Final Environmental Assessment for the MPP-Q01 Interconnection Request

DOE/EA-2208

Prepared for:

Western Area Power Administration

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Western Area Power Administration
Desert Southwest Region

Prepared by:

WestLand Engineering & Environmental Services
4001 E. Paradise Falls Drive – Tucson, Arizona 85712
+1 520-206-9585

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WestLand Engineering & Environmental Services

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ACRONYMS AND ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
ADEQ	Arizona Department of Environmental Quality
AIRFA	American Indian Religious Freedom Act
APLIC	Avian Powerline Interaction Committee
APE	Area of Potential Effect
APS	Arizona Public Service
ASLD	Arizona State Land Department
ASM	Arizona State Museum
AZGFD	Arizona Game and Fish Department
BA	Biological Assessment
BCC	Birds of Conservation Concern
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FEA	Final Environmental Assessment
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FONSI	Finding of No Significant Impact
FPA	Federal Power Act
KOP	Key Observation Point
kV	kilovolt
MBTA	Migratory Bird Treaty Act
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
OATT	Open Access Transmission Service Tariff
OGW	Optical Ground Wire
OHV	off highway vehicle
POI	Point of Interconnection

ROW	Right-of-Way
SDT	Sonoran desert tortoise
SHPO	State Historic Preservation Office
SR	State Route
TCPs	Traditional Cultural Places
TOP	Transmission Operations
U.S.	United States
USFWS	U.S. Fish and Wildlife Service
WAPA	Western Area Power Administration

EXECUTIVE SUMMARY

Participants and Background

Arizona Public Service (APS) submitted a transmission interconnection request to Western Area Power Administration (WAPA), a federal power marketing agency within the U.S. Department of Energy (DOE), to connect the planned Bagdad 230-kilovolt (kV) transmission line, near Bagdad, Arizona, to WAPA's existing electrical transmission system. WAPA is the lead federal agency for the review of the MPP-Q01 Interconnection Request under the National Environmental Policy Act (NEPA). The Bagdad 230-kV transmission line would interconnect with WAPA's Mead-Perkins 525-kV transmission line at a new WAPA switchyard near the junction of U.S. Route 93 (US 93) and Arizona State Route (SR) 97. The Bagdad 230-kV transmission line would provide additional firm transmission capability to satisfy future electrical load and would provide future opportunities for increased reliability of the APS electrical system for its customers.

Location

The Bagdad 230-kV transmission line would be located in Yavapai County, from southeast of the US 93 and SR 97 junction to approximately 1 mile west of the SR 97 and SR 96 intersection, near Bagdad, Arizona (**Figure 1**). It would interconnect with WAPA's Mead-Perkins 525-kV transmission line near the junction of US 93 and SR 97. The Bagdad 230-kV transmission line, WAPA switchyard, and communication facility (microwave tower) would be located on Arizona State Trust Land managed by the Arizona State Land Department (ASLD) and private property. An additional communications facility (microwave tower) would be located on land administered by the Bureau of Land Management (BLM). The transmission line would run north-south on State Trust Land and private land.

WAPA's Purpose and Need

WAPA's purpose and need is to respond to APS' transmission interconnection request in accordance with WAPA's Open Access Transmission Tariff (OATT) and Section 211 of the Federal Power Act (FPA). If WAPA grants this request, WAPA's purpose and need would also be to modify WAPA facilities, including construction and operation of a new switchyard and two microwave towers, and to obtain right-of-way (ROW) for the switchyard consistent with WAPA's OATT.

WAPA's Proposed Federal Action

WAPA must respond to APS's transmission interconnection request in accordance with WAPA's OATT and applicable provisions of the FPA. WAPA's proposed federal action is to grant or deny the transmission interconnection request (the Proposed Action), which would entail entering into a transmission interconnection agreement with APS, and implementing transmission and communication system additions to accommodate the interconnection. These additions include WAPA obtaining ROWs on ASLD land to construct, operate, and maintain a new 500-kV MPP-Q01 switchyard adjacent to APS proposed TS-01 Substation and a microwave tower located near the existing 169-5 tower along the Mead-Perkins 525-kV

transmission line, along with a second microwave tower located within or adjacent to the existing Pete Smith Peak communications facility on BLM land, for which WAPA currently has a ROW (**Figure 1**). WAPA would also provide redundant communications by using dedicated capacity on an APS-owned and installed Optical Ground Wire (OGW) fiber optic cable along the new Bagdad 230-kV transmission line. WAPA's requirement for the redundant communication with the MPP-Q01 switchyard is from the North American Electric Reliability Corporation (NERC) Transmission Operations (TOP) Standard TOP-001-5, under which Transmission Operators and Balancing Authorities must have redundant and diversely routed data exchange infrastructure within the Transmission Operator's primary Control Center for the exchange of real-time data. WAPA operates a redundant communication network to maintain the safety and reliability of the bulk electric system.

APS's Private Action

APS plans to build, operate, and maintain a privately developed 14-mile 230-kV transmission line. The line would interconnect with WAPA's Mead-Perkins 525-kV transmission line at the southern end. In addition to the privately developed Bagdad 230-kV transmission line, APS plans to build, operate, and maintain two new privately developed substations, known as TS-01 and TS-02, located at each end of the new line (**Figure 2**). APS would also install fiber optic cable along the new transmission line on which WAPA would have dedicated capacity to provide redundant communications for the new infrastructure. Collectively, these actions are referred to as APS's Private Action.

WAPA does not have the authority to approve or deny APS's privately developed facilities. While APS's Private Action is not a part of the Proposed Action, it is described alongside the Proposed Action to aid the analysis. WAPA's Proposed Action and APS's Private Action and their environmental effects are described and disclosed in this Final Environmental Assessment (FEA). WAPA's Proposed Action and APS's Private Action are hereafter collectively referred to as the Project. The term Project as used throughout the EA is defined above and not intended to align with the definition of that term in DOE NEPA Implementing Procedures.

Alternatives

A No Action Alternative was evaluated to provide a baseline against which the impacts of the Proposed Action can be compared. Under the No Action Alternative, WAPA would not approve the transmission interconnection request or enter into a transmission interconnection agreement and therefore would not construct transmission and communication system additions to accommodate the interconnection or obtain the ROW on ASLD land. While WAPA does not have substantial control and responsibility over APS's Private Action and cannot control the outcome of APS's Private Action, the effects of the entire Project—including both WAPA and APS's actions—are disclosed herein for transparency. No other feasible alternatives have been identified; therefore, this FEA only considers the Proposed Action and the No Action Alternative.

Summary of the Project's Environmental Consequences

Biological Resources

Construction of the Project would have long-term impacts to vegetation. Approximately 176 acres of vegetation would be cleared. Permanent vegetation removal would occur within approximately 106 acres for transmission structures, permanent access roads, the MPP-Q01 switchyard, TS-01 and TS-02 substations, and the microwave towers at the 169-5 communications site and Pete Smith Peak. The remaining 70 acres of disturbance would be temporary for the construction and use of temporary access roads and pulling locations.

Impacts to special-status species during construction include the permanent and temporary loss of suitable habitat (176 acres), potential disturbance from human noise and activity, and risk for direct mortality from ground disturbance, vehicle strikes, and powerline collisions. However, with the implementation of conservation measures, it is unlikely that the Project would result in direct mortality of individual species during construction. Special-status species that may use the Project Area for foraging or breeding may experience long-term impacts as a result of disturbance and loss of habitat. Conservation measures would be implemented to minimize impacts to special-status species; therefore, long-term impacts to special-status species would be negligible and unlikely to result in population-level effects.

Historic Resources

The Project would not cause physical impacts to cultural sites. Construction of the Project would result in proximal impacts to the integrity of feeling and setting of cultural resource sites adjacent to the Project Area, if those aspects of integrity contribute to the significance of the site, including cultural landscapes, for as long as the Project structures exist. Temporary impacts to setting and feeling would result from the presence of construction equipment and its associated noise.

Visual Resources

The Project would create contrast with the existing landscape features. WAPA and APS facilities would create weak to moderate contrast. At the point of transmission interconnection and microwave tower locations, the proposed facilities would create weak to moderate contrast and mimic the linear and vertical form of existing transmission corridors and communications facilities. Travelers headed in both directions on US 93 at the posted driving speeds would see minimal change in the landscape.

New geometric forms would be introduced into the existing landscape for travelers headed in both directions on SR 97, for residents of the off-grid community west of the proposed transmission line, and for rural residents and ranching properties south and west of the proposed transmission corridor. These viewers may see temporary construction and operation equipment, a new transmission corridor, and new infrastructure associated with the switchyard and substations; however, the new infrastructure would be additive to existing transmission and transportation infrastructure in these areas and would not preclude viewers from views of the rugged mountain terrain and Sonoran Desert vegetation.

1. INTRODUCTION

1.1. BACKGROUND

Arizona Public Service (APS) submitted a transmission interconnection request to Western Area Power Administration (WAPA) to connect a proposed 230-kilovolt (kV) transmission line (Bagdad 230-kV transmission line) to WAPA's Mead-Perkins 525-kV transmission line located near Bagdad in Yavapai County, Arizona. The proposed Bagdad 230-kV transmission line runs approximately 14 miles north-to-south on State Trust lands managed by the Arizona State Land Department (ASLD), as well as private property. The alignment is partially co-located with a separate water pipeline project, the Aguila Pipeline on State Trust Land.

On June 5, 2019, APS submitted its transmission interconnection request to WAPA. APS plans to build, operate, and maintain the 14-mile-long Bagdad 230-kV transmission line that would run from southeast of the U.S. Route 93 (US 93) and Arizona State Route (SR) 97 junction to approximately 1 mile west of the SR 97 and SR 96 intersection, near Bagdad (**Figure 1**). The Bagdad 230-kV transmission line would interconnect with WAPA's Mead-Perkins 525-kV transmission line at the south end. As part of the Proposed Action, WAPA would construct, own, and operate a 500-kV switchyard (MPP-Q01 switchyard) and two microwave towers (169-5 and Pete Smith Peak). APS would privately construct, own, and operate two substations (TS-01 and TS-02). APS would also construct a fiber optic cable along the new transmission line on which WAPA would have dedicated capacity and would provide redundant communications with the MPP-Q01 switchyard (**Figure 2**). The Bagdad 230-kV transmission line, MPP-Q01 switchyard, TS-01 and TS-02 substations, and the 169-5 microwave tower would be located on State Trust lands and private lands. The microwave tower at Pete Smith Peak would be located within or adjacent to existing communications facilities owned by WAPA on Bureau of Land Management (BLM) lands.

The interconnection of APS's planned Bagdad 230-kV transmission line to WAPA's Mead-Perkins 525-kV transmission line would reinforce the existing APS transmission system as follows:

- Provide additional firm transmission capability to satisfy APS's current and future electrical load.
- Reinforce the transmission delivery system to provide reliable and increased load-serving capability to support continuing load growth to APS customers.
- Provide supplemental access to the western U.S. interconnected electrical grid that allows APS to purchase power and optimize the terms of its power purchase agreements.
- Achieve compliance with Western Electricity Coordinating Council reliability criteria (see **Section 1.2**) regarding single contingency outages and maintenance of service to customers during system outages.
- Provide future capability to increase the reliability of the APS electrical system by creating a looped transmission system that provides a second transmission path for power supply to APS customers during system disturbances.

- Provide future capability for de-energized maintenance of the existing APS 115-kV facilities, resulting in additional operating flexibility, increased maintenance efficiency, lower overall operating costs, and enhanced worker safety.

On February 22, 2023, WAPA made its determination to prepare an EA for the Proposed Action in accordance with U.S. Department of Energy (DOE) National Environmental Policy Act (NEPA) Implementing Procedures (10 Code of Federal Regulations [CFR] part 1021) that were in place at the time. WAPA has prepared the FEA to complete the analysis of whether the Proposed Action would have reasonably foreseeable significant effects as required by NEPA. A Draft EA was published for the Proposed Action in October 2024. This FEA has since been updated to incorporate recent (June 2025) changes in DOE NEPA Implementing Procedures, although the content of this analysis has not substantially changed. WAPA does not have the authority to approve or deny APS's privately developed facilities. While APS's Private Action is not a part of the Proposed Action, it is described alongside the Proposed Action to aid the analysis. WAPA's Proposed Action and APS's Private Action and their environmental effects are described and disclosed in this FEA. WAPA's Proposed Action and APS's Private Action are hereafter collectively referred to as the Project. The term Project as used throughout the EA is defined above and is not intended to align with the definition in DOE NEPA Implementing Procedures.

WAPA has considered the factors mandated by the National Environmental Policy Act of 1969, 42 U.S.C. 4321 et seq., as amended or supplemented. This Environmental Assessment represents WAPA's good-faith effort to fulfill and prioritize documentation of the most important considerations required by NEPA within the Congressionally mandated page limits and timeline. This prioritization reflects WAPA's expert judgment, and any considerations addressed briefly or left unaddressed were, in WAPA's judgment, comparatively not of a substantive nature that meaningfully informed the consideration of environmental effects and the resulting decision. In WAPA's expert opinion, the analysis contained herein is adequate to inform and reasonably explain WAPA's final decision regarding the proposed major Federal action. WAPA's NEPA requirements are complete.

1.2. WAPA'S PURPOSE AND NEED

WAPA's purpose and need is to respond to APS's transmission interconnection request in accordance with WAPA's OATT and Section 211 of the FPA, and if the WAPA grants the request, to modify WAPA facilities (includes construction and operation of a new switchyard and two microwave towers) and obtain right-of-way (ROW) for the switchyard and 169-5 microwave tower.

This FEA, which is the responsibility of WAPA as the lead federal agency, is a concise public document that serves to:

- Provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).
- Aid WAPA's compliance with NEPA when no EIS is necessary.

- Facilitate preparation of an EIS if one is necessary.

Based on the analysis contained in this FEA, WAPA will determine whether the Proposed Action requires an EIS or if a FONSI can be prepared.

1.2.1. Cooperating Agencies

WAPA is the lead federal agency in the NEPA process, as well as the Endangered Species Act (ESA) Section 7 process and the National Historic Preservation Act (NHPA) Section 106 process. On April 18, 2023, WAPA invited the BLM to be a cooperating agency in the preparation of this FEA because the BLM administers the land underlying the Pete Smith Peak communications facility. Since less than 1 acre of land would be disturbed for the microwave tower work on Pete Smith Peak, the BLM did not accept cooperating agency status but was involved throughout the environmental review process.

1.3. PUBLIC AND TRIBAL PARTICIPATION

1.3.1. Scoping

Pursuant to the DOE and Council on Environmental Quality NEPA regulations and procedures in effect at the time, WAPA conducted public scoping for the Project in 2023. WAPA held a public comment period for the Project from April 4 to May 12, 2023, and mailed scoping letters to 13 agencies, organizations, and interested parties, as well as 12 tribes and 25 landowners, in the Bagdad area to inform them of the Project and scoping period and request input on the Project. These letters also included notice of a virtual scoping meeting to be held on April 26, 2023. WAPA also published two newspaper advertisements, one in The Wickenburg Sun and one in The Daily Courier, on April 19 and April 23, 2023, respectively, which announced the scoping notice and included information about the virtual scoping meeting. Thirteen people attended the virtual public scoping meeting held on April 26, 2023.

WAPA accepted scoping comments via telephone, email, U.S. mail, and at the virtual scoping meeting. WAPA received a total of five submittals from three individuals, one state government agency, and one federal government agency. During the public scoping meeting, there were five questions/comments received from three individuals and one state government agency representative. No businesses or tribes provided scoping comments or participated in the public scoping meeting.

The topics addressed during scoping included:

- Impacts to livestock grazing.
- Impacts to sensitive species, including desert tortoise, and other wildlife, biological resources, and habitat.

Refer to **Appendix A** for a detailed scoping summary.

1.3.2. Tribal Consultation

Additionally, in accordance with the NHPA, WAPA separately requested comments on the National Register of Historic Places (NRHP) evaluation finding of No Adverse Effect for the Project from the 12 tribes consulted during scoping. Three responses from tribes were received as of the publication date of this FEA, two of which indicated concurrence, and the other indicated the tribe had no comments on the finding of No Adverse Effect for the Project. Outside of the consultation period, another tribe requested consultation and tribal monitors. See **Section 4.2** for additional information.

1.3.3. Public Input on the Draft EA

WAPA published the Draft EA on October 27, 2024, and accepted public comments from October 27, 2024 to December 1, 2024. WAPA mailed notices of the Draft EA publication to 13 agencies, organizations, and interested parties, 12 tribes, and 25 landowners on the project mailing list. WAPA also published two newspaper advertisements in The Wickenburg Sun and The Daily Courier, on October 30 and 27, 2024, respectively. Review copies of the Draft EA were made available at the Bagdad Public Library in Bagdad, Arizona. WAPA received three comment letters regarding the Draft EA, including two from nearby landowners and one from the State Historic Preservation Office (SHPO). Historic and visual resources were the primary topics raised in comments. As a result, WAPA's revisions to the Draft EA are incorporated into this Final EA and responses to comments are provided in **Appendix F**. As described in **Section 1.1.,** this Final EA has also been updated to incorporate recent changes in DOE NEPA Implementing Procedures that have occurred since publication of the Draft EA.

2. PROPOSED ACTION AND ALTERNATIVES

2.1. WAPA'S PROPOSED FEDERAL ACTION

WAPA must respond to APS's transmission interconnection request in accordance with WAPA's OATT and the FPA. The proposed federal action is for WAPA to decide whether to grant the transmission interconnection request, which if granted would necessitate entering into a transmission interconnection agreement with APS and implementing required transmission and communication system additions (the Proposed Action) as follows:

- **MPP-Q01 Switchyard**—WAPA would obtain ROW to construct, own, and operate a new 500-kV switchyard, up to 35 acres in size, containing up to four 500-kV breaker bays, located between the Mead-Perkins 525-kV line and APS's new TS-01 Substation. The MPP-Q01 switchyard would be the Point of Interconnection (POI) for the Project.
- **Pete Smith Peak Microwave Tower**—WAPA would install and maintain a microwave tower adjacent to the existing communication facilities at Pete Smith Peak, for which WAPA has ROW, to maintain WAPA radio communications with the MPP-Q01 switchyard and TS-01 and TS-02 substations that APS would construct, operate, and maintain (see **Section 2.2** for additional details).

- **169-5 Microwave Tower**—To provide microwave communications to the POI, WAPA would obtain ROW and install and maintain a microwave tower approximately 10 miles southeast of the interconnect location, near Mead-Perkins 525-kV transmission structure 169-5. This tower would be used as a relay station between the MPP-Q01 switchyard and the Pete Smith Peak microwave tower.
- **Fiber Optic Cable along New Transmission Line**—To provide redundant communications to the POI, WAPA would use dedicated capacity on an APS-owned and installed Optical Ground Wire (OGW) fiber optic cable along the new transmission line from the POI to APS's TS-01 substation.

WAPA is required to demonstrate that the requested transmission interconnection would not degrade transmission system reliability and safety or adversely affect service to existing customers. WAPA conducts feasibility, system, and facility studies to determine the transmission system upgrades or additions necessary to meet these requirements and accommodate the proposed transmission interconnection.

WAPA is responsible for the reliable operation and maintenance of its transmission system and complying with the North American Electric Reliability Corporation (NERC) Standards. Accordingly, if WAPA were to grant APS's transmission interconnection request and implement the Proposed Action, redundant communication (fiber optic line, 169-5 and Pete Smith Peak microwave towers) with the MPP-Q01 switchyard would be required for WAPA to comply with the NERC Standards. NERC requires that transmission operators (in this instance, WAPA) have redundant and diversely routed data exchange infrastructure within the transmission operator's primary control center for the exchange of real-time data. This standard prevents instability, uncontrolled separation, or cascading outages that adversely impact the reliability of the transmission interconnection by ensuring prompt action to prevent or mitigate such occurrences. Therefore, to comply with this standard, redundant communications with the MPP-Q01 switchyard via a fiber-optic line and two microwave towers (169-5 and Pete Smith Peak) are part of the Proposed Action.

2.2. APS'S PRIVATE ACTION

While APS's facilities are not part of the federal action, they are described in combination with the federal action, together identified as "the Project," to aid this analysis.

APS plans to build, operate, and maintain a 14-mile-long Bagdad 230-kV transmission line and take the following actions to assist in operating the transmission line:

- Construction, operation, and maintenance of an approximately 15-acre substation adjacent to the MPP-Q01 switchyard, to be known as TS-01, which would include up to two 525/230/34.5-kV transformers and associated switch gear.
- Construction, operation, and maintenance of an approximately 15-acre substation at the north end of the proposed transmission line, to be known as TS-02, which would include up to two 230/115-kV transformers, up to two 230/69-kV transformers, and associated switch gear.

- Construction, operation, and maintenance of a 14-mile-long fiber optic cable along the new transmission line from TS-01 to APS' Bagdad Substation via APS' Willow Lake 115-kV transmission line. WAPA would use dedicated capacity on this cable for redundant communications for the MPP-Q01 switchyard.

2.3. PROJECT LOCATION

The Project Area, which encompasses the footprint of all components of the Proposed Action and APS's Private Action, is located south of the unincorporated community of Bagdad in Yavapai County, Arizona. The MPP-Q01 switchyard and TS-01 substation would be constructed southeast of the US 93 and SR 97 intersection. Exiting the TS-01 substation, the transmission line would head north towards Bagdad. The transmission line would continue to the TS-02 substation, adjacent to the Willow Lake 115-kV transmission line and approximately 1 mile southeast of Bagdad. The first communications tower would be located approximately 10 miles southeast of the MPP-Q01 switchyard at the existing 169-5 tower site associated with WAPA's Mead-Perkins transmission line; the second would be located within or adjacent to existing WAPA communications facilities on Pete Smith Peak, approximately 25 miles south/southwest of the MPP-Q01 switchyard (**Figure 2**).

The MPP-Q01 switchyard, TS-01 substation, 169-5 microwave tower, and majority of the 230-kV transmission line would be located on State Trust Land managed by the ASLD and zoned as RCU (Residential; Rural) by Yavapai County. Portions of the transmission line and TS-02 substations would be located on private property, and the Pete Smith Peak microwave tower would be located on land administered by the BLM. The transmission line would be partially co-located with a separate water pipeline project, the Aguila Pipeline, on State Trust Land.

Altogether, the Project Area includes 267 acres of State Trust Land, less than 1 acre of BLM land, and 37 acres of private lands (total of 305 acres). The point of transmission interconnection to WAPA's transmission system would be located within the 267 acres of State Trust Land, in Section 15, Township 12N, Range 9W.

2.4. SCHEDULE

Should WAPA grant APS's transmission interconnection request and enter into a transmission interconnection agreement, APS plans to construct their privately developed facilities from 2026 through 2028 and place them in service by the summer of 2028. WAPA would also plan to complete its construction activities associated with the Proposed Action from 2026 through 2028.

2.5. PROJECT IMPLEMENTATION

2.5.1. Construction

The total anticipated disturbance of the Project Area is approximately 176 acres. Up to 106 acres of permanent disturbance is expected for placement of up to 70 transmission structures, permanent access roads, and supporting facilities. Up to 70 acres of temporary land disturbance is expected from construction activities (**Table 2-1**).

Table 2-1. Project Elements and Estimated New Disturbance

Project Elements	Estimated New Permanent Disturbance Area (acres)	Estimated New Temporary Disturbance Area (acres)
Access Roads and Laydown Yards	30	15
Transmission Structures	10	25
Pulling/Tensioning Areas	N/A	30
Substations and Switchyard	65	N/A
Microwave Towers	<1	N/A
TOTAL	**106**	**70**

Construction activities associated with the Project include the following:

- APS would install up to 70 steel monopole transmission structures, up to 130 feet in height with the potential to use steel monopole structures up to 199 feet, if engineering conditions require it.
- APS would construct up to 16 miles of permanent access roads (14 miles along the transmission line and 1 mile on each side for access points) for construction, operation, and maintenance of the transmission line. APS would clear the access roads of vegetative cover and would maintain the road prism to provide passage of high clearance vehicles. APS would construct the cut and fill slopes for access roads at the maximum practicable slope ratio to minimize both potential erosion and the area of disturbance.
- APS would construct the TS-01 and TS-02 substations.
- WAPA would construct the MPP-Q01 switchyard and 169-5 and Pete Smith Peak microwave towers.

APS and WAPA would use licensed contractors specializing in transmission line construction and would require approximately 25 personnel on site to complete this work. Equipment used during construction of the Project is anticipated (but not limited) to include:

- two bucket trucks
- three boom trucks
- nine foremen/crew pickups
- two pressure diggers
- three backhoes

- two steel track sagging dozers
- one front end loader
- two drill rigs
- two water trucks
- two air compressors
- four light plants
- two generators
- one rubber track CAT Challenger
- two service trucks
- four concrete trucks
- one helicopter (limited use)
- one skid steer
- one pole trailer
- two cranes
- one dump truck

APS would complete ROW boundary staking prior to any clearing or grading to ensure that no additional impacts are caused outside of the ROW.

Clearing and grading of roads, tower pads, pulling areas, etc. would occur prior to construction and would be completed with the use of backhoes and chainsaws to ensure that all equipment required for pole/line/tower installation can be accommodated. Approximately 176 acres of vegetation would need to be cleared for the Project. WAPA's Construction Standards, including Construction Standard 13 for environmental quality protection, would be implemented for the construction of WAPA's facilities, to include the MPP-Q01 switchyard, Pete Smith Peak microwave tower, and 169-5 microwave tower (**Appendix B**). APS' Construction Standards would be implemented for construction of the MPP-Q01 transmission line and the TS-01 and TS-02 substations (**Appendix G**).

2.5.1. Operations and Maintenance

APS would inspect the transmission corridor twice per year for any damage to structures, insulators, and conductors. APS would conduct inspections using a four-wheel drive vehicle. For ongoing vegetation management following construction, APS may, as necessary, conduct limited trimming, vegetation removal, or herbicide application along permanent access roads and within the transmission corridor to mitigate fire hazard. APS would not use mechanical mowers within riparian areas; it would only remove or prune riparian vegetation using manual methods. APS would not conduct herbicide application within riparian areas.

WAPA would incorporate the operations and maintenance, including inspections, of the MPP-Q01 switchyard and microwave towers into its existing program. WAPA conducts aerial inspections on its

systems up to four times per year and ground inspections once per year. WAPA uses the inspection reports to prioritize any needed repairs. By its nature, this work is episodic.

2.6. NO ACTION ALTERNATIVE

The No Action Alternative provides a baseline against which the impacts of the Proposed Action can be compared. Under the No Action Alternative, WAPA would not enter into a transmission interconnection agreement, nor construct transmission and communication system additions to accommodate the interconnection. The No Action Alternative assumes APS would not construct the 230-kV transmission line or associated structures as described herein.

2.7. ALTERNATIVES CONSIDERED BY APS

Prior to submitting the transmission interconnection request to WAPA, APS considered multiple alternatives that would meet its need for the Project. Subsequently, during WAPA's evaluation of the Proposed Action, WAPA considered several additional communications alternatives (facilities for redundant communications with the MPP-Q01 switchyard) for the Proposed Action. **Section 2.8** describes the alternatives WAPA considered but eliminated from detailed NEPA evaluation.

2.7.1. New Transmission Line Alignment and Capacity Alternatives

WAPA Interconnect with New 17-mile APS Alignment

The WAPA Interconnect with New 17-mile APS Alignment alternative would consist of a 17-mile 115-kV or 230-kV APS transmission line following the Aguila water pipeline ROW. This alternative would have the southern end of the 17-mile transmission line interconnect with either WAPA's Liberty-Peacock 345-kV line or Mead-Perkins 525-kV line near the Santa Maria River; the northern end would interconnect with the APS Willow Lake transmission line near Bagdad. This alternative would include the construction of either a new WAPA 500-kV switchyard containing up to four 345-kV breaker bays, or a new WAPA 500-kV switchyard containing up to four 500-kV breaker bays at the southern end of the new transmission line. This alternative would also include the construction of an APS substation (TS-01) at the WAPA interconnect and APS substation (TS-02) at the APS termination.

One advantage of this alternative is that the 17-mile alignment traversed mostly State Trust Land administered by the ASLD and avoided BLM-administered lands which would reduce impacts to federal lands. Another advantage is that the alignment would be co-located with the Aguila water pipeline ROW.

APS dismissed this alternative because the Project is a shorter route (13.8 miles) and has the same advantages as this alternative in that the transmission line avoids BLM land and is co-located with the Aguila water pipeline ROW.

WAPA Interconnect with New 14-mile APS Alignment

The WAPA Interconnect with New 14-mile APS Alignment alternative would consist of a 14-mile 115-kV or 230-kV APS transmission line following SR 97 for 7.2 miles and then following along the Aguila pipeline ROW. As with the 17-mile alternative described above, the 14-mile transmission line alternative would interconnect with either WAPA's Liberty-Peacock 345-kV line or Westwing-Mead 500-kV line, and the APS Willow Lake 115-kV line. This alternative would include the construction of either a new WAPA 500-kV switchyard containing up to four 345-kV breaker bays, or a new WAPA 500-kV switchyard containing up to four 500-kV breaker bays at the southern end of the new transmission line. This alternative would also include the construction of an APS substation (TS-01) at the WAPA interconnect and an APS substation (TS-02) at the APS termination.

The advantage of this alternative is that it was a shorter length than the 17-mile alignment, it avoided yellow-billed cuckoo (*Coccyzus americanus*) designated critical habitat, and it avoided BLM-administered lands, reducing impacts to federal lands. This alignment also avoided Federal Emergency Management Agency (FEMA) floodplains.

APS dismissed this alternative because it would require the construction of a 7.2-mile access road before joining the Aguila water pipeline ROW. This option also presented a higher construction cost than the Project.

Four-Vertice Alignment

The Four-Vertice alternative would consist of a transmission line alignment with four vertices (bends) and 84 transmission structures, and shares approximately 53 percent of the transmission path with the Aguila pipeline ROW. APS conducted a transmission scoping analysis to determine the optimal number of vertices for the transmission line, while also minimizing the total land area outside of the existing Aguila pipeline ROW. Vertices refer to the number of bends in a transmission line alignment and are achieved with the use of angle poles instead of tangent poles, which are used for straight segments. Angle poles are bigger, more visible, and more expensive; therefore, minimizing them reduces impacts and costs. A Four-Vertice alternative was determined to be the minimum number of vertices while maintaining the majority (53 percent) of the total transmission path length inside of the Aguila pipeline ROW.

APS dismissed this alternative because the 10-vertice alignment of the Project maintains 70 percent of the total transmission path length inside of the Aguila pipeline ROW and consists of no more than 70 transmission structures.

2.7.2. Existing Transmission Line Enhancement Alternative

APS 115-kV Line Enhancement with New Prescott Transformer

The APS 115-kV Line Enhancement with New Prescott Transformer alternative would consist of APS enhancing the existing APS 115-kV Willow Lake transmission line. The Willow Lake line runs from the APS

Bagdad Substation to the APS Willow Lake Substation near Prescott, Arizona. Upgrading this line would include reconductoring the line by upgrading the wire size for capacity. The line would remain at 115-kV. WAPA would add a third transformer at its adjacent Prescott Substation. APS would upgrade the Bagdad Substation and would potentially need to add a second transformer under this alternative.

The advantage of this alternative is that no new power line or substations would need to be constructed.

APS dismissed this alternative because it does not provide the redundancy and level of reliability that APS wants from this Project. It would also require new work on U.S. Forest Service-administered lands, which would increase impacts to federal lands. The work required under this alternative would also involve multiple transmission shutdowns for up to several weeks during reconductoring.

2.7.3. Power Source Alternative

Natural Gas Generator

The Natural Gas Generator alternative would consist of APS constructing a new natural gas-powered generator near Bagdad, rather than constructing or upgrading any new transmission lines or substations.

The advantage of this alternative is that no new transmission lines or substations would need to be constructed.

APS dismissed this alternative because there is an insufficient natural gas supply available in Bagdad.

2.8. ALTERNATIVES WAPA CONSIDERED BUT DID NOT EVALUATE FURTHER

During WAPA's evaluation of the Proposed Action, several communication alternatives for the Proposed Action were considered to allow line-of-sight radio or fiber optic communication to the proposed WAPA interconnect location, per WAPA's requirement for redundant communication to the MPP-Q01 switchyard. WAPA considered the following communication alternatives:

- Moving the interconnect location to a nearby high elevation point along the existing WAPA transmission line.
- Installing buried fiber optic line along a proposed alignment from the proposed interconnect to the existing fiber optic line associated with APS Willow Lake transmission line with line of sight to a WAPA communication tower.
- Running fiber optic cable from the proposed interconnect to the existing microwave tower near Wikieup or Peacock Mountains.
- Running fiber optic cable from Mead to Phoenix, along WAPA's transmission line, with a tie-in at the interconnect location.

These communication alternatives were eliminated from detailed NEPA evaluation as they are not technically and economically feasible.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1. INTRODUCTION

The affected environment and the environmental impacts of the Project and No Action Alternative on the resources identified for analysis are described in this section. The resource issues addressed in this FEA were developed using comments received from the public, tribes, and agencies during internal and external scoping (**Table 3-1**). Resource issues considered but dismissed from further analysis are described in **Section 3.3**.

Table 3-1. Resource Issues Carried Forward for Analysis

Issue Topic	Analysis Issues
Biological Resources (including vegetation and special status species)	Vegetation loss Impacts to special-status species and habitat Impacts to avian species (including migratory birds and bald and golden eagles) Impacts to Sonoran Desert tortoise
Historic Resources	Impacts to historic properties
Visual Resources	Impacts to views from US 93, SR 97, SR 96, and a rural community west of the Project transmission line

3.2. IMPACT ANALYSIS METHODOLOGY

The affected environment for each resource consists of the physical area that bounds the environmental, economic, biological, or cultural resources of interest that the Project and No Action alternative would likely impact. The affected environment is described for each resource analyzed based on primary and secondary data sources, and, for some resources, field observations. The affected environment also serves as the baseline from which to evaluate likely changes or impacts resulting from the Project and No Action Alternative.

Environmental consequences, or impacts, were defined as modifications to the affected environment by implementing the Project or No Action Alternative. Impacts can be beneficial or adverse; temporary, long-term, or permanent in nature; and described in intensity as negligible, minor, moderate, and major. The impact terminology used throughout this analysis is defined in **Table 3-2**. The impact analysis was conducted on either a quantitative or qualitative basis, depending on available data or the nature of the impact, and the severity of the impact as established in the context of the affected environment. An analysis area is provided for each resource in the sections that follow.

Table 3-2. Impact Analysis Methodology

Impact Category	Terminology	Definition
Type	Beneficial	A positive change in the condition of appearance of the resource or a change that moves the resource toward a desired condition.
	Adverse	A negative change that moves the resource away from a desired condition or detracts from its appearance or condition.
Duration	Short-term/ Temporary	Impact occurring during the construction period (4-6 months) or for a limited time thereafter (generally less than 1 or 2 years).
	Long-term/ Permanent	Impact lasting beyond the construction period, and the resources may not regain their pre-construction conditions for a longer period of time.
Intensity	Negligible	Impact at the lowest levels of detection with barely measurable consequences.
	Minor	Impact is measurable or perceptible, with little loss of resource integrity and changes are small, localized, and of little consequence.
	Moderate	Impact is measurable and perceptible and would alter the resource but either would not modify overall resource integrity or could be mitigated successfully in the short term.
	Major	Impacts would be substantial, highly noticeable, and long-term.

3.3. RESOURCES CONSIDERED BUT NOT FURTHER EVALUATED

Resource issues dismissed from further evaluation, either because they are not present in the Project Area or because no measurable impacts would occur, are described briefly in **Table 3-3**.

Table 3-3. Resource Issues Dismissed from Further Evaluation

Issue Topic	Rationale for Dismissal
Air Quality	The Environmental Protection Agency (EPA) Office of Air Quality Planning and Standards sets the National Ambient Air Quality Standards (NAAQS). Ambient air quality standards define the allowable concentrations of criteria pollutants in ambient air. The State of Arizona has incorporated the NAAQS by reference and does not have any additional ambient air quality standards. During construction, the Project would create short-term air pollutant emissions from equipment exhaust, vehicle exhaust from travel to and from the Project site, and fugitive dust from soil disturbance. Emissions resulting from the Project were calculated in **Appendix C** and would be negligible, temporary, and transient in nature. Construction of the Project is not expected to cause an exceedance of any NAAQS. Operations-related emissions from the Project would result from annual inspection activities including exhaust from on-road inspection vehicles and fugitive dust from travel on paved and unpaved roads; as-needed maintenance activities including exhaust from maintenance vehicles and construction equipment; and fugitive dust from travel on paved and unpaved roads. Impacts on air quality from the operation of the Project, however, would be negligible and not cause an exceedance of any NAAQS. Because the Project would reinforce the existing APS transmission system, no new power generation is being proposed and therefore no additional air impacts from new power generation would occur.
Agriculture/Prime and Unique Farmlands	No active farming occurs in the Project Area and soils in the Project Area are not designated prime or unique farmland (Soil Survey Staff 2023, accessed online June 12, 2023). Therefore, the Project would result in no adverse impacts to agriculture/prime and unique farmlands.
Indian Trust Assets	Indian Trust Assets are legal assets associated with rights or property held in trust by the U.S. for the benefit of federally recognized Indian Tribes or individual tribal members. The U.S., as trustee, protects and maintains the specific rights reserved by or granted to Indian Tribes or individuals by treaties, statutes, and executive orders. There are no known Indian Trust Assets within the Project Area; therefore, the Project would not result in adverse effects to any Indian Trust Asset.
Livestock Grazing/Rangeland Health/ Wild Horses and Burros	Grazing occurs on ASLD lands in the vicinity of the Project Area. Cattle, wild horses, and burros may be present in the vicinity of the Project Area. During construction, livestock, wild horses, and burros may be temporarily displaced from the ASLD lands in the Project Area; they would be expected to disperse onto adjacent public rangelands. As there are large areas of ASLD lands to the west and east of the Project Area that would provide similar grazing conditions as within the Project Area, impacts would be temporary and negligible. APS would work with local ranchers to ensure that fences and gates are maintained appropriately.
Invasive and Noxious Weeds	Some invasive and/or noxious weeds are present in previously disturbed areas, including along existing roads and drainages. WAPA and APS would clear vegetation prior to construction. Ground-disturbing activities can create conditions that could increase the potential for the introduction and/or establishment of invasive or noxious plants. However, because WAPA and APS would comply with all federal, state, and local weed control regulations, including the Project conservation measures listed in **Appendix D**, the potential for spread of invasive and/or noxious weeds would be very low.
Geology and Mineral Resources	There are no geological or mineral resources within the Project Area; therefore, the Project would not result in adverse effects to these resources.

Issue Topic	Rationale for Dismissal
Groundwater	During construction, APS and WAPA would use a minimal amount of water for dust suppression which would be sourced and driven in from Bagdad. The amount of groundwater used during construction is negligible compared to the millions of acre-feet in the larger regional aquifer; therefore, regional groundwater flow or drawdown of groundwater elevation would not occur. There would be no water use associated with operations of the transmission line or supporting facilities; therefore, no long-term impacts to groundwater quantity would occur. No hazardous materials would be generated during construction or operation of the Project. It is unlikely that accidental spills or leaks of materials from equipment used during construction or operation would cause water quality impacts. In the event of a leak or spill of material such as engine oil, fuel, or lubricants, APS and/or WAPA would quickly contain and remove all spilled material so none would enter the groundwater.
Intentional Destructive Acts	The Project presents an unlikely target for an act of terrorism or sabotage, with a low probability of attack. The DOE requires that NEPA documents explicitly address potential environmental consequences of intentional acts of destruction (DOE 2006). The purpose is to inform the decision maker and the public about chances that reasonably foreseeable accidents associated with the Proposed Action and alternatives could occur, and their potential adverse consequences. Reasonably foreseeable events are those that may have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture and is within the rule of reason. This includes determining the appropriate level of detail for analysis based on the type of proposed action, level of risk, and sensitivity for releasing information to the public. Vandalism and intentional acts of destruction (sabotage) of the Project are unpredictable events. The limited and remote access to the Project Area reduces the likelihood of such acts. In addition, WAPA inspects its transmission lines and substations on a regular operations and maintenance schedule for any signs of sabotage or vandalism and takes immediate action if a potential hazard is found. The potential for serious injury resulting from vandalism is negligible. Members of the public should call 1-800-209-8962 if they see any suspicious activity in the Project Area or its immediate vicinity, or if anyone is seen 1) shooting at WAPA's insulators, power lines, transmission towers or substation equipment; 2) dumping waste or other materials on WAPA's property; 3) vandalizing WAPA's property, buildings, and vehicles; 4) stealing WAPA equipment, supplies, tools, or materials; or 5) harming WAPA staff. WAPA expects the Project would not increase the opportunity for these acts and does not expect that it would differ from the No Action Alternative to measurably affect the risk of an intentional destructive act.
Special Management Areas, including Wilderness and Areas of Critical Environmental Concern	No special management areas occur within the Project Area; therefore, the Project would not result in adverse effects to these resources.
Surface Waters	Most major infrastructure would be located outside of water features and FEMA floodplains, including the MPP-Q01 switchyard, TS-01 substation, 169-5 microwave tower, and most structures associated with the 230-kV transmission line. The Project would avoid alteration of any drainages by constructing support poles outside of drainages and avoiding discharge of fill within drainages or the immediately adjacent upland areas. Permanent primitive and temporary access roads may cross drainages within the Project Area; however, the crossings would be the minimum width for vehicle access, and any disturbance to vegetation along the washes would also be limited to the minimum footprint. Additionally, all construction materials would be free of toxic materials in toxic amounts and would not adversely affect surface water quality in or downstream of construction sites and access routes. With these conditions, no impacts are anticipated to surface water features.
Recreation	No formal recreation opportunities exist on the ASLD, BLM, or private lands within the Project Area; therefore, the Project would not cause adverse effects to recreation resources.

Issue Topic	Rationale for Dismissal
Land Use	No land use conflicts were identified for the Project. The transmission line, MPP-Q01 switchyard, TS-01 and TS-02 substations, and 169-5 microwave tower would all be constructed on ASLD land, and the Pete Smith Peak microwave tower would be constructed adjacent to existing communications facilities within an existing WAPA ROW on BLM land. No Yavapai County rezoning or conditional use permits would be needed for the Project.
Military and Civilian Aviation	The proposed transmission structures associated with the Project would not be located on or near an airport or within the slope of an airport runway. Further, transmission structures are not considered covered towers; therefore, they are not subject to the Federal Aviation Administration (FAA) Extension, Safety, and Security Act of 2016's marking requirements. The microwave towers at 169-5 and Pete Smith Peak are considered covered towers and would be less than 200 feet tall and marked and lit in accordance with FAA regulations.
Soils	Construction and operation of the Project would cause impacts to soils in the Project Area, including soil compacting and soil erosion by wind and water. WAPA and APS would implement soil resources conservation measures to minimize impacts to soils, including those for stormwater, erosion, and fugitive dust control, as part of the Project conservation measures and Project Storm Water Pollution Prevention Plan; therefore, the Project would not result in adverse effects to soils.
Fire and Fuels Management	WAPA and APS would clear or manage vegetation within the transmission line ROW and around Project components to reduce wildfire hazards. Conservation measures and emergency preparedness measures would be implemented during construction and operation to reduce fire potential. Additionally, proposed facilities would be built to reduce the risk of starting fires, and equipment for controlling or containing potential fires would be included. Therefore, the Project would not result in adverse effects to fire and fuels management.
Noise	Noise increases associated with the Project would be limited to construction and maintenance activities. Increased noise from construction, maintenance, and inspection activities of the Project are expected to be temporary and localized. Noise attenuates with distance and substantial increases in noise levels would be limited to areas within approximately 1,000 feet of the Project Area (Federal Highway Administration 2006). The nearest sensitive receptors, including ranches and urban residences, are approximately 1,900 - 4,000 feet away from the Project Area. Negligible noise increases are expected to occur from vehicle traffic associated with annual inspections. Therefore, adverse impacts from Project-related noise are not expected to occur.
Public Health and Safety	Temporary air quality impacts from dust may pose a health and safety impact to sensitive populations during construction, maintenance, and inspection activities. These impacts would be transient and localized and are not expected to pose a significant health and safety threat. WAPA and APS would implement dust control measures to limit dust generated from Project activities, including but not limited to, using water to limit dust during construction (**Appendix B** and **G**).
Public Land Access	The Project would take place on private land, State Trust land, an existing facility on BLM land, and/or within existing WAPA ROW and would not impede access to any public lands.
Socioeconomics	The Project would sustain jobs for maintenance and inspection personnel and would temporarily provide jobs for construction workers. It would not impact other job sectors. Because the Project takes place largely within State Trust Land, it is not expected to impact housing, tax benefits, or property values.
Transportation	Construction activities would result in a temporary and negligible increase in traffic to the construction site. Maintenance and inspection vehicle traffic would be infrequent and minimal and thus would not pose a significant impact.
Tribal Resources	No Tribal Resources are documented within the Project Area. Scoping letters were mailed to representatives of 12 tribes to inform them of the Project and scoping period; no tribes provided scoping comments or participated in the public scoping meeting (**Appendix A**). The same 12 tribes were also consulted through the NHPA Section 106 process. Three responses from tribes were received, two of which indicated concurrence, and the other indicated the tribe had no comments on the finding of No Adverse Effect for the Project.

3.4. BIOLOGICAL RESOURCES

Section 3.4 analyzes impacts of the Project and No Action Alternative on the biological resource issues identified during scoping, including impacts to general vegetation and special-status plants and animals, such as ESA-listed species and migratory birds. Additional information is considered in the Biological Assessment (BA; **Appendix D**).

WAPA studied a minimum 500-foot radius around all components of the Project Area (including components of both the Proposed Action and APS's Private Action) for impacts to biological resources (Analysis Area; **Appendix D**). Site visits documented habitat conditions within and in the vicinity of the Analysis Area, and a description of conditions specific to the Analysis Area is included in **Appendix D**. These conditions were used to determine the habitats present, and whether those habitats could support listed threatened, endangered, and/or special-status species. The BA was updated in January 2026; however, the level of effects did not change from prior versions.

WAPA determined that the Project would have no effect on any ESA-listed species or critical habitat; therefore Section 7 consultation is not required.

3.4.1. Affected Environment

Vegetation

The majority of the Analysis Area is broadly mapped within the Arizona Upland subdivision of the Sonoran desertscrub biotic community (**Figure 3**; The Nature Conservancy 2012). This subdivision consists of widely scattered trees and columnar cactuses approaching low-cover woodlands with understory shrubs. The primary species present in this subdivision are Mexican paloverde (*Parkinsonia aculeata*), desert ironwood (*Olneya tesota*), velvet mesquite (*Prosopis velutina*), whitethorn acacia (*Vachellia constricta*), and ocotillo (*Fouquieria splendens*); understory plants include creosotebush (*Larrea tridentata*) and triangle-leaf bursage (*Ambrosia deltoidea*). Saguaro (*Carnegiea gigantea*), diverse cholla (*Cylindropuntia* spp.), and other cactuses are also common (Shreve and Wiggins 1964).

Discrete and non-contiguous patches of riparian scrubland vegetative communities occur along drainages associated with Bridle Creek and the Santa Maria River. As described by Brown (1994), the riparian scrubland vegetation community is an assemblage of riparian obligate species, either native or introduced, which occur along drainages with surface or shallow subsurface water across the Southwest. Representative species associated with this community in the Analysis Area include Goodding's willow (*Salix gooddingii*), Fremont's cottonwood (*Populus fremontii*), Arizona sycamore (*Platanus wrightii*), seep willow (*Baccharis salicifolia*), desertbroom (*B. sarothroides*), shortleaf baccharis (*B. brachyphylla*), netleaf hackberry (*Celtis reticulata*), western soapberry (*Sapindus saponaria*), Thurber's desert honeysuckle (*Anisacanthus thurberi*), honey mesquite (*Prosopis glandulosa*), sugar sumac (*Rhus ovata*), desert tobacco (*Nicotiana obtusifolia*), cattail (*Typha* sp.), sedges (*Carex* spp.), spiny and slender rushes (*Juncus acutus*

and J. tenuis), and common reed (*Phragmites australis*), as well as the invasive saltcedar (*Tamarix* spp.) (Hilgart Wilson 2019).

Pete Smith Peak, where one of the two communications towers is proposed, is broadly mapped with the Interior Chaparral biotic community (The Nature Conservancy 2012). This vegetation unit is characterized by steep decomposing granitic slopes and relatively high shrub abundance. Characteristic vegetation includes Sonoran scrub oak (*Quercus turbinella*), Parish goldeneye (*Bahiopsis parishii*), eastern Mojave buckwheat (*Eriogonum fasciculatum*), narrowleaf goldenbush (*Ericameria linearifolia*), and catclaw mimosa (*Mimosa biuncifera*) (Hilgart Wilson 2019).

Special-Status Species, Including Migratory Birds

The various vegetation communities within the Analysis Area provide suitable habitat for a number of special-status species which are either known to be present or have the potential to be present.

ESA-Listed Species

Six ESA-listed or proposed-for-listing species and their critical habitat were evaluated for the potential to occur within the Analysis Area (**Appendix D**), based on scoping comments received from the U.S. Fish and Wildlife Service (USFWS) and Arizona Game and Fish Department (AZGFD; **Appendix A**). Three species were determined to have potential to occur within the Analysis Area—the listed threatened, yellow-billed cuckoo (*Coccyzus americanus)* and the proposed threatened monarch butterfly and the proposed endangered Suckley's cuckoo bumble bee (*Bombus suckleyi*). Northern Mexican gartersnake (*Thamnophis eques megalops*) and Gila topminnow (*Poeciliopsis occidentalis*) were determined to have no potential to occur within the Analysis Area because there is no suitable aquatic habitat for these species and the Analysis Area is outside of their known distribution. Southwestern willow flycatcher (*Empidonax traillii extimus*) was determined to have no potential to occur within the Analysis Area because the Analysis Area lacks the dense canopy cover from emergent riparian vegetation, large volume of foliage, and persistent saturated soil preferred by this species (**Appendix D**).

In Arizona, yellow-billed cuckoos are associated with lowland riparian woodlands where Fremont cottonwood, willow, velvet ash (*Fraxinus velutina*), Arizona walnut (*Juglans major*), mesquite, and tamarisk are dominant (USFWS 2013). This species also uses mesquite bosques and smaller stands of isolated cottonwoods mixed with mesquite (Halterman et al. 2016), and areas of upland-associated vegetation along drainages dominated by oaks and junipers (*Juniperus* spp.) (WestLand 2016). Western yellow-billed cuckoos may migrate along riparian corridors and surrounding upland vegetation (Hughes 2020). It is more common in the southern, central, and the extreme northeastern portions of Arizona, but occurs throughout the state where suitable habitat exists (AZGFD 2022). The Analysis Area does not have the dense, contiguous canopy preferred for nesting habitat but may be used as a stopover habitat for migration among areas of denser tamarisk, cottonwood, and willow. No critical habitat for this species occurs within the Analysis Area.

The status of the monarch butterfly in the Analysis Area is not well documented; however, the Analysis Area landscape contains flowering plants that may provide forage opportunities for adult monarch butterflies. There is also potential for milkweeds to occur within the Analysis Area, providing potential habitat for monarch caterpillars; however, none have been documented in the Analysis Area to date (The Xerces Society for Invertebrate Conservation 2023; accessed online May 8, 2023).

Similarly, the status of the Suckley's cuckoo bumble bee in the Analysis Area is not well documented; however, the Analysis Area contains potentially suitable foraging and diapause habitat along the riparian corridors associated with the Santa Maria River and Bridle Creek as well as in the upland habitat. Further, the riparian corridors feature *Salicaceae* species on which the Suckley's cuckoo bumble bee is known to forage while the upland habitats provide flowering plants this species and/or its hosts may use. Suckley's cuckoo bumble bee may also use leaf litter and mammal burrows in the Analysis Area for overwintering.

Migratory Birds

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA), which prohibits "take" of any migratory bird or active nest, except as permitted by USFWS. Migratory birds are broadly defined within the MBTA as species that cross international borders at any point during their life cycle; therefore, the MBTA applies to most native bird species in North America. The USFWS identified four migratory bird species described as birds of particular concern for the Project because they either occur on the USFWS Birds of Conservation Concern (BCC) 2021 list or warrant special attention in the Project Area (**Appendix D**, in Appendix A). The USFWS identifies BCC as species, subspecies, and/or populations of migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the ESA.

The four birds of particular concern for the Project as described by the USFWS Information for Planning and Consultation query report are black-chinned sparrow (*Spizella atrogularis*), Costa's hummingbird (*Calypte costae*), Gila woodpecker (*Melanerpes uropygialis*), and golden eagle (*Aquila chrysaetos*).

Bald and Golden Eagles

Bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos)* are protected under the Bald and Golden Eagle Protection Act (BGEPA), which prohibits "take" of these species and/or their parts, including feathers, nests, or eggs, except as permitted by USFWS.

Bald eagle breeding is concentrated in coastal areas, along rivers, lakes, or reservoirs. This species typically breeds in forested areas with edge habitat within 1.3 miles of aquatic habitats suitable for foraging. Bald eagles prefer areas of shallow water and shorelines for fishing and hunting wide variety of waterfowl, as well as small aquatic and terrestrial mammals. Fish are preferred prey, but carrion is used extensively whenever encountered. This species nests away from human disturbance in large trees and rarely on cliff ledges or on the ground when trees are absent. Bald eagles winter primarily in coastal areas or along major river systems with adequate prey availability and large trees for perching (Buehler 2022). The Analysis Area

lacks suitable breeding or foraging habitat for this species; therefore, bald eagles are unlikely to occur within the Analysis Area.

Golden eagles breed in a wide variety of open habitats, with nests typically on cliffs, and avoid heavily forested areas (Katzner et al. 2020). In Arizona, this species prefers pinyon-juniper woodlands and Sonoran desertscrub. Golden eagles construct large nests on cliff ledges, rock outcrops, tall trees or, rarely, transmission towers (Corman and Wise-Gervais 2005). Golden eagles are known to forage within 4.4 miles of the nest (Tesky 1994), generally in open habitats where prey is available (Katzner et al. 2020). The microwave tower at Pete Smith Peak provides suitable breeding and surrounding foraging habitat for this species, and golden eagles have been documented within 2 miles of this portion of the Analysis Area.

Sonoran Desert Tortoise

The Sonoran desert tortoise (SDT; *Gopherus morafkai*) is protected under a Candidate Conservation Agreement (USFWS et al. 2015). A Candidate Conservation Agreement is a formal, voluntary agreement between the USFWS and one or more parties to address the conservation needs of candidate-for-ESA-listing species or species that may become candidates in the near future. The AZGFD requested evaluation and mitigation of potential Project impacts to SDT during the public scoping process, which is further addressed in **Section 3.4.2**.

In the Sonoran Desert, SDT usually occurs on rocky slopes in desertscrub to semidesert grassland, as well as along washes. The Analysis Area provides suitable habitat for this species, and SDT has been documented within 3 miles of the Project.

3.4.2. Environmental Consequences

No Action

Under the No Action Alternative, the Project would not be developed and would not disturb vegetation, or special-status species or their habitats (including migratory birds); therefore, there would be no impacts to biological resources in the Analysis Area.

Project

Vegetation

Under the Project, vegetation would be removed, mowed, or trimmed along permanent and temporary access roads, along the transmission and distribution lines, and within the footprint of supporting facilities. Implementation of the Project would result in vegetation removal within approximately 176 acres (**Table 3-4**). Permanent vegetation removal would occur within approximately 106 acres for transmission structures, permanent access roads, the MPP-Q01 switchyard, TS-01 and TS-02 substations, and the microwave towers at the 169-5 communications site and Pete Smith Peak. The remaining 70 acres of disturbance would be temporary, for the construction and use of temporary access roads and pulling locations. Following construction, temporarily disturbed areas would be reseeded with seeding mixes containing

milkweed seed, where appropriate. Opportunistic regrowth of vegetation within the transmission line ROW is also expected to occur. Regrowth would be trimmed back periodically in accordance with current APS transmission line safety and upkeep standards. Vegetation would be primarily treated using a combination of selective mowing (for ground cover vegetation) and trimming (for shrubs and trees); full tree removal would occur only as needed and no riparian trees (e.g., cottonwoods, willows) would be removed.

Table 3-4. Temporary and Permanent Vegetation Disturbance Areas for the Project

Project Element	WAPA Estimated New Permanent Disturbance Area (acres)	WAPA Estimated New Temporary Disturbance Area (acres)	APS Estimated New Permanent Disturbance Area (acres)	APS Estimated Temporary Disturbance Area (acres)
Arizona Upland subdivision of Sonoran Desertscrub	15	0	90	65
Riparian Scrubland	0	0	0	5
Interior Chapparal	<1	0	0	0
TOTAL	**16**	**0**	**90**	**70**

Herbicide application may be implemented as part of ongoing vegetation management following construction to mitigate fire hazard within the transmission line corridor. All herbicide application would be conducted in accordance with the conservation measures detailed in **Appendix D**.

Special-Status Species, Including Migratory Birds

During construction, as well as intermittently during operations and maintenance, noise, and activity, such as noise from equipment, removal of vegetation, or trimming of vegetation, might temporarily displace individual wildlife near the Project Area. This short-term disturbance would have a negligible impact on individual wildlife. Construction and operation of the Project would also result in the permanent removal of 106 acres of suitable habitat for a number of special-status species. Special-status species that may use the Project Area for foraging or breeding would experience long-term impacts as a result of disturbance and loss of habitat. Clearing and grading of the Project Area would remove habitat elements potentially used for nesting (such as saguaro, dense shrubs, or burrows). Potential impacts to monarch butterfly include the removal and reduction of vegetation that may serve as a nectar source for migrating butterflies. Potential impacts to Suckley's cuckoo bumble bee include the removal and reduction of vegetation that may serve as foraging habitat for this species. Potential impacts to yellow-billed cuckoo include the trimming of riparian vegetation, resulting in alteration of vegetative composition or suitable habitat structure. Potential impacts to migratory birds and bald and golden eagles include noise and activity during the breeding season, causing abandonment of an active nest with eggs or nestlings, and potential collisions with powerlines. Potential impacts to SDT include habitat loss (including potential destruction of dens), potential disturbance from noise and activity, and risk for direct mortality from ground disturbance and vehicle strikes.

Though impacts to species may occur, large expanses of habitat of similar quality and composition are immediately adjacent to the Project Area, and because this is a linear project, affected individuals would be able to shift use to these adjacent areas with minimal change from their current usage.

Conservation Measures

As part of the Project, WAPA and APS would implement conservation measures for biological resources (**Appendix D**). These conservation measures include pre-construction surveys for monarch butterflies and milkweed, migratory bird nests, and SDT prior to surface disturbance. Construction of the Project infrastructure would be in conformance with Avian Powerline Interaction Committee (APLIC) standards for electrocution-reducing techniques as outlined in *Suggested Practices for Avian Protection of Power Lines: The State of Art in 2006* (APLIC 2006), and for collision-reducing techniques as outlined in *Reducing Avian Collisions with Power Lines: The State of the Art in 2012* (APLIC 2012); includes any superseding document issued by APLIC. Construction and ground disturbance activities within 500 feet of riparian areas would occur between October 1 and March 1, outside of typical bird breeding and nesting season and outside the period that yellow-billed cuckoos are present in the Southwest. Additionally, work would not be conducted within 1 mile of the line of site of any active golden eagle nest during the golden eagle breeding season from February 1 to July 15.

Additional conservation measures for SDT include:

- APS would relocate any SDT found within the Project Area that do not vacate the Project Area on their own in a reasonable amount of time, following AZGFD guidelines for monitoring and handling of SDT (Rubke 2024). SDT would only be handled by qualified individuals with a Scientific Activity License from the AZGFD.
- A field representative would be trained to properly handle, relocate, and report on SDT detections; would ensure compliance with all SDT conservation measures; and would be a contact for crews if an SDT is encountered.
- The field representative would train crews on proper herbicide handling and application within SDT habitat.
- Field crews would be trained to inspect under and around vehicles before moving them and vegetation before spraying.
- Field crews shall maintain clean project sites and remove all trash to avoid subsidizing SDT predator populations.

With the implementation of these measures, it is unlikely that the Project would result in direct mortality of individual species during construction. During operations, APS would implement SDT conservation measures to reduce the risk of direct mortality from vehicle strikes along access roads; therefore, a long-term impact to SDT individuals is not anticipated.

Following construction, temporarily disturbed areas would be reseeded with seeding mixes as described above. For operation and ongoing maintenance of the Project, limited trimming, vegetation removal, or herbicide application may be necessary to mitigate fire hazard. No mechanical mowers would be used within riparian areas; riparian vegetation would only be removed or pruned using manual methods. No

herbicide application would be conducted within riparian areas. With the implementation of these measures, long-term impacts to vegetation in the Project Area would be minor.

With the implementation of the conservation measures described above and in **Appendix D**, long-term impacts to special-status species would be negligible and unlikely to result in population-level effects.

3.5. HISTORIC RESOURCES

Section 3.5 describes the area of potential effect (APE) for historic properties and examines the potential effects, including damage, loss, degradation, or other disturbance to historic properties under the Project and No Action Alternative.

As defined in 36 CFR § 800.16(l)(1), the term "historic properties" refers to any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria. Properties deemed significant for their contribution to broad patterns of history, prehistory, architecture, engineering, and culture are eligible for listing on the NRHP and are afforded consideration under the NHPA. However, analysis of impacts to cultural resources that may not be eligible for listing on the NRHP are also included.

To be eligible for listing on the NRHP, a property must be significant under one or more of four evaluation criteria:

- Criterion A: The property is associated with events that have made a significant contribution to the broad patterns of our history.
- Criterion B: The property is associated with the lives of persons significant in our past.
- Criterion C: The property embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction.
- Criterion D: The property has yielded, or may be likely to yield, information important in prehistory or history.

A property must be able to convey its significance through the retention of specific aspects of integrity, such as location, design, materials, setting, workmanship, feeling, and association. In general, properties less than 50 years of age, unless of exceptional importance, are not eligible for listing on the NRHP.

Additionally, the Project is subject to compliance with Section 106 of the NHPA of 1966, as amended (16 USC 470 et seq.). Section 106 requires federal agencies to consider the effects of their undertakings on historic properties and consult with the State Historic Preservation Office (SHPO) as described in 36 CFR

Part 800, as amended August 5, 2004. In addition, Section 106 and the American Indian Religious Freedom Act (AIRFA) of 1978 specify that federal agencies consider Native American concerns.

3.5.1. Affected Environment

As defined in the regulations for Section 106 of the NHPA (36 CFR Part 800.16[d]), the APE refers to the "geographic area or areas within which an undertaking may cause alterations in the character or use of historic properties," is "influenced by the scale and nature of an undertaking," and "may be different for different kinds of effects caused by the undertaking." The APE for the Project consists of the 305-acre total footprint of the transmission line corridor, MPP-Q01 switchyard, TS-01 and TS-02 substations, the Pete Smith Peak communications site, and 169-5 microwave tower, as well as a 3-mile buffer around the transmission line corridor (which includes the switchyard and substations) and a 1-mile buffer around the communications site and microwave tower. Physical impacts to historic properties are only possible within the 305-acre footprint of the Project. The buffers were included in the APE to assess the potential for proximal impacts (primarily visual impacts) to historic properties.

To identify historic properties that may be impacted by the Project, WestLand archaeologists conducted cultural resources studies consisting of a Class I detailed records review (including AZSITE cultural resources records and records housed at the Archaeological Records Office of the Arizona State Museum [ASM] and the BLM) for the entire APE and intensive Class III pedestrian surveys of the Project Area. Of the 69,883-acre APE, 58,644 acres (84 percent) have been subjected to Class III pedestrian cultural resources inventories (including the entirety of the Project Area). Of the 84 percent that has been surveyed, 19,692 acres (28 percent of the APE) have been subjected to Class III survey within the last 10 years (including the entirety of the Project Area; **Table 3-5**).

Cultural resource surveys within the Project Area have been performed in support of other projects as well as for the Project. The goals of the cultural resource field surveys were to:

- Identify and record all cultural resources, including prehistoric sites, historic sites 50 years or older, and traditional cultural properties.
- Identify areas not surveyable and why (e.g., density of vegetation, degree of slope).
- Update documentation for previously recorded sites.
- Evaluate the significance of cultural resources and make recommendations for listing on the NRHP.

Table 3-5. Cultural Resources Surveys and Associated Reports within and in the Vicinity of the Project Area (meeting current SHPO standards)

Report	Published Date	Sites	Sites within the Project Area	Jurisdiction
Class III Cultural Resources Survey of 16,831.24 Acres of State Land in Advance of Proposed Purchase and Geotechnical Testing by Freeport-McMoRan Bagdad Inc., East of Bagdad, Yavapai County, Arizona	August 31, 2018	3 determined eligible 57 recommended eligible 14 recommended ineligible 11 unevaluated 1 determined ineligible	None	Private ASLD
Class III Cultural Resources Survey of 32.6 Linear Miles Across State Land for a Proposed Corridor Re-Route for the Bagdad to Aguila Water Line in Yavapai County, Arizona	August 18, 2021	4 eligible 2 ineligible 2 not relocated	None	ASLD
Addendum Report: Class III Cultural Resource Survey of 9.8 Linear Miles Across State Land for a Proposed Corridor Re-Route for the Bagdad to Aguila Water Line in Yavapai County, Arizona	November 4, 2021	2 not eligible	None	ASLD
A Cultural Resources Inventory of the Proposed Bagdad Waterline in Maricopa and Yavapai Counties, Arizona	September 29, 2022	53 recommended or determined eligible 24 recommended or determined not eligible	2	ASLD
A Cultural Resources Supplemental Inventory for the Arizona Public Service MPP-Q01 Interconnection Project in Yavapai County, Arizona	March 24, 2023	None	None	ASLD
A Cultural Resources Inventory of 68.7 Acres for the Proposed 169-5 Communications Site, Yavapai County, Arizona	September 20, 2023	1 not eligible	1	ASLD
A Cultural Resources Inventory of 91.7 Acres of Proposed Access Roads in Support of the Aguila-Bagdad Waterline, Yavapai County, Arizona	March 20, 2024	4 eligible 1 ineligible 1 unevaluated	None	ASLD
A Cultural Resources Inventory of 0.15 Acres and a Historical In-use Structure Inventory of an Additional 2.73 Acres on Pete Smith Peak, La Paz County, Arizona	April 12, 2024	1 ineligible	None	BLM

According to available ASM, AZSITE, and BLM records, 225 archaeological sites or in-use historical resources have been previously documented within or intersecting the APE. Of these 225 sites, 154 are attributed to prehistoric Native American land use, 40 are attributed to historical Euroamerican land use, 15 are of unknown affiliation, and 16 are multicomponent sites containing both prehistoric or protohistoric Native American materials and historical cultural materials.

Of the recorded sites, only two cultural sites (AZ M:12:55[ASM]; AZ M:12:59[ASM]) are partially located within the Project Area. AZ M:12:59(ASM) is a historic road that crosses the transmission line corridor north of the TS-01 and MPP-Q01 area. It has been determined not eligible for listing on the NRHP. The transmission line corridor also overlaps with the site boundaries of AZ M:12:55(ASM) at the southern terminus of the corridor, which includes historic components that are unevaluated, and a prehistoric component that was determined not eligible.

An additional 223 sites are known within the larger APE. Based on a seen/unseen analysis, only 103 of the sites can see (or be seen from) the Project components. Of these sites, 25 have been recommended or determined not eligible for listing under the NRHP. A total of 45 sites are recommended or determined eligible only under Criterion (d) (information potential). An additional 29 sites are considered unevaluated or did not have eligibility information available. Of the unevaluated sites with available information, all but one (SR 97) are archaeological sites that, if eligible, are likely to be eligible only under Criterion (d). Visual impacts to historic properties eligible under Criterion (d) would not be considered adverse as impacts to integrity of setting and feeling do not affect information potential.

Additionally, WestLand contacted 12 federally recognized tribes on behalf of WAPA and APS during the public scoping process (**Appendix A**). No tribes responded. WAPA has also conducted Section 106 consultation with the 12 federally recognized tribes. In response to this consultation, three tribes responded, the Tohono O'odham Nation and Salt River Pima-Maricopa Indian Community agreed with the finding of no adverse impact and the Yavapai-Apache Nation of Camp Verde indicated they had no comments (see **Section 4.2**). After the consultation period ended, the Chemehuevi Indian Tribe also contacted APS and requested consultation and that tribal monitors be present during all ground disturbance work. Further, WestLand used publicly available, non-sensitive tribal information to determine if the APE might be located in or near places of tribal value and significance. No places of potential tribal value or significance were identified from the search, and no Traditional Cultural Properties (TCPs) have been identified in the vicinity of the Project. The SHPO also concurred with the finding of No Adverse Effect (Rogers [WAPA] to Leonard [SHPO] June 11, 2025, with Ryan [SHPO] concurrence July 14, 2025).

During Section 106 consultation, a consulting party indicated disagreement with the finding of No Adverse Effect. Pursuant to 36 CFR 800.5(c)(2)(i), WAPA requested the Advisory Council on Historic Preservation's (ACHP) review of the finding of No Adverse Effect on August 13, 2025. ACHP responded on September 10, 2025, indicating that WAPA correctly applied the criteria of No Adverse Effect. A summary letter

communicating ACHP's opinion was transmitted to the SHPO and consulting parties on October 18 and 20, 2025.

3.5.2. Environmental Consequences

No Action Alternative

Under the No Action Alternative, the existing transmission lines, substations, and towers would remain operational and new facilities would not be constructed. WAPA and APS would not construct the Project; therefore, no new ground disturbance or construction-related effects to historic properties would occur and there would be no impacts to historic properties.

Project

There would be no physical impacts to any potential NRHP-eligible archaeological sites under the Project. Transmission structures and associated facilities, including temporary and permanent access roads, would be constructed to avoid NRHP-eligible or unevaluated sites. Of the recorded sites, only two sites fall within the expected physical disturbance footprint: AZ M:12:55(ASM) and AZ M:12:59(ASM). AZ M:12:55(ASM) is a multicomponent site with both prehistoric and historic components. The prehistoric component has been determined not eligible, and the historical component is unevaluated. AZ M:12:59(ASM) is a historical road that has been determined not eligible. The proponent is designing the Project to avoid impacting the historic component of AZ M:12:55(ASM).

Short-term impacts may include the potential for surface and subsurface disturbance of unknown historic properties during construction of the Project. Through implementation of the resource protection measures described below, WAPA and APS would ensure that physical impacts to historic properties are avoided to the greatest extent possible. Although it is possible that undiscovered historic properties exist in the APE (e.g., buried archaeological sites), implementing these resource protection measures would also help to ensure that adverse impacts to such resources are avoided to the greatest extent possible. Resource protection measures applicable to historic properties are as follows:

- The boundaries of eligible or unevaluated sites adjacent to and within the Project Area would be flagged by a qualified archaeologist prior to ground disturbing activities to prevent incidental physical impacts to the portions of these sites outside and within the Project Area.
- Prior to the start of Project activities, all field personnel would receive worker's environmental awareness training on historic properties that includes procedures to follow should they discover unanticipated archaeological resources or encounter human remains and/or funerary objects.
- The archaeological monitor would make a good faith effort to recover unanticipated archaeological resources, human remains and/or funerary objects should those be discovered during excavation. Initially, the backdirt potentially containing archaeological resources, human remains, and possible funerary objects would be segregated from the other backdirt using the excavator. This backdirt, up

to a total estimated volume of 2 cubic meters per monopole, would be sifted through a ⅛-inch mesh screen. The archaeological monitor would collect and package human remains, artifacts, and specimens captured by the screen in an appropriate manner. The archaeological monitor would identify recovered artifacts that are considered probable or possible funerary objects as such in the field documentation.

- In the event that unanticipated archaeological resources are discovered during construction, operation, or maintenance of the Project, all activities must cease in the immediate vicinity of the discovery.

Project infrastructure could result in long-term visual impacts to the integrity of feeling and setting of historic properties within the APE, if those aspects of integrity contribute to the significance of the site, including cultural landscapes, for as long as the Project structures exist.

Visual impacts were also assessed for the 223 sites outside the Project Area but within the larger APE. A seen/unseen analysis (**Figure 5**) was conducted to identify which sites within the APE would be able to see the proposed transmission line. The transmission line would be visible from (and vice versa) 103 of the known sites within the APE. However, 25 sites have been recommended or determined not eligible and are therefore not historic properties and do not warrant further consideration. A total of 45 sites are recommended or determined eligible only under Criterion (d). An additional 29 sites are considered unevaluated or did not have eligibility information available. Of the unevaluated sites with available information, all but one (SR 97) are archaeological sites that, if eligible, are likely to be eligible only under Criterion (d). Visual impacts to historic properties eligible under Criterion (d) would not be considered adverse as impacts to integrity of setting and feeling do not affect information potential.

AZ M:8:119(ASM) is the existing Willow Lake to Bagdad Transmission line which has been recommended eligible under Criterion A. The addition of another transmission line to the viewshed of AZ M:8:119(ASM) would not have an adverse impact to the historic property.

AZ M:12:52(ASM) is a prehistoric trail that has been determined eligible under Criteria A and D. However, existing transmission line structures already exist in the viewshed of AZ M:12:52(ASM) and visual impacts are not anticipated to appreciably alter the site's integrity of setting.

AZ M:12:54(ASM) is a multicomponent site with a prehistoric artifact scatter and a historic period habitation and mineral extraction component. The site has been determined eligible under Criteria A and D. However, existing transmission line structures already exist in the viewshed of AZ M:12:54(ASM) and visual impacts are not anticipated to appreciably alter the site's integrity of setting.

AZ M:12:74(ASM), the Santa Maria Ranch, was recorded and excluded as part of supporting surveys for the Project. However, only a portion of the ranch is located within the surveyed areas. Buildings on the rest of the ranch were mapped from aerial imagery. Based on the available recording, AZ M:12:74(ASM) has

been determined eligible under Criterion D. The Project would not physically impact the Santa Maria Ranch. Existing transmission line structures and modern roads already exist in the viewshed of the Santa Maria Ranch which impact the feeling and setting. Additional research and evaluation may support eligibility under Criteria A or C; however, any visual impacts associated with the Project are not anticipated to appreciably alter the setting or feeling of the ranch.

AZ M:12:57(ASM) (abandoned)/State Route 97 (in-use) has not been formally evaluated for the NRHP, but many similar roads in Arizona are eligible under Criterion A. However, transmission line structures already exist in the viewshed of portions of AZ M:12:57(ASM)(abandoned)/State Route 97 (in-use) and visual impacts are not anticipated to appreciably alter the site's integrity of setting.

Section 3.6 includes additional analysis of visual resource impacts from the Project. Further, the presence of construction equipment and associated noise would cause temporary impacts to setting and feeling. However, these impacts would not cause any permanent adverse effects to historic properties.

The access roads associated with the Project could potentially provide access for dispersed recreation/off highway vehicle (OHV) travel beyond the proposed transmission line corridor, which could result in alteration, degradation, or damage to historic properties. However, lands surrounding the Project Area are not permitted for public recreational use (private and ASLD lands), except for the land surrounding the Pete Smith Peak communications site (BLM lands); however, this site would be accessed using an existing road and this BLM land is not formally designated for recreational uses.

Overall, the Project would not cause physical impacts to historic properties. The resource protection measures described above would reduce or mitigate other impacts to historic properties. In the event that unanticipated cultural resources are identified during construction or operations and maintenance, then WAPA and APS would follow applicable procedures for their evaluation, avoidance, and/or mitigation.

3.6. VISUAL RESOURCES

Section 3.6 analyzes impacts of the Project and No Action Alternative on visual resources, including impacts to the off-grid rural residential community west of SR 97 and impacts to views from US 93.

3.6.1. Affected Environment

The Analysis Area for impacts is a 5-mile radius around the proposed transmission line alignment, which is the approximate maximum distance from which a casual observer could distinguish the elements of the Project.

Analysis Area Setting

The Analysis Area is characterized by rugged mountains in the Sonoran Desert, with tan and gray rock that is sparsely covered with native vegetation. Vegetation varies in vibrancy and form with tall vertical bright

green saguaro cacti and ocotillo, yellow-green creosotebush and paloverde, and short, dull yellow perennial grasses in the herbaceous layer. Ribbons of green riparian vegetation parallel the Bridle Creek at its confluence with the South Fork of the Santa Maria River near the southern terminus of the proposed transmission line. Ranging from mountainous terrain to rolling or rugged hills, the Analysis Area includes lava-capped mesas and narrow, deeply incised canyons. The Analysis Area's viewshed is enclosed by the Harcuvar Mountains to the south; the Grayback Mountains to the west; and the McCloud Mountains to the east. These mountains appear to have minimal vegetation and a rough, angular, amorphous shape, composed of warm, deep browns and reds. Notable peaks within the viewshed include the towering Thorn and Whitecap Peaks, which amount to 3,485 and 3,890 feet above mean sea level, respectively. Development and structures in the valley include existing transmission infrastructure, roads, one-story rural residential and ranching related structures, US 93, and SR 97 and 96. These structures stark white and black colors, smooth textures, angular outlines, and stark patterns contrast with the natural environment within the Analysis Area.

The primary views of the Analysis Area are via travel routes and rural residential areas. US 93 passes east-west through the Analysis Area. This roadway connects small towns like Wickenburg to large metropolitan areas including Phoenix and Las Vegas, Nevada. The majority of viewers are typically traveling through the Analysis Area on US 93, SR 97, and local roads. SR 97 connects with US 93, traveling north-south through the Analysis Area and up to the small mining town of Bagdad. This portion of US 93, Joshua Forest Scenic Road (Wikieup to Wickenburg) is designated by the Arizona Department of Transportation as a scenic road (ADOT n.d.). Nearby rural residents to the Project include ranching properties southwest of the proposed transmission interconnection site, which would have a direct view of the southern terminus of the transmission corridor and MPP-Q01 switchyard north of their property. Two other ranching and rural residents are located east of the proposed transmission corridor. These residents would have views of the transmission line to the west of their properties, although much of their property may be obscured from view of the Project by topography. Additionally, there is a small off-grid rural residential community along SR 97 without assured access to water or electricity. Residents of this community would have a direct view of the proposed transmission line to the east of their community. Approximately 10 to 20 residences are located within this community. Within the Analysis Area, near the northern terminus of the proposed transmission line is SR 96 and the Town of Bagdad.

3.6.2. Environmental Consequences

Methodology and Assumptions

A viewshed of the Analysis Area was created using a geographic information system (GIS) approach to model the "seen area" or viewshed from which the Project would be visible based on elevation and landform. The model does not account for vegetation, structures, or other landscape elements that would obstruct views. The viewshed analysis was used to assist in identification of key observation points (KOP) that represent

common or sensitive points from which the Project could be viewed. The viewshed and location of the five KOPs are shown in **Figure 5**. The five visual simulations from the selected KOPs are shown in **Appendix E**.

No Action Alternative

Under the No Action Alternative, there would be no visual changes in the landscape; therefore, there would be no impacts to visual resources in the Analysis Area.

Project

The Project would create contrast (i.e., anticipated impact) with the existing landscape features. WAPA and APS facilities would create weak to moderate contrast. In the short term, minor visual impacts associated with construction equipment would be present at the MPP-Q01 switchyard and TS-01 substation, along the length of the transmission corridor, and near the TS-02 substation and proposed communication facilities. In the long term, at the northern and southern termini of the transmission line and at the microwave tower locations, the Project would mimic the linear and vertical form of existing transmission corridors and communications facilities. Residents south of the MPP-Q01 switchyard would have direct views of the southern terminus of the transmission line and switchyard; however, these impacts would be in addition to two existing high-voltage transmission lines. Travelers headed in both directions on US 93 at the posted driving speeds would see minimal change in the landscape.

New geometric forms would be introduced into the existing landscape for travelers headed in both directions on SR 97 and rural residents and ranching properties east and west of the proposed transmission line. These viewers would see a new transmission corridor; however, the contrast would not preclude viewers from views of the rugged mountain terrain and Sonoran Desert vegetation.

Key Observation Point 1

Key Observation Point 1 is located on the west side of US 93 approximately 1 mile southeast of the proposed 169-5 microwave tower location, looking southwest towards Pete Smith Peak. The existing WAPA Mead-Perkins 525-KV transmission corridor is visible in the foreground, amidst sparsely vegetated Sonoran desertscrub. The 169-5 microwave tower is visible towards the far right of the simulation, mimicking the linear and vertical form of the existing transmission corridor. The existing communications facilities and proposed microwave tower at Pete Smith Peak are not visible to the unassisted eye from this location. From KOP 1, the Project presents a minor contrast against the existing natural and built landscape.

Key Observation Point 2

Key Observation Point 2 is located on the west side of US 93 approximately 1 mile south of the southern terminus of the proposed transmission line, TS-01 substation, and MPP-Q01 switchyard. This KOP looks northwest toward TS-01. The existing WAPA Mead-Perkins 525-kV transmission corridor runs east-west through this area. US 93 and the proposed transmission line and TS-01 substation are visible in the foreground of the simulation, amidst sparsely vegetated Sonoran desertscrub. The linear, vertical form of

the proposed line and substation are consistent with the current structures associated with WAPA's existing Mead-Perkins 525-kV transmission line. The Project does not preclude the current view of rolling hills and rugged mountains, with Thorn Peak visible in the far background. From KOP 2, the Project presents a minor to moderate contrast against the existing natural and built landscape.

Key Observation Point 3

Key Observation Point 3 is located on the north side of SR 97, at one of the rural roads leading to the small rural community west of the proposed transmission line, looking east. Rolling and rugged desert hills are visible in the foreground, sparsely vegetated with Sonoran desertscrub vegetation. The vertical linear form of the Project contrasts with the existing landscape features in the simulation; however, the proposed infrastructure does not preclude viewers from views of the more distant mountainous terrain and desert vegetation. The Project is intermittently screened from KOP 3 by vegetation and terrain, breaking up the strong lines and contrasting forms of the Project. From KOP 3, the Project presents a moderate contrast against the existing natural and built landscape.

Key Observation Point 4

Key Observation Point 4 is located on the south side of SR 97, looking west towards the Project approximately 0.3 miles away. SR 97 and sparsely vegetated Sonoran desertscrub are visible in the foreground of the simulation, with the linear geometric features of the proposed transmission corridor in the midground contrasting with the natural landscape and smooth mountainous terrain in the background. The proposed infrastructure, however, does not preclude viewers from more distant views of the mountainous terrain and desert vegetation. From KOP 4, the Project presents a moderate contrast against the existing natural and built landscape.

Key Observation Point 5

Key Observation Point 5 is located on the west side of SR 96, approximately 1 mile south of the northern terminus of the proposed transmission line and TS-02 substation, looking southeast as the proposed transmission corridor crosses the highway. SR 96 bisects the rolling terrain and Sonoran desertscrub vegetation. While the vertical form of the Project creates contrast with the natural landscape in the simulation, the linear form is consistent with the stark linear features associated with the existing transportation corridor. From KOP 5, the Project presents a minor to moderate contrast against the existing natural and built landscape.

4. COORDINATION AND CONSULTATION

4.1. AGENCY COORDINATION

WAPA invited BLM to be a cooperating agency for this Project; however, BLM did not accept cooperating agency status.

During public scoping for this Project, WAPA and/or APS also contacted the following agencies.

- Federal Agencies
  - Bureau of Land Management, Lake Havasu Field Office
  - Bureau of Land Management, Kingman Field Office
  - U.S. Fish and Wildlife Service, Arizona Ecological Services Field Office
  - Bureau of Reclamation, Lower Colorado Region Office
  - U.S. Environmental Protection Agency, Region 9

- State Agencies
  - Arizona Game and Fish Department
  - Arizona Department of Environmental Quality
  - Arizona Corporation Commission / Arizona Power Plant and Transmission Line Siting Commission
  - Arizona Department of Transportation

- County and Municipal Government
  - Maricopa County
  - Mohave County
  - Yavapai County
  - Town of Wickenburg

4.2. TRIBAL CONSULTATION

Twelve federally recognized tribes were contacted on behalf of WAPA and APS during the public scoping process (**Appendix A**); however, no tribes responded.

Additionally, in accordance with the NHPA, WAPA separately requested comments on the NRHP evaluation finding of No Adverse Effect for the Project from the 12 tribes consulted during scoping. Three tribes have responded as of the publication date of this Final EA. The Tohono O'odham Nation and the Salt River Pima-Maricopa Indian Tribe indicated concurrence on the finding of No Adverse Effect for the Project. The third comment from the Yavapai-Apache Nation of Camp Verde indicated they had no comments on the finding of No Adverse Effect for the Project. After the consultation period was completed, the Chemehuevi Indian Tribe also contacted APS and requested consultation and tribal monitors be present during all ground disturbance work.

5. APPLICABLE LAWS, REGULATIONS, AND OTHER REQUIREMENTS

Federal, state, and local agencies have jurisdiction over certain aspects of the proposed transmission interconnection, transmission infrastructure, and other supporting facilities. Major federal, state, and local agencies and their respective permit/authorizing responsibilities are summarized in **Table 5-1**.

Table 5-1. Permit/Authorizing Responsibilities

Authorizing Action/Applicable Regulation	Responsible Agency
Interconnection/Transmission Service Agreement	WAPA
NEPA	WAPA
Clean Air Act	EPA; Arizona Department of Environmental Quality (ADEQ)
Right-of-Way Grant	ASLD
National Historic Preservation Act	WAPA; Arizona SHPO
Native American Graves Protection and Repatriation Act	WAPA
American Indian Religious Freedom Act	WAPA
Construction Stormwater Permit	ADEQ, Division of Water Quality, Storm Water Program
Clean Water Act	U.S. Army Corps of Engineers
Safety Plan	Arizona Division of Occupational Safety and Health
Migratory Bird Treaty Act	USFWS; WAPA
Bald and Golden Eagle Protection Act	USFWS; WAPA
Endangered Species Act	USFWS; WAPA

6. ENVIRONMENTAL ASSESSMENT PREPARERS AND CONTRIBUTORS

6.1. WESTLAND ENGINEERING & ENVIRONMENTAL SERVICES

- Catherine Esquer, WestLand
- Nicole Eghtesadi, WestLand
- Claire Phillips, WestLand
- Tess Wagner, WestLand
- Chris Rife, WestLand
- Tom Klimas, WestLand
- Jocelyn Bernatchez, WestLand
- Brian Lindenlaub, WestLand

6.2. WESTERN AREA POWER ADMINISTRATION

- Abigail Wilmington, Environmental Project Manager (Civil Design & Engineering, Inc.)
- Rebecca Hopkins, Environmental Project Manager (Civil Design & Engineering, Inc.)
- Nina Rogers, Archaeologist

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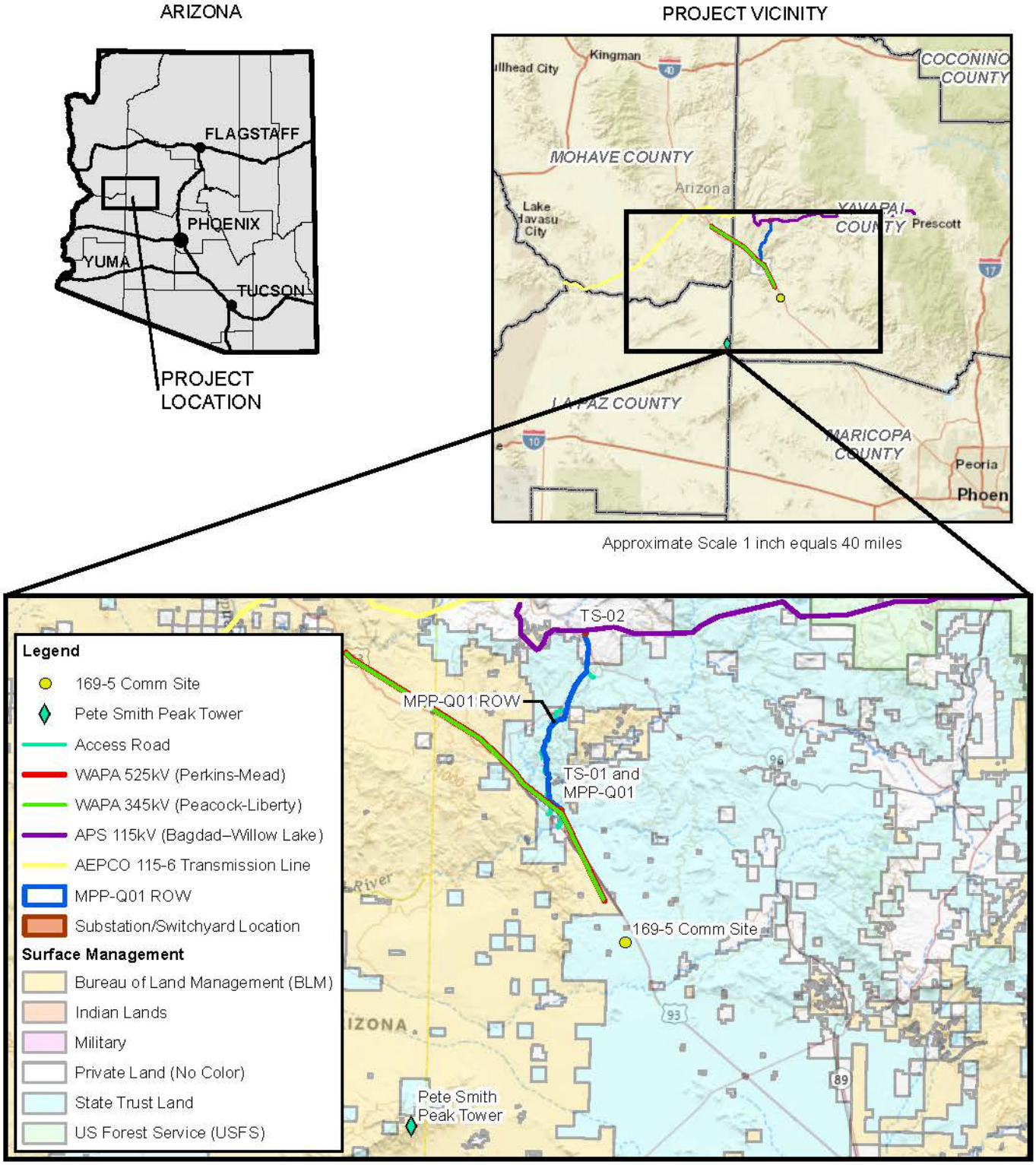
FIGURES

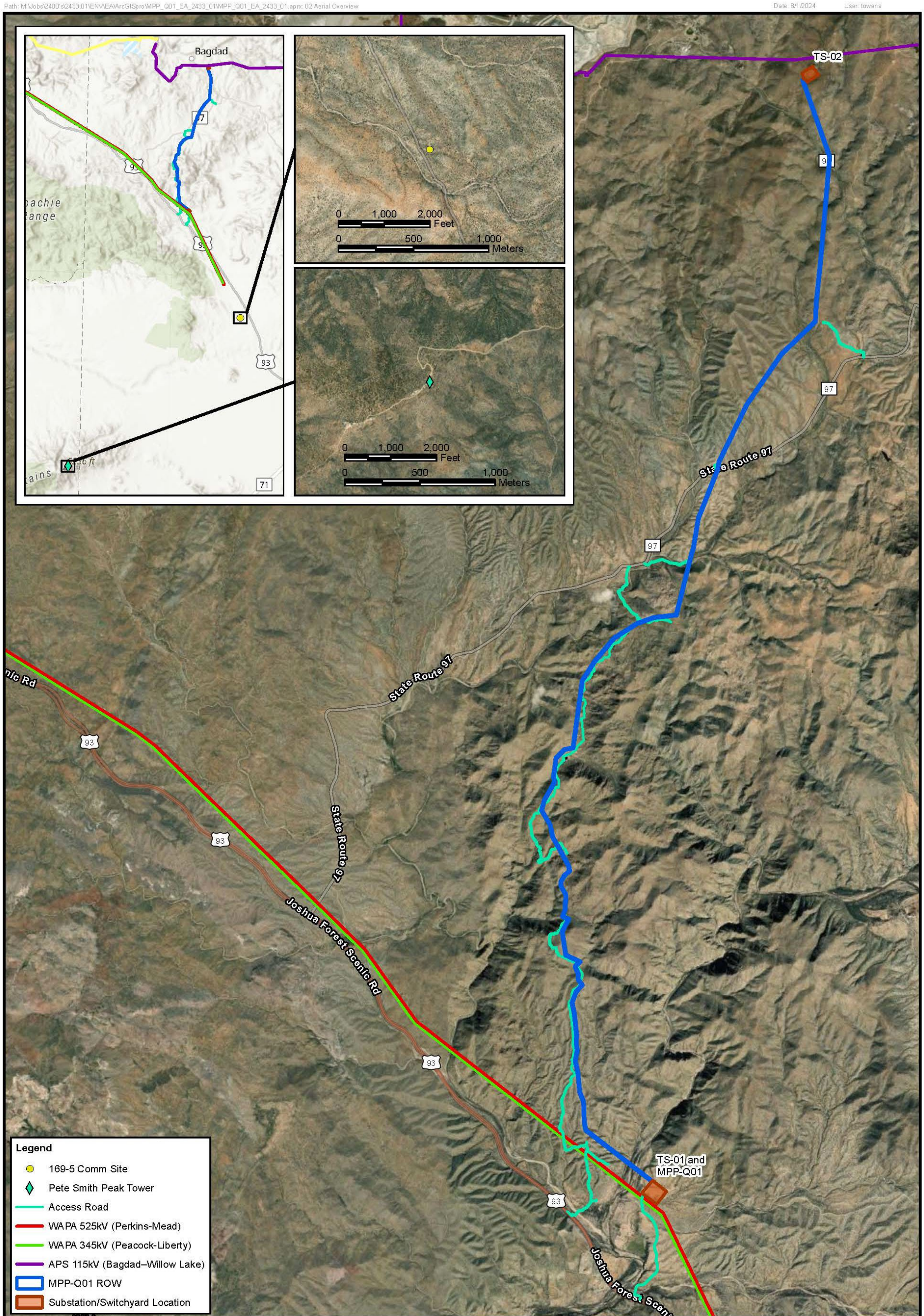


Portions of La Paz and Yavapai Counties, Arizona
Projection: NAD 1983 UTM Zone 12N
Surface Management: BLM 2022, WRI Modified 2023
Data Source: APS
Image Source: ArcGIS Online, World Street and USGS Topo Maps

MPP-Q01 INTERCONNECT REQUEST
Environmental Assessment

VICINITY MAP
Figure 1

WestLand Engineering & Environmental Services



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T11N, R8W, a Portion of Section 33,
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T13N, R9W, Portions of Sections 2, 10, 11, 15, 21, 22, 27, 28, 33, and 34,
T14N, R9W, Portions of Sections 12, 13, 24, 25, 35, and 36,
La Paz and Yavapai Counties, Arizona
Projection: NAD 1983 UTM Zone 12N
Image Source: Maxar 2018-2022

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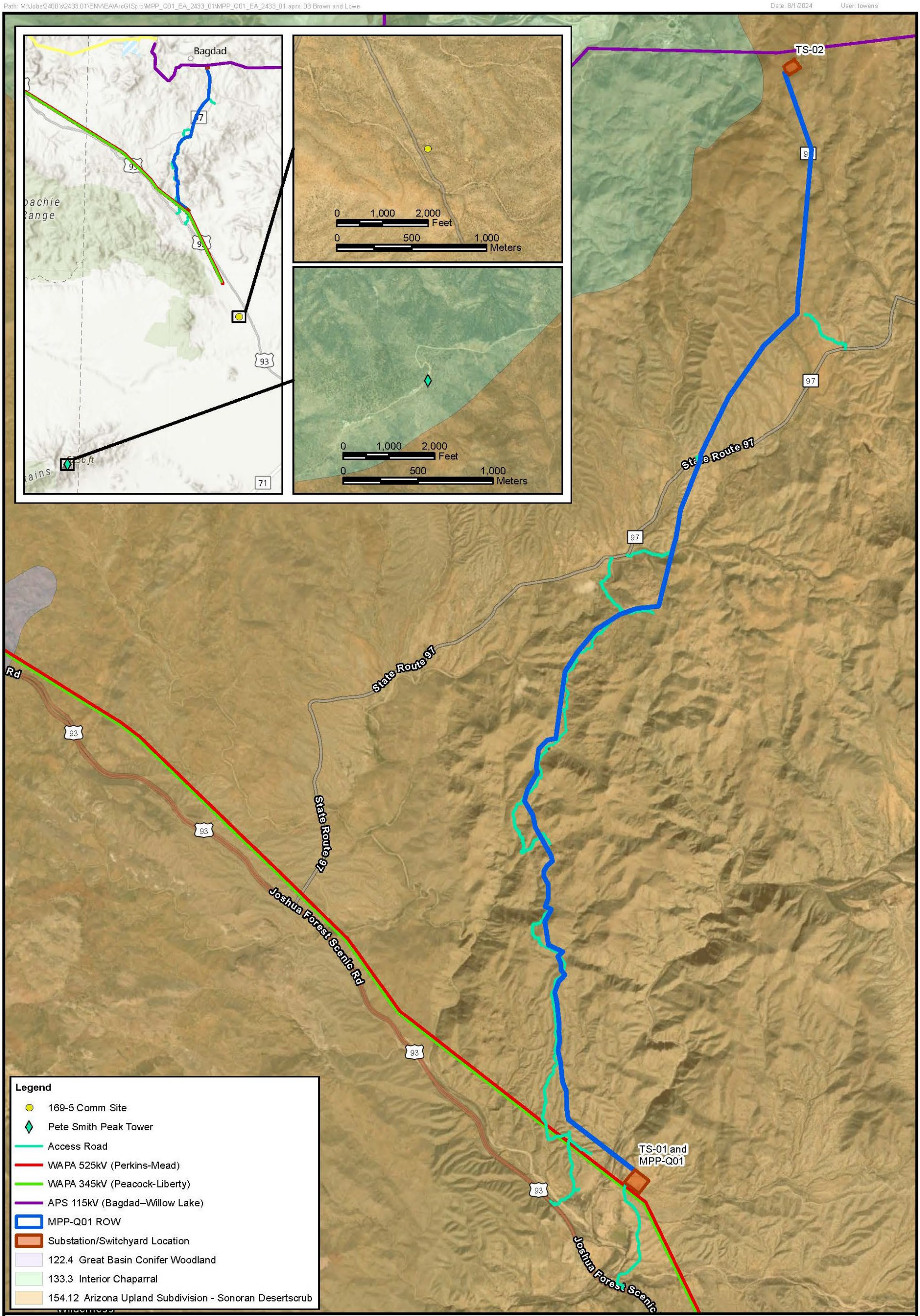
MPP-Q01 INTERCONNECT REQUEST
Environmental Assessment
AERIAL OVERVIEW
Figure 2



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T14N, R9W, Portions of Sections 12, 13, 24, 25, 35, and 36,
La Paz and Yavapai Counties, Arizona, Projection: NAD 1983 UTM Zone 12N
Data Source: Brown and Lowe's Biotic Communities of the Southwest (1980),
Image Source: Maxar 2018-2022

WestLand Engineering & Environmental Services

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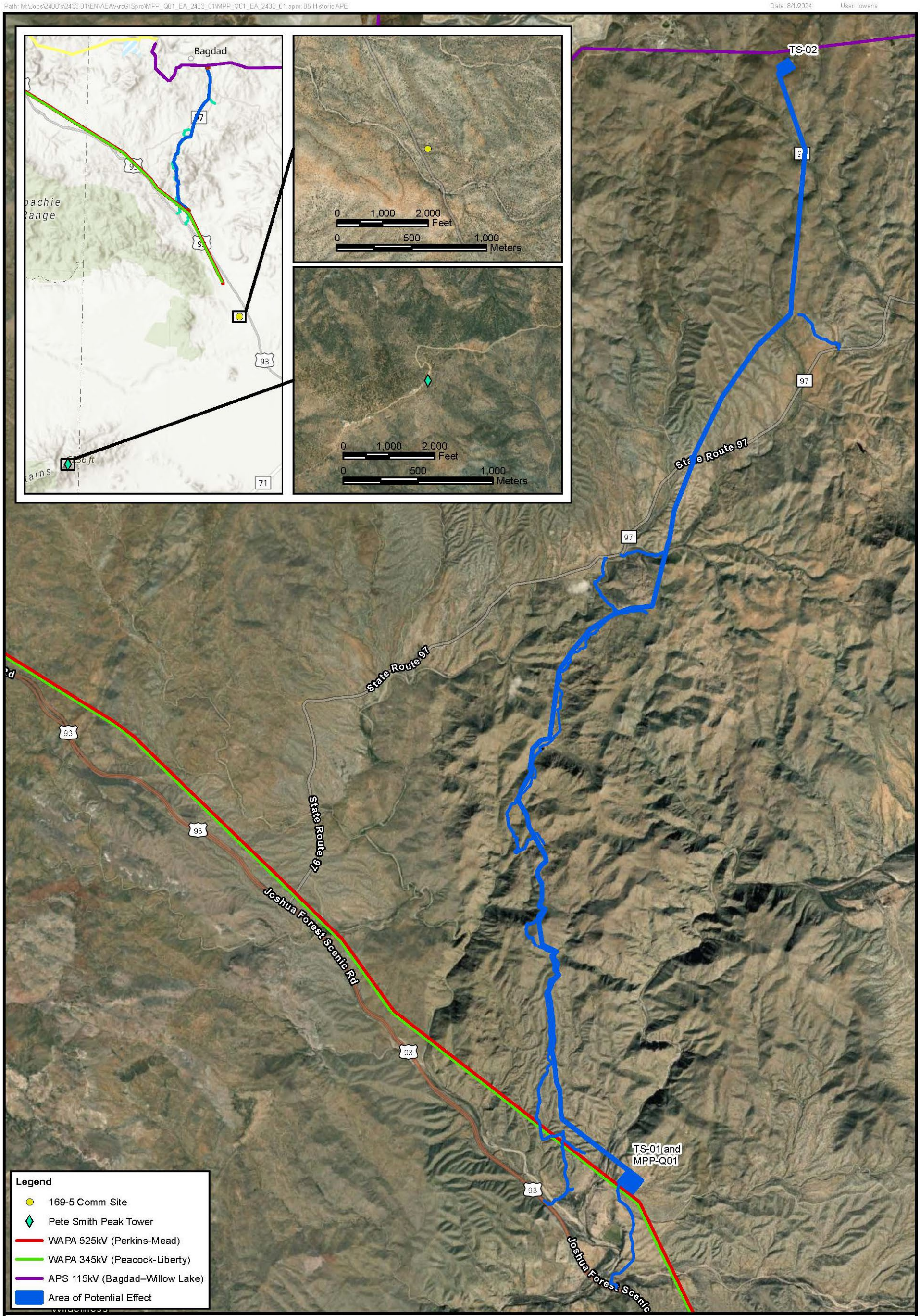
MPP-Q01 INTERCONNECT REQUEST
Environmental Assessment
BROWN AND LOWE MAPPING
Figure 3



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La Paz and Yavapai Counties, Arizona
Projection: NAD 1983 UTM Zone 12N
Image Source: Maxar 2018-2022

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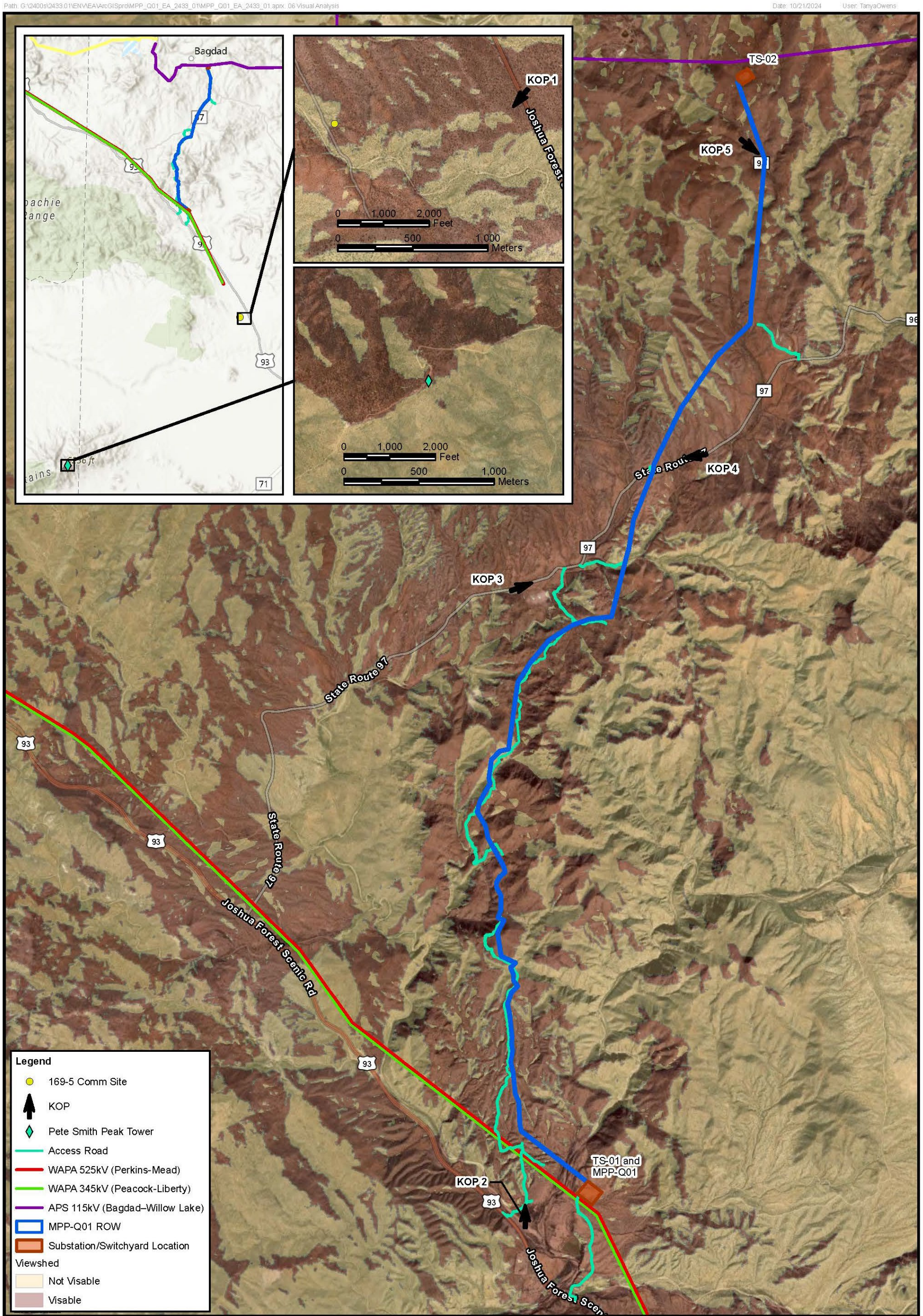
MPP-Q01 INTERCONNECT REQUEST

Environmental Assessment

HISTORIC RESOURCES AREA OF POTENTIAL EFFECT

Figure 4



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La Paz and Yavapai Counties, Arizona
Projection: NAD 1983 UTM Zone 12N
Image Source: Maxar 2018-2022

WestLand Engineering & Environmental Services

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MPP-Q01 INTERCONNECT REQUEST
Environmental Assessment
VIEWSHED
Figure 5

Disclaimer: Section 508 of the Rehabilitation Act of 1973 (29 U.S.C. § 794d), as amended in 1998, requires that the information in federal documents be accessible to individuals with disabilities. Every effort has been made to ensure that the information in the Final Environmental Assessment for the MPP-Q01 Interconnection Request is accessible; however, some Appendix elements may not be fully accessible. Individuals with disabilities are encouraged to contact the agency to request assistance.

APPENDIX A
Public Scoping Summary

Scoping Summary
MPP-Q01 Interconnection Request (DOE/EA-2208)

Prepared for: Western Area Power Administration

Prepared by: WestLand Engineering & Environmental Services

Date: July 27, 2023 (Revised April 3, 2026)

Project Number: 2433.01

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1. INTRODUCTION

Western Area Power Administration (WAPA) must consider responding to a request from Arizona Public Service (APS) to interconnect a proposed 230-kilovolt (kV) transmission line near Bagdad in Yavapai County, Arizona, to its electrical transmission system. WAPA's proposed federal action is to grant or deny the transmission interconnection request (the Proposed Action), which would entail entering into a transmission interconnection agreement with APS, and implementing transmission and communication system additions as follows:

- Obtain right-of-way and construction of the MPP-Q01 500-kV switchyard, to be owned, operated, and maintained by WAPA;
- Installation of four 500-kV breaker bays at MPP-Q01, to be owned, operated, and maintained by WAPA;
- Construction of two microwave towers—one near structure Mead-Perkins (MDE-PES) 169-5, approximately 10 miles southeast of the interconnection location, and one adjacent to the existing communication facilities at Pete Smith Peak to maintain WAPA radio communications with the switchyard, to be owned, operated, and maintained by WAPA; and
- Provide redundant communications to the Point of Interconnection (POI), by using dedicated capacity on an APS-owned and installed Optical Ground Wire fiber optic cable along the new transmission line from the POI to APS's TS-01 substation.

APS proposes to build, operate, and maintain a 14-mile long 230-kV transmission line on State Trust land managed by the Arizona State Land Department as well as on private property. In addition to the transmission line, APS's privately developed facilities includes the following components, collectively referred to as APS's Private Action:

- Construction, operation, and maintenance of a substation adjacent to MPP-Q01, to be known as TS-01, which would include up to two transformers (either 525/115/34.5 kV or 525/230/34.5 kV) and associated switch gear;

- Construction, operation, and maintenance of a substation adjacent to the existing Willow Lake 115-kV line, to be known as TS-02, which would include up to two 230/115-kV transformers, up to two 115/69-kV or 230/69-kV transformers, and associated switch gear;
- Construction of a fiber optic cable along the new transmission line from TS-01 to APS's Bagdad Substation via APS's Willow Lake 115-kV transmission line. WAPA will use dedicated capacity on this cable for redundant communications for the switchyard.

WAPA conducted both public scoping and internal agency scoping to identify issues warranting study during National Environmental Policy Act (NEPA) evaluation of the Proposed Action.

WAPA does not have the authority to approve or deny APS's privately developed facilities. While APS's Private Action is not a part of the Proposed Action, it was included in scoping alongside the Proposed Action to aid the analysis. WAPA's Proposed Action and APS's Private Action are collectively referred to as the Project. The utilization of the term Project through the scoping summary is defined above and not intended to align with the definition in the U.S. Department of Energy (DOE) NEPA Implementing Procedures.

A version of this Scoping Summary was published in October 2024 with the Draft EA for the Proposed Action. This Scoping Summary has been updated for consistency with the Final EA which has been updated in accordance with recent changes in DOE NEPA Implementing Procedures. These minor changes did not substantially alter the content herein.

2. PUBLIC SCOPING

WAPA initiated a 30-day public comment period for the Project on April 4, 2023, ending on May 12, 2023. Scoping letters were mailed to 13 agencies, organizations, and interested parties; 12 tribes; and 25 landowners in the project area to inform them of the Project and scoping period, and to request input on the Proposed Action. WAPA published two newspaper advertisements announcing the scoping notice and a virtual scoping meeting—one in The Wickenburg Sun and one in The Daily Courier, on April 19 and April 23, 2023, respectively. Thirteen people attended the virtual public scoping meeting held on the internet using the Zoom teleconference platform on April 26, 2023.

WAPA accepted scoping comments via telephone, email, U.S. mail, and at the virtual scoping meeting. They received a total of five submittals from three individuals, one state government agency, and one federal government agency. During the public scoping meeting, there were five questions received from three individuals and one state government agency representative. No businesses or tribes provided scoping comments or participated in the public scoping meeting.

In total, 27 comments were identified from the five submittals and public scoping meeting. The comments were evaluated to identify the primary and secondary issues represented and coded accordingly.

Comments received concerned mainly conservation measures for minimizing impacts to biological resources and sensitive species. Adjacent Landowners/Land Use was the other topic brought forth by multiple commenters, specifically regarding the underserved rural community west of the proposed transmission line. No comments expressed general opposition or support for the project. **Table 1** identifies the primary and secondary issues identified during the public scoping period, and the number of comments received for each issue.

Table 1. Primary Issue Codes and Comments Identified during Public Scoping

Primary Issue	Secondary Issue	Number of Coded Comments*
Adjacent Landowners/Land Use	Underserved Community	2
Livestock Grazing	Coordination with Ranchers	1
Biological Resources	Desert Tortoise	1
	Habitat Conservation Measures	9
	Avian and Transmission Line	2
	Wildlife Conservation Measures	5
Sensitive Species	Yellow-billed Cuckoo	2
	Southwestern Willow Flycatcher	1
	Northern Mexican Gartersnake	1
	Monarch Butterfly	1
	Migratory Birds	1
	Bald and Golden Eagles	1

* Note that most submittal documents addressed multiple topics, resulting in a comment count well over the five submittals received.

Summary of Virtual Public Scoping Meeting

At the virtual public scoping meeting, WAPA staff and representatives from APS presented an overview of the Project and NEPA process to members of the public and agency representatives. Topics of interest expressed at the public meeting included construction timing, coordination with ranchers and grazing allottees, and plans for biological resource surveys.

Summary of Written Comments from Agencies

The Arizona Game and Fish Department (AZGFD) and U.S. Fish and Wildlife Service (USFWS) submitted comments regarding the Project. AZGFD's comments addressed potential biological issues, including potential impacts to Sonoran desert tortoise (*Gopherus morafkai*) and yellow-billed cuckoo (*Coccyzus americanus*). Other AZGFD comments included recommendations and best management practices for minimizing impacts to wildlife and habitat. The USFWS's comments addressed potential biological issues, including potential impacts to Endangered Species Act (ESA) listed species yellow-billed cuckoo, southwestern willow flycatcher (*Empidonax traillii extimus*), Northern Mexican gartersnake (*Thamnophis*

eques megalops), and a then-candidate[1] species for listing, the monarch butterfly (*Danaus plexippus*). USFWS's comments also included recommendations and best management practices for minimizing impacts to protected species and their habitat.

Summary of Written Comments from Tribes

No comments were received from any tribes.

Summary of Written Comments from Individuals and Businesses

Individuals who submitted comments included local residents in the vicinity of the Project. Topics addressed in these comments included the underserved rural community west of the planned transmission line. The majority of the comments received from individuals were inquiries requesting electrical service to this underserved community, as well as requests for maps for this Project and the Aguila Pipeline project that will follow a similar alignment.

3. INTERNAL AGENCY SCOPING

WAPA reviewed the public scoping comments and solicited input from internal technical specialist staff to assess other issues pertaining to the Project. No additional internal agency scoping issues were raised. The list of resource issues carried forward for detailed analysis and the list of resource issues considered but dismissed from further evaluation are detailed in Chapter 3 of the Environmental Assessment.

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[1] This species has since been proposed for listing (USFWS 2024).

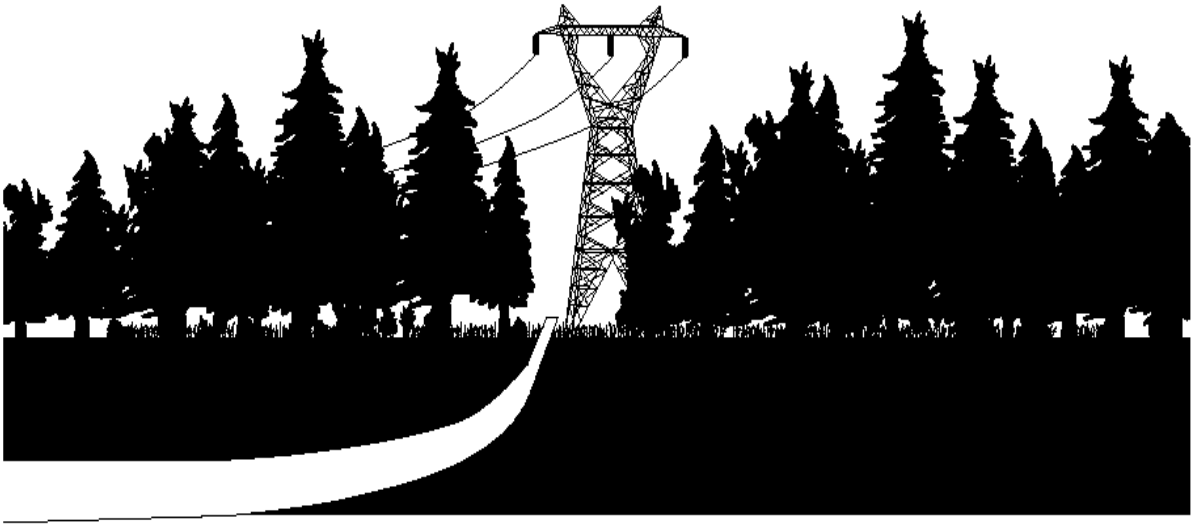
U.S. Fish and Wildlife Service. 2024. Endangered and Threatened Wildlife and Plants; Threatened Species Status with Section 4(d) Rule for Monarch Butterfly and Designation of Critical Habitat; Proposed Rule. U.S. Department of the Interior. December 12, 2024. *Federal Register*, 89(239):100662-100716.

APPENDIX B
WAPA's Construction Standard 13
Environmental Quality Protection

Western Area
Power Administration

CONSTRUCTION STANDARDS

STANDARD 13
ENVIRONMENTAL QUALITY PROTECTION



March 2021

SAFETY
A HABIT TO LIVE BY

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SECTION 13.1 – REQUIRED SUBMITTALS, REPORTS AND PLANS

1. FINAL PAYMENT: For each section below, final payment will be withheld until the referenced submittal, report or plan is received by the COR.

SECTION 13.2 – CONTRACTOR FURNISHED DATA

1. RECYCLED MATERIALS QUANTITY REPORT: Submit quantities of recycled materials listed in Section 13.7, "Recycled Materials Quantities", to the COR and WAPA's Environmental Department prior to submittal of final invoice.

2. RECOVERED AND BIOBASED MATERIAL PRODUCTS REPORT: Provide the COR and WAPA's Environmental Department the following information for purchases of items listed in Section 13.8, "Use of Recovered Material and Biobased Material Products".

   (1) Quantity and cost of listed items with recovered or biobased material content and quantity and cost of listed items without recovered or biobased material content prior to submittal of final invoice.

   (2) Written justification of listed items if recovered material or biobased material products are not available: 1) competitively within a reasonable time frame; 2) meeting reasonable performance standards as defined in the Standards or Project Specifications; or 3) at a reasonable price.

3. REFRIGERANT RECEIPT: The Contractor must provide a record of all refrigerant usage, recycling or disposal on WAPA HVAC systems to the COR and WAPA's Environmental Department. In the event refrigerant is either charged into or removed and reclaimed from a WAPA HVAC system, the Contractor must provide either a record of usage or a receipt from the Environmental Protection Agency (EPA)-certified refrigerant reclaimer including whether it was either added to or reclaimed from the equipment, the date and the amount and type of refrigerant used to the COR and WAPA's Environmental Department prior to submittal of final invoice.

4. WASTE MATERIAL QUANTITY REPORT: Submit quantities of total project waste material disposal as listed below to the COR and WAPA's Environmental Department prior to submittal of final invoice in accordance with Section 13.9.8, "Waste Material Quantity Report".

   (1) Unregulated Wastes (i.e., trash): Volume in cubic yards or weight in pounds.

   (2) Hazardous or Universal Wastes: Weight in pounds.

   (3) Polychlorinated Biphenyl (PCB) Wastes: Weight in pounds.

   (4) Other regulated wastes (e.g., lead-based paint or asbestos): Weight in pounds (specify type of waste in report).

5. SPILL PREVENTION NOTIFICATION AND CLEANUP PLAN (Plan): Submit the Plan as described in Section 13.11.2, "Spill Prevention Notification and Cleanup Plan", to the COR and WAPA's Environmental Department for review and comment 14-days prior to start of work. Review of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State and local regulations.

6. TANKER OIL SPILL PREVENTION AND RESPONSE PLAN: Submit the Plan as described in Section 13.11.3, "Tanker Oil Spill Prevention and Response Plan", to the COR and WAPA's Environmental Department for review and comment 14-days prior to start of work. Review of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State and local regulations.

7. PESTICIDE USE PLAN: Submit a plan as described in Section 13.12.3, "Pesticide Use Plan", to the COR and WAPA's Environmental Department for review and comment 14-days prior to the date of intended pesticide application. Review of the plan is for the purpose of determining

compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State and local regulations. Within seven (7)-days after application, submit a written report in accordance with Standard 2 – Sitework, Section 2.1.1_5, "Soil-Applied Herbicide".

8. TREATED WOOD UTILITY POLES AND CROSSARMS RECYCLING – CONSUMER INFORMATION SHEET RECEIPT: Submit treated wood utility poles and crossarms - consumer information sheet receipts to the COR and WAPA's Environmental Department prior to submittal of final invoice (see 13.13, "Treated Wood Utility Poles and Crossarms Recycling or Disposal").

9. PREVENTION OF AIR POLLUTION: Submit a copy of permits, if required, as described in 13.14, "Prevention of Air Pollution" to the COR and WAPA's Environmental Department 14-days prior to the start of work.

10. EMISSIONS OF COVERED INSULATING GASES (E.G., SULFUR HEXAFLUORIDE (SF_6) GAS, PERFLUOROCARBON (PFC) GAS): A receipt from the covered insulating gas supplier stating that the gas was reclaimed, the amount of covered insulating gas and the date must be submitted to the COR and WAPA's Environmental Department prior to submittal of final invoice in accordance with Section 13.14.4(3), "Certificates of Disposal and Receipts".

11. ASBESTOS LICENSES OR CERTIFICATIONS: Submit a copy of licenses, certifications, Demolition and Renovation Notifications and Permits for asbestos work as described in 13.15, "Handling and Management of Asbestos Containing Material" to the COR and WAPA's Environmental Department 14-days prior to starting work. Submit copies of certificates of disposal and/or receipts for waste to the COR and WAPA's Environmental Department prior to submittal of final invoice.

12. LEAD PAINT NOTICES: Submit a copy of lead paint notices with Contractor and recipient signatures as described in 13.16, "Material with Lead-based Paint" to the COR and WAPA's Environmental Department prior to submittal of final invoice. Submit copies of certificates of disposal and/or receipts for waste to the COR and WAPA's Environmental Department prior to submittal of final invoice.

13. WATER POLLUTION PERMITS: Submit copies of any water pollution permits as described in 13.17, "Prevention of Water Pollution" to the COR and WAPA's Environmental Department 14-days prior to start of work.

14. PCB TEST REPORT: Submit a PCB test report to the COR and WAPA's Environmental Department as described in 13.18, "Testing, Draining, Removal and Disposal of Oil-filled Electrical Equipment", prior to draining, removal or disposal of oil or oil-filled equipment that is designated for disposal.

15. OIL AND OIL-FILLED ELECTRICAL EQUIPMENT RECEIPT: Obtain and submit a receipt for oil and oil-filled equipment transported and disposed, recycled or reprocessed as described in 13.18, "Testing, Draining, Removal and Disposal of Oil-filled Electrical Equipment", to the COR and WAPA's Environmental Department prior to submittal of final invoice.

16. OSHA PCB TRAINING RECORDS: Submit employee training documentation records to the COR and WAPA's Environmental Department 14-days prior to the start of work as described in 13.19.1.

17. CLEANUP WORK MANAGEMENT PLAN: Submit a Cleanup Work Management Plan as described in 13.19, "Removal of Oil-contaminated Material" to the COR and WAPA's Environmental Department for review and comment 14-days prior to the start of work. Review of the plan is for the purpose of determining compliance with the specifications only and shall not

relieve the Contractor of the responsibility for compliance with all Federal, State and local regulations.

18. POST CLEANUP REPORT: Submit a Post-Cleanup Report as described in 13.19, “Removal of Oil-contaminated Material” to the COR and WAPA’s Environmental Department prior to submittal of final invoice.

SECTION 13.3 – ENVIRONMENTAL REQUIREMENTS

Comply with Federal, State and local environmental laws and regulations. The sections in this Standard further specify the requirements.

SECTION 13.4 – LANDSCAPE PRESERVATION

1. GENERAL: Preserve landscape features in accordance with the contract clause titled “Protection of Existing Vegetation, Structures, Equipment, Utilities and Improvements”. Exercise care to preserve the natural landscape and conduct activities to prevent any unnecessary destruction, scarring or defacing of the natural surroundings in the project vicinity. Except where clearing is required for permanent works, approved construction roads or excavation operations, vegetation must be preserved and must be protected from damage by project operations and equipment.

2. CONSTRUCTION ROADS: Location, alignment and grade of construction roads shall be subject to the COR's approval. When no longer required, surfaces of construction roads must be scarified to facilitate natural revegetation, provide for proper drainage and prevent erosion. If re-vegetation is required, use seed mixtures as recommended by Natural Resources Conservation Service or other land managing agency as appropriate.

3. CONSTRUCTION FACILITIES: Shop, office, material lay down and material and equipment storage areas and yard areas must be located and arranged in a manner to preserve trees and vegetation to the maximum practicable extent and prevent impact on sensitive riparian areas and flood plains. Storage and construction buildings, including concrete footings and slabs, must be removed from the site prior to contract completion. The area will be re-graded as required so that all surfaces drain naturally, blend with the natural terrain, and are left in a condition that will facilitate natural revegetation, provide for proper drainage and prevent erosion or transport of sediment and pollutants. If re-vegetation is required, use seed mixtures as recommended by Natural Resources Conservation Service or other land managing agency as appropriate.

SECTION 13.5 – PRESERVATION OF CULTURAL AND PALEONTOLOGICAL RESOURCES

1. GENERAL: Do not, at any time, remove, disturb or otherwise alter cultural artifacts or paleontological resources (fossils). Cultural artifacts may be of scientific or cultural importance and include, but are not limited to bones, pottery, projectile points (arrowheads), other stone or metal tools, surface features (stone circles, rock piles, etc.), glass, metal, ceramic or other historic objects, structures and buildings (including ruins). Paleontological resources can be of scientific importance and include mineralized animals and plants or trace fossils such as footprints. Both cultural and paleontological resources are protected by Federal Regulations during Federal construction projects. The Contractor must restrict all ground disturbing activities to areas reviewed/investigated and approved for WAPA by the Federal Preservation Officer (FPO) or Regional Preservation Officer (RPO), as appropriate, and as specified in accordance with Standard 1 – General Requirements, Sections 1.3.1 Rights-of-way and 1.3.2 Access to the Work and Haul Routes.

2. KNOWN CULTURAL OR PALEONTOLOGICAL SITES: The Contractor must ensure that all construction activities avoid the boundaries of specific cultural, historic or scientific sites. Following issuance of notice to proceed, WAPA will provide drawings or maps that indicate the area(s) of avoidance in relation to the project area. Prior to any construction activity, the avoidance area(s) must be marked on the ground in a manner approved by the COR and WAPA's Environmental Department in conjunction with the FPO or RPO. When avoidance is not possible, the Contractor must provide WAPA a 90-day notice of their inability to avoid the identified area(s). WAPA will consult with the appropriate authorities and the Contractor will not be permitted to work within or near the boundaries of the avoidance area(s)until the FPO or RPO approves of the work and the COR directs the Contractor to proceed. The Contractor must instruct employees and subcontractors that vehicular or equipment access within these avoidance areas is prohibited. If access is absolutely necessary, the Contractor must first obtain approval from the COR in conjunction with the FPO or RPO. WAPA will remove the markings during or following final cleanup.

3. WORKING WITH CULTURAL, PALEONTOLOGICAL OR TRIBAL MONITORS: For some project work, WAPA requires an archaeological, paleontological or tribal monitor(s) at or near cultural or paleontological site locations. The Contractor, its employees and subcontractors must work with the monitor(s) to ensure that sensitive areas are avoided. The monitor(s) must meet with the Contractor, its employees and subcontractors each morning to go over the day's work. The monitor(s) will also conduct awareness training for the Contractor, its employees and subcontractors prior to any work in the field. Untrained personnel must not be allowed in the construction area. For sensitive areas requiring a monitor(s), the Contractor may not access those areas without a monitor being present.

4. UNKNOWN CULTURAL OR PALEONTOLOGICAL SITES: On rare occasions cultural or paleontological sites, including buried human remains, may be inadvertently discovered during excavation or other earth-moving or other construction activities.

   (1) Reporting: If evidence of a cultural or paleontological site is discovered, cease all work within a 200-foot radius immediately and notify the COR, and FPO or RPO, of the location and nature of the findings. If a monitor(s) is present, the monitor(s) should also be notified. Work within that radius may not be resumed until directed to do so by the COR.

   (2) Care of Evidence: Protect the area. Do not remove, handle, alter or damage artifacts fossils or other objects uncovered during construction activities.

5. SPECIAL CONSIDERATIONS: Refer to Division 13 of the Project Specifications for site-specific requirements including, but not limited to, known and unknown cultural or paleontological resources and the treatment of inadvertently discovered human remains. Disturbance of human remains is covered in most states by statutes that generally preempt Federal regulations. Those requirements are described in the Division 13 specifications.

SECTION 13.6 – NOXIOUS WEED CONTROL

Comply with Federal, State and local noxious weed control regulations. At Contractor's expense, obtain required permits and conduct required notifications. Provide a "clean vehicle policy" while entering and leaving construction areas to prevent transport of noxious weed plants and/or seed. Transport only construction vehicles that are free of mud and vegetation debris to staging areas and the project right-of-way. All seed mixes and mulch used for reclamation activities will be certified weed-free.

SECTION 13.7 – RECYCLED MATERIALS QUANTITIES

1. GENERAL: All materials generated from the project that can be recycled, must be recycled. Record quantities of material by category that is salvaged, recycled, reused or reprocessed, including, but not limited to:

   (1) Transformers, Breakers: Weight without oil in pounds or metric tons.

   (2) Scrap Metals: Weight in pounds or metric tons. Examples include, but are not limited to:

      1) Aluminum Conductor – Steel Reinforced (ACSR).
      2) Stainless Steel.
      3) Copper.
      4) Iron/Steel.
      5) Aluminum.
      6) Lead.
      7) Zinc.
      8) Other Metals.

   (3) Precious Metals (e.g., Silver, Gold, Platinum): Weight in pounds or metric tons.

   (4) Oil: Gallons (separate by type - less than 2-parts per million (ppm) PCB, 2- to 50-ppm PCB, and 50 or greater ppm PCB).

   (5) Gravel, Asphalt or Concrete: Weight in pounds or metric tons.

   (6) Batteries: Weight in pounds or metric tons.

   (7) Treated Wood Utility Poles and Crossarms: Weight in pounds or metric tons.

   (8) Wood Construction Material: Weight in pounds or metric tons.

   (9) Cardboard: Weight in pounds or metric tons.

   (10) Porcelain/Ceramic Insulators: Weight in pounds or metric tons.

   (11) Glass: Weight in pounds or metric tons.

   (12) Fluorescent Bulbs: Weight in pounds or metric tons.

   (13) Ballasts: Weight in pounds or metric tons.

   (14) Mercury-Containing Equipment (MCE): Weight in pounds or metric tons.

   (15) Antifreeze and Freon: Weight in pounds or metric tons.

   (16) Tires: Weight in pounds or metric tons.

   (17) Plastic: Weight in pounds or metric tons.

   (18) Solvent: Weight in pounds or metric tons.

   (19) Construction and Demolition (C&D) Debris: Weight in pounds or metric tons.

2. RECYCLED MATERIAL QUANTITY REPORT: Submit quantities (pounds, metric tons, gallons) of all recycled material by category to the COR and WAPA's Environmental Department within 30-days of recycling and prior to submittal of final invoice.

SECTION 13.8 – USE OF RECOVERED MATERIAL AND BIOBASED MATERIAL PRODUCTS

1. RECOVERED MATERIAL PRODUCTS: If the products listed below or other products listed at https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program are obtained as part of this project, purchase the items with the highest recovered material content possible unless recovered material products are not available: 1) competitively within a reasonable time frame; 2) meeting reasonable performance standards as defined in the Standards or Project Specifications; or 3) at a reasonable price.

   Examples include, but are not limited to:

   (1) Building Insulation Products.

   (2) Carpet.

   (3) Carpet cushion.

   (4) Cement and Concrete Containing; coal fly ash, ground granulated blast furnace slag, cenospheres or silica fume.

   (5) Consolidated and reprocessed latex paint.

   (6) Floor Tiles.

   (7) Flowable fill.

   (8) Laminated Paperboard.

   (9) Modular threshold ramps.

   (10) Nonpressure pipe.

   (11) Patio Blocks.

   (12) Railroad grade crossing surfaces.

   (13) Roofing materials.

   (14) Shower and restroom dividers/partitions.

   (15) Signage.

   (16) Structural Fiberboard.

2. BIOBASED MATERIAL PRODUCTS: If the products listed at https://www.biopreferred.gov/BioPreferred/faces/pages/ProductCategories.xhtml are obtained as part of this project, purchase the items with the highest biobased content possible and no less than the percent indicated for each product unless biobased material products are not available: 1) competitively within a reasonable time frame, 2) meeting reasonable performance standards as defined in the Standards or Project Specifications, or 3) at a reasonable price.

   NOTE: All station service and pole mounted transformers will be bio-based oil. WAPA large transformers will be evaluated on a best value basis using life cycle cost analysis.

3. RECOVERED MATERIAL AND BIOBASED MATERIAL PRODUCTS REPORT: Provide the COR and WAPA's Environmental Department the following information for purchases of those items listed above:

   Quantity and cost of listed items with recovered or biobased material content and quantity and cost of listed items without recovered or biobased material content prior to submittal of final invoice.

   Written justification of listed items if recovered material or biobased material products are not available: 1) competitively within a reasonable time frame; 2) meeting reasonable performance standards as defined in the Standards or Project Specifications; or 3) at a reasonable price.

SECTION 13.9 – DISPOSAL OF WASTE MATERIAL

1. GENERAL: Dispose or recycle waste material in accordance with applicable Federal, State and local regulations and ordinances. In addition to the requirements of the Contract Clause "Cleaning Up", remove all waste material from the construction site. No waste will be left on WAPA property, right-of-way or easement. Burning or burying of waste material is not permitted.

2. HAZARDOUS, UNIVERSAL AND NON-HAZARDOUS WASTES: Manage and dispose hazardous, universal and non-hazardous wastes in accordance with local, State and Federal regulations.

3. USED OIL: Used oil generated from the Contractor activities must be managed and disposed in accordance with used oil regulations.

4. RECYCLABLE MATERIAL: Reduce wastes, including excess WAPA material, by recycling, reusing or reprocessing. Examples of recycling, reusing or reprocessing includes, but is not limited to, reprocessing of solvents; recycling cardboard; and salvaging scrap metals.

5. REFRIGERANTS AND RECEIPTS: Refrigerants from air conditioners, water coolers, refrigerators, ice machines and vehicles must be reclaimed with certified equipment operated by certified technicians if the item is to be disposed. Refrigerants must be reclaimed and not vented to the atmosphere. A receipt from the reclaimer stating that the refrigerant was reclaimed, the amount and type of refrigerant and the date must be submitted to the COR and WAPA's Environmental Department prior to submittal of final invoice.

6. HALONS: Equipment containing halons that must be tested, maintained, serviced, repaired or disposed must be handled according to EPA requirements and by technicians trained according to those requirements.

7. SULFUR HEXAFLUORIDE (SF_6)/PERFLUOROCARBONS: All covered insulating gases (e.g., SF_6 gas and other PFCs) must be reclaimed and must not be vented to the atmosphere. See Section 13.14.4(3). After use, all covered insulating gas cylinders must be returned to the manufacturer.

8. WASTE MATERIAL QUANTITY REPORT: Submit quantities and types of all materials disposed of as part of the project to the COR and WAPA's Environmental Department prior to submittal of final invoice.

   (1) Non-Hazardous Municipal Solid Waste (MSW) (i.e., trash): Description of waste and volume in cubic yards or weight in pounds.

   (2) Hazardous Wastes: Hazardous waste description, hazardous waste code and weight in pounds or volume in gallons.

   (3) Universal Wastes: Universal Waste category and weight in pounds.

   (4) PCB Wastes: Weight in pounds.

   (5) Industrial Wastes: Description of waste and weight in pounds.

   (6) Other regulated wastes (e.g., lead-based paint or asbestos): Weight in pounds (specify type of waste in report).

SECTION 13.10 – CONTRACTOR'S LIABILITY FOR REGULATED MATERIAL INCIDENTS

1. GENERAL: The Contractor is solely liable for all expenses related to spills, mishandling or incidents of regulated material attributable to his actions or the actions of his subcontractors. This includes all response, investigation, cleanup, disposal, permitting, reporting and requirements from applicable environmental regulation agencies.

2. SUPERVISION: The actions of the Contractor employees and subcontractors must be properly managed at all times on WAPA property or while transporting WAPA's (or previously owned by WAPA) regulated material and equipment.

SECTION 13.11 – POLLUTANT SPILL PREVENTION, NOTIFICATION AND CLEANUP

1. GENERAL: Provide measures to prevent spills of pollutants and respond appropriately if a spill occurs. A pollutant includes any hazardous or non-hazardous substance that when spilled, will contaminate soil, surface water or groundwater. This includes any solvent, fuel, oil, paint, pesticide, engine coolants and similar substances.

2. SPILL PREVENTION NOTIFICATION AND CLEANUP PLAN: Provide the Plan to the COR and WAPA's Environmental Department for review and comment 14-days prior to start of work. Review of the Plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State and local regulations. Include the following in the Plan:

   (1) Spill Prevention Measures: Describe the work practices or precautions that will be used at the jobsite to prevent spills. These may include engineered or manufactured techniques such as installation of berms around fuel and oil tanks; storage of fuels, paints and other substances in spill proof containers; and management techniques such as requiring workers to handle material in certain ways.

   (2) Notification: Most States and the EPA require by regulation that anyone who spills certain types of pollutants in certain quantities notify them of the spill within a specific time period. Some of these agencies require written follow up reports and cleanup reports. Include in the Plan the types of spills for which notification would be made, the agencies notified, the information the agency requires during the notification and the telephone numbers for notification.

   (3) Employee Awareness Training: Describe employee awareness training procedures that will be implemented to ensure personnel are knowledgeable about the contents of the Plan and the need for notification.

   (4) Commitment of Manpower: Equipment and Material. Identify the arrangements made to respond to spills, including the commitment of manpower, equipment and material.

   (5) If applicable, address all requirements of 40 C.F.R. Part 112 pertaining to Spill Prevention, Control and Countermeasures (SPCC) Plans.

3. TANKER OIL SPILL PREVENTION AND RESPONSE PLAN: Provide a Tanker Oil Spill Prevention and Response Plan as required by the Department of Transportation if oil tankers with volume of 3,500-gallons or more are used as part of the project. Submit the Tanker Oil Spill Prevention and Response Plan to the COR and WAPA's Environmental Department for review and comment 14-days prior to start of work. Review of the Plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State and local regulations.

SECTION 13.12 – PESTICIDES

1. GENERAL: The term "pesticide" includes herbicides, insecticides, rodenticides and fungicides. Pesticides must only be used in accordance with their labeling and applied by appropriately certified applicators.

2. EPA REGISTRATION: Use only EPA-registered pesticides that are approved for the intended use and location. Follow all applicable label directions.

3. PESTICIDE USE PROPOSAL: Provide a pesticide use proposal that contains: 1) pesticide(s) proposed (include mixtures and surfactants), 2) treatment site, 3) intended rate of application, 4) a copy of labels and Safety Data Sheets and 5) a copy of required applicator certifications. Submit the pesticide use proposal to the COR and WAPA's Environmental Department for review and comment 14-days prior to the date of intended application. Review of the Plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State and local regulations. Within seven (7)-days after application, submit a written final report to the COR and WAPA's Environmental Department, including the pesticide applicators report, in accordance with Standard 2 – Sitework, Section 2.1.1 5. "Soil-Applied Herbicide, (4) Final Report".

SECTION 13.13 – TREATED WOOD UTILITY POLES AND CROSSARMS RECYCLING OR DISPOSAL

Whenever practicable, treated wood utility poles and crossarms removed during the project must be recycled or transferred to the public for some uses. Treated wood utility poles and crossarms transferred to a recycler, landfill or the public must be accompanied by a written consumer information sheet for treated wood as provided by WAPA. Obtain a receipt, part of the consumer information sheet, from the recipient indicating that they have received, read and understand the consumer information sheet. Treated wood products transferred to right-of-way landowners must be moved off the right-of-way. Treated wood product scrap, poles and crossarms that cannot be donated or reused must be properly disposed in a landfill that accepts treated wood and has signed WAPA's consumer information sheet receipt. Submit treated wood utility poles and crossarms consumer information receipts to the COR and WAPA's Environmental Department prior to submittal of final invoice.

SECTION 13.14 – PREVENTION OF AIR POLLUTION

1. GENERAL: Ensure that construction activities and the operation of equipment are undertaken to reduce the emission of air pollutants. Submit a copy of permits for construction activities, if required (e.g., "non-attainment" areas, State implementation plans or Class I air-sheds), from Federal, State or local agencies to the COR and WAPA's Environmental Department 14-days prior to the start of work. The Contractor must fulfill the conditions under any applicable locally prepared Environmental Impact Statements (EISs) or Environmental Assessments (EAs) conducted for the project under the National Environmental Protection Act (NEPA).

2. MACHINERY AIR EMISSIONS: The Contractor and subcontractor machinery must have and must use the air emissions control devices required by Federal, State or local Regulation or ordinance.

3. DUST ABATEMENT: Dust must be controlled. Oil must not be used as a dust suppressant. Dust suppressants must be approved by the COR and WAPA's Environmental Department prior to use.

4. SULFUR HEXAFLUORIDE (SF_6)/PERFLUOROCARBONS (PFCs) EMISSIONS:

   (1) General: WAPA complies with State, Federal and local regulations regarding Mandatory Greenhouse Gas Reporting 40 C.F.R. Part 98. The Contractor must provide the information required by this section to the COR and WAPA's Environmental Department as described. Additional requirements may be required for projects in the State of California. The Contractor must meet the additional requirements and provide any additional information as required by the State of California to the COR and WAPA's Environmental Department as described in Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 3.1 (17 CCR § 95350 – 95359.1).

   (2) The Contractor must record quantities of all covered insulating gases (e.g., SF_6 gas and other PFCs), including:

      1) Nameplate capacity in pounds of the covered insulating gas containing equipment.

      2) Record pounds of the covered insulating gas stored in containers, before transferring into energized equipment. Record the serial numbers of the cylinders/containers from which the gas is transferred.

      3) Record pounds of the covered insulating gas left in containers, after transferring into energized equipment. Record the serial numbers of the cylinders/containers from which the gas is transferred.

      4) Pounds of covered insulating gas purchased from equipment manufacturers or distributors. Record the serial numbers of the purchased cylinders/containers.

      5) Pounds of covered insulating gas returned to suppliers. Record the serial numbers of the returned cylinders/containers.

      6) Scales used to weigh cylinders must be accurate to within ±2-pounds and must have current calibration sticker.

   (3) Contractor Field Quality Testing and Covered Insulating Gas Handling:

      1) The Contractor must test all functions to verify correct operation and conduct a leak test. No gas leakage of covered insulating gases must be allowed from any equipment or storage containers.

2) Atmospheric venting of covered insulating gas is not allowed.

3) The Contractor must use cylinders with a current certified hydrostatic test certificate.

4) The Contractor must remove all empty covered insulating gas cylinders and return to supplier.

(4) Certificates of Disposal and Receipts for Covered Insulating Gas:

1) The Contractor can use WAPA's Reporting Form for reporting quantities listed above.

2) The Contractor must return all used covered insulating gas cylinders to supplier and provide receipts from the supplier.

3) The Contractor must submit all covered insulating gas Reporting Forms and copies of receipts to the COR and to WAPA's Environmental Department prior to submittal of final invoice.

5. PROTECTION OF STRATOSPHERIC OZONE: The Contractor must comply with all State, Federal and local regulations regarding ozone depleting substances and the Protection of Stratospheric Ozone, including, but not limited to 40 C.F.R. Part 82. Contractors performing work on HVAC systems must be trained and certified according to the regulations, and releases of ozone depleting substances to the atmosphere must be prevented. The Contractor must provide reclaimed refrigerant receipts to the COR and WAPA's Environmental Department in accordance with section 13.2.3 of this document.

SECTION 13.15 – HANDLING AND MANAGEMENT OF ASBESTOS CONTAINING MATERIAL

1. GENERAL: Obtain the appropriate Federal, State, Tribal or local licenses or certifications prior to disturbing any regulated asbestos-containing material. If a building or portion of a building will be demolished or renovated, obtain an Asbestos Notice of and Permit for Demolition and Renovation from the State or Tribal Department of Environmental Quality, Division of Air Quality (or equivalent). The building(s) must be inspected by a State-Certified or Tribal accepted Asbestos Building Inspector. The inspector must certify the presence and condition of asbestos, or non-presence of asbestos, on site as directed on the State or Tribal Demolition and Renovation Notice/Permit. The inspections must be performed and notifications must be submitted whether asbestos is present or not. Submit a copy of licenses, certifications, Demolition and Renovation Notifications and Permits for asbestos work to the COR and WAPA's Environmental Department 14- days prior to work. Ensure: 1) worker and public safety requirements are fully implemented and 2) proper handling, transportation and disposal of asbestos containing material.

2. TRANSPORTATION OF ASBESTOS WASTE: Comply with Department of Transportation, EPA, and State and local requirements when transporting asbestos wastes.

3. CERTIFICATES OF DISPOSAL AND RECEIPTS: Obtain certificates of disposal for waste if the waste is a hazardous waste or receipts from a landfill approved to accept asbestos if the waste is a non-hazardous waste. Submit copies to the COR and WAPA's Environmental Department prior to submittal of final invoice.

SECTION 13.16 – MATERIAL WITH LEAD-BASED PAINT

1. GENERAL: Comply with all applicable Federal, State and local regulations concerning work with lead-based paint, disposal of material painted with lead-based paint and management of these materials. OSHA and General Industry Standards apply to worker safety and right-to-know issues. Federal EPA and State agencies regulate waste disposal and air quality issues.

2. TRANSFER OF PROPERTY: If lead-based paint containing equipment or material is to be given away or sold for reuse, scrap or reclaiming, the Contractor must provide a written notice to the recipient of the material stating that the material contains lead-based paint and the Hazardous Waste regulations may apply to the waste or the paint in some circumstances. The new owner must also be notified that they may be responsible for compliance with OSHA requirements if the material is to be cut, sanded, abraded or stripped of paint. Submit a copy of lead paint notices with the Contractor and recipient signatures to the COR and WAPA's Environmental Department prior to submittal of final invoice.

3. CERTIFICATES OF DISPOSAL AND RECEIPTS: Obtain certificates of disposal for waste if the waste is a hazardous waste or receipts from a landfill if the waste is a non-hazardous waste. Submit copies to the COR and WAPA's Environmental Department prior to submittal of final invoice.

SECTION 13.17 – PREVENTION OF WATER POLLUTION

1. GENERAL: Ensure that surface and groundwater is protected from pollution caused by construction activities and comply with applicable regulations and requirements. Ensure that streams, waterways and other courses are not obstructed or impaired unless the appropriate Federal, State or local permits have been obtained.

2. PERMITS: The Contractor must ensure that:

   (1) A National Pollutant Discharge Elimination System (NPDES) permit is obtained from the US EPA or State as appropriate if the disturbed construction area equals 1-acre or more. The Contractor is responsible for preparation and implementation of the associated Storm Water Pollution Prevention Plan (SWPPP). Disturbed areas include staging, parking, fueling, stockpiling and any other construction related activities. Refer to https://www.epa.gov/npdes/npdes-stormwater-program for directions and forms.

   (2) A dewatering permit is obtained from the appropriate agency if required for construction dewatering activities.

   (3) Copies of permits and plans, approved by the appropriate regulating agencies, are submitted to the COR and WAPA's Environmental Department 14-days prior to start of work.

3. EXCAVATED MATERIAL AND OTHER CONTAMINANT SOURCES: Control runoff from excavated areas and piles of excavated material, construction material or wastes (to include truck washing and concrete wastes) and chemical products such as oil, grease, solvents, fuels, pesticides and pole treatment compounds. Excavated material or other construction material must not be stockpiled or deposited near or on streambanks, lake shorelines, ditches, irrigation canals or other areas where run-off could impact the environment.

4. MANAGEMENT OF WASTE CONCRETE OR WASHING OF CONCRETE TRUCKS: Do not permit the washing of concrete trucks or disposal of excess concrete in any ditch, canal, stream or other surface water. Concrete wastes must be disposed in accordance with all Federal, State and local regulations. Concrete wastes must not be disposed of on any WAPA property, right-of-way easement or on any streets, roads or property without the owner's consent.

5. STREAM CROSSINGS: Crossing of any stream or other waterway must be done in compliance with Federal, State and local regulations. Crossing of some waterways may be prohibited by landowners, Federal or State agencies or require permits.

SECTION 13.18 – TESTING, DRAINING, REMOVAL AND DISPOSAL OF OIL-FILLED ELECTRICAL EQUIPMENT

1. SAMPLING AND TESTING OF INSULATING OIL FOR PCB CONTENT: Sample and analyze the oil of electrical equipment (which includes storage tanks) for PCB's. Use analytical methods approved by EPA and applicable State regulations. Decontaminate sampling equipment according to documented good laboratory practices (these can be Contractor developed or EPA standards). Use only laboratories approved by WAPA. The COR will furnish a list of approved laboratories.

2. PCB TEST REPORT: Provide PCB test reports that contain the information below for disposing of oil-filled electrical equipment. Submit the PCB test report for COR and WAPA's Environmental Department approval prior to draining, removal or disposal of oil or oil-filled equipment that is designated for disposal.

   (1) Name and address of the laboratory.

   (2) Copies of Chain of Custody Form(s).

   (3) Description of the electrical equipment (e.g. transformer, breaker).

   (4) Serial number for the electrical equipment.

   (5) Date sampled.

   (6) Date tested.

   (7) PCB contents in parts per million (ppm) by Aroclor type.

   (8) Unique identification number of container into which the oil was drained (i.e., number of drum, tank, tanker, etc.)

3. OIL CONTAINING PCB: Comply with the Federal regulations pertaining to PCBs found at Title 40, Part 761 of the U.S. Code of Federal Regulations (40 C.F.R. Part 761).

4. REMOVAL AND DISPOSAL OF INSULATING OIL AND OIL-FILLED ELECTRICAL EQUIPMENT: Once the PCB content of the oil has been identified from laboratory results, the oil must be transported and disposed, recycled or reprocessed according to 40 C.F.R. Part 761 (if applicable), Resource Conservation and Recovery Act (RCRA) "used oil" and other applicable regulations. Used oil may be transported only by EPA-registered used oil transporters. The oil must be stored in containers that are labeled "Used Oil." Use only transporters and disposal sites approved by WAPA.

5. OIL AND OIL-FILLED ELECTRICAL EQUIPMENT RECEIPT: Obtain and submit a receipt for oil and oil-filled equipment transported and disposed, recycled or reprocessed to the COR and WAPA's Environmental Department prior to submittal of final invoice.

SECTION 13.19 – REMOVAL OF OIL-CONTAMINATED MATERIAL

1. GENERAL: Removing oil-contaminated material includes excavating, stockpiling, testing, transporting, cleaning and disposing of these materials. Personnel working with PCBs must be trained in accordance with OSHA requirements. Submit employee training documentation records to the COR and WAPA's Environmental Department 14-days prior to the start of work.

2. CLEANUP WORK MANAGEMENT PLAN: Provide a Cleanup Work Management Plan that has been approved by applicable Federal, State or local environmental regulation agencies. Submit the plan to the COR and WAPA's Environmental Department for review and comment 14-days prior to the start of work. Review of the Plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State and local regulations. The plan must address onsite excavation of contaminated soil and debris and include the following:

   (1) Identification of contaminants and areas to be excavated.
   (2) Method of excavation.
   (3) Level of personnel/subcontractor training.
   (4) Safety and health provisions.
   (5) Sampling requirements including quality control, laboratory to be used.
   (6) Management of excavated soils and debris.
   (7) Decontamination procedures for personnel and equipment.
   (8) Disposal methods, including transportation to disposal.

3. EXCAVATION AND CLEANUP: Comply with the requirements of Title 40, Part 761 of the U.S. Code of Federal Regulations (40 C.F.R. Part 761).

4. TEMPORARY STOCKPILING: Excavated material, stockpiled onsite during construction, must be stored on plastic with appropriate thickness and covered to prevent wind and rain erosion at a location designated by the COR.

5. SAMPLING AND TESTING: Sample contaminated debris and areas of excavation to ensure that contamination is removed. Use personnel with experience in sampling and, in particular, with experience in PCB cleanup if PCBs are involved. Use analytical methods approved by EPA and applicable State regulations.

6. TRANSPORTATION AND DISPOSAL OF CONTAMINATED MATERIAL: The Contractor must be responsible and liable for the proper loading, transportation and disposal of contaminated material according to Federal, State and local requirements. Use only transporters and disposal sites approved by WAPA.

7. POST CLEANUP REPORT: Provide a Post-Cleanup Report that describes the cleanup of contaminated soils and debris. Submit the report to the COR and WAPA's Environmental Department prior to submittal of final invoice. The report must contain the following information:

   (1) Site map showing the areas cleaned.

   (2) Description of the operations involved in excavating, storing, sampling, testing and disposal.

   (3) Sampling and analysis results including 1) Name and address of the laboratory, 2) sample locations, 3) sample dates, 4) analysis dates, 5) contents of contaminant (e.g. PCB or total petroleum hydrocarbons) in ppm.

   (4) Certification by the Contractor that the cleanup requirements were met.

(5) Copies of any manifests, bills of lading and disposal certificates.

(6) Copies of correspondence with regulatory agencies that support completion of the cleanup.

SECTION 13.20 – CONSERVATION OF BIOLOGICAL RESOURCES

1. GENERAL: The Endangered Species Act of 1973 prohibits "take" of threatened or endangered animal and plant species, as well as destruction of designated critical habitat. "Take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or attempt to engage in any such conduct with a protected animal or plant or any part thereof, or attempt to do any of those things without a permit from the U.S. Fish and Wildlife Service. Federal law also prohibits "take" of birds or collection of bird parts or nests protected by the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. Contractor and subcontractor personnel will take precautions to avoid harming animals and plants, restricting all ground disturbing activities to areas specified in accordance with Standard 1 – General Requirements, Sections 1.3.1 Rights-Of-Way and 1.3.2 Access to the Work and Haul Routes.

2. MIGRATORY BIRDS: The Migratory Bird Treaty Act of 1918 protects migratory bird species, their nests and eggs from injury or death. Impacts to migratory bird nests will be avoided during nesting season(s) identified in Division 13 of the Project Specifications. If construction activities occur during nesting, WAPA will survey the construction area for active migratory bird nests prior to work and will establish appropriate buffers around any nests that may potentially be disturbed. If work must be conducted within these buffers, the COR may choose to delay work until the nest is no longer active or utilize a provision within WAPA's Special Purpose Utility permit.

3. BALD AND GOLDEN EAGLES: The Bald and Golden Eagle Protection Act of 1940 protects bald and golden eagles from take and collection. In addition, eagle nests are protected by specific buffer distances that will be identified in Division 13 of the Project Specifications. Unlike the Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act even protects nests of eagles while they are inactive.

4. KNOWN OCCURRENCE OF PROTECTED SPECIES OR HABITAT: Following issuance of the Notice to Proceed and prior to the start of construction, WAPA will provide information on presence and distribution, as well as avoidance and minimization information, for relevant protected species and habitat. Non-trained personnel will not be allowed in the construction area. Marked avoidance areas will be maintained throughout the duration of work until the COR approves their removal. If access within an avoidance area is absolutely necessary, Contractor and subcontractor personnel must first obtain written permission from the COR before any work is performed within the avoidance area. NOTE: a WAPA and other Federal or State government or tribal agency biologist may be required to accompany Contractor or subcontractor personnel.

5. UNKNOWN OCCURRENCE OF PROTECTED SPECIES OR HABITAT: On rare occasion, an unknown protected species or habitat may be discovered during the project. When evidence of a protected species or habitat is discovered within the project area, Contractor and subcontractor personnel will immediately notify the COR and provide the location and nature of the findings. The Contractor and subcontractor personnel will immediately stop all activity within 100-feet of the protected species or habitat and will not re-start activity until directed to do so by the COR.

6. SPECIAL CONSIDERATIONS: Refer to Division 13 of the Project Specifications for site-specific requirements including, but not limited to, protected species, habitats, migratory birds and eagles.

APPENDIX C
Air Emissions Inventory

Western Area Power Administration
MPP-Q01 Interconnection Project
DOE-EA-2208

Project Emissions Summary												
	PM_{10}		$PM_{2.5}$		SO_2		NOx		CO		VOC	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Fugitives	33.24	31.81	4.84	3.94	0.08	0.062	13.35	10.01	98.10	82.53	5.55	4.42
Total	**33.24**	**31.81**	**4.84**	**3.94**	**0.08**	**0.062**	**13.35**	**10.01**	**98.10**	**82.53**	**5.55**	**4.42**

Hazardous Air Pollutants (HAPs)

Pollutants	Emissions ton/yr
Benzene	0.0391
Toluene	0.01701
Xylenes	0.01185
Formaldehyde	0.04730
Actealdehyde	0.030685
Acrolein	0.003712
Naphthalene	0.00370
Total	**0.1534**

Green House Gases (GHGs)

Pollutants	Emissions	
	lb/yr	ton/yr
CO_2	29,761,724	14,881
Total Annual GHG	29,761,724	14,881
Total CO_2 equivalent (metric tons)		**13,500**

Air Pollution Emission Inventory
Master List of All Sources and Pollutants

Emission Unit Description	**Pollutants**
Emission Sources	
Light Plant	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Generator	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Auxillary Air Compressor	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
4x4 Backhoe or Excavator	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Steel Track Sagging Dozer	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Front End Loader (CAT 980 or similar)	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Drill Rig	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Digger Derrick	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Bucket Trucks, Ranging from 55’ to 105’	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
38T – 45T Boom Truck	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Rough Terrain Crane (size may range from 65T to 150T)	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
All Terrain Crane (size may range from 120T to 240T)	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Water Truck	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Skid Steer	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Rubber Track CAT Challenger	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Service Truck	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
1T Pickup	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
1T – 2T Flatbed Trucks	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Semi Tractors, 4x4 or 6x6	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Concrete Truck	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Fuel Truck (for helicopter)	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
1/2T Pickup	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
3/4T Pickup	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Helicopter (for stringing rope)	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2

Western Area Power Administration
MPP-Q01 Interconnection Project
DOE/EA-2208

Project Information and Assumptions			
Factor	**Value**	**Units**	**Source**
Silt content of road surface material (s) - Project Roads	4.30	%	AP-42, Table 11.9-3
Surface material moisture content (M) - Project Roads	2.4	%	AP-42, Table 11.9-4
Vehicle Speed in Project Area	25	mph	Arizona Public Service
Sulfur Content of fuel Burned (S) - Diesel	0.0015	%	EPA Limits S content to 15 ppm starting (7/2010)
Diesel Fuel Heating Value	137,000	Btu/gal	AP-42, Appendix A
Diesel Brake-Specific Fuel Value	7,000	Btu/hp-hr	Ap-42 default for diesel engines
Diesel Fuel Density	7.09	lbs/gal	
Gasoline Fuel Heating Value	116,090	Btu/gal	AP-42, Appendix A
Gasoline Brake-Specific Fuel Value	7,000	Btu/hp-hr	Ap-42 default for gasoline engines
Gasoline Fuel Density	6.07	lbs/gal	
Number of drill holes	66	holes /yr	Arizona Public Service
One Way Distance to Water Source	10.0	miles	Arizona Public Service
One Way Distance on Dirt to Project Site	7.5	miles	Arizona Public Service
Emission Unit Specific Information			
Emission Sources			
Light Plant			
Availability of Individual Units	20%		Arizona Public Service
Utilization of Individual Units	50%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	1.2	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	300	hours/year	Arizona Public Service
Hourly Fuel Consumption	1.5	gal/hour	Arizona Public Service
Annual Fuel Consumption	456	gal/year	Calc. - hours/year * gal/hour
Horsepower	30	hp	Arizona Public Service
No. Units	4	Unit	Arizona Public Service
Generator			
Availability of Individual Units	80%		Arizona Public Service
Utilization of Individual Units	80%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	7.7	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	1,920	hours/year	Arizona Public Service
Hourly Fuel Consumption	3.8	gal/hour	Arizona Public Service
Annual Fuel Consumption	7,296	gal/year	Calc. - hours/year * gal/hour
Horsepower	75	hp	Arizona Public Service
No. Units	2	Unit	Arizona Public Service

Auxillary Air Compressor			
Availability of Individual Units	40%		Arizona Public Service
Utilization of Individual Units	50%		Arizona Public Service
Maximum Daily Hours of Operation	10	hours/day	Arizona Public Service
Actual Daily Hours of Operation	2.0	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	500	hours/year	Arizona Public Service
Hourly Fuel Consumption	3.0	gal/hour	Arizona Public Service
Annual Fuel Consumption	1,520	gal/year	Calc. - hours/year * gal/hour
Horsepower	60	hp	Arizona Public Service
No. Units	2	Unit	Arizona Public Service
4x4 Backhoe or Excavator			
Availability of Individual Units	90%		Arizona Public Service
Utilization of Individual Units	50%		Arizona Public Service
Maximum Daily Hours of Operation	10	hours/day	Arizona Public Service
Actual Daily Hours of Operation	4.5	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	1,125	hours/year	Arizona Public Service
Hourly Fuel Consumption	4.9	gal/hour	Arizona Public Service
Annual Fuel Consumption	5,513	gal/year	Calc. - hours/year * gal/hour
Horsepower	97	hp	Arizona Public Service
No. Units	3	Unit	Arizona Public Service
Steel Track Sagging Dozer			
Availability of Individual Units	65%		Arizona Public Service
Utilization of Individual Units	50%		Arizona Public Service
Maximum Daily Hours of Operation	8	hours/day	Arizona Public Service
Actual Daily Hours of Operation	2.6	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	650	hours/year	Arizona Public Service
Hourly Fuel Consumption	7.9	gal/hour	Arizona Public Service
Annual Fuel Consumption	5,109	gal/year	Calc. - hours/year * gal/hour
Horsepower	155	hp	Arizona Public Service
No. Units	2	Unit	Arizona Public Service

Front End Loader (CAT 980 or similar)			
Availability of Individual Units	90%		Arizona Public Service
Utilization of Individual Units	50%		Arizona Public Service
Maximum Daily Hours of Operation	8	hours/day	Arizona Public Service
Actual Daily Hours of Operation	3.6	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	900	hours/year	Arizona Public Service
Hourly Fuel Consumption	20.9	gal/hour	Arizona Public Service
Annual Fuel Consumption	18,810	gal/year	Calc. - hours/year * gal/hour
Horsepower	412	hp	Arizona Public Service
No. Units	1	Unit	Arizona Public Service
Drill Rig			
Availability of Individual Units	60%		Arizona Public Service
Utilization of Individual Units	80%		Arizona Public Service
Maximum Daily Hours of Operation	10	hours/day	Arizona Public Service
Actual Daily Hours of Operation	4.8	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	1,200	hours/year	Arizona Public Service
Hourly Fuel Consumption	22.8	gal/hour	Arizona Public Service
Annual Fuel Consumption	27,396	gal/year	Calc. - hours/year * gal/hour
Horsepower	450	hp	Arizona Public Service
No. Units	2	Unit	Arizona Public Service
Digger Derrick			
Availability of Individual Units	90%		Arizona Public Service
Utilization of Individual Units	80%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	8.6	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	2,160	hours/year	Arizona Public Service
Hourly Fuel Consumption	17.8	gal/hour	Arizona Public Service
Annual Fuel Consumption	38,340	gal/year	Calc. - hours/year * gal/hour
Horsepower	350	hp	Arizona Public Service
No. Units	2	Unit	Arizona Public Service

Bucket Trucks, Ranging from 55' to 105'			
Availability of Individual Units	90%		Arizona Public Service
Utilization of Individual Units	80%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	8.6	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	2,160	hours/year	Arizona Public Service
Hourly Fuel Consumption	17.8	gal/hour	Arizona Public Service
Annual Fuel Consumption	38,340	gal/year	Calc. - hours/year * gal/hour
Horsepower	350	hp	Arizona Public Service
No. Units	2	Unit	Arizona Public Service

38T – 45T Boom Truck			
Availability of Individual Units	90%		Arizona Public Service
Utilization of Individual Units	80%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	8.6	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	2,160	hours/year	Arizona Public Service
Hourly Fuel Consumption	19.3	gal/hour	Arizona Public Service
Annual Fuel Consumption	41,645	gal/year	Calc. - hours/year * gal/hour
Horsepower	380	hp	Arizona Public Service
No. Units	3	Unit	Arizona Public Service

Rough Terrain Crane (size may range from 65T to 150T)			
Availability of Individual Units	60%		Arizona Public Service
Utilization of Individual Units	90%		Arizona Public Service
Maximum Daily Hours of Operation	10	hours/day	Arizona Public Service
Actual Daily Hours of Operation	5.4	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	1,350	hours/year	Arizona Public Service
Hourly Fuel Consumption	16.2	gal/hour	Arizona Public Service
Annual Fuel Consumption	21,911	gal/year	Calc. - hours/year * gal/hour
Horsepower	320	hp	Arizona Public Service
No. Units	1	Unit	Arizona Public Service

All Terrain Crane (size may range from 120T to 240T)			
Availability of Individual Units	60%		Arizona Public Service
Utilization of Individual Units	80%		Arizona Public Service
Maximum Daily Hours of Operation	10	hours/day	Arizona Public Service
Actual Daily Hours of Operation	4.8	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	1,200	hours/year	Arizona Public Service
Hourly Fuel Consumption	28.7	gal/hour	Arizona Public Service
Annual Fuel Consumption	34,392	gal/year	Calc. - hours/year * gal/hour
Horsepower	565	hp	Arizona Public Service
No. Units	1	Unit	Arizona Public Service

Water Truck			
Availability of Individual Units	90%		Arizona Public Service
Utilization of Individual Units	80%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	8.6	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	2,160	hours/year	Arizona Public Service
Hourly Fuel Consumption	21.6	gal/hour	Arizona Public Service
Annual Fuel Consumption	46,570	gal/year	Calc. - hours/year * gal/hour
Horsepower	425	hp	Arizona Public Service
No. Units	2	Unit	Arizona Public Service

Skid Steer			
Availability of Individual Units	60%		Arizona Public Service
Utilization of Individual Units	50%		Arizona Public Service
Maximum Daily Hours of Operation	8	hours/day	Arizona Public Service
Actual Daily Hours of Operation	2.4	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	600	hours/year	Arizona Public Service
Hourly Fuel Consumption	19.0	gal/hour	Arizona Public Service
Annual Fuel Consumption	11,412	gal/year	Calc. - hours/year * gal/hour
Horsepower	375	hp	Arizona Public Service
No. Units	1	Unit	Arizona Public Service

Rubber Track CAT Challenger			
Availability of Individual Units	65%		Arizona Public Service
Utilization of Individual Units	50%		Arizona Public Service
Maximum Daily Hours of Operation	10	hours/day	Arizona Public Service
Actual Daily Hours of Operation	3.3	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	813	hours/year	Arizona Public Service
Hourly Fuel Consumption	13.7	gal/hour	Arizona Public Service
Annual Fuel Consumption	11,131	gal/year	Calc. - hours/year * gal/hour
Horsepower	270	hp	Arizona Public Service
No. Units	1	Unit	Arizona Public Service

Service Truck			
Availability of Individual Units	90%		Arizona Public Service
Utilization of Individual Units	80%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	8.6	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	2,160	hours/year	Arizona Public Service
Hourly Fuel Consumption	5.0	gal/hour	Arizona Public Service
Annual Fuel Consumption	10,800	gal/year	Calc. - hours/year * gal/hour
Horsepower	300	hp	Arizona Public Service
No. Units	2	Unit	Arizona Public Service

1T Pickup			
Availability of Individual Units	100%		Arizona Public Service
Utilization of Individual Units	80%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	9.6	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	2,400	hours/year	Arizona Public Service
Hourly Fuel Consumption	17.8	gal/hour	Arizona Public Service
Annual Fuel Consumption	42,600	gal/year	Calc. - hours/year * gal/hour
Horsepower	350	hp	Arizona Public Service
No. Units	2	Unit	Arizona Public Service

1T – 2T Flatbed Trucks			
Availability of Individual Units	100%		Arizona Public Service
Utilization of Individual Units	80%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	9.6	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	2,400	hours/year	Arizona Public Service
Hourly Fuel Consumption	17.8	gal/hour	Arizona Public Service
Annual Fuel Consumption	42,600	gal/year	Calc. - hours/year * gal/hour
Horsepower	350	hp	Arizona Public Service
No. Units	2	Unit	Arizona Public Service

Semi Tractors, 4x4 or 6x6			
Availability of Individual Units	100%		Arizona Public Service
Utilization of Individual Units	60%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	7.2	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	1,800	hours/year	Arizona Public Service
Hourly Fuel Consumption	21.6	gal/hour	Arizona Public Service
Annual Fuel Consumption	38,808	gal/year	Calc. - hours/year * gal/hour
Horsepower	425	hp	Arizona Public Service
No. Units	2	Unit	Arizona Public Service

Concrete Truck			
Availability of Individual Units	40%		Arizona Public Service
Utilization of Individual Units	100%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	4.8	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	1,200	hours/year	Arizona Public Service
Hourly Fuel Consumption	21.6	gal/hour	Arizona Public Service
Annual Fuel Consumption	25,872	gal/year	Calc. - hours/year * gal/hour
Horsepower	425	hp	Arizona Public Service
No. Units	4	Unit	Arizona Public Service

Fuel Truck (for helicopter)			
Availability of Individual Units	60%		Arizona Public Service
Utilization of Individual Units	100%		Arizona Public Service
Maximum Daily Hours of Operation	8	hours/day	Arizona Public Service
Actual Daily Hours of Operation	4.8	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	1,200	hours/year	Arizona Public Service
Hourly Fuel Consumption	15.2	gal/hour	Arizona Public Service
Annual Fuel Consumption	18,264	gal/year	Calc. - hours/year * gal/hour
Horsepower	300	hp	Arizona Public Service
No. Units	1	Unit	Arizona Public Service

1/2T Pickup			
Availability of Individual Units	100%		Arizona Public Service
Utilization of Individual Units	80%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	9.6	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	2,400	hours/year	Arizona Public Service
Hourly Fuel Consumption	19.6	gal/hour	Arizona Public Service
Annual Fuel Consumption	47,040	gal/year	Calc. - hours/year * gal/hour
Horsepower	350	hp	Arizona Public Service
No. Units	3	Unit	Arizona Public Service

3/4T Pickup			
Availability of Individual Units	100%		Arizona Public Service
Utilization of Individual Units	80%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	9.6	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	2,400	hours/year	Arizona Public Service
Hourly Fuel Consumption	19.6	gal/hour	Arizona Public Service
Annual Fuel Consumption	47,040	gal/year	Calc. - hours/year * gal/hour
Horsepower	350	hp	Arizona Public Service
No. Units	4	Unit	Arizona Public Service

Helicopter (for stringing rope)			
Availability of Individual Units	60%		Arizona Public Service
Utilization of Individual Units	60%		Arizona Public Service
Maximum Daily Hours of Operation	8	hours/day	Arizona Public Service
Actual Daily Hours of Operation	2.9	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	720	hours/year	Arizona Public Service
Hourly Fuel Consumption	49.4	gal/hour	Arizona Public Service
Annual Fuel Consumption	35,539	gal/year	Calc. - hours/year * gal/hour
Horsepower	952	hp	Arizona Public Service
No. Units	1	Unit	Arizona Public Service

Emission Sources

Emission Factors Source: Tier 4 EPA Emission Factors and EPA Nonroad Engine Emission limits
**Diesel Emission Factors (EFs) from Table 3.3-1 of AP-42 for Gasoline (<250 HP) and Diesel Ind. Eng. (<600 HP)*
**Diesel Emission Factors (EFs) from Table 3.4-1 of AP-42 for large Ind. Eng. (>600 HP)*

Emission Unit	***Rating (hp)***	***Emission Factors (g/hp-hr)***				
		PM	**SO_2***	**NOx**	**CO**	**VOC***
4x4 Backhoe or Excavator	97	0.02	0.002	0.30	3.70	0.14
Steel Track Sagging Dozer	155	0.02	0.002	0.30	3.70	0.14
Front End Loader (CAT 980 or similar)	412	0.02	0.002	0.30	3.70	0.14
Drill Rig	450	0.02	0.002	0.30	3.70	0.14
Digger Derrick	350	0.02	0.002	0.30	3.70	0.14
Bucket Trucks, Ranging from 55’ to 105’	350	0.02	0.002	0.30	2.60	0.14
38T – 45T Boom Truck	380	0.02	0.002	0.30	3.70	0.14
Rough Terrain Crane (size may range from 65T to 150T)	320	0.02	0.002	0.30	3.70	0.14
All Terrain Crane (size may range from 120T to 240T)	565	0.02	0.002	0.30	2.60	0.14
Water Truck	425	0.02	0.002	0.30	2.60	0.14
Skid Steer	375	0.02	0.002	0.30	2.60	0.14
Rubber Track CAT Challenger	270	0.02	0.002	0.30	2.60	0.14
Service Truck	300	0.02	0.002	0.30	2.60	0.14
1T Pickup	350	0.02	0.002	0.30	2.60	0.14
1T – 2T Flatbed Trucks	350	0.02	0.002	0.30	2.60	0.14
Semi Tractors, 4x4 or 6x6	425	0.02	0.002	0.30	2.60	0.14
Concrete Truck	425	0.02	0.002	0.30	2.60	0.14
Fuel Truck (for helicopter)	300	0.02	0.002	0.30	2.60	0.14
1/2T Pickup	350	0.02	0.002	0.30	2.60	0.14
3/4T Pickup	350	0.02	0.002	0.30	2.60	0.14
Helicopter (for stringing rope)	952	0.02	0.006	0.30	2.60	0.14
Light Plant	30	0.22	0.002	5.60	4.10	1.14
Generator	75	0.22	0.002	3.50	3.70	1.14
Auxillary Air Compressor	60	0.22	0.002	3.50	3.70	1.14

Emission Unit	***Operational Hours (hr/yr)***	***Fuel Usage (gal/hr)***	***Number of Units***	**Fuel Based Output (hp-hr/yr)**
4x4 Backhoe or Excavator	1,125	5	3	323,663
Steel Track Sagging Dozer	650	8	2	199,981
Front End Loader (CAT 980 or similar)	900	21	1	368,139
Drill Rig	1,200	23	2	1,072,358
Digger Derrick	2,160	18	2	1,500,737
Bucket Trucks, Ranging from 55’ to 105’	2,160	18	2	1,500,737
38T – 45T Boom Truck	2,160	19	3	2,445,145
Rough Terrain Crane (size may range from 65T to 150T)	1,350	16	1	428,820
All Terrain Crane (size may range from 120T to 240T)	1,200	29	1	673,101
Water Truck	2,160	22	2	1,822,867
Skid Steer	600	19	1	223,349
Rubber Track CAT Challenger	813	14	1	217,854
Service Truck	2,160	5	2	422,743
1T Pickup	2,400	18	2	1,667,486
1T – 2T Flatbed Trucks	2,400	18	2	1,667,486
Semi Tractors, 4x4 or 6x6	1,800	22	2	1,519,056
Concrete Truck	1,200	22	4	2,025,408
Fuel Truck (for helicopter)	1,200	15	1	357,453
1/2T Pickup	2,400	20	3	2,761,920
3/4T Pickup	2,400	20	4	3,682,560
Helicopter (for stringing rope)	720	49	1	685,399
Light Plant	300	2	4	35,698
Generator	1,920	4	2	285,586
Auxillary Air Compressor	500	3	2	59,497

Emission Unit	***Emissions***									
	PM		**SO_2**		**NOx**		**CO**		**VOC**	
	lb/hr	**ton/yr**	**lb/hr**	**ton/yr**	**lb/hr**	**ton/yr**	**lb/hr**	**ton/yr**	**lb/hr**	**ton/yr**
4x4 Backhoe or Excavator	0.010	0.005	0.001	0.001	0.190	0.107	2.347	1.320	0.089	0.050
Steel Track Sagging Dozer	0.010	0.003	0.001	0.000	0.203	0.066	2.510	0.816	0.095	0.031
Front End Loader (CAT 980 or similar)	0.014	0.006	0.002	0.001	0.271	0.122	3.337	1.501	0.126	0.057
Drill Rig	0.030	0.018	0.004	0.002	0.591	0.355	7.289	4.374	0.276	0.165
Digger Derrick	0.023	0.025	0.003	0.003	0.460	0.496	5.667	6.121	0.214	0.232
Bucket Trucks, Ranging from 55’ to 105’	0.023	0.025	0.003	0.003	0.460	0.496	3.983	4.301	0.214	0.232
38T – 45T Boom Truck	0.037	0.040	0.005	0.006	0.749	0.809	9.234	9.973	0.349	0.377
Rough Terrain Crane (size may range from 65T to 150T)	0.011	0.007	0.001	0.001	0.210	0.142	2.591	1.749	0.098	0.066
All Terrain Crane (size may range from 120T to 240T)	0.019	0.011	0.003	0.002	0.371	0.223	3.215	1.929	0.173	0.104
Water Truck	0.028	0.030	0.004	0.004	0.558	0.603	4.837	5.224	0.260	0.281
Skid Steer	0.012	0.004	0.002	0.001	0.246	0.074	2.134	0.640	0.115	0.034
Rubber Track CAT Challenger	0.009	0.004	0.001	0.000	0.177	0.072	1.537	0.624	0.083	0.034
Service Truck	0.006	0.007	0.001	0.001	0.129	0.140	1.122	1.212	0.060	0.065
1T Pickup	0.023	0.028	0.003	0.004	0.460	0.551	3.983	4.779	0.214	0.257
1T – 2T Flatbed Trucks	0.023	0.028	0.003	0.004	0.460	0.551	3.983	4.779	0.214	0.257
Semi Tractors, 4x4 or 6x6	0.028	0.025	0.004	0.003	0.558	0.502	4.837	4.354	0.260	0.234
Concrete Truck	0.056	0.033	0.008	0.005	1.116	0.670	9.675	5.805	0.521	0.313
Fuel Truck (for helicopter)	0.010	0.006	0.001	0.001	0.197	0.118	1.707	1.024	0.092	0.055
1/2T Pickup	0.038	0.046	0.005	0.006	0.761	0.913	6.596	7.916	0.355	0.426
3/4T Pickup	0.051	0.061	0.007	0.008	1.015	1.218	8.795	10.554	0.474	0.568
Helicopter (for stringing rope)	0.031	0.011	0.013	0.005	0.630	0.227	5.457	1.964	0.294	0.106
Light Plant	0.058	0.009	0.001	0.000	1.469	0.220	1.076	0.161	0.299	0.045
Generator	0.072	0.069	0.001	0.001	1.148	1.102	1.213	1.165	0.374	0.359
Auxillary Air Compressor	0.058	0.014	0.001	0.000	0.918	0.230	0.971	0.243	0.299	0.075
Total	**0.68**	**0.52**	**0.08**	**0.06**	**13.35**	**10.01**	**98.10**	**82.53**	**5.55**	**4.42**

Emission Sources
HAP Emissions
Emission Factors Source: AP-42 (5th Ed.) §3.3, Table 3.3-2, Uncontrolled Diesel Engines, 10/96 (<600 HP)
Emission Factors Source: AP-42 (5th Ed.) §3.4, Table 3.4-3 and 3.4-4, Uncontrolled Diesel Engines, 10/96 (>600 HP)

Emission Unit	***Activity (MMBtu/hr)***
4x4 Backhoe or Excavator	0.67
Steel Track Sagging Dozer	1.08
Front End Loader (CAT 980 or similar)	2.86
Drill Rig	3.13
Digger Derrick	2.43
Bucket Trucks, Ranging from 55’ to 105’	2.43
38T – 45T Boom Truck	2.64
Rough Terrain Crane (size may range from 65T to 150T)	2.22
All Terrain Crane (size may range from 120T to 240T)	3.93
Water Truck	2.95
Skid Steer	2.61
Rubber Track CAT Challenger	1.88
Service Truck	0.69
1T Pickup	2.43
1T – 2T Flatbed Trucks	2.43
Semi Tractors, 4x4 or 6x6	2.95
Concrete Truck	2.95
Fuel Truck (for helicopter)	2.09
1/2T Pickup	2.69
3/4T Pickup	2.69
Helicopter (for stringing rope)	6.76
Light Plant	0.21
Generator	0.52
Auxillary Air Compressor	0.42

	<600 hp	>600 hp
HAP	**Emission Factors (lbs/MMBtu)**	**Emission Factors (lbs/MMBtu)**
Benzene	9.33E-04	7.76E-04
Toluene	4.09E-04	2.81E-04
Xylenes	2.85E-04	1.93E-04
Formaldehyde	1.18E-03	7.89E-05
Acetaldehyde	7.67E-04	2.52E-05
Acrolein	9.25E-05	7.88E-06
Naphthalene	8.48E-05	1.30E-04

Emission Unit	***HAP Emissions***						
	Benzene	**Toluene**	**Xylenes**	**Formaldehyde**	**Acetaldehyde**	**Acrolein**	**Naphthalene**
	ton/yr	**ton/yr**	**ton/yr**	**ton/yr**	**ton/yr**	**ton/yr**	**ton/yr**
4x4 Backhoe or Excavator	3.52E-04	1.54E-04	1.08E-04	4.46E-04	2.90E-04	3.49E-05	3.20E-05
Steel Track Sagging Dozer	3.27E-04	1.43E-04	9.97E-05	4.13E-04	2.68E-04	3.24E-05	2.97E-05
Front End Loader (CAT 980 or similar)	1.20E-03	5.27E-04	3.67E-04	1.52E-03	9.88E-04	1.19E-04	1.09E-04
Drill Rig	1.75E-03	7.68E-04	5.35E-04	2.21E-03	1.44E-03	1.74E-04	1.59E-04
Digger Derrick	2.45E-03	1.07E-03	7.48E-04	3.10E-03	2.01E-03	2.43E-04	2.23E-04
Bucket Trucks, Ranging from 55’ to 105’	2.45E-03	1.07E-03	7.48E-04	3.10E-03	2.01E-03	2.43E-04	2.23E-04
38T – 45T Boom Truck	2.66E-03	1.17E-03	8.13E-04	3.37E-03	2.19E-03	2.64E-04	2.42E-04
Rough Terrain Crane (size may range from 65T to 150T)	1.40E-03	6.14E-04	4.28E-04	1.77E-03	1.15E-03	1.39E-04	1.27E-04
All Terrain Crane (size may range from 120T to 240T)	2.20E-03	9.64E-04	6.71E-04	2.78E-03	1.81E-03	2.18E-04	2.00E-04
Water Truck	2.98E-03	1.30E-03	9.09E-04	3.76E-03	2.45E-03	2.95E-04	2.71E-04
Skid Steer	7.29E-04	3.20E-04	2.23E-04	9.22E-04	6.00E-04	7.23E-05	6.63E-05
Rubber Track CAT Challenger	7.11E-04	3.12E-04	2.17E-04	9.00E-04	5.85E-04	7.05E-05	6.47E-05
Service Truck	6.90E-04	3.03E-04	2.11E-04	8.73E-04	5.67E-04	6.84E-05	6.27E-05
1T Pickup	2.72E-03	1.19E-03	8.32E-04	3.44E-03	2.24E-03	2.70E-04	2.47E-04
1T – 2T Flatbed Trucks	2.72E-03	1.19E-03	8.32E-04	3.44E-03	2.24E-03	2.70E-04	2.47E-04
Semi Tractors, 4x4 or 6x6	2.48E-03	1.09E-03	7.58E-04	3.14E-03	2.04E-03	2.46E-04	2.25E-04
Concrete Truck	1.65E-03	7.25E-04	5.05E-04	2.09E-03	1.36E-03	1.64E-04	1.50E-04
Fuel Truck (for helicopter)	1.17E-03	5.12E-04	3.57E-04	1.48E-03	9.60E-04	1.16E-04	1.06E-04
1/2T Pickup	3.01E-03	1.32E-03	9.18E-04	3.80E-03	2.47E-03	2.98E-04	2.73E-04
3/4T Pickup	3.01E-03	1.32E-03	9.18E-04	3.80E-03	2.47E-03	2.98E-04	2.73E-04
Helicopter (for stringing rope)	1.89E-03	6.84E-04	4.70E-04	1.92E-04	6.13E-05	1.92E-05	3.16E-04
Light Plant	2.91E-05	1.28E-05	8.90E-06	3.69E-05	2.40E-05	2.89E-06	2.65E-06
Generator	4.66E-04	2.04E-04	1.42E-04	5.90E-04	3.83E-04	4.62E-05	4.24E-05
Auxillary Air Compressor	9.71E-05	4.26E-05	2.97E-05	1.23E-04	7.99E-05	9.63E-06	8.83E-06
Total	**3.91E-02**	**1.70E-02**	**1.18E-02**	**4.73E-02**	**3.07E-02**	**3.71E-03**	**3.70E-03**

Emission Sources
GHG Emissions
(Source: Federal Register (2010). Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule, page 25,330 (PDF) (407 pp). IPCC (2006). 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2 (Energy). Intergovernmental Panel on Climate Change, Geneva, Switzerland
Diesel EF_{CO2} *22.44* $lbCO_2/gal$

Emission Unit	**CO_2 Emission Factors (lb/gal)**	**CO_2**	
		lb/yr	**ton/yr**
4x4 Backhoe or Excavator	22.44	3.71E+05	1.86E+02
Steel Track Sagging Dozer	22.44	2.29E+05	1.15E+02
Front End Loader (CAT 980 or simila	22.44	4.22E+05	2.11E+02
Drill Rig	22.44	1.23E+06	6.15E+02
Digger Derrick	22.44	1.72E+06	8.60E+02
Bucket Trucks, Ranging from 55' to	22.44	1.72E+06	8.60E+02
38T – 45T Boom Truck	22.44	2.80E+06	1.40E+03
Rough Terrain Crane (size may rang	22.44	4.92E+05	2.46E+02
All Terrain Crane (size may range fr	22.44	7.72E+05	3.86E+02
Water Truck	22.44	2.09E+06	1.05E+03
Skid Steer	22.44	2.56E+05	1.28E+02
Rubber Track CAT Challenger	22.44	2.50E+05	1.25E+02
Service Truck	22.44	4.85E+05	2.42E+02
1T Pickup	22.44	1.91E+06	9.56E+02
1T – 2T Flatbed Trucks	22.44	1.91E+06	9.56E+02
Semi Tractors, 4x4 or 6x6	22.44	1.74E+06	8.71E+02
Concrete Truck	22.44	2.32E+06	1.16E+03
Fuel Truck (for helicopter)	22.44	4.10E+05	2.05E+02
1/2T Pickup	22.44	3.17E+06	1.58E+03
3/4T Pickup	22.44	4.22E+06	2.11E+03
Helicopter (for stringing rope)	22.44	7.97E+05	3.99E+02
Light Plant	22.44	4.09E+04	2.05E+01
Generator	22.44	3.27E+05	1.64E+02
Auxillary Air Compressor	22.44	6.82E+04	3.41E+01
Total		**2.98E+07**	**1.49E+04**

Drilling Sources - Core Drills

(Emission Factor Source: AP-42 (5th Ed.) Section 11.9, Table 11.9-4 (Overburden Drilling 7/98))

EF_{TSP} =	*1.30*	*lbs/hole*	
EF_{PM10} = 0.52 x EF_{TSP} =	*0.676*	*lbs/hole*	*Assumes TSP/PM10 =2*
$EF_{PM2.5}$ = 0.03 x EF_{TSP} =	*0.039*	lbs/hole	*AP-42 Table 11.9-1 Scaling Factors*
Number of drill holes =	*66*	holes/yr	
Operating Hours =	*4.8*	hours/day	
	250	days/year	
	1,200	hours/year	

Emission Unit	*PM_{10} Emission Factor (lbs/hole)*	*$PM_{2.5}$ Emission Factor (lbs/hole)*	*Holes Drilled (holes/yr)*	*Emission Controls*		PM_{10} Emissions (lbs/hr)	PM_{10} Emissions (tons/yr)	$PM_{2.5}$ Emissions (lbs/hr)	$PM_{2.5}$ Emissions (tons/yr)
				ECF	*Technology*				
Drilling	0.68	0.04	66	80%	Water & Dust Skirting	0.0074	0.0045	0.00043	0.00026

Dozing

(Emission Factors Source: AP-42 (5th Ed.) §11.9, Table 11.9-1: Overburden Dozing, 7/98, footnotes d and e)

EF_{PM10} (lbs/hr) = $0.75 * 1 * (s^{1.5}) / (M^{1.4})$

$EF_{PM2.5}$ (lbs/hr) = $0.105 * 5.7 * (s^{1.2}) / (M^{1.3})$

Where:
s = material silt content (%)
M = material moisture content (%)

Emission Unit	Silt Content (%)	Moisture Content (%)	PM_{10} Emission Factor (lbs/hour)	$PM_{2.5}$ Emission Factor (lbs/hour)	Hours Dozing (hrs/yr)	*Emission Controls*		PM_{10} Emissions (lbs/hr)	PM_{10} Emissions (tons/yr)	$PM_{2.5}$ Emissions (lbs/hr)	$PM_{2.5}$ Emissions (tons/yr)
						ECF	*Technology*				
Dozer	4.3	2.40	1.96	1.10	650	0%	Uncontrolled	1.96	0.638	1.10	0.359

Fugitive Emissions - Unpaved Roads

Emission Factors Source: AP-42 Section 13.2.2 Unpaved Roads, 11/06 (13.2.2.2 Emission Calculation and Correction Parameters)

$$E = k * (s/12)^a * (W/3)^b \quad (1a)$$

E = size specific EF (lb/VMT)
k = particle size multiplier (g/VMT)
s = surface material silt content (%)
W = average weight of vehicle (tons)
a = particle size constant
b = particle size constant

PM_{10}							
		k (g/VMT)	s (%)	W (tons)	a	b	E (lb/VMT)
Project Roads		1.5	4.30	1	0.9	0.45	0.3633

$PM_{2.5}$							
		k (g/VMT)	s (%)	W (tons)	a	b	E (lb/VMT)
Project Roads		0.15	4.30	1	0.9	0.45	0.0363

	Number of	Emission Factor lb/VMT		One way							PM10 Emissiosns		PM2.5 Emissiosns	
	Units	PM10	PM2.5	Miles	Trips/Day	Unit VMT	VMT/Day	Hours/Day	Hours/Year	% Control	Lbs/Hr	Tons/year	Lbs/Hr	Tons/year
Water Truck	2	0.3633	0.0363	7.5	2	15	30	9	2,160	0	2.52	2.72	0.25	0.27
Service Truck	2	0.3633	0.0363	7.5	2	15	30	9	2,160	0	2.52	2.72	0.25	0.27
1T Pickup	2	0.3633	0.0363	7.5	2	15	30	10	2,400	0	2.27	2.72	0.23	0.27
1T – 2T Flatbed Trucks	2	0.3633	0.0363	7.5	2	15	30	10	2,400	0	2.27	2.72	0.23	0.27
Concrete Truck	4	0.3633	0.0363	7.5	2	15	30	5	1,200	0	9.08	5.45	0.91	0.54
1/2T Pickup	3	0.3633	0.0363	7.5	3	15	45	10	2,400	0	5.11	6.13	0.51	0.61
3/4T Pickup	4	0.3633	0.0363	7.5	3	15	45	10	2,400	0	6.81	8.17	0.68	0.82
										Total	**30.59**	**30.65**	**3.06**	**3.07**

APPENDIX D
Biological Assessment

Biological Assessment of the MPP-Q01 Interconnection Request

Prepared for:

Arizona Public Service
MS 3200 P.O. Box 53933 – Phoenix, Arizona 85072-3933

On behalf of:

Western Area Power Administration
P.O. Box 6457 – Phoenix, Arizona 85005-6457

Prepared by:

WestLand Engineering & Environmental Services
4001 E. Paradise Falls Drive – Tucson, Arizona 85712
+1 520-206-9585

WestLand Project Number: 2433.01

Revised March 13, 2026

WestLand Engineering & Environmental Services

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Appendix B. U.S. Fish and Wildlife Letter Re: WAPA MPP-Q01 Interconnection Request

Appendix C. U.S. Fish and Wildlife Service Information for Planning and Consultation Report Online Query

Appendix D. Arizona Game and Fish Department Heritage Data Management System Online Review

1. INTRODUCTION

WestLand Engineering & Environmental Services (WestLand) was retained by Arizona Public Service (APS; Proponent) to prepare a Biological Assessment (BA) on behalf of Western Area Power Administration (WAPA) for the MPP-Q01 Interconnection Request. WAPA must consider whether to proceed with Arizona Public Service's (APS) transmission interconnection request in accordance with WAPA's Open Access Transmission Tariff (OATT). APS proposes to interconnect its proposed 230-kilovolt (kV) transmission line to WAPA's Mead-Perkins 525-kV (MDE-PES) transmission line. The Proposed Action (Federal action) is for WAPA to proceed with the transmission interconnection request, entering into a transmission interconnection agreement with APS and implementing transmission and communication system additions to accommodate the interconnection. WAPA's Proposed Action and APS's private action are collectively referred to as the proposed Project (Project).

To accommodate the interconnection, WAPA would construct, operate, and maintain two microwave towers: one approximately 10 miles southeast of the interconnect location and one approximately 25 miles southwest of the interconnect location at the existing Pete Smith Peak communication facilities.

APS's privately developed facilities would include building, operating, and maintaining a 14-mile 230-kV transmission line near Bagdad, Yavapai County, Arizona (**Figure 1**). The line would interconnect with WAPA's Mead-Perkins 525-kV transmission line at the southern end and with APS' Willow Lake 115-kV line at the northern end. Associated facilities that would be built, operated, and maintained by APS include two substations. Additionally, APS would construct a switchyard at the WAPA interconnect location, to be owned, operated, and maintained by WAPA. APS would install fiber optic cable along the new transmission line, of which WAPA would have dedicated capacity to allow for communication redundancy. The Project occurs primarily on privately owned and state trust land managed by the Arizona State Land Department (ASLD). The microwave tower at Pete Smith Peak would be constructed within an existing WAPA right-of-way (ROW) on Bureau of Land Management (BLM) managed lands.

The purpose of this BA is to determine the potential for species designated by the U.S. Fish and Wildlife Service (USFWS) as endangered, threatened, proposed for listing, or candidate for listing under the Endangered Species Act (ESA) to occur in the vicinity of the Project and evaluate potential effects of the Project on these species and their critical habitat. To evaluate potential effects to species outside of immediate working areas, e.g., effects from construction noise, a 500-ft buffer around the transmission corridor and supporting structures was evaluated (Action Area; **Figure 2**).

The remainder of this BA is organized into the following sections: a description of the Project (**Section 2**), the environmental setting of the Action Area, including current conditions and land uses (**Section 3**), the methods (**Section 4**) and results (**Section 5**) of the ESA species screening and effects analysis, and the references cited (**Section 6**). Representative photographs are provided in **Appendix A**.

2. PROPOSED PROJECT

2.1. CONSULTATION HISTORY

No USFWS ESA Section 7 consultation efforts have taken place to date for the Project. In May 2023, USFWS provided a response to scoping efforts completed in support of the NEPA analysis of the Project (**Appendix B**).

2.2. CONSTRUCTION AND MAINTENANCE ACTIVITIES

The Project will occur along an approximately 14-mile transmission line segment on private and ASLD lands near Bagdad, as well as at existing WAPA communications facilities on Pete Smith Peak (**Figure 2**). The total anticipated disturbance is approximately 176 acres. Up to 106 acres of permanent disturbance is expected for placement of up to 70 poles, permanent access roads, and supporting facilities. Up to 70 acres of temporary land disturbance is expected from construction activities (**Table 1**).

Table 1. Project Elements and Estimated New Disturbance

Project Element	Estimated New Permanent Disturbance Area (acres)	Estimated New Temporary Disturbance Area (acres)
Access Roads and Laydown Yards	30	15
Transmission Structures	10	25
Pulling/Tensioning Areas	N/A	30
Substations and Switchyard	65	N/A
Microwave Towers	<1	N/A
TOTAL	**106**	**70**

Construction activities associated with the Project include:

- The installation of up to 70 poles, up to 130 ft in height;
- Construction of approximately 16 miles of permanent access roads (14 miles along the transmission line and 1 mile on each side for access points) for construction, operation and maintenance of the transmission line; and
- Construction of one switchyard, two substations, and two microwave towers.

APS would use a licensed contractor specializing in transmission line construction and would require approximately 25 personnel to complete this work. Equipment used during construction of the transmission line and supporting facilities is anticipated (but not limited) to include two bucket trucks, three boom trucks, nine foremen/crew pickups, two pressure diggers, three backhoes, two steel track sagging dozer, one front end loader, two drill rigs, two water trucks, two air compressors, four light plants, two generators, one rubber track CAT Challenger, two service trucks, four concrete trucks, one helicopter (limited use), one skid steer, one pole trailer, two cranes, and one dump truck. ROW staking would be completed prior to any clearing or grading to ensure that no additional impacts are caused outside of the ROW.

Clearing and grading would occur prior to construction. Grading would be completed with the use of backhoes, and clearing would be completed with chainsaws, to ensure that all equipment required for pole/line/tower installation can be accommodated. Approximately 176 acres of vegetation is expected to be cleared, mowed, or trimmed for the Project.

2.3. ENVIRONMENTAL PROTECTION MEASURES

To eliminate or minimize the impact of the Project on the environment, APS has developed Environmental Protection Measures to 1) minimize impacts to vegetation and wildlife, 2) control erosion and sedimentation and protect water quality, and 3) limit the spread of noxious weeds.

2.3.1. Minimize Impacts to Vegetation and Wildlife

Project construction plans were designed to limit the temporal and spatial extent of impacts. To limit the spatial degree of disturbance, vehicle parking, equipment laydown, and storage would occur in previously disturbed areas such as roads, road shoulders, and parking pullouts to the extent practicable. Temporarily disturbed lands would be returned to pre-project contours and reseeded with a native seed mix following the completion of construction.

No riparian trees or shrubs (e.g., cottonwood, willow, seepwillow, etc.) would be removed during construction; however, limited trimming may be necessary. Mechanical mowers would not be used within riparian vegetation; all riparian vegetation would be pruned using manual methods. Construction and ground disturbance activities within 500 feet of riparian areas would occur between October 1 and March 1, outside of typical migratory bird breeding and nesting season (March 1 through September 1) and outside the period that the threatened, yellow-billed cuckoo (YBC; *Coccyzus americanus*) is typically present in the Southwest (May 15 to September 30).

For ongoing vegetation management following construction, limited trimming, vegetation removal, or herbicide application may be necessary to mitigate fire hazard. No mechanical mowers would be used within riparian areas; riparian vegetation would only be removed or pruned using manual methods. No herbicide application would be conducted within riparian areas.

To further reduce potential impacts to YBC, all-terrain vehicles (ATVs) would not be driven within 50 meters of riparian vegetation during the period when this species is typically present in the Southwest (May 15 to September 30), except on roads that are open to the public. Construction of the Project infrastructure would be in conformance with Avian Powerline Interaction Committee (APLIC) standards for electrocution-reducing techniques as outlined in *Suggested Practices for Avian Protection of Power Lines: The State of Art in 2006* (APLIC 2006), and for collision-reducing techniques as outlined in R*educing Avian Collisions with Power Lines: The State of the Art in 2012* (APLIC 2012); including any superseding document issued by APLIC.

To minimize potential impacts to the ESA proposed threatened species monarch butterfly (*Danaus plexippus*), APS would implement best practice conservation measures including milkweed surveys prior to construction, avoiding removal of milkweed during the growing season where practicable, and reseeding temporarily disturbed areas with seeding mixes containing milkweed seed, where appropriate.

2.3.2. Control Erosion and Sedimentation and Protect Water Quality.

APS would use transmission industry Best Management Practices (BMPs) for the Project to control erosion and sedimentation and protect water quality during and after construction, and APS would provide WAPA with a copy of the Stormwater Pollution Prevention Plan (SWPPP) for the Project. SWPPP inspections would be conducted weekly during construction activities and during or immediately after rainfall events. Erosion control measures and devices would be installed and maintained to minimize soil erosion and runoff and prevent excess sediment transport from the construction area to nearby drainages including Bridle Creek. Any fuel spills would be addressed by APS' Spill Prevention, Control and Countermeasures (SPCC) Plan. Trimmed and chipped vegetation would be broadcast on disturbed areas to aid in soil stabilization.

2.3.3. Limit the Spread of Invasive Plants

To prevent the introduction of invasive species, all earthmoving and hauling equipment would be washed prior to entering or exiting the construction site and the contractor would inspect all construction equipment and remove all attached debris, including plant parts, soil and mud, prior to the equipment entering or exiting the Action Area.

3. ACTION AREA

The Action Area is defined as "*all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action*." (50 CFR §402.02).

3.1. ACTION AREA DETERMINATION

Construction activities would occur within the 100-foot-wide ROW of the proposed transmission line as well as within the footprint of appurtenant facilities (**Figure 2**). Noise from construction and maintenance activities would extend beyond the ROW and would include chainsaw use for trimming vegetation along access routes and at pole placement locations as needed for equipment access and fire safety, and periodic tree and shrub trimming or removal (except removal of riparian trees) at structures and along the ROW to maintain the safety and reliability of the line. Chainsaw usage, which produces an average of approximately 84 A-weighted decibels (dBA) at 50 feet (USDOT 2006), is expected to occur on an as-needed basis in select areas and over short durations. Because these temporary activities have the potential to impact wildlife that may occur outside of the ROW and immediate working areas, the Action Area is defined as a 500-foot (152-meter) buffer area around the proposed transmission line ROW and supporting structures (**Figure 2**). This Action Area extent was selected based on attenuation of the loudest construction and maintenance-related noise levels (chainsaw, digger truck, boom truck) to approximately 67 dBA at the Action Area boundary, not accounting

for additional attenuation from vegetation trimming. A recent study of noise effects on nesting riparian birds in the Southwest found that simulated construction noise at 85 dBA as close as 165 feet from the nest did not result in disturbance to nesting activities (Dillon and Moore 2020).

Ongoing land use in the Action Area includes ranching, grazing, rural residence, and transportation. U.S. Route 93 (US 93) runs perpendicular to the proposed transmission line approximately 0.25 mile west of the interconnect location. Arizona State Route (SR) 97 runs generally parallel to, and at times crosses, the proposed transmission line along the length of the line. There are multiple existing utility corridors in the Action Area, including the WAPA Mead-Perkins 525-kV transmission line and the APS Willow Lake 115-kV transmission line. The proposed microwave tower at Pete Smith Peak would be constructed within existing WAPA communications facilities.

3.2. POTENTIAL EFFECTS

Potential effects of the Project are related to vegetation removal, noise and vibration, and increased traffic associated with pole installation, access road and supporting facilities construction, and transmission corridor maintenance activities. The potential effects related to these activities are described in greater detail as follows.

3.2.1. Vegetation Removal

Vegetation would be removed (except full removal of riparian trees), mowed, or trimmed along permanent and temporary access roads, along the transmission and distribution lines, and within the footprint of supporting facilities. After construction, vegetation within the transmission line ROW would be trimmed back periodically in accordance with current APS transmission line safety and upkeep standards. Vegetation would be treated primarily using a combination of selective mowing (for ground cover vegetation) and trimming (for shrubs and trees); full tree removal would occur only as needed and no riparian trees (e.g., cottonwoods, willows) would be removed. The Project would result in vegetation removal within approximately 176 acres. All vegetation removal would occur during daylight hours to reduce disturbances to nocturnal species and to avoid displacing roosting birds.

Herbicide application may be implemented as part of ongoing vegetation management following construction to mitigate fire hazard within the transmission line corridor. No herbicide application would be conducted in riparian areas.

3.2.2. Noise and Vibration

The Project would result in noise and vibration emanating from the vehicles and equipment needed to construct access roads and the transmission poles, install the optical ground wire (OPGW), and perform ancillary project-related tasks. All construction activities would take place during daylight hours within or in the immediate vicinity of the project ROW to reduce disturbances to nocturnal species and maintain periods

of low anthropogenic noise. Ambient noise and vibration levels in areas near operating equipment would be elevated, but levels would decrease with distance due to attenuation (ISO 1996).

3.2.3. Traffic

The Project would result in a minor increase in traffic volume during construction to accommodate access to, from, and throughout the construction site. The increased construction-related traffic would be limited primarily to daytime hours[1] and would occur primarily along US 93 and SR 97 (**Figure 2**). Limiting traffic during low-visibility periods would reduce the potential for vehicle collisions with wildlife and would limit disturbances to nocturnal wildlife. Increased traffic along existing and new unpaved transmission line access roads would be limited to routine inspections and maintenance twice a year and would occur at low speeds (<20 mph).

3.3. ENVIRONMENTAL SETTING

The Action Area is located on ASLD land, private land, and BLM managed land in Yavapai County, Arizona. The 500-kV MPP-Q01 switchyard, adjacent TS-01 substation, 169-5 microwave tower, and the majority of the proposed transmission line would be located on State Trust Land. The communications tower constructed at Pete Smith Peak would be located on BLM land. The northernmost portion of the transmission line and the TS-01 substation would be constructed on private land near Bagdad. Land use in the Action Area includes transportation, rural residential, and ranching and grazing, with existing transmission lines at the northern and southern terminus of the proposed transmission line. The communications tower at Pete Smith Peak would be constructed within existing WAPA communications facilities.

The majority of the Action Area is within the Arizona Upland subdivision of the Sonoran desertscrub biotic community (The Nature Conservancy 2012). This subdivision consists of widely scattered trees and columnar cactuses approaching low-cover woodlands with understory shrubs. The primary species present in this subdivision are Mexican paloverde (*Parkinsonia aculeata*), desert ironwood (*Olneya tesota*), velvet mesquite (*Prosopis velutina*), whitethorn acacia (*Vachellia constricta*), and ocotillo (*Fouquieria splendens*); understory plants including creosotebush (*Larrea tridentata*) and triangle-leaf bursage (*Ambrosia deltoidea*). Saguaro (*Carnegiea gigantea)* and diverse cholla (*Cylindropuntia* spp.) and other cactuses are also common (Shreve and Wiggins 1964).

Discrete and non-contiguous patches of riparian scrubland vegetative communities occur along drainages associated with Bridle Creek. As described by Brown (1994), the riparian scrubland vegetation community is an assemblage of riparian obligate species, either native or introduced invasive species that occur along drainages with surface or shallow subsurface water across the Southwest. Representative species associated with this community in the Action Area include Goodding's willow (*Salix gooddingii*), Fremont's

[1] Persons commuting to the site may include travel during pre-dawn hours.

cottonwood (*Populus fremontii*), Arizona sycamore (*Platanus wrightii*), seep willow (*Baccharis salicifolia*), desertbroom (*B. sarothroides*), shortleaf baccharis (*B. brachyphylla*), netleaf hackberry (*Celtis reticulata*), western soapberry sumac (*Sapindus saponaria*), Thurber's desert honeysuckle (*Anisacanthus thurberi*), honey mesquite (*Prosopis glandulosa*), sugar sumac (*Rhus ovata*), desert tobacco (*Nicotiana obtusifolia*), cattail (*Typha* sp.), sedges (*Carex* spp.), spiny and slender rushes (*Juncus acutus and J. tenuis*), and common reed (*Phragmites australis*), as well as the invasive saltcedar (*Tamarix* spp.) (Hilgart Wilson 2019).

Pete Smith Peak, where one of the two communications tower is proposed, is within an interior chaparral biotic community (The Nature Conservancy 2012). This vegetation community is characterized by relatively high shrub abundance, and steep slopes within this area are composed of eroding granite. Characteristic vegetation includes Sonoran scrub oak (*Quercus turbinella*), Parish goldeneye (*Bahiopsis parishii*), eastern Mojave buckwheat (*Eriogonum fasciculatum*), narrowleaf goldenbush (*Ericameria linearifolia*), and catclaw mimosa (*Mimosa biuncifera*) (Hilgart Wilson 2019).

The Action Area ranges in elevation from 1,802 feet above mean sea level (ft amsl) at the southern terminus of the proposed transmission line, to 3,909 ft amsl at the northern terminus. The Pete Smith Peak communication tower would occur at 5,123 ft amsl, and the 169-5 microwave tower would occur at 2,808 ft amsl. Soils within the Action Area primarily consist of Badland (15.8%), Cave-Continental gravelly sandy loams, 2- to 30-percent slopes (16.9%), Cellar soils, 20- to 60-percent slopes (17%), Moano very rocky loam, 15- to 30-percent slopes (18.3%), and Rock land, low rainfall (15.8%) (Soil Survey Staff 2022, accessed online November 2, 2022).

The proposed transmission line crosses the North Fork of the Santa Maria River which, in this area, is classified by the Arizona Department of Environmental Quality (ADEQ) as intermittent.

4. METHODS

4.1. SPECIES SCREENING ANALYSIS

A screening analysis was completed to evaluate the potential for ESA covered species (Endangered, Threatened, Proposed, and Candidate Species) or their proposed or designated critical habitat to occur within the Action Area. ESA species and their critical habitat considered for evaluation included those identified in a USFWS Arizona Ecological Services Field Office Information, Planning, and Conservation (IPaC) System online query report generated for the Action Area (**Appendix C**), which included YBC, southwestern willow flycatcher (*Empidonax traillii extimus*), Northern Mexican gartersnake (*Thamnophis eques megalops*), Gila topminnow (*Poeciliopsis occidentalis*), Suckley's cuckoo bumble bee (*Bombus suckleyi*), and monarch butterfly. No designated or proposed critical habitat occurs within the Action Area.

The determinations of potential for ESA covered species to occur within the Action Area were based on a review of:

- The natural history and known geographical and elevational ranges of the species.

- Results of an Arizona Game and Fish Department (AGFD) Heritage Data Management System (HDMS) online environmental review tool query that provided records of ESA species within 3 miles of the Project (**Appendix D**).
- Other occurrence records in published or grey literature, including citizen science data, such as eBird.
- Review of a YBC habitat suitability study completed by WestLand in 2015 (WestLand 2015).
- Data provided by the USFWS Critical Habitat Portal online mapping tool (**Appendix C**).

The criteria used to determine the potential of occurrence of each species included in this screening analysis are defined as follows:

Present: The species has been observed to occur within the Action Area, the Action Area is within the known range and distribution of the species, and habitat characteristics required by the species are present.

Possible: There are no known records of the species within the Action Area, but the known, current distribution of the species includes the Action Area and the required habitat characteristics of the species appear to be present in the Action Area. Given the uncertainty associated with species identification and accuracy of the location of observations from eBird and other citizen science databases, observations associated with citizen science databases are evidence that a species is possible within the Action Area.

Unlikely: The known, current distribution of the species does not include the Action Area, but the distribution of the species is close enough such that the Action Area may be within the dispersal or foraging distance of the species, and they may show up as transients. The habitat characteristics required by the species may be present in the Action Area.

None: The Action Area is outside of the known distribution of the species, or the habitat characteristics required by the species are not present.

4.2. SPECIES EFFECTS ANALYSIS

Effects to ESA species were analyzed for the Project. WAPA considered three potential effects determinations for ESA-listed species.

- **No effect**
- **May affect, not likely to adversely affect**
- **May affect, likely to adversely affect**

WAPA considered two potential effects determinations for ESA proposed species.

- **Not likely to jeopardize the continued existence of the proposed species or adversely modify proposed critical habitat**
- **Likely to jeopardize the continued existence of the proposed species or adversely modify proposed critical habitat**

5. SPECIES SCREENING AND EFFECTS ANALYSIS RESULTS

5.1. ESA SPECIES ELIMINATED FROM FURTHER ANALYSIS

As detailed in **Table 2**, Northern Mexican gartersnake, Gila topminnow, and southwestern willow flycatcher have no potential to occur within the Action Area, and the Project would therefore have **No effect** on these species. **Table 2** provides an overview of the federal protection status; known suitable habitat, elevation, range, and distribution information; potential to occur within the Action Area; and rationale for the “no effect” determination for this species. Because there is no potential for occurrence of this species in the Action Area, the species was eliminated from further analysis in this document.

Table 2. Species and Critical Habitat Eliminated from Further Analysis

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in Arizona	Potential to Occur and Effects Determination
Thamnophis eques megalops Northern Mexican gartersnake	Threatened (USFWS 2014c); designated critical habitat (U.S. Fish and Wildlife Service 2021a)	This species is strongly associated with water due to its primarily aquatic prey base and is heavily dependent on fish species. Occurs near or in ponds, cienegas, lowland river riparian forests and woodlands, and upland stream gallery forests. Avoids steep mountain canyons. Most abundant in densely vegetated habitat. Associated with a variety of biotic communities including Sonoran Desertscrub, Semidesert Grasslands, Interior Chaparral, Madrean Evergreen Woodland and into the lower reaches of Petran Montane Conifer Forest (AGFD 2023, USFWS 2013a). Northern Mexican gartersnakes may be found up to one mile (or more) away from water, using terrestrial habitat for brumation, digestion, or for thermoregulatory needs such as developing young (Jeff Servoss, USFWS pers. comm. to D. Cerasale, April 18, 2016). Elevation: 130–8,497 ft (USFWS 2014c) but is most common below 5,000 ft (AGFD 2023).	Occurs in Arizona and New Mexico, U.S. (USFWS 2014c). Although it is poorly known, the range extends into Mexico and is thought to include Sonora, Chihuahua, Durango, Coahuila, Zacatecas, Guanajuato, Nayarit, Hidalgo, Jalisco, San Luis Potosí, Aguascalientes, Tlaxcala, Puebla, México, Michoacán, Oaxaca, Veracruz, and Querétaro (AGFD 2023).	Occurs in fragmented populations south of Hwy I-40. There are five populations where individuals are reliably detected and include Page Springs and Bubbling Ponds State Fish Hatcheries along Oak Creek, lower Tonto Creek, the upper Santa Cruz River in the San Rafael Valley, the Bill Williams River and the upper and middle Verde River. This species is irregularly detected along the Agua Fria River, Little Ash Creek, the Black River, Big Bonito Creek, Redrock Canyon, Sonoita Creek, Scotia Canyon, Parker Canyon, Las Cienegas National Conservation Area and Cienega Creek Natural Preserve, Buenos Aires National Wildlife Refuge, Bear Creek, San Pedro River, Babocomari River and Cienega, Canelo Hills-Sonoita Grasslands Area, and the San Bernardino National Wildlife Refuge. The species is likely extirpated from the Lower Colorado River, the Lower Salt River, Sycamore Creek (Yavapai and Coconino counties), and the Lower Santa Cruz River (USFWS 2014c).	**Potential to Occur:** None. **Critical Habitat:** The Action Area does not occur within designated critical habitat for this species. **Project Effects Determination:** No effect. **Justification:** The Action Area is outside of the known distribution of this species and does not occur within designated critical habitat. There are no perennial waters within the Action Area. There are no AGFD HDMS occurrence records within 3 miles (**Appendix D**).
Poeciliopsis occidentalis Gila topminnow (including Yaqui)	Endangered (USFWS 1967); no critical habitat.	Occurs in springs, cienegas, permanent and intermittent streams and the margins of large rivers. Prefers warm, shallow, and slow-moving water but can occur in lentic habitats or lotic habitats with moderate current. Additionally, favors areas with algal mats or debris along stream margins (USFWS 1998). Elevation: Below 5,000 ft (AGFD 2024).	Occurs in the Gila, Concepción and Yaqui river basins of Arizona and New Mexico, U.S. and Sonora, Mexico (USFWS 1998, Cobble 1995).	As of 2017, there are 11 to 15 natural populations and 40 reestablished wild populations of the *occidentalis* subspecies. Within the Santa Cruz River Basin this includes Monkey Spring, Cottonwood Spring, Fresno Canyon, Coalmine Canyon, Parker Canyon, the Santa Cruz River north of Nogales, Cienega Creek at Las Cienegas National Conservation Area, Cienega Creek north of I-10. Additionally, natural populations may be present in Sonoita Creek above and below Patagonia Lake and in the Santa Cruz River at Tucson. Within the Gila River Basin natural populations are found above Coolidge Dam in Bylas Spring, Middle Spring and Salt Creek. Reestablished wild populations occur in the San Pedro River Basin, Santa Cruz River Basin and the Gila River Basin above and below the Coolidge Dam (AGFD 2018). The *sonoriensis* subspecies occurs in the extreme southeastern portion of the state in the Yaqui River Basin in the San Bernardino and Leslie Canyon Wildlife Refuges (Cobble 1995, Minckley and Marsh 2009, p. 252).	**Potential to Occur:** None. **Critical Habitat:** There is no proposed or designated critical habitat for this species. **Project Effects Determination**: No effect. **Justification:** The Action Area is outside the known distribution of this species and does not support suitable aquatic habitat for this species. There are no AGFD HDMS occurrence records within 3 miles (**Appendix D**).

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in Arizona	Potential to Occur and Effects Determination
Empidonax traillii extimus Southwestern willow flycatcher	Endangered (USFWS 1995b); designated critical habitat (USFWS 2013c).	Southwestern willow flycatcher Breeds in successional stands of dense riparian vegetation composed of trees and shrubs along rivers or lakes (AGFD 2002e, USFWS 2013c). In Arizona, this species occurs between 75 and 9,180 ft amsl (AGFD 2002e). Migrates along riparian habitats, including those with shorter or more sparse vegetation or smaller patches than would be suitable for nesting (USFWS 2013c). This species is a long-distance neotropical migrant and winters in habitats outside of the U.S. (Sedgwick 2020). Elevation: In Arizona, 75–9,180 ft (AGFD 2002e).	This species is a long-distance neotropical migrant (Sedgwick 2020). Breeds in Arizona, California, Colorado, New Mexico, Nevada, Texas and Utah, U.S. Winters in southern Mexico and south to northern South America (USFWS Sedgwick 2020, 2013c).	Breeds in localized populations along the Big Sandy River, Bill Williams River, Cienega Creek, Colorado River in the Grand Canyon and south of Yuma, Empire Gulch, Salt River, Verde River, Gila River, Hassayampa River, Little Colorado River, the headwaters of the Little Colorado River near Greer and Eagar, Salt River, San Francisco River, San Pedro River, Santa Maria River, middle to lower San Pedro River, upper San Francisco River near Alpine, Tonto Creek, Verde River, and the Virgin River (AGFD 2002e, USFWS 2013c).	**Potential to Occur:** None. **Critical Habitat:** The Action Area does not occur within designated critical habitat for this species. **Project Effects Determination:** No effect. **Justification:** The Action Area lacks the dense canopy cover from emergent riparian vegetation, large volume of foliage, and persistent saturated soil preferred by this species. There are no AGFD HDMS occurrence records within 3 miles (**Appendix D**).

5.2. SPECIES ANALYZED IN DETAIL

The following species are analyzed in detail because of their potential to occur in the vicinity of the Action Area:

- Monarch butterfly: proposed (USFWS 2024b).
- Suckley's cuckoo bumblebee: proposed (USFWS 2024a)
- Yellow-billed cuckoo: threatened (USFWS 2014b) and designated critical habitat (USFWS 2021).

These species and critical habitats are evaluated further in **Sections 5.2.1 through 5.2.3**.

5.2.1. Monarch Butterfly

5.2.1.1. Species Biology

Adult monarch butterflies are relatively large and conspicuous lepidoptera, with bright orange wings surrounded by a black border and covered with black veins (BISON-M 2024, USFWS 2020b). During breeding season (generally, July to September south of Tucson) monarchs lay their eggs on their obligate milkweed host plant, primarily *Asclepias* spp. (The Xerces Society for Invertebrate Conservation 2021). Larvae develop through five larval instars (intervals between molts) over a period of 9 to 18 days, feeding on milkweed and sequestering toxic chemicals (cardenolides) as a defense against predators (BISON-M 2024). The larva then pupates into a chrysalis before emerging 6 to 14 days later as an adult butterfly. There are multiple generations of monarchs produced during the breeding season, with most adult butterflies living approximately 2 to 5 weeks; overwintering adults enter reproductive diapause (suspended reproduction) and live 6 to 9 months. In many regions where monarchs are present, monarchs breed year-round. Individual monarchs in temperate climates such as western North America undergo long-distance migration and live for an extended period. In the fall in western North America, monarchs begin migrating to overwintering sites. This migration can take monarchs distances of over 3,000 kilometers and last for over 2 months (USFWS 2020b).

5.2.1.2. Species Status

Rangewide

The monarch butterfly is currently a proposed threatened species for listing under the ESA. Monarchs are globally distributed throughout 90 countries, islands, and island groups. USFWS delineated 31 historical populations, of which 27 are extant and four have unknown status (USFWS 2020b). Outside of the two migratory North American populations, the health of the remaining 29 populations is undeterminable due to limited information available on population trends and stressors. At least 15 of these populations are considered at risk for extinction due to climate change related sea level rise or unsuitably high temperatures. The two North American populations, both migratory, are located east and west of the Rocky Mountains. These populations have been monitored at their respective overwintering sites in Mexico and California since the mid-1990s (USFWS 2020b). Though populations are observed to fluctuate year-to-year with environmental conditions, monitoring data indicate long-term declines in population abundance at the

overwintering sites in both populations. The primary drivers affecting the two North American migratory populations are loss and degradation of habitat (primarily from conversion of grasslands to agriculture, widespread use of herbicides, logging/thinning at overwintering sites in Mexico, senescence and incompatible management of overwintering sites in California, urban development, and drought), continued exposure to insecticides, and effects of climate change (USFWS 2020b).

Action Area

The status of the monarch butterfly in the Action Area is not well documented. There are no records of this species within 3 miles of the Action Area (**Appendix D**). However, major river corridors, particularly the Colorado River, have been identified as potential migration routes.

A variety of nectar plants have been identified as food sources during migration, including flowering velvet mesquites in the spring migration period (Morris, Kline, and Morris 2015). The Action Area landscape contains flowering plants that may provide forage opportunities for adult monarch butterflies. There is also potential for milkweeds to occur within the Action Area, providing potential habitat for monarch caterpillars; however, none have been documented in the Action Area to date (The Xerces Society for Invertebrate Conservation 2023, accessed online May 8, 2023).

5.2.1.3. Critical Habitat and Potential Habitat

No critical habitat for monarch butterfly has been proposed in the Action Area; all critical habitat proposed for this species occurs at western migratory population overwintering sites in coastal California. Potential foraging and migration habitat occurs in the Action Area. Monarch caterpillars feed on plants in the milkweed subfamily and adults forage for nectar on a wide variety of flowers and this species can be found wherever milkweed occurs. Overwintering populations use the leaves, branches and trunks of large trees within forested groves (Jepsen et al. 2015). In Arizona, monarchs are found at all elevations, and breeding and migratory populations occur throughout the state. Some adults overwinter in the low deserts of Arizona in areas where food resources are abundant. These areas are generally represented by urban environments including Yuma, Phoenix and Tucson (Morris, Kline, and Morris 2015). The Action Area contains potential foraging habitat for migrating monarchs, primarily flowering velvet mesquite and seepwillow during the spring migration period (April – May). Milkweed has not been detected in the Action Area, nor are there historic records for milkweed within the vicinity of the Action Area (The Xerces Society for Invertebrate Conservation 2023).[2]

5.2.1.4. Effects Analysis

Direct Effects

Direct effects of the Project on this species are limited to the removal of vegetation that may serve as a nectar source for migrating monarch butterflies. Vegetation would be cleared, mowed, or trimmed over

[2] The Xerces Society for Invertebrate Conservation was accessed online November 2, 2023.

approximately 176 acres of Sonoran desertscrub habitat to provide access along the transmission and distribution line corridors and to accommodate the supporting facilities. Pre-construction milkweed surveys would be conducted, and identified patches of milkweed would be avoided where practicable. Overall, the extent of vegetation removal related to the Project represents a small reduction in available nectar food sources relative to the abundance of these vegetation communities in the Action Area. Therefore, no direct impacts to individual monarch butterflies from construction-related vegetation removal, noise, vibration, or vehicle/equipment use are anticipated.

Indirect Effects

Indirect effects of the Project include the reduction of potential foraging resources in the Action Area for migrating monarch butterflies following construction. Vegetation would be trimmed, mowed, or removed along permanent access roads to allow periodic inspection and maintenance of the line and pole structures. Recovery/regrowth of vegetation is anticipated to occur, and temporarily disturbed areas would be reseeded with seeding mixes containing milkweed seed, where appropriate.

Interdependent and Interrelated Effects

The Project has independent utility, and no interdependent effects are identified. No interrelated effects would occur other than those already described as direct or indirect effects of the Project.

Cumulative Effects of State and Private Actions within the Action Area

Non-federal activities within the Action Area include vehicular traffic on US 93 and SR 97 and Arizona Department of Transportation (ADOT) roadway maintenance activities, existing utility corridor maintenance activities, and livestock grazing on nearby state and private lands. Vehicular traffic on US 93 and SR 97 represents the baseline condition. No increase in traffic would result from the Project. Livestock grazing on state or private lands near the Action Area would not increase above the baseline condition as a result of the Project.

5.2.1.5. Determination of Effects

The Project would result in clearing, mowing, and/or trimming of vegetation in an area of up to 176 acres. This would primarily affect potential foraging habitat for monarch butterflies and is not anticipated to affect high value breeding or overwintering habitats. Milkweed surveys would be conducted within the Action Area prior to construction and identified patches of milkweed would be avoided to the extent practicable. The spatial footprint of the Project would not substantially alter potential monarch presence within and usage of the Action Area. The availability of areas of riparian and upland vegetation within and adjacent to the Action Area over the larger landscape would continue to provide potentially suitable foraging habitat for this species. Because it would not result in long-term degradation of monarch habitat or increase potential take of individuals, the Project is **Not likely to jeopardize the continued existence of or adversely modify proposed critical habitat** for the monarch butterfly.

5.2.2. Suckley's Cuckoo Bumble Bee

5.2.2.1. Species Biology

Suckley's cuckoo bumble bee is an obligate social parasitic bumble bee which is dependent on host species for survival and raising young (USFWS 2024a, c). Suckley's cuckoo bumble bee lacks the anatomical requirements for carrying pollen and depends on social bumble bee hosts to collect pollen and rear their young (USFWS 2024c). The two primary hosts of Suckley's cuckoo bumble bee are the western bumble bee (*Bombus occidentalis*) and Nevada bumble bee (*Bombus nevadensis*). Females emerge from overwintering from early April to late May, following which, individuals will invade the nests of a host species, where they typically usurp the queen and use the hives' resources to reproduce (USFWS 2024c). Offspring emerge in late summer and will mate throughout the fall before overwintering (in August-September) (USFWS 2024c). Males are observed until about October (USFWS 2024c). Diapause burrows are created in suitable substrates with microsite conditions that favor temperature and moisture regulation and are located within proximity to natal colonies and spring floral resources (USFWS 2024c). This species can be found in various habitat types including montane meadows and prairies, farms, woodlands, boreal forests, active and fallow agricultural fields, and urban areas in elevations ranging from 2 to 3,200 meters (6 to 10,500 feet) (USFWS 2024c). It has a general thermal tolerance range of approximately 45-46° F to 100-129 F (USFWS 2024c). They have been recorded on a number of genera of plants in the following Families: Asteraceae, Fabaceae, Rosaceae, Ericaceae, Plantaginaceae, and Salicaceae (USFWS 2024c).

5.2.2.2. Species Status

Rangewide

Suckley's cuckoo bumble bee‘s range contains most of western North America, including northern Arizona, New Mexico, California, Nevada, Utah, Colorado, Kansas, Nebraska, Missouri, Iowa, Minnesota, North Dakota, South Dakota, Wyoming, Montana, Idaho, Oregon, Washington, New York, Maine, and Canada (USFWS 2024c). The few eastern North American records occur in Canada (USFWS 2024c). There is no evidence of connectivity between the eastern and western portions of its range, and significant uncertainty surrounds the range of Suckley's cuckoo bumble bee due to misidentification (USFWS 2024c). This species has not been observed in the U.S. since 2016 (USFWS 2024c).

Action Area

Suckley's cuckoo bumble bee has been documented in Arizona twice, once in 2009 and once in 2011, however; it is worth noting that these occurrence records were for male individuals (USFWS 2024c). Male individuals of this species are difficult to identify, and these occurrence records are not verified (USFWS 2024c) There are no records of this species within 3 miles of the Action Area (**Appendix D**). However, the Action Area is within this species range and contains potentially suitable foraging and diapause habitat for this species both along the riparian corridors associated with the Santa Maria River and Bridle Creek as well as in the upland habitats. The riparian corridors feature *Salicaceae* species on which this species is

known to forage while the upland habitats provide flowering plants this species and/or its hosts may use. Leaf litter and mammal burrows in the Action Area may be used by this species for overwintering.

5.2.2.3. Effects Analysis

Direct Effects

Direct effects of the Project on this species are limited to the removal and management of vegetation that may serve as a foraging source for Suckley's cuckoo bumble bee or their host species. Vegetation would be cleared, mowed, or trimmed over approximately 176 acres of Sonoran desertscrub habitat to provide access along the transmission and distribution line corridors and to accommodate the supporting facilities. Herbicide application may be implemented as part of ongoing vegetation management following construction to mitigate fire hazard within the transmission line corridor. Overall, the extent of vegetation removal related to the Project represents a small reduction in available foraging sources relative to the abundance of these vegetation communities in the Action Area. Some riparian vegetation may be trimmed in support of Project activities. However, all vegetation removal within 500 feet of riparian areas would occur during the inactive overwintering period between October 1 and March 1, reducing the potential for impacts to this species. Additionally, no herbicide would be applied in riparian areas. Therefore, no direct impacts to individual Suckley's cuckoo bumble bees from construction-related vegetation removal and management, noise, vibration, or vehicle/equipment use are anticipated.

Indirect Effects

Indirect effects of the Project include the reduction of potential foraging resources in the Action Area for Suckley's cuckoo bumble bee and their hosts following construction. Vegetation would be trimmed, mowed, or removed along permanent access roads to allow periodic inspection and maintenance of the line and pole structures. Recovery/regrowth of vegetation is anticipated to occur, and temporarily disturbed areas would be reseeded with seeding mixes containing flowering plants, where appropriate.

Interdependent and Interrelated

The Project has independent utility, and no interdependent effects are identified. No interrelated effects would occur other than those already described as direct or indirect effects of the Project.

Cumulative Effects of State and Private Actions within the Action Area

Non-federal activities within the Action Area include vehicular traffic on US 93 and SR 97 and Arizona Department of Transportation (ADOT) roadway maintenance activities, existing utility corridor maintenance activities, and livestock grazing on nearby state and private lands. Vehicular traffic on US 93 and SR 97 represents the baseline condition. No increase in traffic would result from the Project. Livestock grazing on state or private lands near the Action Area would not increase above the baseline condition as a result of the Project.

5.2.2.4. Determination of Effects

The Project would result in clearing, mowing, and/or trimming of vegetation in an area of up to 176 acres. This would primarily affect potential foraging habitat for Suckley's cuckoo bumble bee and its host species but is not anticipated to affect high value (riparian) foraging or diapause habitat for this species. The spatial footprint of the Project would not substantially alter potential Suckley's cuckoo bumble bee presence within and usage of the Action Area if present. The availability of areas of riparian and upland vegetation within and adjacent to the Action Area over the larger landscape would continue to provide potentially suitable foraging and diapause habitat for this species. Because it would not result in long-term degradation of Suckley's cuckoo bumble bee habitat or increase potential take of individuals, the Project is not likely to jeopardize the continued existence of Suckley's cuckoo bumble bee.

5.2.3. Suckley's Cuckoo Bumblebee Critical Habitat

No critical habitat has been proposed or designated for this species (USFWS 2024a).

5.2.4. Yellow-billed Cuckoo

5.2.4.1. Species Biology

The YBC is a neotropical migrant, traveling between wintering grounds in Central and South America and breeding grounds in North America (AGFD 2022). Arrival and nesting of cuckoos typically coincides with seasonal availability of prey. Western YBC appears to stage in southern Arizona and northern Mexico pre- and post-migration. In New Mexico, cuckoos have been observed foraging up to 0.5 mile (0.8 km) from nest sites. Home range is highly variable, but averages 42.8 acres (19.5 ha) to 104.5 acres (24.3 ha), depending on location, breeding status, and gender (Sechrist et al. 2013). Yellow-billed cuckoo tends to be "secretive," and males and females are sexually monomorphic (Halterman 2009). Breeding often coincides with outbreaks of cicadas and tent caterpillars and cuckoos may lay more eggs in prey-abundant years (AGFD 2022).

5.2.4.2. Species Status

Rangewide

The western Distinct Population Segment (DPS) of YBC was listed as threatened under the ESA in 2014 (USFWS 2014b). This species is a long-distance neotropical migrant (Hughes 2020). At the species level, it breeds throughout temperate North America south to Mexico and the Greater Antilles (Hughes 2020). The western DPS breeds west of the Continental Divide and the watershed boundary between the Rio Grande and Pecos River and the Chihuahuan Desert. The USFWS considers the historical breeding range to include southern British Columbia, Canada and in the U.S., Washington, Idaho, Nevada, Oregon, Utah, western Colorado, southwestern Wyoming, California, Arizona, western New Mexico, and Texas. Breeding range extends into the Cape Region of Baja California Sur, Sonora, Sinaloa, western Chihuahua and northwestern Durango, Mexico (USFWS 2014b). This species winters in South America, east of the Andes

and typically south of the Amazon Basin in southern Brazil, Paraguay, Uruguay, eastern Bolivia and northern Argentina (USFWS 2014b).

Action Area

In Arizona, YBC is associated with lowland riparian woodlands where Fremont cottonwood, willow, velvet ash, Arizona walnut, mesquite, and tamarisk are dominant (USFWS 2013b). This species also uses mesquite bosques and smaller stands of isolated cottonwoods mixed with mesquite (Halterman, Johnson, and Holmes 2016a, b), and areas of upland-associated vegetation along drainages dominated by oaks and junipers (WestLand 2016). This species typically occurs at elevations less than 6,600 feet (AGFD 2022). Western YBC may migrate along riparian corridors and surrounding upland vegetation (Hughes 2020). It is more common in the southern, central and the extreme northeastern portion of Arizona, but occurs throughout the state where suitable habitat exists (AGFD 2022).

The Action Area generally lacks suitable riparian habitat for this species; however, discrete and non-contiguous patches of riparian scrubland vegetative communities occur along drainages associated with Bridle Creek and the Santa Maria River near the southern terminus of the proposed transmission line. In the area where the Action Area crosses Bridle Creek, cottonwood and willow are present, but the trees are widely scattered. Within the Action Area's intersection with Bridle Creek near its confluence with the Santa Maria River, less than 0.5 acre of riparian vegetation is present, and is found in non-contiguous narrow bands of Goodding's willow, tamarisk, and seep willow (WestLand 2015). The flow regime of this portion of the Santa Maria River is heavily influenced by precipitation runoff, best described as spatially and temporally intermittent, rather than a "perennial river…that support[s] the expanse of vegetation characteristics needed by breeding western [yellow-billed cuckoo]" (USFWS 2014a). The area does not have the dense, contiguous canopy preferred for nesting habitat, but may be used as a stopover habitat for migration among areas of denser tamarisk, cottonwood and willow. There have been no detections of YBC within 3 miles of the Action Area (**Appendix D**). Citizen science records indicate that YBC is frequently detected approximately 10 miles downstream from the interconnect location on the Santa Maria River, near its confluence with the Big Sandy River and Alamo Lake (eBird 2023, accessed online May 11, 2023).

5.2.4.3. Effects Analysis

Direct Effects

No direct effects to YBC would occur because project activities including vegetation removal and noise and vibration associated with operation of construction equipment and vehicles would occur outside the period when this species would typically have the potential to be present in the Action Area.

Vegetation within the Action Area consists predominantly of Sonoran desertscrub. Widely scattered cottonwood and willow trees occur along the short portion of the Action Area's intersection with Bridle Creek. No riparian trees or shrubs (e.g., cottonwood, willow, seepwillow, etc.) would be removed; however,

limited trimming of branches may be necessary and would occur outside of the timeframe that YBC is typically present in the Southwest (October – May).

Indirect Effects

Indirect effects to YBC could occur if a substantial amount of vegetation is lost, resulting in alteration of vegetative composition or habitat structure. While limited trimming of riparian vegetation may be necessary, no herbicide application would occur within riparian areas, and recovery/re-growth is expected to occur.

Interdependent and Interrelated Effects

The Project has independent utility, and no interdependent effects are identified. No interrelated effects would occur other than those already described as direct or indirect effects of the Project.

Cumulative Effects of State and Private Actions within the Action Area

Non-federal activities within the Action Area include vehicular traffic on US 93 and SR 97 and ADOT roadway maintenance activities, existing utility corridor maintenance activities, and livestock grazing on nearby state and private lands. Vehicular traffic on US 93 and SR 97 represents the baseline condition. No increase in traffic would result from the Project and construction-related traffic within riparian areas would occur outside period when the yellow-billed cuckoo is typically present in the Southwest. Livestock grazing on state or private lands near the Action Area would not increase above the baseline condition.

5.2.4.4. Determination of Effects

The Bridle Creek riparian corridor within the Action Area provides potential migration habitat, but no potential nesting or foraging habitat, for YBC. No riparian trees or shrubs (e.g., cottonwood, willow, seepwillow, etc.) would be removed; however, limited trimming may be necessary. These activities would occur outside of the period when this species is most likely to be present in the Southwest, therefore, no direct effects to individual YBC would occur. Based on the limited extent of vegetation removal within riparian areas, and the unlikely potential for YBC to occur, no indirect effects are anticipated to occur. Therefore, the Project is anticipated to have **No effect** on YBC.

5.2.5. Yellow-billed Cuckoo Critical Habitat

Critical habitat was proposed in 2020 and designated in 2021 considering three physical or biological features (PBFs) essential for the species (USFWS 2020a, 2021):

1. **Rangewide breeding habitat**—Riparian woodlands across the western DPS; Southwestern breeding habitat, primarily in Arizona and New Mexico: Drainages with varying combinations of riparian, xeroriparian, and/or non-riparian trees and large shrubs. This physical or biological feature includes breeding habitat found throughout the western DPS range as well as additional breeding habitat characteristics unique to the Southwest.
2. **Adequate prey base**—Presence of prey base consisting of large insect fauna (for example, cicadas, caterpillars, katydids, grasshoppers, large beetles, dragonflies, moth larvae, spiders),

lizards, or frogs for adults and young in breeding areas during the nesting season and in post-breeding dispersal areas.

3. **Hydrologic processes**—The movement of water and sediment in natural or altered systems that maintains and regenerates breeding habitat. This physical or biological feature includes hydrologic processes found in rangewide breeding habitat as well as additional hydrologic processes unique to the Southwest in southwestern breeding habitat.

A small portion of the Action Area was proposed as critical habitat by USFWS (Unit 13: Upper Santa Maria River, Yavapai County, Arizona) in 2014 (79 FR 48548-48652) but was not ultimately designated. The nearest designated critical habitat for YBC is approximately 12 miles southwest of the interconnect location, at the confluence of the Big Sandy and Santa Maria Rivers with Alamo Lake. Therefore, the Project would have **No Effect** on YBC critical habitat.

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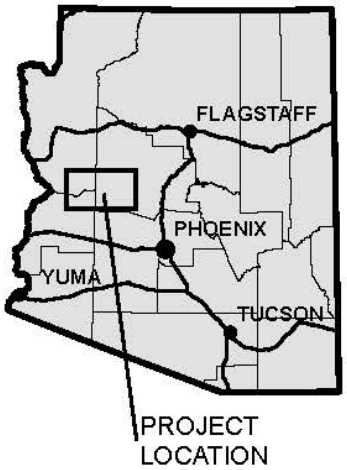
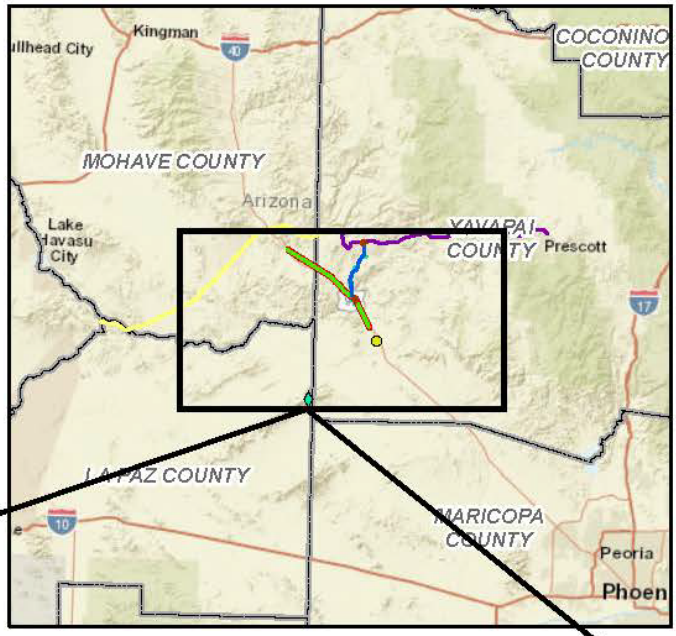
FIGURES

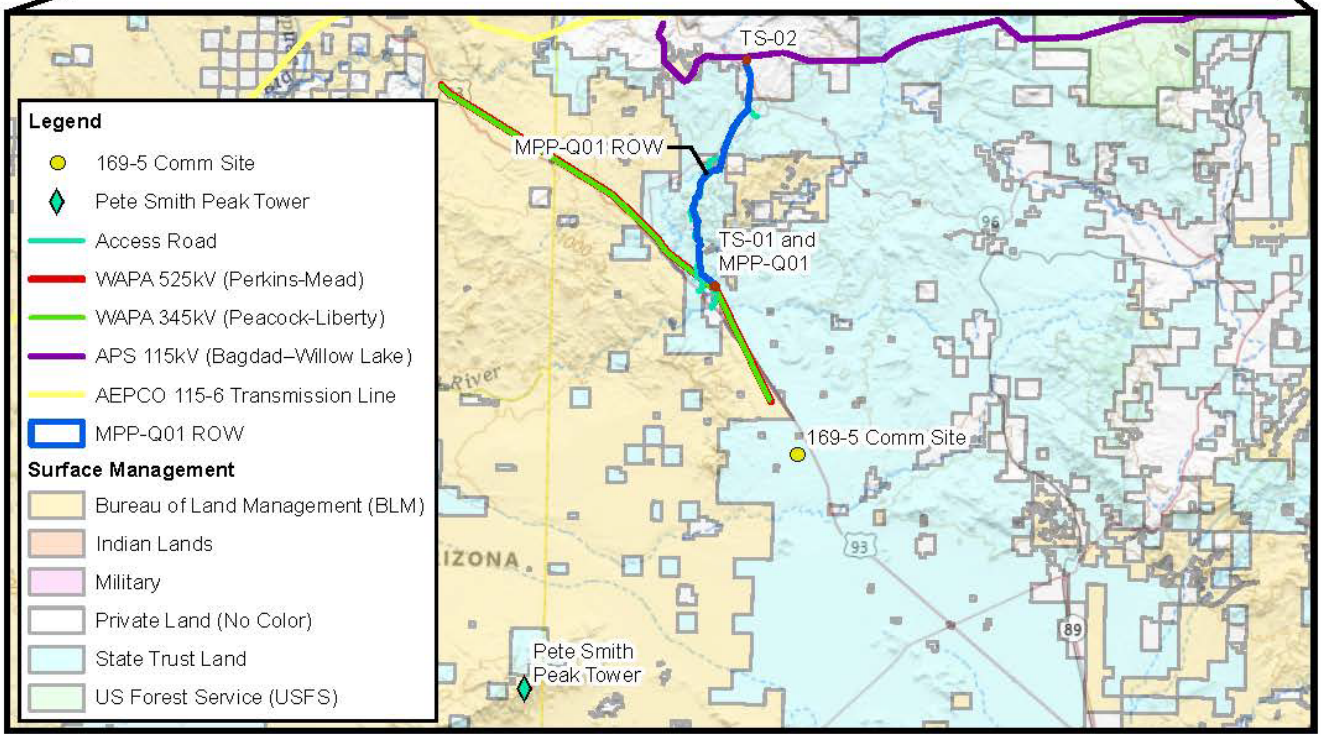
ARIZONA



PROJECT VICINITY



Approximate Scale 1 inch equals 40 miles



Portions of La Paz and Yavapai Counties, Arizona
Projection: NAD 1983 UTM Zone 12N
Surface Management: BLM 2022, WRI Modified 2023
Data Source: APS
Image Source: ArcGIS Online, World Street and USGS Topo Maps

MPP-Q01 INTERCONNECT REQUEST

Biological Assessment

VICINITY MAP

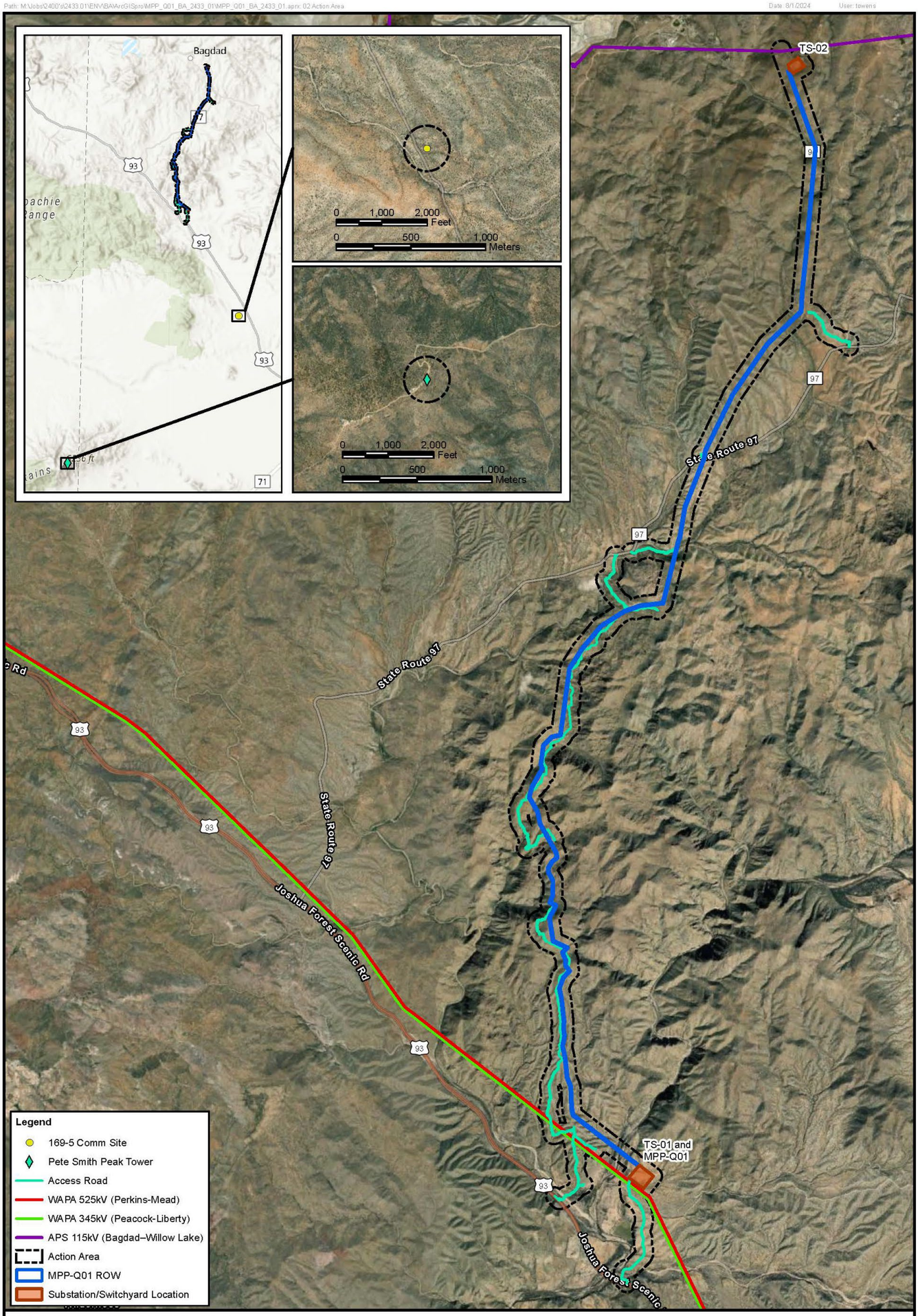
Figure 1

N

0 5 10 Miles

0 10 20 Kilometers

WestLand Engineering & Environmental Services



Portions of La Paz and Yavapai Counties, Arizona
Projection: NAD 1983 UTM Zone 12N
Image Source: Maxar 2018-2022

N
0 0.5 1 Miles
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WestLand Engineering & Environmental Services

MPP-Q01 INTERCONNECT REQUEST
Biological Assessment
ACTION AREA
Figure 2

APPENDIX A
Representative Photographs

Photo 1.

Representative Arizona Upland Subdivision of Sonoran Desertscrub, near the proposed interconnect location and southern terminus of the proposed transmission line. This vegetation community makes up the majority of the Action Area.

Photo 2.

Representative riparian scrubland associated with Bridle Creek within the Action Area along the proposed transmission line ROW.

Photo 3.

North Fork of the Santa Maria River, north of its confluence with Bridle Creek, looking West. Large patch of upland-associated shrub habitat west of the river channel. Mesquite and burrobrush dominant, with sparse canopy cover.

Photo 4.

North Fork of the Santa Maria River, north of its confluence with Bridle Creek, looking Southwest. Upland-associated shrub species (burrobrush and desert broom) dominant with Goodding's willow and seep willow sparsely distributed along the river channel.

Photo 5.

Representative photo of Sonoran desertscrub habitat at the proposed 169-5 microwave tower location.

Photo 6.

Existing Pete Smith Peak communications facilities, where a new microwave tower is proposed. This area contains the Interior Chapparal vegetation community.

APPENDIX B
USFWS Letter Re: WAPA MPP-Q01 Interconnection Project

United States Department of the Interior

Fish and Wildlife Service
Arizona Ecological Services Office
9828 North 31st Avenue, Suite C3
Phoenix, Arizona 85051
Telephone: (602) 242-0210 Fax: (602) 242-2513

In reply refer to:
AESO/SE
2023-0078714-NEPA-001

May 24, 2023

Matthew Pollock, NEPA Document Manager
Western Area Power Administration, Desert Southwest Region
Post Office Box 6457
Phoenix, Arizona 85005

RE: WAPA MPP-Q01 Interconnection Project

Dear Matthew Pollock:

Thank you for the opportunity to provide comments during the scoping process for the MPP-Q01 Interconnection Project. We received your scoping letter on April 7, 2023, via email. Western Area Power Administration (WAPA) is proposing to approve Arizona Public Service's (APS) interconnection request and enter into an agreement associated with constructing a new transmission line that would interconnect with the Mead-Perkins 525 kilovolt (kV) transmission line, operated, and maintained by WAPA. APS proposes to build, operate, and maintain a 14-mile (22.5-kilometer) long 115 kV or 230 kV transmission line from southeast of the intersection of U.S. Route 93 and State Route (SR) 97, north to approximately one mile (1.6 kilometers) west of the SR 97 and SR 96 intersection near Bagdad, Arizona. Additionally, the project involves constructing a 500 kV switchyard, two substations, and a microwave tower, and installing a fiber optic cable along the proposed transmission line.

The project area includes 267 acres (108 hectares [ha]) of State Trust Land managed by the Arizona State Land Department, less than one acre (less than 0.04 ha) of land managed by the Bureau of Land Management, and 37 acres (15 ha) of private lands. The proposed route of the transmission line would cross the Santa Maria River one time and a tributary, Bridle Creek, four times.

The project area contains potential habitats for several species protected under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*). Species that occur or potentially occur in the riparian areas of the project area are the threatened western yellow-billed cuckoo (*Coccyzus americanus*; cuckoo), the endangered southwestern willow flycatcher (*Empidonax*

traillii extimus; flycatcher), the threatened northern Mexican gartersnake (*Thamnophis eques megalops*; gartersnake), and the monarch butterfly (*Danaus plexippus*; monarch), a candidate species. Cuckoos and flycatchers may use riparian habitat in the project area for migration, breeding, foraging, and commuting. Gartersnakes may use riparian habitat in the project area during all stages in their lifecycle. Monarchs may breed on milkweeds and feed on nectar from milkweeds and other flowering plants in the project area.

We offer the following comments on the proposed action:

- We recommend minimizing effects on natural habitat by collocating the project with existing linear infrastructure (*e.g.*, roads, other utilities) as much as practicable.
- We recommend minimizing riparian habitat removal during project construction to minimize potential effects to cuckoo, flycatchers, and gartersnakes.
- We recommend designing the project such that maintenance of the transmission line would minimize potential effects to cuckoo, flycatcher, and gartersnake habitat.
- We recommend timing construction and maintenance activities in and near potential cuckoo and flycatcher habitat to avoid disturbing these species during the breeding season (May 15 to September 30 for cuckoo and April 15 to August 15 for flycatcher).
- We recommend minimizing ground disturbance in riparian habitat during project construction and maintenance to minimize potential effects to gartersnakes.
- We recommend considering the potential for migratory bird collisions with the new transmission line and implementing appropriate measures. Additional information on these measures is on the Beneficial Practices: Power Lines website.
- We recommend using native plants in restoration areas and, when appropriate, considering including plants to benefit native pollinators.
- We recommend avoiding the use of pesticides during maintenance activities to minimize effects to monarchs and other pollinators. If avoidance is not practicable, we recommend minimizing their use by implementing non-chemical pest management and timing management to avoid when monarchs are likely using the area and when flowers are blooming. Additional information is available on the Timing Management in Monarch Breeding Habitat website.

Certain project activities may also affect species protected under the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. sec. 703-712) and/or bald and golden eagles protected under the Bald and Golden Eagle Protection Act of 1940 (Eagle Act; 16 U.S.C. 668-668d). The MBTA prohibits the intentional taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, without authorization of the U.S. Fish and Wildlife Service (FWS). The Eagle Act prohibits anyone, without a FWS permit, from taking (including disturbing) eagles, including their parts, nests, or eggs. If this project may affect migratory birds and/or eagles, we recommend seeking our technical assistance to identify available conservation measures that you may be able to incorporate into your project.

You can find more information on the MBTA and available permits on the FWS Migratory Bird Program website. For information on protections for bald eagles, please refer to the FWS's National Bald Eagle Management Guidelines (72 FR 31156) and regulatory definition of the term "disturb" (72 FR 31132) published in the Federal Register on June 5, 2007, as well at the

Conservation Assessment and Strategy for the Bald Eagle in Arizona (Southwestern Bald Eagle Management Committee website).

In keeping with our trust responsibilities to American Indian Tribes, by copy of this letter we are notifying Tribes that this proposed action may affect and encourage you to invite the Bureau of Indian Affairs to participate in the review of your proposed action. We also encourage you to coordinate the review of this project with the Arizona Game and Fish Department.

We appreciate the opportunity to provide comments and look forward to continued cooperation and coordination with you. Please refer to the consultation number, 2023-0078714-NEPA-001 in future correspondence concerning this project. If you require further assistance or you have any questions, please contact Jessica Miller (Jessica_Miller@fws.gov) or Shaula Hedwall (Shaula_Hedwall@fws.gov).

Sincerely,

for Heather Whitlaw
Field Supervisor

cc (electronic):
Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ
Regional Supervisor, Arizona Game and Fish Department, Kingman, AZ
Wildlife Biologist, Bureau of Land Management, Kingman, AZ (Attn: Joelle Acton)
Assistant Field Supervisor, U.S. Fish and Wildlife Service, Phoenix, AZ
Fish and Wildlife Biologist, U.S. Fish and Wildlife Service, Flagstaff, AZ (Attn: Greg Beatty)
Fish and Wildlife Biologist, U.S. Fish and Wildlife Service, Tucson, AZ (Attn: Meaghan Conway)
Fish and Wildlife Biologist, U.S. Fish and Wildlife Service, Tucson, AZ (Attn: Jeff Servoss)
Director, Cultural Resource Center, Chemehuevi Tribe, Havasu Lake, CA
Director, Hopi Cultural Preservation Office, Hopi Tribe, Kykotsmovi, AZ
Director, Tribal Historic Preservation Office, Hualapai Tribe, Peach Springs, AZ
Director, Aha Kakav Cultural Society, Fort Mohave Indian Tribe, Mohave Valley, AZ
Director, Historic Preservation and Archaeology Department, San Carlos Apache Tribe, San Carlos, AZ
Director, Apache Cultural Program, Yavapai-Apache Nation, Camp Verde, AZ
Director, Yavapai Cultural Program, Yavapai-Apache Nation, Camp Verde, AZ
Tribal Secretary, Havasupai Tribe, Supai, AZ
Environmental Protection Officer, Environmental Quality Services, Western Regional Office, Bureau of Indian Affairs, Phoenix, AZ

APPENDIX C
USFWS IPaC Online Query

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arizona Ecological Services Field Office
9828 North 31st Ave
#c3
Phoenix, AZ 85051-2517
Phone: (602) 242-0210 Fax: (602) 242-2513

In Reply Refer To: 01/19/2026 18:10:17 UTC
Project Code: 2022-0090076
Project Name: 169-5 Comms Site

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The Fish and Wildlife Service (Service) is providing this list under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The list you have generated identifies threatened, endangered, proposed, and candidate species, and designated and proposed critical habitat, that *may* occur within the One-Range that has been delineated for the species (candidate, proposed, or listed) and it's critical habitat (designated or proposed) with which your project polygon intersects. These range delineations are based on biological metrics, and do not necessarily represent exactly where the species is located. Please refer to the species information found on ECOS to determine if suitable habitat for the species on your list occurs in your project area.

The purpose of the Act is to provide a means whereby threatened and endangered species and the habitats upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of Federal trust resources and to determine whether projects may affect federally listed species and/or designated critical habitat. A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.
If the Federal action agency determines that listed species or critical habitat *may be affected* by a federally funded, permitted or authorized activity, the agency must consult with us pursuant to 50 CFR 402. Note that a "may affect" determination includes effects that may not be adverse and that may be beneficial, insignificant, or discountable. An effect exists even if only one individual

or habitat segment may be affected. The effects analysis should include the entire action area, which often extends well outside the project boundary or "footprint." For example, projects that involve streams and river systems should consider downstream affects. If the Federal action agency determines that the action may jeopardize a *proposed* species or may adversely modify *proposed* critical habitat, the agency must enter into a section 7 conference. The agency may choose to confer with us on an action that may affect proposed species or critical habitat.

Candidate species are those for which there is sufficient information to support a proposal for listing. Although candidate species have no legal protection under the Act, we recommend that they be considered in the planning process in the event they become proposed or listed prior to project completion. More information on the regulations (50 CFR 402) and procedures for section 7 consultation, including the role of permit or license applicants, can be found in our Endangered Species Consultation Handbook at: https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf.

We also advise you to consider species protected under the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712) and the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668 *et seq.*). The MBTA prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when authorized by the Service. The Eagle Act prohibits anyone, without a permit, from taking (including disturbing) eagles, and their parts, nests, or eggs. Currently 1,026 species of birds are protected by the MBTA, including the western burrowing owl (*Athene cunicularia hypugaea*). Protected western burrowing owls can be found in urban areas and may use their nest/burrows year-round; destruction of the burrow may result in the unpermitted take of the owl or their eggs.

If a bald eagle or golden eagle nest occurs in or near the proposed project area, our office should be contacted for Technical Assistance. An evaluation must be performed to determine whether the project is likely to disturb or harm eagles. The National Bald Eagle Management Guidelines provide recommendations to minimize potential project impacts to bald eagles (see https://www.fws.gov/law/bald-and-golden-eagle-protection-act and https://www.fws.gov/program/eagle-management).

The Division of Migratory Birds (505/248-7882) administers and issues permits under the MBTA and Eagle Act, while our office can provide guidance and Technical Assistance. For more information regarding the MBTA, BGEPA, and permitting processes, please visit the following web site: https://www.fws.gov/program/migratory-bird-permit. Guidance for minimizing impacts to migratory birds for communication tower projects (e.g. cellular, digital television, radio, and emergency broadcast) can be found at https://www.fws.gov/media/recommended-best-practices-communication-tower-design-siting-construction-operation.

The U.S. Army Corps of Engineers (Corps) may regulate activities that involve streams (including some intermittent streams) and/or wetlands. We recommend that you contact the Corps to determine their interest in proposed projects in these areas. For activities within a National Wildlife Refuge, we recommend that you contact refuge staff for specific information about refuge resources, please visit this link or visit https://www.fws.gov/program/national-

wildlife-refuge-system to locate the refuge you would be working in or around.

If your action is on tribal land or has implications for off-reservation tribal interests, we encourage you to contact the tribe(s) and the Bureau of Indian Affairs (BIA) to discuss potential tribal concerns, and to invite any affected tribe and the BIA to participate in the section 7 consultation. In keeping with our tribal trust responsibility, we will notify tribes that may be affected by proposed actions when section 7 consultation is initiated. For more information, please contact our Tribal Coordinator, John Nystedt, at 928/556-2160 or John_Nystedt@fws.gov.

We also recommend you seek additional information and coordinate your project with the Arizona Game and Fish Department. Information on known species detections, special status species, and Arizona species of greatest conservation need, such as the western burrowing owl and the Sonoran desert tortoise (*Gopherus morafkai*) can be found by using their Online Environmental Review Tool, administered through the Heritage Data Management System and Project Evaluation Program (https://www.azgfd.com/wildlife-conservation/planning-for-wildlife/project-evaluation-program/).

We appreciate your concern for threatened and endangered species. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office. If we may be of further assistance, please contact our Flagstaff office at 928/556-2118 for projects in northern Arizona, our general Phoenix number 602/242-0210 for central Arizona, or 520/670-6144 for projects in southern Arizona.

Sincerely,
/s/

Heather Whitlaw
Field Supervisor
Attachment

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

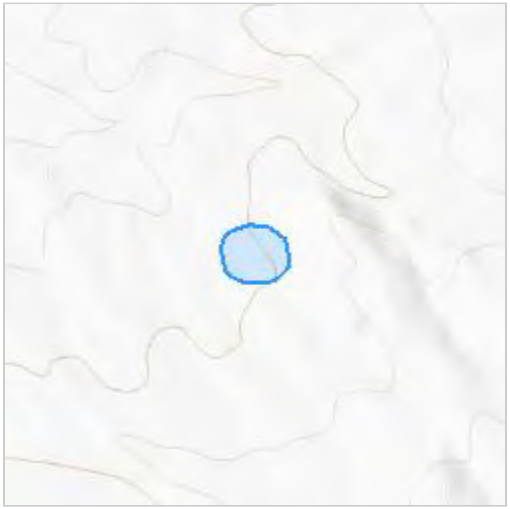
This species list is provided by:

Arizona Ecological Services Field Office
9828 North 31st Ave
#c3
Phoenix, AZ 85051-2517
(602) 242-0210

PROJECT SUMMARY

Project Code: 2022-0090076
Project Name: 169-5 Comms Site
Project Type: Department of Energy Operations
Project Description: Communication structure
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@34.2600241,-113.09994417146063,14z



Counties: Yavapai County, Arizona

ENDANGERED SPECIES ACT SPECIES

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

BIRDS

NAME	STATUS
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

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1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act (MBTA). Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their nests, should follow appropriate regulations and implement required avoidance and minimization measures, as described in the various links on this page.

The data in this location indicates that no eagles have been observed in this area. This does not mean eagles are not present in your project area, especially if the area is difficult to survey. Please review the 'Steps to Take When No Results Are Returned' section of the Supplemental Information on Migratory Birds and Eagles document to determine if your project is in a poorly surveyed area. If it is, you may need to rely on other resources to determine if eagles may be present (e.g. your local FWS field office, state surveys, your own surveys).

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

THERE ARE NO FWS MIGRATORY BIRDS OF CONCERN WITHIN THE VICINITY OF YOUR PROJECT AREA.

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

THERE ARE NO WETLANDS WITHIN YOUR PROJECT AREA.

IPAC USER CONTACT INFORMATION

Agency: WestLand Engineering and Environmental Services
Name: Catherine Esquer
Address: 4001 E Paradise Falls Dr
City: Tucson
State: AZ
Zip: 85712
Email cesquer@westlandresources.com
Phone: 5202272253

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Western Area Power Administration

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arizona Ecological Services Field Office
9828 North 31st Ave
#c3
Phoenix, AZ 85051-2517
Phone: (602) 242-0210 Fax: (602) 242-2513

In Reply Refer To: 01/19/2026 18:07:51 UTC
Project Code: 2023-0103076
Project Name: Pete Smith Peak Comms Facility

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The Fish and Wildlife Service (Service) is providing this list under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The list you have generated identifies threatened, endangered, proposed, and candidate species, and designated and proposed critical habitat, that *may* occur within the One-Range that has been delineated for the species (candidate, proposed, or listed) and it's critical habitat (designated or proposed) with which your project polygon intersects. These range delineations are based on biological metrics, and do not necessarily represent exactly where the species is located. Please refer to the species information found on ECOS to determine if suitable habitat for the species on your list occurs in your project area.

The purpose of the Act is to provide a means whereby threatened and endangered species and the habitats upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of Federal trust resources and to determine whether projects may affect federally listed species and/or designated critical habitat. A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.
If the Federal action agency determines that listed species or critical habitat *may be affected* by a federally funded, permitted or authorized activity, the agency must consult with us pursuant to 50 CFR 402. Note that a "may affect" determination includes effects that may not be adverse and that may be beneficial, insignificant, or discountable. An effect exists even if only one individual

or habitat segment may be affected. The effects analysis should include the entire action area, which often extends well outside the project boundary or "footprint." For example, projects that involve streams and river systems should consider downstream affects. If the Federal action agency determines that the action may jeopardize a *proposed* species or may adversely modify *proposed* critical habitat, the agency must enter into a section 7 conference. The agency may choose to confer with us on an action that may affect proposed species or critical habitat.

Candidate species are those for which there is sufficient information to support a proposal for listing. Although candidate species have no legal protection under the Act, we recommend that they be considered in the planning process in the event they become proposed or listed prior to project completion. More information on the regulations (50 CFR 402) and procedures for section 7 consultation, including the role of permit or license applicants, can be found in our Endangered Species Consultation Handbook at: https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf.

We also advise you to consider species protected under the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712) and the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668 *et seq.*). The MBTA prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when authorized by the Service. The Eagle Act prohibits anyone, without a permit, from taking (including disturbing) eagles, and their parts, nests, or eggs. Currently 1,026 species of birds are protected by the MBTA, including the western burrowing owl (*Athene cunicularia hypugaea*). Protected western burrowing owls can be found in urban areas and may use their nest/burrows year-round; destruction of the burrow may result in the unpermitted take of the owl or their eggs.

If a bald eagle or golden eagle nest occurs in or near the proposed project area, our office should be contacted for Technical Assistance. An evaluation must be performed to determine whether the project is likely to disturb or harm eagles. The National Bald Eagle Management Guidelines provide recommendations to minimize potential project impacts to bald eagles (see https://www.fws.gov/law/bald-and-golden-eagle-protection-act and https://www.fws.gov/program/eagle-management).

The Division of Migratory Birds (505/248-7882) administers and issues permits under the MBTA and Eagle Act, while our office can provide guidance and Technical Assistance. For more information regarding the MBTA, BGEPA, and permitting processes, please visit the following web site: https://www.fws.gov/program/migratory-bird-permit. Guidance for minimizing impacts to migratory birds for communication tower projects (e.g. cellular, digital television, radio, and emergency broadcast) can be found at https://www.fws.gov/media/recommended-best-practices-communication-tower-design-siting-construction-operation.

The U.S. Army Corps of Engineers (Corps) may regulate activities that involve streams (including some intermittent streams) and/or wetlands. We recommend that you contact the Corps to determine their interest in proposed projects in these areas. For activities within a National Wildlife Refuge, we recommend that you contact refuge staff for specific information about refuge resources, please visit this link or visit https://www.fws.gov/program/national-

wildlife-refuge-system to locate the refuge you would be working in or around.

If your action is on tribal land or has implications for off-reservation tribal interests, we encourage you to contact the tribe(s) and the Bureau of Indian Affairs (BIA) to discuss potential tribal concerns, and to invite any affected tribe and the BIA to participate in the section 7 consultation. In keeping with our tribal trust responsibility, we will notify tribes that may be affected by proposed actions when section 7 consultation is initiated. For more information, please contact our Tribal Coordinator, John Nystedt, at 928/556-2160 or John_Nystedt@fws.gov.

We also recommend you seek additional information and coordinate your project with the Arizona Game and Fish Department. Information on known species detections, special status species, and Arizona species of greatest conservation need, such as the western burrowing owl and the Sonoran desert tortoise (*Gopherus morafkai*) can be found by using their Online Environmental Review Tool, administered through the Heritage Data Management System and Project Evaluation Program (https://www.azgfd.com/wildlife-conservation/planning-for-wildlife/project-evaluation-program/).

We appreciate your concern for threatened and endangered species. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office. If we may be of further assistance, please contact our Flagstaff office at 928/556-2118 for projects in northern Arizona, our general Phoenix number 602/242-0210 for central Arizona, or 520/670-6144 for projects in southern Arizona.

Sincerely,
/s/

Heather Whitlaw
Field Supervisor
Attachment

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

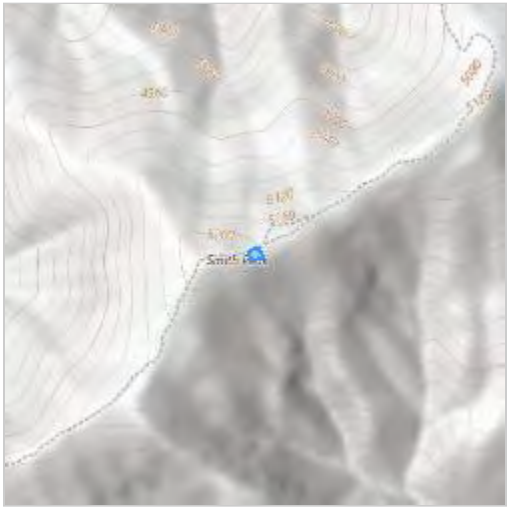
This species list is provided by:

Arizona Ecological Services Field Office
9828 North 31st Ave
#c3
Phoenix, AZ 85051-2517
(602) 242-0210

PROJECT SUMMARY

Project Code: 2023-0103076
Project Name: Pete Smith Peak Comms Facility
Project Type: Distribution Line - New Construction - Above Ground
Project Description: Communications tower
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@34.06521875,-113.35474000601266,14z



Counties: La Paz County, Arizona

ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

BIRDS

NAME	STATUS
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

FISHES

NAME	STATUS
Gila Topminnow (incl. Yaqui) *Poeciliopsis occidentalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1116	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow

appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

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1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Dec 1 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

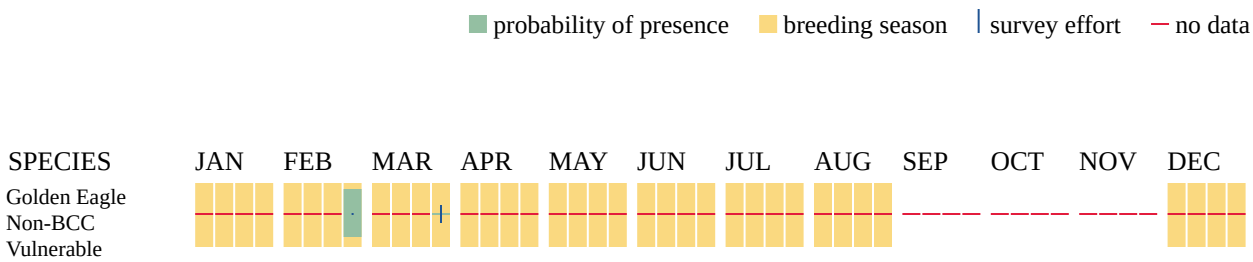
Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Black-chinned Sparrow *Spizella atrogularis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9447	Breeds Apr 15 to Jul 31
Costa's Hummingbird *Calypte costae* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9470	Breeds Jan 15 to Jun 10
Gila Woodpecker *Melanerpes uropygialis* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/5960	Breeds Apr 1 to Aug 31
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Dec 1 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

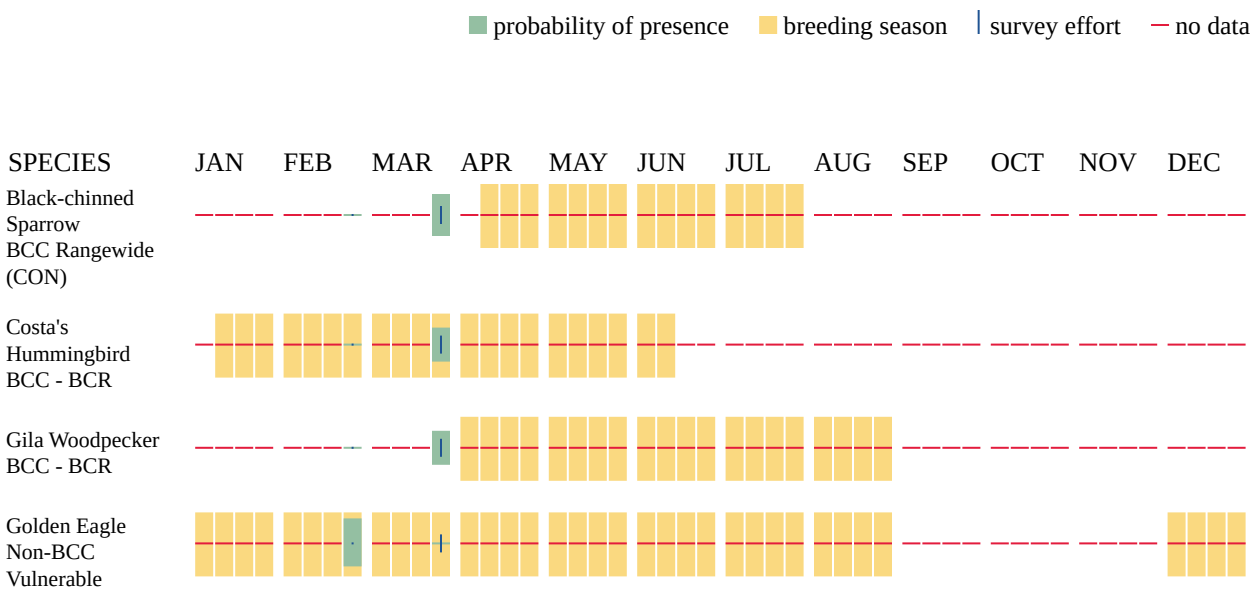
Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

THERE ARE NO WETLANDS WITHIN YOUR PROJECT AREA.

IPAC USER CONTACT INFORMATION

Agency: WestLand Engineering and Environmental Services
Name: Catherine Esquer
Address: 4001 E Paradise Falls Dr
City: Tucson
State: AZ
Zip: 85712
Email cesquer@westlandresources.com
Phone: 5202272253

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Western Area Power Administration

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arizona Ecological Services Field Office
9828 North 31st Ave
#c3
Phoenix, AZ 85051-2517
Phone: (602) 242-0210 Fax: (602) 242-2513

In Reply Refer To: 01/19/2026 18:09:47 UTC
Project Code: 2022-0083563
Project Name: APS Bagdad Transmission Line

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The Fish and Wildlife Service (Service) is providing this list under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The list you have generated identifies threatened, endangered, proposed, and candidate species, and designated and proposed critical habitat, that *may* occur within the One-Range that has been delineated for the species (candidate, proposed, or listed) and it's critical habitat (designated or proposed) with which your project polygon intersects. These range delineations are based on biological metrics, and do not necessarily represent exactly where the species is located. Please refer to the species information found on ECOS to determine if suitable habitat for the species on your list occurs in your project area.

The purpose of the Act is to provide a means whereby threatened and endangered species and the habitats upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of Federal trust resources and to determine whether projects may affect federally listed species and/or designated critical habitat. A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.
If the Federal action agency determines that listed species or critical habitat *may be affected* by a federally funded, permitted or authorized activity, the agency must consult with us pursuant to 50 CFR 402. Note that a "may affect" determination includes effects that may not be adverse and that may be beneficial, insignificant, or discountable. An effect exists even if only one individual

or habitat segment may be affected. The effects analysis should include the entire action area, which often extends well outside the project boundary or "footprint." For example, projects that involve streams and river systems should consider downstream affects. If the Federal action agency determines that the action may jeopardize a *proposed* species or may adversely modify *proposed* critical habitat, the agency must enter into a section 7 conference. The agency may choose to confer with us on an action that may affect proposed species or critical habitat.

Candidate species are those for which there is sufficient information to support a proposal for listing. Although candidate species have no legal protection under the Act, we recommend that they be considered in the planning process in the event they become proposed or listed prior to project completion. More information on the regulations (50 CFR 402) and procedures for section 7 consultation, including the role of permit or license applicants, can be found in our Endangered Species Consultation Handbook at: https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf.

We also advise you to consider species protected under the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712) and the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668 *et seq.*). The MBTA prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when authorized by the Service. The Eagle Act prohibits anyone, without a permit, from taking (including disturbing) eagles, and their parts, nests, or eggs. Currently 1,026 species of birds are protected by the MBTA, including the western burrowing owl (*Athene cunicularia hypugaea*). Protected western burrowing owls can be found in urban areas and may use their nest/burrows year-round; destruction of the burrow may result in the unpermitted take of the owl or their eggs.

If a bald eagle or golden eagle nest occurs in or near the proposed project area, our office should be contacted for Technical Assistance. An evaluation must be performed to determine whether the project is likely to disturb or harm eagles. The National Bald Eagle Management Guidelines provide recommendations to minimize potential project impacts to bald eagles (see https://www.fws.gov/law/bald-and-golden-eagle-protection-act and https://www.fws.gov/program/eagle-management).

The Division of Migratory Birds (505/248-7882) administers and issues permits under the MBTA and Eagle Act, while our office can provide guidance and Technical Assistance. For more information regarding the MBTA, BGEPA, and permitting processes, please visit the following web site: https://www.fws.gov/program/migratory-bird-permit. Guidance for minimizing impacts to migratory birds for communication tower projects (e.g. cellular, digital television, radio, and emergency broadcast) can be found at https://www.fws.gov/media/recommended-best-practices-communication-tower-design-siting-construction-operation.

The U.S. Army Corps of Engineers (Corps) may regulate activities that involve streams (including some intermittent streams) and/or wetlands. We recommend that you contact the Corps to determine their interest in proposed projects in these areas. For activities within a National Wildlife Refuge, we recommend that you contact refuge staff for specific information about refuge resources, please visit this link or visit https://www.fws.gov/program/national-

wildlife-refuge-system to locate the refuge you would be working in or around.

If your action is on tribal land or has implications for off-reservation tribal interests, we encourage you to contact the tribe(s) and the Bureau of Indian Affairs (BIA) to discuss potential tribal concerns, and to invite any affected tribe and the BIA to participate in the section 7 consultation. In keeping with our tribal trust responsibility, we will notify tribes that may be affected by proposed actions when section 7 consultation is initiated. For more information, please contact our Tribal Coordinator, John Nystedt, at 928/556-2160 or John_Nystedt@fws.gov.

We also recommend you seek additional information and coordinate your project with the Arizona Game and Fish Department. Information on known species detections, special status species, and Arizona species of greatest conservation need, such as the western burrowing owl and the Sonoran desert tortoise (*Gopherus morafkai*) can be found by using their Online Environmental Review Tool, administered through the Heritage Data Management System and Project Evaluation Program (https://www.azgfd.com/wildlife-conservation/planning-for-wildlife/project-evaluation-program/).

We appreciate your concern for threatened and endangered species. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office. If we may be of further assistance, please contact our Flagstaff office at 928/556-2118 for projects in northern Arizona, our general Phoenix number 602/242-0210 for central Arizona, or 520/670-6144 for projects in southern Arizona.

Sincerely,
/s/

Heather Whitlaw
Field Supervisor
Attachment

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Arizona Ecological Services Field Office
9828 North 31st Ave
#c3
Phoenix, AZ 85051-2517
(602) 242-0210

PROJECT SUMMARY

Project Code: 2022-0083563
Project Name: APS Bagdad Transmission Line
Project Type: Department of Energy Operations
Project Description: Construction of a transmission line and supporting facilities
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@34.474623199999996,-113.18288006825824,14z

Counties: Yavapai County, Arizona

ENDANGERED SPECIES ACT SPECIES

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

BIRDS

NAME	STATUS
Southwestern Willow Flycatcher *Empidonax traillii extimus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

REPTILES

NAME	STATUS
Northern Mexican Gartersnake *Thamnophis eques megalops* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7655	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened
Suckley's Cuckoo Bumble Bee *Bombus suckleyi* Population: No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10885	Proposed Endangered

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

---

1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act (MBTA). Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their nests, should follow appropriate regulations and implement required avoidance and minimization measures, as described in the various links on this page.

The data in this location indicates that no eagles have been observed in this area. This does not mean eagles are not present in your project area, especially if the area is difficult to survey. Please review the 'Steps to Take When No Results Are Returned' section of the Supplemental Information on Migratory Birds and Eagles document to determine if your project is in a poorly surveyed area. If it is, you may need to rely on other resources to determine if eagles may be present (e.g. your local FWS field office, state surveys, your own surveys).

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Black-chinned Sparrow *Spizella atrogularis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9447	Breeds Apr 15 to Jul 31
Costa's Hummingbird *Calypte costae* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9470	Breeds Jan 15 to Jun 10
Gila Woodpecker *Melanerpes uropygialis* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/5960	Breeds Apr 1 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

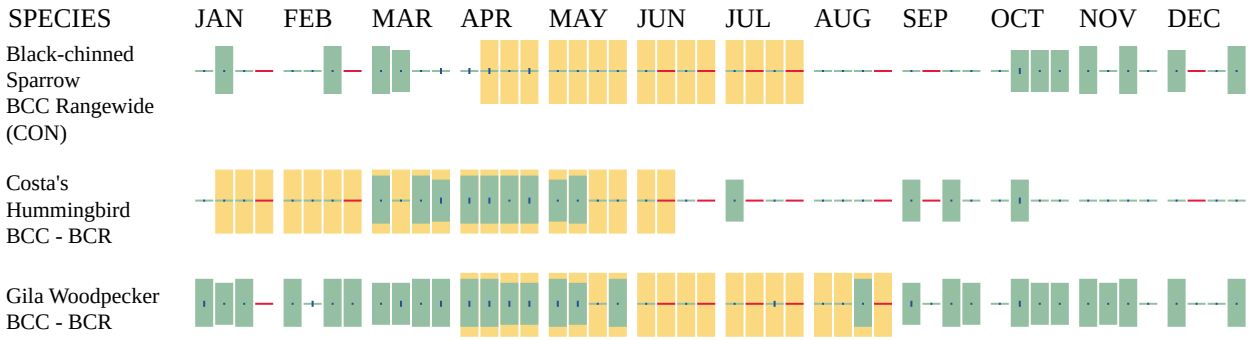
Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

■ probability of presence ■ breeding season | survey effort – no data



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

WETLAND INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE VISIT HTTPS://WWW.FWS.GOV/WETLANDS/DATA/MAPPER.HTML OR CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

IPAC USER CONTACT INFORMATION

Agency: WestLand Engineering and Environmental Services
Name: Catherine Esquer
Address: 4001 E Paradise Falls Dr
City: Tucson
State: AZ
Zip: 85712
Email cesquer@westlandresources.com
Phone: 5202272253

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Western Area Power Administration

APPENDIX D
AGFD HDMS Online Review

Arizona Environmental Online Review Tool Report

Arizona Game and Fish Department Mission
To conserve Arizona's diverse wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.

Project Name:
APS Bagdad Transmission Line

User Project Number:
2433.01

Project Description:
Construction of transmission line and supporting facilities

Project Type:
Energy Storage/Production/Transfer, Energy Transfer, Power line/electric line (new)

Contact Person:
Catherine Esquer

Organization:
WestLand Engineering and Environmental Services

On Behalf Of:
CONSULTING

Project ID:
HGIS-17238

Please review the entire report for project type and/or species recommendations for the location information entered. Please retain a copy for future reference.

Disclaimer:

1. This Environmental Review is based on the project study area that was entered. The report must be updated if the project study area, location, or the type of project changes.
2. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area. This review is also not intended to replace environmental consultation (including federal consultation under the Endangered Species Act), land use permitting, or the Departments review of site-specific projects.
3. The Departments Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. HDMS data contains information about species occurrences that have actually been reported to the Department. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. HabiMap Arizona data, specifically Species of Greatest Conservation Need (SGCN) under our State Wildlife Action Plan (SWAP) and Species of Economic and Recreational Importance (SERI), represent potential species distribution models for the State of Arizona which are subject to ongoing change, modification and refinement. The status of a wildlife resource can change quickly, and the availability of new data will necessitate a refined assessment.

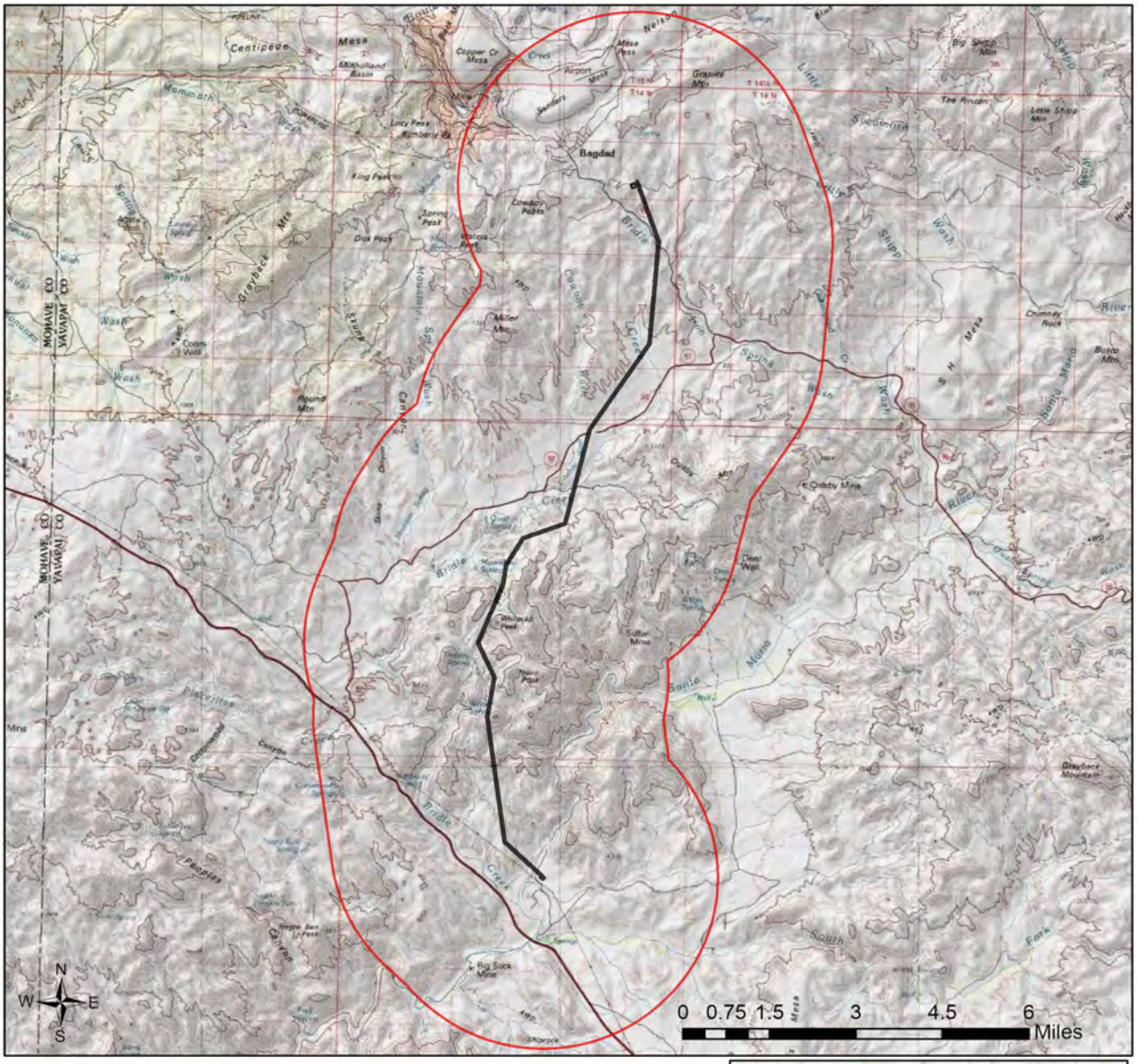
Locations Accuracy Disclaimer:
Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Report is solely responsible for the project location and thus the correctness of the Project Review Report content.

Recommendations Disclaimer:

1. The Department is interested in the conservation of all fish and wildlife resources, including those species listed in this report and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
2. Recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation).
3. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project. These recommendations are preliminary in scope, designed to provide early considerations on all species of wildlife.
4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.
5. Further coordination with the Department requires the submittal of this Environmental Review Report with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map). Once AGFD had received the information, please allow 30 days for completion of project reviews. Send requests to:
   Project Evaluation Program, Habitat Branch
   Arizona Game and Fish Department
   5000 West Carefree Highway
   Phoenix, Arizona 85086-5000
   Phone Number: (623) 236-7600
   Fax Number: (623) 236-7366
   Or
   PEP@azgfd.gov
6. Coordination may also be necessary under the National Environmental Policy Act (NEPA) and/or Endangered Species Act (ESA). Site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies

APS Bagdad Transmission Line

USA Topo Basemap With Locator Map



Buffered Project Boundary

Project Boundary

Project Size (acres): 341.37

Lat/Long (DD): 34.4783 / -113.1761

County(s): Yavapai

AGFD Region(s): Kingman; Yuma

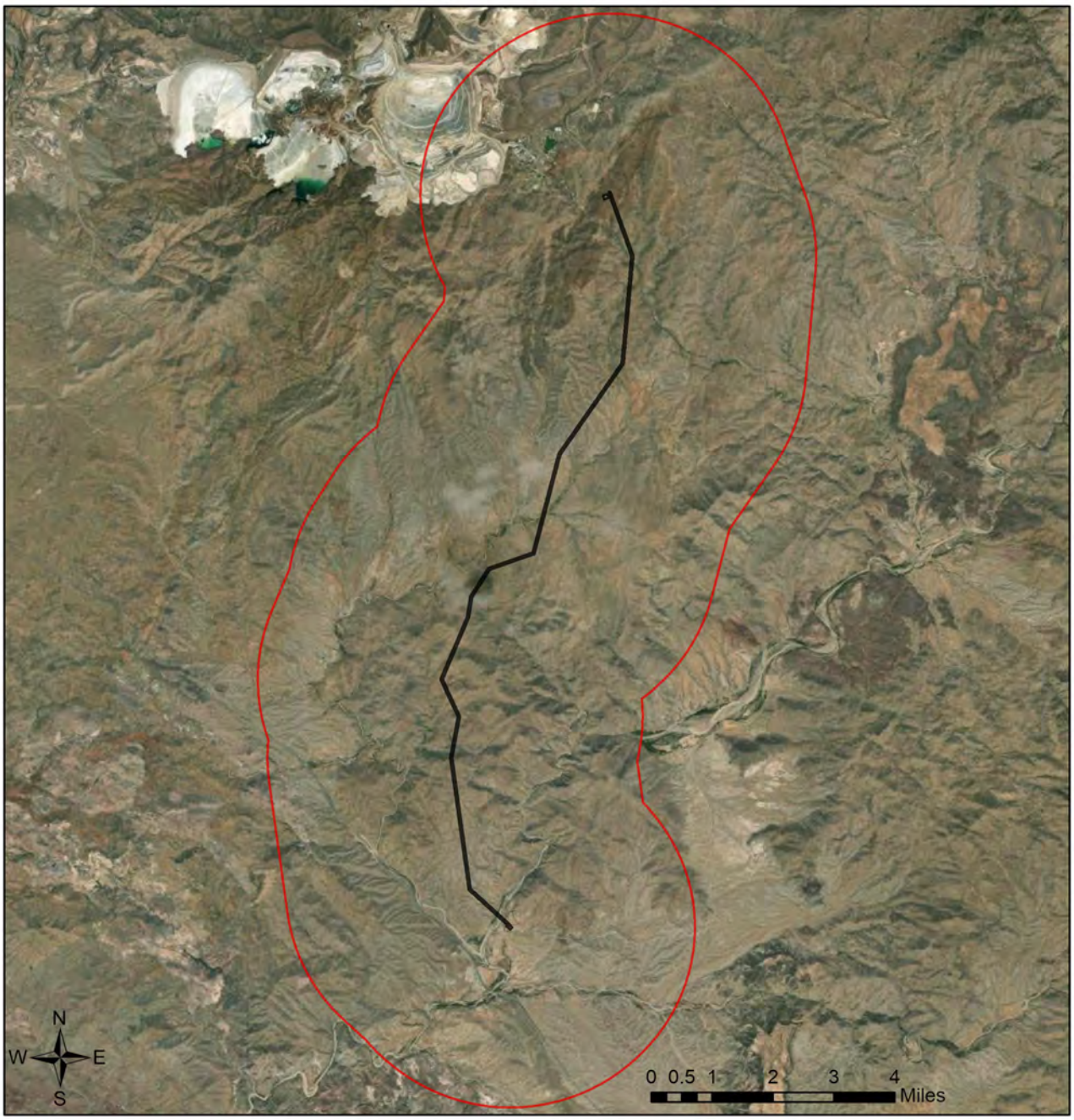
Township/Range(s): T12N, R9W; T13N, R9W; T14N, R9W

USGS Quad(s): BAGDAD; THORN PEAK

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

APS Bagdad Transmission Line

Web Map As Submitted By User



Buffered Project Boundary

Project Boundary

Project Size (acres): 341.37

Lat/Long (DD): 34.4783 / -113.1761

County(s): Yavapai

AGFD Region(s): Kingman; Yuma

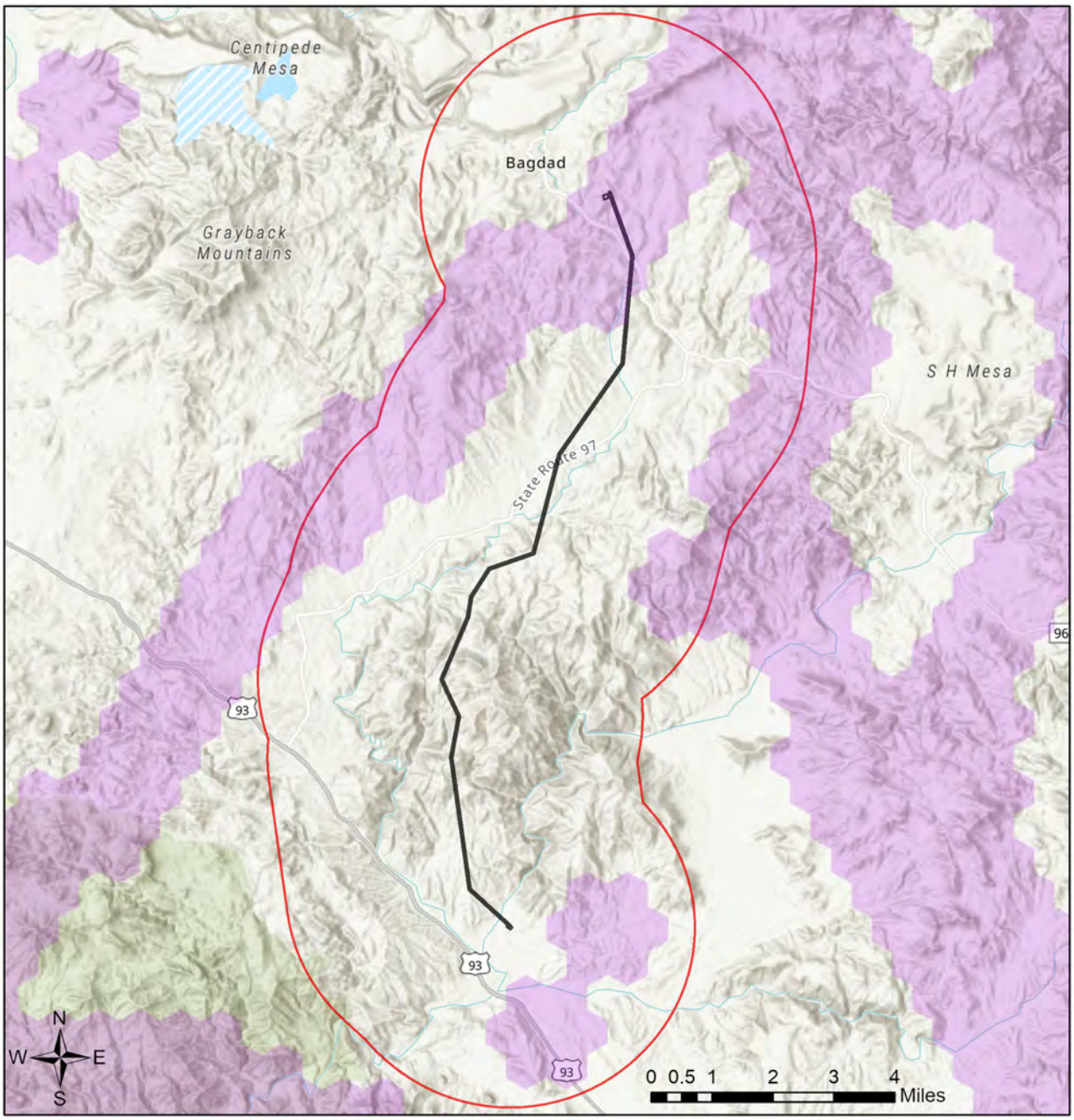
Township/Range(s): T12N, R9W; T13N, R9W; T14N, R9W

USGS Quad(s): BAGDAD; THORN PEAK

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

APS Bagdad Transmission Line

Important Areas



- Buffered Project Boundary
- Project Boundary
- Important Bird Areas
- Critical Habitat
- Pinal County Riparian
- Important Connectivity Zones
- Wildlife Connectivity

Project Size (acres): 341.37

Lat/Long (DD): 34.4783 / -113.1761

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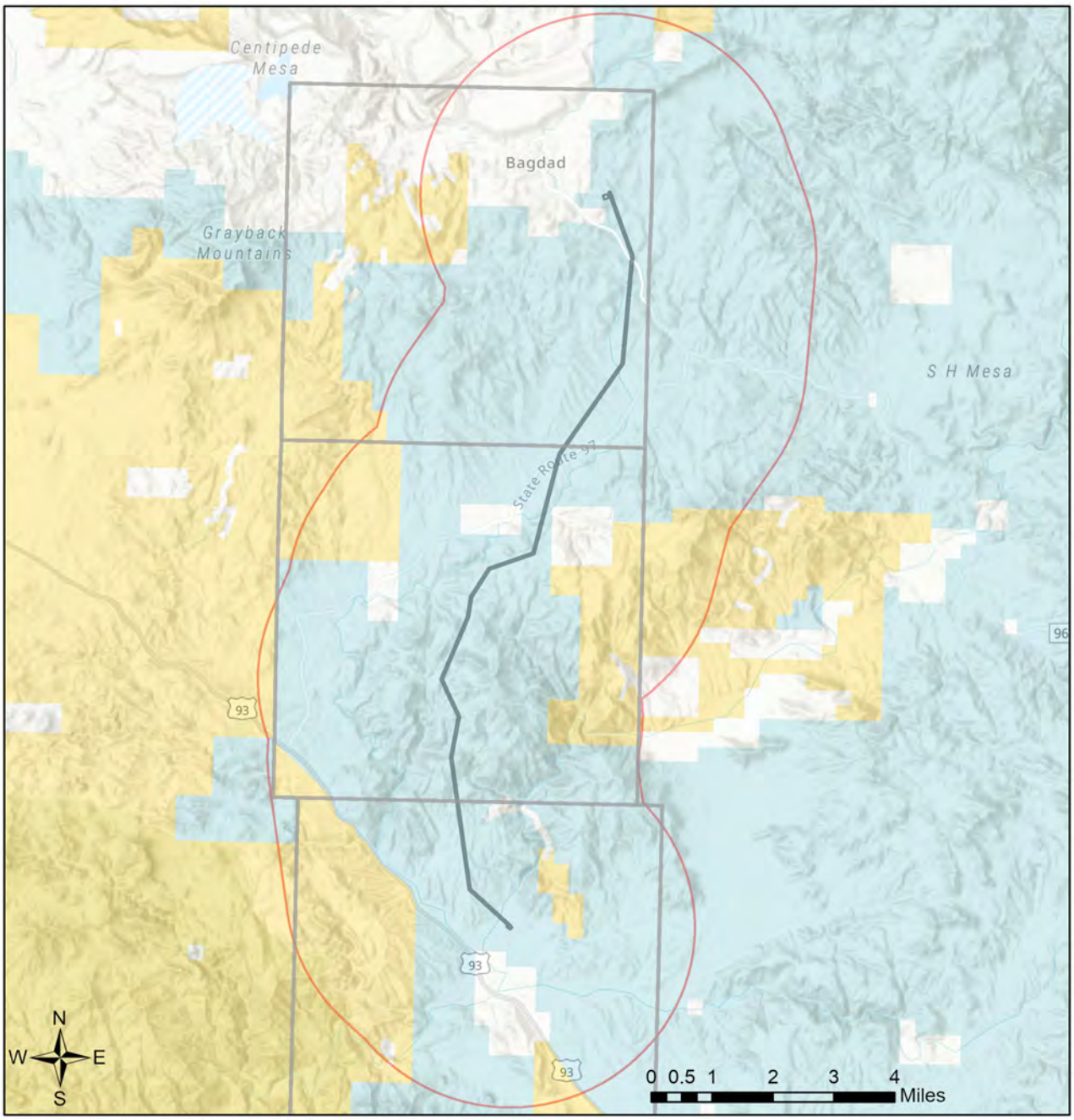
Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

APS Bagdad Transmission Line

Township/Ranges and Land Ownership



- Buffered Project Boundary
- Project Boundary
- AZ Game & Fish Dept.
- BLM
- BOR
- Indian Res.
- Military
- Mixed/Other
- National Park/Mon.
- Private
- State & Regional Parks
- State Trust
- US Forest Service
- Wildlife Area/Refuge
- Township/Ranges

Project Size (acres): 341.37

Lat/Long (DD): 34.4783 / -113.1761

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Township/Range(s): T12N, R9W; T13N, R9W; T14N, R9W

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Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Special Status Species Documented within 3 Miles of Project Vicinity

Anaxyrus microscaphus	Arizona Toad	SC		S	1B
Bat Colony					
Cicindela oregona maricopa	Maricopa Tiger Beetle	SC			
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S	1A
					1A
Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S	1A

Note: Status code definitions can be found at https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/
.

Special Areas Documented that Intersect with Project Footprint as Drawn

	Common Name	FWS	USFS		
Important Connectivity Zone	Wildlife Connectivity				

Note: Status code definitions can be found at https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/
.

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

	Common Name	FWS	USFS		
Agosia chrysogaster	Longfin Dace	SC		S	1B
Aix sponsa	Wood Duck				1B
	Harris' Antelope Squirrel				
Anaxyrus microscaphus	Arizona Toad	SC		S	1B
	Golden Eagle	BGA			
Aspidoscelis flagellicauda	Gila Spotted Whiptail				1B
Botaurus lentiginosus	American Bittern				1B
Buteo regalis	Ferruginous Hawk	SC		S	1B
Buteo swainsoni	Swainson's Hawk				1C
Buteogallus anthracinus	Common Black Hawk				1C
Calypte costae	Costa's Hummingbird				1C
Catostomus clarkii	Desert Sucker	SC	S	S	1B
Catostomus insignis	Sonora Sucker	SC	S	S	1B
Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S		1A
Colaptes chrysoides	Gilded Flicker			S	1B
Coluber bilineatus	Sonoran Whipsnake				1B
Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S	1B

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Crotalus cerberus	Arizona Black Rattlesnake					1B
Euderma maculatum	Spotted Bat	SC	S	S		1B
Eumops perotis californicus	Greater Western Bonneted Bat	SC		S		1B
Falco peregrinus anatum	American Peregrine Falcon	SC	S	S		1A
Gila robusta	Roundtail Chub	SC	S	S		1A
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		1A
Haliaeetus leucocephalus	Bald Eagle	SC, BGA	S	S		1A
Heloderma suspectum	Gila Monster					1A
Incilius alvarius	Sonoran Desert Toad					1B
Kinosternon sonoriense sonoriense	Desert Mud Turtle			S		1B
Lasiurus blossevillii	Western Red Bat		S			1B
Lasiurus xanthinus	Western Yellow Bat		S			1B
Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		1A
Lontra canadensis sonora	Southwestern River Otter	SC				1B
Macrotus californicus	California Leaf-nosed Bat	SC		S		1B
Melanerpes uropygialis	Gila Woodpecker					1B
Melospiza lincolnii	Lincoln's Sparrow					1B
Melozone aberti	Abert's Towhee		S			1B
Micrathene whitneyi	Elf Owl					1C
Micruroides euryxanthus	Sonoran Coralsnake					1B
Myiarchus tyrannulus	Brown-crested Flycatcher					1C
Myotis occultus	Arizona Myotis	SC		S		1B
Myotis velifer	Cave Myotis	SC		S		1B
Myotis yumanensis	Yuma Myotis	SC				1B
Nyctinomops femorosaccus	Pocketed Free-tailed Bat					1B
Oreoscoptes montanus	Sage Thrasher					1C
Oreothlypis luciae	Lucy's Warbler					1C
Panthera onca	Jaguar	LE				1A
Passerculus sandwichensis	Savannah Sparrow					1B
Setophaga petechia	Yellow Warbler					1B
Sphyrapicus nuchalis	Red-naped Sapsucker					1C
Sphyrapicus thyroideus	Williamson's Sapsucker					1C
Spizella atrogularis	Black-chinned Sparrow					1C
Spizella breweri	Brewer's Sparrow					1C
Sturnella magna	Eastern Meadowlark					1C
Tadarida brasiliensis	Brazilian Free-tailed Bat					1B
Toxostoma lecontei	LeConte's Thrasher			S		1B
Troglodytes pacificus	Pacific Wren					1B

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Vireo bellii arizonae	Arizona Bell's Vireo					1B
Vireo vicinior	Gray Vireo		S			1C
Vulpes macrotis	Kit Fox	No Status				1B

Species of Economic and Recreation Importance Predicted that Intersect with Project Footprint as Drawn

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Callipepla gambelii	Gambel's Quail					
Odocoileus hemionus	Mule Deer					
Ovis canadensis nelsoni	Nelson Desert Bighorn Sheep					
Pecari tajacu	Javelina					
Puma concolor	Mountain Lion					
Ursus americanus	American Black Bear					
Zenaida asiatica	White-winged Dove					
Zenaida macroura	Mourning Dove					

Project Type: Energy Storage/Production/Transfer, Energy Transfer, Power line/electric line (new)

Project Type Recommendations:
Minimize the potential introduction or spread of exotic invasive species, including aquatic and terrestrial plants, animals, insects and pathogens. Precautions should be taken to wash and/or decontaminate all equipment utilized in the project activities before entering and leaving the site. See the Arizona Department of Agriculture website for a list of prohibited and restricted noxious weeds at https://www.invasivespeciesinfo.gov/unitedstates/az.shtml and the Arizona Native Plant Society https://aznps.com/invas for recommendations on how to control. To view a list of documented invasive species or to report invasive species in or near your project area visit iMapInvasives - a national cloud-based application for tracking and managing invasive species at https://imap.natureserve.org/imap/services/page/map.html.

- To build a list: zoom to your area of interest, use the identify/measure tool to draw a polygon around your area of interest, and select “See What’s Here” for a list of reported species. To export the list, you must have an account and be logged in. You can then use the export tool to draw a boundary and export the records in a csv file.

The Department recommends that wildlife surveys are conducted to determine if noise-sensitive species occur within the project area. Avoidance or minimization measures could include conducting project activities outside of breeding seasons.

For any powerlines built, proper design and construction of the transmission line is necessary to prevent or minimize risk of electrocution of raptors, owls, vultures, and golden or bald eagles, which are protected under state and federal laws. Limit project activities during the breeding season for birds, generally March through late August, depending on species in the local area (raptors breed in early February through May). Conduct avian surveys to determine bird species that may be utilizing the area and develop a plan to avoid disturbance during the nesting season. For underground powerlines, trenches should be covered or back-filled as soon as possible. Incorporate escape ramps in ditches or fencing along the perimeter to deter small mammals and herpetofauna (snakes, lizards, tortoise) from entering ditches. In addition, indirect affects to wildlife due to construction (timing of activity, clearing of rights-of-way, associated bridges and culverts, affects to wetlands, fences) should also be considered and mitigated.

Based on the project type entered, coordination with State Historic Preservation Office may be required (https://azstateparks.com/).

Based on the project type entered, coordination with U.S. Fish and Wildlife Service (Migratory Bird Treaty Act) may be required (https://www.fws.gov/office/arizona-ecological-services).

Vegetation restoration projects (including treatments of invasive or exotic species) should have a completed site-evaluation plan (identifying environmental conditions necessary to re-establish native vegetation), a revegetation plan (species, density, method of establishment), a short and long-term monitoring plan, including adaptive management guidelines to address needs for replacement vegetation.

Project Location and/or Species Recommendations:
HDMS records indicate that one or more native plants listed on the **Arizona Native Plant Law and Antiquities Act** have been documented within the vicinity of your project area. Please contact:
Arizona Department of Agriculture
1688 W Adams St.
Phoenix, AZ 85007
Phone: 602.542.4373
https://agriculture.az.gov/sites/default/files/Native%20Plant%20Rules%20-%20AZ%20Dept%20of%20Ag.pdf starts on page 44

HDMS records indicate that one or more **Listed, Proposed, or Candidate** species or **Critical Habitat** (Designated or Proposed) have been documented in the vicinity of your project. The Endangered Species Act (ESA) gives the US Fish and Wildlife Service (USFWS) regulatory authority over all federally listed species. Please contact USFWS Ecological Services Offices at https://www.fws.gov/office/arizona-ecological-services or:

Phoenix Main Office
9828 North 31st Avenue #C3
Phoenix, AZ 85051-2517
Phone: 602-242-0210
Fax: 602-242-2513

Tucson Sub-Office
201 N. Bonita Suite 141
Tucson, AZ 85745
Phone: 520-670-6144
Fax: 520-670-6155

Flagstaff Sub-Office
SW Forest Science Complex
2500 S. Pine Knoll Dr.
Flagstaff, AZ 86001
Phone: 928-556-2157
Fax: 928-556-2121

HDMS records indicate that **Sonoran Desert Tortoise** have been documented within the vicinity of your project area. Please review the Tortoise Handling Guidelines found at: https://www.azgfd.com/wildlife/nongamemanagement/tortoise/

Analysis indicates that your project is located in the vicinity of an identified ***wildlife habitat connectivity feature***.
The **Statewide Wildlife Connectivity Assessment's Important Connectivity Zones** (ICZs) represent general areas throughout the landscape which contribute the most to permeability of the whole landscape. ICZs may be used to help identify, in part, areas where more discrete corridor modeling ought to occur. The reports provide recommendations for opportunities to preserve or enhance permeability. Project planning and implementation efforts should focus on maintaining and improving opportunities for wildlife permeability. For information pertaining to the linkage assessment and wildlife species that may be affected, please refer to: https://s3.amazonaws.com/azgfd-portal-wordpress/azgfd.wp/wp-content/uploads/0001/01/23120719/ALIWCA_Final_Report_Perkl_2013_lowres.pdf.
Please contact the Project Evaluation Program (pep@azgfd.gov) for specific project recommendations.

Arizona Environmental Online Review Tool Report

Arizona Game and Fish Department Mission
To conserve Arizona's diverse wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.

Project Name:
169-5 Comms Site

User Project Number:
2433.01

Project Description:
Communication structure

Project Type:
Communication, Antenna and/or communication dish installation, New structure/cell tower

Contact Person:
Catherine Esquer

Organization:
WestLand Engineering and Environmental Services

On Behalf Of:
OTHER_FED

Project ID:
HGIS-17405

Please review the entire report for project type and/or species recommendations for the location information entered. Please retain a copy for future reference.

Disclaimer:

1. This Environmental Review is based on the project study area that was entered. The report must be updated if the project study area, location, or the type of project changes.
2. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area. This review is also not intended to replace environmental consultation (including federal consultation under the Endangered Species Act), land use permitting, or the Departments review of site-specific projects.
3. The Departments Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. HDMS data contains information about species occurrences that have actually been reported to the Department. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. HabiMap Arizona data, specifically Species of Greatest Conservation Need (SGCN) under our State Wildlife Action Plan (SWAP) and Species of Economic and Recreational Importance (SERI), represent potential species distribution models for the State of Arizona which are subject to ongoing change, modification and refinement. The status of a wildlife resource can change quickly, and the availability of new data will necessitate a refined assessment.

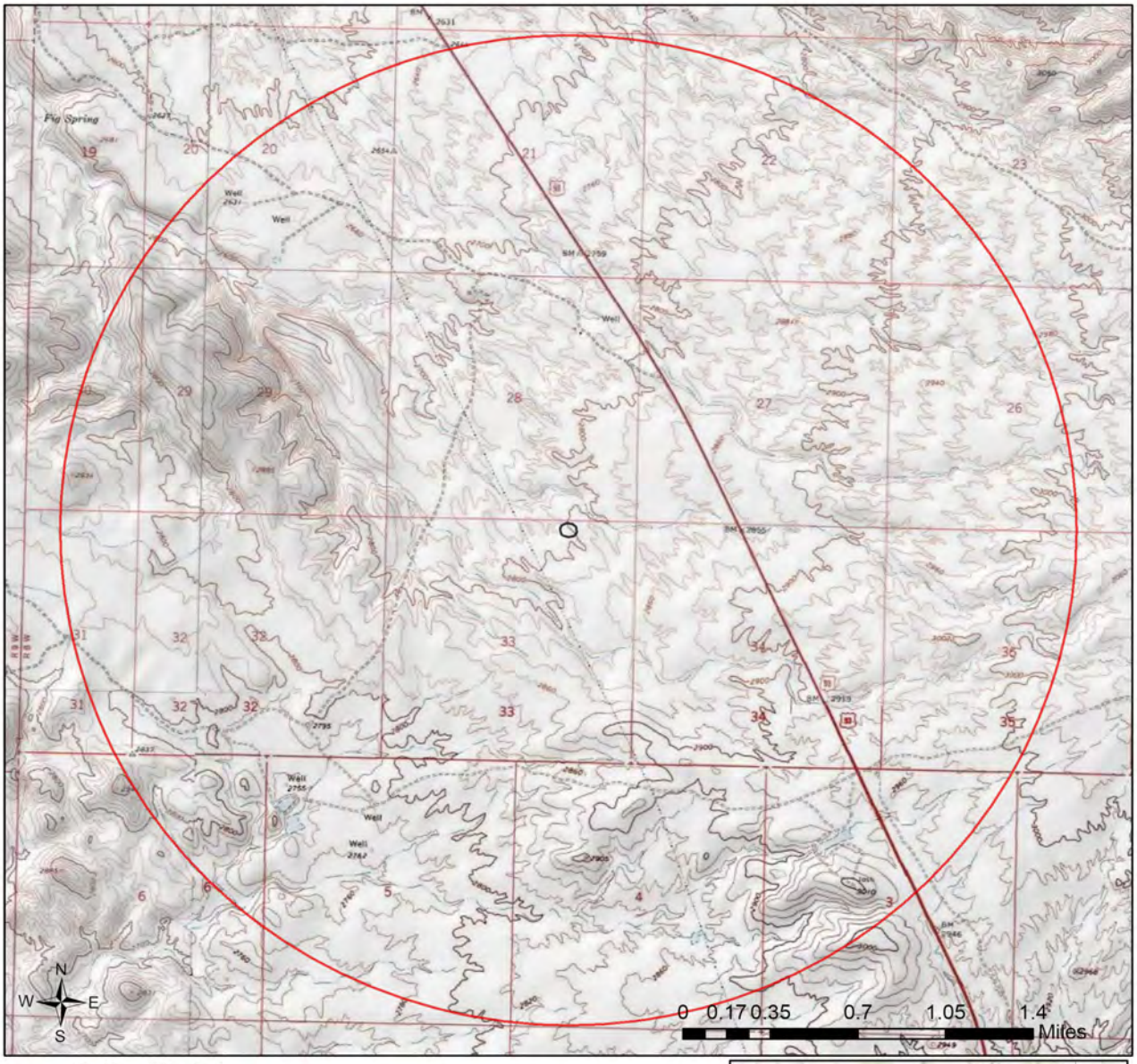
Locations Accuracy Disclaimer:
Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Report is solely responsible for the project location and thus the correctness of the Project Review Report content.

Recommendations Disclaimer:

1. The Department is interested in the conservation of all fish and wildlife resources, including those species listed in this report and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
2. Recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation).
3. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project. These recommendations are preliminary in scope, designed to provide early considerations on all species of wildlife.
4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.
5. Further coordination with the Department requires the submittal of this Environmental Review Report with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map). Once AGFD had received the information, please allow 30 days for completion of project reviews. Send requests to:
   Project Evaluation Program, Habitat Branch
   Arizona Game and Fish Department
   5000 West Carefree Highway
   Phoenix, Arizona 85086-5000
   Phone Number: (623) 236-7600
   Fax Number: (623) 236-7366
   Or
   PEP@azgfd.gov
6. Coordination may also be necessary under the National Environmental Policy Act (NEPA) and/or Endangered Species Act (ESA). Site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies

169-5 Comms Site

USA Topo Basemap With Locator Map



Buffered Project Boundary

Project Boundary

Project Size (acres): 1.91

Lat/Long (DD): 34.2601 / -113.1000

County(s): Yavapai

AGFD Region(s): Yuma

Township/Range(s): T11N, R8W

USGS Quad(s): MALPAIS MESA

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

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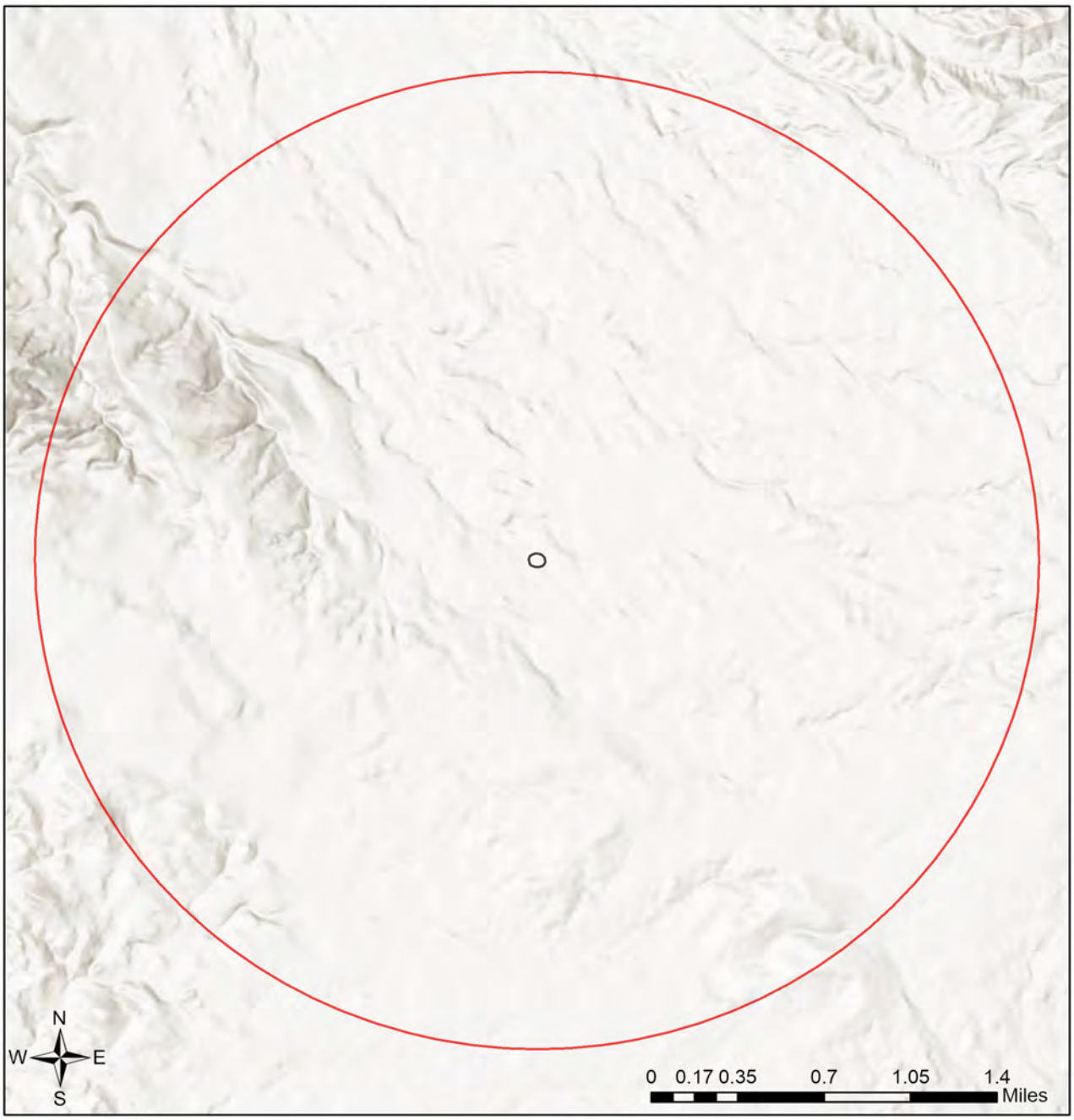
Web Map As Submitted By User



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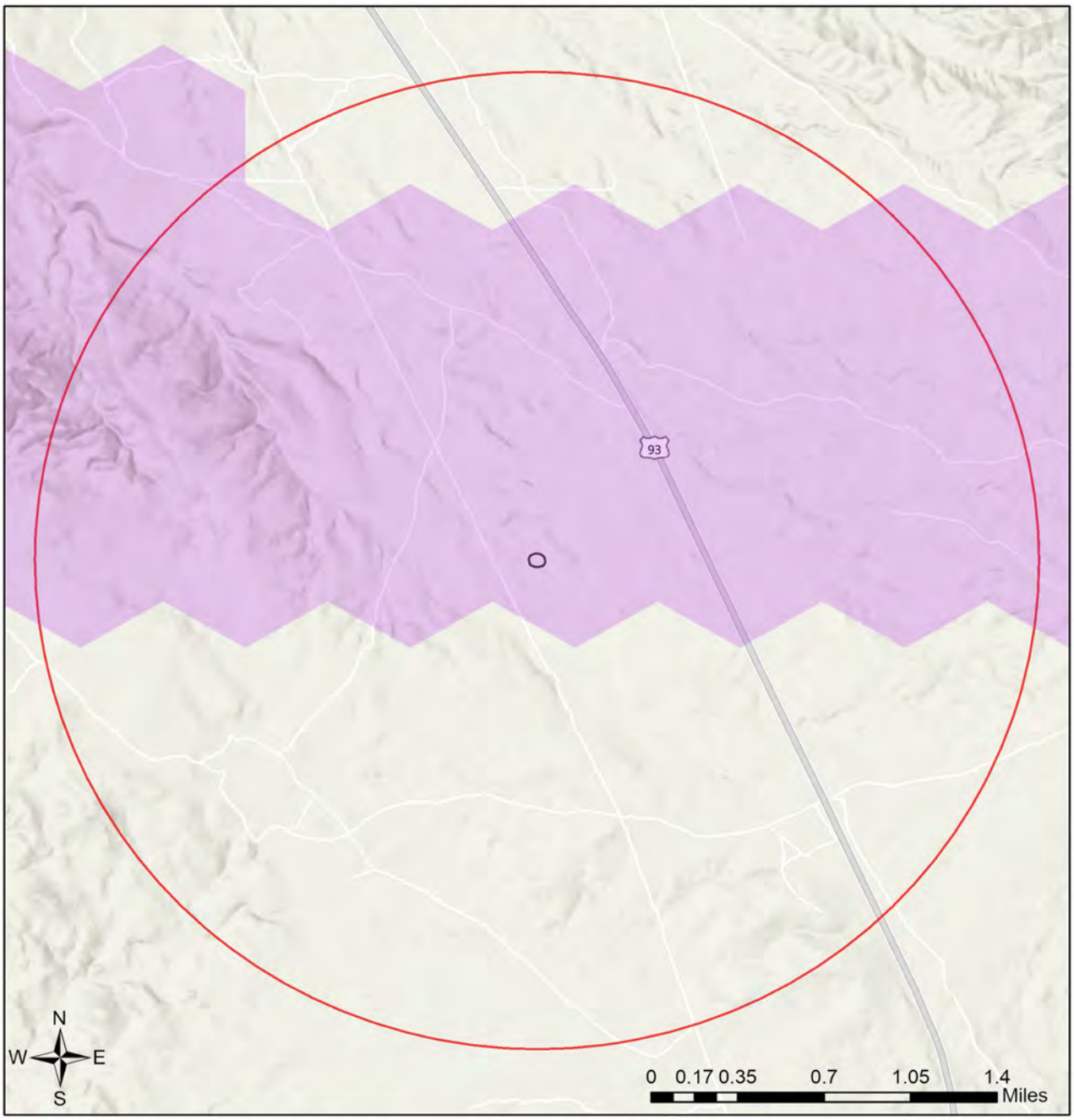
169-5 Comms Site

Important Areas



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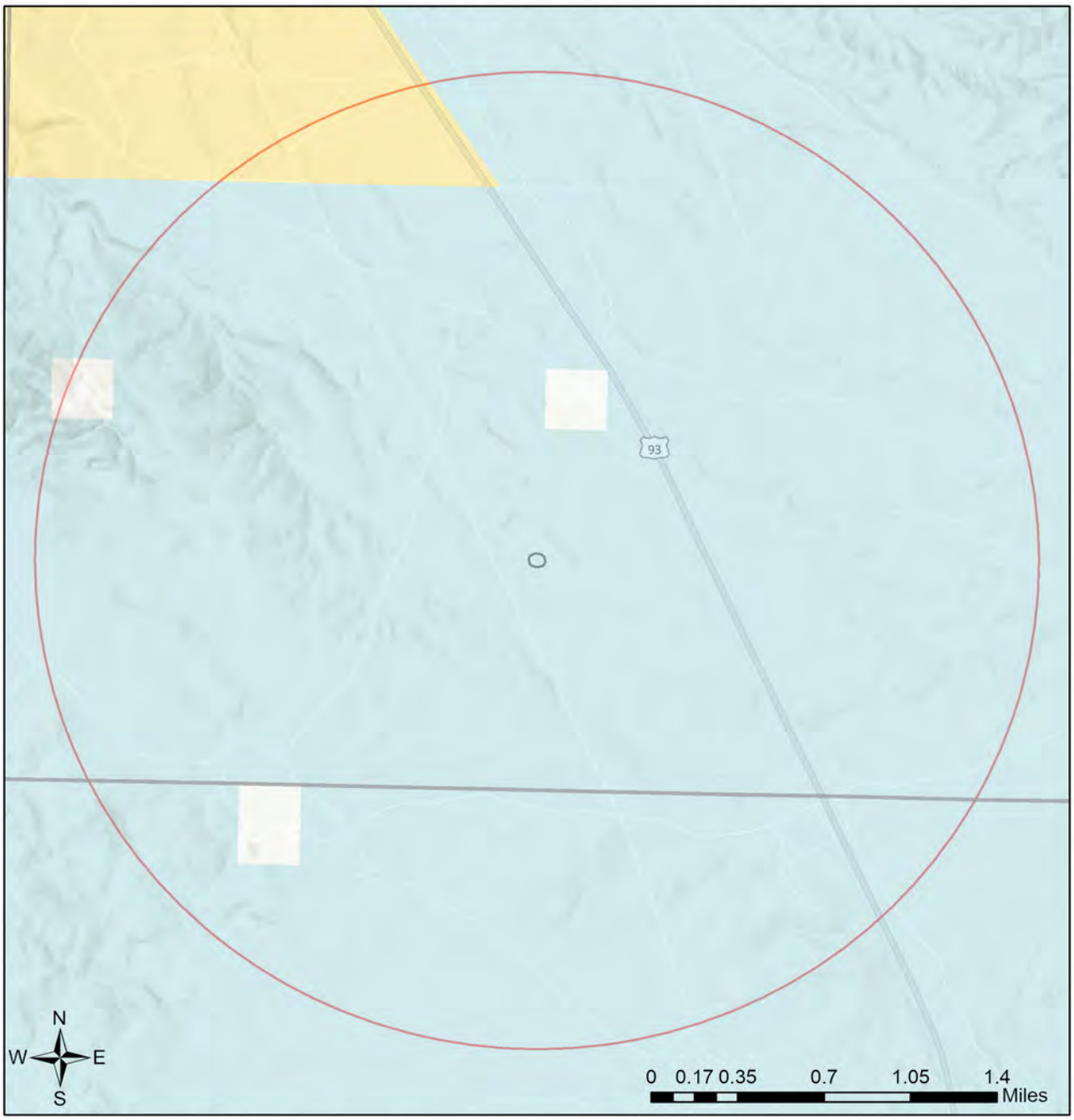
169-5 Comms Site

Township/Ranges and Land Ownership



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- BOR
- Indian Res.
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Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Special Status Species Documented within 2 Miles of Project Vicinity

Echinomastus johnsonii	Johnson's Fishhook Cactus	SR

Note: Status code definitions can be found at https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/
.

Special Areas Documented that Intersect with Project Footprint as Drawn

Important Connectivity Zone	Wildlife Connectivity

Note: Status code definitions can be found at https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/
.

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

	Common Name	FWS	USFS		
Ammospermophilus harrisii	Harris' Antelope Squirrel				1B
Aquila chrysaetos	Golden Eagle	BGA		S	1B
	Costa's Hummingbird				
Colaptes chrysoides	Gilded Flicker			S	1B
	Sonoran Whipsnake				
Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S	1B
	Spotted Bat	SC	S		
Eumops perotis californicus	Greater Western Bonneted Bat	SC		S	1B
	American Peregrine Falcon	SC	S		
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S	1A
	Bald Eagle	SC, BGA	S		
Heloderma suspectum	Gila Monster				1A
	Sonoran Desert Toad				
Lasiurus xanthinus	Western Yellow Bat		S		1B
Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S	1A
Macrotus californicus	California Leaf-nosed Bat	SC		S	1B
Melanerpes uropygialis	Gila Woodpecker				1B
Micrathene whitneyi	Elf Owl				1C
Micruroides euryxanthus	Sonoran Coralsnake				1B
Myiarchus tyrannulus	Brown-crested Flycatcher				1C
Myotis occultus	Arizona Myotis	SC		S	1B
Myotis velifer	Cave Myotis	SC		S	1B
Myotis yumanensis	Yuma Myotis	SC			1B
Nyctinomops femorosaccus	Pocketed Free-tailed Bat				1B
Oreoscoptes montanus	Sage Thrasher				1C

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Oreothlypis luciae	Lucy's Warbler					1C
						1A
Spizella breweri	Brewer's Sparrow					1C
						1B
Vireo bellii arizonae	Arizona Bell's Vireo					1B
						1B

Species of Economic and Recreation Importance Predicted that Intersect with Project Footprint as Drawn

Callipepla gambelii	Gambel's Quail
Odocoileus hemionus	Mule Deer
	Javelina
Puma concolor	Mountain Lion
	White-winged Dove
Zenaida macroura	Mourning Dove

Project Type: Communication, Antenna and/or communication dish installation, New structure/cell tower

Project Type Recommendations:
Consider impacts of outdoor lighting on wildlife and develop measures or alternatives that can be taken to increase human safety while minimizing potential impacts to wildlife. Conduct wildlife surveys to determine species within project area, and evaluate proposed activities based on species biology and natural history to determine if artificial lighting may disrupt behavior patterns or habitat use. Use only the minimum amount of light needed for safety. Narrow spectrum bulbs should be used as often as possible to lower the range of species affected by lighting. All lighting should be shielded, canted, or cut to ensure that light reaches only areas needing illumination.

Consider tower designs and/or modifications that reduce or eliminate impacts to migratory birds (i.e. free standing, minimally lighted structures).

Minimize the potential introduction or spread of exotic invasive species, including aquatic and terrestrial plants, animals, insects and pathogens. Precautions should be taken to wash and/or decontaminate all equipment utilized in the project activities before entering and leaving the site. See the Arizona Department of Agriculture website for a list of prohibited and restricted noxious weeds at https://www.invasivespeciesinfo.gov/unitedstates/az.shtml and the Arizona Native Plant Society https://aznps.com/invas for recommendations on how to control. To view a list of documented invasive species or to report invasive species in or near your project area visit iMapInvasives - a national cloud-based application for tracking and managing invasive species at https://imap.natureserve.org/imap/services/page/map.html.

- To build a list: zoom to your area of interest, use the identify/measure tool to draw a polygon around your area of interest, and select “See What’s Here” for a list of reported species. To export the list, you must have an account and be logged in. You can then use the export tool to draw a boundary and export the records in a csv file.

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Based on the project type entered, coordination with State Historic Preservation Office may be required (https://azstateparks.com/).

Based on the project type entered, coordination with U.S. Fish and Wildlife Service (Migratory Bird Treaty Act) may be required (https://www.fws.gov/office/arizona-ecological-services).

Vegetation restoration projects (including treatments of invasive or exotic species) should have a completed site-evaluation plan (identifying environmental conditions necessary to re-establish native vegetation), a revegetation plan (species, density, method of establishment), a short and long-term monitoring plan, including adaptive management guidelines to address needs for replacement vegetation.

Project Location and/or Species Recommendations:
HDMS records indicate that one or more native plants listed on the **Arizona Native Plant Law and Antiquities Act** have been documented within the vicinity of your project area. Please contact:
Arizona Department of Agriculture
1688 W Adams St.
Phoenix, AZ 85007
Phone: 602.542.4373
https://agriculture.az.gov/sites/default/files/Native%20Plant%20Rules%20-%20AZ%20Dept%20of%20Ag.pdf starts on page 44

Analysis indicates that your project is located in the vicinity of an identified ***wildlife habitat connectivity feature***.
The **Statewide Wildlife Connectivity Assessment's Important Connectivity Zones** (ICZs) represent general areas throughout the landscape which contribute the most to permeability of the whole landscape. ICZs may be used to help identify, in part, areas where more discrete corridor modeling ought to occur. The reports provide recommendations for opportunities to preserve or enhance permeability. Project planning and implementation efforts should focus on maintaining and improving opportunities for wildlife permeability. For information pertaining to the linkage assessment and wildlife species that may be affected, please refer to: https://s3.amazonaws.com/azgfd-portal-wordpress/azgfd.wp/wp-content/uploads/0001/01/23120719/ALIWCA_Final_Report_Perkl_2013_lowres.pdf.
Please contact the Project Evaluation Program (pep@azgfd.gov) for specific project recommendations.

Arizona Environmental Online Review Tool Report

Arizona Game and Fish Department Mission
To conserve Arizona's diverse wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.

Project Name:
Pete Smith Peak

User Project Number:
2433.01

Project Description:
New communication structure at existing facility

Project Type:
Communication, Cell or communication tower including access roads, New tower

Contact Person:
Catherine Esquer

Organization:
WestLand Engineering and Environmental Services

On Behalf Of:
OTHER_FED

Project ID:
HGIS-19187

Please review the entire report for project type and/or species recommendations for the location information entered. Please retain a copy for future reference.

Disclaimer:

1. This Environmental Review is based on the project study area that was entered. The report must be updated if the project study area, location, or the type of project changes.
2. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area. This review is also not intended to replace environmental consultation (including federal consultation under the Endangered Species Act), land use permitting, or the Departments review of site-specific projects.
3. The Departments Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. HDMS data contains information about species occurrences that have actually been reported to the Department. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. Arizona Wildlife Conservation Strategy (AWCS), specifically Species of Greatest Conservation Need (SGCN), represent potential species distribution models for the State of Arizona which are subject to ongoing change, modification and refinement. The status of a wildlife resource can change quickly, and the availability of new data will necessitate a refined assessment.

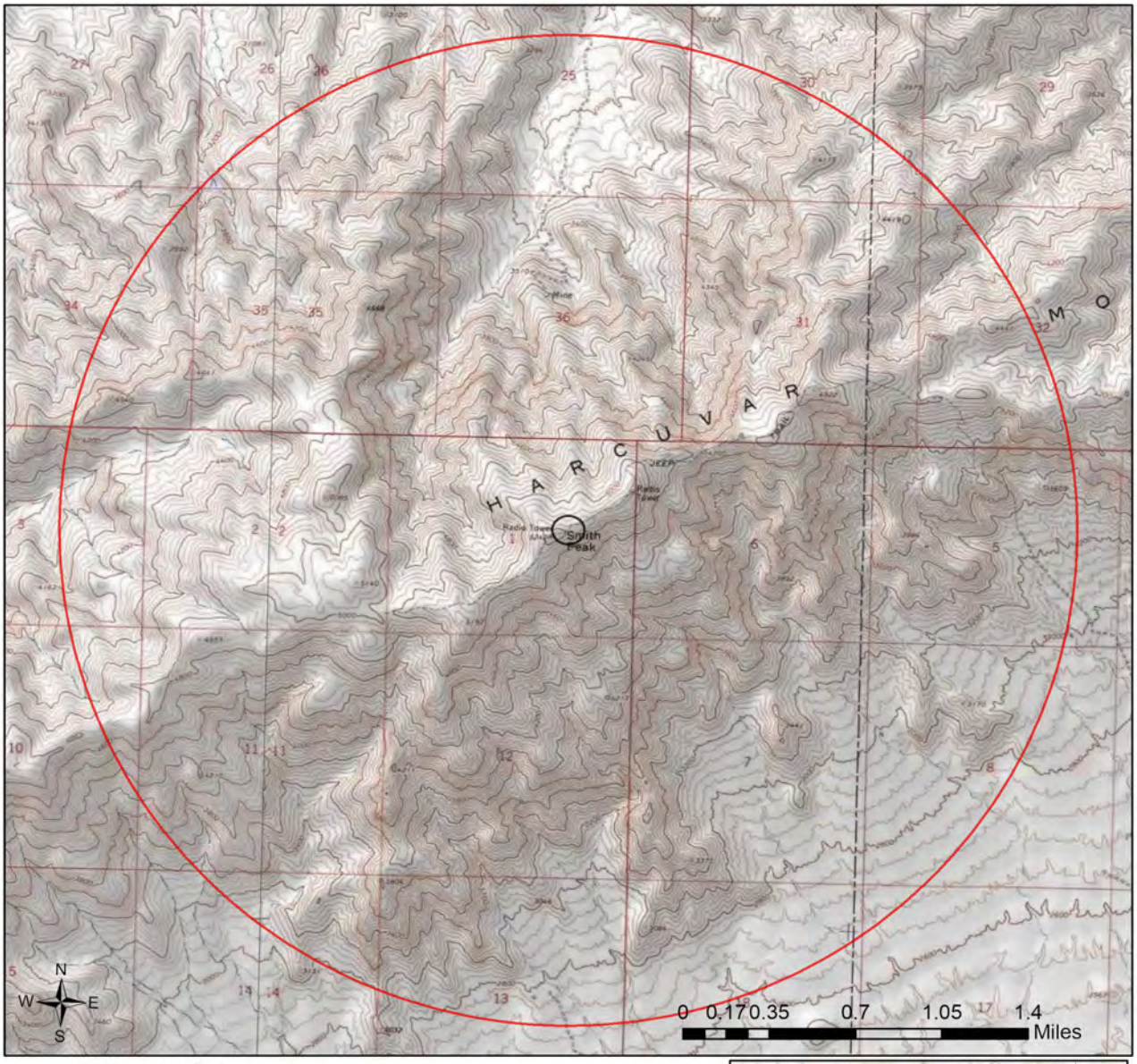
Locations Accuracy Disclaimer:
Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Report is solely responsible for the project location and thus the correctness of the Project Review Report content.

Recommendations Disclaimer:

1. The Department is interested in the conservation of all fish and wildlife resources, including those species listed in this report and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
2. Recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation).
3. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project. These recommendations are preliminary in scope, designed to provide early considerations on all species of wildlife.
4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.
5. Further coordination with the Department requires the submittal of this Environmental Review Report with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map). Once AGFD had received the information, please allow 30 days for completion of project reviews. Send requests to:
   Project Evaluation Program, Habitat Branch
   Arizona Game and Fish Department
   5000 West Carefree Highway
   Phoenix, Arizona 85086-5000
   Phone Number: (623) 236-7600
   Fax Number: (623) 236-7366
   Or
   PEP@azgfd.gov
6. Coordination may also be necessary under the National Environmental Policy Act (NEPA) and/or Endangered Species Act (ESA). Site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies

Pete Smith Peak

USA Topo Basemap With Locator Map



Buffered Project Boundary

Project Boundary

Project Size (acres): 7.76

Lat/Long (DD): 34.0654 / -113.3546

County(s): La Paz

AGFD Region(s): Yuma

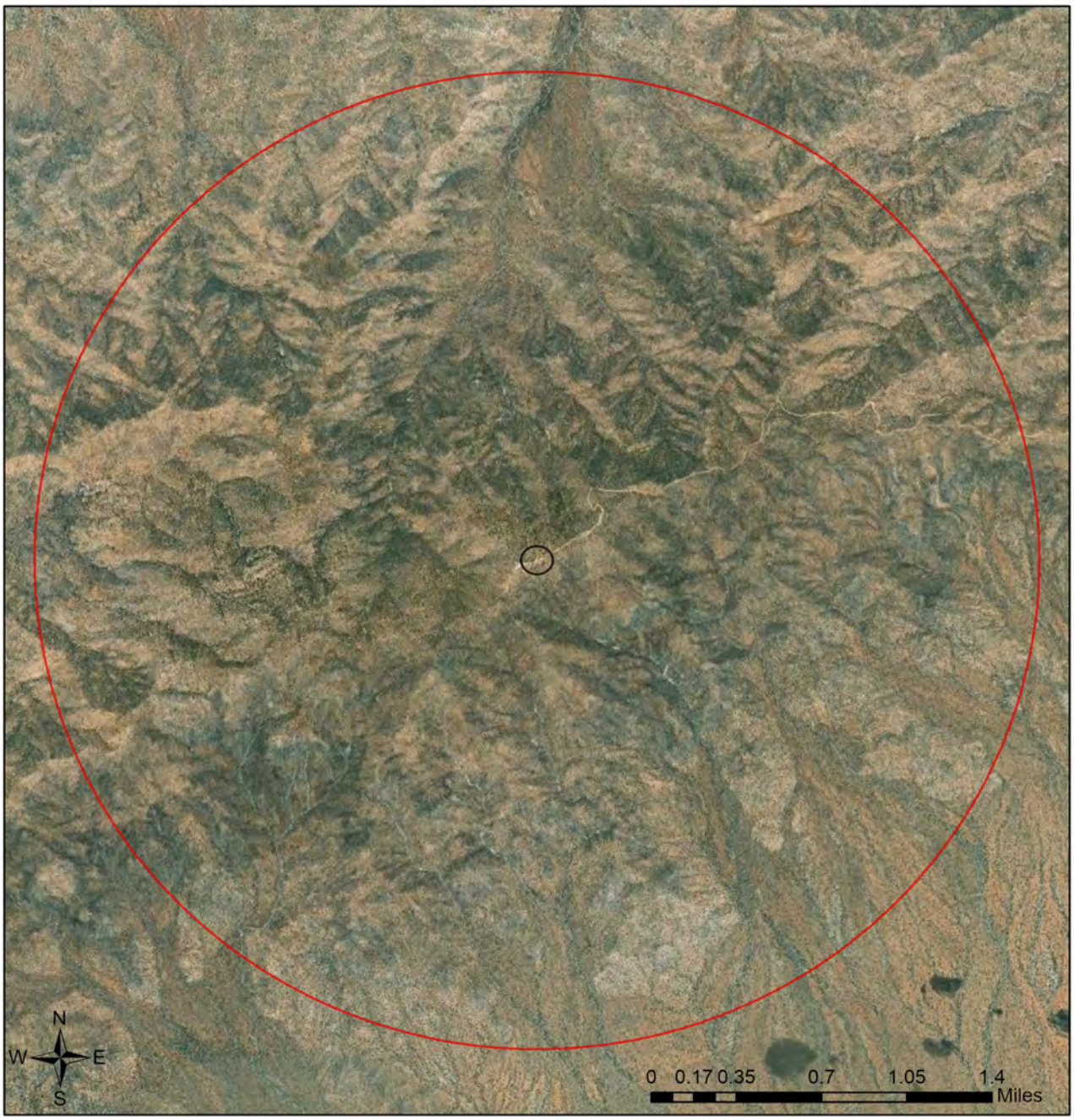
Township/Range(s): T8N, R11W

USGS Quad(s): SMITH PEAK

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

Pete Smith Peak

Web Map As Submitted By User



Buffered Project Boundary

Project Boundary

Project Size (acres): 7.76

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County(s): La Paz

AGFD Region(s): Yuma

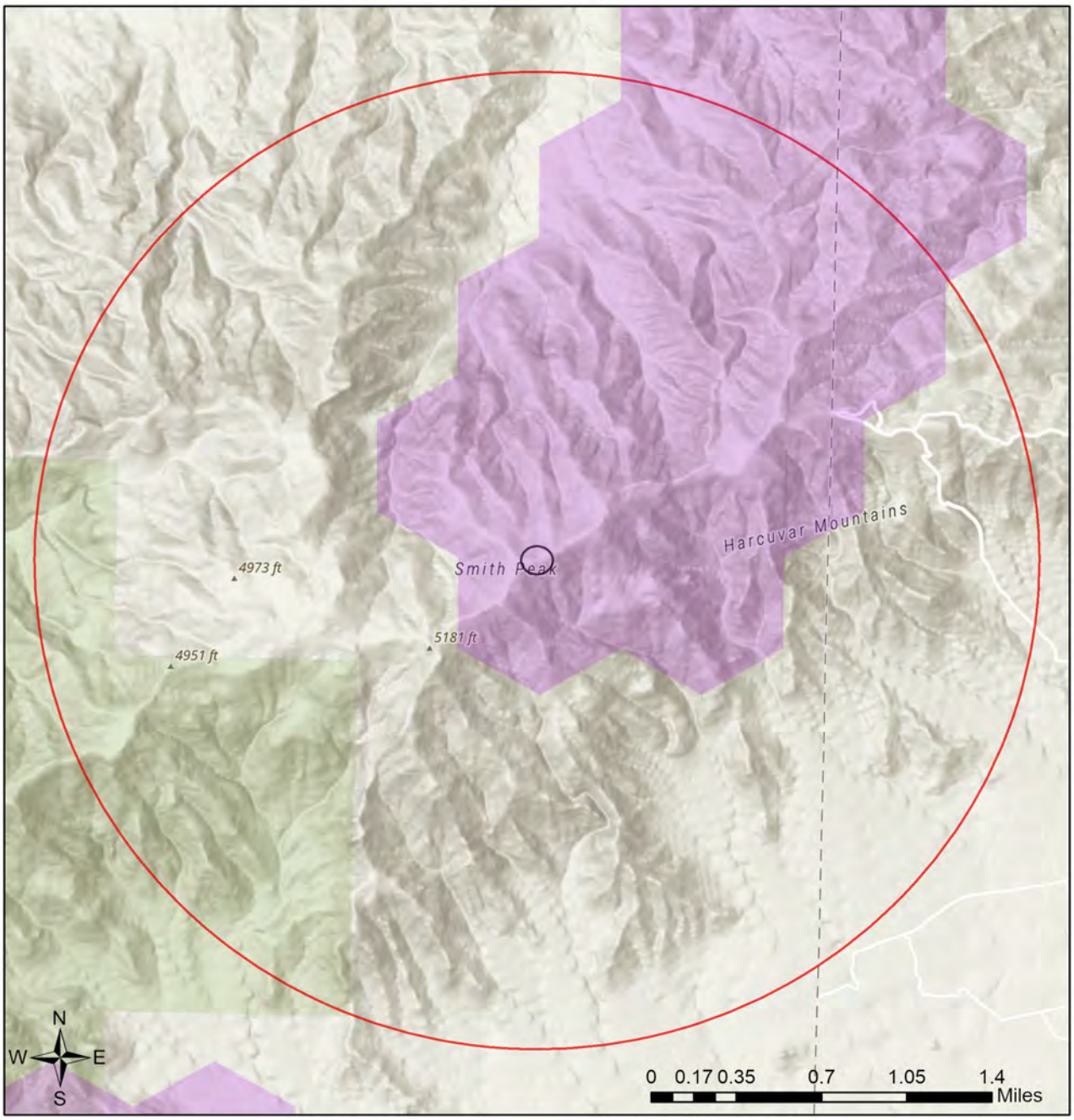
Township/Range(s): T8N, R11W

USGS Quad(s): SMITH PEAK

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Pete Smith Peak

Important Areas



- Buffered Project Boundary
- Project Boundary
- Important Bird Areas
- Critical Habitat
- Pinal County Riparian
- Important Connectivity Zones
- Wildlife Connectivity

Project Size (acres): 7.76

Lat/Long (DD): 34.0654 / -113.3546

County(s): La Paz

AGFD Region(s): Yuma

Township/Range(s): T8N, R11W

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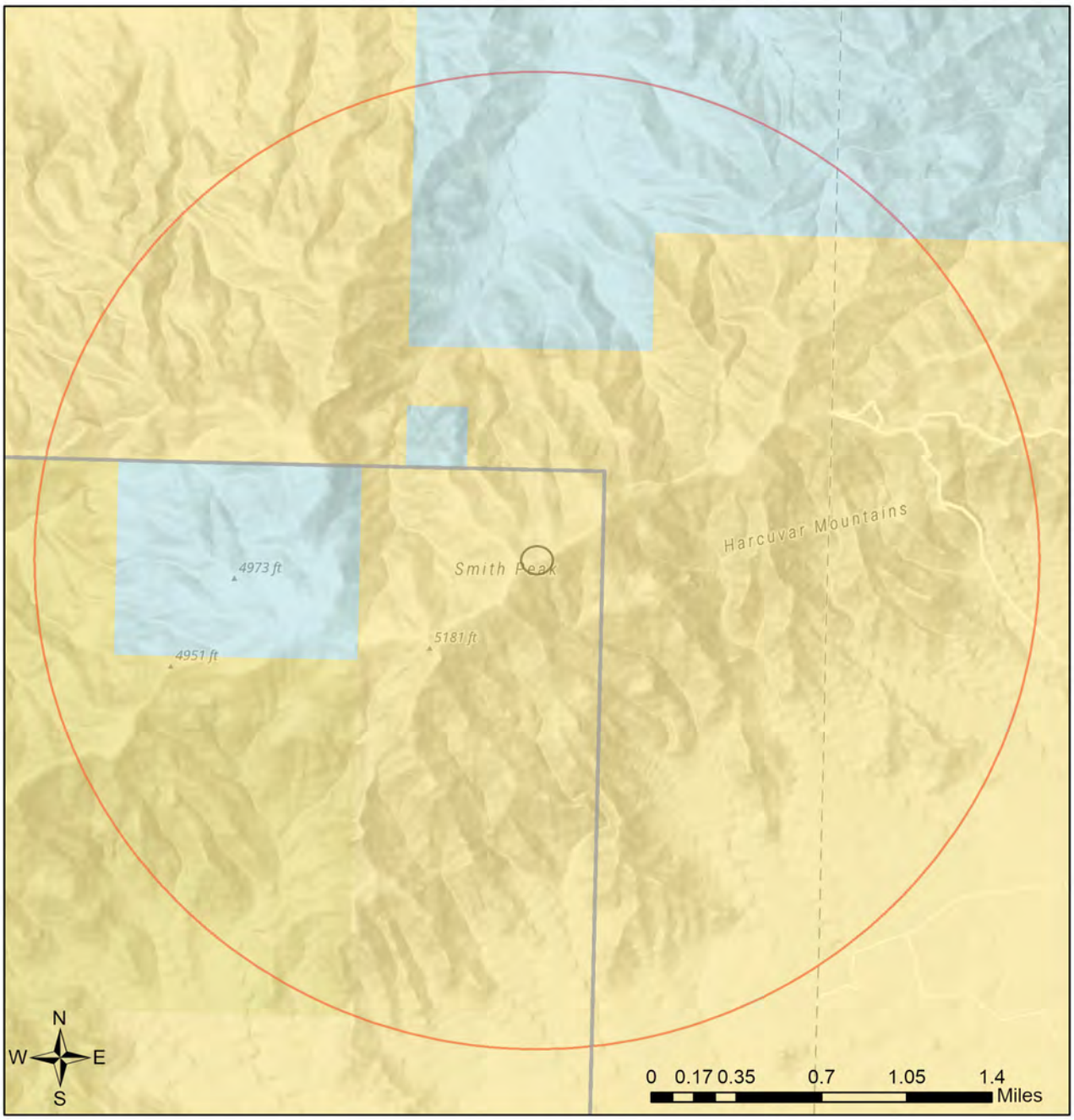
Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Pete Smith Peak

Township/Ranges and Land Ownership



- Buffered Project Boundary
- Project Boundary
- AZ Game & Fish Dept.
- BLM
- BOR
- Indian Res.
- Military
- Mixed/Other
- National Park/Mon.
- Private
- State & Regional Parks
- State Trust
- US Forest Service
- Wildlife Area/Refuge
- Township/Ranges

Project Size (acres): 7.76

Lat/Long (DD): 34.0654 / -113.3546

County(s): La Paz

AGFD Region(s): Yuma

Township/Range(s): T8N, R11W

USGS Quad(s): SMITH PEAK

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Special Status Species Documented within 2 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Aquila chrysaetos	Golden Eagle	BGA		S		2
Lichanura roseofusca	Rosy Boa					
Mammillaria viridiflora	Varied Fishhook Cactus				SR	

Note: Status code definitions can be found at https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/
.

Special Areas Documented that Intersect with Project Footprint as Drawn

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Important Connectivity Zone	Wildlife Connectivity					

Note: Status code definitions can be found at https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/
.

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Aquila chrysaetos	Golden Eagle			S		2
Asio otus	Long-eared Owl					2
Auriparus flaviceps	Verdin					2
Calypte costae	Costa's Hummingbird					2
Campylorhynchus brunneicapillus	Cactus Wren					2
Colaptes chrysoides	Gilded Flicker			S		2
Coluber bilineatus	Sonoran Whipsnake					2
Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S		1
Empidonax wrightii	Gray Flycatcher					2
Eumops perotis californicus	Greater Western Bonneted Bat					
Falco mexicanus	Prairie Falcon					2
Falco peregrinus anatum	American Peregrine Falcon					
Falco sparverius	American Kestrel					2
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		1
Lanius ludovicianus	Loggerhead Shrike	SC				2
Lasiurus xanthinus	Western Yellow Bat		S			2
Megascops kennicottii	Western Screech-owl					
Melanerpes uropygialis	Gila Woodpecker					2
Myotis thysanodes	Fringed Myotis	SC				2
Myotis velifer	Cave Myotis	SC		S		2
Myotis yumanensis	Yuma Myotis	SC				2
Nyctinomops femorosaccus	Pocketed Free-tailed Bat					2
Phrynosoma solare	Regal Horned Lizard					2
Pooecetes gramineus	Vesper Sparrow					2

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Spizella breweri	Brewer's Sparrow					2
Tadarida brasiliensis	Brazilian Free-tailed Bat					

Species of Economic and Recreation Importance Predicted that Intersect with Project Footprint as Drawn

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Callipepla gambelii	Gambel's Quail					
Odocoileus hemionus	Mule Deer					
Ovis canadensis mexicana	Mexicana Desert Bighorn Sheep					
Pecari tajacu	Javelina					
Puma concolor	Mountain Lion					
Zenaida asiatica	White-winged Dove					
Zenaida macroura	Mourning Dove					

Project Type: Communication, Cell or communication tower including access roads, New tower

Project Type Recommendations:
Consider impacts of outdoor lighting on wildlife and develop measures or alternatives that can be taken to increase human safety while minimizing potential impacts to wildlife. Conduct wildlife surveys to determine species within project area, and evaluate proposed activities based on species biology and natural history to determine if artificial lighting may disrupt behavior patterns or habitat use. Use only the minimum amount of light needed for safety. Narrow spectrum bulbs should be used as often as possible to lower the range of species affected by lighting. All lighting should be shielded, canted, or cut to ensure that light reaches only areas needing illumination.

Consider tower designs and/or modifications that reduce or eliminate impacts to migratory birds (i.e. free standing, minimally lighted structures).

Minimize the potential introduction or spread of exotic invasive species, including aquatic and terrestrial plants, animals, insects and pathogens. Precautions should be taken to wash and/or decontaminate all equipment utilized in the project activities before entering and leaving the site. See the Arizona Department of Agriculture website for a list of prohibited and restricted noxious weeds at https://www.invasivespeciesinfo.gov/unitedstates/az.shtml and the Arizona Native Plant Society https://aznps.com/invas for recommendations on how to control. To view a list of documented invasive species or to report invasive species in or near your project area visit iMapInvasives - a national cloud-based application for tracking and managing invasive species at https://imap.natureserve.org/imap/services/page/map.html.

- To build a list: zoom to your area of interest, use the identify/measure tool to draw a polygon around your area of interest, and select “See What’s Here” for a list of reported species. To export the list, you must have an account and be logged in. You can then use the export tool to draw a boundary and export the records in a csv file.

The Department recommends that wildlife surveys are conducted to determine if noise-sensitive species occur within the project area. Avoidance or minimization measures could include conducting project activities outside of breeding seasons.

Based on the project type entered, coordination with State Historic Preservation Office may be required (https://azstateparks.com/).

Based on the project type entered, coordination with U.S. Fish and Wildlife Service (Migratory Bird Treaty Act) may be required (https://www.fws.gov/office/arizona-ecological-services).

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HDMS records indicate that one or more native plants listed on the **Arizona Native Plant Law and Antiquities Act** have been documented within the vicinity of your project area. Please contact:
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Phoenix, AZ 85007
Phone: 602.542.4373
https://agriculture.az.gov/sites/default/files/Native%20Plant%20Rules%20-%20AZ%20Dept%20of%20Ag.pdf starts on page 44

HDMS records indicate that one or more **Listed, Proposed, or Candidate** species or **Critical Habitat** (Designated or Proposed) have been documented in the vicinity of your project. The Endangered Species Act (ESA) gives the US Fish and Wildlife Service (USFWS) regulatory authority over all federally listed species. Please contact USFWS Ecological Services Offices at https://www.fws.gov/office/arizona-ecological-services or:

Phoenix Main Office
9828 North 31st Avenue #C3
Phoenix, AZ 85051-2517
Phone: 602-242-0210
Fax: 602-242-2513

Tucson Sub-Office
201 N. Bonita Suite 141
Tucson, AZ 85745
Phone: 520-670-6144
Fax: 520-670-6155

Flagstaff Sub-Office
SW Forest Science Complex
2500 S. Pine Knoll Dr.
Flagstaff, AZ 86001
Phone: 928-556-2157
Fax: 928-556-2121

Analysis indicates that your project is located in the vicinity of an identified ***wildlife habitat connectivity feature***.
The **Statewide Wildlife Connectivity Assessment's Important Connectivity Zones** (ICZs) represent general areas throughout the landscape which contribute the most to permeability of the whole landscape. ICZs may be used to help identify, in part, areas where more discrete corridor modeling ought to occur. The reports provide recommendations for opportunities to preserve or enhance permeability. Project planning and implementation efforts should focus on maintaining and improving opportunities for wildlife permeability. For information pertaining to the linkage assessment and wildlife species that may be affected, please refer to: https://s3.amazonaws.com/azgfd-portal-wordpress/azgfd.wp/wp-content/uploads/0001/01/23120719/ALIWCA_Final_Report_Perkl_2013_lowres.pdf.
Please contact the Project Evaluation Program (pep@azgfd.gov) for specific project recommendations.

APPENDIX E
Visual Simulations

Photo 1. View from Key Observation Point 1 located on the west side of US 93 approximately 1 mile southeast of the proposed 169-5 microwave tower location, looking southwest towards Pete Smith Peak. Proposed Project structures are not visible.

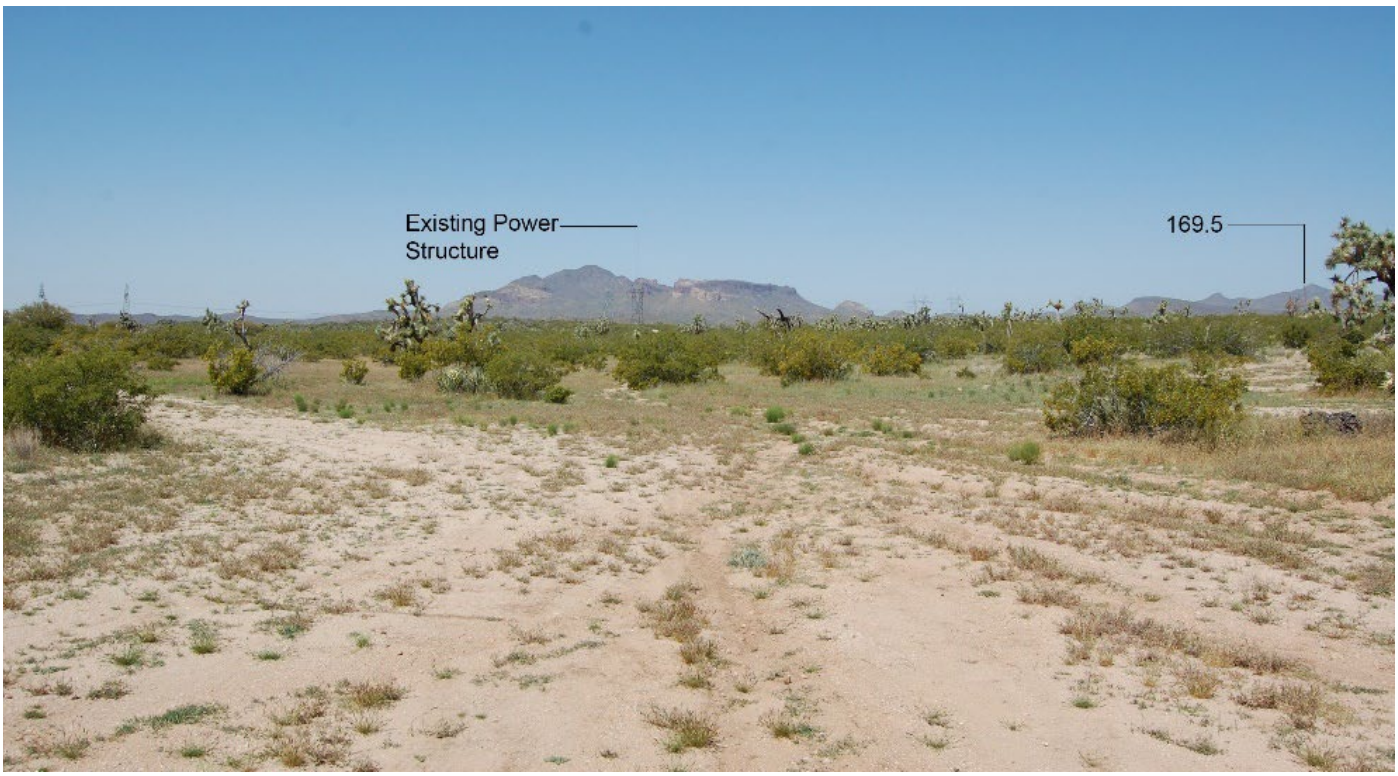

Photo 2. View from Key Observation Point 1 with the 169-5 Microwave Tower visible.

Photo 3. View from Key Observation Point 2 is located on the west side of US 93 approximately 1 mile south of the southern terminus of the proposed transmission line, TS-01 substation, and MPP-Q01 switchyard. Proposed Project structures are not visible.

Photo 4. View from Key Observation Point 2 with the proposed Project structures visible.

Photo 5. View from Key Observation Point 3 is located on the north side of SR 97, at one of the rural roads leading to the "wildcat" community west of the proposed transmission line, looking east. Proposed Project structures are not visible.

Photo 6. View from Key Observation Point 3 with the proposed Project structures visible.

Photo 7. View from Key Observation Point 4 is located on the south side of SR 97, looking west towards the proposed transmission line approximately 0.3 mile away. Proposed Project structures are not visible.

Photo 8. View from Key Observation Point 4 with the proposed Project structures visible.

Photo 9. View from Key Observation Point 5 is located on the west side of SR 96, approximately 1 mile south of the northern terminus of the proposed transmission line and TS-02 substation, looking southeast as the proposed transmission corridor crosses the highway. Proposed Project structures are not visible.

Photo 10. View from Key Observation Point 5 with the proposed Project structures visible.

APPENDIX F
Draft EA Public Comments and Responses

Appendix F. Matrix of Response to Public Comment

Commenter	Text of Comment	Comment Response/Disposition
Barbara Button	Imagine our surprise when in the spring of 2024 we came out to the Rock House to find a huge ripped cat line right through the native landscape! Our surprise soon turn to anger and even horror at the damage that was done! What is going on? In the delicate desert any destruction or changes to the soil and vegetation will remain for many decades. Just look at all the old mining camp sites in the area that are still visible 75 years later. How can you do this? Why were we as property owners not notified? What is your plan to restore the vegetation? As I'm sure you can see, I am very distraught over this whole thing! I was not notified as a property owner and I fail to see how on Earth they can possibly do this without permits. Please contact me via the following means. I would also like these comments to be entered into any kind of record that you guys are keeping.	Thank you for your comment. No surface disturbance has occurred to date for the MPP-Q01 Interconnection Request.
Heidi Chay	P. ES-3 Historic Resources "There would be no direct effects to cultural sites as a result of construction of the Proposed Action." Comment: Insufficient evidence has been provided here and in section 3.5 to show that there will be no direct effects to cultural sites. We urge the authors to compare our map of stone structures, possible graves and mining artifacts in the Appendix (p. 2) with the professional surveys that have been done. If everything on our map has been included in the professional surveys, we would be delighted to know that. If, on the other hand, we have identified any points of interest that are not in the professional surveys, then that information should be included in the analysis.	Thank you for your comment. Class III pedestrian survey has been completed within the entirety of the proposed right-of-way (ROW) and disturbance footprint, and State Historic Preservation office (SHPO) has concurred with the adequacy of the supporting survey reports. Direct impacts here refers to physical impacts to historic properties. Based on the map provided, all resources within the surveyed areas have been recorded and evaluated. The Final EA will be revised to use physical impacts instead of direct impacts so that the meaning is clearer.
Heidi Chay	P. ES-3 "Construction of the Proposed Action would result in indirect impacts to the integrity of feeling and setting of cultural resource sites adjacent to the Project Area, if those aspects of integrity contribute to the significance of the site, including cultural landscapes, for as long as the Project structures exist." Comments: a) Insufficient evidence has been provided that the impact will be "indirect." The Proposed Action is adjacent to, and above and among at least some of the stone structures, possible graves and mining artifacts we identify in the Map 2 (Appendix). It will be visible from many of the points of interest identified in Maps 1 and 2 (Appendix). If a transmission tower is placed 50' feet from a point of historic interest, is that an indirect or direct impact? What if the transmission tower is 25' or 10' away? What if the structure in question is not a single transmission pole but a 30-50 acre substation and switchyard involving up to 60 acres of permanent ground disturbance, as has been proposed? At some point, the impact is "direct." We suggest deleting the phrase "if those aspects of integrity contribute to the significance of the site, including cultural landscapes." The "integrity of feeling and setting" definitely contribute to the significance of the sites being discussed. See additional comments below regarding pp. 24-29 of the Draft EA.	Thank you for your comment. In this context, direct is referring to physical impacts while indirect is referring to other types of non-physical impacts such as visual impacts. The Final EA will be revised to use physical impacts versus proximal impacts to remove the confusion. Impacts are only considered to historic properties (i.e., properties that are listed on or are eligible for listing on the National Register of Historic Places [NRHP]). For impacts to historic properties to be considered adverse, they must impact the aspects of integrity which convey the property's significance. Setting and feeling are not aspects of integrity for historic properties eligible under Criterion D (information potential). Therefore, visual impacts are not considered an adverse impact for historic properties eligible only under Criterion D. This is true for most archaeological sites. Please see National Register Bulletin 15.

Commenter	Text of Comment	Comment Response/Disposition
Heidi Chay	P. ES-3 Visual Resources “The Proposed Action would create contrast with the existing landscape features. WAPA and APS facilities would create weak to moderate contrast. At the point of interconnection…the proposed facilities would mimic the linear and vertical form of existing transmission corridors…. ” Comment: Because the substation and switchyard will have up to a 60-acre footprint of permanent ground disturbance, will have a compact array of towers and will require fencing and night lighting (per APS), it is not accurate to say that the “proposed facilities would mimic the linear and vertical form of the existing” well-spaced transmission towers. The contrast between the proposed substation and switchyard and the existing landscape is at least “moderate,” not “weak.”	Thank you for your comment. This text has been revised to add clarification regarding the anticipated visual impacts associated with the Project.
Heidi Chay	P. ES-3 Visual Resources “Geometric forms would be introduced into the existing landscape for travelers headed in both directions on SR 97 and residents of the off-grid community west of the proposed transmission line. These viewers would see a new transmission corridor; however, the contrast would not preclude viewers from views of the rugged mountain terrain and Sonoran Desert vegetation.” Comment: Equal consideration should be given in the text to the residents and businesses located on Santa Maria River Road and Santa Maria Ranch Road, who will view the proposed facilities – switchyard, substation and transmission line – from close range (0.15-0.75 miles away) on a regular basis. Consideration should also be given to our neighbors 2.5 miles north at parcel #200-16-006 who will be impacted during the construction and operational phases of the transmission line (and associated pipeline).	Thank you for your comment. This text has been revised to be inclusive of residents immediately south of the MPP-Q01 switchyard, as well as grazing lessees within the Project Area.
Heidi Chay	P. 1 Project Background “The Project will reinforce the transmission delivery system to provide reliable and increased load serving capability to support continuing load growth to APS customers.” Comment: At the CEC hearing on Oct. 28, APS testified that the new line will serve the increased demand from one customer specifically, Freeport McMorAn’s Bagdad mine. (Source: pp. 40, 67, 71 of transcript, Evidentiary Hearing, Volume 1, October 28, 2024) Increased reliability for other customers is covered in a separate bullet point.	Thank you for your comment.
Heidi Chay	P. 5 Project Location “The MPP-Q01 switchyard, TS-01 substation, 169-5 microwave tower, and majority of the 230-kV transmission line would be located on State Trust Land managed by the ASLD and zoned as RCU (Residential; Rural) by Yavapai County.” Comment: This would be an appropriate place to mention the predominant ASLD land use in this area - “...State Trust Land managed by the ASLD, zoned as RCU (Residential; Rural) by Yavapai County and utilized for cattle grazing by multiple ASLD lessees.”	Grazing land use is disclosed and potential impacts discussed on Page 15 of the Draft EA – “Grazing occurs on ASLD lands in the vicinity of the Project Area … APS will work with local ranchers to ensure that fences and gates are maintained appropriately.”
Heidi Chay	P. 5 Project Location “The transmission line would be partially collocated with a separate water pipeline project, the Aguila Pipeline (not yet under construction at the time of publishing this Draft EA), on State Trust Land.” Comment: No pipe has been laid, but significant groundwork was done in the form of a ripping test from the Santa Maria River north across the mountains in November, 2023. Our understanding is that a firm go/no-go decision on the pipeline will be made in early 2025.	Thank you for your comment. Per the Department of Energy NEPA Implementing Procedures, "DOE is responsible under NEPA for analyzing reasonably foreseeable environmental effects (42 U.S.C. 4332(C)(i)) of the proposed action...an agency is not required to analyze the effects of projects over which it does not exercise regulatory authority..”

Commenter	Text of Comment	Comment Response/Disposition
Heidi Chay	P. 6 Construction "APS would construct 16 miles of permanent access roads (14 miles along the transmission line and 1 mile on each side for access points) for construction, operation and maintenance of the transmission line." Comment: For completeness, include the road width used to calculate acres of disturbance.	Thank you for your comment. An average 40-foot width was used to calculate conservative estimates of disturbance from access roads.
Heidi Chay	P. 7 Construction "WAPA's Construction Standards, including Construction Standard 13 for environmental quality protection, would be implemented for WAPA's Proposed Action (Appendix B)." Comment: Construction Standard 13 appears very complete. It would help to clarify here what standards apply to the access road and the structures that APS will build.	Thank you for your comment. APS construction standards will be appended to the Final EA.
Heidi Chay	Comment on Section 2.7: Our understanding is that APS was still evaluating as many as 10 alternative sites for the southern terminus of the intertie in 2020. As far as we know, residents in the vicinity were not consulted. We wish we had been involved in the discussion at that time. That said, a map of all the alternatives considered would be helpful. In general, we'd like to see more details on what alternatives were considered and more clarity on how decisions were made by the various parties concerned.	As described in **Section 2.7**, the described alternatives failed to meet APS's goals and objects for the Project or were determined to be unfeasible. WAPA has no regulatory authority over APS's private action.
Heidi Chay	P. 8, WAPA Interconnect with New APS 17-mile Alignment Comment: Without a map, it's difficult to tell how this option differs from the Proposed Action and how the route ends up 3 miles longer.	See above comment response.
Heidi Chay	P. 9, WAPA Interconnect with New 14-mile APS Alignment "(This) alternative consists of a 14-mile 115-kV or 230kV APS transmission line following SR 97 for 7.2 miles and then following along the Aguila pipeline ROW. … The advantage of this alternative is that it was a shorter length than the 17-mile alignment, it avoided yellowbilled cuckoo (Coccyzus americanus) designated critical habitat, and avoided BLM-managed lands, reducing impacts to federal lands. This alignment also avoided Federal Emergency Management Agency (FEMA) floodplains." "This alternative was dismissed because it would require the construction of a 7.2-mile access road before joining the Aguila water pipeline ROW. This option also presented a higher construction cost than the 17 mile alignment." Comment: a) This alternative would also avoid impact to historic resources described below, and would avoid placing the switchyard and substation in close proximity to residences. b) Again, a map and more details are needed. Wouldn't building a 7.2-mile access road along Hwy 97 be much easier and less expensive than building an access road through the mountains? Why couldn't Hwy 97 be used as the main access road with T's for placement of individual transmission poles? The text begs the question: Where are the FEMA floodplains and critical habitat for the yellow-billed cuckoo? Does the Proposed Action avoid them as well?	A) Impacts associated with this alternative are not analyzed in detail, as this alternative has ultimately been determined to result in a significant increase in surface disturbance across the landscape. B) As stated in **Section 2.7.1.**, this option presented a higher construction cost. This alternative would also require additional surface disturbance across the landscape from the construction of additional access roads. The Project avoids FEMA floodplains and designated critical habitat for yellow-billed cuckoo. See Section 5.2.2 of **Appendix D**, for more information on yellow-billed cuckoo; and **Table 3-3** in the Final EA for more information on FEMA floodplains.

Commenter	Text of Comment	Comment Response/Disposition
Heidi Chay	P. 11 Past, Present and Reasonably Foreseeable Future Actions “The Aguila Pipeline is entirely privately funded, has separate and independent utility from the Proposed Action, and is not dependent on power from the Proposed Action transmission line. The Aguila Pipeline project is not a connected action under NEPA; however, it is a reasonably foreseeable future action, therefore, cumulative impacts from the Aguila Pipeline in the Project Area are analyzed in this EA.” Comment: a) Our understanding is that in addition to the buried pipeline, the Aguila Pipeline project will involve two overhead river crossings, at the South Fork and North Fork of the Santa Maria River, as well as a number of pumping stations. Until shown otherwise, we can reasonably assume that one of the pumping stations will be at the Santa Maria River before the pipeline ascends steeply into the mountains. It would be helpful to clarify whether or not pumping stations will require electrical power. All three elements - pipeline, pump stations and overhead crossings - should be taken into account when analyzing cumulative impact. Our understanding is that the proposed transmission line is also privately funded, and by the same entity. APS testified at the Certificate of Environmental Compatibility hearing on Oct. 28, 2024 that Freeport-McMorAn will pay the full amount of construction costs. (Source: pp. 67, 68, 71 of transcript, Evidentiary Hearing, Volume 1, October 28, 2024)	A) Thank you for your comment. Per the Department of Energy NEPA Implementing Procedures, "DOE is responsible under NEPA for analyzing reasonably foreseeable environmental effects (42 U.S.C. 4332(C)(i)) of the proposed action...an agency is not required to analyze the effects of projects over which it does not exercise regulatory authority." Thank you for your comment. The powerline is privately funded. As stated in Section 2.2., APS’s facilities are not part of the federal action, but are described alongside the federal action to aid the analysis.
Heidi Chay	P. 16, Table 3-3 (cont.), Resource Issues Dismissed from Further Evaluation, Recreation “No formal recreation opportunities exist on the ASLD, BLM, or private lands within the Project Area, therefore, the Project would not result in adverse effects to recreation resources.” Comment: Within the Project Area south of the Santa Maria River North Fork, there are five long-used stone fire rings and a frequently-used picnic spot on the river bank. Our understanding is that licensed hunters are allowed to use State Trust Land and to operate licensed OHVs on existing roads and trails when they are actively pursuing game in season. On a regular basis, we see hunters in the Project Area, sometimes with campsites and RVs, on both sides of the Santa Maria River North Fork. We think this topic deserves further evaluation.	No formal recreation opportunities exist within the Project Area. Informal recreation and hunting on ASLD land may be temporarily impacted within the Project Area during construction; but no long-term impacts to these informal recreation opportunities are anticipated.
Heidi Chay	P. 16, Table 3-3 (cont.), Resource Issues Dismissed from Further Evaluation, Civilian Aviation “The proposed transmission structures associated with the Project would not be located on or near an airport or within the slope of an airport runway. Further, transmission structures are not considered covered towers and therefore not subject to marking requirements established by the Federal Aviation Administration (FAA) Extension, Safety, and Security Act of 2016.” Comment: No change appears to be needed to comply with FAA requirements, but we do want to make WAPA aware that there are two airstrips in use at Santa Maria Ranch.	Thank you for your comment.

Commenter	Text of Comment	Comment Response/Disposition
Heidi Chay	P. 21, Sonoran Desert Tortoise “In the Sonoran desert, SDT usually occurs on rocky slopes in desertscrub to semidesert grassland, as well as along washes. The Analysis Area provides suitable habitat for this species, and SDT has been documented within 3 miles of the Proposed Action.” Comment: Arizona Game & Fish (AGFD) has identified the Sonoran Desert Tortoise not just as a Species of Greater Conservation Need (SGCN), but as a Tier 1 SGCN based on its small population size and unusually low birth rate. We have seen this species within 1500’ feet of the southern terminus of the proposed transmission line and, on occasion, elsewhere on state and federal grazing land associated with the ranch.	Thank you for your comment.
Heidi Chay	P. 21, Vegetation “Permanent vegetation removal would occur within approximately 106 acres for transmission structures, permanent access roads, the MPP-Q01 switchyard, TS-01 and TS-02 substations, and the microwave towers at the 169-5 communications site and Pete Smith Peak. The remaining 70 acres of disturbance would be temporary, for the construction and use of temporary access roads and pulling locations. Following construction, temporarily disturbed areas will be reseeded with seeding mixes containing milkweed seed, where appropriate.” Comment: Disturbed ground recovers very slowly in the desert, which is why 100-year-old mining trails are still visible today and why it’s so important to avoid and prevent “unnecessary destruction, scarring or defacing of the natural surroundings,” as is required by the Western Area Power Association’s Construction Standard 13. Furthermore, seeds that don’t germinate, don’t mitigate. To mitigate impacts to vegetation, wildlife and viewscapes, we urge WAPA and APS to require contractors to use native seed and to provide follow-up monitoring and replanting if necessary, in keeping with Arizona Game & Fish recommendations (Draft EA, Appendix B). Best practices for erosion control on areas to be revegetated would suggest swales on slopes of approximately 15 degrees or greater. Pelleted seed or seed balls would increase the chances of germination and reduce losses of seed to wildlife.	Per APS Construction Standards, which will be appended to the Final EA, all construction and maintenance activities will be conducted in a manner that will minimize disturbance to vegetation. Vegetation will be left in place wherever possible. Temporarily disturbed areas will be reseeded with a native seed mix which is tested and certified to contain no noxious weeds by the State of Arizona Agricultural Department. Seed viability will also be tested at a certified laboratory.
Heidi Chay	P. 23, Conservation Measures “Following construction, temporarily disturbed areas would be reseeded with seeding mixes as described above.” Comment: Same as above.	See comment response above.

Commenter	Text of Comment	Comment Response/Disposition
Heidi Chay	P. 24, Cumulative Impacts “Additionally, the Aguila Pipeline project is located in the vicinity of the Project Area and would require vegetation clearing. The pipeline would be buried and is not expected to contribute to an adverse cumulative impact to the region. Pipeline construction would temporarily impact local traffic, noise, and the visual setting of the Analysis Area, **but since pipeline construction is not currently projected to occur at the same time as the Proposed Action,** therefore not contributing to cumulative impacts of the Proposed Action, its impacts are not further analyzed in conjunction with those generated by the Proposed Action.” Comment: The statement in bold seems counterfactual. The sequence of building access roads, transmission facilities and pipeline is immaterial. They each contribute to cumulative impact regardless of timing. As noted above, our understanding is that the Aguila Pipeline project will involve overhead river crossings at the South Fork and North Fork of the Santa Maria River, as well as a number of pumping stations. All three elements - pipeline, pump stations and overhead crossings - should be taken into account when analyzing cumulative impact.	The impacts associated with active construction (traffic and noise) are not currently projected to occur at the same time for the Project that they would for the Aguila pipeline. Further, per the Department of Energy NEPA Implementing Procedures, "DOE is responsible under NEPA for analyzing reasonably foreseeable environmental effects (42 U.S.C. 4332(C)(i)) of the proposed action...an agency is not required to analyze the effects of projects over which it does not exercise regulatory authority."
Heidi Chay	P. 25, Affected Environment “The APE for the Project consists of the 305-acre total footprint of the transmission line corridor, MPP-Q01 switchyard, TS-01 and TS-02 substations, the Pete Smith Peak communications site, and 169-5 microwave tower.” Comment: More details are needed to explain the APE (Area of Potential Effects). Are access roads part of the APE? How was the APE determined for the transmission line when the applicant, APS, has leeway from the State to place transmission towers anywhere within a 300’ wide corridor? How was the 305-acre figure calculated?	As explicitly stated in the referenced Certificate of Environmental Compatibility (CEC) granted by the Arizona Corporation Commission for the transmission line, the transmission corridor will ultimately be within a 100-foot ROW. The Area of Potential Effects (APE) has been revised to include a 3-mile buffer of the transmission line and substations/switchyard, including access roads, and a 1-mile buffer of the communication facilities.

Commenter	Text of Comment	Comment Response/Disposition
Heidi Chay	P. 27, Historic Resources, Affected Environment "Two cultural sites (AZ M:12:55[ASM]; AZ M:12:59[ASM]) are partially located within the APE for the Proposed Action. The AZ M:12:59[ASM] is a historic road that crosses the transmission line corridor north of the TS-01 and MPP-Q01 area. The transmission line corridor overlaps with the site boundaries of the AZ M:12:55[ASM] at the southern terminus of the corridor, which includes historic components that are unevaluated, and a prehistoric component that was recommended ineligible." Comments: a) A similar paragraph appears in APS' Sept. 20, 2024 letter to the Arizona State Historic Preservation Office regarding its application for a Certificate of Environmental Compatibility. However, there are some notable differences. Compare the above to the following: "Two cultural sites (AZ M:12:55[ASM]; AZ M:12:59[ASM]) are partially located within the CEC project area. The AZ M:12:59[ASM] is a historic road that crosses the transmission line corridor north of the southern terminus of the proposed transmission line. The road is unevaluated for listing on the Arizona or National register of Historic Places (A/NRHP). The transmission line will pass over the historical road and will not directly impact the roadway. Existing transmission line structures already exist in the viewshed of the historic roads and visual impacts are not anticipated to appreciably alter the roads integrity of setting. The transmission line corridor also overlaps with the site boundaries of the AZ M:12:55[ASM] at\ the southern terminus of the corridor, which includes historic components that are unevaluated, and a prehistoric component that has been determined not eligible. b) Historic Resources Remain to Be Evaluated Our understanding is that neither the road nor the Historic Mining District as a whole have been evaluated for the purposes of the NRHP. We think this evaluation is necessary for a full analysis of project impacts and should be done. Incomplete Description of Historic Resources The description of the historic resources does not do them justice. Although we do not have access to the professional surveys available to project planners and the State Historic Preservation Office, we can say with reasonable certainty that the historic road and most if not all of the sites and artifacts identified on Map 2 in the Appendix are the visible remnants of gold mining that took place between the late 1800's and early 1900's on eight mining claims, arranged in a semi-circle 1.5 miles north of the proposed substation and switchyard, as well as dozens of additional mining claims, including several on what is now BLM land 1 mile to the northeast and at least two on what is now State land 3 miles south along the Santa Maria River. A 1903 map of Principal Mining Districts of Yavapai County (Appendix, p.3) shows the first three of these mines - the Turnbeaugh, Pocahontas and Goodenuff mines - and the town of Austin to the southwest. The location of historic Austin on the map corresponds with the location of M:12:55[ASM] as described in the Draft EA: "The transmission line corridor overlaps with the site boundaries of the AZ M:12:55[ASM] at the southern terminus of the corridor…"	Thank you for your comment. The prehistoric component of AZ M:12:55(ASM) has been determined not eligible, and the historic period component is not evaluated for listing on the NRHP. However, the proponent is designing the Project to avoid impacting the historic component of AZ M:12:55(ASM). The historic component of the site consists of two historic waste piles which may represent a short-term habitation or work camp used during the 1946–1948 construction of US 93, as the associated artifacts indicate that the site was occupied for a short duration circa 1946–1948. The historical component is not a mine property and contains no direct evidence of mining activities. The site is not related to the Santa Maria Mining District (which has not been proposed or evaluated as an archaeological district) nor is it related to Austin. If the historic component were to be evaluated and found to be eligible, it would most likely be eligible under Criterion D (potential to provide important information). Changes in the visual setting are not an adverse impact to resources eligible under Criterion D, as they cause no information loss. Please see National Register Bulletin 15. AZ M:12:54(ASM) is more likely the remains of Austin. The site is determined eligible under Criterion A and D. However, this site is located outside the disturbance footprint and would not be physically impacted. Existing transmission line structures already exist in the viewshed of AZ M:12:54(ASM) and visual impacts are not anticipated to appreciably alter the site's integrity of setting. As correctly stated, AZ M:12:59(ASM) is a historical road that crosses the transmission line corridor north of the TS-01 and MPP-Q01 area. The road has been determined not eligible for listing on the Arizona or National Register of Historic Places (A/NRHP). The transmission line will pass over the historical road and will not physically impact the roadway. Existing transmission line structures already exist in the viewshed of the historic road and visual impacts are not anticipated to appreciably alter the roads integrity of setting. By the Santa Maria Mining District, we assume you are in fact referring to the historical Eureka Mining District, which includes the Bagdad Copper Mine, and several significant mines that are no longer operational. The Turnbeaugh, Pocahontas, and Goodenuff mines are all part of the Eureka Mining District. As you note, the Eureka Mining District has not been formerly evaluated as an archaeological district for listing on the NRHP. However, the major components of such an archaeological district, if one were to be defined, all fall outside of the disturbance footprint. These components would not be physically impacted. Existing transmission line structures, modern roads, and the active Bagdad Copper Mine all already exist in the viewshed of the Eureka Mining District. Visual impacts associated with MPP-Q01 Interconnection Request are not

Commenter	Text of Comment	Comment Response/Disposition
Heidi Chay (continued)	Geography determined the location of Austin - on flat ground with good access to water as the Santa Maria River emerges from a steep canyon where the mining claims are located. According to contemporary newspaper accounts (Appendix, p. 5-7), Santa Maria District mines were developing rapidly by 1894, as was the town called Austin. “What we need on the Santa Maria is a postoffice. We have to go or send to Congress, thirty miles distant for our mails. There are over one hundred persons who would get their mail here at present, and the number is increasing daily. C.S. Black runs a tri-weekly stage to Congress, and kindly acts as mail carrier for the camp. A town has started, and it is to be called Austin. We have one store, one saloon and a station or hotel.” (Source: Arizona Weekly Journal-Miner, 1894-11-28) “(Santa Maria District) is located in the western part of Yavapai, and up to but a few years ago, was a nonentity in gold quartz mining. From nothing, it has grown to somewhat of a well settled community, and offering as a profitable center for men th(sic) enter, excellent inducements. It has an abundant supply of water, good wood facilities, and can be readily reached. … C.S. Black has some very good looking prospects on which he is preparing to sink. He, at present, devotes his time to commercial pursuits in the camp of Austin, serving the people with first class accommodations.” (Source: Arizona Journal-Miner, Mid-Summer Mining Edition, 1895-07-24) In 1898, Yavapai County appointed C.S. Black and five other miners to serve as the election board for Austin, and designated “Black’s Station” as the polling place. (Source: Arizona Weekly Journal-Miner, 1898-11-02). It is worth noting that “Mother” Black was buried in the Santa Maria Ranch Cemetery ca. 1892. Our understanding is that hundreds and perhaps as many as 1000 miners lived in Austin at its peak. c) Santa Maria Ranch and the Historic Mining District Santa Maria Ranch itself is an historic property and was an integral part of the Santa Maria Mining District. Our understanding is that the ranch owner at the time, H.D. Williams, sold meat to the miners. He also pursued a mining prospect of his own, according to the 1903 Arizona Mining Directory. A 1919 USGS map (Appendix, p. 4) clearly shows the H. Williams house and the house of D.C. Thorne, a miner and the namesake of Thorne Peak, across the Santa Maria River to the north. Today, the Williams house foundation and other historic buildings of that era are still visible at Santa Maria Ranch. Parts of the stagecoach and mule train road from Austin to Congress are still visible. There is still a road, as shown on the 1919 map, connecting the ranch to the Historic Mining District and the Santa Maria River. At that point the old road, built by Thorne’s sons, Dan Jr. and Steve, becomes a rocky trail leading uphill to the historic mining claims once known as the Golden Eagle, the Silver Bell, the Gold Standard and the Lucy.	anticipated to appreciably alter the setting of said district. Formal evaluation of the Eureka Mining District would require a large-scale survey effort to identify and record various components in conjunction with archival research. Such an effort is outside the scope of this analysis. The Santa Maria Ranch was recorded as AZ M:12:74(ASM) and evaluated as part of supporting surveys for the Project. However, only a portion of the ranch is located within the surveyed areas. Buildings on the rest of the ranch were mapped from aerial imagery. Based on the available recording, AZ M:12:74(ASM) has been determined eligible under Criterion D . Per the recorders, the Santa Maria Ranch retains integrity of location, design, setting, materials, workmanship, and association. It is a continuously occupied homestead that exhibits the attributes of a rural desert ranch, although with some loss of integrity of feeling from the construction of US 93 and the high-voltage power lines (it has lost some ability to convey remoteness). The site contains, or is associated with, numerous trash dumps and other features that provide information on the economic status, social trends, and changing markets available to the ranch residents through the entire period of occupation. The material culture and structures of the ranch can provide information important in our understanding of the Euroamerican settlement of West-Central Arizona, 1878 through the present. Additionally, the site contains adobe structures that have been present and maintained since 1927. These may be architecturally significant under Criterion C. However, these structures are located outside the current survey area and were not evaluated. The Santa Maria Ranch would not be physically impacted by the MPP-Q01 Interconnection Request. Existing transmission line structures and modern roads already exist in the viewshed of the Santa Maria Ranch impacting the feeling and setting. Any visual impacts associated with the MPP-Q01 Interconnection Request are not anticipated to appreciably alter the setting or feeling of the ranch.

Heidi Chay	P. 27, Historic Resources, Environmental Consequences “There would be no impacts to any potential NRHP-eligible archaeological sites under the Proposed Action. Transmission structures and associated facilities, including temporary and permanent access roads, would be constructed to avoid NRHP-eligible or unevaluated sites.” Comments: a) Archaeological Sites Common usage of the term “archaeological sites” encompasses pre-historic as well as historic sites, i.e. those created during the period of written records. Our understanding, then, is that both AZ M:12:55[ASM] and AZ M:12:59[ASM] are archaeological sites, and that they are potentially NHRP-eligible. If another meaning of “archaeological sites” is intended, it should be defined. b) No Room for Ambiguity There will be impacts to AZ M:12:55[ASM] and AZ M:12:59[ASM] as was stated on p. 3 of the Executive Summary: “Construction of the Proposed Action would result in indirect impacts to the integrity of feeling and setting of cultural resource sites adjacent to the Project Area…including cultural landscapes, for as long as the Project structures exist.” c) Direct vs. Indirect Impacts Per the Draft EA on p. 13, a “direct impact” is defined as “an effect on a resource which is caused by the action and occurs at a particular time and place.” An “indirect impact” is defined as “an effect on a resource which is caused by the action and is later in time or farther removed in distance but is still reasonably foreseeable.” d) Direct Impacts to Historic Roads Figures 1-4 of the Draft EA appear to show that a portion of the historic road between the main gate of Santa Maria Ranch and the location of the proposed switchyard/substation will be used as an access road for construction. Except where it crosses Wild Horse Wash, the road is narrow and there are mining-era artifacts in close proximity. In addition, Figures 1-4 appear to show no access road between the proposed switchyard/substation and the point where the transmission line will cross the Santa Maria River. If the historic road is widened to allow for the passage of heavy construction equipment, or if construction takes place in the stretch between the substation and the river, the historic road will certainly be impacted directly. To minimize impacts, WAPA and APS should avoid use of the historic road and use the existing powerline access road wherever possible. P. 28, Historic Resources, Environmental Consequences “Construction would result in long-term indirect impacts to the integrity of feeling and setting of cultural resource sites adjacent to the Project Area, if those aspects of integrity contribute to the significance of the site, including cultural landscapes, for as long as the Project structures exist. However, these sites occur within areas adjacent to existing transmission infrastructure, and the addition of the proposed transmission line and supporting facilities is not anticipated to alter the existing feeling and setting.” Comment: Significance and modern usage of the Historic Mining District As stated above, the history of Santa Maria Ranch is interwoven with that of Austin and the surrounding mines of the Santa Maria District. Our ranch’s history is readily visible to visitors in the form of four stone buildings and the foundation of the Williams home, as well as in four adobe buildings with terracotta roofing that were built in 1934 and a generator house from the same era. Any visitor who has been here for more than a day has walked or ridden through the Historic Mining District via one of two routes. The first follows the historic road as it meanders one mile north to the Santa Maria River past stone structures, stone terraces, and building ruins. If time and the river allow, we cross the Santa Maria and take the rough trail three miles uphill to the Rock House built by our neighbors, the Pecks, on their historic mining claims. The second route follows an historic trail 1.25 miles	Thank you for your comments. Yes, this statement refers to any potentially NRHP-eligible resources including prehistoric and historic period archaeological sites. AZ M:12:55(ASM) is an archaeological site. AZ M:12:59(ASM) is a historic aged in-use infrastructure which is also qualified for evaluation for the NRHP. There would be no physical impacts to any eligible resources (i.e. historic properties) and any proximal impacts are not anticipated to be adverse as the visual landscape already includes transmission line structures and modern in-use roadways. The statement in the Final EA will be revised to clearly state there would be no adverse impacts to any NRHP-eligible cultural resources under the Project. You have referenced a portion of p. 3 of the Executive Summary. The full statement in the Draft EA is: “Construction of the Proposed Action would result in indirect impacts to the integrity of feeling and setting of cultural resource sites adjacent to the Project Area, **if those aspects of integrity contribute to the significance of the site**, including cultural landscapes, for as long as the Project structures exist.” Integrity of feeling and setting are not aspects of integrity contributing to the eligibility of AZ M:12:55(ASM), as the site is eligible under Criterion D for its information potential. Usage of indirect impacts will be clarified as proximal impacts. In the case of AZ M:12:59(ASM), there will be proximal visual impacts, however, the impacts will not be adverse, given the existing viewshed already includes similar elements. The historic road will not be widened for use in construction. Use of historic aged roads, regardless of their eligibility status, is not considered an adverse impact. Access has been designed for minimal disturbance and utilizes existing roads whenever possible. Please also see responses above regarding the mining district and Santa Maria Ranch.

Commenter	Text of Comment	Comment Response/Disposition
Heidi Chay (continued)	east to Lucy's Well (built by miner, A. Lucy) and up the hill, via a rocky trail, past multiple mining shafts, an ore processing plant with the remains of two Washoe tanks, roughly 15' in diameter, and a hill of white tailings, past the remains of a miner's cabin and eventually to the Turnbeaugh and Pocohontas claims high on the wall of the Santa Maria River canyon. We take visitors on one or both of these routes not only because they offer beautiful views in close proximity to the ranch headquarters, but because they are fascinating from a historic perspective. We value these historic relics because they tell the story of Austin and Santa Maria Ranch in the context of Territorial Arizona, when the capitol was in Prescott and the nearest post office was 30 miles away in Congress. b) Impact of the Proposed Action What makes the Proposed Action so unacceptable from a historic resources perspective is the location and scale of the switchyard/substation, the so-called "supporting facilities." Per p. 25 of the Draft EA, the Area of Potential Effects is "defined in the regulations for Section 106 of the NHPA (36 CFR Part 800.16[d]), (as) the "geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties," is "influenced by the scale and nature of an undertaking," and "may be different for different kinds of effects caused by the undertaking." The Area of Potential Effects for this Proposed Action then is not only the footprint of the proposed switchyard/substation, but the historically significant area that surrounds it on all sides. The proposed facility would be placed in the middle of the Historic Mining District at the nexus of the routes north and east described in the previous paragraph. The 30-50 acre industrial facility, with up to 60 acres of ground disturbance, a compact array of four towers, and night lighting (per APS) would be placed on high ground so that it would be visible throughout much of the historic area, both at a distance and at close range because the facility would be placed within 500' of the historic road. In our view, the location, scale and nature of the substation/switchyard would significantly and permanently degrade the character, use and integrity of the Historic Mining District in a way that powerlines alone do not. The impacts to historical resources qualify as "direct" in that they are immediate, not delayed in time. Intensity of Impact According to Table 3-2 of the Draft EA, intensity of an impact can be described as negligible, minor, moderate or major. A "negligible" impact is "at the lowest levels of detection with barely measurable consequences." A "minor" impact is "measurable or perceptible, with little loss of resource integrity and changes are small, localized, and of little consequence." A "moderate" impact is "measurable and perceptible and would alter the resource but not modify overall resource integrity, or the impact could be mitigated successfully in the short term." A "major" impact is "substantial, highly noticeable, and long term." Using this scale, the impacts of the Proposed Action on historic resources do not qualify as negligible, minor or moderate. In our view, the impacts, both direct and indirect, of constructing a 30-50 acre facility on high ground in the middle of the Historic Mining District can only be described as "highly noticeable and long-term," therefore, "major."	

Commenter	Text of Comment	Comment Response/Disposition
Heidi Chay	P. 28, Historical Resources, Cumulative Impacts “Historic properties within the Aguila Pipeline corridor were previously mitigated through recording and data recovery.” Comment: a) This section merits expansion. As noted above, our understanding is that the Aguila Pipeline project will involve overhead river crossings at the South Fork and North Fork of the Santa Maria River, as well as a number of pumping stations. Our understanding is that a pumping station may be located on the south side of the Santa Maria River north fork within the pipeline corridor, which overlaps and crosses the Historic Mining District. Concrete footings on both sides of the river, an overhead pipeline between them and a possible pumping station of unknown size will each contribute to the cumulative impacts on the Historic Mining District. Lay readers are not familiar with the process of “mitigating through recording and data recovery.” It would be helpful to explain what this means.	Thank you for your comment. Per the Department of Energy NEPA Implementing Procedures, "DOE is responsible under NEPA for analyzing reasonably foreseeable environmental effects (42 U.S.C. 4332(C)(i)) of the proposed action...an agency is not required to analyze the effects of projects over which it does not exercise regulatory authority."
Heidi Chay	P. 29, Historical Resources, Cumulative Impacts “...much of the vicinity of the Project Area remains undeveloped, and there is the potential for it to contain historic properties that have yet to be discovered and recorded. The majority of the identified reasonably foreseeable future actions in the area have provided or could provide occasions to conduct studies that would likely not occur otherwise.” Comment: We wholeheartedly agree that there are historic properties in this vicinity that have yet to be discovered and recorded. Our family has ranched here for 35 years and we still stumble upon new discoveries regularly.	Thank you for your comment.
Heidi Chay	P. 29, Historical Resources, Cumulative Impacts “The Project, in combination with other reasonably foreseeable projects, could result in cumulative direct and indirect impacts to historic properties. The construction, operations and maintenance, and decommissioning of the Project would have a negligible contribution to cumulative effects to historic properties.” Comment: a) The Draft EA concludes its analysis of cumulative impacts on historical resources with the above two sentences. For consistency and accuracy, the first sentence should read, “The Project, in combination with other reasonably foreseeable projects, will result in cumulative impacts to historic properties, both direct and indirect.” The second sentence should read, “The construction, operations and maintenance, and decommissioning of the Project would have a major contribution to cumulative effects to historic properties.”	Thank you for your comment. Please see previous responses.
Heidi Chay	3.6 VISUAL RESOURCES P. 30 “Primary viewers are typically traveling through the Analysis Area.” Comment: “Primary” viewers should be reserved for those who will see the Proposed Project on a daily or frequent basis. It would be more accurate to say that “The majority of viewers are those travelling through the Analysis Area on Highways 93 and 97.”	Thank you for your comment. The Final EA will be revised to clarify that the majority of viewers are those traveling through the Analysis Area.

Commenter	Text of Comment	Comment Response/Disposition
Heidi Chay	P. 30 “Along SR 97 is a small off-grid rural residential community without assured access to water or electricity. Residents of this community have a direct view of the proposed transmission line to the east of their community. Approximately 10 to 20 residences are located within this community. Within the Analysis Area, near the northern terminus of the proposed transmission line is SR 96 and the Town of Bagdad.” Comment: Equal consideration should be given in the text to the residents and businesses located on Santa Maria River Road and Santa Maria Ranch Road, who will view the proposed facilities from close range (0.15-0.75 miles away) on a regular basis. Consideration should also be given to our neighbors 2.5 miles north at parcel #200-16-006 who will be impacted during the construction and operational phases of the transmission line (and associated pipeline).	Thank you for your comment. The Final EA will be revised to be inclusive of rural residential or ranching properties south and west of the proposed transmission line.
Heidi Chay	P. 32, Cumulative Impacts “While implementation of the Proposed Action would introduce new electrical infrastructure into the region, any additional visual impact is expected to be minor as the landscape already contains transmission and transportation corridors and the resulting contrast structures. The reasonably foreseeable future actions identified are not anticipated to contribute to additional impacts to visual resources in the Project Area.” Comment: Again, this conclusion regarding cumulative impacts may hold true for the overhead transmission line itself, but, as we have described under Historic Resources, it does not hold true for the substation and switchyard at the southern terminus of the project. The visual impact of the overhead pipeline crossing and possible pumping station at the Santa Maria River North Fork should be included in this analysis of cumulative impacts.	Thank you for your comment. Per the Department of Energy NEPA Implementing Procedures, "DOE is responsible under NEPA for analyzing reasonably foreseeable environmental effects (42 U.S.C. 4332(C)(i)) of the proposed action...an agency is not required to analyze the effects of projects over which it does not exercise regulatory authority."
Heidi Chay	A THIRD ALTERNATIVE In our ideal world, WAPA and APS would reevaluate the 14-mile Hwy 97/Aguila Pipeline ROW alignment described on pp. 8-9 of the Draft EA in light of the information we have presented here. This alternative would avoid impact to historic resources described above, and would avoid placing the switchyard and substation in close proximity to residences. Short of that, we urge WAPA and APS to give serious consideration to modifying the Proposed Action by moving the substation and switchyard to an alternative location that will not adversely impact the Historic Mining District or historic road. We propose an alternative location immediately adjacent to the existing transmission line corridor, approximately 0.75 miles south of the location currently proposed. (See map, Appendix, p. 8) That location south of a ridge that parallels Santa Maria River Road offers a number of advantages. The topography provides a natural screen and reduced visual impact for local traffic on Santa Maria River Road and Santa Maria Ranch Road. The location has easier access for heavy equipment via the existing powerline access road. It is approximately the same distance from Highway 93, so there will be no appreciable difference from the perspective of vehicles on the highway. We would expect no additional impact to plants or wildlife at this location, and it is much further from the last known sighting of a desert tortoise in this area. Above all, this location would minimize or avoid adverse impacts to the Historic Mining District and historic road. While we understand the logic of co-locating the transmission line and pipeline along the same new utility corridor to minimize environmental impact, the same logic does not apply to grouping “supporting facilities”, including the substation/switchyard, overhead river crossings for the pipeline and pump stations. To minimize impacts to historic properties and to preserve historic and landscape values, it makes sense to distribute such structures along the corridor rather than placing them in close proximity to each other.	Thank you for your comment. As described in **Section 2.7**, alternative alignments and power generation alternatives were considered by APS prior to submitting the transmission interconnection request, and were ultimately determined by APS to not meet the underlying need for the Project, be feasible, and/or contribute to significantly increased disturbance across the landscape. Additionally, WAPA has no regulatory authority over APS’s private action. Please see previous comments regarding NRHP-eligible sites.

Commenter	Text of Comment	Comment Response/Disposition
Heidi Chay	MITIGATION MEASURES Regardless of the location ultimately chosen, we strongly urge WAPA and APS to include mitigation measures to reduce the visual impact of the substation/switchyard. Mitigation measures may include vegetated berms, thoughtful arrangement of structures within the facility to minimize visual impact, and choice of materials and/or colors that help the facility blend into the natural landscape. We also urge WAPA and APS to avoid light pollution in this natural “dark sky” area, to use lighting only where actually necessary and indispensable, and take steps to reduce the visual impact on local traffic.	Thank you for your comment. As required for the transmission line based on the Certificate of Environmental Compatibility (CEC) administered by the Arizona Corporation Commission, APS will use non-specular conductor and non-reflective surfaces for the transmission line structures to minimize visual impacts. Lighting will be utilized to the minimum extent practicable for construction of the Project. Operational lighting will be limited to that which is required for safety purposes.
Heidi Chay	COMMUNICATION AND COORDINATION If this project proceeds, we anticipate significant impacts to our daily life and ranching operations during the construction phase. We request that WAPA and APS and their contractors consult with us in advance and keep us informed regularly during construction regarding the timing of operations, the location of access roads and laydown areas, road closures on Santa Maria Road or Santa Maria Ranch Road, plans for altering gates or fencing, and anything else that might have the potential to affect ranch operations. In addition, we would request direct lines of communication with leadership among WAPA and APS contractors. During past and recent highway construction projects, good communication and relationships with contractors have helped identify and resolve problems quickly and effectively, to their satisfaction and ours.	Thank you for your comment.
SHPO	Historic Resources (pg. ES-3) - Impacts to aspects of the integrity of cultural resources that contribute to the significance of sites and/or properties would constitute an Adverse Effect in accordance with 36 CFR 800. SHPO also reminds WAPA that direct effects are not limited to physical effects (c.f., https://www.achp.gov/news/court-rules-definitions-informs-agencies-determining-effects).	Thank you for your comment. In this context, direct is referring to physical impacts while indirect is referring to other types of non-physical impacts such as visual impacts. The Final EA will be revised to use physical impacts versus proximal impacts to remove the confusion. Impacts are only considered to historic properties (i.e., properties that are listed on or are eligible for listing on the NRHP). For impacts to historic properties to be considered adverse, they must impact the aspects of integrity which convey the property’s significance. Setting and feeling are not aspects of integrity considered important for historic properties eligible under Criterion D (information potential). Therefore, visual impacts are generally not considered an adverse impact for historic properties eligible only under Criterion D. This is true for most archaeological sites. Please see National Register Bulletin 15.
SHPO	Past, Present, and Reasonably Foreseeable Future Actions (pgs. 10-11) - The identification of past, present, and reasonably foreseeable future actions (RFFAs) lacks definition of an analysis area around the Proposed Action from which baseline and current conditions may be understood (i.e., existing land disturbances such as transmission facilities, roads, pipelines, mines, etc.), and all applicable RFFAs may be identified (such as ADOT maintenance and/or improvements; BLM management actions and/or leases; ASLD leases; etc.). Please revise for adequate cumulative effects analysis.	Thank you for your comment. Per the Department of Energy NEPA Implementing Procedures, "DOE is responsible under NEPA for analyzing reasonably foreseeable environmental effects (42 U.S.C. 4332(C)(i)) of the proposed action...an agency is not required to analyze the effects of projects over which it does not exercise regulatory authority."
SHPO	Historic Resources (pg. 24-29) - Because this analysis focuses solely on the constructive footprint of the Proposed Action, it is incomplete. Please revise the Area of Potential Effect (APE) and re-analyze accordingly. SHPO reminds WAPA that prior or future resolution of Adverse Effects to historic properties in accordance with 36 CFR 800 does not translate to "no impacts" to cultural or historic resources under NEPA. While the Section 106 compliance and consultation will ultimately focus on potential effects to historic properties, this NEPA analysis should analyze and disclose potential impacts to all cultural resources, as is stated on EA pg. 24.	Thank you for your comment. The APE has been revised to include a 3-mile buffer of the transmission line and substations/switchyard, including access roads, and a 1-mile buffer of the communication facilities.

https://api.box.com/wopi/files/2186682469950/WOPIServiceId_TP_BOX_2/WOPIUserId_35843946711/App_F_20260403_Public Comment Matrix_Revised.docx

APPENDIX G
APS Construction Standards

Appendix G. Arizona Public Service (APS) Standard Construction and Operating Procedures and Mitigation Measures

1. All construction standards agreed upon in the right-of-way (ROW) agreement between APS and the Arizona State Land Department (ASLD) will be implemented by APS and are included in these standards by reference.
2. Construction, maintenance, and operation of the Project Area (as defined in the Final Environmental Assessment) will comply with all federal, state and local guidelines. Environmental laws include without limitation: water quality; air quality; and handling, transportation, storage, treatment, or disposal of any Regulated Substance (as defined in the ROW agreement) on, under, or from the Project Area.
3. No alterations shall be made to the ROW that will cause ponding nor damage up or down stream of any water crossing.
4. No altering of existing drainages or drainage structures is authorized under the ROW agreement.
5. All construction vehicle movement outside of the ROW will be restricted to predesignated access, contractor acquired access, or public roads.
6. The limits of construction activities will be predetermined, with activity restricted to and confined within those limits (the Project Area) prior to the beginning of any construction, maintenance, or other ground disturbing activities. No paint or permanent discoloring agents will be applied to rocks or vegetation to indicate survey or construction activity limits. The ROW boundary will be flagged in environmentally sensitive areas described in the specific plan of development to alert construction personnel that those areas should be avoided.
7. Prior to construction after the commencement date of the ROW agreement, a plan for restoration and rehabilitation of disturbed areas on State Trust lands remaining once construction has been completed shall be submitted for approval to ASLD. The plan will include, but is not limited to, reseeding, reforestation, erosion control, and watershed protection measures. APS will, upon completion of construction, make such rehabilitation measures on the State lands, including but not limited to restoration of the surface, revegetation, and fencing as determined necessary by the ASLD.
8. In construction areas where recontouring is not required, vegetation will be left in place wherever possible to avoid excessive root damage and allow for resprouting.
9. In construction areas (e.g., marshalling yards, structure sites, spur roads from existing access roads) where ground disturbance is significant or where recontouring is required, surface restoration will occur as required by the landowner or land-management agency. The method of restoration will typically consist of returning disturbed areas to their natural contour (to the extent practical), reseeding or revegetating with native plants (if required), installing cross drains for erosion control, placing water bars in the road, and filling ditches. Seed must be tested and certified to contain no noxious weeds in the mix by the Arizona Department of Agriculture (AZDA). Seed viability must also be tested at a certified laboratory approved by the authorized officer.

10. Upon the completion of construction, APS shall repair and restore any portion of the surface of the Project that is not occupied by Project facilities and that were used by APS during construction activities to as near pre-existing grade and level as practicable to do so. APS shall replant native grass seed on any portions of the Project Area disturbed by APS's construction activities that were in native grassland prior to construction and that are not occupied by Project facilities. Upon completion of construction, APS shall take aerial photographs of all of the Project facilities and provide such photographs, together with a narrative of the location and description of the Project facilities, to memorialize said location and description.
11. Following the expiration or termination of the ROW agreement, APS shall, within 30 days apply to ASLD for a Special Land Use Permit or similar instrument and deliver to ASLD a commercially reasonable decommissioning plan, acceptable to ASLD. The decommissioning plan shall require APS to:
    a) Remove all concrete footings, foundations, and other fixtures to a depth of not less than 3 feet below the surface grade; and
    b) Remove all concrete and other waste materials and dispose of such materials in accordance with applicable State laws;
    c) Reclaim and surrender the Project Area on State Trust lands in a condition at least as good as the condition in existence on the Commencement Date, including, without limitation:
        i. Filling in of all excavations.
        ii. Reseeding any disturbed soil surface with suitable native flora and restoring the terrain and soil surface to as close as reasonably practicable to its original condition.
    d) Restore the Project Area disturbed by APS's appurtenances, or any permitted assignee, to a condition and forage density reasonably similar to its original condition and forage density.
    e) Complete, as reasonably required, all leveling, terracing, mulching and other reasonably necessary steps to prevent soil erosion, to ensure the establishment of suitable grasses and forbs, and to control noxious weeds and pests.
12. APS will conduct its operations in a manner that is consistent with good environmental practices. APS will exert reasonable efforts to avoid damage of protected flora and restore the surface to its condition prior to construction as part of any decommissioning plan.
13. APS will complete any necessary restoration within 90 days of written notification of non-compliance by ASLD.
14. APS is responsible for the treatment of all regulated and restricted noxious weeds listed by the AZDA. Power washing of all vehicles and/or equipment (including the undercarriage) used for construction or maintenance will be implemented on State Trust lands to prevent the spread of noxious weeds. This also includes consultation with the land management agency and/or local authorities for acceptable weed control methods on disturbed areas within the limits of the ROW.

15. During ground disturbance, all rock brought to the surface along with the topsoil and overburden from affected State Trust lands shall be salvaged and stockpiled separately in a matter that replacement shall use 100 percent of the materials upon completion of construction. Excess rock unsuitable for scattering shall be disposed of in a matter and location authorized by ASLD.
16. Watering facilities (e.g., tanks, developed springs, water lines, wells, etc.) will be repaired or replaced to their pre-disturbed conditions as required by the landowner or land-management agency if they are damaged or destroyed by construction activities.
17. Prior to construction, all construction personnel will be instructed on the protection of cultural, paleontological, and ecological resources. To assist in this effort, the construction contract will address (a) federal and state laws regarding antiquities, fossils, and plants and wildlife, including collection and removal, and (b) the importance of these resources and the purpose and necessity of protecting them.
18. Impact avoidance and mitigation measures for cultural resources developed in consultation with the State Historic Preservation Office (SHPO), WAPA, ASLD, and the tribes will be implemented.
19. Pursuant to A.R.S. §§ 41-841 and 41-842, APS shall not excavate or collect any prehistoric or historic archaeological specimens in the Project Area without a permit from the Director of the Arizona State Museum and written approval of ASLD (if on ASLD lands) pursuant to the terms of the ROW agreement. APS shall immediately report any unpermitted excavation or collection of archaeological specimens in the Project Area to the Arizona State Museum and ASLD (if on ASLD lands).
20. The Project sponsors will respond to complaints of line-generated radio or television interference by investigating the complaints and implementing appropriate mitigation measures. The transmission line will be patrolled on a regular basis so that damaged insulators or other line materials that could cause interference are repaired or replaced.
21. The Project sponsors will apply necessary mitigation to minimize problems of induced currents and voltages onto conductive objects sharing a ROW, to the mutual satisfaction of the parties involved.
22. All construction and maintenance activities shall be conducted in a manner that will minimize disturbance to all surface features, including those that affect adjacent land values, such as vegetation, drainage channels, and stream banks. In addition, all existing roads will be left in a condition equal to or better than their condition prior to the construction of the transmission line.
23. Construction methods will be designed to prevent degradation of soil conditions in areas where such degradation would result in detrimental erosion or subsidence.
24. All requirements of those entities having jurisdiction over air quality matters will be adhered to and any necessary permits for construction activities will be obtained.
25. Fences and gates, if damaged or destroyed by construction activities, will be repaired or replaced to their original pre-disturbed condition as required by the landowner or the land-management agency. Temporary gates will be installed only with the permission of the landowner or the land-management agency and will be restored to their original pre-disturbed condition following construction.

26. The proposed hardware and conductor will limit audible noise, radio interference (RI), and television interference (TVI) due to corona. Tension will be maintained on all insulator assemblies to assure positive contact between insulators, thereby avoiding sparking. Caution will be exercised during construction to avoid scratching or nicking the conductor surface, which may provide points for corona to occur.
27. During operation of the transmission line, the ROW will be maintained free of construction related non-biodegradable debris.
28. Totally enclosed containment will be provided for all debris. All construction waste including debris, litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials will be removed to a disposal facility authorized to accept such materials. A Spill Contingency Plan and Spill Prevention Control and Countermeasure (SPCC) Plan will be prepared. The SPCC Plan will address prevention and remediation of oil, hydraulic fluid, and petroleum fuel spills. Oils or chemicals will be hauled to an approved site for disposal. Hazardous materials generated (motor oil, paint, etc.) shall be disposed of properly or used in a way which will minimize impact on vegetation.
29. Prior to the termination of the ROW, APS shall restore the Project Area by removing any and all Regulated Substances. In addition, the restoration shall include, but not be limited to, removal of all waste and debris deposited by APS. If the Project Area or any portions thereof are damaged or destroyed from the existence or presence of any Regulated Substance or if the Project Area or any portions thereof are damaged or destroyed in any way relating to or arising out of the removal, treatment, storage, disposition, mitigation, cleanup or remedying of any Regulated Substance, APS shall arrange, at its expense, for the repair, removal, remediation, restoration, and reconstruction to the Project Area to the original condition existing on the date that APS first occupied the Project Area, to the satisfaction of ASLD. In any event, any damage, destruction, or restoration by APS shall not relieve APS from its obligations and liabilities under the ROW agreement, and APS's restoration obligations under this paragraph shall survive the expiration or the termination of the ROW agreement.
30. Structures will be constructed to conform to "Suggested Practices for Avian Protection on Power Lines" (Avian Power Line Interaction Committee 2006)[1] and “Reducing Avian Collisions with Power Lines: the State of the Art in 2012” (Avian Power Line Interaction Committee 2012).[2]
31. APS will not move, use, destroy, cut, remove, or permit to move, any timber, cactus, native plants, standing trees, or products of the land except that which is necessary for the use of the Project Area, and then only with the prior written approval of ASLD (if on ASLD lands). For undeveloped land, APS will submit a plant survey prior to the removal of any protected native plant. If the removal or destruction of plants protected under the Arizona Native Plant Law (A.R.S. § 3-901 et seq., or any successor statutes) is necessary to the use of the Project Area, APS will also obtain the prior written approval of

[1] Avian Power Line Interaction Committee. 2006. Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006. Washington, D.C. and Sacramento, California: Edison Electric Institute, APLIC, and the California Energy Commission.

[2] Avian Power Line Interaction Committee. 2012. Reducing Avian Collisions with Power Lines: the State of the Art in 2012. Washington, D.C.: Edison Electric Institute and Avian Power Line Interactions Committee. October 2012.

the AZDA. In the event APS removes the native plants, a fee will be paid for species protected by the Arizona Native Plant Law that may be destroyed by project activities within the ASLD ROW in accordance with the Native Plant Inventory prepared for the project.

32. All protected plants, if viable and feasible, shall be preserved or relocated on or adjacent to the worksite in areas that will not interfere with required work. Removal of protected plants shall only be performed when authorized to do so. If contractors are authorized to remove any protected plants from State Trust land for replanting off of State Trust land, a permit from the AZDA is required.
33. The alignment of any new access roads or overland routes will follow the designated area's landform contours where possible, providing that such alignment does not additionally impact resource values. Roads will be constructed with widths as narrow as possible. This would minimize ground disturbance and reduce scarring. Service roads shall be maintained in substantially the same condition as they exist at the time the ROW agreement is issued except, if not drivable, they shall be made drivable. Roads will not be used during wet weather or when too soft to adequately support equipment, as evidenced by the formation of ruts more than 6 inches deep.
34. Material for service road construction and maintenance (i.e., fill dirt, sand and gravel, etc.) may not be acquired from State Trust lands without the proper permits and authorization.
35. All new access roads not required for maintenance will be permanently closed using the most effective and least environmentally damaging methods appropriate to that area with concurrence of the landowner or land manager (e.g., stock piling and replacing topsoil, rock replacement). This would limit access into the area. Fencing, signing, and other closure methods will be determined by the ASLD or other applicable jurisdiction and paid for by the contractor or APS.
36. In designated areas, structures will be placed or rerouted to avoid sensitive features such as, but not limited to, riparian areas, watercourses, and cultural sites, or to allow conductors to clearly span the features, within limits of standard tower design.
37. Transmission line structures will comply with Federal Aviation Administration Guidelines to minimize aircraft hazards (Federal Aviation 77).[3]
38. Special-status species or other species of particular concern will continue to be considered during the construction phase of the Project, in accordance with management policies set forth by the appropriate land management agencies. This will entail monitoring for plant and wildlife species of concern along the proposed transmission line and associated facilities (i.e., access roads and staging areas). In cases where such species are identified, appropriate action will be taken to avoid adverse impacts on the species and its habitat.

[3] Code of Federal Regulations. 2025. Title 14 - Aeronautics and Space, Chapter 1 - Federal Aviation, Administration, Department of Transportation, Subchapter E - Airspace, Part 77 Safe, Efficient Use, and Preservation of the Navigable Airspace. December 17, 2025. *Federal Register*, 1-13.

39. A written report with a comparison of pre-construction aerial photographs and post-construction aerial photographs shall be completed within 1 year of completion of construction in sufficient detail to ensure a comparative analysis between pre- and post-construction ROW conditions.
40. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by APS or its contractors within the Project Area, shall be reported to the Director of the Arizona State Museum and ASLD. In consultation with these agencies, APS shall immediately take all reasonable steps to preserve the discovery, which may include recovery and documentation by an archaeological monitor. All operations in the immediate area of such discovery shall be suspended until written authorization to proceed is issued by the authorized officer to determine appropriate actions to prevent the loss of significant cultural or scientific value. If human remains or funerary objects are identified, the Repatriation Coordinator of the Arizona State Museum, the Manager of the Cultural Resources Management Program at ASLD, and the appropriate tribes shall be notified.
41. APS shall complete pre-construction and post-construction aerial photography, with the latter completed within 1 year of construction. The photographs shall be detailed enough to support a comparative analysis of ROW conditions. APS shall provide ASLD with a written report of its findings, and in the event disturbance warrants remittance of additional plant reimbursement charges, APS shall reimburse ASLD said additional charges at the cost per acre already established.

Other Mitigation Measures

1. Construction holes left open overnight shall be covered. Covers shall be secured in place and shall be strong enough to prevent livestock or wildlife from falling through and into the hole.
2. Within 30 days of completion, APS will submit to the authorized officer, as-built drawings and a certification of construction verifying that the facility has been constructed (and tested) in accordance with the design, plans, specifications, and applicable laws and regulations.
3. All equipment will be removed from the site within 7 days of project completion.
4. During construction, APS shall apply water for the purpose of dust control, including for the maintenance of service roads.
5. The APS shall trim trees in preference to cutting trees and shall cut trees in preference to bulldozing them as directed by the authorized officer.
6. APS shall remove only the minimum amount of vegetation necessary for the construction of structures and facilities. Topsoil will be conserved during excavation and reused as cover on disturbed areas to facilitate re-growth of vegetation.
7. APS shall maintain the ROW in a safe usable condition, as directed by the authorized officer.
8. APS will be responsible for the total reclamation of the ROW should it ever be relinquished or terminated. This reclamation will include the scarification of the road surface and the reseeding of the

entire disturbed area with a native seed mixture that will be approved by the authorized officer prior to the reclamation work.

9. APS shall comply with Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d et seq.) and the regulations of the Secretary of the Interior issued pursuant thereto.
10. All design, material, construction, operation, maintenance, and termination practices shall be in accordance with safe and proven engineering practices.
11. Construction and maintenance sites shall be maintained in a sanitary condition at all times; waste materials at those sites shall be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment.
12. APS shall comply with all applicable federal laws and regulations existing or hereafter enacted or promulgated. In any event, APS shall comply with the Toxic Substances Control Act of 1976, as amended (15 U.S.C. 2601, et seq.) with regard to any toxic substances that are used, generated by or stored on the ROW or on facilities authorized under this ROW grant (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act at 1980, Section 102b. A copy of any report required or requested by any federal agency or state government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved federal agency or state government.
13. APS agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act of 1976, 42 U.S.C. 6901 et seq.) on the ROW (unless the release or threatened release is wholly unrelated to APS's activity on the ROW). This agreement applies without regard to whether a release is caused by APS, its agent, or unrelated third parties.
14. Prior to termination of the ROW, APS shall contact the authorized officer to arrange a pre-termination conference. This conference will be held to review the termination provisions of the grant.
15. Archeological sites that are eligible for National Register of Historic Places shall be spanned or avoided during construction and maintenance activities. These areas will be clearly marked for avoidance onsite prior to any construction, maintenance or ground disturbance activities. If an eligible site is discovered during construction and cannot be spanned, impact avoidance and mitigation measures developed in consultation with the SHPO and other interested parties shall be implemented during post Environmental Assessment phases of project implementation.
16. Prior to construction, a training program shall be instituted that would stress the importance of avoiding unintentional and intentional damage to cultural, paleontological, and ecological resources.

17. In existing grazing lease areas (if applicable), all existing gates shall be closed and fences remain in functioning condition in order to maintain existing conditions and minimize impacts to cattle. Any grazing-related improvements removed or damaged due to construction, operation and maintenance in the ROW shall be replaced and/or reconstructed immediately. APS shall provide ASLD with documentation of the surface lessee's consent prior to making any alterations to existing improvements. If livestock are grazing during construction or maintenance, necessary measures shall be taken to ensure livestock protection and containment. Notification will be made to the lessee(s) 30 days prior to beginning construction or maintenance and APS will inquire as to the presence/absence of livestock.
18. ASLD may require cattle guards if ASLD determines gates are being left open or fencing has been removed or damaged by APS, its employees or contractors. APS shall install and maintain cattle guards and/or metal gates where the ROW crosses all fence locations. These gates will be locked at all times.
19. An employee will be designated the “Designated Compliance Officer” who will be responsible for knowing all Environmental Laws affecting APS and its business and monitoring of continued compliance with applicable Environmental Laws. Upon request by the ASLD, APS shall make the Designated Compliance Officer available to discuss APS’s compliance, answer questions, and provide such reports and confirm information as ASLD may reasonably request.
20. At any time, ASLD may request that APS provide an environmental audit of the ROW performed by an Arizona registered professional engineer or an Arizona registered geologist.
21. At any time during the term of the ROW, ASLD may require APS to obtain a Phase I Environmental Site Assessment (Phase I ESA) of the Project Area performed by an Arizona registered professional engineer or an Arizona registered geologist. If based upon the Phase I ESA or its own independent investigation, ASLD identifies any possible violation of Environmental Laws or the terms of the ROW agreement, ASLD may require APS to conduct additional environmental assessments as ASLD deems appropriate for the purpose of ensuring that the Project Area is in compliance with Environmental Laws. ASLD, in its sole discretion, shall have the right to require APS to perform additional assessments of any damage to the Project Area arising out of any violations of Environmental Laws.

Desert Tortoise Mitigation Measures

1. Pre-construction surveys for Sonoran desert tortoise (SDT) will take place prior to surface disturbance.
2. APS will relocate any SDT found within the Project Area that do not vacate the Project Area on their own in a reasonable amount of time, following Arizona Game and Fish Department (AZGFD) guidelines for monitoring and handling of SDT (Rubke 2024).[4] SDT would only be handled by qualified individuals with a Scientific Activity License from the AZGFD.

[4] Rubke, C.A. 2024. Sonoran Desert Tortoise (*Gopherus morafkai*) Conservation Guidelines. *Nongame and Endangered Wildlife Program Technical Report 368*. Phoenix, Arizona: Arizona Game and Fish Department.

3. A trained field representative will be responsible for handling, relocating, and reporting SDT detections; ensuring compliance with all SDT conservation measures; and serving as a point of contact for crews if an SDT is encountered.
4. The field representative would train crews on proper herbicide handling and application within SDT habitat.
5. Field crews would be trained to inspect under and around vehicles before moving them and vegetation before spraying.
6. Field crews shall maintain clean project sites and remove all trash to avoid subsidizing SDT predator populations.