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Cameron Extension Project

Environmental Assessment



Washington, DC 20426

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TECHNICAL ACRONYMS AND ABBREVIATIONS

APE	area of potential effect
ATWS	additional temporary workspace
CAA	Clean Air Act
CEA	Categorical Exclusion Agreement
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	carbon monoxide
Commission	Federal Energy Regulatory Commission
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
dBA	decibels on the A-weighted scale
DOT	U.S. Department of Transportation
EA	environmental assessment
ESA	Endangered Species Act
EI	environmental inspector
EO	Executive Order
ESCP	Erosion and Sediment Control Plan
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FWS	U.S. Fish and Wildlife Service
g	Gravity
GHG	greenhouse gas
GWP	global warming potential
HAP	hazardous air pollutant
hp	Horsepower
HUC	Hydrologic Unit Code
JPA	Join Permit Application
L _{eq}	24-hour equivalent sound level
L _{dn}	day-night sound level
LDEQ	Louisiana Department of Environmental Quality
LDWF	Louisiana Department of Wildlife and Fisheries
LDNR	Louisiana Department of Natural Resources
LNG	Liquified Natural Gas
M&R	meter and regulatory
MBTA	Migratory Bird Treaty Act
MP	Milepost

NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
Momentum	Momentum Midstream, LLC
NGA	Natural Gas Act
NNSR	Nonattainment New Source Review
NOI	<i>Notice of Intent to Prepare an Environmental Assessment for the Proposed Cameron Extension Project and Request for Comments on Environmental Issues</i>
NO _x	nitrogen oxides
NRCS	Natural Resources Conservation Service
NSA	noise sensitive area
NSR	New Source Review
OCM	LDNR Office of Coastal Management
OEP	Office of Energy Projects
PEM	palustrine emergent wetland
PM _{2.5}	particulate matter less than or equal to 2.5 microns in aerodynamic diameter
PM ₁₀	particulate matter less than or equal to 10 microns in aerodynamic diameter
Plan	FERC's <i>Upland Erosion Control, Revegetation, and Maintenance Plan</i>
Procedures	FERC's <i>Wetland and Waterbody Construction and Mitigation Procedures</i>
Project	Cameron Extension Project
PSD	Prevention of Significant Deterioration
PSS	Palustrine scrub/shrub wetland
Secretary	Secretary of the Commission
SHPO	State Historic Preservation Office
SO ₂	sulfur dioxide
SPCC Plan	Spill Prevention, Control, and Countermeasure Plan
Texas Eastern	Texas Eastern Transmission, L.P.
TransCameron	TransCameron, LLC
Trunkline	Trunkline Gas Company, LLC
tpy	tons per year
USACE	U.S. Army Corps of Engineers
USGS	U. S. Geological Survey
USEPA	U.S. Environmental Protection Agency
Venture Global	Venture Global Calcasieu Pass, LLC
VOC	volatile organic compounds

A. PROPOSED ACTION

1.0 INTRODUCTION

On September 26, 2019, Texas Eastern Transmission, L.P. (Texas Eastern) filed an application with the Federal Energy Regulatory Commission (FERC or Commission) in Docket No. CP19-512-000 for authorization under section 7(c) of the Natural Gas Act (NGA)¹ to construct and operate certain natural gas facilities in Beauregard, Calcasieu, Cameron, and Jefferson Davis Parishes, Louisiana. The proposed project is known as the Cameron Extension Project (Project).

We² prepared this environmental assessment (EA) in compliance with the requirements of the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality's (CEQ) regulations for implementing NEPA (Title 40 of the Code of Federal Regulations [CFR], Parts 1500-1508 [40 CFR 1500-1508]), and the Commission's regulations for implementing NEPA (18 CFR 380). The assessment of environmental impacts is an important and integral part of the Commission's decision-making process. As such, we prepared this EA to assess the environmental impacts that would likely occur as a result of the proposed Project. We have developed and incorporated measures into this EA that we believe would appropriately and reasonably avoid, minimize, or mitigate environmental impacts associated with the Project activities.

Texas Eastern proposes to construct a new greenfield Compressor Station (East Calcasieu Compressor Station) in Calcasieu Parish, Louisiana. The new Compressor Station is comprised of one 30,000 ISO-rated horsepower (hp), natural gas-driven turbine compressor unit and related appurtenances. Additionally, the Project would consist of the following new facilities:

- a new delivery meter and regulatory (M&R) station and related facilities, including 0.2 mile of 30-inch-diameter piping to interconnect with TransCameron, LLC's (TransCameron) pipeline system in Cameron Parish, Louisiana;
- a receipt M&R Station and related facilities at a new interconnect with Momentum Midstream, LLC (Momentum) in Beauregard Parish, Louisiana;
- a bi-directional M&R Station and related facilities at a new interconnect with Trunkline Gas Company, LLC(Trunkline) in Jefferson Davis Parish, Louisiana;³

¹ Title 15 of the U.S. Code, section 717(b)(c) (2018).

² "We," "us," and "our" refer to the environmental staff of the Office of Energy Projects.

³ The Momentum and Trunkline M&R Stations are adjacent to existing Gillis Compressor Station and Iowa Plant facilities.

- equipment, including a filter separator and regulator at the existing Gillis Compressor Station in Beauregard Parish, Louisiana;
- modifications to existing pig launcher and receiver facilities,⁴ as well as two new bypass facilities⁵ at existing sites along Texas Eastern's Line 41 in Cameron (Grand Chenier Compressor Station), Beauregard (Gillis Compressor Station), and Jefferson Davis (Iowa Plant) Parishes, Louisiana; and
- other related auxiliary facilities and appurtenances.

The general Project area is shown in figure 1. Appendix A includes a U.S. Geological Survey (USGS) topographic map and detailed location map of the Project.

2.0 PROJECT PURPOSE AND NEED

Texas Eastern states that construction and operation of its new East Calcasieu Compressor Station would provide Venture Global Calcasieu Pass, LLC (Venture Global) with direct access to reliable sources of natural gas supplies from an interconnection between Texas Eastern's mainline and Line 41 with Trunkline and Momentum for delivery to TransCameron's East Lateral, with ultimate delivery to Venture Global's Calcasieu Pass Export Terminal. Texas Eastern would also reverse natural gas flow on a portion of its Line 41 mainline to provide natural gas from various sources to serve Venture Global's Calcasieu Pass Terminal, a liquefied natural gas (LNG) export terminal project currently under construction in Cameron Parish, Louisiana.⁶ Texas Eastern proposes to provide 750 million cubic feet per day of firm transportation service to Venture Global.

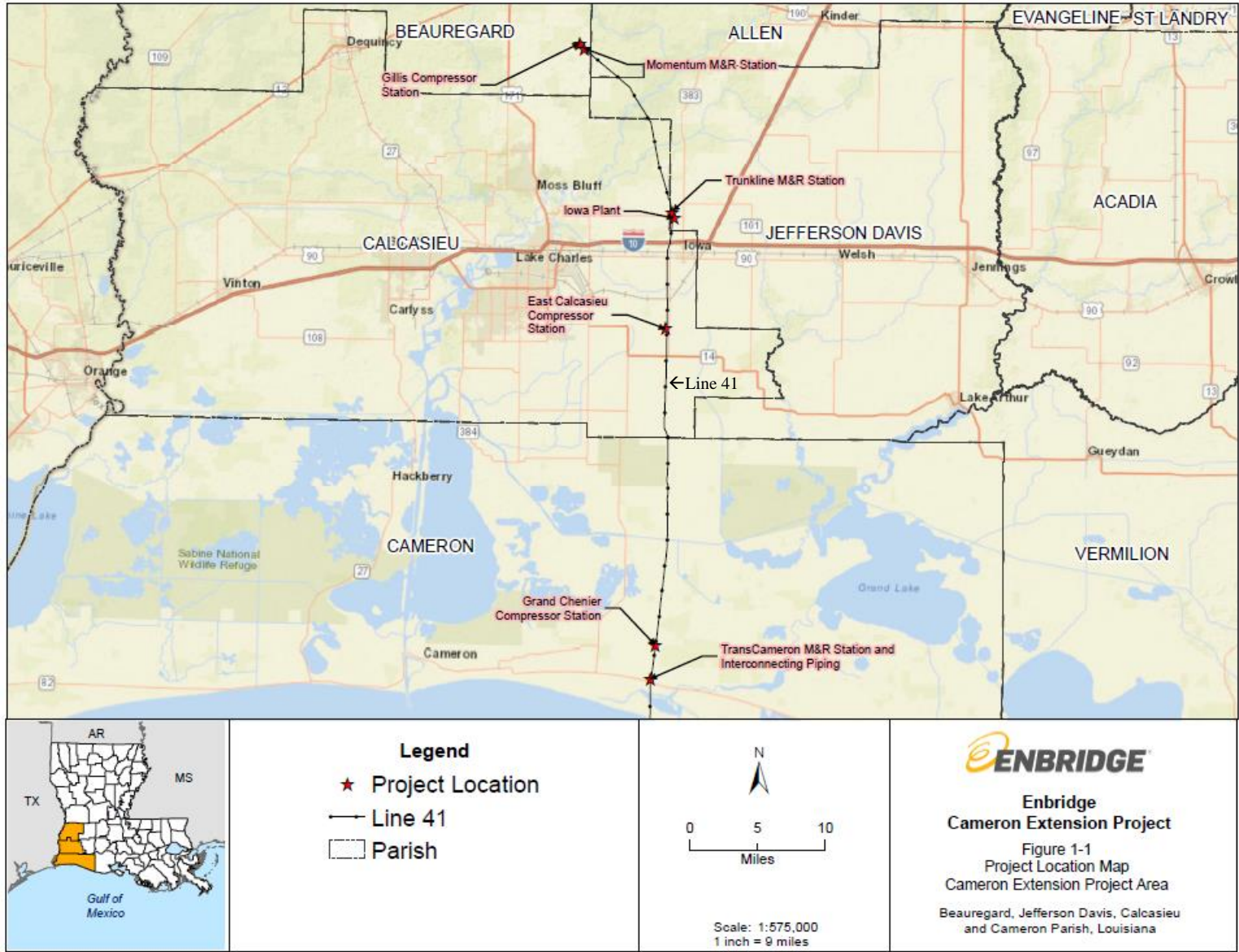
The Commission is an independent regulatory agency and conducts a complete independent review of project proposals, including an environmental review of the proposed facilities. Under Section 7(c) of the NGA, the Commission determines whether interstate natural gas transportation facilities are in the public convenience and necessity and, if so, grants a Certificate of Public Convenience and Necessity to construct and operate them. The Commission bases its decisions on both economic issues, including need, and environmental impacts.

⁴ A "pig" is a tool that the pipeline company inserts into and pushes through the pipeline for cleaning the pipeline, conducting internal inspections, or other purposes.

⁵ By-pass facilities are within the Grand Chenier Compressor Station and the Iowa Plant.

⁶ Venture Global received FERC authorization for its export terminal and associated facilities on February 21, 2019. The February 21, 2019 Order also certificated the TransCameron East Lateral, an associated 23.4-mile-long, 42-inch-diameter interstate pipeline and related facilities extending from the existing Grand Chenier Compressor Station in Cameron Parish, Louisiana to the proposed export terminal, with an anticipated capacity of up to 2.1 billion cubic feet per day of natural gas transportation service.

Figure 1 Project Overview Map



Z:\PROJECTS\Enbridge\ENB2018-0005 Cameron Lateral Expansion\GIS\MXD\RR\Figure 1-1 Project Location Map.mxd

3.0 SCOPE OF THIS ENVIRONMENTAL ASSESSMENT

The topics addressed in this EA include geology, soils, groundwater, surface waters, wetlands, fisheries, wildlife, vegetation, species of special concern, land use, recreation, visual impacts, socioeconomics, cultural resources, air quality, noise, reliability and safety, cumulative impacts, and alternatives. This EA describes the affected environment as it currently exists and the environmental consequences of the Project and compares the Project's potential impact with that of various alternatives. This EA also presents our recommended mitigation measures.

As the lead federal agency for the Project, FERC is required to comply with section 7 of the Endangered Species Act (ESA), as amended, and section 106 of the National Historic Preservation Act (NHPA). These statutes have been considered in the preparation of this EA. In addition to FERC, other federal, state, and local agencies may use this EA in approving or issuing permits for all or part of the Project. Permits, approvals, and consultations for the Project are discussed in section A.9 of this EA.

4.0 PUBLIC REVIEW AND COMMENT

On November 8, 2019, the Commission issued a *Notice of Intent to Prepare an Environmental Assessment for the Proposed Cameron Extension Project and Request for Comments on Environmental Issues* (NOI). The NOI was sent to affected landowners; federal, state, and local government agencies; elected officials; Native American tribes; and local libraries and newspapers. Comments were requested from the public on specific concerns about the Project or environmental issues that should be considered during the preparation of the EA.

The Commission received comment letters from the Choctaw Nation of Oklahoma and the Louisiana Department of Wildlife and Fisheries (LDWF). No other comments have been received with regard to this Project. The Choctaw Nation of Oklahoma requested a copy of the EA once completed, cultural resources survey results, and GIS shapefiles. On November 25, 2019, Texas Eastern submitted the requested survey results and GIS shapefiles to the Choctaw Nation of Oklahoma. The LDWF comment stated its willingness to participate in our environmental review process to minimize to the greatest extent practicable project impacts on wetlands and other fish and wildlife resources. Section B discusses Project impacts on wetlands, fisheries, and wildlife resources, including Texas Eastern's avoidance and minimization measures associated with this Project.

5.0 LAND REQUIREMENTS

Construction would disturb 156.9 acres of which Texas Eastern would permanently impact 10.2 by facility operation. While the new fenced facility boundary for the greenfield Compressor Station (East Calcasieu Compressor Station) would include 19.3 acres of land,

only 4.2 acres would be permanently changed to aboveground and graveled Project facilities (including new permanent access roads). Permanent wetland impacts are discussed further in section B.3.4. The remaining 15.1 acres within the facility fenceline would be allowed to revert to pre-construction conditions. All other Project facilities would impact about 6 acres during operation. No contractor yards or staging areas are proposed for this Project. Land requirements are summarized in table 1 below.

Table 1 Land Requirements for the Proposed Project^a				
Facility	Milepost^b	Temporary Impact (acres)	Permanent/Operational Impact (acres)^c	Location (Parish)
Pipeline Facilities				
TransCameron M&R interconnecting piping ^d	49.43	10.0	1.5	Cameron
New Aboveground Facilities^e				
Momentum M&R Station	0.57	4.7	1.2	Beauregard
Trunkline M&R Station	14.67	5.2	1.5	Jefferson Davis
East Calcasieu Compressor Station	23.43	51.8	4.2 ^f	Calcasieu
TransCameron M&R Station	49.43	-- ^g	1.8	Cameron
Modified Aboveground Facilities^h				
Gillis Compressor Station ⁱ	0.02	39.0	0.0	Beauregard
Iowa Plant	15.27	32.9	0.0	Jefferson Davis
Grand Chenier Compressor Station ⁱ	46.92	13.2	0.0	Cameron
Project Total	--	156.9	10.2	--
^a Temporary impacts include construction and permanent/operational acreage impacts. Addends may not equal the sums due to rounding. ^b Mileposts are along Texas Eastern's existing pipeline. ^c Acreage includes land that would be permanently affected by operation and maintenance. ^d Includes additional temporary workspace (ATWS), permanent new access road, existing temporary access road, and workspace for the TransCameron M&R Station. ^e Acreages include associated temporary and permanent access roads. ^f While the fenced facility boundary for the East Calcasieu Compressor Station would include 19.3 acres of land, only 3.9 acres would be permanently encumbered by Project facilities; 0.3 acre outside the facility boundary would also be encumbered by the permanent access roads. ^g Included with the acreage for the TransCameron M&R interconnect piping. ^h The workspace for the existing aboveground facilities includes existing access driveways. No new access roads are proposed for the existing aboveground facilities. ⁱ All construction needed to complete the work at this location would occur within existing developed facility site.				

5.1. PIPELINE FACILITIES

The Project would include approximately 0.2 mile of 30-inch-diameter interconnect piping beginning at milepost (MP) 49.43 on Texas Eastern's existing Line 41 (south of the Grand Chenier Compressor Station) and would interconnect with TransCameron's East Lateral. As discussed in greater detail below, Texas Eastern would install about 85 feet of the interconnect piping above-grade to accommodate foreign pipeline crossings. A cathodic protection system would also be installed on this piping within the permanent right-of-way to protect the pipe from corrosion.

Texas Eastern would require a 100-foot-wide construction right-of-way and 50-foot-wide permanent right-of-way along the length of the TransCameron M&R interconnect piping. The size of the equipment necessary to safely install the 30-inch-diameter interconnecting piping, the trench width required, and room needed for temporary trench spoil and storage, and associated pipeline support facilities were factors used for Texas Eastern to determine the minimum right-of-way width.

One 1.8-acre additional temporary workspace (ATWS) is required along the piping route for spoil storage and for materials and equipment staging. The use of ATWS would be limited to the duration of construction and to conduct additional post-construction restoration or corrective actions that may be required. Following construction, Texas Eastern would restore the temporary construction right-of-way and ATWS and allow them to return to previous use. The ATWS is proposed within wetlands. Justification for the placement of ATWS in wetlands, which is an alternative measure to FERC's *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures), is provided in table 6 of section 3.4.1.

The Project would also use a portion of Texas Eastern's existing Line 41 mainline from MP 46.92 to MP 49.43 that is currently out of service, as part of the natural gas transportation pathway that would connect the existing Line 41 to the TransCameron East Lateral. No ground disturbance is proposed to use this existing segment of pipe; therefore, we conclude that it would not result in any environmental impacts and this segment is not discussed further within this EA.

5.2. ABOVEGROUND FACILITIES

The Project aboveground facilities include one new compressor station on land that Texas Eastern has an option to purchase from the landowner in Calcasieu Parish, Louisiana, which includes pig launcher/receiver facilities. Texas Eastern anticipates completion of land acquisition for the East Calcasieu Compressor Station in the first quarter of 2020. The new East Calcasieu Compressor Station would include one 30,000 ISO-rated hp gas-driven compressor unit, gas coolers, filter separators, an electrical/control building, 100-foot-high

communication tower, and other buildings and appurtenances. Texas Eastern would install barbwire fencing around the entire parcel containing the compressor station.

The Project would also include construction of three new M&R Stations. The Momentum, Trunkline, and TransCameron M&R Stations would be at interconnects with the respective companies within Beauregard, Jefferson Davis and Cameron Parishes, Louisiana. The Momentum and Trunkline M&R Stations would be installed at ground level on poured concrete foundations; however, the TransCameron M&R Station is within the 100-year floodplain as determined by the Federal Emergency Management Agency (FEMA) and is described further in section B.1.3.4 of this EA.

Texas Eastern would deliver gas to TransCameron's East Lateral pipeline at the terminus of Texas Eastern's TransCameron M&R interconnect piping. The TransCameron M&R interconnecting piping would cross three existing utility pipelines and would tie into TransCameron's East Lateral. Otherwise, the interconnect piping would not be collocated with other utilities. Given the required depth of cover of Texas Eastern's proposed interconnect piping as a result of these foreign lines (a minimum of 13 feet), the proximity of the interconnect tie-in point to the other utilities, as well as the location of the pipelines within wetlands and the saturated nature of the soils at this location, Texas Eastern plans to install the TransCameron M&R interconnect piping above-grade for 85 feet. The pipeline would be supported by approximately five concrete pilings that would be spaced about thirty feet apart and 100 feet deep. The above-grade pipeline segment would be within a new graveled area adjacent to TransCameron's fenced aboveground interconnect facility.

The remaining three existing aboveground facilities proposed for modification as part of the Project are in Beauregard (existing Gillis Compressor Station), Jefferson Davis (existing Iowa Plant), and Cameron (existing grand Chenier Compressor Station) Parishes in Louisiana.

5.3. ACCESS ROADS

Texas Eastern identified two existing temporary access roads and six new permanent access roads for the proposed interconnect pipeline and aboveground facilities. Vehicular travel along the permanent right-of-way would be restricted where above-grade piping is installed and TransCameron's interconnect impedes access. During construction, the TransCameron M&R interconnecting piping would be accessed via an existing, temporary access road. A new permanent road would be used to access the TransCameron M&R Station during operation. Table 2 summarizes non-public access roads proposed for the Project.

<p align="center">Table 2 Access Roads Proposed for Use on the Project ^a</p>				
Access Road	Temporary/Permanent (proposed width)	Existing (current width) or new	Modifications	Length (feet)
Pipeline Facilities				
TransCameron M&R interconnect piping temporary access	Temporary (25 feet)	Existing (15 feet)	Timber mats in wetlands / saturated soils	1,540
TransCameron M&R interconnect piping permanent access	Permanent (20 feet)	New	Clear, grade, install gravel	225
Aboveground Facilities				
Momentum M&R Station Permanent Access	Permanent (20 feet)	New	Clear, grade, install gravel	255
Trunkline M&R Station Permanent Access	Permanent (30 feet)	New	Clear, grade, install gravel	674
Trunkline M&R Station Temporary Access	Temporary (25 feet)	Partially Existing (12 feet) / Partially New	Trim and grade open land; side-trimming as necessary in forested land	1,627 (926 feet existing; 701 feet new)
East Calcasieu Compressor Station Access 1	Permanent (25 feet)	New	Clear, grade, install asphalt	148
East Calcasieu Compressor Station Access 2	Permanent (25 feet)	New	Clear, grade, install asphalt	386
TransCameron M&R Station Permanent Access	Permanent (20 feet)	New	Clear, grade, install gravel	353
^a The Gillis Compressor Station, Iowa Plant, and Grand Chenier Compressor Station would be accessed via existing roads and driveways; no new or modified roads are proposed.				

Texas Eastern would use existing public roadways and driveways that are currently used to access the Gillis Compressor Station, Iowa Plant, and Grand Chenier Compressor Station. No improvements or modifications to these roadways or existing driveways would be required as part of the Project.

6.0 CONSTRUCTION SCHEDULE

Texas Eastern anticipates construction would commence by December 2020. Construction of the TransCameron M&R interconnect piping would require approximately 4 months. Construction of the proposed new East Calcasieu Compressor Station would require approximately 10 months. The remaining facilities would require limited time at each site, totaling about 8 months. Texas Eastern anticipates placing the facilities into service by November 1, 2021.

7.0 CONSTRUCTION AND OPERATION PROCEDURES

Texas Eastern would design, construct, test, operate, and maintain the proposed facilities to conform with or exceed federal, state, and local requirements, including the U.S. Department of Transportation's (DOT) Minimum Safety Standards in 49 CFR 192, *Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards*, and 18 CFR 380.15, *Siting and Maintenance Requirements*.

During construction and restoration of the Project, Texas Eastern would implement the measures contained in the FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan)⁷ and Procedures,⁸ in addition to other federal, state, and local permit requirements. Texas Eastern would also implement the measures contained in its following plans:⁹

- Spill Prevention, Control, and Countermeasure Plan (SPCC Plan);
- Waste Management Plan;
- Unanticipated Discovery of Contaminated Materials Plan;
- Plan for the Unanticipated Discovery of Historic Properties and Human Remains During Construction;
- Erosion and Sediment Control Plan (ESCP); and
- Dust Control Plan.

FERC's Plan and Procedures are baseline construction and mitigation measures developed to minimize the potential environmental impacts of construction on upland areas, wetlands, and waterbodies. Texas Eastern requested modifications from the FERC Procedures for six instances, regarding ATWS closer than 50 feet from wetland, pipeline right-of-way greater than 75 feet wide in wetlands, an aboveground facility within wetlands, and three access roads within wetlands. Further details of the deviations are discussed in section B.3.4.1.

Texas Eastern would employ an environmental inspector (EI) to oversee and document environmental compliance. All Project-related construction personnel would be informed of the EI's authority and would receive job-appropriate environmental training prior to commencement of work on the Project. Depending on the progress of the construction, additional EIs may be added as necessary.

Prior to commencement of any construction-related activities, survey crews would stake the limits of the construction work areas and access roads. Prior to construction, Texas

⁷ The FERC Plan can be viewed on the FERC website <http://www.ferc.gov/industries/gas/enviro/plan.pdf>.

⁸ The FERC Procedures can be viewed on the FERC website <https://www.ferc.gov/industries/gas/enviro/procedures.pdf>.

⁹ These plans can be viewed in Texas Eastern's application filed on September 26, 2019 in Docket No. CP19-512-000.

Eastern would avoid sensitive areas by flagging or fencing the resource, as appropriate. Texas Eastern would contact the national “one-call” system to identify and mark buried utility lines prior to ground disturbance. Construction work areas would be cleared of existing vegetation and graded, as necessary, to create level surfaces for the movement of construction vehicles. In accordance with the FERC Plan, temporary erosion and sediment control measures would be installed following initial ground disturbance.

During Project operation, Texas Eastern would operate and maintain the proposed facilities in compliance with the Commission’s guidance in 18 CFR 380.15 and the maintenance requirements in the FERC’s Plan and Procedures. Project facilities would be marked and identified in accordance with applicable DOT regulations. In accordance with 49 CFR 192, the facilities would be inspected for leaks as part of scheduled operations and maintenance.

7.1. PIPELINE FACILITY CONSTRUCTION

Texas Eastern would install the pipeline facilities below ground using conventional construction methods. This typically consists of a sequential process of surveying, staking, clearing, grading, excavating, pipe stringing and bending, pipe assembly, welding, lowering-in and backfilling, hydrostatic testing, cleanup, restoration, and revegetation. Crews working on each stage of construction generally proceed along the pipeline right-of-way in one continuous assembly-line type operation. The entire process would be coordinated to minimize the total time a tract of land would be disturbed and, therefore, exposed to erosion and temporarily precluded from normal use. The entire width of the construction right-of-way, including the temporary construction workspace, would be rough graded as necessary to allow for safe passage of equipment and to prepare a work surface for pipeline installation activities. However, rootstock would be left in the temporary workspace wherever possible to encourage natural revegetation and construction across wetlands would be performed in accordance with FERC Procedures. No trenchless construction methods, such as conventional bore or horizontal direction drill, are proposed for the Project. In accordance with the FERC Plan, following construction, Texas Eastern would grade the disturbed temporary work areas to match pre-construction contours and drainage patterns, and reseed the areas within six working days of final grading. Texas Eastern would leave temporary erosion control measures in place or replace them with interim erosion control measures until sufficient vegetative cover has re-established.

7.1.1. Waterbody Crossings and Construction Methods

The TransCameron M&R interconnect piping would not cross any waterbodies; therefore, no direct impacts on waterbodies are anticipated from construction of the pipeline. Where piping modifications are proposed at Texas Eastern’s existing Grand Chenier Compressor Station, a dry construction method (dam-and-pump or flume) would be used to temporarily divert flow through the perennial waterbody where it is parallel to planned

excavation. The integrity of the waterbody banks at this location has been compromised by nutria herbivory, and the temporary diversion of flow through a flume or hoses from a pump where the waterbody parallels planned excavations would minimize the potential for collapse of the waterbody banks due to trenching and would reduce the potential for the waterbody to drain into the excavated trench. This construction method would also reduce the need for trench dewatering. Texas Eastern would minimize waterbody bank disturbance to the extent practicable and conduct all work in accordance with applicable state and federal permit requirements. The waterbody diversion within the Grand Chenier Compressor Station facility boundary would be conducted in accordance with the measures for dry-ditch crossing methods identified in the FERC Procedures.

The permanent access road at the Momentum M&R Station would cross one unnamed ditch via culvert. The temporary and permanent access roads at the Trunkline M&R Station would also cross unnamed tributaries (ditches) via culverts. Where one ditch would be crossed by the access driveway for the proposed East Calcasieu Compressor Station, Texas Eastern would install a culvert and erosion controls to minimize the potential for sedimentation. Texas Eastern would align culverts to prevent bank erosion and scour and maintain flow. The crossing would be installed in accordance with applicable permit conditions. Erosion controls would be installed to protect the perennial stream that is parallel to the existing temporary access for the TransCameron M&R interconnect piping. Further details regarding waterbody impacts and mitigation are discussed in section B.3.3. Impacts on aquatic resources at these crossings are further discussed in section B.4.1.

7.1.2. Wetland Crossings and Construction Methods

Construction methods would minimize the extent and time that construction equipment operates in wetland areas. In unsaturated wetlands, a maximum of 12 inches of wetland soil over the trenchline would be segregated and stockpiled separately from the subsoil. Trench spoils would be temporarily piled in a ridge along the pipeline trench. Texas Eastern would leave gaps in the spoil pile(s) at appropriate intervals to provide for natural circulation or drainage of water. Where practicable, Texas Eastern would assemble the pipeline in an upland area while the trench is excavated.

Texas Eastern states wetland soils along the proposed pipeline are expected to be saturated during construction. In the event that wetland soils are inundated or saturated, topsoil would not be segregated and equipment working in the wetland would be supported by timber mats. Construction in wetlands would be in accordance with the FERC Procedures.

One ATWS is proposed for the Project. The ATWS is in addition to the nominal construction right-of-way and may be used for the assembly and fabrication of the pipe section that would cross one wetland area. Because of the extent of wetlands along the proposed pipeline, as identified in table appendix B table B-2, the ATWS proposed for

construction of the pipeline facilities is within wetlands. To limit impacts on wetlands, Texas Eastern has limited the work area to the minimum size necessary to safely install the interconnecting piping.

As stated above, Texas Eastern has submitted deviations to the FERC Procedures which are further discussed in section B.3.4.1.

7.2. ABOVEGROUND FACILITY CONSTRUCTION

The Project's aboveground facilities would be constructed and maintained in compliance with federal regulations and guidelines and in accordance with the specific requirements of applicable federal and state approvals. The construction and restoration methods and procedures in the FERC Plan and Procedures and Texas Eastern's ESCP would be followed, as applicable, for the aboveground facilities. The Momentum and Trunkline M&R Stations would be installed at ground-level on poured concrete foundations; however, the TransCameron M&R Station is within a 100-year floodplain and would be installed on a 20-foot-high platform to minimize the potential for floodplain impacts. Texas Eastern would design the access roads at the East Calcasieu Compressor Station using culverts to ensure that the on-site wetlands are not hydrologically isolated. Further details regarding impacts from aboveground facility construction are discussed in section B.

Where wetlands are within the construction workspace for the Iowa Plant, East Calcasieu Compressor Station, and Grand Chenier Compressor Station, Texas Eastern would use low ground-weight equipment or timber mats, equipment mats, or terra mats to reduce potential rutting in the wetlands where soils are saturated. No excavation in wetlands is proposed for modification of the existing facilities. Further details regarding wetland crossing impacts and mitigation are discussed in section B.3.4.

8.0 NON-JURISDICTIONAL FACILITIES

Under Section 7 of the NGA, the Commission is required to consider, as part of the decision to approve facilities under its jurisdiction, all factors bearing on the public interest. Occasionally, proposed projects have associated facilities that do not come under the jurisdiction of the Commission. These "non-jurisdictional" facilities may be integral to the need for the proposed facilities, such as a power plant at the end of a jurisdictional pipeline, or they may be minor, non-integral components of the facilities under the Commission's jurisdiction.

Non-jurisdictional facilities associated with the Project include Momentum's planned 36-inch-diameter natural gas pipeline to transport natural gas to various customers within the state of Louisiana. Momentum's connection to Texas Eastern would be at the proposed Momentum M&R Station.

In addition, a new power, water, and sewer line would be installed to service the new East Calcasieu Compressor Station. The new power line would be about 0.3-mile-long along the northern boundary of the proposed East Calcasieu Compressor Station and would require the installation of a yet-to-be-determined number of new power poles. The power line would connect to the transformer and electrical control building planned for the western side of the East Calcasieu Compressor Station. All work required to install non-jurisdictional facilities would be conducted in accordance with applicable state and federal permit conditions, and installation of the power line would adhere to the measures in Entergy's Avian Protection Plan. Design of the new, buried sewer and water line extensions for the Project is pending. Non-jurisdictional facilities are addressed in our Cumulative Impacts analysis in section B.11.

9.0 PERMITS AND CONSULTATIONS

Table 3 provides a list of known federal, state, and local permits for the Project, as well as any responses that have been received to date. Texas Eastern would be responsible for obtaining all permits and approvals required for the Project, regardless of their listing in table 3.

Table 3		
Anticipated Environmental Permits, Reviews, and Consultations for the Project		
Agency	Permit/Clearance	Status
Federal		
Federal Energy Regulatory Commission	Certificate of Public Convenience and Necessity	Application filed September 2019
United States Army Corps of Engineers	Section 404 of the Clean Water Act (Title 33 of the U.S. Code, Section 1344)	Joint Permit Application (JPA) submitted December 17, 2019.
United States Department of the Interior, United States Fish and Wildlife Service	Consultation under Section 7 of the Endangered Species Act; the Migratory Bird Treaty Act; the Bald and Golden Eagle Protection Act; and the Fish and Wildlife Coordination Act (Title 16 of the U.S. Code, Sections 661 et seq.).	Consultation initiated June 2019; documentation that consultation is complete under Section 7 ESA provided November 22, 2019.
State of Louisiana		
Louisiana Department of Environmental Quality (LDEQ)	LDEQ Minor Source Air Permit	Air Permit Application submitted February 27, 2020.
LDEQ	Section 401 of the Clean Water Act, Water Quality Certification	JPA submitted December 17, 2019.
LDEQ	Louisiana Pollutant Discharge Elimination System General Permit LAG670000 for Hydrostatic Testing Discharge.	Anticipated receipt by the second quarter of 2021.
Louisiana Department of Historic Preservation	Section 106 of the National Historic Preservation Act review, consultation, and comment on cultural resources studies and mitigation plans.	Consultation initiated August 12, 2019 and concurrence issued September 13, 2019.
Louisiana Department of Natural Resources, Office of Coastal Management	Coastal Use Permit	JPA submitted December 17, 2019.
Louisiana Department of Wildlife and Fisheries	Review and consultation regarding state-listed threatened and endangered species.	Consultation initiated June 2019; consultation ongoing.

B. ENVIRONMENTAL ANALYSIS

The following sections discuss the Project's potential direct and indirect impacts on environmental resources. When considering the environmental consequences of the Project, the duration and significance of any potential impacts are described below according to the following four levels: temporary, short-term, long-term, and permanent. Temporary impacts generally occur during construction, with the resources returning to pre-construction conditions almost immediately. Short-term impacts could continue for up to three years following construction. Long-term impacts would require more than three years to recover, but eventually would recover to pre-construction conditions. Permanent impacts are defined as activities that modify resources to the extent that they may not return to pre-construction conditions during the life of the Project, such as with the construction of an aboveground facility. An impact would be considered significant if it would result in a substantial adverse change in the physical environment. Our analysis also addresses direct and indirect effects collectively by resource.

The analysis contained in this EA is based upon Texas Eastern's application and supplemental filings and our experience with the construction and operation of natural gas infrastructure. However, if the Project is approved and proceeds to the construction phase, it is not uncommon for a project proponent to require modifications (e.g., minor changes in workspace configurations). These changes are often identified by a company once on-the-ground implementation work is initiated. Any Project modifications would be subject to review and approval from FERC's Director of the Office of Energy Projects (OEP) and any other permitting/authorizing agencies with jurisdiction.

1.0 GEOLOGY

1.1. GEOLOGIC CONDITIONS

The Project would be within the West Gulf Coastal Plain, which is characterized by nearly level to moderately rolling irregular plains formed by the deposition and uplift of continental marine sediments (The Nature Conservancy, 2003). The topography at each site consists of relatively flat terrain with minimal relief. Site elevations range from 0 to approximately 67 feet above mean sea level. Subsurface geology in the Project area includes sediments primarily consisting of clay, silt, and sand, with minor gravel.

1.2. MINERAL RESOURCES

Louisiana Department of Natural Resources (LDNR) Strategic Online Natural Resource Information System (LDNR 2019), the USGS Mineral Resource Data System (USGS 2011a), aerial imagery, and topographic mapping did not identify active, historic, or proposed surface or subsurface mines within 0.25 mile of proposed workspaces. This review did identify 34 oil and gas wells within 0.25 mile of the Project areas; however,

none of these are active (LDNR 2019). Of these wells, nine are within 100 feet of Project workspaces, including seven within proposed workspaces. Five wells are within the existing Iowa Plant, and two wells are at new facility sites (the TransCameron M&R Station and interconnect piping). Wells within Project workspaces are plugged or shut-in for future use; Texas Eastern did not identify visible aboveground facilities associated with any of these wells during site surveys or review of aerial imagery.

Based on the distance from Project areas to active mineral extraction and the shut-in nature of the existing facilities, we conclude that the Project would not significantly impact the availability of, or access to, mineral resources.

1.3. GEOLOGIC HAZARDS

Geologic hazards are natural, physical conditions that can result in damage to land and structures or injury to people. Such hazards typically are seismic-related, including earthquakes, surface faulting, and soil liquefaction. Additional geologic hazards discussed below include landslides, ground subsidence (including karst terrain), and flood hazards.

1.3.1. Seismicity

The shaking during an earthquake can be expressed in terms of the acceleration as a percent of gravity (g), and seismic risk can be quantified by the motions experienced at the ground surface or by structures during a given earthquake expressed in terms of g. For reference, a peak ground acceleration of 10 percent g (0.1g) is generally considered the minimum threshold for damage to older structures or structures not constructed to resist earthquakes. USGS National Seismic Hazard Probability Mapping shows that for the Project area, within a 50-year period, there is a 2 percent probability of an earthquake with an effective peak ground acceleration of 4 to 6 percent g; and a 10 percent probability of an earthquake with an effective peak ground acceleration of 1 to 2 percent g being exceeded (USGS 2018).

The Project would be within the Gulf-margin normal fault system, a belt of poorly defined, mostly seaward-facing normal faults that trend parallel to the Gulf Coast in westernmost Florida, southwestern Alabama, southern Mississippi, all of Louisiana and southernmost Arkansas, and eastern and southern Texas (USGS 2019a). Project facilities are not anticipated to be affected by faults given the nature of fault movement in the Project area (gradual creep) and the composition of sediments and rocks that underlie the fault system, which are likely unable to generate the energy required to produce significant seismic events (Wheeler and Heinrich 1998). Further, based on a review of the USGS Earthquake Archive search tool, no earthquakes with a magnitude greater than 1.0 on the Richter scale have occurred within 10 miles of any Project area from January 1, 1900 through December 2019 (USGS 2019b), and no mapped faults with surface expression cross proposed Project facilities (USGS, 2019c). Given these conditions, we

conclude that there is low potential for prolonged ground shaking, ground rupture, or soil liquefaction to occur or significantly impact Project facilities.

1.3.2. Landslide and Slope Stability

Project areas are on flat, coastal terrain; therefore, we conclude landslides would not pose a threat to Project facilities.

1.3.3. Ground Subsidence

Ground subsidence, involving the localized or regional lowering of the ground surface, may be caused by karst dissolution, sediment compaction due to oil, gas, and/or groundwater extraction, and underground mines. No karst terrain is present and the lithology that could lead to bedrock dissolution and karst development do not generally occur within any Project area. Further, active oil and gas extraction and subsurface mines were not identified within 0.25 mile of any Project area.

Subsidence issues from large-scale groundwater pumping and sea level rise have been prevalent and well documented along the Gulf Coast; however, there are no publicly available records of these events occurring in Beauregard or Jefferson Davis Parishes, or in Project areas in Calcasieu Parish (Louisiana State University 2015a; 2015b; and 2016). In Cameron Parish, subsidence from sea level rise is occurring county-wide at a rate of up to 25 millimeters per year (approximately 1 inch) (Louisiana State University 2015c). Subsidence along the Gulf Coast is generally a slow-acting process and rates tend to decrease inland.

In Louisiana, most sinkholes are precipitated by the anthropogenically-induced collapse of salt dome caverns. There is a known salt formation beneath the Iowa Plant and proposed Trunkline M&R Station (LDNR 2019; U.S. Department of the Interior 2019); however, this salt dome has not been mined. No other Project facilities have a known salt dome beneath them. Based on this assessment, we conclude that ground subsidence would not significantly impact the Project.

1.3.4. Flood Hazards

The Project could be impacted by flash flooding due to its proximity to streams and other nearby waterbodies and portions of the Project area would be within the 100-year floodplain as determined by FEMA. In addition, based on the distance between Project areas and the Gulf of Mexico, flooding associated with storm surges could occur at the facility sites in Cameron Parish.

Project activities associated with the proposed pipeline, Grand Chenier Compressor Station, and TransCameron M&R Station would be within the 100-year floodplain. All other Project facilities would be outside the 500-year floodplain (FEMA 2010a; 2010b; 2011; 2012). Piping modifications at the Grand Chenier Compressor

Station and the majority of the TransCameron M&R interconnect piping would be buried, surface contours and drainage patterns within construction workspaces would be returned as nearly as possible to original conditions, and all disturbed areas not encumbered by aboveground facilities, roads, or gravel would be revegetated.

About 85 feet of the TransCameron M&R interconnect piping would be installed on pilings elevated a minimum of one foot above the ground surface (which would allow hydrologic flow within wetland areas), and the permanent right-of-way under the pipe would be graveled. The TransCameron M&R Station would be installed on a 20-foot-high platform to minimize the potential for impacts by flooding. An estimated 1,799 cubic yards of gravel would be installed and an estimated 900 cubic yards of floodplain storage capacity would be displaced due to the installation of piles.

Graveled areas are not impervious to water infiltration, and the volume of impervious surfaces associated with installation of the aboveground facilities and access roads in floodplains would be permanent, but relatively minor when compared to the floodplain as a whole.

Based on the above analysis, we conclude that Project construction and operation would not significantly affect or be affected by geologic resources or hazards.

2.0 SOILS

Soil characteristics for the Project were assessed using the Natural Resources Conservation Service (NRCS) Soil Survey geographic database (NRCS 2019). Soils were evaluated according to the characteristics that could affect construction or increase the potential for soil impacts during construction or operation. These characteristics include farmland designation, compaction potential, highly erodible soils, revegetation potential, and the presence of shallow bedrock (see table 4). No Project area soils were classified as having a shallow depth to bedrock (bedrock within 60 inches of the ground surface). Additional soil-related issues considered in the analysis include soil contamination.

Table 4 Soil Limitations Impacted by Construction (acres)					
Facility	Hydric	Prime Farmland ^a	Compaction Prone ^b	High Erosion Potential	
				Water ^c	Wind ^d
TransCameron M&R Station, proposed pipeline, ATWS, and temporary access road	2.2	0	2.2	0	0.3
Gillis Compressor Station	0.4	38.7	0	39.0	0
Momentum M&R Station	0.5	4.3	0	4.7	0
Iowa Plant	0.1	32.9	0	32.9	0
Trunkline M&R Station	1.9	5.2	0	5.2	0
East Calcasieu Compressor Station	32.1	51.8	0	51.8	0
Grand Chenier Compressor Station	11.7	0	11.7	0	0
Project Totals ^e	48.8	132.9	13.9	133.6	0.3
^a Includes prime farmland, unique farmland, and farmland of statewide or local importance (per the NRCS). ^b Soils with a surface texture of sandy clay loam or finer and a drainage class of somewhat poorly drained to very poorly drained. ^c Based on K factor, slopes of each soil unit, and hazard of soil loss from off-road and off-trail areas after disturbance activities that expose the soil surface. ^d Wind erodibility group values of 1 and 2. ^e May not equal the sum of the addends due to rounding.					
Source: NRCS 2019					

2.1. PRIME FARMLAND

The U.S. Department of Agriculture defines prime farmland as land that has the best combination of physical and chemical characteristics for growing food, feed, forage, fiber, and oilseed crops. Unique farmland is land, other than prime farmland, that is used for production of specific high-value food and fiber crops. Soils that do not meet all of the requirements to be considered prime or unique farmland may be considered farmland of statewide or local importance if soils are capable of producing a high yield of crops when treated or managed according to accepted farming methods.

Based on NRCS information, the Project would disturb approximately 133 acres of prime farmland soils; however, the Gillis Compressor Station and Iowa Plant sites are within existing facilities where soils have already been permanently converted to industrial use. New, permanent impacts on prime farmland would be limited to a total of approximately 6.8 acres that would be converted to industrial use for operation of new aboveground facilities and associated access roads (1.1 acres at the Momentum M&R Station, 1.5 acres at the Trunkline M&R Station, and 4.2 acres at the East Calcasieu

Compressor Station). Areas of prime farmland that would be permanently converted are not currently in agricultural use.

The acreage of prime farmland that would be permanently impacted by the Project is negligible when compared to the total acreage of prime farmland in Beauregard Parish (394,254 acres), Calcasieu Parish (479,407 acres), and Jefferson Davis Parish (371,834 acres), Louisiana (NRCS 2019). Therefore, we conclude impacts on the availability of prime farmland would not be significant.

2.2. COMPACTION-PRONE SOILS

Soil compaction modifies the structure of soil and, consequently, alters its strength and drainage properties. As a result, soil productivity and plant growth rates may be reduced, soils may become more susceptible to erosion, and natural drainage patterns may be altered. The susceptibility of soils to compaction varies based on moisture content, composition, grain size, and density of the soil.

Texas Eastern's ESCP and the FERC Plan, specify measures Texas Eastern would employ for all areas that would not be permanently altered by aboveground facilities or pavement, such as the segregation of topsoil/subsoil/hydric soil, the use of timber mats or low ground weight equipment in wetlands, compaction testing and decompaction in agricultural areas prior to restoration, preparation of a proper seed bed prior to seeding, and conducting follow-up inspections to evaluate the success of revegetation efforts. As such, we conclude any adverse impacts due to rutting and compaction would be adequately mitigated. Soils underlying permanent aboveground facility foundations would be permanently affected by compaction; however, we conclude these effects would be highly localized and minor.

2.3. EROSION AND REVEGETATION

Clearing for construction removes protective vegetative cover and exposes soils to the effects of wind and water, which increases the potential for soil erosion and the transport of sediment to sensitive resource areas. Construction activities, such as clearing, grading, trench excavation, backfilling, heavy equipment traffic, and restoration in the construction work areas have the potential to adversely affect natural soil characteristics such as water infiltration, storage and routing, and soil nutrient levels, thus reducing soil productivity.

The majority of Project area soils are classified as highly susceptible to erosion by water. To minimize or avoid potential impacts due to soil erosion, Texas Eastern would implement measures in accordance with its ESCP, and the FERC Plan and Procedures. These measures include installation of temporary erosion controls, such as silt fences and straw bales. Texas Eastern would inspect temporary erosion controls on a regular basis

and after each rainfall event of 0.5 inch or greater to ensure proper functioning and would maintain these devices until the project areas are successfully revegetated or stabilized. Texas Eastern would also use dust-control measures as outlined in its Dust Control Plan, including routine wetting of work areas (with water from municipal sources), as needed.

The drainage class, slope, and erosion potential of each soil type were evaluated to determine revegetation potential. All soils are rated between very poorly drained and well drained, have less than 3 percent slope, and are generally highly erodible by water. While the potential for erosion could affect revegetation success, Texas Eastern would promote revegetation through the implementation of the FERC Plan and Procedures and its ESCP. Measures to be taken to ensure successful revegetation of temporarily disturbed areas include, but are not limited to: selection and application of seed mixes, fertilizer, and seeding dates recommended by the NRCS; preparation of a seedbed to a depth of 3 to 4 inches; implementation of temporary stabilization measures (e.g., using mulch in upland areas); and follow-up monitoring and seed application to ensure successful revegetation.

Given Texas Eastern's proposed mitigation measures and that it would return disturbed areas to pre-construction conditions, maintain them in an herbaceous state, or otherwise permanently stabilize the area (e.g., gravel or pavement), we conclude that significant and permanent impacts due to soil erosion or poor revegetation would not be significant.

2.4. SOIL CONTAMINATION

Texas Eastern reviewed U.S. Environmental Protection Agency (USEPA) databases, as well as available state database information to identify hazardous waste sites, landfills, or other sites with the potential for soil or groundwater contamination within 0.25 mile of the Project area (USEPA 2019a; Louisiana Department of Environmental Quality [LDEQ] 2019a; LDNR 2019).

LDEQ records include numerous reports of spills of pipeline condensate and crude oil between 1994 and 2008 at the Grand Chenier Compressor Station. Records indicate that spills were contained on-site and generally remediated by compressor station employees with use of absorbent materials, pumps, and focused excavation of visually contaminated soil. Prior to a potential property transaction, a soil and groundwater characterization was completed at the site by Texas Eastern in 2017 and submitted to the LDEQ.¹⁰ Specifically, 19 soil borings were advanced throughout the property to depths of 15 to 20 feet below grade and subsequently completed as temporary monitoring wells. Soil and groundwater samples were analyzed for environmental parameters, including: volatile organic compounds (VOC); semi-VOCs; total petroleum hydrocarbons (oil

¹⁰ LDEQ Electronic Document Management System (<https://edms.deq.louisiana.gov/app/doc/querydef.aspx>), Document ID 10757702.

range); metals; and polychlorinated biphenyls. At the conclusion of the investigation, all temporary monitoring wells were removed and plugged. The analysis found that all analytes were below the applicable screening standards for soil.

No other potentially contaminated sites were identified within 0.25 mile of the proposed Project facilities. If contaminated or suspect soils are encountered during construction, Texas Eastern would follow the measures in its Waste Management Plan for Construction Projects. This plan identifies the steps Texas Eastern would follow to contain, characterize, manage, and dispose of contaminated environmental media if encountered during construction.

Contamination from spills or leaks of fuels, lubricants, and coolant from construction equipment during construction could adversely affect soils. Texas Eastern has developed a SPCC Plan that specifies cleanup procedures in the event of soil contamination from spills or leaks of these materials. Texas Eastern and its contractors would implement the SPCC Plan to minimize accidental spills of materials that may contaminate soils, and to ensure that inadvertent spills are contained, cleaned up, and disposed of as quickly as possible and in an appropriate manner.

Given the lack of identified soil contamination within the Project area and Texas Eastern's proposed minimization and mitigation measures described above, we conclude that soil resources would not be significantly impacted by the Project construction or operation.

3.0 WATER RESOURCES AND WETLANDS

3.1. GROUNDWATER RESOURCES

All Project areas are within the Coastal Lowlands aquifer system. The Coastal Lowlands aquifer system is a regional aquifer spanning from coastal Texas to Florida. Groundwater withdrawn from the aquifer is used for agricultural, public supply, industrial, and other domestic and commercial purposes (USGS 1999).

The Coastal Lowlands aquifer system contains the Chicot aquifer, which is the principal aquifer underlying much of the Project area. However, the Grand Chenier Compressor Station, TransCameron M&R Station, and the proposed pipeline are in areas where groundwater is not potable due to saltwater inundation from the Gulf of Mexico (Stuart et.al. 1994). In 2010, about 650 million gallons per day of groundwater was withdrawn from the Chicot aquifer system in Louisiana (USGS 2011b).

3.1.1. Sole Source Aquifer and Wellhead Protection Areas

The USEPA oversees the Sole Source Aquifer Protection Program to protect high production aquifers that supply 50 percent or more of the region's water supply and for

which there are no reasonably available alternative drinking water sources, should the aquifer become contaminated. The Project would be within the sole source Chicot aquifer system (USEPA 2019b).

The LDEQ Drinking Water Protection Program establishes and protects wellhead areas associated with public water supply systems from contaminants that may have adverse effects on public health (Safe Drinking Water Act Amendments of 1986). Texas Eastern consulted with the LDEQ regarding the location of source water protection areas in the vicinity of the Project; none were identified (Gibeson 2019). Given the lack of identified source water protection areas within the vicinity of the Project and Texas Eastern's implementation of its SPCC Plan and Waste Management Plan for Construction Projects, we conclude that Project impacts on Sole Source Aquifers would not be significant.

3.1.2. Water Wells and Springs

Based on available data and field survey results, Texas Eastern did not identify public or private potable water supply wells or springs within 400 feet of Project areas (LDNR 2019). Five active industrial groundwater wells are within the Project workspaces. Three wells are owned by Texas Eastern (one at each of the following: the existing Gillis Compressor Station, Iowa Plant, and Grand Chenier Compressor Station); one well owned by Stanolind Oil within the construction workspace for the Trunkline M&R Station (but outside the permanent fenceline); and one well owned by Shell Oil Company within the Iowa Plant. Texas Eastern would coordinate with well owners prior to construction to identify well avoidance and mitigation measures and to confirm active well status.

The industrial groundwater well at the Gillis Compressor Station was installed in 2008 for the purpose of hydrotesting and is not connected to any water systems at the facility. Typically, about 200 gallons of water each month are drawn from the well for operational testing. Up to 3,500 gallons of groundwater may be withdrawn from this well for hydrostatic testing during Project construction; however, no change in operational water use would result from the Project. The East Calcasieu Compressor Station would use an estimated maximum of 150 gallons per day of municipal water during operations for domestic uses which would be provided by a new, buried, non-jurisdictional water line.

Installation of 100-foot-deep concrete pilings to support the proposed pipeline is not expected to have an impact on underlying aquifers given that the depth of fresh groundwater in the Project area exceeds 500 feet and that potable groundwater wells were not identified within 400 feet of this proposed facility. The Chicot Aquifer is a highly productive aquifer which supplies more than 650 million gallons per day (USGS 2011b). We conclude that removal and use of up to 3,500 gallons of water from Texas Eastern's

existing industrial groundwater well would not affect other users of water from the Chicot aquifer. Based on this assessment, we conclude the Project would not significantly impact availability of groundwater resources.

3.1.3. Groundwater Contamination

Characterization of shallow groundwater completed by Texas Eastern at the Grand Chenier Compressor Station in 2017 (refer to section B.2 for further discussion) found that all analytes were below the applicable screening standards for groundwater, except selenium, mercury, bis(2-ethylhexyl) phthalate, bromoform, chloroform, methylene chloride, and total petroleum hydrocarbons. Results were further evaluated based on site characteristics, as allowable under the LDEQ's Risk Evaluation Corrective Action Program. Because exceedances were limited to groundwater, and site-specific information (distance to the nearest downgradient surface water body, which is not a drinking water source; well yield calculations; and aquifer classifications as non-potable), it was determined that concentrations of contaminants in groundwater would not present a hazard to human health or the environment. In a letter dated June 29, 2018, the LDEQ did not request further site information or remediation.¹¹ In the event that contaminated groundwater is encountered during construction, Texas Eastern would follow the measures in its Waste Management Plan for Construction Projects.

Groundwater contamination could occur from accidental spills of fuels, solvents, and lubricants used during Project construction. Texas Eastern would implement the measures outlined in its SPCC Plan to minimize the risk of potential impacts from Project related fuel or hazardous material spills.

Given that no further action has been requested by the LDEQ for existing known groundwater contamination at the Grand Chenier Compressor Station and the absence of institutional or engineering controls in place, as well as Texas Eastern's proposed minimization and mitigation measures described above, we conclude that groundwater resources would not be significantly impacted by the Project construction or operation.

3.2. WATERSHEDS

The Project would be within four watersheds defined by the USGS at the 12-digit hydrological unit code (HUC), or sub-basin levels (USEPA 2019c). The Project facilities are in the HUC-12 subwatersheds described in table 5.

¹¹ LDEQ Electronic Document Management System (<https://edms.deq.louisiana.gov/app/doc/querydef.aspx>) Document ID 11204834.

<p align="center">Table 5 Watersheds Crossed by the Cameron Extension Project</p>		
Facility	Drainage Area (acres)	Subwatershed (HUC 12)
Gillis Compressor Station and Momentum M&R Station	25,507.4	Lower Barnes Creek (080802030505)
Trunkline M&R Station and Iowa Plant	29,922.8	Bayou Arceneaux (080802030604)
East Calcasieu Compressor Station	41,860.2	Indian Bayou Canal (080802020401)
TransCameron M&R Station, proposed pipeline, and Grand Chenier Compressor Station	40,642.0	Broussard Lake (080802021102)
Source: USGS 2019		

3.3. SURFACE WATER RESOURCES

Texas Eastern conducted wetland and waterbody delineation surveys in May 2017 at the existing Gillis Compressor Station, and between February and June 2019 at the remaining Project workspaces. A waterbody, as defined in the FERC Procedures, is “any natural or artificial stream, river, or drainage with perceptible flow at the time of crossing and other permanent waterbodies such as ponds and lakes.” Surface waterbodies were identified within proposed workspaces at the Iowa Plant, Grand Chenier Compressor Station, and along access roads. No surface waterbodies occur within the proposed Project workspaces associated with the TransCameron M&R interconnect piping, Gillis Compressor Station, Momentum M&R Station, and TransCameron M&R Station. Additionally, all ATWS are proposed at least 50 feet from surface waterbodies. Deviations from FERC Procedures for ATWS proposed closer than 50 feet from wetlands are discussed further in section B.3.4.1.

3.3.1. Sensitive Waterbodies

Sensitive waterbodies include waterbodies that do not meet state water quality standards; waterbodies supporting threatened and endangered species and critical habitats; waterbodies that would be crossed within 3 miles of a surface water intake; waterbodies designated as exceptional quality; and waterbodies listed on the National Rivers Inventory. As described in table B-1 in appendix B, several waterbodies that would be affected by the Project are listed as impaired on the Clean Water Act 303(d) list due to fecal coliform contamination. Waterbody S2038, along the temporary access road for the TransCameron M&R interconnect piping, is also listed as impaired due to chloride and total dissolved solids. Only two waterbodies (P2025 pond at the Iowa Plant and S2026 at the East Calcasieu Compressor Station) are not listed as impaired. No other sensitive waterbodies would be impacted. Impacts and mitigation measures on surface waterbodies are discussed below.

3.3.2. Surface Waterbodies Impacts and Mitigation Measures

Seven waterbodies were identified within the construction workspace of two existing aboveground facilities, the Iowa Plant and the Grand Chenier Compressor Station, (one pond [which Texas Eastern would not impact], four unnamed tributaries to the West Bayou Lacassine, and two unnamed tributaries to the Mermentau River); seven waterbodies would be crossed or within the alignment of temporary and permanent access roads (one unnamed ditch, three unnamed tributaries to the West Bayou Lacassine, two unnamed tributaries to Jacques Coulee, and one unnamed tributary to Mermentau River). Most of the unnamed tributaries identified within the Project area have a ditch flow type; two are intermediate¹² perennial waterbodies (S2039, S2040), and one is a minor perennial waterbody (S2038). Table B-1 in appendix B lists the waterbodies that would be affected by the Project, including waterbody identification number, waterbody name, flow regime, width, FERC classification, state water quality classification, impairment, and crossing method.

Texas Eastern proposes to cross one waterbody (S0240) by dam-and-pump or flume crossing. Less than 0.1 acre would be impacted from installation of new culverts where the temporary and permanent access roads would cross ditches at the Momentum and Trunkline M&R Stations, and East Calcasieu Compressor Station. Although one perennial waterbody (S2038) was identified near the existing temporary access road for the TransCameron M&R interconnect piping, Texas Eastern proposes to install fencing to avoid impacts on this waterbody. Operational impacts on surface water (ditch) would occur from installation of two culverts and an access road at the proposed East Calcasieu Compressor Station.

Waterbody impacts at the Iowa Plant and Grand Chenier Compressor Station would be temporary and limited to the duration of construction. Removal of streambank vegetation during construction can temporarily expose streambanks to erosion, cause sedimentation, increase turbidity, reduce riparian habitat, and result in increased water temperatures if there is a loss of significant shade vegetation. However, Texas Eastern would restore Project workspaces and waterbody banks and no operational activities would occur within the waterbodies. Where the temporary and permanent access roads would cross waterbodies (Momentum and Trunkline M&R Stations, and East Calcasieu Compressor Station), Texas Eastern would install culverts, as discussed above, and would ensure the culverts are of sufficient size, to accommodate flow conditions and aligned to prevent bank erosion and scour.

¹² Intermediate waterbody- includes all waterbodies greater than 10 feet wide but less than or equal to 100 feet wide at the water's edge at the time of crossing. Minor waterbody- includes all waterbodies less than or equal to 10 feet wide at the water's edge at the time of crossing.

Texas Eastern would install erosion and sediment control devices to protect waterbodies within construction workspaces from impacts from sediment laden runoff during construction. If flowing during construction, Texas Eastern would cross the waterbodies within construction workspaces at the Iowa Plant using timber, equipment, or terra mats to avoid construction-related impacts. Texas Eastern would implement the FERC Procedures for construction and operation of the Project and does not propose any modification of these Procedures in waterbodies for construction. Texas Eastern would revegetate construction workspaces in accordance with its ESCP, which are consistent with the FERC Plan and Procedures, to prevent migration of sediment offsite during operation.

A release of fuel or hazardous material into a waterbody can impact water quality. Texas Eastern has developed an SPCC Plan to prevent, contain, and clean-up spills and address necessary precautions during material storage. The transfer of liquids and refueling of construction equipment would take place in upland areas more than 100 feet from the edge of a waterbody or wetlands where practicable, unless otherwise reviewed and approved by the EI. In the event hazardous materials are stored or refueling occurs within 100 feet of a waterbody, secondary containment structures would be used to minimize the potential for spills and Texas Eastern would stage materials on-site for clean-up in the event of a spill. Based on these measures, we find the potential for a release of fuel or hazardous material into a waterbody would be minimized to the extent practicable.

If trench dewatering is necessary along the proposed pipeline or at aboveground facility sites, Texas Eastern would discharge the water into an energy dissipation/sediment filtration device away from the water's edge to prevent silt-laden water from flowing into the waterbody in accordance with the ESCP and the FERC Procedures. Dewatering would be monitored to ensure that all flow from the structure is infiltrating into the underlying soil.

As stated above, Texas Eastern would avoid and minimize impacts to the maximum extent practicable by avoiding waterbody features when practicable; implementing the measures in its ESCP and SPCC, the FERC Procedures; and restoring all waterbody banks following construction. Based on these measures, we conclude that temporary and permanent impacts on surface water resources would be minor.

In addition, Texas Eastern would construct its facilities in accordance with the regulations and requirements of applicable permits such as U.S. Army Corps of Engineers (USACE) authorizations under Section 404 of the Clean Water Act and National Pollutant Discharge Elimination System stormwater discharge permit.

3.4. WETLAND RESOURCES

Wetlands are areas inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands typical of southern Louisiana include swamps, marshes, wet pastures, and similar areas. Between May 2017 and July 2019, Texas Eastern conducted environmental field surveys to identify wetlands in the Project area in accordance with the USACE's 1987 Wetland Delineation Manual (USACE 1987) and applicable supplement (USACE 2010).

Wetlands in the vicinity of the pipeline consist primarily of saltmeadow cordgrass, common reed, and California bulrush. Based on the survey results, the proposed pipeline would cross one palustrine emergent wetland (PEM), and sixteen PEM and palustrine scrub/shrub (PSS) wetlands are within the Project construction workspaces for the Iowa Plant, Grand Chenier Compressor Station, East Calcasieu Compressor Station, and TransCameron Interconnect. No wetlands reserve program easements are within 1 mile of the Project workspaces. Table B-2 in appendix B, identifies each wetland that would be crossed or within Project workspaces, including wetland identification, classification, milepost, crossing length, and impacts.

3.4.1. Deviations from FERC Procedures

Texas Eastern has requested six deviations from the FERC Procedures. Table 6 identifies site-specific justifications for these proposed alternative measures to the FERC Procedures.

Table 6**Proposed Alternative Measures to the FERC Procedures for the Cameron Extension Project**

Facility or ATWS ID	FERC Procedures Section	Feature	Description and Justification	Additional Mitigation
ATWS-001	VI.B.1.a (ATWS within wetlands)	W1011 (PEM) ¹	ATWS is needed within wetlands for equipment staging, spoil storage, and installation of the pipeline in wetlands at the interconnect with the TransCameron Pipeline. Because soils along the pipeline are saturated, ATWS is necessary for spoil storage.	Texas Eastern would install timber mats or use low-ground- weight equipment in saturated soils; install erosion controls to protect adjacent wetlands; restrict refueling; and restore wetlands following completion of construction.
Pipeline right-of-way (MP 0.0, 0.1)	VI.A.3 (pipeline right-of- way width greater than 75 feet in wetlands)	W1011 (PEM)	Texas Eastern plans to utilize a 100-foot-wide right-of-way to accommodate a working side of 65 feet, including a 15- foot ditch area, and a spoil-side of 35 feet. A working side of 65-feetwide is required to allow for the stringing, welding, and installation of the pipe as safely as possible, while providing for a 12-foot travel lane to allow equipment to safely pass active construction. A spoil side of 35 feet wide is required due to inefficient spoil stacking and to ensure the effectiveness of erosion and sediment controls. Soils within the construction workspace for the TransCameron M&R interconnecting piping is creole mucky clay, which is designated as hydric. This type of soil would require larger spoil piles than unsaturated or less fluid soils.	Install timber mats or use low-ground- weight equipment in saturated soils; install erosion controls to protect adjacent wetlands; restrict refueling; restore wetlands following completion of construction.
Pipeline temporary access road	VI.B.1.d (access road within wetlands)	W1011 (PEM)	Use of an existing access road to transport equipment and materials to the TransCameron M&R interconnect piping workspace. Use of the access road would reduce the need for equipment to cross the wetland along the pipeline right-of-way and would be limited to the construction timeframe.	Existing temporary access road is a two-track road that is neither gravel nor paved. Texas Eastern would install timber mats to minimize compaction and rutting; restore the existing temporary access road to pre-construction contours and conditions following completion of construction.
Pipeline permanent access road	VI.B.1.d (access road within wetlands)	W1011 (PEM)	Installation of a new permanent access road to allow pigging inspection tool runs the length of the interconnect piping. Vehicular travel along the permanent right-of-way would be restricted where above-grade piping is installed and TransCameron's Interconnect impedes access. The road length has been minimized to the extent practicable and would connect to the road that TransCameron would install for access to its fenced Interconnect facility. Due to the existing location of TransCameron's pipeline within wetlands, construction of the permanent access road to the interconnect outside of wetlands is unavoidable.	Minimize the length of access road crossing the wetland that would be permanently filled. Purchase compensatory mitigation for permanent wetland impacts in accordance with state and federal permits.
East Calcasieu Compressor Station	VI.A.6 (aboveground facility within wetlands)	W1006 (PEM)	Installation of a new compressor station within wetlands. No alternative site is available that would meet the Project purpose and need and avoid impacts on wetlands. Additional justification is provided in alternatives analysis section.	Install timber mats to minimize compaction and rutting in construction workspaces; restore construction workspaces to pre-construction conditions. The construction and operation workspace have been minimized to the extent practicable for safe construction and operation of the facility. Purchase compensatory mitigation for permanent wetland impacts in accordance with state and federal permits.

East Calcasieu Compressor Station Access Road	VI.B.1.d (access road within wetlands)	W1006 (PEM)	Installation of new, permanent access road for the East Calcasieu Compressor Station. The entire site is wetlands, and wetland impacts cannot be avoided for access road installation.	Access roads would be installed using culverts or similar measures so that adjacent wetlands are not hydrologically isolated. Texas Eastern would purchase compensatory mitigation for permanent wetland impacts.
¹ PEM= Palustrine emergent wetland				

FERC staff has reviewed the requested deviations to the FERC Procedures and find the justifications and additional mitigation proposed by Texas Eastern in table 6 to be acceptable.

3.4.2. Wetland Impacts and Mitigation Measures

Construction of the proposed pipeline, aboveground facilities, and access roads would temporarily impact 59.2 acres of PEM wetland and 1.3 acres of PSS wetland. Approximately 0.8 acre of PEM wetland is within the 50-foot-wide permanent pipeline easement; however, Texas Eastern would maintain the workspace in a vegetative state in accordance with the FERC Procedures and allow it to continue functioning as a wetland during operation.

Temporary impacts on wetlands within construction workspace could include the removal of vegetation and disturbance of soils. Where the existing temporary access road for the proposed pipeline crosses a wetland, Texas Eastern would use timber mats to minimize soil compaction and rutting. The temporary access road would be restored to pre-construction contours when construction is complete.

Operation of the Project would result in the permanent conversion of 4.5 acres of PEM wetlands to commercial/industrial land. The East Calcasieu Compressor Station and associated access roads; and permanent access road and above-grade components of the proposed pipeline would result in the permanent conversion of wetlands to commercial/industrial land.

Potential impacts on wetlands could occur from stormwater runoff, hydrostatic test discharges, sedimentation, and spills or leaks of hazardous liquids from refueling construction vehicles or storage of fuel, oil, and other fluids.

Construction impacts on wetlands would be minimized by implementing the measures in Texas Eastern's ESCP and the FERC Procedures. Measures to minimize impacts on wetlands include:

- installation and regular maintenance of erosion and sediment controls;
- return of wetland bottoms and drainage patterns to their original configurations and contours to the extent practicable;
- permanent stabilization of upland areas near wetlands as soon as practicable after trench backfilling to reduce sediment run off;
- segregation of topsoil in unsaturated wetlands to preserve the native seed source (which would facilitate re-growth of herbaceous vegetation once pipeline installation is complete); a
- post-construction wetland monitoring for a minimum of three years to

- evaluate the progress of wetland revegetation; and
- for any wetland where revegetation is not successful at the end of 3 years after construction, develop and implement (in consultation with professional wetland ecologist) a remedial revegetation plan to actively revegetate wetlands. Continue revegetation efforts and file a report annually documenting progress in these wetlands until wetland revegetation is successful.

As stated in section B.3.3., hazardous materials would generally not be stored within 100 feet of a wetland and Texas Eastern would implement its SPCC Plan. Texas Eastern would operate and maintain the Project in compliance with the FERC Plan and FERC Procedures. In wetlands, routine maintenance along the proposed pipeline would occur at a frequency necessary to maintain a 10-foot-wide corridor centered on the pipeline in an herbaceous state in accordance with the FERC Procedures. No herbicides would be used in wetlands.

Following construction, wetlands within construction workspaces would be allowed to revegetate to their original condition. The herbaceous vegetation would regenerate quickly (typically within 1 to 3 years). Following construction, Texas Eastern would restore wetlands within the proposed pipeline route and temporarily impacted by construction of aboveground facilities to pre-Project conditions, thereby restoring wetland function.

Based on the minimal permanent impacts on wetlands (about 4.5 acres of PEM), Texas Eastern's proposed mitigation measures, including implementation of its ESCP, SPCC Plan, and the FERC Procedures, we conclude that some impacts on wetlands would be permanent, but would not be significant.

Texas Eastern is seeking authorization pursuant to section 404 of the Clean Water Act from the USACE for wetlands affected by the Project. Texas Eastern would adhere to the conditions of these authorizations, which would include any mitigation measures (including compensatory mitigation) necessary for impacts on wetlands. Texas Eastern is currently proposing compensatory mitigation via the purchase of credit at the South Fork Coastal Mitigation Bank; final plans for mitigation would be determined during the USACE and LDNR Office of Coastal Management (OCM) permitting.

3.5. HYDROSTATIC TESTING

In accordance with DOT regulations, Texas Eastern would perform hydrostatic testing of the new above- and below-ground facility piping prior to placing the Project facilities into service. Hydrostatic testing is a method by which water is introduced to segments of pipe and then pressurized to verify the integrity of the pipeline. Texas

Eastern would use 140,500 gallons of water for hydrostatic testing. Hydrostatic test water would be sourced from municipal sources. However, for the Gillis Compressor Station, about 3,500 gallons could be sourced from the on-site water well. No chemicals would be added to the hydrostatic test water. Following hydrostatic testing, test water would first pass through an energy-dissipation device as necessary, before being discharged into well vegetated, upland areas in accordance with the FERC's Procedures.

Additionally, Texas Eastern may require water for fugitive dust control in accordance with its Dust Control Plan. Water obtained for dust control would also be obtained from municipal sources. Based on Texas Eastern's implementation of the FERC's Procedures, and its ESCP and Dust Control Plan, we conclude that hydrostatic test water and fugitive dust control impacts would not result in significant impacts on water resources.

4.0 FISHERIES, VEGETATION, AND WILDLIFE

4.1. FISHERIES

As previously discussed in section B.3.3, a total of 14 waterbodies would be affected by the Project. Of these, three (two intermediate and one minor) are perennial fresh, warm waterbodies. These are within the Grand Chenier Compressor Station and along the proposed pipeline temporary access. Species that may occur in these waterbodies include the alligator gar, black bullhead, blue catfish, common carp, striped bass, and green sunfish (LDWF 2019a). The remaining waterbodies are ephemeral or intermittent drainages and likely would not contain fish species. None of the waterbodies identified contain federally listed threatened, endangered, or special status fisheries or designated critical habitat; and no essential fish habitat occurs within or near the Project area.

During construction and operation of the Project, aquatic resources could be affected by changes in water quality via sedimentation; spills or leaks of contaminated materials; impingement or entrainment in pumps used for dry-ditch construction; or habitat loss or modification. As stated in section B.3.3, Texas Eastern plans to implement a dry construction method (dam-and-pump or flume) where isolation and piping modifications are planned at its existing Grand Chenier Compressor Station to temporarily divert flow through waterbody S2040 where it is parallel to planned excavation. The waterbody diversion within the facility boundary would be conducted in accordance with the measures for dry-ditch crossing methods identified in the FERC Procedures. Texas Eastern would screen pump intakes to avoid entrainment of fish and would properly align flumes or pump discharge locations to prevent waterbody scour. Following construction, the waterbody and flow would be restored. Texas Eastern would install erosion controls to protect the perennial stream that is parallel to the existing

temporary access for the proposed pipeline. Any impacts on aquatic species would be temporary and limited to the period of construction (2 weeks). Although Texas Eastern proposes to conduct pile-driving for the Project along wetlands, no impacts on aquatic resources are anticipated from this activity given that in-water pile-driving activities are not proposed and these areas are unsuitable for aquatic resources (i.e. fish, marine mammals). Noise impacts on wildlife from pile-driving are further discussed in section B.4.3.

Potential impacts on stream habitats and aquatic life include off-site migration of sediment into a waterbody during precipitation events, increased turbidity, removal of riparian vegetation, and fugitive dust resulting from right-of-way construction activities. The resulting turbidity would affect water quality and impede fish movement, potentially increasing the rates of stress, injury, and/or mortality of individual fish. However, Texas Eastern would follow its ESCP and the FERC's Plan and Procedures to control erosion and sedimentation to minimize impacts on waterbodies.

Given the limited number of waterbody crossings that could affect fisheries, Texas Eastern's construction measures to minimize impacts on surface waterbodies, and implementation of its SPCC, ESCP, Dust Control Plan, and FERC's Plan and Procedures, we conclude that impacts on fisheries would be temporary and not result in significant impacts.

4.2. VEGETATION

The Project crosses a variety of vegetation types commonly found in Louisiana. The majority of the Project impacts would occur on industrial areas and PEM wetlands. Impacts on wetlands are discussed in section B.3.4.2. Construction of the Project would temporarily impact about 75 acres of disturbed area within the existing fenced aboveground facilities (commercial/industrial), 13.9 acres of herbaceous vegetation, and 6.3 acres of agricultural land.

The proposed pipeline and associated existing two-track access road modifications would be installed in agricultural land (pasture) and PEM wetlands. Texas Eastern would install the Momentum M&R Station and associated permanent access road on open herbaceous land owned by Momentum Midstream, LLC. The Trunkline M&R Station and associated access roads would be installed on open herbaceous vegetation. The existing temporary access road for the Trunkline M&R Station traverses forested land dominated by Chinese tallow. The TransCameron M&R Station and associated access roads would be on agricultural (pasture) land with vegetation dominated by herbaceous species. The proposed new East Calcasieu Compressor Station and associated access roads are dominated by PEM wetlands (as discussed in section B.3.4). Modifications at the Gillis Compressor Station, Iowa Plant, and Grand Chenier Compressor Station would

occur within the boundaries of the existing facility sites. Although vegetated areas are present within the boundaries of these facilities, they are limited to maintained grassy areas.

Forested land identified at the proposed Momentum M&R Station site was cleared in August 2019 and is now herbaceous vegetation. Momentum cleared the site for installation of its 36-inch-diameter pipeline described in section A.8 (Non-jurisdictional Facilities) and further discussed under cumulative impacts section B.11. At the time of Texas Eastern's planned construction of the Momentum M&R Station, the site would be disturbed land partially within the pipeline right-of-way and may be undergoing restoration. Texas Eastern does not anticipate clearing any additional forested lands at this facility. However, minimal side trimming along the existing temporary access road (about 12 feet) for the Trunkline M&R Station would be required for safe passage.

Following construction, Texas Eastern would permanently impact 2.7 acres of herbaceous vegetation (Momentum and Trunkline M&R Stations, and East Calcasieu Compressor Station permanent access road) and 2.2 acres of agricultural land (TransCameron M&R Station and interconnecting pipeline permanent access road). The remaining acreage (not including wetlands) would be restored and revert to former uses.

4.2.1. Unique, Sensitive, or Protected Vegetation

Texas Eastern consulted with the U.S. Fish and Wildlife Service (FWS) and LDWF (via the Wildlife Diversity Program) to determine if any unique, sensitive, or protected vegetation communities (including federal and state species of special concern) occur within the Project area. The LDWF indicated that remnants of coastal prairies may be present near the East Calcasieu Compressor Station. While the Project is in the range of coastal prairies, based on review of the historical aerial imagery, the site was previously terraced for agricultural use and appears to have been in rice production. The vegetation at the site was not dominated by species typically observed in coastal prairies, such as brownseed paspalum, and little, slender, and big bluestems (LDWF 2019e); however, some species indicative of coastal prairies were observed, including dropseeds. Given the previously disturbed nature of the site, we conclude that impacts on sensitive coastal prairie habitat during construction or operation of the East Calcasieu Compressor Station are not anticipated. On October 23, 2019, Texas Eastern provided LDWF with GIS data depicting the Project facilities as requested by the state agency.

Texas Eastern is continuing to consult with the LDWF and understands the agency would review its Joint Permit Application to the USACE and the OCM to further assess potential impacts on sensitive habitats. Texas Eastern commits to filing with the Commission any mitigation measures proposed to avoid impacts on sensitive habitats, such as the coastal prairies, once consultation with LDWF has been completed.

Additionally, on July 30, 2019, the OCM identified chenier ridges as a sensitive resource in the vicinity of the TransCameron M&R Station and a portion of the proposed pipeline. The facilities in Cameron Parish are in the Louisiana Chenier Plain, which comprises wooded beach ridges (cheniers) interspersed with PEM wetlands (Owen 2008). The forest habitat on chenier ridges are important as wildlife habitat, providing stopover habitat for migratory birds (LDNR 2009). These abandoned beach ridges are considered sensitive where they support coastal live oak and hackberry forest. Texas Eastern has avoided impacts on sensitive habitat associated with these features. While the Project site at the TransCameron M&R Station and interconnect piping is in the vicinity of chenier ridges, no forested habitat occurs within the Project workspace and Texas Eastern would restore non-forested upland areas crossed by the pipeline following construction.

Texas Eastern understands that OCM will further assess potential for impacts on chenier ridges, if present, during its review of Texas Eastern's Joint Permit Application. Texas Eastern commits to filing with the Commission any mitigation measures developed in coordination with the OCM, as applicable. No other unique, sensitive, or federally or state protected plant species or communities were identified at, or adjacent to, the proposed Project.

4.2.2. Noxious and Invasive Species

An invasive species is a plant which is of foreign origin and is new to or not widely prevalent in the United States. Noxious or invasive plant species can out-compete and displace native plant species, thereby negatively altering the appearance, composition, and habitat value of affected areas. The only plant identified as noxious by the state of Louisiana is the Chinese tallow. Chinese tallow typically occurs along stream and river banks, wetlands, and other wet areas, like drainage ditches. Texas Eastern conducted field surveys to identify the presence of Chinese tallow. Chinese tallow was identified within the proposed Trunkline M&R Station (including along the existing temporary access road) and Iowa Plant.

Project activities could introduce and increase the spread of noxious weed species, particularly in areas where vegetation is cleared. Once established, noxious weeds can become permanent if left uncontrolled. Texas Eastern's mitigation measures regarding noxious weeds are discussed below.

4.2.3. Vegetation Impacts and Mitigation Measures

Primary impacts on vegetation from the Project would be from cutting, clearing, and/or removal of existing vegetation within construction work area. Texas Eastern would identify and flag the limits of clearing in the field prior to clearing operations.

Secondary effects associated with disturbances to vegetation could include the increased potential for soil erosion and introduction and establishment of invasive weed species. Following construction, the entire 100-foot-wide pipeline right-of-way would be restored.

To minimize the potential spread of invasive species, Texas Eastern would revegetate upland areas using seed mixes developed in consultation with NRCS in accordance with its ESCP and the FERC Plan. Additionally, Texas Eastern would implement the following measures to minimize the potential for the spread of invasive species:

- install erosion control and restoration measures in accordance with the FERC Plan and Procedures to minimize the potential for spread of invasive species via displaced soils;
- use weed free mulch, where applicable, to stabilize the soil surface in accordance with its ESCP; and
- conduct wetland restoration and post-construction monitoring. If invasive species are found in wetlands in numbers substantially greater than in nearby, adjacent habitat, that was not disturbed by construction, Texas Eastern would implement remedial revegetation plans and invasive species control measures.

Texas Eastern would conduct follow-up inspections of all disturbed areas to ensure revegetation is successful. Vegetation within the new and existing aboveground facilities would be maintained by mowing, cutting, and trimming as necessary. The frequency of the vegetation maintenance would be in accordance with its ESCP, the FERC Plan, and the FERC Procedures. Given the limited permanent impacts on vegetation associated with the aboveground facilities, the limited area of disturbance, the rapid growth rate of vegetation in the Project area, in addition to Texas Eastern's avoidance and mitigation measures, we conclude that impacts on vegetation from the Project would be mostly short-term and not significant.

4.3. WILDLIFE

Wildlife habitat types are based on the vegetation cover types within the Project area and most of the Project would occur on open herbaceous vegetation, existing disturbed areas, and PEM wetlands. The Gillis Compressor Station and the proposed Momentum M&R Station are within the Flatwoods ecoregion; the proposed East Calcasieu Compressor Station, Iowa Plant, and the proposed Trunkline M&R Station are within the Northern Humid Gulf Prairies; and the Grand Chenier Compressor Station, proposed TransCameron M&R Station, and proposed pipeline are within the Texas-Louisiana Gulf Coastal Marshes Ecoregion.

Typical wildlife within the Project areas include raccoon, gray fox, gray squirrel, white-tailed deer, marsh rice rat, Virginia opossum, nutria, mottled-duck, blue-winged teal, mourning dove, gadwall, egret, cormorant, snapping turtle, bull frog, chorus frog, western ribbon snake, and eastern hognose snake (LDNR 1983). No unique or sensitive wildlife resources were identified in the Project area.

Impacts on wildlife would vary depending on the specific habitat requirements of the species in the area and the vegetative land cover crossed by the Project. Wildlife is generally not present within the fenceline of the existing facilities, although small animals, such as squirrels and reptiles, may occasionally occur. Potential short-term impacts on wildlife include the displacement of individuals from construction areas and adjacent habitats and the direct mortality of small, less mobile mammals, reptiles, and amphibians that are unable to vacate the construction area. Long-term impacts would include conversion of vegetated land to developed land within permanent access roads or aboveground facilities.

Altered habitat and periodic disturbance could also increase wildlife mortality, injury, and stress. However, more mobile species, such as birds and larger mammals, would likely relocate to other nearby suitable habitat and avoid the Project area once construction activities commence.

Noise levels along the proposed pipeline would return to pre-construction levels immediately following completion of construction activities. Although Texas Eastern proposes to utilize pile-driving, no aquatic resources would be impacted. While terrestrial wildlife may be temporarily displaced or avoid the Project area due to disturbance from pile-driving noise, impacts would be limited to the duration of active pile driving and would be minor. Noise associated with operation of the new aboveground facilities would be permanent; however, given the large extent of similar habitat available adjacent to the Project, we conclude impacts would be permanent but negligible. Additionally, some species may become acclimated to the noise and return to the Project area. Therefore, noise associated with construction and operation of the Project is not anticipated to significantly impact wildlife in the Project area.

Long-term impacts from habitat alteration would be minimized by the use of previously disturbed areas (i.e., existing aboveground facilities) and implementation of Texas Eastern's ESCP and the FERC Plan and Procedures, which would ensure revegetation of areas temporarily disturbed by construction. Texas Eastern would stabilize impacted areas to mitigate direct and indirect impacts on wildlife. Given the limited Project area, limited duration of disturbance (4 months for the interconnect pipeline, 10 months for East Calcasieu Compressor Station, and 8 months for the rest of

the aboveground facilities/ modifications), and abundant adjacent habitat, we conclude the short-term disturbance of local habitat would have no significant effects on wildlife.

4.3.1. Migratory Birds

Migratory birds are species that nest in the U.S. and Canada during the summer and then migrate to and from the tropical regions of Mexico, Central and South America, and the Caribbean for the non-breeding season. Migratory birds are protected under the Migratory Bird Treaty Act ([MBTA] – Title 16 of the U.S. Code, sections 703-711), and bald and golden eagles are additionally protected under the Bald and Golden Eagle Protection Act (Title 16 of the U.S. Code, sections 668-668d). The MBTA, as amended, prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests. Executive Order (EO) 13186 was enacted in 2001 to, among other things, ensure that environmental analyses of federal actions evaluate the impacts of actions on migratory birds. EO 13186 directs federal agencies to identify where unintentional take is likely to have a measurable negative effect on migratory bird populations and avoid, minimize, or mitigate adverse impacts on migratory birds through enhanced collaboration with the FWS, and emphasizes species of concern, priority habitats, and key risk factors, with particular focus given to population-level impacts.

On March 30, 2011, the FWS and FERC entered into a Memorandum of Understanding regarding implementation of EO 13186, that focuses on birds of conservation concern and strengthening migratory bird conservation through enhanced collaboration between the two agencies. This memorandum does not waive legal requirements under the MBTA, Bald and Golden Eagle Protection Act, the ESA, or any other statutes, and does not authorize the take of migratory birds.

Texas Eastern designed the Project to minimize impacts on forested vegetation. Where trees would be side-trimmed along the existing temporary access road to the Trunkline M&R Station, trimming would be minimized to the extent needed for safe use of the road and would be conducted outside of the migratory bird nesting season (April 15 through August 1), if practicable. Additionally, forested habitat on land at the Momentum M&R Station was previously cleared by the landowner in August 2019 (see section B.4.5.3); therefore, no forested vegetation is present. Impacts on bald eagles are not expected due to Project construction. In the event that a bald eagle is encountered, Texas Eastern would conduct construction in compliance with the National Bald Eagle Management Guidelines.

On August 5, 2019, Texas Eastern contacted the FWS on species protected under the MBTA and Bald and Golden Eagle Protection Act. On August 9, 2019 and November 22, 2019, the FWS responded and did not identify the need for additional mitigation measures for protected species.

Given the limited amount of vegetative clearing, and in particular forested impacts (side trimming along 12 feet of the Trunkline M&R access road), ample adjacent habitats suitable for any birds that may be disturbed, and that no eagles or nests were observed in the Project area, we conclude that the Project would not significantly impact migratory birds populations or eagles.

4.4. SPECIAL STATUS SPECIES

Special status species are those species for which state or federal agencies provide an additional level of protection by law, regulation, or policy. Included in this category are federally listed species that are protected under the ESA, species considered as candidates for such listing by the FWS, and those species that are state-listed as threatened, endangered, or state species of special concern.

4.4.1. Federally Listed Species

In accordance with Section 7 of the ESA, the FERC, in coordination with the FWS, must ensure that any federal action authorized, funded, or carried out by the agency does not jeopardize the continued existence of a federally listed threatened or endangered species or result in an adverse modification of designated critical habitat of a federally listed species.

On July 19, 2019, Texas Eastern utilized the Informational Planning and Consultation system to obtain a list of threatened and endangered species that may occur in the Project area. The federally threatened west Indian manatee, federally endangered red-cockaded woodpecker, federally threatened piping plover,¹³ federally threatened Louisiana pine snake, federally threatened loggerhead sea turtle, and federally endangered Atlantic sturgeon were identified as potentially present within the Project workspaces.

Although the responsibilities for protection, conservation, and management of marine mammals are shared by the FWS and National Oceanic Atmospheric Association, the west Indian manatee is under the jurisdiction of the FWS in accordance with both the ESA and the Marine Mammal Protection Act. The Informational Planning and Consultation system indicated the west Indian manatee could occur within the Grand Chenier Compressor Station portion the Project. The waterbody identified in the Grand Chenier Compressor Station is fenced and isolated and is not accessible to manatees. Additionally, the body of water is not suitable habitat for this species.

¹³ Although the piping plover is a federally listed species in Cameron Parish, the Project facilities are not within the consultation area for the species due to the distance of the Project from the Louisiana coast. Thus, no further consultation under the ESA is required for this species.

No suitable habitat exists within or immediately adjacent to the Project area for the federally listed species identified. Because no suitable habitat exists for federally listed species, we have determined the Project would have *no effect* on federally listed species.

On November 21, 2019, Texas Eastern contacted the FWS via e-mail to confirm jurisdiction and *no effect* determination over the west Indian manatee and the other federally listed species. On November 22, 2019, the FWS concurred with the *no effect* determination and stated no further consultation was necessary under section 7 of the ESA and Marine Mammal Protection Act.

4.4.2. State-Listed Species

On June 28, 2019, Texas Eastern contacted the LDWF to identify the state-listed species potentially present in the Project area. On August 2, 2019, the LDWF stated based on the Wildlife Diversity Program database, remnants of coastal prairies near the East Calcasieu Compressor Station may be present. As stated in section B.4.2.1, given the previously disturbed nature of the site, impacts on sensitive coastal prairie habitat during construction or operation of the East Calcasieu Compressor Station are not anticipated. No other impacts on state-listed species or critical habitats are anticipated for the Project. Thus, we conclude the Project would not adversely impact state-listed species. Texas Eastern is continuing to consult with the LDWF and commits to filing with the Commission any additional mitigation measures proposed to avoid/mitigate impacts on sensitive habitats, such as the coastal prairies, once consultation with LDWF has been completed.

5.0 LAND USE, RECREATION, AND VISUAL RESOURCES

5.1. LAND USE

Land use categories identified in the Project area consist of wetlands, forest, open land, open water, agricultural, and commercial/industrial land. Construction of all Project facilities would disturb 156.8 acres. Open land consists of open fields, existing right-of-way, herbaceous and scrub-shrub upland, and non-forested upland. Agricultural land consists of cultivated or rotated cropland, hayfields, and pasture lands. A summary of the land use categories that would be affected by construction and operation is provided in appendix B (table B-3).

5.1.1. East Calcasieu Compressor Station

The proposed location of the East Calcasieu Compressor Station would be along Texas Eastern's existing pipeline, south of the town of Iowa, in Calcasieu Parish, Louisiana, and on land Texas Eastern has an option to purchase. The site is bordered

directly to the north by Jeff Davis Parish Road (LA Highway 3059) and to the east by Fruge Road. Construction of the proposed compressor station would require 51.8 acres. The fenced facility boundary for the greenfield compressor station would include 19.3 acres of land, only 4.2 acres would be permanently changed to aboveground and graveled Project facilities (including the new permanent access roads). The site is dominated by PEM wetlands, as shown in appendix B (table B-3), and further discussed in section 3.4. Wetlands within the permanent aboveground facility footprint would be converted to commercial/industrial land during operation.

5.1.2. Proposed Meter stations

Construction of the proposed Momentum M&R Station would require approximately 4.7 acres. The existing land use at the proposed site consists of open land and forest. Following construction, 1.1 acres would be retained as permanent workspace. The permanent access road to the facility would impact an additional 0.1 acre of forested land.

Construction of the proposed Trunkline M&R Station would require approximately 3.4 acres. The existing land use at the proposed site consists of open herbaceous/scrub-shrub land. Following construction, 1.0 acre would be retained as permanent workspace. An additional 0.5 acre would remain for the proposed permanent access road.

Construction of the proposed TransCameron M&R Station would occur within the temporary workspace for the M&R Station proposed pipeline and require an additional 0.9 acre of agricultural land. The existing land use at the proposed site consists of wetland and agricultural land. Following construction, 1.8 acres would be retained for the facility. The proposed permanent access road for this facility would require 0.1 acre of wetlands and 0.2 acre of agricultural land for operation.

The proposed pipeline would be in agricultural land used as pasture. Texas Eastern would segregate a maximum of 12 inches of topsoil in agricultural land in accordance with the FERC Plan and in coordination with the landowner. Topsoil would be stockpiled separately from the subsoil on the construction right-of-way. Texas Eastern would monitor and repair any drain tiles affected by construction and maintain irrigations systems unless otherwise coordinated with the landowner.

5.1.3. Modified Aboveground Facilities

Work at the Gillis Compressor Station, Iowa Plant, and Grand Chenier Compressor Station would occur within the boundaries of the existing facility sites. Although vegetated areas are present within the boundaries of these facilities, they are limited to maintained grassy areas. Modifications entirely within the fence lines of the existing facilities would not result in permanent impacts on vegetation. Temporary workspace would be adjacent to the Iowa Plant to support construction, in open land and emergent wetlands; similarly, emergent wetlands within the Grand Chenier Compressor Station facility boundary would be used as temporary workspace. Wetland impacts are discussed further in section B.3.4.

5.2. RESIDENTIAL AREAS

No residences are within 500 feet of any compressor station sites. The nearest residences to the Project are approximately 550 feet east and west of the proposed Momentum M&R Station site. For the proposed East Calcasieu Compressor Station, the nearest residential structures are 3,100 feet northeast from the facility.

Temporary impacts on residential areas include noise and fugitive dust during construction activities, altered traffic patterns, and increased traffic in the area of the proposed facilities. Permanent impacts on residential areas during operation of the compressor stations include noise (see section B.9) and visual impacts (see below). Given the distance to the nearest residence, we do not anticipate a significant impact on residences during construction or operation of the facilities.

5.3. PLANNED DEVELOPMENTS

No planned residential or commercial areas are within 0.25 mile of the proposed pipeline facilities, new aboveground facilities, modified aboveground facilities, or proposed accessed roads.

5.4. RECREATION, PUBLIC INTEREST AREAS, AND SPECIAL LAND USE AREAS

There are no Wetlands Reserve Program, Conservation Reserve Program lands, or any other special land uses within 1 mile of the proposed Project. Furthermore, there are no natural or scenic areas within the Project area. The nearest wildlife management area, the LDWF's Rockefeller Wildlife Refuge, is 8.2 miles southwest of the proposed TransCameron M&R Station and interconnect piping. Therefore, we conclude that the Project would not affect these areas.

5.5. HAZARDOUS WASTE SITES

As described in sections B.2.4 and B.3.1, Texas Eastern reviewed USEPA databases, as well as available state database information to identify hazardous waste sites, landfills, or other sites with the potential for soil or groundwater contamination within 0.25 mile of the Project area (USEPA 2019a; LDEQ 2019a; LDNR 2019).

LDEQ records include numerous reports of spills of pipeline condensate and crude oil between 1994 and 2008 at the Grand Chenier Compressor Station. Soil and groundwater characterization completed at the site in 2017 found that all analytes were below the applicable screening standards for soil, except selenium, mercury, bis(2ethylhexyl)phthalate, bromoform, chloroform, methylene chloride, and total petroleum hydrocarbons, all in groundwater. Because exceedances were limited to groundwater, and site-specific information (distance to the nearest downgradient surface waterbody, which is not a drinking water source; well yield calculations; and aquifer classifications as non-potable), it was determined that concentrations of contaminants in groundwater would not present a hazard to human health or the environment. In a letter dated June 29, 2018, the LDEQ did not request further site information or remediation. No other potentially contaminated sites were identified within 0.25 mile of the proposed Project facilities.

In the event that contaminated soil or groundwater is encountered during construction, Texas Eastern would follow the measures in its Waste Management Plan for Construction Projects. Texas Eastern would also implement the measures outlined in their SPCC Plan to minimize the risk of potential impacts from fuel or hazardous material spills.

Given that no further action has been requested by the LDEQ for existing known groundwater contamination at the Grand Chenier Compressor Station and the absence of institutional or engineering controls in place, as well as the limited scope of activities at the Grand Chenier Compressor Station and Texas Eastern's proposed minimization and mitigation measures described above, we conclude that the Project would not significantly impact or be impacted by existing or undiscovered contamination.

5.6. COASTAL ZONES

Construction and operation of the facilities in Cameron Parish (the proposed TransCameron M&R Station and its interconnect piping, and the existing Grand Chenier Compressor Station) are subject to Louisiana's Coastal Zone Consistency Review. Texas Eastern has submitted its joint permit application for work within the Louisiana Coastal Zone to the OCM and the USACE. FERC must confirm Texas Eastern's receipt of these

determinations prior to authorizing construction. Because these determinations have not yet been received, **we recommend that:**

- **Texas Eastern should not begin construction of the Project until it files with the Secretary of the Commission (Secretary) a copy of the determination of consistency with the Coastal Management Plan issued by the Louisiana OCM.**

5.7. VISUAL RESOURCES

The Project is proposed within a rural location where existing oil and gas development projects occur. Construction at the existing Gillis Compressor Station, Iowa Plant, and Grand Chenier Compressor Station would result in negligible visual impacts during construction, including the presence of equipment and workers. The proposed installation of the appurtenant facilities would be at a lower elevation than the existing stack height; therefore, we conclude additional permanent visual impacts would be minimal.

There are residences within 1 mile of the proposed East Calcasieu Compressor Station and meter station sites. The tallest feature at the proposed compressor station would be the 100-foot-high communication tower, and may be visible to nearby homes. In addition, the Swire Family Cemetery is approximately 40 feet northwest of the proposed Momentum M&R Station site. Texas Eastern would maintain a buffer of forested vegetation between the facility and the cemetery. This buffer would also mitigate visual impacts on two residences 550 feet east and west of the site. A new 0.3-mile long non-jurisdictional power line is proposed to extend along the northern boundary of the proposed East Calcasieu Compressor Station and would require the installation of multiple power poles. The power line would connect to the transformer and electrical control building planned for the western side of the compressor station.

During construction, the presence of construction equipment and personnel at the new aboveground facility sites would have a visual impact on nearby residents. Following the completion of construction, the current land use at each of the proposed new facility sites would be permanently converted to an industrial use. The Momentum and Trunkline M&R Stations would be installed at ground-level on poured concrete foundations; however, the TransCameron M&R Station would be within a 100-year floodplain and installed on a 20-foot-high platform to minimize the potential for floodplain impacts. The closest residential and agricultural buildings from the TransCameron M&R Station would be about 1,200 feet southwest of the facility. The view of the M&R Station and its interconnecting piping would be partially screened by existing vegetation near the properties.

Given the distance from residences and Texas Eastern's proposed mitigation measures (including leaving existing vegetation in place where practicable), we conclude that visual impacts of the proposed Project would not be significant.

6.0 CULTURAL RESOURCES

Section 106 of the NHPA, as amended, requires the FERC to take into account the effect of its undertakings on properties listed, or eligible for listing, on the National Register of Historic Places, and to afford the Advisory Council on Historic Preservation an opportunity to comment. Texas Eastern, as a non-federal party, is assisting the FERC in meeting our obligations under Section 106 and its implementing regulations at 36 CFR 800.

Texas Eastern completed cultural resources surveys for the Project and filed two survey reports (one covering a 5.0-acre portion of the workspace for the Momentum M&R Station, and the other covering the remaining Project facilities) with the FERC and the Louisiana State Historic Preservation Office (SHPO). A total of 384.3 acres as well as 3,051 feet of access roads was surveyed. No archaeological resources were identified as a result of the surveys. During the field survey of the Momentum M&R Station workspace, a cemetery was observed adjacent to the workspace and its location was recorded. Texas Eastern plans to avoid the cemetery and maintain a buffer of forest vegetation between the Momentum M&R Station and the cemetery. No further archaeological investigations were recommended within any portion of the Project's Area of Potential Effects (APE).

The architectural field surveys of the visual effects or indirect APE for the Momentum M&R Station, Trunkline M&R Station, East Calcasieu Compressor Station, and the proposed TransCameron M&R Station and proposed pipeline identified no historic "built" resources within any of the proposed Project workspaces. However, a total of nine built resources were identified within the 0.5-mile visual or indirect effects APE. All of these resources were recommended as not eligible for the National Register of Historic Places under any criteria. In addition, Texas Eastern recommended the setting associated with each of the identified built resources as already disturbed by previous visible industrial construction. No further architectural investigations were recommended within any portion of the visual effects, as well as the direct or indirect APE. Texas Eastern did not recommend an architectural survey for built resources for the Gillis Compressor Station, Iowa Plant, or Grand Chenier Compressor Station sites as the proposed modifications at these facilities would be minor and unlikely to result in any effects not already present.

In a letter dated September 13, 2019, the SHPO commented on the survey reports and agreed with Texas Eastern that no historic properties are present or affected by the

Project and that they have no further concerns for this Project. We agree with the SHPO and have determined that the Project would have no effect on historic properties.

Texas Eastern provided a Categorical Exclusion Agreement (CEA) for portions of the Project at the Gillis Compressor Station, Iowa Plant, and the Grand Chenier station. The CEA expired on December 31, 2019. In response to our request, Texas Eastern provided a renewed CEA with the SHPO which is in effect until December 31, 2020. However, because Project construction is planned to continue into 2021, this CEA will also expire prior to Project completion. Therefore, **we recommend that:**

- **Prior to construction activities in 2021, Texas Eastern should file with the Secretary a renewed Louisiana SHPO CEA for 2021.**

6.1. NATIVE AMERICAN CONSULTATION

On August 12, 2019, Texas Eastern sent a Project notification letter describing the proposed Project to seven federally recognized Native American Tribes. This letter described the Project and proposed activities, provided maps, and requested that the Tribes inform Texas Eastern of any known or potential concerns regarding impacts on culturally sensitive lands. The seven Tribes contacted were the Alabama-Coushatta Tribe of Texas, the Choctaw Nation, the Coushatta Tribe of Louisiana, the Kickapoo Tribe of Oklahoma, the Jena Band of Choctaw Indians, the Mississippi Band of Choctaw Indians, and the Tunica-Biloxi Tribe of Louisiana.

The Choctaw Nation responded to Texas Eastern via e-mail on September 19, 2019 requesting the cultural resources survey report and shapefiles. On October 22, 2019, Texas Eastern responded and provided the requested documents. The Choctaw Nation confirmed receipt of the requested documents and concurred with Texas Eastern's finding of no effect on cultural resources via e-mail on November 25, 2019.

On November 8, 2019, we sent our NOI to the same seven Native American tribes. On December 23, 2019, the Choctaw Nation replied to our NOI and requested a copy of the EA and all reports and shapefiles. On January 13, 2020, we also sent Project notification letters requesting consultation with the seven tribes. On January 15, 2020, the Choctaw Nation replied to our notification letter reiterating their previous request. As noted above, Texas Eastern has provided the reports and shapefiles to the Choctaw Nation of Oklahoma. This EA is publicly available on the FERC website.¹⁴ To date, we have not received correspondence from any of the remaining contacted tribes.

¹⁴ On eLibrary link <https://www.ferc.gov/docs-filing/elibrary.asp>, click General Search, and enter the CP19-512 docket number in the "Docket Number" field.

6.2. UNANTICIPATED DISCOVERIES PLAN

Texas Eastern provided a plan to address the unanticipated discovery of cultural resources and human remains during construction. We requested minor revisions to the plan. Texas Eastern provided a revised plan, which we find acceptable.

6.3. COMPLIANCE WITH THE NATIONAL HISTORIC PRESERVATION ACT

FERC has completed its compliance requirements with Section 106 of the NHPA for the Project. If there are any changes to the Project that have the potential to affect historic properties, further consultation under Section 106 may be required.

7.0 SOCIOECONOMICS

Project construction would occur within Beauregard, Jefferson Davis, Calcasieu, and Cameron Parishes, Louisiana, and is scheduled to take approximately 11 months, beginning in December 2020. Socioeconomic impacts resulting from the construction and operation of the proposed Project would be related to the number of construction workers that would work in the Project area and their impact on population, public services, and employment during construction. Other potential effects include an increase in local traffic, decreased available housing, increased tax revenue, and possible disproportionate impacts on environmental justice communities.

7.1. EMPLOYMENT

Table 7 provides demographic information for the State of Louisiana and for the four Parishes within which any socioeconomics effects would be expected to occur.

<p align="center">Table 7 Existing Socioeconomic Characteristics in the Project Area</p>					
State/Parish	2018 Estimate	Median Household Income	Civilian Labor Force	Unemployment Rate	Top Three Major Industries^a
Louisiana	4,659,978	\$46,710	2,188,424	4.9	E, R, A ^b
Beauregard Parish	37,253	\$47,350	15,310	5.3	E, M, C
Jefferson Davis Parish	434,051	\$50,868	223,553	4.7	E, A, P
Calcasieu Parish	203,112	\$48,219	96,744	3.8	E, A, R
Cameron Parish	6,968	\$60,194	3,215	3.5	E, M, AG
<p>^a E = Educational services, and health care and social assistance; R = Retail trade; A = Arts, entertainment, and recreation, and accommodation and food services; M = Manufacturing; AG = Agriculture, forestry, fishing and hunting, and mining; P = Professional, scientific, and management, and administrative and waste management services; C = Construction.</p> <p>^b Construction and retail trade in Louisiana were reported as 11.3 %; however, the construction industry estimate was slighter higher.</p> <p>Sources: U.S. Census Bureau, 2019 and U.S. Bureau of Labor Statistics. 2019.</p>					

Construction of the Project would require an average workforce of 175 workers, including construction and supervisory personnel. Texas Eastern estimates between 25 to 50 percent of the construction workers hired would be local residents and that 2 new permanent personnel would be hired to operate the new facilities.

Given the population of the parishes, the size of the civilian labor force, and the relatively short duration of construction, we anticipate that the Project would have a temporary and negligible positive impact on unemployment rates in the Project area and a negligible impact on the population and industries within the Project area.

7.2. TRANSPORTATION

Construction of the Project may result in minor, temporary impacts on roadways due to construction and the movement of workers and heavy equipment to and from the compressor and M&R station sites. Table 8 identifies the number of average daily round trips from each site, the main access road and average daily traffic count, and the average increase in traffic that would occur during construction. The average daily round trips for construction worker commutes conservatively assume the maximum construction workforce at a given facility, and that all workers would commute in their own vehicles.

<p style="text-align: center;">Table 8 Traffic Counts and Average Daily Round Trips Estimates for Construction Workers</p>					
Facility	Main Access Roadway	Parish	Average Daily Traffic Count	Average Daily Round Trips by Construction Workers	Average Percentage Increase
Gillis Compressor Station and Momentum M&R Station	Texas Eastern Road	Beauregard	221	112	50.8%
East Calcasieu Compressor Station	Frugé Road	Calcasieu	317	108	34.0%
Iowa Plant and Trunkline M&R Station	Rt 3059 Jeff Davis Parish Road	Jefferson Davis	624	110	17.6%
Grand Chenier Compressor Station	Rt 1143 - E. Creole Road	Cameron	325	50	15.4%
TransCameron M&R Station and interconnect piping	Rt 82 - Oak Grove Highway	Cameron	1,606	60	3.7%
Source: Louisiana Department of Transportation & Development. 2019.					

Impacts from construction and operational activities include potential traffic delays associated with workers arriving on site and delivery of construction equipment and materials. Most construction workers would access the site before 7:00 am and depart after 7:00 pm, outside of typical commuting periods, while deliveries would occur during the course of the day throughout the approximate 11-month construction period. Two new workers would be hired to operate the facilities, but any increases in operational traffic would be *de minimis*.

Texas Eastern states it would require its contractor to implement a Traffic Control Plan to minimize the potential for traffic impacts. Specific traffic management measures to be used to minimize traffic impacts on local roadways would include:

- safety control devices, such as flaggers, for personnel, public, and traffic safety;
- temporary approaches are installed to and from the station sites that cross public roads and private roads; and
- prevention of tracking of mud onto public roadways. Mud tracked onto any public road would be promptly removed so that it does not create a traffic hazard.

Because of the limited size and duration of construction and Texas Eastern's proposed traffic management strategies (including use of the roads outside of peak periods), we conclude impacts on transportation would be temporary, and not significant.

7.3. HOUSING

Construction of the Project would require an average workforce of about 175 workers, including construction and inspection personnel, within the Project area. Texas Eastern estimates that about 25 to 50 percent of the construction workforce would be drawn from the Project area, therefore up to 132 workers from outside the Project area may require temporary housing during the construction period. In addition to there being an estimated 120 hotels and motels within the four parishes, the U.S. Census Bureau estimates that there were 3,650 vacant housing units available for rent in the Project area.

Based on the number of available rental units and hotels and motels in the Project area, along with other recreation vehicle parks and campgrounds in the Project area, we conclude that, even if all workers were non-local, the presence of the construction crews could cause a minor, temporary impact on housing in the Project area. Given the availability of housing, the addition of 2 new workers to the existing workforce within the four parishes would have only a negligible effect on housing in the Project area. Therefore, we conclude the Project would have a minor short-term impact on housing.

7.4. PUBLIC SAFETY

Texas Eastern identified the existing inventory of service providers in the Project area, which includes 8 hospitals with over 400 beds, 14 fire departments, and 18 police and sheriff departments (see table 9).

Table 9				
Public Services by Parish				
Proposed Project Element	Parish	Public Services by Parish		
		Police	Fire	Hospitals
Gillis Compressor Station and Momentum M&R Station	Beauregard Parish	1 Sheriff Office (“SO”), 2 Police Departments (“PD”): <ul style="list-style-type: none"> • Beauregard Parish SO • De Ridder PD • Merryville PD 	3 Departments 5 stations	Parish Total: 1 Hospital, 53 Beds: <ul style="list-style-type: none"> • Beauregard Memorial Hospital
Iowa Plant and Trunkline M&R Station	Jefferson Davis Parish	1 SO, 5 PD: <ul style="list-style-type: none"> • Jefferson Davis Parish SO • Elton PD • Fenton PD • Jennings PD • Lake Arthur PD • Welsh PD 	2 Departments 4 stations	Parish Total: 1 Hospital, 49 Beds: <ul style="list-style-type: none"> • Jennings American Legion Hospital
East Calcasieu Compressor Station	Calcasieu Parish	1 SO, 7 DO: <ul style="list-style-type: none"> • Calcasieu Parish SO • DeQuincy PD • Iowa PD • Lake Charles PD • McNeese State University PD • Sulphur PD • Vinton PD • Westlake PD 	7 Departments 22 stations	Parish Total: 5 Hospitals, 401 Beds: <ul style="list-style-type: none"> • Lake Charles Memorial Hospital (313 Beds) • Lake Charles Memorial Hospital for Women (38 Beds) • CHRISTUS Ochsner St. Patrick Hospital (148 Beds) • CHRISTUS Ochsner Lake Area Hospital (108 Beds) • West Calcasieu Cameron Hospital (107 Beds)
TransCameron M&R Station and interconnecting piping; Grand Chenier Compressor Station	Cameron Parish	1 SO, 0 PD: <ul style="list-style-type: none"> • Cameron Parish SO 	2 Departments 3 stations	Parish Total: 1 Hospital, 49 Beds: <ul style="list-style-type: none"> • South Cameron Memorial Hospital
Sources: USA Cops 2019; Beauregard Parish Sheriff’s Office 2019; Jefferson Davis Parish Sheriff’s Office 2019; Calcasieu Parish Sheriff’s Office 2019; Cameron Parish Sheriff’s Office 2019; FireDepartment.net 2019; American Hospital Directory 2019				

Although the need for medical, fire, and police services may increase slightly due to the 132 workers who would temporarily relocate to the Project area during the 11-month construction period, based on the information above, we conclude adequate public

safety services exist in the Project area to handle any Project-related emergency event and no significant impacts on these resources would occur as a result of the Project.

7.5. ECONOMY AND TAX REVENUE

The Project would contribute to the local and regional economy directly and indirectly through spending by construction workers, purchases of goods and materials, and from taxes collected on purchases, payroll, and property. Texas Eastern estimates the total construction payroll for the Project to be approximately \$7.8 million. Spending by non-local workers would include rent payments, food, and fuel purchases. They also estimate that the Project would pay \$3.5 million in sales taxes on goods and material purchases during the construction. When in service, the Project would pay approximately \$3.8 million per year in property taxes to the parishes and \$29,000 per year to the State of Louisiana in payroll taxes. The Project therefore would have a positive, although minor, impact on the local economy.

7.6. ENVIRONMENTAL JUSTICE

As part of our NEPA review, we consider the impacts on human health or the environment of the local populations, including impacts that would be disproportionately high and adverse for minority and low-income populations. Items considered in the evaluation of environmental justice include human health or environmental hazards, the natural physical environment, and associated social, economic, and cultural factors.

According to the CEQ environmental justice guidance under NEPA (CEQ 1997) and *Promising Practices for EJ Methodologies in NEPA Reviews* (USEPA 2016), minorities are those groups that include American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. Minority populations are defined where either; (a) the minority population of the affected area exceeds 50 percent or, (b) the minority population of the affected area is meaningfully greater (10 percent greater) than the minority population percentage in the general population or other appropriate unit of geographic analysis.

The CEQ guidance further recommends that low-income populations in an affected area should be identified using data on income and poverty from the U.S. Census Bureau and considered in the analyses. Low-income populations are populations where households have an annual household income below the poverty threshold, which is currently \$24,600 for a family of four.

Table 10 below identifies the demographic characteristics of the State of Louisiana, the four parishes affected by the Project, and census block groups within 1 mile of Project facilities. A census block group is a statistical division for presenting

census data that is smaller than a county or census tract, and typically contains between 600 and 3,000 residents. Census block group data in this table is compared to the reference parish-wide data to determine the presence or absence of Environmental Justice populations that may be adversely affected by the Project.

None of the census block groups within 1 mile of Project major aboveground facilities have minority populations that are higher than 50 percent of the population nor are the block group minority populations meaningfully greater than the minority population of the state or of the parish as a whole.

The percentage of low-income individuals living in block groups within 1 mile of the Project's major aboveground facilities are lower than the statewide or parish levels with the exception of Block Group 3 in Census Tract 20 in Jefferson Davis Parish adjacent to the existing Iowa Plant.

The types of impacts that could affect the Environmental Justice population within this census block include air quality and noise during construction and noise impacts and aesthetics during operation. As discussed above, the proposed facilities would be located within an existing compressor station and would be lower in height than some of the existing infrastructure, therefore visual impacts are not anticipated. All Project activities affecting this census block group would occur as part of construction and operation of the modifications to the existing Iowa Plant and the new Trunkline M&R Station.

Project construction activities would occur between 7:00 am and 7:00 pm, Monday through Saturday, over a 4-month period. The residences nearest to the Iowa Plant are more than 500 feet from the edge of any construction work areas, while the closest noise sensitive receptor to the Trunkline M&R Station is approximately 2,900 feet. Noise impacts during construction would be short-term and limited to daylight hours and Texas Eastern would control dust and emissions from construction equipment as described in section B.8.4. During operation, the noise levels from the new Trunkline M&R Station and the Iowa Plant would not be perceptible at the nearest NSA. The operational emissions from these facilities would be minor and would not reach any regulatory thresholds.

As described throughout this EA, the proposed Project would not have a significant adverse impact on the environment or on individuals living in the Project area. And based on the supplementary analysis above regarding environmental justice populations, we conclude the Project would not have a disproportionately high adverse environmental or human health impact on minority or low-income residents.

Table 10

Minority Populations and Poverty Levels in the Vicinity of the New and Existing Compressor Stations

State/Parish/ Census Tract/ Block Group	Total Population	White, not Hispanic or Latino	African- American	Hispanic or Latino	Asian	American Indian and Alaskan Native	Native Hawaiian and Pacific Islander	Two or More Races	Minority Population	Households Below Poverty Level
Louisiana	4,663,461	59.0%	32.0%	5.0%	1.7%	0.5%	<0.1%	1.6%	41.0%	19.0%
Gillis Compressor Station										
Beauregard Parish	36,598	80.0%	12.7%	3.7%	0.4%	0.6%	<0.1%	2.6%	20.0%	16.3%
<i>Census Tract 9607</i>										
Block Group 3	3,875	95.7%	2.6%	1.0%	0.0%	0.6%	0.0%	0.2%	4.3%	11.8%
Allen Parish	25,667	71.1%	19.0%	5.0%	0.7%	1.8%	0.0%	2.3%	28.9%	16.9%
<i>Census Tract 9501</i>										
Block Group 1	1,720	99.1%	0.5%	0.4%	0.0%	0.0%	0.0%	0.0%	0.9%	7.6%
Iowa Plant										
Jefferson Davis Parish	31,405	78.6%	16.3%	2.3%	0.4%	0.7%	0.0%	1.8%	21.4%	20.7%
<i>Census Tract 2</i>										
Block Group 1	1,781	90.9%	4.8%	1.2%	2.7%	0.0%	0.0%	0.4%	9.1%	16.0%
Block Group 3	2,041	82.3%	14.6%	0.0%	0.0%	0.0%	0.0%	3.0%	17.7%	9.6%
Calcasieu Parish	198,753	68.2%	24.6%	3.2%	1.4%	0.3%	<0.1%	0.1%	31.8%	16.3%
<i>Census Tract 20</i>										
Block Group 2	3,045	89.3%	1.2%	3.2%	0.0%	0.0%	0.0%	4.0%	10.7%	16.1%
Block Group 3	1,755	98.3%	0.6%	1.1%	0.0%	0.0%	0.0%	0.0%	1.7%	30.3%
East Calcasieu Compressor Station										
Calcasieu Parish	198,753	68.2%	24.6%	3.2%	1.4%	0.3%	<0.1%	0.1%	31.8%	16.3%
<i>Census Tract 20</i>										
Block Group 4	2,904	88.9%	9.3%	0.0%	0.0%	0.0%	0.0%	1.8%	11.1%	16.4%
Grand Chenier Compressor Station										
Cameron Parish	6,806	91.3%	2.8%	5.5%	0.3%	0.0%	0.0%	0.1%	8.7%	10.3%
<i>Census Tract 9701</i>										
Block Group 3	430	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Sources: U.S. Census Bureau 2019; Bold indicates a statistic that exceeds threshold for the given population.

8.0 AIR QUALITY

Air quality in the Project area would be affected by construction and operation of the Project. The term air quality refers to relative concentrations of pollutants in the ambient air. Although minor air emissions would be generated by Project construction, the majority of air emissions associated with the Project would result from Project operation. Minor temporary emissions would result from construction of the proposed new facilities (Momentum M&R Station, Trunkline M&R Station, East Calcasieu Compressor Station, and TransCameron M&R Station).

The proposed new M&R stations, as well as modifications at the existing Gillis Compressor Station, Iowa Plant, and Grand Chenier Compressor Station would not result in substantial new operating air emissions. New operational emissions would, however, result from the proposed new East Calcasieu Compressor Station in Calcasieu Parish, Louisiana. The subsections below summarize federal and state air quality regulations that are applicable to the Project. This section also characterizes the existing air quality and describes potential impacts the facilities may have on air quality regionally and locally.

8.1. EXISTING ENVIRONMENT

The climate in the Project area (Gulf Coastal Plain) is influenced by warm, moist air from the Gulf of Mexico. According to the Comparative Climatic Data for the United States Through 2015 (National Oceanic and Atmospheric Administration 2015), the mean annual precipitation is 57.5 inches, with monthly average precipitation ranging from a low of 3.3 inches in April to a maximum of 9.9 inches in June. Precipitation of 0.01 inch or greater occurs on about 104 days per year on average. The average annual snowfall is 0.2 inch.

Ambient air quality is protected by the Clean Air Act (CAA) of 1970, as amended in 1977 and 1990. The USEPA oversees the implementation of the CAA and establishes National Ambient Air Quality Standards (NAAQS) to protect human health and welfare. NAAQS have been developed for seven “criteria air pollutants,” including nitrogen dioxide, carbon monoxide (CO), ozone, sulfur dioxide (SO₂), particulate matter less than or equal to 2.5 microns in aerodynamic diameter (PM_{2.5}), particulate matter less than or equal to 10 microns in aerodynamic diameter (PM₁₀), and lead, and include levels for short-term (acute) and long-term (chronic) exposures. The NAAQS include two standards, primary and secondary. Primary standards establish limits that are considered to be protective of human health and welfare, including sensitive populations such as children, the elderly, and asthmatics. Secondary standards set limits to protect public welfare, including protection against reduced visibility and damage to crops, vegetation, animals, and buildings (USEPA 2019c). Although ozone is a criteria air pollutant, it is not emitted into the atmosphere from an emissions source; rather, it develops as a result

of a chemical reaction between nitrogen oxides (NO_x) and VOCs in the presence of sunlight. Therefore, NO_x and VOCs are referred to as ozone precursors and are regulated to control the potential for ozone formation. Additionally, pollutants, such as VOCs and hazardous air pollutants (HAP), are emitted during fossil fuel combustion. These pollutants are regulated through various components of the CAA that are discussed further below.

The USEPA, and state and local agencies have established a network of ambient air quality monitoring stations to measure concentrations of criteria pollutants across the U.S. The data are then averaged over a specific time period and used by regulatory agencies to determine compliance with the NAAQS and to determine if an area is in attainment (criteria pollutant concentrations are below the NAAQS), nonattainment (criteria pollutant concentrations exceed the NAAQS), or maintenance (area was formerly nonattainment and is currently in attainment). Beauregard, Cameron, Calcasieu, and Jefferson Davis Parishes are currently designated as attainment/unclassifiable for all pollutants.

Greenhouse gases (GHG) occur in the atmosphere both naturally and as a result of human activities, such as the burning of fossil fuels. GHGs are non-toxic and non-hazardous at normal ambient concentrations, and there are no applicable ambient standards or emission limits for GHGs under the CAA. The primary GHGs that would be emitted by the Project are carbon dioxide (CO₂), methane, and nitrous oxide. During construction and operation of the Project, these GHGs would be emitted from the majority of construction and operational equipment, as well as from fugitive methane leaks from the aboveground facilities.

Emissions of GHGs are typically quantified and regulated in units of carbon dioxide equivalents (CO₂e). The CO₂e takes into account the global warming potential (GWP) of each GHG. The GWP is the measure of a particular GHG's ability to absorb solar radiation as well as its residence time within the atmosphere. The GWP allows comparison of global warming impacts between different gases; the higher the GWP, the more that gas contributes to climate change in comparison to CO₂. Thus, CO₂ has a GWP of 1, methane has a GWP of 25, and nitrous oxide has a GWP of 298.

8.2. REGULATORY REQUIREMENTS

The provisions of the CAA that may be applicable to the Project are discussed below. The estimated potential operational emissions for the Project are shown in table 12.

8.2.1. Prevention of Significant Deterioration and Nonattainment New Source Review

Proposed new or modified air pollutant emission sources must undergo a New Source Review (NSR) prior to construction or operation. Through the NSR permitting process, state and federal regulatory agencies review and approve project emissions increases or changes, emissions controls, and various other details to ensure air quality does not deteriorate as a result of new or modified existing emission sources. The two basic groups of NSR are major source NSR and minor source NSR. Major source NSR has two components: Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NNSR). PSD, NNSR, and minor source NSR are applicable to projects depending on the size of the proposed project, the projected emissions, and if the project is proposed in an attainment area or nonattainment/maintenance area. PSD regulations define a major source as any source type belonging to a list of 28 specifically listed source categories that have a potential to emit 100 tons per year (tpy) or more of any regulated pollutant or 250 tpy for sources not among the listed source categories (such as natural gas compressor stations). These are referred to as the PSD major source thresholds. As shown in table 12, all of the proposed facilities would result in air pollutant emissions below the major PSD or NNSR thresholds. Therefore, the Project would not require air permitting under PSD or NNSR.

8.2.2. Title V Permitting

Title V is an operating air permit program run by each state for each facility that is considered a “major source.” The major source threshold for an air emission source is 100 tpy for criteria pollutants, 10 tpy for any single HAP, and 25 tpy for total HAPs. The existing Gillis Compressor Station operates under the Title V permitting program. The proposed station modifications, although resulting in minor emissions, would nevertheless require the existing Title V Permit to be modified. Texas Eastern stated in its application that it would submit a Title V minor modification application to authorize the operation of the proposed modifications to the LDEQ. All of the proposed new compressor and metering stations associated with the Project would not be major sources; therefore, the Title V permit program does not apply.

8.2.3. New Source Performance Standards

The USEPA promulgates New Source Performance Standards (NSPS) for new, modified, or reconstructed sources to control emissions to the level achievable by the best-demonstrated technology for stationary source types or categories as specified in the applicable provisions discussed below. NSPS also establishes fuel, monitoring, notification, reporting, and recordkeeping requirements.

Title 40 CFR 60, Subpart OOOOa, applies to Crude Oil and Natural Gas Facilities for which construction, modification, or reconstruction commenced after September 18, 2015. The rule includes requirements for new or modified affected sources that include: each centrifugal compressor with wet seal systems, storage tanks with the potential to

emit greater than six tons per year uncontrolled, each continuous bleed pneumatic controller, and the collection of fugitive emissions components at a compressor station. An affected (fugitive emissions components) facility is modified only if the station adds new or increased compression capacity (hp). The scope of this Project includes compression capacity at the East Calcasieu Compressor Station, and as such OOOOa is applicable. NSPS Subpart JJJJ applies to owners and operators of new or existing stationary spark ignition internal combustion engines that commence construction, modification, or reconstruction after June 12, 2006. The Project includes a new emergency stationary spark ignition internal combustion engine greater than 25 hp at the East Calcasieu Compressor Station, and therefore, the requirements of subpart JJJJ would apply to the proposed Project.

Title 40 CFR 60, Subpart KKKK, applies to stationary combustion turbines with a heat input rate at peak load of 10 million British Thermal Units per hour or greater that commenced construction, modification, or reconstruction after February 18, 2005. The Project involves the installation of one new stationary combustion turbine at the proposed East Calcasieu Compressor Station. Therefore, the Project would trigger the emissions limitations and related monitoring, reporting, recordkeeping, and testing requirements under Subpart KKKK of Part 60.

Title 40 CFR 60, Subpart JJJJ, applies to owners and operators of new or existing stationary spark ignition internal combustion engines that commence construction, modification, or reconstruction after June 12, 2006. The Project includes a new emergency stationary greater than 25 hp at the East Calcasieu Compressor Station. Therefore, requirements of Subpart JJJJ would apply to the proposed Project.

8.2.4. General Conformity

The lead federal agency must conduct a conformity analysis if a federal action would result in the generation of emissions that would exceed the conformity threshold levels of the pollutant(s) for which a county is designated nonattainment or maintenance. Because the Project activities would occur in areas that are designated as attainment or unclassified for all criteria pollutants, the Project is not subject to a General Conformity analysis.

8.2.5. Greenhouse Gas Reporting (GHG)

Subpart W under 40 CFR Part 98, the Mandatory Greenhouse Gas Reporting Rule, requires petroleum and natural gas systems that emit 25,000 metric tons or more of CO_{2e} per year to report annual emissions of GHG to the USEPA.

Emissions of GHGs associated with operation of the proposed Project, including all emission sources, were calculated and are shown in table 12 below. GHG emissions were converted to total CO_{2e} emissions. The reporting rule does not apply to construction

emissions. If actual GHG emissions exceed 25,000 metric tons of CO₂e per year, GHG emissions would be required to be reported per 40 CFR Part 98.

8.3. STATE AIR QUALITY REGULATIONS

The LDEQ regulates the construction and operation of stationary sources of emission in Louisiana and has adopted all of the NAAQS at 40 CFR Part 50. As a result, the proposed Project would need to comply with the regulations that apply to new stations.

8.4. CONSTRUCTION EMISSIONS IMPACTS AND MITIGATION

Project construction would result in temporary, localized emissions that would last the duration of construction activities. Heavy equipment, trucks, delivery vehicles, and construction workers commuting to and from work areas would generate exhaust emissions through the use of diesel or gasoline engines.

Construction activities, such as land clearing and grading, ground excavation and soil disturbance, and driving on unpaved roads, would also result in the temporary generation of fugitive dust. The amount of dust generated would be a function of construction activity, soil type, soil moisture content, wind speed, precipitation, vehicle traffic and types, and roadway characteristics. Emissions would be greater during dry periods and in areas of fine-textured soils subject to surface activity.

Texas Eastern estimated construction emissions based on a typical construction equipment list, hours of operation, and vehicle miles traveled by the construction equipment and supporting vehicles used for the planned work using USEPA emission factors. Emissions from construction equipment and vehicles, as well as from vehicles driven by construction workers commuting to and from the Project work site during construction, were estimated using USEPA Motor Vehicle Emission Simulator model. Table 11 below provides the total Project construction emissions by county, including exhaust emissions and fugitive dust from on-road and off-road construction equipment and vehicles, exhaust emissions from construction worker vehicles for commuting, and exhaust emissions from vehicles used to deliver equipment/materials to the site.

Table 11 Summary of Estimated Emissions from Construction of the Project											
Source	Criteria Pollutants (tpy)							GHGs (tpy)			CO ₂ e (tpy)
	PM ₁₀	PM _{2.5}	VOCs	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	
Beauregard Parish	1.27	1.08	2.29	12.66	0.02	11.50	0.49	3,203.26	0.05	0.11	3,221.20
<i>Year 2020 (estimated 1 month)</i>	<i>0.11</i>	<i>0.11</i>	<i>0.22</i>	<i>1.16</i>	<i>0.00</i>	<i>1.14</i>	<i>0.05</i>	<i>286.79</i>	<i>0.00</i>	<i>0.01</i>	<i>288.47</i>
Off-Road Engines	0.10	0.10	0.22	1.05	0.00	1.12	0.05	267.57	0.00	0.01	269.20
Onroad Engines	0.00	0.00	0.00	0.12	0.00	0.03	0.00	19.22	0.00	0.00	19.27
Unpaved Roads	0.00	0.00	--	--	--	--	--	--	--	--	--
Material Handling & Wind Erosion	0.01	0.00	--	--	--	--	--	--	--	--	--
<i>Year 2021 (estimated 6 months)</i>	<i>1.16</i>	<i>0.98</i>	<i>2.07</i>	<i>11.50</i>	<i>0.02</i>	<i>10.36</i>	<i>0.44</i>	<i>2,916.47</i>	<i>0.05</i>	<i>0.10</i>	<i>2,932.73</i>
Off-Road Engines	0.90	0.94	2.07	9.87	0.02	10.14	0.44	2,690.83	0.04	0.10	2,706.55
Onroad Engines	0.01	0.01	0.01	1.63	0.00	0.23	0.00	225.64	0.00	0.00	226.18
Unpaved Roads	0.17	0.02	--	--	--	--	--	--	--	--	--
Material Handling & Wind Erosion	0.07	0.01	--	--	--	--	--	--	--	--	--
Calcasieu Parish	18.62	2.74	2.08	13.37	0.02	10.86	0.45	3,248.97	0.05	0.11	3,266.00
<i>Year 2020 (estimated 1 month)</i>	<i>0.72</i>	<i>0.15</i>	<i>0.19</i>	<i>1.06</i>	<i>0.00</i>	<i>0.81</i>	<i>0.04</i>	<i>214.18</i>	<i>0.00</i>	<i>0.01</i>	<i>215.59</i>
Off-Road Engines	0.08	0.08	0.19	0.90	0.00	0.76	0.04	183.55	0.00	0.01	184.88
Onroad Engines	0.00	0.00	0.00	0.17	0.00	0.04	0.00	30.63	0.00	0.00	30.71
Unpaved Roads	0.64	0.06	--	--	--	--	--	--	--	--	--
Material Handling & Wind Erosion	0.01	0.00	--	--	--	--	--	--	--	--	--
<i>Year 2021 (estimated 9 months)</i>	<i>17.89</i>	<i>2.59</i>	<i>1.89</i>	<i>12.31</i>	<i>0.02</i>	<i>10.05</i>	<i>0.41</i>	<i>3,034.79</i>	<i>0.04</i>	<i>0.10</i>	<i>3,050.41</i>
Off-Road Engines	0.83	0.86	1.88	9.01	0.02	9.55	0.41	2,551.42	0.04	0.09	2,565.87
Onroad Engines	0.02	0.02	0.01	3.30	0.00	0.51	0.00	483.37	0.00	0.01	484.54
Unpaved Roads	16.98	1.70	--	--	--	--	--	--	--	--	--
Material Handling & Wind Erosion	0.07	0.01	--	--	--	--	--	--	--	--	--

<p align="center">Table 11 Summary of Estimated Emissions from Construction of the Project</p>											
Source	Criteria Pollutants (tpy)							GHGs (tpy)			CO ₂ e (tpy)
	PM ₁₀	PM _{2.5}	VOCs	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	
Cameron Parish	1.52	0.87	1.53	10.54	0.02	9.40	0.38	2,904.21	0.04	0.08	2,917.03
<i>Year 2020 (No construction estimated)</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>
<i>Year 2021 (estimated 7 months)</i>	<i>1.52</i>	<i>0.87</i>	<i>1.53</i>	<i>10.54</i>	<i>0.02</i>	<i>9.40</i>	<i>0.38</i>	<i>2,904.21</i>	<i>0.04</i>	<i>0.08</i>	<i>2,917.03</i>
Off-Road Engines	0.74	0.77	1.52	7.24	0.02	8.89	0.38	2,420.84	0.03	0.07	2,432.49
Onroad Engines	0.02	0.02	0.01	3.30	0.00	0.51	0.00	483.37	0.00	0.01	484.54
Unpaved Roads	0.69	0.07	--	--	--	--	--	--	--	--	--
Material Handling & Wind Erosion	0.07	0.01	--	--	--	--	--	--	--	--	--
Jefferson Davis Parish	2.45	0.95	1.52	8.62	0.02	9.00	0.38	2,583.91	0.03	0.07	2,595.93
<i>Year 2020 (No construction estimated)</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>
<i>Year 2021 (estimated 6 months)</i>	<i>2.45</i>	<i>0.95</i>	<i>1.52</i>	<i>8.62</i>	<i>0.02</i>	<i>9.00</i>	<i>0.38</i>	<i>2,583.91</i>	<i>0.03</i>	<i>0.07</i>	<i>2,595.93</i>
Off-Road Engines	0.74	0.77	1.51	7.21	0.02	8.81	0.38	2,392.53	0.03	0.07	2,404.11
Onroad Engines	0.01	0.01	0.00	1.41	0.00	0.19	0.00	191.38	0.00	0.00	191.82
Unpaved Roads	1.64	0.16	--	--	--	--	--	--	--	--	--
Material Handling & Wind Erosion	0.07	0.01	--	--	--	--	--	--	--	--	--
Total Project Pipeline Emissions ^a	23.85	5.63	7.42	45.20	0.09	40.76	1.69	11,940.35	0.17	0.37	12,000.15
^a Due to rounding, the totals may not reflect the sum of the addends.											

Construction emissions shown in table 11 are not expected to result in a degradation of ambient air quality standards or an exceedance of the NAAQS because they are intermittent, temporary, and below conformity *de minimis* thresholds.

Texas Eastern would mitigate emissions by monitoring dust levels and implementing its Dust Control Plan, including dust suppression techniques, such as:

- application of water sprays in accordance with applicable regulations; and
- reducing vehicle speeds on unpaved roads and access roads.

With the mitigation measures proposed by Texas Eastern, we conclude that air quality impacts from Project construction would be temporary and would not result in significant impact on local or regional air quality.

8.5. OPERATIONAL EMISSIONS IMPACTS

Emissions, including fugitive emissions, from the proposed new East Calcasieu Compressor Station are given in table 12. GHG emissions from the M&R stations, mostly from gas leak events and fugitive leaks from pipeline components, are given in table 13.

Table 12 Summary of Estimated Emissions from Operation of the East Calcasieu Compressor Station							
Description	CO ₂ e	NO _x	CO	PM ₁₀ / PM _{2.5}	SO ₂	VOC	Total HAPS
	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)
Totals	124,091	30.79	8.76	5.94	12.58	32.45	2.56

Table 13 Meter Station Potential-to-Emit		
Facility	CO ₂ e tpy	CO ₂ e metric tons per year
Momentum M&R Station	920.02	834.63
Trunkline M&R Station	997.06	904.52
TransCameron M&R Station	1,062.09	963.51

Air dispersion modeling was performed for the East Calcasieu Compressor Station using AERMOD, the Gaussian plume model sanctioned by the USEPA. The air dispersion modeling results are summarized in the table below. As shown in table 14, all total concentrations would be below the NAAQS in the local vicinity of the proposed Project.

Table 14 Modeled Emissions from Operation of the East Calcasieu Compressor Station					
Pollutant	Averaging Period	Maximum Modeled	Background Concentration	Cumulative Impacts	National Ambient Air Quality Standards (NAAQS)
		Concentration³			
		ug/m³	ug/m³	ug/m³	ug/m³
NO ₂	Annual	6.01	15.04	21.05	100
	1-hr	60.1	73.32	133.42	188
CO	8-hr	263.6	534.33	797.93	10,000
	1-hr	292.9	877.83	1,170.73	40,000
PM ₁₀	24-hr	3.1	72.67	75.77	150
PM _{2.5}	Annual	0.52	7.77	8.28	12
	24-hr	3.1	21.33	24.44	35
SO ₂	Annual	1.13	0.45	1.58	80
	24-hr	6.79	7.5	14.29	365
	3-hr	11.32	-	11.32	-
	1-hr	11.32	28.67	39.99	196

We conclude that there would not be any significant impacts from construction of the facilities proposed in this Project because the existing air quality is in conformity with the NAAQS and the temporary nature of construction activity would not be expected to lead to any significant deterioration of air quality.

There would also not be any significant impacts on air quality from operation of the Project facilities. The equipment at these facilities would conform with CAA regulations that are designed to ensure acceptable regional air quality. Further, we conclude on the basis of our air modeling analysis that there would be no significant local air quality impacts.

9.0 NOISE

Noise is generally defined as sound with intensity greater than the ambient or background sound pressure level. Construction and operation of the Project would affect overall noise levels in the Project area. The magnitude and frequency of environmental noise may vary considerably over the course of the day, throughout the week, and across seasons, in part due to changing weather conditions and the effects of seasonal vegetative cover. Two measures that relate the time-varying quality of environmental noise to its known effect on people are the 24-hour equivalent sound level (L_{eq}) and day-night sound

level (L_{dn}). The L_{eq} is an A-weighted sound level containing the same energy as the instantaneous sound levels measured over a specific time period. Noise levels are perceived differently, depending on length of exposure and time of day. The L_{dn} takes into account the duration and time the noise is encountered. Specifically, the L_{dn} is the L_{eq} plus a 10 decibel on the A-weighted scale (dBA) penalty added to account for people's greater sensitivity to nighttime sound levels (typically considered between the hours of 10:00 pm and 7:00 am). The A-weighted scale is used to assess noise impacts because human hearing is less sensitive to low and high frequencies than mid-range frequencies. The human ear's threshold of perception for noise change is considered to be 3 dBA; 6 dBA is clearly noticeable to the human ear, and 10 dBA is perceived as a doubling of noise (Bies and Hansen, 1988).

9.1. FEDERAL NOISE REGULATIONS

In 1974, the USEPA published Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (USEPA, 1974). This document provides information for state and local governments to use in developing their own ambient noise standards. The USEPA has indicated that an L_{dn} of 55 dBA protects the public from indoor and outdoor activity interference. We have adopted this criterion and use it to evaluate the potential noise impacts from the proposed Project at noise sensitive areas (NSAs). NSAs are defined as homes, schools, churches, or any location where people reside or gather. FERC requires that the noise attributable to any new or modified compressor engine during full load operation not exceed an L_{dn} of 55 dBA at any NSAs. Due to the 10 dBA nighttime penalty added prior to the logarithmic calculation of the L_{dn} , for a facility to meet the 55 dBA L_{dn} limit, it must be designed such that actual constant noise levels on a 24-hour basis do not exceed 48.6 dBA L_{eq} at any NSA.

9.2. CONSTRUCTION NOISE IMPACTS AND MITIGATION

Noise would be generated during construction of the Project. Construction activities throughout the Project site would last up to the estimated eight months on an intermittent basis. Texas Eastern would conduct the majority of construction activities from 7:00 am until 7:00 pm, Monday through Saturday. However, Texas Eastern anticipates that the following activities may need to be completed overnight or over the weekend due to specific construction requirements or when other construction crews are demobilized:

- hydrostatic and/or pneumatic pressure testing;
- welding;
- x-ray activities including non-destructive testing of welds;
- depressurization of pipelines; and
- miscellaneous electrical or similar work inside building structures.

Construction noise associated with the above listed activities is expected to be short-term, intermittent, and is not expected to result in significant noise impacts on nearby NSAs. Texas Eastern would employ functional mufflers on all equipment in order to minimize construction noise levels.

Based on the temporary nature of construction activities, Texas Eastern's commitment to conduct the majority of construction activities during daytime hours, and the mitigation measures Texas Eastern would employ during both daytimes and nighttime activities, we conclude that construction noise would not result in significant noise impacts on residents or the surrounding communities.

9.3. OPERATION NOISE IMPACTS AND MITIGATION

The results of the ambient sound survey were used in determining the proposed Project's noise impacts on nearby NSAs. Based on manufacturers' data, Texas Eastern determined the noise levels due to operation of the proposed facilities. The results of the existing sound survey were then combined with the predicted noise impacts from the proposed new equipment to determine the noise impacts from operation of the station at each NSA. The results of the operational noise analysis are provided below in tables 15 and 16.

The operational noise levels attributable to the Momentum, Trunkline, and TransCameron M&R Stations would remain below 55 dBA L_{dn} at the nearby NSAs. While the overall sound level of the TransCameron M&R Station at the nearest NSA, in combination with ambient noise, would slightly exceed 55 dBA L_{dn} , the sound level attributable to the TransCameron M&R would remain below 55 dBA and the noise increase would be imperceptible to human ears. The noise levels from operation of the East Calcasieu Compressor Station would remain below 55 dBA.

To ensure the estimated noise levels are met, Texas Eastern would cover aboveground gas piping and associated piping components with acoustical insulation and the regulator skid/piping would be enclosed with an "off-skid" building, as appropriate to ensure that sound levels do not exceed 55 dBA at the nearest NSAs.

Table 15 Acoustical Analysis for the East Calcasieu Compressor Station					
Closest NSA (Type)	Distance and Direction of NSA to Site Center	Current Ambient L_{dn} (dBA)	Estimated L_{dn} of the station (dBA) at Full Load	Estimated station L_{dn} + Ambient Level/ L_{dn} (dBA)	Potential Change in Current Ambient Sound Level (dB)
NSA #1 (Residence)	3,100 ft NE	48.1	43.0	49.3	1.2

<p align="center">Table 16 Acoustical Analysis for the Momentum, Trunkline, and TransCameron M&R Stations</p>					
Closest NSA (Type)	Distance and Direction of NSA to Site Center	Current Ambient L_{dn} (dBA)	Estimated L_{dn} of the Station (dBA) at Full Load	Estimated Station L_{dn} + Ambient Level/ L_{dn} (dBA)	Potential Change in Current Ambient Sound Level (dB)
Momentum	550 ft W and	47.1	49.3	51.3	4.2
M&R Station NSA #1 and NSA #2	550 ft E				
Trunkline M&R Station NSA #1	2,900 ft NNW	44.7	38.6	45.7	1.0
TransCameron M&R Station NSA #1	1,200 ft WSW	54.3	48.7	55.4	1.1

While the analysis above shows that noise impacts at the NSAs from the Project would be below our 55 dBA requirement, to verify compliance with the FERC's noise standards, **we recommend that:**

- **Texas Eastern should file noise surveys with the Secretary no later than 60 days after placing the East Calcasieu Compressor Station into service. If a full power load condition noise survey is not possible, Texas Eastern should file an interim survey at the maximum possible power load within 60 days of placing the station into service and file the full power load survey within 6 months. If the noise from all the equipment operated at the station under interim or full power load conditions exceeds an L_{dn} of 55 dBA at any nearby NSA, Texas Eastern should:**
 - a. **file a report with the Secretary, for review and written approval by the Director of OEP, on what changes are needed;**
 - b. **install additional noise controls to meet that level within 1 year of the in-service date; and**
 - c. **confirm compliance with the L_{dn} of 55 dBA requirement by filing a second noise survey with the Secretary no later than 60 days after it installs the additional noise controls.**
- **Texas Eastern should file noise surveys with the Secretary no later than 60 days after placing the Momentum, Trunkline, and TransCameron M&R Stations into service. If the noise from the**

stations exceeds an L_{dn} of 55 dBA at any nearby NSA, Texas Eastern should:

- d. file a report with the Secretary, for review and written approval by the Director of OEP, on what changes are needed;**
- e. install additional noise controls to meet that level within 1 year of the in-service date; and**
- f. confirm compliance with the L_{dn} of 55 dBA requirement by filing a second noise survey with the Secretary no later than 60 days after it installs the additional noise controls.**

Based on the predicted noise impacts at the proposed aboveground facilities, the sound mitigation measures proposed by Texas Eastern, and the recommendations stated above, we conclude that the proposed Project would not result in significant noise impacts on residents or the surrounding communities.

10.0 RELIABILITY AND SAFETY

The pressurization of natural gas at the proposed aboveground facilities involves some incremental risk to the public due to the potential for accidental release of natural gas. The greatest hazard is a fire or explosion following a major pipeline rupture.

Methane, the primary component of natural gas, is colorless, odorless, and tasteless. It is not toxic, but is classified as a simple asphyxiate, possessing a slight inhalation hazard. If breathed in high concentration, oxygen deficiency can result in serious injury or death. Methane has an auto-ignition temperature of 1,000 °F and is flammable at concentrations between 5.0 and 15.0 percent in air. An unconfined mixture of methane and air is not explosive; however, it may ignite and burn if there is an ignition source. A flammable concentration within an enclosed space in the presence of an ignition source can explode. It is buoyant at atmospheric temperatures and disperses rapidly in air.

10.1. SAFETY STANDARDS

The DOT is mandated to prescribe minimum safety standards to protect against risks posed by natural gas facilities under Title 49 of the U.S. Code, Chapter 601. The DOT's Pipeline and Hazardous Materials Safety Administration administers the national regulatory program to ensure the safe transportation of natural gas and other hazardous materials by pipeline. It develops safety regulations and other approaches to risk management that ensure safety in the design, construction, testing, operation, maintenance, and emergency response of natural gas facilities. Many of the regulations

are written as performance standards, which set the level of safety to be attained and allow the operator to use various technologies to achieve safety. The Pipeline and Hazardous Materials Safety Administration's safety mission is to ensure that people and the environment are protected from the risk of incidents. This work is shared with state agency partners and others at the federal, state, and local level.

10.1.1. Station Design

The piping and aboveground facilities associated with the proposed Project would be designed, constructed, operated, and maintained in accordance with the DOT Minimum Federal Safety Standards in 49 CFR 192. The regulations are intended to ensure adequate protection for the public and to prevent natural gas facility accidents and failures. The DOT specifies material selection and qualification; minimum design requirements; and protection from internal, external, and atmospheric corrosion.

Part 192 of 49 CFR establishes safety guidelines for the design and construction of compressor stations in addition to pipeline safety standards. Part 192.163 requires the location of each main compressor building of a compressor station be on a property under the control of the operator. The station must also be far enough away from adjacent property, not under control of the operator, to minimize the possibility of fire spreading to the compressor building from structures on adjacent properties. Part 192.163 also requires each building on a compressor station site be made of specific building materials and to have at least two separate and unobstructed exits. The station must be in an enclosed fenced area and must have at least two gates to provide a safe exit during an emergency.

10.2. EMERGENCIES

The DOT prescribes the minimum standards for operating and maintaining pipeline and aboveground natural gas facilities, including the requirement to establish a written plan governing these activities. Each operator is required to establish an emergency plan that includes procedures to minimize the hazards of a natural gas emergency. Key elements of the plan include procedures for:

- receiving, identifying, and classifying emergency events, gas leakage, fires, explosions, and natural disasters;
- establishing and maintaining communications with local fire, police, and public officials, and coordinating emergency response;
- emergency system shutdown and safe restoration of service;
- making personnel, equipment, tools, and materials available at the scene of an emergency; and
- protecting people first and then property, and making them safe from actual or potential hazards.

The DOT requires that each operator establish and maintain liaison with appropriate fire, police, and public officials to learn the resources and responsibilities of each organization that may respond to a natural gas pipeline or facility emergency, and to coordinate mutual assistance. Texas Eastern must also establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a gas emergency and report it to the appropriate public officials. Texas Eastern would provide the appropriate training to local emergency service personnel before the Project is placed in service.

With continued compliance with DOT safety standards, operation, and maintenance requirements, we conclude the Project would be constructed and operated safely.

11.0. CUMULATIVE IMPACTS

In accordance with NEPA and with FERC policy, we evaluated the potential for cumulative effects of the Project. Cumulative impacts represent the incremental effects of a proposed action when added to other past, present, or reasonably foreseeable future actions, regardless of the agency or party undertaking such other actions. Cumulative impacts can result from individually minor, but collectively significant actions, taking place over time.

This cumulative effects analysis generally follows a method set forth in relevant CEQ and USEPA guidance and focuses on potential impacts from the Project on resource areas or issues where the incremental contribution would be potentially significant when added to the potential impacts of other actions. To avoid unnecessary discussions of insignificant impacts and projects and to adequately address and accomplish the purposes of this analysis, an action must first meet the following three criteria to be included in the cumulative analysis:

- affect a resource potentially affected by the Project;
- cause this impact within all, or part of, the Project area (i.e. geographic scope); and
- cause this impact within all, or part of, the time span for the potential impact from the Project.

Actions outside the Project's geographic scope, as defined below in table 17 and timeframe were generally not evaluated because their potential to contribute to a cumulative impact would diminish with increasing distance and time from the Project. In this analysis, we consider the impacts of past projects as part of the affected environment (environmental baseline) which was described and evaluated in the preceding analysis.

However, present effects of past actions that are relevant and useful are also considered. Texas Eastern obtained information about present and future planned developments by consulting federal, state, and local agency and municipality websites, reports, and direct communications; permit applications with various agencies; and online database searches.

Table 17	
Geographic Scope of Potential Impact of the Project	
Resource	Geographic Scope
Soils	Limits of Project disturbance
Water Resources	Watershed boundary (HUC-12)
Vegetation, Wildlife, and Special Status Species	HUC-12
Land Use	1 mile
Visual Resources	For aboveground facilities, distance that the tallest feature at the planned facility would be visible from neighboring communities. For pipelines, 0.5 mile and existing visual access points
Air Quality	Construction: 0.25 mile Operation: 31.07 miles (50 kilometers)
Socioeconomics	Affected counties and municipalities
Noise	Construction: 0.25 mile Operation: 1 mile

The EA analyzed the Project impacts on geology and soils; water resources; vegetation and wildlife; cultural resources; land use and visual resources; socioeconomics; air quality and noise. As described earlier in section B of this EA, the Project-related construction and operational impacts would not impact cultural resources or geologic resources. Therefore, the Project would not contribute to cumulative impacts within the geographic and temporal scope of these resources and they will not be discussed further. Below, we assess the potential for cumulative impacts on soils, water resources, vegetation, wildlife, land use, visual resources, socioeconomics, air quality, and noise.

The following describes the geographic scope and rationale for our cumulative impact analysis:

- Impacts on soils are generally localized to the construction right-of-way because of implementation of mitigation measures, including erosion and sediment controls, among others.
- Impacts on water resources, vegetation, and wildlife could extend outside of the workspaces, but would generally be contained to a relatively small area. We believe the watershed scale is most appropriate to evaluate impacts as it

provides a natural boundary and a geographic proxy to accommodate general wildlife habitat and ecology characteristics in the Project area. Therefore, we evaluated projects within the HUC-12 watersheds (Broussard Lake, Lower Barnes Creek, Bayou Arceneaux, Indian Bayou Canal, and Broussard Lake) that would be crossed by the Project.

- Impacts on land use and visual resources would occur as a result of temporary vegetation clearing, ground disturbance, and increases in noise and dust during construction activities. The geographic scope of cumulative impacts analysis for land use is focused on those projects that occur within 1 mile of the project, and 0.5 mile for visual resources as this is the range that the proposed facilities are likely to be seen.
- Impacts from facility construction and temporary construction work force may affect socioeconomic conditions. We evaluated current and proposed projects that overlap in time and location within the affected counties and municipalities within the geographic scope.
- Temporary impacts on air quality, including fugitive dust, would be largely limited to areas within 0.25 mile of active construction. For impacts on air quality for operation, we adopted the distance used by the USEPA for cumulative modeling of large PSD sources during permitting (40 CFR 51, appendix W), which is a 50-kilometer (31 mile) radius. We evaluated current and proposed sources that overlap in time and location with construction activities within the geographic scope.
- Impacts from construction noise could potentially contribute to cumulative impacts on NSAs within 0.25 mile for general construction activities and 1-mile radius for operation activities.

Eleven projects were identified as occurring within the resource-specific geographic scopes and are identified based on resource type below in appendix B (table B-4).

The projects within the geographic scope include: Venture Global Calcasieu Pass LNG Export Terminal (CP15-550); Momentum Pipeline; TransCameron Pipeline (CP15-551); Cameron LNG Expansion Project (CP13-25); Commonwealth LNG Project (CP19-502); Driftwood and Driftwood Pipeline Projects (CP17-117, CP17-118); Lake Charles Liquefaction Project (CP14-119, CP14-120, CP14-122); Magnolia LNG- Lake Charles Expansion Project (CP14-347, CP14-511, CP19-19); Sabine LNG- Expansion Project and Chenier Creole Trail Pipeline Expansion Project (CP13-552, CP13-553); Louisiana Connector Project (CP17-21); and Cameron System Abandonment Project (CP18-505).

As described in section A.8, the following non-jurisdictional facilities are associated with the Project:

- Momentum plans to connect a non-jurisdictional 150-mile 36-inch-diameter gathering pipeline to Texas Eastern's proposed Momentum M&R Station;
- Entergy proposes a power line to provide electricity to the new East Calcasieu Compressor Station; and
- installation of a sewer and water line to service the East Calcasieu Compressor Station.

The power line would extend along the northern boundary of the permanent compressor station and the installation of the sewer line would occur within the compressor station boundary. Because the service connections would be constructed within the proposed Project's workspace, the environmental impacts of these connections are analyzed throughout this EA. Therefore, the power and sewer line projects are not included in the cumulative impact discussion below.

The Momentum non-jurisdictional pipeline connection would be at Texas Eastern's proposed Momentum M&R Station. Momentum's non-jurisdictional pipeline installation is expected to be complete when the proposed Project begins construction at the Momentum M&R Station. Momentum's non-jurisdictional pipeline was reviewed for cumulative impacts on each resource and is discussed further below.

11.1. SOILS

Construction associated with the proposed Project would result in minor and primarily temporary impacts on near-surface soils, as discussed in section B.2. Cumulative impacts on soils could occur if projects are constructed concurrently or if one project re-disturbs an area that had been previously stabilized and restored by another project. The Momentum Pipeline, TransCameron Pipeline, and Cameron System Abandonment Project are collocated with the Cameron Extension Project. Specifically, the Cameron Extension Project overlaps with approximately 0.4 acre of workspace for the TransCameron Pipeline; 0.6 acre of workspace for the Cameron System Abandonment Project; and with the Momentum Pipeline for the entirety of the Momentum M&R Station workspace. All projects would be required to implement similar measures to minimize erosion during construction. Further, the Momentum Pipeline is expected to be complete when Project construction begins at the shared workspace. Other projects are FERC jurisdictional and would be required to revegetate or otherwise stabilize disturbed areas following construction, which would minimize erosion during operation. Given this, as well as the limited amount of project workspace overlap, cumulative impacts on soils would not be significant.

11.2. WATER RESOURCES

Surface Water

Cumulative effects on surface water affected by the Project could occur in the HUC-12 watershed that would be crossed by the Project. Table 18 lists projects and quantitative impacts on resources within the HUC-12 watershed.

Table 18 Other Projects (or Portions of Projects) and the Proposed Project Impacts within the HUC-12 (acres)							
Project Name (miles away)	Agricultural Land	Commercial/Industrial	Forested Land	Open Land	Open Water	Wetlands	Construction Total
Creole Trail Pipeline Expansion Project (Loop 2) (33 miles away)	10.4	5.8	46.9	18.4	0.0	12.7	94.2
Lake Charles Liquefaction Project - Mainline 200-3 Loop (5 miles away)	10.6	0.6	0.0	0.0	0.0	0.0	11.2
Lake Charles Liquefaction Project - Mainline Corridor (15 miles away)	41.3	1.7	7.6	4.2	0.0	8.0	62.8
Port Arthur Pipeline, LLC Louisiana Connector Project (<1 mile away)	9.5	4	64.0	22.3	0.0	13.1	112.9
TransCameron Pipeline (0 mile)	56.8	12.6	2.0	7.6	1.3	55.7	136.1
Cameron System Abandonment Project (0 mile)	0.0	0.1	0.0	0.5	0.0	1.1 ^a	1.7
Momentum Midstream Pipeline (overlapping) ^b	5.2	0.2	9.4	9.9	0.0	0.2	24.9
Total	133.8	25	129.9	62.9	1.3	90.8	443.8
^a Land is classified as agriculture/wetlands.							
^b Estimated based on publicly available mapping and assuming a 100-foot-wide construction right-of-way.							
^c Minor discrepancies due to rounding.							

Texas Eastern would impact one surface waterbody (S0240) by dam-and-pump or flume crossing (within the fenceline of the Grand Chenier Compressor Station), in addition to multiple culvert installations for permanent access roads for the proposed Project. Operational impacts on surface water is limited to less than 0.1 acre (ditch) at the East Calcasieu Compressor Station access.

The TransCameron Pipeline project would impact 1.3 acres of surface waterbodies. Any of the projects within the geographic scope would have similar

mitigation measures to protect waterbodies within construction workspaces from sediment laden runoff during construction. Given that both projects would follow the FERC Plan and Procedures, and the minimal additive impacts on surface waterbodies, we conclude that cumulative impacts on surface waterbodies would not be significant.

Wetlands

Construction of the Project would temporarily impact 60.5 acres of PEM wetlands and permanently convert 4.5 acres of wetlands to commercial/industrial land. Additionally, 0.8 acre of wetland would be within the 50-foot-wide permanent easement for the Project and vegetation would be maintained in accordance with the FERC Procedures. The Creole Trail -Loop 2, Lake Charles Liquefaction Project - Mainline Corridor, Port Arthur- Louisiana Connector Project, TransCameron Pipeline, and Cameron System Abandonment Project, would impact an additional 90.8 acres of wetlands.

Cumulative impacts on wetlands could occur from spills of hazardous materials during construction and operation, erosion from construction, and increased sedimentation from discharge of hydrostatic test water. However, Texas Eastern would implement its SPCC Plan and the measures included in the FERC Procedures to minimize impacts on wetlands and waterbodies. Texas Eastern would comply with all applicable permit conditions and would provide compensatory mitigation for permanent wetland impacts. Other projects in the geographic scope would be required to meet similar impact avoidance/minimization and permit requirements to minimize impacts on wetland or waterbodies; to ensure that significant impacts do not occur. In addition, compensatory mitigation, if required, would further mitigate wetland impacts.

Given the overall magnitude of this impact on wetlands relative to the total amount of wetlands within the affected water basins equates to less than 0.01 percent which is considered minor.¹⁵

11.3. VEGETATION AND WILDLIFE

As shown in table 18 above, the Creole Trail -Loop 2, Port Arthur- Louisiana Connector Project, TransCameron Pipeline, Cameron System Abandonment Project, Lake Charles LNG Project (Mainline Corridor), and Momentum Pipeline impact 62.9 acres of open herbaceous vegetation and 129.9 acres of forested land. The Cameron System Abandonment Project would not contribute to forested land impacts; however, it would impact 0.5 acre of herbaceous vegetation. Although the Lake Charles

¹⁵ The proposed project and other projects are within the Sabine/Calcasieu and Mermentau basins. The Sabine/Calcasieu and Mermentau basins contain respectively about 312,500 acres and 450,000 acres of wetlands (USGS, 2020).

Liquefaction Project- Mainline 200-3 Loop would not impact open herbaceous vegetation or forested land, as discussed below, overlapping construction timeframes and noise could impact wildlife.

The facility modifications proposed by Texas Eastern would be on previously disturbed land within existing industrial land and does not provide quality wildlife habitat. Construction of the new greenfield compressor station, pipeline facilities, and M&R Stations would temporarily impact about 10.1 acres of open herbaceous vegetation, and Texas Eastern would maintain 1.6 acres of open herbaceous vegetation. In August 2019, Momentum cleared about 3.8 acres of forested land to support construction of its Momentum pipeline. Texas Eastern proposes to install the Momentum M&R Station at this cleared site and at the time of construction it would be considered open land. Texas Eastern would permanently convert 1.2 acres of this once forested land to industrial land, for operation of the Momentum M&R Station. The proposed Project would minimally impact forested land by conducting minimal side-trimming along 12 feet of the Trunkline M&R Station, to ensure safe passage to Project facilities.

The proposed Project does propose pile-driving in non-forested upland and while terrestrial wildlife may be temporarily displaced or avoid the Project area due to disturbance from pile-driving noise, impacts would be limited to the duration of active pile driving and would be minor. Where construction schedules overlap, increased noise, lighting, and human activity could also disturb wildlife in the area. However, these impacts attenuate with distance and, given that the Creole Trail Pipeline Expansion Project- Loop 2, the Lake Charles Liquefaction Project – Mainline 200-3 Loop, and Mainline Corridor projects are at least 5 miles from the Project, we do not anticipate any additive noise, lighting, or human activity impacts on wildlife or vegetation. Impacts from the Port Arthur Pipeline – Louisiana Connector Project, TransCameron Pipeline, Cameron System Abandonment Project, and Momentum Pipeline would occur less than 1 mile from the Project and would have minimal cumulative impacts from noise, lighting, or human activities on wildlife or vegetation.

Overlapping construction timelines increases the area and duration of disturbance for wildlife, thus increasing cumulative impact. Texas Eastern and the other FERC jurisdictional projects would minimize impacts on vegetation and wildlife habitat by implementing the measures in the FERC Plan and its ESCP. Noise associated with operations of aboveground facilities would be permanent; however, given the large extent of available habitat for wildlife within the geographic scope and that some species may become acclimated to the noise and return to the Project area, impacts would be permanent but not significant. Additionally, because there is an abundance of available habitat within the geographic scope, we conclude cumulative impacts on vegetation and wildlife would be permanent but not significant.

11.4. LAND USE

The Project would result in land use impacts resulting from conversion of agricultural and forested land, and wetland to developed/industrial land for operation of the new proposed compressor station and meter stations. As listed in table 19 below, the projects identified within the geographic scope for cumulative impacts on land use are the TransCameron Pipeline Project, Louisiana Connector Project, Creole Trail Pipeline Expansion Project, Lake Charles Liquefaction Project, Cameron System Abandonment Project, and the Momentum Pipeline.

Table 19							
Other Projects (or Portions of Projects) Impacts within 1-Mile of the Project (acres)							
Project Name	Agricultural Land	Commercial / Industrial	Forested Land	Open Land	Open Water	Wetlands	Construction Total
Creole Trail Pipeline Expansion Project (Loop 2)	12.3	2.3	3.5	5.9	0.3	0.6	24.8
Lake Charles Liquefaction Project - Mainline Corridor	12.2	1.3	2.0	4.1	0.0	4.2	23.8
Louisiana Connector Project	13.4	0.8	3.0	6.7	0.0	1.0	24.8
TransCameron Pipeline Project	20.0	<0.1	0.0	0.2	0.7	3.0	24.0
Cameron System Abandonment Project	0.0	0.1	0.00	0.5	0.0	1.1 ^a	1.7
Momentum Pipeline	18.3	0.7	1.0	7.4	0.0	0.7	28.0
Total^b	76.2	5.2	9.5	24.8	1	10.6	127.1
^a Land is classified as agriculture/wetlands.							
^b Minor discrepancies due to rounding.							

The Cameron Extension Project components may contribute to cumulative impacts within the geographic scope and would primarily be sited on open or agricultural land or within existing and developed facility sites. Temporary workspaces for all projects would be restored following construction, and the size of new, permanent aboveground facilities would be small compared with the total available areas of each land use type within the geographic scope. Other projects within the geographic scope would be buried pipelines that would have limited permanent impacts on land use, the Project and other projects in the geographic scope would not contribute significantly to cumulative impacts on land use.

11.5. VISUAL RESOURCES

The geographic scope for assessing cumulative impacts on visual resources affected by construction and operation of the project includes areas within 0.5 mile of the aboveground facilities, as this is the range that the proposed facilities are likely to be seen. Construction and operation of the proposed compressor station and three meter stations would impact visual resources near these facilities. The only projects identified within the geographic scope for cumulative impacts on visual resources are the six natural gas projects (TransCameron Pipeline Project, Louisiana Connector Project, Creole Trail Pipeline Expansion Project, Lake Charles Liquefaction Project, Cameron System Abandonment Project, and the Momentum Pipeline). Construction at the existing Gillis and Grand Chenier Compressor Stations, and Iowa Plant would result in negligible visual impacts, and therefore, would not contribute to cumulative visual impacts.

There are no other projects proposed within 1-mile of the new greenfield compressor station; therefore, there would be no cumulative visual impacts with this compressor station. The TransCameron Pipeline Project construction schedule may overlap with the TransCameron M&R Station and pipeline. The Louisiana Connector Project construction schedule may overlap with the Momentum M&R Station and the modifications at the existing Gillis Compressor Station. The closest residences to the proposed aboveground facilities are 550 feet from the Momentum M&R Station, 2,900 feet from the Trunkline M&R Station, 1,200 feet from the TransCameron M&R Station, and 3,100 feet from the East Calcasieu Compressor Station. In addition, the Swire Family Cemetery is approximately 40 feet northwest of the Momentum M&R Station.

The TransCameron M&R Station would be constructed on agricultural land; therefore, these facilities would be visible to nearby residents. The nearest project in table 18 to occur at this location would be the TransCameron Pipeline Project, which would primarily consist of buried pipeline. However, the nearest residence would be 1,200 feet from the facility and the facility would be partially screened by existing vegetation; therefore, permanent visual impacts would be minimal at this location.

The Momentum M&R Station would be constructed in a forested area, which would provide a vegetative screening to provide a visual buffer between the station and the cemetery. The nearest project from table 18 to occur at this location would be the new pipeline projects, which would primarily consist of buried pipeline. In addition, Texas Eastern would maintain a tree buffer along the east and west of the facility to minimize visual impacts at the proposed Momentum M&R Station, which would provide vegetative screening to conceal the site.

The proposed Project impacts on visual resources would be the greatest near the new aboveground facilities. However, given the rural location of the Project sites, nearby

existing oil and gas development in the Project areas, and that most of the projects in table 18 would be buried pipeline with no permanent visual impacts, we conclude the overall cumulative impact on visual resources associated with the construction and operation of the Project would be minor.

11.6. SOCIOECONOMICS

As discussed in section B.7, the Project may affect the socioeconomic conditions of the Project area in the short term, when the facilities are under construction and the temporary construction work force relocates to the Project area. The Project would also have an effect in the long term due to increased parish revenue collections from taxes levied on Project facilities. Appendix B, table B-4, identifies five natural gas pipeline or LNG projects that would be under construction and may have short- or long-term socioeconomic effects within the geographic and temporal scope of the Project. These projects, the Calacsieu Pass LNG, TransCameron Pipeline, Momentum Pipeline, Driftwood LNG and Driftwood Pipeline, Lake Charles LNG, Magnolia LNG, Sabine Pass LNG, Commonwealth LNG, Cameron LNG, Port Arthur LNG Louisiana Connector Pipeline, and Cameron System Abandonment. Texas Eastern estimates that approximately 132 workers would temporarily relocate into the Project area during the construction period for its project. The proponents of the projects listed in table B-4 estimate that approximately 2,000 workers would need to temporarily relocate into the project area for the construction of these projects and that approximately 180 full time permanent positions would be created for facilities operations. Approximately 3,600 vacant rental units, 120 hotels or motels, and a number of campgrounds or recreational vehicle parks are available to handle the construction period housing demand and other public services would be sufficient to accommodate this short-term demand without significant impact on the affected counties.

On a long-term basis, the proposed Project facilities and the other natural gas facilities in appendix B, table B-4, would have a minor, positive, cumulative impact on the level of tax collections in the four parishes during the operational life of these facilities. Approximately 180 workers would be hired to operate the project facilities, but it is anticipated that most of these positions would be filled by local workers; therefore, there should be only a minor impact on county public services such as schools and public safety.

As concluded in section B.7., socioeconomic impacts from the proposed Project construction and operation are expected to be minimal. No major impacts are expected from any other projects within the defined geographic scope for socioeconomic impacts. Therefore, we conclude that the Project would result in a minimal cumulative impact on socioeconomics within the geographic scope.

Traffic

As described in section B.7.2, traffic impacts from Project construction are expected to be minimal. Traffic levels and congestion in Project areas may be affected during the 11-month construction period due to personnel movement and materials and equipment deliveries. If this takes place during the same time period as other potential projects listed in appendix B, table B-4, there could be a cumulative impact on local traffic. However, given that most other projects are between 5 and 20 miles from Texas Eastern's Project, and that we would expect the natural gas projects (or others that involve considerable use of local road systems) to have traffic management plans, we conclude that cumulative traffic impacts would be short term and minor.

During Project operations, 2 new staff would be hired at the Project facilities and up to 180 at the other projects. Given the size of the parishes and the small number of new workers hired, any increases in traffic on local roadways due to worker trips and increases in material deliveries would be negligible. We conclude that the Project would result in a minimal cumulative impact on traffic within the geographic scope.

11.7. AIR QUALITY

Construction of the proposed Project would result in short-term construction impacts and permanent operational impacts on air quality in the vicinity of the Project, as discussed in section B.8.1. Texas Eastern plans to commence construction of the Project in December 2020. As identified table B-4 in appendix B, the TransCameron Pipeline would occur within the geographic scope (0.25 mile) for air quality during construction. Construction of the Cameron System Abandonment Project may overlap in construction schedule with the proposed Project, however, considering the project is an abandonment of an underground pipeline, no discernable air impacts would occur, and thus there would be no cumulative air impacts. Construction of the Momentum Pipeline would be concluded before construction of the Momentum M&R station and thus there would be no cumulative air impacts.

The TransCameron Pipeline, and the proposed Project, may result in cumulative impacts on air quality during construction of the proposed Project. Construction of the TransCameron Pipeline involves the use of heavy equipment that would generate emissions of air pollutants and fugitive dust. Construction equipment emissions would result in short-term emissions that would be highly localized, temporary, and intermittent. In order to mitigate fugitive dust emissions, TransCameron Pipeline, LLC implements dust control measures, such as watering access roads and construction areas. Based on these mitigation measures and the temporary and localized impacts of construction, the proposed Project would not result in significant cumulative impacts on air quality during construction.

Appendix B includes a list of all proposed new emissions sources within the geographic scope (i.e., 50 kilometers [km]) of the proposed Project. All of these proposed projects are sufficiently far away (from 15 to 19 miles) from the proposed Project such that air quality impacts are not anticipated to overlap. Furthermore, our analysis of these projects showed that the NAAQS would not be exceeded in the local vicinity of any of these projects. Because of this fact and because the proposed Project would be well within the NAAQS locally, we conclude the proposed Project would not result in significant cumulative impacts on air quality during operation.

11.8. NOISE

As discussed in section B.9, the Project would affect the sound conditions at nearby NSAs during construction and operation. Construction of certain segments of the TransCameron Pipeline, the Louisiana Connector Project and Cameron System Abandonment Project would be within the geographic scope (0.25 mile) could overlap with construction of the proposed Project. Construction of the Momentum Pipeline would be concluded before construction of the Momentum M&R station and thus there would be no cumulative noise impacts. Thus, as noted above, construction impacts from the proposed Project and these projects would be short-term and not result in long-term operational noise impacts. There would not be any cumulative operational noise impacts from the TransCameron Pipeline, the Louisiana Connector Project and Cameron System Abandonment Project within the geographic scope (1.0 mile).

C. ALTERNATIVES

In accordance with NEPA and Commission policy, we evaluated alternatives to the Project to determine whether they would be reasonable and environmentally preferable to the proposed action. These alternatives included the no-action alternative, system alternatives, and site alternatives. The evaluation criteria used for developing and reviewing alternatives were:

- ability to meet the Project's stated objective;
- technical and economic feasibility and practicality; and
- significant environmental advantage over the proposed action.

Through environmental comparison and application of our professional judgment, each alternative is considered to a point where it becomes clear if the alternative could or could not meet the three evaluation criteria. To ensure a consistent environmental comparison and to normalize the comparison factors, we generally use desktop sources of information (e.g., publicly available data, geographic information system data, aerial imagery) and assume the same general workspace requirements.

1.0. NO-ACTION ALTERNATIVE

Under the no-action alternative, the proposed facilities would not be constructed, and the environmental impacts associated with the Project would not occur. However, the Project's objectives would not be met. The no-action alternative would not allow Texas Eastern the ability to transport 750 million cubic feet of natural gas per day to an interconnection with TransCameron's East Lateral as required by the Project shipper.

A Commission decision to deny the proposed action would avoid the environmental impacts addressed in the EA; however, other natural gas companies may be required to modify or construct new facilities to meet the demand for additional natural gas transportation service. This action would likely result in similar or greater environmental impacts than the proposed project; therefore, we have dismissed this alternative as a reasonable alternative to meet the Project objectives.

2.0. SYSTEM ALTERNATIVES

System alternatives are alternatives to the proposed action that would make use of existing, modified, or proposed project(s) systems to meet the stated objective of the proposed Project. System alternatives involve the transportation of the equivalent amount of natural gas (750 million cubic feet per day) by the modification or expansion of existing pipeline systems or by other new pipeline systems. Without building a new pipeline, the only identified system alternative that would provide Texas Eastern's path to TransCameron's East Lateral pipeline is along Tennessee Gas Pipeline's 16-inch-

diameter system. Although this pipeline system alternative has existing infrastructure that crosses nearby receipt and delivery areas, approximately 15.5 miles of new greenfield pipeline would need to be built for Tennessee Gas Pipeline system to reach to the receipt point designated by the Project shipper in Cameron Parish. Texas Eastern does not have sufficient design information on the Tennessee Gas Pipeline system to perform hydraulic studies to compare a project by Tennessee Gas Pipeline with the facilities proposed in this Project; however, transporting 750 million cubic feet of natural gas per day along this portion of the Tennessee Gas Pipeline system would likely require approximately 50 miles of looping or take-up and re-lay of this segment of the system along with approximately 15 miles of greenfield connection and potentially added compression to deliver gas to the same location, resulting in a significantly greater environmental impact than the facilities proposed in this Project. Assuming a similar compressor station size to the Project (about 50 acres) and a conservative 75-foot-wide right-of-way for the 65 miles of pipe (590 acres), this alternative would require about 480 more acres than the proposed Project.

Given that the Project only requires minimal facility modifications along Texas Eastern's Line 41, one new compressor station, three new M&R Stations, and 0.2 mile of new interconnect piping, the Tennessee Gas Pipeline system alternative is not an environmentally preferable alternative. Therefore, we have dismissed this alternative from further consideration.

3.0. SITE ALTERNATIVES

As discussed in section B above, most of the construction would occur within existing station facilities and previously disturbed areas. No other pipeline route alternatives would directly connect the pipeline systems. The proposed modifications at the Gillis Compressor Station, Iowa Plant, and Grand Chenier Compressor Station would be constructed at existing Texas Eastern facilities on previously disturbed land.

Our review of the Project found that environmental impacts associated with the proposed compressor station and three new M&R Stations have been minimized, and no alternative sites were evaluated. No environmental issues have been identified at these sites, and we did not receive any comments or concerns from stakeholders regarding compressor station or M&R station site alternatives, nor did we receive any requests from stakeholders for such an evaluation.

Based on the considerations described above, we conclude that the proposed Project is the preferred alternative to meet the Project objectives.

D. CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis in this EA, we have determined that if Texas Eastern abandons, constructs, and operates the proposed facilities in accordance with its application and supplements, and the staff's recommended mitigation measures below, approval of the Project would not constitute a major action significantly affecting the quality of the human environment. We recommend that the Commission Order contain a finding of no significant impact and include the measures listed below as conditions in any authorization the Commission may issue to Texas Eastern.

1. Texas Eastern shall follow the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests) and as identified in the EA, unless modified by the Order. Texas Eastern must:
 - a. request any modification to these procedures, measures, or conditions in a filing with the Secretary;
 - b. justify each modification relative to site-specific conditions;
 - c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
 - d. receive approval in writing from the Director of OEP **before using that modification.**
2. The Director of OEP, or the Director's designee, has delegated authority to address any requests for approvals or authorizations necessary to carry out the conditions of the Order, and take whatever steps are necessary to ensure the protection of environmental resources during construction and operation of the Project. This authority shall allow:
 - a. the modification of conditions of the Order;
 - b. stop-work authority; and
 - c. the imposition of any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the Order as well as the avoidance or mitigation of unforeseen adverse environmental impact resulting from Project construction and operation.
3. **Prior to any construction,** Texas Eastern shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, EIs, and contractor personnel will be informed of the EI's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with construction and restoration activities.

4. The authorized facility locations shall be as shown in the EA, as supplemented by filed Project plot plans. **As soon as they are available, and before the start of construction**, Texas Eastern shall file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by the Order. All requests for modifications of environmental conditions of the Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

Texas Eastern's exercise of eminent domain authority granted under Natural Gas Act section 7(h) in any condemnation proceedings related to the Order must be consistent with these authorized facilities and locations. Texas Eastern's right of eminent domain granted under the Natural Gas Act section 7(h) does not authorize it to increase the size of its natural gas facilities to accommodate future needs or to acquire a right-of-way for a pipeline to transport a commodity other than natural gas.

5. Texas Eastern shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, pipe storage yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction in or near that area**.

This requirement does not apply to extra workspaces allowed by the Commission's Plan and/or minor field realignments per landowner needs and requirements that do not affect other landowners or sensitive environmental areas such as wetlands.

Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

- a. implementation of cultural resource mitigation measures;
- b. implementation of endangered, threatened, or special concern species mitigation measures;
- c. recommendations by state regulatory authorities; and
- d. agreements with individuals landowners that affect other landowners or could affect sensitive environmental areas.

6. **Within 60 days of the acceptance of this authorization and before construction begins**, Texas Eastern shall file an Implementation Plan with the Secretary for review and written approval by the Director of the OEP. Texas Eastern must file revisions to the plan as schedules change. The plan shall identify:
- a. how Texas Eastern will implement the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests), identified in the EA, and required by the Order;
 - b. how Texas Eastern will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
 - c. the number of EIs assigned per facility, and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;
 - d. company personnel, including EIs and contractors, who will receive copies of the appropriate material;
 - e. the location and dates of the environmental compliance training and instructions Texas Eastern will give to all personnel involved with construction and restoration (initial and refresher training as the Project progresses and personnel change);
 - f. the company personnel (if known) and specific portion of Texas Eastern's organization having responsibility for compliance;
 - g. the procedures (including use of contract penalties) Texas Eastern will follow if noncompliance occurs; and
 - h. for each discrete facility, a Gantt or PERT chart (or similar Project scheduling diagram), and dates for:
 - i. the completion of all required surveys and reports;
 - ii. the environmental compliance training of onsite personnel;
 - iii. the start of construction; and
 - iv. the start and completion of restoration.
7. Texas Eastern shall employ at least one EI for the Project. The EI shall be:
- a. responsible for monitoring and ensuring compliance with all mitigation measures required by the Order and other grants, permits, certificates, or other authorizing documents;
 - b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 6 above) and any other authorizing document;

- c. empowered to order correction of acts that violate the environmental conditions of the Order, and any other authorizing document;
 - d. a full-time position, separate from all other activity inspectors;
 - e. responsible for documenting compliance with the environmental conditions of the Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and
 - f. responsible for maintaining status reports.
8. Beginning with the filing of its Implementation Plan, Texas Eastern shall file updated status reports with the Secretary on a **monthly** basis until all construction and restoration activities are complete. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:
- a. an update on Texas Eastern's efforts to obtain the necessary federal authorizations;
 - b. the construction status of the Project, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally sensitive areas;
 - c. a listing of all problems encountered and each instance of noncompliance observed by the EI during the reporting period both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies;
 - d. a description of the corrective actions implemented in response to all instances of noncompliance;
 - e. the effectiveness of all corrective actions implemented;
 - f. a description of any landowner/resident complaints which may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and
 - g. copies of any correspondence received by Texas Eastern from other federal, state, or local permitting agencies concerning instances of noncompliance, and Texas Eastern's response.
9. Texas Eastern must receive written authorization from the Director of OEP **before commencing construction of any Project facilities**. To obtain such authorization, Texas Eastern must file with the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).
10. Texas Eastern must receive written authorization from the Director of OEP **before placing the Project into service**. Such authorization will only be granted

following a determination that rehabilitation and restoration of the areas affected by the Project are proceeding satisfactorily.

11. **Within 30 days of placing the authorized facilities in service**, Texas Eastern shall file an affirmative statement with the Secretary, certified by a senior company official:
 - a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
 - b. identifying which of the conditions in the Order Texas Eastern has complied with or will comply with. This statement shall also identify any areas affected by the Project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.
12. Texas Eastern shall **not begin** construction of the Project **until** it files with the Secretary a copy of the determination of consistency with the Coastal Management Plan issued by the Louisiana OCM.
13. **Prior to construction activities in 2021**, Texas Eastern shall file with the Secretary a renewed Louisiana SHPO CEA for 2021.
14. Texas Eastern shall file noise surveys with the Secretary **no later than 60 days** after placing the East Calcasieu Compressor Station into service. If a full power load condition noise survey is not possible, Texas Eastern should file an interim survey at the maximum possible power load **within 60 days** of placing the station into service and file the full power load survey **within 6 months**. If the noise from all the equipment operated at the station under interim or full power load conditions exceeds an L_{dn} of 55 dBA at any nearby NSA, Texas Eastern shall:
 - a. file a report with the Secretary, for review and written approval by the Director of OEP, on what changes are needed;
 - b. install additional noise controls to meet that level **within 1 year** of the in-service date; and
 - c. confirm compliance with the L_{dn} of 55 dBA requirement by filing a second noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls.
15. Texas Eastern shall file noise surveys with the Secretary **no later than 60 days** after placing the Momentum, Trunkline, and TransCameron M&R Stations into service. If the noise from the stations exceeds an L_{dn} of 55 dBA at any nearby NSA, Texas Eastern shall:

- a. file a report with the Secretary, for review and written approval by the Director of OEP, on what changes are needed;
- b. install additional noise controls to meet that level **within 1 year** of the in-service date; and
- c. confirm compliance with the L_{dn} of 55 dBA requirement by filing a second noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls.

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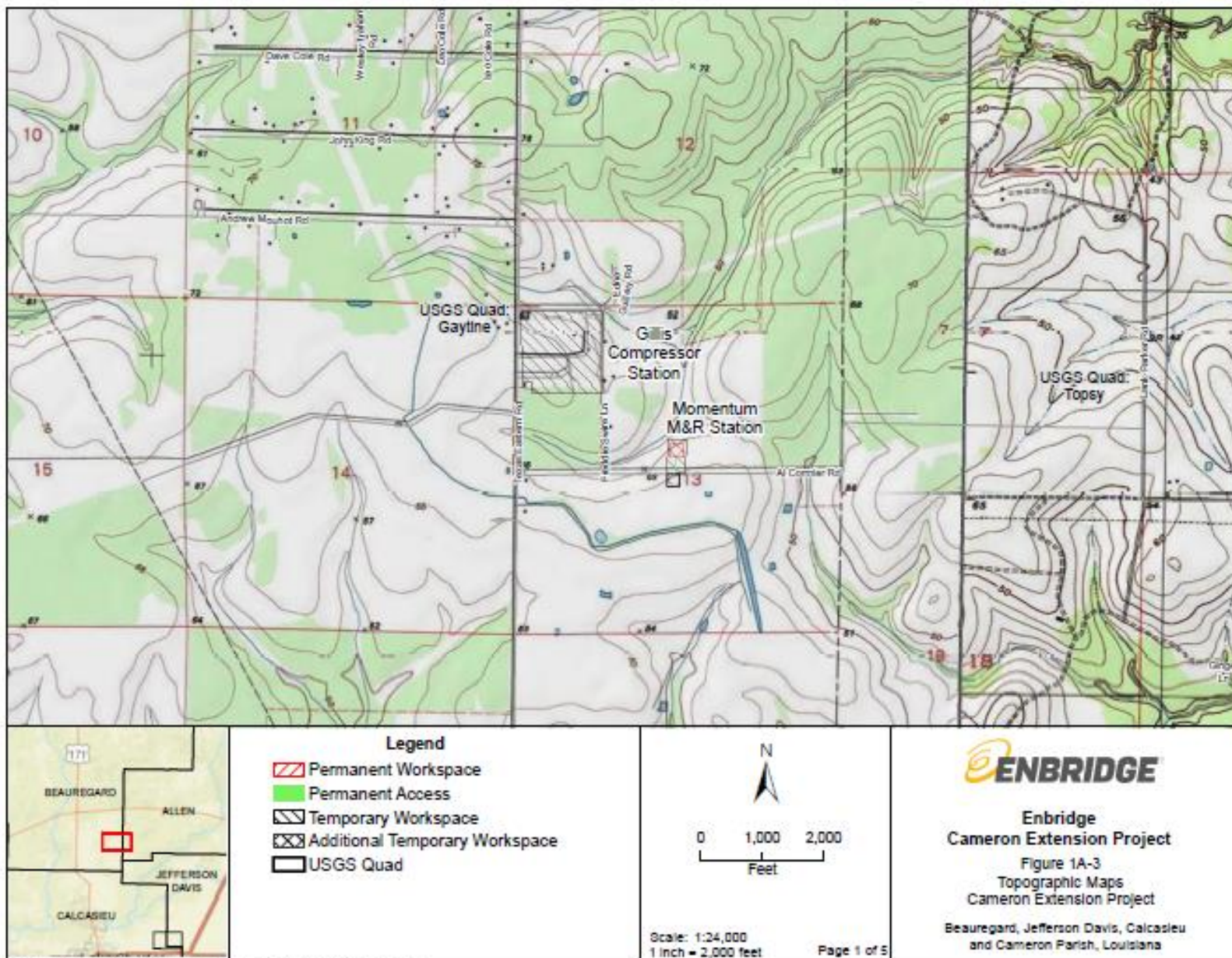
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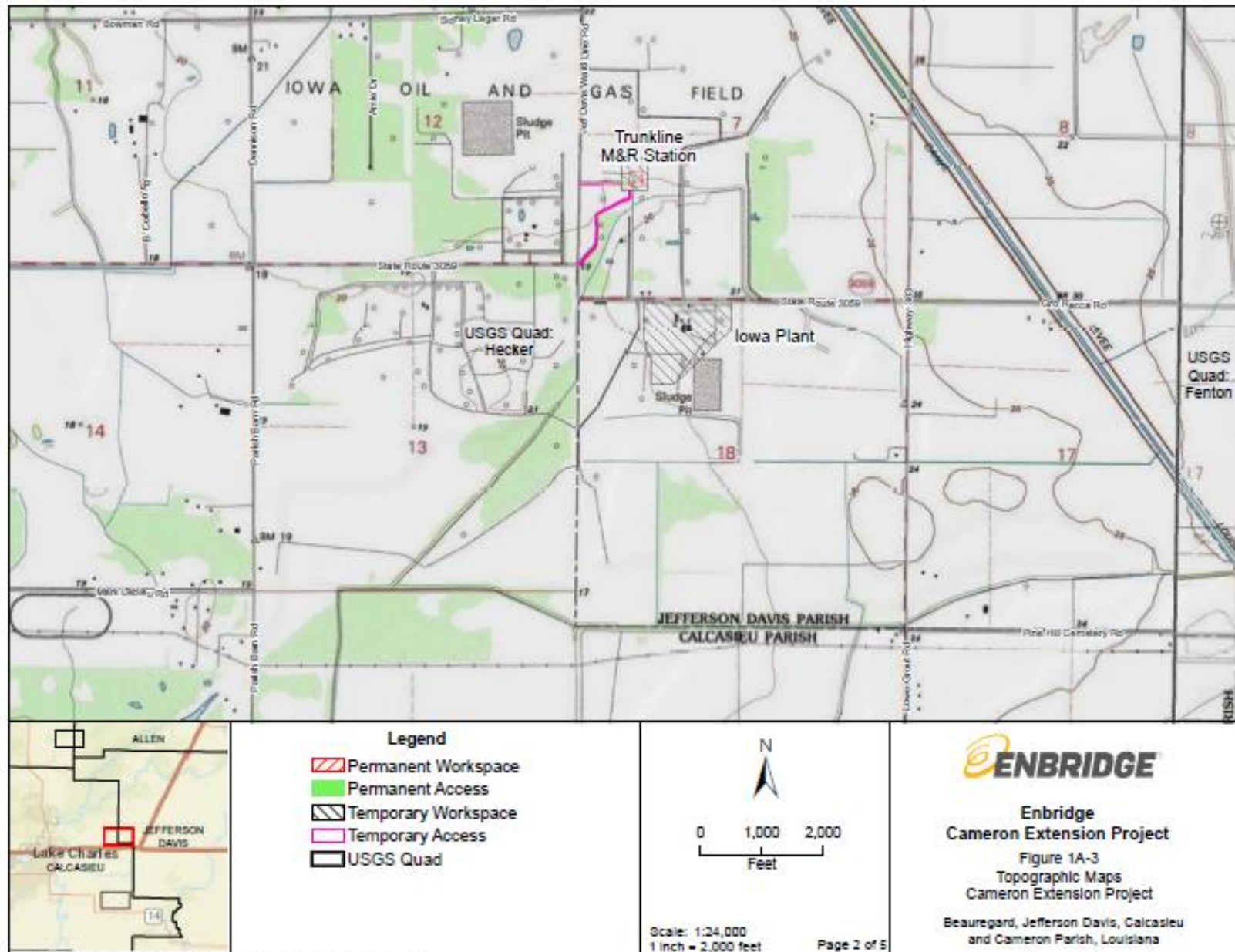
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Appendix A

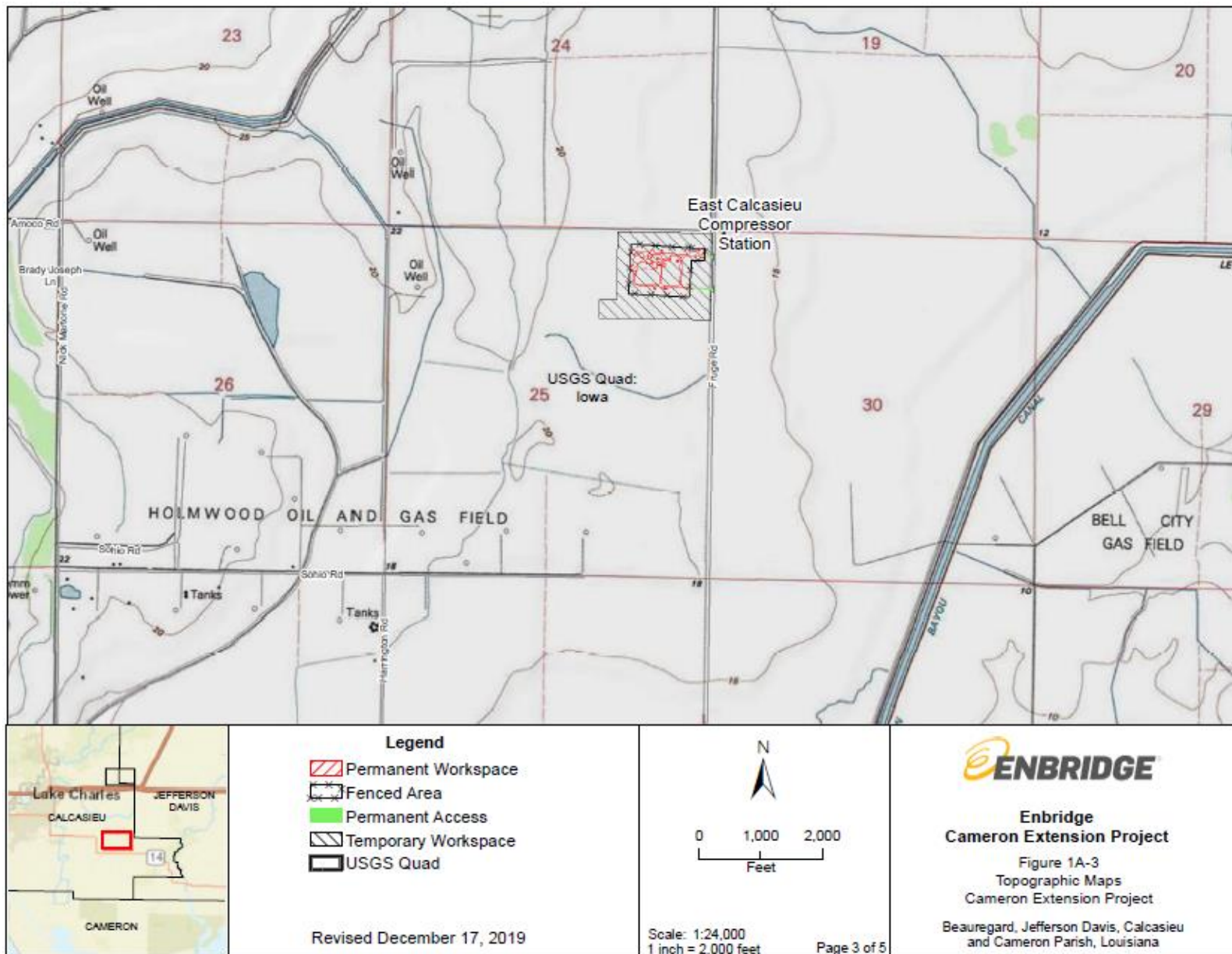
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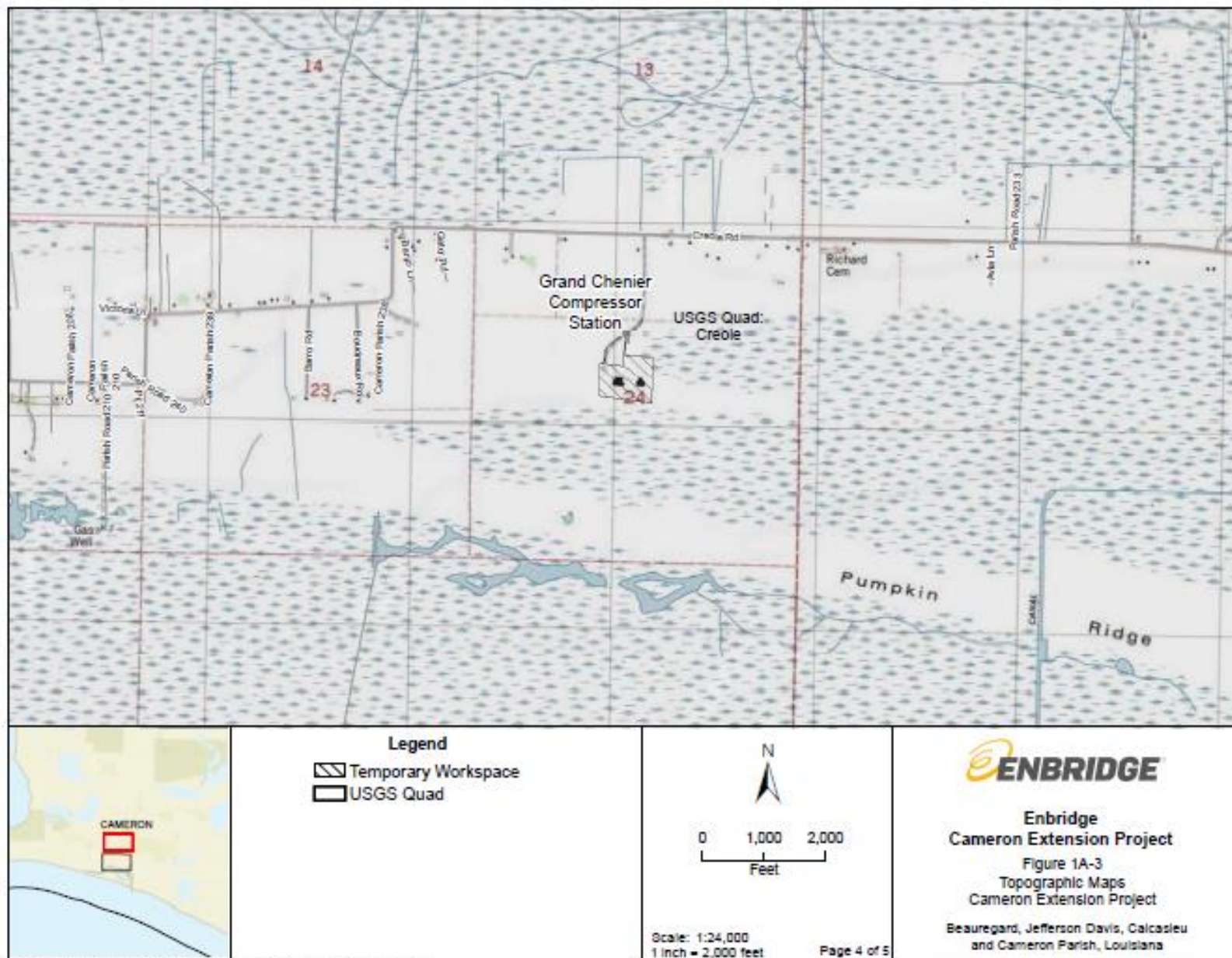
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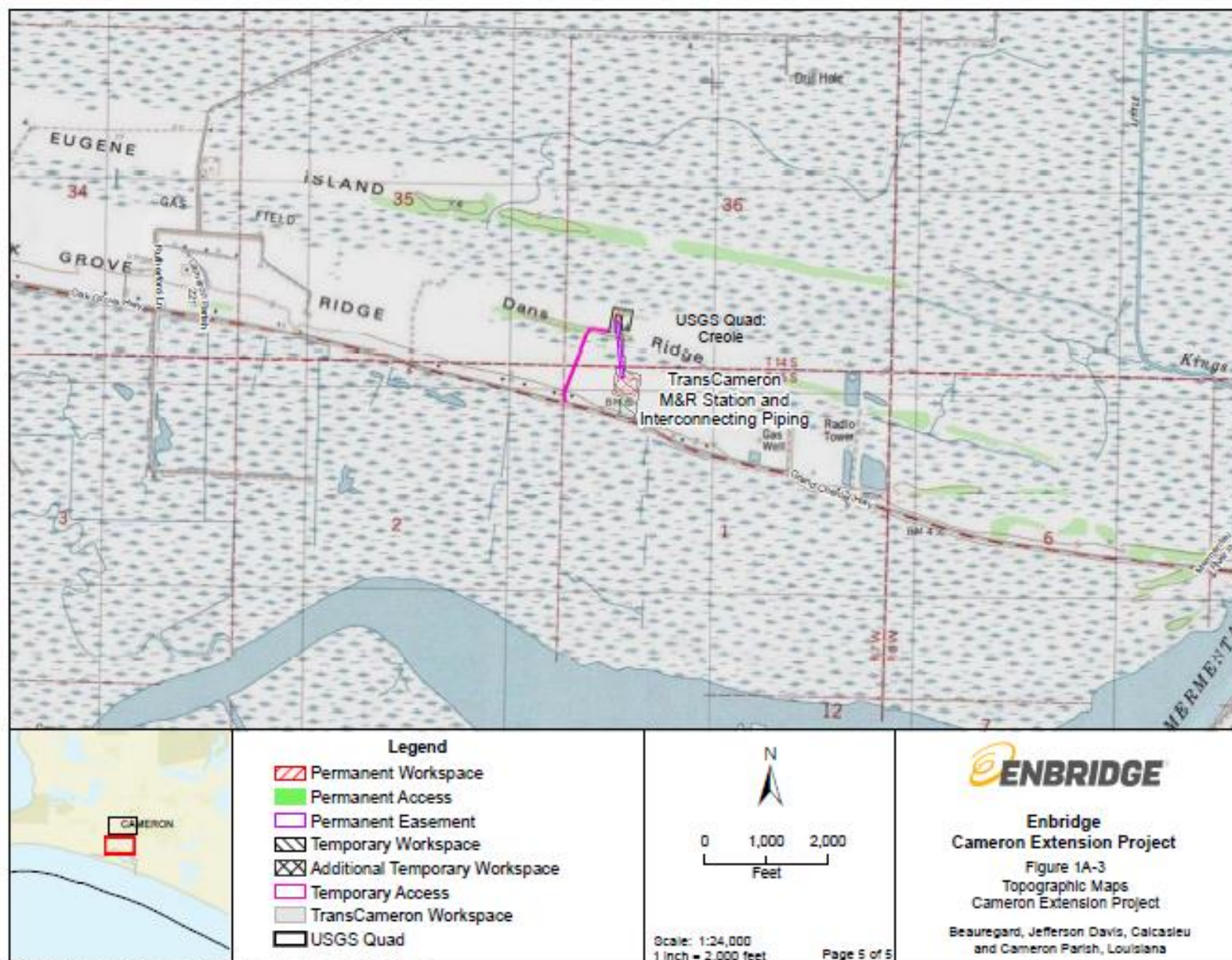
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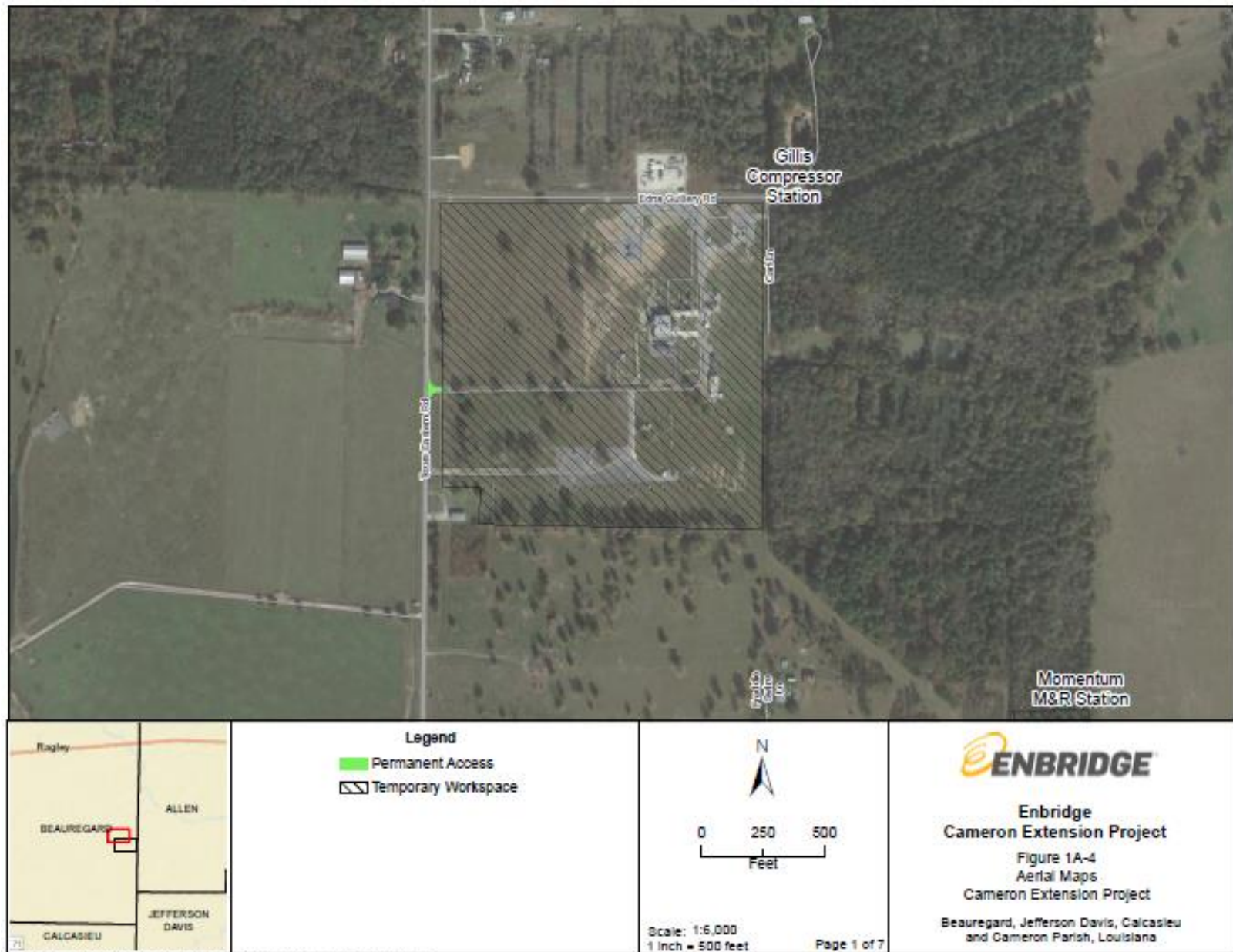


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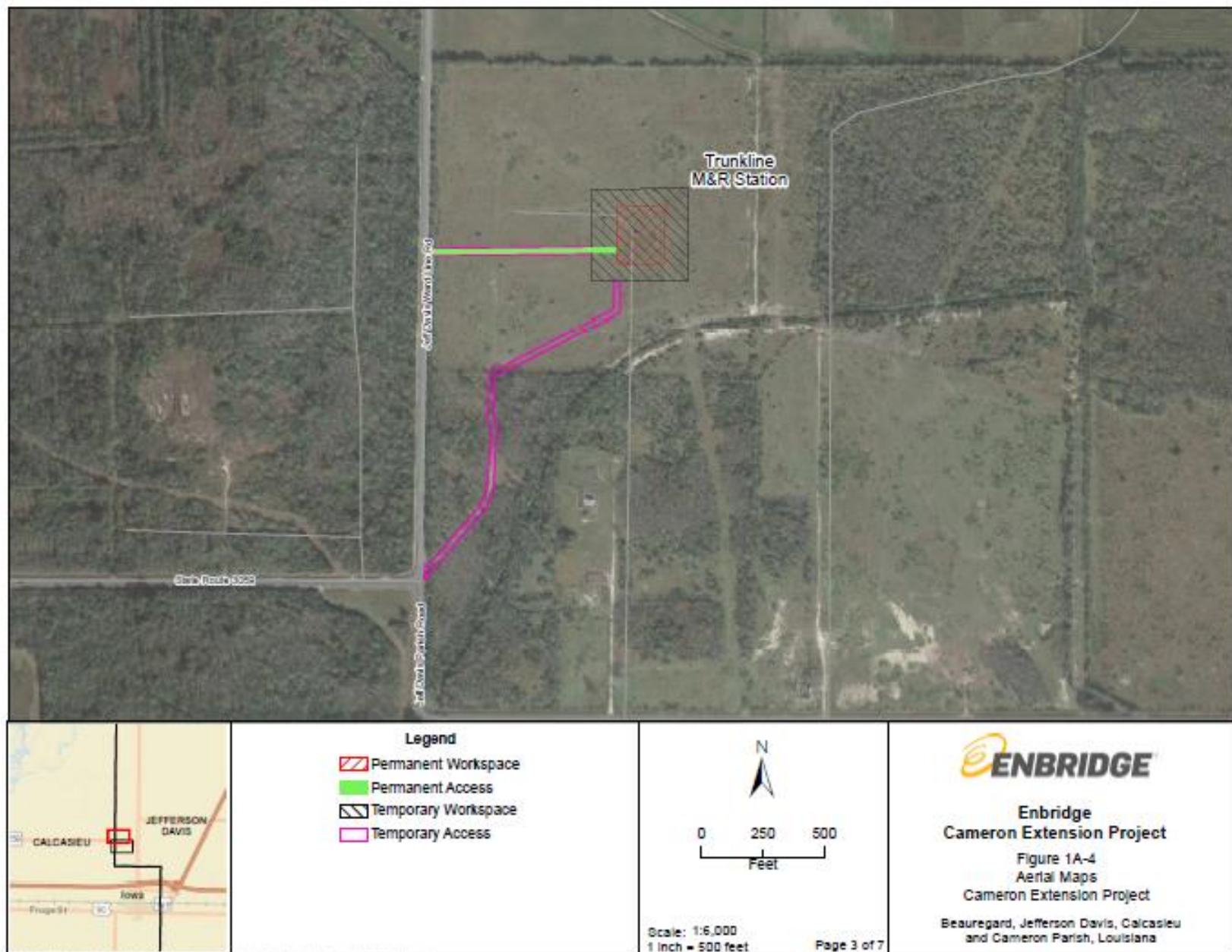
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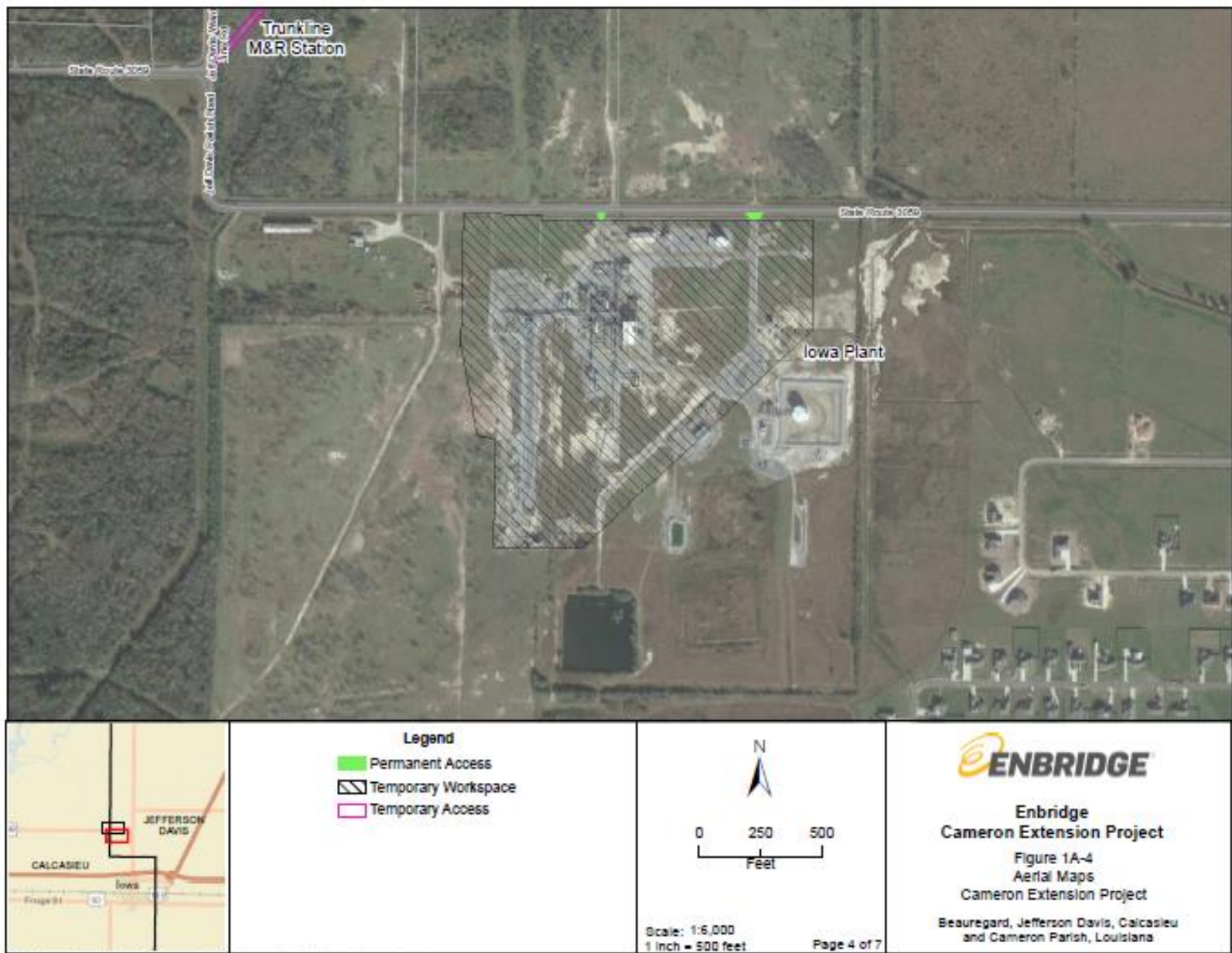


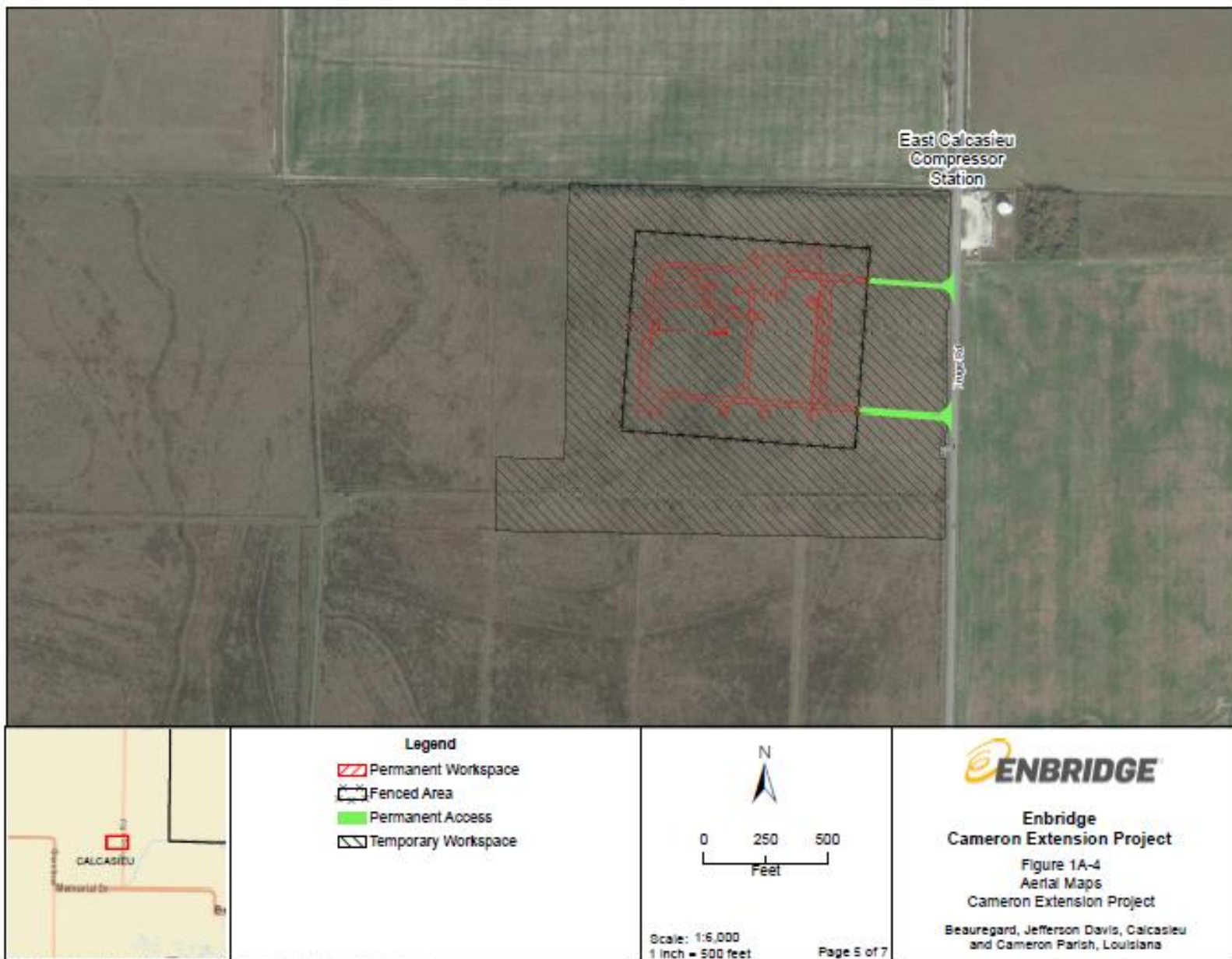
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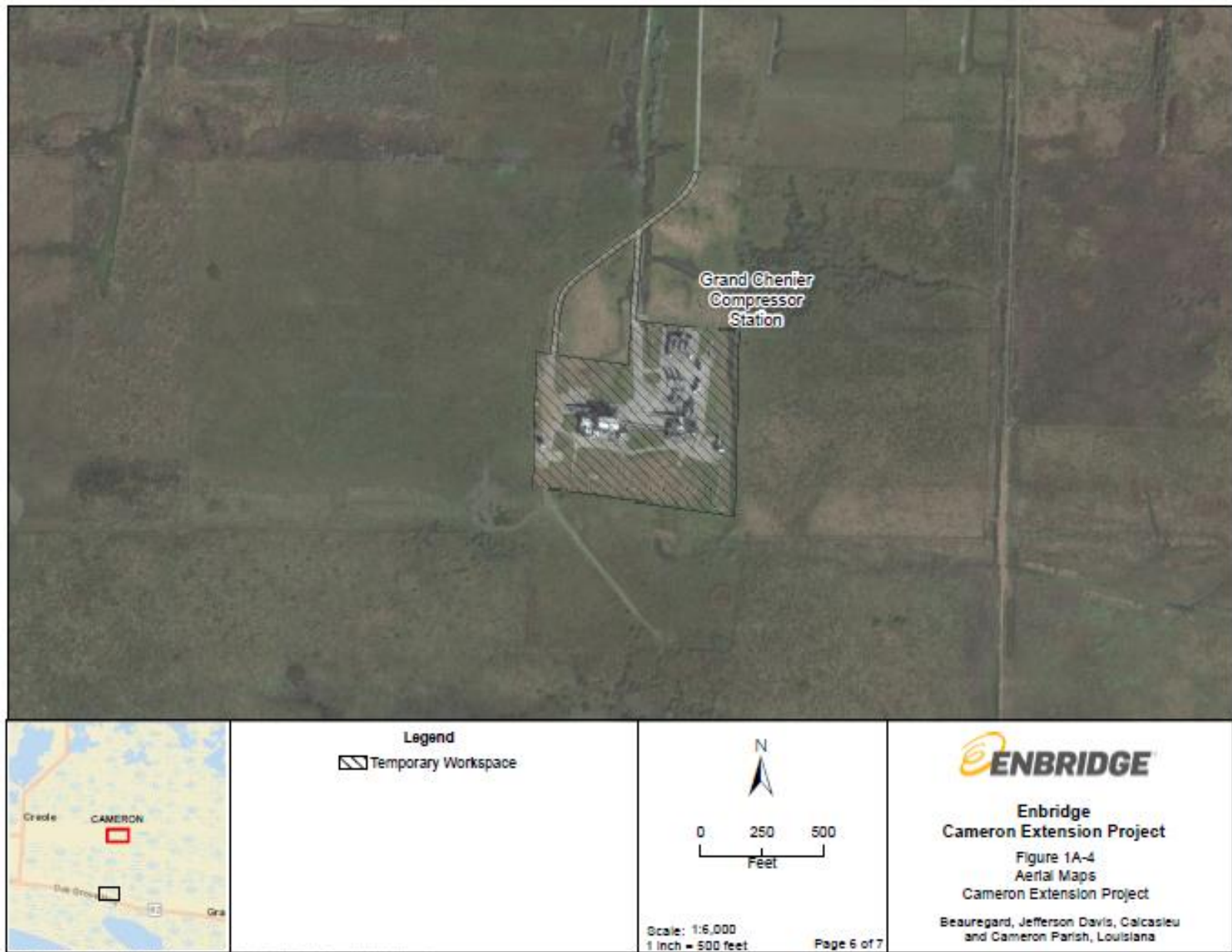


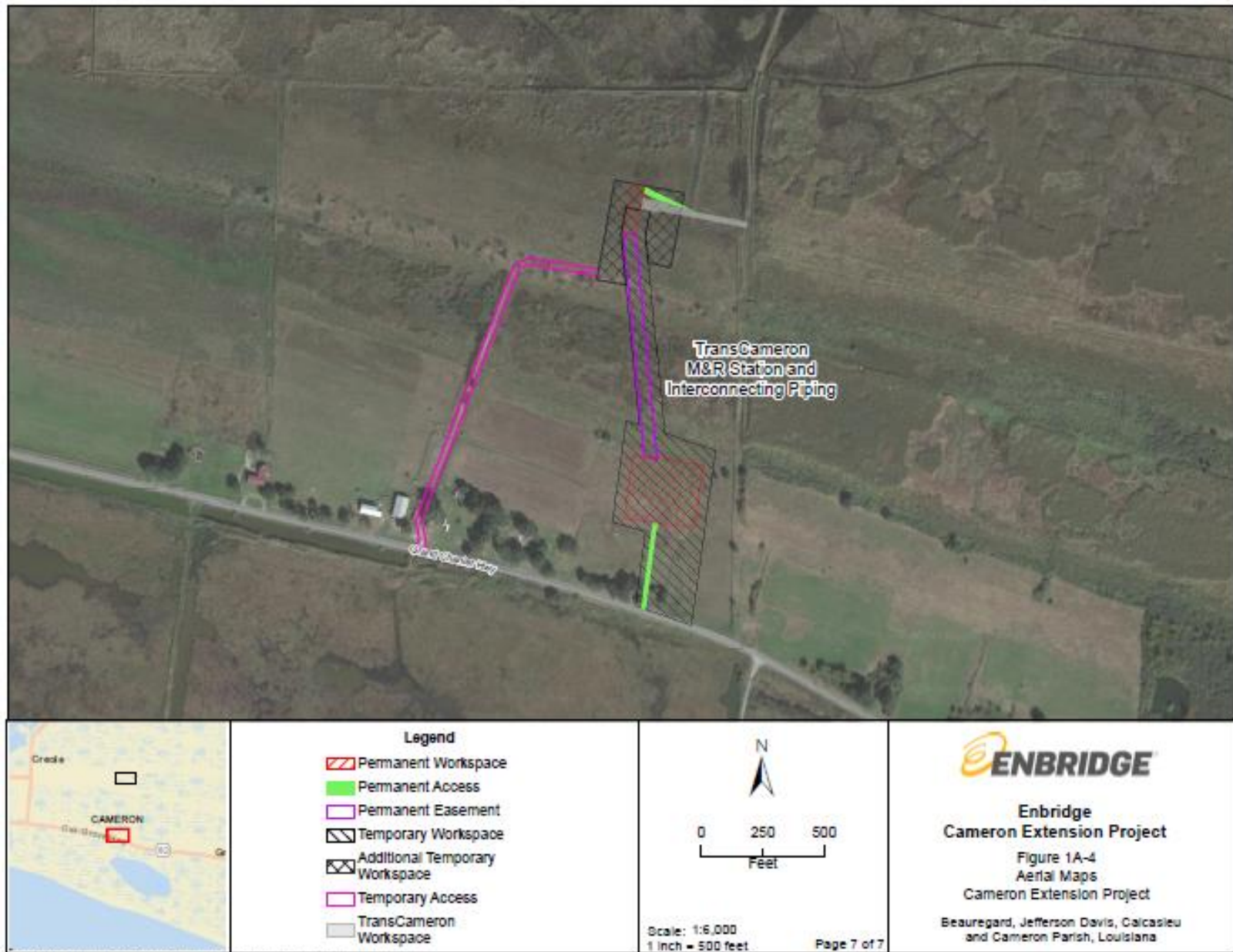
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Appendix B

Project Tables

Table B-1 Waterbodies Affected by the Cameron Extension Project									
Facility	Waterbody ID	Waterbody Name	Waterbody Flow Type	OHHW Width (feet)	FERC Classification	State Water Quality Classification - Segment	State Water Quality Classification	Impaired^a	Crossing Method
Aboveground Facilities									
Iowa Plant	P2025	Pond	Pond	N/A	N/A	N/A	N/A	N/A	Install erosion controls
Iowa Plant	S2029	Unnamed Tributary to West Bayou Lacassine	Ditch	9	Minor	LA030701	PCR, SCR, FWP, AGR	Impaired for fecal coliform due to natural sources and decentralized treatment systems (e.g., septic)	Install erosion controls
Iowa Plant	S2032	Unnamed Tributary to West Bayou Lacassine	Ditch	5	Minor	LA030702	PCR, SCR, FWP, AGR	Impaired for fecal coliform due to discharges from municipal separate storm sewer systems	Install erosion controls
Iowa Plant	S2034	Unnamed Tributary to West Bayou Lacassine	Ditch	7	Minor	LA030702	PCR, SCR, FWP, AGR	Impaired for fecal coliform due to discharges from municipal separate storm sewer systems	Install erosion controls
Iowa Plant	S2035	Unnamed Tributary to West Bayou Lacassine	Ditch	5	Minor	LA030702	PCR, SCR, FWP, AGR	Impaired for fecal coliform due to discharges from municipal separate storm sewer systems	Install erosion controls

Table B-1 Waterbodies Affected by the Cameron Extension Project									
Facility	Waterbody ID	Waterbody Name	Waterbody Flow Type	OHWB Width (feet)	FERC Classification	State Water Quality Classification - Segment	State Water Quality Classification	Impaired^a	Crossing Method
Grand Chenier Compressor Station	S2039	Unnamed Tributary to Mermentau River	Perennial Stream	25	Intermediate	LA050801	PCR, SCR, FWP	Impaired for fecal coliform contact due to natural sources (waterfowl)	Install erosion controls
Grand Chenier Compressor Station	S2040	Unnamed Tributary to Mermentau River	Perennial Stream	32	Intermediate	LA050801	PCR, SCR, FWP	Impaired for fecal coliform contact due to natural sources (waterfowl)	Dam-and- pump or flume
Access Roads									
Momentum M&R Station	D01-NOJ	Unnamed Ditch	Ditch	3	Minor	LA030603	PCR, SCR, FWP	Impaired for fecal coliform due to natural sources and decentralized treatment systems (e.g., septic)	New culvert
Trunkline M&R Station	S2036	Unnamed Tributary to West Bayou Lacassine	Ditch	7	Minor	LA030701	PCR, SCR, FWP, AGR	Impaired for fecal coliform due to natural sources and decentralized treatment systems (e.g., septic)	New culvert
Trunkline M&R Station	S2037	Unnamed Tributary to West Bayou Lacassine	Ditch	4	Minor	LA030701	PCR, SCR, FWP, AGR	Impaired for fecal coliform due to natural sources and decentralized treatment systems (e.g., septic)	New culvert

Table B-1 Waterbodies Affected by the Cameron Extension Project									
Facility	Waterbody ID	Waterbody Name	Waterbody Flow Type	OHWB Width (feet)	FERC Classification	State Water Quality Classification - Segment	State Water Quality Classification	Impaired^a	Crossing Method
Trunkline M&R Station Temporary Access	S2036	Unnamed Tributary to West Bayou Lacassine	Ditch	7	Minor	LA030701	PCR, SCR, FWP, AGR	Impaired for fecal coliform due to natural sources and decentralized treatment systems (e.g., septic)	Existing culvert
East Calcasieu Compressor Station Access Driveway 1	S2026	Unnamed Tributary to Jacques Coulee	Ditch	4	Minor	50601	PCR, SCR, FWP, AGR	N/A	New culvert
East Calcasieu Compressor Station Access Driveway 2	S2026	Unnamed Tributary to Jacques Coulee	Ditch	4	Minor	50601	PCR, SCR, FWP, AGR	N/A	New culvert
TransCameron interconnecting piping Temporary Access	S2038	Unnamed Tributary to Mermentau River	Perennial Stream	5	Minor	50602	PCR, SCR, FWP, AGR	Impaired for fecal coliform, chloride, and total dissolved solids.	Install erosion controls
PCR: Primary Contact Recreation (any recreational or other water contact activity involving prolonged or regular full-body contact with the water in which the probability of ingesting appreciable amounts of water is considerable) SCR: Secondary Contact Recreation (any recreational or other water contact activity in which prolonged or regular full-body contact with the water is accidentally and the probability of ingesting appreciable amounts of water is minimal) FWP: Fish and Wildlife Propagation (the use of water for aquatic habitat, food, resting, reproduction, cover, and/or travel corridors for any indigenous wildlife and aquatic life species associated with the aquatic environment) AGR: Agriculture (The use of water for crop spraying, irrigation, livestock watering, poultry operations, and other farm purposes not related to human consumption). ^a Source: LDEQ 2018									

Table B-2 Wetlands Affected by the Cameron Extension Project							
Facility	Wetland ID	NWI Wetland Classification	MP	Pipeline Crossing Length (feet)	Construction Workspace (acres)	Operational Workspace (acres)	Construction Method
Pipeline Facilities							
TransCameron M&R interconnect piping - buried	W1011	PEM	0.0, 0.1	720	1.9	0.8 ^a	Above-grade pipeline installation
TransCameron M&R interconnect piping – above-grade	W1011	PEM	0.2	85	N/A ^b	0.2	Above-grade pipeline installation
ATWS	W1011	PEM	0.2	N/A	1.7	0.0	Use equipment mats
Total					3.6	1.0	
Aboveground Facilities							
Iowa Plant	W2013	PEM	N/A	N/A	1	0.0	Use equipment mats
Iowa Plant	W2014	PEM	N/A	N/A	0.8	0.0	Use equipment mats
Iowa Plant	W2015	PEM	N/A	N/A	4.7	0.0	Use equipment mats
Iowa Plant	W2018	PSS	N/A	N/A	0.1	0.0	Use equipment mats
Iowa Plant	W2019	PEM	N/A	N/A	0.2	0.0	Use equipment mats
Iowa Plant	W2033	PSS	N/A	N/A	1.2	0.0	Use equipment mats
East Calcasieu Compressor Station	W1007	PEM	N/A	N/A	5.2	0.0	Use equipment mats; install permanent aboveground facility
East Calcasieu Compressor Station	W1006	PEM	N/A	N/A	42.6	3.9	Use equipment mats
Grand Chenier Compressor Station	W2003	PEM	N/A	N/A	0.5	0.0	Use equipment mats
Grand Chenier Compressor Station	W2005	PEM	N/A	N/A	0.2	0.0	Use equipment mats

Table B-2
Wetlands Affected by the Cameron Extension Project

Facility	Wetland ID	NWI Wetland Classification	MP	Pipeline Crossing Length (feet)	Construction Workspace (acres)	Operational Workspace (acres)	Construction Method
Grand Chenier Compressor Station	W2006	PEM	N/A	N/A	<0.1	0.0	Use equipment mats
Grand Chenier Compressor Station	W2007	PEM	N/A	N/A	<0.1	0.0	Use equipment mats
Grand Chenier Compressor Station	W2008	PEM	N/A	N/A	<0.1	0.0	Use equipment mats
Grand Chenier Compressor Station	W2009	PEM	N/A	N/A	0.1	0.0	Use equipment mats
Grand Chenier Compressor Station	W2010	PEM	N/A	N/A	0.2	0.0	Use equipment mats
Grand Chenier Compressor Station	W2011	PEM	N/A	N/A	<0.1	0.0	Use equipment mats
Total					56.8	3.9	
Access Roads							
East Calcasieu Compressor Station Access 1 and 2	W1006	PEM	N/A	N/A	N/A ^b	0.2	Clear, grade, install asphalt
TransCameron M&R interconnect piping Temporary Access	W1011	PEM	N/A	N/A	0.1	0.0	Use equipment mats
TransCameron M&R interconnect piping Permanent Access	W1011	PEM	N/A	N/A	<0.1 ^d	0.1	Gravel
Total^e					0.1	0.4	
Grand Total^e					60.5	5.3	

^a Includes the acreage within the 50-foot-wide permanent easement; however, the workspace would be maintained in accordance with the FERC Procedures.

^b Entirely within the temporary workspace and ATWS.

^c While the fenced facility boundary for the East Calcasieu Compressor Station would include 19.3 acres of wetland W1006, only 3.9 acres would be permanently encumbered by Project facilities.

^d A majority of the access road (0.08 acre) is within the ATWS at the pipeline terminus.

^e Minor discrepancies due to rounding.

Palustrine scrub-shrub ("PSS") wetlands, palustrine emergent ("PEM") wetlands, and estuarine emergent ("EEM") wetlands. PSS wetlands are dominated by saplings and shrubs, and typically form a low compact structure less than 20 feet tall; PEM and EEM wetlands are characterized by erect, rooted, herbaceous hydrophytic vegetation (Cowardin et al. 1979).

Table B-3

Land Use Acreage Affected by Construction and Operation of the Project

County/Facility	Commercial/ Industrial		Wetlands		Open Land		Open Water		Forested Land		Residential Land		Agricultural Land		Total	
	Const	Perm	Const	Perm	Const	Perm	Const	Perm	Const	Perm	Const	Perm	Const	Perm	Const	Perm
Pipeline																
Pipeline right-of-way (buried)	0.0	0.0	1.9	0.8 ^c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.2	7.3	1.0
Pipeline right-of-way (above-grade)	0.0	0.0	-- ^b	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.2
ATWS	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	1.8	0.0
New Aboveground Facilities																
Momentum M&R Station and ATWS	0.0	0.0	0.0	0.0	4.7	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	1.1
Trunkline M&R Station	0.0	0.0	0.0	0.0	3.4	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	1.0
East Calcasieu Compressor Station	0.0	0.0	47.8	3.9	4.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	51.8	3.9 ^e
TransCameron M&R Station	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-- ^f	1.8	--	1.8
Modified Aboveground Facilities																
Gillis Compressor Station ^g	39.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.0	0.0
Iowa Plant ^g	24.7	0.0	8.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.9	0.0
Grand Chenier Compressor Station ^g	11.4	0.0	1.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.2	0.0

<p align="center">Table B-3 Land Use Acreage Affected by Construction and Operation of the Project</p>																
County/Facility	Commercial/ Industrial ^a		Wetlands		Open Land		Open Water		Forested Land		Residential Land		Agricultural Land		Total	
	Const	Perm	Const	Perm	Const	Perm	Const	Perm	Const	Perm	Const	Perm	Const	Perm	Const	Perm
Access Roads																
TransCameron M&R Station and TransCameron M&R interconnect piping Access	0.0	0.0	0.1 ^h	0.1	0.0	0.0	<0.1 ⁱ	0.0	0.0	0.0	0.0	0.0	0.8	0.2	0.9	0.3
Momentum M&R Station Access	0.0	0.0	0.0	0.0 ^b	0.1 ^d	0.0	0.0	0.0	-- ^b	0.0	0.0	0.0	0.0	0.0	--	0.1
Trunkline M&R Station Access	0.0	0.0	0.0	0.0	1.8	0.5	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.5
East Cameron Compressor Station Access	0.0	0.0	-- ^b	0.2	-- ^b	0.1	-- ^b	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	--	0.3
Project Totals	75.0	0.0	60.5	5.3	13.9	2.7	1.2	<0.1	0.0	0.0	0.0	0.0	6.3	2.2	156.9	10.2
<p>Notes:</p> <p>Const = construction; Perm = permanent</p> <p>^a Includes natural gas utility facilities, manufacturing or industrial plants, commercial facilities, and active construction of such facilities.</p> <p>^b The 85-foot-long above-grade segment of the TransCameron Meter station interconnecting piping is entirely within the temporary right-of-way and additional temporary workspace area identified for the buried segment of pipe.</p> <p>^c Includes the acreage within the 50-foot-wide permanent easement; however, the workspace would be maintained in accordance with the FERC Procedures.</p> <p>^e While the fenced facility boundary for the East Calcasieu Compressor Station would include 19.3 acres of wetland W1006, only 3.9 acres would be permanently encumbered by Project facilities.</p> <p>^d Forested land identified at the Momentum M&R Station site in the Application was cleared in August 2019 and is now open land.</p> <p>^f Included in the temporary workspace for the TransCameron Meter station interconnecting piping, above.</p> <p>^g Although the entirety of the existing fenced property is classified as commercial/industrial land, vegetated areas are present, and wetlands are identified as a separate land use/land cover classification. Includes access driveways.</p> <p>^h A majority of the permanent access road (0.1 acre) is within the ATWS at the pipeline terminus; that acreage is included as ATWS, above.</p> <p>ⁱ Texas Eastern would use fencing to avoid impacts on this waterbody.</p>																

Table B-4**Projects with the Potential to Result in Cumulative Impacts with the Project**

Company	Project Name	Description	Size (Miles or Acres)	Anticipated Construction Date/Project Status	Location / Louisiana Parish in the Project Area	Distance from the Project (miles)	Reference / FERC Docket No. (if applicable)	Resources Potentially Cumulatively Affected
Venture Global Calcasieu Pass, LLC	Calcasieu Pass LNG Export Terminal	Venture Global Calcasieu Pass proposes to construct and operate an LNG export facility in Cameron Parish, Louisiana adjacent to the Calcasieu River Ship Channel.	314 acres	Currently under construction; Scheduled to commence operation in 2022.	Cameron Parish	17	CP15-550	Operational air Socioeconomics
Momentum, LLC	Momentum Pipeline (non-jurisdictional facility)	36-inch gathering line connection to the proposed Momentum M&R Station	150 miles of 36-inch	Project is underway as of fourth quarter 2019. Project completion should occur before proposed Momentum M&R Station begins construction.	Beauregard Parish	0	na	Soils, Vegetation, Wildlife socioeconomics
TransCameron Pipeline, LLC	TransCameron Pipeline	The Pipeline System includes 23.4 miles of new 42-inch pipeline to bring feed gas from interconnections with ANR Pipeline Company (ANR), Texas Eastern Transmission, LP, and Bridgeline Holdings, LP (Bridgeline) to Calcasieu Pass's proposed LNG Terminal.	23.4 miles	Currently under construction; Scheduled to commence operation in 2022.	Cameron Parish	0	CP15-551-000	Vegetation, wildlife, wetlands, soils, socioeconomics, construction air, construction noise, land use, visual

Table B-4**Projects with the Potential to Result in Cumulative Impacts with the Project**

Company	Project Name	Description	Size (Miles or Acres)	Anticipated Construction Date/Project Status	Location / Louisiana Parish in the Project Area	Distance from the Project (miles)	Reference / FERC Docket No. (if applicable)	Resources Potentially Cumulatively Affected
Cameron LNG, LLC	Cameron LNG Liquefaction - Expansion Project	Expansion of the Cameron LNG Terminal near Hackberry, Louisiana on the Calcasieu River Ship Channel for the liquefaction and export of LNG. The Project also includes expansion of the existing Cameron Pipeline by 21 miles.	823.6 acres	Construction was completed in 2018 and operations are expected to begin for trains 1-3 in 2019-2020. Trains 4-5 have not begun construction.	Cameron and Calcasieu Parishes	19	CP13-25-000 CP15-560-000	operational air socioeconomics
Commonwealth LNG, LLC / Commonwealth Projects, LLC	Commonwealth LNG Project	LNG Export Terminal and 3.7-mile-long natural gas receiving pipeline. Commonwealth LNG plans to construct and operate an LNG export terminal on the west side of the Calcasieu Ship Channel near Johnson Bayou in Cameron Parish, Louisiana. Commonwealth LNG would also dredge a ship berth and turning basin at the terminal.	176.7 acres for terminal and pipeline.	Construction beginning in 2021 with operations commencing in 2024	Cameron Parish	18	CP19-502	operational air socioeconomics

Table B-4**Projects with the Potential to Result in Cumulative Impacts with the Project**

Company	Project Name	Description	Size (Miles or Acres)	Anticipated Construction Date/Project Status	Location / Louisiana Parish in the Project Area	Distance from the Project (miles)	Reference / FERC Docket No. (if applicable)	Resources Potentially Cumulatively Affected
Driftwood LNG, LLC and Driftwood Pipeline, LLC	Driftwood LNG and Driftwood Pipeline Projects	A new LNG liquefaction export facility and to construction 96 miles of natural gas pipeline.	720 acres	Construction beginning in 2019 with operations commencing in 2023	Calcasieu and Jefferson Davis Parishes	5 (pipeline); 18 (LNG Terminal)	CP17-117-000 and CP17-118-000	socioeconomics, operational air
Lake Charles LNG Export Company, LLC and Lake Charles LNG Company, LLC	Lake Charles Liquefaction Project (Mainline 200-3 Loop & Mainline Corridor)	New liquefaction facilities adjacent to the existing Trunkline LNG Terminal; installation and modification of natural gas pipeline, compression, and appurtenant facilities.	1,516.3 acres	FERC issued an FEIS in August 2015 and the Order to construct and operate was issued in December 2015. The construction timeframe is currently unknown.	Calcasieu and Jefferson Davis Parishes	5 (pipeline); 15 (LNG Terminal) <1 (Mainline Corridor)	CP14-119-000, CP14-120-000, and CP14-122-000	wildlife, operational air, socioeconomics
Magnolia LNG, LLC (Magnolia) and Kinder Morgan Louisiana Pipeline LLC (Kinder Morgan)	Magnolia LNG, Lake Charles Expansion Project	Construction of a new LNG export facility on land adjacent to the Industrial Canal, off the Calcasieu River Ship Channel. Additionally, Kinder Morgan proposes modifications to an existing pipeline system to accommodate the natural gas service request by Magnolia.	204.8 acres	Unknown; construction of the Project has not commenced as of April 2020.	Calcasieu Parish	16	CP14-347-000, CP14-511-000, and CP19-19-000	operational air, socioeconomics

Table B-4**Projects with the Potential to Result in Cumulative Impacts with the Project**

Company	Project Name	Description	Size (Miles or Acres)	Anticipated Construction Date/Project Status	Location / Louisiana Parish in the Project Area	Distance from the Project (miles)	Reference / FERC Docket No. (if applicable)	Resources Potentially Cumulatively Affected
Sabine Pass Liquefaction Expansion, LLC, Sabine Pass Liquefaction, LLC, and Sabine Pass LNG, L.P. (collectively Sabine Pass), and Cheniere Creole Trail Pipeline, L.P. (CCTPL)	Sabine Pass Liquefaction Expansion Project and Cheniere Creole Trail Pipeline Expansion Project	Expansion of the existing liquefied natural gas export facilities at the existing Sabine Pass LNG Terminal and construction and operation of a new 104.3-mile-long interstate natural gas pipeline.	785.9 acres	Five trains have been constructed and are operational as of March 2019. One train is currently under construction and is projected to be operational in 2023.	Cameron, Calcasieu, and Beauregard Parishes Parish	33 (LNG Facility) <1 (Chenier Creole Trail Loop 2)	CP11-72-000 CP13-552-000, CP13-553-000	(Vegetation, wildlife, wetlands, land use – Chenier creole Trail pipeline portion) socioeconomics
Port Arthur Pipeline, LLC	Louisiana Connector Project	Construction and operation of 130.8 miles total of new 42-inch-diameter natural gas pipeline to connect existing pipeline systems with the Port Arthur LNG Terminal.	130.8 miles	Construction projected to begin in 2021 with operations commencing in 2023	Beauregard, Calcasieu, and Cameron Parishes	<1	CP17-21-000 and CP17-21- 001	Vegetation, wildlife, wetlands, soils, land use, visual, socioeconomics
Texas Eastern Transmission, LP	Cameron System Abandonment Project	Abandonment of offshore pipeline facilities and associated appurtenances, including segments of the 30-inch-diameter Line 41 between the Grand Chenier Compressor Station and the Gulf of Mexico.	7 acres	Abandonment activities are scheduled to occur between 2019 and 2020	Cameron Parish	0	CP18-505-000	Vegetation, wildlife, wetlands, soils, land use, visual, socioeconomics