Filing Receipt

Filed Date - 2025-05-21 04:47:38 PM

Control Number - 58015

Item Number - 2

PUC DOCKET NO. 58015

APPLICATION OF AEP TEXAS INC. TO AMEND ITS CERTIFICATE OF CONVENIENCE AND NECESSITY FOR THE RIO BRAVO-TO-WORMSER ROAD 138-KV CUT-IN TO MANGANA HEIN SUBSTATION DOUBLE-CIRCUIT TRANSMISSION LINE IN WEBB COUNTY	§ § § § § § §	**BEFORE THE** **PUBLIC UTILITY COMMISSION** **OF TEXAS**

APPLICATION

MAY 21, 2025

TABLE OF CONTENTS

SECTION

PUC DOCKET NO. 58015

APPLICATION OF AEP TEXAS INC. TO AMEND ITS CERTIFICATE OF CONVENIENCE AND NECESSITY FOR THE RIO BRAVO-TO-WORMSER ROAD 138-KV CUT-IN TO MANGANA HEIN SUBSTATION DOUBLE-CIRCUIT TRANSMISSION LINE IN WEBB COUNTY	§ § § § § § §	**BEFORE THE** **PUBLIC UTILITY COMMISSION** **OF TEXAS**

APPLICATION

TABLE OF CONTENTS (continued)

Files Provided Electronically on the PUC Interchange

Attachment 4a1 - Loading without Mangana Hein Substation In-Service.xlsx, Attachment 4a2 - Loading with Mangana Hein Substation In-Service.xlsx, Attachment 4b Rio Bravo Substation Eleven-Year Forecast (002).xlsx, Attachment 4c Sierra Vista Substation Eleven-Year Forecast (002).xlsx, Attachment 7 - Habitable Structures Cross-Reference Table.xlsx, Attachment 8g Notice - Landowner List.xlsx

APPLICATION OF AEP TEXAS INC. TO AMEND ITS CERTIFICATE OF CONVENIENCE AND NECESSITY FOR THE RIO BRAVO-TO-WORMSER ROAD 138-KV CUT-IN TO MANGANA HEIN SUBSTATION DOUBLE-CIRCUIT TRANSMISSION LINE IN WEBB COUNTY

DOCKET NO. 58015

Submit seven (7) copies of the application and all attachments supporting the application. If the application is being filed pursuant to P.U.C. Subst. R. 25.101(b)(3)(D) or P.U.C. Subst. R. 25.174, include in the application all direct testimony. The application and other necessary documents shall be submitted to:

Public Utility Commission of Texas
Attn: Filing Clerk
1701 N. Congress Ave.
Austin, Texas 78711-3326

Applicant, AEP Texas Inc. (AEP Texas) requests that all parties serve copies of all pleadings, discovery, correspondence, and other documents on the following representative:

Service Contact:

George Hoyt
State Bar No. 24049270
AEP Service Corporation
400 W. 15th Street, Suite 1520
Austin, Texas 78701
(512) 481-4545 (Telephone)
(512) 481-4591 (Facsimile)
ghoyt@aep.com

Kerry McGrath
Connor Kilgallen

Duggins, Wren, Mann & Romero, LLP
600 Congress Ave., Suite 1900
Austin, Texas 78701
(512) 744-9300 (Telephone)
(512) 744-9399 (Facsimile)
kmcgrath@dwmrlaw.com
ckilgallen@dwmrlaw.com

Attorneys for AEP Texas Inc.

1.	**Applicant (Utility) Name:**	AEP Texas Inc.
	Certificate Number:	30028[1]
	Street Address:	400 W. 15th Street, Suite 1520 Austin, TX 78701
	Mailing Address:	400 W. 15th St., Suite 1520 Austin, TX 78701

2. Please identify all entities that will hold an ownership interest or an investment interest in the proposed project, but which are not subject to the Commission's jurisdiction.

Not applicable.

3.	**Person to Contact:**	Chad Tomance
	Title/Position:	Regulatory Consultant – AEP Texas Inc.
	Phone Number:	(361) 881-5703
	Mailing Address:	400 W. 15th Street, Suite 1520 Austin, TX 78701
	Email Address:	cdtomance@aep.com
	Alternate Contact:	Roy Bermea
	Title/Position:	Regulatory Consultant – AEP Texas Inc.
	Phone Number:	(512) 481-4575
	Mailing Address:	400 W. 15th Street, Suite 1520 Austin, TX 78701
	Email Address:	rrbermea@aep.com
	Legal Counsel:	Kerry McGrath/Connor Kilgallen
	Phone Number:	(512) 744-9300
	Mailing Address:	600 Congress Ave., Suite 1900 Austin, TX 78701
	Email Address:	kmcgrath@dwmrlaw.com; ckillgallen@dwmrlaw.com

4. Project Description:

Name or Designation of Project

Application of AEP Texas Inc. to Amend its Certificate of Convenience and Necessity for the Proposed Rio Bravo-to-Wormser Road 138-kV Station Cut-In to Mangana Hein 138-kV Substation Double-Circuit Transmission Line in Webb County (Application).

Provide a general description of the project, including the design voltage rating (kV), the operating voltage (kV), the CREZ Zone(s) (if any) where the project is located (all or in part), any substations and/or substation reactive compensation constructed as part of the project, and any series elements such as sectionalizing switching devices, series line compensation, etc. For HVDC transmission lines, the converter stations should be considered to be project components and should be addressed in the project description.

[1] Certificate Number 30028 was assigned to AEP Texas Central Company, which is now AEP Texas Inc.

AEP Texas Inc. (AEP Texas) is proposing to construct, own, and operate the new Rio Bravo-to-Wormser Road 138-kV Station Cut-In to Mangana Hein 138-kV Substation Double-Circuit Transmission Line (Project) in Webb County, Texas. The Project will begin at the future AEP Texas Mangana Hein 138-kV Substation, located approximately 0.5 mile west of the intersection of State Highway (SH) Loop 20 and Mangana Hein Road south of the City of Laredo, and will extend to one of multiple potential endpoints located along the existing Rio Bravo to Wormser Road 138-kV transmission line segment located approximately 2.5 miles to the east. The new transmission line will be approximately 2.69 miles in length and will require 100-foot-wide right-of-way (ROW).

The Project will terminate at the new AEP Texas 138-kV Mangana Hein Substation.. The new Mangana Hein Substation is needed to serve continuing load growth in the area and to address current loading issues at other substations in the general area. The Project will be designed and operated at 138-kV with both 138-kV circuits terminating at the new AEP Texas Mangana Hein Substation. Specifically, each 138-kV circuit for the Project will extend to a substation bus that will provide transmission service to a single high-side transformer disconnect. They will also extend to two new transmission circuit disconnects connecting each of the new transmission circuits with a center disconnect switch for single circuit isolation, as needed. This would result in one 138-kV transmission circuit creating a transmission path from the existing AEP Texas Wormser Road 138-kV Substation located to the north and the other 138-kV circuit creating a transmission path from the AEP Texas Molina 138-kV Substation located to the south.

Maps showing the locations of the existing Rio Bravo to Wormser Road 138-kV transmission line and the new AEP Texas Mangana Hein Substation are provided in Figures C-1 and C-2 located in Appendix C of the *Rio Bravo-to-Wormser Road 138-kV Cut-In to Mangana Hein Substation Double-Circuit Transmission Line Project Environmental Assessment and Alternative Route Analysis* (EA) that is provided as Attachment 1 to this Application.

If the project will be owned by more than one party, briefly explain the ownership arrangements between the parties and provide a description of the portion(s) that will be owned by each party. Provide a description of the responsibilities of each party for implementing the project (design, Right-Of-Way acquisition, material procurement, construction, etc.).

Not applicable. The Project will be owned solely by AEP Texas.

Identify and explain any deviation in transmission project components from the original transmission specifications as previously approved by the Commission or recommended by a PURA §39.151 organization.

Not applicable.

5. Conductor and Structures:

Conductor Size and Type

The conductor used for the Project will be 795 thousand circular mils (kcmil) 26/7 Drake Aluminum Conductor Steel Supported.

Number of Conductors Per Phase

The Project will be constructed with one (1) conductor per phase for each of the circuits.

Continuous Summer Static Current Rating (A)

The Continuous Summer Static Current Rating for the Project is 2,039 Amps.

Continuous Summer Static Line Capacity at Operating Voltage (MVA)

The Continuous Summer Static Line Capacity at Operating Voltage for the Project is 487 mega volt amperes (MVA).

Continuous Summer Static Line Capacity at Design Voltage (MVA)

The Continuous Summer Static Line Capacity at Design Voltage for the Project is 487 MVA.

Type and Composition of Structures

The Project will be constructed primarily using double-circuit tubular steel monopole structures on a combination of direct-embedded monopoles for tangent structures and two-pole structures on concrete pier foundations for dead-end and angle structures. Alternative structure types may be used if engineering constraints are encountered. Constraints may include items such as Federal Aviation Administration (FAA) height limitations, underground and overhead obstacles, or existing line or highway crossings.

Height of Typical Structures

The typical double-circuit structure height for the Project will be between 85 to 115 feet. The height may vary depending on location, clearance requirements due to the terrain, span lengths, and overhead obstacles.

Estimated Maximum Height of Typical Structures

The estimated maximum height of a typical structure for the Project will be 125 feet above ground.

Explain why these structures were selected; include such factors as landowner preference, engineering considerations, and costs comparisons to alternate structures that were considered. Provide dimensional drawings of the typical structures to be used in the project.

The area for the construction for this project is primarily open rangeland. Access roads to most of the area in general are available from the south off of Mangana Hein Road. There are a few pipelines, some abandoned based on Texas Railroad Commission data, that traverse the area east to west and north to south and that will need to be crossed during construction. Because of these existing constraints and construction parameters for the Project, monopole steel structures were determined to be the most cost-effective solution and easiest to construct for this Project.

Dimensional drawings of the monopole structures are included as Figures 1-2 through 1-4 of the Environmental Assessment (EA) (Attachment 1 in the Application), which was prepared by AEP Texas' routing consultant, Halff Associates, Inc.

For joint applications, provide and separately identify the above-required information regarding structures for the portion(s) of the project owned by each applicant.

Not applicable. This is not a joint application.

6. Right-of-way:

Miles of Right-of-Way

The number of miles of right-of-way for the proposed Project is approximately 2.69 miles.

Miles of Circuit

The Project will be a double-circuit transmission line, and the number of circuit miles for the consented route is approximately 5.38 miles in length.

Width of Right-of-Way

The typical ROW for the Project will be 100 feet in width.

Percent of Right-of-Way Acquired

None of the ROW has been acquired for the Project at this time. However, AEP Texas has acquired written consent from all impacted landowners crossed by the Consensus Route presented for this Project. Written consent for each landowner crossed by the Consensus Route is provided as Attachment 2 to this Application.

For joint applications, provide and separately identify the above-required information for each route for the portion(s) of the project owned by each applicant.

Not applicable. This is not a joint application.

Provide a brief description of the area traversed by the transmission line. Include a description of the general land uses in the area and the type of terrain crossed by the line.

Webb County (including the Study Area) is located within the Interior Coastal Plains, a sub-region of the Gulf Coastal Plains physiographic region (or 'province') of Texas. The Interior Coastal Plains grades from the northeast through south-central Texas which consists of parallel ridges and valleys consisting of unconsolidated sands and muds. The portion of this region that the Study Area occupies is dominated by pastureland/rangeland with chaparral brush and sparse grasses. Habitable structures within the Study Area are all located south of Mangana Hein Road within the La Presa community, encompassing single-family residences as well as commercial and governmental structures.

The terrain traversed by the Consensus Route for this Project is relatively flat, with elevations ranging from approximately 450 to 540 feet above mean sea level. The land uses along the Consensus Route include pastureland/rangeland, upland woodland/brushland, bottomland/riparian woodland/brushland, open water and urban, with pastureland/rangeland being the majority. Specific discussions regarding the existing environment, including natural, human, and cultural resources in the Project area, are set forth in Section 3.0 of the EA (Attachment 1 to this Application).

7. Substations or Switching Stations:

List the name of all existing HVDC converter stations, substations or switching stations that will be associated with the new transmission line. Provide documentation showing that the owner(s) of the existing HVDC converter stations, substations and/or switching stations have agreed to the installation of the required project facilities.

There are no existing HVDC converter stations, substations, or switching station directly associated with the Project.

List the name of all new HVDC converter stations, substations or switching stations that will be associated with the new transmission line. Provide documentation showing that the owner(s) of the new HVDC converter stations, substations and/or switching stations have agreed to the installation of the required project facilities.

AEP Texas will be constructing a new distribution substation, called the Mangana Hein Substation, associated with the Project. The new Mangana Hein 138-kV Substation will be owned by AEP Texas. The transmission-related cost estimates to serve the future Mangana Hein Substation will be included in the CCN application. These estimates include all the transmission equipment necessary to cut into the existing Rio Bravo to Wormser Road 138-kV transmission line and the cost to terminate the new double-circuit transmission line into a new high-side substation bus at the Mangana Hein Substation. The Mangana Hein Substation and its cost to construct are not included in this CCN application. Only the transmission portion to connect to the distribution substation is included.

8. Estimated Schedule:

Estimated Dates Of:	**Start**	**Completion**
Right-of-Way Acquisition	*01/01/2026*	*02/01/2026*
Engineering and Design	*06/01/2025*	*03/01/2026*
Material and Equipment Procurement	*06/01/2025*	*03/01/2026*
Construction of Facilities	*04/01/2026*	*12/01/2026*
Energize Facilities	*N/A*	*12/01/2026*

9. Counties:

For each route, list all counties in which the route is to be constructed.

The Consensus Route filed in this Application would be constructed in Webb County.

10. Municipalities:

For each route, list all municipalities in which the route is to be constructed.

Not Applicable. The study area is not located within a municipal boundary.

For each applicant, attach a copy of the franchise, permit, or other evidence of the city's consent held by the utility, if necessary or applicable. If franchise, permit, or other evidence of the city's consent has been previously filed, provide only the docket number of the application in which the consent was filed. Each applicant should provide this information only for the portion(s) of the project which will be owned by the applicant.

Not Applicable. The Consensus Route for the Project is not located within the incorporated boundaries of any municipality..

11. Affected Utilities:

Identify any other electric utility served by or connected to facilities in this application.

There is no other electric utility served by or directly connected to this Project.

Describe how any other electric utilities will be affected and the extent of the other utilities' involvement in the construction of this project. Include any other utilities whose existing facilities will be utilized for the project (vacant circuit positions, ROW, substation sites and/or equipment, etc.) and provide documentation showing that the owner(s) of the existing facilities have agreed to the installation of the required project facilities.

Not applicable.

12. Financing:

Describe the method of financing this project. For each applicant that is to be reimbursed for all or a portion of this project, identify the source and amount of the reimbursement (actual amount if known, estimated amount otherwise) and the portion(s) of the project for which the reimbursement will be made.

Funds for this Project will come from short-term borrowings and owner equity.

13. Estimated Costs:

Provide cost estimates for each route of the proposed project using the following table. Provide a breakdown of "Other" costs by major cost category and amount. Provide the information for each route in an attachment to this application.

	Transmission Facilities	**Substation Facilities**
Right-of-way and Land Acquisition	$ 1,924,321	$ 0.00
Engineering and Design (Utility)	$ 380,935	$ 0.00
Engineering and Design (Contract)	$ 1,609,462	$ 0.00
Procurement of Material and Equipment (including stores)	$ 2,603,623	$ 0.00
Construction of Facilities (Utility)	$ 10,000	$ 0.00
Construction of Facilities (Contract)	$ 3,295,550	$ 0.00
Other (all costs not included in the above categories)	$0.00	$ 0.00

Estimated Total Cost	**$ 9,823,891**	**S 0.00**

For joint applications, provide and separately identify the above-required information for the portion(s) of the project owned by each applicant.

Not applicable. This is not a joint application.

14. Need for the Proposed Project:

For a standard application, describe the need for the construction and state how the proposed project will address the need. Describe the existing transmission system and conditions addressed by this application. For projects that are planned to accommodate load growth, provide historical load data and load projections for at least five years. For projects to accommodate load growth or to address reliability issues, provide a description of the steady state load flow analysis that justifies the project. For interconnection projects, provide any documentation from a transmission service customer, generator, transmission service provider, or other entity to establish that the proposed facilities are needed. For projects related to a Competitive Renewable Energy Zone, the foregoing requirements are not necessary; the applicant need only provide a specific reference to the pertinent portion(s) of an appropriate commission order specifying that the facilities are needed. For all projects, provide any documentation of the review and recommendation of a PURA §39.151 organization.

This project is necessary to enhance electric service in the South Laredo and Rio Bravo area to accommodate the anticipated load growth in 2025 and beyond. The projected summer loading on the number one transformer in the Sierra Vista Substation is expected to reach 30.13 MVA, which is 120.5% of its maximum capacity. In addition, the number one Rio Bravo transformer is projected to handle 8.54 MVA, which is 81% of its maximum capability.

In addition to the general area load growth, a commercial customer has submitted a request for approximately 10 MW of load capacity to be served from the Sierra Vista Substation transformer number 2. If the customer commits, 166% of the Sierra Vista transformer number 2 will be utilized, and an upgrade will be necessary.

To accommodate the anticipated load growth and improve reliability in the South Laredo and Rio Bravo area, a new substation will be constructed with two 40 MVA transformer banks. This development will support the growing demand and ensure adequate capacity for current and future customer needs.

With regard to review by a PURA §39.151 organization, the Project is considered Tier 4 Neutral and therefore does not require a formal Electric Reliability Council of Texas (ERCOT) Regional Planning Group (RPG) submission.

An overview map of the future Mangana Hein Substation projected service area is provided as Attachment 3a in this Application. An overview map of the local distribution of primary feeders and substations surrounding the projected Mangana Hein Substation service area is provided as Attachment 3b in this Application.

A summary of the historic actual peak load data and the forecasted load growth data with and without the Mangana Hein Substation is provided as Attachment 4a in this Application. More detailed information on the actual and projected load for each of the area substations is presented in Attachments 4b and 4c in this Application.

15. Alternatives to Project:

For a standard application, describe alternatives to the construction of this project (not routing options). Include an analysis of distribution alternatives, upgrading voltage or bundling of conductors of existing facilities, adding transformers, and for utilities that have not unbundled, distributed generation as alternatives to the project. Explain how the project overcomes the insufficiencies of the other options that were considered.

The proposed cut-in to the existing Rio Bravo to Wormser Road line is the closest and best transmission source to the Mangana Hein station, with no additional transmission circuits in the immediate vicinity. The nearest separate existing transmission sources are the Wormser Road-to-University 138-kV circuit and the Wormser Road-to-North Laredo SW 138-kV circuit. These two circuits are double-circuited with each other.

Locating the Mangana Hein station on either of these alternative transmission lines would necessitate significant additional transmission line construction to adequately serve the station. Notably, Wormser Road is approximately 7.4 miles from the proposed transmission line tap structures on the Rio Bravo to Wormser Road line.

Considering the construction of a substation under the existing transmission line and the addition of 10.4 miles of distribution line presents several challenges: this option would incur higher costs due to the extensive construction required; the longer distribution lines could lead to low voltage problems for larger customers located at the end of the line, impacting service reliability; the substation would be restricted to four feeders unless additional private easements for new distribution lines were secured, complicating logistics and planning; and building the substation further away from the load center would reduce efficiency and responsiveness in serving customer needs.

AEP Texas is not a bundled utility and cannot own or control distributed generation.

16. Schematic or Diagram:

For a standard application, provide a schematic or diagram of the applicant's transmission system in the proximate area of the project. Show the location and voltage of existing transmission lines and substations, and the location of the construction. Locate any taps, ties, meter points, or other facilities involving other utilities on the system schematic.

A schematic diagram of the transmission system in the proximate area of the Project is included with this Application as Attachment 5.

17. Routing Study:

Provide a brief summary of the routing study that includes a description of the process of selecting the study area, identifying routing constraints, selecting potential line segments, and the selection of the routes. Provide a copy of the complete routing study conducted by the utility or consultant. State which route the applicant believes best addresses the requirements of PURA and P.U.C. Substantive Rules.

A copy of the EA that was prepared by Halff is included as Attachment 1 of this Application. The EA presents the analysis that was conducted by Halff and the land use and environmental data for the Consensus Route in this Project.

The objective of the EA was to identify and evaluate an adequate number of geographically diverse alternative transmission line routes that comply with the routing criteria in PURA and the PUC's Substantive Rules and to eventually recommend to AEP Texas the routes that Halff determined best address the requirements of PURA and the PUC's Substantive Rules from a land use and environmental standpoint. Throughout the Project, AEP Texas and Halff utilized a comprehensive transmission line routing and evaluation methodology to delineate and evaluate alternative transmission line routes. Ultimately though, AEP Texas' and landowner discussions resulted in signed consent agreements to accommodate a single proposed transmission line route. This is the Consensus Route for with AEP Texas is seeking certification in the CCN application.

As discussed below, the study approach utilized by Halff for this EA consisted of project scoping and study area delineation, data collection, constraint mapping, preliminary alternative link identification, public involvement, Consensus Route determination, Consensus Route evaluation and impact assessment, and finally the recommendation by Halff of the Consensus Route to AEP Texas, as the route that best addresses the requirements of PURA and the PUC's Substantive Rules from a land use and environmental perspective.

The first step in the selection of alternative routing options was to delineate a study area. The study area needed to encompass the Project endpoints (the future Mangana Hein Substation and the Rio Bravo to Wormser Road 138-kV Transmission Line) and include a sufficiently large area within which feasible and geographically diverse alternative routes could be delineated. Additionally, the purpose of delineating a study area for the Project was to establish boundaries and limits in which to identify environmental and land use constraints during the information gathering process to properly identify and map various items included within the PUC's CCN application. The study area is shown on Figure 2-1 of the EA.

Halff used data in the delineation of the alternative routes and the evaluation of the Consensus Route that were drawn from a variety of sources, including published literature (documents, reports, maps, aerial photography, etc.) and information from local, state, and federal agencies. ESRI-hosted world imagery (2024), NearMap (2016 - 2024), Google Earth imagery (2024), United States Geological Survey (USGS) 7.5-minute quadrangle topographic maps, USGS National Hydrography dataset (TXNHD), United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC), USFWS National Wetlands Inventory (NWI) maps, Texas Parks and Wildlife Department (TPWD) Ecological Mapping Systems of Texas, TPWD Natural Diversity Database (NDD), Federal Emergency Management Agency (FEMA) maps, Railroad Commission of Texas (RRC), Texas Archeological Sites Atlas (Atlas) through the Texas Archeological Research Laboratory (TARL) and Texas Historical Commission (THC), and ground reconnaissance surveys were used throughout the evaluation of the Project. The data collection effort, although concentrated in the early stages of the Project, was ongoing and continued throughout the evaluation process.

A constraint mapping process was used in the selection and refinement of possible alternative routes. The geographic locations of environmentally sensitive and other restrictive areas within the study area were located and considered during transmission line route delineation. These constraints were mapped on a topographic representation of the area created on USGS 7.5-minute quadrangle topographic base maps and on aerial photography. The environmental and land-use constraints topographic map is included as Figure C-1 and the aerial map is included as Figure C-2 located in Appendix C of Attachment 1 of this application.

Using the constraint maps, electrical system maps, field inspection, and input from AEP Texas, Halff designated a total of 42 preliminary alternative links that took into consideration environmental and land use constraints. These preliminary alternative links, which were displayed at the public open house meeting, are shown on Figure 2-2 of the EA (see Attachment 1). The principal criteria used to locate these preliminary alternative links were paralleling existing road right-of-way, paralleling apparent property lines, and avoiding oil/gas facilities and residential development.

AEP Texas hosted a public open house meeting to solicit comments, concerns, and input from residents, landowners, and other interested parties. The public open house meeting was held on January 23, 2025, at the La Presa Community Center, 1983 Mangana Hein Road, Laredo, Texas. Following this public open house meeting, AEP Texas' and landowner discussions resulted in signed consent agreements to accommodate a single proposed transmission line route (Consensus Route) which is displayed on Figures C-1 and C-2 located in Appendix C of Attachment 1. In evaluating the Consensus Route, 43 environmental criteria were considered. These criteria are presented in Table 2-1 of the EA, which is Attachment 1 filed in this application.

Halff professionals with expertise in different environmental disciplines (wildlife biology, land use/planning, and archeology) and the Halff project manager evaluated the Consensus Route. Evaluations were based on environmental and land use conditions present along the Consensus Route. Each Halff staff person independently analyzed the environmental data for the Consensus Route from the perspective of their own technical discipline. The evaluation of the Consensus Route involved the inventory and tabulation of the number or quantity of each environmental criterion located along the Consensus Route (e.g., number of habitable structures within 300 feet, length of Consensus Route parallel to apparent property lines, etc.). The number or amount of each criterion was determined by reviewing various maps and recent color aerial imagery (2024 NearMap), and by field verification. Potential environmental impacts of the Consensus Route are addressed in Section 4.0 of the EA, which is Attachment 1 filed in this application. In assessing potential impacts of the Consensus Route, Halff limited its evaluation to environmental considerations. The amount

or number of each environmental criterion measured along the Consensus Route is presented in Table 4-1, which is located in Attachment 1 filed in this application.

AEP Texas considered all of the certification criteria in PURA and the PUC Substantive Rules and the environmental and land use recommendation of its routing consultant, Halff. The Applicant also evaluated the Consensus Route from an engineering, design, construction, operations, and maintenance perspective, and considered the estimated cost the Consensus Route.

Based on its evaluation of all these factors, AEP Texas believes the Consensus Route provides the best balance of routing characteristics and best addresses the requirements of PURA and the PUC Substantive Rules.

18. Public Meeting or Public Open House:

Provide the date and location for each public meeting or public open house that was held in accordance with 16 TAC § 22.52. Provide a summary of each public meeting or public open house including the approximate number of attendants, and a copy of any survey provided to attendants and a summary of the responses received. For each public meeting or public open house provide a description of the method of notice, a copy of any notices, and the number of notices that were mailed and/or published.

AEP Texas hosted a public open house meeting within the study area to solicit comments, concerns, and input from residents, landowners, public officials, and other interested parties regarding the preliminary alternative links. The meeting was held on January 23, 2025, at the La Presa Community Center, 1983 Mangana Hein Road, Laredo, Texas. A summary of the public meeting and additional information concerning the public open house meeting, including notice, is contained in Sections 2.6.4 and Appendix B of the EA, which is Attachment 1 of the application.

PUC Procedural Rule 16 TAC § 22.52 (a)(4), requires a utility to notify the Department of Defense Siting Clearinghouse (DoD) of any public meeting to be held during the route evaluation process. In the event that no public meeting is held due to a small number of affected landowners, the utility is required to provide written notice to the DoD of the utility's intent to file an application at the PUC. AEP Texas provided notice to DoD of its intent to file an application with the PUC to amend its CCN to construct, own, and operate the Project on January 16, 2025. This notice is included as Attachment 10c to this Application

19. Routing Maps:

Base maps should be a full scale (one inch = not more than one mile) highway map of the county or counties involved, or other maps of comparable scale denoting sufficient cultural and natural features to permit location of all routes in the field. Provide a map (or maps) showing the study area, routing constraints, and all routes or line segments that were considered prior to the selection of the routes. Identify the routes and any existing facilities to be interconnected or coordinated with the project. Identify any taps, ties, meter points, or other facilities involving other utilities on the routing map. Show all existing transmission facilities located in the study area. Include the locations of radio transmitters and other electronic installations, airstrips, irrigated pasture or cropland, parks and recreational areas, historical and archeological sites (subject to the instructions in Question 27), and any environmentally sensitive areas (subject to the instructions in Question 29).

Routing maps are provided in the EA. Figure C-1 is a topographic-based map (scale of 1 inch = 800 feet) that shows the study area, all Consensus Route links, routing constraints and other environmental and land use features, and existing transmission lines and is located in Appendix C of the EA. Figure C-2 is an aerial-based map (scale of 1 inch = 800 feet) that shows the study area, all Consensus Route links, routing constraints and other environmental and land use features, and existing transmission lines and is located in Appendix C of the EA. Figure 2-2 of the EA shows the preliminary alternative links displayed at the public open house meeting.

Provide aerial photographs of the study area displaying the date that the photographs were taken or maps that show (1) the location of each route with each route segment identified, (2) the locations of all major

public roads including, as a minimum, all federal and state roadways, (3) the locations of all known habitable structures or groups of habitable structures (see Question 19 below) on properties directly affected by any route, and (4) the boundaries (approximate or estimated according to best available information if required) of all properties directly affected by any route.

Figure C-2 in Appendix C of the EA (Attachment 1 to this Application) is an aerial photograph-based map that depicts, as applicable: (1) the location of the primary alternative links which constitute the Consensus Route; (2) the locations of all major public roads, including all federal and state roadways; (3) the locations of all known habitable structures (within 300 feet of the links) on properties directly affected by the route; and (4) the boundaries (approximate or estimated according to best available information) of all properties directly affected by the route. Each directly affected property and habitable structure has been assigned a unique "Property ID" and "Habitable Structure ID" number, which is cross-referenced in the table of corresponding landowners as listed in Attachment 7, discussed below.

For each route, cross-reference each habitable structure (or group of habitable structures) and directly affected property identified on the maps or photographs with a list of corresponding landowner names and addresses and indicate which route segment affects each structure/group or property.

There are 46 habitable structures located within 320 feet of the Consensus Route. Note that in the EA, because of potential horizontal accuracy limitations of the aerial photography, Halff expanded the review of habitable structures to 320 feet. A cross-reference table that shows each landowner's name and address, the Property ID number and the Habitable Structure ID number is provided included as Attachment 6 of this application.

20. Permits:

List any and all permits and/or approvals required by other governmental agencies for the construction of the proposed project. Indicate whether each permit has been obtained.

AEP Texas will coordinate with all of the appropriate local, state, and federal agencies with jurisdiction regarding the construction of the transmission facilities associated with this Project. AEP Texas and/or Halff have initiated contact with and provided information about the Project to various agencies. Some input from these agencies has been incorporated in this application; however, requests for permits and/or approvals will not be submitted to the appropriate agencies until the final alignment of the approved route is determined. None of the following potential permits, approvals, requirements, easements, or clearances have been obtained.

- A floodplain development permit might be required by Webb County, depending on the location of the transmission line structures.
- Permits for crossing roads, highways, and/or other properties owned or maintained by Texas Department of Transportation will be obtained as necessary.
- Cultural resource clearance will be obtained from the Texas Historical Commission for the approved Project right-of-way as necessary.
- A Storm Water Pollution Prevention Plan (SWPPP) is required by the Texas Commission on Environmental Quality (TCEQ). AEP Texas or its contractors will submit a Notice of Intent to the TCEQ at least 48 hours prior to the beginning of construction and will have the SWPPP on site at the initiation of clearing and construction activities.
- A Miscellaneous Easement from the Texas General Land Office (GLO) will be obtained as necessary for any ROW that crosses a state-owned riverbed or navigable stream, if applicable. The Project study area is not located within the Texas Coastal Management Program (CMP) boundary.
- Notification to the Federal Aviation Administration (FAA) might be required depending on the alignment of the approved route, structure locations, and structure designs. Requirements to alter the design of the structures or potential requirements to mark and/or illuminate the line will be coordinated with the FAA.

- Permits or other requirements associated with possible impacts to endangered/threatened species will be coordinated with the USFWS as necessary.
- Permits or other requirements associated with possible impacts to waters of the United States under the jurisdiction of the United States Army Corps of Engineers (USACE) will be coordinated with the USACE as necessary. The Consensus Route does not cross property that is owned by the USACE, and no easements on USACE property will be necessary. No Section 10 Permitting with a Pre-Construction Notification is anticipated.

Further discussion of permitting that may be required for the Project is included in Section 2.3 of the EA in Attachment 1 of this Application.

21. Habitable Structures:

For each route, list all single-family and multi-family dwellings and related structures, mobile homes, apartment buildings, commercial structures, industrial structures, business structures, churches, hospitals, nursing homes, schools, or other structures normally inhabited by humans or intended to be inhabited by humans on a daily or regular basis within 300 feet of the centerline if the proposed project will be constructed for operation at 230kV or less, or within 500 feet of the centerline if the proposed project will be constructed for operation at greater than 230kV. Provide a general description of each habitable structure and its distance from the centerline of the route. In cities, towns, or rural subdivisions, houses can be identified in groups. Provide the number of habitable structures in each group and list the distance from the centerline of the route to the closest and the farthest habitable structure in the group. Locate all listed habitable structures or groups of structures on the routing map.

There are 46 habitable structures located within 320 feet of the Consensus Route. Note that in the EA, because of potential horizontal accuracy limitations of the aerial photography, Halff expanded the review of habitable structures to 320 feet.

General description of the habitable structures that are within 320 feet of the centerline of Consensus Route and the distance from the centerline is provided in Table 4-2 of the EA. The habitable structures that are located within 320 feet of the Consensus Route are shown on Figures C-1 and C-2 located in Appendix C of EA (Attachment 1) of the Application.

22. Electronic Installations:

For each route, list all commercial AM radio transmitters located within 10,000 feet of the centerline of the route and all FM radio transmitters, microwave relay stations, or other similar electronic installations located within 2,000 of the centerline of the route. Provide a general description of each installation and its distance from the center line of the route. Locate all listed installations on a routing map.

No commercial AM radio towers are located within 10,000 feet of the Consensus Route centerlines. Five FM radio transmitter, microwave relay station, or other similar electronic installations located within 2,000 feet of the Consensus Route centerline (see Section 4.3.6 of the EA for details). General descriptions of the electronic installations that are within 2,000 feet of the centerline of Consensus Route and the distance from the centerline is provided in Table 4-3 of the EA. The electronic installations located within 2,000 feet of the Consensus Route with identifications numbers that correspond to Table 4-3 of the EA are shown on Figures C-1 and C-2 located in Appendix C of Attachment 1.

23. Airstrips:

For each route, list all known private airstrips within 10,000 feet of the center line of the project. List all airports registered with the Federal Aviation Administration (FAA) with at least one runway more than 3,200 feet in length that are located within 20,000 feet of the center line of any route. For each such airport, indicate whether any transmission structures will exceed a 50:1 horizontal slope (one foot in height for each 100 feet in distance) from the closest point of the closest runway. List all listed airports registered with the FAA having no runway more than 3,200 feet in length that are located within 10,000 feet of the center line of any route. For each such airport, indicate whether any transmission structures will exceed a 50: 1 horizontal slope from the closest point of the closest runway. List all heliports located within 5,000 feet of the center

line of any route. For each such heliport, indicate whether any transmission structures will exceed a 25: 1 horizontal slope from the closest point of the closest landing and takeoff area of the heliport. Provide a general description of each listed private airstrip, registered airport, and heliport; and state the distance of each from the center line of each route. Locate and identify all listed airstrips, airports, and heliports on a routing map.

According to FAA Regulations, Title 14 Code of Federal Regulations, Part 77, notification of the construction of the proposed transmission line will be required if structure heights exceed the height of an imaginary surface extending outward and upward at a slope of 100 to 1 for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of a public or military airport having at least one runway longer than 3,200 feet.

If a runway is less than 3,200 feet, notification would be required if structure heights exceed the height of an imaginary surface extending at a slope of 50 to 1 for a distance of 10,000 feet. Notification is also required for structure heights exceeding the height of an imaginary surface extending outward and upward at a slope of 25 to 1 for a horizontal distance of 5,000 feet from the nearest point of the nearest landing and takeoff area for heliports. In addition, FAA Regulations require notification of the construction of any object that is greater than 200 feet above ground level and within 3 miles of an airport with a runway more than 3,200 feet in length.

There are no public FAA-registered airports, where at least one runway is longer than 3,200 feet and located within 20,000 feet of all of the Consensus Route. There are no FAA-registered airports where the runway is no longer than 3,200 feet located within 10,000 feet of the Consensus Route. There are no known private airstrips located within 10,000 feet of any of the Consensus Route and no known heliports located within 5,000 feet of any of the Consensus Route.

24. Irrigation Systems:

For each route, identify any pasture or cropland irrigated by traveling irrigation systems (rolling or pivot type) that will be traversed by the route. Provide a description of the irrigated land and state how it will be affected by each route (number and type of structures etc.). Locate any such irrigated pasture or cropland on a routing map.

The Consensus Route does not cross any land irrigated by known mobile irrigation systems (rolling or pivot type).

25. Notice:

Notice is to be provided in accordance with P.U.C. Proc. R. 22.52.

A. Provide a copy of the written direct notice to owners of directly affected land.
Attach a list of the names and addresses of the owners of directly affected land receiving notice.

A sample copy of the written direct notice and enclosures to owners of directly affected land is provided in Attachment 8a in both English and in Spanish. The locations of the landowners are provided in Attachment 8b. Alternative Route Link Descriptions, the PUC landowner brochure, comment form, intervenor form, and landowner list are provided in Attachments 8c through 8g, respectively.

B. Provide a copy of the written notice to utilities that are located within five miles of the routes.

A sample copy of the written notice to utilities that are located within five miles of the proposed Project is provided in Attachment 9a. The list of the names and addresses of these utilities is provided in Attachment 9b.

C. Provide a copy of the written notice to county and municipal authorities, and the Department of Defense Siting Clearinghouse. Notice to the DoD Siting Clearinghouse should be provided at the email address found at http://www.acq.osd.mil/dodsc/.

A sample copy of the written notice to county and municipal authorities is provided as Attachment 10a. The list of the names and addresses of these authorities is provided in Attachment 10b. A copy of the written notice to the Department of Defense Siting Clearinghouse is provided as Attachment 10d.

D. *Provide a copy of the notice that is to be published in newspapers of general circulation in the counties in which the facilities are to be constructed. Attach a list of the newspapers that will publish the notice for this application. After the notice is published, provide the publisher's affidavits and tear sheets.*

The text of the notice to be published in newspapers of general circulation in the counties in which the proposed facilities are to be constructed is provided in Attachment 11a. A list of the newspapers that will publish the notice for this Application is provided as Attachment 11b.

For a CREZ application, in addition to the requirements of 16 TAC § 22.52 the applicant shall, not less than twenty-one (21) days before the filing of the application, submit to the Commission staff a "generic" copy of each type of alternative published and written notice for review. Staff's comments, if any, regarding the alternative notices will be provided to the applicant not later than seven days after receipt by Staff of the alternative notices. Applicant may take into consideration any comments made by Commission staff before the notices are published or sent by mail.

Not applicable. This is not a CREZ application.

In addition to the notices described above, 16 TAC §22.52 requires AEP Texas to provide notice of this Application to the Office of Public Utility Counsel. A copy of that notice is included in this Application as Attachment 12.

26. Parks and Recreation Areas:

For each route, list all parks and recreational areas owned by a governmental body or an organized group, club, or church and located within 1,000 feet of the center line of the route. Provide a general description of each area and its distance from the center line. Identify the owner of the park or recreational area (public agency, church, club, etc.). List the sources used to identify the parks and recreational areas. Locate the listed sites on a routing map.

Halff performed a review of federal and state databases and county and local maps to identify parks and/or recreational areas within the study area. Reconnaissance surveys were also conducted to identify any additional park or recreational areas that are located within the study area.

There is one park and recreation area (La Presa Community Center and Park) located within 1,000 feet of the Consensus Route centerline. The Consensus Route does not cross any parks or recreational areas.

27. Historical and Archeological Sites:

For each route, list all historical and archeological sites known to be within 1,000 feet of the center line of the route. Include a description of each site and its distance from the center line. List the sources (national, state or local commission or societies) used to identify the sites. Locate all historical sites on a routing map. For the protection of the sites, archeological sites need not be shown on maps.

To identify the historical and archeological sites in the study area, Halff researched the available records and literature at the TARL. In addition, the THC's Archeological Sites Atlas files was used to identify listed and eligible National Register of Historical Places (NRHP) properties and sites, NRHP districts, cemeteries, Official Texas Historical Markers, State Archeological Landmarks, and any other potential cultural resources such as National Historic Landmarks, National Monuments, National Memorials, National Historic Sites, and National Historical Parks to ensure the completeness of the study. To identify areas with a high probability for the occurrence of cultural resources, Halff used 7.5-minute topographic maps and aerial photography.

General descriptions of the historical and archeological resources are provided in Section 3.9 of the EA and potential impacts in Section 4.4 of the EA. No listed and/or eligible NRHP properties and/or sites, NRHP

districts, cemeteries, Official Texas Historical Markers, State Archeological Landmarks, National Historic Landmarks, National Monuments, National Memorials, National Historic Sites, or National Historical Parks are recorded within 1,000 feet of the Consensus Route. The Consensus Route centerline is within 1,000 feet of four cultural resource sites (see Table 4-4 of the EA). No recorded cultural resource sites are crossed by the Consensus Route.

Because a cultural resource survey has not been conducted for the Consensus Route, additional cultural resource sites that have not yet been recorded or evaluated might exist within the corridor. Consequently, the potential of impacting undiscovered cultural resources exists along the Consensus Route. To assess this potential, high probability areas (HPA) for additional, unrecorded prehistoric resources were identified by a professional archeologist by reviewing aerial, soil, and topographic maps. HPAs for pre-contact archeological sites are typically identified adjacent to streams or near sources of fresh water along the Consensus Route and near previously recorded sites. Post-contact resources are likely to be found near water sources; however, they will also be near primary and secondary roads that provided access to the sites. Buildings and cemeteries are more likely to be located within or near communities.

The Consensus Route crosses 8,730 feet of HPA.

28. Coastal Management Program:

For each route, indicate whether the route is located, either in whole or in part, within the coastal management program boundary as defined in 31 T.A.C. §503.1. If any route is, either in whole or in part, within the coastal management program boundary, indicate whether any part of the route is seaward of the Coastal Facilities Designation Line as defined in 31 T.A.C. §19.2(a)(21). Using the designations in 31 T.A.C. §501.3(b), identify the type of Coastal Natural Resource Area (s) impacted by any part of the route and/or facilities.

The Consensus Route is not located within the CMP boundary as defined in 31 TAC § 503.1.

29. Environmental Impact:

Provide copies of any and all environmental impact studies and/or assessments of the project. If no formal study was conducted for this project, explain how the routing and construction of this project will impact the environment. List the sources used to identify the existence or absence of sensitive environmental areas. Locate any environmentally sensitive areas on a routing map. In some instances, the location of the environmentally sensitive areas or the location of protected or endangered species should not be included on maps to ensure preservation of the areas or species. Within seven days after filing the application for the project, provide a copy of each environmental impact study and/or assessment to the Texas Parks and Wildlife Department (TPWD) for its review at the address below. Include with this application a copy of the letter of transmittal with which the studies/assessments were or will be sent to the TPWD.

Wildlife Habitat Assessment Program
Wildlife Division
Texas Parks and Wildlife Department
4200 Smith School Road
Austin, Texas 78744

The EA that was developed by Halff is included with this Application as Attachment 1. Data used by Halff in the delineation and evaluation of alternative routes were drawn from a variety of sources, including published literature (documents, reports, maps, aerial photography, etc.), and information from local, state, and federal agencies. ESRI-hosted world imagery (2024), NearMap (2016 - 2024), Google Earth imagery (2024), United States Geological Survey (USGS) 7.5-minute quadrangle topographic maps, USGS National Hydrography dataset (NHD), United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC), USFWS National Wetlands Inventory (NWI) maps, Texas Parks and Wildlife Department (TPWD) Ecological Mapping Systems of Texas, TPWD Natural Diversity Database (TXNDD), Federal Emergency Management Agency (FEMA) maps, Railroad Commission of Texas (RRC), Texas Archeological Sites Atlas (Atlas) through the Texas Archeological Research Laboratory (TARL) and Texas Historical Commission (THC), and ground reconnaissance surveys were used throughout the evaluation of

the Project. The data collection effort, although concentrated in the early stages of the Project, was ongoing and continued throughout the evaluation process.

A copy of the letter of transmittal of the application, including the EA for this Project, to the TPWD is included in this application as Attachment 13a. An affidavit verifying that the application and EA were sent to TPWD is included in this application as Attachment 13b.

30. Affidavit:

Attach a sworn affidavit from a qualified individual authorized by the applicant to verify and affirm that, to the best of their knowledge, all information provided, statements made, and matters set forth in this application and attachments are true and correct.

The sworn affidavit of the AEP Texas Regulatory Consultant for this Project is included with this Application as Attachment 14.

CCN Application - List of Attachments

1	Environmental Assessment
2	Consensus Route Agreements
3a	Overview Map of Mangana Hein Substation Projected Service Area Part I
3b	Overview Map of Mangana Hein Substation Projected Service Area Part II
4a1	Loading without Mangana Hein Substation In-Service
4a2	Loading with Mangana Hein Substation In-Service
4b	Rio Bravo Substation Eleven-Year Forecast
4c	Sierra Vista Substation Eleven-Year Forecast
5	Diagram of Transmission System Project Area
6	Property Ownership Map
7	Habitable Structures Cross-Reference Table
8a	Notice – Landowner Letter (English)
8a	Notice – Landowner Letter (Spanish)
8b	Notice – Map of Consensus Route
8c	Notice – Consensus Route Description
8d	Notice – Landowner Brochure
8e	Notice – Comment Form
8f	Notice – Intervenor Form
8g	Notice – Landowner List
9a	Notice – Utilities Letter *
9b	Notice – Utilities List
10a	Notice – County and Municipal Officials Letter *
10b	Notice – County and Municipal Officials List
10c	Notice – DoD Notice of OH Meeting & Intent to File
10d	Notice – DoD Siting Clearinghouse Letter
11a	Notice – Newspaper Publication
11b	Notice – Newspaper Publication List
12	Notice – Office of Public Utility Counsel *
13a	Letter of Transmittal of Application to the Texas Parks and Wildlife Department

13b Affidavit Transmittal of Application to TPWD

14 Application Affidavit Regulatory Consultant

* Excluding Maps and Route Descriptions provided in Attachment 8 set of documents

Environmental Assessment and Alternative Route Analysis

Rio Bravo-to-Wormser Road 138-kV Cut-in to Mangana Hein Substation Double-Circuit Transmission Line Project

Public Commission of Texas
Docket No. 58015

AEP TEXAS
An AEP Company

Submitted to:
AEP Texas Inc.

Prepared by:
Halff Associates, Inc.
1201 North Bowser Road
Richardson, Texas 75081-2275

halff

April 2025

TABLE OF CONTENTS

Page No.

LIST OF APPENDICES

LIST OF TABLES

Page No.

LIST OF FIGURES

LIST OF ACRONYMS AND ABBREVIATIONS

Abbreviation	Term/Phrase/Name
ACSS	Aluminum Conductor Steel Supported
AEP Texas	AEP Texas Inc.
ANSI	American National Standards Institute
APLIC	Avian Power Line Interaction Committee
Atlas	Texas Archeological Sites Atlas
BEG	Bureau of Economic Geology
BGEPA	Bald and Golden Eagle Protection Act
BLS	U.S. Bureau of Labor Statistics
BMP	best management practice
CCN	Certificate of Convenience and Necessity
CFR	Code of Federal Regulations
CR	County Road
CWA	Clean Water Act
DoD	Department of Defense
EPRI	Electric Power Research Institute
EA	Environmental Assessment and Alternative Route Analysis
EMST	Ecological Mapping Systems of Texas
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FM	Farm-to-Market road
FVZ	foreground visual zone
GIS	geographic information system

Abbreviation	Term/Phrase/Name
ACSS	Aluminum Conductor Steel Supported
GLO	Texas General Land Office
Halff	Halff Associates, Inc.
HPA	high probability area
IH	Interstate Highway
IPaC	Information for Planning and Consultation
ISD	Independent School District
kcmil	thousand circular mils
kV	Kilovolt
MBTA	Migratory Bird Treaty Act
ME	Miscellaneous Easement
MVA	megavolt-ampere
MW	megawatt
NAS	National Audubon Society
NCED	National Conservation Easement Database
NDD	TPWD's Natural Diversity Database
NEPA	National Environmental Policy Act
NERC	National American Electric Reliability Corporation
NESC	National Electrical Safety Code
NHD	National Hydrography Dataset
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NOT	Notice of Termination
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places

Abbreviation	Term/Phrase/Name
ACSS	Aluminum Conductor Steel Supported
NWI	National Wetlands Inventory
NWP	Nationwide Permit
OTHM	Official Texas Historical Marker
Project	Rio Bravo to Wormser Road 138-kV Station Cut-in to Mangana Hein 138-kV Substation Double-Circuit Transmission Line Project
PSF	Permanent School Fund
PUC	Public Utility Commission of Texas
PURA	Public Utility Regulatory Act
ROW	right-of-way
RRC	Railroad Commission of Texas
RTHL	Recorded Texas Historic Landmark
SAL	State Antiquities Landmark
SCS	Soil Conservation Service
SH	State Highway
SHPO	State Historic Preservation Office(r)
SWPPP	Storm Water Pollution Prevention Plan
TAC	Texas Administrative Code
TARL	Texas Archeological Research Laboratory
TCEQ	Texas Commission on Environmental Quality
TDC	Texas Demographic Center
TEA	Texas Education Agency
THC	Texas Historical Commission
TLC	Texas Land Conservancy
TNC	The Nature Conservancy
TPDES	Texas Pollution Discharge Elimination System
TPWD	Texas Parks and Wildlife Department
TWC	Texas Workforce Commission

Abbreviation	Term/Phrase/Name
ACSS	Aluminum Conductor Steel Supported
TWDB	Texas Water Development Board
TxDOT	Texas Department of Transportation
U.S.	United States
US	U.S. Highway
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WOTUS	Waters of the United States

1.0 DESCRIPTION OF THE PROPOSED PROJECT

1.1 Scope of Project

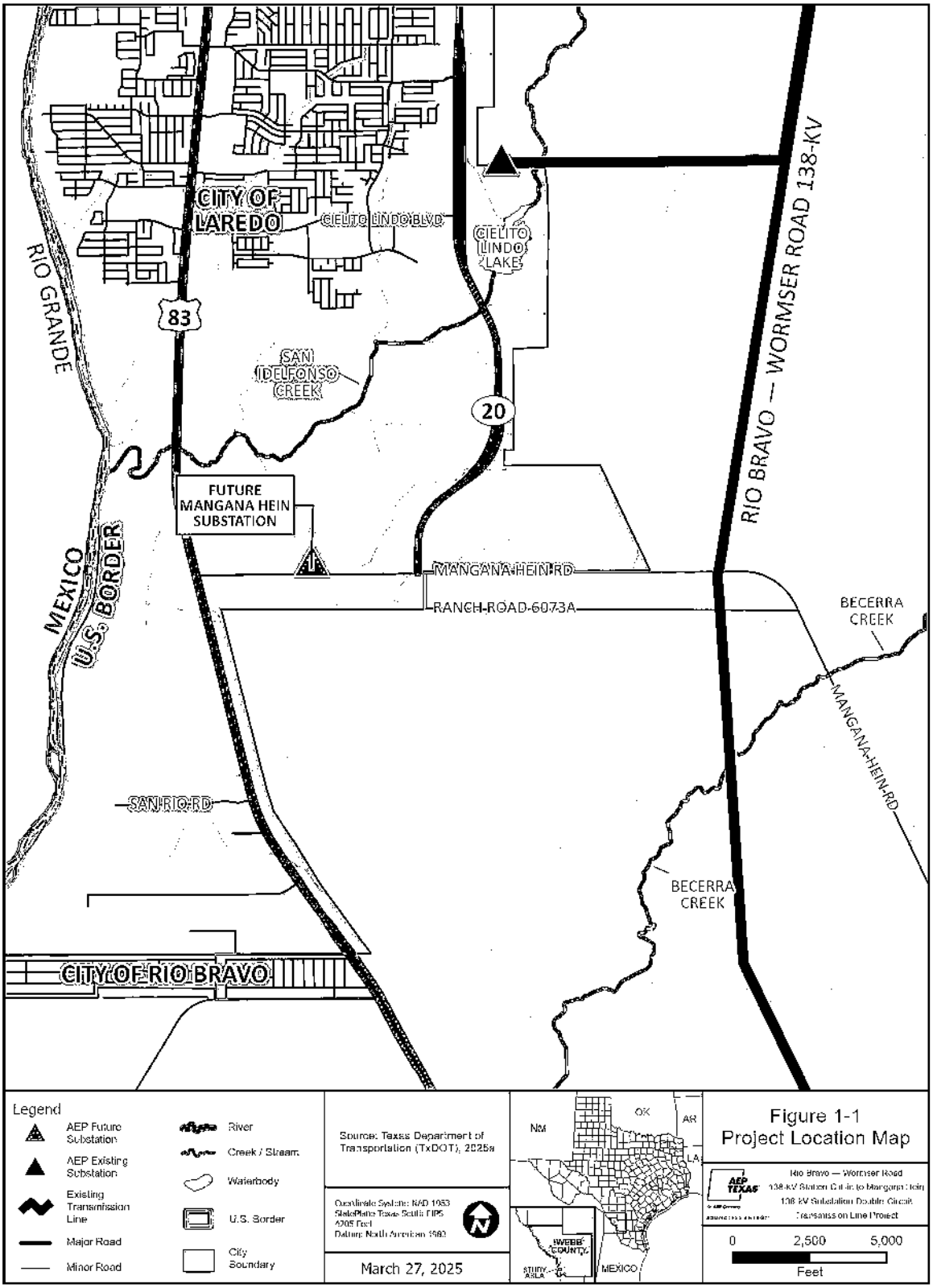
AEP Texas Inc. (AEP Texas) is proposing to construct a new 138-kilovolt (kV) Transmission Line in Webb County, Texas (the Project). The Project will be constructed and operated as a double-circuit transmission line, which will begin at the future AEP Texas Mangana Hein 138-kV Substation, located approximately 0.5 mile west of the intersection of State Highway (SH) Loop 20 and Mangana Hein Road south of the City of Laredo on the north side of Mangana Hein Road, to a Tap Point along the existing Rio Bravo to Wormser Road 138-kV transmission line segment located approximately 2.5 miles to the east and approximately .02 miles north of Mangana Hein Road. The new double-circuit transmission line will be approximately 2.69 miles in length and will require a 100-foot-wide right-of-way (ROW). **Figure 1-1** shows the Project location.

AEP Texas contracted with Halff Associates, Inc. (Halff) to prepare the Environmental Assessment and Alternative Route Analysis (EA). The EA supports the AEP Texas' application to amend its Certificate of Convenience and Necessity (CCN) to be submitted to the Public Utility Commission of Texas (PUC). The EA may also be used to support any additional local, state, or federal permitting activities that might be required prior to construction of the future Project.

The Project EA discusses the environmental and land use constraints (criterion) identified within the Study Area as defined in **Section 2.7**; which documents routing methodologies; documents public involvement; and the determination of the proposed transmission line route (Consensus Route) following the public involvement open house meeting. The EA also provides the basis for AEP Texas to identify that the Consensus Route best addresses the requirements under the Public Utility Regulatory Act (PURA) and 16 Texas Administrative Code (TAC) § 25.101. The EA also provides information and addresses the requirements of Section 37.056(c)(4)(A-D) of the Texas Utilities Code, the PUC's CCN application form, and the PUC's policy of "prudent avoidance."

To assist Halff in its evaluation of the proposed Project, AEP Texas provided Halff with the Project endpoints and information regarding the need for the Project, future construction practices, transmission line design, clearing methods, ROW requirements, and maintenance procedures for the Project.

Figure 1-1: Project Location Map



1.2 Purpose and Need

The Project improves regional reliability and resiliency with the addition of a new double-circuit 138-kV transmission line to provide electric service to a new substation that will provide necessary system reliability and capacity to address the area's continuing growing power demand and ensures this demand can be served reliably and located to reduce the likelihood and duration of outages for existing and new electric customers in the area.

The projected 2026 summer loading on the number one transformer in the Sierra Vista Substation is expected to reach 30.13 megavolt-amperes (MVA), which is 120.5 percent of its maximum capacity and the number two transformer in the Sierra Vista Substation is expected to reach 31.53 MVA, which is 126 percent of its maximum capacity. Also, the number one Rio Bravo transformer is projected to handle 8.54 MVA, which is 81 percent of its maximum capability. In addition to the general area load growth, a commercial customer has submitted a request to AEP Texas for approximately 10 megawatts (MW) of load capacity to be served from the Sierra Vista Substation transformer number 2. If the customer commits, 166 percent of the Sierra Vista transformer number 2 will be utilized, and an upgrade will be necessary. A new substation with two 40 MVA transformer banks will enhance reliability and increase capacity for the South Laredo and Rio Bravo service areas. The Project also involves the construction of 12.8 miles of new distribution line out of the new substation.

1.3 Description of Proposed Design and Construction

The following information presents the proposed design and construction of facilities for the proposed Project.

1.3.1 Loading, Weather Data, and Design Criteria

AEP Texas' proposed 138-kV double-circuit transmission line is in the American National Standards Institute (ANSI) National Electrical Safety Code (NESC) Light Loading District and will be designed to meet or exceed NESC 2023 loading criteria (ANSI C2-2023). Depending on the type of structure used, various combinations of unbalanced vertical, transverse (wind), and longitudinal loadings (with and without ice) were analyzed for their effects on the structures. The Project will be constructed using AEP Texas' double circuit, steel monopole structure with a

typical height ranging from 85 to 115 feet and a maximum height of 125 feet, depending on clearance requirements. The new 138-kV transmission line will use 795 thousand circular mils (kcmil) 26/7 Drake Aluminum Conductor Steel Supported (ACSS) conductors with two optical ground wires.

1.3.2 Structural and Geotechnical Design Criteria

All structure components, conductors, and overhead ground wires will be designed using the appropriate overload capacity factors, strength reduction factors, and tension limits as given in NESC 2023 and the manufacturer's recommended strength ratings for hardware. In conjunction with NESC 2023, AEP Texas' transmission line engineering standards will be used. The NESC Medium Loading District design criteria, extreme wind and ice loading conditions, will be used to determine tension limits for all wires.

All structures will be designed to support conductors and shield wires as specified above. The configuration of the conductor and shield wires will provide lightning protection and the appropriate clearances for operation of a 138-kV transmission line. The geometry of a typical double circuit, steel monopole tangent structure, running corner structure, and dead-end structure are shown respectively on **Figures 1-2**, **1-3**, and **1-4**. Geotechnical considerations will include soil borings and in-situ soils testing to provide the parameters for foundation design for the structures.

1.4 Construction Considerations

Projects of this type require surveying, ROW clearing, foundation installation, structure assembly and erection, conductor and shield wire installation, and cleanup when the Project is completed. The following information regarding these activities was provided to Halff by AEP Texas.

1.4.1 Clearing

Any required clearing of the ROW will be performed by the contractor under the direction of AEP Texas. Available methods of disposal are mulching, brush piling, and salvaging. Woody vegetation within the ROW will be cleared to allow safe construction, operation, and

maintenance of the line. Tree stumps will be cut to ground level and left in place. The cleared ROW will be utilized for access during construction and additional ingress and egress may be required across private property to access the ROW. In these circumstances, existing private roads will be used where possible, taking into consideration the preference of affected property owners. Temporary culverts might be installed to cross small streams and creeks, where necessary. Larger creeks are typically not crossed with equipment; rather, they are spanned by the transmission line with structures located on both sides of the creek crossing. Clearing will be accomplished to comply with the National American Electric Reliability Corporation's (NERC's) reliability standards.

Clearing plans, methods, and practices are extremely important for success in any program designed to minimize the adverse effects of electric transmission lines on the natural environment. The following measures thoughtfully implemented and applied to this Project, will help meet this goal:

1. Clearing will be performed in a manner that will maximize the preservation and conservation of natural resources and minimize impacts to waters in the activity area.
2. The timing and method of clearing ROW will consider soil stability, the protection of natural vegetation and sensitive habitats, the protection of adjacent resources such as natural habitat for plants and wildlife, and the prevention of silt deposition in watercourses.
3. AEP Texas will use the most efficient and effective method to remove undesirable vegetation species. Hydro-axes and flail mowers might be used in clearing operations where such use will preserve the cover crop of grass and similar vegetation. If deemed appropriate, United States (U.S.) Environmental Protection Agency (EPA)-approved herbicides will be applied and handled in accordance with the product manufactures' published recommendations and specifications, and as directed by appropriate, qualified staff.

Figure 1-2: Typical 138-kV Double Circuit Braced Post Tangent Structure

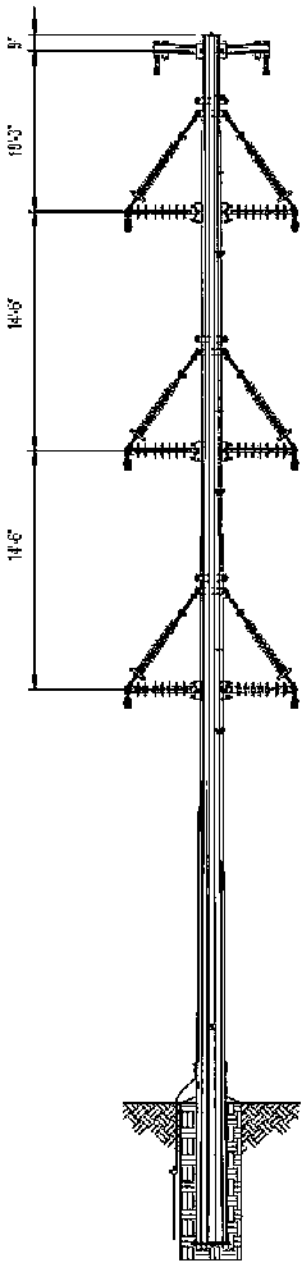


FIGURE 1-2.
TYPICAL 138-kV DOUBLE CIRCUIT BRACED POST TANGENT STRUCTURE
RIO BRAVO — WORMSER ROAD 138-KV STATION CUT-IN TO
MANGANA HEIN 138-KV SUBSTATION DOUBLE-CIRCUIT TRANSMISSION LINE PROJECT

Figure 1-3: Typical 138-kV Double Circuit Running Angle Structure

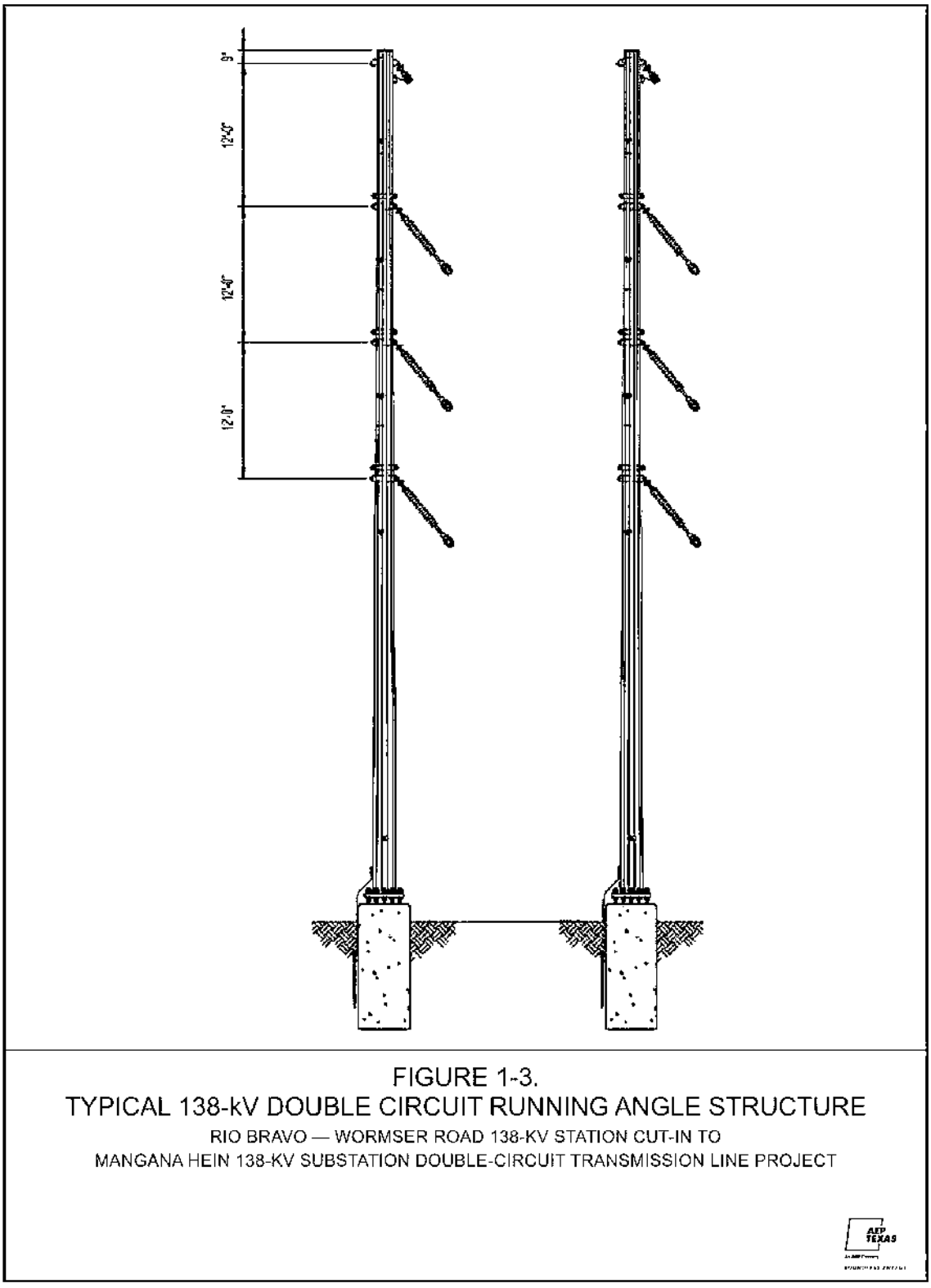
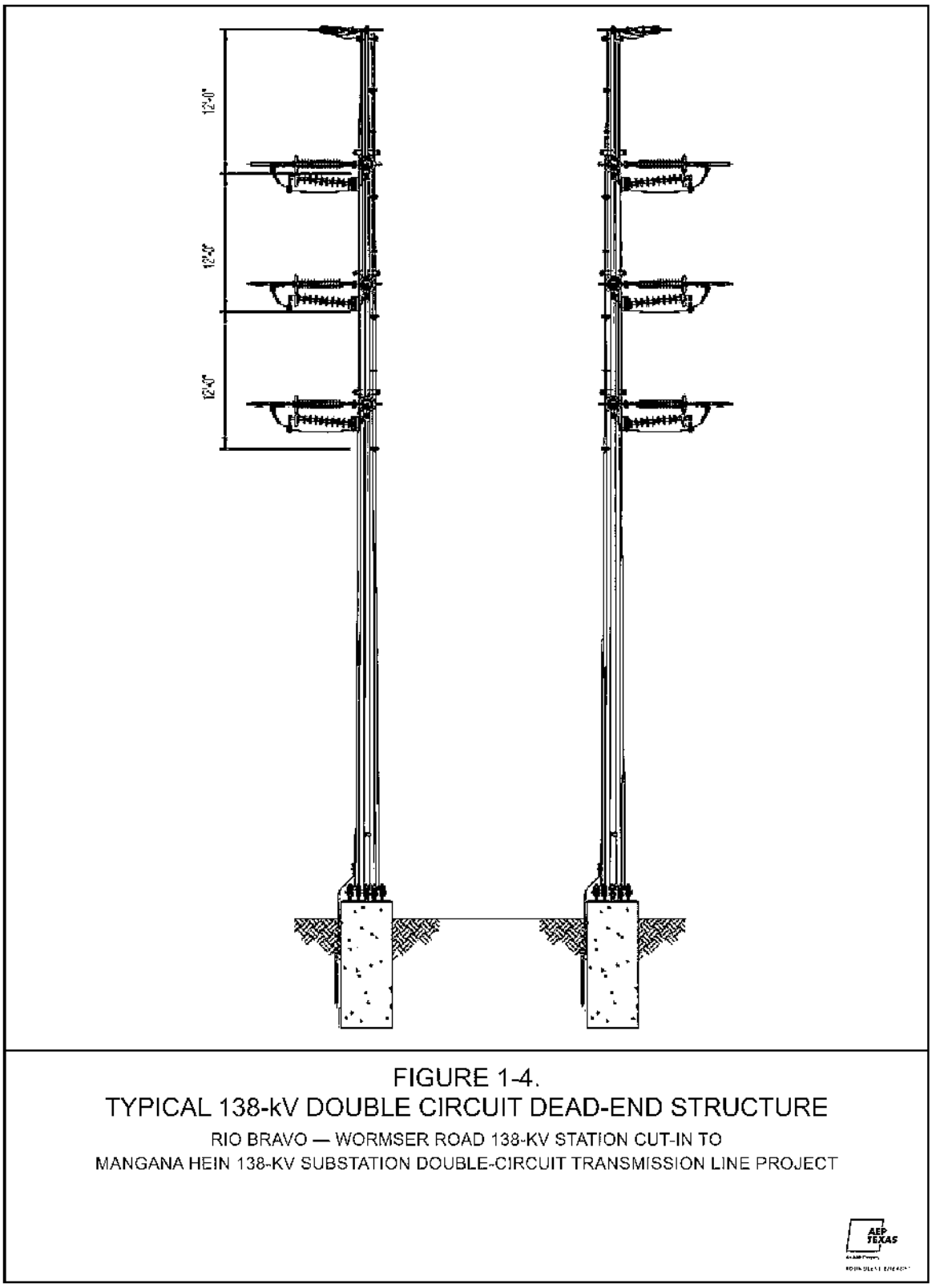


Figure 1-4: Typical 138-kV Double Circuit Dead-End Structure



1.4.2 Construction

After regulatory approval and engineering design is finalized, ROW is obtained, surveyed, and then cleared of woody vegetation according to AEP Texas ROW clearing specifications. Structure locations are surveyed and marked for construction. Structure components and associated line construction hardware are transported to each structure location. Structures will be installed on concrete foundations. Once the structures have been erected, the conductor is pulled through stringing blocks or pulleys, which are attached to the insulators on the structures. This process is repeated for all three conductor assemblies and static wire assembly. Once all the conductors have been pulled through, the wire is then tensioned based on wire sag data. The wire is then permanently "clipped" into conductor clamps located at the attachment end of the insulator.

Construction operations will be conducted with attention to the preservation and the conservation of natural resources. The following criteria will be used to attain this goal. These criteria are subject to adjustment according to the rules and judgments of any public agencies whose lands might be crossed by the proposed line or that may have regulatory authority over the construction activities.

1. Clearing and grading of construction areas such as storage areas, setup sites, etc. will be minimal. These areas will be graded in a manner that will minimize erosion and conform to the natural topography.
2. Soil that has been excavated during construction and not used will be evenly backfilled onto a cleared area or removed from the site. The backfilled soil will be sloped gradually to conform to the terrain and the adjacent land. If natural seeding will not provide ground cover in a reasonable length of time, appropriate reseeding will be performed.
3. Erosion control devices will be constructed where necessary to reduce soil erosion in the ROW.
4. Construction crews will take care to minimize damage to the ROW by minimizing the number of pathways traveled.
5. Roads will not be constructed on unstable slopes.

6. Clearing and construction activities near streambeds will be performed in a manner to minimize damage to the natural condition of the area. Stream banks will be restored as necessary to minimize erosion.
7. Efforts will be made to prevent and remediate accidental oil spills and other types of pollution, particularly while performing work near streams, lakes, and reservoirs.
8. Precautions will be taken to prevent the possibility of accidentally starting forest/range fires.
9. Precautions will be taken to protect natural features and cultural resources identified along the ROW.
10. If federally protected species habitat is present, guidance from the U.S. Fish and Wildlife Service (USFWS) will be obtained prior to all clearing and construction activities.
11. Soil disturbance during construction will be kept to a minimum and restorative measures will be taken in a reasonable length of time.
12. Construction operations will comply with any applicable permitting and required regulatory approval.

1.4.3 Cleanup

The cleanup operation involves the leveling of all disturbed areas to existing contours, the removal of all construction debris, and ROW restoration. The following criteria provide for the cleanup of construction debris and ROW restoration. Restoration activities will be coordinated with property owners when possible.

1. If site factors make it unusually difficult to establish a protective vegetative cover, other restoration procedures will be used, such as the use of gravel, rocks, concrete, etc.
2. Sears, cuts, fill, or other aesthetically degraded areas will be allowed to seed naturally or might be reseeded with native species to reduce erosion, restore a natural appearance, and to provide food and cover for wildlife.
3. If temporary roads are removed, the original contours will be restored to the extent practicable.
4. Construction equipment and supplies will be dismantled and removed from the ROW when construction is complete.

5. Clearing down to the mineral soil might be required for road access. In this case, water diversion berms, velocity dissipaters, or other erosion-control devices will be used to reduce erosion potential.
6. Construction debris will be removed prior to completion of the Project.
7. Replacement of soil adjacent to water crossing locations for access roads will be at slopes less than the normal angle of repose for the soil type involved and will be stabilized/revegetated to avoid erosion.
8. Cleanup operations will comply with any applicable permitting and required regulatory approval.

1.5 Maintenance Considerations

The following information regarding maintenance of the facilities was provided to Halff by AEP Texas. Maintenance of the facilities will include periodic inspection of the line and repair of damaged structures due to structural component failures, accidents, or natural phenomena such as wind or lightning. In areas where treatment of vegetation within the ROW is required, mowing, pruning, and/or application of EPA-approved herbicides will be conducted as necessary. While maintenance patrols will vary, aerial, vehicle, and foot patrols will be performed periodically. In cropland areas and properly managed grazing lands, little or no vegetation control will be required due to existing land-use practices. The major maintenance item will be the trimming of trees that pose a potential danger to the conductors or structures. Trimming will provide a safe and reliable power line.

The maintenance of AEP Texas' transmission ROW occurs through the implementation of a comprehensive, systematic, integrated vegetation management program designed to ensure that the vegetation along each transmission line is managed at the proper time and in the most cost-effective and environmentally sound manner. Vegetation is managed on a prescriptive basis. Ongoing evaluation of the system through ground and aerial inspections provides the basic information used by AEP Texas to develop an annual plan. Circuit criticality, historical data, line voltage, location, vegetative inventory information, and land use are among the factors considered in developing the annual vegetation management plan. The plans are modified as required by vegetation patrols and changed conditions.

2.0 DEVELOPMENT AND EVALUATION OF ALTERNATIVE ROUTES

2.1 Routing Study Methodology

The objective of this study was to develop and evaluate an adequate number of Alternative Routes that are feasible from economic, engineering, and environmental standpoints and ultimately identify the route that best addresses the requirements of PURA § 37.056(c)(4)(A)-(D), 16 TAC § 22.52(a)(4), and 16 TAC § 25.101(b)(3)(B), including the PUC's policy of prudent avoidance. The study methodology used by Halff for this EA included Study Area delineation based on the Project endpoints, identification and characterization of existing land use and environmental constraints, and identification of areas of potential routing opportunity located within the Project Study Area. Halff developed Preliminary Alternative Links taking into consideration potentially affected resources and input from regulatory agencies, local officials, and the public. After the public involvement open house meeting, the Preliminary Alternative Links were finalized, resulting in a set of Alternative Route Links. As further discussed in **Section 2.6.6**, the Project ultimately led to a Consensus Route, developed from the set of Alternative Route Links.

2.1.1 General Routing Guidelines

At the onset of the Project, a team of AEP Texas staff and external consultants with diverse expertise including transmission line and substation siting, distribution planning, impact assessment for natural and human environments, impact mitigation, engineering, construction management, regulatory, project management, ROW, and public relations was assembled ("the Siting Team"). To the extent reasonable and practical, the Siting Team used the following general siting guidelines to help develop the Preliminary Alternative Links:

- Avoid crossing or minimize conflict with designated public conservation and protected lands such as national and state forests and parks and local conservation easements.
- Avoid or minimize new crossings of large lakes, rivers and large wetland complexes, critical and protected habitats, and other unique or distinct natural resources.
- Avoid or minimize habitat fragmentation in unfragmented areas and impacts on designated areas of biodiversity concern.

- Maximize the separation distance from and/or minimize impact on dwellings and community facilities, cemeteries, schools, daycare facilities, hospitals, historic resources, and designated landmarks.
- Avoid or minimize visibility from designated scenic resources.
- Avoid or minimize conflict with existing land uses and future development with a proposed plan, schedule, and permitting process underway.
- Minimize interference with existing and future economic activities, natural gas activities, mining operations, and industrial facilities.
- Consider using or paralleling existing ROWs or other linear features and infrastructure when feasible. When paralleling existing facilities, however, reliability issues and mitigation requirements must be evaluated.
- Consider paralleling property lines, land use breaks, and land cover edges.
- Consider stakeholder input.
- Avoid conflicts with designated public and military aviation facilities.
- Minimize environmental impact and construction/maintenance costs by selecting shorter, direct routes.
- Consider safety with respect to construction, maintenance, and operation of the facilities.
- Consider construction concerns such as access, road traffic control, outages, pipeline mitigations, railroad interactions, existing telecommunication line and distribution line conflicts, etc.
- Consider routes through terrain and land use where economical construction and environmental best management practices can be employed.
- Minimize environmental impact by considering routes that minimize the overall length of access roads, length on steep slopes, and waterbody crossings.
- Consider state-specific regulatory siting guidelines if available.
- The station site selection and line routes will fairly consider the environmental impacts on the surrounding community and area.
- The fair treatment and meaningful involvement of every person, regardless of race, color, national origin, income, faith, or disability (EPA.gov).

2.1.2 Technical Guidelines

Technical guidelines are driven by the physical characteristics and engineering limitations of the structures and lines themselves, design criteria necessary to meet AEP Texas design standards, North American Electric Reliability Corporation (NERC) reliability standards, National Electric Safety Code (NESC) standards, and industry best practices for construction. The technical guidelines were informed by (1) the technical expertise of engineers and other industry professionals responsible for the reliable, safe and economical construction, operation, and maintenance of electric system facilities, (2) NERC reliability standards.

The Siting Team considered the following technical guidelines during study segment and route development to extent practical:

- Minimize crossing lines of higher voltage.
- Minimize the length of paralleling extra-high-voltage (EHV) transmission lines due to operational and reliability issues.
- Maintain a minimum of 100 feet of centerline-to-centerline separation when paralleling 138 kV or lower voltage transmission lines.
- When paralleling existing transmission lines, verify there are no reliability issues by locating to lines adjacent to each other.
- Maintain at least a 500 feet separation when paralleling existing transmission pipelines and evaluate mitigation, permitting requirements, construction constraints, and operations and maintenance issues.
- When crossing a transmission pipeline, cross at a 60 degree to 90-degree angle.
- Minimize structure angles greater than 65 degrees.
- Minimize structures on steep slopes (generally, this is more than 20 percent slopes for angle structures and more than 30 percent for tangent structures), particularly if guy wires are required for construction.
- Avoid triple circuit lines.
- Locate proposed lines near future load growth areas.
- Minimize distribution underbuild or co-location on transmission structures if possible.

2.2 Data Collection

The following sources of information were used to develop data for the EA. Data was reviewed and collected for existing and historic land uses, natural resources, cultural resources, transportation facilities, and existing utility and linear features. The Siting Team collected and reviewed the data, as described in the following sections, to support the EA.

Data used by Halff in the evaluation of the Project was drawn from a variety of sources, including:

1. Published literature (documents, reports, maps, aerial photography, etc.) (see **Section 6, References**)
2. Information from local, state and federal agencies
3. Site-specific studies or investigations performed by others
4. Recent aerial imagery
    - NearMap, September 2016 to October 2024
    - ESRI World Imagery (mosaic of Maxar Vivid satellite imagery, 2024)
    - Google Earth
5. Google Maps
6. Google Street View
7. 7.5-minute U.S. Geological Survey (USGS) topographic maps
8. USGS National Hydrography Dataset (NHD)
9. FEMA maps
10. USFWS National Wetlands Inventory (NWI) maps
11. USFWS Information for Planning and Consultation (IPaC)
12. TPWD Natural Diversity Database (NDD)
13. TPWD Ecological Mapping Systems of Texas (EMST)
14. Texas Archeological Sites Atlas (Atlas) through the TARL and THC
15. Ground reconnaissance surveys

2.3 Federal, State, and Local Governing Agencies

Numerous federal state, and local regulatory agencies and organizations have promulgated rules and regulations regarding the routing and potential impacts associated with the proposed Project. Listed below are the major regulatory agencies involved in project planning and permitting of transmission lines in Texas. Construction documents and specifications may indicate any special construction measures needed to comply with the regulatory requirements determined through the permitting process. In addition, depending upon the location of the transmission line structures, floodplain development permits, and road crossing permits may be required by Webb County.

2.3.1 Federal Aviation Administration

According to Federal Aviation Administration (FAA) regulations, Title 14 Code of Federal Regulations (CFR) Part 77.9, the construction of a transmission line requires FAA notification if a transmission tower structure height will exceed 200 feet or the height of an imaginary surface extends outward and upward at one of the following slopes (FAA, 2011):

- A 100:1 slope for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of each airport as described in paragraph (d) of 14 CFR Part 77.9 having at least one runway longer than 3,200 feet.
- A 50:1 slope for a horizontal distance of 10,000 feet from the nearest runway of each airport as described in paragraph (d) of 14 CFR Part 77.9 where no runway is longer than 3,200 feet in length.
- A 25:1 slope for a horizontal distance of 5,000 feet for heliports as described in paragraph (d) of 14 CFR Part 77.9.

Paragraph (d) of 14 CFR Part 77.9 includes public-use airports listed in the Chart Supplement (formerly the Airport/Facility Directory), public-use or military airports under construction, airports operated by a federal agency or the Department of Defense (DoD), or an airport or heliport with at least one FAA-approved instrument approach procedure.

Notification is not required for structures that will be shielded by existing structures of a permanent and substantial nature or by natural terrain or topographic features of equal or greater

height and will be located in a congested area of a city, town, or settlement where the shielded structure will not adversely affect safety in air navigation.

The PUC CCN application also requires listing private airports within 10,000 feet of any Alternative Route centerline. Following PUC approval of a route for the proposed transmission line, AEP Texas will make a final determination of the need for FAA notification, based on specific structure locations and design. If any of the FAA notification criteria are met for the approved route, a Notice of Proposed Construction or Alteration, FAA Form 7460-1, will be completed and submitted to the FAA Southwest Regional Office in Fort Worth, Texas, at least 45 days prior to construction. The result of this notification, and any subsequent coordination with the FAA, could include changes in line design and/or potential requirements to mark and/or light the structures.

2.3.2 U.S. Army Corps of Engineers

Under Section 404 of the Clean Water Act (CWA), activities in Waters of The United States (WOTUS), including wetlands, are regulated by the U.S. Army Corps of Engineers (USACE), in conjunction with the EPA. Certain construction activities that potentially impact WOTUS may be authorized by one of the USACE's Nationwide Permits (NWPs). Permits that may apply to placement of support structures and associated activities are NWP 25 (Structural Discharges) and NWP 57 (Electric Utility Line and Telecommunications Activities). NWP 25 generally authorizes the discharge of concrete, sand, rock, etc., into tightly sealed forms or cells where the material is used as a structural member for standard pile-supported structures (linear projects, not buildings or other structures).

NWP 57 generally authorizes discharges associated with the construction of utility lines within WOTUS and additional activities affecting WOTUS, such as those associated with the construction and maintenance of utility line substations; foundations for overhead utility line towers, poles, and anchors; and access roads for the construction and maintenance of utility lines. Construction of this transmission line Project will likely meet the criteria for NWP 57. If necessary, AEP Texas will coordinate with the USACE prior to clearing and construction to ensure compliance with the appropriate regulations associated with construction-related impacts to waterbodies and wetland features.

Under Section 10 of the Rivers and Harbors Act of 1899, 33 U.S.C. § 403, the USACE is directed by Congress to regulate all work and structures in, or affecting the course, condition, or capacity of navigable WOTUS, including tidal waters. No navigable waters occur within the Study Area that would require permitting under this Act.

2.3.3 U.S. Fish and Wildlife Service

The USFWS enforces federal wildlife laws and provides comments on proposed projects under the jurisdiction of the Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), and Bald and Golden Eagle Protection Act (BGEPA). Additionally, USFWS oversight includes review of projects with a federal nexus under the National Environmental Policy Act (NEPA).

Upon PUC approval of the proposed Project, a survey may be necessary to identify any potential suitable habitat for federally protected species. If suitable habitat is identified, then informal consultation with the USFWS may be conducted to determine if permitting or other requirements associated with possible impacts to protected species under the ESA, MBTA, or BGEPA is necessary.

2.3.4 Federal Emergency Management Agency

Halff reviewed the Flood Insurance Rate Maps (FIRMs), published by the Federal Emergency Management Agency (FEMA), for the Study Area. The construction of the proposed transmission line is not anticipated to create any significant changes in the existing topographical grades and is not anticipated to significantly alter existing flow regimes within the floodplain. Coordination with the local floodplain administrator will be completed after the PUC route approval to determine if any permits are necessary.

2.3.5 Military Aviation and Installation Assurance Siting Clearinghouse

The DoD Military Aviation and Installation Assurance Siting Clearinghouse works with industry to overcome risks to national security while promoting compatible domestic energy development. Energy production facilities and transmission projects involving tall structures, such as electric transmission towers, may degrade military testing and training operations. The

electromagnetic interference from electric transmission lines can impact critical DoD testing activities. 16 TAC § 22.52 states that upon filing of the application, the DoD shall be notified and an affidavit attesting to the notification shall also be provided with the applicant's proof of notice. Furthermore, the utility is required to provide written notice of the public meeting or, if no public meeting is held, to provide written notice to the DoD of the planned filing of an application prior to completion of the routing study. Halff contacted the DoD regarding the proposed Project to provide notification and to solicit input with a letter dated October 11, 2024. In addition, on January 16, 2025, and in accordance with 16 TAC § 22.52 (a)(4), public meeting notice was provided via email to the DoD Military Aviation and Installation Assurance Siting Clearinghouse. A notice of the filing of the application will be sent to the DoD Military Aviation and Assurance Siting Clearinghouse when the CCN application is filed with the PUC.

2.3.6 The Public Utility Commission of Texas

The Public Utility Commission (PUC) regulates the routing of transmission lines in Texas under Section 37.056(c)(4)(A)-(D) of PURA. The PUC regulatory guidelines for routing transmission lines in Texas include:

- 16 TAC § 25.101(b)(3)(B)
- 16 TAC § 22.52(a)(4)
- Policy of prudent avoidance as defined in 16 TAC § 25.101(a)(6)
- CCN application requirements

The Project EA has been prepared by Halff in support of AEP Texas' application for the Project to be filed at the PUC for its consideration.

2.3.7 Texas Parks and Wildlife Department

The Texas Parks and Wildlife Department (TPWD) is the state agency with the primary responsibility of protecting the state's fish and wildlife resources in accordance with the Texas Parks and Wildlife Code Section 12.0011(b). Halff solicited comments from the TPWD during the Project scoping phase and a copy of this EA will be submitted to TPWD when the CCN application is filed with the PUC. Halff also reviewed the Texas Natural Diversity Database

(NDD) records of state-listed species occurrences and sensitive vegetation communities. Halff considered these during the Alternative Route Link development process. Once the PUC approves a route, AEP Texas will complete a field review of the proposed ROW if it is determined to be necessary to identify potential suitable habitat for state-listed species. If suitable habitat is identified, additional coordination with the TPWD may be necessary to determine avoidance or impact minimization measures to state-listed threatened or endangered species, and other state-regulated fish and wildlife resources.

2.3.8 Texas Commission on Environmental Quality

The Texas Commission on Environmental Quality (TCEQ) is the state agency with the primary responsibility for protecting the state's water quality. The construction of the Project will require a Texas Pollution Discharge Elimination System (TPDES) General Construction Permit (TXR150000) as implemented by the TCEQ under the provisions of Section 402 of the CWA and Chapter 26 of the Texas Water Code. The TCEQ has developed a three-tiered approach for implementing this permit that is dependent on the acreage of disturbance. No permit is required for land disturbances of less than 1 acre (Tier I). Disturbance of more than 1 acre, but less than 5 acres, would require implementation of a Storm Water Pollution Prevention Plan (SWPPP) (Tier II). If more than 5 acres of land are disturbed, the requirements mentioned above for Tier II are necessary and the submittal of a Notice of Intent (NOI) and Notice of Termination (NOT) to the TCEQ is also required (Tier III). Once a route is approved by the PUC, AEP Texas will determine the amount of ground disturbance and the appropriate tier and conditions of the TX150000 permit. Construction activities will comply with the TXR150000 permit conditions.

2.3.9 Texas Department of Transportation

The Texas Department of Transportation (TxDOT) has been notified of the proposed Project. If the route approved by the PUC crosses or occupies TxDOT ROW, it will be constructed in accordance with the rules, regulations, and policies of TxDOT. Best Management Practices (BMPs) will be used as required to minimize erosion and sedimentation resulting from construction within TxDOT easements. Revegetation within TxDOT easements will occur as required under the "Revegetation Special Provisions" and contained in TxDOT Form 1023 (Rev.

9-93). Traffic-control measures will comply with applicable portions of the Texas Manual of Uniform Traffic Control Devices.

2.3.10 Texas Historical Commission

Cultural resources are protected by federal and state laws if they have some level of significance under the criteria of the National Register of Historic Places (NRHP) (36 CFR Part 60) or under state guidance (TAC, Title 13, Part 2, Chapter 26.7–8). Chapter 26 of the TAC requires state agencies and political subdivisions of the state to notify the Texas Historical Commission (THC) of ground-disturbing activity on public land. Halff contacted the THC to identify known cultural resource sites within the Study Area. Halff also reviewed Texas Archeological Research Laboratory (TARL) records for known locations of cultural resource sites and the THC's online, restricted-access Atlas and Texas Historical Sites Atlas (THSA) for the locations of recorded cemeteries, NRHP properties, State Antiquities Landmarks (SALs), and Official Texas Historical Markers (OTHMs).

Once a route is approved by the PUC, depending on a state or federal nexus, additional coordination with the THC might be required to determine the need for archeological surveys or additional permitting requirements. AEP Texas propose to implement an unanticipated discovery procedure during construction activities. If artifacts are discovered during construction, activities will cease near the discovery, and AEP Texas will notify the State Historic Preservation Office (SHPO) for additional consultation.

2.3.11 Texas General Land Office

The Texas General Land Office (GLO) requires a Miscellaneous Easement (ME) for any ROW crossing a state-owned riverbed, navigable stream, tidally influenced water, or Permanent School Fund (PSF) lands.

The Texas Land Commissioner administers the Texas Coastal Management Program (CMP) under the GLO, which has the responsibility for implementing the Texas CMP. This program intends to help ensure the environmental and economic wellbeing of the Texas coast through proper management of coastal natural resource areas. The Texas CMP has federal and state project and permit action review processes to evaluate consistency with the program. As

specified in the Coastal Coordination Act of 1991, the CMP of the Texas GLO must develop and implement a comprehensive plan for managing natural resources within the CMP boundary along the Texas coastline. The CMP boundary, as defined by 31 TAC § 503.1, delineates the coastal zone of Texas. The proposed Project is not located within the CMP boundary. Following PUC approval of a route for this Project, AEP Texas will coordinate with the GLO as required.

2.4 Correspondence with Agencies and Officials

Halff contacted the following federal, state, county, and local agencies and officials by letter on October 11, 2024, to solicit comments, concerns, and information regarding potential environmental impacts, permits, or approvals for the construction of the Project within the Study Area. A map of the Study Area was included with each letter. An example of the letters and copies of the responses received are included in **Appendix A (Agency Correspondence)**.

Federal

- DoD Military Aviation and Installation Assurance Siting Clearinghouse
- EPA
- FAA
- FEMA
- International Boundary and Water Commission (IBWC)
- National Parks Service (NPS)
- National Resource Conservation Service (NRCS)
- USACE
- U.S. Customs and Border Protection (CBP)
- USFWS

State

- Railroad Commission of Texas (RRC)
- TARL
- TCEQ
- TxDOT – Aviation Division, Environmental Affairs Division, and Laredo District Engineer

- Texas GLO
- THC
- TPWD
- Texas State Soil and Water Conservation Board (TSSWCB)
- Texas Water Development Board (TWDB)

County

- Webb County Judge
- Webb County Precinct 1 Commissioner
- Webb County Precinct 2 Commissioner
- Webb County Precinct 3 Commissioner
- Webb County Precinct 4 Commissioner
- Webb County-City of Laredo Regional Mobility Authority – Chairman
- Webb County-City of Laredo Regional Mobility Authority – Webb County Precinct 1

Local Jurisdictions

- City of Laredo – Mayor
- City of Laredo – Council Member District I
- City of Laredo – Council Member District II
- City of Laredo – Council Member District III
- City of Laredo – Council Member District IV
- City of Laredo – Council Member District V (Mayor Pro Tempore)
- City of Laredo – Council Member District VI
- City of Laredo – Council Member District VII
- City of Laredo – Council Member District VIII
- City of Laredo – City Manager
- City of Laredo – City Assistant Manager
- City of Laredo – Planning & Zoning Department

Additional Contacts

- South Texas Development Council

- United Independent School District (ISD) – Superintendent
- United ISD – Assistant Superintendent

As of the date of this document, written replies to the letters sent on October 11, 2024, have been received from the following agencies and officials: CBP, City of Laredo Environmental and Solid Waste Services Department, DoD Military Aviation and Installation Assurance Siting Clearinghouse, FEMA, RRC, TARL, TxDOT (and representatives from TxDOT's engineering consultants, Poznecki-Camarillo LLC), Texas GLO, THC, TPWD, USACE, USFWS, and Webb County-City of Laredo Regional Mobility Authority. Copies of all responses are included in **Appendix A**.

In addition to letters sent to the agencies on October 11, 2024, Halff also reviewed the NDD Element Occurrence Records from the TPWD, the IPaC (Information for Planning and Consultation) system from the USFWS, TARL records, and the THC Restricted Archeological Sites Atlas to verify or update cultural and natural resource records for the Study Area. All agency comments, concerns, and information received were taken into consideration by Halff in the preparation of this EA and in the evaluation of the Consensus Route. Additionally, the information received from the agencies will be taken into consideration before and during construction of the Project. The following is a summary of the comments provided by federal, state, county, and local officials that have responded as of this writing.

- The CBP (Laredo Sector Border Patrol Agent Juan Lozano) and the Halff Project Manager had a telephone conversation on November 22, 2024, discussing the general nature of the Project and the electrical transmission line routing analysis process. After the phone conversation an email was sent to Mr. Lozano which included the agency coordination letter and Study Area map for his reference and invited him to the Project's public meeting. A follow-up email was sent to Mr. Lozano on January 9, 2025, which included the Project Open House Invitation which is included in **Appendix B (Public Involvement)**. Mr. Lazano replied that he appreciated the invite and had been discussing the project with people and property owners but was not sure if the Project information was getting to the correct people since he did not have a list of those impacted. He further suggested contacting Commissioner Gonzalez, if not already done so.

- The City of Laredo Environmental and Solid Waste Services Department responded via email on November 5, 2024, stating the City does not have any environmental information on this specific area but believes it is zoned R-1A.
- The DoD Military Aviation and Installation Assurance Siting Clearinghouse responded via email on November 8, 2024, with an attached letter stating the results of its review indicated that the proposed Project would have minimal impact on military operations conducted in the area.
- The FEMA responded via email on October 16, 2024, with an attached letter requesting that the Community Floodplain Administrator be contacted for review and possible permit requirements for the Project and if federally funded to ensure compliance with Executive Orders 11988 and 11990. The agency provided contact information for the County Floodplain Administrator.
- The RRC responded via email on October 21, 2024, stating that all of the agency's information is filed by lease number, API number, T-4 permit number or other RRC identifying numbers and that the agency does not file information by property or mapping area. It was further stated that information regarding existing oil and gas well and pipeline locations is available on the RRC's geographic information system (GIS) public web map, with a link provided.
- The TARL responded via email on October 23, 2024, with an attached letter referencing the results of a search for previously recorded archeological sites within the Study Area. The search results indicated 13 previously recorded archeological sites within the Study Area and further provided information about each site. It was noted that the information regarding archeological site locations is not intended for public disclosure; site location information is protected by the National Historic Preservation Act (NHPA) of 1966, Title III, §304, and by §191.004 of the TAC.
- The TxDOT Laredo District Utility Coordinator and the Halff Project Manager had a telephone conversation on October 30, 2024, discussing the general nature of the Project and various infrastructure projects within the Study Area including the widening of Mangana Hein Road, a new 16-inch waterline along the south of side of Mangana Hein Road, and the future extension of SH Loop 20 south of Mangana Hein Road. Following this phone conversation an internet-based Teams meeting was held on November 5, 2024,

with TxDOT staff and the engineering consultant firm (Poznecki-Camarillo LLC) responsible for the SH Loop 20 extension project. Preliminary design files for the roadway extension project and the new 16-inch waterline were provided in a follow-up email after this meeting. Additionally, meeting minutes were provided in a separate email received on November 21, 2024.

- Texas GLO responded via a letter dated October 31, 2024, that the agency does not appear to have any environmental issues or land use constraints associated with the Project and asked to be provided the final route so that the agency can assess the route and determine if the Project will cross any streambeds or Permanent School Fund land that would require a GLO easement.
- The THC responded via email on November 22, 2024, stating that according to the agencies records the Study Area has not been previously subject to an archeological investigation, and the mapped geological and soil units indicate there is an elevated probability for buried archeological sites in this area. As such, the agency believes an archeological survey is required.
- The TPWD responded via email on November 25, 2024, with an attached letter providing a list of species that could be impacted by proposed Project activities if suitable habitat is present. The agency provided a list of regulations pertaining to the Project and recommendations on how to comply with these regulations.
- The USACE responded via email on October 11, 2024, stating that the Project has been assigned USACE Project Number SWF-2024-00508 which should be included in all future correspondence concerning the Project and Mrs. Julianna Kurpis was assigned as the regulatory project manager. A follow-up email was received on November 19, 2024, with an attached document pertaining to NWP 57 (Electric Utility Line and Telecommunications Activities). In the email the agency provided a list of regulations pertaining to the Project and recommendations on how to comply with these regulations. The agency also stated there are no Permittee Responsible Mitigation areas within or adjacent to the Study Area.
- The USFWS responded via email on December 6, 2024, stating that the agency suggests that the first step, if not done already, is to visit the IPaC system web site. The web site was provided in the email.

- JCA Law which serves as council and administrative offices for the Webb County-City of Laredo Regional Mobility Authority responded via email on October 17, 2024, that agency does not have any projects in the vicinity of SH Loop 20 and Magana Hein Road.

In addition, Halff accessed the IPaC system to request an Official Species List, which also generates an official consultation response letter and Project Code (2025-0048962). The IPaC system provided a species list identifying federally threatened, endangered, and proposed to be listed species; designated critical habitat; and candidate species that may occur within the Study Area county, or may be affected by the proposed Project. A copy of the response letter generated by IPaC on January 29, 2025, is included in **Appendix A**. Other stakeholders and individual landowners were also identified and contacted as part of the public input process. Input received from landowner meetings and the public open house was used in the development of the Consensus Route and is discussed further in **Section 2.6.6**.

2.5 Field Reconnaissance

Ground reconnaissance of the Study Area and computer-based evaluation of digital aerial imagery were used for both refinement and evaluation of the Preliminary Alternative Links. Field inspections were conducted within the Study Area throughout the routing process (October 2024 and January 2025). Members of the Siting Team examined the Preliminary Alternative Links by automobile from public roads and other points of public access and correlated observed features to information shown on aerial photography, USGS 7.5-minute topographic maps, road maps, and GIS sources, as appropriate. Field visits provided a high-level understanding of the Project area and the opportunity to review the Preliminary Alternative Links in the field from points of public access.

2.6 Alternative Route Identification

2.6.1 Study Area Delineation

The Study Area is the territory in which line route alternatives can be sited to feasibly meet the Project's functional requirements and reasonably minimizes environmental impacts and Project costs. The boundaries of the Study Area were determined by the geographic area encompassing the future Mangana Hein Substation 138-kV Substation and the Rio Bravo to Wormser Road

138-kV Transmission Line. The purpose of delineating a Study Area for the Project was to establish boundaries and limits in which to identify environmental and land use constraints during the information gathering process to properly identify and map various items included within the PUC's CCN application form. Given these considerations, the Siting Team identified a Study Area, rectangular in shape, encompassing approximately 5,012 acres (7.83 square miles) in Webb County, Texas (the "Study Area," see **Figure 2-1**). The Study Area is generally bounded by existing (Rio Bravo to Wormser Road 138-kV Transmission Line) and future (Mangana Hein Substation) facilities to the east and west, respectively. While the northern and southern boundaries were defined to provide adequate room for the alternative routes.

2.6.2 Constraint Mapping

To minimize impacts to sensitive environmental and land use features, a constraints mapping process was used in the development and refinement of the Preliminary Alternative Links. The geographic location of environmentally sensitive and other restrictive areas within the Study Area were located and considered during the Preliminary Alternative Link development. These constraints were mapped onto a USGS topographic base map as well as an aerial base map (**Figures C-1 and C-2**, map pockets) created using NearMap imagery captured on October 28, 2024. Generally, impacts from electrical transmission lines are reduced by avoiding, to the greatest extent practicable, constraints such as oil and gas wells and pipelines, wind farms, airports and airstrips, communities, concentrated residential and commercial development, community facilities, cemeteries, historic and archeological sites, wetland areas, parks, churches, schools, and by paralleling existing compatible ROW, including transmission lines, roadways, and paralleling approximate property lines, where possible.

Data typically displayed on the base map could include:

- Major land jurisdictions and uses
- Cities and towns
- Major roads (including county roads [CRs], Farm-to-Market [FM] Roads, US Highways, State Highways [SHs], and Interstate Highways [IHs])
- Existing transmission lines and pipelines
- Oil and gas wells

- Water wells
- Airports, private airstrips, and communication facilities
- Parks and wildlife management areas
- Major political subdivision boundaries
- Lakes, reservoirs, rivers, streams, and ponds
- Wetlands
- Floodplains
- Parcel boundaries
- Conservation easements
- Cemeteries
- Railroads

2.6.3 Preliminary Alternative Links

Using the information described above, and schematics for transportation features (see **Section 3.8.5.1**) and utility and oil and gas facility (see **Section 3.8.6**) projects, Halff identified numerous Preliminary Alternative Links, which were presented to AEP Texas for review and comment. These Preliminary Alternative Links were examined in the field by the Project team in October 2024. During this field visit the construction of the CBP Joint Processing Center, located in the northern portion of the Study Area west of SH Loop 20, had just begun which conflicted with a Preliminary Alternative Link. The Project team made modifications to the Preliminary Alternative Links based on the results of the field evaluation and stakeholder input, ultimately resulting in 42 Preliminary Alternative Links presented to the public. These 42 links, shown on **Figure 2-2**, were presented to the public at an open-house meeting held in the Study Area on January 23, 2025, in Laredo, Texas.

Figure 2-1: Study Area Map

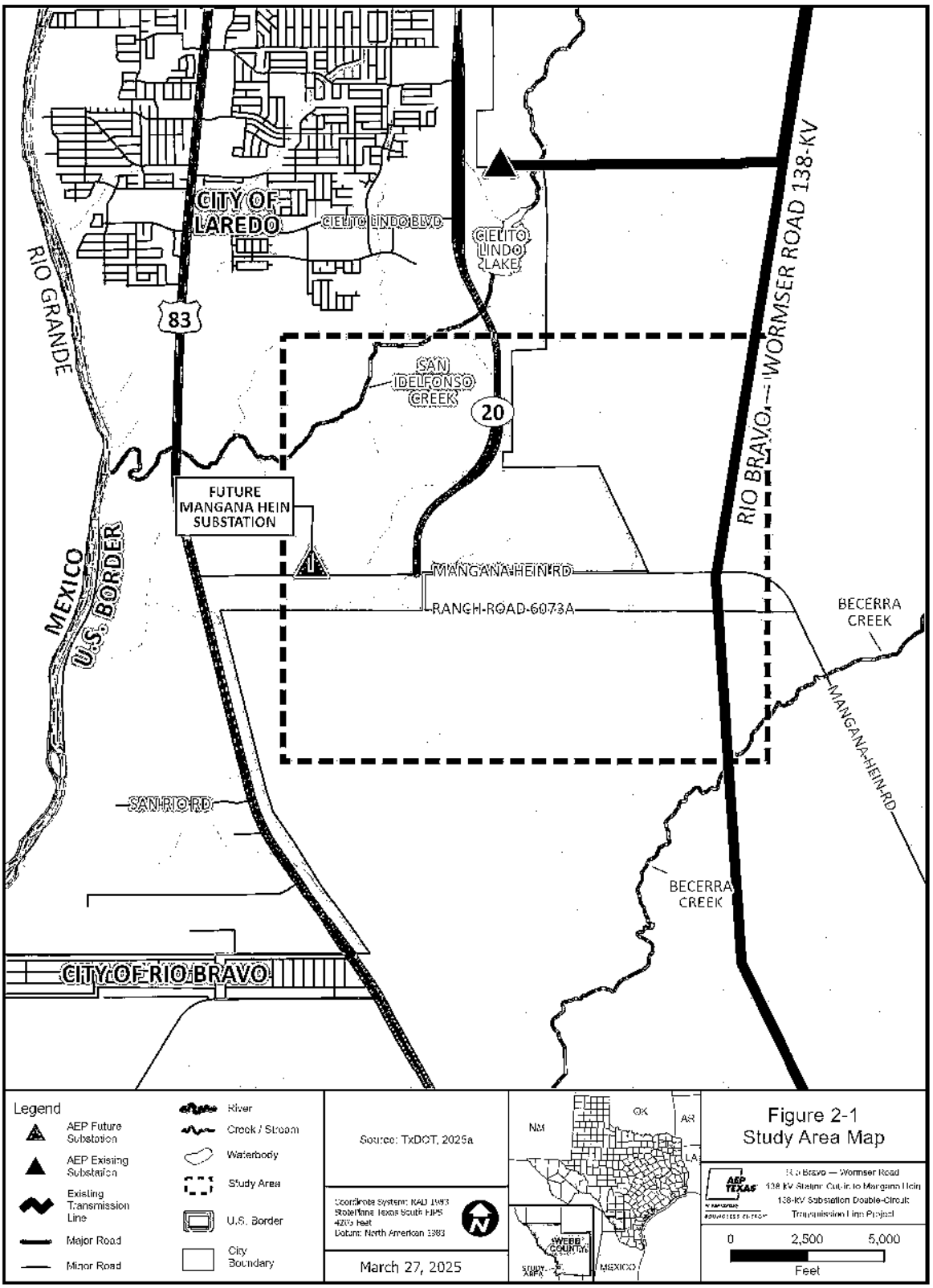
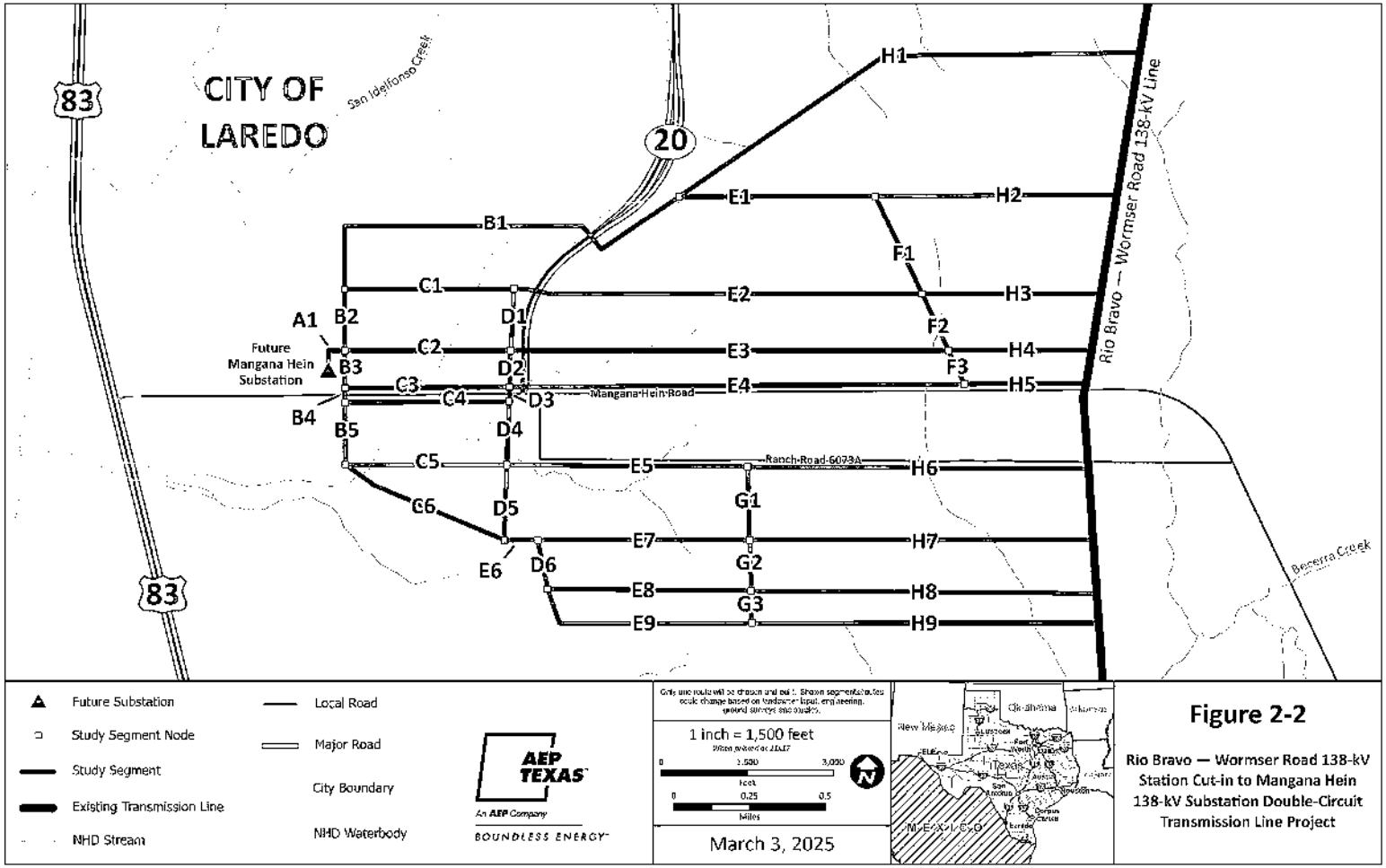


Figure 2-2: Preliminary Alternative Links



2.6.4 Public Involvement

AEP Texas hosted public open house meeting with the affected communities to solicit comments, concerns, and input from residents, landowners, public officials, and other interested parties regarding the Preliminary Alternative Links. This meeting was held on January 23, 2025, at the La Presa Community Center, 1983 Mangana Hein Road, Laredo, Texas.

Landowners who own property along the Preliminary Alternative Links were invited to attend. The public open house was intended to solicit comments from landowners and other interested parties concerning the proposed Project. In addition to gathering public input, the purpose of the meetings was to:

- Promote a better understanding of the proposed Project, including the purpose and need for the Project, the benefits and potential impacts of the new transmission line, and the PUC regulatory approval process.
- Inform and educate the public about the routing procedure, schedule, and link development and route selection process.
- Ensure that the decision-making process adequately identifies and considers the values and concerns of the landowners and other interested parties in the Study Area.

A public open house invitation letter was sent by priority mail on January 7, 2025, to landowners who own property located within 300 feet of the Preliminary Alternative Link centerlines. Additionally, Commissioner Gonzalez was provided notice of the open house meeting. In all, 129 landowners were notified of the open house meetings. Each landowner also received an invitation postcard, a fact sheet with a Project map showing the Preliminary Alternative Links and a graphic representation of a typical structure, a PUC Regulatory Process Frequently Asked Questions (FAQ) document, a comment card, and a postage-paid return envelope. The invitation letter, postcard, fact sheet, and questionnaire were also provided in Spanish. It is important to note that the public involvement materials used an abbreviated version of the Project name, referring to it as the Mangana Hein Transmission Improvement Project. This is in contrast to the full Project name, which is the Rio Bravo-to-Wormser Road 138-kV Cut-in to Mangana Hein Substation Double-Circuit Transmission Line Project.

Each of the individuals and entities who received an invitation letter also received a Project trifold in both English and Spanish after the public open house meeting requesting them again to provide questions or comments. An example of the invitation letter and a copy of the attachments as well as the Project trifold are provided in **Appendix B**.

Rather than a formal presentation in a speaker-audience format, the public meeting was held in an open-house format. Several information stations were set up around the meeting room. Each station was devoted to a particular aspect of the routing study and was manned by AEP Texas representatives and appropriate subject matter experts. Large displays of maps, illustrations, photographs, and/or text in both English and Spanish explaining each topic were presented at the stations.

One GIS station was also available to provide additional detail on the Preliminary Alternative Links and property ownership boundaries using recent aerial photography of the Study Area. There was a bilingual Project team member at the GIS station available to answer questions such as determining the location of a landowner's property in relation to the Preliminary Alternative Links or the distance from a Preliminary Alternative Link centerline to the nearest corner of a habitable structure.

Attendees were encouraged to visit each station in a particular order so the entire process and general Project development sequence could be explained clearly. The open-house format facilitates one-on-one discussions and encourages personalized landowner interactions. The open-house format also encourages more interaction from landowners who might be hesitant to participate in a speaker-audience format. Spanish-speaking representatives were also available.

At the first station, everyone in attendance was asked to sign their name on a sign-in sheet and were provided with a Project map, comment card, and FAQ sheet. The comment card provided information to assist the landowner in locating their property/properties on the aerial map board and map books; solicited comments on the Project; and requested an evaluation of the information presented at the public meeting. A Spanish version of the questionnaire was also available. An example copy of the comment card is provided in **Appendix B**.

Additional stations provided information regarding the PUC regulatory process, the purpose and need for the Project, the Project's typical structure types, agencies that were contacted, and link development criteria. In addition, general overview maps showing the Study Area and all Preliminary Alternative Links, constraint maps, and detailed aerial photography-based maps were available for discussion and comment.

After visiting the information stations, individuals were asked to complete the comment card. Completed comment cards were returned either at the meeting or later by mail; however, not all respondents answered every question.

Project Website

The Project website (https://www.AEPTexas.com/Mangana) includes a map of the Preliminary Alternative Links and future substation location, a Project fact sheet, an online feedback form, and contact information for the Public Outreach Specialist for the Project. The website also includes a virtual open house that includes the following slides:

- Project Need & Benefits
- Project Map
- Project Schedule
- Proposed Structures
- How The System Works
- Right-of-Way Activities
- Field Activities
- Vegetation Management
- Construction Process
- Routing Process
- Environmental Considerations
- Thank You

The Project website is mirrored in Spanish and accessible via a toggle at the above URL. Examples of the website displays are provided in **Appendix B**.

Open House Responses

A total of 46 individuals attended the public open-house meeting and a total of 11 comment cards were received regarding the Project. There was one email inquiry requesting clarification regarding the Project endpoints. Results from the comment cards were reviewed and analyzed and of those attendees that submitted a comment card, 10 (91 percent) agreed that the information provided was helpful to their understanding of the Project. There was a single (9 percent) comment card that did not provide a response for this question and there were no responses which said the information was not helpful.

Comment card respondents were then presented with a list of 13 factors that are taken into consideration for a routing study (see a complete list of the criteria on the questionnaire in **Appendix B**). They were asked to rank each of these criteria on a scale from 1 to 5, with 1 being the least important factor and 5 being the most important factor. Seven of the 11 respondents (64 percent) rated the factors. Of those respondents that ranked the criteria, the average rating for each factor (in descending order of importance) is as follows:

- Minimize loss of trees – 4.4
- Maximize length along property boundary lines – 4.1
- Minimize length across cropland – 3.7
- Maintain distance from residences, business, and schools – 3.6
- Minimize length through wetlands/floodplains – 3.4
- Minimize length through grassland or pasture – 3.3
- Maximize distance from parks and recreational facilities – 3.1
- Minimize total length of line (reduces cost of line) – 3.1
- Minimize impacts on streams and rivers – 3.1
- Minimize impacts to archaeological and historic sites – 3.1
- Maximize length along existing transmission lines – 3.0
- Minimize visibility of the line – 2.9
- Maximize length along highways or other roads – 2.7

Respondents were asked if there are other factors that should be considered, and if they had any comments regarding the listed factors. There was only one written response which provided support for the Project.

Comment card respondents were asked if they had concerns with any of the Preliminary Alternative Links. Link H6 was the only Preliminary Alternative Link mentioned with a comment noting concern for the new home and water well on their property and the love of the peace and quiet there. In relation to the respondent's property, Link H6 is located on the south side of Ranch Road 6073A and does not cross their property. The comment cards provided a space for respondents to include any additional comments, but no comments were provided.

2.6.5 Modifications to Preliminary Alternative Links

Following the public open-house meeting, Halff and AEP Texas personnel performed a review and analysis of comments and information received at the open-house meeting, including discussions with landowners, in an attempt to avoid or minimize any potential impacts to Study Area resources by the Preliminary Alternative Links. This evaluation resulted in no changes or modifications to the number or location of the Preliminary Alternative Links presented at the public-open house meeting and displayed on **Figure 2-2**; therefore, all 42 links were adopted as the primary Alternative Route Links.

2.6.6 Consensus Route

It was Halff's and AEP Texas' intent to identify Alternative Route Links that, when combined, would form an adequate number of reasonable and geographically diverse Alternative Routes that reflect the previously discussed routing considerations. Ultimately though, AEP Texas' and landowner discussions resulted in signed consent agreements to accommodate a single proposed transmission line route. This is the Consensus Route for which AEP Texas is seeking certification in the CCN application. The Consensus Route comprises Alternative Route Links A1, B3, C3, E4, and H5 and is shown on **Figures C-1 and C-2** (map pockets).

2.7 Evaluation of Consensus Route

Land use and environmental evaluation criteria were developed to reflect accepted practices for routing electric transmission lines in the State of Texas. Emphasis was placed on acquiring information identified in Section 37.056(c)(4)(A)-(D) of the Texas Utilities Code, the PUC CCN application, and 16 TAC § 25.101, including the policy of prudent avoidance. Evaluation criteria were further refined based on data collection, reconnaissance surveys, and public input.

Evaluation of the Consensus Route for the Project involved reviewing a variety of environmental factors. In evaluating the Consensus Route, 43 environmental criteria were considered. These criteria are presented in **Table 2-1**. The goal of this evaluation involved the inventory and tabulation of the number or quantity of each environmental criterion (aka Environmental & Land Use Constraints) located along the Consensus Route (e.g., number of habitable structures within 300 feet of the centerline, the length paralleling existing compatible ROW, etc.). The number or amount of each criterion was determined by using GIS software, reviewing various maps and recent aerial imagery (NearMap, 2024) and by field verification, where possible. Potential environmental impacts of the Consensus Route are addressed in **Section 4.0** of this document.

Table 2-1: Environmental Criteria for the Project

No.	Criterion
Land Use	
1	Length of Route
2	Number of habitable structures[a] within 300 feet[b] of ROW centerline
3	Length of ROW utilizing existing transmission line ROW
4	Length of ROW parallel to existing transmission line ROW
5	Length of ROW parallel to other existing compatible ROW (roads, highways, railways, etc. – excluding oil and gas pipelines)
6	Length of ROW parallel to apparent property lines (or other natural or cultural features, etc.)
7	Sum[c] of evaluation criteria 4, 5, and 6
8	Percent[c] of evaluation criteria 4, 5, and 6
9	Length of ROW across parks/recreational areas[d]
10	Number of additional parks/recreational areas[d] within 1,000 feet of ROW centerline

No.	Criterion
11	Length of ROW across cropland
12	Length of ROW across pastureland/rangeland
13	Length of ROW across cropland or pastureland with mobile irrigation systems
14	Length of ROW parallel to existing pipeline[5] ROW <500 feet from route centerline
15	Number of pipeline crossings[e]
16	Number of transmission line crossings
17	Number of US and State highway crossings
18	Number of Farm-to-Market (FM)/Ranch-to-Market (RM) road crossings
19	Number of FAA-registered public/military airfields[f] within 20,000 feet of ROW centerline (with runway >3,200 feet)
20	Number of FAA-registered public/military airfields[f] within 10,000 feet of ROW centerline (with runway <3,200 feet)
21	Number of private airstrips within 10,000 feet of ROW centerline
22	Number of heliports within 5,000 feet of ROW centerline
23	Number of commercial AM radio transmitters within 10,000 feet of ROW centerline
24	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline
25	Number of recorded water wells within 200 feet of ROW centerline
26	Number of recorded oil and gas wells within 250 feet of ROW centerline (including dry or plugged wells)
Aesthetics	
27	Estimated length of ROW within foreground visual zone[g] of US and State highways
28	Estimated length of ROW within foreground visual zone[g] of FM/RM roads
29	Estimated length of ROW within foreground visual zone[g,h] of parks/recreational areas[d]
Ecology	
30	Length of ROW across upland woodland/brushland
31	Length of ROW across bottomland/riparian woodland/brushland
32	Length of ROW across potential wetlands[i]
33	Length of ROW across known occupied habitat of federally endangered or threatened species
34	Number of stream crossings

No.	Criterion
35	Length of ROW parallel (within 100 feet) to streams
36	Length of ROW across open water (ponds, lakes, etc.)
37	Length of ROW across 100-year floodplains
Cultural Resources	
38	Number of cemeteries within 1,000 feet of ROW centerline
39	Number of recorded cultural resource sites crossed by ROW centerline
40	Number of additional recorded cultural resource sites within 1,000 feet of ROW centerline
41	Number of NRHP-listed or determined-eligible sites crossed by ROW
42	Number of NRHP-listed or determined-eligible sites within 1,000 feet of ROW centerline
43	Length of ROW crossing areas of high archeological/historical site potential

Notes: All length measurements are shown in feet unless noted otherwise.

(a) Single-family and multifamily dwellings and related structures, mobile homes, apartment buildings, commercial structures, industrial structures, business structures, churches, hospitals, nursing homes, schools, or other structures normally inhabited by humans or intended to be inhabited by humans on a daily or regular basis.

(b) Due to the potential inaccuracies of the aerial photography and data utilized, all habitable structures within 320 feet have been identified.

(c) Length of apparent property boundaries adjacent to and paralleling existing roads or highways are not "double-counted" in the sum length of ROW paralleled of criteria 4, 5, and 6.

(d) Defined as parks and recreational areas owned by a governmental body or an organized group, club, or church.

(e) Pipelines 8 inches diameter or greater.

(f) As listed in the Chart Supplement South Central U.S. (formerly known as the Airport/Facility Directory South Central U.S.).

(g) One-half mile, unobstructed. Lengths of ROW within the foreground visual zone of Interstates, US and state highway criteria are not "double-counted" in the length of ROW within the foreground visual zone of FM/RM roads criteria.

(h) One-half mile, unobstructed. Lengths of ROW within the foreground visual zone of parks/recreational areas may overlap with the total length of ROW within the foreground visual zone of interstates, US and state highway criteria and/or with the total length of ROW within the foreground visual zone of FM/RM roads criteria.

(i) As mapped by the USFWS NWI.

3.0 EXISTING ENVIRONMENT

3.1 Physiography

Webb County (including the Study Area) is located within the Interior Coastal Plains, a sub-region of the Gulf Coastal Plains physiographic region (or 'province') of Texas (Bureau of Economic Geology [BEG], 1996). The Interior Coastal Plains grades from the northeast through south-central Texas. The topography consists of parallel ridges and valleys consisting of unconsolidated sands and muds. At least two fault systems nearly parallel the coastline along the stretch of this region with other faults clustering over salt domes in East Texas. The portion of this region that the Study Area occupies is dominated by chaparral brush and sparse grasses.

3.2 Geology

According to BEG (1976a) and shown on **Figure 3-1**, the Study Area includes the following geologic units (from youngest to oldest): Quaternary-age Fluviatile terrace deposits and Alluvium, and Tertiary-age Laredo and Yegua Formations (USGS, 2025a).

Fluviatile terrace deposits (Qt) occur along a portion of San Idelfonso Creek and in the northwestern corner of the Study Area. They consist of gravel, sand, silt, and clay and are composed of materials similar to those of contiguous alluvium. Neighboring terraces in it are divided by a solid line.

Alluvium (Qal) occurs along a few streams and tributaries and consists of floodplain deposits. They are composed of clay, silt, sand, gravel, and organic matter, with the silt and clay being calcareous and dark gray to dark brown, and the sand mostly quartz. Gravel in side streams of the Rio Grande are mostly tertiary sedimentary rocks and chert derived from Uvalde Gravel which caps divides.

The Laredo Formation (El) occurs throughout most of the Study Area. It consists of sandstone and clay, with thick sandstone members in upper and lower parts and has a very fine to fine grated texture. It is partially glauconitic, micaceous, ferruginous, and crossbedded. This formation is predominantly red and brown in color, has clay in the middle, weathers orange-yellow, and commonly has dark-gray limestone concretions. Some portions of it are fossiliferous

in which marine mega fossils are abundant. This geologic unit typically has a thickness of about 620 feet.

The Yegua Formation (Ey) occurs in the east side of the Study Area and consists of sandstone, some chert and mostly clay and quartz. It is lignitic, sandy, bentonitic, silty, mostly well laminated, and chocolate brown to reddish brown in color, with lighter color in upper areas. This formation produces dark-gray soil, can be fine grained in texture, and is indurated to friable, calcareous, glauconitic, massive, laminated, and crossbedded. It weathers to form loose, ferruginous, yellow-orange and reddish brown soil. It also contains some fossil wood and has a thickness of about 400 feet overall.

No reported geologic faults are located within or in the immediate vicinity of the Study Area.

Figure 3-1: Geologic Atlas of Texas Map

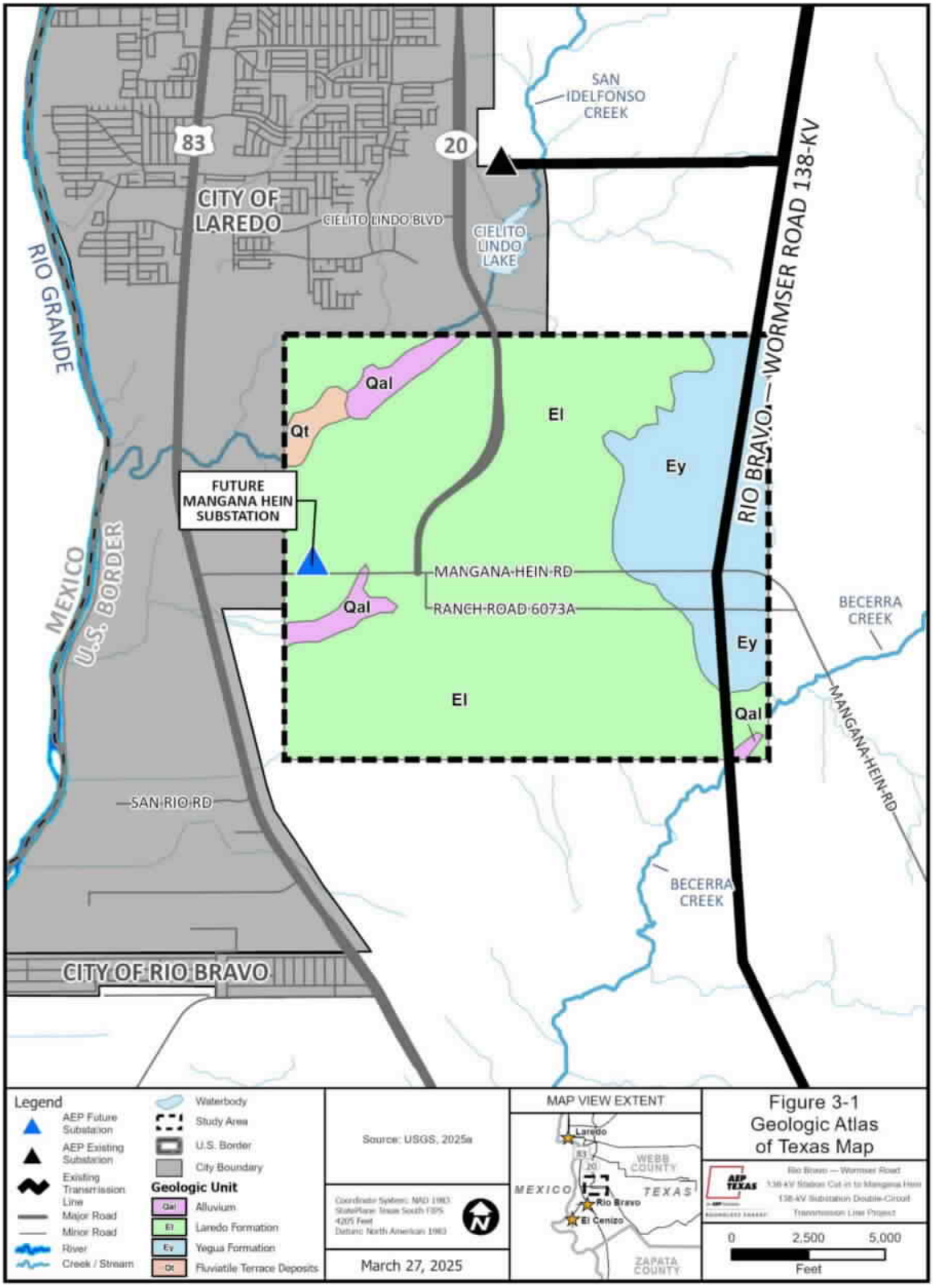
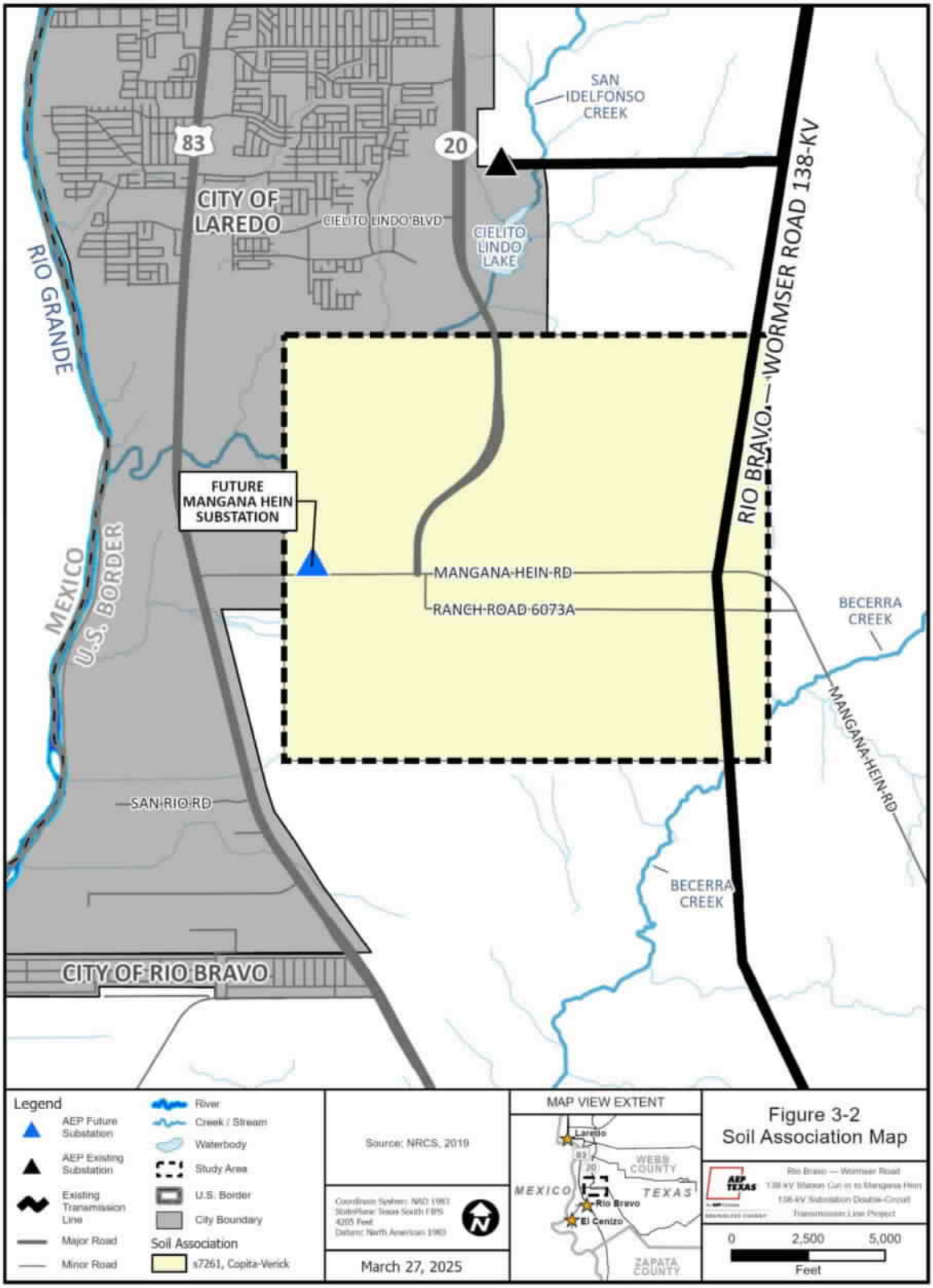


Figure 3-2: Soil Association Map



3.3 Soils

The Study Area occurs within southwestern Webb County. The general soil map of Webb County (1985), published by the Soil Conservation Service (SCS), was referenced for the following descriptions of the general soil associations within the Study Area.

3.3.1 Soil Associations

The NRCS defines a soil association as "a group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit." A soil association typically consists of one or more major soils, for which it is named, and some minor soils. Soils making up one unit can also occur in other units in a different pattern. According to the General Soil Map and the Soil Surveys of the Study Area county, Copita-Verick is the only general soil map unit/association that occurs within the Study Area.Copita-Verick

As shown on **Figure 3-2**, the Study Area is wholly within the Copita-Verick soil association. The Copita-Verick soil association is characterized by moderately deep and shallow, nearly level to gently sloping, non-saline, and loamy soils. This map unit makes up approximately 8 percent of Webb County and consists of approximately 55 percent of Copita soils, 18 percent Verick soils, and 27 percent Brystal and Tela soils. The soils are used mainly as rangeland and as habitat for wildlife and are not suitable for use as cropland due to the low rainfall in the area (SCS, 1985).

3.3.2 Prime Farmland Soils

The Secretary of Agriculture, in USC §7-4201(c)(1)(A), defines prime farmland as land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion, as determined by the Secretary. Additional potential prime farmlands are those soils that meet most of the requirements of prime farmland but fail because they lack sufficient natural moisture, or they lack the installation of water management facilities. Such soils would be considered prime farmland if these practices were implemented.

According to the NRCS (2019), no prime farmland soils occur within the Study Area (5,012 acres). Webb County encompasses 2,160,997 acres, none of which are designated as prime farmland; however, 5 percent (110,929 acres) are farmland of statewide importance if irrigated and 14 percent (304,112 acres) are considered prime farmland if irrigated.

3.4 Mineral and Energy Resources

One major mineral resource, sand and gravel, is mapped as occurring within the Study Area (BEG, 1979). It consists of alluvium and related terrace deposits along modern streams and high terrace deposits along ancient streams. No quarries or mines were observed while reviewing USGS topographic maps (USGS, 1933-2022). Additionally, a review of the USGS Mineral Data Resource System found no mining operations within the Study Area (USGS, 2011).

Energy resources within the Study Area include one oil and gas horizon from the Tertiary Period (the Pleistocene, Pliocene, and Miocene group). There are thousands of registered records within the RCC databases for Webb County, of which 64 recorded surface wells (including dry, shut-in, and plugged wells) are scattered throughout the Study Area. Similarly, many pipeline networks are within the county, of which 62 natural gas pipeline segments are within the Study Area (RRC, 2025a; 2025b). One groundwater well for the withdrawal of water is within the Study Area (TWDB, 2025a).

3.5 Water Resources

3.5.1 Surface Water

The Study Area lies within the San Ambrosia-Santa Isabel Sub-basin. The Study Area is wholly located within the Chacon Creek-Rio Grande watershed (TPWD, 2025a). The National Hydrology Dataset (NHD) and USGS topographic maps depict two named streams, San Idelfonso Creek and Becerra Creek, and several unnamed streams (USGS, 2025b). Many of these waterbodies extend beyond the limits of the Study Area including several that ultimately drain to the Rio Grande west of the Study Area. Topographic maps and aerial imagery support that these stream features exhibit a riparian vegetation community (NearMap, 2024; USGS, 1933-2022).

State legislation in 1997 (see Texas Water Code Section 16.051) modified the state-wide water resources planning process by authorizing regional planning groups to recommend ecologically unique river and stream segments to the Texas State Legislature in regional and state water plans (TWDB, 2022a). A primary purpose for this approach is to ensure that future water impoundments do not destroy stream segments that are considered unique under specified designation criteria (see 31 TAC Section 357.8), which include biologic functions and habitat for threatened and endangered species. State designation as ecologically unique would also prevent state agencies or municipalities from acquiring property or easements that would destroy the ecological values forming the basis for the designation. Part of the process for designating ecologically unique stream segments requires regional water planning groups to coordinate with TPWD about candidate stream segments (El-Hage and Moulton, 2002; TWDB, 2022). No stream within or immediately adjacent of the Study Area is designated as ecologically significant under the relevant designation criteria; however, the Rio Grande south of the Study Area is designated as ecologically significant. (TPWD, 2002).

No rivers or streams within the Study Area are listed by the Texas Commission on Environmental Quality (TCEQ) under Section 303(d) of the Clean Water Act as being monitored for impairment or having other water quality concerns. The Rio Grande segment below Amistad Reservoir is categorized under 5c in 1996 due to bacteria in the water. Category 5c indicates a management strategy has not been selected because the collection of additional data and information needs to be conducted first (TCEQ, 2024a; 2024b; 2025).

3.5.2 Floodplains

FEMA last conducted and a detailed floodplain analysis and prepared Flood Insurance Rate Maps (FIRM) for Webb County in 2008 (FEMA, 2025). Within the Study Area, the FIRM identified San Idelfonso Creek, Becerra Creek, and unnamed tributaries of the Rio Grande as areas with a one percent annual chance flood hazards (i.e., 100-year floodplain). No portion of the Study Area has been mapped as a 0.2 percent chance flood hazard zone (i.e., 500-year floodplain) (see **Figures C-1 and C-2**, map pockets).

3.5.3 Groundwater

A review of the TWDB databases for nine major and 22 minor aquifers determined that there is no major aquifer within the Study Area and one minor aquifer, the Yegua Jackson Aquifer (TWDB, 2006; 2017). The Yegua Jackson Aquifer extends across 34 counties in the southeastern portion of Texas. This aquifer consists of interbedded sand, silt, and clay. The freshwater saturated thickness averages around 170 feet. Groundwater is fresh and generally of good quality with total dissolved solids less than 50 to 1,000 milligrams per liter in the sand units of the aquifer and 1,000 to 10,000 milligrams per liter in lower areas of productivity (i.e., slightly to moderately saline). In Texas, the Yegua Jackson Aquifer is primarily used for municipalities, industry, and irrigation. (George et al., 2011).

Groundwater resources for the Study Area are located within the TWDB Groundwater Management Area #13, which encompasses 8 Groundwater Conservation Districts (GCD) (TWDB, 2025b). Webb County is not incorporated into any GCDs (TWDB, 2019).

3.6 Ecological Resources

3.6.1 Vegetation

The NRCS has studied the characteristics of ecological regions for decades to better understand the biology and management of natural resources. The NRCS published a handbook in 2022 that maps general Land Resource Regions (LRRs) that share similar geology and land physiography, moisture and climate, and soils characteristics. The Study Area is located within the Southwest Plateaus and Plains Range and Cotton LRR. The Southwest Plateaus and Plains Range and Cotton LRR is entirely within Texas, extending to mesas and limestone ridges and hills in west Texas down to the level valleys of the Gulf Coast Plain and Rio Grande Valley in its southern extent. Within this LRR, annual precipitation ranges from 20 to 29 inches with more frequent rainfall occurring during spring and autumn (NRCS, 2022a, 2022b).

NRCS soil scientists have further subdivided the LRR within the Major Land Resource Areas (MLRAs). As the criteria used to define both MLRAs and the larger LRRs focus fundamentally on soils and soil-forming factors, the delineation of MLRAs is therefore closely linked to the various soil associations that have been mapped over the past half century. This approach to the

study of vegetation focuses on the land's potential for supporting natural vegetation or agricultural practices, rather than simply reporting a snapshot of vegetation as it may exist at a single point in time.

The Study Area is located within the boundary of the Western Rio Grande Plain (MLRA 83B). This MLRA has an average annual precipitation of 18 to 25 inches, with high-intensity thunderstorms during the growing season being the source of most rainfall. The growing season averages 325 days, ranging from 285 to 365 days. The physiography of this MLRA is distinguished by low hills with sandstone escarpments and is gently undulating and somewhat dissected by intermittent streams. The dominant soil orders in this MLRA are Alfisols, Aridisols, Inceptisols, Mollisols, and Vertisols. They are generally moderately deep to very deep, well drained or moderately well drained, and have a loamy or clayey texture.

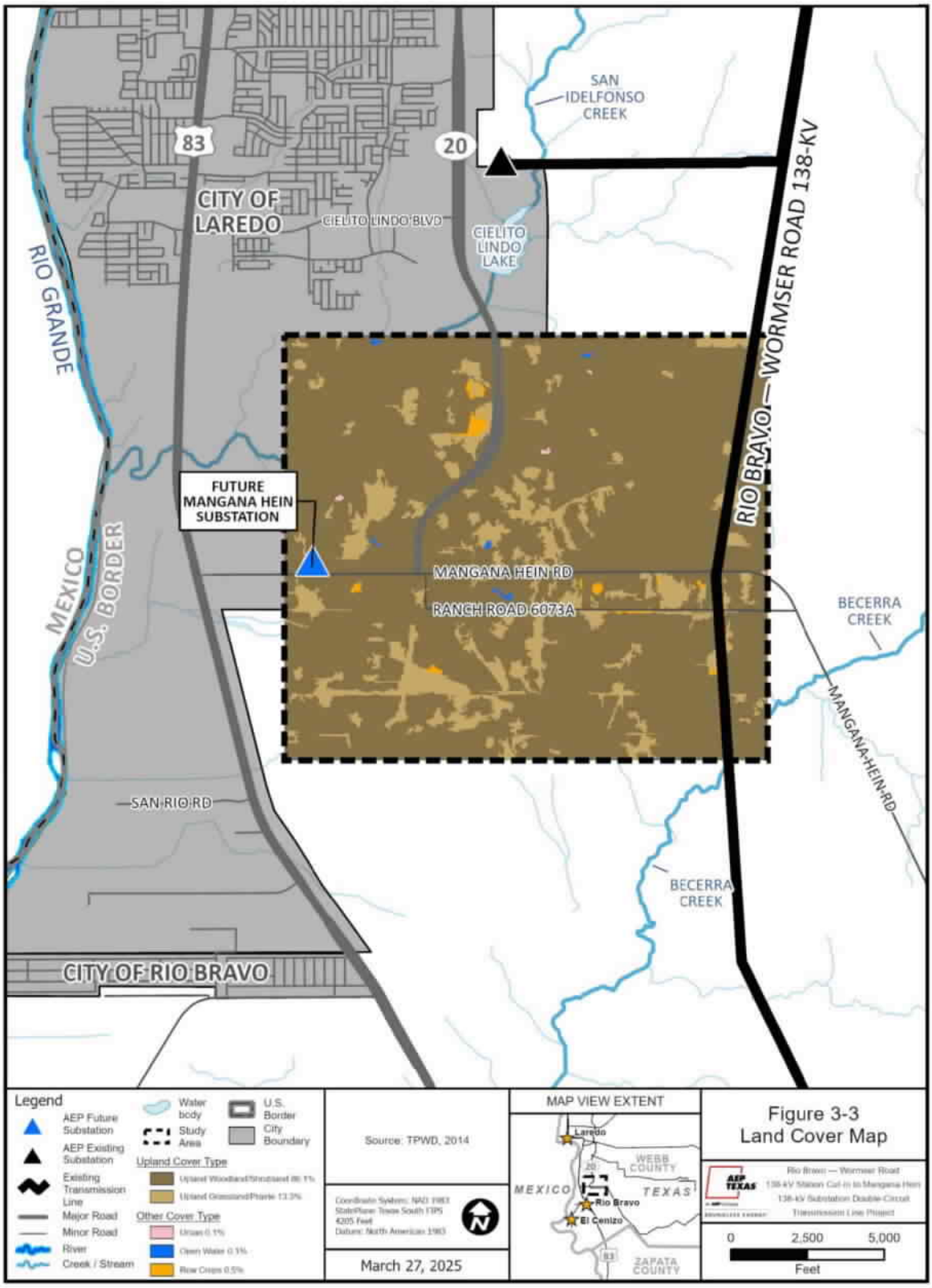
This area supports open grassland vegetation with scattered shrubs. Alkali sacaton (*Sporobolus airoides*), two-flower trichloris (*Chloris crinita*), pink pappusgrass (*Pappophorum bicolor*), whiplash pappusgrass (*Pappophorum vaginatum*), white tridens (*Tridens albescens*), and vine mesquite (*Panicum obtusum*) are dominant on deep, clayey soils. Guayacan (*Guaiacum angustifolium*), spiny hackberry (*Celtis ehrenbergiana*), desert yaupon (*Schaefferia cuneifolia*), and fourwing saltbush (*Atriplex canescens*) are the principal shrubs in these soils. Bundleflower (*Desmanthus illinoensis*), bush sunflower (*Simsia calva*), Texas varilla (*Varilla texana*), and other forbs make up a minor but significant part of the plant communities. The soils with more gravel support a semi-open grassland of mid grasses interspersed with low-growing shrubs. Guajillo (*Capsicum annuum*), blackbrush (*Acacia rigidula*), and kidneywood (*Eysenhardtia texana*) are the principal shrubs. Arizona cottontop (*Digitaria californica*), sideoats grama (*Bouteloua curtipendula*), pink pappusgrass (*Pappophorum bicolor*), pinhole bluestem (*Bothriochloa barbinodis*), green sprangletop (*Leptochloa dubia*), and tanglehead (*Heteropogon contortus*) are the dominant grasses. Several species of forbs grow on these soils, mainly bush sunflower, orange zexmenia (*Wedelia texana*), snoutbean (*Rhynchosia senna*), dalea (*Dalea sp.*), and gaura (*Gaura lindheimeri*).

The Ecoregions of Texas Level III and Level IV maps were prepared by a collaborative effort between the EPA, TCEQ, and the NRCS (Griffith et al., 2007). This classification system

analyzes the ecoregions at a finer scale than the MLRAs. While the spatial extent may vary in some areas, this general description of the overall vegetation type based on NRCS research is consistent with other regional descriptions of ecological regions in Texas, including the Ecoregions of Texas maps. Under the Ecoregions of Texas Level III classification, the entire Study Area is located within the Southern Texas Plain ecoregion, which is characterized by rolling to moderately dissected plains. Following long continued grazing and fire suppression, thorny brush, such as mesquite, is now the predominant vegetation type. This subhumid to dry region contains a diverse mosaic of soils, mostly clay, clay loam, and sandy clay loam surface textures, and ranging from alkaline to slightly acid. Oil and natural gas production activities are widespread in this region.

At Level IV, the Study Area is mostly located within the Texas-Tamaulipan Thornscrub ecoregion. This ecoregion is composed of mostly gently rolling or irregular plains, which are cut by arroyos and streams and covered with low-growing vegetation. The thorn woodland and thorn shrubland vegetation of this region are distinctive and these Rio Grande Plains are commonly called the "brush country". The western portion of the Study Area, along the Rio Grande, is within the Rio Grande Floodplain and Terraces ecoregion. The region consists of mostly alluvium or terrace deposits, with a mix of ustic to aridic, hyperthermic soils. Many of the wider alluvial areas of the floodplain and terraces are now in cropland, mostly with cotton, grain sorghum, and cool-season vegetables. Riparian forests have declined as natural floods have been restricted by flood-controlling dams and water diversions.

Figure 3-3: Land Cover Map



3.6.1.1 South Texas Vegetation Types

According to the TPWD EMST vegetation cover types, approximately 86.1 percent of the Study Area consists of upland woodland/shrubland, 13.3 percent as upland grassland/prairie, 0.5 percent as row crops, 0.1 percent as urban, and 0.1 percent as open water (TPWD, 2014). This review of land cover is consistent with the agricultural land uses discussed herein. The description of Study Area terrestrial vegetation that follows is based on field observations, interpretation of recent aerial photography (NearMap, 2024), and a review of reports and maps produced by NRCS (2022a), TPWD (1984; 2011), and TCEQ (Griffith et al., 2007). Cover types are provided in the general order as shown on **Figure 3-3.**

Upland woodland/shrubland is the predominant land cover class within the Study Area as shown in **Figure 3-3**. A list of major associated species for upland woodland/shrubland EMST cover class is available in **Table 3-1**. This cover class is composed of 11 EMST cover types.

1. South Texas: Clayey Mesquite Mixed Shrubland
2. South Texas: Ramadero Shrubland
3. South Texas: Shallow Shrubland
4. South Texas: Clayey Blackbrush Mixed Shrubland
5. South Texas: Ramadero Evergreen Woodland
6. South Texas: Shallow Dense Shrubland
7. South Texas: Ramadero Woodland
8. South Texas: Ramadero Dense Shrubland
9. South Texas: Sandy Mesquite - Evergreen Woodland
10. South Texas: Sandy Mesquite Woodland and Shrubland
11. South Texas: Shallow Sparse Shrubland

Table 3-1: Plant Species within EMST Cover Classes

Common Name	Scientific Name	EMST Cover Type[a]	
		Upland Grassland/Prairie	Upland Woodland/ Shrubland
Major Associated Grasses			
Bermudagrass	*Cynodon dactylon*	X	
Buffelgrass	*Pennisetum ciliare*	X	X
guineagrass	*Urochloa maxima*	X	
King Ranch bluestem	*Bothriochloa ischaemum var. songarica*	X	X
Kleberg bluestem	*Dichanthium annulatum*	X	
kleingrass	*Panicum coloratum*	X	
little bluestem	*Schizachyrium scoparium*	X	
seacoast bluestem	*Schizachyrium littorale*	X	
silver bluestem	*Bothriochloa laguroides ssp. Torreyana*	X	
threeawns	*Aristida spp.*	X	
Major Associated Shrubs			
blackbrush	*Acacia rigidula*		X
ceniza	*Leucophyllum frutescens*		X
colima	*Zanthoxylum fagara*		X
lotebush	*Ziziphus obtusifolia*	X	X
whitebrush	*Aloysia gratissima*		X
Major Associated Woody Plants			
anacahuita	*Cordia boissieri*		X

Common Name	Scientific Name	EMST Cover Type[a]	
		Upland Grassland/Prairie	Upland Woodland/ Shrubland
barretta	*Helietta parvifolia*		X
brasil	*Condalia hookeri*		X
granjeno	*Celtis ehrenbergiana*	X	X
guajillo	*Acacia berlandieri*		X
honey mesquite	*Prosopis glandulosa*	X	X
huisache	*Acacia farnesiana*	X	X
plateau live oak	*Quercus fusiformis*		X
retama	*Parkinsonia aculeata*		X
sugar hackberry	*Celtis laevigata*		X
Texas ebony	*Ebenopsis ebano*		X
Texas persimmon	*Diospyros texana*		X
Major Associated Succulent or Cactus			
Lindheimer pricklypear	*Opuntia engelmannii var. lindheimeri*		X

Sources: Elliott, 2014; Griffith et al., 2007; NRCS, 2022a; TPWD, 1984; TPWD, 2011; TPWD, 2014.

Notes:

(a) Potential presence of a species within an EMST cover type is denoted with an 'X'.

Vegetation is categorized by major associations that correlate with either: grass species, forb or herbaceous species (i.e., non-woody plants), woody plant species (e.g., trees or shrubs), vine species, or succulent species. Not all of these major associated plant classes may be present in a given EMST cover type.

Upland grassland/prairie is the second most dominant within the Study Area as shown in **Figure 3-3**. A list of major associated species for upland grassland/prairie EMST cover class is available in **Table 3-1**. This cover class is composed of two EMST cover types (in order of prevalence):

1. South Texas: Disturbance Grassland
2. South Texas: Sandy Mesquite Savanna Grassland

Urban is a land cover class within the Study Area as shown in **Figure 3-3**. This cover class is composed of three EMST cover types (in order of prevalence):

1. Urban Low Intensity
2. Urban High Intensity
3. Barren

The Row Crops vegetation type includes all cropland where fields are fallow for some portion of the year. Most of the areas designated as row crops have undergone clearing or development (TPWD, 2014).

3.6.2 Aquatic Resources

Waters of the United States or WOTUS include, but are not limited to, territorial seas, lakes, rivers, streams, oceans, bays, ponds, and other special aquatic features, including wetlands. The USACE regulates WOTUS, including wetlands, under Section 404 of the CWA. The USACE and EPA jointly define wetlands as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include bogs, seeps, marshes, swamps, forested bottomland wetlands, and other similar areas (40 CFR 230.3[t]). Wetlands are defined in a broad sense as transitional areas (ecotones) between terrestrial and aquatic systems where the water table is usually at or near the ground surface, or where shallow water covers the land (Cowardin et al., 1979).

The USFWS NWI maps encompassing the Study Area indicate the presence of wetland and open-water habitat features throughout the Study Area (USFWS, 2025a). Features in the Study

Area are classified as palustrine and riverine. Palustrine systems include vegetated, freshwater wetlands and small (less than 20 acres), non-vegetated freshwater wetlands that are both shallow (deepest point less than 6.6 feet at low water) and lack an active wave-formed or bedrock shoreline (Cowardin et al., 1979). Palustrine features mapped within the Study Area include 29 freshwater ponds. Riverine systems include all wetlands and deepwater habitats contained within a channel, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens; and (2) habitats with water containing ocean-derived salts exceeding 0.5 percent. (Cowardin et al., 1979). Several streams, including two named streams and several unnamed streams identified in Section 3.5.1, within the Study Area are mapped as riverine features.

Hydric and aquatic habitats may be considered regulatory wetlands by the USACE. Construction activities resulting in the discharge of dredged or fill materials within WOTUS are subject to the regulations and restrictions outlined in Section 404 of the CWA and may require coordination with the USACE to ensure compliance.

3.6.3 Wildlife

The state of Texas was divided into seven biotic provinces by Blair (1950a; 1950b). The Study Area lies within the Tamaulipan province. Later, Blair (1952) divided the province further into the Nuecian and Matamoran Districts based on distinctions of river drainage, vegetation, climate, and fauna. The Tamaulipan province is dominated by thorny brush which thins from the coast westward. The Study Area, including all of Webb County, is wholly within the Nucian District (Blair, 1952).

The habitat adjacent to the Rio Grande floodplain is described as having soils with heavy black clays, dense herbaceous cover with a less dense shrub layer that included hackberry species (Celtis spp.), retama (Parkinsonia aculeata), and blackbrush (Acacia amentacea). Fauna of the region are considered neotropical with some austroriparian species primarily comprised of grassland species that range from the Texan, Kansan and Chihuahuan provinces.

The following sections discuss fauna species that have the potential to occur within the Study Area.

3.6.3.1 Fish

A representative list of fish species of potential occurrence in the Study Area is included as **Table 3-2**.

Table 3-2: Representative List of Fish Species of Potential Occurrence in the Study Area

Common Name	Scientific Name
Anguillidae (Freshwater Eels)	
American Eel	*Anguilla rostrata*
Atherinopsidae (New World Silversides)	
Inland Silverside	*Menidia beryllina*
Catostomidae (Suckers)	
Gray Redhorse	*Moxostoma congestum*
River Carpsucker	*Carpiodes carpio*
Rio Grande Blue Sucker	*Cycleptus sp*
Smallmouth Buffalo	*Ictiobus bubalus*
Centrarchidae (Sunfishes)	
Bluegill	*Lepomis macrochirus*
Green Sunfish	*Lepomis cyanellus*
Largemouth Bass	*Micropterus salmoides*
Longear Sunfish	*Lepomis aquilensis*
Orangespotted Sunfish	*Lepomis humilis*
Redear Sunfish	*Lepomis microlophus*
Redspotted Sunfish	*Lepomis miniatus*
Smallmouth Bass	*Micropterus dolomieu*
Spotted Bass	*Micropterus punctulatus*
Warmouth	*Lepomis gulosus*
White Crappie	*Pomoxis annularis*
Characidae (Characins)	

Common Name	Scientific Name
Mexican Tetra	*Astyanax argentatus*
Cichlidae (Cichlids)	
Blue Tilapia	*Oreochromis aureus*
Rio Grande Cichlid	*Herichthys cyanoguttatus*
Clupeidae (Herrings)	
Gizzard Shad	*Dorosoma cepedianum*
Threadfin Shad	*Dorosoma petenense*
Cyprinidae (Carps and Minnows)	
Blacktail Shiner	*Cyprinella venusta*
Bullhead Minnow	*Pimephales vigilax*
Common Carp	*Cyprinus carpio*
Ghost Shiner	*Notropis buchanani*
Golden Shiner	*Notemigonus crysoleucas*
Longnose Dace	*Rhinichthys cataractae*
Phantom Shiner	*Notropis orca*
Red Shiner	*Cyprinella lutrensis*
Rio Grande Shiner	*Notropis jemezanus*
Rio Grande Silvery Minnow	*Hybognathus amarus*
Speckled Chub	*Macrhybopsis aestivalis*
Tamaulipas Shiner	*Notropis braytoni*
Cyprinodontidae (Pupfishes)	
Sheepshead Minnow	*Cyprinodon variegatus*
Ictaluridae (North American Catfishes)	
Black Bullhead	*Ameiurus melas*
Blue Catfish	*Ictalurus furcatus*
Channel Catfish	*Ictalurus punctatus*
Flathead Catfish	*Pylodictis olivaris*

Common Name	Scientific Name
Headwater Catfish	*Ictalurus lupus*
Tadpole Madtom	*Noturus gyrinus*
Lepisosteidae (Gars)	
Longnose Gar	*Lepisosteus osseus*
Loricariidae (Suckermouth Armored Catfishes)	
Southern Sailfin Catfish	*Pterygoplichthys sp (Sailfin Catfish)*
Moronidae (Temperate Basses)	
White Bass	*Morone chrysops*
Mugilidae (Mullets)	
Striped Mullet	*Mugil cephalus*
Percidae (Perches)	
Rio Grande Darter	*Etheostoma grahami*
Poeciliidae (Livebearers)	
Sailfin Molly	*Poecilia latipinna*
Western Mosquitofish	*Gambusia affinis*
Sciaenidae (Drums and Croakers)	
Freshwater Drum	*Aplodinotus grunniens*

Source: Hendrickson and Cohen, 2022.

3.6.3.2 Amphibians and Reptiles

A representative list of amphibian and reptile species of potential occurrence in the Study Area is included as **Table 3-3**.

Table 3-3: Representative List of Reptile and Amphibian Species of Potential Occurrence in the Study Area

Common Name	Scientific Name
Frogs and Toads	
American bullfrog	*Lithobates catesbeianus*
Blanchard's Cricket Frog	*Acris blanchardi*
Couch's spadefoot toad	*Scaphiopus couchii*
Cricket frog	*Acris crepitans*
Giant Toad	*Rhinella horribilis*
Great Plains narrow-mouthed toad	*Gastrophryne olivacea*
Great Plains Toad	*Anaxyrus cognatus*
Green toad	*Anaxyrus debilis*
Green treefrog	*Hyla cinerea*
Hurter's spadefoot	*Scaphiopus hurterii*
Mexican burrowing toad	*Rhinophrynus dorsalis*
Mexican treefrog	*Smilisca baudinii*
Mexican white-lipped frog	*Leptodactylus fragilis*
Plains spadefoot	*Spea bombifrons*
Red-spotted toad	*Anaxyrus punctatus*
Rio Grande chirping frog	*Eleutherodactylus campi*
Rio Grande leopard frog	*Rana berlandieri*
Sheep frog	*Hypopachus variolosus*
South American Cane Toad	*Rhinella marina*
Southern leopard frog	*Lithobates sphenocephalus*
Spotted Chorus Frog	*Pseudacris clarkii*
Strecker's Chorus Frog	*Pseudacris streckeri*

Common Name	Scientific Name
Texas toad	*Anaxyrus speciosus*
White-lipped frog	*Leptodactylus fragilis*
Woodhouse's toad	*Anaxyrus woodhousii*
Lizards	
American alligator	*Alligator mississippiensis*
Barred tiger salamander	*Ambystoma mavortium*
Black-spotted newt	*Notophthalmus meridionalis*
Blue spiny lizard	*Sceloporus serrifer cyanogenys*
Collared lizard	*Crotaphytus collaris*
Eastern newt	*Notophthalmus viridescens*
Eastern tiger salamander	*Ambystoma tigrinum*
Green anole	*Anolis carolinensis*
Keel-scaled earless lizard	*Holbrookia propinqua*
Lesser siren	*Siren intermedia*
Mediterranean house gecko	*Hemidactylus turcicus*
Mesquite lizard	*Sceloporus grammicus*
Prairie lizard	*Sceloporus undulatus*
Reticulate collared lizard	*Crotaphytus reticulatus*
Rose-bellied lizard	*Sceloporus variabilis*
Rio Grande lesser siren	*Siren intermedia texana*
Spot-tailed earless lizard	*Holbrookia lacerata*
South Texas siren (Large Form)	*Siren sp. 1*
Texas banded gecko	*Coleonyx brevis*
Texas earless lizard	*Cophosaurus texanus texanus*
Texas horned lizard	*Phrynosoma cornutum*
Texas spiny lizard	*Sceloporus olivaceus*
Western Tiger Salamander	*Ambystoma mavortium*
Snakes	

Common Name	Scientific Name
Bullsnake	*Pituophis catenifer sayi*
Central plains milksnake	*Lampropeltis gentilis*
Checkered garter snake	*Thamnophis marcianus marcianus*
Coachwhip	*Masticophis flagellum*
Desert kingsnake	*Lampropeltis getula splendida*
Diamond-backed watersnake	*Nerodia rhombifer*
Four-lined skink	*Plestiodon tetragrammus*
Flathead snake	*Tantilla gracilis*
Glossy snake	*Arizona elegans*
Great Plains ratsnake	*Pantherophis emoryi*
Great Plains skink	*Eumeces obsoletus*
Ground snake	*Sonora semiannulata*
Laredo striped whiptail	*Aspidoscelis laredoensis*
Lined snake	*Tropidoclonion lineatum*
Mexican hog-nosed snake	*Heterodon kennerlyi*
Mexican hooknose snake	*Ficimia streckeri*
Mexican milk snake	*Lampropeltis triangulum annulata*
Mexican racer	*Coluber constrictor oaxaca*
Northern cat-eyed snake	*Leptodeira septentrionalis septentrionalis*
Plain-bellied watersnake	*Nerodia erythrogaster*
Plains blackhead snake	*Tantilla nigriceps*
Prairie kingsnake	*Lampropeltis calligaster calligaster*
Prairie racerunner	*Aspidoscelis sexlineata viridis*
Ring-necked snake	*Diadophis punctatus*
Speckled kingsnake	*Lampropeltis holbrooki*
Texas blind snake	*Rena dulcis*
Texas brown snake	*Storeria dekayi texana*
Texas coral snake	*Micrurus tener*
Texas indigo snake	*Drymarchon melanurus erebennus*

Common Name	Scientific Name
Texas longnose snake	*Rhinocheilus lecontei tessellatus*
Texas night snake	*Hypsiglena jani texana*
Texas patchnose snake	*Salvadora lineata*
Texas ratsnake	*Pantherophis obsoletus*
Texas spotted whiptail	*Aspidoscelis gularis*
Variable groundsnake	*Sonora semiannulata*
Western diamondback rattlesnake	*Crotalus atrox*
Western hognose snake	*Heterodon nasicus*
Western massasauga	*Sistrurus tergeminus*
Western ribbonsnake	*Thamnophis proximus*
Whipsnake	*Masticophis schotti*
Turtles	
Common snapping turtle	*Chelydra serpentina*
Eastern box turtle	*Terrapene carolina*
Eastern river cooter	*Pseudemys concinna*
Mississippi mud turtle	*Kinosternon subrubrum hippocrepis*
Ornate box turtle	*Terrapene ornata ornata*
Red-eared slider	*Trachemys scripta*
Rio Grande river cooter	*Pseudemys gorzugi*
Spiny softshell	*Apalone spinifera*
Texas tortoise	*Gopherus berlandieri*
Western box turtle	*Terrapene ornata*
Yellow mud turtle	*Kinosternon flavescens*

Sources: Conant and Collins, 1998; GBIF, 2025; IUCN, 2025; NatureServe Explorer, 2025; Texas Turtles, 2025.

3.6.3.3 Birds

Avian species of potential occurrence in the Study Area include many year-round residents, migrants/summer residents, and migrants/winter residents. A representative list of bird species of potential occurrence in the Study Area is included as **Table 3-4**.

Table 3-4: Representative List of Avian Species of Potential Occurrence in the Study Area

Common Name	Scientific Name	Likely Seasonal Occurrence
Acadian flycatcher	*Empidonax virescens*	M
Alder flycatcher	*Empidonax alnorum*	M
Altamira oriole	*Icterus gularis*	R
American avocet	*Recurvirostra americana*	WR
American bittern	*Botaurus lentiginosus*	WR
American coot	*Fulica americana*	R
American golden-plover	*Pluvialis dominica*	M
American goldfinch	*Spinus tristis*	WR
American kestrel	*Falco sparverius*	WR
American pipit	*Anthus rubescens*	WR
American redstart	*Setophaga ruticilla*	M
American robin	*Turdus migratorius*	WR
American white pelican	*Pelecanus erythrorhynchos*	WR
American wigeon	*Mareca americana*	WR
Anhinga	*Anhinga anhinga*	SR
Ash-throated flycatcher	*Myiarchus cinerascens*	SR
Audubon's oriole	*Icterus graduacauda*	R
Baird's sandpiper	*Calidris bairdii*	M
Bald eagle	*Haliaeetus leucocephalus*	R
Baltimore oriole	*Icterus galbula*	M
Bank swallow	*Riparia riparia*	SR
Barn swallow	*Hirundo rustica*	SR

Common Name	Scientific Name	Likely Seasonal Occurrence
Bay-breasted warbler	*Setophaga castanea*	M
Bell's vireo	*Vireo bellii*	SR
Belted kingfisher	*Megaceryle alcyon*	WR
Bewick's wren	*Thryomanes bewickii*	R
Black-and-white warbler	*Mniotilta varia*	WR
Black-bellied whistling-duck	*Dendrocygna autumnalis*	R
Black-billed cuckoo	*Coccyzus erythropthalmus*	M
Blackburnian warbler	*Setophaga fusca*	M
Black-chinned hummingbird	*Archilochus alexandri*	SR
Black-crested titmouse	*Baeolophus atricristatus*	R
Black-crowned night-heron	*Nycticorax nycticorax*	R
Black-headed grosbeak	*Pheucticus melanocephalus*	M
Black-necked stilt	*Himantopus mexicanus*	R
Black phoebe	*Sayornis nigricans*	WR
Black tern	*Chlidonias niger*	M
Black-throated green warbler	*Setophaga virens*	M
Black-throated sparrow	*Amphispiza bilineata*	R
Black vulture	*Coragyps atratus*	R
Blue-gray gnatcatcher	*Polioptila caerulea*	R
Blue grosbeak	*Passerina caerulea*	SR
Blue-headed vireo	*Vireo solitarius*	WR
Blue jay	*Cyanocitta cristata*	WR
Blue-winged teal	*Spatula discors*	WR
Blue-winged warbler	*Vermivora cyanoptera*	M
Bonaparte's gull	*Chroicocephalus philadelphia*	WR
Brewer's blackbird	*Euphagus cyanocephalus*	WR
Broad-winged hawk	*Buteo platypterus*	M
Bronzed cowbird	*Molothrus aeneus*	R

Common Name	Scientific Name	Likely Seasonal Occurrence
Brown creeper	*Certhia americana*	WR
Brown-crested flycatcher	*Myiarchus tyrannulus*	R
Brown-headed cowbird	*Molothrus ater*	R
Brown jay	*Cyanocorax morio*	R
Buff-breasted sandpiper	*Calidris subruficollis*	M
Bufflehead	*Bucephala albeola*	WR
Bullock's oriole	*Icterus bullockii*	SR
Burrowing owl	*Athene cunicularia*	R
Cattle egret	*Bubulcus ibis*	R
Cactus ferruginous pygmy-owl	*Glaucidium brasilianum cactorum*	R
Cactus wren	*Campylorhynchus brunneicapillus*	R
Canada goose	*Branta canadensis*	WR
Canada warbler	*Cardellina canadensis*	M
Canvasback	*Aythya valisineria*	WR
Carolina wren	*Thryothorus ludovicianus*	R
Cassin's sparrow	*Peucaea cassinii*	R
Caspian tern	*Hydroprogne caspia*	M
Cave swallow	*Petrochelidon fulva*	SR
Cedar waxwing	*Bombycilla cedrorum*	WR
Chestnut-sided warbler	*Setophaga pensylvanica*	M
Chihuahuan raven	*Corvus cryptoleucus*	R
Chimney swift	*Chaetura pelagica*	SR
Chipping sparrow	*Spizella passerina*	WR
Chuck-will's-widow	*Antrostomus carolinensis*	WR
Cinnamon teal	*Spatula cyanoptera*	WR
Clay-colored sparrow	*Spizella pallida*	WR
Cliff swallow	*Petrochelidon pyrrhonota*	SR
Common barn owl	*Tyto alba*	R