DRAFT Programmatic Environmental Assessment

Jefferson Davis Electric Cooperative, Inc. Hurricane Laura Repair, Replacement, and Restoration Program

FEMA-4559-DR-LA

Cameron and Calcasieu Parishes, Louisiana

July 2022

FEMA

U.S. Department of Homeland Security
Federal Emergency Management Agency,
Region VI
Louisiana Integration and Recovery Office
1500 Main Street
Baton Rouge, LA 70802

Table of Contents

LIST OF FIGURES

LIST OF TABLES

APPENDIX

LIST OF ACRONYMS

AADT	Annual Average Daily Traffic
ACP	Abbreviated Consultation Process
APE	Area of Potential Effect
ASCE	American Society of Civil Engineers
BA	Biological Assessment
BCE	Before the Common Era
BFE	Base Flood Elevation
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practices
CAA	Clean Air Act
CATEX	Categorical Exclusions
CBRA	Coastal Barrier Resources Act
CBRS	Coastal Barrier Resources System
CCP	Comprehensive Conservation Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CHHA	Coastal High Hazard Area
CPRA	Louisiana Coastal Protection and Restoration Authority
CRMS	Coastwide Reference Monitoring System
CSC	Calcasieu Ship Channel
CSVIs	Community Social Vulnerability Indicators
CUP	Coastal Use Permit
CWA	Clean Water Act
CWPPRA	Coastal Wetlands Planning, Protection, and Restoration Act
CZMA	Coastal Zone Management Act
dBA	Decibels
DNL	Day-Night Average Sound Level
EA	Environmental Assessment
EFH	Essential fish habitat
EIS	Environmental Impact Statement

EO	Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Maps
FMP	Fisheries Management Plan
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FWCA	Fish and Wildlife Coordination Act
GHG	Greenhouse Gases
GIWW	Gulf Intracoastal Waterway
GMFMC	Gulf of Mexico Fishery Management Council
GOHSEP	Governor's Office of Homeland Security and Emergency Preparedness
GPS	Global positioning system
HABS	Historic American Buildings Survey
HAER	Historic American Engineering Record
HDD	Horizontal Directional Drilling
HDPE	High Density Polyethylene
HFCs	Hydrofluorocarbons
HMGP	Hazard Mitigation Grant Program
IPaC	Information for Planning and Consultation
JDEC	Jefferson Davis Electric Cooperative, Inc.
kcmil	Thousands of Circular Mils
kV	Kilovolt
LaDOTD	Louisiana Department of Transportation and Development
LAOCD DOA	Louisiana Office of Cultural Development Division of Archaeology
LCRP	Louisiana Coastal Resources Program
LDEQ	Louisiana Department of Environmental Quality
LDNR	Louisiana Department of Natural Resources
LDWF	Louisiana Department of Wildlife and Fisheries
LiMWA	Limit of Moderate Wave Action
LNG	Liquified Natural Gas

LNHP	Louisiana Natural Heritage Program
LPDES	Louisiana Pollutant Discharge Elimination System
MBTA	Migratory Bird Treaty Act of 1918
mgd	Million Gallons/Day
MLG	Mean Low Gulf
MOA	Memorandum of Agreement
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSDS	Material Safety Data Sheets
MUTCD	Manual on Uniform Traffic Control Devices
NAAQS	National Ambient Air Quality Standards
NBEM	National Bald Eagle Management
NEPA	National Environmental Policy Act
NESHAPs	National Emissions Standards for Hazardous Air Pollutants
NFIP	National Flood Insurance Program
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
NWR	National Wildlife Refuge
OCM	Office of Coastal Management
OSHA	Occupational Safety and Health Administration
PA	Public Assistance
PCB	Polychlorinated Biphenyl
PEA	Programmatic Environmental Assessment
PFCs	Perfluorinated Compounds
PL	Public Law
PM	Particulate Matter
RCRA	Resource Conservation and Recovery Act
REC	Record of Environmental Consideration

RHA	Rivers and Harbors Act
ROW	Right-of-Way
SDWA	Safe Drinking Water Act
SEA	Supplemental Environmental Assessment
SFHA	Special Flood Hazard Area
SHPO	State Historic Preservation Office
SPERP	Spill Prevention and Emergency Response Plan
SOV	Solicitation of Views
SSA	Sole Source Aquifer
Stafford Act	Robert T. Stafford Disaster Relief and Emergency Assistance Act
SWPPP	Stormwater Pollution Prevention Plan
THPO	Tribal Historic Preservation Officer
TMDL	Total Maximum Daily Load
TSCA	Toxic Substances Control Act
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VOCs	Volatile Organic Compounds

1 INTRODUCTION

Hurricane Laura made landfall near Cameron, Louisiana, around 1:00 a.m. Central Standard Time on August 27, 2020. The storm came ashore causing significant damage to the electric transmission and distribution system serving southeast Texas and western Louisiana. Southwestern Louisiana, primarily Calcasieu and Cameron Parishes, was the hardest-hit region. Overall, Hurricane Laura caused a peak of over 600,000 power outages across Louisiana. Most outages in less damaged portions of the state, including northern Louisiana, were restored by early September 2020. On October 6, 2020, Hurricane Delta made landfall approximately 20 miles from where Hurricane Laura made landfall re-damaging much of the same area. As a result, restoration activities for residents and electric customers in the hardest-hit areas are ongoing. Due to the extensive damage to transmission and/or distribution infrastructure, much of the electric infrastructure in the area must be repaired or replaced.

The Jefferson Davis Electric Cooperative, Inc. (JDEC) is a not-for-profit electric cooperative in southwest Louisiana which serves the energy needs of over 11,000 residential, commercial, and industrial members/owners (customers) in portions of Allen, Calcasieu, Cameron, Jefferson Davis, and Vermilion Parishes (service area). Notably, JDEC supplies 60% of its total power load to commercial customers, including liquified natural gas (LNG) facilities for onshoring of LNG. As a result of Hurricane Laura, JDEC's electrical system suffered catastrophic irreparable damage throughout. Efforts to restore power to JDEC residents and customers have been extensive and time-consuming. In fact, they are still ongoing and are expected to continue for several years.

The impacts of Hurricanes Laura and Delta underscored the need for proactive investment in measures to protect the system from physical damage and to build redundancies into this critical infrastructure. Such recurring storms amplify the need for a more resilient system to provide more reliable critical infrastructure and services to the residents and businesses of the area.

This Programmatic Environmental Assessment (PEA) has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C §§ 4321 et seq.) the President's Council on Environmental Quality (CEQ) regulations to implement NEPA (40 Code of Federal Regulations (CFR) Parts 1500-1508), and the Department of Homeland Security Federal Emergency Management Agency's (FEMA's) procedures for implementing NEPA (FEMA Instruction 108-1-1). FEMA is required to consider potential environmental impacts before funding or approving actions and projects. The purpose of this PEA is to analyze the potential environmental impacts of the proposed JDEC Hurricane Laura Repair and Restoration Program project. FEMA will use the findings in this PEA to determine whether to prepare a Finding of No Significant Impact (FONSI) or an Environmental Impact Statement (EIS).

1.1 Project Authority

In response to Hurricane Laura, FEMA mobilized federal response teams to support Louisiana. FEMA's federal response also included teams to provide technical expertise to support utilities, conduct field assessments, and to provide assistance to government and private stakeholders to support the restoration of the energy system.

President Donald J. Trump issued a major disaster declaration (FEMA-4559-DR, as amended) on August 28, 2020, authorizing FEMA to provide federal assistance to designated areas of Louisiana in 21 parishes, including Calcasieu and Cameron Parishes. FEMA is administering this assistance pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act),

PL 93-288, as amended. Section 406 of the Stafford Act authorizes FEMA's Public Assistance (PA) Program to repair, restore, and replace state and local government and certain private not-for-profit facilities damaged as a result of the declared event.

JDEC is eligible for FEMA PA funding given its status as a not-for-profit electric utility cooperative. JDEC may also be eligible for other funding assistance, including Hazard Mitigation Grant Program (HMGP) funding under Section 404 of the Stafford Act.

1.2 Project Background

FEMA has determined that the Louisiana Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) and JDEC are eligible to receive FEMA PA funding to repair, improve, and replace damage to JDEC's electrical system. GOHSEP and JDEC have submitted a combined request for FEMA funding, referred to as JDEC Hurricane Laura Repair and Restoration Program. GOHSEP and JDEC have proposed a phased approach to repairs, replacements, or improvements that can be systematically reviewed by FEMA in accordance with this document and NEPA as plans and specifications for individual repair and restoration projects are developed.

1.3 Use of This Programmatic Environmental Assessment

This PEA has been prepared to aid in fulfilling FEMA's obligations with NEPA, Executive Orders (EOs), and other applicable federal laws, and regulations.

NEPA mandates that federal agencies consider the impacts of their actions, including programs, regulations, policies, and grant-funded projects, on the quality of the human and natural environment. The CEQ has established NEPA Implementing Regulations at 40 CFR Part 1500 et seq. for meeting these requirements, and each federal agency has developed its own implementing procedures specific to its mission. The CEQ regulations at 40 CFR §§ 1500.4(i), 1502.4, and 1502.20 encourage the development of program-level NEPA environmental documents and tiering to eliminate repetitive discussions and to focus on the issues specific to the subsequent action. CEQ issued "Final Guidance for Effective Use of Programmatic NEPA Reviews" on December 18, 2014, which outlines and clarifies when and how federal agencies can use programmatic NEPA reviews in accordance with NEPA and CEQ NEPA Regulations.

Actions that are not covered by a Categorical Exclusion (CATEX) or actions covered by a CATEX that have unresolved extraordinary circumstances require the preparation of an Environmental Assessment (EA) under NEPA to determine the nature and extent of impacts of the action and determine whether the action has significant impacts on the quality of the human or natural environment. An EIS is required when an action will have a significant impact on the quality of the human or natural environment.

As plans and specifications for individual project segments and actions are developed, FEMA will conduct individual project reviews. If the individual project meets the scope, impacts, and mitigation covered in this PEA, then only a Record of Environmental Consideration (REC) would be prepared to document the use of this PEA. If the scope is covered but the action triggers the need for additional analysis based on the thresholds established in Table 1 in Section 5 of this PEA, FEMA will engage in the appropriate analysis or consultation requirement, prepare a tiered Supplemental EA (SEA) under this PEA with the additional information, and provide the appropriate comment period to determine whether a FONSI can be issued or whether an EIS is required. If the scope of work or the level of impacts of a particular project are not covered in this PEA, a separate stand-alone EA will be required (Figure 1).

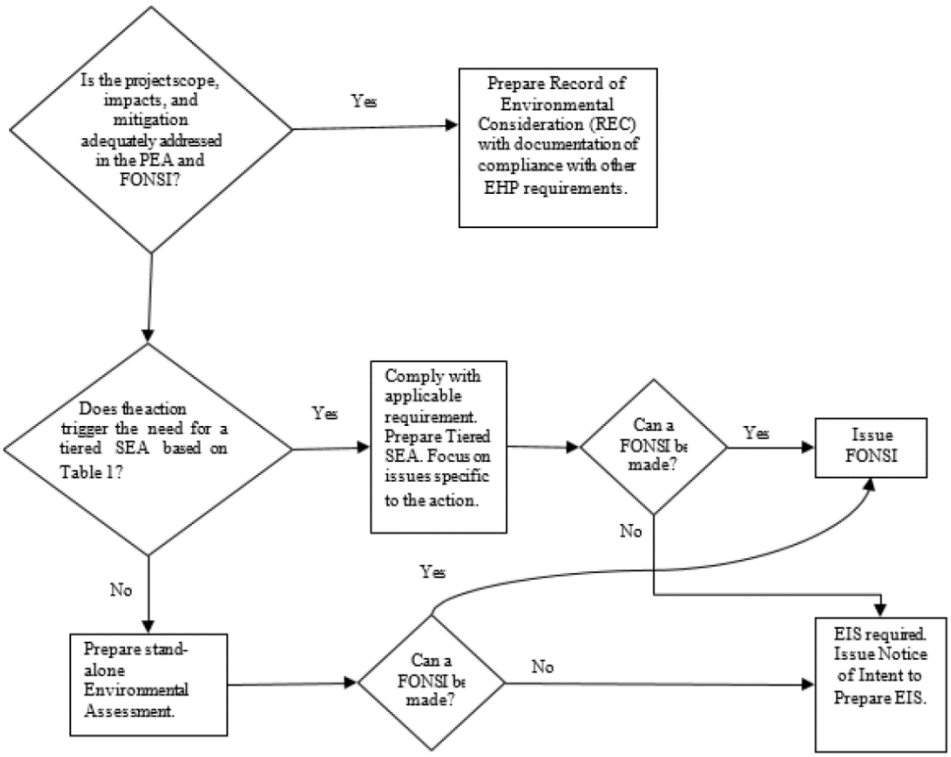

Figure 1. Use of PEA in FEMA's Review.

2 PROJECT LOCATION

JDEC serves the energy needs of over 11,000 residential, commercial, and industrial customers in portions of Allen, Calcasieu, Cameron, Jefferson Davis, and Vermilion Parishes. (Figure 2). For the proposed project, the project location and potential impact areas covered by this PEA are the damaged portion of JDEC's infrastructure within Cameron and Calcasieu Parishes that is shown in Figure 2. This system was primarily served by a 69kV transmission line, with an additional 27.5-mile 138kV transmission line extending from Chalkley to Creole. High wind and storm surge associated with Hurricanes Laura and Delta severely damaged or destroyed substations, including Grand Chenier (29.7641, -92.9514), Michigan-Wisconsin (29.776, -93.0006), Creole (29.8144, -93.133), Creole Bulk Switching (29.8094, -93.1579), Johnson Bayou (29.7614, -93.6286), Fulton (29.7877, -93.2917), Hackett (30.0098, -93.088), Chalkley Bulk/Charlie (30.1728, -93.1124), Venture Global (29.7787, -93.3256), Holly Beach Switching Station (29.771, -93.4678), and Holly Point Metering (29.9309, -93.3767), and the East and West CSC Riser Structures (29.803, -93.344 and 29.802, -93.351).

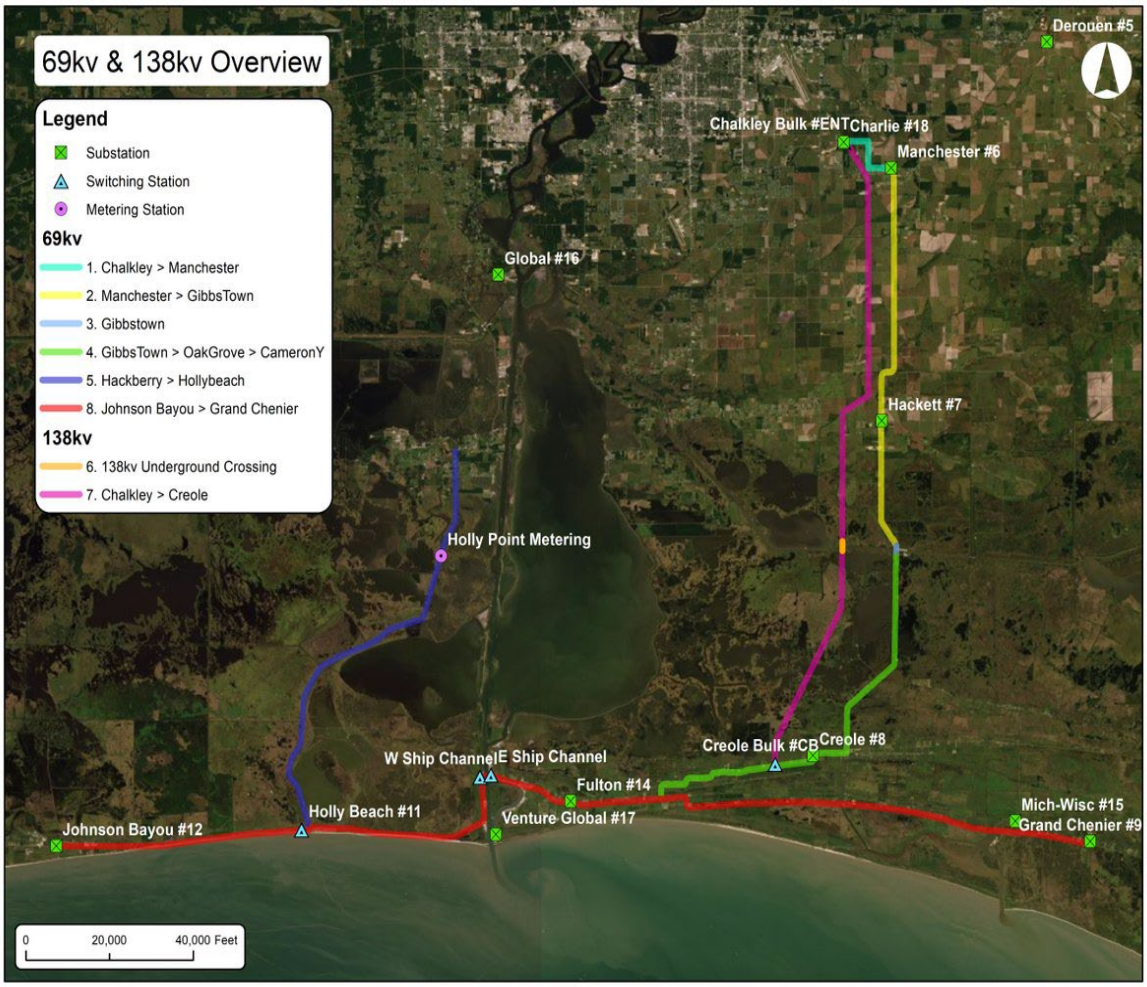

Figure 2. JDEC Pre-Hurricane Laura Infrastructure and Service Area.

Cameron Parish, which includes the Town of Cameron, Louisiana, is in southwest Louisiana. It is approximately 1,284.5 square miles and is the third-largest parish in Louisiana by area. Cameron Parish is bordered to the east by Vermillion Parish, to the south by the Gulf of Mexico, to the west by the State of Texas, and to the north by Calcasieu and Jefferson Davis Parishes. Cameron Parish has approximately 5,617 residents according to 2020 census figures (United States Census Bureau 2020). The largest industry in Cameron Parish is retail (Statistical Atlas, 2021b). Other important contributors to the parish include healthcare and social assistance, construction, education, manufacturing, and oil and gas related industries.

Calcasieu Parish, which includes the City of Lake Charles, Louisiana, is also located in southwest Louisiana. It is approximately 1,064 square miles and is the ninth-largest parish in Louisiana by area. Calcasieu Parish is bordered to the east by Jefferson Davis Parish, to the south by Cameron Parish, to the west by the State of Texas, and to the north by Beauregard Parish. Calcasieu Parish has approximately 216,785 residents according to 2020 census figures (United States Census Bureau 2020). The major transportation route within Calcasieu Parish is Interstate 10, which runs east-west. The largest industries in Calcasieu Parish are healthcare and social assistance (Statistical

Atlas 2021a). Other important contributors to the parish include retail, manufacturing, construction, hospitality, and entertainment/arts/recreation.

JDEC's infrastructure has been in the path of numerous hurricanes. Since 2005, there have been five hurricanes that have affected the area (Figure 3). The impacts of Hurricanes Delta and Laura underscored the need for proactive investment in measures to protect the system from physical damage and to build redundancies into this critical infrastructure.

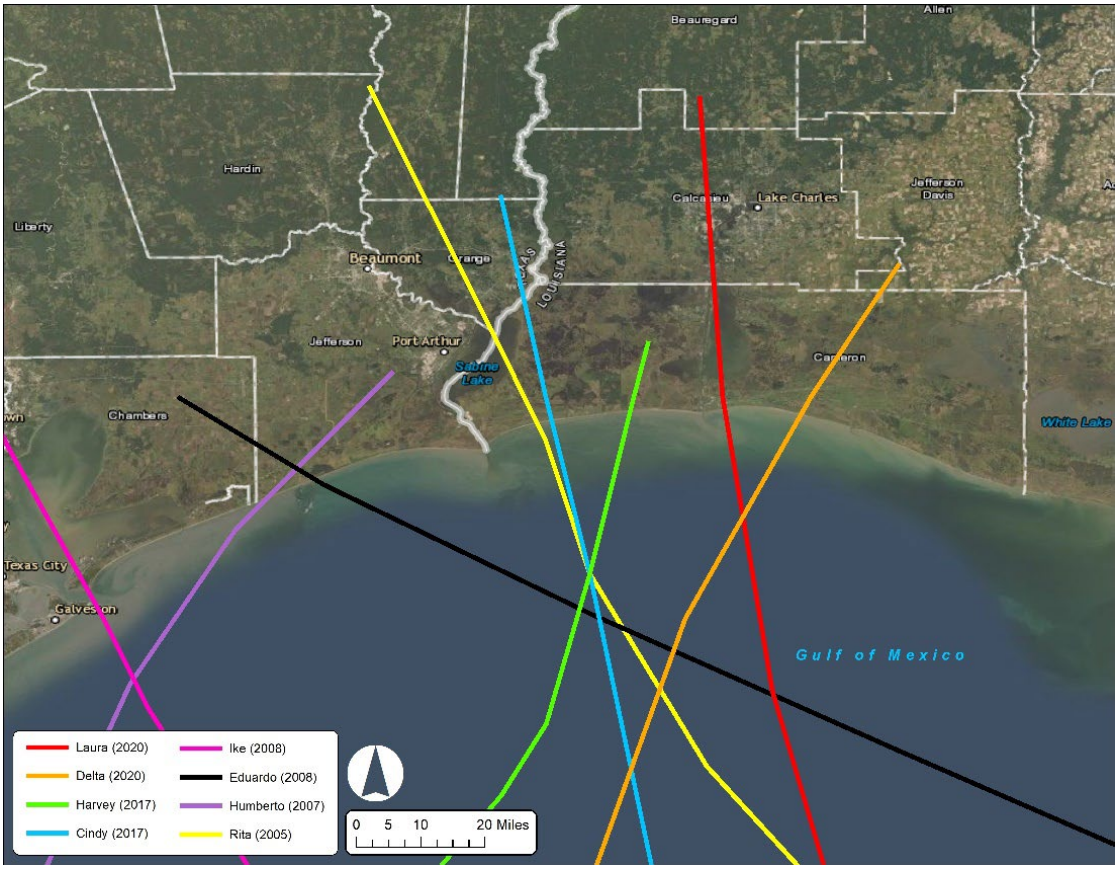

Figure 3. Hurricane and Tropical Storm Tracks from 2005 – 2020 Illustrating Direct Hits to JDEC Infrastructure in Cameron and Calcasieu Parishes.

3 PURPOSE AND NEED

The purpose of FEMA's PA Grant Program is to provide assistance to state, tribal, and local governments, and certain types of not-for-profit organizations, so that communities can quickly respond to, recover from, and mitigate major disasters and emergencies. The proposed action would utilize FEMA-provided PA grant funding for repairs or replacement activities related to storm-damaged electrical system critical infrastructure, including transmission lines, distribution lines, substations, and related assets and possibly FEMA HMGP funding for efforts related to the mitigation, hardening, redundancy, resiliency, and long-term risk reduction efforts for the storm-damaged electrical system critical infrastructure, including transmission lines, distribution lines, substations, and related assets.

The need for this action is to repair, improve, or replace storm-damaged electrical system critical infrastructure and utility lines throughout the JDEC system, create redundancies within the system,

and make the system more resilient against future storm events. The JDEC electrical system has suffered repetitive catastrophic damages from storm events in recent decades. Tropical storms and hurricanes have become more intense and frequent during the past 20 years in Louisiana, and hurricane wind speeds and rainfall rates are likely to continue to increase (USEPA 2016). Restoration of the entire system, complete with resiliency and redundancy features, is needed to mitigate susceptibility to future physical storm damage, support more load, increase resiliency for the coastal circuits, and allow for quicker and less expensive restoration of power following future disaster events.

4 ALTERNATIVES

NEPA requires federal agencies to consider the effects of a proposed action and any reasonable alternatives on the human and natural environment. Therefore, a key step in the EA process is to identify a range of reasonable alternatives to be studied in detail in the PEA. This step is commonly referred to as an alternative's development and screening process. Its purpose is to identify reasonable alternatives to the proposed action to allow for meaningful subsequent comparison of how these alternatives may affect the human and natural environment. This section describes alternatives proposed and considered in addressing the purpose and need for this action. The following categories reflect the criteria established for the screening process: ability to satisfy purpose and need, ability to minimize impacts on the human and natural environments, and ability to repair and restore the damaged JDEC electric infrastructure system.

FEMA is evaluating the following alternatives in this PEA to address the purpose and need: Alternative 1 (No-Action Alternative); Alternative 2 (230 kilovolt (kV) Resiliency and Redundancy), Preferred Action Alternative; and Alternative 3 (69kV/138kV Repair/Resiliency). Alternative 4 (Repair to Current Codes and Standards) was considered and dismissed because it does not meet the purpose and need. More detail of the construction methods that would be utilized under each of the action alternatives considered in the impact analysis can be found in Appendix A, which is incorporated herein by reference.

4.1 Alternative 1: No Action Alternative

FEMA would not fund any further repairs to the infrastructure. The JDEC electric system would remain in its post-storm condition, with only emergency repairs having been performed, and areas south of the Gulf Intracoastal Waterway (GIWW) would continue to be serviced by generator power. Utilities stabilized with temporary, emergency measures would remain in their current state, and would likely require more frequent repairs by JDEC. This alternative does not meet the purpose and need but will continue to be evaluated throughout this PEA and serve as a baseline comparison of impacts from other action alternatives.

4.2 Alternative 2: 230kV Resiliency and Redundancy (Preferred Alternative)

Under the preferred alternative, FEMA would provide PA and HMGP funding for JDEC to conduct a series of projects (Figure 4) that would replace existing system infrastructure with a single 230kV transmission line. Transmitting electrical power at higher voltages is more efficient than doing so at lower voltages. The proposed 230kV system will give JDEC the ability to serve all pre-Laura loads on their loop transmission system from a single source, either the Hackberry Meter Point or the Chalkley Meter point. JDEC's pre-storm 69kV system was able to serve all pre-storm load only because there was also in place a 138kV transmission line connecting Chalkley

Meter Point to Creole Bulk Point. This 27.5-mile 138kV line provided an additional power source in the southern region of their system. The combined 69kV and 138kV systems were able to adequately serve all pre-storm loads on both sides of the Calcasieu Ship Channel (CSC).

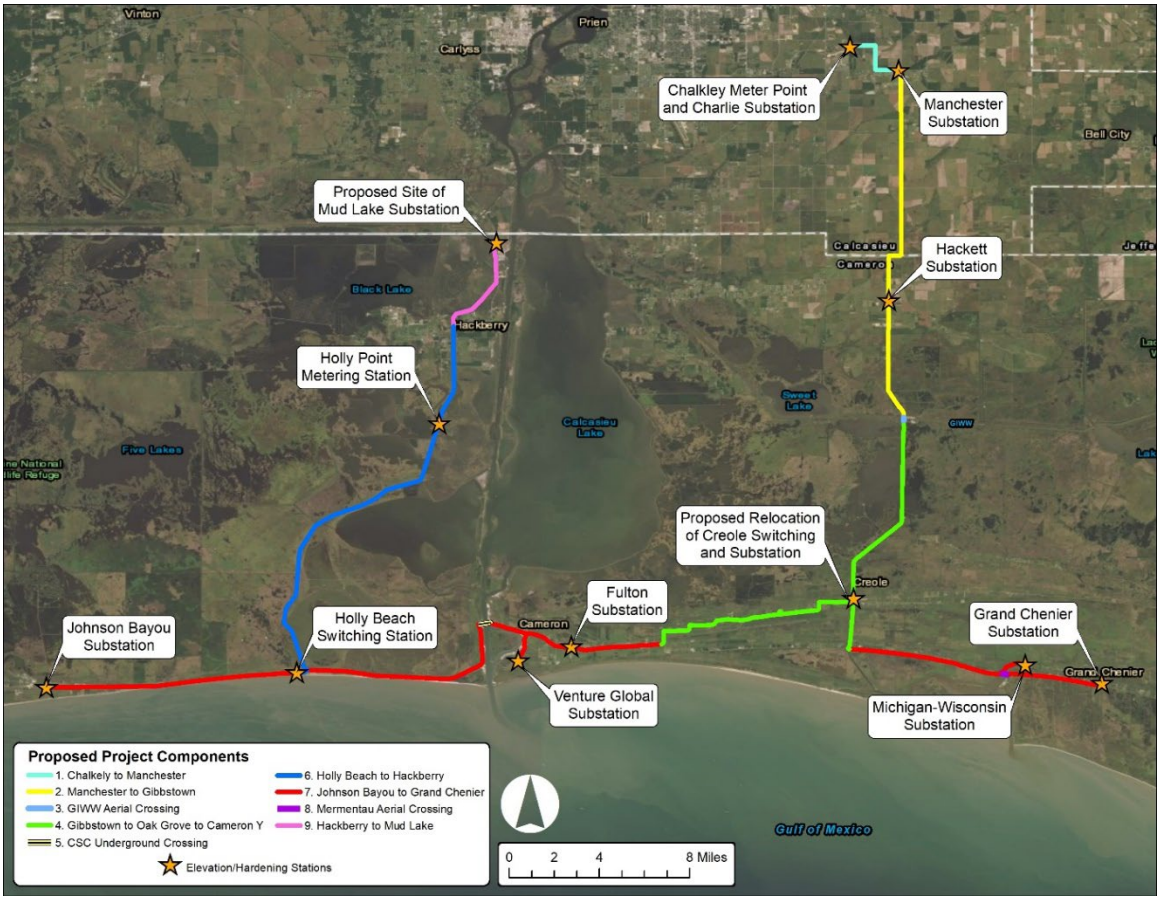

Figure 4. Alternative 2: 230kV Resiliency and Redundancy (Preferred Alternative) Overview.

The proposed 230kV loop transmission system eliminates the need for the Chalkley to Creole 138kV line. While the 69kV transmission line generally ran adjacent to state roads and highways, the 138kV line spanned approximately 27.5 miles of more sensitive habitat, including marsh, wetlands, and waters of the United States. Following Hurricane Laura, the damaged 138kV transmission lines were wrecked and removed in accordance with Louisiana Department of Natural Resources (LDNR) and United States Army Corps of Engineers (USACE) permits and related conditions and were not rebuilt.[1] Notably, 327 H-structures and 654 poles have been wrecked and removed and will not be rebuilt under the Preferred Alternative. The elimination of the need to rebuild and maintain the 138kV transmission line would provide environmental

[1] Pursuant to LDNR, Office of Coastal Management (OCM), Coastal Use Permit (CUP) No. P20210469 and corresponding USACE Permit No. MVN-2020-00875-WS, JDEC received the requisite regulatory approval for the wrecking, removal, and disposal of all "damaged electrical transmission infrastructure generated during Hurricane Laura and Delta. Activities include[d] the removal of two towers, downed transmission lines and distribution poles." JDEC has completed this work related to the 138kV transmission line and related assets. Any remaining damaged electrical infrastructure will be removed pursuant to this CUP and all conditions will be adhered to.

benefits to sensitive resources, including floodplains, marsh, wetlands, waters of the United States, and habitats for biological resources.

Proposed projects would also harden and elevate substations to improve resiliency, build in redundancy to reduce downtime, and better protect from service interruptions. Projects would be designed to mitigate susceptibility to physical damage (withstand higher winds and storm surge), support more load, increase resiliency of the coastal circuits, and allow for quicker restoration of power. Because this alternative would also allow JDEC to support all of Cameron Parish from either the Hackberry or Lake Charles side of the CSC, it would provide the highest level of protection of any of the alternatives against the impacts of future storm damage.

This alternative includes utility improvements and upgrades as well as realignment or relocation of JDEC infrastructure. Principal activities will involve removing existing emergency repair poles and associated hardware as needed; installing new utility poles, conductors, conduit routing, towers, and underground waterway crossings; and repairing and elevating substations. See Appendix A.2 for details on construction methods and project specifics. Proposed project components for the Preferred Alternative 2 include:

1. Transmission Lines and Poles

JDEC would build new 230kV transmission lines in place of the pre-storm 69kV transmission lines in the sections identified in Figure 4. The 230kV line would eliminate the need for the 138kV line that currently traverses marsh and crossed the GIWW at 29.9372, -93.1139. The 230kV transmission line would have an underbuilt 13.2kV distribution line utilizing mid-span distribution poles. The transmission spans would be approximately 600 feet in length and the distribution spans will be approximately 300 feet in length. The transmission lines would utilize galvanized steel poles with engineered foundations supported by additional hardening measures, which are more resilient to storm damage. The estimated total number of transmission structures is 1,000, with poles that are 100 to 115 feet in height. An additional 1,000 distribution poles will be installed that are 40 feet in height. Poles are connected to steel piles vibrated into the ground to depths of 30 to 50 feet. Steel piles of engineered foundations range from 3-7 feet in diameter. The total surface area for all pole installations is estimated to be 1.16 acres, and the total potential estimated ground disturbance for all poles at embedment depth is estimated to be 93,830 cubic yards. New transmission lines and pole installation would occur approximately along the previous 69kV transmission center line within a 150-foot-wide workspace corridor (75 feet to either side of the proposed 230kV centerline). Per agreement with the Louisiana Department of Transportation and Development (LaDOTD), guardrails or other crash attenuating devices may need to be installed at various locations across the system based on roadway speeds and dimensions of clear zones. Once transmission line and pole installation is complete, this 150-foot corridor will serve as JDEC's operational Rights-of-Way (ROWs) for the 230kV transmission line system. To the extent any work would need to be performed outside of JDEC property or the footprint of existing ROW, requisite land agreements and ROW Agreements would be obtained.

2. Waterway Crossings

JDEC would build three 230kV waterway crossings in the locations of the pre-storm 69kV waterway crossings. Although the final designs have not been completed, these are estimated to require temporary workspaces totaling less than 5 acres and permanent workspaces totaling less than 3 acres as described below.

a. Prior to Hurricanes Laura and Delta, the 69kV and the 138kV transmission lines aerially crossed the GIWW via steel lattice towers. The 69kV line crossed at 29.9345, -93.0786 directly to the east of the Hwy 27 Bridge (the Conway LeBleu Bridge). At the GIWW Crossing (Gibbstown; identified as "3" in Figure 4), JDEC would construct a new 230kV aerial crossing and a new underground 13.2kV crossing. The aerial crossing would utilize hardened and resilient towers in the locations of the pre-storm 69kV towers. Each tower will be installed on a concrete base estimated to be 43 feet by 43 feet (0.1 acres total). The underground 13.2kV crossing would be installed via horizontal directional drilling (HDD) and would include the installation of two permanent switching stations totaling an estimated 0.7 acres. Temporary workspace required for installation of both the aerial towers and underground crossing is estimated to be 1.4 acres total, but the final location and footprint has not been defined. Access to these work areas would be via existing roads adjacent to the temporary workspace.

b. At the CSC (identified as "5" in Figure 4; 29.8038, -93.3471), JDEC would construct a new 230kV underground crossing to replace the current 69kV underground crossing or would construct a new 230kV aerial crossing. For the underground crossing, the existing 69kV underground crossing facilities will be abandoned and removed, including the west riser structure (29.8018, -93.3511) and east riser structure (29.8029, -93.344). This crossing would utilize insulated transmission power cables and would be less susceptible to flood related damage and extreme wind than aerial towers. Permanent switching stations would be built at each end of the crossing, at the locations of the current west and east riser structures, totaling an estimated 0.9 acres. Temporary workspace required for installation of the underground crossing is estimated to be 1.7 acres total. Access to these work areas would be via existing roads adjacent to the temporary workspace.

c. At the Mermentau River, JDEC would construct a new 230kV aerial crossing and a new underground 13.2kV crossing along Highway 82 at 29.7703, -93.0134. The overhead 230kV crossing would include one tangent H-structure and one, 3-pole dead-end structure on each side of the river. Each tower would be installed on a concrete base estimated to be 43 feet by 43 feet (0.1 acres total). The underground 13.2kV crossing would be installed via HDD and would include the installation of two permanent switching stations totaling an estimated 0.7 acres (on the west side at 29.7701, -93.0154 and on the east side at 29.7696, -93.0118). Temporary workspace required for installation of both the aerial towers and underground crossing is estimated to be 1.4 acres total. Access to these work areas would be via existing roads adjacent to the temporary workspace.

3. Substations

In total, there are twelve sites along the proposed 230kV loop that will require new construction or modifications to accommodate the 230kV transmission system including substations and switching stations, on a structure capable of withstanding 160 mph winds and high velocity coastal floodwaters (shown as "Elevation/Hardening Stations" in Figure 4. Two new substations would be constructed, and two of the existing substations would be expanded, with these new areas totaling an estimated 5.7 acres. The existing Creole Substation and Creole Bulk Switching Station would be abandoned, removed, and replaced at a nearby location (29.8165, -93.1129) with construction of a new Creole Substation approximately 2.4 acres in size. A new Mud Lake Substation (30.0458, -93.342), which would be built near the Cameron LNG plant, would be approximately 2.4 acres. Expansion of the Holly Beach Switching Station would require an

additional 0.6 acres, and expansion of the Michigan-Wisconsin Substation would require an additional 0.3 acres.

4.3 Alternative 3: 69kV/138kV Repair/Resiliency

This alternative is evaluated in case adequate funding may not be available to fully complete the preferred 230kV alternative. Should this be the case, JDEC would take actions to repair and increase resiliency of the current 69kV/138kV transmission infrastructure using available funding provided by FEMA. A series of projects under this alternative (Figure 5) would repair existing 69kV and 138kV infrastructure damaged by Hurricanes Laura and Delta, with improvements that would increase resiliency, including engineered steel poles and elevated and hardened substations. If this is not possible at all locations due to funding or technical limitations, portions of the current 69kV/138kV that are less vulnerable to hurricane winds and storm surges may be repaired to current codes and standards. Unlike the Preferred Alternative 2, this alternative would not allow for redundant supply from either side of the CSC. This would not be possible at 69kV due to excessive voltage drop that would occur along this line due to the distance between the source and load locations.

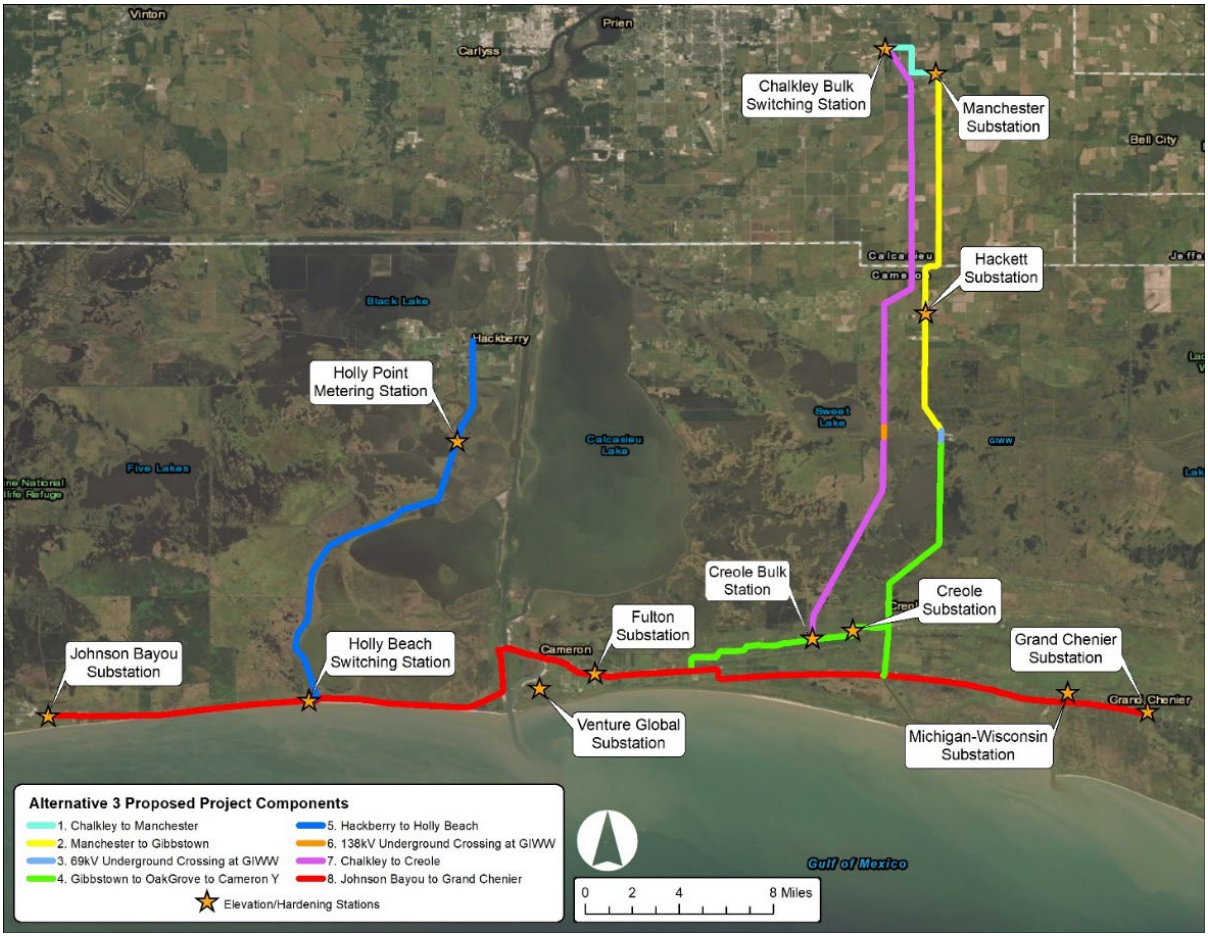

Figure 5. Alternative 3: Repair/Improve 69kV and 138kV Overview

The proposed work under this Alternative would consist of the removal, reconstruction, improvement, and/or repair of utility poles, aerial utility lines, and associated utility structures, including substations. Project components for Alternative 3 include:

1. Transmission Lines and Poles

The 69kV and 138kV transmission lines would be rebuilt at their pre-storm locations. To increase resilience, damaged wooden poles would be replaced with self-supporting, engineered steel poles rated to withstand 160 mph wind loading. These poles range in height from 60 to 70 feet and are connected to steel piles vibrated into the ground to depths of 30 to 50 feet.

Alternatively, damaged poles could be replaced with new direct-embedded wooden poles backfilled via rock. However, current electrical/engineering codes may require additional poles to withstand a 160-mph wind load, which could require the distance between wood poles to be decreased and anchors to be incorporated. This would increase the overall number of poles and impacts of the project, and these poles would not be as resilient as the engineered steel poles. Wood poles would range from 45 to 80 feet in height with an embedment depth of approximately 10 feet. The total surface area for wood pole installations is estimated to be 1.03 acres, and the total fill volume of poles at embedment depth is estimated to be 15,065 cubic yards.

Transmission line and pole installation would occur along the previous path of the 69kV and 138kV lines within a 30-foot-wide workspace corridor (15 feet to either side of the centerline) along the 69kV line and within a 100-foot-wide workspace (50 feet to either side of the centerline) corridor along the 138kV line. Once installation is complete, these corridors will serve as JDEC's operational ROWs for the respective transmission line systems. To the extent any work would need to be performed outside of JDEC property or the footprint of existing ROWs, requisite land agreements and ROW Agreements would be obtained.

2. Waterway Crossings

At the GIWW, the 69kV transmission crossing at 29.934475, -93.078622 (identified as "3" in Figure 5) directly to the east of the Hwy 27 Bridge (the Conway LeBleu Bridge) and the 138kV transmission crossing at 29.937172, -93.113927 (identified as "6" in Figure 5) would either be replaced with underground borings or rebuilt as aerial crossings, or some combination of these. To increase resilience, transmission lines could be bored under the GIWW using directional borings at the locations of the current aerial towers. The 69kV boring would be drilled approximately 15 feet below the authorized depth of 16 feet Mean Low Gulf (MLG). The 69kV underground crossing would include the construction of four vaults and other permanent infrastructure. The proposed permanent and temporary workspaces for the 69kV underground crossing are shown in Figure 6. The design of a 138kV underground crossing has not yet been developed, but it is anticipated that it would be relocated from its current location (west of the Hwy 27 Bridge) closer to LA 27 and utilize equipment and workspaces similar to the 69kV crossing. These two waterway crossings are estimated to require temporary workspaces totaling less than 5 acres and permanent workspaces totaling less than 2 acres.

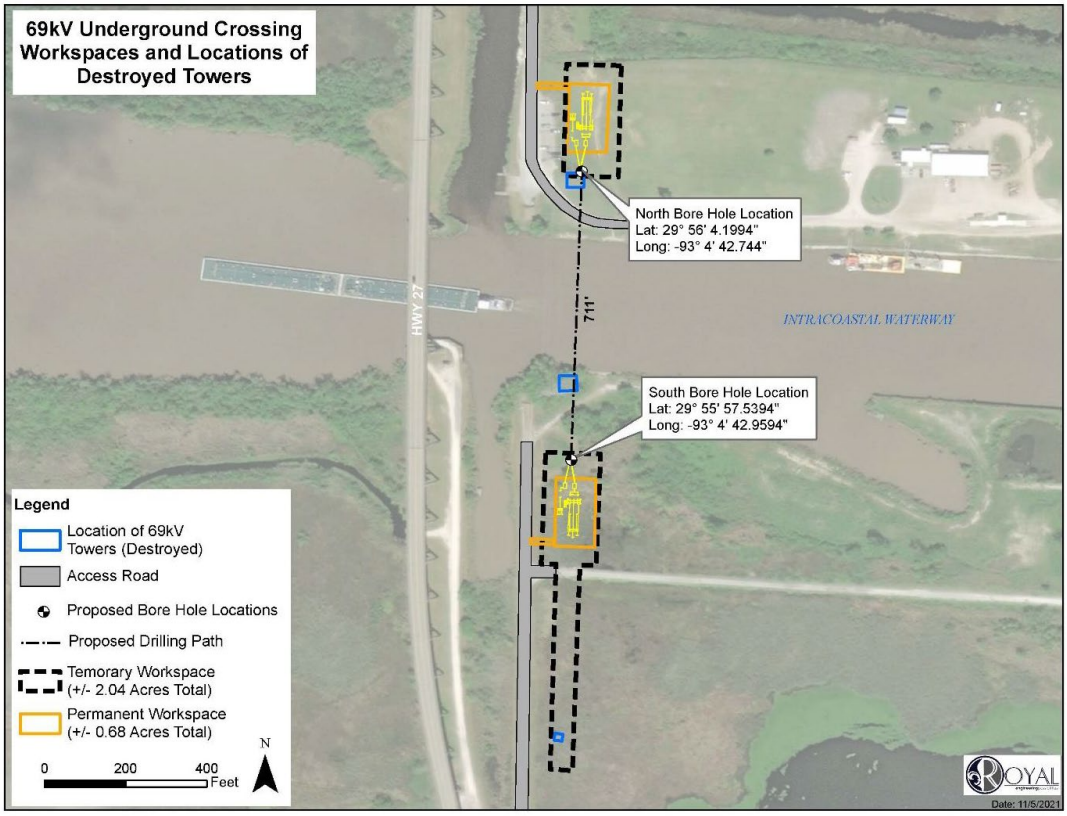

Figure 6. 69kV Underground GIWW Crossing Preliminary Design

Alternatively, the damaged 69kV and 138kV aerial towers at the GIWW could be reconstructed to pre-storm conditions by constructing new foundations for each of the four structures on previously disturbed ground in the same locations as the pre-storm lattice-steel towers or relocated near the pre-storm locations. For the 69kV crossing, this would include two dead-end structures with a 15-foot by 15-foot base with a concrete foundation at each corner, and two tangent structures with a 40-foot by 40-foot base with a concrete foundation at each corner. Design on the 138kV towers is not complete, but it is anticipated that the design, construction, and methodologies would be similar to that of the 69kV with access via barges on the GIWW. These two aerial crossings are estimated to require temporary workspaces totaling less than 2 acres and permanent workspaces totaling less than 0.2 acres. Access to these work areas would be via adjacent existing roads.

3. Substations

To increase resilience, damaged substations could be elevated and hardened on a structure capable of withstanding winds and high velocity coastal floodwaters in their current locations. Alternatively, damaged substations could be repaired to current codes, but would not be as able to withstand the winds and high velocity coastal floodwaters.

4.4 Alternative 4: Considered and Dismissed

Alternative 4 was considered and eliminated from evaluation. This alternative would have returned the JDEC electric system to pre-storm conditions, incorporated current codes and standards, and repaired existing 69kV and 138kV infrastructure damaged by Hurricanes Laura and Delta.

Although this alternative would restore the electric system and move JDEC members off generator power, it would not meet the purpose and need because it would not provide necessary resiliency or redundancy features able to withstand future storm events. As described in Section 3, the JDEC electric system has been repeatedly damaged by hurricanes (see Figure 3). Historically, Louisiana has been struck by a hurricane once every three years on average, however between 2005 and 2009, Louisiana experienced six hurricanes, the largest number during a 5-year period since 1900 (NOAA 2022d). Tropical storms and hurricanes have become more intense and frequent during the past 20 years, and hurricane wind speeds and rainfall rates are likely to continue to increase (USEPA 2016). There would be additional impacts on environmental resources and the human environment if the lines, which have been destroyed several times recently, would have to be rebuilt yet again. This alternative would not mitigate susceptibility to physical damage, would not be capable of supporting more load, would not increase resiliency for the coastal circuits, nor allow for quicker restoration of power following future storm events. Therefore, this alternative was dismissed from further consideration.

5 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

This section discusses the baseline conditions and environmental impacts of the various alternatives. Due to the system-wide programmatic approach of this analysis, FEMA and JDEC is providing a regulatory background and description of the current conditions of the environmental resources. In the impacts analysis for the alternatives, FEMA provides a description of the impacts of the action based on the following scale:

- **No effect** – no discernible effect is expected.
- **Negligible effect** – the effect is so small that it cannot be measured in a meaningful way.
- **Minor effect** – the effect is measurable but would be minor.
- **Moderate effect** – the effect is measurable and may require mitigation to be adequately addressed.
- **Significant impact** – the effects meet the criteria for significance as defined in the CEQ's NEPA implementation regulations in 40 CFR 1508.27.

Table 1 establishes the criteria for determining if a proposed action is covered under the FONSI for this PEA, or if additional NEPA analysis, such as a tiered SEA and an additional public comment period, a site specific NEPA process, or other requirements are necessary. If the project meets the scope, impacts, and mitigation covered in this PEA, then no further NEPA analysis will be required. A summary of the potential impacts of the alternatives is provided in Appendix B.

Table 1. Thresholds for additional NEPA Analysis for JDEC Project.

Area of Evaluation	Action Covered by this PEA	Tiered Supplemental EA or Site Specific NEPA Analysis or other Requirement
Geology, Topography, and Soils	The proposed action would have no, negligible, or minor impacts to geology, topography, and soils. The proposed action would be consistent with the Farmland Protection Policy Act (FPPA). Or Mitigation measures, if required, could be used to reduce the level of impacts to no effect, negligible, or minor.	The proposed action may cause adverse impacts to prime and unique farmland that is not consistent with the FPPA (project scores more than 160 on Farmland Impact Conversion Rating Form AD-1006). Or The proposed action disturbs more than 5 acres of land not evaluated in this assessment.
Waters of the United States and Wetlands	The proposed action would have no, negligible, or minor impacts to waters of the United States and wetlands. Or Mitigation measures, if required, could be used to reduce the level of impacts to no effect, negligible, or minor.	Unavoidable impacts to wetlands not covered by this PEA Programmatic 8-step/Wetlands Notice would require an individual 8-Step decision-making process and final public notice, and a SEA may be required.
Hydrology and Floodplains	Individual repairs, replacements, and improvements within the 100-year or 500-year floodplain covered by the JDEC Programmatic 8-step/Final Floodplain Notice and PEA. Reconstruction in a Coastal High Hazard Area covered by the JDEC Programmatic 8-step/Final Floodplain Notice and PEA.	Individual repairs, replacements, and improvements within the 100-year or 500-year floodplain not covered by the class review under this PEA Programmatic 8-step/Final Floodplain Notice would require an individual 8-step decision-making process and final public notice. New construction or substantial improvement in a Coastal High Hazard Area (CHHA) that facilitates open space use or is functionally dependent would require an individual 8-step decision making process and final public notice.

Area of Evaluation	Action Covered by this PEA	Tiered Supplemental EA or Site Specific NEPA Analysis or other Requirement
Water Quality and Resources	The proposed action would have no, negligible, or minor impacts to water quality and would be at or below water quality standards or criteria. Localized and short-term alterations in water quality conditions relative to historical baseline may occur. Or Mitigation measures, if required, could be used to reduce the level of impacts to no effect, negligible, or minor.	The proposed action would cause or contribute to existing exceedances of water quality standards on either a short-term or prolonged basis. Or The proposed action would cause long-term, permanent alterations in water quality conditions.
Land Use and Planning	The proposed action would have no, negligible, or minor impacts on land use and would be consistent with surrounding or planned land uses. Or The proposed action would be consistent with respective state Coastal Zone Management plans, Coastal Barrier Resources Act (CBRA), and National Wildlife Refuge (NWR) management plans; Or Mitigation measures, if required, could be used to reduce the level of impacts to no effect, negligible, or minor.	The proposed action would change the surrounding land uses in the short- and long-term. Or The proposed action would not be consistent with the surrounding land use, and the local land use agency requires a special land use permit or waiver. Or The proposed action would not be consistent with state Coastal Zone Management plans or CBRA. Or The proposed action would not be consistent with NWR management plans. Or The proposed action disturbs more than 5 acres of land not evaluated in this assessment.

Area of Evaluation	Action Covered by this PEA	Tiered Supplemental EA or Site Specific NEPA Analysis or other Requirement
Biological Resources	The proposed action would have no, negligible, or minor, impacts to native species, their habitats, or the natural processes sustaining them. Population levels of native species would not be affected. Sufficient habitat would remain functional to maintain viability of all species. In regard to federally listed species and critical habitat, FEMA can make a "No Effect" determination. Or FEMA can make a "Not Likely to Adversely Affect" determination along with concurrence from United States Fish and Wildlife Service (USFWS) or National Marine Fisheries Service (NMFS). Or Mitigation measures, if required, could be used to reduce the level of impacts to no effect, negligible, or minor.	The proposed action would adversely impact native species, their habitats, or the natural processes sustaining them to the degree that population numbers, population structure, genetic variability, and other demographic factors for species experience large, short-term declines, with long-term population numbers significantly depressed. Loss of habitat would affect the long-term viability of native species. Or FEMA determines that the proposed action is likely to adversely affect a listed species or will adversely modify critical habitat along with concurrence from the USFWS or NMFS. Or Biological Assessment (BA) required to evaluate the potential effects of the proposed action on listed or proposed critical habitat and to determine whether any species or habitat is likely to be adversely affected. Or Essential Fish Habitat (EFH) Assessment required by NOAA and may result in the need for an SEA.

Area of Evaluation	Action Covered by this PEA	Tiered Supplemental EA or Site Specific NEPA Analysis or other Requirement
Air Quality	The proposed action would have no, negligible, or minor impacts on air quality. Emissions from the proposed action for National Ambient Air Quality Standards (NAAQS) in nonattainment and maintenance areas would be less than exceedance levels. Emissions in attainment areas would not cause air quality to go out of attainment for any NAAQS. Or Mitigation measures, if required, could be used to reduce the level of impacts to no effect, negligible, or minor.	Emissions from the proposed action for NAAQS would be greater than the exceedance levels for nonattainment and maintenance areas. Emissions in attainment areas would cause an area to be out of attainment for any NAAQS.
Climate Change	The proposed action would have no, negligible, or minor impacts on emissions of greenhouse gasses (GHGs). The proposed action would have no, negligible, or minor adverse impacts on vulnerability to the effects of climate. Or Mitigation measures, if required, could be used to reduce the level of impacts to no effect, negligible, or minor.	GHG emissions are increased to the extent that they would contribute to regional climate change. Or The proposed action would result in adverse impacts on vulnerability to the effects of climate change.

Area of Evaluation	Action Covered by this PEA	Tiered Supplemental EA or Site Specific NEPA Analysis or other Requirement
Noise	The proposed action would have no, negligible, or minor impacts on noise. Noise levels resulting from the proposed action would not exceed typical noise levels expected from construction equipment or generators and comply with Calcasieu and Cameron Parish Police Jury noise ordinances. Noise generated by construction and operation of the facility would be temporary or short-term in nature. Or Mitigation measures, if required, could be used to reduce the level of impacts to no effect, negligible, or minor.	Noise levels would exceed typical noise levels expected from construction equipment and generators on a permanent basis or for a prolonged period of time.
Traffic	The proposed action would have no, negligible, or minor impacts on traffic flow. Or Mitigation measures, if required, could be used to reduce the level of impacts to no effect, negligible, or minor.	Impacts on traffic from the proposed action restrict access to private property. Or Impacts to traffic extend beyond the duration of construction activities. Or Traffic study required to assess transportation impacts.
Environmental Justice	There would be no disproportionately high and adverse environmental or health effects to low-income and/or minority populations. Or Mitigation measures, if required, could be used to reduce the level of impacts to no effect, negligible, or minor.	There would be unmitigated disproportionately high and adverse environmental and health impacts to low-income or minority populations.

Area of Evaluation	Action Covered by this PEA	Tiered Supplemental EA or Site Specific NEPA Analysis or other Requirement
Human Health and Safety	The proposed action would have no, negligible, or minor impacts on human health and safety. Or Risk minimization strategies and mitigation measures could be used to reduce the level of impacts to no effect, negligible, or minor.	There would be unmitigated human health and safety impacts beyond the typical risks associated with construction. Public safety would be compromised, and vulnerabilities would increase.
Hazardous Material	No hazardous wastes would be generated by the proposed action. Or Hazardous or toxic materials and/or wastes resulting from the proposed action would be safely and adequately managed in accordance with all applicable regulations and policies, with limited exposures or risks.	The proposed action would result in a net increase in the amount of hazardous or toxic materials and/or wastes to be handled, stored, used, or disposed of, resulting in unacceptable risk, exceedance of available waste disposal capacity, or probable regulatory violation(s). Public safety would be compromised, and vulnerabilities would increase. Or A Phase I or II environmental site assessment indicates that contamination exceeding reporting levels are present and further investigation is warranted.
Cultural Resources	No historic properties affected determination. Or FEMA makes a "No Adverse Effect" determination with concurrence from the Louisiana State Historic Preservation Officer (SHPO) and Tribes.	If FEMA determines that a project may adversely affect a historic property, in accordance with the 2016 Statewide Agreement, an Abbreviated Consultation Process or a Memorandum of Agreement may be required.

5.1 Geology, Topography, and Soils

5.1.1 Regulatory Setting

The FPPA (Public Law (PL) 97-98, §§ 1539-1549; 7 United States Code (USC)§ 4201 et seq.) was enacted in 1981 and is intended to minimize the impact federal actions have on the unnecessary and irreversible conversion of farmland to non-agricultural uses. This law assures that, to the extent possible, federal programs and policies are administered in a way that is

compatible with state and local farmland protection policies and programs. The FPPA does not authorize the federal government to regulate the use of private or non-federal land or, in any way, affect the property rights of owners.

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) is responsible for protecting significant agricultural lands from irreversible conversions that result in the loss of essential food or environmental resources. For purposes of the FPPA, farmland includes prime farmland, unique farmland, and farmland of statewide or local importance. Prime farmland is characterized as land with the best physical and chemical characteristics for production of food, feed, forage, fiber, and oilseed crops (USDA 2016, Section 622.3(A)(1)). Farmland subject to FPPA requirements does not currently have to be used for cropland; it also can be forest land, pastureland, or other land, but not water or built-up land.

5.1.2 Existing Conditions

Within Cameron Parish, approximate surface elevations range from sea level in the marshes to about 10 feet above sea level in the uplands in the northern part of the Parish (USDA 1995), whereas in Calcasieu Parish to the north, elevations range from sea level to 95 feet above sea level (USDA 1988).

The primary geologic units in Cameron Parish include Chenier Plain, Fresh Marsh (Holocene, 47%); Chenier Plain, Saline Marsh (Holocene, 39%); and Prairie Terraces (Pleistocene, 13%) (USGS n.d.c). The primary geologic units in Calcasieu Parish include Prairie Terraces (Pleistocene, 71%); Alluvium (Holocene, 14%); Intermediate Terraces (Pleistocene, 7%); and Chenier Plain, Fresh Marsh (Holocene, 4%) (USGS n.d.b). According to the Louisiana Geological Survey (2020; Figure 7. Generalized Geologic Map of Louisiana with approximate project area (in red; Louisiana Geological Survey 2020).), the geology in the project area is primarily Holocene (less than 11,700 years old) Coastal Marshes, which are chiefly mud and organic matter, and Pleistocene (between 2.6 million and 11,700 years old) Terraces, which are remnants of pre-existing flood plains consisting of sand, gravel, and mud.

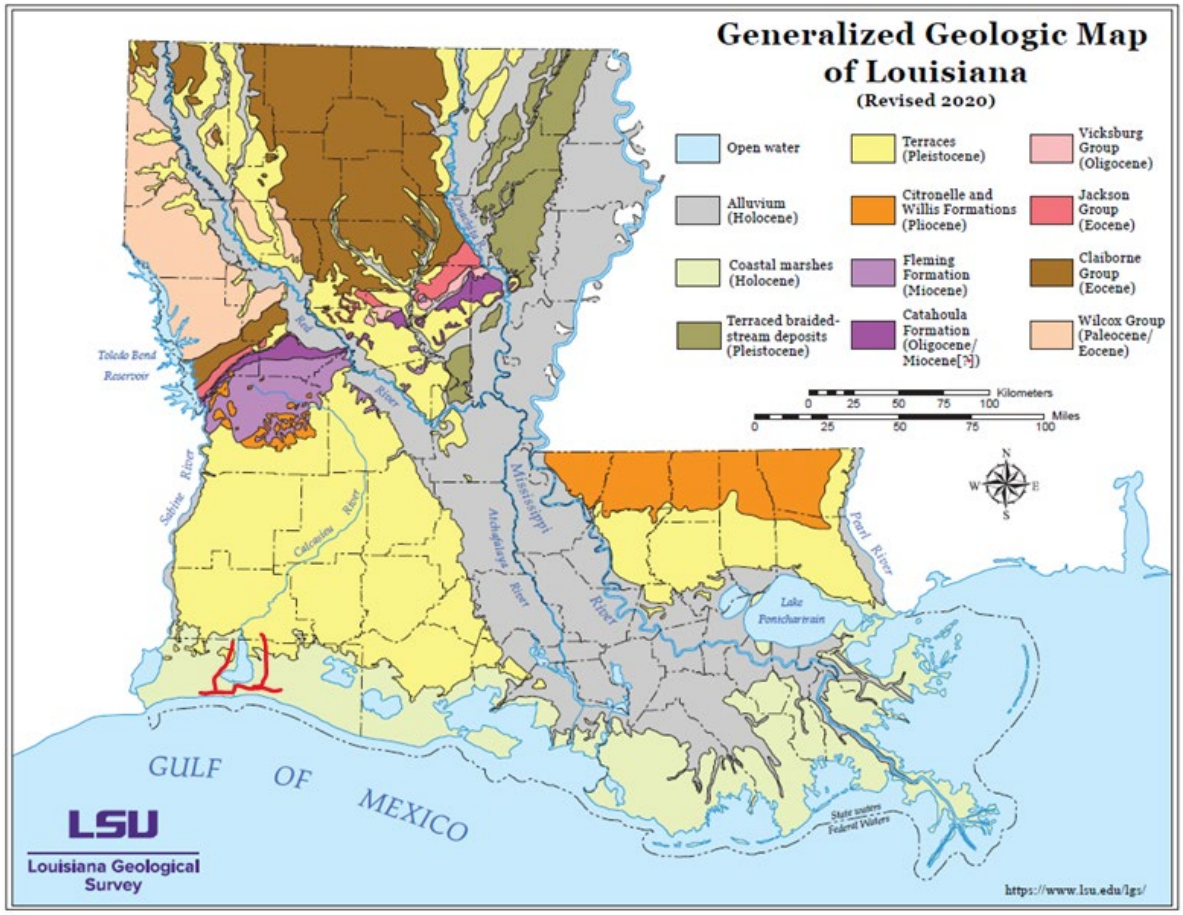

Figure 7. Generalized Geologic Map of Louisiana with approximate project area (in red; Louisiana Geological Survey 2020).

According to the USDA's Web Soil Survey's website, (https://websoilsurvey.nrcs.usda.gov/app/), the project area intersects 21 soil map units as well as small portions of water. Throughout the project area, these soils are rated by USDA as "very limited" for shallow excavations and building sites because of ponding, flooding, and a very shallow depth to the saturated zone. Eight of these map units are classified as "prime farmland," representing approximately 32% (1,333 acres) of the study area.

Rather than describing each of the mapping units in detail, for the purposes of this project evaluation, FEMA and JDEC have examined broader soil groups as described on 1:100,000 scale maps developed by the Louisiana Geological Survey.

In the Holocene Coastal Marsh areas, soils in the project area are of the Mermentau Alloformation and Holocene coastal ridges. The Mermentau Alloformation soils consist of dark-colored marine muds, sandy and shelly beach deposits, organic marsh clays, and lacustrine and bay muds. The Holocene coastal ridges, also known as "cheniers," are sandy and/or shelly ridges, that predominantly run parallel to the coast and are delineated on portions of the surface of the Holocene Mermetau Alloformation. They comprise beach ridges separated by extensive coastal marshes.

In the Pleistocene Terrace areas, soils in the project area are of two subtypes of the Prairie Allogroup, which is a diverse depositional sequence of flood plain, meander belt, and backswamp deposits of the ancestral Mississippi River, its tributaries, and coastal plain streams. Within this Prairie Allogroup, Beaumont Alloformation soils are coastal plain deposits from the late to middle Pleistocene, and relict Pleistocene coastal ridges are low-lying ridges on the surface of the Beaumont Alloformation. Some of these ridges run parallel to the coast, while others are oblique to the coast.

Although Louisiana is in an area of low seismic risk, geologic faults are present in Cameron and Calcasieu Parishes (Stevenson & McCulloh 2001). Earthquakes have occurred in the state but have tended to be of low magnitude and occur with low frequency. The United States Geological Survey's (USGS's) historical record notes only one earthquake in the area of the project since 1843, which was the Lake Charles earthquake of 1983 in Calcasieu Parish, with a magnitude of 3.8 on the Richter scale (Stevenson & McCulloh 2001). In 1949, an earthquake with a magnitude of 3.8 occurred offshore from Cameron Parish and was felt over approximately 3,000 square miles in southwestern Louisiana. This area has a very small probability of experiencing damaging earthquake effects (FEMA 2020)

5.1.3 Environmental Consequences

Alternative 1 – No Action. This alternative would have no direct effects on soils, topography, prime farmland, unique farmland, farmland of statewide or local importance, or other important geologic resources. It is possible that this alternative could contribute to future erosion and sedimentation as a result of soil disturbance from routine maintenance access or if unrepaired utilities are further damaged by weather events, resulting in long-term, temporary, minor adverse impacts.

Alternative 2 – 230kV Resiliency and Redundancy, Preferred Alternative. Work conducted under this alternative could result in short-term disturbances and changes to topography. Temporary staging areas and access roads in previously disturbed areas and in undeveloped land could require clearing and ground disturbance. Steel piles to support engineered steel poles along the transmission lines would be vibrated into the ground impacting an estimated 1.16 acres, resulting in no displacement of soils. The 230kV transmission line would include aerial crossings at the GIWW and the Mermentau River in the pre-storm location of the 69kV crossing. HDD, which would require the construction of vaults and platforms, would be needed for a new, 230kV underground crossing at the CSC, and for distribution underbuild at the GIWW and the Mermentau River, with permanent workspaces totaling an estimated 2.5 acres. Twelve structures, including substations and switching stations, would be elevated and hardened in their current locations. This alternative would also require an additional 5.7 acres for the Creole substation, Mud Lake substation, Holly Beach Switching Station, and Michigan-Wisconsin substation. Of these, only the Holly Beach Switching Station additional area of 0.6 acres is of soil type "Hb – Hackberry loamy fine sand", which is designated as prime farmland according to the USDA's Web Soil Survey.

To the extent possible, all activities would be conducted and performed on JDEC property or within existing ROWs on which the JDEC system's normal operations and maintenance activities occur. Any underground lines at waterway crossings would be bored in locations consistent with existing JDEC infrastructure for the current 69kV line. On July 13, 2021, the NRCS responded to FEMA's Solicitation of Views (SOV) for this program and indicated that because the proposed construction areas are within existing ROWs, this project is exempt from the rules and regulations

of the FPPA. Furthermore, the NRCS did not predict impacts to NRCS work in the vicinity. Should the Holly Beach Switching Station additional area of 0.6 acres fall outside the existing ROW, JDEC and FEMA will coordinate further with the NRCS and, if necessary, submit the Farmland Conversion Impact Rating Form (AD-1006) to determine whether the site is farmland subject to the FPPA.

Short-term disturbances would be mitigated by employing the construction Best Management Practices (BMPs) described in Appendix A.1, including ingress/egress perpendicular to the road to minimize impact on soils, the use of marsh equipment or barges where appropriate, erosion control measures, the disposal of tailings from the boring process off-site or in approved areas, and capture of drilling fluids. If replacement infrastructure will be located outside of existing ROWs in potential farmland, FEMA may coordinate with USDA NRCS to avoid, minimize, or mitigate the impacts. This alternative would have short-term, temporary, minor impacts on soils and topography where soils are disturbed; long-term, permanent; minor impacts on soils and topography, limited to the localized areas of pole placements (1.16 acres), waterway crossing infrastructure (2.5 acres), and the new or relocated substations (5.7 acres); negligible impacts on prime farmland (0.6 acres); and no effect on seismicity.

Alternative 3 – 69kV/138kV Repair/Resiliency. Work conducted under this alternative would result in similar impacts, and utilize the same BMPs, as the Preferred Alternative 2, with the following differences:

- Transmission lines would be placed along the pre-storm path of the 69kV and the 138kV transmission lines, with narrower workspace corridors than the Preferred Alternative 2 as described in Section 4. Pole placements are estimated to impact approximately 1.03 acres.
- The potential impacts to geology, topography, and soils from crossings would be limited to two crossings on previously disturbed ground at the GIWW, estimated at a total of less than 2 acres of permanent workspaces.
- The extent of impacts to geology, topography, and soils from substations would be limited to the previously disturbed current locations of the substations in need of repair. As a result, there would be negligible or no effect on prime farmland.

5.2 Waters of the United States and Wetlands

5.2.1 Regulatory Setting

In 1948, Congress enacted the Federal Water Pollution Control Act that was reorganized and expanded in 1972. In 1977, it became known as the Clean Water Act (CWA). The CWA regulates the discharge of pollutants into water with sections falling under the jurisdiction of the USACE and the United States Environmental Protection Agency (USEPA).

Section 404 of the CWA establishes the USACE permit requirements for discharging dredged or fill materials into waters of the United States and traditional navigable waterways. USACE regulation of construction activities in or near any navigable water of the United States is authorized under Section 10 of the Rivers and Harbors Act (RHA) of 1899 (33 USC § 401 et seq.). The current interpretation of the definition of waters of the United States (pre-2015 regulatory definition) is inclusive of wetlands adjacent to waters of the United States, other than waters that are themselves wetlands (40 CFR § 120.2(1); USEPA, 2021). Discussion of Sections 401, 402, and 403(d) of the CWA are presented in Section 5.4, Water Quality and Resources.

Executive Order 11990, Protection of Wetlands, directs federal agencies to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the values of wetlands for federally funded projects. FEMA regulations for complying with EO 11990 are codified at 44 CFR Part 9, Floodplain Management and Protection of Wetlands. FEMA's implementation of EO 11990 is described in 44 CFR Part 9. Under 44 CFR § 9.6, Decision Making Process, FEMA is required to engage in the 8-step decision-making process to ensure that proposed activities are consistent with EO 11990 and to evaluate the potential effects of an action on wetlands. The 8-step process includes using minimization measures when a project affecting a wetland is the only practicable alternative. Project specific minimization measures may include avoidance techniques such as establishing wetland buffer zones to avoid converting or filling wetlands and obtaining and complying with USACE permits and National Pollutant Discharge Elimination System (NPDES) permits. Where impacts to waters of the United States and wetlands are unavoidable, mitigation requirements will be assessed by the jurisdictional federal or state regulatory agency as a condition of permit issuance. JDEC is responsible for obtaining any applicable federal or state regulatory agency permits and meeting permit conditions.

5.2.2 Existing Conditions

Major navigable waterways in the Calcasieu/Sabine Basins include Calcasieu Lake, Calcasieu River, the CSC, GIWW, Sabine Lake, and Sabine River. Major navigable waterways in the Mermentau Basin include Grand Lake, GIWW, Mermentau River, and White Lake. These are all traditionally navigable waterways and are therefore waters of the United States. Of these, the project area intersects the CSC, the GIWW, and the Mermentau River.

Based on tidal range and/or connectivity to navigable waterways or other waters of the United States, wetlands have the potential to be classified as waters of the United States, and therefore may be subject to CWA regulations. Wetlands are identified as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, or that under normal hydrologic conditions do or would support, a prevalence of vegetation typically adapted for life in saturated soil conditions. These aquatic features have important ecological functions, are biologically diverse, and include swamps, marshes, sloughs, estuaries, beaches, and mudflats. They assimilate nutrients in surrounding surface waters, remove suspended solids and pollutants from stormwater, and protect shorelines from wind and wave action and storm surge.

Wetlands of the Calcasieu/Sabine, and Mermentau Basins were formed through delta-building processes associated with the Mississippi River. The Calcasieu/Sabine Basin has approximately 312,500 acres of wetlands, including 32,800 acres of fresh marsh, 112,000 acres of intermediate marsh, 158,200 acres of brackish marsh, and 9,500 acres of saline marsh. The Mermentau Basin has 450,000 acres of wetlands, including 190,000 acres of fresh marsh, 135,000 acres of intermediate marsh, and 101,000 acres of brackish marsh. Since 1932, nearly 128,000 acres of historical wetlands have been lost in the Sabine/Calcasieu Basin, and over 120,000 acres have been lost in the Mermentau Basin (Couvillion et al. 2017). The construction of multiple navigation channels and water control structures discussed in Section 5.3 allowed for increased connectivity of freshwater habitats to the saline Gulf of Mexico. This, along with natural rates of subsidence, increased saltwater intrusion, erosion, and overall wetland loss. As these basins are no longer connected to the progradation process of the Mississippi River, natural wetland building and maintenance is unlikely to occur. Wetland loss is expected to continue to occur, with 54,000 acres in the Calcasieu/Sabine and 99,000 acres in the Mermentau projected to occur over the next 50 years (CWPPRA n.d.b, c). Since 1992, the State of Louisiana has implemented numerous marsh

creation and management, terracing, and sediment trapping projects (CWPPRA n.d.a). Additional projects recommended in the 2017 Coastal Master Plan are in planning, engineering and design, and construction. The potential impacts of actions covered under this PEA on state restoration projects will be evaluated by resource agencies as individual projects are permitted.

JDEC's contractor is currently conducting a comprehensive wetland delineation for the project area. This delineation will utilize NOAA, Emergency Response Imagery along with field surveys to map known wetland areas within the project area and will map observed waters of the United States using a global positioning system (GPS) in non-marsh environments. Inundated areas will be mapped by utilizing post hurricane aerials and ground-truthing from the edge of the ROW. Marsh habitat not adjacent to a road ROW will be accessed via an airboat. Vegetation, wetland hydrology, and soil characteristics will be documented during field surveys, where accessible. As this information is not yet available, the USFWS National Wetlands Inventory (NWI) was used to estimate impacts of this project to wetlands. The extent and classification of wetlands in the project area will not be known until wetland surveys and delineations are completed and final determinations are made, and regulatory agencies determine who has jurisdiction over the resources. This finalization of wetland status occurs as part of the Section 404/10 permitting process that will be initiated as individual projects are submitted for regulatory review, will include a quantification of temporary and permanent impacts of all project components, and will not occur prior to the finalization of this PEA. Unavoidable impacts to wetlands will be assessed and mitigation prescribed by the resource agency who is determined to have jurisdiction over any waters of the United States and wetlands that may be identified. The NWI is not used by USACE or LDNR in the delineation of wetlands as it uses different classification systems and wetland definitions, and accuracy has not been verified. This dataset was included for the benefit of the public in estimating wetland impacts until a full jurisdictional wetland determination is completed. Public notice and comment periods that specify impacts to these resources will occur as individual projects are permitted.

According to the NWI, proposed workspaces would intersect the following wetland types: riverine (13 acres), freshwater ponds (2.5 acres), freshwater emergent wetlands (65 acres), freshwater forested/shrub wetlands (25 acres), estuarine and marine wetlands (379 acres), and estuarine and marine deep water (130.5 acres) (USFWS, 2014).

5.2.3 Environmental Consequences

Alternative 1 – No Action. This alternative would have no direct, short- or long-term effects to waters of the United States as a result of construction. However, if the system remains unrepaired, damaged infrastructure would require more frequent emergency repairs to maintain the ability to provide reliable electricity to the public. This could result in more frequent access through waters of the United States, including wetlands, to perform repairs, which could result in adverse impacts. As a result, long-term, temporary, minor to moderate adverse effects could occur.

Alternative 2 – 230kV Resiliency and Redundancy, Preferred Alternative. JDEC and FEMA have initiated the 8-step decision-making process for wetlands (Appendix D). Based on best available information, this entire proposed action would be located within a 100-year or 500-year floodplain (Step 1). FEMA issued a Public Notice of its intent to reimburse eligible applicants for eligible costs for assistance to repair and/or replace facilities damaged by Hurricane Laura on September 18, 2020 (Step 2). The identification of practicable alternatives is presented in Section 4 of this PEA (Step 3). The potential direct and indirect impacts of the alternatives on wetlands

and measures to minimize the potential adverse impacts are discussed below and Appendix B (Steps 4 and 5). No other alternatives are practicable in light of the information gained in Steps 4 and 5, because the storm-damaged electrical system that requires repair or replacement provides service to residents and businesses in this location and cannot be relocated elsewhere. Therefore, the only practicable alternative is to locate the proposed action in floodplains (Step 6). Final public notice will be incorporated into the notice of availability for public review of the draft PEA (Step 7). JDEC will assure that this plan is executed and will take an active role in monitoring the construction process to ensure no unnecessary impacts occur nor unnecessary risks are taken (Step 8).

Construction activities associated with utility replacement and access to workspaces could result in short-term, temporary impacts to wetlands and waters of the United States. Although this alternative generally would run adjacent to state roads and highways and be performed within existing ROWs to the extent possible, short-term, temporary impacts, during project construction could occur. These short-term, temporary impacts would include the potential to impact waters and wetlands through minor erosion and runoff; accidental spills of fluids used in construction equipment; sedimentation into the receiving ditches/culverts, and adjacent drainage canals; and compaction and rutting of wetland soils and vegetation from the use of heavy equipment and materials during construction. These short-term, temporary impacts have the potential to occur where wetlands may be present within any portion of the 150-foot wide temporary pole installation workspace during construction, waterway crossing temporary workspaces, and wetlands immediately adjacent to substation construction. Based on the NWI, up to 452 acres of wetlands may be subject to such short-term, temporary impacts. These potential short-term, temporary impacts would be reduced to negligible by employing the construction BMPs described in Appendix A.1, including the use of construction mats, turbidity curtains, location-appropriate equipment (e.g., airboats, marsh buggies), ingress/egress perpendicular to the roadway, and restoration of tidal salt marshes. Monitoring would be conducted to ensure that wetlands return to pre-construction condition, and if not, JDEC would conduct appropriate adaptive management. Additional discussion of impacts to wetlands can be found in Section 5.6, Biological Resources.

This alternative would have negligible to minor, permanent, long-term effects on wetlands and waters of the United States. These impacts include an unavoidable loss of wetlands where installation of permanent transmission system infrastructure would occur. Based on the NWI, wetland loss is estimated to be 5 acres or less and would be limited to the location of pole installations (0.4 acres), new areas required for switching stations and towers associated with waterway crossings (1.5 acres), and additional areas required for substations (2.4 acres). As individual projects are permitted, JDEC would work with federal and state resource agencies to minimize wetland loss. It is at this stage that agencies would assess and prescribe mitigation requirements to offset unavoidable wetland loss. Mitigation to offset such unavoidable losses would involve purchase of habitat credits from an OCM-approved Louisiana mitigation bank or payment of an in-lieu fee, which funds coastal restoration in Louisiana.

In contrast to Alternative 3, this Preferred Alternative would eliminate the need to rebuild the approximately 27.5-mile 138kV line (including 327 H-Frame Structures and 654 poles) which spanned wetland habitat and was not along a roadway, thereby providing a benefit to waters of the United States and wetlands by not resulting in temporary or permanent impacts in this area.

Activities located in or near wetlands may require coordination with state and federal regulatory agencies, project specific permit applications, and compliance with permit conditions. FEMA and

JDEC have coordinated with LDNR, USACE, USFWS, and NOAA on potential impacts to wetlands (see Appendix C) and incorporated recommended BMPs in Appendix A.1. Mitigation for unavoidable impacts will be assessed on a project-by-project basis by federal and state agencies, and JDEC will implement an approved mitigation plan for those projects. Unavoidable impacts to wetlands not covered by this PEA Programmatic 8-Step/Wetlands Notice would require an individual 8-step decision-making process and final public notice, and a SEA may be required. If there are unavoidable impacts to wetlands, FEMA may elect to adopt an EHP analysis performed by USACE.

Alternative 3 – 69kV/138kV Repair/Resiliency. Impacts in this alternative would be similar to those in the Preferred Alternative 2 and would utilize the same BMPs, mitigation measures, and agency coordination. This alternative would utilize a narrower workspace corridor than the Preferred Alternative 2 as described in Section 4 but would require reconstruction of the 27.5-mile 138kV line, which ran through waters of the United States and wetlands.

Short-term, temporary impacts during project construction have the potential to occur where wetlands may be present within temporary pole installation workspaces for the 69kV and 138kV transmission lines, waterway crossing temporary workspaces, and wetlands immediately adjacent to substation construction. Based on the NWI, up to 211 acres of wetlands may be subject to short-term impacts.

This alternative would have negligible to minor, long-term effects on wetlands and waters of the United States. These impacts include an unavoidable loss of wetlands where installation of permanent transmission system infrastructure will occur. Wetland loss is estimated to be 5 acres or less and would be limited to the location of pole installations (0.24 acres) and new areas required for switching stations and towers associated with waterway crossings (1.9 acres). Under Alternative 3, substation rebuilds would occur in pre-storm locations and would not require additional area resulting in new impacts from their construction. As individual projects are permitted, JDEC would work with federal and state resource agencies to minimize wetland loss. It is at this stage that agencies will assess and prescribe mitigation requirements to offset unavoidable wetland loss and JDEC will comply with any required mitigation.

5.3 Hydrology and Floodplains

5.3.1 Regulatory Setting

Executive Order 11988, Floodplain Management, requires federal agencies to avoid or minimize modifications to the nation's floodplains within or affecting the 1% annual-chance Special Flood Hazard Area (SFHA) (i.e., 100-year floodplain) whenever there is a practicable alternative. For "Critical Actions", which include principal points of utility lines, where even a slight chance of flooding is too great, the minimum floodplain of concern is within the 0.2% annual chance SFHA (i.e., the 500-year floodplain). FEMA's regulations for complying with EO 11988 are codified in 44 CFR Part 9, Floodplain Management and Protection of Wetlands.

FEMA uses the best available flood hazard information National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM) to determine the flood hazard zone and Base Flood Elevations (BFEs) proposed projects. Where multiple sources of flood hazard information are available for a proposed project site, such as where there is both an Effective NFIP FIRM and Advisory Flood Hazard Information, FEMA will compare each source. The best available information is the source that provides the more restrictive flood hazard zone, the highest BFE, and/or the greatest discharge.

FEMA defines flood zones according to varying levels of flood risk. NFIP flood hazard mapping is generally divided into three categories, the V Zone (also known as the CHHA, coastal flood with velocity hazard, wave heights > 3 feet) and the A Zone (wave heights < 3 feet), and X (unshaded; areas of minimal flood hazards outside 0.2-percent-annual-chance floodplain). In coastal areas, the A Zone category is subdivided into "Coastal A Zone" and "A Zone" by the Limit of Moderate Wave Action (LiMWA). Base flood conditions in the Coastal A Zone will be similar to, but less severe than, those in the V Zone; base flood conditions in the A Zone will be similar to those in riverine or lake floodplains (FEMA 2005).

Under 44 CFR Part 9, there shall be no new construction or substantial improvement in a floodway. New construction in a CHHA is not allowed, except for a functionally dependent use (i.e., a use which cannot perform its intended purpose unless it is located or carried out in close proximity to water) or a structure or facility that facilitates open space use. Because structures and facilities are subject to a greater hazard in a floodway, NFIP and FEMA regulations require structures which are a fundamentally dependent use and facilities which facilitate an open space use to be elevated on adequately anchored pilings or columns, and securely anchored to such piles or columns so that the lowest portion of the structural members of the lowest floor (excluding the pilings or columns) is elevated to or above the base flood level (the 500-year flood level for critical actions) (including wave height). The structure shall be anchored so as to withstand velocity waters and hurricane wave. Construction standards for the V Zone are also required in the Coastal A Zone (FEMA 2005).

Pursuant to the James Walke memorandum dated, June 2, 2009, FEMA's regulations implementing Executive Order 11988, Floodplain Management, prohibit the Agency from funding new construction in V Zones that is not functionally dependent on water or facilitates open space use. The definition of new construction at 44 CFR 9.4 includes "the replacement of structure or facility which has been totally destroyed." FEMA considers a structure or facility to be "totally destroyed" when its repair costs equal or exceed 90 percent of its replacement costs. FEMA may fund substantial improvements in a V Zone. Substantial improvements include repairs, improvements and reconstruction of structures or facilities when the repair costs fall between 50 and 90 percent of the replacement costs. Reconstruction may include the purposeful demolition and removal of remaining elements of a disaster damaged structure or facility to allow for the reconstruction of the facility or structure for the same function in the substantially same footprint not to exceed 110 percent.

The July 15, 2009, Elizabeth A. Zimmerman memorandum provided direction for Application of the 110% Footprint for Substantial Improvements in V Zones. The provision allowing for 10% beyond the pre-disaster footprint is meant to comply with the limitation on new construction in FEMA regulations and at the same time provide an allowance for changes necessary for the reconstruction project. Reconstruction projects resulting in a footprint increase of more than 10% will not be considered unless the increase is based specifically on the need to comply with applicable codes and standards such as floodplain management ordinances or requirements under the Americans with Disabilities Act (ADA). It is JDEC's responsibility to demonstrate that any extension beyond the 10% is triggered by an applicable code and standard.

As described in Section 5.2.1 Wetlands, 44 CFR § 9.6 also details an 8-step process that decision-makers must use when considering projects either located within the floodplain or with the potential to affect the floodplain. The 8-step process assesses the action with regard to human susceptibility to flood harm and impacts to wetlands; analyzes principal flood problems, risks from

flooding, history of flood loss, and existing flood protection measures; and includes public notice and opportunity for the public to have early and meaningful participation in decision making and alternative selection. If impacts cannot be avoided or an alternative location found, the 8-step process includes requirements to incorporate measures to minimize and mitigate potential risks from flooding and impacts to wetlands as appropriate. Projects that are subject to the 8-step process must be consistent with the criteria of the NFIP and FEMA or more restrictive federal, state, or local floodplain management standards.

Under 44 CFR Part 9, FEMA is required to avoid activities in a floodplain unless it is the only practicable alternative. If undertaking a proposed project in the floodplain is the only practicable alternative, then FEMA must minimize the impacts to the floodplain and the impacts from floods to the facility or structure. Minimization techniques apply to the location of structures, equipment, and building contents in floodplain areas. This could include elevating facilities or structures above the BFE. Minimization techniques may include flood-proofing structures or facilities.

Under requirements established in 44 CFR Part 60, Criteria for Land Management and Use, participating communities will require permits for all development, including temporary and new development, in the SFHA. Any new construction and substantial improvements in flood zones require structure elevation on pilings, posts, piers, or columns so that the bottom of the lowest horizontal structural member of the lowest floor (including pilings or columns) is elevated to or above the BFE. This protects new, substantially improved, or substantially damaged buildings from damage by the base flood.

Both Calcasieu and Cameron Parishes participate in the NFIP. Floodplain managers from both Cameron and Calcasieu Parishes were consulted regarding this project and provided letters indicating that they have no objections to the proposed work as long as JDEC ensures the minimum NFIP requirements are met, including the Louisiana State Uniform Construction Codes, and all approvals and permits required by law are obtained.

In 1990, the federal Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) was enacted to prioritize, design, and implement coastal wetland restoration projects in Louisiana. Restoration priorities, which include hydrologic restoration, aim to protect, enhance, and restore wetlands that play a critical role in reducing flood risk associated with high rain events, hurricanes, and storm surge. Approximately 210 coastal restoration and protection projects have been authorized as a result of the CWPPRA legislation. One of these is the Coastwide Reference Monitoring System (CRMS), which established and maintains a network of nearly 400 monitoring stations across the Louisiana coast to evaluate the effectiveness of restoration projects. CRMS sites are used to monitor hydrology, elevation, and vegetation.

5.3.2 Existing Conditions

Floodplains in the project area are within the Calcasieu/Sabine, and Mermentau Basins. The geography of the region and the land use patterns that have developed without reflection on flood hazard and risk minimization have led to a high degree of connectivity between these Basins. As such, the major hydrologic features and drainage patterns described below have a direct connection to flood risk and mitigation measures required in the project area.

Major hydrologic features that provide for the drainage of storm- and floodwaters include Sabine Lake, the Sabine River, Calcasieu Lake, the Calcasieu River, CSC, GIWW, and the Mermentau River, with the Calcasieu and Mermentau Rivers providing the dominant flow of freshwater

through the Basins. The CSC and GIWW, canals for trapping and oil and gas exploration, and water control structures such as the Calcasieu Lock and Catfish Point Control Structure now dominate the hydrology of the floodplains. In some cases, these modifications are subject to erosion and have facilitated saltwater intrusion, impoundment, and degradation of wetlands. These canals have altered historical water circulation patterns by connecting interior freshwater marshes to the Calcasieu Estuary and Gulf of Mexico (CWPPRA a, CWPPRA b). Since 1992, numerous hydrologic restoration projects have been completed by the state, with additional projects in planning, engineering and design, and construction (CWPPRA c).

The project area includes the following flood zones, which are all within the SFHA: V/E (the "E" indicating that the BFE has been determined), A/E, Coastal A/E, A, and X (unshaded). Table 2 lists the flood zones, Ground Surface Elevations, BFEs, and 500-year water surface elevations of pre-Hurricane Laura JDEC structures within the Project Area.

Table 2. Flood Zones, Ground Surface Elevations, BFE, and 500-Year Water Surface Elevations (including waves; NAVD88) of Pre-Hurricane Laura JDEC Structures.

"—" indicates that there is no established BFE.

Parish	Structure	Flood Zone	Ground Surface Elevation	BFE	500-Year Water Surface Elevations
Calcasieu	Chalkley Bulk #ENT (30.1728, -93.1124)	X & A	18.8	—	N/A, No 500-yr available
Calcasieu	Charlie Substation #18 (30.1728, -93.1124)	X & A	18.8	—	N/A, No 500-yr available
Calcasieu	Global Substation #16 (30.0952, -93.3392)	X	11.5	10	14.1
Calcasieu	Manchester Substation #6 (30.1575, -93.0818)	X	16.4	—	N/A, No flood hazards identified near this site
Cameron	Grand Chenier Substation #9 (29.7641, -92.9514)	Coastal A/E	3.7	11	16.8
Cameron	Fulton Substation #14 (29.7877, -93.2917)	Coastal A/E	1.6	14	19.2
Cameron	Creole Bulk Switching Station #CB (29.8094, -93.1579)	Coastal A/E	3.4	12	19.2
Cameron	Creole Substation #8 (29.8144, -93.133)	Coastal A/E	4.06	11	17.5
Cameron	Michigan-Wisconsin Substation #15 (29.776, -93.0006)	Coastal A/E	1.8	13	16.7

Parish	Structure	Flood Zone	Ground Surface Elevation	BFE	500-Year Water Surface Elevations
Cameron	Venture Global Substation #17 (29.7787, -93.3256)	Coastal A/E	2.9	15	21.8
Cameron	Holly Beach Switching Station #11 (29.771, -93.4678)	V/E	5.3	16	20.1
Cameron	Johnson Bayou Substation #12 (29.7614, -93.6286)	Coastal A/E	6.2	14	23.4
Cameron	Holly Point Metering Station (29.9309, -93.3767)	Coastal A/E	1.9	10	15.5
Cameron	Hackett Substation #7 (30.0098, -93.088)	A/E	6.8	9	13.9
Cameron	CSC East Riser (29.8029, -93.344)	Coastal A/E	2.1	13	18.8
Cameron	CSC West Riser (29.8018, -93.3511)	Coastal A/E	3.6	13	19.5
Cameron	GIWW 69kV North Tower (29.9344, -93.0785)	Coastal A/E	3.2	9	13.8
Cameron	GIWW 69kV South Tower (29.9331, -93.0786)	V/E	2.6	10	15.8
Cameron	GIWW 138kV North Tower (29.9372, -93.1142)	Coastal A/E	1.6	9	15.2
Cameron	GIWW 138kV South Tower (29.935, -93.1143)	Coastal A/E	1.9	9	15.5

5.3.3 Environmental Consequences

Alternative 1 – No Action. This alternative would have no direct impacts on hydrology and floodplains. However, damages to utility infrastructure could constitute a flow impediment. Erosion and sedimentation may increase if unrepaired utilities suffer further damage, potentially causing adverse impacts to stream and floodplain hydraulics and function. This alternative would reinforce existing land use patterns that have developed without reflection on flood hazard and risk minimization. As a result, long-term, minor to moderate, temporary or permanent, adverse effects could occur as a result of no action, as infrastructure would continue to operate in a diminished state.

Alternative 2 – 230kV Resiliency and Redundancy, Preferred Alternative. JDEC has initiated the 8-step decision-making process for floodplains (Appendix E) and has completed Steps 1 through 6, finding that the location of the proposed action in the 500-year floodplain is the only practicable alternative. Final public notice will be incorporated into the notice of availability for public review of the draft PEA (Step 7); JDEC will assure that this plan is executed and will take an active role in monitoring the construction process to ensure no unnecessary impacts occur nor unnecessary risks are taken (Step 8).

Because this proposed action is a critical action, structures and facilities need to be built to a 500-year elevation. The majority of the substations and towers infrastructure would be elevated in their current locations to the 500-year elevations as presented in Table 2, with the following exceptions.

- The proposed new 2.4-acre Creole Substation (29.8165, -93.1129) would be located in Cameron Parish Zone Coastal A/E with a ground elevation of 2.5, a BFE of 11 and a 500-year water surface elevation of 17.5.
- The proposed new 2.4-acre Mud Lake Substation (30.0458, -93.342) would be located in Cameron Parish Zone Coastal A/E with a ground elevation of 2.4, a BFE of 10 and a 500-year water surface elevation of 17.
- The new Mermentau River crossing switching stations in Cameron Parish would require an estimated 0.7 acres total. The East Mermentau Switching Station (29.7696, -93.0118) would be located in Zone Coastal A/E with a ground elevation of 1.9, a BFE of 14 and a 500-year water surface elevation of 20.4. The West Mermentau Switching Station (29.7701, -93.0154) would be located in Zone Coastal A/E with a ground elevation of 0.9, a BFE of 15 and a 500-year water surface elevation of 20.5.
- The Holly Beach Switching Station would require an additional 0.6 acres, and the Michigan-Wisconsin substation would require an additional 0.3 acres at their current locations (See Table 2). Because the Holly Beach Switching Station is located in a CHHA, an individual assessment and 8-step decision making process would be required. This requirement would also apply to any other facilities that are determined to be in a CHHA.

Work conducted under this alternative could result in short-term, temporary, negligible effects on floodplains and hydrology as a result of sediment and turbidity during construction along the transmission line workspace corridor, at waterway crossings, and at substation locations. Negligible, permanent, long-term effects would be limited to localized areas of pole placements, waterway crossing infrastructure, and new and expanded substations. Under this alternative, the elevation of substations on platforms above the 500-year flood would reduce the displacement of floodwaters. The total area of poles (approximately 1,000 transmission poles and 1,000 distribution poles) is estimated at 1.16 acres. Using the average difference between the BFE and the base elevation of JDEC infrastructure in Cameron Parish of 8.4 feet (an overestimate because flood levels would be lower in Calcasieu Parish), these poles would displace 9.7 acre-feet of water. This displacement would be partially offset by the removal of an estimated 2,429 poles from the pre-Hurricane Laura 69kV lines and 654 poles and 327 H-Structures from the pre-Hurricane Laura 138kV line, which altogether covered an estimated area of 0.1 acres (calculated using a pole diameter of 15 inches per pole; H-Structures have 2 poles per structure). Using the same flood height of 8.4 feet, these poles would have displaced an estimated 0.9 acre-feet. Displacement of floodwater by transmission poles would be negligible as the 230kV poles represent less than 0.00008% of the area of Cameron and Calcasieu Parishes (1,517,894 acres). Therefore, the proposed action would not result in a measurable increase in flood levels.

In contrast to Alternative 3, this Preferred Alternative would eliminate the need to rebuild the approximately 27.5-mile 138kV line which spanned floodplain, thereby providing a benefit to hydrology and floodplains by not resulting in temporary or permanent impacts in this area.

Adverse effects would be avoided or minimized in accordance with FEMA's minimization standards in 44 CFR § 9.11. Treatment measures would be required to reduce adverse impacts below the level of significance. New construction must be compliant with current codes and standards. Per 44 CFR § 9.11(d)(6), no project should be built to a floodplain management standard that is less protective than what the community has adopted in local ordinances through their participation in the NFIP. Per 44 CFR Part 9.11 and 44 CFR 60.3(c)(3) and (e)(4), (5), and (6) requirements for construction in V zones, JDEC is required to design and construct the project to V Zone standards in accordance with American Society of Civil Engineers (ASCE) Standard 24, Coastal Construction Manual, *Flood Resistant Design and Construction*, or latest edition, must coordinate with the local floodplain administrator to obtain required permits prior to initiating work, and must comply with any conditions of the permit to ensure harm to and from the floodplain is minimized. All coordination pertaining to these activities should be retained as part of the project file in accordance with the respective grant program instructions.

JDEC is required to coordinate with the local floodplain administrator regarding floodplain permit(s) prior to the start of any activities. Coordination pertaining to these activities and compliance with any conditions should be documented and copies forwarded to GOHSEP and FEMA for inclusion in the permanent project files.

Alternative 3 – 69kV/138kV Repair/Resiliency. Impacts in this alternative would be similar to those in the Preferred Alternative 2 and would utilize the same avoidance and minimization standards, ASCE standards for design and construction, and coordination steps. Because substations would be repaired at their current locations, there would be no new substations or additional area needed for existing substations. However, if under this alternative, substations were not elevated to the 500-year flood level, this alternative would not reduce displacement as much as the preferred Alternative 2. Additionally, this alternative would require reconstruction of the 27.5-mile 138kV line which ran through floodplains.

5.4 Water Quality and Resources

Section 401 of the CWA requires, prior to issuance of a section 404 permit, a certification that any discharges from the facility will comply with the act, including state-established water quality standard requirements. Under Section 402 of the CWA, NPDES, the USEPA regulates the discharge of pollutants into waters of the United States. On August 27, 1996, USEPA Region VI delegated the authority to administer the NPDES program for matters within the jurisdiction of the State of Louisiana to the state. NPDES requirements are discussed further in Section 5.4 on Water Quality and Resources.

Section 303(d) of the CWA requires states to develop a list of impaired waters. Water is considered impaired if the current quality does not meet the numeric or narrative criteria in a water quality standard, or the designated use described by that state is not achieved. CWA Section 303(d) regulations are discussed further in Section 5.4 on Water Quality and Resources.

5.4.1 Regulatory Setting

Section 401 of the Clean Water Act

Section 401 of the CWA requires state certification of all federal licenses and permits in which there is a "discharge of fill material into navigable waters." The certification process is used to determine whether an activity, as described in the federal license or permit, would impact established site-specific water quality standards. A water quality certification from the issuing state, the Louisiana Department of Environmental Quality (LDEQ) in this case, is required prior to the issuance of the relevant federal license or permit. The most common federal license or permit requiring certification is the USACE CWA § 404 permit.

Section 402 of the Clean Water Act

The NPDES program was created by § 402 of the CWA. This program authorizes the USEPA to issue permits for the point source discharge of pollutants into waters of the United States. Through a 2004 Memorandum of Agreement (MOA), the USEPA delegated its permit program for the State of Louisiana to LDEQ. Having assumed NPDES responsibilities, Louisiana directly issues NPDES permits and has primary enforcement responsibility for facilities located within the State, with certain exceptions such as Indian Country Lands. The Louisiana Pollutant Discharge Elimination System (LPDES) requires permits for the discharge of pollutants, including wastewater and stormwater, from any point source into waters of the state. Per the CWA, the term "point source" is defined as "any discernible, confined, and discrete conveyance such as a pipe or a ditch". All point source discharges of pollutants to waters in the State of Louisiana are subject to a LPDES permit issued by LDEQ. Additionally, LDEQ requires a Stormwater Pollution Prevention Plan (SWPPP) for land disturbing activities greater than one acre. For land disturbing activities greater than five acres, LDEQ requires: a SWPPP, a Notice of Intent, and a Notice of Completion.

Section 303(d) of the Clean Water Act

Section 303(d) of the CWA requires states to develop a list of impaired waters. Waters are considered impaired if the current quality does not meet the numeric or narrative criteria in a water quality standard, or the designated use described by that state is not achieved. Section 303(d)(2) requires that states submit and USEPA approve or disapprove lists of waters for which existing technology-based pollution controls are not stringent enough to attain or maintain state water quality standards, and for which total maximum daily loads (TMDLs) must be prepared (40 CFR §130.7). TMDLs are pollution budgets designed to identify necessary reductions of pollutant loads to the impaired waters so that the appropriate water quality standards are met, including designated uses like fishing or swimming and water quality criteria for parameters such as dissolved oxygen and water clarity. The regulations require states to identify water quality limited waters still requiring TMDLs every two years. Types of impairments may include, for example, impaired primary contact use (e.g., swimming, water skiing), mercury and polychlorinated biphenyls (PCBs) in fish tissue, impaired fish consumption use, low dissolved oxygen, copper, phosphorus, manganese, excessive siltation, physical-habitat alterations, and total suspended solids which impair aquatic life use.

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) was passed in 1974 and has been amended twice, most recently in 1996. The SDWA focuses on both above- and below-ground waters designated for public drinking use, both actual and potential, including rivers, reservoirs, lakes, springs, and groundwater wells. It also establishes health-based national standards and testing regimes to

protect the public from naturally occurring and human-generated contaminants of drinking water (40 CFR Parts 141-143). Although the SDWA originally focused on treatment as the primary method for providing safe drinking water, the 1996 amendments recognized that other factors such as protecting water sources, providing funds for water system improvements, and disseminating information to the general public, are also important.

Oversight of SDWA rules is usually conducted by states under their own drinking water programs if a state's standards are at least as stringent as those of the USEPA. The Louisiana Department of Health and Hospitals received primacy to administer the SDWA in Louisiana in 1977, with the exception of the Ground Water Rule and the Revised Total Coliform Rule, which are still overseen by the USEPA (Louisiana Department of Health and Hospitals 2013, USEPA 2004).

The Sole Source Aquifer (SSA) program is established under Section 1424(e) of the SDWA (Public Law 93–523). The SDWA authorizes USEPA to designate an aquifer for special protection under the SSA program if the aquifer is the sole or principal drinking water resource for an area and if its contamination would create a significant hazard to public health. The definition of a designated SSA is one supplying 50 percent or more of the drinking water for a particular area. No commitment for federal financial assistance may proceed for any project that USEPA determines may contaminate a sole source aquifer such that it creates a significant hazard to public health.

5.4.2 Existing Conditions

Water resources in the project area include both groundwater and surface waters. Groundwater within the project area is contained within the Chicot aquifer system (CWPPRA, n.d.b,c). The Chicot aquifer system, which is a designated SSA, extends through the southern two-thirds of Calcasieu Parish and all of Cameron Parish. Precipitation is restricted from infiltration into the groundwater system by a surficial confining layer of clay. Fresh groundwater withdrawals from the aquifer are primarily for industrial use (50 million gallons/day (mgd)), public supply (27 mgd), agricultural use (5 mgd), and rural domestic use (2 mgd). Surface water resources intersected by or adjacent to the project area include the Calcasieu River, GIWW, and Mermentau River (CWPPRA, n.d.b, c). Surface water withdrawals include industrial use (77 mgd) and agricultural use (19 mgd), with the majority of withdrawal occurring from the Calcasieu River. There are no public or rural domestic withdrawals reported from surface water resources that are intersected by or adjacent to the project area. Additional water resources in proximity include Calcasieu Lake, the CSC, and Lower Mud Lake. No withdrawals are reported from these water resources.

The 2020 Louisiana Water Quality Integrated Report (LDEQ 2020) listed Calcasieu Lake, Calcasieu River, the CSC, GIWW (East of HWY 27 to White Lake), and Mermentau River as impaired under Section 303(d) of the CWA. Primary contact recreation (swimming) is not supported for these 303(d) listed water resources. Secondary contact recreation (boating) is supported for these water resources. Fish and wildlife propagation (fishing) is supported for the Mermentau River only.

5.4.3 Environmental Consequences

Alternative 1 – No Action. This alternative would have no direct impacts on water quality and resources. However, if the system remains unrepaired, damaged infrastructure would require more frequent emergency repairs to maintain the ability to provide reliable electricity to the public. As a result, it is possible that this alternative could contribute to future erosion and sedimentation as

a result of soil disturbance from routine maintenance access, resulting in intermittent long-term, minor, adverse effects.

Alternative 2 – 230kV Resiliency and Redundancy, Preferred Alternative. As the Chicot aquifer system is not recharged through precipitation, and underground crossings will not infiltrate the aquifer, no impacts to the quality of groundwater would occur as a result of the Preferred Alternative 2. Impacts to surface water quality through a temporary increase in suspended solids through stormwater runoff from construction sites could occur where the project area intersects water resources along the transmission line workspace corridor, at waterway crossings, and at substation locations. Construction activities associated with utility replacement could cause rutting and erosion, which would cause a short-term localized reduction in water quality through increased turbidity via stormwater runoff limited to the duration of construction. Construction of crossings includes the use of HDD and would necessitate the installation of permanent, above ground semi-permeable gravel workspaces. Adverse effects would be avoided or minimized in accordance with FEMA's minimization standards in 44 CFR § 9.11. BMPs described in Appendix A.1 would be implemented to reduce adverse impacts. JDEC is required to obtain and comply with conditions of any water quality certifications and NPDES permits that may be required under CWA Sections 401 and 402. Projects that obtain and comply with the required NPDES permits and SWPPPs will not result in significant impacts to water resources or quality. The Preferred Alternative 2 would have negligible, short-term, temporary, impacts and no long-term impacts on water resources and quality.

Alternative 3 – 69kV/138kV Repair/Resiliency. Work conducted under this alternative would result in similar impacts, utilize the same BMPs, and require the same permit process, as the Preferred Alternative 2. Waterway crossings would be limited to the two crossings at the GIWW, and there would be no new or relocated substations.

5.5 Land Use and Planning

5.5.1 Regulatory Setting

Land use is the way in which people utilize the land and its resources. Land use planning varies depending on land ownership and jurisdictional boundaries. Land use is generally guided by comprehensive plans that specify the allowable types and locations of present and future land use. In most cases, that comprehensive plan is developed through a public participation process and approved by publicly elected officials to capture local values and attitudes toward planning and future development. Zoning ordinances and regulations vary throughout the United States and are primarily set at the local, city, county, or regional level.

Coastal Zone Management Act of 1972

The Coastal Zone Management Act (CZMA) of 1972 (16 USC § 1451 et seq.) is administered by the Department of Commerce's Office of Ocean and Coastal Resource Management within the National Oceanic and Atmospheric Administration (NOAA). It applies to all coastal states and to all states that border the Great Lakes. The CZMA was established to help prevent any additional loss of living marine resources, wildlife, and nutrient-enriched areas; alterations in ecological systems; and decreases in undeveloped areas available for public use. The CZMA gives states the authority to determine whether activities of governmental agencies are consistent with federally approved coastal zone management programs. Each state coastal zone management program must include provisions protecting coastal natural resources, fish, and wildlife; managing development along coastal shorelines; providing public access to the coast for recreational purposes; and

incorporating public and local coordination for decision-making in coastal areas. This voluntary federal-state partnership addresses coastal development, water quality, shoreline erosion, public access, protection of natural resources, energy facility siting, and coastal hazards.

The CZMA requires that coastal states develop a coastal zone management plan and that any federal agency conducting or supporting activities affecting the coastal zone conduct or support those activities in a manner consistent with the approved state plan or program. To comply with the CZMA, a federal agency must identify activities that would affect the coastal zone, including development projects, and review the state coastal zone management plan to determine whether a proposed activity would be consistent with the plan.

The Federal Consistency provision, contained in § 307 of the CZMA, allows affected states to review federal activities to ensure that they are consistent with the state's coastal zone management plan. This provision also applies to non-federal programs and activities that use federal funding and that require federal authorization. Any activities that may have an effect on any land or water use or on any natural resources in the coastal zone must conform to the enforceable policies of the approved state coastal zone management program. NOAA's regulations in 15 CFR Part 930 provide the procedures for arriving at or obtaining a consistency determination.

Louisiana State and Local Coastal Resources Management Act of 1978

Pursuant to the CZMA, the State and Local Coastal Resources Management Act of 1978 (R.S. 49:214.21 et seq. Act 1978, No. 361) is the State of Louisiana's legislation creating the Louisiana Coastal Resources Program (LCRP). The LCRP establishes policy for activities including construction in the coastal zone, defines and updates the coastal zone boundary, and creates regulatory processes. The LCRP is under the authority of the LDNR OCM. If a proposed action is within the Coastal Zone boundary, FEMA requires contacting the OCM for a permit. The OCM will review the eligibility of the project concurrently with its review by other federal agencies (USACE, USFWS, and NMFS). The mechanism employed to review these projects is the Coastal Use Permit (CUP). Per the CZMA, all proposed federal projects within the coastal zone must undergo a Consistency Determination by OCM for that project's consistency with the state's Coastal Resources Program (i.e., LCRP) (LDNR 2016).

Coastal Barrier Resources Act

The Coastal Barrier Resources Act (CBRA) of 1982 (16 USC § 3501 et seq.), administered by the USFWS, was enacted to protect sensitive and vulnerable barrier islands found along the United States Atlantic, Gulf, and Great Lakes coastlines. The CBRA established the Coastal Barrier Resources System (CBRS), which is composed of undeveloped coastal barrier islands. With limited exceptions, areas contained within a CBRS are ineligible for direct or indirect federal funds that might support or promote coastal development, thereby discouraging development in coastal areas. Projects occurring within the boundaries of a CBRS would require consultation with USFWS before construction could occur to determine funding eligibility. JDEC is currently in the process of consulting with the CBRA Regional Coordinator. This project is expected to be eligible under General Exception 16 U.S.C. 3505(a)(3): The maintenance, replacement, reconstruction, or repair, but not the expansion, of publicly owned or publicly operated roads, structures, or facilities that are essential links in a larger network or system.

Local Regulatory Framework

The Calcasieu Parish Police Jury regulates land use under the Calcasieu Parish Zoning Ordinance (Calcasieu PPJ, Code of Ordinances §26 Article III.). While Calcasieu Parish has local coastal zone management regulations, the project area is not within the coastal zone of Calcasieu Parish.

Cameron Parish does not have local zoning or land use ordinances but does have a local coastal zone management program. As the entirety of Cameron Parish is within the coastal zone, land use is subject to coastal use permitting by the Cameron Parish Police Jury and LDNR (Cameron PPG, Code of Ordinances §5.5-6). Section 5.5-7 states that uses of local concern are subject to permitting under the authority of the Cameron Parish Police Jury and defines uses of local concern as those which directly and significantly affect coastal waters and are in need of coastal management but are not uses of state concern. Uses of state concern are defined as those which directly and significantly affect coastal waters which are in need of coastal management, and which have impacts of greater than local significance or which significantly affect interests of regional, state, or national concern. Specific uses of state concern are further defined in § 5.5-7. As this project occurs in more than one parish and has fill activity which intersects with more than one water body, it is by definition a use of state concern and is therefore subject to LDNR permitting authority. Section 5.5-8 states that no management policy of the Cameron Parish coastal resources program shall be so restrictive as to exclude uses of greater than local benefit, which includes public utilities.

Cameron Prairie NWR and Sabine NWR are both part of the Southwest Louisiana Refuge Complex. Each refuge has a Comprehensive Conservation Plan (CCP) that complies with all federal, state, and regional policies and regulations for projects within their respective boundaries and are consistent with the LCRP (Harris 2006 & Delaine 2007). While CCPs do not specifically discuss strategies for working with utilities, strategies for other activities such as oil and gas exploration are included. Projects occurring within the boundaries of NWRs would require coordination and perhaps consultation with USFWS before construction could occur. This is discussed further in Section 5.6, Biological Resources.

5.5.2 Existing Conditions

The project area is located in southeastern Calcasieu Parish and throughout Cameron Parish. For information pertaining to the population and size of these parishes, see Section 2. Southeast Calcasieu Parish is primarily agricultural, as the majority of the Parish's population lives in the Lake Charles urban area. Cameron Parish is largely non-forested wetlands and agricultural lands. Unincorporated communities within the project area include Cameron, Creole, Grand Chenier, Hackberry, and Holly Beach. Much of the project area is parallel or adjacent to existing state highways, which are developed in terms of land use. Specific land uses within the boundaries of the project area include developed (52%), rural (30%), agricultural (16%), and open water (2%) (Dewitz 2021).

Federally managed lands intersected by the project area include the Cameron Prairie and Sabine NWRs, which are components of the Southwest Louisiana Refuge Complex. The project area is also located within four Coastal Barrier Resource Systems: Calcasieu Pass (LA-10), Cameron (LA-09), Mermentau River (S10), and Sabine (S11) (USFWS 2019).

5.5.3 Environmental Consequences

Alternative 1 – No Action. This alternative would leave the existing damaged infrastructure "as is" and therefore would have no direct effects on land use and planning. However, if the system remains unrepaired, damaged infrastructure would require more frequent emergency repairs to maintain the ability to provide reliable electricity to the public. This could result in more frequent access to perform repairs in and around coastal resources. As a consequence of no action, long-term, minor to moderate, adverse effects to coastal resources could occur, such as erosion and increased turbidity.

Alternative 2 – 230kV Resiliency and Redundancy, Preferred Alternative. Alternative 2 would involve construction in a designated coastal zone; short-term, temporary, negligible impacts to coastal resources would occur during project construction from disturbance of land within the transmission line workspace corridor, temporary workspaces for the waterway crossings, and at the substations. These include the possibility of erosion, increased turbidity, and other impacts as described in Sections 5.2 Wetlands and Waters of the United States, 5.3 Hydrology and Floodplains, and 5.4 Water Quality and Resources. BMPs as described in Appendix A.1 would be implemented to reduce these potential impacts.

Installation of engineered steel poles and underground crossings at major waterways would require additional ground disturbance and fill. The substations (estimated at 5.7 acres), waterway crossings (estimated at 2.5 acres), and engineered steel poles (estimated at 1.16 acres) may result in unavoidable long-term, permanent, negligible to minor impacts to coastal resources. In accordance with a 2013 LDNR OCM Special Public Notice, the granting of federal financial assistance as defined in 15 CFR § 930.91 is fully consistent with the LCRP; however, consistency with the LCRP does not exempt JDEC from the need to obtain a CUP. JDEC is responsible for coordinating with LDNR OCM to obtain any CUP(s) and meet any special conditions that may be required for this project, including mitigation for unavoidable impacts to coastal resources. The OCM Mitigation Section evaluates all CUP applications; any lost ecological value of wetlands must be replaced by the creation of an equal amount of ecological value. Mitigation to offset such unavoidable losses would involve purchase of habitat credits from an OCM-approved mitigation bank or payment of an in-lieu fee, which funds coastal restoration.

With respect to land use, the Preferred Alternative 2 would have no effect on existing land use patterns, is consistent with zoning regulations, and would not conflict with the Cameron Prairie and Sabine NWR management plans.

The transmission line from Johnson Bayou to Grand Chenier would intersect three CBRS system units (S11, LA-10, and S10), the transmission line from Hackberry to Holly Beach would intersect CBRS system unit LA-10, and the Holly Beach Switching Station would be located within CBRS system unit LA-10 (Figure 8). As this alternative occurs within CBRSs, FEMA's regulation codified at 44 CFR Part 206.340 prohibits new expenditures and new financial assistance within the Coastal Barrier Resources System (CBRS) for all but a few types of activities identified in CBRA. FEMA would need to determine what actions may and may not be carried out within the CBRS. The exceptions are codified at 44 CFR Part 206.345, provided such assistance is consistent with the purposes of CBRA. Additionally, FEMA would be required to consult with the USFWS to determine if individual projects meet one of the CBRA's exceptions for the expenditure of federal funds or financial assistance within a CBRS. Should work under this alternative become

necessary outside of JDEC maintained ROWs or established servitudes, any necessary rights-of-entry or specialized permits would be obtained by the JDEC.

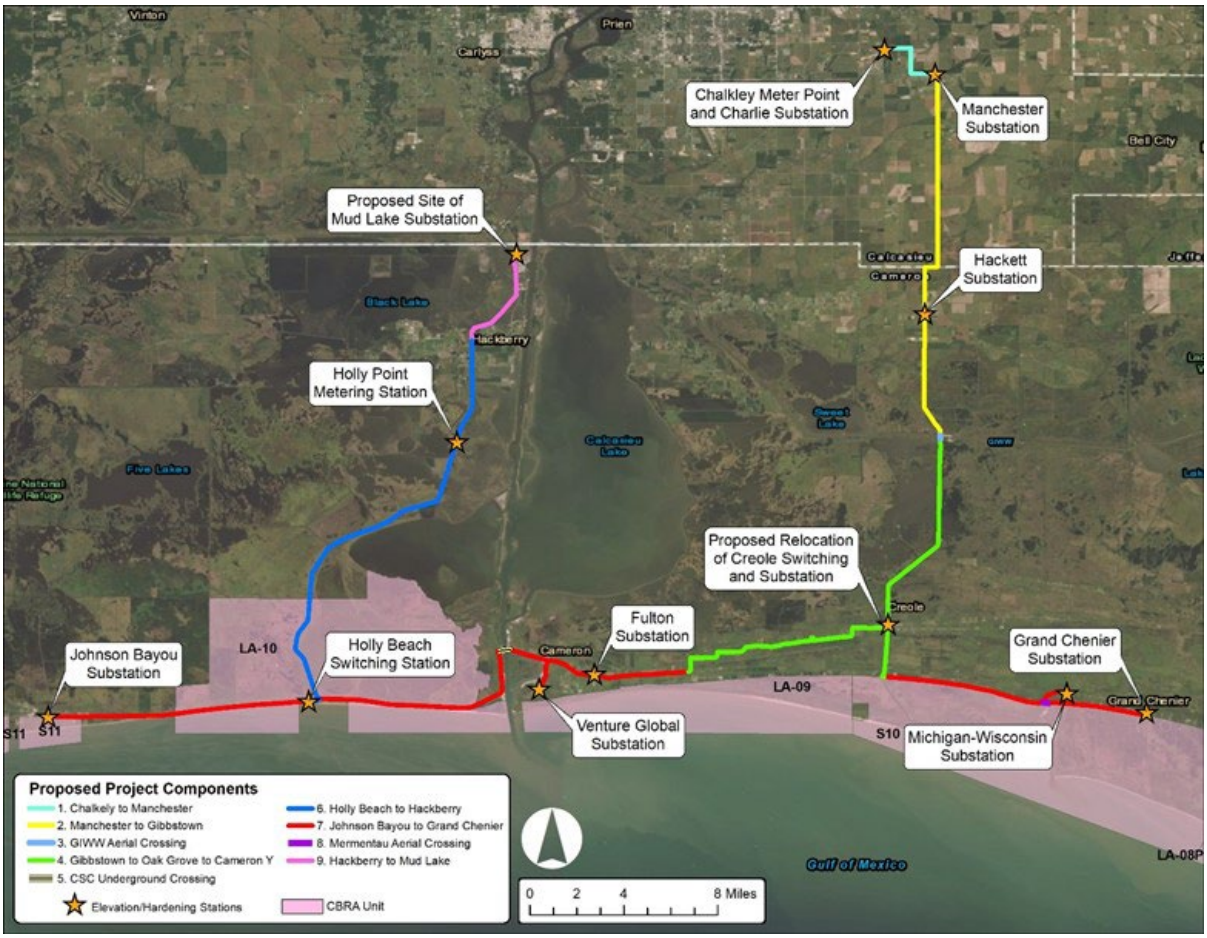

Figure 8. Alternative 2: 230kV Resiliency and Redundancy (Preferred Alternative) intersection with CBRS System Units.

Alternative 3 – 69kV/138kV Repair/Resiliency. Work conducted under this alternative would result in similar impacts, and utilize the same BMPs, CUP process, and consultation with USFWS, as the Preferred Alternative 2, with the following differences:

- Transmission lines would be placed along the pre-storm path of the 69kV and the 138kV transmission lines, with narrower workspace corridors than the Preferred Alternative 2 as described in Section 4. Pole placements are estimated at 1.03 acres.
- The potential impacts to coastal resources from crossings would be limited to two crossings on previously disturbed ground at the GIWW, estimated at a total of less than 2 acres of permanent workspaces.
- The extent of impacts to coastal resources from substations would be limited to the previously disturbed current locations of the substations in need of repair.
- The transmission line from Johnson Bayou to Grand Chenier would intersect four CBRS system units (S11, LA-10, LA-09, and S10), the transmission line from Hackberry to Holly

Beach would intersect CBRS system unit LA-10, and the Holly Beach Switching Station would be located within CBRS system unit LA-10 (Figure 9).

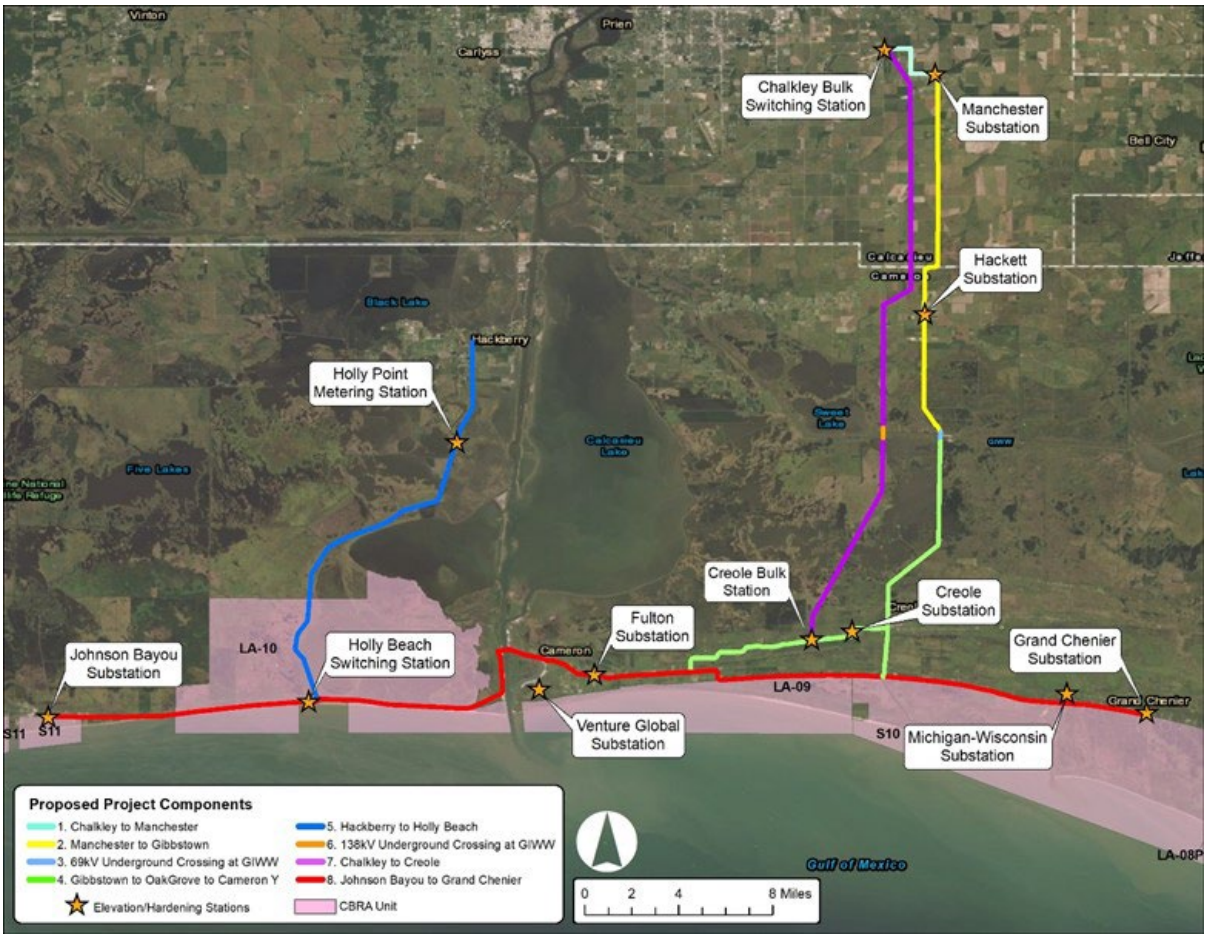

Figure 9. Alternative 3: Repair/Improve 69kV and 138kV intersection with CBRS System Units.

5.6 Biological Resources

5.6.1 Regulatory Setting

5.6.1.1 Endangered Species Act

The Endangered Species Act (ESA) of 1973 (16 USC §§ 1531-1543) prohibits the taking of listed threatened or endangered species unless specifically authorized by permit from the USFWS or the NMFS. "Take" is defined in 16 USC § 1532 (19) as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct." "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering (50 CFR § 17.3).

Section 7(a)(2) of the ESA requires the lead federal agency to consult with either the USFWS or the NMFS, depending on which agency has jurisdiction over the federally listed species in question, when a federally funded project either may have the potential to adversely affect a federally listed species or a federal action occurs within or may have the potential to impact

designated critical habitat. The lead agency must consult with the USFWS, the NMFS, or both agencies as appropriate and will determine if a BA is necessary to identify potentially adverse effects to federally listed species, their critical habitat, or both. If a BA is required, it will be followed by a Biological Opinion from the USFWS, the NMFS, or both depending on the jurisdiction of the federally listed species identified in the BA. If the impacts of a proposed federal project are considered negligible to federally listed species, the lead agency may instead prepare a letter to the agencies with a "May Affect, but Not Likely to Adversely Affect" determination requesting the relevant agency's concurrence. This PEA serves to identify potential impacts and meet the ESA § 7 requirement by ascertaining the risks of the proposed action and alternatives to known federally listed species and their critical habitat, as well as providing a means for consultation with the agencies.

5.6.1.2 Migratory Bird Treaty Act

Unless otherwise permitted by regulation, the Migratory Bird Treaty Act of 1918 (MBTA) (16 USC § 703-712) prohibits pursuing; hunting; taking; capturing; killing; attempting to take, capture, or kill; possessing; offering for sale; selling; offering to purchase; purchasing; delivering for shipment; shipping; causing to be shipped; delivering for transportation; transporting; causing to be transported; carrying or causing to be carried by any means whatever; receiving for shipment, transportation, or carriage; or exporting; at any time or in any manner, any migratory bird or any part, nest, or egg of any such bird, that is included on the list of protected bird species (General Provisions; Revised List of Migratory Birds 2013). The USFWS enforces the provisions of this Act.

The USFWS developed the National Bald Eagle Management (NBEM) Guidelines to provide landowners, land managers, and others with information and recommendations to minimize potential project impacts to bald eagles, particularly where such impacts may constitute "disturbance," which is prohibited by the Bald and Golden Eagle Protection Act (BGEPA). A copy of the NBEM Guidelines is available at the following URL: https://www.fws.gov/media/national-bald-eagle-management-guidelines-0. Those guidelines recommend: (1) maintaining a specified distance between the activity and the nest (buffer area); (2) maintaining natural areas (preferably forested) between the activity and nest trees (landscape buffers); and (3) avoiding certain activities during the breeding season. If the Action may disturb bald or golden eagles, additional coordination with the USFWS under the BGEPA is recommended. The Mississippi River Flyway, which runs through Louisiana, hosts the world's largest bird migration and is used by approximately 70% of migratory waterfowl in the United States.

5.6.1.3 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA) (16 USC 661-666c; Act of March 10, 1934, as amended) proposes to assure that fish and wildlife resources receive equal consideration with other values during the planning of water resources development projects. The Act was passed because the goals of water-related projects (e.g., flood control, irrigation, navigation, hydroelectric power) may conflict with the goal of conserving fish and wildlife resources.

The FWCA requires federal agencies to consult with the USFWS whenever it plans to conduct, approve, or fund an undertaking involving the impoundment, diversion, deepening, control, or modification of a stream or body of water. Consultations with USFWS have and will occur on

projects covered under this PEA, but FWCA is not expected to be applicable to any of the actions proposed in this PEA. Magnuson-Stevens Fishery Conservation and Management Act.

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) is the primary law governing marine fisheries management in United States federal waters. The MSA created eight regional fishery management councils to manage fisheries and promote conservation. The MSA focuses on rebuilding overfished fisheries and protecting EFH. Managed species vary regionally and are specified in Fisheries Management Plans (FMPs) prepared by regional Fisheries Management Councils. EFH is designated in individual FMPs to manage habitats that are important to maintain particular fish stocks. EFH includes waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. Often, EFH designated under separate FMPs overlap geographically.

The MSA requires all federal agencies to consult with NMFS on proposed projects authorized, funded, or undertaken by that agency that may adversely affect EFH. Guidelines under Section 305(b) of the MSA direct the NMFS to use a coordinated process to evaluate projects that may affect EFH, in conjunction with the required Section 7 consultation process under the ESA.

5.6.1.4 Executive Orders 13112 and 13751

Executive Order 13112, Invasive Species, was signed on Feb 3, 1999. An invasive species is a non-native species whose introduction is likely to cause economic or environmental harm or harm to human health. EO 13112 requires federal agencies to prevent the introduction of invasive species and provide for their control. Executive Order 13751, Safeguarding the Nation from the Impacts of Invasive Species, signed on December 8, 2016, amended EP 13112 for clarification and to incorporate considerations of human and environmental health, climate change, technological innovation, and other emerging priorities into federal efforts to address invasive species.

5.6.2 Existing Conditions

5.6.2.1 Habitats

Based on data collected between 2006 and 2020 from the CRMS, habitats in the project area are characterized as fresh to saline marsh at elevations within a foot of sea level (USGS n.d.a). In response to the SOV, NMFS indicated that the wetlands in the vicinity of the project consist of tidally influenced estuarine emergent fresh marsh, and water bottoms in the project area are composed of a mixture of sand and mud substrates (Swafford 2021). The project area intersects three navigable waterbodies: the GIWW, the CSC, and the Mermentau River, as well as other open water habitat.

Dominant species from vegetation surveys conducted in 2020 at the four CRMS locations closest to the project area[2] include California bulrush (*Schoenoplectus californicus*), common reed (also known as Roseau cane; *Phragmites australis*), cordgrasses (S*partina alterniflora, Spartina patens*), and needlegrass rush (*Juncus roemerianus*). In 2021, the Floristic Quality Index, used to determine wetland quality based on plant species composition, ranged between a percentile of 34.03 and 88.37 at these sites.

[2] Sites CRMS0691, CRMS0647, CRMS0685, and CRMS0687.

The project area runs through or near two NWRs. The Cameron Prairie NWR, in Cameron Parish, was established to preserve and protect wintering waterfowl and their habitats (USFWS n.d.a; USACE 2010). It consists of two separate and distinct units. The Cameron Prairie NWR Gibbstown Unit, located to the north of the GIWW near Gibbstown, contains 9,621 acres of fresh marsh, coastal prairie, and old rice fields. The Cameron Prairie NWR East Cove Unit, which is only accessible by boat, is located to the southeast of Calcasieu Lake. It consists of 14,927 acres of brackish to intermediate marsh and is managed as a nursery for brown and white shrimp, blue crab, and many fish species. The Sabine NWR is located in Cameron Parish on Louisiana State Highway 27 to the west of Calcasieu Lake. It is the largest refuge on Louisiana's Gulf coast, consisting of over 125,000 acres of brackish, intermediate, and freshwater coastal marsh (USFWS n.d.e; USACE 2010). It was established to provide habitat for migratory waterfowl and other wildlife. There are no state wildlife management areas near the project area.

5.6.2.2 Wildlife

Wildlife noted by USFWS (n.d.a, e) as being present at the Cameron Prairie and Sabine NWRs include mammals (e.g., nutria, coyotes, bobcats, rabbits, rodents, raccoons, otters, rats, opossum, mink, white-tailed deer, rabbits, and bats); amphibians and reptiles (e.g., alligators, turtles, toads, frogs, snakes, anoles, and skinks); migratory and resident ducks and geese; wading birds; shorebirds, gulls, terns, and related species; raptors; and neotropical migratory birds. More than 250 species of birds have been documented at the Cameron Prairie NWR[3] and the Sabine NWR[4] by observers.

5.6.2.3 Marine and Estuarine Fauna

Under the MSA, regional fishery management councils and NOAA's NMFS designate EFH in FMPs for all federally managed fisheries. The Gulf of Mexico Fishery Management Council (GMFMC) manages over 40 species (GMFMC 2021) and has developed five EFH "eco-regions" to refine their designations. Within each eco-region, EFH was further defined as occurring either in estuarine (inside barrier islands and estuaries), nearshore (less than 18 meters or 59 feet deep), or offshore waters (greater than 18 meters or 59 feet deep). The project area is in the estuarine waters of Eco-Region 4, which extends from Freeport, Texas, east to the Mississippi River Delta.

The project area is within an area designated as EFH for various life stages of federally managed species, including brown and white shrimp, reef fish (including gray and lane snapper), and red drum. The alternatives are located within areas designated as EFH for four FMPs as well as four highly migratory species managed by NMFS (Table 3). The primary categories of EFH, which would be affected by project implementation, are estuarine emergent marsh, estuarine water column, and estuarine mud bottoms. Detailed information on federally managed fisheries and their EFH is provided in the 2005 generic amendment of the Fishery Management Plans for the Gulf of Mexico prepared by the GMFMC. The generic amendment was prepared as required by the MSA (PL 104-297).

Habitat areas of particular concern (HAPC) are subsets of EFH that are ecologically important, sensitive, stressed, and/or rare areas. Actions that occur in HAPCs may receive more scrutiny from NOAA Fisheries when developing conservation recommendations. There are no HAPCs located in the project area for any of the alternatives (Mid-Atlantic Fishery Management Council 2016).

[3] See website at the following URL: https://ebird.org/hotspot/L727221
[4] See website at the following URL: https://ebird.org/hotspot/L894602

Table 3. Summary of EFH in the Project Area.

EFH	Life Stage	GIWW	Calcasieu Ship Channel	Mermentau River
Shrimp	All	X	X	N/A
Red drum	All	X	X	N/A
Reef fish	All	X	X	N/A
Coastal migratory pelagics	All	X	X	X
Bonnethead shark (Gulf of Mexico stock)	Neonate	N/A	X	X
Bull shark	Juvenile, Adult	N/A	X	X
Spinner shark	Neonate	N/A	X	X
Blacktip shark (Gulf of Mexico stock)	Neonate	N/A	X	N/A

In addition to being designated as EFH for various federally managed fishery species, wetlands, water bottoms, and the water column in the project area provide nursery and foraging habitats for a variety of economically important marine fishery species such as blue crab, gulf menhaden, Atlantic croaker, southern flounder, bay anchovy, and striped mullet. Some of these species serve as prey for other fish species managed by the GMFMC (e.g., mackerels, snappers, and groupers) and highly migratory species managed by NMFS (e.g., billfishes and sharks). Wetlands in the project area also produce nutrients and detritus, important components of the aquatic food web, which contributes to the overall productivity of the area.

5.6.2.4 Protected Species

A list of federally threatened and endangered species and other species of special concern with the potential to occur within Calcasieu and Cameron Parishes was developed based on the USFWS (2021a,b) Information for Planning and Consultation (IPaC) resource list and technical assistance from NOAA, USFWS, and the Louisiana Department of Wildlife and Fisheries (LDWF; Table 4; see Appendix F for descriptions of these species). At the request of NOAA, Gulf Sturgeon (*Acipenser oxrinchus desotoi*) is included on this list despite not being identified by LDWF as occurring in Cameron or Calcasieu Parishes. This list includes bald eagle (*Haliaeetus leucocephalus).* Although as of August 8, 2007, the species was officially removed from the federal list of threatened and endangered species, it remains protected under the BGEPA (54 Stat. 250, as amended, 16 U.S.C. 668a-d) and the MBTA (40 Stat. 755, as amended; 16 U.S.C. 703 et seq.). While there are no additional protected species designated by the State of Louisiana, LDWF indicated that both Wilson's plover and snowy plover occur in Cameron Parish and have a state rank of imperiled to critically imperiled (LDWF 2022a).

Table 4. Protected Species under the ESA and other species of special concern with the Potential to Occur within Calcasieu and Cameron Parishes.

(T = Threatened; E = Endangered; CI = Critically Imperiled; I = Imperiled; PT = Proposed Threatened; R = Restricted, X = present)

Species	Federal Status	State Status	Cameron	Calcasieu
Gulf Sturgeon (Acipenser oxrinchus desotoi)	T	T	N/A	N/A
West Indian manatee (*Trichechus manatus*)	T	T	X	X
Piping plover (Charadrius melodus)	T	T	X	N/A
Wilson's plover (Charadrius wilsonia)	N/A	CI	X	N/A
Snowy plover (Charadrius alexandrinus)	N/A	I to CI	X	N/A
Red knot (Calidris canutus rufa)	T	T	X	N/A
Eastern black rail (Laterallus jamaicensis ssp. Jamaicensis)	T	CI	X	X
Red-cockaded Woodpecker (*Picoides borealis*)	E	E	N/A	X
Bald Eagle (Haliaeetus leucocephalus)	Delisted	Delisted	X	X
Hawksbill sea turtle (*Eretmochelys imbricata*)	E	N/A	X	N/A
Kemp's ridley sea turtle (*Lepidochelys kempii*)	E	N/A	X	N/A
Leatherback sea turtle (*Dermochelys coriacea*)	E	N/A	X	N/A
Loggerhead sea turtle (*Caretta caretta*)	T	T	X	N/A
Alligator snapping turtle (*Macrochelys temminckii*)	PT	R	N/A	X

5.6.2.5 Invasive Species

In Louisiana, organizations such as the USGS, the Barataria-Terrebonne National Estuary Program, and the Louisiana Sea Grant maintain databases of information on invasive species. Louisiana's State Management Plan for Aquatic Invasive Species identifies nonnative plant species that "cause extensive economic or ecological harm" (Kravitz et al. 2005). Invasive aquatic plants (including alligatorweed (*Alternanthera philoxeroides*), water hyacinth (*Eichhornia crassipes*), hydrilla (*Hydrilla verticillata*), Eurasian watermilfoil (*Myriophyllum spicatum*), common salvinia (*Salvinia minima*), water lettuce (*Pistia stratiotes*), and giant salvinia (*Salvinia molesta*)) potentially occur in the vicinity of the project area. Other invasive species that potentially occur in the vicinity of the project area include Asian clam (*Corbicula fluminea*), nutria (*Myocastor coypus*), and Australian spotted jellyfish (*Phyllorhiza punctata*) (Kravitz et al., 2005). Additionally, Calcasieu and Cameron Parishes are included in the Emergency Quarantine area for the insect Roseau cane scale (*Nipponaclerda biwakoensis*) that attacks Roseau cane, a plant that helps protects Louisiana's coast (Louisiana Administrative Code title 7 § XV-169).

5.6.3 Environmental Consequences

Alternative 1 – No Action. This alternative would cause no direct effects on habitats, wildlife, marine and estuarine fauna, or protected species as a result of construction. However, if the system remains unrepaired, damaged infrastructure would require more frequent emergency repairs to maintain the ability to provide reliable electricity to the public. This could result in more frequent access through habitats, including wetlands, to perform repairs, which could result in adverse impacts (e.g., disturbances of birds, other wildlife, and protected species) from the generation of noise and the presence of people and machinery, or the spread of invasive species. As a result, long-term, minor to moderate, temporary or permanent, indirect, adverse effects could occur.

Alternative 2 – 230kV Resiliency and Redundancy, Preferred Alternative.

The majority of the project area is adjacent to roads and within existing ROWs along the pre-storm path of the 69kV transmission line. Construction activities associated with utility replacement, including installation of any needed temporary access routes that allow heavy equipment to reach utilities, could result in short-term, temporary, negligible impacts on habitats, including an estimated 452 acres of wetlands (based on NWI data; see also Section 5.2 Waters of the United States and Wetlands). Impacts would be minimized by employing the construction BMPs described in Appendix A.1. Long-term, negligible to minor, permanent impacts on habitats could occur in the estimated 0.4 acres where transmission line pole bases will be installed, 2.4 acres in wetlands where substations will be constructed or expanded, and 1.5 acres where the permanent workspaces of the three waterway crossings (GIWW, CSC, and Mermentau River) intersect wetland habitats. Additionally, JDEC is required to coordinate with the managers of the Cameron Prairie and Sabine NWRs regarding any activity within the NWRs and has communicated via email with USFWS NWR staff via email (Appendix C). A special use permit has been issued by USFWS to allow access to the NWRs for wetland delineation, and JDEC and its contractors will abide by all requisite conditions specified in the permit.

Review of available data and technical assistance from NMFS identified that the project area for this alternative intersects EFH for four species managed by the GMFMC and four highly migratory species managed by NMFS (Table 4 above) and may therefore adversely affect EFH. Impacts could include short-term, temporary, negligible to minor impacts, such as avoidance, accidental crushing, and siltation from installation of engineered poles in estuarine emergent marsh, estuarine open water, and estuarine mud bottom EFH, as well as construction of waterway crossings and substations where they occur in estuarine emergent marsh. The BMPs described in Appendix A.1, including the use of construction mats, appropriate low impact equipment, and silt fencing would help minimize these temporary impacts. Additionally, short-term, temporary, negligible impacts on estuarine water column and estuarine mud bottoms could result from construction of the waterway crossings, although areas of temporary impact would be returned to pre-construction conditions and monitored in coordination with NOAA to confirm recovery. Should additional restoration be required, JDEC would follow NOAA's (2017) *Tidal Salt Marsh BMPs*. Long-term, permanent impacts on EFH could include estimated loss of less than 0.3 acres of estuarine emergent marsh and less than 0.08 acres of estuarine open water/mud bottom habitat where poles are placed. Long-term, permanent impacts on estuarine emergent marsh (estimated at less than 2.5 acres) and estuarine open water/mud bottom (estimated at less than 0.7 acres) could occur where the permanent components waterway crossing infrastructure and substations are installed, although the majority of the work would be conducted in previously disturbed areas. As such, JDEC will develop an EFH assessment as required by NOAA. FEMA and JDEC will participate

in consultation with NMFS for projects conducted under this alternative that could affect EFH and will develop a plan with NMFS to avoid, minimize, mitigate, or otherwise offset adverse effects on EFH.

Construction work conducted under this alternative could result in short-term, temporary, negligible to minor impacts from disturbance of birds, other wildlife, and protected species from the generation of noise both in the air, and in water (See also Section 5.9 Noise). However, suitable habitats are available nearby, and protected species would not be blocked by the construction from relocating to other areas. Following the cessation of noise, wildlife would return to the project area. To minimize impacts to protected species from noise, FEMA and JDEC will coordinate with NOAA to evaluate cumulative noise exposure, the radius of potentially injurious levels and behavioral impact levels, species that may be affected, and whether mitigation strategies will be required to reduce the impact. These may include noise reduction measures, as discussed in Section 5.9, seasonal work restrictions, and limitations on the amount of noise per day that can be generated.

Additionally, construction work conducted under this alternative could also result in short-term, temporary, negligible to minor impacts related the presence of people and machinery. JDEC coordinated with LDWF in the development of this PEA; in response to the Solicitation of Views, LDWF indicated that bird nesting colonies may occur within the project area (Lorenz 2021). As such, if work will occur during the nesting season, LDWF requires that a shorebird and colonial nesting bird field assessment be conducted within two weeks of the beginning of the project. If active nesting colonies are found within 1,000 feet of the proposed project, a survey by a qualified biologist will be completed to document species present and the extent of colonies. Further consultation with LDWF would be required. No long-term impacts on birds and other wildlife are anticipated. Bird abatement BMPs would be implemented, as necessary.

Based on a review of available data and technical assistance from NOAA, USFWS, and LDWF (see Appendix C), JDEC identified the protected species and species of special interest in Table 4 above that have the potential to occur within the project area. Construction activities should avoid areas where threatened/endangered/special interest species are known to occur, as well as their critical habits. For any in-water work (actions that break the surface of the water or drill under water bodies), projects would follow appropriate BMPs including measures from *Protected Species Construction Conditions* (NOAA 2021b), *Sea Turtle and Smalltooth Sawfish Construction Conditions* (NMFS 2006), *Measures for Reducing Entrapment Risk to Protected Species* (NMFS 2012), and *Vessel Strike Avoidance Measures and Reporting for Mariners* (NMFS 2008), and *Standard Manatee Conditions for In-water Work* (USACE 2011) to avoid take of protected species and to protect the breeding and nonbreeding habitat of species of special interest. Because HDD under the GIWW, CSC, and Mermentau River could potentially cause short-term, temporary effects on ESA-listed species under NMFS purview, an ESA Section 7 consultation would need to be carried out once the construction details and project timing have been determined.

Based on a review of the project workspace and habitat requirements for protected species under management of the USFWS, an IPaC documentation letter developed for the project area and coordination with USFWS indicated that this alternative is not likely to adversely affect piping plover or red knot and would have no effect on red-cockaded woodpecker or the four sea turtle species (USFWS, 2021a, b). The construction could occur in suitable Eastern black rail nesting habitat (shallow inundated wetlands containing mesic to hydric soils with dense herbaceous plant cover), foraging habitat (wetland-upland transition zones with dense cover and 1-3 cm deep pools),

and/or roosting habitat (elevated wetlands that allow for refugia from high water events and nest to be elevated above water level) and could occur during the breeding season (April 1 – August 31) or the adult molting period (July 1 – September 31). Construction activity associated with projects under this alternative could cause short-term, temporary, negligible to minor effects on this species. As such, FEMA will consult with USFWS on any projects under this preferred alternative that have the potential to affect Eastern black rail and employ avoidance and minimization measures in accordance with Section 7 of the ESA. Short-term, temporary, negligible to minor effects on bald eagle could occur as a result of construction noise, lighting, and increases in human activity that could startle eagles, cause them to avoid their nests, or cause nestlings to depart their nests prematurely. As a protective measure, transmission lines will be designed to meet Avian Powerline Interaction Committee (APLIC) standards which reduce avian collision and electrocution risk. JDEC would survey the construction area to determine whether bald eagle nests are present and would coordinate with the USFWS if any are encountered.

This alternative could result in negligible to minor, permanent, adverse impacts from the spread of Roseau scale, Asian clam and invasive aquatic plants as a result of the movement of construction equipment and boats that could spread seeds, plant material, or organisms. To prevent the spread of Roseau cane scale, if replanting of marsh vegetation is required, only clean nursery stock would be used under a special permit issued by the Louisiana Department of Agriculture and Forestry (Louisiana Administrative Code title 7 § XV-169). To prevent the spread of Asian clams and invasive aquatic plants, boats should be inspected, and plant or other debris removed after exiting the water, motors should be drained on dry land, and other equipment should be rinsed with very hot water or allowed to dry in the sun for at least 5 days (Alberta Invasive Species Council 2018).

In contrast to Alternative 3, this Preferred Alternative would eliminate the need to rebuild the approximately 27.5-mile 138kV line which spanned wetland habitat and was not along a roadway. This benefits biological resources by not resulting in temporary or permanent impacts in this area.

Alternative 3 – 69kV/138kV Repair/Resiliency. Alternative 3 would result in similar short- and long-term impacts on biological resources as the Preferred Alternative 2 and follow the same agency coordination steps and BMPs, with the following differences.

- Transmission lines would be placed along the pre-storm path of the 69kV and the 138kV transmission lines, with narrower workspace corridors than the Preferred Alternative 2 as described in Section 4 but would require reconstruction of the 27.5-mile 138kV line, which ran through wetland habitat.
- Short-term, temporary impacts on wetlands are estimated at 211 acres.
- Long-term, permanent impacts on habitats could occur in the estimated 0.24 acres where transmission line pole bases will be installed and in the less than 2 acres where the permanent footprints of the two waterway crossings at the GIWW intersect wetland habitats.

5.7 Air Quality

5.7.1 Regulatory Setting

The Clean Air Act (CAA) of 1970 (42 USC § 7401 et seq.), including its 1977 and 1990 amendments, is the federal law that regulates air emissions from stationary and mobile sources. The USEPA also has set NAAQS for the following six criteria pollutants: carbon monoxide (CO),

lead, nitrogen oxides, ozone, particulate matter (less than 10 micrometers [PM_{10}] and less than 2.5 micrometers [$PM_{2.5}$]), and sulfur dioxide.

In addition, the USEPA regulates hazardous air pollutants, such as asbestos, under the "air toxics" provisions of the CAA. Section 112 of the CAA established the National Emission Standards for Hazardous Air Pollutants (NESHAP) and required the USEPA to develop and enforce regulations to protect the public from exposure to airborne contaminants that are known to be hazardous to human health. Major health effects associated with asbestos include lung cancer, mesothelioma, and asbestosis (USEPA 2016a).

Under the 1990 amendments to the CAA, the USEPA may delegate its regulatory authority to any state which has developed an approved State Implementation Plan (SIP) for carrying out the NAAQS mandates or an approved program for the prevention and mitigation of accidental releases under NESHAP. The State of Louisiana's initial SIP was approved on July 5, 2011, and has been revised several times since. The LDEQ NESHAP regulatory program was re-approved by USEPA effective April 27, 2015 (New Source Performance Standards 2015). Louisiana's CAA implementing regulations are codified in Title 33.III of the Louisiana Environmental Regulatory Code.

According to 40 CFR § 93.150(a), "No department, agency or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license or permit, or approve any activity which does not conform to an applicable implementation plan" under NAAQS. In addition, 40 CFR § 93.150(b) states, "A Federal agency must make a determination that a Federal action conforms to the applicable implementation plan in accordance with the requirements of this subpart before the action is taken." As a result, when FEMA provides financial assistance for a project, such as the one currently under review in this PEA, the CAA requires a General Conformity determination whenever the project site is located in a "non-attainment area" for any one of the six NAAQS criteria pollutants (Revisions to the General Conformity Regulations 2010).

5.7.2 Existing Conditions

According to *The Green Book Nonattainment Areas for Criteria Pollutants* (USEPA 2022), as of October 31, 2021, the USEPA has determined that Cameron and Calcasieu Parishes are currently within attainment areas which are below NAAQS and thus in compliance with the standards; as such, the project is not within a "non-attainment area" for air quality and General Conformity determination is not required.

5.7.3 Environmental Consequences

Alternative 1 – No Action. This alternative would have no direct short- or long-term effects on air quality. However, this alternative would include continued reliance on generators, which emit air pollutants including nitrogen oxides, carbon monoxide, PM, and sulfur (State of Maine 2004), resulting in long-term, minor, permanent, adverse effects on local air quality.

Alternative 2 – 230kV Resiliency and Redundancy, Preferred Alternative. Work conducted under this alternative could result in short-term, temporary, negligible to minor impacts on localized air quality. Emissions from vehicles and equipment with diesel and gasoline engines could have minor temporary effects on the levels of some pollutants, including CO, volatile organic compounds (VOCs), nitrogen dioxide, Ozone, and PM in the vicinity of the project. Temporary earth

disturbing activities and off-road driving may result in the production of fugitive dust and an increase in PM. Adverse impacts to air quality from the construction will be limited by implementing BMPs such as fugitive dust control, proper vehicle maintenance, and limiting idling time. This alternative would not be a long-term source of air pollutants. Implementation of this alternative would end the use of temporary emergency diesel electrical generators at locations south of the GIWW, thereby reducing emissions from that source.

Alternative 3 – 69kV/138kV Repair/Resiliency. Work conducted under this alternative would result in similar impacts, and utilize the same BMPs, as the Preferred Alternative 2.

5.8 Climate Change

5.8.1 Regulatory Setting

Climate change refers to changes in the Earth's climate caused by a general warming of the atmosphere. Its primary cause is emissions of GHGs, including carbon dioxide, nitrogen oxides, methane, and fluorinated gasses (such as hydrofluorocarbons; HFCs), that trap heat in the atmosphere. An increase in the atmospheric concentration of these GHGs, beginning with the onset of the Industrial Revolution, has resulted in a global temperature increase of approximately 1.5°F since 1880 (IPCC 2014).

Executive Order 13514[5], *Federal Leadership in Environmental, Energy, and Economic Performance*, signed on October 5, 2009, directs federal agencies to reduce GHG emissions and address climate change in NEPA analyses. It expands upon the energy reduction and environmental performance requirements of EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, which it replaces.

Executive Order 13514 identifies numerous energy goals in several areas, including GHG management, management of sustainable buildings and communities, and fleet and transportation management. The GHGs covered by this EO are carbon dioxide, Methane, nitrous oxide, sulfur hexafluoride, HFCs, and perfluorinated compounds (PFCs). These GHGs have varying heat-trapping abilities and atmospheric lifetimes. In addition, on January 23, 2012, FEMA issued a written statement, FEMA Climate Change Adaptation Policy Statement (2011-OPPA-01), affirming the directive of EO 13514 and enacting as policy measures to "integrate climate change adaptation considerations" into its programs and operations (FEMA 2011). Recent guidance by CEQ also addresses climate change considerations in NEPA evaluations (CEQ 2014).

Executive Order 13653[6], *Preparing the United States for the Impacts of Climate Change*, was signed by President Obama on November 1, 2013. This EO was issued with the purpose of preparing "the Nation for the impacts of climate change by undertaking actions to enhance climate preparedness and resilience." Its main focus is the fostering of cooperation among the federal government and other groups, including state and local governments, as well as tribal, private-

[5] EO 13514 was revoked by EO 13834, *Efficient Federal Operations*, on May 17, 2018. Subsequently, EO 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*, was signed on January 20, 2021, which revoked all of EO 13834 except sections 6, 7, and 11, and EO 14057, *Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability*, was signed on December 8, 2021, which revoked EO 13834 in its entirety, thereby reinstating EO 13514.

[6] EO 13653 was revoked by EO 13783, *Promoting Energy Independence and Economic Growth*, on March 28, 2017, which was subsequently revoked by EO 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*, on January 20, 2021, thereby reinstating EO 13693.

sector, and non-profit entities, in order to achieve the EO's stated purpose. Cooperation is to be facilitated through coordinated planning and the adaptation of federal programs to "help safeguard our economy, infrastructure, environment, and natural resources," in addition to improving climate preparedness and resilience.

One of the specific requirements of EO 13653 is that all federal agencies "reform policies and Federal funding programs that may, perhaps unintentionally, increase the vulnerability of natural or built systems, economic sectors, natural resources, or communities to climate change related risks." In response to this directive, FEMA (2021) has begun augmenting its flood risk information to reflect potential sea level rise, considering climate change in hazard mitigation planning, and incorporating climate resilience measures in alternate projects.

CEQ issued *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews* on August 1, 2016, which was issued to assist federal agencies in their consideration of the effects of GHG emissions and climate change when evaluating proposed actions (CEQ 2016). This guidance indicates that federal agencies should consider: (1) the potential effects of a proposed action on climate change as indicated by assessing GHG emissions as a proxy (the extent of the analysis should be commensurate with the quantity of projected GHG emissions and take into account available data and GHG quantification tools that are suitable for and commensurate with the proposed agency action); and (2) the effects of climate change on a proposed action and its environmental impacts.

5.8.2 Existing Conditions

5.8.2.1 GHG emissions

The Louisiana State University (LSU) Center for Energy Studies (CES) updated its Louisiana GHG inventory in 2021 (Dismukes 2021). In 2020, Louisiana reported 242 million metric tons of GHG emissions; since 2008, Louisiana's GHG emissions have represented approximately 4.2% of the United States total. Louisiana's GHG emissions are highly dominated by industrial activity (66%), followed by transportation (19%), and electric power generation (13%). In comparison, in the United States overall, industrial activity accounts for 17%, transportation for 36%, and electric power generation for 35% of emissions. In the past decade, the GHG emissions from Louisiana's power generation have decreased from a high of 45 million metric tons in 2011 to less than 35 million metric tons in 2018, despite overall growth in capacity. This improvement is primarily associated with increases in thermal efficiencies in power generation facilities. Additionally, Louisiana uses a higher proportion of natural gas (71%) and lower proportion of coal (11%) compared to the national averages (45% and 21%, respectively).

5.8.2.2 Vulnerability to effects of climate change

Louisiana is one of the most vulnerable states to the effects of climate change, particularly those associated with increasing heat, sea level rise, hurricanes, flooding, drought, and vector-borne disease (State of Louisiana 2021). The Louisiana Climate Action Plan, which includes recommendations on how Louisiana can reduce GHG emissions, will be formally adopted in January 2022 (State of Louisiana 2021)

The project area is in an area characterized by a subtropical marine climate with long, humid summers and short, moderate winters with year-round precipitation (NOAA 2022d). The area has

an average annual high temperature of 79.3 degrees Fahrenheit (F) and low temperature of 60.1 degrees F, respectively, and the average rainfall is 59.75 inches (NOAA 2022e).

The coast of Louisiana is subject to tropical storms (winds between 39 mph and 73 mph) and hurricanes (winds greater than 73 mph). An annual average of 0.7 tropical storms or hurricanes have hit the Louisiana coast between 1851 and 2010, and a direct hurricane strikes the coastline approximately every 3 years (Roth 2010; NOAA 2022d). Additionally, Louisiana's coastline is extremely vulnerable to sea level rise due to its low elevation and coastal subsidence (NOAA 2022d), and related tidal flooding is expected to increase in frequency (Carter et al. 2018). As such, the project area is at high risk for the negative effects of climate change.

Over the last several years, the JDEC system has been severely damaged by a number of named storms including Hurricanes Rita, Ike, Laura, and Delta. Most recently, high wind and saltwater storm surge associated with Hurricanes Laura and Delta damaged/destroyed JDEC's infrastructure. Damage to JDEC substations was catastrophic and included above ground structures and equipment being wiped off their foundations, which rendered the structures and equipment irreparable. Consequently, substation foundations were subject to loads well beyond their designed limits resulting in damage to the above-ground portions of the foundations, also requiring replacement. Moreover, the underground wire and conduits which served to connect the equipment were also damaged irreparably.

In recent years, the number of very hot days (maximum temperature above 95 degrees F) has begun to increase, and the number of very warm nights (maximum temperature above 75 degrees F) has risen substantially to a record high level during the 2015-2020 period (NOAA 2022d). Exposure to high nighttime minimum temperatures reduces the ability of some people to recover from high daytime temperatures, resulting in heat-related illness and death (Carter et al. 2018).

5.8.3 Environmental Consequences

Alternative 1 – No Action Alternative. This alternative would result in no direct short- or long-term effects to GHG emissions. However, this alternative would include continued reliance on generators which emit the GHGs nitrogen oxides and carbon dioxide. Additionally, this alternative would also provide no improvements that would reduce the effects of climate change (including severe weather, storm surges, and inundation from sea level rise) on JDEC's infrastructure and the ability to provide reliable power to the service area, which leaves residents vulnerable to extreme heat events.

Alternative 2 – 230kV Resiliency and Redundancy, Preferred Alternative. This alternative would result in short-term, temporary, negligible increases in GHG emissions due to the use of vehicles (e.g., trucks, front end loaders, mini-excavator, airboats, and marsh buggies) to transport materials and personnel and the use of heavy machinery and equipment with gas or diesel engines. Among other factors, the total volume of emissions is a function of the number and type of vehicles and equipment, the distance they are driven or hours per day they are operated, and the number of trips each makes or the duration of the project. These short-term emissions from vehicles and construction equipment would be localized, temporary, and would not increase GHGs to the extent that they would contribute to regional climate change. To reduce these short-term GHG emissions, construction equipment engine idling would be minimized to the extent practicable, and engines would be kept properly maintained. As work under this alternative would, to the extent possible, also be conducted in disturbed areas and existing ROWs, this alternative would also cause no long-

term, adverse impacts on GHG emissions. Implementation of this alternative would end the use of temporary emergency diesel electrical generators at locations south of the GIWW, thereby reducing GHG emissions from that source. Under this alternative, just as JDEC did prior to Hurricanes Laura and Delta, JDEC would purchase power from regional generators. These generators produce power at centralized power plants using coal and natural gas and employ technologies to increase efficiency and reduce emissions of GHGs.

This alternative would include actions to increase the resiliency of JDEC's infrastructure to severe weather, storm surges, and inundation from sea level rise, including underwater crossings of the transmission lines beneath the CSC, the use of stronger more resilient steel poles, and the elevation of substations. The built-in redundancy of this alternative would further reduce service interruptions associated with climate change impacts, providing a direct long-term benefit by reducing the risk of damage to JDEC's infrastructure. This could in turn reduce risks of heat-related illness and death by providing more reliable electricity for cooling.

Alternative 3 – 69kV/138kV Repair/Resiliency. Work conducted under this alternative would result in similar short-term, negligible increases in GHG emissions as the Preferred Alternative 2 and no long-term impacts on GHG emissions. This alternative would include actions to increase the resiliency of JDEC's infrastructure to severe weather, storm surges, and inundation from sea level rise, including underwater crossings of the transmission lines beneath the GIWW, the use of stronger more resilient steel poles where possible, and the elevation of substations where possible. This would provide a direct benefit by reducing the risk of damage to JDEC's infrastructure, although it would not include the redundancy that would be provided by the Preferred Alternative 2. This could in turn reduce risks of heat-related illness and death by providing more reliable electricity for cooling. If wood poles are used instead of steel poles in certain areas or certain substations are not elevated and hardened, the long-term, beneficial impacts of this alternative would be reduced.

5.9 Noise

5.9.1 Regulatory Setting

Noise is commonly defined as unwanted or unwelcome sound, measured in decibels (dBA) on the A-weighted scale (i.e., the scale most similar to the range of sounds that the human ear can hear). The Day-Night Average Sound Level (DNL) is an average measure of sound. The DNL descriptor is accepted by federal agencies as a standard for estimating sound impacts and establishing guidelines for compatible land uses. Sound is federally regulated by the Noise Control Act of 1972, which charges the USEPA with preparing guidelines for acceptable ambient noise levels. USEPA guidelines, and those of many other federal agencies, state that outdoor sound levels in excess of 55 dBA DNL are "normally unacceptable" for noise-sensitive land uses including residences, schools, or hospitals (USEPA 1974). The Noise Control Act, however, only charges implementation of noise standards to those federal agencies that operate noise-producing facilities or equipment. According to the Cameron and Calcasieu Parish Police Jury Codes of Ordinances, "The operating of any equipment used in construction work within one hundred sixty-five (165) feet of any residential or noise sensitive area between sunset and sunrise on weekdays and Saturdays; and 9:00 p.m. to 8:00 a.m. on Sundays and holidays, except for emergency work" is prohibited (Calcasieu PPJ, Code of Ordinances § 18-100; Cameron PPJ, Code of Ordinances §15-32).

5.9.2 Existing Conditions

The geographic area surrounding the project area is primarily in coastal areas with sparse population. The primary sources of ambient (background) noise in the project area are from passenger vehicles and natural sounds such as wind and wildlife. Existing noise levels vary depending on the season, time of day, type of noise, and distance from the noise source. Typical exposure to ambient noise levels ranges from 50 to 60 dBA (Hendricks et al. 2013); whereas, in quiet rural areas, ambient noise would be expected to be approximately 30 to 40 dBA (Branch and Beland 1970). Passenger vehicles traveling at 65 mph at a distance of 25 feet emit a sound of around 77 dBA, with louder levels at higher speeds and closer distances (Branch and Beland 1970).

5.9.3 Environmental Consequences

Alternative 1 – No Action. This alternative would have no direct short- or long- term effects on noise levels because no construction would occur. However, if existing infrastructure were not repaired, the need for emergency repairs could increase over time as existing emergency repairs fail, resulting in repeated short-term, negligible to minor, temporary, noise impacts to residents and wildlife.

Alternative 2 – 230kV Resiliency and Redundancy, Preferred Alternative. Work conducted under this alternative would result in short-term, temporary, negligible to minor impacts from construction noise on wildlife and residential areas. Typical construction equipment used in this project generates increased noise: with average maximum noise levels for non-impact equipment ranging from about 73 to 101 dBA (WSDOT 2020). For example, at 50 feet, cranes can produce an average maximum of 79 dBA; concrete mixer trucks can produce an average maximum of 82 dBA; and concrete pump trucks can produce up to 89 dBA (WSDOT 2020). Poles would be installed using a vibratory pile driver, which can produce an average maximum of between 88 and 105 dBA (WSDOT 2020). The driving duration of each pile should be about 20-25 minutes, with between 75 and 150 blows per pile, and it is anticipated that five to eight piles would be completed per day. Equipment and machinery utilized on the project sites would be expected to meet all local, state, and federal noise regulations. The use of BMPs, such as monitoring for presence of birds and protected species, would reduce negative impacts on any wildlife in the project area (see Section 5.6 for discussion of noise impacts on protected species). For pile-driving in water, the hammer will be kept above the waterline by using an extension to the pole. Cushions to dampen noise can be utilized without adversely impacting the construction. Short-term impacts will also be reduced by avoiding work outside permitted construction hours, utilizing equipment and machinery that meets all local, state, and federal noise regulations, and monitoring project sites for potentially impacted wildlife. As noise will be limited to the duration of construction activities, long-term noise effects would not occur.

Alternative 3 – 69kV/138kV Repair/Resiliency. Work conducted under this alternative would result in similar impacts, and utilize the same BMPs, as the Preferred Alternative 2.

5.10 Traffic

5.10.1 Regulatory Setting

The LaDOTD is responsible for maintaining public transportation, state highways, interstate highways under state jurisdiction, and bridges located within the State of Louisiana. These duties include the planning, design, and building of new highways in addition to the maintenance and upgrading of current highways. Roads not part of any highway system usually fall under the

jurisdiction of and are maintained by applicable local government entities; however, the LaDOTD is responsible for assuring that all local agency federal-aid projects comply with all applicable federal and state requirements (LaDOTD 2016). For trucks carrying construction equipment along the road in the project area, the LaDOTD requires that "The make, model, and serial numbers must be provided for construction equipment. . ." (LaDOTD 2013). The LaDOTD also makes clear that "All gateways installed on a state right-of-way require a permit signed by the local entity; this includes signs installed under a construction project" (LaDOTD 2015).

According to the Cameron PPJ, Code of Ordinances § 19-10, "In accordance with R.S. 32:41, the Cameron Parish Police Jury reserves the right to temporarily restrict public access on any parish road when it is determined that unsafe conditions exist due to any of the following activities, with said parish road being returned to its original state of use after the governing authority determines conditions are safe to resume public use." One of these conditions is public works projects. Therefore, it could be possible that the Cameron PPJ could decide to restrict traffic flow along the highways where work will be conducted, but it is highly unlikely due to their relatively low volume of traffic and mostly rural setting.

5.10.2 Existing Conditions

Projects covered under this PEA may occur primarily along three state highways (LA 14, LA 27, and LA 82) and two local roads (Manchester Road and Lane Road). These roads are all classified as rural major collector roads (LaDOTD 2018). The average daily traffic flow along these rural highways will be significantly less than the average daily traffic flow of a highway in a major city.

Annual average daily traffic (AADT) counts for 2020 were available for sections of state highways in the project area on the LaDOTD Transportation Data Management System (LaDOTD 2021). Near the beginning of the utility line towards Lake Charles, the AADT for LA 14 was 853 vehicles per day. Heading south, along LA 27 the AADT was calculated as 2118 vehicles per day. When LA 27 splits between LA 27 and LA 82, in Grand Chenier along LA 82, the AADT was 683 vehicles per day. Going west along LA 27, the value for AADT was 1825 vehicles per day. Then, as LA 27 turns to North-South on the Hackberry side of Calcasieu Lake, the AADT was seen to be 1115 vehicles per day. As LA 82 approaches Texas, the AADT was given as 1267 vehicles per day.

5.10.3 Environmental Consequences

Alternative 1 – No Action. This alternative would have no short- or long-term impacts on traffic flow because construction would not occur. However, if existing infrastructure were not repaired, the need for emergency repairs will increase over time as existing emergency repairs fail, resulting in repeated short-term, negligible to minor, temporary impacts on the flow of traffic on state highways and local roads.

Alternative 2 – 230kV Resiliency and Redundancy, Preferred Alternative. Work conducted under this alternative would result in short-term, temporary, negligible impacts to traffic from construction activity along roadways. The 230kV transmission lines would run in the pre-storm location of the 69kV transmission line and be conducted in existing ROWs, to the extent possible. The impact traffic could have on the surrounding area because of the utility line repair is negligible because access to private property along the utility line route would be maintained during construction.

Prior to the beginning of construction, notice of at least 48 hours would be given to residents and emergency response agencies in the event of upcoming street closures. During actual construction, at least one vehicle lane would always remain open, where possible. Temporary approaches to and crossings of intersecting streets and sidewalks would be provided for and kept in good condition wherever practical. Depending on the specific project location, various possibilities for detours and other traffic accommodations also would be available. During project implementation, the contractor would be expected to take all reasonable precautions to control site access. All activities would be conducted in a safe manner in accordance with federal Occupational Safety and Health Administration (OSHA) work zone traffic safety requirements. The contractor would post appropriate signage and fencing to minimize foreseeable potential public safety concerns. Truck and equipment routes would be kept free of construction debris.

In addition, the contractor would be responsible for handling all traffic control and warning in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), including placing signs and signals in advance of construction activities in order to alert pedestrians and motorists of the upcoming work and traffic pattern changes (e.g., detours or lanes dedicated for construction equipment egress). Further, according to the Calcasieu PPJ Utility Permit conditions "All safety precautions for the protection of the traveling public must be observed. Undue delay to traffic will not be tolerated" (Calcasieu PPJ 2013). As such, construction will be conducted in a manner that would cause little to no traffic delays due to utility line construction in Calcasieu Parish. There may be times when certain streets would be closed to all but local traffic and rerouting of through traffic to alternate roads might become necessary. The contractor would be expected to provide a traffic control schedule prior to commencing construction.

As impacts to traffic will be limited to the duration of construction activities, long-term effects on traffic flow would not occur.

Alternative 3 – 69kV/138kV Repair/Resiliency. Work conducted under this alternative would result in similar impacts, and utilize the same BMPs, as the Preferred Alternative 2.

5.11 Environmental Justice

5.11.1 Regulatory Setting

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* was issued by President Clinton in 1994. Its purpose is to focus federal attention on the environmental and human health effects of federal actions on minority and low-income populations with the goal of achieving environmental protection for all communities.

The EO directs federal agencies to identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law. The order also directs each agency to develop a strategy for implementing environmental justice. The order is also intended to promote nondiscrimination in federal programs that affect human health and the environment, as well as provide minority and low-income communities' access to public information and public participation.

Title VI of the Civil Rights Act of 1964 declares it to be the policy of the United States that discrimination on the ground of race, color, or national origin shall not occur in connection with

programs and activities receiving federal financial assistance. It is FEMA's policy to ensure that the civil rights of all persons receiving services or benefits from agency programs and activities are protected. No person shall, on the grounds of race, color, national origin, sex, religion, age, disability, English proficiency, or economic status, be denied the benefits of, be deprived of participation in, or be discriminated against in any program or activity receiving financial assistance from FEMA. All personnel carrying out federal major disaster or emergency assistance functions, including the distribution of supplies, the processing of the applications, and other relief and assistance activities, shall perform their work in an equitable and impartial manner without discrimination. It is FEMA policy to prohibit such discrimination in any programmatic guideline, procedure, or other directives. These prohibitions extend to all entities receiving federal financial assistance from the Agency, including state and local governments, Indian tribal governments, educational institutions, and any organization of any type obtaining benefits through the PA Program. FEMA's Title 44 CFR, Parts 7.11 through 7.16, outlines the Agency procedures for voluntary compliance, enforcement action, and processing complaints of discrimination in FEMA's federally assisted programs. Procedures for processing complaints of discrimination on the basis of disability in federally conducted programs can be found in Title 44 CFR, Part 16.170.

This PEA analyzes the alternatives provided to determine that all persons are provided the same degree of protection from environmental and health hazards, as well as equal access to the decision-making process involved in determining a healthy environment for all communities.

5.11.2 Existing Conditions

Socioeconomic and demographic data for the two parishes in which the study area is located (Calcasieu and Cameron Parishes) was reviewed to determine if the proposed action and alternatives would have a disproportionate adverse impact on minority or low-income persons (Table 5). According to the United States Census, the populations of Calcasieu and Cameron Parishes are predominantly white, with a minority population (not identified as only white) of 36% and 7%, respectively. In comparison, Louisiana has a minority population of 43%, while the United States as a whole has a minority population of 38%.

The 2019 poverty thresholds for the United States range from $12,490 for an individual to $25,750 for a family of four. The median household income in both parishes is slightly over $50,000 per year, which is slightly higher than the median household income in Louisiana, but lower than in the United States overall. The percentage of persons earning below the poverty level in Calcasieu Parish is 17%, while in Cameron Parish it is approximately 10%. In Calcasieu Parish, the unemployment rate is currently 5.6%, and the unemployment rate for Cameron Parish is 4.7%. This is similar to the unemployment rate of Louisiana and that of the United States as a whole.

Table 5. United States Census Socioeconomic and Demographic Data for Calcasieu and Cameron Parishes.

Source: United States Census Bureau (2020)

Metric	Project Area - Calcasieu Parish	Project Area - Cameron Parish	Comparison Area - Louisiana	Comparison Area - United States
Total Population (2020)	216,785	5,617	4,657,757	331,449,281
% White	64%	93%	57%	62%
% Black or African American	25%	1%	31%	12%
% American Indian	1%	<1%	1%	1%
% Asian	2%	<1%	2%	6%
% Native Hawaiian or Pacific Islander	<1%	<1%	<1%	<1%
% Other or more than one race	7%	5%	9%	19%
Median Household Income ($2019; 5-year)	$51,148	$53,423	$49,469	$62,843
% of persons earning below the poverty level (2019; 5-year)	17.3%	9.9%	19.2%	13.4%
Unemployment rate (2019; 5-year)	5.6%	4.7%	6.4%	5.3%

NOAA's NMFS has developed a suite of Community Social Vulnerability Indicators (CSVIs) for coastal communities that include measures of dependence on fishing, environmental justice, climate change, economics, and gentrification. CSVIs have been developed for two communities in Cameron Parish, which were identified by NOAA as communities associated with the fishing industry (Table 6). A higher ranking is indicative of more vulnerability, while a low ranking indicates that that indicator is less of a driver of vulnerability in that community.

Hackberry, a census designated place, has high rankings for vulnerability to inundation from projected sea level rise and flooding from hurricane storm surges and a medium-high ranking for vulnerability related to housing characteristics (including median rent and mortgage, number of rooms, and presence of mobile homes). Hackberry has medium or low rankings for other indicators. In Hackberry, the primary industry is retail trade (25%), followed by transportation (18.3%), and public administration (13.9%) (NOAA 2021c).

Cameron, a census designated place, has high rankings for dependence on commercial and recreational fishing, personal disruption (i.e., capacity to adapt to changes including unemployment, educational attainment, poverty, and marital status), inundation from projected sea level rise, and flooding from hurricane storm surges. Cameron has medium-high rankings for poverty and gentrification from retiree migration but has medium or low rankings for other indicators. The primary industry in Cameron is agriculture/fishing (36.8%), followed by education (20.8%) and transportation (19.4%) (NOAA 2021c).

Table 6. Social Indicators for Coastal Communities in Cameron Parish, 2018. Source: NOAA 2021a.

Indicator	Hackberry	Cameron
Commercial Fishing Engagement	Medium	Medium
Commercial Fishing Reliance	Medium	High
Recreational Fishing Engagement	Medium	Low
Recreational Fishing Reliance	Medium	High
Poverty	Medium	Med-High
Population Composition	Medium	Low
Personal Disruption	Medium	High
Sea Level Rise Risk	High	High
Storm Surge Risk	High	High
Labor Force	Low	Medium
Housing Characteristics	Med-High	N/A
Housing Disruption	Low	N/A
Retiree Migration	Low	Med-High
Urban Sprawl	Low	Low

5.11.3 Environmental Consequences

Alternative 1 – No Action Alternative. This alternative would result in no direct adverse effects. However, it would deprive JDEC customers and surrounding communities of needed repairs, which could potentially harm communities. Impaired electrical service could damage personal property as well as pose significant health and safety concerns to those affected communities. Low-income and minority communities could be especially impacted, as their ability to absorb the financial strain of damaged property and health repercussions would be limited. As a result, there could be disproportionately high adverse effects on low-income or minority populations.

Alternative 2 – 230kV Resiliency and Redundancy, Preferred Alternative. Work conducted under this alternative would occur within JDEC property or existing ROWs to the extent possible, and it is not expected that any homes or businesses would be relocated. It is not anticipated that the work would result in any additional demands on emergency services. Construction activities would occur during the daytime hours and would be unlikely to disrupt the activities of residents. Therefore, there would be no disproportionate adverse effects on low-income and minority populations.

The utilization of a single 230kV Loop would greatly increase the long-term reliability of the electrical system over Alternative 3 by allowing for quicker restoration of power in the event of an outage or future disaster event. Also, the additional capacity and reliability of the electrical system under this alternative would enable the area to attract larger commercial clients to the area,

such as LNG facilities, that would provide an infusion of capital and jobs to the local economy. The large-scale construction activity involved in this project would provide short-term benefits to the local economy from the purchase of services, goods, and materials. To the extent that local labor is used in the construction, this alternative could increase local employment and income.

Alternative 3 – 69kV/138kV Repair/Resiliency. As the construction activities are similar to those in the Preferred Alternative 2, there would also be no disproportionate adverse effects on low-income and minority populations.

This alternative would also increase reliability for low-income and minority populations compared to the present condition of impaired electrical service but would not provide the additional benefits that the larger capacity line in the Preferred Alternative 2 would provide. The large-scale construction activity involved in this project would provide short-term benefits to the local economy from the purchase of services, goods, and materials. To the extent that local labor is used in the construction, this alternative could increase local employment and income.

5.12 Human Health and Safety

This section discusses human health and safety directly related to the alternative actions. See also Section 5.7 (Air Quality), Section 5.9 (Noise), Section 5.10 (Traffic), and Section 5.13 (Hazardous Material) as they relate to human health and safety.

5.12.1 Regulatory Setting

The NEPA process provides an opportunity to improve safety for public utility projects. The process should:

- Include a safety analysis commensurate with the complexity of the project as part of the review process;
- Utilize the best available safety data specific to the project location in the review process;
- Involve safety analysis using the best available information and tools;
- Promote dialogue with the general public and key stakeholders about the safety aspects of the project;
- Address potential safety issues associated with construction; and
- Incorporate innovative educational and enforcement techniques to address issues.

Safety considerations can arise in many stages of the NEPA process. Safety concerns are a significant part of the impetus for the utility project under review (see Section 3 Purpose and Need). The existing storm-damaged JDEC system operates at a reduced capacity and efficiency. Adequate and reliable electricity is essential to human health and safety, as it is required to maintain operations of water treatment facilities, hospitals, telecommunications used in the event of disasters or emergencies, and other necessary public services. Additionally, many types of residential home-based medical equipment, such as dialysis machines, require electric reliability.

The Federal Highway Administration (FHWA) MUTCD provides for uniform design and setup of work zones and includes guidance for the development of temporary traffic control plans that determine the flow of traffic through work zones. (FHWA 2012). The OSHA regulations (29 CFR, Subpart 0) address operations of vehicles and equipment within off-highway job sites not open to public traffic. However, Subpart 0 is not exhaustive in its coverage of machinery types or safety equipment, nor does it address work practices, traffic control plans, or shift work. Flagging and

signaling practices are discussed in general terms in Subpart G, which covers signs, signals, and barricades.

5.12.2 Existing Conditions

Utility maintenance and construction workers routinely work in proximity to construction vehicles and motor vehicle traffic and face the risk of death or serious injury from passing motorists, construction vehicles, and equipment. Flaggers and other workers on foot are exposed to the risk of being struck by traffic vehicles or construction equipment if they are not visible and protected from motorists or equipment operators. Workers who operate construction vehicles or equipment risk injury due to overturn, electrocution, collision, or being caught in running equipment. Maintenance and construction workers, regardless of their assigned task, often work in conditions of low lighting, low visibility, and inclement weather, and may work in congested areas, with exposure to high traffic volume and speed. Workers may also be at risk for trip and fall hazards, as well as risk of electric shock when performing maintenance and repairs.

Construction and maintenance activities frequently involve exposure to materials such as fuels, oils, solvents, cleaners, and degreasers, which can have adverse health effects over time. Additional safety concerns include, among other things, the use of torches for cutting and welding, sanding and abrading activities, and open excavations. Excavation, filling, saw-cutting, jack-hammering, and paving activities have the potential for the generation of large quantities of dust and asphalt emissions. Heavy equipment operation may generate noise that could adversely impact hearing and contribute to an unsafe environment, which is discussed in detail in Chapter 5.9 on Noise. Construction ROWs may contain other utilities such as gas lines, telecommunications, or petroleum pipelines, which increases risk of injury from inadvertent contact with utility lines. Fire and explosion can result from gas leaks, with especially severe risk if gas from a damaged pipe enters and accumulates in a nearby structure. Construction and maintenance of utilities in remote areas, such as those only accessible by boat, pose an additional risk for workers, as the response time of emergency services in the event of an accident is increased.

5.12.3 Environmental Consequences

Alternative 1 – No Action Alternative. The continued reliance on generators and failure to repair, replace, or improve damaged electrical utility infrastructure would result in continued unreliable power supply for the area. Additionally, because of the lack of redundancy in the currently operating JDEC system, the impacts of outages have the potential to be more widespread, rather than localized. Significant health and safety risks to the community from lack of reliable power were discussed in depth in Section 5.8 on Climate Change. There is also an increased risk of serious injury or death to repair and maintenance workers as the need for further repairs are likely to be persistent and unpredictable. As such, short-term to long-term, temporary and permanent, minor adverse effects to human health and safety would potentially occur.

Alternative 2 – 230kV Resiliency and Redundancy, Preferred Alternative. Short-term, temporary, minor adverse effects to human health and safety could potentially occur as a result of increased risk of serious injury or death from construction activities, as discussed in Section 5.12.2 above. However, because the 230kV line would be located farther from the road centerline than the 69kV line in Alternative 3, as required by LaDOTD, the risk of serious injury or death for both workers and the community from vehicle traffic, would be reduced compared to Alternative 3. Additionally, this alternative does not include the 138kV transmission line, a portion of which is

currently located in a remote area only accessible by boat. This would eliminate the risk for worker health and safety associated with working in areas not accessible by emergency services.

Project activities would include safety-related elements or mitigation strategies to address negative safety-related consequences. Construction projects provide an opportunity to incorporate proven safety countermeasures, such as exclusive pedestrian signal phasing at areas with high concentrations of pedestrians, median islands, refuge areas, barriers, or traffic calming to slow vehicles. This includes implementing the FHWA MUTCD for development of traffic control plans and adherence to OSHA 29 CFR regulations within off-highway job sites. While risk of serious injury or death cannot be eliminated from construction activities, risk minimization strategies will be employed. This includes operating within existing ROWs, building to requirements of applicable current building codes and standards, compliance with regulations for safety and health, using qualified personnel trained in equipment operation, and incorporating BMPs into all work practices during construction to minimize risk and improve safety. Specific construction details and BMPs are discussed in detail in Appendix A.1.

Work conducted under this alternative would result in long-term, beneficial impacts as it would increase electrical service reliability for residents.

Alternative 3 – 69kV/138kV Repair/Resiliency. Work conducted under this alternative would result in similar impacts, and utilize the same risk minimization strategies and BMPs, as the Preferred Alternative 2. Because the transmission lines would be located closer to the roadways and the 138kV line would remain through a remote area only accessible by boat, these risks could be slightly higher than the Preferred Alternative 2 but are still expected to be minor. This alternative would also increase public health and safety by hardening infrastructure to improve electrical service reliability and resiliency for residents, but to a lesser extent than the Preferred Alternative 2, because there would be no redundancy.

5.13 Hazardous Material

5.13.1 Regulatory Setting

Hazardous materials and wastes are regulated in the United States under a variety of federal and state laws to protect human health and the environment. Federal laws and implementing regulations governing the management, storage, and disposal of hazardous materials and wastes include the Resource Conservation and Recovery Act (RCRA); the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); and the Toxic Substances Control Act (TSCA).

The RCRA is the federal law that regulates the management of solid and hazardous wastes. While USEPA is the agency responsible for implementing this law, this responsibility is often delegated to the states, which is the case in Louisiana. The RCRA also sets forth a framework for the management of non-hazardous wastes, including the environmental problems that can result from improperly disposed nonhazardous solid wastes and leaking underground tanks that store petroleum and hazardous substances. The law focuses only on active and proposed facilities and does not address abandoned or historical sites.

The CERCLA governs the process of identifying and prioritizing the cleanup of abandoned or historical sites contaminated by the release of hazardous substances. The USEPA was given power by Congress to seek out those parties responsible for any release and ensure their cooperation in the cleanup. The USEPA National Priority List is the list of sites of national priority with known

releases or threatened releases of hazardous substances, pollutants, or contaminants. For contaminated sites that do not meet the definition of a Superfund site, many states, including Louisiana, have developed laws and regulations that require investigation and cleanup. The LDEQ Brownfields Initiative and Voluntary Remediation Program spells out these requirements.

The Small Business Liability Relief and Revitalization Act (the Brownfield Amendments) clarified CERCLA liability provisions for potential property owners. If the potential property owners meet the specific provisions of the act, including an adequate inquiry on past uses of the property, the landowner will be able to assert the innocent landowner defense, contiguous property exemption, and bona fide prospective purchaser exemption to CERCLA liability. The USEPA has published the final "all appropriate inquiries" rule (40 CFR 312.10) that establishes the criteria for conducting Environmental Site Assessments on properties considered for acquisition. This would apply to proposed activities which may require land acquisition for the establishment of new ROWs for the Mud Lake Substation.

The TSCA provides the authority to the USEPA to administer programs covering the production, importation, use, and disposal of specific chemicals including PCBs, asbestos, radon, and lead-based paint. The provisions of TSCA that are likely to be applicable to the actions described in this PEA concern materials or items that may contain asbestos (piping materials) and lead (piping or lead-based paint).

5.13.2 Existing Conditions

Hazardous substances are defined as any solid, liquid, contained gaseous or semisolid waste, or any combination of wastes that pose a substantial present or potential hazard to human health and the environment. Improper management and disposal of hazardous substances can lead to contamination of groundwater and surface water, including drinking water supplies and soils. Evaluations of hazardous substances and wastes must consider whether any hazardous material will be generated by the proposed activity and whether a hazardous material already exists at the site or in the general vicinity of the site that could adversely impact the community or site workers. Materials that may constitute a hazardous waste include petroleum products, pesticides, organic compounds, heavy metals, or other compounds injurious to human health and the environment. The nature and extent of hazardous contamination can vary widely and could impact future uses of any given site.

While there are no facilities that deal with hazardous substances within the project area, access roads to many of these facilities intersect the project area. Facilities have flooded repeatedly as a result of Hurricanes Ike, Rita, Laura, and others, which could have resulted in unknown incidental releases of contaminants that may be discovered in the project area. There are 18 active RCRA sites directly adjacent to the project area, none of which will be intersected by project work. This includes two Large Quantity Generators, five Small Quantity Generators, one Transporter, one Other Hazardous Waste, and 9 Unspecified Universe facilities. There are no landfills or waste disposal facilities in or directly adjacent to the project area. There are no CERCLA, Brownfield, or TSCA listed sites in or adjacent to the project area.

5.13.3 Environmental Consequences

Alternative 1 – No Action. This alternative would not disturb any hazardous materials or create potential hazards to human health related to hazardous material because no construction would occur.

Alternative 2 – 230kV Resiliency and Redundancy, Preferred Alternative. As there are 18 active RCRA listed facilities adjacent to the project area, construction activities under this alternative could disturb hazardous materials incidentally released from these facilities. If hazardous materials are unexpectedly encountered during construction, the contractor must stop work. The contractor would contact LDEQ and other regulatory authorities as specified in applicable permits and is responsible for adhering to guidance before resuming work.

No hazardous materials would be generated as a result of actions taken under this alternative. While some historical power generating equipment contained hazardous materials such as PCBs, this project would utilize only new electrical equipment that does not contain hazardous materials, and none of JDEC's pre-storm equipment contains PCBs. The use of new materials that are up to current codes and standards, properly trained and equipped personnel, and LDEQ licensed disposal facilities, would minimize both adverse, short-term and long-term impacts to human health and the environment to a level of no effect.

Alternative 3 – 69kV/138kV Repair/Resiliency. As in the Preferred Alternative 2, no hazardous wastes would be generated as a result of actions taken under this alternative; therefore, no adverse short-term or long-term impacts to human health and the environment would occur.

5.14 Cultural Resources

5.14.1 Regulatory Setting

Consideration of impacts to historic and cultural resources is mandated under § 101(b)(4) of NEPA as implemented by 40 CFR Parts 1501-1508. NEPA calls for the consideration of a broad range of historic and cultural resources. Compliance with Section 106 of the National Historic Preservation Act (NHPA) is also mandated but takes a narrower focus on Federal agencies' consultation requirements on historic properties and requires Federal agencies to allow the Advisory Council on Historic Preservation an opportunity to comment on actions and determinations. Additionally, consideration through consultation on historic properties, it is the policy of the Federal government to consult with Indian Tribal Governments on a Government-to-Government basis as required in EO 13175, *Consultation and Coordination with Indian Tribal Governments*, signed November 6, 2000. Given these various mandates, FEMA has chosen to address potential impacts to historic properties through the "Section 106 consultation process" of NHPA as implemented through 36 CFR Part 800.

In order to fulfill its Section 106 responsibilities, FEMA has initiated consultation on this project in accordance with the Louisiana Statewide Programmatic Agreement (2016 Statewide Agreement) executed on December 21, 2016, and subsequently amended, among the Louisiana State Historic Preservation Officer (SHPO); GOHSEP; and participating tribes. The 2016 Statewide Agreement was implemented by FEMA and consulting parties to streamline the Section 106 review process. FEMA will comply with Section 106 through a phased process, conducting identification and evaluation efforts and assessing effects as each individual amendment is identified by JDEC. Compliance for individual amendments will not be complete until FEMA concludes the review set out in the 2016 Statewide Agreement or any subsequent Agreement. This approach is specifically provided for in this agreement.

The Section 106 process as outlined in the 2016 Statewide Agreement provides for the use of Programmatic Allowances where the project scope meets certain pre-defined actions. Where the work does not meet these pre-defined actions, the project goes through "Standard Review" per the

2016 Statewide Agreement, which requires the identification and evaluation of historic properties that may be affected by the proposed action or alternatives within the project's Area of Potential Effects (APE). The APE for any project amendment will take into account areas of direct effects and indirect effects to include all activities, such as ground disturbance, temporary access roads, and staging, and to include consideration of any visual effects. Historic properties, defined in § 101(a)(1)(A) of NHPA, include districts, sites (archaeological and religious/cultural), buildings, structures, and objects that are listed in or determined eligible for listing in the National Register of Historic Places (NRHP).

If the proposed project amendment does not have any ground disturbing activities resulting in the potential to effect historic properties inclusive of archaeological resources and exempted from Section 106 review per the 2016 Statewide Agreement, then then the review would be complete. If an amendment meets a Programmatic Allowance in Appendix B of the 2016 Statewide Agreement, the review will be documented. If the proposed scope within the amendment is not exempt nor meets a Programmatic Allowance, FEMA will conduct standard review to determine the potential to affect historic properties. FEMA will consult with SHPO, Tribes, and other parties as appropriate to identify and assess effects to any historic properties. In the event that FEMA determines a proposed project will have an adverse effect on historic properties, FEMA, Tribes, and other appropriate parties will consult on ways to avoid, minimize, or mitigate adverse effects through a MOA or the Abbreviated Consultation Process (ACP). If the Section 106 process results in a Memorandum of Agreement or other agreement to resolve adverse effects, a tiered EA may be required.

5.14.2 Existing Conditions

The first human occupation of the region is believed to have occurred approximately 12,000 years ago (ca. 10,000 before the common era (BCE)) during the end of the Pleistocene epoch. The prehistory of southwest Louisiana follows the broad patterns of cultural developments associated with prehistoric populations who interacted with groups in other regions over large distances. While prehistoric artifacts have been recovered in the region, these sites are uncommon in southwest Louisiana and are generally limited to Pleistocene-age terraces and cheniers (Handly et al 2007).

Permanent settlement of Louisiana occurred during the seventeenth century as a product of French and later Spanish occupation. The first known settlers in the region were Martin LeBleu and his wife, who arrived around 1770 and built a home on the east side of the Calcasieu River, near present-day Lake Charles (Brignac et al 2015). Other early settlements in the area were also located along rivers and lakes, and water transportation was the primary means of access (Ulmer 1949). Through the end of the Civil War, the region's economy was constituted by small-scale livestock and satsuma farming (Perrin 1891).

The project area spans present-day Calcasieu and Cameron Parishes, with most of the project occurring in rural Cameron Parish (See Figure 2). Calcasieu Parish, founded in 1840, was carved out of St. Landry Parish, which is one of the 19 original Louisiana civil parishes. At its time of establishment, Calcasieu Parish was the largest parish in the state. In 1870, Calcasieu Parish was subdivided into five separate parishes, including Cameron Parish, and in 1912 was further divided to create Allen, Beauregard, and Jefferson Davis Parishes (Swent 1966). Permanent settlement in Cameron Parish began around 1840. However, as it was only accessible by the Mermentau, Calcasieu, and Sabine Rivers, the area remained isolated until the road between the communities

of Sulphur and Cameron was constructed in 1932. While there are several small communities along the Chenier Plain, Cameron Parish remains largely undeveloped, whereas residents of Cameron Parish traditionally survived by fishing, hunting, trapping, and raising cattle and poultry (Louisiana Work Projects Administration 1941:430).

In the 1850s, sawmill technology improvements facilitated the rise of the lumber and shipbuilding industries in Calcasieu Parish. The Calcasieu River allowed for transportation and export of lumber from Lake Charles to Galveston, Texas (Cormier 2007). In the late 1860s, the Louisiana Petroleum Company found oil in the area, and a geologist identified a large deposit of sulfur near Lake Charles (Ulmer 1949). Later, the Calcasieu Sulphur Mining Company was developed to mine the sulfur. In the twentieth century, petroleum and petrochemical industries replaced timber, spurring economic and population growth of the region. By 1920, this included seven oil fields and numerous chemical plants that produced fertilizer, plastics, additives for livestock feed, and other goods. These industries still dominate the economy of the region (Ulmer 1949).

JDEC's Cultural Resource Management contractor prepared a cultural resources desktop analysis to provide recommendations for identification and evaluation efforts within the maximum extent of the APE based on background research. The maximum extent of the APE will extend no more than 0.25 miles (preliminary APE) beyond the project area but has not yet been definitively determined. FEMA will share the background research and recommendations for survey with SHPO, Tribes, and other consulting parties to refine the identification and evaluation efforts as well as any conditions to minimize potential effects.

Standing Structures and Cemeteries

During a virtual project introduction and coordination meeting held on December 15, 2021, among FEMA, the LA SHPO, and JDEC, a preliminary APE for above-ground resources was recommended to include the project corridor and an area extending 0.25 miles on either side of the project corridor. This APE would encompass both potential direct and indirect effects to historic above-ground resources that may be associated with the project and provide baseline data for use until a final, approved indirect effects APE could be defined. Within the proposed preliminary APE, architectural investigations considered all above-ground resources older than 45 years of age (i.e., 1977).

Based on JDEC's Cultural Resource Management contractor's review of existing documentation, data on known or existing historic sites provided by the SHPO, and historic maps and site visits, it has been determined that Louisiana Historic Resource Inventory (LHRI) forms exist for 102 above-ground resources previously identified within the proposed project corridor and the area extending 0.25 miles on either side of the project survey corridor. All previously identified above ground resources are located in Cameron Parish. No above-ground resources were previously identified in the project corridor or within the 0.25 mile buffer of the segment of the electric line in Calcasieu Parish. Research also was conducted in the records of the NRHP and the National Historic Landmarks (NHL). None of the previously identified above-ground resources were recorded as listed in the NRHP. Cameron Parish only has two properties listed in the NRHP and neither of them is near the project corridor. Twenty-two historic properties on the NRHP are recorded in Calcasieu Parish, primarily in Lake Charles; no NRHP properties are located in the vicinity of the project corridor in southeastern Calcasieu Parish. No NHLs are located in either Cameron or Calcasieu Parishes (National Park Service databases 2022). The National Register Federal Determinations of Eligibility database identifies five properties in Cameron Parish as

eligible for listing in the NRHP. Two buildings determined eligible for the NRHP in 1977 by FEMA now are archeological sites: the Sanner House (16CM91) and the Ellender House (16CM90) located in Hackberry. Both sites are located outside the project corridor 0.25-mile buffer (National Park Service DOE database 2022; LA SHPO GIS). The NRHP DOE documentation is not available online. No properties in the project corridor or the 0.25 mile buffer around the project corridors have been documented in the Historic American Buildings Survey (HABS)/Historic American Engineering Record (HAER) records available online at the Library of Congress website.

The Louisiana Bridge Survey also was consulted for the NRHP status for bridges in Cameron and Calcasieu parishes in Louisiana. The Louisiana Bridge Survey is an on-going effort overseen by the Louisiana Department of Transportation and Development (LADOTD), the LA SHPO, and the Federal Highways Administration. Louisiana bridges under the administration of LADOTD and culverts 20 ft or longer were included in the survey and evaluation of Louisiana bridges constructed before 1971. Railroad bridges, privately owned bridges, bridges on interstate highways and culverts less than 20 ft were not included in the study (Mead & Hunt 2013). In 2020, a historic context was prepared for Louisiana bridges constructed between 1971 and 1985 (Mead & Hunt 2020). The historic context for bridges and culverts constructed between 1971 and 1985 identified common and uncommon types of these resources. Common types of bridges and culverts constructed after 1945 are covered under a Program Comment issued for streamlining Section 106 review for actions affecting post-1945 concrete and steel bridges (Advisory Council on Historic Preservation 2012).

At least six cemeteries were located within 0.5 mi (0.8 km) of the proposed project corridor.

Archaeological Resources

Background research of recorded data for historic resources, conducted by a qualified archaeologist has been completed in order to consider potential impacts to any known significant historic structures or archaeological resources is in support of further consultations as well as to enable and support project designs for avoiding and minimizing impacts to protected resources.

Based on JDEC's Cultural Resource Management contractor's review of existing documentation, data on existing archaeological sites provided by the LA SHPO and Tribes, and historic maps and informal site visits, there are a total of 17 previously recorded archaeological sites situated within 0.5 miles of the proposed project corridor. Four of these sites are wholly or partially within the proposed project corridor; the remainder are situated within the 0.5-mile buffer. As a result of past cultural resources investigations, only four cultural resources have been identified within the proposed project corridor. Two of these sites, 16CM44 (a Native American shell midden with ceramics) and 16CM139 (a Native American artifact scatter with ceramics) have not been assessed for NRHP eligibility while the other two sites, 16CM88 (a Native American artifact scatter dating from an unknown time period) and 16CM161 (a 20th century historic artifact scatter with above ground remains) have been determined to be ineligible for listing in the NRHP. Within the buffer, Sites 16CM10 (a Native American shell midden with ceramics), 16CM50 (a Native American camp with ceramics), 16CM54 (a Native American shell midden dating from an unknown period), 16CM89 (a Native American and late 19th century artifact scatter), 16CM111 (a Native American artifact scatter with ceramics), 16CM140 (a Native American artifact scatter with ceramics), 16CM146 (a habitation and military battlefield dating from antebellum, Civil War, and modern periods), 16CM162 (a Native American artifact scatter with ceramics), 16CM163 a historic artifact scatter (late 19th to early 20th century), and 16CM176 a Coast Guard Signal Station (20th century

with standing structure) have not been assessed for NRHP eligibility. Sites 16CM149 (a World War II gun emplacement base), 16CM158 (a historic artifact scatter with above ground remains), and Site 16CM175 (a historic industrial artifact scatter) are situated within the buffer and each has been determined to be ineligible for listing in the NRHP.
Pursuant to 36 CFR § 800.4(b)(2), Phased Identification and Evaluation and § 800.8, Coordination with the NEPA, FEMA has notified the SHPO, affected Tribes, and consulting parties about FEMA's intent to conduct reviews as described above in the regulatory setting section and in accordance with the 2016 Statewide Agreement implemented pursuant to § 800.14 as project amendments are proposed, developed, and provided to FEMA. See below for a generalized consideration of potential impacts.

5.14.3 Environmental Consequences

***Alternative 1 – No Action*.** This alternative would leave the existing damaged infrastructure as is and therefore would have no immediate effects on historic properties. However, if the system remains unrepaired, damaged infrastructure would require more frequent emergency repairs to maintain the ability to provide reliable electricity to the public. This could result in more frequent access to perform repairs in and around historic properties and archaeological sites. If no action were taken, long-term minor to moderate, and potentially adverse, effects to cultural resources could occur.

***Alternative 2 – 230kV Resiliency and Redundancy, Preferred Alternative*.** Work conducted under this alternative, including transmission line pole installations, waterway crossings, and building new and relocated or building new substations will likely result in new ground disturbance that has potential to alter or destroy archaeological resources. In accordance with the processes described above, JDEC will conduct identification and evaluation work within areas based on consultation with FEMA, SHPO, Tribes, and other consulting parties. The identification efforts, which may include visual inspection, shovel testing, auguring, and/or trenching, will be carried out to identify historic properties within the APE and evaluate the effects of the proposed alternative on any historic properties. FEMA, SHPO, Tribes, other consulting parties will consult under the 2016 Statewide Agreement to resolve any identified adverse effects. JDEC would make every feasible effort to avoid placing poles within the boundaries of archeological sites and to avoid effects to areas potentially containing human remains through the engineering and design process, conditions on the work, and ongoing consultation.

Should unanticipated discoveries, to include those consisting of cultural materials, be encountered during the work, the contractor will halt all work in the vicinity of the discovery, secure the location, and contact FEMA immediately. Should the unanticipated discoveries consist of unmarked graves, indications of a burial, burials, human remains, or burial artifacts, the contractor will halt all work in the vicinity of the discovery, secure the location, and within 72 hours of the discovery will contact local law enforcement, FEMA, and the Louisiana Division of Archaeology. FEMA will consult with the appropriate parties as necessary and as outlined in the 2016 Statewide Agreement.

***Alternative 3 – 69kV/138kV Repair/Resiliency*.** Work conducted under this alternative includes ground disturbing activities that have potential to alter or destroy archaeological resources. The Section 106 review process and evaluation of effects to historic properties for this alternative would be the same as that identified for Alternative 2.

6 CUMULATIVE IMPACTS

In accordance with NEPA, this PEA considers the overall cumulative impacts of the action alternatives. The evaluation of cumulative impacts requires an assessment of the effects of the action alternatives and similar actions to the area's vulnerable natural and socioeconomic resources.

The CEQ defines cumulative impacts 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 actions. Cumulative impacts can result from individually minor but collectively consequential actions taking place over a period of time" (40 CFR § 1508.7). When combined with other actions affecting utilities and similar resources, the activities covered by this PEA could lead to cumulative impacts. The scale of those impacts would depend on the number of projects implemented, the size of the projects, and the locality and proximity of the projects.

It is normally insufficient when conducting a cumulative effects analysis to merely analyze effects within the immediate area of the proposed action. Geographic boundaries should be expanded for cumulative effects analysis and conducted on the scale of human communities, landscapes, watersheds, or airsheds. Temporal frames should be extended to encompass additional effects on the resources, ecosystems, and human communities of concern. A useful concept in determining appropriate geographic boundaries for a cumulative effects analysis is the project impact zone, that is, the area (and resources within that area) that could be affected by the proposed action. The area appropriate for analysis of cumulative effects will, in most instances, be a larger geographic area occupied by resources outside of the project impact zone (CEQ 2007).

For this cumulative effects analysis, a 1-mile buffer from the project footprint has been applied as the appropriate geographic boundary. In accordance with NEPA, and to the extent reasonable and practical, this PEA considered the combined effects of the Preferred Action alternative and other actions undertaken by FEMA, as well as actions by other public and private entities, that affect the environmental resources the proposed action also would affect and occur within the considered geographic area and temporal frame(s).

Specifically, a range of past, present, and reasonably foreseeable future actions undertaken by FEMA within the designated geographic boundary area were reviewed: (1) for similarities such as scope of work, common timing, and geography; (2) to determine environmental effects similar to those of the proposed action, if any; and (3) to identify the potential for cumulative impacts. As part of the cumulative effects analysis, FEMA also reviewed known past, present, and reasonably foreseeable future projects of federal agencies and other parties identified within the designated geographic boundary. These reviews were performed to assess the effects of proposed, completed, and ongoing activities and to determine whether the incremental impact of the current proposed action, when combined with the effects of other past, present, and reasonably foreseeable future projects, are cumulatively considerable or significant.

Summary of Cumulative Impacts

JDEC identified a few permanent utility-related projects in progress or substantially planned by federal agencies as of the time of the writing this PEA. During and shortly after the storm event, there were many disaster emergency response projects covering the project area. The federal response to Hurricane Laura included large scale debris removal activities, building and

infrastructure repair and replacement projects, and other recovery projects, including recreational projects.

Under the no action alternative, none of the alternatives presented in this PEA would be implemented. FEMA expects the action alternatives in this PEA would not result in major cumulative impacts. As part of this PEA, JDEC reviewed state, local, and federal projects in the project impact zone. Two LaDOTD projects were identified, which are comprised of repairs to the Cameron Ferry Landing in Cameron Parish and the construction of a left turn lane at Highway 397 and East McNeese Street. While in or near the designated geographic boundary of the proposed alternatives, neither are anticipated to impact the proposed alternatives in the PEA or result in additional environmental impacts. One USACE project, the Southwest Louisiana Coastal Study to identify a plan to provide hurricane and storm damage risk reduction and coastal ecosystem restoration in the southwest portion of Louisiana, was also identified. This study proposed a number of risk reduction measures in the area as well as proposed ecosystem restoration measures, including marsh restoration projects, hydrologic and salinity control measures, shoreline protection measures, and tree planting measures. A total of 365 coastal and environmental projects were also identified through an assessment of projects available according to the Louisiana Coastal Protection and Restoration Authority (CPRA).[7] Additionally, 1,550 FEMA projects were identified in the project impact zone. Of the relevant FEMA projects, 685 projects were part of the Hurricane Rita (DR-1607; 2005) recovery efforts, 320 projects were Hurricane Ike (DR-1792; 2008) recovery projects, and 17 projects were part of the 2016 Flood Recovery (DR-4277; 2016). For Hurricane Laura (DR-4559; 2020), 34 projects have received FEMA funding, including 9 protective measures projects, 1 road and bridge project, 14 public building projects, 8 projects designated as "recreational or other", and 2 public utilities projects.

Most cumulative impacts from the initial installation and temporary restoration of the projects on the human environment will have minor, short-term impacts. The process of implementing projects over an extended period of time would likely ensure that no one resource is overburdened at any given time by the implementation of federally financed utility projects.

For circumstances where multiple projects are under construction within the same watershed and at the same time, a cumulative impact to resources such as vegetation, water quality, and soil could occur. Although adverse, FEMA anticipates that cumulative impacts from the utility projects covered under this PEA would be short-term and less than major. The conservation measures and BMPs presented in Appendix A.1 will help minimize cumulative impacts to environmental and socioeconomic resources by maintaining compliance with applicable permit conditions.

The combined effects of concurrent construction projects could have a short-term less than major cumulative effect on traffic delays and congestion, noise, and social services. JDEC will be responsible for managing project coordination and project schedule with the local public utility departments and environmental permitting agencies.

Overall, the cumulative effect of these present, past, and reasonably foreseeable future actions is not anticipated to result in a significant impact to any resource. Each of the projects either aims to restore or improve the function of pre-existing infrastructure or proposes redevelopment consistent with current zoning requirements, with minimal impacts to the natural and human environment. Additionally, the vast majority of the projects identified, particularly the 365 projects constructed

[7] These include 257 CPRA projects, 71 NRCS projects, 14 USFWS projects, 11 NMFS projects, 7 USACE projects, 3 NOAA projects, and 2 EPA projects. 348 of the 365 of these projects have been constructed.

or planned under the purview of the CPRA would have net benefits to the environment in the project impact zone.

7 EVALUATION

FEMA's experience is that utility infrastructure repair projects such as the one evaluated in this PEA would have minimal adverse impacts. The Preferred Alternative in this PEA would have negligible to minor, short-term impacts on Geology, Topography, and Soils; Waters of the United States and Wetlands; Hydrology and Floodplains; Water Quality and Resources; Air Quality; Noise; and Traffic. The Preferred Alternative would also result in long-term, beneficial impacts on Climate Change, Environmental Justice, and Human Health and Safety. While the Preferred Alternative might have permanent impacts in Land Use and Planning as a result of the construction of the Mud Lake Substation, these impacts would be minimized or mitigated through requisite permits and coordination efforts as well as any mitigation measures that could be instituted. Any impacts to Biological Resources and Cultural Resources as a result of the construction activities for the Preferred Alternative would be minimized or mitigated through coordination efforts with federal and state regulatory agencies, mitigation efforts, and the utilization of BMPs.

Implementing BMPs which are incorporated into this document and detailed in Appendix A.1 are expected to limit both individual project impacts and cumulative impacts with other projects. Mitigation measures to reduce impacts are addressed in each affected environment section and the project conditions section. The planned utility infrastructure would be constructed in localized areas, and the construction impacts would be typically short-term and temporary for each individual site. However, site and project-specific information would be needed for all projects to appropriately take into consideration the potential for cumulative impacts on the various resource areas discussed in this PEA.

FEMA will take a specific projects resource impacts and other projects' cumulative impacts into account when evaluating whether the particular action fits within this PEA. If the impacts are minimal, FEMA would prepare RECs for each individual or group of actions, and each REC would take into account the unique project and site conditions. In doing this evaluation, FEMA will carefully evaluate cumulative impacts when the utility project is likely to produce moderate effects (as defined in the affected environment section) on a particular resource or area of concern. In some circumstances, this evaluation may indicate the need for the preparation of a tiered SEA even when the tiered SEA is not triggered by the thresholds established in Table 1. FEMA will carefully evaluate cumulative impacts whenever a tiered SEA is triggered under this PEA in accordance with the thresholds established in Table 1.

8 PUBLIC INVOLVEMENT AND AGENCY COORDINATION

FEMA invites the public to comment on the proposed action during a thirty (30) day comment period, which commenced on July 25, 2022, and concludes on August 24, 2022. The public notice was published on July 25, 2022, in *The Advocate* as well as the *American Press* and on July 28, 2022, in *The Cameron Parish Pilot*, the journals of record for Calcasieu and Cameron Parishes. The draft PEA and FONSI are available for review at the following locations:

- Vermilion Parish Library, 405 E. St. Victor Street, Abbeville, LA 70510;
- Calcasieu Parish Public Library, Central Branch, 301 W. Claude Street, Lake Charles, LA 70605; and

- Cameron Parish Library, Grand Lake Branch, 10200 Gulf Highway, Lake Charles, LA 70607.

The documents are also posted on FEMA's website at (http://www.fema.gov/resource-document-library). A copy of the Public Notice is contained in Appendix G.

8.1 Agency Coordination

FEMA is the lead federal agency for the NEPA compliance process for this PA Project. It is the responsibility of the lead agency to conduct the preparation and review of NEPA documents in a way that is responsive to the needs of the Cameron and Calcasieu Parish communities while meeting the spirit and intent of NEPA and complying with all NEPA provisions. As part of the development of early interagency coordination related to the proposed action, state and federal resource protection agencies were contacted, and FEMA distributed an informal scoping notification through a SOV (Swafford 2021).

These resource agencies include, among others, the Louisiana SHPO, USFWS, NOAA, GOHSEP, LDWF, LDNR, USACE, and the relevant THPOs. Comments and conditions received from the agencies have been incorporated into this Draft PEA (Appendix C).

In accordance with applicable local, state, and federal regulations, JDEC would be responsible for acquiring any necessary permits prior to commencing construction at the proposed project site.

9 CONDITIONS AND MITIGATION MEASURES

FEMA requires that JDEC take the following measures to the extent practicable and applicable to avoid or further minimize impacts to the quality of the human environment. The general mitigation measures outlined in this section may be superseded by higher or more stringent standards required by the particular federal, territory, tribe, or local government agency issuing a permit, license, or approval for the project.

- Follow applicable local, state, and federal permitting requirements for construction;
- Minimize the disturbed area and preserve vegetation to the maximum extent possible;
- Phase construction activities to the extent possible;
- Ensure adequate maintenance of equipment, including proper engine maintenance, adequate tire inflation, and proper maintenance of pollution control devices;
- JDEC is responsible for acquiring any Section 401/404 Clean Water Act (CWA) permits and/or Section 10 permits under the Rivers and Harbors Act. When these permits are required, JDEC must maintain documentation of compliance with applicable Nationwide Permit (NWP), exemption from requirements, or obtain individual permits from USACE prior to construction, unless exempt by the NWP from pre-construction notification. JDEC shall comply with all conditions of the required permit. All coordination pertaining to these activities should be documented and copies forwarded to the state and FEMA as part of the permanent project files;
- Appropriate measures for the proper assessment, remediation, management, and disposal of any contamination discovered in the course of construction activities must be initiated in accordance with applicable federal, state, and local regulations. Contractors are required

to take appropriate actions to prevent, minimize, and control the spill of hazardous materials at the proposed site;

- Contractors and/or sub-contractors must properly handle, package, transport and dispose of hazardous materials and/or waste in accordance with all local, state, and federal regulations, laws, and ordinances, including all OSHA worker exposure regulations covered within 29 CFR Parts 1910 and 1926;
- A spill prevention and emergency response plan (SPERP) will be required for all construction contractor groups. The SPERP will need to identify at a minimum: emergency contact numbers for local, state, and federal environmental and public health agencies, MSDS for all hazardous substances, hazardous material inventory, spill prevention plan, spill response plan/emergency response plan, spill response equipment (e.g., absorbent pads, disposal containers) and reporting requirements;
- Unusable equipment, debris, and material shall be disposed of in an approved manner and location. JDEC must handle, manage, and dispose of petroleum products, hazardous materials, and/or toxic waste in accordance with all local, state, and federal agency requirements. All coordination pertaining to these activities should be documented and copies forwarded to the state and FEMA as part of the permanent project files;
- Contractors will be responsible for maintaining, securing, and protecting any staging area, containers, or bins set up for construction purposes. The storage of any equipment or materials will not be permitted immediately adjacent to canals or other water bodies, trees, or private property without prior approval from the respective owner or regulatory agency. The contractors will be responsible to ensure all equipment arriving at or departing from the construction limits remains clean and to take any necessary measures to ensure foreign materials or debris is not tracked or deposited on opened streets or outside the construction site limits. Contractors will also be required to store and handle any fuels or other hazardous material in accordance with OSHA requirements and ensure any such materials required at a construction site be adequately secured and protected at all times;
- In order to minimize indirect impacts (e.g., erosion, sedimentation, dust, and other construction-related disturbances) to nearby waters of the United States and surrounding drainage areas, the contractor must ensure compliance with all local, state, and federal requirements related to sediment control, disposal of solid waste, control and containment of spills, and discharge of surface runoff and stormwater from the site. All documentation pertaining to these activities and JDEC compliance with any conditions should be forwarded to LA GOHSEP and FEMA for inclusion in the permanent project files;
- JDEC shall ensure that BMPs are implemented to prevent erosion and sedimentation to surrounding, nearby, or adjacent wetlands. This includes equipment storage and staging of construction to prevent erosion and sedimentation to ensure that wetlands are not adversely impacted per the CWA and EO 11990;
- LDNR requires that a complete CUP application package (e.g., Joint Application Form, location maps, project illustration plats with plan and cross section views, etc.) along with the appropriate application fee be submitted to their office prior to construction. JDEC will be responsible for coordinating with and obtaining any required CUPs or other authorizations from the LDNR OCM's Permits and Mitigation Division prior to initiating

work. JDEC must comply with all conditions of the required permits. All documentation pertaining to these activities and JDEC compliance with any conditions should be forwarded to the state and FEMA for inclusion in the permanent project files;

- FEMA PA-funded projects carried out in the floodplain must be coordinated with the local floodplain administrator for a floodplain development permit prior to the undertaking, and the action must be carried out in compliance with relevant, applicable, and required local codes and standards. This will reduce the risk of future flood loss, minimize the impacts of floods on safety, health, and welfare, and preserve and possibly restore beneficial floodplain values as required by EO 11988. Coordination pertaining to these activities and JDEC compliance with any conditions should be documented and copies forwarded to GOHSEP and FEMA for inclusion in the permanent project files;
- Adverse effects on the floodplain must be minimized in accordance with FEMA's minimization standards in 44 CFR § 9.11. Treatment measures would be required to reduce adverse impacts below the level of significance;
- JDEC is responsible for obtaining and/or complying with all federal, state, and local permits, ordinances, and/or requirements for the collection, handling, storage, transportation, and disposal of any medical, hazardous, biological, radiological, pharmaceutical, or toxic related waste or debris. Equipment such as ice machines, refrigerators, generators, air conditioning units, computers, and televisions may contain chlorofluorocarbons, used oil, diesel and other petroleum products, mercury switches, used oil filters, fuel filters, and batteries. JDEC shall handle, manage, and dispose of damaged materials and equipment that may be hazardous waste, universal waste, and hazardous materials in accordance with the requirements of local, state, and federal regulations;
- If the project results in a discharge to waters of the state, submittal of a LPDES application may be necessary;
- All waste is to be transported by an entity maintaining a current "waste hauler permit" specifically for the waste being transported, as required by LaDOTD, LDEQ, and other regulations;
- Disposal of demolition debris must be in accordance with all federal, state, and local laws, regulations, and rules. Prior to disposal, JDEC must identify and provide to FEMA and GOHSEP the waste disposal site, including the complete name, location, telephone number, permit number, and contact person of the facility;
- To minimize worker and public health and safety risks from project construction and closure, all construction and closure work must be done using qualified personnel trained in the proper use of construction equipment, including all appropriate safety precautions. Additionally, all activities must be conducted in a safe manner in accordance with the standards specified in OSHA regulations;
- Appropriate signage and barriers shall be in place prior to construction activities in order to alert pedestrians and motorists of project activities and traffic pattern changes. The contractor will implement traffic control measures, as necessary. This shall include 24-hour emergency contact information for JDEC;
- JDEC is responsible for maintaining construction site perimeter fencing where possible;

- JDEC and its contractor(s) must take all reasonable precautions to control construction site access during project implementation, including posting appropriate signage and fencing, where possible, to minimize foreseeable potential public safety concerns. All activities shall be conducted in a safe manner in accordance with OSHA work zone traffic safety requirements. Truck and equipment routes must be kept free of construction debris;
- JDEC and its contractor(s) are responsible for implementing all traffic control and warning in accordance with the MUTCD, including placing signs and signals in advance of construction activities in order to alert pedestrians and motorists of the upcoming work and traffic pattern changes;
- JDEC will perform all Treatment Measures identified by FEMA in consultation with SHPO and other consulting parties through the Section 106 review to offset any adverse effects;
- JDEC will implement an Inadvertent Discovery Clause to account for unanticipated discoveries. It shall read: If during the course of work, archaeological artifacts (prehistoric or historic) are discovered, JDEC shall stop work in the vicinity of the discovery and take all reasonable measures to avoid or minimize harm to the finds. JDEC shall inform their PA contacts at FEMA, who will in turn contact FEMA Historic Preservation (HP) staff. JDEC will not proceed with work until FEMA HP completes consultation with the SHPO, and others as appropriate;
- JDEC will implement a Louisiana Unmarked Human Burial Sites Preservation Act discovery provision, as well. It shall read: If human bone or unmarked grave(s) are present within the project area, compliance with the Louisiana Unmarked Human Burial Sites Preservation Act (R.S. 8:671 et seq.) is required. JDEC shall notify the law enforcement agency of the jurisdiction where the remains are located within 24 hours of the discovery. JDEC shall also notify FEMA and the Louisiana Division of Archaeology at 225-342-8170 within 72 hours of the discovery;
- If the project results in a discharge of wastewater to an existing wastewater treatment system, that wastewater treatment system may need to modify its LPDES permit before accepting the additional wastewater;
- All precautions should be observed to control nonpoint source pollution from construction activities. LDEQ has stormwater general permits for construction areas equal to or greater than one acre. It is recommended that you contact the LDEQ Water Permits Division at (225) 219-9371 to determine if your proposed project requires a permit;
- JDEC is required to protect existing individual trees through project design and implementation. If tree removal is unavoidable, the Subrecipient is required to plant two new trees for every one removed; and
- Follow all applicable BMPs during pre-construction and construction activities.

10 LIST OF PREPARERS

Agency/Firm/Company	Name	Position
Royal Engineers & Consultants, LLC	Matthew Mumfrey	EHP Specialist
Royal Engineers & Consultants, LLC	Mandy Green	EHP Specialist

Agency/Firm/Company	Name	Position
Royal Engineers & Consultants, LLC	Kirk Rhinehart	Grant Policy Advisor
Royal Engineers & Consultants, LLC	Shelby Barrett	Project Coordinator
Royal Engineers & Consultants, LLC	Jennifer Peers	Subject Matter Expert
Royal Engineers & Consultants, LLC	Alaina Grace	Project Scientist
Royal Engineers & Consultants, LLC	Caitlin Vines	Project Scientist
FEMA	Timothy Snowden	Environmental Specialist (CTR)
FEMA	Tiffany Spann-Winfield	Deputy EHP Advisor
FEMA	Cheraki Williams	EHP Manager
FEMA	Jerame Cramer	EHP Advisor
GOHSEP	Ellen Ibert	Senior Problem Resolution Officer - EHP

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APPENDIX

A. CONSTRUCTION DETAILS AND BEST MANAGEMENT PRACTICES

This Appendix provides detailed descriptions of the construction methods and BMPs that would be utilized under each of the action alternatives considered in the PEA and corresponding impact analysis. All work performed as part of the action alternatives will be planned, designed, and completed in accordance with applicable regulatory plans and specifications. JDEC will also comply with and account for requests from state and federal resource agencies and construction permit conditions.

A.1 Construction Best Management Practices

The following BMPs provide guidance and best practices for the various construction activities for the action alternatives and would be adhered to during construction activities to the extent they are applicable. All regulatory agency permit/consultation conditions will be followed on a project-by-project basis as consultations occur. Further, all activities will, to the extent possible, be conducted and performed from existing roads or within existing ROWs on which the JDEC normal system operations and maintenance activities occur, would utilize location-appropriate equipment, and would be conducted in keeping with best practices to avoid or minimize impacts to the sites. All equipment, including timber mats, erosion controls, silt fencing, and any other project-related materials used to support equipment will be removed upon completion of construction-related activities.

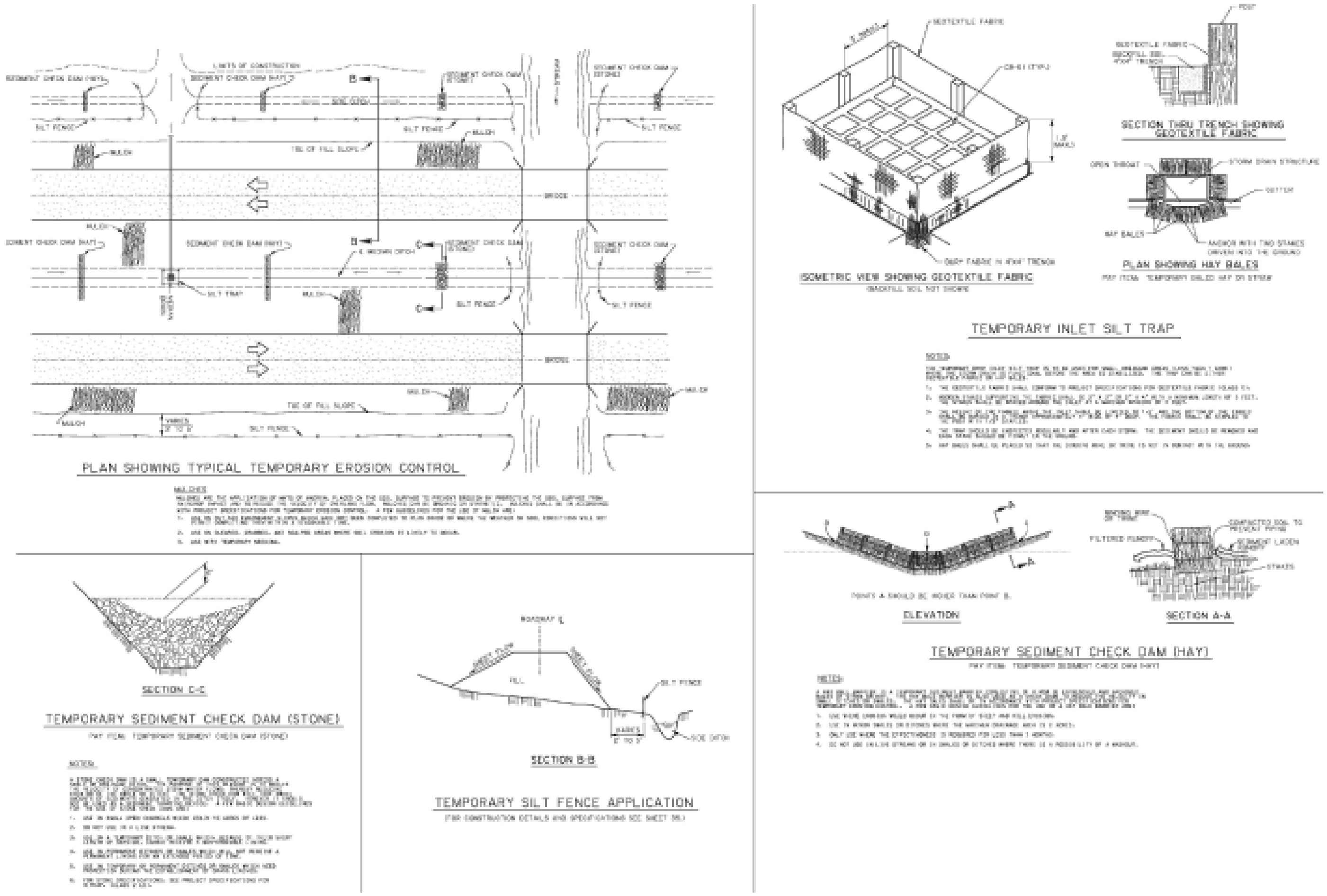
Table 7. Construction BMPs

Construction Activity	Environmental Resource (PEA Section reference)	Best Management Practice (BMP)	Rationale	Reference
Construction Activity in Water	Biological Resources (Protected Resources) (5.6)	Follow Vessel Strike Avoidance Measures and Reporting for Mariners	Avoid causing injury or death to marine mammals and sea turtles	NMFS 2008
Construction Activity in Water	Biological Resources (Manatee) (5.6)	Follow Standard Manatee Conditions for In-Water Work	Avoid causing injury or death to manatees	USACE 2011
Construction Activity in Water	Biological Resources (Sea Turtles and Smalltooth Sawfish) (5.6)	Follow Sea Turtle and Smalltooth Sawfish Construction Conditions	Avoid causing injury or death to sea turtles	NMFS 2006
Construction Activity in Water	Biological Resources (Protected Species) (5.6)	Follow Measures for Reducing Entrapment Risk to Protected Species	Avoid causing injury or death to protected species	NMFS 2012

Construction Activity	Environmental Resource (PEA Section reference)	Best Management Practice (BMP)	Rationale	Reference
Construction Activity in Water	Biological Resources (Protected Species) (5.6)	Follow Protected Species Construction Conditions	Avoid causing injury or death to protected species	NOAA 2021b
Construction Activity in Water	Biological Resources (Protected Species) (5.6)	If replanting of marsh vegetation is required, only clean nursery stock would be used under a special permit issued by the Louisiana Department of Agriculture and Forestry	Avoid spreading Roseau Cane	Louisiana Administrative Code title 7 § XV-169
Construction Activity in Water	Biological Resources (Protected Species) (5.6)	Boats should be inspected, and plant or other debris removed after exiting the water, motors should be drained on dry land, and other equipment should be rinsed with very hot water or allowed to dry in the sun for at least 5 days	Avoid spreading Asian Clam and invasive aquatic plants	Alberta Invasive Species Council 2018
Construction Activity in Wetlands	Waters of the United States and Wetlands (5.2); Geology, Topography, and Soils (5.1)	Construction Mats	Prevent rutting and disturbance of soils, minimize impact to site	Sheet EC-03 (below)
Construction Activity in Wetlands	Waters of the United States and Wetlands (5.2); Geology, Topography, and Soils (5.1)	Use of location appropriate equipment (e.g., airboats, marsh buggies)	Minimize disturbance and impact to site	N/A

Construction Activity	Environmental Resource (PEA Section reference)	Best Management Practice (BMP)	Rationale	Reference
Construction Activity in Wetlands	Waters of the United States and Wetlands (5.2); Geology, Topography, and Soils (5.1)	Restoration of tidal salt marshes should impacts require restoration	Minimize disturbance and/or restoration of impacts to site	NMFS 2017
Construction Activity near Cultural Sites	NHPA (cultural and historic resources) (5.14)	No work within specified distance of identified cultural site	Avoid impact to site	N/A
Construction Activity near cemeteries	NHPA (cultural and historic resources) (5.14)	No heavy equipment or other machinery will be operated or staged within specified distance of cemetery	Avoid impact to areas with potential human remains	N/A
General Construction Activity	Waters of the United States and Wetlands (5.2); Geology, Topography, and Soils (5.1)	Ingress/Egress perpendicular to roadway	Minimize impacts to soils and vegetation	N/A
General Construction Activity	Waters of the United States and Wetlands (5.2); Geology, Topography, and Soils (5.1)	Capture of drilling fluids	Avoid impact to site	N/A
General Construction Activity	Air Quality (5.7)	Fugitive dust control	Limit PM releases	N/A
General Construction Activity	Air Quality (5.7); Climate Change (5.8)	Maintain vehicles and engines and limit idling time	Limit air pollutant releases	N/A
General Construction Activity (NPDES requirements)	Water Quality and Resources (5.4); Waters of the United States and Wetlands (5.2)	Temporary silt fencing	Impede runoff, reduce velocity of runoff, contain silt deposits after rain event	Sheet EC-02 (below)

Construction Activity	Environmental Resource (PEA Section reference)	Best Management Practice (BMP)	Rationale	Reference
General Construction Activity (NPDES requirements)	Water Quality and Resources (5.4); Waters of the United States and Wetlands (5.2)	Temporary sediment check dams (Stone)	Impede runoff, reduce velocity of runoff, contain silt deposits after rain event	Sheet EC-01 (below)
General Construction Activity (NPDES requirements)	Water Quality and Resources (5.4); Waters of the United States and Wetlands (5.2)	Temporary stone construction entrance	Limit off-site tracking of sediment	Sheet EC-02 (below)
General Construction Activity (NPDES requirements)	Water Quality and Resources (5.4); Waters of the United States and Wetlands (5.2)	Temporary slope drain	Conveys slope to stable discharge point (water from construction work area to a lower elevation while protecting the slope from erosion)	Sheet EC-02(below)
General Construction Activity (NPDES requirements)	Water Quality and Resources (5.4); Waters of the United States and Wetlands (5.2)	Temporary sediment check dams (Hay)	Impede runoff, reduce velocity of runoff, contain silt deposits after rain event	Sheet EC-01(below)
General Construction Activity (NPDES requirements)	Water Quality and Resources (5.4); Waters of the United States and Wetlands (5.2)	Temporary inlet silt trap	Filter sediment from runoff prior to discharge into storm drainage system or watercourses	Sheet EC-01(below)



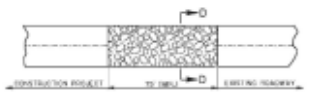
ROYAL ENGINEERS
& CONSULTANTS, LLC
1231 Camellia Boulevard
Lafayette, LOUISIANA 70508

REV.	DATE	DESCRIPTION	BY

CLIENT:

TITLE: EROSION CONTROL

PROJ. NAME:
DES: | SCALE:
DR: | JOB No. | SHEET NO. | REV.
CH:
APP: | DATE:

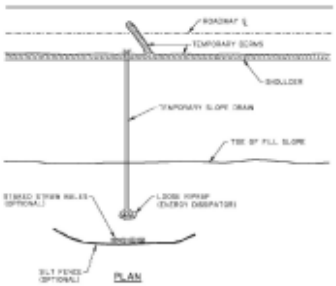


PLAN

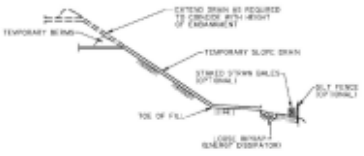
SECTION D-D

TEMPORARY STONE CONSTRUCTION ENTRANCE

NOTES:



PLAN

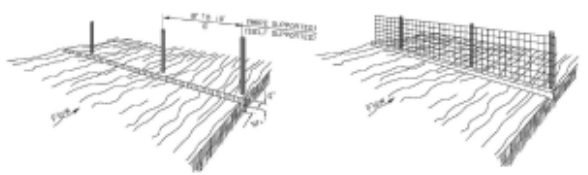


ELEVATION

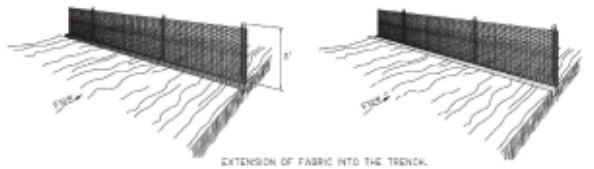
TEMPORARY SLOPE DRAIN

NOTES:

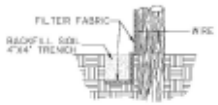
1. GET POSTS AND EXCAVATE A 4" X 4" TRENCH ON SLOPE ALONG THE LINE OF POSTS.
2. STAPLE WIRE FENCING TO THE POSTS.



3. ATTACH THE FILTER FABRIC TO THE WIRE FENCE AND EXTEND IT INTO THE TRENCH.
4. BACKFILL AND COMPACT EXCAVATED SOIL.



EXTENSION OF FABRIC INTO THE TRENCH.



CONSTRUCTION OF TEMPORARY SILT FENCING

NOTES:

ROYAL ENGINEERS & CONSULTANTS, LLC
1231 Camellia Boulevard
Lafayette, LOUISIANA 70508

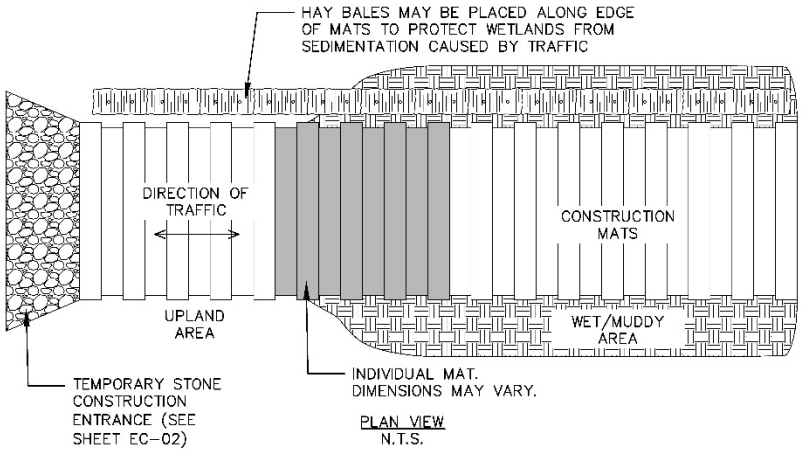
REV.	DATE	DESCRIPTION	BY

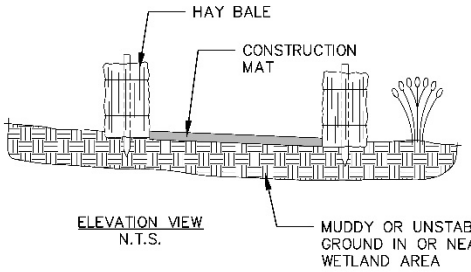
CLIENT:

TITLE: EROSION CONTROL

PROJ. NAME:

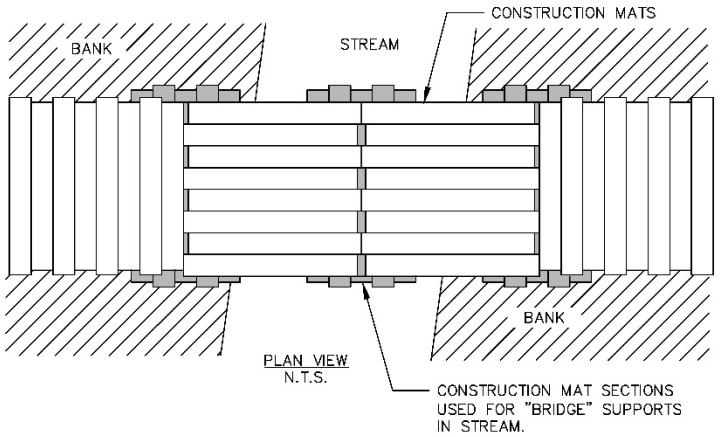
DES:	SCALE:		
DR:	JOB No.	SHEET NO.	REV.
CH:			
APP:	DATE:		

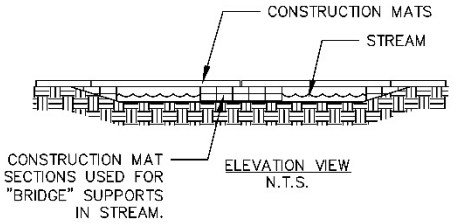




NOTES:
1. PLACE MATS SO PLANKS ARE PERPENDICULAR TO TRAFFIC.
2. REMOVE SEDIMENT DEPOSITS ALONG EDGES OF MATS ON A REGULAR BASIS.
3. CONSTRUCTION MATS SHALL CONSIST OF 12"X12"X16' OR OTHER STANDARD SIZE TIMBERS, OR ACCEPTABLE ALTERNATIVE SUITABLE FOR EQUIPMENT LOADS. PROPRIETARY MAT SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER REQUIREMENTS.

TYPICAL CONSTRUCTION MAT DETAILS





NOTES:
1. MATS SHOULD BE PLACED CLOSELY TOGETHER SO THERE ARE NO GAPS BETWEEN EACH MAT SECTION.
2. REMOVE SEDIMENT DEPOSITS ALONG EDGES OF MATS ON A REGULAR BASIS.
3. CONSTRUCTION MATS SHALL CONSIST OF 12"X12"X16' OR OTHER STANDARD SIZE TIMBERS, OR ACCEPTABLE ALTERNATIVE SUITABLE FOR EQUIPMENT LOADS. PROPRIETARY MAT SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER REQUIREMENTS.

TYPICAL CONSTRUCTION MAT "BRIDGE" FOR TEMPORARY STREAM CROSSING

ROYAL ENGINEERS & CONSULTANTS, LLC
1231 Camellia Boulevard
Lafayette, LOUISIANA 70508

REV.	DATE	DESCRIPTION	BY

CLIENT:

TITLE: EROSION CONTROL

PROJ. NAME:

DES: | DR: | CH: | APP:

SCALE:

JOB No.

DATE:

SHEET NO. EC-03

REV.

A.2 Construction Activities Related to Alternative 2 (230kV Preferred Alternative)

A.2.1 230kV Transmission Line Installation

The 230kV transmission lines will be constructed utilizing galvanized steel structures with steel pile foundations. The transmission lines will be designed utilizing current codes and standards, including National Electrical Safety Code, Rural Utilities Service, and JDEC's 160 mph extreme wind load case. The transmission spans will be approximately 600 feet in length, and the distribution underbuild spans will be approximately 300 feet in length. Transmission and distribution lines will be installed on the same alignment and will co-occupy the transmission poles. The transmission lines will be installed at a higher elevation than the distribution lines. An estimated 1,000 transmission structures with poles that are 100 feet to 115 feet in above ground height and weigh 15,000 lbs. to 40,000 lbs. each will be used. These structures will be designed and constructed to allow a steel-hollow, cylindrical casing to be installed with a vibratory hammer. The aboveground steel poles will be bolted to the driven steel casing which includes a phalange for connection by bolts and nuts (Figure 1). The 230kV transmission line will also have an underbuilt 13.2kV distribution line with mid-span distribution poles (see, exemplar Figure 2). An estimated 1,000 distribution poles each measuring 40 feet in above ground height and weighing 2,000 lbs. will be installed. Each pole will utilize a steel pole foundation vibrated into the ground that will be sized as needed (see, exemplar Figure 3). The estimated size of each steel pole foundation ranges from 3 feet in diameter by 20 feet in length to 7 feet in diameter by 50 feet in length. Steel pile weights are estimated to be between 4,500 lbs. and 32,000 lbs.

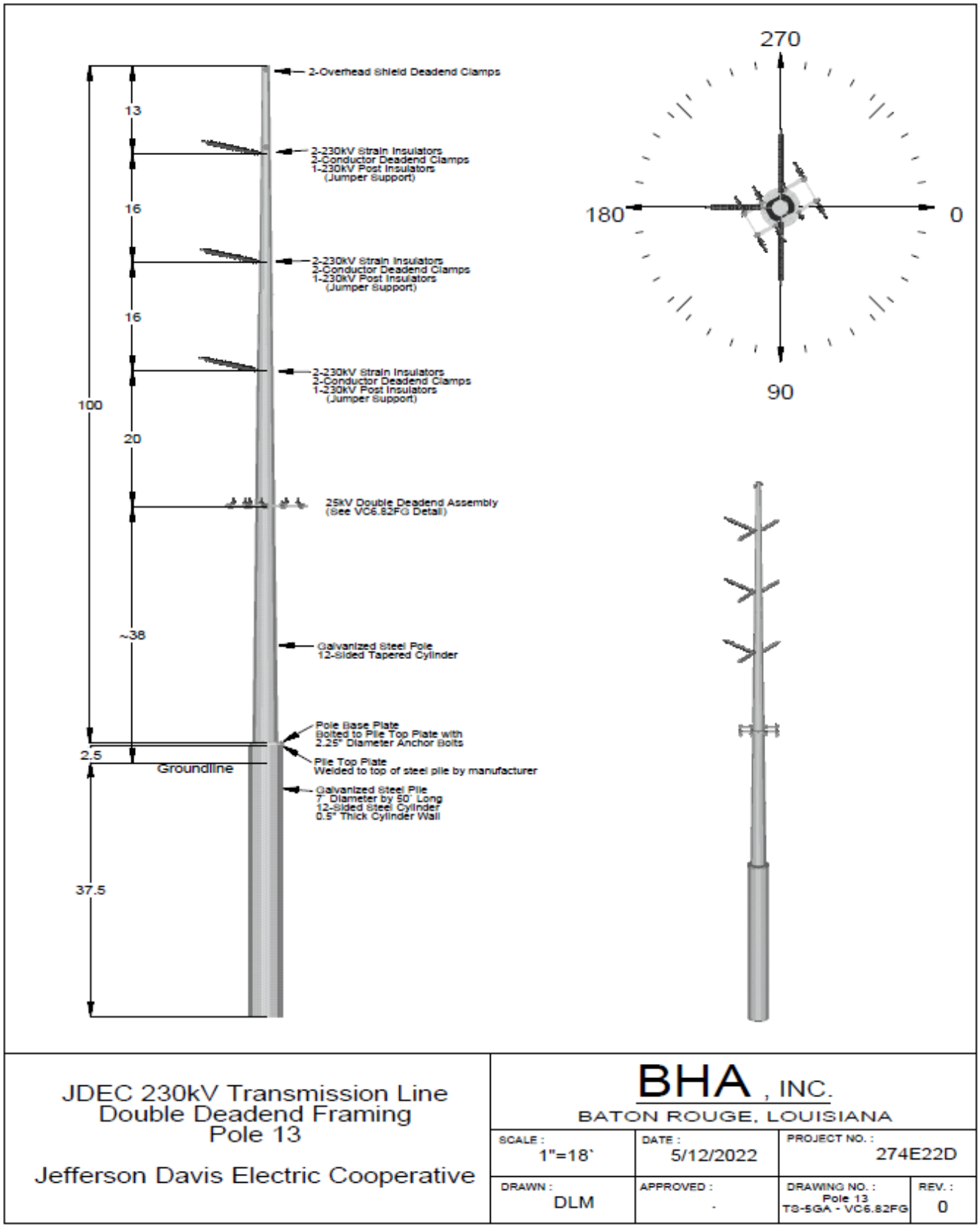


Figure 1. Typical 230kV Transmission Line Pole

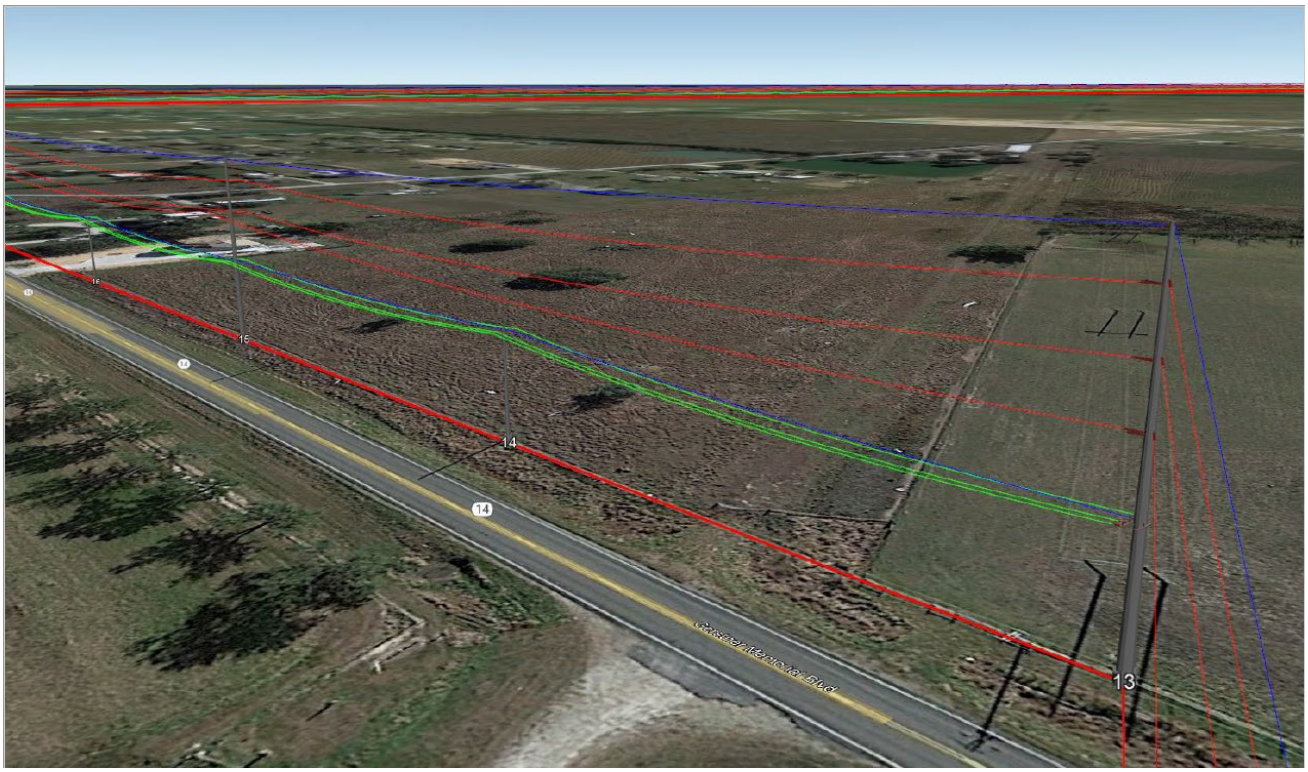


Figure 2. Exemplar Transmission with Distribution Underbuild (For illustrative purposes)

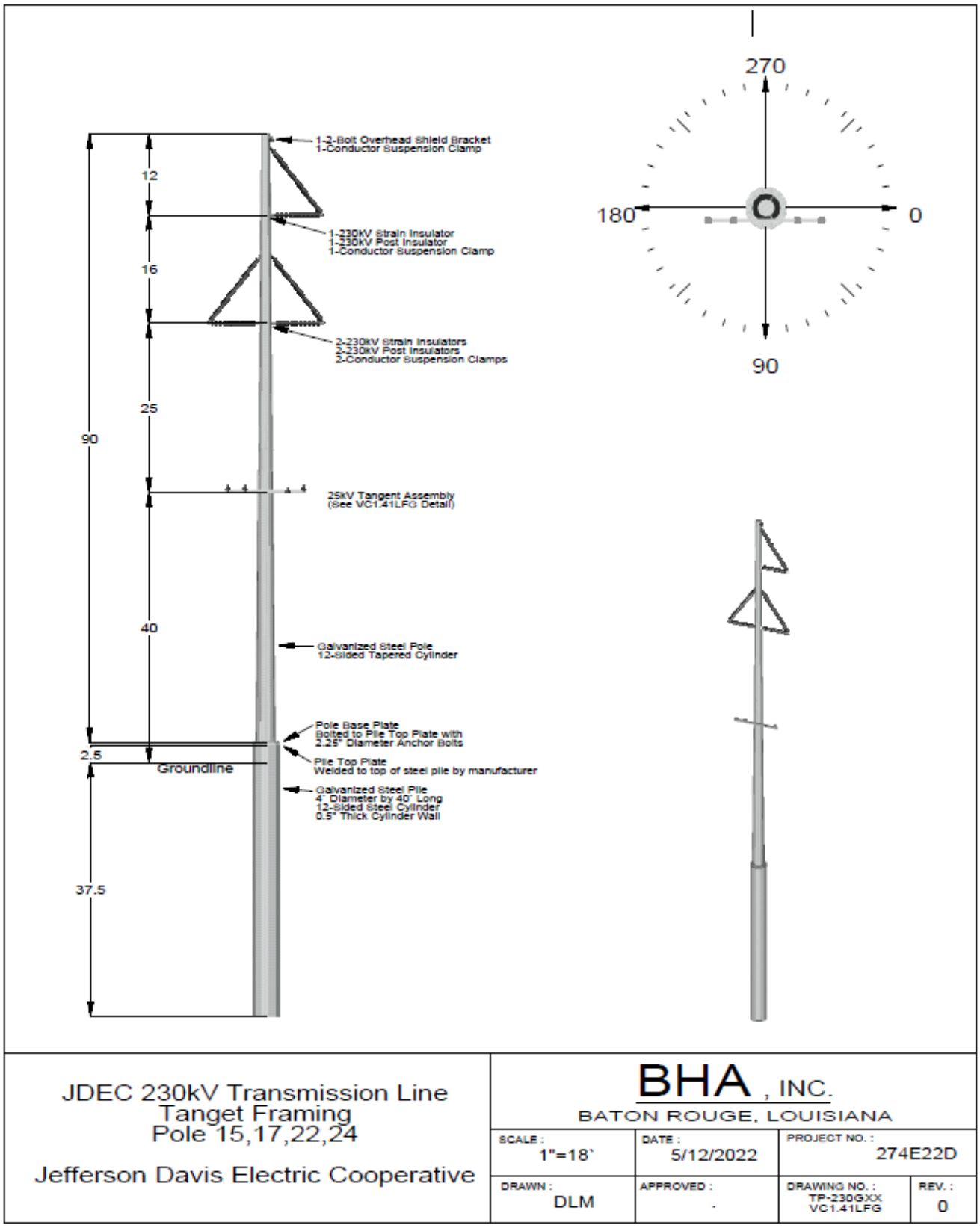


Figure 3. 230kV Transmission Line Pole Exemplar

The transmission line will also include a communication line and various conductors. The 230kV transmission circuit will utilize 795 thousand of circular mils (kcmil) aluminum-conductor, steel-reinforced cable 26/7 “Drake” as the primary conductor and will use an overhead optical ground wire as an overhead shield and communication line. The 13.2kV distribution circuits will be 246.9kcmil all aluminum alloy conductor “Alliance” as the primary conductor in most areas. Some areas will use 336.4kcmil aluminum-conductor steel-reinforced cable “Linnet” or 559.5kcmil all aluminum alloy conductor “Darien” as the primary distribution conductor.

The transmission line will use 230kV polymer braced posts for tangent and light angle structures. Large angle and dead-end structures will use 230kV polymer suspension insulators. The distribution circuit will utilize fiberglass crossarms and 25kV porcelain pin type insulators for tangent and light angles. Large angles and dead-end structures will use fiberglass crossarms with 25kV polymer suspension insulators. Minimum insulation levels will follow Rural Utilities Service recommendations (see figures above).

All existing lines temporarily installed will be decommissioned or salvaged. The typical tangent 69kV structures to be retired consist of 65-foot class 2 wood poles with 69kV polymer horizontal line posts or wooden crossarms with polymer suspension insulators. All existing structures include distribution underbuild consisting of wooden or fiberglass crossarms and 25kV porcelain pin type insulators or polymer strain insulators. All existing angle and dead-end structures are supported by steel down guys and triple helix screw anchors, all of which are to be removed. Other items include, but are not limited to, transmission and distribution lines, supports, tangent structures, angle structures, dead-end structures, and equipment. All existing materials will be removed and stored at the Chennault Laydown Yard (30.1981, -93.1460) until salvaged or decommissioned. In addition to the Chennault Laydown Yard, the Oak Grove Staging Area (29.7915, -93.1129) will also be utilized for the storage of materials.

Steel pole design would include the installation of self-supporting, engineered steel poles ranging in length from 60 feet to 70 feet connected to steel piles vibrated into the ground to depths of 30 feet to 50 feet. All poles would be connected to the piles via bolted base plates. Pole installation would take place from the road perpendicular to the line to be installed. Ingress/egress for pole installation which cannot be performed from the road would always be perpendicular to the road and line. Where crews are required to access the line to string conductor or install anchors, guys, insulators, and cross arms, marsh equipment such as “marsh masters” would traverse the terrain parallel to the line within existing ROW. At this time, it is expected that all construction would be performed within LaDOTD ROW beyond the clear zone dictated by LaDOTD. Following coordination with the LaDOTD on October 7, 2021, should poles need to be located within the LaDOTD ROW and clear zone, indemnification and guard rails will be required between the roadway and the power poles. Per agreement with the Louisiana Department of Transportation and Development (DOTD), guardrails or other crash attenuating devices may need to be installed at various locations across the system based on roadway speeds and dimensions of clear zones.

Personnel may include a foreman, linemen, heavy equipment operator, groundmen, and truck drivers. Equipment and machinery may include two off-road cranes with vibratory hammer and two bucket trucks, front end loaders, a mini excavator, a skid steer, a wire puller, a wire tensioner, a semi-truck and flatbed trailer, and pickup trucks.

Descriptions of the transmission line construction activities by line segment follow.

A.2.1.1 East 230kV – Chalkley Meter Point (30.17249, -93.11299) to Creole Switching Station/Substation (29.816567, -93.112880)

This line section will connect the Chalkley Meter Point to Charlie Substation, Manchester Substation, Hackett Substation, and Creole Switching Station/Substation. This line section will cross the GIWW, discussed in 2.2.1 below.

Work associated with the restoration of the electrical system for the East 230kV transmission line running north (Chalkley Meter Point) to south (Creole Switching Station/Substation) and associated components located along the East transmission system, spanning approximately 29 miles, will include the installation of approximately 285 transmission structures and 285 distribution structures, with corresponding steel pile foundations, and the retirement of approximately 20 miles of 69kV transmission with 13.2kV distribution lines constructed on approximately 460 wood poles.

A.2.1.2 West 230kV – Hackberry Meter Point (30.046070, -93.342105) to Holly Beach Switching Station (29.770911, -93.467853)

This line section will connect the Hackberry Meter Point to Holly Beach Switching Station. Work associated with the restoration of the electrical system for the West 230kV transmission line running north (Hackberry Meter Point) to south (Holly Beach Switching Station) and associated components located along the West transmission system, spanning approximately 24 miles, will include the installation of approximately 233 transmission structures and 170 distribution structures, with corresponding steel pile foundations, and the retirement of approximately 20 miles of 69kV transmission with 13.2kV distribution lines constructed on approximately 350 wood poles.

A.2.1.3 Coastal 230kV – Johnson Bayou Substation (29.761536, -93.628594) to Grand Chenier Substation (29.764169, -92.951483)

This line section will connect Johnson Bayou Substation, Holly Beach Switching Station, Venture Global Substation, Fulton Substation, Creole Switching Station/Substation, Michigan-Wisconsin Substation, and Grand Chenier Substation. Work associated with the restoration of the electrical system for the Coastal 230kV transmission line running west (Johnson Bayou Substation) to east (Grand Chenier Substation) and associated components located along the Coastal 230kV transmission system, spanning approximately 52 miles, will include the installation of approximately 504 transmission structures and 490 distribution structures, with corresponding steel pile foundations, and the retirement of approximately 41 miles of 69kV transmission with 13.2kV distribution lines constructed on approximately 1,100 wood poles. This line section will also cross the CSC and Mermentau River, discussed below in Sections 2.2.2 and 2.2.3.

A.3 230kV Waterway Crossings

A.3.1 Aerial Crossing at the Gulf Intracoastal Waterway

Prior to Hurricanes Laura and Delta, the 69kV and the 138kV transmission lines aerially crossed the GIWW via steel lattice towers. The 69kV line crossed at 29.934475, -93.078622 directly to the east of the Hwy 27 Bridge (the Conway LeBleu Bridge); the 138kV line crossed at 29.937172, -93.113927. Notably, construction and utilization of the 230kV line would eliminate the need for the 138kV line that currently traverses marsh in the project area.

At the GIWW Crossing, JDEC would construct a new 230kV aerial crossing and a new underground 13.2kV crossing. The aerial crossing would utilize hardened and more resilient towers in the approximate same locations as the pre-storm 69kV towers. Access to these work areas would be via adjacent, existing roads. The overhead 230kV crossing will include two tangent H-structures on the north and south sides of the GIWW to maintain a 90’ clearance over the waterway, and two, 3-pole dead-end structures that will support the crossing span and transition the transmission and distribution lines to the normal line configuration. All structures will be designed to withstand a 160mph extreme wind load case.

The underground 13.2kV crossing would be installed via HDD. The underground 13.2kV crossing will include a directional bore under the GIWW with four, 4" High Density Polyethylene (HDPE) conduits, each with one, 500kcmil copper 25kV underground cable. The distribution riser structures will be separate from the transmission structures and located between the tangent and dead-end structures on both sides of the crossing. Overhead distribution will span from the riser structure to the center pole of the 230kV dead-end structure to tie back into the normal line configuration.

The northern work area is directly adjacent to a gravel roadway (Cameron Parish 301), and the southern work area is adjacent to the Old Ferry Road support roadbed. The northern access road intersects Louisiana State Highway 27 (LA 27) at 29.9408, -93.0813, and the southern access road intersects LA 27 at 29.9260, -93.0790. These direct access points from existing roads would allow vehicle entry and work access to the construction areas.

A.3.1.1 Underground Crossing at the Calcasieu Ship Channel

At the CSC, JDEC would construct a new 230kV underground crossing utilizing insulated transmission power cables that would be less susceptible to flood related damage and not subject to extreme wind. The existing 69kV underground crossing facilities will be abandoned and the west riser structure (29.801819, -93.351149) and east riser structure (29.802935, -93.343965) will be replaced with new 230kV structures, motor operated switches, arresters, and all other structures and equipment necessary to safely operate a 230kV underground transmission line. The underground 230kV crossing will be designed to match the ampacity of the overhead 230kV lines and will follow all required permitting, environmental, and safety requirements. All structures will be designed to withstand a 160-mph extreme wind load case. Access to these work areas would be via existing roads adjacent to the temporary workspace.

A.3.1.2 Aerial Crossing at the Mermentau River

At the Mermentau River, JDEC would construct a new 230kV aerial crossing and a new underground 13.2kV crossing along Highway 82 at 29.770301, -93.013421. The overhead 230kV crossing would include one, tangent H-structure and one, 3-pole dead-end structure on each side of the river. The overhead 230kV crossing will be designed to maintain the required clearance over the waterway, and two, 3-pole dead-end structures that will support the crossing span and transition the transmission and distribution lines will be built back to the normal line configuration. All structures will be designed to withstand a 160mph extreme wind load case. The existing 69kV and 13.2kV underground crossings will be decommissioned.

The underground 13.2kV crossing would be located between the tangent and dead-end structures on both sides of the crossing and would be installed via HDD. The underground 13.2kV crossing will include a directional bore under the Mermentau River with four, 4” HDPE conduits, each with

one, 500kcmil copper 25kV underground cable. The distribution riser structures will be separate from the transmission structures and located between the tangent and dead-end structures on both sides of the crossing. Overhead distribution will span from the riser structure to the center pole of the 230kV dead-end structure to tie back into the normal line configuration. Access to these work areas would be via existing roads adjacent to the temporary workspace.

A.4 Construction Activities Related to Alternative 3 (69kV/138kV Non-Preferred Alternative)

A.4.1 69kV/138kV Transmission Line – Wood Pole Installation

The 69kV/138kV transmission line installation would be designed to the 2017 National Electrical Safety Code. This Alternative would utilize a wood pole design of varying lengths ranging from 45 feet to 80 feet which would be installed via direct embedment and backfilled via rock. Embedment depth would be approximately 10 feet. Pole installation would take place from the road perpendicular to the line to be installed. Ingress/egress for pole installation which cannot be performed from the road would always be perpendicular to the road and line. Where crews are required to access the line to compact fill around poles, string conductor, or install anchors, guys, insulators, and cross arms, marsh equipment such as “marsh masters” would traverse the terrain parallel to the line within existing ROW.

At this time, it is expected that all construction would be performed within LaDOTD ROW beyond the clear zone dictated by LaDOTD. Following coordination with LaDOTD on October 7, 2021, it was determined that requirements by LaDOTD to remain within the ROW and clear zone include indemnification and guard rails being placed between the roadway and the power poles, which was clarified in correspondence dated October 22, 2021.

Personnel would include a foreman, linemen, groundmen, and truck drivers. Equipment would include bucket trucks, front end loaders, a mini excavator, a skid steer, a wire puller, a wire tensioner, a semi-truck and flatbed trailer, and pickup trucks.

A.4.2 69kV/138kV Transmission Line – Steel Pole Installation

Steel pole design would include the installation of self-supporting, engineered steel poles ranging in length from 60 feet to 70 feet connected to steel piles vibrated into the ground to depths of 30’ to 50’. All poles would be connected to the piles via bolted base plates. Pole installation would take place from the road perpendicular to the line to be installed. Ingress/egress for pole installation which cannot be performed from the road would always be perpendicular to the road and line. Where crews are required to access the line to string conductor or install anchors, guys, insulators, and cross arms, marsh equipment such as “marsh masters” would traverse the terrain parallel to the line within existing ROW. At this time, it is expected that all construction would be performed within LaDOTD ROW, beyond the clear zone dictated by LaDOTD. Following coordination with the LaDOTD on October 7, 2021, should poles need to be located within the LaDOTD ROW and clear zone, indemnification and guard rails will be required between the roadway and the power poles.

Personnel may include a foreman, linemen, heavy equipment operator, groundmen, and truck drivers. Equipment and machinery may include two off-road cranes with vibratory hammer and two bucket trucks, front end loaders, a mini excavator, a skid steer, a wire puller, a wire tensioner, a semi-truck and flatbed trailer, and pickup trucks.

A.4.3 69kV/138kV Waterway Crossings

A.4.3.1 69kV Towers – Aerial Crossing at GIWW

Prior to Hurricane Laura, the 69kV and the 138kV transmission lines aerially crossed the GIWW via towers. The 69kV line crossed at 29.934475, -93.078622 directly to the east of the Hwy 27 Bridge (the Conway LeBleu Bridge); the 138kV crossed at 29.937172, -93.113927. The 69kV towers (approximately 152 feet. tall with a concrete base 40 feet x 40 feet) were constructed in 1957 and supplied electricity to the Michigan-Wisconsin, Grand Chenier, Creole, and Fulton Substations, which in turn supplied power to thousands of residents and commercial businesses along the Cameron Parish coastline. These towers also included 25kV distribution lines. As a direct result of Hurricane Laura, these towers and the transmission lines were destroyed. To restore permanent power south of the GIWW, these lines must be replaced.

Reconstruction of the 69kV transmission line crossing the GIWW to pre-storm condition would occur on previously disturbed ground and would involve the reconstruction of four lattice steel structures spanning both sides of the waterway. There are two, 48.5-foot dead-end structures each with a 15-foot x 15-foot square base with a concrete foundation at each of the four corners. Each dead-end structure would be assembled from approximately 173 pieces of steel plate, bars, and angles of various lengths between 10 inches and 19 feet and would be bolted together. There are also two, approximately 152.5-foot tangent structures with a 40-foot x 40-foot square base with a concrete foundation at each of the four corners. Each tangent structure would be assembled from approximately 450 pieces of steel plate, bars, and angles of various lengths between 10 inches and 36 feet and would be bolted together.

The existing foundations would be excavated and removed and new foundations for the four structures would be laid with new concrete foundations designed to meet current codes and standards. These new foundations would be installed in the same locations as the pre-storm towers. The lattice steel structures would be assembled in sections on the ground and then each section would be lifted by crane to assemble the structure. After the four structures are assembled, the conductor would be strung and tensioned.

The northern tower work area is directly adjacent to a gravel roadway (Cameron Parish 301), and the southern tower work area is adjacent to the Old Ferry Road support roadbed. The northern access road intersects LA 27 at 29.9408, -93.0813. The southern access road intersects LA 27 at 29.926 and -93.079. These direct access points from existing roads would allow vehicle entry and work access to the construction areas.

Equipment required for construction of the towers would include a mini excavator, skid steer, crane, concrete mixing truck, concrete pump truck, semi-truck and flatbed trailer, wire puller, wire tensioner, and bucket truck. Personnel required for construction would include the following: foreman, linemen, equipment operators, groundmen, truck driver.

A.4.3.2 138kV Towers – Aerial Crossing at GIWW

The 138kV towers provided additional power capacity to Cameron Parish through the Creole Bulk plant, located adjacent to the Creole Substation. Design on the 138kV towers is in its early stages, but it is anticipated that the design, construction, and methodologies would be similar to that of the 69kV. There are two differences, one being that neither the destroyed nor the rebuilt 138kV towers include distribution underbuilds. Second, access to this site will likely be by way of barges on the GIWW. Once offloaded, similar equipment and construction activities as stated above will

be performed.

A.4.3.3 69kV/138kV Underground Crossing at GIWW

A.4.3.3.1 69kV Underground Crossing at GIWW

JDEC would utilize 3,300 feet of 25kV distribution line and 3,300 feet of 69kV transmission insulated power cable installed in an underwater crossing below the GIWW. The power cable would be installed underground in individual ducts by utilizing HDD techniques. The 69kV cables would be installed in a 10-inch nominal diameter, epoxy-coated steel pipe. The 25kV cables would be installed in an 8-inch nominal diameter, epoxy-coated steel pipe. The 10-inch and 8-inch pipes would be installed at appropriate depth, approximately 15 feet below the authorized depth of 16 feet MLG. The two pipes would be installed simultaneously side-by-side for the entire length of the crossing.

The proposed work includes the construction of four vaults, two 69kV terminator and arrestor platforms, two 25kV terminator and arrestor platforms, two 69kV switching platforms, two 25kV switching platforms, four 69kV Pole Steel H-Frame dead ends, and two pipe anchor and transition fittings. Permanent and temporary work limits and their GPS coordinates are shown in Figure 2 and Figure 3. Note that the south bank work limits extend further than the north bank work limits to allow for steel casing to be delivered and fed into the borings.

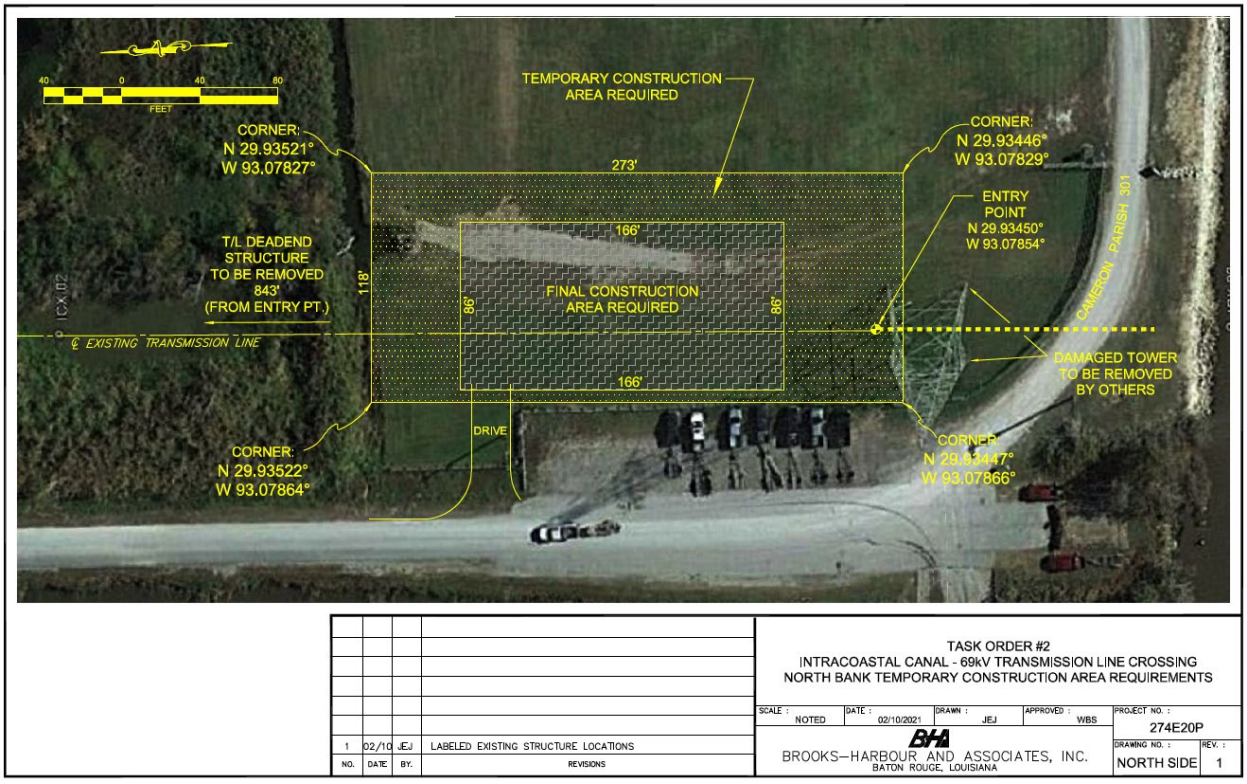


Figure 4. 69kV Transmission Line GIWW Crossing North Bank Temporary Construction Area Requirements.

The casing would be connected via welding procedures and fed to and pulled through the bore hole. Staging for the boring work would involve utilizing the existing centerline of the damaged transmission line and would be in the general vicinity of the old tower location pads as depicted in Figure 4. Radius of curvature of this steel pipe does not allow for the existing paved road to be

used for staging. Pipe must be pulled through the bore hole in a straight line, the road would require contractors to snake the proposed pipe after being welded together, which is not possible. The length of the bask string area is the minimal amount feasible for boring operations. HDPE casing does not meet the pressure and the temperature requirement associated with the heat produced from the conductor and the burial depth, therefore, a steel casing must be utilized.

A directional drill rig and support vehicles would be used during the boring project. Any tailings from the boring process would be hauled off-site or spread onto approved areas. The staging area for capture of drilling fluids would be located within the temporary construction area indicated in Figure 5 below.

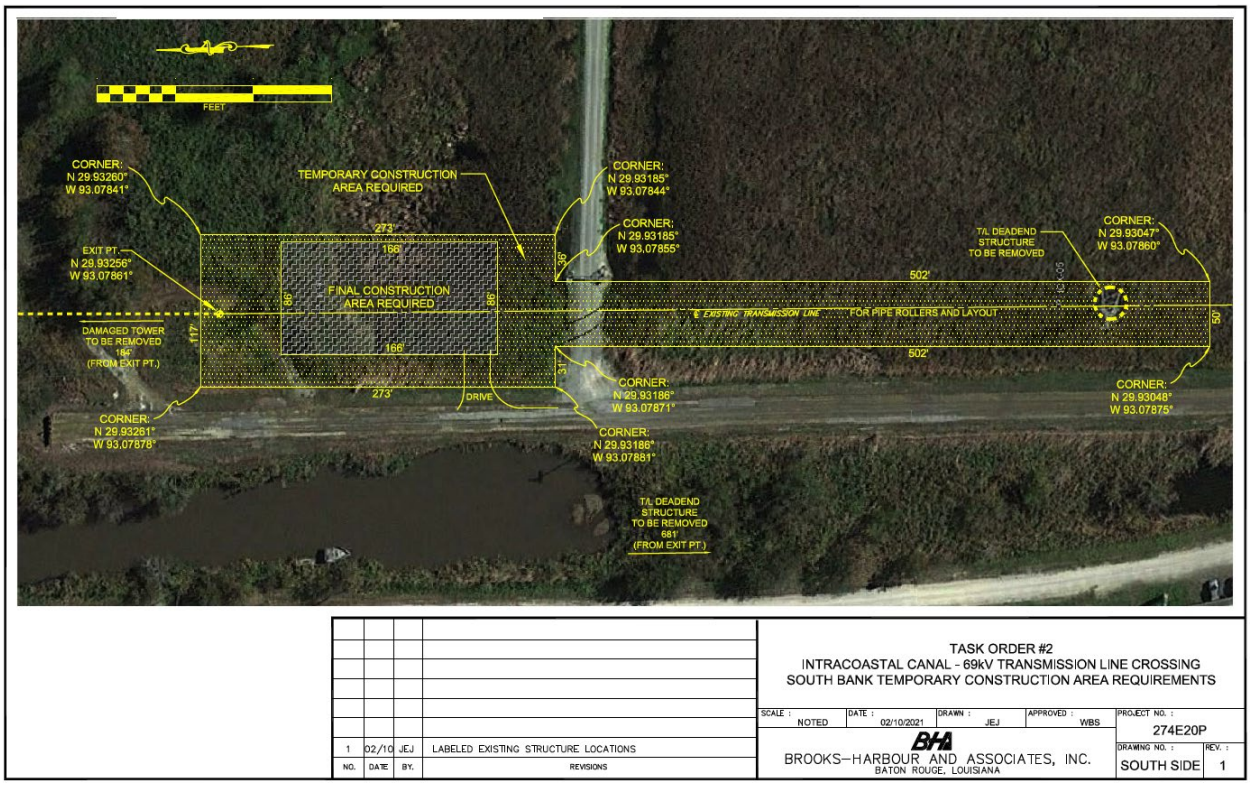


Figure 5. 69kV Transmission Line GIWW Crossing South Bank Temporary Construction Area Requirements.

Boring operations would utilize the temporary south workspace to string and weld sections of each line. A marsh buggy excavator would be on site to assist with the handling of the pipe before and during pull back. Approximately 275, 4-foot x 18-foot dragline mats and 368, 8-foot x 16-foot 3-ply mats would be available on site for bore pipe preparation within the temporary work area limits and silt fencing would be placed around the full entry and exit workspaces.

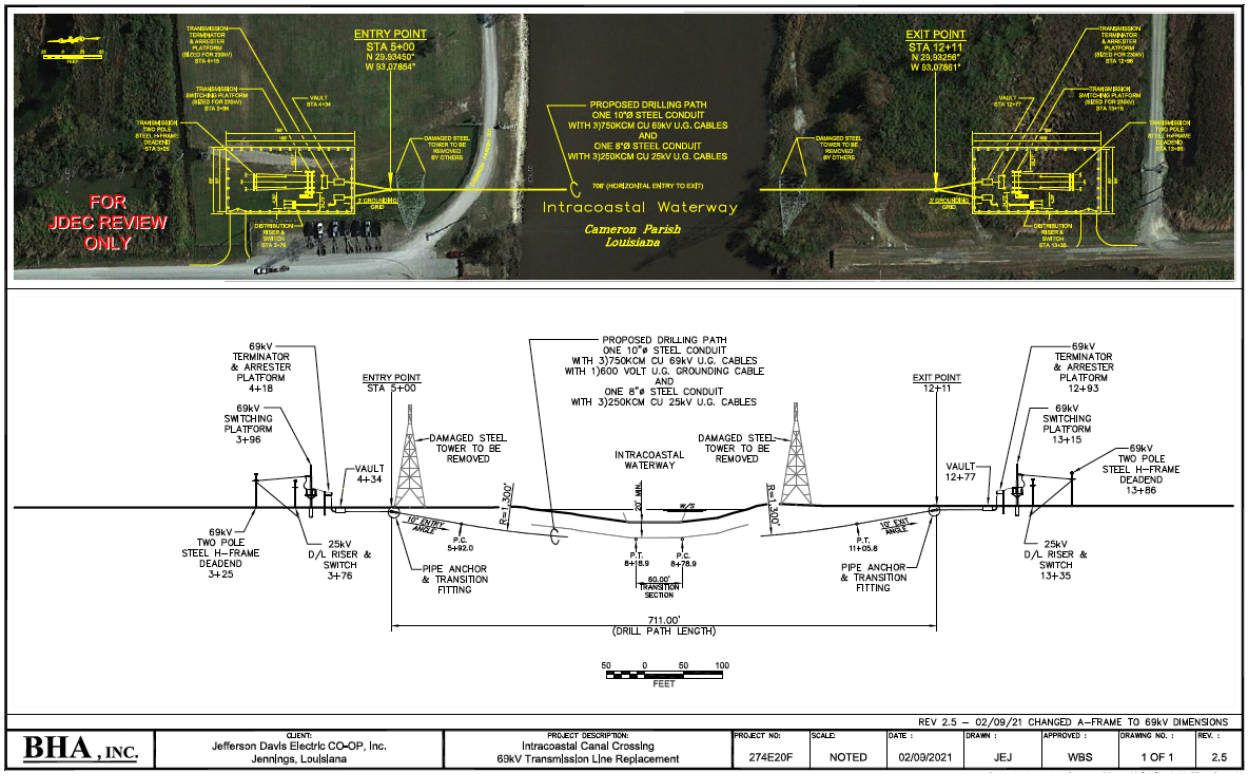


Figure 6. Intracoastal Waterway Crossing – Aerial View and Cross-section of Boring Design, with Previous Locations of Destroyed Towers.

A.4.3.3.2 138kV Underground Crossing at GIWW

Under this option, it is anticipated that the 138kV GIWW crossing would be relocated from its current location closer to LA27 and built to current codes and standards. Although a design has not been developed for the 138kV GIWW crossing, it is anticipated that it would also be routed underneath the GIWW and utilize equipment and methodology similar to the 69kV crossing. There was no 25kV distribution line associated with the pre-storm 138kV, and there would not be any added here. A 12-inch, epoxy-coated steel pipe casing would be utilized for the 138kV GIWW crossing.

A.5 Substation Elevation and Hardening – Construction Activities (Applicable to Alternatives 2 and 3)

Damage to JDEC substations was catastrophic and included above ground structures and equipment being wiped off their foundations rendering the structures and equipment irreparable. Consequently, substation foundations were subject to loads well beyond their designed limits resulting in damage to the above-ground portions of the foundations, also requiring replacement. Moreover, the underground wire and conduits which served to connect the equipment were also damaged irreparably.

Under Alternatives 2 and 3, substations within the JDEC system would also be elevated and hardened. High wind and saltwater storm surge associated with Hurricane Laura severely damaged or destroyed substations, including Grand Chenier, Michigan-Wisconsin, Creole, Johnson Bayou, Fulton, Venture Global, Holly Beach Switch Station, and Holly Metering. Activities would be undertaken to elevate substation components on a structure capable of withstanding the winds and

high velocity coastal floodwaters. The new substations will conform with all ASCE elevation requirements for CHHA. See Figure 7 detailing the Creole Substation Rebuild for an example of substation hardening and elevation design.

A.5.1 Discussion of Substations for Alternative 2 (Preferred)

In total, there are twelve sites along the proposed 230kV loop that will require new construction or modifications to accommodate the 230kV transmission system. Two of these are 230kV switching stations that serve as metered delivery points from the power supplier, Chalkley Meter Point and Hackberry Meter Point. Two of these are 230kV switching station that serve as intersections for radial taps off of the 230kV loop. Holly Beach Switching Station serves a radial tap to the Johnson Bayou Substation. Creole Switching Station/Substation serves a radial tap to Michigan-Wisconsin Substation and Grand Chenier Substation, as well as a 230kV to 13.2kV substation on the same site. The remaining eight sites are all 230kV high side substations serving JDEC's 13.2kV and 24.9kV distribution systems.

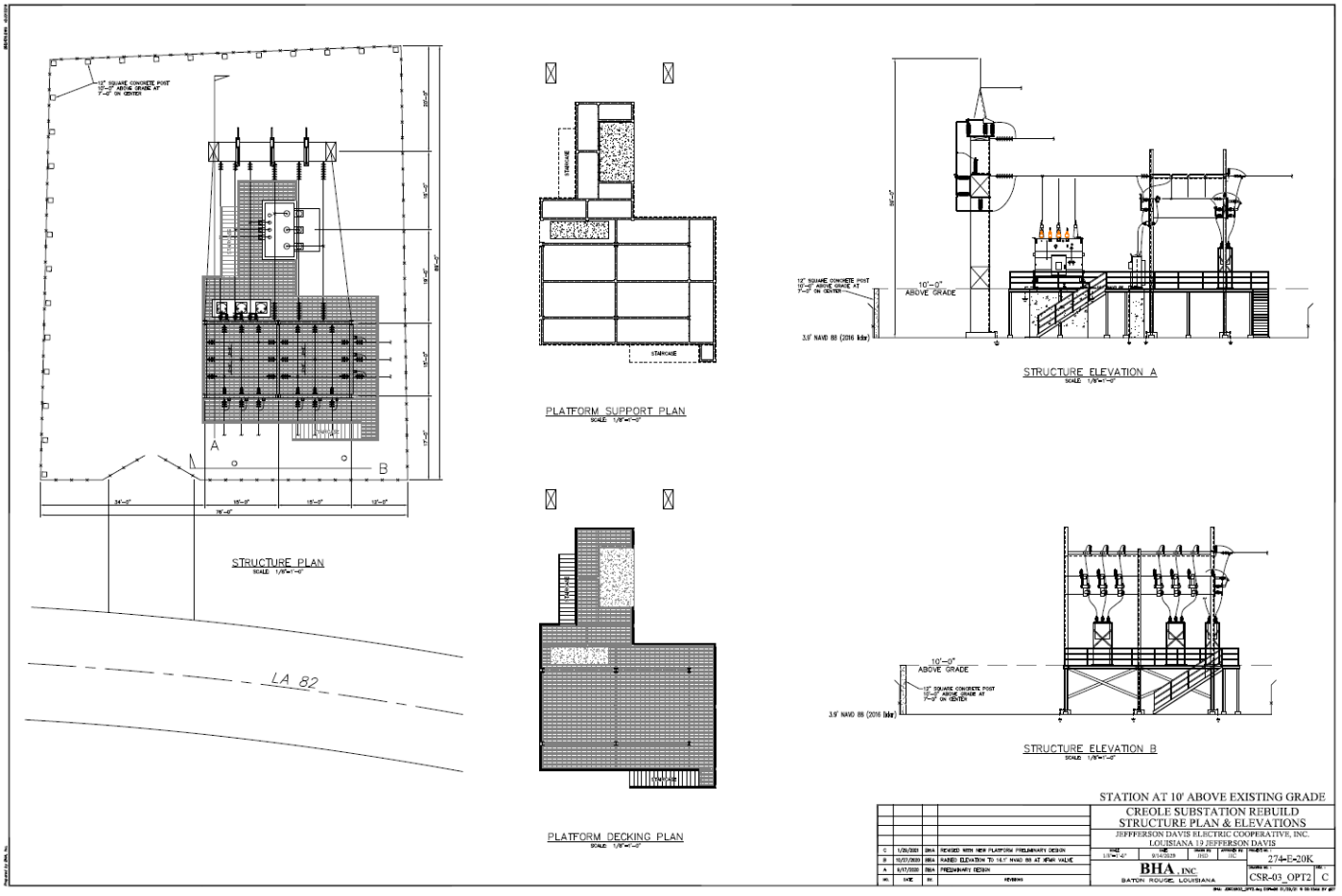


Figure 7. Creole Substation Rebuild Structure Plan (Typical).

Each substation will be required to be elevated to the 500-year BFE pursuant to guidance contained in the document entitled "Determination of 500-yr Flood Hazards throughout Cameron Parish," dated January 30, 2022. The equipment required for construction will include a mini excavator, skid steer, manlift, crane, concrete mixing truck, concrete pump truck, and semi-truck and flatbed trailer. Personnel will include a foreman, linemen, operators, groundmen, and truck drivers.

B. SUMMARY OF POTENTIAL IMPACTS

Table 8. Summary of Potential Impacts

Resource Area of Evaluation	Alternative 1: No Action	Alternative 2: 230kV Resiliency and Redundancy	Alternative 3: 69kV/138kV Repair/Resiliency
Geology, Topography, and Soils	No direct effects. Could contribute to future erosion and sedimentations if unrepaired utilities are further damaged by weather events, resulting in long-term, temporary, minor adverse impacts.	During construction, short-term temporary minor impacts from temporary staging areas and access roads in 150-foot-wide workspace corridor. Minor long-term permanent impacts on soils and topography, limited to pole placements (1.16 acres), new waterway crossing permanent footprints (estimated at 2.5 acres), and new or relocated substations (estimated at 5.7 acres). Negligible effects on prime farmland (0.6 acres) and no effects on seismicity.	Similar short-term impacts as Alternative 2, however workspace corridors would be narrower (30 feet wide along the 69kV line and 100 feet wide along the 138-kV line). Similar long-term impacts as Alternative 2, however pole placements are estimated at 1.03 acres, new waterway crossing permanent workspace area is smaller (estimated at a total of less than 2 acres), likely on previously disturbed ground, and no new or relocated substations. Negligible or no effects on prime farmland or seismicity.
Waters of the United States and Wetlands	No direct effects. If overall system remains unrepaired, emergency repairs could result in more frequent access through waters of the United States, including wetlands, resulting in long-term, temporary, minor to moderate adverse impacts.	JDEC and FEMA have initiated the 8-step decision-making process for wetlands (Appendix D) and has completed Steps 1 through 6, finding that the location of the proposed action in wetlands is the only practicable alternative. During construction, short-term temporary impacts to wetlands and waters of the United States (up to an estimated 452 acres), including potential erosion and runoff, accidental spills, and rutting would be reduced to negligible by employing BMPs described in Appendix A. Monitoring would be conducted to ensure that wetlands return to pre-construction condition, and if not, JDEC would conduct appropriate adaptive management. Negligible to minor permanent long-term effect (estimated to be 5 acres or less) on wetlands and waters of the United States, limited to localized areas of pole placements, vaults, and platforms. In contrast to Alternative 3, this Preferred Alternative would eliminate the need to rebuild the approximately 27.5-mile 138kV line (including 327 H-Frame structures and 654 poles) which spanned wetland habitat and was not along a roadway, thereby providing a benefit to Waters of the United States and wetlands by not resulting in temporary or permanent impacts in this area. Activities located in or near wetlands may require coordination with state and federal regulatory agencies, project specific permit applications, and compliance with permit conditions. Unavoidable impacts to wetlands not covered by this PEA Programmatic 8-Step/Wetlands Notice would require an individual 44 CFR § 9.6 8-Step Process.	Similar short-and long-term impacts as Alternative 2, and would utilize the same BMPs, mitigation measures, and agency coordination. This alternative would utilize a narrower workspace corridor than Alternative 2 as described in Section 4 but would require reconstruction of the 27.5-mile 138kV line which ran through Waters of the United States and Wetlands. Short-term impacts are estimated to be up to 211 acres of wetlands. Long-term impacts to wetlands are estimated to be 5 acres or less.

Resource Area of Evaluation	Alternative 1: No Action	Alternative 2: 230kV Resiliency and Redundancy	Alternative 3: 69kV/138kV Repair/Resiliency
Hydrology and Floodplains	No direct effects. Long-term, minor to moderate, temporary or permanent, adverse impacts could occur as a result of no action, as damaged infrastructure could constitute a flow impediment, erosion and sedimentation could increase, and existing land use patterns that have developed without reflection on flood hazard and risk minimization continue.	Short-term, temporary, negligible impacts on floodplains and hydrology as a result of sediment and turbidity during construction along the transmission line workspace corridor, at waterway crossings, and at substation locations. Negligible long-term permanent impacts limited to localized areas of pole placements, waterway crossing infrastructure, and substations, which would be avoided or minimized in accordance with FEMA's minimization standards in 44 CFR § 9.11, 44 CFR 60.3 c (3) and e (4,5,6) requirements for construction in V zones, and coordination with designated local floodplain managers. Substations would be elevated to 500-year flood elevations, thereby reducing the displacement of floodwaters. The majority of the substations and towers infrastructure would be elevated in their current locations, with the exception of the proposed new Creole Substation (2.4 acres), Mud Lake Substation (2.4 acres), and Mermentau River crossing switching stations (0.7 acres). The Holly beach Switching station would require an additional 0.6 acres, and the Michigan-Wisconsin substation would require an additional 0.3 acres at their current locations. Because the Holly Beach Switching Station is located in a CHHA, an individual assessment and 8-step decision making process would be required. The total area of poles (approximately 1,000 transmission poles and 1,000 distribution poles) is estimated at 1.16 acres. Using the average difference between the BFE and the base elevation of JDEC infrastructure in Cameron Parish of 8.4 feet (an overestimate because flood levels would be lower in Calcasieu Parish), these poles would displace 9.7 acre-feet of water. This displacement would be partially offset by the removal of an estimated 2,429 poles from the pre-Hurricane Laura 69kV lines and 654 poles and 327 H-Structures from the pre-Hurricane Laura 138kV line, which altogether covered an estimated area of 0.1 acres (calculated using a pole diameter of 15 inches per pole; H-Structures have 2 poles per structure). Using the same flood height of 8.4 feet, these poles would have displaced an estimated 0.9 acre-feet. Displacement of floodwater by transmission poles would be negligible as the 230kV poles represent less than 0.00008% of the area of Cameron and Calcasieu Parishes (1,517,894 acres). Therefore, the proposed action would not result in a measurable increase in flood levels. In contrast to Alternative 3, this Preferred Alternative would eliminate the need to rebuild the approximately 27.5-mile 138kV line which spanned floodplain, thereby providing a benefit to hydrology and floodplains by not resulting in temporary or permanent impacts in this area.	Similar impacts as Alternative 2, and would utilize the same avoidance and minimization standards, ASCE standards for design and construction, and coordination steps. This alternative would require reconstruction of the 27.5-mile 138kV line which ran through floodplains.
Water Quality and Resources	No direct effects. Damaged infrastructure that would require more frequent emergency repairs could result in long-term, minor, intermittent, adverse impacts on water quality and resources from erosion and sedimentation.	Construction activity could result in short-term, negligible, temporary impacts as a result of a temporary increase in suspended solids and turbidity. BMPs described in Appendix A, water quality certifications, and conditions of required NPDES permits under CWA Sections 401 and 402, would be implemented to reduce adverse impacts. No long-term effects on water resources and quality.	Similar impacts as Alternative 2, and would utilize the same BMPs, and require the same permit process as Alternative 2. Waterway crossings would be limited to the two crossings at the GIWW, and no new or relocated substations.

Resource Area of Evaluation	Alternative 1: No Action	Alternative 2: 230kV Resiliency and Redundancy	Alternative 3: 69kV/138kV Repair/Resiliency
Land Use and Planning	No direct effects. Damaged infrastructure that would require more frequent emergency repairs could result in long-term, minor to moderate, adverse impacts on coastal resources.	Short-term, temporary, negligible impacts to coastal resources would occur during project construction from disturbance of land within the transmission line workspace corridor, temporary workspaces for the waterway crossings, and at the substations. The additional acres for substation (estimated at 5.7 acres), waterway crossings (estimated at 2.5 acres), and engineered steel poles (estimated at 1.16 acres) may result in unavoidable long-term, permanent, negligible to minor impacts to coastal resources. JDEC is responsible for coordinating with LDNR OCM to obtain any CUP(s) and meet any special conditions that may be required for this project, including mitigation for unavoidable impacts to coastal resources by purchasing habitat credits from an OCM-approved mitigation bank or payment of an in-lieu fee to fund coastal restoration. No effect on existing land use patterns; consistent with zoning regulations; and would not conflict with the Cameron Prairie and Sabine NWR management plans. The transmission line from Johnson Bayou to Grand Chenier would intersect three CBRS system units (S11, LA-10, and S10), the transmission line from Hackberry to Holly Beach would intersect CBRS system unit LA-10, and the Holly Beach Switching Station would be located within CBRS system unit LA-10.	Similar short-term impacts, and utilize the same BMPs, CUP process, and consultation with USFWS, as Alternative 2; however, workspace corridors would be narrower (30 feet wide along the 69kV line and 100 feet wide along the 138-kV line). Similar long-term impacts as Alternative 2, however pole placements are estimated at 1.03 acres, waterway crossings estimated at a total of less than 2 acres, likely on previously disturbed ground, and no new or relocated substations. The transmission line from Johnson Bayou to Grand Chenier would intersect four CBRS system units (S11, LA-10, LA-09, and S10), the transmission line from Hackberry to Holly Beach would intersect CBRS system unit LA-10, and the Holly Beach Switching Station would be located within CBRS system unit LA-10.

Resource Area of Evaluation	Alternative 1: No Action	Alternative 2: 230kV Resiliency and Redundancy	Alternative 3: 69kV/138kV Repair/Resiliency
Biological Resources	No direct effects. Damaged infrastructure that would require more frequent emergency repairs could result in long-term, minor to moderate, temporary or permanent, indirect, adverse impacts on biological resources, such as disturbances of birds, other wildlife, and protected species from the generation of noise and the presence of people and machinery, or the spread of invasive species.	Construction could result in short-term, temporary, negligible impacts on habitats including an estimated 452 acres of wetlands (based on NWI data). Long-term negligible to minor, permanent impacts on habitats could occur in estimated 0.4 acres where the transmission line pole bases will be installed, 2.4 acres in wetlands where substations will be constructed or expanded, and in 1.5 acres where the permanent footprints of the three waterway crossings permanent workspaces (GIWW, CSC, and Mermentau River) intersect wetland habitats. Construction could result in short-term, temporary, negligible to minor impacts on estuarine emergent marsh, estuarine open water, and estuarine mud bottom EFH habitats, such as avoidance, accidental crushing, and siltation, which would be minimized using the BMPs in Appendix A Areas of temporary impact would be restored to pre-construction conditions and monitored in coordination with NOAA to confirm recovery. Long-term, permanent impacts on estuarine emergent marsh (estimated at less than 2.5 acres) and estuarine open water/mud bottom (estimated at less than 0.7 acres) EFH could occur where permanent components of waterway crossing infrastructure and substations are installed, although the majority of the work would be conducted in previously disturbed areas. JDEC will develop an EFH Assessment and participate in consultation with NMFS for projects conducted under this alternative that could adversely affect EFH, and will develop a plan with NMFS to avoid, minimize, mitigate, or otherwise offset adverse effects on EFH. Construction work could result in short-term, temporary, negligible to minor impacts from disturbance of birds, other wildlife, and protected species from the generation of noise. FEMA and JDEC will coordinate with NOAA to evaluate cumulative noise exposure, the radius of potentially injurious levels and behavioral impact levels, species that may be affected, and whether mitigation strategies will be required to reduce the impact. Construction work could also result in short-term, temporary, negligible to minor impacts related the presence of people and machinery. Bird abatement BMPs would be implemented, as necessary, and any temporal restrictions provided by USFWS or LDWF would be followed. Per LDWF requirements, if work will occur during the nesting season, a nesting shorebird field assessment would be conducted within two weeks of the beginning of the project. No long-term impacts on birds and other wildlife are anticipated. Because HDD under the GIWW, CSC, and Mermentau River could potentially cause short-term, temporary effects on ESA-listed species under NMFS purview, ESA Section 7 consultation would need to be carried out once the construction details and project timing have been determined. Construction is not likely to adversely affect piping plover or red knot and would have no effect on red-cockaded woodpecker or the four sea turtle species. Construction could occur in suitable Eastern black rail habitat and cause short-term, temporary, negligible to minor effects. FEMA will consult with USFWS on any projects under this alternative that have the potential to adversely affect Eastern black rail and employ avoidance and minimization measures in accordance with Section 7 of the ESA. This alternative could result in negligible to minor, permanent, adverse impacts from the spread of invasive vegetation, Roseau scale, and Asian clam as a result of the movement of construction equipment and boats that could spread seeds, plant material, or organisms, which would be mitigated using BMPs. In contrast to Alternative 3, this Preferred Alternative would eliminate the need to rebuild the approximately 27.5-mile 138kV line which spanned wetland habitat and was not along a roadway, thereby providing a benefit to biological resources by not resulting in temporary or permanent impacts in this area.	Similar short- and long-term impacts on biological resources as Alternative 2, and follow the same agency coordination steps and BMPs, however: • Transmission lines would be placed along the pre-storm path of the 69kV and the 138kV transmission lines, with narrower workspace corridors than Alternative 2 as described in Section 4 but would require reconstruction of the 27.5-mile 138kV line, which ran through wetland habitat. • Short-term, temporary impacts on wetlands are estimated at 211 acres. • Long-term, permanent impacts on habitats could occur in the estimated 0.24 acres where transmission line pole bases will be installed and in the less than 2 acres where the permanent footprints of the two waterway crossings at the GIWW intersect wetland habitats.

Resource Area of Evaluation	Alternative 1: No Action	Alternative 2: 230kV Resiliency and Redundancy	Alternative 3: 69kV/138kV Repair/Resiliency
Air Quality	No direct effects. Continued reliance on generators would emit air pollutants, resulting in long-term, minor, permanent, adverse effects on local air quality.	Construction could result in short-term, temporary, negligible to minor impacts on localized air quality from vehicle and equipment emissions and fugitive dust, limited by implementing BMPs such as fugitive dust control, proper vehicle maintenance, and limiting idling time. No long-term effects. Implementation of this alternative would end the use of temporary emergency diesel electrical generators at locations south of the GIWW, thereby reducing emissions from that source.	Similar impacts, and utilize the same BMPs, as Alternative 2.
Climate Change	No direct effects. Continued reliance on generators which emit GHGs. Would provide no improvements that would reduce the effects of climate change (including severe weather, storm surges, and inundation from sea level rise) on JDEC's infrastructure and the ability to provide reliable power to the service area, which leaves residents vulnerable to extreme heat events.	Use of vehicles and equipment with gas or diesel engines would result in short-term, temporary, negligible increases in GHG emissions, which would be reduced by minimizing construction equipment engine idling to the extent practicable, and proper maintenance of engines. No long-term adverse effects. Implementation of this alternative would end the use of temporary emergency diesel electrical generators at locations south of the GIWW, thereby reducing GHG emissions from that source. Long-term beneficial impacts from increasing the resiliency of JDEC's infrastructure to severe weather, storm surges, and inundation from sea level rise. Redundancy of system would further reduce service interruptions associated with climate change impacts providing a direct, long-term benefit by reducing the risk of damage to JDEC's infrastructure. This could in turn reduce risks of heat-related illness and death by providing more reliable electricity for cooling.	Similar short-term impacts, as Alternative 2. No long-term adverse effects. Long-term beneficial impacts where underwater waterway crossings are constructed, stronger steel poles are installed, and substations are elevated, increasing the resiliency of JDEC's infrastructure to severe weather, storm surges, and inundation from sea level rise. However, this alternative would not provide the long-term redundancy and increased reliability that Alternative 2 would.
Noise	No direct effects. Need for emergency repairs could result in repeated short-term, negligible to minor, temporary noise impacts.	Short-term, temporary, negligible to minor impacts from construction noise on wildlife and residential areas, which would be reduced by using BMPs. No long-term effects.	Similar impacts, and utilize the same BMPs, as Alternative 2.
Traffic	No direct effects. Need for emergency repairs could result in repeated short-term, negligible to minor, temporary impacts on the flow of traffic on state highways and local roads.	Construction would result in short-term, temporary, negligible impacts to traffic along roadways; access to private property along the utility line route would be maintained, and notice will be given to residents and emergency response agencies, and traffic safety requirements would be followed. No long-term effects.	Similar impacts, and utilize the same BMPs, as Alternative 2.
Environmental Justice	No direct effects. Impaired electrical service could damage personal property as well as pose significant health and safety concerns to those affected communities, which could be disproportionately high for low-income and minority populations.	No disproportionate effects on low-income and minority populations. Short-term, beneficial impacts could result from use of local labor. Increase in reliability of the electrical system could provide long-term, beneficial impacts as a result of quicker restoration of power in the event of an outage and ability to attract businesses and jobs.	No disproportionate effects on low-income and minority populations. Short-term, beneficial impacts could result from use of local labor. Would increase reliability but would not provide the additional benefits that the larger capacity line and redundancy of Alternative 2 would provide.

Resource Area of Evaluation	Alternative 1: No Action	Alternative 2: 230kV Resiliency and Redundancy	Alternative 3: 69kV/138kV Repair/Resiliency
Human Health and Safety	Short-term to long-term, temporary and permanent, minor adverse effects to human health and safety would potentially occur. Continued reliance on generators and impaired electrical service could pose significant health and safety concerns to those affected communities, and risk of serious injury or death to repair workers as the need for further repairs are likely to be persistent and unpredictable.	Short-term, temporary, minor adverse effects to human health and safety could potentially occur as a result of increased risk of serious injury or death from construction activities, which would be minimized by using risk minimization strategies and BMPs. Because the 230kV line would be located farther from the road centerline than the 69kV line in Alternative 3, as required by DOTD, the risk of serious injury or death for both workers and the community from vehicle traffic, would be reduced compared to Alternative 3. Additionally, this alternative does not include the 138kV transmission line, which is currently located in a remote area only accessible by boat. This would eliminate the risk for worker health and safety associated with working in areas not accessible by emergency services. Long-term, beneficial impacts from increase in electrical service reliability for residents.	Similar short-term impacts, and utilize the same risk minimization strategies and BMPs, as Alternative 2. Because the transmission lines would be located closer to the roadways and the 138kV line would run through a remote area only accessible by boat, these risks could be slightly higher than Alternative 2 but are still expected to be minor. Long-term, beneficial impacts from increase in electrical service reliability for residents, but to a lesser extent than Alternative 2, because there would be no redundancy.
Hazardous Material	No adverse effects.	No adverse effects. No hazardous materials would be generated as a result of actions taken under this alternative. Potential to disturb hazardous materials incidentally released from the 18 active RCRA listed facilities adjacent to the project area. Contractor would be required to stop work, contact regulatory authorities, and adhere to guidance.	As in Alternative 2, no adverse effects and same requirements regarding disturbance of hazardous materials.
Cultural Resources	No direct adverse effects. More frequent access to perform emergency repairs in and around historic properties could result in long-term minor to moderate, permanent, and potentially adverse, effects on historic properties.	Construction would likely result in new ground disturbance that has potential to alter or destroy archaeological resources. JDEC will conduct identification and evaluation work within areas based on consultation with FEMA, SHPO, Tribes, and other consulting parties and evaluate effects of the proposed alternative on any historic properties. FEMA, SHPO, Tribes, other consulting parties will consult under the 2016 Statewide Agreement to resolve any identified adverse effects. Should unanticipated discoveries occur, the contractor will halt all work in the vicinity of the discovery, secure the location, and contact FEMA immediately and follow the Unmarked Burial Graves Act procedures if appropriate.	Construction would likely result in new ground disturbance that has potential to alter or destroy archaeological resources. The Section 106 review process and impacts to cultural resources for this alternative would be the same as that identified for Alternative 2.

C. SUMMARY OF COORDINATION

Table 9. Summary of Coordination

MEETING TYPE (DATE)	PARTICIPATING AGENCY(IES) AND REPRESENTATIVES	MEETING TOPICS AND OUTCOMES
JDEC PEA Scoping Meeting (7/20/21)	USACE • Darrell Barbara • Brad Guarisco USDA/NRCS • Dr. Michael Lindsey LA DNR • Sara Krupa LA DOTD • Don Duberville • Marcus Gonette • Kaylin Parkin • Rhonda Breaux • Jeremy Buckles SHPO • Chip McGimsey • Nicole Hobson-Morris • Jenny Garcia THPO • Johnna Flynn – Jena Band of Choctaw	• Hurricane Laura and related recovery; • Introduction to JDEC and recovery needs; • Discussion of Alternatives being considered and overview of project area; and • Request for agency comments and further coordination needs.
Coordination Meeting (11/17/21)	USACE • Darrell Barbara • Brad Guarisco • Robert Swayze • Mike Sullivan	• Continued discussion of Hurricane Laura and related JDEC recovery, including Alternatives being considered and overview of project area; • Permit options and information needs; • Wetland delineation and information needs; • Waterway crossings and related information needs; and • Agreement to engage in ongoing coordination efforts, to conduct wetland delineation, and have further discussions related to permitting with USACE and LA DNR.
Coordination Meeting (12/15/21)	SHPO • Chip McGimsey • Nicole Hobson-Morris • Jenny Garcia	• Continued discussion of Hurricane Laura and related JDEC recovery, including Alternatives being considered and overview of project area; and • Discussion of Cultural and Historic Properties, reports, field work/investigations.
Coordination Meeting (1/24/22)	THPO • Johnna Flynn, Alexa Didio – Jena Band of Choctaw • Lindsey Bilyeu – Choctaw Nation of Oklahoma • Kassie Dawsey – Coushatta Tribe of Louisiana	• Continued discussion of Hurricane Laura and related JDEC recovery, including Alternatives being considered and overview of project area; and • Discussion of areas of concern/interest for tribal participants and agreement to continue coordination efforts.
Coordination Meeting (2/1/22)	NOAA (NMFS) • Joseph Cavanaugh	• Continued discussion of Hurricane Laura and related JDEC recovery, including Alternatives being considered and overview of project area; • Discussion of areas of concern/interest (including fisheries and resources and construction methodologies) and agreement to continue coordination efforts.
Coordination Meeting (2/2/22)	LA DNR OCM • Christine Charrier • Kelly Templet	• Continued discussion of Hurricane Laura and related JDEC recovery, including Alternatives being considered and overview of project area; and • Discussion of permit options and needs.
Coordination Meeting (2/3/22)	NOAA (EFH) • January Murray	• Continued discussion of Hurricane Laura and related JDEC recovery, including Alternatives being considered and overview of project area; • Discussion of areas of concern/interest (including EFH) and agreement to continue coordination efforts.
Coordination Meeting (2/14/22)	USFWS • Amy Trahan	• Discussion of Hurricane Laura and related JDEC recovery, and Alternatives being considered and overview of project area; • Discussion of areas of concern/interest (including Eastern Black Rail, Piping Plover, and other species of concern) and agreement to continue coordination efforts.
Coordination Meeting (2/14/22)	THPO • Meeting Scheduled, but no Tribal participants joined	• Scheduled Meeting to further discuss Hurricane Laura and related recovery and JDEC's recovery needs, including continued discussion of Alternatives being considered.
Coordination Meeting (2/25/22)	NOAA • Joseph Cavanaugh • January Murray	• Continued discussion of Hurricane Laura and related JDEC recovery, including Alternatives being considered and overview of project area; • Continued Discussion of areas of concern/interest, including EFH and noise, and agreement to continue coordination efforts; • Discussion of Best Management Practices (BMPs); and • Discussion of JDEC proposed construction methodology and related issues.
Coordination Meeting (3/16/22)	USACE • Darrell Barbara Brad Guarisco	• Discussion information needs related to wetland delineations and permitting for the projects.
Ongoing Coordination (via emails)	USFWS (National Wildlife Refuges) • Patrice Betz	• Hurricane Laura and related JDEC recovery; • Alternatives being considered and overview of project area; and • Discussion of NWR permit options.

D. 8-STEP DECISION MAKING PROCESS FOR WETLANDS

FEMA is required to follow the 8-step decision making process described at 44 CFR § 9.6 to ensure that proposed activities are consistent with EO 11900, Protection of Wetlands. This Appendix summarizes the steps in this process and how JDEC has or will address them for the Hurricane Laura Repair, Replacement, and Restoration Program.

Step 1: Determine whether the action is located in a wetland.

Portions of the proposed action are located in wetlands. JDEC's contractor is currently conducting a comprehensive wetland delineation for the project area. This delineation will utilize NOAA, Emergency Response Imagery along with field surveys to map known wetland areas within the project area and will map observed Waters of the United States using a GPS in non-marsh environments. Inundated areas will be mapped by utilizing post hurricane aerials and ground-truthing from the edge of the ROW. Vegetation, wetland hydrology, and soil characteristics will be documented during field surveys, where accessible. As this information is not yet available, the USFWS NWI was used to estimate impacts of this project to wetlands. According to the NWI, proposed workspaces would intersect the following wetland types: riverine (13 acres), freshwater ponds (2.5 acres), freshwater emergent wetlands (65 acres), freshwater forested/shrub wetlands (25 acres), estuarine and marine wetlands (379 acres), and estuarine and marine deep water (130.5 acres) (USFWS 2014).

Because the proposed action would be located in wetlands, it requires an 8-step analysis of the direct and indirect impacts associated with the modification of wetlands.

Step 2: Notify the public for early review of the proposal and involve the affected and interested public in the decision making process.

FEMA issued a Public Notice of its intent to reimburse eligible applicants for eligible costs for assistance to repair and/or replace facilities damaged by Hurricane Laura on September 18, 2020. This notice invited the public to participate in the process of identifying alternatives and analyzing their impacts on the floodplain and wetlands. The Public Notice was posted on social media outlets and the FEMA.gov Region 6 public notice page.

Step 3: Identify and evaluate practicable alternatives.

The need for this action is to repair or replace storm-damaged electrical system critical infrastructure and utility lines throughout the JDEC system, create redundancies within the system, and make the system more resilient against future storm events.

The identification of practicable alternatives is presented in Section 4 of this PEA. The following alternatives were considered:

1. **No Action.** FEMA would not fund any further repairs to the infrastructure. The JDEC electric system would remain in its post-storm condition, with only emergency repairs having been performed, and areas south of the GIWW would continue to be serviced by generator power.

This alternative would involve no construction in wetlands, but would not meet the need for the action, and therefore was dismissed.

2. **230kV Resiliency and Redundancy (Preferred).** FEMA would provide PA and HMGP funding for JDEC to conduct a series of projects that would replace existing system

infrastructure with a 230kV transmission line. Proposed projects would also harden and elevate substations to improve resiliency, build in redundancy to reduce downtime, and better protect from service interruptions.

This alternative would meet the need for the action and would involve construction in wetlands. Based on NWI data, permanent loss of wetlands is estimated to be 5 acres or less and would be limited to the location of pole installations (0.4 acres), new areas required for switching stations and towers associated with waterway crossings (1.5 acres), and additional areas required for substations (2.4 acres).

3. **69kV/138kV Repair/Resiliency.** JDEC would take actions to repair and increase resiliency of the current 69kV/138kV transmission infrastructure using available funding provided by FEMA. A series of projects under this alternative would repair existing 69kV and 138kV infrastructure damaged by Hurricanes Laura and Delta, with improvements that would increase resiliency, including engineered steel poles and elevated and hardened substations.

This alternative would meet the need for the action and would involve construction in wetlands. Based on NWI data, permanent loss of wetlands is estimated to be 5 acres or less and would be limited to the location of pole installations (0.24 acres) and new areas required for switching stations and towers associated with waterway crossings (1.9 acres).

4. **Return 69kV/138kV to Pre-Storm Conditions.** This alternative would return the JDEC electric system to pre-storm conditions, incorporate current codes and standards, and repair existing 69kV and 138kV infrastructure damaged by Hurricanes Laura and Delta.

This alternative would not meet the need for the action and therefore was dismissed. It would have also involved construction in wetlands.

Step 4: Identify Potential Direct and Indirect Impacts.

Potential short-term, temporary and long-term, permanent impacts of the alternatives on wetlands are presented in Section 5.2 of this PEA, and summarized in Appendix B.

Step 5: Minimize the potential adverse impacts.

Measures to minimize the potential adverse impacts are described in Section 5.2 of this PEA and summarized in Appendix B, with additional discussion of BMPs in Appendix A.

Step 6: Reevaluate the proposed action.

Following Steps 4 and 5, the proposed action remains practicable in light of potential to disrupt wetland values. No other alternatives are practicable in light of the information gained in Steps 4 and 5, because there would be no way to relocate the proposed action to another location. The no action alternative and returning the 69kV/138kV to pre-storm conditions are not practicable because they do not meet the need for the action.

The location of the proposed action partially in wetlands is the only practicable alternative.

Step 7: Prepare and provide the public with a finding and public explanation of any final decision that the floodplain or wetland is the only practicable alternative.

It is FEMA's determination that there is no practicable alternative for partially locating the project in wetlands. This is because the storm-damaged electrical system that requires repair or

replacement provides service to residents and businesses in this location and cannot be relocated elsewhere. The finding that the proposed alternative is the only practicable alternative will be provided concurrent with the release of this plan.

Final public notice will be incorporated into the notice of availability for public review of the draft PEA. The final notice will explain the reasons why the project must be located partially in the wetland, offer a list of alternatives considered at Steps 3 and 6, and describe all mitigation measures at Step 5 taken to minimize adverse impacts and preserve natural and beneficial wetland values.

Step 8: Review the implementation and post-implementation phases of the proposed action.

JDEC will assure that projects are constructed in accordance with EO 11900 and will take an active role in monitoring the construction process to ensure no unnecessary impacts occur nor unnecessary risks are taken.

E. 8-STEP DECISION-MAKING PROCESS FOR FLOODPLAINS

FEMA is required to follow the 8-step decision making process described at 44 CFR § 9.6 to ensure that proposed activities are consistent with EO 11988, Floodplain Management. This Appendix summarizes the steps in this process and how JDEC has or will address them for the Hurricane Laura Repair, Replacement, and Restoration Program.

Step 1: Determine whether the action is located in a 100-year floodplain (or a 500-year floodplain for critical actions) or wetland.

Based on best available information, this entire proposed action would be located within a 100-year or 500-year floodplain. Because the proposed action would be located in a floodplain, it requires an 8-step analysis of the direct and indirect impacts associated with the modification of the floodplain.

Step 2: Notify the public for early review of the proposal and involve the affected and interested public in the decision-making process.

FEMA issued a Public Notice of its intent to reimburse eligible applicants for eligible costs for assistance to repair and/or replace facilities damaged by Hurricane Laura on September 18, 2020. This notice invited the public to participate in the process of identifying alternatives and analyzing their impacts on the floodplain and wetlands. The Public Notice was posted on social media outlets and the FEMA.gov Region 6 public notice page.

Step 3: Identify and evaluate practicable alternatives.

The need for this action is to repair or replace storm-damaged electrical system critical infrastructure and utility lines throughout the JDEC system, create redundancies within the system, and make the system more resilient against future storm events.

The identification of practicable alternatives is presented in Section 4 of this PEA. The following alternatives were considered:

1. **No Action.** FEMA would not fund any further repairs to the infrastructure. The JDEC electric system would remain in its post-storm condition, with only emergency repairs having been performed, and areas south of the GIWW would continue to be serviced by generator power.

This alternative would involve no construction in floodplains, but would not meet the need for the action, and therefore was dismissed.

2. **230kV Resiliency and Redundancy (Preferred).** FEMA would provide PA and HMGP funding for JDEC to conduct a series of projects that would replace existing system infrastructure with a 230kV transmission line. Proposed projects would also harden and elevate substations to improve resiliency, build in redundancy to reduce downtime, and better protect from service interruptions.

This alternative would meet the need for the action and would involve construction entirely in floodplains. Approximately 90% of the proposed action would be in the 100-year floodplain, with the remaining 10% in the 500-year floodplain.

3. **69kV/138kV Repair/Resiliency.** JDEC would take actions to repair and increase resiliency of the current 69kV/138kV transmission infrastructure using available funding provided by FEMA. A series of projects under this alternative would repair existing 69kV

and 138kV infrastructure damaged by Hurricanes Laura and Delta, with improvements that would increase resiliency, including engineered steel poles and elevated and hardened substations.

This alternative would meet the need for the action and would involve construction entirely in floodplains. Approximately 70% of the proposed action would be in the 100-year floodplain, with the remaining 30% in the 500-year floodplain.

4. **Return 69kV/138kV to Pre-Storm Conditions.** This alternative would return the JDEC electric system to pre-storm conditions, incorporate current codes and standards, and repair existing 69kV and 138kV infrastructure damaged by Hurricanes Laura and Delta.

This alternative would not meet the need for the action and therefore was dismissed. It would have also involved construction entirely in floodplains.

Step 4: Identify Potential Direct and Indirect Impacts.

Potential short-term, temporary, and long-term, permanent impacts of the alternatives on floodplains are presented in Section 5.3 of this PEA and summarized in Appendix B.

Step 5: Minimize the potential adverse impacts.

Measures to minimize the potential adverse impacts are described in Section 5.3 of this PEA and summarized in Appendix B, with additional discussion of BMPs in Appendix A.

Step 6: Reevaluate the proposed action.

Following Steps 4 and 5, the proposed action remains practicable in light of its exposure to flood hazards, the extent to which it will aggravate the hazards to others, and its potential to disrupt floodplain values. No other alternatives are practicable in light of the information gained in Steps 4 and 5. The no action alternative and returning the 69kV/138kV to pre-storm conditions are not practicable because they do not meet the need of the action.

The location of the proposed action in floodplains is the only practicable alternative.

Step 7: Prepare and provide the public with a finding and public explanation of any final decision that the floodplain or wetland is the only practicable alternative.

It is FEMA's determination that there is no practicable alternative for locating the project in the floodplain. This is because the storm-damaged electrical system that requires repair or replacement provides service to residents and businesses in this location and cannot be relocated elsewhere. The finding that the proposed alternative is the only practicable alternative will be provided concurrent with the release of this plan.

Final public notice will be incorporated into the notice of availability for public review of the draft PEA. The final notice will explain the reasons why the project must be located in the floodplain, offer a list of alternatives considered at Steps 3 and 6, and describe all mitigation measures at Step 5 taken to minimize adverse impacts and preserve natural and beneficial floodplain values.

Step 8: Review the implementation and post-implementation phases of the proposed action.

JDEC will assure that projects are constructed in accordance with EO 11988 and will take an active role in monitoring the construction process to ensure no unnecessary impacts occur nor unnecessary risks are taken.

F. PROTECTED SPECIES DESCRIPTIONS

This appendix provides descriptions of the protected species listed in Table 4 of this PEA.

F.1 Fish

Gulf Sturgeon. The Gulf sturgeon is federally listed under the ESA as Threatened throughout its current range from Lake Pontchartrain and the Pearl River system in Louisiana and Mississippi to the Suwannee River in Florida. NOAA Fisheries and the USFWS jointly manage and protect Gulf sturgeon. Gulf sturgeon spawn and hatch in freshwater rivers, remain there for approximately 10 to 12 months, then move to sea as juveniles (NOAA 2022a). In Louisiana, riverine critical habitat for the Gulf sturgeon is limited to the Pearl River system and estuarine and marine critical habitat is limited to Lake Borgne (68 FR 13369); there is no critical habitat in the project area. Threats to Gulf sturgeon include overfishing, dam construction, and habitat degradation (NOAA 2022a).

F.2 Mammals

West Indian Manatee. The West Indian manatee and its subspecies (Florida and Antillean) are federally listed under the ESA as Endangered and are protected under the Marine Mammal Protection Act. The known and historical range of the Florida subspecies extends from Norfolk, Virginia, south and westward along the Atlantic seaboard to Beaumont, Texas. In warmer months, this subspecies has been observed as far north as Massachusetts. Critical habitat for the West Indian manatee is limited to the State of Florida (USFWS 2022). Sightings in Louisiana, representing the western limits of their range in the Gulf of Mexico, are regarded as rare but increasing, and have occurred in Calcasieu and Cameron Parishes (Wilson 2003). The West Indian manatee has been known to occupy near shore marine environments, inshore estuaries and salt marshes, and warm freshwater environments including coastal tidal rivers and streams, mangrove swamps, freshwater springs, and backwater bayou areas. Foraging habitat in coastal and riverine habitats include vegetated bottoms and shallow grass beds, with ready access to deep channels. In cooler months, manatees will seek warmer waters including anthropogenic induced sources.

F.3 Birds

Piping Plover. The piping plover is a migratory shorebird that breeds in the northern United States and Canada and winters in the southern United States and Caribbean. The USFWS lists three distinct populations, two of which (Atlantic Coast and Northern Great Plains) winter in Louisiana (USFWS n.d.d). Coastal habitat for piping plovers includes sand spits, small islands, tidal flats, shoals, and sandbars with inlets. Primary foraging habitats include sandy mudflats, ephemeral pools, and seasonally emergent seagrass beds, where they feed on invertebrates (USFWS n.d.b). Populations of piping plover have declined in recent decades as a result of loss of breeding habitat to development and recreational uses. Availability of quality foraging and roosting habitat in the wintering grounds is necessary for survival of adults for breeding the following summer. Critical habitat for the wintering population of the piping plover has been designated along the shoreline of Cameron Parish along the edge of the project area.

Wilson's Plover. The Wilson's plover breeds and winters in coastal areas of Louisiana (LDWF n.d.g). They can be found throughout the year in Louisiana but are more abundant in spring and summer. Wilson's are solitary species that breed along the Gulf Coast from early April to August. Their habitat includes coastal areas that are saline and thinly vegetated, including salt flats, coastal lagoons, beaches, and sand dunes. They feed on fiddler crabs, other crustaceans, and various insects. Threats to the Wilson's plover include habitat loss and degradation due to development

and coastal land loss and disturbances of nests and eggs. Although not a protected species, the Wilson's plover has a state rank of critically imperiled, meaning that it is at very high risk of extirpation in Louisiana (LDWF 2022a, b).

Snowy Plover. The snowy plover breeds and winters in coastal areas of Louisiana (LDWF n.d.f). They can be found throughout the year in Louisiana but are more abundant outside the summer months. Snowy plovers are solitary species that nest in loose colonies on open beaches, and primarily utilize dry sandy or shell beaches above the tide mark along the coast or on barrier islands during the winter. They feed on a variety of invertebrates, including crustaceans, worms, and insects. Threats to the snowy plover include habitat loss and degradation due to development and coastal land loss, entanglement in discarded fishing line, and trampling of nests and eggs (LDWF n.d.f). Although not a protected species, the snowy plover has a state rank of imperiled to critically imperiled, meaning that it is at high to very high risk of extirpation in Louisiana (LDWF 2022a, b).

Red Knot. The red knot is a migratory shorebird that breeds in the Canadian Arctic and winters along the Gulf Coast, southeast United States, and farther south. In its wintering habitat, the red knot is found primarily in sandy, gravel, or cobble beaches, tidal mudflats, salt marshes, shallow impoundments and lagoons, and peat banks (USFWS 2020). Red knots prefer wintering habitats with sparse emergent vegetation, including muddy or sandy coastal areas in bays and estuaries, tidal flats, and unimproved tidal inlets. It is a specialized molluscivore, eating hard-shelled mollusks, supplemented with shrimp, crabs, marine worms, and horseshoe crab (*Limulus polyphemus*) eggs (USFWS 2015). Red knots generally require areas where natural coastal processes are allowed to operate to maintain optimal habitat conditions. Loss and degradation of coastal habitats have reduced available habitat for red knot. No critical habitat has been designated for this species, although it has been proposed for beaches in southwest Louisiana, 86 FR 37410-37668 (July 15, 2021).

Eastern Black Rail. The Eastern black rail is a small, secretive bird that lives in salt and freshwater marshes in North America (USFWS 2021c). It is listed as threatened under the ESA, is protected under the Migratory Bird Treaty Act, and is on the Louisiana Natural Heritage Program (LNHP) list of rare species in Louisiana for Cameron Parish (USFWS 2021c; LDWF 2022a). Eastern black rail habitat can be tidally or non-tidally influenced and range in salinity from salt to fresh. Along the Gulf Coast, they can be found in higher elevation wetland zones with shrubby vegetation. Their diet consists of small aquatic and terrestrial invertebrates, as well as small seeds (USFWS 2021c). In Louisiana, eastern black rails are known to winter in Cameron Parish. However, given their elusive nature, their distribution and status are difficult to fully ascertain. Thus, the species is potentially present in all high marshes of coastal Louisiana. Between 2010 and 2017, only a small number have been observed in Louisiana. No critical habitat has been designated for this species.

Red-cockaded Woodpecker. This small woodpecker is a non-migratory, territorial bird that lives in cooperative breeding groups (USFWS n.d.c). It is listed as threatened under the ESA and is on the LNHP list of rare species in Louisiana for Calcasieu Parish (LDWF 2021). They nest in cavities in old (greater than 60 years), living pine trees and primarily eat insects in the egg, larvae, and adult stages, supplemented with fruits and seeds. The red-cockaded woodpecker can be found year-round in coastal Louisiana. Their habitat is pine stands or pine-dominated pine/hardwood stands, with a low or sparse understory and ample old pines. Longleaf pine is preferred where available, but they may use other species such as loblolly, shortleaf, slash, and pond pine (USFWS n.d.c). It

is found in such habitats in Calcasieu Parish (LDWF n.d.e). No critical habitat has been designated for this species.

Bald Eagle. Bald eagles are protected under the BGEPA and the MBTA. This large raptor feeds on fish, as well as carrion, waterfowl, coots, muskrats, and nutria (LDWF n.d.b). The LDWF has not collected comprehensive bald eagle survey data since 2008, and new active, inactive, or alternate nests may have been constructed within the project area since that time. In southern Louisiana, eagles typically nest in mature trees (e.g., bald cypress, sycamore, willow, etc.) near fresh to intermediate marshes or open water with sufficient prey. Bald eagles may also nest in mature pine trees near large lakes in central and northern Louisiana. Threats to bald eagles include accumulation of pesticide residues that reduce reproductive success, loss of habitat, and human disturbances to nesting pairs (LDWF n.d.b).

F.4 Sea Turtles

All species of sea turtles are threatened or endangered under the ESA and are under the shared jurisdiction of the USFWS (responsibility for sea turtles on nesting beaches) and NMFS (responsibility for sea turtles in marine and all waters adjacent to terrestrial environment). No listed sea turtle species are known to nest in the project area, which lacks suitable beach-nesting habitat. Reports of sea turtle strandings in Cameron Parish most commonly involve Kemp's ridley sea turtles[8], which are found primarily in the Gulf of Mexico (NOAA 2021d). Threats to sea turtles include accidental bycatch, loss and degradation of nesting habitat, vessel strikes, harvest of turtles and eggs, entanglement or ingestion of ocean pollution and marine debris, and changes in beach morphology and sand temperatures due to climate change (NOAA 2021e).

Hawksbill sea turtle. The hawksbill sea turtle occurs in tropical and sub-tropical waters across the globe, including the Gulf of Mexico. It is found in warm bays and shallow ocean water, seagrass beds, and estuaries, and primarily eats sponges (NOAA 2022b; LDWF n.d.c). Females nest on mainland and island beaches, where they lay eggs on exposed sand. Hatchlings enter pelagic habitats and shelter in floating algal mats for approximately 1 to 5 years, before migrating to shallower coastal habitats, including coral reefs, where they mature to adults. Critical habitat is designated in Puerto Rico, outside of the project area (63 FR 46693).

Kemp's ridley sea turtle. The Kemp's ridley sea turtle was once abundant in the Gulf of Mexico, but the population declined to a low of only several hundred females nesting in the 1980s (NOAA, 2021d). The population rebounded until 2010 by approximately 15% per year but since then has leveled off. The majority of Kemp's ridley nesting occurs on beaches of the western Gulf of Mexico, with 90% occurring in the state of Tamaulipas, Mexico. Nesting occurs on a smaller scale in North Carolina, South Carolina, Georgia, Florida, Alabama, and Texas. Kemp's ridley sea turtles are not known to nest in Louisiana (Fuller et al. 1987). Nesting typically occurs when large groups of females come ashore to lay eggs and many nests subsequently hatch at the same time. Hatchlings emerge and swim rapidly offshore; some remain in the Gulf of Mexico, while others may be swept out to the Atlantic. They typically drift for 1-2 years, associating with floating Sargassum algae, before migrating to nearshore areas of the Gulf of Mexico or northwest Atlantic Ocean, where they typically eat crabs or discarded bycatch. Juveniles have been identified in inshore bays and offshore waters of Louisiana, and Louisiana may provide important

[8] See website at the following URL:
https://grunt.sefsc.noaa.gov/stssnrep/SeaTurtleReportII.do?action=reportIIqueryp

developmental and feeding habitat for Kemp's ridley sea turtles (Fuller et al. 1987). No critical habitat has been designated for the Kemp's ridley sea turtle.

Leatherback sea turtle. The leatherback sea turtle is the only sea turtle that lacks scales and a large shell (NOAA 2022c). It is a highly migratory species that has the widest global distribution of any reptile and primarily is found in open ocean and deeper waters of the Gulf of Mexico and coastal bays, where it feeds on jellyfish. Females leave the water to nest on coastal beaches and barrier islands (LDWF n.d.d; NOAA 2022c). Critical habitat has been designated for leatherback sea turtles, but it is limited to the United States Virgin Islands (44 FR 17710), outside of the project area.

Loggerhead sea turtle. The loggerhead sea turtle is the most abundant species of sea turtle found in United States Atlantic coastal waters (NOAA 2021e). The loggerhead sea turtle is a turtle of deep open water and is also known to frequent marshes, estuaries, and coastal rivers. Adult females return to lay their eggs in the sand. In the western North Atlantic, the loggerhead sea turtle predominantly nests from central North Carolina to southern tip of Florida with sporadic nesting sites along the shores of the Gulf of Mexico including Louisiana (Dodd 1988). Hatchlings and juveniles spend the first 7-15 years in the open ocean and then migrate to nearshore coastal *Sargassum* habitat areas to forage. Adult loggerhead sea turtles migrate hundreds to thousands of kilometers from foraging grounds to nesting beaches (NOAA 2021e). Critical habitat has been designated for the Northwest Atlantic Ocean Distinct Population Segment of loggerhead sea turtles, in the Atlantic Ocean and the Gulf of Mexico, including 38 occupied marine areas, nearshore reproductive habitat, winter area, breeding areas, migratory corridors, and/or *Sargassum* habitat (79 FR 39755). The project area does not intersect any of these critical habitat areas.

F.5 Other Reptiles

Alligator snapping turtle. The Alligator snapping turtle is the largest freshwater turtle in North America and was federally proposed as threatened in 2021. It is found throughout Louisiana, primarily in freshwater large rivers, canals, lakes, and oxbows, but less commonly in coastal marshes (LDWF n.d.a). Alligator snapping turtles consume other turtles, fish, aquatic snails, crustaceans, clams, carrion, and some plant matter. In the past, commercial turtle harvesting depleted the population, but it has since been banned. Dredging disturbances to stream ecosystems is also a threat to this species.

G. PUBLIC NOTICE

FEMA PUBLIC NOTICE OF AVAILABILITY
DRAFT PROGRAMMATIC ENVIRONMENTAL ASSESSMENT AND DRAFT FINDING OF NO SIGNIFICANT IMPACT
JEFFERSON DAVIS ELECTRIC COOPERATIVE, INC.
HURRICANE LAURA REPAIR, REPLACEMENT, AND RESTORATION PROGRAM
CAMERON AND CALCASIEU PARISHES, LOUISIANA

Interested parties are hereby notified that the Federal Emergency Management Agency (FEMA) has prepared a Draft Programmatic Environmental Assessment (PEA) and a Draft Finding of No Significant Impact (FONSI) in compliance with the National Environmental Policy Act (NEPA). The purpose of the draft PEA is to assess the effects on the human and natural environment from the proposed Jefferson Davis Electric Cooperative, Inc. (JDEC) Hurricane Laura repair, replacement, and restoration program under the major disaster declaration (FEMA-4559-DR, as amended) signed by President Donald J. Trump on August 28, 2020.

FEMA has determined that the Louisiana Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) and JDEC are eligible to receive FEMA Public Assistance (PA) funding. GOHSEP and JDEC have submitted a combined request for FEMA funding, referred to as the JDEC Hurricane Laura Repair and Restoration Program. FEMA is administering this assistance pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), PL 93-288, as amended. Section 406 of the Stafford Act authorizes FEMA's PA Program to repair, restore, and replace state and local government and certain private not-for-profit facilities damaged as a result of the declared event.

The need for this action is to repair, improve, or replace storm-damaged electrical system critical infrastructure and utility lines throughout the JDEC system, create redundancies within the system, and make the system more resilient against future storm events. Under the proposed preferred alternative, FEMA would provide funding for JDEC to conduct a series of projects that would replace existing system infrastructure with a single 230kV transmission line which would replace the existing 69kV and 138kV transmission lines that were temporarily repaired following Hurricane Laura. This alternative includes utility improvements and upgrades as well as realignment or relocation of JDEC infrastructure. Activities may include, where necessary, repairing or removing existing emergency repair poles and associated hardware as needed; installing new utility poles, conductors, conduit routing, towers, and underground waterway crossings; and repairing and elevating substations.

In accordance with NEPA, the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations (CFR) Parts 1500–1508), FEMA's Instruction 108-1-1 for implementing NEPA, the National Historic Preservation Act, Executive Order 11988, Executive Order 11990, and 44 CFR Part 9, a Draft PEA was written to evaluate the potential impacts of the proposed action and alternatives on the human and natural environment. The draft PEA evaluates Alternative 1 (No Action Alternative), Alternative 2, the Preferred Action Alternative (230 kilovolt (kV) Resiliency and Redundancy), and Alternative 3 (69kV/138kV Repair/Resiliency). The draft FONSI is FEMA's finding that the Preferred Action Alternative would not have a significant effect on the human and natural environment.

This public notice will run in the journal of record for the State of Louisiana, *The Advocate*, and in the *American Press* in Calcasieu Parish for five (5) days on Mondays, July 25, 2022; August 1, 2022; August 8, 2022; August 15, 2022; and August 22, 2022; and in *The Cameron Parish Pilot* in Cameron Parish for four (4) days on Thursdays, July 28, 2022; August 4, 2022; August 11, 2022; and August 18, 2022.

The draft PEA and draft FONSI are available for review at the following locations during business hours:

- Vermilion Parish Library, 405 E. St. Victor Street, Abbeville, LA 70510;
- Calcasieu Parish Public Library, Central Branch, 301 W. Claude Street, Lake Charles, LA 70605; and
- Cameron Parish Library, Grand Lake Branch, 10200 Gulf Highway, Lake Charles, LA 70607

The draft PEA and draft FONSI can also be viewed and downloaded from FEMA's website at http://www.fema.gov/resource-document-library.

A 30-day comment period will begin on July 25, 2022, and conclude on August 24, 2022 at 4:00 p.m. Written comments may be mailed to: DEPARTMENT OF HOMELAND SECURITY-FEMA EHP - "Jefferson Davis Electric Cooperative, Inc. Hurricane Laura Repair, Replacement, and Restoration Program", 1500 Main Street, Baton Rouge, LA 70802. Comments may also be emailed to fema-liro-ehp-pa@fema.dhs.gov. If no substantive comments are received, the draft EA and associated draft FONSI will become final.

All other questions regarding disaster assistance should be directed to FEMA's Helpline at 1-800-621-3362 or visit www.DisasterAssistance.gov.

H. DRAFT FINDING OF NO SIGNIFICANT IMPACT (FONSI)

DRAFT FINDING OF NO SIGNIFICANT IMPACT
JEFFERSON DAVIS ELECTRIC COOPERATIVE, INC.
HURRICANE LAURA REPAIR, REPLACEMENT, AND RESTORATION PROGRAM
CAMERON AND CALCASIEU PARISHES, LOUISIANA
FEMA-4559-DR-LA

BACKGROUND

In accordance with the Federal Emergency Management Agency's (FEMA) Instruction 108-1-1, a Programmatic Environmental Assessment (PEA) has been prepared pursuant to the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C §§ 4321 et seq.) and the President's Council on Environmental Quality (CEQ) regulations to implement NEPA (40 Code of Federal Regulations (CFR) Parts 1500-1508). The need for this action is to repair, improve, or replace storm-damaged electrical system critical infrastructure and utility lines throughout the Jefferson Davis Electric Cooperative, Inc. (JDEC) system, create redundancies within the system, and make the system more resilient against future storm events. The JDEC electrical system has suffered repetitive catastrophic damages from storm events in recent decades; and restoration of the entire system, complete with resiliency and redundancy features, is needed to mitigate susceptibility to future physical storm damage, support more load, increase resiliency for the coastal circuits, and allow for quicker and less expensive restoration of power following future disaster events.

The Louisiana Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) and JDEC have submitted a combined request for FEMA funding, referred to as the JDEC Hurricane Laura Repair and Restoration Program. FEMA has determined that the GOHSEP and JDEC are eligible to receive FEMA Public Assistance (PA) funding, and FEMA is administering this assistance pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), PL 93-288, as amended. Section 406 of the Stafford Act authorizes FEMA's PA Program to repair, restore, and replace state and local government and certain private not-for-profit facilities damaged as a result of the declared event. The purpose of FEMA's PA Grant Program is to provide assistance to state, tribal, and local governments, and certain types of not-for-profit organizations, so that communities can quickly respond to, recover from, and mitigate major disasters and emergencies. The proposed action would utilize FEMA-provided PA grant funding and possibly FEMA Hazard Mitigation Grant Program (HMGP) funding to repair, improve, or replace storm-damaged electrical system critical infrastructure, including transmission lines, distribution lines, substations, and related assets.

Three project alternatives were considered in this PEA: Alternative 1 (No-Action Alternative); Alternative 2 (230 kilovolt (kV) Resiliency and Redundancy), Preferred Action Alternative; and Alternative 3 (69kV/138kV Repair/Resiliency). A fourth alternative, Alternative 4 (Repair to Current Codes and Standards), was considered and dismissed because it does not meet the purpose and need. Under the proposed preferred alternative, FEMA would provide funding for JDEC to conduct a series of projects that would replace existing system infrastructure with a single 230kV transmission line with an underbuilt 13.2kV distribution line which would replace the existing 69kV and 138kV transmission lines that were temporarily repaired following Hurricane Laura. This alternative includes utility improvements and upgrades as well as realignment or relocation of JDEC infrastructure. Activities may include, where necessary, repairing or removing existing

emergency repair poles and associated hardware as needed; installing new utility poles, conductors, conduit routing, towers, and underground waterway crossings; and repairing and elevating substations.

FINDING OF NO SIGNIFICANT IMPACT

The Proposed Action as described in the PEA may have short-term, temporary, negligible to minor impacts to geology, topography, soils, wetlands and waters if the U.S., floodplains and hydrology, water quality and resources, land use and planning, habitats including wetlands and essential fish habitat types, threatened and endangered species, migratory bird species, bald and golden eagles, air quality, climate change, cultural resources, low income and minority populations, hazardous materials, noise, and traffic. The Proposed Action may have long-term, permanent, negligible to minor impacts to geology, soils, topography, hydrology, floodplains, land use and planning, and habitats including estuarine emergent marsh and estuarine open water/mud bottom which will be limited to pole placements, new waterway crossing footprints, and new or relocated substations. The Proposed Action may also have permanent, negligible to minor impacts to wetlands and waters of the U.S. limited to localized areas of pole placements, vaults, and platforms; and spread of invasive species from the movement of construction equipment and boats. Long-term beneficial impacts to public services and health and safety are expected because of the Proposed Action through improved electrical service reliability and resiliency for residents. Increased resiliency and reliability could reduce risks of heat-related illness and death by providing more reliable electricity for cooling and attract businesses and jobs through quicker power restoration following outages. All adverse impacts require conditions to minimize or mitigate impacts to the proposed project site and surrounding areas.

CONDITIONS

The following conditions must be met as part of this project. Failure to comply with these conditions may jeopardize the receipt of federal funding.

- Follow applicable local, territory, state, and federal permitting requirements for construction.
- Minimize the disturbed area and preserve vegetation to the maximum extent possible.
- Phase construction activities to the extent possible.
- Ensure adequate maintenance of equipment, including proper engine maintenance, adequate tire inflation, and proper maintenance of pollution control devices.
- JDEC is responsible for acquiring any Section 401/404 Clean Water Act (CWA) permits and/or Section 10 permits under the Rivers and Harbors Act. When these permits are required, JDEC must maintain documentation of compliance with applicable Nationwide Permit (NWP), exemption from requirements, or obtain individual permits from US Army Corps of Engineers (USACE) prior to construction, unless exempt by the NWP from pre-construction notification. JDEC shall comply with all conditions of the required permit. All coordination pertaining to these activities should be documented and copies forwarded to the state and FEMA as part of the permanent project files.
- Appropriate measures for the proper assessment, remediation, management, and disposal of any contamination discovered in the course of construction activities must be initiated in accordance with applicable federal, state, and local regulations. Contractors are required

to take appropriate actions to prevent, minimize, and control the spill of hazardous materials at the proposed site.

- Contractors and/or sub-contractors must properly handle, package, transport and dispose of hazardous materials and/or waste in accordance with all local, state, and federal regulations, laws, and ordinances, including all Occupational Safety and Health Administration (OSHA) worker exposure regulations covered within 29 CFR Parts 1910 and 1926.
- A spill prevention and emergency response plan (SPERP) will be required for all construction contractor groups. The SPERP will need to identify at a minimum: emergency contact numbers for local, state, and federal environmental and public health agencies, Material Safety Data Sheets (MSDS) for all hazardous substances, hazardous material inventory, spill prevention plan, spill response plan/emergency response plan, spill response equipment (e.g., absorbent pads, disposal containers) and reporting requirements.
- Unusable equipment, debris, and material shall be disposed of in an approved manner and location. JDEC must handle, manage, and dispose of petroleum products, hazardous materials, and/or toxic waste in accordance with all local, state, and federal agency requirements. All coordination pertaining to these activities should be documented and copies forwarded to the state and FEMA as part of the permanent project files.
- Contractors will be responsible for maintaining, securing, and protecting any staging area, containers, or bins set up for construction purposes. The storage of any equipment or materials will not be permitted immediately adjacent to canals or other water bodies, trees, or private property without prior approval from the respective owner or regulatory agency. The contractors will be responsible to ensure all equipment arriving at or departing from the construction limits remains clean and to take any necessary measures to ensure foreign materials or debris is not tracked or deposited on opened streets or outside the construction site limits. Contractors will also be required to store and handle any fuels or other hazardous material in accordance with OSHA requirements and ensure any such materials required at a construction site be adequately secured and protected at all times.
- In order to minimize indirect impacts (e.g., erosion, sedimentation, dust, and other construction-related disturbances) to nearby waters of the United States and surrounding drainage areas, the contractor must ensure compliance with all local, state, and federal requirements related to sediment control, disposal of solid waste, control and containment of spills, and discharge of surface runoff and stormwater from the site. All documentation pertaining to these activities and JDEC compliance with any conditions should be forwarded to GOHSEP and FEMA for inclusion in the permanent project files.
- JDEC shall ensure that best management practices (BMPs) are implemented to prevent erosion and sedimentation to surrounding, nearby, or adjacent wetlands. This includes equipment storage and staging of construction to prevent erosion and sedimentation to ensure that wetlands are not adversely impacted per the CWA and Executive Order (EO) 11990.
- Louisiana Department of Natural Resources (LDNR) requires that a complete Coastal Use Permit (CUP) application package (e.g., Joint Application Form, location maps, project illustration plats with plan and cross section views, etc.) along with the appropriate application fee be submitted to their office prior to construction. JDEC will be responsible for coordinating with and obtaining any required CUPs or other authorizations from the LDNR OCM's Permits and Mitigation Division prior to initiating work. JDEC must

comply with all conditions of the required permits. All documentation pertaining to these activities and JDEC compliance with any conditions should be forwarded to the state and FEMA for inclusion in the permanent project files.

- No project may be built to a floodplain management standard that is less protective than what the community has adopted in local ordinances through their participation in the NFIP. FEMA PA-funded projects carried out in the floodplain must be coordinated with the local floodplain administrator for a floodplain development permit prior to the undertaking, and the action must be carried out in compliance with relevant, applicable, and required local codes and standards. This will reduce the risk of future flood loss, minimize the impacts of floods on safety, health, and welfare, and preserve and possibly restore beneficial floodplain values as required by EO 11988. Coordination pertaining to these activities and JDEC compliance with any conditions should be documented, and copies forwarded to GOHSEP and FEMA for inclusion in the permanent project files. JDEC is required to utilize the Best Available Information (BAI) for reconstruction, new construction, and substantial improvements.
- Adverse effects on the floodplain must be minimized in accordance with FEMA's minimization standards in 44 CFR § 9.11. Treatment measures would be required to reduce adverse impacts below the level of significance.
- JDEC is responsible for obtaining and/or complying with all federal, state, and local permits, ordinances, and/or requirements for the collection, handling, storage, transportation, and disposal of any medical, hazardous, biological, radiological, pharmaceutical, or toxic related waste or debris. Equipment such as ice machines, refrigerators, generators, air conditioning units, computers, and televisions may contain chlorofluorocarbons, used oil, diesel and other petroleum products, mercury switches, used oil filters, fuel filters, and batteries. JDEC shall handle, manage, and dispose of damaged materials and equipment that may be hazardous waste, universal waste, and hazardous materials in accordance with the requirements of local, state, and federal regulations.
- If the project results in a discharge to waters of the state, submittal of a Louisiana Pollutant Discharge Elimination System (LPDES) application may be necessary.
- All waste is to be transported by an entity maintaining a current "waste hauler permit" specifically for the waste being transported, as required by the Louisiana Department of Transportation and Development (LaDOTD), Louisiana Department of Environmental Quality (LDEQ), and other regulations.
- Disposal of demolition debris must be in accordance with all federal, state, and local laws, regulations, and rules. Prior to disposal, JDEC must identify and provide to FEMA and GOHSEP the waste disposal site, including the complete name, location, telephone number, permit number, and contact person of the facility.
- To minimize worker and public health and safety risks from project construction and closure, all construction and closure work must be done using qualified personnel trained in the proper use of construction equipment, including all appropriate safety precautions. Additionally, all activities must be conducted in a safe manner in accordance with the standards specified in OSHA regulations.
- Appropriate signage and barriers shall be in place prior to construction activities in order to alert pedestrians and motorists of project activities and traffic pattern changes. The contractor will implement traffic control measures, as necessary. This shall include 24-hour emergency contact information for JDEC.

- JDEC is responsible for maintaining construction site perimeter fencing where possible.
- JDEC and its contractor(s) must take all reasonable precautions to control construction site access during project implementation, including posting appropriate signage and fencing, where possible, to minimize foreseeable potential public safety concerns. All activities shall be conducted in a safe manner in accordance with OSHA work zone traffic safety requirements. Truck and equipment routes must be kept free of construction debris.
- JDEC and its contractor(s) are responsible for implementing all traffic control and warning in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), including placing signs and signals in advance of construction activities in order to alert pedestrians and motorists of the upcoming work and traffic pattern changes.
- Avoid engaging in construction activities within 660 feet of a bald or golden eagle nest during nesting and fledging where there is no visual buffer or 330 feet where there is a visual buffer, as nesting eagles are quite sensitive to human activities during these times.
- JDEC will perform all Treatment Measures identified by FEMA in consultation with the State Historic Preservation Office (SHPO) and other consulting parties through the Section 106 review to offset any adverse effects.
- JDEC will implement an Inadvertent Discovery Clause to account for unanticipated discoveries. It shall read: If during the course of work, archaeological artifacts (prehistoric or historic) are discovered, JDEC shall stop work in the vicinity of the discovery and take all reasonable measures to avoid or minimize harm to the finds. JDEC shall inform their PA contacts at FEMA, who will in turn contact FEMA Historic Preservation (HP) staff. JDEC will not proceed with work until FEMA HP completes consultation with the SHPO, and others as appropriate.
- JDEC will implement a Louisiana Unmarked Human Burial Sites Preservation Act discovery provision, as well. It shall read: If human bone or unmarked grave(s) are present within the project area, compliance with the Louisiana Unmarked Human Burial Sites Preservation Act (R.S. 8:671 et seq.) is required. JDEC shall notify the law enforcement agency of the jurisdiction where the remains are located within 24 hours of the discovery. JDEC shall also notify FEMA and the Louisiana Division of Archaeology at 225-342-8170 within 72 hours of the discovery.
- If the project results in a discharge of wastewater to an existing wastewater treatment system, that wastewater treatment system may need to modify its LPDES permit before accepting the additional wastewater.
- All precautions should be observed to control nonpoint source pollution from construction activities. LDEQ has stormwater general permits for construction areas equal to or greater than one acre. It is recommended that you contact the LDEQ Water Permits Division at (225) 219-9371 to determine if your proposed project requires a permit.
- JDEC is required to protect existing individual trees through project design and implementation. If tree removal is unavoidable, the Subrecipient is required to plant two new trees for every one removed.
- Follow all applicable BMPs during pre-construction and construction activities.

CONCLUSION

Based on the findings of the PEA, coordination with the appropriate agencies, comments from the public, and adherence to the project conditions set forth in this Finding of No Significant Impact (FONSI), FEMA has determined that the proposed project qualifies as a major federal action that will not significantly affect the quality of the natural and human environment, nor does it have the potential for significant cumulative effects. As a result of this FONSI, an EIS will not be prepared (FEMA Instruction 108-1-1) and the Proposed Project as described in the attached PEA may proceed.

APPROVAL AND ENDORSEMENT

_____ Date _____

Kevin Jaynes

Regional Environmental Officer

FEMA Region 6

_____ Date _____

Traci L. Brasher

Recovery Division Director

FEMA Region 6