline ROW within the JLNHPP. Cost and time estimations would double with landowner negotiations and permitting. This would not allow CEMVN to complete the relocation in time to have levee improvements completed for certification and accreditation.

2.6.2.2 HDD all the way to Lake Cataouatche (Proposed by NPS)

This re-route option is similar to the Alternative Route 1, but the pipeline would be directionally drilled the full length of the drainage canal just north of the Cataouatche Levee. At the southern end of the board road, the pipeline would be directionally drilled west for the full length of the drainage canal until it reaches the levee on the WBV 15b.2 reach in which it would be directionally drilled under that levee reach as well.

As with the other re-route options, this option would be re-routed outside of the JLNHPP lands but would not eliminate impacts to the Preserve; therefore a SUP from the NPS would still be required. Chevron's current policy is to remove abandoned pipeline laterals, thus the 24-in pipeline on the JLNHPP would have to be removed unless Chevron granted a waiver. If the pipeline section in the JLNHPP could be abandoned in place, the line would need to be grouted to remove any potential liability due to the large diameter of the pipe and sensitivity of the area surrounding the line.

Grouting would involve cutting the pipeline near the South bank of the Outer Cataouatche Canal (in the marsh) and pumping cement in the line. A hole would have to be dug to expose the pipeline. This would require a 350-ft hole dug back into the preserve to be able to pick up the pipe above the water and cut it for the grouting procedure. The piping north of the cut would be removed. Grouting would adversely impact approximately 1.5 acres within the existing pipeline ROW within the JLNHPP.

2.7 Alternatives Summary

| Alternative Element | Alternative A: No-action Sleeve Through Floodwall | Alternative B: HDD | Alternative C: Bridge Over Levee | Alternative D: Up & Over | Alternative C: Re-route Pipeline Outside NPS lands |
|--------------------------------|---|--|--|---|---|
| Project Objective | Meets Project Objectives? | Meets Project Objectives? | Meets Project Objectives? | Meets Project Objectives? | Meets Project Objectives? |
| Meets Purpose and Need? | <p>Partially meets Objective:</p> <p>Alternative would relocate the pipeline, the costs are reasonable, but the risks are not acceptable at this location, the O&M is higher and it would not allow levee system completion by Dec. 31 2011 and start accreditation Jan 2012</p> | <p>Meets Objective:</p> <p>Alternative would be the most reliable, would not impede future levee lifts, has acceptable O&M, reasonable costs and would permit Federal levee system completion by Dec 31, 2011 and start accreditation Jan 2012.</p> | <p>Partially meets Objective:</p> <p>Alternative would relocate the pipeline and has acceptable risks, but has the highest costs and highest O&M. It would not be constructed in time to permit the completion of the Federal levee system by Dec. 31 2011 and start accreditation Jan 2012</p> | <p>Partially meets Objective:</p> <p>Alternative would relocate the pipeline, the costs are higher than the HDD but tolerable. However, the risks are not acceptable and it would not be constructed in time to allow levee system completion by Dec. 31 2011 and start accreditation Jan 2012</p> | <p>Partially meets Objective:</p> <p>Alternative would relocate the pipeline, has acceptable risks and O&M but the cost are higher than the preferred alternative, it has greater impacts outside of the Preserve and would not be constructed in time to permit the completion of the Federal levee system by Dec. 31 2011 and start accreditation Jan 2012</p> |
| Risk and Reliability | <p>Does not meet Objective:</p> <p>Adds 1300 foot T-Wall introducing transition points into the levee system. Ranked second to last for risk and reliability.</p> | <p>Meets Objective:</p> <p>Removes the pipeline from contacting the levee, does not interfere with future levee lifts.</p> | <p>Meets Objective:</p> <p>Removes the pipeline from contacting the levee and only requires one relocation; the structure would have to be considered during future levee lifts. There would be risk with a bridge structure exposing the pipeline to water and wind loads</p> | <p>Does not meet Objective:</p> <p>Ranked lowest because it introduces potential scour and failure points within the levee system, and after multiple lifts, the angle of the pipeline to the levee would further introduce risk and require additional relocation methods</p> | <p>Meets Objective:</p> <p>Removes the pipeline from contacting the levee, does not interfere with future levee lifts.</p> |

| | | | | | |
|------------------------------|---|--|---|---|---|
| Environmental Impacts | <p>Meets Objective:</p> <p>There would be no additional impacts from this alternative</p> | <p>Partially meets Objective:</p> <p>2nd highest impacts to Preserve.</p> <p>On Preserve: impacts to 14.5 acres of semi-buoyant estuarine freshwater wetlands. Impacts would be minimized to extent possible and mitigated in-kind</p> <p>Off Preserve impacts are 8 acres of (BLH-wet)12.9 acres of open water bottom</p> | <p>Does not meet Objective:</p> <p>Highest impacts to the Preserve.</p> <p>On Preserve: impacts to 13.5 acres (for access and work sites) and permanent impacts to 1 acre (for bridge anchor) of semi-buoyant estuarine freshwater wetlands within the Preserve. Impacts would be minimized to extent possible and mitigated in-kind</p> <p>Off Preserve impacts are 8 acres of BLH-wet, 12.9 acres of open water bottom</p> | <p>Does not meet Objective:</p> <p>Minimal impacts initially, but with subsequent lifts and HDD technically required in the future, this alternative would result in impacts that exceed those of Alternative B</p> <p>On Preserve: impacts to 14.5 semi-buoyant estuarine freshwater wetlands</p> <p>Off Preserve impacts are 8 acres of BLH-wet, 12.9 acres of open water bottom</p> | <p>Does not meet Objective:</p> <p>Highest overall impacts, including on and off Preserve.</p> <p>On Preserve: A hole would be dug to expose the pipeline for grouting temporarily impacting 1.5 acres of semi-buoyant freshwater emergent wetlands.</p> <p>Off Preserve: 30 acres BLH, 8 acres freshwater intermittently flooded emergent wetlands and 26 acres of water bottoms. Impacts would be minimized to extent possible and mitigated in-kind</p> |
| Cost | <p>Partially Meets Objective:</p> <p>2nd lowest cost which are considered cost effective at \$9.5 million</p> | <p>Meets Objective:</p> <p>Lowest Cost and considered cost effective at \$8.2 million</p> | <p>Does not meet Objective:</p> <p>2nd highest costs and considered not cost effective \$21.2 million</p> | <p>Partially Meets Objective:</p> <p>3rd lowest cost which is considered cost effective at \$12.2 million</p> | <p>Does not meet Objective:</p> <p>3rd highest costs and considered not cost effective at \$15.9 million</p> |

| | | | | | |
|---|--|--|---|--|---|
| <p>Time and Constructability</p> | <p>Does not meet Objective: Design and Construction would be 8.3 months and would not allow the CEMVN to meet the Jan. 2012 accreditation FEMA. No SUP is required from NPS</p> | <p>Meets Objective: Design and construction would be 2 months and would be complete to meet the Jan 2012 FEMA accreditation. A SUP is required from NPS</p> | <p>Does not meet Objective: Design and construction would be 24+ months and would not allow the CEMVN to meet the Jan. 2012 FEMA accreditation. Obtaining a permanent ROW from NPS would require congressional legislation resulting in unknown delays</p> | <p>Does not meet Objective: Design and construction would be at least 6 months and would not allow the CEMVN to meet the Jan. 2012 FEMA accreditation. For future levee lifts, a SUP would be required from NPS</p> | <p>Does not meet Objective: Design and construction would be 9+ months and would not allow the CEMVN to meet the Jan. 2012 FEMA accreditation. Obtaining multiple additional ROW would result in unknown delays. A SUP would be required from NPS due to grouting and capping the existing pipeline.</p> |
| <p>O&M Impacts</p> | <p>Does not meet Objective: O&M includes painting T-wall, mowing around wall; inspecting at transition points</p> | <p>Meets Objective: O&M required mowing levee section</p> | <p>Does not meet Objective: O&M includes maintaining, inspecting, and mowing around bridge anchors</p> | <p>Does not meet Objective: O&M required mowing levee section around the pipeline and inspecting transition points</p> | <p>Partially Meets Objective: O&M would require periodic inspections of the sleeve at the WBV 15b2 pump station</p> |

Table 2: Summary of Environmental Consequences

| Preserve Resource | Alt A – up and over | Alt B – floodwall and sleeve | Alt C – Reroute pipeline out of Preserve lands | Alt D – HDD | Alt E – Bridge over levee |
|--|--|--|--|--|--|
| Soils and geology | <p>Would not impact Preserve soils and geology.</p> <p>Construction of this alternative would remain within CEMVN and Chevron ROW</p> | <p>Would not impact Preserve soils and geology.</p> <p>Construction of this alternative would remain within CEMVN Chevron ROW</p> | <p>Would not impact Preserve soils and geology but would result in extensive impacts to the environment.</p> <p>This alternative would require clearing, grubbing and pipeline re-routing 5 miles from the current location.</p> | <p>Would impact Preserve soils and geology.</p> <p>8 acres of intermittently drained wetlands</p> <p>12.9 acres of open water bottom</p> <p>14.5 acres of high quality wetland habitat</p> | <p>Would impact Preserve soils and geology.</p> <p>Impacts would be similar to HDD but more severe as permanent bridge anchors would be constructed on either side of the Outer Cataouatche Canal</p> |
| Vegetation and Non-native species | <p>Would not impact Preserve Vegetation and Non-native species.</p> | <p>Would not impact Preserve Vegetation and Non-native species.</p> | <p>Would not impact Preserve Vegetation and Non-native species but would result in extensive impacts to the environment.</p> <p>This alternative would require clearing, grubbing and pipeline re-routing 5 miles from the current location (30 acres of forested wetlands and 8 acres of non-forested wetlands).</p> | <p>Would impact Preserve Vegetation and Non-native species.</p> <p>8 acres of intermittently drained wetlands</p> <p>14.5 acres of high quality wetland habitat with</p> <p>Equipment could potentially carry invasive species into Preserve if not properly cleaned.</p> | <p>Would impact Preserve Vegetation and Non-native Species.</p> <p>Impacts would be similar to HDD but more severe as permanent bridge anchors would be constructed on either side of the Outer Cataouatche Canal</p> |

| | | | | | |
|---|--|--|---|---|---|
| <p>Fish and Wildlife</p> | <p>Would not impact Preserve Fish and Wildlife.</p> | <p>Would not impact Preserve Fish and Wildlife</p> | <p>Would not impact Preserve Fish and Wildlife but would result in extensive impacts to the environment.</p> <p>This alternative would require clearing, grubbing and pipeline re-routing 5 miles from the current location.</p> | <p>Would impact Preserve Fish and Wildlife.</p> <p>8 acres of intermittently drained wetlands 12.9 acres of open water bottom 14.5 acres of high quality wetland habitat</p> | <p>Would impact Preserve Fish and Wildlife.</p> <p>Impacts would be similar to HDD but more severe as permanent bridge anchors would be constructed on either side of the Outer Cataouatche Canal</p> |
| <p>Hydrology and Water Quality</p> | <p>Would not impact Preserve Hydrology and Water Quality.</p> | <p>Would not impact Preserve Hydrology and Water Quality.</p> | <p>Would not impact Preserve Hydrology and Water Quality but would result in extensive impacts to the environment.</p> <p>26.5 acres of open water bottom habitat during HDD in Lake Cataouatche. Potential for temporary negligible water impacts associated with increased turbidity during HDD adjacent to Preserve lands</p> | <p>Would impact Preserve Hydrology and Water Quality.</p> <p>The proposed action would result in a temporary increase in turbidity during access dredging</p> | <p>Would impact Preserve Hydrology and Water Quality</p> <p>Impacts would be similar to HDD but more severe as permanent bridge anchors would be constructed on either side of the Outer Cataouatche Canal</p> |

| | | | | | |
|--|---|---|--|---|---|
| <p>Wetlands</p> | <p>Would not impact Preserve Wetlands.</p> | <p>Would not impact Preserve Wetlands.</p> | <p>Would not impact Preserve Wetlands but would result in extensive impacts to the environment.</p> <p>30 acres of forested wetlands and 8 acres non-forested wetlands</p> | <p>Would impact Preserve Wetlands.</p> <p>8 acres of intermittently drained wetlands</p> <p>12.9 acres of open water bottom</p> <p>14.5 acres of high quality wetland habitat</p> | <p>Would impact Preserve resources.</p> <p>Impacts would be similar to HDD but more severe as permanent bridge anchors would be constructed on either side of the Outer Cataouatche Canal</p> |
| <p>Visitor Use and Experience</p> | <p>Would not impact Preserve Visitor Use and Experience.</p> <p>Not aesthetically pleasing to see a pipeline up and over the levee</p> | <p>Would not impact Preserve Visitor Use and Experience.</p> <p>Not aesthetically pleasing to see a floodwall with a pipeline passing through it</p> | <p>Would not impact Preserve Visitor Use and Experience.</p> <p>Potential temporary recreational impact adjacent to Preserve for access dredging and HDD relocation in Lake Cataouatche</p> | <p>Possible impact to Preserve Visitor Use and Experience.</p> <p>Potential temporary recreational impact adjacent to Preserve for access dredging and HDD relocation in Outer Cataouatche Canal</p> | <p>Possible impact to Preserve Visitor Use and Experience.</p> <p>A permanent bridge structure would not be aesthetically pleasing, and could potentially obstruct recreational use. The permanent structure could potentially attract vandalism</p> |

| | | | | | |
|---------------------------------------|---|---|---|--|--|
| <p>Socioeconomic Resources</p> | <p>Would not impact Preserve Socioeconomic Resources.</p> <p>Adds Inherent risks in levee system, could cause levee failure due to potential for extensive scouring during a storm event</p> | <p>Would not impact Preserve Socioeconomic Resources.</p> <p>Adds Inherent risks in levee system by adding transitions, potential points of failure in the Federal levee system, this alternative could not be constructed in the required time frame to complete the levee system and receive levee certification and accreditation</p> | <p>Would not impact Preserve Socioeconomic Resources but would result in extensive impacts to the environment.</p> <p>Would have major impacts to socioeconomics outside of the Preserve and would require new ROW requests. this alternative could not be constructed in the required time frame to complete the levee system and receive levee certification and accreditation</p> | <p>Would not impact Preserve Socioeconomic Resources but would result in beneficial impacts to Socioeconomic Resources within the West Bank and vicinity area.</p> <p>Enables construction of most reliable levee design for this levee segment , this would be a major beneficial impact as the newly constructed would reduces risk for life and loss of property and enable levee certification and accreditation and the ability to obtain flood insurance within the West Bank and Vicinity area and</p> | <p>Would not impact Preserve Socioeconomic Resources but would result in beneficial impacts to Socioeconomic Resources within the West Bank and vicinity area.</p> <p>Enables construction of the most reliable levee design for this levee segment. this would be a major beneficial impact as the newly constructed would reduce risk for life and loss of property and enable levee certification and accreditation and the ability to obtain flood insurance within the West Bank and Vicinity area ; however, the pipeline would be exposed to environmental conditions, which would dramatically increases O&M and costs due to potential for more frequent maintenance. This alternative is the least economically feasible and could not be constructed in the required time frame to complete the levee system and receive levee certification and accreditation</p> |
|---------------------------------------|---|---|---|--|--|

This table provides a summary of the environmental consequences related to each alternative of the alternatives carried forward for analysis. A more detailed explanation of the impacts is presented in “Chapter 4: Environmental Consequences.”

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Environmental Setting

IER 15 contains a complete discussion of the Environmental Setting for the project area and is incorporated by reference into this document. As such, no discussion of environmental setting will be made in this document.

3.2 Significant Resources

This section identifies the significant resources located in the vicinity of the proposed action, and describes in detail those resources that would be impacted, directly or indirectly, by the alternatives. Direct impacts are those that are caused by the action taken and occur at the same time and place (40 CFR §1508.8(a)). Indirect impacts are those that are caused by the action and are later in time or further removed in distance, but are still reasonably foreseeable (40 CFR §1508.8(b)). Cumulative impacts are discussed in Section 4.

The resources described in this section are those recognized as significant by laws, executive orders, regulations, and other standards of national, state, or regional agencies and organizations; technical or scientific agencies, groups, or individuals; and the general public. Further detail on the why these resources are considered significant can be found by contacting CEMVN, or on www.nolaenvironmental.gov, which offers information on the ecological and human value of these resources, as well as the laws and regulations governing each resource. Search for “Significant Resources Background Material” in the website’s digital library for additional information. Table 3 shows those significant resources found within the project area, and notes whether they would be impacted by the proposed action analyzed in this Addendum to the IERS.

Existing Conditions were discussed in IER 15 and are incorporated by reference for each significant resource discussed.

Table 3: Significant Resources in Project Study Area

| Significant Resource | Impacted | Not Impacted |
|--|-----------------|---------------------|
| Water Quality | X | |
| Wetlands | X | |
| Fisheries | X | |
| Essential Fish Habitat | | X* |
| Wildlife | X | |
| Threatened or Endangered Species | | X* |
| Non-wet Uplands | X | |
| Cultural Resources | | X* |
| Recreational Resources | | X* |
| Aesthetic (Visual) Resources | | X* |
| Air Quality | | X* |
| Noise | | X* |
| Transportation | | X* |
| Socioeconomic Resources <ul style="list-style-type: none"> • Land Use, Population, Employment • Environmental Justice | | X* |
| <p>* - Proposed action poses no or de minimus additional impacts from those described in IER 15 and as such are not discussed in this document. Impacts to those resources from the approved project were described in detail in IER 15.</p> | | |

3.2.1 *Water Quality*

Future Conditions with No-Action

Under the no action alternative, the Government's action, as approved in IER 15 would be constructed. Consequently, direct, indirect, and cumulative impacts to Outer Cataouatche Canal would not differ from those described previously in the original IER.

Future Conditions with the Proposed Action (HDD)

Direct and Indirect Impacts

Temporary excavation and dredging would impact approximately 12.9 acres of open canal bottom within the Outer Cataouatche Canal causing a temporary impact to water quality.

A 20-ft by 365-ft (0.4 acres) area would be excavated on both sides of the pipeline, as the pipeline crosses the open water bottom of the canal. Dredging would be required in the Outer Cataouatche Canal to provide barge access to the work site south of the Lake Cataouatche Levee. An approximate 70-ft wide by 3,620-1 ft long (5.8 acres) access route would be cleared in the Outer Cataouatche Canal to allow for the barge draft. Prop washing, in which a tugboat would clear bottom sediment using propeller thrust, would be used first in attempt to merely spread the sediment without actually dredging. In the event prop washing is not effective, bottom sediment would be dredged and placed adjacent the entire length of the required dredged area. The material would be temporarily stockpiled to a height of approximately 1.5-ft in a stockpile site adjacent to the dredged area, temporarily impacting 6.7 acres.

There is the potential for temporary adverse impacts to water quality due to increased turbidity in the Outer Cataouatche Canal during the pipeline relocation; however, adherence to best management practices would aid in minimizing the impacts of these water quality effects. (Best management practices are effective, practical, structural or nonstructural methods which prevent or reduce the movement of sediment, nutrients, pesticides and other pollutants from the land to surface or ground water, or which otherwise protect water quality from potential adverse effects of construction activities.) There is also the potential for a minimal adverse impact to water quality associated with a temporary increase in turbidity within the Avondale and Cataouatche canals during construction and use of the two pontoon bridges for the access road near the Lake Cataouatche pump stations 1 and 2. Each bridge would impact > 0.1 acres. The anticipated impacts for the access road were discussed in detail in IERS 15.a.

Cumulative Impacts

Potential cumulative impacts to the canal from the proposed action would involve the combined effects to the canal from the multiple WBV projects in the area. Impacts from

the proposed action on the canal would primarily be short-term. Cumulative impacts for this project were discussed in IER 15 and IERS 15.a and will be further discussed in the CED.

Future Conditions with Up and Over

Direct Impacts

Potential direct impacts to water quality associated with the Up and Over alternative include temporary excavation and dredging in the Outer Cataouatche Canal. A 20-ft by 3650ft area would be excavated on both sides of the pipeline, as the pipeline crosses the open water bottom of the canal. Dredging would be required in the Outer Cataouatche Canal to provide barge access to the work site south of the Lake Cataouatche Levee. An approximate 70-ft wide and 3,620-ft long access route would be cleared in the Outer Cataouatche Canal to allow for the barge draft. Prop washing, in which a tugboat would clear bottom sediment using propeller thrust, would be used first in attempt to merely spread the sediment without actually dredging. In the event prop washing is not effective, bottom sediment would be dredged and placed adjacent the entire length of the required dredged area. The material would be temporarily stockpiled to a height of approximately 1.5-ft in a stockpile site adjacent to the dredged area.

Indirect Impacts

There is the potential for temporary adverse impacts to water quality due to increased turbidity in the Outer Cataouatche Canal during the pipeline relocation; however, adherence to best management practices would aid in minimizing the impacts of these water quality effects. There is also the potential for a minimal adverse impact to water quality associated with a temporary increase in turbidity within the Avondale and Cataouatche canals during construction and use of the two pontoon bridges for the access road near the Lake Cataouatche pump stations 1 and 2. Each bridge would impact > 0.1 acres.

Cumulative Impacts

Initially this alternative would impact 12.9 acres of water bottoms and would remain within the existing CEMVN and Chevron ROWs. However with each levee lift, the distance at which the pipeline would begin to arch over the levee would increase due to the physical constraints and lack of flexibility in the pipeline. Over time, the pipeline could no longer be relocated to lay on the levee surface and would require some other relocation method, potentially directional drilling beneath the levee. This would result in additional impacts to the JLNHPP in the future that may be as much or more than the HDD alternative.

By the 2nd lift proposed in the year 2031, approximately 35.4 acres would be impacted if it became necessary to relocate the pipeline via HDD.

Cumulative impacts for this project were discussed in IER 15 and IERS 15.a and will be further discussed in the CED.

Future Conditions with Sleeve through Floodwall

Direct and Indirect Impacts

There would be no direct or indirect impacts to water quality associated with the sleeve through floodwall alternative. The gas pipeline would be relocated by running the pipeline through a newly constructed floodwall via a sleeve through the floodwall. The pipeline would be kept in place while the levee around it would be degraded, and the sheet pile would then be driven using the jack in place method. This alternative would require the existing levee segment to be degraded and a 1,300 ft T-Wall would be constructed in its place. The floodwall length would be required due to soil conditions and stability concerns at this particular location.

Cumulative Impacts

Potential cumulative impacts to water quality in the canal from the proposed action would involve the combined effects to the canal from the multiple WBV projects in the area. Impacts from this alternative on the canal would primarily be short-term. Cumulative impacts for this project were discussed in IER 15 and IERS 15.a and will be further discussed in the CED.

3.2.1 Wetlands

Future Conditions with No-Action

Under the no action alternative, the Government's action, as approved in IER 15 would be constructed. Consequently, direct, indirect, and cumulative impacts to wetlands would not differ from those previously described in the original IER 15.

Future Conditions with the Proposed Action (HDD)

Direct Impacts

The oil/gas pipeline relocation would impact approximately 8 acres of intermittently drained, forested wetlands habitat on the protected side, north of the Lake Cataouatche levee and approximately 14.5 acres of high quality wetlands on the flood side, south of the Lake Cataouatche levee within the JLNHPP. Multiple meetings were conducted with the CEMVN, NPS and the utility company to ensure adverse impacts, especially impacts to high quality wetlands within the park, were minimized to the maximum extent practicable. The CEMVN agrees that all impacts occurring within the JLNHPP would be mitigated for within the National Park. In addition, as a project feature, the impacted area

within the JLNHPP would be restored to its original state to the maximum extent practicable. Immediately following construction, backfilling, planting, and other measures deemed necessary would be implemented in the park as project features in order to quickly restore the impacted environment and maintain the quality of the area that existed prior to construction. The remaining impacts will be mitigated within watershed in conjunction with other WBV HSDRRS mitigation efforts.

While the flood side of the project area includes tidally influenced, higher quality wetlands, the vast majority of the protected side of the project area contains wetlands that have been previously disturbed. The remaining wooded areas possess some characteristics of wetlands; however, due to pumped drainage since the early 1960's, the amount and quality of those wetlands has diminished over time. Three pumping stations now affect the hydrology of the area - Cataouatche Pump Stations No. 1 and No. 2, and the Bayou Segnette Pump Station, constructed in the mid-1970's, 1985, and 1986, respectively. Although the pump stations were constructed to provide drainage for the Bridge City and Westwego areas, they connect portions of the study area through a series of drainage canals. Pumping the area to an artificially low water table has caused a consolidation and decay of organic materials, resulting in subsidence, and has contributed to the conversion of wetlands to bottomland hardwoods. The bottomland hardwoods remaining in the project area have a low quality value because of the excessive quantity of invasive Chinese tallow trees.

Indirect Impacts

Potential indirect impacts from the proposed action would primarily consist of construction-related effects from increased turbidity on the wetland areas surrounding the project area from the construction site runoff. The area affected would be small relative to the size of the adjacent wetlands. Construction-related runoff into the wetlands would be managed through best management practices where possible, and the effects from construction would be temporary and short in duration.

Cumulative Impacts

Potential cumulative impacts to the wetlands from the proposed action would involve the combined effects to wetlands from the multiple WBV projects in the area. The amount of wetlands temporarily impacted by construction of the proposed action is a small fraction of similar habitat available in southeast Louisiana. Unavoidable impacts to wetlands will be mitigated so as to negate any cumulative loss of this significant resource. Cumulative impacts for this project were discussed in IER 15 and IERS 15.a and will be further discussed in the CED.

Future Conditions with Up and Over

Direct Impacts

There would be no direct impacts to wetlands associated with the Up and Over alternative.

Indirect Impacts

Potential indirect impacts from this alternative would primarily consist of construction-related effects from increased turbidity on the wetland areas surrounding the project area from the construction site runoff. The area affected would be small relative to the size of the adjacent wetlands. Construction-related runoff into the wetlands would be managed through best management practices where possible, and the effects from construction would be temporary and short in duration.

Cumulative Impacts

Potential cumulative impacts to the wetlands from this alternative would involve the combined effects to wetlands from the multiple WBV projects in the area. The amount of wetlands temporarily impacted by construction of the proposed action is a small fraction of similar habitat available in southeast Louisiana. Unavoidable impacts to wetlands will be mitigated so as to negate any cumulative loss of this significant resource. Cumulative impacts for this project were discussed in IER 15 and IERS 15.a and will be further discussed in the CED.

Future Conditions with Sleeve through Floodwall

Direct and Indirect Impacts

There would be no direct or indirect impacts to wetlands associated with the sleeve through floodwall alternative. The gas pipeline would be relocated by running the pipeline through a newly constructed floodwall via a sleeve through the floodwall. The pipeline would be kept in place while the levee around it would be degraded, and the sheet pile would then be driven using the jack in place method. This alternative would require the existing levee segment to be degraded and a 1,300-ft T-Wall would be constructed in its place. The floodwall length would be required due to soil conditions and stability concerns at this particular location.

Cumulative Impacts

Potential cumulative impacts from this alternative would involve the combined effects to the surrounding wetlands from the multiple WBV projects in the area. Impacts from the proposed action on wetlands would primarily be short-term. Cumulative impacts for this project were discussed in IER 15 and IERS 15.a and will be further discussed in the CED.

3.2.1 Non-Wet Uplands

Future Conditions with No-Action

Under the no action alternative, the Government's action, as approved in IER 15 would be constructed. Consequently, direct, indirect, and cumulative impacts to fisheries would not differ from those described previously in the original IER 15.

Future Conditions with the Proposed Action (HDD)

Direct Impacts

The access road and staging area would temporarily impact a previously cleared area and approximately 0.29 acres of non-wet, low quality, bottomland hardwoods.

There are sections of the proposed temporary road alignment that are currently cleared; however, the remaining section of the road alignment must be cleared and grubbed. The proposed temporary access road would directly impact 0.29 acres of very low quality upland habitat consisting mostly of the invasive species, Chinese Tallow (*Triadica sebifera* (Syn. *Sapium sebiferum*)) with some intermittent low quality bottom land hardwood species such as black willow (*Salix nigra*) (figure 13). The levee turf extends to the canal water edge (figure 14).

Indirect Impacts

Potential indirect impacts from the proposed action would primarily consist of construction-related effects from increased turbidity on the wetland areas surrounding the project area from the construction site runoff. The area affected would be small relative to the size of the adjacent wetlands. Construction-related runoff into the wetlands would be managed through best management practices where possible, and the effects from construction would be temporary and short in duration.

Cumulative Impacts

Potential cumulative impacts from the proposed action would involve the combined effects to non-wet, bottomland hardwoods from the multiple WBV projects in the area. The amount of temporary impacts due to construction of the proposed action is a small fraction of similar habitat available in southeastern Louisiana. Unavoidable impacts to bottomland hardwoods will be mitigated so as to negate any cumulative loss of this significant resource.



Figure 13: Chinese Tallow trees in the area to be cleared for the proposed access road



Figure 14: Location where canal crossing would be constructed

Future Conditions with Up and Over

Direct Impacts

Potential direct impacts to non-wet uplands associated with the Up and Over alternative would be similar to those described in the proposed action as the access road and staging area would temporarily impact a previously cleared area and approximately 0.29 acres of non-wet, low quality, bottomland hardwoods.

Indirect Impacts

Potential indirect impacts to non-wet uplands from the proposed action would primarily consist of construction-related effects from increased turbidity on the wetland areas surrounding the project area from the construction site runoff. The area affected would be small relative to the size of the adjacent wetlands. Construction-related runoff into the wetlands would be managed through best management practices where possible, and the effects from construction would be temporary and short in duration.

Cumulative Impacts

Potential cumulative impacts to non-wet uplands from the proposed action would involve the combined effects to non-wet, bottomland hardwoods from the multiple WBV projects in the area. The amount of temporary impacts due to construction of the proposed action is a small fraction of similar habitat available in southeastern Louisiana. Unavoidable impacts to bottomland hardwoods will be mitigated so as to negate any cumulative loss of this significant resource.

Future Conditions with Sleeve through Floodwall

Direct Impacts

Potential direct impacts to non-wet uplands associated with the Sleeve through Floodwall alternative would be similar to those described in the proposed action as the access road and staging area would temporarily impact a previously cleared area and approximately 0.29 acres of non-wet, low quality, bottomland hardwoods.

Indirect Impacts

Potential indirect impacts to non-wet uplands from the proposed action would primarily consist of construction-related effects from increased turbidity on the wetland areas surrounding the project area from the construction site runoff. The area affected would be small relative to the size of the adjacent wetlands. Construction-related runoff into the wetlands would be managed through best management practices where possible, and the effects from construction would be temporary and short in duration.

Cumulative Impacts

Potential cumulative impacts to non-wet uplands from the proposed action would involve the combined effects to the surrounding wetlands from the multiple WBV projects in the area. Impacts from the proposed action on wetlands would primarily be short-term.

3.2.2 Fisheries

Future Conditions with No-Action

Under the no action alternative, the Government's action, as approved in IER 15 would be constructed. Consequently, direct, indirect, and cumulative impacts to fisheries would not differ from those described previously in the original IER 15.

Future Conditions with the Proposed Action (HDD)

Direct Impacts

Temporary excavation and dredging would impact approximately 12.9 acres of open canal bottom within the Outer Cataouatche Canal. Construction of the two pontoon bridges for the access road near the Lake Cataouatche pump stations 1 and 2 would impact less than 0.2 acres of open water, canal bottom. The dredging, stockpiling and bridge construction would destroy the immobile and less-mobile species in the filled area. Most mobile species within the canal would avoid the areas impacted by construction and could move from areas being temporarily filled by the proposed action to adjacent wetland and canal habitat.

Impacts on less-mobile benthic populations from construction activities would be short-term with turbidity effects potentially lasting up to several months after completion. The area that would be disturbed for the proposed action is a small proportion of the similar aquatic habitat available in the vicinity. Once the proposed action is complete, sediment would settle, benthos would repopulate, and other mobile aquatic species would return.

Indirect Impacts

Potential indirect impacts from the proposed action would primarily consist of effects from increased turbidity from construction activities which could immediately reduce water quality in the project area and negatively impact fish. However, construction-related runoff into the canal would be managed through best management practices and would be reduced by the movement of the tides. Those impacts on fisheries, prey species, or their habitat would be short-term with turbidity effects potentially lasting up to several months after completion.

Cumulative Impacts

Potential cumulative impacts on fish habitat from the proposed action would involve the combined effects on suitable fish habitat in wetlands, canals, and lakes from the multiple WBV projects in the area. The project area would be modified only temporarily and very slightly in context of the size of the Outer Cataouatche Canal.

Future Conditions with Up and Over

Direct Impacts

There would be no direct impacts to fisheries associated with the Up and Over alternative.

Indirect Impacts

Potential indirect impacts from the proposed action would primarily consist of effects from increased turbidity from construction activities which could immediately reduce water quality in the project area and negatively impact fish. However, construction-related runoff into the canal would be managed through best management practices and would be reduced by the movement of the tides. Those impacts on fisheries, prey species, or their habitat would be short-term with turbidity effects potentially lasting up to several months after completion.

Cumulative Impacts

Initially this alternative would impact 12.9 acres of water bottoms and would remain within the existing CEMVN and Chevron ROWs. However with each levee lift, the distance at which the pipeline would begin to arch over the levee would increase due to the physical constraints and lack of flexibility in the pipeline. Over time, the pipeline could no longer be relocated to lay on the levee surface and would require some other relocation method, potentially directional drilling beneath the levee. This would result in additional impacts to the JLNHPP in the future that may be as much or more than the HDD alternative.

By the 2nd lift proposed in the year 2031, approximately 35.4 acres would be impacted if it became necessary to relocate the pipeline via HDD.

Future Conditions with Sleeve through Floodwall

Direct and Indirect Impacts

There would be no direct or indirect impacts to non-wet uplands associated with the sleeve through floodwall alternative.

Cumulative Impacts

Potential cumulative impacts from the proposed action would involve the combined effects to the surrounding wetlands from the multiple WBV projects in the area. Impacts from the proposed action on wetlands would primarily be short-term.

3.2.1 Wildlife

Future Conditions with No-Action

Under the no action alternative, the Government's action, as approved in IER 15 would be constructed. Consequently, direct, indirect, and cumulative impacts to wildlife would not differ from those described previously in the original IER 15.

Future Conditions with the Proposed Action (HDD)

Direct Impacts

The greatest potential for effects on wildlife associated with the implementation of the proposed action would occur during the initial clearing and grubbing. The presence of construction-related activity, machinery, and noise would be expected to cause most wildlife to avoid the area during the construction period. Impacts from construction would disturb wildlife, but most of these impacts would be short-term. Adjacent habitat would stabilize after the construction is completed allowing species to return. Most wildlife within the adjacent wetland habitats would return with the cessation of noise and activity associated with relocation. Wildlife displaced by the temporary loss of the wetland required for the proposed action would be able to move into the extensive adjacent wetland habitat.

Recently disturbed areas on the protected side that are to be utilized for construction have little to no wildlife habitat function. Direct effects to wildlife within the footprint of disturbance from implementing the proposed action would be minimal. Some disturbance-tolerant individuals of certain species may be permanently displaced or destroyed during construction. As such, constructing the proposed action would have a temporary disturbance on species within the edge and aquatic habitat, and would create only temporary effects to wildlife.

Proposed wetland impacts are minimal and temporary, thus the loss of habitat during construction would result in a relatively minor reduction in potential future nesting area for birds and foraging area for birds and other wildlife.

Although birds are highly mobile and able to move to other habitats in the vicinity, local populations of species that nest in colonies could be adversely affected if construction activities caused abandonment of nesting sites. In order to minimize the potential for construction under the proposed action to disturb colonial-nesting wading birds,

procedures recommended by U.S. Fish and Wildlife Service (USFWS) would be followed. Prior to construction, the project area would be inspected by USFWS or other qualified personnel for the presence of nesting colonies during the nesting season. Construction-related activities that would occur within 1,000-ft of a colony would be restricted to the non-nesting period, which in this region generally extends from September 1 to February 15, depending on the species present. This 1,000-ft buffer would be maintained unless coordination with USFWS indicates that the buffer zone may be reduced based on the species present and other specifics of the situation.

Prior to construction, the project area would be inspected by USFWS or other qualified personnel for the presence of Bald Eagle nest trees, including both active and alternate nests. Construction-related activities that would occur within 660-ft of a nest would be performed outside the bald eagle nesting season, which in this region generally extends from October 1 to May 15. This 660-ft buffer would be maintained unless coordination with USFWS indicates that the buffer zone may be reduced based on the specifics of the situation. Damage to nest trees would be avoided, including damage to their root systems through soil disturbance or compaction.

The above procedures for preventing disturbance of colonial-nesting birds and bald eagle nesting sites, should they become established in the area prior to construction, would minimize the potential for adverse impacts on these species from the proposed action.

A small number of less mobile and wetland dependent species (i.e. mice, reptiles, amphibians) may be lost during construction, however, most wildlife species would likely avoid the vicinity of the proposed action during the construction period and some that are not dependent on the habitats would return following the completion of construction.

Coordination with the USFWS indicates that no significant effects to fish and wildlife would be expected to occur from implementing the proposed action. As such, the responsibilities of the CEMVN to protect migratory birds under Executive Order (EO) 13186 and the Migratory Bird Treaty Act (16 USC 703 et seq.) will have been met. This EO establishes further coordination requirements with the USFWS when agency actions have, or are likely to have, a measurable negative effect on migratory bird populations.

Indirect Impacts

Indirect effects to wildlife species due to construction activities (e.g., noise, vibration) within adjacent wetlands or aquatic habitat would be short term and temporary. Mobile species could find refuge in other areas until the construction disturbance is over. In addition, species sensitive to disturbance would likely not utilize these areas because of the recent disturbances related to ongoing construction.

Cumulative Impacts

Potential cumulative impacts on wildlife from the proposed action would involve the combined effects of habitat loss and displacement of wildlife populations from the

multiple WBV projects in the area. The displacement of the majority of wildlife would be short-term during the construction period, and the displaced individuals would likely return following project completion.

Movement of the limited numbers of wildlife that currently inhabit the project area's terrestrial and aquatic habitats into surrounding, unimpacted habitats would not be expected to result in exceedances of the carrying capacity of the extensive, adjacent habitats. Thus, the potential cumulative impacts on wildlife from the proposed action in conjunction with other projects in the region would affect relatively small populations and habitat areas, and the extensive habitats remaining in the region would have the capacity to accommodate those populations.

Future Conditions with Up and Over

Direct Impacts

Potential direct impacts to wildlife associated with the Up and Over alternative would be similar to those described in the proposed action. The greatest potential for effects on wildlife associated with the implementation of the proposed action would occur during the initial clearing and grubbing. The presence of construction-related activity, machinery, and noise would be expected to cause most wildlife to avoid the area during the construction period. Impacts from construction would disturb wildlife, but most of these impacts would be short-term. Adjacent habitat would stabilize after the construction is completed allowing species to return. Most wildlife within the adjacent wetland habitats would return with the cessation of noise and activity associated with relocation. Wildlife displaced by the temporary loss of the wetland required for the proposed action would be able to move into the extensive adjacent wetland habitat.

Indirect Impacts

Indirect effects to wildlife species due to construction activities (e.g., noise, vibration) within adjacent wetlands or aquatic habitat would be short term and temporary. Mobile species could find refuge in other areas until the construction disturbance is over. In addition, species sensitive to disturbance would likely not utilize these areas because of the recent disturbances related to ongoing construction.

Cumulative Impacts

Potential cumulative impacts on wildlife from the proposed action would involve the combined effects of habitat loss and displacement of wildlife populations from the multiple WBV projects in the area. The displacement of the majority of wildlife would be short-term during the construction period, and the displaced individuals would likely return following project completion.

Movement of the limited numbers of wildlife that currently inhabit the project area's terrestrial and aquatic habitats into surrounding, unimpacted habitats would not be

expected to result in exceedances of the carrying capacity of the extensive, adjacent habitats. Thus, the potential cumulative impacts on wildlife from the proposed action in conjunction with other projects in the region would affect relatively small populations and habitat areas, and the extensive habitats remaining in the region would have the capacity to accommodate those populations.

Future Conditions with Sleeve through Floodwall

Direct Impacts

Potential direct impacts to wildlife associated with the Sleeve through Floodwall alternative would be similar to those described in the proposed action. The greatest potential for effects on wildlife associated with the implementation of the proposed action would occur during the initial clearing and grubbing. The presence of construction-related activity, machinery, and noise would be expected to cause most wildlife to avoid the area during the construction period. Impacts from construction would disturb wildlife, but most of these impacts would be short-term. Adjacent habitat would stabilize after the construction is completed allowing species to return. Most wildlife within the adjacent wetland habitats would return with the cessation of noise and activity associated with relocation. Wildlife displaced by the temporary loss of the wetland required for the proposed action would be able to move into the extensive adjacent wetland habitat.

Indirect Impacts

Indirect effects to wildlife species due to construction activities (e.g., noise, vibration) within adjacent wetlands or aquatic habitat would be short term and temporary. Mobile species could find refuge in other areas until the construction disturbance is over. In addition, species sensitive to disturbance would likely not utilize these areas because of the recent disturbances related to ongoing construction.

Cumulative Impacts

Potential cumulative impacts on wildlife from the proposed action would involve the combined effects of habitat loss and displacement of wildlife populations from the multiple WBV projects in the area. The displacement of the majority of wildlife would be short-term during the construction period, and the displaced individuals would likely return following project completion.

Movement of the limited numbers of wildlife that currently inhabit the project area's terrestrial and aquatic habitats into surrounding, unimpacted habitats would not be expected to result in exceedances of the carrying capacity of the extensive, adjacent habitats. Thus, the potential cumulative impacts on wildlife from the proposed action in conjunction with other projects in the region would affect relatively small populations and habitat areas, and the extensive habitats remaining in the region would have the capacity to accommodate those populations.

4. CUMULATIVE IMPACTS

NEPA requires a Federal agency to consider not only the direct and indirect impacts of a proposed action, but also the cumulative impact of the action. Cumulative impact is defined as the “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR §1508.7).” Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. These actions include on- or off-site projects conducted by government agencies, businesses, or individuals that are within spatial or temporal boundaries of the actions considered in this IER Supplemental.

As indicated previously, in addition to this Addendum to the IER Supplemental, the CEMVN is preparing a draft Comprehensive Environmental Document (CED) that will describe the work completed and the work remaining to be constructed. The purpose of the draft CED will be to document the work completed by the USACE on a system-wide scale. The draft CED will describe the integration of individual IERs into a systematic planning effort. Additionally, the draft CED will contain updated information for any IER that had incomplete or unavailable data at the time it was posted for public review. Overall cumulative impacts and future operations and maintenance requirements will also be included. The discussion provided below describes an overview of other actions, projects, and occurrences that may contribute to the cumulative impacts previously discussed.

Negative effects associated with the implementation of the proposed action that could contribute cumulatively with the effects of other projects include construction related increases in truck traffic, noise and vibration, vehicle and equipment emissions as well as the accelerated wear of transportation infrastructure including roads, bridges and culverts. Other impacts include the temporary loss of approximately 8 acres of intermittently drained, forested wetlands habitat on the protected side, north of the Lake Cataouatche Levee, 12.9 acres of open canal bottom within the Outer Cataouatche Canal, 14.5 acres of high quality wetlands south of the Lake Cataouatche Levee within the JLNHPP, and 0.29 acres of low quality, non-wet bottomland hardwood habitat.

The CEMVN agrees that all impacts occurring within the JLNHPP would be mitigated for within the National Park. In addition, as a project feature, the impacted area within the JLNHPP would be restored to its original state to the maximum extent practicable. Backfilling, planting, and other measures deemed necessary would be implemented in the park as project features immediately following construction in order to quickly restore the impacted environment and maintain the quality of the area that existed prior to construction.

Until final designs are completed on all reaches of the LPV and WBV projects, the total habitat loss related to the implementation of all the IERs cannot be finalized. The current totals are presented in table 4. The positive cumulative effects of implementing the

proposed action would be the temporary expansion of the local economy by construction-related activities.

The proposed action would have cumulative beneficial impacts to the socioeconomics of the region. The HSDRRS would be improved to provide additional hurricane, storm, and flood damage reduction to minimize the threat of inundation of infrastructure due to severe tropical storm events. Improved hurricane, storm, and flood damage reduction measures benefit all property owners, regardless of income or race, increases confidence, could reduce insurance rates, and allows for development and re-development of existing urban areas.

Table 4 shows the cumulative compensatory mitigation that will be completed by the CEMVN. This table will be updated as potential impacts are assessed in forthcoming IERs.

Cumulative impacts for the actions considered in all of the IERs will be incorporated into the CED.

Table 4: HSDRRS Impacts and Compensatory Mitigation to be Completed

| IER | Parish | Side | Non-wet BLH | Non-wet | BLH (acres) | BLH | Swamp | Swamp | Marsh | Marsh | Water |
|------------------------------------|---------------------------|-----------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | | | <i>acres</i> | <i>AAHUs</i> | <i>acres</i> | <i>AAHUs</i> | <i>acres</i> | <i>AAHUs</i> | <i>acres</i> | <i>AAHUs</i> | <i>acres</i> |
| 1 LaBranche Levee | St. Charles | Protected | - | - | - | - | 137.50 | 73.99 | - | - | - |
| | | Flood | - | - | 11.33 | 8.09 | 143.57 | 110.97 | - | - | |
| 1 Supp. LaBranche Levee | St. Charles | Protected | - | - | - | - | - | - | - | - | - |
| | | Flood | - | - | - | - | - | - | - | - | |
| 2 West Return Floodwall | St. Charles, Jefferson | Protected | - | - | - | - | - | - | - | - | 75.00 |
| | | Flood | - | - | - | - | - | - | 17.00 | 9.00 | |
| 3 Jefferson Lakefront Levee | Jefferson | Protected | - | - | - | - | - | - | - | - | 26.40 |
| | | Flood | - | - | - | - | - | - | - | - | |
| 4 Orleans Lakefront Levee | Orleans | Protected | - | - | - | - | - | - | - | - | - |
| | | Flood | - | - | - | - | - | - | - | - | |
| 5 Lakefront Pump Stations | Jefferson, Orleans | Protected | - | - | - | - | - | - | - | - | 3.20 |
| | | Flood | - | - | - | - | - | - | - | - | |
| 6 Citrus Lands Levee | Orleans | Protected | - | - | - | - | - | - | - | - | 6.90 |
| | | Flood | - | - | - | - | - | - | 0.00 | - | |
| 7 Lakefront Levee | Orleans | Protected | - | - | 151.70 | 79.30 | - | - | 100.40 | 36.80 | 106.00 |
| | | Flood | - | - | 30.00 | 11.90 | - | - | 70.00 | 37.20 | |
| 7 Supplemental Lakefront Levee | Orleans | Protected | - | - | 17.30 | 9.90 | - | - | 18.60 | 6.10 | - |
| | | Flood | - | - | 2.80 | 0.30 | - | - | 56.00 | 29.80 | |
| 8 Bayou Bienvenue/Dupre | St. Bernard | Protected | - | - | - | - | - | - | - | - | 0.30 |
| | | Flood | - | - | - | - | - | - | - | - | |
| 9 Caenarvon Floodwall | St. Bernard | Protected | - | - | - | - | - | - | - | - | - |
| | | Flood | 10.00 | 4.65 | 1.16 | 0.66 | - | - | 1.90 | 1.20 | |
| 10 Chalmette Loop | St. Bernard | Protected | - | - | 38.32 | 16.44 | - | - | 106.55 | 57.31 | 95.00 |
| | | Flood | - | - | 35.31 | 15.22 | - | - | 323.04 | 209.94 | |
| 11 Tier 2 Borgne IHNC | Orleans, St. Bernard | Protected | - | - | - | - | - | - | - | - | - |
| | | Flood | - | - | 15.00 | 2.59 | - | - | 122.00 | 24.33 | |
| 11 Tier 2 Pontchartrain IHNC | Orleans, St. Bernard | Protected | - | - | - | - | - | - | - | - | 7.00 |
| | | Flood | - | - | - | - | - | - | - | - | |
| 12 | Jefferson, | Protected | - | - | 251.70 | 177.3 | - | - | - | - | - |

| IER | Parish | Side | Non-wet BLH | Non-wet | BLH (acres) | BLH | Swamp | Swamp | Marsh | Marsh | Water |
|-----------------------------------|---|-----------|-------------|---------|-------------|-------|-------|-------|--------|-------|-------|
| | | | acres | AAHUs | acres | AAHUs | acres | AAHUs | acres | AAHUs | acres |
| GIWW, Harvey, Algiers | Orleans, Plaquemines | Flood | - | - | 2.30 | 1.90 | 74.90 | 38.50 | - | - | - |
| 13 Hero Canal, East. Terminus | Plaquemines | Protected | - | - | 13.00 | 7.80 | - | - | - | - | - |
| | | Flood | - | - | 19.00 | 10.59 | 39.00 | 28.87 | - | - | - |
| 14 Westwego to Harvey Levee | Jefferson | Protected | - | - | 45.00 | 30.00 | - | - | - | - | - |
| | | Flood | - | - | 45.50 | 18.58 | 29.75 | 17.02 | - | - | - |
| 14 Supp. Westwego to Harvey Levee | Jefferson | Protected | - | - | - | - | - | - | - | - | - |
| | | Flood | - | - | - | - | 42.00 | 24.00 | - | - | - |
| 15 Lake Cataouatche | Jefferson | Protected | - | - | 23.50 | 6.13 | - | - | - | - | - |
| | | Flood | - | - | 3.60 | 1.35 | - | - | - | - | - |
| 16 Western Tie-in | Jefferson, St. Charles | Protected | - | - | - | - | - | - | - | - | - |
| | | Flood | - | - | - | - | - | - | 137.80 | 66.30 | - |
| 16 Supplemental Western Tie-in | Jefferson, St. Charles | Protected | - | - | - | - | - | - | - | - | - |
| | | Flood | - | - | 79.10 | 37.26 | - | - | - | - | - |
| 17 Company Canal Floodwall | Jefferson | Protected | - | - | 5.50 | 2.69 | - | - | - | - | - |
| | | Flood | - | - | - | - | 19.00 | 17.09 | - | - | - |
| 18 GFBM | Jefferson, Orleans, Plaquemines, St. Bernard, St. Charles | Protected | 379.30 | 152.32 | - | - | - | - | - | - | - |
| | | Flood | - | - | - | - | - | - | - | - | - |
| 19 CFBM | Hancock County, MS; Iberville, Jefferson, Orleans, Plaquemines, St. Bernard | Protected | - | - | - | - | - | - | - | - | - |
| | | Flood | - | - | - | - | - | - | - | - | - |
| 22 GFBM | Jefferson, Plaquemines | Protected | 244.69 | 118.54 | - | - | - | - | - | - | - |
| | | Flood | - | - | - | - | - | - | - | - | - |
| 23 CFBM | Hancock County, MS; Plaquemines, St. Bernard, St. Charles | Protected | - | - | - | - | - | - | - | - | - |
| | | Flood | - | - | - | - | - | - | - | - | - |
| 25 | Jefferson, | Protected | 933.00 | 284.00 | - | - | - | - | - | - | - |

| IER | Parish | Side | Non-wet BLH | Non-wet | BLH (acres) | BLH | Swamp | Swamp | Marsh | Marsh | Water |
|-------------------------------|---|-----------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | | | <i>acres</i> | <i>AAHUs</i> | <i>acres</i> | <i>AAHUs</i> | <i>acres</i> | <i>AAHUs</i> | <i>acres</i> | <i>AAHUs</i> | <i>acres</i> |
| GFBM | Orleans, Plaquemines | Flood | - | - | - | - | - | - | - | - | - |
| 26 CFBM | Jefferson, Plaquemines, St. John the Baptist; Hancock, MS | Protected | - | - | - | - | - | - | - | - | - |
| | | Flood | - | - | - | - | - | - | - | - | - |
| 27 Lakefront Pump Stations | Orleans | Protected | - | - | - | - | - | - | - | - | - |
| | | Flood | - | - | - | - | - | - | - | - | - |
| 28 GFBM | Jefferson, Plaquemines, St. Bernard | Protected | 19.94 | 8.45 | - | - | - | - | - | - | - |
| | | Flood | - | - | - | - | - | - | - | - | - |
| 29 CFBM | Orleans, St. Tammany, St. John the Baptist | Protected | 107.30 | 48.60 | - | - | - | - | - | - | - |
| | | Flood | - | - | - | - | - | - | - | - | - |
| 30 CFBM | St. Bernard and St. James; Hancock, MS | Protected | 225.00 | 189.40 | - | - | - | - | - | - | - |
| | | Flood | - | - | - | - | - | - | - | - | - |
| 31 CFBM | E.Baton Rouge, Jeff, Lafourche, Plaquem, St. Bern, St. Tam; Hancock, MS | Protected | 965.3 | - | - | - | - | - | - | - | - |
| | | Flood | - | - | - | - | - | - | - | - | - |
| 32 CFBM | Ascension, Plaquemines, St. Charles | Protected | 202.10 | 97.43 | - | - | - | - | - | - | - |
| | | Flood | - | - | - | - | - | - | - | - | - |
| Totals | | Protected | 3086.63 | 708.32 | 545.52 | 329.22 | 137.50 | 73.99 | 225.55 | 100.21 | 00.00 |
| | | Flood | 10.00 | 4.65 | 323.80 | 163.33 | 350.02 | 237.30 | 740.54 | 388.42 | 230.99 |
| | | Both | 3096.63 | 712.97 | 869.32 | 492.55 | 487.52 | 311.29 | 966.09 | 488.63 | 230.99 |

- Not applicable to the IER or number impacted is 0
GFBM: Government Furnished Borrow Material // CFBM: Contractor Furnished Borrow Material

5. SELECTION RATIONALE

Multiple meetings were conducted with the CEMVN, NPS and the utility company to ensure adverse impacts, especially adverse impact to high quality wetlands within the JLNHPP, were minimized to the maximum extent practicable. Relocation of the pipeline underground via directional drilling would prevent the need for future relocation for this same pipeline during future levee lifts, which will reduce the potential for additional environmental impacts, service interruptions, and incurred costs in the future.

With the understanding the proposed action would result in temporary loss of approximately 8 acres of intermittently drained, forested wetlands habitat on the protected side, north of the Lake Cataouatche Levee, 12.9 acres of open canal bottom within the Outer Cataouatche Canal, 14.5 acres of high quality wetlands south of the Lake Cataouatche Levee within the JLNHPP, and 0.29 acres of low quality, non-wet bottomland hardwood habitat, the CEMVN agrees that all impacts occurring within the JLNHPP would be mitigated for within the National Park. In addition, the CEMVN agrees to include as a project feature, that the impacted area within the JLNHPP would be restored to its original state to the maximum extent practicable. Backfilling, planting, and other measures deemed necessary would be implemented in the park as project features immediately following construction in order to quickly restore the impacted environment and maintain the quality of the area that existed prior to construction. Though the directional drill relocation method would result in greater environmental impacts than an up and over configuration or sleeve through T-wall configuration, this directional drill alternative was determined to reduce the most risk, be the most engineeringly feasible, and time and cost effective.

An up and over configuration (crossing over the top of the levee) was the least preferred alternative as it introduced the most risk into the system and would incur the most cost to construct and operate and maintain in the future. Having an existing pipeline up and over the levee has also proven to impede local sponsor operation and maintenance of the levee over time. Aside from impeding operation and maintenance, approximately 4 lifts are anticipated for this levee segment, in which the up and over configuration would have to be moved each time. This would require major coordination efforts as was undergone for this relocation, and could result in major construction delays as the relocation can only be done during certain times of the year depending on energy consumption. Multiple relocations of the same pipe could also prove to damage the pipe over time.

A pipeline sleeve through a floodwall configuration would introduce less risk than the up and over configuration, but would be more inherently risky than the directional drill alternative as it would be a floodwall constructed along a navigable waterway and would create additional transitions in the system.

The proposed action would not only ensure uninterrupted operations for the utility company; it would enable timely construction of the HSDRRS that would provide significant public benefit and serve local, state, and national interest by providing 100 year level of risk reduction while minimizing adverse impacts. If this relocation is not constructed concurrent with or prior to the construction of the risk reduction system in the area, gaps will exist within the HSDRRS.

In addition, even though there is an adjacent approved access road near the Lake Cataouatche Pumps stations 1 and 2, the temporary access road proposed within this document would be required to avoid multiple contractors using one access point. Multiple contractors using a single access point would likely result in projects delays, increased costs, safety hazards and claims made by the contractors.

If the proposed changes in design are not implemented, the 100-year level of risk reduction will not be achieved for WBV Lake Cataouatche levee reach 15a.2. On the basis of risk reduction and reliability, environmental impacts, cost, time and constructability, the proposed action for the WBV-15a.2 levee reach was selected as the least damaging practicable alternative to provide the 100 year level of risk reduction.

Taking no action, although avoiding the direct effects from construction of the 100-year level of risk reduction, would predictably and repeatedly lead to indirect effects from the risk of large-scale flooding and the associated clean up.

6. COORDINATION AND CONSULTATION

6.1 Agency Coordination

Preparation of this IER has been coordinated with appropriate Congressional, Federal, state, and local interests, as well as environmental groups and other interested parties. An interagency environmental team was established for this project in which Federal and state agency staff played an integral part in the project planning and alternative analysis phases of the project. This interagency environmental team was integrated with the CEMVN Project Delivery Team to assist in the planning of this project and to complete a mitigation determination of the potential direct and indirect impacts of the proposed action. Monthly interagency meetings with resource agencies were also held concerning this and other CEMVN IER projects. The following agencies, as well as other interested parties, received copies of the draft IER:

U.S. Department of the Interior, Fish and Wildlife Service

U.S. Department of the Interior, National Park Service

U.S. Environmental Protection Agency, Region VI

U.S. Department of Commerce, National Marine Fisheries Service

U.S. Natural Resources Conservation Service, State Conservationist

Advisory Council on Historic Preservation

Governor's Executive Assistant for Coastal Activities

Louisiana Department of Wildlife and Fisheries

Louisiana Department of Natural Resources, Coastal Management Division

Louisiana Department of Natural Resources, Coastal Restoration Division

Louisiana Department of Environmental Quality

Louisiana State Historic Preservation Officer

Multiple meetings were conducted with the USACE, NPS and Chevron to ensure adverse impacts to the park were minimized to the maximum extent practicable. A site visit was conducted October 14, 2010 to discuss worst case impacts and to specifically assess on site where the impacts would occur, specifically where in the JLNHPP. The relocation design engineers left with an understanding of the environmental concerns and took the Park Service's concerns into consideration as the final plans were developed. Another meeting with the design engineers and the NPS was conducted on December 16, 2010 to discuss the final relocation plans and to show how impacts would be minimized throughout the relocation process.

In a letter dated February 7, 2011, the NPS submitted comments on IERS 15.a. The following is a list of recommendations and solutions that have been coordinated between CEMVN and the NPS:

NPS COMMENT: Based on the description of the proposed alternative in draft IERS 15.a, NPS anticipated that they would need to complete an environmental assessment level compliance process in order to comply with NEPA and other laws.

CEMVN RESPONSE: The NPS released an environmental assessment addressing the proposed alternatives for a 15-day public review period beginning June 30, 2011, in which they addressed wetland impacts in accordance with Executive Order 11990.

NPS COMMENT: NPS anticipated that they would need to complete a wetland statement of findings in accordance with NPS policy regarding Executive Order 11990.

CEMVN RESPONSE: The NPS released an environmental assessment addressing the proposed alternatives for a 15-day public review period beginning June 30, 2011, in which they addressed wetland impacts in accordance with Executive Order 11990.

NPS COMMENT: Draft IERS 15.a does not include discussion or analysis of alternatives that could reduce or eliminate impacts within the park and overall. Compared to the potential impacts associated with construction of a concrete floodwall with a sleeve through which the pipeline could pass, the proposed alternative would result in avoidable impacts to wetlands within the park. IERS 15.a should include a detailed analysis of the effects of all feasible alternatives on the human environment.

CEMVN RESPONSE: CEMVN has drafted this Addendum to IERS 15.a to provide a detailed analysis of all feasible alternatives, including those proposed by the NPS.

NPS COMMENT: Variations of the proposed alternative like using barges to store dredged material instead of stockpiling it next to excavations in the park should also be considered.

CEMVN RESPONSE: Where practicable, barges will be used to stockpile dredged material.

NPS COMMENT: Suggests that NPS or the park be added to the list of agencies in the final IERS 15.a document

CEMVN RESPONSE: Acknowledged

NPS COMMENT: Details regarding potential mitigation projects within the park are not included in draft IERS 15.a. We suggest that compensatory mitigation for impacts resulting from the project not only be undertaken within the park, but within similar wetland communities near the project area if possible, and that specific information regarding mitigation projects be included in the IERS. Details regarding compensatory mitigation are a required element of wetland statements of findings in addition to discussions of avoidance and minimization of adverse impacts to wetlands, as well as restoration.

CEMVN RESPONSE: The full mitigation measures for the proposed alternative including a wetlands value assessment in Section 7 of this document. Mitigation measures for unavoidable impacts to the human and natural environment resulting from other projects within similar wetland communities will be covered in a separate mitigation document and is discussed in further detail in Section 7.

National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) concurred via teleconference on 7 June, 2010 that the proposed action would not affect threatened and endangered species or essential fish habitat.

A Water Quality Certification has been received from with the Louisiana Department of Environmental Quality (LDEQ) by letter dated 23 June 2010.

Section 106 of the National Historic Preservation Act, as amended, requires consultation with the SHPO and Native American tribes. SHPO reviewed the proposed action and determined that it would not adversely affect any cultural resources by letter dated 22 February 2010. Eleven federally recognized tribes that have an interest in the region were given the opportunity to review and comment on the proposed action. One tribe responded there are no known impacts associated with the proposed action in a letter dated 4 May 2010.

In compliance with the Coastal Zone Management Act, CEMVN has coordinated with the Louisiana Department of Natural Resources (LDNR) for consistency with the Louisiana Coastal Resource Program (LCRP). The LDNR has reviewed the proposed action for consistency with the LCRP. A CZM consistency determination was prepared and provided to the LDNR on February 9, 2011. The consistency letter of approval from the LDNR dated April 5, 2011 completes the consistency requirements.

In a letter dated 11 January 2011, the Louisiana Department of Wildlife and Fisheries commented on the proposed action. The following project recommendations were thereby incorporated into the revised CZC determination submittal and included in this document:

The Corps of Engineers-New Orleans District shall implement adequate erosion/sediment control measures to insure that no sediment or other activity related debris are allowed to enter wetland areas located adjacent to construction areas. Accepted measures include the proper use of vegetated buffers, silt fences

or other Environmental Protection Agency construction site stormwater runoff control best management practices.

The COE shall use clean fill material during construction of temporary access roads in wetlands areas. Upon abandonment, the affected areas shall be restored to pre-project conditions.

One 24 inch culvert shall be installed every 250 ft when constructing access roads through wetlands. Culverts should be maintained to ensure that existing flow of surface water is uncompromised.

All forested vegetation cleared during construction activities is to be removed and hauled offsite to a non-wetlands disposal location, or chipped and spread on site in a manner that is beneficial to the surrounding environment (i.e., placed in thin layers not to exceed 4 inches).

The COE shall develop a mitigation plan designed to off-set impacts to fish and wildlife resources. The mitigation plan shall be approved by the resources and regulatory agencies. Mitigation should occur simultaneously with the construction activities in order to ensure that all necessary mitigation is carried out.

The USFWS provided programmatic recommendations, in the “Draft Fish and Wildlife Coordination Act Report for the Individual Environmental Reports (IER), Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4)” in November 2007. The uncertainties in the design of several projects prohibited a complete evaluation of the impacts to fish and wildlife species and the reporting responsibilities under Section 2(b) of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended: 16 U.S.C. 661 et seq.). Therefore, a subsequent final supplemental report will be provided by the USFWS at a later date but prior to the Agency’s final decision on how it will proceed. The draft (programmatic) Fish and Wildlife Coordination Act Report (CAR) for the IERs dated November 2007 can be accessed through the www.nolaenvironmental.gov website.

The USFWS’ programmatic recommendations applicable to this project will be incorporated into project design studies to the extent practicable, consistent with engineering and public safety requirements. The USFWS’ programmatic recommendations, and CEMVN’s response to them, can be found within IER 15 and are hereby incorporated by reference.

The USFWS has reviewed the proposed action and in a Planning Aid letter dated 9 July 2010, stated that the USFWS is unaware of any known threatened or endangered species in the proposed project area. The draft CAR was received 12 January 2011 and an amended draft project-specific CAR was received from USFWS by letter dated February 14, 2011. A final report was received from USFWS by letter dated April 15, 2011. All comments regarding USFWS trust resources have been resolved.

Below are the USFWS project specific recommendations from the 12 January 2011 draft CAR, and CEMVN’s response to them:

Recommendation: All Feasible alternatives to HDD that would reduce impacts to the JLNHPP should be investigated to ensure impacts to public lands are avoided or minimized. The results of that investigation should be presented in the IERS.

CEMVN Response: Five alternatives (sleeve through a floodwall, up and over configuration (lying on levee surface), pipeline bridge over the levee, re-routing the pipeline outside NPS, and longer directional drill) were evaluated within the alternative evaluation process. Subsequent analysis of these alternatives resulted in the elimination of three of the six alternatives, (pipeline bridge over the levee, re-routing the pipeline outside NPS, and longer directional drill) while the other two (sleeve through a floodwall and up and over configuration (lying on levee surface)) were brought forward through this document. The NPS worked closely with the CEMVN engineers and Chevron to determine the pipeline relocation method and configuration that was the most engineeringly feasible, would have the least adverse impacts to the environment, and would be the most time and cost effective. This alternative evaluation process took into consideration rigid requirements for the construction standards and schedule for construction of the Federal levee system as well as technical requirements for relocating this pipeline segment in this given location.

Recommendation: To the greatest extent possible, situate flood protection features so that destruction of wetlands and non-wet bottomland hardwoods are avoided and minimized.

CEMVN Response: Acknowledged.

Recommendation: Forest clearing associated with project features should be conducted during fall or winter to minimized impacts to nesting migratory birds, when practicable.

CEMVN Response: Acknowledged.

Recommendation: Further detailed planning of project features (e.g., Design Document Report, Engineering Documentation Report, Plans and Specifications, or similar documents) should be coordinated with the Service, NMFS, LDWF, Environmental Protection Agency (EPA), JLNHPP, and Louisiana Department of Natural Resources (LDNR). The service shall be provided an opportunity to review and submit recommendations on all the work addressed in those reports.

CEMVN Response: Acknowledged.

Recommendation: The U.S. Army Corps of Engineers (Corps) should avoid impacts to NPS lands, if feasible. If not feasible, the Corps should establish and continue coordination with the NPS staff until construction of that feature is complete and prior to any subsequent maintenance. Unavoidable impacts, when permissible by that agency, should be minimized and appropriately mitigate on NPS lands.

CEMVN Response: CEMVN emphasis is to first avoid impacts to wetlands resources to the extent possible considering other factors such as risk and reliability. This parallels the NPS' mandate and policy to avoid impacts to wetlands wherever possible and feasible. Where impacts to the wetlands could not be avoided, design and construction implementation would minimize impacts and use best management practices to the greatest extent possible. Under the worst case

scenario approximately 14.5 acres consisting of approximately 13.0 acres of fresh marsh habitats and approximately 1.5 acres of open water habitats where the water depth exceeds 1.5 feet would be impacted during construction activities associated with the pipeline relocation. To compensate for this impact, 14.5 acres of fresh marsh wetlands would be restored within NPS lands.

Recommendation: If a proposed project feature is changed significantly or is not implemented within one year of the date of our Endangered Species Act consultation letter, we recommend that the Corps reinitiate coordination with this office to ensure that the proposed action would not adversely affect any federally listed threatened or endangered species or their habitat.

CEMVN Response: Acknowledged.

Recommendation: The Corps shall fully compensate for any unavoidable losses of wetland habitat or non-wet bottomland hardwoods caused by project features.

CEMVN Response: The proposed action would directly impact approximately 14.5 acres of existing wetlands, consisting of approximately 13.0 acres of fresh marsh habitats and approximately 1.5 acres of open water habitats where the water depth exceeds 1.5 feet. To compensate for this impact, 14.5 acres of fresh marsh wetlands would be restored. The marsh restoration area (the mitigation site) would be located in the northwestern portion of Yankee Pond. Yankee Pond was historically an agricultural field that was abandoned and subsequently subsided. Presently it is a shallow open water body with a few remnant forested 'islands'. The mitigation work program (mitigation construction activities) necessary to restore fresh marsh habitat at the mitigation site would involve various components. First, temporary earthen retention dikes would be built along the entire perimeter of the mitigation site, within the "footprint" of the mitigation site itself. It is anticipated these retention dikes would have a crest elevation of approximately (+) 5.0-ft NAVD88. The dikes would be built higher than the "target" grade of the restored marsh to allow temporary storage of water and sediments (borrow material) that would be pumped into the mitigation site. Following construction of the retention dikes, borrow material would be deposited into the mitigation site to form the land platform for the restored marsh. This would be accomplished by pumping suspended sediments into the site via pipeline. The borrow material necessary would be dredged from Bayou Segnette.

Recommendation: To further reduce impacts to the JLHNPP all excavated material within the freshwater marshes should be used to backfill the proposed dredged channel. No disposed excavated material should remain above the marsh surface. Dredged material used to backfill should be replaced to the approximate same elevation as the adjacent marshes. Replanting of the disturbed site should be conducted according to JLHNPP specifications, if requested.

CEMVN Response: Immediately following construction, the impacted area within the JLHNPP would be restored to its original state to the maximum extent practicable. Once construction was complete, a blade on the excavator would scrape the stockpiled sediments (placed on adjacent marsh or in the shallow water area) back into the excavated channel to a height equal to adjacent marsh. If the shallow water stockpile site is selected because it would result in the least impacts to adjacent marsh, any stockpiled material remaining once the excavated channel is backfilled to the appropriate height may be left to increase the elevation of the shallow water area equal to adjacent marsh if NPS deems this beneficial. The plug at the Outer Cataoutche canal to retain

the stockpiled material would also remain to ensure the material would not erode or slough out of the shallow water area in the future. Following the return of sediments to the excavated access channel, the excavator would carefully replace the excavated floatant marsh mats back on the returned sediments. Backfilling excavated canals and other measures deemed necessary would be implemented as project features immediately following construction in order to restore the impacted environment and maintain the quality of the area that existed prior to construction.

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

CEMVN Response: Acknowledged.

Recommendation: Any proposed change in mitigation features or plans should be coordinated in advance with the Service, JLNHPP, NMFS, LDWF, EPA and LDNR.

CEMVN Response: Acknowledged.

7. MITIGATION

Mitigation for unavoidable impacts to the human and natural environment described in this and other IERs will be addressed in separate mitigation IERs. CEMVN has partnered with Federal and state resource agencies to form an interagency mitigation team that is working to assess and verify these impacts, and to look for potential mitigation sites in the appropriate hydrologic basin. This effort is occurring concurrently with the IER planning process in an effort to complete mitigation work and construct mitigation projects expeditiously. As with the planning process of all other IERs, the public will have the opportunity to give input about the proposed work. These mitigation IERs will, as described in Section 1 of this IER, be available for a 30-day public review and comment period.

Relocation of the pipeline would temporarily impact approximately 8 acres of intermittently drained, forested wetlands habitat on the protected side, north of the Lake Cataouatche Levee, approximately 12.9 acres of open canal bottom within the Outer Cataouatche Canal, and approximately 14.5 acres of high quality wetlands south of the Lake Cataouatche Levee within the JLNHPP. The CEMVN agrees that all impacts occurring within the JLNHPP would be mitigated for within the National Park.

The access road and staging area near Lake Cataouatche pump stations 1 and 2 would impact approximately 0.29 acres of low quality, non-wet bottomland hardwood habitat.

A complementary comprehensive mitigation IER will be prepared documenting and compiling these unavoidable impacts and those for all other proposed actions within the HSDRRS that are being analyzed through other IERs. Mitigation planning is being carried out for groups of IERs,

rather than within each IER, so that large mitigation efforts could be taken rather than several smaller efforts, increasing the relative economic and ecological benefits of the mitigation effort.

This forthcoming mitigation IER will implement compensatory mitigation as early as possible. All mitigation activities will be consistent with standards and policies established in the Clean Water Act Section 404, and the appropriate CEMVN policies and regulations governing this activity.

7.1 Mitigation Measures of the Proposed Action

7.1.1 Wetlands Value Assessment

Evaluation of project related impacts on fish and wildlife resources was conducted by the USFWS and aided by use of the Wetlands Value Assessment (WVA) methodology developed for the evaluation of proposed Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) projects. The WVA methodology is similar to the USFWS Habitat Evaluation Procedures (HEP), in that habitat quality and quantity are measured for baseline conditions and predicted for Future Without Project (FWOP) and Future With Project (FWP) conditions. The habitat assessment model for fresh/intermediate marsh was used. Instead of the species based approach of HEP, the WVA model utilizes an assemblage of variables considered important to the suitability of a given habitat type for supporting a diversity of fish and wildlife species. As with HEP, these models allow a numeric comparison of each future condition and provide a combined quantitative and qualitative estimate of project related impacts to fish and wildlife resources.

The WVA models operate under the assumption that optimal conditions for fish and wildlife habitat within a given coastal wetland type can be characterized, and that existing or predicted conditions can be compared to that optimum to provide an index of habitat quality. Habitat quality is estimated and expressed through the use of a mathematical model developed specifically for each habitat type. Each model consists of:

- A list of variables that are considered important in characterizing fish and wildlife habitat;
- A suitability index graph for each variable, which defines the assumed relationship between habitat quality (suitability indices) and different variable values; and
- A mathematical formula that combines the suitability indices for each variable into a single value for wetland habitat quality, termed the Habitat Suitability Index (HSI).

The WVA models assess the suitability of each habitat type for providing resting, foraging, breeding, and nursery habitat to a diverse assemblage of fish and wildlife species. This standardized, multi-species, habitat based methodology facilitates the assessment of project induced impacts on fish and wildlife resources. The marsh WVA model consists of six variables:

- Percent of wetland covered by emergent vegetation;
- Percent open water dominated by submerged aquatic vegetation;
- Degree of marsh edge and interspersions;
- Percent of open water less than or equal to 1.5 feet deep;
- Average annual salinity; and
- Aquatic organism access.

The product of an HSI and the acreage of available habitat for a given target year is known as the Habitat Unit (HU). The HU is the basic unit for measuring project effects on fish and wildlife habitat. Future HUs change according to changes in habitat quality and/or quantity. Results are annualized over the project life (i.e., 50 years) to determine the Average Annual Habitat Units (AAHUs) available for each habitat type. The change in AAHUs for the FWP scenario, compared to FWOP project conditions, provides a measure of anticipated impacts. A net gain in AAHUs indicates that the project is beneficial to the habitat being evaluated; a net loss of AAHUs indicates that the project is damaging to that habitat type. Values for model variables were obtained from site visits to the area, other wetland assessments in similar habitats, communication with personnel knowledgeable about the study area, and review of aerial photographs and reports documenting fish and wildlife habitat conditions in the study area and similar habitats. In determining FWP conditions, all project related direct (construction) impacts were assumed to occur in Target Year (TY) 1. An explanation of the assumptions affecting HSI values for each target year is available for review at the Fish and Wildlife Service's (Service) Lafayette, Louisiana, field office.

A wetland value assessment was conducted for the proposed HDD project over a 50-year period of analysis. Of the potential 14.5 acres impacted approximately 13 acres is considered emergent wetlands and 1.5 acres is considered open water. Target years were established as 0, 1, 3, 30 and 50 for comparison between future without project conditions versus future with project conditions. TY 0 represents wetland conditions prior to construction. The habitat quality of the emergent wetlands for each TY was determined to be .93 HSI for the future without project condition totaling approximately 12.06 AAHU. In the future with project condition, TY 1 is considered the year in which direct construction impacts would occur to 13 acres of emergent wetlands with a HSI of .25. In TY 50 the emergent wetlands would be fully restored to a habitat quality of .93 HSI totaling approximately 6.39 AAHU and a net functional loss of -5.66 AAHU between future without versus future with project conditions.

The same methodology was applied to open water calculations. In the future without project condition, the habitat quality for open water was determined to be .30 HSI for the project life totaling to 0.45 AAHU. In the future with project scenario, there would be 14.5 acres of open water in TY 1 of a .24 HSI. By TY 50, the emergent wetlands would be fully restored reducing open water to 1.5 acres of a .26 HSI totaling approximately 2.41 AAHU over the project life and a net functional gain of 1.96 AAHU between future without versus future with project conditions.

Based on this wetland evaluation assessment, approximately 3.20 AAHU wetland functional losses would result from implementation of the proposed action. (See WVA model results below).

| Change in Wetland Functions/Values Due to Proposed Action | | |
|--|--|--------------|
| A. Emergent Marsh Habitat Net AAHUs (functional loss) = | | -5.66 |
| B. Open Water Habitat Net AAHUs (functional gain) = | | 1.96 |
| Total Net Change (functional loss) = | | -3.20 |

7.1.2 Avoidance and Minimization

A range of all reasonable alternatives were considered and subsequent analysis of these alternatives resulted in the elimination of five alternatives: sleeve through a floodwall, up and over configuration, pipeline bridge over the levee, re-routing the pipeline outside NPS, and longer directional drill.

Upon taking into consideration the socioeconomic impacts (i.e., risk of loss of life and property), the hurricane levee system reliability and accreditation process, project constructability issues, natural resource impacts, minimization and mitigation factors, time, and cost of the remaining alternatives (no action and HDD); JLNHPP, in coordination with the CEMVN and Chevron, selected the HDD alternative as the preferred alternative.

The NPS worked closely with the CEMVN engineers and Chevron to determine the pipeline relocation method and configuration that was the most engineeringly feasible, would have the least adverse impacts to the environment, and would be the most time and cost effective. This alternative evaluation process took into consideration rigid requirements for the construction standards and schedule for construction of the Federal levee system as well as technical requirements for relocating this pipeline segment in this given location.

Though the proposed action would impact approximately 14.5 acres of wetlands within the JLNHPP, this impact estimate errs on the side of caution in order to capture the worst case scenario. Efforts would be taken throughout the duration of construction to minimize impacts where ever possible. The following avoidance and minimization actions would be implemented during construction to reduce adverse impacts.

The following mitigation measures would be implemented under the proposed action alternative:

General

- To minimize the potential for petrochemical spills from construction equipment, the contractor would regularly monitor and check equipment to identify and repair any leaks.
- Spill containment materials would be staged near the action area for use to contain or collect any accidental fuel or chemical spills from construction equipment.
- Upon discovery, any fuel or chemical spills associated with construction activities would be immediately contained and reported to the JLNHPP.
- Fueling of vehicles and equipment would take place outside the JLNHPP whenever possible; if fueling within the JLNHPP is required, no less than two persons would attend these activities, and fueling would be completed over a physical barrier, such as a tarp, and absorbent materials.
- Best management practices would be used during drilling to prevent drill fluid leakage. The best management practice for drilling fluid leakage is to build a 20 ft by 20 ft ring levee around the drill entry and exit points and pump the return drilling fluids into holding tanks for recycling.
- In the event of a hydraulic fracture, the standard practice is to move the return pit to the fracture site and pump from there. The drill path is regularly patrolled to check for hydraulic fractures.

Fish and Wildlife / Special Status Species

- Construction activities would be timed to avoid interfering with the nesting activities of bird species.

Soils and Geology

- To eliminate impacts to soils outside of the immediate project areas, equipment access to the areas to be degraded would be via the canals.

Vegetation

- Weed control measures (e.g., cleaning/washing of vehicles/vessels, equipment, and personal equipment before entering/re-entering the JLNHPP) would be implemented to help minimize the potential for the introduction and spread of nonnative species.
- To eliminate potential impacts to marsh vegetation caused construction equipment, access to the project area would be via the canals.

Water Resources

- Boats operating in the canals during reclamation activities would use only four stroke engines.

Cultural Resources

- If evidence of archeological sites or historic structures is discovered during construction activities, work in the area would cease, and qualified JLNHPP personnel would assess the sites and recommend an appropriate course of action to the Park Superintendent in consultation with the State Historic Preservation Office (SHPO) and any potentially affected Indian Tribes.

Visitor Use and Experience

- Temporary canal closures would be put into place in areas where construction activities are occurring to eliminate any potential impacts to the health and safety of JLNHPP visitors.

Wetlands

Planning and Design emphasis is first to avoid impacts to wetlands resources to the extent possible considering other factors such as risk and reliability. Where impacts to the wetlands are unavoidable, design and construction implementation will minimize impacts and use best management practices to the greatest extent possible. Approximately 14.5 acres of wetlands (fresh, floating marsh and open water habitat) will be temporarily impacted during the pipeline relocation.

- A training program would be developed on the sensitive nature of the project area, modeled after the CEMVN training program on the Bayou aux Carpes 404(c) area. The training program would be required for all construction personnel working on the preserve. No personnel would be allowed on the project site without participating in the training program.
- Ground crews would be instructed by JLNHPP staff on how to avoid damaging any part or whole of wetland vegetation in the preserve other than the vegetation to be removed for the flotation channel.
- JLNHPP staff (and third party contractor) would regularly monitor to ensure non-excavated surrounding wetland vegetation is not damaged during relocation activities.
- Floating marsh habitat would be carefully excavated and placed adjacent to the construction site in a manner to minimize impacts to the excavated vegetation during construction. Once construction is complete, the impacted site would be backfilled to the approximate same elevation as the adjacent marsh and the excavated floatant marsh mats would be carefully placed in the backfilled flotation channel.
- To minimize impacts to adjacent floatant marsh from stockpiling activities, the sediment excavated from the flotation channel would be spread thinly over a larger area of marsh to prevent compressing the marsh underneath.

- To the greatest extent possible, materials would be stored on barges to minimize impacts to flotant marsh.

Mitigation

CEMVN emphasis is to first avoid impacts to wetlands resources to the extent possible considering other factors such as risk and reliability. This parallels the NPS' mandate and policy to avoid impacts to wetlands wherever possible and feasible. Where impacts to the wetlands could not be avoided, design and construction implementation would minimize impacts and use best management practices to the greatest extent possible. Under the worst case scenario approximately 14.5 acres of semi-buoyant estuarine freshwater wetlands (flotant marsh) would be temporarily impacted during construction activities associated with the pipeline relocation

Mitigation for the temporary impacts to 14.5 acres of flotant marsh would be addressed in two parts – (1) site restoration immediately following construction for impacts from the construction activity of relocating the pipeline and (2) mitigation of 14.5 acres of lost functions and values (3.20 AAHU) as well as temporal losses from this construction activity in combination with the other unrelated HSDRRS WBV impacts on the JLNHPP property.

Immediate Site Restoration

Immediately following construction, the impacted area within JLNHPP would be restored to its original state to the maximum extent practicable. Once construction was complete, a blade on the excavator would scrape the sediments placed on adjacent marsh back into the excavated channel to a height equal to adjacent marsh. Following the return of sediments the excavator would carefully replace the excavated flotant marsh mats back on the returned sediments. Backfilling excavated canals and other measures deemed necessary would be implemented as project features immediately following construction in order to restore the impacted environment and maintain the quality of the area that existed prior to construction.

Fresh Marsh Mitigation

As a practice, restoring the same habitat as the habitat impacted is preferred to restoring another habitat type than what was impacted to compensate for the lost functions and values of the impacted habitat. The proposed impacts are to 14.5 acres (3.20 AAHU) of high quality semi-buoyant fresh water estuarine wetlands within the preserve, thus the proposed mitigation plan is to create freshwater estuarine wetland habitat (see preliminary mitigation plan below).

Preliminary Mitigation Plan

Fresh marsh creation is proposed to mitigate for the net loss of 3.20 AAHUs (figure 15). The preliminary proposed mitigation plan is to restore fresh marsh in a portion of the area outline in red.

Preliminary Project Benefits

The impacts to 14.5 acres of floatant marsh would be extensive but temporary. Excavators would be barged to the relocation site via the Outer Cataouatche Canal. Fresh floating marsh mats would be excavated using a blade to slice the mats, lift and place them as intact as possible on adjacent marsh in thin, scattered piles so as to reduce damage to the marsh beneath. The sediment below the vegetation would then be excavated to allow for barge draft (-10ft). The excavated sediment would be placed in small, scattered piles to minimize impacts to the marsh beneath the stockpile. Upon construction completion, the excavated sediment would be scraped off the adjacent wetlands into the excavated channel to the same elevation as adjacent wetlands. The previously excavated floatant mats would be carefully placed onto the returned sediment. The required excavated channel width and area would be minimized to the extent possible and the duration of construction would proceed as quickly as possible to reduce adverse impacts to excavated floatant marsh mats as well as adjacent wetlands buried by the sediments and wetlands.

To compensate for adverse impacts to the 14.5 acres of fresh, floating marsh within the Preserve, a fresh marsh restoration site would be constructed within the Preserve to restore the functional loss of 3.20 AAHUs.

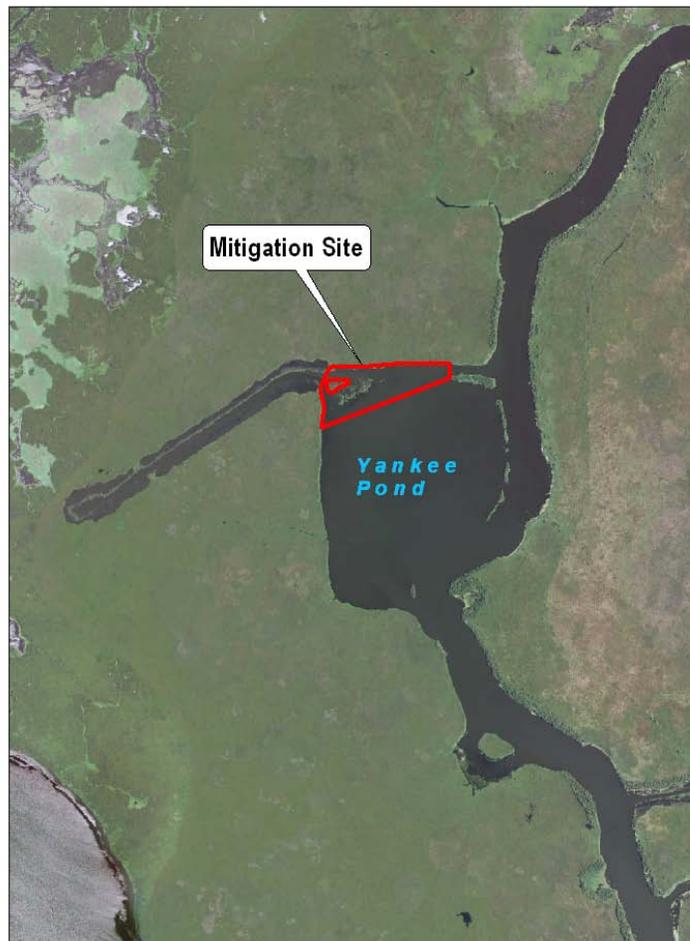


Figure 15: Mitigation Site for Impacts Resulting from the Proposed Action

7.1.1 Wetland Impacts Compensation (Mitigation) Plan

The proposed action would directly impact approximately 14.5 acres of existing semi-buoyant freshwater emergent wetlands, consisting of approximately 13.0 acres of fresh wetland habitats and approximately 1.5 acres of open water habitats where the water depth exceeds 1.5-ft. To compensate for this impact, 14.5 acres of estuarine freshwater wetlands would be restored.

The wetland restoration area (the mitigation site) would be located in the western portion of a remnant pipeline canal in the park that extends westward from a water-body known as Yankee Pond. This canal was previously excavated through primarily estuarine freshwater wetland habitats and now is an open water area. Estuarine freshwater wetland habitats interspersed with scattered shallow open water habitats presently surround all sides of the canal except where it joins Yankee Pond.

The mitigation work program (mitigation construction activities) necessary to restore estuarine freshwater wetland habitat at the mitigation site would involve various components. First, temporary earthen retention dikes would be built along the entire perimeter of the mitigation site, within the “footprint” of the mitigation site itself. It is anticipated these retention dikes would have a crest elevation of approximately (+) 5.0-ft NAVD88. The dikes would be built higher than the “target” grade of the restored wetland to allow temporary storage of water and sediments (borrow material) that would be pumped into the mitigation site. Following construction of the retention dikes, borrow material would be deposited into the mitigation site to form the land platform for the restored wetland. This would be accomplished by pumping suspended sediments into the site via pipeline. The borrow material necessary would be dredged from Bayou Segnette.

It is anticipated that the initial elevation of the slurry deposited in the mitigation site would be approximately (+) 3.5-ft NAVD88 to allow for dewatering and settlement of the sediments to the desired target grade. The desired target grade (e.g. the final soil surface grade) for the mitigation site would be approximately elevation (+) 2.5-ft NAVD88. One should note that this target grade elevation is preliminary. The actual target grade elevation would be determined during the process of preparing final mitigation construction plans and based on site-specific survey data. The goal would be to have the restored wetland elevation (target grade) be essentially equal to existing grade elevations present within the undisturbed wetland habitats adjacent to the mitigation site. Once the borrow material placed in the mitigation site has settled to the desired target grade, the retention dikes would be degraded to match the target grade elevation thereby essentially becoming part of the restored wetland feature.

Mitigation construction activities would begin late in the third quarter or in the early part of the fourth quarter of 2013. It is estimated that it would take approximately 1 year for the borrow material placed in the mitigation site to settle to the desired target grade. Based on this, it is estimated that the retention dikes would be degraded in the second quarter of 2015, marking the end of the mitigation construction activities. CEMVN would be solely responsible for generating the mitigation construction plans and performing all mitigation construction activities.

No planting of the mitigation site is proposed after construction completion. Based on CEMVN's experience conducting similar freshwater wetland restoration projects, it is anticipated that desirable estuarine freshwater wetland vegetation would rapidly colonize the site through natural recruitment. However, adaptive management plans for the mitigation effort include planting of native wetland species should the mitigation success criteria for native vegetation cover not be achieved through natural recruitment.

The mitigation plan described would fully compensate for the wetland impacts generated by the proposed action (e.g. the Chevron pipeline relocation). Wetland Value Assessment models are a means of quantifying wetland functions and value both in terms of functions/values that will be lost due to impacts and functions/values that will be gained through mitigation. These functions/values are ultimately expressed in terms of AAHUs. As previously discussed, the USFWS evaluated the anticipated wetland impacts using the WVA fresh/intermediate marsh model. This analysis indicated the proposed action would result in the net loss of 3.20 AAHUs over the 50-year project life. Gulf South Research Corporation evaluated the proposed mitigation plan also using the WVA fresh/intermediate marsh model. This analysis, reviewed and approved by CEMVN and the Interagency Team, indicated the mitigation proposed (freshwater wetland restoration) would result in the net gain of 3.43 AAHUs over the same 50-year project life. Thus, the restoration of 14.5 acres of estuarine freshwater wetlands proposed would yield a functional benefit gain of 3.43 AAHUs compared to the 3.20 AAHUs that would be lost through pipeline relocation impacts. This wetland function/value "lift" provided by the mitigation plan would exceed the wetland function/value decrease anticipated from pipeline relocation by about 7 percent, indicating the mitigation plan would more than fully compensate for the wetland impacts.

While the restoration of 14.5 acres of freshwater wetlands might initially appear to be insufficient acreage to compensate for impacts to 14.5 acres of wetlands, one must keep in mind that the proposed action would not eliminate the affected wetlands. The proposed action would primarily result in temporary impacts to these wetlands. Over time, high quality freshwater wetland habitats would redevelop in the affected area. For example, one of the most important variables evaluated in the WVA marsh model is the percentage of the affected wetland area covered by emergent wetland vegetation. While the percentage of the impact area covered by emergent wetland vegetation would drop to near zero during pipeline relocation, it is anticipated that this coverage would increase to approximately 75% by 30 years after construction and would reach a level equal to existing conditions (approximately 99% cover) by the end of the project life.

It is noted that CEMVN is currently evaluating various alternatives for mitigating other freshwater wetland impacts resulting from HSDRRS improvements to the West Bank and Vicinity levee system. These impacts were to wetlands situated in areas outside the park. One of these alternatives would involve restoring freshwater wetland habitats in the remainder of the canal extending from Yankee Pond (i.e. the portion east of the proposed mitigation site) as well as in much of Yankee Pond itself. If this alternative is ultimately selected, construction of these mitigation features would occur simultaneously with construction of the subject mitigation site. Under this scenario the total freshwater wetland habitat restored would be much greater than would be achieved through the proposed mitigation plan, further increasing the functions and

values of the proposed mitigation site. It is emphasized, however, that the mitigation alternatives evaluation process is in its initial stages and it is possible that the described additional mitigation features would not be selected as the preferred alternative. Regardless, the mitigation plan proposed as compensation for the pipeline relocation impacts to park wetlands would be implemented.

Wetland Mitigation Implemented with Other HSDRRS Impacts:

As part of CEMVN Alternative Arrangements with CEQ, mitigation plans to address all the impacts associated with the HSDRRS construction projects would be presented in a separate IER following construction. Currently, alternatives are being formulated to mitigate for impacts by habitat type within the same hydrologic basin as the impacts. All impacts associated with the JLNHPP would be mitigated on the JLNHPP property. Potential mitigation measures considered within the JLNHPP include enhancement measures such as Chinese Tallow control or marsh creation projects such as pipeline canal backfilling.

The draft proposed mitigation plan is described as follows:

1.0 General. Reference Project Group Fact Sheets.

1.1 Location. Proposed marsh restoration features (sites) would be located along the shoreline of Lake Cataouatche, along the shoreline of Lake Salvador, and within an inland open water area called Yankee Pond.

1.2 Required Marsh Acreage. Project requires 309 acres of marsh restoration (all HSDRRS impacts).

1.3 Design Mitigation Acreage. The following mitigation features are designed: North Lake Cataouatche = 72 acres; South Lake Cataouatche = 90 acres; Lake Salvador = 23 acres; and Yankee Pond = 129 acres. All acreages are approximate.

2.0 Datums. Unless specified otherwise in this report, all elevations are in feet, NAVD88.

3.0 Marsh. Marsh platforms would be inter-tidal. Target marsh elevation would be (+) 2.5-ft. The fill quantity for the marsh features along lake shorelines would be 550,000 cy behind rock containment dikes and 600,000 cy for Yankee Pond. The initial slurry elevation would be (+) 3.5-ft to allow for settlement to target grade.

4.0 Borrow. Current project does not include surveys or borings of the proposed borrow site. Design uses a 2:1 pit to fill ratio to allow for unknown utilities, anomalies, cultural sites. Open water borrow sites within Lake Cataouatche, Lake Salvador, and dredging of Bayou Segnette with material placement in Yankee Pond. Borrow quantity would be 2,300,000 cy.

5.0 Project Design.

5.1 *Shoreline Protection*. The foreshore dike features will also serve to help protect the adjacent existing shoreline from erosion. The foreshore dike alignment was based off the

water-depth contours within the respective lakes. The dikes would be located along the (-) 3.0-ft contour for the North and South Lake Cataouatche, and along the (-) 1.0-ft contour for the Lake Salvador reach. North Lake Cataouatche would provide 14,000 Linear Feet (LF) of protection; South Lake Cataouatche would provide 17,000 LF of protection; and Lake Salvador would provide 14,200 LF of protection. An estimated 325,000 tons of rock would be required for these three features. Fish dips would also be located throughout the shoreline protection at approximately every 1,000-ft.

The stone section would be constructed to elevation (+) 4.0-ft with a crown width of 4.0-ft. Features at North Lake Cataouatche and South Lake Cataouatche would require a 25.0-ft stability berm be placed at elevation (-) 2.0-ft with 1V on 2H side slopes. No berm would be required for the feature at Lake Salvador at the (-) 1.0-ft contour. Separator geotextile would be placed on the base of the rock section.

5.2 Retention dikes. Shoreline Retention dikes would be located in shallow water adjacent to existing marsh shoreline to contain the material placed behind the foreshore dikes for features at North Lake Cataouatche, South Lake Cataouatche, and Lake Salvador. All materials needed for earthen retention dikes would be obtained from within the feature footprint. The shoreline retention dikes would be completely degraded to match the elevation of existing adjacent marsh habitats once dewatering has been achieved.

For features at Yankee Pond, the dike abutting Bayou Segnette would be constructed to elevation (+) 6.0-ft and have a 2-ft stone cap to elevation (+) 3.0-ft on the eastern face of the dike adjacent to Bayou Segnette. All other earthen dikes around the perimeter of Yankee Pond would be constructed to elevation (+) 5.0-ft and not require a stone cap.

5.3 Marsh Planting. No planting of the marsh feature is proposed. It was assumed that adequate vegetative cover would develop relatively rapidly through natural recruitment and colonization. The adaptive management plan prepared for the overall mitigation program would call for planting of the marsh if initial vegetative cover goals are not achieved through natural recruitment.

5.4 Utilities. There are several pipelines that run through and parallel to the North and South Lake Cataouatche.

6.0 Existing Data.

Existing survey cross-sections along Lake Salvador were used to estimate the contours for the shoreline reaches (Job #042-03, 2003 surveys)

6.1 Field Reconnaissance Notes. No site visit performed thus far.

7.0 Possible Project Group Constraints. Clearance of borrow site. Pipelines could affect the shoreline alignment. Limited Survey data, assumptions were made based on surveys within Lake Salvador to show contours for all shoreline features. There were also no borings, so the assumed section could change, as well as the settlement rate. Assumed construction settlement of a factor 1.7-ft for the stone quantity.

7.1 *Recommended Plan.* Shoreline protection constructed at (-) 3.0-ft contour along the North and South shorelines of Lake Cataouatche and (-) 1.0-ft contour along Lake Salvador, as well as filling in Yankee Pond. Lake Salvador shoreline protection design was moved to the (-) 1.0-ft contour due to the area having a less stable foundation than Lake Cataouatche. The (-) 1.0-ft contour would also require mechanical backfill due to narrow resultant marsh footprint. The marsh along Lake Cataouatche and Lake Salvador would provide frontline protection for the marsh with adjacent borrow from the lake. Yankee Pond would provide the largest benefit given its size (129 acres) and would likely have the best benefit to cost ratio due to the adjacent borrow from Bayou Segnette.

7.2 *Features not used.* Initial plans considered 11 additional marsh restoration sites involving filling of existing inland canals within the park. These sites were screened out due to the limited number of acres they provided. The increased cost to pump the material from the borrow sources identified for the recommended features and the added cost to mobilize and demobilize for the 11 separate locations. Two additional marsh restoration features were also considered; one on the shoreline of East Bardeaux Island (a 17-acre marsh restoration/shoreline protection feature) and one on the shoreline of West Bardeaux Island (a 15-acre marsh restoration/shoreline protection features). These sites were screened out due to the small number of marsh acres they provided and the fact that they already provide protection from Couba Island.

8. COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

Construction of the proposed action would not commence until the proposed action achieves environmental compliance with all applicable laws and regulations, as described below.

Environmental compliance for the proposed action would be achieved upon coordination of this IER with appropriate agencies, organizations, and individuals for their review and comments; USFWS and NMFS confirmation that the proposed action would not adversely affect any threatened or endangered species or require completion of Endangered Species Act Section 7 consultation; LDNR concurrence with the determination that the proposed action is consistent, to the maximum extent practicable, with the LCPR; receipt of a Water Quality Certification from the State of Louisiana; public review of the Section 404(b)(1) Public Notice and signature of the Section 404(b)(1) Evaluation; coordination with the Louisiana State Historic Preservation Officer; receipt and acceptance or resolution of all Fish and Wildlife Coordination Act recommendations; receipt and acceptance or resolution of all LDEQ comments on the air quality impact analysis documented in the IER; and receipt and acceptance or resolution of all EFH recommendations.

Executive Order (E.O.) 11988. E.O. 11988, Floodplain Management, addresses minimizing or avoiding adverse impacts associated with the base floodplain unless there are no practicable alternatives. It also involves giving public notice of proposed actions that may affect the base floodplain. The proposed action would not accelerate development of the floodplain for the following reasons: development of the study area is more closely related to access routes and the

need for affordable housing space than flooding potential and conditions conducive for development were established initially when the area was levied and forced drainage was initiated in the middle 1960s.

Executive Order 11990. E.O. 11990, Protection of Wetlands, has been important in project planning.

Consistency with Coastal Zone Management (CZM) Program. The CEMVN has determined that changes in design implementation of 100-year level of risk reduction along the WBV are consistent to the maximum extent practicable, with the guidelines of the State of Louisiana's approved Coastal Zone Management Program. A CZM consistency determination was prepared and provided to the LDNR on February 9, 2011. The consistency letter of approval from the LDNR dated April 20, 2011 completes the consistency requirements.

Clean Air Act. The original 1970 Clean Air Act (CAA) authorized the USEPA to establish National Ambient Air Quality Standards (NAAQS) to limit levels of pollutants in the air. USEPA has promulgated NAAQS for six criteria pollutants: sulfur dioxide (SO₂), nitrogen dioxide (NO₂), carbon monoxide (CO), ozone, lead, and particulate matter (PM-10). All areas of the United States must maintain ambient levels of these pollutants below the ceilings established by the NAAQS; any area that does not meet these standards is considered a "non-attainment" area (NAA). The 1990 Amendments require that the boundaries of serious, severe, or extreme ozone or CO non-attainment areas located within Metropolitan Statistical Areas (MSAs) or Consolidated Metropolitan Statistical Areas (CMSAs) be expanded to include the entire MSA or CMSA unless the governor makes certain findings and the Administrator of the USEPA concurs. Consequently, all urban counties included in an affected MSA or CMSA, regardless of their attainment status, will become part of the NAA. The project is located in Plaquemines Parish, which is classified as an attainment area; therefore NAAQS are not applicable to this project.

Clean Water Act. The Clean Water Act (CWA; 33 U.S.C. 1251-1387; Act of June 30, 1948, as amended) is a very broad statute with the goal of maintaining and restoring waters of the United States. The CWA authorizes water quality and pollution research, provides grants for sewage treatment facilities, sets pollution discharge and water quality standards, addresses oil and hazardous substances liability, and establishes permit programs for water quality, point source pollutant discharges, ocean pollution discharges, and dredging or filling of wetlands. The intent of the CWA's §404 program and its §404(b)(1) "Guidelines" is to prevent destruction of aquatic ecosystems including wetlands, unless the action will not individually or cumulatively adversely affect the ecosystem. Section 404(b)(1) guidelines were used to evaluate the discharge of dredged or fill material for adverse impacts to the aquatic ecosystem. The proposed project complies with the requirements of the guidelines. A 404(b)(1) was completed for the Addendum to IERS 15.a and signed on April 21, 2011. The LDEQ Water Quality Certification letter, WQC 080213-05/AI 156034/CER 20100001, dated June 23, 2010, completes the certification process.

Endangered Species Act. The Endangered Species Act (16 U.S.C. 1531-1543; P.L. 93-205, as amended) was enacted in 1973 to provide for the conservation of species that are in danger of extinction throughout all or a significant portion of their range. "Species" is defined by the Act to mean either a species, a subspecies, or, for vertebrates (i.e., fish, reptiles, mammals, etc.) only, a

distinct population. No threatened or endangered species or their critical habitat would be impacted by the proposed action. The USFWS concurred with the CEMVN's determination in their email dated March 2, 2011.

Fish and Wildlife Coordination Act. The Fish and Wildlife Coordination Act (16 U.S.C. 661-666c; Act of March 10, 1934, as amended) requires that wildlife, including fish, receive equal consideration and be coordinated with other aspects of water resource development. This is accomplished by requiring consultation with the USFWS and NMFS whenever modifications are proposed to a body of water and a Federal permit or license is required. This consultation determines the possible harm to fish and wildlife resources, and the measures that are needed to both prevent the damage to and loss of these resources, and to develop and improve the resources, in connection with water resource development. NMFS submits comments and recommendations to Federal licensing and permitting agencies, and to Federal agencies conducting construction projects on the potential harm to living marine resources caused by proposed water development projects, and suggests recommendations to prevent harm. The USFWS provided the "Draft Fish and Wildlife Coordination Act Report for the Individual Environmental Reports (IER), Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4)" in November 2007 (USFWS, 2007). To fulfill the responsibilities of the Fish and Wildlife Coordination Act, the USFWS will provide a post-authorization final supplemental 2(b) report to the draft programmatic report. A draft project-specific Coordination Act Report was received from USFWS by letter dated February 14, 2011. A final report was received from USFWS by letter dated April 15, 2011. All comments regarding USFWS trust resources have been resolved.

Migratory Bird Treaty Act. The Migratory Bird Treaty Act of 1918 (MBTA) is the domestic law that affirms, or implements, the United States' commitment to four international conventions with Canada, Japan, Mexico, and Russia for the protection of shared migratory bird resources. The MBTA governs the taking, killing, possessing, transporting, and importing of migratory birds, their eggs, parts, and nests. The taking of all migratory birds is governed by the MBTA's regulation of taking migratory birds for educational, scientific, and recreational purposes and requiring harvest to be limited to levels that prevent over-utilization. Section 704 of the MBTA states that the Secretary of the Interior is authorized and directed to determine if, and by what means, the taking of migratory birds should be allowed and to adopt suitable regulations permitting and governing taking. The MBTA prohibits the taking, possessing, importing, exporting, transporting, selling, purchasing bartering, or offering for sale, purchase or barter, of any migratory bird, their eggs, parts, and nests, except as authorized under a valid permit (50 CFR §21.11). The USFWS addressed compliance with this Act in the "Draft Fish and Wildlife Coordination Act Report for the IER, Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4)" in November 2007 (USFWS, 2007). To fulfill the responsibilities of the Fish and Wildlife Coordination Act, the USFWS will provide a post-authorization final supplemental 2(b) report to the draft programmatic report.

National Environmental Policy Act. The NEPA (42 U.S.C. 4321-4347; Pub. L. 91-190, as amended) requires Federal agencies to analyze the potential effects of a proposed Federal action that would significantly affect historical, cultural, or natural aspects of the environment. It

specifically requires agencies to use a systematic, interdisciplinary approach in planning and decision-making, to insure that environmental values may be given appropriate consideration, and to provide detailed statements on the environmental impacts of proposed actions including:(1) any adverse impacts; (2) alternatives to the proposed action; and (3) the relationship between short-term uses and long-term productivity. The agencies use the results of this analysis in decision-making. The preparation of this IERS is a part of compliance with NEPA.

National Historic Preservation Act. Congress established the most comprehensive national policy on historic preservation with the passage of the National Historic Preservation Act of 1966 (NHPA). In this act, historic preservation was defined to include "the protection, rehabilitation, restoration and reconstruction of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, or culture." The act led to the creation of the National Register of Historic Places, a file of cultural resources of national, regional, state, and local significance. The act also established the Advisory Council on Historic Preservation (the Council), an independent Federal agency responsible for administering the protective provisions of the act. The major provisions of the NHPA are Sections 106 and 110. Both sections aim to ensure that historic properties are appropriately considered in planning Federal initiatives and actions. Section 106 is a specific, issue-related mandate to which Federal agencies must adhere. It is a reactive mechanism that is driven by a Federal action. Section 110, in contrast, sets out broad Federal agency responsibilities with respect to historic properties. It is a proactive mechanism with emphasis on ongoing management of historic preservation sites and activities at Federal facilities. Coordination of this project with SHPO fulfills the requirements to comply with the NHPA, and the SHPO letter dated March 30, 2009, concludes this process.

| <u>Agency / Organization</u> | <u>Date Responded</u> |
|--|------------------------------|
| Endangered Species Act Section 7 concluded (USFWS): | March 2, 2011 |
| Endangered Species Act Section 7 concluded (NMFS): | N/A |
| Coastal Zone Management Consistency Determination: | April 20, 2011 |
| Clean Water Act Section 401 Water Quality Certification: | June 23, 2010 |
| USFWS Draft Coordination Act Report: | January 11, 2011 |
| National Historic Preservation Act Sect. 106 (SHPO and/or ACHP): | April 8, 2010 |
| Federal tribes with vested interests (that responded): | |
| Alabama Coushatta Tribe of Texas | May 4, 2010 |
| MPRSA Section 103 Evaluation: | N/A |
| Clean Water Act Section 404(b)(1) signed: | April 21, 2011 |
| USFWS Final Coordination act Report: | August 15, 2011 |

9. CONCLUSION

9.1 Proposed Decision

The proposed action would require the relocation of an oil/gas pipeline, construction of land and water based access routes to reach the drill entrance and exits points and also the construction of a temporary access road, small staging area and pontoon bridges near the Lake Cataouatche pump stations 1 and 2.

CEMVN has assessed the environmental impacts of the proposed action and has determined that the proposed action would have the following impacts:

Wetlands/Drainageways/Canals

- *Temporary impacts to approximately 8 acres of intermittently drained, forested wetlands habitat on the protected side, north of the Lake Cataouatche Levee, approximately 12.9 acres of open canal bottom within the Outer Cataouatche Canal, and approximately 14.5 acres of high quality freshwater floatant wetlands south of the Lake Cataouatche Levee within the Jean Lafitte National Historical Park and Preserve. Temporary increase in turbidity associated with open water bottom access wheel wash/dredging and marsh excavation in the Outer Cataouatche canal. Temporary increase in turbidity associated with canal bottom and bank impacts during construction and use of the pontoon bridges to cross the Avondale and Cataouatche canals.*

Non-wet bottomland hardwoods

- *Temporary impact to approximately 0.29 of low quality, non-wet bottomland hardwoods.*

Wildlife

- *Temporary impacts to wildlife within the vicinity of the project area during construction.*

Fisheries

- *Temporary impacts to fisheries within the vicinity of the project area during construction associated with increased turbidity and temporary loss of habitat due to open water bottom access prop wash/dredging, potential stockpiling marsh excavation, and construction of pontoon bridges.*

9.2 PREPARED BY

The point of contact and responsible manager for the preparation of this Addendum to IERS 15.a is Ms Patricia S. Leroux, CEMVN. The address of the preparers is: U.S. Army Corps of Engineers, New Orleans District; Regional Planning Environmental Division South, CEMVN-PM; P.O. Box 60267; New Orleans, Louisiana 70160-0267. Table 5 lists the preparers of the various sections and topics in this IER.

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| Technical Editor | Jennifer Darville, CEMVN |
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| Environmental Manager – Mitigation Team | Elizabeth Behrens, CEMVN |
| Mitigation Team | Clay Carithers, CEMVN |

10. APPENDICES

10.1 Appendix A

List of Acronyms and Definitions of Common Terms

| | |
|-----------|---|
| ASTM | American Society for Testing and Materials |
| BFI | Browning-Ferris Industries Landfill |
| BOD | Biological Oxygen Demand |
| CED | Comprehensive Environmental Document |
| CEMVN | Corps of Engineers, Mississippi Valley Division, New Orleans District |
| CEQ | The President's Council on Environmental Quality |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFR | Code of Federal Regulations |
| CFS | Cubic Ft Per Second |
| CW | Civil Works Program |
| CWA | Clean Water Act |
| CY | Cubic Yard |
| CSMA | Consolidated Metropolitan Statistical Area |
| CZM | Coastal Zone Management |
| dBA | Decibels |
| EA | Environmental Assessment |
| EFH | Essential Fish Habitat |
| EIS | Environmental Impact Statement |
| EM | Engineering Manual |
| EPW | Evaluation of Planned Wetlands |
| ER | Engineering Regulation |
| FCU | Functional Capacity Units |
| FCI | Functional Capacity Index |
| FEMA | Federal Emergency Management Agency |
| DPR | Detailed Project Report |
| DPR/EA | Detailed Project Report/Environmental Assessment |
| FONSI | Finding of No Significant Impact |
| FPPA | Farmland Protection Policy Act |
| FWCA | Fish and Wildlife Coordination Act |
| GNOHSDRRS | Greater New Orleans Storm Damage Risk Reduction System |
| HTRW | Hazardous, Toxic, and Radioactive Waste |
| IER | Individual Environmental Report |
| LDEQ | Louisiana Department of Environmental Quality |
| LDNR | Louisiana Department of Natural Resources |
| LPV | Lake Ponchartrain and Vicinity |
| MBTA | Migratory Bird Treaty Act |
| ML | Milliliters |

| | |
|--------|--|
| NAAQS | National Ambient Air Quality Standards |
| NAVD | North American Vertical Datum of 1988 |
| NEPA | National Environmental Policy Act |
| NFIP | National Flood Insurance Program |
| NHP | Natural Heritage Program |
| NHPA | National Historic Preservation Act |
| NMFS | National Marine Fisheries Service |
| NRCS | National Resources Conservation Service |
| O&M | Operations and Maintenance |
| OMRR&R | Operations, Maintenance, Repair, Replacement, & Rehabilitation |
| OSE | Other Social Effects |
| PA | Programmatic Agreement |
| PL | Public Law |
| PS | Pump Station |
| PSI | Pounds Per Square Inch |
| P&G | Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies |
| RCRA | Resource Conservation and Recovery Act |
| REC | Recognized Environmental Condition |
| RED | Regional Economic Development |
| ROD | Record of Decision |
| ROW | Right-of-Way |
| SCORP | State Comprehensive Outdoor Recreation Plan |
| SHPO | State Historic Preservation Officer |
| SIP | State Implementation Plan |
| SPH | Standard Project Hurricane |
| USACE | United States Army Corps of Engineers |
| USDA | United States Department of Agriculture |
| USEPA | United States Environmental Protection Agency |
| USFWS | United States Fish and Wildlife Service |
| USGS | United States Geological Survey |
| VOC | Volatile Organic Compounds |
| WBV | West Bank and Vicinity |
| WRDA | Water Resources Development Act |

10.2 Appendix B

Public Comments



UNITED FOR A HEALTHY GULF

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10 August, 2011

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RE: Addendum Draft Individual Environmental Report Supplemental, West Bank and Vicinity, Lake Cataouatche Levee, 15.a.

Dear Ms. Leroux:

I am writing on behalf of the Gulf Restoration Network (GRN), a diverse coalition of individual citizens and local, regional, and national organizations committed to uniting and empowering people to protect and restore the resources of the Gulf of Mexico. We have serious concerns about the addendum to Individual Environment Report Supplement 15 (IERS 15.1) and the compensatory mitigation it provides for the impacts associated with the relocation of a 24-inch pipeline by Chevron Pipe Line Company (Chevron) in Jean Lafitte National Historical Park and Preserve.

The U.S. Army Corps of Engineers (USACE), Mississippi Valley Division, New Orleans District (CEMVN), has proposed an action alternative, horizontal direct drilling, which would impact the Barataria Preserve unit of Jean Lafitte National Historical Park and Preserve (JLNHPP). The GRN has concerns with some of the construction project features, and opposes several aspects of the mitigation proposed in IERS 15.a. We ask that NPS adjust IERS 15.a based on the following concerns:

- 1. Identify a new site to borrow the sediment required for the mitigation work program.**

The mitigation proposed in IERS 15.a elects to dredge the quantity of sediment required for the proposed wetlands creation in Yankee Pond from Bayou Segnette Waterway (BSW).¹ However,

¹ See U.S. Army Corps of Engineers, *Addendum Draft Individual Environmental Report Supplemental, West Bank and Vicinity, Lake Cataouatche Levee, IERS 15.a*, 59, 68 (July, 2011).

in IERS 15.a the CEMVN fails to address the environmental impacts of dredging BSW and re-depositing the borrow material in the mitigation site.

BSW Contamination

Three studies conducted by the USACE in 1977, 1987, and 2001, have shown high concentrations of pollutants, including toxic heavy metals, in BSW.² Borrowing of contaminated sediments from BSW may increase contamination of the mitigation site in Yankee Pond. Additionally, there could be a resuspension of contaminated sediments in the water, and toxic heavy metals, such as mercury and lead, could enter the food chain. In 1996 Times-Picayune article, former Park Superintendent Bob Belous was quoted cautioning that dredging BSW “churns up sediment that causes major fish kills and stirs up heavy metals, such as mercury and lead, that get into the food chain.”³ *Dredging BSW will unnecessarily risk spreading these contaminants to other areas of the park and into the food chain. The CEMVN fails to consider these impacts in IERS 15.a.*

BSW Saltwater Intrusion and Loss of Land

The dredging of waterways has contributed significantly to land loss in Louisiana. The National Park Service (NPS) stated in a June, 2011 Environmental Assessment (EA) regarding the Chevron pipe relocation, that canals like BSW and their spoil banks affect both above-and below-ground hydrology, introducing “unnaturally fast-flowing water to the interior of the marsh which causes erosion and other problems.”⁴ In fact, the NPS cites studies in the EA which reveal that while “many large areas of open water have formed near canals and spoil banks in the past five decades . . . none have formed away from them.”⁵ Not surprisingly, a 2003 Decision Notice and Finding of No Significant Impact for the Lake Salvador Shoreline Protection Project (LSSPP FONSI), declared that “[t]he park’s goal has been and remains [Bayou Segnette Waterway’s] complete removal and the restoration of the habitat and hydrological processes destroyed by its construction.”⁶

The loss of land resulting from the dredging of waterways is, in part, the result of increased saltwater intrusions into the Park. Notably, former Park Superintendent Ann Belkov described BSW in 1988 as “a primary avenue of saltwater intrusion into the Core Area of the Barataria Unit,” concluding that “additional dredging . . . will only serve to increase the intrusion.”⁷ Dredging BSW to provide borrow material will increase the depth of the waterway and therefore increase the amount of saltwater flowing into the Park and the speed at which it flows. The USACE acknowledges in the LSSPP FONSI that an increased tidal volume accompanying the dredging of a waterway “can lead to scouring, erosion of interior marshes,

² The sediment analysis performed by the USACE in 1987 showing highly elevated levels of mercury, cadmium, lead, arsenic, nickel, and zinc, as well as chlordane.

³ Times-Picayune (May, 7, 1996).

⁴ National Park Service, NPS, *Relocation of an Existing 24-Inch Pipeline by Chevron Pipe Line Company, Environmental Assessment*, 96 (June, 2011).

⁵ NPS, *Relocation of an Existing 24-Inch Pipeline*, 96.

⁶ U.S. Army Corps of Engineers, New Orleans District, *Lake Salvador Shoreline Protection Project, Decision and Notice Finding of No Significant Impact*, (April, 2003), 4.

⁷ Ann Belkov, *Letter to Henry Schorr*, (October, 1988).

and marsh break-up.”⁸ Furthermore, as the NPS recognizes in the EA, because many wetland “plants have limited tolerance for prolonged exposure to salt, Gulf waters must be kept at bay in order to maintain the integrity” of freshwater wetland systems within the Park.⁹ These plants and their roots help solidify and build up wetland soils. As a result, further destruction of wetland vegetation will contribute to the loss of land within the Park. As if the increased saltwater intrusion were not enough, however, the NPS notes in the EA that BSW also has “low levels of dissolved oxygen, and high nutrients and pathogen loads . . . which may negatively impact marsh ecosystems in the Preserve.”¹⁰

Furthermore, the dredging of BSW to obtain borrow material for wetland creation will also result in the sloughing off of the waterway’s banks. Indeed, each foot the waterway is deepened will likely result in several feet of sediment sloughing off the banks. This sloughing off will widen the canal at the expense of further loss of the Preserve’s wetlands. *Dredging BSW will increase saltwater intrusion, destroy freshwater vegetation, and further damage, erode, and negatively impact the Park’s wetlands. These impacts must be considered by the CEMVN in IERS 15.a, and may be avoided by selecting an alternative borrow site.*

Bayou Segnette Waterway Re-Evaluation and Dredging Depth

The only Environmental Impact Statement (EIS) for the BSW was performed in 1976,¹¹ two years before the Jean Lafitte National Historical Park was established by Congress,¹² and one year before a USACE study first identified contaminants in the waterway. Since 1976, a full re-evaluation of the purposes and environmental impacts associated with BSW has been neglected. Numerous new impacts have developed since 1976, such as the opening of the Park and the Davis Pond Freshwater Diversion. While these may be positive environmental impacts, they are nonetheless significant. Importantly, significant environmental impacts which necessitate the preparation of an EIS, “may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.”¹³ Additionally, new studies and information have become available since 1976, including research concerning the impacts of polluted sediments on benthic organisms.

Even the stakeholders with interests in the continued dredging of BSW have changed. The waterway was first authorized in 1954 to offer fishing and shrimp boats a shorter route to packing and canning industries. Because, however, these packing plants have been closed for many years, the purpose that continued dredging of BSW serves must be re-evaluated. Former Park Superintendent David Luchsinger stated in 2007 that the NPS “strongly recommended the de-authorization of this little-used canal, and the development of an alternative navigation route through natural water bodies.” *These impacts and alternatives must be considered in a new EIS before any future dredging of the BSW.*

⁸ *Lake Salvador Shoreline Protection Project*, Appendix A, 2.

⁹ NPS, *Relocation of an Existing 24-Inch Pipeline*, 67.

¹⁰ NPS, *Relocation of an Existing 24-Inch Pipeline*, 96.

¹¹ U.S. Army Corps of Engineers, *Segnette Maintenance Project, Environmental Impact Statement*, (August, 1976).

¹² Pub. L. 95-625 (1978).

¹³ 40 C.F.R. 1508.27(b)(1).

Furthermore, the depth to which the BSW is dredged could involve determinations which would necessitate the performance of an EIS. There is a congressional authorization for the dredging of BSW to a depth of 6 feet, with an additional 1 foot of allowable over-depth, and 1 foot of advanced maintenance.¹⁴ Although this raises the total authorized depth to 8 feet, a determination must first be made that the advanced maintenance is necessary for the purposes BSW serves. If the determination is made that the purposes BSW serves necessitate an additional foot of dredging for advance maintenance, this determination and consequent action would "establish a precedent for future actions with significant effects or represent[] a decision in principle about a future consideration."¹⁵ Regulations issued by the Council on Environmental Quality (CEQ) declare impacts of this intensity to significantly affect the quality of the human environment and require the production of an EIS. *Therefore, the inherent precedent setting nature of the performance of advance maintenance will contribute significantly to the impact of the advance maintenance and require the performance of an EIS.*

However, an examination of the purposes BSW serves reveals that no advance maintenance is necessary. The advance maintenance of BSW is no longer authorized by Congress if the purposes for which Congress established the BSW have expired. As stated previously, the purposes for which the BSW was first authorized in 1954, to provide fishing and shrimp boats a shorter route to packing and canning industries, have long since disappeared. Because the dredging of BSW, which former Park Superintendent David Luchsinger referred to as a "little-used canal," no longer serves its congressionally authorized purpose, and because it may not serve any purpose at all, there is no authorized need for the performance of advanced maintenance. Furthermore, there is no need for dredging to extend an additional foot of allowable over-depth. *Therefore, while there is no need for further dredging of BSW, the maximum depth to which BSW could be dredged is the congressionally authorized 6 feet.*

Lake Salvador and Lake Cataouatche - Patchwork Borrow Site

The CEMVN lists several alternative borrow sites in IERS 15.a in addition to the dredging of BSW.¹⁶ Each site is located in Lake Cataouatche or Lake Salvador. These sites were proposed as borrow sites for other marsh restoration projects needed to compensate for Greater New Orleans Hurricane and Storm Damage Risk Reduction System Project (HSDRRS) impacts. These borrow sites would not involve the dredging of a waterway within the Preserve, and would therefore not lead to further saltwater intrusion and loss of land within the Preserve. Furthermore, these sites are not known to carry significant risks of contamination, although any potential contamination would have to be investigated further.

There is, however, the concern that the borrow pits created in Lake Cataouatche and Lake Salvador would generate wave energy which could lead to further wetland land loss within the Preserve along the shores of each lake. As an alternative to creating several large borrow pits, as is currently proposed in the HSDRRS mitigation plans, a patchwork of smaller borrow pits should be created. This patchwork of borrow pits would be oriented so as to minimize wave energy. *A patchwork of borrow pits in Lake Cataouatche and Lake Salvador would not carry the same risks*

¹⁴ *Lake Salvador Shoreline Protection Project*, 1.

¹⁵ 40 C.F.R. 1508.27(b)(6).

¹⁶ NPS, *Relocation of an Existing 24-Inch Pipeline*, Appendix F, 7.2.

of contamination, salt water intrusion, and erosion. Because of their close proximity to Yankee Pond, they are ideal alternative borrow sites to BSW and should be considered in the WICP.

2. The wetland acreage compensation ratio must be greater than one-for-one (1:1) .

The USACE Compensatory Mitigation for Losses of Aquatic Resources regulations provide the guidelines the CEMVN must adhere to in order to assure satisfaction of the longstanding USACE goal of “no net loss” of wetland acreage and function.¹⁷ To compensate for the 14.5 acres of existing wetland directly impacted by the proposed action, the CEMVN provides in IERS 15.a for 14.5 acres of wetland restoration in Yankee Pond.¹⁸ This would purportedly satisfy the “minimum one-to-one acreage . . . compensation ratio” required by the USACE regulations.¹⁹

However, the regulations also require that functional or condition assessment methods be used to determine how much compensatory mitigation is required. The minimum one-to-one acreage compensation ratio is only to be used “[i]f a function or condition assessment or other suitable metric is not” available, practical, or appropriate.²⁰ Additionally, the Emergency Alternative Arrangements entered into by the CEQ and the USACE guarantee that any “mitigation plans will be based upon existing methodologies for water resource planning.”²¹ Furthermore, USACE Compensatory Mitigation for Losses of Aquatic Resources regulations state that “a mitigation ratio greater than on-to-one [is] necessary to account for [1] the method of compensatory mitigation, . . . [2] the likelihood of success, [3] differences between the functions lost at the impact site and the functions expected to be produced by the compensatory mitigation project, [4] temporal losses of aquatic resource functions, [5] the difficulty of restoring or establishing the desired aquatic resource type and functions, [6] and/or the distance between the affected resource and the compensation site.”²² Given these regulatory concerns, it is not surprising that the CEMVN recognized in IERS 15.a that “the restoration of 14.5 acres of freshwater wetland might initially appear to be insufficient acreage to compensate for impacts to 14.5 acres of wetlands.”²³ Although the CEMVN relies on an evaluation of the project related impacts on fish and wildlife resources performed by the US Fish and Wild Life Service (USFWS), this value assessment was insufficient. *Given the regulatory considerations the CEMVN is required to incorporate, a mitigation ratio greater than 1:1 must be applied in the mitigation measures for the proposed action.*

Wetlands Functional Values Determination

The USACE regulations state that “conditional assessment methods . . . should be used where practicable to determine how much compensatory mitigation” is necessary to offset unavoidable environmental impacts.²⁴ In IERS 15.a the CEMVN utilized an evaluation conducted

¹⁷ Department of Defense, Department of the Army, Corps of Engineers, *Compensatory Mitigation for Losses of Aquatic Resources*, 33 C.F.R. § 325, 332, (2008).

¹⁸ NPS, *Relocation of an Existing 24-Inch Pipeline*, 33.

¹⁹ 33 C.F.R. § 332.3(f)(1).

²⁰ 33 C.F.R. § 332.3(f)(1).

²¹ U.S. Army Corps of Engineers, Council on Environmental Quality, *Emergency Alternative Arrangements*, 11 (February 23, 2007).

²² 33 C.F.R. § 332.3(f)(2).

²³ IERS 15.a, 69.

²⁴ 33 C.F.R. § 332.3(f)(1).

by the USFWS and aided by the Wetlands Value Assessment (WVA) methodology.²⁵ Under the WVA model, it was determined that “the restoration of 14.5 acres of estuarine freshwater wetlands proposed would yield a functional benefit gain of 3.43 [Average Annual Habitat Units (AAHUs)] compared to the 3.20 AAHUs that would be lost through pipeline relocation impacts.”²⁶ Because the WVA model estimated a wetland function lift by 7 percent, the CEMVN concluded that “the mitigation plan would more than fully compensate for wetland impacts.”

However, the WVA methodology provides an incomplete evaluation of wetland functions and values. Therefore, it is inappropriate and erroneous for the CEMVN to rely entirely on the WVA model in IERS 15.a mitigation plans. Firstly, there is no indication that the WVA model contains the vital concerns codified in the USACE Compensatory Mitigation for Losses of Aquatic Resources regulations, which were quoted above.²⁷ Other conditional assessment methodologies incorporate these safeguards, such as the Modified Charleston Method (MCM) detailed below.²⁸

Additionally, while the WVA “utilizes an assemblage of variables,” it nonetheless omits numerous variables and measurements critical to evaluating the viability and value of a created wetland. As one study explains, while WVA “seek[s] to assess ecological recovery in created wetlands, [it] assume[s] that equivalence in sediment, water quality, and vegetative community will provide equivalent functional services that a natural marsh provides.”²⁹ The functional services that marsh soils provide, for instance, would not be adequately evaluated under the WVA methodology. As section 3 of this comment further details, this oversight would undervalue the benefits of backfilling canals as a mitigation alternative. While canal backfilling may restore wetland soils more quickly and completely, failure to include this function in a conditional assessment model may doom a mitigation alternatives analysis to select an environmentally inferior wetlands creation project as the preferred mitigation alternative. *The WVA analysis utilized by the CEMVN in IERS 15.a provides insufficient wetlands function analysis and must be supplemented or replaced by a more comprehensive conditional assessment methodology, such as the MCM detailed below.*

Furthermore, the WVA only assesses the “suitability of a given habitat for supporting a diversity of fish and wildlife species.”³⁰ This methodology neglects to consider essential wetlands functions which cannot be effectively measured by reference to the suitability of a habitat for supporting fish and wildlife species. The NPS explained in their EA, for instance, that the wetlands function of flood abatement may vary in effectiveness “depending on the size of the area, type and condition of vegetation, slope, the location of the wetland in the flood path, and the saturation of the wetland soils before flooding.”³¹ The WVA model will not, unfortunately, give these factors sufficient weight, if they are considered at all. Indeed, the USACE Compensatory Mitigation for Losses of Aquatic Resources regulations highlight numerous

²⁵ IERS 15.a, 61.

²⁶ IERS 15.a, 69.

²⁷ See *supra* text accompanying note 22.

²⁸ See *infra* text accompanying notes 51-53.

²⁹ <http://etd.lsu.edu/docs/available/etd-10282008-094243/> Lewellyn, Chris. 2008 Ecological Equivalence in Created Marshes. Master's Thesis, LSU, Renewable Natural Resources.

³⁰ IERS 15.a, 61.

³¹ NPS, *Relocation of an Existing 24-Inch Pipeline*, 33.

wetlands functions considerations in addition to aquatic habitat diversity, including "habitat connectivity, relationships to hydrologic sources, . . . trends in land use, ecological benefits, and compatibility with adjacent land uses."³² *Due to the limited scope of its wetlands function analysis, and its lack of reference to essential USACE regulations, the WVA model provides an insufficient wetlands function evaluation and should not be relied on to determine the amount of required compensatory mitigation.*

Finally, in IERS 15.a the CEMVN does not even propose to create the same habitat as the habitat impacted. While "[t]he proposed impacts are to 14.5 acres of high quality semi-buoyant freshwater estuarine wetlands . . . the proposed mitigation plan is to create freshwater estuarine wetland habitat."³³ Notably missing from the proposed mitigation plan is the "high quality semi-buoyant" characteristics of the impacted site. Interestingly, the backfilling of existing canals, as detailed in section 3, will have a greater probability of creating the flotant marsh impacted by the pipeline construction. As currently proposed, however, the failure of the mitigation project proposed in IERS 15.a to create the flotant marsh found at the impacted site exacerbates the harms of performing an incomplete wetlands functions determination. Truly, the near equivalency and minor additional benefit represented by the 7 percent wetlands functions lift anticipated under the WVA model, must be questioned on their face in light of the dissimilarities in the wetlands impacted and created. *Once preformed, a full wetlands functions determination will likely show that the functional value of the "high quality semi-buoyant" impacted wetlands is higher than the functional value of the non-buoyant wetlands created at Yankee Pond, thus requiring a compensation ratio greater than 1:1 under USACE regulations.*

Low Mitigation Success Rate for Wetland Creation

In order to meet the goal of "no net loss" of wetland acreage or functions, USACE regulations mandates a mitigation ratio greater than 1:1 when necessary to account for the likelihood of success of the mitigation project.³⁴ Unfortunately, mitigation through wetland creation has, in many instances, proved unsuccessful. As one commentator has noted, "[m]any created wetlands have fared poorly because of inadequate design, poor site selection, or the size of the wetland created."³⁵ The commentator cited a study by the Florida Department of Environmental Regulation, which discovered that less than 50% of completed wetland creation projects were considered ecologically successful.³⁶ Another commentator explained that created wetlands which are "small in size, widely scattered, and are not buffered by adjacent uses . . . are more likely to fail, or in the alternative, minimize ecological benefits."³⁷

The limits of wetland creation are, indeed, incorporated in the success criteria set by the NPS in the EA produced for the proposed Chevron pipeline relocation. For instance, the topographical success criteria culminates in a demonstration of 80% of the site having a surface elevation

³² 33 C.F.R. § 332.3(b)(1).

³³ IERS 15.a, 68.

³⁴ 33 C.F.R. § 332.3(f)(2).

³⁵ Robert D. Sokolove & Robert Thompson, *The Future of Wetland Regulation is Here*, 23 Real Est. L. J. 78, 81 (1994).

³⁶ Sokolove, 81 (citing Salvesen, *Banking on Wetlands*, Urban Land (1993)).

³⁷ Travis E. Booth, *Compensatory Mitigation: What is the Best Approach?*, 11 U. Balt. J. Envtl. L. 205, 212 (2004) (citing Jennifer Neal, *Paving the Road to Wetlands Mitigation Banking*, 27 B.C. Envtl. Aff. L. Rev. 161, 174 (1999)).

within a 1-2.5 feet NAVD88 range 3 years after the completion of mitigation construction activities.³⁸ The native vegetation success criteria similarly list an 85% site coverage determination 3 years after the completion of mitigation construction activities.³⁹ *These criteria illustrate the partial and uncertain success expectations for the mitigation efforts.*

Furthermore, the CEMVN notes in IERS 15.a that if the Yankee Pond mitigation alternative is selected to compensate for the fresh marsh impacts resulting from the HSDRRS project, “the total freshwater wetland habitat restored would be much greater than would be achieved through the proposed mitigation plan, further increasing the functions and values of the proposed mitigation site.”⁴⁰ Indeed, this conclusion coincides with the commentator’s observations, noted above, that contiguous wetlands mitigation projects have higher success rates and ecological benefits.⁴¹ The CEMVN cautions, however, “that the mitigation alternatives evaluation process [for the HSDRRS] is in its initial stages and it is possible that the described additional mitigation features will not be selected as the preferred alternative.”⁴² Therefore, in terms of the functions and values of the 14.5 acres of wetlands creation, there could be a more successful result than what is currently proposed. Furthermore, it is concluded in the IERS 15.a that the creation of additional acres of wetland, in particular, would increase the likelihood of success. But yet, it is conceded that there is an unknown probability that additional acres of wetlands will be created at the Yankee Pond site. *Under the USACE Compensatory Mitigation for Losses of Aquatic Resources regulations, each of these inferences, alone, calls for a compensation ratio greater than 1:1. The unclear likelihood of success that the proposed mitigation entails, and the increased likelihood of success that creating additional wetlands offers, demand a compensation ratio greater than 1:1.*

Minimization Project Features

In IERS 15.a, the CEMVN highlights an unsubstantiated prediction that the proposed action would only temporarily impact the 14.5 acres of existing high-quality semi-buoyant freshwater wetlands,⁴³ noting that “as a project feature the impacted area within the JLNHPP would be restored to its original state to the maximum extent practicable.”⁴⁴ The CEMVN cites this minimization project as an attempt to explain why the 1:1 compensation ratio was satisfactory, despite the admission that “the restoration of 14.5 acres of freshwater wetlands might initially appear to be insufficient acreage to compensate for impacts to 14.5 acres of wetlands.”⁴⁵ However, the CEMVN further concedes that “the percentage of the impact area covered by emergent wetland vegetation would drop to near zero during pipeline relocation.” Without providing any relevant study, calculation, or other form of proof or explanation, the CEMVN proceeds to anticipate in IERS 15.a that wetland vegetation coverage within the impacted site would increase to approximately 75% by 30 years after construction, and approximately 99% by 50 years after construction.

³⁸ NPS, *Relocation of an Existing 24-Inch Pipeline*, 36.

³⁹ NPS, *Relocation of an Existing 24-Inch Pipeline*, 37.

⁴⁰ IERS 15.a, 69-70.

⁴¹ See *supra* note 57 and accompanying text.

⁴² IERS 15.a 70.

⁴³ IERS 15.a, 69.

⁴⁴ IERS 15.a, 49.

⁴⁵ IERS 15.a, 69.

However, the CEMVN improperly utilized this minimization project feature to explain away the need for compensatory mitigation required by USACE Compensatory Mitigation for Losses of Aquatic Resources regulations. Although USACE regulations detail numerous circumstances which would require mitigation ratios greater than 1:1,⁴⁶ it does not allow for minimization project features, which are entirely distinct from mitigation efforts, to eliminate the need for additional mitigation when required by the regulations. *The CEMVN plea in IERS 15.a that "one must keep in mind that the proposed action would not eliminate the affected wetlands" and excuse what "initially appear[s] to be insufficient acreage," runs directly against USACE regulations and is not an acceptable aspect of IERS 15.a mitigation plans.*

Also, the CEMVN provides no proof that the impacted site will reach the anticipated 30 year and 50 year wetland vegetation coverage percentages. The minimization project features call for the careful excavation of the floating marsh habitat and its placement adjacent to the worksite. The CEMVN offers no examination in IERS 15.a of the success rates of previous attempts to excavate floatant marsh, stockpile it near a construction site, and then re-apply it to the impacted site following construction. Furthermore, the unexplained 30 and 50 year figures do not even attempt to measure the rate of return of wetland functions at the impacted site. Just as wetland functions cannot be entirely assessed by evaluating the suitability of the wetland habitat for fish and wildlife species, as detailed previously,⁴⁷ the percentage of the impacted site covered by vegetation similarly cannot supplant an assessment of recuperation and return of full wetlands functions and values. Although the WAV model provided an incomplete assessment, here the CEMVN submits no methodology to confirm the prophesized vegetative recovery at the impacted site. *This is a clear violation of the EAA which states that "mitigation plans will be based upon existing methodologies for water resource planning."⁴⁸ Furthermore, under the USACE regulations, the CEMVN cannot base its mitigation determination on wetlands functions evaluations not made under an appropriate conditional assessment model.*

Compounding these errors is the lack of any calculation or other explanation for why the 1:1 compensatory ratio and 30 year and 50 year minimization goals combine to satisfy the longstanding USACE statutory goal of "no net loss" of wetland acreage or functions. In IERS 15.a, therefore, the CEMVN deviates from the USACE regulations and the EAA without any proof, calculation, or explanation to assure the regulatory goals and EAA guarantees will be met. *The CEMVN cannot rely on unverified guesses as to the success of minimization project features in order to justify not including a compensatory mitigation ratio greater than 1:1 despite it being required under USACE regulations.*

Temporal Loss of Wetland Functions

In order to meet the goal of "no net loss" of wetland acreage or functions, USACE regulations require a compensation ratio greater than 1:1 when necessary to account for temporal losses of aquatic resource functions.⁴⁹ In IERS 15.a, the CEMVN relies on unproven minimization project features and unverified 30 year and 50 year vegetation coverage rates to justify a 1:1

⁴⁶ See *supra* note 22 and accompanying text.

⁴⁷ See *supra* notes 30-32 and accompanying text.

⁴⁸ *Emergency Alternatives Arrangements*, 11.

⁴⁹ 33 C.F.R. § 332.3(f)(2).

compensatory mitigation ratio. With an expected 75% vegetation coverage by 30 years after construction, and 99% vegetation coverage only after 50 years, there is clearly a large temporal gap in wetland functions and values at the impacted site.

Furthermore, the mitigation success criteria provided in the NPS EA, and detailed above, sets a timeline for successful mitigation that lasts for several years past the date the mitigation construction is completed. Furthermore, although native vegetation may largely colonize the site within 3 years, as projected, the creation of a top layer of organic soil, which is essential to a fully functioning wetland, may take up to 10 years. Stable isotope study of created marsh has shown that functional equivalence takes at least 8 years or more to develop.⁵⁰ *Under the guidelines found in the USACE regulations, the temporal loss of numerous years of wetland functions requires a compensation ratio greater than 1:1.*

Conditional Assessment Method – Modified Charleston Method

The USACE regulation state that “conditional assessment methods . . . should be used where practicable to determine how much compensatory mitigation” is necessary to offset unavoidable environmental impacts.⁵¹ The CEMVN has developed a mitigation assessment technique known as the Modified Charleston Method (MCM), which weighs the functional quality of the impacted site against the perceived functional lift of the mitigation. The MCM is designed to account for the wetland qualities unique to Louisiana and the USACE Compensatory Mitigation for Losses of Aquatic Resources regulations.⁵² Further setting it apart from the WVA methodology utilized by the CEMVN in IERS 15.a, the MCM accounts for indirect, secondary, and cumulative impacts and therefore has more accurate outputs. In fact, on May 1, 2011, the CEMVN Regulatory Branch began utilizing the MCM as its primary method of quantifying impacts and determining mitigation needs for CEMVN projects.⁵³ *Under the MCM, an impact to 14.5 acres of marsh would require 45.9 acres of mitigation. Even if the CEMVN were to utilize the MCM concurrently with WVA methodology it would certainly call for a compensatory mitigation ratio greater than 1:1.*

3. The degrading of canal spoil banks into canals within the Preserve should be considered as an alternative to supplement the Yankee Pond wetland creation.

Initial mitigation plans considered pumping in spoil material to fill in existing canals within the Preserve. However, previous restoration has not involved hauling in additional material. The cost of backfilling the canals without additional material will be lower than previously evaluated.

The legacy canals on public land should have their spoil banks degraded into the canal to narrow the channels and restore hydrology. Spoil banks are levees that run the length of the canal, limiting sediment deposition in the adjacent wetlands, and accelerating land loss within the Preserve. They restrict water flow above and below the wetland surface and alter periods of

⁵⁰ <http://etd.lsu.edu/docs/available/etd-10282008-094243/> Lewellyn, Chris. 2008 Ecological Equivalence in Created Marshes. Master's Thesis, LSU, Renewable Natural Resources

⁵¹ 33 C.F.R. § 332.3(f)(1).

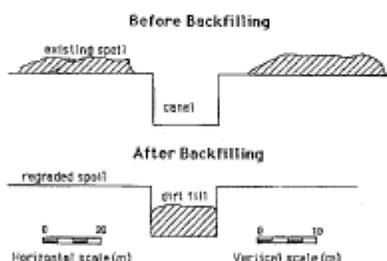
⁵² See 33 C.F.R. § 332.3.

⁵³ Kieth Lovell, *OCM's Recent Mitigation Initiatives*, Louisiana Department of Natural Resources, Office of Coastal Management.

flooding and drying of the wetlands, which leads to a loss of bulk density, development of organic material, and vertical accretion.⁵⁴ The increased flooding can stress and destroy wetland vegetation, whereas the drying of wetland soils can lead to subsidence due to the oxidation of organic matter. Spoil banks can also act to trap and retain saltwater within the wetlands landscape after storm surges, leading to further wetlands loss within the Preserve. Furthermore, the spoil banks limit sediment deposition in the adjacent wetlands. Indeed, the spoil banks themselves have replaced wetlands within the Park with an upland environment consisting of invasive Chinese Tallow (*Sapium sebiferum*).

Backfilling restores the marsh acreage in the footprint of the spoil bank, marginally in the canal itself, and creates a shallow water habitat for nekton. The indirect benefits to the surrounding marshes are estimated to extend 2 km from the footprint of the canal. Backfilling canals would not only directly restore wetlands within the preserve, but would also diminish the wetland erosion and saltwater intrusion that accompanies canals currently traversing the Park. This backfilling is already recognized by the NPS and the USACE as a necessary step in restoring these damages to the park of the BSW.⁵⁵

Backfilling is a well-documented, highly cost-effective means of ecological restoration that requires no further management so long as the backfill is conducted to the proper elevation by a skilled operator.⁵⁶ *Although the spoil banks have often collapsed in volume, depending on the age of the spoil, the incomplete filling is sufficient to restore the surrounding marsh soils and hydrology without the import of additional fill.*



Schematic representation of a typical oil and gas rig access canal before and after backfilling. From Neill and Turner, 1987

As documented by Turner and his colleagues at 33 sites over several decades, most of the errors in backfilling come from failure to remove the spoil bank to marsh level.⁵⁷ Some of the study sites examined by Turner and his colleagues that showed low rates of restoration did not show success because they were never actually backfilled, or, in a rarer event, were backfilled too low.

⁵⁴ Cahoon and Groat, ed. 1990, *A Study of Marsh Management Practice in Coastal Louisiana*, <http://www.gomr.boemre.gov/PI/PDFImages/ESPIS/3/3658.pdf>.

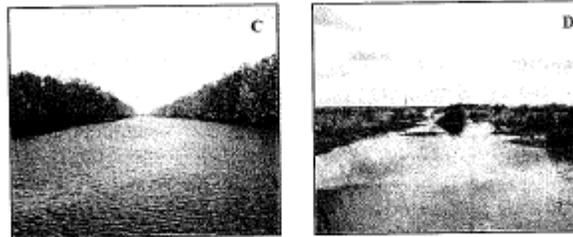
⁵⁵ Environmental Assessment Amendment 231-A, Appendix A: *Historical Salinity Changes*.

⁵⁶ Baustian, J. J. and Eugene Turner, R. (2006), *Restoration Success of Backfilling Canals in Coastal Louisiana Marshes*. *Restoration Ecology*, 14: 636–644. doi: 10.1111/j.1526-100X.2006.00175.x; see also <http://etd.lsu.edu/docs/available/etd-04132005-180725/>.

⁵⁷ Baustian and Turner, 2006.

We have every confidence that the Park will monitor this technique to ensure the highest rate of success.

The effectiveness of this ecological restoration *has already been shown* in the Barataria Preserve of Jean Lafitte National Park. The degradation of spoil banks along legacy oil and gas canals has the potential to restore a high percentage of wetlands impacted by these canals, as well as restore flow to the surrounding marshes they impound.



adapted from Baustian, 2005, M.S. thesis: a canal at Jean Lafitte before (C) and after (D) backfilling. In a later paper, Baustian Turner used the backfilling at Jean Lafitte as an example of success.

Because they are experts in the technique, and experts in their wetlands, we feel that the Park's recommendation of backfilling restoration shouldn't be dismissed. *The CEMVN has demonstrated a misunderstanding of the technique, and this plan should be evaluated as a preferred alternative.*

The CEMVN mentions that the rejected alternative included filling the backfilled canals, which made the project too costly. As illustrated by Neill and Turner above, the canals are explicitly *not* filled in with hauled in material. *The CEMVN has demonstrated a misunderstanding of the concept of backfilling, and should re-evaluate the cost of the actual technique, based upon the scientific and gray literature.*

Restored Banks Means Restored Soils

Although created marsh is an essential technique in restoring Louisiana wetlands, restoration techniques have not progressed to include evaluations of the functional services that working marsh soils provide. Stable isotope study of created marsh has shown that functional equivalence takes at least 8 years or more to develop.⁵⁸ In addition, most wetland evaluation techniques do not examine functional equivalency:

Some... assessment[s] of wetland habitats include the Habitat Evaluation Procedure (USFWS 1980), the Wetland Evaluation Technique (WET, Adamus et al. 1987), and Wetland Value Assessments (WVA, CWPPRA). While these approaches all seek to assess ecological recovery in created wetlands, they assume that equivalence in sediment, water quality, and vegetative community will provide equivalent functional services that

⁵⁸ Lewellyn, Chris, *Ecological Equivalence in Created Marshes*, Master's Thesis, LSU, Renewable Natural Resources, <http://etd.lsu.edu/docs/available/etd-10282008-094243/> (2008).

a natural marsh provides including support of equivalent nekton communities and food web support.⁵⁹

The footprint occupied by spoil material, the "banks," has been shown to be restored to functional marsh after 5 years when the additional material is removed to marsh level. The banks will then be colonized in a few years by appropriate plant species. The spoil banks, as they stand, support upland plant species, such as Chinese Tallow, that are invasive to Louisiana.

The soil organic matter, bulk density, and water capacity in spoil banks are lower than when banks are restored to marsh level. After 5 years, soils can be restored. Bulk density and water holding capacity can be increased up to 90% and 92% of the original wetland capacity, given that the canal is backfilled to the correct elevation.

Although the restored banks are not identical to the reference marsh just outside the spoil banks, the restored banks act as streamside marsh, edge marsh, which has more habitat value.⁶⁰

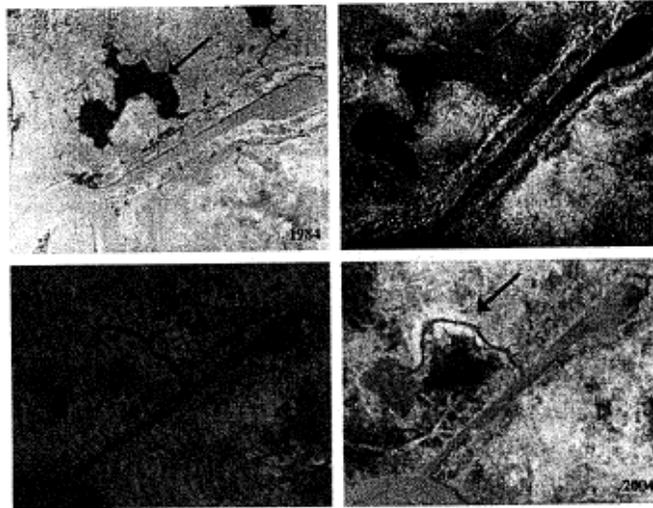
Restored Hydrology

The benefits of backfilling extend beyond the footprint of the canal, because the impact of spoil banks—impounding the wetlands beyond, reducing vertical accretion and soil development—can extend up to 2km away from the canal.⁶¹ As a more visible example of the indirect restorative benefits of backfilling, healthy marsh was able to re-colonize a pond that had formed from the impoundment.

⁵⁹ Lewellyn, Chris, *Ecological Equivalence in Created Marshes*, Master's Thesis, LSU, Renewable Natural Resources, <http://etd.lsu.edu/docs/available/etd-10282008-094243/> (2008).

⁶⁰ Baustian and Turner, 2006.

⁶¹ Turner and Rao, *Relationships Between Wetland Fragmentation and Recent Hydrologic Changes in a Deltaic Coast*, *Estuaries* 13: 272-281 (1990).



A pond exterior to the marsh reverts to marsh after the Vermillion River site was backfilled. Visible at 29 46'30"N, 92 09'00"W

There also remains a similar pond within the limits of Jean Lafitte Park—destroyed by multiple hydrological alterations from local canals and levees. Although it lies outside of this 2km buffer,



Wetland loss from altered hydrology in light blue, as of 1990. Penland et al., 2000, "Process Classification of Coastal Land Loss...", USGS ofr 00-418⁶²

⁶² <http://pubs.usgs.gov/of/2000/of00-418/>.



1998 image of the approx. 300 acre area of formerly fresh marsh, now turned to open water.

if surface hydrological alteration, rather than subsurface subsidence, has destroyed approximately 300 acres of marsh within the Park, restoration in the Park should reduce the hydrological impact to this area. Backfilling of canals gulfward of Yankee Pond will help restore sheet flow and reduce the rate of land loss. Dredging of BSW will have the opposite effect.

Restored Depth – Shallow Water and Marsh Edge Habitat

Marsh creation usually does not design a creation cell with shallow water habitat. A natural hydrological pattern only emerges after the marsh platform has established itself over a period of time. Backfilling establishes shallow water habitat immediately, and is colonized by SAV if the canal is plugged.

Backfilling *initially* creates shallow open water areas in the former canal that support large numbers of small fishes, including juveniles of species that use shallow marsh water bodies as nurseries.⁶³ Sikora and Sikora found that the mean annual abundance of macrofauna in a backfilled canal was similar to a natural creek and double the abundance in an unfilled canal.⁶⁴

Backfilled canals have the potential to be high quality habitat for waterfowl, because they encourage the colonization of widgeongrass (*Ruppia maritima*), dwarf spikerush (*Eleocharis parvula*), floating waterprimrose (*Ludwigia peploides*), coontail (*Ceratophyllum demersum*),

⁶³ OCS MMS 94-0026, *Backfilling Canals as a Wetland Restoration Technique in Coastal Louisiana*. Summarized at <http://www.gomr.boemre.gov/PI/PDFImages/ESPIS/3/3434.pdf>.

⁶⁴ Sikora and Sikora, 1984. Benthos. In Turner, Mendelssohn, Constanze, McKee, Neill, Sikora, Sikora, and Swenson, *Evaluation of Backfilling Canals as a Means of Mitigating the Environmental Impact of Canals*, LDNR, 1984).

southern naiad (*Najas quadalupensis*), fanwort (*Cabomba caroliniana*), and duckweed (*Lemna minor*). Shallow open water areas in backfilled canals or on backfilled spoil banks are often less than 50cm deep, a depth suitable for dabbling ducks.⁶⁵

Other Precedent in Freshwater marshes –Long Island site

Of the 33 studied sites, Long Island site was one of a handful of freshwater sites surveyed for the Baustian thesis in 2004. The marsh recovered on 50% of the banks, because 50% of the spoil was left as an operator error.

Since being backfilled, the canal was covered by emergent marsh and floating vegetation over approximately 80% of its area in the few years preceding 2004. The emergent species included Giant Cutgrass (*Zizaniopsis miliacea*), Marsh Purslane (*Ludwigia palustris.*), Alligatorweed (*Alternanthera philoxeroides*), and a Sedge species (*Cyperus sp.*).

The spoil banks contained roughly equal areas of elevated spoil and marsh. The marsh formed in areas that were originally dredged too deep and were left as open water. The elevated spoil areas were covered almost exclusively by Black Willow (*Salix nigra*). The canal was in an area of fresh marsh dominated by Cattails (*Typha sp.*), Bull-tongue (*Sagittaria lancifolia*), Marshhay Cordgrass (*Spartina patens*), and Smartweed (*Polygonum*).

⁶⁵ Sikora and Sikora, 1984. Benthos.



Figure 72. An infrared image of the Long Island backfilled canal, noted by the arrow, taken in 2000.

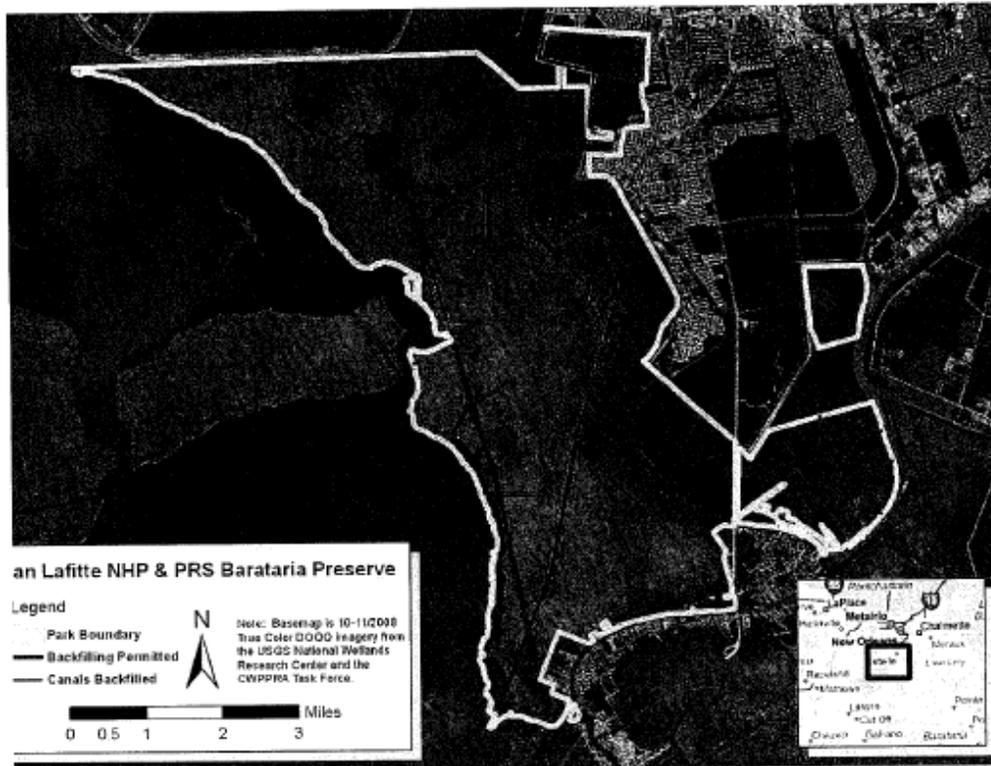


Figure 73. The Long Island backfilled site in April 2004.

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From Page 86 of Baustian's Thesis, in an atlas of backfilled canals. The Long Island site is a fresh water site at 29 46'46"W, 92 45'26.24"W

The 11 Sites in Jean Lafitte



11 sites in Jean Lafitte (in red) have been permitted for Backfilling.



Adapted from O'Neil, T., 1949. "The Muskrat in the Louisiana Coastal Marshes." This 1949 wetlands classification, shows "non-marsh" in light green, fresh marsh in darker green, and brackish marsh in dark blue. Before the Segnette waterway, all of the Preserve was freshwater habitat.



Adapted from LDWF, 2001 wetlands classification. the Park is shown as an area of fresh marsh (dark green) between fastlands (light green) and intermediate marsh (light blue). Deepening of the canal through the waterway would allow more salt water into the park more often, favoring intermediate plant communities over the pristine fresh marsh that persists. The eleven sites permitted for backfilling include the length of canal at the southwest end of the park in intermediate plant community. This intermediate area has significantly eroded away.

The eleven sites chosen for backfilling within the park are relatively pristine fresh marsh, although some marsh has changed to intermediate from fresh. Although backfilling will not restore the marsh to its pristine condition, it will restore the banks and the canal to a more functional condition in a shorter time period than created marsh.

Summary

This alternative has the advantage of not requiring additional fill exported from within the Park, nor requiring dredging from BSW, which has many adverse impacts. This alternative is already planned as a restoration step necessary to lessen the impacts of the BSW that exist.⁶⁶

The eleven canal sites considered for marsh restoration were screened out of the evaluation process due to the limited number of acres they provided. The estimated acreage created from this alternative is 184 acres of fresh marsh from the spoil banks in three years,⁶⁷ which is more than the 50 acres that will be created in Yankee pond over a longer period of time. The marsh created over 20 years was estimated at 284 acres. Additional marsh that emerges from the canal is conservatively estimated at 10% of the 158 acres of canal restored to shallow water

⁶⁶ *Lake Salvador Shoreline Protection Project*, Appendix A, 2. "NPS will continue to work toward marsh restoration by closing canals linked to the BSW and leveling spoil banks. Such restoration projects will continue throughout the life of the BSW project."

⁶⁷ *PPL21 Project Nominee Fact Sheet*, (January 27,2011).

habitat. *This results a total of 300 acres of marsh created from backfilling. This should not be considered a limited number of acres.*

Also at issue in screen out the 11 sites, was the increased costs associated with pumping the spoil material from the borrow sites and mobilizing and demobilizing at eleven separate locations. However, degrading the spoil banks to backfill the canals merely involves using a backhoe to bulldoze the spoil banks back into the canals. Although the banks will not contain enough spoil to fill in the canal completely, the raised elevation of the bank is removed and the natural hydrology of the wetlands is reestablished. The edges of a backfilled canal will naturally revegetate and become more irregular over time, which, along with the shallower canal depth, will slow the advance of saltwater and help stop erosion. Furthermore, the natural growth of wetlands vegetation following the backfilling of a canal will have a substantially greater probability of restoring the floatant marsh system impacted by the pipeline relocation than the wetland creation efforts proposed in Yankee Pond.

The costs associated with degrading spoil banks and backfilling canals are minimal when compared to many other wetlands restoration techniques. Unlike the canal filling and wetlands creation plans proposed by the NPS in the EA, equipment such as dredges, pumps, pipelines, and containment burns are not required, minimizing the mobilization and demobilization costs. Additionally there is no planting or further on-site management required. One study calculated the cost of a backfilling project in the range of \$1,200 to \$3,400 per hectare.⁶⁸ *Due to the significant number of acres likely to be created, the high-quality of the wetlands potentially created, and the low costs of the operation, backfilling the 11 canal sites originally proposed should be reconsidered as a preferred alternative to supplement the Yankee Pond mitigation efforts proposed in the WICP.*

4. Wetlands compensation for the 8 acres of low quality bottomland hardwood wetlands north of the Lake Cataouatche Levee impacted by the proposed action should be performed within the Park.

Relocation of the Chevron pipeline will damage 8 acres of low quality bottomland hardwood wetlands outside of the Park's boundaries. Although IERS 15.a only provides for wetlands creation within the Park to compensate for the loss of wetlands within the Park, the numerous benefits accompanying wetland creation within the Park make it an ideal location to mitigate for the loss of the 8 acres of bottomland hardwood wetlands. Firstly, NPS reveals in the EA that mitigation for the HSDRSS impacts may require 57 acres of bottomland hardwood restoration within the Park.⁶⁹ As is noted previously in section 2, the success of mitigation efforts in part depends on the size and contiguous alignment of the mitigation sites. Mitigation sites which are "small in size, widely scattered, and are not buffered by adjacent uses . . . are more likely to fail, or in the alternative, minimize ecological benefits."⁷⁰ Here, the mitigation efforts outside and inside the Park would benefit from being grouped together. Furthermore, the ample benefits the Park offers in regards to protecting, monitoring, and nurturing the resources it contains, would likely make any mitigation efforts more successful. Indeed, the CEMVN notes

⁶⁸ Leanne Lemire, *Backfilling Canals to Restore Louisiana Wetlands*, Restoration and Reclamation Review, Vol. 2, No.3, 4 (1997)

⁶⁹ NPS, *Relocation of an Existing 24-Inch Pipeline*, Appendix F, 12.

⁷⁰ Travis E. Booth, *Compensatory Mitigation: What is the Best Approach?*, 11 U. Balt. J. Envtl. L. 205, 212 (2004) (citing Jennifer Neal, *Paving the Road to Wetlands Mitigation Banking*, 27 B.C. Envtl. Aff. L. Rev. 161, 174 (1999)).

Comment re: Amended Draft IERS 15.a

8/10/11

on page 69 of IERS 15.a, that it is considering mitigation projects in a canal extending from Yankee Pond to compensate for HSDRRS impacts to wetlands outside the Park. *Therefore, the 8 acres of bottomland hardwood wetlands impacted by the pipeline relocation would best be mitigated within the Park. Using the MCM mitigation assessment technique, impacting 8 acres of bottomland hardwood would require 22.7 acres of mitigation.*

For a healthy Gulf,

Matt Rota
Director of Science and Water Policy

Roderic Fleming
Legal Intern

Scott Eustis
Coastal Wetland Specialist

[sent via e-mail]

Cc: John Ettinger, Environmental Protection Agency
Carol Clark, US Park Service
Dusty Pate, US Park Service
Colleen Morgan, Bayou Rebirth, Sierra Club
Michael Murphy, Tulane Environmental Law Clinic
Barry Kohl, Louisiana Audubon Council

The League of Women Voters of New Orleans

1215 Prytania Street • Suite 224 • New Orleans, LA 70130 • 504.581.9106

August 8, 2011

Ms. Joan Exnicijos
Chief, Environ. Planning and Compliance Branch
Dept of the Army
New Orleans District, Corps of Engineers
P.O. Box 60267
New Orleans, LA 70160

Re: NPS, JLNHPP; Environmental Assessment for Relocation of existing 24 inch
Chevron Pipeline, Barataria Preserve.
IER 15a supplement

Dear Ms. Joan Exnicijos:

In accordance with the League of Women Voters positions on preservation of coastal Louisiana and particularly LWV involvement in the establishment and protection of the Jean Lafitte National Historical Park and Preserve, we oppose the dredging of the Bayou Segnette Waterway.

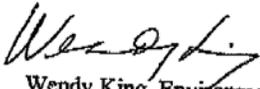
Dredging, barge traffic and speeding boats will erode the banks and cause storm surges to enter the vital areas of the JLNH Park & Preserve.

Furthermore we maintain that sediment from BSW should not be used as mitigation to fill Yankee Pond. Other sources should be considered for this project. There will be no real gain to the park if erosion occurs from the planned dredging. Also, possible toxic contamination of sediment must be considered in dredging and relocation of the sediment if the Jean Lafitte Barataria Preserve is to be protected.

We strongly agree with former JLNH Park Superintendent David Luchsinger's statement: "Specifically we (National Park Service) oppose the continued dredging of the Segnette Waterway and strongly recommend the deauthorization of this little-used canal, and the development of an alternative navigation route through natural water bodies. Further, we recommend that measures be taken to restore the landscape scarred by the canal or mitigate its ecological effects."

The LWV appreciates the opportunity to submit comments.

Sincerely,



Wendy King, Environmental Chair, League of Women Voters-New Orleans

CC. Carol Clark, Superintendent
Jean Lafitte National Historical Park & Preserve
419 Decatur Street
New Orleans, LA 70130-1035

10.3 Appendix C

Interagency Correspondence

- Department of the Interior, National Park Service
- USFWS Draft Coordination Act Report
- Louisiana Department of Natural Resources
- State Historic Preservation Office
- Alabama-Coushatta Tribe of Texas
- Department of Environmental Quality
- USFWS Threatened and Endangered Species Consultation
- Louisiana Department of Wildlife and Fisheries



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

August 2, 2011 F/SER46/LA:jk
225/389-0508

Ms. Joan Exnicios, Chief
Environmental Planning and Compliance Branch
Planning, Programs, and Management Division
New Orleans District, U.S. Army Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Ms. Exnicios:

NOAA's National Marine Fisheries Service (NMFS) has reviewed the Addendum to the draft Individual Environmental Report Supplemental (IERS) #15.a titled "West Bank and Vicinity; Lake Cataouatche Levee; Jefferson Parish, Louisiana" transmitted by your letter dated July 11, 2011. The draft IERS evaluated and quantified the impacts associated with relocating a pipeline that crosses a section of levee being elevated and widened to improve storm surge protection to portions of the West Bank of New Orleans. The Addendum to the draft IERS further evaluates alternatives initially considered in IER 15.a but were eliminated and evaluates additional alternatives identified by the National Park Service.

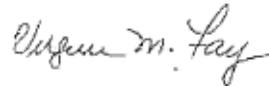
As described in the Addendum draft IERS, the proposed action alternative would result in at least temporary impacts to approximately 14.5 acres of tidally influenced fresh marsh on the Jean Lafitte National Historical Park and Preserve (Park). According to the document, staff of the Park have been coordinated with and all impacts have been minimized to the maximum extent practicable. The Addendum to the draft IERS indicates that all impacts to wetlands on the Park would be mitigated within the Park, specifically in Yankee Pond, and that immediate site restoration would include backfilling and replanting the pipeline right-of-way (ROW) and work area. NMFS recommends the New Orleans District also include provisions to monitor elevations pre- and post-construction in the pipeline ROW and the drill exit point work area to ensure they are restored to pre-existing conditions and to help determine the need for additional, mitigative actions. In addition, on ground photographs should be taken prior to initiation of work efforts, and one growing season post construction at 200 ft intervals, in both directions, along the pipeline ROW to document the effectiveness of the restoration effort. That information should be provided to staff of the natural resource agencies and the Park to determine if additional mitigation would be necessary to offset impacts to wetlands in the Park.

1



We appreciate the opportunity to review and comment on the Addendum to the draft IERS. If you have questions regarding NMFS' recommendations, please contact Lisa Abernathy at (225) 389-0508, ext 209.

Sincerely,



Virginia M. Fay
Acting Assistant Regional Administrator
Habitat Conservation Division

c:
FWS, Lafayette, Walther
EPA, Dallas, Ettinger
LA DNR, Consistency, Lovell
F/SER46, Swafford
F/SER4, Rolfes
Files

United States Department of Agriculture



Natural Resources Conservation Service
3737 Government Street
Alexandria, LA 71302

(318) 473-7751
Fax: (318) 473-7626

July 15, 2011

Joan Exnicios
Department of Army
P.O. Box 60267
New Orleans, Louisiana 70160-0267

RE: Lake Cataouatche Levee – Jefferson Parish

Dear Ms. Exnicios:

I have reviewed the above referenced project for potential requirements of the Farmland Protection Policy Act (FPPA) and potential impact to Natural Resource Conservation Service projects in the immediate vicinity.

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 can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

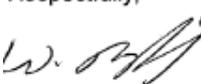
The project map submitted with your request indicates that the proposed construction areas will not impact prime farmland and therefore is exempt from the rules and regulations of the Farmland Protection Policy Act (FPPA)—Subtitle I of Title XV, Section 1539-1549. Furthermore, we do not predict impacts to NRCS work in the vicinity.

For specific information about the soils found in the project area, please visit our Web Soil Survey at the following location:

<http://websoilsurvey.nrcs.usda.gov/>

Please direct all future correspondence to me at the address shown above.

Respectfully,

 ACTING FOR

Kevin D. Norton
State Conservationist

Helping People Help the Land

An Equal Opportunity Provider and Employer



United States Department of the Interior



NATIONAL PARK SERVICE
Jean Lafitte National Historical Park and Preserve
New Orleans Jazz National Historical Park
419 Decatur Street
New Orleans, Louisiana 70130-1035

IN REPLY REFER TO:

L7619

February 7, 2011

Sandra Stiles
U.S. Army Corps of Engineers
Regional Planning and Environmental Division South
New Orleans Compliance Branch
CEMVN
P.O. Box 60267
New Orleans, LA 70160-0267

Dear Ms. Stiles:

The National Park Service (NPS) has reviewed Draft Individual Environmental Report Supplemental 15.a (IERS 15.a) titled "Lake Cataouatche Levee, Plaquemines Parish, Louisiana." We understand that draft IERS 15.a was completed primarily to address a pipeline relocation that has the potential to adversely impact resources within Jean Lafitte National Historical Park and Preserve's Barataria Preserve Unit. We received a copy of the notice of availability for draft IERS 15.a on January 18, 2011. We understand that time is a factor in the U.S. Army Corps of Engineers, New Orleans District (CEMVN) decision-making process for IERS 15.a. However, we would like to bring to your attention several deficiencies we noted in our review of that document, and the fact that the proposed action described in draft IERS 15.a would require a permit from the NPS.

We have been working with CEMVN and the utility company for some time now to ensure that impacts to resources, especially wetlands, within the park are avoided if possible, minimized to the maximum extent practicable, and mitigated for in ways that benefit the park. However, our review of draft IERS 15.a indicates that there is little specific information regarding the avoidance, minimization, or mitigation of adverse impacts to wetlands in the park included in the document. We anticipate that the utility company will be applying for a special use permit to access the park and relocate the pipeline in the near future. The NPS has compliance responsibilities under the National Environmental Policy Act of 1969, as amended (NEPA), and other applicable laws and regulations when considering whether or not to take action by issuing such a permit. Based on the description of the proposed alternative in draft IERS 15.a, we anticipate that we would need to complete an environmental assessment level compliance process in order to comply with NEPA and other laws. Regardless of the NEPA compliance pathway, we anticipate that we would need to complete a wetland statement of findings in accordance with NPS policy regarding Executive Order 11990. Typically, this document would need to be made public for a minimum of 30 days. We cannot begin our compliance process without a permit application from the utility company.

Draft IERS 15.a does not include discussion or analysis of alternatives that could reduce or eliminate impacts within the park and overall. Compared to the potential impacts associated with construction of a concrete floodwall with a sleeve through which the pipeline could pass, the proposed alternative would result in avoidable impacts to wetlands within the park. IERS 15.a should include a detailed analysis of the effects of all feasible alternatives on the human environment. If alternatives such as a floodwall and sleeve are not feasible, a discussion of why they were eliminated from detailed consideration should be included in the document. Variations of the proposed alternative like using barges to store dredged material instead of stockpiling it next to excavations in the park should also be considered.

We appreciate CEMVN's commitment to minimizing impacts within the park through coordination with us and the utility company. However, the results of the multiple meetings between the parties described on page 5 of the draft IERS are not detailed. This information should be included in the document. Coordination with the NPS is described in this context, and with regard to the consistency determination for the project that CEMVN is seeking from the State of Louisiana. However, the NPS is not listed in the coordination section of the draft IERS. We suggest that the NPS or the park should be added to the list of agencies in final IERS 15.a.

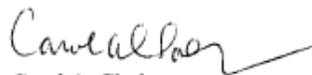
We also appreciate CEMVN's commitment to restoring construction sites in the park through backfilling excavations, replanting, and other measures deemed necessary by the NPS. This is an example of the specific information we would like to see included in IERS 15.a when discussing other aspects of the proposed alternative.

Similarly, we appreciate CEMVN's commitment to mitigating for impacts that would occur in the park as a result of the proposed alternative within the park. However, details regarding potential mitigation projects within the park are not included in draft IERS 15.a. We suggest that compensatory mitigation for impacts resulting from the project not only be undertaken within the park, but within similar wetland communities near the project area if possible, and that specific information regarding mitigation projects be included in the IERS. Details regarding compensatory mitigation are a required element of wetland statements of findings in addition to discussions of avoidance and minimization of adverse impacts to wetlands, as well as restoration.

CEMVN has indicated to us that deadlines for completion of the compliance process for the pipeline relocation and the improvements to the Lake Cataouatche Levee are rapidly approaching. We would like to point out that environmental compliance for the proposed action would not be achieved after the list in the second paragraph under the heading Status of Individual Environmental Report Supplemental (IERS) and Other Environmental Documents on page 7 of draft IERS 15.a is complete. The proposed action would also require a permit from the NPS to proceed. The utility company has not yet demonstrated to us that their property rights allow them to relocate the pipeline in the manner described in the proposed alternative, or applied for a permit to complete the work. We cannot begin our compliance process without an action to analyze, but draft IERS 15.a anticipates much of the project that would be proposed to us and our own analysis of the potential effects. Therefore, we suggest that improvements to IERS 15.a could save time for CEMVN, the utility company, and the NPS.

Thank you for your commitment to the resources and values of Jean Lafitte National Historical Park and Preserve. If you have any questions, or to begin the special park uses permitting process, please contact Dusty Pate of my staff at 504 589-3882 x119, or by email at haigler_pate@nps.gov.

Sincerely,



Carol A. Clark
Superintendent

Cc: Jeff Harris, LA DNR OCM Consistency Section



United States Department of the Interior

FISH AND WILDLIFE SERVICE
646 Cajundome Blvd.
Suite 400
Lafayette, Louisiana 70506
January 11, 2011



Colonel Edward R. Fleming
District Commander
U.S. Army Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Colonel Fleming:

Please reference the second supplement of Individual Environmental Report (IER) 15 (i.e., IERS 15a) for the Lake Cataouatche Levee, Jefferson Parish, Louisiana. That IERS is being prepared under the approval of the Council on Environmental Quality (CEQ) to obtain compliance with the National Environmental Policy Act of 1969 (83 Stat. 852, as amended; 42 U.S.C. 4321-4347) and is authorized Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4), and Public Law 110-28, U.S. Troop Readiness, Veterans' Care, Katrina Recovery, and Iraq Accountability Appropriations Act, 2007 (5th Supplemental). Those laws authorized the Corps of Engineers (Corps) to upgrade two existing hurricane protection projects (i.e., Westbank and Vicinity of New Orleans and Lake Pontchartrain and Vicinity) in the Greater New Orleans area in southeast Louisiana to provide 100-year hurricane protection. This draft report provides planning objectives and recommendations to minimize project impacts to fish and wildlife resources.

The U.S. Fish and Wildlife Service (Service) provided to the Corps a November 26, 2007, Draft Programmatic Fish and Wildlife Coordination Act (FWCA; 48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) report that addresses the hurricane protection improvements authorized in Supplemental 4 and a March 17, 2008, and a March 24, 2008, FWCA reports that provided recommendations on the originally proposed IER 15 alternatives and subsequent changes, respectively. Since those reports the Corps has revised the alternatives and the selected plan for structural flood protection. This letter supplements our previous reports and addresses the change the selected plan. However, this report does not constitute the report of the Secretary of the Interior as required by Section 2(b) of the FWCA. This report has been provided to the Louisiana Department of Wildlife and Fisheries and the National Marine Fisheries Service; their comments will be incorporated into our final report.

The study area is located in the eastern portion of Jefferson Parish within the Mississippi River Deltaic Plain of the Lower Mississippi River Ecosystem. Higher elevations occur on the natural levees of the Mississippi River and its distributaries. Developed lands are primarily associated with natural levees, but extensive wetlands have been leveed and drained to accommodate



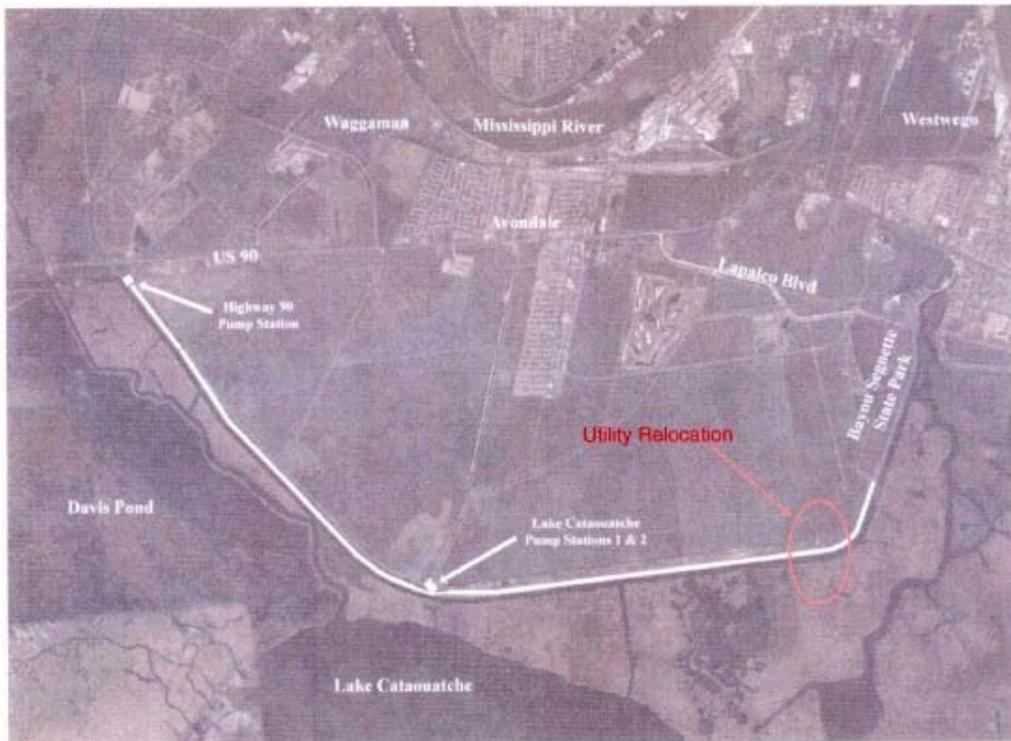
residential, commercial, and agricultural development. Federal, State, and local levees have been constructed for flood protection purposes, often with negative effects on adjacent wetlands. The Mississippi River and Lake Cataouatche are prominent landscape features, as are extensive oil and gas industry access channels and pipeline canals. Extensive wetlands and associated shallow open waters dominate the landscape outside the flood control levees.

Habitat types in the project area include forested wetlands (i.e., bottomland hardwoods in varying successional stages), non-wet bottomland hardwoods, marsh, open water, and developed areas. Due to development and a forced-drainage system, the hydrology of most of the forested habitat within the levee system has been altered. The forced-drainage system has been in operation for many years, and subsidence is evident throughout the areas enclosed by levees.

As previously mentioned, the Service has provided FWCA Reports for the authorized hurricane protection project. Those reports contain a thorough discussion of the significant fish and wildlife resources (including habitats) that occur within the study area. For brevity, that discussion is incorporated by reference herein but the following information is provided to supplement the previously mentioned reports and provide specific recommendations regarding the new alternatives and selected plan.

The proposed plan for IER 15 involves upgrading the existing flood protection levees and floodwalls around the Lake Cataouatche Basin. This project originates where the U.S. Highway 90 embankment ties into the existing hurricane protection levee and continues eastward along the existing levee to approximately the Bayou Segnette State Park boundary. The project is designed to use existing rights-of-way (ROW) and levees within previously disturbed areas, thereby minimizing environmental impacts. The existing Lake Cataouatche Levee alignment is divided into three distinct reaches as described in our previous report, however, the additional proposed work, utility relocation, is located within Reach 2. Reach 2 extends from the BFI Landfill to the Bayou Segnette State Park Boundary (Figure 1). This reach is comprised of two sections that are separated by the Lake Cataouatche Pump Stations. Reach 2 originates at the southern end of Reach 1 and proceeds approximately 15,152 ft to the Lake Cataouatche Pump Stations No. 1 and No. 2. Excepting approximately 1,450 ft around the pump stations, Reach 2 continues an additional 20,950 ft to the Bayou Segnette State Park boundary (see figure 3). Including both sections, this reach is approximately 6.84 miles in length.

Figure 1. IER 15 Reaches and Utility Relocation



The proposed project feature (i.e., pipeline relocation) addressed by this report is located in Reach 2. The pipeline relocation begins along the northern boundary of the interior borrow canal and extends across the levee and the Outer Cataouatche Canal into floodside wetlands on the southern shore of that canal. Those fresh marsh wetlands are within the Jean Lafitte National Historical Park and Preserve (JLNHPP). The pipeline is currently laid on the surface of the existing levee crown and slope (up and over configuration). To upgrade the levee under the pipeline, that pipeline must be relocated.

The oil/gas pipeline relocation would temporarily impact approximately 8 acres of low quality bottomland hardwoods on the protected side, 12.9 acres of open water, and 14.5 acres of high quality fresh marsh on the floodside. While the project area on the floodside includes tidally influenced, higher quality freshwater wetlands, forested habitat on the protected side has been previously disturbed. The remaining wooded areas possess some characteristics of wetlands; however, due to pumped drainage the amount and quality of those wetlands has diminished over time. The bottomland hardwoods remaining in the project area have a low quality value because of the excessive quantity of invasive Chinese tallow-trees.

As currently proposed the pipeline would be relocated via horizontal directional drilling (HDD). Typically, this method reduces impacts to fish and wildlife resources; however, compared to impacts associated with construction of a concrete floodwall (e.g., T-wall) with a sleeve through which the pipeline passes, the HDD may result in avoidable impacts to JLNHPP. All feasible alternatives that would reduce impacts to the JLNHPP should be investigated to ensure impacts to public lands are avoided or minimized. The results of that investigation should be presented in the IERS.

As previously mentioned, the floodside of the proposed project feature is within the JLNHPP boundary. The Corps should avoid impacts to public lands, if feasible. If not feasible the Corps should establish and continue coordination with the National Park Service (NPS) until construction of that feature is complete and prior to any subsequent maintenance. Impacts to NPS lands should be mitigated on adjacent NPS lands within the vicinity of IER 15Sa, if feasible. For additional information please contact Ms. Carol A. Clark, Superintendent of JLNHPP (504) 589-3882 extension 111.

Impacts to habitat will be quantified by habitat quality (i.e., average annual habitat unit or AAHUs). The Service proposes to use the Wetland Value Assessment (WVA) to quantify the impacts of proposed flood protection feature in our final report.

SERVICE POSITION AND RECOMMENDATIONS

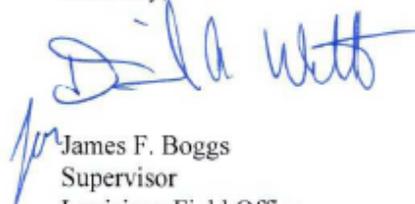
The Service still does not object to the proposed project provided that additional recommendations provided below are addressed by the Corps and incorporated into project plans, when feasible:

1. All feasible alternatives to HDD that would reduce impacts to the JLNHPP should be investigated to ensure impacts to public lands are avoided or minimized. The results of that investigation should be presented in the IERS.

2. To the greatest extent possible, situate flood protection features so that destruction of wetlands and non-wet bottomland hardwoods are avoided or minimized.
3. Forest clearing associated with project features should be conducted during the fall or winter to minimize impacts to nesting migratory birds, when practicable.
4. Further detailed planning of project features (e.g., Design Documentation Report, Engineering Documentation Report, Plans and Specifications, or other similar documents) should be coordinated with the Service, NMFS, LDWF, Environmental Protection Agency (EPA), JLNHPP, and Louisiana Department of Natural Resources (LDNR). The Service shall be provided an opportunity to review and submit recommendations on the all work addressed in those reports.
5. The U.S. Army Corps of Engineers (Corps) should avoid impacts NPS lands, if feasible. If not feasible the Corps should establish and continue coordination with NPS staff until construction of that feature is complete and prior to any subsequent maintenance. Unavoidable impacts, when permissible by that agency, should be minimized and appropriately mitigated on NPS lands.
6. If a proposed project feature is changed significantly or is not implemented within one year of the date of our Endangered Species Act consultation letter, we recommend that the Corps reinitiate coordination with this office to ensure that the proposed project would not adversely affect any federally listed threatened or endangered species or their habitat.
7. The Corps shall fully compensate for any unavoidable losses of wetland habitat or non-wet bottomland hardwoods caused by project features.
8. Acquisition, habitat development, maintenance and management of mitigation lands should be allocated as first-cost expenses of the project, and the local project-sponsor should be responsible for operational costs. If the local project-sponsor is unable to fulfill the financial mitigation requirements for operation, then the Corps should provide the necessary funding to ensure mitigation obligations are met on behalf of the public interest.
9. Any proposed change in mitigation features or plans should be coordinated in advance with the Service, JLNHPP, NMFS, LDWF, EPA and LDNR.

Should you or your staff have any questions regarding this letter and our attached report, please contact David Walther (337/291-3122) of this office.

Sincerely,



James F. Boggs
Supervisor
Louisiana Field Office

cc: Jean Lafitte National Historical Park and Preserve, New Orleans, LA
National Marine Fisheries Service, Baton Rouge, LA
EPA, Dallas, TX
LA Dept. of Wildlife and Fisheries, Baton Rouge, LA
LA Dept. of Natural Resources, CMD, Baton Rouge, LA
LA Dept. of Natural Resources, CRD, Baton Rouge, LA



United States Department of the Interior

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



February 14, 2011

Colonel Edward R. Fleming
District Commander
U.S. Army Corps of Engineers;
P.O. Box 60267
New Orleans, Louisiana 70160-0267

Dear Colonel Fleming:

The U.S. Fish and Wildlife Service (Service) has reviewed the draft Individual Environmental Report Supplemental (IER) West Bank and Vicinity (WBV), Lake Cataouatche Levee, Jefferson Parish, Louisiana, (IER15a) transmitted to our office via a letter from Ms. Joan M. Exnicios, Chief of your New Orleans Environmental Branch. That study was conducted in response to Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (i.e., Supplemental 4). That law authorized the Corps of Engineers (Corps) to upgrade the Lake Pontchartrain and Vicinity and the West Bank and Vicinity hurricane protection projects to provide protection against a 100-year hurricane event. The Service submits the following comments in accordance with provisions of the National Environmental Policy Act (NEPA) of 1969 (83 Stat. 852; 42 U.S.C. 4321 et seq.) and the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

General Comments

The IER is well-written and provides a good description of fish and wildlife resources in the project area and project impacts on those resources. Wetlands in the project area provide important habitat for several Federal trust species including wading birds, neotropical migrants, and resident and migratory waterfowl. Specific comments are provided in the following section.

Specific Comments

Page 14, paragraph 3.2 Significant Resources – This section discusses the significant resources to be impacted by the proposed project. The Service recommends that in future IERs that may impact public lands (e.g., state or federal parks, etc.) that those public lands (and impacts to them) be appropriately addressed in this section.

Page 27, Selection Rationale – According to the National Park Service (NPS), it is unclear if the existing pipeline right-of-way within the Jean Lafitte National Historical Park and Preserve (JLNHPP) is large enough to accommodate directional drilling and the NPS must comply with



that agencies environmental and special use permitting requirements. Depending on the utility company's ability to perform work within the existing right-of-way the selected plan may or may not be completed in a timely manner. Therefore, the Service continues to recommend that the Corps maintain cooperation with the NPS to ensure that the selected plan avoids and/or minimizes impacts to the JLNHPP.

The Service thus far does not object to the proposed hurricane protection features for supplement to IER15. Thank you for the opportunity to provide comments on this draft IER. If you have any questions regarding our comments, please contact David Walther at (337) 291-3122.

Sincerely,



Brad Rieck
Acting Supervisor
Louisiana Field Office

cc: Jean Lafitte National Historical Park and Preserve, New Orleans, LA
EPA, Dallas, TX
National Marine Fisheries Service, Baton Rouge, LA
LA Dept. of Wildlife and Fisheries, Baton Rouge, LA
LA Dept. of Natural Resources (CMD), Baton Rouge, LA
OCPR, Baton Rouge, LA

BOBBY JINDAL
GOVERNOR



SCOTT A. ANGELLE
SECRETARY

State of Louisiana
DEPARTMENT OF NATURAL RESOURCES
OFFICE OF COASTAL MANAGEMENT

April 20, 2011

Joan Exnicios
Chief, Environmental Planning and Compliance Branch
Department of the Army
New Orleans District, Corps of Engineers
P. O. Box 60267
New Orleans, Louisiana 70160-0267

RE: **C20080049 (mod5)** Coastal Zone Consistency Modification
COE-NOD
Direct Federal Action
IERS 15.a.2: West Bank and Vicinity, Lake Cataouatche Levee: Modification for
pipeline crossing relocation on Jean Lafitte National Historical Park, and temporary
access road, pontoon bridge and staging area.
Jefferson Parish, Louisiana

Dear Ms. Exnicios:

This office has received the above referenced federal application for consistency review with the approved Louisiana Coastal Resources Program in accordance with Section 307(c) of the Federal Coastal Zone Management Act of 1972, as amended. NOAA Regulations on Federal Consistency, at 15 CFR 930.41(a), allow 60 days for the review of Direct Federal Activities, and at 930.41(b) allow an additional time extension by mutual consent. Pursuant to e-mail correspondence between Sandra Styles and Jeff Harris of my staff, by this letter we are confirming a mutually agreeable time extension until May 4, 2011.

A final determination will be made within the authorized time period. Please refer to the above Consistency Application number when responding to this letter. If you have any questions please call Jeff Harris of the Consistency Section at (225) 342-7949.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Gregory J. DuCote".

Gregory J. DuCote
Administrator
Interagency Affairs/Field Services Division

GJD/jdh

Post Office Box 44487 • Baton Rouge, Louisiana 70804-4487
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REPLY TO
ATTENTION OF

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

FEB 22 2010

Regional Planning and
Environmental Division, South
New Orleans Environmental Branch

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

Scott Hutcheson 4-8-10
Scott Hutcheson Date
State Historic Preservation Officer

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

Re: Continuing Consultation, Expanded Area and Finding of no impacts, IER #15 Pipeline Crossings, Jefferson Parish, Louisiana

Dear Mr. Hutcheson:

The U.S. Army Corps of Engineers, New Orleans District (The Corps) is preparing to improve the Lake Cataouatche Segment of the West Bank and Vicinity Hurricane Protection Levee in Jefferson Parish, Louisiana. The majority of this proposed work, as IER #15, was discussed in a Management Summary prepared by Coastal Environments, Inc. (CEI) and was agreed by your office to have no impact to cultural resources in a letter dated December 11, 2007. There is now additional Right-of-Way (ROW) and Area of Potential Effect (APE) adjacent to the proposed levee footprint, required by directional drilling for the relocation of a Chevron pipeline in Segment WBV-15a.2. The landside portion of this expanded APE falls within the originally considered ROW to be studied and was considered a low potential area for cultural resources. The floodside of the original ROW was delineated for distributaries and soils that may indicate a high potential for cultural resources, and none of these high potential areas intersect with the additional APE required by the pipeline relocation. A map of the pipeline relocation is enclosed for your consideration.

Based upon the findings of areas for low and high potential as discussed in the Management Summary, and that the landside additional APE was investigated as part of the Management Summary, and that the floodside additional APE does not intersect a past distributary or other high-potential area for cultural resources, the Corps concludes that use of the expanded APE will have no effect on cultural resources. We ask that you provide comments to this conclusion within 30 days. Please contact Dr. Paul Highbanks at (504) 862-1100 if you have any questions.

Sincerely,

Joan M. Exnicios

Joan M. Exnicios
Chief, New Orleans Environmental Branch

MAR - 8 2010

Enclosure



ALABAMA-COUSHATTA TRIBE OF TEXAS

571 State Park Rd 56 • Livingston, Texas 77351 • (936) 563-1100

May 4, 2010

Paul Hughbanks
New Orleans District, Corps of Engineers
Attn: CEMVN-PM-R
P.O. Box 60267
New Orleans, LA 70160-0267

Dear Dr. Hughbanks:

On behalf of Mikko Oscola Clayton Sylestine and the Alabama-Coushatta Tribe, our appreciation is expressed on your efforts to consult us regarding IER #15 Pipeline Crossing, Expanded APE in Jefferson Parish.

Our Tribe maintains ancestral associations within Louisiana despite the absence of written records to completely identify Tribal activities, villages, trails, or grave sites. However, it is our objective to ensure significances of Native American ancestry, especially of the Alabama-Coushatta Tribe, are administered with the utmost attention.

Upon review of your April 12, 2010 submission, no known impacts to religious, cultural, or historical assets of the Alabama-Coushatta Tribe of Texas are anticipated in conjunction with this proposal. In the event of inadvertent discovery of human remains and/or archaeological artifacts, activity in proximity to the location must cease and appropriate authorities, including our office, notified without delay.

Should you require additional assistance, please do not hesitate to contact us.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "B. Celestine".

Bryant J. Celestine
Historic Preservation Officer

Telephone: 936-563-1181

celestine.bryant@actribe.org

Fax: 936-563-1183

BOBBY JINDAL
GOVERNOR



PEGGY M. HATCH
SECRETARY

State of Louisiana
DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL SERVICES

JUN 23 2010

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

Attention: Sandra Stiles

RE: Water Quality Certification (WQC 080213-05/AI 156034/CER 20100001)
Corps of Engineers Individual Environmental Report (IER #15)
Jefferson Parish

Dear Ms. Stiles:

The Department has reviewed your revised application for a Corps of Engineers permit for the construction of the Lake Cataouatche Levee in Jefferson Parish. This revision concerns the additional relocation of utility pipelines.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Melvin C. Mitchell".

Melvin C. Mitchell
Administrator
Water Permits Division

MCM/jjp

Post Office Box 4313 • Baton Rouge, Louisiana 70821-4313 • Phone 225-219-3181 • Fax 225-219-3309
www.deq.louisiana.gov

SECTION 404(b)(1) EVALUATION

The following short form 404(b)(1) evaluation follows the format designed by the Office of the Chief of Engineers. As a measure to avoid unnecessary paperwork and to streamline regulation procedures while fulfilling the spirit and intent of environmental statutes, the New Orleans District is using this format for all proposed project elements requiring 404 evaluations, but involving no significant adverse impacts.

Project Purpose

The CEMVN has proposed modifications to the Government approved action within the Individual Environmental Report (IER) 15, West Bank and Vicinity, Lake Cataouatche Levee, Jefferson Parish, Louisiana. For the proposed modifications (an oil/gas pipeline relocation and new access road near Lake Cataouatche Pump Stations 1 and 2; figure 1) within the IER 15 project area, the project description and associated maps are below.

Project description

Oil/Gas Pipeline Relocation

The pipeline located in the 15a.2 reach currently is laid on the surface of the existing levee crown and slope (up and over configuration; figure 2). The Lake Cataouatche Levee is currently being raised and enlarged to meet the requirements of the Hurricane and Storm Damage Risk Reduction System (HSDRRS), and the pipeline in its current position would interfere with the approved levee construction on that levee segment.

The oil/gas pipeline would be permanently relocated approximately 170ft underground, under the levee, via direction drilling. This relocation method would require both truck and barge access to reach the temporary relocation work sites on either side of the Lake Cataouatche Levee (see figures 1 and 6).

The following project description starts in the most northern aspect of the project (at the Nicholle Blvd/access road intersection; (see figure 6) and ends at the very southern end of the project where the pipe would be back strung prior to drilling.

A permanent existing road (12ft wide and 5625ft long) north of the Lake Cataouatche Levee would be resurfaced with limestone to withstand heavy truck loads during construction (see figure 6). A temporary board road (16ft wide and 1601ft long) would be constructed at the end of the existing road to enable truck traffic to continue the rest of the way to reach the temporary relocation work site (see figure 6). There would be two small areas, "wings," temporarily cleared, grubbed and filled to provide adequate turn space for large trucks where the limestone access road meets the board road and again where the board road meets the work site (see figures 6 and 7). A temporary work site/staging area (200ft by 200ft drill pad and 20ft X 20ft drill pit) would be required and would require temporary clearing, grubbing, filling and stockpiling (see figure 7).

The area parallel to both sides of the segment of the pipeline to be relocated would require temporary clearing, grubbing, excavation and stockpile. The area parallel to the pipeline would be excavated to approximately 20ft-25ft wide and 7ft-8ft deep for most of the length of the pipeline except for certain areas, such as at the levee crossing and near specific work sites (see figure 7). There would be no excavation where the pipeline currently crosses the levee, and there would be more excavation in those places where placement of the new pipeline would require a greater excavated work site. The width of the temporary excavation parallel to the pipeline would range from 20ft in most places to 70ft in some places depending on the required activity (see figure 7). The width of the adjacent temporary stockpile sites would range from 60ft to 130ft as necessary (see figure 8). Note: these are worst case excavation and stockpile estimates. Best management practices would be used to minimize impacts to the most extant practicable throughout construction.

Temporary excavation and dredging would also be required in the Outer Cataouatche Canal. A 20ft by 365ft area would be excavated on both sides of the pipeline, as the pipeline crosses the open water bottom of the canal (see figure 7). Dredging would be required in the Outer Cataouatche Canal to provide barge access to the work site south of the Lake Cataouatche Levee. An approximate 70ft wide and 3620ft long access route would be cleared in the Outer Cataouatche Canal to allow for the barge draft (see figure 6). Wheelwashing, in which a tugboat would clear bottom sediment using propeller thrust, would be used first in attempt to merely spread the sediment without actually dredging. In the event wheelwashing is not effective, bottom sediment would be dredged and placed adjacent the entire length of the required dredged area. The material would be temporarily stockpiled to a height of approximately 1.5ft in a stockpile site adjacent to the dredged area (see figure 6).

A flotation channel (approximately 40ft wide and 1350ft long) running parallel with the pipeline would be required for the barge to reach the temporary work site (200ft by 200ft drill pad and 20ft X 20ft drill pit) south of the Lake Cataouatche Levee (see figure 7). Material would be temporarily excavated and placed in approximately 35-60ft wide temporary disposal sites on either side of the newly created flotation channel (see figure 7). Material would be stockpiled in a scattered pattern across the stockpile site as to prevent permanent adverse impacts to the marsh on which it would be stacked. An area further south than the temporary work site and flotation channel would also require temporary excavation (14ft wide by 3035ft long) and adjacent stockpiling (approximately 38ft-60ft wide by 3035ft long) to accommodate the drill string before the drilling begins (see figure 7).

Upon completion of all pipeline relocation work efforts north and south of the Lake Cataouatche Levee, all dredged and excavated material would be backfilled to its original location to the most extant practicable in an effort to restore the disturbed area to its original state.

New Access Road and Pontoon Bridges

The proposed action is construction of a temporary access road for use in transporting construction equipment and materials to WBV15a.2 (figure 3 and 4). The primary use of the temporary road would be for hauling fill material from Churchill Farms borrow site to the project site which would allow a substantial decrease in haul distance, minimization of fuel consumption, minimization of road maintenance, etc. The temporary access road would be approximately 800 ft long and 40 ft wide and require two temporary canal crossings. The Avondale Canal crossing would consist of an approximately 40ft wide by 110ft long pontoon bridge, and the Cataouache Canal crossing would consist of an approximately 40ft wide by 110ft long pontoon bridge. There are sections of the proposed temporary road alignment that are currently cleared; however, the remaining section of the road alignment must be cleared and grubbed.

A small temporary staging area would also be required for access road construction. The staging area would be used as a working area (equipment staging) to construct the crossing. Additionally, the staging area would be used for storage (equipment, etc.) for the crossing construction. See attached plan (figure 3) for dimensions. Contractor shall dispose of cleared and grubbed organics offsite to an approved site in accordance with the governing jurisdiction.

The access road and staging area would impact approximately 0.29 acres.

| Table 1. IERS 15.a Proposed Impacts | | | |
|---|-------|------------------------------|-----------------------|
| Impacts Associated with Pipeline Relocation Activities | Acres | Cubic Yards earthen material | Cubic Yards limestone |
| Access road to pipeline area | N/A | N/A | 800 |
| Area north of Lake Cataouatche Levee to be temporarily excavated (area parallel to pipeline) | 2 | 13,482 | N/A |
| Area north of Lake Cataouatche Levee to be temporarily cleared, grubbed and stockpiled (all actions including board road, work site/drill pad, drill pit) | 6 | N/A | N/A |
| Canal Crossing temporary excavation and adjacent stockpile | 0.4 | 4,326 | N/A |
| Temporary Access channel wheelwash/dredging | 5.8 | 14,077 | N/A |
| Temporary Access wheelwash/dredging stockpile | 6.7 | N/A | N/A |
| Area south of Lake Cataouatche Levee to be temporarily excavated in the National Park (flotation channel, area parallel to pipeline, backstring area) | 3.5 | 41,615 | N/A |
| Area south of Lake Cataouatche Levee to be used for stockpile in the National Park (includes work site/drill pad) | 11 | N/A | N/A |
| Access road near Lake Cataouatche PS | 0.29 | N/A | N/A |
| Total | 35.7 | 73,500 | 800 |

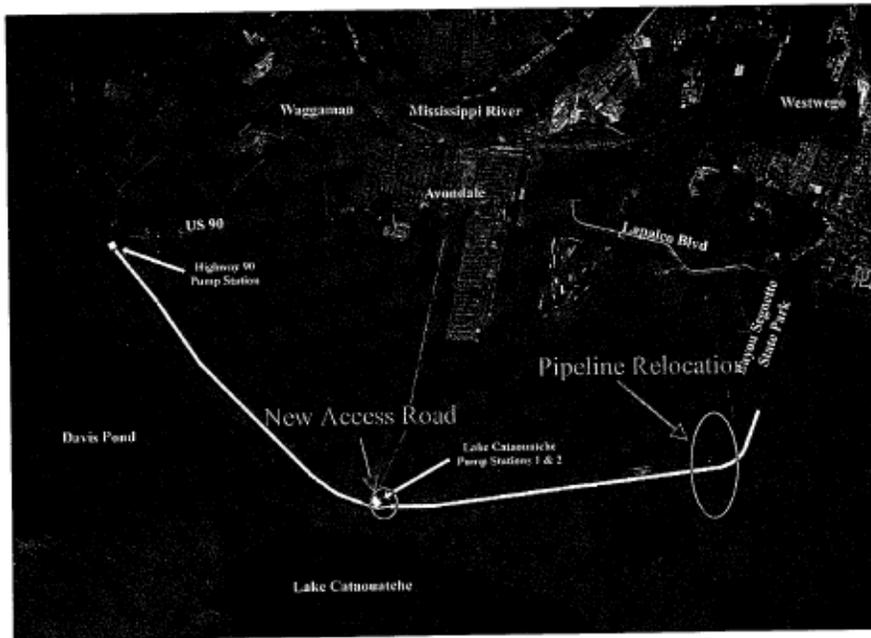


Figure 1. IER 15 Lake Cataouatche Levee Project Area.



Figure 2. Facing west –Lake Cataouatche Levee with the Outer Cataouatche Canal on the flood side (to the left). The existing pipeline is going up and over the existing, non-upgraded levee.

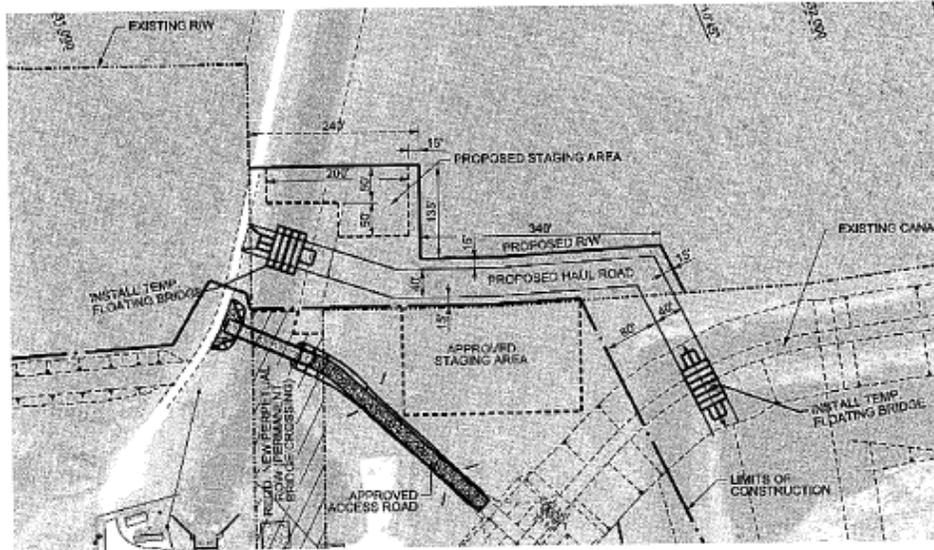


Figure 3. Proposed access road, staging area and pontoon bridges near the Lake Cataouatche Pump Stations 1 and 2.



Figure 4. Proposed temporary access road for WVB 15a.2 (aerial photo).



Figure 5

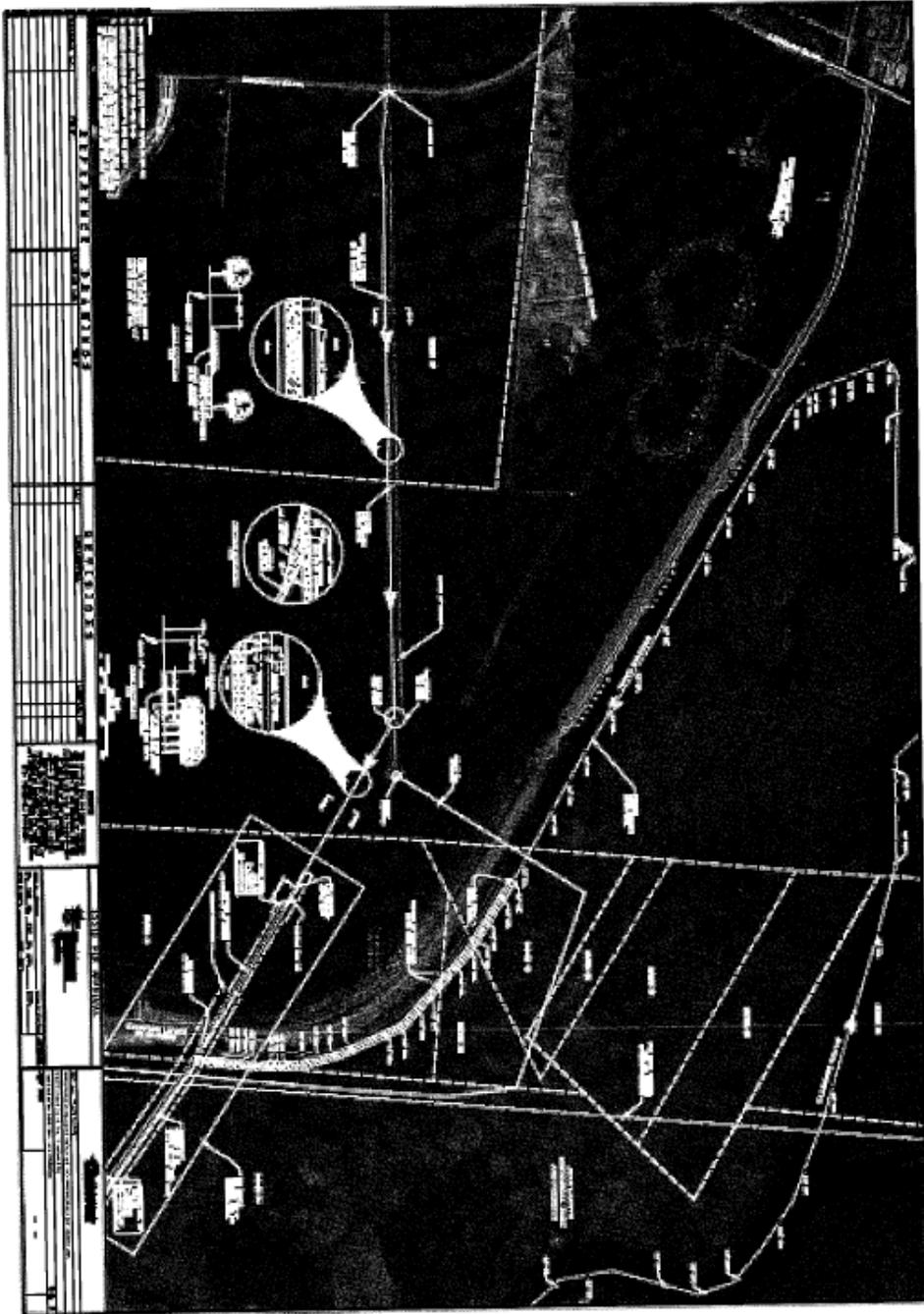


Figure 6

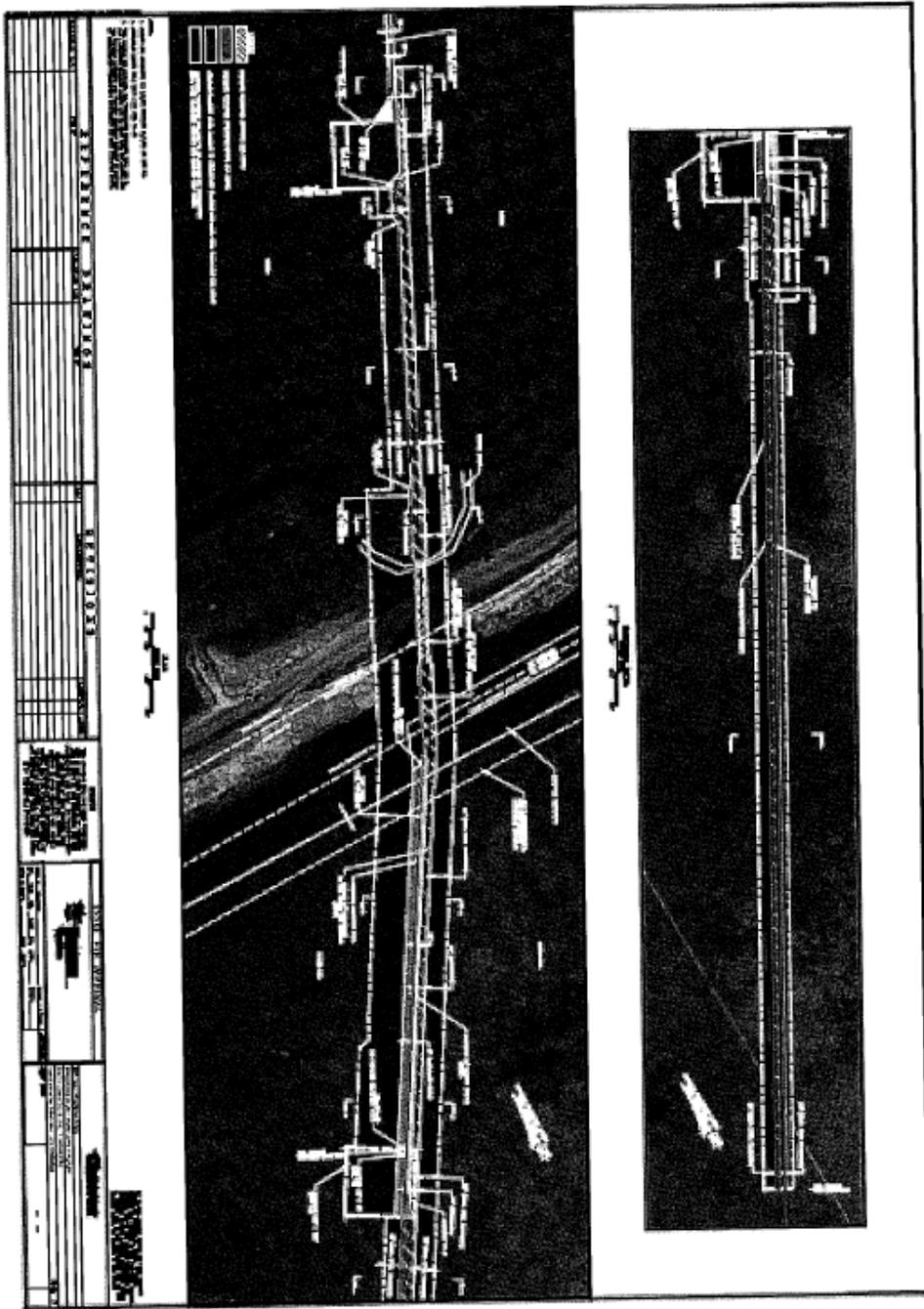


Figure 7

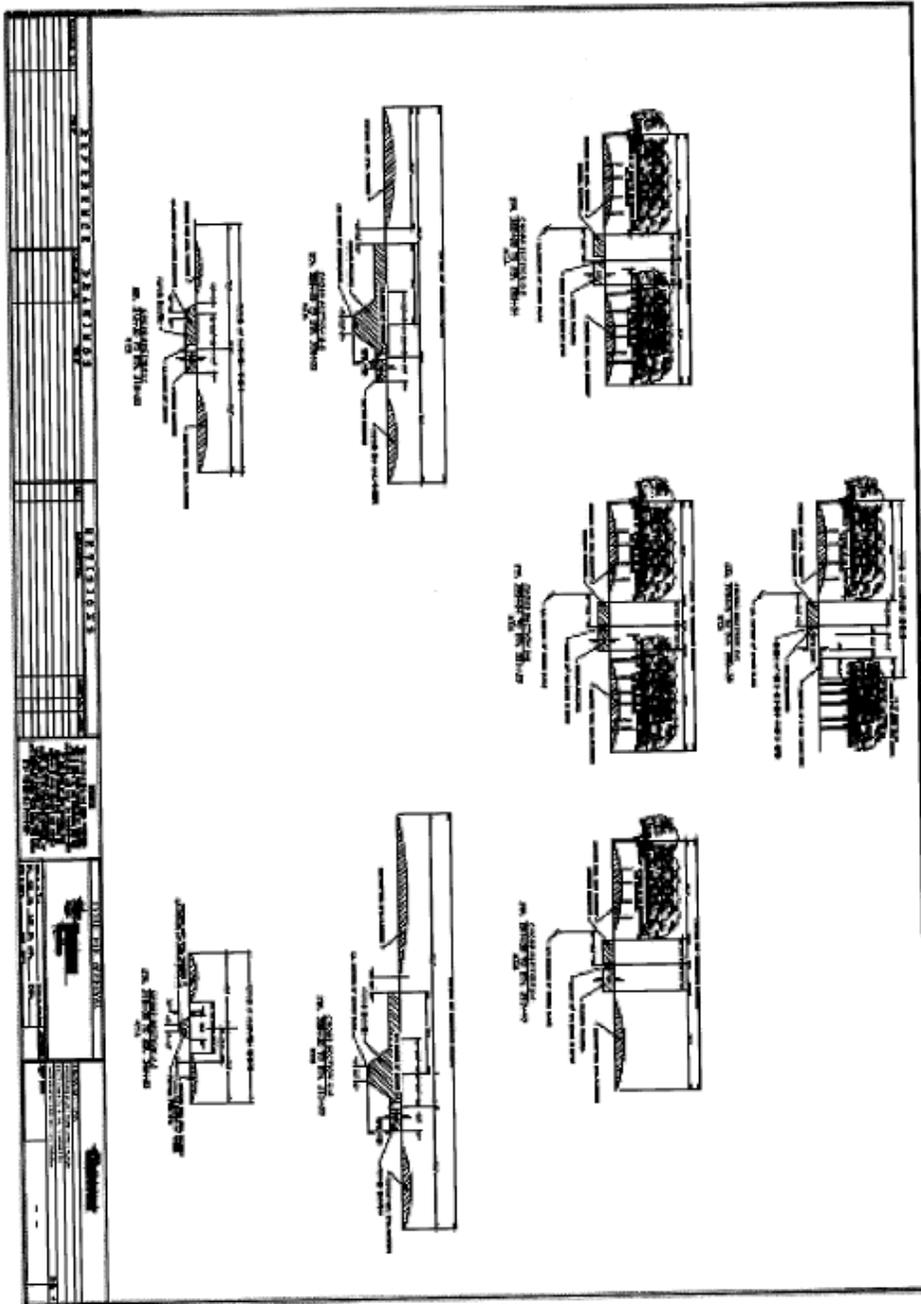


Figure 8

Review of Compliance (§230.10 (a)-(d)).

Preliminary¹

Final²

A review of this project indicates that:

a. The discharge represents the least environmentally damaging practicable alternative and if in a special aquatic site, the activity associated with the discharge must have direct access or proximity to, or be located in the aquatic ecosystem to fulfill its basic purpose (if no, see section 2 and information gathered for environmental assessment alternative);

YES NO*

YES NO

b. The activity does not appear to: (1) violate applicable state water quality standards or effluent standards prohibited under Section 307 of the Clean Water Act; (2) jeopardize the existence of Federally listed endangered or threatened species or their habitat; and (3) violate requirements of any Federally designated marine sanctuary (if no, see section 2b and check responses from resource and water quality certifying agencies);

FOR (1) ONLY

YES NO*

YES
NO

c. The activity will not cause or contribute to significant degradation of waters of the United States including adverse effects on human health, life stages of organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, esthetic, and economic values (if no, see section 2);

YES NO*

YES NO

d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem (if no, see section 5).

YES NO*

YES NO

2. Technical Evaluation Factors (Subparts C-F).

N/A Not Significant Significant*

a. Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C).

- (1) Substrate impacts.
- (2) Suspended particulates/turbidity impacts.
- (3) Water column impacts.
- (4) Alteration of current patterns and water circulation.
- (5) Alteration of normal water fluctuations/hydroperiod.
- (6) Alteration of salinity gradients.

| | | |
|---|---|---|
| | | X |
| | X | |
| | X | |
| X | | |
| X | | |
| X | | |

b. Biological Characteristics of the Aquatic Ecosystem (Subpart D).

- (1) Effect on threatened/endangered species and their habitat.
- (2) Effect on the aquatic food web.
- (3) Effect on other wildlife (mammals, birds, reptiles, and amphibians).

| | | |
|---|---|--|
| X | | |
| X | | |
| | X | |

c. Special Aquatic Sites (Subpart E).

- (1) Sanctuaries and refuges.
- (2) Wetlands.
- (3) Mud flats.
- (4) Vegetated shallows.
- (5) Coral reefs.
- (6) Riffle and pool complexes.

| | | |
|---|--|---|
| X | | |
| | | X |
| X | | |
| X | | |
| X | | |
| X | | |

d. Human Use Characteristics (Subpart F).

- (1) Effects on municipal and private water supplies.
- (2) Recreational and commercial fisheries impacts.
- (3) Effects on water-related recreation.
- (4) Esthetic impacts.
- (5) Effects on parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves.

| | | |
|---|---|--|
| X | | |
| | X | |
| | X | |
| | X | |
| | X | |

Remarks: Where a check is placed under the significant category, the preparer has attached comments below.

2.a.(1) – Substrate impacts – Since the pipeline excavation trenches north of the Cataouache canal and the flotation access channel south of it will be backfilled with the original material, no significant long term substrate impacts would occur. Substrate impacts cause by wheelwashing or dredging in those sections of the outer Cataouache canal where needed will only be temporary, and the turbidity or water column

impacts would be temporary as well.

2.c.(2)-Wetlands – Though the oil/gas pipeline relocation would impact approximately 8 acres of intermittently drained, forested wetlands habitat on the protected side, north of the Lake Cataouatche levee and approximately 14.5 acres of high quality wetlands south of the Lake Cataouatche levee within the Jean Lafitte National Historical Park and Preserve, impacts would be temporary. The construction site within the National Park would be restored to prior to construction conditions immediately following construction, and all impacts that would occur within the National Park would be mitigated within Park lands.

3. Evaluation of Dredged or Fill Material (Subpart G).³

a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material.

| | |
|---|-------------------|
| (1) Physical characteristics | <u> x </u> |
| (2) Hydrography in relation to known or anticipated sources of contaminants | <u> x </u> |
| (3) Results from previous testing of the material or similar material in the vicinity of the project | <u> x </u> |
| (4) Known, significant sources of persistent pesticides from land runoff or percolation | <u> </u> |
| (5) Spill records for petroleum products or designated (Section 311 of CWA) hazardous substances | <u> x </u> |
| (6) Other public records of significant introduction of contaminants from industries, municipalities, or other sources | <u> x </u> |
| (7) Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities | <u> </u> |
| (8) Other sources. See references below..... | <u> x </u> |

Appropriate references:

- a. U.S. Army Corps of Engineers, (USACE), IER (Intermediate Environmental Report)16, May 2008
- b. Aerostart Environmental Services. Draft – Phase I Environmental Site Assessment: IER 16. Waggaman, St. Charles and Jefferson Parish, Louisiana. Prepared for USACE. 15 October 2008.
- c. U.S. Army Corps of Engineers, (USACE), IER 15, January 2008
- d. EnviroMapper StoreFront. 2009. US EPA 11 January 2011.
<<http://www.epa.gov/enviro/html/em/index.html>>
- e. National Response Center. 2009. US Coast Guard. 12 January 2011
<<http://www.nrc.uscg.mil/index.htm>>
- f. NOAA, Screening Quick Reference Tables, November 2006-<http://response.restoration.noaa.gov/type_topic_entry.php?RECORD_KEY%28entry_t>

opic_type%29=entry_id.topic_id.type_id&entry_id(entry_topic_type)=90&topic_id(entry_topi
c_type)=2&type_id(entry_topic_type)=2US EPA>

g. Superfund Database of Hazardous Waste Sites. 2009. US EPA. 11 January 2011.

<<http://www.epa.gov/superfund/sites/cursites/index.htm>>

h. Water Quality Monitoring Sites, February 2009. Louisiana Department of Environmental Quality. 11 January 2011 <http://www.deq.louisiana.gov/portal/tabid/2742/Default.aspx>>

i. US EPA, Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material, July 2004: <http://www.epa.gov/owow/wetlands/pdf/40cfrPart230.pdf>

b. An evaluation of the appropriate information in 3a above indicates that there is reason to believe the proposed dredge or fill material is not a carrier of contaminants, or the material meets the testing exclusion criteria.

| | |
|-----|----|
| YES | NO |
|-----|----|

4. Disposal Site Delineation (§230.11(f)).

a. The following factors, as appropriate, have been considered in evaluating the disposal site.

| | |
|--|---------------|
| (1) Depth of water at disposal site | <u> x </u> |
| (2) Current velocity, direction, and variability at disposal site | <u> x </u> |
| (3) Degree of turbulence | <u> </u> |
| (4) Water column stratification | <u> </u> |
| (5) Discharge vessel speed and direction | <u> </u> |
| (6) Rate of discharge | <u> </u> |
| (7) Dredged material characteristics (constituents, amount, and type of material, settling velocities) | <u> x </u> |
| (8) Number of discharges per unit of time | <u> </u> |
| (9) Other factors affecting rates and patterns of mixing (specify) | <u> </u> |

b. An evaluation of the appropriate factors in 4a above indicates that the disposal site and/or size of mixing zone are acceptable.

| | |
|-----|-----|
| YES | NO* |
|-----|-----|

5. Actions to Minimize Adverse Effects (Subpart H).

All appropriate and practicable steps have been taken, through application of the recommendations of §230.70-230.77 to ensure minimal adverse effects of the proposed discharge.

YES NO*

6. Factual Determination (§230.11).

A review of appropriate information as identified in items 2-5 above indicates that there is minimal potential for short- or long-term environmental effects of the proposed discharge as related to:

- | | | |
|---|---|-----|
| a. Physical substrate at the disposal site (review sections 2a, 3, 4, and 5 above). | <input checked="" type="checkbox"/> YES | NO* |
| b. Water circulation, fluctuation and salinity (review sections 2a, 3, 4, and 5). | <input checked="" type="checkbox"/> YES | NO* |
| c. Suspended particulates/turbidity (review sections 2a, 3, 4, and 5) | <input checked="" type="checkbox"/> YES | NO* |
| d. Contaminant availability (review sections 2a, 3, and 4). | <input checked="" type="checkbox"/> YES | NO* |
| e. Aquatic ecosystem structure and function (review sections 2b and c, 3, and 5). | <input checked="" type="checkbox"/> YES | NO* |
| f. Disposal site (review sections 2, 4, and 5). | <input checked="" type="checkbox"/> YES | NO* |
| g. Cumulative impact on the aquatic ecosystem. | <input checked="" type="checkbox"/> YES | NO* |
| h. Secondary impacts on the aquatic ecosystem. | <input checked="" type="checkbox"/> YES | NO* |

*A negative, significant, or unknown response indicates that the project may not be in compliance with the Section 404(b)(1) Guidelines.

¹Negative responses to three or more of the compliance criteria at this stage indicates that the proposed projects may not be evaluated using this "short form procedure". Care should be used in assessing pertinent portions of the technical information of items 2a-d, before completing the final review of compliance.

²Negative responses to one of the compliance criteria at this stage indicates that the proposed project does not comply with the guidelines. If the economics of navigation and anchorage of Section 404(b)(2) are to be evaluated in the decision-making process, the "short form" evaluation process is inappropriate.

³If the dredged or fill material cannot be excluded from individual testing, the "short form" evaluation process is inappropriate.

7. Evaluation Responsibility.

a. Water Quality input provided by: Stephen T. Servay

Position: Chemist

Date: 14 April 2011

b. This evaluation was reviewed by: Rodney F. Mach

Position: Supervisory Hydraulic Engineer, HN

Date: 14 April 2011

8. Findings

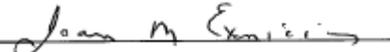
a. The proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) guidelines X_

b. The proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) guidelines with the inclusion of the following conditions _____

c. The proposed disposal site for discharge of dredged or fill material does not comply with the Section 404(b)(1) guidelines for the following reason(s):

- (1) There is a less damaging practicable alternative _____
- (2) The proposed discharge will result in significant degradation of the aquatic ecosystem _____
- (3) The proposed discharge does not include all practicable and appropriate measures to minimize potential harm to the aquatic ecosystem _____

Date: 4-21-11


Chief, Environmental and Compliance Branch