BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF SOUTHWESTERN PUBLIC SERVICE COMPANY'S APPLICATION REQUESTING: (1) ISSUANCE OF A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY AUTHORIZING CONSTRUCTION AND OPERATION OF THE ROADRUNNER TO PHANTOM TO CHINA DRAW 345-KV TRANSMISSION LINE AND ASSOCIATED FACILITIES; (2) APPROVAL OF THE LOCATION OF THE 345-KV TRANSMISSION LINE AND ASSOCIATED FACILITIES; (3) DETERMINATION OF RIGHT-OF-WAY WIDTH FOR THE TRANSMISSION LINE; AND (4) AUTHORIZATION TO ACCRUE AN ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION FOR THE TRANSMISSION LINE AND ASSOCIATED FACILITIES, **SOUTHWESTERN PUBLIC SERVICE COMPANY,** **APPLICANT.**	)	**CASE NO. 20-00085-UT**

DIRECT TESTIMONY

of

ALEXANDRIA M. SIMONS

on behalf of

SOUTHWESTERN PUBLIC SERVICE COMPANY

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GLOSSARY AND LIST OF ACRYONYMS

Acronym/Defined Term	**Meaning**
2019 EAs	EAs prepared for amendments to Eddy County Substation and Kiowa Substation ROW grants
ASR	Antenna Structure Registration
BLM	United States Bureau of Land Management
BLM ID Team	BLM's Interdisciplinary Team
BSR	Biological Survey Report
CEQA	California Environmental Quality Act
CHAT	Crucial Habitat Assessment Tool
CFO	BLM's Carlsbad Field Office
Commission	New Mexico Public Regulation Commission
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMNRD	New Mexico Energy, Minerals, and Natural Resources Department
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FLPMA	Federal Land Policy and Management Act

Acronym/Defined Term	Meaning
FONSI	Finding of No Significant Impact
IM	Instruction Memorandum
KOP	Key Observation Point
kV	Kilovolt(s)
MBTA	Migratory Bird Treaty Act
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMSLO	New Mexico State Land Office
Permian Basin PA	Permian Basin Programmatic Agreement
POD	NEPA Plan of Development
Proposed Project	345-kV transmission line and associated facilities extending from SPS's Roadrunner Substation to its Phantom Substation and to its China Draw Substation located in Eddy and Lea Counties, New Mexico
PUA	NMSA 1978, Sections 62-3-1 et seq.
RMP	Resource Management Plan
ROW	Right-of-way
Rule 592	17.9.592 NMAC

Acronym/Defined Term	**Meaning**
SHPO	State Historic Preservation Officer
SPS	Southwestern Public Service Company, a New Mexico corporation
SSPS	Special Status Plant Species
SWCA	SWCA, Inc. d.b.a. SWCA Environmental Consultants, Inc.
TCP	Traditional Cultural Properties
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VRM	Visual Resource Management

LIST OF ATTACHMENTS

Attachment	**Description**
AMS-1	Environmental Assessment DOI-BLM-NM-PO20-2019-xxxx-EA: China Draw Phantom Roadrunner 345-kV Transmission Line Project, Eddy and Lea Counties, New Mexico, BLM Serial No. NM-139666, dated January 2020
AMS-2	Final Plan of Development for China Draw to Phantom to Roadrunner 345-kV Transmission Line Project, BLM ROW Serial No. 139666, dated January 2020
AMS-3	Aerial Maps showing constraints due to location of existing oil and gas wells
AMS-4	Biological Survey Report for the SPS China Draw to Phantom to Roadrunner 345-kV Transmission Line Project in Eddy and Lea Counties, New Mexico, dated January 2020
AMS 5	SPS's Roadrunner Phantom China Draw 345-kV Transmission Project Special-Status Plant Survey Results, dated November 8, 2019
AMS-6A	BLM Finding of No Significant Impact Serial No. NM-139666 & NM-141040
AMS-6B	Decision Record for the NEPA No. DOI-BLM-NM-P020-2020-0674 EA
AMS-7	SWCA Technical Memorandum - China Draw to Phantom to Roadrunner 345-kV Transmission Line Noise Impact Assessment, dated December 19, 2019
AMS-8	Bibliography of Cited Materials

Case No. 20-______-UT
Direct Testimony
of
Alexandria M. Simons

I. WITNESS IDENTIFICATION AND QUALIFICATIONS

Q. Please state your name and business address.

A. My name is Alexandria M. Simons. My business address is 5647 Jefferson Street, NE, Albuquerque, New Mexico 87109.

Q. On whose behalf are you testifying in this proceeding?

A. I am filing testimony on behalf of Southwestern Public Service Company, a New Mexico corporation ("SPS") and wholly-owned electric utility subsidiary of Xcel Energy Inc.

Q. By whom are you employed and in what position?

A. I am employed by SWCA, Inc. d.b.a. SWCA Environmental Consultants, Inc. ("SWCA") as one of the company's National Environmental Policy Act ("NEPA") project managers. For this project, I served as the Deputy Project Manager and led SWCA's team of more than 15 planners and scientists who supported SPS in the federal permitting process.

Q. Please briefly describe SWCA.

A. SWCA is an interdisciplinary environmental consulting firm with more than 1,000 employees across the United States. We have had an established presence in New Mexico for nearly 30 years. Our Albuquerque office currently has a staff of over 50 full-time planning, natural resource, and cultural resource professionals.

SWCA has been involved in numerous electric transmission line permitting projects throughout the United States, including SPS's most recently approved Eddy County to Kiowa 345-kilovolt ("kV") transmission line project[1] located in Eddy County, New Mexico. SWCA prepared the Environmental Assessment ("EA") for the United States Bureau of Land Management ("BLM") Carlsbad Field Office ("CFO") for this project.

Q. Please describe your educational background.

A. I have a Bachelor of Arts in Environmental Studies from the University of California at Santa Cruz and am currently pursuing a Master of Natural Resources from University of Idaho. As part of my graduate work, I have acquired a broad understanding of natural systems, including habitat dynamics and modeling, and environmental policy. In addition, I have completed training on issues-based EAs

[1] *In the Matter of SPS's Application requesting (1) Issuance of a CCN authorizing Construction and Operation of the Eddy County to Kiowa 345-kV Transmission line and associated facilities; (2) approval of the location of the 345-kV Transmission Line and Associated Facilities; (3) Determination of Right-of-way Width for the Transmission line; and (4) Authorization to Accrue and AFUDC for the Transmission Line and Associated Facilities*, Case No. 19-00157-UT.

and NEPA, the California Environmental Quality Act ("CEQA"), environmental compliance, and habitat restoration.

Q. Please describe your professional experience.

A. My primary planning experience as a professional has been related to the development and permitting of electric transmission lines, concrete and asphalt plants, hard rock quarries, oil and gas pipelines and well pads, and forestry fuel reduction projects. My current planning experience has an emphasis on projects undergoing the NEPA permitting process, which typically requires the development of interdisciplinary EAs and/or Environmental Impact Statements ("EISs"). I have been involved in approximately 150 different projects undergoing the NEPA process in New Mexico, the majority of which were led by the BLM as the lead federal agency. My participation has included initial public and agency scoping, assisting clients in routing projects to avoid impacts to resources, drafting detailed project descriptions, resource analyses, mitigation design and implementation, and preparation of associated technical project documents such as plans of development, which are intended to describe how the construction of a given project will comply with environmental protection measures and regulations, in addition to special status species tech memos, which detail special status species-specific surveys, potential impacts, mitigation and avoidance.

Specifically, in southeast New Mexico, I have worked on many projects where the BLM CFO was the lead. My BLM CFO experience includes environmental planning and NEPA project management for oil and gas, transmission, and the CFO Resource Management Plan (“RMP”).

Previous projects I have worked on include quarry expansion permits under the CEQA, industrial compliance, including stormwater monitoring, air quality, and hazardous materials management, the development of riparian mitigation plans, revegetation and reclamation plans, stormwater pollution prevention plans, and endangered species monitoring and reporting. I have also been closely involved with other federal and state regulatory compliance processes, such as Section 404 of the Clean Water Act, and Section 7 of the Endangered Species Act (“ESA”) and state-level permits including Industrial General Permit, and Section 1600 Streambed Alteration.

II. ASSIGNMENT AND SUMMARY OF TESTIMONY

Q. What is the purpose of your testimony in this case?

A. My testimony discusses SWCA's assessment of the potential environmental impacts associated with SPS's proposed location of the 345-kV transmission line route and substation facilities that will connect SPS's Roadrunner Substation to its Phantom Substation, and then to its China Draw Substation ("Proposed Project" or "Project"). SWCA prepared an EA for the Proposed Project as required by the BLM in accordance with NEPA guidelines in relation to SPS's application for a BLM right-of-way ("ROW") grant across federal lands. The EA provides an appropriate analytical process for the environmental evaluation required in Section 62-9-3 of the New Mexico Public Utility Act (NMSA 1978, Sections 62-3-1 et seq. – "PUA") and complies with New Mexico Public Regulation Commission ("Commission") Rule 17.9.592(C) and (H) NMAC ("Rule 592"). I acted as Project Manager for SWCA's preparation of the EA that was used to support the BLM's issuance of the ROW grant on federally-managed lands and established the location of the Proposed Project facilities on all federal, state, and private lands. A copy of the EA is attached to my testimony as Attachment AMS-1.

Q. Please briefly outline your responsibilities as Project Manager for the EA prepared by SWCA.

A. As Project Manager, I was responsible for all aspects of SWCA's performance and the completion of the EA, prepared on behalf of the BLM in relation to SPS's applications for ROW grants across federal lands that involved the construction, operation, and maintenance of the Proposed Project.

In the EA evaluation process, I oversaw the collection of all resource data, preparation of technical reports, and preparation of the EA to comply with the BLM's obligations under NEPA, Section 404 of the Clean Water Act, and Section 7 of the ESA, and SPS's obligations under Section 62-9-3 of the PUA and Commission Rule 592. I also assisted in the routing and siting of the transmission projects as they pertain to environmental constraints and preparation of the NEPA Plan of Development for the China Draw to Roadrunner Project ("POD"), Attachment AMS-2, among other tasks. Finally, I was responsible for managing the project budget, schedule, and SWCA staff who were designated to lead specific aspects of the EA.

Q. Please summarize your testimony.

A. Based on my involvement in the EA and technical reports prepared to evaluate site-specific resources and potential environmental impacts of the Proposed

Project, I have concluded that the location of the 345-kV transmission line and associated facilities will not unduly impair any important environmental values in accordance with the requirements of Sections 62-9-3(F) and 62-9-3(M) of the PUA and Rule 17.9.592.10(H) NMAC. In providing this analysis and reaching this conclusion, my testimony describes and explains:

(1) the basis for establishing the initial location of the proposed 345-kV Roadrunner Phantom China Draw transmission line route;

(2) the process SPS and BLM conducted to finalize the location of the Proposed Project;

(3) the EA that SWCA prepared for SPS's application to the BLM requesting a ROW grant for the Proposed Project, which includes a discussion of:

(i) the resources evaluated by the EA in relation to the location of the Proposed Project;

(ii) the EA's determination of the potential environmental impacts associated with each resource; and

(iii) the process to modify the location of the proposed transmission line route and substations to resolve or minimize environmental impacts identified in the EA;

(4) that based on the environmental assessment in the EA, the BLM found the Proposed Project will have no significant impact on the quality of the human environment, and as a result of the BLM's determinations regarding environmental impacts:

(i) the BLM issued ROW grants on federal lands for the Project; and

(ii) the New Mexico State Land Office ("NMSLO") issued a ROW permit on state lands for the Project; and

(5) my evaluation of the EA and supporting technical documents prepared for the BLM regarding potential impacts to the important environmental values identified in Section 62-9-3(M) and Rule 592.10(H).

Q. Please describe the requirements for Commission location approval under the PUA and Rule 592.

A. Section 62-9-3 of the PUA governs location approval for transmission lines and associated substation facilities that are 230-kV and greater. Section 62-9-3(F) provides that the Commission shall approve an application for the location of transmission lines and associated facilities unless it finds that the location will unduly impair important environmental values. In determining whether a proposed project will unduly impair important environmental values, the Commission may consider various factors that are identified in Section 62-9-3(M).

Rule 592.10 implements Section 62-9-3 and establishes application and other requirements for utilities requesting location approval of a proposed transmission line with voltages at or above 230-kV. In material part, subsections (C) and (D) to Rule 592.10, provide that if required under NEPA, the application and supporting testimony must contain an EA prepared in connection with the transmission line and (a) an EIS assessing the environmental impacts of the proposed transmission line or (b) a finding of no significant impact ("FONSI"). Subsection (E) provides that if preparation of an EA or EIS is not required under NEPA in connection with the transmission line, then the application must contain a report, comparable to an EIS, in the format prescribed in 40 C.F.R 1502.10. Finally, subsection (H) of Rule 592.10 provides that the application must contain testimony prepared to demonstrate that the proposed transmission line route will not unduly impair important environmental values.

Q. Were Attachments AMS-1 through AMS-5 and AMS-7 through AMS-8 prepared by you or under your supervision?

A. Yes.

Q. Is Attachments AMS-6A and AMS-6B true and correct copies of the documents that they purport to be?

A. Yes.

Q. Have you included a bibliography of the reference materials and literature cited in your direct testimony?

A. Yes, please refer to Attachment AMS-8 to my testimony.

III. DESCRIPTION OF THE LOCATION OF THE PROPOSED PROJECT AND BLM ROW GRANT PROCESS

A. Proposed Project and its Location

Q. Please describe the Proposed Project's location and project facilities.

A. As explained in the Direct Testimony of SPS witness Nisha P. Fleischman, SPS proposes to construct, operate, and maintain a 345-kV transmission line and associated substation facilities in Eddy and Lea County. The transmission line route is 42.22 miles long. The line will connect SPS's Roadrunner Substation, located approximately 22.6 miles northwest of Jal, New Mexico, to its China Draw Substation, located approximately 14.2 miles southwest of Malaga, New Mexico. The transmission line route will cross federal lands managed by the BLM (approximately 23.08 miles), state lands overseen by the NMSLO (approximately 18.91 miles), and SPS's privately-owned lands (approximately 0.23 mile). As explained in the Direct Testimony of SPS witness Nebiyou Y. Bogale, the transmission line will have a 150-foot ROW except where it crosses the Pecos River where it will have a 200-foot wide ROW.

The location of the Proposed Project's facilities is based on: (1) the BLM's ROW grants for the 345-kV transmission line route, in addition to the Brantley, North, and South laydown yards, on federal lands, (2) the requested

NMSLO ROW permit for portions of the Proposed Project's 345-kV transmission line route on state lands, and (3) SPS privately-owned lands that will be crossed by the 345-kV transmission line route.

The legal descriptions of the location of the proposed transmission line route and associated infrastructure on federal, state, and private lands are listed in Appendix E of the EA (Attachment AMS-1), and is also provided in the ROW grants issued by the BLM, and the ROW permit issued by the NMSLO, as well as the Warranty Deed for the .23 miles owned by SPS.[2]

Q. Have maps been prepared that depict the location of the proposed Roadrunner Phantom China Draw transmission line route and substation facilities?

A. Yes. A map showing the general location of the Proposed Project's transmission line route and laydown yards is provided as Attachment JJC-1 to the Direct Testimony of SPS witness Jarred J. Cooley. Additionally, the EA, includes a series of maps that specifically depict the Proposed Project's transmission line

[2] Copies of the BLM ROW grants and NMSLO ROW Permit obtained by SPS are provided in Attachments NPF-2A and NPF-3 and the Warranty Deed is provided in Attachment NPF-7 to the Direct Testimony of Nisha P. Fleischman.

route from the Roadrunner Substation to the China Draw Substation (*see* Attachment AMS-1 Appendix C).[3]

Ms. Fleischman's testimony thoroughly describes the location of the Roadrunner Phantom China Draw transmission line route and associated laydown yards, as well as includes additional maps showing the location of the Proposed Project in relation to other transmission lines located in Eddy and Lea Counties.

B. Process for Establishing the Location of the Proposed Project

Q. Please explain the process for establishing the location of the proposed Roadrunner Phantom China Draw transmission line route and associated laydown yards.

A. As Ms. Fleischman's testimony explains, SPS first determined the end-points for the proposed transmission line route, defined the project study area and identified routing options. In addition, SWCA assisted SPS in routing by conducting multiple desktop analysis to identify sensitive natural resource, cultural and land use areas to avoid and developed corridors within the project vicinity that could

[3] The EA maps identify the Public Lands Survey System (Township and Range) sections and the ownership of the lands crossed by the transmission line route and the substations. The POD governs construction and related activities for the transmission line segments and associated laydown yards for the Roadrunner Phantom China Draw Project. The POD is also provided as Attachment AMS-2 and for convenience the maps are provided separately as Attachment NPF-5 to Ms. Fleischman's testimony.

be used to route the project. SPS further identified land uses to determine where the route should be located in relation to existing structures – primarily oil well pads, pumps, and other production facilities. SPS also proposed routing the transmission line segments parallel to existing compatible ROW and property lines where reasonable and practical.[4]

In this initial review process, SPS also identified the ownership of the lands crossed by the Proposed Project (*i.e.*, federal, state, and private lands).[5] SPS filed applications with the BLM and NMSLO requesting ROW grants/permits that would authorize SPS to locate, construct, operate and maintain the proposed 345-kV transmission line and associated laydown yards on federal and state lands. The determination of the final location of the Proposed Project facilities was established through a collaborative process involving SPS, BLM and the NMSLO, and other public and private stakeholders, which is memorialized in the ROW grants and permits issued by the BLM and the NMSLO.

[4] *See* Direct Testimony of Nisha P. Fleischman.

[5] *Id.* at 10.

Q. What were SPS's and the BLM's respective roles in establishing the transmission line route evaluated in the EA?

A. In the early stages for determining the location of the Proposed Project, SPS and BLM representatives met during the pre-application meeting to identify resource issues and potential routing options for the Roadrunner Phantom China Draw transmission line. During the pre-application meeting, the BLM identified land use planning resource concerns along the initial proposed 345-kV transmission line route. Land use planning considerations included avoiding existing facilities, namely numerous oil and gas well pads in the northern portion of the route (*see* Attachment AMS-3) and siting the transmission line route to parallel existing linear features (i.e., roads and existing ROWs) as much as possible. Resource concerns included the avoidance of karst features, visual resource management areas, and special status plant species. As part of this collaborative process, SPS avoided sensitive resources to the maximum extent practicable, such as Scheer's beehive cactus (*Coryphantha robustispina var. scheeri*), a BLM sensitive species, located in the western half of the alignment on BLM-managed lands.

Q. What was the next step in the BLM ROW grant process?

A. SPS consulted with the NMSLO, other public entities, and private parties that owned or had an interest in lands located near the proposed transmission line route. After these consultations, further discussions were held among SPS and the BLM CFO realty specialist and reroutes were agreed upon by the BLM and SPS.

Q. What is the basis for the BLM's evaluation for issuance of the ROW grants for the Proposed Project?

A. Under the BLM's NEPA Handbook H-1790-1 (BLM2008b), the BLM's decision whether or not to issue a ROW grant(s) to SPS is a federal decision and therefore requires the preparation of a NEPA analysis to evaluate the environmental impacts of that decision on federal lands. For SPS's ROW applications, the BLM determined that an EA would be the appropriate level of NEPA analysis to base its decisions. In this regard, the EA identifies and addresses the environmental impacts associated with the location, construction, operation, and maintenance of the Proposed Project. The scope of the EA, as well as the EA process are discussed in Section IV below.

IV. ENVIRONMENTAL ASSESSMENTS OF THE PROPOSED PROJECT

A. Scope and Purpose of the EA

Q. Please explain the scope of the environmental evaluation prepared by SWCA for the BLM's ROW grant process.

A. SPS's applications to the BLM for ROW grants included requests for a 150-foot wide ROW for the 345-kV Roadrunner Phantom China Draw transmission line, as well as the associated laydown yard facilities located on federal lands. SWCA prepared the EA under the direction of the BLM CFO, the primary land manager for the federal lands traversed by the transmission line and laydown yards. The EA analyzed the potential resource impacts associated with the Proposed Project, identified mitigation measures to potentially reduce or eliminate those impacts, and provided detailed environmental analyses that informed the BLM's eventual decision to issue ROW grants to SPS.

The BLM's purpose is to respond to SPS's ROW grant requests for legal use and access across BLM-managed lands for the 345-kV transmission line and the associated laydown yards. The need for the BLM's action is established by the Federal Land Policy and Management Act ("FLPMA") and is to respond to SPS's ROW applications by evaluating the intended use of federal lands for the construction, operation, and maintenance of the transmission line project.[6] The BLM's mandate for multiple uses of public lands under FLPMA includes development of energy transmission in a manner that conserves the multitude of other resources found on public lands.

Q. Does the EA serve any other purpose in relation to the BLM's review of SPS's ROW grant applications?

A. Yes. Another purpose of the EA is to confirm that the Proposed Project met the BLM's land use plan for the CFO. The 1988 Carlsbad RMP (BLM 1988) recognizes that utility corridors are an appropriate use of federal lands and encourages applicants to locate new facilities within designated ROW corridors. The BLM's 2008 RMP, as amended:

> New projects of the type described above [utility corridors for major projects such as interstate electric transmission lines; pipelines; and communications lines for interstate use] that propose to cross the Planning Area would be evaluated based on the impacts to lesser prairie-chicken and sand dune lizard habitats and other resources to meet the overall objectives of this plan. These projects would not be located in ROW avoidance areas if other routes can meet the purposes of the project. (BLM 2008a:2-13)

[6] *See* EA at Section 1.2 (p. 3).

As noted in the EA, the Proposed Project is not located in a ROW avoidance area and complies with the recommended mitigation measures described in amendments to the Carlsbad RMP. Therefore, the EA confirms that the Proposed Project is in conformance with the Carlsbad RMP, as amended.[7]

B. EA Study Process

Q. Please briefly describe the BLM's EA study process.

A. During the early stage of the EA study process in January 2019, the BLM's interdisciplinary (ID) team of resource specialists ("BLM ID Team") conducted internal scoping of the Proposed Project, and identified several resource issues to carry forward for detailed analysis in the EA. While all resources were considered during the scoping process, it was determined by the BLM ID Team that some resources would not be analyzed in the EA because they were either not present in the project area or were not likely to be affected by the Proposed Project to a degree that warranted detailed analysis.

Q. Please briefly describe the analysis presented in the EA?

A. The EA's analysis is limited to those resources that could be affected to a degree that would warrant detailed analysis (40 CFR 1502.15) (BLM 2008b:96), as

[7] *See* EA at Section 1.4 (p.4).

determined by the BLM ID Team during preliminary meetings during the internal scoping period. In addition, desktop reviews and field surveys also helped inform resources that required analysis in the EA. Table 1.2 in the EA lists each resource and the issue(s) that was addressed in the resource analyses.[8] Each resource section of the EA includes analyses of the affected environment, which is described as the existing condition and trend of issue-related elements of the human environment that would be affected by implementing the Project. Each resource section then analyzes the direct, indirect, and cumulative impacts of the Project, as well as any mitigation measures required during the construction and operation of the Project.[9]

Q. How was the Project's transmission line route evaluated?

A. The EA evaluated the potential effects of the Project on the environment in accordance with the Council on Environmental Quality's guidance and BLM NEPA Handbook H-1790-1 (BLM 2008b). In accordance with these guidelines, the BLM ID Team of resource specialists first went through an internal agency

[8] *See* Attachment AMS-1 at Section 1.6 (p. 6-7).

[9] *See* Attachment AMS-1, at Section 3, 18, 21, 28-32, 34, 39.

review of, and public scoping process for, the Project to determine and identify resources and resource uses that could be affected by the Proposed Project.

Q. Please described the field investigations that were part of the EA process.

A. SWCA performed cultural, biological, and wetland resource desktop reviews and field surveys for the transmission line, as well as the location of the laydown yards, pull pockets, and access roads, in accordance with all applicable federal and state protocols.[10]

The assessment also included a pedestrian survey within a 250-foot-wide corridor (300-feet wide at the Pecos River Crossing) following the centerline of the proposed transmission line, laydown yards, pull pockets, and access roads to assess general vegetation and habitat suitability for U.S. Fish and Wildlife Service ("USFWS"), BLM, and State of New Mexico protected native plants and special status species. Presence of active and inactive bird nests and burrows were also

[10] Prior to the biological surveys, SWCA reviewed baseline data for the survey area, which is defined below, including U.S. Geological Survey ("USGS") topographic maps, Natural Resources Conservation Service (NRCS) soil maps (NRCS 2019), New Mexico Crucial Habitat Assessment Tool data (New Mexico Department of Game and Fish [NMDGF] 2013), National Hydrography Dataset maps (USGS 2013), National Wetlands Inventory maps (USFWS 2019a), USFWS Information for Planning and Consultation (IPaC) system data (USFWS 2018b), the USFWS Critical Habitat Portal (USFWS 2019c), NMDGF Biota Information System of New Mexico (BISON-M) data (BISON-M 2019), the New Mexico Rare Plants website (New Mexico Rare Plant Technical Council 1999), and the New Mexico Energy, Minerals and Natural Resources Department ("EMNRD") state endangered plant species list (EMNRD 2019).

recorded. The survey included an assessment of wetlands, surface waters, and other potentially jurisdictional water features. Biological and other sensitive natural resources that were identified include occurrences of special status species and associated habitat, migratory bird nesting areas, and potentially jurisdictional water features. The natural resource survey results for the EA were included in a biological resource report (SWCA 2019).[11] These technical studies are included in Attachment AMS-4.

In this regard, SWCA conducted a thorough biological resource assessment of the proposed disturbance areas over several seasons from February 2019 to October 2019 to evaluate, among other things, the potential for special status species to occur and to identify habitat communities regulated by the USFWS under Section 7 of the ESA, jurisdictional drainages or sensitive aquatic habitats regulated by the U.S. Army Corps of Engineers under the Clean Water Act of 1972, and active and inactive migratory bird nests protected by the Migratory Bird Treaty Act of 1918.

The BLM mapped potential special-status plant species ("SSPS") habitat for Scheer's beehive cactus (*Coryphantha robustispina* var. *scheeri*), Tharp's

[11] *See generally* Biological Survey Report ("BSR"), attached hereto as Attachment AMS-4.

blue-star (*Amsonia tharpii*), and Wright's waterwillow (*Justicia wrightii*). SWCA coordinated with the BLM CFO botanist to determine requirements for species-specific surveys. The SSPS survey areas were identified by the BLM botanist, and these results are provided in the SSPS technical memorandum (*see* Attachment AMS-5).

SWCA also conducted an intensive Class III cultural resources inventory review in accordance with the *Procedures for Performing Cultural Resources Fieldwork on Public Lands in the Area of New Mexico BLM Responsibilities* (BLM 2005) and *Standards for Survey Site Evaluation and Reporting for the CFO* (BLM 2012). Site file searches and a 100-percent pedestrian survey for the substations and a 250-foot-wide corridor for the transmission line route were conducted by qualified archaeologists.[12] These findings were documented in a cultural resources inventory report (Murray et al. 2019) to aid the BLM in complying with Section 106 of the National Historic Preservation Act ("NHPA"). The Pecos River crossing required a 200-foot ROW. A field survey was conducted in 2019 for the Pecos River crossing and results were included in the cultural report that was prepared by SWCA (Murray et. al 2019).

[12] *See* EA at Section 3.7.1 (p. 31).

Q. Please describe the modifications to the Project's transmission line route that the BLM required as a result of the EA study process.

A. In the "route refinement" process for the Project, the BLM required adjustments to the proposed transmission line route to avoid eligible cultural resources, mapped high karst areas, hydrological features, mapped potential special status plant species habitats[13] and visual resources, where feasible.[14] A BLM sensitive species, Scheer's beehive cactus, was observed in the western portion of the proposed 345-kV transmission line. SWCA and SPS consulted with the BLM botanist to discuss avoidance and mitigation measures that SPS would use during construction, operation, and maintenance. Several other minor adjustments to the initial route and/or design were also made to minimize conflicts with oil and gas developers and private landowners.

[13] At the time the BLM was conducting its route refinement process, it was the only agency which mapped potential special status plant species habitat.

[14] *See* EA at Section 2.3 (The BLM may require modifications to the location of the project or impose other design features to avoid or minimize environmental impacts identified in the EA process).

C. BLM Findings Based on the EA and Issuance of ROW Grant

Q. Did the BLM issue any findings or decision regarding the potential impacts of the Proposed Project based on the EAs?

A. Yes. On April 2, 2020, the BLM issued its FONSI and Decision Record ("DR") authorizing the Proposed Project.[15] Copies of the FONSI and DR are provided in Attachment AMS-6A and 6B.

Q. Please summarize the BLM's findings regarding the Project's potential impacts on the human environment.

A. In accordance with the requirements of NEPA and the NHPA, the BLM determined in its FONSI and DR that the Proposed Project will not significantly impact the human environment based on the environmental analyses in the EA.[16] Based on the environmental analysis as discussed in the EA, multiple line adjustments minimized land use conflicts with other entities operating or developing projects in the area.[17] While some resources will be affected by the Proposed Project, mitigation measures will be implemented. For example, there

[15] The FONSI and DR address the EA for the Proposed Project submitted by SPS in November 2019 and resubmitted in January 2020.

[16] *See generally* Attachment AMS-6A and AMS-6B.

[17] Attachment AMS-1, Section 2.3.

may be some unavoidable impacts to cultural resource sites, and these impacts will be mitigated by site testing and monitoring prior to and during construction as the area that this project falls in is covered by the Permian Basin Programmatic Agreement ("Permian Basin PA").[18]

Further, the BLM found that the Proposed Project will not have any significant impacts, individually or cumulatively, on the quality of the human environment.[19] In making its determination, the EA considered both the temporary and long-term impacts of the Project, as well as efforts taken by SPS to avoid or minimize environmental harm.[20] The BLM also found that the routing of the transmission line achieves a balance of resource protection and beneficial uses of the human environment envisioned by NEPA.[21]

The BLM concluded that the proposed ROWs for the Proposed Project sufficiently meet the purpose and need for the action and conform to the Carlsbad

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[18] The EA, Attachment AMS-1, defines the "Permian Basin PA" as "an optional method of compliance with Section 106 of the NHPA for energy-related projects in a 28-quadrangle area of the CFO. The Permian Basin PA is a form of off-site mitigation that allows industry to design projects to avoid known National Register of Historic Places (NRHP)-eligible cultural resources and to contribute to a mitigation fund in lieu of paying for additional archaeological inventory in this area, which has received adequate previous survey." Section 3.7.2.

[19] *See* Attachment AMS-1 at Section 1.1.

[20] *See generally* Attachment AMS-1.

[21] *See generally* Attachment AMS-1.

RMP, as amended.[22] The EA acknowledges that route alternatives were considered to accomplish the purpose and the need for the transmission line project, and determined that the Proposed Project met BLM's purpose and need while minimizing environmental impacts and resource conflicts, as well as meeting other objectives of the Carlsbad RMP, as amended.[23]

The DR determined that the Proposed Project as described in the EA will not significantly affect the quality of the human environment and therefore it is not necessary to prepare an EIS.[24] The DR states that no reasonable action alternative was substantially different in design or effects from the Proposed Project; therefore, no other alternative was considered or analyzed.[25]

Q. When did the BLM issue the ROW grants for the Proposed Project facilities?

A. The BLM issued 150-foot-wide ROW grant across federal lands for the 345-kV Roadrunner Phantom China Draw transmission line route on April 7, 2020. SPS already had a permit from the BLM for the Phantom Substation site, as explained by Ms. Fleischman in her direct testimony at Section III.A.

[22] *See generally* Attachment AMS-1, at Section 1.2 and Section 1.3 (p. 3-4).

[23] *See* Attachment AMS-1 Section 1.1.

[24] Attachment AMS-6B, Section II.

[25] *Id*. at Section III.

Q. Will further environmental studies be needed in view of the BLM's issuance of the ROW grants for the Proposed Project?

A. No further environmental studies for the proposed transmission line route will be needed except if the results of the cultural resources site testing, as required by the Archaeological Treatment Plan (Walth), indicate that some eligible cultural resources would be adversely affected by the Proposed Project. This however would not affect the BLM's approval of the Project's transmission line route. An extensive data recovery, testing, and treatment plan would be implemented and would be agreed to by the BLM, State Historic Preservation Officer ("SHPO"), New Mexico Cultural Properties Review Committee, and NMSLO. Fieldwork for any mitigation effort will be completed prior to the BLM issuing SPS a notice-to-proceed with construction.

V. EVALUATION OF POTENTIAL IMPACTS OF THE PROPOSED PROJECT ON IMPORTANT ENVIRONMENTAL VALUES IN ACCORDANCE WITH LOCATION APPROVAL REQUIREMENTS OF SECTION 62-9-3 OF THE PUA AND RULE 592

Q. Please describe your evaluation of the Proposed Project's potential impacts on important environmental values in accordance with location approval requirements of Sections 62-9-3(F) and (M) of the PUA and Rule 592.10(H).

A. For SPS's location approval filing, I evaluated the potential impacts of the Project's transmission line route and associated laydown yards on important environmental values based on the environmental assessment in the EA that is described in Section III. As explained above, the EA evaluated the potential environmental impacts of the Roadrunner Phantom China Draw 345-kV transmission line and associated laydown yards, pull pockets, facilities, and access roads.[26] The EA provided the basis for the BLM's ROW grant that establish the location of the Project facilities on federal lands.

[26] *See generally* Attachment AMS-1.

Q. Did the EA prepared for the Proposed Project consider the factors for important environmental values included in Section 62-9-3(M) of the PUA and Rule 592.10(H)?

A. Yes. The resources examined in the EA correspond to the factors identified for important environmental values in the statute and Rule 592. For purposes of the Commission's review of SPS's request for location approval of the Project facilities under Section 62-9-3(F) and (M) and Rule 592.10(H), the EA evaluated a range of specific resources and existing environmental conditions in the Project area that include: air resources, water resources, soil resources, vegetation (including noxious weeds), wildlife and special status species, karst resources, cultural resources, paleontological resources, visual resources, and livestock grazing.[27]

As discussed in Section III, while the EA process considered all environmental impacts of the Project, there were some resources that were not analyzed because they were determined by the BLM ID Team as either not present in the Project area or not likely to be affected by the Project to a degree

[27] Se*e e.g.*, Attachment AMS-1 at Sections 3.1 through 3.11 and Table 1.3 (list of each resource and the issue(s) that were addressed in the EA's resource analyses.

that warranted detailed analysis under NEPA. For the remaining resources described above, the EA included: (1) a description of the affected environment; (2) a discussion of the direct, indirect, and cumulative impacts associated with the construction and operation of the Proposed Project; and (3) a list of mitigation measures to minimize or eliminate impacts to resources.

Q. Are there any factors identified in Section 62-9-3(M) and Rule 592.10(H) that were not analyzed in the EA? If so, please explain why they were not considered.

A. Yes. During the EA scoping process, the BLM ID Team identified resource issues that were considered but were not analyzed because the team determined the Project would not have any potential environmental impacts on those resources. Section 1.6 of the EA identifies the six resource issues that were eliminated from the EA assessment – Minerals, Special Designations and Recreation Areas, Socioeconomic Conditions, Environmental Justice, Groundwater Resources, and Public Health and Safety.

Mineral Development was not analyzed in detail in the EA because SPS would not develop or impact the development of minerals, including excavated material to build the transmission line structure locations. In addition, SPS would also avoid active caliche pits.

Special Designations and Recreation Areas were not analyzed in detail in the EA because there were no special designations or recreational areas intersected by the proposed transmission line. Therefore, no further analysis was required.

Regarding potential impacts to socioeconomic and environmental justice resources, the Proposed Project is expected to have positive short-term employment and demographic impacts.[28] The work would be temporary in nature and no permanent jobs would be created. The small number of jobs created, and the temporary status of those jobs did not warrant detailed analysis of socioeconomics in the EA, as only marginal and minimal, short-term, impacts to employment and demographics would be expected. The EA also determined that the Project would not disproportionally impact environmental justice populations as no majority environmental justice population (as defined by EO 12898) was identified in the region. Therefore, no further analysis was required for socioeconomic and environmental justice resources.

[28] SPS estimated that approximately 180 workers total would be employed during construction. These workers would primarily be employed by SPS contractors.

Groundwater resources were dismissed from detailed analysis in the EA. The structure foundations would range in depth from 20-feet to 30-feet below the lands surface, however, the structure foundations are not anticipated to impact the groundwater resources as the groundwater is expected to be approximately 78-feet below the land surface. Therefore, no further analysis for groundwater resources was required.

The EA eliminated the public health and safety issue from detailed analysis because no residential or community infrastructure is present near the Proposed Action area. However, SWCA conducted a separate noise analysis in compliance with NMSA 62-9-3 (M)(3) which concluded that the noise impact due to Proposed Project construction would be insignificant and temporary to two (2) receptors that are within 1.5 miles of the Proposed Project. Thus, there is no noise impact due to construction of the Proposed Project. A copy of the Noise Impact Technical Memorandum is provided in Attachment AMS-7. No commercial AM radio towers were identified within 2,000 feet of the route centerline. One FM station transmitter and three Antenna Structure Registration (“ASR”) facilities are located within 2,000 feet of the centerline. One of the ASR facilities is owned and operated by Xcel Energy Services. Based on prior experience on other SPS projects where similar conditions existed, SPS received no complaints about disruptions to these types of facilities, and therefore, no interference with communication signals is expected.

In the following portions of my testimony, I will explain the EA determinations regarding potential environmental impacts and any required remedial measures for the remaining factors that are described in the location approval process under Section 62-9-3(M) and Rule 592.10(H).

Q. Please describe the EA's evaluation and determination of potential impacts of the Proposed Project on Air Resources (*see* Rule 592.10(H) (i.e., air quality)?

A. The EA established that the potential environmental impacts on air resources (including air quality and climate) associated with the construction, operation, and maintenance of the Proposed Project will be insignificant.[29] Air resource impacts associated with the Proposed Project were evaluated within the proposed project area. The EA determined that emissions of air pollutants would occur during construction of the transmission line, substation infrastructure at Phantom Substation, and potentially the laydown yards (temporary emissions) and, to a

[29] *See* Section 3.1 of the EA.

lesser extent, during the operation of the transmission lines. Construction-related emissions considered include exhaust from construction vehicles, material movements, and equipment; exhaust from construction worker commuting; and fugitive dust from general construction activity. Operational-related emissions considered include emissions from inspection and maintenance activities (which include exhaust from inspection vehicles and aerial inspections, fugitive dust from unpaved roads, and line maintenance equipment) and fugitive emissions due to leaked emissions from substation transformer equipment.

The EA compared the estimated level of emissions of various pollutants resulting from construction and operation activities to the 2011 National Emissions Inventory for Eddy, Lea and Chaves Counties.[30] In 2014, the BLM released an Instruction Memorandum ("IM") providing national guidance for the BLM on quantifying air emissions and on the use of air emissions estimating tools However, the IM does not require air emissions to be quantified when preparing NEPA documents for a project in an attainment area, where the emissions would not be estimated to exceed the National Ambient Air Quality Standards ("NAAQS"). Typical construction related emissions are anticipated to result from

[30] *See* Section 3.1 of the EA.

exhaust from construction vehicles, material movement, and equipment; exhaust from construction worker commuting; fugitive dust from general construction activities and earthmoving; and pipeline sandblasting and coating. Construction emissions would be short-term, lasting only the duration of construction, and would not result in a substantial increase in emissions. These temporary impacts would be negligible and would not cause or contribute to exceedances of the NAAQS. Therefore, the EA concluded that impacts to air resources are likely to be insignificant in relation to the construction and operation of the Proposed Project.

Q. Please describe the EA's evaluation and determination of the potential impacts of the Proposed Project on Cave and Karst Formations (*see* Rule 592.10(H) (i.e., geologic and geographic resources))?

A. The EA addresses the Proposed Project's potential environmental impacts on cave and karst resources. The location of the proposed Roadrunner Phantom China Draw 345-kV transmission line route will cross areas of medium and low cave and karst potential.[31] Ground-disturbing activities, including heavy vibrations

[31] *See* Attachment AMS-1, Roadrunner Phantom China Draw 345-kV Transmission Project, Section 3.6.

and alternation of surface drainages, associated with the construction, operation, and maintenance of the Proposed Project could impact cave and karst resources. No other geologic or geographic resources of concern were found to be present in the Project area.

Several protection measures were included in the POD to protect cave and karst resources.[32] These include collecting soil bores up to 50 feet deep at all proposed foundation structures (foundations would only be used at locations where the line angle is greater than two degrees) along the centerline prior to construction to ensure the contractor does not drill into voids or karst features to install structures, adjusting pole locations to avoid cave and karst features. The ROW grants require SPS to stop construction immediately if any underground voids, subsurface drainage channels, or cave passages are encountered, and no further construction would be allowed until the BLM Authorized Officer issues clearance. Based on these protective measures and the BLM expert's familiarity with the area, the EA concluded that the Proposed Project is not expected to have significant impacts to cave and karst resources.

[32] *See* Attachment AMS-2, Roadrunner Phantom China Draw 345-kV Transmission Project, Section 3.5.7.

Q. Please describe the EA's evaluation and determination of the potential impacts of the Proposed Project on Soil Resources (*see* Rule 592.10(H))?

A. The EA addressed the potential environmental impacts on soil resources located along the proposed transmission line route and the associated laydown yards.[33] Six soil resources in the area where the Project will be located are considered prime farmland soils of statewide importance. Direct impacts to soil resources include the loss of soil productivity due to the removal of soils for construction access roads, laydown yards, and transmission line structures. Clearing of vegetation and topsoil, as well as grading, would be required and these activities would result in newly exposed, disturbed soils that would be subject to accelerated wind and water erosion.

By using established reclamation practices and reestablishing vegetation cover, SPS will minimize impacts to soils and stabilize soils in areas of temporary ground disturbance. These measures are described in the POD and include the use of erosion control devices to minimize erosion during and after construction, stockpiling topsoil following vegetation removal, recontouring temporarily disturbed areas, preparing soil and seedbeds, topsoil replacement, re-seeding with

[33] *See* Sections 3.3 of the EA.

appropriate seed mixes, and installing erosion control devices, silt fences, filter socks and other best management practices, conducting weed control, and continuous monitoring until reclamation has achieved standard BLM success criteria.[34] The BLM expects the seeded vegetation to be re-established within the Project area two years after construction. Based on the BLM's required measures to minimize the impacts to soils during and after the construction phase, the Proposed Project will not significantly impact soil resources.

Q. Please describe the EA's evaluation and determination of the potential impacts of the Proposed Project on Water Resources (including Watersheds and Drainage) (*see* Rule 502.10(H) (i.e., water quality and water resources)?

A. The EA analysis of potential impacts to water resources examined drainages and sensitive aquatic habitats regulated by the U.S. Army Corps of Engineers under the Clean Water Act of 1972. The surface waters in Eddy and Lea County are transitory and limited to quantities of runoff impounded in short drainage ways, shallow lakes, and small depressions, including various playas and lagunas. SWCA conducted pedestrian surveys of these areas to determine the presence of potential waters of the U.S., as defined by the U.S. Army Corps of Engineers,

[34] *See* Attachment AMS-2, Section 3.2.9.

including streams, wetlands, and other special aquatic sites. During the survey, 35 ephemeral drainages were observed within the Project Area. The Proposed Project area intersects one Zone A 100-year flood zone area located at the Pecos River crossing. Zone A floodplains represent 100-year floodplains that have a 1 percent chance of being inundated in a given year. However, no disturbance would occur within the flood zone area. SPS has planned ROW access and structure locations accordingly to avoid the flood zone area completely and erosion controls would be used to prevent sediment runoff from entering the flood zone. In addition, the Proposed Project crosses the Pecos River. The Pecos River would be spanned from outside of the Federal Emergency Management Agency ("FEMA") 100-year flood zone, and mitigation measures outlined in Appendix D of the EA would be utilized to avoid impact to the Pecos River. The EA also found that no New Mexico Outstanding National Resource Waters are in the watersheds traversed by the Proposed Project. These findings are documented in the EA.

Of the 35 ephemeral drainages observed within the Proposed Project area, 18 would not be impacted from construction activities because there are no project components within or adjacent to the ephemeral drainages. A total of 17 ephemeral drainages would be impacted by the construction of the off-ROW access road and downline access road. A summary of surface water features, impacts, and environmental protection measures to avoid or mitigation impacts to surface water features within the Proposed Project area are documented in Appendix D of the EA.

SPS would adhere to the general and regional conditions associated with Nationwide Permit (NWP) 12 (Utility Line Activities) and NWP 14 (Linear Transportation Projects), as well as State of New Mexico Water Quality Certification guidelines during and after construction for all impacts to drainages within the proposed project area.

Q. Please describe the EA's evaluation and determination of the potential impacts of the Proposed Project on Biological Resources including Vegetation (*see* Section 62-9-3(M)(2) (i.e., fish, wildlife and plant life) and Rule 592.10(H) (i.e., flora and fauna))?

A. The EA establishes that the Proposed Project is not expected to have any significant impacts on biological resources. This conclusion is based on SWCA's BSR, Attachment AMS-4, to support the EA analysis. SWCA first conducted a desktop analysis followed by intensive pedestrian field surveys within a

250-foot wide corridor along the center of the transmission line alignment as well as at each laydown yard, pull pockets, and access roads. These surveys assessed general vegetation and habitat suitability for USFWS, BLM, and State of New Mexico protected native plants and special status species. Presence of active and inactive bird nests and burrows were also recorded. Additional desktop reviews and "mop-up" surveys were required due to shifts in the transmission line route alignment. All survey dates are documented in the BSR and EA.

Specific to vegetation, SWCA's field surveys found that vegetation along the Project area is primarily comprised of two general vegetation community types within the proposed project area including Chihuahuan desert scrub with intermixed grasslands, and shinnery oak dunes. One state endangered and BLM sensitive plant species, Scheer's beehive cactus (*Coryphantha robustispina var. scheeri*) was found in two locations. SWCA coordinated with the BLM botanist to develop mitigations measures that would help to avoid direct impacts to the recorded individuals as well as minimize impacts to cactus habitat as much as possible during construction and maintenance activities. The BLM determined that SPS's Proposed Project route avoided known and potential habitat to the greatest extent possible and that the construction of the proposed project would not lead to direct harm or take of known SSPS individuals; therefore rerouting of the proposed ROW corridor was not required by the BLM. No other SSPS were observed. Plant species recorded during the biological survey are listed in Table 2 of the BSR.[35]

In the EA, SWCA found that the vegetation communities within and/or surrounding the Project had previous disturbance from existing oil and gas infrastructure, agriculture, livestock grazing, and the existing substations and transmission lines. Two State of New Mexico–listed noxious weed species, African rue (*Peganum harmala*) and saltcedar (*Tamarix sp*.), were identified within the Proposed Project area.[36] These two species are included in BLM CFO's noxious weed monitoring and treatment program in addition to geographic information system shapefile. If noxious weeds become established within the Proposed Project area, SPS would be responsible for control of these weeds. SPS would consult with the BLM Authorized Officer for acceptable weed control methods, which would include following EPA and BLM requirements and policies. Furthermore, based on the environmental protection measures

[35] *See* Attachment AMS-4, 5-7.

[36] *See* Attachment AMS-4, 8.

prescribed in the POD's reclamation plan, the BLM's conditions of approval for the ROW grant, and SPS's commitment to engage biological monitors during construction, the Proposed Project impacts to vegetation communities will be minimized and will not result in any significant impacts.

Q. Please describe the EA's evaluation and determination of the potential impacts of the Proposed Project on Wildlife (*see* Section 62-9-3(M)(2) (i.e., fish, wildlife and plant life) and Rule 592.10(H) (i.e., flora and fauna))?

A. Specific to wildlife, the EA found that the Proposed Project would not result in significant impacts. After conducting a desktop review and pedestrian field surveys for the initial EA, SWCA biologists identified over 39 bird species, seven mammal species, seven reptile species and two insect species. Short-term impacts to wildlife and special-status species could include the removal or crushing of existing vegetation, risk of direct mortality of species during construction, loss or degradation of native habitat, and displacement of wildlife species from habitat due to development. Additional potential short-term indirect impacts could include disruption or displacement of species from nesting/birthing and foraging areas, changes in activity patterns due to construction, increased human activity, and noise disturbance. These species are described further within Section 3.7 of the BSR. Wildlife species recorded during the biological survey are listed in Table 3 of the BSR.

Q. Please describe the EA's evaluation and determination of the potential impacts of the Proposed Project Special Status Species (*see* Section 62-9-3(M)(2) (i.e., fish, wildlife and plant life) and Rule 592.10(H) (i.e., flora and fauna))?

A. Specific to special status species, the EA found that the Proposed Project would not result in significant impacts. I discuss specific special status species below. Five BLM sensitive species, the golden eagle (*Aquila chrysaetos*), Texas horned lizard (*Phrynosoma cornutum*), monarch butterfly (*Danaus plexippus plexippus*), Scheer's beehive cactus (*Coryphantha robustispina var. scheeri*), and western burrowing owl (*Athene cunicularia*), were observed during the 2019 biological survey of the proposed project area. Five additional BLM sensitive species—Wright's water willow (*Justicia wrightii*), chestnut-collared longspur (*Calcarius ornatus*), lesser prairie-chicken (*Tympanuchus pallidicinctus*), Tharp's blue-star (*Amsonia tharpii*), and Texas hornshell mussel (*Popenaias popeii*) have the potential to occur within the proposed project area, however, these species were not observed within the Proposed Project area. These species are described further within Section 3.7 of the BSR. Wildlife species recorded during the biological survey are listed in Table 3 of the BSR.

The golden eagle is known to occur within the Proposed Project area due to in-flight observations of individuals during the 2019 biological survey. Due to protections of raptor species, including golden eagles, from implementation of practices outlined in Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2012 (ALPIC 2012), including prevention of collisions and electrocution from potential nesting or perching, the proposed project is not anticipated to cause take of individual golden eagles, their nests, or eggs. In addition, if construction is scheduled to begin during the Migratory Bird Treaty Act ("MBTA") nesting season (March 1–August 31), a pre-construction nest survey would be conducted, including a presence/absence survey of raptor nests.

Although the Lesser prairie chicken was not observed in the Proposed Project area, the Proposed Project is located in the mapped isolated population area, designated by the BLM RMP Amendment. However, the Proposed Project area contains an abundance of woody vegetation species, including mesquite trees (*Prosopis sp.*), which is not conducive to preferred lekking and nesting habitat. To hasten post-construction reclamation of disturbed soils and mitigate for Lesser prairie chicken habitat loss, the BLM requires SPS to spread a seed mixture of sand/shinnery specific seed mix within the Lesser prairie chicken mapped isolated population area. Additionally, the Proposed Project is located 86.3 miles south of the BLM mapped Primary Population Area, 68.0 miles south of the Core Management Area, and 55.3 miles south of Sparse and Scattered Population Area. No known leks within or in proximity to the proposed project area were identified by the BLM during project planning. In addition, the Western Association of Fish and Wildlife Agencies maps potential Lesser prairie chicken habitat using the Crucial Habitat Assessment Tool ("CHAT"). The Proposed Project is primarily located outside of mapped CHAT habitat, except for the eastern terminus where a small portion of the Proposed Project intersects CHAT 3 modeled habitat. The Proposed Project is approximately 78 miles south of the CHAT 1 Focal Area, which is comprised of the focal areas for Lesser prairie chicken conservation. The Proposed Project is not likely to contribute to a trend toward federal listing or loss of viability of the species due to the likelihood of nest absence from existing disturbance and woody vegetation species, as well as the ability to conduct pre-construction nest surveys to avoid impacting nests.

Scheer's beehive cactus is designated as a BLM sensitive species and as endangered by the State of New Mexico. Nine Scheer's beehive cactus were observed during the 2019 biological survey, and SWCA conducted presence/absence surveys per the BLM's survey requirements. SPS and SWCA biologists coordinated with the BLM to avoid suitable habitat to the greatest extent possible. It is anticipated that there will be no direct impacts to Scheer's beehive cactus. The Proposed Project may impact potential habitat for this species but is not likely to contribute to a trend toward federal listing or loss of viability of the species due to lack of individual occurrence confirmed within the project area for this species.

Tharp's blue-star is designated as a BLM sensitive species and is listed as endangered by the State of New Mexico. The Proposed Project also intersects BLM-delineated potential habitat for the species; however, no Tharp's blue-star were observed during the 2019 biology survey, including the presence/absence surveys conducted per the BLM's survey requirements. SPS and SWCA biologists coordinated with the BLM to avoid suitable habitat to the greatest extent possible. The Proposed Project may impact potential habitat for this species, but it is not likely to contribute to a trend toward federal listing or loss of viability of the species due to the absence of Tharp's blue-star during the presence/absence surveys.

Texas horned lizard is designated as a BLM sensitive species. Two Texas horned lizards were observed during the 2019 biological survey of the Proposed Project area. Texas horned lizards within the proposed project area could move to adjacent habitat to avoid disturbance. In addition, structure hole mitigation as outlined below would help prevent mortality due to entrapment. The Proposed Project may impact individuals or habitat of Texas horned lizards but is not likely to contribute to a trend toward federal listing or cause a loss of viability to the population or species due to routing the Proposed Project to parallel existing disturbance associated with oil and gas activities to limit habitat fragmentation and avoiding entrapment from structure holes during construction.

The monarch butterfly is designated as a BLM sensitive species. The species was observed during the 2019 biological survey of the Proposed Project area. The Proposed Project is within a migration corridor for this species but lacks foraging habitat for this species due to the absence of flowering plants.

For burrowing owls, localized loss of burrows may occur as a result of vegetation removal and ground-disturbing activities. To minimize impacts to burrowing owls, a suite of avoidance and minimization methods would be used. For example, if construction during the migratory bird season (March–August) needed to occur, SPS would be required to conduct nest surveys to identify the possibility of burrowing owls nesting in or adjacent to the project area. If any nests are discovered, a 200-meter (656-foot) avoidance buffer would be established around any active nest burrow until the young have fledged. Any occupied nest burrows detected prior to construction would also be spot checked for nesting activity if construction occurs during the migratory bird season. In accordance with the POD, SPS would also have a biological monitor during construction near occupied burrows. Because of these measures, no long-term impacts to the species or its habitat are anticipated from the Project nor would the Proposed Project be likely to contribute to a trend towards federal listing or cause a loss of viability to the population or species.

The Texas hornshell mussel is unlikely to occur in the Proposed Project area since disturbance associated with the Proposed Project would occur outside of the FEMA flood zone and will not directly impact the Pecos River. Additionally, the Proposed Project area is within Candidate Conservation Agreement Zone D, which does not include habitat occupied by this species.

Therefore, no direct impacts to this species would occur as a result of the Proposed Project. Construction associated with the Proposed Project is not anticipated to directly or indirectly impact the Pecos River from the implementation of mitigation measures located in the POD, in addition to erosion control and drainage mitigations in Section 3.4, and Appendix D of the EA. Therefore, the determination of effect under Section 7 of the ESA would be "No Effect" to this species or its associated habitat. *See* Section 3.7.9 in Appendix A of the EA for additional details.

Wright's waterwillow, is listed as BLM sensitive. Prior to the biological surveys, representatives from the BLM CFO provided photos and calibration points for SWCA staff to reference. SWCA biologists then visited these locations and were able to correctly identify this species in the field. No Wright's waterwillows were observed within the Proposed Project area during the species-specific survey.

Other measures to protect special status species are described in Section 3.5.5 of the POD and in Section 3.5 of the EA. After construction, the Project area would be reclaimed with a BLM-prescribed seed mix. Reclamation of the disturbed ROW is expected to return those affected areas to herbaceous production within 2 years after construction. While impacts to special status species would result from actions that alter habitats, no significant long-term impacts to special status species are anticipated.

Q. Please describe the EA's evaluation and determination of the potential impacts of the Proposed Project on Cultural Resources (*see* Section 62-9-3(M)(5) and Rule 592.10(H) (i.e., cultural, historic, religious)?

A. Section 3.7 of the EA addresses the potential environmental impacts on cultural resources and mitigation measures required to avoid impacts to cultural resources identified within the Proposed Project area. The cultural resources report identified nine eligible or undetermined cultural sites that are not avoided by the proposed project or are within 100 feet of potential ground disturbance. Of these, four sites are recommended for monitoring and five sites are recommended for data recovery or testing. The details of mitigation and monitoring would be described in a detailed treatment plan SWCA prepared for the BLM, which would be reviewed and approved by the New Mexico SHPO and other interested parties. This plan includes the methods, protocols, and requirements for data recovery, construction monitoring, and testing to avoid, minimize, or mitigate impacts to cultural resources.

In addition to the analysis done in the EA, the BLM ID Team will identify whether the Proposed Project will impact any Native American religious sites or traditional cultural properties ("TCP"), prevent access to sacred sites, prevent the possession of sacred objects, or interfere with or hinder the performance of traditional ceremonies or rituals. The BLM is responsible for initiating tribal consultation for the Proposed Project. The BLM identification efforts for Native American religious concerns would include a review of existing published and unpublished literature, the site-specific Class III survey reports prepared for the Proposed Action, and the BLM's cultural resources program regarding the presence of TCPs identified through ongoing BLM tribal consultation efforts. The BLM has not yet determined if the Proposed Project would impact any known TCPs, prevent access to sacred sites, prevent the possession of sacred objects, or interfere with or hinder the performance of traditional ceremonies and rituals pursuant to the American Indian Religious Freedom Act of 1978 (42 U.S.C. 1996) or EO 13007 and consequently if further study of Native American Religious Concerns was needed

Q. Please describe the EA's evaluation and determination of the potential impacts of the Proposed Project on Visual Resources (*see* Section 62-9-3(M)(5) and Rule 592.19(H))?

A. Because the BLM is responsible for managing public lands for multiple uses while ensuring that the scenic values of public lands are considered before authorizing actions on public lands, it has developed a visual resource management ("VRM") system specific to the BLM. The VRM system classifies land based on visual appeal, public concern for scenic quality, and visibility from travel routes or other key observation points ("KOP"). The system is based on the premise that public lands have a variety of visual values, and these values mandate different levels of management.

The EA addressed the potential environmental impacts on visual resources, which include the natural and human modified landscape. The existing visual quality in the vicinity of the Proposed Project area is influenced by the presence of roads, oil and gas development, existing power lines, and highway corridors. Two KOPs were identified in the Project area located along the Pecos River (KOP 1) and from a BLM lease road (KOP 2). The landscape surrounding this KOP 1 is relatively flat with slightly rolling hills in the background. This KOP was selected to represent the viewshed from human eye level height at the bank of the Pecos River where recreationists may be present. Contrast to line would be strong, as it is a new linear element on the landscape. Depending on the lighting conditions, some reflectivity would create a moderate contrast from color. The proposed structures and lines are located in VRM IV where the level of change to the characteristic landscape can be high, and therefore meet management objectives with the mitigation proposed in the EA. The landscape surrounding this KOP 2 is relatively flat land. This KOP was identified to represent the view of the casual observer within the VRM II zone corridor for the Pecos River. This KOP is the nearest accessible point from a vehicle, to the project area. The change from the Proposed Project would be the introduction of new a linear element in the distance. The proposed structures and lines are in VRM IV where the level of change to the characteristic landscape can be high, and therefore meet management objectives with the mitigation proposed in the EA.

Q. Please summarize your conclusions regarding the Proposed Project's potential impacts on important environmental values under Section 62-9-3(F) as defined by Sections 62-9-3(M) and Rule 592.10(H)?

A. As discussed earlier in this section, the EA analyzes and evaluates the potential impacts of the Project on the important environmental values and underlying factors identified in Section 62-9-3(M) and Rule 592.10(H). Based on the resource evaluations in the EA and the supporting technical reports prepared for the Project, as well as the environmental protection measures enforced as conditions of approval for the BLM ROW grants and my own personal knowledge of the project area, I have concluded that the Proposed Project will not unduly impair any important environmental values in accordance with Section 62-9-3(F). Accordingly, it is my opinion that the Proposed Project satisfies the requirements for location approval under Section 62-9-3 and Rule 592.10.

Q. Does this conclude your pre-filed direct testimony?

A. Yes.

VERIFICATION

On this day, April 8, 2020, I, Alexandria M. Simons, swear and affirm under penalty of perjury under the law of the State of New Mexico, that my testimony contained in Direct Testimony of Alexandria M. Simons is true and correct.

/s/ Alexandria M. Simons
ALEXANDRIA M. SIMONS

United States Department of the Interior
Bureau of Land Management

Environmental Assessment DOI-BLM-NM-P020-2019-xxxx-EA

***Southwestern Public Service Company, Inc.
China Draw – Phantom – Roadrunner 345-kV
Transmission Project,
Eddy and Lea Counties, New Mexico***

BLM Serial No. NM-139666

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January 2020

Confidentiality Policy
Any comments, including names and street addresses of respondents, you submit may be made available for public review. Individual respondents may request confidentiality. If you wish to withhold your name or street address from public review or from disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your written comment. Such requests will be honored to the extent allowed by law. All submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be made available for public inspection in their entirety.

BLM

It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

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LIST OF ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
AMS	Analysis of the Management Situation
APLIC	Avian Power Line Interaction Committee
AUM	animal unit month
BISON-M	Biota Information System of New Mexico
BLM	Bureau of Land Management
BSR	biological survey report
CAA	Clean Air Act
CCA	Candidate Conservation Agreement
CEHMM	Center of Excellence for Hazardous Materials Management
CFO	Carlsbad Field Office
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
COA	condition of approval
CWA	Clean Water Act
EA	environmental assessment
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act of 1973
FEMA	Federal Emergency Management Agency
FLPMA	Federal Land Policy and Management Act
GHG	greenhouse gas
GIS	geographic information system
HAP	hazardous air pollutant
HUC	Hydrologic Unit Code
IM	Instruction Memorandum
IPCC	Intergovernmental Panel on Climate Change
ISO	Independent System Operators
kV	kilovolt(s)
MBTA	Migratory Bird Treaty Act
MOU	Memorandum of Understanding
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NATA	National Air Toxics Assessment
NEPA	National Environmental Policy Act of 1969
NHD	National Hydrography Dataset
NHPA	National Historic Preservation Act of 1966
NMAAQS	New Mexico Ambient Air Quality Standards

NMED	New Mexico Environment Department
NMOSE	New Mexico Office of the State Engineer
NMPM	New Mexico Principal Meridian
NO_2	nitrogen dioxide
NO_x	nitrogen oxide(s)
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWP	Nationwide Permit
O_3	ozone
OHWM	ordinary high-water mark
PA	Programmatic Agreement
Pb	lead
PFYC	Potential Fossil Yield Classification
$PM_{2.5}$	particulate matter equal to or less than 2.5 microns in diameter
PM_{10}	particulate matter equal to or less than 10 microns in diameter
POD	Plan of Development
project	China Draw – Phantom – Roadrunner 345-kV Transmission Project
RMP	Resource Management Plan
RMPA	Resource Management Plan Amendment
ROD	Record of Decision
ROW	right-of-way
RTO	regional transmission organization
SF-299	Standard Form 299
SLO	New Mexico State Land Office
SO_2	sulfur dioxide
SPP	Southwest Power Pool
SPS	Southwestern Public Service Company, Inc.
SWCA	SWCA Environmental Consultants
TCP	traditional cultural property
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VRM	Visual Resource Management
Xcel	Xcel Energy, Inc.

1 PURPOSE AND NEED FOR ACTION

1.1 Background

Southwestern Public Service Company, Inc. (SPS), a subsidiary company of Xcel Energy Inc. (Xcel), has submitted a Standard Form 299 (SF-299) Application for the Transportation and Utility Systems and Facilities on Federal Lands to the Bureau of Land Management (BLM) Carlsbad Field Office (CFO) for the China Draw-Phantom-Roadrunner 345-kV Electric Transmission Line Project (Proposed Action, or proposed project). SPS proposes to construct, operate, and maintain 42.2 miles of a single-circuit alternating current, 345-kilovolt (kV) overhead electric transmission line, located in Eddy and Lea Counties, New Mexico. This proposed transmission line will connect to two previously permitted substations and an existing SPS owned substation: the China Draw Substation (NMSL #BL-2109), the Phantom Substation (NM-140398), and the Roadrunner Substation (located on SPS-owned land), respectively. New substation infrastructure will be built as part of the proposed project at the Phantom Substation site.

A ROW permit for the Phantom Substation site was granted as NM-140398 and a NEPA analysis for the existing Phantom Substation was completed under EA-2020-0123. The proposed project would connect to new substation infrastructure within the 23-acre Phantom Substation footprint analyzed under EA-2020-0123. In addition to the analysis of the 23-acre Phantom Substation (NM-140398), the Proposed Action herein analyzes the impacts of the footprint required for the 345kV transmission line and new 345kV substation infrastructure within the 23-acre Phantom Substation footprint. The proposed project's western terminus is located approximately 15.5 miles south of Loving, New Mexico (Figure 1.1).

The applicant's objective is to interconnect the two previously permitted electrical substations and the existing SPS substation, transport electricity, and serve the public's growing energy needs in southeast New Mexico. The proposed project would consist of a permanent 150-foot-wide linear right-of-way (ROW), including downline access, three off-ROW access roads, one improved access road, three temporary-use laydown yards, and 21 additional temporary workspaces for pull pockets and tensioning sites. In addition, SPS is requesting a 200-foot-wide ROW at the Pecos River crossing between Structures 30 and 31 for construction purposes (see Figure C.3 in Appendix C for more details). The proposed project would access as much of the existing road infrastructure as possible.

The proposed project ROW would cross lands administered by the BLM (23.1 miles), lands managed by the New Mexico State Land Office (SLO) (18.9 miles), and SPS-owned lands (0.2 mile) in Eddy and Lea Counties, New Mexico. The BLM-assigned case file number for the proposed project is **NM-139666**.

- **The total permanent ROW acreage on BLM lands is 427.8 acres. However, the total permanent ROW disturbance acreage on BLM lands is 78.7 acres.**

The BLM would serve as the lead federal agency for the undertaking. The legal land description (New Mexico Principal Meridian [NMPM]) for the permanent ROW is provided in Appendix E.

SWCA Environmental Consultants (SWCA) performed a general biological survey of the proposed project on March through December 2019. The results of the biological survey are detailed in Chapter 3 below and within the Biological Survey Report (BSR) in Appendix A (Makarewicz and Simons 2019). Additionally, a species-specific survey for Scheer's beehive cactus (*Coryphantha robustispina* var. *scheeri*), Tharp's blue-star (A*msonia tharpii*) and Wright's waterwillow (*Justicia wrightii*) was conducted on April through October 2019. Results of the surveys are detailed in Chapter 3. The purpose of the biological survey was to evaluate the potential for special-status species to occur and to identify habitat communities for special-status species regulated by the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the Endangered Species Act of 1973 (ESA) and migratory bird nests protected by the Migratory Bird Treaty Act (MBTA). The survey also documented all potentially jurisdictional surface water features.

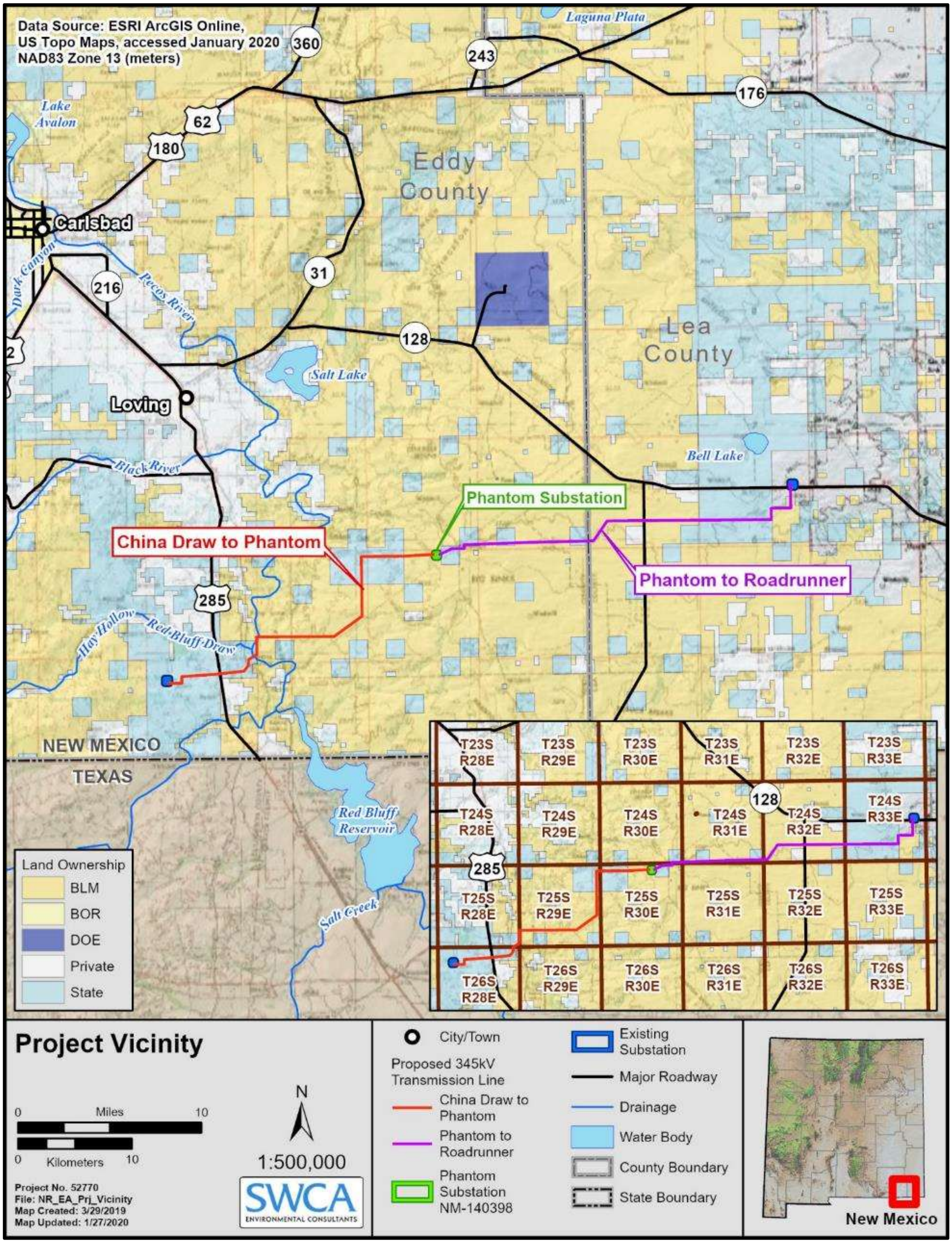

Figure 1.1. Project vicinity map.

As part of the application process, a Plan of Development (POD) is required and has been prepared (SPS and SWCA 2019). The appropriate information from the POD has been incorporated into the Proposed Action of this environmental assessment (EA). A portion of the proposed project area falls within the Permian Basin Programmatic Agreement (PA); however, the width of the ROW is outside the threshold to utilize the Permian Basin PA. SWCA conducted a Class I search and Class III cultural resources inventory surveys (New Mexico Cultural Resource Information System Activity No. 143954) for the full proposed project area March 6 through September 3, 2019 (Murray et al. 2019). An Addendum to the Class III cultural resources survey was completed on November 12, 2019 (New Mexico Cultural Resource Information System Activity No. 144600) for the portion of the proposed ROW crossing the Pecos River (Kendrick 2019). These surveys are designed to meet, but not be limited to, the requirements detailed in *BLM Manual Supplement H-8100-1 New Mexico, Oklahoma and Texas: Procedures for Performing Cultural Resource Fieldwork on Public Lands in the Area of New Mexico BLM Responsibilities* (BLM 2002). The authority for these standards comes in part from Section 106 of the National Historic Preservation Act of 1966 (NHPA), the Antiquities Act of 1906, and the Historic Sites Act of 1935, along with all additional federal and state laws for preserving and protecting cultural resources. The results of these surveys are on file with the BLM CFO and the SLO (Murray et al. 2019).

This EA complies with the requirements of the National Environmental Policy Act of 1969 (NEPA) and federal regulations found in 40 Code of Federal Regulations (CFR) Chapter V. This EA analyzes the site-specific impacts associated with the Proposed Action, identifies mitigation measures to potentially reduce or eliminate those impacts, and provides agency decision makers with detailed information with which to approve or deny the Proposed Action or an alternative. This EA analysis assumes the BLM CFO's standard conditions of approval (COAs) would apply (BLM 1997:Appendix 2).

Xcel serves its customers throughout the United States through the electrical system of its operating company SPS, which is a member of the Southwest Power Pool (SPP), a regional organization that combines the electrical systems of its members to provide reliable, cost-efficient, and equitable electrical service to customers within its service territory. The SPP is one of nine independent system operators/regional transmission organizations (ISOs/RTOs) and one of eight North American Electric Reliability Corporation Regional Entities. The SPP is mandated by the Federal Energy Regulatory Commission to ensure reliable supplies of power, adequate transmission infrastructure, and competitive wholesale prices of electricity. ISOs/RTOs are the "air traffic controllers" of the electric power grid. ISOs/RTOs do not own the power grid; they independently operate the grid minute-by-minute to ensure that power gets to customers and to eliminate power shortages (Southwest Power Pool 2019).

1.2 Purpose and Need for Action

The BLM's purpose is to respond to SPS's request for legal use of and access across BLM-managed public lands by granting SPS a ROW Grant for the proposed transmission line and associated infrastructure. As stated in 43 CFR 2801.9, a BLM ROW grant is required for use of public lands for "systems or facilities over, under, on, or through public lands," including electric transmission lines. The BLM's mandate for multiple uses of public lands includes development of energy transmission in a manner that conserves the multitude of other resources found on public lands. The need for the BLM's action is established by the Federal Land Policy and Management Act (FLPMA) and is to respond to an application for a ROW grant by evaluating the application for use of federal land for construction of one 345-kV transmission line and associated components and substation infrastructure on federal land. The BLM would consider the application in accordance with 43 CFR 2800, Rights-of-Way under FLPMA, and the Energy Policy Act of 2005.

1.3 Decision to Be Made

The BLM will decide whether to issue the subject ROW grant and, if so, under what terms and conditions.

1.4 Conformance with Applicable Land Use Plan(s)

The Proposed Action is in conformance with the 1988 BLM Carlsbad Resource Management Plan (RMP) (BLM 1988), as amended by the 1997 Carlsbad Approved Resource Management Plan Amendment (RMPA) (BLM 1997). The 1988 RMP, as amended, provides for the integrated multiple use and sustained yield of resources for the planning area. The 1997 RMPA, while not directly applicable as it was designed for fluid mineral development and management, does provide conditions of approval for overhead power lines (BLM 1997:Appendix 2). After review, the BLM has determined that the Proposed Action conforms to the land use plan terms and conditions as required by 43 CFR 1610.5.

Name of Plan: 1988 Carlsbad Resource Management Plan
Date Approved: September 1988
Decision: "…public lands are available for utility and transportation facility development; however, applicants will be encouraged to locate new facilities within the designated ROW corridors. Deviations from designated corridors may be permitted based on the type and need of the proposed facility, and lack of conflicts with other uses" (BLM 1988:9).
Name of Plan: 2008 Special Status Species Record of Decision and Resource Management Plan Amendment—to address management of the lesser prairie-chicken (*Tympanuchus pallidicinctus*) and the dunes sagebrush lizard (*Sceloporus arenicolus*)
Date Approved: April 2008

Decision: "New projects of the type described above [utility corridors for major projects such as interstate electric transmission lines; pipelines; and communications lines for interstate use] that propose to cross the Planning Area would be evaluated based on the impacts to lesser prairie-chicken and sand dune lizard habitats and other resources to meet the overall objectives of this plan. These projects would not be located in ROW avoidance areas if other routes can meet the purposes of the project" (BLM 2008a:2–13).

Approximately 70.9 acres of the proposed project are located within the lesser prairie-chicken isolated population area. The ROW would be granted only after site-specific analysis (BLM 2008a:6). Site-specific impacts associated with the proposed project are analyzed and disclosed in this EA; specifically, impacts on special-status species, are discussed below (see Section 3.5 and Appendix A). Appendix 2 of the Carlsbad Approved RMPA and Record of Decision (ROD) (BLM 1997:Appendix 2:8-9) and the 2008 RMPA and ROD (BLM 2008a:6-7) describe COAs and mitigation measures for overhead transmission lines. The Proposed Action is not located in a ROW avoidance area. Therefore, the Proposed Action is in conformance with the RMP, as amended.

1.5 Relationship to Statutes, Regulations, or Other Plans

Various federal and state agencies regulate different aspects of electric power transmission projects. Table 1.1 lists the environmental permits and approvals that could be required for the proposed project.

Table 1.1. Potential Permits, Approvals, and Clearances Needed for Construction, Operation, and Maintenance of the Proposed Project

Permit/Notification	Issuing Agency	Status
Federal Permit, Approval, or Clearance		
Application for Transportation and Utility Systems and Facilities on Federal Lands (ROW grant)	BLM	Subject of the SF-299 and this EA; being processed under BLM ROW serial number NM-139666.

Permit/Notification	Issuing Agency	Status
Clearance under Section 7 of the Endangered Species Act	USFWS	A general biological survey was conducted in March, April, August, and October 2019. Findings are described in Chapter 3 and Appendix A. The BLM would determine what form of consultation with the USFWS is warranted for this project.
Migratory Bird Treaty Act of 1918 (16 United States Code 703–712)	BLM	The BLM has not identified any requirements for MBTA compliance other than the biological survey to document nests and activity. Nine active passerine nests, 180 inactive passerine nests, three active raptor nests, 11 inactive raptor nests and two active burrowing owl burrows were observed during the 2019 biological survey of the proposed project area. SPS has committed to performing pre-construction nesting surveys ahead of any vegetation clearing during the nesting season to avoid harm to nesting birds or their eggs. In addition, SPS would comply with the Avian Power Line Interaction Committee's (APLIC's) guidelines (APLIC 2012) to minimize injury and mortality to bird species from the proposed project.
Clean Water Act (CWA) Section 402 General Construction (Stormwater) Permit	U.S. Environmental Protection Agency and New Mexico Environment Department (NMED)	The permit would be obtained prior to construction under the U.S. Environmental Protection Agency's Construction General Permit.
CWA Section 404 Permitting Discharges of Dredge or Fill Material into Waters of the U.S. (including wetlands)	U.S. Army Corps of Engineers	Field investigations were conducted in March, April, and August 2019, and 35 potential jurisdictional water features and one jurisdictional water feature, the Pecos River, were identified within the proposed project area. Findings are described in Section 3.2 and Appendix D. Therefore, the proposed project has been designed to conform with the general and regional conditions outlined within Nationwide Permit (NWP) 12 (Utility Line Activities) and NWP 14 (Linear Transportation Projects) under Section 404 of the CWA.
State Permit, Approval, or Clearance		
SLO ROW Permit	SLO	Application submitted; ROW pending

Permit/Notification	Issuing Agency	Status
CWA Section 401 Water Quality Permit	NMED	Field investigations were conducted in March, April, and August 2019, and 35 potential jurisdictional water features and one jurisdictional water feature, the Pecos River, were identified within the proposed project area. Findings are described in Section 3.2 and Appendix D. Therefore, SPS would comply with the water quality standards outlined in NWP 12 (Utility Line Activities) and NWP 14 (Linear Transportation Projects) under Section 401 of the CWA.
Clean Air Act New Mexico Air Quality Control Act	NMED	Impacts to air quality are described in Section 3.1. No NMED new source permit or Notice of Intent is required for facilities emitting less than 10 tons per year of any criteria pollutant; therefore, the Proposed Action is in compliance with the No Permit Required regulation (NMED 2019).
Section 106 of the NHPA	State Historic Preservation Office	A cultural resources survey was conducted between February 2019 and August 2019 for the proposed project, and the results are described in Section 3.7. Any consultation with the State Historic Preservation Office would be managed by the BLM.
Tribal communications: consultation to determine if the proposed project would impact receptors of cultural importance	Native American tribes	Any consultation with Native American tribes would be managed by the BLM.
Access permit or public highway utility accommodation permit	New Mexico Department of Transportation	Discussions with the New Mexico Department of Transportation regarding the location of the proposed project and access locations are underway.

1.6 Scoping, Public Involvement, and Issues

Appropriate scoping helps identify issues, resources, and resource uses that could be impacted, reducing the chances of overlooking a potentially significant issue or reasonable alternative. Scoping takes place internally within the BLM via meetings with resource specialists. Resource issues identified for the proposed project are listed in Table 1.2. No formal public scoping has occurred for the proposed project.

Table 1.2. Resource Issues Identified for the Proposed Project

Resource/Issue	Issue for Detailed Analysis
Air Resources	How would the proposed project impact air quality, especially during construction of the proposed project?
Watersheds and Drainages	How would the proposed project affect surface water resources, including drainages and playas? How would the proposed project affect the Federal Emergency Management Agency flood zones intersecting the project area?
Soils	How would the surface disturbance associated with the proposed project affect sensitive soils?

Resource/Issue	Issue for Detailed Analysis
Vegetation and Invasive Non-native Species	How would the proposed project affect vegetation? How would the proposed project minimize the spread of invasive non-native species?
Wildlife and Special-Status Species	How would the proposed project and associated noise impacts affect habitat for wildlife and migratory birds? How would the proposed project and associated noise impacts affect special-status species, particularly the lesser prairie-chicken, with the potential to occur in the proposed project area?
Karst Resources	How would the proposed project affect karst resources?
Cultural Resources and Native American Religious Concerns	How would surface-disturbing activities affect cultural resources? Are any traditional cultural properties affected by the proposed project?
Paleontological Resources	How would the proposed project impact paleontological resources, such as fossils?
Livestock Grazing	How would the proposed project impact livestock grazing in the vicinity of the proposed project?
Visual Resources	A portion of the proposed project area is within Visual Resource Management (VRM) Class II. How would the proposed project affect the VRM classification?

Resource issues considered by the BLM for potential impacts from the proposed project and then dismissed from further analysis in this EA are listed in Table 1.3 with rationale for the dismissal.

Table 1.3. Resource Issues Considered but Not Analyzed in Detail for the Proposed Project

Resource/Issue	Rationale for Dismissal from Detailed Analysis
Mineral Development	SPS would not develop minerals, including excavated material to build the transmission line structure foundations. In addition, SPS routed the project to avoid active caliche pits; therefore, mineral development is dismissed from analysis.
Special Designations and Recreation Areas	There are no special designations crossed by the proposed project. The Pecos River Corridor Special Management Area is located approximately 0.2 mile north and south of the western portion of the proposed project area and the Pecos River\Canyons Complex Special Management Area is located approximately 0.4 mile north of the east–west portion of the proposed project area.
Socioeconomic Conditions	The small number of jobs created and the temporary status of those jobs do not warrant detailed analysis in this EA.
Environmental Justice	No environmental justice population, as defined by Executive Order 12898 (U.S. Environmental Protection Agency 2015), would be affected by the proposed project.
Groundwater Resources	Average groundwater depth for a water well in similar terrain near the proposed project is approximately 78 feet below the land surface (New Mexico Office of the State Engineer 2016). The structure foundations would range in depth from 20 feet to 30 feet below the land surface; therefore, the proposed project is not expected to impact groundwater and further analysis is not warranted.

Resource/Issue	Rationale for Dismissal from Detailed Analysis
Public Health and Safety	No residential or community infrastructure is present near the vicinity of the Proposed Action. Hazardous materials are typically not used or stored on the proposed ROW. Construction noise including utilization of heavy machinery was analyzed and determined to be temporary and insignificant. Auditable noise levels during the operation of the proposed transmission and electrical substation would not exceed 55dBA (Simons 2019). All laws and regulations around handling of any fuels or trash and operational noise levels would be adhered to. Therefore, these issues are not analyzed in detail.

2 PROPOSED ACTION AND ALTERNATIVE

2.1 Proposed Action

SPS proposes to construct, operate, and maintain one 42.2-mile 345-kV electric transmission line interconnecting the China Draw substation (NMSL-#BL-2109), new substation infrastructure at Phantom substation (NM-140398), and the SPS owned Roadrunner substation located on New Mexico State Land, BLM land, and SPS private land, respectively.

The proposed project will include three laydown yards, 21 pull pockets, one downline access road, and one off-ROW access road outside of the ROW corridor (see Figures C.1–C.19 in Appendix C). In addition, the proposed project would require the use of approximately 7.9 acres within the 23-acre Phantom Substation footprint (NM-140398) for the 345kV electric transmission line and associated substation infrastructure.

The acreage associated with the entire 150-foot ROW, including the portions of the ROW that would not be disturbed during construction, and components of the project area outside of the 150-foot ROW corridor are included in Table 2.1. The acreage associated with the surface disturbance from construction activities and analyzed for resource impacts in Chapter 3 are included in Table 2.2. Approximately 31 percent of the total ROW would be disturbed during construction associated with the Proposed Action.

Table 2.1. Total Acres of Proposed Action Components by Land Ownership

Project Element	Land Ownership	ROW (acres)
42.2-mile 345-kV Transmission Line 150-foot-wide ROW corridor	BLM (23.2 miles)	419.3
	SLO (18.9 miles)	344.8
	Private (0.2 mile)	4.1
Subtotal:		***768.2***
345-kV Transmission Line interconnection and substation infrastructure footprint within Phantom Substation (860 x 400)	BLM	7.9
Subtotal:		***7.9***
Brantley Laydown Yard (1,368' ×831')	Private	25.7
North Option Laydown Yard (1,023' × 1019')	BLM	23.9
South Option Laydown Yard (1,581' × 646')	BLM	24.0
Subtotal:		***73.6***
21 Pull Pockets (Variable in size)	BLM	17.6
	SLO	23.8
	Private	2.1
0.2-mile Off-ROW Access Roads (852' × 30')	SLO	0.6

Project Element	Land Ownership	ROW (acres)
Two 0.5 mile Off-ROW Access Roads (286’ x 30’ and 502’ x 30’)	BLM	0.5
Subtotal		***44.6***
Total Sum of Components		**894.3**
Deduction for Overlapping Components		***-8.8***
Total Acreage of Proposed ROW		**885.5**

Table 2.2. Proposed Action Disturbance Acreage

Project Element	Land Ownership	Long-Term Disturbance (acres)	Short-Term Disturbance (acres)	Total Disturbance (acres)
H-Frame Structure Pads (Quantity: 213)	BLM	0.3	-	0.3
	SLO	0.3	-	0.3
	Private	<0.01	-	<0.01
Three-Pole Structure Pads (Quantity: 21)	BLM	0.1	-	0.1
	SLO	0.1	-	0.1
	Private	0.01	-	0.01
Within-ROW and Off-ROW access roads	BLM	70.4	14.0	84.4
	SLO	57.8	11.5	69.3
	Private	0.6	0.2	0.8
345-kV transmission line interconnection and substation infrastructure footprint within Phantom Substation	BLM	7.9	-	7.9
Brantley Laydown Yard	Private	-	25.7	25.7
North Laydown Yard	BLM	-	23.9	23.9
South Laydown Yard	BLM	-	24.0	24.0
21 Pull Pockets and Staging Areas	BLM	-	23.8	23.8
	SLO	-	17.6	17.6
	Private	-	2.1	2.1
Subtotal:		***137.0***	***142.8***	***280.3***
Deduction of overlapping components				***0.0***
Total Area of Proposed Disturbance Within ROW				**280.3**

2.1.1 Transmission Line Right-of-Way

The 345-kV overhead electric transmission line would require a permanent 150-foot-wide ROW that would interconnect the China Draw substation (NMSL-#BL-2109), Phantom substation (NM-140398), and the SPS owned Roadrunner substation located on New Mexico State Land, BLM land, and land owned by SPS, respectively. The 345-kV overhead electric transmission line would connect to substation infrastructure within the 23-acre Phantom substation footprint (NM-140398). The width of the ROW corridor allows for the minimum clearances required from the high-voltage overhead conductors. The overhead electric transmission line would be supported by steel H-frame structures (Figure 2.1–Figure 2.3 within the POD of Appendix B). SPS would install 213 H-Frame structures and 21 three-pole structures for a total of 234 structures. All transmission structures would be made of self-weathering steel design. Each structure would have hardware to support a bundled single-circuit transmission line, including insulators and electrical high-voltage warning signs. Optical ground wire cable would also be installed for communication purposes. The structure foundation size would vary depending on the type of structure used (see Table 2.2 above).

The average structure heights would range from 100 feet to 150 feet, with a few structures that may be as tall as 175 feet, depending on clearance, topographic conditions, and line design requirements to accommodate spanning (see Figure 2.1–Figure 2.3 within the POD of Appendix B). Typical spans between structures would average 800 feet to 1,200 feet; however, the minimum span between structures is 205 feet and the maximum span between structures is 1,720 feet (located at the Pecos River crossing), resulting in approximately four to six structures per mile. In some situations, longer spans may be necessary, which can reduce ground clearances and require additional vegetation clearing to maintain appropriate electrical clearances. In such instances, taller structures and a wider ROW may be necessary to maintain clearance for "blowout" conditions. During final engineering, conductor clearances may be increased in certain locations to account for site-specific conditions and for safe operation. See Figures 2.1–2.3 within the POD in Appendix B for structure designs.

2.1.2 Substation Infrastructure

SPS proposes to add 345kV transmission line and associated substation infrastructure within the 23-acre Phantom Substation (NM-140398) footprint. The proposed addition to Phantom Substation would include an access road surrounding the 345kV transmission line and associated substation infrastructure. All construction associated with the 345kV transmission line and associated substation infrastructure would occur within the 7.9-acre footprint located within the 23-acre Phantom Substation footprint.

2.1.3 Pull Pockets and Staging Areas

Additional temporary workspaces for pulling and tensioning of the line during construction and temporary staging areas extend beyond the 150-foot ROW corridor boundary (see Table 2.3 within the POD in Appendix B). The pull pockets would extend outside the permanent 150-foot ROW at certain angle structures to ensure safe construction of structures for pulling and tensioning sites. The staging areas would also extend outside of the permanent ROW and would be used for materials and construction equipment storage during the construction phase of the project. Each pull pocket and staging area would vary in size (see Table 2.3 within the POD in Appendix B and Figures C.1–C.19 in Appendix C), extending outward from the centerline in both directions. The pull pockets are needed for angles greater than 20 degrees within the centerline.

2.1.4 Access Roads

SPS's access plan consists of the following types of access road use:

1. Existing roads not needing upgrade would be used to access the ROW and individual structures wherever possible.
2. One existing 2.3-mile road north of the proposed ROW would need upgrading to allow for safe operation for construction equipment, depending on topography and existing road conditions. Existing roads would not be widened and therefore would not create new disturbance. Upgrades would only consist of resurfacing. The maximum road width would be 30 feet.
3. One new downline access road within the ROW would be needed for construction of new facilities, as well as for long-term regular inspection and maintenance activities. These permanent access road segments would be constructed within a 30-foot-wide corridor and would be reclaimed following construction to a 16- to 20-foot running width for long-term operation and maintenance.

After revegetation occurs, these long-term maintenance road segments begin to resemble a two-track. See Table 2.2 above for projected disturbance from access roads.

4. One new access road outside of the ROW is also proposed in the access plan. The off-ROW access road is needed to avoid disturbance to the Pecos River, which is spanned by structures within the permanent ROW corridor. The off-ROW access roads would be constructed within a 30-foot-wide corridor and would be reclaimed to a 16- to 20-foot running width for long-term operation and maintenance. After revegetation occurs, this long-term maintenance road would begin to resemble a two-track. See Table 2.2 above for projected disturbance from access roads.
5. One new access road within the Phantom substation footprint that surrounds the 345kV transmission line and associated substation infrastructure components. The maximum road width would be 30 feet. The disturbance associated with the construction and maintenance of the access road is included within the 7.9-acre footprint required for 345kV transmission line and associated substation infrastructure.

2.1.5 Project Phases

The POD in Appendix B provides details on all phases of the project. The basic proposed project phases are summarized below.

Construction Phase

Construction would begin following approval of the Proposed Action, issuance of the BLM ROW grant, completion of the pre-construction activities described above, and final notice to proceed from BLM. It is estimated that the project would take 12 months to complete. Pre-construction activities, including geotechnical investigation and engineering surveys, would be completed prior to construction. Construction would be conducted in a sequential set of tasks performed by multiple crew types. The construction activities would include access and site preparation, excavation, foundation construction, assembling and erecting structures, stringing conductors and shield wires, testing and commissioning, restoration and cleanup, and site reclamation. See Table 2.2 above for projected acreage of disturbance during construction. See the POD in Appendix B for full description of construction activities.

Operations and Maintenance Phase

Routine maintenance activities are ordinary maintenance tasks that have historically been performed and are regularly carried out on a routine basis, including the replacement of individual structures, components, cables, lines, insulators, and other facilities that, due to obsolescence, age, or wear, are in need of replacement or repair. It is expected that these replacements would be required infrequently (every 5 to 10 years) or as determined by inspection. Major maintenance activities may need to occur on an infrequent basis. These activities would require planning and budgeting in advance and agency coordination.

ROW Renewal or Decommissioning

The proposed project would have a minimum projected operation life of 30 years or longer. A ROW grant issued for 30 years with the option of renewal would be necessary for the operation, maintenance, and decommissioning of the transmission line facilities located on BLM-managed lands. At the end of the ROW grant term (30 years), SPS would have the option to renew the ROW grant past 30 years to continue operation of the line. The terms and conditions in the original ROW grant could be modified for the renewed ROW grant. At the end of the transmission line's useful life the necessary authorizations would be obtained from the BLM Authorized Officer to decommission the project.

2.2 No Action

BLM NEPA Handbook H-1790-1 states that for EAs on externally generated applications, the No Action Alternative generally means the request for the proposed activity would be denied (BLM 2008b:52). This option is provided in 43 CFR 3162.3-1(h)(2). Under this alternative, the application would be denied, and the current land and resource uses would continue to occur in the proposed project area. No mitigation measures would be required.

2.3 Alternatives Considered but Eliminated from Further Analysis

Alternatives to the Proposed Action are developed to explore different ways to accomplish the purpose and need while minimizing environmental impacts and resource conflicts and meeting other objectives of the Carlsbad RMP. Consistent with BLM NEPA Handbook H-1790-1, the agency “need only analyze alternatives that would have a lesser effect than the proposed action” (BLM 2008b:80). Those with greater adverse resource impacts or those that are not feasible because of existing physical constraints or infrastructure are not brought forward for detailed analysis in this EA.

Prior to identifying the proposed route, the BLM and SPS reviewed resource data for previously recorded cultural resources sites, dune areas or sensitive habitats, karst features, hydrological features, and other avoidance areas. SPS then worked to locate the transmission line parallel to existing disturbance or ROWs. Throughout the planning phase, 18 line adjustments were made to the proposed route to avoid existing oil and gas infrastructure, drainages, and playas. The proposed route reflects the total planning efforts to avoid existing infrastructure and environmental resources to the greatest extent possible. Because of the greater impacts to sensitive resources from the previous routing, these options are not brought forward for detailed analysis in this EA.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section is organized by relevant major resources or issues/concerns as presented in Section 1.6 and Table 1.2. On the basis of Council on Environmental Quality guidance and BLM NEPA Handbook H-1790-1, the following discussion is limited to those resources or resource uses that could be impacted to a degree that warrants detailed analysis (40 CFR 1502.15) (BLM 2008b:96) as determined by the BLM interdisciplinary team.

Projects requiring approval from the BLM such as ROWs can be denied when the BLM determines that adverse effects to resources (direct or indirect) cannot be mitigated to reach a Finding of No Significant Impact. Under the No Action Alternative, the proposed project would not be constructed and there would be no new impacts to any elements of the human environment from approval of the proposed project. The No Action Alternative would result in the continuation of the current land and resource uses in the project area and is used as the baseline for comparison of environmental effects of the Proposed Action.

3.1 Air Resources

3.1.1 Affected Environment

Air quality and climate are components of air resources that may be affected by the Proposed Action. Therefore, the BLM must consider potential effects of BLM and BLM-authorized activities on air resources as part of the planning and decision-making process.

Technical information related to air resources and climate change associated with oil and gas development, as well as the methodology and assumptions used for analysis, is summarized in the *Air Resources Technical Report for Oil and Gas Development: New Mexico, Oklahoma, Texas and Kansas* (herein referred to as the Air Resources Technical Report) (BLM 2016). The Air Resources Technical Report lists the National Ambient Air Quality Standards (NAAQS) (BLM 2016:4–5) and describes the types of data used for description of the existing conditions (BLM 2016:6) and how the pollutants are related to the activities involved in oil and gas development (BLM 2016:7–14). A qualitative overview of air quality and climate is provided in this section.

Air Quality

BLM and BLM-authorized actions are required to comply with the Clean Air Act (CAA) and consider the impacts of these actions to air quality on BLM-managed land.

National Ambient Air Quality Standards

Criteria Pollutants

Under the CAA, the U.S. Environmental Protection Agency (EPA) has the authority to regulate emissions from both stationary and mobile sources. The CAA requires the EPA to establish NAAQS for pollutants considered harmful to public health and the environment. In accordance with the requirement, the EPA has created national standards for seven common air pollutants, also known as criteria pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), ozone (O_3), lead (Pb), particulate matter equal to or less than 10 microns in diameter (PM_{10}), and particulate matter equal to or less than 2.5 microns in diameter ($PM_{2.5}$).

The NAAQS include primary standards that provide for the protection of human health and secondary standards that provide for the protection of public welfare (e.g., visibility, the health of vegetation and animals). The NAAQS are defined in terms of threshold ambient concentrations measured as an average for specified periods of time. Pollutants with acute health effects are assigned short-term standards, and those with chronic health effects are assigned long-term standards. The NAAQS undergo periodic revisions to ensure that emerging science and technology result in the most up-to-date and protective standards achievable (see EPA [2016] for current standards).

Under the provisions of the CAA, states can elect to develop their own ambient air quality standards, and New Mexico has adopted its own standards (New Mexico Ambient Air Quality Standards [NMAAQS]) for CO, NO_2, total suspended particulates, SO_2, hydrogen sulfide (H_2S), and total reduced sulfur (see New Mexico Administrative Code 20.2.3 for current state standards).

Attainment

In accordance with the CAA, the EPA must review air quality conditions reported by states to determine whether states are meeting the national standards for air quality. Areas with ambient concentrations of criteria pollutants within the NAAQS are deemed to be “attainment” areas;[1] conversely, those that do not meet the standards are referred to as “nonattainment” areas.[2] Geographic areas previously designated as nonattainment and subsequently redesignated as attainment as a result of achieving the NAAQS (for a probationary period) are categorized as “maintenance” areas. Areas that cannot be classified on the basis of insufficient data are designated as “unclassifiable.” The designation “attainment/unclassifiable” may be assigned to areas that are lacking sufficient monitoring data but that meet the standard or will soon meet the standard.

The General Conformity Rule

The General Conformity Rule, established under Section 176(c)(4) of the CAA, ensures that federal actions comply with the NAAQS, achieving attainment of these standards. Activities or actions that conform to the rule should not, through additional air pollutant emissions, cause or contribute to new violations, increase the frequency or severity of existing violations, or delay timely attainment or interim emission reductions (BLM 2014a). Essentially, air conformity ensures that air pollution emissions associated with federal actions do not contribute to air quality degradation, which would prevent the achievement of state and federal air quality goals.

The General Conformity Rule requires federal agencies to identify, analyze, and quantify emission impacts of a federal action where the total direct and indirect emissions for criteria pollutants in a nonattainment or maintenance area exceed the NAAQS. If the location of the action is in an attainment area, the General Conformity Rule does not apply (BLM 2014a).

Hazardous Air Pollutants

Hazardous air pollutants (HAPs), also known as air toxins, are pollutants that are produced primarily by human-made sources. These pollutants are known or suspected to cause adverse human health effects, including cancer, as well as negative effects on ecosystems. Humans can come into contact with these toxins through several exposure pathways, including inhalation; ingestion of contaminated food, water, and soil; and dermal contact.

The Air Resources Technical Report discusses the relevance of HAPs to oil and gas development and infrastructure, as well as the particular HAPs that are regulated in relation to these activities (BLM 2016:14–15). The EPA conducts a periodic National Air Toxics Assessment (NATA) that quantifies HAP impacts by county in the United States. The purpose of the NATA is to identify areas in which HAP emissions result in high health risks and further emissions reduction strategies are necessary. A review of the results of the 2014 NATA shows that cancer, neurological, and respiratory risks in Chaves, Eddy, and Lea Counties are not elevated and match statewide and national levels (EPA 2018a).

[1] Note: An area may meet the established NAAQS for one or more criteria pollutants but have unacceptable levels for others. Therefore, an area could be in attainment for one criteria pollutant and simultaneously in nonattainment for another (BLM 2014b).

[2] The EPA has set time limits for nonattainment areas to conform to the NAAQS, and may further designate nonattainment areas as marginal, moderate, serious, severe, or extreme (BLM 2014b).

Existing Air Quality

EPA's Green Book webpage reports that Eddy, Lea, and Chaves Counties are in attainment for all NAAQS, as defined by the CAA (EPA 2018b). In 2011, the CFO contracted with Applied EnviroSolutions to provide an emissions inventory for the CFO planning area, including Chaves, Eddy, and Lea Counties (Applied EnviroSolutions 2011). This information is more detailed than that available from the EPA and is specific to the CFO planning area. Monitored values for criteria pollutants (except CO)[3] from the 2011 emissions inventory also show that the CFO planning area is in attainment with the NAAQS.

The Analysis of the Management Situation (AMS) for the CFO (BLM 2014b) discusses the sources of and the human health and safety concerns associated with criteria pollutants. The air quality analysis documented in the AMS shows that the criteria pollutant of most concern in the planning area is O_3. One county in the planning area, Eddy County, exceeded the 8-hour O_3 standard once in 2002 and once in 2006; however, it did not violate the 3-year rolling average.[4] No other violations of air quality standards have occurred within the planning area. At present, O_3 levels are close to the regulatory limit (BLM 2014b). Other criteria pollutants of concern include nitrogen oxide(s) (NO_x) (including NO_2), SO_2, and particulate matter (PM_{10} and $PM_{2.5}$). CO and Pb emissions are not considered major criteria pollutants in the CFO planning area (BLM 2014b).

Climate

Existing Climate

The planning area is located in a semiarid climate regime typified by dry, windy conditions, limited rainfall, hot summers, and mild winters. Summertime maximum temperatures are generally around 90 degrees Fahrenheit (°F), with occasional temperatures over 110°F (Western Regional Climate Center 2019). Winter minimum temperatures are generally between 20°F and 40°F, with extremes remaining above 0°F. Precipitation is mainly in the form of summer thunderstorms associated with the Southwest monsoon, though occasional Pacific storms drop south into New Mexico during the winter. Table 3.1 presents climate averages for Carlsbad using the most current climate data available (1981–2010) from the National Oceanic and Atmospheric Administration.

Table 3.1. Climate Averages for Carlsbad, 1981–2010

Climate Condition	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature (°F)	42.6	47.2	54.0	62.4	71.5	79.3	81.2	79.9	73.2	62.9	51.5	42.8
Maximum temperature (°F)	57.5	62.7	70.2	78.5	86.9	94.4	94.6	93.1	87.0	78.1	67.1	57.5
Minimum temperature (°F)	27.6	31.7	37.9	46.2	56.0	64.3	67.7	66.6	59.4	47.7	35.8	28.0
Precipitation (inches)	0.47	0.54	0.51	0.64	1.17	1.53	2.01	1.83	2.11	1.16	0.81	0.63

Source: National Oceanic and Atmospheric Administration (2011)

Global Climate Change

Climate change is defined as a non-random change in climate that is measured over a period of decades or longer (National Weather Service 2009). Changes may result from natural or human causes. The most useful indicator of climate change is greenhouse gas (GHG) emissions, which include long-lived emissions such as CO, carbon dioxide (CO_2), nitrous oxide (N_2O), and methane (CH_4), as well as water vapor and other trace gases (BLM 2014b). The 2013 Intergovernmental Panel on Climate Change (IPCC) fifth assessment report states that the atmospheric concentrations of well-mixed, long-lived GHGs have increased to levels unprecedented in at least the past 800,000 years. Further, human influence has been

[3] There are no monitors for CO in the CFO planning area because CO levels are currently not an issue.

[4] When assessing annual emissions for criteria pollutants, a 3-year rolling average accounts much of the year-to-year fluctuations in order to assess yearly trends.

detected in warming of the atmosphere and the ocean, changes in the global water cycle, reductions in snow and ice, global mean sea level rise, and changes in some climate extremes. It is extremely likely (95%–100% probability) that human influence has been the dominant cause of the observed warming since the mid-twentieth century (IPCC 2013).[5]

BLM-authorized activities that produce GHGs include oil and gas production, construction activities, vehicle use, and prescribed fire. These activities generate both CO_2 and CH_4, contributing largely through carbon emissions. The primary source of GHG emissions on BLM-managed land in the planning area is oil and gas production. Some BLM-authorized activities may assist in isolating carbon emissions. For example, vegetation maintenance may help build organic carbon in soils and absorb CO_2 (i.e., a carbon sink) from the atmosphere (BLM 2014b).

3.1.2 Impacts from the Proposed Action

Direct and Indirect Impacts

Air Quality

In 2014, the BLM released an Instruction Memorandum (IM) providing national guidance for the BLM on quantifying air emissions and on the use of air emissions estimating tools (BLM 2014c). The IM stipulates that it may be a useful step, under some circumstances, to estimate air emissions from resource management activities for analysis. However, the IM does not require air emissions to be quantified when preparing NEPA documents for a project in an attainment area, where the emissions would not be estimated to exceed the NAAQS (BLM 2014c).

Criteria for assessing air quality impacts are based on existing regulatory requirements across all applicable jurisdictions. Eddy, Chaves, and Lea Counties satisfy all NAAQS and NMAAQS for monitored pollutants and are classified as attainment areas for those pollutants. These counties are unclassified with regard to those pollutants that are not monitored in those counties (BLM 2014c).[6]

In 2011, The U.S. Department of Agriculture (USDA), U.S. Department of the Interior, and EPA signed a Memorandum of Understanding (MOU) regarding air quality analyses and mitigation for federal oil and gas decisions made through the NEPA process (USDA et al. 2011). The MOU focuses on analyzing and addressing air quality impacts (direct, indirect, and cumulative) associated with federal actions related to on-shore oil and gas planning, leasing, or field development (including exploration, development, and production). The MOU directs air quality modeling to be conducted if specific criteria are met, such as whether the action will result in a Substantial Increase in Emissions (i.e., emissions resulting from the action may cause or contribute to exceedances of the NAAQS) (see Section V.E.3 of the MOU). The Proposed Action is not anticipated to cause a Substantial Increase in Emissions, as defined by the MOU. See the cumulative impact analysis for more information about the contribution of emissions (Section 3.11.1).

Generally, potential impacts to air resources resulting from the Proposed Action include construction emissions (those emissions that are expected to be temporary) and operations-related emissions (those emissions that are expected to occur annually during operation of the Proposed Action). Typical construction-related emissions likely to be produced by the Proposed Action include GHGs, PM_{10}, NO_x, and CO. These emissions are anticipated to result from exhaust from construction vehicles, material movement, and equipment; exhaust from construction worker commuting; fugitive dust from general construction activities and earthmoving; and pipeline sandblasting and coating. Construction emissions would be short-term, lasting only the duration of construction, and would not result in a substantial increase in emissions. These temporary impacts would be negligible and would not cause or contribute to exceedances of the NAAQS.

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[5] The IPCC is currently in its sixth assessment cycle, for which the synthesis report should be finalized in 2022.

[6] As the Proposed Action is not located in a nonattainment or management area, the General Conformity Rule does not apply, and a conformity determination, through the identification, analysis, and quantification of emission impacts of the Proposed Action, is not required.

Operations-related emissions likely to be produced as a result of the Proposed Action include GHGs, CO, volatile organic compounds, and NO_X. These emissions are attributable to aboveground fugitive emissions from operations equipment and to emissions from inspection and maintenance of the equipment (including exhaust from inspection vehicles and aerial inspections, along with fugitive dust from vehicular use of unpaved roads). Fugitive dust emissions may also result from annual maintenance or repair of access roads. Periodic inspection and maintenance activities would occur during the operations phase of the proposed project. Emissions from operations and maintenance associated with the Proposed Action would be minimal and would not result in significant impacts to air resources.

Mitigation Measures

Measures to minimize or eliminate impacts to air quality are described in the standard COAs (BLM 1997:Appendix 2). No further mitigation measures have been recommended.

3.2 Watersheds and Drainages

3.2.1 Affected Environment

Surface Hydrology

The surface water supplies in Lea and Eddy Counties are transitory and limited to quantities of runoff impounded in short drainageways, shallow lakes, and small depressions, including various playas and lagunas (New Mexico Office of the State Engineer [NMOSE] 2016). The proposed project crosses five watersheds as defined by the 10-digit Hydrologic Unit Code (HUC) (Table 3.2). These watersheds are contained within the Lower Pecos and Southern High Plains Basins (NMOSE 2016). There are no New Mexico Outstanding National Resource Waters within the watersheds.

Table 3.2. Watersheds Crossed by the Proposed Project

Watershed Name	HUC-10/ID	Portion of Proposed Project Area within the Watershed (acres)	Total Watershed Size (acres)
Red Bluff Draw	1306001113	19.9	123,808.1
Delaware River–Pecos River	1306001114	108.7	141,817.0
Salt Lake	1306001117	71.1	158,308.9
Rock Lake	1307000704	39.7	146,824.7
Red Hills Draw	1307000105	40.9	145,668.8
Total:		**280.3**	**716,427.5**

The biological survey of the proposed project area was conducted in March through October 2019 to determine the presence of potential waters of the U.S., as defined by the U.S. Army Corps of Engineers, including streams, wetlands, and other special aquatic sites. Defining elements of potential waters of the U.S. include ordinary high-water marks (OHWMs), defined bed and banks, or the three mandatory wetland criteria: hydrophytic vegetation, hydric soils, and wetland hydrology. The presence of playas and vegetated depressions were also investigated during the biological survey according to the BLM CFO's guidance.

Based on review of the U.S. Geological Survey's (USGS's) National Hydrography Dataset (NHD) (USGS 2019) and the USFWS's National Wetlands Inventory (USFWS 2019a), 35 potentially jurisdictional water features and one jurisdictional water feature, the Pecos River, are mapped within the proposed project area (see Figures D.1–D.9 in Appendix D). During the biological survey, it was determined that eight of the 35 NHD lines were ephemeral drainages with discernible OHWMs at the point where they intersected the proposed project area; in addition, 27 non-NHD surface water features were ephemeral drainages containing discernible OHWMs within the proposed project area, totaling 35 ephemeral drainages within the proposed project area (see Table D.1 and Photographs 1–63 in Appendix D). No other jurisdictional surface water features were found during the biological survey of the proposed project area.

The proposed project area intersects one Zone A 100-year flood zone area located between Structures 30 and 31 (Federal Emergency Management Agency [FEMA] 2018) (see Figure D.9. in Appendix D). However, no disturbance would occur within the flood zone area. SPS has planned ROW access and structure locations accordingly to avoid the flood zone area completely. Zone A floodplains represent 100-year floodplains that have a 1% chance of being inundated in a given year (FEMA 2019).

3.2.2 Impacts from the Proposed Action

Direct and Indirect Impacts

Drainages

Of the 35 total ephemeral drainage features documented during survey, 18 would not be impacted from construction activities because no project components are proposed within or adjacent to the drainages (see Figures D.1–D.9, Table D.1, and photographs in Appendix D). Seventeen ephemeral drainages would be impacted by the construction of the off-ROW access road and downline access road.

Four ephemeral drainages would be impacted by the off-ROW access road construction during the construction phase of the proposed project (see Table D.1 and Figure D.9 in Appendix D). SPS would install timber mats within DR-20, DR-21, DR-22, and DR-23 for the width of the access road and would place temporary construction fencing and filter socks on either side of the timber mats to prevent impacts to the ephemeral drainages, including sediment movement downstream of the project area (see Figure D.9, Table D.1, and Photographs 36–41 in Appendix D). The timber mats, construction fences, and filter socks would be removed after construction.

The only remaining impact would be from vehicular traffic during construction of a downline access road. This access road would affect the ephemeral drainages DR-01, DR-05–DR-08, DR-20–DR-23, DR-25–DR-29, and DR-32–DR-35 (see Photographs 1–63 in Appendix D). Access across these drainages would be limited to days when soils are packed and dry. In addition, a third-party environmental monitor would be present during construction of the downline access road to ensure bank stability of any ephemeral drainage and overall physical and biological integrity, including downstream waters. In addition, the monitor would guarantee no vehicle crossings of drainages during a stormwater event to prevent damage. Based on communications with the BLM, SPS identified the crossing location that would incur the least adverse impact to these ephemeral drainages.

SPS would adhere to the general and regional conditions associated with Nationwide Permit (NWP) 12 (Utility Line Activities) and NWP 14 (Linear Transportation Projects), as well as State of New Mexico Water Quality Certification guidelines during and after construction for all impacts to drainages within the proposed project area.

Floodplains

All of the project disturbance areas, such as structure work areas and access roads, were located outside of the mapped FEMA flood zones during the project design phase; therefore, there would be no direct impacts to the flood zones (see Figures D.1–D.9 in Appendix D). The structure work areas located outside of and on the edge of the floodplains would utilize erosion controls as necessary to prevent sediment runoff from entering the floodplain.

The potential to impact water resources primarily lies with the indirect impacts that could occur due to stormwater runoff from construction activities into downstream waters or other aquatic resources. Although indirect impacts from stormwater movement of contaminants or sediment due to ground disturbance could be a possibility, environmental protection measures outlined in the POD, including silt fencing and filter socks, would likely limit movement of contaminants or sediment and limit indirect impacts.

Mitigation Measures

Measures to minimize or eliminate impacts to water resources are described below, in the POD, and in the standard COAs (BLM 1997:Appendix 2). No special mitigation has been identified by the BLM.

- Any water erosion that may occur due to the construction of the access road and transmission line structures during the life of the transmission line would be quickly corrected and proper measures would be taken to prevent future erosion.
- Stockpiling of topsoil is required. The topsoil would be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and would not be used for erosion control.
- SPS would install timber mats within DR-01, DR-05–DR-09, DR-20, DR-22, DR-23, DR-25, DR-28, DR-29, DR-31, DR-33, DR-34, and DR-35, for the width of the access roads. Filter socks and construction fences would be used during construction to avoid impacts to the surface water features described above.
- SPS would use an existing two-track access road to the north of DR-34 to avoid potential impacts.
- Refueling and storing of potentially hazardous materials would not occur within a 100-foot radius of a water body, a 200-foot radius of all identified private water wells, and a 400- foot radius of all identified municipal or community water supply wells.
- If any road crossings are proposed and a culvert is needed, all culverts would be designed and installed to ensure the continued free flow of water, as well as to allow both the upstream and downstream movement of aquatic organisms. These temporary culverts would be removed after construction.

3.3 Soils

3.3.1 Affected Environment

According to the Natural Resources Conservation Service (NRCS) (2019a), 27 soil types are mapped within the 885.5-acre area of proposed project area. However, only 280.3 acres would be disturbed from construction activities. All mapped soil types that intersect the project disturbance area are listed in Table 1 of the BSR within Appendix A.

These soil types are similar in that all of these soil units are considered well-drained to excessively drained soils and are considered non-hydric. Dev-Pima complex, 0 to 3 percent slopes (DP); Pima silt loam, 0 to 1 percent slopes (PM); Reagan loam, 0 to 3 percent slopes (RA); Reagan-Upton association, 0 to 9 percent slopes (RE); Maljamar and palomas fine sands, 0 to 3 percent slopes (MF); and Pyote loamy fine sand (PT) are considered farmland of statewide importance (NRCS 2019a).

Biological soil crusts are important components of the loamy and sandy soils of southeastern New Mexico. These crusts bind soil particles, thereby stabilizing surfaces and reducing erosion. Biological soil crusts in sandy soils are most commonly dominated by early succession cyanobacteria, which are adapted to disturbed conditions or very erodible soils. Loamy soils contain cyanobacteria but may also be colonized by algae, fungi, mosses, squamulose, crustose, and gelatinous lichens. All soil crust organisms enhance soil stability, capture nutrient-rich dust, impact nutrient cycling, contribute organic matter, and influence soil moisture dynamics. In addition, cyanobacteria and cyano-lichens fix atmospheric nitrogen, potentially making this nutrient more available for vascular plants. All of these functions are utilized by and important for sustaining grasses, forbs, and other vascular plants in the project area. These crusts have the potential to exist in most areas where soils are exposed (i.e., not covered by rocks or vegetation). During the 2019 biological survey, no biological soil crusts were observed near of the proposed project area due to previous oil and gas disturbance. An in-depth soil inventory of the entire proposed project area was not conducted.

3.3.2 Impacts from the Proposed Action

Direct and Indirect Impacts

As described in Section 2, a total of 280.3 acres of soil would be disturbed for construction of the proposed project. Direct impacts to soil resources include the loss of soil productivity due to the removal of soils for construction of the proposed substations, access roads, transmission line structures, pull pockets, and laydown yards. These impacts can lead to increased rainfall runoff and susceptibility to high wind events and consequently increased erosion. These direct impacts could result in the loss of soil structure and porosity. Any soil removal associated with development of structure foundations would be permanent for the life of the proposed project, as structure locations would not be recontoured. However, topsoil would be re-spread and the area would be seeded during the reclamation process.

All surface disturbance not needed for operations and maintenance would be stabilized and reclaimed once construction has been completed. Stabilization of soils would be partly dependent upon reestablishing vegetation cover. With sufficient rainfall and proper seeding techniques, vegetation cover by faster-growing plants is expected within 2 years after construction. However, even after the proposed project area is revegetated, it is expected that the vegetation community within the project area would be different than that outside the project area because SPS vegetation management practices for the proposed project require permanent removal of woody vegetation. Therefore, the vegetation community within the project area would be permanently shifted to predominantly grasses and forbs, and woody vegetation would not aid in soil stabilization

Although no biological soil crusts were observed during the 2019 biological survey, the proposed project could impact subsurface biological soil crusts. Indirect impacts to soil resources could include a change in soil productivity due to accidental mixing of topsoil with subsoil during construction. Biological soil crusts are extremely fragile and may be disrupted or destroyed by compressional damage caused by vehicle traffic. Disruption of the biological soil crusts can result in decreased soil crust cover, soil stability, soil nutrient levels, and organic matter, as well as increased susceptibility to erosion and dust emissions. The degree and longevity of the impact of disturbance to crusts largely depend on the type of crusts and soil conditions, with early succession cyanobacteria crusts recovering more quickly from disturbance than late succession moss-lichen crusts (Belnap and Gillette 1997). Estimates of recolonization of biological soil crusts are difficult, as recolonization of soil surfaces is dependent on environmental conditions such as soil moisture, soil fertility, erodibility, and presence of adjacent crust (USGS 2016). As estimates of components of biological soil crusts such as lichens are estimated to take 45 to 250 years within southwest desert environments and initial recolonization is estimated to take at least 20 years, soils within areas of disturbed biological soil crust have increased vulnerability to both wind and water erosion and loss of organic material for this time period (USGS 2016).

Mitigation Measures

Measures to minimize impacts to soils are described below, in the POD, and in the standard COAs (BLM 1997:Appendix 2). No special mitigation has been identified by the BLM.

- Topsoil would be stockpiled to enhance reclamation. The holder would evenly spread the excess soil excavated from pole holes in the immediate vicinity of the pole structure.

3.4 Vegetation and Invasive Non-native Species

3.4.1 Affected Environment

The proposed project area is located within two EPA Level IV ecoregions: Chihuahuan Deserts: Chihuahuan Basins and Playas (422.7 acres), and Chihuahuan Deserts: Chihuahuan Desert Grasslands (462.3 acres) (Griffith et al. 2006). During the biological survey, biologists identified two general vegetation community types within the proposed project area: Chihuahuan desertscrub with intermixed grasslands, and shinnery oak dunes. The proposed project area was composed of approximately 55% Chihuahuan desertscrub with intermixed grasslands, and 45% shinnery oak dunes vegetation associations. Plant species recorded during the biological survey are listed in Table 2 of the BSR in Appendix A. Vegetative cover within and surrounding the proposed project area is approximately 30% to 75%. At the time of the biological surveys, the vegetation communities within and/or surrounding the proposed project area had previous disturbance from existing oil and gas infrastructure, transmission lines, and livestock grazing.

Invasive, Non-native Species

During the biological survey, two State of New Mexico–listed noxious weed species, African rue (*Peganum harmala*) and saltcedar (*Tamarix* sp.), were identified within the proposed project area. The BLM participates in an invasive species monitoring and treatment program in Eddy and Lea County. Based on review of the BLM CFO's noxious weed treatment geographic information system (GIS) shapefile, there are multiple previously mapped noxious weed treatment areas for African rue (*Peganum harmala*) and saltcedar (*Tamarix ramosissima*) that intersect the proposed ROW throughout the proposed project area.

3.4.2 Impacts from the Proposed Action

Direct and Indirect Impacts

Impacts to plant communities and habitats from the construction of the proposed project would include 280.3 acres of direct impacts from vegetation removal. Prior to construction, woody vegetation, such as creosote bush (*Larrea tridentate*) and honey mesquite (*Prosopis glandulosa*), would be removed and chipped. Short-term impacts would occur from the vegetation removal activities during construction and would continue until revegetation of the temporary work areas and the portion of the access roads not needed for operations is achieved, which is estimated to be approximately 2 years after reclamation activities depending on seasonal precipitation. Long-term impacts to vegetation would occur on 129.1 acres for the long-term operation of the transmission lines and access roads.

After construction, the proposed project area would be reclaimed using a BLM-prescribed seed mix. However, even after the proposed project area is revegetated, it is expected that the vegetation community within the ROW would be different than that outside the ROW because of the removal of woody vegetation, except for low-lying shrubs. The vegetation community within the ROW would be permanently shifted to predominantly grasses and forbs. In some areas, reclamation could potentially include species that are not locally native. The community composition of replanted areas would likely be influenced by the species that are initially seeded. The colonization of reclaimed areas by species from nearby native communities could be slow. The establishment of mature, native plant communities may require decades (Monsen et al. 2004). Proposed project impacts would be expected to contribute to the change in vegetation species composition, abundance, and distribution within and adjacent to the proposed project area.

Indirect impacts to vegetation would occur as a result of deposition of fugitive dust generated during clearing and grading activities, the use of access roads, and from wind erosion of exposed soils. This could reduce photosynthesis and productivity, increase water loss (Eveling and Bataille 1984) in plants near the proposed project area, and result in injury to leaves. Localized fugitive dust could be generated from the large areas of disturbed soil from blading associated with construction. Plant community composition could subsequently be altered, resulting in habitat degradation. Localized impacts on plant populations and communities could occur if seed production in some plant species is reduced.

Any surface disturbance can increase the possibility of establishment of new populations of invasive, non-native species. Noxious weed seed could be carried to and from the proposed project area by construction equipment and transport vehicles.

Mitigation Measures

Measures to minimize impacts to vegetation and noxious weeds are described below, in the POD, and in the standard COAs (BLM 1997:Appendix 2). No special mitigation has been identified by the BLM.

- Topsoil would be stockpiled to enhance reclamation.

- Interim reclamation would be conducted on all disturbed areas not needed for active support of maintenance and operations.
- The holder would evenly spread the excess soil excavated from pole holes in the immediate vicinity of the pole structure.
- If noxious weeds become established within the proposed project area, the operator would be responsible for control of these weeds. The operator would consult with the BLM Authorized Officer for acceptable weed control methods, which would include following EPA and BLM requirements and policies.

3.5 Wildlife and Special-Status Species

3.5.1 Affected Environment

The ecoregions crossed by the proposed project provide habitat for a variety of wildlife species. SWCA biologists detected 39 bird species, seven mammal species, seven reptile species and two insect species during the 2019 biological survey of the proposed project area. The wildlife species observed within the project area during the biological survey are listed in Table 3 within the BSR in Appendix A.

Most bird species are protected by the MBTA, which implements various treaties and conventions between the United States and other countries for the protection of migratory birds. Since the proposed project traverses cross-country, suitable nesting habitat for migratory birds is present within the proposed project area. During the biological survey, 39 bird species were observed or heard. In total, 180 inactive passerine nests, nine active passerine nests, 11 inactive raptor nests, and three active raptor nests, all ranging from poor to good condition were also identified throughout the survey area. Two active and suitable burrowing owl *(Athene cunicularia*) burrows were also observed during the biological survey. Active burrowing owl burrows were determined by presence of pellet scat, feathers, and soil disturbance at burrow entrances. Nest site locations are depicted on maps (see Figures A.1–A.14 within the BSR in Appendix A) and photographs are provided in the BSR, Appendix A.

Bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are protected under the MBTA and the Bald and Golden Eagle Protection Act. No bald eagles were observed during the biological survey. One golden eagle was observed in flight during the 2019 biological survey. Eleven inactive raptor nests were observed during the biological survey, but because no adults or young were present, these could not be attributed to either bald or golden eagles. The raptor nests were also primarily located in honey mesquite trees and not within the preferred hardwood or cliff ledge locations by bald and golden eagles. Bald and golden eagles are unlikely to nest within the proposed project area due to the lack of trees and cliff ledges for nesting and lack of prairie dog (*Cynomys* sp.) colonies within or adjacent to the proposed project area. Additionally, bald eagles are unlikely to use playas located outside the ROW corridor because they do not contain adequate water for sustainable aquatic foraging opportunities. However, the vegetation communities within the proposed project area could provide suitable intermittent foraging habitat. Mitigation measures and design features included structures not having external ladders or platforms to minimize perching and nesting opportunities. Further design features relevant to electric line spacing can be found in Chapter 3 of the POD.

Special-Status Species

The special-status species evaluated in this EA consist of 1) all federally protected (i.e., endangered and threatened) species, 2) additional species listed by the USFWS as candidate and proposed and species under review (USFWS 2019b), 3) state-listed endangered and threatened species (Biota Information System of New Mexico [BISON-M] 2019; New Mexico Energy, Minerals and Natural Resources Department 2017), and 4) BLM sensitive species, some of which are also listed as candidates or are under review by the USFWS and/or are state-listed. The BLM manages certain sensitive species and their habitats on BLM lands that are not federally listed as threatened or endangered in order to prevent or reduce the need to list them as threatened or endangered in the future. The authority for this policy and guidance is established by Title II of the Sikes Act, as amended; FLPMA; and Department of the Interior Manual 235.1.1A. A special-status species table with the occurrence potential for each species is provided in the BSR (see Table 4 in Appendix A).

Five BLM sensitive species, the golden eagle (*Aquila chrysaetos*), Texas horned lizard (*Phrynosoma cornutum*), monarch butterfly (*Danaus plexippus plexippus*), Scheer's beehive cactus (*Coryphantha robustispina* var. *scheeri*), and western burrowing owl (*Athene cunicularia*), were observed during the 2019 biological survey of the proposed project area.

Five additional BLM sensitive species— Wright's water willow (*Justicia wrightii*), chestnut-collared longspur (*Calcarius ornatus*), lesser prairie-chicken (*Tympanuchus pallidicinctus*), Tharp's blue-star (*Amsonia tharpii*), and Texas hornshell mussel (*Popenaias popeii*).—have the potential to occur within the proposed project area. These species are described further within Section 3.7 of the BSR in Appendix A.

Seven additional BLM sensitive species—big free-tailed bat (*Nyctinomops macrotis*), cave myotis bat (*Myotis velifer*), fringed myotis bat (*M. thysanodes*), Townsend's pale big-eared bat (*Corynorhinus townsendii*), long-legged myotis bat (*M. volans interior*), western small-footed myotis bat (*M. ciliolabrum*), and Yuma myotis bat (*M. yumanensis yumanensis*)—have the potential to occur in the proposed project area. However, the proposed project area is only likely to be utilized for foraging purposes, as cliff, tree, and karst roosting habitat is not present. Because these bat species are crepuscular and foraging activity occurs primarily at dusk, they would not likely be impacted by construction activities and are not described further below.

3.5.2 Impacts from the Proposed Action

Direct and Indirect Impacts

General Wildlife

Impacts to wildlife would result from actions that alter wildlife habitats, including changes to habitat and disturbance. Altering wildlife habitat in ways that would be considered adverse may occur directly (through habitat loss from surface disturbance) or indirectly (through the reduction in habitat quality caused by increased noise levels and increased human activity). The proposed project would result in 280.3 acres of new surface disturbance. However, approximately 31 percent of the total ROW corridor would be disturbed during construction of the Proposed Action; the remaining 69 percent would not be disturbed from construction activities, thus allowing the vegetation communities to remain and allowing for wildlife movement.

Short-term impacts to wildlife and special-status species could include the removal or crushing of existing vegetation, risk of direct mortality of species during construction, loss or degradation of native habitat, and displacement of wildlife species from habitat due to development. Additional potential short-term indirect impacts could include disruption or displacement of species from nesting/birthing and foraging areas, changes in activity patterns due to construction, increased human activity, and noise disturbance. Noise disturbance could impact wildlife by interfering with animals' abilities to detect important sounds or by posing an artificial threat to animals (Clinton and Barber 2013). Construction equipment associated with the proposed project could contribute the highest noise levels. Currently, the noise profile of the surrounding area is influenced by existing oil and gas infrastructure in the immediate vicinity, which would not change as a result of the proposed project. In addition, long-term impacts to wildlife and special status species could include the permanent loss of vegetation, degradation of native habitat, and displacement of wildlife species due to the proposed compressor station and valve sites for the life of the proposed project. However, the environmental protection measures within the POD, the mitigation measures outlined below, standard COAs (BLM 1997:Appendix 2), and post-construction reclamation would limit direct impacts to wildlife and special-status species.

If vegetation clearing occurs during the migratory bird breeding/nesting season (March–August), any occupied nests within the proposed project area could be impacted and result in incidental mortality. If nesting bird surveys are conducted prior to any vegetation clearing that would occur between March and August and active nests are avoided during construction, adverse impacts to migratory birds would be avoided. Because the proposed project area lacks suitable nesting habitat for bald and golden eagles, the proposed project would not likely cause take of individual bald or golden eagles, their nests, or eggs. Adult migratory birds likely would not be directly harmed by the proposed project because of their mobility and ability to avoid areas of human activity.

If approved, the proposed project would be constructed in accordance with avian protection practices outlined in *Suggested Practices for Avian Protection on Powerlines* (APLIC 2012), which would minimize adverse impacts to avian species, including raptors.

After construction, all surface disturbance not needed for operation and maintenance of the proposed project would be reclaimed with a BLM-prescribed, weed-free seed mixture. Reclamation of disturbed areas is expected to return the affected area to herbaceous production within 2 years after construction, depending on drought conditions. However, the establishment of mature native plant communities may require decades (Monsen et al. 2004). As a result, the change in vegetative species composition could modify cover and foraging opportunities for wildlife, thereby having a long-term impact on wildlife and special-status species.

Special-Status Species

The impacts analysis to special-status species that are known to occur or have the potential to occur within the proposed project area is detailed in Section 3.7 of the BSR in Appendix A. In summary:

- Western burrowing owl is designated as a BLM sensitive species and is protected under the MBTA. This species is known to occur within the proposed project area due to the observation of individuals and of active burrows during the 2019 biological survey (see Photograph 8 in Appendix B), The active burrows are located outside of the permanent disturbance associated with the proposed project; therefore, direct impacts to western burrowing owls is not anticipated from construction activities. Additionally, if construction begins during the breeding season (March 1–October 31), a pre-construction nesting survey up to 2 weeks prior to vegetation removal would be conducted to establish the occupancy status of the potentially suitable nesting burrows detected within the proposed project area. If the burrow is active, an avoidance radius, to be determined by the BLM, would be required until the young have fledged. This pre-construction nest survey would be conducted in accordance with the BLM CFO's burrowing owl survey guidance and recommendations. Although the proposed project would impact known occupied and suitable habitat for this species, the project was routed to parallel existing disturbance associated with oil and gas activities, thereby limiting habitat fragmentation. The proposed project is not likely to contribute to a trend toward federal listing or cause loss of viability to the population or species due to the ability to conduct pre-construction nest surveys to avoid impacting potentially active nests. See Section 3.7.1 of the BSR in Appendix A for additional details.
- Chestnut-collared longspur is designated as a BLM sensitive species and is protected under the MBTA. This species may occur within the proposed project area due to preferred habitat association of semi-arid grasslands with fourwing saltbush (*Atriplex canescens*) (Baltosser 1991). If construction is scheduled to begin during the MBTA nesting season (March 1–August 31), a pre-construction nest survey would be conducted, and if active nests are located, avoidance measures, specified by the BLM, would be implemented until juvenile birds have fledged. If adult birds are present in the project area during construction, they would likely not be directly harmed by the proposed project due to their ability to move to adjacent habitat. The proposed project could impact habitat utilized by this species; however, the project was planned to parallel existing disturbance associated with oil and gas activities to limit habitat fragmentation. Although the proposed project could impact suitable habitat, it is not likely to contribute to a trend toward federal listing or loss of viability of the species due to the ability to conduct pre-construction nest surveys to avoid impacting potentially active nests. See Section 3.7.4 of the BSR in Appendix A for additional details.
- Golden eagle is protected under the Bald and Golden Eagle Protection Act, as well as the MBTA. This species is known to occur within the proposed project area due to in-flight observations of

individuals during the 2019 biological survey. Suitable foraging habitat for this species is present within the proposed project area due to presence of preferred prey species, including black-tailed jackrabbit (*Lepus californicus)* and desert cottontail (*Sylvilagus audubonii*). Two raptor nests were observed within the proposed project area during the 2019 biological survey. Due to protections of raptor species, including golden eagles, from implementation of practices outlined in *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2012* (ALPIC 2012)*,* including prevention of collisions and electrocution from potential nesting or perching*,* the proposed project is not anticipated to cause take of individual golden eagles, their nests, or eggs. In addition, if construction is scheduled to begin during the MBTA nesting season (March 1–August 31), a pre-construction nest survey would be conducted, including a presence/absence survey of raptor nests along the Caprock area. See Section 3.7.2 of the BSR in Appendix A for additional details.

- Lesser prairie-chicken is designated as a BLM sensitive species. In 2014, the lesser-prairie chicken was listed as threatened under the ESA, but the listing was vacated by a court order in 2016. The species was petitioned for relisting in November 2016 and the USFWS is currently undertaking a status review to determine if listing this species is warranted. Because the species is not currently listed under the ESA, no consultation with the USFWS was required. The Western Association of Fish and Wildlife Agencies (WAFWA) maps potential LPC habitat using the Crucial Habitat Assessment Tool (CHAT). The proposed project is primarily located outside of mapped CHAT habitat, except for the eastern terminus where a small portion of the proposed project intersects CHAT 3 modeled habitat. The proposed project is approximately 78 miles south of the CHAT 1 Focal Area, which is comprised of the focal areas for LPC conservation (WAFWA 2019). Additionally, the proposed project is located 86.3 miles south of the BLM mapped Primary Population Area (PPA), 68.0 miles south of the Core Management Area (CMA), and 55.3 miles south of Sparse and Scattered Population Area (SSPA) (BLM 2008a). No known leks within or in proximity to the proposed project area were identified by the BLM during project planning. This species may occur in the proposed project area due to the presence of marginally suitable habitat, including preferred vegetation species such as shinnery oak (*Quercus havardii*) and grassland plant communities (BISON-M 2019). In addition, 70.9 acres of the proposed project are located within the lesser prairie-chicken isolated population area, designated by the RMPA (BLM 2008a). Additionally, the proposed project area contains an abundance of woody vegetation species, including mesquite trees (*Prosopis* sp.), which is not conducive to preferred lekking and nesting habitat. No lesser prairie-chickens were observed during the 2019 biological survey of the proposed project area. The amount of existing disturbance within and surrounding the proposed project area from oil and gas activities, as well as disturbance associated with ranching (grazing and pasture fences) has resulted in fragmented habitat for lesser prairie-chickens, as well as insufficient nesting vegetation cover. If construction is scheduled to begin during the MBTA nesting season (March 1–August 31), a pre-construction nesting survey would be conducted, including verifying the presence/absence of lesser-prairie chicken nests. Although the proposed project would impact the lesser-prairie chicken isolated population area (BLM 2008a), the proposed project is not likely to contribute to a trend toward federal listing or loss of viability of the species due to the likelihood of nest absence from existing disturbance and woody vegetation species, as well as the ability to conduct pre-construction nest surveys to avoid impacting nests. See Section 3.7.3 of the BSR in Appendix A for additional details.
- Scheer's beehive cactus is designated as a BLM sensitive species and as endangered by the State of New Mexico. This species may occur within the proposed project area due to the presence of preferred habitat, including soils with sandy, loamy, and/or gypsum components within the portion the project area that occurs between 3,300 and 3,600 feet above mean sea level (BISON-M 2019; NRCS 2019b). The proposed project also intersects BLM-delineated potential habitat for this species. Nine Scheer's beehive cactus were observed during the 2019 biological survey, and SWCA conducted presence/absence surveys per the BLM's survey requirements (BLM 2018; Sandbom 2018). SPS and SWCA biologists coordinated with the BLM to avoid suitable habitat to the greatest extent possible (BLM 2018). It is anticipated that there will be no direct impacts to Scheer's beehive cactus. The proposed project may impact potential habitat for this species but is not likely to contribute to a trend toward federal listing or loss of viability of the species due to lack of individual occurrence

confirmed within the project area for this species. See Section 3.7.5 of the BSR in Appendix A for additional details.

- Tharp's bluestar is designated as a BLM sensitive species and is listed as endangered by the State of New Mexico. This species may occur within the project area due to the presence of suitable habitat, including soils with preferred characteristics of gypsum, caliche, and alluvium deposits within the elevation range of 3,000 to 3,800 feet above mean sea level (BISON-M 2019; NRCS 2019b). The proposed project also intersects BLM-delineated potential habitat for the species; however, no Tharp's bluestars were observed during the 2019 biology survey, including the presence/absence surveys conducted per the BLM's survey requirements (BLM 2018). SPS and SWCA biologists coordinated with the BLM to avoid suitable habitat to the greatest extent possible (BLM 2018). The proposed project may impact potential habitat for this species, but it is not likely to contribute to a trend toward federal listing or loss of viability of the species due to the absence of Tharp's bluestar during the presence/absence surveys. See Section 3.7.6 of the BSR in Appendix A for additional details.
- Texas horned lizard is designated as a BLM sensitive species. This species is known to occur within the proposed project area based on direct observations from SWCA biologists and the presence of semi-arid vegetation communities including semi-arid grassland and Chihuahuan desertscrub. Two Texas horned lizards were observed during the 2019 biological survey of the proposed project area. Texas horned lizards within the proposed project area could move to adjacent habitat to avoid disturbance. In addition, structure hole mitigation as outlined below would help prevent mortality due to entrapment. The proposed project may impact individuals or habitat of Texas horned lizards but is not likely to contribute to a trend toward federal listing or cause a loss of viability to the population or species due to routing the proposed project to parallel existing disturbance associated with oil and gas activities to limit habitat fragmentation and avoiding entrapment from structure holes during construction. See Section 3.7.7 of the BSR in Appendix A for additional details.
- The monarch butterfly is designated as a BLM sensitive species. This species was listed due to the decline in populations across North America as a result of habitat reduction and fragmentation. This species is important ecologically for plant population stability as it is an opportunistic pollinator. This species is known to occur throughout New Mexico during seasonal migration and breeding season and the warmer months of April to October, but it is not known to overwinter within the state (Cary and DeLay 2016). The species was observed during the 2019 biological survey of the proposed project area. The proposed project is within a migration corridor for this species but lacks foraging habitat for this species due to the absence of flowering plants. See Section 3.7.8 of the BSR in Appendix A for additional details.
- The Texas hornshell mussel was listed by the USFWS as an endangered species on March 12, 2018. This species is also listed as endangered by the New Mexico Department of Game and Fish. The USFWS, BLM, and the Center of Excellence for Hazardous Materials Management (CEHMM) have formed the Candidate Conservation Agreement (CCA), which is a voluntary agreement administered by the CEHMM to facilitate cooperation between energy developers, including oil and gas operators, and other stakeholders on federal land to implement mitigation measures (below) and conservation measures (which include revegetation of native riparian species along rivers, land or water acquisition, etc.) to eliminate threats to this species and its habitat, as well as several other riparian species, known as the "Covered Species" (Texas hornshell mussel, Rio Grande cooter [*Pseudemys gorzugi*], gray redhorse [*Moxostoma congestum*], blue sucker [*Cycleptus elongatus*], and Pecos springsnail [*Pyrgulopsis pecosensis*]) with similar habitat. The Candidate Conservation Agreement with Assurances was developed in accordance with the CCA for state and private land. In order to facilitate the CCA, members will either enroll voluntarily and receive a Certificate of Participation to carry out management objectives and contribute funding to in-kind services or be enrolled automatically as a Federal Land User by holding permits, leases, grants, or other authorizations issued by the BLM to operate on BLM-managed land (USFWS and CEHMM 2018).

This species is unlikely to occur in the proposed project area since disturbance associated with the proposed project would occur outside of the FEMA flood zone and will not directly impact the Pecos River. Additionally, the proposed project area is within Zone D, which does not include habitat occupied by this species. Therefore, no direct impacts to this species would occur as a result of the proposed project. Construction associated with the proposed project is not anticipated to directly or indirectly impact the Pecos River from the implementation of mitigation measures located in the POD, in addition to erosion control and drainage mitigations in Section 3.4, and Appendix D within this EA. Therefore, the determination of effect under Section 7 of the ESA would be "No Effect" to this species or its associated habitat. See Section 3.7.9 in Appendix A for additional details.

- Wright's waterwillow, of the Acanthaceae family, is listed as BLM sensitive (BLM 2019). This species is a perennial herb that is known to occur within New Mexico and Texas (USFWS 2019b). It occurs within shortgrass grasslands and scrubland within depressions or low hills in dry clay or limestone soils (NatureServe 2019). The proposed project area intersects Wright's waterwillow BLM-delineated potential habitat (see Figure A.2. in Appendix A in the BSR). Prior to the biological surveys, representatives from the BLM CFO provided photos and calibration points for SWCA staff to reference. SWCA biologist then visited these locations and were able to correctly identify this species in the field. No Wright's waterwillows were observed within the proposed project area during the species-specific survey. See Section 3.7.11 of the BSR in Appendix A for additional details.

Mitigation Measures and Residual Impacts

Measures to minimize impacts to wildlife are described below, in the POD, and in the standard COAs (BLM 1997:Appendix 2).

- SPS would instruct personnel working on the construction of the proposed project to avoid intentionally harassing all animals.
- Construction holes left open overnight should be covered. Covers shall be secured in place and should be strong enough to prevent livestock or wildlife from falling through and into the hole. Any holes should be inspected each day and wildlife should be removed prior to work to prevent harm.
- For portions of the project being constructed during the nesting season (March 1–August 31), SPS would conduct pre-construction nest surveys up to 2 weeks prior to vegetation removal and establish avoidance buffers around any occupied nest (distances to be specified by the BLM) to ensure nest avoidance.
- SPS would design the new transmission facilities to comply with the *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2012* (APLIC 2012) to minimize available collision risk with overhead lines. No electrocution risk minimization measures would apply to this 345-kV transmission line, given sufficient horizontal and vertical phase-to-phase and phase-to-ground clearances.
- If warranted, SPS would develop an avian collision risk assessment to assess long-term risk to birds from transmission line operation and develop segment-specific measures to minimize these risks.
- The holder (lessee) is responsible for demonstrating that power pole designs not meeting these standards are "raptor safe." Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modifications or additions to power line structures constructed under this authorization should they be necessary to ensure the safety of large perching birds. These modifications and/or additions should be made by the holder without liability or expense to the United States.
- The BLM may require pre-construction surveys of suitable western burrowing owl burrows to identify occupied colonies and establish an avoidance buffer (distances to be established by the BLM) until the young have fledged. The BLM may require a biological monitor during construction near occupied burrows. To lessen the likelihood of burrow occupation, SPS would work with a biologist to collapse suitable burrows outside the migratory bird breeding season (March–August).

- Mitigation measures to prevent potential impacts to Zone D would include erosion control measures, and construction mitigations outlined in the POD and Appendix D.
- In consideration of conservation measures and other protective criteria outlined in the 2008 RMPA for projects within lesser prairie-chicken management areas, SPS has coordinated with the BLM to ensure minimum surface disturbance in lesser prairie-chicken habitat by the following:
  1. Confining the proposed facilities to existing alignments to the extent feasible.
  2. Minimizing width of construction disturbance.
  3. Placing proposed alignment outside ROW avoidance areas and other sensitive areas.
  4. Preparing a POD outlining SPS's strategies for minimizing impacts associated with new development.
- Additional mitigation measures for activities in lesser prairie-chicken management areas outlined in the 2008 RMPA include the following:
  1. If new lesser prairie-chicken leks are discovered in the future within the management area, a 1.5-mile radius around the lek would be considered occupied habitat and the prescriptions of this alternative would apply to proposed actions in and around that habitat.
  2. The operator shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested, and the viability testing of seed will be done in accordance with State law(s) and within 9 months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer. Species to be planted in pounds of pure live seed* per acre:

Seed Mixture of LPC Sand/Shinnery Sites

Species	lb/acre
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed

3.6 Karst Resources

3.6.1 Affected Environment

The proposed project is located in gypsum and limestone karst terrain, a landform that is characterized by underground drainage through solutionally enlarged conduits. Gypsum and limestone karst terrain may contain sinkholes, sinking streams, caves, and springs. Sinkholes leading to underground drainages and voids are common. These karst features, as well as occasional fissures and discontinuities in the bedrock, provide the primary sources for rapid recharge of the groundwater aquifers of the region.

Approximately 52.0 acres of total area of proposed project disturbance within the ROW would occur within a medium karst potential zone. Medium karst potential zones are defined as areas in known soluble rock types that exist at surface level or within 300 feet of the surface but may have a shallow insoluble overburden or soils that mask surface features. These areas may contain isolated karst features such as caves and sinkholes. Groundwater recharge may not be wholly dependent on karst features, but the karst features still provide the most rapid aquifer recharge in response to surface runoff.

The remaining 227.8 acres total area of proposed project disturbance within the ROW would occur within a low karst potential zone. Low karst potential zones are defined areas that do not have soluble bedrock within 300 feet of the surface. Occasional features, such as breccia pipes, may occur within these areas related to karst at depth. There may also be pseudo-karst features due to soil piping and other natural or human-made processes that may present construction hazards but are not related to groundwater recharge.

3.6.2 Impacts from the Proposed Action

Cave and karst features provide direct conduits leading to groundwater. These conduits can quickly transport surface and subsurface contaminants directly into underground water systems and freshwater aquifers without filtration or biodegradation. In addition, spilled or leaked contaminants, primarily from construction equipment, into or onto cave/karst zone surfaces and subsurface may lead directly to the disruption, displacement, or extermination of cave species and critical biological processes. In extreme or rare cases, a buildup of hydrocarbons in cave systems due to surface leaks or spills could potentially cause underground ignitions or asphyxiation of wildlife or humans within the cave.

In cave and karst terrains, rainfall and surface runoff are directly channeled into natural underground water systems and aquifers. Changes in geologic formation integrity, runoff quantity/quality, drainage course, rainfall percolation factors, vegetation, surface contour, and other surface factors can negatively impact cave ecosystems and aquifer recharge processes. Blasting, heavy vibrations, and focusing of surface drainages can lead to slow subsidence, sudden collapse of subsurface voids, and/or cave ecosystem damage.

SPS would conduct geotechnical investigations prior to construction of the transmission line and associated infrastructure to collect subsurface information necessary to complete the final design of the foundations including direct embedded tangent structures and self-supporting running angle and dead-end structures on concrete piers. The geotechnical investigation would prevent adverse impacts to subsurface karst features and voids, including preventing transmission line structure subsidence.

Mitigation Measures

Measures to minimize impacts to karst resources are described in the POD, and in the standard COAs (BLM 1997:Appendix 3). No special mitigation or requirements have been identified by the BLM other than the avoidance measures already incorporated into the project design.

3.7 Cultural Resources

3.7.1 Affected Environment

The project falls within the Southeastern New Mexico Archaeological Region. This region contains the following cultural/temporal periods: Paleoindian (ca. 11,500–7000 B.C.), Archaic (ca. 6000 B.C.–A.D. 500), Ceramic (ca. A.D. 500–1400), Post-Formative Native American (ca. A.D. 1400–present), and Historic Euro-American (ca. A.D. 1865 to present). Sites representing any or all of these periods are known to occur within the region. A more complete discussion can be found in *Permian Basin Research Design 2016–2026*, *Vol. I: Archaeology and Native American Cultural Resources* (Railey 2016).

Native American Religious Concerns

The BLM conducts Native American consultation regarding traditional cultural properties (TCPs) and sacred sites during land-use planning and its associated environmental impact review. In addition, during the oil and gas lease sale process, Native American consultation is conducted to identify TCPs and sacred sites whose management, preservation, or use would be incompatible with oil and gas or other land-use authorizations. With regard to TCPs, the BLM has very little knowledge of tribal sacred or traditional use sites, and these sites may not be apparent to archaeologists performing surveys in advance of construction.

3.7.2 Impacts from the Proposed Action

Direct and Indirect Impacts

PERMIAN BASIN PA INSERT FOR DIRECT AND INDIRECT IMPACTS:

The project falls within the area covered by the Permian Basin PA. The Permian Basin PA is an optional method of compliance with Section 106 of the NHPA for energy-related projects in a 28-quadrangle area of the CFO. The Permian Basin PA is a form of off-site mitigation that allows industry to design projects to avoid known National Register of Historic Places (NRHP)–eligible cultural resources and to contribute to a mitigation fund in lieu of paying for additional archaeological inventory in this area, which has received adequate previous survey. Funds received from the Permian Basin PA will be used to conduct archaeological research and outreach in southeastern New Mexico. Research will include archaeological excavation of significant sites, predictive modeling, and targeted research activities, as well as professional and public presentations on the results of the investigations.

The proponent chose to participate in the Permian Basin PA by planning to avoid all known NRHP-eligible and potentially eligible cultural resources. The proponent has contributed funds commensurate to the undertaking into an account for off-site mitigation. Participation in the Permian Basin PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt, and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM.

NON-PERMIAN BASIN PA INSERT FOR DIRECT AND INDIRECT IMPACTS:

Cultural resources on public lands, including archaeological sites and historic properties, are protected by federal law and regulations (Section 106 of the NHPA and NEPA). Class III cultural resources surveys will be conducted of the area of potential effects for realty or oil and gas projects proposed on these lands prior to the approval of any ground-disturbing activities to identify any resources eligible for listing in the NRHP. Cultural resources inventories minimize impacts to cultural sites and artifacts by avoiding these resources prior to construction of the proposed project. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt, and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM.

A Class III cultural resources inventory was conducted (SWCA Cultural Resources Report No. 143954 [Murray et. al 2019] and Report No. 144600 [Kendrick 2019]) and is on file with the BLM CFO.

Mitigation Measures

Measures to minimize impacts to cultural resources are described in the standard COAs (BLM 1997:Appendix 2), and project-specific mitigations are pending BLM review at the time of writing.

3.8 Paleontological Resources

3.8.1 Affected Environment

Paleontological resources are any fossilized remains, traces, or imprints of organisms, preserved in or on the earth's crust, that are of paleontological interest and that provide information about the history of life on earth. Fossil remains may include bones, teeth, tracks, shells, leaves, imprints, and wood. Paleontological resources include not only the actual fossils but also the geological deposits that contain them and are recognized as nonrenewable scientific resources protected by federal statutes and policies.

The primary federal legislation for the protection and conservation of paleontological resources occurring on federally administered lands are the Paleontological Resources Preservation Act of 2009, FLPMA, and NEPA. BLM has also developed policy guidelines for addressing potential impacts to paleontological resources (BLM 1998a, 1998b, 2008c, 2009). In addition, paleontological resources on State Trust lands are protected by state policy from unauthorized appropriation, damage, removal, or use.

The Potential Fossil Yield Classification (PFYC) is a tool that allows the BLM to predict the likelihood of a geologic unit to contain paleontological resources. The PFYC is based on a numeric system of 1–5, with PFYC 1 having little likelihood of containing paleontological resources, whereas a PFYC 5 value indicates a geologic unit that is known to contain abundant scientifically significant paleontological resources. The fossil resources of concern in this area are the remains of vertebrates, which include species of fish, amphibians, and mammals.

3.8.2 Impacts from the Proposed Action

Direct impacts would result in the immediate physical loss of scientifically significant fossils and their contextual data. Impacts indirectly associated with ground disturbance could subject fossils to damage or destruction from erosion, as well as create improved access to the public and increased visibility, potentially resulting in unauthorized collection or vandalism. However, not all impacts of construction are detrimental to paleontology. Ground disturbance can reveal significant fossils that would otherwise remain buried and unavailable for scientific study. In this manner, ground disturbance can result in beneficial impacts. Such fossils can be collected properly and curated into the museum collection of a qualified repository, making them available for scientific study and education.

The location of the proposed project is within four geologic units: (Pr) - Rustler Formation; siltstone, gypsum, sandstone, and dolomite residing in the Upper Permian, (Qoa) - Older alluvial deposits of upland plains and piedmont areas, including calcic soils and eolian cover sediments of High Plains region, (Qp) - Piedmont alluvial deposits residing in the upper and middle Quaternary, and (To) - Ogallala Formation, alluvial and eolian deposits, and petrocalcic soils of the southern High Plains. Pr, Qoa, Qp are within within PFYC 2, and To is within PFYC 3, where management concern is generally low. A pedestrian survey for paleontological resources was not necessary, and no impacts to paleontological resources are expected.

Mitigation Measures

There are no mitigation measures for this project, as currently proposed.

3.9 Livestock Grazing

3.9.1 Affected Environment

The BLM is responsible for managing livestock grazing on approximately 1,947,890 acres of land in 265 grazing allotments within the CFO planning area. Livestock grazing includes the grazing of domestic cattle, goats, sheep, and horses. The amount of forage required by one animal unit (cow with calf pair) for 1 month is called an animal unit month (AUM) (BLM 2014b). Almost all livestock grazing within the planning area is permitted for year-round use. The most common livestock operations in the project area are cow and calf operations.

Permitted livestock numbers for an allotment are set at levels that provide for plant recovery to enhance rangeland health. These levels have been determined by quantitative measurements of forage present. Prolonged drought and rangeland wildfire continue to threaten rangeland health and forage availability within and near the proposed project area. When rangelands do not meet resource objectives, changes in grazing management are implemented, including adjusting permitted livestock numbers, adding additional waters and fences, or providing rest in certain pastures during the growing season.

The Proposed Action coincides with nine BLM allotments within the CFO's management area, as summarized in Table 3.3.

Table 3.3. BLM CFO Allotments and Range Improvements in the Proposed Project Area

CFO Allotment Name	Allotment Number	Size of Project Area within Allotment (acres)	Allotment Size (acres)	No. of Fences Crossed by Project Area	No. of Water Lines Crossed by Project Area	No. of Water Troughs within 200 Meters of Project Area
Bobcat Draw	76039	1.7	13,791.5	0	0	0
Delaware River West	78142	18.1	19,846.0	2	0	0
Fairview	76038	17.5	24,632.5	3	1	0
Lower Delaware River	78141	39.9	13,852.1	2	0	0
Red Tank	76037	9.1	38,346.1	1	0	0
Red Tank II	76137	34.0	25,572.6	1	0	0
Rustler Breaks	77037	28.8	22,778.2	4	2	2
Sun Wells	77039	13.4	20,710.1	1	0	0
Twin Wells	77042	117.8	48,390.0	6	2	1
Total		**280.3**	227,919.0	**20**	**5**	**3**

3.9.2 Impacts from the Proposed Action

Direct and Indirect Impacts

Forage removal from the nine grazing allotments crossed by the Proposed Action would be the primary impact to grazing resources. Construction associated with the proposed project would impact approximately 280.3 acres of vegetation, which represents less than 1% of the total area of the four BLM grazing allotments intersected by the Proposed Action.

Range improvements would also temporarily be impacted by the proposed project. In total, 20 pasture fences occur within the Proposed Action; therefore, many of these fences would need to be temporarily disturbed to accommodate project construction. Per the POD on file with the BLM, pasture fences would be maintained during construction and would be replaced, repaired, or reclaimed upon completion of the construction phase. Five waterlines would be crossed by the proposed project. Based on review of the CFO GIS dataset, there are three water troughs within 200 meters of the proposed ROW. The Proposed Action will not affect these water features, and livestock would not be hindered from accessing the water troughs during construction or operations.

Surface disturbance resulting from construction and ongoing maintenance may facilitate the introduction and spread of noxious weeds throughout grazing allotments and could accelerate soil erosion, which would reduce site productivity and limit grazing opportunities through a reduction in available AUMs. This impact is anticipated to be minimal as the project proponent, SPS, has enrolled in the Eddy and Chaves Counties noxious weed control program, and measures identified in the POD would help reduce spread of noxious weeds into the project area. Additionally, portions of the Proposed Action not required for long-term maintenance or access would be reclaimed with a BLM-approved seed mix at the end of the construction phase and would mitigate impacts to livestock grazing within one or two growing seasons after construction.[7]

[7] Ongoing drought in the region could threaten the target of successful reclamation of the project area within 2 years if conditions do not improve and indirectly impact grazing opportunities. If sufficient rainfall does not occur, it is unlikely that herbaceous production and forage levels would return to pre-construction levels within the average two growing seasons. However, if drought conditions improve and the area receives abundant precipitation, herbaceous production and forage levels may be restored within two to three growing seasons.

Additional direct impacts to livestock occur when holes, ditches, or trenches are not excluded properly. Any type of hole or ditch is potentially a hazard to livestock while grazing. Cow or calf injuries may occur if livestock fall into a ditch or trench-type cavity or in the process of trying to get out. Cow or calf leg injuries also may occur when any hole is left uncovered. Livestock can step into the hole and break or injure a leg. However, the POD for the proposed project identifies measures to prevent these types of impacts to grazing livestock after construction is complete. Indirect impacts include extra time required by the permit holder to locate livestock or potential trespass issues for the livestock owner if the livestock cross allotment boundaries.

Mitigation Measures

Measures to minimize impacts to livestock grazing are described below, in the POD, and in the standard COAs (BLM 1997:Appendix 2). No special mitigation or requirements have been identified by the BLM.

- The holder should minimize disturbance to existing fences and other improvements on public lands. The holder would be required to promptly repair impacted improvements to at least their former state. The holder should contact the owner of any existing improvements prior to disturbance. When necessary to pass through a fence line, the fence would be braced on both sides of the passageway prior to cutting the fence. Once the work is completed, the fence will be restored to its prior condition, or better. No permanent gates would be allowed unless approved by the Authorized Officer. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

3.10 Visual Resources

3.10.1 Affected Environment

The BLM is responsible for managing public land for multiple uses while ensuring that the scenic values of public land are considered before authorizing actions on public land. The BLM accomplishes this through the Visual Resource Management (VRM) system. The VRM system classifies land based on visual appeal, public concern for scenic quality, and visibility from travel routes or observation points. The system is based on the premise that public land has a variety of visual values, and these values mandate different levels of management. Visual values are identified through the VRM inventory process that consists of scenic quality evaluation, sensitivity level analysis, and a delineation of distance zones. Based on these three factors, BLM-administered land is placed into one of four visual resource inventory classes. The visual resource inventory classes are then evaluated with other management considerations and a VRM class is assigned to identify the degree of acceptable visual change (contrast to form, line, color, and texture) within a landscape based on the physical and sociological characteristics. Classes I and II are the most restrictive to potential change; Classes III and IV represent land where greater modifications may be considered.

The analysis area for visual resources is the proposed right-of-way plus a 1-mile buffer on all sides of the right-of-way. The great majority of the proposed project falls within VRM Class IV (Table 3.4; see Figure A.3 in Appendix A). In addition, there is a segment of line approximately 122-feet-long that crosses over lands within the 0.5-mile wide corridor along the Pecos River, designated as VRM II.

Table 3.4. VRM Classifications within and adjacent to the Project Area

VRM Classification	Length	Description of Proposed Action
II	122 linear feet	Overhead transmission line wires spanning the VRM II zone; no surface-disturbing project component is located directly within the VRM II zone.
IV	42.2 linear miles	Overhead transmission line wires spanning the VRM IV zone; project components are located within this zone..
Total	**42.2 linear miles**	

The BLM's objectives for each relevant class are as follows.

- **Class II Objective:** To retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the landscape. Management activities may be seen, but should not attract the attention of the casual observer.
- **Class IV Objective:** The level of change to the characteristic landscape can be high. Management activities may dominate the view and be a major focus of the viewer's attention. However, every attempt should be made to minimize the impact to these activities through careful location, minimal disturbance, and repetition of the basic elements of line, color, and texture found in the predominant natural features of the landscape.

The proposed project area occurs within the Chihuahuan Deserts: Chihuahuan Basins and Playas and Chihuahuan Deserts: Chihuahuan Desert Grasslands ecoregions (Griffith et al. 2006). The dominant vegetation includes shrubs such as honey mesquite (*Prosopis glandulosa*), fourwing saltbush (*Atriplex canescens*), grassland croton (*Croton dioicus*), broom snakeweed (*Gutierrezia sarothrae*), creosote bush (*Larrea tridentate*), catclaw mimosa (*Mimosa aculeaticarpa*), tobosagrass (*Pleuraphis mutica*), and whitethorn acacia (*Vachellia constricta*). The landform topography is flat with small hills and the Pecos River to the north, east, south, and west of the proposed project. Vertical elements in the surrounding landscape include electric distribution lines and oil and gas infrastructure. Linear features are present in the form of roads and overhead power lines. Colors are tans and browns from the sandy soils and light greens from the vegetation.

To analyze indirect impacts to the VRM II zone to the east of the proposed project, two key observation points (KOPs) were identified: KOP 1 to represent the viewshed from the Pecos River looking eastward toward the proposed project, and KOP 2, to represent the viewshed from an accessible lease road across the Pecos River from the project. See Visual Contrast Rating Worksheets in Appendix F.

Figure 3.1 and Figure 3.2 shows visual values typical of the current conditions.

Figure 3.1. View from Key Observation Point 1 on the bank of the Pecos River, within VRM Class II Zone, facing east towards the proposed project area.

Figure 3.2. View from Key Observation Point 2 on a BLM lease road, within VRM Class II Zone, facing southeast towards the proposed project area.

3.10.2 Impacts from the Proposed Action

Direct and Indirect Impacts

The proposed project would introduce a new structural element to the landscape. Generally, short-term impacts would occur during construction operations and prior to interim reclamation. These impacts include the presence of construction equipment and vehicle traffic. However, interim reclamation, conducted within 6 months after construction, would reduce short-term impacts by recontouring and revegetating the disturbed areas.

The proposed project is located directly east of the VRM II designated corridor for the Pecos River. See completed Visual Contrast Rating Worksheets (Form 8400-4) in Appendix F for analysis from the two KOPs. Proposed structures 38 and 39 would be visible at a distance of 0.34 mile and 0.77 mile from KOP 1 and KOP 2, respectively. The proposed project would introduce a new linear and structural element to the landscape. At these distances, contrast to form, and texture would be low, and contrasts to line and color would be strong to moderate.

Figures 3.3 and 3.4 are computer-generated images of the views from KOP 1 and KOP 2.

Figure 3.3. Computer generated model of view from KOP 1, within VRM Class II Zone, facing east towards the proposed project area.

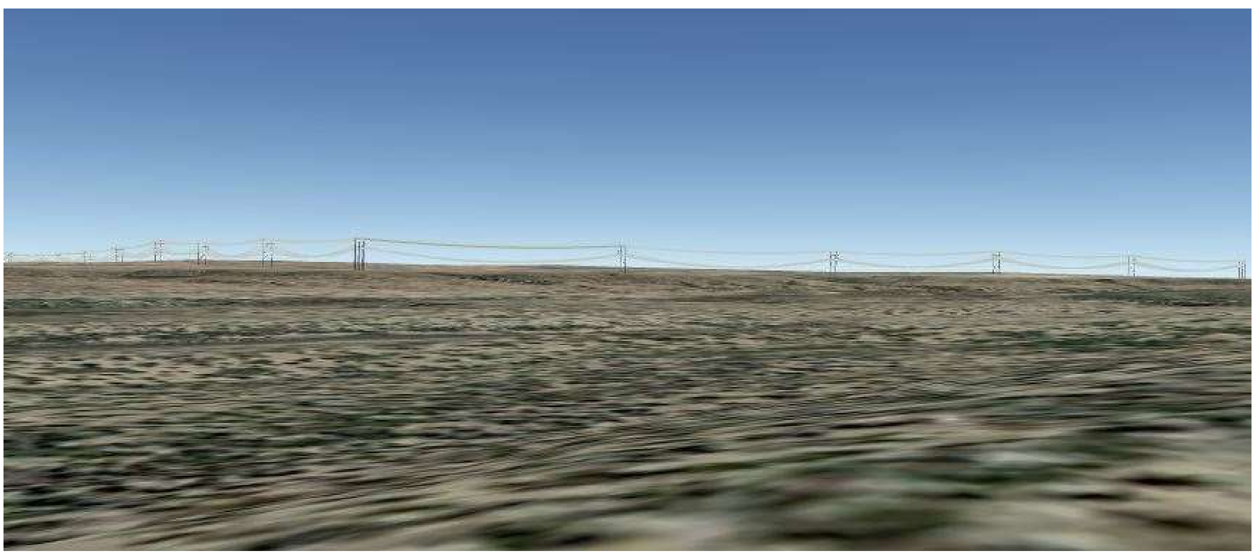

Figure 3.4. Computer generated model of view from KOP 2, within VRM Class II Zone, facing east/southeast towards the proposed project area.

The modification to the landscape from the Proposed Action would introduce a moderate contrast to the surrounding landscape because transmission line development is not already visible on the landscape. With the slight shift of the line out of land managed as VRM Class II (see mitigation measures below), the Proposed Action is in conformance with VRM Class IV management objectives that allow for major modification to the landscape.

Mitigation Measures

- Reduce the structure heights for structures 37, 38, 39, and 40 to 120 feet.
- Shift the portion of the line spanning 122 feet of VRM Class II approximately 50-feet to the east to avoid the lands managed as VRM Class II.

3.11 Cumulative Impacts

A cumulative impact, as defined in 40 CFR 1508.7, is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of which agency (federal or non-federal) or person undertakes such other action. The time frame for the cumulative impact analysis is 30 years, which is the projected life of the transmission line.

3.11.1 Cumulative Impact Analysis for Air Resources

The following analysis of cumulative impacts of the Proposed Action to air resources is limited to the CFO planning area. The Air Resources Technical Report provides a list of major sources[8] for air pollutants in New Mexico, any of which may contribute to cumulative impacts to air quality within the planning area (see BLM 2016:Appendix D). The report also evaluates the cumulative impacts of GHGs emissions and their relationship to climate change at national and global levels (BLM 2016:54–60).

Activities that cumulatively contribute to levels of air pollutants and GHG emissions in southeast New Mexico result from a variety of sources, including fossil fuel industries, transportation, industrial construction, mining, and others. For the CFO planning area, activities that have the greatest impact to air resources are fossil fuel production (e.g., oil and gas exploration and production, crude oil refining, and gas processing) and vehicular travel (BLM 2016:46). The Air Resources Technical Report summarizes the past, present, and reasonably foreseeable impacts to air resources resulting from these activities (BLM 2016:38–51).

The CFO manages federal oil and gas exploration and production on its mineral estate in Eddy and Lea Counties and part of Chaves County. These activities result in cumulative impacts to air resources in the CFO planning area through air pollutant and GHG emissions. There are currently 28,579 oil and gas wells within these counties categorized as active, new, or temporarily abandoned, with 11,746 of these located on federal lands (Petroleum Recovery Research Center 2019). Quantifying emissions of an oil and gas well in the CFO planning area is difficult due to various factors (geology, variation in drilling technique and time, uncertainty of production). However, the BLM has determined that well production typically declines over time, depending on well life and the price of oil and gas. Therefore, it is assumed that declining production would also result in reduced emissions over time (BLM 2016:31).

Factors involving vehicular travel, including number and types of vehicles, miles traveled, and road condition, all influence emissions in the CFO planning area. These emissions result from both on-road and off-road vehicular travel. While increased vehicle fuel efficiency is expected to reduce emissions associated with vehicular travel, any reduction in emissions may eventually be offset by an increase in the number of vehicles used due to population growth in the area (BLM 2016:51).

Air Quality

The Proposed Action would result in a very small increase in emissions and would not cause or contribute to an exceedance of the NAAQS for any criteria pollutants in the CFO planning area. Additionally, emissions from the Proposed Action, together with all other emissions, are not expected to impact the 8-hour average O_3 standard. The applicable regulatory thresholds for HAPs associated with the oil and gas industry are established under the National Emissions Standards for Hazardous Air Pollutants, which are currently under review by the EPA.

[8] Sources emitting more than 100 tons per year of CO, volatile organic compounds, NO_x, SO_2, $PM_{2.5}$, or PM_{10} (BLM 2016:38).

Climate Change

Climate change is a global process affected by the total GHG emissions in the atmosphere. The Air Resources Technical Report discusses the relationship of past, present, and future predicted emissions to climate change and the limitations in predicting global and regional impacts related to emissions (BLM 2016:51–53). In general, the Proposed Action, together with all other current and foreseeable emissions-producing actions, would contribute to an incremental increase in GHGs; however, these cumulative emissions would not have a measurable impact to climate. While the Proposed Action may contribute to climate change, the specific impacts to global or regional climate are not quantifiable, and the Proposed Action's contribution, in a localized area, to impacts to global climate change cannot be determined (BLM 2016:53).

3.11.2 Cumulative Impacts for Watersheds and Drainages, Soils, Vegetation and Invasive Species, Wildlife Including Special-Status Species, Karst, Livestock Grazing, and Visual Resources

Impacts to watersheds and drainages, soils, vegetation and invasive species, wildlife including special-status species, and livestock grazing would depend on the placement and type of surface disturbance, the type of soils and plant species present, and the hydrologic conditions within the individual project site. Generally, soil erosion and sedimentation of local drainages would be expected to occur, especially when storm events occur during construction of the future actions. Cumulative impacts to karst resources are difficult to estimate because, as with the Proposed Action, impacts to underground voids could occur from accidental spill during construction or operation caused by permeability.

Further development in the area would potentially result in the loss of vegetation and thereby a loss of forage available to livestock within the grazing allotments. The resulting loss of forage could reduce the AUMs authorized for livestock use in the area. Reclamation of some disturbed areas and use of best management practices, such as reseeding construction areas, has reduced impacts to vegetation and livestock grazing conditions. In time, the reclaimed and seeded areas would result in stable plant communities with densities that are similar to the pre-disturbance plant densities. Similarly, impacts to visual resources would depend on the success of revegetation to blend the landscape within the individual project site. In time, the reclaimed and seeded areas would minimize impacts to visual resources.

Surface-disturbing activities affect wildlife, migratory birds, and special-status species through decreasing available forage and habitat and causing habitat alteration and fragmentation. Well pads and road density break the available habitat into smaller and smaller pieces, which can lead to displacement and physiological stress in wildlife species. Fragmentation results in indirect habitat loss and degradation. Wildlife species would have to expend an increased amount of energy to avoid disturbed areas or when experiencing alarm due to human presence, traffic, and associated noise.

Watkins et al. (2007) describe quantitative thresholds of fragmentation impact as moderate, high, and extreme, based on the density of well pads per section and cumulative surface disturbance. Moderate impact is defined as one to four wells and less than 20 acres of disturbance per section. High impact is defined as five to 16 wells and 20 to 80 acres of disturbance per section. Extreme impact is defined as more than 16 wells and greater than 80 acres of disturbance per section. Based on the above-described definitions, the density of current development is high within the proposed project area. This indicates that impacts to wildlife are increasingly difficult to mitigate and may not be completely offset by management or habitat treatments (Watkins et al. 2007). The Proposed Action, together with past, present, and reasonably foreseeable cumulative actions, would contribute to the density of development and overall habitat fragmentation of the region.

3.11.3 Cumulative Impact Analysis for Cultural and Historic Resources and Paleontological Resources

The CFO conducts ongoing and frequent consultation with tribal and state entities under Section 106 of the NHPA. Cumulative effects to cultural or historic resource sites or paleontological resources is conducted on a landscape level at the planning stages during resource management planning efforts. See the *Permian Basin Research Design 2016–2026 Volume I: Native American Archaeology and Cultural Resources* (Railey 2016) report for more details on the cultural landscape.

4 SUPPORTING INFORMATION

4.1 List of Preparers

This EA was prepared by a third-party contractor, SWCA, according to the direction of the BLM. The following BLM staff contributed to or reviewed this EA:

- Tessa Cisneros, Realty Specialist, BLM CFO
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APPENDIX A. BIOLOGICAL SURVEY REPORT

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APPENDIX B. PLAN OF DEVELOPMENT

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APPENDIX C. PROJECT AREA MAPS

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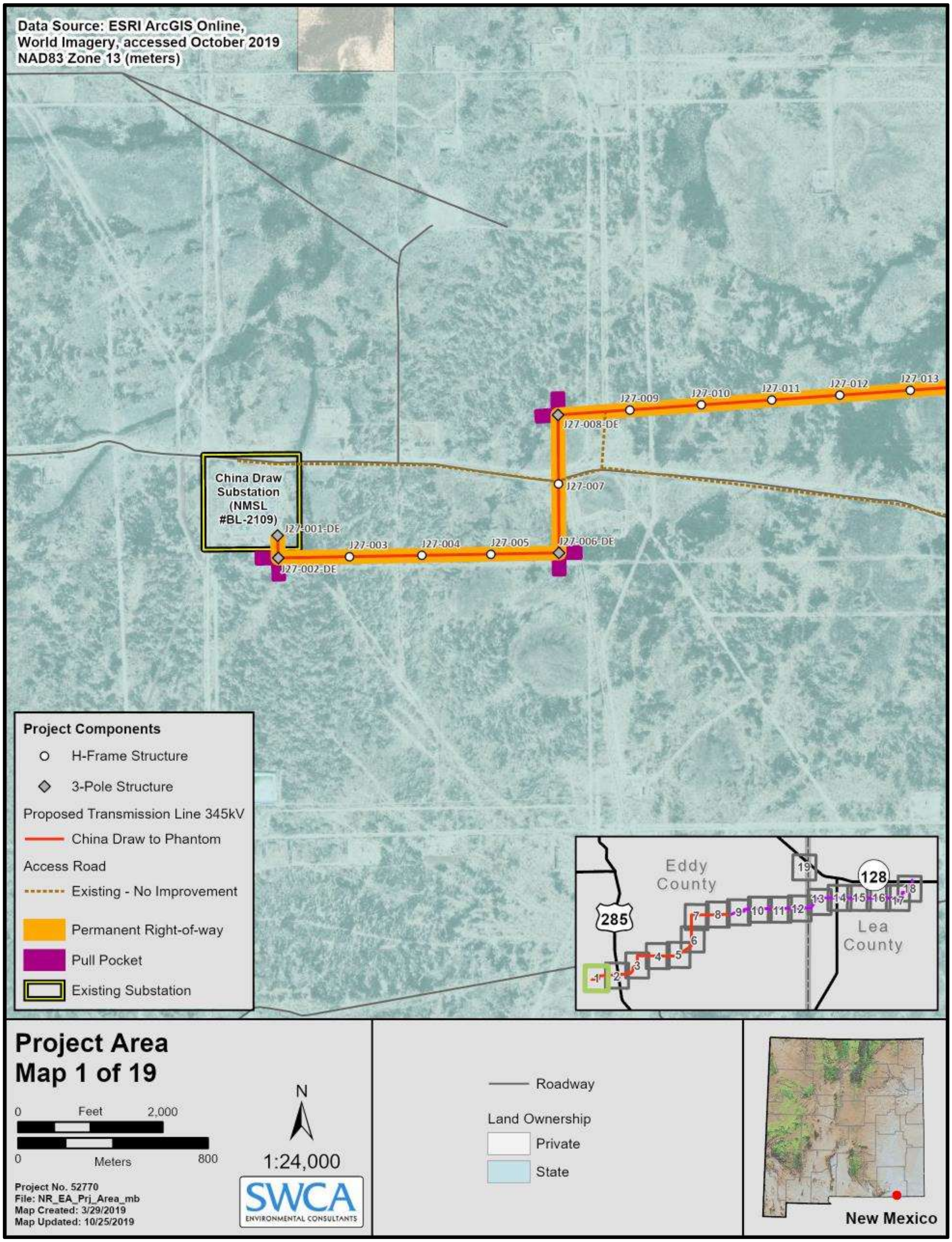
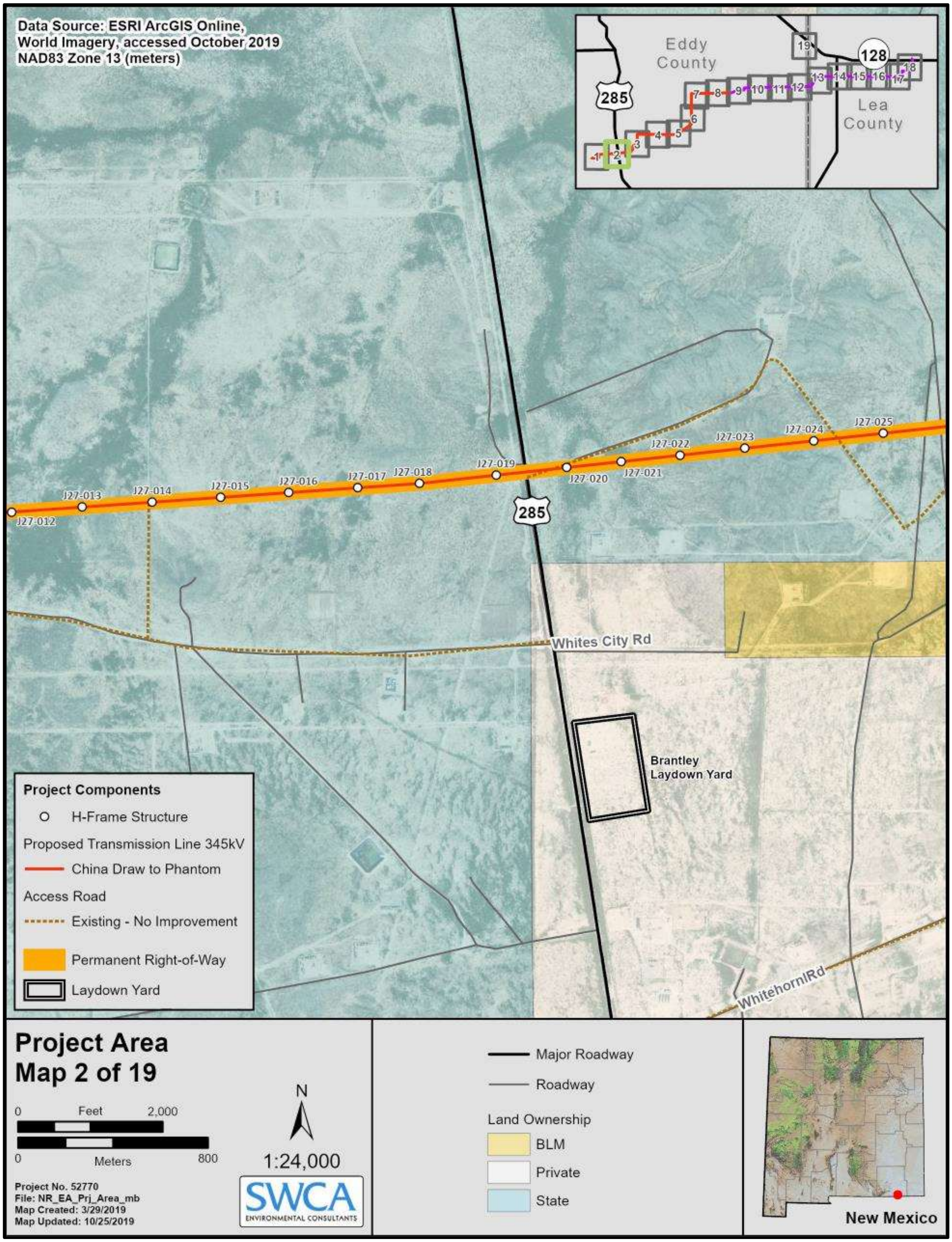


Figure C.1. Project area map (1 of 19).



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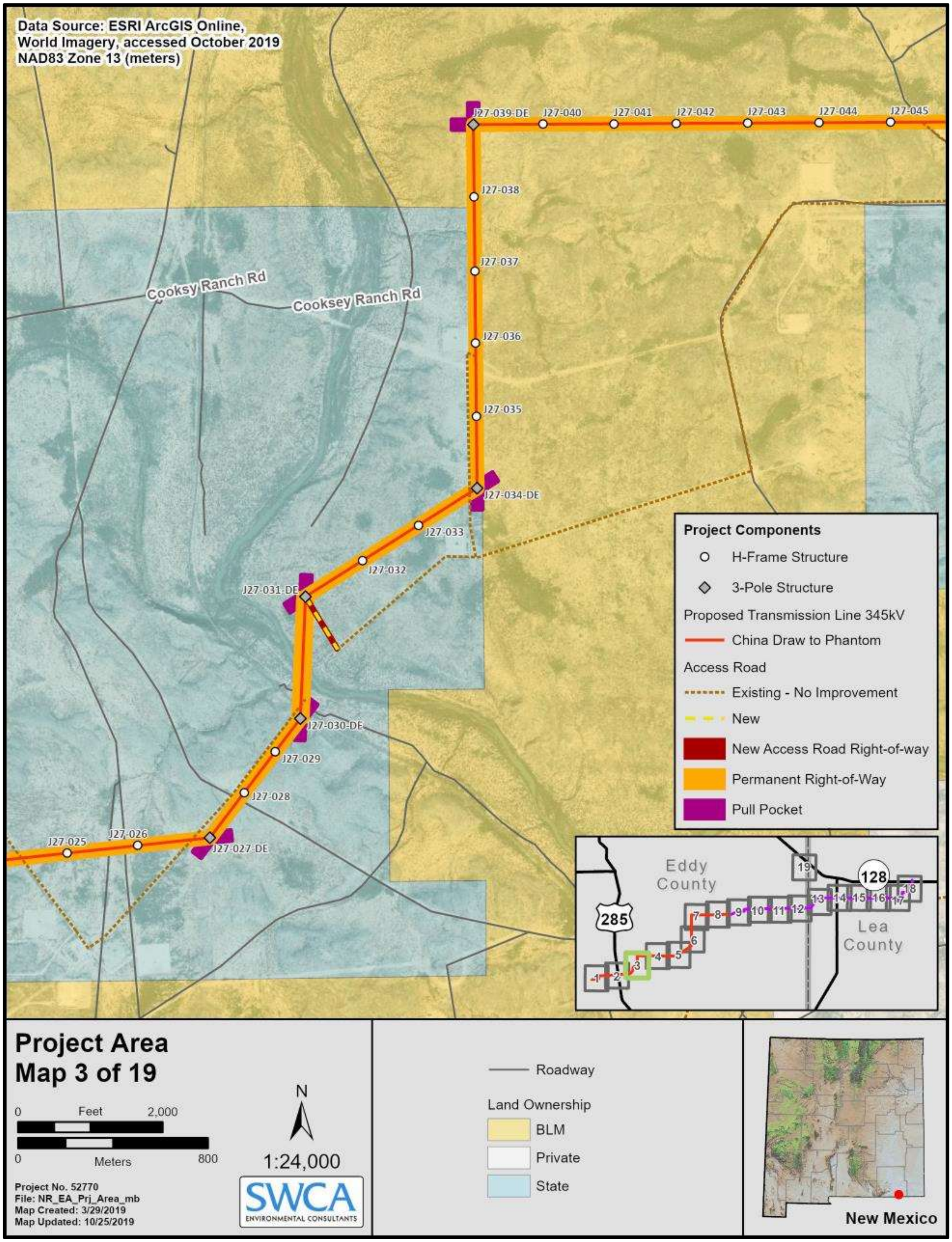

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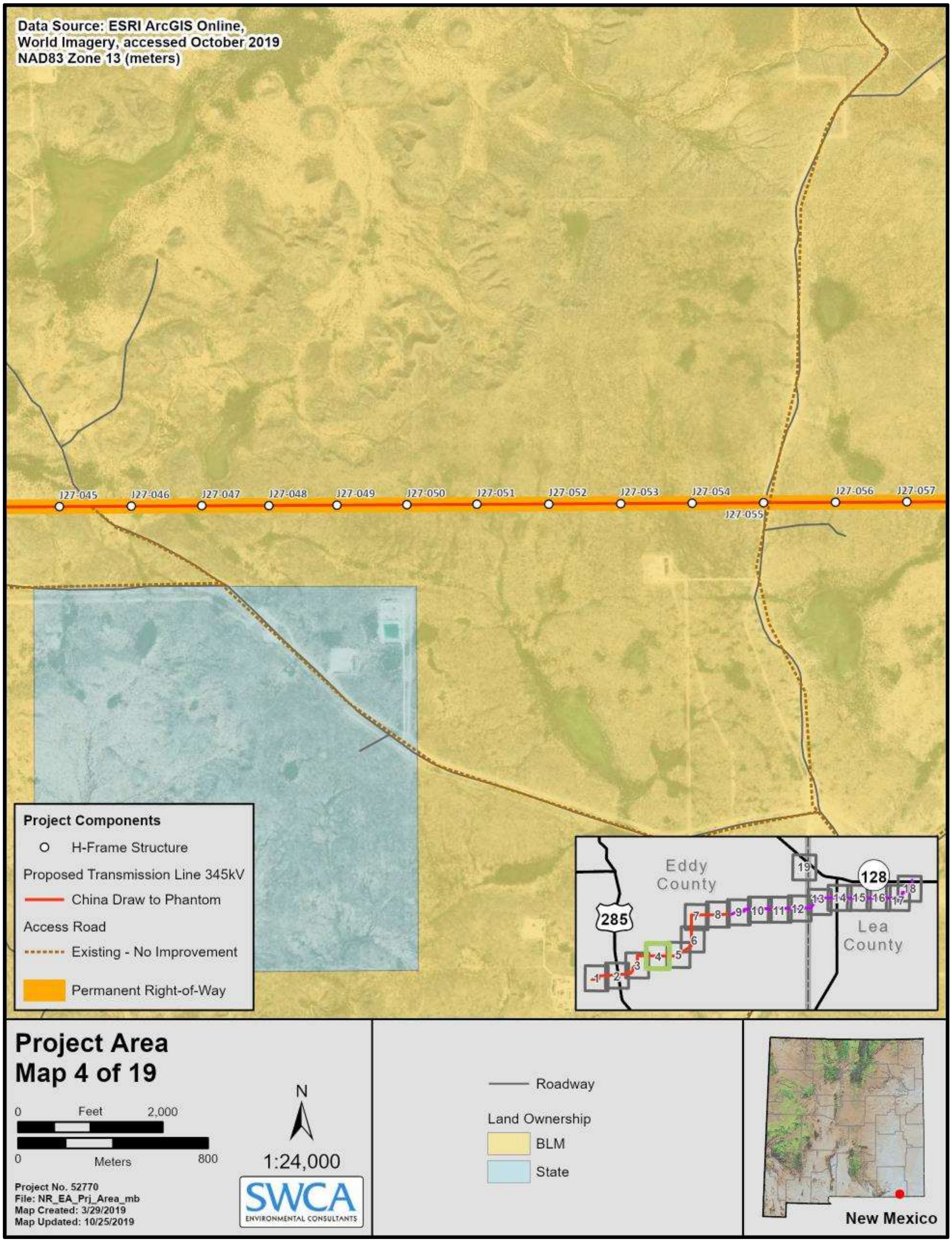

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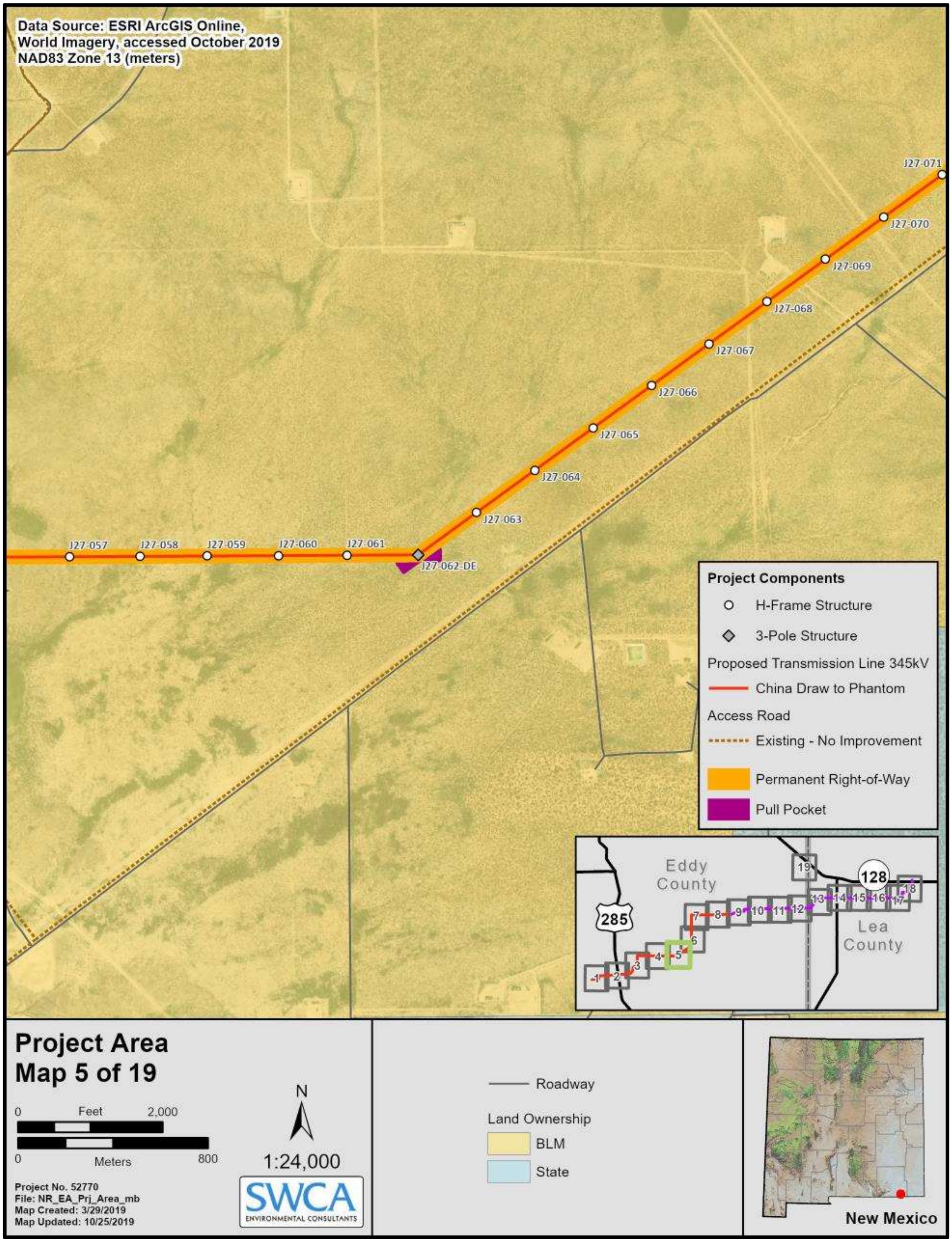

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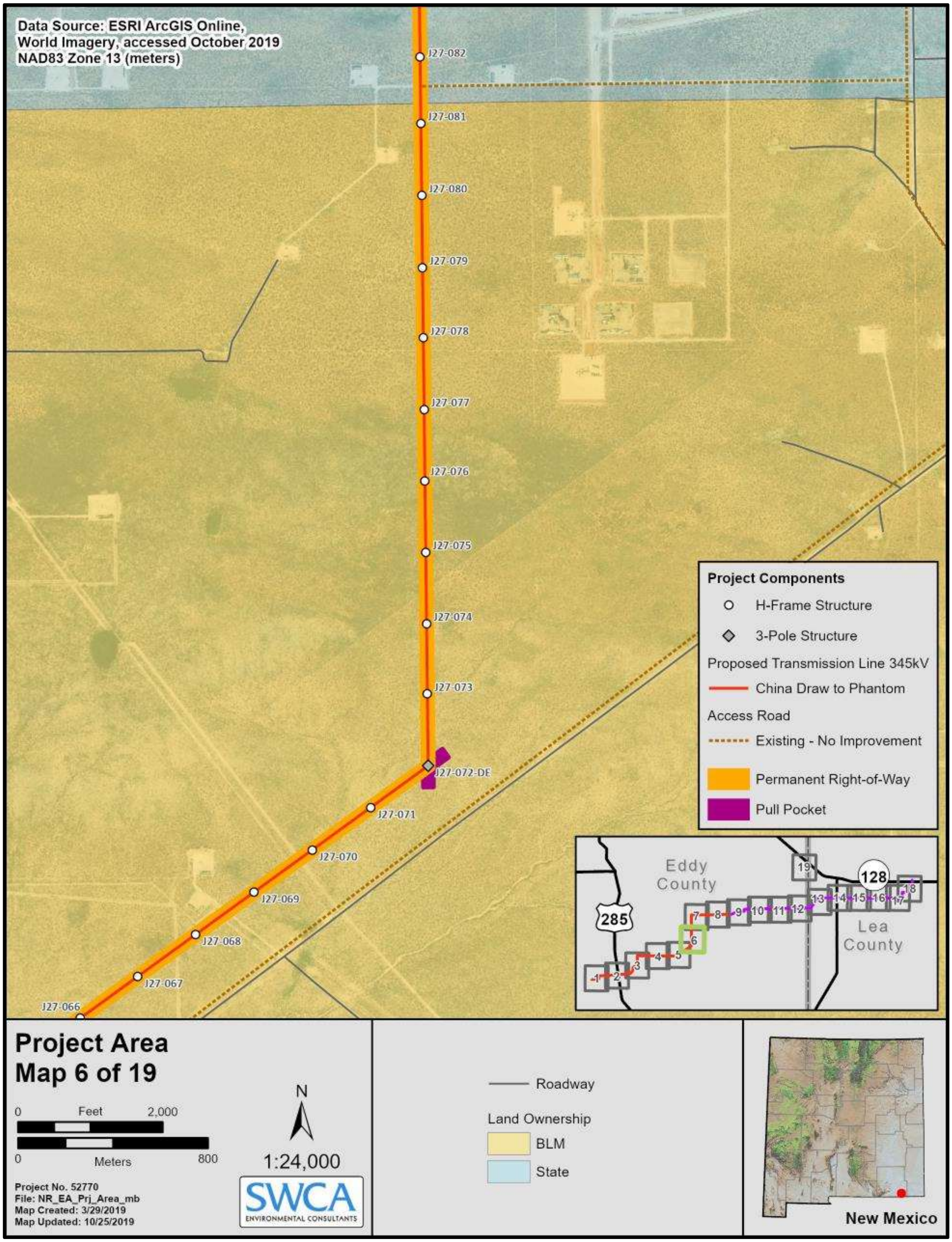

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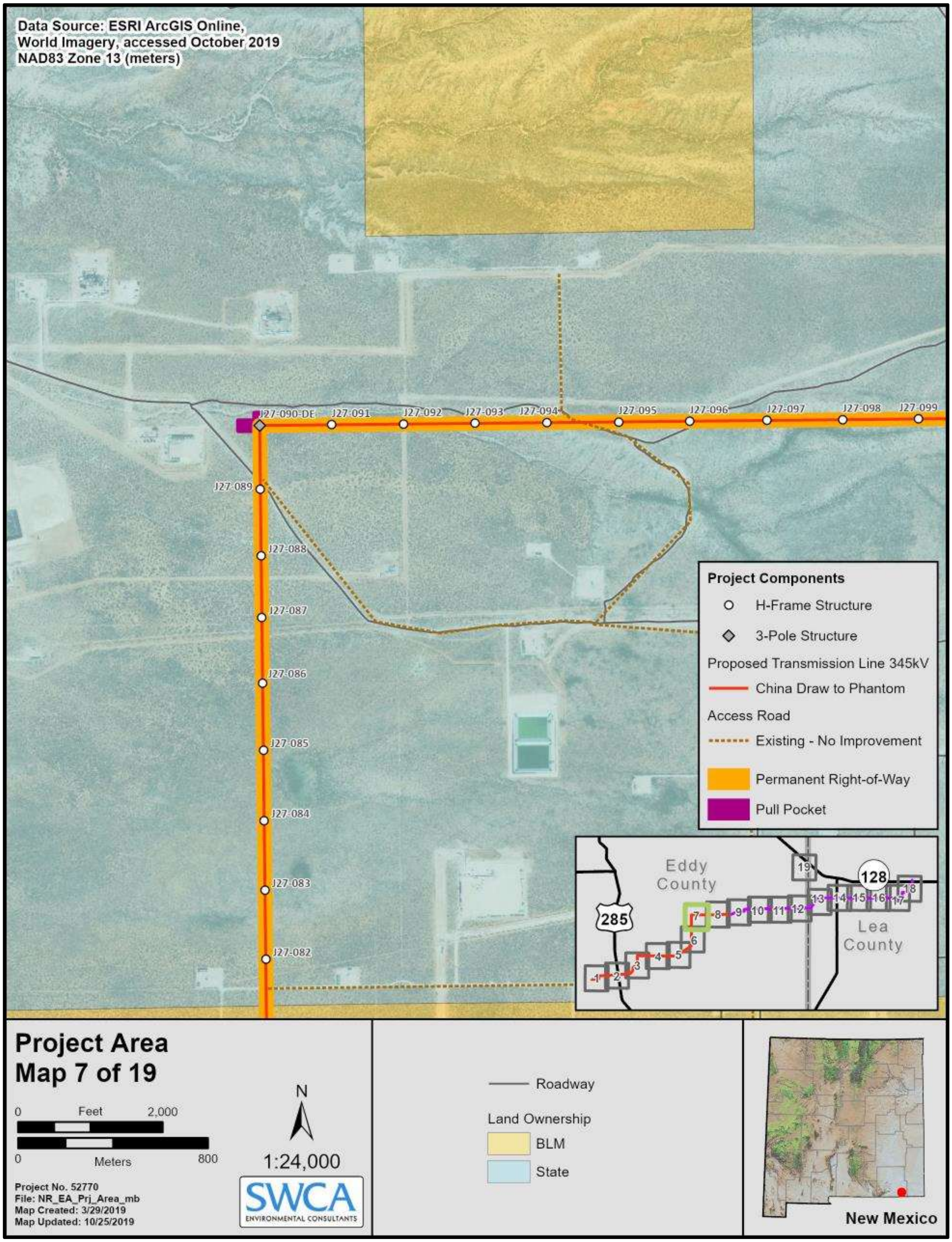

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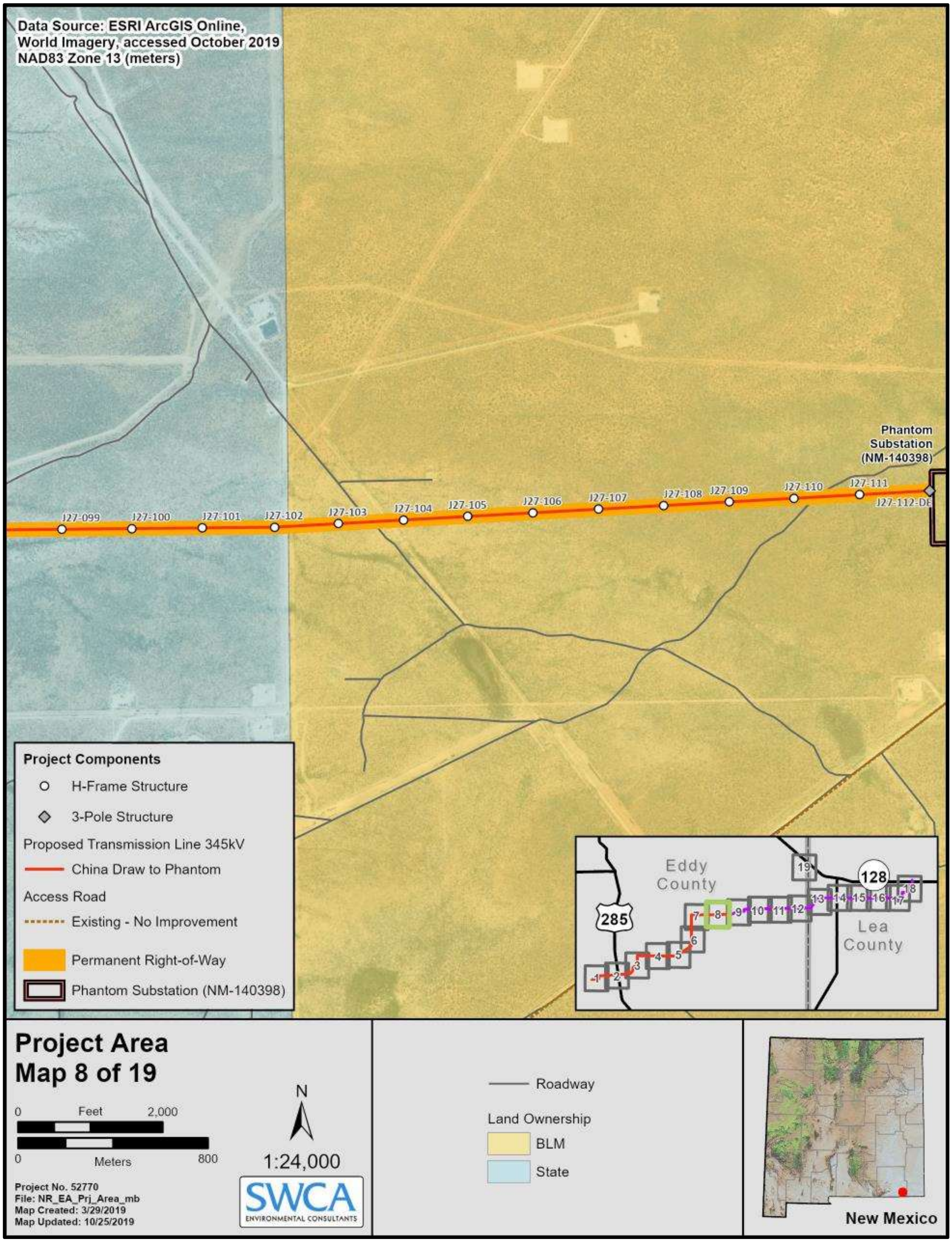

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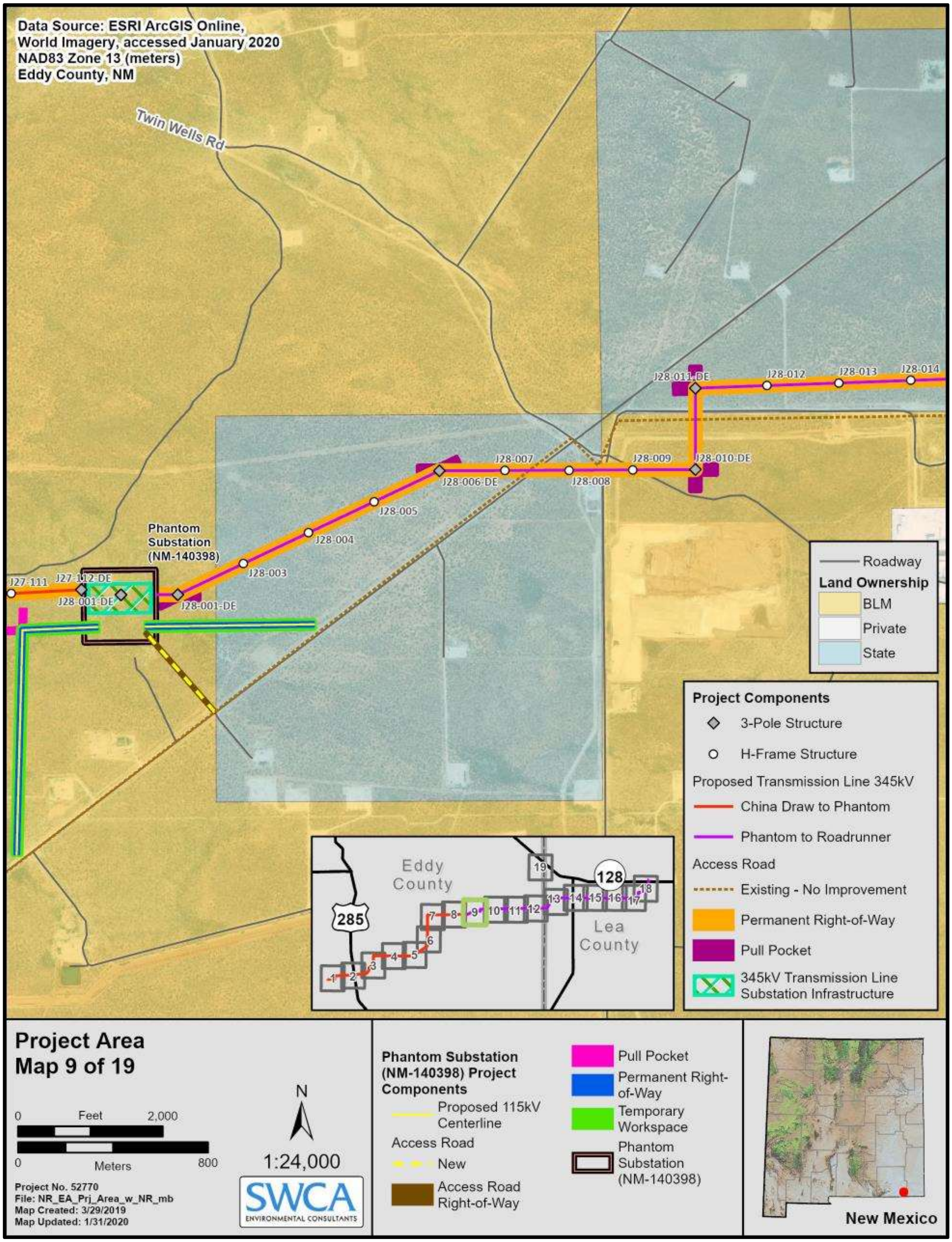

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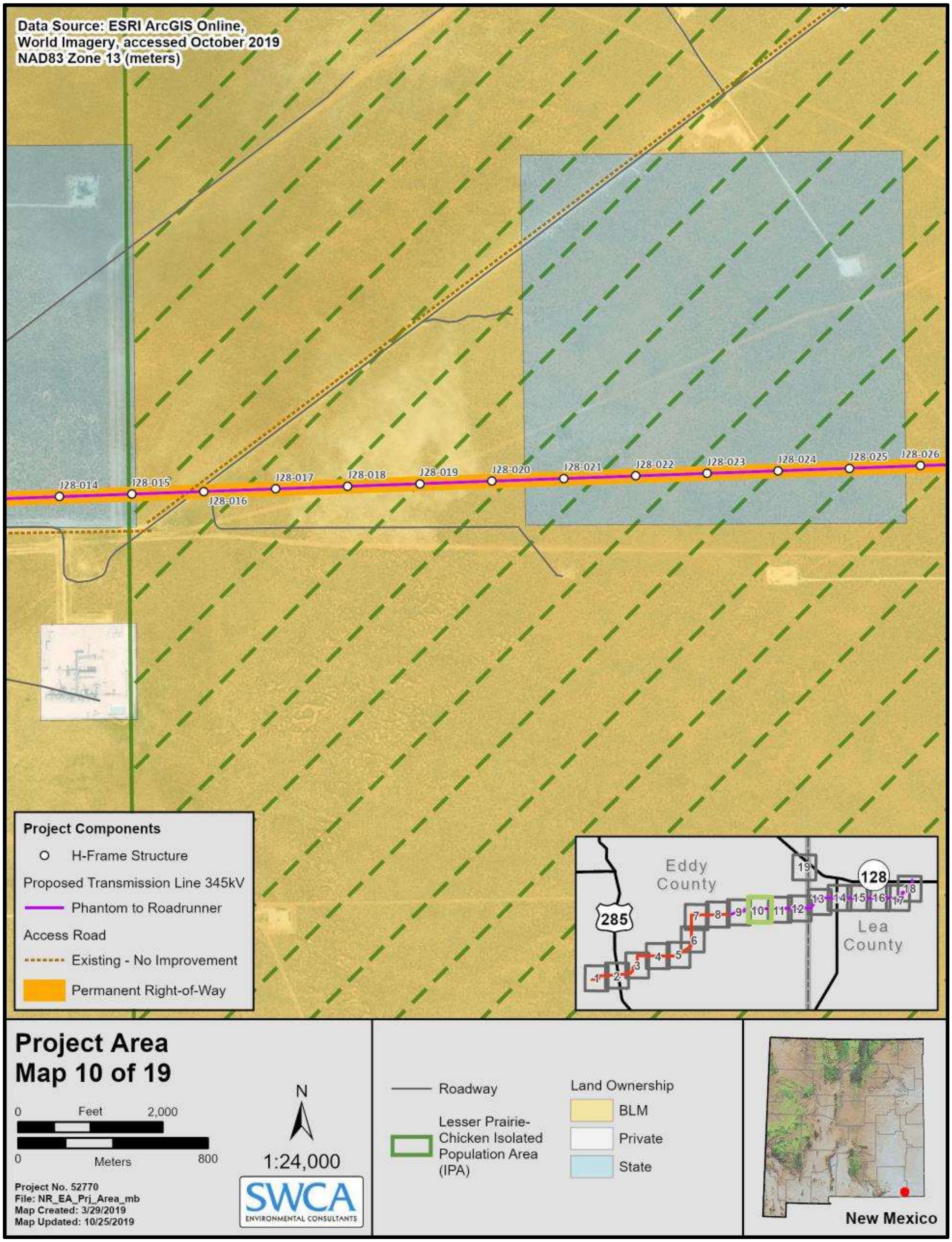

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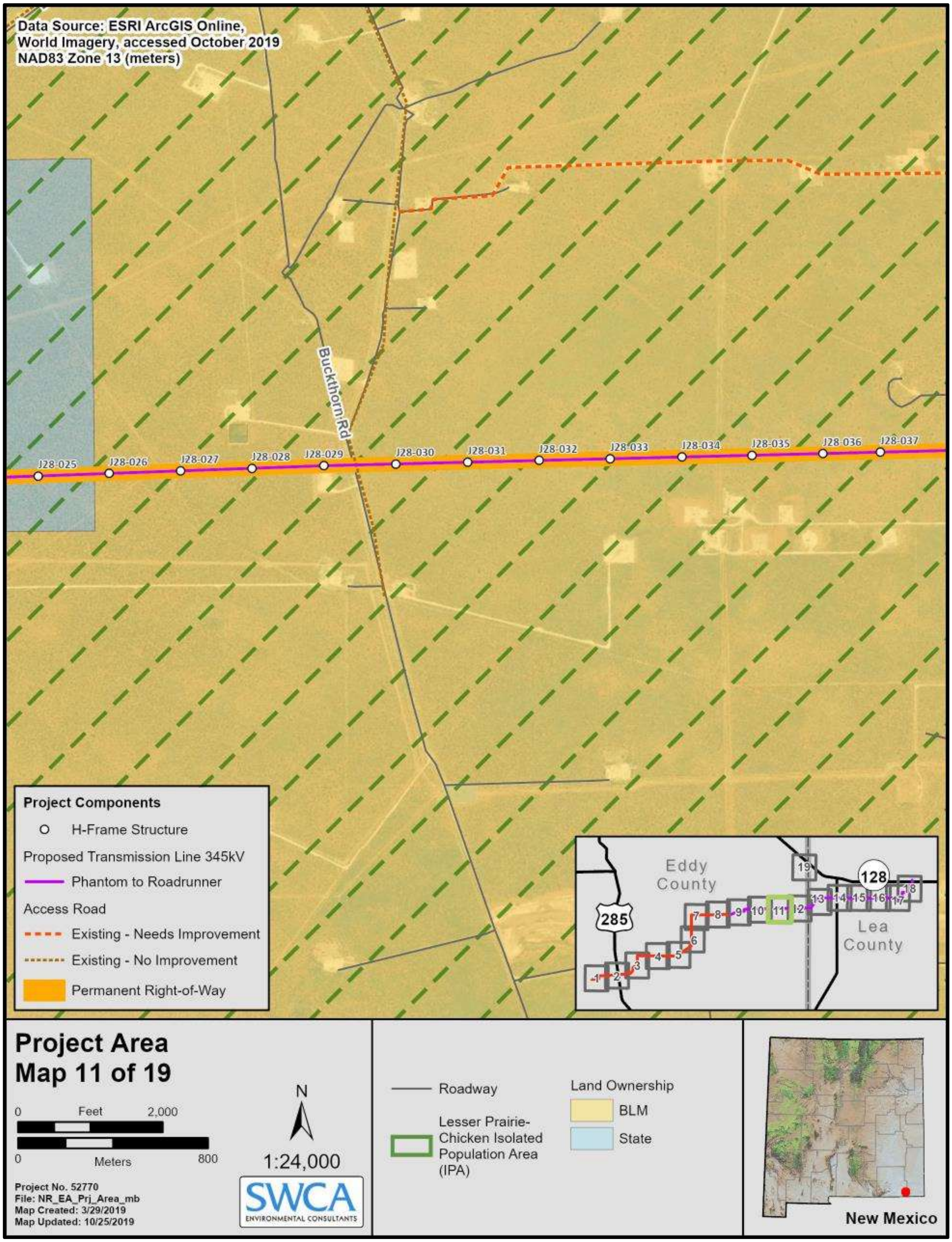

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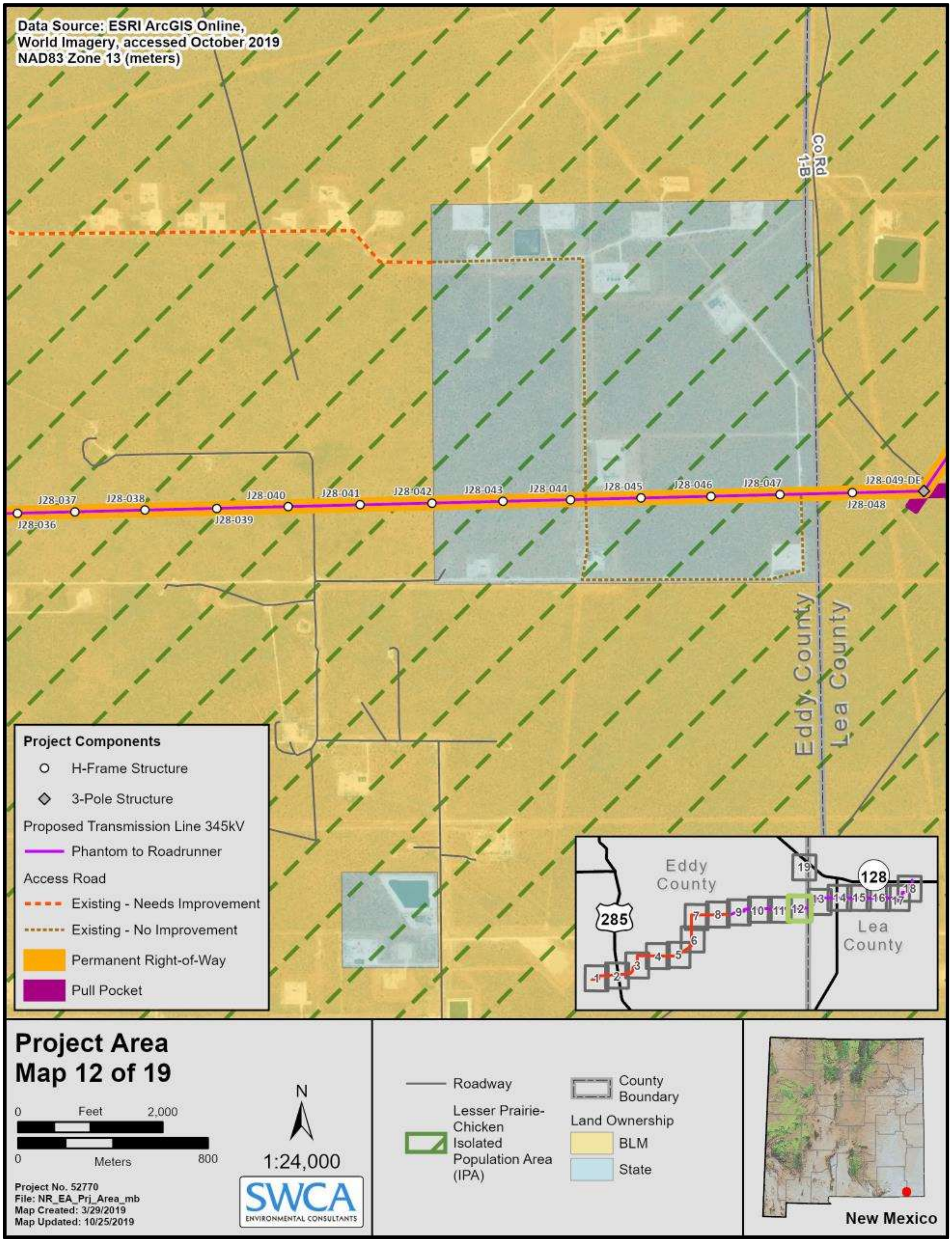

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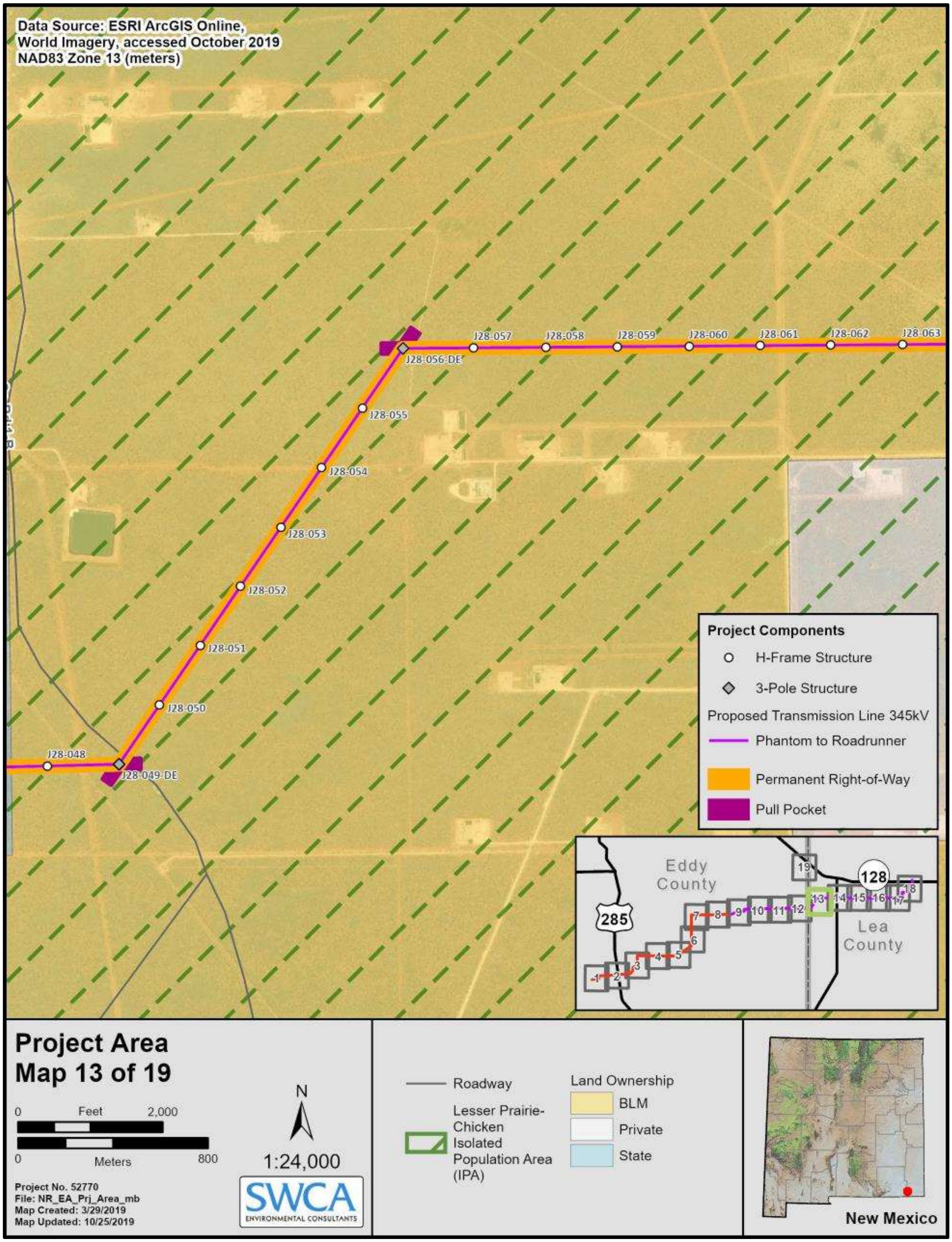

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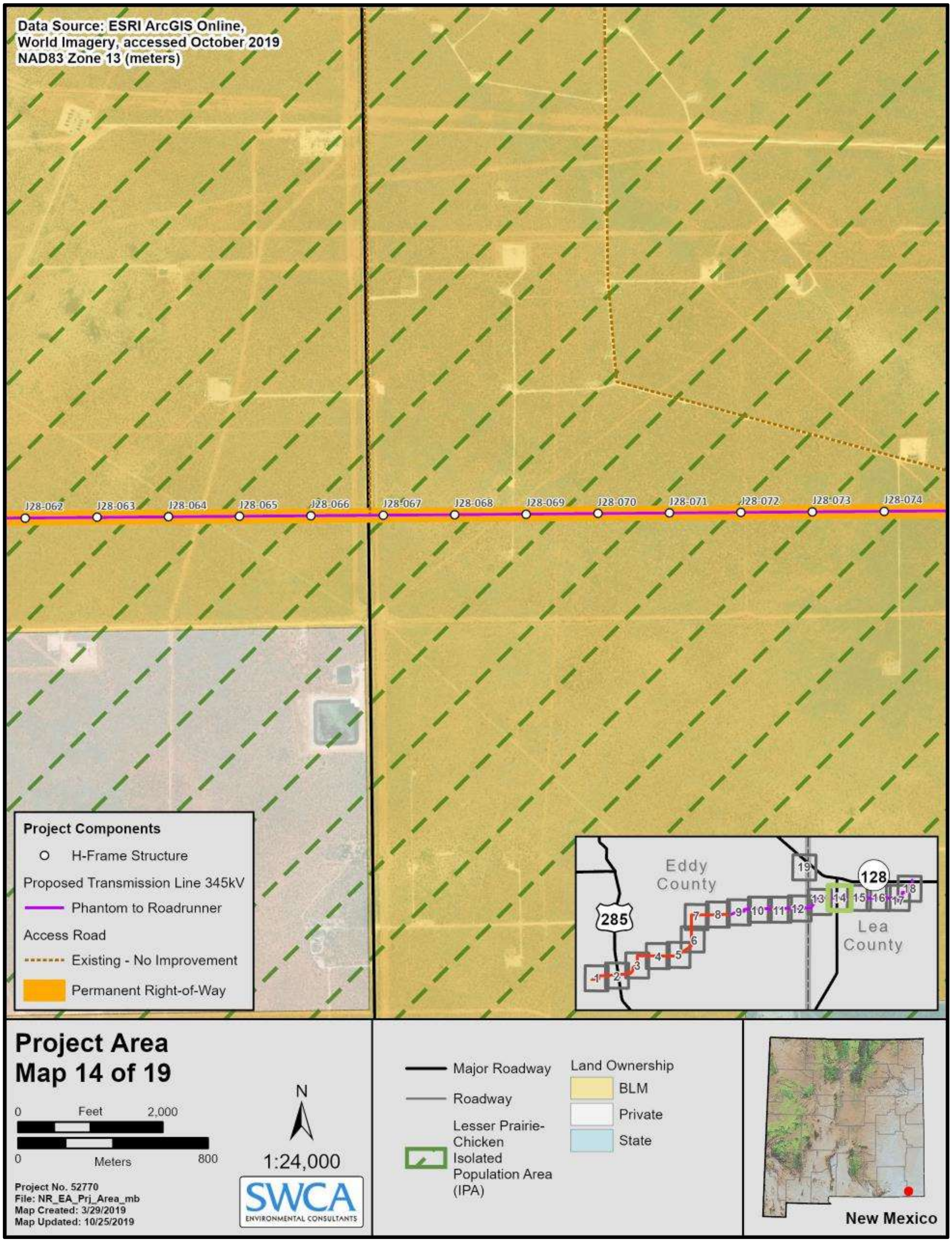

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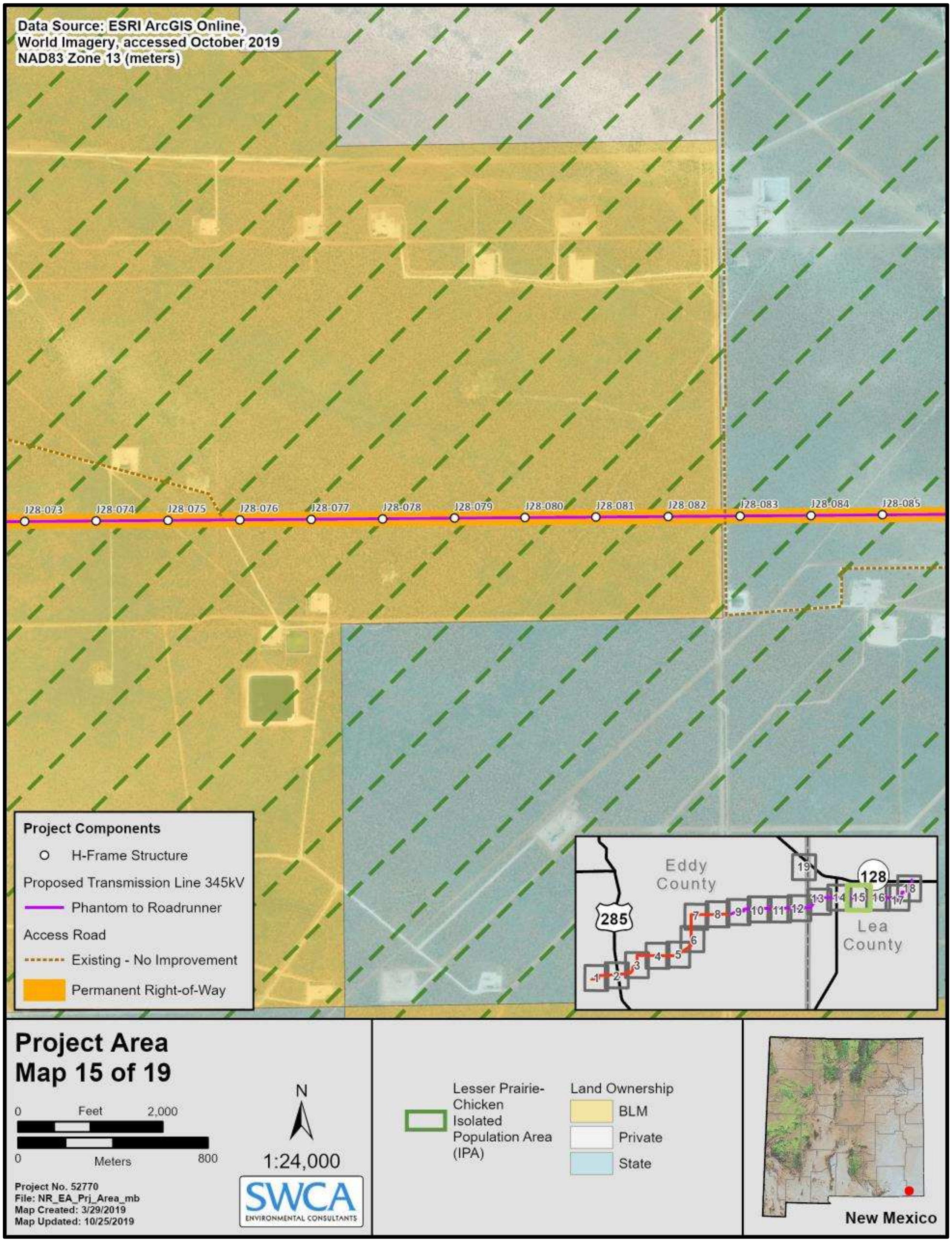

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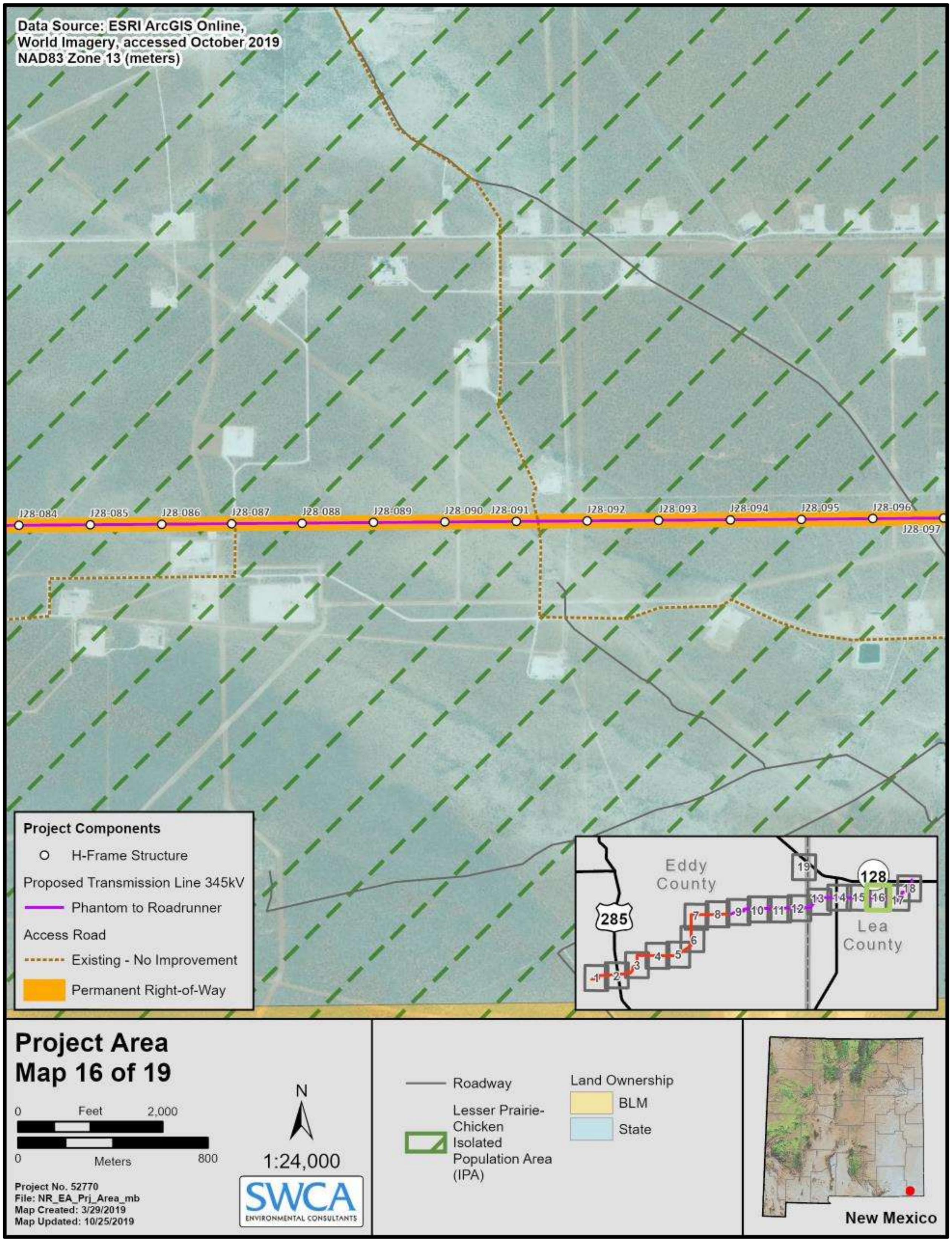

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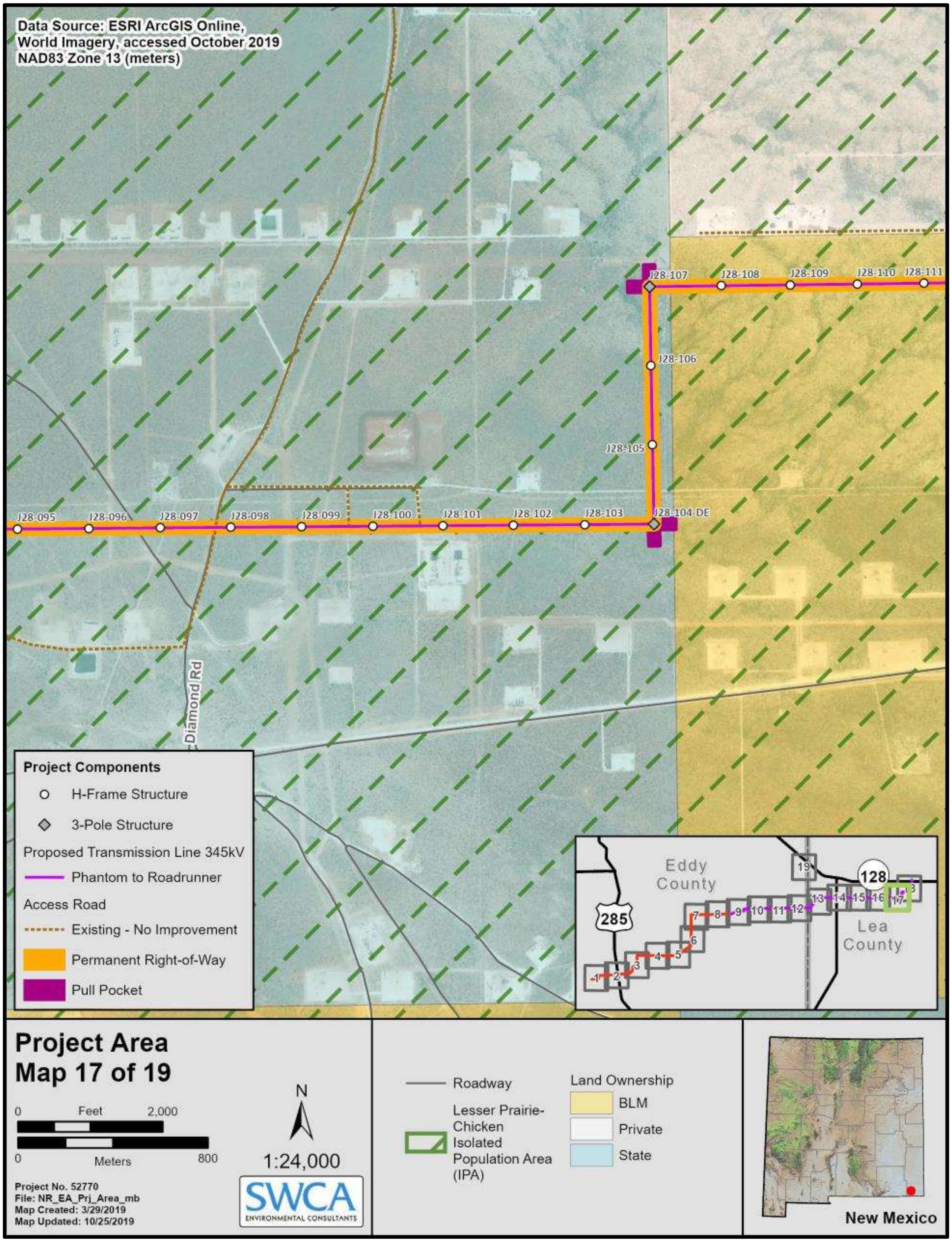

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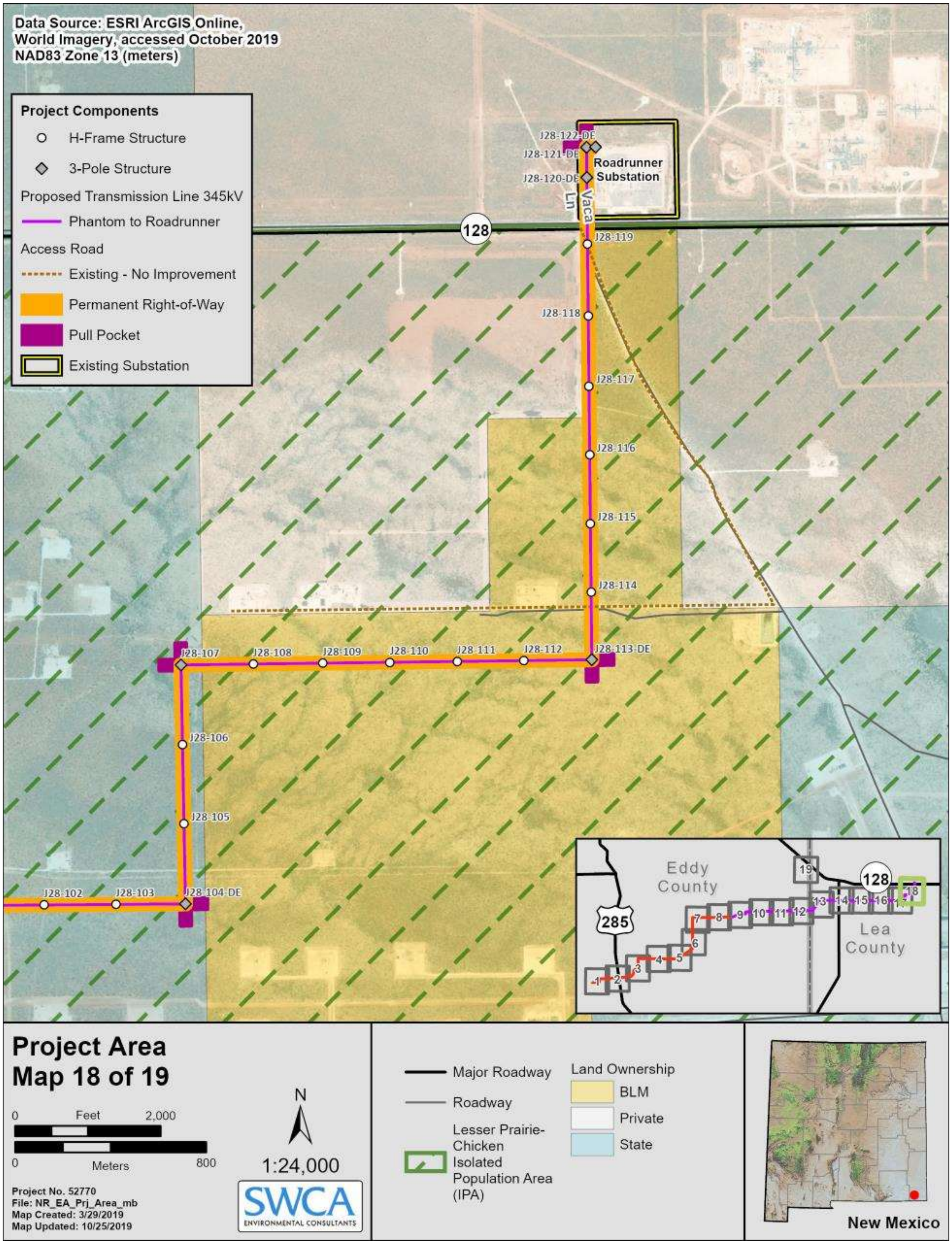

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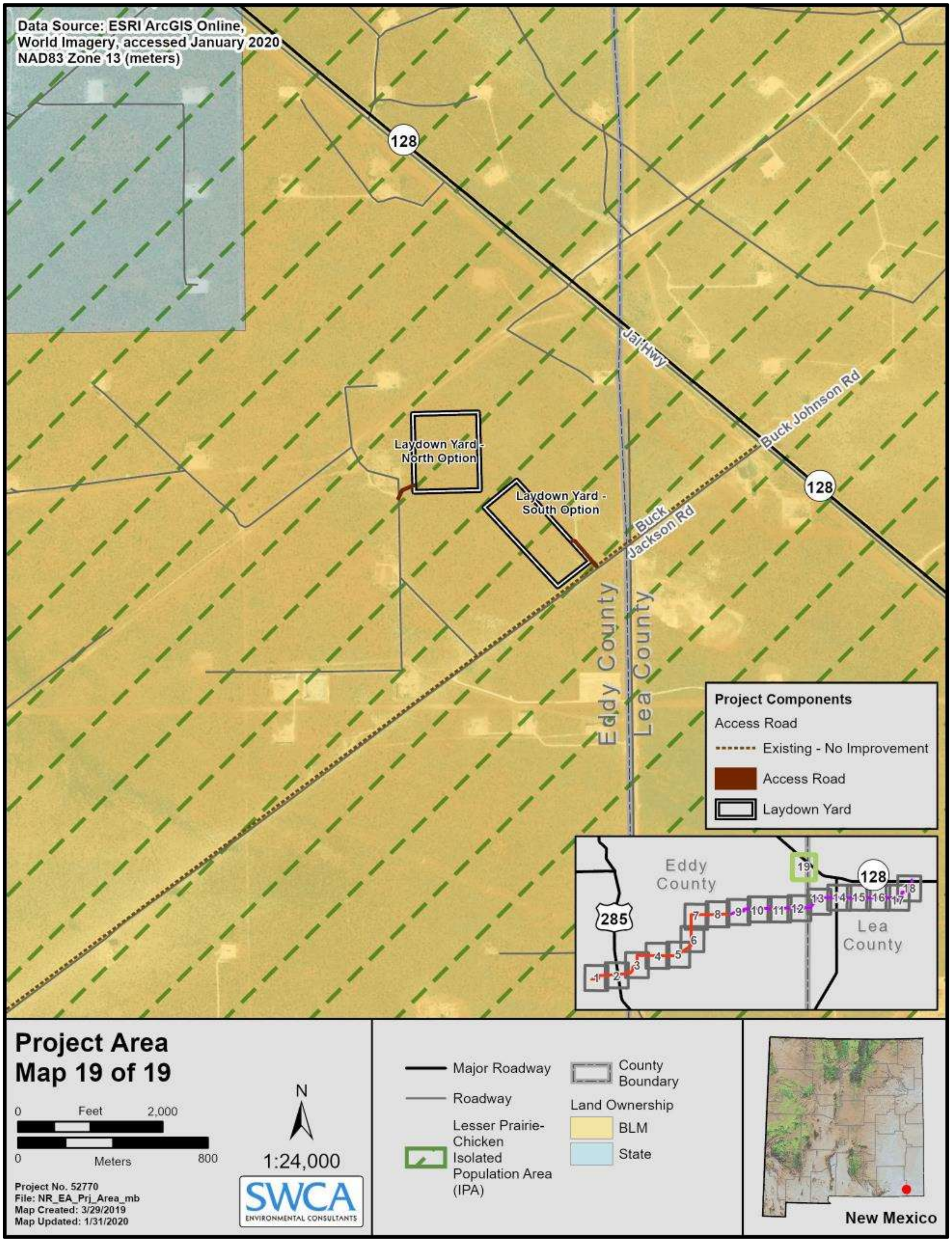

Figure C.19. Project area map (19 of 19).

APPENDIX D. AQUATIC RESOURCES

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Table D.1. Summary of Surface Water Features and Impacts in the Proposed Project Area

Unique Identification	Type	OHWM Width (feet)	Temporary Impacts (acres)	Permanent Impacts (acres)	Environmental Protection Measures Needed
DR-01	Ephemeral	5.4	0	<0.1	Timber mat, construction fences, filter socks
DR-02	Ephemeral	2.1	0	0	None needed; not intersecting project component
DR-03	Ephemeral	2.3	0	0	None needed; not intersecting project component
DR-04	Ephemeral	2.7	0	0	None needed; not intersecting project component
DR-05	Ephemeral	3.7	0	<0.1	Timber mat, construction fences, filter socks
DR-06	Ephemeral	5.9	0	<0.1	Timber mat, construction fences, filter socks
DR-07	Ephemeral	4.5	0	<0.1	Timber mat, construction fences, filter socks
DR-08	Ephemeral	1.2	0	<0.1	Timber mat, construction fences, filter socks
DR-09	Ephemeral	7.8	<0.1	0	Timber mat, construction fences, filter socks
DR-10	Ephemeral	3.7	0	0	None needed; not intersecting project component
DR-11	Ephemeral	5.0	0	0	None needed; not intersecting project component
DR-12*	Ephemeral	1.2	0	0	None needed; not intersecting project component
DR-13*	Ephemeral	1.4	0	0	None needed; not intersecting project component
DR-14	Ephemeral	3.5	0	0	None needed; not intersecting project component
DR-15	Ephemeral	1.8	0	0	None needed; not intersecting project component
DR-16	Ephemeral	2.2	0	0	None needed; not intersecting project component
DR-17	Ephemeral	3.5	0	0	None needed; not intersecting project component

Unique Identification	Type	OHWM Width (feet)	Temporary Impacts (acres)	Permanent Impacts (acres)	Environmental Protection Measures Needed
DR-18†	Ephemeral	3.0	0	0	None needed; not intersecting project component
DR-19†	Ephemeral	4.8	0	0	None needed; not intersecting project component
DR-20†	Ephemeral	6.4	0	<0.1	Timber mat, construction fences, filter socks
DR-21	Ephemeral	1.3	0	<0.1	Timber mat, construction fences, filter socks
DR-22	Ephemeral	3.5	0	<0.1	Timber mat, construction fences, filter socks
DR-23	Ephemeral	1.8	<0.1	<0.1	Timber mat, construction fences, filter socks
DR-24	Ephemeral	6.7	0	0	None needed; not intersecting project component
DR-25	Ephemeral	8.4	0	<0.1	Timber mat, construction fences, filter socks
DR-26	Ephemeral	3.0	0	0	None needed; not intersecting project component
DR-27*	Ephemeral	2.8	0	<0.1	None needed; not intersecting project component
DR-28*	Ephemeral	7.5	0	<0.1	Timber mat, construction fences, filter socks
DR-29*	Ephemeral	2.7	0	<0.1	Timber mat, construction fences, filter socks
DR-30	Ephemeral	1.7	0	0	None needed; not intersecting project component
DR-31*†	Ephemeral	14.0	0	0	Timber mat, construction fences, filter socks
DR-32	Ephemeral	4.5	0	0.1	None needed; not intersecting project component
DR-33	Ephemeral	3.8	0	<0.1	Timber mat, construction fences, filter socks
DR-34*	Ephemeral	10.0	0	<0.1	Timber mat, construction fences, filter socks. Existing two-track road to the north would be utilized to avoid driving over this area.

Unique Identification	Type	OHWM Width (feet)	Temporary Impacts (acres)	Permanent Impacts (acres)	Environmental Protection Measures Needed
DR-35[‡]	Ephemeral	3.4	0	0.1	Timber mat, construction fences, filter socks. All portions of the mapped drainage outside of ROW would not be impacted.
Pecos River	Perennial	50–80	0	0	The Pecos River would be spanned from outside of the FEMA 100-year flood zone, and no impacts are expected. Construction fences and filter socks would also be utilized to minimize stormwater runoff associated with the spanning of the Pecos River.

* Corresponds to NHD data (USGS 2019).

† Corresponds to drainages with OHWMs where photos are not available.

‡ General and regional conditions associated with NWP 12 (Utility Line Activities) and NWP 14 (Linear Transportation Projects), as well as State of New Mexico Water Quality Certification guidelines, would be followed during and after construction.

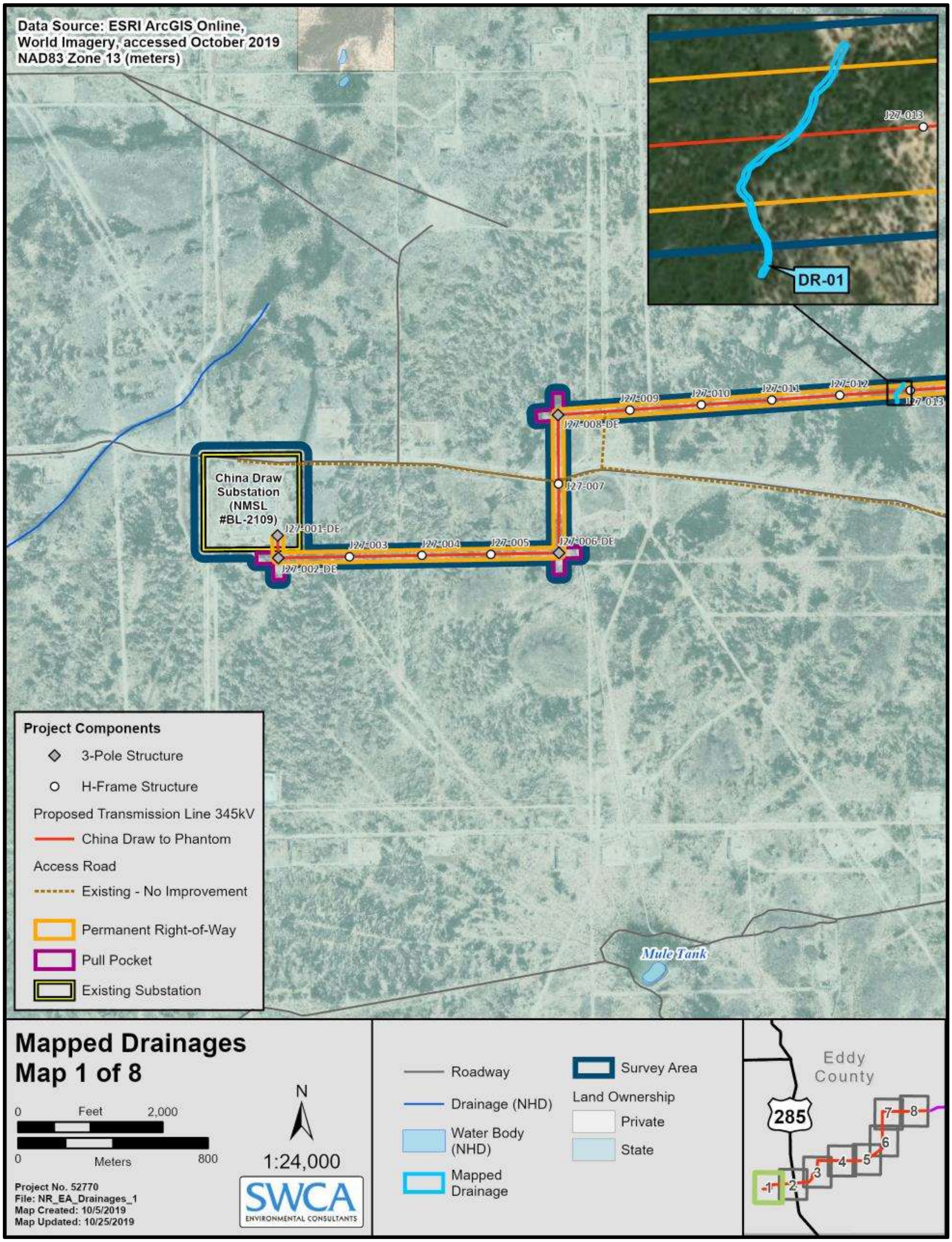


Figure D.1. Mapped drainages (1 of 8).

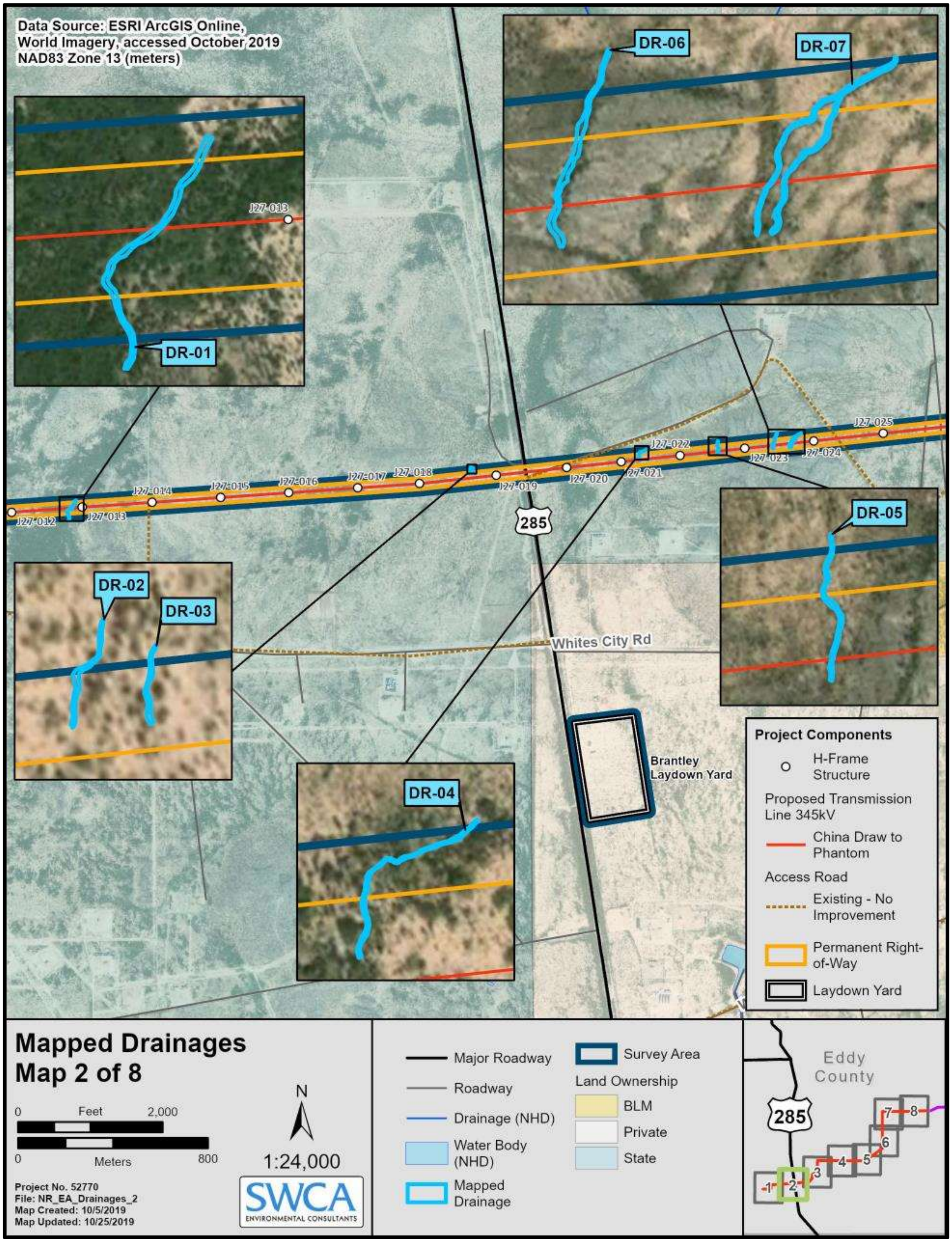


Figure D.2. Mapped drainages (2 of 8).

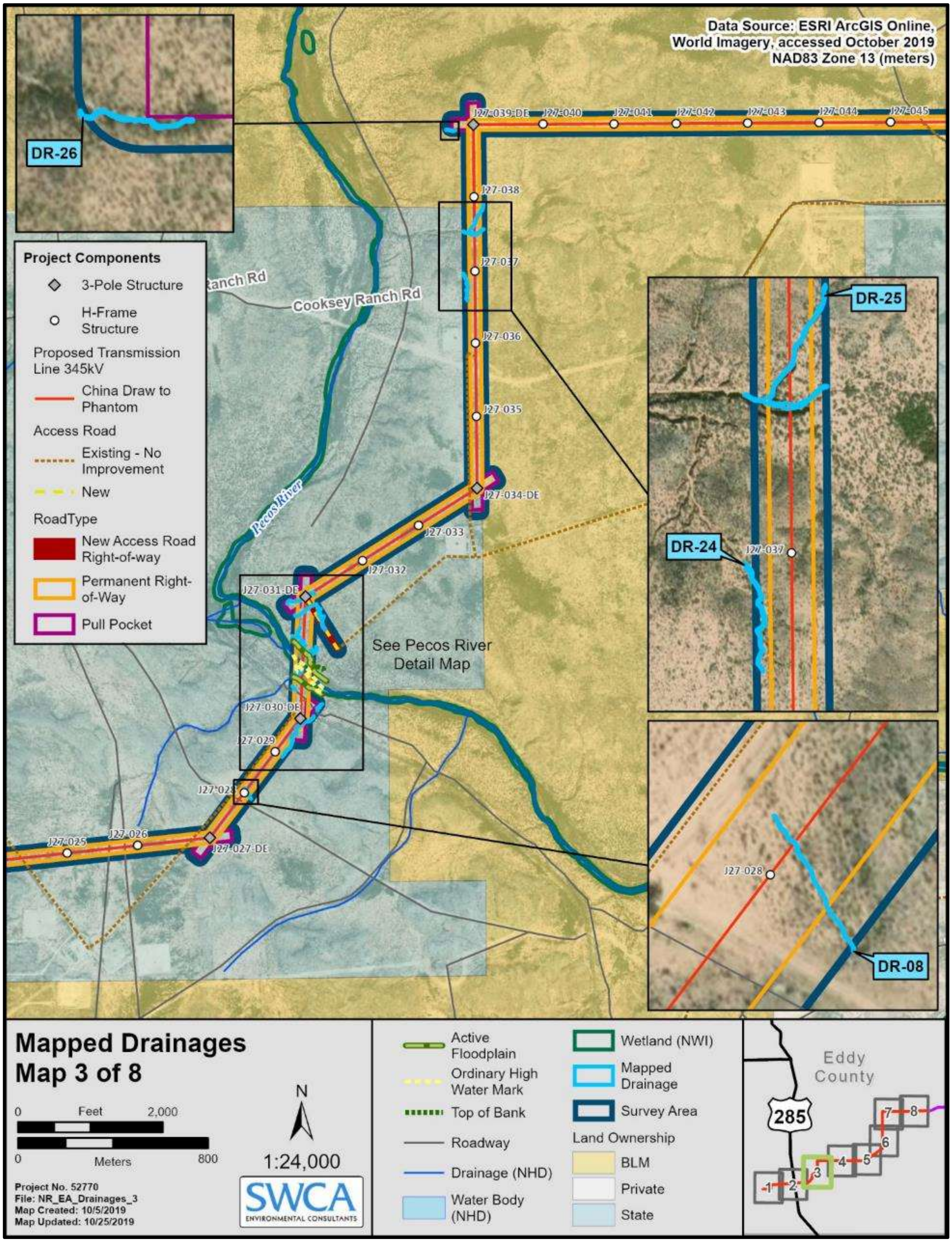


Figure D.3. Mapped drainages (3 of 8).

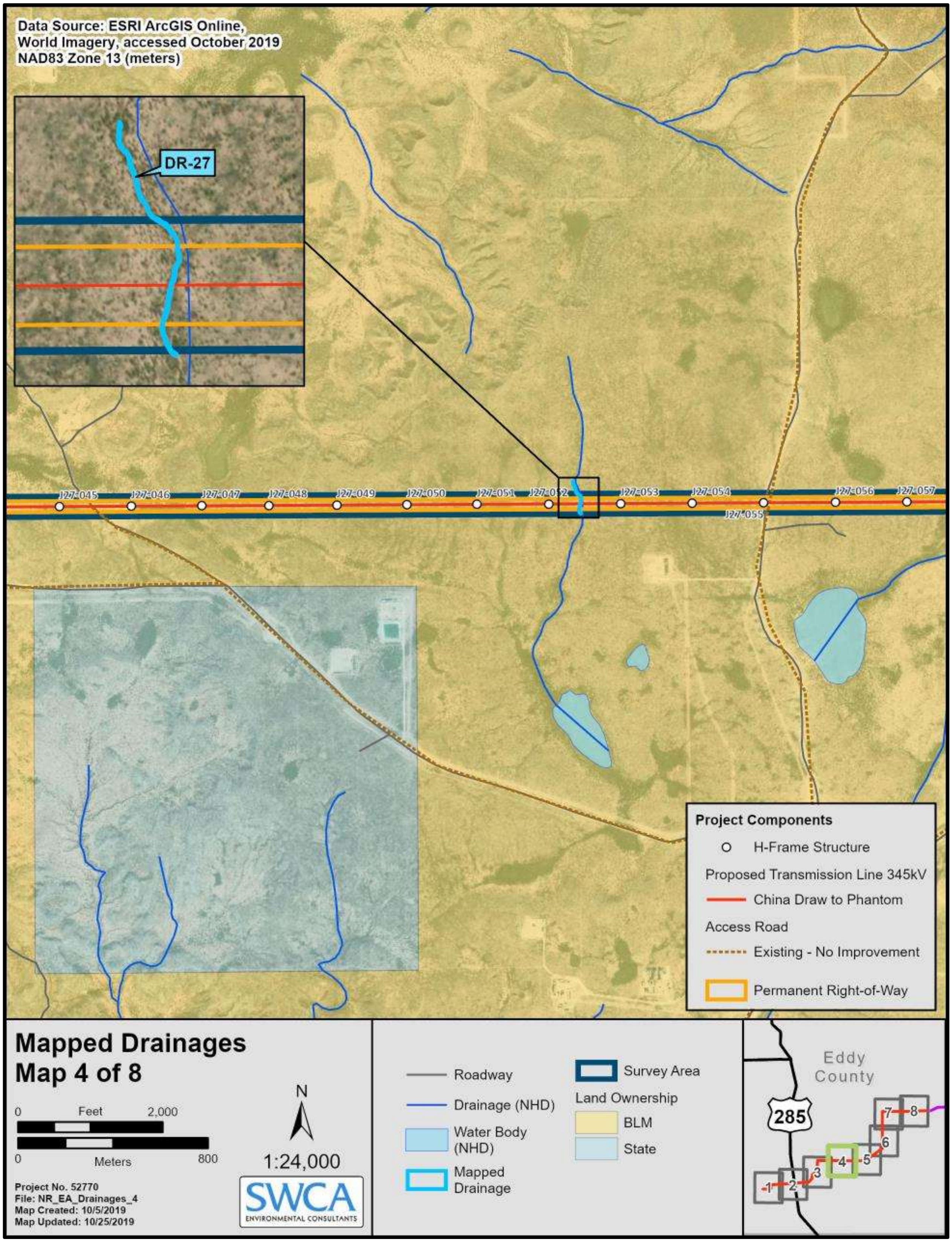


Figure D.4. Mapped drainages (4 of 8).

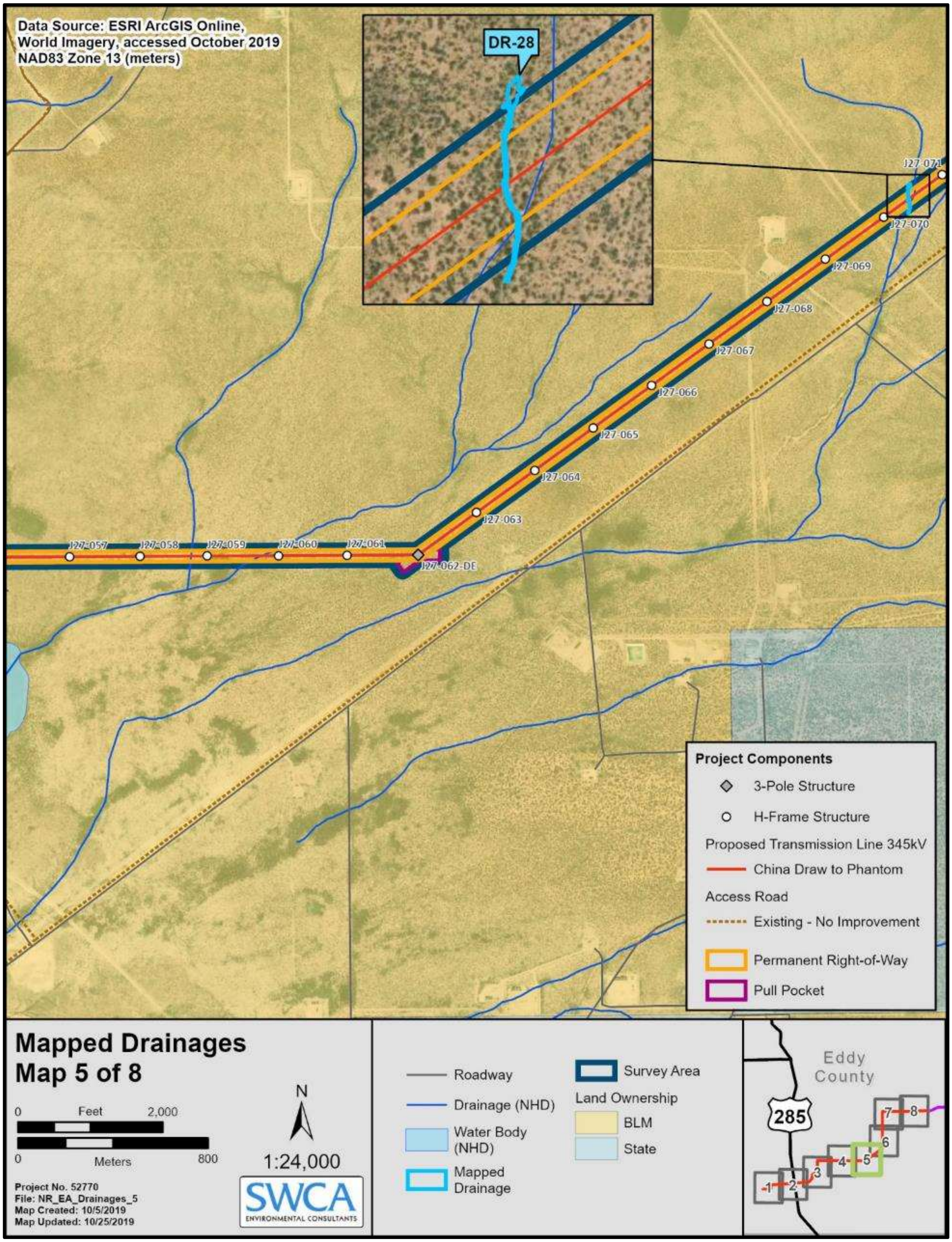


Figure D.5. Mapped drainages (5 of 8).

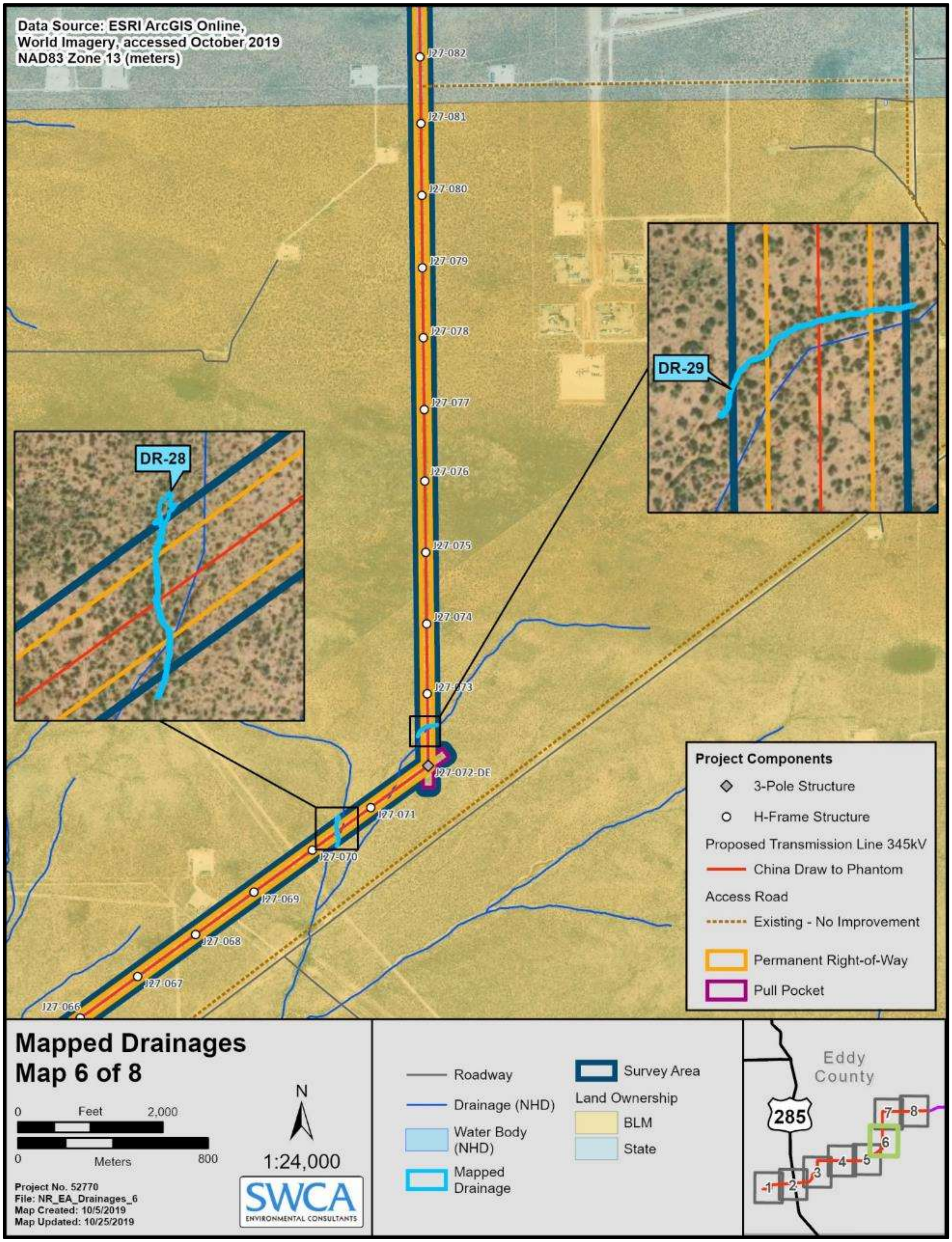


Figure D.6. Mapped drainages (6 of 8).

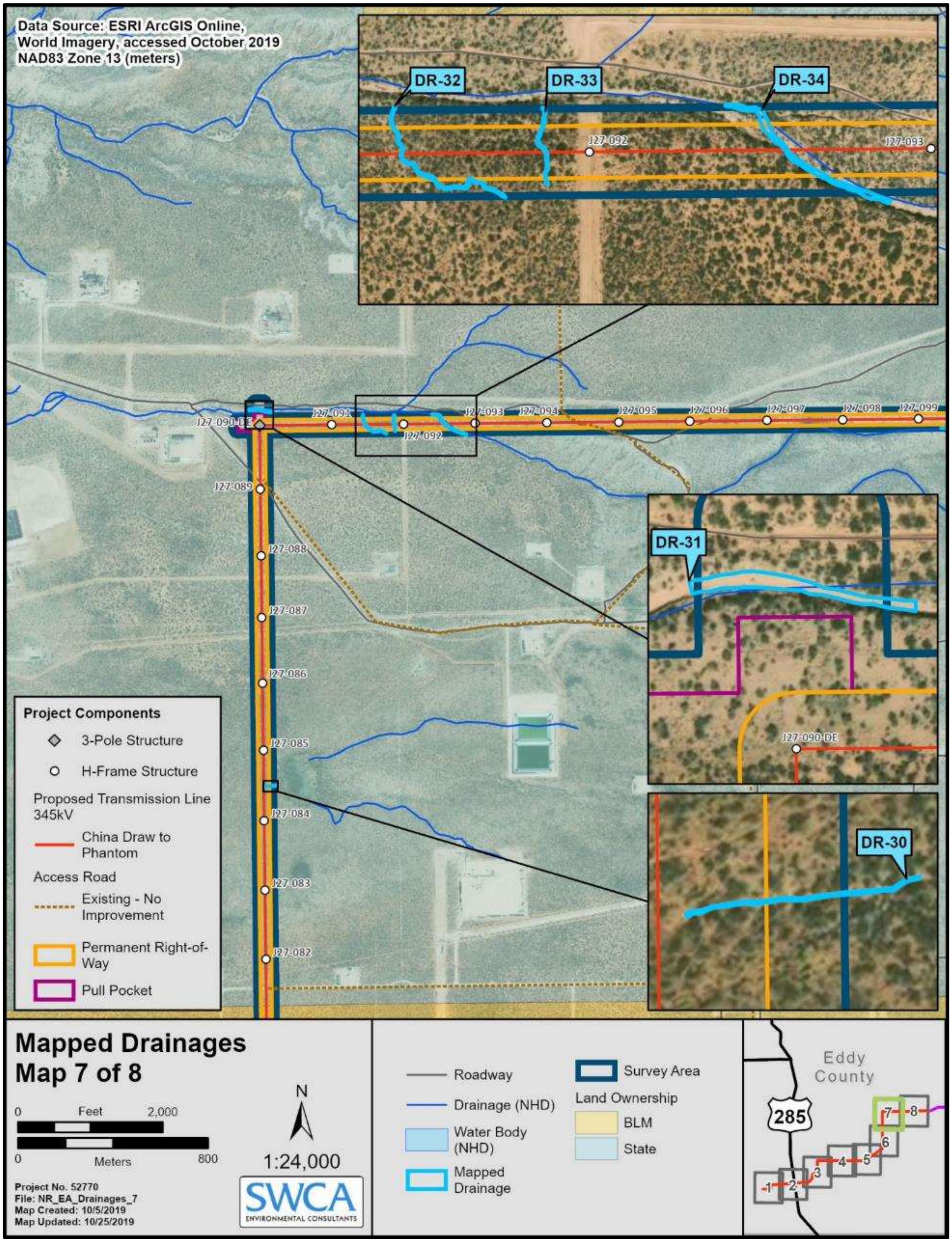


Figure D.7. Mapped drainages (7 of 8).

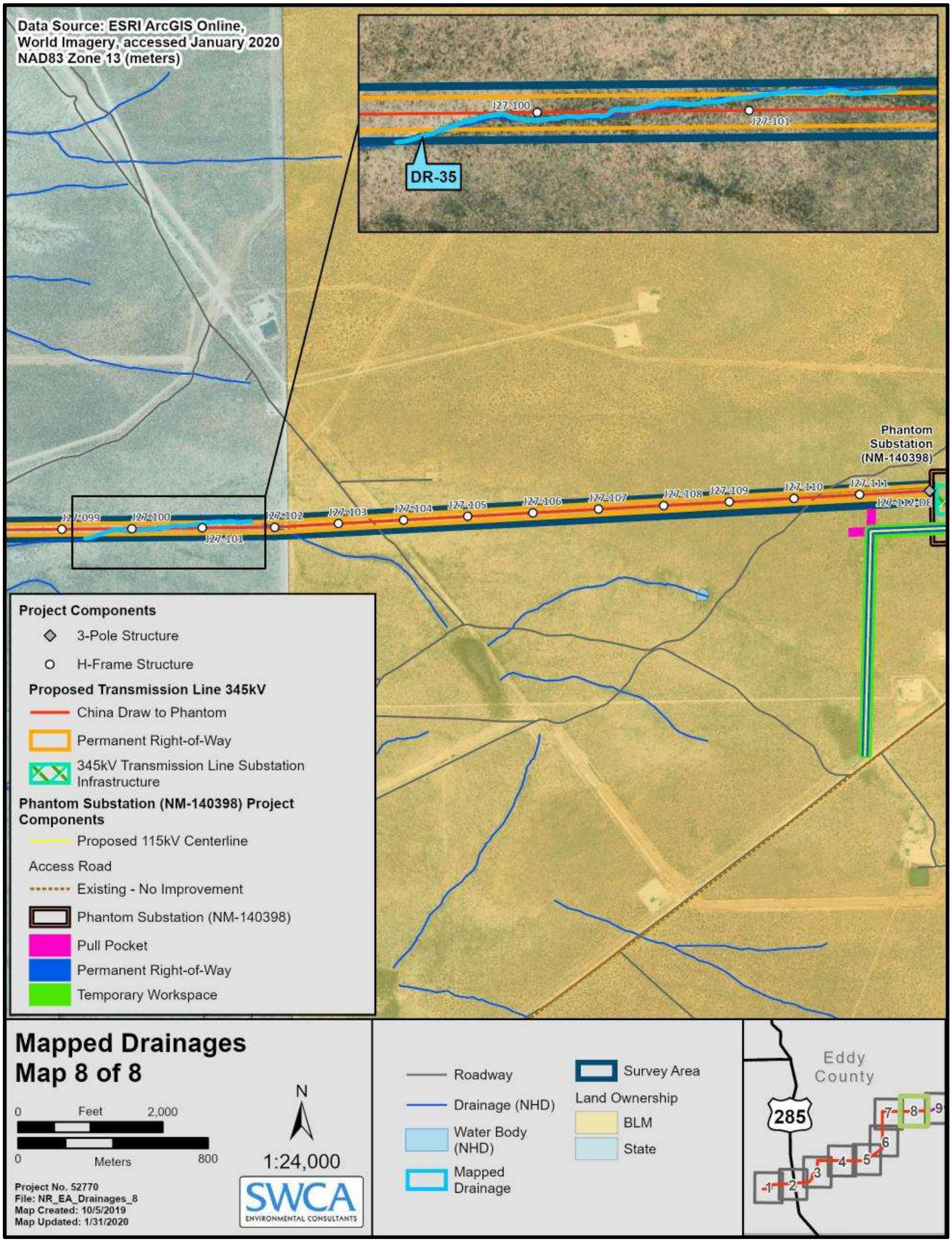


Figure D.8. Mapped drainages (8 of 8).

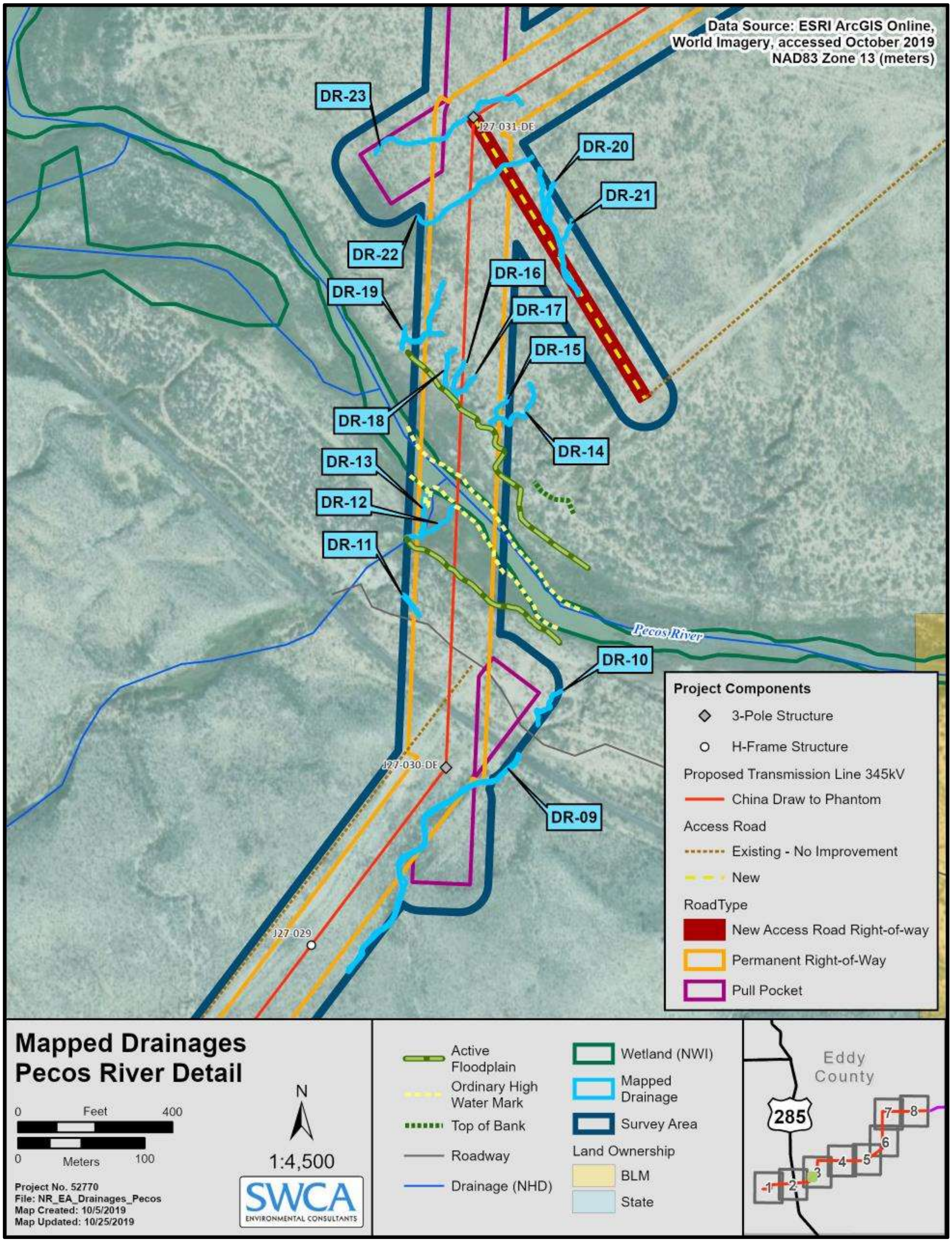


Figure D.9. Pecos River detail.

Photograph 1. View of the proposed project area, facing south (upstream) along potentially jurisdictional drainage DR-01 (not impacted).

Photograph 2. View of the proposed project area, facing north (downstream) along potentially jurisdictional drainage DR-01 (not impacted).

Photograph 3. View of the proposed project area, facing south (upstream) along potentially jurisdictional drainage DR-02 (not impacted).

Photograph 4. View of the proposed project area, facing north (downstream) along potentially jurisdictional drainage DR-02 (not impacted).

Photograph 5. View of the proposed project area, facing south (upstream) along potentially jurisdictional drainage DR-03 (not impacted).

Photograph 6. View of the proposed project area, facing north (downstream) along potentially jurisdictional drainage DR-03 (not impacted).

Photograph 7. View of the proposed project area, facing northeast (upstream) along potentially jurisdictional drainage DR-04 (not impacted).

Photograph 8. View of the proposed project area, facing southwest (downstream) along potentially jurisdictional drainage DR-04 (not impacted).

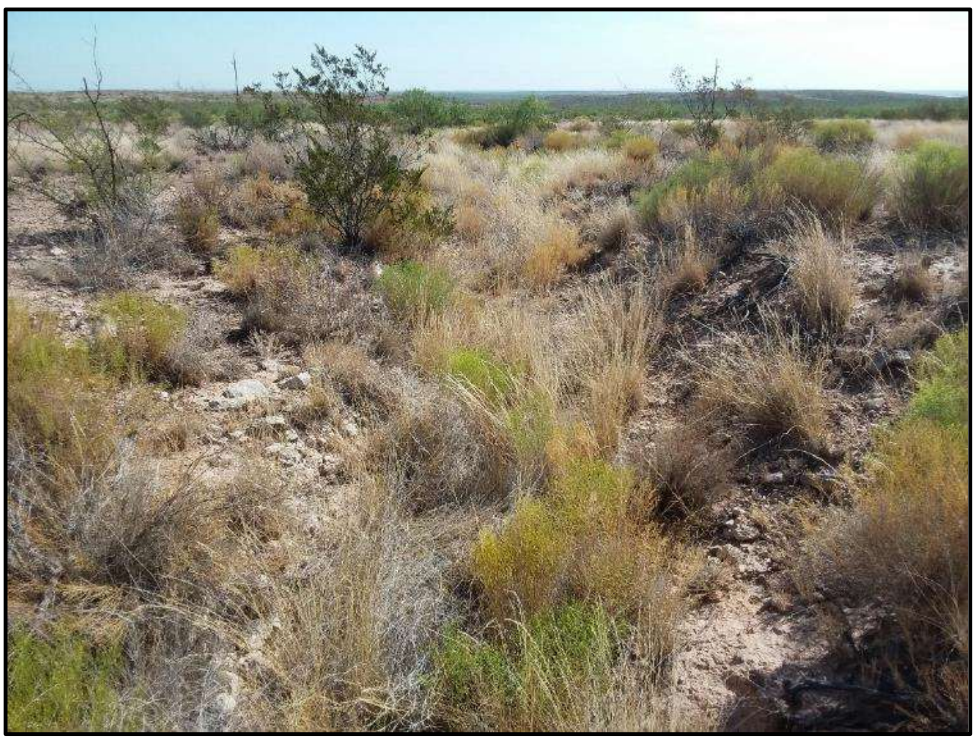
Photograph 9. View of the proposed project area, facing south (upstream) along potentially jurisdictional drainage DR-05 (not impacted).

Photograph 10. View of the proposed project area, facing north (downstream) along potentially jurisdictional drainage DR-05 (not impacted).

Photograph 11. View of the proposed project area, facing southwest (upstream) along potentially jurisdictional drainage DR-06 (not impacted).

Photograph 12. View of the proposed project area, facing northeast (downstream) along potentially jurisdictional drainage DR-06 (not impacted).

Photograph 13. View of the proposed project area, facing southwest (upstream) along potentially jurisdictional drainage DR-07 (not impacted).



Photograph 14. View of the proposed project area, facing northeast (downstream) along potentially jurisdictional drainage DR-07 (not impacted).

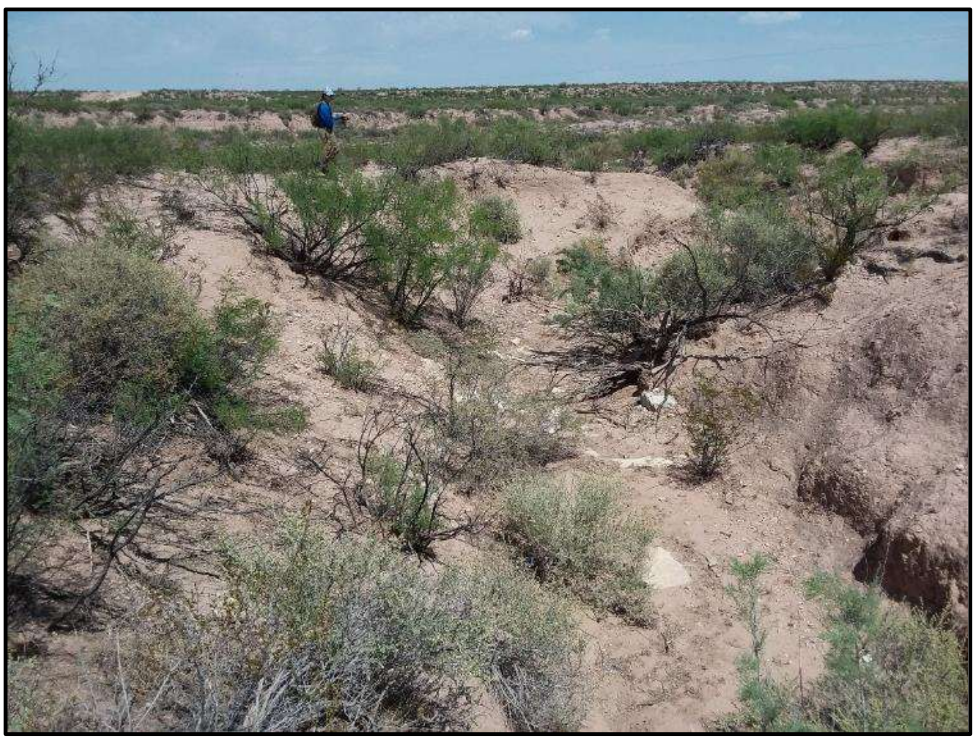
Photograph 15. View of the proposed project area, facing east (upstream) along potentially jurisdictional drainage DR-08 (not impacted).

Photograph 16. View of the proposed project area, facing west (downstream) along potentially jurisdictional drainage DR-08 (not impacted).

Photograph 17. View of the proposed project area, facing southwest (upstream) along potentially jurisdictional drainage DR-09 (not impacted).

Photograph 18. View of the proposed project area, facing northeast (downstream) along potentially jurisdictional drainage DR-09 (not impacted).

Photograph 19. View of the proposed project area, facing south (upstream) along potentially jurisdictional drainage DR-10 (not impacted).



Photograph 20. View of the proposed project area, facing north (downstream) along potentially jurisdictional drainage DR-10 (not impacted).

Photograph 21. View of the proposed project area, facing southwest (upstream) along potentially jurisdictional drainage DR-11 (not impacted).

Photograph 22. View of the proposed project area, facing northeast (downstream) along potentially jurisdictional drainage DR-11 (not impacted).

Photograph 23. View of the proposed project area, facing northeast (upstream) along potentially jurisdictional drainage DR-12 (not impacted).

Photograph 24. View of the proposed project area, facing southwest (downstream) along potentially jurisdictional drainage DR-12 (not impacted).

Photograph 25. View of the proposed project area, facing southwest (upstream) along potentially jurisdictional drainage DR-13 (not impacted).

Photograph 26. View of the proposed project area, facing northeast (downstream) along potentially jurisdictional drainage DR-13 (not impacted).

Photograph 27. View of the proposed project area, facing east (upstream) along potentially jurisdictional drainage DR-14 (not impacted).

Photograph 28. View of the proposed project area, facing west (downstream) along potentially jurisdictional drainage DR-14 (not impacted).

Photograph 29. View of the proposed project area, facing east (upstream) along potentially jurisdictional drainage DR-15 (not impacted).

Photograph 30. View of the proposed project area, facing west (downstream) along potentially jurisdictional drainage DR-15 (not impacted).

Photograph 31. View of the proposed project area, facing east (upstream) along potentially jurisdictional drainage DR-16 (not impacted).

Photograph 32. View of the proposed project area, facing west (downstream) along potentially jurisdictional drainage DR-16 (not impacted).

Photograph 33. View of the proposed project area, facing northeast (upstream) along potentially jurisdictional drainage DR-17 (not impacted).

Photograph 34. View of the proposed project area, facing southwest (downstream) along potentially jurisdictional drainage DR-17 (not impacted).

Photograph 35. View of the proposed project area, facing east (upstream) along potentially jurisdictional drainage DR-19 (not impacted).

Photograph 36. View of the proposed project area, facing northeast (upstream) along potentially jurisdictional drainage DR-21.

Photograph 37. View of the proposed project area, facing southwest (downstream) along potentially jurisdictional drainage DR-21.

Photograph 38. View of the proposed project area, facing north (upstream) along potentially jurisdictional drainage DR-22.

Photograph 39. View of the proposed project area, facing south (downstream) along potentially jurisdictional drainage DR-22.

Photograph 40. View of the proposed project area, facing east (upstream) along potentially jurisdictional drainage DR-23.

Photograph 41. View of the proposed project area, facing west (downstream) along potentially jurisdictional drainage DR-23.

Photograph 42. View of the proposed project area, facing south (upstream) along potentially jurisdictional drainage DR-24 (not impacted).

Photograph 43. View of the proposed project area, facing north (downstream) along potentially jurisdictional drainage DR-24 (not impacted).

Photograph 44. View of the proposed project area, facing east (upstream) along potentially jurisdictional drainage DR-25 (not impacted).

Photograph 45. View of the proposed project area, facing west (downstream) along potentially jurisdictional drainage DR-25 (not impacted).

Photograph 46. View of the proposed project area, facing east (upstream) along potentially jurisdictional drainage DR-26 (not impacted).

Photograph 47. View of the proposed project area, facing west (downstream) along potentially jurisdictional drainage DR-26 (not impacted).

Photograph 48. View of the proposed project area, facing north (upstream) along potentially jurisdictional drainage DR-27 (not impacted).

Photograph 49. View of the proposed project area, facing south (downstream) along potentially jurisdictional drainage DR-27 (not impacted).

Photograph 50. View of the proposed project area, facing north (upstream) along potentially jurisdictional drainage DR-28 (not impacted).

Photograph 51. View of the proposed project area, facing south (downstream) along potentially jurisdictional drainage DR-28 (not impacted).

Photograph 52. View of the proposed project area, facing north (upstream) along potentially jurisdictional drainage DR-29 (not impacted).

Photograph 53. View of the proposed project area, facing south (downstream) along potentially jurisdictional drainage DR-29 (not impacted).

Photograph 54. View of the proposed project area, facing south (upstream) along potentially jurisdictional drainage DR-30 (not impacted).

Photograph 55. View of the proposed project area, facing north (downstream) along potentially jurisdictional drainage DR-30 (not impacted).

Photograph 56. View of the proposed project area, facing south (upstream) along potentially jurisdictional drainage DR-32 (not impacted).

Photograph 57. View of the proposed project area, facing north (downstream) along potentially jurisdictional drainage DR-32 (not impacted).

Photograph 58. View of the proposed project area, facing south (upstream) along potentially jurisdictional drainage DR-33 (not impacted).

Photograph 59. View of the proposed project area, facing north (downstream) along potentially jurisdictional drainage DR-33 (not impacted).

Photograph 60. View of the proposed project area, facing southeast (upstream) along potentially jurisdictional drainage DR-34 (not impacted).

Photograph 61. View of the proposed project area, facing northwest (downstream) along potentially jurisdictional drainage DR-34 (not impacted).

Photograph 62. View of the proposed project area, facing east (upstream) along potentially jurisdictional drainage DR-35 (not impacted).

Photograph 63. View of the proposed project area, facing west (downstream) along potentially jurisdictional drainage DR-35 (not impacted).

APPENDIX E. LEGAL LAND DESCRIPTION

PERMANENT TRANSMISSION LINE ROW

BLM Lands

Township (T.) 24 South (S.), Range (R.) 33 East (E.), NMPM
Section (sec.) 24: W½W½;
sec. 25: NW¼NW¼;
sec. 26: N ½N½.

T. 24 S., R. 32 E., NMPM
sec. 25: N½SW¼, N½SE¼, SE¼SE¼;
sec. 26: N½S½;
sec. 27: N½S½;
sec. 28: N½S½;
sec. 29: N½S½;
sec. 30: E ½ SE ¼;
sec. 31: N½NE¼, SW¼NE¼, SE¼NE¼, NE¼SW¼, Lot 3, Lot 4.

T. 24 S., R. 31 E., NMPM
sec. 31: Lot 4, Lot 5, Lot 6, Lot7;
sec. 33: Lot 1, Lot 2, Lot 3, Lot 4;
sec. 34: Lot 1, Lot 2, Lot 3, Lot 4;
sec. 35: Lot 1, Lot 2, Lot 3, Lot4.

T. 25 S., R. 30 E., NMPM
sec. 01: Lot 4, Lot 3;
sec. 03: S½N½;
sec. 04: S½NE¼, S½NW¼, N½SW¼.

T. 25 S., R. 29 E., NMPM
sec. 13: W½E½;
sec. 24: W½NE¼, SE¼SW¼, N½S¼, SW¼, SE¼;
sec. 25: N½NW¼;
sec. 25: N½NW¼;
sec. 26: W½NE¼, SW¼NE¼, SW¼, NW¼SE¼;
sec. 27: S½S½;
sec. 28: S½S½;
sec. 29:S½S½;
sec. 30: S½S½.

T. 25 S., R. 28 E., NMPM
sec. 25: E½SE¼.

SLO Lands

T. 24 S., R. 33 E., NMPM
sec. 27: E½NE¼, SW¼, SE¼;
sec. 28: S½;
sec. 29: S½;
sec. 30: Lot 3, Lot 4, E½SW¼, SE¼.

T. 24 S., R. 31 E., NMPM
sec. 32: Lot 1, Lot 2, Lot 3, Lot 4;
sec. 36: Lot 1, Lot 2, Lot 3, Lot 4.

T. 24 S., R. 30 E., NMPM
sec. 36: S½S½.

T. 25 S., R. 30 E., NMPM
sec. 02: Lot 1, Lot 2, Lot 3, S½NW¼;
sec. 05: S½NE¼, S½NW¼, N½SW¼, N½SE¼;
sec. 06: S½NE¼, S½NW¼, N½SW¼, N½SE¼.

T. 25 S., R. 29 E., NMPM
sec. 01: S½NE¼, W½SE¼;
sec. 12: W½E½.

T. 25 S., R. 28 E., NMPM
sec. 36: E½E½, SW¼SE¼.

T. 26 S., R. 28 E., NMPM
sec. 01: W ½ NE ¼, SE ¼ NW ½, N ½ SW ¼,
sec. 02: SW ¼, N ½ SE ¼, SW ¼ SE ¼;
sec. 03: S ½, S ½;
sec. 04: S ½ S ½;
sec. 05: SE ¼ SE ¼;
sec. 08: NE ¼ NW ¼.

Private Lands

T. 24 S., R. 33 E., NMPM
sec. 13: SW¼SW¼.

LAYDOWN YARDS

BLM Land

T. 24 S., R. 31 E., NMPM
sec. 12: NW¼NE¼, SE¼NW¼, NE¼SW¼, N½SE¼, SW¼SE¼.

Private Land

T. 26 S., R. 28 E., NMPM
sec. 11: S½NW¼, NW¼SW¼.

PROPOSED ACCESS ROAD

SLO Land

T. 26 S., R. 28 E., NMPM
sec. 01: NW¼NE¼.

IMPROVED ACCESS ROAD

BLM Land

T. 24 S., R. 31 E., NMPM
sec. 33: NE¼NE¼;
sec. 34: N½N½;
sec. 35: N½N½.

STRUCTURE PADS

BLM Land

T. 24 S., R. 33 E., NMPM
sec. 24: W½W½;
sec. 25: NW¼NW¼;
sec. 26: N ½N½.

T. 24 S., R. 32 E., NMPM
sec. 25: N½SW¼, N½SE¼, SE¼SE¼;
sec. 26: N½S½;
sec. 27: N½S½;
sec. 28: N½S½;
sec. 29: N½S½;
sec. 30: E ½ SE ¼;
sec. 31: N½NE¼, SW¼NE¼, SE¼NE¼, NE¼SW¼, Lot 3, Lot 4.

T. 24 S., R. 31 E., NMPM
sec. 31: Lot 4, Lot 5, Lot 6, Lot 7;
sec. 33: Lot 1, Lot 2, Lot 3, Lot 4;
sec. 34: Lot 1, Lot 2, Lot 3, Lot 4;
sec. 35: Lot 1, Lot 2, Lot 3, Lot 4.

T. 25 S., R. 30 E., NMPM
sec. 01: Lot 4, Lot 3;
sec. 03: S½N½;
sec. 04: S½NE¼, S½NW¼, N½SW¼.

T. 25 S., R. 29 E., NMPM
sec. 13: W½E½;
sec. 24: W½NE¼, SE¼SW¼, N½S¼, SW¼, SE¼;
sec. 25: N½NW¼;
sec. 25: N½NW¼;
sec. 26: W½NE¼, SW¼NE¼, SW¼, NW¼SE¼;
sec. 27: S½S½;
sec. 28: S½S½;
sec. 29: S½S½;
sec. 30: S½S½.

T. 25 S., R. 28 E., NMPM
sec. 25: E½SE¼.

SLO Lands

T. 24 S., R. 33 E., NMPM
sec. 27: E½NE¼, SW¼, SE¼;
sec. 28: S½;
sec. 29: S½;
sec. 30: Lot 3, Lot 4, E½SW¼, SE¼.

T. 24 S., R. 31 E., NMPM
sec. 32: Lot 1, Lot 2, Lot 3, Lot 4;
sec. 36: Lot 1, Lot 2, Lot 3, Lot 4.

T. 24 S., R. 30 E., NMPM
sec. 36: S½S½.

T. 25 S., R. 30 E., NMPM
sec. 02: Lot 1, Lot 2, Lot 3, S½NW¼;
sec. 05: S½NE¼, S½NW¼, N½SW¼, N½SE¼;
sec. 06: S½NE¼, S½NW¼, N½SW¼, N½SE¼.

T. 25 S., R. 29 E., NMPM
sec. 01: S½NE¼, W½SE¼;
sec. 12: W½E½.

T. 25 S., R. 28 E., NMPM
sec. 36: E½E½, SW¼SE¼.

T. 26 S., R. 28 E., NMPM
sec. 01: W ½ NE ¼ , SE ¼ NW ½, N ½ SW ¼,
sec. 02: SW ¼, N ½ SE ¼, SW ¼ SE ¼;
sec. 03: S ½, S ½;
sec. 04: S ½ S ½;
sec. 05: SE ¼ SE ¼;
sec. 08: NE ¼ NW ¼.

Private Lands

T. 24 S., R. 33 E., NMPM
sec. 13: SW¼SW¼.

APPENDIX F. VISUAL CONTRAST RATING FORMS

Form 8400-4

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: October 29, 2019

District/ Field Office: BLM CFO

Resource Area:

Activity (program): Realty

SECTION A. PROJECT INFORMATION

1. Project Name China Draw-Phantom-Roadrunner	4. Location Township 25S ____	5. Location Sketch
2. Key Observation Point KOP 1, on the western bank of the Pecos River facing east Latitude/Longitude: 32° 5'38.81"N, 104° 2'17.21"W	Range____23E	
3. VRM Class: IV	Section__25______	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Relatively flat land in foreground on bank of the Pecos River with slightly rolling hills in the background	Uniform desert scrub and scattered taller vegetation on the bank of the Pecos River	None
LINE	Horizontal, regular	Shrubs scattered	None
COLOR	Light brown, sandy tan, light and dark greens	Shades of green and brown from shrubs and grasses	None
TEX-TURE	Rough, coarse foreground and background	Rough, course foreground and background	None

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Relatively flat land with slightly rolling hills in the background	Uniform desert scrub and scattered taller vegetation on the bank of the Pecos River (two track road and base of structures would not be visible from KOP)	No landform changes
LINE	Horizontal, regular	Shrubs scattered (two track road and base of structures would not be visible from KOP)	vertical pole structures horizontal lines in the distance
COLOR	Light brown, sandy tan, light and dark greens. Some tan may be exposed from use of down ROW two track road.	Shades of green and brown from shrubs and grasses	Light grey, reflective from conductor lines Darker pole structures
TEX-TURE	Rough, coarse foreground and background	Rough, course foreground and background	No visible changes in vegetative cover

SECTION D. CONTRAST RATING __SHORT TERM X_LONG TERM

1.	FEATURES	

Form 8400-4

DEGREE OF CONTRAST	LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
ELEMENTS	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
FORM			X				X				X	
LINE			X				X		X			
COLOR			X				X			X		
TEXTURE			X				X				X	

2. Does project design meet visual resource management objectives? X_Yes ___No
(Explain on reverse side)

3. Additional mitigating measures recommended
__X__Yes _No (Explain on reverses side)

Evaluator's Names Date: 10/31/2019
Mikaela Buscher, Paige Marchus
SWCA Environmental Consultant

SECTION D. (Continued)

Comments from item 2.
This KOP was selected to represent the viewshed from human eye level height at the bank of the Pecos River where recreationists may be present. The proposed transmission line is approximately 0.34 mile (1,779 feet) from KOP 1. Contrast to line therefore would be strong, as it is a new linear element on the landscape. Depending on the lighting conditions, some reflectivity would create a moderate contrast from color. The proposed structures and lines are located in VRM IV where the level of change to the characteristic landscape can be high, and therefore meet management objectives with the mitigation proposed below.

Additional Mitigating Measures (See item 3)

Approximately 122 linear feet of proposed transmission line cross lands designated as VRM Class II. A shift out of this area would retain conformance as the project would then be wholly within VRM Class IV, where the modification to the landscape can be high. The reviewer recommends limiting structure heights within the viewshed of KOP 1 to 120 feet tall where possible, to limit contrast from KOP 1 by reducing the amount of structure and line visible at KOP 1.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: October 29, 2019

District/ Field Office: BLM CFO

Resource Area: Visual

Activity (program): Realty

SECTION A. PROJECT INFORMATION

1. Project Name
China Draw-Phantom-Roadrunner

2. Key Observation Point
KOP 2, on a BLM lease road located on the western side of the Pecos River facing east / southeast
Latitude/Longitude: 32° 6'2.62"N, 104° 2'40.42"W

3. VRM Class: IV

4. Location
Township
25S ____

Range____23E

Section__25______

5. Location Sketch

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Relatively flat land in foreground and background	Uniform desert scrub	Some infrastructure seen in the background
LINE	Horizontal, regular	Shrubs scattered	Some vertical infrastructure in the background
COLOR	Light brown, sandy tan, light and dark greens and some yellow	Shades of green, brown and yellow from shrubs and grasses	Unable to determine color
TEX-TURE	Rough, coarse foreground and background	Rough, course foreground and background	Blocky and linear

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Relatively flat land in foreground and background	Some gaps in shrubs from down ROW two track access road	No landform changes
LINE	Horizontal, regular	Shrubs scattered, some gaps in shrubs from down ROW two track access road	vertical pole structures horizontal lines in the distance
COLOR	Light brown, sandy tan, light and dark greens. Some tan may be exposed from use of down ROW two track road.	Shades of green and brown from shrubs and grasses	Light grey, reflective from conductor lines Darker pole structures
TEX-TURE	Rough, coarse foreground and background	Rough, course foreground and background	No changes in vegetative cover

SECTION D. CONTRAST RATING __SHORT TERM X_LONG TERM

Form 8400-4

1. DEGREE OF CONTRAST		FEATURES											
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM			X				X				X	
	LINE			X				X		X			
	COLOR			X				X			X		
	TEXTURE			X				X				X	

2. Does project design meet visual resource management objectives? X_Yes ___No
(Explain on reverses side)
3. Additional mitigating measures recommended
X_Yes __No (Explain on reverse side)

Evaluator's Names Date: 10/31/2019
Mikaela Buscher, Paige Marchus SWCA Environmental Consultants

SECTION D. (Continued)

Comments from item 2.
This KOP was identified to represent the view of the casual observer within the VRM II zone corridor for the Pecos River. This KOP is the nearest accessible point from a vehicle, to the project area. The proposed transmission line would be 0.77 mile (4,044 feet) from KOP 2. At this distance, the change from the proposed project would be the introduction of new a linear element in the distance. The linear element may be reflective in the distance based on lighting conditions. Contrast would be weak for form and texture, and moderate and strong for color and line. The proposed structures and lines are located in VRM IV where the level of change to the characteristic landscape can be high, and therefore meet management objectives with the mitigation proposed below.

Additional Mitigating Measures (See item 3)

Approximately 122 linear feet of proposed transmission line cross lands designated as VRM Class II. A shift out of this area would retain conformance as the project would then be wholly within VRM Class IV, where the modification to the landscape can be high. The reviewer recommends limiting structure heights within the viewshed of KOP 2 to 120 feet tall where possible, to limit contrast from KOP 2 by reducing the amount of structure and line visible at KOP 2.

China Draw-Phantom-Roadrunner 345-kV Transmission Line Project

BLM ROW Serial No. NM-139666

Final Plan of Development

Submitted to:

XCEL ENERGY/SOUTHWESTERN PUBLIC SERVICE COMPANY
790 South Buchanan Street, 6th Floor
Amarillo, Texas 79101

January 2020

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1. INTRODUCTION

Southwestern Public Service Company (SPS), a wholly owned subsidiary of Xcel Energy Inc. (Xcel Energy), submitted an Application for Transportation and Utility Systems and Facilities on Federal Lands (Standard Form 299) to the Bureau of Land Management (BLM) Carlsbad Field Office (CFO) for a right-of-way (ROW) grant needed to construct, operate, and maintain a 345-kilovolt (-kV) transmission line in southeast New Mexico, also referred to as the Roadrunner – Phantom – China Draw 345-kV Transmission Line and herein referred to as the project or Proposed Action (BLM serial No. NM-139666). Xcel Energy is a registered holding company that owns several electric and natural gas utility operating companies. The project crosses BLM CFO–managed surface lands, New Mexico State Land Office (SLO) lands, and private lands (Figure 1.1). The BLM is serving as the lead federal agency for the undertaking.

This plan of development (POD) provides an overview of the project, and information from this POD was incorporated into the environmental assessment (EA) prepared for the project to meet the BLM's requirements under the National Environmental Policy Act (NEPA). This POD includes a general description of the design, construction, operation, and maintenance of the project and provides detailed information on the proposed facilities, procedures, and measures that SPS, as the proponent, would implement during construction, operation, and maintenance of the project. SPS would construct and operate the project in conformity with this POD, which was included as part of the ROW grant.

1.1. Southwestern Public Service Company

SPS is a regulated utility that generates, purchases, transmits, distributes, and sells electricity in Texas and New Mexico. SPS provides service to more than 380,000 retail customers, including residential, commercial, industrial, and public customers. As a point of clarification, the utility company name is "branded" as Xcel Energy; however, the legal owner and operator of the utility facilities in New Mexico is SPS. All utility facilities and related land rights, including fee property, easements, permits, etc., are owned by, operated by, and held in the name of Southwestern Public Service Company, a New Mexico Corporation.

1.2. Project Overview

SPS proposes to construct, operate, and maintain 42.2 miles of a single-circuit alternating current, 345-kilovolt (kV) overhead electric transmission line, located in Eddy and Lea Counties, New Mexico (see Figure 1.1). This proposed transmission line will connect to two previously permitted substations and an existing SPS owned substation: the China Draw Substation (NMSL #BL-2109), the Phantom Substation (NM-140398), and the Roadrunner Substation (located on SPS-owned land), respectively. New substation infrastructure will be built as part of the proposed project at the Phantom Substation site. The project is needed to increase SPS's transmission capacity to meet the electrical demand in the area and to improve system reliability by removing and replacing an outdated existing line.

The project would require a permanent ROW width of 150 feet. The ROW width would be widened to 200 feet to cross the Pecos River because of the longer span between structures on either side of the river. SPS would construct a permanent access road (patrol road) up to 30 feet wide down the ROW and would later narrow the road width to 25 feet through reclamation so that the route resembles a two-track road. Pull pockets, or temporary work areas, would mainly lie in the ROW, but some would extend outside the ROW in certain locations at angles to ensure safe construction of pulling and tensioning sites at angle structures (see Section 2.1.2). SPS would use three new laydown yards to store materials and provide central locations for construction personnel. Construction of the project would take approximately 24 months and would consist of the following permanent facilities:

- A single-circuit 345-kV overhead transmission line between the China Draw Substation, Phantom Substation, and Roadrunner Substation.
- Access roads to the transmission line structures and laydown yards
- Three laydown yards for staging material and equipment

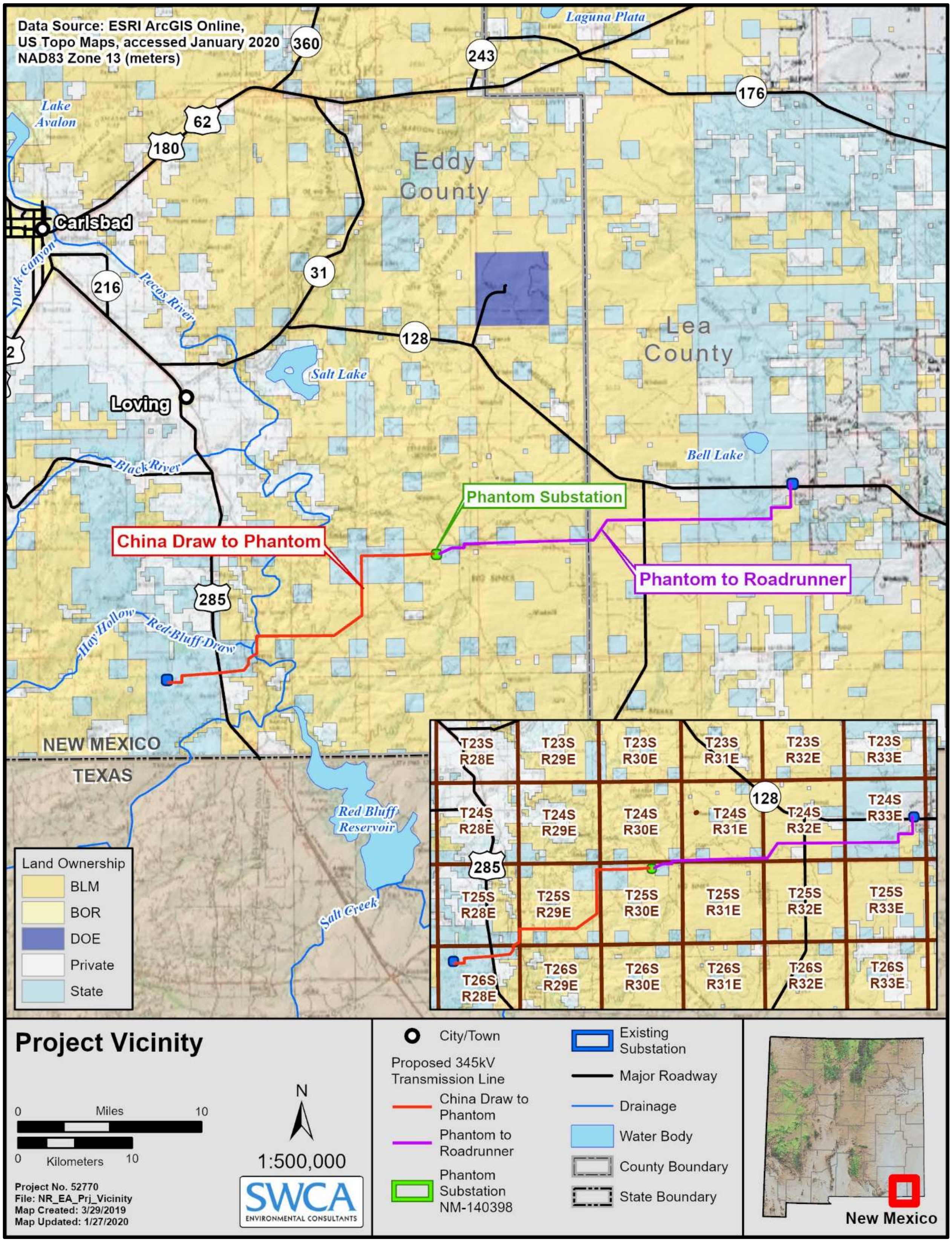

Figure 1.1. Project vicinity map.

1.3. Need for the Project

The BLM's purpose is to provide SPS with the legal use of and access across BLM-managed public lands by granting a ROW. As stated in 43 Code of Federal Regulations (CFR) 2801.9, a BLM ROW grant is required for use of public lands for "systems or facilities over, under, on, or through public lands," including transmission lines. The BLM's mandate for multiple uses of public lands includes development of energy transmission in a manner that conserves the multitude of other resources found on public lands. The need for the BLM's action is established by the Federal Land Policy and Management Act and is to respond to an application for a ROW grant by evaluating the proponent's request to use federal land for construction of a 345-kV transmission line and associated substation infrastructure. The BLM has considered the application in accordance with 43 CFR 2800 (rights-of-way under the Federal Land Policy and Management Act) and the Energy Policy Act of 2005 and has decided to issue a ROW grant with terms and conditions.

SPS serves its customers in New Mexico through the electrical system of its operation company, SPS, which is a member of the Southwest Power Pool (SPP), a regional organization that combines the electrical systems of its members to provide reliable, cost-efficient, and equitable electrical service to those members' customers within its service territory. The SPP is one of nine independent system operators/regional transmission organizations (ISOs/RTOs) and one of eight North American Electric Reliability Corporation (NERC) Regional Entities. The SPP is mandated by the FERC to ensure reliable supplies of power, adequate transmission infrastructure, and competitive wholesale prices of electricity. ISOs/RTOs are the "air traffic controllers" of the electric power grid. ISOs/RTOs do not own the power grid; they independently operate the grid minute by minute to ensure that power reaches customers and to reduces power shortages. The SPP provides services to members in 14 states: Arkansas, Iowa, Kansas, Louisiana, Mississippi, Missouri, Nebraska, New Mexico, Oklahoma, Texas, Montana, North Dakota, South Dakota, and Wyoming (SPP 2019).

Within its service territory, including southeast New Mexico, SPS has experienced a substantial increase in electrical demand because of the continued development of oil and gas fields. To meet this demand, the SPP regularly conducts planning studies to evaluate where transmission improvements or expansions are most needed. In 2018, the SPP approved a number of network upgrades as part of its 2018 Integrated Transmission Planning Near-Term Assessment (SPP 2018).

As a result, the SPP issued numerous orders to its members in the form of notices to construct (NTCs). These included NTCs to SPS to construct a number of network upgrades in southeast New Mexico. Therefore, this POD pertains to the components listed below under Section 2.1.

The project is estimated to cost approximately $100 million (Xcel Energy 2017) and to take approximately 24 months to construct. As part of the NTCs, the SPP directed SPS to have these system upgrades in service by November 15, 2021.

1.4. Relationship to Statutes, Regulations, or Other Plans

Various federal and state agencies regulate different aspects of electric power transmission projects. Table 1.1 lists the environmental permits and approvals that could be required for the proposed project.

Table 1.1. Potential Permits, Approvals, and Clearances Needed for the Proposed Action

Permit/Notification	Issuing Agency	Status
Federal Permit, Approval, or Clearance		
ROW grant	BLM	Subject of the Standard Form 299 and EA; being processed under BLM ROW serial number NM-139666.
Clearance under Section 7 of the Endangered Species Act	U.S. Fish and Wildlife Service	A general biological survey was conducted. The findings are described in a biological survey report submitted under separate cover and the EA. No further consultation with the U.S. Fish and Wildlife Service is required.

Permit/Notification	Issuing Agency	Status
Clean Water Act Section 404 Permit	U.S. Army Corps of Engineers	Field investigations have been conducted to identify potential waters of the U.S. that would be impacted by the proposed project; the findings are described in the biological survey report and EA.
Clean Water Act Section 402 Construction General (Stormwater) Permit	U.S. Environmental Protection Agency	The permit would be obtained before construction under the U.S. Environmental Protection Agency's Construction General Permit.
State Permit, Approval, or Clearance		
ROW grant	SLO	Subject of the EA; being processed under New Mexico State land permit R-25721.
Certificate of Public Convenience and Necessity	New Mexico Public Regulation Commission	Application for approval of location of the transmission line is underway.
Tribal consultation to determine if the proposed project would have any impact on receptors of cultural importance	Native American tribes	The findings are described in Section 3.7 of the EA and the associated cultural resources report (Trowbridge and Blair 2019).
Clearance under Section 106 of the National Historic Preservation Act	New Mexico State Historic Preservation District	Cultural resources surveys were conducted; the findings are described in Section 3.7 of the EA and the associated cultural resources report (Trowbridge and Blair 2019).
Clean Water Act Section 401 Permit	New Mexico Environment Department	Field investigations have been conducted to identify potential waters of the U.S. that would be impacted by the proposed project; the findings are described in the EA.
Collection permit for the displacement or removal of any state endangered plant species	New Mexico Energy, Minerals and Natural Resources Department Forestry Division	Biological resource surveys were conducted; findings are described in the EA and in the biological survey report. No state endangered plants species were observed.
Access permit or public highway utility accommodation permit	New Mexico Department of Transportation	Discussions with the New Mexico Department of Transportation regarding the location of the proposed project and access locations are underway.

2. PROPOSED ACTION

2.1. Project Components

SPS proposes to construct, operate, and maintain the following:

- A 20.1-mile-long 345kV transmission line between the China Draw and Phantom Substations
- A 22.1-mile-long 345kV transmission line between the Phantom and Roadrunner Substations
- A 7.9-acre area within the 23-acre Phantom Substation for the 345kV transmission line and associated substation infrastructure

The acreages associated with the entire 150-foot-wide permanent ROW for the Proposed Action, including portions of the ROW that would not be disturbed during construction, and components of the project area outside the permanent ROW are included in Table 2.1. The acreages associated with the surface disturbance from construction activities are included in Table 2.2. Approximately 31 percent of the total ROW corridor would be disturbed during construction.

Table 2.1. Total Acres of Proposed Action Components by Land Ownership

Project Element	Land Ownership	ROW (acres)
42.2-mile 345-kV Transmission Line 150-foot-wide ROW corridor	BLM (23.2 miles)	419.3
	SLO (18.9 miles)	344.8
	Private (0.2 mile)	4.1
Subtotal:		***768.2***
345-kV Transmission Line interconnection and substation infrastructure footprint within Phantom Substation (860 x 400)	BLM	7.9
Subtotal:		***7.9***
Brantley Laydown Yard (1,368’ ×831’)	Private	25.7
North Option Laydown Yard (1,023’ × 1019’)	BLM	23.9
South Option Laydown Yard (1,581’ × 646’)	BLM	24.0
Subtotal:		***73.6***
21 Pull Pockets (Variable in size)	BLM	17.6
	SLO	23.8
	Private	2.1
0.2-mile Off-ROW Access Roads (852’ × 30’)	SLO	0.6
Two 0.5 mile Off-ROW Access Roads (286’ x 30’ and 502’ x 30’)	BLM	0.5
Subtotal		***44.6***

Project Element	Land Ownership	ROW (acres)
Total Sum of Components		**894.3**
Deduction for Overlapping Components		***-8.8***
Total Acreage of Proposed ROW		**885.5**

Table 2.2. Proposed Action Disturbance Acreage

Project Element	Land Ownership	Long-Term Disturbance (acres)	Short-Term Disturbance (acres)	Total Disturbance (acres)
H-Frame Structure Pads (Quantity: 213)	BLM	0.3	-	0.3
	SLO	0.3	-	0.3
	Private	<0.01	-	<0.01
Three-Pole Structure Pads (Quantity: 21)	BLM	0.1	-	0.1
	SLO	0.1	-	0.1
	Private	0.01	-	0.01
Within-ROW and Off-ROW access roads	BLM	70.4	14.0	84.4
	SLO	57.8	11.5	69.3
	Private	0.6	0.2	0.8
345-kV transmission line interconnection and substation infrastructure footprint within Phantom Substation	BLM	7.9	-	7.9
Brantley Laydown Yard	Private	-	25.7	25.7
North Laydown Yard	BLM	-	23.9	23.9
South Laydown Yard	BLM	-	24.0	24.0
21 Pull Pockets and Staging Areas	BLM	-	23.8	23.8
	SLO	-	17.6	17.6
	Private	-	2.1	2.1
Subtotal:		***137.0***	***142.8***	***280.3***
Deduction of overlapping components				***0.0***
Total Area of Proposed Disturbance Within ROW				**280.3**

2.1.1. Transmission Line Right-of-way

The 345-kV overhead electric transmission line would require a permanent 150-foot-wide ROW that would interconnect the China Draw substation (NMSL-#BL-2109), Phantom substation (NM-140398), and the SPS owned Roadrunner substation located on New Mexico State Land, BLM land, and land owned by SPS, respectively. The 345-kV overhead electric transmission line would connect to substation infrastructure within the 23-acre Phantom substation footprint (NM-140398). The ROW width would be widened to 200 feet to cross the Pecos River because of the larger span between structures that is required. The overhead transmission lines would be supported by H-frame or three-pole structures (Figure 2.1–Figure 2.3). In rural areas, the most common structure would be a single-circuit, tubular steel pole H-frame at tangent locations. Where the line terminates or turns at an angle, a single-circuit three-pole tubular steel structure would be used. In addition, monopole structures may be used as warranted by land use constraints and transmission line design requirements; monopoles would be the least used of the three structure types. All transmission structures would be made of self-weathering steel.

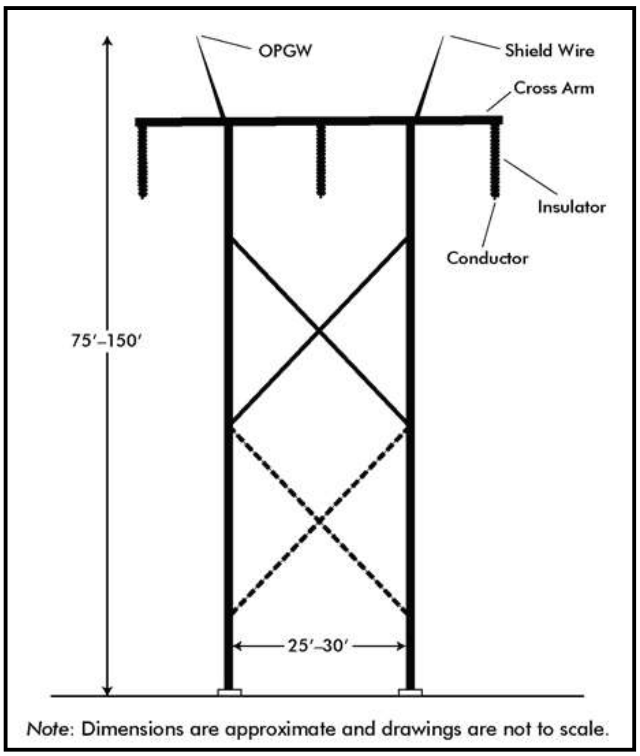

Figure 2.1. Basic H-frame structure design.

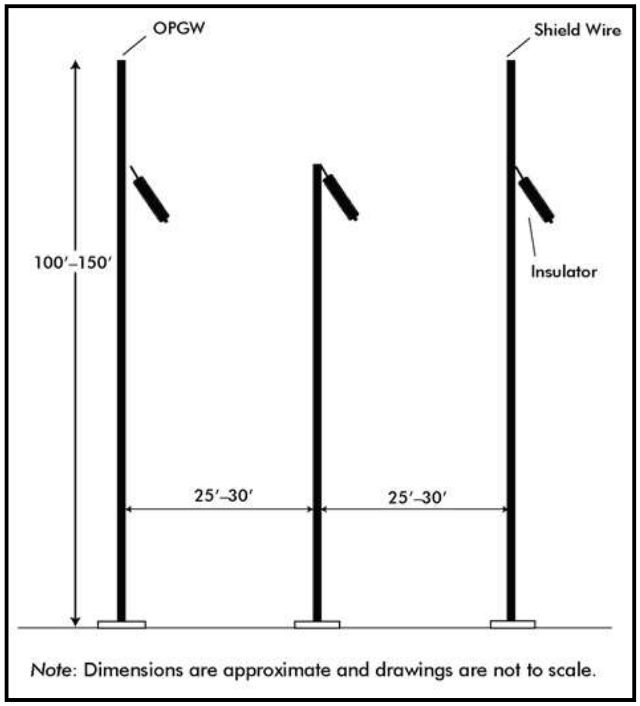

Figure 2.2. Basic three-pole structure design.

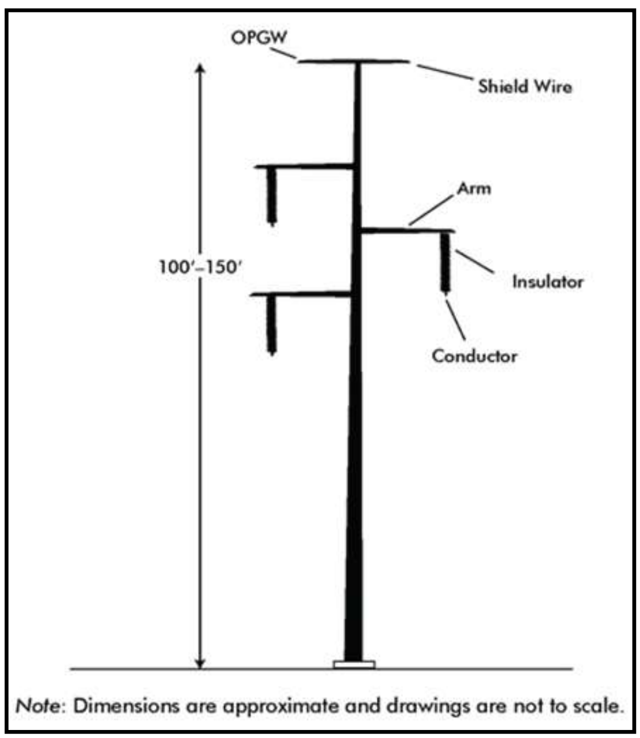

Figure 2.3. Basic monopole structure design.

The average structure heights would vary depending on clearance, topographic conditions, and line design requirements (Table 2.3). The typical structures would range from 100 to 150 feet tall; a few structures may be as tall as 175 feet. Typical spans between structures would range from 800 to 1,200 feet or four to six structures per mile. In some situations, longer spans may be necessary, which can reduce ground clearances and require additional vegetation clearing to maintain appropriate electrical clearances. In such instances, taller structures and a wider ROW width may be necessary to maintain clearance for "blowout" conditions. During final engineering, conductor clearances may be increased in certain locations to account for site-specific conditions and for safe operation.

Table 2.3. Major Features of the 345-kV Overhead Power Line

Feature	Description
345kV line length	42.2 miles
Types of structures	Tangent = H-frame structures Angle/dead-end = three-pole structures and monopole structures as needed
Typical structure height	100 to 150 feet
Structure foundation area	30 to 60 square feet for H-frame structures, 75 to 150 square feet for three-pole structures, and 15 to 40 square feet for monopole structures
Span length	Typically 800 to 1,200 feet
Structures per mile	Four to six
ROW width	150 feet in general and 200 feet at the Pecos River crossing

2.1.2. Substation Infrastructure

SPS proposes to add 345kV transmission line and associated substation infrastructure within the 23-acre Phantom Substation (NM-140398) footprint. The proposed addition to Phantom Substation would include an access road surrounding the 345kV transmission line and associated substation infrastructure. All construction associated with the 345kV transmission line and associated substation infrastructure would occur within the 7.9-acre footprint located within the 23-acre Phantom Substation footprint.

2.1.3. Pull Pockets and Laydown Yards

SPS requests the temporary use of pull pockets and laydown yards to accommodate stringing transmission line, storing materials and to provide central locations for construction personnel. The pull pockets would extend outside the permanent 150-foot-wide ROW to ensure safe construction of structures for pulling and tensioning sites at angled structure locations. Each pull pocket would consist of two areas approximately 150 × 300 feet each and extending from the centerline of the ROW. The pull pockets would be used to string the line when the angle must change by more than 30 degrees. In areas near sensitive resources, pull pockets would be reduced in size to avoid direct impacts. Three laydown yards would be located at strategic points near the ROW. These areas would provide central storage and crew muster locations. Details on pull pockets and laydown yards are provided in Table 2.4. No temporary roads or other work areas are necessary.

Table 2.4. Pull Pocket Details

Project Component	Associated Structure Number	Land Ownership	Proposed Temporary Total Disturbance (acres)
China Draw to Phantom			
Pull Pocket No. 1	2	SLO	2.1
Pull Pocket No. 2	6	SLO	2.1
Pull Pocket No. 3	8	SLO	2.1
Pull Pocket No. 4	27	SLO	2.1
Pull Pocket No. 5	30	SLO	2.1

Project Component	Associated Structure Number	Land Ownership	Proposed Temporary Total Disturbance (acres)
Pull Pocket No. 6	31	SLO	2.1
Pull Pocket No. 7	34	SLO	2.1
Pull Pocket No. 8	39	BLM	2.1
Pull Pocket No. 9	62	BLM	2.1
Pull Pocket No. 10	72	BLM	2.1
Pull Pocket No. 11	90	SLO	2.1
Phantom to Roadrunner			
Pull Pocket No. 12	2	BLM	2.1
Pull Pocket No. 13	6	SLO	2.1
Pull Pocket No. 14	10	BLM	2.1
Pull Pocket No. 15	11	BLM	2.1
Pull Pocket No. 16	49	BLM	2.1
Pull Pocket No. 17	56	BLM	2.1
Pull Pocket No. 18	104	SLO	2.1
Pull Pocket No. 19	107	SLO	2.1
Pull Pocket No. 20	113	BLM	2.1
Pull Pocket No. 21	121	Private	2.1
Brantley Laydown Yard	NA	Private	25.7
North Option 1 Laydown Yard	NA	BLM	23.9
North Option 2 Laydown Yard	NA	BLM	24.0
		Total:	**117.0***

*Total acreage differs from the total of the numbers in the cells of this column because of rounding.

2.1.4. Substation Infrastructure

SPS proposes to add 345kV transmission line and associated substation infrastructure within the 23-acre Phantom Substation (NM-140398) footprint. The proposed addition to Phantom Substation would include an access road surrounding the 345kV transmission line and associated substation infrastructure. All construction associated with the 345kV transmission line and associated substation infrastructure would occur within the 7.9-acre footprint located within the 23-acre Phantom Substation footprint.

2.1.5. Access Road Plan

SPS's access plan consists of the following types of access road use:

1. Existing roads not needing upgrade would be used to access the ROW and individual structures wherever possible.
2. One existing 2.3-mile road north of the proposed ROW would need upgrading to allow for safe operation for construction equipment, depending on topography and existing road conditions. Existing roads would not be widened and therefore would not create new disturbance. Upgrades would only consist of resurfacing. The maximum road width would be 30 feet.
3. One new downline access road within the ROW would be needed for construction of new facilities, as well as for long-term regular inspection and maintenance activities. These permanent access

road segments would be constructed within a 30-foot-wide corridor and would be reclaimed following construction to a 16- to 20-foot running width for long-term operation and maintenance. After revegetation occurs, these long-term maintenance road segments begin to resemble a two-track.

4. One new access road outside of the ROW is also proposed in the access plan. The off-ROW access road is needed to avoid disturbance to the Pecos River, which is spanned by structures within the permanent ROW corridor. The off-ROW access roads would be constructed within a 30-foot-wide corridor and would be reclaimed to a 16- to 20-foot running width for long-term operation and maintenance. After revegetation occurs, this long-term maintenance road would begin to resemble a two-track.
5. One new access road within the Phantom substation footprint that surrounds the 345kV transmission line and associated substation infrastructure components. The maximum road width would be 30 feet. The disturbance associated with the construction and maintenance of the access road is included within the 7.9-acre footprint required for 345kV transmission line and associated substation infrastructure.

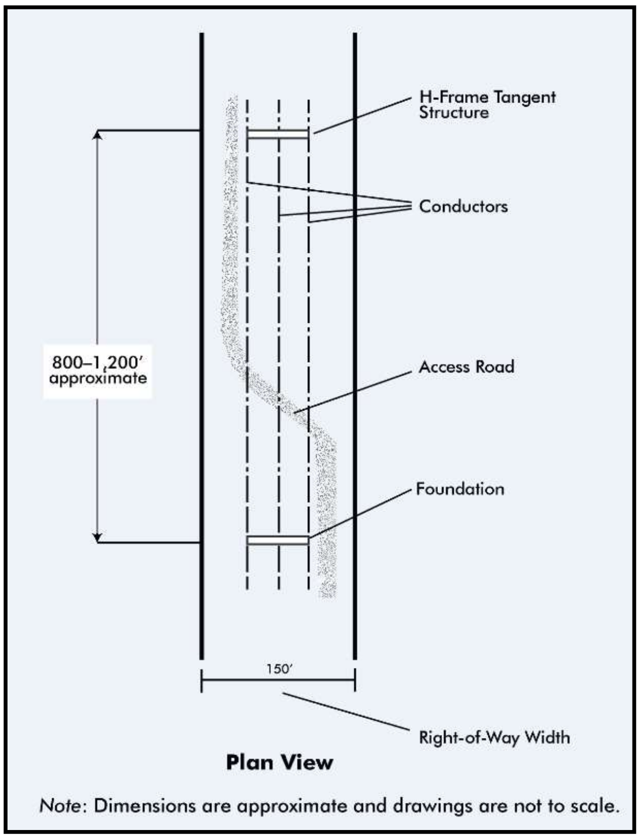

Figure 2.4. Typical access road schematic.

2.2. Induced Currents

Alternating current transmission lines can potentially induce currents on nearby metallic structures such as railroads, pipelines, fences, or similar facilities. This effect can occur during regular operations but more often happens when faults (abnormal electrical currents, such as a short circuit) occur, which sometimes results in electrical current flowing from the structure and into the ground. Several factors contribute to the severity of the effects, including the proximity, alignment, and composition of adjacent facilities as well as the amount of current conducted and the ground's inherent resistivity. SPS would use standard design and construction practices to minimize this effect, which is further explained in Section 3.5.1.

Grounding of existing metallic facilities outside the ROW may be necessary, contingent upon agreement with the appropriate responsible party. Additional studies would need to be performed on a case-by-case basis to determine the appropriate method to mitigate the potential for the effect. For pipelines that parallel the project, installation of gradient control wires, gradient control mats, or cathodic protection may be needed.

SPS seeks to minimize the potential for induced currents by providing a minimum offset from pipelines that parallel the alignment. In these cases, SPS would request a minimum offset of 100 feet from the outside edge of the structures to the outside edge of the pipeline. A larger offset may be required in some circumstances; this would be evaluated on a case-by-case basis once adequate information is collected and can be assessed. Design of the project's characteristics would progress as more information is gathered through agency coordination, field reviews, and resource studies. The construction contractor would be responsible for completing the detailed design phase of the project based upon the project features included in this POD.

2.3. Right-of-way Acquisition

The width of the ROW and the restrictions within it are determined by the National Electrical Safety Code (NESC) operation considerations and are proportional to voltage and structure type. The permanent ROW requested for the project is 150 feet wide. In some localized circumstances, SPS may need to acquire additional easement for compliance with NERC reliability standards and other engineering criteria.

SPS would acquire ROWs for transmission line facilities on nonfederal (state, private, or fee-owned) land through perpetual easements or fee purchases. Xcel Energy, doing business as SPS, would make every effort to purchase all of the land rights on private land through reasonable negotiations with the present owners. In the event that SPS and landowners are unable to reach an agreement, SPS may obtain land rights through eminent domain.

3. PROJECT CONSTRUCTION, OPERATION, AND MAINTENANCE

The following section describes the activities that are anticipated to occur before and during project wreck out/rebuild and construction (referred to from this point forward as construction) and throughout operation and maintenance. Details regarding construction, operation, and maintenance of the project are incorporated to the extent necessary in the EA for the project.

3.1. Preconstruction Activities

3.1.1. Worker Awareness Training

Construction personnel would receive environmental training before starting work on the project. Training would emphasize compliance with all environmental laws, including the stipulations in the ROW grant and the POD. Project-specific requirements and local issues would be addressed as necessary. Topics covered in the training would include terms and conditions of the BLM ROW grant, roles and responsibilities, communication protocols, flagging and signage, limits of disturbance, access and travel restrictions, and any resource mitigation plans. Trainings would take place at the construction contractor's offices or in the field as needed to address specific and immediate issues that arise during the workday. Individuals and crews involved in noncompliant activities would receive remedial training. The construction contractor would maintain a master list of all project personnel who have completed the training and would submit the list to the BLM and/or SPS upon request.

3.1.2. Engineering Surveys

Field investigations and surveys would take place for accurate location of the centerline of the approved ROW. Before any construction surveying begins, SPS would obtain the required permits to survey on federal lands and state lands. SPS would flag and stake all limits of ground disturbance, structure locations, and temporary work areas and do the same for the proposed centerline as necessary.

SPS has conducted geotechnical studies for the project. This allowed SPS to collect the subsurface information necessary to complete the final design of the foundations of the transmission line structures and substations. SPS would use these data to properly site individual structures, confirm their final locations and prepare the commercial request for proposal packages.

SPS conducted geotechnical borings using conventional drilling methods. The geotechnical investigation consisted of drilling boreholes approximately 1 foot in diameter and as deep as 50 feet. Drilling involved a variety of field equipment, including conventional rubber-tired and/or tracked drilling rigs. SPS backfilled all boreholes with auger cuttings and on-site soils.

3.1.3. Preconstruction Resource Surveys

SPS arranged for resource surveys for the project before the commencement of construction activities. Cultural resource surveys have been carried out on the project route, focusing on federal and state lands. If the BLM or SLO identify alternative routes, SPS would conduct a full survey of that route to identify cultural properties. Any cultural property that would be directly or indirectly impacted would be subject to evaluation and determination through National Historic Preservation Act Section 106 consultation. Project engineers have worked with consultant archaeologists to either avoid or minimize impacts on any identified cultural resource, to the extent practicable, and would continue to work with agency archaeologists, as needed.

Biological resource surveys took place along a 250-foot-wide corridor centered on the centerline of the permanent ROW; in areas where there was the potential for special status plant species to occur the survey corridor was widened to 600 feet. If deemed necessary, specific mitigation measures for biological resource areas would be developed as part of the project planning and environmental review processes. As with cultural resources, project engineers would work with agency staff to avoid or minimize impacts on biological resources, to the extent practicable.

3.2. Construction Activities

Following preconstruction activities, construction would take place in a sequential set of tasks performed by multiple crews. The construction activities would include additional engineering surveys, access and site preparation, excavation, foundation construction, assembling and erecting structures, stringing conductors and shield wires, testing and commissioning, restoration and cleanup, and site reclamation. The length of the project may require several sets of crews for construction. Table 3.1 outlines the typical specifications of vehicles expected to participate in the construction activities. These numbers are estimates; conditions during construction would dictate equipment allocation.

Table 3.1. Anticipated Construction Vehicle/Equipment Roster

Construction Activity	Vehicle/ Equipment Type	Commuting Distance (miles)	Quantity Anticipated	Estimated Activity Schedule (days)	Estimated Usage Time (hours/day)
Site access/ prep/land clearing	Brush hog	N/A	2	30	8
	Bulldozer	N/A	4	90	4
	Pickups	40	8	120	6
Construction of transmission line and electrical substation	Pickup truck	40	12	360	6
	Water truck	N/A	2	360	8
	Boom truck	N/A	2	180	4
	Tractor trailer	2	4	75	6
	Tracked vehicle	2	8	300	8
	Crane	N/A	2	300	6
	Material truck	N/A	6	300	8
	Concrete truck	N/A	2	240	8
	Helicopter	1	1	90	8
Operation and maintenance	Helicopter	N/A	–	–	–
	Pickup truck	40	2	2/days/week for duration	2

3.2.1. Site Access and Preparation

Construction of the transmission lines and the 7.9-acre footprint required for the 345-kV transmission line and associated infrastructure within the 23-acre Phantom Substation footprint would begin with clearing and grading of unpaved access roads to allow entry to individual structure locations. After the access roads are cleared and/or graded, temporary work areas at each individual structure site would be cleared and/or graded to install the transmission line support structures and prepare for future maintenance.

Individual structure sites would be cleared using the appropriate equipment, which could range from a brush hog flail-type mower to a bulldozer to blade the area required to provide a safe working space for placing equipment, vehicles, and materials for tower assembly and erection. The work area would be cleared of vegetation only to the extent necessary. Any chemical treatments of ROWs would comply with those laws and procedures of federal and state land-managing agencies whose land would be traversed by the project. Within the work areas, the permanent disturbance associated with the tower footings would be 30 to 60 square feet for H-frame structures, 75 to 150 square feet for 3-pole structures, and 15 to 40 square feet for monopole structures. The maximum square footage for each tower footing was assumed for the permanent disturbance calculations in Table 2.3.

The "overland drive-and-crush" method would primarily be used to prepare the work site in areas that are relatively level and that have low-growing grasses and shrubs. This method involves crushing but not cropping vegetation. In similarly level areas where the vegetation is dense, aboveground cutting methods would be used with the intent of leaving the root crown intact. The soil would primarily be compacted, with excavation occurring only for the foundations. Excess soil from foundation hole excavations would be placed around the base of each structure to provide positive drainage away from the structure. When grading must occur to create a safe, level working space for structure installation, the topsoil would be segregated and then spread back over the site to provide a suitable seed bed for reclamation efforts. Excess fill may also be used to create level areas in other locations where needed. After transmission line construction, all work areas identified as temporary disturbance would be reclaimed in accordance with BLM requirements.

The surface of the substation would be covered with an insulating layer to protect personnel from high currents and voltages in the event of a fault condition. Approximately 2 to 4 inches of crushed rock would be applied to the finished surface of the substation, which would then be treated with a soil sterilizer to prevent vegetation growth. If necessary, drainage structures such as ditches, culverts, and sumps would be installed.

3.2.2. Foundation Installation

The excavation and installation of the foundation would require access to the site by a power auger or drill, a crane, material trucks, and concrete trucks using the access roads. Holes for the foundations would typically be excavated using a power auger mounted to a heavy vehicle. In some areas, a drilling rig may be necessary to excavate the foundation holes. If the location is rocky and unsuitable for either an auger or drill rig, blasting may be needed to break up the rock before excavation with an auger or drill rig. Excavated spoils may be used for backfill or other fill where suitable.

After completion, the foundation hole would be prepared for a cast-in-place concrete footing except in the case of structures that would be directly embedded into the ground. Reinforced steel and anchor bolts would be inserted into the foundation hole and then encased in concrete. Excess concrete or concrete washout would be removed from the work area or temporarily placed on spoil stockpiles. Foundation holes left open or unguarded would be covered to protect the public and wildlife. If practical, temporary safety fencing may be used. Foundation designs and installation processes would depend on the geotechnical analysis and line design parameters of each particular structure site.

Structures added to the substation would be either directly embedded into the ground or placed on a drilled pier foundation. Equipment foundations for circuit breakers and transformers would be slab-on-grade. These foundations would be installed by excavating the foundation area, placing forms, placing reinforced steel and anchor bolts as necessary, and placing concrete into the forms. After the foundations are poured, the forms would be removed, and the surface of the foundation would be dressed. Reinforced steel and anchor bolts would be transported to each site by truck, either as a prefabricated cage or loose pieces, and would be fabricated into cages on-site. Concrete would be hauled to the site in concrete trucks.

3.2.3. Structure Assembly and Erection

The structure components would be bundled for each structure and shipped by truck to each site. There, the structures would be assembled on the ground and lifted into place by crane. Generally, structures can be fully assembled in the ROW.

Guard structures would be erected over highways, railroads, power lines, and other similar features. The guard structures would be temporary H-frame designs directly embedded into the ground. It is anticipated that guard structures would be located within the 150-foot-wide permanent ROW.

Steel structures to support some substation equipment would be affixed to the concrete foundation anchor bolts with a track-mounted crane. Equipment such as transformers, reactors, and circuit breakers can be mounted directly to the foundations without supporting structures. The equipment is then assembled, tested, and connected electrically to the control building through multi-conductor control cables installed in conduits and/or a precast concrete cable trench system.

3.2.4. Grounding

At the base of each structure, copper ground rods would be buried near the structure foundation and connected to the structure with copper cables. Counterpoise and, depending on resistance to ground, a bare copper-clad or galvanized-steel cable extending from the structure outward to approximately 100 feet within the 150-foot permanent ROW would be buried one foot or more deep.

A grounding system for the substation consisting of buried copper conductor arranged in a grid system and driven ground rods 8 to 10 feet long would be installed. The ground rods and any equipment and structures would be connected to the grounding conductor. The amount of conductor, length, and number of ground rods required is calculated based on fault current and soil characteristics.

3.2.5. Fencing

Security fence would be installed around the entire perimeter of the substation. The fence would be 8 feet tall and made of chain link topped with barbed wire. Locked gates would be installed at appropriate locations for authorized vehicle and personnel access.

3.2.6. Conductor Stringing

Reels of conductor and shield wire would be delivered to the ROW and loaded onto vehicle-mounted pulling machines. Heavy vehicles would be used to pull the shield wire and conductor bundles into place with powered pulling equipment at one end and powered braking or tensioning equipment at the other end. A pilot wire would be threaded though pulleys suspended from the structure insulators. The pilot wire would then be attached to a stronger pulling wire, which would be used to thread the shield wire and conductor bundles into place without contacting the ground. Once the conductor and shield wire is strung through the pulleys, adjustments would be made to achieve the correct sagging of the lines between structures. Once complete, the pulleys would be removed and the conductors clipped to the insulators with clamps. At dead-end structures, the conductors would be clipped to the insulators with compression fittings.

On straight sections of line, conductor stringing activity would be contained within the ROW. At turning points with angles of more than 20 degrees, additional temporary space would be required outside the ROW for pull pockets.

3.2.7. Oil Containment

Some substation equipment such as transformers, reactors, and circuit breakers are filled with an insulating mineral oil. Containment structures would be used to prevent oil from escaping into the ground. The type of containment device varies depending on site requirements, environmental conditions, and regulatory restrictions. The simplest type of oil containment is an excavated pit of a calculated capacity under the oil-filled equipment with an oil-impervious liner. The pit may use grates to facilitate access to the equipment. In the event of an oil leak or rupture, the oil captured in the containment pit is pumped into tanks or barrels and transported to a disposal facility. If required, more elaborate oil containment systems can be installed. This may take the form of an on- or off-site storage tank and/or oil-water separator equipment, depending on site requirements. The exact type of containment structure would be determined as part of the final substation design.

3.2.8. Cleanup

All construction sites, Phantom Substation, laydown yards, and access roads would be kept in an orderly condition throughout the construction of the transmission line. All refuse and trash would be removed and disposed of appropriately. A spill prevention control and countermeasure plan would be prepared to specify preventive procedural actions to minimize the potential impact of any unanticipated spills or releases of fuel, lubricant, or other hazardous materials during construction and refueling activities. No open burning would occur on BLM-administered lands. If the need for open burning arises, the proponent would consult the BLM regarding a permit for the activity.

3.2.9. Reclamation

Once construction of the two segments and electrical substation is complete, all areas not needed for operations and maintenance would be reclaimed (re-seeded for optimal vegetation regrowth of species compatible with SPS's vegetation management standards) as soon as possible. Disturbed areas would be restored using a BLM-approved seed mix and according to BLM and SLO standards. Vegetation, soil, and rocks left as a result of construction would be randomly scattered over the project area and would not be left in rows, piles, or berms unless requested by the BLM. In those areas where erosion control structures would be required to stabilize soil, the structures would be installed for the specific soil conditions encountered in the field and in accordance with industry best management practices (BMPs) and design features identified in Section 3.5.

Areas Reclaimed

Except for those portions of the ROW necessary for maintenance and operation (such as a permanent patrol access road), SPS would reclaim the entire 150-foot-wide ROW and areas of temporary disturbance outside the ROW that are no longer needed, such as pull pockets and laydown yards. SPS would fully reclaim the 30-foot-wide access road used for construction and eventually convert the route into a permanent patrol access road similar to a two-track road. In some locations, the patrol road would be surfaced with a caliche base to encourage a single travel route and continual avoidance of sensitive resources. The level work area at the base of each structure would be re-seeded but not recontoured to facilitate future maintenance activities that may require use of an extended-reach vehicle or crane.

Reclamation Procedures

The steps to reclamation include:

1. **ROW preparation:** Vegetation removed during construction, including trees that measure less than 3 inches in diameter at ground level and slash/brush, would be chipped or mulched and spread across the ROW. All tree and shrub species that are not compatible with SPS's vegetation management standards would be cut to ground level, delimbed, and subsequently treated with herbicides to discourage regrowth. Following the removal of vegetation, the top 6 inches of topsoil would be stripped from the ROW where necessary and would be stored separately from the subsoil and redistributed upon reclamation.
2. **Recontouring:** Within areas that require recontouring, the surface would be recontoured to match pre-disturbance conditions or to blend with the surrounding landform as closely as possible. Excess subsoil from excavated or graded areas (around structure bases) would be evenly spread over disturbed areas and moistened and compacted to a relative average density comparable to undisturbed adjacent material before the re-spreading of topsoil. Subsoils would not be spread outside the approved construction areas.
3. **Soil and seedbed preparation:** Where any compaction exists, the surface would be ripped or scarified to a depth of 6 inches as appropriate (not applicable to rock faces, severe slopes, or cliff areas) and would include a 12-inch buffer from existing vegetation or plants designated as preserve-in-place. Depth and area of compaction relief would depend on site-specific conditions. Decompaction or ripping would be conducted to avoid corn rows. Cross ripping is preferable and care should be taken to prevent inverting the soil layers and preserving any vegetation in place. Deep sandy soils do not need to be decompacted and would not be ripped. Stockpiled topsoil would be evenly redistributed before final seedbed preparation.
4. **Seeding:** During seeding of the reclamation area, a disc-type drill with two boxes for various seed sizes would be used. The drill rows would be 8 to 10 inches apart. Where practicable with the

seeding equipment available, planting depths for smalls seeds would be 0.25 inch, for intermediate seeds would be 0.50 inch, and for large seeds would be 1 to 2 inches. Where these seed depths are impracticable with the seeding equipment available, planting depths would be no more than 0.25 inch. A drag, packer, or roller would follow the seeder to ensure uniform seed coverage and adequate compaction. Seeding would run perpendicular to slopes to minimize runoff and erosion. In areas where the slope is too steep for a seed drill, hand- or broadcast-seeding methods would be used, and the seeds would be covered to the depths described above. BLM-prescribed seed mixes would be used.

5. **BMP installation:** Before construction, a stormwater pollution prevention plan would be developed to include BMPs according to BLM prescriptions, including erosion control devices such as silt traps, silt fencing, straw rolls, etc.
6. **Weed control**: SPS has enrolled in Eddy County's noxious weed–control program. This program enables the BLM to identify target areas for treatment to prevent the spread of noxious weeds and invasive species. The program would require annual surveys of the ROW and subsequent treatment of weed-infested areas for up to 5 years after construction is complete.
7. **Monitoring:** Monitoring would be conducted after construction activities are complete until reclamation has achieved the success criteria established by the BLM.

3.2.10. Project Safety

SPS places a high value on employee, contractor, and public safety. Before construction, the proponent would prepare a project safety plan to address employee, contractor, and public safety risks. All construction activities would be carried out in safe and healthful working conditions as outlined by the Occupational Health and Safety Administration's guidelines.

3.3. Operation and Maintenance

The two transmission line segments constructed as part of the project would become critical infrastructure of the SPS and southeast New Mexico transmission systems. Therefore, limiting the duration of unplanned outages and planning for the use of live-line maintenance techniques to minimize the requirement for any outages are important parts of the design, construction, and operation/maintenance requirements of the project.

3.3.1. Inspections

Regular inspection of transmission lines, vegetation conditions, substations, and support systems is critical for safe, efficient, and economical operation of the project. Responsibly conducted routine maintenance activities are anticipated to have minimal impact and are usually would be authorized under the transmission line easements and BLM ROW grants.

Aerial inspections would be conducted annually to identify conditions that pose an immediate hazard to the public or employees or that risk immediate loss of supply or damage to the electrical system. Any conditions identified are to be resolved before peak demand in the summer and winter months.

Ground inspections would take place on approved access roads, including the patrol road, or along the transmission line ROWs to each structure as appropriate. The inspector would access each of the structures and would check all equipment and other components that could require repairs. Inspectors performing such inspections would use conventional four-wheel-drive trucks and/or four-wheel-drive all-terrain vehicles, or they may walk the line. The ground inspection would be conducted at a time deemed appropriate based on the weather conditions, results of aerial inspections, and other conditions subject to change on an annual basis. SPS may perform minor repairs during the ground inspections, such as installing new numbers, installing/repairing ground wire, or performing other minor tasks that do not involve long duration, specialized equipment, or large work crews. Aerial inspections would take place annually, and ground patrols would take place biannually.

3.3.2. Line Maintenance

Routine maintenance activities are ordinary maintenance tasks that take place on a routine basis, including the replacement of individual structures, components, cables, lines, insulators, and other facilities that, because of obsolescence, age, or wear, are in need of replacement or repair. For the Proposed Action, it is expected that these replacements would be required infrequently (every 5 to 10 years) or as determined by inspection. The work performed would typically consist of repair or replacement of individual components by relatively small crews using a minimal amount of equipment, and the work usually would take place within a period ranging from a few hours up to a few days. The type of equipment used to perform routine maintenance activities varies depending on the extent of the work to be performed. Typical equipment used for these kinds of activities includes four-wheel-drive pickups, man-hauls, material flatbeds, line trucks, cranes, tractor trailers, and high-reach bulldozers/caterpillars.

Typically, maintenance vehicles and equipment would access the ROW and individual structures using the patrol roads and would remain within the level work area that surrounds the structure, and no new ground disturbance would be required. If maintenance activities and/or equipment are required beyond the permanent maintenance work area, maintenance crews would coordinate with the BLM Authorized Officer(s) to obtain any required temporary use approval/permits to complete the work, and maintenance activities would take place within the previously disturbed temporary work areas associated with project construction. The ROW and access used for regular maintenance activities would be stabilized and rehabilitated following the procedures laid out in this POD. SPS would coordinate with the BLM to take measures to discourage use of the patrol/maintenance road as a general public access road after restoration work is complete. Any berms or boulders that were in place to limit access would also be reclaimed after completion of the maintenance work.

Major maintenance activities may need to occur on an infrequent basis. These activities would require planning and budgeting in advance and agency coordination. They may involve larger work crews than routine maintenance activities and a variety of equipment, including heavy equipment, and usually require several days or longer to complete. SPS would notify the BLM before initiating major maintenance activities to identify what, if any, special notification or additional clearance approvals would be required. All major maintenance activities would adhere to all standards and guidelines contained in this POD and the terms and conditions of the ROW grant.

In the case of an outage, SPS must respond as quickly as possible to restore power. Upon detecting an incident, SPS's control room dispatchers would notify the responsible operations staff in the area(s) affected, and crews and equipment would be organized and dispatched to respond to the incident. In these cases, SPS would immediately deploy the necessary crews to restore power and notify the appropriate land management agency depending on the location of the incident. Examples of emergency maintenance include transmission structure or conductor failure because of natural hazard, fire, or human-caused damages to a line. Such work is required to eliminate a safety hazard, prevent imminent damage to the power line, or restore service if there is an outage. The equipment necessary to carry out emergency repairs is similar to that necessary for conducting routine maintenance, in most cases. Emergency response to outages may require additional equipment to complete the repairs. For example, for outages in remote locations, helicopters may be used to respond quickly to emergencies. When possible, SPS would adhere to the same constraints identified for routine and major maintenance activities to minimize impacts to resources.

3.3.3. Vegetation Management

SPS would need to manage vegetation to meet requirements for conductor clearances at maximum loading (sag) and maximum blowout (sway) locations, to minimize potential ignition sources, and to provide access within the ROW. Within or adjacent to the ROW, mature vegetation would be removed under or near the conductors to provide adequate electrical clearance, as required by the NERC. Typically, woody vegetation would be removed and treated with herbicides. Slash would be left in place or disposed of in accordance with the requirements of the land management agency. If necessary, removal or pruning of trees or other vegetation in riparian areas would take place selectively in a manner that protects biological resources to the extent possible. Shrubs and other obstructions within the ROW would be removed regularly.

Vegetation treatments to control the growth of woody species along the ROW would be applied every 4 years. These treatments would consist of spraying target species such as creosote and mesquite with herbicides to prevent vegetation encroachment on SPS's conductor clearance requirements, its facilities, the patrol road and controlling vegetation that could inhibit future operation and maintenance activities. All herbicide applications would be performed in accordance with federal, state, and local regulations, and in compliance with land management agency requirements. SPS has established guidelines that its contractors are required to follow to protect birds and bird nests during these spraying events (see Section 3.5.5).

Vegetation may also be removed using mechanical equipment such as chainsaws, weed trimmers, rakes, shovels, brush hooks, and mowers. Clearing efforts in heavy growth areas would involve equipment such as a masticator, a mounted brush mower, or similar devices. The duration of activities and the size of crew and equipment required would depend on the amount and size of the vegetation to be pruned or removed.

Herbicides would be used to control noxious weeds or incompatible tree and brush species that regenerate from the root systems after removal (e.g., mesquite and creosote bush) to meet vegetation management objectives. These activities would be performed in coordination with the land management agency.

3.3.4. Access Road Maintenance

Repairs to the ROW or access roads would be scheduled as a result of line inspections or would occur in response to a significantly degraded condition or an emergency situation. Where access is required for maintenance of the line, SPS would maintain the approved access roads for which it is solely responsible in a safe, useable condition. Access road repairs include grading or repair of existing maintenance access roads and work areas and spot repair of sites subject to erosion, slumping of side slopes, inadequate drainage, flooding, and/or scouring. In some cases, cut and/or fill of foreign material may be required to repair the access roads into suitable condition for safe travel of maintenance repair vehicles, such as high-reach boom trucks. When an approved access road to a structure needs improvement, SPS would use heavy equipment appropriate for the required work after notifying the BLM Authorized Officer. Required equipment may include a grader, backhoe, four-wheel-drive pickup truck, and a steel-tracked front-loader or bulldozer. The ROW and access used for regular maintenance activities would be stabilized and rehabilitated following the procedures detailed in this POD. SPS would coordinate with the BLM to take measures to discourage the patrol/maintenance road from being used as a general public access road after restoration work is complete. Any berms or boulders that were in place to limit access would also be reclaimed after completion of the maintenance work.

3.4. Right-of-way Renewal or Decommissioning

3.4.1. Right-of-way Renewal

The proposed project would have a minimum projected operation life of 50 years or longer. A ROW grant issued for 50 years with the option of renewal would be necessary for the operation, maintenance, and decommissioning of the transmission line facilities on BLM-managed lands. At the end of the ROW grant term (50 years), SPS would have the option to renew the ROW grant past 50 years to continue operation of the line. The terms and conditions in the original ROW grant could be modified for the renewed ROW grant.

3.4.2. Project Decommissioning

At the end of the transmission line's useful life, estimated to be 50 years from construction, the necessary authorizations would be obtained from the BLM Authorized Officer to decommission the project. Future decommissioning of the transmission line would include removal of conductors and structures. All materials would be removed from the ROW within 180 days. Regrading and revegetation of disturbed areas would be completed according to BLM and SLO standards. The abandoned ROW would revert to the control of the land management agency.

3.5. Environmental Protection Measures

The following applicant-committed environmental protection measures have been incorporated into the project design of the Proposed Action to lessen or avoid impacts to resources. These design features are organized under the resource they are designed to protect, although some of these measures are designed to protect or mitigate impacts to multiple resources. The design features incorporate applicable BMPs, which are industry- or agency-recommended construction methods that are routinely implemented to minimize impacts to resources.

3.5.1. General

- The BLM serial number (NM-139666) assigned to this ROW grant would be posted in a permanent, conspicuous, and legible manner at all major road crossings and at all serviced facilities for the term of the ROW. Numbers would be at least two inches high and would be affixed to the pole nearest the road crossing and at the facilities served.
- All construction vehicle movement outside the ROW would be restricted to predesignated access, contractor-acquired access, or public roads.
- The spatial limits of construction activities would be predetermined, with activity restricted to within those limits. No paint or permanent discoloring agents indicating survey or construction limits would be applied to rocks, vegetation, structures, fences, etc.
- Before construction, an environmental awareness training would be conducted to instruct personnel on the protection of cultural, ecological, and other natural resources, including 1) federal and state laws regarding antiquities and plants and wildlife, including collection and removal; 2) the importance of these resources; and 3) the purpose and necessity of protecting them.
- Sensitive resource areas within the ROW or designated temporary work areas would be mapped and avoided by use of an appropriate monitor.
- The contractor would limit movement of crews, vehicles, and equipment on the ROW and approved access roads to minimize damage to property and disruption of normal land use activity.
- Construction vehicles and equipment would be maintained in proper operating condition and would be equipped with manufacturers' standard noise control devices or better (e.g., mufflers, engine enclosures, etc.).
- SPS would construct crossings for other operators' aboveground flowline by pushing adjacent soil up and over the lines (4.5 inches or less in diameter) to protect the flowlines from the potential for crushing from project vehicle traffic. The BLM would be notified if any larger aboveground lines are encountered.
- SPS would use overburden to place the necessary fill over other operators' belowground pipelines to avoid the potential for induced current and would leave and reclaim the overburden in place.

3.5.2. Air Quality

- SPS would adhere to the requirements of those entities with jurisdiction over air quality matters and would obtain any necessary permits for construction activities. Open burning of construction trash would be allowed only with permission from the appropriate authorities.
- Construction-related dust disturbance would be controlled by the periodic application of water to all disturbed areas along the ROW and access roads, when necessary.

3.5.3. Soils and Vegetation

- No blading or clearing of any vegetation would be allowed unless approved in writing by the BLM.

- SPS would reclaim disturbed areas per this POD using a BLM-specified seed mixture and would work with the BLM to take measures to discourage use of the patrol/maintenance road as a general public access road after restoration work is complete.
- All soils compacted by movement of construction vehicles and equipment would be 1) loosened and leveled through harrowing or disking to approximate preconstruction contours, and 2) re-seeded with certified weed-free native grasses and mulched (except in cultivated fields). The BLM would determine the specific seed mix(es) and rate(s) of application.
- Excavated material not used in the backfilling of poles would be spread around each pole or hauled off-site or transported as fill to other locations where needed.
- In newly disturbed temporary work areas, soil would be salvaged, distributed, and contoured evenly over the surface of the disturbed area after construction completion. The soil surface would be left rough to help reduce potential wind erosion.
- Upon completion of work, all work areas except any permanent access roads/trails would be re-graded as required so that all surfaces would drain naturally, blend with the natural terrain, and be left in a condition to facilitate natural revegetation, provide for proper drainage, and prevent erosion.
- SPS has enrolled in Eddy County's noxious weed–control program. Through this program, which entails weed treatment in BLM-identified target areas, noxious weeds would be sprayed annually through the life of the project. The program would apply to the length of the project regardless of landownership.
- Gravel and fill to be used must come from a weed-free source(s). Gravel pits and fill sources would be inspected to identify weed-free sources.
- Compatible vegetation would be preserved and protected from damage by construction operations to the extent practicable.
- In construction areas where re-contouring is not required, vegetation would be left in place wherever possible, and original contour would be maintained to avoid excessive root damage and allow for re-sprouting in accordance with the reclamation plan. Vegetation not consistent with line safety and operation would be removed according to SPS vegetation management practices.
- Vegetation treatments to control the growth of woody species along the ROW would take place every 4 years. These treatments consist of spraying target species such as creosote bush and mesquite with herbicides to prevent vegetation encroachment on SPS's conductor clearance requirements, its facilities, and the patrol road and to control vegetation that could inhibit future operation and maintenance activities. SPS has established guidelines that its contractors are required to follow to protect birds and bird nests during these spraying events.
- If necessary, removal or pruning of trees or other vegetation in riparian areas would take place selectively in a manner that protects biological resources to the extent possible.
- The proposed project area would be kept free of the following noxious weed species: African rue and saltcedar.

3.5.4. Water Resources

- Any chemical treatments of the ROW would comply with the applicable laws and procedures of the land management agencies, the U.S. Environmental Protection Agency, and the New Mexico Environment Department.
- This project would meet the requirements outlined under U.S. Army Corps of Engineers Nationwide Permit Activities, specifically Nationwide Permit 12.
- Construction activities would be performed by methods that prevent entrance or accidental spillage of solid matter, contaminants, debris, and other objectionable pollutants and wastes into flowing streams or dry water courses, lakes, and underground water sources. Such pollutants and wastes include refuse, garbage, cement, concrete, sanitary waste, industrial waste, radioactive

substances, oil and other petroleum products, aggregate processing tailings, mineral salts, and thermal pollution.

- Dewatering work for structure foundations or earthwork operations adjacent to or encroaching upon streams or water courses would not be performed without prior approval by the BLM or the applicable land management agency.
- Excavated materials or other construction materials would not be stockpiled or deposited near or on stream banks, lake shorelines, or other water course perimeters where the materials could be washed away by high water or storm runoff or could in any way encroach upon the actual water source itself.
- Wastewaters from construction operations would not enter streams, water courses, or other surface waters without use of turbidity control methods such as settling ponds, gravel filter entrapment dikes, approved flocculating processes that are not harmful to fish, recirculation systems for washing of aggregates, or other approved methods. Any such wastewaters discharged into surface waters would be essentially free of settleable material. Settleable material is defined as that material that settles from the water by gravity during a 1-hour quiescent period.
- Refueling and storing potentially hazardous materials would not occur within a 100-foot radius of a water body, a 200-foot radius of all identified private water wells, and a 400-foot radius of all identified municipal or community water supply wells. These spill prevention and containment measures or practices would be included in this POD.
- Where access routes must cross aboveground flowlines (4.5 inches or less in diameter), the contractor would push adjacent soil up and over the lines to protect them from the potential for crushing from project vehicle traffic. The BLM would be notified if any larger aboveground lines are encountered.
- The contractor would use overburden to place the necessary fill over belowground pipelines to avoid the potential for induced current and would leave and reclaim the overburden in place.
- Temporary culverts could be installed to cross small drainages. These would be removed after construction.
- Additional mitigation measures to minimize or eliminate impacts to water resources are described in Section 3.2 and Appendix D of the EA.

3.5.5. Wildlife and Special Status Species

- Special-status species or other species of particular concern would be considered in accordance with management policies set forth by the appropriate land management agencies. This may entail conducting surveys for plant and wildlife species of concern along the proposed transmission line route and associated facilities (e.g., access roads, laydown yards, and pull pockets) as agreed upon by the agencies. In cases where such species are identified, adverse impacts on the species and their habitat would be avoided to the extent practical and in consultation with the agencies.
- SPS designs and constructs all new transmission facilities to raptor-safe design standards as described in its *Avian Protection Plan* (EDM International 2008), which includes the avian electrocution and collision minimization practices described in *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (Avian Power Line Interaction Committee 2006).
- Power lines shall be constructed and designed in accordance with standards outlined in *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (Avian Power Line Interaction Committee 2006). The project proponent shall assume the burden and expense of proving that pole designs not shown in that publication deter raptor perching, roasting, and nesting. Such proof shall be provided by a raptor expert approved by the BLM Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this ROW, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

- To the extent possible, construction activities during the migratory bird-nesting season (March–August) in suitable habitat would be avoided. Seasonal dates may vary depending on the species, current environmental conditions, and preconstruction survey results.
- If construction and maintenance activities, including mechanical or herbicide treatments of woody vegetation, cannot be avoided in the primary nesting season for migratory birds (March–August), migratory bird and nest surveys would be performed up to 2 weeks before those activities begin, and an avoidance buffer around each active nest would be implemented until the young have fledged; the buffer size and survey timing may vary by species but would be no less than 100 feet. This stipulation would not apply in the event of an emergency as per Xcel Energy's Migratory Bird Special Purpose Utility Permit (U.S. Fish and Wildlife Service 2015).
- A 200-meter avoidance buffer would be implemented around any active burrowing owl (*Athene cunicularia*) nest burrow or active raptor nest until the young have fledged.
- The BLM may require a biological monitor to observe occupied nests and burrowing owl burrows identified during preconstruction surveys.
- Active raptor nests would be monitored for activity until the hatchlings fledge.
- A biological monitor would be available during construction in proximity to the known locations of Scheer's beehive cactus (*Coryphantha robustispina* var. *scheeri*)
- All known locations of Scheer's beehive cactus would be avoided.
- Foundation holes left open or unguarded would be covered to protect the public, wildlife, and livestock. If practical, temporary safety fencing may be used.

3.5.6. Cultural Resources

- Regarding professional archaeological monitoring, SPS will contact SWCA's project archaeologist or BLM's Cultural Resources Section for assistance. SPS must provide pertinent stipulations to the monitor at least 5 days before construction begins. No construction, including vegetation removal or other site preparation, may begin before the monitor arrives.
- The following sites would require monitoring of all ground-disturbing activities within 100 feet:
  - LA135546
  - LA135547
  - LA147442
  - LA147528
  - LA159429
  - LA194880
  - LA194885
  - LA194886
- Regarding site protection and employee education, it is the responsibility of the project proponent and his construction supervisor to inform all employees and subcontractors that cultural and archaeological sites are to be avoided by all personnel, vehicles, and equipment and that collecting, damaging, or disturbing cultural resources on public lands is illegal.
- An unanticipated discovery plan would be prepared to specify the protocols to follow in the event of an unanticipated discovery of any previously unknown historic/prehistoric sites or artifacts during construction. The plan would identify communication protocols and immediate measures to be used to protect the site until further evaluation can be completed. The plan would be prepared in coordination with the SHPO and jurisdictional land management agency.

3.5.7. Cave and Karst Resources

- In the event that any underground voids, subsurface drainage channels, or cave passages are encountered during construction activities, construction would halt in the immediate vicinity of the discovery, and the BLM would be notified immediately.
- The BLM would be informed immediately if any subsurface drainage channels, cave passages, or voids are penetrated during construction, and no further construction would be allowed until the BLM Authorized Officers issues clearance. Special restoration stipulations or realignment may be required.
- Soil bores would be collected along the centerline before construction. Proposed foundation locations would be based on any line angle of more than 2 degrees. The bores would be up to 50 feet deep to ensure the contractor does not drill into voids or karst features to install structures. If a void is encountered, boring may exceed 50 feet to determine the depth of the void.

3.5.8. Paleontological Resources

- In the event that any fossils are encountered during construction activities, construction would halt in the immediate vicinity, and the BLM would be notified immediately.

3.5.9. Visual Resources

- Self-weathering steel would be used to reduce visual impacts.
- Reclamation would be implemented to disguise disturbance.
- Vegetation, soil, and rocks left as a result of construction would be randomly scattered over the project area and would not be left in rows, piles, or berms unless requested by the BLM.

3.5.10. Livestock Grazing and Farmland

- All fences and gates would be maintained during construction. Fences, gates, and walls that are removed, damaged, or destroyed by construction activities would be replaced, repaired, or reclaimed to their original condition as required by the land management agency. Fences would be braced before cutting. Gates or enclosures would be installed only with the permission of the land management agency and would be removed/reclaimed following construction, if necessary. Cattle guards would be installed on a case-by-case basis in negotiation with the land management agency.
- Before construction, the conditions of the water lines crossed by the proposed project would be evaluated, and appropriate protections would be put in place to maintain the function of the lines during construction. If necessary, water lines would be protected either by burying or pushing adjacent soil over the lines within the construction area to shield the lines from damage.
- The contractor would eliminate at the earliest opportunity all construction ruts that are hazardous to agricultural operations and/or movement of vehicles and equipment. Such ruts would be leveled, filled, and graded or otherwise eliminated in an approved manner. Damage to ditches, tile drains, culverts, terraces, local roads, and other similar land-use features would be corrected as necessary by the contractor. Land and facilities would be restored to their original condition to the extent possible.
- On agricultural land, the ROW would be aligned to the extent possible to reduce the impact to farm operations and agricultural production.
- In cultivated agricultural areas, soil compacted by construction activities would be decompacted except where a permanent two-track access route (up to 25 feet wide) would be kept for future operation and maintenance activities.

3.5.11. Travel Management

- Where appropriate, signage would be installed on newly installed gates to deter users from circumventing the gates and traversing areas that were formerly inaccessible or harder to access.

3.5.12. Public Health and Safety

- The contractor would make all necessary provisions for conformance with federal, state, and local traffic safety standards and would perform construction in a manner that minimizes obstruction and inconvenience to public traffic.
- During construction of the two transmission line segments, the ROW would be free of non-biodegradable debris. Slash would be left in place or disposed of in accordance with requirements of the land management agency.
- Towers and/or conductors and/or shield wires would be marked with high-visibility devices (e.g., marker balls or other marking devices) where required by governmental agencies with jurisdiction (e.g., the Federal Aviation Administration). Tower heights would be less than 200 feet to avoid the need for aircraft obstruction lighting.
- Hazardous material would not be drained onto the ground or into streams or drainage areas. Totally enclosed containment would be provided for all trash. All construction waste, including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials would be hauled to a disposal facility authorized to accept such materials.

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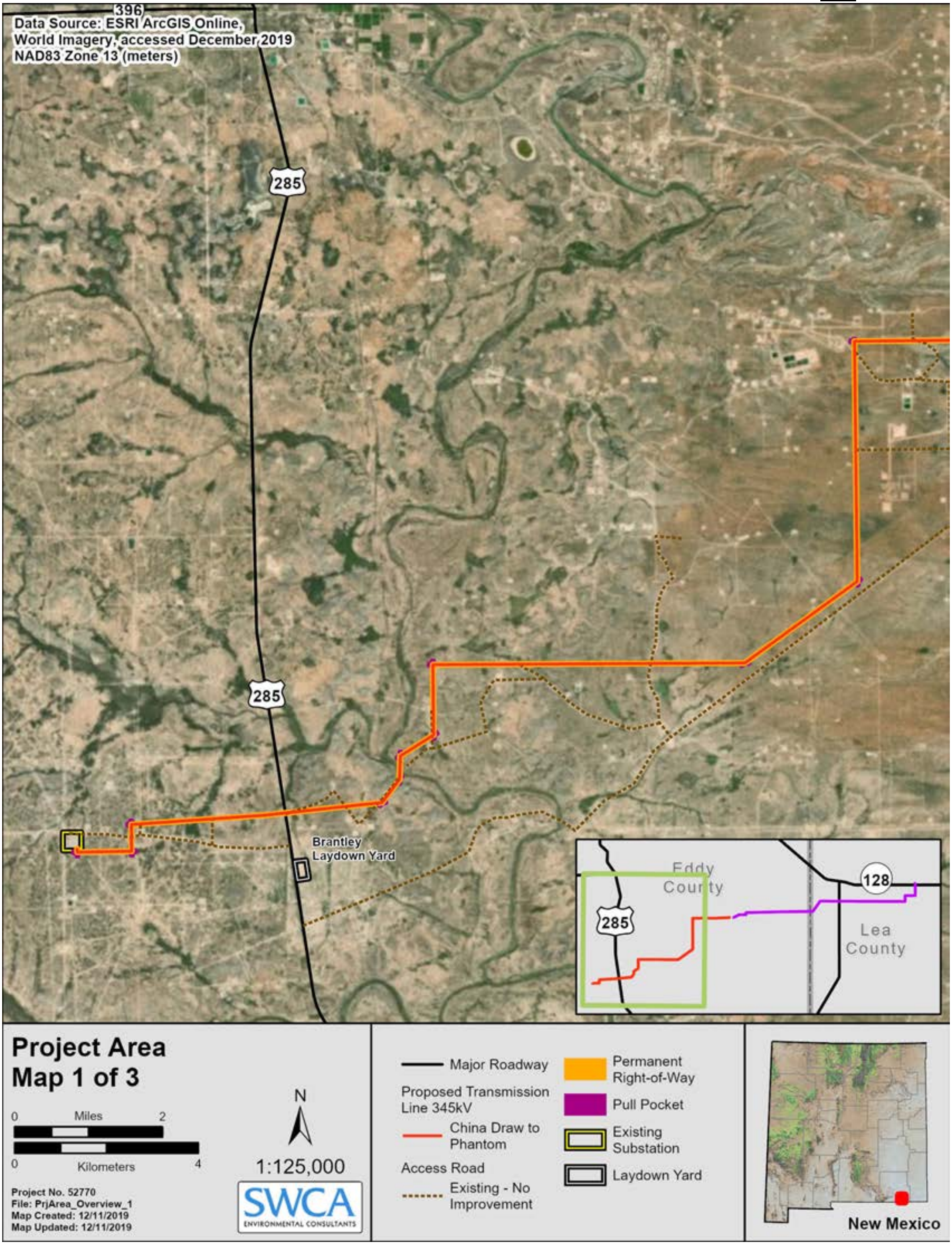
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Data Source: ESRI ArcGIS Online,
World Imagery, accessed December 2019
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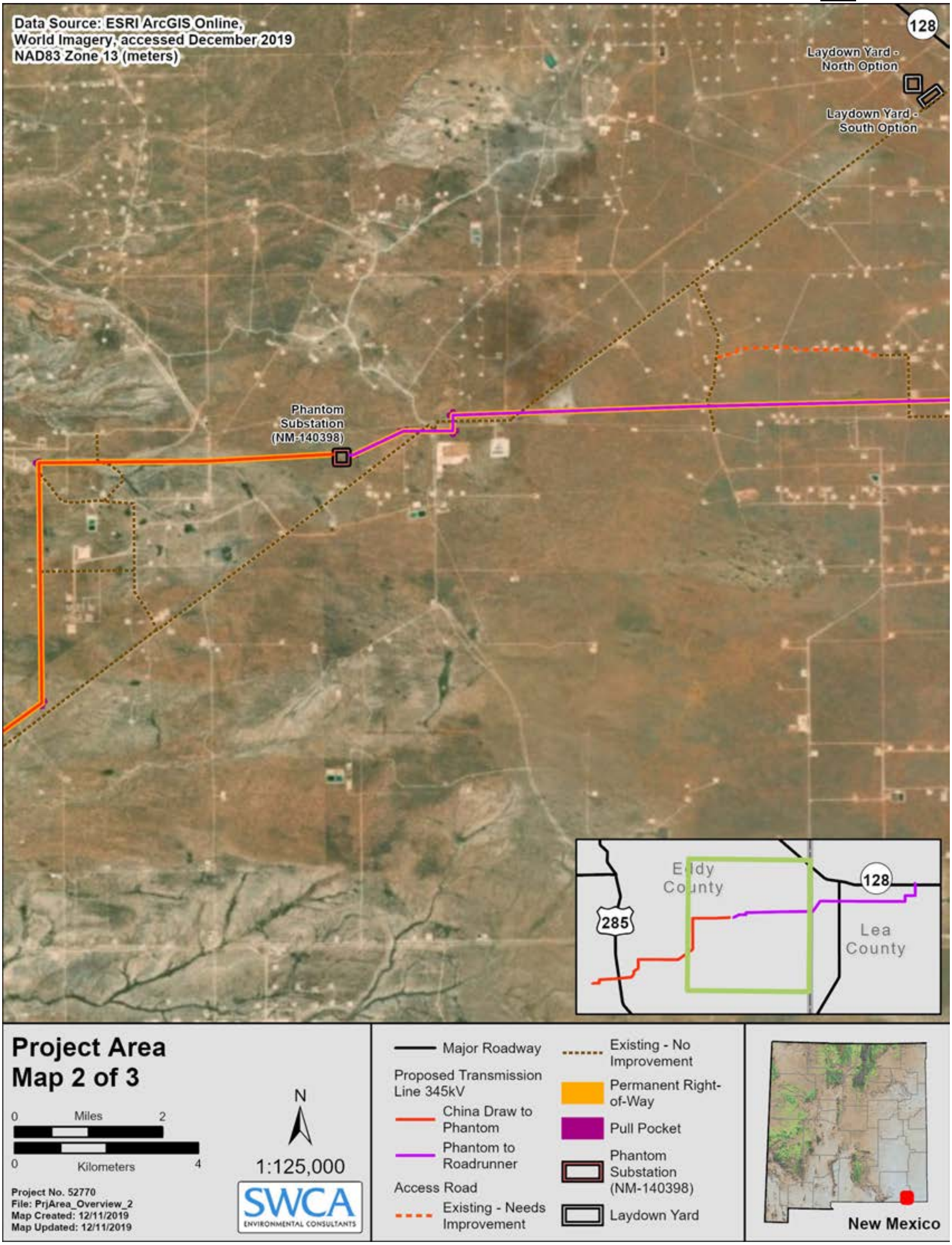
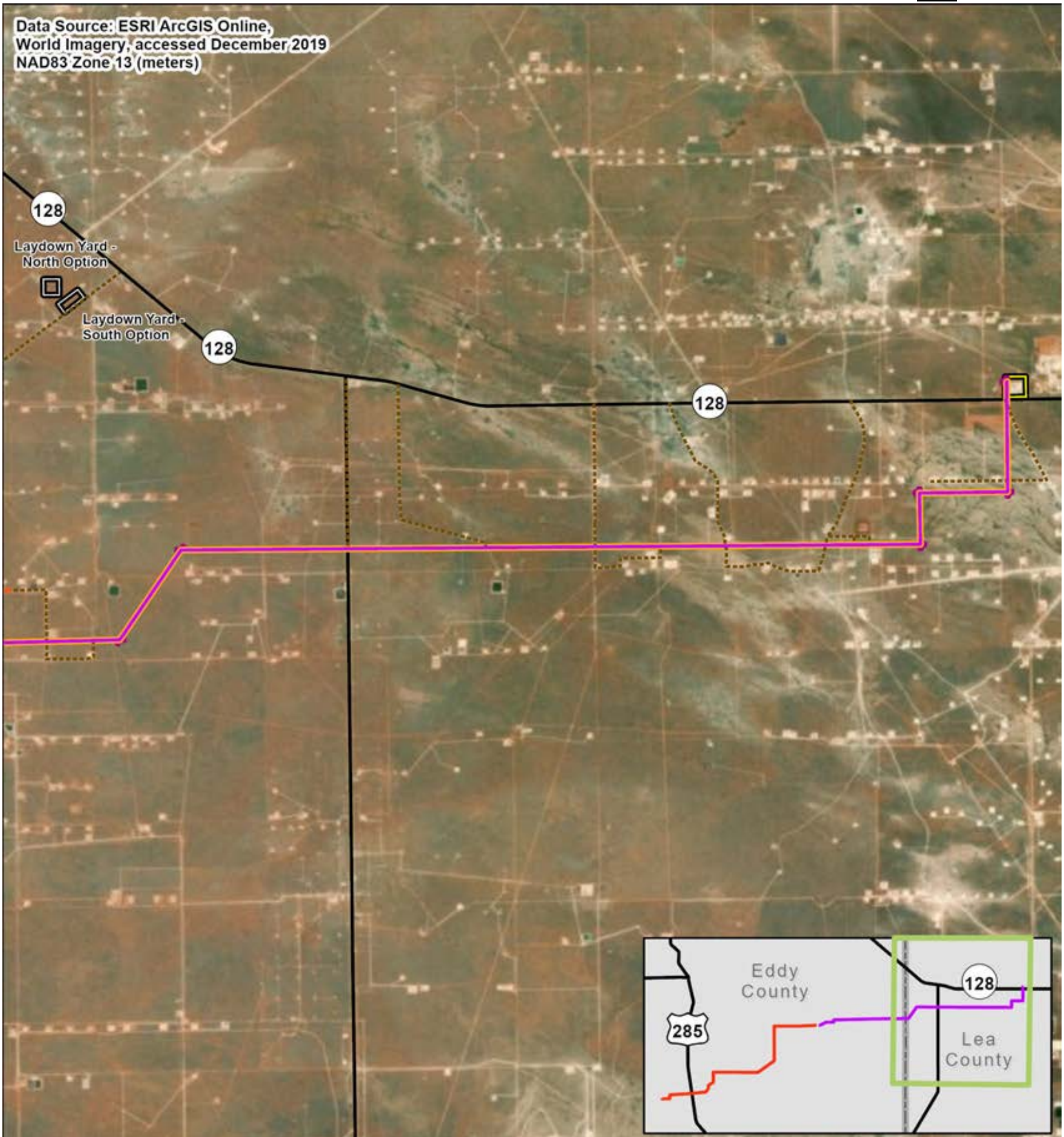
Project Area
Map 1 of 3
0
Miles
2
0
Kilometers
4
N
1:125,000
SWCA
ENVIRONMENTAL CONSULTANTS
Project No. 52770
File: PrjArea_Overview_1
Map Created: 12/11/2019
Map Updated: 12/11/2019
Major Roadway
Proposed Transmission Line 345kV
China Draw to Phantom
Access Road
Existing - No Improvement
Permanent Right-of-Way
Pull Pocket
Existing Substation
Laydown Yard
New Mexico


Data Source: ESRI ArcGIS Online,
World Imagery, accessed December 2019
NAD83 Zone 13 (meters)
128
Laydown Yard - North Option
Laydown Yard - South Option
Phantom Substation (NM-140398)
Eddy County
Lea County
285
128
Project Area
Map 2 of 3
0 Miles 2
0 Kilometers 4
N
1:125,000
Project No. 52770
File: PrjArea_Overview_2
Map Created: 12/11/2019
Map Updated: 12/11/2019
SWCA
ENVIRONMENTAL CONSULTANTS
Major Roadway
Proposed Transmission Line 345kV
China Draw to Phantom
Phantom to Roadrunner
Access Road
Existing - Needs Improvement
Existing - No Improvement
Permanent Right-of-Way
Pull Pocket
Phantom Substation (NM-140398)
Laydown Yard
New Mexico



Project Area Map 3 of 3

0 Miles 2
0 Kilometers 4

N
1:125,000

Project No. 52770
File: PrjArea_Overview_3
Map Created: 12/11/2019
Map Updated: 12/11/2019

SWCA ENVIRONMENTAL CONSULTANTS

Major Roadway
Proposed Transmission Line 345kV
Phantom to Roadrunner
Access Road
Existing - Needs Improvement
Existing - No Improvement
Permanent Right-of-Way
Pull Pocket
Existing Substation
Laydown Yard

BIOLOGICAL SURVEY REPORT FOR THE SPS CHINA DRAW – PHANTOM – ROADRUNNER 345-KV TRANSMISSION PROJECT IN EDDY AND LEA COUNTIES, NEW MEXICO

JANUARY 2020

PREPARED FOR

Bureau of Land Management

ON BEHALF OF

Southwestern Public Service Company, Inc.

PREPARED BY

SWCA Environmental Consultants

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BIOLOGICAL SURVEY REPORT FOR THE SPS CHINA DRAW – PHANTOM – ROADRUNNER 345-KV TRANSMISSION PROJECT IN EDDY AND LEA COUNTIES, NEW MEXICO

Prepared for

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SWCA Project No. 52770

January 2020

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1 INTRODUCTION

SWCA Environmental Consultants, Inc. (SWCA) was retained by Southwestern Public Service Company, Inc. (SPS), an affiliate of Xcel Energy (Xcel), to complete a biological survey report (BSR) for the proposed China Draw to Phantom to Roadrunner 345-kV Transmission Project (project) located in Eddy and Lea Counties, New Mexico (see Figure A-1–A-19, Appendix A). The proposed project would consist of 42.2 miles of single-circuit alternating current, 345-kV overhead electric transmission line, which would connect to two previously permitted substations and an existing SPS owned substation: the China Draw Substation (NMSL #BL-2109), the Phantom Substation (NM-140398), and the Roadrunner Substation (located on SPS-owned land), respectively. The proposed project would be a permanent 150-foot-wide linear right-of-way (ROW), including additional temporary workspace (ATWS) for pull pockets and tensioning sites, and one new and one upgraded access road. The proposed project would also include three laydown yards used during project construction.

The acreage associated with the entire 150-foot-ROW, connection to substation infrastructure within the 23-acre Phantom Substation, and components of the project area outside of the permanent ROW, totals 885.5 acres. However, approximately 280.3 acres of surface disturbance would occur from construction activities. Of that 280.3 acres, approximately 164.4 acres are managed by the Bureau of Land Management (BLM) Carlsbad Field Office (CFO) and approximately 115.9 acres are managed by the New Mexico State Land Office or private property. Approximately 78.7 acres of BLM land would be disturbed permanently by structure foundations and assorted access roads during the construction phase. Therefore, approximately 28 percent of the total area of proposed disturbance within the ROW corridor on BLM lands would be permanent disturbance.

All surface disturbance not needed for production, operation, and maintenance of the proposed project would be reclaimed following construction. Construction of the proposed project is expected to begin after applicable required federal, state, and local permits and approvals are obtained and would take approximately 12 months to complete. This BSR is attached to the project-specific environmental assessment (EA) that has been developed in accordance with the National Environmental Policy Act (NEPA); for a detailed project description, refer to Chapter 2 of the EA and the Plan of Development on file with the BLM CFO and within Appendix B of the EA.

This BSR evaluates the potential effects of construction, operation, and maintenance of the proposed project on federally threatened or endangered species listed under the Endangered Species Act of 1973 (ESA), as amended (16 United States Code [USC] 1531–1541 et seq.); species listed as threatened or endangered under the New Mexico Wildlife Conservation Act (17-2-41 New Mexico Statutes Annotated [NMSA] 1978) and the State's Endangered Plant Species regulations (75-6-1 NMSA 1978); and BLM sensitive species. This BSR also provides a description of general site characteristics, soils, vegetation, wildlife, and aquatic resources within the proposed project area.

2 METHODOLOGY

2.1 Survey Methods

SWCA biologists Ian Dolly, Joanna Franks, Matt Nordgren, Mikaela Buscher, and Pauletta Dodge conducted biological surveys of the proposed project area on March 8–11, 28, 29, April 1, 11, 15, 16, 19, 22, 23, August 19–21, 23, 27, 31, and October 6, 2019. Prior to the biological surveys, SWCA reviewed baseline data for the survey area, which is defined below, including U.S. Geological Survey (USGS) topographic maps, Natural Resources Conservation Service (NRCS) soil maps (NRCS 2019), New Mexico Crucial Habitat Assessment Tool data (New Mexico Department of Game and Fish [NMDGF]

2013), National Hydrography Dataset maps (USGS 2013), National Wetlands Inventory maps (U.S. Fish and Wildlife Service [USFWS] 2019a), USFWS Information for Planning and Consultation (IPaC) system data (USFWS 2018b), the USFWS Critical Habitat Portal (USFWS 2019c), NMDGF Biota Information System of New Mexico (BISON-M) data (BISON-M 2019), the New Mexico Rare Plants website (New Mexico Rare Plant Technical Council 1999), and the New Mexico Energy, Minerals and Natural Resources Department (EMNRD) state endangered plant species list (EMNRD 2019).

During the biological surveys, maps and shapefiles provided by SPS were used for general orientation, to locate the proposed project boundaries, and to create maps of the proposed project area (see EA Appendix D). The survey area consisted of the proposed linear ROW with a 100-foot-wide buffer centered on the proposed transmission line corridor centerline, 50 feet on either side of the edge of disturbance, as well as a 50-foot-wide buffer around the proposed facilities and temporary workspaces. This area was surveyed to assess habitat suitability for USFWS, State, and BLM special status plant and animal species. SWCA also surveyed for additional sensitive areas, such as BLM CFO-defined playas, gypsum soils, and biological soil crusts.

2.2 Special Aquatic Sites

As part of the biological surveys, the proposed project area was also reviewed for the presence of special aquatic sites and other waters. Wetlands are the most common type of special aquatic site and are defined by the U.S. Army Corps of Engineers (USACE) as “areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (USACE 1987:9). According to the USACE (1987), in order for an area to be considered a wetland, it must contain the following three parameters under normal circumstances: 1) the presence of wetland hydrology showing regular inundation, 2) a predominance of hydrophytic (water-loving) vegetation, and 3) soils characteristic of frequent saturation (i.e., hydric soils). The presence or absence of a wetland was identified in the field using routine on-site delineation methods outlined in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (USACE 2008a).

The presence/absence of special aquatic sites other than wetlands (sanctuaries, refuges, mud flats, vegetated shallows, coral reefs, and riffle and pool complexes) was determined by visual observation during the biological surveys of the proposed project area. Further details regarding observations and potential impacts to aquatic resources can be found in Section 3.2.2 of the EA.

2.3 Other Waters

The presence/absence of lotic systems (e.g., creeks, rivers, arroyos, human-made ditches—collectively “streams”) was identified in the field using the methods outlined in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b). An OHWM is a line on a shore or bank established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. The OHWM is a defining element for identifying the lateral limits of non-wetland waters. Further details regarding observations and potential impacts to aquatic resources can be found in Section 3.2.2 of the EA.

3 RESULTS

3.1 General Characteristics

The proposed project area is located in a semiarid climate regime typified by dry windy conditions, limited rainfall, hot summers, and mild winters. The average elevation of the proposed project area ranges from approximately 2,864 to 3,582 feet above mean sea level (amsl). The climate for this area, based on the climatic records for Carlsbad, New Mexico (COOP Station No. 291469) in Eddy County, has an average annual maximum temperature of 76.8 degrees Fahrenheit (°F), with an average annual minimum temperature of 43.2°F. The average annual precipitation is 12.92 inches, with the majority occurring between May and October, while the average annual total snowfall is 6.9 inches, which largely occurs between November and February (Western Regional Climate Center 2019). Weather during the biological surveys ranged from approximately 51°F to 100°F, with clear to cloudy conditions and winds at approximately 0–15 miles per hour. Representative photographs of the proposed project area are included in Appendix B.

3.2 Soils

According to the NRCS (2019), 27 soil types are mapped within the proposed project area (Table 1). These soil types are considered well-drained to excessively drained and non-hydric. The following soils are considered prime farmland of statewide importance: Dev-Pima complex, 0 to 3 percent slopes (DP), Pima silt loam, 0 to 1 percent slopes (PM), Reagan loam, 0 to 3 percent slopes (RA), Reagan-Upton association, 0 to 9 percent slopes (RE), Maljamar and Palomas fine sands, 0 to 3 percent slopes (MF), and Pyote loamy fine sand (PT) (NRCS 2019).

Table 1. Soils in the Proposed Project Area

Soil Type Name	Soil Type Symbol	Acres in Full Project Footprint	Percent of Project Area
Berino loamy fine sand, 0 to 3 percent slopes	BA	19.3	2.2
Berino complex, 0 to 3 percent slopes, eroded	BB	165.9	18.4
Dev-Pima complex, 0 to 3 percent slopes	DP	1.0	0.1
Ector stony loam, 0 to 9 percent slopes	EC	12.0	1.4
Kermit-Berino fine sands, 0 to 3 percent slopes	KM	26.0	3.0
Pajarito loamy fine sand, 0 to 3 percent slopes, eroded	PA	76.4	8.8
Pajarito-Dune land complex, 0 to 3 percent slopes	PD	23.4	2.7
Pima silt loam, 0 to 1 percent slopes	PM	1.1	0.1
Potter-Simona complex, 5 to 25 percent slopes	PS	15.9	1.8
Reagan loam, 0 to 3 percent slopes	RA	35.9	4.1
Reagan-Upton association, 0 to 9 percent slopes	RE	72.8	8.4
Simona sandy loam, 0 to 3 percent slopes	SA	38.2	4.4
Simona gravelly fine sandy loam, 0 to 3 percent slopes	SG	11.4	1.3
Simona-Bippus complex, 0 to 5 percent slopes	SM	16.2	1.9
Tonuco loamy fine sand, 0 to 3 percent slopes	TF	32.5	3.7
Tonuco loamy fine sand, 0 to 3 percent slopes, eroded	TN	11.0	1.3

Soil Type Name	Soil Type Symbol	Acres in Full Project Footprint	Percent of Project Area
Upton gravelly loam, 0 to 9 percent slopes	UG	61.8	7.1
Berino-Cacique loamy fine sands association	BE	9.6	1.1
Berino-Cacique association, hummocky	BH	12.3	1.4
Kermit-Palomas fine sands, 0 to 12 percent slopes	KD	7.2	0.8
Kermit-Wink complex, 0 to 3 percent slopes	KE	6.2	0.7
Maljamar and Palomas fine sands, 0 to 3 percent slopes	MF	22.6	2.6
Pyote loamy fine sand	PT	39.2	4.5
Pyote and Maljamar fine sands	PU	36.2	4.1
Pyote soils and dune land	PY	26.6	3.1
Simona-Upton association	SR	61.3	7.0
Tonuco loamy fine sand, 0 to 3 percent slopes	TF	43.5	4.1
Total		**885.5**	**100.0**

Source: NRCS (2019)

Biological soil crusts are important components of the loamy and sandy soils of southeastern New Mexico. These crusts bind soil particles, thereby stabilizing surfaces and reducing erosion. Soil crust organisms enhance soil stability, capture nutrient-rich dust, impact nutrient cycling, contribute organic matter, and influence soil moisture dynamics. In addition, cyanobacteria and cyano-lichens fix atmospheric nitrogen, potentially making this nutrient more available for vascular plants. All of these functions are used by, and are important for sustaining, grasses, forbs, and other vascular plants in the general BLM region. During the 2019 biological survey, no biological soil crusts were observed near the proposed project area due to previous oil and gas disturbance. An in-depth soil inventory of the entire proposed project area was not conducted.

3.3 Vegetation

The proposed project area intersects two U.S. Environmental Protection Agency Level IV ecoregions: Chihuahuan Deserts: Chihuahuan Basins and Playas (414.8 acres); and Chihuahuan Deserts: Chihuahuan Desert Grasslands (462.8 acres) (Griffith et al. 2006). During the biological survey, biologists identified two general vegetation community types within the proposed project area: Chihuahuan desertscrub with intermixed grasslands, and Shinnery oak dunes with mesquite hummocks. The proposed project area was composed of approximately 55% Chihuahuan desertscrub with intermixed semi-arid grasslands, and 45% Shinnery oak dunes and Mesquite hummocks vegetation associations. Plant species recorded during the biological surveys are listed in Table 2. One special status plant species, Scheer's beehive cactus (Coryphantha robustispina var. scheeri), was observed during the 2019 biological surveys.

Vegetative cover within and surrounding the proposed project area is approximately 30–75%. At the time of the biological surveys, the vegetation communities within and/or surrounding the proposed project area had been previously disturbed because of existing oil and gas infrastructure, overhead electric lines, and livestock grazing. Photographs of the vegetation communities within and surrounding the proposed project area are provided in Appendix B.

Table 2. Plant Species Observed during the 2019 Biological Survey of the Proposed Project Area

Scientific Name	Common Name	Chihuahuan desertscrub with intermixed grasslands	Shinnery oak dunes with mesquite hummocks
Acourtia	Desert peony	x	
Amorpha fruticosa	False indigo bush	x	
Andropogon gerardii	Big bluestem	x	
Arctium minus	Lesser burdock	x	
Aristida pansa	Wooton's threeawn	x	
Arstida purpurea	Purple threeawn	x	
Artemisia bigelovii	Biglow sage	x	
Artemisia filifolia	Sand sagebrush	x	
Artemisia ludoviciana	White sagebrush	x	
Astragalus gracilis	Slender milkvetch	x	
Astragalus nuttallianus	Smallflower milkvetch	x	
*Atriplex canescens**	Fourwing saltbush	x	x
Atriplex gardneri	Desert holly	x	
Baccharis wrightii	Wright's baccharis	x	
Baileya multiradiata	Desert marigold	x	
Bothriochloa barbinodis	Cane bluestem	x	
Calylophus serrulatus	Yellow sundrops	x	
Cenchrus sp.	Sand burr	x	
Cenchrus spinifex	Coastal sandbur	x	
Chamaesaracha sordida	Hairy five eyes	x	
Chamaesyce lata	Hoary sandmat	x	
Chamaesyce serpens	Matted sandmat	x	
Chloris cucullata	Hooded windmill grass	x	
Chloris virgata	Feather finger grass	x	
Cirsium undulatum	Wavy leaf thistle	x	
Condalia ericoides	Javelina bush		x
Coryphantha macromeris	Nipple beehive cactus	x	
Coryphantha robustispina var. *scheeri*	Scheer's beehive cactus	x	
*Croton dioicus**	Grassland croton	x	
Croton texensis	Texas croton	x	x
Cryptantha minima	Little cryptantha	x	
Cylindropuntia imbricata	Cane cholla/tree cholla	x	
Cylindropuntia leptocaulis	Christmas cholla	x	
Dasyochloa pulchella	Low woollygrass	x	
Dimorphocarpa wislizeni	Touristplant	x	x
Echinocactus horizonthalonius	Turkshead cactus	x	
Echinocactus texensis	Horse crippler	x	x
Echinocereus rigidissimus	Rainbow hedgehog cactus	x	

Scientific Name	Common Name	Chihuahuan desertscrub with intermixed grasslands	Shinnery oak dunes with mesquite hummocks
Ephedra torreyana	Torrey's jointfir	x	
Ephedra viridis	Mormon tea	x	
Epixiphium wislizeni	Balloonbush	x	
Eragrostis lemanniana	Lehmann lovegrass	x	
Eragrostis secundiflora	Red lovegrass	x	
Ericameria nauseosa	Rubber rabbitbrush	x	
Eriogonum annuum	Annual buckwheat	x	
Erioneuron pilosum	Hairy woollygrass	x	
Erodium sp.	Stork's bill	x	
Euthamia occidentalis	Western goldenrod	x	
Flourensia cernua	American tarwort	x	
Gaillardia pulchella	Indian blanket	x	
Glandularia gooddingii	Southwest mock vervain	x	
Grindelia squarrosa	Curley cup gumweed	x	
*Gutierrezia sarothrae**	Broom snakeweed	x	
Hesperostipa comata	Needle and thread grass	x	
Ipomopsis longiflora	White-flower skyrocket	x	
Isocoma tenuisecta	Burroweed	x	
Koeberlinia sp.	Allthorn	x	x
Krameria erecta	Littleleaf ratany	x	
*Larrea tridentate**	Creosote bush	x	x
Lepidium montanum	Mountain pepperweed	x	x
*Lesquerella gordonii**	Gordon's bladderpod	x	
Linum aristatum	Broom flax	x	
Linum vernale	Chihuahuan flax	x	
Lycium macrodon	Desert wolfberry	x	x
Lycium pallidum	Pale desert-thorn	x	
Mahonia haematocarpa	Red barberry	x	
Mahonia trifoliolata	Algerita	x	
Mentha arvensis	Wild mint	x	
Mimosa aculeaticarpa *	Catclaw mimosa	x	x
Muhlenbergia porteri	Bush muhly	x	
Nama stevensii	Steven's fiddleleaf	x	
Nerisyrenia camporum	Bicolor fanmustard	x	
Oenothera caespitosa	Tufted evening primrose	x	
Opuntia macrocentra	Purple pricklypear	x	
Orobanche ludoviciana	Louisiana broomrape	x	
Peganum harmala	African rue	x	
Phacelia crenulata	Cleftleaf wildheliotrope	x	

Scientific Name	Common Name	Chihuahuan desertscrub with intermixed grasslands	Shinnery oak dunes with mesquite hummocks
Phacelia popei	Pope's phacelia	x	
Phyllanthus abnormis	Drummond's leaf-flower	x	
Plantago argyrea	Saltmeadow plantain	x	
Plantago helleri	Heller's plantain	x	
Plantago sp.	Plantago	x	
*Pleuraphis mutica**	Tobosagrass	x	
*Prosopis glandulosa**	Honey mesquite	x	x
Psilostrophe sparsiflora	Greenstem paperflower	x	
Psilostrophe tagetina	Woolly paperflower	x	
*Quercus havardii**	Shinnery oak		x
Rhus microphylla	Little leaf sumac	x	
Salsola tragus	Prickly Russian thistle	x	
Sapindus sp.	Soapberry		x
Sarcobatus	Greasewood	x	
Senecio flaccidus	Threadleaf ragwort	x	
Senegalia greggii	Catclaw acacia		x
Senna bauhinioides	Twinleaf senna	x	
Setaria vulpiseta	Plains bristlegrass	x	x
Solanum elaeagnifolium	Silverleaf nightshade	x	
Sphaeralcea coccinea	Scarlet globemallow	x	
Sphaeralcea munroana	Munro's globemallow	x	
Sporobolus contractus	Spike dropseed	x	
Sporobolus cryptandrus	Sand dropseed	x	
Sporobolus flexuosus	Mesa dropseed	x	
Sporobolus sp.	Dropseed sp.	x	
Stenandrium barbatum	Early shaggytuft	x	
Symphyotrichum expansum	Southwestern annual saltmarsh aster	x	
Tamarix sp.	Tamarisk	x	
Thymophylla acerosa	Pricklyleaf dogweed	x	
Tiquilia canescens	Woody crinklemat	x	
*Vachellia constricta**	Whitethorn acacia	x	
Yucca angustissima	Narrowleaf yucca	x	
Yucca campestris	Plains yucca	x	
Yucca eleta	Soaptree yucca	x	x
Zinnia acerosa	Desert zinnia	x	
Ziziphus obtusifolia	Lotebush	x	

Note: Nomenclature follows the PLANTS Database (USDA 2019).

* Refers to dominant species within corresponding vegetative community.

3.4 Noxious Weeds

During the biological surveys, two State of New Mexico-listed noxious weed species were identified within the proposed project area (Appendix A, Figures A-1–A-19) (New Mexico Department of Agriculture 2016; U.S. Department of Agriculture 2017). African Rue (*Peganum harmala*) and saltcedar (*Tamarix* sp.) were observed in the 2019 biological survey (Appendix B. Photographs B-13 and B-14). Review of the BLM CFO's noxious weed treatment geographic information system (GIS) shapefile showed that the proposed project area intersects multiple previously treated noxious weed areas for African rue and Tamarisk, which were last treated in 2015 and 2006, respectively.

Russian thistle (*Salsola tragus*) is considered an invasive species and were also present in the proposed project area during the 2019 biological survey. Though these species are not State of New Mexico-listed or federally listed noxious weeds, they are considered problematic once a population becomes established (Sholedice and Renz 2006).

3.5 Special Aquatic Sites and Other Waters

The proposed project area crosses five Hydrologic Unit Code (HUC-10) watersheds (see Table 3.2 in Section 3.2 of the EA). SWCA identified one perennial drainage (the Pecos River), and 35 ephemeral drainages with a discernible OHWM within the proposed project area (see Figures C-1–C-19, and D-1–D-9 in Appendix C and D, respectively, of the EA). Detailed information regarding identified aquatic resources, including relevant mitigation measures, can be found in Section 3.2. of the EA.

3.6 Wildlife

The two ecoregions that the proposed project area intersects (discussed in Section 3.2 of the EA) provide habitat for a variety of wildlife species. SWCA biologists detected 39 bird species, seven mammal species, seven reptile species and two insect species during the 2019 biological surveys of the proposed project area (Table 3). Four special status species—the golden eagle (*Aquila chrysaetos*), Texas horned lizard (*Phrynosoma cornutum*), monarch butterfly (*Danaus plexippus plexippus*), and burrowing owl (*Athene cunicularia*)—were observed during the 2019 biological surveys.

Table 3. Wildlife Detected during the 2019 Biological Surveys of the Proposed Project Area

Scientific Name	Common Name
Birds	
Amphispiza belli	Sage sparrow
Amphispiza bilineata	Black-throated sparrow
Anas platyrhynchos	Mallard
Aquila chrysaetos	Golden Eagle
Asio flammeus	Short-eared owl
Athene cunicularia	Burrowing owl
Auriparus flaviceps	Verdin
Bubo virginianus	Great-horned owl
Buteo jamaicensis	Red-tailed hawk
Buteo swainsoni	Swainson's hawk

Scientific Name	Common Name
Calamospiza melanocorys	Lark bunting
Campylorhynchus brunneicapillus	Cactus wren
Cardinalis sinuatus	Pyrrhuloxia
Cathartes aura	Turkey vulture
Chordeiles minor	Common nighthawk
Circus cyaneus	Northern harrier
Corvus cryptoleucus	Chihuahuan raven
Eremophilia alpestris	Horned lark
Geococcyx californianus	Greater roadrunner
Lanius ludovicianus	Loggerhead shrike
Mimus polyglottos	Northern mockingbird
Myiarchus cinerascens	Ash-throated flycatcher
Oreoscoptes montanus	Sage thrasher
Parabuteo unicinctus	Harris's hawk
Mammals	
Bos Taurus	Domestic cow
Canis latrans	Coyote (tracks)
Geomyidae sp.	Gopher (mounds)
Lepus californicus	Black-tailed jackrabbit
Neotoma sp.	Pack rat (midden)
Odocoileus hemionus	Mule deer
Otospermophilus variegatus	Rock squirrel
Reptiles	
Aspidoscelis tigris	Western whiptail
Coleonyx variegatus	Western banded gecko
Crotalus atrox	Western diamond rattlesnake
Crotalus viridis	Prairie rattlesnake
Phrynosoma cornutum	Texas horned lizard
Sceloporus sp.	Fence lizard
Uta sp.	Side blotched lizard
Insects	
Danaus plexippus plexippus	Monarch Butterfly
Limenitis archippus	Viceroy butterfly

Note: All wildlife detected by direct observation unless otherwise noted.

3.6.1 *Migratory Bird Treaty Act*

Most bird species are protected by the Migratory Bird Treaty Act (MBTA). The MBTA implements various treaties and conventions between the United States and other countries for the protection of migratory birds. Under the MBTA, unless permitted by regulations, it is unlawful to 1) pursue, hunt, take, capture, or kill; 2) attempt to take, capture, or kill; or 3) possess, offer to sell, barter, purchase, deliver, or cause to be shipped, exported, imported, transported, carried, or received any migratory bird, part, nest, egg, or product, manufactured or not. USFWS regulations broadly define "take" under the MBTA to mean "pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect." Under the MBTA, "take" does not include habitat loss or alteration.

Suitable nesting habitat for migratory birds is present throughout the proposed project area. During SWCA's biological surveys, 39 bird species were observed (see Table 3). 177 inactive passerine nests, nine active passerine nests, three active raptor nests, 11 inactive raptor nests and two active burrowing owl burrows, all ranging from poor to good condition, were observed within the proposed project area. Suitable burrowing owl nesting burrows were also observed during the biological surveys; active burrow locations with observable feathers, as well as scat and soil disturbance, were recorded and are depicted on maps (see Figures A-1–A-19 in Appendix A; Photograph B-12 in Appendix B). Passerine and raptor nest site locations are depicted on maps (see Figures A-1–A-19 in Appendix A) and photographs in Appendix B.

Any vegetation removal during the breeding season (March–October) could be preceded by a pre-construction nesting survey up to 2 weeks prior to vegetation removal to establish the occupancy status of the potentially suitable nests and nesting burrows detected within the proposed project. If the nest or burrow is active, an avoidance radius, to be determined by the BLM, could be required until the young have fledged. This pre-construction nest survey would be conducted in accordance with the BLM CFO's burrowing owl survey guidance and recommendations.

Similarly, unoccupied raptor nests could be removed by SPS, in consultation with a biologist, outside the breeding season. The BLM may require pre-construction nest surveys to identify occupied raptor nests and establish an avoidance buffer (distances to be established by the BLM) until the young have fledged.

3.6.2 *Bald and Golden Eagle Protection Act*

Bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are protected under the MBTA and the Bald and Golden Eagle Protection Act. Bald eagles are found typically in association with water, and nest and breed from October to July throughout the state of New Mexico. Golden eagles nest primarily on rock ledges or cliffs and occasionally in large trees at elevations ranging from 4,000 to 10,000 feet amsl. Golden eagles are typically found in mountainous regions of open country, prairies, arctic and alpine tundra, open wooded areas, and barren areas. Both bald and golden eagles are carnivores. Bald eagles prey on fish but also on mammals, especially prairie dogs (*Cynomys* sp.). Golden eagles feed mainly on small mammals, as well as invertebrates, carrion, and other wildlife (BISON-M 2019 Stahlecker and Walker 2010).

No bald eagles were observed during the biological surveys due to lack of suitable nesting habitat and prey species. However, one golden eagle was observed in flight during the 2019 biological survey. Golden eagles are not likely to nest within the proposed project area due to the lack large nesting trees or large prairie dog colonies within or adjacent to the proposed project area. Additionally, golden eagles are unlikely to use proximal wetlands or playas located outside the ROW corridor because they do not contain adequate water for sustainable aquatic foraging opportunities. Vegetation communities within the proposed project area could provide suitable intermittent foraging habitat for eagles. See section 3.7.2 of this document for additional details.

3.7 Special Status Species

The special status species evaluated in this BSR consist of 1) federally protected (endangered and threatened) species (USFWS 2019b), 2) additional species listed by the USFWS as candidate and proposed species (USFWS 2019b), 3) New Mexico State-listed endangered and threatened species (BISON-M 2019; EMNRD 2019, and 4) BLM special status species. Table 4 describes the special status species with the potential to occur in Eddy and Lea Counties, New Mexico, their habitat, and potential occurrence in the proposed project area. The potential for occurrence of a species was identified using the following categories:

- *Known to occur*—the species was documented in the proposed project area either during or prior to the biological surveys by a reliable observer.
- *May occur*—the proposed project area is within the species' currently known range, and vegetation communities, soils, water quality conditions, etc., resemble those known to be used by the species.
- *Unlikely to occur*—the proposed project area is within the species' currently known range, but vegetation communities, soils, water quality conditions, etc., do not resemble those known to be used by the species, or the proposed project area is clearly outside the species' currently known range.

No USFWS-listed threatened, endangered or candidate species were observed during the biological surveys, nor determined to have a "may occur" potential for occurrence status. However, one instance of a golden eagle observation, in flight, was recorded during the 2019 biological surveys. As this species is protected by the federal Bald and Golden Eagle Protection Act, it is analyzed in detail in section 3.7.2.

Ten species listed as endangered by the State of New Mexico or as BLM sensitive species may occur within the proposed project area: Scheer's beehive cactus (*Coryphantha robustispina var. scheeri*), Wright's waterwillow (*Justicia wrightii*), Tharp's blue-star (*Amsonia tharpii*), chestnut-collarded longspur (*Calcarius ornatus*), western burrowing owl (*Athene cunicularia hypugaea*), golden eagle (*Aquila chrysaetos)*, lesser prairie-chicken (*Tympanichus pallidicinctus*), Texas horned lizard (*Phrynosoma cornutum)*, monarch butterfly (*Danaus plexippus plexippus)*, and Texas hornshell mussel (*Popenaias popeii*). These species are described further below.

Five BLM sensitive species— Scheer's beehive cactus, golden eagle, western burrowing owl, Texas horned lizard, and monarch butterfly—were observed during the 2019 biological surveys of the proposed project area. These species are described further below.

Seven BLM sensitive bat species— Townsend's pale big-eared bat (*Corynorhinus townsendii*), big free-tailed bat (*Nyctinomops macrotis*), cave myotis bat (*Myotis velifer*), fringed myotis bat (*M. thysanodes*), , long-legged myotis bat (*M. volans interior*), western small-footed myotis bat (*M. ciliolabrum*), and Yuma myotis bat (*M. yumanensis yumanensis*)—have the potential to occur in the proposed project area. However, the proposed project area is only likely to be utilized for foraging purposes because tree, cliff cavities, and karst roosting habitat is not present. As these bat species are crepuscular and foraging activity occurs primarily at dusk, they would not likely be impacted by construction activities and are not described further below.

Table 4. Special Status Species for Eddy and Lea Counties, New Mexico

Common Name (*Species Name*)	Status*	Range or Habitat Requirements	Potential for Occurrence in Project Area
Plants			
Allred's flax (*Linum allredii*)	BLM Sensitive	Occurs on scarps and hillsides of exposed sandy gypsum of the Permian-aged Castile Formation in Chihuahuan desertscrub at 3,900 feet above mean sea level (amsl). This species' range occurs in the northern Chihuahuan desert of New Mexico and Texas.	Unlikely to occur in the proposed project area due to lack of sandy gypsum soils. The proposed project is outside of this species' known distribution range (BLM 2019a). Additionally, the highest elevation in the proposed project area is 3,582 amsl.
Chapline's columbine (*Aquilegia chaplinei*)	BLM Sensitive	Occurs in Eddy and Otero Counties, New Mexico. Prefers limestone seeps and springs in montane scrub; also riparian canyon bottoms at 1,500–1,900 amsl elevation.	Unlikely to occur in the proposed project area due to lack of limestone seeps and springs in montane scrub or riparian canyons. Additionally, the lowest elevation in the proposed project area is 2,864 feet amsl.
Guadalupe mescalbean (*Dermatophyllum guadalupense*)	BLM Sensitive	Occurs on outcrops of pink, limy, fine-grained sandstone that is 1%–2% gypsum in Chihuahuan desert scrub and juniper savanna from 5,260 to 6,650 feet amsl.	Unlikely to occur in the proposed project area due to lack of pink, limy, fine-grained sandstone soils. Additionally, the highest elevation in the proposed project area is 3,582 feet amsl.
Guadalupe penstemon (*Penstemon cardinalis* ssp. *regalis)*	BLM Sensitive	Prefers limestone slopes and canyon bottoms in montane scrub, piñon-juniper woodland, and lower montane coniferous forest from 4,500 to 6,000 feet amsl.	Unlikely to occur in the proposed project area due to lack of limestone slopes and canyon bottoms. In addition, the highest elevation in the proposed project area is 3,582 feet amsl.
Gypsum milkvetch (*Astragalus gypsodes*)	BLM Sensitive	Occurs in gypsum flats and low-gullied gypseous hills of the Permian-aged Castile formation from 3,500 to 4,000 feet amsl.	Unlikely to occur in the proposed project area due to lack of gypseous hills within the proposed project area. The proposed project is outside of this species' known distribution range (BLM 2019a).
Gypsum wild-buckwheat (*Eriogonum gypsophilum*)	USFWS T NM E	Restricted to almost pure gypsum soil that is sparsely vegetated with other gypsophilous plants, such as Coldenia hispidissima (*Coldenia hispidissima*), gypsum blazingstar (*Mentzelia humilis*), and southwestern ringstem (*Anulocaulis leiosolenus*) along ridges and slopes along gypsum outcrops within semi-arid conditions. Elevation is 3,200–3,600 feet amsl. The species is known to occur in four distinct locations: Ben Slaughter Draw–Hay Hollow, North Seven River, South Seven River, and Threemile Draw–Black River watersheds.	Unlikely to occur in the proposed project area due to lack of gypsophilous plants. Additionally, the proposed project area is not in the known distribution area of this species (BLM 2019a).
Jewelflower (*Streptanthus sparsiflorus*)	BLM Sensitive	Occurs in limestone canyon bottoms and montane scrub from 5,000–7,000 feet amsl.	Unlikely to occur in the proposed project area due to lack of limestone canyon bottoms and montane scrub. In addition, the highest elevation in the proposed project area is 3,582 feet amsl.
Kuenzler's hedgehog cactus (*Echinocereus fendleri* var. *kuenzleri*)	USFWS E NM E	Primarily on gentle, gravelly to rocky slopes and benches on limestone or limy sandstone in Great Plains grassland, oak woodland, or piñon-juniper woodland. Elevation 2,000–6,500 feet amsl. This species' range is limited to the Vera Cruz Mountains, Tucson Mountains, and the Guadalupe, Sacramento Captain, and Jicarilla Mountain ranges.	Unlikely to occur in the proposed project area due to lack of rocky slopes, benches, and preferred vegetation communities. The proposed project is outside of this species' known distribution range (BLM 2019a).

Common Name (*Species Name*)	**Status***	**Range or Habitat Requirements**	**Potential for Occurrence in Project Area**
Lee's pincushion cactus (*Escobaria sneedii* var. *leei*)	USFWS T NM E	Primarily occurs in limestone cracks, breaks, and scree fields ranging between 4,000 and 5,900 feet amsl. This species is endemic to New Mexico within the Guadalupe Mountains and their foothills.	Unlikely to occur in the proposed project area due to the lack of north-facing limestone ledges, slopes, and ridges. Additionally, the highest elevation in the proposed project area is 3,582 feet amsl.
Scheer's beehive cactus (*Coryphantha robustispina* var. *scheeri*)	BLM Sensitive NM E	Typically associated with gravelly or silty soil in desert grassland and Chihuahuan desert scrub communities. May also be found on rocky benches or bajadas on limestone or gypsum soils; elevation range of this cactus is 3,300–3,600 feet amsl.	Known to occur in the proposed project. This species was observed during the 2019 biological survey of the proposed project area.
Shining coralroot (*Hexalectris nitida*)	NM E	Found in leaf litter within oak thicket habitat in deep canyons; elevation 4,300 feet amsl. This species is known to occur in Eddy and Otero Counties, New Mexico, and within the Guadalupe and Cornudas Mountains in Texas. This species is also commonly referred to as Glass Mountain crested coralroot.	Unlikely to occur in the proposed project area due to lack of deep canyons. Additionally, the proposed project is not located in the Cornudas Mountains, and the highest elevation in the proposed project area is 3,582 feet amsl.
Sneed's pincushion cactus (*Coryphantha sneedii* var. *sneedii*)	USFWS E	Primarily cracks in limestone in areas of broken terrain and steep slopes. This subspecies is known to occur in Doña Ana County, New Mexico, and El Paso County, Texas. The elevation range of this cactus is 3,900–7,700 feet amsl.	Unlikely to occur in the proposed project area due to lack of limestone outcrops. Additionally, the highest elevation in the proposed project area is 3,582 feet amsl.
Tharp's blue-star (*Amsonia tharpii*)	BLM Sensitive NM E	Species occurs in well-drained gypsum, caliche, and dolomite sedimentary outcrops and alluvium deposits between 3,000 and 3,800 feet amsl. Species range occurs within Eddy County, New Mexico, and Pecos County, Texas.	May occur in the proposed project area. The proposed project is within the BLM-mapped potential habitat of this species' distribution range (BLM 2019a). No Tharp's blue-star were observed during the 2019 biological survey.
Wind Mountain rock-cress (*Boechera zephyra*)	BLM Sensitive	Found on rocky syenite, limestone, or basaltic scoria slopes. Primarily occurs in the upper margins of Chihuahuan desert scrub; occasionally occurs in juniper savanna or oak-juniper woodlands. This species has not been verified within the CFO Planning Area.	Unlikely to occur in the proposed project area due to lack of rock syenite, limestone, or basaltic scoria slopes. Additionally, this species has not been verified within the CFO Planning Area.
Wright's marsh thistle (*Cirsium wrightii*)	USFWS C BLM Sensitive	Wet, alkaline soils in spring seeps and marshy edges of streams and ponds from 3,450 to 8,500 feet amsl. This species occurs in Eddy County, New Mexico, with concentrated populations near Blue Spring.	Unlikely to occur in the proposed project area due to lack of spring seeps, marshes, and streams. Additionally, the proposed project area is outside this species' distribution range.
Wright's waterwillow (*Justicia wrightii*)	BLM Sensitive	Found on limestone benches in Chihuahuan desert scrub at 3,900 feet amsl.	May occur in the proposed project area. The proposed project is within the BLM-mapped potential habitat of this species' distribution range (BLM 2019a). No Wright's waterwillow were observed during the 2019 biological survey.

Common Name (*Species Name*)	**Status***	**Range or Habitat Requirements**	**Potential for Occurrence in Project Area**
Invertebrates			
Monarch butterfly (*Danaus plexippus plexippus*)	BLM Sensitive	Occurs in migratory populations that complete an annual round-trip migration across North America, including New Mexico, from April through October. This species breeds in the northern portions of its range and overwinters in the Mexican highlands or along the Pacific coast. This obligate species' habitat for reproduction includes milkweed plant species (*Asclepias* sp.) since milkweed is required for egg laying and caterpillar development (Cary and Delay 2016). This species is also dependent on habitat with diverse and abundant flowering plants as a food source.	Known to occur within the proposed project due to a seasonal migration corridor that spans the months of April through October. This species was observed during the 2019 biological survey of the proposed project area.
Ovate vertigo snail (*Vertigo ovata*)	NM T	The only known population in New Mexico is at and near Blue Spring south of Carlsbad in Eddy County. It occurs within a few meters of the brook issuing from Blue Spring, on damp soil under the shelter of dead tree branches. The species typically occurs in proximity to ponds, streams, and spring outflows and on living and dead vegetation, organic debris, and damp or muddy soils.	Unlikely to occur in the proposed project area because the proposed project area is not within or adjacent to Blue Spring.
Pecos springsnail (*Pyrgulopsis pecosensis*)	BLM Sensitive NM T†	This species is endemic to southeastern New Mexico, known historically to occur in Blue Spring and Castle Spring in Eddy County. This species has since been extirpated from Castle Springs. This species is part of the Candidate Conservation Agreement (CCA) implemented by the USFWS, the BLM, and the Center of Excellence for Hazardous Materials Management (CEHMM). It occurs on a mud and pebble substrate in its spring habitat, mainly along the edges of the water. Found on pebbles, gypsum silt, and to a lesser extent mud and submerged vegetation in a high-volume spring and spring run, and associated marsh. The water is gypsum rich.	Unlikely to occur in the proposed project area due the lack of suitable habitat within the proposed project area. Additionally, the proposed project area is not within or adjacent to Blue Spring and Castle Spring known occupied habitat.
Texas hornshell (*Popenaias popei*)	USFWS E NM E	Historically, this species occurred in the Pecos–Rio Grande drainage. Currently, this species is found in four distinct locations, including the Black River and Delaware River in New Mexico and the lower Rio Grande and the Devil's River in Texas. This species is part of the CCA. Associated with larger streams and a variety of substrates. Imbeds itself in softer bottoms, but lodges itself in cracks and crevices, where it is probably immobile.	Unlikely to occur in the proposed project area. The proposed project area is within the CCA; however, it does not intersect any drainages that are in confluence to the Black River or the Delaware River, and is within Zone D within the CCA by the USFWS and CEHMM (2018). Therefore, no direct impacts are anticipated to occur. Additionally, the proposed project will span the Pecos River. Construction associated with the proposed project is not anticipated to indirectly impact the Black or Delaware Rivers due to the implementation of mitigation measures. Please refer to Section 3.5.2 in the EA for additional mitigation measures.

Common Name (*Species Name*)	**Status***	**Range or Habitat Requirements**	**Potential for Occurrence in Project Area**
Fish			
Bigscale logperch (*Percina macrolepida*)	BLM Sensitive NM T	Native to the Pecos River drainage, occurring mainly in and below Sumner Lake in De Baca County and between Lake McMillan (Eddy County) and the Texas state line. Smaller populations are found also near Santa Rosa, the Black River, and Willow Lake in Eddy County. Also introduced in Ute Lake in Quay County. The species' preferred habitat consists of strong, non-turbulent flows, but the species is also found in impoundments. Preferred substrate varies from silt to rubble, on which the species spends much of its time resting.	Unlikely to occur because the proposed project will span the Pecos River, the adjacent floodplain, avoiding direct impacts to the river and riparian habitat. Construction associated with the proposed project is not anticipated to directly impact the waterbodies. Additionally, mitigation measures would be implemented to avoid indirect impacts to the Pecos River.
Blue sucker (*Cycleptus elongatus*)	BLM Sensitive NM E†	Historically, this species occurred in the Pecos River, from which it has likely been extirpated. It is absent in the Rio Grande, where it occurred historically. Whether this species is extant in the Black River is unknown. Its primary habitat consists of deep river channels with runs and riffles. Also found in pools with moderate currents and in deep lakes. This species is part of the CCA.	Unlikely to occur because the proposed project will span the Pecos River and the adjacent floodplain, avoiding direct impacts to the river and riparian habitat. Construction associated with the proposed project is not anticipated to directly impact the waterbodies. Additionally, mitigation measures would be implemented to avoid indirect impacts to the Pecos River.
Gray redhorse (*Moxostoma congestum*)	BLM Sensitive NM E†	Formerly occurred in the Pecos River and the Rio Grande, but is now restricted to the lower Black River from Blue Spring to the Pecos River confluence. This species has been reintroduced into the Delaware River by the NMDGF. This species is part of the CCA. Typical habitat consists of low-gradient streams with warm, usually clear waters. Adults most often occupy medium to large pools with cobble, gravel, silt, or sand bottoms. The young and juveniles tend to seek riffles and gravelly runs and avoid densely vegetated areas.	Unlikely to occur because the proposed project will span the Pecos River and the adjacent floodplain, avoiding direct impacts to the river and riparian habitat. Construction associated with the proposed project is not anticipated to directly impact the waterbodies. Additionally, mitigation measures would be implemented to avoid indirect impacts to the Pecos River.
Greenthroat darter (*Etheostoma lepidum*)	BLM Sensitive NM T	Native to the Pecos River drainage of Chaves and Eddy Counties. Known to occur in particular at Blue Spring and its outflow stream, in the Pecos River between Lake McMillan and Avalon Reservoir, in the Rio Peñasco and Cottonwood Creek, and at Bitter Lake National Wildlife Refuge. Found in swift-flowing streams and springs, especially vegetated riffle areas with gravel and rubble substrates. Also occurs in clear ponded-water habitats including sinkholes and littoral areas of other lentic systems with wave action and aquatic vegetation rooted in a gravel substrate.	Unlikely to occur because the proposed project will span the Pecos River and the adjacent floodplain, avoiding direct impacts to the river and riparian habitat. Construction associated with the proposed project is not anticipated to directly impact the waterbodies. Additionally, mitigation measures would be implemented to avoid indirect impacts to the Pecos River.
Headwater catfish (*Ictalurus lupus*)	BLM Sensitive	Occurs in Texas, New Mexico, and Mexico. It is native to the Pecos drainage downstream of Sumner Reservoir and occurs in the Middle Rio Grande Basin. Its habitat consists of clear temperate waters, generally with a moderate gradient. Despite competition with the channel catfish (*Ictalurus punctatus*), the species has persisted in headwater streams and in fluctuating tailwaters of dams in the Pecos River.	Unlikely to occur because the proposed project will span the Pecos River and the adjacent floodplain, avoiding direct impacts to the river and riparian habitat. Construction associated with the proposed project is not anticipated to directly impact the waterbodies. Additionally, mitigation measures would be implemented to avoid indirect impacts to the Pecos River.

Common Name (*Species Name*)	**Status***	**Range or Habitat Requirements**	**Potential for Occurrence in Project Area**
Mexican tetra (*Astyanax mexicanus*)	BLM Sensitive NM T	The species' distribution extends from eastern New Mexico and southern Texas southward along the Atlantic slope drainages of Mexico. In New Mexico, it is restricted largely to Blue Spring and the Delaware River in Eddy County. Also found occasionally in the Pecos River below Lake McMillan. Occupies a variety of habitats, but tends to school in pools and below swift areas in eddies. Found primarily in habitats with stenothermal flows (i.e., springs). Young-of-year are present in shallow water near overhanging bank vegetation.	Unlikely to occur because the proposed project will span the Pecos River and the adjacent floodplain, avoiding direct impacts to the river and riparian habitat. Construction associated with the proposed project is not anticipated to directly impact the waterbodies. Additionally, mitigation measures would be implemented to avoid indirect impacts to the Pecos River.
Pecos bluntnose shiner (*Notropis simus pecosensis*)	USFWS T NM E	Still extant in the Pecos River from Fort Sumner to Artesia, although it has declined considerably in numbers since about 1950. Most common in main channel areas, with low-velocity water, depths of 7–12 inches, and a sandy substrate. Flood inflows from uncontrolled tributaries contribute to favorable river channel conditions.	Unlikely to occur because the proposed project will span the Pecos River and the adjacent floodplain, avoiding direct impacts to the river and riparian habitat. Construction associated with the proposed project is not anticipated to directly impact the waterbodies. Additionally, mitigation measures would be implemented to avoid indirect impacts to the Pecos River.
Pecos gambusia (*Gambusia nobilis*)	USFWS E NM E	Endemic to the Pecos River Basin in southeastern New Mexico and western Texas. Natural populations still occur in New Mexico on the Bitter Lake National Wildlife Refuge and in the Salt Creek Wilderness Area (both in Chaves County) and in Blue Spring in Eddy County. Most common in heads and runs of springs, where it uses aquatic vegetation for refuge. Occupies ponds and gypsum sinkholes on Bitter Lake National Wildlife Refuge and in Blue Spring, New Mexico. Associates in loose schools that spend much of the time near the surface. Inhabits shallow areas of alkaline waters with aquatic vegetation for cover.	Unlikely to occur because the proposed project will span the Pecos River and the adjacent floodplain, avoiding direct impacts to the river and riparian habitat. Construction associated with the proposed project is not anticipated to directly impact the waterbodies. Additionally, mitigation measures would be implemented to avoid indirect impacts to the Pecos River.
Pecos pupfish (*Cyprinodon pecosensis*)	BLM Sensitive NM T	Occurs in saline springs and gypsum sinkholes at Bitter Lake National Wildlife Refuge and Bottomless Lakes State Park. Elsewhere, it is present irregularly in the Pecos River south from Bitter Lake and Bottomless Lakes State Park south to the Texas state line and formerly in Laguna Grande in Eddy County. Typical habitat consists of saline springs and gypsum sinkholes; only rare in fresher water habitats, including the main channel of the Pecos River. Found in backwater areas and side pools that lack sunfish or other predators. At Bitter Lake National Wildlife Refuge, numerous individuals were taken from waters in interstices of gravel from a pond drain with no surface flow.	Unlikely to occur because the proposed project will span the Pecos River and the adjacent floodplain, avoiding direct impacts to the river and riparian habitat. Construction associated with the proposed project is not anticipated to directly impact the waterbodies. Additionally, mitigation measures would be implemented to avoid indirect impacts to the Pecos River.
Rio Grande chub (*Gila pandora)*	BLM Sensitive	This species is native to the Rio Grande and Pecos River drainages, and possibly native to the Canadian drainage, although it may have been introduced there (Sublette et al. 1990). Rio Grande chubs occupy perennial mainstream and tributary habitat at higher elevations (Bestgen and Platania 1990).	Unlikely to occur because the proposed project will span the Pecos River and the adjacent floodplain, avoiding direct impacts to the river and riparian habitat. Construction associated with the proposed project is not anticipated to directly impact the waterbodies. Additionally, mitigation measures would be implemented to avoid indirect impacts to the Pecos River.

Common Name (*Species Name*)	**Status***	**Range or Habitat Requirements**	**Potential for Occurrence in Project Area**
Rio Grande shiner (*Notropis jemezanus*)	BLM Sensitive	Occurs in the Rio Grande downstream of the confluence of the Rio Conchos but is extirpated from the Rio Grande in New Mexico. In the Pecos River in New Mexico, it currently persists from Old Fort State Park near Fort Sumner downstream to about Brantley Reservoir, including at Bitter Lake National Wildlife Refuge. Within occupied reaches of the Pecos River, it is generally uncommon to rare. Rio Grande shiners occupy flowing water environments found in large open rivers with laminar flows and a minimum of aquatic vegetation and larger streams with gravel, sand, or rubble bottoms.	Unlikely to occur because the proposed project will span the Pecos River and the adjacent floodplain, avoiding direct impacts to the river and riparian habitat. Construction associated with the proposed project is not anticipated to directly impact the waterbodies. Additionally, mitigation measures would be implemented to avoid indirect impacts to the Pecos River.
Rio Grande sucker (*Catostomus plebeius)*	BLM Sensitive	The native range of the Rio Grande sucker includes the Rio Grande and its tributaries in northern New Mexico and southern Colorado, the Mimbres drainage in southwestern New Mexico, and streams of the Guzman Basin in northwestern Chihuahua (Sublette et al. 1990).	Unlikely to occur because the proposed project will span the Pecos River and the adjacent floodplain, avoiding direct impacts to the river and riparian habitat. Construction associated with the proposed project is not anticipated to directly impact the waterbodies. Additionally, mitigation measures would be implemented to avoid indirect impacts to the Pecos River.
Speckled chub (*Macrhybopsis aestivalis)*	BLM Sensitive	The distribution and habitat recorded for specimens of this species do not indicate special requirements other than a flowing mainstream environment (Bestgen and Platania 1990). Speckled chub has been noted as widely distributed and exclusive to mainstream habitats in large portions of the New Mexican Rio Grande (Bestgen and Platania 1990). This species has not been verified in the CFO Planning Area.	Unlikely to occur because the proposed project will span the Pecos River and the adjacent floodplain, avoiding direct impacts to the river and riparian habitat. Construction associated with the proposed project is not anticipated to directly impact the waterbodies. Additionally, mitigation measures would be implemented to avoid indirect impacts to the Pecos River.
Birds			
Baird's sparrow (*Ammodramus bairdii*)	BLM Sensitive NM T	This species is a winter resident in New Mexico. It has been found on Otero Mesa and in the Animas Valley and may occur in other areas of suitable winter habitat, particularly in the southeast portion of state. Generally prefers dense, extensive grasslands with few shrubs. Avoids heavily grazed areas.	Unlikely to occur in the proposed project area due to lack of dense, extensive grasslands with few shrubs.
Bald eagle (*Haliaeetus leucocephalus*)	BLM Sensitive NM T	Occurs in New Mexico year-round. Breeding is restricted to a few areas mainly in the northern part of the state along or near lakes. In migration and during winter months, the species is found chiefly along or near rivers and streams and in grasslands associated with large prairie dog (*Cynomys* sp.) colonies. Typically perches in trees.	Unlikely to occur in the proposed project area due to the lack of prairie dog colonies. Although the Pecos River is nearby, no suitable perching trees were observed within the proposed project area.
Bell's vireo (*Vireo bellii*)	BLM Sensitive NM T	In New Mexico, Bell's vireo occurs in the southern one-third of the state during the breeding season. The *medius* race is found in the Pecos Valley north to drainages west of Roswell and in the Black River and Rattlesnake Springs areas south of Carlsbad. In New Mexico, this species characteristically occurs in dense shrubland or woodland along lowland stream courses, with willows (*Salix* sp.), mesquite (*Prosopis* spp.), and seep willows (*Baccharis glutinosa*). Its distribution during breeding is typically limited to riparian habitats.	Unlikely to occur in the proposed project area due to the lack of habitat associated with lowland stream courses and dense shrubland or woodland habitat. Although the Pecos River is nearby, the proposed project area is unlikely to be used by Bell's vireo.
Black tern (*Chlidonias niger surinamensis*)	BLM Sensitive	Found in New Mexico only during migration and in association with wetland areas, lakes, and ponds.	Unlikely to occur in the proposed project area due to lack of suitable aquatic habitat.

Common Name (*Species Name*)	**Status***	**Range or Habitat Requirements**	**Potential for Occurrence in Project Area**
Broad-billed hummingbird (*Cynanthus latirostris*)	NM T	Occurs in riparian habitat or dense mesquite in canyons in southwestern New Mexico. Found in Guadalupe Canyon in Hidalgo County and rarely found in the Peloncillo Mountains.	Unlikely to occur in the proposed project area. This species is endemic to Guadalupe Canyon.
Brown pelican (*Pelecanus occidentalis carolinensis*)	NM E	Occurs usually in marine habitats and feeds almost exclusively on fish. Associated with water.	Unlikely to occur in the proposed project area due to lack extensive shoreline and prey species that would be suitable for this species.
Chestnut-collared longspur (*Calcarius ornatus*)	BLM Sensitive	Chestnut-collared longspurs migrate and winter in the east, westward locally to the vicinity of the Rio Grande valley, and occasionally farther in the southwest, and are considered uncommon to abundant. They are most numerous in the southernmost area and are regular in the Mogollon Plateau (Hubbard 1978). Chestnut-collared longspurs were often seen within, or in association with, open grassland habitats. Those sites that were used most often were dominated by desert saltgrass, with occasional clumps of fourwing saltbush (*Atriplex canescens*) interspersed. Adjacent sites having an even greater shrub component were also occasionally used (Baltosser 1991).	May occur within the proposed project area. This species is commonly associated with open grassland habitat, including vegetation of fourwing saltbush. Although The proposed project area consists of marginally suitable habitat. No chestnut-collared longspurs were observed during the 2019 biological survey.
Common black hawk (*Buteogallus anthracinus*)	NM T	Occurs in New Mexico almost exclusively during the breeding season and in migration. Breeding populations known chiefly from the Gila River valley in the southwestern portion of the state and from along the Mimbres River and the Rio Hondo watershed. Strongly tied to cottonwood (*Populus* sp.) gallery forests.	Unlikely to occur within the proposed project area as it is outside of the species' known range within New Mexico and does not contain preferred cottonwood galleries.
Common ground-dove (*Columbina passerina pallescens*)	NM E	Associated with shrubby riparian habitat or riparian woodland edges. Also occurs in desert scrub dominated by mesquite and pricklypear (*Opuntia* sp.). Feeds exclusively on the ground, in sparsely vegetated areas.	Unlikely to occur within the proposed project area due to lack of riparian habitat, or riparian woodland edge habitat.
Ferruginous hawk (*Buteo regalis*)	BLM Sensitive	Occurs year-round in New Mexico. During the breeding season, it is present in grasslands and badlands and along the ecotone between grasslands and piñon-juniper woodlands, especially in the vicinity of prairie dog towns. During the winter, ferruginous hawks are primarily associated with grasslands but may be found in other habitat types, such as ponderosa pine (*Pinus ponderosa*) forest. Prairie dogs are important year-round in the diet of New Mexico's ferruginous hawks.	Unlikely to occur within the proposed project area due to lack of piñon-juniper woodland interface or prairie dog colonies, which provide an obligate food source for this species.
Grasshopper sparrow (*Ammodramus savannarum*)	BLM Sensitive	Found in grasslands and prairies with open patches of ground. It nests on the ground in a small cup-nest constructed out of grasses. Avoids areas with extensive stands of shrubs.	Unlikely to occur within the proposed project area due to lack of extensive grasslands with open patches of ground.
Gray vireo (*Vireo vicinior*)	NM T	Strongly associated with piñon-juniper and scrub oak habitats. Distributed mainly across the western two-thirds of the state. Prefers gently sloped canyons, rock outcrops, ridge tops, and moderate scrub cover.	Unlikely to occur within the proposed project area due to lack of canyon habitat and exposed rock outcropping.
Interior least tern (*Sterna antillarum athalassos*)	USFWS E NM E	Migratory species that occurs in North America during the breeding season, when it is associated with water (e.g., lakes, reservoirs, and rivers). In New Mexico, breeding is restricted to the Pecos River basin. It is known to breed primarily at Bitter Lake National Wildlife Refuge in nearby Chaves County.	Unlikely to occur within the proposed project area due to the lack of perennial river bodies. The project area is also outside of the species' known breeding range within the state.

Common Name (*Species Name*)	**Status***	**Range or Habitat Requirements**	**Potential for Occurrence in Project Area**
Lesser prairie-chicken (*Tympanuchus pallidicinctus*)	BLM Sensitive	This species occurs in southeastern New Mexico, primarily in shinnery oak (*Quercus havardii*) or sand sagebrush (*Artemisia filifolia*) grasslands. Also occurs in shinnery oak–bluestem habitats dominated by sand bluestem (*Andropogon hallii*), little bluestem (*Schizachyrium scoparium*), sand dropseed (*Sporobolus cryptandrus*), threeawn (*Aristida* sp.), and blue grama (*Bouteloua gracilis*).	May occur within the proposed project area as it is within the lesser prairie-chicken's known occupied range within the CFO Planning Area (BLM 2008). This species was not observed during the 2019 biological survey of the proposed project area.
Lucifer hummingbird (*Calothorax lucifer*)	NM T	Associated with rocky slopes or hillsides and Chihuahuan desert scrub vegetation. Nest sites are selected on slopes above rocky or wooded washes.	Unlikely to occur within the proposed project area due to the lack of rocky slopes or hillsides.
McCown's longspur (*Calcarius mccownii*)	BLM Sensitive	In New Mexico, McCown's longspurs migrate in the northeast and winter in the southeast and extreme southwest and are considered rare to uncommon and local (Hubbard 1978). Found in Sonoran desert scrub, Chihuahuan desert scrub, annual grassland, farms, and mountain and alpine meadows. Open to dense vegetation of shrubs, low trees, and succulents, dominated by paloverde (*Cercidium microphyllum*), pricklypear, and giant saguaro (*Cereus giganteus*) (USDA 1991).	Unlikely to occur within the proposed project area due to the lack of dense vegetation and suitable habitat.
Mexican spotted owl (*Strix occidentalis lucida*)	USFWS T	Occupies mountainous areas and deep canyons incised within flat plateaus. Habitat consists typically of mixed-conifer, ponderosa pine, or ponderosa pine–Gambel oak forest. Prefers mesic, shaded environments such as canyon bottoms and mountainous riparian areas.	Unlikely to occur within the proposed project area due to the lack of mountainous habitat or deep canyons preferred by the species.
Mexican whip-poor-will (*Antrostomus arizonae*)	BLM Sensitive	Whip-poor-wills summer in the mountains of the south (Mogollon and Sacramento highlands southward), north to the Manzano Mountains and are considered rare to fairly common. They are found in the Manzano, Gallinas, and White Mountains. Their northern summer limits appear to be the San Francisco, Datil, Magdalena, Sacramento, Guadalupe, and Sandia Mountains (Hubbard 1978). Occurs in desert riparian deciduous woodland and marsh. Found in woodlands, especially of cottonwoods, that occur where desert streams provide sufficient moisture for a narrow band of trees and shrubs along the margins (USDA 1991). This species has not been verified in the CFO Planning Area.	Unlikely to occur within the proposed project area as it occurs outside of the species' known range and does not contain cottonwood or riparian stream habitat.
Neotropic cormorant (*Phalacrocorax brasilianus*)	NM T	Associated with wetlands. Key requirements include areas of deep water for diving and elevated perches in trees, shrubs, and other structures for nesting, roosting, and drying plumage after feeding.	Unlikely to occur within the proposed project area due to the lack of deep waterbodies or wetland habitat.
Northern aplomado falcon (*Falco femoralis septentrionalis*)	USFWS ENEP NM E	Associated with semi-desert grasslands with scattered yuccas, mesquite, and cacti. Naturally occurring populations are essentially restricted to the southern tier of New Mexico. Species has also been reintroduced on the Armendaris Ranch in Socorro and Sierra Counties and on lands administered by the BLM, White Sands Missile Range, and the New Mexico State Land Office beginning in 2006.	Unlikely to occur within the proposed project area due to the lack of grassland habitat.
Northern beardless tyrannulet (*Camptostoma imberle ridgwayi*)	NM E	Northern boundary for the distribution of this species is in southern Arizona and southwestern New Mexico. Species breeds only in riparian areas of Guadalupe Canyon in southern Hidalgo County. Mesquite thickets and smaller trees are favored for feeding. Vulnerable to human disturbance, grazing, fire, and drought.	Unlikely to occur within the proposed project area due to the lack of riparian or mesquite thickets. The project is also outside of the species' known range within New Mexico.

Common Name (*Species Name*)	**Status***	**Range or Habitat Requirements**	**Potential for Occurrence in Project Area**
Northern goshawk (*Accipiter gentilis atricapillus*)	BLM Sensitive	Strongly associated with montane forests during breeding and in winter. Migrating populations typically follow forested ridges.	Unlikely to occur within the proposed project area due to lack of montane forest habitat.
Painted bunting (*Passerina ciris*)	BLM Sensitive	Painted buntings breed in dense brush, often adjacent to thick, grassy areas or woodland edges. During migration and winter, they favor dense, weedy habitats, as well as the understory of semi-open forest.	Unlikely to occur within the proposed project area due to the lack of dense brush or woodland habitat interface.
Peregrine falcon (*Falco peregrinus; F. p. tundrius*)	NM T	Found in New Mexico year-round. All nests in New Mexico are found on cliffs. In migration and during winter months, New Mexico's peregrine falcons are typically associated with water and large wetlands.	Unlikely to occur within the proposed project area due to the lack of cliff roosting habitat or large wetlands.
Pinyon jay (*Gymnorhinus cyanocephalus*)	BLM Sensitive	Pinyon jays are variable residents in mainly mid-elevation areas containing piñon-juniper woodlands almost statewide and are considered uncommon to locally abundant (Hubbard 1978). This species has not been verified in the CFO Planning Area.	Unlikely to occur within the proposed project area due to the lack of piñon-juniper woodlands.
Piping plover (*Charadrius melodus*)	USFWS T NM T	Rare in New Mexico, where it occurs only during the spring and potentially fall migration. Verified at Springer Lake (Colfax County) and reported at Bosque del Apache National Wildlife Refuge (Socorro County); there was also an unsubstantiated report from Lake Avalon (Eddy County). Associated with water at all times of the year. Occurs on sandflats or along bare shorelines of rivers, lakes, or coastlines.	Unlikely to occur within the proposed project area due to the lack of bare shorelines or aquatic habitat.
Southwestern willow flycatcher (*Empidonax traillii extimus*)	USFWS E NM E	In New Mexico, this species is known to breed only along the Gila River and Rio Grande. Associated with moist riparian areas throughout the year. Breeding habitat requirements vary by region. In migration, may be associated with willows along ditches, cottonwood woodlands, and saltcedar stands.	Unlikely to occur within the proposed project area due to the lack of riparian habitat or associated vegetation species.
Sprague's pipit (*Anthus spragueii*)	BLM Sensitive	Occurs in New Mexico only as a sporadic winter resident. Its distribution in the state is not well known but includes the lower Pecos River valley, Otero Mesa, and Animas Valley. It is associated with southern desert grasslands of the state. Species as a whole prefers dry, open grasslands.	Unlikely to occur within the proposed project area due to the lack of extensive open grassland habitat.
Thick-billed kingbird (*Tyrannus crassirostris*)	NM E	Summer resident in extreme southwestern New Mexico, where it occupies riparian canyons with cottonwoods and Arizona sycamores (*Platanus wrightii*). Nests 30–65 feet high in Arizona sycamores, usually in a crotch near the tree trunk.	Unlikely to occur within the proposed project area due to lack of riparian habitat including cottonwoods or Arizona sycamores.
Varied bunting (*Passerina versicolor*)	NM T	Characteristic of shrublands, Sonoran desert scrub, Chihuahuan desert scrub, desert riparian deciduous woodlands and marshes, and second growth. Inhabits a large portion of Mexico. In New Mexico, prefers dense stand of mesquite and associated growths of canyon bottoms.	Unlikely to occur within the proposed project area due to lack of preferred dense mesquite vegetation.
Virginia's warbler (*Vermivora virginiae*)	BLM Sensitive	In Hubbard's survey of the Mogollon Mountains (Catron County), this warbler was fairly common in brushy growth in riparian spruce woodland, along with orange-crowned warblers (*Vermivora celata*), and in the pine-fir ecotone, especially where Gambel oak (*Quercus gambelii*) occurred (Hubbard 1978).	Unlikely to occur within the proposed project area due to the lack of riparian spruce forest.

Common Name (*Species Name*)	**Status***	**Range or Habitat Requirements**	**Potential for Occurrence in Project Area**
Western burrowing owl (*Athene cunicularia hypugaea*)	BLM Sensitive	Present mainly during the breeding season in the north half of the state and present year-round in the south half. Found in grasslands, especially in association with prairie dog colonies, in desert scrub, and in agricultural and semi-urban environments. Depends on prairie dogs, rock squirrels (*Otospermophilus variegatus*), and other fossorial mammals for the availability of nest burrows.	Known to occur within the proposed project area. This species was observed during the 2019 biological survey. Suitable burrowing habitat was identified during the 2019 biological survey.
White-faced ibis (*Plegadis chihi*)	BLM Sensitive	Uncommon in New Mexico, where it is found statewide during migration and as a (typically non-breeding) summer resident. Breeding recorded only at Tucumcari and at Stinking Lake in Rio Arriba County. Found in association with water. Generally seen in association with shoreline and marsh habitats adjacent to open water. Nesting colonies are located in shrubs and low trees or in dense standing reeds and tules near or in marshes. Forages along the water's edge or in fields.	Unlikely to occur within the proposed project area due to the lack of extensive perennial waterbodies and associated shoreline habitat.
Reptiles and Amphibians			
Arid land ribbon snake (*Thamnophis proximus diabolicus*)	NM T	The arid land ribbon snake is found in west Texas and southeast New Mexico. This snake is found primarily around water sources such as rivers, ponds, and stock tanks. This snake feeds primarily on small frogs.	Unlikely to occur within the proposed area due to the lack of small amphibian prey base.
Desert massasauga (*Sistrurus tergeminus*)	BLM Sensitive	This species was as far west as the Huachuca Mountains bajada in historic times but now is virtually restricted to a few miles of habitat in the San Bernardino Valley above 5,000 feet amsl (Rosen et al. 1996). In the western portion of its range, massasaugas are most abundant on prairie wetlands, but they can also be found on dry shortgrass plains (Fitch 1992).	Unlikely to occur as the highest elevation in the proposed project area is 3,582 feet amsl.
Dunes sagebrush lizard (*Sceloporus arenicolus*)	BLM Sensitive NM E	A habitat specialist native to the shinnery oak sand dune habitats extending from San Juan Mesa in northeastern Chaves County, Roosevelt County, and through eastern Eddy County and southern Lea County. This species has an extremely strong affinity for bowl-shaped depressions in active dune complexes, referred to as sand dune blowouts, with a preference for relatively large blowouts and select microhabitat within a given blowout. Within their geographic range, the presence of this species is also associated with composition of the sand; they only occur at sites with relatively coarse sand.	Unlikely to occur within the proposed project area due to its being outside of the species' known range and lack of active dune complex habitat.
Gray-banded kingsnake (*Lampropeltis alterna*)	NM E	This species is known from Eddy County and may occur in Otero County and southwest Chaves County. Occurs in typical Chihuahuan desert habitat with abundant limestone outcroppings between 3,510 and 6,693 feet in elevation. Inhabits a variety of habitats but is found primarily in rocky desert hills at mid-elevation. Habitat appears to be restricted to steep to precipitous hills and mountains between approximately 3,937 and 5,741 feet amsl (below the juniper zone). This species could be expected to occur throughout the limestone broken rock-Lozier association in Otero County, Eddy County, and southwestern Chaves County in New Mexico.	Unlikely to occur within the proposed project area due to lack of steep terrain and limestone rocks outcroppings.
Great Plains narrowmouth toad (*Gastrophryne olivacea*)	NM E	This species inhabits grassland habitat within portions of the Great Plains in New Mexico. This species occurs primarily in grassland and desert-grassland habitats (Stuart and Painter 1996).	Unlikely to occur as the proposed project area is outside of the Great Plains habitat.

Common Name (*Species Name*)	**Status***	**Range or Habitat Requirements**	**Potential for Occurrence in Project Area**
Mottled rock rattlesnake (*Crotalus lepidus lepidus*)	NM T	This subspecies of rattlesnake is known only from the southern Guadalupe Mountains in Eddy County and possibly Otero County. Key habitat areas include Walnut and Gunsight Canyons and Carlsbad Caverns National Park. Rock rattlesnakes usually occur between 3,937 and 8,530 feet amsl in elevation in New Mexico. This snake is found in a variety of habitats, including pine-oak forests, mesquite-grasslands, and rocky desert habitats. This species is primarily a mountain dweller but also occurs in bordering lowlands in some areas. This species favors areas of boulders and rocks, including talus slopes with their abundant hiding places.	Unlikely to occur within the proposed project area as it is outside of the Guadalupe Mountain range where the species is known to occur. Also, the highest elevation within the project area is 3,582 feet amsl.
Plain-bellied water snake (*Nerodia erythrogaster transversa*)	NM E	In New Mexico, this snake is known only from the lower Pecos Valley area (Eddy County), including along the Black River. The plain-bellied water snake is a highly aquatic species, swimming and diving with ease, and seeking prey in water. Normally confined to areas of permanent water, it may wander short distances inland, especially in wet weather. The preferred habitat is ponds and streams, the latter including fairly large rivers. This snake often hides under rocks or other objects during the day and becomes active at night. The young tend to occupy areas of shallower, more dappled water than the adults, including in inlets of small streams.	Unlikely to occur within the proposed project area due to lack of abundant prey base.
Rio Grande cooter (*Pseudemys gorzugi*)	BLM Sensitive NM T†	This turtle is confined to the Pecos River drainage, including the Pecos, Black, and Delaware Rivers below Brantley Dam in Eddy County. This species is part of the CCA. All of the rivers listed above constitute key habitat areas for the species. Primarily a stream species occurring from 2,953–3,610 feet amsl, preferring waters with slow to moderate current, firm bottoms, and abundant aquatic vegetation. Also inhabits stock tanks, ponds, large ditches, and even brackish tidal marshes. In New Mexico, most records are from streams with relatively clear water and rocky or sandy bottoms. Nests of this species are located in sandy soil, usually within 100 feet of the water.	Unlikely to occur in the proposed project area due to the lack of perennial waterbodies. Although the proposed project area intersects ephemeral drainages connected to the Pecos River. Construction associated with the proposed project is not anticipated to directly impact the ephemeral drainage. Additionally, mitigation measures would be implemented to avoid indirect impacts to the Pecos River.
Texas horned lizard (*Phrynosoma cornutum*)	BLM Sensitive	Inhabits arid and semiarid areas in the southwestern United States, characterized by open country with little vegetation. These areas often consist of grasses interspersed with cacti, yucca, mesquite, and other assorted woody shrubs and trees. In New Mexico, the species is associated with *Yucca-Prosopis-Ephedra* and *Larrea-Acacia-Fouquieria* habitat associations often in playas or on bajadas and mountain foothills.	Known to occur in the proposed project area due to the presence of marginally suitable habitat, including desert scrub and interspersed yucca. This species was observed during the 2019 biological surveys of the proposed project area.
Mammals			
Big free-tailed bat (*Nyctinomops macrotis*)	BLM Sensitive	This species is usually associated with high cliffs and rugged rock outcroppings, but it also roosts in buildings, under lava caves, and sometimes in tree holes. It is found in urban areas, agriculture, barren land, desert scrub, scrub-grassland, swamp and riparian scrub, juniper savanna, oak savanna, shortgrass plains, alkali sacaton (*Sporobolus airoides*) grasslands, montane grassland, montane forest, evergreen forest, and marsh habitat.	May occur within the proposed project area due the presence of desert scrub habitat. However, the proposed project is unlikely to adversely impact this species as construction would occur outside of crepuscular foraging periods.
Black-tailed prairie dog (*Cynomys ludovicianus arizonensis*)	BLM Sensitive	Native to grasslands, including short- and mixed-grass prairie, sagebrush steppe, and desert grasslands. Also known to occur in mesquite–creosote bush, grama-needlegrass, tarbush–creosote bush, and burrograss-cholla type habitats.	Unlikely to occur within the proposed project area due to the lack of grassland habitat and known vegetation associations.

Common Name (*Species Name*)	**Status***	**Range or Habitat Requirements**	**Potential for Occurrence in Project Area**
Cave myotis bat (*Myotis velifer*)	BLM Sensitive	This species is found primarily at lower elevations occurring in shortgrass plains, scrub-grassland, Chihuahuan desert scrub, Sonoran desert scrub, Plains and Great Basin swamp and riparian scrub, pine-oak woodlands, and oak savanna. Inhabits caves in the limestone region of southeastern New Mexico, and it has also roosted in barn swallow (*Hirundo rustica*) nests. It is never more than a few miles from a water source, such as canals, tanks, or creeks.	May occur within the proposed project area due to the presence of desert scrub habitat. However, the proposed project is unlikely to adversely impact this species as construction would occur outside of crepuscular foraging periods.
Fringed myotis bat (*Myotis thysanodes thysanodes*)	BLM Sensitive	A mid-elevation woodland bat that occurs in montane forest and woodland, mountain meadow, interior chaparral, scrub-grassland, alkali sacaton grassland, Chihuahuan desert scrub, swamp and riparian forests and scrub, Mohave desert scrub, and upland Sonoran desert scrub and occasionally in tundra.	May occur within the proposed project area due to the presence of desert scrub habitat. However, the proposed project is unlikely to adversely impact this species as construction would occur outside of crepuscular foraging periods.
Gray-footed chipmunk (*Neotamias canipes canipes*)	BLM Sensitive	Mostly found in forested habitats, such as piñon-juniper woodlands, but may also occur in shrublands and desert communities. It may occur in downed and dead trees, dense stands of mixed timber and on brushy hillsides, particularly in rock crevices.	Unlikely to occur within the proposed project area due to the lack of forest or piñon-juniper woodland habitat.
Guadalupe pocket gopher (*Thomomys bottae guadalupensis*)	BLM Sensitive	Found in sycamore (*Platanus* sp.), cottonwood, and rabbitbrush (*Chrysothamnus* sp.) riparian communities in the Guadalupe Mountains of southeastern New Mexico and western Texas.	Unlikely to occur within the proposed project area as it is outside of the Guadalupe Mountains.
Long-legged myotis bat (*Myotis volans interior*)	BLM Sensitive	Primarily a forest species occurring in chaparral, alpine and subalpine grassland, coniferous forest, scrub-grassland, Chihuahuan desert scrub, swamp and riparian forests and scrub, saxicoline brush, oak savanna, and woodland, Mohave desert scrub, and upland Sonoran desert scrub. Also occurs along watercourses and in deserts.	May occur within the proposed project area due to the presence of desert scrub habitat. However, the proposed project is unlikely to adversely impact this species as construction would occur outside of crepuscular foraging periods.
Mexican long-tongued bat (*Choeronycteris Mexicana*)	BLM Sensitive	Mexican long-tongued bats of Arizona are found from the Chiricahua Mountains to the Santa Catalina and Baboquivari Mountains. They may also be found in southwestern New Mexico and southern California. They winter in Mexico but do not hibernate there. Breeding takes place in the northern parts of the species' range (Monday 1993). They are found in sacaton grasslands, sycamore, cottonwood, and rabbitbrush-oak-savanna, and coniferous forest (Cook 1986).	Unlikely to occur within the proposed project area due to the lack of coniferous forest, sacaton grasslands, sycamore, cottonwood, or rabbitbrush oak savanna habitat.
Pecos River muskrat (*Ondatra zibethicus ripensia*)	BLM Sensitive	This species inhabits waterways that have a constant and fairly stable source of water with dense aquatic and emergent vegetation surrounded by terrestrial herbaceous vegetation. Common muskrats prefer sloughs, marshes, oxbow lakes, streams, levees, dikes, and small lakes and ponds. Common muskrats build lodges in or near water using marsh vegetation.	Unlikely to occur within the proposed project area due to the lack of perennial waterbodies or marsh vegetation.
Spotted bat (*Euderma maculatum*)	BLM Sensitive NM T	In New Mexico, spotted bats have been captured in areas near cliffs, including piñon-juniper woodlands and from streams or water holes within ponderosa pine or mixed coniferous forest. This species has been observed near cattle tanks in a meadow surrounded by mixed coniferous forest and near a ridge with cliffs and limestone outcroppings. The spotted bat is usually captured around a water source, including desert pools or cattle tanks. It also may use rivers or desert washes as travel corridors.	May occur within the proposed project area due to the presence of marginally suitable habitat. However, the proposed project is unlikely to adversely impact this species as construction would occur outside of crepuscular foraging periods.

Common Name (*Species Name*)	**Status***	**Range or Habitat Requirements**	**Potential for Occurrence in Project Area**
Townsend's pale big-eared bat (*Corynorhinus townsendii pallescens*)	BLM Sensitive	Found in a variety of xeric to mesic habitats: scrub-grassland, desert scrub, semi-desert shrublands, chaparral, saxicoline brush, tundra, open montane forests, spruce-fir, mixed hardwood-conifer, and oak woodlands and forests. This species is strongly correlated with the availability of caves or cave-like habitat, but it also uses abandoned buildings and rock crevices on cliffs for roosting.	May occur within the proposed project area due to the presence of desert scrub habitat. However, the proposed project is unlikely to adversely impact this species as construction would occur outside of crepuscular foraging periods.
Western small-footed myotis bat (*Myotis ciliolabrum melanorhinus*)	BLM Sensitive	This species is widely distributed in the western United States and found in many habitat types. Occurs in riparian wooded areas, bare rock/talus/cliffs, grassland and shrublands, and coniferous or mixed woodland areas. Generally inhabits desert, badland, chaparral, western coniferous forests and semiarid habitats, and more mesic habitats in the southern part of its range. In New Mexico, the distribution of this species seems to be in the ponderosa pine zone, although it occurs as low as desert and as high as the lower edges of the spruce-fir zone.	Unlikely to occur within the proposed project area due to the lack of ponderosa pine or edges of spruce-fir vegetation associations.
Yuma myotis bat (*Myotis yumanensis yumanensis*)	BLM Sensitive	Occurs in riparian communities, grasslands, semi-desert shrublands, mountain brush, woodlands, and desert habitats. It also occurs in arid canyon lands and Sonoran desert scrub. The species is associated with riparian areas and watercourses in the western United States. Roosts in caves, mines, cliffs, crevices, buildings, and swallow nests, including cliff swallows (*Petrochelidon pyrrhonota*).	May occur within the proposed project area due to the presence of desert scrub habitat. However, the proposed project is unlikely to adversely impact this species as construction would occur outside of crepuscular foraging periods.

Sources: Except where otherwise noted, range or habitat information for wildlife species is taken from the Biota Information System of New Mexico (BISON-M 2019) website, the USFWS IPaC (USFWS 2019b) tool, NatureServe (2019), and Cartron (2010).

* Federal (USFWS) status: E = Endangered, T = Threatened, C = Candidate, ENEP = Experimental Population, Non-Essential; Federal (BLM) status: Sensitive = BLM CFO-determined priority species (BLM 2019b); New Mexico State status: NM E = Endangered, NM T = Threatened.

† Species is listed as threatened or endangered by the USFWS or NMDGF; however, the species is not listed as occurring within Eddy County, New Mexico.

3.7.1 *Western Burrowing Owl*

The western burrowing owl is listed as a BLM sensitive species. It is also protected under the MBTA and State of New Mexico Statute 17-2-14. Populations of burrowing owls are declining across much of North America, particularly in the northern portion of the continent, chiefly because of prairie grassland habitat loss and fragmentation, human-caused mortality on wintering grounds and during migration, and the loss of colonial sciurids such as prairie dogs (Desmond 2010).

In New Mexico, western burrowing owls are primarily associated with grasslands and other open habitats, such as desertscrub, savannas, arroyos, agricultural lands, and urban and disturbed areas. This owl species occupies burrows excavated by other mammals, which in New Mexico typically consist of black-tailed prairie dogs (*Cynomys ludovicianus*), Gunnison's prairie dogs (*C. gunnisoni*), and rock squirrels (*Otospermophilus variegatus*). The arrival time on breeding grounds in New Mexico is typically mid- to late March; however, in southern New Mexico, western burrowing owls may be year-round residents (Desmond 2010).

Three western burrowing owls were observed in the proposed project area and one was heard during the 2019 biological surveys. Potentially suitable nest burrows, as well as active burrows or use during a previous nesting season (as evidenced from feathers and scat at burrow entrances), were observed within the proposed project and survey area (see Figures A-1–A-14 in Appendix A). These burrows have the potential to be used during future nesting seasons. No prairie dog colonies, extant or historic, were identified within the proposed project area. Potential impacts to burrowing owls could range from temporary disturbance to loss of suitable burrows.

Any vegetation removal during the breeding season (March 1–October 31) would be preceded by a pre-construction nesting survey up to 2 weeks prior to vegetation removal to establish the occupancy status of the potentially suitable nesting burrows detected within the proposed project area. If a burrow is active, an avoidance radius, to be determined by the BLM, could be required until the young have fledged. The pre-construction nest survey would be conducted in accordance with the BLM's burrowing owl survey guidance and recommendations. The BLM may require a biological monitor during construction near occupied burrows. To lessen the likelihood of burrow occupation, SPS could work with a biologist to collapse suitable burrows outside the migratory bird breeding season (March–August) as required by the BLM.

Potential impacts to western burrowing owls could include temporary disturbance to foraging habitat. The proposed project is not anticipated to cause long-term impacts to the burrowing owl or its habitat because a large portion of proposed project disturbance would be revegetated and reclaimed immediately following construction. In addition, approximately 69 percent of the project area would remain undisturbed from construction activities and permanent infrastructure. During the biological survey it was determined that active burrows occurred within the 150-foot-wide ROW (see Figure A-8) but do not occur within areas of proposed permanent disturbance. The pre-construction burrowing owl surveys would prevent adverse impacts to suitable nesting or occupied burrows. Although the proposed project may impact individuals or localized foraging habitat, the project is not likely to contribute to a trend towards federal listing or cause a loss of viability to the population or species.

3.7.2 *Golden Eagle*

This species is protected under the Bald and Golden Eagle Protection Act, as well as the MBTA. This eagle breeds from Alaska to central Mexico. Golden eagles are year-round residents in New Mexico with breeding taking place throughout the state (New Mexico Partners in Flight 2017). During the breeding season, golden eagles occur in areas of mountain cliffs or canyons adjacent to open desert or grassland vegetation communities. In New Mexico, this raptor species nests along steep-walled mountain canyons. During the winter, golden eagles forage in open or shrubland habitats. Agricultural areas are often avoided by these eagles (New Mexico Partners in Flight 2017).

Golden eagles are known to occur and could forage within the proposed project area due to the presence of preferred prey species, including black-tailed jackrabbit (*Lepus californicus*) and desert cottontail (*Sylvilagus audubonii*). Three raptor nests and one golden eagle were observed within the proposed project area during the 2019 biological surveys (see Figures A-6, A-10, and A-11 in Appendix A). If construction is scheduled to begin during the MBTA nesting season (March 1–August 31), a pre-construction nesting survey would be conducted. If active golden eagle nests are present during the pre-construction nest survey, avoidance buffers would be established in accordance with the BLM. Adult eagles would not likely be directly harmed by construction associated with the proposed project because of their mobility and ability to avoid areas of human activity.

SPS would design the new transmission structures to provide proper clearance between energized and/or grounded parts, unless otherwise instructed by the BLM authorized officer. The standard for raptor protection, according to *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (Avian Power Line Interaction Committee [APLIC] 2006), allows for 60 inches of horizontal separation between energized and/or grounded parts, and 40 inches of vertical spacing between energized and/or grounded parts. These separation standards accommodate for the wrist-to-wrist distance (31–42 inches) and head-to-foot distance (18–26 inches) of an adult golden eagle (APLIC 2012). Proper design of transmission structures would prevent eagles from being exposed to potential electrocution. The proponent is responsible for demonstrating that power pole designs not meeting these standards are "raptor safe." Such proof shall be provided by a raptor expert approved by the authorized officer. The BLM reserves the right to require modifications or additions to power line structures constructed under this authorization, should they be necessary to ensure the safety of large perching birds. These modifications and/or additions should be made by the proponent without liability or expense to the United States, unless otherwise directed by the authorized officer.

Although golden eagles were observed during the 2019 biological survey and suitable eagle foraging habitat exists, adult eagles would not likely be directly harmed by the proposed project because of their mobility and ability to avoid areas of human activity including construction. At the discretion of the authorized BLM authorized officer, pre-construction nesting surveys would be implemented, and therefore, adverse impacts would be prevented to nesting individuals and their eggs by designating avoidance buffers until young have fledged. Impacts to eagles, including displacement into adjacent habitat, would only be temporary. Although suitable foraging habitat and marginally suitable nesting habitat would be impacted, the proposed project would not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species due to mitigation measures and conducting pre-construction nest surveys to avoid impacting nests.

3.7.3 *Lesser Prairie-Chicken*

The lesser prairie-chicken (LPC) is a BLM sensitive species. In 2014, the LPC was listed as threatened under the ESA but was vacated by a court order in 2016. The species was petitioned for relisting in November 2016 and the USFWS is currently undertaking a status review to determine if listing this species is warranted. LPCs are known to occupy native mixed-grass prairies, shinnery oak (*Quercus havardii*), sand bluestem (*Andropogon hallii*), and sand sagebrush–bluestem plant communities of the southern Great Plains. In New Mexico, LPC habitat is found in sand shinnery communities dominated by shinnery oak and several species of sand bluestem, grama (*Bouteloua* sp.), and dropseed (*Sporobolus* sp.) grasses. In general, nesting habitat typically consists of low shrub cover and high grass and forb cover, interspersed with patches of short vegetation. Known successful nests in Chaves County, New Mexico, were located in patches where vegetation was roughly 65% grasses and 30% shinnery oak (New Mexico Partners in Flight 2017). LPCs avoid nesting in mesquite and shortgrass-dominated areas where sand bluestem is absent (Davis et al. 1979; Davis et al. 2008; Riley et al. 1992).

The Western Association of Fish and Wildlife Agencies (WAFWA) maps potential LPC habitat using the Crucial Habitat Assessment Tool (CHAT). The proposed project is primarily located outside of mapped CHAT habitat, except for the eastern terminus where a small portion of the proposed project intersects CHAT 3 modeled habitat. The proposed project is approximately 78 miles south of the CHAT 1 Focal Area, which is comprised of the focal areas for LPC conservation (WAFWA 2019). Additionally, the proposed project is located 86.3 miles south of the BLM mapped Primary Population Area (PPA), 68.0 miles south of the Core Management Area (CMA), and 55.3 miles south of Sparse and Scattered Population Area (SSPA) (BLM 2008a). No known leks within or in proximity to the proposed project area were identified by the BLM during project planning.

Approximately 70.9 acres of the proposed project area are located within the LPC isolated population area (BLM 2008) (see Figures A-1–A-19 in Appendix A). No LPCs were observed during the 2019 biological surveys. Marginally suitable foraging habitat for LPC is present within the proposed project area. However, the proposed project area contains an abundance of woody vegetation species (including mesquite trees [*Prosopis* sp.]), which are not conducive to preferred lekking and nesting habitat. In addition, existing disturbance within and surrounding the proposed project area, including roads, oil and gas facilities, utility corridors, pasture fences and livestock grazing has resulted in fragmented habitat for LPCs, including insufficient nesting vegetation cover. If construction is scheduled to begin during the MBTA nesting season (March 1–August 31), a pre-construction nesting survey would be conducted, including verifying the presence/absence of LPC nests. Although the proposed project would impact the LPC isolated population area, the proposed project is not likely to contribute to a trend towards federal listing or cause a loss of viability for LPCs due to the likelihood of nest absence from existing disturbance, as well as the ability to conduct pre-construction nest surveys to avoid impacting nests.

3.7.4 *Chestnut-Collared Longspur*

The chestnut-collared longspur is designated as a BLM sensitive species and is protected under the MBTA. The chestnut-collared longspur breeds and migrates exclusively in North America. Within New Mexico the species migrates from the eastern portion of the state west to the Rio Grande Valley. Their summer and breeding ranges occur primarily on the Mogollon Plateau, but can be found within grassland habitats of the southeastern portion of the state (Hubbard 1978).

The proposed project area contains preferred vegetation utilized by this species, including Chihuahuan desert scrub with intermixed semi-arid grassland associations with interspersed fourwing saltbush (*Atriplex canescens*) (Baltosser 1991).

Suitable nesting and foraging habitat for this species is present within the proposed project area. If vegetation removal is scheduled to occur during the migratory bird breeding season (March 1–August 31), a pre-construction nest survey would be conducted up to 2 weeks prior to vegetation removal and avoidance buffers around any occupied nests would be established (distances to be specified by the BLM CFO). If nesting bird surveys are conducted prior to any vegetation clearing that could occur between March and August and active nests are avoided during construction, adverse impacts to chestnut-collared longspur would be avoided. Impacts to chestnut-collared longspur present in the proposed project area are possible in the form of construction-related noise disturbance, but such impacts would only be temporary. Although there is suitable foraging and nesting habitat within the proposed project area, the project would not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species due to mitigation measures and the ability to conduct pre-construction nest surveys.

3.7.5 *Scheer's beehive cactus*

Scheer's beehive cactus is within the Cactaceae family and is listed as BLM Sensitive and endangered by the State of New Mexico. This species occupies soils with rocky and loamy components, as well as limestone benches and bajadas between 3,000 and 3,600 feet amsl (BISON-M 2019). In New Mexico this species is known to occur only within Chaves and Eddy Counties and the proposed project intersects BLM CFO-mapped potential habitat for this species. (BLM 2019a). SPS and SWCA biologists coordinated with BLM to avoid construction impacts to potential habitat (BLM 2019a).

Fourteen individuals of Scheer's beehive cactus were observed during the 2019 biological survey. Species specific surveys were conducted per the BLM's survey requirements (Sandbom 2019). The majority of individuals found were located outside the proposed 150-foot ROW. However, three Scheer's beehive cacti were observed within the proposed 150-foot ROW. Avoidance and mitigation measures, per the BLM's recommendations, would be implemented during construction of the proposed project (see section 3.5.2 of the EA for detailed mitigation measures). No take of Scheer's beehive cactus is anticipated to occur.

3.7.6 *Tharp's blue-star*

Tharp's blue-star (*Amsonia tharpii*) is a BLM sensitive species and is listed as endangered by the State of New Mexico. This species occupies a variety of substrates, including shallow, well-drained gypsum, caliche, and dolomite sedimentary outcrops and alluvium deposits, between 3,000 and 3,800 feet amsl within Eddy County, New Mexico, and Pecos County, Texas. There are four known populations of Tharp's blue-star, three of which are documented to occur within Eddy County, New Mexico.

The proposed project area overlaps potential habitat for this species (BLM 2019a). No Tharp's blue-star was observed during the 2019 biological survey. However, soil with characteristics suitable for this species, as well as a suitable elevation range, provide potential habitat for this species. Prior to the biological surveys, representatives from the BLM CFO provided photos and calibration points for SWCA staff. SWCA biologists then visited these locations and were able to correctly identify Tharp's blue-star in the field (Sandbom 2018). As no individuals of Tharp's blue-star were detected within the potential habitat in the proposed project area, no take or harm to Tharp's blue-star is anticipated.

3.7.7 *Texas Horned Lizard*

The Texas horned lizard is a BLM sensitive species. This species occurs from the south-central United States to northern Mexico; the species' distribution encompasses most of Texas and Oklahoma, significant portions of Kansas and New Mexico, and southeastern Colorado and southeastern Arizona (Dixon 2013; Sherbrooke 2003; Stebbins 2003). The Texas horned lizard inhabits arid and semiarid regions characterized by open vegetation communities and a variety of soils ranging from sandy to rocky soils at elevations from sea level to 6,900 feet amsl (Degenhardt et al. 1996). Open vegetation communities occupied by this lizard species typically include grass, cactus, and scattered brush or scrubby trees (BISON-M 2019; Degenhardt et al. 1996; Jones and Lovich 2009). The Texas horned lizard is very cryptic and is usually found in the open, basking in the sun. Texas horned lizards are active throughout the daytime; however, most activity takes place in the morning or late afternoon. When disturbed, their escape response is frequently to flee to nearby vegetation or they will run away to an open area, stop, and remain motionless or cryptic (Degenhardt et al. 1996; Jones and Lovich 2009; Stebbins 2003).

The proposed project area contains suitable habitat for this species. Two Texas horned lizards were observed during the 2019 biological survey. If Texas horned lizards are present in the proposed project

area during construction, they could avoid disturbance by moving to adjacent habitat. Mitigation measures would be followed, as required by the BLM in the Resource Management Planning Amendment (RMPA) (BLM 2008), as well as structure hole mitigation outlined in Section 3.5 of the EA.
The proposed project may impact individuals or habitat of Texas horned lizard but would not likely contribute to a trend toward federal listing or cause a loss of viability to the population or species due to routing the proposed project to run parallel to the existing disturbance associated with oil and gas activities to limit habitat fragmentation and avoid entrapment from structure holes during construction.

3.7.8 *Monarch Butterfly*

The Monarch butterfly (*Danaus plexippus plexippus*) is designated as a BLM sensitive species. This subspecies was listed due to the decline in populations across North America as a result of habitat reduction and fragmentation. It is important ecologically for plant population stability as it is an opportunistic pollinator. It is known to occur throughout New Mexico during seasonal migration and breeding season and the warmer months of April to October, but is not known to overwinter within the state (Cary and DeLay 2016).

The subspecies was observed during the 2019 biological survey of the proposed project area.
The proposed project is within a migration corridor for this subspecies but the migration corridor lacks foraging habitat for this subspecies due to the absence of flowering plants.

Because the proposed project area does not contain the plants required for foraging, it is unlikely that breeding efforts of the subspecies would be impacted by the proposed action. Also, due to their ability to move out of areas of human activity, adult butterflies are not likely to be directly harmed. Removal of vegetation in the proposed project area would reduce the availability of flowering plants and thus possibly impact the subspecies' food sources. The proposed project could impact individuals but would not likely contribute to a trend toward federal listing or cause a loss of viability to the population or subspecies.

3.7.9 *Texas Hornshell Mussel*

The Texas hornshell mussel (TXHS) was listed by the USFWS as an endangered species on March 12, 2018. This species is also listed as endangered by the NMDGF. The USFWS, BLM, and Center for Excellence for Hazardous Materials Management (CEHMM) have formed the Candidate Conservation Agreement (CCA), which is a voluntary agreement administered by CEHMM to facilitate cooperation between energy developers, including oil and gas operators, and other stakeholders on federal land to implement mitigation measures (below) and conservation measures (which include revegetation of native riparian species along rivers, land or water acquisition, etc.) to eliminate threats to this species and its habitat, as well as several other riparian species, known as the "Covered Species" (TXHS, Rio Grande cooter [*Pseudemys gorzugi*] , gray redhorse [*Moxostoma congestum*], blue sucker [*Cycleptus elongatus*], and Pecos springsnail [*Pyrgulopsis pecosensis*]) with similar habitat. The CCAA was developed in accordance with the CCA for state and private land. In order to facilitate the CCA, members will either enroll voluntarily and receive a Certificate of Participation to carry out management objectives and contribute funding to in-kind services or be enrolled automatically as a Federal Land User by holding permits, leases, grants, or other authorizations issued by the BLM to operate on BLM-managed land (CEHMM 2018).

The Texas hornshell mussel is a freshwater mussel that historically occurred in the Pecos–Rio Grande drainage. However, most of the historical range of this species is no longer considered suitable habitat, including the Pecos River, which has a high salinity that creates an intolerable environment for this species. Currently, the Texas hornshell mussel is known from four widely separated loctions: the Black River in New

Mexico, the Lower Rio Grande in Texas, the Devil's River in Texas, and the Delaware River in New Mexico. The USFWS, the BLM, and CEHMM have categorized the "Covered Area," or the four riparian management "zones" in New Mexico and Texas, as well as the area outside these zones that falls within the CCA Boundary for the Texas hornshell mussel and the other "Covered Species" (see Appendix B of the CCA for additional details on each zone):

Zone A: Occupied Habitat within the Black River and Delaware River
Zone B: The Black and Delaware Rivers (excluding Zone A in each), Blue Spring, and their associated USGS 100-year floodplain
Zone C: Ephemeral drainages to the Black and Delaware Rivers, including Owl Draw
Zone D: The area within the CCA Boundary, not otherwise described in management zones A, B, or C. (USFWS and CEHMM 2017)

The aforementioned zones are also covered by the CCAA boundary for private lands. No Texas hornshell mussels were observed during the biological surveys; however, the proposed project area occurs in Zone D. The BLM and SLO are enrolled in the CCA and CCAA, therefore SPS would be required to follow the mitigation measures outlined in Section XX of the EA in addition to the mitigation measures outlined in Section XX of the EA and the POD. No additional mitigations would be required for Zone D. The BLM is responsible for monitoring projects developed under this agreement using scientifically valid strategies and techniques.

This species is unlikely to occur in the proposed project area since disturbance associated with the proposed project would occur outside of the FEMA flood zone and will not directly impact the Pecos River. Additionally, the proposed project area is within Zone D, which does not include habitat occupied by this species. Therefore, no direct impacts to this species would occur as a result of the proposed project.

Effect Determination: This species is unlikely to occur in the proposed project area since disturbance associated with the proposed project would occur outside of the FEMA flood zone and will not directly impact the Pecos River. Additionally, the proposed project area is within Zone D, which does not include habitat occupied by this species. Therefore, no direct impacts to this species would occur as a result of the proposed project. Construction associated with the proposed project is not anticipated to directly or indirectly impact the Pecos River from the implementation of mitigation measures. Therefore, the determination of effect under Section 7 of the ESA would be "No Effect" to this species or its associated habitat.

The proposed project will not directly impact the Pecos River. In addition, mitigation measures identified in Section 3.2 of the EA ,and the POD will be implemented. Therefore, the proposed project is not anticipated to affect this species.

3.7.10 *Wright's Waterwillow*

Wright's waterwillow, of the Acanthaceae family, is listed as BLM sensitive (BLM 2019b). This species is a perennial herb that is known to occur within New Mexico and Texas (USFWS 2019b). It occurs within shortgrass grasslands and scrubland within depressions or low hills in dry, clay or limestone soils (NatureServe 2019). The proposed project area intersects Wright's waterwillow BLM-delineated potential habitat (see Figure A-2 in Appendix A). Prior to the biological surveys, representatives from the BLM CFO provided photos and calibration points for SWCA staff. SWCA biologists then visited these locations and were able to correctly identify Wright's waterwillow in the field. (Sandbom 2018).
On April 19, 22, 23, and August 27, 2019, species-specific surveys were conducted. No Wright's waterwillow were observed within the proposed project area during the species-specific surveys.

4 CONCLUSION

4.1 Special Aquatic Sites and Other Waters

Impacts to aquatic resources, including applicable mitigation measures, are discussed in detail in the EA (Section 3.2 and Appendix D), as well as environmental protection measures within the POD (Appendix B of the EA). The impacts to aquatic resources are within the thresholds outlined in the Nationwide Permit (NWP) program; therefore, SPS would adhere to the general and regional conditions associated with NWP 12 (Utility Line Activities) and NWP 14 (Linear Transportation Projects), as well as State of New Mexico Water Quality Certification guidelines during and after construction for all aquatic resources within the proposed project area.

4.2 Migratory Bird Treaty Act

In general, no major or long-term effects on migratory birds are anticipated from the implementation of the proposed project. Incidental mortality or displacement of migratory bird species is possible on a local scale due to construction disturbance. However, many birds occurring locally would move into adjacent habitats in response to habitat loss. Adult migratory birds would not likely be directly harmed by the proposed project because of their mobility and ability to avoid areas of human activity.

If feasible, vegetation removal associated with the proposed project could occur outside the migratory bird breeding season (March 1–August 31). Any vegetation removal during the breeding bird season would be preceded by pre-construction nesting surveys up to 2 weeks prior to vegetation removal to identify any occupied nests. If active nests are located during the surveys, avoidance buffers (as determined by the BLM) would be established around occupied nests or construction would not begin until the birds have fledged. Unoccupied raptor nests could be removed by SPS, in consultation with a BLM-qualified biologist, outside the breeding season. If any active burrowing owl burrows are identified, an avoidance radius, to be specified by the BLM, would be established around the active nest site. This pre-construction nest survey would be conducted in accordance with the BLM CFO’s burrowing owl survey guidance and recommendations during the breeding season (March 1–October 31). The BLM may require a biological monitor during construction near occupied burrows. To lessen the likelihood of burrow occupation, SPS could work with a biologist to collapse suitable burrows outside the migratory bird breeding season (March–August). If pre-construction nesting surveys are implemented prior to construction during the MBTA and western burrowing owl nesting seasons, no eggs, nestlings, or active nests are anticipated to be directly harmed by the proposed project.

Additionally, because of the abundance of similar habitat in the surrounding area, the impact to the bird populations that would utilize suitable habitats within the proposed project area would be low.

4.3 Bald and Golden Eagle Protection Act

Activities in the proposed project area are not expected to impact bald eagles. Bald eagles are unlikely to inhabit the area due to lack of preferred prey of prairie dogs and lack of aquatic foraging habitat. Golden eagles are known to occur within the proposed project area and three active raptor rests were observed during the 2019 biological survey (see Figures A-5 and A-6 of Appendix A). Although golden eagles occur, proper design of transmission structures as outlined in the POD (see Appendix B of the EA) and section 3.7.2 would prevent eagles from being exposed to potential electrocution or risk of collision. Adult eagles would not likely be directly harmed by the proposed project because of their mobility and ability to avoid areas of human activity. Pre-construction nesting surveys would be implemented, at the discretion of the BLM authorized officer, including conducting present/absence surveys of raptor nests within the proposed project area, and would prevent adverse impacts to nesting individuals and their eggs by designating buffers until young have fledged. Impacts to eagles, including displacement into adjacent habitat, would only be temporary and would not be anticipated to cause take of individual bald or golden eagles, their nests, or eggs.

4.4 Special Status Species

There are 11 special status species that occur or have the potential to occur in the proposed project area. Environmental protection measures outlined in the POD, as well as mitigation and avoidance measures associated with these species, are discussed in detail in Section 3.5 of the EA.

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APPENDIX A

Natural Resource Data Maps

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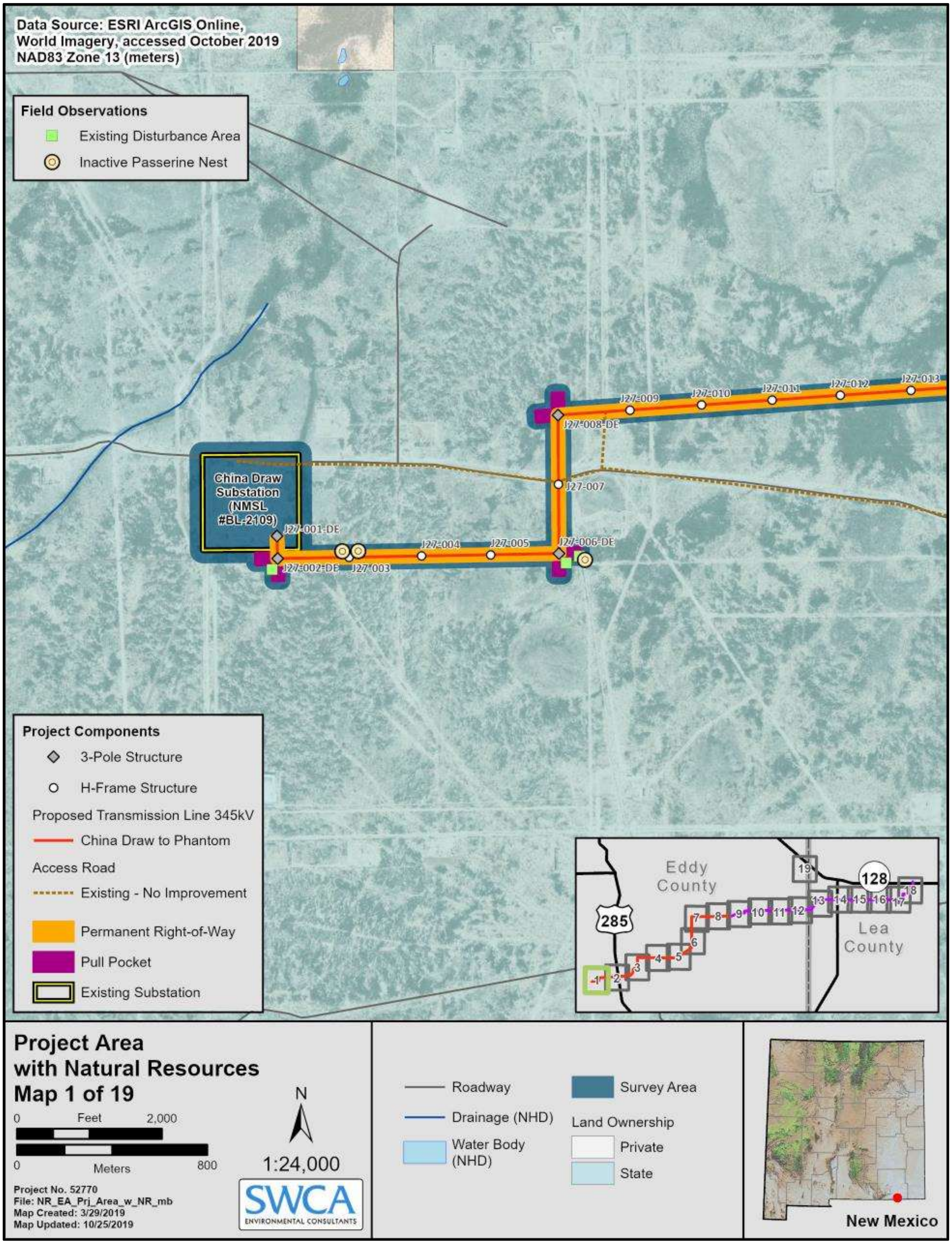
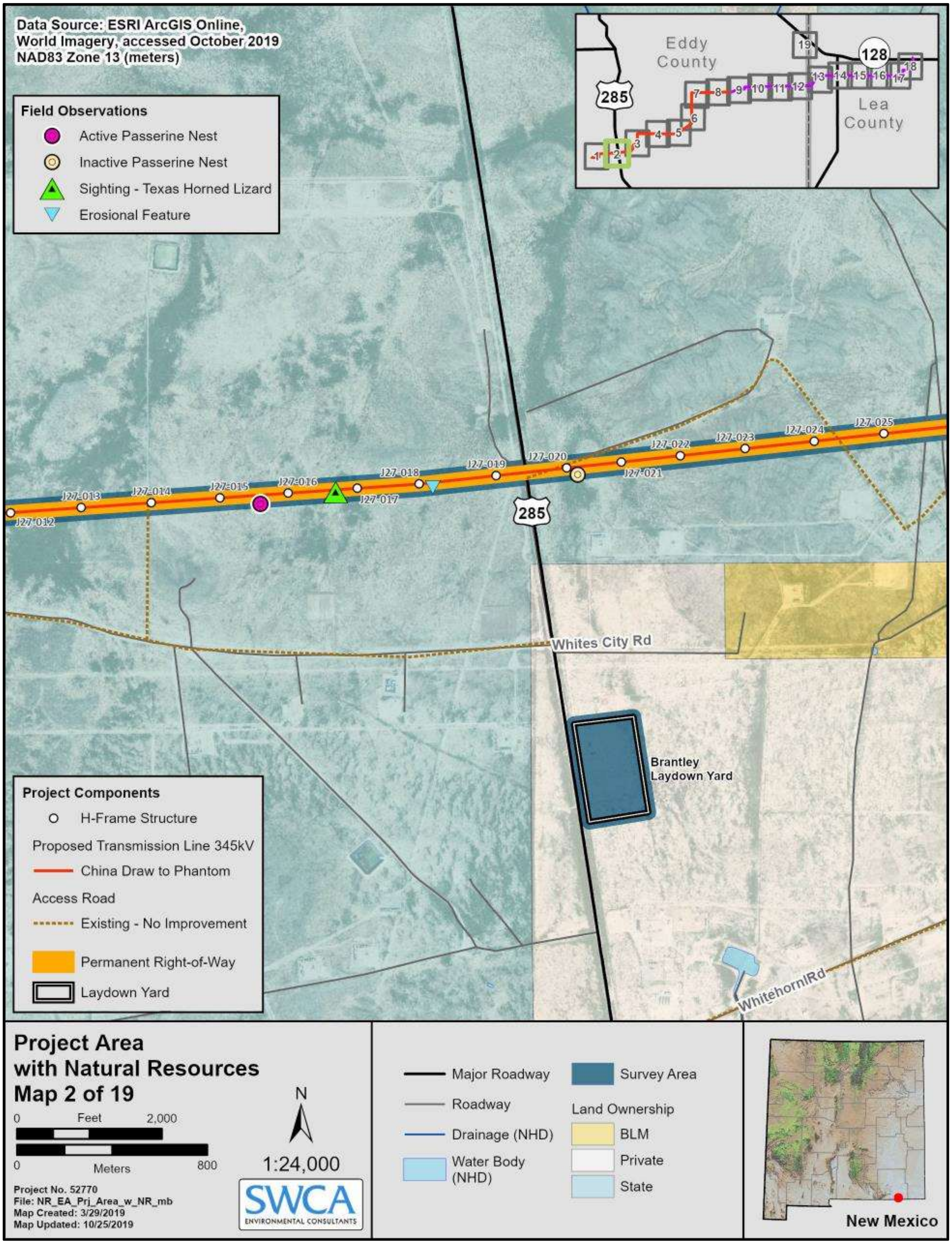


Figure A-1. Project area map with natural resources data (map 1 of 19).



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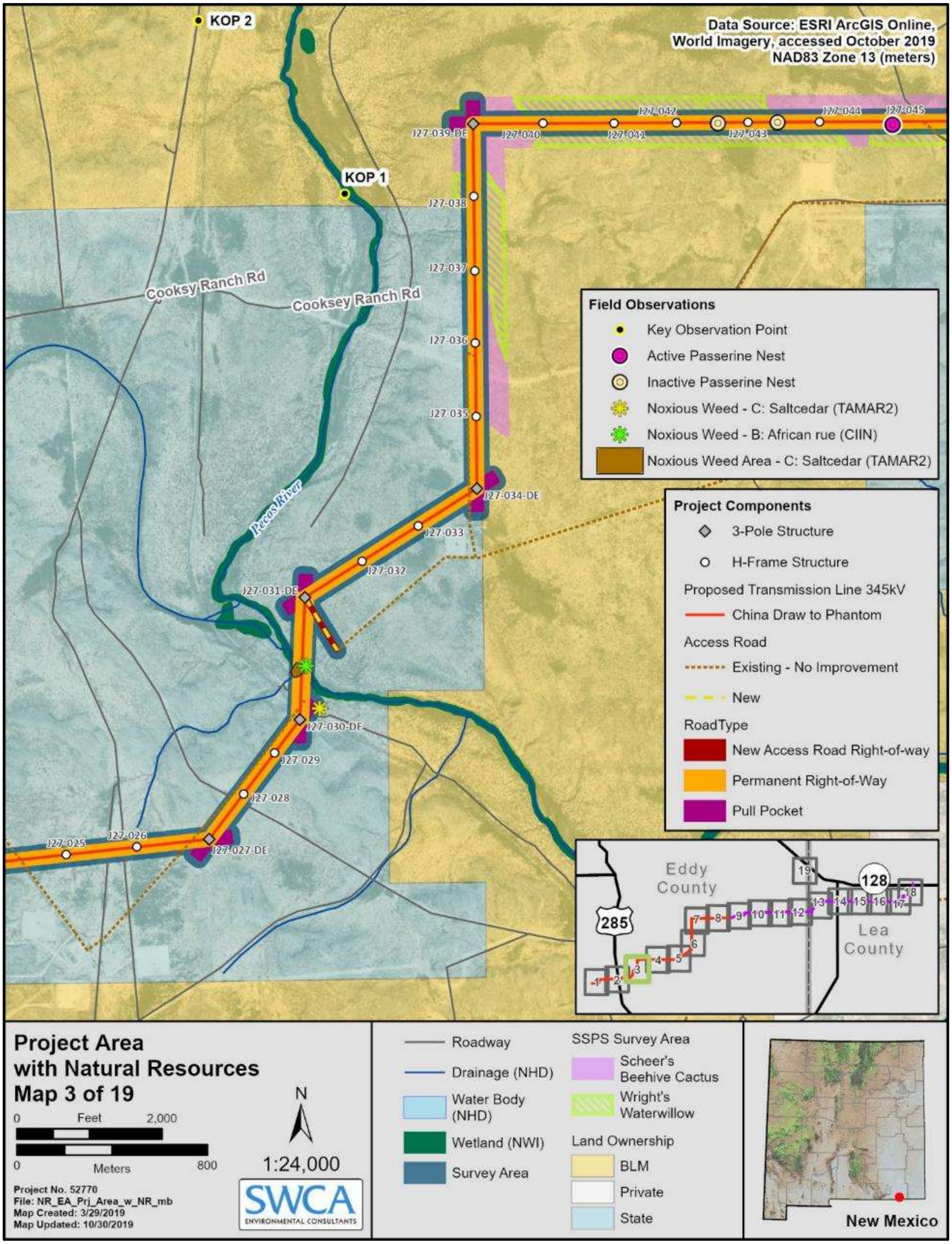

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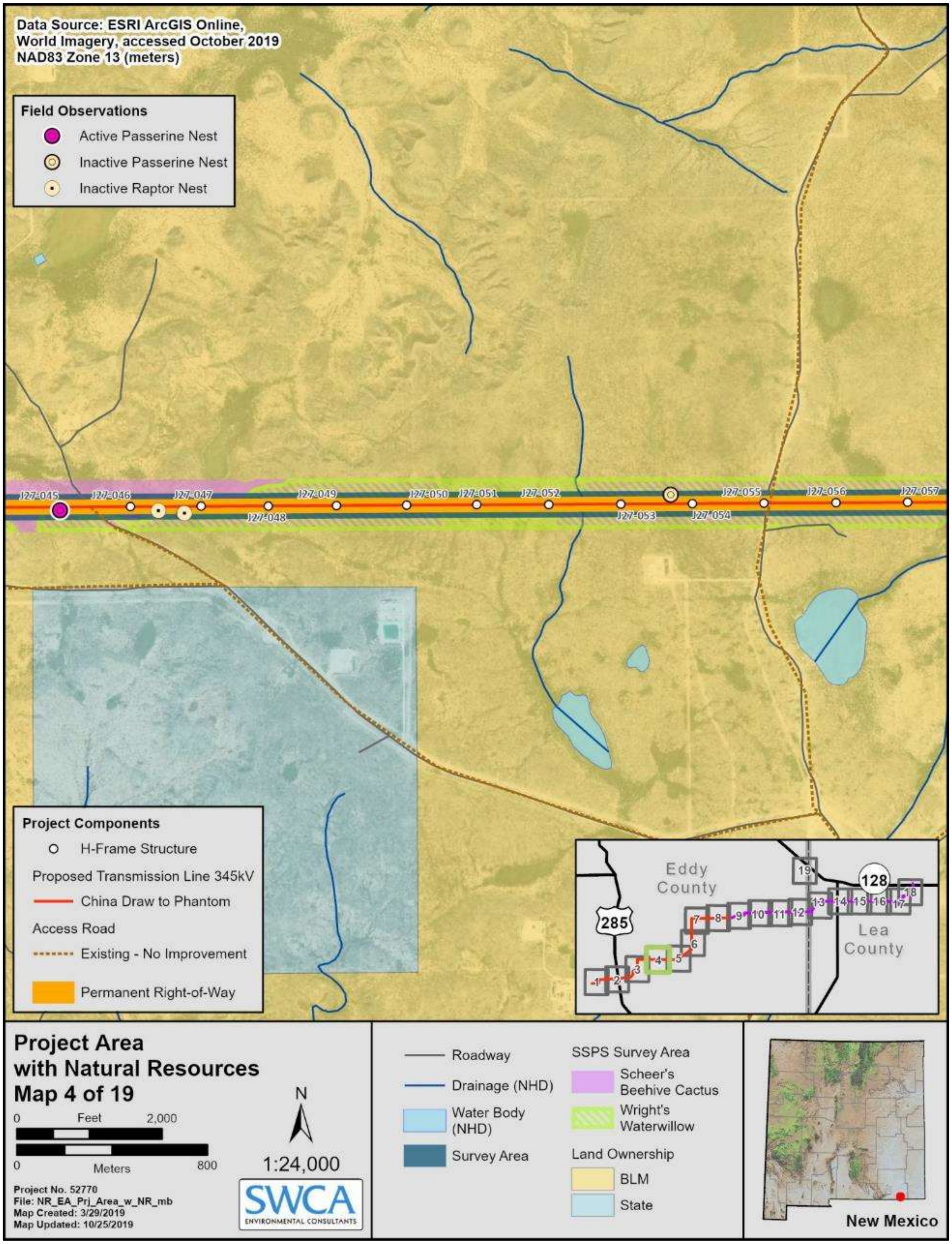

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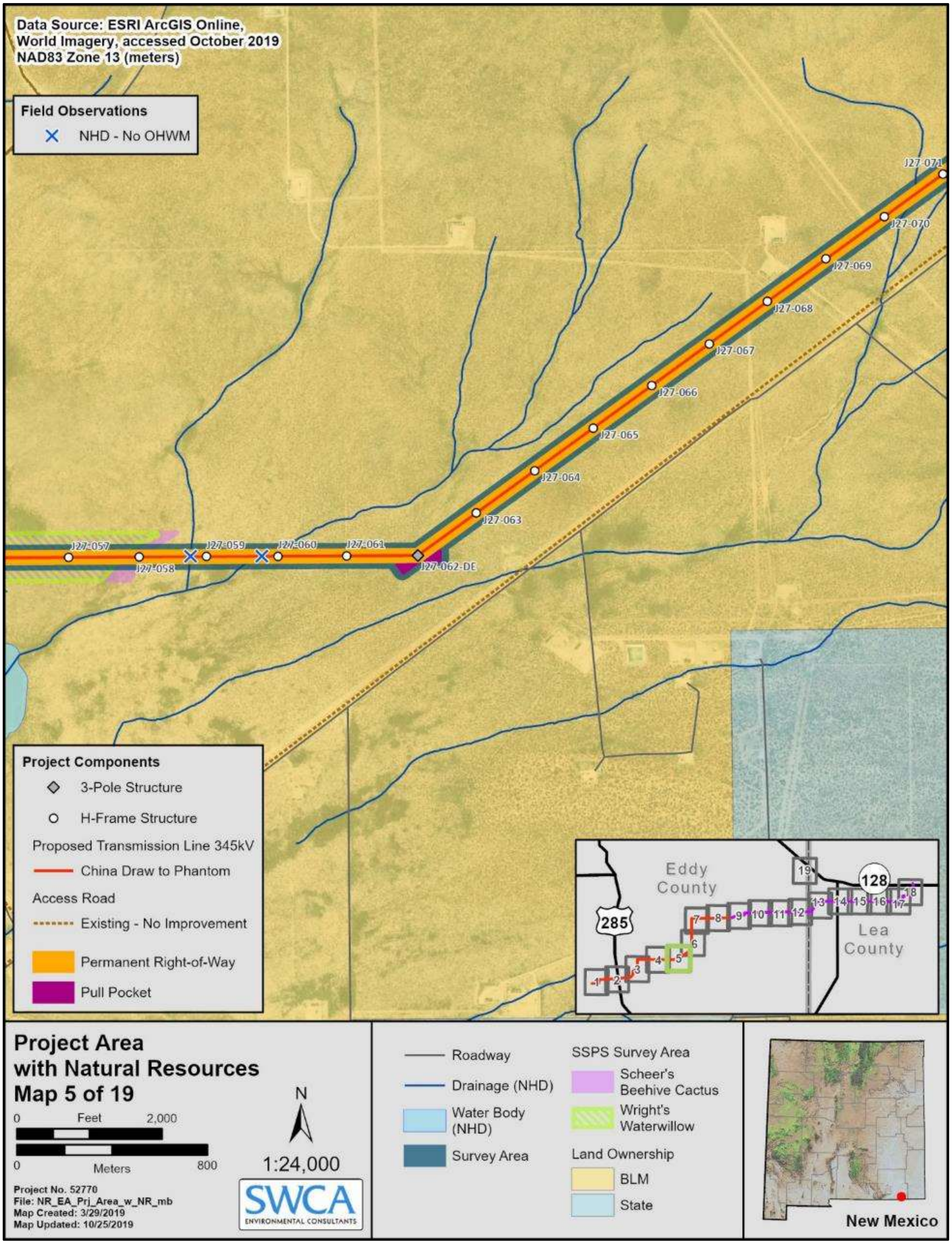

Figure A-5. Project area map with natural resources data (map 5 of 19).

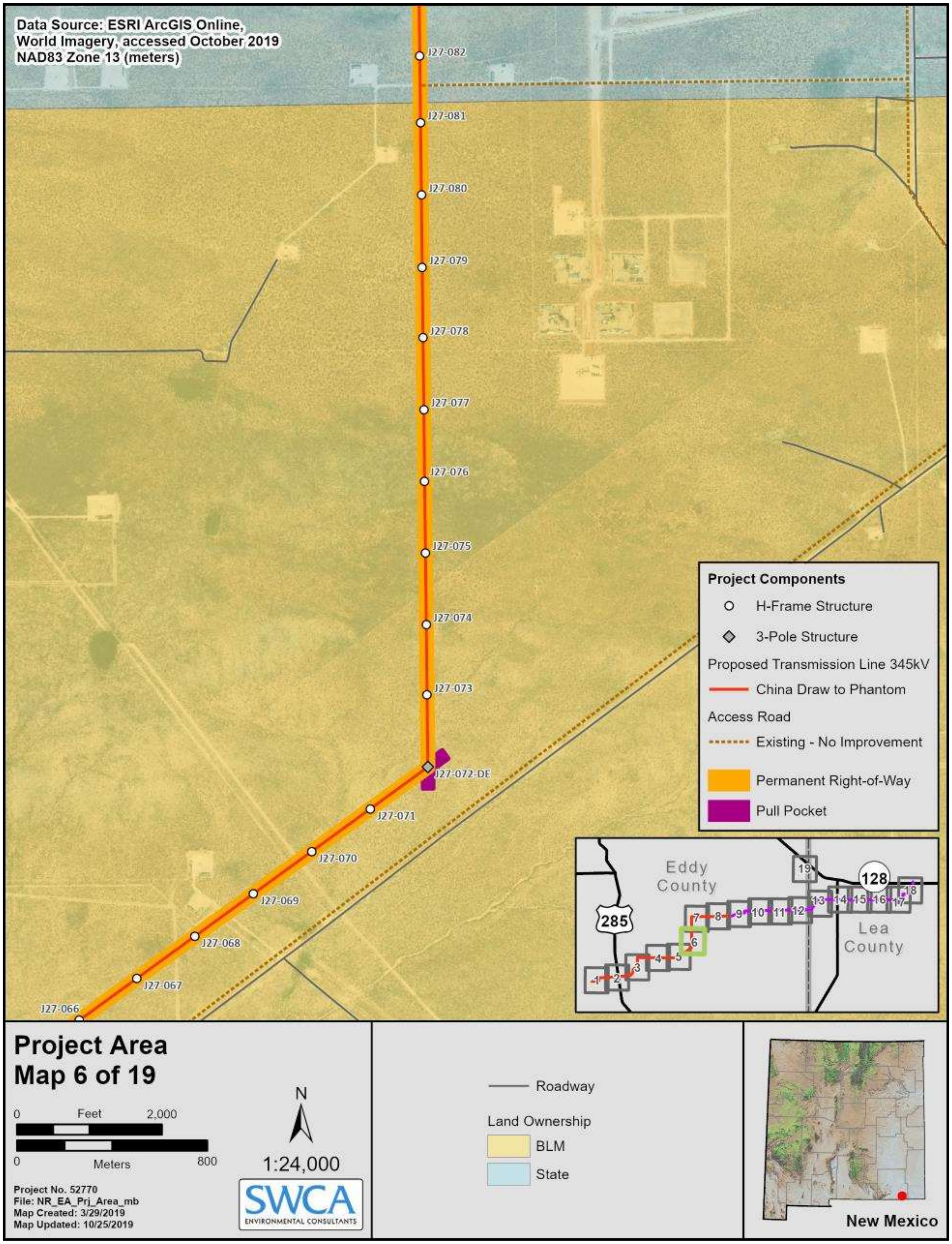

Figure A-6. Project area map with natural resources data (map 6 of 19).

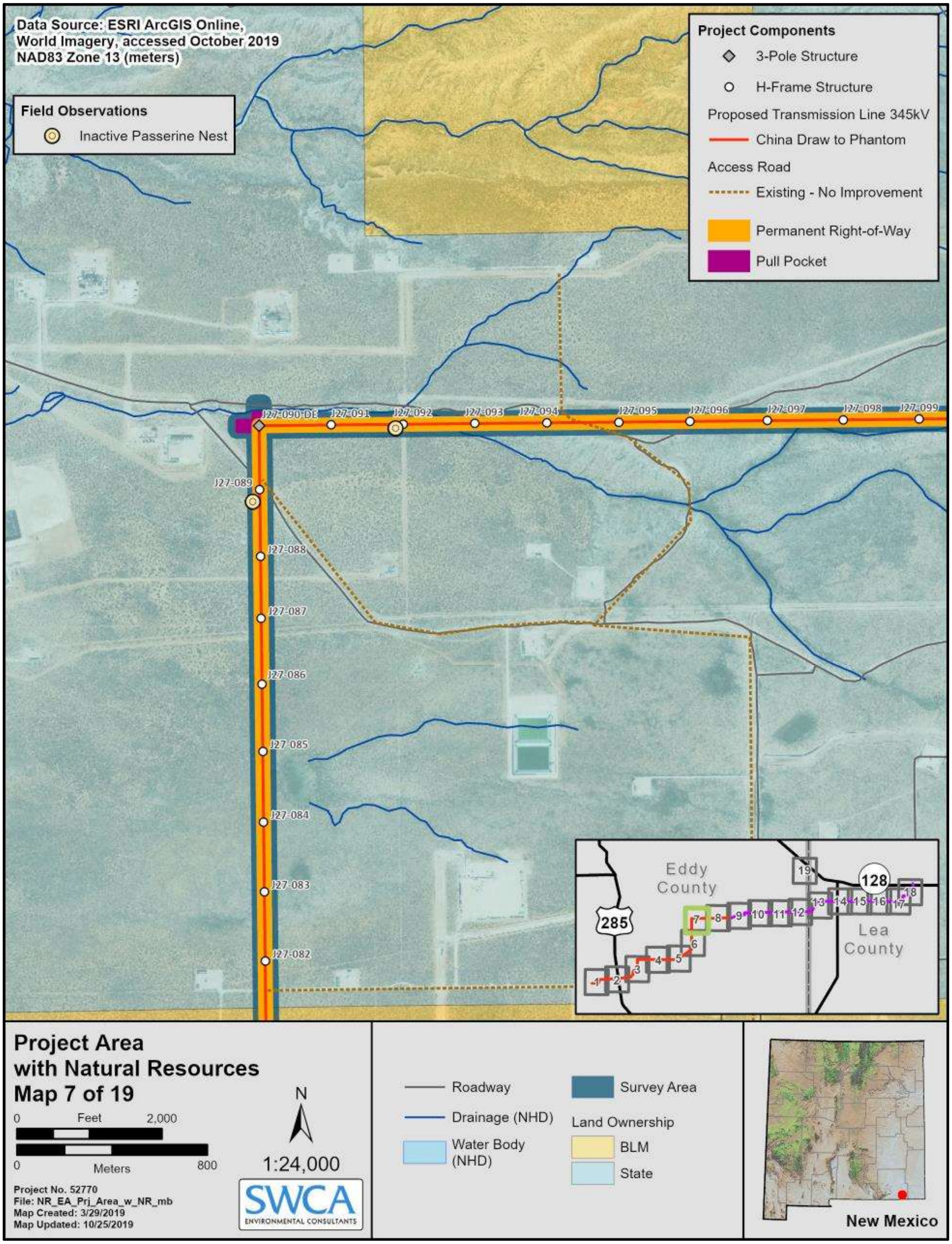

Figure A-7. Project area map with natural resources data (map 7 of 19).

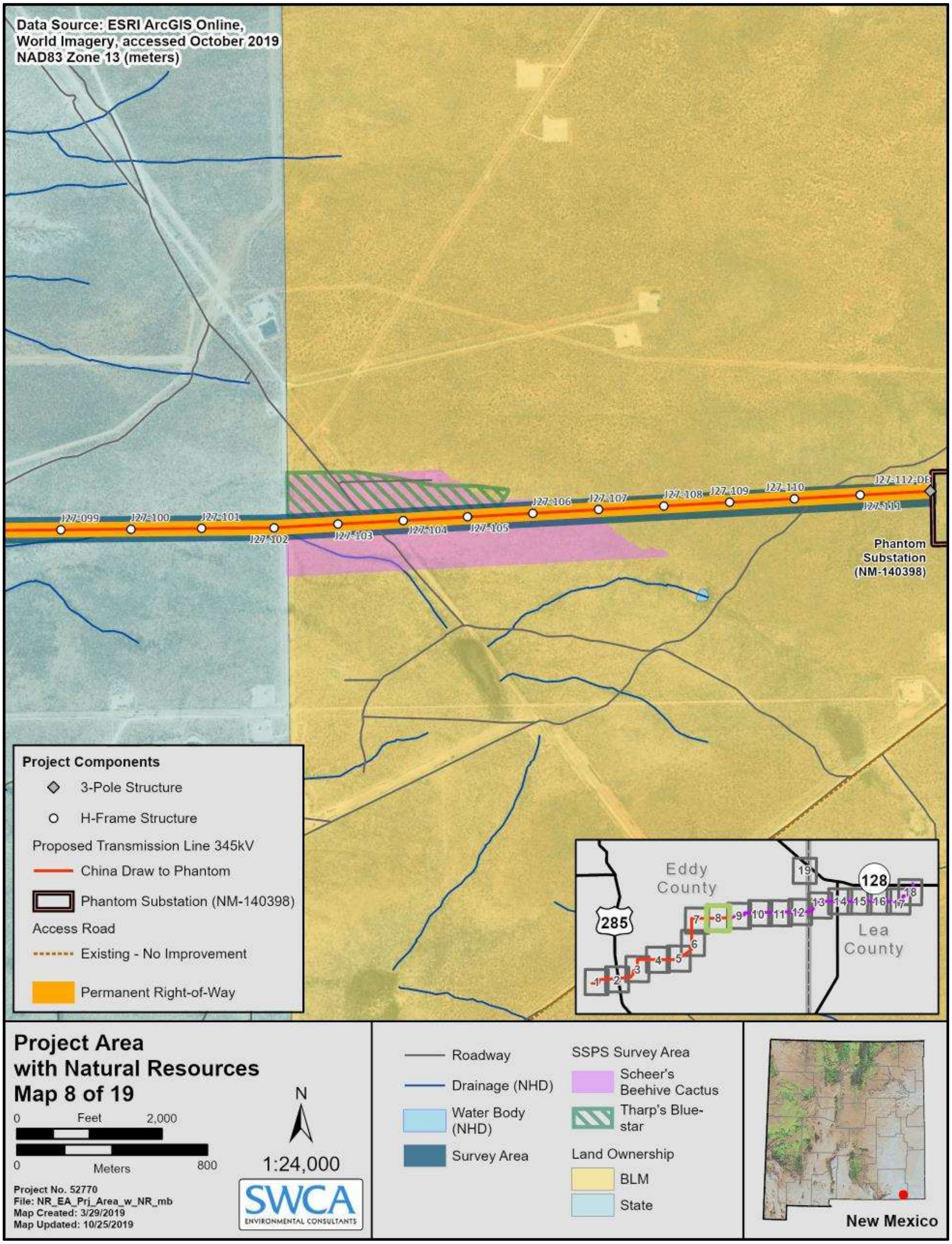

Figure A-8. Project area map with natural resources data (map 8 of 19).

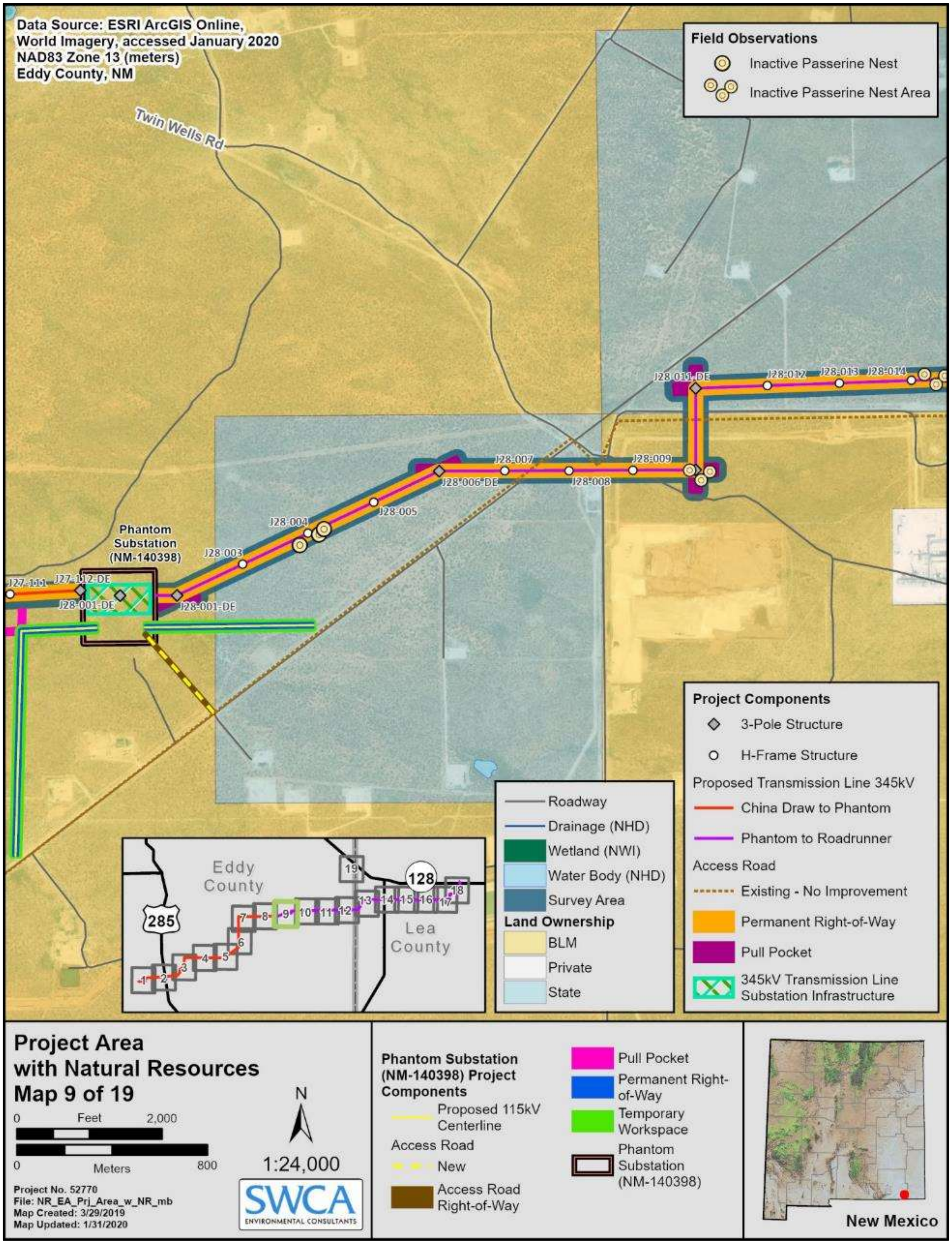

Figure A-9. Project area map with natural resources data (map 9 of 19).

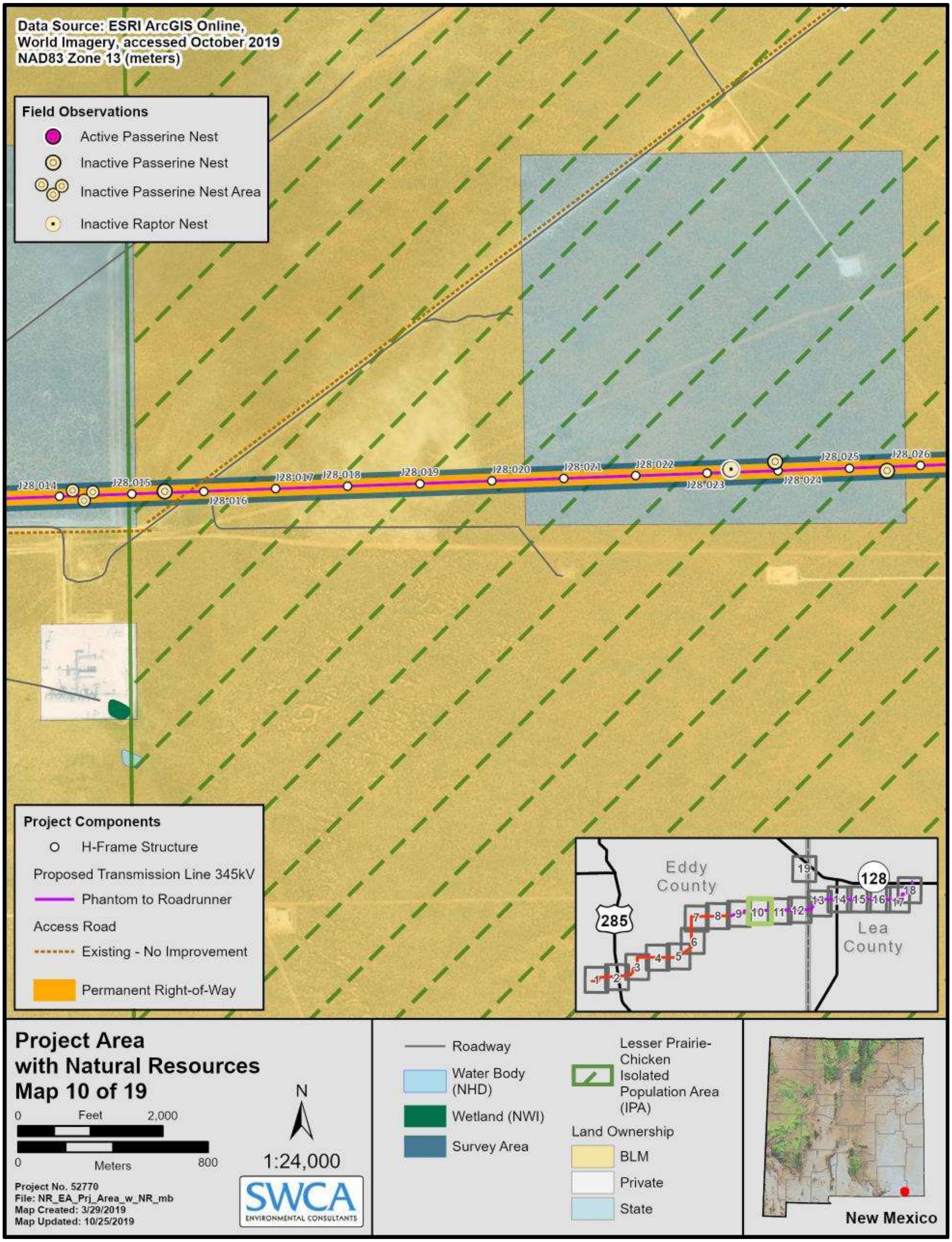

Figure A-10. Project area map with natural resources data (map 10 of 19).

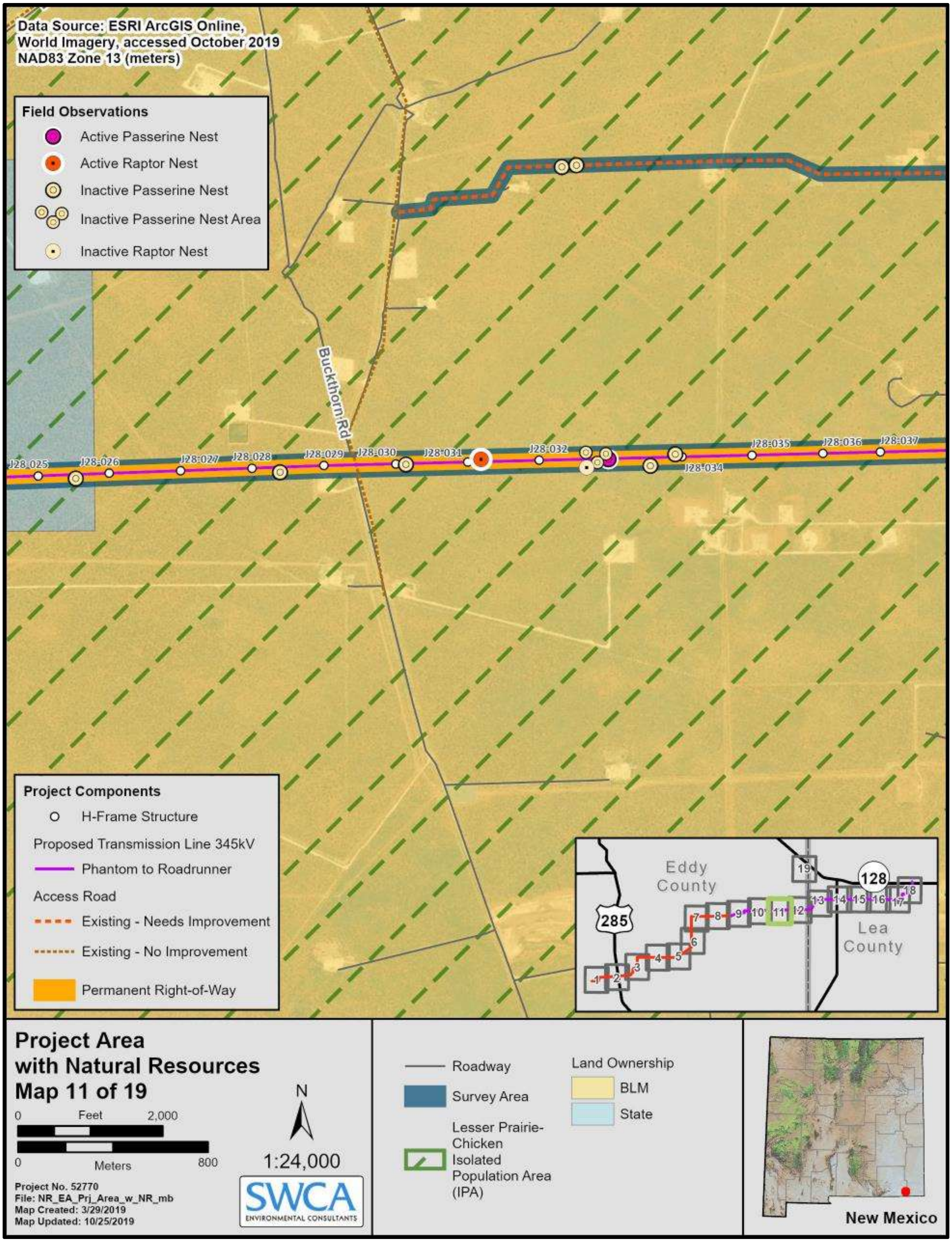

Figure A-11. Project area map with natural resources data (map 11 of 19).

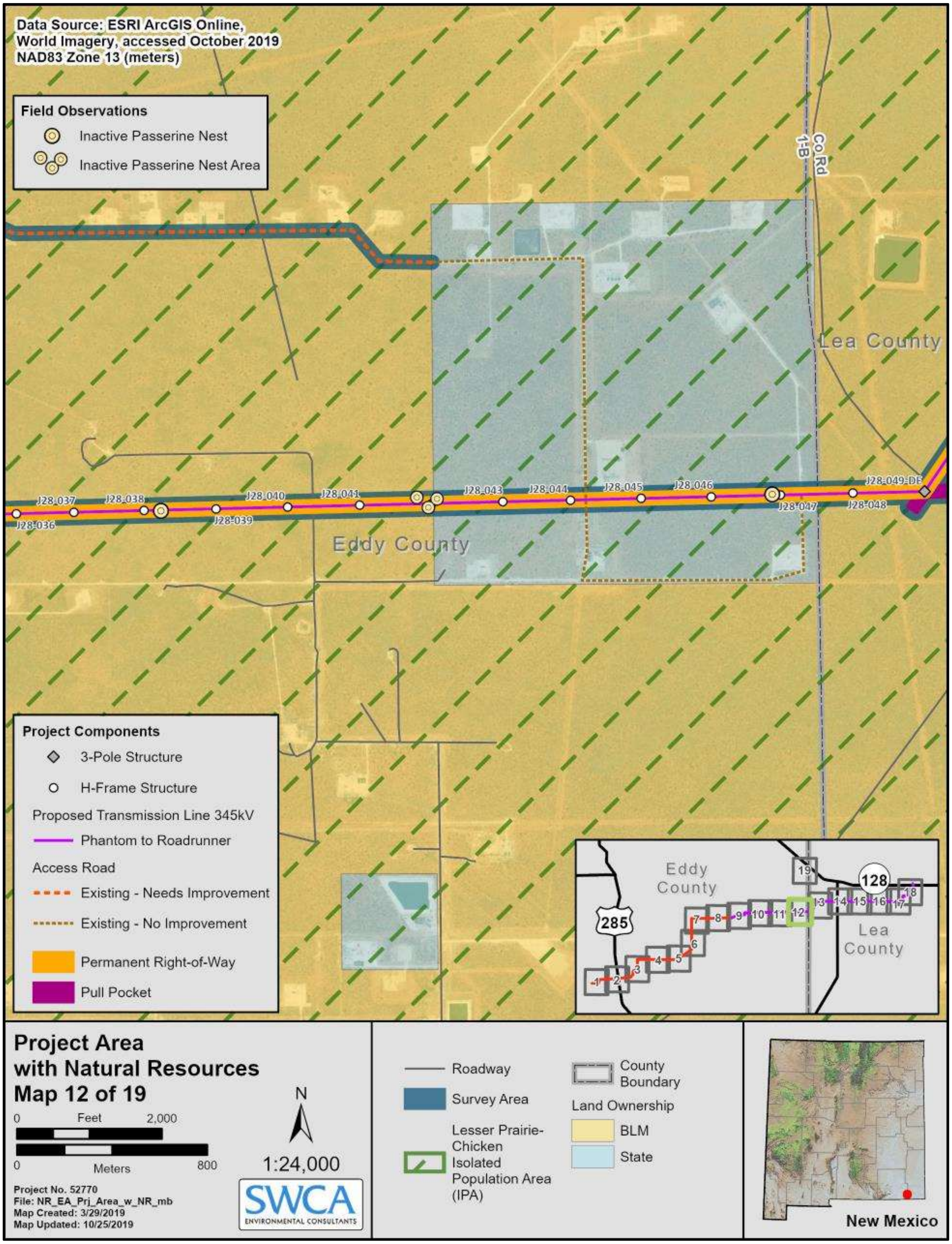

Figure A-12. Project area map with natural resources data (map 12 of 19).

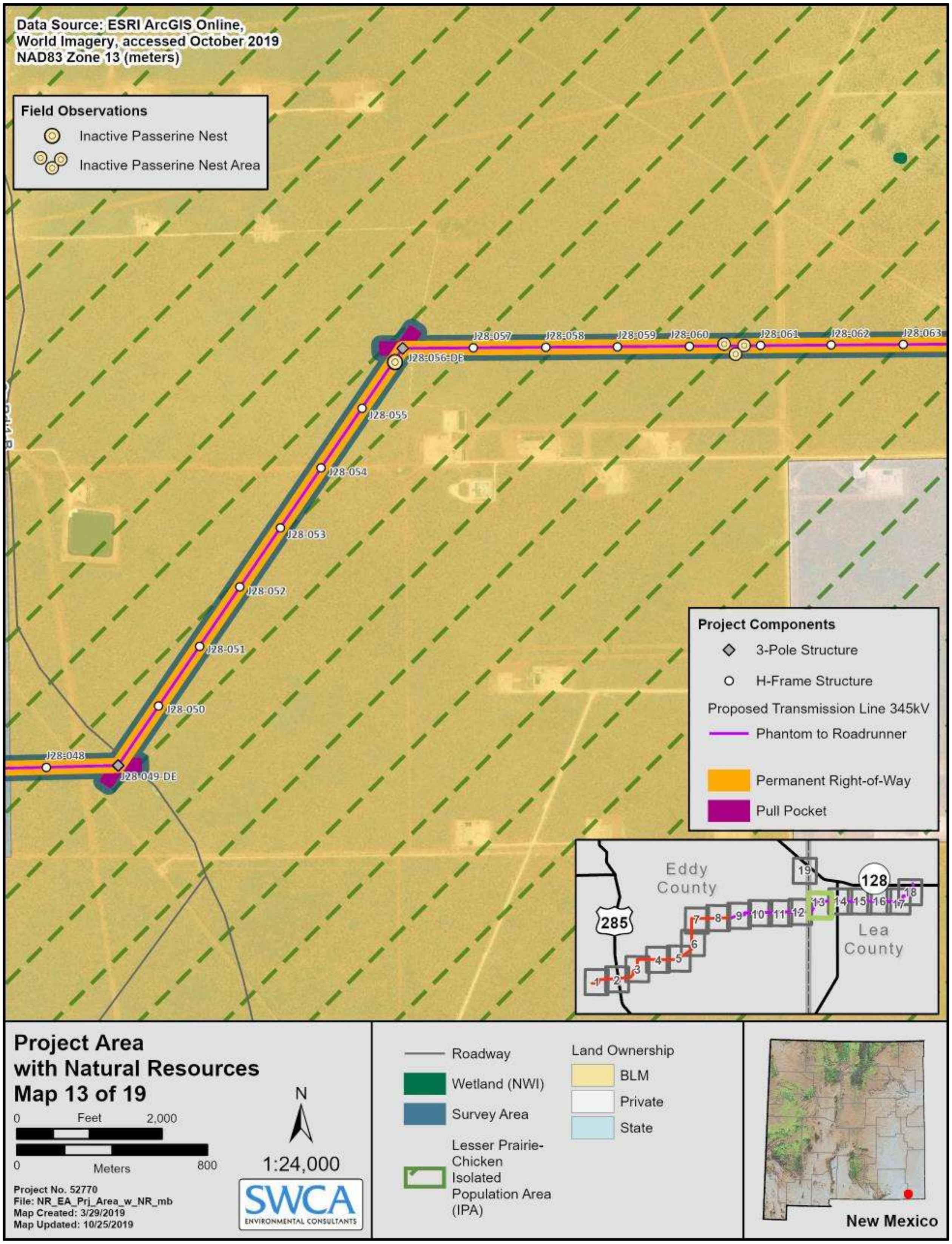

Figure A-13. Project area map with natural resources data (map 13 of 19).

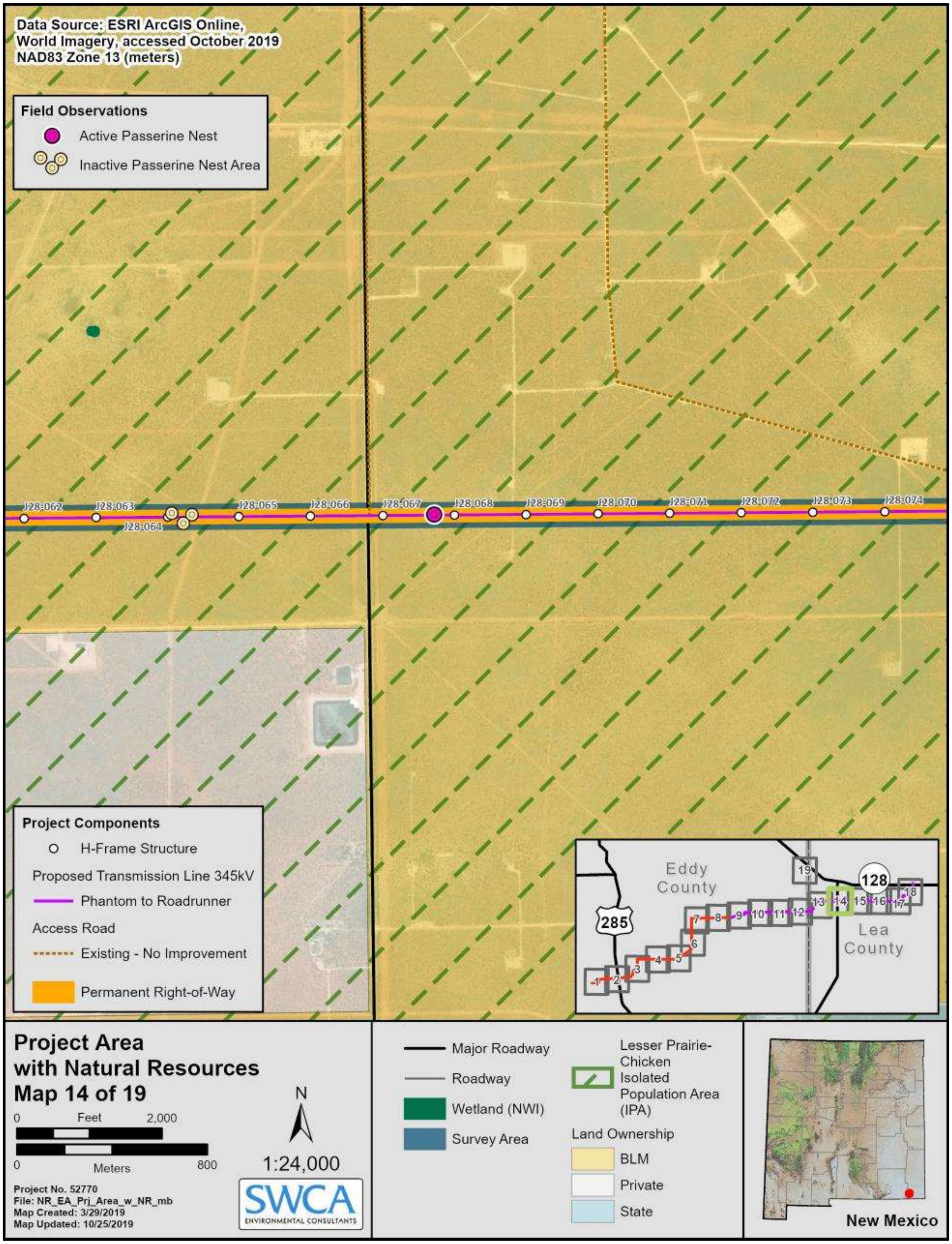

Figure A-14. Project area map with natural resources data (map 14 of 19).

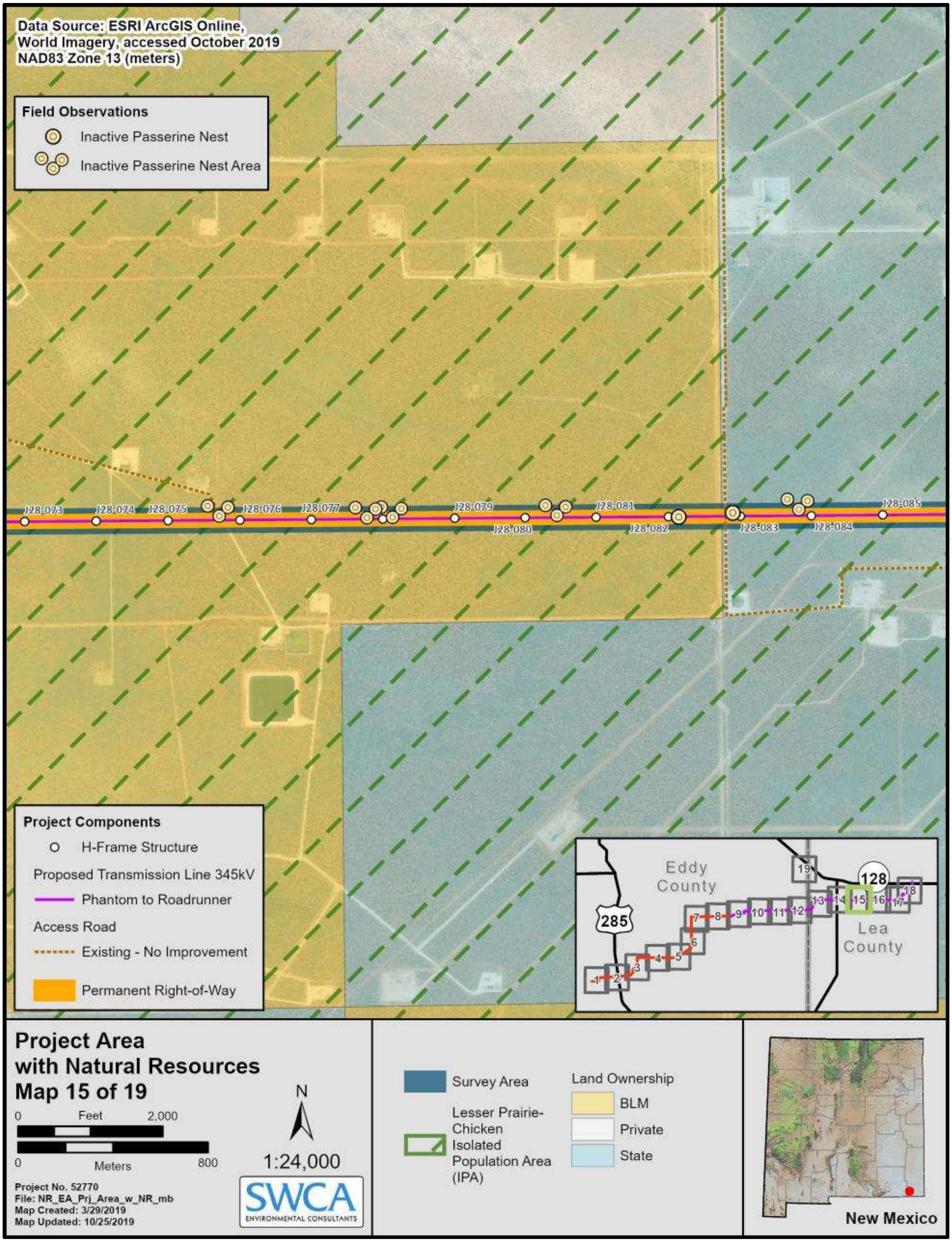

Figure A-15. Project area map with natural resources data (map 15 of 19).

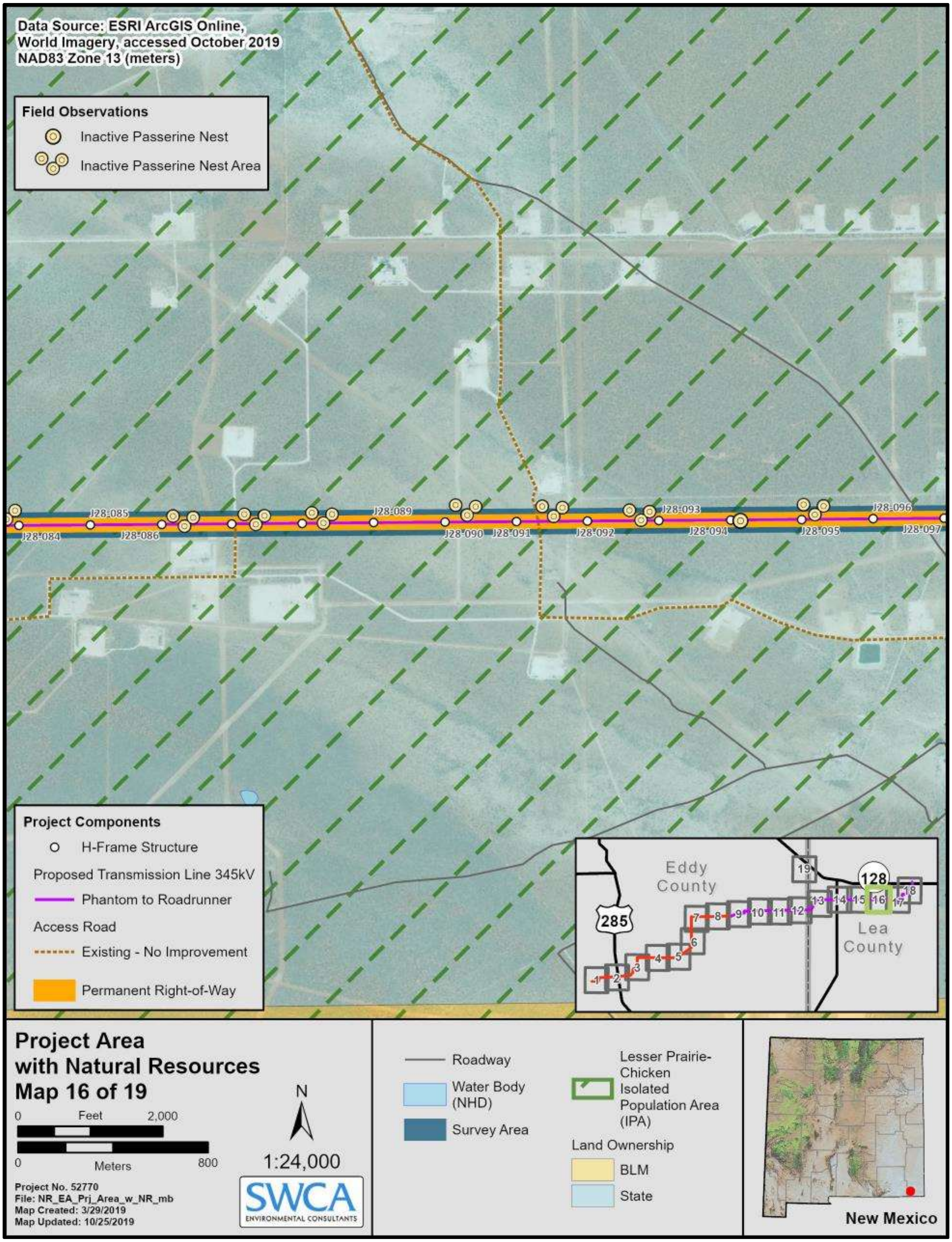

Figure A-16. Project area map with natural resources data (map 16 of 19).

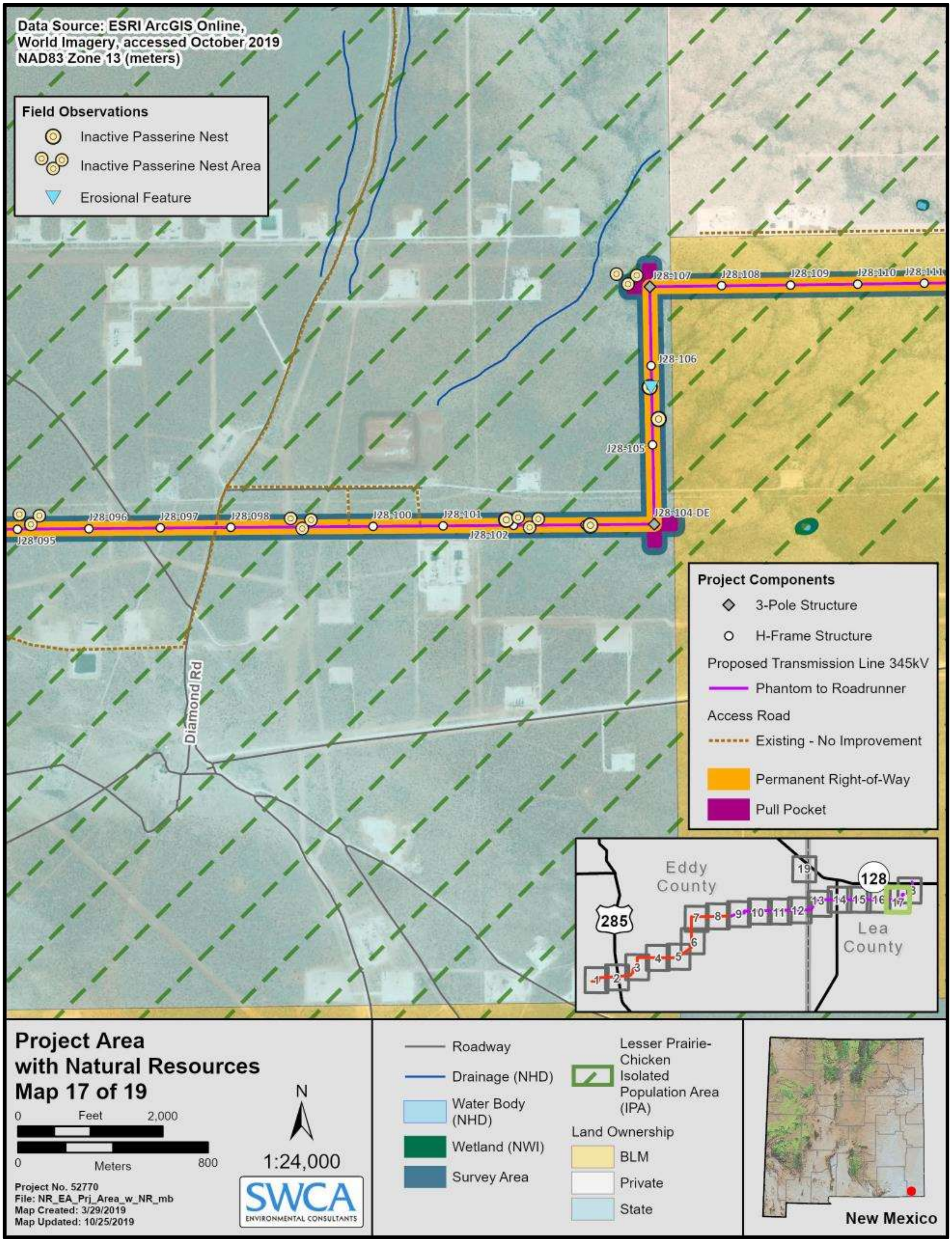

Figure A-17. Project area map with natural resources data (map 17 of 19).

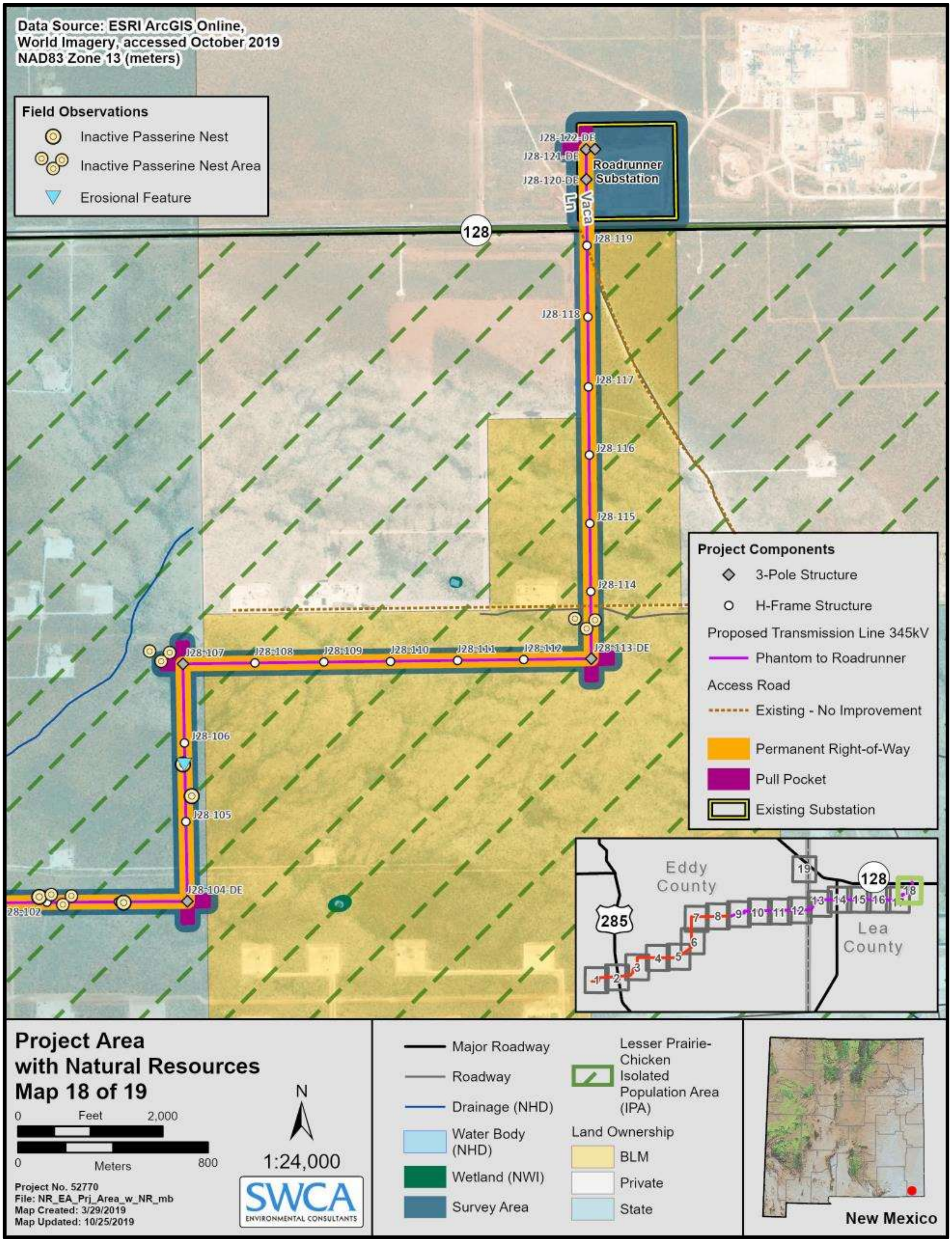

Figure A-18. Project area map with natural resources data (map 18 of 19).

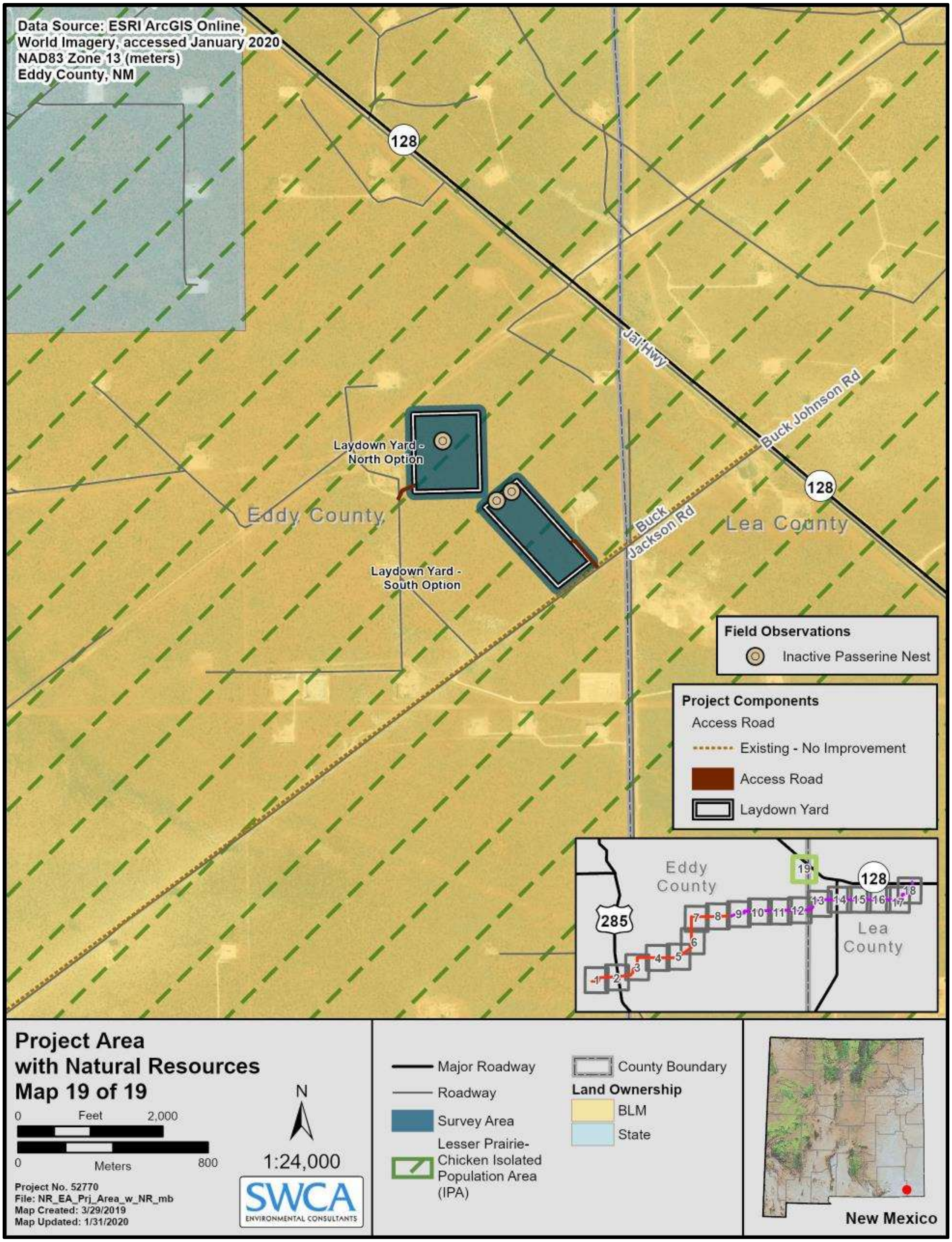

Figure A-19. Project area map with natural resources data (map 19 of 19).

APPENDIX B

Project Photographs

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Photograph B-1. View of Chihuahuan Desertscrub with with intermixed grasslands vegetation community in proposed project area, facing north.

Photograph B-2. View of Chihuahuan Desertscrub with intermixed grasslands vegetation community in proposed project area, facing south.

Photograph B-3. View of Chihuahuan Desertscrub with with intermixed grasslands vegetation community in proposed project area, facing north.

Photograph B-4. View of Chihuahuan Desertscrub with intermixed grasslands vegetation community in proposed project area, facing east.

Photograph B-5. View of shinnery oak sand dunes with mesquite hummocks vegetation community in proposed project area, facing west.

Photograph B-6. View of shinnery oak sand dunes with mesquite hummocks vegetation community in proposed project area, facing south.

Photograph B-7. View of inactive passerine nest in fair condition in honey mesquite (*Prosopis glandulosa*).

Photograph B-8. View of stick nest in poor condition, in honey mesquite.

Photograph B-9. View of active raptor nest (with red-tailed hawk fledgling) in excellent condition in honey mesquite, facing west.

Photograph B-10. View of an inactive raptor nest, in poor condition, in honey mesquite facing east.

Photograph B-11. View of inactive raptor nest in poor condition, in honey mesquite.

Photograph B-12. View of active burrowing owl burrow, with visible activity sign including pellet scat and feathers.

Photograph B-13. View of New Mexico State listed noxious weed, African Rue, along the banks of the Pecos River.

Photograph B-14. View of New Mexico State listed noxious weed, Tamarisk, along the banks of the Pecos River.

Photograph B-15. View of the proposed ROW spanning the Pecos River, facing southeast.

Photograph B-16. View of the proposed ROW spanning the Pecos River, facing southwest.

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SPECIAL-STATUS PLANT SPECIES TECHNICAL MEMORANDUM

To: **Katie Sandbom**
cc: Tessa Cisneros
Bureau of Land Management, Carlsbad Field Office
Carlsbad, NM 88220

From: Alex Simons (Project Manager), SWCA Environmental Consultants

Date: November 8, 2019

Re: **Southwestern Public Service Company, Inc.'s Roadrunner – Phantom – China Draw 345kV Transmission Project Special-Status Plant Survey Results / SWCA Project No. 52770**

INTRODUCTION

SWCA Environmental Consultants, Inc. (SWCA) was retained by Southwestern Public Service Company, Inc. (SPS), to complete an environmental assessment for their Roadrunner – Phantom – China Draw 345kV overhead electrical powerline project (proposed project) in Eddy and Lea Counties, New Mexico (NMNM-139666). During initial review, SWCA confirmed that a portion of the proposed project intersects Bureau of Land Management (BLM)–mapped potential special-status plant species (SSPS) habitat for Scheer's beehive cactus (*Coryphantha robustispina* var. *scheeri*), Tharp's blue-star (*Amsonia tharpii*), and Wright's waterwillow (*Justicia wrightii*) (BLM 2019a). SWCA coordinated with the BLM Carlsbad Field Office (CFO) botanist to determine requirements for species-specific surveys (BLM 2018b; 2019b). The SSPS survey areas identified by the BLM botanist for Scheer's beehive cactus, Tharp's blue-star and Wright's waterwillow are depicted in Figure A-1.

BACKGROUND

Scheer's beehive cactus (*Coryphantha robustispina* var. *scheeri*)

Scheer's beehive cactus is a member of the Cactaceae family and is listed as BLM Sensitive (BLM 2018a) and endangered by the State of New Mexico (Biota Information System of New Mexico [BISON-M] 2019). This species occupies soils with rocky and loamy components, as well as limestone benches and bajadas between 3,000 and 3,600 feet above mean sea level (amsl) (BISON-M 2019). In New Mexico, this species is known to occur only within Chaves and Eddy Counties. The proposed project area elevation ranges from 2,864 to 3,582 feet amsl, which is within the known elevation range of this species. In addition, the Natural Resources Conservation Service (NRCS) Soil Survey Geographic Database (NRCS 2019) also indicates that suitable soils for this species are present within the proposed project area.

Tharp's blue-star (*Amsonia tharpii*)

Tharp's blue-star (*Amsonia tharpii*) is a BLM sensitive species (BLM 2018a) and is listed as endangered by the State of New Mexico (BISON-M 2019). This species is also under review for listing under the Endangered Species Act by the U.S. Fish and Wildlife Service (USFWS) (2019). This species occupies a variety of substrates, including shallow, well-drained gypsum, caliche, and dolomite sedimentary outcrops and alluvium deposits between 3,000 and 3,800 feet amsl within Eddy County, New Mexico, and Pecos County, Texas. There are four known populations of Tharp's blue-star, three of which are in Eddy County, New Mexico.

The elevation of the proposed project area is within the suitable range for Tharp's blue-star. The proposed project area also contains its preferred substrates, such as well-drained gypsum soils, caliche, and dolomite sedimentary outcrops and alluvium deposits (NRCS 2019).

Wright's waterwillow (*Justicia wrightii*)

Wright's waterwillow (*Justicia wrightii*) is a member of the Acanthaceae family and is listed as BLM Sensitive (BLM 2018a). This species is a perennial herb that is known to occur within New Mexico and Texas (USFWS 2019). It occurs within shortgrass grasslands and scrubland within depressions or low hills of dry clay or limestone soils (NatureServe 2019). The proposed project area intersects the BLM's Wright's waterwillow potential habitat (see Figures A-1 through A-3 in Appendix A). A review of the NRCS Soil Survey Geographic Database (NRCS 2019) determined that suitable soils for this species are present within the proposed project area.

SURVEY METHODOLOGY

Prior to the species-specific surveys, biologists reviewed species identification, habitat requirements, NRCS soil maps (NRCS 2019), BISON-M data (BISON-M 2019), the New Mexico Rare Plants website (New Mexico Rare Plant Technical Council 1999), and the New Mexico Energy, Minerals and Natural Resources Department (2017) State endangered plant species list.

SWCA biologists Mikaela Buscher, Matt Nordgren, Joanna Franks, and Alison Verhaagen conducted presence/absence SSPS surveys within BLM-delineated potential habitat for Scheer's beehive cactus and Wright's waterwillow during April, August, and October 2019 surveys, and for Tharp's blue-star on April 19th, 2019. Prior to commencing the surveys, the BLM CFO botanist provided SWCA with the locations of known Scheer's beehive cactus, Tharp's blue-star, and Wright's waterwillow individuals. SWCA biologists visited these individuals before the spring field sessions to verify that each plant species was detectable at the time of survey. The survey transects were spaced 20 meters apart, per BLM protocol (BLM 2018b) (see Figures A-2 through A-5 in Appendix A). Transect spacing was decreased to 10 meters within a 100-meter buffer around each special-status plant individual that was identified (BLM 2018b) (see Figures A-2 through A-4 in Appendix A). Data was collected utilizing Trimble 7x handheld geographical positioning system (GPS) units with an average accuracy of 0.99 meter, and a tracking point was collected every 10 seconds. Results of the survey are described below.

SPECIAL-STATUS PLANT SPECIES SURVEY RESULTS

SWCA biologists detected 14 Scheer's beehive cactus individuals (see Figures A-6 through A-19 in Appendix A). No specimens of Tharp's blue-star or Wright's waterwillow were identified within the survey area.

CONCLUSION

SWCA coordinated with the BLM botanist to develop mitigations measures (BLM 2019c) that would help to avoid direct impacts to the recorded individuals as well as minimize impacts to cactus habitat as much as possible during construction and maintenance activities. The BLM determined that SPS's proposed project route avoided known and potential habitat to the greatest extent possible and that the construction of the proposed project would not lead to direct harm or take of known SSPS individuals; therefore rerouting of the proposed right-of-way (ROW) corridor was not required by the BLM (BLM 2019c). SPS will be utilizing existing access roads to access the proposed project area ROW and will not allow vehicles outside the 150-foot-wide corridor. A new access road will be constructed; however, it is approximately 1,163.8 meters southeast of the nearest identified Scheer's beehive cactus specimen (see Figures A-2 through A-4 in Appendix A).

LITERATURE CITED

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New Mexico Rare Plant Technical Council. 1999. New Mexico Rare Plants Website (Version 31, January 2018). Available at: http://nmrareplants.unm.edu. Accessed July 2019.

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APPENDIX A

Special-Status Plant Species Survey Maps and Photos

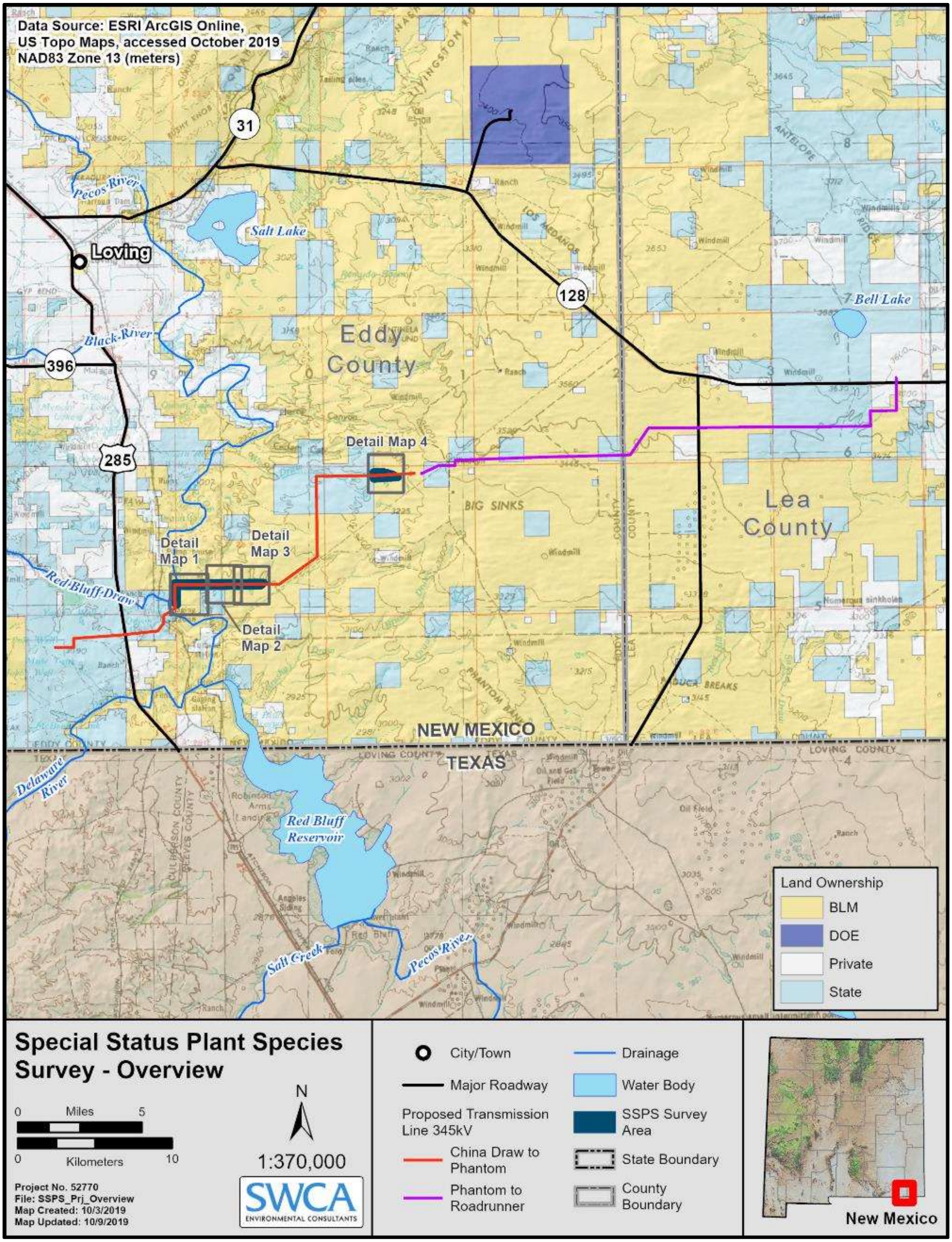

Figure A-1 Proposed project special-status species survey area overview.

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Figure A-2. Survey area for Scheer's beehive cactus and Wright's waterwillow (map 1 of 4).

Figure A-3. Survey area for Scheer's beehive cactus and Tharp's blue-star (map 2 of 4).

Figure A-4. Survey area for Scheer's beehive cactus and Tharp's blue-star (map 3 of 4).

Figure A-5. Survey area for Scheer's beehive cactus and Tharp's blue-star (map 4 of 4).

Figure A-6. View of Scheer's beehive cactus #1 observed during the April 23, 2019, special-status species survey.

Figure A-7. View of Scheer's beehive cactus #2 observed during the April 23, 2019, special-status species survey.

Figure A-8. View of Scheer's beehive cactus #3 observed during the April 23, 2019, special-status species survey.

Figure A-9. View of Scheer's beehive cactus #4 observed during the April 19, 2019, special-status species survey.

Figure A-10. View of Scheer's beehive cactus #5 observed during the April 22, 2019, special-status species survey.

Figure A-11. View of Scheer's beehive cactus #6 observed during the April 22, 2019, special-status species survey.

Figure A-12. View of Scheer's beehive cactus #7 observed during the October 6, 2019, special-status species survey.

Figure A-13. View of Scheer's beehive cactus #8 observed during the October 6, 2019, special-status species survey.

Figure A-14. View of Scheer's beehive cactus #9 observed during the October 6, 2019, special-status species survey.

Figure A-15. View of Scheer's beehive cactus #10 observed during the October 6, 2019, special-status species survey.

Figure A-16. View of Scheer's beehive cactus #11 observed during the October 6, 2019, special-status species survey.

Figure A-17. View of Scheer's beehive cactus #12 observed during the April 19, 2019, special-status species survey.

Figure A-18. View of Scheer's beehive cactus #13 observed during the April 19, 2019, special-status species survey.

Figure A-19. View of Scheer's beehive cactus #14 observed during the April 22, 2019, special-status species survey.

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Pecos District
Carlsbad Field Office
620 E Greene Street
Carlsbad, NM 88220
Finding of No Significant Impact
Serial No. NM-139666 & NM141040
Southwestern Public Service Company, Inc.

FINDING OF NO SIGNIFICANT IMPACT:

I have determined that the proposed action, as described in the EA (DOI-BLM-NM-P020-2020-0170-EA) will not have any significant impact, individually or cumulatively, on the quality of the human environment. Because there would not be any significant impact, an environmental impact statement is not required.

In making this determination, I considered the following factors:

1. The activities described in the proposed action do not include any significant beneficial or adverse impacts (40 CFR 1508.27(b) (1)). The EA includes a description of the expected environmental consequences of the proposed action and all practical means to avoid or minimize environmental harm have been adopted.

2. The activities included in the proposed action would not significantly affect public health or safety (40 CFR 1508.27(b) (2).

3. The proposed activities would not significantly affect any unique characteristics (40 CFR 1508.27(b) (3)) of the geographic area such as prime and unique farmlands, caves, wild and scenic rivers, designated wilderness areas, wilderness study areas, or areas of critical concern. No such areas exist in the project area to be affected.

4. The activities described in the proposed action do not involve effects on the human environment that are likely to be highly controversial (40 CFR 1508.27(b) (4). The effects on the quality of the human environment are not likely to be highly controversial because there is no known scientific controversy over the impacts of the project.

5. The activities described in the proposed action do not involve effects that are highly uncertain or involve unique or unknown risks (40 CFR 1508.27(b) (5). The BLM has considerable experience with the types of activities to be implemented. The effects analysis (EA, Chap 3) shows the effects are not uncertain, and do not involve unique or unknown risk.

6. My decision to implement these activities does not establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration (40 CFR 1508.27(b)(6) because it conforms to all existing BLM plans and is applicable to the project area.

7. The effects of the construction of the powerline would not be significant, individually or cumulatively, when considered with the effects of other actions (40 CFR 1508.27(b)(7)). The EA discloses that there are no other connected or cumulative actions that would cause significant cumulative impacts. The cumulative impacts are not significant.

8. I have determined that the activities described in the proposed action will not adversely affect or cause loss or destruction of scientific, cultural, or historical resources, including those listed in or eligible for listing in the National Register of Historic Places (40 CFR 1508.27(b)(8)).

9. The proposed activities are not likely to adversely affect any endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (40 CFR 1508.27(b)(9)). The action will not adversely affect any endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species act of 1973.

10. The proposed activities will not threaten any violation of Federal, State, or local law or requirements imposed for the protection of the environment (40 CFR 1508.27(b)(10)). Applicable laws and regulations were considered in the EA (See EA Chap 1.4). This action is consistent with the Resource Management Plan, pages AP2-8.

APPROVED:

CODY LAYTON

Digitally signed by CODY LAYTON
Date: 2020.04.02 10:46:10 -06'00'

Field Manager
Carlsbad Field Office

Date

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

DECISION RECORD
for the
NEPA No. DOI-BLM-NM-P020-2020-0674-EA

Southwestern Public Service Company, Inc.
China Draw, Phantom, Roadrunner 345 kV Transmission Project
NM-139666 & NM-141040

I. Decision

I have decided to select the proposed action for implementation as described in the China Draw, Phantom, Roadrunner Transmission Project EA-2020-0170. Based on my review of the Environmental Assessment (EA) and project record, I have concluded that the proposed action was analyzed in sufficient detail to allow me to make an informed decision. I have selected this alternative because the proposed project will provide reasonable access across BLM-managed lands for laydown yards to assist oil and gas leases with the production of their Federal and non-Federal mineral leases.

II. Finding of No Significant Impact

I have reviewed the direct, indirect and cumulative effects of the proposed activities documented in the China Draw, Phantom, Roadrunner Transmission Project EA-2020-0170. I have also reviewed the project record for this analysis. The effects of the proposed action are disclosed in the Environmental Consequences sections of the EA. I have determined that the proposed action as described in the EA will not significantly affect the quality of the human environment. Accordingly, I have determined that the preparation of an Environmental Impact Statement is not necessary.

III. Other Alternatives Considered

No reasonable action alternative was substantially different in design or effects from the proposed action for this project. Therefore no other alternative was considered or analyzed. Other action alternatives were substantially similar in design and had sustainably similar effects to the proposed action alternative analyzed in the EA. Therefore no other alternative was considered or analyzed.

IV. Public Involvement

The Carlsbad Field Office (CFO) publishes National Environmental Policy Act (NEPA) documents to the national register known as ePlanning. The register allows you to review and comment online on BLM NEPA and planning projects. A hard copy of this NEPA project has been made available in the Carlsbad Field Office as well as in electronic format on ePlanning at https://eplanning.blm.gov

V. Appeals

This decision may be appealed to the Interior Board of Land Appeals (IBLA), Office of the Secretary, in accordance with the regulations contained in 43 CFR Part 4. Any appeal must be filed within 30 days of this decision. Any notice of appeal must be filed with the Carlsbad Field Manager, at 620 E. Greene St., Carlsbad, NM 88220. The appellant shall serve a copy of the notice of appeal and any statement of reasons, written arguments, or briefs on each adverse party named in the decision, not later than 15 days after filing such document (see 43 CFR 4.413(a)). Failure to serve within the time required will subject the appeal to summary dismissal (see 43 CFR 4.413(b)). If a statement of reasons for the appeal is not included with the notice, it must be filed with the IBLA, Office of Hearings and Appeals, U. S. Department of the Interior, 801

North Quincy St., Suite 300, Arlington, VA 22203 within 30 days after the notice of appeal is filed with the IBLA, Office of Hearings and Appeals, U.S. Department of the Interior, 801 North Quincy St., Suite 300 Arlington, VA 22203 within 30 days after the notice of appeal is filed with the Carlsbad Field Manger.

Notwithstanding the provisions of 43 CFR 4.21(a)(1), filing a notice of appeal under 43 CFR Part 4 does not automatically suspend the effect of the decision. If you wish to file a petition for a stay of the effectiveness of this decision during the time that your appeal is being reviewed by the Board, the petition for a stay must accompany your notice of appeal.

A petition for a stay is required to show sufficient justification based on the following standards:

(1) The relative harm to the parties if the stay is granted or denied;
(2) The likelihood of the appellant's success on the merits;
(3) The likelihood of immediate and irreparable harm if the stay is not granted; and
(4) Whether the public interest favors granting the stay.

In the event a request for stay or an appeal is filed, the person/party requesting the stay or filing the appeal must serve a copy of the appeal on the Office of the Field Solicitor, 1100 Old Santa Fe Trail, Santa Fe, NM 87505.

CODY LAYTON Digitally signed by CODY LAYTON
Date: 2020.04.02 10:45:11 -06'00'

Carlsbad Field Manager

Date

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TECHNICAL MEMORANDUM

To: Alex Simons
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From: Carlos M. Ituarte-Villarreal, Air Quality and Modeling Specialist

Date: December 19, 2019

Re: **China Draw-Phantom-Roadrunner 345-kV Transmission Line Project / SWCA Project No. 53583**

EXECUTIVE SUMMARY

SWCA Environmental Consultants (SWCA) has prepared this technical memorandum to provide a qualitative analysis of the construction and operational noise impacts associated with the development of a 345-kilovolt (-kV) transmission line in southeast New Mexico, also referred to as the Roadrunner – Phantom – China Draw 345-kV Transmission Line and herein referred to as the Project , in Lea and Eddy Counties, New Mexico. This memorandum describes the existing conditions within the proposed Project area, the assessment methodology, and a summary of Project-related construction and operational noise impacts.

Subsection (3) of NMSA 1978, §62-9-3.M of the Location Control Statute states that in determining if the proposed location of the transmission line will unduly impair important environmental values, the New Mexico Public Regulation Commission may consider "noise emission levels and interference with communications signals." As determined by this analysis, audible noise may result from equipment used during Project construction, but the noise would have temporary impacts. During operation of the transmission lines, audible noise levels would not exceed the Environmental Protection Agency (U.S. EPA) recommended levels of 55 dBA L_{dn}.

If all of the construction equipment used for constructing the 42.2 miles of single-circuit, alternating current, 345-kV overhead electric transmission line from the existing China Draw Substation to the existing Roadrunner Substation was operating simultaneously at a point along the transmission line right-of-way that is closest to the nearest sensitive receptor, it is conservatively estimated a noise level (L_{eq}) of up to 56.8 dBA at the closest sensitive receptor would be generated.

The noise impact due to transmission line construction would be insignificant and temporary to two (2) receptors that are within 1.5 miles of the transmission line route. Thus, there is no noise impact due to construction of the Roadrunner – Phantom – China Draw portion of the transmission line or the construction of the substations.

Operation noise outputs of transmission lines are minimal and generally limited to corona noise and the occasional maintenance vehicle surveying the transmission line. SWCA anticipates that Project operational noise sources would not permanently increase ambient noise levels above the baseline conditions at the nearest sensitive receptor. Furthermore, the transmission line will be designed to eliminate coronal noise. Existing ambient baseline noise levels are discussed in the introduction. The closest noise sensitive receptor to the proposed Project site is a residence located approximately 3,325 feet south of the transmission line route. Impacts related to long-term operational noise are less than significant.

INTRODUCTION

Noise is generally defined as loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity and that interferes with or disrupts normal activities. Although prolonged exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of individuals to similar noise events is diverse and influenced by the type of noise; the perceived importance of the noise, and its appropriateness in the setting; the time of day and the type of activity during which the noise occurs; and the sensitivity of the individual.

Noise could also disrupt wildlife life-cycle activities of foraging, resting, migrating, and other patterns of behavior. While wildlife already existing in proximity to human development may already be habituated to noise from land use and human disturbance, changes to these baseline activities may still result in wildlife disruption. Additionally, sensitivity to noise varies from species to species, making it difficult to identify how a noise source would affect all flora and fauna in an area.

The general human response to changes in noise levels that are similar in frequency content (such as comparing increases in continuous [L_{eq}] traffic noise levels) are summarized as follows:

- A 3-decibel (dB) change in sound level is a barely noticeable difference.
- A 5-dB change in sound level typically is noticeable.
- A 10-dB increase is a doubling in loudness.

Community sound levels are generally presented in terms of A-weighted decibels (dBA). The A-weighting network measures sound in a similar fashion to how a person perceives or hears sound, thus achieving a strong correlation with how people perceive acceptable and unacceptable sound levels. The New York Department of Environmental Conservation summarizes in its document "Assessing and Mitigating Noise Impacts", February 2001, A-weighted sound levels and the general subjective responses from some common noise sources such as traffic, jets, human shouting, and pneumatic drills.[1] In his 1993 book, *Handbook of Environmental Acoustics*, James Cowan also lists the A-weighted sound levels for several common sources.[2] Table 1 combines the data from both of these references and presents the A-weighted sound levels and the general subjective responses associated with common sources of noise in the physical environment.

The American National Standards Institute (ANSI) has published a standard with estimates of general ambient noise levels (L_{eq} [energy average noise level] and L_{dn} [day-night average noise level]) based on detailed descriptions of land use categories. [3] The ANSI document organizes land use based on six categories. Table 2 provides the associated estimated daytime and nighttime L_{eq} ambient noise levels for each land use category.

[1] New York Department of Environmental Conservation. February 2001. Table E, "Assessing and Mitigating Noise Impacts".

[2] Cowan, James P. *Handbook of Environmental Acoustics.* December 1993. John Wiley & Sons, Inc.

[3] American National Standards Institute. 1993. *ANSI S12.9-1993/Part 3 - American National Standard Quantities and Procedures for Description and Measurement of Environmental Sound, Part 3: Short-Term Measurements with an Observer*.

Table 1. Typical Sound Levels Measured in the Environment and Industry

Noise Source at a Given Distance	Sound Level in A-weighted Decibels (dBA)	Qualitative Description
Carrier deck jet operation	140	
Civil defense siren (100 feet)	130	Pain threshold
Jet takeoff (200 feet)	120	Deafening
Auto horn (3 feet) Pile driver (50 feet) Rock music concert environment	110	Maximum vocal effort
Jet takeoff (100 feet) Shout (0.5 foot) Ambulance siren (10 0 feet) Newspaper press (5 feet) Power lawn mower (3 feet)	100	
Heavy truck (50 feet) Power mower Motorcycle (25 feet) Propeller plane flyover (1,000 feet)	90	Very loud/annoying; Hearing damage (8-hour, continuous exposure)
Pneumatic drill (50 feet) Garbage disposal (3 feet) High urban environment	80	Very loud
Passenger car, 65 mph (25 feet) Living room stereo (15 feet) Vacuum cleaner (3 feet)	70	Loud/Intrusive (telephone use difficult)
Air conditioning unit (20 feet) Human voice (3 feet) Department store environment	60	
Light auto traffic (50 feet) Residential air conditioner (50 feet) Private business office environment	50	Moderate/Quiet
Living room/Bedroom Bird calls (distant)	40	
Library Soft whisper (5 feet) Quiet bedroom environment	30	Very quiet
Broadcasting/Recording studio	20	Faint
	10	Just audible
	0	Threshold of human audibility

Source: Adapted from New York Department of Environmental Conservation. February 2001. Table E, “Assessing and Mitigating Noise Impacts”. and Cowan, James P. *Handbook of Environmental Acoustics.* December 1993. John Wiley & Sons, Inc.

The transmission line crosses mostly rural lands in the existing Permian oil patch. Most of the transmission line is surrounded by oil and gas wells. Existing noise levels were conservatively estimated based on land use category 6 for very quiet, sparse suburban, or rural areas.

Table 2. Representative Existing Conditions for the Analysis Area Based on Land Use

Category	Land Use	Description	Estimated Existing Daytime L_{eq} (dBA)	Estimated Existing Nighttime L_{eq} (dBA)
1	Noisy Commercial and Industrial Areas	Very heavy traffic conditions, such as in busy downtown commercial areas, at intersections of mass transportation and other vehicles including trains, heavy motor trucks, and other heavy traffic, and street corners where motor buses and heavy trucks accelerate.	69	61
2	Moderate Noisy Commercial and Industrial Areas, and Noisy Residential Areas	Heavy traffic areas with conditions similar to Category 1 but with somewhat less traffic, routes of relatively heavy or fast automobile traffic but where heavy truck traffic is not extremely dense, and motor bus routes.	64	56
3	Quiet Commercial Areas, Industrial Areas, Normal Urban Areas, and Noisy Residential Areas	Light traffic conditions where there are no mass transportation vehicles and relatively few automobiles and trucks pass, and where these vehicles generally travel at low speeds. Residential areas and commercial streets and intersections with little traffic comprise this category.	58	52
4	Quiet Urban Areas and Normal Residential Areas	These areas are similar to Category 3 but, for this group, the background noise is either distant traffic or is unidentifiable.	53	47
5	Quiet Suburban Residential Areas	Isolated areas far from significant sources of sound.	48	42
6	Very Quiet, Sparse Suburban or Rural Areas	These areas are similar to Category 5 but are usually in unincorporated areas and, for this group, there are few if any near neighbors.	43	37

Source: ANSI (American National Standards Institute). 1993. *ANSI S12.9-1993/Part 3 - American National Standard Quantities and Procedures for Description and Measurement of Environmental Sound, Part 3: Short-Term Measurements with an Observer*.

NOISE REGULATIONS

In 1974 the U.S. EPA published "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin on Safety". In this publication, the U.S. EPA evaluated the effects of environmental noise with respect to health and safety and determined an L_{dn} of 55 dBA (equivalent to a continuous noise level of 48.6 dBA) to be the maximum sound level that will not adversely affect public health and welfare by interfering with speech or other activities in outdoor areas. This maximum sound level was adopted by the Federal Energy Regulatory Commission as published in the FERC Guidance Manual for Environmental Report Preparation. According to this manual, noise levels must be below 55 dBA, or no more than 10 dBA over background if ambient noise levels are above 55 dBA L_{dn}.

There are no state-level standards for noise in New Mexico. However, the New Mexico Public Regulation Commission has jurisdiction on proposed transmission lines in New Mexico. Utilities are required to make an application to the applicable commission when locating within their jurisdiction. In New Mexico, the New Mexico Public Regulation Commission may consider “noise emission levels and interference with communication signals” in determining if the proposed location of the transmission line will unduly impair important environmental values (NMSA62-9-3(M)(3)). No other county, city, or local laws, regulations, ordinances, or guidelines were identified with specific sound level restrictions limiting the decibel (dB) levels of noise.

METHODOLOGY

Existing noise levels were estimated based on the ANSI estimates of general ambient noise levels for six land use categories given in Table 2. Existing land use in the Project area was estimated based on aerial photography. The Project is adjacent to or runs through quiet, sparsely populated suburban or rural areas and is best described by land use category 6. Therefore, per the ANSI standard, the estimated existing daytime L_{eq} is 43 dBA and the estimated existing nighttime L_{eq} is 37 dBA.

The construction equipment noise level was estimated using the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM). The RCNM is FHWA’s national model for the prediction of construction noise. This software is based on actual sound level measurements from various equipment types taken during the Central Artery/Tunnel project conducted in Boston, Massachusetts, during the early 1990s. The maximum noise levels presented at a specified distance from the source are based on a roster of likely construction equipment operating simultaneously. Although the Project is not a road construction project, the RCNM includes the same types of equipment that would be used in the construction of the Project. The equipment roster used for analysis is given in the construction noise discussion section.

Routine maintenance activities are ordinary maintenance tasks that take place on a routine basis, including the replacement of individual structures, components, cables, lines, insulators, and other facilities that, because of obsolescence, age, or wear, need replacement or repair. The RCNM model was used to estimate routine maintenance noise impacts.

Worker commutes would cause noise that would be short term and have little effect on the hourly average noise level. Therefore, this traffic was not included in the construction or operation noise analysis.

Analysis Area

The analysis area for the evaluation of noise impacts is 1.5 miles on either side of the centerline of the transmission line route. Beyond 1.5 miles the noise generated by construction of the Project was assumed to dissipate to below ambient noise levels.

Noise Sensitive Receptors

Noise-sensitive receptors generally are defined as locations where people reside or where the presence of unwanted sound may adversely affect the existing land use. Typically, noise-sensitive land uses include residences, hospitals, places of worship, libraries, performance spaces, offices, and schools, as well as nature and wildlife preserves, recreational areas, and parks. Sensitive receptors within 1.5 miles of the transmission line route were analyzed for potential impacts as a result of Project construction and operation.

There are two (2) sensitive receptors within the 1.5-mile analysis area. The closest sensitive receptor to the Project is a residence located approximately 3,325 feet south of the transmission line route. The second closest sensitive receptor to the Project is a residence located 5,660 feet west of the transmission line route. It was conservatively assumed that construction would take place at the point along the transmission line route closest to these sensitive receptors.

Impacts

For the purposes of this analysis, a significant impact on noise could result if any of the following were to occur from construction or operation of the proposed Project:

- Exceedance of Federal noise regulations or guidelines;
- Increased noise levels could impose restrictions on land currently planned for residential development; or
- Increased noise levels directly or indirectly could affect any places of traditional use that are National Register of Historic Places (NRHP)-listed or eligible, or identified as important to tribes.

Increases to noise levels that impose restrictions on land use or that affect NRHP listed or eligible sites are analyzed qualitatively herein. Noise is a potential issue to sites that are in current use by tribal members.

The nearest noise sensitive receptors to the proposed Project were identified; therefore, if operation and maintenance noise impacts affect these noise sensitive receptors, then land use restrictions from increased noise levels or adverse impacts to NRHP sites could be presumed at these locations. Construction impacts would be of limited duration and therefore would not represent significant impacts to land use restrictions or NRHP sites, even if noise levels would be above impact thresholds.

LIMITATIONS

The analysis presented in this memo is based on published noise generating data for those construction equipment types identified in the Federal Highway Administration Roadway Construction Noise Model. Because these data are estimates, there is inherent variability built into this analysis. Furthermore, the methodology used to determine impacts results in a conservative noise impact value. There are computer simulations that produce more precisions with respect to potential noise impacts and if necessary, a simulation can be run. However, the analysis presented herein follows general practice for circumstances where actual on the ground noise data are available.

RESULTS

Construction

Estimates of noise from the construction of the transmission line route are based on a roster of maximum numbers of construction equipment types used at one time in one place to construct the transmission line. Table 3 shows the construction and maintenance equipment that has been analyzed (for ease of calculation, all equipment is assumed to be operating at this single point). The RCNM has noise levels for various types of equipment pre-programmed into the software; therefore, the noise level associated with the equipment is typical for the equipment type and not based on any specific make or model.

Table 3. Anticipated Construction Vehicle/Equipment Roster

Activity	Vehicle/ Equipment Type	Quantity Anticipated	Estimated Usage Time (hours/day)
Site access/ prep/land clearing	Brush hog	2	8
	Bulldozer	4	4
	Pickups	8	6
Construction of transmission line	Pickup truck	12	6
	Water truck	2	8
	Boom truck	2	4
	Tractor trailer	4	6
	Tracked vehicle	8	8
	Crane	2	6
	Material truck	6	8
	Concrete truck	2	8
	Helicopter	1	8
Operation and maintenance	Helicopter	–	–
	Pickup truck	2	2

The RCNM assumes that the L_{max} is the maximum sound level for the loudest piece of equipment. L_{max} at a distance of 10 feet from the point source will be 98.0 dBA. The approximate noise generated by the construction equipment used at the transmission line has been conservatively calculated based on the maximum amount of construction equipment that would be used in constructing the transmission line at one time, and not taking into account further attenuation due to atmospheric interference, intervening structures, or implementation of any environmental commitments. The results of the RCNM construction noise calculations are given in Table 4.

Table 4. Calculated Noise Levels Due to China Draw-Phantom-Roadrunner 345-kV Transmission Line Project Construction

	Calculated Maximum Construction Noise, L_{max} (dBA)	Calculated Cumulative Construction Noise Level, L_{eq} (dBA)	Total Noise Level, Ambient + Construction (dBA)	
			L_{day}	L_{dn}
Ambient Baseline Noise Level *	--	--	43.0	45.0
Noise Level Attenuated to Nearest Sensitive Receptor (3,325 feet)	55.8	56.8	56.3	54.3
Noise Level Attenuated to Second-Closest Sensitive Receptor (5,660 feet)	51.2	52.1	52.0	50.5

* Baseline noise level obtained based on estimated local land use.

During construction, the noise level at the nearest sensitive receptor along the transmission line would be 56.8dBA (as estimated by the RCNM software and the associated noise calculations supplied in Appendix A), approximately equivalent to an air conditioning unit from 20 feet away. Furthermore, this analysis conservatively assumes that all the construction equipment used for transmission line construction would be operating simultaneously and at the point in the transmission line ROW that is closest to the receptor. The noise level at the second-closest sensitive receptor would be comparable to hearing light traffic or an air conditioning unit 50 feet away.

Noise due to construction of the transmission line would be temporary. Total construction duration for the transmission line would occur over a 24-month period. During this time, construction activities would occur along discrete portions of the transmission line; therefore, noise impacts would occur over a much shorter time frame at any given location. Moreover, construction equipment would move in and out of the construction site and therefore, noise associated with that equipment is transient. For those sensitive receptors closest to the ROW, adverse noise impacts from construction of the Project would be short term, lasting less than a month at one location.

Operation and Maintenance

Transmission Line Maintenance

Noise impacts during operation and maintenance of the proposed Project are expected to be negligible. Maintenance activities for the transmission line would include driving the length of the transmission line and making any necessary repairs which may involve construction equipment. The noise impacts due to maintenance activities would be temporary and would have less of an impact than construction of the transmission line.

ABOUT THE AUTHOR

Carlos Ituarte-Villarreal is an air quality and modeling specialist with experience in air quality compliance and permitting, air and noise impact analyses, and emission inventories. He has performed air and noise impact analyses for National Environmental Policy Act impact assessments, and Federal Energy Regulatory Commission environmental impact studies, California Environmental Quality Act impact assessments, environmental assessments, and environmental impact statements.

APPENDIX A

Noise Calculations

XCEL ENERGY/SOUTHWESTERN PUBLIC SERVICE COMPANY
China Draw-Phantom-Roadrunner 345-kV Transmission Line Project

Site access/ prep/land clearing
Noise Impact Assessment

Project Land Use:	Industrial

Receivers

Description	Land Use	UTM Coordinates		Baselines (Representative Existing Conditions)[1]			
		Latitude	Longitude	LAeq	Ldn	Day	Night
		(m)	(m)	(dBA)	(dBA)	(dBA)	(dBA)
NSA 1 - Residence	Residential	589239.11	3550636.26	41.6	45.0	43	37
NSA 2 - Residence	Residential	634386.97	3560815.91	41.6	45.0	43	37

[1] Source: ANSI S12.9-1993/Part 3 - Representative Existing Conditions Based on Land Use for Very Quiet, Sparse Suburban or Rural Areas.

Construction site location

Description	UTM Coordinates	
	Latitude	Longitude
	(m)	(m)
NSA 1 - Residence	590593.65	3549567.84
NSA 2 - Residence	634386.26	3561829.50

[1] Source location is represented as the edge of the construction site closest to the considered receiver

Sources

Description	Quantity	Acoustical Usage Factor[1]	Usage	Noise Level Reference Distance [1]	Sound Pressure Level @ reference distance [1]
		%/hr.	hours/day	(feet)	(dBA)
Brush Hog	2	40	8	50	84
Dozer	4	40	4	50	82
Pickup Truck	8	40	6	50	75

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Results

Equipment	Leq - @ NSA 1 - Residence	Leq - @ NSA 2 - Residence					
	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)
Brush Hog	40.2	44.8					
Dozer	38.2	42.8					
Pickup Truck	36.0	40.6					
Total[1]	43.2	47.8	0.0	0.0	0.0	0.0	0.0

[1] Noise Level assumes all equipment is operating simultaneously.

Receiver	Construction Leq	Construction Lmax [1]	Combined Ambient + Calculated Noise Level, LAeq	Daytime Noise Level, Lday	Nighttime Noise Level, Lnight	Combined Ambient + Calculated Noise Level, Ldn	Potential Noise Increase, Ldn	FERC Maximum Allowed Daytime Noise Level Ldn
	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)
NSA 1 - Residence	43.2	40.2	44.0	45.8	37.0	46.2	1.3	55
NSA 2 - Residence	47.8	44.8	46.5	48.6	37.0	47.9	3.0	55

[1] Calculated Lmax is the loudest individual value.

XCEL ENERGY/SOUTHWESTERN PUBLIC SERVICE COMPANY
China Draw-Phantom-Roadrunner 345-kV Transmission Line Project

Construction of transmission line
Noise Impact Assessment

Project Land Use:	Industrial

Receivers

Description	Land Use	UTM Coordinates		Baselines (Representative Existing Conditions)[1]			
		Latitude	Longitude	LAeq	Ldn	Day	Night
		(m)	(m)	(dBA)	(dBA)	(dBA)	(dBA)
NSA 1 - Residence	Residential	589239.11	3550636.26	41.6	45.0	43	37
NSA 2 - Residence	Residential	634386.97	3560815.91	41.6	45.0	43	37

[1] Source: ANSI S12.9-1993/Part 3 - Representative Existing Conditions Based on Land Use for Very Quiet, Sparse Suburban or Rural Areas.

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Description	UTM Coordinates	
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[1] Source location is represented as the edge of the construction site closest to the considered receiver

Sources

Description	Quantity	Acoustical Usage Factor[1]	Usage	Noise Level Reference Distance [1]	Sound Pressure Level @ reference distance [1]
		%/hr.	hours/day	(feet)	(dBA)
Pickup Truck	12	40	6	50	75
Pickup Truck	2	40	8	50	75
Flat Bed Truck	2	40	4	50	74
Tractor	4	40	6	50	84
Crane	2	16	6	50	81
Pickup Truck	6	40	8	50	75
Concrete Mixer Truck	2	40	8	50	79
Helicopter	1	40	8	50	98

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Results

Equipment	Leq - @ NSA 1 - Residence	Leq - @ NSA 2 - Residence					
	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)
Pickup Truck	37.7	42.3					
Pickup Truck	31.2	35.8					
Flat Bed Truck	27.2	31.8					
Tractor	42.0	46.6					
Crane	32.0	36.6					
Pickup Truck	36.0	40.6					
Concrete Mixer Truck	35.2	39.8					
Helicopter	51.2	55.8					
Total [1]	52.1	56.8	0.0	0.0	0.0	0.0	0.0

[1] Noise Level assumes all equipment is operating simultaneously.

Receiver	Construction Leq	Construction Lmax [1]	Combined Ambient + Calculated Noise Level, LAeq	Daytime Noise Level, Lday	Nighttime Noise Level, Lnight	Combined Ambient + Calculated Noise Level, Ldn	Potential Noise Increase, Ldn	FERC Maximum Allowed Daytime Noise Level Ldn
	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)
NSA 1 - Residence	52.1	51.2	49.8	52.0	37.0	50.5	5.6	55
NSA 2 - Residence	56.8	55.8	54.0	56.3	37.0	54.3	9.3	55

[1] Calculated Lmax is the loudest individual value.

XCEL ENERGY/SOUTHWESTERN PUBLIC SERVICE COMPANY
China Draw-Phantom-Roadrunner 345-kV Transmission Line Project

Operation and maintenance
Noise Impact Assessment

Project Land Use:	Industrial

Receivers

Description	Land Use	UTM Coordinates		Baselines (Representative Existing Conditions)[1]			
		Latitude	Longitude	LAeq	Ldn	Day	Night
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NSA 1 - Residence	Residential	589239.11	3550636.26	41.6	45.0	43	37
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[1] Source: ANSI S12.9-1993/Part 3 - Representative Existing Conditions Based on Land Use for Very Quiet, Sparse Suburban or Rural Areas.

Construction site location

Description	UTM Coordinates	
	Latitude	Longitude
	(m)	(m)
NSA 1 - Residence	590593.65	3549567.84
NSA 2 - Residence	634386.26	3561829.50

[1] Source location is represented as the edge of the construction site closest to the considered receiver

Sources

Description	Quantity	Acoustical Usage Factor[1]	Usage	Noise Level Reference Distance [1]	Sound Pressure Level @ reference distance [1]
		%/hr.	hours/day	(feet)	(dBA)
Pickup Truck	2	40	2	50	75

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Results

Equipment	Leq - @ NSA 1 - Residence	Leq - @ NSA 2 - Residence					
	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)
Pickup Truck	25.2	29.8					
Total [1]	25.3	29.9	0.0	0.0	0.0	0.0	0.0

[1] Noise Level assumes all equipment is operating simultaneously.

Receiver	Construction Leq	Construction Lmax [1]	Combined Ambient + Calculated Noise Level, LAeq	Daytime Noise Level, Lday	Nighttime Noise Level, Lnight	Combined Ambient + Calculated Noise Level, Ldn	Potential Noise Increase, Ldn
	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)
NSA 1 - Residence	25.3	25.2	41.6	43.1	37.0	45.0	0.0
NSA 2 - Residence	29.9	29.8	41.7	43.2	37.0	45.0	0.1

[1] Calculated Lmax is the loudest individual value.

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