

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

**IN THE MATTER OF SOUTHWESTERN)
PUBLIC SERVICE COMPANY'S)
APPLICATION REQUESTING A)
DETERMINATION ON LOCATION)
APPROVAL OF TWO SOLAR FACILITIES, A)
BATTERY ENERGY STORAGE SYSTEM,)
AND A 230 KV TRANSMISSION)
GENERATION TIE LINE IN LEA COUNTY)
AND OTHER ASSOCIATED RELIEF,) CASE NO. 24-00 ____-UT
)
)
SOUTHWESTERN PUBLIC SERVICE)
COMPANY,)
)
APPLICANT.)
)
_____)**

DIRECT TESTIMONY

of

ANDREA R. MCARDLE

on behalf of

SOUTHWESTERN PUBLIC SERVICE COMPANY

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GLOSSARY AND LIST OF ACRONYMS

<u>Acronym/Defined Term</u>	<u>Meaning</u>
BLM	United States Bureau of Land Management
BGEPA	Bald and Golden Eagle Protection Act
BSR	Biological Survey Report
CWA	Clean Water Act
CFO	BLM's Carlsbad Field Office
Commission	New Mexico Public Regulation Commission
EA	Environmental Assessment
EIS	Environmental Impact Statement
ER	Environmental Report
kV	Kilovolt(s)
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
NMSLO	New Mexico State Land Office
Proposed Project; Transmission Facilities	Proposed 230-kV/115-kV double circuit transmission (Gen-tie) line that will extend from SPS's Cunningham Solar Collector Substation to its Cunningham Generation Station in Lea County, New Mexico
PUA	Public Utility Act (NMSA 1978, § 62-3-1, <i>et al.</i>)

<u>Acronym/Defined Term</u>	<u>Meaning</u>
ROW	Right-of-way
Rule 592	17.9.592 NMAC
SPS	Southwestern Public Service Company, a New Mexico corporation
SWCA	SWCA, Inc. d.b.a. SWCA Environmental Consultants, Inc.
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

LIST OF ATTACHMENTS

<u>Attachment</u>	<u>Description</u>
ARM-1	Biological Survey Report for the Cunningham Transmission Line Project
ARM-2	Cultural Resources Report for the Cunningham Transmission Line Project
ARM-3	Environmental Report for the Cunningham Transmission Line Project
ARM-4	Biological Survey Technical Memorandum for the Cunningham Solar Projects and Battery Energy Storage System

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of
Andrea R. McArdle

1 **I. WITNESS IDENTIFICATION AND QUALIFICATIONS**

2 **Q. Please state your name and business address.**

3 A. My name is Andrea R. McArdle. My business address is 7770 Jefferson Street NE,
4 Suite 410, Albuquerque, New Mexico 87109.

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

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

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

10 A. I am employed by SWCA, Inc. d.b.a. SWCA Environmental Consultants, Inc.
11 (“SWCA”) as one of the company’s National Environmental Policy Act (“NEPA”)
12 project managers. For this project, I served as the Project Manager and led
13 SWCA’s team of 10 planners and scientists who supported SPS in the project
14 approval process.

15 **Q. Please briefly describe SWCA.**

16 A. SWCA is an interdisciplinary environmental consulting firm with more than 1,600
17 employees across the United States. We have had an established presence in New
18 Mexico for nearly 30 years. Our Albuquerque office currently has a staff of over
19 80 full-time planning, natural resource, and cultural resource professionals.

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1 SWCA has been involved in numerous electric transmission line permitting
2 projects throughout the United States, including SPS's most recently approved
3 Roadrunner to Phantom to China Draw 345-kilovolt ("kV") Transmission Line
4 Project¹ located in Lea and Eddy Counties, New Mexico. SWCA prepared the
5 Environmental Assessment ("EA") for that project.

6 **Q. Please describe your educational background.**

7 A. I have a Bachelor of Science undergraduate degree in Evolution and Ecology from
8 The Ohio State University. As part of my education, I have acquired a broad
9 understanding of natural systems, including vegetation communities, impacts of
10 invasive species, and population modeling. In addition, I have completed
11 ecological research on invasive species, including performing statistical analysis
12 and publishing study results.

13 **Q. Please describe your professional experience.**

14 A. My planning experience as a professional has been related to the development and
15 permitting of electric transmission lines, renewable energies, oil and gas

¹ See Application of Southwestern Public Service Company 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, Case No. 20-00085-UT.

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1 infrastructure, fiber optic lines, and Mexican Spotted Owl (*Strix occidentalis*
2 *lucida*) U.S. Fish and Wildlife (“USFWS”) surveys. The projects I manage involve
3 federal and state permitting, and many require EAs as part of the NEPA permitting
4 process. I have worked on three previous projects requiring Location Approval
5 from the Commission, one of which was an SPS project. I have been involved in
6 more than 600 different projects undergoing the NEPA process in New Mexico, the
7 majority of which were led by the Bureau of Land Management (“BLM”) as the
8 lead federal agency. My participation has included initial public and agency
9 scoping, assisting clients in routing projects to avoid impacts to resources, drafting
10 detailed project descriptions, resource analyses, mitigation design and
11 implementation, and preparation of associated technical project documents such as
12 plans of development, which are intended to describe how the construction of a
13 given project will comply with environmental protection measures and regulations,
14 in addition to special status species tech memos that detail special status species-
15 specific surveys, potential impacts, mitigation and avoidance.

16 Specifically, in southeast New Mexico, I have worked on many projects
17 where the BLM Carlsbad Field Office (“CFO”) was the lead. My BLM CFO

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1 experience includes environmental planning and NEPA project management for oil
2 and gas, transmission, and revising the CFO Resource Management Plan.

3 Previous projects I have worked on required Endangered Species Act
4 consultation with USFWS, Clean Water Act (“CWA”) permitting through the U.S.
5 Army Corps of Engineers (“USACE”), New Mexico State Land Office
6 (“NMSLO”) Right-of-Way (“ROW”) grants, and local special use or conditional
7 use permits.

1 **II. ASSIGNMENT AND SUMMARY OF TESTIMONY**

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

3 A. My testimony discusses SWCA’s assessment of the potential environmental
4 impacts associated with SPS’s proposed location of the 230-kV/115kV
5 transmission (Gen-tie) line that will extend from SPS’s Cunningham Solar
6 Collector Substation to its Cunningham Generation Station in Lea County, New
7 Mexico, along with the associated transmission facilities (“Gen-Tie Line”,
8 “Transmission Facilities, or “Proposed Project”). Specifically, I explain that the
9 Gen-tie line will not unduly impair environmental values. SWCA prepared an
10 Environmental Report (“ER”) for the Gen-tie line to the extent location approval is
11 required by the New Mexico Public Regulation Commission (“Commission”). The
12 ER provides an appropriate analytical process for the environmental evaluation
13 required by Section 62-9-3 of the New Mexico Public Utility Act (NMSA 1978,
14 Sections 62-3-1 et seq. (“PUA”)) and complies with Commission Rule
15 17.9.592.10€ and (H) NMAC (“Rule 592”). I acted as Project Manager for
16 SWCA’s preparation of the ER and drafted sections of the document describing the
17 Project in detail.

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1 I also discuss location approval of the Cunningham Solar Facilities and
2 Cunningham Battery Energy Storage System (“BESS”) under Section 62-9-3(E) of
3 the PUA and Rule 592.9. SWCA prepared a technical memorandum regarding that
4 request.

5 **Q. Please briefly outline your responsibilities as Project Manager for the ER**
6 **prepared by SWCA.**

7 A. As Project Manager, I was responsible for all aspects of SWCA’s performance and
8 the completion of the ER, prepared on behalf of SPS, concerning SPS’s application.

9 In the ER evaluation process, I oversaw the collection of all resource data,
10 preparation of technical reports, and preparation of the ER to comply with Section
11 62-9-3 of the PUA and Commission Rule 592. I also drafted project-specific
12 information within the ER. In addition, I was responsible for managing the project
13 budget, schedule, and SWCA staff who were designated to lead specific aspects of
14 the ER.

15 **Q. Please summarize your testimony.**

16 A. Based on my involvement in the ER and technical reports prepared to evaluate site-
17 specific resources and determine whether the location would unduly impair
18 important environmental values, I have concluded that the location of the 230-
19 kV/115-kV double circuit transmission (Gen-tie) line and Cunningham Solar

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1 Collector Substation will not unduly impair any important environmental values in
2 accordance with the requirements of Sections 62-9-3(F) and 62-9-3(M) of the PUA
3 and Rule 17.9.592.10(H) NMAC. In providing this analysis and reaching this
4 conclusion, my testimony describes and explains:

- 5 (1) the biological survey report (“BSR”) and cultural resource report
6 that SWCA prepared (Attachments ARM-1 and ARM-2 to my direct
7 testimony) will be reviewed by the NMSLO as part of the ROW
8 grant request for the Proposed Project and includes a discussion of
9 the resources evaluated by the BSR and cultural resource report in
10 relation to the location of the Proposed Project;
- 11 (2) that based on the survey results in the BSR and cultural resource
12 report, the NMSLO would find the Proposed Project will have no
13 significant impact on the important environmental values, and as a
14 result of the NMSLO’s determinations regarding environmental
15 impacts, the NMSLO will issue a ROW permit on state lands for the
16 Project; and
- 17 (3) my evaluation of the ER (Attachment ARM-3 to my direct
18 testimony) and supporting technical documents prepared for the
19 Commission regarding whether the location of the project will
20 unduly impair important environmental values identified in Section
21 62-9-3(M) and Rule 592.10(H).

22 I also explain that, as set out in Attachment ARM-4, the location of the
23 Cunningham Solar Facilities and BESS satisfies the requirements of Section 62-9-
24 3(E) of the PUA and Rule 592.9 to the extent those requirements apply.

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

3 A. Section 62-9-3 of the PUA governs location approval for generating facilities
4 capable of operating at 300 MW or more and transmission lines and associated
5 substation facilities that operate at 230-kV and greater. Section 62-9-3(F) provides
6 that the Commission shall approve an application for the transmission (Gen-tie)
7 line location and associated facilities unless it finds that the location will unduly
8 impair important environmental values. In determining whether a proposed project
9 will unduly impair important environmental values, the Commission may consider
10 various factors that are identified in Section 62-9-3(M).

11 Rule 592.10 implements Section 62-9-3 and establishes application and
12 other requirements for utilities requesting location approval of a proposed
13 transmission line with voltages at or above 230-kV. In material part, subsections
14 (C) and (D) to Rule 592.10 provide that if required under NEPA, the application
15 and supporting testimony must contain an EA prepared in connection with the
16 transmission line and (a) an Environmental Impact Statement (“EIS”) assessing the
17 environmental impacts of the proposed transmission line or (b) a finding of no
18 significant impact (“FONSI”). Subsection (E) provides that if preparation of an EA

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1 or EIS is not required under NEPA in connection with the transmission line, then
2 the application must contain an ER, comparable to an EIS, in the format prescribed
3 in 40 C.F.R 1502.10. Finally, subsection (H) of Rule 592.10 provides that the
4 application must contain testimony prepared to demonstrate that the proposed
5 transmission line route will not unduly impair important environmental values.

6 Regarding large capacity generating plants, Section 62-9-3(E) provides that
7 the location shall be approved unless the Commission finds the operations of the
8 facilities will not comply with all applicable air and water pollution control
9 standards and regulations or will unduly impair system reliability. Rule 592.9(C)
10 requires that an applicant identify and demonstrate compliance with all applicable
11 air and water pollution control standards, and Rule 592.9(D) requires an applicant
12 to identify air and water quality permits necessary to begin construction.

13 **Q. Were Attachments ARM-1 through ARM-4 prepared by you or under your**
14 **supervision?**

15 A. Yes.

1 **III. DESCRIPTION OF THE LOCATION OF THE GEN-TIE**
2 **LINE AND ASSOCIATED FACILITIES**

3 **Q. Please describe the Gen-Tie Line’s location and associated facilities.**

4 A. As explained in the Direct Testimony of SPS witness Brooke A. Trammell, SPS
5 proposes to construct, operate, and maintain two solar facilities and a BESS, along
6 with a 230/115-kV double circuit transmission (Gen-tie) line and associated
7 Cunningham solar collector substation in Lea County, New Mexico. The line will
8 connect SPS’s proposed Cunningham Solar Projects and BESS, located
9 approximately 10.5 miles northwest of Hobbs, to SPS’s existing Cunningham
10 Generation Substation, located approximately 10 miles west of Hobbs, New
11 Mexico. The transmission (Gen-tie) line will total approximately 7 miles (37,117
12 feet) in length. Of the 7 miles, 2.5 miles (13,195.9 feet) will be on NMSLO-
13 managed land, and 4.5 miles (23,920.9 feet) will be on private lands. As explained
14 in the Direct Testimony of SPS witness Mark Lytal, the transmission (Gen-tie) line
15 will have a 100-foot ROW and 25 feet of temporary workspace on either side of
16 the ROW. Associated facilities for the Project include the 45.0-acre substation and
17 six pull pockets.

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1 Mr. Frederiksen explains the basis for SPS’s selection of the route for the
2 Gen-tie Line and provides a map that includes the legal descriptions of the location
3 of the proposed transmission (Gen-tie) line route and associated infrastructure as
4 Attachment SLF-2 to his direct testimony.

5 **Q. Have maps been prepared that depict the location of the proposed**
6 **transmission line route and associated facilities?**

7 A. Yes. A map showing the general location of the Gen-tie Line, and proposed area
8 for the collector substation locations is provided as Attachment BAT-2 to the Direct
9 Testimony of SPS witness Brooke A. Trammell. Additionally, the ER includes a
10 series of maps that specifically depict the Proposed Project (*see* Attachment ARM-
11 1 Appendix C).²

12 Ms. Trammell’s and Mr. Frederiksen’s testimonies describe the location of
13 the Cunningham transmission line route and associated Cunningham Solar
14 collector substation location area, as well as include additional maps showing the
15 location of the Gen-tie line in relation to other transmission lines located in Lea
16 County.

² The ER 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 substation.

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1 **Q. Does another SPS witness discuss the process for establishing the location of**
2 **the proposed Cunningham transmission line route and associated facilities?**

3 **A. Yes Mr. Frederiksen's testimony explains the process SPS used to identify the**
4 **location of the proposed Gen-tie line route and associated facilities.**

1 **IV. EVALUATION OF POTENTIAL IMPACTS OF THE GEN-TIE LINE**
2 **AND ASSOCIATED FACILITIES ON IMPORTANT**
3 **ENVIRONMENTAL VALUES IN ACCORDANCE WITH**
4 **LOCATION APPROVAL REQUIREMENTS OF SECTION 62-9-3 OF**
5 **THE PUA AND RULE 592**

6 **Q. Please describe your evaluation of the Gen-Tie Line’s potential impacts on**
7 **important environmental values in accordance with the location approval**
8 **requirements of Sections 62-9-3(F) and (M) of the PUA and Rule 592.10(G).**

9 A. For SPS’s location approval filing, I evaluated the potential impacts of the Gen-tie
10 line route and associated facilities on important environmental values based on
11 SWCA’s biological and cultural resource survey findings and additional analysis
12 incorporated into the ER. Both the biological survey report and cultural resource
13 report evaluate the potential environmental impacts of the Project on biological and
14 cultural environmental values. The ER also discusses biological and cultural
15 environmental values as well as the other environmental values included in Section
16 62-9-3(M).

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1 **Q. Did the ER prepared for the Gen-Tie Line and associated facilities address the**
2 **important environmental values identified in Section 62-9-3(M) of the PUA**
3 **and Rule 592.10(G)?**

4 A. Yes. The resources examined in the ER correspond to the factors identified for
5 important environmental values in the statute and Rule 592. For purposes of the
6 Commission’s review of the Project facilities under Section 62-9-3(F) and (M) and
7 Rule 592.10(G), the ER evaluated a range of specific resources and existing
8 environmental conditions in the Project area that include: air resources, water
9 resources, soil resources, vegetation (including noxious weeds), wildlife and
10 special status species, karst resources, cultural resources, paleontological resources,
11 visual resources, and livestock grazing.

12 **Q. Does the ER include an analysis of each factor identified in Section 62-9-3(M)**
13 **and Rule 592.10(G)?**

14 A. Yes. In the following portions of my testimony, I explain the ER’s determinations
15 that the proposed the project location will not unduly impair the important
16 environmental values identified in Section 62-9-3(M) and Rule 592.10(G), as well
17 as any required protection measures.

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1 **Q. Please describe the ER’s evaluation and determination of the potential for the**
2 **project location to unduly impair air quality (see Rule 592.10(G))?**

3 A. The ER establishes that the project location will not unduly impair important
4 environmental values regarding air quality. The ER determined that emissions of
5 air pollutants would occur during construction of the transmission (Gen-tie) line,
6 substation, and BESS (temporary emissions) and, to a lesser extent, during
7 operation of the Project. Construction-related emissions considered include
8 exhaust from construction vehicles, material movements, and equipment; exhaust
9 from construction worker commuting; and fugitive dust from general construction
10 activity. Operational-related emissions considered include emissions from
11 inspection and maintenance activities (which include exhaust from inspection
12 vehicles and aerial inspections, fugitive dust from unpaved roads, and line
13 maintenance equipment) and fugitive emissions due to leaked emissions from
14 substation transformer equipment.

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1 **Q. Please describe the ER’s evaluation and determination of the potential impacts**
2 **of the Gen-Tie Line and associated facilities on Biological Resources (see**
3 **Section 62-9-3(M)(2) (i.e., fish, wildlife and plant life) and Rule 592.10(G) (i.e.,**
4 **flora and fauna))?**

5 A. The ER established that the project location will not unduly impair important
6 environmental values regarding biological resources. This conclusion is based on
7 SWCA’s BSR, Attachment ARM-1, to support the ER analysis. SWCA first
8 conducted a desktop analysis followed by intensive pedestrian field surveys within
9 a 250-foot wide corridor along the center of the transmission (Gen-tie) line
10 alignment as well as within the substation and BESS location area. These surveys
11 assessed general vegetation and habitat suitability for USFWS and State of New
12 Mexico protected native plants and special status species. Presence of active and
13 inactive bird nests and burrows were also recorded. All survey dates are
14 documented in the BSR and ER.

15 Specific to vegetation, the project location will not unduly impair important
16 environmental values regarding vegetation. SWCA’s field surveys found that
17 vegetation along the Project area is primarily comprised of a Chihuahuan desert
18 grassland vegetation community within the Project area. In addition, vegetation

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1 communities within and/or surrounding the Project had previous disturbance from
2 existing oil and gas infrastructure, existing transmission lines, livestock grazing,
3 two-track roads, and the existing Cunningham Generation Substation. No federally
4 or state-listed plant species were observed. Two New Mexico Department of
5 Agriculture Class C noxious weeds (Siberian elm (*Ulmus pumila*) and Tamarisk
6 (*Tamarix spp.*)) were observed during the biological survey. Plant species recorded
7 during the biological survey are listed in Table 2 of the BSR.³

8 Specific to wildlife, the project location will not unduly impair important
9 environmental values regarding wildlife. After conducting a desktop review and
10 pedestrian field surveys for the BSR and ER, SWCA biologists identified nine bird
11 species and five mammal species. In addition, three inactive passerine nests, eight
12 inactive raptor nests, and one active great-horned owl (*Bubo virginianus*) nest were
13 observed. Short-term impacts to wildlife species could include the removal or
14 crushing of existing vegetation, risk of direct mortality of species during
15 construction, loss or degradation of native habitat, and displacement of wildlife
16 species from habitat due to development. Additional potential short-term indirect
17 impacts could include disruption or displacement of species from nesting/birthing

³ See Attachment ARM-1.

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1 and foraging areas, changes in activity patterns due to construction, increased
2 human activity, and noise disturbance. Wildlife species recorded during the
3 biological survey are listed in Table 3 of the BSR.

4 Specific to federally and state-listed species, the project location will not
5 unduly impair important environmental values regarding federally and state-listed
6 species. One federally listed candidate species (Monarch butterfly (*Danaus*
7 *plexippus plexippus*)) and one Bald and Golden Eagle Protection Act (“BGEPA”)
8 species (the golden eagle (*Aquila chrysaetos*)) have the potential to forage in the
9 Project area. Neither species was observed during the biological survey. The
10 implementation of protection measures would minimize impacts to these species.

11 The Monarch butterfly is designated as a USFWS candidate species. The
12 species was not observed during the 2024 biological survey of the Proposed Project
13 area. In addition, this species may receive a proposed listing in 2024 based on the
14 USFWS Annual Notification of Findings on Resubmitted Petitions; Annual
15 Description of Progress on Listing Actions.⁴ The Proposed Project is within a

⁴ See U.S. Fish and Wildlife Service (USFWS), 2023, Endangered and Threatened Wildlife and Plants; Review of Species that are Candidates for Listing as Endangered or Threatened; Annual Notification of Findings on Resubmitted Petitions; Annual Description of Progress on Listing Actions. Available at: <https://www.federalregister.gov/documents/2023/06/27/2023-13577/endangered-and-threatened-wildlife-and-plants-review-of-species-that-are-candidates-for-listing-as>. Accessed February 2024.

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1 migration corridor for this species and suitable foraging habitat may be present
2 during the migration period of April through October. No milkweed species
3 (*Asclepias* sp.) was identified; however, the timing of the biological survey is
4 outside of the known flowering period for milkweed. If construction occurs during
5 the migration period for this species, pre-construction vegetation surveys could
6 occur to verify the presence of milkweed within the Project area. However, due to
7 the abundance of similar vegetation outside of the project area, adjacent habitat
8 could provide suitable foraging habitat for this species. No long-term impacts to the
9 species or its habitat are anticipated from the Project, nor would the Proposed
10 Project be likely to contribute to a trend towards federal listing or cause a loss of
11 viability to the population or species.

12 The golden eagle is protected under BGEPA. This species or signs of this
13 species were not observed during the 2024 biological survey. Due to protections of
14 raptor species, including golden eagles, from implementation of practices outlined
15 in Suggested Practices for Avian Protection on Power Lines: The State of the Art

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1 in 2006⁵, including prevention of collisions and electrocution from potential nesting
2 or perching, the proposed project is not anticipated to cause take of individual
3 golden eagles, their nests, or eggs. In addition, if construction is scheduled to begin
4 during the Migratory Bird Treaty Act (“MBTA”) nesting season (March 1–August
5 31), a pre-construction nest survey would be conducted, including a
6 presence/absence survey of raptor nests. No long-term impacts to the species or its
7 habitat are anticipated from the Project, nor would the Proposed Project be likely
8 to contribute to a trend towards federal listing or cause a loss of viability to the
9 population or species.

10 In addition to Monarch butterfly and golden eagle with potential to occur in
11 the Project area, two burrow colonies that could be suitable for burrowing owls
12 (*Athene cunicularia*) to occupy were observed. Burrowing owls are protected under
13 MBTA. For burrowing owls, localized loss of burrows may occur as a result of
14 vegetation removal and ground-disturbing activities. To minimize impacts to
15 burrowing owls, a suite of avoidance and minimization methods would be used.

⁵ See Avian Powerline Interaction Committee (APLIC). 2006. *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006*. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C. and Sacramento, CA.

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1 For example, if construction during the migratory bird season (March–August)
2 needed to occur, SPS would be required to conduct nest surveys to identify the
3 possibility of burrowing owls nesting in or adjacent to the project area. If any nests
4 are discovered, a 75-meter avoidance buffer would be established around any active
5 nest burrow until the young have fledged. Any occupied nest burrows detected prior
6 to construction would also be spot checked for nesting activity if construction
7 occurs during the migratory bird season. No long-term impacts to the species or its
8 habitat are anticipated from the Project, nor would the Proposed Project be likely
9 to contribute to a trend towards federal listing or cause a loss of viability to the
10 population or species.

11 After construction, the Project area would be reclaimed with a NMSLO-
12 prescribed seed mix. Reclamation of the disturbed ROW is expected to return those
13 affected areas to herbaceous production within 2 years after construction. While
14 impacts to listed species would result from actions that alter habitats, no significant
15 long-term impacts to special status species are anticipated; therefore, the location
16 of the Project would not unduly impair federally or state-listed species.

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1 **Q. Please describe the EA’s evaluation and determination of the potential impacts**
2 **of the Gen-Tie Line and associated facilities on Cultural Resources (see Section**
3 **62-9-3(M)(5) and Rule 592.10(G) (i.e., cultural, historic, religious)?**

4 A. The ER established that the project location will not unduly impair important
5 environmental values regarding cultural resources. In addition, the cultural resource
6 report addresses the potential environmental impacts on cultural resources and
7 mitigation measures required to avoid impacts to cultural resources if identified
8 within the Project area during construction. The cultural resources report states that
9 no eligible or undetermined cultural sites are within the Project area. Three isolated
10 occurrences (“IOs”) were identified, however, none of the IOs meet National
11 Register of Historic Places’ criteria of eligibility.

12 In addition, the location of the Proposed Project will not unduly impair or
13 impact any Native American religious sites or traditional cultural properties,
14 prevent access to sacred sites, prevent the possession of sacred objects, or interfere
15 with or hinder the performance of traditional ceremonies or rituals. The State
16 Historic Preservation Office will review the cultural report to determine
17 concurrence with the findings. In addition, no religious resources would be unduly
18 impaired by the location of the Proposed Project.

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1 **Q. Please describe the ER's evaluation and determination of the potential impacts**
2 **of the Gen-Tie Line and associated facilities on geologic resources (see Rule**
3 **592.10(G))?**

4 A. The ER established that the project location will not unduly impair important
5 environmental values regarding geologic resources. The ER addresses the Proposed
6 Project's potential impacts to soils, paleontological resources, and geology within
7 the Project area.

8 Specific to paleontological resources, the project location would not unduly
9 impair important environmental values regarding paleontological resources. The
10 Project is in an area of low potential for a surface or subsurface paleontological
11 resource encounter. If any potential paleontological resources are observed during
12 construction, a qualified paleontologist may be consulted to assess the resource and
13 its context to subsequently advise on mitigation options.

14 Specific to soil resources, the project location would not unduly impair
15 important environmental values regarding soil resources. Five soil units are mapped
16 within the area where the Project will be located, and two soil units are considered
17 farmland of statewide importance. Direct impacts to soil resources include the loss

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1 of soil productivity due to the removal of soils for construction access roads and
2 structures.

3 Clearing of vegetation and topsoil, as well as grading, would be required
4 and these activities would result in newly exposed, disturbed soils that would be
5 subject to accelerated wind and water erosion. By using established reclamation
6 practices and reestablishing vegetation cover, SPS will minimize impacts to soils
7 and stabilize soils in areas of temporary ground disturbance. The vegetation in the
8 ROW is expected to be re-established within the Project area two years after
9 construction. Based on the protection measures to minimize the impacts to soils
10 during and after the construction phase, the Proposed Project will not unduly impair
11 soil resources.

12 **Q. Please describe the ER's evaluation and determination of the potential impacts**
13 **of the Gen-Tie Line and associated facilities on geographic resources (see Rule**
14 **592.10(G))?**

15 A. The ER established that the project location will not unduly impair important
16 environmental values regarding geologic resources. The project area is within the
17 Llano Estacado, one of the largest mesas in North America (approximately 32,000
18 square miles). This land was settled until the late 1800s for agricultural use and then

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1 in the 1930s for oil and gas development. No geographic resources such as national
2 monuments, national or state parks, BLM-determined wilderness study areas or
3 special management areas will be disturbed by this proposed project. The closest
4 cities are Lovington (10 miles north), and Hobbs (11 miles east). There would be a
5 short-term increase in traffic on local roads during the construction and
6 decommissioning phases of the project, and there would be a negligible increase in
7 traffic during the operation and maintenance phases of the project. Based on the
8 protection measures to minimize the impacts to geographic resources and traffic,
9 the Proposed Project will not unduly impair soil resources.

10 **Q. Please describe the EA's evaluation and determination of the potential impacts**
11 **of the Gen-Tie Line and associated facilities on Mineral Resources (see Rule**
12 **592.10(G))?**

13 A. The ER established that the project location will not unduly impair important
14 environmental values regarding mineral resources. The Project is east of the
15 Permian Basin and Carlsbad potash mining district; therefore, no impacts to
16 subsurface deposits would occur from the Project. In addition, no permitting or
17 registered mines are within 10 miles of the Project. Approval of the Project would
18 not impact the potential ability to access surface and subsurface minerals in that

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1 location. No impacts to subsurface oil and gas infrastructure are expected to occur
2 and no gypsum mining is proposed in the project area. SPS will coordinate with
3 any pertinent mineral or oil and gas rights holders as needed, however no plans for
4 mining are within the Project Area.

5 **Q. Please describe the EA's evaluation and determination of the potential impacts**
6 **of the Gen-Tie Line and associated facilities on noise emission levels (*see***
7 **Section 62-9-3(M)(3)?**

8 A. The ER established that the project location will not unduly impair important
9 environmental values regarding noise emissions. Noise is generally defined as loud,
10 unpleasant, unexpected, or undesired sound that is typically associated with human
11 activity and that interferes with or disrupts normal activities.⁶ Sensitive noise
12 receptors generally are defined as locations where people reside or where the
13 presence of unwanted sound may adversely affect the existing land use. Based on
14 aerial review, the sensitive noise receptors include five potentially occupied
15 residences within 6,400 feet of the Project. The nearest residence is located
16 approximately 4,195 feet west of the Project. Based on noise attenuation,

⁶ See U.S. Environmental Protection Agency, Protective Noise Levels: Condense Version of EPA Levels Document. EPA 550/9-79-100 (November 1978); Washington, D.C.: U.S. Environmental Protection Agency, Office of Noise Abatement and Control.

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1 construction equipment noise levels would be expected to dissipate to below
2 background levels (assumed to be 43 dBA) approximately 400 to 6,400 feet away
3 from the Project. The construction of the Transmission Facilities would result in a
4 temporary increase in ambient noise levels during the construction period. Short-
5 term impacts to the closest sensitive receptor may occur during the construction
6 period; however, protection measures are proposed to minimize these impacts.

7 **Q. Please describe the EA's evaluation and determination of the potential impacts**
8 **of the Gen-Tie Line and associated facilities on Socioeconomic Resources (*see***
9 **Rule 592.10(G))?**

10 A. The ER established that the project location will not unduly impair important
11 environmental values regarding socioeconomic resources. The socioeconomic
12 factors relevant to the Transmission Facilities and potential socioeconomic impacts
13 evaluated in this analysis include population, housing and occupancy, income,
14 poverty, and industry employment. The economic output associated with
15 construction employment and economic multipliers from local spending (including
16 sales tax revenue) during the construction period would have a minor beneficial,
17 short-term economic impact to the local region. Indirect spending associated with
18 the presence of construction works in and around Hobbs or other communities in

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1 Lea County would be a short-term beneficial impact for these areas' local
2 economies.

3 **Q. Please describe the EA's evaluation and determination of the potential impacts**
4 **of the Gen-Tie Line and associated facilities on health and safety (see Section**
5 **62-9-3(M)(4) (i.e. safety considerations and regulations))?**

6 A. The ER established that the project location will not unduly impair important
7 environmental values regarding health and safety. The Project and surrounding land
8 are mostly undeveloped shrub/scrubland, with some cultivated cropland as well as
9 medium-intensity development where the Project runs close to cities including
10 Lovington and Hobbs in Lea County, New Mexico. Facilities and residences within
11 approximately 5 miles of the Project include the Maddox Station Power Plant, Rene
12 Anthony's restaurant, agricultural operations, and five potentially occupied rural
13 residences that are east of the Project Area.

14 There are no known recognized health or safety environmental conditions
15 in the Project area that would present a health and safety risk from the development
16 of the Transmission Facilities. The implementation of protection measures would
17 avoid and minimize occupational and public health and safety risks during
18 construction, operations, maintenance, or decommissioning. The location of the

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1 Transmission Facilities is not expected to unduly impair important environmental
2 values regarding health and safety.

3 **Q. Please describe the EA's evaluation and determination of the potential impacts**
4 **of the Gen-Tie Line and associated facilities on water resources (including**
5 **Watersheds and Drainage) (see Rule 592.10(G) (i.e., water quality and water**
6 **resources)?**

7 A. The ER established that the project location will not unduly impair important
8 environmental values regarding water resources. The analysis of potential impacts
9 to water resources examined drainages and sensitive aquatic habitats regulated by
10 the USACE under the CWA of 1972. The surface waters in Lea County are
11 transitory and limited to quantities of runoff impounded in short drainage ways,
12 shallow lakes, and small depressions, including various playas and lagunas. SWCA
13 conducted pedestrian surveys of the Project area to determine the presence of
14 potential waters of the U.S., as defined by the USACE, including streams, wetlands,
15 and other special aquatic sites. During the survey, one artificial livestock pond was
16 observed at the southern terminus of the Transmission Facilities, however this
17 feature is outside of the Project area and due to protection measures in place, would
18 not be impacted by the proposed Project.

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1 The Proposed Project area does not intersect any Zone A 100-year flood
2 zone areas. Erosion controls would be used to prevent sediment runoff from
3 stormwater events during construction activities. The Project Area is within two
4 10-digit Hydrologic Units (Upper Monument Draw and Monument Springs-
5 Monument Draw). No New Mexico Outstanding National Resource Waters are in
6 the watersheds traversed by the Proposed Project.

7 No direct impacts to surface water features or special aquatic sites will occur
8 from the construction of the Transmission Facilities. The protection measures
9 proposed will minimize the potential for indirect adverse impacts to surface waters
10 or groundwater during construction. Construction water use will be minimal, and
11 there will be no long-term water use associated with operations and maintenance.
12 The location of the Transmission Facilities is not expected to unduly impair
13 important environmental values regarding water resources.

14 **Q. Please describe the EA's evaluation and determination of the potential impacts**
15 **of the Gen-Tie Line and associated facilities on visual resources (see Section**
16 **62-9-3(M)(5) and Rule 592.10(G))?**

17 **A.** The ER established that the project location will not unduly impair important
18 environmental values regarding water resources. SWCA completed viewshed

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1 analyses to identify and assess potential visibility of the Transmission Facilities
2 located in Lea County within the Project area. The evaluation area was defined
3 based on the design characteristics of the ROW, structures, and locations of the
4 Project components (i.e., substation), the topography of the landscape, and the
5 potential views from residential areas and highways, from the surrounding area.
6 The five potentially occupied residences located within 1.2 miles of the Project will
7 experience the greatest change in visual impact, however again with the existing
8 industrial character of the surrounding area impacts will be negligible.

9 The Transmission Facilities will add a new structural element to the
10 landscape; however, this new element will be consistent with existing infrastructure
11 in the nearby area. The level of change to the visual character of the area will be
12 low even with the close proximity of sensitive viewers because the scenic quality
13 of the existing landscape character is low. The location of the Transmission
14 Facilities is not expected to unduly impair important environmental values
15 regarding visual resources.

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

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

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1 **Q. What is your conclusion regarding whether the Cunningham Solar Facilities**
2 **and BESS will comply with air and water quality requirements?**

3 A. Based on the information included in Attachment ARM-4, it is my conclusion that
4 the Cunningham Solar Facilities and BESS will comply with air and water quality
5 requirements.

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

7 A. Yes.

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

**IN THE MATTER OF SOUTHWESTERN)
PUBLIC SERVICE COMPANY'S)
APPLICATION REQUESTING A)
DETERMINATION ON LOCATION)
APPROVAL OF TWO SOLAR FACILITIES, A)
BATTERY ENERGY STORAGE SYSTEM,)
AND A 230 KV TRANSMISSION)
GENERATION TIE LINE IN LEA COUNTY)
AND OTHER ASSOCIATED RELIEF,) CASE NO. 24-00 ____-UT
)
)
SOUTHWESTERN PUBLIC SERVICE)
COMPANY,)
)
APPLICANT.)
)
)
_____)**

VERIFICATION

On this day, March 28, 2024, I, Andrea R. McArdle, swear and affirm under penalty of perjury under the law of the State of New Mexico, that my testimony contained in Direct Testimony of Andrea R. McArdle is true and correct.

/s/ Andrea R. McArdle

Andrea R. McArdle



Biological Survey Report for the Cunningham Transmission Line Project in Lea County, New Mexico

MARCH 2024

PREPARED FOR

Southwestern Public Service Company

PREPARED BY

SWCA Environmental Consultants

BIOLOGICAL SURVEY REPORT FOR THE CUNNINGHAM TRANSMISSION LINE PROJECT IN LEA COUNTY, NEW MEXICO

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March 2024

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1 INTRODUCTION

Southwestern Public Service Company (SPS), a subsidiary of Xcel Energy Inc., is proposing to construct and operate a new 230/115-kilovolt (kV) double-circuit transmission line and a collector substation (collectively transmission facilities) to connect the proposed Cunningham Solar Projects and a 36-megawatt battery energy storage system (BESS) to the existing Cunningham Generation Substation.

The transmission facilities will be located on property managed by the New Mexico State Land Office (NMSLO) and private lands, including lands owned by SPS and lands SPS option agreement lands, in Lea County, New Mexico (Figure A-1 in Appendix A). The transmission line will total approximately 7 miles (37,116.8 feet) in length; of the 7 miles, 2.5 miles (13,195.9 feet) will be on NMSLO-managed land, and 4.5 miles (23,920.9 feet) will be on private lands. The right-of-way (ROW) will be 100 feet in width with 50 feet of temporary workspace (25 feet on either side of the ROW) for the construction of the transmission line. The Cunningham collector substation and BESS associated with the Cunningham Solar Projects will be adjacent to each other at the northern terminus of the transmission line. The 45-acre Cunningham Solar Collector Substation will be located within the 183-acre BESS and substation locations area north of the transmission line. Additional infrastructure associated with the transmission facilities will include pole structures, pull pockets, and temporary workspace areas. The disturbance from implementation of the proposed project will be a maximum of 179 acres. The area reviewed in this environmental report includes the transmission line, associated workspaces, and the area where the BESS and substation will be located, for a total acreage of 316.8 acres (Analysis Area).

The biological survey completed for this report covers the Analysis Area as well as a 100-foot buffer surrounding the proposed ROW. This Biological Survey Report (BSR) evaluates the potential effects 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 1531–1541 et seq.), state threatened or endangered species listed under the New Mexico Wildlife Conservation Act (New Mexico Statutes Annotated 17-2-41, 1978), and the state’s endangered plant species regulations (New Mexico Statutes Annotated 75-6-1, 1978). This BSR also provides a description of general site characteristics, soils, vegetation, and wildlife observed within the Analysis Area.

2 METHODOLOGY

2.1 Survey Methods

SWCA biologists Evan Hewitt and Kimberly Goering conducted a biological resources survey of the Analysis Area between February 5 and February 7, 2024. Prior to the survey, SWCA reviewed baseline data for the Analysis Area, consisting of U.S. Geological Survey (USGS) topographic maps, Natural Resources Conservation Service (NRCS) soil maps (NRCS 2024a), LANDFIRE National Vegetation Classification Version 200 (USGS 2016a), New Mexico Crucial Habitat Assessment Tool data (New Mexico Department of Game and Fish [NMDGF] and Natural Heritage New Mexico 2013), National Hydrography Dataset (NHD) geographic information system (GIS) maps (USGS 2016b), National Wetlands Inventory (NWI) maps (U.S. Fish and Wildlife Service [USFWS] 2024a), USFWS Information for Planning and Consultation (IPaC) system data (USFWS 2024b), the USFWS Critical Habitat Portal (USFWS 2024c), Biota Information System of New Mexico (BISON-M) data (BISON-M 2024), 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 (New Mexico EMNRD 2021).

During the biological resources survey, maps and shapefiles provided by SPS were used for general orientation, to locate the Analysis Area boundaries, and to create maps of the Analysis Area (see Figures A-1 and A-2).

2.2 Special Aquatic Sites and Other Waters Delineation

As part of the biological resources survey, the Analysis Area was also reviewed for the presence of special aquatic sites and potential waters of the United States (WOTUS). 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), 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/absence of wetlands were verified in the field using wetland determination methods provided in the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Great Plains Region (Version 2.0) (Regional Supplement)* (USACE 2010). Quantitative data were recorded using the Regional Supplement’s wetland determination data forms (datasheets) using indicators for the wetlands at observation points representative of the immediate vegetation community (USACE 2010) where applicable. Wetland boundaries were delineated where wetland hydrology, hydrophytic vegetation, and hydric soils were present, or where wetland indicators were disturbed or problematic (USACE 2010:Chapter 5). If NWI mapped features were present during the desktop survey, they were evaluated using datasheets during the field survey.

The presence/absence of special aquatic sites other than wetlands (sanctuaries, refuges, mud flats, vegetated shallows, and riffle and pool complexes) was determined by visual observation during the biological resource survey of the Analysis Area. The presence of playas and vegetated depressions was also investigated.

Other non-wetland surface waters, such as ephemeral and intermittent streams and perennial rivers, are determined by identifying the ordinary high-water mark (OHWM). An OHWM is the line on a shore or bank established by fluctuations of water and is typically identified 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 extent of non-wetland waters was determined in the field using the guidance and methods provided in USACE *Regulatory Guidance Letter No. 05-05, Subject: Ordinary High Water Mark Identification* (USACE 2005), and the interim version of the *National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams* (USACE 2022a).

For any OHWMs identified within the Analysis Area, field delineation crews completed the USACE OHWM data form (USACE 2010). The field delineation crews also recorded OHWM indicators on the Rapid Ordinary High Water Mark Field Identification Data Sheet (USACE 2022b). Non-wetland waters (stream and river) data were documented using the methodology described above for any OHWMs identified in the field. Additionally, for any surface water features that did exhibit an OHWM, a streamflow duration assessment was conducted in the field using the *User Manual for a Beta Streamflow Duration Assessment Method for the Great Plains of the United States* (James et al. 2023).

2.3 Species Covered in the Evaluation of Potential Impacts

The special-status species evaluated in this BSR consist of: 1) federally protected (endangered and threatened) species (USFWS 2024b); 2) additional species listed by the USFWS as candidate and proposed species (USFWS 2024b); and 3) state-listed endangered and threatened species (NMDGF and Natural Heritage New Mexico 2013; New Mexico EMNRD 2021). The potential for local species occurrence was based on: 1) existing information on distribution, and 2) qualitative comparisons of the habitat requirements of each species with vegetation communities, landscape features, and/or water quality conditions in the Analysis Area. The potential for occurrence of a species was identified using the following categories:

- *Known to occur*: The species was documented in the Analysis Area either during or prior to the biological survey by a reliable observer.
- *May occur*: The Analysis Area is within the species' currently known range, and vegetation communities, soils, and water quality conditions, among other factors, resemble those known to be used by the species.
- *Unlikely to occur*: The Analysis Area is within the species' currently known range, but vegetation communities, soils, and water quality conditions, among other factors, do not resemble those known to be used by the species, or the Analysis Area is clearly outside the species' currently known range.

The distribution of critical habitat was examined using the USFWS IPaC database (USFWS 2024b) and the USFWS Critical Habitat Mapper (USFWS 2024c).

3 RESULTS

3.1 General Characteristics

The Analysis Area is located within southeastern New Mexico near the cities of Hobbs and Lovington, New Mexico. Elevation in the Analysis Area is approximately 3,820 feet above mean sea level (amsl). The climate for this area, based on the climatic records for the Hobbs Lea County Airport, New Mexico Station in Lea County, New Mexico (Cooperative Station No. 294028), has an average annual maximum temperature of 75.6 degrees Fahrenheit (°F) and an average annual minimum temperature of 46.3°F (Western Regional Climate Center 2024). The average annual rainfall is 11.72 inches, with the majority occurring between May and October, while the average annual total snowfall is 6.70 inches, which largely occurs between November and March (Western Regional Climate Center 2024). Weather during the biological resources survey varied between approximately 42°F and 59°F, with overcast to clear conditions and winds of approximately 5 to 15 miles per hour.

3.2 Soils

According to the NRCS (2024a), five mapped soil units are present within the Analysis Area. These soil units are non-hydric, with two of them being considered farmland of statewide importance (Table 1) (NRCS 2024a).

Table 1. Soil Units in the Analysis Area

Soil Type Name	Map Unit Symbol	Farmland of Statewide Importance	Hydric Soil	Acres in Analysis Area
Arvana-Lea association	AW	Yes	No	59.1
Kimbrough gravelly loam, dry, 0 to 3 percent slopes	KU	No	No	86.8
Kimbrough loam, 0 to 3 percent slopes	KO	No	No	115.2
Kimbrough-Lea complex, dry, 0 to 3 percent slopes	KN	No	No	4.0
Portales loam, 0 to 3 percent slopes	PC	Yes	No	51.6
Total				316.8

Source: NRCS (2024a)

3.3 Vegetation

The Analysis Area is located within the High Plains: Arid Llano Estacado Level IV ecoregion (Griffith et al. 2006). LANDFIRE National Vegetation Classification version 200 (USGS 2016a) identifies nine vegetation communities within the Analysis Area with two dominant communities: Southern Plains Scrub Woodland Shrubland (30.5% of Analysis Area) and Great Plains Shortgrass Prairie (62.4% of Analysis Area). During the biological resources survey, biologists observed Chihuahuan desert grassland vegetation communities on loamy plains dominated by honey mesquite (*Prosopis glandulosa*), tobosagrass (*Pleuraphis mutica*), burrograss (*Scleropogon brevifolius*), and black grama (*Bouteloua eriopoda*). This vegetation is typical of current conditions of the High Plains ecoregion (Photographs B-1 through B-4 in Appendix B). Vegetative cover within the Analysis Area consists of approximately 1% tree cover, 30% shrub cover, 45% herbaceous cover, and 24% bare ground. The Analysis Area and surrounding landscape have been previously disturbed by overhead transmission lines and transmission infrastructure, roads, fences, cattle grazing, oil and gas development, and pipelines. Plant species recorded during the biological resources survey are listed in Table 2.

Table 2. Plant Species Observed During the Biological Survey

Common Name	Scientific Name
Black grama*	<i>Bouteloua eriopoda</i>
Blazingstar	<i>Mentzelia</i> sp.
Blue grama	<i>Bouteloua gracilis</i>
Broom snakeweed	<i>Gutierrezia sarothrae</i>
Burrograss*	<i>Scleropogon brevifolius</i>
Copper globemallow	<i>Sphaeralcea angustifolia</i>
Dakota mock vervain	<i>Glandularia bipinnatifida</i>
Green sprangletop	<i>Leptochloa dubia</i>
Hall's panicgrass	<i>Panicum hallii</i>
Honey mesquite*	<i>Prosopis glandulosa</i>
Horse crippler	<i>Echinocactus texensis</i>

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Common Name	Scientific Name
Lace hedgehog cactus	<i>Echinocereus reichenbachii</i>
Lacy tansyaster	<i>Machaeranthera pinnatifida</i>
Lehmann lovegrass	<i>Eragrostis lehmanniana</i>
Nineawn pappusgrass	<i>Erneapogon desvauxii</i>
Nipple beehive cactus	<i>Coryphantha macromeris</i>
Prickly pear cactus	<i>Opuntia</i> sp.
Prickly Russian thistle	<i>Salsola tragus</i>
Purple threeawn	<i>Aristida purpurea</i>
Rough menodora	<i>Menodora scabra</i>
Sand dropseed	<i>Sporobolus cryptandrus</i>
Seaside tansy	<i>Borrchia x cubana</i>
Siberian elm [†]	<i>Ulmus pumila</i>
Silver beardgrass	<i>Bothriochloa laguroides</i>
Silverleaf nightshade	<i>Solanum elaeagnifolium</i>
Soapweed yucca	<i>Yucca glauca</i>
Spring parsley	<i>Cymopterus</i> sp.
Streambed bristlegrass	<i>Setaria leucopila</i>
Tamarisk [†]	<i>Tamarix</i> sp.
Threadleaf ragwort	<i>Senecio flaccidus</i>
Tobosagrass*	<i>Pleuraphis mutica</i>

Note: Nomenclature follows the PLANTS Database (NRCS 2024b).

* Dominant species within vegetation community.

† Noxious weed species within vegetation community.

3.4 Noxious Weeds

During the 2024 surveys, no weed species listed as noxious by the U.S. Department of Agriculture (USDA) were observed within or around the Analysis Area (USDA 2010), however two New Mexico Department of Agriculture-listed Class C invasive species (Siberian elm [*Ulmus pumila*] and tamarisk [*Tamarix* sp.]) were observed (New Mexico Department of Agriculture 2020). Additionally, prickly Russian thistle (*Salsola tragus*) was observed during the biological resource survey. Prickly Russian thistle is not a designated noxious weed but is an introduced species to the Analysis Area and throughout New Mexico (USDA 2024). The noxious weeds observed are shown in Photographs B-5 and B-6. Protection measures, such as noxious weed washing stations, can be used to reduce the introduction of noxious, invasive, and nonnative plants. SPS will prepare a weed management plan for the project.

3.5 Wildlife

The High Plains: Arid Llano Estacado Level IV ecoregion provides habitat for a variety of wildlife species (Griffith et al. 2006). SWCA biologists detected nine bird species and six mammal species during the 2024 surveys (Table 3). In addition, two Black-tailed prairie dog (*Cynomys ludovicianus*) colonies burrow complexes were observed in the Analysis Area with burrows suitable in size for western

burrowing owls (*Athene cunicularia*) (Figure A-3; Photographs B-7 and B-8 in Appendix B). None of the species detected were special-status species.

Table 3. Wildlife Detected During the Biological Survey

Common Name	Scientific Name
Birds	
American kestrel	<i>Falco sparverius</i>
Chihuahuan raven	<i>Corvus cryptoleucus</i>
Eastern meadowlark	<i>Sturnella magna</i>
Great horned owl	<i>Bubo virginianus</i>
Lark bunting	<i>Calamospiza melanocorys</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>
Mourning dove	<i>Zenaida macroura</i>
Northern harrier	<i>Circus cyaneus</i>
Savannah sparrow	<i>Passerculus sandwichensis</i>
Mammals	
Black-tailed jack rabbit	<i>Lepus californicus</i>
Black-tailed prairie dog (burrow complex)	<i>Cynomys ludovicianus</i>
Domestic cattle	<i>Bos taurus</i>
Kangaroo rat	<i>Dipodomys</i> sp.
Pack rat (middens)	<i>Neotoma</i> sp.
Pocket gopher	<i>Geomyidae</i> sp.

3.5.1 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 both migratory and nonmigratory bird species. 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; and 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 Analysis Area for species that ground nest and nest in Chihuahuan desert shrubland and desert grassland vegetation. Various species of songbirds and raptors are common to the area and could use this habitat for nesting. During the 2024 surveys, nine bird species were detected (see Table 3), and 12 nests were observed (Table 4), one of which was active with an adult great horned owl (*Bubo virginianus*) on it. Additionally, two burrow complexes were observed with burrows suitable in size for western burrowing owls. Photographs of burrows and nests are provided in Photographs B-7 through B-11.

Table 4. Nests Detected During the Biological Survey

Nest ID	Status	Condition*	Species
N01	Inactive	Poor	Mourning dove (<i>Zenaida macroura</i>)
N02	Inactive	Poor	Mourning dove
N03	Inactive	Poor	Raptor sp.
N04	Inactive	Poor	Unknown
N05	Inactive	Fair	Raptor sp.
N06	Inactive	Fair	Raptor sp.
N07	Inactive	Fair	Raptor sp.
N08	Inactive	Fair	Raptor sp.
N09	Inactive	Fair	Raptor sp.
N10	Active	Good	Great horned owl (<i>Bubo virginianus</i>)
N11	Inactive	Poor	Raptor sp.
N12	Inactive	Poor	Raptor sp.

*Nest condition definitions: Good = a bird could easily use the nest as it is; Fair = a bird could use the nest with minor repairs; Poor = a bird would not be able to use the nest without major repairs.

3.5.2 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 (BGEPA). New Mexico's bald eagle population is mostly migratory, with only a handful of nesting pairs occurring in Colfax and Sierra Counties (NMDGF 1996). The species is relatively common in the winter and during migration along water courses and reservoirs. In New Mexico, bald eagles typically nest in large trees, often ponderosa pine (*Pinus ponderosa*) or cottonwood (*Populus* spp.), with exposed branches strong enough to support their large nests. Foraging areas have tall, easily accessible trees for perching. Most perch trees are live trees, although dead trees are preferred if available (BISON-M 2024; Stahlecker and Walker 2010). Golden eagles are typically found in mountainous regions of open country, prairies, arctic and alpine tundra, open wooded areas, and barren areas. The species is a year-round resident in open country and desert grasslands throughout most of New Mexico and nests from 4,000 to 9,500 feet amsl (Cartron 2010). Golden eagle nesting habitat is typically associated with rock ledges and cliffs greater than 100 feet high in the vicinity of suitable grassland and shrubland foraging habitat. Although this occurs infrequently, golden eagles may also use tall human-made structures if other more suitable nesting sites are not available. The species has been known to build nests in human-made structures such as windmills, observation towers, nesting platforms, and transmission towers, although this tends to be less frequent (Katzner et al. 2020).

Both bald and golden eagles are carnivores. Bald eagles prey on fish but also on mammals, especially prairie dogs. Golden eagles forage in arid, open country with grasslands, and feed mainly on small mammals, as well as invertebrates, carrion, and other wildlife (BISON-M 2024; Stahlecker and Walker 2010).

Although perching structures (transmission lines) are in the vicinity of the Analysis Area and mammal burrows were present in the Analysis Area and vicinity, the habitat in and surrounding the Analysis Area is not ideal foraging habitat for bald eagles due to the lack of riparian corridors; therefore, it is unlikely that bald eagles inhabit the Analysis Area. The nearest topographic features that may be suitable for golden eagle nesting habitat are approximately 50 miles to the west of the Analysis Area. With the

presence of existing transmission poles for perching as well as the presence of prairie dog burrows within grassland and shrubland vegetation communities, the Analysis Area does contain available foraging and potential human-made nesting habitat for golden eagles; therefore, golden eagles could inhabit the Analysis Area. However, no bald or golden eagle individuals were observed during the 2024 biological resources surveys of the Analysis Area.

3.6 Special Aquatic Sites and Other Waters

The Analysis Area falls within two hydrologic units (USGS 2020) (Table 5). According to the Federal Emergency Management Agency (FEMA) Flood Map Service Center data, the entirety of the Analysis Area falls within a Zone D (Area of Undetermined Flood Hazard) mapped floodplain (FEMA 2024).

Based on review of the NHD (USGS 2016b) and NWI (USFWS 2024a), there are two NHD-mapped waterbody features coinciding with two NWI-mapped freshwater pond features, within the Analysis Area. During the 2024 aquatic resources delineation survey, the presence/absence of NHD- and NWI-mapped surface water features, as well as any unmapped surface water features or potential WOTUS, was confirmed. No potentially jurisdictional WOTUS features were confirmed present during the aquatic resources delineation survey of the Analysis Area. The field survey in February 2024 confirmed one of the two NHD/NWI features was not actually intersecting the Analysis Area as mapped by NHD and NWI but was an artificial pond located outside the Analysis Area. The second NWI-freshwater pond/NHD-waterbody feature was identified in the field as an artificially constructed pond or depression (P-01) and did not exhibit a strong, reliable, or consistent OHWM or meet three-parameter wetland criteria (Figure A-4 and Photograph B-12). No other potentially jurisdictional WOTUS features, including wetland or non-wetland water features, were observed within the Analysis Area.

Table 5. Hydrologic Units within the Analysis Area

Hydrologic Unit Name	Hydrologic Unit Code (HUC-10)
Upper Monument Draw	1208000306
Monument Springs-Monument Draw	1307000701

3.7 List of Special-Status Species

The federally listed and state-listed species with the potential to occur in Lea County, New Mexico, are listed in Table 6 (BISON-M 2024; USFWS 2024b). One special-status species—the monarch butterfly (*Danaus plexippus plexippus*)—may occur in the Analysis Area (see Section 3.7.1). The remaining species are not likely to occur in the Analysis Area due to lack of suitable habitat for each species and the project being outside the known range of some of the species.

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Table 6. Special-Status Species Listed for Lea County, New Mexico

Common Name (scientific name)	Status*	Range or Habitat Requirements	Potential for Occurrence in Analysis Area
Plants			
Tharp's blue-star (<i>Amsonia tharpii</i>)	NM E†	This species occurs in well-drained limestone and gypsum hills in Chihuahuan desertscrub communities between 3,100 and 3,500 feet amsl (New Mexico Rare Plant Technical Council 1999). The species' range occurs within Eddy County, New Mexico, and Pecos County, Texas.	Tharp's blue-star was investigated due to the overlap with the Bureau of Land Management's suitable habitat model for this species and to comply with the revised NMAC 19.21.2 Plant Rule. Although limestone soils are present within the Analysis Area, no limestone or gypsum hills are present as the Analysis Area is on a flat plain, thus the species is unlikely to occur due to lack of suitable habitat. Additionally, the Analysis Area is not in the species' known distribution range or within the species required elevation range.
Invertebrates			
Monarch butterfly (<i>Danaus plexippus</i> <i>plexippus</i>)	USFWS C	In New Mexico, the migration peaks in April and subsides by mid-May. Breeding occurs within the state, and a new generation matures in New Mexico by July. As breeding continues, peak in-state population numbers are reached in August and September. The southward migration back to Mexico begins in late August and September. During the breeding season in New Mexico, the monarch requires milkweed species (Family Asclepiadaceae) as a food source for the young caterpillars (Cary and DeLay 2016). Overall, monarchs seem to be most abundant in southeast New Mexico. There is currently no evidence that monarchs overwinter in New Mexico.	May occur within the Analysis Area during migration from April through October. Foraging may also occur due to the presence of a diversity of flowering plants during breeding periods. No monarch butterflies or milkweed species were observed during the 2024 biological resources survey. However, the biological survey occurred outside of the milkweed detection period (generally March–October).
Texas hornshell (<i>Popenaias popeii</i>)	USFWS E	Historically, this species occurred in the Pecos–Rio Grande drainage. Currently, this species is found in four distinct locations: 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 Candidate Conservation Agreement. Associated with larger streams and a variety of substrates, it imbeds itself in softer bottoms, but also lodges itself in cracks and crevices, where it is probably immobile. Proposed critical habitat exists in Eddy County, New Mexico.	Unlikely to occur within the Analysis Area due to the lack of suitable stream habitat. Additionally, the Analysis Area is outside the occupied range for the species.
Reptiles			
Dunes sagebrush lizard (<i>Sceloporus arenicolus</i>)	NM E	A habitat specialist native to the shinnery oak (<i>Quercus havardii</i>) sand dune habitats extending from San Juan Mesa in northeastern Chaves County, Roosevelt County, and through eastern Eddy and southern Lea Counties. 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 its geographic range, the presence of this species is also associated with composition of the sand; this species only occurs at sites with relatively coarse sand.	Unlikely to occur within the Analysis Area due to the lack of active dune complex habitat and because it is outside the species' known range. The nearest known suitable habitat and occupied areas are 15 to 19 miles southwest of the Analysis Area.

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Common Name (scientific name)	Status*	Range or Habitat Requirements	Potential for Occurrence in Analysis Area
Birds			
Baird's sparrow (<i>Ammodramus bairdii</i>)	NM T	A winter resident in New Mexico, the Baird's sparrow has been found on Otero Mesa and in the Animas Valley and may occur in other areas of suitable winter habitat, particularly in the southern portion of New Mexico. Generally, prefers dense, extensive grasslands with few shrubs. Avoids heavily grazed areas.	Although desert grassland habitat is present within the Analysis Area, shrub cover is likely too dense and grass cover is grazed and likely not dense enough for the species. Additionally, the Analysis Area is outside the species' known habitat range.
Bald eagle (<i>Haliaeetus leucocephalus</i>)	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 the winter months, the species is found chiefly along or near rivers and streams and in grasslands associated with large prairie dog (<i>Cynomys</i> sp.) colonies. Typically perches in trees.	Unlikely to occur within the Analysis Area due to the lack of perennial waterbodies or rivers, and large nesting trees.
Bell's vireo (<i>Vireo bellii</i>)	NM T	In New Mexico, this species occurs in the southern third of the state during the breeding season. This species characteristically occurs in dense shrubland or woodland along lowland stream courses with willows (<i>Salix</i> sp.), mesquite (<i>Prosopis</i> sp.), and seepwillows (<i>Baccharis salicifolia</i>). Its distribution during breeding is typically limited to riparian habitats.	Unlikely to occur within the Analysis Area due to the lack of dense shrubland or woodlands along perennial streams. The Analysis Area is also outside of the species' known distribution range.
Broad-billed hummingbird (<i>Cynanthus latirostris</i>)	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 within the Analysis Area due to the lack of riparian habitat or dense mesquite in canyons. The Analysis Area is also outside of the species' known distribution range.
Least tern (<i>Sterna antillarum</i>)	NM E	A migratory species occurring in North America during the breeding season where it is associated with water (e.g., lakes, reservoirs, and rivers). In New Mexico, breeding is restricted to the Pecos River Basin, primarily at Bitter Lake National Wildlife Refuge in Chaves County. Suitable habitat along rivers consists of bare sandy shorelines and salt flats.	Unlikely to occur within the Analysis Area due to the lack of perennial waterbodies.
Lesser prairie-chicken (<i>Tympanuchus pallidicinctus</i>)	USFWS E	This species occurs in southeastern New Mexico, primarily in shinnery oak or sand sagebrush (<i>Artemisia filifolia</i>) grasslands. Also occurs in shinnery oak–bluestem habitats dominated by sand bluestem (<i>Andropogon hallii</i>), little bluestem (<i>Schizachyrium scoparium</i>), sand dropseed (<i>Sporobolus cryptandrus</i>), threeawn (<i>Aristida</i> sp.), and blue grama (<i>Bouteloua gracilis</i>).	Unlikely to occur within the Analysis Area due to the lack of suitable shinnery oak, sand sagebrush, and shinnery oak–bluestem habitats. In addition, the Analysis Area is outside of the species' estimated occupied range which occurs approximately 78 miles north of the Analysis Area (USFWS 2021).

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Common Name (scientific name)	Status*	Range or Habitat Requirements	Potential for Occurrence in Analysis Area
Northern aplomado falcon (<i>Falco femoralis septentrionalis</i>)	USFWS EXPN NM E	Associated with semi-desert grasslands with scattered yuccas (<i>Yucca</i> spp.), mesquite, and cacti and less than 10% shrub cover (Meyer and Williams 2005). Naturally occurring populations are essentially restricted to northern Mexico near Chihuahua and along the south Texas Gulf Coast. The species had been reintroduced in New Mexico on the Armendaris Ranch in Socorro and Sierra Counties and on land administered by the Bureau of Land Management, White Sands Missile Range, and the NMSLO beginning in 2006 (Hunt et al. 2013). This reintroduction was largely unsuccessful. However, Chihuahuan desert grasslands of southern New Mexico provide suitable habitat for individuals dispersing from Mexico and may be suitable for future reintroduction efforts (Shaw 2020).	Although grassland habitat is present in the Analysis Area, it is not extensive enough where tree/shrub cover density requirements are met, thus the species is unlikely to occur within the Analysis Area.
Peregrine falcon (<i>Falco peregrinus</i>)	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 Analysis Area due to the lack of cliff habitat needed for nesting and perennial waterbodies.
Southwestern willow flycatcher (<i>Empidonax traillii extimus</i>)	USFWS E NM E	Breeds and migrates through relatively dense riparian tree and shrub communities associated with rivers, swamps, and other wetlands, including lakes and reservoirs. This subspecies nests in native vegetation but also uses thickets dominated by non-native tamarisk (<i>Tamarix</i> spp.) and Russian olive (<i>Elaeagnus angustifolia</i>) or in mixed native and nonnative stands of vegetation. Breeding habitat generally include dense tree or shrub cover that is over 10 feet tall with dense twig structure and high levels of green foliage; many patches with tall canopy vegetation also include dense midstory vegetation in the 7- to 16-foot range. In New Mexico, it is known to breed along the Gila River and the Rio Grande.	Unlikely to occur within the Analysis Area due to the lack of dense riparian habitat. Additionally, the Analysis Area is not in the species' known distribution range.
Mammals			
Tricolored bat (<i>Perimyotis subflavus</i>)	USFWS proposed E	Suitable spring, summer, and fall habitat consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields, and pastures. When not hibernating, tricolored bats roost in leaf clusters along branches of deciduous trees but will use pine trees. Tricolored bats will also roost in human-made structures, such as bridges and culverts, and occasionally in barns or the underside of open-sided buildings. In the winter, tricolored bats may roost in caves, mines, and culverts. In southern New Mexico, they may exhibit shorter torpor bouts and remain active and feed year-round. This species has been decimated by white-nose syndrome.	Unlikely to occur within the Analysis Area due to a lack of wooded, riparian, and edge habitats. Additionally, the Analysis Area is not in the species' known distribution range.

Sources: Range and habitat information for wildlife species is taken from the BISON-M website (BISON-M 2024), NatureServe (2024), and the USFWS IPaC System (USFWS 2024b).

*The federal (USFWS) and/or state of New Mexico (NM) status definitions are: C = candidate (federal only); E = endangered; EXPN = experimental (federal only); T = threatened.

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

3.7.1 Monarch Butterfly

The monarch butterfly (*Danaus plexippus plexippus*) is designated as a USFWS candidate species (USFWS 2024b). In addition, this species is under review by USFWS and a proposed rule to list the species is likely to occur in 2024 (*Federal Register* 88:41560). This species is a candidate for listing due to the decline in populations across North America resulting from habitat reduction and fragmentation. Candidate species receive no statutory protection under the ESA. The USFWS encourages cooperative conservation efforts for these species because they are, by definition, species that may warrant future protection under the ESA. However, if this species receives a proposed listing in 2024, ESA compliance would be required and may include species-specific surveys, habitat assessments, mitigation planning, and consultation with the USFWS under Section 7 of the ESA.

The monarch butterfly 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 the breeding season during the warmer months of April to October but is not known to overwinter within the state (Cary and DeLay 2016). The species is especially tied to the presence of milkweed species (Family Asclepiadaceae) during the breeding season since milkweed species are the sole source of food for monarch caterpillars (BISON-M 2024).

No monarch butterflies or milkweed species were directly observed during the 2024 surveys of the Analysis Area; however, surveys took place outside of the milkweed growing season and outside of the monarch activity season in New Mexico. Adult butterflies may occur here based on the annual migratory path. The Analysis Area provides suitable foraging habitat for this species because of the presence of nectar-producing flowering plants.

4 IMPACT ANALYSIS AND CONCLUSIONS

Impacts to wildlife and vegetation would result from actions that alter wildlife habitats, including changes to vegetation and disturbance from the removal of up to 179 acres of vegetation. 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, increased human activity, and the presence of fugitive dust.

4.1 General Wildlife

The proposed project would result in up to 179 acres of surface disturbance during construction of the project. However, the Analysis Area and surrounding area have been previously disturbed by cattle grazing, oil and gas development, roads, and transmission lines; therefore, the use by wildlife is likely to be low. In addition, the project will parallel New Mexico State Route 483 for the majority of the transmission line ROW. Direct impacts to wildlife from construction would include the removal 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 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 project would contribute the highest noise levels. Short-term disturbances associated with construction light and noise would cause individuals to move from the Analysis Area to similar suitable habitat within the surrounding landscape. However, these impacts would not result in population-level

effects. Two burrow complexes were observed during the biological resources survey, and it is recommended that these burrows be avoided.

Operations activities would occasionally include noise disturbances that would temporarily displace wildlife in the Analysis Area and vicinity. Affected individuals would be able to shift use to adjacent land. Long-term impacts to wildlife species would be negligible and unlikely to result in population-level effects.

4.2 Vegetation and Noxious Weeds

The work area would be cleared of vegetation and graded to facilitate the construction of the project only to the extent necessary (up to 179 acres). Further impacts to vegetation would occur as a result of deposition of fugitive dust generated during clearing and grading activities, vehicle travel in the ROW, and wind erosion of exposed soils. This could reduce photosynthesis and productivity, increase water loss (Eveling and Bataille 1984), and result in injury to leaves of plants near the Analysis Area. Localized fugitive dust could be generated from the areas of disturbed soil from blading associated with construction. Plant community composition could subsequently be altered, resulting in habitat degradation. Localized impacts to plant populations and communities could occur if seed production in some plant species is reduced. Construction traffic and equipment brought to the site also represent a pathway for the introduction and spread of noxious weeds and invasive species. SPS will implement preventative and control measures to reduce the introduction of noxious, invasive, and nonnative plants. Weed management would align with the control methods for the listed invasive and noxious plant species outlined within the New Mexico State's Noxious and Troublesome Weeds of New Mexico booklet (Beck and Wanstall 2021).

Post-construction, interim reclamation would occur in areas not needed for long-term operations and maintenance. SPS will reclaim disturbed areas according to the restoration plan that will be developed after disturbance occurs using best management practices for revegetation and erosion control measures. SPS will work with the NMSLO to take measures to discourage the existing service roads from being used as public access roads (if necessary). Excavated material not used in the backfilling of poles will be spread around each pole, hauled off-site, or transported as fill to other locations where needed. In newly disturbed areas, soil will be salvaged, distributed, and contoured evenly over the surface of the disturbed area after construction is complete. The soil surface will be left rough to help reduce potential wind erosion.

4.3 Special Aquatic Sites and Other Waters

No potentially jurisdictional WOTUS features were confirmed present during the biological resources survey of the Analysis Area. Artificial lakes or ponds, created by excavating or diking dry land, that are used exclusively for such purposes as stock watering, irrigation, or settling basins are typically excluded from WOTUS jurisdiction; therefore, direct impacts to aquatic resources are not anticipated. The potential to impact water resources indirectly could occur due to stormwater runoff from construction activities into downstream aquatic resources. A stormwater pollution prevention plan (SWPPP) would be developed and implemented for construction, which would meet the National Pollutant Discharge Elimination System permit requirements of the U.S. Environmental Protection Agency and New Mexico Environment Department Surface Water Quality Bureau for construction stormwater discharges in New Mexico. The SWPPP would include several measures to control runoff and to reduce erosion and sedimentation at construction sites. Stormwater controls, including erosion and sediment controls and pollution prevention controls identified in the SWPPP, would be installed and maintained during construction to reduce the potential discharge of pollutants to surface waters from construction activities.

4.4 Migratory Bird Treaty Act

During SWCA's biological resources survey of the Analysis Area, nine bird species were detected (see Table 3). Suitable nesting habitat for migratory birds is present in the Analysis Area as evidenced by the presence of 12 nests, including one active nest (see Table 4; Figure A-3; Photographs B-9 through B-11). The shrubland and grassland habitat with mixed forbs and vertical structures, such as electrical poles, provides nesting habitat for a variety of species. Additionally, two burrow complexes were detected in the Analysis Area that could be suitable for burrowing owls to occupy. It is recommended that these burrows be avoided (see Figure A-3; Photographs B-7 and B-8).

Incidental mortality or displacement of migratory bird species is possible on a local scale due to short-term construction activities and long-term ground disturbance. However, many birds occurring locally would likely move into adjacent habitat in response to disturbance. Adult migratory birds would not likely be directly harmed by the transmission facilities because of their mobility and ability to avoid areas of human activity. Additionally, based on the abundance of similar habitat in the surrounding area, the potential for adverse impacts on bird populations that use this habitat type within the Analysis Area would be low.

Operation of the transmission facilities, inclusive of transmission poles within the Analysis Area and adjacent transmission lines outside of the Analysis Area, could also present electrocution risk to avian wildlife; however, this risk is very low because the facilities are designed to discourage their use as perching or nesting substrates by birds, including designing aboveground transmission lines by following the established Avian Power Line Interaction Committee (APLIC) guidelines (APLIC 2006) to minimize bird collisions and avoid electrocution of raptors. Some examples of commonly used protections include providing adequate separation between energized components and grounded components, and covering components or grounds when adequate separation is not feasible (APLIC 2006). SPS would determine appropriate measures once the final design of the transmission facilities is developed.

Compliance with the MBTA will be met for the proposed project through the implementation of measures to avoid construction-related impacts to active nests and burrowing owl burrows during the breeding season (March 1–September 15). This includes preconstruction nest surveys up to 2 weeks prior to vegetation removal, training construction crews on actions to take in the event active nests are found in the Analysis Area, establishing nest buffers, and avoiding nests until birds have fledged.

4.5 Bald and Golden Eagle Protection Act

Due to the lack of riparian woodland habitat, large trees near water sources, and the rarity of nest sites in New Mexico, it is unlikely that the proposed project will impact bald eagle breeding, nesting, or foraging activities or lead to take. Due to the presence of grassland and shrubland vegetation types as well as the presence of small mammal burrows, it is likely that golden eagles could forage within and near the proposed project. Additionally, large transmission poles within the Analysis Area could provide potentially suitable nest and perching site locations for the species; however, more prime suitable nesting habitat may be preferred.

Operation of the transmission facilities, inclusive of transmission poles within the Analysis Area and adjacent transmission lines outside of the Analysis Area, could present collision risks as well as electrocution risks to golden eagles; however, these risks are very low because the facilities are designed to discourage their use as perching or nesting substrates by birds, including designing aboveground transmission lines by following the established APLIC guidelines (APLIC 2006) to minimize bird collisions and avoid electrocution of raptors.

If deemed necessary, compliance with the BGEPA will be met for the proposed project through obtaining a recently established USFWS general permit to authorize eagle incidental take caused by powerline infrastructure under the 2024 Revised Eagle Rule (USFWS 2024d). The terms of a general permit, if approved by USFWS, include considering eagles in project siting and design; ensuring that all poles constructed in high-risk areas are avian safe; and the development of the following four strategies (USFWS 2024d):

- *Collision response strategy* describes the process to identify collision-caused mortality events, evaluate factors, and implement risk-reduction strategies.
- *Proactive retrofit strategy* describes how existing infrastructure will be converted to avian-safe within a set timeline. Investor-owned utilities must have a 50-year proactive retrofit strategy to convert poles in high-risk eagle areas to avian-safe; therefore, 10 percent of poles in high-risk eagle areas must be converted during each general-permit 5-year tenure. High-risk eagle areas occur where eagles are likely to be present and interact with power line infrastructure. Conversely, low-risk eagle areas occur where eagles are not present or unlikely to interact with power line infrastructure, such as urban areas. Applicants will be responsible for the assessment of high-risk eagle areas, based on this standard. A collision-response strategy must be implemented for all eagle collisions with power lines. If an eagle collision is detected, a strategy must outline the steps to identify and assess the collision, consider options for response, and implement a response.
- *Reactive retrofit strategy* describes how infrastructure will be retrofit to avian-safe in response to an eagle electrocution or death. A total of 13 poles or a half-mile segment of line must be retrofit. The typical pole selection is the pole that caused the electrocution and six poles in each direction. However, if retrofitting other poles in the circuit provides more benefit to eagles, those poles may be retrofitted by prioritizing the highest risk poles closest to the electrocution event.
- *Shooting response strategy* describes the process the permittee follows when eagles are found killed or injured near power line infrastructure to identify if shooting is suspected, communicate with law enforcement, and identify and implement appropriate shooting-reduction strategies.

General permits for power line entities are valid for 5 years from the date of registration. Upon expiration of a general permit, a project applicant may reapply and obtain a new 5-year general permit. General permits cannot be amended during each 5-year term. For general permits USFWS adopts a scaled administration-fee structure to accommodate different sizes of projects, and general permit administration fees are separated into Tier 1 for non-investor-owned utilities and Tier 2 for investor-owned utilities. The average cost for powerline entity general permits under the revised rule is a \$1,000 application fee, \$2,500 administration fee for Tier 1 power line entities, and \$10,000 administration fee for Tier 2 power line entities (USFWS 2024d).

Compliance with the BGEPA and MBTA will also be met for the proposed project through the implementation of measures to avoid construction-related impacts to active nests during the MBTA breeding season (March 1–September 15). This includes preconstruction nest surveys up to 2 weeks before construction, establishing nest buffers, and avoiding nests until birds have fledged. During the Southwestern U.S. eagle breeding season (December –August), a qualified biologist would be contacted to verify the nesting activity if any potential eagle nests are observed.

4.6 Special-Status Species

One federally listed candidate species (monarch butterfly) has the potential to occur in the Analysis Area but was not observed during the biological survey. The monarch butterfly is a candidate species and is not

currently protected under the ESA or by the State of New Mexico as threatened or endangered. Vegetation removal in the project area may impact monarch butterfly foraging habitat. However, the vegetation within the Analysis Area is similar to surrounding habitat; therefore, monarch butterflies could utilize adjacent habitat for foraging purposes. Additionally, if monarch butterflies are encountered during construction, a qualified biologist would be notified to determine if monarch butterflies breeding within the Analysis Area. To reduce impacts to potential foraging habitat, SPS would include pollinator-friendly species, including milkweed, in the seed mix for revegetation. There are no USFWS-designated critical habitats within the Analysis Area or its vicinity.

5 LITERATURE CITED

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APPENDIX A

Project Maps

Biological Survey Report for the Cunningham Transmission Line Project in Lea County, New Mexico

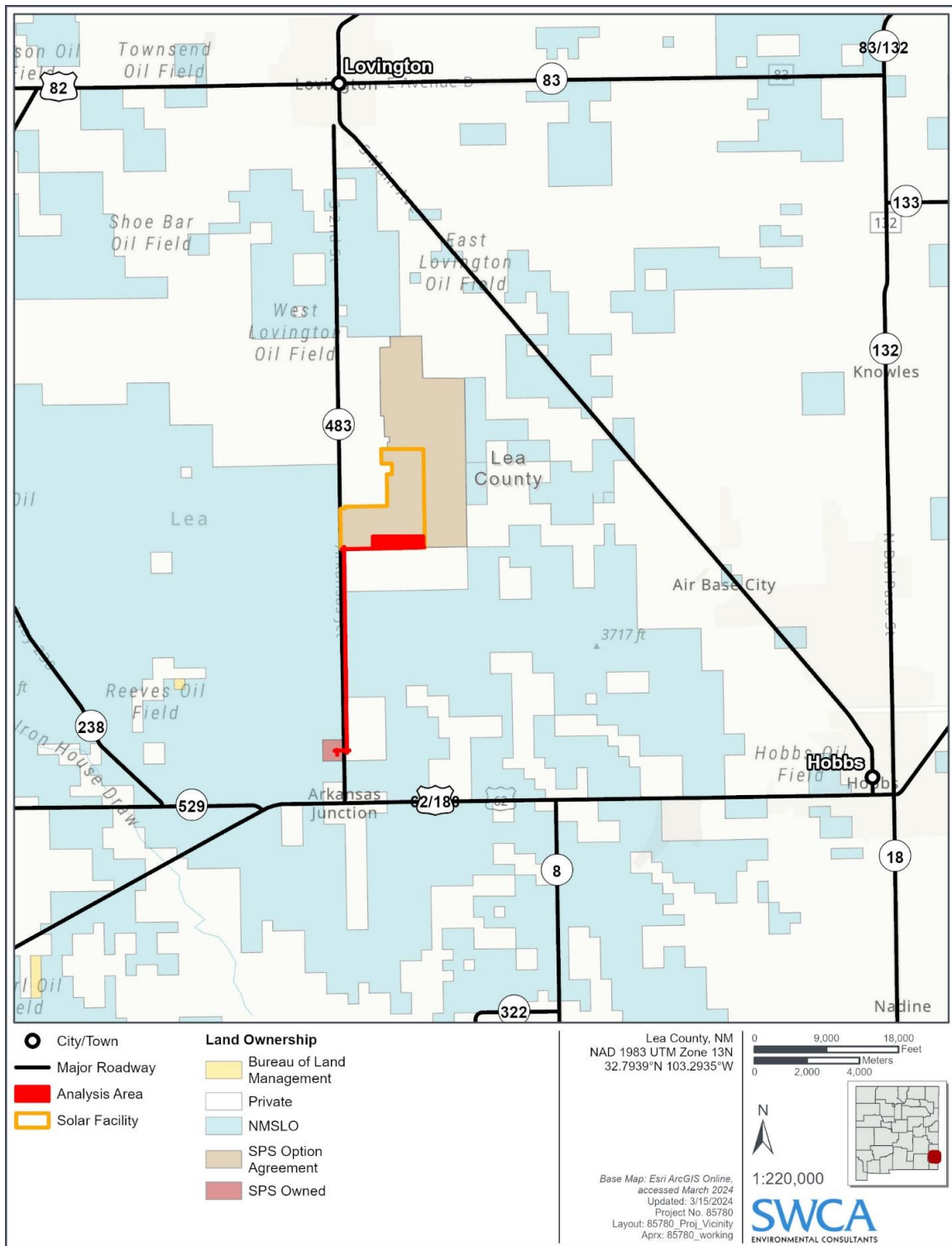


Figure A-1. Project vicinity map.

Biological Survey Report for the Cunningham Transmission Line Project in Lea County, New Mexico

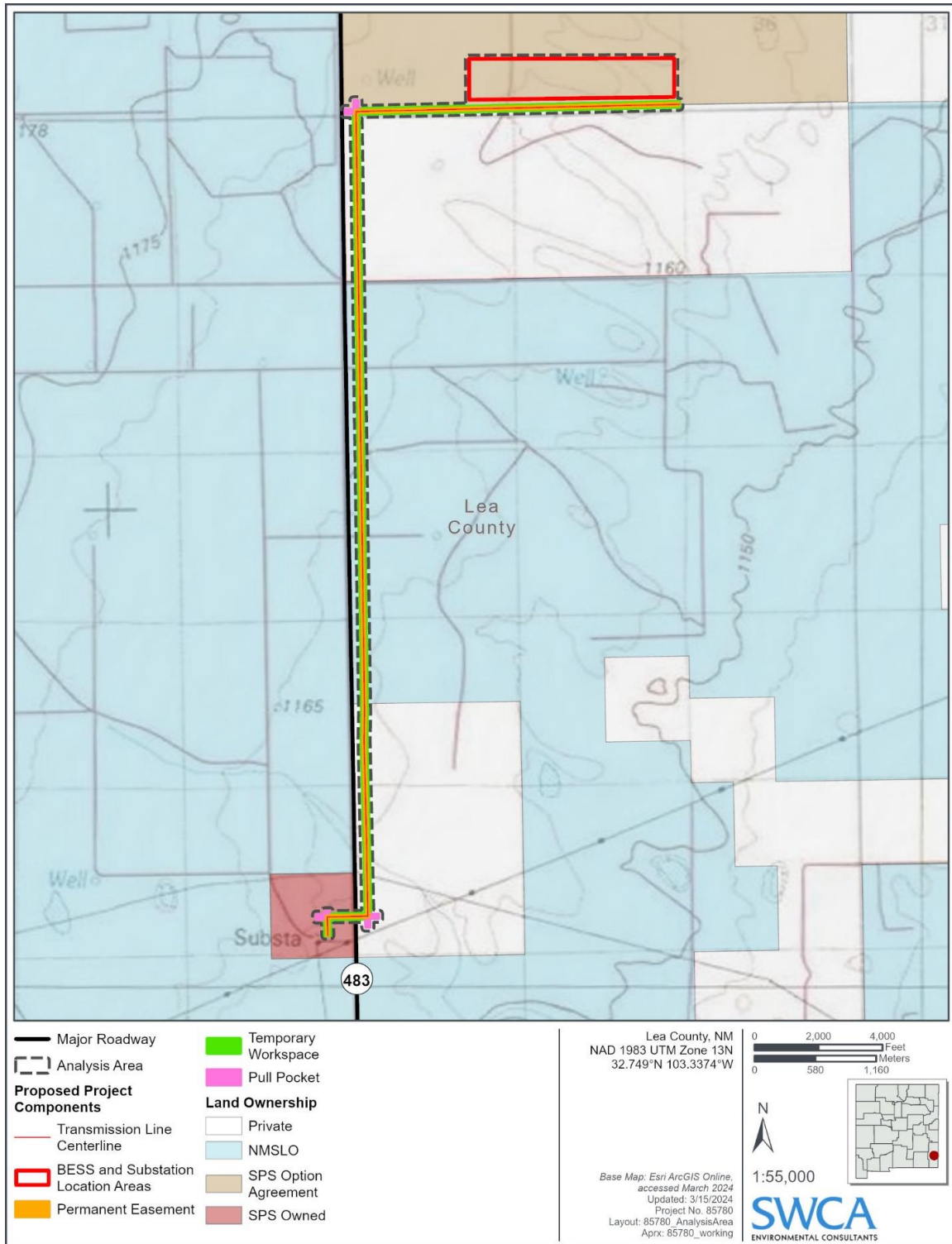


Figure A-2. Analysis Area map.

Biological Survey Report for the Cunningham Transmission Line Project in Lea County, New Mexico

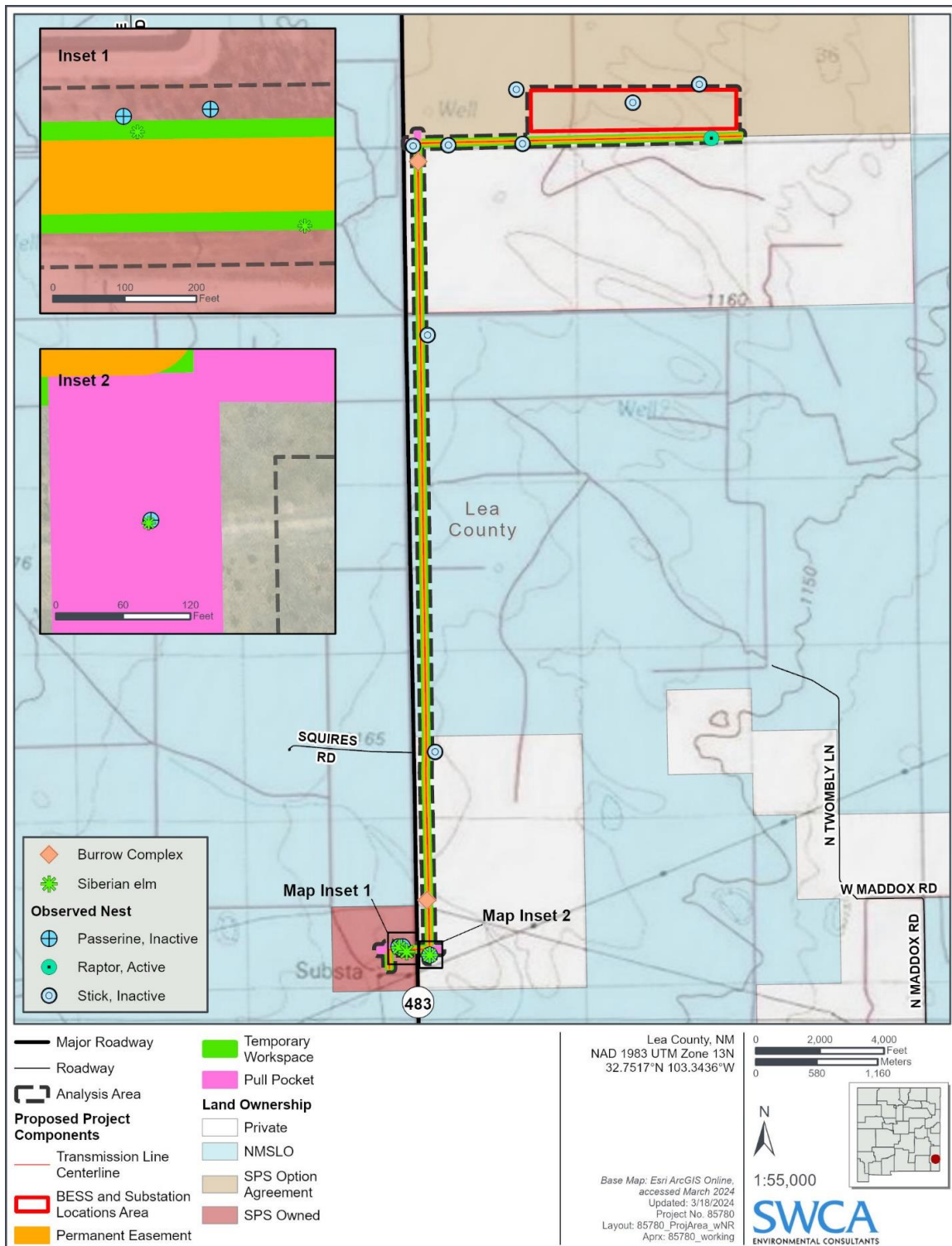


Figure A-3. Map of the Analysis Area and biological resources observed.

Biological Survey Report for the Cunningham Transmission Line Project in Lea County, New Mexico

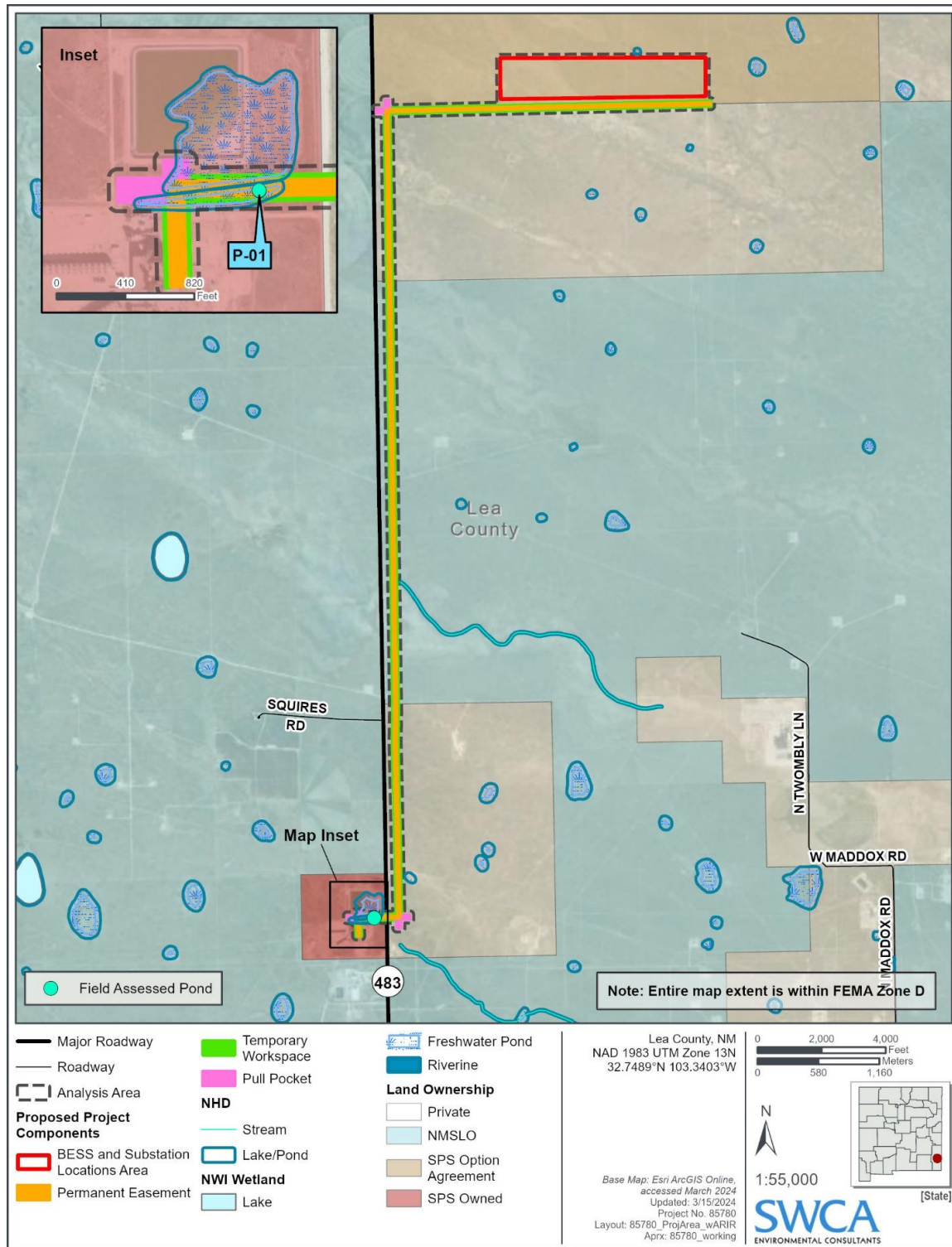


Figure A-4. Map of the Analysis Area and aquatic resources observed.

Biological Survey Report for the Cunningham Transmission Line Project in Lea County, New Mexico

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APPENDIX B
Project Photographs

Biological Survey Report for the Cunningham Transmission Line Project in Lea County, New Mexico



Photograph B-1. View of Chihuahuan desert grassland vegetation community in the Analysis Area, facing south.



Photograph B-2. View of Chihuahuan desert grassland vegetation community in the Analysis Area, facing east.



Photograph B-3. View of Chihuahuan desert grassland vegetation community and adjacent disturbance in the Analysis Area, facing north.



Photograph B-4. View of Chihuahuan desert grassland vegetation community and adjacent disturbance in the Analysis Area, facing north.



Photograph B-5. View of Siberian elm (*Ulmus pumila*), a Class C noxious weed, in the Analysis Area, facing north.



Photograph B-6. View of tamarisk (*Tamarix* sp.), a Class C noxious weed, in the Analysis Area, facing north.



Photograph B-7. View of burrow complex observed in the Analysis Area with five to 10 entrances and burrows suitable in size for western burrowing owl, facing northeast.



Photograph B-8. View of burrow complex observed in the Analysis Area with five to 10 entrances and burrows suitable in size for western burrowing owl, facing west.



Photograph B-9. View of an active raptor nest (great-horned owl [*Bubo virginianus*]) in the Analysis Area, in good condition on utility pole, facing south.



Photograph B-10. View of an inactive raptor nest in poor condition in honey mesquite (*Prosopis glandulosa*) in the Analysis Area, facing southeast.



Photograph B-11. View of an inactive passerine nest in poor condition, in Siberian elm in the Analysis Area, facing north.



Photograph B-12. View of artificially constructed pond (P-01) in Analysis Area that did not exhibit an OHWM or meet wetland criteria.

NMCRIS Investigation Abstract Form (NIAF)

NMCRIS Activity No. 154825

HPD Log No(s).

Registration

Lead Agency: NM State Land Office

Performing Agency: SWCA Environmental Consultants

Activity ID: 85780

Performing Agency Report No: 24-96

Other Agencies:

Report Recipient (Your Client): Southwestern Public Service Company (SPS), a subsidiary of Xcel Energy Inc.

Activity Types: Research Design Archaeological Survey/Inventory
 Architectural Survey/Inventory Test Excavation Monitoring
 Collections/Non-Field Study Compliance Decision
 Literature Review Overview Excavation Ethnographic Study
 Resource/Property Visit Historic Structures Report
 Other:

Total Survey Acreage: 90.88

Total Tribal Acreage: 0.00

Total Resources Visited: 0

NMCRIS Investigation Abstract Form (NIAF)

NMCRIS Activity No. 154825

HPD Log No(s).

Associate/Register Resources

Prefix	Number	Field Site/Other Number	In GIS	Resource Type	Collections Made?	Revisit
--------	--------	-------------------------	--------	---------------	-------------------	---------

Report run on: Feb 07, 2024 08:10 AM

NMCRIS Investigation Abstract Form (NIAF)

NMCRIS Activity No. 154825

HPD Log No(s).

Report Details

Lead Agency

Lead Agency: NM State Land Office

Lead Agency Report No.

Report Number:

Title of Report

Title of Report: A Cultural Resources Survey for the Cunningham Transmission Line Project in Lea County, New Mexico.

Authors: Mara Smith and Jacob Borchardt

Type of Report

Publication Type: Report, Monograph, or Book
Negative

Description of Undertaking (what does the project entail?)

Description: Southwestern Public Service Company (SPS), a subsidiary of Xcel Energy Inc., contracted SWCA Environmental Consultants (SWCA) to conduct an intensive cultural resources pedestrian survey in support of the Cunningham Transmission Line Project. This proposed work is in Lea County, approximately 10 miles west of Hobbs, New Mexico. Project components consist of approximately 7 miles of new 230/115-kilovolt double circuit transmission line, one substation, and six pull pockets (Analysis Area). The transmission line would be constructed within a 100-foot permanent right-of-way (ROW) and a 25-foot temporary workspace on each side of the permanent ROW would be required. The Analysis Area includes 270.94 acres (109.65 ha) on private land and 45.44 acres (18.39 ha) on land managed by the New Mexico State Land Office (NMSLO) for a total of 316.38 acres (128.03 ha). Project components on NMSLO-managed land consist of 30.29 acres (12.26 ha) of permanent ROW and 15.17 acres (6.14 ha) of temporary workspace along 2.50 miles of proposed transmission line. The remaining project components, including the substation, pull pockets, 4.53 miles of proposed transmission line ROW, and the temporary workspace associated with these components, are entirely on private land.

Dates of Investigation

From: 31-Jan-2024 **To:** 31-Jan-2024

Report Date

Report Date: 21-Feb-2024

NMCRIS Investigation Abstract Form (NIAF)

Performing Agency/Consultant

Name: SWCA Environmental Consultants
Principal Investigator: Christine Kendrick
Field Supervisor: Jacob Borchardt
Field Technician: Will Wells
Historian/Other:

Performing Agency Report Number

Report Number: 24-96

Client/Customer (project proponent)

Report Details

Name: Southwestern Public Service Company
Contact: Tiffany Hennig
Address: 790 South Buchanan Street, Amarillo, Texas
Phone: 806-378-2146

Client/Customer Project Number

Project Number: 85780

NMCRIS Investigation Abstract Form (NIAF)

NMCRIS Activity No. 154825

HPD Log No(s).

Ownership & Location

Land Ownership Status (Must be indicated on Project Map)

Owner/Manager List:

Land Owner/Manager	Protocol	Acres Surveyed	Acres in APE
Private Individual (see records for name)	Class III	0.00	270.94
NM State Land Office	Class III	90.88	90.88

Total Survey Acreage: 90.88

Total Tribal Acreage: 0.00

Record Search(es)

Date of HPD/ARMS File Review: 20-Jan-2024

Date of Other Agency File Review

Survey Data

Source Graphics: NAD 83

USGS 7.5' (1:24,000) topo map Other Topo Map Scale:

GPS Unit <1M

Aerial Photos Other Source Graphic(s):

The following tables (b,c,& e) are calculated by the NMCRIS Map Service

USGS 7.5' Topographic County(ies) Legal Description
Map(s)

Map Name	USGS Quad Code	County	FIPS	Unplatted	Township (N/S)	Range (E/W)	Section
Monument North, NM	32103-F3	LEA	35023	No	T18S	R36E	22
Lovington SE, NM	32103-G3			No	T18S	R36E	15
				No	T18S	R36E	10

Projected Legal Description

Nearest City or Town: Hobbs, NM

Other Description:

NMCRIS Investigation Abstract Form (NIAF)

NMCRIS Activity No. 154825

GIS

HPD Log No(s).

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NMCRIS Investigation Abstract Form (NIAF)

NMCRIS Activity No. 154825

HPD Log No(s).

Methodology

Survey Field Methods

Intensity: 100% coverage

Configuration: Block Survey Units Linear Survey Units (l x y)

Other Survey Units

Scope: All Resources

Coverage Method: Systematic Pedestrian Coverage **Other Method:**

Survey Interval (m): 15 **Crew Size** 2

Fieldwork Dates **From** 31-Jan-2024 **To** 31-Jan-2024

Survey Person Hours: 7.00 **Recording Person Hours** 0.00

Additional Narrative: SWCA completed an intensive pedestrian survey for the Cunningham Transmission Line Project. This project consists of a 100-foot permanent ROW and an additional 25 feet of temporary workspace on either side of the ROW, resulting in a project corridor of 150 feet. An additional 75 feet was surveyed from the edge of either side of the ROW for a total survey area/APE of 90.88 acres (36.72 ha) on NMSLO-managed land. No private land was surveyed during the current investigation. One qualifying previous survey intersects with the APE, but the area was resurveyed and not excluded from the APE, as the investigation was not entered into NMCRIS at the time of review.

Environmental Setting (NRCS soil designation; vegetative community; elevation; etc.)

Environmental Setting: The survey area is situated within the Arid Llano Estacado (25K) section of the High Plains (25) physiographic province. The Llano Estacado ecoregion, also called the "staked plain," is an elevated plain surrounded on three sides by escarpments. The formation is usually treeless and flat. The Llano Estacado ecoregion began in geological terms as an extensive outspread deposit of Miocene-Pliocene sediments (Ogallala Formation) that eroded from the eastern Rocky Mountains. Several caliche horizons developed in these sediments, including a hardened caprock caliche in the uppermost layer. Eolian sand and silt from the Pleistocene eventually covered the caprock. Numerous playas on the landform holds seasonal rainfall (Griffith et al. 2006).

Four soil types are associated with the survey area: Kimbrough gravelly loam (KO), dry, 0 to 3 percent slopes (KO), Portales loam (PO), 0 to 3 percent slopes, Arvana-Lea association (AW) and Kimbrough-Lea complex (KU), dry, 0 to 3 percent slopes.

Elevation within the survey area averages approximately 1,164m (3,820 feet). The area is used today primarily for rangeland and oil and gas exploration. Gravel roads, pipeline beds and overhead power lines were observed in the area.

The climate information for the survey area was compiled using the Hobbs, New Mexico (294026), climate station data (period of record December 1, 1912, to May 31, 2016). Rainfall for the general survey area is most abundant from May through October, averaging 5.26 cm (2.07 inches), with September having the heaviest average precipitation. Snowfall is expectedly heaviest between December and February, with an average of 3.12 cm (1.23 inches) and can fall from October through April; annual snowfall averages 12.95 cm (5.1 inches). Temperatures are coldest in January at -2.28 degrees Celsius (C) (27.9 degrees Fahrenheit [F]) and warmest in

NMCRIS Investigation Abstract Form (NIAF)

July at 34.39C (93.9 F) (Western Regional Climate Center 2024).

The most common vegetation in the region, specifically the Arid Llano Estacado, include buffalograss, blue and sideoats grama, little and silver bluestem, sand drop seed, sandy bluestem, dalea, scarlet globe-mallow, sunflower, stiffstem flax, honey mesquite, narrowleaf yucca, willow, rushes. The mesquite and yucca are invasive species to the region (Griffith et al. 2006). Plants observed in the project area include honey mesquite, creosote, small barrel cactus, and various bunch grasses and forbs.

The most common mammals found in the region are mule deer and coyote. Also typical to the area are bobcat, gopher, cottontail rabbit, jackrabbit, peccary, and various species of field mice, striped skunk, and pack rat (Biota Information System of New Mexico 2024). There are a variety of birds, including mourning doves and hawks; numerous lizards and snakes are also in the project area. Lizards were the most observed animal during the survey. Prehistorically, bison were in the region in at least some periods. Bison, antelope, deer, and rabbit were important food resources for the prehistoric inhabitants.

References:

Biota Information System of New Mexico

2024 Database query for Lea County. Available at: <http://www.bison-m.org/>. Accessed February 8, 2024.

Griffith, G. E., J. M. Omernik, M. M. McGraw, G. Z. Jacobi, C. M. Canavan, T. S. Schrader, D. Mercer, R. Hill, and B. C. Moran

2006 Ecoregions of New Mexico. Color poster with map, descriptive text, summary tables, and photographs. Scale 1:1,400,000. Reston, Virginia: U.S. Geological Survey.

Natural Resources Conservation Service

2024 Web Soil Survey. Available at: <https://websoilsurvey.nrcs.usda.gov/>. Accessed February 8, 2024

Western Regional Climate Center

2024 Climate Summary for Hobbs, New Mexico (294346). Available at: <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?nm4026>. Accessed February 8, 2024.

Percent Ground Visibility

Ground Visibility: 26-50%

Condition of Survey Area: The survey area ground surface is deflated and has been impacted by pipelines, transmission lines, and other developments. There is no sand sheet in the area, with soils presenting as a pale-brown silty sand with exposed caliche nodules throughout.

Attachments (check all appropriate boxes)

- USGS 7.5 Topographic Map with sites, isolates, and survey area clearly drawn (required)
- Copy of NMCRIS Map Check (required)

NMCRIS Investigation Abstract Form (NIAF)

- LA Site Forms - new sites (with sketch map & topographic map) if applicable
- LA Site Forms (update) - previously recorded & un-relocated sites (first 2 pages minimum)
- Historic Cultural Property Inventory Forms, if applicable
- List and Description of Isolates, if applicable
- List and Description of Collections, if applicable

Other Attachments

- Photographs and Log
- Other attachments **Describe:**

NMCRIS Investigation Abstract Form (NIAF)

NMCRIS Activity No. 154825

HPD Log No(s).

Cultural Resource Findings

Investigation Results

Archaeological Sites Discovered and Registered: 0

Archaeological Sites Discovered and NOT Registered: 0

Previously Recorded Archaeological Sites Revisited (site update form required): 0

Previously Recorded Archaeological Sites Not Relocated (site update form required): 0

Total Archaeological Sites (visited & recorded): 0

Total Isolates Recorded: 3

Non-
Selective Isolate Recording

HCPI Properties Discovered and Registered: 0

HCPI Properties Discovered And NOT Registered: 0

Previously Recorded HCPI Properties Revisited: 0

Previously Recorded HCPI Properties NOT Relocated: 0

Total HCPI Properties (visited & recorded, including acequias): 0

If No Cultural Resources Found, Discuss Why: The area has a low density of cultural resources and has been impacted by the construction/development in the area.

Management Summary

Summary:

SWCA completed an intensive pedestrian survey for the Cunningham Transmission Line Project. This project consists of a 100-foot permanent ROW and an additional 25 feet of temporary workspace on either side of the ROW, resulting in a project corridor of 150 feet. An additional 75 feet was surveyed from the edge of either side of the ROW for a total survey area of 90.88 acres (36.72 ha) on NMSLO-managed land. The private lands were not surveyed, including 4.53 miles of the ROW, associated temporary workspace, pull pockets and the substation. Although no archaeological sites or historic properties were observed during the current investigation, three isolated occurrences (IO) were identified. These consisted of aqua bottle glass (IO 1), sun-colored amethyst glass (IO 2), and a steel beverage can (IO 3).

No additional investigation or treatment is recommended regarding the current undertaking. If subsurface cultural materials are encountered during remediation, all work should cease, and the NMSLO should be notified immediately.

NMSLO cultural resources preservation efforts requires that an archaeological survey be conducted to current standards for the APE pursuant to and in compliance with New Mexico Administrative Code (NMAC) 4.10.15 and 19.2.24 to ensure that cultural properties are not inadvertently excavated, harmed, or destroyed by any person.

NMCRIS Investigation Abstract Form (NIAF)

NMCRIS Activity No. 154825

HPD Log No(s).

Attachments

Documents

Attachment Type	Description	Name	File Type	Size	Upload Date	Upload By
-----------------	-------------	------	-----------	------	-------------	-----------

NMCRIS Investigation Abstract Form (NIAF)



Figure 1. Overview northern portion of the survey area, facing south (Frame 6676).



Figure 2. Overview showing transmission line and parallel two-track road trending east-west through survey area, facing west (Frame 4090).

NMCRIS Investigation Abstract Form (NIAF)



Figure 3. Overview showing a raised pipeline bed and utility line running parallel to each other and trending east-west within survey area, facing west (Frame 1587).



Figure 4. Overview from middle of survey corridor with existing transmission lines visible, facing northwest (Frame 7076).

NMCRIS Investigation Abstract Form (NIAF)

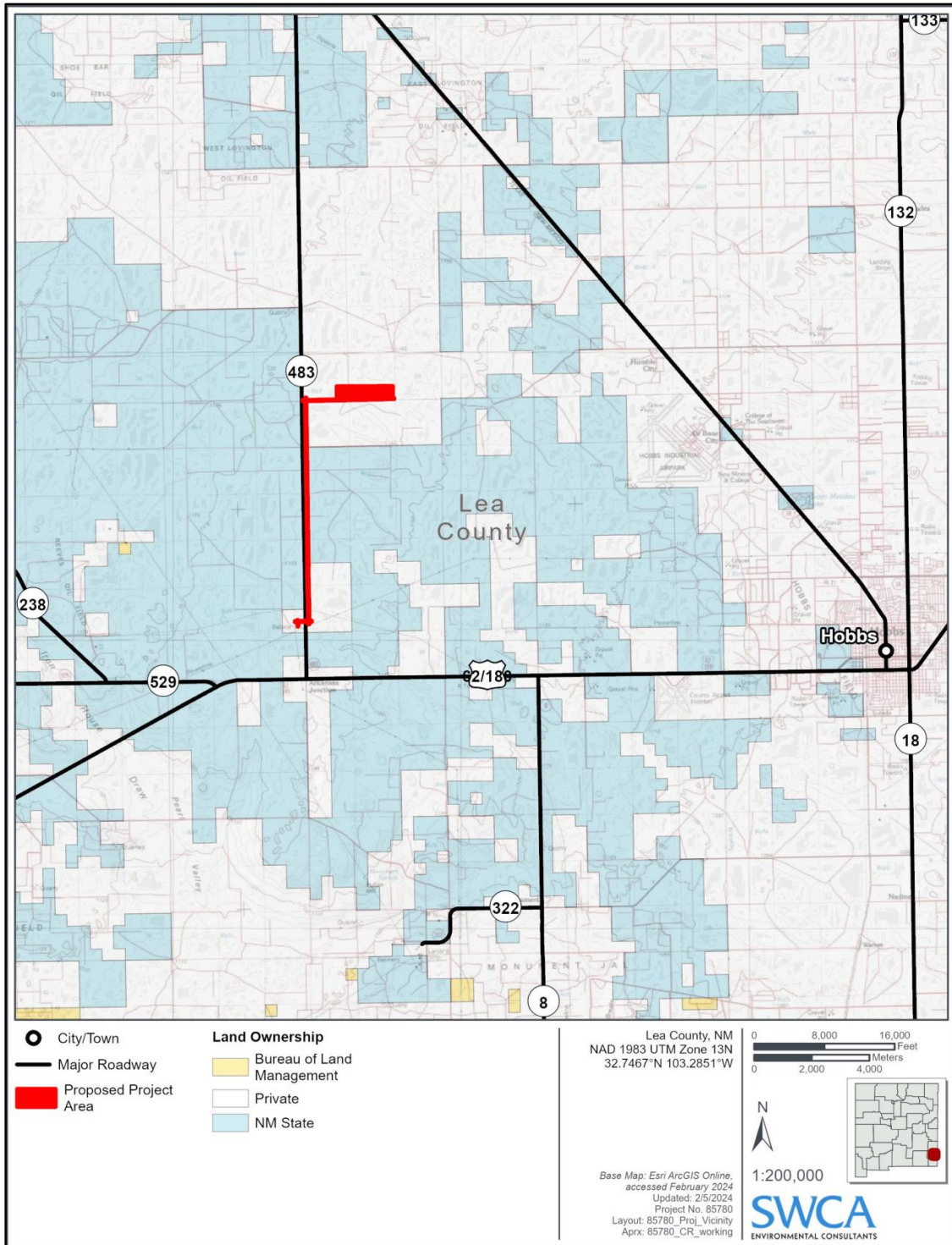


Figure 5. Project vicinity map.

NMCRIS Investigation Abstract Form (NIAF)

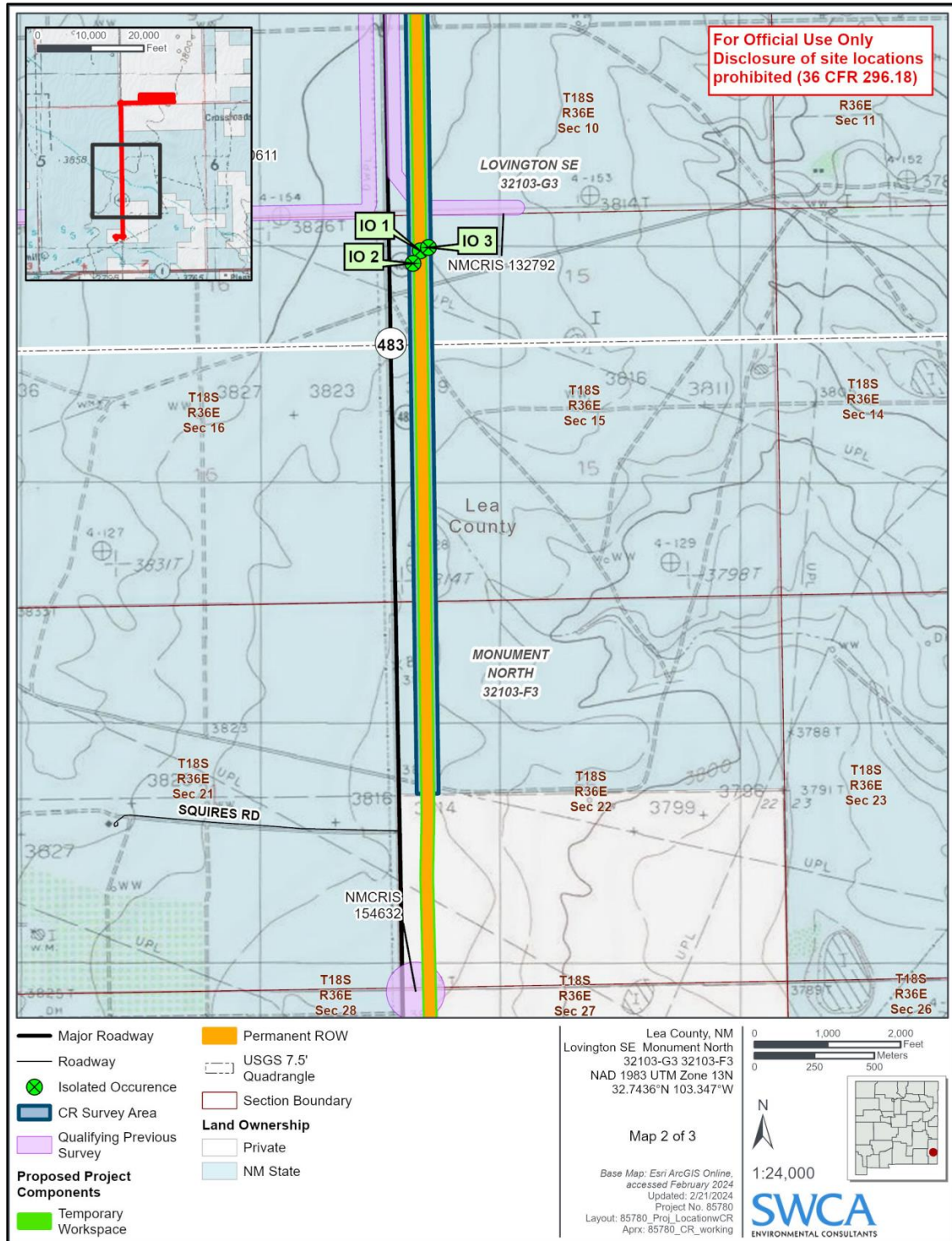


Figure 6. Project Location Map with Cultural Resources, 1 of 3.

NMCRIS Investigation Abstract Form (NIAF)

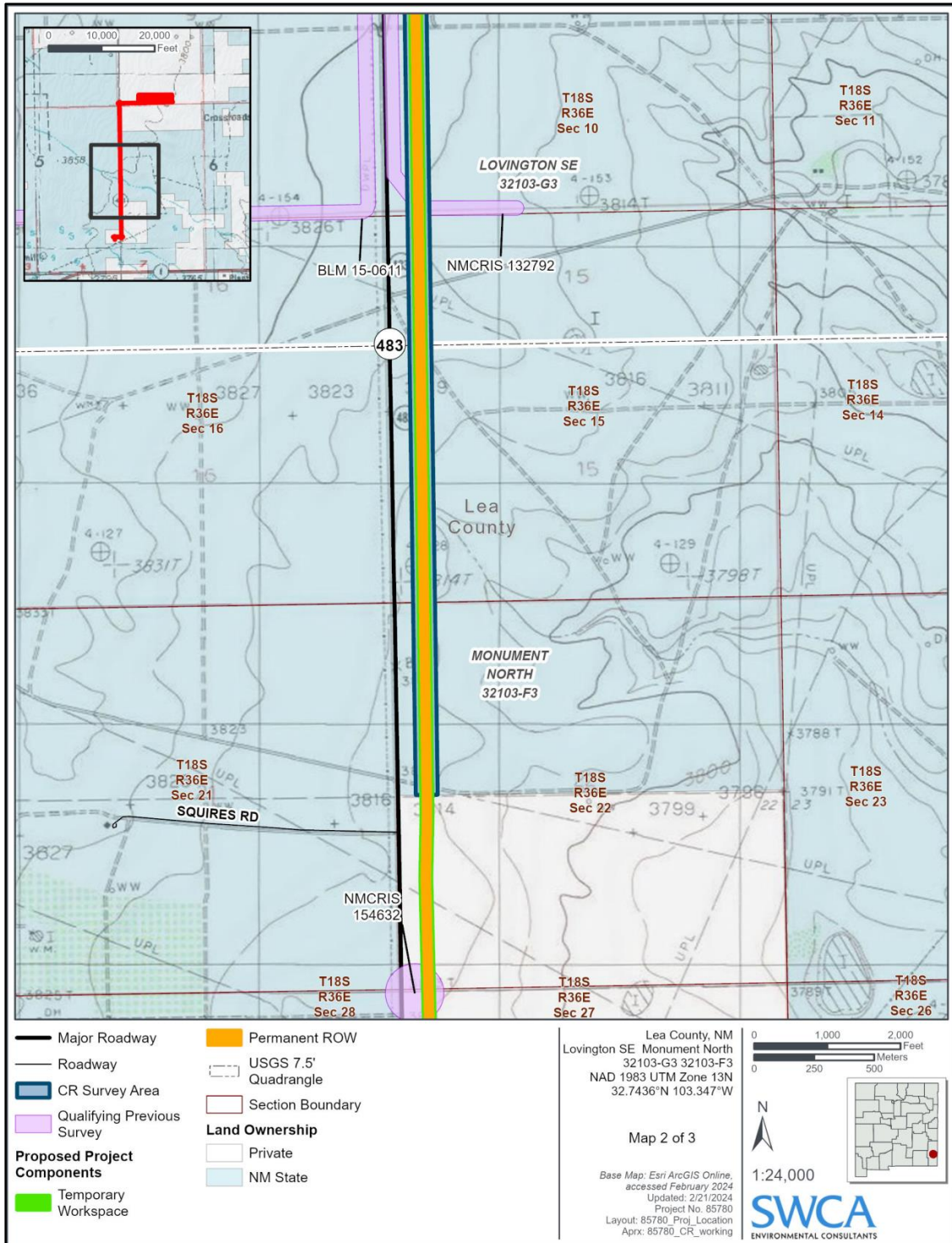


Figure 7. Project Location Map, 2 of 3

NMCRIS Investigation Abstract Form (NIAF)

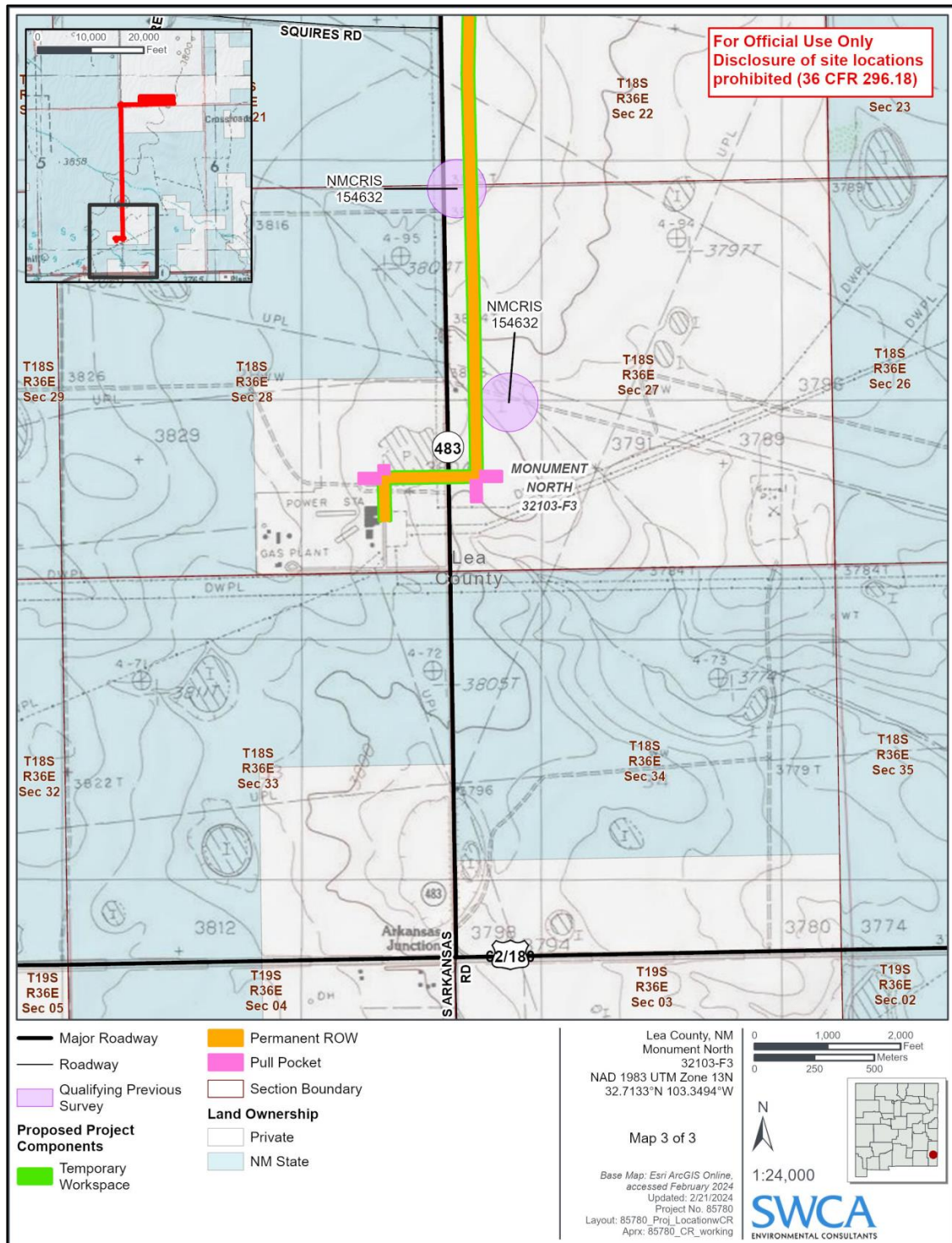


Figure 86. Project Location Map, 3 of 3

NMCRIS Investigation Abstract Form (NIAF)

Figure 9. Project Location Map with Cultural Resources, 1 of 3 (redacted)

Figure 10. Project Location Map with Cultural Resources, 2 of 3 (redacted)

Figure 11. Project Location Map with Cultural Resources, 3 of 3 (redacted)

Table 1. Cultural Resource Surveys within 1, 000 m of the Survey Area (redacted)

Table 2. Isolate Occurrences (IO) recorded during the survey (redacted)



Environmental Report for the Cunningham Transmission Line Project in Lea County, New Mexico

MARCH 2024

PREPARED FOR

Southwestern Public Service Company

PREPARED BY

SWCA Environmental Consultants

ENVIRONMENTAL REPORT FOR THE CUNNINGHAM TRANSMISSION LINE PROJECT IN LEA COUNTY, NEW MEXICO

Prepared for

Southwestern Public Service Company
790 South Buchanan Street
Amarillo, Texas 79101

Prepared by

SWCA Environmental Consultants
7770 Jefferson Street Northeast, Suite 410
Albuquerque, New Mexico 87109
(505) 254-1115
www.swca.com

SWCA Project No. 85780

March 2024

EXECUTIVE SUMMARY

Southwestern Public Service Company (SPS), a subsidiary of Xcel Energy Inc. (Xcel Energy), proposes to construct and operate a double-circuit, 230/115 kilovolt (kV) transmission line, spanning approximately 7.0 miles in length, along with an associated collector substation (collectively “Transmission Facilities”). SPS also plans to construct and operate a 36-megawatt battery energy storage system (BESS) and two solar facilities, the Cunningham 1 Solar Project and Cunningham 2 Solar Project (collectively Solar Projects). The Transmission Facilities, Solar Projects, and BESS are necessary to retain generation resources to serve SPS’ growing system capacity needs. The Transmission Facilities will connect the proposed Solar Projects and BESS to the existing Cunningham Generation Substation. The transmission facilities, Solar Projects, and BESS will be located on land managed by the New Mexico State Land Office and private lands in Lea County, New Mexico.

This environmental report was prepared to support SPS’s application to the New Mexico Public Regulation Commission (Commission or NMPRC) for location approval of the Transmission Facilities pursuant to Section 62-9-3(F), New Mexico Statutes Annotated (NMSA) 1978. The Commission’s Location Approval Rule, 17.9.592.10 New Mexico Administrative Code (NMAC), requires applicants seeking location approval of transmission lines and associated facilities to submit an environmental assessment or environmental impact statement, if such is required for the subject Transmission Facilities pursuant to the National Environmental Policy Act, and if not, to submit an environmental report in the format prescribed in 40 Code of Federal Regulations (CFR) 1502.10. In this case, an environmental assessment or environmental impact statement is not required for the proposed Transmission Facilities; therefore, this environmental report is provided in the prescribed format as required by 40 CFR Section 1502.10.

SPS is applying to the Commission for location approval to the extent required under Section 62-9-3(F) NMSA 1978. Under this statute, the Commission shall approve applications for the location of transmission lines and associated facilities unless the Commission finds the location will unduly impair important environmental values or the operation of the Transmission Facilities will unduly impair power system reliability. The scope of analysis addressed in this environmental report includes the affected environment (existing conditions) and environmental consequences (impacts) of the proposed Transmission Facilities for the environmental values provided in Section 62-9-3(M) NMSA 1978 and Commission Rule 17.9.592.10(G)(1), (2), and (3) NMAC. Due to different standards for location approval of generating facilities under Section 62-9-3(E), the Solar Projects and BESS are not included in this Environmental Report. However, the Solar Projects and BESS will be located immediately adjacent to the Transmission Facilities and contain the same or similar resources.

The resources addressed in this environmental report include air resources; biological resources; cultural, historic, archaeological, and religious resources; geological, paleontological, and soil resources; geographic resources; health and safety; land use; minerals and mining resources; noise impacts; socioeconomic impacts; traffic and roads; water resources; and visual resources. The analysis evaluates impacts to these resources associated with the construction, operation, maintenance, and decommissioning of the 316.8-acre project area within which the Transmission Facilities will be located and the 100-foot survey buffer (also referred to as the Analysis Area) to determine whether the location will unduly impair important environmental values, as provided in Section 62-9-3(F), NMSA 1978. This environmental report also identifies protection measures by section (complete list in Appendix A) that will be implemented to avoid and minimize impacts. Based on the analysis presented below, the proposed Transmission Facilities will not unduly impair important environmental values.

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1 INTRODUCTION

Southwestern Public Service Company (SPS), a subsidiary of Xcel Energy Inc. (Xcel Energy), is proposing to construct and operate a new 230/115-kilovolt (kV) double circuit transmission line and a collector substation (collectively Transmission Facilities) to connect the proposed Solar Projects and BESS to the existing Cunningham Generation Substation. The Cunningham Solar Projects will include two solar facilities with capacities of 72 MW and 196 MW.

The Transmission Facilities will be located on property managed by New Mexico State Land Office (NMSLO) and private lands, including lands owned by SPS and lands SPS option agreement lands, in Lea County, New Mexico (Figure 1-1). The transmission line will total approximately 7 miles in length. The Cunningham collector substation and BESS associated with the Cunningham Solar Projects will be adjacent to each other at the northern terminus of the transmission line. Up to 179 acres of disturbance will occur from construction of the Transmission Facilities. The area reviewed in this environmental report includes the transmission line, and the area where the BESS and substation will be located, for a total acreage of 316.8 acres (Analysis Area; Figure 1-2).

This environmental report was prepared to support SPS's application to the New Mexico Public Regulation Commission (Commission or NMPRC) for location approval of the Transmission Facilities, to the extent that approval is required. The Transmission Facilities will be designed for or capable of operations at a voltage of 230 kV or greater and will connect to the Solar Projects and BESS. Due to different standards for approval pursuant to Section 62-9-3(E) of the Public Utility Act, the Solar Projects and BESS are not included in this Environmental Report. However, the areas within which the generation facilities and the Transmission Facilities will be located are immediately adjacent to each other and contain the same or similar resources.

The Commission's Location Approval Rule, 17.9.592.10 NMAC, requires applicants seeking location approval of transmission facilities to submit an environmental assessment or environmental impact statement if such is required for the subject transmission facilities pursuant to the National Environmental Policy Act, and if not, to submit an environmental report in the format prescribed in 40 Code of Federal Regulations (CFR) 1502.10. In this case, the project (i.e., the construction and operation of the Transmission Facilities) does not have a federal nexus. As a result, an environmental assessment or environmental impact statement is not required for the Transmission Facilities; therefore, this environmental report is provided in the prescribed format of 40 CFR Section 1502.10.

1.1 Background

The Transmission Facilities will connect the adjacent proposed Cunningham Solar Projects to the existing Cunningham Generation Substation and existing grid. SPS will obtain easements for the proposed transmission line. As the owner of the Cunningham Generation Substation, SPS will provide direct access into the substation and will not need to enter into any easement agreement. SPS has a purchase option for the Cunningham collector substation site. Construction of the Transmission Facilities is anticipated to commence in the first quarter of 2025.

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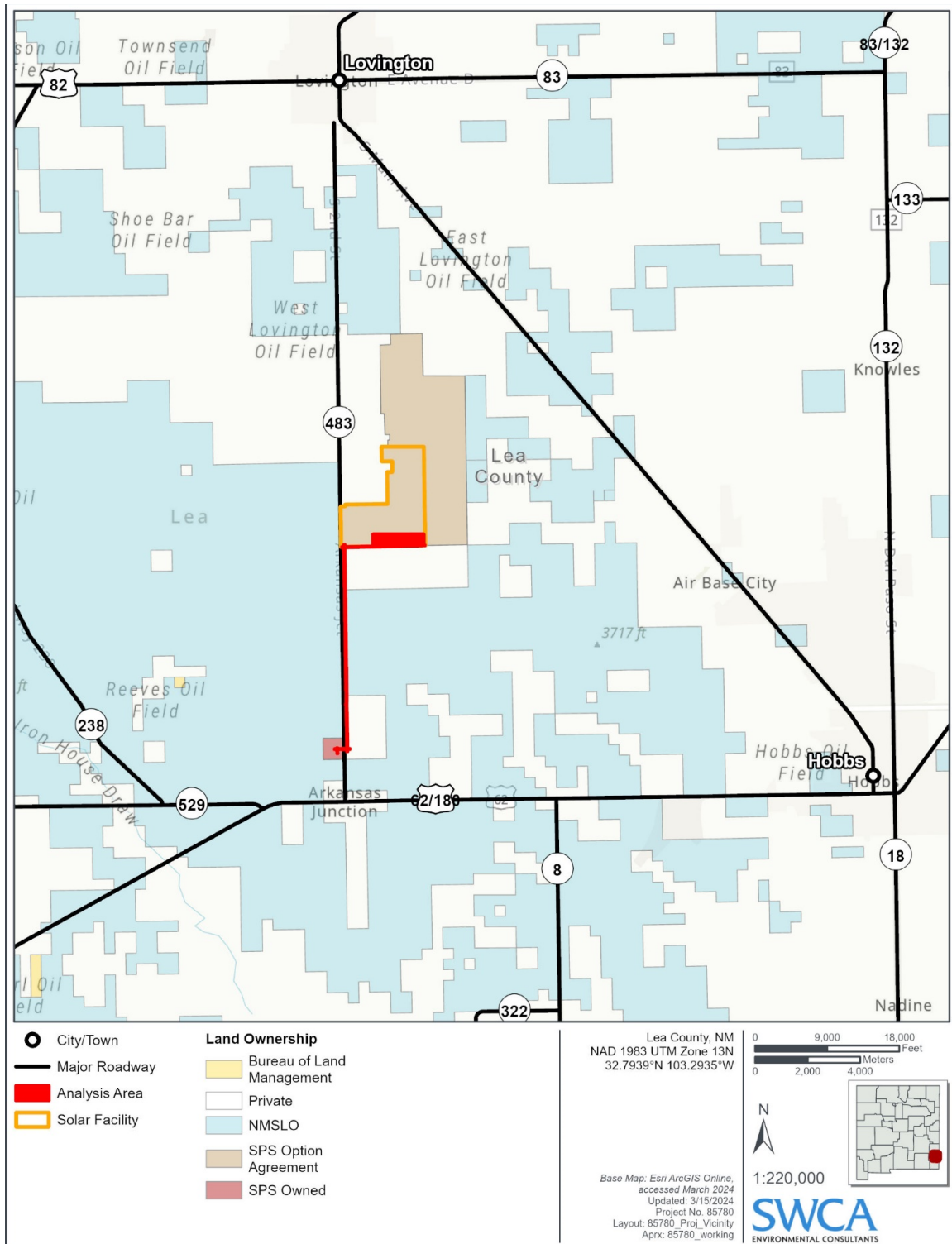


Figure 1-1. Transmission Facilities and existing substations vicinity map.

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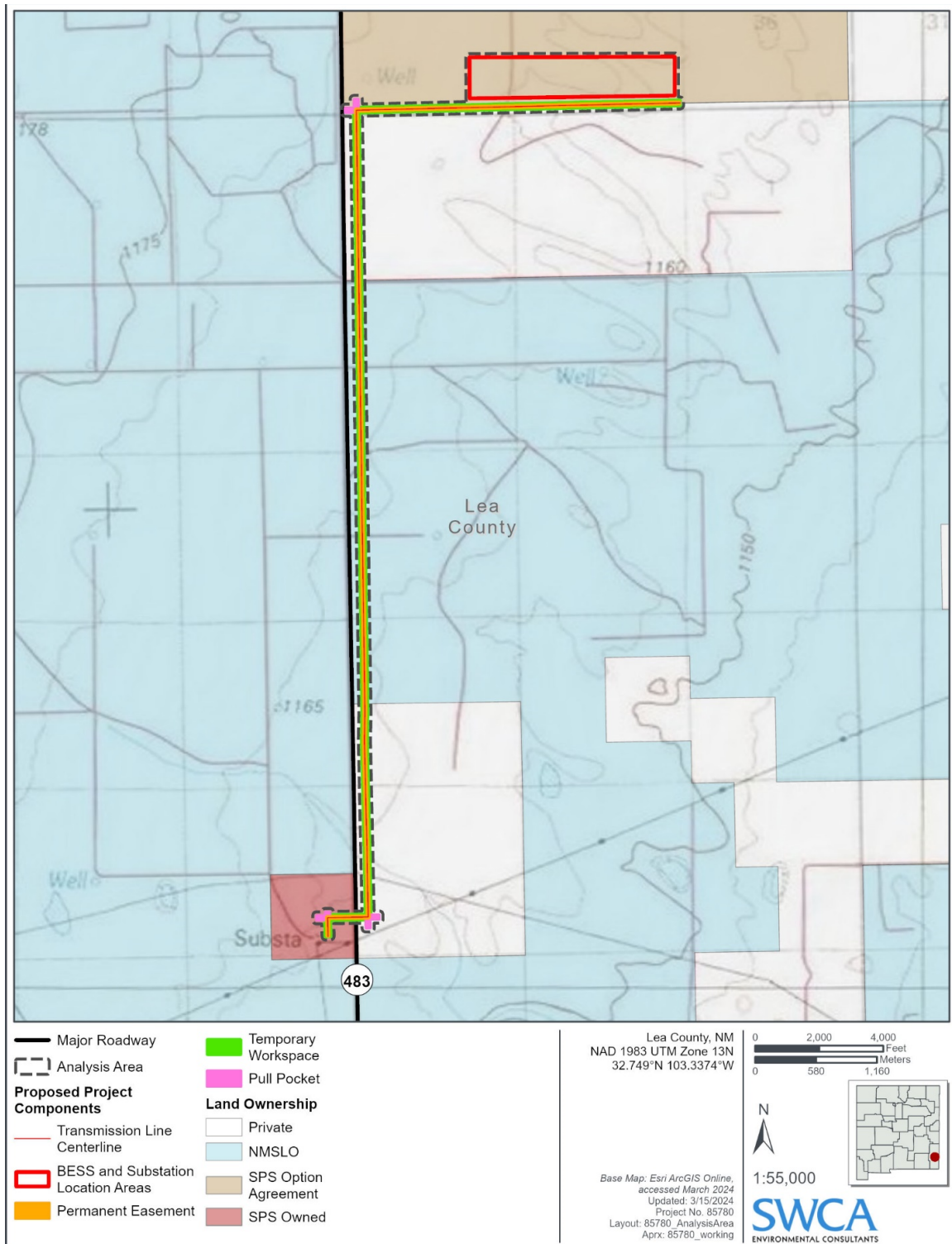


Figure 1-2. Analysis Area Map.

1.2 Purpose and Need

The proposed Transmission Facilities are necessary to connect the proposed Cunningham Solar Projects (Cunningham Collector Substation) to the existing Cunningham Generation Substation and existing grid. In order to do so, the proposed Transmission Facilities will be a double-circuit, 230/115-kV transmission line. SPS's need is established by its obligations as a regulated utility subject to the jurisdiction of the NMPRC, the Federal Energy Regulatory Commission, and its delegates, including the North American Energy Reliability Corporation and the Southwest Power Pool, which is a regional transmission organization. SPS is a member of, and its entire transmission system is located within, the Southwest Power Pool. SPS has the obligation and responsibility to serve its customers' electrical needs and to plan its system such that it can reliably accommodate the load growth within its system.

In addition, the Legislature amended Section 62-16-4 of the New Mexico Renewable Energy Act (REA) in 2019 to) require public utilities to procure 40% of their energy supply from renewable resources by 2025. That requirement increases to 50% by 2030, to 80% by 2040, and to 100% carbon free resources by 2045. As a public utility, SPS is developing renewable energy sources to meet the renewable energy requirements set forth in the REA.

1.3 Decision to be Made

SPS is applying to the Commission for location approval of the proposed Transmission Facilities to the extent required under Section 62-9-3(F) NMSA 1978. Under this statute, the Commission shall approve applications for the location of the transmission line and substation unless the Commission finds the location will unduly impair important environmental values or operation of the proposed Transmission Facilities will unduly impair power system reliability. This Environmental Report addresses the important environmental values identified in New Mexico law and the potential impacts of the proposed Transmission Facilities on those important environmental values within the Analysis Area. Applicable protection measures associated with the project are located in each section and a complete list can be found in Appendix A. List of Protection Measures.

2 PROPOSED TRANSMISSION FACILITIES AND ALTERNATIVES

2.1 Proposed Facilities

The proposed Transmission Facilities will include the new double circuit 230/115-kV transmission line, measuring a total of approximately 7 miles (37,117 feet), and a 45-acre collector substation. The Cunningham Collector Substation will be located within the 183-acre BESS and Substation locations area. The Transmission Facilities will connect the proposed Cunningham Solar Projects and BESS to the existing Cunningham Generation Substation and existing grid. The scope of this environmental report covers an approximately 316.8-acre Analysis Area (Figure 1-2). The Analysis Area is located in Lea County, New Mexico. The Transmission Facilities will be located on lands managed by NMSLO and private ownership.

The work area will be cleared of vegetation and graded to facilitate construction of the Transmission Facilities only to the extent necessary for safe operation and construction of the line (up to 179 acres). Additional infrastructure associated with the Transmission Facilities that will also be in the Analysis Area includes pole structures, pull pockets, and temporary workspace areas (Table 2-1). It is understood that the Transmission Facilities are subject to the Commission’s review under the Rule 17.9.592.10 NMAC.

Table 2-1. Proposed Infrastructure for Transmission Facilities

Component	Description
Transmission Line	The transmission line will be located in the Analysis Area, running between the proposed Cunningham Solar Projects and existing Cunningham Substation. The line is expected to be approximately 7 miles (37,117 feet) in length within a 100-foot-wide right-of-way (ROW). Of the 7 miles, 2.5 miles will be on NMSLO-managed land, and 4.5 miles will be on private lands. Construction of the transmission line will disturb up to 127.7 acres, which includes the ROW and temporary workspace. The pole structures will be steel monopoles, averaging approximately 110 feet in height and spanning approximately 700 feet.
Pull pockets	Six pull pockets will be used for construction of the Transmission Facilities and will extend outside the permanent 100-foot ROW and temporary workspace to ensure safe construction of structures for pulling and tensioning sites at angled structures (approximately 5.6 acres).
Substation	The substation will be located within the Analysis Area, north of the transmission line and will likely be located at the eastern terminus of the line. The substation will be approximately 5 acres in size and will be located within the 183-acre BESS and substation locations area north of the transmission line.

2.1.1 Facilities

2.1.1.1 TRANSMISSION LINE

The transmission line will total approximately 7 miles (37,117 feet) in length. Of the 7 miles, 2.5 miles (13,195.9 feet) will be located on NMSLO-managed land, and 4.5 miles (23,920.9 feet) will be located on private lands. The right-of-way (ROW) will be 100 feet in width, and SPS will utilize 50 feet of temporary workspace (25 feet on either side of the ROW) for the construction of the transmission line. The disturbance from implementation of the proposed project will be a maximum of 127.7 acres, of which 45.4 acres will be on NMSLO-managed land, and 82.3 acres will be on private lands.

The Transmission Facilities will consist of steel monopole structures, which will average 110 feet in height, with a maximum height of 125 feet. Single-pole steel structures will be used for tangent structures and running angles. Single-pole or two pole structures will be used for storm structures and dead end

corners. All structure to be installed on drilled pier foundations. Approximately eight poles per mile will be necessary for a total of approximately 56 poles. Additional preliminary pole structure details can be found in Appendix B.

2.1.1.2 PULL POCKETS

Pull pockets will be used for construction of the Transmission Facilities and will extend outside the permanent 100-foot ROW and temporary workspace to ensure safe construction of structures for pulling and tensioning sites at angled structures (approximately 5.6 acres). In total, there will be six pull pockets, all located on private lands. Each pull pocket will extend outward from the centerline in both directions at an angle of greater than 30 degrees. Five of the six pull pockets will measure 300 × 150 feet (5.2 acres), and one pull pocket will measure 123 × 150 feet (0.4 acre).

2.1.1.3 SUBSTATION

The Cunningham Collector Substation will collect energy via medium voltage collector lines from the proposed Cunningham Solar Projects and BESS and will step up the voltage to 115 kV (Cunningham 1 Solar Project) and 230 kV (Cunningham 2 Solar Project) for interconnection and delivery to the existing Cunningham Generation Substation. The substation will utilize approximately 45 acres within the 183-acre substation area. The substation will consist of a fenced facility with ground grid, gravel, concrete foundations, steel structures, transformers, breakers, metering, a control building, and other associated structures and equipment. The substation area will be enclosed within a 10-foot-high metal chain-link fence. The maximum height of the structures within the substation area is approximately 100 feet. Electric circuits will enter the substation underground from the Cunningham Solar Projects and BESS. Communications for the substation are currently proposed to be provided by existing local copper communication lines. If the existing lines are not able to be used and a microwave tower for communications is required, the tower will likely be approximately 30 feet tall and its placement will be coordinated with the Federal Communications Commission (FCC) prior to construction.

2.1.1.4 ACCESS ROADS

Access roads will be needed to facilitate both construction and regular inspection and maintenance activities. Existing roads will be used to access the ROW and individual structures to the maximum extent practical, but in some cases existing roads will need to be improved to accommodate construction vehicles. In some cases, the ROW or individual structures may be accessed by constructing short spur roads from existing access roads. Access roads, within the ROW, will be temporarily constructed up to 60 feet in width during construction and reduced through reclamation to resemble a two-track road, for long-term operation and maintenance.

2.1.2 Construction

2.1.2.1 PRE-CONSTRUCTION SURVEYS

SPS has completed pre-construction biological, cultural, and aquatic investigations within the Analysis Area. Desktop reviews of the entire Analysis Area were conducted on all land jurisdictions prior to conducting field surveys. The biological and aquatic resources surveys were performed on the entire Analysis Area. The cultural pedestrian survey was only performed on NMSLO-managed lands and a Class I cultural resource desktop review was conducted on the entire Analysis Area (see Section 3.2 for more details on survey methodology). SPS is in the process of completing preliminary engineering, surveying, and site assessments to determine site constraints. Additional engineering, surveying, and site assessments will occur prior to construction as the design process evolves.

Preliminary geotechnical investigations will be conducted to help determine preliminary project design. SPS will contract a geotechnical engineering company to do geotechnical investigation, including drill borings. These borings will be up to 50 feet in depth and will be performed with a drill rig at several locations within the Analysis Area.

2.1.2.2 CONSTRUCTION SCHEDULE AND WORKFORCE

Provided that the location is approved, and the project receives all necessary permits as scheduled, construction is scheduled to commence in the first Quarter of 2025 with a target completion date of fourth quarter of 2025.

The workforce is expected to travel from various locations but will stay in the surrounding communities during construction. The workforce may either commute to the site from hotels or a campsite closer to larger population centers. The workday duration will be 8 to 10 hours.

2.1.2.3 TRANSPORTATION AND EQUIPMENT

Most project-related trips will originate outside of the immediate vicinity of the Analysis Area. Equipment and materials will use paved roads (see Section 3.13 for additional details) to access the project site. Worker commute trips will primarily be on paved roads where available; however, depending on workers’ origination points, some unpaved roads may be used. The project is in a rural area and unpaved roads are prevalent.

Equipment and materials will be stored at the existing Cunningham laydown yard located on NMSLO-managed land (Business Lease No. 2390) and moved into the construction area as needed. The laydown yard is located approximately 0.4-mile south of the transmission facilities and use of this laydown yard will not result in any new surface disturbance. Equipment used during construction (Table 2-2) will include heavy civil equipment to prepare and clear the access road and to level and compact the sites at each transmission structure; cranes will also be used to assemble and lift the structures into place.

Table 2-2. Construction Workforce and Equipment

Construction Activity	Vehicle/ Equipment Type	Estimated Quantity
Site access/ prep/land clearing	Mulchers	3
	Brush hog	1
	Skid steer	3
	Excavator	3
	Loaders	3
	Backhoes	3
	Dump Trucks	3
	Pickups	5
Construction of transmission line	Pickup truck	15
	Water truck	1
	Boom truck	6
	Haul Truck	3
	Wheel Loader	4
	Crane	3

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Construction Activity	Vehicle/ Equipment Type	Estimated Quantity
	Concrete truck	10
	Sky Track	1
	Drill Rig	2
	Dump Truck	2
	Bundled Tensioner	1
	Static Tensioner	1
	3 Position Wire Trailers	2
	4 Drum Rope Rig	1
	20K Hardline Puller	1
	Bucket Truck	8
	Flatbed	6
Operation and maintenance	Helicopter	1
	Pickup truck	1
Termination/ rehabilitation	Tracked vehicle	2
	Crane	N/A
	Pickup truck	2
	Tractor trailer	N/A
	Dump trucks	2
	Boom truck	N/A

N/A = not applicable

2.1.2.4 WATER USE

Water will be sourced from nearby municipalities and water providers. Construction water will be used for equipment washing, dust abatement, and to support general construction activities (e.g., concrete foundations).

2.1.2.5 SITE PREPARATION

Individual structure sites will 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 will be cleared of vegetation only to the extent necessary. Any chemical treatments of ROW will comply with those laws and procedures of state land-managing agencies whose land will be traversed during construction and operation. Within the work areas, the permanent disturbance associated with the pole foundations will be 35 to 65 square feet for monopole structures.

The overland drive-and-crush method will 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 will be used with the intent of leaving the root crown intact. The soil will be compacted, but only excavated for the foundations. Excess soil from foundation hole excavations will 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 will 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 will be reclaimed in accordance with state and federal requirements.

2.1.2.6 FOUNDATIONS

The excavation and installation of the structure foundations will require the use of a power auger or drill, crane, material trucks, and concrete trucks, which will access each foundation site via access roads. Holes for the foundations will typically be excavated using a power auger mounted to a heavy vehicle. In some areas, a drilling rig will be necessary to excavate the foundation holes. Excavated spoils will typically be hauled off-site or used for fill where suitable.

After a structure hole is excavated, it will be prepared for a cast-in-place concrete footing, except where structures will be directly embedded into the ground. Reinforced steel and anchor bolts will be inserted into the foundation hole and then encased in concrete. Excess concrete or concrete washout will be removed from the work area or temporarily placed on spoil stockpiles. Some excess soil from the foundation hole excavations will be placed around the base of each structure to provide positive drainage away from the structure.

Foundation designs and installation processes will depend on the geotechnical analysis and line design parameters of each structure site. Corner and dead-end two-pole and monopole structures will be installed on drilled pier concrete foundations. Tangent monopole structures will be direct embedded. The structure foundation diameter and depth may vary at each location based on structure height, terrain, and soil type.

2.1.2.7 STRUCTURE ASSEMBLY AND INSTALLATION

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

Guard structures will be erected over highways, railroads, power lines, and other similar features. The guard structures will be temporary H-frame designs directly embedded into the ground. It is anticipated that guard structures will be located within the 100-foot-wide ROW.

2.1.2.8 CONDUCTOR INSTALLATION, PULLING, AND TENSIONING

At the base of each structure, copper ground rods will be buried near the structure foundation and connected to the structure with copper cables. A bare copper-clad or galvanized-steel cable extending from the structure outward to approximately 100 feet (acting as a counterpoise), will be buried a foot or more deep if resistance to the ground warrants its use.

Reels of conductor and shield wire will be delivered to the ROW and loaded onto vehicle-mounted pulling machines. Heavy vehicles will 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 will be threaded through pulleys suspended from the structure insulators. The pilot wire will then be attached to a stronger pulling wire, which will be used to thread the shield wire and conductor bundles into place without contacting the ground. Once the conductor and shield wire are strung through the pulleys, adjustments will be made to achieve the correct sagging of the lines between structures. Once complete, the pulleys will be removed, and the conductors clipped to the insulators with clamps. At dead-end structures, the conductors will be clipped to the insulators with compression fittings to secure the conductor to the insulator.

On straight sections of line, the conductor stringing activity will be contained within the ROW. At turning points with angles greater than 30 degrees, additional temporary space will be required outside the ROW for pull pockets.

2.1.2.9 INTERIM RECLAMATION

Post-construction, areas in the Analysis Area not required for long-term operations and maintenance will be reclaimed. Reclamation techniques will follow those outlined in the project's Stormwater Pollution Prevention Plan (SWPPP). Reclamation will include light grading, application of a native seed mix, and application of mulch as required to provide additional erosion control.

2.1.3 Operations and Maintenance

During operations and maintenance, the Transmission Facilities will be monitored remotely 24 hours a day, 7 days a week. Routine maintenance activities are maintenance tasks that are carried out on a regular basis. They are limited in scope, accomplished by relatively small crews using a minimum of equipment, and usually conducted within a time frame of a few hours to a few days.

After construction, routine preventative maintenance will occur on an approximately 6-month basis and unplanned maintenance will be performed as required. These activities will primarily consist of one to two technicians visiting the site and performing various system checks measurements, and a visual inspection.

Responsibly conducted routine maintenance activities will be anticipated to have minimal impact to resources. While carrying out routine maintenance activities, field personnel and contractors will adhere to basic standards and guidelines contained in the project permits, special use stipulations, and any additional requirements identified in the decision documents that will apply to the location approval.

2.1.4 Decommissioning

At the end of the transmission line's useful life, estimated to be 80 years from construction, the necessary authorizations will be obtained from the Commission to decommission the project. Future decommissioning of the transmission line will include removal of conductors and structures. Equipment at the substations and unsalvageable materials will be disposed of at authorized sites. Regrading and revegetation of disturbed areas will be completed according to federal and state standards. The abandoned ROW will revert to the control of the land management agency or private landowner.

Following removal of the facilities, the site will undergo final cleanup and reclamation. Areas disturbed during removal of project features will be restored and rehabilitated as near as possible to their original condition and will be available for the same uses that existed prior to construction of the project.

2.2 Protection Measures

SPS has developed a list of protection measures to avoid and minimize potential impacts from the Transmission Facilities. A complete list of these measures is included as Appendix A to this Environmental Report and is included as part of the proposed activities analyzed in Section 3, Affected Environment and Environmental Impacts.

2.3 Alternative Route Considerations

The Transmission Facilities must electrically connect the proposed Cunningham Solar Projects to the existing grid. The route between the existing Cunningham Generation Substation and proposed Cunningham Solar Project traverses land that is largely used by the oil and gas industry as evidenced by the presence of well pads, pipeline corridors, and access roads in the vicinity of the Analysis Area. In addition, the route parallels State Highway 483 (see Figure 1-2) and some agricultural use is in the vicinity of the Analysis Area. This route was developed to avoid infrastructure and areas of environmental concern.

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3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

3.1 Scope of Analysis

The scope of analysis addressed in this environmental report includes the affected environment (existing conditions) and environmental consequences (impacts) of the proposed Transmission Facilities for the environmental values provided in New Mexico law, 62-9-3(F) NMSA, the Commission's Rule 17.9.592.10(G)(1), (2), and (3) NMAC, and additional resource areas in the vicinity of the Analysis Area.

The resources addressed in this environmental report include air resources; biological resources; cultural, historic, archaeological, and religious resources; geological, paleontological, and soil resources; geographic resources; health and safety; land use; minerals and mining resources; noise resources; socioeconomics; traffic and roads; water resources; and visual resources.

3.2 Methodology and Assumptions

To facilitate project planning, intensive desktop review was conducted within the Analysis Area. A general biological survey and aquatic delineation survey were performed throughout the Analysis Area. SWCA Environmental Consultants (SWCA) completed the biological and aquatic resources surveys of the Analysis Area February 5 through 7, 2024. The results of these surveys are incorporated into a biological survey report (SWCA 2024a). Refer to Sections 3.4 and 3.41 for additional details.

SWCA completed an archaeological records search throughout the Analysis Area and an intensive cultural resources pedestrian survey on NMSLO-managed lands (New Mexico Cultural Resource Information System Activity No. 154825) for the Analysis Area on January 31, 2024 (SWCA 2024b). SWCA conducted the intensive pedestrian survey of the NMSLO portions of the Analysis Area in accordance with current New Mexico Historic Preservation Division (HPD) guidance and NMAC 4.10.15 and 19.2.24. Refer to Section 3.5 for additional information. SWCA and SPS will consult with NMSLO and HPD on any resources identified during these, and any other, additional surveys.

This analysis evaluates impacts to resources associated with the entire 316.8-acre Analysis Area, although the work area will be cleared of vegetation and graded to facilitate the construction of the Transmission Facilities only to the extent necessary (up to 179 acres). The analysis presented below incorporates the protection measures listed in Appendix A when disclosing environmental impacts of the Transmission Facilities.

3.3 Air Resources

3.3.1 Affected Environment

Data sources reviewed to assess air quality conditions include the following:

- U.S. Environmental Protection Agency (EPA)
- New Mexico Environment Department (NMED) Air Quality Bureau

3.3.1.1 CURRENT CONDITIONS, REGIONAL, AND ANALYSIS AREA OVERVIEW

Air quality in the Analysis Area is generally classified as good to moderate. The primary sources of human-caused air pollution in Lea County are dust from blowing wind on disturbed or exposed soil, exhaust emissions from fuel combustion and motorized equipment, agriculture, and industrial sources (EPA 2017).

Air quality is determined by the ambient concentrations of pollutants that are known to have detrimental effects. The EPA has classified National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: carbon monoxide, nitrogen dioxide, particulate matter with diameter of 10 microns or less (PM₁₀), particulate matter with diameter of 2.5 microns or less (PM_{2.5}), ozone, sulfur dioxide, and lead. Areas with air quality that do not meet the standards are designated non-attainment areas by the EPA. In May 2020, the EPA published new design values for NAAQS for various counties throughout the United States (EPA 2024a). The EPA has delegated the responsibility of regulation and enforcement of the NAAQS to the state level and has approved the New Mexico State Implementation Plan, which allows the state to enforce both the New Mexico Ambient Air Quality Standards (NMAAQs) and the NAAQS. Lea County, where the project is located, is in attainment/unclassifiable for all criteria pollutants, meaning that the air quality meets the (EPA 2024b).

Air quality in a given region can also be measured by its Air Quality Index (AQI) value (EPA 2024a). The AQI is used to report daily air quality information by explaining how local air quality relates to human health. The AQI summary report (EPA 2024c) provides annual summary information, including maximum AQI values and count of days in each AQI category. Recent AQI monitoring data shows that the air quality in the region of the Analysis Area is generally classified as good to moderate in terms of AQI values (EPA 2024c).

Along with criteria pollutant concentrations as measured by air monitors, the EPA provides data on criteria pollutant and hazardous air pollutant emissions. The EPA's AirToxScreen Assessment (ATS) is the EPA's ongoing review of air toxins in the United States and is intended to be a screening tool for state, local, and tribal air agencies to help determine which pollutants, emission sources, or places may need further study to better understand risks to public health from air toxins. ATS results provide estimates of long-term cancer risks and non-cancer health effects of air pollution (EPA 2024a). Based on the most recent ATS results, Lea County's cancer and health risks due to air toxins are lower than the state and national average risks.

3.3.2 Environmental Impacts

Emissions from the Transmission Facilities will be greatest during the construction period, which is estimated to be up to 11 months. Project construction will consist of the activities and mobile equipment roster shown in Table 2-2. Equipment use and ground disturbance associated with the transmission facilities will result in a low levels of localized emissions of regulated air pollutants during the construction period. During construction, emissions from on-road and non-road equipment exhaust will include carbon monoxide, nitrogen oxides, PM₁₀, PM_{2.5}, volatile organic compounds, and hazardous air pollutants. The project will also cause emissions of PM₁₀ and PM_{2.5} from ground-disturbance activities and vehicle traffic over paved and unpaved roads associated with construction.

No air quality permit will be required for construction of the proposed project. Reasonable precautions to prevent dust from becoming airborne will be implemented, including 1) maintaining all fossil fuel-fired equipment in accordance with manufacturer recommendations to minimize emissions, 2) limiting idle

time where possible, 3) implementing speed limits to control fugitive dust, 4) utilizing dust suppression measures, and 5) refraining from open burning of trash.

During the operations and maintenance phase, routine preventative maintenance will occur on an approximately 6-month basis and unplanned maintenance will be performed as required. Only minimal, short-term emissions will be expected from equipment use and fugitive dust from access road travel during the operations and maintenance phase, which will consist of a small crew accessing the site once every 6 months for visual inspections and routine maintenance actions. Decommissioning emissions will be similar to those emitted during initial construction and will be temporary.

3.3.2.1 PROTECTION MEASURES

The protection measures listed in Appendix A, which will be implemented to avoid and minimize impacts to air resources during construction and operation of the Transmission Facilities, include the following:

- AIR 1: Maintaining all fossil fuel-fired construction equipment in accordance with manufacturer recommendations to minimize construction related combustion emissions.
- AIR 2: Limiting the idling time of fossil fuel-fired construction equipment, unless idling must be maintained for proper operation (e.g., drilling, hoisting, and trenching).
- AIR 3: Limiting the speed of vehicles within construction sites during construction to help reduce the amount of fugitive dust generated.
- AIR 4: Utilizing water trucks or other dust suppression measures as required by NMED Air Quality Bureau to help reduce fugitive dust from construction activities.
- AIR 5: Open burning of construction trash will not be allowed.

3.3.2.2 CONCLUSION

Lea County is in attainment for state and federal ambient air quality requirements and is generally classified as good to moderate with low health and cancer risks from air toxins. The Transmission Facilities short-term and localized project construction and operations emissions are not expected to cause an exceedance of the NAAQS or NMAAQs or contribute to a degradation of ambient air quality. The location of the Transmission Facilities is not expected to unduly impair important environmental values regarding air quality. Implementation of listed air protection measures (see Section 3.3.2.1) will reduce and/or minimize any project-related adverse impacts to air quality.

3.4 Biological Resources

3.4.1 Affected Environment

3.4.1.1 DATA SOURCES

SWCA completed a biological resources survey of the Analysis Area on February 5 through 7, 2024, to assess habitat suitability for U.S. Fish and Wildlife Service (USFWS) and state-classified threatened and endangered plant and animal species, to characterize general vegetation, and to inventory aquatic resources. Additional data sources reviewed include the following:

- U.S. Geological Survey (USGS) quadrangle maps and Natural Resources Conservation Service (NRCS) soil maps (NRCS 2024)

- New Mexico Crucial Habitat Assessment Tool data (New Mexico Department of Game and Fish and Natural Heritage New Mexico 2013)
- National Hydrography Dataset (NHD) (USGS 2016a)
- National Wetlands Inventory (NWI) (USFWS 2024a)
- USFWS Information for Planning and Consultation (IPaC) system data (USFWS 2024b) and the USFWS Critical Habitat Portal (USFWS 2024c)
- U.S. Department of Agriculture (USDA) Plants Database (USDA 2024a)
- New Mexico Department of Game and Fish Biota Information System of New Mexico (BISON-M) data (BISON-M 2024)
- 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 2021)

3.4.1.2 CURRENT CONDITIONS, REGIONAL, AND ANALYSIS AREA OVERVIEW

The biological resources in the Analysis Area, including vegetation communities, wildlife species, and habitat, are typical of the grassland/shrubland-dominated ecoregions that are common throughout southeast New Mexico (Griffith et al. 2006). The Analysis Area and surrounding landscape have been previously disturbed by roads, cattle grazing, oil and gas development, pipelines, and transmission lines. Portions of the Analysis Area cross undisturbed ground, but the majority is co-located with existing infrastructure. No unique vegetation, wildlife, or habitat features were identified during the 2024 biological resources survey of the Analysis Area.

The Analysis Area is located in southeastern New Mexico near the cities of Hobbs and Lovington. Elevation in the Analysis Area is approximately 3,820 feet above mean sea level (amsl). The climate for this area, based on the climatic records for the Hobbs Lea County Airport, New Mexico Station in Lea County, New Mexico (COOP Station No. 294028), has an average annual maximum temperature of 75.6 degrees Fahrenheit (°F) and an average annual minimum temperature of 46.3°F. The average annual rainfall is 11.72 inches, with the majority occurring between May and October, while the average annual total snowfall is 6.7 inches, which largely occurs between November and March (Western Regional Climate Center 2024). Weather during the biological resources survey varied between approximately 42°F and 59°F, overcast to clear conditions, with winds of approximately 5 to 15 miles per hour.

3.4.1.2.1 Vegetation

The Analysis Area is located within the High Plains: Arid Llano Estacado Level IV ecoregion (Griffith et al. 2006). LANDFIRE National Vegetation Classification version 200 (USGS 2016b) identifies nine vegetation communities within the Analysis Area with two overarching communities: Southern Plains Scrub Woodland Shrubland and Great Plains Shortgrass Prairie. During the biological resources survey, biologists observed Chihuahuan desert grassland vegetation communities on loamy plains dominated by honey mesquite (*Prosopis glandulosa*), tobosagrass (*Pleuraphis mutica*), burrograss (*Scleropogon brevifolius*), and black grama (*Bouteloua eriopoda*). This vegetation is typical of current conditions of the High Plains ecoregion (Figures 3-1 and 3-2).

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Figure 3-1. View of Chihuahuan desert grassland vegetative community in the Analysis Area, facing north.



Figure 3-2. View of Chihuahuan desert grassland vegetative community and existing disturbance in the Analysis Area, facing south.

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Vegetative cover within the Analysis Area consists of approximately 1% tree cover, 30% shrub cover, 45% herbaceous cover, and 24% bare ground. The Analysis Area and surrounding landscape have been previously disturbed by overhead transmission lines and transmission infrastructure, roads, fences, cattle grazing, oil and gas development, and pipelines. Plant species recorded during the biological resources survey are listed in Table 3-1.

Table 3-1. Plant Species Observed during the Biological Resources Survey

Common Name	Scientific Name
Black grama*	<i>Bouteloua eriopoda</i>
Blazingstar sp.	<i>Mentzelia</i> sp.
Blue grama	<i>Bouteloua gracilis</i>
Broom snakeweed	<i>Gutierrezia sarothrae</i>
Burrograss*	<i>Scleropogon brevifolius</i>
Copper globemallow	<i>Sphaeralcea angustifolia</i>
Dakota mock vervain	<i>Glandularia bipinnatifida</i>
Green sprangletop	<i>Leptochloa dubia</i>
Hall's panicgrass	<i>Panicum hallii</i>
Honey mesquite*	<i>Prosopis glandulosa</i>
Horse crippler	<i>Echinocactus texensis</i>
Lace hedgehog cactus	<i>Echinocereus reichenbachii</i>
Lacy tansyaster	<i>Machaeranthera pinnatifida</i>
Lehmann lovegrass	<i>Eragrostis lehmanniana</i>
Nineawn pappusgrass	<i>Enneapogon desvauxii</i>
Nipple beehive cactus	<i>Coryphantha macromeris</i>
Pricklypear cactus sp.	<i>Opuntia</i> sp.
Prickly Russian thistle	<i>Salsola tragus</i>
Purple threeawn	<i>Aristida purpurea</i>
Rough menodora	<i>Menodora scabra</i>
Sand dropseed	<i>Sporobolus cryptandrus</i>
Seaside tansy	<i>Borrchia</i> × <i>cubana</i>
Siberian elm†	<i>Ulmus pumila</i>
Silver beardgrass	<i>Bothriochloa laguroides</i>
Silverleaf nightshade	<i>Solanum elaeagnifolium</i>
Soapweed yucca	<i>Yucca glauca</i>
Spring parsley sp.	<i>Cymopterus</i> sp.
Streambed bristlegrass	<i>Setaria leucopila</i>
Tamarisk sp. †	<i>Tamarix</i> sp.
Threadleaf ragwort	<i>Senecio flaccidus</i>
Tobosagrass*	<i>Pleuraphis mutica</i>

Note: Nomenclature follows the PLANTS database (USDA 2024a).

* Marks a dominant species within vegetation community.

† Marks a noxious weed species within vegetation community.

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During the 2024 surveys, no USDA-listed noxious weed species were observed within or around the Analysis Area (USDA 2010), however two New Mexico Department of Agriculture (NMDA)-listed Class C invasive species (Siberian elm [*Ulmus pumila*] and tamarisk [*Tamarix spp.*]) were observed (NMDA 2021). Additionally, prickly Russian thistle (*Salsola tragus*) was observed during the biological survey. Prickly Russian thistle is not a designated noxious weed but is an introduced species to the Analysis Area and throughout New Mexico (USDA 2024b). Protection measures can be used to reduce the introduction of noxious, invasive, and non-native plants.

3.4.1.2.2 Wildlife

The High Plains: Arid Llano Estacado Level IV ecoregion within the Analysis Area provides habitat for a variety of wildlife species. The most common animals found in the area include black-tailed jackrabbits (*Lepus californicus*), cottontail rabbits (*Sylvilagus sp.*), mule deer (*Odocoileus hemionus*), coyotes (*Canis latrans*), and skunks (*Mephitis mephitis*). Also typical to the area are pocket gophers (*Geomyidae sp.*), pack rats (*Neotoma sp.*), and squirrels (*Sciuridae sp.*). There are a variety of birds, including raptors, woodpeckers, various species of songbirds, ravens (*Corvus sp.*), and quail (*Coturnix sp.*). Numerous lizards and snakes are also found in the area, such as horned lizards (*Phrynosoma sp.*), whiptails (*Cnemidophorus sp.*), and prairie rattlesnakes (*Crotalus viridus*) (Griffith et al. 2006). SWCA biologists detected nine bird species and six mammal species during the 2024 surveys, including two Black-tailed prairie dog (*Cynomys ludovicianus*) colonies (Table 3-2). The observed burrows are suitable in size for burrowing owls (*Athene cunicularia*). None of the species detected were special-status species.

Table 3-2. Wildlife Detected during the Biological Resources Survey

Common Name	Scientific Name
Birds	
American kestrel	<i>Falco sparverius</i>
Chihuahuan raven	<i>Corvus cryptoleucus</i>
Eastern meadowlark	<i>Sturnella magna</i>
Great horned owl	<i>Bubo virginianus</i>
Lark bunting	<i>Calamospiza melanocorys</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>
Mourning dove	<i>Zenaida macroura</i>
Northern harrier	<i>Circus hudsonius</i>
Savannah sparrow	<i>Passerculus sandwichensis</i>
Mammals	
Black-tailed jackrabbit	<i>Lepus californicus</i>
Black-tailed prairie dog (burrow complex)	<i>Cynomys ludovicianus</i>
Domestic cattle	<i>Bos taurus</i>
Kangaroo rat	<i>Dipodomys spp.</i>
Pack rat (middens)	<i>Neotoma sp.</i>
Pocket gopher	<i>Geomyidae sp.</i>

Individuals of each species were observed unless otherwise noted.

Migratory Birds

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 both migratory and non-migratory bird species. 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; and 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. The project is expected to comply with the MBTA.

Suitable nesting habitat for migratory birds is present throughout the proposed Analysis Area for species that nest on the ground, and nest in Chihuahuan desert shrubland and desert grassland vegetation. Various species of songbirds and raptors are common to the area and could use this habitat for nesting. During the 2024 surveys, nine bird species were detected (see Table 3-2) and 12 nests were observed (Table 3-3), one of which was active with an adult great horned owl (*Bubo virginianus*) on it. The remaining nests were inactive. Additionally, two burrow complexes were observed with burrows suitable in size for burrowing owls.

Table 3-3. Nests Detected during the Biological Resources Survey

Nest ID	Status	Condition*	Common Name (Scientific Name)
N01	Inactive	Poor	Mourning dove (<i>Zenaida macroura</i>)
N02	Inactive	Poor	Mourning dove (<i>Zenaida macroura</i>)
N03	Inactive	Poor	Raptor sp.
N04	Inactive	Poor	Unknown
N05	Inactive	Fair	Raptor sp.
N06	Inactive	Fair	Raptor sp.
N07	Inactive	Fair	Raptor sp.
N08	Inactive	Fair	Raptor sp.
N09	Inactive	Fair	Raptor sp.
N10	Active	Good	Great horned owl (<i>Bubo virginianus</i>)
N11	Inactive	Poor	Raptor sp.
N12	Inactive	Poor	Raptor sp.

*Nest condition definitions: Good = a bird could easily use the nest as it is; Fair = a bird could use the nest with minor repairs; Poor = a bird would not be able to use the nest without major repairs.

Bald and Golden Eagles

Bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are protected under the MBTA and the Bald and Golden Eagle Protection Act (BGEPA). New Mexico’s bald eagle population is mostly migratory, with only a handful of nesting pairs occurring in Colfax and Sierra Counties (NMDGF 1996). The species is relatively common in the winter and during migration along water courses and reservoirs. In New Mexico, bald eagles typically nest in large trees, often ponderosa pine (*Pinus ponderosa*) or cottonwood (*Populus spp.*), with exposed branches strong enough to support their large nests. Foraging areas have tall, easily accessible trees for perching. Most perch trees are live trees, although dead trees are preferred if available (BISON-M 2024; Stahlecker and Walker 2010). Golden

eagles are typically found in mountainous regions of open country, prairies, arctic and alpine tundra, open wooded areas, and barren areas. The species is a year-round resident in open country and desert grasslands throughout most of New Mexico and nests from 4,000 to 9,500 feet amsl (Cartron 2010). Golden eagle nesting habitat is typically associated with rock ledges and cliffs greater than 100 feet high in the vicinity of suitable grassland and shrubland foraging habitat. Although this occurs infrequently, golden eagles may also use tall human-made structures if other more suitable nesting sites are not available. The species has been known to build nests in human-made structures such as windmills, observation towers, nesting platforms, and transmission towers, although this tends to be less frequent (Katzner et al. 2020).

Both bald and golden eagles are carnivores. Bald eagles prey on fish but also on mammals, especially prairie dogs (*Cynomys* sp.). Golden eagles forage in arid, open country with grasslands, and feed mainly on small mammals, as well as invertebrates, carrion, and other wildlife (BISON-M 2024; Stahlecker and Walker 2010).

Although perching structures (transmission lines) are in the vicinity of the Analysis Area and mammal burrows were present, the habitat in and surrounding the Analysis Area is not ideal foraging habitat for bald eagles due to the lack of riparian corridors; therefore, it is unlikely that bald eagles inhabit the Analysis Area. The nearest topographic features that may be suitable for golden eagle nesting habitat are approximately 50 miles to the west of the Analysis Area. With the presence of existing transmission poles for perching as well as the presence of prairie dog burrows within grassland and shrubland vegetation communities, the Analysis Area does contain available foraging and potential human-made nesting habitat for golden eagles; therefore, golden eagles could inhabit the Analysis Area. However, no bald or golden eagle individuals were observed during the 2024 biological resources surveys of the Analysis Area.

3.4.1.2.3 Special-Status Species

The special-status species evaluated in this report consist of 1) federally protected (endangered and threatened) species (USFWS 2024b); 2) additional species listed by the USFWS as candidate and proposed species, and species under review (USFWS 2024b); and 3) state-listed endangered and threatened species (BISON-M 2024; EMNRD 2021). The potential for local species occurrence was based on 1) existing information on distribution and 2) qualitative comparisons of the habitat requirements of each species with vegetation communities, landscape features, and/or water quality conditions in the Analysis Area. The potential for occurrence of a species was identified using the following categories:

- *Known to occur*: The species was documented in the Analysis Area either during or prior to the biological resources surveys by a reliable observer.
- *May occur*: The Analysis Area is within the species' currently known range, and vegetation communities, soils, and water quality conditions, among other factors, resemble those known to be used by the species.
- *Unlikely to occur*: The Analysis Area is within the species' currently known range, but vegetation communities, soils, and water quality conditions, among other factors, do not resemble those known to be used by the species, or the Analysis Area is clearly outside the species' currently known range.

One USFWS candidate species—monarch butterfly (*Danaus plexippus plexippus*)—has the potential to occur within the Analysis Area during the migratory period (April–October). The remaining special-status species are unlikely to occur in the Analysis Area due to lack of suitable habitat for each species and the project being outside of some of the species' known range. Table 3-4 describes the special-status species

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with the potential to occur in Lea County, New Mexico, their habitat, and their potential to occur in the Analysis Area. No USFWS-designated critical habitat is located in or around the Analysis Area. The closest critical habitat area (for the Texas hornshell [*Popenaias popeii*]) is approximately 56.8 miles southwest of the Analysis Area.

Table 3-4. Special-Status Species Listed for Lea County, New Mexico

Common Name (scientific name)	Status*	Range or Habitat Requirements	Potential for Occurrence in Analysis Area
Plants			
Tharp's blue-star (<i>Amsonia tharpii</i>)	NM E [†]	This species occurs in well-drained limestone and gypsum hills in Chihuahuan desertscrub communities between 3,100 and 3,500 feet amsl (New Mexico Rare Plant Technical Council 1999). The species' range occurs within Eddy County, New Mexico, and Pecos County, Texas.	Tharp's blue-star was investigated due to the overlap with the Bureau of Land Management's suitable habitat model for this species and to comply with the revised NMAC 19.21.2 Plant Rule. Although limestone soils are present within the analysis area, no limestone or gypsum hills are present as the analysis area is on a flat plain, thus the species is unlikely to occur due to lack of suitable habitat. Additionally, the analysis area is not in the species' known distribution range or within the species required elevation range.
Invertebrates			
Monarch butterfly (<i>Danaus plexippus</i> <i>plexippus</i>)	USFWS C	In New Mexico, the migration peaks in April and subsides by mid-May. Breeding occurs within the state, and a new generation matures in New Mexico by July. As breeding continues, peak in-state population numbers are reached in August and September. The southward migration back to Mexico begins in late August and September. During the breeding season in New Mexico, the monarch requires milkweed species (Family Asclepiadaceae) as a food source for the young caterpillars (Cary and DeLay 2016). Overall, monarchs seem to be most abundant in southeast New Mexico. There is currently no evidence that monarchs overwinter in New Mexico.	May occur within the proposed analysis area during migration from April through October. Foraging may also occur due to the presence of a diversity of flowering plants during breeding periods. No monarch butterflies or milkweed species were observed during the 2024 biological resources survey. However, the biological survey occurred outside of the milkweed detection period (generally March–October).
Texas hornshell (<i>Popenaias popeii</i>)	USFWS E	Historically, this species occurred in the Pecos–Rio Grande drainage. Currently, this species is found in four distinct locations: 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 Candidate Conservation Agreement. Associated with larger streams and a variety of substrates, it imbeds itself in softer bottoms, but also lodges itself in cracks and crevices, where it is probably immobile. Proposed critical habitat exists in Eddy County, New Mexico.	Unlikely to occur within the proposed analysis area due to the lack of suitable stream habitat. Additionally, the analysis area is outside the occupied range for the species.

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Common Name (scientific name)	Status*	Range or Habitat Requirements	Potential for Occurrence in Analysis Area
Reptiles			
Dunes sagebrush lizard (<i>Sceloporus arenicolus</i>)	NM E	A habitat specialist native to the shinnery oak (<i>Quercus havardii</i>) sand dune habitats extending from San Juan Mesa in northeastern Chaves County, Roosevelt County, and through eastern Eddy and southern Lea Counties. 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 its geographic range, the presence of this species is also associated with composition of the sand; this species only occurs at sites with relatively coarse sand.	Unlikely to occur within the proposed analysis area due to the lack of active dune complex habitat and because it is outside the species' known range. The nearest known suitable habitat and occupied areas are 15 to 19 miles southwest of the analysis area.
Birds			
Baird's sparrow (<i>Ammodramus bairdii</i>)	NM T	A winter resident in New Mexico, the Baird's sparrow has been found on Otero Mesa and in the Animas Valley and may occur in other areas of suitable winter habitat, particularly in the southern portion of New Mexico. Generally, prefers dense, extensive grasslands with few shrubs. Avoids heavily grazed areas.	Although desert grassland habitat is present within the proposed analysis area, shrub cover is likely too dense and grass cover is grazed and likely not dense enough for the species. Additionally, the proposed analysis area is outside the species' known habitat range.
Bald eagle (<i>Haliaeetus leucocephalus</i>)	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 the winter months, the species is found chiefly along or near rivers and streams and in grasslands associated with large prairie dog (<i>Cynomys</i> sp.) colonies. Typically perches in trees.	Unlikely to occur within the analysis area due to the lack of perennial waterbodies or rivers, and large nesting trees.
Bell's vireo (<i>Vireo bellii</i>)	NM T	In New Mexico, this species occurs in the southern third of the state during the breeding season. This species characteristically occurs in dense shrubland or woodland along lowland stream courses with willows (<i>Salix</i> sp.), mesquite (<i>Prosopis</i> sp.), and seepwillows (<i>Baccharis salicifolia</i>). Its distribution during breeding is typically limited to riparian habitats.	Unlikely to occur within the proposed analysis area due to the lack of dense shrubland or woodlands along perennial streams. The proposed analysis area is also outside of the species' known distribution range.
Broad-billed hummingbird (<i>Cynanthus latirostris</i>)	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 within the proposed analysis area due to the lack of riparian habitat or dense mesquite in canyons. The analysis area is also outside of the species' known distribution range.
Least tern (<i>Sterna antillarum</i>)	NM E	A migratory species occurring in North America during the breeding season where it is associated with water (e.g., lakes, reservoirs, and rivers). In New Mexico, breeding is restricted to the Pecos River Basin, primarily at Bitter Lake National Wildlife Refuge in Chaves County. Suitable habitat along rivers consists of bare sandy shorelines and salt flats.	Unlikely to occur within the proposed analysis area due to the lack of perennial waterbodies.

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Common Name (scientific name)	Status*	Range or Habitat Requirements	Potential for Occurrence in Analysis Area
Lesser prairie-chicken (<i>Tympanuchus pallidicinctus</i>)	USFWS E	This species occurs in southeastern New Mexico, primarily in shinnery oak or sand sagebrush (<i>Artemisia filifolia</i>) grasslands. Also occurs in shinnery oak–bluestem habitats dominated by sand bluestem (<i>Andropogon hallii</i>), little bluestem (<i>Schizachyrium scoparium</i>), sand dropseed (<i>Sporobolus cryptandrus</i>), threeawn (<i>Aristida</i> sp.), and blue grama (<i>Bouteloua gracilis</i>).	Unlikely to occur within the proposed analysis area due to the lack of suitable shinnery oak, sand sagebrush, and shinnery oak–bluestem habitats. In addition, the analysis area is outside of the species' estimated occupied range which occurs approximately 78 miles north of the analysis area (USFWS 2021).
Northern aplomado falcon (<i>Falco femoralis septentrionalis</i>)	USFWS EXPN NM E	Associated with semi-desert grasslands with scattered yuccas (<i>Yucca</i> spp.), mesquite, and cacti and less than 10% shrub cover (Meyer and Williams 2005). Naturally occurring populations are essentially restricted to northern Mexico near Chihuahua and along the south Texas Gulf Coast. The species had been reintroduced in New Mexico on the Armendaris Ranch in Socorro and Sierra Counties and on land administered by the Bureau of Land Management, White Sands Missile Range, and the NMSLO beginning in 2006 (Hunt et al. 2013). This reintroduction was largely unsuccessful. However, Chihuahuan desert grasslands of southern New Mexico provide suitable habitat for individuals dispersing from Mexico and may be suitable for future reintroduction efforts (Shaw 2020).	Although grassland habitat is present in the proposed analysis area, it is not extensive enough where tree/shrub cover density requirements are met, thus the species is unlikely to occur within the proposed analysis area.
Peregrine falcon (<i>Falco peregrinus</i>)	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 analysis area due to the lack of cliff habitat needed for nesting and perennial waterbodies.
Southwestern willow flycatcher (<i>Empidonax traillii extimus</i>)	USFWS E NM E	Breeds and migrates through relatively dense riparian tree and shrub communities associated with rivers, swamps, and other wetlands, including lakes and reservoirs. This subspecies nests in native vegetation but also uses thickets dominated by non-native tamarisk (<i>Tamarix</i> spp.) and Russian olive (<i>Elaeagnus angustifolia</i>) or in mixed native and nonnative stands of vegetation. Breeding habitat generally include dense tree or shrub cover that is over 10 feet tall with dense twig structure and high levels of green foliage; many patches with tall canopy vegetation also include dense midstory vegetation in the 7- to 16-foot range. In New Mexico, it is known to breed along the Gila River and the Rio Grande.	Unlikely to occur within the proposed analysis area due to the lack of dense riparian habitat. Additionally, the analysis area is not in the species' known distribution range.

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Common Name (scientific name)	Status*	Range or Habitat Requirements	Potential for Occurrence in Analysis Area
Mammals			
Tricolored bat (<i>Perimyotis subflavus</i>)	USFWS proposed E	Suitable spring, summer, and fall habitat consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields, and pastures. When not hibernating, tricolored bats roost in leaf clusters along branches of deciduous trees but will use pine trees. Tricolored bats will also roost in human-made structures, such as bridges and culverts, and occasionally in barns or the underside of open-sided buildings. In the winter, tricolored bats may roost in caves, mines, and culverts. In southern New Mexico, they may exhibit shorter torpor bouts and remain active and feed year-round. This species has been decimated by white-nose syndrome.	Unlikely to occur within the proposed analysis area due to a lack of wooded, riparian, and edge habitats. Additionally, the analysis area is not in the species' known distribution range.

Sources: Range and habitat information for wildlife species is taken from the BISON-M website (BISON-M 2024), NatureServe (2024), and the USFWS IPaC System (USFWS 2024b).

*The federal (USFWS) and/or state of New Mexico (NM) status definitions are: C = candidate (federal only); E = endangered; EXPN = experimental (federal only); T = threatened.

† Species is listed by the EMNRD (2021) as threatened or endangered; however, the species is not listed as occurring within Lea County, New Mexico.

Monarch Butterfly

The monarch butterfly is designated as a USFWS candidate species (USFWS 2024b). In addition, this species is under review by USFWS and a proposed rule to list the species is likely to occur in 2024 (*Federal Register* 88:41560). This species is a candidate for listing due to the decline in populations across North America resulting from habitat reduction and fragmentation. Candidate species receive no statutory protection under the ESA. The USFWS encourages cooperative conservation efforts for these species because they are, by definition, species that may warrant future protection under the ESA. However, if this species receives a proposed listing in 2024, ESA compliance will be required and may include species-specific surveys, habitat assessments, mitigation planning, and consultation with the USFWS under Section 7 of the ESA.

The monarch butterfly 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 the breeding season during the warmer months of April to October but is not known to overwinter within the state (Cary and DeLay 2016). The species is especially tied to the presence of milkweed species (*Asclepias* spp.) during the breeding season because milkweed species are the sole source of food for monarch caterpillars (BISON-M 2024).

No monarch butterflies or milkweed species were directly observed during the 2024 surveys of the proposed Analysis Area; however, surveys took place outside of the milkweed growing season and outside of the monarch activity season in New Mexico. Adult butterflies may occur here based on the annual migratory path during the migratory period (April – October). The Analysis Area provides suitable foraging habitat for this species because of the presence of nectar-producing flowering plants.

3.4.2 Environmental Impacts

Impacts to wildlife and vegetation would result from actions that alter wildlife habitats, including changes to vegetation, surface disturbance, and the presence of humans and equipment during construction. 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, increased human activity, and the presence of fugitive dust).

3.4.2.1.1 Vegetation

During the construction phase of the Project, the ROW will be cleared of incompatible trees and brush. Native grasses, crop land, and wetlands will be preserved wherever possible. The goal is to establish a ROW clear of incompatible vegetation while creating the conditions to maintain compatible vegetation as much as possible. Wherever feasible, the Wire Zone/Border Zone concept (Bramble and Byrnes) shall be integrated into the vegetation management program to allow for different types and heights of vegetation in the ROW, see Figure 1.4.2.1: Wire Zone/Border Zone Concept. The International Society of Arboriculture's booklet titled *Best Management Practices – Integrated Vegetation Management* (a companion publication of ANSI A300, Part 7) provides a good working summary of this concept. This concept differentiates between the wire zone directly under the conductors and the remaining border zone as outlined in Figure 3-3. Generally, this concept allows for different, yet compatible vegetation types in separate zones. Incompatible species will be controlled by initial clearing and follow-up herbicide applications. Xcel Energy's vegetation management team works very closely with herbicide manufacturers to determine the best products and mixes. Any herbicide applied at an Xcel Energy facility, including transmission line ROW, must be registered by the EPA.

During the construction phase and thereafter, herbicide applications may be made on incompatible vegetation, including tree stumps, to help establish compatible vegetation in the ROW. After compatible vegetation has been established, follow-up maintenance will be performed on a cyclical basis. Two strategies, which will be used on this Project by the Vegetation Management team, will be the implementation of the Integrated Vegetation Management strategy, mentioned earlier to control vegetation on the ROW, and the use of Light Detection and Ranging (LiDAR) to ensure safety, reliability, and compliance mandates.

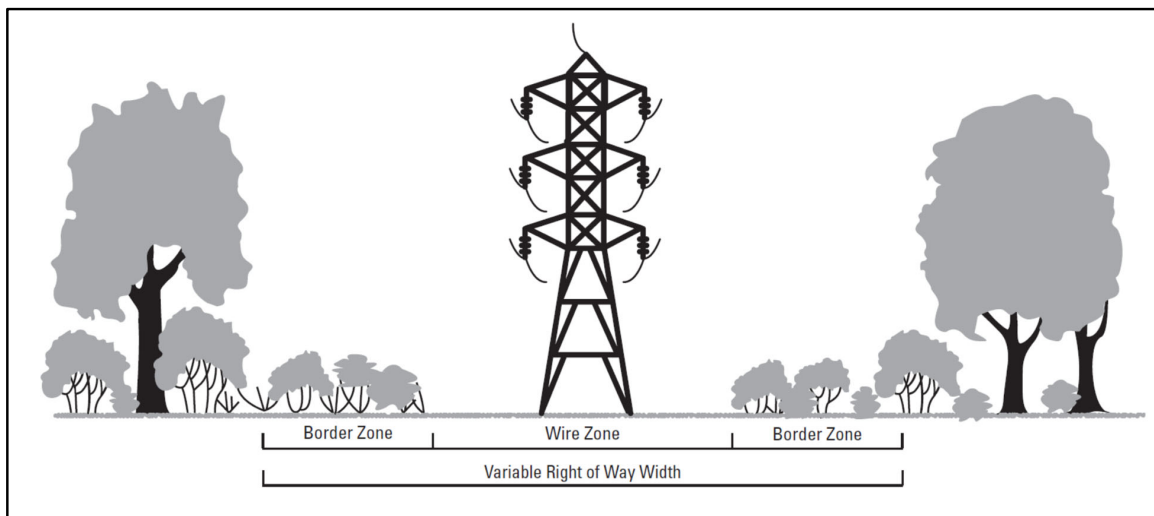


Figure 3-3. Example of project structure within a ROW with adjacent natural vegetation.

LiDAR will be used to ensure the safe, reliable, and compliance mandates on the line once the Project's construction concludes. This use of LiDAR is another example of how corporate support and investment has supported Xcel Energy's vegetation management efforts. Xcel Energy was an early adopter of LiDAR technologies and quickly understood how this powerful technology, could benefit vegetation management efforts across its operating companies.

Once the project is constructed and placed into service, a LiDAR survey will be conducted within six months to ensure the transmission line was built as designed and to ensure there are no clearance or encroachment issues. After the initial LiDAR survey, the Xcel Energy vegetation management team will have future LiDAR surveys performed every four years to identify any vegetation conflicts to be addressed in the next ROW clearing.

The work area will be cleared of vegetation and graded to facilitate the construction of the project only to the extent necessary. Further impacts to vegetation will 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), and result in injury to leaves in plants near the Analysis Area. Localized fugitive dust could be generated from the 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. Construction traffic and equipment brought to the site also represent a pathway for the introduction and spread of noxious weeds and invasive species. The ROW will be maintained in accordance with Xcel Energy's vegetation management program.

Post-construction, interim reclamation will occur in areas not needed for long-term operations and maintenance. Impacts to vegetation from decommissioning activities will be similar to impacts from construction. Once decommissioning is complete, final reclamation of the Analysis Area will reestablish vegetation (protection measures WATER 2, LAND USE 1, and VEGETATION 2).

3.4.2.1.2 Wildlife

The Analysis Area will be disturbed to facilitate construction of the transmission facilities. Direct impacts to wildlife from construction will include the 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 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 from construction vehicles and equipment could impact wildlife by interfering with animals' abilities to detect important sounds or by posing an artificial threat to animals (Clinton and Barber 2013). The Analysis Area has been previously disturbed by cattle grazing, oil and gas development, roads, and transmission lines. Therefore, the use by wildlife is likely to be low; thereby reducing the likelihood for impacts to individuals that are present. In addition, the project was planned to be co-located with existing infrastructure to minimize disturbance to the greatest extent possible. Short-term disturbances associated with construction light and noise could cause individuals to move from the Analysis Area to similar suitable habitat within the surrounding landscape. However, these impacts will not result in population-level effects. Two burrow complexes were observed during the biological resources survey, and it is recommended that these burrows be avoided.

Operations activities will occasionally include noise disturbances that could temporarily displace wildlife in the Analysis Area and vicinity. Impacts to wildlife species will be minimized through the implementation of protection measures such as allowing wildlife to leave the work area, checking trenches or excavation for wildlife, complying with speed limits, and following a worker environmental

awareness training (protection measures WILDLIFE 1 through 9, NOISE 1, GENERAL 1). Protection measure NOISE 1 will be implemented to minimize noise and light disturbances by generally constructing during daylight hours and using equipment with noise control devices. Impacts to wildlife from decommissioning activities will be similar to impacts from construction.

Migratory Birds

Suitable nesting habitat for migratory birds is present in the Analysis Area as evidenced by the presence of 12 nests, including one active nest. The shrubland and grassland habitat with mixed forbs and vertical structures such as electrical poles, provides nesting habitat for a variety of species. Additionally, two burrow complexes were detected in the Analysis Area that could be suitable for burrowing owls to occupy.

Incidental mortality or displacement of migratory bird species is possible on a local scale due to short-term construction activities and long-term ground disturbance. However, many birds occurring locally will likely move into adjacent habitat in response to disturbance. Adult migratory birds will not likely be directly harmed by the Transmission Facilities because of their mobility and ability to avoid areas of human activity. Additionally, based on the abundance of similar habitat in the surrounding area, the potential for adverse impacts on bird populations that use this habitat type within the Analysis Area will be low.

Operation of the Transmission Facilities, inclusive of transmission poles within the Analysis Area and adjacent transmission lines outside of the Analysis Area, could also present electrocution risk to avian wildlife; however, this risk is very low because the facilities are designed to discourage their use as perching or nesting substrates by birds, including designing aboveground transmission lines by following the established Avian Power Line Interaction Committee (APLIC) guidelines (APLIC 2006) to minimize bird collisions and avoid electrocution of raptors (protection measure WILDLIFE 8). Some examples of commonly used protections include providing adequate separation between energized components and grounded components, and covering components or grounds when adequate separation is not feasible (APLIC 2006). SPS would determine appropriate measures once the final design of the transmission facilities is developed.

Compliance with the MBTA will be met for the proposed project through the implementation of measures to avoid construction-related impacts to active nests and burrowing owl burrows during the breeding season (March 1–September 15). This includes preconstruction nest surveys up to 2 weeks prior to vegetation removal, training construction crews on actions to take in the event active nests are found in the Analysis Area, establishing nest buffers, and avoiding nests until birds have fledged (protection measures WILDLIFE 1 through 9). Impacts to burrowing owls will be mitigated through following the NMDGF *Guidelines and Recommendations for Burrowing Owl Surveys and Mitigation* (NMDGF 2007a), which includes spatial or seasonal avoidance to burrowing owl habitat (protection measure WILDLIFE 10).

Bald and Golden Eagles

Due to the lack of riparian woodland habitat, large trees near water sources, and the rarity of nest sites in New Mexico, it is unlikely that the proposed project will impact bald eagle breeding, nesting, or foraging activities or lead to take. Due to the presence of grassland and shrubland vegetation types as well as the presence of small mammal burrows, it is likely that golden eagles could forage within and near the proposed project. Additionally, large transmission poles within the project area could provide potentially suitable nest and perching site locations for the species; however, more prime suitable nesting habitat may be preferred.

Operation of the Transmission Facilities, inclusive of transmission poles within the Analysis Area and adjacent transmission lines outside of the Analysis Area, could present collision risks as well as electrocution risks to golden eagles and lead to incidental take; however, these risks are very low because the facilities are designed to discourage their use as perching or nesting substrates by birds, including designing aboveground transmission lines by following the established APLIC guidelines (APLIC 2006) to minimize bird collisions and avoid electrocution of raptors (protection measure WILDLIFE 8).

If deemed necessary, compliance with the BGEPA will be met for the proposed project through obtaining a recently established USFWS general permit to authorize eagle incidental take caused by powerline infrastructure under the 2024 Revised Eagle Rule (protection measure WILDLIFE 14; *Federal Register* 89:9920). If approved by USFWS, the terms of a general permit will be followed (which includes considering eagles in project siting and design; ensuring that all poles constructed in high-risk areas are avian safe; and the development of four strategies: [1] a collision response strategy, [2] proactive retrofit strategy, [3] reactive retrofit strategy, and [4] shooting response strategy) (*Federal Register* 89:9920).

Compliance with the BGEPA and MBTA will also be met for the proposed project through the implementation of measures to avoid construction-related impacts to active nests during the MBTA breeding season (March 1–September 15). This includes preconstruction nest surveys up to 2 weeks before construction, establishing nest buffers, and avoiding nests until birds have fledged (protection measures WILDLIFE 1 through 10). During the Southwestern U.S. eagle breeding season (December – August), a qualified biologist would be contacted to verify the nesting activity if any potential eagle nests are observed.

3.4.2.1.3 Special Status Species

One federally listed candidate species (monarch butterfly) has the potential to occur in the Analysis Area.

Monarch Butterfly

The monarch butterfly is a candidate species and is not currently protected under the federal Endangered Species Act (ESA) (16 United States Code [USC] 1531-1544) or by the State of New Mexico (17-2-40.1 NMSA 1978) as threatened or endangered. However, if this species receives a proposed listing in 2024, ESA compliance would be required and may include species-specific surveys, habitat assessments, mitigation planning, and consultation with USFWS under Section 10 of ESA. Vegetation removal in the project area may impact monarch butterfly foraging habitat. However, the vegetation within the Analysis Area is similar to surrounding habitat; therefore, monarch butterflies could utilize adjacent habitat for foraging purposes. Additionally, if monarch butterflies are encountered during construction, a qualified biologist would be notified to determine if monarch butterflies breeding within the Analysis Area. To reduce impacts to potential foraging habitat, SPS would include pollinator-friendly species, including milkweed, in the seed mix for revegetation (protection measure WILDLIFE 11).

3.4.2.2 PROTECTION MEASURES

The protection measures that will be implemented to avoid and minimize impacts to biological resources are described above and include:

- WATER 2: Temporarily disturbed areas will be revegetated to the extent practicable in order to meet SWPPP requirements for runoff and erosion control. Seed mix and seeding rates will be developed through consultation with the local agency, experts, or landowner preference.
- LAND USE 1: Restore compacted soils as close as possible to pre-construction conditions as required for ground stabilization and erosion control.

- WILDLIFE 1: Properly disposing of trash and food debris.
- WILDLIFE 2: Allowing wildlife that has entered the work area to leave the area on their own.
- WILDLIFE 3: Providing environmental awareness training to construction personnel working on the project.
- WILDLIFE 4: Complying with posted and established project speed limits.
- WILDLIFE 5: Conducting vegetation clearing outside the nesting season (March 1 to September 15) where feasible to discourage birds from establishing nests in project work areas. When nesting season cannot be avoided, pre-construction nest surveys will occur up to two weeks prior to vegetation clearing.
- WILDLIFE 6: The worker environmental awareness program (see protection measure GENERAL 1) will include training specific to avoidance of migratory birds and active migratory bird nests during the nesting season from March 15 to September 15. If active nests are found in the Analysis Area during construction, a biologist will be contacted to evaluate the activity status of the nest. The nest will be avoided or a biological monitor will be present until determined inactive by a biologist.
- WILDLIFE 7: Vegetation removal during the breeding season (March 1–September 15) could be preceded by a pre-construction nesting survey up to 2 weeks prior to construction to establish the occupancy status of any potentially suitable nests or nesting burrows detected within the Analysis Area. If active nests are found in the Analysis Area, a biologist will be contacted to evaluate the activity status of the nest. The nest will be avoided or a biological monitor will be present until determined inactive by a biologist.
- WILDLIFE 8: Facilities are designed to discourage their use as perching or nesting substrates by birds including designing aboveground transmission and facilities to follow established APLIC guidelines (APLIC 2006) to minimize bird collisions and avoid electrocution of raptors.
- WILDLIFE 9: Micrositing will be completed during engineering design to minimize impacts to sensitive biological resources to the extent practicable.
- WILDLIFE 10: In accordance with the NMDGF (2007a), a 75-meter avoidance buffer of occupied burrowing owl burrows will be implemented around any active nest until the young have fledged, and active raptor nests will be monitored for activity until hatchlings fledge. If construction work occurs within the 75-meter avoidance buffer, a biological monitor will be present to ensure construction operations does not harm or harass the species.
- WILDLIFE 11: If monarch butterflies are observed during construction, SPS's contractor would have a qualified biologist visit the project area to ensure no breeding monarch butterflies would be impacted by the construction of the Transmission Facilities. To reduce impacts to monarch butterfly foraging habitat, the revegetation seed mix will include pollinator-friendly species such as milkweed.
- WILDLIFE 12: All fences and gates will be maintained during the construction period. Fences, gates, and walls will be replaced, repaired, or reclaimed to their original condition as required by the landowner or the land management agency in the event that they are removed, damaged, or destroyed by construction activities. Fences will be braced before cutting. Gates or enclosures will be installed only with the permission of the landowner or the land management agency and will be removed/reclaimed following construction should it be necessary. Cattle guards will be installed on a case-by-case basis in negotiation with the landowner or land management agency.

- WILDLIFE 13: In accordance with the NMDGF trenching guidelines (NMDGF 2022) and powerline project guidelines (NMDGF 2007b), and excavation holes left open for 8 hours or more will be covered. Before the hole is backfilled, the hole will be inspected and all trapped wildlife will be removed and released at least 50 meters (m) away. In addition, all personnel working on the construction of the proposed project will be instructed to avoid intentionally harassing all animals.
- WILDLIFE 14: If deemed necessary, obtain and follow the terms of the recently established USFWS general permit to authorize eagle incidental take caused by powerline infrastructure under the 2024 Revised Eagle Rule for impacts to golden eagles from the proposed project.
- VEGETATION 1: Implement Xcel Energy's Vegetation Management Program.
- VEGETATION 2: If required as part of the SWPPP, a native seed mix will be applied to all temporary disturbance areas, followed by applications of mulch as needed to provide additional erosion control (see WATER 1).
- VEGETATION 3: Vegetation treatments to control the growth of woody species along the ROW will be conducted every two years. These treatments consist of spraying target species such as creosote and mesquite with herbicides to prevent vegetation encroachment on SPS' conductor clearance requirements, its facilities, patrol road, and/or inhibits future operation and maintenance activities. SPS has established guidelines that their contractors are required to follow to protect birds and bird nests during these spraying events.
- VEGETATION 4: In construction areas where recontouring is not required, vegetation will be left in place wherever possible, and original contour will be maintained to avoid excessive root damage and allow for resprouting in accordance with the reclamation plan. Vegetation not consistent with line safety and operation will be removed according to SPS's vegetation management practices.
- NOISE 1: Construction activities will generally be limited to the least noise-sensitive times of day (i.e., daytime between 6 a.m. and 8 p.m.), unless necessary due to weather, safety, or schedule constraints. Construction equipment will be equipped with manufacturers' standard noise control devices or better (e.g., mufflers, engine enclosures).
- GENERAL 1: Implement a worker environmental awareness program to train facility personnel regarding their responsibilities to conserve protected resources that are located on-site and associated treatment measures.

3.4.2.3 CONCLUSION

Impacts to wildlife and vegetation would result from actions that alter wildlife habitats, including changes to vegetation and plant community composition, surface disturbance, and the presence of humans and equipment during construction. Altering wildlife habitat in ways that could 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, increased human activity, and the presence of fugitive dust). Localized impacts on plant populations and communities could occur if seed production in some plant species is reduced. Additionally, SPS would ensure that invasive and noxious plant management measures are applied in the Analysis Area, including the implementation of control methods for the listed invasive and noxious plant species outlined within New Mexico State University's *Noxious and Troublesome Weeds of New Mexico* booklet (Beck and Wanstall 2021).

One federally listed candidate species (monarch butterfly) and one BGEPA protected species (golden eagle) have the potential to occur in the Analysis Area. Habitat within the Analysis Area is not unique to

the surroundings for the monarch butterfly and golden eagle. The transmission facilities will impact habitat for these species, and could impact individuals, but based on the abundant similar habitat adjacent to the Analysis Area, implementation of the project will not likely contribute to a loss of viability to the population or species.

The protection measures described in Section 3.4.2.1 will be implemented to avoid and minimize impacts to biological resources in the Analysis Area. The location of the Transmission Facilities is not expected to unduly impair important environmental values regarding biological resources, as long as the protection measures are followed.

3.5 Cultural, Historic, Archaeological, and Religious Resources

3.5.1 Affected Environment

Data sources reviewed to assess the cultural, historic, archaeological, and religious conditions within and surrounding the Analysis Area include:

- New Mexico HPD Tribal County Consulting List (HPD 2024)
- Bureau of Land Management (BLM) General Land Office records (BLM 2024)
- The New Mexico Cultural Resources Information System (NMCRIS) online database maintained by the New Mexico HPD, as well as current listings of the New Mexico State Register of Cultural Properties (SRCP), and the National Register of Historic Places (NRHP) (New Mexico Department of Cultural Affairs 2024)
- Class III intensive pedestrian cultural resources inventory survey for the NMSLO-managed land portion of the Analysis Area (NMCRIS 154825) (SWCA 2024b)
- Google Earth imagery for larger resources (Google Earth 2020)
- USGS historical topographic maps (USGS 2024a) and historic aerials on USGS Earth Explorer (USGS 2024b)

3.5.1.1 CURRENT CONDITIONS, REGIONAL AND ANALYSIS AREA OVERVIEW

3.5.1.1.1 Cultural, Historic, and Archaeological Resources

The proposed Transmission Facilities will be located within Lea County, New Mexico between the cities of Lovington and Hobbs. During the NMCRIS review, it was determined that no cultural resources were found within 1,000 m (0.62 mile); however, archaeological sites present within the region vary. Archaeological sites present within the region, include Archaic, Jornada Mogollon, and Historic sites.

Tribal Coordination

The Analysis Area is not on tribal land or within the viewshed of any tribal lands (see Figure 1-2). Therefore, the Transmission Facilities will not be visible from any tribal lands.

Cultural Resource Survey and Results

Eleven previously recorded cultural resources surveys were performed within 0.62 mile (1,000 m) of the Analysis Area, between 2014 and 2023. No cultural resources have been recorded within 0.62 mile (1,000 m) of the Analysis Area. Additionally, review of the NRHP, SRCP, and NMCRIS State Historic Preservation Office (SHPO) records indicate that no listed cultural resources are within the Analysis Area. The closest cultural resource (LA 155589) is a historic site that is approximately 2 miles east of the Analysis Area. This site was determined not eligible for listing to the NRHP by the SHPO in November 2015 (HPD Log No. 102350).

SWCA conducted an intensive (100% coverage) pedestrian cultural resources inventory survey of the Analysis Area on NMSLO-managed lands. The survey area or area of potential effects (APE) includes the footprint of the Analysis Area and a cultural buffer. Survey of private land was not required. The cultural resources investigation was completed on January 31, 2024 (NMCRIS No. 154825) (SWCA 2024b), in accordance with current SHPO guidance and NMAC 4.10.15 and 19.2.24 to ensure that cultural properties are not inadvertently excavated, harmed, or destroyed by any person. Although no archaeological sites or historic properties were observed during the current investigation, three isolated occurrences (IO) were identified. These consisted of aqua bottle glass (IO 1), sun-colored amethyst glass (IO 2), and a steel beverage can (IO 3). None of these resources meet the NRHP criteria of eligibility.

Religious Resources

An inventory of religious facilities within and surrounding the Analysis Area was conducted, and it was determined that no religious facilities fall within the project area (Figure 3-4). No impacts on religious resources are anticipated from the proposed Transmission Facilities.

3.5.2 Environmental Impacts

3.5.2.1 CULTURAL, HISTORIC, ARCHAEOLOGICAL, AND RELIGIOUS RESOURCES

No cultural resources were identified within the APE of the Analysis Area during the cultural resource investigation. No archaeological sites or historic properties were observed during the current investigation; however, three IOs were identified. However, none of these resources meet the NRHP criteria of eligibility.

The Analysis Area currently will have no effect on any archaeological sites or historic properties. Thus, no additional investigation or treatment is recommended regarding the current undertaking. The potential for subsurface cultural material within the Analysis Area is low; however, in the event that a previously undocumented burial site, or other intact subsurface cultural deposit, is discovered during project construction, the appropriate authorities would be notified according to protection measures CULTURAL 1 and CULTURAL 2, which include notifying HPD (SHPO) of an unanticipated discovery, stopping work within the discovery footprint, and following the proposed Unanticipated Discoveries Plan (Appendix C).

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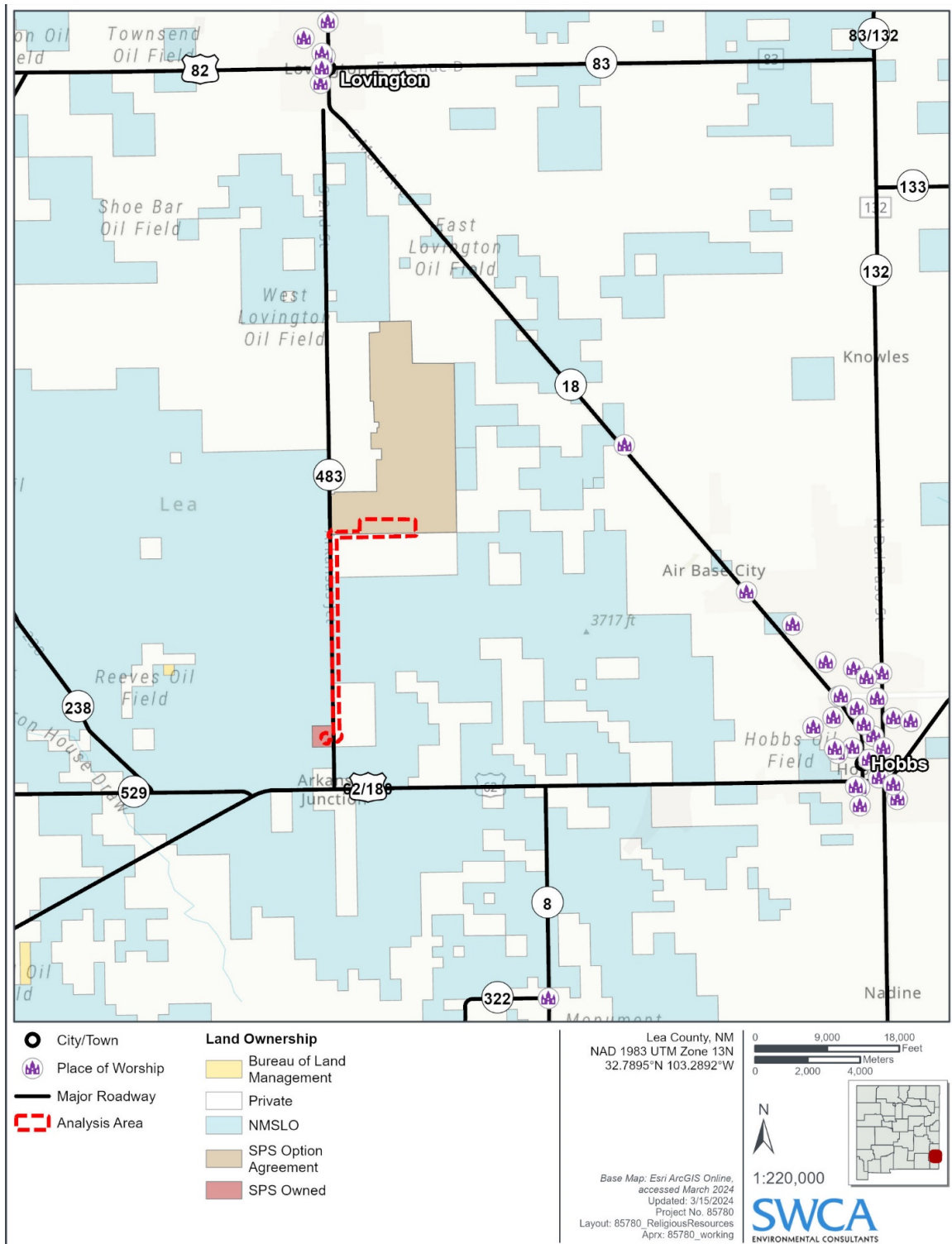


Figure 3-4. Religious resources in the vicinity of the Analysis Area.

3.5.2.2 PROTECTION MEASURES

The protection measures listed in Appendix A related to cultural and religious resources that will be implemented to avoid and minimize impacts from the Transmission Facilities include:

- CULTURAL 1: In the unlikely event that previously undocumented subsurface cultural resources are identified during project construction and implementation, the New Mexico HPD will be notified immediately, and all work will cease within the immediate discovery footprint until a qualified archaeologist has documented the discovery and evaluated its eligibility for the NRHP.
- CULTURAL 2: Follow the proposed Unanticipated Discoveries Plan (Appendix C).
- RELIGIOUS 1: Follow the proposed Unanticipated Discoveries Plan.
- TRANSPORTATION 1: Obtain the applicable permits needed to transport equipment and materials.
- TRANSPORTATION 2: Construction speed limits will be established.
- TRANSPORTATION 3: Proper construction technique and best management practices (BMPs) will be employed to minimize impacts to local roads.
- GENERAL 1: Implement a worker environmental awareness program to train facility personnel regarding their responsibilities to conserve protected resources that are located on-site and associated treatment measures.

3.5.2.3 CONCLUSION

SWCA concludes that the Transmission Facilities will have no effect on any cultural resources listed in or eligible for listing in the NRHP or SRCP. The three IOs identified within the APE of the Analysis Area during the cultural resources survey do not meet the NRHP criteria of eligibility.

If any unanticipated resources, including subsurface burial sites, are discovered during ground-disturbing construction activities, protection measures CULTURAL 1 and CULTURAL 2 will be implemented. There are no anticipated visual impacts from the proposed Transmission Facilities. The location of the Transmission Facilities is not expected to unduly impair important environmental values regarding cultural, archeological, historic, or religious resources.

3.6 Geologic, Paleontological, and Soil Resources

3.6.1 Affected Environment

Data sources reviewed to assess geologic and paleontological conditions, as well as existing soil resources, include the following:

- BLM New Mexico's Potential Fossil Yield Classification geographic information system (GIS) data (BLM 2022)
- NRCS soil maps (NRCS 2024)
- New Mexico Museum of Natural History and Science (n.d.)

3.6.1.1 CURRENT CONDITIONS, REGIONAL AND ANALYSIS AREA OVERVIEW

Lea County contains abundant geologic and paleontological resources, including scientifically important vertebrate fossils. The county also contains sensitive soils that support the unique ecosystems of the Llano Estacado subregion of the Great Plains.

The Great Plains region dominates the geologic framework for this portion of New Mexico (New Mexico Museum of Natural History and Science n.d.). The Great Plains were formed by flat-lying older rocks capped by younger sediment, with the Paleozoic Era marine limestone layers including remains of an ancient marine reef, giant caves, sink holes, and abundant oil and gas deposits. The Analysis Area is located within the western portion of the Great Plains region, to the east of the Rio Grande rift. The western edge is defined by mountain ranges (e.g., Organ Mountains and Sandia Mountains).

The soils in the Analysis Area have been identified as loam and gravelly loam (Table 3-5) (NRCS 2024). Slopes range from 0 to 3 percent. The NRCS erosion factor K indicates the susceptibility of soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation and the Revised Universal Soil Loss Equation to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on the percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). According to the Ksat for the soils mapped in the Analysis Area, there is a low to moderate likelihood of erosion potential (NRCS 2024). There are no hydric soils present within the project area. In addition, two soil units (Arvana-Lea association [AW] and Portales loam, 0 to 3 percent slopes [PC] are considered farmlands of statewide importance (NRCS 2024).

Table 3-5. Soil Units in the Analysis Area

Soil Type Name	Map Unit Symbol	Erosion Factor (Kw)	Hydric Soil	Acres in Analysis Area
Arvana-Lea association	AW	0.31	No	59.1
Kimbrough gravelly loam, dry, 0 to 3 percent slopes	KU	0.41	No	86.8
Kimbrough loam, 0 to 3 percent slopes	KO	0.37	No	115.2
Kimbrough-Lea complex, dry, 0 to 3 percent slopes	KN	0.36	No	4.0
Portales loam, 0 to 3 percent slopes	PC	0.29	No	51.6
Total				316.8

Source: NRCS (2024).

Although the Analysis Area is not located on BLM land, the BLM’s Potential Fossil Yield Classification (PFYC) System data values are used to analyze the potential impacts of the project to paleontological resources. The PFYC system provides baseline guidance for predicting, assessing, and mitigating paleontological resources in areas of development. The PFYC is a ranking (1 [very low] to 5 [very high] or unknown [U]) of geologic units (formation, member, or other distinguishable units) based on the taxonomic diversity and abundance of previously recorded, scientifically important paleontological resources, including vertebrate, invertebrate, and plant fossils (BLM 2016). These values were previously assigned by the BLM to mapped geologic units throughout New Mexico regardless of surface ownership. For geologic units designated as PFYC U, not enough information was available to make an informed determination on paleontological potential, and these units are typically treated as units having higher or very high potential until more information is available.

Table 3-6 provides the paleontological potential, typical fossils, and mapped acreage for the geologic unit that underlies the Analysis Area. The unit is described as lower Pliocene to middle Miocene with alluvial and eolian deposits (BLM 2022). Approximately 100% of the Analysis Area, is underlain by geologic units with a Class 3 (Moderate) PFYC rating. Units with a Class 3 rating have paleontological resources that may occur intermittently, but abundance is known to be low (BLM 2016).

Table 3-6. Geologic Units in the Analysis Area with Potential to Contain Important Paleontological Resources

Geologic Unit	Age	Typical Fossils	PFYC	Acreage of Analysis Area	Percentage of Analysis Area
Ogallala formation	Lower Pliocene to middle Miocene	Alluvial and eolian deposits, and petrocalcic soils of the southern High Plains; locally includes Quaternary older alluvial deposits (Qoa).	3	316.8	100.0

Sources: BLM (2022)

3.6.2 Environmental Impacts

The work area will be bladed and cleared of vegetation during construction activities only to the extent necessary. Construction activities are detailed within Section 0. Concrete foundations for the transmission structures will be up to 8 feet diameter and up to 30 feet deep

Blading and grading, especially over 1.6 feet, boring, and other types of excavation may displace geologic units. Deeper excavations greater than 3 feet or more may disturb deposits with moderate paleontological resource potential (i.e., Ogallala Formation).

Based on review of the geological, paleontological, and soil data sources, there is low potential for the project to encounter any surface or subsurface paleontological resources. The geologic unit of PFYC 3 ranking, the Ogallala Formation, is known to contain numerous fossils throughout the Great Plains region; however, it has a low abundance of fossil occurrences in New Mexico compared to the rest of the Great Plains and therefore is unlikely to yield any notable fossil material in the Analysis Area (Paleobiology Database 2023). Ground disturbances of 3 feet or more will likely be limited to foundation excavations. Foundation excavation drilling activities extending up to 30 feet deep may impact the Ogallala Formation; however, drilling activities with small (e.g., 3 feet or more) diameter boreholes typically do not result in the discovery of significant paleontological resources due to the mechanical process of augering. Therefore, ground-disturbing activities associated with the Project are unlikely to result in significant adverse effects. If any paleontological resources are discovered during any phase of the proposed project, these resources are considered the property of the landowner.

Portions of the Analysis Area that will undergo blading and grading during construction will directly impact sensitive soils. All construction occurring below the surface, including structure foundation installation, as well as additional soil removal, will also directly impact the soils. Heavy equipment operations resulting in soil compaction and increased erosion from stormwater events from the loss of vegetative cover could cause the loss of soil structure and porosity.

Disruption of the soil crust and subsequent erosion can result in decreased soil organism diversity, soil nutrient levels, soil stability, and organic matter. These impacts are expected to be limited to the proposed Analysis Area. Although no sensitive soils, including biological soil crusts, were observed during the biological resources survey, the proposed project could impact subsurface biological soil crusts if they are present. Indirect impacts to soil resources could include a change in soil productivity due to accidental

mixing of topsoil with subsoil during construction. Protection measures are proposed to avoid and minimize these impacts, including minimizing surface disturbances and minimizing topsoil mixing through proper excavation techniques (protection measures SOIL 1 through SOIL 3).

Construction and maintenance activities provide for the potential for chemical spills or leaks from equipment, resulting in soil contamination. The risk of soil contamination is reduced when protection measures are applied (protection measures WASTE 1 through WASTE 4). Soil contamination from spills or leaks can result in decreased soil fertility, less vegetative cover, and increased soil erosion. Decommissioning activities would have similar impacts to those described for construction as similar activities will occur.

3.6.2.1 PROTECTION MEASURES

The protection measures listed in Appendix A related to geology and soils that will be implemented to avoid and minimize impacts as part of the transmission facilities are described above and include:

- CULTURAL 3: In the unlikely event that previously undocumented paleontological resources are identified during project construction and implementation, a qualified paleontologist may be consulted to assess the resource and its context and will subsequently advise on mitigation options as needed.
- SOIL 1: After a rain event, construction will commence once the area is no longer inundated, and will adhere to SWPPP protocols.
- SOIL 2: All soils compacted by movement of construction vehicles and equipment will be 1) loosened and leveled through harrowing or disking to approximate pre-construction contours, and 2) reseeded with certified weed-free native grasses and mulched as required (except in cultivated fields).
- SOIL 3: Erosion will be reduced by applying and maintaining standard erosion and sediment control methods. These may include but not limited to using certified weed-free straw wattles and bale barriers and silt fencing. Specific erosion and sediment control measures will be specified in an SWPPP (see WATER 1).
- SOIL 4: Excavated material not used in the backfilling of poles will be spread around each pole or hauled off-site or transported as fill to other locations where needed. In newly disturbed temporary work areas, the soil will be salvaged and will be distributed and contoured evenly over the surface of the disturbed area after construction completion. The soil surface will be left rough to help reduce potential wind erosion.
- WASTE 1: Hazardous materials will not be drained onto the ground or into streams or drainage areas.
- WASTE 2: Construction waste including trash, other solid waste, petroleum products and other potentially hazardous materials will be removed to a disposal facility authorized to accept such materials.
- WASTE 3: Contractors shall implement a hazard communication program for any on-site hazardous materials to include training, labeling and posting of Safety Data Sheets (SDS). Fuels and petroleum-based products shall be stored in approved containers and away from excavated areas. Waste motor oil, hydraulic fluid, and liquid gear lube shall be stored in approved containers in isolated areas and removed to an authorized disposal facility monthly and in accordance with regulations of the NMED. All equipment using hydraulic hoses and cylinders shall be inspected for leaks. Any equipment found to have petroleum leaks that cannot be repaired immediately shall be removed from service and replaced.

- WASTE 4: Contractors shall have proper training, available spill kits, and any leaking equipment shall be repaired immediately. In the event contaminants are released, in addition to the requirements outlined in the environmental report, SPS shall adhere to the notification policies contained in Water Quality Control Commission Rule 20.6.2.1203 NMAC.

3.6.2.2 CONCLUSION

The proposed project was designed to limit direct and indirect impacts to geologic, paleontological, and soil resources to the greatest extent possible by preventing soil erosion and contamination during construction, operation, maintenance, and decommissioning activities. The proposed project could directly impact soils and geologic units through grading, boring, or other types of excavation. The PFYC ratings indicate that there is a low likelihood of the project encountering paleontological resources during project activities, thus limiting the potential for direct impacts. The location of the transmission facilities is not expected to unduly impair important environmental values regarding geologic, paleontological, and soils resources.

3.7 Geographic Resources

3.7.1 Affected Environment

Data sources reviewed to determine the nearest geographic resources include the following:

- National Park Service’s (NPS) physiographic provinces (NPS 2024)
- BLM Carlsbad Field Office Special Designations GIS data

3.7.1.1 CURRENT CONDITIONS, REGIONAL AND ANALYSIS AREA OVERVIEW

Geographic resources are rooted in cultural values and are typically places or earthly physical material that people treasure. Most of Lea County is located on the Llano Estacado, one of the largest mesas in North America, covering 32,000 square miles. The Llano Estacado is the southern extension of the High Plains and lies south of the Canadian River in northwest Texas and northeast New Mexico, with the Mescalero Escarpment east of the Pecos River valley as the western boundary. The land was not settled due to lack of water until the late 1800s, at which point cattle ranching and farming developed. The discovery of oil and gas in the area led to a boom in development in the 1930s (Leatherwood 2020).

The Analysis Area is located within the NPS’s Great Plains physiographic province (NPS 2024). There are no national monuments, national or state parks, BLM-determined wilderness study areas, special designation areas, or areas of critical environmental concern within 25 miles of the Analysis Area, and most of the land is privately owned. However, there are two cities or towns in the vicinity of the Analysis Area (Table 3-7; Figure 3-5).

Table 3-7. Geographic Resources in Analysis Area Vicinity

Geographic Resource	New Mexico County	Proximity to Analysis Area	Geographic Resource Use
City of Lovington	Lea	10 miles north	This city has a total population of 11,668 persons and 3,470 households. The city measures 11.4 square miles.
City of Hobbs	Lea	11.4 miles east	This city has a total population of 40,508 persons and 13,178 households. The city measures 26.4 square miles.

Source: U.S. Census Bureau (2024).

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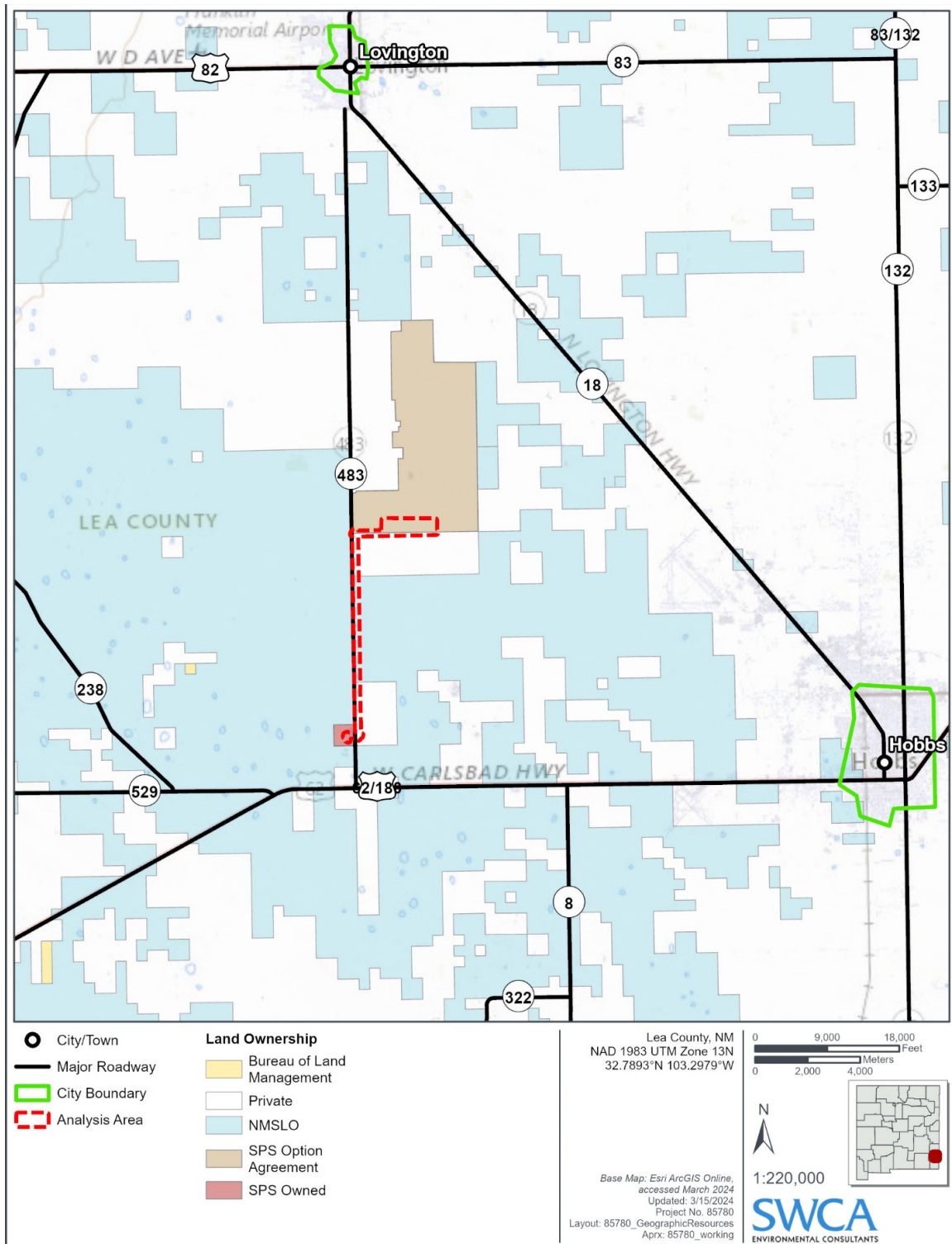


Figure 3-5. Geographic resources in the vicinity of the Analysis Area.

3.7.2 Environmental Impacts

Direct impacts, including noise and visual disturbance associated with construction, operation, maintenance, and decommissioning activities, to the geographic resources and residents within town and city limits will not occur due to their distance from the Analysis Area (over 10 miles away) and intervening topography and land uses.

Indirect impacts to the geographic resources and residents within town and city limits may include traffic and air resources impacts. Impacts on traffic are analyzed in Section 3.13 and include temporary impacts due to an increase in traffic on local and regional transportation routes during project construction, operations, and decommissioning. Protection measures will minimize effects to traffic as specified in Section 3.13 and include protection measures TRANSPORTATION 1 through TRANSPORTATION 3. Air resources impacts, including emissions from construction and decommissioning equipment and vehicles, are analyzed in Section 3.3. Emissions are expected to be minor and are not expected to impact the overall air quality of the region, including the geographic resources. Protection measures will minimize effects to air resources as specified in Section 3.3 and include protection measures AIR 1 through AIR 5.

3.7.2.1 PROTECTION MEASURES

The protection measures listed in Appendix A related to geographic resources that will be implemented to avoid and minimize impacts as part of the Transmission Facilities are described above and include the following:

- AIR 1: Maintaining all fossil fuel-fired construction equipment in accordance with manufacturer recommendations to minimize construction related combustion emissions.
- AIR 2: Limiting the idling time of fossil fuel-fired construction equipment, unless idling must be maintained for proper operation (e.g., drilling, hoisting, and trenching).
- AIR 3: Limiting the speed of vehicles within construction sites during construction to help reduce the amount of fugitive dust generated.
- AIR 4: Utilizing water trucks or other dust suppression measures as required by NMED Air Quality Bureau to help reduce fugitive dust from construction activities.
- AIR 5: Open burning of construction trash will not be allowed.
- TRANSPORTATION 1: Obtain the applicable permits needed to transport equipment and materials.
- TRANSPORTATION 2: Construction speed limits will be established.
- TRANSPORTATION 3: Proper construction technique and BMPs will be employed to minimize impacts to local roads.
- VISUAL 1: Reduce visual impacts during construction by minimizing areas of surface disturbance as practical, controlling erosion, using dust suppression techniques as practical, and, if applicable, restoring exposed soils as closely as possible to their original contour and vegetation.
- VISUAL 2: Construction activities will primarily be limited to daytime hours. If night work is required during construction, lighting will be the minimum necessary for safety, and lighting will not be left on when not in use.

3.7.2.2 CONCLUSION

The Transmission Facilities will be located at least 10 miles from geographic resources, and no direct or indirect impacts are expected. The location of the Transmission Facilities is not expected to unduly impair important environmental values regarding geographic resources with the implementation of protection measures.

3.8 Health and Safety

3.8.1 Affected Environment

Data sources reviewed include the following:

- Google Earth aerial imagery of the Analysis Area (Google Earth 2020)
- EPA’s online environmental review databases (EPA 2024d)
- EPA’s online EnviroAtlas (EPA 2024e)

3.8.1.1 CURRENT CONDITIONS, REGIONAL AND ANALYSIS AREA OVERVIEW

Health and safety issues addressed in this section include an evaluation of environmental impairment, and safety hazards and risks to occupational workers and the public associated with construction and operation of the transmission facilities. Risks to project workers include those associated with construction techniques and equipment. Similar risks to the public could occur if unauthorized access is gained to the Analysis Area during construction or operations.

The Analysis Area and surrounding land are mostly undeveloped shrub/scrubland, with some cultivated cropland, as well as medium-intensity development where the Analysis Area runs close to cities including Lovington and Hobbs in Lea County, New Mexico. Facilities and residences within approximately 5 miles of the Analysis Area include the Maddox Station Power Plant, Rene Anthony’s restaurant, agricultural operations, and five potentially occupied rural residences that are east of the Analysis Area. An existing transmission line and existing oil and gas infrastructure are also located in the project vicinity. The Analysis Area can be accessed via several state and federal highways that run through southeastern New Mexico, as well as existing resource access roads.

Based on a review of the EPA’s spills and cleanup data, there are no documented spills; contaminated sites; or dangerous waste treatment, storage, disposal, recycling, or used oil facilities within or near the Analysis Area (EPA 2024d). The nearest fire first responders to the Analysis Area are the Monument Fire Department (approximately 7.6 miles southeast of the Analysis Area in the middle of Lea County) and the Hobbs Fire Station #3 (approximately 11.1 miles east of the Analysis Area in the middle of Lea County). The nearest hospitals and health clinics are the Nor-Lea Hospital District in Lovington and Covenant Health Hobbs Hospital in Hobbs.

3.8.2 Environmental Impacts

Clearing and grading of the Analysis Area for the Transmission Facilities will not impact any recognized health and safety conditions or known radioactive wastes or radiation hazards because none are present in the Analysis Area.

Construction and operation of the Transmission Facilities will occur in accordance with all applicable laws and regulations governing health and safety, including the Occupational Safety and Health Act of 1970 as administered by the Occupational Safety and Health Administration (OSHA) (protection measures SAFETY 1 and SAFETY 2). Solid and hazardous wastes that are generated by project construction will be disposed of off-site at permitted landfill(s) (see protection measures WASTE 3 and SAFETY 2). Protection measures will be implemented to minimize potential exposure to individuals from accidental releases of hazardous materials to soils and waters of the U.S. during construction (see protection measures WASTE 1 through WASTE 4). Any accidental releases will be appropriately cleaned and discarded (see protection measure WASTE 1). A safety and hazardous materials management plan will also be developed as part of the Transmission Facilities (see protection measures SAFETY 1 and SAFETY 2). Additional protection measures will be implemented to reduce fire risks, including a limited smoking area for workers and banning non-construction flame sources outside of vehicles, establishing safety guidelines for construction flame and spark sources, and equipping vehicles with fire suppression tools and equipment (see protection measures FIRE 1 through FIRE 5). Implementation of these standard practices will reduce the potential for occupational health and safety risks from the project. In addition, SPS will implement a safety plan to protect workers and safely dispose of any metal objects and ordnance remnants if encountered during construction (see protection measure SAFETY 2).

During construction, public access to the Analysis Area will be restricted, thereby minimizing the potential for public exposure to construction-related risks.

The Transmission Facilities' permanent structures will be maintained in accordance with industry standards for safety. Workers accessing the facilities for routine maintenance will be trained in the proper maintenance of the facilities. Additionally, the potential for accidental releases of hazardous materials from maintenance equipment is minimized by the limited equipment needed to maintain the facilities, and there are no radioactive wastes or radiation hazards associated with the maintenance of the facilities.

Impacts to health and safety during project decommissioning will be similar to those described above for construction. Post-construction, project facilities will be removed from the Analysis Area and the area will be restored as described in Section 2.1.2.10. There will be no long-term health and safety impacts after decommissioning.

3.8.2.1 PROTECTION MEASURES

The protection measures listed in Appendix A related to health and safety that will be implemented to avoid and minimize impacts as part of the Transmission Facilities are described above and include:

- WASTE 1: Hazardous materials will not be drained onto the ground or into streams or drainage areas.
- WASTE 2: Construction waste including trash, other solid waste, petroleum products and other potentially hazardous materials will be removed to a disposal facility authorized to accept such materials.
- WASTE 3: Contractors shall implement a hazard communication program for any on-site hazardous materials to include training, labeling and posting of SDSs. Fuels and petroleum-based products shall be stored in approved containers and away from excavated areas. Waste motor oil, hydraulic fluid and liquid gear lube shall be stored in approved containers in isolated areas and removed to an authorized disposal facility monthly and in accordance with regulations of the NMED. All equipment using hydraulic hoses and cylinders shall be inspected for leaks. Any equipment found to have petroleum leaks that cannot be repaired immediately shall be removed from service and replaced.

- WASTE 4: Contractors shall have proper training, available spill kits, and any leaking equipment shall be repaired immediately. In the event contaminants are released, in addition to the requirements outlined in the environmental report, SPS shall adhere to the notification policies contained in Water Quality Control Commission Rule 20.6.2.1203 NMAC.
- FIRE 1: Employ wildland fire prevention measures during construction, including limiting vehicle travel to and within construction areas to only essential vehicles, establishing parking guidelines in remote areas, mitigating smoking locations during construction, and non-construction flame sources outside of vehicles, and establishing safety guidelines for construction flame and spark sources.
- FIRE 2: SPS and its contractors, as appropriate, will initiate discussions with local fire districts and regional fire prevention staff prior to construction to discuss emergency procedures.
- FIRE 3: As appropriate, vehicles will be equipped with fire suppression tools and equipment. Fire suppression equipment may include, but will not be limited to, shovels, buckets, and fire extinguishers.
- FIRE 4: Smoking and equipment parking will be restricted to approved areas.
- FIRE 5: SPS and/or its contractors will fuel all highway-authorized vehicles off-site or in approved areas to minimize the risk of fire. Fueling of construction equipment that is transported to the site and is not highway authorized will be done in accordance with regulated construction practices and applicable federal, state, and local laws.
- SAFETY 1: Federal and state occupational health and safety standards will be established for the project, such as OSHA's Occupational Health and Safety Standards. Additionally, a Hazardous Materials Management Plan is proposed for the management of hazardous materials, in coordination with those requirements under the project's SWPPP.
- SAFETY 2: A safety plan will be developed prior to construction for contractors working at the site. The plan will include items such as location of nearest medical emergency facilities, agency contacts and procedures, and inclement weather procedures.

3.8.2.2 CONCLUSION

There are no known recognized health or safety environmental conditions in the Analysis Area that will present a health and safety risk from the development of the Transmission Facilities. The protection measures listed above will be implemented to avoid and minimize occupational and public health and safety risks during construction, operations, maintenance, or decommissioning. The location of the Transmission Facilities is not expected to unduly impair important environmental values regarding health and safety.

3.9 Land Use

3.9.1 Affected Environment

Data sources reviewed to determine the current land use conditions include the following:

- BLM Carlsbad Field Office grazing allotment GIS spatial data
- Google Earth aerial imagery for land uses (Google Earth 2020)
- New Mexico State Land Office Land Status Service (NMSLO 2024)

- New Mexico Department of Transportation airport information (New Mexico Department of Transportation 2024)
- FCC information on communication sites and signals (Cavell, Mertz & Associates 2024)

3.9.1.1 CURRENT CONDITIONS, REGIONAL AND ANALYSIS AREA OVERVIEW

Land use refers to the human use of land, including management and modifications of the natural environment. The Analysis Area is comprised of NMSLO-managed land and private lands. BLM lands also occur regionally, primarily to the west of the Analysis Area (**Error! Reference source not found.**).

The Analysis Area and immediate surrounding lands primarily consist of oil and gas development, mining, agriculture, and lands that have not been significantly modified for land use or are considered rural or vacant. Additional land use within the region and immediate vicinity of the Analysis Area includes numerous high-voltage transmission lines, roadways, oil and gas infrastructure (see **Error! Reference source not found.**6). The Analysis Area is currently minimally used for low density livestock grazing, with one agricultural lease (grazing allotment) intersecting the Analysis Area: Snyder Ranches. Inc (NMSLO Lease No. G023660000) (Figure 3-7).

Aviation, communication, and renewable energy land use resources are also present within the vicinity of the Analysis Area. The Bronco 4 MOA, Texas special use airspace overlaps the Analysis Area. In addition, three airports: Industrial Airpark, Covenant Health Hobbs Hospital, and Lea County Regional Airports are all within 10 miles of the Analysis Area (see **Error! Reference source not found.**). There are two communication towers at the southern terminus of the transmission facilities at the Cunningham Substation (Cavell, Mertz & Associates 2024). These towers are not within the Analysis Area (Figure 3-7). One additional communication tower is located approximately 0.6 mile north of the proposed substation location. No other communication towers are within a 1-mile radius of the Analysis Area. (Cavell, Mertz & Associates 2024). There are six oil and gas leases within the Analysis Area and two mineral leases are within the Analysis Area, both of which are leased to SPS (Lease Nos. M042070000 and W006710000) (NMSLO 2024).

There is minimal recreation use in the region of the Analysis Area, as there are no established outdoor recreation sites or trails in the vicinity. Recreation uses in the region of the Analysis Area are primarily associated with the geographic areas described in Section 3.7 (town and cities, located 2 to 11 miles from the Analysis Area). The Lovington Country Club and city park occur approximately 10.6 miles north of the Analysis Area near the city of Lovington and the Hobbs city park is approximately 12.5 miles east of the Analysis Area. Private landowners may use the area for informal recreational activities.

Water wells exist within the Analysis Area and in the surrounding area. There are 78 water wells in the vicinity of the Analysis Area, with the majority of wells aggregated north and east of the Analysis Area (see **Error! Reference source not found.**).

Livestock grazing exists within the NMSLO portion of the Analysis Area (Snyder Ranches. Inc [NMSLO Lease No. G023660000]) and regionally (NMSLO 2024). The undeveloped rangelands within and surrounding the Analysis Area are publicly and privately owned, and grazing in the ROW will be terminated prior to construction of individual site structures.

Potential future land use in the vicinity of the Analysis Area includes renewable and non-renewable energy development, and residential development surrounding nearby towns and cities. However, minimal residential development near the Analysis Area has occurred to date, and the Analysis Area is not contained within any city limits (see Section 3.7). There are only five potentially occupied residences within 1.2 miles of the Analysis Area (see additional details in Section 3.11).

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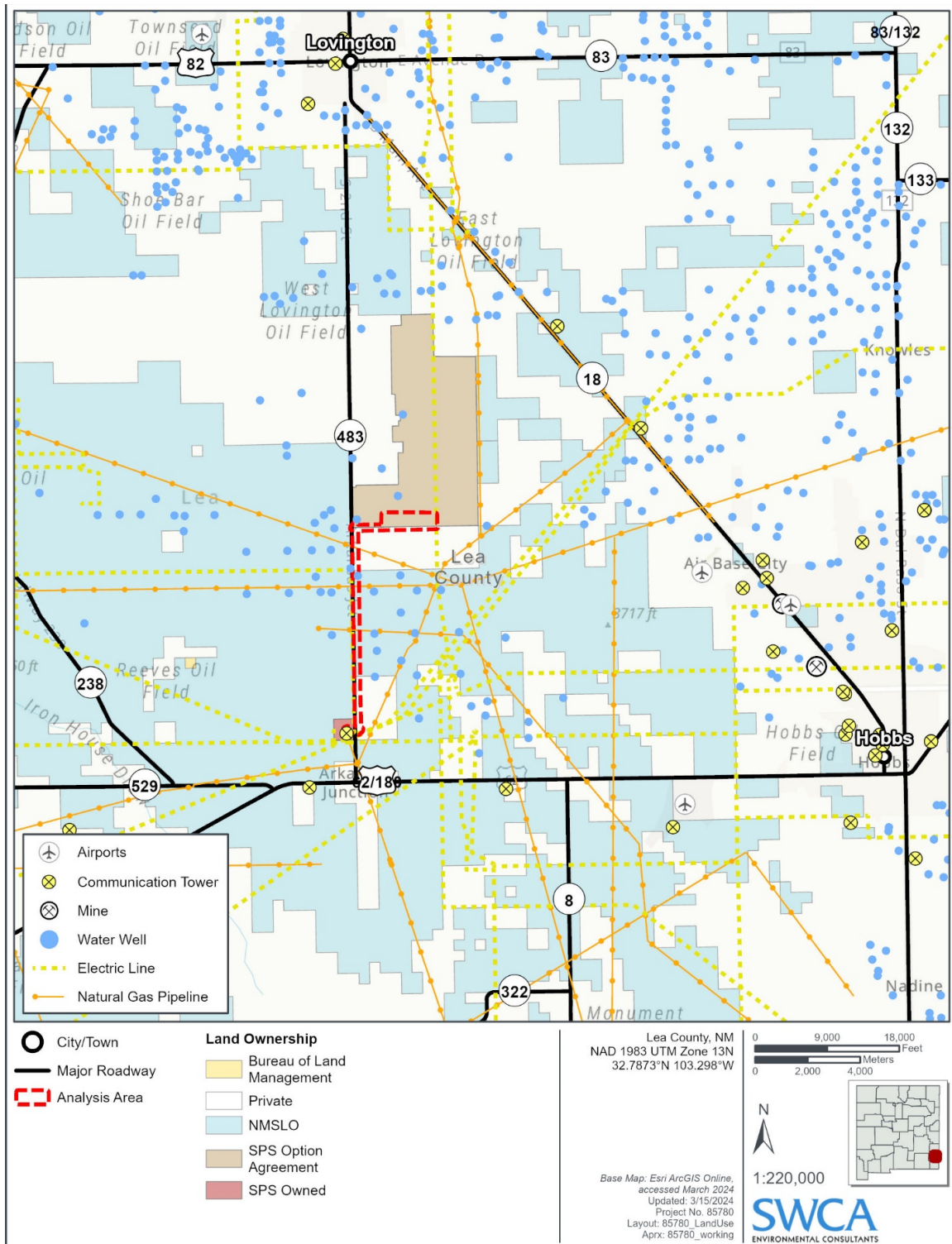


Figure 3-6. Land use in the vicinity of the Analysis Area.

Environmental Report for the Cunningham Transmission Line Project in Lea County, New Mexico

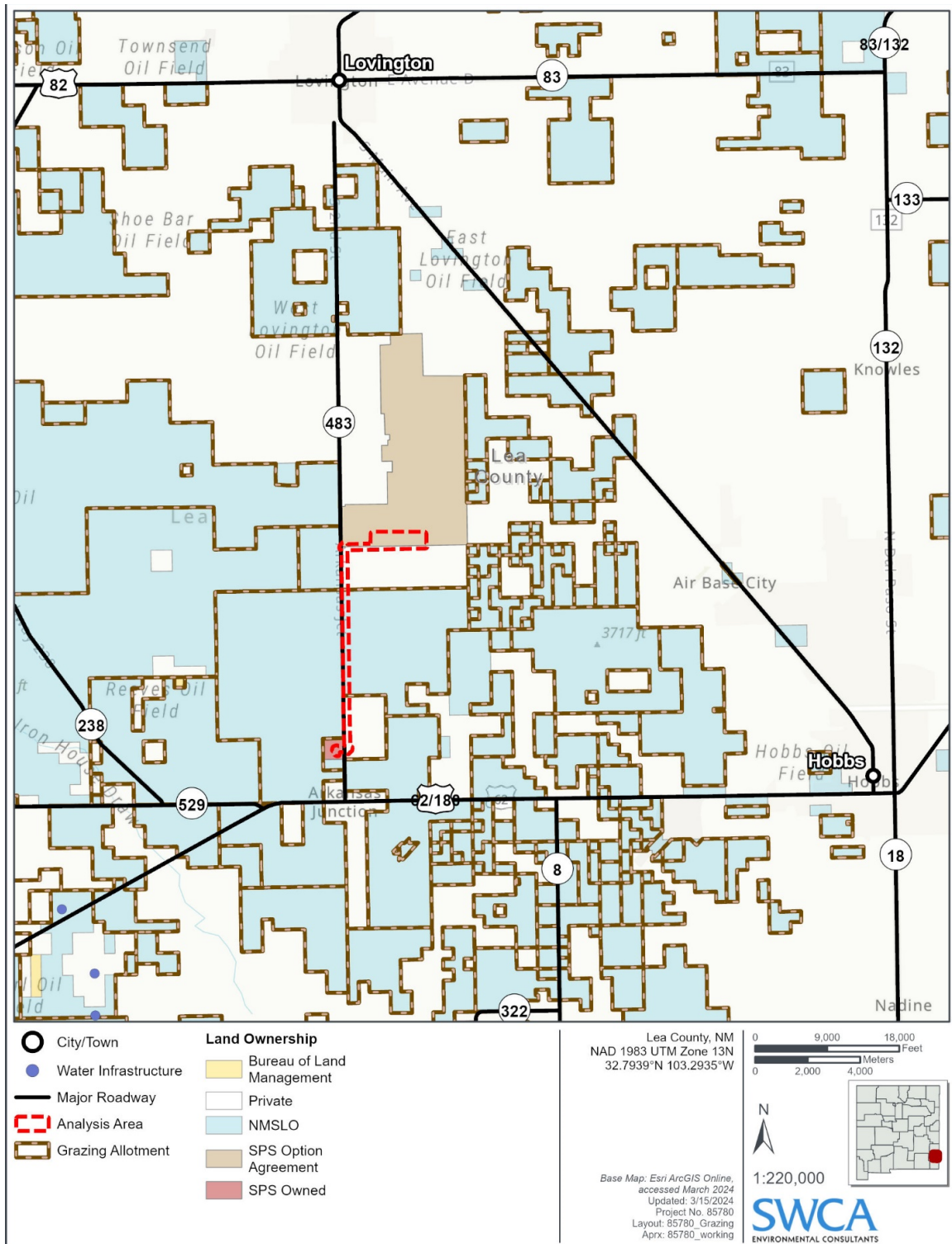


Figure 3-7. Grazing allotments in the vicinity of the Analysis Area.

3.9.2 Environmental Impacts

Impacts to land use resources within and surrounding the Analysis Area would be minimal as the land is previously disturbed primarily by oil and gas development, utility lines and roads, or vacant with low livestock grazing density. During construction, individual structure sites would be cleared and graded for project infrastructure, resulting in vegetation loss only to the extent necessary. The Transmission Facilities would potentially impact up to 45.4 acres of an approximately 21,400-acre agricultural lease overlapping the Analysis Area. Loss of native vegetation can also increase the potential for noxious, non-native, and invasive plant species establishment. If noxious weed populations were to become established within and surrounding the Analysis Area, it could contribute to additional loss of suitable foraging availability. There are several high-voltage transmission lines within the immediate vicinity of the Analysis Area that facilitate energy transmission; thus, the Transmission Facilities would be consistent with this current land use.

The Transmission Facilities would not impact aviation uses, including military aviation areas or communication sites. There are no airports within 5 miles of the Transmission Facilities, however there are three airports within 10 miles of the Analysis Area. The project routing is far enough away from the airport that FAA regulations will not impact the project. SPS will file a “Notice of Proposed Construction or Alteration” with the FAA to ensure that the project will not interfere with the safe and efficient use of navigable airspace. Additionally, the height of the structures proposed would not impact existing communication facilities.

There are no existing and established recreation resources in or immediately surrounding the Analysis Area that would be impacted by the Transmission Facilities. Refer to Sections 3.11 and 3.15 for additional analysis related to noise and visual impacts, respectively.

Minor impacts would occur to private grazing and public grazing allotments within the Analysis Area, as clearing and grading would occur at individual structure sites resulting in loss of vegetation.

As the surrounding area is largely industrially developed and rural or vacant, minimal impacts from construction would occur, though potential noise and visual impacts to the five existing residences around the Analysis Area are described in Sections 3.10 and 3.14, respectively.

The portions of the Analysis Area that are not needed for long-term operation and maintenance activities would be reclaimed following construction. According to the protection measures related to reclamation, a native seed mixture would be applied to all temporary disturbance areas (protection measures LAND USE 1, SOIL 2, VEGETATION 1, and VEGETATION 2). Additionally, SPS would ensure that invasive and noxious plant management measures are applied in the Analysis Area, including the implementation of control methods for the listed invasive and noxious plant species outlined within New Mexico State University’s *Noxious and Troublesome Weeds of New Mexico* booklet (Beck and Wanstall 2021).

3.9.2.1 PROTECTION MEASURES

The protection measures listed in Appendix A related to health and safety that would be implemented to avoid and minimize impacts as part of the Transmission Facilities are described above and include:

- LAND USE 1: Restore compacted soils as close as possible to pre-construction conditions as required for ground stabilization and erosion control.
- SOIL 1: After a rain event, construction would commence once the area is no longer inundated, and would adhere to SWPPP protocols.

- SOIL 2: All soils compacted by movement of construction vehicles and equipment would be 1) loosened and leveled through harrowing or disking to approximate pre-construction contours, and 2) reseeded with certified weed-free native grasses and mulched as required (except in cultivated fields).
- VEGETATION 1: Implement Xcel Energy's Vegetation Management Program.
- VEGETATION 2: If required as part of the SWPPP, a native seed mix will be applied to all temporary disturbance areas, followed by applications of mulch as required to provide additional erosion control (see WATER 1).
- NOISE 1: Construction activities will generally be limited to the least noise-sensitive times of day (i.e., daytime between 6 a.m. and 8 p.m.), unless necessary due to weather, safety, or schedule constraints. Construction equipment will be equipped with manufacturers' standard noise control devices or better (e.g., mufflers, engine enclosures).

3.9.2.2 CONCLUSION

Any livestock grazing within the Analysis Area would be terminated prior to construction of individual site structures. The surface disturbance associated with the Transmission Facilities could also influence the spread of noxious, non-native, and invasive plant species, but these effects would be avoided or minimized by ensuring that invasive and noxious plant management measures are applied in the Analysis Area. Any livestock would be able to graze the available vegetation within the surrounding rangeland that remains or is reclaimed after construction of the Transmission Facilities, subject to landowner approval. The protection measures would mitigate impacts to vegetation for foraging.

There would be no impacts to recreation. The nearest recreation areas, the Lovington Country Club and Hobbs city park, are approximately 10.6 miles north and 12.5 miles east of the Analysis Area, respectively, and would not be impacted by the location of the Transmission Facilities. Additionally, the Transmission Facilities would be located near similar existing land uses. The Transmission Facilities would not impact communication signals, transmission lines or civilian or military aviation facilities. The location of the Transmission Facilities is not expected to unduly impair important environmental values regarding land use.

3.10 Minerals and Mining Resources

3.10.1 Affected Environment

Data sources reviewed include the following:

- New Mexico Mining and Minerals Division Search Results Mine Registrations and Permits (EMNRD 2024)
- New Mexico Bureau of Geology and Mineral Resources (NMBGMR 2024)

3.10.1.1 CURRENT CONDITIONS, REGIONAL AND ANALYSIS AREA OVERVIEW

Minerals and mining resources analyzed in this environmental document are surface and subsurface mineral resources, including potash and oil and gas.

The Analysis Area lies east of the Permian Basin and Carlsbad potash mining district. The Carlsbad potash mining district is an area of frequent or intense mining or mineral extraction (NMBGMR 2024);

however, the proposed project is not expected to impact subsurface deposits as it is not within the district borders and proposes no subsurface drilling or mining. There are no registered or permitted mines within 10 miles of the Analysis Area (EMNRD 2024, NMBGMR 2024). However, there are regional mining activities and subsurface mineral extraction. These activities are mainly limited to potash mining within the Carlsbad potash mining district and oil and gas extraction within the Permian Basin.

Under the Analysis Area, surface and subsurface mineral resources are owned by multiple parties, including the New Mexico Department of Game and Fish, State Land Office, and private entities.

3.10.2 Environmental Impacts

Construction for the Transmission Facilities foundations and access roads will disturb the first few feet of topsoil, sand, and gravel (up to approximately 18 inches). The transmission poles structures will include disturbances up to 30 feet deep for the foundations. Materials that are excavated will be used on-site for construction purposes.

The operations and maintenance of the Transmission Facilities will not change or limit access to the five existing mines and oil wells within 5 miles of the Analysis Area as they are all located on highly developed oil and gas roads that will not be impacted by the Project (EMNRD 2024). The location of the Transmission Facilities surface facilities will impact the ability to access surface and subsurface mineral deposits (such as aggregates, scoria and gypsum) via open-pit mining techniques from within the area of permanent disturbance; however, there are no plans for aggregate or gypsum mining in the Analysis Area (NMBGMR 2024; ENMRD 2024). Impacts to subsurface oil and gas resources are not anticipated as there are multiple wells and mines pre-established within the Analysis Area. Prior to construction, SPS will coordinate with the any pertinent mineral and oil and gas rights holders.

Once the Transmission Facilities have been decommissioned, the area will be reclaimed, and mineral extraction could occur on this land subject to landowner approval.

Impacts to mineral resources are unlikely to occur from surface and subsurface disturbance and the presence of permanent surface facilities in the Analysis Area.

3.10.2.1 PROTECTION MEASURES

No protection measures are proposed for this resource. SPS will coordinate with any pertinent mineral and oil and gas rights holders, and there are no plans for mining in the Analysis Area.

3.10.2.2 CONCLUSION

The Transmission Facilities will permanently remove any option for surface excavation of mineral materials within the Analysis Area. Currently, there are no known mines or planned mines for the Analysis Area; therefore, the location of the Transmission Facilities is not expected to unduly impair important environmental values regarding mines and mineral resources.

3.11 Noise Resources

3.11.1 Affected Environment

Data sources reviewed include the following:

- Google Earth aerial imagery for evaluation of surrounding land uses (Google Earth 2020)

- U.S. Census Bureau data for population characteristics (Headwaters Economics 2024a, 2024b)

3.11.1.1 CURRENT CONDITIONS, REGIONAL AND ANALYSIS AREA OVERVIEW

Lea County is a rural county with few cities in southeastern New Mexico with low population densities (see Section 3.12). The acoustical setting of the Analysis Area generally has relatively low ambient noise levels due to the majority undeveloped land setting and low population density. Noise in the region typically ranges from very quiet with natural sounds such as birds and wind dominating, to noisy with commercial and agricultural traffic, and commercial and residential noise in localized areas near towns. Small ranches and rural residences are spread throughout the area with higher density residential and retail areas located 9 miles to the north and west of the Analysis Area.

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 (EPA 1978). Prolonged exposure to high noise levels has been demonstrated to cause hearing loss (Center for Hearing and Communication 2020). 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. Wildlife already existing in proximity to human development may be habituated to noise from land use and human disturbance; however, 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 will affect all flora and fauna in an area.

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. Table 3-8 presents 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 (ANSI/ASA S12.9-2013/Part 3) (ANSI 2013) with estimates of general ambient noise levels based on detailed descriptions of land use categories. The ANSI document organizes land use based on six categories. The Analysis Area and vicinity fits ANSI's Category 6 – Very quiet, sparse suburban or rural areas with an ambient daytime noise level of approximately 43 dBA. Existing noise typically ranges from very quiet with natural sounds to occasional vehicles passing through Analysis Area or on rural roads directly adjacent to the Analysis Area. (Berger et al. 2003; Radtke 2016).

Table 3-8. Typical Sound Levels Measured in the Environment and Industry

Noise Source at a Given Distance	Sound Level (dBA)	Qualitative Description
Carrier deck jet operation	140	–
Jet takeoff (200 feet)	120	Deafening
Auto horn (3 feet) Rock music concert environment	110	Maximum vocal effort
Jet takeoff (2,000 feet) Shout (0.5 foot)	100	–

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Noise Source at a Given Distance	Sound Level (dBA)	Qualitative Description
Heavy truck (50 feet)	90	Very loud/Annoying; Hearing damage (8-hour, continuous exposure)
Pneumatic drill (50 feet)	80	Very loud
Freight train (50 feet) Freeway traffic (50 feet)	70	Intrusive; telephone use difficult
Air conditioning unit (20 feet)	60	–
Light auto traffic (50 feet)	50	Quiet
Living room/bedroom	40	–
Library Soft whisper (15 feet)	30	Very quiet
Broadcasting studio	20	–
–	10	Just audible
–	0	Threshold of human audibility

Sources: Adapted from Table E in *Assessing and Mitigating Noise Impacts* (New York Department of Environmental Conservation 2001).

Sensitive noise 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.

Based on aerial review, the sensitive noise receptors include five potentially occupied residences within 6,400 feet (1.2 miles) of the Analysis Area. The nearest residence is located approximately 4,195 feet west of the Analysis Area (Figure 3-8); additional details are provided in Section 3.9.

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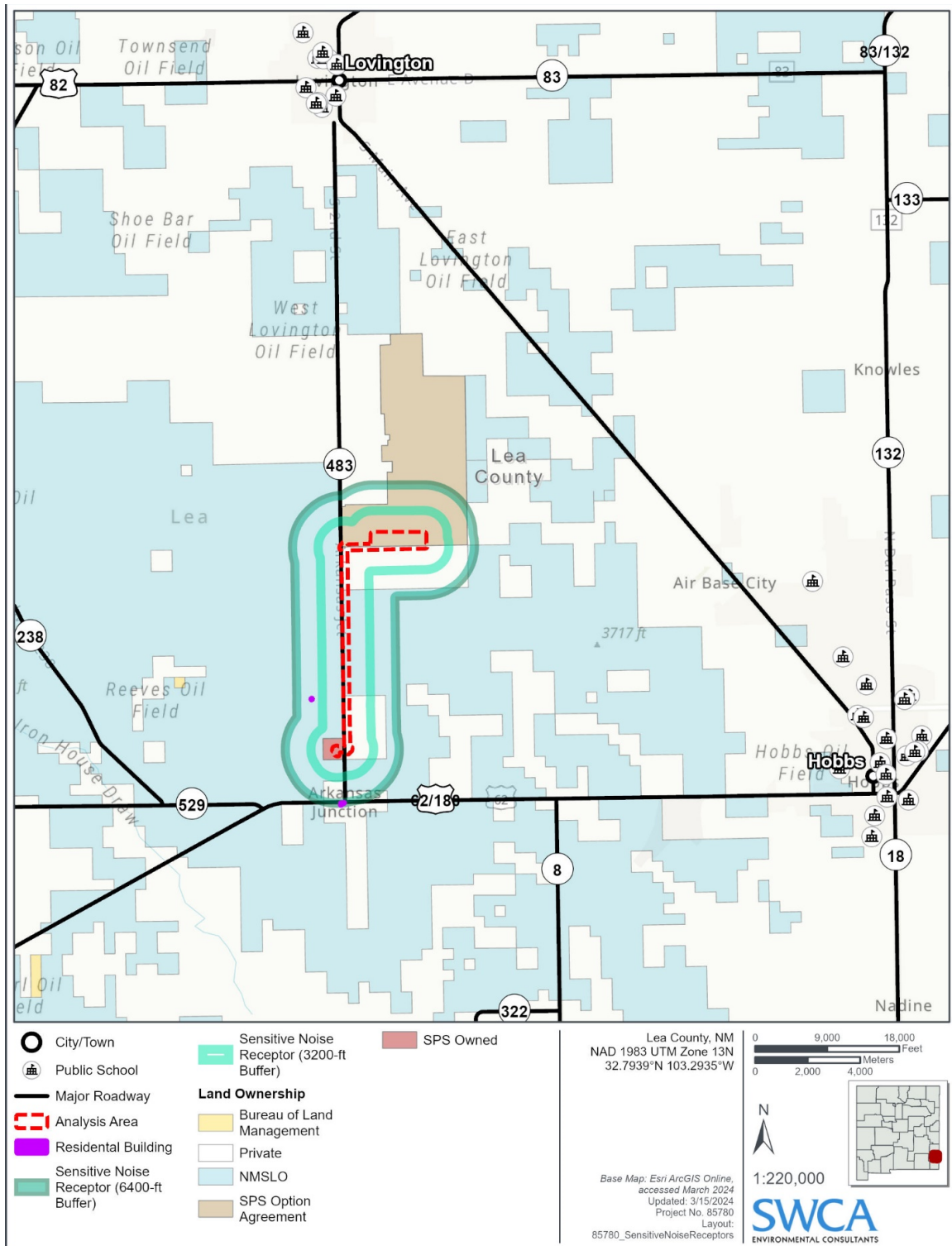


Figure 3-8. Analysis Area and noise-sensitive receptors.

3.11.2 Environmental Impacts

The use of heavy equipment such as hoist cranes, excavators, dozers, and backhoes during construction will elevate ambient noise levels. The type of standard construction equipment proposed typically operate in range of 68 dBA to 90 dBA above ambient noise levels at the source. In outdoor settings, the rate at which noise decreases is influenced by the distance separating noise sources and noise receptors, as well as local conditions such as traffic, topography, and weather. Generally, when noise is emitted from a point source, the noise is decreased an average of 6 dBA each time the separating distance is doubled (Berger et al. 2003; Radtke 2016). Noise impact calculations are determined by using the rate of noise attenuation and rule for reducing sound levels by dB subtraction for heavy equipment operations based on maximum noise levels using a reference distance beginning 50 feet from the proposed conveyor’s sound generation source (Thalheimer 2000).

Based on noise attenuation and these assumptions and estimated equipment noise levels (Federal Highway Administration 2006), noise generation from equipment operating in the ranges of 68 dBA (light trucks), 85 dBA (backhoe, excavator), and 90 dBA (heavy truck, concrete saw) at increasing distances is captured in Table 3-9, which shows where the noise attenuates nearly to background levels from the source. The majority of equipment will operate in the range of 80 dBA. Worker commutes and material delivery vehicles will cause noise that will be short term and have little effect on the hourly average noise level.

Table 3-9. Summary of Predicted Noise Generation from the Proposed Construction Equipment by Distance

Equipment Operating at 68 dBA		Equipment Operating at 85 dBA		Equipment Operating at 90 dBA	
Distance (radius) in Feet from the Source (miles [approximate])	Noise Level (dBA)	Distance (radius) in Feet from the Source (miles [approximate])	Noise Level (dBA)	Distance (radius) in Feet from the Source (miles [approximate])	Noise Level (dBA)
0	68	0	85	0	90
50 (0.01)	62	50 (0.01)	79	50 (0.01)	84
100 (0.02)	56	100 (0.02)	73	100 (0.02)	78
200 (0.04)	50	200 (0.04)	67	200 (0.04)	72
400 (0.08)	44	400 (0.08)	61	400 (0.08)	66
800 (0.15)	38	800 (0.15)	55	800 (0.15)	60
–	–	1,600 (0.30)	49	1,600 (0.30)	54
–	–	3,200 (0.60)	43	3,200 (0.60)	48
–	–	6,400 (1.20)	37	6,400 (1.20)	42
–	–	–	–	12,800 (2.40)	36

Source: Federal Highway Administration (2006).

Based on noise attenuation, construction equipment noise levels will be expected to dissipate to below background levels (assumed to be 43 dBA) approximately 400–6,400 feet away from the Analysis Area. The closest sensitive receptor, one potentially occupied residence approximately 4,195 feet away, may experience a temporary increase in ambient outdoor noise levels during the 9-month construction period. Given the distances from the construction equipment, the increase in ambient noise levels at the nearest sensitive noise receptor will attenuate to low levels. These sensitive noise receptors will experience maximum noise levels of between 48 and 42 dBA for up to 11 months when construction activities are in

progress, which is between the approximate noise level of being 50 feet away from light auto traffic and being in a private living room (see Table 3-8).

During construction, protection measures will be implemented to minimize noise impacts, including limiting construction activities to the least noise-sensitive times of day (i.e., daytime between 6 a.m. and 8 p.m.) and operating equipment manufacturers' standard noise control devices or better (e.g., mufflers, engine enclosures) (protection measure NOISE 1). Construction effects to wildlife are discussed in Section 3.4.2.

Once the Transmission Facilities are constructed, noises associated with operation of the Transmission Facilities will have a negligible increase in ambient noise levels beyond the immediate Analysis Area and are not anticipated to impact the nearest sensitive receptor. Noise associated with operations is anticipated to be limited to traffic noise from maintenance workers visiting the site. Light vehicle traffic is measured to have noise levels of 50 dBA at the source. This noise will dissipate to levels below ambient existing daytime sound levels in the vicinity (Berger et al. 2003; Radtke 2016).

Decommissioning will require the same equipment as that used during the construction phase. Ambient noise levels will be elevated for a short and temporary period while the infrastructure is removed.

3.11.2.1 PROTECTION MEASURES

The protection measure listed in Appendix A related to noise resources that will be implemented to avoid and minimize impacts as part of the Transmission Facilities is described above and includes:

NOISE 1: Construction activities will generally be limited to the least noise-sensitive times of day (i.e., daytime between 6 a.m. and 8 p.m.), unless necessary due to weather, safety, or schedule constraints. Construction equipment will be equipped with manufacturers' standard noise control devices or better (e.g., mufflers, engine enclosures).

3.11.2.2 CONCLUSION

The Transmission Facilities will be located in an undeveloped area with generally low background noise levels. The construction of the Transmission Facilities will result in a temporary increase in ambient noise levels during the construction period. Short-term impacts to the closest sensitive receptor may occur during the construction period; however, protection measures are proposed to minimize these impacts. Once in operation, the Transmission Facilities will have a negligible impact on ambient noise levels beyond the immediate vicinity of the Analysis Area. The location of the Transmission Facilities is not expected to unduly impair important environmental values regarding noise.

3.12 Socioeconomics

3.12.1 Affected Environment

Socioeconomic data were obtained from:

- Headwaters Economics (2024a, 2024b)

3.12.1.1 CURRENT CONDITIONS, REGIONAL AND ANALYSIS AREA OVERVIEW

The socioeconomic factors relevant to the Transmission Facilities and potential socioeconomic impacts evaluated in this analysis include population, housing and occupancy, income, poverty, and industry

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employment. Socioeconomic data are presented for the geographic area of Lea County where the project is located. The State of New Mexico and the city of Hobbs are presented as reference populations. Land uses and the existing setting of the Analysis Area and vicinity are described in Section 3.8.

Population trends for the city of Hobbs, Lea County, and New Mexico between 2010 and 2021 are summarized in Table 3-10., 3-11, and 3-12 below. Housing and occupancy characteristics for 2021 are shown in Table 3-11. There are approximately 1,838 vacant units in Hobbs and 3,749 vacant units in Lea County. The median household income in Lea County was \$62,319 in 2021, with 13.3% of families below the poverty line. In New Mexico as a whole, the median household income was \$54,020, with 13.8% of families below the poverty line (Headwaters Economics 2024a, 2024b). Unemployment in 2021 was 9.8% in Lea County and 7.1% in New Mexico (Headwaters Economics 2024b). The top employment industries in in Lea County are education, health care and social assistance (Table 3-12) (Headwaters Economics 2024a).

Table 3-10. Population (2010 to 2021)

Area	Population 2010	Population 2021	Percent Change 2010 to 2021
Hobbs	32,940	39,476	+19.8
Lea County	62,503	72,743	+16.4
New Mexico	2,013,122	2,109,366	+4.8

Source: Headwaters Economics (2024a).

Table 3-11. Housing and Occupancy (2021)

Area	Total Housing Units	Occupied Units	Vacant Units
Hobbs	15,016	13,178	1,838
Lea County	27,600	23,851	3,749
New Mexico	937,397	797,596	139,801

Source: Headwaters Economics (2024a).

Table 3-12. Lea County Employment by Industry (2021)

Industry	Lea County Employment (Number of Jobs)
Agriculture, forestry, fishing, hunting, mining	5,260
Construction	2,909
Manufacturing	997
Wholesale trade	876
Retail trade	3,303
Transport, warehousing, and utilities	2,665
Information	269
Finance, insurance, and real estate	723
Professional, management, administration, and waste management	1,936
Education, health care, and social assistance	5,318

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Industry	Lea County Employment (Number of Jobs)
Arts, entertainment, recreation, accommodations, and food	2,615
Other services, except public administration	1,641
Public administration	1,415
Total	29,927

Source: Headwaters Economics (2024a, 2024b).

3.12.2 Environmental Impacts

The Transmission Facilities’ construction, operations and maintenance, and decommissioning are unlikely to adversely impact social, economic, or population aspects of the area. The addition of the Transmission Facilities will not alter the area’s rural setting as they will be located near existing transmission lines and other infrastructure. Additionally, the addition of the Transmission Facilities will not impact existing transmission lines or infrastructure.

The economic output associated with construction employment (up to 175 workers) and economic multipliers from local spending (including sales tax revenue) during the construction period (up to 11 months) will have a minor beneficial, short-term economic impact to the local region. The workforce is expected to travel from various locations but will stay in surrounding communities during construction. The workforce may either commute to the site from hotels or a campsite closer to larger population centers. Given the small number of construction workers (up to 175 workers) and the short duration of the construction period, any changes to the area’s population or housing occupancy would be negligible relative to existing conditions.

Indirect spending associated with the presence of construction works in and around Hobbs or other communities in Lea County will be a short-term beneficial impact for these areas’ local economies. Additionally, operation of the Transmission Facilities will be a long-term benefit to nearby communities through supplying electrical needs and accommodating the load growth within the current transmission system.

Routine preventative maintenance will occur on an approximately 6-month basis and unplanned maintenance will be performed as required.. This level of employment and any associated equipment and materials spending will have a negligible impact on socioeconomics over the operations phase. Decommissioning impacts will be similar to those described for construction as similar methods are proposed.

3.12.2.1 PROTECTION MEASURES

There are no protection measures proposed for socioeconomic resources.

3.12.2.2 CONCLUSION

The Transmission Facilities could contribute to short-term socioeconomic benefits from construction employment and local spending. No long-term changes to the area’s population or housing characteristics are anticipated as the construction work force is anticipated to commute from larger population centers. In the long term, there will be insignificant negligible impacts from proposed operations employment and maintenance activities. Impacts during decommissioning will be similar to those described for construction. The location of the Transmission Facilities is not expected to unduly impair important environmental values regarding socioeconomics.

3.13 Traffic and Roads

3.13.1 Affected Environment

The following data sources were reviewed for this analysis:

- New Mexico Department of Transportation (2024)

3.13.1.1 CURRENT CONDITIONS, REGIONAL AND ANALYSIS AREA OVERVIEW

Roads in this analysis refers to the public and private roads that may be impacted by the vehicle and equipment trips generated during project construction, operations, and decommissioning. The Analysis

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Area will be accessed via existing access roads (

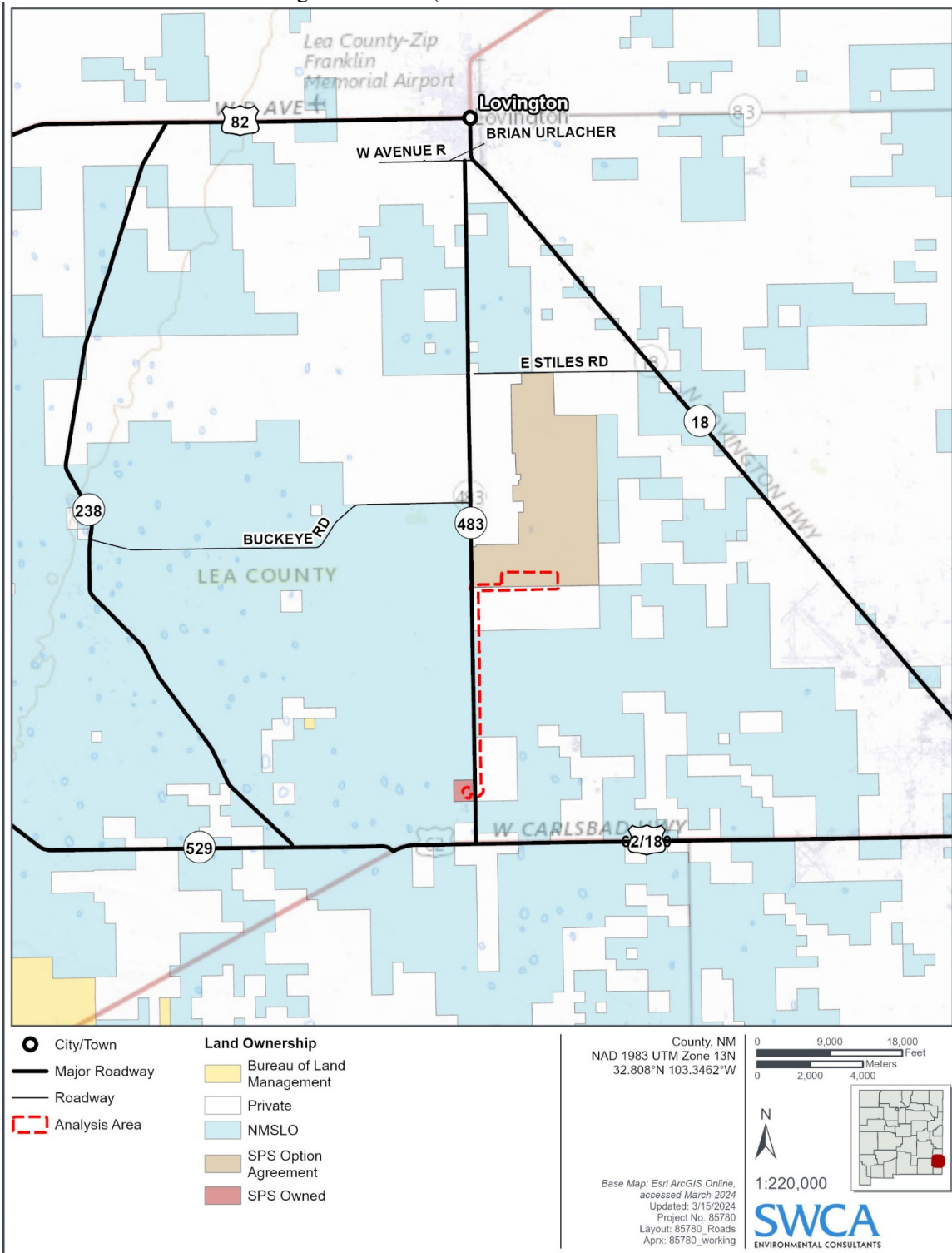


Figure 3). These routes are the primary access routes between the Analysis Area and Carlsbad, Hobbs, Lovington, and Jal, New Mexico. The Analysis Area and surrounding areas range from heavily impacted by oil and gas to rural and vacant. The main transportation uses in this area are residential and commercial (ranching, oil and gas).

Regional road networks on which equipment, materials, or construction workers may travel to reach the Analysis Area include U.S. Highway 62, U.S. Highway 82, State Routes 18, 238, 483 and 529, and two city roads (see Figure 3-9). Transportation characteristics for these routes are provided in Table 3-13. The potentially impacted U.S. Routes, and State Routes are managed by the New Mexico Department of Transportation (District 2).

In general, traffic is greater in and around the population centers when compared to rural areas. The most recent (2022) Annual Average Daily Traffic (AADT) count ranges available for U.S. and State routes are provided in Table 3-13 (New Mexico Department of Transportation 2024). Average annual traffic counts for unpaved oil and gas roads are unavailable.

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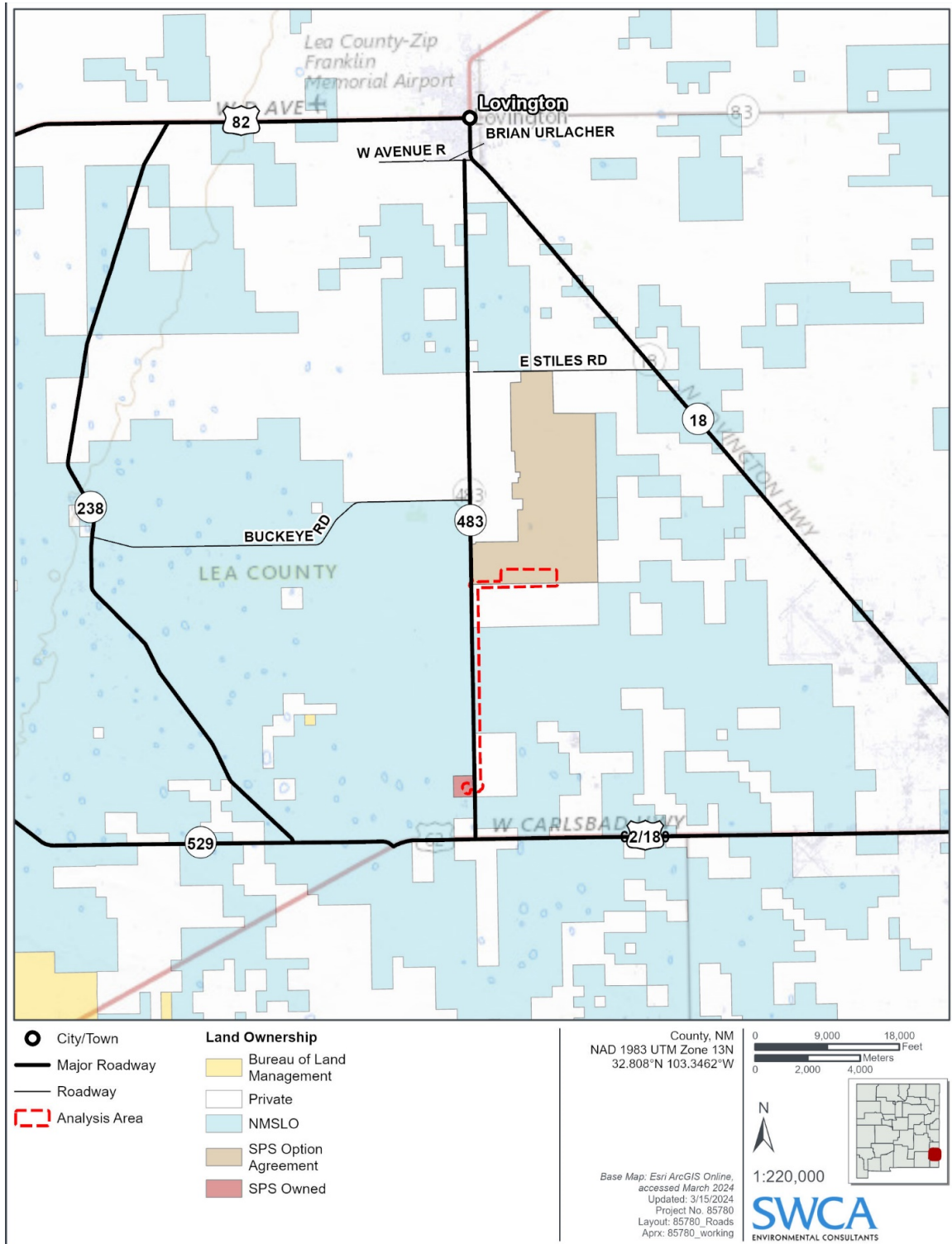


Figure 3-9. Regional road network and Analysis Area routes.

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Table 3-13. Major Roadways Used to Access the Analysis Area

Road	Characteristic
Buckeye Road	Management: New Mexico Department of Transportation (District 2) Road Type: paved, two lanes AADT 2022: 371 Access from State Route 238
East Stiles Road	Management: New Mexico Department of Transportation (District 2) Road Type: paved, two lanes AADT 2022: 433 Access from State Route 18
West Avenue R/Brian Urlacher Road	Management: New Mexico Department of Transportation (District 2) Road Type: paved, two lanes AADT 2022: 2,855 Access from State Route 18 and U.S. Highway 82
State Route 18	Management: New Mexico Department of Transportation (District 2) Road Type: Paved, two lanes AADT 2022: 9,112 Access from Lovington, Hobbs, and Jal
State Route 238	Management: New Mexico Department of Transportation (District 2) Road Type: paved, two lanes AADT 2022: 187 Access from U.S. Highway 82
State Route 483	Management: New Mexico Department of Transportation (District 2) Road Type: Paved, two lanes AADT 2022: 2,045 Access from U.S. Highway 62 and U.S. Highway 82
State Route 529	Management: New Mexico Department of Transportation (District 2) Road Type: Paved, two lanes AADT 2022: 2,071 Access from U.S. Highway 82
U.S. Highway 62	Management: New Mexico Department of Transportation (District 2) Road Type: Paved, two lanes AADT 2022: 18,071 Access from Hobbs and Carlsbad
U.S. Highway 82	Management: New Mexico Department of Transportation (District 2) Road Type: Paved, four lanes AADT 2022: 2,039 Access from Lovington

3.13.2 Environmental Impacts

Project construction, operations, and decommissioning will increase traffic on local and regional transportation routes. During construction multiple trips will be required for materials and equipment over the construction period. Equipment and materials will use paved roads whenever possible to access the project vicinity. Worker commute trips will primarily use paved roads; however, depending on their origination point, some unpaved roads may be used.

An increase of daily construction traffic from material and equipment delivery and worker commutes will result in a short-term increase in traffic on the local routes around the Analysis Area. Construction traffic will be most notable on West Avenue R/ Brian Urlacher Road, State Route 483, State Route 18, U.S. Highway 62, and U.S. Highway 82, heading towards the Analysis Area. Local users may experience short-term delays as a result of the increased construction traffic on these routes. However, construction speed limits will be established and the necessary permits and impacts to roads will be minimized where feasible (see protection measures TRANSPORTATION 1 through TRANSPORTATION 3). The daily increase in construction traffic will not impact the regional transportation routes farther from the Analysis Area with higher existing AADT counts. Traffic increases on local oil and gas roads will increase as the Analysis Area splits off from main thoroughfares, however this will be negligible compared to the daily oil and gas traffic already present.

During operations, routine preventative maintenance will occur on an approximately 6-month basis and for unplanned maintenance as required. These activities will primarily consist of one or two technicians visiting the site. The small increase in operations-related trips to the site will be imperceptible on the local and regional transportation routes.

Impacts of decommissioning on traffic will be similar to those described for construction because similar activities are proposed. There will be no traffic associated with project post-decommissioning.

3.13.2.1 PROTECTION MEASURES

The protection measures listed in Appendix A related to roads that will be implemented to avoid and minimize impacts as part of the Transmission Facilities are described above and include:

- TRANSPORTATION 1: Obtain the applicable permits needed to transport equipment and materials.
- TRANSPORTATION 2: Construction speed limits will be established.
- TRANSPORTATION 3: Proper construction technique and BMPs will be employed to minimize impacts to local roads.

3.13.2.2 CONCLUSION

The project is located in a vacant area, which is mostly surrounded by low existing traffic levels. High traffic uses in the vicinity of the area include U.S. Highway 62, U.S. Highway 82, and State Route 18. The project will result in a short-term increase in traffic on the local roads during the construction and decommissioning phases, with a negligible increase during operations and maintenance. Protection measures are proposed during construction to minimize impacts to the access routes. The location of the Transmission Facilities is not expected to unduly impair important environmental values regarding roads and traffic.

3.14 Water Resources

3.14.1 Affected Environment

SWCA completed an aquatic resource delineation survey of the Analysis Area on February 7, 2024, to identify any wetland and non-wetland aquatic resources that have the potential to be waters of the U.S (WOTUS). On September 8, 2023, the “Revised Definition of ‘Waters of the United States’” rule as amended (2023 Amended Rule) (*Federal Register* 88:61964) went into effect and is currently applicable in the State of New Mexico.

WOTUS regulations, including the current 2023 Amended Rule, do not clearly define the differences between flow duration regimes (ephemeral, intermittent, and perennial). Because the 2023 Amended Rule removes the former significant nexus test, there is no longer a tool to assess connectivity for certain features where continuous connectivity is questionable. Currently, the U.S. Army Corps of Engineers (USACE) is developing guidance for how districts will assess non-relatively permanent waters and non-adjacent wetland waters (*Federal Register* 88:61964).

In general, WOTUS include traditional navigable waters, wetlands adjacent to traditional navigable waters, and relatively permanent waters defined as tributaries and wetlands adjacent to navigable waters that have a continuous surface connection and standing or continuously flowing bodies of water (EPA 2024f).

Wetlands are special aquatic sites defined by the 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). To meet the basic definition of a wetland, an area must contain the following three parameters under normal circumstances: 1) the presence of wetland hydrology indicators showing regular inundation, 2) a dominance of hydrophytic (water-loving) vegetation, and 3) soil characteristics and indicators of frequent saturation (i.e., hydric soils) (USACE 1987).

A USACE Department of the Army permit pursuant to Section 402 of the Clean Water Act (33 USC § 1342) is required for the discharge of dredged or fill material into WOTUS, unless an exemption applies. Depending on the scope and level of potential impacts, the discharge of dredged or fill material into WOTUS would require either a general permit or an individual permit prior to the initiation of proposed activities with potential to impact WOTUS.

SWCA evaluated the inventory of aquatic resources to develop a professional opinion of potential WOTUS jurisdiction based on the 2023 Amended Rule and current guidance received by the USACE Albuquerque District at the time this report was prepared. In accordance with SWCA’s aquatic resource delineation survey standard operating procedure, approximate boundaries were mapped, photographs taken, and qualitative notes were recorded along with the completion of the USACE wetland and ordinary high water mark determination datasheets where applicable for any potential WOTUS feature. SWCA also surveyed for sensitive habitats and plant communities that are supported by the aquatic resources in the region. A desktop review was performed for all portions of the Analysis Area, utilizing the following additional data sources:

- USGS 7.5 minute quadrangles
- NWI (USFWS 2024a)
- NHD (USGS 2016a)
- NRCS soils data (NRCS 2024)
- Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (FEMA 2024)
- New Mexico Office of State Engineer (NMOSE) Point of Diversion (POD) data (NMOSE 2017)
- Aerial imagery of the Analysis Area, accessed using Google Earth (Google Earth 2020)

3.14.1.1 CURRENT CONDITIONS, REGIONAL AND ANALYSIS AREA OVERVIEW

The Analysis Area is located in the Lea County Groundwater Basin, which includes portions of Southeastern New Mexico (NMOSE 2024). There are 78 active or pending groundwater wells or PODs within 1.0 mile of the Analysis Area (NMOSE 2024). There are no active, capped, inactive or undesignated status groundwater wells or PODs within the Analysis Area, and there is one plugged groundwater well or POD within the Analysis Area (NMOSE 2023).

The Analysis Area is located in the Pecos River and Southern High Plains surface water basins. The Analysis Area falls within the two different 10-digit hydrologic units provided in Table 3-14 below (USGS 2016a). These watersheds are part of the Upper Colorado Basin (six-digit hydrologic unit code 120800) and the Lower Pecos Basin (130700) (USGS 2024c).

Table 3-14. 10-Digit Hydrologic Units Intersected by Analysis Area

Hydrologic Unit Code	Hydrologic Unit Name
1208000306	Upper Monument Draw
1307000701	Monument Springs-Monument Draw

As depicted in **Error! Reference source not found.10**, there are two NHD-mapped waterbody features coinciding with two NWI-mapped freshwater pond features, within the Analysis Area (USFWS 2024a; USGS 2016a). During the 2024 aquatic resources delineation survey, the presence/absence of NHD- and NWI-mapped surface water features, as well as any unmapped surface water features, or potential WOTUS, was confirmed. The field survey in February 2024 confirmed one of the two NHD/NWI features was not actually intersecting the Analysis Area as mapped by NHD and NWI but was an artificial pond located outside the Analysis Area. The second NWI-freshwater pond/NHD-waterbody feature was identified in the field as an artificially constructed pond or depression (P-01) and did not exhibit a strong, reliable, or consistent ordinary high water mark or meet three-parameter wetland criteria (USACE 1987).

According to the FEMA Flood Map Service Center data, the Analysis Area is entirely within Zone D (Area of Undetermined Flood Hazard), with the nearest mapped regulatory flood zone (Zone A) occurring approximately 10 miles north of the Analysis Area near Loving, New Mexico (FEMA 2024). Zone A floodplains represent 100-year floodplains that have a 1% chance of being inundated in a given year.

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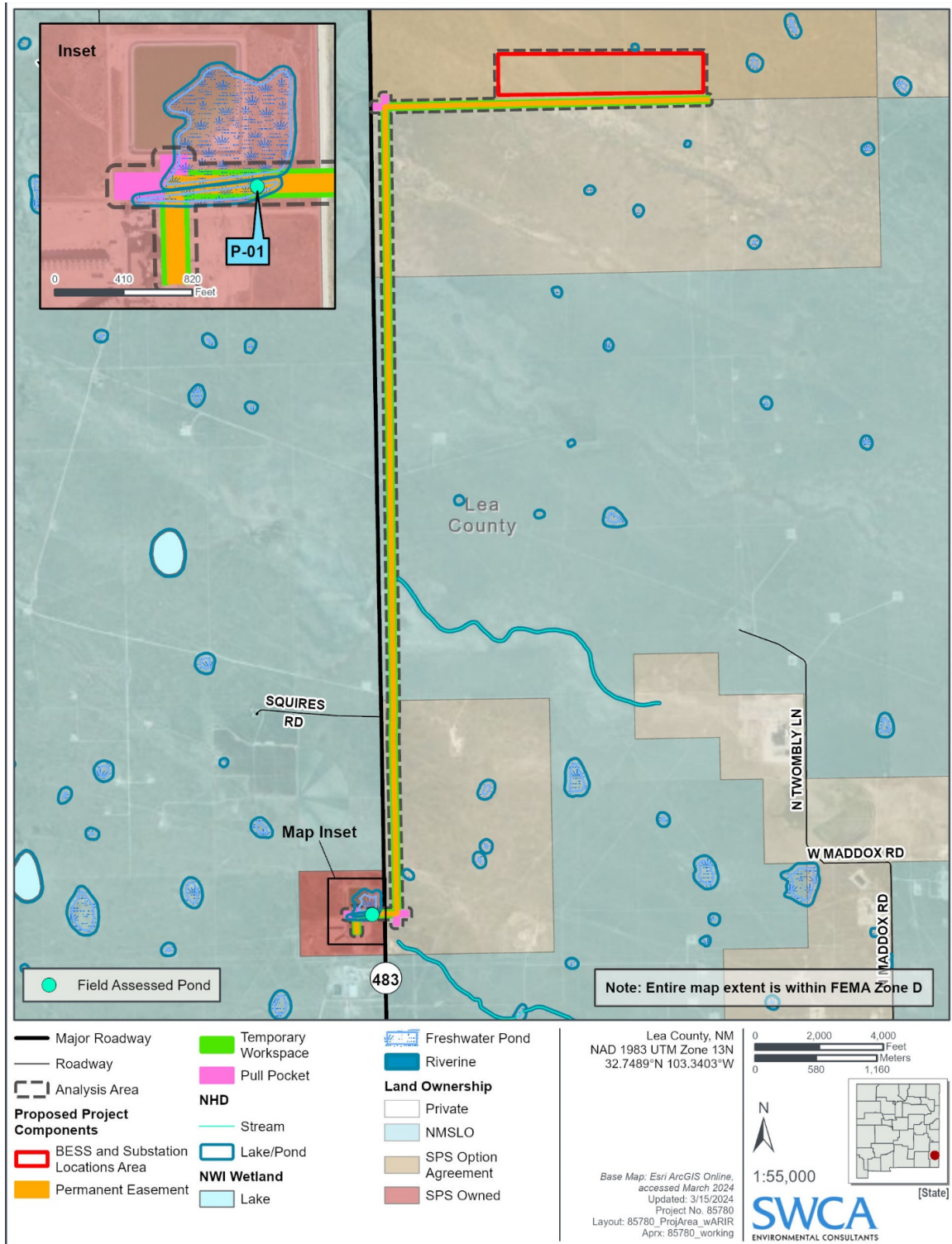


Figure 3-10. Surface water resources in the Analysis Area vicinity.

3.14.2 Environmental Impacts

No potentially jurisdictional WOTUS features were confirmed present during the aquatic resource delineation survey of the Analysis Area. Two NHD- and NWI-mapped pond features intersecting the Analysis Area were investigated in the field. One was an artificial pond that was confirmed in the field not actually intersecting the Analysis Area as mapped by NHD and NWI. The second NHD- and NWI-mapped pond feature intersecting the Analysis Area was identified as an artificial pond or built depression. It was dry at the time of investigation and unlikely to be considered a jurisdictional wetland due to lack of hydrophytic vegetation and hydric soil indicators (USACE 1987). Additionally, artificial lakes or ponds, created by excavating or diking dry land that are used exclusively for such purposes as stock watering, irrigation, or settling basins are typically excluded from WOTUS jurisdiction. Per SWCA's review of aquatic features, no other potentially jurisdictional WOTUS features, including wetland or non-wetland water features, were observed within the Analysis Area.

The potential to impact water resources indirectly could occur due to stormwater runoff from construction activities into downstream aquatic resources. Protection measures in Section 3.14.2.1 will be implemented to minimize these effects and include protection measures WATER 1 through 8, WASTE 1 through 4, LAND USE 1, VEGETATION 2, and SOIL 3. A SWPPP will be developed and implemented for construction, which will meet the National Pollutant Discharge Elimination System (NPDES) permit requirements of the EPA and NMED Surface Water Quality Bureau for construction stormwater discharges in New Mexico (protection measure WATER 1). The SWPPP will include several measures to control runoff and to reduce erosion and sedimentation at construction sites. Stormwater controls, including erosion and sediment controls and pollution prevention controls identified in the SWPPP will be installed and maintained during construction to reduce the potential discharge of pollutants to surface waters from construction activities.

Water for construction uses, such as equipment washing, dust suppression, and structure foundations, will be sourced from nearby municipalities and water providers. No long-term water uses associated with operations and maintenance.

Post-construction, temporary disturbed areas not needed for operations and maintenance will be reclaimed as described in the SWPPP, potentially including light grading, application of a native seed mix, and application of mulch as required to provide additional erosion control. Reclamation of disturbed areas will minimize the potential for long-term erosion and stormwater runoff.

Impacts to water resources from the routine operations and maintenance activities described in Section 2.1.3 are not anticipated to occur. Impacts during decommissioning will be similar to those described during construction related to stormwater runoff and accidental spills or releases of hazardous materials.

3.14.2.1 PROTECTION MEASURES

Protection measures listed in Appendix A related to water resources that will be implemented to avoid and minimize impacts as part of the Transmission Facilities are described above and include:

- WATER 1: Develop and implement an SWPPP as required by the NMED Surface Water Quality Bureau and obtain coverage under the NPDES Construction General Permit from the EPA pursuant to Section 402 of the Clean Water Act, 33 USC § 1342. The SWPPP may include measures including but not limited to silt barrier fences to control runoff, sediment traps, and basins, and minimizing exposed soils by using temporary and permanent seeding and mulching.

- WATER 2: Temporarily disturbed areas will be revegetated to the extent practicable in order to meet SWPPP requirements for runoff and erosion control. Seed mix and seeding rates will be developed through consultation with the local agency, experts, or landowner preference.
- WATER 3: Equipment will be properly maintained for fluid leaks.
- WATER 4: Fuels and petroleum will be stored away from excavated areas.
- WATER 5: Spills will be cleaned up immediately.
- WATER 6: No pole will be located in areas determined to be jurisdictional WOTUS by the USACE.
- WATER 7: Avoid fill and placing structures in WOTUS and other surface water features.
- WATER 8: No poles shall be located in areas mapped as a 100-year floodplain by the Federal Emergency Management Agency. The placement of poles shall avoid the floodplain and not affect the base flood elevation.
- WASTE 1: Hazardous materials will not be drained onto the ground or into streams or drainage areas.
- WASTE 2: Construction waste including trash, other solid waste, petroleum products and other potentially hazardous materials will be removed to a disposal facility authorized to accept such materials.
- WASTE 3: Contractors will implement a hazard communication program for any on-site hazardous materials to include training, labeling and posting of SDSs. Fuels and petroleum-based products will be stored in approved containers and away from excavated areas. Waste motor oil, hydraulic fluid and liquid gear lube will be stored in approved containers in isolated areas and removed to an authorized disposal facility monthly and in accordance with regulations of the NMED. All equipment using hydraulic hoses and cylinders will be inspected for leaks. Any equipment found to have petroleum leaks that cannot be repaired immediately will be removed from service and replaced.
- WASTE 4: Contractors will have proper training, available spill kits, and any leaking equipment will be repaired immediately. In the event contaminants are released, in addition to the requirements outlined in the environmental report, SPS will adhere to the notification policies contained in Water Quality Control Commission Rule 20.6.2.1203 NMAC.
- LAND USE 1: Restore compacted soils as close as possible to pre-construction conditions as required for ground stabilization and erosion control.
- VEGETATION 2: If required as part of the SWPPP, a native seed mix will be applied to all temporary disturbance areas, followed by applications of mulch as required to provide additional erosion control (see WATER 1).
- SOIL 3: Erosion will be reduced by applying and maintaining standard erosion and sediment control methods. These may include but not limited to using certified weed-free straw wattles and bale barriers and silt fencing. Specific erosion and sediment control measures will be specified in an SWPPP (see WATER 1).

3.14.2.2 CONCLUSION

No direct impacts to WOTUS or special aquatic sites will occur from the construction of the Transmission Facilities. Features identified as potentially WOTUS or not WOTUS is the professional opinion of SWCA and only the USACE has the regulatory authority and discretion in determining the jurisdictional status of

aquatic resources at a given site. The protection measures proposed will minimize the potential for indirect adverse impacts to surface waters or groundwater during construction. Construction water use will be minimal, and there will be no long-term water use associated with operations and maintenance. The location of the Transmission Facilities is not expected to unduly impair important environmental values regarding water resources.

3.15 Visual Resources

3.15.1 Affected Environment

This section provides a baseline understanding of the scenic quality within and adjacent to the Analysis Area through a description of the existing landscape. The description includes topographical features or lack thereof, vegetation type and quantity, along with human built factors (i.e., structures, roads, industrial/mining operations and utility infrastructure) that are influencing factors on the landscape and scenic character of the Analysis Area. The following data sources were reviewed for this analysis:

- 10-meter resolution bare-earth digital elevation models
- The following design parameters for proposed infrastructure
 - Median structure height of 110 feet with a span of 700 feet
 - Maximum structure height of approximately 125 feet with a span of 700 feet
- Aerial and point photographs of the Analysis Area, accessed using Google Earth (Google Earth 2020)

SWCA completed viewshed analyses to identify and assess potential visibility of the Transmission Facilities located in Lea County within the Analysis Area. The evaluation area was defined based on the design characteristics of the ROW, structures, and locations of the project components (i.e., substation), the topography of the landscape, and the potential views from residential areas and highways, from the surrounding area. The visual resource evaluation area is used to disclose potential impacts to visually sensitive landscapes and sites. Lea County contains abundant geologic and paleontological resources, including scientifically important vertebrate fossils. Although highly important visual sensitivity is low as these resources are generally viewed up close in the near foreground. The viewshed analyses were conducted using a 10-meter resolution bare-earth digital elevation model with a typical viewer height of 6 feet tall. The bare-earth modeling approach does not account for screening resulting from existing vegetation or structures, resulting in a conservative assessment of potential project visibility. To identify the areas from which the project could be visible, the viewshed analyses were conducted from the project looking outward.

3.15.1.1 CURRENT CONDITIONS, REGIONAL AND ANALYSIS AREA OVERVIEW

The distance threshold for visual impacts is a total of 7 miles (3.5 miles in each direction from the center line of the project ROW) to correspond with the distance in which the Transmission Facilities may be discernable to observers and sensitive viewer groups. The existing visual landscape is characterized by its rural nature featuring open-range, low indistinct grasses, soft undulating topography, scattered rural residences associated with the population centers of the Town of Buckeye, City of Lovington, and City of Hobbs, New Mexico, and dominated by oil pumpjack stations. The Transmission Facilities will connect the proposed solar facility to an existing substation. Vegetation within the region is variable between Chihuahuan desert scrubland and desert grasslands. The existing landscape includes the following

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development: pumpjacks, electric transmission lines, rural residential dwellings and associated infrastructure (i.e., roadways, utility lines).

The Analysis Area is located on gentle, low, softly undulating terrain, where the ground consists of khaki-colored sandy soils that are easily eroded. The surrounding vegetation continuous with low indistinct grasses, and sagebrush with isolated occurrences of cactus. The vegetation is homologous and uniform, consisting primarily of honey mesquite and grasses. Colors of vegetation range from dull greens to rich yellows (Figures 3-11 and 3-12). To the west of the Transmission Facilities the first real topography is associated with the Carlsbad Caverns National Park approximately 50 plus miles to the west and the Lincoln National Forest approximately 50 miles to the west as well. No significant topographic features are located to the east as the nearest significant topographic feature is near the Sabine National Forest near Shreveport, Louisiana. In addition, no scenic byways are within 60 miles of the Analysis Area.



Figure 3-11. View towards Analysis Area from the proposed transmission line location, representative of existing conditions, including adjacent transmission infrastructure, facing north.



Figure 3-12. Representative view of the existing two-track road located within the BESS and Substation Location Area within the Analysis Area, facing south.

The Analysis Area is located within the NPS’s Great Plains physiographic province (NPS 2024). There are no national monuments, national or state parks, BLM-determined wilderness study areas, special designation areas, or areas of critical environmental concern within the Analysis Area, and the majority of the land is privately owned. Local recreational activities located in the vicinity of the Analysis Area include country clubs and neighborhood parks, with no on or off-road trail systems. There are no public concentrations within 3 miles of the Analysis Area, including recreational areas, towns or cities, other than some of the transportation routes discussed in Section 3.13. However, there is one restaurant (Rene Anthony’s) and five potentially occupied rural residences within 1.2 miles of the Analysis Area. Larger collections of residences are located approximately 10 miles north of the Analysis Area (Lovington) and 11.4 miles east of the project area (Hobbs).

The Transmission Facilities viewshed analysis further discussed in Section 3.15.1.2, was completed using the maximum structure height of approximately 125 feet. The two heights were applied to a standard spacing of points aligned to the ROW center line spanning 700 feet on center. The results are shown on the map as a percentage of Transmission Facilities visibility from any specific location within the Analysis Area. Important to note is that this analysis does not provide information on the amount of visibility, from the ground to the top, of each structure, it illustrates that the highest point is visible. Information on the visibility of the structure below that height, is not included.

The viewshed analysis illustrates that visibility is concentrated through the center of the transmission line and decreases where the substation will be located. Visibility stretches to the 7-mile-radius Analysis Area in the east and west directions; however, the visibility of the additional structures within the landscape will be hard to discern past the Analysis Area distance. Additional areas of concentrated visibility are associated with the Crossroads and Roadrunner substations as well. However, these areas have a low sensitivity to visual change based on existing conditions and the substation structures will not be as tall as the structures for the transmission line (Figure 3-13).

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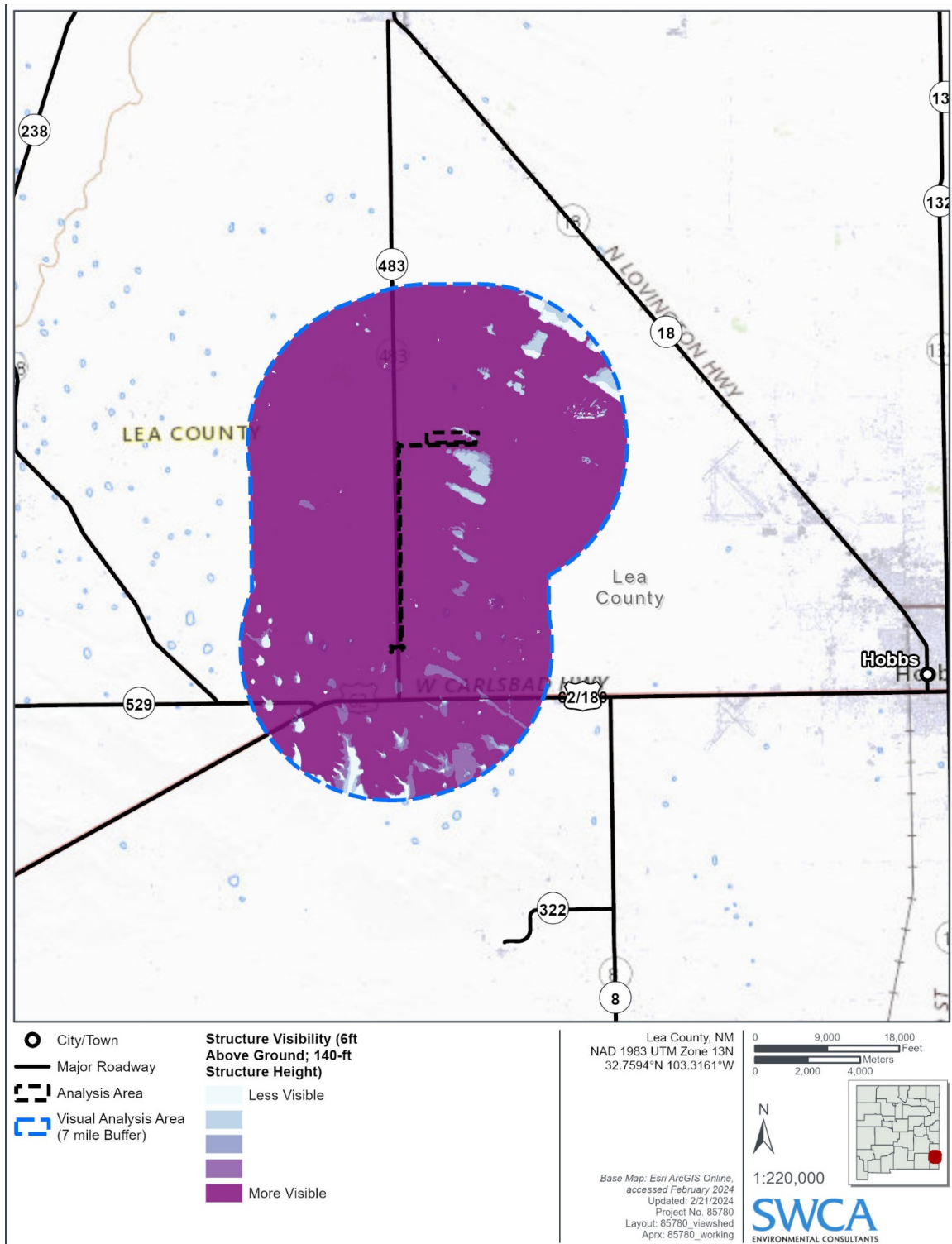


Figure 3-13. Viewshed analysis within the 7-mile-radius Analysis Area.

3.15.2 Environmental Impacts

Impacts to visual resources within the Analysis Area will be minimal as the land is previously disturbed primarily by oil and gas development, utility lines and roads, or vacant with low agricultural activity. No identified scenic resources were identified during the research process, not counting the high use residential areas and roadways. During construction, the location of the substation, and individual structure sites will be cleared and graded for Transmission Facilities infrastructure, resulting in vegetation loss only to the extent necessary, creating a short-term impact from the contrast of freshly exposed soil in relation to existing ground cover. The Transmission Facilities will impact a small fraction of available range in the area with low visual impacts. Loss of native vegetation can also increase the potential for noxious, non-native, and invasive plant species establishment. If noxious weed populations were to become established the existing visual character within the Analysis Area, could be altered in a negative way.

The five potentially occupied residences located within 1.2 miles of the Analysis Area will experience the greatest change in visual impact, however because of the existing industrial character of the surrounding area, impacts will be negligible.

During construction, protection measures for visual resources will be implemented to minimize visual effects, including minimizing areas of surface disturbance as practical, controlling erosion, using dust suppression techniques, and minimizing the use of night lighting (protection measures VISUAL 1 and VISUAL 2).

In addition, the primary visual features in the foreground and middle ground¹ of the viewshed include existing transmission lines, and an abundance of oil pumpjacks, the visual impact of the proposed Transmission Facilities will be negligible. Background views contain limited definition and are composed of either topography or sky.

Once the facility has reached the end of its lifespan, SPS will decommission the facility. Materials will be recycled; permanent structures and concrete foundations will be removed. SPS will reseed the area, and once revegetation is successful, no long-term visual impacts will remain.

3.15.2.1 PROTECTION MEASURES

The protection measures listed in Appendix A related to visual resources that will be implemented to avoid and minimize impacts as part of the Transmission Facilities are described above and include:

- VISUAL 1: Reduce visual impacts during construction by minimizing areas of surface disturbance as practical, controlling erosion, using dust suppression techniques as practical, and if applicable, restoring exposed soils as closely as possible to their original contour and vegetation.
- VISUAL 2: Construction activities will primarily be limited to daytime hours. If night work is required during construction, lighting will be the minimum necessary for safety, and lighting will not be left on when not in use.
- VISUAL 3: Weathering steel will be used to reduce visual impacts.
- VISUAL 4: Reclamation will be implemented to disguise disturbance.

¹ SWCA-defined distance zones for the Transmission Facilities Analysis Area are as follows: foreground (0.0–1.5 miles), middle ground (1.5–4.0 miles), and background (>4.0 miles)

- VISUAL 5: Vegetation, soil, and rocks left as a result of construction will be randomly scattered over the project area and will not be left in rows, piles, or berms unless requested by the land owner.
- LAND USE 1: Restore compacted soils as close as possible to pre-construction conditions as required for ground stabilization and erosion control.
- VEGETATION 2: If required as part of the SWPPP, a native seed mix will be applied to all temporary disturbance areas, followed by applications of mulch as required to provide additional erosion control (see WATER 1).

3.15.2.2 CONCLUSION

The Transmission Facilities will add a new structural element to the landscape, however, this new element will be consistent with existing infrastructure in the nearby area. The level of change to the visual character of the area will be low even with the close (five potentially occupied homes within 1.2 miles) proximity of sensitive viewers because the scenic quality of the existing landscape character is low. The location of the Transmission Facilities is not expected to unduly impair important environmental values regarding visual resources.

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5 LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS TO WHOM COPIES OF THE ENVIRONMENTAL REPORT ARE SENT

- New Mexico Attorney General
- New Mexico Environment Department
- New Mexico State Engineer
- New Mexico Public Regulation Commission
- Lea County Commission
- Lea County Soil and Water Conservation Districts

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APPENDIX A

List of Protection Measures

AIR

- AIR 1: Maintaining all fossil fuel-fired construction equipment in accordance with manufacturer recommendations to minimize construction related combustion emissions.
- AIR 2: Limiting the idling time of fossil fuel-fired construction equipment, unless idling must be maintained for proper operation (e.g., drilling, hoisting, and trenching).
- AIR 3: Limiting the speed of vehicles within construction sites during construction to help reduce the amount of fugitive dust generated.
- AIR 4: Utilizing water trucks or other dust suppression measures as required by NMED Air Quality Bureau to help reduce fugitive dust from construction activities.
- AIR 5: Open burning of construction trash will not be allowed.

CULTURAL

- CULTURAL 1: In the unlikely event that previously undocumented subsurface cultural resources are identified during project construction and implementation, the New Mexico HPD will be notified immediately, and all work will cease within the immediate discovery footprint until a qualified archaeologist has documented the discovery and evaluated its eligibility for the NRHP.
- CULTURAL 2: Follow the proposed Unanticipated Discoveries Plan (Appendix C).
- CULTURAL 3: In the unlikely event that previously undocumented paleontological resources are identified during project construction and implementation, a qualified paleontologist may be consulted to assess the resource and its context and will subsequently advise on mitigation options as needed.

FIRE

- FIRE 1: Employ wildland fire prevention measures during construction, including limiting vehicle travel to and within construction areas to only essential vehicles, establishing parking guidelines in remote areas, mitigating smoking locations during construction, and non-construction flame sources outside of vehicles, and establishing safety guidelines for construction flame and spark sources.
- FIRE 2: SPS and its contractors, as appropriate, will initiate discussions with local fire districts and regional fire prevention staff prior to construction to discuss emergency procedures.
- FIRE 3: As appropriate, vehicles will be equipped with fire suppression tools and equipment. Fire suppression equipment may include, but will not be limited to, shovels, buckets, and fire extinguishers.
- FIRE 4: Smoking and equipment parking will be restricted to approved areas.
- FIRE 5: SPS and/or its contractors will fuel all highway-authorized vehicles off-site or in approved areas to minimize the risk of fire. Fueling of construction equipment that is transported to the site and is not highway authorized will be done in accordance with regulated construction practices and applicable federal, state, and local laws.

GENERAL

- GENERAL 1: Implement a worker environmental awareness program to train facility personnel regarding their responsibilities to conserve protected resources that are located on-site and associated treatment measures.

LAND USE

- LAND USE 1: Restore compacted soils as close as possible to pre-construction conditions as required for ground stabilization and erosion control.

NOISE

- NOISE 1: Construction activities will generally be limited to the least noise-sensitive times of day (i.e., daytime between 6 a.m. and 8 p.m.), unless necessary due to weather, safety, or schedule constraints. Construction equipment will be equipped with manufacturers' standard noise control devices or better (e.g., mufflers, engine enclosures).

RELIGIOUS

- RELIGIOUS 1: Follow the proposed Unanticipated Discoveries Plan.

SAFETY

- SAFETY 1: Federal and state occupational health and safety standards will be established for the project, such as OSHA's Occupational Health and Safety Standards. Additionally, a Hazardous Materials Management Plan is proposed for the management of hazardous materials, in coordination with those requirements under the project's SWPPP.
- SAFETY 2: A safety plan will be developed prior to construction for contractors working at the site. The plan will include items such as location of nearest medical emergency facilities, agency contacts and procedures, and inclement weather procedures.

SOIL

- SOIL 1: After a rain event, construction will commence once the area is no longer inundated, and will adhere to SWPPP protocols.
- SOIL 2: All soils compacted by movement of construction vehicles and equipment will be 1) loosened and leveled through harrowing or disking to approximate pre-construction contours, and 2) reseeded with certified weed-free native grasses and mulched as required (except in cultivated fields).
- SOIL 3: Erosion will be reduced by applying and maintaining standard erosion and sediment control methods. These may include but not limited to using certified weed-free straw wattles and bale barriers and silt fencing. Specific erosion and sediment control measures will be specified in an SWPPP (see WATER 1).
- SOIL 4: Excavated material not used in the backfilling of poles will be spread around each pole or hauled off-site or transported as fill to other locations where needed. In newly disturbed

temporary work areas, the soil will be salvaged and will be distributed and contoured evenly over the surface of the disturbed area after construction completion. The soil surface will be left rough to help reduce potential wind erosion.

TRANSPORTATION

- TRANSPORTATION 1: Obtain the applicable permits needed to transport equipment and materials.
- TRANSPORTATION 2: Construction speed limits will be established.
- TRANSPORTATION 3: Proper construction technique and BMPs will be employed to minimize impacts to local roads.

VEGETATION

- VEGETATION 1: Implement Xcel Energy's Vegetation Management Program.
- VEGETATION 2: If required as part of the SWPPP, a native seed mix will be applied to all temporary disturbance areas, followed by applications of mulch as needed to provide additional erosion control (see WATER 1).
- VEGETATION 3: Vegetation treatments to control the growth of woody species along the ROW will be conducted every two years. These treatments consist of spraying target species such as creosote and mesquite with herbicides to prevent vegetation encroachment on SPS' conductor clearance requirements, its facilities, patrol road, and/or inhibits future operation and maintenance activities. SPS has established guidelines that their contractors are required to follow to protect birds and bird nests during these spraying events.
- VEGETATION 4: In construction areas where recontouring is not required, vegetation will be left in place wherever possible, and original contour will be maintained to avoid excessive root damage and allow for resprouting in accordance with the reclamation plan. Vegetation not consistent with line safety and operation will be removed according to SPS's vegetation management practices.

VISUAL

- VISUAL 1: Reduce visual impacts during construction by minimizing areas of surface disturbance as practical, controlling erosion, using dust suppression techniques as practical, and if applicable, restoring exposed soils as closely as possible to their original contour and vegetation.
- VISUAL 2: Construction activities will primarily be limited to daytime hours. If night work is required during construction, lighting will be the minimum necessary for safety, and lighting will not be left on when not in use.
- VISUAL 3: Weathered steel will be used to reduce visual impacts.
- VISUAL 4: Reclamation will be implemented to disguise disturbance.
- VISUAL 5: Vegetation, soil, and rocks left as a result of construction will be randomly scattered over the project area and will not be left in rows, piles, or berms unless requested by the landowner.

WASTE

- WASTE 1: Hazardous materials will not be drained onto the ground or into streams or drainage areas.
- WASTE 2: Construction waste including trash, other solid waste, petroleum products and other potentially hazardous materials will be removed to a disposal facility authorized to accept such materials.
- WASTE 3: Contractors shall implement a hazard communication program for any on-site hazardous materials to include training, labeling and posting of Safety Data Sheets (SDS). Fuels and petroleum-based products shall be stored in approved containers and away from excavated areas. Waste motor oil, hydraulic fluid, and liquid gear lube shall be stored in approved containers in isolated areas and removed to an authorized disposal facility monthly and in accordance with regulations of the NMED. All equipment using hydraulic hoses and cylinders shall be inspected for leaks. Any equipment found to have petroleum leaks that cannot be repaired immediately shall be removed from service and replaced.
- WASTE 4: Contractors shall have proper training, available spill kits, and any leaking equipment shall be repaired immediately. In the event contaminants are released, in addition to the requirements outlined in the environmental report, SPS shall adhere to the notification policies contained in Water Quality Control Commission Rule 20.6.2.1203 NMAC.

WATER

- WATER 1: Develop and implement an SWPPP as required by the NMED Surface Water Quality Bureau and obtain coverage under the NPDES Construction General Permit from the EPA pursuant to Section 402 of the Clean Water Act, 33 USC § 1342. The SWPPP may include measures including but not limited to silt barrier fences to control runoff, sediment traps, and basins, and minimizing exposed soils by using temporary and permanent seeding and mulching.
- WATER 2: Temporarily disturbed areas will be revegetated to the extent practicable in order to meet SWPPP requirements for runoff and erosion control. Seed mix and seeding rates will be developed through consultation with the local agency, experts, or landowner preference.
- WATER 3: Equipment will be properly maintained for fluid leaks.
- WATER 4: Fuels and petroleum will be stored away from excavated areas.
- WATER 5: Spills will be cleaned up immediately.
- WATER 6: No pole will be located in areas determined to be jurisdictional WOTUS by the USACE.
- WATER 7: Avoid fill and placing structures in WOTUS and other surface water features.
- WATER 8: No poles shall be located in areas mapped as a 100-year floodplain by the Federal Emergency Management Agency. The placement of poles shall avoid the floodplain and not affect the base flood elevation.

WILDLIFE

- WILDLIFE 1: Properly disposing of trash and food debris.
- WILDLIFE 2: Allowing wildlife that has entered the work area to leave the area on their own.

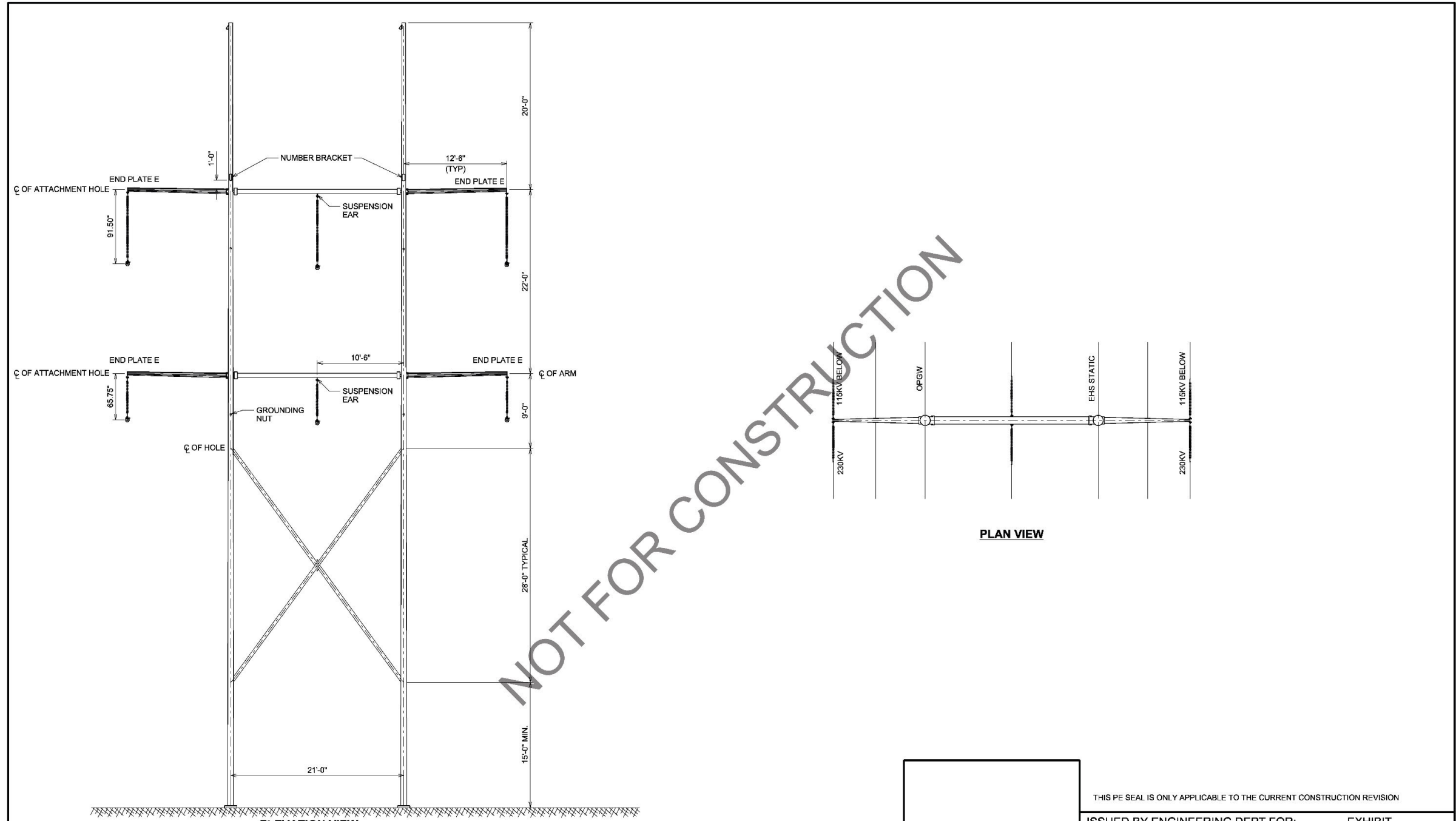
- WILDLIFE 3: Providing environmental awareness training to construction personnel working on the project.
- WILDLIFE 4: Complying with posted and established project speed limits.
- WILDLIFE 5: Conducting vegetation clearing outside the nesting season (March 1 to September 15) where feasible to discourage birds from establishing nests in project work areas. When nesting season cannot be avoided, pre-construction nest surveys will occur up to two weeks prior to vegetation clearing.
- WILDLIFE 6: The worker environmental awareness program (see protection measure GENERAL 1) will include training specific to avoidance of migratory birds and active migratory bird nests during the nesting season from March 15 to September 15. If active nests are found in the Analysis Area during construction, a biologist will be contacted to evaluate the activity status of the nest. The nest will be avoided or a biological monitor will be present until determined inactive by a biologist.
- WILDLIFE 7: Vegetation removal during the breeding season (March 1–September 15) could be preceded by a pre-construction nesting survey up to 2 weeks prior to construction to establish the occupancy status of any potentially suitable nests or nesting burrows detected within the Analysis Area. If active nests are found in the Analysis Area, a biologist will be contacted to evaluate the activity status of the nest. The nest will be avoided or a biological monitor will be present until determined inactive by a biologist.
- WILDLIFE 8: Facilities are designed to discourage their use as perching or nesting substrates by birds including designing aboveground transmission and facilities to follow established APLIC guidelines (APLIC 2006) to minimize bird collisions and avoid electrocution of raptors.
- WILDLIFE 9: Micrositing will be completed during engineering design to minimize impacts to sensitive biological resources to the extent practicable.
- WILDLIFE 10: In accordance with the NMDGF (2007a), a 75-meter avoidance buffer of occupied burrowing owl burrows will be implemented around any active nest until the young have fledged, and active raptor nests will be monitored for activity until hatchlings fledge. If construction work occurs within the 75-meter avoidance buffer, a biological monitor will be present to ensure construction operations does not harm or harass the species.
- WILDLIFE 11: If monarch butterflies are observed during construction, SPS's contractor would have a qualified biologist visit the project area to ensure no breeding monarch butterflies would be impacted by the construction of the Transmission Facilities. To reduce impacts to monarch butterfly foraging habitat, the revegetation seed mix will include pollinator-friendly species such as milkweed.
- WILDLIFE 12: All fences and gates will be maintained during the construction period. Fences, gates, and walls will be replaced, repaired, or reclaimed to their original condition as required by the landowner or the land management agency in the event that they are removed, damaged, or destroyed by construction activities. Fences will be braced before cutting. Gates or enclosures will be installed only with the permission of the landowner or the land management agency and will be removed/reclaimed following construction should it be necessary. Cattle guards will be installed on a case-by-case basis in negotiation with the landowner or land management agency.
- WILDLIFE 13: In accordance with the NMDGF trenching guidelines (NMDGF 2022) and powerline project guidelines (NMDGF 2007b), and excavation holes left open for 8 hours or more will be covered. Before the hole is backfilled, the hole will be inspected and all trapped wildlife will be removed and released at least 50 meters (m) away. In addition, all personnel

working on the construction of the proposed project will be instructed to avoid intentionally harassing all animals.

- WILDLIFE 14: If deemed necessary, obtain and follow the terms of the recently established USFWS general permit to authorize eagle incidental take caused by powerline infrastructure under the 2024 Revised Eagle Rule for impacts to golden eagles from the proposed project.

APPENDIX B

Preliminary Pole Structure Drawings



NOT FOR CONSTRUCTION

REV	DATE	WBS 4	REVISION DESCRIPTION

THIS PE SEAL IS ONLY APPLICABLE TO THE CURRENT CONSTRUCTION REVISION

ISSUED BY ENGINEERING DEPT FOR: EXHIBIT

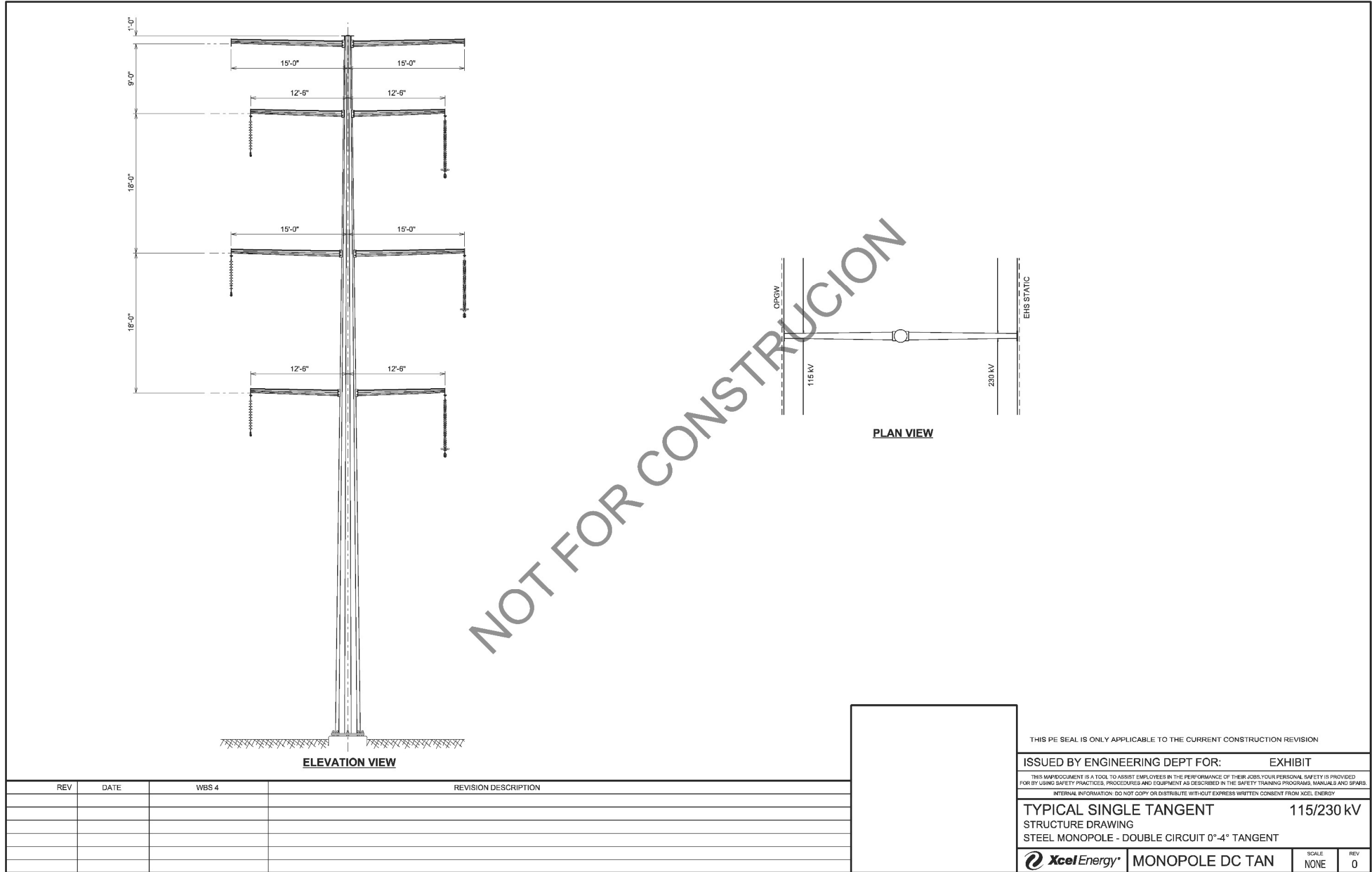
THIS MAP/DRAWING IS A TOOL TO ASSIST EMPLOYEES IN THE PERFORMANCE OF THEIR JOBS. YOUR PERSONAL SAFETY IS PROVIDED FOR BY USING SAFETY PRACTICES, PROCEDURES AND EQUIPMENT AS DESCRIBED IN THE SAFETY TRAINING PROGRAMS, MANUALS AND SPARS

INTERNAL INFORMATION: DO NOT COPY OR DISTRIBUTE WITHOUT EXPRESS WRITTEN CONSENT FROM XCEL ENERGY

TYPICAL H-FRAME DEADEND 115/230 kV
 STRUCTURE DRAWING
 STEEL H-FRAME - DOUBLE CIRCUIT DEADEND

H-FRAME DC DE SCALE: NONE REV: 0

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REV	DATE	WBS 4	REVISION DESCRIPTION

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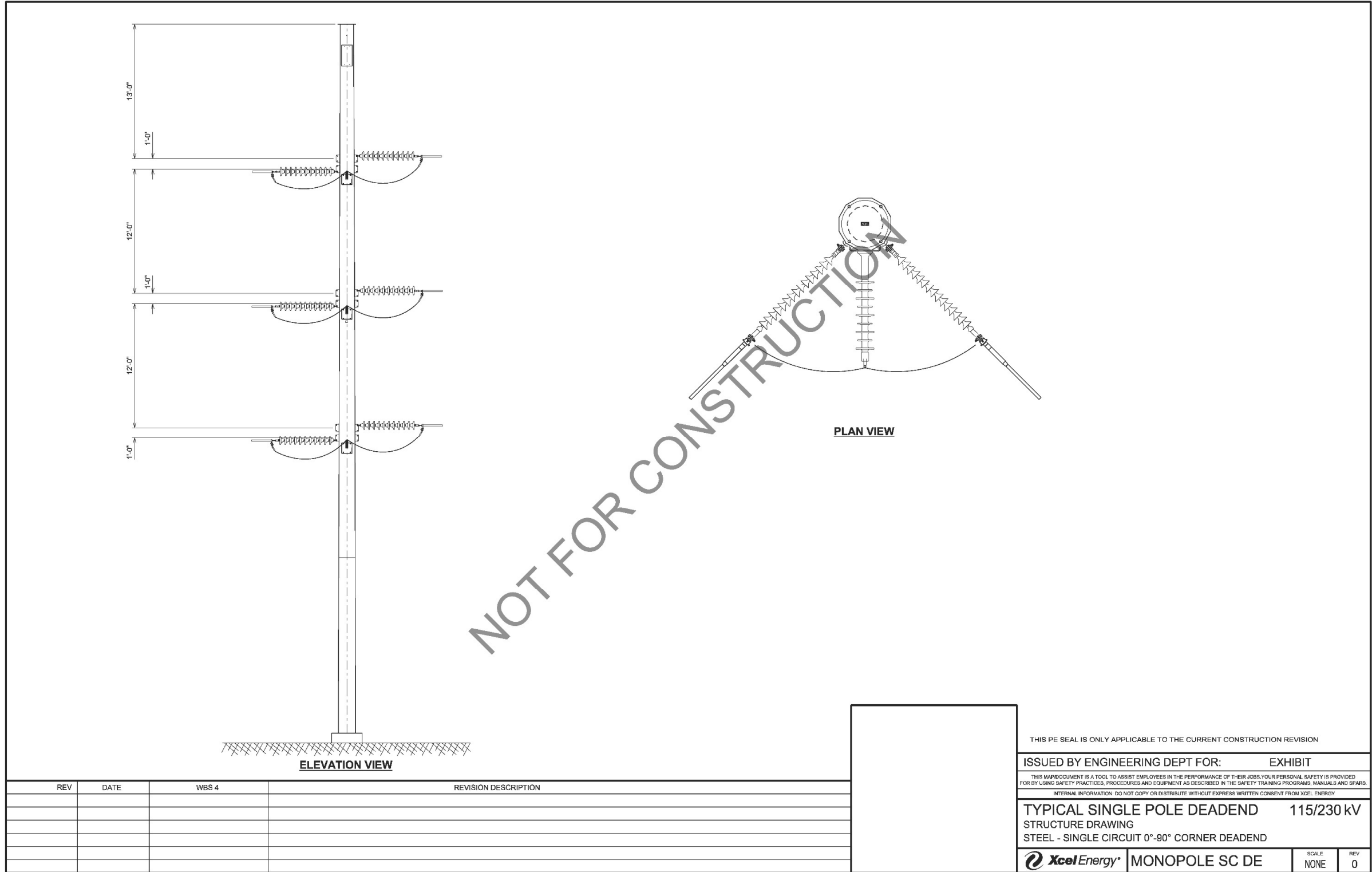
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THIS MAP/DRAWING IS A TOOL TO ASSIST EMPLOYEES IN THE PERFORMANCE OF THEIR JOBS. YOUR PERSONAL SAFETY IS PROVIDED FOR BY USING SAFETY PRACTICES, PROCEDURES AND EQUIPMENT AS DESCRIBED IN THE SAFETY TRAINING PROGRAMS, MANUALS AND SPARS. INTERNAL INFORMATION: DO NOT COPY OR DISTRIBUTE WITHOUT EXPRESS WRITTEN CONSENT FROM XCEL ENERGY

TYPICAL SINGLE TANGENT 115/230 kV
 STRUCTURE DRAWING
 STEEL MONOPOLE - DOUBLE CIRCUIT 0°-4° TANGENT

Xcel Energy MONOPOLE DC TAN SCALE NONE REV 0

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APPENDIX C

Unanticipated Discoveries Plan

PLAN AND PROCEDURES FOR THE UNANTICIPATED DISCOVERY OF CULTURAL RESOURCES AND HUMAN SKELETAL REMAINS

CUNNINGHAM TRANSMISSION LINE PROJECT, LEA COUNTY

1. INTRODUCTION

Southwestern Public Service Company (SPS), a subsidiary of Xcel Energy Inc., plans to construct the Cunningham Transmission Line Project. The purpose of this project is to construct and operate an approximate 7-miles of new 230-kilovolt double circuit transmission line and one substation. The following Unanticipated Discovery Plan (“UDP”) outlines procedures to follow, in accordance with state and federal laws, if archaeological materials or human remains are discovered.

2. RECOGNIZING CULTURAL RESOURCES

A cultural resource discovery could be prehistoric or historic. Examples include:

- An accumulation of shell, burned rocks, or other food related materials,
- Bones or small pieces of bone,
- An area of charcoal or very dark stained soil with artifacts,
- Stone tools or waste flakes (i.e. an arrowhead, or stone chips),
- Clusters of tin cans or bottles, logging or agricultural equipment that appears to be older than 50 years,
- Buried railroad tracks, decking, or other industrial materials.

When in doubt, assume the material is a cultural resource.

3. ON-SITE RESPONSIBILITIES

STEP 1: STOP WORK. If any employee, contractor, or subcontractor of SPS believes that he or she has uncovered any cultural resource at any point in the project, all work adjacent to the discovery must stop. The discovery location should not be left unsecured at any time. Safety fencing can be used to protect and secure the potential find until a qualified archeologist arrives to the construction site.

STEP 2: NOTIFY PROJECT MANAGEMENT AND ARCHAEOLOGIST. Contact the Technical Lead, Environmental Project Manager, and the Project Archaeologist:

Technical Lead

Name Tiffany Hennig, P.E., Xcel Energy

Phone 806.341.1599

Email tiffany.a.hennig@xcelenergy.com

Project Archaeologist

Name Courtney Blair, SWCA Environmental Consultants

Phone 617.435.20843

Email cblair@swca.com

Environmental Project Manager

Name Andrea McArdle, SWCA Environmental Consultants

Phone 440.829.7474

Email Andrea.McArdle@swca.com

The Project Archaeologist will make all other calls and notifications.

If human remains are encountered, treat them with dignity and respect at all times. Cover the remains with a tarp or other materials (not soil or rocks) for temporary protection in place and to shield them from being photographed. Do not call 911 or speak with the media.

4. FURTHER CONTACTS AND CONSULTATION

A. Technical Lead and Environmental Project Manager's Responsibilities

- a. Protect Find: The Technical Lead will work with construction crews to take appropriate steps to protect the discovery site. All work will stop in an area adequate to provide for the total security, protection, and integrity of the resource. Vehicles, equipment, and unauthorized personnel will not be permitted to traverse the discovery site. Work in the immediate area will not resume until treatment of the discovery has been completed following provisions for treating archaeological/cultural material as set forth in this document.
- b. Direct Construction Elsewhere On-site: The Technical Lead and Environmental Project Manager may direct construction away from cultural resources to work in other areas prior to contacting the concerned parties.
- c. Contact Project Archaeologist: If the Project Archaeologist has not yet been contacted, the Environmental Project Manager will do so.

B. Project Archaeologist Responsibilities

- a. Identify Find: The Project Archaeologist will ensure that a qualified individual examines the find to determine if it is archaeological.
 - i. If it is determined not archaeological, work may proceed with no further delay.
 - ii. If it is determined to be archaeological, the Project Archaeologist will continue with notification.
 - iii. If the find may be human remains or funerary objects, the Project Archaeologist will ensure that a qualified individual examines the find. If it is determined to be human remains, the procedure described in Section 5 will be followed.
- b. Notify Agencies: If required, the Project Archaeologist will contact the involved state agency(s) including the New Mexico Historic Preservation Division (NMHPD) and New Mexico State Land Office (NMSLO). The NMSLO, and/or NMHPD will notify affected Indian tribes/pueblos.

NMHPD

Name: Michelle Ensey, Deputy State Historic Preservation Officer and State Archaeologist

Phone: (505) 490-3928

Email: michelle.ensey@state.nm.us

NMSLO

Name: Ethan Ortega, Director of Cultural Resources/State Trust Archaeologist

Phone: (505) 827-5781

Email: cortega@slo.state.nm.us

5. SPECIAL PROCEDURES FOR THE DISCOVERY OF HUMAN SKELETAL MATERIAL

Any human skeletal remains, regardless of ethnic origin, will at all times be treated with dignity and respect.

If human skeletal remains are found during the project on lands managed by the NMSLO, their provisions will be followed, and all communications will be handled by the applicable agency.

The project will comply with applicable state and federal laws, and the following procedure:

a. Notify Law Enforcement Agency or Coroner's Office:

In addition to the actions described in Sections 3 and 4, the Technical Lead will immediately notify the local law enforcement agency or coroner's office.

The coroner (with assistance of law enforcement personnel) will determine if the remains are human, whether the discovery site constitutes a crime scene, and will notify the NMSLO and/or NMHPD.

Law Enforcement Agency Number: Lea County Sheriff's Office, 575-396-3611

Medical Examiner/Coroner Office Number: 505-272-3053 (Office of the Medical Investigator at the University of New Mexico)

b. Procedures:

NMSLO, and/or NMHPD will have jurisdiction over non-forensic human remains.

If ground disturbing activities encounter human skeletal remains during the course of construction, then all activity will cease that may cause further disturbance to those remains. The finding of human skeletal remains will be reported to the county medical examiner/coroner and local law enforcement in the most expeditious manner possible. The remains will not be touched, moved, or further disturbed. The county medical examiner/coroner will assume jurisdiction over the human skeletal remains and make a determination of whether those remains are forensic or non- forensic. If the county medical examiner/coroner determines the remains are non- forensic, then they will report that finding to the NMSLO and/or NMHPD who will then take jurisdiction over the remains. The NMSLO and/or NMHPD will notify any appropriate cemeteries and all affected tribes/pueblos of the find. The NMSLO and/or NMHPD will make a determination of whether the remains are Indian or Non- Indian and report that finding to any appropriate cemeteries and the affected tribes/pueblos. The NMSLO and/or NMHPD will then handle all consultation with the affected parties as to the future preservation, excavation, and disposition of the remains. The area of the find will be secured and protected from further disturbance until the NMSLO and/or NMHPD provides notice to proceed.

6. DOCUMENTATION OF ARCHAEOLOGICAL MATERIALS

The Project Archaeologist will ensure the proper documentation and assessment of any discovered cultural resources in cooperation with the federal or state agency(s) (i.e. NMSLO and NMHPD), affected tribes/pueblos, and a contracted consultant (if any).

All prehistoric and historic cultural material discovered during project construction will be recorded by a professional archaeologist. Site overviews, features, and artifacts will be photographed; stratigraphic profiles and soil/sediment descriptions will be prepared for subsurface exposures. Discovery locations will be documented on scaled site plans and site location maps.

Cultural features, horizons and artifacts detected in buried sediments may require further evaluation using hand-dug test units. Units may be dug in controlled fashion to expose features, collect samples from undisturbed contexts, or interpret complex stratigraphy. A test excavation unit or small trench might also be used to determine if an intact occupation surface is present. Test units will be used only when necessary to gather information on the nature, extent, and integrity of subsurface cultural deposits to evaluate the site's significance. Excavations will be conducted using techniques for controlling provenience.

Spatial information, depth of excavation levels, natural and cultural stratigraphy, presence or absence of cultural material, and depth to sterile soil, regolith, or bedrock will be recorded for each probe on a standard form. Test excavation units will be recorded on unit-level forms, which include plan maps for each excavated level, and material type, number, and vertical provenience (depth below surface and stratum association where applicable) for all artifacts recovered from the level. A stratigraphic profile will be drawn for at least one wall of each test excavation unit.

Sediments excavated for purposes of cultural resources investigation will be screened through 1/8-inch mesh unless soil conditions warrant 1/4-inch mesh.

All prehistoric and historic artifacts collected from the surface and from probes and excavation units will be analyzed, catalogued, and temporarily curated. Ultimate disposition of cultural materials will be determined in consultation with the federal or state agency(s) (NMSLO and NMHPD), and the affected tribes/pueblos.

Within 90 days of concluding fieldwork, a technical report describing any and all monitoring and resultant archaeological excavations will be provided to the Technical Lead, who will forward the report for review and delivery to the NMSLO and/or NMHPD. The applicable agency will forward the report to any other federal or state agency(s), and the affected tribes/pueblos.

If assessment activity exposes human remains (burials, isolated teeth, or bones), the process described in Section 7 below will be followed.

7. PROCEEDING WITH CONSTRUCTION

Project construction outside the discovery location may continue while documentation and assessment of the cultural resources proceed. The Project Archaeologist must determine the boundaries of the discovery location. In consultation with the NMSLO and/or NMHPD and affected tribes/pueblos, the Technical Lead, Environmental Project Manager, and the Project Archaeologist will ensure the appropriate level of documentation and treatment of the resource is completed. The NMSLO and/or NMHPD (and other applicable federal or state agency(s), if any) will make the final determinations about treatment and documentation.

Construction may continue at the discovery location only after the process outlined in this plan is followed and the NMSLO and/or NMHPD (and other applicable federal or state agency(s), if any) determines that compliance with state and federal laws is complete.



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Albuquerque, New Mexico 87109
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www.swca.com

BIOLOGICAL SURVEY TECHNICAL MEMORANDUM

To: Xcel Energy, Inc.
attn: Heidi Gruner
Xcel Energy
790 South Buchanan Street, Amarillo, TX 79101

From: Kristina Kline, Project Manager, SWCA Environmental Consultants

Date: March 20, 2024

Re: Xcel Energy, Inc., Cunningham Solar Project; Biological Resources Survey Results / SWCA Project No. 86802

INTRODUCTION

SWCA Environmental Consultants (SWCA) was contracted by Southwestern Public Service Company (SPS), a subsidiary of Xcel Energy, Inc., to complete a biological resources survey and a reconnaissance-level aquatics survey for the Cunningham Solar Projects (Generation Facilities) and battery energy storage system (BESS) (proposed project). SPS plans to develop two solar energy facilities Cunningham (Solar 1 Project [72 MW] and Cunningham Solar 2 Project [196 MW]) on approximately 2,028.8 acres of private land in Lea County, New Mexico (Figure A-1 in Appendix A). The 36-MW BESS would be located within the BESS and substation locations area of the proposed Cunningham Transmission Facilities and the project would connect to the existing Cunningham Generation Substation owned and operated by SPS via the Cunningham Transmission Facilities (Figure A-2 in Appendix A). The surveys were performed to assess habitat suitability for federal and state of New Mexico special-status species and to investigate connectivity for potential waters of the United States (WOTUS).

Location Approval of Generation Facilities from the New Mexico Public Regulation Commission is required when a proposed generation facility has a capacity of 300 MW or greater for the generation of electricity to be sold to the public, either within or outside of New Mexico, owned or operated by a public utility (New Mexico Statutes Annotated [NMSA] 1978, Section 62-9-3. B). The two Generation Facilities proposed as part of this project would generate 72 MW and 196 MW, respectively, which is below the 300-MW threshold for Location Approval; therefore, Location Approval is not required. However, the proposed Transmission Facilities will undergo Location Approval under 17.9.592.10 New Mexico Administrative Code (NMAC). This biological resources technical memorandum was completed to provide supplemental information in the application for Location Approval of the Transmission Facilities as an abundance of caution.

The biological resources survey completed for this report covers the area within which the proposed project will be located. The work area will be cleared of vegetation and graded to facilitate the construction of the Generation Facilities only to the extent necessary for safe operation and construction of the project (up to 2,028.8 acres). This biological and aquatic resources survey did not include the Cunningham Transmission Facilities because the statutory standard for approval of transmission line (no undue impairment of important environmental values) does not apply to generation plants (17-9-592.8 NMAC).

This biological resources technical memorandum evaluates the potential effects of the proposed project on federally threatened or endangered species listed under the Endangered Species Act (ESA) of 1973, as amended (16 United States Code 1531–1541 et seq.), state threatened or endangered species listed under the New Mexico Wildlife Conservation Act (17-2-41 NMSA 1978), and the State’s endangered plant species regulations (75-6-1 NMSA 1978). This report also provides a description of general site characteristics, soils, vegetation, and wildlife observed within the project area.

SURVEY METHODOLOGY

SWCA biologists Evan Hewitt, Kimberly Goering, Danielle Seifried, and Nai Phillips conducted a natural resources survey of the project area between February 16 and February 20, 2024. Prior to the survey, SWCA reviewed baseline data for the project area, consisting of U.S. Geological Survey (USGS) topographic maps, Natural Resources Conservation Service (NRCS) soil maps (NRCS 2024a), New Mexico Crucial Habitat Assessment Tool data (New Mexico Crucial Habitat Data Set 2013), National Hydrography Dataset (NHD) geographic information system (GIS) maps (USGS 2016), National Wetlands Inventory (NWI) maps (U.S. Fish and Wildlife Service [USFWS] 2024a), USFWS Information for Planning and Consultation (IPaC) system data (USFWS 2024b), the USFWS Critical Habitat Portal (USFWS 2024c), New Mexico Department of Game and Fish (NMDGF) Biota Information System of New Mexico (BISON-M) data (BISON-M 2024), 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 2021).

As part of the field survey, the proposed project area was also reviewed for the presence of special aquatic sites and other waters at a reconnaissance level. 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 condition” (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/absence of potential three-parameter wetlands (hydrology, hydric soils, and hydrophytic vegetation) was evaluated in the field based on SWCA’s aquatic resource reconnaissance-level survey standard operating procedure. Approximate boundaries were mapped, photographs taken, and qualitative notes were recorded rather than completion of the USACE wetland and ordinary high-water mark determination datasheets for any potential WOTUS features in the project area. SWCA also surveyed for sensitive habitats and plant communities that are supported by the aquatic resources in the region.

During the biological resources survey, maps and shapefiles provided by SPS were used for general orientation, to locate the project area boundaries, and to create maps of the proposed project area (see Figures A-1 and A-2 in Appendix A).

RESULTS

General Characteristics

The proposed project area is within southeastern New Mexico near the cities of Hobbs and Lovington, New Mexico. Elevation in the project area is between 3,800 and 3,845 feet above mean sea level (amsl). The climate for this area, based on the climatic records for the Lovington 2 WNW, New Mexico station in Lea County, New Mexico (COOP Station No. 295204), has an average annual maximum temperature of 76.1 degrees Fahrenheit (°F) and an average annual minimum temperature of 43.7°F. The average annual rainfall is 14.9 inches, with the majority occurring between May and October, while the average annual total snowfall is 9.2 inches, which largely occurs between December and February (Western Regional Climate Center 2024). Weather during the natural resources survey varied between approximately 28°F and 72°F, and included cloudy to clear conditions, with winds of approximately 8 to 17 miles per hour.

Soils

According to the NRCS (2024a), eight mapped soil units are present within the project area. These soil units are non-hydric, with five of the soil units being considered farmland of statewide importance (NRCS 2024a; Table 1).

Table 1. Soil Units in the Project Area

Soil Unit Name	Farmland of Statewide Importance	Acres in Proposed Project Area	Percentage of Project Area
Amarillo-Arvana fine sandy loams, association, 0 to 3 percent slopes	Yes	110.1	5.4%
Arvana-Lea association	Yes	231.6	11.4%
Kimbrough loam, 0 to 3 percent slopes	No	4.9	0.2%
Kimbrough gravelly loam, dry, 0 to 3 percent slopes	No	400.1	19.7%
Kimbrough-Lea complex, dry, 0 to 3 percent slopes	No	1,041.6	51.3%
Lovington-Delphos fine sandy loams, 0 to 3 percent slopes	Yes	51.7	2.5%
Portales loam, 0 to 3 percent slopes	Yes	124.5	6.1%
Portales-Stegall loams	Yes	64.3	3.2%
Total		2,028.8	100.0%

Source: NRCS (2024a).

Vegetation

The project area is located within the High Plains: Arid Llano Estacado Level IV ecoregion (Griffith et al. 2006). Landfire National Vegetation Classification version 200 (USGS 2016a) identifies nine vegetation communities within the proposed project area, with Great Plains Shortgrass Prairie as the dominant vegetation community within the project area (Table 2).

Table 2. Landfire Vegetation Communities within the Project Area

Vegetation Community Name	Acres in Project Area	Percentage of Project Area
Southern Plains Scrub Woodland Shrubland & Open Vegetation	332.2	16.4%
Chihuahuan Semi-Desert Grassland	57.7	2.9%
Fallow Field	10.6	0.5%
Great Plains Sand Grassland and Shrubland	10.7	0.5%
Great Plains Shortgrass Prairie	1612.5	79.5%
Developed-Roads	2.2	0.1%
Shrub & Herb Developed Vegetation	1.3	0.1%
Chihuahuan Desert Scrub	1.6	0.1%
Quarries-Strip Mines-Gravel Pits-Energy Development	0.2	<0.1%
Total	2,028.8	100.0%

Source: USGS (2016a).

Note: Totals may not sum exactly due to rounding.

During the biological resources survey, biologists observed one dominant vegetation community, Great Plains Shortgrass Prairie (see Photographs B-1 through B-4 in Appendix B). Dominant species within that community included blue grama (*Bouteloua gracilis*), broom snakeweed (*Gutierrezia sarothrae*), burrograss (*Scleropogon brevifolius*), and Lehmann lovegrass (*Eragrostis lehmanniana*). This vegetation is typical of the High Plains: Arid Llano Estacado Level IV ecoregion and Great Plains Shortgrass Prairie vegetation community (Griffith et al. 2006; USGS 2016a). Vegetative cover within the project area was approximately 15% bare ground, 85% herbaceous, 10% shrub, and 0% tree. The project area and surrounding landscape have been previously disturbed by roads, cattle grazing, oil and gas development, pipelines, and transmission lines (See Photographs B-5 and B-6 in Appendix B). Plant species recorded during the biological survey are listed in 3. Photographs of the vegetative community are provided in Appendix B.

Table 3. Plant Species Observed During the Biological Survey

Common Name	Scientific Name
Banana yucca	<i>Yucca baccata</i>
Beautiful rockcress	<i>Arabis pulchra</i>
Black grama	<i>Bouteloua eriopoda</i>
Blue grama*	<i>Bouteloua gracilis</i>
Broom snakeweed*	<i>Gutierrezia sarothrae</i>
Burrograss*	<i>Scleropogon brevifolius</i>
Cattail	<i>Typha</i> spp.
Gumhead	<i>Gymnosperma glutinosum</i>
Hall's panicgrass	<i>Panicum hallii</i>
Honey mesquite	<i>Prosopis glandulosa</i>
Horse crippler	<i>Echinocactus texensis</i>
Lehmann lovegrass*	<i>Eragrostis lehmanniana</i>

Common Name	Scientific Name
Nineawn pappusgrass	<i>Enneapogon desvauxii</i>
Nipple beehive cactus	<i>Coryphantha maromeris</i>
Pricklypear	<i>Opuntia</i> spp.
Prickly Russian thistle	<i>Salsola tragus</i>
Silver beardgrass	<i>Bothriochloa laguroides</i>
Silverleaf nightshade	<i>Solanum elaeagnifolium</i>
Texas stork'sbill	<i>Erodium texanum</i>
Tobosagrass	<i>Pleuraphis mutica</i>
Tree cholla	<i>Cylindropuntia imbricata</i>
Woolly locoweed	<i>Astragalus mollissimus</i>

Note: Nomenclature follows the PLANTS Database (NRCS 2024b).

* Marks a dominant species within vegetation community.

Noxious Weeds

During the 2024 survey, no U.S. Department of Agriculture (USDA)–listed noxious weed species were observed within or around the proposed project area (USDA 2010). No New Mexico Department of Agriculture–listed noxious weed species were observed (New Mexico Department of Agriculture 2020). Additionally, prickly Russian thistle (*Salsola tragus*) was observed during the biological resources survey. Prickly Russian thistle is not a designated noxious weed but is an introduced species to the project area and throughout New Mexico (USDA 2024). SPS would ensure that invasive and noxious plant management measures are applied in the project area, including the implementation of control methods for the listed invasive and noxious plant species outlined within New Mexico State University’s *Noxious and Troublesome Weeds of New Mexico* booklet (Beck and Wanstall 2021).

Wildlife

The High Plains: Arid Llano Estacado Level IV ecoregion within the project area provides habitat for a variety of wildlife species. The SWCA biologists detected 24 bird species and nine mammal species during the 2024 survey (Table 4). In addition, over 2,000 burrows of various sizes were observed throughout the project area, with the majority of the burrows located in the southern portion, south of the dividing road. The majority of these burrows are likely from kangaroo rats (*Dipodomys* sp.) and pack rats (*Neotoma* sp.); however one large prairie dog (*Cynomys* spp.) burrow was observed with evidence of being recently active, as well as evidence of burrowing owl (*Athene cunicularia*) activity (whitewash) (see Figure A-3 in Appendix A; Photographs B-9 through B-11 in Appendix B depict representative burrows within the proposed project area).

Table 4. Wildlife Detected during the Biological Resources Survey

Common Name	Scientific Name
Birds	
American kestrel	<i>Falco sparverius</i>
Brewer’s sparrow	<i>Spizella breweri</i>
Burrowing owl (whitewash)	<i>Athene cunicularia</i>
Chestnut-collared longspur	<i>Calcarius ornatus</i>

Common Name	Scientific Name
Chihuahuan raven	<i>Corvus cryptoleucus</i>
Eastern meadowlark	<i>Sturnella magna</i>
Ferruginous hawk	<i>Buteo regalis</i>
Great horned owl	<i>Bubo virginianus</i>
Green-winged teal	<i>Anas carolinensis</i>
Harris's hawk	<i>Parabuteo unicinctus</i>
Horned lark	<i>Eremophila alpestris</i>
House finch	<i>Haemorhous mexicanus</i>
Ladder-backed woodpecker	<i>Dryobates scalaris</i>
Lark bunting	<i>Calamospiza melanocorys</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>
Mallard duck	<i>Anas platyrhynchos</i>
Merlin	<i>Falco columbarius</i>
Mourning dove	<i>Zenaida macroura</i>
Northern harrier	<i>Circus hudsonius</i>
Northern shoveler	<i>Spatula clypeata</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Scaled quail	<i>Callipepla squamata</i>
Western meadowlark	<i>Sturnella neglecta</i>
White-crowned sparrow	<i>Zonotrichia leucophrys</i>
Mammals	
Black-tailed jackrabbit	<i>Lepus californicus</i>
Coyote	<i>Canis latrans</i>
Desert cottontail	<i>Sylvilagus audubonii</i>
Domestic cattle (scat)	<i>Bos taurus</i>
Kangaroo rat (burrows)	<i>Dipodomys</i> sp.
Pack rat (middens)	<i>Neotoma</i> sp.
Pocket gopher (mounds)	<i>Geomysidae</i> sp.
Prairie dog (colony)	<i>Cynomys</i> spp.
Pronghorn	<i>Antilocapra americana</i>

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 both migratory and non-migratory bird species. 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; and 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.

During SWCA's biological resources survey of the project area, 24 bird species were detected (see Table 4). Suitable nesting habitat for migratory birds is present throughout the proposed project area that could be used by a variety of songbirds and raptors common to the area. During the biological resources survey, 28 nests were observed, including one raptor nest of unknown activity, six inactive raptor nests, four stick nests of unknown activity, 10 inactive stick nests, one passerine nest of unknown activity and six inactive passerine nests (see Figure A-3 in Appendix A and Photographs B-7 and B-8 in Appendix B).

In addition to the observed nests, evidence of burrowing owl activity (whitewash) was detected at the observed prairie dog colony (see Figure A-3; in Appendix A and Photograph B-11 in Appendix B). The western burrowing owl is protected under the MBTA. Populations of burrowing owls are declining across much of North America, particularly in the northern portion of the continent, because of prairie grassland habitat loss and fragmentation, human-caused mortality on wintering grounds and during migration, and the loss of colonial fossorial species like prairie dogs (Desmond 2010). The proposed project would remove up to 2,028.8 acres of suitable foraging, nesting, and breeding habitat for western burrowing owls.

No major or long-term effects on migratory birds are anticipated from 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 likely move into adjacent habitat in response to disturbance. Adult migratory birds would not likely be directly harmed by the project because of their mobility and ability to avoid areas of human activity. Due to the abundance of similar habitat in the surrounding area, the impacts on bird populations that use this habitat type within the project area would be low.

To prevent impacts to migratory bird species, any vegetation removal during the breeding season (March 1–September 15) should be preceded by a preconstruction nesting survey up to 2 weeks prior to vegetation removal to establish the occupancy status of any potentially suitable nesting areas or burrows detected within the project area. Construction crews should be trained on actions to take in the event active nests are found in the project area, establishing nest buffers, and avoiding nests until birds have fledged. Burrows should be checked for presence of individuals and signs of nesting prior to construction, and if possible, burrows should be collapsed to minimize the presence of burrowing owl individuals prior to construction.

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 (BGEPA). New Mexico's bald eagle population is mostly migratory, with only a handful of nesting pairs occurring in Colfax and Sierra Counties (NMDGF 1996). The species is relatively common in the winter and during migration along water courses and reservoirs. In New Mexico, bald eagles typically nest in large trees, often ponderosa pine (*Pinus ponderosa*) or cottonwood (*Populus* spp.), with exposed branches strong enough to support their large nests. Foraging areas have tall, easily accessible trees for perching. Most perch trees are live trees, although dead trees are preferred if available (BISON-M 2024; Stahlecker and Walker 2010). Golden eagles are typically found in mountainous regions of open country, prairies, arctic and alpine tundra, open wooded areas, and barren areas. The species is a year-round resident in open country and desert grasslands throughout most of New Mexico and nests from 4,000 to 9,500 feet (Cartron 2010). Golden eagle nesting habitat is typically associated with rock ledges and cliffs greater than 100 feet high in the vicinity of suitable grassland and shrubland foraging habitat. Although this occurs infrequently, golden eagles may also use tall human-made structures if other more suitable nesting sites are not available. The species has been known to build nests in human-made structures such as windmills, observation towers, nesting platforms, and transmission towers, although this tends to be less frequent (Katzner et al. 2020).

Both bald and golden eagles are carnivores. Bald eagles prey on fish but also on mammals, especially prairie dogs. Golden eagles forage in arid, open country with grasslands, and feed mainly on small mammals, as well as invertebrates, carrion, and other wildlife (BISON-M 2024; Stahlecker and Walker 2010).

No bald or golden eagle individuals were observed during the 2024 biological resources survey of the proposed project area. Although perching structures (transmission lines) are in the vicinity of the proposed project area and mammal burrows were present, with the lack of riparian woodland habitat, the proposed project area is not ideal foraging habitat for bald eagles and it is unlikely that the proposed project would impact bald eagle breeding, nesting, or foraging activities or lead to take. The nearest topographic features that may be suitable for golden eagle nesting habitat are approximately 50 miles to the west of the proposed project area. With the presence of existing transmission poles for perching as well as the presence of extensive small mammal burrows within grassland and shrubland vegetation communities, the proposed project area does contain available foraging habitat and potential human-made nesting habitat for golden eagles; therefore, golden eagles could inhabit the proposed project area.

Operation of the solar facilities, BESS, and adjacent transmission lines outside of the proposed project area, could present collision risks as well as electrocution risks to golden eagles; however, these risks are very low because the facilities are designed to discourage their use as perching or nesting substrates. Aboveground transmission lines are designed following the established Avian Power Line Interaction Committee (APLIC) guidelines to minimize bird collisions and avoid electrocution of raptors (APLIC 2006).

List of Special-Status Species

The federally listed and state-listed species with the potential to occur in Lea County, New Mexico, are listed in Table 5 (BISON-M 2024; USFWS 2024a). One special-status species may occur in the project area—monarch butterfly (*Danaus plexippus plexippus*)—and is discussed further below. The remaining species are not likely to occur in the project area due to lack of suitable habitat for each species and the project being outside the known range of some of the species.

Table 5. Special-Status Species Listed for Lea County, New Mexico

Common Name (Species Name)	Status	Range or Habitat Requirements	Potential for Occurrence in the Project Area
Arthropods			
Monarch butterfly (<i>Danaus plexippus</i> <i>plexippus</i>)	USFWS C	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 (<i>Asclepias</i> spp.) as 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.	May occur in the proposed project area during migration from April through October. Foraging may occur due to the presence of herbaceous flowering plants such as silverleaf nightshade (<i>Solanum elaeagnifolium</i>), gumhead (<i>Gymnosperma glutinosum</i>) and Texas stork's bill (<i>Erodium texanum</i>). No milkweed vegetation that could be utilized for breeding was detected, however the biological resources survey occurred outside of the known detection period for this species. No monarch butterflies were observed during the biological resources survey. Currently, there is no requirement for ESA Section 10 consultation for this species.
Texas hornshell (<i>Popenaias popeii</i>)	USFWS 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 Candidate Conservation Agreement (USFWS and Center of Excellence for Hazardous Materials Management 2017). Associated with larger streams and a variety of substrates, it embeds itself in softer bottoms, but also lodges itself in cracks and crevices, where it is probably immobile. Proposed critical habitat exists in Eddy County, New Mexico.	Unlikely to occur within the proposed project area due to the lack of suitable stream habitat. Additionally, the project area is outside the occupied range for the species.
Reptiles			
Dunes sagebrush lizard (<i>Sceloporus</i> <i>arenicolus</i>)	USFWS PE NM E	A habitat specialist native to the shinnery oak sand dune habitats extending from San Juan Mesa in northeastern Chaves County, Roosevelt County, 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 its geographic range, the presence of this species is also associated with composition of the sand; this species only occurs at sites with relatively coarse sand (Fitzgerald et al. 1997).	Unlikely to occur within the project area because it is outside the species' known range and because of the lack of active dune complex habitat (USFWS 2013).
Birds			
Baird's sparrow (<i>Ammodramus</i> <i>bairdii</i>)	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 southeastern portion of state. Generally, it prefers dense, extensive grasslands with few shrubs. Avoids heavily grazed areas.	Unlikely to occur in the project area because of the lack of dense, extensive grasslands with few shrubs and the presence of grazing. In addition, the project area is not near the Otero Mesa or Animas Valley.

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Common Name (Species Name)	Status	Range or Habitat Requirements	Potential for Occurrence in the Project Area
Bald eagle (<i>Haliaeetus leucocephalus</i>)	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 (<i>Cynomys</i> spp.) colonies. Typically perches in trees.	Unlikely to occur in the project area because of the lack of suitable habitat, nearby rivers or streams, and the lack of suitable perching trees.
Bell's vireo (<i>Vireo bellii</i>)	NM T	In New Mexico, Bell's vireo occurs in the southern third of the state during the breeding season. The <i>medius</i> 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 willow (<i>Salix</i> sp.), mesquite (<i>Prosopis</i> spp.), and mule-fat (<i>Baccharis glutinosa</i>). Its distribution during breeding is typically limited to riparian habitats.	Unlikely to occur in the project area because of the lack of habitat associated with lowland stream courses, dense shrubland and woodland habitat, and riparian habitat for breeding.
Broad-billed hummingbird (<i>Cyananthus latirostris</i>)	NM T	Occurs in riparian habitat or dense mesquite (<i>Prosopis</i> spp.) in canyons in southwestern New Mexico. Found in Guadalupe Canyon in Hidalgo County and rarely in the Peloncillo Mountains.	Unlikely to occur in the project area because of the lack of riparian habitat, dense mesquite, and the project area is outside of the Guadalupe Canyon in Hidalgo County.
Least tern (<i>Sterna antillarum</i>)	NM E	Migratory species that occurs in North America during the breeding season. 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 in the project area because the project area is outside Bitter Lake National Wildlife Refuge where the species is known to primarily breed in the state.
Lesser prairie-chicken (<i>Tympanuchus pallidicinctus</i>)	USFWS T	This species occurs in southeastern New Mexico, primarily in shinnery oak (<i>Quercus havardii</i>) or sand sagebrush (<i>Artemisia filifolia</i>) grasslands. Also occurs in shinnery oak–bluestem habitats dominated by sand bluestem (<i>Andropogon hallii</i>), little bluestem (<i>Schizachyrium scoparium</i>), sand dropseed (<i>Sporobolus cryptandrus</i>), threeawn (<i>Aristida</i> sp.), and blue grama (<i>Bouteloua gracilis</i>).	Unlikely to occur in the project area because of the lack of suitable shinnery oak, sand sagebrush, and shinnery oak–bluestem habitats. In addition, the project area is outside of the species' estimated occupied range, approximately 40 miles north of the project area (USFWS 2022).
Northern aplomado falcon (<i>Falco femoralis septentrionalis</i>)	USFWS EXPN NM E	Associated with semi-desert grasslands with scattered yuccas, mesquite, and cacti. Naturally occurring populations are essentially restricted to the southern portion of New Mexico. Species has also been reintroduced on the Armendaris Ranch in Socorro and Sierra Counties and on lands administered by the Bureau of Land Management, White Sands Missile Range, and the New Mexico State Land Office beginning in 2006.	Unlikely to occur in the proposed project area. Although suitable semi-arid grassland habitat with scattered yuccas and mesquite is present, the proposed project area is outside the species' documented distribution.
Peregrine falcon (<i>Falco peregrinus</i>)	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 because of the lack of cliff roosting habitat and large wetlands.

Common Name (Species Name)	Status	Range or Habitat Requirements	Potential for Occurrence in the Project Area
Mammals			
Tricolored bat (<i>Perimyotis subflavus</i>)	USFWS proposed E	Suitable spring, summer, and fall habitat consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields, and pastures. When not hibernating, tricolored bats roost in leaf clusters along branches of deciduous trees but will use pine trees. Tricolored bats will also roost in human-made structures, such as bridges and culverts, and occasionally in barns or the underside of open-sided buildings. In the winter, tri-colored bats may roost in caves, mines, and culverts. In southern New Mexico, they may exhibit shorter torpor bouts and remain active and feed year-round. This species has been decimated by white-nose syndrome.	Unlikely to occur within the proposed project area due to lack of forested/wooded habitat, human-made structures, caves, or riparian areas for roosting, foraging, or hibernation.

Sources: Range and habitat information for wildlife species is taken from the BISON-M website (BISON-M 2024), NatureServe (2024), and the USFWS IPaC System (USFWS 2024a).

* Status Definitions (Federal = USFWS; State of New Mexico = NM):

C = candidate (federal only); PE = potential endangered (federal only); E = endangered; EXPN = experimental (federal only); T = threatened.

Monarch Butterfly (*Danaus plexippus plexippus*)

The monarch butterfly is designated as a USFWS candidate species (USFWS 2024a). In addition, this species is under review by the USFWS and a proposed rule to list the species is likely to occur in 2024 (USFWS 2023). This species is a candidate for listing due to the decline in populations across North America resulting from habitat reduction and fragmentation. Candidate species receive no statutory protection under the ESA. The USFWS encourages cooperative conservation efforts for these species because they are, by definition, species that may warrant future protection under the ESA. However, if this species receives a proposed listing in 2024, ESA compliance would be required and may include species-specific surveys, habitat assessments, mitigation planning, and consultation with the USFWS under Section 10 of the ESA.

The monarch butterfly 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 the breeding season during the warmer months of April to October, but is not known to overwinter within the state (Cary and DeLay 2016). The species is especially tied to the presence of milkweed species (*Asclepias* spp.) during the breeding season since milkweed species are the sole source of food for monarch caterpillars (BISON-M 2024). Primary threats to the species include habitat destruction and fragmentation throughout the flyway, especially in overwintering and breeding sites; habitat loss through urbanization; use of toxic agrochemicals; and a reduction of milkweed populations (Commission for Environmental Cooperation 2008).

Although the species was not directly observed during the 2024 survey of the proposed project area, adult butterflies may occur here based on the annual migratory path. The project area provides suitable foraging habitat for this species because of the presence of flowering plants such as silverleaf nightshade, gumhead, and Texas stork's bill. No milkweed vegetation was observed, however the biological resources survey occurred outside of the known detection period for this species. Additional follow-up surveys could be performed during the flowering period for milkweed (June–August) to confirm the lack of suitable milkweed habitat required for breeding in the project area; however, additional surveys are not a

requirement at this time. The proposed project would alter approximately 2,028.8 acres of potentially suitable foraging habitat for monarch butterflies.

Special Aquatic Sites and Other Waters

The proposed project area falls within two hydrologic units, Middle Monument Draw (hydrologic unit code [HUC]-10 # 1208000307) and Upper Monument Dray (HUC-10 # 1208000306) (USGS 2020). According to Federal Emergency Management Agency Flood Map Service Center data, the entirety of the proposed project area falls within a Zone D (Area of Undetermined Flood Hazard) mapped floodplain (Federal Emergency Management Agency 2024).

Based on review of the NHD (USGS 2016b) and NWI (USFWS 2024a), there are four NHD-mapped water features and one NWI-mapped water feature overlapping one of the NHD-mapped water features within the project area. During the 2024 aquatic resources reconnaissance-level survey, the presence/absence of NHD- and NWI-mapped surface water features, as well as any unmapped surface water features or potential WOTUS, was evaluated (see Figure A-3 in Appendix A). One of the four NHD-mapped water features was observed to be a human-made stock pond (P-01) containing water. Pond P-01 also has an artificial surface water source (waterline) continuously feeding the pond (see Photographs B-12 and B-13 in Appendix B). Additionally, one unmapped human-made and artificially fed stock pond containing water was identified (P-02). P-03, P-04 and P-05 were determined to be vegetated depressions during the biological survey (see Photographs B-15 B-17 in Appendix B).

The USACE's 2023 final revised definition of WOTUS excludes from WOTUS jurisdiction artificial lakes or ponds created by excavating or diking dry land that are used exclusively for such purposes as stock watering, irrigation, or settling basins. P-01 and P-02 each meet the definition of an artificial pond. P-03, P-04, and P-05 were considered to be vegetated depressions and lacked criteria to be considered potential WOTUS. Per SWCA's review of aquatic features, no other potentially jurisdictional WOTUS features, including wetland or non-wetland water features, were observed within the proposed project area. Only the USACE has final and legal authority for determining the presence of jurisdictional WOTUS and the extent of their boundaries. It is recommended that SPS take an avoidance approach regarding all water features within the proposed project area.

CONCLUSIONS

During the 2024 biological resources and aquatics resources reconnaissance-level survey, no listed species or surface water features that are potentially jurisdictional WOTUS were identified in the project area.

The proposed project will comply with the BGEPA and MBTA through the implementation of protection measures to avoid construction-related impacts to active nests during the MBTA breeding season (March 1–September 15). This includes preconstruction nest surveys up to 2 weeks before construction, establishing nest buffers, and avoiding nests until birds have fledged. During the Southwestern U.S. eagle breeding season (December –August), a qualified biologist would be contacted to verify the nesting activity if any potential eagle nests are observed.

The western burrowing owl has the potential to occur in the proposed project area due to the presence of whitewash at a potentially active prairie dog colony and suitable foraging habitat. However, no active burrows or burrowing owls were observed during the survey. A preconstruction nest survey would help identify any active burrows in the proposed project area, and if active burrows are found, then construction would not occur within a buffer area designated by NMDGF until the young have fledged.

The proposed project may impact individuals or localized foraging habitat but would not likely contribute to a trend toward federal listing or cause a loss of viability to the population or species.

One USFWS Candidate species, monarch butterfly, has the potential to occur within the project area, but was not observed during the biological survey. The project would alter up to 2,028.8 acres of suitable foraging habitat for monarch butterflies. However, the vegetation within the project area is similar to surrounding habitat; therefore, monarch butterflies could utilize adjacent habitat for foraging purposes. Additionally, if monarch butterflies are encountered during construction, a qualified biologist would be notified to determine if monarch butterflies breeding within the project area. To reduce impacts to potential foraging habitat, SPS would include pollinator-friendly species, including milkweed, in the seed mix for revegetation.

The USACE's 2023 final revised definition of WOTUS excludes from WOTUS jurisdiction artificial lakes or ponds created by excavating or diking dry land that are used exclusively for such purposes as stock watering, irrigation, or settling basins. P-01 and P-02 each meet the definition of an artificial pond; therefore, there are no potential WOTUS in the project area.

The results and conclusions of this report represent the best professional judgment of SWCA scientists and are based on information provided by the project proponent and on information obtained from agencies and other sources. No other warranty, expressed or implied, is made.

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APPENDIX A

Project Maps

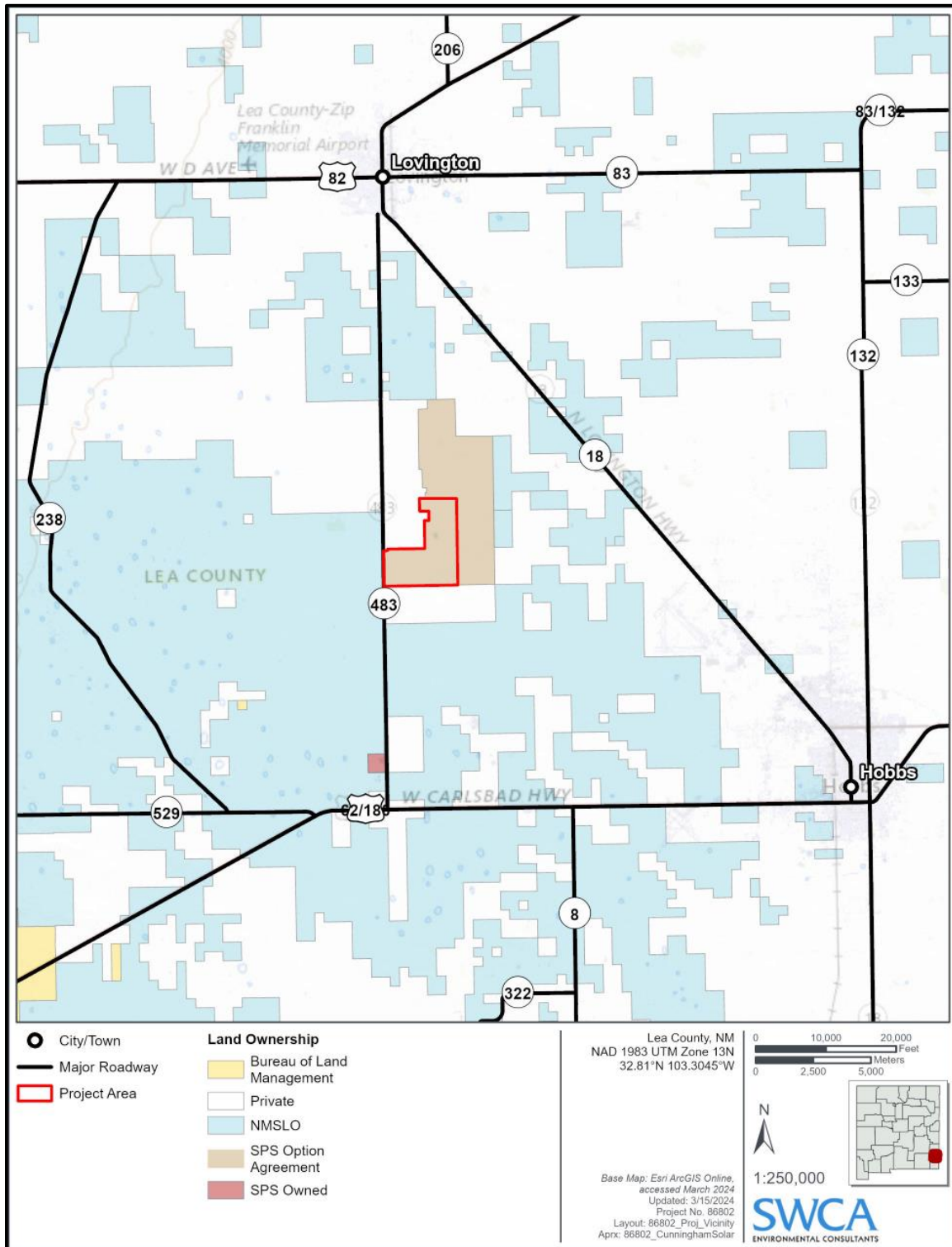


Figure A-1. Project vicinity map.

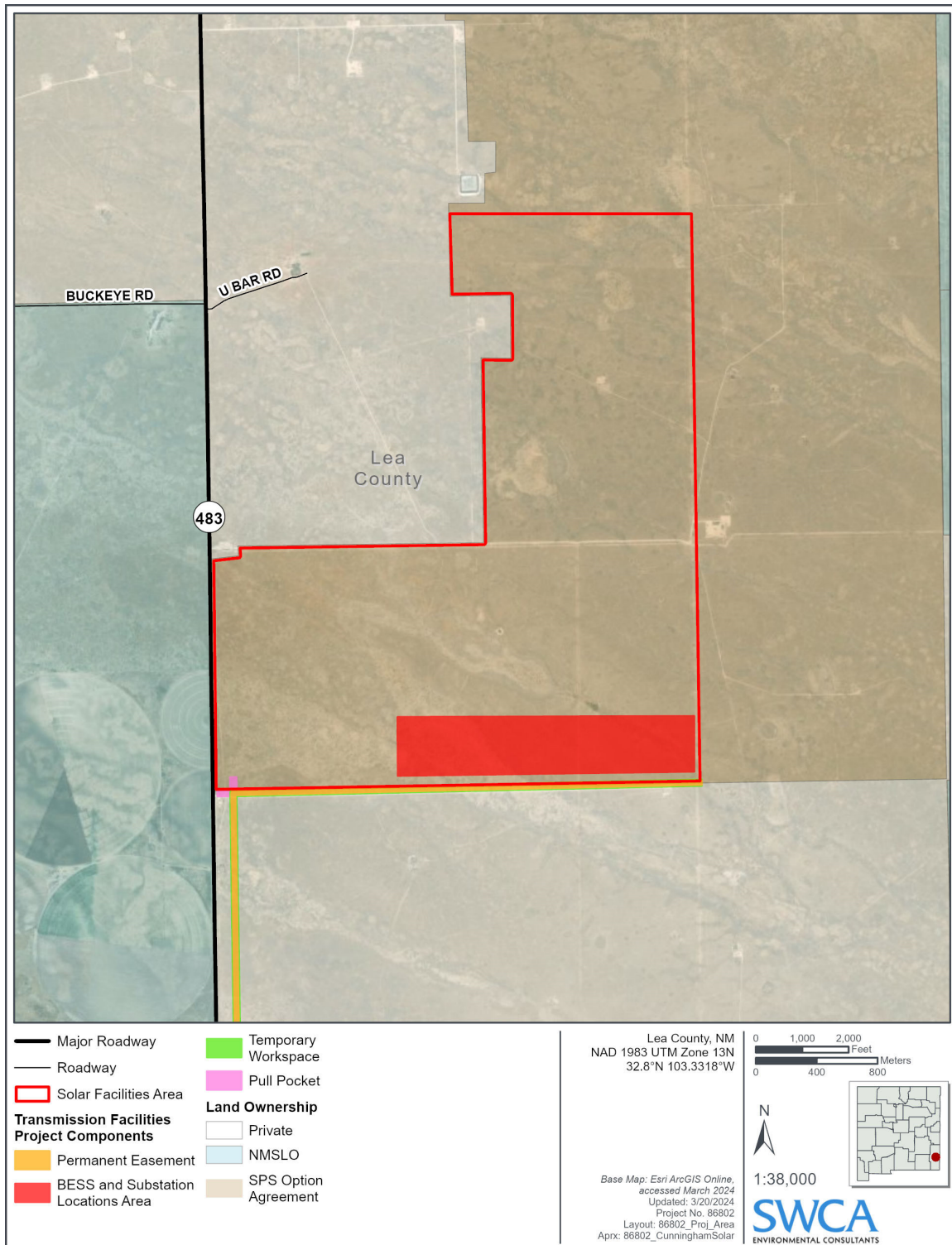


Figure A-2. Project area map with project components.

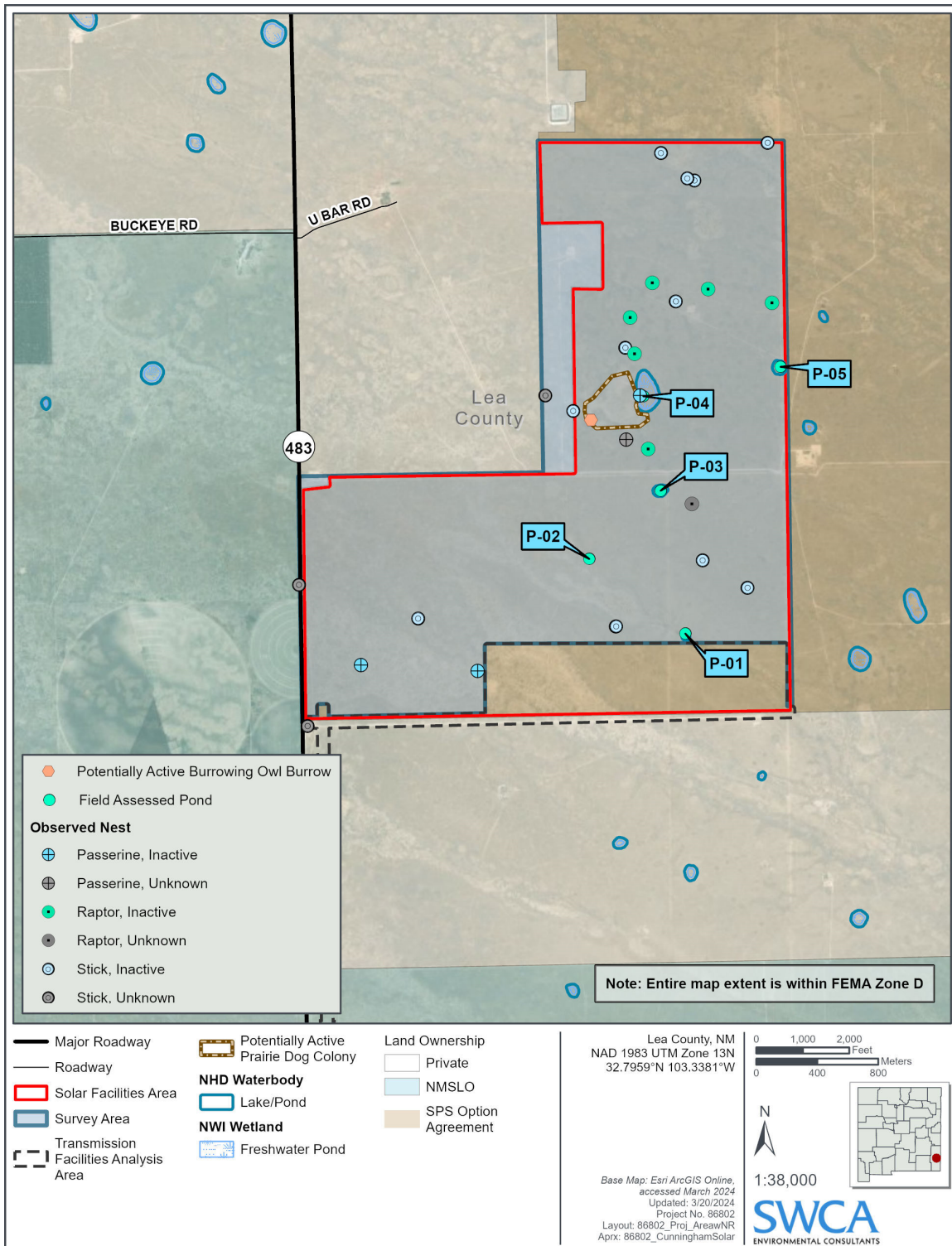


Figure A-3. Project area map with natural resource findings.

APPENDIX B
Project Photographs



Photograph B-1. Great Plains Shortgrass Prairie vegetation community in the proposed project area, view facing north.



Photograph B-2. Great Plains Shortgrass Prairie vegetation community in the proposed project area, view facing east.



Photograph B-3. Great Plains Shortgrass Prairie vegetation community in the proposed project area, view facing south.



Photograph B-4. Great Plains Shortgrass Prairie vegetation community in the proposed project area, view facing west.



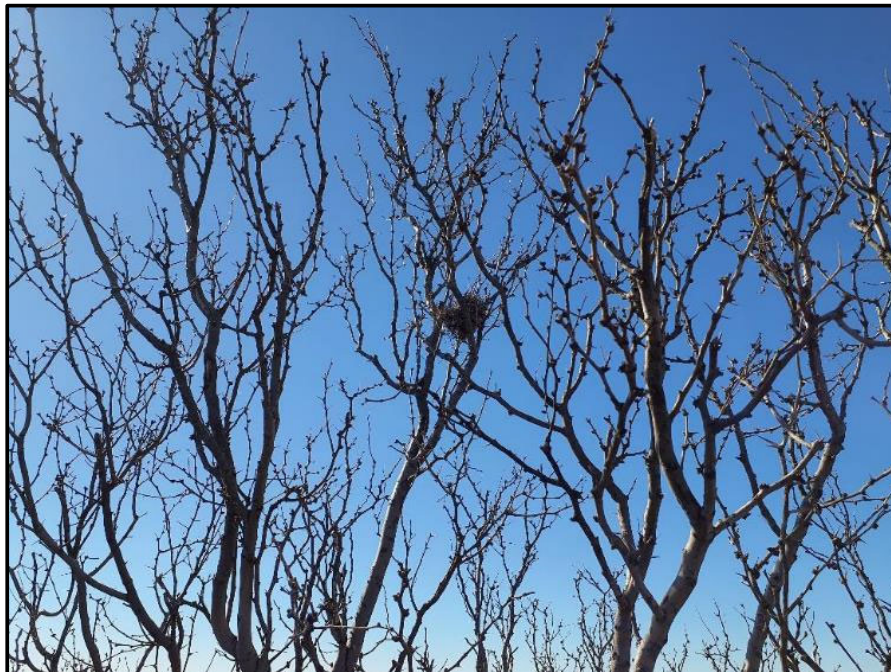
Photograph B-5. Great Plains Shortgrass Prairie vegetation community and existing disturbance in the proposed project area, view facing north.



Photograph B-6. Great Plains Shortgrass Prairie vegetation community and existing disturbance in the proposed project area, view facing west.



Photograph B-7. Observed stick nest in the proposed project area, view facing west.



Photograph B-8. Observed passerine nest in the proposed project area, view facing south.



Photograph B-9. Representative burrow within the proposed project area, view facing south.



Photograph B-10. Representative burrows within the proposed project area, view facing southeast.



Photograph B-11. Possibly active burrowing owl burrow with evidence of activity, located in prairie dog colony within the proposed project area, view facing northeast.



Photograph B-12. View of P-01, an artificial stock pond located within the proposed project area, facing north.



Photograph B-13. View of P-01, an artificial stock pond located within the proposed project area, facing south.



Photograph B-14. View of P-02, an artificial stock pond located within the proposed project area, facing north.



Photograph B-15. View of P-03, an NHD-mapped water feature determined to be a vegetative depression within the proposed project area, facing north.



Photograph B-16. View of P-04, an NHD-mapped water feature determined to be a vegetative depression within the proposed project area, facing north.



Photograph B-17. View of P-05, an NHD-mapped water feature determined to be a vegetative depression located within the proposed project area, facing south.

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF SOUTHWESTERN)	
PUBLIC SERVICE COMPANY'S)	
APPLICATION REQUESTING A)	
DETERMINATION ON LOCATION)	
APPROVAL OF TWO SOLAR FACILITIES, A)	
BATTERY ENERGY STORAGE SYSTEM,)	
AND A 230 KV TRANSMISSION)	
GENERATION TIE LINE IN LEA COUNTY)	
AND OTHER ASSOCIATED RELIEF,)	CASE NO. 24-_____-UT
)	
SOUTHWESTERN PUBLIC SERVICE)	
COMPANY,)	
)	
APPLICANT.)	
)	
)	

CERTIFICATE OF SERVICE

I certify that a true and correct copy of *Southwestern Public Service Company's Application and the Direct Testimony of Brooke A. Trammell, Mark Lytal, Sean L. Frederiksen and Andrea R. McArdle* was electronically sent to each of the following on this 28th day of March 2024:

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