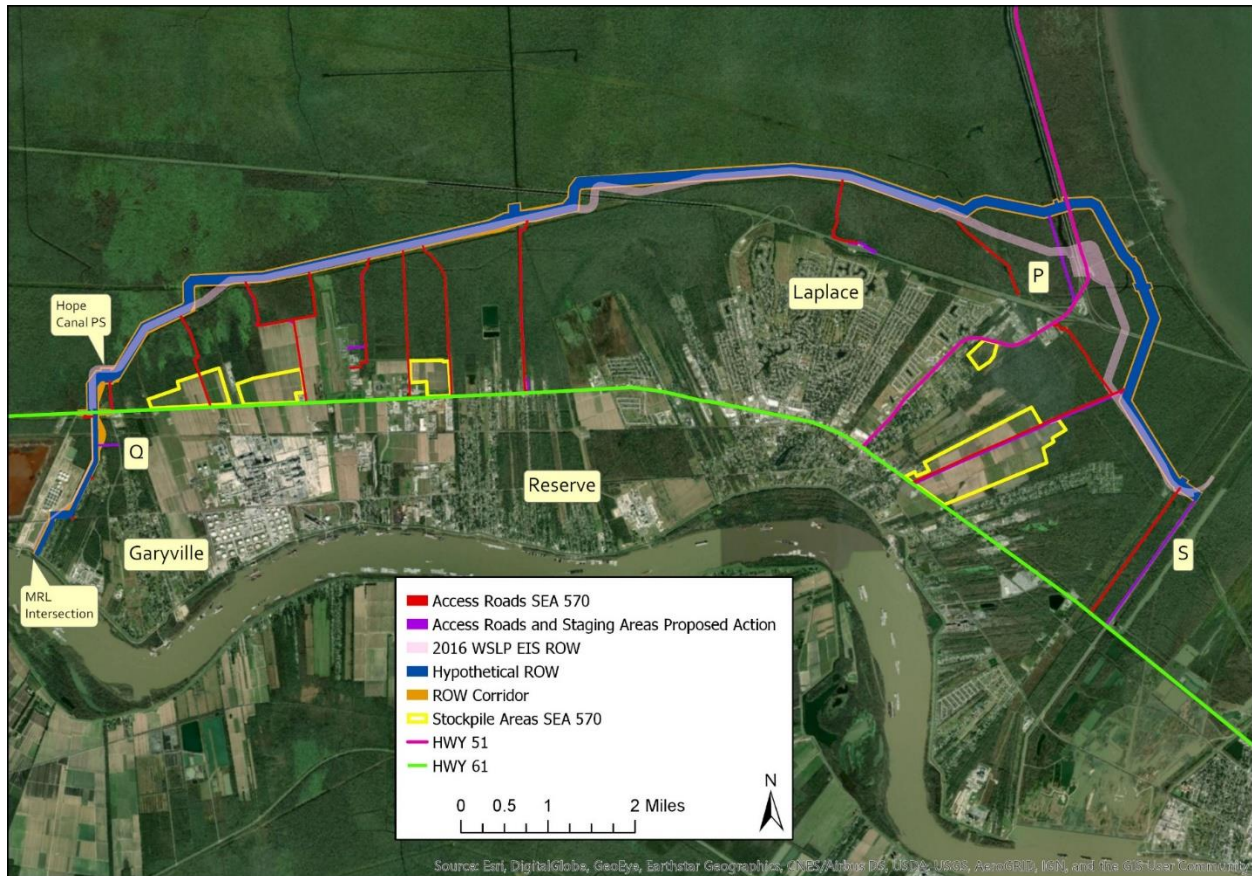


DRAFT Supplemental Environmental Assessment
West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Levee System
St. Charles and St. John the Baptist Parishes, Louisiana
SEA #571



U.S. Army Corps of Engineers
Mississippi Valley Division
Regional Planning and Environment Division South
New Orleans District
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1 Introduction

The U.S. Army Corps of Engineers (USACE), Mississippi River Valley Division (MVD), Regional Planning and Environment Division South (RPEDS), has prepared this Supplemental Environmental Assessment (SEA) for the New Orleans District (CEMVN) to evaluate potential impacts of a levee alignment right-of-way (ROW) shift and related activities necessary to construct the levee alignment footprint in St. John the Baptist and St. Charles Parishes, Louisiana, as described in the West Shore Lake Pontchartrain Environmental Impact Statement (2016 WSLP EIS; <http://www.mvn.usace.army.mil/About/Projects/West-Shore-Lake-Pontchartrain/>). The Record of Decision (ROD) for the 2016 WSLP EIS was signed by the Assistant Secretary of the Army on September 14, 2016. Supplemental Environmental Assessment #570, West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Structural Alignment Surveys and Borings Investigations St. Charles and St. John the Baptist Parishes, Louisiana (SEA 570) also investigated some levee alignment shifts as well as the addition of five stockpile/staging areas for construction related activities and the addition of a mitigation bank credit purchase option into the mitigation plan approved in the 2016 WSLP EIS for compensating bottomland hardwoods (BLH) impacts. The Finding of No Significant Impacts (FONSI) associated with SEA 570 was signed by the CEMVN District Commander on May 13, 2019. The 2016 WSLP EIS and ROD, and SEA 570 and FONSI are hereby incorporated by reference.

This SEA #571 has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and the Council on Environmental Quality's Regulations (40 CFR 1500-1508), as reflected in USACE Engineering Regulation ER 200-2-2. This SEA provides sufficient information on the potential adverse and beneficial environmental effects to allow the District Commander, U.S. Army Corps of Engineers, and CEMVN District, to make an informed decision on the appropriateness of an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

This SEA is evaluating additional potential changes to the WSLP levee alignment in St. John the Baptist and St. Charles Parishes and the addition of four borrow areas which would occur outside of the Right of Way (ROW) described in the 2016 WSLP EIS. Presently, three potential levee alignment shifts are being considered that could aid in the constructability, improve the engineering, and decrease the utility relocations needed for the alignment. One of the shifts being considered would aid in constructability and improve safety during construction of the levees at interstate crossings. Another shift could accommodate the Louisiana Coastal Protection and Restoration Agency's (CPRA) River Reintroduction into Maurepas Swamp Project. Widening of the levee alignment is also being considered in specific areas where the results of field investigations and advanced engineering and design have found it necessary. Minor modifications to previously assessed access roads as well as the addition of three access roads outside of the ROW described in SEA 570 is also included.

1.1 Proposed Action

The proposed action consists of altering the 2016 WSLP EIS's levee alignment in St. John the Baptist and St. Charles Parishes and supplementing the associated levee alignment features described in the 2016 WSLP EIS and SEA 570. Other features being supplemented include modifications to pumping stations, drainage structures, the borrow plan, and access roads, as well as the addition of a sand placement plan and a spoil bank gapping plan, and the option for the Non-Federal Sponsor to design and build part of the levee system. The Project Area of the proposed action is shown in Figure 1.

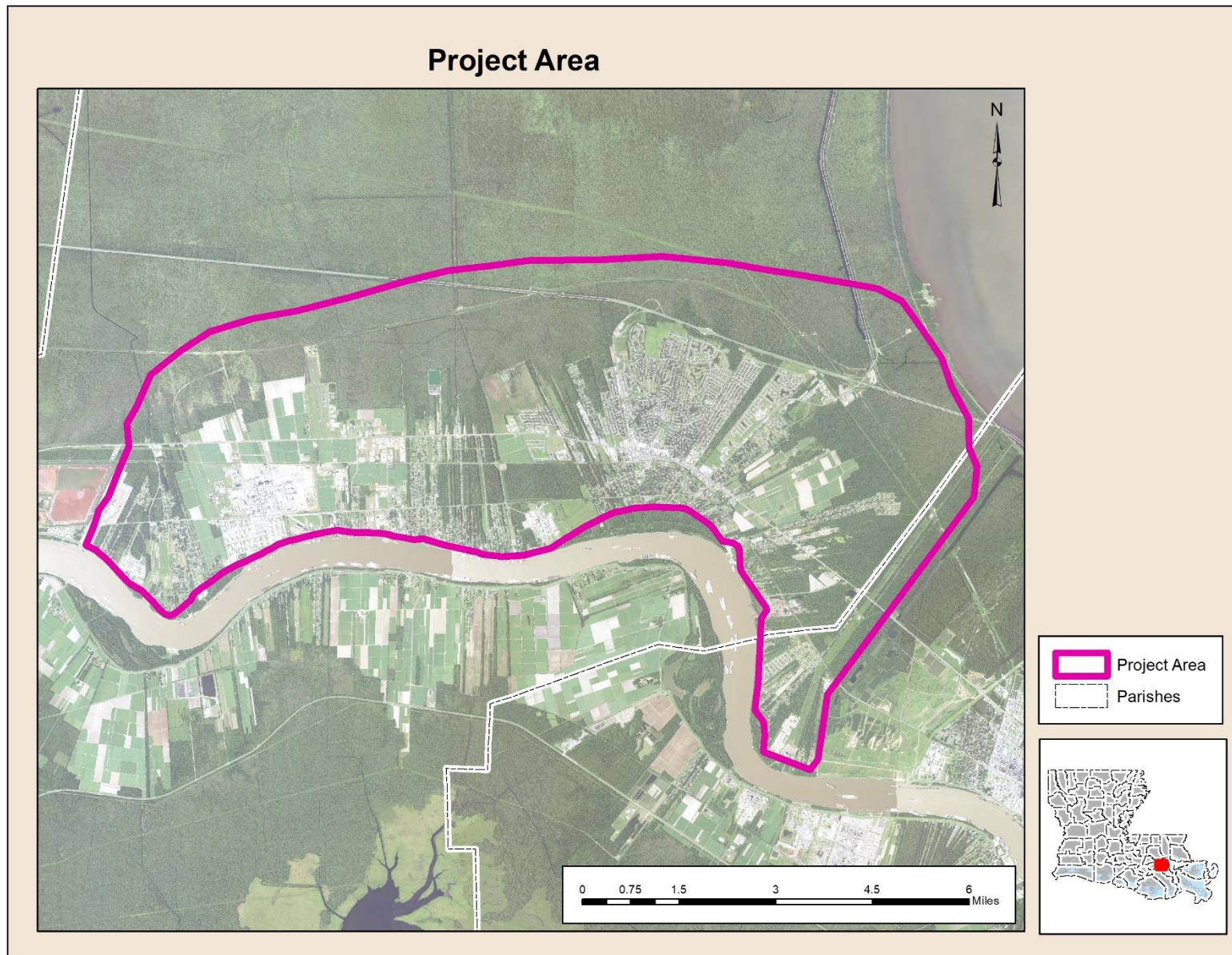


Figure 1: Project Area

1.2 Authority

Construction of the WSLP Hurricane and Storm Damage Risk Reduction Project (WSLP Project) was authorized as part of the Water Infrastructure Improvement for the Nation Act (WIIN Act, Public Law 114-322) in 2016. Construction of the WSLP Project was funded by the Bipartisan Budget Act of 2018 (BBA 2018, Public Law 115-123).

1.3 Purpose and Need for the Proposed Action

The purpose of the proposed action is to construct a more effective Hurricane Storm Damage Risk Reduction System (HSDRRS) for eastern parts of St. John the Baptist and St. Charles Parishes, Louisiana. Further engineering design and investigations of the 2016 WSLP EIS levee alignment indicate that sections of the levee need to be widened and shifted. Additionally, it is likely that the BCS does not have enough suitable clay borrow material to construct the levee. The use of the five stockpile and staging areas described in SEA 570 as borrow sources and the use of licensed commercial borrow sources would provide enough additional borrow for construction. There are other feature and plan changes being considered that are described in Section 2.2. The location of the proposed action is in St. John the Baptist and St. Charles Parishes, near the communities of Montz in St. Charles Parish, and Laplace, Reserve, and Grayville in St. John the Baptist Parish, Louisiana.

1.4 Prior Studies

A number of studies, reports, and environmental documents on water resources development in the project area have been prepared by USACE, other Federal, state, and local agencies, research institutes, and individuals. The most relevant prior studies, reports, and projects are described in Table 1.

Table 1: Relevant Prior Reports and Studies					
Previous West Shore Lake Pontchartrain Reports		Relevance to Proposed Action			
		Data Source	Consistency	Structural Measures	FWOP* Conditions
1985	West Shore Lake Pontchartrain Initial Evaluation Report	X	X	X	X
1987	Lake Pontchartrain West Shore, LA Hurricane Protection Reconnaissance	X	X	X	X
1997	West Shore Lake Pontchartrain, LA Hurricane Protection Project, Reconnaissance	X	X	X	X
2003	St. John the Baptist Parish, LA East Bank Urban Flood Control Reconnaissance Report	X	X	X	X
2016	West Shore lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study	X	X	X	X
2018	Supplemental Environmental Assessment #570 West Shore Lake Pontchartrain hurricane and Storm Damage Risk Reduction Structural Alignment Surveys and Borings Investigations St. Charles and St. John the Baptist Parishes, Louisiana	X	X	X	X
Other Studies and Reports					
1985	Supplemental Information Report (SIR) to the Supplemental Environmental Impact Statement on the Lake Pontchartrain, Louisiana, and Vicinity Hurricane Protection Project	X	X		
2004	LA Coastal Area (LCA), LA Ecosystem Restoration Study	X	X	X	X
2017	LA's Comprehensive Master Plan for a Sustainable Coast	X	X	X	X

*Future without project (FWOP)

1.5 Public Concerns

Many public concerns were raised during the scoping and public review process of the 2016 WSLP EIS. Those public comments and USACE responses can be found in Appendix A, Annex P of the 2016 WSLP EIS. Those comments covered a broad range of topics including concerns about project design, impacts to property and infrastructure, potential induced flooding impacts, and adverse environmental impacts. Public comments associated with SEA 570 concerned wetland impacts and the location of the WSLP Project levee alignment, and can be found Appendix F.

1.6 Wetland Value Assessment

Wetland impacts associated with the entire WSLP Project (including those described in the 2016 WSLP EIS, SEA 570, and associated with the proposed action) were estimated by using the Wetland Value Assessment (WVA) Swamp Community Model for Civil Works Version 2.0 (Swamp WVA) and the WVA Bottomland Hardwoods Community Model for Civil Works Version 1.2 (BLH WVA). These models calculate average annual habitat units (AAHUs), which is based on habitat quality and quantity, for both the future with project (FWP) and future without project (FWOP) conditions. Both direct and indirect impacts to swamp and BLH habitats were assessed. These models are approved for regional use on USACE Civil Works projects (Appendix I).

The Swamp and BLH WVAs utilize an assemblage of variables considered important to the suitability of each habitat type for supporting a diversity of fish and wildlife species. The WVAs allow for a numeric comparison of each future condition and provides a quantitative estimate of project-related impacts to fish and wildlife resources.

WVAs were used to calculate impacts for the 2016 WSLP EIS and SEA 570. The assumptions for these WVAs were re-evaluated and updated upon completion of extensive fieldwork, updated hydrologic modeling, and the currently certified version of the WVAs were utilized. New assumptions were used, because existing conditions had changed (freshening since the closure of the Mississippi River Gulf Outlet in St. Bernard Parish, Louisiana and construction of the Inner Harbor Navigation Canal-Lake Borgne Surge Barrier in Orleans Parish, Louisiana), more detailed hydrologic modeling data, more field data, and a GIS model for habitat type and quality were available. Indirect impacts to wetlands were found to be lower per acre during the WVA re-evaluation. See Appendix I for more information.

2 Alternatives Including the Proposed Action

Because the Proposed Action consists of modifications to the structural alignment of the levee system and associated features as described in the 2016 WSLP EIS and SEA 570, only the No-Action Alternative (Future without Project Action) and the proposed action were considered.

2.1 No-Action Alternative (Future without Project (FWOP))

NEPA requires that in analyzing alternatives to a proposed action, a Federal agency consider an alternative of “No-Action”. The No-Action alternative evaluates the impacts associated with not implementing the proposed action and represents the Future without Project (FWOP) condition against which alternatives considered in detail are compared. The FWOP provides a baseline essential for impact assessment and alternative analysis.

Under the FWOP condition (No-Action), the Proposed Action would not occur. However, the activities described in the 2016 WSLP EIS and SEA 570 would occur in the vicinity of the proposed action. A levee approximately 18.27 miles in length would be constructed as part of the WSLP Project in St. John the Baptist and St. Charles Parishes, Louisiana. See the 2016 WSLP EIS for more information on construction of the structural alignment. Fifteen Access Roads would be constructed to access the levee alignment as described in SEA 570. Approximately 1,313 acres of direct (623.3 AAHUs swamp and 115.5 AAHUs BLH), and 8,521 acres of indirect (494.5 AAHUs swamp and 3.1 AAHUs BLH) negative impacts to forested wetlands would occur.

2.2 Proposed Action

The Proposed Action would include modifications to the structural alignment of the levee system in St. John the Baptist and St. Charles Parishes, Louisiana described in the 2016 WSLP EIS, and modifications to features described in SEA 570. The modifications proposed herein would be in a similar location with similar features as described in the 2016 WSLP EIS and SEA 570. Nowhere within the proposed action levee system alignment/footprint would there be a 100% overlap with the 2016 WSLP EIS levee system alignment/footprint. This is due to an increase in the levee footprint where the results of field investigations and advanced engineering and design have found it necessary, and a shift in the entire levee system to accommodate for the recent installation of a new pipeline. The levee system would be between approximately 20 – 100 feet wider from the upper guide levee of the BCS to near the crossing at Hwy 61 where it

would decrease to approximately the same width as described in the 2016 WSLP EIS. The proposed action also includes additional ROW for pump station construction. Approximately 30-40% of the current levee system ROW is co-located with the 2016 WSLP EIS levee system ROW (Figure 2).

A hypothetical corridor representing the maximum size of the levee system is shown in Figure 2. The corridor indicates the location extent within which the levee system could occur. This corridor would allow for slight shifts in alignment during further engineering and design, and during construction of the levee system. The exact location of the levee system ROW could shift slightly within the corridor, but no less than approximately 30% of it would be co-located with the 2016 WSLP EIS. Additionally, the levee system ROW would not exceed the size of the hypothetical corridor.

There are four shifts, other than the increase in size and slight shift due to installation of a new pipeline that are being considered. Three shifts that could aid in the constructability, improve the engineering, and decrease the utility relocations needed for the alignment are being considered (Figure 3). A fourth shift would accommodate CPRA's River Reintroduction into Maurepas Swamp Project.

Other parts of the proposed action described in this section include:

1. Updated borrow plan
2. Modifications to access roads
3. Addition of new access roads
4. Sand placement plan
5. Updated drainage structure design
6. Addition of new drainage structures
7. Updated pump station design
8. Addition of new pump stations
9. Updated transportation plan
10. Potential for the NFS to design and build the western section of the levee system
11. Potential to alter existing spoil banks in the Project Area and vicinity

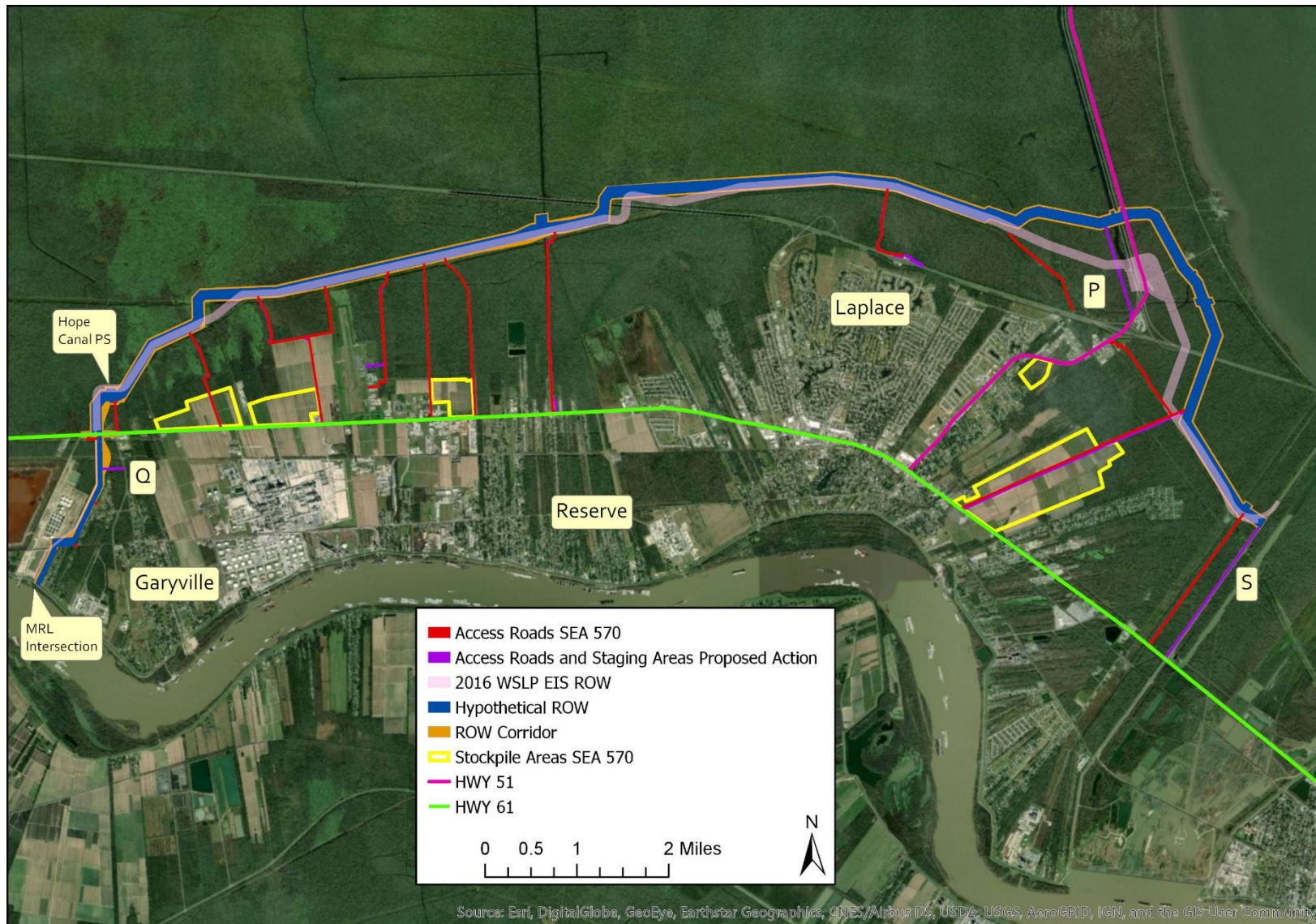


Figure 2: Map showing the Proposed Action. Access Roads that were not identified in SEA 570 are labeled P, Q, and S. Hypothetical ROW represents the proposed action's maximum levee system ROW size.

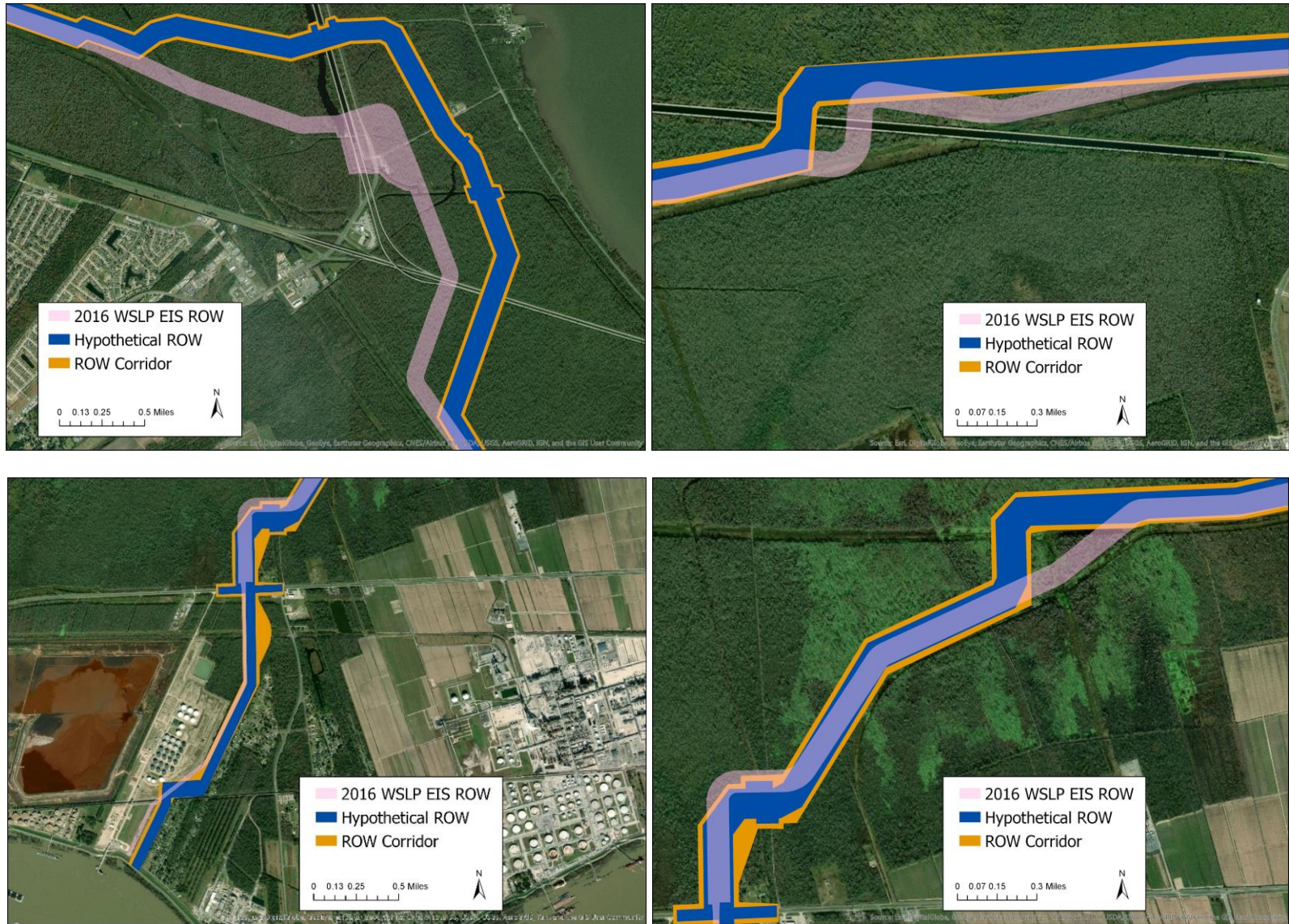


Figure 3. Areas with potential levee system shifts. Clockwise from top left: I-55 and I-10 interchange (pump station ROW increases at Montz north and south, and I-55 can be seen), second I-10 crossing, large transmission corridor crossing, and western section (pump station ROW increase at Hope Canal can be seen).

2.2.1 Borrow Plan

In addition to sources mentioned in the 2016 WSLP EIS, borrow materials (clay and sand) used to construct the levee system could be obtained from within the stockpile areas described in SEA 570, or it could be obtained from permitted commercial sources. Any material purchased from a commercial source would be currently licensed by the Parish (if in Louisiana) or State (if in Mississippi) entity. It would also have all appropriate permits and would meet all submittal requirements outlined in Appendix II.

2.2.2 Access Roads

All access roads described in SEA #570, as well as Access Road P, Q, and S, which is located within the Bonnet Carré Spillway (BCS) upper guide levee berm, could be used for temporary construction and/or permanent access from Hwy 51 or Hwy 61 to the levee system ROW (Figure 2). Further engineering and design of some access roads discussed in SEA 570 indicate a larger ROW would be required for features such as additional width around corners and to allow for culverts for cross drainage. Construction of permanent access roads could be either improvements to existing roads or construction of new roads. Access roads located along existing roadways would be improved primarily through placement of geotextile fabric, sand and rock to provide an approximately 30 foot drivable width for a two-way haul access road within an approximately 40 foot wide ROW along straight sections from Hwy 61 or Hwy 51 to the levee ROW. As discussed in SEA 570, a 60-foot road width would be allowed, if needed, for access roads within underground transmission and utility ROWs to allow for protection features such as pipelines. Construction of new access roads would require clearing and grubbing in addition to material placement. Additional ROW of approximately 0.1 acres would be needed for the installation of each culvert. More ROW than previously described in SEA 570 would be allowed around bends, corners, and at intersections with public roads to facilitate safe traffic. Some features may be constructed such as traffic lights or wider shoulders and turn lanes where access roads intersect main roads, such as Hwy 61. Coordination with Louisiana Department of Transportation and Development (LA DOTD) and the US Federal Highway Administration (FHWA) is ongoing to determine the best methods and features for safe intersections while minimizing environmental impacts to the extent practicable. The total increase in impact area for access road construction beyond what was described in SEA #570, would be approximately 19 acres. The majority of these impacts would be to forested wetlands (swamp and BLH), and existing roads.

2.2.3 Sand Base Placement

Sand would be used to construct an approximately 70 foot to 100 foot wide sand base within the levee alignment ROW. The material would be back dumped and spread by a bull dozer in order to force soft material outward from the levee section. Any displaced soft material formed by construction of the sand base would remain within the alignment ROW, but removed from the levee design section. Sand would be placed until it has reached the minimum elevation of approximately 3 feet NAVD88.

2.2.4 Levees and Floodwalls

Levee and floodwall system would be built to USACE Hurricane and Storm Damage Risk Reduction System standards in a similar location with similar features and crown elevations as described in the 2016 WSLP EIS. As such, typical cross sections provided in this document are still representative. The ROW width would be between 20 and 100 feet wider and four re-alignments (Figure 3) would increase its length by about 0.5 miles (18.27 miles in the 2016 WSLP EIS to 18.8 miles including the proposed action). Slight deviations in location of the Proposed Action levee system (i.e., Hypothetical corridor in Figure 2) would be allowed, but the

maximum ROW size increase would be limited to approximately 0.5 miles longer and approximately 150 additional acres (See section 2.2 and Figure 2 for details). An approximately 10 foot wide surfaced road would be constructed on the levee crown, floodside berm, or protected side berm for inspection vehicles. Where levee transitions to a floodwall, a 10 foot wide surfaced road would be provided along the protected side of the floodwall. Bridges would be constructed on either the floodside or protected side of the station at the drainage structures and pump station crossings for maintenance access.

2.2.5 Drainage Canals

Interior and exterior drainage canals would be located parallel to the earthen levee section for the majority of the levee system ROW. These canals would be built to the approximate dimensions described in the 2016 WSLP EIS, but would be shifted to parallel the levee system alignment. Both canals would be built within the limits of the hypothetical ROW shown in Figure 2. Where the interior canal intersects pipeline crossings, the depth of the canal would be restricted. The interior drainage canal would widen to 100 feet and would be shallow enough to avoid impacts to pipelines. Any material excavated for canal construction and deemed unsuitable for levee construction could be spread evenly along the project length between the levee and the interior drainage canal.

2.2.6 Western Section

The western section, as described in this section, refers to the levee system from the Hope Canal pump station to the Mississippi River Levee (MRL; Figure 2, Figure 3). The Louisiana Coastal Protection and Restoration Authority (CPRA) could design and construct some or part of the levee system components of the western section of the levee system; however, the USACE would determine the final alignment of this section. Design and location of the western section of the levee system may be co-located with the eastern guide levee of CPRA's River Reintroduction into Maurepas Swamp Project (Appendix III). The earthen levee sections between these stations would be from approximately 300 feet up to 600 feet wide. As the total length and width of levee would be approximately the same whether or not it is aligned to provide for the potential future construction of the River Reintroduction into Maurepas Swamp Project, no additional cost would be incurred by the Federal government. This portion of the project would include a highway ramp at US Highway 61 constructed to an elevation of approximately 16 feet NAVD88. Two lanes of traffic would be maintained in either direction during construction of the ramp. This would require widening the existing highway to maintain two lanes of traffic in either direction. Swing type floodgates would be provided at the Kansas City Southern and Canadian National Railway crossings. A swing type floodgate would also be located across LA Highway 44.

2.2.7 Additional Gates and T-wall Features

The levee system would also require construction of T-walls across pipeline corridors. These locations would be slightly shifted due to the levee system alignment changes. A 10 foot wide access road would run along the land side of the T-walls across the pipeline corridors that would include additional sand and crushed stone to reduce pressures for maintenance vehicles crossing the pipelines. As described in the 2016 WSLP EIS, T-walls would also be located below the three interstate crossings to include the western I-10 crossing, I-55 crossing, and the eastern I-10 crossing. A surfaced access road would only be provided below the eastern I-10 crossing. There would be no bridge crossing at the western I-10 crossing and the I-55 crossing because of insufficient height clearance requirements.

2.2.8 Drainage Structures and Pumping Stations

Additional drainage structures and pumping stations would be considered. Updated sluice gate designs to the Hope Canal, Mississippi, Reserve Relief Canal, Perriloux Canal, Ridgefield, and Montz South are shown in Table 2. A new drainage structure with a 16 feet wide by 16 foot wide sluice gate is proposed where the levee system crosses Prescott Canal. A new sluice gate at the Canadian National Railroad is also being considered that would be approximately 5 feet wide x 5 feet high. An 18 foot wide bridge would be constructed across the structure to carry maintenance and inspection vehicles.

Two new pump stations could be constructed at Prescott Canal and Interstate 55. Pump capacities being considered at these and updated pump station capacities for the four pump stations included in the 2016 WSLP EIS are shown in Table 2.

Table 2: Pumping station and Drainage Structures		
Station Name	Number of 16 x 16 foot drainage structures	Pump capacity
Canadian National Railroad	1*	No pumps
Hope Canal	2	400-800 cfs
Mississippi Bayou	2	No pumps
Reserve Relief Canal	1	1200-2000 cfs
Perriloux	1	No pumps
Ridgefield	1	800 cfs
I-55 Canal	5	1200-2000 cfs
Montz North Canal**	1	No pumps
Montz South Canal	1	800 cfs
Prescott Canal	1	400-800 cfs

*drainage structure would be 5 x 5 feet

**under consideration; may not be necessary

Pump station complexes would include a pump station, the size of which would depend on the capacity (Table 2), with an adjacent drainage structure within an existing canal. These structures would tie into the levee system with T-walls on either side of the pump station/drainage structure complex. All pumps would be driven by diesel engines. Several fuel tanks would be located at each station with enough fuel to run the station for five days. A water well would be located at each station to provide potable water for drinking, showers, sprinkler system, and to lubricate the pumps. A surface parking area would also be provided at each station. In order to construct the structures within the existing canals without impeding existing canal flows, a temporary bypass channel would be constructed at each structure site with dimensions that would allow for the same flow capacity as the existing canal. In addition to the sluice gate at Reserve Relief Canal, an adjacent navigable gate would be constructed within the canal to allow for the passage of recreational boats.

Staff gages would be provided at the flood side and protected side of the pump stations and drainage structures. The drainage structures would remain open at all times except when they would be closed for tropical storm events. Closure for tropical storm events would be the same as described in the 2016 WSLP EIS. The amount of time the gates would remain closed would depend on a given storm's characteristics such as forward speed, rainfall, and storm track which

impact water levels, and could remain closed for approximately 8.5 days on average. The days per year of system closure would vary by year and be dictated by tropical storm activity.

2.2.9 Estimated Quantities and Transportation Plans

As stated in the 2016 WSLP EIS, approximately 9,000,000 cubic yards of material would be needed for construction. Approximately 2,000,000 cubic yards of sand would be used to construct the sand base described in Section 2.2.3. Approximately 7,000,000 cubic yards of clay would be used to provide approximately 3,500,000 million cubic yards of in-place compacted clay necessary for levee system construction described in 2.2.4. These materials would be truck hauled to the levee alignment ROW with on-road dump trucks. It is estimated that 750,000 truckloads of sand and clay would be required for levee construction, utilizing triaxle and tandem dump trucks. Primary routes for clay fill would be via the BCS to Hwy 61, to the closest off-road access road as described in Section 1. Commercial sand suppliers are generally located on the flood side of the MRL and transportation routes are expected to be from LA Highway 626 to Hwy 61 and from Hwy 61 to the closest designated off-road access road to the levee system ROW. Commercial clay sources may be utilized but exact pit locations are not currently known. Traffic control plans would be implemented for all construction-related transportation to minimize impacts to existing traffic patterns and would rely upon use of highways to the extent practicable.

Pump stations, T-Walls, floodgates, and drainage structure construction would require use of a variety of commercial vehicles to bring materials, including but not limited to formwork, concrete, structural steel, engines, pumps, fuel, supplies, building materials and foundation piles. The types of vehicles could include, but may not be limited to, concrete mix trucks, flatbed trailers, freight trucks, service trucks, fuel trucks, as well as lowboy trailers to transport cranes, backhoes, forklifts, excavators, and bulldozers. Routes to the construction site would generally be from commercial manufactures and suppliers. Likely routes would be from a combination of I-10, I-55, Louisiana Highway 628, Hwy 51 or Louisiana Highway 3188 to Hwy 61 to the access roads described in Section 2.2.2. The estimated number of delivery trips for this portion of the construction is 4,000.

2.2.10 Staging Locations and Plans

Stockpile areas described in SEA #570, or within the immediate vicinity of access roads. In general, such staging areas would be approximately 200 feet x 200 feet. Any staging areas utilized outside of the levee system ROW would be limited to existing developed sites and would avoid impacts to cultural, recreational, socioeconomic, farmland, environmental justice, and wetlands and other environmentally sensitive areas.

2.2.11 Alterations in Spoil Banks

Gapping of existing spoil banks would be considered within the vicinity of the levee system and other project features, as shown in Figure 2, if such gapping would be necessary or desirable to facilitate drainage and/or maintain existing water flows within the project area. These gappings would be performed to maintain existing hydrology and would not have net negative impacts to vegetation resources. Any impacts to other resources would be minimized to the maximum extent practicable. Coordination with resource agencies regarding potential spoil bank gapping plans has occurred and would continue.

3 Affected Environment

3.1 Description of the Project Area

The Project Area is located within St. John the Baptist and St. Charles Parishes in southeastern Louisiana, between the Mississippi River and Lakes Maurepas and Pontchartrain. The towns of Montz, Laplace, Reserve, and Garyville are communities found within the Project Area (Figure 2). The Project Area occupies a portion of one of the oldest delta complexes in the Mississippi River Deltaic Plain. It is in the lower Mississippi River alluvial plain in the Pontchartrain Basin and includes residential and commercial developments south of I-10. West of Laplace, the majority of the developed areas in the Project Area are found between U.S. Highway 61 (US-61) and the Mississippi River levee. Much of the undeveloped area consists of forested wetlands, including swamp and bottomland hardwood forests. A small portion of the State of Louisiana’s Maurepas Swamp Wildlife Management Area (MSWMA) falls within the northern section of the Project Area.

3.1.1 **Climate, Climate Change, Sea-level Rise, and Subsidence**

The climate in the vicinity of the Project Area is subtropical, marine with long humid summers and short moderate winters. The seasonal rainy period occurs from mid-December to mid-March with dry periods in May, October and November.

The 2014 USACE Climate and Resiliency Policy Statement states: “USACE shall continue to consider potential climate change impacts when undertaking long-term planning, setting priorities, and making decisions affecting its resources, programs, policies, and operations.” Climate change was considered for the 2016 WSLP EIS. Climate Change information and relative sea level rise (RSLR) estimates calculated during the 2016 WSLP EIS were used to predict habitat impacts for the Proposed Action (Appendix I).

Coastal Louisiana has one of the highest land loss rates in the country and this is exacerbated by human activities and climate change (Couvillon et al., 2017). Relative Sea level rise (RSLR) conditions were modeled for the 2016 WSLP EIS. Table 3 shows the model results from that study.

Table 3: Relative Sea Level Rise Estimates from the 2016 WSLP EIS				
Scenario	SLR (NAVD88 feet)		RSLR (NAVD88 feet)	
	2020	2070	2020	2070
Low SLR	0.06	0.33	0.3	1.81
Intermediate SLR	0.1	0.85	0.34	2.32
High SLR	0.23	2.47	0.47	3.95

3.1.2 **Geology**

The geology of the lower Mississippi River alluvial valley and the Louisiana coast is summarized in the LCA Ecosystem Restoration Study (USACE 2004), which is incorporated by reference. Lakes Maurepas and Pontchartrain occupy a portion of the old Mississippi River pathway known as the St. Bernard Delta. The St. Bernard delta complex was formed by Mississippi River deposits between 3,000 and 4,000 years ago (Frazier, 1967). The complex formed in what was then Pontchartrain Bay, enclosing a portion of it to form Lake Pontchartrain. The majority of

other landform features include inland swamp, tidal channels, shallow lakes and bays, natural levee ridges along active and abandoned channels, barrier islands, and beaches.

3.2 Relevant Resources

This section contains a description of relevant resources that could be impacted by the Proposed Action. Relevant resources described are those recognized by: National, state, or regional agencies and organizations as required by laws, executive orders, regulations, and other official standards of technical or scientific agencies, groups, or individuals; and the general public. Table 4 provides summary information of the institutional, technical, and public importance of these resources.

Relevant resources that could be impacted by the proposed action are similar to those described in the 2016 WSLP EIS and SEA 570, which are incorporated by reference. In this section, descriptions from referenced documents are summarized below by resource. Table 5 presents the relevant resources evaluated in the 2016 WSLP EIS, SEA 570, and whether the proposed action has impacts on these resources. Any relevant resources not impacted by the proposed action are not further evaluated in this SEA.

The scientific name associated with all common species names will be presented the first time the common name is utilized. Afterward, only the common name will be used.

Table 4: Relevant Resources and their Institutional, Technical, and Public Importance			
Resource	Institutionally Important	Technically Important	Publicly Important
Wetlands	Clean Water Act of 1977, as amended; Executive Order 11990 of 1977, Protection of Wetlands; Coastal Zone Management Act of 1972, as amended; and the Estuary Protection Act of 1968., EO 11988, and Fish and Wildlife Coordination Act	They provide necessary habitat for various species of plants, fish, and wildlife; they serve as ground water recharge areas; they provide storage areas for storm and flood waters; they serve as natural water filtration areas; they provide protection from wave action, erosion, and storm damage; and they provide various consumptive and non-consumptive recreational opportunities.	The high value the public places on the functions and values that wetlands provide. Environmental organizations and the public support the preservation of marshes.
Wildlife	Fish and Wildlife Coordination Act of 1958, as amended and the Migratory Bird Treaty Act of 1918	They are a critical element of many valuable aquatic and terrestrial habitats; they are an indicator of the health of various aquatic and terrestrial habitats; and many species are important commercial resources.	The high priority that the public places on their esthetic, recreational, and commercial value.
Aquatic Resources/ Fisheries	Fish and Wildlife Coordination Act of 1958, as amended; Clean Water Act of 1977, as amended; Coastal Zone Management Act of 1972, as amended; and the Estuary Protection Act of 1968	They are a critical element of many valuable freshwater and marine habitats; they are an indicator of the health of the various freshwater and marine habitats; and many species are important commercial resources.	The high priority that the public places on their esthetic, recreational, and commercial value.

Table 4: Relevant Resources and their Institutional, Technical, and Public Importance			
Resource	Institutionally Important	Technically Important	Publicly Important
Threatened and Endangered Species	The Endangered Species Act of 1973, as amended; the Marine Mammal Protection Act of 1972; and the Bald Eagle Protection Act of 1940	USACE, USFWS, NMFS, NRCS, EPA, LDWF, and LDNR cooperate to protect these species. The status of such species provides an indication of the overall health of an ecosystem.	The public supports the preservation of rare or declining species and their habitats.
Water Quality	Clean Water Act of 1977, Fish and Wildlife Coordination Act, Coastal Zone Mg Act of 1972, and Louisiana State & Local Coastal Resources Act of 1978	USACE, USFWS, NMFS, NRCS, EPA, and State DNR and wildlife/fishery offices recognize value of fisheries and good water quality and the national and state standards established to assess water quality.	Environmental organizations and the public support the preservation of water quality and fishery resources and the desire for clean drinking water.
Cultural Resources	National Historic Preservation Act of 1966, as amended; the Native American Graves Protection and Repatriation Act of 1990; and the Archeological Resources Protection Act of 1979	State and Federal agencies document and protect sites. Their association or linkage to past events, to historically important persons, and to design and construction values, and for their ability to yield important information about prehistory and history.	Preservation groups and private individuals support protection and enhancement of historical resources.
Soils and Prime and Unique Farmland	Farmland Protection Policy Act of 1981	USDA's NRCS recognizes the importance of prime and unique farmlands. Prime farmland is available land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. Unique farmland is land other than prime farmland that is used for the production of specific high value food and fiber crops, such as citrus, tree nuts, olives, and vegetables.	Prime and unique farmland provides food, feed, and forage, fiber, and oilseed crops for public consumption.
Aesthetics and Visual Resources	USACE ER 1105-2-100, and National Environmental Policy Act of 1969, the Coastal Barrier Resources Act of 1990, Louisiana's National and Scenic Rivers Act of 1988, and the National and Local Scenic Byway Program	Visual accessibility to unique combinations of geological, botanical, and cultural features may be an asset to a study area. State and Federal agencies recognize the value of beaches and shore dunes.	Environmental organizations and the public support the preservation of natural pleasing vistas.
Recreation Resources	Federal Water Project Recreation Act of 1965 as amended and Land and Water Conservation Fund Act of 1965 as amended	Provide high economic value of the local, state, and national economies.	Public makes high demands on recreational areas. There is a high value that the public places on fishing, hunting, and boating, as measured by the large number of fishing and hunting licenses sold in Louisiana; and the large per-capita number of recreational boat registrations in Louisiana.

Table 4: Relevant Resources and their Institutional, Technical, and Public Importance			
Resource	Institutionally Important	Technically Important	Publicly Important
Environmental Justice	Executive Order 12898 and the Department of Defense's Strategy on Environmental Justice of 1995	The social and economic welfare of minority and low-income populations may be positively or disproportionately impacted by the tentatively selected plans.	Public concerns about the fair and equitable treatment (fair treatment and meaningful involvement) of all people with respect to environmental and human health consequences of federal laws, regulations, policies, and actions.
Air Quality	Clean Air Act of 1963, Louisiana Environmental Quality Act of 1983	State and Federal agencies recognize the status of ambient air quality in relation to the NAAQS.	Virtually all citizens express a desire for clean air.
Transportation	National Environmental Policy Act, (Public Law 91-190)	ER-200-2-2, Procedures for Implementing NEPA	Changes to the transportation and traffic patterns affect the public and are of interest to the community.

Table 5: Relevant Resources from SEA 570 and the 2016 WSLP EIS, and whether they are impacted by the Proposed Action.				
Relevant Resource	Included in 2016 WSLP EIS?	Included in SEA 570?	Included in SEA 571?	Impacted by the proposed action?
Population and Housing	Y	N	N	N
Employment, Business, and Industrial Activity (including	Y	N	N	N
Public Facilities and Services	Y	N	N	N
Transportation	Y	Y	Y	Y
Community and Regional Growth	Y	N	N	N
Tax Revenues and Property Values	Y	N	N	N
Community Cohesion	Y	N	N	N
Environmental Justice	Y	Y	Y	N
Soils, and Prime and Unique Farmlands	Y	Y	Y	Y
Vegetation Resources*	Y	Y*	Y*	Y
Aquatic and Fisheries Resources	Y	Y	Y	Y
Wildlife Resources	Y	Y	Y	Y
Essential Fish Habitat (EFH)	N	N	N	N
Threatened and Endangered Species	Y	Y	N**	N**
Flow and Water Levels***	Y	Y***	Y***	Y
Sedimentation and Erosion***	Y	Y***	Y***	Y

Water Quality and Salinity***	Y	Y***	Y***	Y
Cultural Resources	Y	Y	Y	N
Aesthetics and Visual Resources	Y	Y	Y	Y
Recreation Resources	Y	Y	Y	Y
Noise	Y	Y	Y	Y
Air Quality	N	Y	Y	Y

*Wetland impacts are the only vegetation resource potentially being impacted by the Proposed Action, and therefore, wetlands are the only vegetation resource impacts discussed.

**USFWS concurred with USACE's "not likely to adversely affect" determination

***Sedimentation and Erosion, and Water Quality and Salinity are considered collectively as Water Quality by SEA 570. The Hydrology and Water Quality Sections in SEA 571 include these impacts for SEA 571.

3.2.1 Hydrology

Historic and Existing Conditions

Changes in the Mississippi River have been responsible for changes in the flow and water levels in the vicinity of the project area over several geological periods. Seasonal flooding of the Mississippi River historically contributed to the flow and water level characteristics of the area. Large flood events would bring freshwater, sediment and nutrients to the back swamp areas. However, construction of river levees, beginning in the 1700s by local landowners, interrupted this natural process and has permanently altered hydrology in the vicinity of the project area. Currently, the area's water budget is effected by precipitation, evaporation, stream flow, and direct groundwater flow, as well as tidal flows in and out of the estuary. Lake Maurepas is a shallow, fresh to intermediate (*salinity*) basin, receiving daily mean freshwater discharge, primarily from the Amite and Tickfaw Rivers; and to a lesser extent, the Blind River (American Institute of Hydrology, 2006). Lake Pontchartrain is a shallow, brackish salinity basin that receives freshwater discharge from the Tangipahoa, Pearl, and Tchefuncte Rivers, as well as Bayous Lacombe and Liberty, and many smaller creeks.

CPRA's River Reintroduction into Maurepas Swamp Project would divert Mississippi River water to the Maurepas Swamp through Hope Canal. The WSLP project has been coordinating activities between the project development teams. As part of the WSLP scoping effort, a letter from CPRA requested that the River Reintroduction project features be incorporated into the WSLP study. The letter emphasized that any storm damage control structure built in the area should allow for the exchange of water in the swamp north and south of I-10. The State of Louisiana has submitted a permit application to construct the project and has received partial funding. However, because the CPRA has not received the final permit for this project, it does not fall within the FWOP conditions for this SEA.

3.2.2 Water Quality

Historic and Existing Conditions

As part of its surface water quality monitoring program, the Louisiana Department of Environmental Quality (LDEQ) routinely monitors 25 parameters on a monthly or bimonthly basis using a fixed station, long-term network (Monitored Assessments; LDEQ 1996). Based

upon those data and the use of less-continuous information (Evaluated Assessments), such as fish tissue contaminants data, complaint investigations, and spill reports, the LDEQ assesses water quality fitness for the following uses: primary contact recreation (swimming), secondary contact recreation (boating, fishing), fish and wildlife propagation, drinking water supply, and shellfish propagation (LDEQ 1996). Based upon existing data and more subjective information, water quality is determined to either fully, partially, or not support those uses. A designation of “threatened” is used for waters that fully support their designated uses but that may not fully support certain uses in the future because of anticipated sources or adverse trends in pollution. According to the LDEQ “2018 Louisiana Water Quality Inventory: Integrated Report,” there are two subsegments that include the study area. The Pass Manchac subsegment (LA040601_00), which includes Pass Manchac from Lake Maurepas to Lake Pontchartrain, including interlacustrine waters from North Pass to the Mississippi River levee, was found to fully support all designated uses. The Lake Maurepas subsegment (LA040602_00) was found to fully support two designated uses, primary contact swimming and secondary contact recreation. The Lake Maurepas subsegment was found to not support the designated use for fisheries and wildlife propagation. There are two suspected causes for impaired use: dissolved oxygen and non-native aquatic plants.

3.2.3 Wetlands

Historic and Existing Conditions

Wetlands perform important functions of water filtration and water quality improvement, floodwater storage, fish and wildlife habitat, and biological productivity. The Project Area includes BLH, swamps, and estuarine emergent wetlands. Detailed descriptions of common plants are presented in the LCA report (USACE 2004, 2010) and representative plant species are listed in Appendix IV, Annex E.

Vast virgin stands of bald cypress-tupelo swamp habitat once stretched from the bottomlands of northern Louisiana to the Gulf of Mexico (Conner and Day 1976). The Maurepas Swamp was vegetated by an expanse of old growth, freshwater forested swamp that extended beyond the Project Area vicinity. Historically, forested wetlands in the Project Area and vicinity were subjected to flooding and drying events. Seasonal flooding by the Mississippi River provided nutrient and sediment input. The area was subjected to extensive logging through the 1930s resulting in loss of old-growth trees. Currently, forested wetlands in the vicinity are highly degraded due to subsidence, permanent inundation, lack of sediment and nutrient input, nutria (*Myocastor coypus*) herbivory, and saltwater intrusion (Shafer et al., 2016). Recent observations of forested wetlands within the Project Area and vicinity include high tree mortality rates, little to no observed regeneration, and low growth rates for many native swamp tree species (Shafer et al., 2009; Bradley Breland pers. communication, 2018). With the loss of forested wetlands/swamp habitats, a significant loss of wetland function in relation to wildlife and aquatic species, recreational opportunities, aesthetics, and storm surge protection has occurred.

3.2.4 Wildlife Resources

Historic and Existing Conditions

Birds: Area wetlands provide neotropical migrants with essential stopover habitat on annual migrations (Zoller 2004) and critical bird breeding habitat (Wakeley and Roberts 1996). Area wetlands have historically supported an abundance of neotropical and other migratory and non-migratory birds, including the bald eagle (*Haliaeetus leucocephalus*), a recently delisted Endangered Species, and colonial nesting waterbirds (e.g., herons, egrets, ibises, night-herons, and roseate spoonbills). Since 1985, most bird species and species groups in the area have

exhibited either increasing or stable populations in the area. See Appendix IV, Annex A for representative bird species.

Mammals: Since 1985, populations of furbearers, such as beavers (*Castor canadensis*), mink (*Neovison vison*), foxes (*Vulpes* spp. and *Urocyon cinereoargenteus*), and North American river otter (*Lontra canadensis*), have typically remained stable across the Upper Pontchartrain Basin (LCWCRTF & WCRA 1999). White tailed deer (*Odocoileus virginianus*), northern raccoon (*Procyon lotor*), and North American opossum (*Didelphis virginiana*) are found within the Project Area. The West Indian manatee (*Trichechus manatus*), a Federally-listed Threatened Species, occurs in the vicinity of the Project Area. Nutria, an invasive rodent that eats seedling cypress and other tree species preventing regeneration (Shafer et al., 2016), occurs in the Project Area. See Appendix IV, Annex B for representative mammal species.

Reptiles and Amphibians: Louisiana Department of Wildlife and Fisheries (LDWF) survey data from 1996 to 2000 indicate alligator nest densities in the area are classified as medium (approximately 1 nest per 250 acres). LDWF provided a list of reptiles and amphibians likely to occur within the Project Area vicinity that included 23 snake species, five lizard species, thirteen turtle species, fifteen frogs and toads, seven salamanders, and one crocodylian (Michon, pers. comm. 2019). This list can be found in Appendix IV; Annex C.

3.2.5 Aquatic and Fisheries Resources

Historic and Existing Conditions

Submerged Aquatic Vegetation (SAV) communities dominated by plants such as coontail (*Ceratophyllum demersum*), widgeon grass (*Ruppia maritima*), and wild celery (*Vallisneria spiralis*) were historically more common in the Project Area, but have been replaced by nuisance floating aquatic plants in many open water areas in Louisiana wetlands with low flow. Floating aquatic nuisance plants include water hyacinth (*Echhornia crassipes*) and giant salvinia (*Salvinia molesta*). These invasive species compete with native flora for resources such as nutrients and light, and in turn can negatively impact community structure and composition, and ecosystem processes.

Plankton and benthic organisms serve as the lowest food resource level for many species of fish and shellfish. Plankton can often indicate benthic, nutrient, and water quality health (Stone et al. 1980). Limited available data from Lake Maurepas suggests the dominance of *Anabaena*, dinoflagellates, diatoms, and cyanobacteria with occasional strong presence of chlorophytes (Atilla et al. 2007, 2016 WSLP EIS).

Benthic macroinvertebrates tend to dominate deepwater swamp invertebrate communities. Characteristic species include crayfishes, clams, oligochaete worms, snails, freshwater shrimp, midges, amphipods, and various immature insects (Mitsch and Gosselink 1993). Limited data exists on benthic communities in the Project Area. Species present are likely typical of deepwater forested wetlands and slow-flowing rivers in the region. Crawfish and crabs may be harvested in and within the vicinity of the project area (Fox et al. 2007).

The relatively low salinity of these waters provides typical habitat for freshwater and marine transient fishes and shellfish, and the area has good recreation fishing opportunities (USACE 2010). Freshwater fish, such as largemouth bass (*Micropterus salmoides*) and other sunfishes (Family: Centrarchidae), catfishes (Family: Ictaluridae), and crappie (*Pomoxis* spp.) are taken by recreational fishermen. Many fishes have been sampled in the area, including estuarine, freshwater, catadromous, and anadromous species, with spotted gar (*Lepisosteus oculatus*)

and striped mullet (*Mugil cephalus*) being the most common according to one comprehensive study (Kelso et al., 2005). See Appendix C, Annex D for representative fish species.

3.2.6 Threatened, Endangered, and Protected Species

Historic and Existing Conditions

Two Threatened Species, the Gulf sturgeon (*Acipenser oxyrinchus desotoi*), and the West Indian manatee (*Trichechus manatus*), and one delisted species, the bald eagle, are known to occur in the vicinity of the Project Area. The area is also known to support colonial nesting waterbirds (e.g., herons, egrets, and others), protected under the Migratory Bird Treaty Act (MBTA).

Gulf Sturgeon: The Gulf sturgeon is an anadromous fish that occurs in many rivers, streams, and estuarine waters along the northern Gulf coast between the Mississippi River and the Suwannee River, Florida. While sturgeon have been documented in nearby waterways, the Project Area does not contain Gulf sturgeon critical habitat.

West Indian Manatee: West Indian manatees occasionally enter Lakes Pontchartrain and Maurepas, and associated coastal waters and streams during the summer months (i.e., June through September). Given the extensive areas of relatively undisturbed wetlands in the region and the paucity of food sources in the Project Area, it is considered unlikely for the manatee to frequent and utilize waterways within the Project Area. The Project Area does not contain West Indian manatee critical habitat.

Bald Eagle: The bald eagle was delisted as a federally threatened species in 2007 for most of the United States; however, it is protected under the Bald and Golden Eagle Protection Act (BGEPA), and the MBTA. Habitats suitable for use by the bald eagle are present in St. Charles and St. John the Baptist Parishes and occurrences of the bald eagle have been recorded there. The bald eagle is known to nest and forage in the vicinity, but recent coordination with USFWS indicates there are no known nests within 650 feet of the Proposed Action (Trahan, pers. comm. 2019). However, there are many bald eagle nests within the project vicinity, and new active, inactive, or alternate nests may exist, but not be known. The Project Area was surveyed for bald eagle nests via six field surveys (December 10, 2018, January 24, 2019, February 14, 2019, February 25, 2019, February 27, 2019), including one helicopter survey (February 25, 2019). In addition, eight WVA field survey days were also conducted in 2019 (May 30, June 28, August 16, August 21, August 22, August 26, September 18, and October 1). No evidence of active bald eagle nests were observed on any field visit. There are existing bald eagle nests documented in the area; however, based on information provided by USFWS, all nests are beyond 650 feet from features of the proposed action.

Colonial Nesting Waterbirds: The Proposed Action would be located in an area where colonial nesting waterbirds, such as anhingas, cormorants, great blue herons, great egrets, snowy egrets, little blue herons, tricolor herons, reddish egrets, cattle egrets, green herons, black-crowned night-herons, yellow crowned night-herons, ibises, and roseate spoonbills occur. There are two historic colonial nesting waterbird sites within 1000 feet of the Proposed Action (Trahan, pers. comm. 2019). The Project Area was surveyed for colonial waterbird activity via six field surveys (December 10, 2018, January 24, 2019, February 14, 2019, February 25, 2019, February 27, 2019), including one helicopter survey (February 25, 2019). In addition, eight WVA field survey days were also conducted in 2019 (May 30, June 28, August 16, August 21, August 22, August 26, September 18, and October 1). No evidence of colonial waterbird nesting (or pre-nesting) activities were observed on any field visit. Two potentially active water

bird rookeries exist within 1,000 feet of the proposed alignments, but these were surveyed and no activity was observed.

3.2.7 Cultural Resources

Eight cultural units are used to characterize the prehistoric cultural sequence in southeast Louisiana: Paleo-Indian (10000–8000 B.C.), Archaic (8000–1000 B.C.), Poverty Point (1700–500 B.C.), Tchefuncte (500 B.C.–A.D. 100), Marksville (A.D. 100–500), Baytown (A.D. 400–700), Coles Creek (A.D. 700–1200), and Mississippian/Plaquemine (A.D. 1200–1700). Historic perspectives generally cover the colonial period to approximately 1764, Acadian migration to the area, end of the Colonial period, the antebellum period, the Civil War, late 19th century reconstruction, and the early 20th century.

Historic and Existing Conditions

Background research identified historic properties based on a review of National Register of Historic Places (NRHP) database, the Louisiana Cultural Resources Map, a review of cultural resources and survey reports. Most of the cultural resources surveys in the Project Area have concentrated on proposed pipeline projects, the majority of which are in an east-west orientation (Price, 1977 (report 22-0011); Price, 1987 (report 22-1210); Kelley and others, 2011 (report 3879); and Kelley and others, 2013 (report 22- 4327). Linear surveys on a predominately north-south orientation are by Twiner, 1986 (report 22-1103); Rothrock and Moreno, 2015 (report 22-4868); Rynar and Hahn, 2016 (report 22- 5121); and Stanton and others, 2004 (report 22-2628). Data gathered by previously reported archaeological sites were used to develop a predictive model that indicated high and medium probability areas within 4 miles of the Mississippi River (Lee et al. 2003, report 22-2572). A literature review revealed five cultural resources surveys that located 6 archaeological sites and 11 standing structures within the Project Area. There are three standing structures (48-00431, 48-01032, and 48-01185) within 0.5 miles of the Project Area. With the exception of Angelina Plantation (16SJB 68) and the 1915 Memorial Cemetery (16SJB69), all of the archaeological sites are more than 0.5 miles from the Project Area. The standing structure (48-01185) near Angelina Plantation was evaluated in May 2014 and found not to meet any NRHP criteria (Wells et al. 2014, report 22-4571).

The majority of the Project Area is forested wetlands with higher elevations to the south that are either developed or farmland. The Angelina Plantation is a recorded archaeological site (16SJB68) on the southwestern side of the Proposed Action that has been surveyed for various activities (Beavers and Chatelain 1979, report 22-0641; Foreman et al 2016, report 22-5158; Rothrock and Moreno 2015, report 22-4868; Wells 2008, report 22-3023). Those east-west surveys in the northern part of the plantation produced no indication of significant historic activity (Beavers and Chatelain 1979, report 0498; Hubachen 2014, report 22-4531; Watkins 1994, report 22-1807). Angelina Plantation was recorded as an archaeological site and much of the southern part was evaluated in 2012 (Glass and Jackson 2013, report 22-4288). Locus A, which is an area of archaeological deposits representing slave quarters and later tenant houses for Angelina Plantation, located in the southwestern part of the site was tested in 2014 and approximately half of the 431 acre Locus A area was recommended eligible for the NRHP (Glass et al 2014, report 22-4690). A portion of the Project Area was surveyed for cultural resources in May 2014 for the “Phase I Cultural Resources Survey and Reconnaissance of Alternative C, West Shore Lake Pontchartrain Levees Project, St. John the Baptist and St. Charles Parishes, Louisiana” (Wells et al. 2014, report 22-4571). Part of the Angelina Plantation was evaluated during the 2014 survey and determined not eligible for the NRHP. The Frenier 1915 Memorial Cemetery was evaluated and recommendations made that the site

is considered a potential cultural property and avoidance was recommended. A large part of the vicinity of the Proposed Action was surveyed as part of the Maurepas Pipeline Project by Rothrock and Moreno (2015, report 22-4868). These surveys included six of the proposed access roads. None of the areas surveyed for the Maurepas Pipeline Project in St. John the Baptist Parish produced archaeological remains.

A Programmatic Agreement (PA) regarding the West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction System was executed on May 16, 2014, among SHPO, the Advisory Council of Historic Preservation (ACHP) and the CEMVN pursuant to Section 106 of the National Historic Preservation act and its implementing regulation found at 36 CFR 800.14(b). The stipulations of the PA would be implemented and complied with for the proposed action.

3.2.8 Soils and Prime and Unique Farmlands

Historic and Existing Conditions

Farmland classification soil survey data provided by NRCS in February 2019 determined that prime farmland is located within the Project Area. However, unique farmland is not located in the Project Area. Affected soils in the area include Caciennne silt loam, Caciennne silty clay, Carville silt loam, Gramercy silty clay, and Schriever clay which are best suited for food, feed, fiber, forage, and oilseed crops. All of the proposed staging and stockpile areas contain prime farmland. Prime farmland in the Project Area is currently dedicated to common Bermuda grass, improved Bermuda grass, soybeans, wheat, sugar cane, Bahia grass, and corn. No other agricultural activities are currently taking place in the Project Area.

3.2.9 Aesthetics and Visual Resources

Historic and Existing Conditions

Aerial photography shows visual conditions of the area changed over the past 20 years. The landscape along with its view sheds have changed due to development and the conversion of swamps into marsh and open water. The scenery has changed from natural to a more developed state with residential, commercial and industrial development dominating US-61, US-51 and US-44, and other corridors. The only major exception is I-10, which traverses the area, giving near unobstructed views of a native landscape that remains aesthetically pleasing. Primary view sheds have been and still are best taken from the local road system and in some instances the Mississippi River levee.

There are two Scenic Streams in the area's vicinity. Blind River stretches south 25 miles from Lake Maurepas, crossing under I-10 and ending near US-61 west of the Project Area. Bayous LaBranche and Trepagnier are located east of the Project Area sourcing from Lake Pontchartrain and stretching south, crossing under I-10 and US-61 and ending near Norco (Bayou Trepagnier) and Good Hope (Bayou LaBranche). Other water resources in the vicinity include the Mississippi River, numerous canals, streams, and creeks that crisscross the native habitat between I-10 and the developed areas along the river.

There is a Scenic Byway in the vicinity which includes the Great River Road traversing US-61. The Great River Road is one segment to an overall scenic byway that stretches on multiple thoroughfares from Canada to the Gulf of Mexico. It is state and federally designated and has an "All American Road" status, making it significant in culture, history, recreation, archeology, aesthetics, and tourism.

3.2.10 Recreational Resources

Historic and Existing Conditions

The Project Area overlaps with parts of the southern perimeter of the 124,567-acre MSWMA. There are a few private camps in the MSWMA. The LDWF provides 16 self-clearing permit stations located throughout the MSWMA. Access into the MSWMA is generally by boat via the numerous boat launches in the area; however, several locations provide foot access. Many canals and bayous traverse the MSWMA. Consumptive recreation includes hunting deer, squirrels, rabbits, and raccoons; fishing for bass, sunfish and crappie; and trapping alligators and nutria. Non-consumptive recreation includes bird watching, sightseeing, and boating. There is a 0.5 mile nature trail and two tent-only camping areas in the MSWMA.

Within the Project Area, Cajun Pride Swamp Tours is located off Frenier Road near US-51. This commercial operation provides boat tours in their private refuge and in the Manchac Swamp. Belle Terre Country Club and Golf Course is located in the Project Area, providing various recreational facilities including a golf course, outdoor swimming pool, and tennis courts. There are local recreational parks including Regala Park, Montz Park, Bethune Park, and Laplace Recreation and Youth Organization (Larayo) Youth Park. Regala Park facilities include an outdoor swimming pool, softball/baseball fields, picnic pavilions, tennis courts, playground, racquetball courts, 1 mile walking path, and soccer field. Montz Park provides a walking path, baseball fields, basketball courts, playground, and picnic pavilions. Bethune Park provides baseball fields. Larayo Youth Park provides baseball fields, tennis courts, and a swimming pool.

3.2.11 Environmental Justice

Executive Order 12898 of 1994 (EO 12898) and the Department of Defense's Strategy on Environmental Justice of 1995 directs Federal agencies to identify and address any disproportionately high adverse human health or environmental effects of Federal actions to minority and/or low-income populations. Minority populations are those persons who identify themselves as Black, Hispanic, Asian American, American Indian/Alaskan Native, Pacific Islander, some other race, or a combination of two or more races. A minority population exists where the percentage of minorities in an affected area either exceeds 50 percent or is meaningfully greater than in the general population. Low-income populations as of 2017 are those whose income is at or below \$24,500 for a family of four and are identified using the Census Bureau's statistical poverty threshold. The Census Bureau defines a "poverty area" as a census tract or block group with 20 percent or more of its residents below the poverty threshold and an "extreme poverty area" as one with 40 percent or more below the poverty level.

An EJ analysis focuses on the potential for disproportionately high and adverse impacts to minority and low-income populations during the construction and normal operation of the Federal action. The analysis assesses if EJ communities are disproportionately exposed to high and adverse effects of the Federal action. If the impact is appreciably more severe or greater in magnitude on minority or low-income populations than the adverse effect suffered by the non-minority or non-low-income populations after taking offsetting benefits into account, then there may be a disproportionate finding. Avoidance and mitigation are then required.

Historic and Existing Conditions

The communities that are located in the study area include Garyville, Reserve, and Laplace, all within St. John the Baptist Parish. All three of these communities are identified by the US Census Bureau (USCB) as a Census Designated Place (CDP).

In order to identify whether the potential alternatives may disproportionately affect minorities or impoverished citizens, an analysis was conducted utilizing CDP data, obtained from the USCB's American Community Survey (ACS). The following information was collected in the study area. Racial and Ethnic Characteristics – race and ethnic populations in each CDP were characterized using the following racial categories: White, Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, Some Other Race, and Two or more Races. Persons of Hispanic Origin are also identified. These categories are consistent with the affected populations requiring study under Executive Order 12898. See Table 3 for a listing of race and ethnic characteristics for the CDPs in the Study area.

Percentage of Minority Population – As defined by the USCB, the minority population includes for race, all non-Whites and ethnicity, the Hispanic population. According to Council of Environmental Quality (CEQ) guidelines, "Minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis." See Table 3 for a listing of race and ethnic characteristics for the CDPs in the Study area.

Population by Race, for each CDP, is shown in Table 3. Two of the three CDPs, Reserve and Laplace, are considered Environmental Justice communities, having approximately 63 and 56 percent minority residents, respectively. The majority of minority residents are Black or African American while those identifying as "Some Other or Two or more Races" make up 2.4 percent or less of the CDP population. Persons of Hispanic or Latino population (of any race) is no higher than 6.6 percent of the population of any CDP. The percent of residents identifying as minority or of Hispanic/Latino origin in Reserve and Laplace is similar to the minority and Hispanic origin percentages for St. John the Baptist Parish.

Low-Income Population – The percentage of persons living below the poverty level, as identified in the 2013-2017 ACS, was one of the indicators used to determine the low-income population in a CDP. Low-income population is defined as a CDP with 20 percent or more of its residents below the poverty threshold.

Garyville and Reserve CDPs are EJ communities when considering the poverty threshold criteria. Approximately 32 percent and 20 percent, respectively, of people residing in these communities have incomes in the past 12 months below the poverty level. Approximately 18% of residents in St. John the Baptist Parish have incomes below the poverty level. See Table 4 for low income population by CDP.

Table 6: Percentage Minority/Ethnic Population by CDP, Project Area								
	St. John the Baptist Parish		Garyville		Reserve		Laplace	
RACE	Estimate	Percent	Estimate	Percent	Estimate	Percent	Estimate	Percent
Total population	43,565		2,225		9,995		28,218	
One race	42,720	98%	2,225	100%	9,851	99%	27,535	98%
White	17,716	41%	1,214	55%	3,656	37%	12,433	44%
Black or African American	24,175	56%	1,011	45%	5,962	60%	14,506	51%
American Indian and Alaska Native	0	0%	0	0%	0	0%	0	0%
Asian	391	1%	0	0%	25	0%	366	1%
Native Hawaiian and Other Pacific Islander	0	0%	0	0%	0	0%	0	0%
Some other race	438	1%	0	0%	208	2%	230	1%
Two or more races	845	2%	0	0%	144	1%	683	2%
Minority	25,849	59%	1,011	45%	6,339	63%	15,785	56%
Hispanic or Latino (of any race)								
Total population	43,565		2,225		9,995		28,218	
Hispanic or Latino (of any race)	2,524	6%	23	1%	635	6%	1,866	7%

Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

Table 7: Low Income Population by CDP, Project Area		
CDP	Total Population Estimate*	Low Income As Percent of Total Population
Garyville	2,171	32%
Reserve	9,927	20%
Laplace	27,587	15%
St. John the Baptist	42,804	18%

Source: U.S. Census ACS 2013-2017
 *For Whom Poverty Status is Determined

3.2.12 Air Quality

Existing Conditions

National Ambient Air Quality Standards (NAAQS) (Table 5) have been set by the EPA for six common pollutants (also referred to as criteria pollutants) including: ozone, particulate matter, carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead. States are required by the Code of Federal Regulations to report to the EPA annual emissions estimates for point sources (major industrial facilities) emitting greater than or equal to 100 tons per year of volatile organic compounds, nitrogen dioxide, sulfur dioxide, particulate matter less than 10 microns in size; 1,000 tons per year of carbon monoxide; or 5 tons per year of lead. Since ozone is not an emission, but the result of a photochemical reaction, states are required to report emissions of volatile organic compounds (VOC), which are compounds that lead to the formation of ozone. St. John the Baptist and St. Charles Parishes are currently in attainment for all Federal NAAQS pollutants, including the 8-hour ozone standard (EPA 2013).

Table 8: National Ambient Air Quality Standards					
Pollutant	Primary/ Secondary	Averaging Time	Level	Form	
Carbon Monoxide (CO)	primary	8 hours	9 ppm	Not to be exceeded more than once per year	
		1 hour	35 ppm		
Lead (Pb)	primary and secondary	Rolling 3 month average	0.15 µg/m ³ (1)	Not to be exceeded	
Nitrogen Dioxide (NO ₂)	primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years	
	primary and secondary	1 year	53 ppb (2)	Annual Mean	
Ozone (O ₃)	primary and secondary	8 hours	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years	
Particle Pollution (PM)	PM _{2.5}	primary	1 year	12.0 µg/m ³	Annual mean, averaged over 3 years
		secondary	1 year	15.0 µg/m ³	Annual mean, averaged over 3 years
		primary and secondary	24 hours	35 µg/m ³	98th percentile, averaged over 3 years
	PM ₁₀	primary and secondary	24 hours	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO ₂)	primary	1 hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years	
	secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year	

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m³ as a calendar quarter average) also remain in effect.

(2) The level of the annual NO₂ standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O₃ standards additionally remain in effect in some areas. Revocation of the previous (2008) O₃ standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

(4) The previous SO₂ standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO₂ standards or is not meeting the requirements of a SIP call under the previous SO₂ standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

3.2.13 Noise

Historic and Existing Conditions

There are noise ordinances in St. Charles and St. John the Baptist Parishes. The maximum permissible sound levels for St. John the Baptist Parish during the hours of 7:00 am to 10:00 pm are 70 dBA for residential areas and 75 dBA for business and commercial areas Sound Levels. The maximum permissible sound levels for St. Charles Parish during the hours of 7:00 am to 10:00 pm are 50 60 dBA for residential areas and 65 dBA for commercial areas.

Background noise levels are variable depending on the time of day and climatic conditions. Near developed areas, automobile and train traffic, and to a lesser extent air traffic, contribute to the background noise levels.

A number of sensitive noise receptors are located adjacent to or near the Project Area such as parks, wildlife management areas, and wildlife. These public lands are sensitive noise receptors where serenity and quiet are an important public resource. The areas with the greatest number of sensitive noise receptors, which are places or areas where occupants are more susceptible to noise, such as residential homes and apartments, schools, churches, and parks, are located in St. Charles and St. John the Baptist Parishes.

3.2.14 Transportation

Existing Conditions

There are two major roadways within the Project Area, US Highway 61 and US Highway 51. Louisiana Department of Transportation & Development conduct routine traffic counts on major roadways. Table 6 presents Estimated Annual Average Daily Traffic Routine Traffic Counts on US Highway 61 (W. Airline Highway) and US Highway 51 (New Highway 51).

Table 9: Annual average daily traffic (AADT)			
US Highway 61		US Highway 51	
Year	AADT	Year	AADT
2017	20,755	2017	17,734
2014	15,772	2014	7,615
2011	16,032	1999	15,173
2008	18,562	1997	10,800
2005	14,058	1994	10,130
2002	14,499	1991	9,752

Source: State of Louisiana Department of Transportation & Development

4 Environmental Consequences

This section describes the environmental consequences of the No Action Alternative (Future Without-Project Conditions; FWOP) and the Proposed Action Alternative (Future Conditions with the Proposed Action; FWP). Indirect and direct impacts are discussed for each scenario and resource in Table 7. Cumulative effects are discussed in Section 4.1.

The No Action Alternative impacts summarize relevant information from the approved plan in the 2016 WSLP EIS and SEA 570, because this scenario represents the predicted course of events absent approval of the proposed action. For an evaluation of the anticipated impacts if the Corps were to take no action to construct the WSLP Project, including under the previously-approved plan, refer to the evaluation of the No Action Alternative and Future Without Project Condition contained in the 2016 WSLP EIS, which evaluation is incorporated here by reference.

Table 10: Comparison of No Action Alternative to Proposed Action		
Resource	No Action Alternative Impacts (includes impacts in 2016 EIS and SEA 570)	Proposed Action Impacts
Hydrology	<p><i>Direct and Indirect Impacts:</i> Hydrologic impacts from construction of the levee system described in 2016 WSLP EIS levee in St. the Baptist and St. Charles Parishes would include: storm damage risk reduction from rising waters associated with tropical storms, and disrupted tidal connectivity that would result in slight increases in water stage on the exterior and slight decreases in tidal exchange on the interior of the levee system.</p> <p>Storm surge modeling indicated that the 2016 WSLP EIS levee system would have increased water surface elevations from between 0.1 and 0.2 feet of water for areas near the levee for the 50-500 year events. No induced flooding was observed in storm surge events between the 1-25 year events.</p>	<p><i>Direct and Indirect Impacts:</i> The proposed action includes an increase number of and size of drainage structures that would better maintain existing hydrologic conditions and be improve tidal connectivity relative to the No Action Alternative. This would reduce the overall impact to hydrology (Appendix 5, Annex A).</p> <p>The proposed action includes an increase in the number of pumping stations, which would allow for more effective flood risk reduction during tropical storm events with heavy rainfall. This would be a beneficial impact to flood risk reduction to local communities (Appendix 5, Annex B).</p> <p>The proposed levee shifts would increase protected area size and increase the acreages of indirect interior hydrological impacts. Increased levee widths could also negatively impact existing hydrology. These negative impact to existing hydrology would be somewhat mitigated by the increased the number of drainage structures and sizes.</p> <p>The proposed action would not cause significant induced flooding impacts outside of those described in the 2016 WSLP EIS (Appendix 5, Annex C).</p>

Table 10: Comparison of No Action Alternative to Proposed Action		
Resource	No Action Alternative Impacts (includes impacts in 2016 EIS and SEA 570)	Proposed Action Impacts
Water Quality	<p><i>Direct Impacts:</i> Levee system construction would result in some wetland and open water areas being converted to upland habitat, which would no longer provide water quality benefits. Sedimentation and erosion impacts would generally be minor and short-term, lasting only during construction of the proposed project features. Because fill and construction materials are anticipated to be free of contaminants, discharge of these materials into existing adjacent waters is not expected to result in adverse effects to aquatic organisms.</p> <p><i>Indirect Impacts:</i> Decreased water exchange as a result 2016 WSLP EIS levee system could result in negative water quality impacts such as stagnation and a reduction of salinity on the interior; significant reduction of erosion and sedimentation associated with storm events.</p>	<p><i>Direct Impacts:</i> Shifts in alignment would slightly increase in construction related water quality impacts. Increases in levee system ROW would have result in similar, but incrementally more associated direct impacts to wetlands that in turn would affect water quality. See wetlands section of this table for more details.</p> <p><i>Indirect Impacts:</i> An increase in indirect impacts would be expected and proportionate to the increase in impounded area. See wetlands section of this table for more details</p>

Table 10: Comparison of No Action Alternative to Proposed Action		
Resource	No Action Alternative Impacts (includes impacts in 2016 EIS and SEA 570)	Proposed Action Impacts
Wetlands	<p><i>Direct Impacts:</i> Construction of the 2016 WSLP EIS levee would directly impact approximately 1,114 acres of swamp (595.6 AAHUs) and approximately 120 acres of BLH (95.5 AAHUs).</p> <p>Activities described in SEA 570 would directly impact approximately 167 acres of swamp (91 AAHUs) and 46 acres of BLH (36 AAHUs).</p> <p><i>Indirect Impacts:</i> It would also indirectly impact approximately 8,432 acres of swamp (494.5 AAHUs) and 89 acres of BLH (3.1 AAHUs).</p> <p>Indirect and direct impacts could include some rare and unique or imperiled vegetation communities (2016 WSLP EIS). All unavoidable impacts would be mitigated for using the plan in SEA 576.</p> <p>See Table 11 for a breakdown of wetland impacts associated with the No Action Alternative.</p>	<p>Impacts associated with the proposed action would be similar to those described in the 2016 WSLP EIS. All WSLP Project (including those related to actions described in the 2016 WSLP EIS, SEA 570, and the proposed action) impacts to wetlands were re-evaluated. A comparison of total impacts from this re-evaluation are compared to the impacts described in the 2016 WSLP EIS. See Appendix I for more information on the wetland impacts re-evaluation. See Table 12 for a breakdown of direct and indirect impacts to wetlands that would be caused by the proposed action.</p> <p><i>Direct Impacts:</i> Overall, the proposed action would directly impact approximately 27 less acres of swamp (25 less AAHUs) and 93 more acres of BLH (54 more AAHUs).</p> <p><i>Indirect Impacts:</i> Overall, the proposed action would indirectly impact approximately 1,322 more acres of swamp (141 less AAHUs) and 4,546 more acres of BLH (121 more AAHUs).</p> <p>All activities within stockpiling and borrow areas would have no wetland or BLH impacts. A no work zone buffer of 50 feet would be maintained around all wet pasture wetlands within stockpile areas. A no work zone buffer of 150 feet or tree drip line, whichever is longest, would be maintained around all forested wetlands within the stockpile/borrow areas.</p> <p>All impacts to wetlands would be offset through either the purchase of mitigation bank credits or the construction of new, restored or enhanced habitats to replace the lost habitats in accordance with the Clean Water Act, Section 404(b)(1) and the Water Resources Development Act of 1986, Section 906, as amended. The mitigation plan is described in SEA 576.</p>

Table 10: Comparison of No Action Alternative to Proposed Action		
Resource	No Action Alternative Impacts (includes impacts in 2016 EIS and SEA 570)	Proposed Action Impacts
Wildlife Resources	<i>Direct and Indirect Impacts:</i> Construction of the 2016 WSLP EIS levee system and activities associated with SEA 570 would directly or indirectly impact approximately 9,968 acres of high quality wildlife habitat (forested wetlands). During construction any wildlife present would relocate to avoid the construction but could quickly return to any areas that have not converted to other land uses. Some aquatic wildlife ingress and egress from the protected side of the levee would be limited.	<i>Direct and Indirect Impacts:</i> Impacts associated with the proposed action would be similar to those for the no action alternative. There would be incremental increases in negative impacts associated with increases in impacts to wetland resources as described in that section of this table.
Aquatic and Fisheries Resources	<i>Direct and Indirect Impacts:</i> Construction of the 2016 WSLP EIS levee system would convert approximately 1,114 acres of existing benthos swamp habitat into upland grass covered (levee) habitat. Sessile organisms would be buried during construction and expire. Mobile species of fish, shellfish and other aquatic resources would either avoid the area during construction (fish) or be moved out of the way due to water displacement (plankton). Up to 9,968 acres of forested wetland and swamp habitats utilized by aquatic and fisheries resources would be indirectly impacted via reduced migration of organisms, and altered hydrology and water quality.	<i>Direct and Indirect Impacts:</i> Impacts associated with the proposed action would be similar to those for the no action alternative. There would be incremental increases in impacts associated with increases in negative impacts to wetland resources and water quality as described in those sections of this table. There would be positive benefits to aquatic organism ingress and egress associated with the changes in drainage structures.
Threatened, Endangered, and Protected Species	<i>Direct and Indirect Impacts:</i> Activities discussed in the 2016 WSLP EIS and SEA 570 were found to not likely to adversely affect any listed species. WSLP Project levee construction would directly or indirectly impact approximately 9,968 acres of high quality wildlife habitat (forested wetlands). This plan would destroy approximately 1,313 acres of primarily swamp habitats and BLH. However, other adjacent habitats are available for listed species.	<i>Direct and Indirect Impacts:</i> Activities associated with the proposed action were found to not likely to adversely affect any listed species. Impacts associated with the proposed action would be similar to those for the no action alternative. There would be incremental increases in impacts associated with increases in negative impacts to wetland resources and water quality as described in those sections of this table. See Appendix VI, Annex A for more details.

Table 10: Comparison of No Action Alternative to Proposed Action		
Resource	No Action Alternative Impacts (includes impacts in 2016 EIS and SEA 570)	Proposed Action Impacts
Cultural Resources	<p><i>Direct and Indirect impacts:</i> The CEMVN would implement and comply with the stipulations identified in the PA for the West Shore Lake Pontchartrain Hurricane Storm Damage Risk Reduction System as executed on May 16, 2014.</p>	<p><i>Direct and Indirect impacts:</i> Based on review of existing data and field surveys, there are no significant cultural resources located within the proposed project area. Therefore, the USACE has determined that the Proposed Action will have no direct or indirect adverse impacts on significant historic properties.</p> <p>The USACE coordinated with the SHPO and Federally-recognized Tribes with a determination of “no adverse effect to historic properties” in a letter dated 13 November 2019. The SHPO concurred with the USACE effects determination in their letter dated 6 January 2020. The Muscogee (Creek) Nation concurred with the USACE effects determination in an email dated 4 December 2019. No other Federally-recognized Indian Tribes responded.</p> <p>The USACE would implement and comply with the stipulations identified in the PA for the West Shore Lake Pontchartrain Hurricane Storm Damage Risk Reduction System as executed on May 16, 2014.</p>
Soils and Prime and Unique Farmlands	<p><i>Direct Impacts:</i> 1,008 acres of prime farmland soils associated with stockpile areas described in SEA 570 would be temporarily removed during construction.</p> <p><i>Indirect Impacts:</i> Up to approximately 9,968 acres of hydric soils could be affected due to indirect impacts associated with the 2016 WSLP EIS levee system, but these impacts are expected to be limited. See Wetlands section of this table for more information.</p>	<p><i>Direct Impacts:</i> Due to levee system alignment changes and access road changes, approximately 169 additional acres of soils would be impacted, the majority of which would be hydric soils (Cancienne and Carville, Barbary, Schreiver and Gramercy soils) in St. John the Baptist Parish. A total of approximately 60 acres of land classified as prime farmlands would be converted to nonagricultural use.</p> <p><i>Indirect Impacts:</i> Up to an approximately 5,868 acres of impacts to hydric soils would occur as a result of indirect impacts from the levee system. See Wetlands section of this table for more information.</p>

Table 10: Comparison of No Action Alternative to Proposed Action		
Resource	No Action Alternative Impacts (includes impacts in 2016 EIS and SEA 570)	Proposed Action Impacts
Aesthetic and Visual Resources	<p><i>Direct Impacts:</i> The 2016 WSLP EIS would convert a natural landscape with a wide footprint levee system and would reduce the quality of the vegetation in the vicinity. This would negatively impact aesthetics and visual resources. However, much of this would be in areas that are screened by deep forest and swamp, or are remote and have minimal access.</p> <p><i>Indirect Impacts:</i> The River Road Scenic Byway may see temporary impacts due to truck traffic and construction vehicles, but impacts would be minimal. Construction of the 2016 WSLP EIS levee system would require a structure across US-61. This could reduce the visual quality of the drive along the Byway. Indirect impacts would be approximately 8,521 acres which could change the landscape of the region due to water channel and drainage way closures or redirections.</p>	<p><i>Direct Impacts:</i> An additional 169 acres of minimal negative impacts associated with the updated levee system and access roads ROWs would be incurred to aesthetic and visual resources. These impacts would be similar in nature to those described in the 2016 WSLP EIS and SEA 570. Residential areas may see incremental increases in dust and noise levels during construction. These impacts would be temporary and conditions should return to preconstruction levels after completion of the project.</p> <p><i>Indirect Impacts:</i> An additional 5,868 acres of indirect impacts are estimated, as described in the wetlands section of this table. These indirect wetland impacts could result in negative impacts to aesthetic and visual resources. There would be no significant incremental impacts to the River Road Scenic Byway associated with the Proposed Action.</p>
Recreational Resources	<p><i>Direct Impacts:</i> There would be long-term permanent negative impacts to forested wetlands. Some of these impacts would occur on private property. Some of these impacts would occur on LDWF's MSWMA. There would be temporary negative impacts associated with reduced access to the LDWF boat launch at the Hope Canal, the public boat launch at the Reserve Relief Canal, camps, and potentially recreational businesses such as swamp tours.</p> <p><i>Indirect Impacts:</i> Indirect impacts would be approximately 8,521 acres which could reduce recreational opportunities and experiences.</p>	<p><i>Direct Impacts:</i> Similar direct negative impacts to recreational resources as described in 2016 WSLP EIS and SEA 570 would occur. There would be approximately 169 acres of additional impacts associated with levee system and access road modifications. Approximately 66 of these acres would be to forested wetlands. These impacts would have negative impacts to recreational resources, such as boating, fishing, and hunting. There could be beneficial impacts to swamp tour businesses associated with the levee system shift near the I-55 and I-10 interchange (Figure 3).</p> <p><i>Indirect Impacts:</i> An additional 5,868 acres of indirect impacts are estimated, as described in the wetlands section of this table. These indirect wetland impacts could result in negative impacts to boating, fishing, and hunting.</p>

Table 10: Comparison of No Action Alternative to Proposed Action		
Resource	No Action Alternative Impacts (includes impacts in 2016 EIS and SEA 570)	Proposed Action Impacts
Environmental Justice	<p><i>Direct and Indirect Impacts:</i> The construction of the 2016 WSLP EIS levee system may have temporary adverse minimal short term impacts (such as increased dust, noise, or traffic) to low income and minority neighborhoods residences, but these impacts would not be disproportionate. Overall, there would be benefits to EJ and non EJ communities, in the form of storm surge risk reduction</p>	<p><i>Direct and Indirect Impacts;</i> There are no direct or indirect disproportionate negative impacts to EJ communities from construction or operation of the Proposed Action.</p> <p>See Appendix VI, Annex C for more information on the EJ analysis.</p>
Air Quality	<p><i>Direct Impacts:</i> St. John the Baptist and St. Charles Parishes are currently in attainment of all NAAQS and direct impacts to ambient air quality as a result of the would be temporary, and primarily due to the emissions of construction equipment. Once all activities associated with the Proposed Action cease, air quality within the vicinity is expected to return to existing conditions. St. John the Baptist and St. Charles Parishes would remain in attainment of all NAAQS.</p> <p><i>Indirect Impacts:</i> Any indirect impacts to ambient air quality as a result of the Proposed Action are expected to be temporary, and primarily due to the emissions of surveys and borings equipment.</p>	<p><i>Direct and Indirect Impacts:</i> Impacts would be similar to the No Action Alternative with incremental increases associated with the levee system, access road, and borrow plan modifications. St. John the Baptist and St. Charles Parishes would remain in attainment of all NAAQS.</p>
Noise	<p><i>Direct Impacts:</i> There would be temporary and localized increased noise levels related to activities described in 2016 WSLP EIS and SEA 570. There would be no permanent noise impacts as a result of these activities.</p> <p><i>Indirect Impacts:</i> There would be no indirect impacts due to noise</p>	<p><i>Direct and Indirect Impacts:</i> There would be similar impacts for the proposed action as there are in the no action alternatives, with a slight incremental increase related to increased truck traffic. See Transportation section of this table for more information.</p>

Table 10: Comparison of No Action Alternative to Proposed Action		
Resource	No Action Alternative Impacts (includes impacts in 2016 EIS and SEA 570)	Proposed Action Impacts
Transportation	<p><i>Direct and Indirect Impacts:</i> There would minor temporary impacts to transportation associated with the borrow plans and construction activities as described in the 2016 WSLP EIS and SEA 570. Traffic counts suggest these impacts would be minor.</p>	<p><i>Direct Impacts:</i> Direct impacts associated with Transportation remain similar to those described in SEA 570. All five stockpile/borrow sites and the proposed levee alignment would be directly accessed via US Highway 61 (Airline Hwy.) and US Highway 51, there would be increased traffic along these routes. The total number of truck trips has been revised and is now estimated to be 754,000. Estimated truck trips in SEA 570 were 328,000. Trips would occur over a 4.5 year period, 365 days per year. This would equate to an average increase of 459 vehicles per day on to Highways 61 and 51 which have AADT counts of 20,755 and 17,734 vehicles per day, respectively. This increase in traffic is expected to have a minor impact on traffic within the area. Other features and activities associated with the Proposed Action would only have minor impacts to traffic. In addition, traffic control plans would be implemented for all construction-related transportation to minimize impacts to existing traffic patterns and would rely upon use of highways to the extent practicable. Coordination with LA Department of Transportation and Development (LADOTD) and US Federal Highway Administration (USFHWA) is ongoing to determine the best methods and features for safe intersections while minimizing environmental impacts.</p> <p><i>Indirect Impacts:</i> There would be no significant indirect impacts to transportation by implementation of the proposed action.</p>

Table 11: Wetland Impacts associated with the No Action Alternative					
2016 WSLP EIS & SEA 570 - Swamp			2016 WSLP EIS & SEA 570 - BLH		
Impact Type	Acres	AAHUs*	Impact Type	Acres	AAHUs*
Direct - Levee	1,112	-595	Direct - Levee	123	-96
Direct - Access	52	-28	Direct - Access	26	-20
Direct - Total	1,164	-623	Direct - Total	149	-116
Indirect-Total	8,432	-495	Indirect - Total	89	-3
Total	9,596	-1,118	Total	238	-119

*Negative values represent decreased wetland values. Positive values represent increases.

Table 12: Proposed action impacts to forested wetlands					
BLH Impacts			Swamp Impacts		
Project Impact	Acres*	AAHUs*	Project Impact	Acres*	AAHUs*
Direct - Levee	95	56	Direct - Levee	-25	-24
Direct - Access	-2	-2	Direct - Access	-2	-1
Direct - Total	93	54	Direct - Total	-27	-25
Indirect-Levee	4,546	121	Indirect-Levee	1,322	-141
Total	4,639	175	Total	1,295	-166

*Negative values represent decreases with respect to the 2016 WSLP EIS and SEA 570. Positive values represent increases.

4.1 Cumulative Impacts Analysis

CEQ Regulations define cumulative impacts (CI) as “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. CI can result from individually minor but collectively significant actions taking place over a period of time.”

Coastal Louisiana, including the Project Area, has been greatly impacted by natural subsidence, levees, hurricanes, and oil and gas infrastructure. Direct and indirect impacts of past, present and reasonably foreseeable future events were considered in the analysis of the Proposed Action consequences. These impacts include historical and predicted future land loss rates for the area and other restoration projects in the vicinity.

The Proposed Action includes modifications to the WSLP levee system in St. John the Baptist and St. Charles Parishes, Louisiana as described in the 2016 WSLP EIS and SEA 570. The levee system described in the 2016 WSLP EIS was authorized for construction as part of the WIIN Act (Public Law 114-322) in 2016. Construction of the WSLP Project was funded by the BBA 2018 (Public Law 115-123).

Wetland resource cumulative effects include historical degradation of forested wetlands, likely future trends of degradation within the vicinity, and other reasonably foreseeable activities negatively impacting wetland resources.

Forested wetlands in the vicinity of the proposed action and across coastal Louisiana have experienced a decline over the recent past. It is likely that this trend will continue into the future and wetland impacts as part of the proposed action would add to this trend. At least one large scale restoration project is being planned, the River Reintroduction into Maurepas Swamp Project (Appendix III), and smaller scale restoration plans are being implemented, such as Lake Pontchartrain Basin Foundation's Maurepas Landbridge Swamp Restoration Project (Hillmann et al., 2017) in the vicinity of the proposed action. However, there are no restoration projects being planned, funded, or implemented that are expected to be large enough to completely reverse the likely long-term decline of forests in the area (Shafer et al., 2016).

The CIs for the WSLP Project Levee system, including impacts from the proposed action, SEA 570, and the 2016 EIS, would have direct, permanent negative impacts to approximately 1,138 acres of swamp (-598 AAHU) and 242 acres of BLH (-169 AAHUs). As a result of altered land uses and hydrologic impacts, there would be indirect, permanent, negative impacts to approximately 9,754 acres of swamp (-354 AAHUs) and 4,635 acres of BLH (-124 AAHUs). All wetland impacts associated with the WSLP Project levee system, -952 AAHUs of impact to swamp and -293 AAHUs of impact to BLH, would be fully mitigated for in accordance with the Clean Water Act Section 404 using the plan described in SEA 576 (Table 13 and 14). See Appendix I for the detailed WSLP Project levee system WVA analysis.

Table 13: Cumulative Impacts of the WSLP Project Levee System to swamp					
Project Impact	Acres	AAHUs*	LDWF Property	Acres	AAHUs*
Direct - Levee	1,088	-571	Direct - Levee	308	-154
Direct - Access	50	-27	Direct - Access	4	-2
Direct - Total	1,138	-598	LDWF Direct - Total	312	-156
Indirect-Total	9,754	-354	LDWF Indirect - Total	1,775	-89
Total	10,892	-952	LDWF - Total	2,087	-245

*Negative values represent losses of habitat value.

Table 14: Cumulative Impacts of the WSLP Project Levee System to BLH					
Project Impact	Acres	AAHUs*	LDWF Property	Acres	AAHUs*
Direct - Levee	218	-152	Direct - Levee	98	-70
Direct - Access	24	-17	Direct - Access	3	-2
Direct - Total	242	-169	LDWF Direct - Total	101	-72
Indirect-Total	4,635	-124	LDWF Indirect - Total	512	-25
Total	4,877	-293	LDWF - Total	613	-97

*Negative values represent losses of habitat value.

Wildlife resources, fisheries, and other aquatic resources cumulative effects would mirror the trend of wetland loss. The cumulative losses of forested wetland habitats, as described above, would have a negative long-term impact on terrestrial and avian wildlife resources. Aquatic resources and fisheries resources would also experience negative long-term and cumulative effects as forested wetlands are anticipated to convert to emergent wetlands and eventually open water in the area of the Proposed Action and vicinity. However, since impacts to forested wetland habitats would be mitigated, impacts to these resources would be temporary and not anticipated in result in an overall increase in cumulative impacts to wildlife resources, fisheries,

and other aquatic resources from implementation of the Proposed Action. In addition, CEMVN determined that the WSLP Project levee system (which combines impacts associated with the proposed action, 2016 WSLP EIS, and SEA 570) is not likely to adversely affect threatened and endangered species, and MBTA and BGEPA trust species. Coordination with the USFWS on the affect to these species is ongoing.

Hydrology and water quality cumulative effects would include the incremental direct and indirect effects of the proposed action on flows and water levels in addition to other past, present, and reasonably foreseeable future actions including previous, existing and authorized levee systems in the Pontchartrain Basin, and the authorized and funded WSLP Project levee system. Impacts associated with the approximately 203 miles of Hurricane and Storm Damage Risk Reduction System levees are reported in the numerous Individual Environmental Reports (produced under NEPA Emergency Alternative Arrangements) and the "Comprehensive Environmental Document, Phase I, Greater New Orleans HSDRRS", (USACE 2013). Impacts associated with the approximately 18.27 mile WSLP levee are discussed in the 2016 WSLP EIS and SEA 570. Adjustments in the number and design of drainage structures and pump stations that are part of the proposed action could provide a slight incremental improvement in hydrology relative to the system described in the 2016 WSLP EIS. Increases in water quality impacts associated with the proposed action are likely to be minor compared to other past, present, and reasonably foreseeable projects. These incremental increases in negative impacts would be due to an increase in levee system ROW and increased direct levee impacts; however, there could be slight improvements in water quality due to the increased hydrologic connectivity relative to the system described in the 2016 WSLP EIS. Therefore, there would not be a significant cumulative change in hydrology and water quality due to impacts associated with this Proposed Action. Hydraulic analysis associated with the WSLP levee system, including the WSLP 2016 EIS, SEA 570, and the proposed action, can be found in Appendix V.

In Louisiana, recreational resources would continue to experience negative impacts from persistent coastal and wetland degradation and loss. Within the study area vicinity, potential diversion projects could provide fresh water and improve wetlands. Recreational access through canals and bayous may decrease during levee system construction, but recreational infrastructure would realize a reduction in the risk of damage from hurricane/tropical storm surge events. Cumulative impacts associated with the WSLP Project levee alignment to LDWF property wetlands are presented in Tables 13 and 14. The loss of habitat on LDWF property would occur within the Maurepas Swamp Wildlife Management Area, causing a negative impact to recreational use to a portion of this 124,567-acre WMA. However, once mitigation for these impacts are completed, no long term impacts to recreation are anticipated.

Noise, air quality, and transportation impacts associated with the Proposed Action would be temporary, minor, and during construction only. Therefore, the Proposed Action would not significantly increase cumulative effects for these resources.

There would be approximately 60 additional acres of prime farmland impacted due to the proposed action. This would not be a significant impact, as there are many acres of prime farmland in the vicinity.

Any adverse cumulative impacts to Environmental Justice communities associated with Proposed Action are not disproportionate since the minority and low income composition is similar throughout the Parish as a whole. Positive cumulative impacts to minority and/or low-income populations associated with providing risk reduction are expected to occur as a result of the lower flood risk in the area.

There would be no significant impacts to aesthetics and visual resources as a result of the incremental changes to natural vistas associated with the proposed action. There would be no significant impacts to cultural resources because of the adherence to the PA.

5 Mitigation

Direct impacts associated with the Proposed Action consist of approximately 27 less acres of negative impacts to swamp habitat (approximately 25 less AAHUs), and approximately 93 more acres of direct, negative impacts to BLH habitats (approximately 54 more AAHUs) as compared to the 2016 WSLP EIS and SEA 570. Indirect impacts associated with the Proposed Action negatively affect approximately 1,322 more acres of swamp (141 less AAHUs), and 4,546 more acres of BLH (121 more AAHUs) as compared to the 2016 WSLP EIS and SEA 570. A total of approximately 5,935 acres (9 AAHUs) would be negatively impacted by the proposed action (Table 12). These impacts, along with impacts associated with the No Action Alternative (Table 13) are presented as the cumulative impacts associated with the WSLP Project in Table 14. All of these impacts would be fully mitigated for as part of the mitigation plan described in SEA 576.

Although the 2016 WSLP EIS contained a plan for mitigating the impacts associated with the WSLP project as defined at that time, due to the proposed changes to the project, that plan is no longer able to fully mitigate the impacts associated with the redefined project. Additionally, significant portions of that plan are currently un-implementable due to defined management strategies for the Bonnet Carré Spillway that cannot accommodate mitigation and due to the need for real estate instruments that are currently unsupported. As such, the mitigation plan for the WSLP project has undergone reformulation and the new approved plan can be found in SEA 576. This plan mitigates all WSLP habitat impacts, in kind, and prioritizes mitigation in the basin affected by each of the BBA 18 construction projects (WSLP, Comite, and East Baton Rouge). This plan includes Corps Constructed projects as well as the purchase of mitigation bank credits, in basin and out of basin (Table 15). Only once all mitigation options within the affected basins have been utilized to the extent practicable would mitigation options outside of the affected basins be implemented. Impacts that occur within the Louisiana (LA) Coastal Zone (CZ) would be mitigated with projects in the LA CZ. Please see SEA 576 for more details on the mitigation plan at <https://www.mvn.usace.army.mil/About/Projects/BBA-2018/Mitigation/>.

	Projects	Habitat	AAHUs	Acres
BLH-Wet in CZ (WSLP)	Mitigation Bank (LPB)	BLH-wet	TBD	TBD
	Saint John (LPB)	BLH-wet	42	94.7
	Mitigation Bank (OB)	BLH-wet	TBD	TBD
	Albania South (OB)	BLH-wet	up to 96	up to 192.1
	Albania North (OB)	BLH-wet	Max of 343	Max of 657
Swamp in CZ (WSLP)	Mitigation Bank (LPB)	Swamp	TBD	TBD
	Pine Island (LPB)	Swamp	775	1,965.0
	Joyce (LPB)	Swamp	195	1,126.1

	Mitigation Bank (OB)	Swamp	TBD	TBD
	Albania South (OB)	Swamp	up to 76	up to 192.1
	Albania North (OB)	Swamp	up to 380	up to 964.8
	Cote Blanche (OB)	Swamp	up to 182	up to 446

LPB – In Lake Pontchartrain Basin. OB – Outside of Basin.

6 Monitoring and Adaptive Management

Hydrologic modifications, such as gapping along existing spoil banks, are being considered and coordinated with the resource agencies. These hydrologic modifications would be implemented if they are deemed necessary to maintain existing water conditions and/or if they would reduce and/or minimize indirect impacts associated with the Proposed Action. Any modifications would occur within the indirectly impacts areas, as defined in the WVA (Appendix I). Monitoring stations for hydrology and/or vegetation would be designed to assess the effectiveness of hydrologic modifications, if constructed. Construction of any hydrologic modifications would have net benefits to wetlands.

Hydrologic monitoring of the Proposed Action is being considered. This would include the installation of equipment that would continuously (e.g., at an hourly interval) record water quality parameters such as salinity, temperature, and water surface elevation. Construction of any monitoring equipment would be limited in area (up to approximately 100 square feet), and would not have significant impacts to the human or natural environment. The exact location of these stations is being coordinated with USFWS and LDWF.

A supplemental NEPA document fully describing the impacts from implementing the monitoring and adaptive management plan would be completed, if necessary.

7 Coordination and Public Involvement

A Public Notice announcing public review for SEA 571 would be published in the Baton Rouge and New Orleans Advocate for 30 days beginning April 17, 2020 and ending May 17, 2020. All comments received during the public review period and responses to these comments would be located in an appendix in the final document.

Preparation of this SEA and FONSI was coordinated with appropriate Congressional, Federal, Tribal, state, and local interests, as well as environmental groups and other interested parties. The following agencies, as well as other interested parties, received copies of the draft EA and draft FONSI:

- U.S. Department of the Interior, Fish and Wildlife 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
- U.S. Coast Guard Sector New Orleans
- U.S. Coast Guard Marine Safety Unit Baton Rouge
- Maritime Navigation Safety Association
- The Associated Branch (Bar) Pilots

U.S. Army Corps of Engineers, Regional Planning and Environment South Division
DRAFT SEA #571 WSLP

Crescent River Port Pilots Association
New Orleans Baton Rouge Steamship Pilot Association
Associated Federal Pilots
Big River Coalition
Lower Mississippi River Committee (LOMRC)
Coastal Protection and Restoration Authority Board of Louisiana
Advisory Council on Historic Preservation
Governor's Executive Assistant for Coastal Activities
Louisiana Department of Wildlife and Fisheries
Louisiana Department of Natural Resources, Coastal Management Division
Louisiana Department of Natural Resources, Coastal Restoration Division
Louisiana Department of Environmental Quality
Louisiana State Historic Preservation Officer
Plaquemines Parish Government
Alabama-Coushatta Tribe of Texas
Caddo Nation of Oklahoma
Chitimacha Tribe of Louisiana
Choctaw Nation of Oklahoma
Coushatta Tribe of Louisiana
Mississippi Band of Choctaw Indians
MCN – Muscogee (Creek) Nation
Jena Band of Choctaw Indians
Seminole Tribe of Florida
Seminole Nation of Oklahoma
Tunica-Biloxi Tribe of Louisiana

Preliminary draft recommendations under the Fish and Wildlife Coordination Act for the EA were provided by the USFWS on March 10, 2020 (Appendix VII, Annex A). A Final CAR will be received and included in Appendix VII prior to signing of the FONSI. The USFWS project-specific recommendations for the EA proposed action and CEMVN's responses to the USFWS recommendations are as follows:

1. Any impacts occurring on LDWF owned and managed property should only be mitigated on LDWF owned and managed property. In this case, impacts occurring on Maurepas Swamp WMA should be mitigated on the WMA. As required by the conveyance documents, tracts of land located on the WMA are restricted in use and should be preserved in their natural state. Any action which damages or diminishes the property's natural state should be subject to enhancement, restoration, or replacement in kind and contiguous with the WMA. Adequate and appropriate mitigation should be planned with and approved by LDWF.

Response 1 – Acknowledged. Compensatory mitigation for impacts on LDWF property would occur on LDWF property to the extent practicable. The mitigation plan for the Proposed Action, which is included in SEA 576, includes projects within the LDWF's WMA system. CEMVN will consider LDWF's recommendations as well as land purchases to mitigate impacts on LDWF's property. CEMVN would like to receive information on adjacent properties that LDWF would be interested in receiving to address impacts to their property from the WSLP project.

2. Full, in-kind compensation (quantified as Average Annual Habitat Units) is recommended for 1379 acres (-767 AAHUs) of unavoidable direct (levee and access road footprints) construction adverse impacts and 14,390 acres (-478 AAHUs) of indirect

(enclosed and exterior wetlands) habitat value losses on forested wetlands associated with levee construction. To help ensure that the proposed mitigation features meet their goals, the Service provides the following recommendations.

- a. If applicable, a General Plan should be developed by USACE, LDWF, and the Service in accordance with Section 3(b) of the Fish and Wildlife Coordination Act for mitigation lands.
- b. The proposed BBA-18 Mitigation proposal, Joyce WMA Swamp Enhancement project is located on LDWF's Joyce WMA. This proposed mitigation project has been planned without prior consultation with appropriate LDWF staff. LDWF, the Service and other interested resource agencies need to be consulted in order for staff to determine whether or not the project is acceptable.
- c. Mitigation measures should be constructed concurrently with the flood damage reduction features that they are mitigating (i.e., mitigation construction should be initiated no later than 18 months after levee construction has begun).
- d. If mitigation is not implemented concurrent with levee construction, the amount of mitigation needed should be reassessed and adjusted to offset temporal losses.
- e. USACE should remain responsible for the required mitigation until the mitigation is demonstrated to be fully compliant with interim success and performance criteria. At a minimum, this should include compliance with the requisite vegetation, elevation, acreage, and dike gapping criteria.
- f. The acreage restored and/or managed for mitigation purposes, and adjacent affected wetlands, should be monitored over the project life. This monitoring should be used to evaluate mitigation project impacts, the effectiveness of the compensatory mitigation measures, and the need for additional mitigation should those measures prove insufficient.

Response 2 – Acknowledged. Please see SEA 576, which includes the plan to mitigate all impacts incurred by the BBA 18 construction projects, including impacts incurred to LDWF lands by the WSLP project. Specifically, the Joyce project, which is an example of the type of project that could be constructed on LDWF WMA land. Coordination on this project is ongoing with LDWF and likely to be acceptable depending on its final location. Mitigation is planned to be implemented concurrently (within 18 months) with construction of the proposed action and coordination with the resource agencies would continue during construction of both the proposed action and its mitigation project. If the mitigation not implemented within this time frame, impacts may be reassessed and adjusted to account for temporal lag. Coordination with USFWS would occur to determine if this reassessment and adjustment is necessary. USACE would remain responsible for compensatory mitigation projects until initial success criteria are met. These criteria include vegetation, elevation, acreage, and dike gapping/degrading criteria. Mitigation projects would be monitored for the entire period of analysis, which is 50 years.

3. The levee alignment could potentially have impacts to the Maurepas Swamp Diversion project (Maurepas diversion). The WSLP project impacts may potentially be mitigated for by the Maurepas Diversion project. The Service recommends close coordinate with the planning objectives and planning team of the restoration project and that any potential impacts to the Maurepas diversion project be addressed. In addition, the Service recommends close coordination with the Service and LDWF if the use of the Maurepas diversion for mitigation for the WSLP project impacts is undertaken.

Response 3 – Discussions on accommodating the potential River Reintroduction into Maurepas Swamp project during the construction of the WSLP levee system are ongoing with the NFS.

Modifications to the alignment of the WSLP levee system may be made to accommodate the potential alignment of this diversion project to the extent practicable. Discussions on the use of the River Reintroduction into Maurepas Swamp project as mitigation are ongoing between the USACE and the resource agencies and would continue if the project is found to be a viable mitigation option.

4. If USACE declares the enclosed wetlands will be used as a flood storage area, the Service recommends that USACE and the nonfederal sponsor be responsible for preservation and maintaining the enclosed wetlands as the flood storage area within the levee system.

Response 4 – The USACE is not declaring that the enclosed wetlands would be used for flood storage. Wetlands on the interior of the levee system alignment would not be enclosed (i.e., closed drainage structure and under pump) except during the threat of a tropical storm. Existing connection to exterior wetlands would be maintained to the maximum extent practicable and conversion of existing wetlands to uplands is not anticipated. As such, development of existing wetlands would be regulated through the Clean Water Act Section 404 permitting process.

5. Due to concerns that the construction of the levee may alter natural periods of inundation or soil saturation in the impounded and exterior wetlands and could prove detrimental to their function and longevity (e.g., maintain existing water exchange in regard to water depth, delays in water movement, water stacking, and impacts to water quality), the Service recommended additional investigations prior to authorization. USACE responded that the determination of number and locations of hydrologic gauges will be developed during PED phase and is part of the overall O&M cost. To date this has not been completed during the PED phase. Therefore the Service again makes the following recommendations:
 - a. USACE undertake, as necessary, hydrologic adaptations, such as gapping, both in the interior and exterior swamp to allow for adequate water exchange;
 - b. USACE undertake, as necessary, the installation of additional culverts and/or water control structures in the levee to ensure adequate water exchange while maintaining that all structures should be closed only in advance of tropical storms;
 - c. That USACE maintains that all structures should be closed only in advance of named tropical storms.
 - d. That hydrologic gauges be placed and maintained in appropriate locations to assist in determining future impacts to enclosed and exterior forested wetlands. These gauges could be supported or cost-shared through existing activities such as through the US Geological Survey (USGS) or CRMS.
 - e. Additionally, the Service recommends a biomass study be conducted to help determine impacts to the forested wetlands.

If USACE has decided to not undertake the above recommendations the Service would like to meet and discuss a future course of action to ensure adequate mitigation for those impacts.

Response 5 – CEMVN is continuing to consider the ability of hydrologic adaptations, such as gapping in the forested areas on the interior and exterior of the proposed levee alignment, to reduce and minimize project impacts. Hydrologic modeling and the WVA assessment for the proposed action did not assume any hydrologic adaptations, such as gapping would be conducted. However, deployment of a network of hydraulic gages is being considered to

determine whether, when, and where gapping may be necessary. The gapping plan would be further developed as part of the monitoring and adaptive management plan for the WSLP Project. Coordination with USFWS would continue as these plans are further developed. CEMVN has increased the number of drainage structure locations from six in the 2016 WSLP EIS to up to ten in the Proposed Action in order to maintain existing hydrologic conditions to the maximum extent practicable. Additionally, culverts and bridges have been added to access road design to maintain interior water exchange within the protected side of the levees. Closure of the drainage structures and pumps is only authorized to occur in advance of tropical storms and for regular maintenance and inspections. The mitigation plan for all currently identified impacts from construction of the WSLP can be found in SEA 576.

6. The WSLP levee crosses four separate tracts of Maurepas Swamp WMA (i.e., Mellon, MC Davis, Rogers 1, Rogers 2). Each individual Act of Sale or Act of Donation requires property alienated by WSLP levee construction to be exchanged for other property of equal or greater wetland ecological function and value.

Response 6 – Acknowledged, CEMVN will continue to coordinate with LDWF and the NFS regarding alienation of MSWMA property as a result of the WSLP Project. CEMVN will consider LDWF's recommendations on mitigation projects as well as land purchases to mitigate impacts on LDWF's property.

7. Operational plans for floodgates and water control structures should be developed to maximize the open cross-sectional area for as long as possible. Water control structure operation manuals or plans should be developed in coordination with the Service and other natural resource agencies.

Response 7 – Closure of the drainage structures and pumps is only authorized to occur in advance of tropical storms and for regular maintenance and inspections. Closures are estimated to be necessary approximately 8.5 days per year on average. Otherwise, drainage structures would remain open and pumping stations would not be operated. This would continue for the entire project life, regardless of sea level rise or non-tropical storm related high water events. This would also maintain, to the extent possible, existing hydrologic conditions within the wetlands on the protected side of the levee system. Coordination with USFWS and other agencies will continue during completion of the project's Operations, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R) plans.

8. To aid in water quality improvements, any pumping stations associated with the project should not discharge directly into canals or other open water bodies, but rather into wetland systems that can assimilate nutrients being discharged.

Response 8 – Pump stations are located adjacent to and would discharge into exterior canals in an effort to maintain the existing water flow and nutrient exchange.

9. The trigger for structure closures would be tropical storm events. Therefore, the project would not close the system more often due to higher day-to-day sea level rise impacts. If the sponsor/operator sees a higher level of sea level rise and starts to see increased soil saturation/flooding in developed areas, they may want to change the operations to close the structures at high tides. A change in operations would be considered a separate project purpose and authorization and would require a new NEPA documentation and/or a permit approval for this operation change. It is unknown at present how water levels within the system would be managed if a change in operation

due to RSLR is realized. Hence, there is a potential for substantial additional indirect impacts to swamp and fish and wildlife resources to occur. If the system is closed more often due to higher RSLR impacts, the Service recommends additional impacts be evaluated and mitigated.

Response 9 – Concur. Drainage structures and pump stations are only authorized to operate during threat of tropical storms and for routine maintenance and inspections. A change in operations would be considered a change in project authorization, and would require new NEPA documentation. Impacts should be re-evaluated if this occurs and mitigation could be required.

10. If it becomes necessary to use borrow sources other than the previously proposed environmentally cleared sites, the Service recommends USACE begin investigating potential borrow sources in coordination with the Service. Borrow sites to be considered should have minimal impacts to fish and wildlife resources. The Service provided a list of such sites via a September 9, 2008, letter and identified a priority selection process for borrow sites in our August 7, 2006, letter to USACE regarding the Greater New Orleans Hurricane and Storm Damage Risk Reduction project (Appendix A). That prioritization process should be utilized if additional borrow sites are needed (please contact Cathy Breau (504)862-2689 or David Walther (337)291-3122 for more information).

Response 10 – Acknowledged. If additional borrow or changes in the borrow plan for WSLP become necessary, CEMVN would coordinate such changes with USFWS. Impacts to fish and wildlife resources would be avoided and minimized to the maximum extent practicable before mitigation would be pursued.

11. The Service recommends that enough money be set aside for adaptive management to address potential impacts of the enclosed and exterior wetlands. The Service, LDWF, and other natural resource agencies should be consulted in the development of plans and specifications for all mitigation features and any monitoring and/or adaptive management plans. In addition, the Service recommends the Monitoring and Adaptive Management Plan, as it is further developed, be provided to the Service and LDWF for review, comment, and input.

Response 11 - Deployment of a network of hydraulic gages is being considered to determine whether adaptive management features would be necessary. This would include the installation of equipment that would continuously (e.g., at an hourly interval) record water quality parameters such as salinity, temperature, and water surface elevation. Currently, the need for adaptive management has not been identified and specific funds are not being set aside for adaptive management. USACE would implement appropriate adaptive management subject to cost sharing requirements, availability of funding, and budgetary and other guidance, if found necessary. Coordination on mitigation and adaptive management plans is ongoing with USFWS and LDWF.

12. In order to avoid adverse impacts to bald eagles and their nesting activities the Service and LDWF recommend that a qualified biologist continue to inspect the construction site for the presence of new or undocumented bald eagle nest within 1,500 feet of the levee construction area.

Response 12 – Concur. No active, inactive, or alternate bald eagle nests have been observed during any survey to date. A qualified biologist would continue to monitor the area for active,

inactive, and alternate bald eagle nests and colonial waterbird nesting activity within the vicinity of the Proposed Action. All eagle monitoring events would be coordinated with USFWS. In order to avoid adverse impacts to nesting wading bird colonies a qualified biologist would inspect the construction site for the presence of undocumented nesting colonies during the nesting season (i.e., September 1 through February 15 for wading bird nesting colonies and October through mid-May for bald eagles).

13. In order to avoid adverse impacts to nesting wading bird colonies the Service and LDWF recommend that a qualified biologist continue to inspect the construction site for the presence of undocumented nesting colonies during the nesting season (i.e., September 1 through February 15 for wading bird nesting colonies and October through mid-May for bald eagles).

Response 13 – Concur. No nesting wading bird colonies or wading birds exhibiting pre-nesting behaviors have been observed during any survey to date. A qualified biologist would continue to monitor the project area for the presence of undocumented nesting colonies. Bird abatement procedures would be implemented to prevent wading birds (i.e., herons, egrets, night-herons, ibis, and roseate spoonbills), anhingas, and/or cormorants from nesting during their nesting period. In the event that implementation of the bird abatement plan is not successful and nesting does occur, all activity occurring within the distance provided by USFWS would be suspended and further coordination with USFWS would occur.

14. West Indian manatees occasionally enter Lakes Pontchartrain and Maurepas, and associated coastal waters and streams during the summer months (i.e., June through September). During in-water work in areas that potentially support manatees all personnel associated with the project should be instructed about the potential presence of manatees, manatee speed zones, and the need to avoid collisions with and injury to manatees. All personnel should be advised that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973. Additionally, personnel should be instructed not to attempt to feed or otherwise interact with the animal, although passively taking pictures or video would be acceptable. For more detail on avoiding contact with manatee contact this office. Should a proposed action directly or indirectly affect the West Indian manatee, further consultation with this office will be necessary.

Response 14 - Concur. All personnel associated with project in-water work areas will be instructed about the potential presence of manatees; to obey speed zones; and to avoid collisions with manatees; and be advised that there are civil and criminal penalties for harming, harassing, or killing manatees. Personnel will also be instructed not to attempt to feed or otherwise interact with the manatee. The USACE will consult with the USFWS should a Proposed Action potentially directly or indirectly affect the West Indian manatee.

15. Construction of the WSLP levee will occur partly within the boundaries of Maurepas Swamp Wildlife Management Area. Please continue coordinate all activities within the WMA with LDWF. Please contact Cornelius Williams at 225-763-8807 or cjwilliams@wlf.la.gov for more information about appropriate WMA authorizations.

Response 15 – Concur. Coordination with LDWF regarding impacts to the Maurepas Swamp WMA is ongoing. Appropriate authorizations and permissions would be attained prior to work

within the boundaries of Maurepas Swamp WMA. Coordination with Mr. Williams will continue for the Proposed Action and other WSLP Project activities.

16. The Service recommends that the USACE contact the Service for additional consultation if: 1) the scope or location of the proposed project is changed significantly, 2) new information reveals that the action may affect listed species or designated critical habitat; 3) the action is modified in a manner that causes effects to listed species or designated critical habitat; or 4) a new species is listed or critical habitat designated. Additional consultation as a result of any of the above conditions or for changes not covered in this consultation should occur before changes are made and finalized.

Response 16 – Concur. The USACE will continue to coordinate with USFWS during construction of the project and will keep the USFWS apprised of any changes to the project that may affect listed species or designated critical habitat before such impacts occur.

There are many Federal and state laws pertaining to the enhancement, management and protection of the environment. Federal projects must comply with a variety of environmental laws, regulations, policies, rules, and guidance. Compliance with applicable laws will be accomplished before or concurrent with 30-day public and agency review of this SEA 571 and prior to execution of the associated proposed Finding of No Significant Impact.

8 Compliance with Environmental Laws and Regulations

There are many Federal and state laws pertaining to the enhancement, management and protection of the environment. Federal projects must comply with a variety of environmental laws, regulations, policies, rules, and guidance. Compliance with applicable laws will be accomplished before or concurrent with 30-day public and agency review of this SEA 571 and prior to execution of the associated proposed Finding of No Significant Impact.

8.1 Clean Air Act of 1972

The Clean Air Act (CAA) sets goals and standards for the quality and purity of air. It requires the Environmental Protection Agency to set NAAQS for pollutants considered harmful to public health and the environment. The Project Area is in St. John the Baptist and St. Charles Parishes, which are currently in attainment of NAAQS. A general conformity determination is not required.

8.2 Clean Water Act of 1972 – Section 401 and Section 404

The CWA sets and maintains goals and standards for water quality and purity. Section 401 requires a Water Quality Certification (WQC) from the LDEQ that a proposed project does not violate established effluent limitations and water quality standards. Coordination with LDEQ regarding Section 401 compliance is ongoing (Appendix VII, Annex B).

As required by Section 404(b)(1) of the CWA, an evaluation to assess the short- and long-term impacts associated with the discharge of dredged and fill materials into waters of the United States resulting from this Project has been completed. The Draft Section 404(b) (1) evaluation public notice was mailed out for public review comment period beginning DATE xyz and ending DATE xyz (Appendix VII, Annex B).

8.3 Coastal Zone Management Act of 1972

The Coastal Zone Management Act (CZMA) requires that "each federal agency conducting or supporting activities directly affecting the coastal zone shall conduct or support those activities in a manner which is, to the maximum extent practicable, consistent with approved state management programs." In accordance with Section 307, a Consistency Determination was prepared for the proposed project and submitted on DATE xyz to Louisiana Department of Natural Resources (LDNR) for the Proposed Action (Appendix VII, Annex D). Coordination with LDNR is ongoing and the FONSI will not be signed until Consistency is received.

8.4 Endangered Species Act of 1973

The Endangered Species Act (ESA) is designed to protect and recover Threatened and Endangered (T&E) species of fish, wildlife, and plants. The USFWS identified two T&E species, the gulf sturgeon, and the West Indian manatee, which are known to occur or believed to occur within the vicinity of the Proposed Action. On March, 25 2020, USFWS reviewed this project for effects to Federal trust resources under their jurisdiction and currently protected by the Endangered Species Act of 1973, concurring that the project, as proposed, is not likely to adversely affect these resources (Appendix VII, Annex E).

8.5 Fish and Wildlife Coordination Act of 1934

The Fish and Wildlife Coordination Act (FWCA) provides authority for the USFWS involvement in evaluating impacts to fish and wildlife from proposed water resource development projects. The FWCA requires that fish and wildlife resources receive equal consideration to other project features. The FWCA also requires federal agencies that construct, license or permit water resource development projects to first consult with the USFWS, NMFS and state resource agencies regarding the impacts on fish and wildlife resources and measures to mitigate these impacts. Section 2(b) requires the USFWS to produce a coordination act report (CAR) that details existing fish and wildlife resources in a Project Area, potential impacts due to a proposed project and recommendations for a project. The USFWS reviewed the proposed action and provided a draft CAR with project specific recommendations on March 12, 2020 (Appendix VII, Annex A). The FONSI will not be signed until receipt of a Final CAR.

8.6 Hazardous, Toxic, and Radioactive Waste

The discharge of dredged material into waters of the United States is regulated under the Clean Water Act (CWA). In the absence of a known Hazardous, Toxic, and Radioactive Waste (HTRW) concern, the Proposed Action would not qualify for an HTRW investigation. Engineer Regulation (ER) 1165-2-132 provides that in the Planning, Engineering and Design (PED) Phase that, for proposed project in which the potential for HTRW problems has not been considered, an HTRW initial assessment, as appropriate for a reconnaissance study, should be conducted as a first priority. If the initial assessment indicates the potential for HTRW, testing as warranted and analysis similar to a feasibility study should be conducted prior to proceeding with the project design. The NFS will be responsible for planning and accomplishing any HTRW response measures, and will not receive credit for the costs incurred.

An ASTM E 1527-05 Phase 1 Environmental Site Assessment (ESA), HTRW 18-05 dated December 19, 2019 and addendum on March 14, 2019 has been completed and a copy is being maintained on file at CEMVN. Project associated work has been ongoing since May 2019. The probability of encountering HTRW for the Proposed Action is low based on the initial site assessment. If a recognized environmental condition is identified in relation to the Project Area, CEMVN would take the necessary measures to avoid the recognized environmental condition so that the probability of encountering or disturbing HTRW would continue to be low.

8.7 Magnuson-Stevens Fisheries Conservation and Management Act

These laws govern marine fisheries management in the U.S. Essential Fish Habitat (EFH) does not intersect the proposed alignment or the enclosed area in the near term. The USACE has determined that the Recommended Plan would have no impacts to EFH. In a letter dated October 1, 2013, the National Marine Fisheries Service stated the WSLP Project, as described in the 2016 WSLP Draft EIS, would not adversely impact EFH and that an EFH assessment is unnecessary (Appendix VII, Annex F).

8.8 Migratory Bird Treaty Act

The bald eagle was removed from the List of Endangered and Threatened Species in August 2007 but continues to be protected under the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA). Colonial nesting wading bird, neotropical migratory birds, and other birds are protected under the MBTA (50 CFR 10.13). During nesting season, construction and other related activities must take place outside of USFWS/LDWF buffer zones. A USACE Biologist and USFWS Biologist have surveyed for nesting birds prior to associated work described in SEA 570 that is ongoing. In addition, CEMVN recommends that on-site contract personnel be trained to identify colonial nesting birds and their nests and avoid affecting them during the breeding season. Coordination with the USFWS pursuant to the BGEPA and MBTA has been initiated and is ongoing. Surveys for bald eagle nests and colonial nesting waterbird nests would continue. BMPs, included the development of a NPP, would be used. Coordination with the USFWS and the LDWF is ongoing for MBTA and BGEPA trust species.

8.9 National Historic Preservation Act and Tribal Consultation

In compliance with Section 106 of the act and 36 CFR Part 800, Federal agencies must take into account the effects of their actions on historic properties and afford the ACHP) a reasonable opportunity to comment on such undertakings. Historic properties include any prehistoric or historic district, site, building, structure, or object that is included in, or eligible for inclusion in, the National Register of Historic Places. A Federal agency shall consult with any federally recognized Indian Tribe that attaches religious and cultural significance to such properties. Agencies shall afford the State Historic Preservation Officer (SHPO) and Indian tribes a reasonable opportunity to comment before decisions are made. Section 106 consultation was initiated for the WSLP project with the SHPO and Indian tribes on May 3, 2013. USACE has determined that the effects on historic properties cannot be fully determined before plan approval, and pursuant to 36 CFR 800.14(b) CEMVN has elected to fulfill its obligations under Section 106 of the National Historic Preservation Act of 1966, as amended, through the execution and implementation of a Programmatic Agreement (PA). In accordance with the stipulations of the PA, the proposed action as described in SEA #570 will be coordinated with the SHPO and identified federally recognized Indian Tribes and any necessary cultural resources surveys will be conducted prior to implementation of the proposed action. A copy of the executed PA for consultation, identification of historic properties, assessment and resolution of adverse effects is included in Appendix VII, Annex G.

8.10 Executive Order 11988

Executive Order 11988 (EO 11988) requires Federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of flood plains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. FEMA Region VI requested the Proposed Action be in compliance with EO 11988, and requested coordination with the community floodplain administrators for St. John the Baptist and St. Charles Parishes via letter dated April 5, 2019 during the public review period for Draft SEA 570. CEMVN contacted the floodplain administrators for both parishes.

The administrator for St. John the Baptist Parish responded with concerns about potential flood impacts from the stockpile/staging areas and access roads proposed to be located either partially or entirely within Special Flood Hazard Areas (SFHAs). CEMVN considered these concerns and concluded that no significant long or short-term adverse impacts to SFHAs would be incurred from implementation of the Proposed Action. If any impacts to the SFHAs or the floodplain occur, they are expected to be negligible to minor and would be only temporary. CEMVN has provided this determination in letter on DATE xyz and will continue coordination with both floodplain administrators (Appendix VII, Annex H). The Proposed Action would, in part, support the construction of the WSLP levee alignment in St. John the Baptist and St. Charles Parishes. The eight-step EO 11988-Floodplain Management evaluation process and a determination of compliance with EO 11988 is documented in the 2016 WSLP EIS, which is incorporated here by reference.

8.11 Executive Order 11990

Executive Order 11990 (EO 11990) directs Federal agencies to avoid to the extent possible, long and short term adverse impacts associated with the destruction or modification of wetlands, and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. FEMA Region VI requested the Proposed Action be in compliance with EO 11990, and requested coordination with the community floodplain administrators for St. John the Baptist and St. Charles Parishes via letter dated April 5, 2019 during the public review period for Draft SEA 570. The mitigation plan described in SEA 576 was developed to fully mitigate for unavoidable impacts associated with the Proposed Action. CEMVN contacted both community floodplain administrators coordinating this determination via letter dated April 26, 2019 (Appendix VII, Annex I).

9 Conclusion

The Proposed Action would consist of modifications to the levee system described in the 2016 WSLP EIS necessary to aid in the constructability, improve the engineering, decrease the utility relocations, increase safety at interstate crossings, and accommodate construction of the CPRA's River Reintroduction into Maurepas Swamp Project. Direct impacts associated with the Proposed Action consist of approximately 27 less acres of direct, negative impacts to swamp habitat (approximately 24 less AAHUs), and approximately 93 more acres of direct, negative impacts to BLH habitats (approximately more 54 AAHUs) as compared to the 2016 WSLP EIS and SEA 570. Indirect impacts associated with the Proposed Action negatively affect approximately 1,322 more acres of swamp (141 less AAHUs), and 4,546 more acres of BLH (121 more AAHUs) as compared to the 2016 WSLP EIS and SEA 570.

Direct and indirect negative impacts to wildlife, aquatic, and fisheries resources, including ESA, BGEPA, and MBTA trust species would be a result of the negative impacts to forested habitat, alterations in hydrology, and negative impacts to water quality. The incremental loss to these resources, compared to those described 2016 WSLP EIS and SEA 570, would be minor. The loss of habitat on LDWF property would occur within the Maurepas Swamp Wildlife Management Area, causing a negative impact to recreational use to a portion of this 124,567-acre WMA. However, since habitat impacts would be mitigated to the extent practicable on LDWF property, impacts to these resources would be temporary.

There would be impacts to soils and prime and unique farmlands associated with the use of stockpiling/borrow areas. No wetlands would be impacted from use of the borrow areas. No significant increases in traffic are expected from transportation of material from borrow locations to stockpiling areas or to the levee system ROW. There could be some minor impacts to EJ communities associated with transportation, but these are expected to not be disproportionate.

If CEMVN concludes from data obtained from installed water quality monitors, that additional compensatory mitigation is required for the project, implementation of adaptive management features to avoid impacts or mitigation for these impacts would be addressed in subsequent NEPA documentation.

This office has assessed the environmental impacts of the Proposed Action and has determined that the Proposed Action, with implementation of the mitigation plan found in SEA 576, would have no significant adverse impact on the human and natural environment.

10 Prepared By

SEA 571 and the associated FONSI were prepared by Patrick Smith, PhD, Biologist. Table 12 lists the preparers of relevant sections of this report and the project managers. Dr. Smith can be reached at U.S. Army Corps of Engineers, New Orleans District; Regional Planning and Environment Division South, PDS-C; 7400 Leake Avenue; New Orleans, Louisiana 70118.

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