

**Application
for a
Special Use Permit**

CHEVELON BUTTE WIND FARM

Prepared for:
**Navajo County
Planning and Zoning Department**

Submitted by:
Chevelon Butte RE LLC

September 20, 2019





September 20, 2019

Sandra Phillips
Navajo County Planning and Zoning Department
P.O. Box 668
Holbrook, AZ 86025

Dear Ms. Phillips:

Chevelon Butte RE LLC, a wholly owned subsidiary of sPower Development Company, LLC (“sPower”), is pleased to submit this Special Use Permit application to Navajo County to allow construction and operation of a 477 megawatt (AC) maximum capacity wind energy project on what is commonly known as the Chevelon Butte Ranch; south of Winslow, Arizona, as further depicted and described in this application.

We have engaged industry-leading experts to perform various environmental, cultural, and other siting studies to identify and mitigate impacts to applicable resources. We are committed to agency and stakeholder consultation, and have been working with various local, state, and federal agencies in developing this planned wind energy project. While the project is sited in a remote location away from residential and developed areas, and incorporates a setback from the project boundary, we have launched a successful public outreach and comment program to facilitate a robust discussion with nearby communities, including continual updates to chevelonbuttewind.com. The Chevelon Butte Wind Farm would bring many local economic and environmental benefits, as further described below, and we are excited to bring more cost-competitive, reliable, and air emissions-free electricity to northern Arizona.

Enclosed is Check No. 0266 in the amount of \$10,000 for the Special Use Permit Application Fee. Should you have any questions please feel free to contact me at 970-302-9457, or Jeffrey Nemeth at 309-531-0440. We look forward to working with you on the Chevelon Butte Wind Farm as we continue to advance renewable energy in the state of Arizona.

Sincerely,

Chevelon Butte RE LLC

A handwritten signature in cursive script that reads 'Terrance Unrein'.

By: Terrance Unrein, Senior Permitting Manager

sPower

2180 1300 E #600

Salt Lake City, UT 84106

Terrance.Unrein@spower.com

**Application
for a
Special Use Permit
CHEVELON BUTTE WIND FARM**

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NAVAJO COUNTY PUBLIC WORKS DEPARTMENT

PLANNING & ZONING

Post Office Box 668 - 100 East Code Talkers Drive

Holbrook, Arizona 86025

(928) 524-4100 FAX (928) 524-4122

www.navajocountyaz.gov

SPECIAL USE PERMIT APPLICATION

(also to be used for an Amendment to an approved/existing Special Use Permit)

SITE & PROPOSAL INFORMATION:

PROJECT NAME: Chevelon Butte Wind Farm

PROPOSED USE OF PROPERTY: Wind energy farm

SPECIAL USE CATEGORY: Wind Energy Generation Facility per Section 2008 of Ordinance 06-10

LOCATION (include nearest town/community): Approximately 27 miles south of Winslow Arizona, please see attached maps.

GENERAL DIRECTIONS TO PARCEL: From Winslow, AZ, travel south on State Route 99 approximately 27 miles.

ADDRESS (if known): See attached maps

PROPERTY SIZE: Approximately 3,650 acres; _____ square feet

LEGAL DESCRIPTION: Township 15 North, Range 15 East, Section(s) 22, 26, 27, 34, 35, 36

ASSESSOR PARCEL NO.: 111-01-004

SUBDIVISION NAME: NA LOT #: _____

PRESENT USE OF PROPERTY: Cattle ranch

CURRENT ZONING: General (G)

PROPOSED ZONING: no change

OWNER & CONTACT INFORMATION:

OWNER'S NAME: Chevelon Butte, LLLP

OWNER PHONE NO.: 928-587-5575 FAX #: _____

OWNER EMAIL ADDRESS: ktmac@cableone.net

OWNER MAILING ADDRESS: PO Box A-X

CITY: Winslow, AZ 86047 STATE: _____ ZIP CODE: _____

DATE OF OWNERSHIP: 1/1/1900

CONTACT NAME: Terrance Unrein, Chevelon Butte RE LLC

COMPANY NAME: _____

CONTACT PHONE NO.: 970-302-9457 FAX #: _____

CONTACT EMAIL ADDRESS: terrance.unrein@spower.com / 2180 1300 E #600, Salt Lake City, UT 84106

CONTACT MAILING ADDRESS: _____

CITY: _____ STATE: _____ ZIP CODE: _____

OWNER'S AFFIDAVIT:

I, (print name) Kim Ottaeo McReynolds, being duly sworn, depose and say that I am the owner of the property involved in this application and that the information herewith submitted is true and correct to the best of my knowledge.

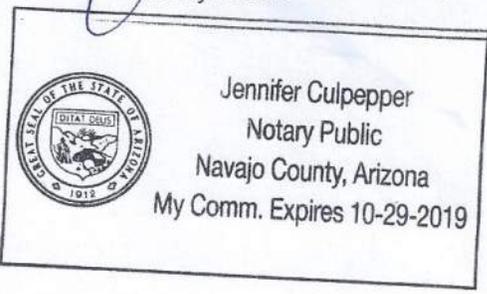
Kim Ottaeo McReynolds
Owner's Signature

STATE OF Arizona)
COUNTY OF Navajo) SS

Sworn and subscribed before me on this 13th Day of September, 20 19

Jennifer Culpepper
Notary Public

10/29/2019
My Commission Expires



For Staff use only:

Accepted by: _____	Date: _____
Submittal Approved: _____	Date: _____
Fee: _____	
Case #: _____	
Planning Commission: _____	Action: _____
Board of Supervisors: _____	Action: _____
Notes / Stipulations: _____	

**SPECIAL USE PERMIT APPLICATION
CHEVELON BUTTE WIND FARM**

NARRATIVE

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Introduction

Chevelon Butte RE LLC (Applicant) is requesting a Special Use Permit (SUP) from Navajo County to allow the construction and operation of the Chevelon Butte Wind Farm (Wind Farm), a proposed 477-megawatt (MW) maximum nameplate capacity wind energy facility. The planned 41,627-acre Wind Farm site is located mostly on what is commonly referred to as the Chevelon Butte Ranch, approximately 18 miles¹ south of Winslow in both Navajo County (3,650 acres) and Coconino County (37,977 acres). The “Permit Area” referenced throughout this SUP application is the 3,650-acre portion of the Wind Farm site in Navajo County as depicted in Figure 1 at the end of this narrative and in the Site Plan.

To allow construction and operation of the Wind Farm components located in neighboring Coconino County, the Applicant is also applying for a Conditional Use Permit from Coconino County.

Description of the Applicant

Chevelon Butte RE LLC is a direct subsidiary of sPower Development Company, LLC. Established in 2012, sPower is the largest private owner of operating solar assets in the United States. The company owns and operates a portfolio of solar and wind assets greater than 1.5 gigawatts (GW) and has a development pipeline of more than 10 GW. Headquartered in Salt Lake City, Utah, sPower is owned by a joint venture partnership between The AES Corporation (NYSE: AES), a worldwide energy company headquartered in Arlington, Virginia, and the Alberta Investment Management Corporation, one of Canada’s largest and most diversified institutional investment fund managers. Additional information about sPower is available at <https://www.spower.com/about-relationships.php>.

In support of local and agency outreach efforts, the Applicant has developed a website specifically for the Wind Farm, which can be found at chevelonbuttewind.com. The website includes key project information and is continually updated.

Description of the Project

The planned Wind Farm will be composed of up to approximately 164 wind turbine sites and associated collector lines, up to six permanent meteorological towers, two collector substations, an approximately 12-mile-long 345-kilovolt (kV) generation-tie (Gen-Tie) transmission line, an interconnection switching station (Switching Station), an operations and maintenance building and laydown yard, and access roads. The Switching Station will provide interconnection to the existing Arizona Public Service Company (APS) Preacher Canyon-Cholla 345-kV transmission line in Navajo County.

Of the aforementioned Wind Farm components, the following are planned for construction in Navajo County and subject to this SUP application:

- up to eight turbine sites and associated collector lines,
- approximately 3 miles of the 345 kV Gen-Tie line,
- the Switching Station and interconnection with the existing APS line, and
- access roads.

¹ Straight line distance between the northernmost turbine site in Coconino County and the southernmost residential area within the Winslow city limits.

Chevelon Canyon runs through the Permit Area in a roughly north-south direction. The eight turbine sites are west of Chevelon Canyon, and the interconnection to the existing APS line is east of Chevelon Canyon, thus the Gen-Tie line will span the canyon. APS will determine if the Switching Station will be located on the west side of Chevelon Canyon or the east side. Both alternative locations are shown in the Site Plan.

The planned Wind Farm is described in more detail in Exhibit A, and the locations of project components are graphically depicted in the Site Plan. Final design and engineering details of all structures will be provided in future Building Permit applications.

Location of the Project and Land Ownership

As shown in the Site Plan, the Permit Area encompasses all or most of Sections 22, 26, 27, 34, 35, and 36 in Township 15 North, Range 15 East.

Land ownership is mixed. Sections 27 and 35 are private lands owned by Chevelon Butte, LLLP, a family-owned ranching company. Sections 22, 26, 34, and 36 are State Trust lands managed by the Arizona State Land Department (ASLD). The ASLD leases Sections 22, 26, and 34 to the owners of Chevelon Butte Ranch and Section 36 to the owners of Ox Yoke Ranch. The leases are for grazing. All private and State Trust lands within the Permit Area boundary are participating properties.

Relationship to Surrounding Properties (uses, zoning, etc.)

Land uses in and around the Permit Area are predominately livestock grazing, related ranching activities, and dispersed recreation, including hunting.

Surrounding Properties in Navajo County

Properties to the north, east, and south of the Permit Area boundary are not participating properties. The Permit Area is bordered on the north by the Aja Ranch, which consists of a checkerboard of private land owned by the Hopi Tribe and State Trust land leased to the Hope Tribe for grazing. To the east, the land consists of several private subdivided sections intermixed with State Trust land leased to ranchers for grazing. Most of the lots in the subdivisions are classified as vacant by the Navajo County Assessor. Few are legally classified as primary or non-primary residences. The Apache-Sitgreaves National Forests lies to the south. Uses on the national forest lands include livestock grazing, dispersed recreation, and timber harvesting. The owners of all private, tribal, state, and federal properties adjacent to the Permit Area are listed in Exhibit B.

Three existing APS high-voltage transmission lines are located in two roughly parallel corridors at the eastern end of the proposed Gen-Tie line in Navajo County. They are the:

- 345-kV Preacher Canyon-Cholla line, with which the Gen-tie line will interconnect;
- 345-kV Cholla-Pinnacle Peak line, which occupies the same corridor as the Preacher Canyon-Cholla line; and
- 500-kV Saguaro-Cholla line, which occupies a separate corridor, approximately 1,800 feet east of the 345-kV corridor at the proposed point of interconnection.

All private land in Navajo County in and around the Permit Area is zoned A-General. Uses permitted in the A-General Zone include farm and non-farm residential uses; farms; and recreational, institutional, commercial and industrial uses as specifically listed in the *Navajo County Zoning Ordinance*. Wind

energy production and associated facilities are listed as permitted uses in the A-General Zone upon issuance of a SUP.

Surrounding Properties in Neighboring Coconino County

Coconino County borders the Permit Area to the west. All adjacent properties directly west of the Permit Area (two sections of State Trust land and one section of private land) are within the Chevelon Butte Ranch and are participating properties. In Coconino County, Aja Ranch lies to the northwest of the Permit Area and Apache-Sitgreaves National Forests lies to the southwest. Land uses in and around the Coconino County portion of the planned Wind Farm are dominated by livestock grazing, related ranching activities, and dispersed recreation. No residences are located near the Permit Area in Coconino County.

All private land in Coconino County in the vicinity of the Permit Area is zoned General (G). This is a rural land use designation for unincorporated areas of the county not specifically designated for any other zone classification. The only permitted land uses are those considered complementary and compatible with a rural environment. Within the General (G) Zone, a wind energy facility and associated infrastructure is considered a “conditional use” subject to a Conditional Use Permit.

Proof of Legal Access to the Site

The Applicant has a lease agreement with Chevelon Butte, LLLP (owners of Chevelon Butte Ranch) and has submitted a Right-of-Way application with the ASLD for construction and operation of the Wind Farm on State Trust land. Proof of legal access to the site is provided in Exhibit C.

Proposed Site Access

Access to the Permit Area that is west of Chevelon Canyon will be made from State Route 99 in Coconino County. This access is available from participating properties. Access to the east side of Chevelon Canyon will be made via two routes as shown in the Context Plan, one that uses the existing Navajo County Hutch Road and one that uses existing U.S. Forest Service roads.

Site access locations and interior access roads are shown in the Site Plan.

Schedule and Phasing

Construction of the Wind Farm components in Navajo County is expected to take less than one year. The Wind Farm may be constructed in phases; that is, the Gen-Tie line and Switching Station may be constructed prior to the wind turbines in Navajo County.

Community Facilities and Services within Three Miles of the Project Boundary

No school districts; national, state, county, or municipal parks; recognized historic or heritage sites; or important bird areas are located in or within 3 miles of the Permit Area. Riparian areas and earthen stock tanks are commonly identified as “wetlands” in the National Wetlands Inventory. Riparian habitat is located at the bottom of Chevelon Canyon and earthen stock tanks occur in or within 3 miles of the Permit Area, but none of these resources would be affected by the Wind Farm.

Conformance to the Navajo County Comprehensive Plan

The *Navajo County Comprehensive Plan* does not define specific land uses, but rather “character areas” that identify how each specific area may develop over time using general guidelines. The Permit Area falls within the “Rural Ranch” character area, the purpose of which is to “preserve the open character of land traditionally used for ranching in Navajo County.”

The planned Wind Farm with its widely spaced turbines, absence of fencing except around the Switching Station, minimal disturbance of rangelands, low human presence, and tolerance by grazing livestock and terrestrial wildlife, is compatible with preserving expansive, accessible ranchlands for traditional ranching, hunting, and other rural activities. Placing wind turbines on ranchland is an effective way to protect the open character of the landscape and wildlife habitat that might otherwise be fragmented with grid-like subdivisions or other developments that bring more density than the Wind Farm. The steady income provided by wind farm leases can allow ranchers to keep large tracts of land intact and continue ranching at their discretion despite volatile livestock market conditions.

Public Participation

The Applicant prepared a Citizen Participation Plan and coordinated with Navajo and Coconino County staff to ensure that potentially affected citizens in both Navajo County and Coconino County have been informed about the planned Wind Farm and given opportunities to provide comments on the planned Wind Farm. As stipulated in the Citizen Participation Plan, the Applicant mailed information about the proposed project to neighboring property owners and invited them to attend a public meeting. Mailers were sent to all properties located within 2 miles of the Wind Farm boundary in Navajo County, which is double that required by Navajo County Ordinance No. 06-10. The meeting, held in Winslow, Arizona, on July 15, 2019, followed an informal “open house” format. This allowed community members to attend at their convenience, review information about the planned Wind Farm via printed handout and poster board materials, interact with members of the project team, and provide comments. In addition to the mailing and public meeting, the Applicant is maintaining a project-dedicated website at <https://chevelonbuttewind.com/> that provides an ongoing venue for public comment. Public input received as of September 12, 2019, has been incorporated into the Citizen Participation Report, which is attached to this application as Exhibit D. The Applicant continues to respond to public inquiries and comments to the greatest extent practicable, in addition to updating the project website with relevant Wind Farm information.

Conformance to Navajo County Development Standards and Requirements

The Applicant has conferred with Navajo County staff, and will continue to do so, to ensure that the planned Wind Farm meets all applicable county standards and requirements. Because of the unique characteristics of wind energy facilities and public concerns about them, the development standards and requirements governing wind energy facilities in the county are codified in their own section of the *Navajo County Zoning Ordinance*—Section 2008. Conformance of the planned Wind Farm design to the Section 2008 turbine setback, noise, and lighting requirements is described below. The Applicant’s signage plan is included as well. Conformance of the Wind Farm to other Section 2008 requirements is addressed as appropriate elsewhere in this application.

Setbacks

Consistent with minimum setback requirements in Section 2008, no turbine sites at the planned Wind Farm are within:

- ½ mile (2,640 feet) of an existing residence that is located outside of the project boundary,
- ¼ mile (1,320 feet) of adjacent privately owned parcels greater than 2.5 acres,
- ½ mile (2,640 feet) of adjacent privately owned parcels 2.5 acres or smaller,
- ¼ mile (1,320 feet) of a public or publicly maintained roadway, or
- within 1.5 times (150%) the total turbine height of railways, utility lines, interior phase lines or structure.

The closest legally classified residence is approximately 2.64 miles away from the nearest planned wind turbine. The closest adjacent privately owned parcel (35.74 acres in size and vacant) is approximately 0.65 mile away from the nearest turbine site. The closest publicly maintained roadway (State Route 99 in Coconino County) is approximately 2.66 miles from the nearest turbine site in Navajo County (several turbine sites in Coconino County are closer to State Route 99). The closest utility line is approximately 1.92 miles away from the nearest turbine site.

See the *Variance Request* section below for a description of three turbine sites near the Coconino County-Navajo County line.

Noise

Section 2008 establishes standards for the levels of audible noise, low frequency noise, and vibration generated by a wind energy facility that cannot be exceeded at the exterior of any legal residence, school, library or hospital. No schools, libraries, or hospitals are located in the vicinity of the planned Wind Farm. The closest noise-sensitive receptor, which is a legal residence, is approximately 2.64 miles away from the nearest turbine site. To identify the noise levels likely to be generated by the planned Wind Farm, and specifically the noise levels anticipated at the exterior of the nearest noise-sensitive receptor, the Applicant retained SWCA Environmental Consultants (SWCA) to conduct a Noise Study of the entire Wind Farm across both Navajo and Coconino Counties. That study, attached as Exhibit E, concludes that the maximum sound levels from the planned Wind Farm would comply with all regulatory noise limits and guidelines established by Navajo County.

See the *Variance Request* section below for a discussion of our noise study methodology as it relates to Navajo County ordinance requirements.

Visual Impact

Consistent with Section 2008(4)(f), turbines will be painted a non-reflective unobtrusive color to minimize visibility. A Visual Impact Assessment, including visual simulations, was completed for the project and is provided in Exhibit F.

Lighting

The planned Wind Farm is required to comply with the Federal Aviation Administration (FAA) Obstruction Marking and Lighting Advisory Circular (AC 70/7460-1L) rules and regulations related to lighting and marking of structures that exceed a certain height and have been determined to be a hazard to

air navigation. Subject to FAA approval, the planned Wind Farm will be required to comply with a lighting plan to be issued by the FAA. Typically wind turbines are required to be lit with one or more red medium intensity LED obstruction lights on the top of the wind turbine nacelle. The light is typically mounted on top of and at the rear of the nacelle of the wind turbine. The obstruction lights within wind farms are typically synchronized to illuminate at the same time, 20–30 times per minute.

Wind turbines will also be equipped with a motion activated floodlight mounted just above the tower entrance door. As required by the *Navajo County Zoning Ordinance*, the floodlights will be shielded so that the direct illumination is confined to the property on which the use is located.

Signage Plan

All signs erected on the project site will conform to specifications in the *Navajo County Zoning Ordinance*.

Temporary Signage during Construction

- A main site entrance will be designated, and signage identifying the project site will be posted at the site entrance along with signs requiring appropriate personal protective equipment, site speed limits, and any other applicable safety or environmental requirements. Typically, the site entrance is occupied by security personnel.
- Temporary speed limit signs will be posted on access roads during construction.
- Emergency action plan signage consisting of site location and emergency phone numbers will be posted at identified muster points.

Permanent Signage during Operations

Substations (includes the Switching Station in Navajo County)

- Substation identification signs will be posted on all entrance gates to the substations and Switching Station.
- ‘Danger, High Voltage - Keep Out’ signs will be posted on the perimeter fence at a minimum of 30–45-foot spacing. As stipulated in Section 2008, the signs will measure, at a minimum, 18 inches by 18 inches.
- Battery warning signs will be posted on the outside of each control house door warning of the presence of batteries and any other hazardous materials.
- Warning signs will be located next to all high and low side switch/circuit breaker handles warning not to operate while energized under load.

Wind Turbines

- Signage identifying the name/number of each wind turbine will be posted at the access road entrance to **each** turbine pad.

Variance Request

Setbacks

Three of the proposed turbine sites in Navajo County do not meet the stipulated minimum setback of at least 1.1 times (110%) the total tower height from the Permit Area's western boundary for the tallest turbine model being considered (the three turbines are numbered 154, 155, and 156 in the Site Plan). However, the adjoining properties are all participating properties in the Coconino County portion of the planned Wind Farm. Section 2008(4)(w)(3)(A) states that the Navajo County Board of Supervisors may approve a reduction in the setback requirements if "The project shares a common property line with another approved Wind Energy Generation facility." In this case, the common property lines along the western Permit Area boundary will be shared with the *same* Wind Energy Generation facility. All lands on the west side of the Permit Area boundary in Coconino County are participating properties of this Wind Farm.

Noise Assessment Methodology

Section 2008 of the *Navajo County Zoning Ordinance* sets forth background sound level measurement requirements as part of the noise study methodology. The nearest sound receptor in Navajo County to the wind turbine locations is a residence located approximately 2.64 miles from the nearest turbine. In consultation with Navajo County staff, due to lack of nearby receptors SWCA prepared a Noise Study using alternative methodology that demonstrates the Wind Farm would comply with all noise limits and guidelines established by Navajo County.

Legal description

Section (1)(c) of Navajo County's *Additional Application Materials & Process Requirements*, dated October 26, 2010, lists a "Legal description (general description and a metes and bounds description) of the project boundary (and of any phases), as well as all Assessor Parcel Numbers" as a requirement of the Site Plan. Metes and bounds legal descriptions require an extensive field survey and are often completed later in the development/construction process for large infrastructure developments when design is finalized. Navajo County staff authorized the use of a Township, Range and Section legal description. However, a metes and bounds legal description can be provided to Navajo County prior to construction at the time of Building Permit application, if required.

Environmental Due Diligence

Coordination with Wildlife Agencies

The Applicant met with representatives of the U.S. Fish and Wildlife Service (USFWS) and Arizona Game and Fish Department (AGFD) in February 2019 in Albuquerque, New Mexico, and in May 2019 in Phoenix, Arizona. The purpose of the meetings included identifying wildlife issues, determining appropriate pre-construction field survey methods, and discussing measures to minimize impacts to wildlife, particularly birds and bats. Agency coordination included development of an agency-vetted Wildlife Survey Plan that has guided a suite of pre-construction wildlife studies (see the following *Environmental Studies* section). The AGFD followed up these meetings with a letter recommending actions for the Applicant to address AGFD-suggested avoidance and minimization measures. That letter is included as Exhibit G.

Environmental Studies

In addition to the Noise Study and Visual Impact Assessment referenced above, several other environmental studies have been completed or are ongoing. These studies, described in Exhibit H, include the following:

- Wildlife Site Evaluation
- Phase I Environmental Site Assessment
- Avian Use Counts – Large Bird Use Surveys
- Avian Use Counts – Small Bird Use Surveys
- Eagle and Other Raptor Species Nest Surveys
- Eagle Utilization Distribution Assessment
- Bat Acoustic Surveys
- Cultural Resources Surveys
- Native Plant and Noxious Weed Inventory
- Preliminary Jurisdictional Delineation for Waters of the U.S.

Conservation Planning

The Applicant will develop a bird and bat conservation strategy (BBCS) for the project based on the site-specific data recorded for birds and bats and in accordance with the USFWS *Wind Energy Guidelines* (WEG). A BBCS is a wind energy project owner's record of the project-specific WEG Tiers 1–3 bird and bat assessments. It also documents project-specific best management practices (i.e., avoidance and minimization efforts) and plan for post-construction fatality surveys, developed in coordination with cooperating wildlife agencies.

The Applicant will develop an Eagle Conservation Plan (ECP), or similar document, for the project based on the site-specific data recorded for bald and golden eagle. An ECP is a wind energy project owner's record of the project-specific USFWS *Eagle Conservation Plan Guidance* (ECPG) Stage 1–4 assessments. It also documents project-specific risk-reducing (i.e., avoidance and minimization efforts) and offsetting measures and plan for post-construction fatality surveys, developed in coordination with cooperating wildlife agencies. The plan would be developed in accordance with the ECPG and USFWS's final rule revising the regulations for permits for incidental take of eagles (Eagle Rule; 81 FR 91494), incorporating project-specific agency guidance as warranted.

Revegetation

Temporary disturbance areas will be restored and reclaimed using topsoil and native seed mixes to achieve preconstruction plant community conditions to the greatest extent practicable. In coordination with cooperating agencies, the Applicant also intends to prepare a revegetation plan in coordination with Navajo County and other cooperating agencies.

Weed Control

Indirect impacts could include the spread of noxious weed species resulting from construction equipment introducing seeds into new areas, or erosion or sedimentation due to clearing ground in the construction areas. Noxious weeds will be controlled and impacts minimized using weed-free seed mixes and controlled spraying in accordance with all local, state, and federal regulations, if necessary. Temporarily

disturbed areas will be reseeded with certified weed-free seed mixes. Typical best management practices include cleaning vehicles and equipment arriving from areas with known invasive species issues, and using locally sourced topsoil. The Applicant also intends to prepare a noxious weed control plan in coordination with Navajo County and other cooperating agencies.

Site Drainage

Potential impacts to water resources from the construction and operation of the Wind Farm include erosion, impacts to drainage patterns, and impervious surfaces. Wind Farm facilities are being designed to avoid impacts on surface water resources, as discussed further in *Preliminary Jurisdictional Delineation for Waters of the U.S.* below. Additionally, the Wind Farm facilities only require linear and intermittent footprints, and are therefore not expected to cause significant changes in runoff patterns or volume. During construction, measures will be implemented to control erosion and reduce potential for sediment runoff from exposed soils during precipitation events.

Excavation Methods

Excavations for earth work and foundation installation will be performed via typical construction and drilling machinery to the greatest extent practicable. Limited blasting may be needed in places. Consistent with Section 2008, all blasting work will be performed by a contractor licensed and bonded in the State of Arizona.

Decommissioning Plan

This Decommissioning Plan outlines standard decommissioning requirements and procedures that will be followed at the end of the project's operational life following expiration of the Right-of-Way across State Trust land.

Prior to commencement of construction, the project will secure or post a bond in a form reasonably acceptable to Navajo County sufficient to cover the removal and remediation costs in Navajo County that will be necessary to satisfy all decommissioning and reclamation requirements, net of salvage value. Such requirements and cost estimates will be subject to third party review and verification.

Typical Decommissioning Requirements

- Remove turbines, all above ground equipment and any personal property.
- Remove pad mount and main power transformers.
- In general, removal of subsurface components to a minimum depth of 3 feet below grade.
- Partially remove turbine foundations/footings to a depth of not less than 3 feet below the surface grade, followed by reclamation grading, compaction and seeding.
- Meteorological tower removal and partial foundation removal.
- Remove overhead transmission structures and conductors.
- Partially remove underground collection network cables to a depth of at least 3 feet.
- Remove substation, switching station, and control house equipment.
- Removal and disposal of all materials in accordance with applicable local and state laws.

- Restoration and revegetation of the site to at least as good as the condition in existence upon commencement of the project and take reasonable steps to prevent soil erosion through grading, compaction, and re-seeding efforts.
- Access roads and road materials may remain in place to provide for landowner access, in consultation with the landowners and ASLD.

Wind Turbine Generator Removal

All above-ground wind turbine components will be disassembled and lowered via cranes and then removed from site for reuse, recycling, or disposal. Temporary areas may be created for crane access, operation, and transport of components from the site. These areas will be returned to as close to native soil and vegetative condition as possible upon completion.

Transformer Removal

Transformer components will be removed, and the materials will be re-used or recycled if possible or disposed of in accordance with all applicable laws.

Foundation Removal

Foundation materials comprising concrete, rebar, anchor bolts, conduit, and electrical cabling will be removed down to a minimum depth of 3 feet below grade. All materials greater than 3 feet will be left in place. Following removal, foundations will be backfilled with native topsoil materials, compacted, and reclaimed through seeding with native plants.

Transmission Line Structures Removal

Transmission line conductors and poles will be removed. Typically, the entire pole including the foundation (if applicable) will be removed, and in no case will any materials less than 3 feet below grade remain.

Underground Collection Removal

Collector cabling will be installed typically 3–5 feet below grade; therefore, most of the collector cabling will be left intact, with the exception that all cabling down to a minimum depth of 3 feet from the surface will be removed. All cable and other materials greater than a depth of 3 feet will be left in place.

Substation/Switching Station Removal

All substation components including metal transmission structures, control houses, transformers, switches, circuit breakers, fencing, and lighting will be disassembled and removed from site to be re-used, recycled, or disposed of. Foundations and underground equipment will be removed down to a minimum depth of 3 feet below grade. Following removal, all disturbed areas will be graded, compacted, and reclaimed through seeding with native plants.

Restoration, Grading, and Revegetation of the Project Site

Following equipment disassembly and removal, all disturbed areas will be graded to reasonably match the surrounding native areas, compacted to a similar state as existing native soils, and seeded with native vegetation.

Civil and Access Road Reclamation

As discussed above, access roads may remain in place. All access roads that were widened to facilitate long-term operation of the project or disassembly and removal of components will be returned to a standard road width unless otherwise requested.

Economic Benefits

The Wind Farm is expected to bring millions of dollars of local and regional economic benefit to not only Coconino and Navajo Counties, but the State of Arizona. The Wind Farm is expected to employ over 200 people during construction of each phase and will have 10–15 permanent, full-time positions during operations. Outside of the local economic benefits typically realized near rural renewable energy projects, such as increased property tax revenue and lease payments to rural ranching families, the project will be making Right-of-Way payments to the ASLD, which funds are directly passed to public education beneficiaries. Furthermore, millions of dollars of local spending during construction and operations is expected in the nearby communities of Winslow, Flagstaff, and Holbrook, among others. Such spending typically consists of fuel, lodging, grocery, hardware store, construction materials, etc. Project expenditures are expected to include:

- a. Over \$1 million in annual local worker salary payments during operations.
- b. At least \$8 million of indirect local spending during construction, which include local businesses such as lodging, mechanics, fuel, meals, hardware etc.
- c. Over \$250 thousand of indirect local spending annually during operations, which include local businesses such as lodging, mechanics, fuel, meals, hardware etc.

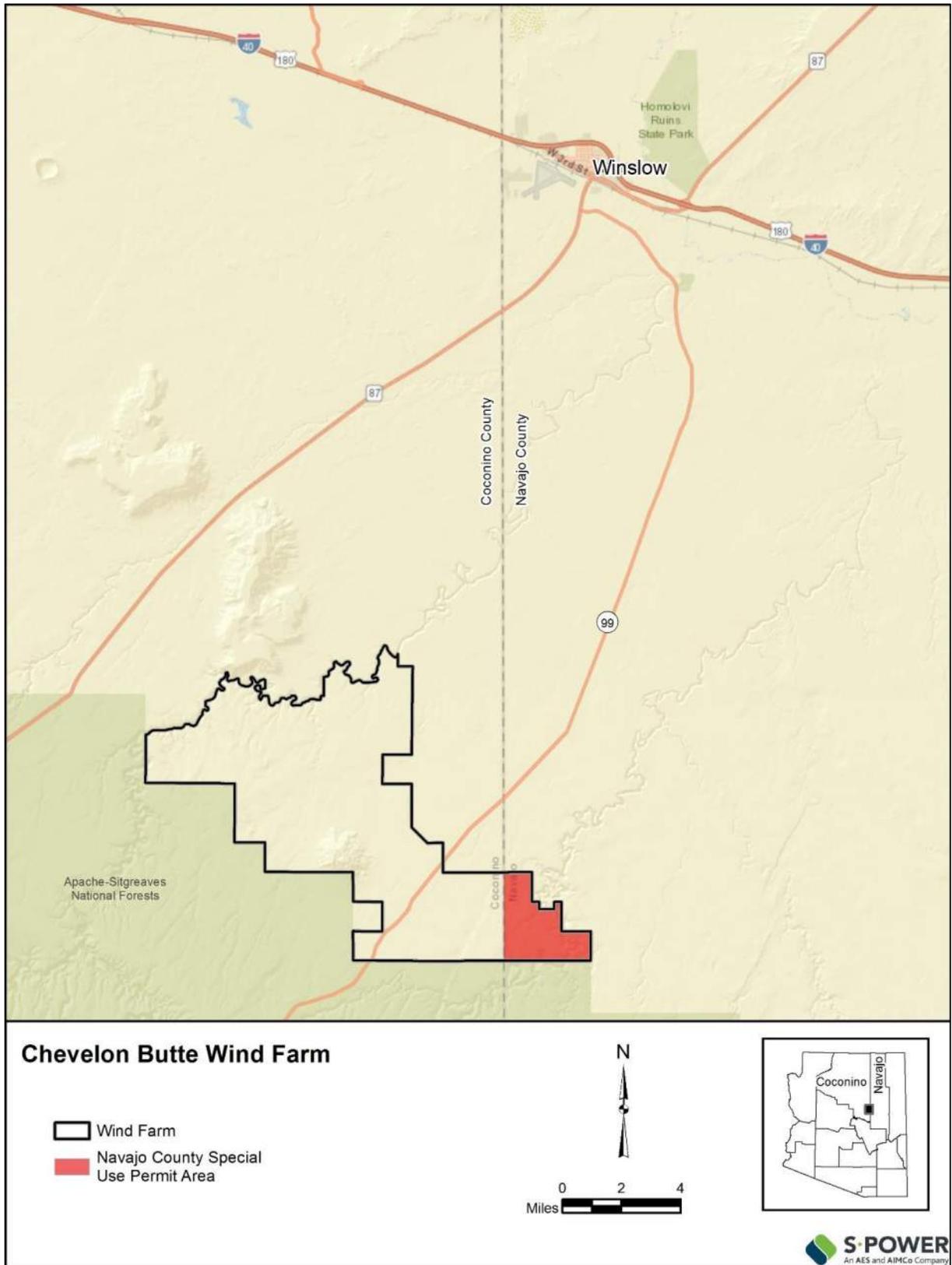


Figure 1. Navajo County Special Use Permit Area.

EXHIBIT A

Description of Project Components

EXHIBIT A. DESCRIPTION OF PROJECT COMPONENTS

The following components of the Wind Farm are planned for construction in Navajo County:

- up to eight turbines and associated collector lines,
- approximately 3 miles of the 345 kV Gen-Tie line,
- a Switching Station, and
- access roads.

Wind Turbines

The Applicant is considering three models of turbines for the project: the Siemens Gamesa 4.2-145, General Electric 5.3-158, and Vestas 162-5.6. All three models are standard production models commercially available from leading turbine manufacturers. All turbines used will be of tubular steel construction and be painted a non-reflective, unobtrusive color. Turbine specifications (Table A-1) and drawings (Figure A-1) are provided at the end of this exhibit, and proposed turbine locations are shown in the Site Plan. Final turbine models will be identified at the time of Building Permit application.

Collector Lines

Collector lines will be 34.5 kV conductors that carry power from the turbine transformer to Substation 1 and Substation 2 in Coconino County. Wherever possible, collector lines will be installed adjacent to access roads. Collector lines will be placed underground except: (1) where they cross sensitive resources (should that occur); (2) if unsuitable subsurface conditions prevent the use of underground trenching; or (3) project terrain is found to be unsuitable, as determined by the Applicant and confirmed by the County Engineer. If underground installation is not possible, collector lines will be installed at grade and covered/compacted to meet applicable electrical and safety code requirements.

Gen-Tie Line

The 345-kV Gen-Tie line will be constructed within a 150-foot-wide Right-of-Way, within a minimum 500 foot corridor, which expands to a maximum width of approximately 1,300 feet near Chevelon Canyon to accommodate both Switching Station options being considered by APS. The Applicant is currently seeking approval of the Gen Tie line from the Arizona Corporation Commission through Certificate of Environmental Compatibility proceedings. The Gen-Tie line will consist of laminated-wood H-frame or steel monopole structures and a three-phase conductor, with an estimated 95-foot maximum ground clearance. The tallest monopole structures are expected to be approximately 145 feet tall and will be spaced approximately 1,000 feet apart, with variations made to achieve site-specific engineering requirements. An estimated 20 poles will be required for the approximately 3 miles of line in Navajo County, but additional or fewer poles may be required based on final engineering design. Pole structures will be sited to avoid recorded cultural resource sites. Line marking devices will be installed where birds may be at increased risk of collision per Avian Power Line Interaction Committee (APLIC) 2012 guidance. Based on this guidance and the site-specific conditions, such marking devices will be limited to the Chevelon Canyon crossing. The Gen-Tie line will cross Chevelon Canyon from the main turbine area west of the canyon to connect to the existing APS line east of Chevelon Canyon (see the Site Plan).

Switching Station

The Switching Station is expected to cover approximately 8 acres, within one of two approximately 9- to 10-acre footprints under consideration in the Applicant’s Arizona Corporation Commission Certificate of Environmental Compatibility proceedings. The Switching Station will consist of aboveground electrical infrastructure within an approximately 8-foot-tall fence enclosure. Two locations are being considered for the Switching Station: the “West Switching Station Option” and the “East Switching Station Option.” Under the West Switching Station Option, the Switching Station would be located west of Chevelon Canyon. Under the East Switching Station Option, the Switching Station would be located east of Chevelon Canyon. In either case, the Gen-Tie line would span Chevelon Canyon to reach the existing APS line on the east side of the canyon, as discussed above.

Access Roads

Based on preliminary geotechnical analysis, soils in the Wind Farm area are expected to be rocky in nature with sufficient bearing strength for normal road construction. If areas of weaker bearing strength are encountered, standard practice is to either compact the road or cement stabilize the road surface prior to applying aggregate and completing compaction. Final roadway construction, stabilization methods, and materials will be developed in the Wind Farm’s final civil design. Basic parameters for access roads include:

- Where possible, construction crews will attempt to improve existing roads rather than install new roads. Most turbine access roads will be new or improved to achieve access requirements at each turbine location.
- Roads will be built or improved to accommodate equipment in excess of 200,000 pounds and may require improvement or replacement of certain culverts and cattle guards.
- Access roads will be up to 36 feet wide to allow crane access to all turbine locations.

Turbine Specifications and Drawings

Table A-1. Specifications for the Wind Turbine Models under Consideration for the Planned Chevelon Butte Wind Farm

Dimension	Wind Turbine Model		
	SG 4.2-145	GE 5.3-158	V 162-5.6
Hub Height ¹	107.5 m (352.7 ft)	120.9 m (396.7 ft)	149 m (488.8 ft)
Tip Height ²	180 m (590.6 ft)	199.9 m (655.8 ft)	230 m (754.6 ft)
Rotor Diameter ³	145 m (475.7 ft)	158 m (518.4 ft)	162 m (531.5 ft)
Rotor Swept Area	16,513 m ² (177,744.5 ft ²)	19,607 m ² (211,048.0 ft ²)	20,611 m ² (221,855 ft ²)
Rated Power (MW)	4.2	5.3	5.6

¹ Hub height is the distance from the ground to the rotor’s axis of rotation. Hub height is often referred to as the height of the “tower,” where tower refers to the steel structure supporting the wind turbine nacelle and rotor.

² Tip height is the distance from the ground to the farthest vertical reach of the blade. Tip height = hub height + rotor diameter/2.

³ Rotor diameter is the diameter of the area swept by the wind turbine blades.

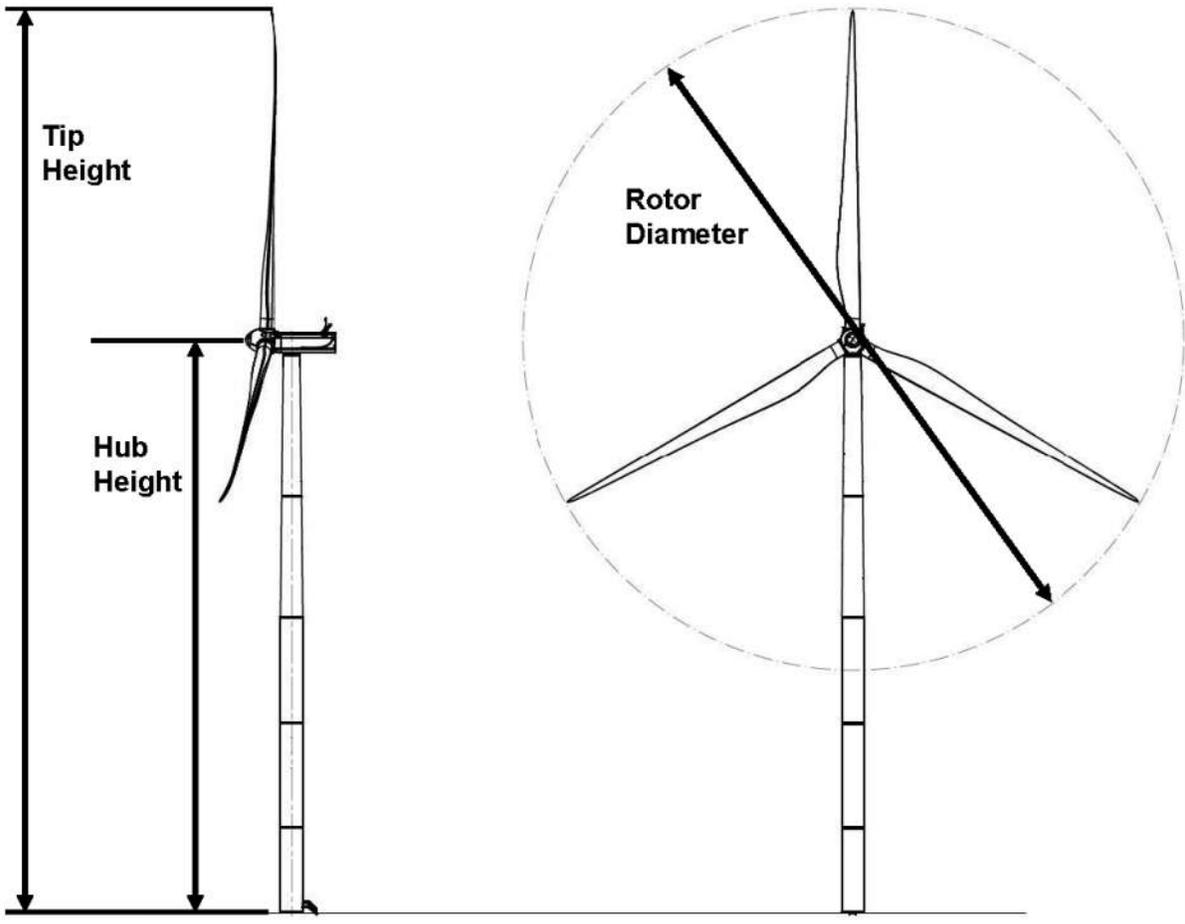


Figure A-1. Generalized wind turbine.

EXHIBIT B
Adjacent Landowners

Table B-1. Owners of Property Bordering the Chevelon Butte Wind Farm Permit Area in Navajo County (i.e., within 300 feet of the Permit Area boundary)

Property Owner	Address
Apache-Sitgreaves National Forest	PO Box 968, Overgaard, AZ 85933
Arizona State Land Department	1616 W. Adams St., Phoenix AZ, 85007
Blanchard, Michael C. & Katherine E.	6721 E. Preston Mesa, AZ 85215
Breeze, Michael A.	PO Box 5962, Yuma, AZ 85366
Butler, Stephen O. & Linda S.	5501 Lane Rd., Wadesville, IN 47638
Crawford, Susan E.	16119 Chelsea Lyn Way, Fort Myers, FL 33908
Ezell, Cynthia J. & Womack, Delores A.	9706 W. Forrester Dr., Sun City, AZ 85351
First American Title Insurance Co. Trust 8503	PO Box 52023, Phoenix, AZ 85072
Johnson, David	13610 W. Cheery Lynn Rd., Avondale, AZ 85392
Johnson, Shane R. & Heather D.	742 E. Kesler Ln., Chandler, AZ 85225
Johnson, Shane R. & Heather D.	742 E. Kesler Ln., Chandler, AZ 85225
Kellums, Brian C. & Keri L.	19617 W. Indianola Ct., Buckeye, AZ 85396
Pagel, Diana L. Easton	PO Box 460, Heber, AZ 85928
Ramnath, Harold Jr.	3130 W. Morrow Dr., Phoenix, AZ 85027
Ramnath, Harold Jr. & Sylvia & Elizabeth	3130 W. Morrow Dr. Phoenix, AZ 85027
Renz, Malcolm H. & Cheryl P., Trustees	196 Sloat Ave., Monterey, CA 93940
Singh, Randhir & Bagri Kulbir	3014 N. Hayden RD., Ste. 108, Scottsdale, AZ 85251
United States of America Trust for Hopi Tribe	PO Box 36379, Phoenix, AZ 85067
Yeager, James W. & E. Nadine	PO Box 736, Taylor, AZ 85939

EXHIBIT C
Proof of Legal Access

**MEMORANDUM OF RENEWABLE ENERGY LEASE AND AGREEMENT
WITH GRANT OF EASEMENTS
(Between Advance Energy LLC and Chevelon Butte, LLLP)**

2018-14490
 Page 1 of 12
 Requested By: Advance Energy Llc
 Navajo County Recorder - Doris Clark
 09-05-2018 04:19 PM Recording Fee \$17.00

OFFICIAL DOCUMENT

**MEMORANDUM OF RENEWABLE ENERGY LEASE
 AND AGREEMENT WITH GRANT OF EASEMENTS**

**THIS INSTRUMENT PREPARED BY
 AND SHOULD BE RETURNED TO:**

ADVANCE Energy LLC
 c/o Law Office of Wade Williams
 5300 Memorial Drive, Suite 5300
 Houston, Texas 77007

THIS MEMORANDUM OF RENEWABLE ENERGY LEASE AND AGREEMENT WITH GRANT OF EASEMENTS (this "Memorandum") is made, dated and effective as of July 23, 2018, by and between ADVANCE Energy LLC, a Colorado Limited Liability Company (together with its successors and assigns, "Renewable Energy Company") and Chevelon Butte, LLLP, an Arizona limited liability limited partnership ("Landowner").

RECITALS:

WHEREAS, Landowner and Renewable Energy Company have entered into a Renewable Energy Lease and Agreement with Grant of Easements dated as of the date first written above with respect to property more specifically described herein for, among other things, the development, installation, construction, operation and maintenance of a commercial wind power electric generation facility consisting of wind-powered turbines and generators and other related equipment and facilities, including, without limitation, power lines and roadways for the production, collection and transmission of electrical energy, all of the foregoing to be located in, on, over, across and under the Property (as defined below) and in, on, over, across and under other real property in the vicinity of the Property in which Renewable Energy Company has acquired certain rights or in which Renewable Energy Company contemplates acquiring certain rights (together with the Property (as heretofore or hereinafter amended, restated or supplemented from time to time, the "Lease and Easement Agreement"); and

WHEREAS, Landowner and Renewable Energy Company desire to grant the respective rights described herein, and further set forth certain terms and conditions of the Lease and Easement Agreement in a manner suitable for recording in the Public Records of Navajo and Coconino Counties (collectively and individually, the "County"), Arizona, in order to provide record notice of the Lease and Easement Agreement and Renewable Energy Company's rights in and to the land subject to the Lease and Easement Agreement, as provided herein.

NOW, THEREFORE, in consideration of mutual covenants contained in the Lease and Easement Agreement, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree and stipulate as follows:

1. **Recitals; Definitions.** The Recitals above are agreed to be true and correct and are incorporated herein for all purposes. Any capitalized terms not otherwise defined herein shall have the meanings assigned to such terms in the Lease.
2. **Description of Property.** The land subject to the Lease and Easement Agreement is described on Exhibit A attached hereto, and by this reference made a part hereof (the "Property").
3. **Grant of Lease.** Subject to the terms and conditions more particularly set forth in the Lease and Easement Agreement, without limitation, Landowner has leased to Renewable Energy Company, and Renewable Energy Company has leased from Landowner, the Property for the following purposes:
 - a. Determining the feasibility of wind energy conversion on the Property or on other Wind Project Property or on neighboring lands, including studies of wind speed, wind direction, and other meteorological data;
 - b. Converting wind energy into electrical energy, and collecting and transmitting the electrical energy so converted;
 - c. Developing, constructing, reconstructing, erecting, installing, improving, replacing, relocating and removing from time to time, and using, maintaining, repairing, operating and monitoring, the following: (i) wind machines, wind turbine generators, wind energy conversion systems and wind power generating facilities (including associated towers, foundations and other structures and equipment), in each case of any type or technology (individually a "Generating Unit" and, collectively, "Generating Units"); (ii) transmission facilities, including overhead and underground transmission, distribution and collector lines, wires and cables, splice and junction boxes, switch panels, conduits, footings, foundations, towers, poles, crossarms, guy lines and anchors, and energy storage facilities; (iii) overhead and underground control, communications and radio relay systems and telecommunications equipment, including microwave towers, dishes, and control, fiber, wires, cables, conduit and poles; (iv) meteorological towers, guy wires, braces and wind measurement equipment; (v) roads and erosion control facilities; (vi) signs; (vii) fences and other safety and protection facilities; and (viii) other improvements, facilities, appliances, machinery and equipment associated with any of the foregoing (all of the foregoing, including the Generating Units, collectively, "Wind Power Facilities");
 - d. Vehicular and pedestrian ingress, egress and access to and from Wind Power Facilities on, over and across the Property by means of roads and lanes thereon if existing or otherwise by such roads, including but not limited to turning radius from public roads, if necessary, as Renewable Energy Company or anyone else may construct from time to time, subject to Landowner's consent, not to be unreasonably withheld (collectively, "Access Rights");

- e. Subject to reasonable date, time, location and other restrictions as agreed by Landowner, conducting site tours to demonstrate the environmental and other benefits of electrical generation from wind power; and
- f. Undertaking any other activities that Renewable Energy Company or a Sublessee (as defined below) determines are necessary, helpful, appropriate or convenient with, incidental to or to accomplish any of the foregoing purposes or for the benefit of one or more Projects, including conducting surveys and staking, tests and studies, including but not limited to environmental, biological, cultural, geotechnical drilling and studies and other uses permitted under this Lease as set forth elsewhere herein. Without limiting the generality of the foregoing, the Parties recognize that (a) power generation technologies are improving at a rapid rate and that Renewable Energy Company or a Sublessee may (but shall not be required to) from time to time replace existing Generating Units on the Property with newer model (and potentially larger) Generating Units and (b) the Operations may be accomplished by Renewable Energy Company, a Sublessee or one or more third parties authorized by Renewable Energy Company or a Sublessee. For purposes of this Lease, the term "Project" means one or more Generating Units and associated Wind Power Facilities that are constructed, installed and/or operated on the Property and/or on Wind Project Property by or on behalf of Renewable Energy Company, a Sublessee or an affiliate of either thereof, as an integrated energy generating and delivery system.
4. **Grant of Easements.** In addition, Landowner granted, conveys, transfers and warrants to Renewable Energy Company, its successors and assigns the following easements:
- A Wind and Effects Easement;
 - Subject to Landowner's consent, not to be unreasonably withheld, and governmental entity approval for the setback encroachment, an exclusive easement to permit the rotors of Generating Units located on adjacent properties in the Project to overhang the Property and to encroach into any county, state or other governmental setback;
 - An Access Easement;
 - An easement for audio, visual, view, reflective light, shadow flicker, noise, shadow and any other effects attributable to any Project or Operations located on the Property or on adjacent properties over and across the Property and any other property owned by Landowner adjacent to or in the vicinity of the Property;
 - A Crane Path Travel Easement, together with the right to temporary earthmoving as necessary to build suitable access routes for the Crane Travel Path Easement;
 - A non-exclusive Distribution Easement;
 - A Transmission Line Easement; and
 - A Construction Easement.
5. **Term of Lease and Easement Agreement.** The Term of the Lease and Easement Agreement includes an initial eight (8) year Development Term. In addition, if the Lease and Easement Agreement is extended for construction and operation, the Operations Term of the Agreement is thirty (30) years from the Construction Date. Renewable Energy Company may extend the Operations Term by up to

two (2) additional ten-year terms each commencing on the last day of the original or extended O Operations Term by giving Landowner written notice of such extension on or prior to expiration of the then-current Operations Term. The Agreement will be deemed to have terminated upon expiration of the term as defined in the Lease and Easement Agreement. A written termination of the Lease and Easement Agreement shall be filed with the Public Land Records of the County where said Property is located.

- 6. **Successors and Assigns.** The terms of this Memorandum and the Lease and Easement Agreement are covenants running with the land and inure to the benefit of, and are binding upon, the parties and their respective successors and assigns, including all subsequent owners of all or any portion of the Property. References to Landowner and Renewable Energy Company include their respective successors and assigns. References to the Lease and Easement Agreement include any amendments thereto.
- 7. **Miscellaneous.** This Memorandum is executed for the purpose of recording in the Public Records of the County in order to provide public record notice of the Lease and Easement Agreement and Renewable Energy Company's rights in and to the Property subject to the Lease and Easement Agreement. The entire Lease and Easement Agreement is hereby incorporated into this Memorandum by reference, including any defined terms contained within the Agreement and used within this Memorandum. Notwithstanding anything to the contrary contained herein, the provisions of this Memorandum do not in any way alter, amend, supplement, change or affect the terms, covenants or conditions of the Lease and Easement Agreement, all of which terms, covenants and conditions shall remain in full force and effect. In the event of any conflict between the terms of this Memorandum and the Lease and Easement Agreement, the terms of the Lease and Easement Agreement shall prevail. This instrument may for convenience be executed in any number of original counterparts, each of which shall be an original and all of which taken together shall constitute one instrument.

[The remainder of this page is intentionally left blank.]

UNRECORDED

Acknowledgements appear on following pages.

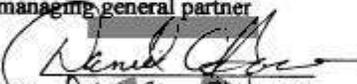
UNOFFICIAL
DOCUMENT

IN WITNESS WHEREOF, the parties hereto have made and entered into this Lease as of the day and year first written above.

Landowner:

Chevelon Butte, LLLP
an Arizona limited liability partnership

By: Executive Committee, L.L.C.
an Arizona limited liability company
its managing general partner

By: 
Name: DANIEL CHACO
Title: Manager

By: _____
Name: _____
Title: Manager

Renewables Company:

ADVANCE ENERGY LLC,
a Colorado Limited liability company

By: _____
Arlo Corwin, Sole Member

UNRECORDED DOCUMENT

STATE OF ARIZONA
COUNTY OF Yavapai

The foregoing instrument was acknowledged before me this 30 day of August, 2018, by Robert D O'Hara, manager of Executive Committee, L.L.C., an Arizona limited liability company, managing general partner of behalf of Chevelon Butte LLLP, an Arizona limited liability limited partnership, on behalf of said limited liability limited partnership.

[NOTARY SEAL]



Signature: [Signature]
Printed Name: David Ramirez
Notary Public, State of Arizona
My commission expires: 07-11-2022

My commission number: 549662

STATE OF ARIZONA
COUNTY OF _____

The foregoing instrument was acknowledged before me this ___ day of _____, 2018, by _____, manager of Executive Committee, L.L.C., an Arizona limited liability company, managing general partner of behalf of Chevelon Butte LLLP, an Arizona limited liability limited partnership, on behalf of said limited liability limited partnership.

[NOTARY SEAL]

Signature: _____
Printed Name: _____
Notary Public, State of _____
My commission expires: _____

My commission number: _____

UNRECORDED

Memorandum of renewable Energy Lease
+ Agreement with grant of easements

IN WITNESS WHEREOF, the undersigned have executed this consent, which may be executed in multiple counterparts but together shall constitute one and the same instrument, to be effective as of the date first written above.

By: [Signature]
Name: Rita O'Hara McKeefe
Title: Manager

By: [Signature]
Name: Michael Joseph O'Hara
Title: Manager

By: [Signature]
Name: L. James Francis O'Hara
Title: Manager

By: _____
Name: _____
Title: Manager

By: _____
Name: _____
Title: Manager

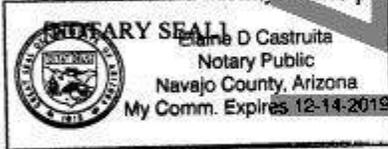
UNOFFICIAL DOCUMENT

Memorandum of renewable energy Lease
& Agreements with grant of easements

2018-14490-09-05-2018 Page 9 of 12

STATE OF ARIZONA
COUNTY OF Navajo

The foregoing instrument was acknowledged before me this 31st day of August, 2018, by Kim O'Har Reynolds, manager of Executive Committee, L.L.C., an Arizona limited liability company, managing general partner of behalf of Chevelon Butte LLLP, an Arizona limited liability limited partnership, on behalf of said limited liability limited partnership.

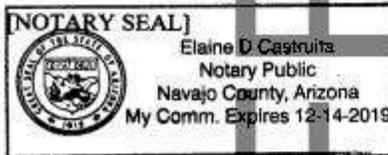


Signature: Elaine D. Castruita
Printed Name: Elaine D. Castruita
Notary Public, State of Arizona
My commission expires: 12-14-19

My commission number: 501494

STATE OF ARIZONA
COUNTY OF Navajo

The foregoing instrument was acknowledged before me this 31st day of August, 2018, by Michael Joseph O'Hara, manager of Executive Committee, L.L.C., an Arizona limited liability company, managing general partner of behalf of Chevelon Butte LLLP, an Arizona limited liability limited partnership, on behalf of said limited liability limited partnership.

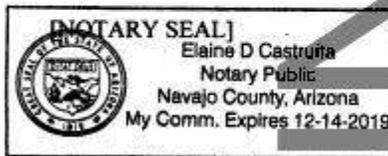


Signature: Elaine D. Castruita
Printed Name: Elaine D. Castruita
Notary Public, State of Arizona
My commission expires: 12-14-19

My commission number: 501494

STATE OF ARIZONA
COUNTY OF Navajo

The foregoing instrument was acknowledged before me this 3rd day of September, 2018, by James Francis O'Hara, manager of Executive Committee, L.L.C., an Arizona limited liability company, managing general partner of behalf of Chevelon Butte LLLP, an Arizona limited liability limited partnership, on behalf of said limited liability limited partnership.



Signature: Elaine D. Castruita
Printed Name: Elaine D. Castruita
Notary Public, State of Arizona
My commission expires: 12-14-19

My commission number: 501494

Renewable Energy Company:

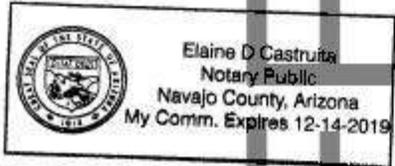
ADVANCE Energy, LLC
a Colorado limited liability company

By: [Signature]
Arlo Corwin, Sole Member

STATE OF Arizona)
COUNTY OF Navajo) ss.)

This instrument was acknowledged before me on Sept 5, 2018, 2018 by Arlo Corwin, Sole Member of ADVANCE Energy, LLC, a Colorado limited liability company, on behalf of said company.

[NOTARY SEAL]



Signature: [Signature]
Printed Name: Elaine D. Castruita
Notary Public, State of Arizona
My commission expires: 12-14-19

UNRECORDED

EXHIBIT A
PROPERTY DESCRIPTION

All that real property located in Navajo and Coconino County, Arizona, described as follows:

Navajo County Property:

Township 15 North, Range 15 East

Section 13: 115.55 acres lying east of Chevelon Canyon Creek	115.55 Acres
Section 25: SW/4	160.00 Acres
Section 26: NW/4NE/4, NE/4NW/4 lying east of Chevelon Canyon Creek	80.00 Acres
Section 27: All	640.00 Acres
Section 35: All	640.00 Acres

Total Acres in Navajo County = 1,635.55 Acres

Coconino County Property:

Township 16 North, Range 14 East

Section 11: All that part lying east of the middle of the water course of Clear Creek Canyon	44.55 Acres
Section 13: All	640.00 Acres
Section 15: All that part lying South of Clear Creek	460.00 Acres
Section 19: All	657.60 Acres
Section 21: All that part lying south of Clear Creek	540.00 Acres
Section 23: All	640.00 Acres
Section 25: All	640.00 Acres
Section 27: All	640.00 Acres
Section 29: All	640.00 Acres
Section 31: All	662.24 Acres
Section 33: All	640.00 Acres
Section 35: All	640.00 Acres

Township 16 North, Range 13 East

Section 13: All that part lying east of Clear Creek Canyon	160.00 Acres
Section 23: All that part lying south and east of the middle of Clear Creek Canyon	59.00 Acres
Section 25: All	640.00 Acres
Section 27: All that part lying east of Clear Creek Canyon	480.00 Acres
Section 34: All	640.00 Acres
Section 35: All	640.00 Acres

Township 15 North, Range 14 East

Section 1: All	640.00 Acres
Section 3: All	640.00 Acres
Section 4: All	640.00 Acres
Section 5: All	640.00 Acres
Section 7: All	640.00 Acres
Section 8: All	640.00 Acres
Section 9: All	640.00 Acres
Section 10: All	640.00 Acres
Section 11: All	640.00 Acres
Section 15: All (less S/2SE/4NE/4NW/4, N/2NE/4SE/4NW/4)	590.00 Acres
Section 17: All	640.00 Acres
Section 23: All	640.00 Acres
Section 24: NW/4NW/4	40.00 Acres
Section 25: All	640.00 Acres
Section 35: All	640.00 Acres

Township 15 North, Range 15 East

Section 7: 89 acres in the S/2	89.00 Acres
Section 18: All	640.00 Acres
Section 19: All	640.00 Acres
Section 20: All	640.00 Acres
Section 21: All	640.00 Acres
Section 29: All	640.00 Acres
Section 30: N/2 and Lot 1	370.65 Acres
Section 31: All	640.00 Acres
Section 33: All	640.00 Acres

Total Acres in Coconino County = 23,353.04 Acres

UNOFFICIAL DOCUMENT

**ASSIGNMENT AND ASSUMPTION OF RENEWABLE ENERGY LEASE
AND AGREEMENT WITH GRANT OF EASEMENT
(Between Advance Energy LLC and Chevelon Butte RE LLC)**

2018-14507
Page 1 of 6
Requested By: Advance Energy Llc
Navajo County Recorder - Doris Clark
09-06-2018 08:45 AM Recording Fee \$11.00

When Recorded Mail To:

Advance Energy LLC
c/o Law Office of Wade Williams
5300 Memorial Dr. Suite 5300
Houston, TX 77007

CAPTION HEALING: Assignment and Assumption

UNOFFICIAL DOCUMENT

ASSIGNMENT AND ASSUMPTION OF RENEWABLE ENERGY LEASE AND AGREEMENT WITH GRANT OF EASEMENTS

THIS ASSIGNMENT AND ASSUMPTION OF RENEWABLE ENERGY LEASE AND AGREEMENT WITH GRANT OF EASEMENTS (the "Assignment") is made and entered into as of September 5, 2018, by and between ADVANCE ENERGY LLC (the "Assignor"), a Colorado limited liability company, and CHEVELON BUTTE RE LLC, an Arizona limited liability company (the "Assignee").

WITNESSETH:

WHEREAS, Assignor, as tenant, and Chevelon Butte, LLLP, an Arizona limited liability limited partnership, as landowner, entered into that certain Renewable Energy Lease and Agreement with Grant of Easements effectively dated July 23, 2018 (as the same may have been amended, the "Lease"), concerning certain real property located in Navajo and Coconino Counties, Arizona, as more particularly described on Exhibit A attached hereto and made a part hereof, which Lease is evidenced by that certain Memorandum of Renewable Energy Lease and Agreement with Grant of Easements effectively dated July 23, 2018, recorded as Document No. 2018-14490 in the _____ Records of Navajo County, Arizona (the "Memorandum," and together with the Lease, the "Agreement");

WHEREAS, in accordance with the Lease, Assignor desires to assign, transfer, set over and deliver to Assignee, and Assignee desires to assume, all of Assignor's right, title and interest in and to, the Agreement.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Assignor and Assignee agree as follows:

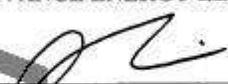
1. Assignment. Assignor hereby assigns, transfers, sets over and delivers unto Assignee all of Assignor's right, title and interest in and to the Agreement.
2. Assumption. Assignee hereby assumes all obligations of the "Renewable Energy Company" pursuant to the Agreement.
3. Governing Law. This Assignment will be construed in accordance with, and be governed by, the laws of the State of Arizona.
5. Miscellaneous. This Assignment may be executed in counterparts, each of which will be deemed to be an original and all of which are one and the same assignment but all of which shall together constitute one and the same instrument.

Signatures appear on the following page(s).

IN WITNESS WHEREOF, Assignor and Assignee have caused this Assignment to be duly executed as of the date first above written.

ASSIGNOR:

ADVANCE ENERGY LLC


Arlo Corwin, Sole Member

ASSIGNEE:

CHEVELON BUTTE RE LLC

By: Advance Energy LLC
Sole Member

By: 
Arlo Corwin, Sole Member

STATE OF Co)
COUNTY OF Boulder) ss.

This instrument was acknowledged before me on Sept 4, 2018 by Arlo Corwin, Sole Member of ADVANCE Energy LLC, a Colorado limited liability company, on behalf of said company.

[NOTARY SEAL]

PHILIP SMITH
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID # 20144035757
MY COMMISSION EXPIRES OCTOBER 06, 2018

Signature: 
Printed Name: Philip Smith
Notary Public, State of Colorado
My commission expires: Oct 06, 2018

STATE OF CO)
) ss.
COUNTY OF Boulder)

This instrument was acknowledged before me on Sept 04, 2018, by Arlo Corwin, Sole Member of Advance Energy LLC, Sole Member of Chevelon Butte RE LLC, an Arizona limited liability company, on behalf of said company.

[NOTARY SEAL]

Signature: Philip Smith
Printed Name: Philip Smith
Notary Public, State of Colorado
My commission expires: Oct 06, 2018

PHILIP SMITH
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID # 20144098757
MY COMMISSION EXPIRES OCTOBER 06, 2018

UNOFFICIAL DOCUMENT

Exhibit A

Property Description

All that real property located in Navajo and Coconino County, Arizona, described as follows:

Navajo County Property:

Township 15 North, Range 15 East

Section 13: 115.55 acres lying east of Chevelon Canyon Creek	115.55 Acres
Section 25: SW/4	160.00 Acres
Section 26: NW/4NE/4, NE/4NW/4 lying east of Chevelon Canyon Creek	80.00 Acres
Section 27: All	640.00 Acres
Section 35: All	640.00 Acres

Total Acres in Navajo County = 1,633.55 Acres

Coconino County Property:

Township 16 North, Range 14 East

Section 11: All that part lying east of the middle of the water course of Clear Creek Canyon	44.55 Acres
Section 13: All	640.00 Acres
Section 15: All that part lying South of Clear Creek	460.00 Acres
Section 19: All	657.60 Acres
Section 21: All that part lying south of Clear Creek	540.00 Acres
Section 23: All	640.00 Acres
Section 25: All	640.00 Acres
Section 27: All	640.00 Acres
Section 29: All	640.00 Acres
Section 31: All	662.24 Acres
Section 33: All	640.00 Acres
Section 35: All	640.00 Acres

Township 16 North, Range 13 East

Section 13: All that part lying east of Clear Creek Canyon	160.00 Acres
Section 23: All that part lying south and east of the middle of Clear Creek Canyon	39.00 Acres
Section 25: All	640.00 Acres
Section 27: All that part lying east of Clear Creek Canyon	480.00 Acres
Section 34: All	640.00 Acres
Section 35: All	640.00 Acres

Township 15 North, Range 14 East

Section 1: All	640.00 Acres
Section 3: All	640.00 Acres
Section 4: All	640.00 Acres
Section 5: All	640.00 Acres
Section 7: All	640.00 Acres
Section 8: All	640.00 Acres
Section 9: All	640.00 Acres
Section 10: All	640.00 Acres
Section 11: All	640.00 Acres
Section 15: All (less S/2SE/4NE/4NW/4, N/2NE/4SE/4NW/4)	590.00 Acres
Section 17: All	640.00 Acres
Section 23: All	640.00 Acres
Section 24: NW/4NW/4	40.00 Acres
Section 25: All	640.00 Acres
Section 35: All	640.00 Acres

Township 15 North, Range 15 East

Section 7: 89 acres in the S/2	89.00 Acres
Section 18: All	640.00 Acres
Section 19: All	640.00 Acres
Section 20: All	640.00 Acres
Section 21: All	640.00 Acres
Section 29: All	640.00 Acres
Section 30: N/2 and Lot 1	370.65 Acres
Section 31: All	640.00 Acres
Section 33: All	640.00 Acres

Total Acres in Coconino County = 23,353.04 Acres

UNOFFICIAL DOCUMENT

Exhibit A

**MEMORANDUM OF RENEWABLE ENERGY LEASE AND AGREEMENT
WITH GRANT OF EASEMENTS
(Between Chevelon Butte RE LLC and Borracho Bros, LLC)**

**MEMORANDUM OF RENEWABLE ENERGY LEASE
AND AGREEMENT WITH GRANT OF EASEMENTS**

**THIS INSTRUMENT PREPARED BY
AND SHOULD BE RETURNED TO:**

Chevelon Butte RE LLC
c/o sPower Development Company, LLC
2180 South 1300 East Suite 600
Salt Lake City, UT 84106

THIS MEMORANDUM OF RENEWABLE ENERGY LEASE AND AGREEMENT WITH GRANT OF EASEMENTS (this "Memorandum") is made, dated and effective as of _____, _____, by and between Chevelon Butte RE LLC, an Arizona Limited Liability Company (together with its successors and assigns, "Renewable Energy Company") and Borracho Bros, LLC, an Arizona Limited Liability Company (together with its successors and assigns, collectively and individually, as the case may be, "Landowner"). Landowner and Renewable Energy Company are sometimes referred to individually herein as a "Party" and collectively as the "Parties."

RECITALS:

WHEREAS, Landowner and Renewable Energy Company have entered into a Renewable Energy Lease and Agreement with Grant of Easements dated as of the date first written above with respect to property more specifically described herein for, among other things, the development, installation, construction, operation and maintenance of a commercial wind power electric generation facility consisting of wind-powered turbines and generators and other related equipment and facilities, including, without limitation, power lines and roadways for the production, collection and transmission of electrical energy, all of the foregoing to be located in, on, over, across and under the Property (as defined below) and in, on, over, across and under other real property in the vicinity of the Property in which Renewable Energy Company has acquired certain rights or in which Renewable Energy Company contemplates

acquiring certain rights (together with the Property (as heretofore or hereinafter amended, restated or supplemented from time to time, the "Lease and Easement Agreement"); and

WHEREAS, Landowner and Renewable Energy Company desire to grant the respective rights described herein, and further set forth certain terms and conditions of the Lease and Easement Agreement in a manner suitable for recording in the Public Records Coconino County (the "County"), Arizona, in order to provide record notice of the Lease and Easement Agreement and Renewable Energy Company's rights in and to the land subject to the Lease and Easement Agreement, as provided herein.

NOW, THEREFORE, in consideration of mutual covenants contained in the Lease and Easement Agreement, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree and stipulate as follows:

1. **Recitals; Definitions.** The Recitals above are agreed to be true and correct and are incorporated herein for all purposes. Any capitalized terms not otherwise defined herein shall have the meanings assigned to such terms in the Lease.
2. **Description of Property.** The land subject to the Lease and Easement Agreement is described on **Exhibit A** attached hereto, and by this reference made a part hereof (the "Property").
3. **Grant of Lease.** Subject to the terms and conditions more particularly set forth in the Lease and Easement Agreement, without limitation, Landowner has leased to Renewable Energy Company, and Renewable Energy Company has leased from Landowner, the Property for the following purposes:
 - a. Determining the feasibility of wind energy conversion on the Property or on other Wind Project Property or on neighboring lands, including studies of wind speed, wind direction, and other meteorological data;
 - b. Converting wind energy into electrical energy, and collecting and transmitting the electrical energy so converted;
 - c. Developing, constructing, reconstructing, erecting, installing, improving, replacing, relocating and removing from time to time, and using, maintaining, repairing, operating and monitoring, the following: (i) wind machines, wind turbine generators, wind energy conversion systems and wind power generating facilities (including associated towers, foundations and other structures and equipment), in each case of any type or technology (individually a "Generating Unit" and, collectively, "Generating Units"); (ii) transmission facilities, including overhead and underground transmission, distribution and collector lines, wires and cables, splice and junction boxes, switch panels, conduits, footings, foundations, towers, poles, crossarms, guy lines and anchors, and energy storage facilities; (iii) overhead and underground control, communications and radio relay systems and telecommunications equipment, including microwave towers, dishes, and control, fiber, wires, cables, conduit and poles; (iv) meteorological towers, guy wires, braces and wind measurement equipment; (v) roads and erosion control facilities; (vi) signs; (vii) fences and other safety and protection facilities; and (viii) other improvements, facilities, appliances, machinery and equipment associated with any of the foregoing (all of the foregoing, including the Generating Units, collectively, "Wind Power Facilities");
 - d. Vehicular and pedestrian ingress, egress and access to and from Wind Power Facilities on, over and across the Property by means of roads and lanes thereon if existing or otherwise by such roads, including but not limited to turning radius from public roads, if necessary, as

Renewable Energy Company or anyone else may construct from time to time, subject to Landowner's consent, not to be unreasonably withheld (collectively, "Access Rights");

- e. Subject to reasonable date, time, location and other restrictions as agreed by Landowner, conducting site tours to demonstrate the environmental and other benefits of electrical generation from wind power; and
 - f. Undertaking any other activities that Renewable Energy Company or a Sublessee (as defined below) determines are necessary, helpful, appropriate or convenient with, incidental to or to accomplish any of the foregoing purposes or for the benefit of one or more Projects, including conducting surveys and staking, tests and studies, including but not limited to environmental, biological, cultural, geotechnical drilling and studies and other uses permitted under this Lease as set forth elsewhere herein. Without limiting the generality of the foregoing, the Parties recognize that (a) power generation technologies are improving at a rapid rate and that Renewable Energy Company or a Sublessee may (but shall not be required to) from time to time replace existing Generating Units on the Property with newer model (and potentially larger) Generating Units and (b) the Operations may be accomplished by Renewable Energy Company, a Sublessee or one or more third parties authorized by Renewable Energy Company or a Sublessee. For purposes of this Lease, the term "Project" means one or more Generating Units and associated Wind Power Facilities that are constructed, installed and/or operated on the Property and/or on Wind Project Property by or on behalf of Renewable Energy Company, a Sublessee or an affiliate of either thereof, as an integrated energy generating and delivery system.
4. **Grant of Easements**. In addition, Landowner granted, conveys, transfers and warrants to Renewable Energy Company, its successors and assigns the following easements:
- a. A Wind and Effects Easement;
 - b. Subject to Landowner's consent, not to be unreasonably withheld, and governmental entity approval for the setback encroachment, an exclusive easement to permit the rotors of Generating Units located on adjacent properties in the Project to overhang the Property and to encroach into any county, state or other governmental setback;
 - c. An Access Easement;
 - d. An easement for audio, visual, view, reflective light, shadow flicker, noise, shadow and any other effects attributable to any Project or Operations located on the Property or on adjacent properties over and across the Property and any other property owned by Landowner adjacent to or in the vicinity of the Property;
 - e. A Crane Path Travel Easement, together with the right to temporary earthmoving as necessary to build suitable access routes for the Crane Travel Path Easement;
 - f. A non-exclusive Distribution Easement;
 - g. A Transmission Line Easement; and
 - h. A Construction Easement.

5. **Term of Lease and Easement Agreement.** The Term of the Lease and Easement Agreement includes an initial eight (8) year Development Term. In addition, if the Lease and Easement Agreement is extended for construction and operation, the Operations Term of the Agreement is thirty (30) years from the Construction Date. Renewable Energy Company may extend the Operations Term by up to two (2) additional ten-year terms each commencing on the last day of the original or extended O Operations Term by giving Landowner written notice of such extension on or prior to expiration of the then-current Operations Term. The Agreement will be deemed to have terminated upon expiration of the term as defined in the Lease and Easement Agreement. A written termination of the Lease and Easement Agreement shall be filed with the Public Land Records of the County where said Property is located.
6. **Successors and Assigns.** The terms of this Memorandum and the Lease and Easement Agreement are covenants running with the land and inure to the benefit of, and are binding upon, the parties and their respective successors and assigns, including all subsequent owners of all or any portion of the Property. References to Landowner and Renewable Energy Company include their respective successors and assigns. References to the Lease and Easement Agreement include any amendments thereto.
7. **Miscellaneous.** This Memorandum is executed for the purpose of recording in the Public Records of the County in order to provide public record notice of the Lease and Easement Agreement and Renewable Energy Company's rights in and to the Property subject to the Lease and Easement Agreement. The entire Lease and Easement Agreement is hereby incorporated into this Memorandum by reference, including any defined terms contained within the Agreement and used within this Memorandum. Notwithstanding anything to the contrary contained herein, the provisions of this Memorandum do not in any way alter, amend, supplement, change or affect the terms, covenants or conditions of the Lease and Easement Agreement, all of which terms, covenants and conditions shall remain in full force and effect. In the event of any conflict between the terms of this Memorandum and the Lease and Easement Agreement, the terms of the Lease and Easement Agreement shall prevail. This instrument may for convenience be executed in any number of original counterparts, each of which shall be an original and all of which taken together shall constitute one instrument.

[The remainder of this page is intentionally left blank.]

Landowner:

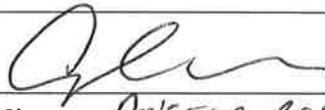
By: 

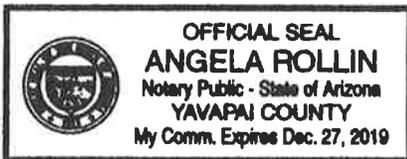
Name; CHRISTOPHER S. THOMPSON

STATE OF ARIZONA
COUNTY OF YAVAPAI

The foregoing instrument was acknowledged before me this 30 day of May, 2018, 2019 by Christopher Thompson an

[NOTARY SEAL]

Signature: 
Printed Name: ANGELA ROLLIN
Notary Public, State of ARIZONA
My commission expires: 12/27/2019



Renewable Energy Company:

Chevelon Butte RE LLC
An Arizona limited liability company

By: [Signature]

STATE OF UTAH)
) ss.
COUNTY OF SALT LAKE)

This instrument was acknowledged before me on August 26, 2018⁹ by Sean McBride, Authorized Person of Chevelon Butte RE LLC, an Arizona limited liability company, on behalf of said company.

[NOTARY SEAL]



Signature: [Signature]
Printed Name: Sabrina Fuller
Notary Public, State of Utah
My commission expires: 6/18/21

EXHIBIT A

Property Description

All that real property in Coconino County,

Assessor Parcel #: 40706006

Further described as,

Township 15 North, Range 14 East

Section 14: SW/4

160 Acres

Section 14: SE/4

160 Acres

Total Acres in Coconino County = 320 Acres

LETTER OF TRANSFER
(Transfer of All Interests in Chevelon Wind Farm and Associated Documents From Advance Energy LLC to Chevelon Butte RE LLC)

September 10, 2019

To Whom It May Concern:

Advance Energy LLC has transferred all interests in the proposed Chevelon Butte Wind Farm and all associated documents, including Arizona State Land Department Special Use Permit 23-120497-17-100 to Chevelon Butte RE LLC, a subsidiary of sPower Development Company, LLC.

Regards,



Arlo Corwin

(303) 578-5899

arlo@advanceenergyllc.com

**STATE LAND DEPARTMENT
STATE OF ARIZONA
SPECIAL LAND USE PERMIT
(Permit No. 23-120497-17)**

**STATE LAND DEPARTMENT
STATE OF ARIZONA**

SPECIAL LAND USE PERMIT

Permit No. 23-120497-17

THIS SPECIAL LAND USE PERMIT ("Permit") is entered into by and between the State of Arizona, Arizona State Land Department ("Permitter"), through the State Land Commissioner ("Commissioner") and

ADVANCE ENERGY LLC

("Permittee"). In consideration of the payment of a fee and of performance by the parties of each of the provisions set forth herein, the parties agree as follows:

**ARTICLE 1
SUBJECT LAND**

1.1 Permitter grants to Permittee a non-exclusive permit for special use on the State Land described in Appendix A attached hereto ("the Subject Land").

1.2 Permittee makes use of the Subject Land "as is" and Permitter makes no express or implied warranties as to the physical condition of the Subject Land.

**ARTICLE 2
TERM**

2.1 The term of this Permit commences on April 4, 2019 ("Commencement Date") and expires on April 3, 2021 ("Expiration Date"), unless sooner canceled or terminated as provided herein or as provided by law. This Permit expires on the date indicated and carries no holdover rights.

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2.2 The Permittee will not assign the Subject Land herein described in this Permit without the written consent of the State Land Commissioner, first obtained, and will, upon the expiration of the Permit surrender peaceable possession of said land.

4.3 Permitter reserves the right to grant rights of way and easements over, across, or upon the lands embraced in this Permit for public highways, railroads, tramways, telephone, telegraph and transmission lines, pipe lines, irrigation works, flood control, drainage works, logging and other purposes, and this Permit is issued subject to all existing rights of way.

4.4 Permitter reserves the right to grant additional access rights, or any other rights not in conflict with the rights granted herein, to other parties at Permitter's sole discretion.

Prior to any maintenance or ground disturbance upon or near the access/service roads, the Permittee hereof shall provide evidence of archaeological clearance to the Arizona State Land Department. Archaeological surveys and site mitigation must be conducted in accordance with the rules and regulations promulgated by the Director of the Arizona State Museum. In the event archaeological resources are detected by Permittee, the Director of the Arizona State Museum, as well as the Arizona State Land Department, shall be notified for evaluation.

a.) Permittee shall acquire any permits necessary prior to maintenance of access/service roads.

b.) Permittee shall not alter or cause ponding, or any damage up or down stream of any water crossing.

c.) Permittee shall not exclude from use the State of Arizona, its Lessees or Permittees, or the general public the right of ingress and egress over the access/service roadways.

d.) Access/service roads shall be maintained in substantially the same condition as they exist at the time the Permit is issued except, if not drivable they may be made drivable.

e.) Permittee shall not fence or gate the access/service roads.

f.) Permittee shall keep all gates closed and ensure its contractors do the same. Permitter reserves the right to require cattle guards if Permitter determines gates are being left open or fencing has been removed or damaged by Permittee, its employees or contractors.

g.) Any grazing related improvements removed or damaged due to access and maintenance of the access/service roads shall be replaced and/or reconstructed immediately. Cost of replacement and reconstruction shall be the responsibility of the Permittee.

time of the execution of this Permit, this Permit shall be null and void, at the option of the State Land Commissioner, insofar as it relates to the land upon which said improvements are situated.

ARTICLE 7
CANCELLATION, TERMINATION & ABANDONMENT

7.1 If at any time after the execution of this Permit, it is shown to the satisfaction of the Commissioner, that there has been fraud or collusion upon the part of Permittee to obtain or hold this Permit at a lesser fee than its value, or through such fraud and collusion a former permittee of the Subject Land has been allowed to escape payment of the fee due for the use of said land by the former permittee, this Permit shall be null and void, at the option of the Commissioner, insofar as it relates to the land affected by said fraud or collusion.

7.2 Permittee shall give Permitter 25 days notice in writing in advance of the abandonment of said Subject Land or termination of these presents.

7.3 In the event any land affected by this Permit is reclassified by order of the State Land Commissioner, or sold, this Permit will automatically cancel as to the land reclassified or sold upon the issuance of a new lease or at the time of auction, whichever occurs first.

7.4 If Permittee should fail to keep the covenants and conditions herein set forth, the Commissioner at his option, may cancel said Permit.

7.5 This Special Land Use Permit shall be terminable at will with 25 days written notice.

7.6 This contract is subject to cancellation pursuant to A.R.S. § 38-511.

ARTICLE 8
ENVIRONMENTAL MATTERS

8.1 For purposes of this Permit, the term "Environmental Laws" shall include but not be limited to any relevant federal, state or local environmental laws, and the regulations, rules and ordinances, relating to environmental matters, and publications promulgated pursuant to the local, state, and federal laws and any rules or regulations relating to environmental matters. For the purpose of this Permit, the term "Regulated Substances" shall include but not be limited to substances defined as "regulated substance," "solid waste," "hazardous waste," "hazardous materials," "hazardous substances," "toxic materials," "toxic substances," "inert materials," "pollutants," "toxic pollutants," "herbicides," "fungicides," "rodenticides," "insecticides," "contaminants," "pesticides," "asbestos," "environmental nuisance," "criminal littering," or "petroleum products" as defined in Environmental Laws.

8.6 Permittee shall defend, indemnify and hold the Permitter harmless from and against any and all liability, obligations, losses, damages, penalties, claims, environmental response and cleanup costs and fines, and actions, suits, costs, taxes, charges, expenses and disbursements, including legal fees and expenses of whatever kind or nature (collectively, "claims" or "damages") imposed on, incurred by, or reserved against the Permitter in any way relating to or arising out of any non-compliance with any Environmental Laws, the existence or presence of any Regulated Substance, on, under, or from the Subject Land, and any claims or damages in any way relating to or arising out of the removal, treatment, storage, disposition, mitigation, cleanup or remedying of any Regulated Substance on, under, or from the Subject Land by the Permittee, its agents, contractors, or subcontractors.

8.7 This indemnity shall include, without limitation, claims or damages arising out of any and all violations of Environmental Laws regardless of any real or alleged fault, negligence, willful misconduct, gross negligence, breach of warranty, or strict liability on the part of any of the indemnitees. This indemnity shall survive the expiration or termination of this Permit and/or transfer of all or any portion of the Subject Land and shall be governed by the laws of the State of Arizona.

8.8 In the event any action or claim is brought or asserted against the Permitter which is or may be covered by this indemnity, the Permittee shall fully participate, at Permittee's expense, in the defense of the action or claim including but not limited to the following: (1) the conduct of any required cleanup, removal or remedial actions and/or negotiations, (2) the conduct of any proceedings, hearings, and/or litigation, and (3) the negotiation and finalization of any agreement or settlement. The Permitter shall retain the right to make all final decisions concerning the defense. The Permittee's obligations to participate in the defense under this Section shall survive the expiration or termination of the Permit.

8.9 Prior to the termination of the Permit and in addition to those obligations set forth in Article 13.2, Permittee shall restore the Subject Land 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 the Permittee. If the Subject Land or any portions thereof are damaged or destroyed from the existence or presence of any Regulated Substance or if the Subject Land 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, the Permittee shall arrange, at its expense, for the repair, removal, remediation, restoration, and reconstruction to the Subject Land to the original condition existing on the date that the Permittee first occupied the Subject Land, to the satisfaction of the Permitter. In any event, any damage, destruction, or restoration by Permittee shall not relieve Permittee from its obligations and liabilities under this Permit. The Permittee's restoration obligations under this Section shall survive the expiration or the termination of the Permit.

(b) Pursuant to A.R.S. § 41-844, Permittee shall report to the Director of the Arizona State Museum and Permitter any prehistoric or historic archaeological site, or paleontological site, that is discovered on the Subject Land by Permittee, Permittee's employees, or Permittee's guests, and shall, in consultation with the Director of the Arizona State Museum and Permitter, immediately take all reasonable steps to secure the preservation of the discovery.

12.2 (a) Permittee shall not move, use, destroy, cut or remove or permit to be moved, used, destroyed, cut or removed any timber, cactus, native plants, standing trees or products of the land except that which is necessary for the use of the Subject Land, and then only with the prior written approval of Permitter. For undeveloped land, the Permittee must submit a plant survey prior to the removal of any 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 Subject Land, Permittee shall also obtain the prior written approval of the Arizona Department of Agriculture. In the event the Permittee removes the native plants, the Permittee must pay a vegetation fee to the Permitter and this fee is not a reimbursable improvement.

(b) Permittee is responsible for treatment of all regulated and restricted noxious weeds listed by the Arizona Department of Agriculture.

ARTICLE 13

PERMITTEE SHALL PROTECT AND RESTORE SUBJECT LAND

13.1 In the event of known trespass on the Subject Land resulting in damage thereto, Permittee shall notify Permitter and appropriate law enforcement authorities.

13.2 Upon abandonment, cancellation, revocation or termination of this Permit, Subject Land shall be restored to its original condition, to the satisfaction of the Permitter. Such restoration shall include, but shall not be limited to, removal of any and all material, equipment, facilities, temporary structures, or debris, deposited by Permittee on Subject Land. If Permittee fails to remove all such material, equipment, facilities, temporary structures, or debris within a reasonable period, as determined by the Permitter, they shall be forfeited and become the property of the State, but Permittee shall remain liable for the cost of removal of all materials and for restoration of the site.

ARTICLE 14

MISCELLANEOUS

14.1 It is understood by Permittee that the establishment of any water right, or rights, shall be by and for the State of Arizona, and no claim thereto shall be made by said Permittee; such rights shall attach to and become appurtenant to the Subject Land.

14.12 Permittee to notify Grazing Lessee of construction dates at least 15 days prior to beginning of any meteorological wind assessment tower erection.

14.13 Permittee and its successors agree to contact Arizona State Land Department Range Section Manager, Chris Lowman at 928-759-1950, and provide all reclamation cost, in the event that any natural resource damage occurs (other than associated with industry standards) stemming from the construction or maintenance of requested access, and that such damage be corrected according to the instruction of Range Resource Area Manager.

14.14 Where the existing roads or trails cross ranch boundaries or pasture fences, Permittee will be responsible to keep gates closed and fences up. When crossing fence lines, whether they are boundary or pasture fences, Permittee shall leave all gates as found.

14.15 Permittee shall not harass livestock or wildlife, not damage, destroy or remove any improvements placed for the benefit of livestock or wildlife.

ARTICLE 15
EXHIBITS

15.1 The following exhibits are attached to these Additional Conditions and made a part hereof:

EXHIBIT A Legal Description and/or Visual Depiction of Utility Scale Wind Development Project Boundaries

APPENDIX A

STATE OF ARIZONA LAND DEPARTMENT
 1616 W. ADAMS
 PHOENIX, AZ 85007

RUN DATE: 23 July 2019
 RUN TIME: 11:02 AM
 PAGE: 1

KE-LEASE# 023-120497-17-100 APPTYPE: NEW
 AMENDMENT#: 0

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LAND#	LEGAL DESCRIPTION	AUS	ACREAGE
15.0-N-14.0-E-02-03-030-8001	LOTS 1-4 S2N2 S2	0.00	339.600
15.0-N-14.0-E-06-03-031-8001	LOTS 1-7 S2NE SESW E2SW SE	0.00	663.700
15.0-N-14.0-E-12-03-053-8001	ALL	0.00	640.000
15.0-N-14.0-E-14-03-031-8001	N2	0.00	320.000
15.0-N-14.0-E-16-03-030-8001	ALL	0.00	640.000
15.0-N-14.0-E-24-03-053-8001	E2 E2W2 SWNW W2SW	0.00	600.000
15.0-N-14.0-E-36-03-030-8002	ALL	0.00	640.000
15.0-N-15.0-E-22-03-043-8001	W2W2W2W2 LY W OF COUNTY LINE	0.00	27.790
15.0-N-15.0-E-22-09-043-8001	E2 E2W2 E2W2W2 E2W2W2W2 LY E OF COUNTY LINE	0.00	612.210
15.0-N-15.0-E-28-03-031-8001	ALL	0.00	640.000
15.0-N-15.0-E-30-03-053-8001	LOTS 3 & 4 E2SW SE	0.00	314.800
15.0-N-15.0-E-32-03-030-8003	ALL	0.00	640.000
15.0-N-15.0-E-34-03-031-8001	W2W2W2W2 LY W OF COUNTY LINE	0.00	26.450
15.0-N-15.0-E-34-09-031-8001	E2 E2W2 E2W2W2 AND E2W2W2W2 LY E OF COUNTY LINE	0.00	613.550
16.0-N-13.0-E-24-03-031-8000	E2 SW M&B IN NW	0.00	603.530
16.0-N-13.0-E-26-03-053-8001	E2 SW M&B IN NW	0.00	614.120
16.0-N-13.0-E-36-03-030-8001	ALL	0.00	640.000
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16.0-N-14.0-E-14-03-031-8001	M&B IN NE S2	0.00	384.400
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16.0-N-14.0-E-20-03-031-8001	M&B NE S2NW S2	0.00	542.950
16.0-N-14.0-E-22-03-031-8001	ALL	0.00	640.000
16.0-N-14.0-E-24-03-031-8001	ALL	0.00	640.000

APPENDIX A

STATE OF ARIZONA LAND DEPARTMENT
1616 W. ADAMS
PHOENIX, AZ 85007

RUN DATE: 23 July 2019
RUN TIME: 11:02 AM
PAGE: 2

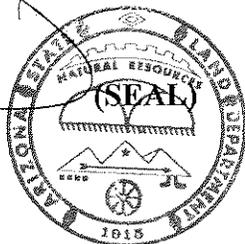
KE-LEASE# 023-120497-17-100 APPTYPE: NEW
AMENDMENT#: 0

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16.0-N-14.0-E-34-03-031-8001	ALL	0.00	640.000
	TOTALS	0.00	14,529.120

IN WITNESS HEREOF, the parties hereto have signed this Permit effective the day and year set forth previously herein.

STATE OF ARIZONA, PERMITTOR
Arizona State Land Commissioner

By: [Signature] AUG 22 2019
Date



PERMITTEE

[Signature] 8/20/19
Authorized Signature Date

Managing Member
Title

1829 Bluebell Ave
Address

Boulder CO 80302
City State Zip

**ARIZONA STATE LAND DEPARTMENT
LETTER OF CONSENT
(RE: ASLD Right-of-Way Application KE#23-120497-17-00)**

Douglas A. Ducey
Governor



Lisa A. Atkins
Commissioner

Arizona State Land Department

September 16, 2019

1616 West Adams, Phoenix, Arizona 85007
(602) 542-4631

Arlo Corwin
Advance Energy LLC
1829 Bluebell Avenue
Boulder, CO 80302

RE: State Trust land located in T15N, R15E, Sections 22 and 34 in Navajo County
ASLD Right of Way Application KE#23-120497-17-100
Special Use Permit for a Wind Energy Farm

Dear Mr. Corwin:

The Arizona State Land Department (the "Department" or "ASLD") has received your request for permission to act as authorized agent for the Department to apply to Navajo County (the "Jurisdiction") for a Special Use Permit for a Wind Energy Farm on the subject State Trust land, as described in the materials provided to ASLD by via email from Terrance Unrein, Senior Permitting Manager, sPower, dated September 13, 2019, and incorporated herein by reference.

Advance Energy LLC its employees, representatives, agents, and/or consultants (hereinafter "Applicant") therefore, has the Department's consent to file for the Entitlements as required by the Jurisdiction, subject to the following conditions and understandings.

1. Applicant shall pay all costs associated with the Entitlements and shall not be reimbursed by the Department or by any subsequent purchaser at auction.
2. Applicant, their employees, representatives, agents, and/or consultants shall be permitted to act as the Department's agents to procure the Entitlements and any related permits or approvals which may be required (the "Entitlement Process"), subject to final review and approval by the Department.
3. Applicant shall diligently pursue the satisfaction of all Entitlements. Further, it shall respond to all inquiries by the Department as to the status of the Entitlement Process, and provide regular updates without formal request.
4. Prior to beginning the Entitlement Process, the Applicant shall provide the Department with an outline of the proposal and a timeline for the process which identifies key dates with the Jurisdiction or other jurisdictional agency staff and project hearing dates with any agency or jurisdiction. All documentation, including, but not limited to: land use plans, engineering drawings, application materials and development agreements, shall be submitted to the Department for approval prior to the date the documentation is filed with the approving

- jurisdiction. A copy of the application shall be submitted to the Department on the same day it is filed with the Jurisdiction or other jurisdictional agency.
5. The Department staff shall be invited, but not required to attend, all meetings with the various agencies, elected officials, and the Jurisdiction as the Entitlements are processed through relevant hearings. A minimum of five (5) business days' notice shall be provided to Department staff in advance of any meeting.
 6. Applicant shall submit to the Department all staff reports and draft stipulations that will be considered by the Jurisdiction on the day they are received by the Applicant, and at least ten (10) business days before each public meeting or hearing, if possible.
 7. As additional consideration for the grant of this permission, all Entitlements and/or rights and permits obtained pursuant to the described applications are the property of the Department and will only be transferred to the successful bidder, if any, at the time the land is auctioned for sale or lease at some point in the future.
 8. The Jurisdiction is authorized to enter and inspect the subject property.
 9. This authorization may be revoked at any time without notice and in no way creates an obligation on the part of the Department of any kind.

All information will be provided to Sue Russell, Rights of Way Land Disposition Project Leader with a copy to me.

The Department appreciates your consideration in this matter, and looks forward to working with you through this process. Please contact Sue Russell at 602-542-3115 if you have any questions.

Sincerely,



Mark Edelman, AICP
Director, Planning and Engineering

cc: Ruben Ojeda, Manager, ASLD Rights of Way Section
Sue Russell, Land Disposition Project Leader, ASLD Rights of Way Section

EXHIBIT D
Citizen Participation Report

Chevelon Butte Wind Farm Citizen Participation Report

SEPTEMBER 2019

PREPARED FOR
Chevelon Butte RE LLC

PREPARED BY
SWCA Environmental Consultants

CHEVELON BUTTE WIND FARM CITIZEN PARTICIPATION REPORT

Prepared for

Chevelon Butte RE LLC
2180 South 1300 East, Suite 600
Salt Lake City, Utah 84106-2749
Attn: Terrance Unrein

Prepared by

SWCA Environmental Consultants
114 N. San Francisco St. Ste 100
Flagstaff, AZ 86001
(928) 774-5500
www.swca.com

SWCA Project No. 51186

September 2019

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1	Introduction	1
2	Notice of Public Meeting	1
3	Public Meeting	2
4	Tribal Outreach	2
5	Stakeholder Briefings.....	2
6	Public Comments.....	3

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Appendix A.	Chevelon Butte Wind Farm Citizen Participation Plan
Appendix B.	Legal Notices
Appendix C.	Public Notice and Mailing List
Appendix D.	Public Meeting Materials
Appendix E.	Hopi Meeting Sign In
Appendix F.	Public Comment and Response

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1 INTRODUCTION

This Citizen Participation Report includes information on the public involvement program conducted for the Chevelon Butte Wind Farm and the results from implementation of the Chevelon Butte Wind Farm Citizen Participation Plan (Appendix A). The purpose is to describe the methods used to provide interested persons, including project area neighbors, an opportunity to understand the proposed Chevelon Butte Wind Farm, located in Coconino and Navajo County, Arizona, and provide comments on the project.

A description of the Citizen Participation Plan implementation process and the results of the public comment process follows.

2 NOTICE OF PUBLIC MEETING

The public was informed about the proposed Chevelon Butte Wind Farm and the associated public meeting using the following methods:

1. **Website** – The Applicant developed a project website (chevelonbuttewind.com) that contains project description information, including information presented at the public meeting, and a mechanism for public comment submittal. The website location, which was announced in the legal notice and public mailings, provides an opportunity for persons unable to attend the public meeting to learn about the project and provide comments.
2. **Legal Notice** - Publication of a legal notice occurred in two newspapers in Northern Arizona including The Navajo Tribune on July 3, 2019, and the Arizona Daily Sun on July 2, 2019 (see Appendix B). The notice included a brief description of the project, the public meeting date, time, and location, and the project website address for further information.
3. **Notice Mailing** - Property owners in the vicinity of the project area and other potentially interested parties were notified about the public meeting by mail 14 days prior to the meeting (July 1, 2019). The notification letter included a brief description of the project, a project map, meeting date, time, and location, and details on how to seek further information (website and mailing address) (see Appendix C).
 - a. In Navajo County 198 property owners within 2 miles of the project area boundary were notified (above and beyond ordinance requirements).
 - b. In Coconino County 14 property owners within 5 miles of the project area boundary were notified (above and beyond ordinance requirements). Nine homeowners' associations in the vicinity, but beyond 5 miles of the project area, were also notified.
 - c. Interested federal, state, county, and tribal government officials, were notified, including Navajo and Coconino County officials, Arizona State Land Department, Arizona Game and Fish Department, Apache Sitgreaves National Forest, Bureau of Land Management, U.S. Fish and Wildlife Service, and the Hopi Tribe.

Other public noticing, including website updates, newspaper legal notices, and installation of on-site signage, has occurred in connection with the Arizona Corporation Commission proceedings for the Chevelon Butte Gen-Tie Project.

3 PUBLIC MEETING

A public meeting was hosted by the Applicant on July 15, 2019, in Winslow, Arizona. The meeting was an informal “open house” style format, allowing community members to attend at their convenience, review displays, and speak with members of the project team. All attendees were recorded on an official sign-in sheet upon entering the meeting (38 attendees signed in) (see Appendix D).

An overview of the Chevelon Butte Wind Farm project was presented using the following handout and poster displays (Appendix D):

1. Handout summary sheet of the project
2. Poster Displays
 - a. Overview of sPower
 - b. Chevelon Butte Wind Farm Project Details
 - c. Chevelon Butte Wind Farm Environmental Studies and Agency Coordination
 - d. Context Map with Access Roads and other planned features
 - e. Project Area Map
 - f. Preliminary Visual Simulations
3. Comment forms were provided to solicit public comment on the project and the information presented at the meeting.

4 TRIBAL OUTREACH

Despite no federal permitting nexus and Section 106 National Historic Preservation Act tribal consultation requirements, the Applicant voluntarily contacted 9 tribal groups (listed below) to inform them about the proposed project. The Hopi Tribe expressed interest in further involvement and learning more about the project. The Applicant held a meeting with the Hopi Tribe on July 15, 2019, in Flagstaff, Arizona, and continues to communicate with the Tribe about their concerns and interests (see Appendix E).

- Hopi Tribe
- Fort McDowell Yavapai Nation
- Fort Mojave Indian Tribe
- Navajo Nation
- Pueblo of Zuni
- Salt River Pima-Maricopa Indian Community
- Tonto Apache Tribe
- White Mountain Apache Tribe
- Yavapai-Apache Nation

5 STAKEHOLDER BRIEFINGS

Project briefings with stakeholders included numerous meetings over the course of nearly a year with landowners; local, state, and federal agencies; and other local organizations. A summary listing of the key meetings conducted to date is included in Table 1 below. Note that ongoing and frequent coordination is

occurring with various stakeholders and agencies, and is planned to continue throughout the development, construction, and operational phases of the project. The Applicant is also engaging in conversations with other local groups and non-profit organizations, and looks forward to becoming a supporting partner of several local organizations in the northern Arizona community.

Table 1. Stakeholder Briefings

Date	Representative Organization or Agency	Location
Many years	Chevelon Butte, LLLP (landowner family) – coordination has been occurring for years with site landowner family	Chevelon Butte Ranch, Winslow AZ, and other locations
Late 2018	Coconino and Navajo Counties – meteorological tower permitting and public hearings	Flagstaff and Holbrook, Arizona
December 2018	Voluntary outreach letters sent to nine potentially interested tribes identified by the Arizona Department of State Lands	
February 12, 2019	U.S. Fish and Wildlife Service Region 2 and Arizona Game and Fish Department – wildlife survey plan consultation	Albuquerque, New Mexico (FWS Region 2 headquarters)
April 2019	Arizona Corporation Commission staff and commissioners	Phoenix, Arizona
April 12, 2019	U.S. Forest Service – early project introduction and communications with Apache-Sitgreaves National Forests, Black Mesa Ranger District	
April 23, 2019	Navajo County – pre-application conference and County Supervisor meeting	Holbrook, Arizona
April 23, 2019	Winslow Chamber of Commerce – sPower and project introduction. sPower and several of its partners joined the chamber and are sponsoring local events	Winslow, Arizona
April 24, 2019	Coconino County - pre-application conference and meetings with County Manager and Supervisors	Flagstaff, Arizona
April and May 2019	Northern Arizona University Economic Policy Institute and School of Earth Sciences & Environmental Sustainability – several calls and communications on collaboration and partnering	
May 29, 2019	Arizona Game and Fish Department and U.S. Fish and Wildlife Service Region 2 – wildlife survey plan and public access consultation	Phoenix, Arizona
May 29, 2019	sPower and project introduction with Mr. Hunter Moore, Natural Resource Policy Advisor for Governor Doug Ducey	Phoenix, Arizona
July 15, 2019	Stakeholder community open house. Other local open houses and meetings may be scheduled.	Winslow, Arizona
July 15, 2019	Hopi Tribe – voluntary outreach and communication has been occurring since late 2018, with an in-person meeting on July 15, 2019	Flagstaff, Arizona
July 16, 2019	Arizona Department of State Lands – several in-person meetings and continued dialogue since 2018, with last Phoenix meeting on July 16, 2019	Phoenix, Arizona

6 PUBLIC COMMENTS

The public submitted 18 letters containing various public comments via the submittal form on the project website and via U.S. postal mail. The public comments and responses are compiled and presented in Appendix F. Note that appendix contains a generalized abbreviation of the Applicant’s responses provided to public comments received as of the date of this application. While the Applicant provided customized and tailored responses to all public comments, normally within days or less of receipt, many of the commenters had follow-up communications that are too voluminous to list in their entirety.

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APPENDIX A

Chevelon Butte Wind Farm Citizen Participation Plan

CHEVELON BUTTE WIND FARM CITIZEN PARTICIPATION PLAN

Coconino County and Navajo County

June 25, 2019

INTRODUCTION

This Citizen Participation Plan is developed to satisfy a collaborative approach for community outreach for the Chevelon Butte Wind Farm project for both Navajo and Coconino Counties in Arizona and the Arizona Corporation Commission. The Chevelon Butte Wind Farm, owned by Chevelon Butte RE, LLC, is located in both counties, with a majority of the project to be sited in Coconino County.

PLAN PURPOSE

The primary purpose for citizen participation in the project is to ensure that citizens and property owners of both counties have adequate opportunity to learn about the project and resolve concerns, as much as possible, early in the process. This purpose will be met by:

- providing the public with accurate and easily understandable information about the project;
- providing opportunities for interested parties to get information and communicate their comments and concerns regarding the project; and
- complying with both Navajo County and Coconino County requirements for citizen participation.

Citizen Participation Strategy

The citizen participation strategy is designed to educate the public and interested parties about the proposed project and receive their input and opinions. The following mechanisms will allow the project owner to provide opportunities for public education and input:

- **Website** – Chevelon Butte RE, LLC will develop a project website that contains project description information, including all information presented at the public meeting, and a mechanism for public comment submittal.
- **Notice Mailing** – The public notice describing the project, public meeting(s), and comment solicitation will be mailed to all parties identified in the mailing list at least 14 days prior to any scheduled public meeting.
- **Legal Advertisement** – An abbreviated notice that describes the proposed project and announces the meeting(s) will be presented 7 days prior to the public meeting in the legal sections of the following newspaper outlets: *The Arizona Daily Sun* and *The Tribune* (serving central Navajo County).
- **Public Meeting** – The purpose of the public meeting is to share information about the proposed project to interested parties and gather opinions and comments regarding the proposal. One public open house meeting will be held in Winslow, Arizona, at the Winslow Chamber of Commerce from 5:00 p.m. to 7:00 p.m. Chevelon Butte RE, LLC and county representatives will attend the meeting and be available to answer questions from the public. The meeting will be “open house”

style with meeting materials consisting of approximately five poster boards presenting the project (proposal description summary, location maps, permitting process and schedule, environmental resource information), a summary handout, comment forms, and sign-in sheets.

Potentially Affected and Interested Parties

The community outreach process will involve a wide range of potentially affected and interested parties, including government agencies and officials, tribal groups, media, adjacent landowners, and the general public. The following briefly describes each group. This is only a preliminary list and may be expanded at any time in the process if necessary.

Agencies and Officials

Public notices will be sent to the following agencies and officials:

- Coconino County Commissioners
- Navajo County Commissioners
- Arizona Game and Fish Department
- U.S. Fish and Wildlife Service (Region 2 Migratory Birds, Albuquerque Office and Arizona Ecological Services Office)
- Arizona State Land Department
- Arizona State Historic Preservation Office
- Apache-Sitgreaves National Forests

Tribal Groups

Chevelon Butte RE, LLC has voluntarily contacted 9 tribal groups to inform them about the proposed project. The Hopi Tribe expressed interest in further involvement and learning more about the project. Chevelon Butte RE, LLC is meeting with the Hopi Tribe in-person to continue this dialogue.

Media

Legal notices will be presented to each of the following news outlets: *The Arizona Daily Sun* and *The Tribune* (serving central Navajo County).

Adjacent Landowners

The area of notification for the project will vary by county due to the land ownership configuration adjacent to the property. Notification of adjacent landowners is described below:

- **Navajo County** – Adjacent landowners within 2 miles of the project boundary will be notified by notice mailing. This includes approximately 170 parcels for notice.
- **Coconino County** – Adjacent landowners within 5 miles of the project boundary will be notified by notice mailing. This notification will adequately notify the few private landowners within this buffer zone – approximately 20. The Blue Ridge HOAs will also be notified and provided flyers to post in public locations.

County Recommended Groups and General Public

Chevelon Butte RE, LLC will also notify any interest groups as recommended by Coconino and Navajo Counties. These groups will be added to the mailing list as requested. The Counties will also share contact information for persons that have expressed past interest in this area or type of project.

Community Outreach Schedule

The following table provides an approximate schedule for implementation of community outreach activities.

Community Outreach Activity	Primary Responsibility	Date
Develop initial mailing list	SWCA Environmental Consultants (SWCA), Coconino County, Navajo County	May 31
Schedule public meetings / secure venues	SWCA	May 31
Set up project website and online comment form	Chevelon Butte RE, LLC	Prior to mailing notice July 1
Develop and submit legal notices	Chevelon Butte RE, LLC, SWCA	Publish week of July 1
Develop and mail public notice	Chevelon Butte RE, LLC, SWCA	July 1
Develop public meeting materials	Chevelon Butte RE, LLC, SWCA	Drafts – June 28
Host public meetings	Chevelon Butte RE, LLC, SWCA	July 15
Public comment processing and reporting	SWCA	August 1

APPENDIX B

Legal Notices

AFFIDAVIT/PROOF OF PUBLICATION

STATE OF ARIZONA

} ss.

County of Coconino

Bobbie Crosby being duly sworn deposes and says:

That she is the legal clerk of the Arizona Daily Sun a newspaper published at Flagstaff, Coconino County, Arizona; that the Legal 391 a copy of which is hereunto attached, was first published in said newspaper in its issue dated the 2 day of July, 2019, and was published in each one issue of said newspaper for one consecutive day the last publication being in the issue dated the 2 day of July, 2019.

Legal No. 391 Chevelon Butte RE, LLC, a wholly owned subsidiary of sPower Development Company, LLC ("sPower"), is applying for a Conditional Use Permit from Coconino County and a Special Use Permit from Navajo County for an approximate 400-477 megawatt (AC) wind energy project on what is commonly known as the Chevelon Butte Ranch located approximately 20 miles south of Winslow, Arizona. The Chevelon Butte Wind Farm would be comprised of up to 175 wind turbines, two collector substations, and one interconnection switching station to connect the project's generated electricity to an existing Arizona Public Service Electric Company 345-kV transmission line at the southeast corner of the site. The wind turbine generators would have a total system height of up to 755 feet. Other project features include a parking area, storage facilities, a operations and maintenance building, access roads, generation lead line, 2 meteorological towers, potential energy storage, and underground electrical collection lines. The project is sited in a remote location, away from residential and developed areas, and incorporates a setback from the project boundary. Visual simulations, cultural resource investigations, natural resource and wildlife studies, and other siting evaluations are underway, in addition to ongoing agency consultation, to identify and mitigate impacts to applicable resources. A public open house to present the project and receive comments is scheduled for July 15, 2019, from 5:00 p.m. to 7:00 p.m. at the Winslow Chamber of Commerce & Visitor Center, 523 W 2nd St, Winslow, Arizona. The public can also learn more about the project and submit comments online at chevelonbuttewind.com. PUB: July 2, 2019 391

Subscribed and sworn to before me this

20 day of August, 2019

Ian Lane Logan

[Signature]

Notary Public



My Commission expires Dec 10 2022

Affidavit of Publication

State of Arizona)
)ss.
County of Navajo,)

I, Linda Kor, being duly sworn, depose and say: I am

Editor of THE TRIBUNE, a newspaper of general circulation published at Holbrook, County of Navajo and State of Arizona; that

Chevelon Butte RE, LLC
Applying for Conditional Use Permit

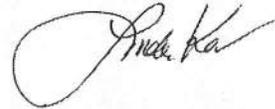
Legal #6112

attached hereto, was published in said newspaper, THE TRIBUNE, for **1** issue and said notice was published in the regular and entire issue of every number of the paper during the period of the time of publication and was published in the newspaper proper and not in a supplement, the first

publication being dated **July 3, 2019**

and the last publication being dated **July 3, 2019**

Publication Dates: **7/3**



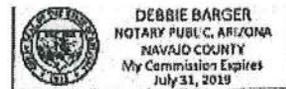
Linda Kor, Editor

SUBSCRIBED AND SWORN TO before me this **3rd** day of **July, 2019**

My commission expires July 31, 2019.



NOTARY PUBLIC



Copy of Legal Publication

LEGAL NOTICE

Chevelon Butte RE, LLC, a wholly owned subsidiary of sPower Development Company, LLC ("sPower"), is applying for a Conditional Use Permit from Coconino County and a Special Use Permit from Navajo County for an approximate 400-477 megawatt (AC) wind energy project on what is commonly known as the Chevelon Butte Ranch located approximately 20 miles south of Winslow, Arizona.

The Chevelon Butte Wind Farm would be comprised of up to 175 wind turbines, two collector substations, and one interconnection switching station to connect the project's

generated electricity to an existing Arizona Public Service Electric Company 345-kV transmission line at the southeast corner of the site. The wind turbine generators would have a total system height of up to 755 feet. Other project features include a parking area, storage facilities, a operations and maintenance building, access roads, generation lead line, 2 meteorological towers, potential energy storage, and underground electrical collection lines. The project is sited in a remote location, away from residential and developed areas, and incorporates a setback from the project boundary. Visual simulations, cultural resource investigations,

natural resource and wildlife studies, and other siting evaluations are underway, in addition to ongoing agency consultation, to identify and mitigate impacts to applicable resources.

A public open house to present the project and receive comments is scheduled for July 15, 2019, from 5:00 p.m. to 7:00 p.m. at the Winslow Chamber of Commerce & Visitor Center, 523 W 2nd St, Winslow, Arizona. The public can also learn more about the project and submit comments online at chevelonbuttewind.com.
6112-T/3

APPENDIX C

Public Notice and Mailing List



Chevelon Butte RE, LLC
2180 1300 E #600
Salt Lake City, UT 84106

July 1, 2019

Dear Neighbor,

Chevelon Butte RE, LLC, a wholly owned subsidiary of sPower Development Company, LLC (“sPower”), is applying for a Conditional Use Permit from Coconino County and a Special Use Permit from Navajo County for an approximate 400-477 megawatt (AC) wind energy project on what is commonly known as the Chevelon Butte Ranch located approximately 20 miles south of Winslow, Arizona, as shown in the attached figure.

The Chevelon Butte Wind Farm would be comprised of up to 175 wind turbines, two collector substations, and one interconnection switching station to connect the project’s generated electricity to an existing Arizona Public Service Electric Company 345-kV transmission line at the southeast corner of the site. The wind turbine generators would have a total system height of up to 755 feet. Other project features include a parking area, storage facilities, a operations and maintenance building, access roads, generation lead line, 2 meteorological towers, potential energy storage, and underground electrical collection lines. The project is sited in a remote location, away from residential and developed areas, and incorporates a setback from the project boundary. Visual simulations, cultural resource investigations, natural resource and wildlife studies, and other siting evaluations are underway, in addition to ongoing agency consultation, to identify and mitigate impacts to applicable resources.

This low-cost form of energy is building a cleaner future and creating economic benefits for all Arizonans. The Chevelon Butte Wind Farm would bring many local and state benefits, including:

- 200+ construction jobs and 10-30 full-time local positions during the 25+ year operating life
- Property taxes and other local economic benefits for Coconino and Navajo Counties
- Lease payments to the Arizona State Land Department, which fund Arizona public schools, universities, and other in-state beneficiaries
- Lease payments to rural ranching families
- The Project is being designed to avoid impacts to sensitive environmental and cultural resources and sited to minimize impacts to residential areas
- When complete, the Project will generate electricity equivalent to powering over 150,000 homes annually, with no operational air emissions or water use
- The property will remain a cattle ranch and the installation of wind facilities will not preclude or dramatically change existing land uses



Public Open House

Before submittal of permit applications with the counties and Arizona Corporation Commission, we are interested in receiving public input on the project and will be hosting a community open house in Winslow, Arizona, please see details below. We cordially invite you to attend this community open house described below to learn more about the Chevelon Butte Wind Farm, and to provide input.

Monday, July 15, 2019 5:00-7:00 p.m.
Winslow Chamber of Commerce & Visitor Center
523 W 2nd St, Winslow, Arizona 86047

Submit Comments

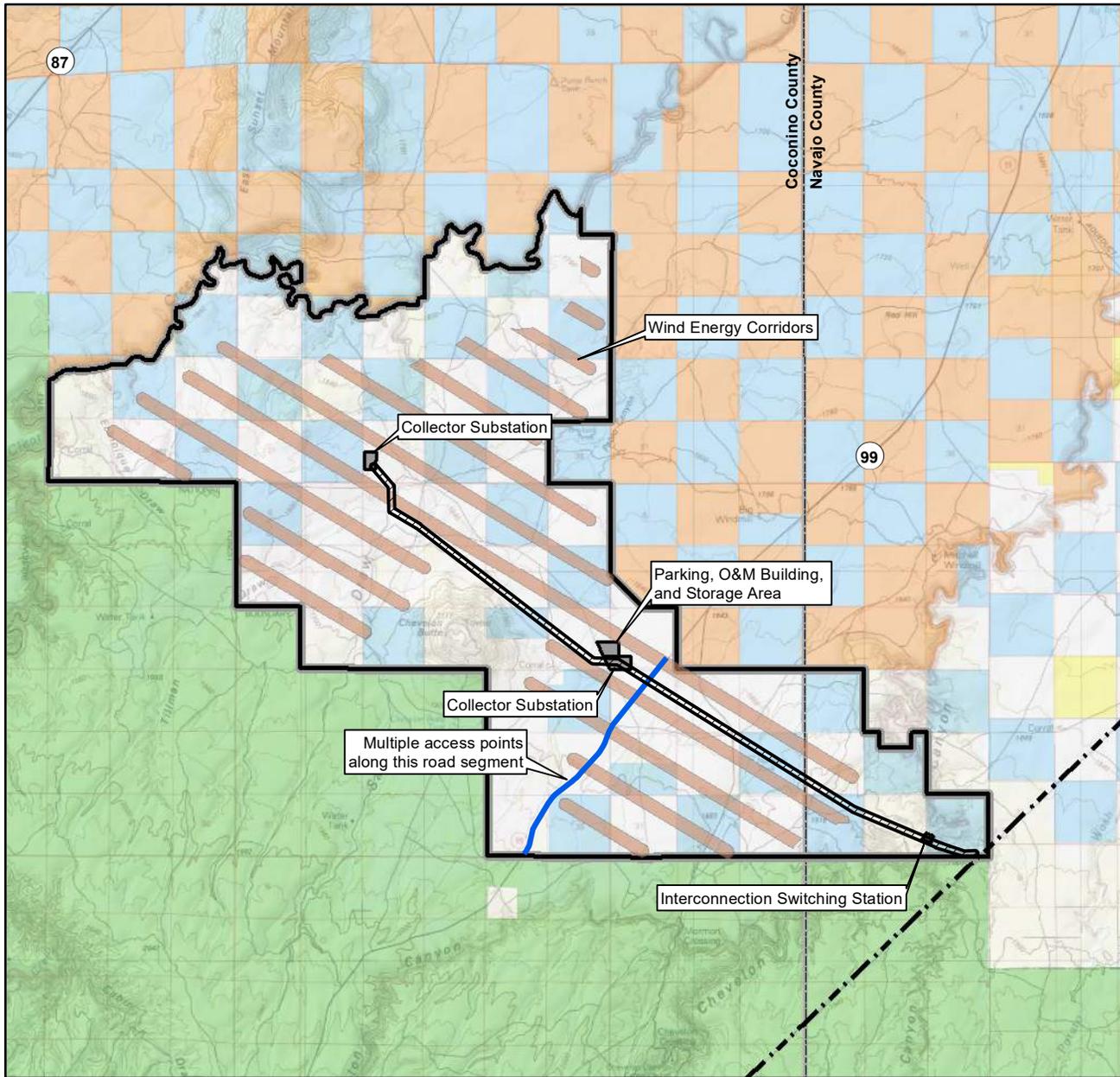
To submit comments, please go to the project website at chevelonbuttewind.com or mail to address below:

Chevelon Butte RE, LLC
c/o SWCA
114 N San Francisco St, Suite 100
Flagstaff, Arizona 86001

After submitting permit applications with the counties, the project will go before the Coconino and Navajo County Planning and Zoning Commissions for public hearings. Notifications of future meetings or hearings will be posted to the project website (chevelonbuttewind.com), and may be mailed directly by the counties.

Sincerely,

Terrance Unrein, Senior Permitting Manager
sPower
2180 1300 E #600
Salt Lake City, UT 84106



Chevelon Butte Wind Farm

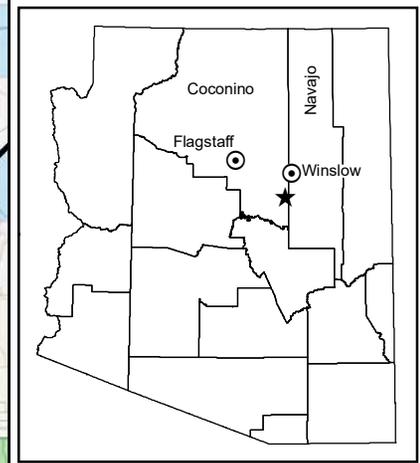
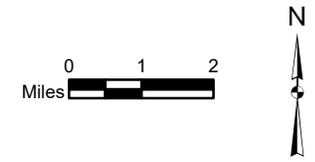
July 1, 2019

Legend

-  Project Generation Line Corridor (500ft)
-  General Access Area
-  Wind Energy Corridor
-  Existing APS Transmission Line
-  Project Area

Land Jurisdiction

-  Private
-  State Trust Land
-  Hopi Trust Land
-  U.S. Forest Service
-  Bureau of Land Management



Mailing Lists

Coconino County Mailing List

Owner Name	Owner Address 1	Owner City	Owner State	Owner Zip	Notes
BAR T BAR RANCH INC	PO BOX 190	WINSLOW	AZ	86047	
BORRACHO BROS LLC	PO BOX 4371	CHINO VALLEY	AZ	86323	
CHEVELON BUTTE LP	PO BOX 910	WINSLOW	AZ	86047	
CRATER RANCH LLC	PO BOX 190	WINSLOW	AZ	86047	
CODY GENE DENSMORE & THERESA O'HACO	746 FIVE MOUNTAIN RD	WINSLOW	AZ	86047	
J BAR S CATTLE LLC	PO BOX 1418	LAMAR	CO	81052	
MICHAEL & BRENDA F MANTHEI	610 TAYLOR	WINSLOW	AZ	86047	
DANIEL TROY & KIM O MCREYNOLDS	1328 E OAK ST	WINSLOW	AZ	86047	
O'HACO CATTLE COMPANY LLC	PO BOX 910	WINSLOW	AZ	86047	
JAMES F & JEANNE O'HACO	PO BOX 727	WINSLOW	AZ	86047	
JEFFREY L O'HACO	PO BOX 1185	OAK VIEW	CA	93022	
MICHAEL J & LINDA O'HACO	PO BOX 1047	WINSLOW	AZ	86047	
EUGENE T VERIN	705 W MAPLE ST	WINSLOW	AZ	86047	
Blue Ridge Estates HOA Vice President Ron Krug	PO Box 20969	Sedona	AZ	86341	
Blue Ridge Estates HOA Director Dan Trainor	1122 W Maplewood St	Chandler	AZ	85248	Letter Returned
Blue Ridge Estates HOA Treasurer Theresa Bayer	2036 E. Willis Rd	Gilbert	AZ	85297	
Blue Ridge Development, Inc	PO Box 760	Peoria	AZ	85380	
Mogollon Ranch Attn: Melanie Lashlee	PO Box 30520	Flagstaff	AZ	86003	
Pine Canyon	PO Box 10000	Prescott	AZ	86304	
Starlight Pines HOA	2740 Arapaho Dr	Happy Jack	AZ	86024	
Starlight Pines Ranchettes John S. Lancy, Esq.	2425 E Camelback Rd Suite 390	Phoenix	AZ	85016	Letter Returned
Tamarron Pines HOA c/o Melanie Lashlee	523 N Beaver St	Flagstaff	AZ	86001	
Coconino County Commissioner Art Babbott District 1	219 E. Cherry Ave	Flagstaff	AZ	86001	
Coconino County Commissioner Liz Archuleta District 2	219 E. Cherry Ave	Flagstaff	AZ	86001	
Coconino County Commissioner Matt Ryan District 3	219 E. Cherry Ave	Flagstaff	AZ	86001	
Coconino County Commissioner Jim Parks District 4	219 E. Cherry Ave	Flagstaff	AZ	86001	
Coconino County Commissioner Lena Fowler District 5	219 E. Cherry Ave	Flagstaff	AZ	86001	

Navajo County Mailing List

Owner Name	Owner Address 1	Owner City	Own	Owner Zip	Notes
OLA MAE C/O EMILY R TAYLOR	10213 N 92ND ST STE 102	SCOTTSDALE	AZ	85258	Letter Returned
MARK HALLER	10111 W MISSOURI AVE	GLENDALE	AZ	85307	
PATRICIA ANN WALL	1025 N DELAWARE DR	APACHE JUNCTION	AZ	85120	
WALACE & MARGARET BAUGH	10604 N 50TH AVE	GLENDALE	AZ	85304	
KEVIN D & KENDRA J SEITZ	1061 E LOWELL CT	GILBERT	AZ	85295	
TERRY V ZARKOS	10634 W MUSTANG DR	CASA GRANDE	AZ	85194	
ALAN D & MARY T HOFFMANN	1080 E DOVE VALLEY RD	PHOENIX	AZ	85085	
LARRY BEST	11567 E MARIGOLD LN	FLORENCE	AZ	85132	
EUGENE B & CLYDEAN B RITCHEY	11610 S KI ROAD	PHOENIX	AZ	85044	
GEORGE E & PUBLIA L OROPEZA	11948 N 152ND DRIVE	SURPRISE	AZ	85379	
WILLIAM E ROUSE	1201 OVERSTREET DR	PRESCOTT	AZ	86303	
RAY H & JERALDINE G LEARY	12203 PARKSTREAM TER	HERNDON	VA	20170	
JAMES L GRAHAM	125 CHASE DR	PORTLAND	TX	78374	
CHARLES JR & MARY E FULLER	12822 N 30TH DR	PHOENIX	AZ	85029	
CHARLES J & LORETTA H MUSCATO	1311 BANDO LN	THE VILLAGES	FL	32162	
MARTHA J MANETH	1320 E MARNY RD	TEMPE	AZ	85281	
JACK & TAMARA RINCK	134 W HILLSIDE ST	MESA	AZ	85201	Letter Returned
DAVID JOHNSON	13610 W CHEERY LYNN RD	AVONDALE	AZ	85392	
SAMMY L & LEIGH E CLUFF	1365 S HOPI TRL	DEWEY	AZ	86327	
JASON & LIDIA SCHURKE	1400 COLONY DR	KEARNEY	MO	64060	
WILLIAM H BEDFORD IV	1437 DENVER AVE APT 250	LOVELAND	CO	80538	Letter Returned
EMERSON J JR & TERRA L RIPLEY	1442 QUAKER ROAD	BARKER	NY	14012	
LARRY G & LARRY R STANDAGE	14660 E WILLIS RD	GILBERT	AZ	85297	
RICK BARNES	1507 E VALLEY PKWY STE 3 # 606	ESCONDIDO	CA	92027	
KANDY S COBOURN	15120 OLD HIGHWAY 99 N	OAKLAND	OR	97462	
KEVIN KELLY	1515 E ALMERIA RD	PHOENIX	AZ	85006	
JAMES W II & CARRIE E RAGSDALE	1515 E GREENTREE DR	TEMPE	AZ	85284	
AHMED SHALABI	1516 BAYPOINTE CIR	GRAND BLANC	MI	48439	
ALVIN J & EMILY M NELSON	15216 N 27TH DR	PHOENIX	AZ	85053	
BETTY J RUTGER & SUSAN E COOK	1576 N RANGE VIEW CIR	PRESCOTT VALLEY	AZ	86314	
TERRY MILLER	1592 W PINE CONE WAY	PRESCOTT	AZ	86303	
KATHIE HAYES	1611 PINE BAY DR	SARASOTA	FL	34231	
SUSAN E CRAWFORD	16119 CHELSEA LYN WAY	FORT MYERS	FL	33908	

IGNACIO R & JUANITA R MARTINEZ	1612 E CHAMBERS ST	PHOENIX	AZ	85040
KRISHNAN MADHAVAN	1627 E JARVIS AVE	MESA	AZ	85204 Letter Returned
ROBERTO & MARTHA MAGANA	1646 S 174TH AVE	GOODYEAR	AZ	85338
DAVID & NANCY MCDONALD	17207 E EL PUEBLO BLVD	FOUNTAIN HILLS	AZ	85268
RAUL M & KAREN R PLATA	17501 W PINNACLE VISTA DR	SURPRISE	AZ	85387
WILLIAM A THORNTON	18 MELEANA PL	KAHULUI	HI	96732
JOHN N & MARY C RINNE	1803 N WAKONDA ST	FLAGSTAFF	AZ	86004
MICHAEL T SPARKES	18630 N 22ND LN	PHOENIX	AZ	85027
MARY PAMELA	190 HAUOLI ST APT 305	WAILUKU	HI	96793
JIM FRENTZEL	1925 SW SIEBEN CT	TOPEKA	KS	66611
MALCOLM H & CHERYL P RENZ	196 SLOAT AVE	MONTEREY	CA	93940
BRIAN C & KERI L KELLUMS	19617 W INDIANOLA CT	BUCKEYE	AZ	85396
TONY LUTZ	20 N PLEASANT VW	CORNVILLE	AZ	86325
ROBERT L JR & PAM EDINGTON	2003 W TYSON ST	CHANDLER	AZ	85224
RAY & ALICE HUANG	201 MAYBROOK DR	BUDA	TX	78610
MARTHA SPENCER	202 E LAS PALMARITAS DR	PHOENIX	AZ	85020
DAVID STICKLER	20306 W PRIMROSE LN	BUCKEYE	AZ	85326
TIMOTHY D & CYNTHIA L HAYS	2042 E LOCKWOOD ST	MESA	AZ	85213
PAUL HUTCHINSON	2114 W APACHE TRL # 110	APACHE JUNCTION	AZ	85120
KENNETH KAUFMANN	2121 N CENTER ST LOT 146	MESA	AZ	85201
FLOOD N & ANNETTE P THOMAS	2201 60TH ST	LUBBOCK	TX	79412
SCOTT VAIL	2220 N LAZONA DR	MESA	AZ	85203
RONALD A FARRELL, RAE CONSTANCE, & JAMIE KLUETER L	22461 SACAJAWER RD	SEDALIA	MO	65301
DANIEL C CARSON	2262 E WILLOW WICK RD	GILBERT	AZ	85296
NANCY ANN SCHUSTER	2323 E SYLVIA ST	PHOENIX	AZ	85022
ALAN K & LINDA L BARTHOLOW	2323 N NICKLAUS DR	MESA	AZ	85215
ROBERT CATER	24100 MALLARD CT	SALINAS	CA	93908
DURT & LEZLEE TINGEY	2433 N ACACIA	MESA	AZ	85213
LE CHUONG & HA	2455 W SHANNON ST	CHANDLER	AZ	85224
CLAYTON J BRAY	2477 E NORTHERN AVE	COOLIDGE	AZ	85128
KENNETH K & MYRA J CREWS	2486 CYPRESS SPRINGS RD	ORANGE PARK	FL	32073
JOSE & TERESA CASTRO	2514 E DON CARLOS AVE	TEMPE	AZ	85281
JAMES A JAROSCAK	2515 N 51ST LN	PHOENIX	AZ	85035

JOHNY RODRIGUEZ	254 W 98TH ST	NEW YORK	NY	10025
SCOTT E & DIANE G MOELLER	2600 THE TERRACE	RICHMOND	VA	23222
ROBERT J BAUER II	2638 MAIN ST STE K	CHULA VISTA	CA	91911
RANDY L & PATRICIA A HILL	26711 N 56TH ST	SCOTTSDALE	AZ	85266
DAVID J & LISBETH MILLER	2691 W CHILTON ST	CHANDLER	AZ	85224
JERRY & SUZETTA CRAWFORD	2733 W OCASO CIR	MESA	AZ	85202
JIM H & JUANITA F CORLEY	2813 MERAMEC ST	SAINT LOUIS	MO	63118
ALBERT I & SUSAN O LARSEN	2824 E CONCHO AVE	MESA	AZ	85204
KENNETH & MARIE ZAHN	2828 E MONTE VISTA RD	PHOENIX	AZ	85008
DARRELL E JR & JOAN M GIBSON	28922 N 246TH DR	WITTMANN	AZ	85361
MARK HAAS	2977 E MICHELLE WAY	GILBERT	AZ	85234
VICTOR BALISTRERI	30016 LIVE OAK CANYON RD	REDLANDS	CA	92373
RANDHIR & BAGRI KULBIR SINGH	3014 N HAYDEN RD STE 108	SCOTTSDALE	AZ	85251
KIM C KRUMHAR	3034 LEVANTE ST	CARLSBAD	CA	92009
MARGARET M TIPTON	3109 N 38TH ST APT 3	PHOENIX	AZ	85018
HAROLD RAMNATH JR	3130 W MORROW DR	PHOENIX	AZ	85027
DANNY & LISA MCGINN	3241 W ORANGEWOOD AVE	PHOENIX	AZ	85051
BETTY VAN KIRK	3289 E REDFIELD RD	GILBERT	AZ	85234
CHARLES D CRANE	336 WHIDBY AVE	PORT ANGELES	WA	98362
JOSEPH ZILFI	340 S LEMON AVE APT 3755	WALNUT	CA	91789
RONALD S FORSMAN & JAMES A JAROSCAK	3400 E GODARD RD APT 72A	COTTONWOOD	AZ	86326
JANELLE VIGIL	3441 S HIGHWAY 89 APT 1	BOUNTIFUL	UT	84010
KEVIN & MELISSA FAIRES	34478 N BELL RD	QUEEN CREEK	AZ	85142
DAVID R & LINDA G BACON	346 E BEATRYCE ST	TEMPE	AZ	85281
ERIC STEVEN WASHINGTON-TURNER	349 S ROAD 1 W LOT A12	CHINO VALLEY	AZ	86323 Letter Returned
TYRONE C LOMELI	35 E SECRETARIAT DR	TEMPE	AZ	85284
ART HARRINGTON	350 LEE AVE LOT 41	BULLHEAD CITY	AZ	86429 Letter Returned
ROBERT & JORDEEN STEPHENSON	36743 SUNSHINE MESA RD	HOTCHKISS	CO	81419
HUNG & THUY NGUYEN	3718 E HUBER ST	MESA	AZ	85205
SAMUEL E & PATRICIA HIATT	4027 E PECAN RD	PHOENIX	AZ	85040
STEVEN MICHAEL HACKERT	4119 E RUSTLER WAY	GILBERT	AZ	85297
MICHAEL WORKMAN	418147 E 1113 RD	CHECOTAH	OK	74426
J D & SHELLEY D WALKER	4186 S LINDL DR	CHANDLER	AZ	85249

JUAN C IBARRA	4209 N 18TH DR	PHOENIX	AZ	85015
RIGOBERTO J & MARIA A CISNEROS	4288 E SAGE BRUSH AVE	SAN TAN VALLEY	AZ	85140
HUBERT P, JEFFREY & KATHY JOAQUIM	4302 E REDFIELD RD	PHOENIX	AZ	85032
MICHAEL PADUA	4325 RAINBOW RD	WINNEMUCCA	NV	89445
JOSEPH L, ANTHONY R, JOHN A & THOMAS C MULKEY	4327 N 28TH WAY	PHOENIX	AZ	85016
CASEY KENT	4351 N WILSON RD	CAMP VERDE	AZ	86322
SCOT LEATHERMAN	43601 W BLAZEN TRL	MARICOPA	AZ	85138
WILLIAM C JR & LORI R CARLBERG	446 S RED ROCK ST	GILBERT	AZ	85296
HARRY RICHARD & PRAPAPON CASTERLIN	4616 ELMWOOD PARKWAY	METAIRIE	LA	70003
DAVID D NELSON	4629 S 2ND ST	PHOENIX	AZ	85040
RAMONA D BARRIENTES	4650 N GUADAL DR	PHOENIX	AZ	85037
ANDREW S BLOOM & MARIE P MCCABE	4820 E MELINDA LN	PHOENIX	AZ	85054
JOSEPH & ALICIA M MARASCO	4932 DEEP FOREST DR	LAS VEGAS	NV	89130
CHRISTOPHER R, JENNIFER A, & RUTH O GARNETT	50 ENFIELD FOREST LN	AYLETT	VA	23009
DIANA D MCCARTHY	5011 W AVALON DR	PHOENIX	AZ	85031
ROBERT J GRAY III & PEGGY JO SIVERLY	5039 E 10TH AVE	APACHE JUNCTION	AZ	85119
REBECCA I BROWER	505 W 17TH PL	TEMPE	AZ	85281
KENNETH E WEGOROWSKI	51063 29 PALMS HWY SPC 36	MORONGO VALLEY	CA	92256
USA SITGREAVES NATIONAL FOREST	517 GOLD AVE SW	ALBUQUERQUE	NM	87102 Letter Returned
MARILYN K BEACH	523 TERRACE DR	BULLHEAD CITY	AZ	86442
ELEAZAR & AIDA MAGANA	524 E MADDEN DR	AVONDALE	AZ	85323
PAUL H & DORA A JUAREZ	5245 GLEN VERDE DR	BONITA	CA	91902
PATRICK LEE & VICKI LORRAINE TODD	5250 E SWEETWATER AVE	SCOTTSDALE	AZ	85254
BBR FAMILY LIMITED PARTNERSHIP	532 STONEHEDGE RANCH RD	WICKENBURG	AZ	85390
LORRI J KING	5390 E RIVER RUN DR	COTTONWOOD	AZ	86326
STEPHEN O & LINDA S BUTLER	5501 LANE RD	WADESVILLE	IN	47638
MY K TRUONG	5551 E HELENA DR	SCOTTSDALE	AZ	85254
DEBRA K & DAVID LALUMONDIERE	5608 NEGRIL AVE	LAS VEGAS	NV	89130
RONALD A & CECILE BUTKAY	5615 LINCOLN AVE	HEMET	CA	92544
WILLIAM B & REBECCA A GRUBEL	5641 MORGAN HILL RD	HEBER	AZ	85928
RICHARD W NELSON	5717 N 45TH DR	GLENDALE	AZ	86301
STEPHEN J & THU C SHERIDAN	5750 W DRAKE CT	CHANDLER	AZ	85226
TERRANCE E COARD	58 OAKWOOD DR	PORT ALLEGANY	PA	16743

MARK FOSTER	5820 SW FRANKLIN AVE	BEAVERTON	OR	97005
JAMES C PRATER	6225 W PARKSIDE LN	GLENDALE	AZ	85310
O HACO RANCH LLC	6245 N 24TH PKWY STE 205	PHOENIX	AZ	85016
TERENCE L SRAMEK	625 W WILLIS RD	CHANDLER	AZ	85286
DANIEL R NOONAN	629 S 850 E	CENTERVILLE	UT	84014
BRUCE KEPLER	6413 E VIRGINIA AVE	SCOTTSDALE	AZ	85257
AARON STOWELL	650 S SIERRA	MESA	AZ	85204
CHRISTOPHER A & JULIA G BRIDGE	6536 W EVANS DR	GLENDALE	AZ	85306
MICHAEL C & KATHERINE E BLANCHARD	6721 E PRESTON	MESA	AZ	85215
KELLY M BRIDGES & JEFFERY STIRES	6926 W TONTO DR	GLENDALE	AZ	85308
SUE H MUIR	6960 BUCKSKIN DR	LITTLETON	CO	80125
CHAD W & KATHRINE E NELSON	701 N PHEASANT DR	GILBERT	AZ	85234
RUTH O GARNETT	701 S DOBSON RD LOT 92	MESA	AZ	85202
CORONA MAE HOWARD	702 N TANGERINE DR	CHANDLER	AZ	85226
ROBERT & KORBI L JOHNSTON	711 N PHEASANT DR	GILBERT	AZ	85234
DAVID R REGENOLD & HANG T NGUYEN	7148 E INGRAM ST	MESA	AZ	85207
BRIAN W & SHELIA J GRESKO	735 W PRESS RD	SAN TAN VALLEY	AZ	85140 Letter Returned
SHANE R & HEATHER D JOHNSON	742 E KESLER LN	CHANDLER	AZ	85225
CLINTON H TUCKER & SHANNA JO REED	750 JUNIPER ST	SANFORD	CO	81151
MICHAEL E & LINDA J CARVER	7801 N 49TH AVE	GLENDALE	AZ	85301
NICK K & KATHERINE M HOSKINS	7827 W AXAPULCO LANE	PEORIA	AZ	85381
TABITHA R TAYLOR	8109 W DREYFUS DR	PEORIA	AZ	85381
THOMAS H TABER & SCOTT D. SELLERS	816 W VISTA AVE	PHOENIX	AZ	85021
BRIAN & HAMIDAH MCCRARY	8556 E SHARON DR	SCOTTSDALE	AZ	85260
STEVE G & SHERRY L MALLEY	858 COLORADO AVE	LOVELAND	CO	80537
CHARLES & JANICE GALLOWAY	8725 E CYPRESS ST	SCOTTSDALE	AZ	85257
MAQBOOL AHMED	8820 GREYHAWK DR	GRANITE BAY	CA	95746
PANORAMA CANYON RANCH LLC	8948 MAPLEWOOD DR	BERRIEN SPRINGS	MI	49103
FRANK A D CALPH	897 CARRICO RD	FLORISSANT	MO	63034
TODD RUEHS	9 MAPLE ST	MELROSE	MA	2176
DANIEL PAUL & SYLVIA BEAULIEU	9007 W TONY CT	PEORIA	AZ	85382
STEVEN R JUHL	9157 W KATHLEEN RD	PEORIA	AZ	85382
ALVARA VANDERMARK	927 N RIO VERDE E	COTTONWOOD	AZ	86326
JON B & STACEY J STRACHAN	9432 E CONQUISTADORES DRIVE	SCOTTSDALE	AZ	85253

CYNTHIA J EZZELL & DELORES A WOMACK	9706 W FORRESTER DR	SUN CITY	AZ	85351
WILLIAM LANGLOIS	9794 S DARROW DR	TEMPE	AZ	85284
ALBERT C JR & PHYLLIS D KRAUSE	PO BOX 1008	BEAVER DAM	AZ	86432
JOHN & CINDY L SWAUGER	PO BOX 1075	HEBER	AZ	85928
MICHAEL G & PAULINE R KLEIN	PO BOX 1104	HEBER	AZ	85928
TRAVIS ROESENER	PO BOX 1357	OVERGAARD	AZ	85933
ROSEMARIE A YEE	PO BOX 1502	GLENDALE	AZ	85311
ALAN L & SANDRA WATTS	PO BOX 1518	TULARE	CA	93275
JESSIE VENTURA BANDIN	PO BOX 157	MARICOPA	AZ	85139
SEAN HOLMAN C/O SALLY DELL	PO BOX 183	TONTO BASIN	AZ	85553
WILLIAM G VESTAL	PO BOX 1882	CASTLE ROCK	WA	98611
KAREN R KIEFER	PO BOX 1978	JULIAN	CA	92036 Letter Returned
PAULA CARO	PO BOX 2028	PEORIA	AZ	85380 Letter Returned
JACOB YOUNGMAN	PO BOX 210	LITTLEFIELD	AZ	86432
WINTON J & DELLORIS N BELCHER	PO BOX 224	RIMROCK	AZ	86335
SEAN STERLING & LARRY HANLEY	PO BOX 2242	AVALON	CA	90704
SIMON T & PATTIE E WADE				
STEVEN D & BRENDA F WALTERS	PO BOX 237	HEBER	AZ	85928
JUDITH REYNOLDS	PO BOX 3028	FRIDAY HARBOR	WA	98250
STAN & LYNETTE SYFERT	PO BOX 3311	FLAGSTAFF	AZ	86003
WAYNE E & JOYCE A MALONE	PO BOX 3714	KINGMAN	AZ	86402 Letter Returned
DAVID S BOLOYAN	PO BOX 45552	PHOENIX	AZ	85064
DIANA L EASTON PAGEL	PO BOX 460	HEBER	AZ	85928
FIRST AMERICAN TITLE INSURANCE CO TRUST 8503	PO BOX 52023	PHOENIX	AZ	85072
WESLEY A HAMMOND	PO BOX 546	ASH FORK	AZ	86320
JACKSON WATERHOLE CO-OP INC	PO BOX 551	SNOWFLAKE	AZ	85937
MICHAEL A BREEZE	PO BOX 5962	YUMA	AZ	85366
JAMES W & E NADINE YEAGER	PO BOX 736	TAYLOR	AZ	85939
ROBERT S & TRUMAN M TYLER	PO BOX 8014	PHOENIX	AZ	85066
ROBERT H NORCOM JR	PO BOX 90987	WHITE MOUNTAIN LAKE	AZ	85912 Letter Returned
CHEVELON BUTTE LIMITED PARTNERSHIP	PO BOX 910	WINSLOW	AZ	86047
JOSEPH J & JEAN C REINECKE	PO BOX 962	HEBER	AZ	85928

Navajo County Commissioner Lee Jack District 1	PO Box 668	Holbrook	AZ	86025
Navajo County Commissioner Jesse Thompson District 2	PO Box 668	Holbrook	AZ	86025
Navajo County Commissioner Jason Whiting District 3	PO Box 668	Holbrook	AZ	86025
Navajo County Commissioner Steve Williams District 4	PO Box 668	Holbrook	AZ	86025
Navajo County Commissioner Dawnafe Whitesinger District 5	PO Box 668	Holbrook	AZ	86025

Organization Mailing List

Organization	First Name	Last Name	Address	City	State	Zip
Coconino County Community Development Department	Bob	Short	2500 N Fort Valley Road, Building 1	Flagstaff	AZ	86001
Navajo County Planning & Zoning Department	Sandra	Phillips	P.O. Box 668	Holbrook	AZ	86025
Arizona State Land Department	Susan	Russell	1616 West Adams St.	Phoenix	AZ	85007
Apache-Sitgreaves National Forests	Richard	Madril	P.O. Box 968	Overgaard	AZ	85933
Hopi Tribe	Stewart	Koyiyumptewa	P.O. Box 123	Kykotsmovi	AZ	86039
Arizona Game and Fish Department	Ginger	Ritter	5000 West Carefree Highway	Phoenix	AZ	85086
Bureau of Land Management, Safford Field Office	Scott	Cooke	711 14th Avenue	Safford	AZ	85546
Arizona State Land Department	Michael	O'Hara	1616 W. Adams St	Phoenix	AZ	85007
US Fish & Wildlife Service	Shaula	Hedwall	2500 S. Pine Knoll Dr.	Flagstaff	AZ	86001
US Fish & Wildlife Service	Greg	Beatty	9828 N 31st Ave #C3	Phoenix	AZ	85051
US Fish & Wildlife Service	Kristen	Madden	500 Gold Ave SW	Albuquerque	NM	87102
US Fish & Wildlife Service	Kammie	Kruse	500 Gold Ave SW	Albuquerque	NM	87102
US Fish & Wildlife Service	Corrie	Borgman	500 Gold Ave SW	Albuquerque	NM	87102
US Fish & Wildlife Service	Kirsten	Cruz-McDonnell	500 Gold Ave SW	Albuquerque	NM	87102

APPENDIX D

Public Meeting Materials

WELCOME

Please Sign In

Public Open House
 Chevelon Butte Wind Farm
 July 15, 2019
 Winslow, Arizona



Print Name	Address	Email	(V) Add my name to the mailing list
Thomas McCauley	PO Box C Winslow AZ		
Candace Schmid	6618 Mogollon Trail Happy Jack	cschmid80a@gmail.com	✓
Becky Gubel	PO Box 1017, Heber, UT 84528	BeckyGubel@key.com	✓
Jim Browning	34 Rowland Rd Flagstaff AZ	jbrowning@H3CR.com	
Joe Breeze	405 JEFFERSON ST WINSLOW AZ 86047	jbreeze1@gmail.com	✓
Ken + Neva Neumann	7224 Mogollon Happy Jack	nhunterken@gmail.com	
JACK POLLARD	6174 Mogollon TRAIL	JKPoll73@YAHOO.COM	✓
Harold Ramnath	3130 W Morrow Dr Phoenix AZ 85027	hramj1@yahoo.com	✓
Sandy Phillips	100 W. Public Works Dr. Holbrook AZ	sandra.phillips@navajocountyaz.gov	
Francis C. Perkins	206 W. 1st Street Winslow AZ	Femccauley@cabheavenet.net	✓

WELCOME

Please Sign In

Public Open House
 Chevelon Butte Wind Farm
 July 15, 2019
 Winslow, Arizona



Print Name	Address	Email	(v) Add my name to the mailing list
Dave and Linda Bacon	346 E Beatrice Street Tempe Az 85281	dbabacon1@cox.net	
Tim Hays	2012 E. Lockwood ST Mesa AZ 85213	TDHAYS1@GMAIL.COM	X
LAURIE HAWKE	8818 HAVEN CREST DR HAPPY JACK, AZ 86024	lhawke94@gmail.com	X
Jenna Sue Braun	9122 Mogollon Tr. Happy Jack	zoniaj@aol.com	X
JOHN R. POLLARD	72 MODOGALLON TR - HAPPY JACK		
Andrew Cavalcart	500 W. Saffron Hwy	acavalcart@azgfd.gov	X
<i>[Signature]</i>	Chevelon Ariz		
Janice Ulinski	8125 E. Cypress St Scottsdale AZ	draakk.aol.com	X
Sylvia Samoth	8805 W. Myrtle Ave, Glendale AZ 85035		
Harold Rumosta	8040 N-36 St PH4 85018 E-411		

WELCOME

Please Sign In

Public Open House
 Chevelon Butte Wind Farm
 July 15, 2019
 Winslow, Arizona



Print Name	Address	Email	(V) Add my name to the mailing list
Alicia Ottawo	PO BOX 1047 Winslow, AZ 86047	mjoeline@yahoo.com	X
Mica Vasquez	212 East 8th Winslow AZ 86047	micaoraco80@yahoo.com	X
Paige Peterson	Winslow, AZ 2020 Iron Horse Dr. 86047	Paige.Peterson@navajocountyaz.gov	X
Jay Christelman	2500 N. Ft. valley Flag	jchristelman@cocacino.org	X
Troy McReynolds	1328 E. Oak St.	tmc-reynolds@usd1.org	X
Amanda Ormond	2303 N Timberline Rd Flagstaff AZ	asormond@msn.com	
KARIN WADSACK	1724 N NAVAJO DR 86001	Karin.wadsack@nel.gov	X
Kurt Tracy McQuinn	1329 E Oak St. Winslow		
Alberto L. Peshlakai	P.O. Box 3078 Fredon Wells AZ 86031	Alberto.Peshlakai@navajocountyaz.gov	
Cody DeLano	746 Five mt. Rd. Winslow AZ		

WELCOME Please Sign In

Public Open House
Chevelon Butte Wind Farm
July 15, 2019
Winslow, Arizona



Print Name	Address	Email	(V) Add my name to the mailing list
KAREN O'HACO	Winslow AZ 86047 901 W. DESMOND APT 208	Karenohaco@me.com	X
Mariah Chaco	Winslow 151 Papago Blvd. A 86047	mariahchaco@gmail.com	X
Jessica Chaco	605 N Taylor Ave Winslow AZ 86047	jchaco18@gmail.com	X
Michael Benson	74th Five Mt. Rd.		

Fold Here

First Class
Stamp Here

Chevelon Butte Wind Farm
c/o SWCA Environmental Consultants
114 North San Francisco Street, Suite 100
Flagstaff, Arizona 86001



RENEWABLE DEVELOPMENT • PROJECT ACQUISITION INDEPENDENT POWER PRODUCER



- 150+ Projects**
Owned and Operating
- 13,000 MW**
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- 1,500 MW**
Operating Assets
- 7 BILLION+ kWh**
Generated and Counting

OPERATING PROJECTS
UNDER DEVELOPMENT
● UTILITY PROJECT
 ● DG PROJECT
 ● WIND PROJECT

sPower, an AES and AIMCo company, is the largest private owner of operating solar assets in the United States. sPower owns and operates a portfolio of solar and wind assets greater than 1,500 MW and has a development pipeline of more than 10,000 MW.

sPower is owned by a joint venture partnership between The AES Corporation (NYSE: AES), a worldwide energy company headquartered in Arlington, Virginia, and the Alberta Investment Management Corporation, one of Canada's largest and most diversified institutional investment fund managers. For more information, visit : www.sPower.com.

HIGHLIGHTED PROJECTS



Solverde 1 106.3 MW
Lancaster, CA
Single Axis Tracker Ground Mount



Redwood 72.9 MW
Bakersfield, CA
Single Axis Tracker Ground Mount



Latigo Wind Park 62 MW
Monticello, UT
2.3MW GE Turbines



Summer Solar 25.9 MW
Lancaster, CA
Fixed Tilt PV Ground Mount



Sandstone Solar 57.46 MW
Florence, AZ
Fixed Tilt PV Ground Mount



Pioneer Wind 85 MW
Glenrock, WY
1.85MW GE turbines



Beacon 1, 3, 4 184 MW
Carlin, CA
Single Axis Tracker Ground Mount



CHEVELON BUTTE WIND FARM

PROJECT OVERVIEW

Location	Coconino and Navajo Counties, AZ, approximately 50 miles SE of Flagstaff and 20 miles S of Winslow
Property Info	"Chevelon Butte Ranch" - approximately 42,000 acres of private property and State Trust land
Zoning	Coconino County Zone G / Navajo County Zone A General
Planned Capacity	400-477 MWAC
Number of Turbines	125-175
Est. Commercial Operation Date (COD)	Q4 2020
Point of Interconnection	Existing APS 345kV Preacher Canyon Cholla transmission line, Navajo County



PROJECT BENEFITS

MORE JOBS

200+ construction jobs and 10-30 full-time local positions during the 25+ year operating life

TAX BENEFITS

Property taxes and other local economic benefits for Coconino and Navajo Counties

EXTRA FUNDS

Lease payments to the Arizona State Land Department, which fund Arizona public schools, universities, and other in-state beneficiaries

LEASE PAYMENTS

Lease payments to rural ranching families

LOW IMPACT

The Project is being designed to avoid impacts to sensitive environmental and cultural resources and sited to minimize impacts to residential areas

CLEAN ENERGY

When complete, the Project will generate electricity equivalent to powering over 150,000 homes annually, with no operational air emissions or water use

CATTLE RANCH

The property will remain a cattle ranch and the installation of wind facilities will not preclude or dramatically change existing land uses



CHEVELON BUTTE WIND FARM



ENVIRONMENTAL STUDIES

Microwave and Airspace: Third-party studies completed in late 2018 / early 2019

Wildlife Site Evaluation Report: Completed April 2019

Wildlife Study Plan: Completed April 2019, consulting with AGFD and USFWS Region 2

Tier 3 Avian Wildlife Surveys: Commenced in November 2018, including avian/eagle use counts, eagle utilization distribution surveys, raptor/eagle nest surveys and bat acoustic monitoring

Wetlands/Jurisdictional Water Surveys: Fieldwork to begin in July 2019

Native Plant Inventories: Fieldwork to begin in June/July 2019 on State Trust parcels

Visual Simulations: In progress

Public Participation Plan: In progress with community meetings in July

CULTURAL STUDIES

Cultural Resource Surveys: Desktop research complete, field survey in progress

AGENCY COORDINATION

Federal

No federal permitting/National Environmental Policy Act nexus
U.S. Fish and Wildlife Service Region 2
Federal Aviation Administration

State

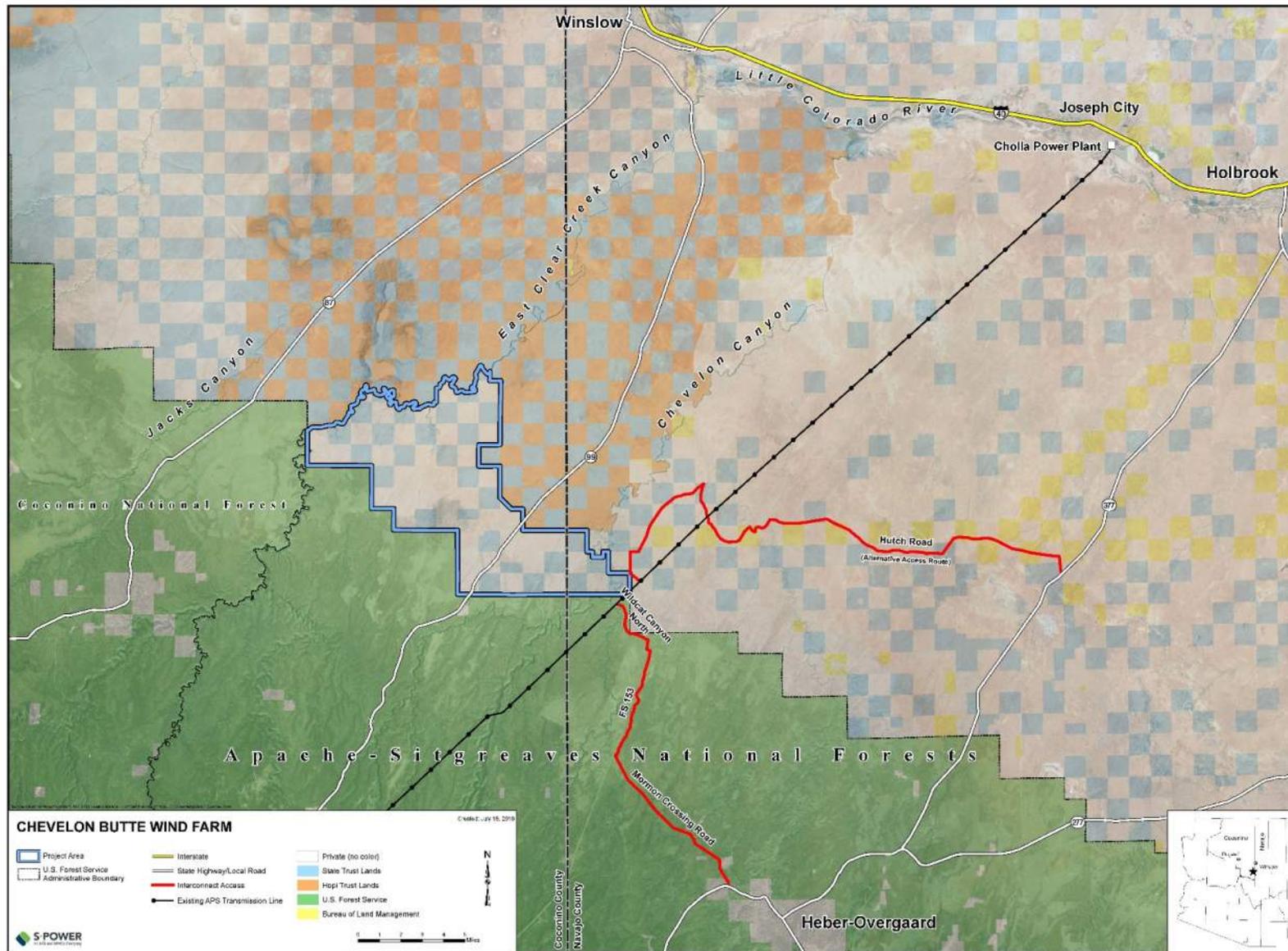
Arizona Game and Fish Department
Arizona State Lands Department
Arizona Corporation Commission

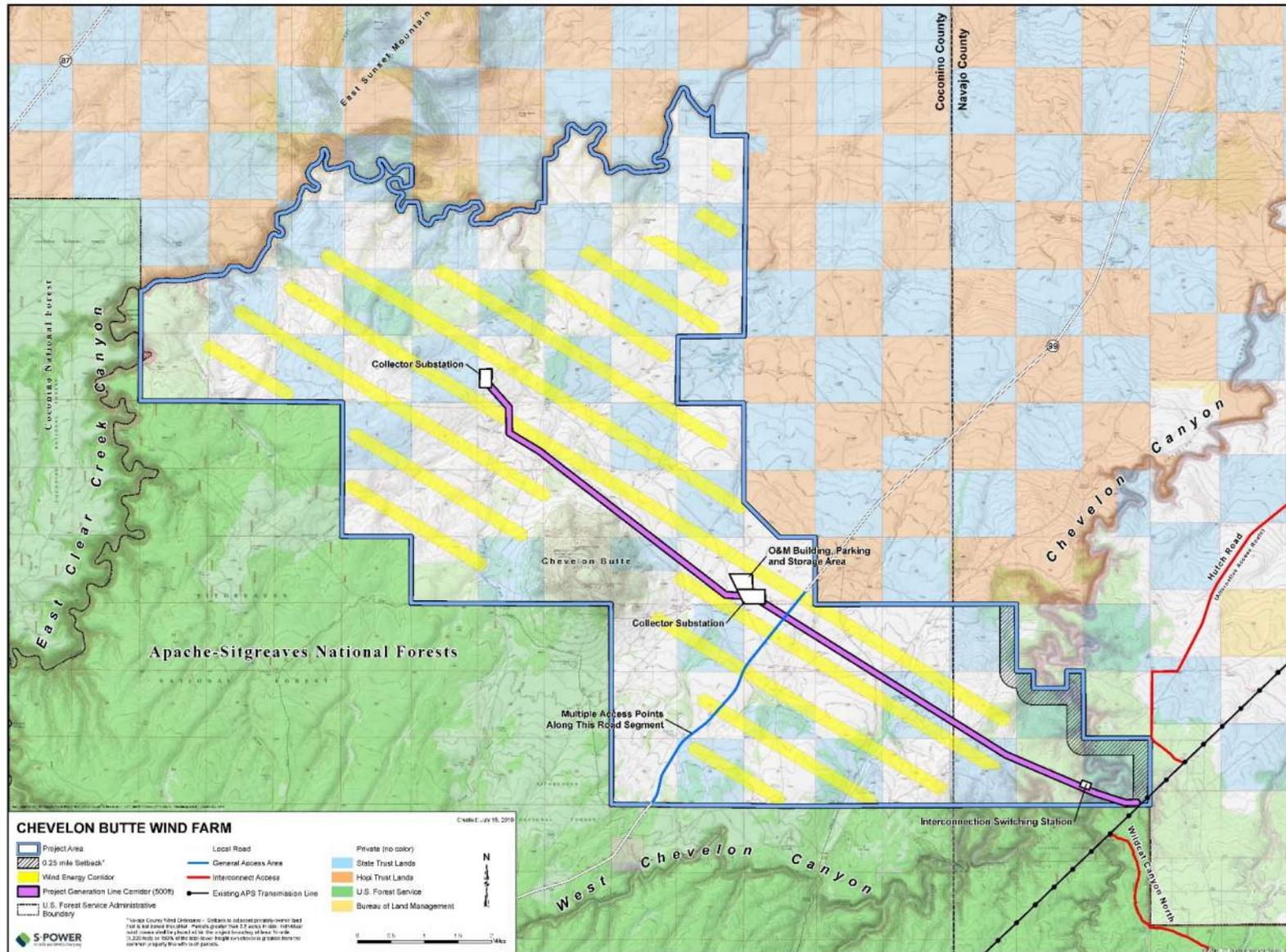
Local

Coconino County
Navajo County

VOLUNTARY TRIBAL OUTREACH:

Letters sent to 9 potentially interested tribes







KOP 1: Jacks Canyon



Proposed Infrastructure Information
 Chester Anderson, Director 432 946 8111
 10000 W. Sunset Blvd., Suite 1000 432 946 8111
 Golden, CO 80402 432 946 8111
 Fax: 432 946 8111
 10000 W. Sunset Blvd. 432 946 8111



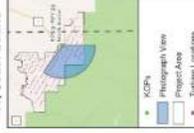
KOP 8: Antelope Dr, Chevelon Retreat AZ



Proposed Infrastructure Information
 Chester Anderson, Director 432 946 8111
 10000 W. Sunset Blvd., Suite 1000 432 946 8111
 Golden, CO 80402 432 946 8111
 Fax: 432 946 8111
 10000 W. Sunset Blvd. 432 946 8111



KOP 9: Highway 99, South Bound



Proposed Infrastructure Information
 Chester Anderson, Director 432 946 8111
 10000 W. Sunset Blvd., Suite 1000 432 946 8111
 Golden, CO 80402 432 946 8111
 Fax: 432 946 8111
 10000 W. Sunset Blvd. 432 946 8111



KOP 10: SR 97, North Bound



Proposed Infrastructure Information
 Chester Anderson, Director 432 946 8111
 10000 W. Sunset Blvd., Suite 1000 432 946 8111
 Golden, CO 80402 432 946 8111
 Fax: 432 946 8111
 10000 W. Sunset Blvd. 432 946 8111

APPENDIX E

Hopi Meeting Sign In

NAME	EMAIL ADDRESS
HALE KAHE HREU	hkahe@hopi.nsn.us
Ken Komayestewa "	kibmay@hopi.nsn.us
Graig Andrews Hopi Tribal Council ^{WEC}	Andrews@hopi.nsn.us
DARREN TALAYUMPTENA WEMP	DTalayumptewa@hopi.nsn.us
Clayton Talayumptewa DNR-Hopi Trib	Clayumptewa@hopi.nsn.us
Jack TENAKHONGVA Vice chairman	CTenakhongva@hopi.nsn.us
Terry Mergert	tmergert@hopi.nsn.us
Roswithroni ^{WEC chair} HTC	rhorani@hopi.nsn.us
Carlene Tenakhongva	ctenakhongva@hopi.nsn.us
Dale Singuah ^{WEC} HTC	^{DSinguah} Dalesinguah@hopi.nsn.us
Malinda Andrews ^{office of the} Chairman	mandrews@hopi.nsn.us
Timothy Nuwanyaoma / Chairman	TNuwanyaoma@hopi.nsn.us
Daryn Melvin / OIC	Dmelvin@hopi.nsn.us
Stewart Koyiyumptewa	SKoyiyumptewa@hopi.nsn.us
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Arlo Corwin	arlo@advanceenergyllc.com
Allen Graber	agraber@swca.com
Jeffrey Nemeth	jeffrey.nemeth@spower.com
Terrance Unrein	terrance.unrein@spower.com
David Burr	dburr@swca.com
Duane Weston	duaneemccarthyweston.com
Jill Grams	jgrams@swca.com

APPENDIX F

Public Comment and Response

Appendix F: Table 1. Comment Responses

Comment Theme	Response
General Support	Thank you for your support.
Visual Impact	The Visual Impact Assessment is provided as Exhibit F of the county permit applications. This report describes the visual impacts of the proposed wind farm and includes 11 visual simulations from key viewing locations. The visual simulations depict the tallest turbine model being contemplated from various viewing points on the landscape. In Navajo County, existing property owners to the east are currently bisected from the planned Chevelon Butte Wind Farm site by 3 existing transmission lines, and the closest legally classified residence is over 2.5 miles from the nearest planned wind turbine. In Coconino County, the closest residence, which is located in Mogollon Ranch, is located nearly 8 miles from the nearest planned wind turbine.
Visual Simulation Accuracy	Preliminary visual simulations were provided at the public meeting held on July 15, 2019. As pointed out by meeting attendees and commenters, turbines in one of the simulations did not appear tall enough as compared to the height of Chevelon Butte itself. In fact, an error occurred in that particular model that was used to prepare these preliminary simulations. Some of the turbines shown in front of Chevelon Butte in one simulation at the open house are actually located behind the butte, hence the actual estimated impacts are much less than what was presented at the open house at this single key observation point. This error was discovered and rectified in the final set of visual simulations presented in Exhibit F and posted to cheveonbuttewind.com in August 2019.
Additional Visual Simulations – Mogollon Ranch Views	The Visual Impact Assessment in Exhibit F presents three visual simulations from the Mogollon Ranch area. These additional visual simulations were posted to cheveonbuttewind.com in August 2019.
Wind Turbine Height	For visual simulations, setback analysis, and other siting considerations, we assumed the tallest turbine model that could be deployed at the site. Though we are seeking approval for several turbine specification options, the tallest and most conservative model is being presented for public input and permitting. It is worth noting that if larger machines are deployed, less turbines will be required to achieve the required electrical output; therefore, the project footprint and certain impacts would be commensurately reduced.

Appendix F: Table 1. Comment Responses

Comment Theme	Response
Property Values	<p>In 2009, the Ernest Orlando Lawrence Berkeley National Laboratory published a study titled The Impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Site Hedonic Analysis. This study analyzed data from approximately 7,500 sales of single-family homes within 10 miles of 24 existing wind facilities in nine different states and found “no evidence... that home prices surrounding wind facilities are consistently, measurably, and significantly affected by either the view of wind facilities or the distance of the home to those facilities.” The author of this study completed a second study on this topic at the Ernest Orlando Lawrence Berkeley National Laboratory in 2013 entitled A Spatial Hedonic Analysis of the Effects of Wind Energy Facilities on Surrounding Property Values in the United States. This study is based on more than 50,000 home sales within 10 miles of 67 different wind facilities in 27 states and found “no statistical evidence that home prices near wind turbines were affected in either the post-construction or post-announcement/ pre-construction periods.”</p>
Project location	<p>The project and all components, including the interconnection switching station, will be located within the project area and will not encroach on adjacent properties. Please see maps on this website for details of the project boundary.</p> <p>The proposed project is planned with specific landowners for which real estate arrangements are either in place or in process and for a specific existing transmission line and point of interconnection with available transmission capacity, and therefore cannot be relocated to a different county. In addition, there is increased residential and private property owner density to the east in Navajo County where the commenter suggests relocation, relative to our planned location.</p>
Project Timing	<p>The project is expected to be operational by late 2020 or 2021, the precise timing of which is driven by a variety of commercial variables.</p>
Project Access	<p>Access to the interconnection area from the east would be via existing Forest Service Roads and/or existing Navajo County roads. No new roads are planned to be built for access to the east side of Chevelon Canyon.</p>
Local Electrical Distribution Service	<p>Under Arizona law, Arizona Public Service Electric Company has the exclusive right to serve retail customers within its service territory, and therefore the project is prohibited from providing service to nearby residential areas in Navajo County.</p>
Fire Risk	<p>Turbine fires are very rare, as evidenced by the few turbine fires experienced in the United States when over 57,000 wind turbines have been installed in 41 states as of 2019. If a rare turbine fire were to occur, it is worth noting that the site is in a remote location far from nearby residential structures, and that major canyons (Clear Creek Canyon and Chevelon Canyon) generally separate the planned project from existing residences, thereby providing opportunity to combat spread and extinguish the fire source prior to posing a threat to nearby people and developed property.</p>

Appendix F: Table 1. Comment Responses

Comment Theme	Response
Visible from my property	The Visual Resource Report (Exhibit F of the county permit applications) describes the general visibility of the project and contains visual simulations that illustrate views from a variety of locations and distances.
Night Lighting	Turbine light schemes are determined by the Federal Aviation Administration, in consultation with appropriate local airport and military entities. Full height commercial flight paths would not typically trigger activation of the lighting system if an Aircraft Detection Lighting System were installed.
Power to Arizona residents	Thank you for your comment, we are actively marketing electricity to Arizona utility and commercial off-takers.
Jobs benefit Arizona residents	Thank you for your comment. This project would create state and local jobs, as further described in this application.
Turbine power use	Turbines use nominal amounts of back feed power to supply ancillary systems when the turbine is not operating, which is far outweighed by the net electrical output generated. Precise electrical calculations to estimate this nominal ancillary use will be prepared later after final turbine model selection and final design.
Royalty payments	The Applicant is not providing financial or other royalty payments to off-site landowners as the project is being designed to conform with all county permitting and applicable setback requirements.
Lease Payments	Real estate arrangements, and hence lease payments, are being provided to participating landowners who own land on which the project is planned to be constructed. Payments to the Arizona State Land Department have not been finalized and are therefore unable to be shared.
Continued Ranching	The wind farm is a compatible land use with the existing livestock ranching operation, and we are working with the landowner families to minimize impacts to existing ranching operations. Ranching and other agricultural practices coexist with wind farms throughout the United States.
Tax Subsidies	Thank you for your comment. The tax structuring of the project is contingent upon construction and operational timing, as well as a variety of financial arrangements that are not finalized.
Rural residential access	A bridge crossing for Chevelon Canyon is not part of this proposed wind farm project.

Appendix F: Table 1. Comment Responses

Comment Theme	Response
Tribal Communication	<p>The Applicant voluntarily sent notices to the nine tribes listed below and continues to coordinate with the Hopi Tribe on this project.</p> <ul style="list-style-type: none"> Hopi Tribe Fort McDowell Yavapai Nation Fort Mojave Indian Tribe Navajo Nation Pueblo of Zuni Salt River Pima-Maricopa Indian Community Tonto Apache Tribe White Mountain Apache Tribe Yavapai-Apache Nation
Cultural and Historic Resources	<p>The entire planned project footprint has been surveyed for cultural resources and the project design intends to avoid impacts to all cultural sites identified as eligible by the National Historic Preservation Act. Despite no clear legal nexus requiring such, we have voluntarily surveyed all infrastructure footprints on private land, in addition to state trust land, to identify cultural resource sites.</p>
Noise Impact	<p>The Sound Study completed for the project is provided as Exhibit E of the county permit applications. This report describes the noise impacts of the proposed wind farm.</p>
Financial Guarantees	<p>Financial guarantees based on decommissioning cost estimates are planned to be in place as a condition of Building Permit issuance in both counties.</p>
Blasting	<p>It is unlikely that the Applicant would seek to permit an on-site aggregate production facility, as there are potential operations nearby utilize.</p>

Appendix F: Table 2. Public Comments and Responses

Letter # Date	Commenter	Comment Content	Comment Response See Table 1
1 7/4/19	Mark Haas markhaas37@aol.co.com	I own property just east of the interconnection switching station. Is it a possibility the project will expand on to my property? When is this project expected to be completed?	<ul style="list-style-type: none"> • Project Location
2 7/5/19	Brian P O'Rourke colozonan@gmail.com	<p>I am vehemently opposed to this project as my house overlooks the proposed site. I bought this house two years ago, specifically for the view it presents looking northeast toward the pristine desert and East Sunset and Chevelon Butte. This \$500k investment will be ruined by your proposed project and if it moves forward, I'll be retaining legal services to fight it.</p> <p>I propose that you build this farm in Navajo County, and not in Coconino as there are NO homes or view that would be affected in that area further east of your proposed area. I'll be working with my local County Commissioner, and State Representative to encourage this alternative proposal.</p> <p>Some other questions come to mind that I hope you can answer prior to the 7/15 meeting. (FYI: I've lived off grid for more than 15 years and have personal insight into solar and wind).</p> <ol style="list-style-type: none"> 1. What financial guarantees are included in your project for the removal of the towers once they have served their purpose? 2. What studies have been done relative to the native American heritage and artifacts known to exist in that area? 3. What studies have been done relative to the historical context of the land you are proposing to build these unsightly towers upon? The Chevelon Butte is recorded in several older books as a historical reference. 4. What financial accommodations will this project allow for due to the devaluing of my property due to this unsightly project? My home will now be worth 10-25% less based on research I've done due to your project. 	<ul style="list-style-type: none"> • Property Values • Visual Impact • Financial Guarantees • Cultural and Historic Resources
3 7/7/19	Kim Smolinski kimsmo33@gmail.com	We have property not far from this area and it sits above most of the tree lines. I am assuming our views will now include seeing a wind farm??? I surely hope NOT! We have great views of the plateaus to the West and the San Francisco peaks.... We don't want to look at a wind farm!	<ul style="list-style-type: none"> • Visual Impact
4 7/8/19	Stephen Butler sbutler@evansville.net	Will there be a road built to the east of the interconnection switching station going towards Heber? Will electric service be made available to customers who are close by who presently have no electric service?	<ul style="list-style-type: none"> • Local Electrical Distribution Service
5 7/8/19	Jane Mintzer jfmintzer@gmail.com	<p>We have a cabin overlooking that area, and I am concerned you are going to ruin our view of the West and East Sunset Buttes. This is the reason we bought this land and situated our house on that site. The build cost/resale cost is already high...if we have our view compromised, then basically our home and land will be worth \$0.</p> <p>That is a huge complex that is going to be built. Do you happen to know the decibel(sone) rating on the turbines and the manufacturer?</p>	<ul style="list-style-type: none"> • Visual Impact • Noise Impact
6 7/16/19	Daniel McReynolds tmcreynolds@wusd1.org	I was very impressed with S Power and the information that was shared. We were all happy to see what the wind farm will actually look like and the fact that it does not alter the scenic appearance of the landscape drastically. After the construction phase cattle ranching and hunting opportunities will continue. I see this as a win/win for all parties involved plus clean energy will be proved for our growing state.	<ul style="list-style-type: none"> • General Support

<p>7 7/16/19</p>	<p>John Braun zonajb@aol.com</p>	<p>Interaction and Observations from the S-Power Open House in Winslow on 7/15/19</p> <p>The biggest concern for the residents of Mogollon Ranch is the HEIGHT of the wind turbines, which will be 775 feet high or 175 feet taller than Chevelon Butte. I'm sure S-Power is aware of this because in their handout brochure there is no mention of the height of the proposed 175 wind turbines. In the S-Power "Dear Neighbor" letter dated July 1, 2019, which was e-mailed to use it states 7 benefits. The fifth benefit states "The project is being designed to avoid impacts to sensitive environmental and cultural resources and sited to minimize impacts to residential areas". When will this happen?</p> <p>I spoke with a gentleman that everyone referred to as the S-Power expert. He was somewhat arrogant, condescending and avoided the truth. I asked why the wind turbine had to be 775 feet tall and he told me they haven't decided on the height as of yet but just in case, for the future, they would already be approved if they want to go higher. All the information boards showed the windmills at 775 feet which tells me they have made up there mind, in fact on one of tall, so why aren't there any 775 foot wind turbines in any of the made up pictures. They fifth picture was a picture of Chevelon Butte with added in wind turbines. If you look closely, they added turbines close to the base of the butte, the funny thing is the wind turbines aren't even one fourth of the way up the butte, how strange since this is suppose to show a 775 foot wind turbine next to a 600 foot butte. Another deception ploy they used was when they listed the dimensions of the windmill on the display boards it showed a height of 230, but in very small lettering there was an "m" next to the number indicating it was in meters and this was very easy to miss. The information and pictures were delicately distorted to avoid the truth. the information board it shows the manufacture as Vestas and a model of V162 which is the 775 foot model. I told him these will tower over ChevloIn Butte by 150 feet. He said the butte was much higher than that, but I said no, not according to the topo maps. He said topo maps are old and outdated and not to be used. I thought he was joking but he was serious.</p> <p>I told him of my concern for myself and the other 223 landowners that are only 7 miles from a portion of the wind farm and I was concerned that this will reduce the land value and make it harder to sell a home here. His response was that studies have been done that showed a wind farm has no negative affect on home values. I'll bet all the studies were paid for by windmill manufactures. I spoke to a licensed realtor that was there and he informed that was not true, it will affect the value.</p> <p>I brought up that we all know some turbines will fail at some point in time (just look on "you tube") and sometimes they erupt in flames and then fall to the ground. Since the area is dry grass land bordering the Nation Forest, which is only several miles from our community, what were the plans to fight a fire other than relying on Winslow's small fire department which is at least 45 minutes away, he said they would have to look into that, which tells me they haven't done anything yet.</p> <p>I showed him an article that I printed from a web page called National Wind Watch at www.wind-watch.org/faqs/size.php, stating the widely used GE 1.5-megawatt model has a total height of 328 feet, I asked why can't you use this model, he immediately snapped back at me and said don't listen to them, this web page is very anti-wind turbines. I wanted to ask what that has to do with the height statistics, but I knew this was going nowhere so I ended the conversation and walked away in frustration.</p> <p>They had an information board which correctly showed (according to them) five pictures of what the area would look like with the wind turbines up and running. Four pictures were taken from ground level from different points around the wind farm, in all four pictures there was not one wind turbine seen. What is strange is that the position they were standing to take the picture, if they turned left or right, they would plainly see Chevelon Butte and the butte is 600 feet tall, so why aren't there any 775 foot wind turbines in any of the made up pictures. They fifth picture was a picture of Chevelon Butte with added in wind turbines. If you look closely, they added turbines close to the base of the butte, the funny thing is the wind turbines aren't even one fourth of the way up the butte, how strange since this is suppose to show a 775 foot wind turbine next to a 600 foot butte.</p> <p>Another deception ploy they used was when they listed the dimensions of the windmill on the display boards it showed a height of 230, but in very small lettering there was an "m" next to the number indicating it was in meters and this was very easy to miss. The information and pictures were delicately distorted to avoid the truth.</p>	<ul style="list-style-type: none"> • Visual Impact • Visual Simulation Accuracy • Wind Turbine Height • Property Values • Fire Risk
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<p>8 7/19/19</p>	<p>Bruce R. Kepler Kepler@cox.net</p>	<p>I will not be able to make the drive to Winslow for the open house July 15th and cannot find on your website to send my concerns, so this is the reason for writing you. I purchased this 40-acre parcel to get away from the hustle and bustle of city life and to spend my now retirement life off the grid. I almost did not purchase this property because of the high power lines near me, but because of my purchase being with a friend who needed the money so she could move to Colorado to be with her kids. I decided to go with the purchase and building my home so to view the west and north (San Francisco Peaks, Flagstaff) area with power lines behind me, out of site and mind. I would of liked to have gotten a start with my project by this time next year. Have already started with plotting out my location on the property and cleaning up a trailer left on the property so I have a place to crash while I'm building. Having a difficult time on figuring my location to the location of the wind farm and if my calculations are correct, I believe my view will now be of the wind turbines and not the San Francisco Peaks. If this is the case I'm not going to waste anymore of my money going forward. Obviously the wind farm effects me or I would not of received your letter. If you would please send me a better map with a X marks the spot of my property with approx. location of wind farm and approx. miles. I have no problems with renewal energy. I will have a problem with looking and listening to it. If this is the case I would like to know if sPower is willing to purchase my 40 acres. Looking forward to your response. Please forward a email address for communicating to eliminate writing.</p>	<ul style="list-style-type: none"> • Visible from my property • Project Location
<p>9 8/13/19</p>	<p>John Braun zonajb@aol.com</p>	<p>Please explain why you are using lower wind turbines (300 to 400 ft) in you "Visual Simulations" and claiming they will be the planned 775 feet turbines. They will be 150 feet taller than Chevellon Butte. We are not stupid. NO MORE LIES!!</p>	<ul style="list-style-type: none"> • Visual Simulation Accuracy
<p>10 7/21/19</p>	<p>Candyce Schmid cschmid80a@gmail.com</p>	<p>Hello, I live in a 233 5 acre planned community called Mogollon Ranch overlooking the proposed wind farm. I have several concerns. 1. Mountains of Arizona Sargent. net indicates that Chevelon Butte prominence is 655 feet. It appears from your proposal that the wind turbines would be 100 feet taller than Chevelon Butte. Is this correct? 2. How close does an aircraft need to be before the lights turn on at night on the wind towers? Would commercial flights cause the lights to turn on? 3. I would like to see the power generated benefiting Arizona residence only. 4. I would like to see the jobs generated benefit Arizona residents. Thank You for the opportunity to share my concerns. I'm wondering if you have completed the site's survey to ensure existing topographic data is accurate? If so then what we're your results? You were considering several turbine models based on equipment procurement availability and on-site ind/meteorological conditions. Have you made a determination on this? Also the permits require approval by two counties. If only one county approves your project will you move forward? I'm wondering exactly where the turbine towers would be located in this photo which was taken from Mogollon Trail in our development? Will the blades reflect light as they turn? It would be helpful for our community if one of those simulations would include a night time version. Recently Coconino County enforced the dark skies 11pm curfew concerning the lighted signage at the entrance to our development. Another's concern is will you be blasting to acquire the needed crushed rock for the cement reinforced bases of the wind turbines.</p>	<ul style="list-style-type: none"> • Visual Impact • Night Lighting • Power to Arizona Residents • Jobs benefit Arizona Residents • Visible from my property • Blasting

<p>11 7/31/19</p>	<p>Kenneth Wegorowski 51063 29 Palms Hwy SpC 36 Morongo Valley, CA 92256</p>	<p>I am a landowner in Chevelon Acres. I received letter regarding the proposed wind farming project. The "interconnecting switching station" as noted on the map you sent me of the project would be 2 miles from my property. The turbines would start at about 3 miles. They would rise above my land starting at 200 feet higher thus putting them at almost 1000 feet above the level of my land. They would be visible from my land and that of many properties east of Chevelon Canyon and east of your proposed farm that is about 200 feet higher than mine changing the viewscape and drives through there. The highest point of these turbines would be a mere 145 feet lower than the tallest building in Los Angeles the Wilshire Grand Center. • Will this be a point where power lines will be installed for local electrical utility service to all of the residences out here? • Will landowners like me who are affected by this 48 square miles of wind farming changing the landscape be receiving royalties? • Will electricity be now provided to residents who are currently off the grid? I mean as in adding power lines through Chevelon Acres, Chevelon Retreat, Chevelon Canyon Ranch and if not why not? • How much power do these wind "generators" use? It is stated the project will provide lease payments, is that only for those landowners where these towering wind turbines will be located? It is claimed in the letter they are designed to "minimize impacts to residential areas" yet they would forever destroy viewscape there miles in every direction and cause other issues. It would not be minimal. Will this project bring electric from the grid out to this very remote area so that the residents out there can enjoy the benefits that the cities and the investors of this so called "clean" energy will receive, a project that is dependent on petroleum and electricity in it's development and production of limited amounts of electrical energy? What amount of power do these turbines use? Since wind is intermittent I understand this would only be an estimate. Maybe you could reference exact numbers compiled from existing projects. It would be helpful if you could also provide a ratio as to how much energy they would likely draw from the grid compared to how much they would produce for the grid also providing such ratios of what existing projects use and produce. Those figures should be in kilowatt hours. I would expect the figures to be a fair assessment and not exaggerated. It's stated in the letter that Arizona State Land Department and "rural ranching families" would benefit. I do not see how I would benefit or others than those few who own the land there. Is it only the State Trust Land and the O'Haco Cattle Company? Only stake holders would, not me I would guess, or others affected by the project. Others that would benefit are investors all over the world. Is your company a private or public company? Is the O'Haco family going to continue ranching there and "stay put" or are will they move and shut down ranching operation? I would like some more exact numbers as to what the state would receive and what investors would receive. I think money going to Arizona would be infinitesimally small for my benefit. In contrast for that tiny hard to find benefit when I and other "rural ranching families" out there will be exposed to viewing incessantly flashing red lights warning aircraft for miles around at night and those that visit out there. If I decide to move to my land there and become one of those rural ranching families I would be seeing towering blades poking up over the western horizon during the day and see or drive under these "skycraper" size structures any time I was to drive vehicle or ride horse anywhere near. Where I live now I already often see wind energy all around as I drive Route 62 and 1-10 in California. I do not enjoy what they have done to this area at all nor find any benefit to me. I see what they do to the landscape. In Alaska each resident benefits directly from oil production not just a state entity or the land lease beneficiary and investors will all property owners receive royalty payments? Does this project receive tax subsidies, incentives, credits? If so instead of receiving a lease payment or royalty, I am helping finance the project. I do not want to be financing this in my taxes. If tax subsidies are not used please clarify. If they are used please tell me how much the project will receive exactly and for how long. I would also like to know how much the landowners there would be receiving exactly. I understand there can be two tiers one while project is in development and another when project is complete and producing energy. Specifics would be greatly appreciated, including time frames, how the payments are calculated, etc ... It mentions the project is "sited to minimize impacts to residential areas". If electricity is not brought out to the homes in these areas at no cost to residents, then this project has tremendous impact on all residential areas in a negative fashion without some balance of these negative effects by providing some of that "clean energy" and the reliable fossil fuel energy to the properties out there through the grid. Would the project directly pay for a bridge crossing the canyon and roads so that residents and future residents east of the canyon have easy access to Winslow, 1-40 and Walmart? A bridge would save energy. It's an incredibly far, difficult to navigate, dangerous, and time consuming drive to Winslow from the properties east of the canyon as the only effective route is through Chevelon Crossing or all the way down to Heber then to Holl brook then across 1-40 west. Is there any plan for this by the county and state</p>	<ul style="list-style-type: none"> • Visual Impact • Royalty Payments • Lease Payments • Local Electrical Distribution Service • Turbine power use • Tax Subsidies • Continued Ranching • Night Lighting • Rural residential Access
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		which is said will benefit? I would be more interested in real plans with funding in place and not lofty promises though I would be interested in hearing about any such plans and references to such if there are any. I look forward to your reply in writing by regular postal mail sent to my above address in California so I may consider your proposed wind energy project more thoroughly.	
12 7/26/19	McCauley Mayor, City of Winslow	To Whom It May Concern: I support the "Chevelon Butte Wind Farm" being developed by 'Chevelon Butte RE LLC', a subsidiary of Utah-based sPower. Electric utilities are increasingly seeking to diversify their energy resources and generally seek to rely less heavily on fossil fuel resources. Advances in technology have made renewable energy competitive with traditional sources of electricity. Wind energy increasingly provides utility and other corporate customers with cost-competitive, reliable, and carbon-free electricity. In fact, Northern Arizona has several successful utility-scale wind energy generation facilities currently in operation. Those facilities have benefited local communities with jobs, tax revenue and electricity which produces no air pollutants and uses no water during operations. I met with sPower representatives recently and am impressed by their proposed Chevelon Butte Wind Farm. sPower estimates the wind generation facility will create 200-plus construction jobs and 10-15 full time jobs on-site at the facility. Since the City of Winslow is the nearest municipality to the project site, I anticipate our area will experience increased economic activity, especially during construction. I urge your support of the Chevelon Butte Wind Farm.	<ul style="list-style-type: none"> • General Support
13 7/22/19	Adrien Sanchez adriensanchez@cox.net	How about a KOP simulation from Mogollon Ranch, the nearest residential area?	<ul style="list-style-type: none"> • Additional Visual Simulations – Mogollon Ranch Views
14 8/12/19	Kenneth Wegorowski 51063 29 Palms Hwy Spc 36 Morongo Valley, CA 92256	Hello, I have not yet received a reply regarding my prior letter from July. I see on your project summary that 9 tribes were contacted, which ones? It's stated that lease payments will be received by Arizona State Land Department, how much is projected as an annual amount? I would appreciate a prompt reply.	<ul style="list-style-type: none"> • Tribal Communication • Lease Payments
15 8/27/19	Tom Acker Tom.Acker@nau.edu	I'm excited about your project. Good luck.	<ul style="list-style-type: none"> • General Support
16 8/29/19	Bob Hall CEO Winslow Chamber of Commerce	On behalf of the Chamber's Board of Directors, we support the "Chevelon Butte Wind Farm" being developed by Utah-based sPower. The Winslow Chamber of Commerce represents a number of small, medium and large sized businesses in the region. While tourism is the primary economic driver in the area, the Chamber supports a diverse economic portfolio. Utility-scale renewable energy projects can play an important role in fostering economic growth in Winslow. I met with sPower representatives recently to learn about their planned wind generation facility. sPower estimates the facility will create 200-plus construction jobs and 10-15 full time jobs on-site at the facility. There will also be indirect job creation and local spending. We anticipate significant economic activity in Winslow during construction of the facility. And during the operations and maintenance phase, we're optimistic there will be on-going demand for various goods and services that many of our members provide. We're excited at the prospect that sPower is considering investing significant capital resources in the region with this project. We urge others to support the project, especially Navajo County and Coconino County.	<ul style="list-style-type: none"> • General Support

<p>17 8/29/19</p>	<p>Kenneth Wegorowski 51063 29 Palms Hwy Spc 36 Morongo Valley, CA 92256</p>	<p>I receive two responses both identical to my two very different letters sent to you regarding your proposal to build a wind farm at Chevelon Butte. Instead of even attempting to answer any question that might be applicable to the entire area of property owners, one such question was simply what Indian tribes you have contacted there that might have an interest, you replied, "In order to accurately respond to your questions and comments, which include requests for information on royalty payments, providing electricity to undeveloped portions of Navajo County, and viewshed impacts, we kindly request the following information about your property" and it goes on to list 8 items. I will attempt to address those questions.</p> <p>My property does not have an address though I understand the county has a proposed street name of Taryton on it's eastern edge. I'd like to see the county put a road there someday that would save energy. It is 40 acres. It is the SE 1/4 of the SE 1/4 of Section 19. It is just east and a little to the north of where your project is stated would tie in to existing high power lines about 2.5 miles from my land. Parcel number is 111-18-016. Latitude 34.67122, longitude -110.68278 based on Navajo County assessor's map.</p> <p>The elevation is at about 6000 feet. The project portion closest to my land is about 200 feet higher where the project would traverse Chevelon Canyon at it's south eastern end. Some parts of the wind project to the northeast of Chevelon Butte appear to be about 6000 feet. My land slopes down from wind project land that butts up at Chevelon Canyon. The 40 acre property directly west of mine is developed with a standard foundation (not manufactured) home and is maybe 40 feet higher than my parcel. I believe I would be looking west at the upper half of a good section of those wind turbines that are on the southeast end of the project from my parcel. If I walk or ride horse 1.5 miles to the edge of the canyon and look west if the project is built I would see a sea of wind turbines up to 11 rows of these stretching about 13 miles spread over 48 square miles in full mass. They would in the day present stark white towering turbines and blades blocking views to the west. Right before sunset is an ideal time for such holistic viewsheds without a wind farm there as it exists now, but if the project is approved and built the spinning disorienting blades will cast light flickering shadows at times everywhere toward the east. Some of these would probably cast shadows on my property before sunset at certain times of the year, certainly looking west from the canyon the sun would be "sliced" by blades before sunset and at times also from my parcel. At night I would be exposed to an array of flashing red lights on the southeast portion of the project and maybe more. If I am at the canyon's edge after sunset there will likely be seen the full array of these flashing red lights for miles. I know this experience well having been exposed to them here in California and they are awful. I have seen them from many angles many miles away. If I drive to Winslow where the Walmart is located I would have to drive directly through this sea of wind turbines. That would change the feel of living or visiting there tremendously and offensively. The entire Chevelon Acres and Chevelon canyon Ranch areas especially are zones of visual influence regarding this proposed wind project. My property is vacant land. There is no structure on it of any kind. Depends on how you define "short term" and "long term" as this is quite relative and subject to change at any time, but for now I would say short term I currently do not have any set plan to develop, long term I had hoped to make improvements. If electric power lines were brought into these parcels I would evaluate possibly improving the property sooner.</p> <p>Regarding the APS service area closest judging from their map I think would be the section where the wind project mostly resides. My land is very close to the Interconnecting Switching Station. APS provided the following in answer to one of your questions: It is approximately 7,200 Feet from the S00kV, 4,150 Feet from the eastern 345kV, and 4,020 Feet from the western 345kV". The red dot on map provided in Exhibit A attached shows APS service areas represents an approximation of where my parcel is located. The wind project proposed interconnecting switching station is between 2 to 3 miles from my parcel.</p> <p>The primary directions of my "viewshed" concerns would be directly west, northwest, and southwest. I recall that San Francisco peaks can be seen from that section and something else possibly the Chevelon Butte itself. I am concerned flashing red lights blinking all night long will be seen from there and during day the views to those landmarks and open spaces spoiled. My property almost all flat land free of brush. It features some views in many directions that are vast. I believe that entire wind farm will be visible for miles from the edge of Chevelon Canyon on the eastern edge as one would stand there or walk or ride toward thus permanently destroying the beauty of this area. There are many parcels that have vast unspoiled views that look out so many miles and have or could have homes on them that would be forced to view the wind farm.</p>	<ul style="list-style-type: none"> • Tribal Communication • Visual Impact • Night Lighting
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18 8/31/19	Carson Pete	I am a faculty member in mechanical engineering at nau and I support wind energy development in AZ. I have been apart of several assessments looking at the wind resources in AZ and think wind can play a vital role in RE development.	• General support
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EXHIBIT E
Noise Study

Noise Study for the Planned Chevelon Butte Wind Farm

SEPTEMBER 2019

PREPARED FOR
Chevelon Butte RE LLC

PREPARED BY
SWCA Environmental Consultants

NOISE STUDY FOR THE PLANNED CHEVELON BUTTE WIND FARM

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SWCA Project No. 51186

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1 INTRODUCTION

SWCA Environmental Consultants (SWCA) prepared this noise study in support of county permitting for the planned Chevelon Butte Wind Farm (Wind Farm or project). The project is a maximum 477-megawatt AC (MW_{AC}) nameplate capacity facility. The project would be located on private and state trust land, in Coconino and Navajo Counties, within a 41,627-acre project site, which is approximately 20 miles south-southwest of Winslow (straight line distance). The project would consist of up to 164 wind turbine generators (turbines) and associated infrastructure, the vast majority of which would be developed within Coconino County (Figure 1). A new Gen-Tie Line will carry power from the center of the project site southeast to the existing Arizona Public Service 345-kV Preacher Canyon-Cholla transmission line; the tie-in would be located in Navajo County (Figure 1).

This noise study includes 1) a loudest condition scenario model based on the maximum number of turbine locations and noisiest of the proposed wind turbine options, and 2) interpretation of modeled results in the context of Navajo County's noise ordinance (Resolution No. 57-10, "Navajo County Sound Requirement Guidelines for Wind Energy Generation Facilities"). While the study focuses on Navajo County because the nearest Noise Sensitive Area (NSA; a residence) is located in the County, and the County provides specific wind energy noise provisions in their zoning ordinance (Ordinance No. 06-10), the analysis and findings also contemplated the planned infrastructure in Coconino County and therefore serve utility in both jurisdictions. This report has been completed in support of the Special Use Permit application for Navajo County and, although not specifically required by applicable local regulations, is also being provided in support of a Conditional Use Permit application in Coconino County.

2 PROJECT AND STUDY DESCRIPTION

The project site and vicinity are generally characterized by mixed semi-desert grassland, shrub steppe, and juniper savanna on flat to rolling terrain. It is bounded by canyons—Clear Creek Canyon to the north and Chevelon Canyon to the southeast. Other notable landforms within the project vicinity include Chevelon Butte, located in the south-central portion of the project site, and East Sunset and West Sunset Mountains, located approximately 2 and 9 miles north of the project site, respectively. Land uses within the project site include cattle ranching/grazing and recreation (limited hunting). State Route 99 and Forest Road 504 provide initial access to the site. Established two-track roads are present throughout the project site.

The closest NSA is a residence located approximately 0.5 mile southeast of the project's tie-in with the existing Arizona Public Service Preacher Canyon-Cholla line, and 2.6 miles southeast of the nearest proposed turbine (Figure 1). The nearest residence in Coconino County is located approximately 7.9 miles southwest from the nearest proposed turbine site. The analysis area for the study is 2 miles from the proposed turbines (see Figure 1). Including the Preacher Canyon-Cholla line, three existing high-voltage transmission lines are located in two roughly parallel northeast-southwest trending corridors at this eastern end of the project's Gen-Tie route (Figure 1). Four additional residences are located within 1 mile of the tie-in point; all are closer to the existing lines than to the proposed Gen-Tie Line. Among project components, the noisiest source will be the turbines. Switching stations, transformers, and other electrical equipment were not considered in this study because the turbines will dominate the overall project's acoustical output.

The noise impact evaluation, provided herein, consists of computer noise modeling using SoundPLAN Essential Version 4.1 and assessment of the outputs as they pertain to the Navajo County sound (noise) standards and nearest NSA (i.e., nearest residence). Potential noise impacts were evaluated by determining the projected increases over ambient conditions. Among three turbine model alternatives

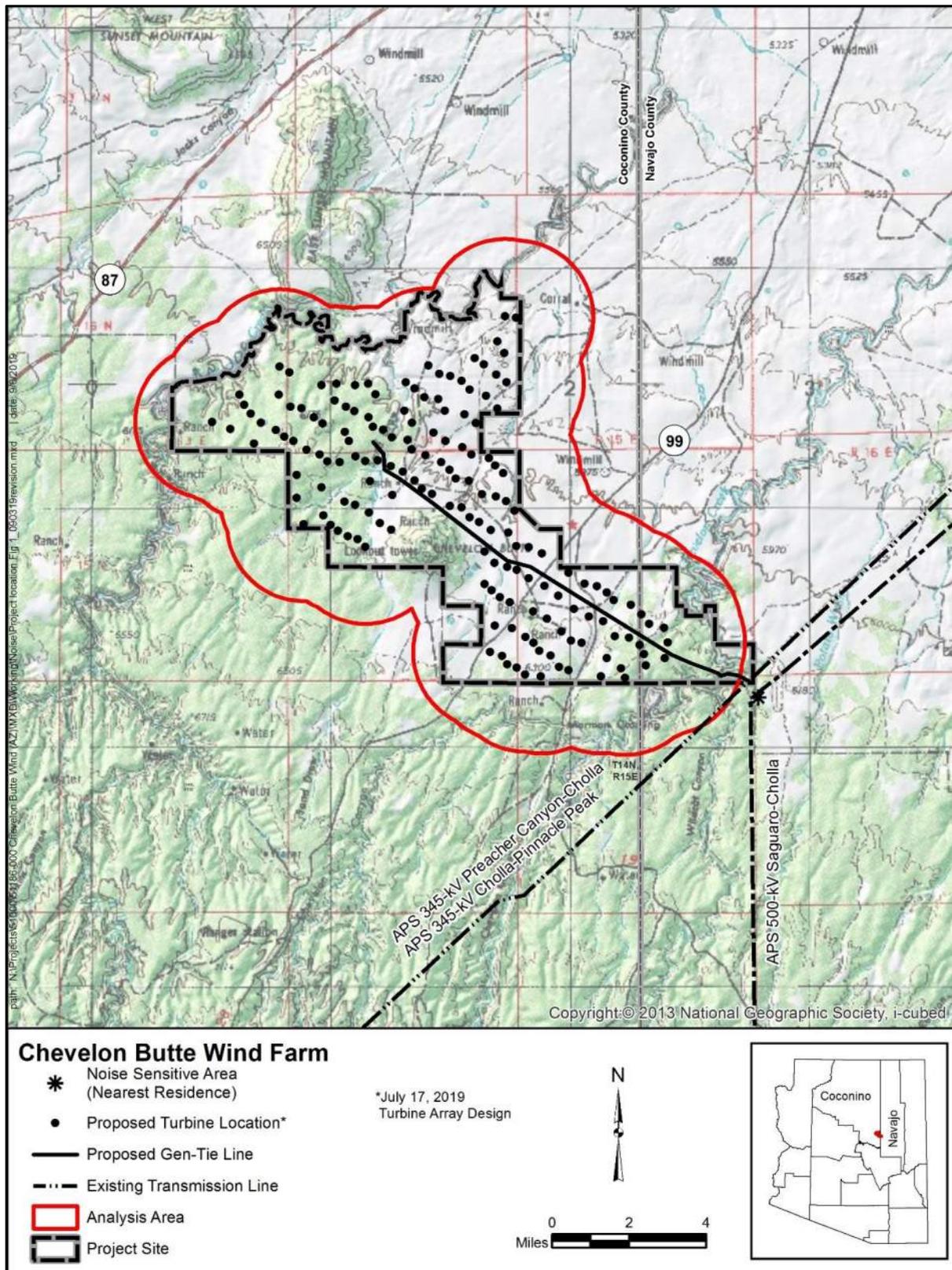


Figure 1. Planned turbines within the Chevelon Butte Wind Farm project site in relation to the nearest Noise Sensitive Area (residence).

evaluated, the alternative with the highest sound power levels (Siemens Gamesa SG 4.5-145;¹ see justification below) was used to determine a loudest condition scenario noise model.

3 NOISE FUNDAMENTALS — BACKGROUND

This section provides a brief overview of noise fundamentals, noise assessment components, examples of sound levels from a variety of sources, and the regulatory setting regarding applicable noise level standards. The primary noise generating mechanism associated with wind turbines is the aerodynamic noise of the blade passing through the air. Other noise generating mechanisms include the gearbox, generators, the motors that rotate the turbines into the wind (yaw drives), and cooling fans. These ancillary mechanisms are mitigated with standard noise control measures within the turbine.

3.1 Definition of Acoustical Terms

The following acoustical terms are used throughout this analysis:

- Ambient sound level is defined as the composite of noise from all sources near and far, the normal or existing level of environmental noise at a given location.
- Decibel (dB) is the physical unit commonly used to measure sound levels. Technically, a dB is a unit of measurement that describes the amplitude of sound equal to 20 times the base 10 logarithm of the ratio of the reference pressure to the sound of pressure, which is 20 micropascals (μPa).
- Sound measurement is further refined by using a decibel “A-weighted” sound level (dBA) scale that more closely measures how a person perceives different frequencies of sound; the A-weighting reflects the sensitivity of the ear to low or moderate sound levels. The dBA scale is logarithmic; therefore, individual dBA values for different sources cannot simply be added together to calculate the sound level for the two sources. For example, two 50-dBA sources, added logarithmically, produce a collective noise level of 53 dBA.
- Sound measurement can also be refined by using the “C-weighted” sound level (dBC) scale, typically used to specify peak or impact noise levels. Unlike the dBA scale, this weighed scale measures uniformly over lower frequencies and measures flat across the octave bands. The C-weighting may be used as an indicator of high levels of low frequency noise.
- Equivalent noise level (L_{eq}) is the energy average A-weighted noise level during the measurement period.
- Day-Night Sound Level (L_{dn}) is the A-weighted equivalent sound level for a 24-hour period with an additional 10 dB weighting imposed on the equivalent sound levels occurring during night-time hours (10 p.m. to 7 a.m.).
- Intruding noise is noise that intrudes over and above the existing ambient sound level at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, time of occurrence, tonal informational content, and atmospheric conditions as well as the existing background sound level.

¹ The Applicant is considering the Siemens Gamesa SG 4.2-145 in place of the SG 4.5-145. Because the SG 4.2-145 has a lower acoustical output than the SG 4.5-145 (a sound power rating of 106.9 dB vs. 108.7 dB for the SG 4.5-145) and all other variables are constant, this study still represents a conservative worst-case scenario. The SG 4.5-145 turbine model has the highest acoustical output of all the turbines considered by the Applicant.

- Percentile sound level (L_n) is the A-weighted decibel value exceeded during n% of the measurement period. For example, L_{10} is a relatively loud noise exceeded only 10% of the measured time, whereas L_{90} is a relatively quiet sound exceeded 90% of the measured time. People tend to exhibit differing sensitivity to noise depending on the time of day, with noise generated at night being more noticeable than that generated during the day.

3.2 Sound Levels of Representative Sounds and Noises

The U.S. Environmental Protection Agency (EPA) has developed an index to assess noise impacts from a variety of sources using residential receptors. If Ldn values exceed 65 dBA, residential development is not recommended (EPA 1974). Noise levels in a quiet rural area at night are typically between 32 and 35 dBA. Quiet urban night-time noise levels range from 40 to 50 dBA. Noise levels during the day in a noisy urban area are frequently as high as 70 to 80 dBA. Noise levels above 110 dBA become intolerable; levels higher than 80 dBA over continuous periods can result in hearing loss. Levels between 50 and 55 dBA are associated with raised voices in a normal conversation. Table 1 presents sound levels for common noise sources and the human response to those decibel levels.

Table 1. Sound Levels of Representative Sounds and Noises

Source and Distance	Sound Level (dBA)	Human Response
Jet takeoff (nearby)	150	
Jet takeoff (15 m/50 feet)	140	
50-hp siren (30 m/100 feet)	130	
Loud rock concert (near stage)	120	Pain threshold
Construction noise (3 m/10 feet)	110	Intolerable
Jet takeoff (610 m/2,000 feet)	100	
Heavy truck (8 m/25 feet)	90	
Garbage disposal (0.6 m/2 feet)	80	Constant exposure endangers hearing
Busy traffic	70	
Normal conversation	60	
Light traffic (30 m/100 feet)	50	Quiet
Library	40	
Soft whisper (4.5 m/15 feet)	30	Very quiet
Rustling leaves	20	
Normal breathing	10	Barely audible
Threshold of hearing	0	

Source: Beranek (1988)

Table 2 provides criteria that have been used to estimate an individual’s perception to increases in sound. In general, an average person perceives an increase of 3 dBA or less as barely perceptible. An increase of 10 dBA is perceived as a doubling of the sound.

Table 2. Average Human Ability to Perceive Changes in Sound Levels

Increase in Sound Level (dBA)	Human Perception of Sound
2–3	Barely perceptible
5	Readily noticeable
10	Doubling of the sound
20	Dramatic change

Source: Bolt, Beranek, and Newman, Inc. (1973)

3.3 Noise Assessment Components

A noise assessment is based on the following components: a sound-generating source, a medium through which the source transmits, the pathways taken by these sounds, and an evaluation of the proximity to NSAs. Soundscapes are affected by the following factors:

- **Source.** The sources of sound are any generators of small back-and-forth motions (i.e., motions that transfer their motional energy to the transmission path where it is propagated). The acoustic characteristics of the sources are very important. Sources must generate sound of sufficient strength, approximate pitch, and duration so that the sound may be perceived and is capable of causing adverse effects, compared with the natural ambient sounds.
- **“Transmission path” or medium.** The “transmission path” or medium for sound or noise is most often the atmosphere (i.e., air). For the noise to be transmitted, the transmission path must support the free propagation of the small vibratory motions that make up the sound. Atmospheric conditions (e.g., wind speed and direction, temperature, humidity, precipitation) influence the attenuation of sound. Barriers and/or discontinuities (e.g., existing structures, topography, foliage, ground cover, etc.) that attenuate the flow of sound may compromise the path. For example, sound will travel very well across reflective surfaces such as water and pavement but can attenuate across rough surfaces (e.g., grass, loose soil).
- **Proximity to NSAs.** An NSA is defined as a location where a state of quietness is a basis for use or where excessive noise interferes with the normal use of the location. Typical NSAs include residential areas, parks, and wilderness areas, but also include passive parks and monuments, schools, hospitals, churches, and libraries.

3.4 Regulatory Setting

Both federal and County laws are applicable to this proposed project and analysis of soundscape impacts. Applicable federal laws, regulations, and guidance include the following:

- The EPA indicates that noise levels of 55 dBA L_{dn} at residential land use would be considered a significant impact.
- Navajo County Zoning Ordinance No. 06-10 and County Resolution No. 57-10 (see below)

The Navajo County Public Works Department has issued Zoning Ordinance No. 06-10. Section 2008 of the ordinance contains wind energy generating facility standards, which define a “Wind Energy Generating Facility” as an energy generation facility using wind technology and consisting of one or more wind turbines and accessory structures and buildings, including substations, anemometers and associated electrical infrastructure, with an actual or planned generating capacity of at least 1 megawatt.

According to Section 2008, noise due to project operations is not to exceed the greater of 45 dBA $L_{Aeq,10}$ or the measured background ($L_{A90,10}$ Plus 5 dB) at the exterior of any legal residence, school, library, or hospital at the time of permit approval. As allowed by Section 2008 (4)(v)(1)(B), a waiver showing the irrevocable written consent of the landowner can be issued in the event the operating noise levels exceed these limits.

Section 2008 also states that operational wind farms must meet requirements in Resolution No. 57-10 Section 2. Section 2 requires that all wind farms meet the Low Frequency Noise (LFN) and vibration requirements in ANSI S12.2 (RNC-25) and S12.9. Sound pressure levels for the 1/1 octave band shall not exceed 68 dB at 16 Hz, 65 dB at 31.5 Hz, and 63 dB at 63 Hz at the exterior of any legal residence, school, library, or hospital at the time of permit approval. Thresholds used to evaluate potential noise impacts are based on applicable criteria. Therefore, noise from the proposed project would be considered significant if:

- It exceeds 45 dBA $L_{Aeq,10}$ or the measured background ($L_{A90,10}$ Plus 5 dB) at the exterior of any legal residence, school, library, or hospital, in accordance with Section 2008 of the Navajo County Zoning Ordinance.
- Low frequency noise levels exceed 68 dB at 16Hz, 65 dB at 31.5 Hz, and 63 dB at 63 Hz at the exterior of any legal residence, school, library, or hospital at the time of permit approval.

4 EXISTING CONDITIONS

A characterization of the landscape features, existing roads, and land use of the project site and vicinity is provided in Section 2, above. The elevation of the project site ranges from 6,000 to 6,800 feet.

The weather in the vicinity of the project site can generally be characterized as having four defined seasons. Summer temperatures are moderated by low humidity and high elevation, with the annual average temperature (in degrees Fahrenheit) ranging in the 50s (13 degrees Celsius [$^{\circ}C$]), with yearly average highs reaching the low to mid 70s (21 $^{\circ}C$ –24 $^{\circ}C$), and yearly average lows reaching the upper 30s to the lower 40s (3 $^{\circ}C$ –6 $^{\circ}C$) (U.S. Climate Data 2019). The National Weather Service (NWS) established June 15 as the first day and September 30 as the last day of Arizona's monsoon season. Average atmospheric temperature, pressure and humidity values for the months of June through September were used to model impacts at the NSA during the monsoon season. Weather conditions for the monsoon season are presented in Table 3.

Table 3. Weather Conditions for Monsoon Season

Parameter	Month				Monsoon Season Average	Annual Average
	Jun	Jul	Aug	Sep		
Temperature ($^{\circ}F$)	61.0	67.0	65.0	58.0	62.8	47.0
Humidity (%)	28.0	43.0	51.0	47.0	42.3	49.0
Barometric Pressure ("Hg)	29.9	30.0	30.0	30.0	30.0	30.0

Source: Grand Canyon National Park Airport based on weather reports collected during 1985–2015.

Local conditions such as topography and winds characteristic of the region can alter background noise conditions. In general, the L_{dn} sound levels at outdoor quiet rural night-time noise levels range from 32 to 35 dBA (EPA 1974).

Since background noise level measurements were not collected at the NSA, the Leq night and day noise levels were assumed to be 34 dBA and 40 dBA, respectively (ANSI/ASA S12.9). These are typical daytime and night-time noise levels in rural areas for standard A-weighted sound levels while C-weighted night and day sound levels are 46 dBC and 52 dBC in quiet rural areas (ANSI/ASA S12.9).

To evaluate compliance with applicable federal and County regulations, we assessed potential increases in ambient noise levels associated with planned operational activities in the immediate vicinity of the Wind Farm in relation to existing baseline noise levels (see Section 5).

5 NOISE IMPACTS

The following section provides results and interpretation of potential impacts from noise generated by the Wind Farm during operation, as required by the Navajo County Zoning Ordinance No. 06-10 and County Resolution No. 57-10.

5.1 Operational Noise

5.1.1 Operational Activities

The target sound sources from the Wind Farm would include the turbines situated northwest (2.64 miles) of the NSA. Switching stations within the project site would also contribute to the sound levels at the NSA but were not included in this study as the turbines will dominate the overall project’s acoustical output.

5.1.2 Assessment Methodology

The following wind turbine models are options for the Wind Farm at the time of this study:

- Siemens Gamesa (SG) 4.5-145 (4.5-MW, 145-m rotor diameter)
- Vestas V162 5.6-MW (162-m rotor diameter)
- General Electric (GE) 5.3-158 (5.3-MW, 158-m rotor diameter)

“Best estimate” sound power level octave band data from 10 Hz to 10 kHz were provided by the manufacturers as a function of wind speed at hub height. The Vestas reaches its highest sound power level (102 dB) at a wind speed of 8 m/s while the GE reaches its highest sound power level (106 dB) at a wind speed of 9 m/s. The SG reaches its highest sound power level (108.7 dB) at a wind speed of 9 m/s. Table 4 presents the sound power levels, source type, and acoustic height of the SG turbine used in the analysis. The acoustic height for the turbine is the same as its hub height, which is 107.5 meters above ground level (AGL).

Table 4. Noise Model Parameters

Proposed Project Component	Type of Source	Sound Power Level at Octave Band Center Frequency (Hertz)										Total Sound Power Level (dB)	Acoustic Height (m)
		16	31.5	63	125	250	500	1,000	2,000	4,000	8,000		
SG 4.5-145 @ 4.8 MW	Point	64.3	78.3	90.6	96.4	100.3	101.3	103.1	102.7	96.5	83.0	108.7	107.5

Based on the sound power levels input for each turbine, or source (164 locations), SoundPLAN estimates noise contours of the overall wind farm in accordance with a variety of standards, primarily International Standards Organization (ISO) 9613-2:1996 Acoustics standards for noise propagation calculations. All sound propagation losses, such as geometric spreading, air absorption, ground absorption, and barrier shielding, are calculated in accordance with these recognized standards. The model accounts for reflection (i.e., from adjacent structures and the ground). The model uses industry-accepted propagation algorithms and accepts sound power levels (in decibels) provided by the manufacturer and other sources. The calculations account for classical sound wave divergence, but SoundPLAN does not account for noise modulation or refraction.

The ISO 9613-2 methodology provides tables and equations for estimating the atmospheric absorption coefficient corresponding to various temperatures and humidity levels. For estimating noise levels at the NSA, we used a conservative approach, assuming a temperature of 10°C, a relative humidity of 70%, and an air pressure of 1013 mbar, which yields low levels of atmospheric attenuation. Therefore, the model is considered loudest condition. Topographic inputs were also included in the model. Calculations were performed using octave band sound power spectra as inputs for each noise source.

The ISO 9613-2 standard estimates sound pressure levels at a specified distance by subtracting the attenuation factors from the source sound power level for each source in octave frequency bands. Attenuation factors include geometrical divergence, atmospheric attenuation, ground effect, and barrier attenuation; these terms are defined as follows:

- Geometrical divergence occurs as the source sound power is spread out over an increasing surface area (i.e., as the distance from the source increases). The estimated loss rate is the same for all frequencies. This is considered the most significant loss associated with propagation. Attenuation due to geometrical divergence is highly dependent on the distance between the source and the receiver. Direction also affects the noise level: (0°) direct line of sight noise level will be higher than (90°) direction line of sight to a stack emission point. Therefore, the differences in ground elevation, and receiver height and hub height (source height) are important parameters. Losses due to atmospheric attenuation occur as the energy in the sound wave is transformed to heat. As this attenuation is frequency-dependent and high frequencies are more readily attenuated than low frequencies; these losses are highly influenced by humidity and temperature. Ground effect is described according to the parameter Ground Factor (G) which varies between 0 for surfaces with low porosity (“hard” ground) and 1 for “soft” ground (surfaces including loose dirt, grass, crops and other vegetation). This factor describes the effect of sound waves reflected off the ground. Parameters influencing the ground effect are the source height, receiver height, and propagation distance between the source and receiver and the ground conditions. Barrier attenuation describes the effect of sound waves refracted around an imperforate element or barrier. A barrier could include man-made objects such as structures, buildings and fences, as well as topographical features. Therefore, the differences in ground elevation, source height, receiver height, dimension, location absorption and reflection coefficients of man-made structures and topographic features are important parameters when estimating barrier attenuation in SoundPLAN.

The following assumptions were made when running SoundPLAN:

- Noise impact calculations were performed using octave band data from 10 Hz to 10 kHz.
- Each wind turbine was modeled as individual point source at hub height (i.e., 107.5 meters).
- Noise impacts at the NSA and depicted in the isopleths were estimated assuming a receiver height of 1.5 meters AGL.

- Elevations of the sources and of the receptors examined in the modeling were determined from United States Geological Survey Digital Elevation Map (DEM) and are based on North American Datum of 1927. Each of the DEM files had a 30-m resolution (7.5-minute DEM providing coverage of 7.5 × 7.5-minute blocks).
- Atmospheric attenuation was modeled using a temperature of 10°C and 70% humidity as recommended by the ISO standard.
- Hardness of the ground between the sources and the receiver was assumed to be 50% hard and 50% soft ground. A ground factor of 0.5 was used in the model.
- The nearest NSA was chosen to model the noise impact.

The proposed project was conservatively assumed to operate 24 hours per day, so the average noise output (including variations due to start-ups and shutdowns) would be essentially constant regardless of time of day.

The model uses the octave band sound power levels (PWLs) of the individual pieces of equipment (i.e., the turbines) to calculate the corresponding sound pressure levels (SPLs) for the equipment. The formula used to derive the SPL (in dBA) is as follows:

$$SPL = PWL - 10 \log (2\pi r^2) \text{ dBA}$$

where:

PWL is the sound power level

r is in meters

SPL is the sound pressure level for the equipment in dBA

5.1.3 Operational Noise Impacts

Calculations were performed using linear octave band PWLs as inputs from each noise source. The calculated sound level contribution from the planned Wind Farm at the NSA is 18.3 dBA and 24.3 dBC. Table 5 presents the low frequency (16 Hz, 31.5 Hz, 63 Hz) noise contributions from the Wind Farm at the NSA.

Table 5. Summary of Low Frequency Noise (LFN) Level Contributions from the Wind Farm

Receiver	Location	Frequency (Hz)		
		16	31.5	63
Noise Limits for LFN		68	65	63
NSA	13,866 ft to the Southwest	-12.0 dB	2.1 dB	14.0 dB

A review of the data in Table 5 reveals that calculated noise emitted by the Wind Farm would be below the Navajo County noise standard at the nearest NSA. Noise contributions from the Wind Farm are low and well below the stated noise limits, so the project noise will remain at or below the specified County Code noise standard. Therefore, sound levels would be below the Navajo County Ordinance of 68 dB at 16 Hz, 65 dB at 31.5 Hz, and 63 dB at 63 Hz outside of the NSA, and would result in no significant impact.

Since noise contribution from the Wind Farm was 18.3 dBA the L_{dn} at the NSA was estimated to be 42.0 dBA, which is below the EPA recommendation of 55 dBA for residential land use. Table 5 lists the expected overall noise levels at the NSA in A- and C-weighted sound levels. While Table 5 lists the LFN contributions from the Wind Farm, Table 6 lists the overall noise levels (background, contributions, total noise levels). The L_{Aeq} at the NSA is expected to be 38.6 dBA, which is lower than the Navajo County Ordinance of 45 dBA $L_{Aeq,10}$. The Wind Farm’s contributing noise level at the NSA is 18.3 dBA and 24.3 dBC.

Table 6. Summary of Estimated Noise Levels at the NSA

Navajo County Noise Ordinance	Noise Levels	L_{Ceq} (dBC)	L_{Aeq} (dBA)	L_{dn} (dBA)
45.0 $L_{Aeq,10}$ (or $L_{A90,10} + 5$ dBA)	Background Noise Levels	50.6	38.6	42.0
	Project Contributions	24.3	18.3	-
	Total Calculated Noise Levels*	50.6	38.6	42.0

* <0.1 dBA increase

Isopleths of the entire area, which also depicts the nearest residential receptor (NSA) evaluated, is presented in Appendix A. Figures A-1 and A-2 present the isopleths which depict the color contour noise levels in dBA for day and night. Figures A-3 and A-4 present the isopleths which depict the color contour noise levels in dBC for day and night.

Contour Maps depicting an aerial view of the Wind Farm location are presented in Appendix B. Figures B-1 and B-2 show the sound contour for A-weighted sound levels over background noise levels. Figures B-3 and B-4 show the sound contour for C-weighted sound levels over background noise levels. These contour maps depict an aerial photo showing the project boundary, areas within 2 miles of the project boundary, and sound contours at 5-dBA intervals as requested by the Navajo County Guidance.

Impacts resulting from monsoonal atmospheric conditions were also considered in this study. Weather conditions during monsoon seasons are presented in Table 3. Noise contributions from the Wind Farm during the monsoon season is expected to decrease by approximately 1 decibel at the NSA. Resulting noise levels from monsoonal atmospheric conditions in dBA and dBC are presented in Table 7.

Table 7. Noise Levels During Monsoonal Atmospheric Conditions

Receiver	Monsoon Season		Annual Average		Standard Conditions	
	dBA	dBC	dBA	dBC	dBA	dBC
NSA	16.3	23.2	17.9	24.3	18.3	24.3

Operation of the proposed project would not affect the NSA in Navajo County, Arizona. The noise levels were modeled using SoundPLAN and were determined to be below the Navajo County Public Works Department Ordinance No. 06-10. The L_{Aeq} of 38.6 dBA at the nearest NSA is below the 45 dBA $L_{Aeq,10}$ or the measured background ($L_{A90,10}$ Plus 5 dB) noise limit. The LFN levels from the Wind Farm were also determined to be below the Low Frequency Noise Requirements as determined by Section 2008 of Ordinance No. 06-10.

The assessment results reveal that maximum sound levels from the Wind Farm would comply with all regulatory noise limits and guidelines established by Navajo County.

6 SUMMARY

SWCA conducted a noise impact assessment of the operation of the planned Chevelon Butte Wind Farm. The objective of the impact assessment was to calculate the cumulative noise level at the closest NSA, a residence located approximately 0.5 mile southeast of the project's tie-in, and to determine compliance with the Navajo County Public Works Department Ordinance No. 06-10.

In conclusion, the analysis indicates the following:

- The project would generate a daytime and nighttime noise level of up to 38.6 dBA at the closest residence (the NSA herein) to the project site, resulting in an increase over ambient levels (38.6 dBA) that is less than 0.1 dBA. Thus, no potential increase at the closest NSA is expected from the operation of the Wind Farm.
- The operation of the proposed project would not result in a substantial permanent increase in ambient noise levels at the closest NSA.
- Potential sound levels from the Wind Farm would comply with all regulatory noise limits and guidelines established by Navajo County Public Works Department Ordinance No. 06-10.

ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
AGL	above ground level
dB	decibel
dBA	decibel A-weighted
dBC	decibel C-weighted
DEM	United States Geological Survey Digital Elevation Map
EPA	U.S. Environmental Protection Agency
FTA	Federal Transit Administration
GE	General Electric
ISO	International Standards Organization
L_{eq}	Equivalent noise level
LFN	Low Frequency Noise
L_{dn}	Day-Night Sound Level
L_n	percentile noise level
m	meters
MW	megawatt
NSA	noise sensitive area
OSHA	Occupational Safety and Health Administration
PL	Public Law
PWL	sound power level
SPL	sound pressure level
μPa	micropascals
USC	United States Code

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APPENDIX A

SoundPLAN Isopleths

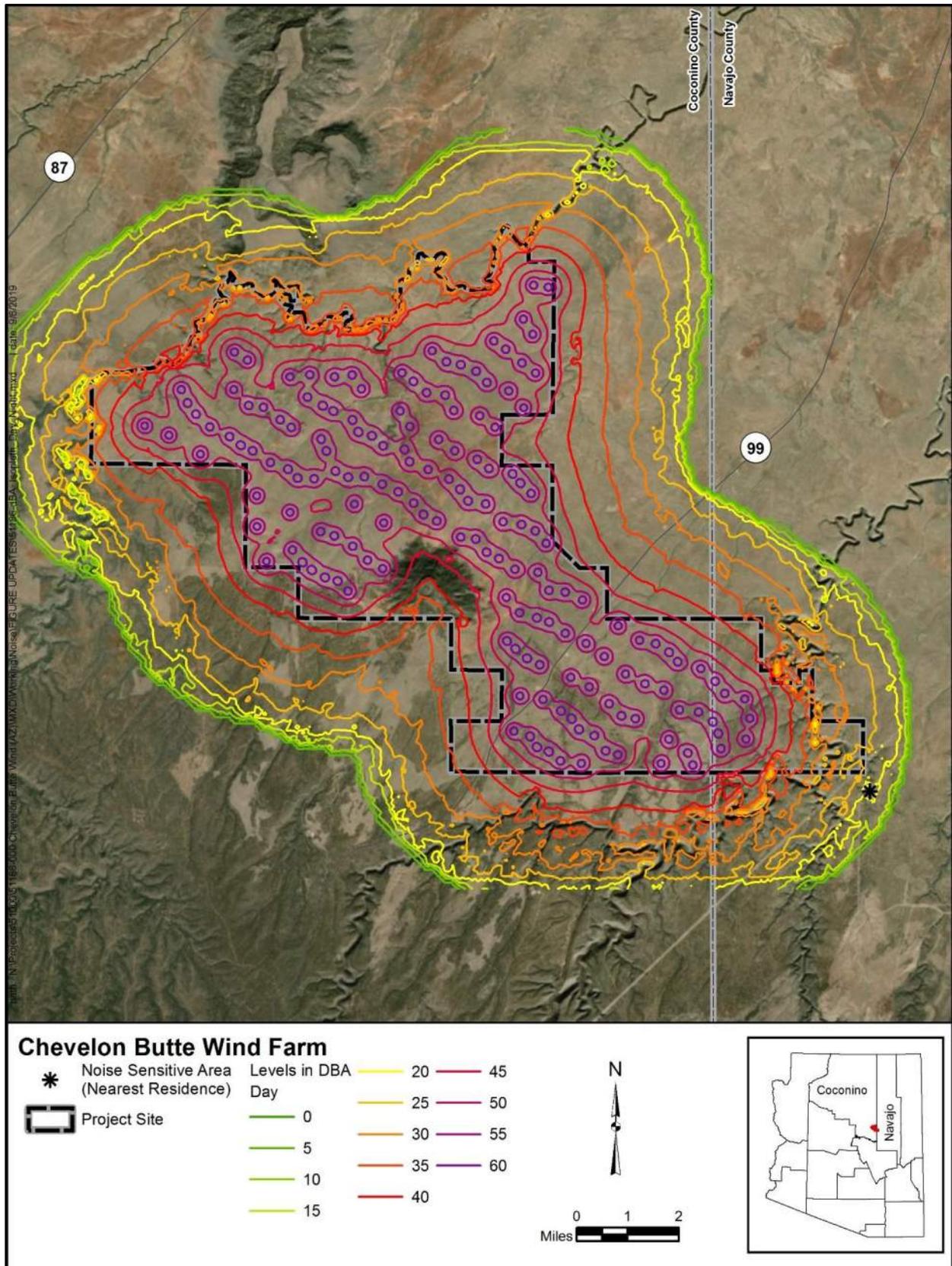


Figure A-1. dBA Day Isopleth

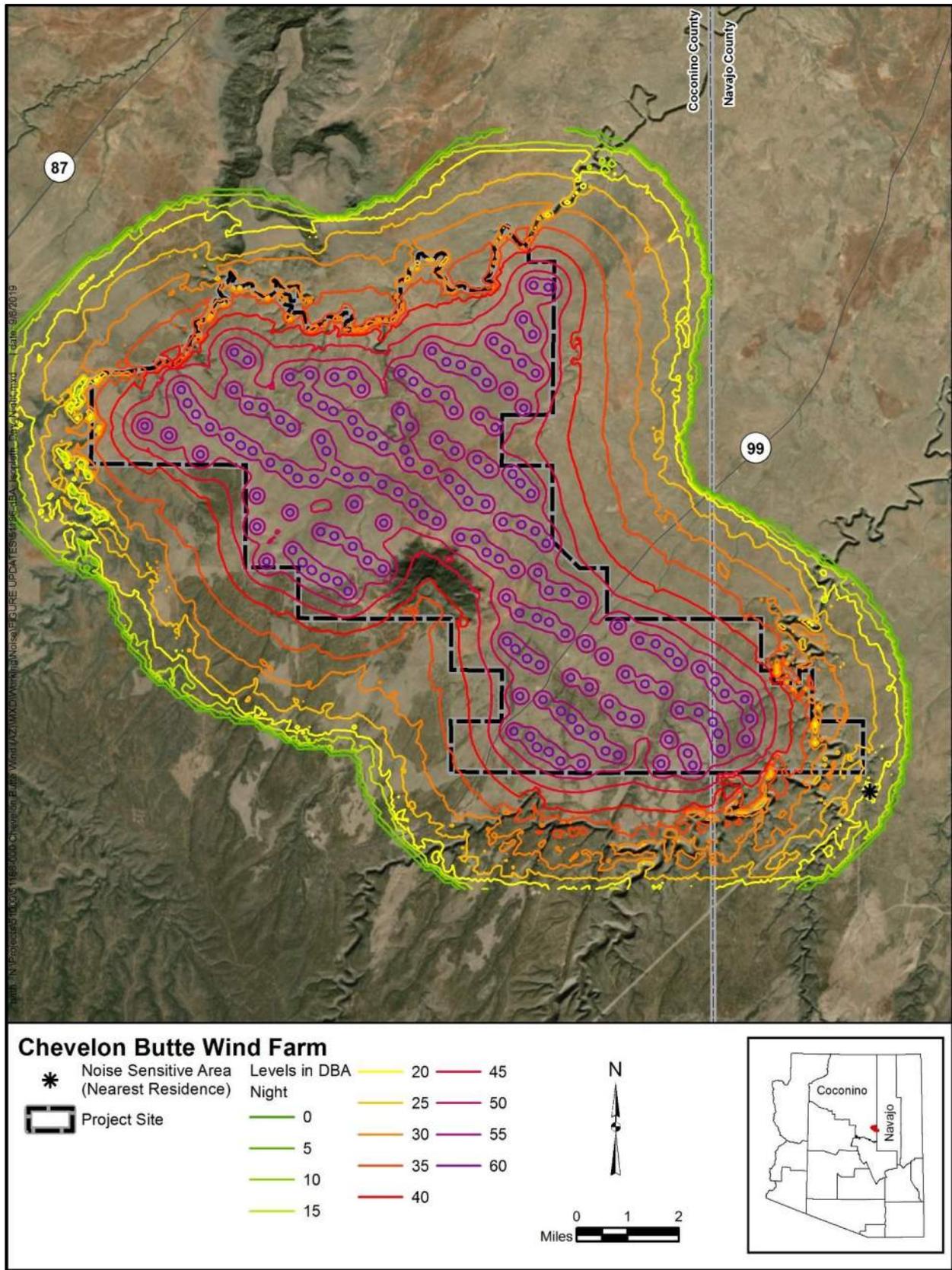


Figure A-2. dBA Night Isoleth

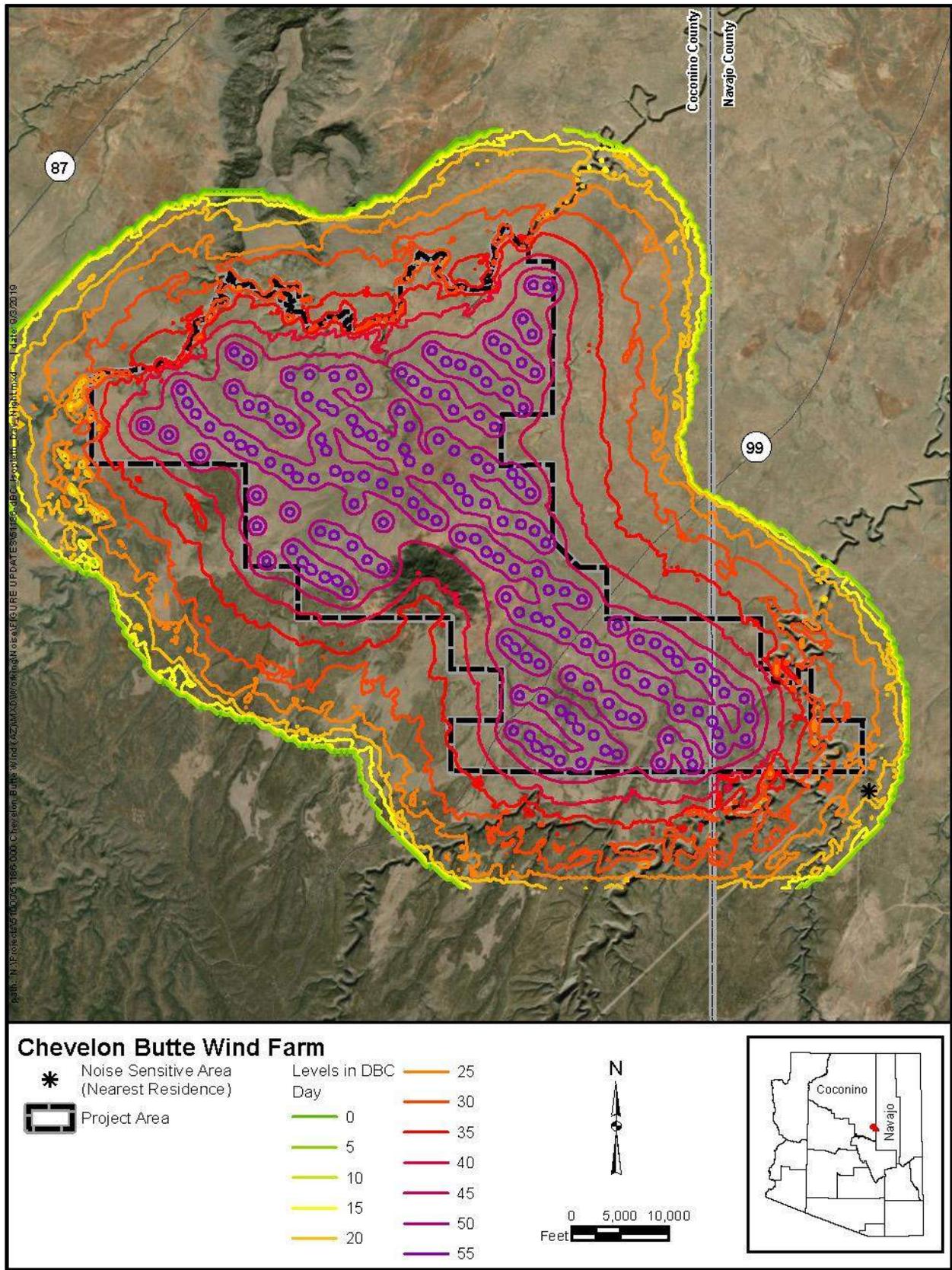


Figure A-3. dBC Day Isopleth

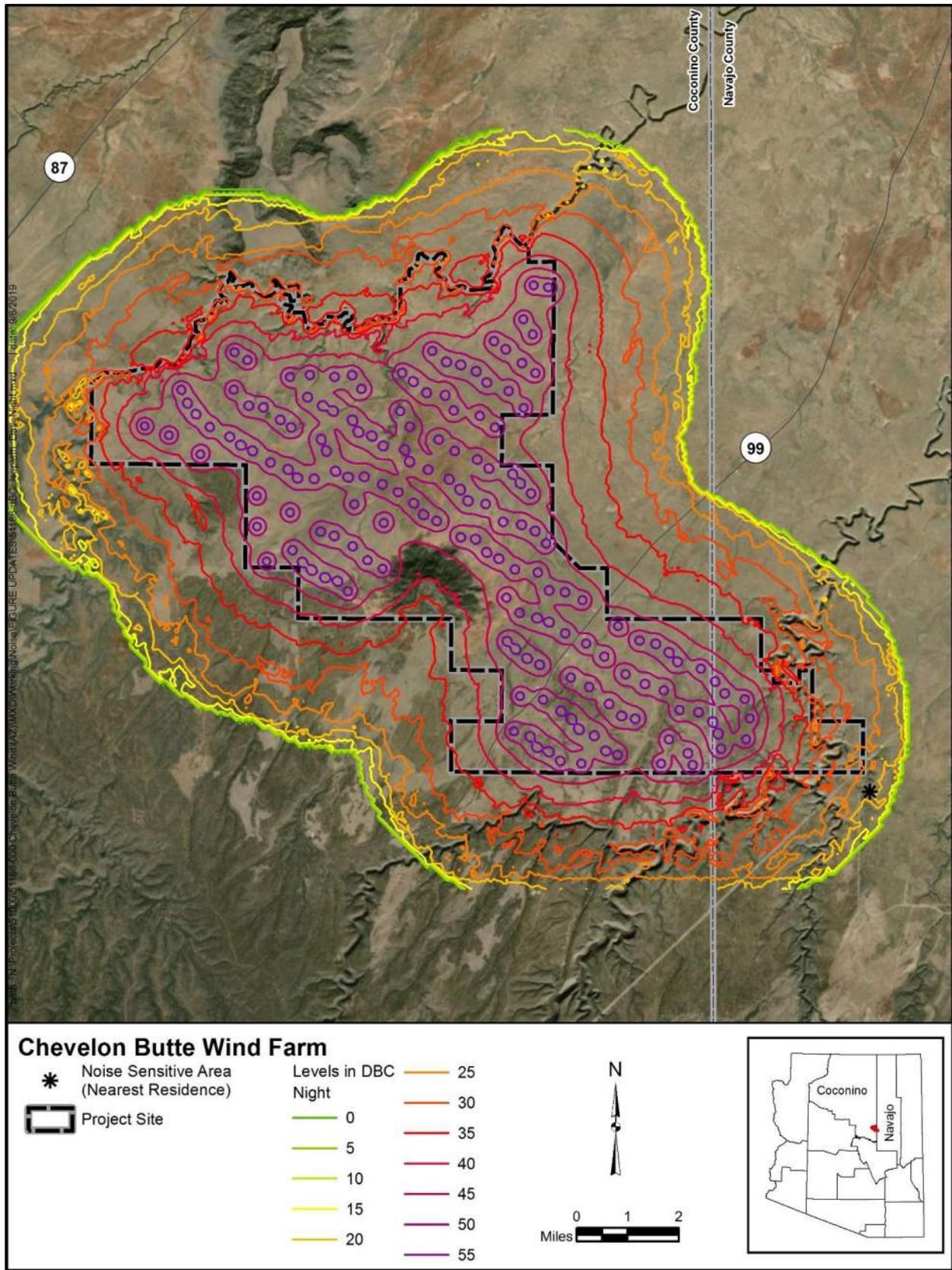


Figure A-4. dBc Night Isopleth

APPENDIX B

Chevelon Butte Wind Farm Contour Maps

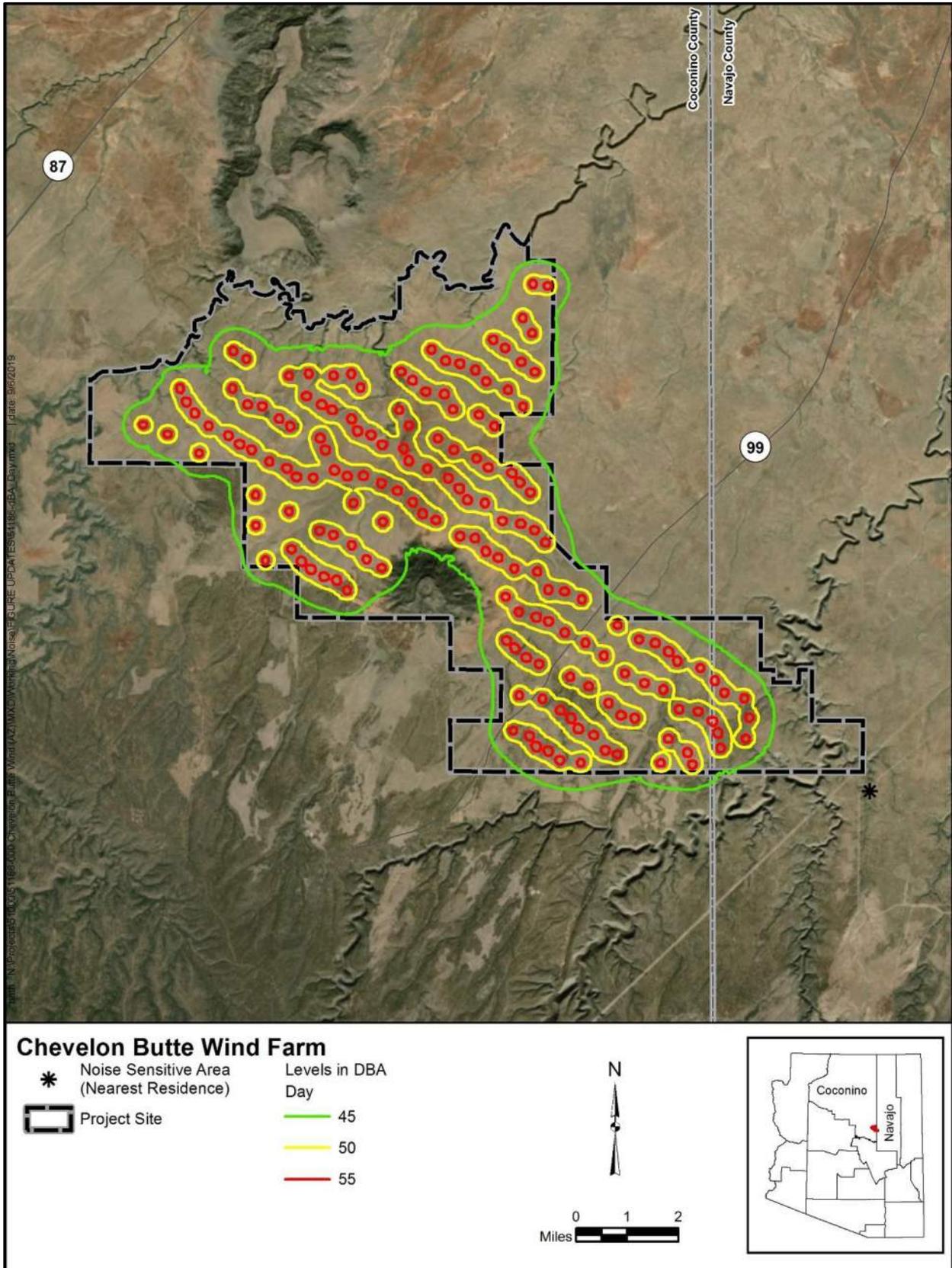


Figure B-1. dBA Day Contour Map

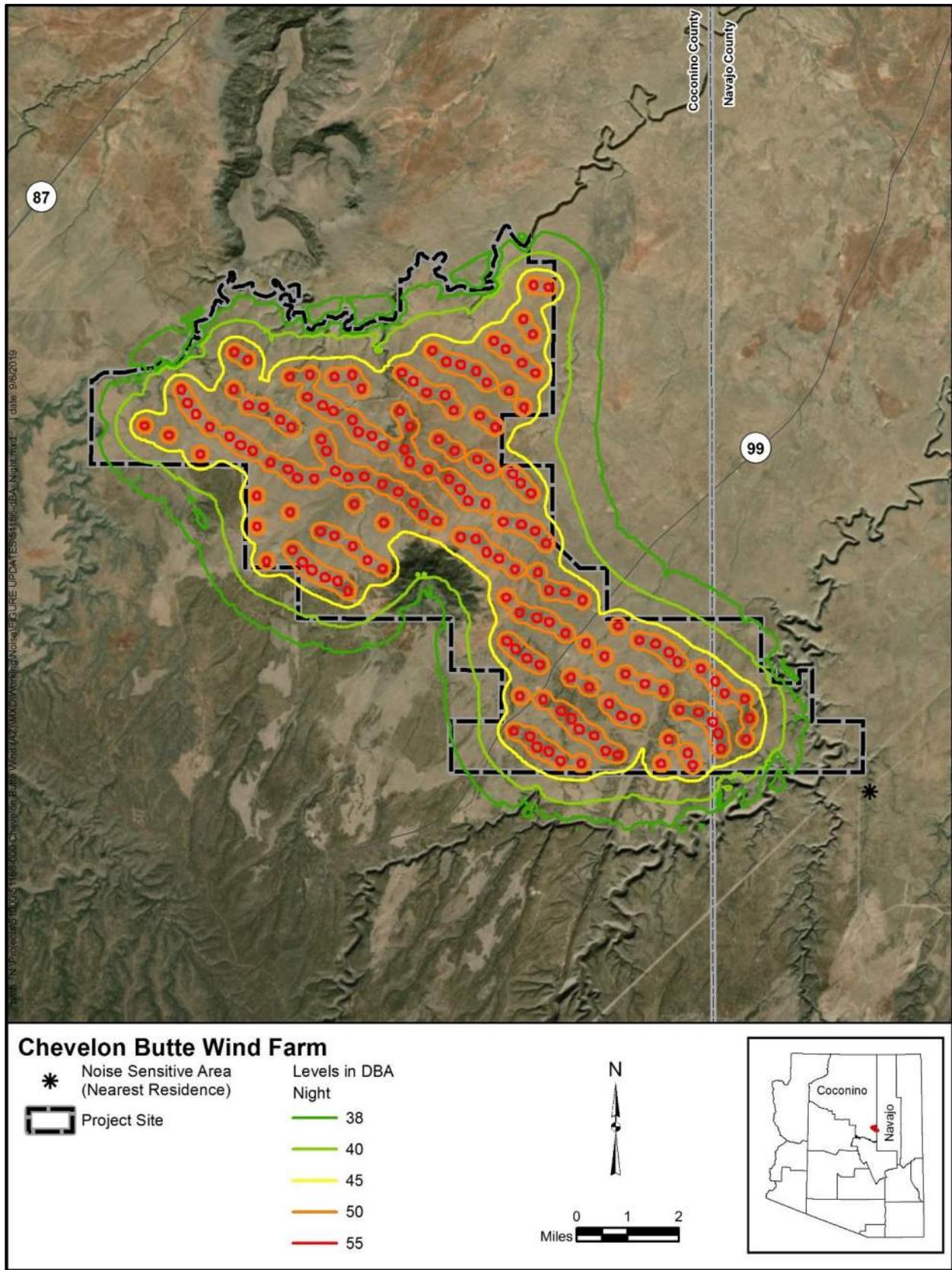


Figure B-2. dBA Night Contour Map

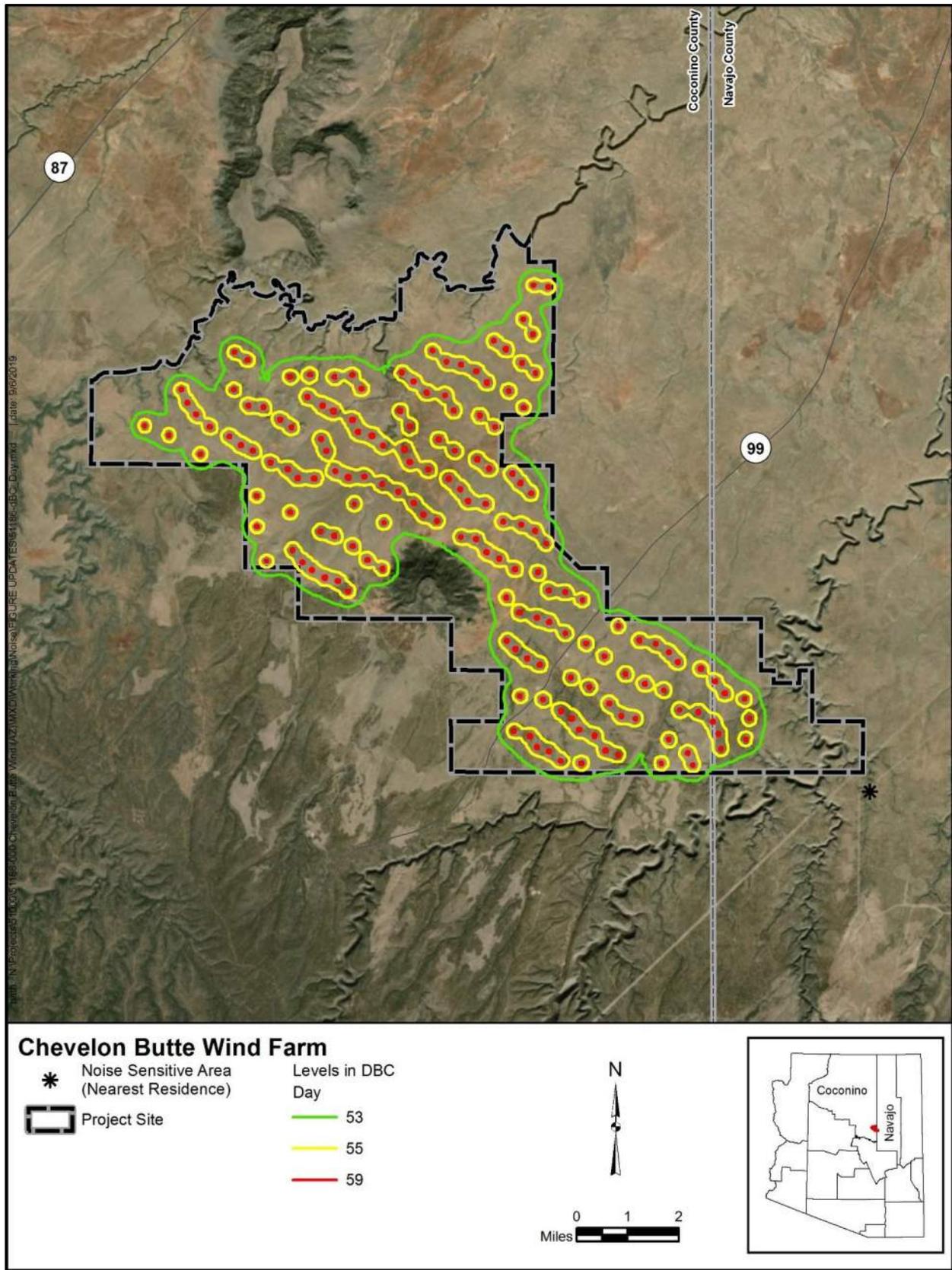


Figure B-3. dBC Day Contour Map

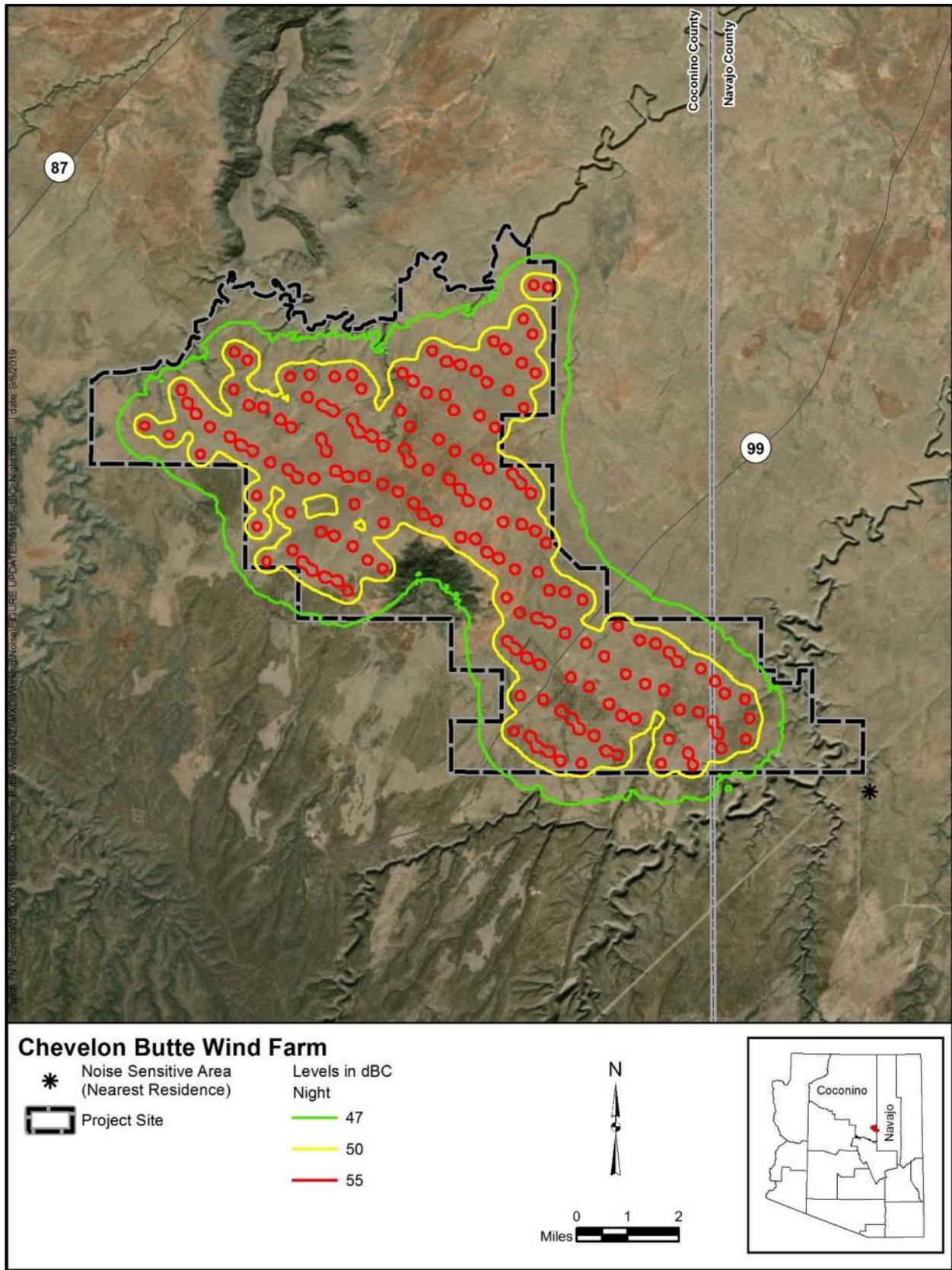


Figure B-4. dBC Night Contour Map

EXHIBIT F
Visual Impact Assessment

EXHIBIT F. VISUAL IMPACT ASSESSMENT

Introduction

This Visual Impact Assessment presents the anticipated visual impact of the planned Chevelon Butte Wind Farm (Wind Farm) to the surrounding area. Included in the assessment are (1) a description of the characteristic landscape in the project vicinity and (2) an evaluation of potential visual impacts based on computer-simulated views from Key Observation Points (KOPs) and a visual contrast analysis. All work presented here was performed by SWCA Environmental Consultants.

Methods

Multiple field visits were conducted to the project site and vicinity to (1) gain an understanding of the general landscape character that would potentially be affected by construction of the planned Wind Farm, (2) identify KOPs, and (3) take the photographs needed for creating the visual simulations.

KOP Identification

KOPs are vantage points from where the planned Wind Farm may be visible from publicly accessible locations. The KOPs were identified in coordination with the Applicant and selected in areas that represent the views of persons in residential and recreational areas, and in vehicles traveling along residential or regional roadways where the project would be seen (see Figure F-1).

Photography

Raw photographs, with five vertical digital single-lens reflex camera image-series, were taken at each KOP for use in producing the visual simulations. These images were combined (“stitched”) to create a cylindrical panoramic image that represents a person’s average peripheral vision: 125 degrees (horizontally) by 55 degrees (vertically). The stitched photographs represent the view a person would see looking towards the project from the KOP. The photographs were taken at documented GPS photo points and collected on four different visits to the project vicinity from May 14 to August 22, 2019, under sunny, partly sunny, and partly cloudy conditions that are representative of the region.

Visual Simulations

Simulated views of the project were made with ArcGIS, Google Earth Pro, windPRO, and Adobe Photoshop. Using these programs, the proposed layout of the turbines (as of April 2019, which includes a larger number of turbines than what is being applied for in Coconino County, and hence depicts conservatively greater visual impacts) was used to superimpose images (or “models”) of each turbine into the panoramic photographs described above.

A photo rendering or simulation of the proposed project was prepared using windPRO software. The simulations were developed by superimposing a three-dimensional computer model of the proposed turbines on a digital elevation model and then placing into the base photographs at the correct scale and distance. Date and time of day inputs determine shadows and reflected light and the software accounts for distance and haze to increase accuracy of viewing conditions. The specifications of the modeled turbine, the Vestas V 135-5.6, are: (1) hub height of 488.8 feet, (2) rotor diameter of 531.5 feet, and (3) total height of 754.6 feet.

Contrast Analysis

A visual contrast analysis is a qualitative discussion of anticipated contrast between the existing landscape and the proposed activities and facilities. Factors taken into consideration for such an analysis include distance of the proposed project elements from the viewer and the level of perceived contrast between the proposed project elements and the existing landscape. These factors are further defined below.

The distance zones for evaluating impacts to scenery are:

- Foreground: up to 1 mile
- Middle Ground: one to 3 miles
- Background: three to 5 miles

The level of perceived contrast between the proposed project elements and the existing landscape is classified using the following definitions:

- None: The contrast is not visible or perceived.
- Weak: The element contrast can be seen but does not attract attention.
- Moderate: The element contrast begins to attract attention and begins to dominate the characteristic landscape.
- Strong: The element contrast demands attention, would not be overlooked, and is dominant in the landscape.

Results

Characteristic Landscape

The landscape in the vicinity of the planned Wind Farm is characterized by flat or undulating open areas, canyons, distant mesas, and buttes. Vegetation consists mainly of large areas of light-colored (buff and light green) perennial grasses, forbs, and shrubs interspersed with dense stands of darker green juniper trees. Pine forest occurs along the southwestern and southern margins of the project site.

The most notable scenic features in the viewshed are East Sunset Mountain and Chevelon Butte. Chevelon Butte rises above the flat rangeland to an elevation of 6,945 feet above sea level and is the most prominent landscape feature in the area. The butte, rimmed by basalt cliffs, is dark in color and contrasts with the surrounding flat rangeland landscape. East Sunset Mountain is northwest of the butte and has a summit of 6,853 feet which is 2,598 feet from base level. Two canyons, Clear Creek Canyon and Chevelon Canyon, are major landforms in the viewshed, but both are narrow and, due to the relatively flat nature of the surrounding terrain, visible only to viewers near the canyon rims or on top of Chevelon Butte.

The landscape within the viewshed is mostly undeveloped but has been partially modified by human-made structures and activities. Roads, ranch infrastructure, and three high-voltage transmission lines (two 345 kV and a 500 kV) have contributed to changes to the natural landscape, as have scattered rural residences located on subdivided land to the east of the Wind Farm site. Numerous unpaved, reddish-tan roads and barbed wire fences travel and intersect throughout the entire viewshed. The dirt roads and paved State Route (SR) 99 contribute smooth, linear contrasts to the existing vegetation and organic forms. Additional human modification to the landscape includes occasional earthen and metal stock tanks, corrals, and ranch outbuildings. The geometric shapes of the support structures and lines associated with

the three existing transmission lines are readily apparent from many locations, particularly in the eastern portions of the viewshed.

With the exception of the existing transmission lines, the overall character of the immediate landscape is rural rangeland. In the background, red earthen buttes, the San Francisco Peaks, and distant mesas break the skyline to the east, north, and west. These features and densely forested low hills to the south give a sense of a natural and undeveloped regional landscape.

Visual Simulations and Contrast Analysis by KOP

SWCA identified and took photographs at 15 KOPs. After reviewing the photographs, it was determined that visual simulations would be informative for 11 of the KOPs. The locations of these KOPs are shown in Figure F-1, and the visual simulations created for them are included as Attachment A.

Impacts to scenic resources were determined by examining the simulations and evaluating the visual change in contrast and scenery (i.e., contrasts with existing conditions) that would result from the construction and operation of the planned Wind Farm. The visual impact analysis for each of the 11 KOPs is provided below.

KOP 1: Jacks Canyon (Coconino County)

This view at Jacks Canyon represents an outdoor recreationist's view of the project site. This location is a popular regional camping and sport climbing area managed by the U.S. Forest Service. The view is from a vehicular perspective from the main gravel entrance road for the trailhead and campground in an area of mature pinyon and juniper trees. This location is 6.62 miles southwest of the nearest turbine site. The distance of the project from this KOP distorts the size of the simulated turbines to where they blend into and are partially obscured by the vegetation's complex textures. From this view the project will create a weak contrast in the landscape. The KOP was recorded midday on May 14, 2019.

KOP 3: State Route 87, Northbound (Coconino County)

This KOP represents the view of a vehicular passenger traveling north on SR 87, southwest of the project site. This view from the two-lane, paved road is on a downward slope that ranges from one hundred to a few hundred feet above the base of the proposed turbines. The turbines in the simulation are located a minimum of 4.79 miles from the KOP. This view has minimal vegetation and topographic obstructions of Chevelon Butte and East Sunset Mountain; therefore, the project would be clearly visible to a casual observer but at a distance that would not dominate the views. From this view, the contrast this project would introduce to the landscape will be moderate. This view was photographed midday on May 14, 2019.

KOP 5: State Route 99, North of project boundary, Southbound (Navajo County)

This KOP illustrates a traveler's view headed southbound on SR 99, 4.1 miles northeast of the project boundary. SR 99 is a north-south paved road that traverses through the eastern side of the project site. At this KOP, the viewer will be 4.17 miles north-northwest of the nearest turbine and traveling 55 miles per hour (the posted speed limit). Although the viewer will be traveling quickly through the landscape, the turbines at this location would dominate the skyline and be visible throughout the traveler's field of view, creating a strong contrast to the existing landscape. This view was recorded midday on July 9, 2019.

KOP 6: Antelope Drive (Navajo County)

This view is from the western edge of the residential subdivision east of the project site and Chevelon Canyon. This subdivision consists of dispersed residences and vacant properties within a course density pinyon and juniper trees. The vegetation and topography create an undulating, irregular horizon in the midground that masks many of the simulated turbines. The nearest proposed turbine to this KOP is 4.68 miles away. This and other turbines will be obscured to such a degree that the project will introduce a weak contrast to this view and be only marginally noticeable to a casual or regular viewer. The KOP view was recorded midday on May 13, 2019.

KOP 7: Chevelon Avenue and Deer Run Road (Navajo County)

This KOP illustrates a vehicular traveler's view at the main southwestern entrance to a sparsely developed residential subdivision at the edge of Apache-Sitgreaves National Forests. The view shows the main intersection of a maintained gravel road and a two-track, a residence, pinyon-juniper trees, and a bit of Chevelon Butte. The project's closest turbine would be 5.19 miles northeast from the intersection. At this distance, the turbines will create a weak contrast to the existing landscape since they are largely screened by vegetation and a residential structure. This KOP was photographed midday on May 13, 2019.

KOP 8: State Route 99, Southern project area, Northbound (Coconino County)

This KOP illustrates the southbound view from a vehicle 0.4 mile within the project boundary on SR 99. This view, along the paved road, is constantly changing as the road curves around sparse, mature juniper and pinyon tree stands and low, rocky, grassy hills. These dappled clumps of trees partially screen the views of Chevelon Butte and East Sunset Mountain. The project from this view will also be partially screened; yet, the proximity of the nearest turbine, 0.66 mile north-northeast of the KOP, will contribute to the moderate-to-strong visual contrast within the existing landscape. The turbines in the fore and midground will partially screen bases and poles of the turbines, while the blades will be visible above the trees. Turbines and other project elements in the background will be screened or visually absorbed in the complex textures of the trees in the background. This view was recorded midday on July 9, 2019.

KOP 9: State Route 99, Project Boundary, Southbound (Coconino County)

The view from KOP 9 represents the southbound vehicular traveler's perspective and includes the northern side of Chevelon Butte, open rangeland, and juniper woodland. This KOP, located at the intersection of the project boundary and SR 99, is 0.49 mile northeast from the nearest turbine. The proximity of the turbines to the KOP location, lack of natural screening, and number of turbines within the view create a strong contrast with the existing view. This view was recorded midday on July 9, 2019.

KOP 10: State Route 87, Northbound

KOP 10 illustrates a vehicular view that frames both East Sunset Mountain and Chevelon Butte in the background as the traveler drives northbound along SR 87, a minor arterial highway. The view contains minimal development and is dominated by simple landforms in the background. The infrastructure, a single wooden pole electrical transmission line and two-lane road that parallel each other, does not dominate the landscape. This view, along with KOP 3, demonstrates the changing scenery as the viewer's distance from the project changes. KOP 10, in relation to KOP 3, provides a view that is 3.25 miles northbound along SR 87, 2.2 miles closer to the project, and 250 feet lower in elevation. These differences show how, with a few miles of traveling, the project will still not dominate the views of the landscape as the viewer travels down this road. This KOP is at the nearest point on this road to the turbines, at 4.93 miles. Those turbines will create a moderate contrast to the existing landscape because of

their distance from the KOP and the landforms in the background. This view was recorded midday on July 9, 2019.

KOP 11: Sunset Ridge Loop, Northeast View at Knuckle (Coconino County)

This KOP represents a roadside view at a highpoint in Mogollon Ranch, a residential subdivision, with views to the northeast from the road opening to a partially screened Chevelon Butte. Dense evergreen forest and deep-brown, multistory homes are evident in the fore and middle ground. The perspective of the vehicular viewer is centered on turbines in the southwestern portion of the project site, which is partially screened by vegetation in the mid and background. From this KOP, the simulated turbines are 7.98 miles from the viewer. The difference in color and shape may be evident. However, because of the distance to the turbines the project would create a weak to moderate contrast against the existing landscape. This view was recorded midmorning on August 22, 2019.

KOP 13: Sunset Ridge Loop, Southeastern View (Coconino County)

This KOP represents an additional roadside view in Mogollon Ranch where the viewer has a partially screened, elevated view of East Sunset Mountain and Chevelon Butte. This loop road is perched along a ridgeline southwest of the project site and is the access road for many residences that have views of the project site. The turbines are mostly screened from the viewer by vegetation in the foreground. With the partial screening, existing infrastructure crossing the view, and the distance to the nearest turbine (8.6 miles), this KOP demonstrates a weak to moderate contrast in the landscape. This view was recorded midmorning on August 22, 2019.

KOP 14: Sunset Ridge Loop, Central View (Coconino County)

KOP 14 illustrates a view in Mogollon Ranch from an unpaved local road where the viewer has a minimally screened, elevated view of East Sunset Mesa and Chevelon Butte. The sloped landscape is densely wooded with pinyon and juniper trees. From this high elevation, and with the landforms centered in the view, the project's turbines will be centered in view and visible to a casual observer. Trees in the foreground of the view partially screen the project turbines, the nearest of which is 8.2 miles away to the northeast. The project's distance from the viewer and partial screening will create a weak to moderate contrast in the landscape. This view was recorded midmorning on August 22, 2019.

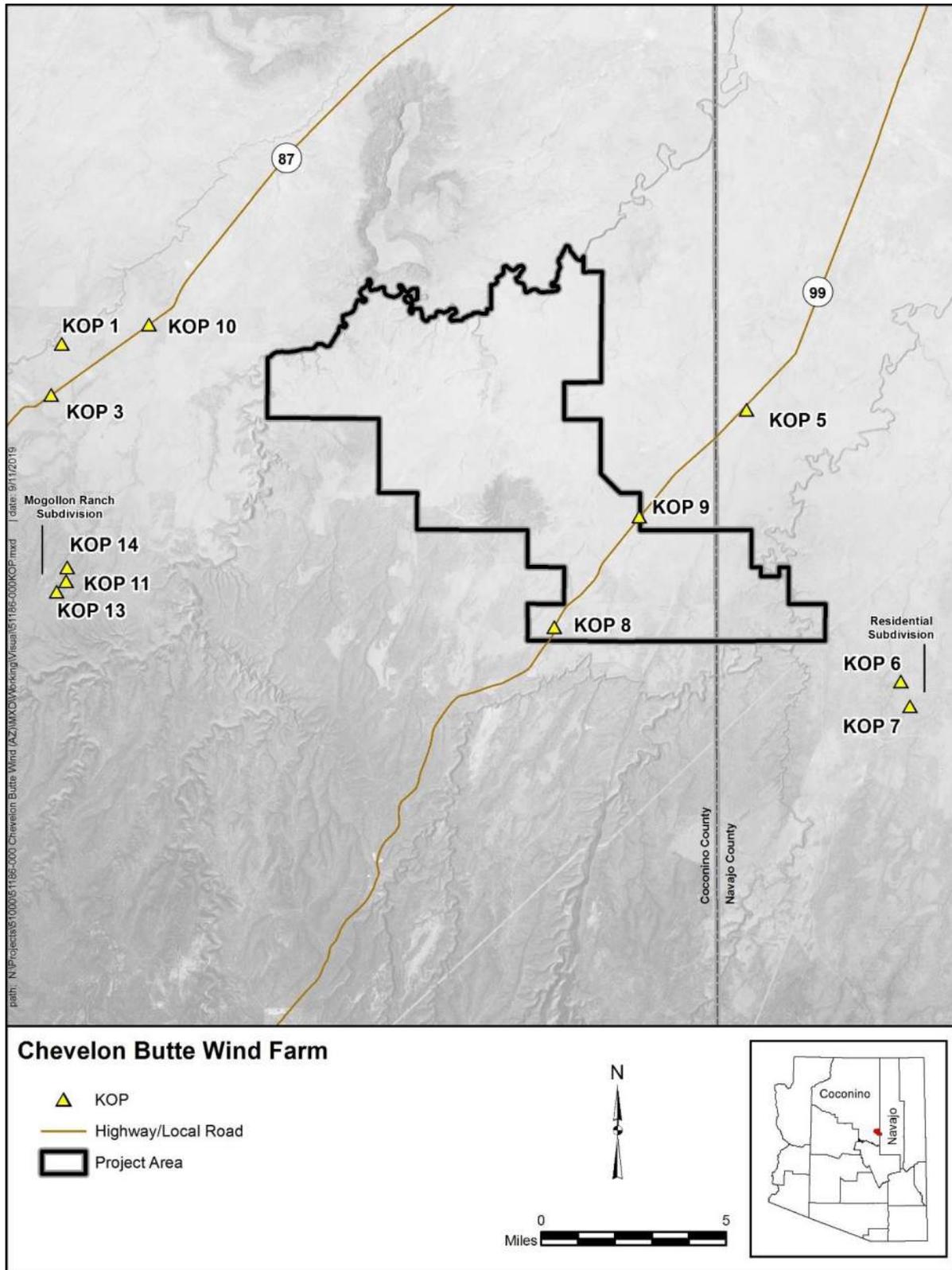


Figure F-1. Key Observation Point (KOP) locations for the Chevelon Butte Wind Farm Visual Simulations and Contrast Analysis.

EXHIBIT F – ATTACHMENT A

Visual Simulations



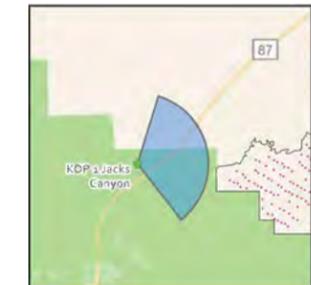
KOP 1: Jacks Canyon - Existing



KOP 1: Jacks Canyon - Proposed Visual Simulation

Chevelon Butte Wind

KOP 1: Jacks Canyon



- KOPs
- Photograph Angle
- Project Area
- Turbine Locations

Base Photographic Documentation

<i>Date</i>	05/14/2019
<i>Time (24H)</i>	13:45
<i>Longitude (°)</i>	-111.061306
<i>Latitude (°)</i>	34.754000
<i>Viewpoint Elevation (ft)</i>	6,249
<i>Camera Height (m)</i>	1.5
<i>Camera Heading(deg.)</i>	88

Camera Information

<i>Camera Make & Model</i>	Nikon D5600
<i>Camera Sensor Size</i>	23.6mm x 15.6mm
<i>Lens Make & Model</i>	AF-P Nikkor 18-55 mm
<i>Lens Focal Length</i>	22mm
<i>Crop Factor</i>	1.53

Sun and Weather Information

<i>Sun Azimuth (°)</i>	235 SW
<i>Sun Elevation (°)</i>	65
<i>Lighting Angle on Project</i>	right lit
<i>Weather Conditions</i>	Partly Cloudy
<i>Avg. Predicted Visibility</i>	10 miles
<i>Temperature (°F)</i>	82
<i>Humidity (%)</i>	16

Proposed Infrastructure Information

<i>Closest Distance to Turbine</i>	6.61 miles
<i>Turbines in Field of View</i>	174
<i>Make & Model</i>	Vestas V162
<i>Quantity</i>	174
<i>Max. Height (ft.)</i>	754.6

Photosimulation Created Using:
ArcGIS; Adobe Photoshop; SketchUp;
Google EarthPro

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KOP 3: State Route 87, North Bound - Existing



KOP 3: State Route 87, North Bound - Proposed Visual Simulation

Chevelon Butte Wind

KOP 3: State Route 87,
North Bound



- KOPs
- Photograph Angle
- Project Area
- Turbine Locations

Base Photographic Documentation

Date	05/14/2019
Time (24H)	14:30
Longitude (°)	-111.066431
Latitude (°)	34.73402
Viewpoint Elevation (ft)	6,390
Camera Height (m)	1.5
Camera Heading(deg.)	96

Camera Information

Camera Make & Model	Nikon D5600
Camera Sensor Size	23.6mm x 15.6mm
Lens Make & Model	AF-P Nikkor 18-55 mm
Lens Focal Length	22mm
Crop Factor	1.53

Sun and Weather Information

Sun Azimuth (°)	249 SW
Sun Elevation (°)	58
Lighting Angle on Project	back lit
Weather Conditions	Partly Cloudy
Avg. Predicted Visibility	10 miles
Temperature (°F)	83
Humidity (%)	19

Proposed Infrastructure Information

Closest Distance to Turbine	6.79 miles
Turbines in Field of View	174
Make & Model	Vestas V162
Quantity	174
Max. Height (ft)	754.6

Photosimulation Created Using:
ArcGIS; Adobe Photoshop; SketchUp;
Google EarthPro

Provided by
SWCA[®]
ENVIRONMENTAL CONSULTANTS



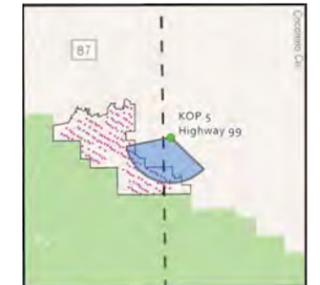
KOP 5: Highway 99, South Bound - Existing



KOP 5: Highway 99, South Bound - Proposed Visual Simulation

Chevelon Butte Wind

KOP 5: Highway 99,
South Bound



- KOPs
- Photograph Angle
- Project Area
- Turbine Locations

Base Photographic Documentation

Date	07/09/2019
Time (24H)	12:45
Longitude (°)	-110.736038
Latitude (°)	34.727850
Viewpoint Elevation (ft)	5,866
Camera Height (m)	1.5
Camera Heading(deg.)	248

Camera Information

Camera Make & Model	Nikon D5600
Camera Sensor Size	23.6mm x 15.6mm
Lens Make & Model	AF-P Nikkor 18-55 mm
Lens Focal Length	22mm
Crop Factor	1.53

Sun and Weather Information

Sun Azimuth (°)	199 SSW
Sun Elevation (°)	77
Lighting Angle on Project	right lit
Weather Conditions	Sunny
Avg. Predicted Visibility	10 miles
Temperature (°F)	93
Humidity (%)	9

Proposed Infrastructure Information

Closest Distance to Turbine	4.21 miles
Turbines in Field of View	142
Make & Model	Vestas V162
Quantity	174
Max. Height (ft)	754.6

Photosimulation Created Using:
ArcGIS; Adobe Photoshop; SketchUp;
Google EarthPro

Provided by
SWCA[®]
ENVIRONMENTAL CONSULTANTS



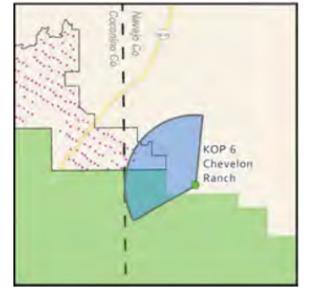
KOP 6: Antelope Drive - Existing



KOP 6: Antelope Drive - Proposed Visual Simulation

Chevelon Butte Wind

KOP 6: Antelope Drive



Base Photographic Documentation

Date	05/13/2019
Time (24H)	10:30
Longitude (°)	-110.663123
Latitude (°)	34.621033
Viewpoint Elevation (ft)	6,198
Camera Height (m)	1.5
Camera Heading(deg.)	314

Camera Information

Camera Make & Model	Nikon D5600
Camera Sensor Size	23.6mm x 15.6mm
Lens Make & Model	AF-P Nikkor 18-55 mm
Lens Focal Length	22mm
Crop Factor	1.53

Sun and Weather Information

Sun Azimuth (°)	117 ESE
Sun Elevation (°)	61
Lighting Angle on Project	right lit
Weather Conditions	Partly Cloudy
Avg. Predicted Visibility	10 miles
Temperature (°F)	69
Humidity (%)	39

Proposed Infrastructure Information

Closest Distance to Turbine	4.68 miles
Turbines in Field of View	173
Make & Model	Vestas V162
Quantity	174
Max. Height (ft)	754.6

Photosimulation Created Using:
ArcGIS; Adobe Photoshop; SketchUp;
Google EarthPro

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KOP 7: Chevelon Ave & Deer Run Road - Existing



KOP 7: Chevelon Ave & Deer Run Road - Proposed Visual Simulation

Chevelon Butte Wind

KOP 7: Chevelon Ave & Deer Run Road



- KOPs
- Photograph Angle
- Project Area
- Turbine Locations

Base Photographic Documentation

Date	05/13/2019
Time (24H)	13:30
Longitude (°)	-110.658729
Latitude (°)	34.611275
Viewpoint Elevation (ft)	6,260
Camera Height (m)	1.5
Camera Heading(deg.)	306

Camera Information

Camera Make & Model	Nikon D5600
Camera Sensor Size	23.6mm x 15.6mm
Lens Make & Model	AF-P Nikkor 18-55 mm
Lens Focal Length	22mm
Crop Factor	1.53

Sun and Weather Information

Sun Azimuth (°)	229 SW
Sun Elevation (°)	67
Lighting Angle on Project	left lit
Weather Conditions	Partly Cloudy
Avg. Predicted Visibility	10 miles
Temperature (°F)	77
Humidity (%)	18

Proposed Infrastructure Information

Closest Distance to Turbine	5.19 miles
Turbines in Field of View	126
Make & Model	Vestas V162
Quantity	174
Max. Height (ft)	754.6

Photosimulation Created Using:
ArcGIS; Adobe Photoshop; SketchUp;
Google EarthPro

Provided by
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ENVIRONMENTAL CONSULTANTS



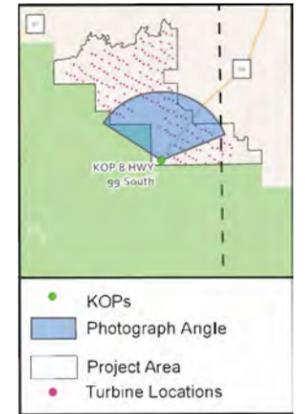
KOP 8: Highway 99, North Bound - Existing



KOP 8: Highway 99, North Bound - Proposed Visual Simulation

Chevelon Butte Wind

KOP 8: Highway 99,
North Bound



Base Photographic Documentation

Date	07/09/2019
Time (24H)	12:05
Longitude (°)	-110.827460
Latitude (°)	34.642670
Viewpoint Elevation (ft)	6,322
Camera Height (ft)	4.0
Camera Heading(deg.)	3

Camera Information

Camera Make & Model	Nikon D5600
Camera Sensor Size	23.6mm x 15.6mm
Lens Make & Model	AF-P Nikkor 18-55 mm
Lens Focal Length	22mm
Crop Factor	1.53

Sun and Weather Information

Sun Azimuth (°)	152 SSE
Sun Elevation (°)	76
Lighting Angle on Project	top lit
Weather Conditions	sunny
Avg. Predicted Visibility	10 miles
Temperature (°F)	93
Humidity (%)	10

Proposed Infrastructure Information

Closest Distance to Turbine	0.65 mile
Turbines in Field of View	106
Make & Model	Vestas V162
Quantity	174
Max. Height (ft)	754.6

Photosimulation Created Using:
ArcGIS; Adobe Photoshop; SketchUp;
Google EarthPro

Provided by
SWCA[®]
ENVIRONMENTAL CONSULTANTS



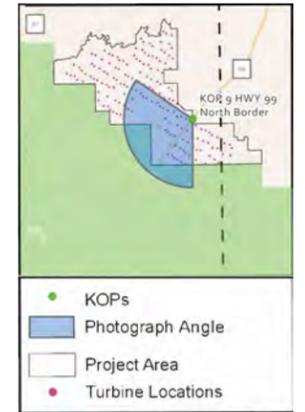
KOP 9: Highway 99, Project Boundary, South Bound - Existing



KOP 9: Highway 99, Project Boundary, South Bound - Proposed Visual Simulation

Chevelon Butte Wind

KOP 9: Highway 99,
Project Boundary,
South Bound



Base Photographic Documentation

Date	07/09/2019
Time (24H)	12:20
Longitude (°)	-110.786960
Latitude (°)	34.685985
Viewpoint Elevation (ft)	6,062
Camera Height (ft)	4.0
Camera Heading(deg.)	246

Camera Information

Camera Make & Model	Nikon D5600
Camera Sensor Size	23.6mm x 15.6mm
Lens Make & Model	AF-P Nikkor 18-55 mm
Lens Focal Length	22mm
Crop Factor	1.53

Sun and Weather Information

Sun Azimuth (°)	173 S
Sun Elevation (°)	78
Lighting Angle on Project	top lit
Weather Conditions	sunny
Avg. Predicted Visibility	10 miles
Temperature (°F)	93
Humidity (%)	10

Proposed Infrastructure Information

Closest Distance to Turbine	0.83 mile
Turbines in Field of View	92
Make & Model	Vestas V162
Quantity	174
Max. Height (ft)	754.6

Photosimulation Created Using:
ArcGIS; Adobe Photoshop; SketchUp;
Google EarthPro

Provided by
SWCA[®]
ENVIRONMENTAL CONSULTANTS



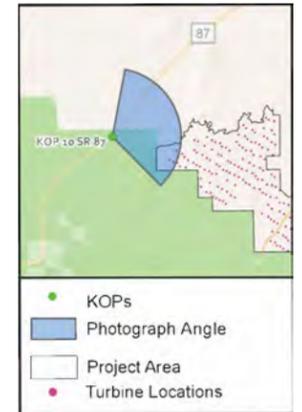
KOP 10: State Route 87, North Bound - Existing



KOP 10: State Route 87, North Bound - Proposed Visual Simulation

Chevelon Butte Wind

KOP 10: State Route 87,
North Bound



Base Photographic Documentation

Date	07/09/2019
Time (24H)	13:35
Longitude (°)	-111.030540
Latitude (°)	34.755453
Viewpoint Elevation (f)	6,158
Camera Height (f)	4.0
Camera Heading(deg.)	75

Camera Information

Camera Make & Model	Nikon D5600
Camera Sensor Size	23.6mm x 15.6mm
Lens Make & Model	AF-P Nikkor 18-55 mm
Lens Focal Length	22mm
Crop Factor	1.53

Sun and Weather Information

Sun Azimuth (°)	233SW
Sun Elevation (°)	71
Lighting Angle on Project	top lit
Weather Conditions	sunny
Avg. Predicted Visibility	10 miles
Temperature (°F)	97
Humidity (%)	9

Proposed Infrastructure Information

Closest Distance to Turbine	4.93 miles
Turbines in Field of View	90
Make & Model	Vestas V162
Quantity	174
Max. Height (ft)	754.6

Photosimulation Created Using:
ArcGIS; Adobe Photoshop; SketchUp;
Google EarthPro

Provided by
SWCA[®]
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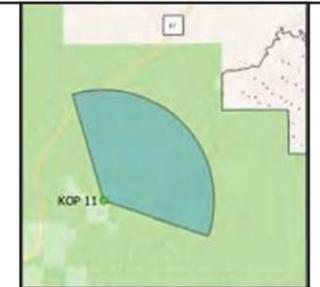
KOP 11: Sunset Ridge Loop, Northeast View at Knuckle - Existing



KOP 11: Sunset Ridge Loop, Northeast View at Knuckle - Proposed Visual Simulation

Chevelon Butte Wind

KOP 11: Sunset Ridge Loop, Northeast View at Knuckle



- KOPs
- Photograph Angle
- Project Area
- Turbine Locations

Base Photographic Documentation

Date	08/22/2019
Time (24H)	13:45
Longitude (°)	-111.058873
Latitude (°)	34.666249
Viewpoint Elevation (f)	6,781
Camera Height (f)	4.0
Camera Heading(deg.)	114

Camera Information

Camera Make & Model	Nikon D5600
Camera Sensor Size	23.6mm x 15.6mm
Lens Make & Model	AF-P Nikkor 18-55 mm
Lens Focal Length	22mm
Crop Factor	1.53

Sun and Weather Information

Sun Azimuth (°)	223 SW
Sun Elevation (°)	61
Lighting Angle on Project	top lit
Weather Conditions	mostly sunny
Avg. Predicted Visibility	10 miles
Temperature (°F)	97
Humidity (%)	11

Proposed Infrastructure Information

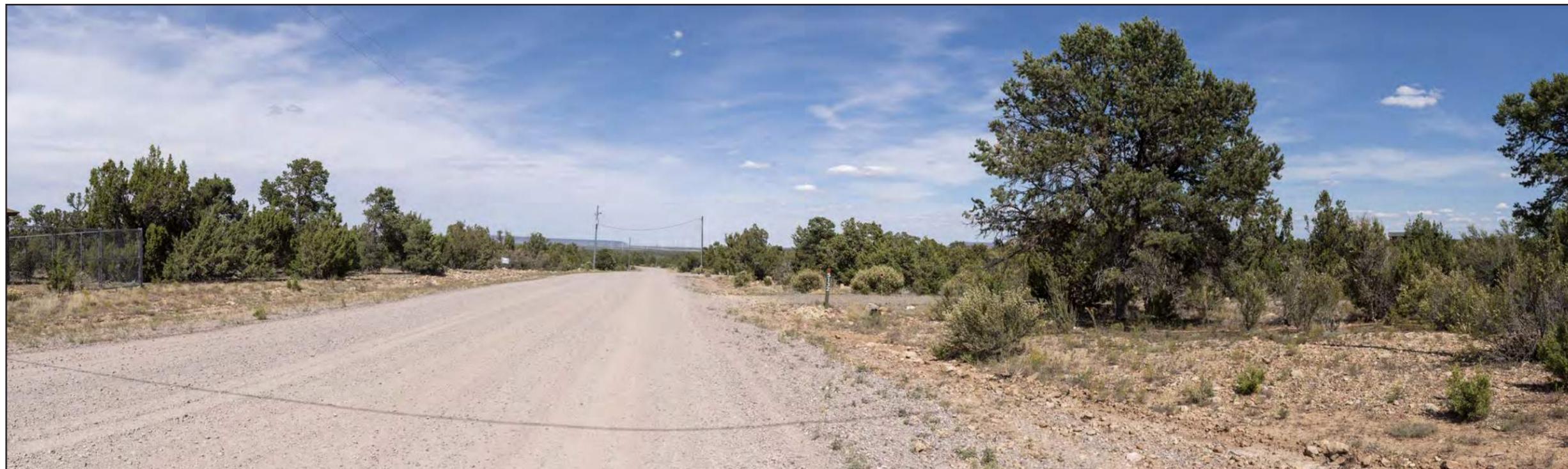
Closest Distance to Turbine	7.99 miles
Turbines in Field of View	163
Make & Model	Vestas V162
Quantity	174
Max. Height (ft)	754.6

Simulation Created Using:
ArcGIS Pro; Adobe Photoshop;
windPro 3.3; Google EarthPro

Provided by
SWCA[®]
ENVIRONMENTAL CONSULTANTS



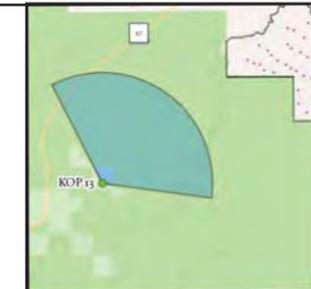
KOP 13: Sunset Ridge Loop, Southeastern View - Existing



KOP 13: Sunset Ridge Loop, Southeastern View - Proposed Visual Simulation

Chevelon Butte Wind

KOP 13: Sunset Ridge Loop, Southeastern View



- KOPs
- Photograph Angle
- Project Area
- Turbine Locations

Base Photographic Documentation

<i>Date</i>	08/22/2019
<i>Time (24H)</i>	14:30
<i>Longitude (°)</i>	-111.064133
<i>Latitude (°)</i>	34.656438
<i>Viewpoint Elevation (f)</i>	6,158
<i>Camera Height (f)</i>	4.0
<i>Camera Heading(deg.)</i>	75

Camera Information

<i>Camera Make & Model</i>	Nikon D5600
<i>Camera Sensor Size</i>	23.6mm x 15.6mm
<i>Lens Make & Model</i>	AF-P Nikkor 18-55 mm
<i>Lens Focal Legth</i>	22mm
<i>Crop Factor</i>	1.53

Sun and Weather Information

<i>Sun Azimuth (°)</i>	238 WSW
<i>Sun Elevation (°)</i>	54
<i>Lighting Angle on Project</i>	top lit
<i>Weather Conditions</i>	mostly sunny
<i>Avg. Predicted Visibility</i>	10 miles
<i>Tempature (°F)</i>	97
<i>Humidity (%)</i>	12

Proposed Infrastructure Information

<i>Closest Distance to Turbine</i>	8.65 miles
<i>Turbines in Field of View</i>	90
<i>Make & Model</i>	Vestas V162
<i>Quantity</i>	174
<i>Max. Height (ft)</i>	754.6

Photosimulation Created Using:
ArcGIS; Adobe Photoshop; SketchUp;
Google EarthPro

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KOP 14: Sunset Ridge Loop, Central View - Existing



KOP 14: Sunset Ridge Loop, Central View - Proposed Visual Simulation

Chevelon Butte Wind

KOP 14: Sunset Ridge Loop, Central View



- KOPs
- Photograph Angle
- Project Area
- Turbine Locations

Base Photographic Documentation

<i>Date</i>	08/22/2019
<i>Time (24H)</i>	13:20
<i>Longitude (°)</i>	-111.059125
<i>Latitude (°)</i>	34.660850
<i>Viewpoint Elevation (f)</i>	6,692
<i>Camera Height (f)</i>	4.0
<i>Camera Heading(deg.)</i>	52

Camera Information

<i>Camera Make & Model</i>	Nikon D5600
<i>Camera Sensor Size</i>	23.6mm x 15.6mm
<i>Lens Make & Model</i>	AF-P Nikkor 18-55 mm
<i>Lens Focal Length</i>	22mm
<i>Crop Factor</i>	1.53

Sun and Weather Information

<i>Sun Azimuth (°)</i>	211 SSW
<i>Sun Elevation (°)</i>	64
<i>Lighting Angle on Project</i>	top lit
<i>Weather Conditions</i>	mostly sunny
<i>Avg. Predicted Visibility</i>	10 miles
<i>Temperature (°F)</i>	97
<i>Humidity (%)</i>	11

Proposed Infrastructure Information

<i>Closest Distance to Turbine</i>	8.21 miles
<i>Turbines in Field of View</i>	161
<i>Make & Model</i>	Vestas V162
<i>Quantity</i>	174
<i>Max. Height (ft)</i>	754.6

Photosimulation Created Using:
ArcGIS; Adobe Photoshop; SketchUp;
Google EarthPro



EXHIBIT G

Arizona Game and Fish Department Letter



July 2, 2019

Mr. Allen Graber
SWCA Environmental Consultants
114 N. San Francisco St.
Flagstaff, AZ 86001

Electronic Submission: agraber@swca.com

Re: Pre-Construction Survey Plan Follow Up Meeting for the Chevelon Butte Wind Project

Dear Mr. Graber,

Thank you for meeting with the Arizona Game and Fish Department (Department) and the U.S Fish and Wildlife Service (USFWS) on May 29, 2019 regarding the pre-construction survey plan for Chevelon Butte Wind Project. The discussions allowed all parties to express their interests in the project and understand each others viewpoints. Based on discussion, it is the Department's understanding that the following would occur:

- sPower will place a 1-mile buffer along the canyons where potential eagle nest structures exist. Where eagle structures do not exist, sPower agreed to conduct migration surveys or place ½ mile buffer.
 - If migration surveys are conducted, this would entail about 10-days of migration monitoring from approximately 9:00A - 3:00P (between September 20 and October 5). The most informative location for conducting this monitoring will depend on topography with consideration of turbine buffers and proposed turbine arrays. The Department can work with S-Power and SWCA to identify the best raptor migration monitoring options.
 - If migration surveys are not performed, then sPower agreed to place ½ mile buffer where potential eagle nest structures do not exist. If migration monitoring and/or raptor use surveys reveal elevated utilization of the canyons, the Department would encourage sPower to consider a 1-mile buffer along the entirety of the canyons to ensure mortalities are reduced for migrating raptor species and eagles that utilize the canyon where nest structures do not exist.
- sPower and SWCA are in the process of obtaining data on eagle use surveys from the USFWS. This data will help inform that aspect of eagle usage in the area. Additionally, SWCA performed Utilization Distribution surveys during the winter months.
 - The Department recommends the point count eagle/raptor use surveys be analyzed similarly to evaluate year-round eagle utilization of the project area.
- During the construction phase of the project, sPower would limit hunting access to the O'Haco Ranch due to liability and safety concerns. The O'haco Ranch entered into an

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5000 W. CAREFREE HIGHWAY, PHOENIX AZ 85086

GOVERNOR: DOUGLAS A. DUCEY **COMMISSIONERS:** CHAIRMAN, JAMES S. ZIELER, ST. JOHNS | ERIC S. SPARKS, TUCSON | KURT R. DAVIS, PHOENIX
LELAND S. "BILL" BRAKE, ELGIN | JAMES R. AMMONS, YUMA **DIRECTOR:** TY E. GRAY **DEPUTY DIRECTOR:** TOM P. FINLEY

access agreement with Department for hunter access in May 2014. In September 2018, the agreement was amended to extend through May 2024. To accommodate this closure, the Department and the O'Haco Ranch, working in partnership with sPower, would be able to limit access through the use of the Ranch rules during the construction phase. In addition, the Department may need to work with O'Haco Ranch to amend the timeframe of the current agreement to make up for any loss of access during the construction phase. The Department would like to continue to partner with the O'Haco and sPower to ensure that continued access for hunters is permitted in all phases of the project.

Although not discussed, the Department would like to request consideration be given to the Ferruginous hawk nest in the area. Ferruginous hawks have a very limited known breeding abundance and distribution in Arizona. Any avoidance and impact minimization measures that can be instituted to mitigate potential impacts to the Ferruginous hawk territory would be appreciated.

Under Title 17 of the Arizona Revised Statutes, the Department, by and through the Arizona Game and Fish Commission (Commission), has jurisdictional authority and public trust responsibilities for management of the state's fish and wildlife resources. It is the mission of the Department to conserve Arizona's diverse fish and wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations. As such, the Department appreciates the opportunity to work closely with SWCA and sPower as this project continues to develop. If you have any questions regarding this letter, please do not hesitate to contact me directly at acavalcant@azgfd.gov or 623-236-7222.

Sincerely,



Andrew Cavalcant
Project Evaluation Program Supervisor

AGFD #M19-02132527

cc: Ginger Ritter, Project Evaluation Program Supervisor AGFD (gritter@azgfd.gov)
Shaula Hedwall, Ecological Services Division, USFWS (shaula_hedwall@fws.gov)
Kristin Madden, Migratory Birds Division, Deputy Chief, USFWS
(kristin_madden@fws.gov)
Darren Talayumtewa, Wildlife & Ecosystems Management Program, Hopi Tribe
(dtalayumtewa@hopi.nsn.us)

EXHIBIT H
Environmental Studies

EXHIBIT H. ENVIRONMENTAL STUDIES

Introduction

The Applicant authorized SWCA Environmental Consultants (SWCA) to begin conducting environmental studies for the planned Chevelon Butte Wind Farm (Wind Farm) in late 2018. Reports generated for two of these studies, a Noise Study and a Visual Impact Assessment, are included in this Special Use Permit application as Exhibit E and Exhibit F, respectively. A Wildlife Site Evaluation is appended to this exhibit as Attachment A. Other studies, some of which have been completed and some of which are ongoing, are listed and summarized below.

- Phase I Environmental Site Assessment
- Avian Use Counts – Large Bird Use Surveys
- Avian Use Counts – Small Bird Use Surveys
- Eagle and Other Raptor Species Nest Surveys
- Eagle Utilization Distribution Study
- Bat Acoustic Surveys
- Native Plant Inventory
- Cultural Resource Surveys
- Preliminary Jurisdictional Delineation for Waters of the U.S.

Phase I Environmental Site Assessment

A Phase I Environmental Site Assessment (Phase I ESA) was completed by SWCA for the location of the planned Chevelon Butte Wind Farm (subject property). The Phase I ESA was completed in general accordance with the American Society for Testing and Materials (ASTM) *Standard E 2247-16, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process for Forestland or Rural Property*. The key findings of the Phase I ESA are as follows:

- The review of historical aerial photographs and topographic maps did not identify any past uses of the subject property other than ranching, a few sandpits, and a small basalt mine. The past uses of the subject property are not considered to be Recognized Environmental Conditions (RECs), defined in the ASTM standard as “the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property.”
- An interview with a current owner of the property did not identify any RECs for the subject property.
- The review of an Environmental Data Resources, Inc. database report and supplemental records from state regulatory databases of the Arizona Department of Environmental Quality did not identify any relevant listings for the subject property or for nearby properties.
- The reconnaissance of the subject property found it to be mostly featureless vacant grazing land. No significant quantities of stored hazardous materials or petroleum products were observed anywhere on or adjacent to the subject property. No evidence of significant spills, staining,

unusual odors, or potential sources of contamination was observed on or adjacent to the subject property during the site visit.

Avian Use Counts – Large Bird Use Surveys

Avian use surveys on the Wind Farm site commenced in November 2018 and will continue for at least one full year. Twenty-seven, 800-meter-radius plots were established to cover 30% of the area within 1 kilometer of the proposed turbine array. The survey plots were distributed to represent (1) the site spatially and (2) the varying habitat conditions. Within those parameters, plots were micro-sited in the field to maximize views of the surrounding airspace.

Each plot is surveyed for 1 hour twice per month² for a total of 24 sampling periods. Start times represent all daylight hours, with each plot assigned a morning and a late morning/afternoon time slot per month. Surveyors scan for eagles and other large birds by alternating use of binoculars and unaided eye. From the central point of each plot, surveyors record the following data corresponding to each bird/bird group seen or heard: start and end time for each bird or group of birds entering/leaving the plot, species, number of birds per observation, distance from the observer to each bird/bird group, flight height, and behavior.

Biologists will use avian use count data to estimate the annual number of eagle collision fatalities; and, to estimate the species composition, spatial distribution, and relative frequency of large diurnal birds using the project site. Eagle minutes and total survey minutes recorded among relevant avian use counts will be used to inform a posterior probability distribution of eagle exposure to develop model-based predictions of annual eagle fatalities (Bayesian method). All eagle flight paths will be presented on a final map, with those recorded during use surveys distinguished from utilization distribution and incidental observations to account for spatial bias. Frequency data will be grouped by season, habitat type, plot/group of plots, and/or by risk zone, as needed, to evaluate baseline bird activity patterns.

Avian Use Counts – Small Bird Use Surveys

Small bird counts also began in November 2018 and are planned to continue for one year. These surveys are conducted immediately prior to the large bird/eagle use counts at the same 27 points. The small bird counts are conducted for 10 minutes within a 100-meter survey radius. Surveyors record the following data corresponding to each bird/bird group seen or heard: species, number of birds per observation, distance from the observer to each bird/bird group, and flight height. Compilations of the data for small bird use surveys will be similar to those reported for non-eagle large birds. Frequency data will be grouped by season; habitat type; plot/group of plots; and/or by risk zone, as needed, to evaluate baseline bird activity patterns.

Eagle and Other Raptor Species Nest Surveys

SWCA is collecting data on raptor nests within and in the vicinity of the planned Wind Farm site to further understand raptor use of the site. Aerial data collection began with eagle-focused nest surveys conducted by SWCA biologists on March 5–7 and April 17–19, 2019, within 10 miles of the planned Wind Farm. During the second of these helicopter surveys, SWCA also conducted a project proximity-focused search of all raptor species nests within 1 mile of the planned Wind Farm. In addition to aerial

² The Eagle Rule (81 FR 91494) calls for each plot to be surveyed at least 1 hour once per month; the Applicant has doubled that survey standard to twice per month to more accurately assess use of the area by eagles and other large birds.

surveys, observations of raptor nests are recorded during all ongoing biological resource surveys conducted in the Wind Farm area.

To date, nest structures have been identified within 10 miles of the planned Wind Farm for golden eagle (*Aquila chrysaetos*), bald eagle (*Haliaeetus leucocephalus*), ferruginous hawk (*Buteo regalis*), red-tailed hawk (*Buteo jamaicensis*), and great horned owl (*Bubo virginianus*). One historically occupied golden eagle nesting territory overlaps the Wind Farm area. One ferruginous hawk nesting pair, two great horned owl nesting pairs, and three red-tailed hawk nesting pairs were documented during the nesting season within 1 mile of the planned Wind Farm. Turbine avoidance schemes are being utilized for the historically occupied (and currently inactive) golden eagle nesting territory. Additional aerial surveys will likely be conducted for the 2020 nesting season. Ground-based observations of nest structures that may have been overlooked by aerial surveyors are ongoing.

Eagle Utilization Distribution Study

In an effort to gain a better understanding of eagle use of the Wind Farm site, the Applicant authorized an eagle utilization distribution (UD) assessment in January–March 2019. By implementing longer-duration UD surveys (“longer-duration” relative to the eagle/large bird use surveys; i.e., 4 hours versus 1 hour), the likelihood of detecting eagles during this period is expected to increase, potentially facilitating development of UD profiles.

Four eagle UD points were established on roads with maximum views of possible nesting cliffs, the overall project site, and surrounding airspace. From these points, surveyors recorded eagle movements and activities by alternating use of binoculars, spotting scope, and unaided eye. Each point was surveyed for 4 hours every two weeks from January through March. Observation periods included all daylight hours. Surveyors recorded the following data corresponding to each eagle observed: start and end time, species, distance from the observer, flight height, bearing to the bird, flight direction, sex and age class (if discernible), and behavior.

Presentation of the data will include maps of the observed flight paths. Standard kernel analyses or other probabilistic approaches will be considered after evaluating the data set. Final analysis will incorporate data derived from the large bird use surveys and additional agency data as available.

Bat Acoustic Surveys

In February and March 2019, SWCA biologists installed five bioacoustics monitoring stations at strategically selected sites in the Wind Farm area. One of the stations, at a project meteorological (MET) tower, includes a high/low (45m/5m) ultrasonic microphone pairing. Each of the two microphones is attached to a Song Meter SM4BAT FS (Wildlife Acoustics, Inc.) full-spectrum acoustic data collection device. The four other stations each include a low (5m) mount attached to the same detector type. Together, the stations represent varying horizontal and vertical spatial use by bats at the site. Data will be collected from the five stations through November 30, 2019. Calls will be analyzed using bat call identification software for filtering and analyzing full-spectrum bat call data. Compilations of the data will include the following: species or species/bat frequency group composition, bat passes per detector-night by group, and percentage of species/species group activity. Data will be grouped by hour and season and monitoring station, as needed, to evaluate baseline patterns of bat activity.

Native Plant Inventory

All Arizona Protected Native Plants on State Trust land that may be removed or destroyed during project construction must be counted and the state compensated for the loss of those plants. From July 29 through August 8, 2019, SWCA biologists conducted native plant surveys on State Trust land in accordance with the Arizona State Land Department (ASLD) Native Plant Survey Protocol. Per that protocol, random sample plots were established based on Natural Resources Conservation Service soil data, and all protected plants in the plots counted. Plant counts from the sample plots for each unique vegetation type/soil type combination will be totaled and extrapolated in the final Native Plant Inventory reporting based on the number of acres in each unique combination for the portion of the project on State Trust lands. The extrapolated plant totals from each unique vegetation/soil combination will then be tallied for an overall total by species.

Six Arizona Protected Native Plant species were identified during the surveys: whipple cholla (*Cylindropuntia whipplei*), Mojave kingcup cactus (*Echinocereus mojavensis*), spiny star (*Escobaria vivipara*), juniper (*Juniperus* sp.), twoneedle pinyon (*Pinus edulis*), and yucca (*Yucca* sp.).

As required by the protocol, the surveyors also noted the presence of any non-native invasive plant species. They found the occurrence of invasive plant species to be limited, which was unexpected given the site's long history of cattle grazing. Non-native invasive species observed include prickly Russian thistle (*Salsola tragus*), camelthorn (*Alhagi maurorum*), field bindweed (*Convolvulus arvensis*), redstem stork's bill (*Erodium cicutarium*), horehound (*Marrubium vulgare*), and quackgrass (*Elymus repens*).

Cultural Resource Surveys

The Applicant retained qualified archaeologists from SWCA to (1) conduct an archival records review to identify previously recorded sites in the project vicinity and (2) conduct pedestrian surveys of all areas potentially disturbed by construction of the planned Wind Farm. Such surveys are required on State Trust land by the State Historic Preservation Act of 1982 (A.R.S. §41-861–864) and the Arizona Antiquities Act of 1960, amended 1981 (A.R.S. §41-841–844) and their implementing regulations. Although not required by any law or regulation, the Applicant elected to voluntarily identify the presence of cultural resources on private land as well as on State Trust land.

The field surveys were initiated in April 2019 and completed at the end of August 2019. A total of 111 prehistoric and historic sites were recorded during the surveys in both Navajo and Coconino Counties. Of these, 14 sites are in Navajo County. A report of survey findings is being prepared for submission to the ASLD and Arizona State Historic Preservation Office. In the event ground-disturbing activities are needed outside the areas surveyed, additional cultural resources pedestrian surveys of the potentially affected area will be conducted before any such activities take place. Findings of such surveys will also be reported to the appropriate authorities.

Because construction of the planned Wind Farm has no federal nexus, federal laws regarding effects on cultural resources do not apply. Arizona state laws and regulations regarding effects on cultural resources on State Trust land, however, do apply. According to the ASLD, the appropriate treatment of a potentially affected cultural resource on State Trust land depends upon its eligibility for listing in the Arizona Register of Historic Places (ARHP). If a site on State Trust land is determined to be ineligible for listing in the ARHP, no further work is required. If a site on State Trust land is determined to be eligible for listing in the ARHP, it should be avoided. If avoidance is not possible, or desirable, then mitigation for adverse effects is required.

In constructing the planned Wind Farm, the Applicant intends to avoid any sites recommended as register-eligible located on both private and State Trust land. If avoidance of a register-eligible site is impracticable, the Applicant will abide by all applicable laws and regulations regarding treatment of the site.

Preliminary Jurisdictional Delineation for Waters of the U.S.

The only surface water resources within the project site are ephemeral drainages (washes) and earthen stock tanks created by damming washes. All project components will be sited away from washes and stock tanks. A limited amount of temporary fill will be required in some washes to allow the crossing of trucks and equipment during construction; those areas will be restored once construction is completed. Because the affected drainages are likely to be protected under the Clean Water Act (i.e., “jurisdictional”) and thus subject to permitting requirements under Section 404 of that Act, the Applicant retained SWCA to conduct a preliminary delineation of Waters of the United States. A desktop review and field delineations have been completed, and a report for submission to the ASLD and the U.S. Army Corps of Engineers is in preparation. Based on the desktop review and field delineations, it is anticipated that the planned Wind Farm project will qualify for a Clean Water Act Section 404 Nationwide Permit.³

³ Coverage by a Nationwide Permit is not considered a federal nexus for purposes of compliance with the National Environmental Policy Act (NEPA) and certain other federal laws and regulations.

EXHIBIT H – ATTACHMENT A
Wildlife Site Evaluation
for the Proposed Chevelon Butte Wind Farm



Wildlife Site Evaluation for the Proposed Chevelon Butte Wind Project

APRIL 2019

PREPARED FOR

Chevelon Butte RE LLC

PREPARED BY

SWCA Environmental Consultants

WILDLIFE SITE EVALUATION FOR THE PROPOSED CHEVELON BUTTE WIND PROJECT

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SWCA Project No. 51186

April 2019

EXECUTIVE SUMMARY

Chevelon Butte RE LLC, a wholly owned subsidiary of Sustainable Power Group (sPower), is proposing to develop a 400 to 477-megawatt AC nameplate capacity wind energy facility in Coconino and Navajo Counties, Arizona. The proposed 42,256-acre project area is located approximately 20 miles south-southwest of Winslow. SWCA Environmental Consultants prepared this Wildlife Site Evaluation to provide an initial landscape-scale screening and site-level characterization of the proposed project. As such, the report addresses U.S. Fish and Wildlife Service's *Land-Based Wind Energy Guidelines* Tiers 1 and 2 (preliminary site evaluation and site characterization), *Eagle Conservation Plan Guidance* Stage 1 (site assessment), and Arizona Game and Fish Department's (AGFD's) *Guidelines for Reducing Impacts to Wildlife from Wind Energy Development in Arizona*.

The objectives of this evaluation were addressed through desktop evaluation of publicly available information, communication with AGFD's bird and bat experts, and repeated site visits from late fall (November 2018) until early spring (April 2019). A summary of findings is presented in the last section of this report. The main outcome of this evaluation is that answers to one or more of the Tier 1/2, Stage 1, and AGFD questions are inconclusive at this stage. For example, the following remains unclear:

- Whether bat maternity colonies or hibernacula are present within the project area or vicinity.
- Whether important eagle use areas are present within the project area or abundant eagle prey is present in the region.
- Whether there are other areas of seasonal importance within the project area.

It is Chevelon Butte RE LLC's intention to answer these questions and to identify relevant mitigation measures through site-specific Tier 3/Stage 2 surveys and the tiered decision-making process.

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1 INTRODUCTION

Chevelon Butte RE LLC, a wholly owned subsidiary of Sustainable Power Group (sPower), is proposing to develop the Chevelon Butte Wind Project (project), a 400 to 477-megawatt AC (MW_{AC}) nameplate capacity facility, in Coconino and Navajo Counties, Arizona (Figure 1). The project would be located on private and state land within a 42,256-acre project area, which is approximately 20 miles south-southwest of Winslow.

The project was considered for development by a different developer in 2011. At that time, a preliminary wildlife survey plan and some limited eagle nest surveys were conducted. A new wildlife survey plan for the project (SWCA 2019) incorporates pre-construction wildlife survey methods designed in accordance with the latest agency guidance—the U.S. Fish and Wildlife Service’s (USFWS’s) *Land-Based Wind Energy Guidelines* (WEG) (USFWS 2012a), *Eagle Conservation Plan Guidance* (ECPG) (USFWS 2013a), *Eagle Rule* (USFWS 2016a); and Arizona Game and Fish Department’s (AGFD’s) *Guidelines for Reducing Impacts to Wildlife from Wind Energy Development in Arizona* (AGFD 2012a)—and project-specific agency input.

The objective of this report is to provide an initial landscape-scale screening and site-level characterization of the proposed project to address USFWS’s WEG Tiers 1 and 2 (preliminary site evaluation and site characterization), ECPG Stage 1 (site assessment), and AGFD’s (2012a) preliminary site screening objectives.

1.1 Report Organization

Table 1 presents a report index corresponding to our evaluation of USFWS- and AGFD-suggested questions, which are meant to 1) identify potential impacts to wildlife and 2) categorize eagle risk for the project at this stage.

Table 1. Report Index, WEG Tiers 1 and 2 and ECPG Stage 1 Questions

Question	Section in Report
Are there special-status species or their habitats (including designated critical habitat) present?	3.1
Are there areas precluded by law for development or areas designated as sensitive, such as federally designated critical habitat, high-priority conservation areas for non-government organizations, or other local, state, regional, federal, tribal, or international designations?	3.1 and 3.2
Are there plant communities of concern present or likely to be present?	3.1
Are there known critical areas of wildlife congregation, such as maternity roosts, hibernacula, staging areas, winter ranges, nesting sites, migration stopovers or corridors, leks, or other areas of seasonal importance?	3.3
Are there large areas of intact habitat with the potential for fragmentation, with respect to species of habitat fragmentation concern, needing large contiguous blocks of habitat?	3.3
Which species of birds and bats, especially those known to be at risk by wind energy facilities, are likely to use the proposed site based on an assessment of site attributes?	3.5
Are eagles or their habitat (including breeding, migration, dispersal, and wintering habitats) present within the geographic region of the project?	3.1, 3.3, and 3.4
Are there important eagle use areas or migration concentration sites documented or thought to occur in the project area* and/or project footprint*?	3.4 and 3.5
Is habitat supporting abundant eagle prey present within the geographic region of the project?	3.4

* Term defined in Section 2.1.

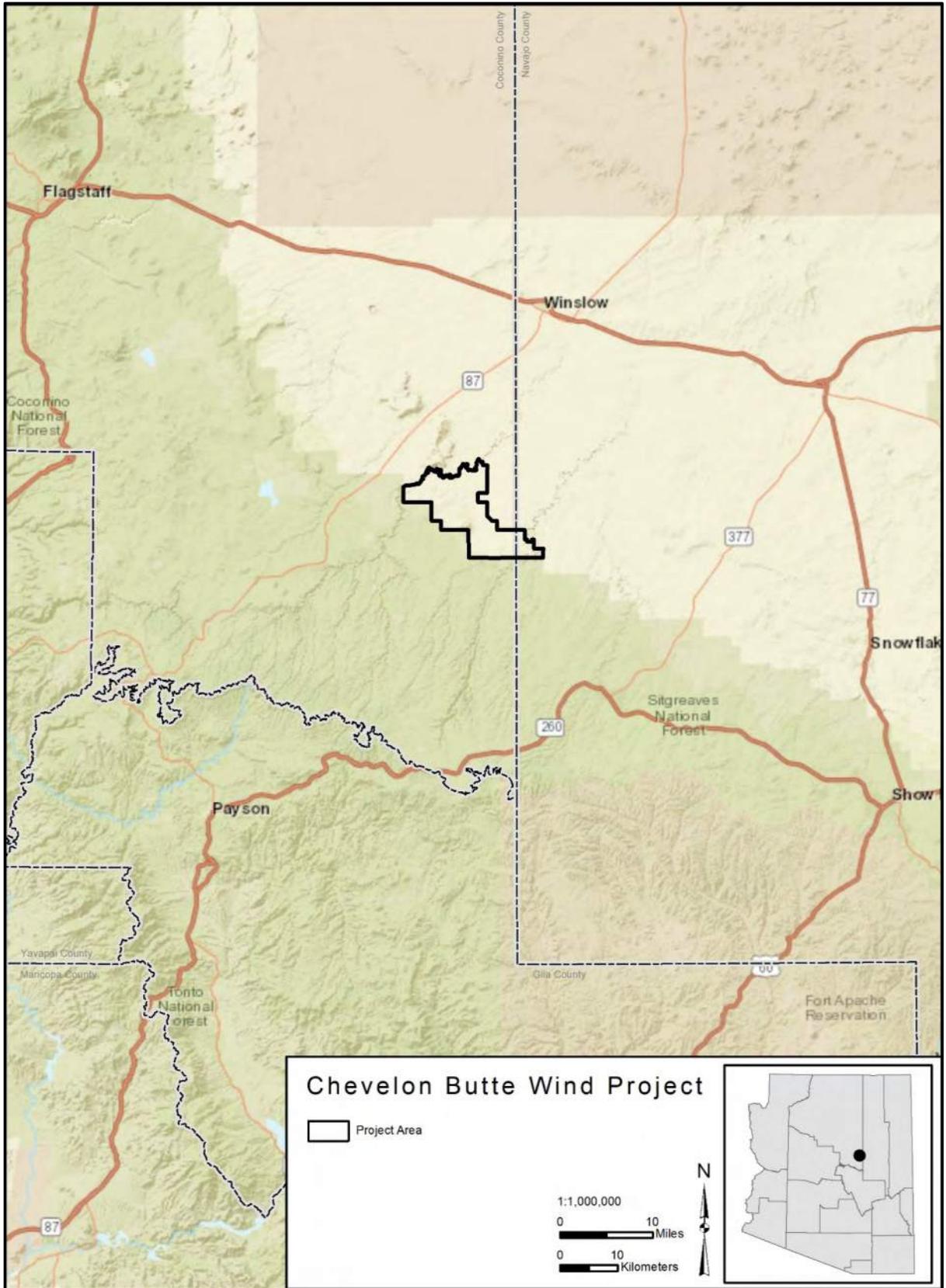


Figure 1. Project location.

1.2 WEG Tiers 1 and 2 Approach

As described in the WEG, Tier 1 questions may be addressed by desktop evaluation alone or Tier 1 and 2 questions may be combined to adequately evaluate these questions after one or repeated site visits. In both approaches, the developer evaluates potential risk to species of concern and their habitats related to multiple possible sites or a single site within a landscape context. Combining the Tier 2 evaluation with that of Tier 1 provides a preliminary assessment of site-specific information. In this document, a single site is evaluated using the Tier 1 and 2 combined approach. ECPG Stage 1 and AGFD's (2012a) preliminary site screening questions have also been incorporated in our evaluation (see Table 1).

1.3 Applicable Statutes, Policies, and Regulations

The results of wildlife and habitat evaluations, aimed at determining which, if any, species may be affected by design, construction, operation, and decommissioning of wind energy projects, are meant to inform efforts to achieve compliance with appropriate jurisdictional statutes.

1.3.1 Federal

1.3.1.1 ENDANGERED SPECIES ACT

The Endangered Species Act of 1973, as amended (ESA), protects imperiled (threatened and endangered) species and their habitats, prohibiting anyone without a permit to “take” these species; permits are generally available for conservation and scientific purposes. Section 9 of the ESA makes it unlawful for any person—including private and public entities—to take individuals of an endangered animal species. These prohibitions have been extended, by regulation, to threatened species. *Take* is defined by the ESA as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct.” *Harm* may include significant habitat modification or degradation that results in killing or injuring listed species by significantly impairing essential behavioral patterns. These actions, referred to as take prohibitions, apply to any person, organization, or entity. If a federal nexus, i.e., federal permit, federal funding, or any federal involvement, does not apply to a project, Section 9 is the only provision of the ESA that applies.

1.3.1.2 MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act of 1918, as amended (MBTA), prohibits incidental “take” of migratory birds—more than 1,000 species (50 Code of Federal Regulations [CFR] 10 and 21)—their parts, eggs, or nests. *Take* is defined by the MBTA as “to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or any attempt to carry out these activities.” An MBTA violation can result in fines and/or imprisonment; however, USFWS focuses its enforcement resources on project proponents that fail to identify and implement appropriate and practicable mitigation measures that avoid bird injury or mortality. In December 2017, the Department of Interior Solicitor's Office issued an “M Opinion” (M-37050) that the MBTA's criminal provisions do not apply to incidental take. This “M Opinion” carries substantial weight in how the law is enforced in the short term; it does not provide life-of-project prosecutorial assurance. Relevant to construction and operations activities, Section 1 of the Interim Empty Nest Policy of the USFWS, Region 2, states that if an MBTA-protected species nest is completely inactive at the time of destruction or movement, a permit is not required for compliance.

1.3.1.3 BALD AND GOLDEN EAGLE PROTECTION ACT

The Bald and Golden Eagle Protection Act (Eagle Act) prohibits anyone without a permit from “taking” eagles, their parts, eggs, or nests. *Take* is defined by the Eagle Act as “to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb;” the Eagle Act’s definition of “take” differs from the definition in the ESA in that it does not include habitat destruction or alteration, unless such damage “disturbs” an eagle. *Disturb* is defined as “to agitate or bother to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior.”

In 2009, USFWS promulgated regulations that established two new permit types authorizing 1) purposeful take (removal, relocation, or destruction) of eagle nests under limited circumstances and 2) incidental take. In 2016, the USFWS revised the regulations for eagle incidental take permits, allowing developers to obtain a 30-year permit subject to mitigation and monitoring, among other requirements. The 2016 rule also removed the distinction between standard (to address one-time effects from projects) and programmatic (to authorize recurring take from projects) permit types and modified the preservation standard definition: any authorized take must be “consistent with the goals of maintaining stable or increasing breeding populations in all eagle management units and the persistence of local populations throughout the geographic range of each species.”

1.3.1.4 BIRDS OF CONSERVATION CONCERN

USFWS Birds of Conservation Concern (BCC) are migratory and non-migratory bird species, beyond those designated as federally threatened or endangered, that represent USFWS’s highest conservation priorities.

1.3.2 State

Pursuant to Arizona Revised Statutes (ARS) 17-102, wildlife is the property of the state and can be taken only as authorized by the Arizona Game and Fish Commission. Violations can result in criminal prosecution and/or civil liability. Other state statutes and commission policies pertinent to wind energy projects are described in AGFD (2012a).

1.3.2.1 STATE OF ARIZONA SPECIAL-STATUS SPECIES

The Arizona State Wildlife Action Plan (AGFD 2012b) identifies Species of Greatest Conservation Need (SGCN): vertebrate, crustacean, and mollusk species that are indicative of the diversity and health of the state’s wildlife, including low and declining populations, warranting heightened attention. AGFD (2012b) prioritized SGCN species into three tiers, 1A, 1B, and 1C. Tier 1A species are those for which AGFD has entered into an agreement or has legal or other contractual obligations or warrants the protection of a closed season. Tier 1B represents the remainder of the species meeting vulnerable criteria. Tier 1C species are those representing priority research and information needs due to their unknown status. Species identified as vulnerable (1A and 1B species) are evaluated in this report.

1.3.2.2 ARIZONA DEPARTMENT OF AGRICULTURE ARIZONA NATIVE PLANT LAW

The Arizona Native Plant Law (ARS 3-904) (ANPL) states that protected plants shall not be taken, transported, or possessed from any land without permission and a permit from the Arizona Department of Agriculture (ADA); it also requires notification prior to land clearing even if the plants will be destroyed.

Highly Safeguarded native plants are those species for which removal is not allowed except with an ADA scientific permit; no collection of these plants is allowed. Salvage Restricted native plants are those plants for which a salvage permit is required; collection is allowed only with a permit. The Salvage Assessed category includes those plants for which a salvage permit is required for removal. Plants in the Harvest Restricted category are protected because they are subject to excessive harvesting or overcutting as a result of intrinsic value of their by-products, fiber, or woody parts, and a harvest permit is required.

1.3.2.3 ARIZONA DEPARTMENT OF AGRICULTURE NOXIOUS WEED REGULATIONS

The ADA maintains a list of noxious weeds that may be controlled or quarantined to prevent further infestation or contamination, as well as those that are prohibited from entering the state.

2 METHODS

2.1 Landscape Scales Considered

In this document, we consider the presence of natural resources (e.g., critical habitats and special designations, nesting sites, wildlife corridors) within broad landscape and project scales defined by the ECPG. Generally, the area within 10 miles of the project area was evaluated. This 10-mile-radius area is analogous to the *project's eagle nesting population area*. Where relevant, we consider specific resources in the context of the larger region (analogous to the *project's eagle local-area population (LAP) area*). For example, specific to potential species' occurrence determinations, the habitat conditions within the project area are considered; nearest records of these species within the region are presented, when known. Relevant landscape scale terms, considered herein, are defined as follows:

Project area (site): the area, inclusive of the project footprint¹, within the project boundary. The ECPG defines the project area in the context of eagle impact considerations as the area that includes the project footprint and contiguous land that shares relevant characteristics. Therefore, to distinguish these terms in this document, the ECPG term "project area" is referred to as the project's eagle nesting population area.

Project's eagle nesting population area: within 10 miles of a project area. The eagle population associated with a given wind energy project is defined by the ECPG as the number of pairs of eagles known to have a nesting attempt within this area.

Project's eagle local area population (LAP) area: the eagle population within the species median natal-dispersal distance (109 miles for golden eagle [*Aquila chrysaetos*]; 86 miles for bald eagle [*Haliaeetus leucocephalus*] [USFWS 2016a]), measured from the 10-mile radius of a project area.

In this document, the terms *project area vicinity* and *proximity* refer generally to the area within 10 miles of the project area. The term *region* refers generally to the project's eagle LAP area.

¹ The project footprint is defined by the ECPG as the minimum-convex polygon that encompasses the turbines and any associated utility infrastructure, roads, etc.

2.2 Potential for Occurrence of Special-Status Species and Their Habitats

This document evaluates potential for occurrence of 1) federally protected (endangered and threatened) species and their critical habitats (USFWS 2018a), 2) both Eagle Act-protected species, 3) State SGCN 1A and 1B species² (AGFD 2012b, 2018a), and 4) BCCs (USFWS 2008). The potential for occurrence of each species was based on 1) documented records, 2) existing information on distribution, and 3) qualitative comparisons of the habitat requirements of each species with vegetation communities or landscape features in the project area.

Potential for occurrence categories are as follows:

- *Known to be present*—the species has been documented in the project area by a reliable observer.
- *May be present*—the project area is within the species' currently known range, and vegetation communities, soils, or other habitat conditions resemble those known to be used by the species.
- *Unlikely to be present*—the project area is within the species' currently known range, but vegetation communities, soils, or other habitat conditions do not resemble those known to be used by the species, or the project area is clearly outside the species' currently known range.

As part of this effort, SWCA requested and obtained the following:

- An official project-specific species and critical habitats list via the USFWS Information for Planning and Consultation (IPaC) system (USFWS 2018b; see Appendix A).
- A project-specific *Arizona Environmental Online Review Tool Report* (AGFD 2018a; see Appendix B).

The following resources were also reviewed to describe the general site characteristics, soils, vegetation, and aquatic resources as they pertain to potential for occurrence of the relevant species:

- Biotic communities of the Southwest (Brown and Lowe 1982 [digital representation by The Nature Conservancy in 2004]).
- National Wetlands Inventory (NWI) (USFWS 2018c).
- Southwest Regional Gap Analysis Project data (U.S. Geological Survey [USGS] 2016).

2.3 Data Sources Reviewed

In addition to those resources described above, SWCA coordinated with AGFD's Raptor Management Coordinator, Kenneth "Tuk" Jacobson, and Eagle Field Projects Coordinator, Kyle McCarty, who provided general areas (4 × 4-mile blocks) and associated past occupancy/activity³ data for known, historic, and possible eagle breeding areas/territories⁴ that have been identified during past survey efforts within 10 miles of the project area (personal communication, November 7–8 and December 4, 2018).

² 1A and 1B species are those defined as "vulnerable" under specific criteria in the Arizona State Wildlife Action Plan (AGFD 2012b).

³ An *active* nest is one in which an egg or eggs are laid and/or young are raised (Driscoll 2010; Postupalsky 1974).

⁴ A *territory or breeding area* is an area that contains, or historically contained, one or more nests within the home range of a mated pair: a confined locality where nests are found, usually in successive years, and where no more than one pair is known to have bred at any one time (Steenhof and Newton 2007). The number of unique territories in a given area can be refined over multiple years of survey and may vary from year to year.

SWCA also requested abandoned mine/bat roost data within 10 miles of the project area. Though it was determined that this type of data does not exist for the area of interest, AGFD Bat Specialist, Angie McIntire, provided general information regarding select bat species capture records within the general region (personal communication, November 13, 2018).

The following data sources were also reviewed:

- Arizona’s Wildlife Linkages Assessment (Arizona Wildlife Linkages Workgroup 2016).
- AGFD’s Online Environmental Review Tool map (AGFD 2018b) and HabiMap Arizona (AGFD 2018c) which provide landscape-level spatial data, such as wildlife corridors, unfragmented areas, Wilderness areas, wildlife waters, and special-status species range models, for purposes of land use and conservation planning.
- AGFD’s (2012b) Arizona State Wildlife Action Plan: 2012–2022.
- Audubon’s Important Bird Areas (IBAs) (Audubon 2018).
- eBird and Birds of North America Online’s bird species’ range maps (eBird 2018a, Rodewald 2015).
- eBird bird migration hotspots (eBird 2018b).
- National Trails (National Park Service 2018).
- National Wildlife Refuges (USFWS 2018d).
- Species-specific migration corridors (e.g., sandhill crane flyways) (Pacific Flyway Council 2018).
- State parks (Arizona State Parks 2018).
- USFWS critical habitats (USFWS 2018c).
- Western Association of Fish and Wildlife Agencies’ (WAFWA) Crucial Habitat Assessment Tool (CHAT; WAFWA 2019).
- Western Hemisphere Shorebird Reserve Network (WHSRN) sites (WHSRN 2018).
- Wetlands of International Importance (Ramsar 2014).
- Wild and Scenic Rivers (National Wild and Scenic Rivers System 2018).

2.4 Site Reconnaissance

Initial reconnaissance visits to the site were conducted by an SWCA biologist with expertise in the ecology of special-status species in the region on November 8 and December 30, 2018, and February 10, 2019. The objective of these visits was to “ground-truth” available desktop information to effectively evaluate habitat associations and WEG Tiers 1/2⁵ questions.

WEG Tier 3/ECPG Stage 2 avian use count surveys were also initiated on-site on November 20, 2018. These surveys are conducted at fixed points distributed throughout the project area and are scheduled to occur over a period of 3 to 5 days twice per month for 1 full year (24 survey periods). Since these surveys began, surveyors have been recording incidental wildlife observations including locations of special-status species or their potential habitats/prey items, big game, bird nests, bird flocks, and waterfowl using the site’s water features; incidental eagle flight paths; and a running list of bird species seen or heard.

⁵ The WEG recommends at least one site visit by a knowledgeable biologist to evaluate Tiers 1/2 questions.

One of two 2019 season eagle nest inventory and occupancy surveys was conducted by helicopter from March 5–7, 2019 (the second survey is scheduled for mid-April 2019). This nest survey provided an opportunity to gain a better understanding of the spatial distribution of nest structures in the vicinity of the project area.

2.5 Eagle Risk Categorization

The ECPG defines eagle risk category criteria for a proposed project site as follows:

Category 1: High risk to eagles, potential to avoid or mitigate impacts is low

- has an important eagle-use area (e.g., half-mean inter-nest distance [$\frac{1}{2}$ -MIND] from an occupied eagle nest) or migration concentration site within the project footprint; or
- has an annual eagle fatality estimate (mean estimate) greater than 5% of the estimated LAP size; or
- causes the cumulative mortality for the LAP to exceed 5% of the estimate LAP size.

Category 2: High or moderate risk to eagle, opportunity to mitigate impacts

- has an important eagle-use area or migration concentration site within the project area nesting population area but not in the project footprint; or
- has an annual eagle fatality estimate between 0.03 eagle per year and 5% of the estimated LAP size; or
- causes cumulative annual mortality of the LAP of less than 5% of the estimated LAP size.

Category 3: Minimal risk to eagles

- has no important eagle-use areas or migration concentration sites within the project area nesting population area; and
- has an annual eagle fatality estimate less than 0.03; and
- causes cumulative annual mortality of the LAP of less than 5% of the estimated LAP size.

Because assigning a category to a site is determined through an iterative process, incorporating ECPG Stages 2 through 4 site-specific survey data and assessments, site categorization at this stage (Stage 1) is preliminary. The Stage 1 site assessment may inform a decision on whether to invest in Stage 2 (WEG Tier 3) surveys and/or the level of survey effort warranted.

3 RESULTS

3.1 Potential for Occurrence of Special-Status Species and Their Habitats

3.1.1 Environmental Setting

The project area is within the Arizona/New Mexico Plateau and Arizona/New Mexico Mountains Level 3 ecoregions at elevations between 5,800 and 6,800 feet (1,770 and 2,070 m) (U.S. Environmental Protection Agency 2011). It is within the Grand Canyon physiographic section of the Colorado Plateaus

province (Fenneman and Johnson 1946). Topography at the site is generally characterized by flat to rolling terrain. The project area is bounded by canyons approximately 500 to 700 feet wide by 300 to 400 feet deep—Clear Creek Canyon to the north and Chevelon Canyon to the southeast. Other notable landforms within the project vicinity include Chevelon Butte located in the south-central portion of the project area and the East Sunset and West Sunset Mountains located approximately 2 and 9 miles north of the project area, respectively.

Land uses include cattle ranching/grazing and hunting. State Route 99 (Chevelon Winslow Road) and Forest Road 504 provide initial access to the site. Established two-track roads are present throughout the project area.

3.1.2 Land/Vegetation Cover

Appendix C includes representative photographs of the project area vegetation communities.

The project area is within the Great Basin Conifer Woodland and Plains and Great Basin Grassland biotic communities (Brown 1994). Four dominant land/vegetation cover types are mapped by USGS (2016) within the project area: Colorado Plateau Pinyon-Juniper Woodland, Inter-Mountain Basins (IMB) Juniper Savanna, IMB Semi-Desert Shrub Steppe, and IMB Semi-Desert Grassland (Table 2, Figure 2). Eight other land-vegetation cover types are also mapped by USGS (2016) (see Table 2, see Figure 2).

Table 2. GAP Land/Vegetation Cover Types within the Project Area

Land/Vegetation Cover Type	Acres (%)
Colorado Plateau Pinyon-Juniper Woodland	13,275.2 (33.8)
IMB Juniper Savanna	10,614.3 (25.1)
IMB Semi-Desert Shrub Steppe	8,981.6 (21.3)
IMB Semi-Desert Grassland	5,177.3 (12.3)
Colorado Plateau Mixed Low Sagebrush Shrubland	1,184.8 (2.8)
Colorado Plateau Mixed Bedrock Canyon and Tableland	1,047.0 (2.5)
IMB Volcanic Rock and Cinder Land	670.9 (1.6)
Southern Colorado Plateau Sand Shrubland	110.1 (0.3)
Open Water (Fresh)	108.1 (0.3)
IMB Big Sagebrush Shrubland	54.3 (0.1)
IMB Mixed Salt Desert Scrub	23.6 (<0.1)
Introduced Riparian and Wetland Vegetation	8.7 (<0.1)

Note: USGS (2016) GAP data.

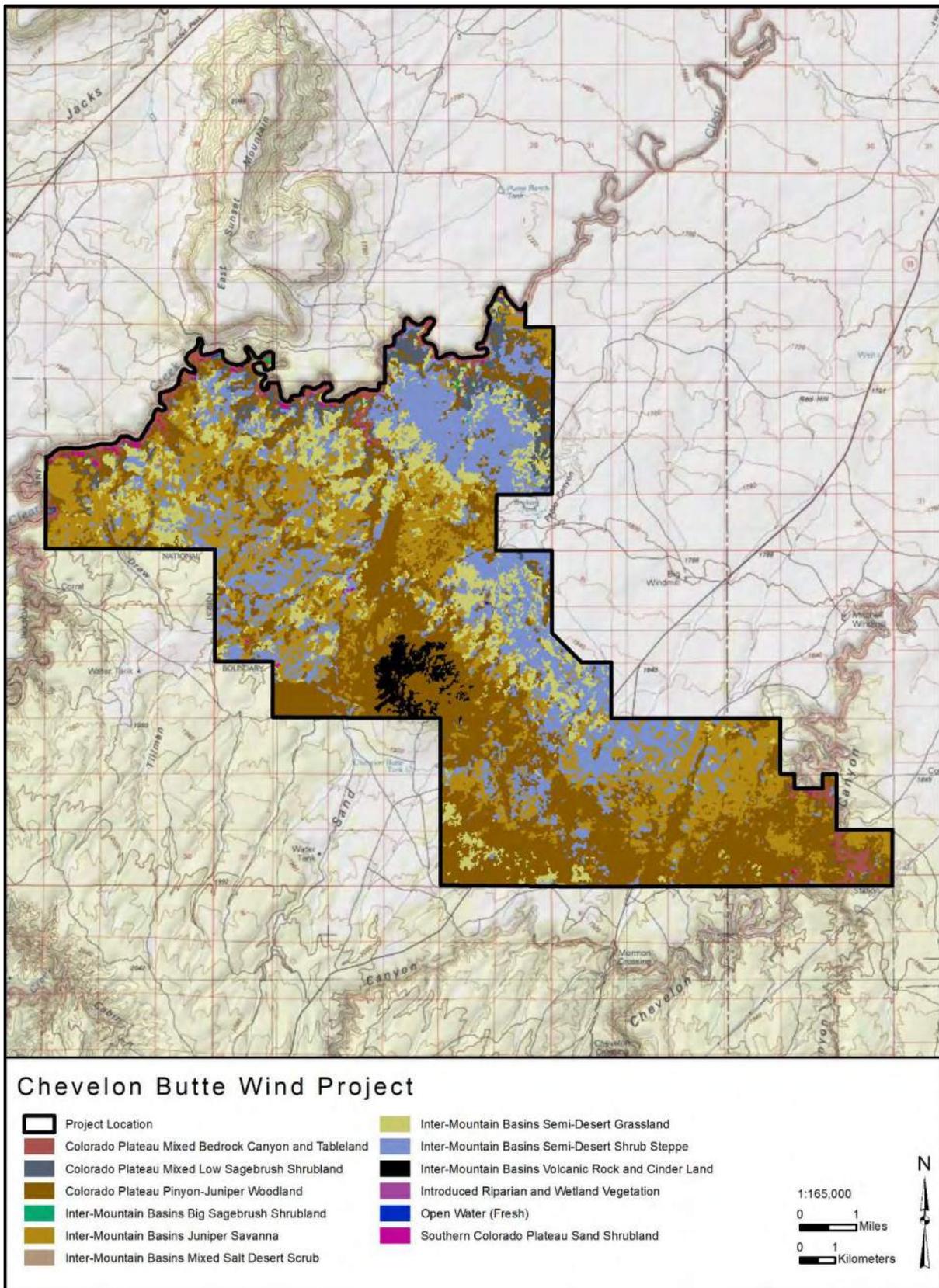


Figure 2. Land/vegetation cover within the project area.

As observed during the site reconnaissance surveys, the project area is dominated by graminoids and forbs with an open shrub and tree layer. Denser juniper woodlands are present, particularly along project area drainages and in the southeastern, south-central, and northwestern portions of the project area. Characteristic grasses include Arizona threeawn (*Aristida arizonica*), blue grama (*Bouteloua gracilis*), sand dropseed (*Sporobolus cryptandrus*), and sixweeks threeawn (*Aristida adscensionis*). An unidentified aster (Asteraceae; *Erigeron* sp. or similar) and lanceleaf sage (*Salvia reflexa*) are also important components of the groundcover. Scattered to locally dense shrubs include Bigelow sagebrush (*Artemisia bigelovii*), desert-thorn (*Lycium* sp.), fourwing saltbush (*Atriplex canescens*), Fremont's mahonia (*Mahonia fremontii*), rubber rabbitbrush (*Ericameria nauseosa*), Stansbury cliffrose (*Purshia stansburiana*), Whipple cholla (*Cylindropuntia whipplei*), winterfat (*Krascheninnikovia lanata*), and yellow rabbitbrush (*Chrysothamnus viscidiflorus*). The tree layer is dominated by Utah juniper (*Juniperus osteosperma*) and oneseed juniper (*Juniperus monosperma*).

Other plant species observed within the project area include alderleaf mountain mahogany (*Cercocarpus montanus*), banana yucca (*Yucca baccata*), black grama (*Bouteloua eriopoda*), broom snakeweed (*Gutierrezia sarothrae*), camelthorn (*Alhagi maurorum*), common wolfstail (*Lycurus phleoides*), desert sweet (*Chamaebatiaria millefolium*), fetid marigold (*Dyssodia papposa*), globemallow (*Sphaeralcea* sp.), horehound (*Marrubium vulgare*), James' galleta (*Pleuraphis jamesii*), jointfir (*Ephedra* sp.), Mohave kingcup cactus (*Echinocereus mojavensis*), narrowleaf yucca (*Yucca angustissima*), pricklypear (*Opuntia* sp.), pricklypoppy (*Argemone* sp.), prickly Russian thistle (*Salsola tragus*), threadleaf ragwort (*Senecio flaccidus*), redstem stork's bill (*Erodium cicutarium*), ring muhly (*Muhlenbergia torreyi*), rough cocklebur (*Xanthium strumarium*), sacahuista (*Nolina microcarpa*), twoneedle pinyon (*Pinus edulis*), and widewing springparsley (*Cymopterus purpurascens*).

Due to access issues (steep canyon walls), the site reconnaissance surveys did not include habitat characterization of Clear Creek or Chevelon Canyons bordering the project (Appendix C includes photographs of these two canyons taken from the canyon rims). Surveyors conducting the helicopter survey in March 2019 noted that the riparian corridors in these canyons generally appeared to consist of sparsely distributed cottonwood (*Populus* sp.). Plant species identified at Chevelon Crossing, located approximately 2 miles south of the project area, include boxelder (*Acer negundo*) and cottonwood.

3.1.3 Special-Status Species Occurrence Determinations

3.1.3.1 FEDERALLY LISTED SPECIES

Six species/subspecies (two birds, one amphibian, one fish, one mammal, and one reptile) were listed in the official species list for the project (Consultation Code: 02EAAZ00-2019-SLI-0106; USFWS 2018b; Appendix A); their federal and state status and potential for occurrence in the project area are presented in Table 3. Their range/habitat requirements and nearest records, if known, are presented in Appendix D, Table D.1. The project area is within the geographical/elevational ranges and contains appropriate habitat conditions that could support three of the six species/subspecies: Chiricahua leopard frog (*Rana chiricahuensis*), Mexican spotted owl (*Strix occidentalis lucida*), and gray wolf (Mexican wolf population; *Canis lupus baileyi*) (species descriptions for these three species are provided below). We also determined that the California condor (*Gymnogyps californianus*), which appears on the Coconino and Navajo Counties lists (USFWS 2018a) but was not included in the official species list, may occur within the project area (see species description below); the species is included in Table 3.

For this effort, the following species were also evaluated (see Appendix D, Table D.1) for their potential to occur within the project area because they appear on the Coconino and Navajo Counties lists (USFWS 2018a) and/or the AGFD (2018a) report (see Appendix B): black-footed ferret (*Mustela nigripes*), jaguar (*Panthera onca*), New Mexico meadow jumping mouse (*Zapus hudsonius luteus*), southwestern willow

flycatcher (*Empidonax traillii extimus*), Apache trout (*Oncorhynchus apache*), Colorado pikeminnow (*Ptychocheilus lucius*), Gila chub (*Gila intermedia*), Gila trout (*Oncorhynchus gilae*), humpback chub (*Gila cypha*), loach minnow (*Tiaroga cobitis*), razorback sucker (*Xyrauchen texanus*), spikédace (*Meda fulgida*), Virgin River chub (*Gila seminuda*), woundfin (*Plagopterus argentissimus*), Kanab ambersnail (*Oxyloma haydeni kanabensis*), Brady’s pincushion cactus (*Pediocactus bradyi*), Fickeisen plains cactus (*Pediocactus peeblesianus fickeiseniae*), Navajo sedge (*Carex specicola*), Peebles Navajo sedge (*Pediocactus peeblesianus* var. *peeblesianus*), San Francisco Peaks ragwort (*Packera franciscana*), sentry milkvetch (*Astragalus cremnophylax* var. *cremnophylax*), Siler pincushion cactus (*Pediocactus sileri*), and Welsh’s milkweed (*Asclepias welshii*). We confirmed that the project area lacks appropriate habitat associations and/or is well outside of the range of these species.

Table 3. Occurrence Status of Relevant Federally Listed Species

Common Name (Scientific Name)	Status*		Occurrence Status
	Federal	State	
Amphibians			
Chiricahua leopard frog (<i>Rana chiricahuensis</i>)	T w/CH	SGCN (1A)	May occur, documented within 10 miles
Birds			
California condor (<i>Gymnogyps californicus</i>) [†]	E w/CH [†]	SGCN (1A)	May occur, no records within 10 miles
Mexican spotted owl (<i>Strix occidentalis lucida</i>)	T w/CH	SGCN (1A)	May occur, documented within 10 miles
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	T w/PCH BCC (BCR 16, 34)	SGCN (1A)	Unlikely to occur
Fishes			
Little Colorado spinedace (<i>Lepidomeda vittata</i>)	T w/CH	SGCN (1A)	Unlikely to occur
Mammals			
Mexican wolf (<i>Canis lupus bailey</i>) [†]	EXPN [‡]	SGCN (1A)	May occur, documented within 10 miles
Reptiles			
Northern Mexican gartersnake (<i>Thamnophis eques megalops</i>)	T w/PCH	SGCN (1A)	Unlikely to occur

Note: Table includes those species listed in USFWS (2018b) plus California condor. Notes regarding documentation within 10 miles of the project area are from AGFD (2018a).

* Federal Status Definitions

BCC = Bird of Conservation Concern.

BCR = Bird Conservation Region.

CH = Designated critical habitat.

E = Endangered. Endangered species are those in danger of extinction throughout all or a significant portion of their range.

PCH = Proposed critical habitat.

EXPN = Experimental population, non-essential.

T = Threatened. Threatened species are those likely to become endangered within the foreseeable future throughout all or a significant portion of their range.

State Status Definitions

SGCN = Species of Greatest Conservation Need; species identified by AGFD (2012b) as having conservation priority. Tier 1A species are those categorized by AGFD (2012b) as “highest priority vulnerable” species.

[†] Species is not included in project-specific list of threatened and endangered species that may occur (USFWS 2018b) but is included here because it is listed in the Coconino and Navajo Counties lists (USFWS 2018a) and may occur within the project area. The project area is outside of the species’ non-essential experimental population (NEP) area; individuals within the project area would be considered endangered under section 9 of the ESA (USFWS 2017a).

[‡] The project area is within the species’ non-essential experimental population area. Under section 9 of the ESA, members of NEP populations within designated NEP areas are treated as species proposed for listing.

3.1.3.1.1 California Condor

The condor's designated 10(j) non-essential experimental population (NEP) area is bounded to the south by Interstate Highway 40, which is located approximately 20 miles north of the project area. Condors that leave the NEP area and are found within the project area would be treated as endangered species under Section 9 of the ESA (Southwest Condor Working Group [SCWG] 2017). The species is categorized by AGFD (2012b) as an SGCN 1A species. While condors comprising the established NEP flock maintain a well-established primary range within the NEP area, individuals are known to make occasional long-distance forays outside of the area (Finkelstein et al. 2015; SCWG 2017).

Therefore, use of the project area by the species cannot be ruled out. AGFD (2018a) indicates the species has not been documented within 10 miles of the project. eBird (2018a) indicates the nearest species record approximately 21 miles north-northwest of the project area (Meteor Crater), with other occasional sightings documented further to the west (in Flagstaff and vicinity [e.g., Sedona, Williams, Wupatki National Monument]). Potential attractants within the project area include mammal carrion (e.g., domestic animals, hunter-shot mule deer [*Odocoileus hemionus*] and shot or poisoned coyotes [*Canis latrans*]), for which the species forages in open areas with reliable air movements conducive to soaring flight (Finkelstein et al. 2015). Roosting sites, important for resting, preening, and socializing, include cliffs, snags, and conifer stands (USFWS 2009).

3.1.3.1.2 Chiricahua Leopard Frog

The Chiricahua leopard frog is federally listed as threatened with designated critical habitat; it is categorized by AGFD (2012b) as an SGCN 1A species. The species requires permanent or semi-permanent water of cienegas, springs, pools, stock tanks, lakes, reservoirs, streams, and rivers free of or containing low densities of non-native predators (USFWS 2012c). Emergent and perimeter vegetation provide substrate for egg deposition, thermoregulation, and invertebrate fauna for foraging (USFWS 2007). The species has an increasingly narrow realized niche as it is often excluded from ephemeral habitats, which may not provide surface moisture requirements for adult survival and larval development, and perennial habitats, where harmful non-native species are more prevalent (USFWS 2007).

AGFD (2018a) indicates the species has been documented within 10 miles of the project area; nearest records appear to be proximal to the project area within Clear Creek and Chevelon Canyon (AGFD 2018b, 2018d). These areas are isolated from the project area by steep canyon walls. The project area stock tanks, which represent the only water features within the project area, may be used by the species; they would not be impacted by the project. These features are seasonally inundated (personal communication, Jim O'Haco, landowner, December 30, 2018), contain muddy banks, and are devoid of vegetation cover. Such sites are considered to be marginal for the species because they generally do not provide essential breeding or overwintering habitats (Rosen et al. 1994; USFWS 2007, 2011). However, they may be important for metamorph development, dispersal, and enhancing population persistence (by providing habitat diversity) (USFWS 2007).

3.1.3.1.3 Mexican Wolf

Wolves living in the Mexican Wolf Experimental Population Area (MWEPA), the geographic area within Arizona and New Mexico south of Interstate 40, are designated as non-essential experimental population (i.e., treated as proposed for listing) (USFWS 2017b). The subspecies is also categorized by AGFD (2012b) as an SGCN 1A species. It inhabits evergreen pine-oak woodlands, pinyon-juniper woodlands, and mixed-conifer montane forests inhabited by elk (*Cervus elaphus*), deer, and cattle (USFWS 2015a).

AGFD (2018a) indicates the species has been documented within 10 miles of the project area. USFWS (2015b) reports a record of an uncollared wolf approximately 10 to 15 miles southwest of the project area. The project area contains suitable pinyon-juniper woodlands inhabited by elk and cattle. It is within MWEPA management area Zone 2, where the species is allowed to naturally disperse and may be translocated, and borders MWEPA management area Zone 1 (Apache-Sitgreaves National Forest), where the species may be initially released or translocated (USFWS 2015a). USFWS (2015b, 2019) indicates that the project area is outside (approximately 10 miles east) of the subspecies occupied range; however, individuals, particularly dispersing young, may disperse over hundreds of miles (Packard 2003 as cited in USFWS 2017c). Known records within the project area vicinity (e.g., AGFD 2018a, USFWS 2015b) are likely associated with such dispersal events.

3.1.3.1.4 Mexican Spotted Owl

The Mexican spotted owl is federally listed as threatened with designated critical habitat; it is categorized by AGFD (2012b) as an SGCN 1A species. Nesting and roosting habitats include mature high-elevation forests with uneven-aged tree stands, multi-storied canopy, moderate to high canopy closure, downed logs, and snags (USFWS 2004) or incised rocky-canyon habitats with a perennial water source (Rinkevich 1991; Willey 1993). The latter typically contains small clumps or stringers of conifer or riparian forests (Gutierrez et al. 1995; USFWS 2004). While the owl is highly selective for its roosting and nesting habitats, which are not present within the project area, it will use a wider array of habitats, including pinyon-juniper woodlands, for foraging, dispersal, and wintering (Gutierrez et al. 1995; USFWS 1995).

AGFD (2018a) indicates the species has been documented within 10 miles of the project area; nearest records appear to be south and southwest of the project area within the Apache-Sitgreaves National Forest (AGFD 2018b, 2018d). Specific locations are not available because of the species' threatened status (eBird 2018a). Clear Creek and Chevelon Canyons, situated along the project area boundary, may provide appropriate breeding, roosting, juvenile dispersal, or wintering habitats for the species. If breeding occurs within these canyons, hunting and vocalizing individuals would primarily use the rugged terrain below the canyon rims outside of the project area; however, such individuals could use the rim and adjacent mesa tops (Bowden 2008; Willey and van Riper 2007). Use of the project area pinyon-juniper woodlands by dispersing juveniles and wintering owls would also likely be rare—since only some individuals migrate short distances in the winter and habitat associations within the project area are ubiquitous in the region—but cannot be ruled out.

3.1.3.2 OTHER SPECIAL-STATUS SPECIES

Table D.2 (see Appendix D) presents the range/habitat requirements and nearest records, if known, for both Eagle Act-protected species, SGCN 1A and 1B species provided by AGFD (2018a), and BCC listed for Bird Conservation Regions (BCRs) 16 and 34⁶ (USFWS 2008). Table 4 presents relevant species, among those evaluated in Table D.2, that may occur within the project area. Their federal/state and project area occurrence statuses are provided below.

⁶ BCRs relevant to the project area.

Table 4. Other Special-Status Species that May Occur or are Known to Occur within the Project Area

Common Name (Scientific Name)	Status*		Occurrence Status
	Federal	State	
Amphibians			
Arizona tiger salamander (<i>Ambystoma mavortium nebulosum</i>)	--	SGCN (1B)	May occur
Northern leopard frog (<i>Lithobates pipiens</i>)	--	SGCN (1A)	May occur, documented within 10 miles
Birds			
Bald eagle (<i>Haliaeetus leucocephalus</i>)	Eagle Act, BCC (BCR 16, 34)	SGCN (1A)	Known to occur, documented during project-specific surveys
Bendire's thrasher (<i>Toxostoma bendirei</i>)	BCC (BCR 16, 34)	SGCN (1C)	May occur
Black-chinned sparrow (<i>Spizella atrogularis</i>)	BCC (BCR 34)	SGCN (1C)	May occur
Black-throated gray warbler (<i>Setophaga nigrescens</i>)	BCC (BCR 34)	SGCN (1C)	May occur
Brewer's sparrow (<i>Spizella breweri</i>)	BCC (BCR 16)	SGCN (1C)	Known to occur, documented during project-specific surveys
Burrowing owl, Western burrowing owl (<i>Athene cunicularia hypugaea</i>)	BCC (BCR 16)	SGCN (1B)	May occur, documented within 10 miles
Canyon towhee (<i>Melospiza fusca</i>)	BCC (BCR 34)	--	Known to occur, documented during project-specific surveys
Cassin's finch (<i>Haemorhous cassinii</i>)	BCC (BCR 16)	--	Known to occur, documented during project-specific surveys
Chestnut-collared longspur (<i>Calcarius ornatus</i>)	BCC (BCR 16, 34)	SGCN (1C)	Known to occur, documented during project-specific surveys
Common black hawk (<i>Buteogallus anthracinus</i>)	BCC (BCR 34)	SGCN (1C)	May occur
Common nighthawk (<i>Chordeiles minor</i>)	--	SGCN (1B)	May occur
Evening grosbeak (<i>Coccothraustes vespertinus</i>)	--	SGCN (1B)	May occur
Ferruginous hawk (<i>Buteo regalis</i>)	BCC (BCR 16)	SGCN (1B)	Known to occur, documented during project-specific surveys
Golden eagle (<i>Aquila chrysaetos</i>)	Eagle Act, BCC (BCR 16)	SGCN (1B)	Known to occur, documented during project-specific surveys
Gray vireo (<i>Vireo vicinior</i>)	BCC (BCR 16, 34)	SGCN (1C)	May occur
Juniper titmouse (<i>Baeolophus ridgwayi</i>)	BCC (BCR 16)	SGCN (1C)	Known to occur, documented during project-specific surveys
Lewis's woodpecker (<i>Melanerpes lewis</i>)	BCC (BCR 16, 34)	SGCN (1C)	May occur
Lincoln's sparrow (<i>Melospiza lincolni</i>)	--	SGCN (1B)	May occur
Long-billed curlew (<i>Numenius americanus</i>)	BCC (BCR 16)	--	May occur
MacGillivray's warbler (<i>Geothlypis tolmiei</i>)	--	SGCN (1B)	May occur
Northern goshawk (<i>Accipiter gentilis</i>)	--	SGCN (1B)	May occur, documented within 10 miles
Peregrine falcon, American peregrine falcon (<i>Falco peregrinus anatum</i>)	BCC (BCR 16, 34)	SGCN (1A)	May occur, documented within 10 miles
Pinyon jay (<i>Gymnorhinus cyanocephalus</i>)	BCC (BCR 16, 34)	SGCN (1B)	Known to occur, documented during project-specific surveys
Prairie falcon (<i>Falco mexicanus</i>)	BCC (BCR 16)	SGCN (1C)	May occur

Common Name (Scientific Name)	Status*		Occurrence Status
	Federal	State	
Mammals			
Arizona myotis (<i>Myotis occultus</i>)	--	SGCN (1B)	May occur, documented within 10 miles
Brazilian free-tailed bat (<i>Tadarida brasiliensis</i>)	--	SGCN (1B)	May occur
Greater bonneted bat (<i>Eumops perotis</i>)	--	SGCN (1B)	May occur
Gunnison's prairie dog (<i>Cynomys gunnisoni</i>)	--	SGCN (1B)	Known to occur, species' burrows documented during project-specific surveys
Kit fox (<i>Vulpes macrotis</i>)	--	SGCN (1B)	May occur
Mexican vole (<i>Microtus mexicanus</i>)	--	SGCN (1B)	May occur
Pale lump-nosed bat, Townsend's pale big-eared bat (<i>Corynorhinus townsendii pallescens</i>)	--	SGCN (1B)	May occur
Pronghorn, American pronghorn (<i>Antilocapra americana americana</i>)	--	SGCN (1B)	Known to occur, documented during project-specific surveys
Spotted bat (<i>Euderma maculatum</i>)	--	SGCN (1B)	May occur
Stephen's woodrat (<i>Neotoma stephensi</i>)	--	SGCN (1B)	May occur
Western red bat (<i>Lasiurus blossevillii</i>)	--	SGCN (1B)	May occur
White-tailed deer (<i>Odocoileus virginianus</i>)	--	SGCN (1B)	May occur
Yuma myotis (<i>Myotis yumanensis</i>)	--	SGCN (1B)	May occur

Note: Table includes Eagle Act species, those Tier 1B species listed in AGFD (2018a), and Birds of Conservation Concern that may occur within the project area. Notes regarding documentation within 10 miles of the project area are from AGFD (2018a).

* Federal Status Definitions

BCC = Bird of Conservation Concern.

BCR = Bird Conservation Region.

State Status Definitions

SGCN = Species of Greatest Conservation Need; species identified by AGFD (2012) as having conservation priority. Tier 1B species are those categorized as "vulnerable" but not fitting the Tier 1A criteria for highest priority. Tier 1C species are those for which existing data were insufficient to score one or more vulnerability criteria.

3.1.3.2.1 Eagles

The project area is within the year-round range for golden eagle and the non-breeding/limited breeding range for bald eagle (see Table 4). The ECPG goal at this stage is to begin to assess the spatiotemporal extent and type of eagle use the site receives or is likely to receive; this assessment is provided in Sections 3.3.5 and 3.4.

3.1.3.2.2 Species of Greatest Conservation Need

Thirty species categorized as SGCN 1A or 1B may occur within the project area (see Tables 3 and 4), including three amphibians, 13 birds, and 14 mammals (including seven bats). Among these species, six are known to occur (i.e., they have been observed by SWCA during site reconnaissance visits and/or during avian use counts) within the project area: bald eagle, ferruginous hawk (*Buteo regalis*), golden eagle, pinyon jay (*Gymnorhinus cyanocephalus*), Gunnison's prairie dog⁷ (*Cynomys gunnisoni*), and pronghorn (*Antilocapra americana*).

⁷ Only burrows (not live animals) have been observed as of April 12, 2019.

3.1.3.2.3 Birds of Conservation Concern

Nineteen BCC species may occur within the project area (Table 4). Among these species, nine are known to occur: bald eagle, Brewer's sparrow (*Spizella breweri*), canyon towhee (*Melospiza fusca*), Cassin's finch (*Haemorhous cassinii*), chestnut-collared longspur (*Calcarius ornatus*), ferruginous hawk, golden eagle, juniper titmouse (*Baeolophus ridgwayi*), and pinyon jay.

3.1.4 Plant Communities of Concern

The project area is either clearly beyond the known geographic or elevational range of federally listed plant species or it does not contain vegetation or landscape features known to support these species, or both (see Section 3.1.3.1 and Table D.1). Protected native plants classified under the ANPL are present in the project area (e.g., banana yucca [Harvest Restricted native plant] and Whipple cholla [Salvage Restricted native plant]). Noxious weeds have also been observed in the project area (e.g., camelthorn). A native plant and noxious weed inventory for the project is scheduled for the spring or summer of 2019.

3.1.5 Critical Habitats

There are no critical habitats within the project area. Mexican spotted owl and Little Colorado spokedace critical habitats are present within 10 miles of the project area—1.5 miles to the south and 9.2 miles to the southwest, respectively (Figure 3). Mexican spotted owl critical habitat is also located 5.5 miles to the southwest (see Figure 3).

3.2 Other Special Designations

There are no IBAs (Audubon 2018), WHSRN sites (WHSRN 2018), Wetlands of International Importance (Ramsar sites) (Ramsar 2014), National Wildlife Refuges (USFWS 2018), Wilderness Areas (AGFD 2018b), Wild and Scenic Rivers (National Wild and Scenic Rivers System 2018), National Trails (National Park Service 2018), or state parks (Arizona State Parks 2018) within the project area.

Among these layers, the Anderson Mesa, Coconino National Forest IBA is located within 10 miles of the project area (9.5 miles to the west) (Figure 4).

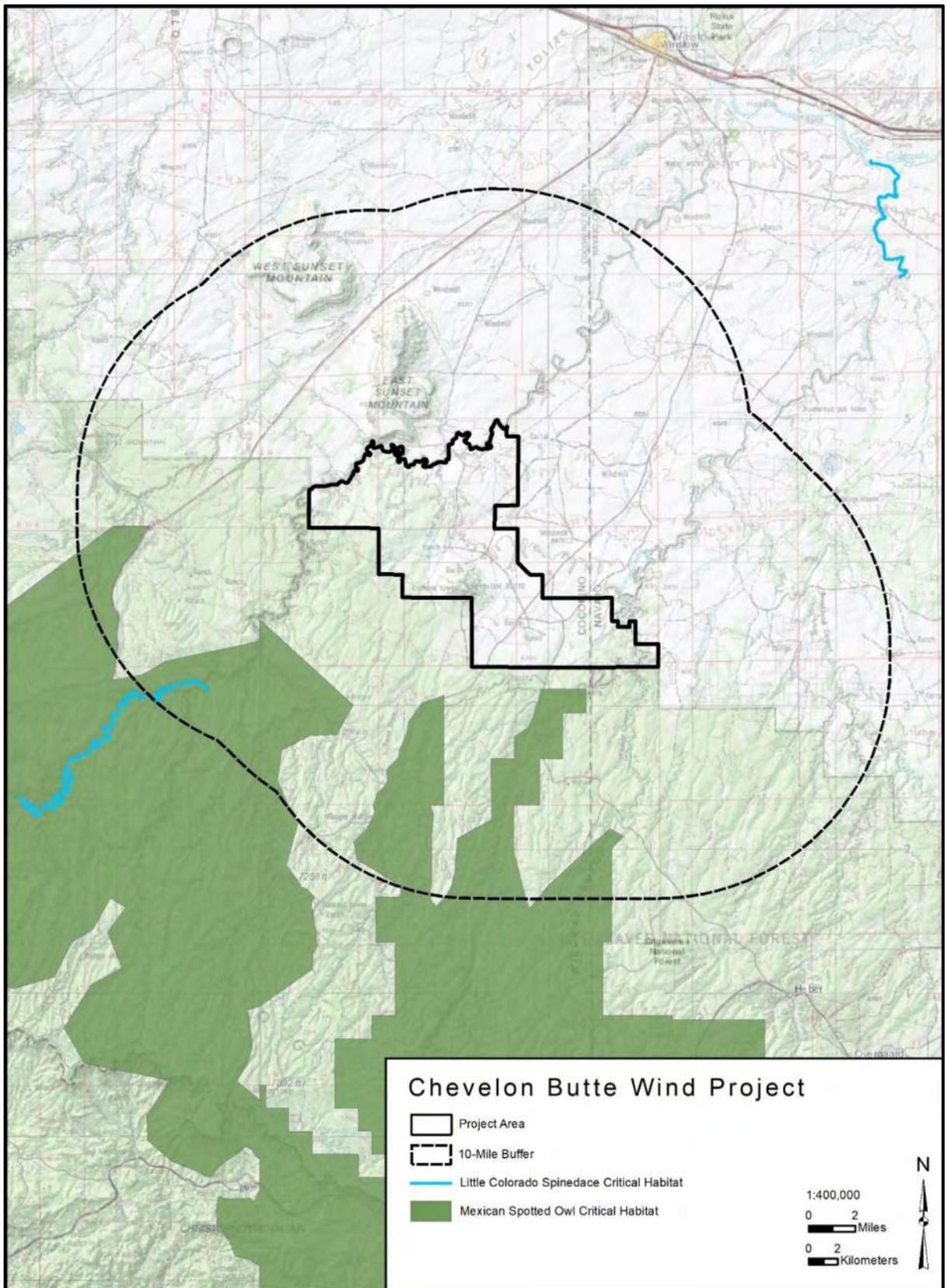


Figure 3. Critical habitats within 10 miles of the project.

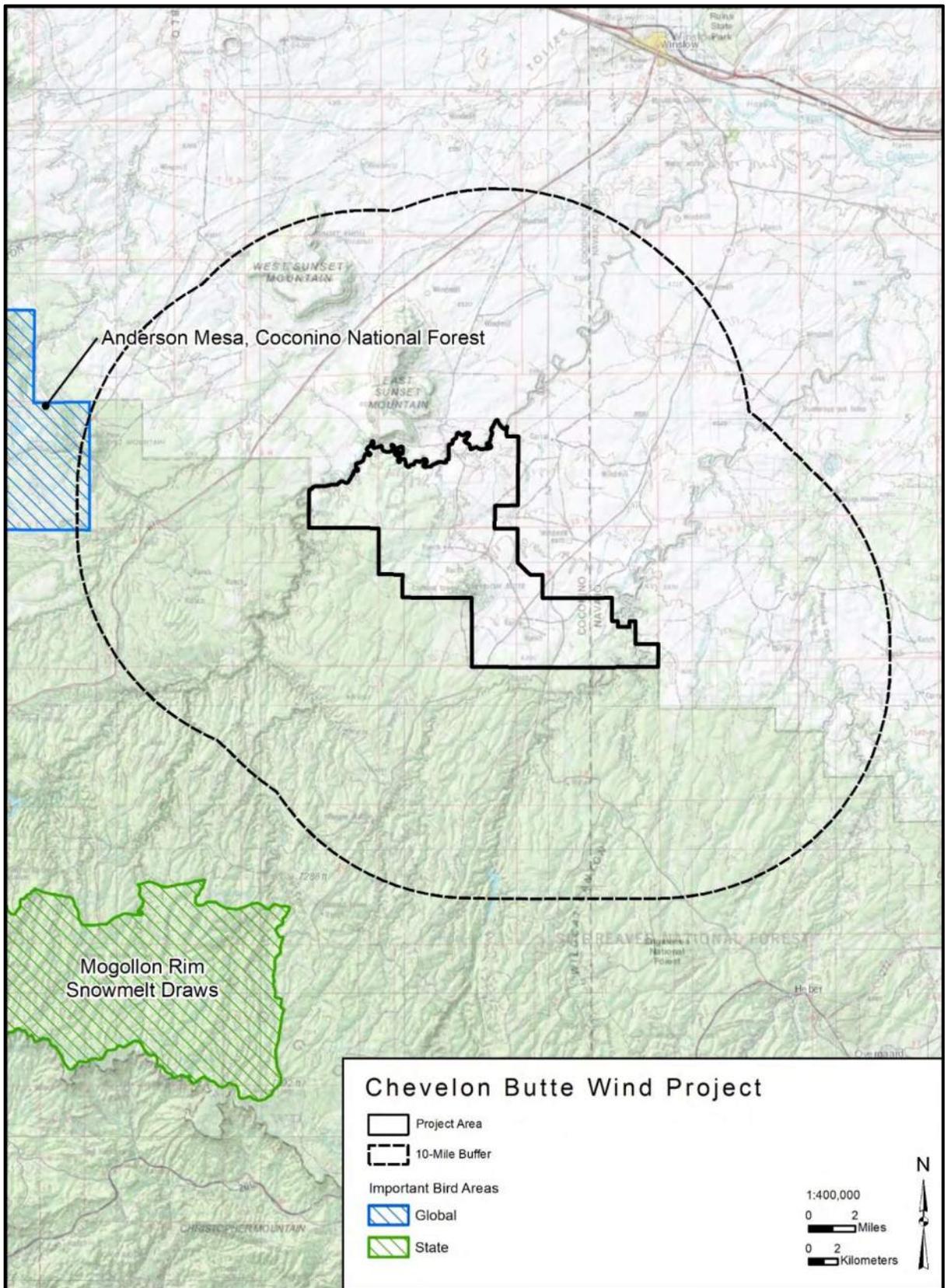


Figure 4. Audubon IBAs within 10 miles of the project area.

3.3 Potential Areas of Wildlife Congregation

3.3.1 Bat Roosts, Roosting Habitat, and Hibernacula

Bat roosting sites may vary by species, season, and time of day (e.g., day—roosts used for rest and raising young; night—roosts used for ingesting food, resting, and avoiding inclement weather or predators). Bats roost singly, in small groups, or in large numbers in naturally occurring and human-made structures including caves, rock crevices, birds' nests, most parts of trees (e.g., inside cavities or hollow logs, under loose bark, inside furled leaves, on branches), mines, buildings, bridges, and culverts (Ammerman et al. 2012). Many bats raise their young in spring-season nursery or maternity roosts; site fidelity at these sites is highly variable (Ammerman et al. 2012; Lewis 1995). Hibernacula sites—commonly caves and abandoned mines—are typically restricted to those with relatively stable temperatures and relative humidity (Ammerman et al. 2012).

There are no known bat roosts within 10 miles of the project area; however, this may be because of a lack of surveys rather than a lack of presence (personal communication, Angie McIntire, AGFD Bat Specialist, November 13, 2018). Within the general region, there are multiple capture records for migratory tree bats, including hoary bat (*Lasiurus cinereus*) and silver-haired bat (*Lasionycteris noctivagans*), and free-tailed bats, including Brazilian free-tailed bat (*Tadarida brasiliensis*) and big free-tailed bat (*Nyctinomops macrotis*), which have been discovered as fatalities at the nearby⁸ Dry Lake I and II wind energy facility (personal communication, Angie McIntire, AGFD Bat Specialist, November 13, 2018).

3.3.2 Wetlands/Riparian Areas

A jurisdictional delineation field survey of the relevant water features where they intersect proposed project design features will take place in the spring or summer of 2019.

Notable water features within the region include Mormon Lake, the Little Colorado River, Long Lake, Clear Creek Reservoir, and Chevelon Canyon Lake located 35 miles northwest, 20 miles northeast, 19 miles west-northwest, 18 miles northeast, and 10 miles south of the project area, respectively. AGFD (2018c) indicates presence of several wildlife waters, presumably water catchments, within 10 miles of the project, south of the site.

Wetlands within the project area (Figure 5) include ephemeral stock tanks (e.g., New Tank and Red Tank) and drainages (e.g., Echinique Draw and Sand Draw). The NWI (USFWS 2018c) classifies the stock tanks as “freshwater ponds: temporarily flooded impoundments” (see Figure 5). During site reconnaissance visits, SWCA noted that these stock tanks lack emergent wetland and shrub/tree riparian vegetation. Drainages in the project area are classified as “riverine: intermittently or seasonally flooded” (USFWS 2018c; see Figure 5).

Clear Creek and Chevelon Canyons, located along the northern and southeastern boundaries of the project area, contain riparian areas (AGFD 2018b). Helicopter nest surveyors documented sparsely distributed cottonwoods within these areas. Both creeks were dry when observed in November and December 2018; both contained water in February and March 2019. Where they meet the project area boundary, these creeks are categorized by NWI (USFWS 2018c) as seasonally flooded (southeast boundary and western half of the northern boundary) and permanently flooded (eastern half of the northern boundary).

⁸ The Dry Lake I and II wind energy facility is located approximately 30 miles east of the project area.

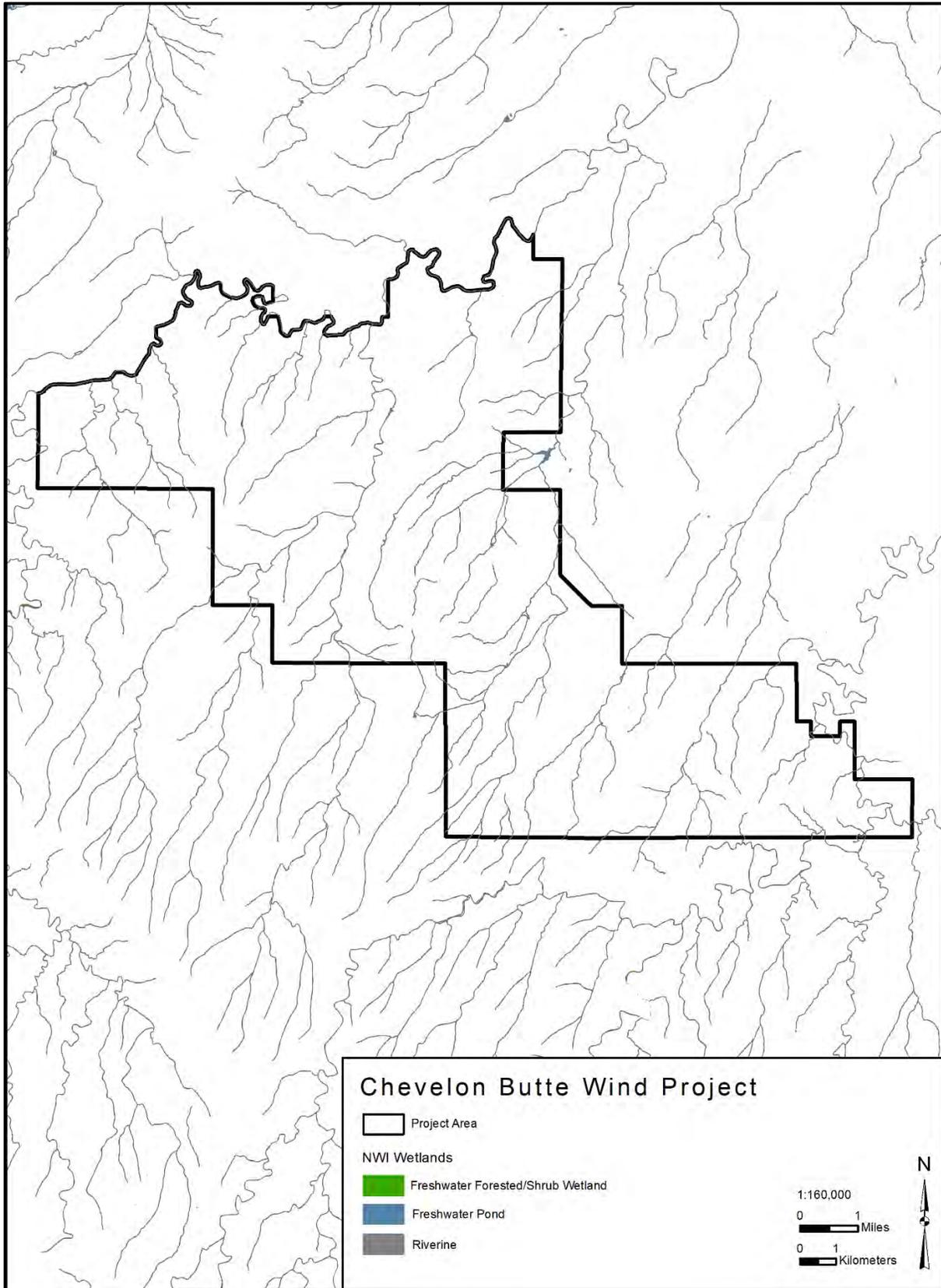


Figure 5. NWI wetlands within the project area.

3.3.3 Staging Areas, Migration Stopovers, or Corridors

3.3.3.1 STAGING AREAS

Staging areas are those with abundant, predictable food resources where birds prepare for an energetic challenge (typically a long flight over a geographic barrier) requiring substantial food stores (Warnock 2010). Such staging areas are seen for birds such as waterfowl, cranes, shorebirds, and songbirds. Examples of staging sites include Delaware Bay; Copper River Delta, Alaska; Platte and North Platte Rivers, Nebraska; Mono Lake, California; Great Salt Lake, Utah; and the Yucatan peninsula. Some smaller, lesser-known interior sites that do not meet WHSRN numeric criteria but provide consistent water availability and quality may also be important to some shorebird species that migrate in small flocks (Robinson and Warnock 1996). The project area stock tanks and drainages associated with Clear Creek and Chevelon Canyon would not provide consistent water availability or predictable food resources (e.g., as seen in coastal mudflats) characteristic of important staging areas.

3.3.3.2 STOPOVERS AND AVIAN/BAT MIGRATION CORRIDORS

The terms *stopover* and *staging area* are often used interchangeably. Stopover sites may be defined more broadly as sites where birds rest and feed during migration to refuel or avoid adverse conditions (Warnock 2010). Though most species migrate on broad fronts and stopover strategies among and within species are complex, fragments of forested areas and riparian corridors (i.e., oases relative to the surrounding landscape) often provide important stopover habitats. The project area does not contain habitats that would concentrate migrant birds. The juniper woodlands and shrub-steppe cover are abundant habitats relative to the surrounding region. The riparian areas found along the project area boundary may provide stopover habitats for migrant birds.

The nearest known migration “hotspots” (eBird 2018b) are associated with lakes and wetlands containing emergent vegetation in the region located approximately 30 miles northwest (Ashurst Lake and Mormon Lake), 50 miles northwest (Kachina wetlands), 90 miles west (Willow Creek Reservoir), and 90 miles east-southeast (Becker Lake) of the project area.

The project area and vicinity do not contain negative barriers, such as large bodies of water, mountain ridges that offer energy-efficient flight via updrafts, or prominent north–south topography, which are features that would funnel migrant raptors.

The project area is also outside of any known avian species-specific migration corridors (e.g., sandhill crane [*Antigone canadensis*] flyways) (Pacific Flyway Council and Central Flyway Council 2016; Pacific Flyway Council 2017).

Bat migratory routes and stopover areas are poorly known (AGFD 2012a; Baerwald et al. 2009; Baerwald and Barclay 2011; Fleming and Eby 2003; Froidevaux et al. 2014). Emerging guidelines for pre-construction surveys have focused on identifying important wildlife habitat for bats such as hibernacula and maternity colonies (see Section 3.3.1) and potential movement corridors between these important sites (Arnett and Baerwald 2013; Bennett and Hale 2018; Hein et al 2013).

3.3.3.3 OTHER WILDLIFE CORRIDORS: SPECIES OF HABITAT FRAGMENTATION CONCERN

The WEG recommends addressing fragmentation of continuous habitat into smaller, isolated tracts, citing concern for potential deleterious effects to some wildlife species, including decreased survival, decreased reproduction, and displacement. Studies have indicated displacement of some bird species in response to

wind energy development, while other species have shown no effect (Hatchett et al. 2013; Loesche et al. 2013; Shaffer and Buhl 2016; Stevens et al. 2013). Responses by some bird species appear to be temporary (during project construction) (Pearce-Higgins et al. 2012). Species that require unfragmented habitats or that avoid anthropogenic activity (e.g., lekking species, such as sage-grouse) may be particularly vulnerable to habitat fragmentation and operations. For example, there is concern that prairie chickens and sage-grouse will avoid wind energy facilities (studies to date have shown neutral, positive, and negative demographic responses) (American Wind Wildlife Institute [AWWI] 2018). It is not known whether wind-energy facilities affect big game and other large terrestrial vertebrates; the few studies to date have indicated no negative effects (pronghorn: Piorkowski et al. 2016, Taylor et al. 2016; elk: Walter et al. 2016).

Current land uses in the project area include cattle ranching/grazing and hunting. The project area is bounded by canyons; it is currently fragmented by access roads, fence lines, and corrals. Access to the site is from State Route 99 (Chevelon Winslow Road) and Forest Road 504, which intersect the southern portions of the project area. State Route 87 and Interstate 40 are situated approximately 5 miles to the west and 21 miles to the north (see Figure 1).

The nearest wildlife corridor (the Munds Mountain-Black Hills Linkage Design) identified by the Arizona Wildlife Linkages Workgroup (AWLW) (2006) is located approximately 47 miles west-northwest of the project area (AGFD 2018b). The AWLW (2006) indicates the project area is within a potential linkage zone—an area identified as critical to wildlife movement. Directly south of the site, a habitat block—defined as important wildlife habitat expected to remain wild—has been identified in the Apache-Sitgreaves National Forest (AWLW 2006; Figure 6).

The WAFWA (2019) Crucial Habitat Assessment Tool (CHAT), which measures crucial habitats using a six-level prioritization scheme (1 = “most crucial”, 6 = “least crucial”), based on an aggregate of data layers incorporating such layers as unfragmented habitats and wildlife corridors, indicates that the majority of the project area is classified as level 3 (Figure 7). Smaller (1-mi² hexagonal) segments of the project area are categorized as levels 2 and 4 (see Figure 7). AGFD (2012b, 2018b) also qualifies unfragmented areas in the state defined by wildlife movement barriers, vegetation diversity, and importance (relative to its occurrence in the state) of the vegetation community. The project area is within an area considered to have moderate value, with isolated fragments in the northern portion of the project categorized as having high value.

Habitat fragmentation is of particular concern for species requiring large habitat blocks for activities such as breeding, foraging, and sheltering (USFWS 2012). Arizona’s State Wildlife Action Plan (AGFD 2012b) identifies species for which fragmentation has resulted in isolated populations. Among those species, evaluated in Section 3.1.3 and Tables D.1 and D.2, that may occur within the project area, 11 have been identified by AGFD (2012b) as species of habitat fragmentation concern: Chiricahua leopard frog, bald eagle, ferruginous hawk, MacGillivray’s warbler (*Geothlypis tolmiei*), Mexican spotted owl, northern goshawk (*Accipiter gentilis*), western burrowing owl (*Athene cunicularia hypugaea*), pronghorn, Mexican gray wolf, white-tailed deer (*Odocoileus virginianus*), and kit fox (*Vulpes macrotis*). To our knowledge, there are no populations of a species with habitat fragmentation concern that would be isolated or displaced by project construction and operation.

3.3.4 Leks, Winter Ranges, or Other Areas of Seasonal Importance

Tables D.1 and D.2 (see Appendix D) provide information regarding potential seasonal use of the project area by special-status species.

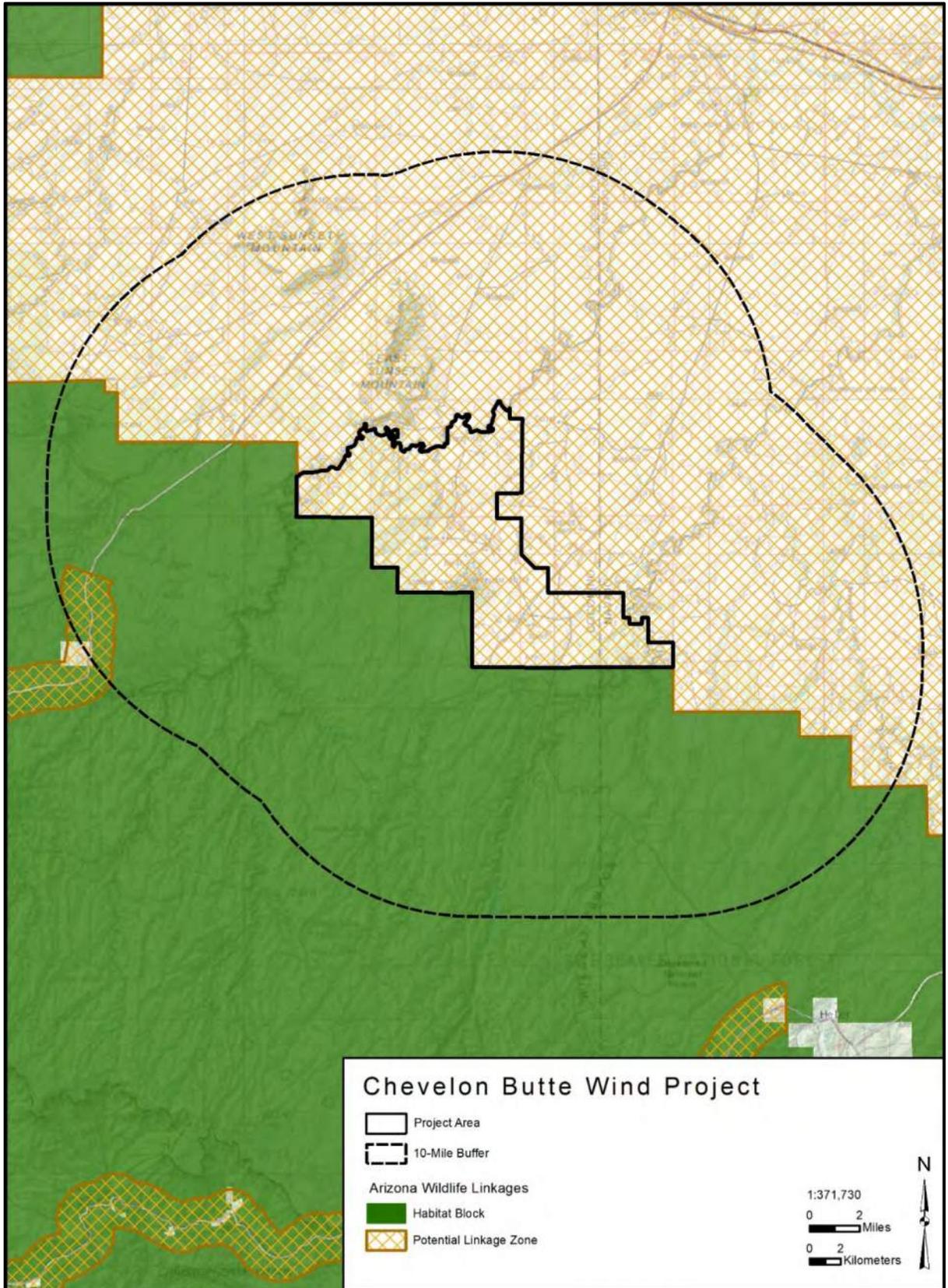


Figure 6. Arizona wildlife linkages within 10 miles of the project area.

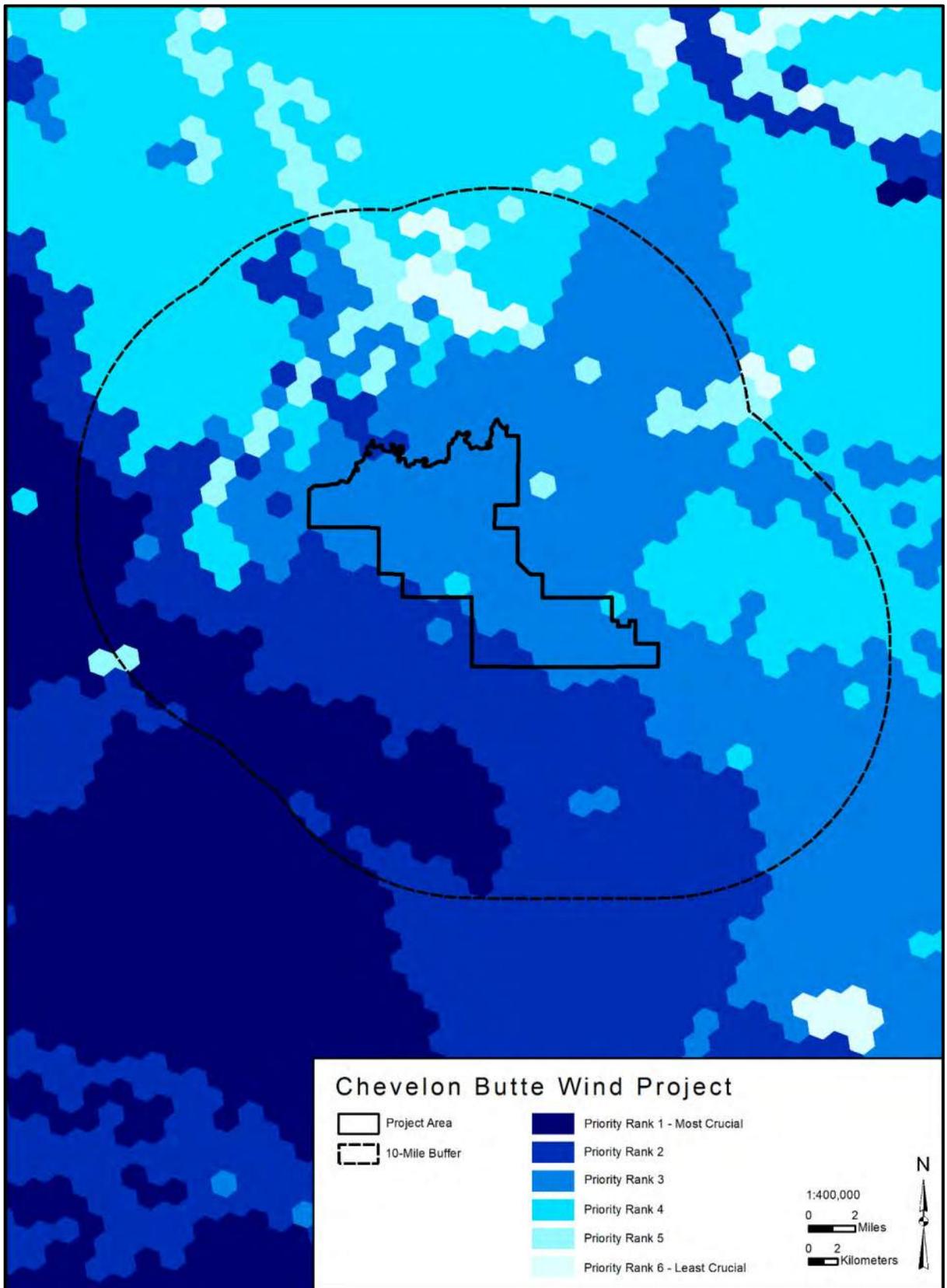


Figure 7. CHAT crucial habitats within 10 miles of the project area.

3.3.4.1 LEKS

The project is not within the range of any lekking species (e.g., grouse, sage-grouse, prairie chicken; Galliformes>Phasianidae>Tetraoninae): species which form seasonal aggregations characterized by male display.

3.3.4.2 WINTER RANGES

The WEG suggests evaluating the importance of winter ranges with respect to big game species. The project area is a favored hunting area for elk, pronghorn, and mule deer. These species have been documented within the project area by SWCA during field reconnaissance visits and during avian use count surveys (November 2019–as of this writing [April 2019]). SWCA observations of pronghorn have been regular, whereas observations of elk and mule deer have been occasional. Breeding and calving in pronghorn occur from August–September and May–June, respectively (AGFD 2019). Important seasonal periods for elk include breeding (September–October), restoring depleted body fat (November), and calving (late May and June) (AGFD 2019; New Mexico Department of Game and Fish 2018). Mule deer breed in the winter (November–December) and birth young from June–August (AGFD 2019). Based on the few studies to date, negative impacts to these species associated with the project are not anticipated (Piorkowski et al. 2016; Taylor et al. 2016; Walter et al. 2016; see Section 3.3.3.3).

For winter flocking species such as waterfowl, sandhill cranes, and select small birds (e.g., pinyon jays and horned larks), AGFD (2012a) highlights the importance of grassland and pinyon/juniper woodlands, particularly where they are near open bodies of water (e.g., earthen tanks).

Because of their size and water availability, the project area stock tanks are not expected to support large concentrations of migrating/wintering waterfowl or shorebirds. To date, SWCA surveyors have noted wintering groups of 2–10 individuals. Generally, the majority of use by waterfowl and shorebirds in the region would be expected in the more sizeable regional water features (described in Section 3.3.2) from October–February and during fall migration (July–October), respectively (Rodewald 2015). Sandhill cranes have been observed flying over the site (one group of 40 individuals in early spring); however, concentrated wintering areas⁹ and flyways¹⁰ are located far from the project area. Regarding small bird use during the winter, SWCA surveyors have noted some groups of “a few hundred” horned larks and 50 to 120 pinyon jays. Collision mortality associated with these groups (wintering birds, waterbirds/shorebirds) has not been a concern at other wind-energy sites in the region (e.g., Thompson et al. 2011). Baseline avian use will be quantified during WEG Tier 3/ECPG Stage 2.

Potential eagle use of the site, including potential for bald eagle winter roosts, is reviewed in Section 3.4.

3.3.4.3 AREAS OF SEASONAL IMPORTANCE

At this stage, specific areas of seasonal importance have not been identified within the project area or its vicinity. The following is a summary of project area features that may attract species of interest (see Section 3.5.2) to the site (i.e., our current knowledge of wildlife use of these areas is tentative):

⁹ Nearest Rocky Mountain population wintering areas are approximately 180 miles south-southeast (Wilcox Playa/Whitewater Draw Wildlife Area, Arizona) and 230 miles southeast of the project area (Middle Rio Grande Valley, New Mexico) (Pacific Flyway Council and Central Flyway Council 2016). Nearest Lower Colorado River Valley population wintering areas are 165 miles (near Gila Bend, Arizona) southwest and 240 miles west-southwest (Cibola National Wildlife Refuge) of the project area (Pacific Flyway Council 2017).

¹⁰ Crane flyways are approximately 170 miles to the west and 225 miles to the east (Pacific Flyway Council and Central Flyway Council 2016; Pacific Flyway Council 2017).

- Raptor nesting sites (if present, typically active between February and July)
 - Raptor nests have not been inventoried within the project area (see Section 3.3.5). A site-specific survey is planned for mid-April 2019.
- Gunnison's prairie dog colonies: prairie dogs are typically active in the region from March through October (peak activity from June–July)
 - Colonies may provide concentrated (spatially predictable) prey for raptor species (e.g., golden eagle, ferruginous hawk). Few, small burrow concentration areas have been observed on site by SWCA; their occupancy status is unknown. Active prairie dogs have not been observed (by sight or sound) as of mid-April 2019.
 - Burrowing owls may also occupy prairie dog burrows for breeding between March and mid-July (AGFD 2009).
- Stock tanks containing waterfowl (wintering waterfowl period: October–February)
 - Stock tanks may provide concentrated (spatially predictable) prey for eagles. Relatively small groups have been observed using these features (see Section 3.3.4.2).
- Prominent topographic features within and proximal to the project area (raptor migration period: September 1–October 31 [AGFD 2012a])
 - The canyons bordering the site and Chevelon Butte are not anticipated to funnel raptors (see Section 3.3.3.2) but may be used by migrating and resident individuals more frequently relative to the other featureless portions of the project area.
- Bat resources (colonial roosting period: May–August [AGFD 2012a]; typical season of concern for bats is late summer and early fall migration [see Section 3.5.2])
 - Important bat roosts within the project vicinity have not been identified at this stage.
 - There is some question as to whether pre-construction surveys (i.e., resource mapping, acoustic surveys) inform turbine siting (Bennett and Hale 2018; Hein et al. 2013). Resource mapping may be effective particularly for those species that hibernate in known winter roosts or have colonial maternity roosts (Bennett and Hale 2018).

3.3.5 Nesting Sites

Figure 8 illustrates the 4 × 4-mile eagle breeding area blocks provided by AGFD within 10 miles of the project area. These blocks are distinguished by 1) known bald and golden eagle breeding areas (occupied within the past 10 years), 2) historic (not occupied or occupancy status not known within the past 10 years) eagle breeding areas, and 3) possible (large eagle-size nest structures previously documented) eagle breeding areas. The blocks provide useful, albeit coarse, focal areas where nests have been identified during past survey efforts.

Referencing these blocks and potential eagle nesting habitat delineated by SWCA (Figure 8), during March 5–7, 2019, surveyors conducted the first of two eagle nest surveys within 10 miles of the project area. A follow-up nest occupancy survey, which will include revisits to nests identified during the first survey as well as inventorying some areas that were not fully covered during the first survey, is scheduled for mid-April 2019. A summary of eagle nest locations and nest occupancy status grouped by eagle territory, as well as ½-MIND calculations will be provided in a future report.

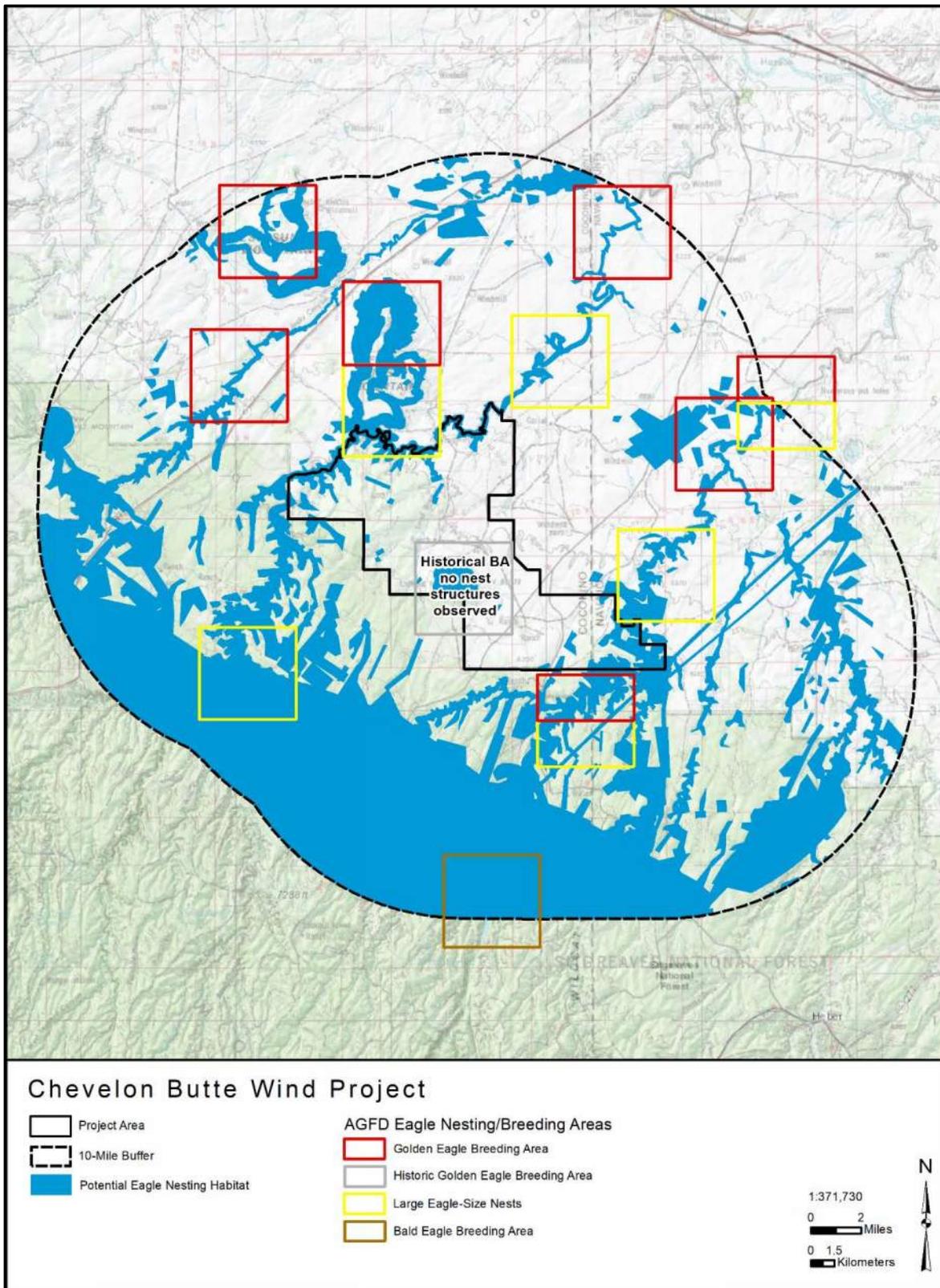


Figure 8. 4 × 4-mile blocks provided by AGFD indicating known and possible eagle breeding areas within 10 miles of the project. Figure also illustrates potential eagle nesting habitat delineated to inform the March and April 2019 eagle nest inventory survey effort.

For purposes of this report, the 4 × 4-mile blocks provided the following insight regarding anticipated nest locations within the 10-mile-radius survey area. Known golden eagle and possible golden eagle breeding areas are roughly uniformly distributed on rock substrates associated with canyons (e.g., Chevelon and Jacks Canyons) and other rugged terrain (e.g., East Sunset and West Sunset Mountains) (see Figure 8). One bald eagle breeding area is associated with a tree nest situated proximal to Chevelon Canyon Lake (see Figure 8) (personal communication¹¹, Kenneth “Tuk” Jacobson, AGFD Raptor Management Coordinator, and Kyle McCarty, Eagle Field Projects Coordinator, March 7 and 13, 2019).

Within the project area, AGFD provided a 4 × 4-mile block for an historic golden eagle nesting site associated with Chevelon Butte (see Figure 8). The nest structure within this block was described as active in 1996, unoccupied in 1997 and 1998, and had fallen when last observed in 2006. During the March 5–7 survey, SWCA surveyors could not locate a nest structure within this historic breeding area.

Other potential eagle nesting habitat within the project area is located on the northern (Clear Creek) and southeastern boundaries (Chevelon Canyons and transmission towers situated across canyon) —these areas were fully inventoried with negative results during the March 5–7 survey; they will be revisited during the mid-April 2019 survey. Non-eagle raptor nesting substrates within the project area may include rock features associated with these canyons, as well as pinyon and juniper trees. These areas will be inventoried for non-eagle raptor nests during the mid-April 2019 survey effort.

3.4 Potential Eagle Use of the Site

3.4.1 Anticipated Seasonal Use

Specific temporal use of the site by both eagle species will be evaluated as part of the pre-construction avian use surveys for the project. AGFD and USFWS has also indicated that eagle telemetry data may be available which could further our understanding of temporal and spatial use of the site.

The project is within the golden eagle’s year-round range and may be broadly categorized as golden eagle foraging habitat (i.e., open grassland and steppe-like vegetation communities; Kochert et al. 2002). Golden eagles breed throughout the region, including within 10 miles of the project area (see Section 3.3.5). Nests are placed in rugged terrain (e.g., cliffs); less often in forested areas (e.g. ponderosa pine [*Pinus ponderosa*], Fremont cottonwood [*Populus fremontii*]) and on human-made structures (e.g., transmission towers). As described in Section 3.3.5, no golden eagle nests were found within the project area during the March 5–7, 2019, nest survey. Potential golden eagle prey items and likely use areas within the site are described in Sections 3.3.4.3, 3.4.2.1, and 3.4.4. Golden eagles exhibit complex migration and nomadic movement patterns dependent on factors such as nesting status, age, and food availability (Kochert et al 2002). Because individuals from areas north of Arizona winter in the state from October–April (reaching peak numbers from December–February), generally, more golden eagles may be expected regionally during the fall through early spring seasons (AGFD 2002; Kochert et al. 2002). Other factors that may influence temporal use of the site by the species include whether breeding areas proximal to the site (see Section 3.3.5, Figure 8) are used by individuals during the breeding season (winter through early summer) and the extent to which foraging activities increase on-site based on seasonal fluctuations in food availability (e.g., offal piles left by hunters September–November; Gunnison’s prairie dogs, a main food item, would be active, if present, on-site from March through October; see Section 3.4.2.1).

The project is within the bald eagle’s non-breeding and limited breeding ranges. It does not contain characteristic nesting (cliffs or trees near appropriate foraging conditions), foraging (aquatic), or roosting

¹¹ The Chevelon Canyon Lake bald eagle nest was also verified during the March 5–7 nest survey.

(trees 15–60 m in height) habitats (Buehler 2000; Stalmaster 1987). As described in Section 3.3.5, one breeding area has been identified within 10 miles of the project area (see Figure 8). Nests are generally placed in large trees or cliffs less than 2 km from water containing appropriate foraging conditions (e.g., rivers or reservoirs containing fish) (Buehler 2000). Wintering/non-breeding individuals and juveniles are typically associated with breeding habitats; however, they may range widely in search of food (see Section 3.4.2.2). Like golden eagles, bald eagles exhibit complex migration and nomadic movements; generally, more individuals may be expected regionally from late August until February, when wintering northern birds and returning juveniles are present (Corman and Wise-Gervais 2005). Given the lack of nesting, roosting, and foraging habitats within and proximal to the site, use of the site by the species would most likely be occasional, particularly from late-summer through winter when appropriate food items (e.g., large mammal carrion; see Section 3.4.2.2) are present.

3.4.2 Eagle Prey Concentrations

3.4.2.1 GOLDEN EAGLE PREY ITEMS

Potential golden eagle main prey items within the project site may include rabbits (e.g., desert cottontail [*Sylvilagus audubonii*], black-tailed jackrabbit [*Lepus californicus*]) and sciurids (e.g., rock squirrel [*Otospermophilus variegatus*], Gunnison’s prairie dog). Secondary prey items may include waterfowl, large mammal carrion (e.g., cattle, elk, pronghorn, mule deer), live ungulates (e.g. pronghorn), cattle, mesocarnivores (e.g., coyote [*Canis latrans*], American badger [*Taxidea taxus*], bobcat [*Lynx rufus*]), large birds, and offal piles left by hunters (Kochert et al. 2002).

Potential prey concentration areas within the project area include relatively small prairie dog colonies (surveyor have observed burrows) and stock tanks containing waterfowl (see Section 3.3.4.3). In qualifying these potential resources at this stage, it is unlikely that these small features would provide a reliable source of prey. No active prairie dogs have been observed on site as of this writing; it is unclear whether the species has been extirpated from the site.

3.4.2.2 BALD EAGLE PREY ITEMS

Potential bald eagle prey items on-site may include carrion and waterfowl (Buehler 2000). Preferred bald eagle prey items—fish—are not present within the project area. The nearest major bodies of water and their proximity to the site are described above (see Section 3.3.2).

It is anticipated that winter use of the stock tanks would be infrequent because the species tends to prefer traditional waterfowl concentration areas with heightened hunter-induced mortality (Griffen et al. 1982, as cited in Buehler 2000).

3.4.3 Potentially Valuable Eagle Habitats that Would be Destroyed or Degraded

No potentially valuable eagle nesting habitats (see Section 3.3.5) would be destroyed or degraded because of project construction or operation; such potential habitats (e.g., Chevelon Butte) may be avoided. Other potentially valuable eagle habitats on-site may include Gunnison’s prairie dog colonies and stock tanks supporting waterfowl (see Sections 3.3.4.3, 3.4.2.1, and 3.4.4). The value of these sites may be documented via site-specific surveys (i.e., eagle flight path mapping) and AGFD/USFWS regional eagle telemetry data; such areas may be avoided as part of the design of the project.

3.4.4 Important Eagle Use Areas or Migration Concentration Sites

At this stage, no important eagle use areas or migration concentration sites have been identified within the project area or proximity.

Eagle migration concentration sites are associated with negative barriers, such as large bodies of water, or mountain ridges that offer energy-efficient flight via updrafts. The nearest known raptor migration sites are in the Grand Canyon (Lipan and Yaki Points) located approximately 110 miles northwest of the project area (Hawk Migration Association of North America 2018).

An *important eagle use area* is defined by the USFWS (2009) as “an eagle nest, foraging area, or communal roost site that eagles rely on for breeding, sheltering, or feeding, and the landscape features surrounding such nest, foraging area, or roost site that are essential for the continued viability of the site for breeding, feeding, or sheltering eagles.” The term refers to particular areas within a broader landscape where eagles are more likely to be disturbed by an activity because of the higher probability of interference with breeding, feeding, or sheltering behaviors. In practice, important eagle use areas are defined by buffering occupied eagle nests within an appropriate avoidance setback.

There are no communal eagle roost sites—generally associated with bald eagles—within or proximal to the project area. As described in Section 3.3.5, no eagle nests have been documented within the project area. Avoidance opportunities relevant to other eagle nests that are identified proximal to the project area will be evaluated as part of future project reporting. Because other potential eagle use areas are relatively small and would support few prey, it is unlikely that eagles would *rely on* them for *breeding or feeding*.

3.5 Evaluation of Species Known to Be at Risk

3.5.1 ECPG Site Categorization at This Stage

Because eagle risk site categorization is determined through a tiered approach—informed by proximity of the project’s footprint to important eagle-use areas (ECPG Stages 1, 2, and 4) and project-specific annual eagle fatality estimates as they pertain to the LAP size (ECPG Stages 2–4)—categorization at this stage (Stage 1) is preliminary (USFWS 2013a). Initial evidence at this stage indicates that the proposed project is a Category 2 site—meaning there is high or moderate risk to eagles with opportunity to mitigate impacts. This preliminary evidence includes:

- No eagle nests or other potentially important eagle-use areas have been identified within the project area or its immediate boundary.
- No migration concentration sites are known within the project area or vicinity.
- Eagle use of the site is expected to be similar to other Category 2 projects in the region.

3.5.2 Other Species Known to Be at Risk

Birds and bats are typically the focus of impact evaluation for wind-energy projects (AGFD 2012a) because of direct mortality associated with turbine collision. General species composition and seasonal distribution patterns of bird and bat fatalities observed at other wind energy facilities in the United States are well documented (Arnett et al. 2008; AWWI 2018; Erickson et al. 2001; Erickson et al. 2014; Hayes 2013; Kunz et al. 2007; Loss et al. 2013; National Academy of Sciences [NAS] 2007; Strickland et al. 2011). These general patterns include:

- Avian fatalities at wind energy facilities are distributed among many species (approximately 250 species have been documented) (Erickson et al. 2014; Loss et al. 2013).
 - Passerines constitute the majority (roughly 60%) of bird fatalities at facilities in the United States, and these fatalities generally result in spring and fall peaks of avian fatality rates (AWWI 2018; Strickland et al. 2011).
 - Diurnal raptors and pheasants appear to be vulnerable to collision (AWWI 2018).
 - Among eagle species, bald eagles appear to be less vulnerable to collision, with few documented fatalities, relative to golden eagles (Pagel et al. 2013).
 - Some avian species, such as ravens, appear to avoid collisions (AWWI 2018; NAS 2007); others (e.g., waterbirds, waterfowl) appear to collide with turbines infrequently (AWWI 2018).
- Several studies have reported high numbers of bat fatalities, limited to specific species, relative to bird fatalities at wind energy facilities (Barclay et al. 2007; Ellison 2012).
 - Bat fatalities generally occur during specific periods of time and weather conditions (AWWI 2018; Arnett et al. 2008; Hayes 2013).
 - Migratory tree-roosting species—hoary bat, silver-haired bat, and eastern red bat—constitute the majority (nearly 80%) of bat fatalities at other North American wind energy facilities, and most bat fatalities occur during low-wind periods in late summer and early fall migration; some facilities have reported a smaller peak during spring migration for some species (AWWI 2018; Arnett et al. 2008; Baerwald and Barclay 2009; Johnson 2005; Kunz et al. 2007).
 - Where publicly available studies exist within their range (the southern half of the United States), Brazilian free-tailed bats have been documented to be particularly susceptible to turbine collision (Arnett et al. 2008; Piorkowski and O’Connell 2010).

Concerns have been raised over species-specific risks (e.g., species with special-status designations, specialized habitat preferences, or those that are long-lived with low reproductive rates) that may result in population-level impacts (AWWI 2018; Beston et al. 2016). However, there is currently a lack of understanding across taxa regarding potential population consequences (Beston et al. 2016). Among 40 bird species highlighted by Beston et al.’s (2016) conservation status and turbine risk ranking approach, four are known to occur in the project area—bald eagle, ferruginous hawk, golden eagle, northern harrier (*Circus hudsonius*)—and eight may occur in the project area—black-chinned sparrow (*Spizella atrogularis*), bronzed cowbird (*Molothrus aeneus*), great blue heron (*Ardea herodias*), long-eared owl (*Asio otus*), northern pygmy-owl (*Glaucidium gnoma*), osprey (*Pandion haliaetus*), pied-billed grebe (*Podilymbus podiceps*), and Swainson’s hawk (*Buteo swainsoni*). Among these species, four—bald eagle, black-chinned sparrow, ferruginous hawk, golden eagle—are special-status species (see Section 3.1.3.2; Table D.2).

Because population sizes for bats are largely unknown, population consequences are unknown (reviewed in AWWI 2018). Frick et al (2017) indicated that hoary bats may be susceptible to population-level impacts. Hoary bat, silver-haired bat, and Brazilian free-tailed bat may use the project area.

Baseline use of the project area by these bird and bat species (and other species of concern) will be evaluated as part of site-specific surveys.

3.6 AGFD Site Categorization

3.6.1 *Wildlife and Wildlife Habitat Compensation Policy*

At this stage, AGFD (2012a) recommends categorizing the site based on its Wildlife and Wildlife Habitat Compensation Policy criteria (AGFD 2010) which is used to inform general mitigation goals pertinent to habitat loss. In SWCA's opinion, the project area would fall under Resource Category IV, which is defined by AGFD as: "Habitats of medium to low value for Arizona wildlife species, due to proximity to urban development or low productivity associated with these lands" and "Habitats exhibiting low wildlife productivity as a result of man's influence."

3.6.2 *Framework for Determining Bat and Bird Study Effort*

AGFD (2012a) also recommends that project proponents assess their project's category (Category 1: low–Category 4: significant), at this stage, based on criteria used to inform anticipated impacts to wildlife. Based on the criteria provided in AGFD (2012a), the site would be considered a Category 1–3 site at this stage, meaning there would not be significant potential impacts to wildlife. For Category 1–3 sites, AGFD recommends pre-construction surveys be conducted for one (Categories 1 and 2) to two years (Category 3). In SWCA's opinion, based on the findings outlined in this report, general ineffectiveness of pre-construction surveys in informing siting decisions (Bennett and Hale 2018; Ferrer et al. 2011; Hein et al. 2013; Loss et al. 2013), and researcher recommendations (e.g., Loss et al. 2013), one year of surveys will be sufficient to effectively address WEG Tier 3 and AGFD (2012a) objectives.

4 KEY FINDINGS/SUMMARY

This report evaluates all questions suggested for WEG Tiers 1 and 2, ECPG Stage 1, and AGFD (2012a) preliminary site screening. The following is a summary of findings:

- Four federally listed species may occur within the project area: Chiricahua leopard frog, California condor, Mexican spotted owl, and Mexican wolf. Based on habitat associations and range requirements, projected use in the project area by these species is expected to be occasional/rare. It is SWCA's opinion that the proposed project would not jeopardize or adversely affect these species.
- Thirty-nine species designated as SGCN 1A/1B, BCC, and/or protected under the Eagle Act may occur within the project area. Among these, eight birds and two mammals are known to occur on-site: bald eagle, Brewer's sparrow, canyon towhee, Cassin's finch, chestnut-collared longspur, ferruginous hawk, golden eagle, pinyon jay, Gunnison's prairie dog, and pronghorn.
- Thirteen species (12 birds and one bat) identified by Beston et al. (2016) and Frick et al. (2017) to most likely experience population-level impacts may occur within the project area. Among these, four birds are known to occur on-site: bald eagle, ferruginous hawk, golden eagle, and northern harrier.
- ANPL native plants and ADA noxious weeds have been observed in the project area. A pre-construction native plant and noxious weed survey is planned for spring or summer 2019.
- There are no critical habitats or other special designation areas within the project area.
- At this stage, there are no known bat roosts or movement corridors within the project area or vicinity.

- There are no bird staging areas; species-specific flyways; or negative barriers, mountain ridges, or prominent north–south topography that would funnel migrant raptors within the project area or vicinity. The riparian habitats on the project periphery may provide stopover habitats for migrant birds.
- There are no AWLW-designated wildlife corridors or habitat blocks within the project area. The AWLW (2016) indicates the project area is within a potential linkage zone; a habitat block has been identified south of the site (Apache-Sitgreaves National Forest). According to the CHAT tool and AGFD (2012b, 2018b), which qualify unfragmented habitats, the project area is considered to have moderate value. There are no populations of a species of habitat fragmentation concern that would be isolated or displaced by project construction or operation.
- There are no lekking species in the region.
- At this stage, other areas of seasonal importance have not been identified. Features such as raptor nesting sites, prairie dog colonies, stock tanks, topographic features, and bat resources will continue to be evaluated through the tiered decision-making process as to their presence and value.
- Golden eagles may occur within the project area year-round. Temporal and spatial use of the site may be dependent on eagle behavior (e.g., more golden eagles would be expected in the region from October through April) and seasonal fluctuations in food availability (e.g., offal piles left by hunters; prairie dog activity, if present). Bald eagle use of the project area is expected to be occasional, particularly from August through February. Initial evidence at this stage indicates the project falls under ECPG Category 2, meaning there is high or moderate risk to eagles with opportunity to mitigate impacts. At this stage, important eagle use areas have not been identified within the project area.
- Under AGFD’s (2010) Wildlife and Wildlife Habitat Compensation Policy, the project appears to be a Resource Category IV site, meaning the project area contains habitats of medium or low value for wildlife.
- Under AGFD’s (2012a) Framework for Determining Bat and Bird Study Effort, the project appears to fall broadly under Categories 1–3, meaning there would not be significant potential impacts to wildlife.

Some of the answers to the WEG Tier 1/2, ECPG Stage 1, and AGFD questions are inconclusive at this stage. Chevelon Butte RE LLC intends to answer these questions and to evaluate relevant mitigation measures through the tiered decision-making process.

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APPENDIX A

**Official Species and Critical Habitats List for the Project,
USFWS Information for Planning and Consultation System**



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

<http://www.fws.gov/southwest/es/arizona/>

http://www.fws.gov/southwest/es/EndangeredSpecies_Main.html

In Reply Refer To:

November 02, 2018

Consultation Code: 02EAAZ00-2019-SLI-0106

Event Code: 02EAAZ00-2019-E-00233

Project Name: Chevelon Butte Wind

Subject: List of threatened and endangered species that may occur in your proposed project location, and/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 one or more delineated United States Geological Survey 7.5 minute quadrangles with which your project polygon intersects. Each quadrangle covers, at minimum, 49 square miles. In some cases, a species does not currently occur within a quadrangle but occurs nearby and could be affected by a project. Please refer to the species information links found at:

http://www.fws.gov/southwest/es/arizona/Docs_Species.htm

<http://www.fws.gov/southwest/es/arizona/Documents/MiscDocs/AZSpeciesReference.pdf> .

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 consult with us if their 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, we recommend preparing a biological evaluation similar to a Biological Assessment 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. You should request consultation with us 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 effects. If the Federal action agency determines that the action may jeopardize a proposed species or 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 considering them 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:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.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 1026 species of birds are protected by the MBTA, including species such as the western burrowing owl (*Athene cunicularia hypugea*). Protected western burrowing owls are often 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, you should evaluate your project to determine whether it is likely to disturb or harm eagles. The National Bald Eagle Management Guidelines provide recommendations to minimize potential project impacts to bald eagles:

<https://www.fws.gov/migratorybirds/pdf/management/nationalbaldeaglenanagementguidelines.pdf>

<https://www.fws.gov/birds/management/managed-species/eagle-management.php>.

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: <https://www.fws.gov/birds/policies-and-regulations/incidental-take.php>. 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/birds/bird-enthusiasts/threats-to-birds/collisions/communication-towers.php>.

Activities that involve streams (including intermittent streams) and/or wetlands are regulated by the U.S. Army Corps of Engineers (Corps). 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.

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.

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/HeritageFund/>.

For additional communications regarding this project, please refer to the consultation Tracking Number in the header of this letter. We appreciate your concern for threatened and endangered species. If we may be of further assistance, please contact our following offices for projects in these areas:

Northern Arizona: Flagstaff Office 928/556-2001

Central Arizona: Phoenix office 602/242-0210

Southern Arizona: Tucson Office 520/670-6144

Sincerely,
/s/ Steven L. Spangle Field Supervisor

Attachment

Attachment(s):

- Official Species List
-

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

Consultation Code: 02EAAZ00-2019-SLI-0106

Event Code: 02EAAZ00-2019-E-00233

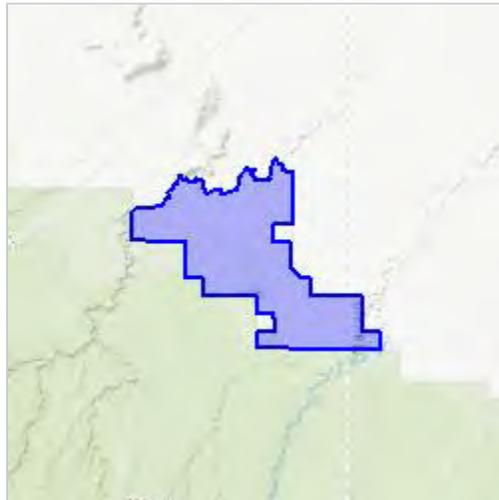
Project Name: Chevelon Butte Wind

Project Type: POWER GENERATION

Project Description: potential wind energy

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/34.71485327641703N110.85809302535424W>



Counties: Coconino, AZ | Navajo, AZ

Endangered Species Act Species

There is a total of 6 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 Fisheries¹, 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.

Mammals

NAME	STATUS
Gray Wolf <i>Canis lupus</i> Population: Mexican gray wolf, EXPN population No critical habitat has been designated for this species.	Proposed Experimental Population, Non- Essential

Birds

NAME	STATUS
Mexican Spotted Owl <i>Strix occidentalis lucida</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8196 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/129/office/22410.pdf	Threatened
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is proposed critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS
Northern Mexican Gartersnake <i>Thamnophis eques megalops</i> There is proposed critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7655	Threatened

Amphibians

NAME	STATUS
Chiricahua Leopard Frog <i>Rana chiricahuensis</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1516	Threatened

Fishes

NAME	STATUS
Little Colorado Spinedace <i>Lepidomeda vittata</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6640	Threatened

Critical habitats

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

APPENDIX B

Arizona Environmental Online Review Tool Report for the Project

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:

Chevelon Butte Wind

User Project Number:

51186

Project Description:

potential wind energy

Project Type:

Energy Storage/Production/Transfer, Energy Production (generation), wind power facility (new)

Contact Person:

Allen Graber

Organization:

SWCA

On Behalf Of:

CONSULTING

Project ID:

HGIS-08254

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:

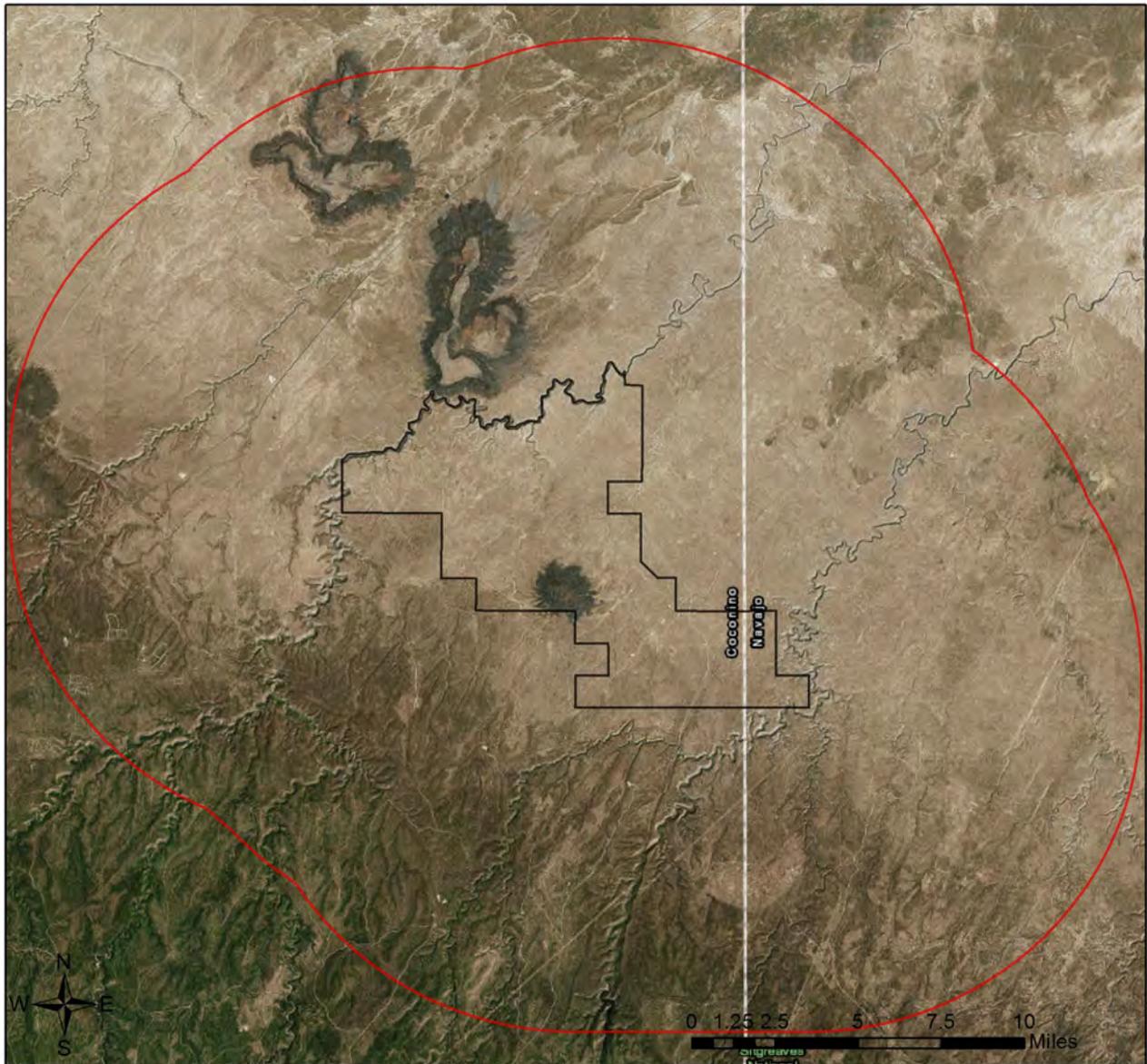
Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Report is solely responsible for the project location and thus the correctness of the Project Review Report content.

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

Chevelon Butte Wind

Aerial Image Basemap With Locator Map



- Project Boundary
- Buffered Project Boundary

Project Size (acres): 40,503.56

Lat/Long (DD): 34.7099 / -110.8423

County(s): Coconino; Navajo

AGFD Region(s): Flagstaff, Pinetop

Township/Range(s): T14N, R14E; T14N, R15E; T15N, R13E +

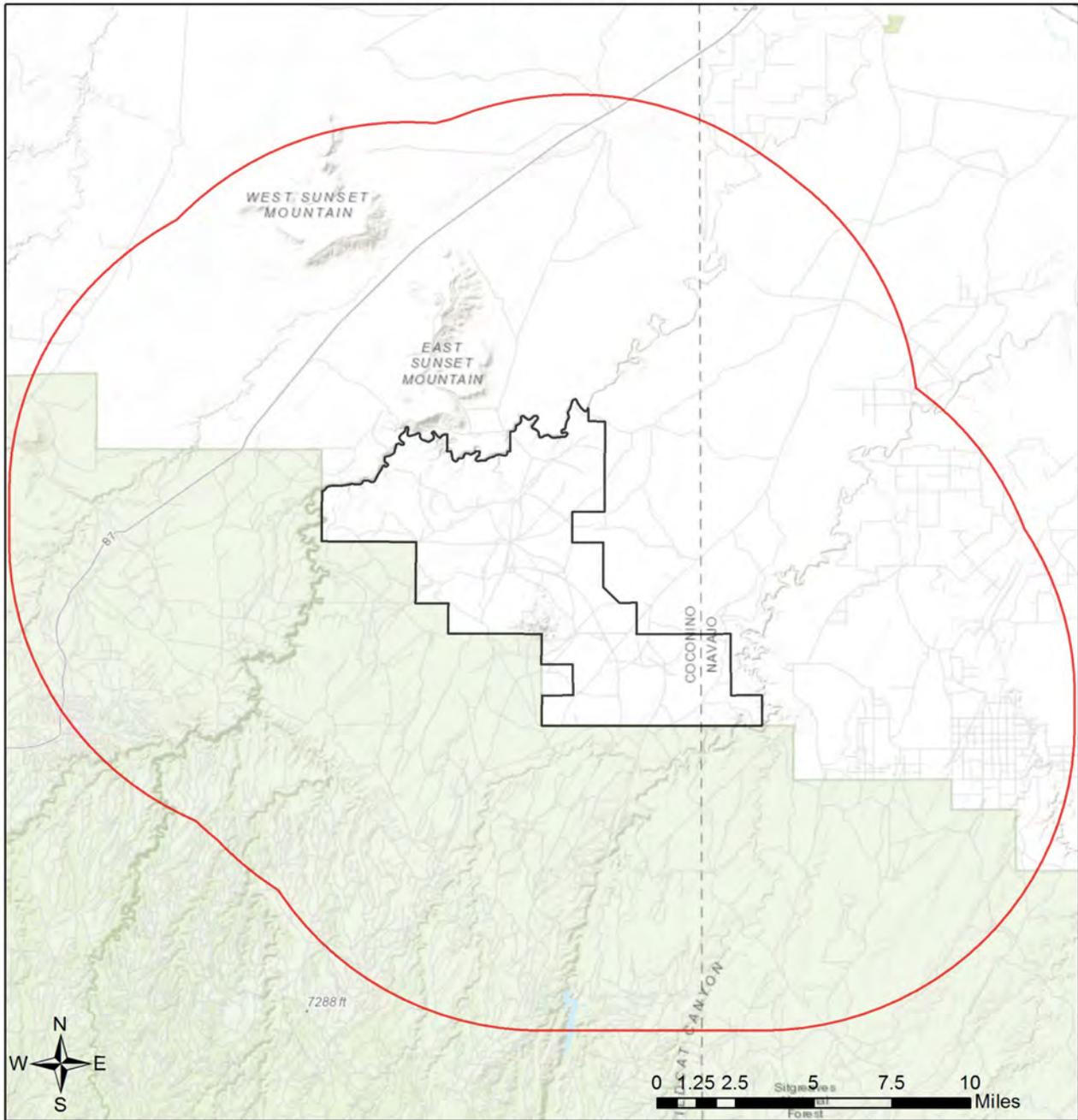
USGS Quad(s): CHEVELON BUTTE; HAMILTON CROSSING +

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, ©



Chevelon Butte Wind

Web Map As Submitted By User



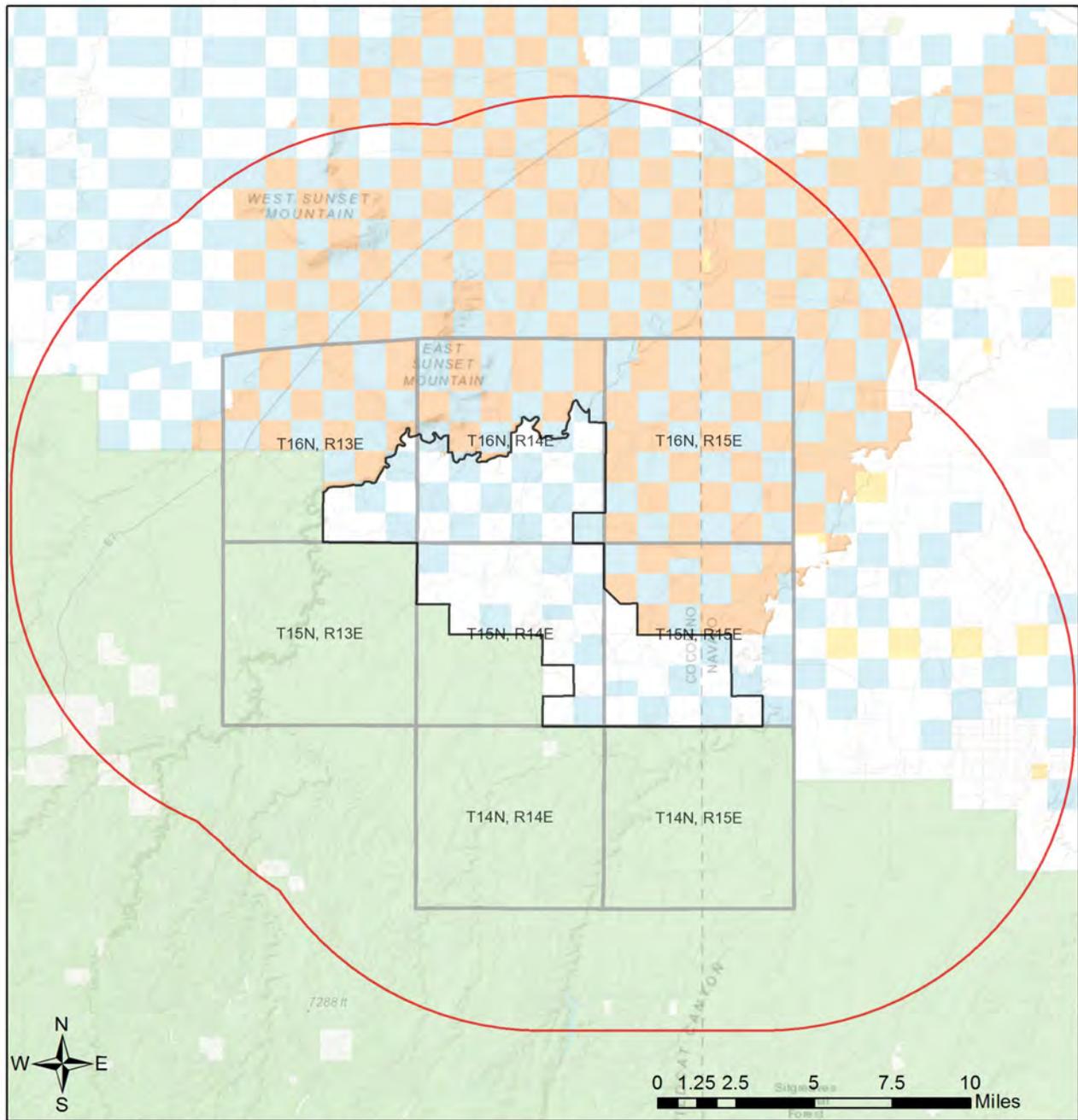
- Project Boundary
- Buffered Project Boundary

Project Size (acres): 40,503.56
Lat/Long (DD): 34.7099 / -110.8423
County(s): Coconino; Navajo
AGFD Region(s): Flagstaff; Pinetop
Township/Range(s): T14N, R14E; T14N, R15E; T15N, R13E +
USGS Quad(s): CHEVELON BUTTE; HAMILTON CROSSING +

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

Chevelon Butte Wind

Topo Basemap With Township/Ranges and Land Ownership



<ul style="list-style-type: none"> Project Boundary Buffered Project Boundary Township/Ranges <p>Land Ownership</p> <ul style="list-style-type: none"> AZ Game and Fish Dept. BLM BOR Indian Res. 	<ul style="list-style-type: none"> Military Mixed/Other National Park/Mon. Private State and Regional Parks State Trust US Forest Service Wildlife Area/Refuge 	<p>Project Size (acres): 40,503.56</p> <p>Lat/Long (DD): 34.7099 / -110.8423</p> <p>County(s): Coconino; Navajo</p> <p>AGFD Region(s): Flagstaff; Pinetop</p> <p>Township/Range(s): T14N, R14E; T14N, R15E; T15N, R13E +</p> <p>USGS Quad(s): CHEVELON BUTTE; HAMILTON CROSSING +</p> <p><small>Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community</small></p>
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Special Status Species and Special Areas Documented within 10 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Accipiter gentilis	Northern Goshawk	SC	S	S		1B
Anaxyrus microscaphus	Arizona Toad	SC		S		1B
Anderson Mesa IBA						
Anodonta californiensis	California Floater	SC	S			1A
Aquila chrysaetos	Golden Eagle	BGA		S		1B
Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S		1B
CH for Lepidomeda vitatta	Little Colorado Spinedace Designated Critical Habitat					
CH for Strix occidentalis lucida	Mexican Spotted Owl Designated Critical Habitat					
Canis lupus baileyi	Mexican Wolf	LE,XN				1A
Catostomus sp. 3	Little Colorado Sucker	CCA	S	S		1A
Erigeron saxatilis	Rock Fleabane		S			
Falco peregrinus anatum	American Peregrine Falcon	SC	S	S		1A
Gila robusta	Roundtail Chub	CCA	S	S		1A
Haliaeetus leucocephalus (wintering pop.)	Bald Eagle - Winter Population	SC, BGA	S	S		1A
Haliaeetus leucocephalus	Bald Eagle	SC, BGA	S	S		1A
Lithobates chiricahuensis	Chiricahua Leopard Frog	LT				1A
Lithobates pipiens	Northern Leopard Frog		S	S		1A
Myotis ciliolabrum	Western Small-footed Myotis	SC				
Myotis occultus	Arizona Myotis	SC		S		1B
Myotis thysanodes	Fringed Myotis	SC				
Rhinichthys osculus	Speckled Dace	SC		S		1B
Strix occidentalis lucida	Mexican Spotted Owl	LT				1A

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

**Species of Greatest Conservation Need
 Predicted within 10 Miles of Project Vicinity based on Predicted Range Models**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Accipiter gentilis	Northern Goshawk	SC	S	S		1B
Ambystoma mavortium nebulosum	Arizona Tiger Salamander					1B
Anaxyrus microscaphus	Arizona Toad	SC		S		1B
Anodonta californiensis	California Floater	SC	S			1A
Antilocapra americana americana	American Pronghorn					1B
Aquila chrysaetos	Golden Eagle	BGA		S		1B
Aspidoscelis pai	Pai Striped Whiptail					1B
Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S		1B

**Species of Greatest Conservation Need
 Predicted within 10 Miles of Project Vicinity based on Predicted Range Models**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Baeolophus ridgwayi	Juniper Titmouse					1C
Buteo regalis	Ferruginous Hawk	SC		S		1B
Buteo swainsoni	Swainson's Hawk					1C
Buteogallus anthracinus	Common Black Hawk					1C
Callipepla squamata	Scaled Quail					1C
Cardellina rubrifrons	Red-faced Warbler					1C
Castor canadensis	American Beaver					1B
Catostomus clarkii	Desert Sucker	SC	S	S		1B
Catostomus insignis	Sonora Sucker	SC	S	S		1B
Catostomus sp. 3	Little Colorado Sucker	CCA	S	S		1A
Chordeiles minor	Common Nighthawk					1B
Cinclus mexicanus	American Dipper					1B
Coccothraustes vespertinus	Evening Grosbeak					1B
Contopus cooperi	Olive-sided Flycatcher	SC				1C
Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S		1B
Crotalus cerberus	Arizona Black Rattlesnake					1B
Cynomys gunnisoni	Gunnison's Prairie Dog	SC		S		1B
Empidonax wrightii	Gray Flycatcher					1C
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
Geothlypis tolmiei	MacGillivray's Warbler					1B
Gila intermedia	Gila Chub	LE				1A
Gila robusta	Roundtail Chub	CCA	S	S		1A
Gymnorhinus cyanocephalus	Pinyon Jay			S		1B
Haliaeetus leucocephalus	Bald Eagle	SC, BGA	S	S		1A
Lasiurus blossevillii	Western Red Bat		S			1B
Lepidomeda vittata	Little Colorado Spinedace	LT				1A
Lithobates chiricahuensis	Chiricahua Leopard Frog	LT				1A
Lithobates pipiens	Northern Leopard Frog		S	S		1A
Melospiza lincolni	Lincoln's Sparrow					1B
Microtus longicaudus	Long-tailed Vole					1B
Microtus mexicanus	Mexican Vole					1B
Mustela nigripes	Black-footed Ferret	LE,XN				1A
Myiarchus tuberculifer	Dusky-capped Flycatcher					1B
Myiodynastes luteiventris	Sulphur-bellied Flycatcher		S			1B
Myotis occultus	Arizona Myotis	SC		S		1B
Myotis yumanensis	Yuma Myotis	SC				1B

**Species of Greatest Conservation Need
 Predicted within 10 Miles of Project Vicinity based on Predicted Range Models**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Neotamias cinereicollis	Gray-collared Chipmunk					1B
Neotoma stephensi	Stephen's Woodrat					1B
Odocoileus virginianus	White-tailed Deer					1B
Oreoscoptes montanus	Sage Thrasher					1C
Panthera onca	Jaguar	LE				1A
Patagioenas fasciata	Band-tailed Pigeon					1C
Perognathus flavus goodpasteri	Springerville Pocket Mouse	SC	S			1B
Peucedramus taeniatus	Olive Warbler					1C
Psiloscoops flammeolus	Flammulated Owl					1C
Rallus limicola	Virginia Rail					1C
Rhinichthys osculus	Speckled Dace	SC		S		1B
Sciurus arizonensis	Arizona Gray Squirrel					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
Strix occidentalis lucida	Mexican Spotted Owl	LT				1A
Sturnella magna	Eastern Meadowlark					1C
Tadarida brasiliensis	Brazilian Free-tailed Bat					1B
Troglodytes pacificus	Pacific Wren					1B
Vireo vicinior	Gray Vireo		S			1C
Vulpes macrotis	Kit Fox	No Status				1B

Species of Economic and Recreation Importance Predicted within 10 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Antilocapra americana americana	America Pronghorn					1B
Cervus elaphus	Elk					
Meleagris gallopavo	Wild Turkey					
Odocoileus hemionus	Mule Deer					
Odocoileus virginianus	White-tailed Deer					1B
Patagioenas fasciata	Band-tailed Pigeon					1C
Pecari tajacu	Javelina					
Puma concolor	Mountain Lion					
Sciurus aberti	Abert's Squirrel					
Tamiasciurus hudsonicus mogollonensis	Red Squirrel					
Ursus americanus	American Black Bear					

Species of Economic and Recreation Importance Predicted within 10 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Zenaida macroura	Mourning Dove					

Project Type: Energy Storage/Production/Transfer, Energy Production (generation), wind power facility (new)

Project Type Recommendations:

Fence recommendations will be dependant upon the goals of the fence project and the wildlife species expected to be impacted by the project. General guidelines for ensuring wildlife-friendly fences include: barbless wire on the top and bottom with the maximum fence height 42", minimum height for bottom 16". Modifications to this design may be considered for fencing anticipated to be routinely encountered by elk, bighorn sheep or pronghorn (e.g., Pronghorn fencing would require 18" minimum height on the bottom). Please refer to the Department's Fencing Guidelines located on Wildlife Friendly Guidelines page, which is part of the Wildlife Planning button at <https://www.azgfd.com/wildlife/planning/wildlifeguidelines/>.

During the planning stages of your project, please consider the local or regional needs of wildlife in regards to movement, connectivity, and access to habitat needs. Loss of this permeability prevents wildlife from accessing resources, finding mates, reduces gene flow, prevents wildlife from re-colonizing areas where local extirpations may have occurred, and ultimately prevents wildlife from contributing to ecosystem functions, such as pollination, seed dispersal, control of prey numbers, and resistance to invasive species. In many cases, streams and washes provide natural movement corridors for wildlife and should be maintained in their natural state. Uplands also support a large diversity of species, and should be contained within important wildlife movement corridors. In addition, maintaining biodiversity and ecosystem functions can be facilitated through improving designs of structures, fences, roadways, and culverts to promote passage for a variety of wildlife. Guidelines for many of these can be found at: <https://www.azgfd.com/wildlife/planning/wildlifeguidelines/>.

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.

Minimize potential introduction or spread of exotic invasive species. Invasive species can be plants, animals (exotic snails), and other organisms (e.g., microbes), which may cause alteration to ecological functions or compete with or prey upon native species and can cause social impacts (e.g., livestock forage reduction, increase wildfire risk). The terms noxious weed or invasive plants are often used interchangeably. Precautions should be taken to wash all equipment utilized in the project activities before leaving the site. Arizona has noxious weed regulations (Arizona Revised Statutes, Rules R3-4-244 and R3-4-245). See Arizona Department of Agriculture website for restricted plants, <https://agriculture.az.gov/>. Additionally, the U.S. Department of Agriculture has information regarding pest and invasive plant control methods including: pesticide, herbicide, biological control agents, and mechanical control, <http://www.usda.gov/wps/portal/usdahome>. The Department regulates the importation, purchasing, and transportation of wildlife and fish (Restricted Live Wildlife), please refer to the hunting regulations for further information <https://www.azgfd.com/hunting/regulations>.

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 herptefauna (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 (<http://azstateparks.com/SHPO/index.html>).

The effects of wind development projects on wildlife, in particular birds and bats, are well documented. The Department recommends conducting raptor nest, general avian, and threatened and endangered species surveys during the appropriate breeding/migration seasons within 10 miles of the project site to determine the location of active nests, migratory pathways, and associated species potentially disturbed by project activities. Effects that should be minimized or mitigated may include direct habitat loss from the wind plant footprint, including turbine base, access road, and substation construction; indirect habitat loss from increased human presence and/or turbine operation noise; habitat alteration, such as soil erosion and construction of migration-hindering obstacles; mortality by powerline electrocution; and mortality by collision with structures, turbine blades or guy wires. The Department has developed guidelines for wind energy development which can be found on the Wildlife Friendly Guideline on our Wildlife Planning page at <https://www.azgfd.com/wildlife/planning/wildlifeguidelines/>. We also recommend referring to the USFWS Land-based Wind Energy Guidelines, <http://www.fws.gov/windenergy/>. We encourage the project proponent to coordinate directly with the Project Evaluation Program to identify and develop mitigation measures for these projects.

Based on the project type entered, coordination with U.S. Fish and Wildlife Service (Migratory Bird Treaty Act) may be required (<http://www.fws.gov/southwest/es/arizona/>).

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.

The Department requests further coordination to provide project/species specific recommendations, please contact Project Evaluation Program directly. PEP@azgfd.gov

Project Location and/or Species Recommendations:

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 <http://www.fws.gov/southwest/es/arizona/> or:

Phoenix Main Office

2321 W. Royal Palm Rd, Suite 103
Phoenix, AZ 85021
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 Western Burrowing Owls have been documented within the vicinity of your project area. Please review the western burrowing owl resource page at:

<https://www.azgfd.com/wildlife/speciesofgreatestconservneed/burrowingowlmanagement/>.

HDMS records indicate that Chiricahua Leopard Frogs have been documented within the vicinity of your project area. Please review the Chiricahua Leopard Frog Management Guidelines found at:

<https://www.azgfd.com/Portallimages/files/wildlife/planningFor/wildlifeFriendlyGuidelines/FINALLithchirHabitatGdlns.pdf>

HDMS records indicate that Peregrine Falcons have been documented within the vicinity of your project area. Please review the Peregrine Falcon Management Guidelines at:

<https://www.azgfd.com/Portallimages/files/wildlife/planningFor/wildlifeFriendlyGuidelines/peregrineFalconConservGuidelines.pdf>.

The analysis has detected one or more Important Bird Areas within your project vicinity. Please see http://aziba.org/?page_id=38 for details about the Important Bird Area(s) identified in the report.



APPENDIX C
Site Photographs

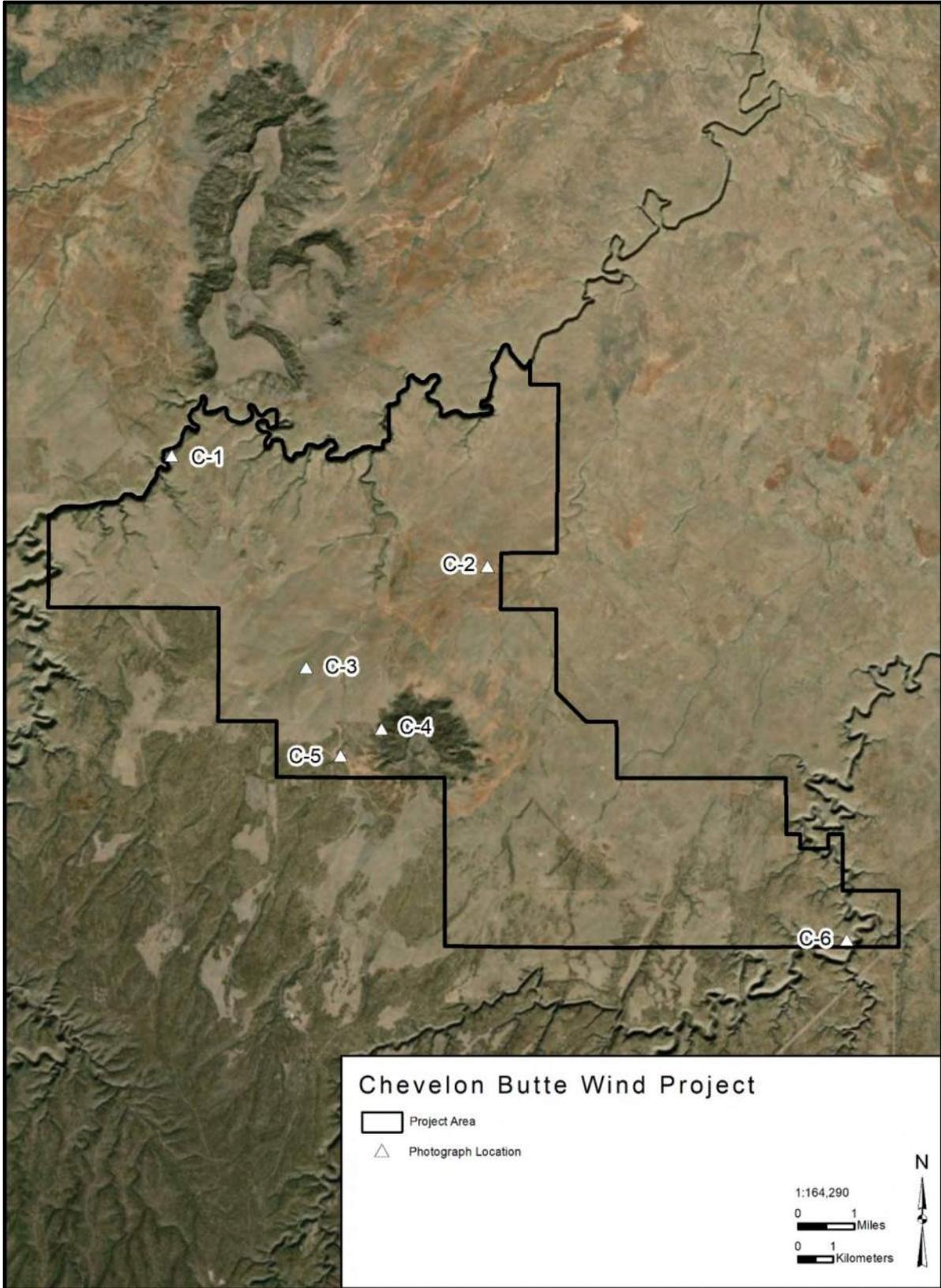


Figure C-1. Key to site photographs (below).



Photograph C-1. View of the project area, facing northeast across Clear Creek Canyon.



Photograph C-2. View of the project area, facing south toward Chevelon Butte.



Photograph C-3. View of the project area, facing west.



Photograph C-4. Bat acoustic detector location, facing north.



Photograph C-5. View of the project area, facing west.



Photograph C-6. View of the project area, facing southeast across Chevelon Canyon.

APPENDIX D

Special-Status Species Reviewed for Their Potential to Occur in the Project Area

Table D.1. Federally Listed Species Reviewed for their Potential to Occur in the Project Area

Common Name (Scientific Name)	Status [†]		Range/Habitat Requirements	Potential for Occurrence in Project Area	Season/Life History Information Relevant to Project Area
	Federal	State			
Amphibians					
Chiricahua leopard frog (<i>Rana chiricahuensis</i>)	T w/CH	SGCN (1A)	Permanent or semi-permanent springs, livestock tanks, and streams in the upper portions of watersheds at elevations between 3,000 and 9,000 feet. Often do not coexist with nonnative species (e.g., bullfrogs, nonnative fishes, crayfish). In Arizona, may occur in east-central and southeastern portions of the state. Known or believed to occur in 11 Arizona counties, including Coconino and Navajo counties.	May be present. The project is within the species' geographic and elevational ranges. The project area stock tanks are temporally flooded, contain muddy banks, and are devoid of vegetation cover; such features are marginally suitable for the species. AGFD (2018a) indicates the species has been documented within 10 miles of the project area, apparently within Clear Creek and Chevelon Canyon (AGFD 2018b, d). Critical habitat for the species is located approximately 30 miles southwest of the project area (Hells Gate Canyon, Lewis Creek, Arizona).	Year-round, may disperse
Birds					
California condor* (<i>Gymnogyps californianus</i>)	E w/CH	SGCN (1A)	Nests in variety of rock formations, including caves crevices, and potholes in isolated scrubby chaparral and forested montane regions. Presence of adequate food supplies in open, accessible areas, with reliable air movements is an important habitat attribute; foraging occurs over long distances in these open habitats. Roosts on rock cliffs, snags, or in live conifer stands. USFWS began reintroducing an experimental, nonessential population into northern Arizona and southern Utah in 1996. These condors are generally found in southern Utah (Zion National Park Kolob Plateau) and northern Arizona (Kaibab and Paria plateaus and the Colorado River corridor west of Marble Canyon). The non-essential experimental population area is defined by Interstate 40 on the south, U.S. Highway 91 on the east, Interstate 70 on the north, and Interstate 15 to U.S. Highway 93 on the west. Known or believed to occur in five Arizona counties, including Coconino and Navajo counties. The experimental population area in Arizona includes portions of Apache, Coconino, Mohave, and Yavapai counties.	May be present. The project area is outside (south) of the non-essential experimental population area and, therefore, the species is treated as endangered for the project. The project area is also south of the species' primary range; however, individuals are known to make occasional forays outside of this range. The species has not been documented within 10 miles of the project area (AGFD 2018a). eBird (2018a) indicates nearest species record at Meteor Crater (approximately 21 miles north-northwest of the project area). Critical habitat for the species is located approximately 430 miles west-northwest of the project area (Tehachapi Mountains, California).	Year-round, occasional foray
Mexican spotted owl (<i>Strix occidentalis lucida</i>)	T w/CH	SGCN (1A)	Nests and roosts primarily in high-elevation (4,000–10,000 feet) old growth forests: mixed conifer dominated by Douglas-fir, pine, or true fir and pine-oak forests dominated by ponderosa pine and Gambel oak. Secondly, in steep, narrow canyons with cliffs and perennial water. Breeding and roosting habitats typically include steep slopes with high canopy closure, high basal area, many snags, and many downed logs. Foraging, juvenile dispersal, and wintering habitats are more diverse and include a wide variety of forest conditions (including pinyon-juniper), canyon bottoms, cliff faces, tops of canyon rims, and riparian areas. Wintering owls will also use mountain-shrub habitat. Known or believed to occur in 13 Arizona counties, including Coconino and Navajo counties.	May be present. While the project area does not contain typical nesting and roosting habitat, pinyon-juniper habitats within the project area may be used by foraging, juvenile, and wintering birds. Clear Creek and Chevelon Canyons, situated on the project's northern and southeastern boundaries, include steep cliffs that may be used for nesting and roosting. The canyons may also support foraging, juvenile, and wintering birds. AGFD (2018a) indicates the subspecies has been documented within 10 miles of the project area. Critical habitat for the subspecies is located approximately 1.5 miles and 5.4 miles south and southwest of the project area, respectively (Apache-Sitgreaves National Forest: Chevelon Canyon, West Chevelon Canyon, Willow Creek, Arizona).	Year-round, may disperse/migrate
Southwestern willow flycatcher* (<i>Empidonax traillii extimus</i>)	E w/CH, BCC (BCR 16)	SGCN (1A)	Breeds from sea level to over 8,500 feet in dense, mesic riparian habitats at scattered, isolated sites. Breeds near surface water or saturated soil along rivers and streams, reservoirs, cienegas, and other wetlands. Nesting habitat is typically dense vegetation in the 2- to 5-meter range, with or without a high overstory layer, where surface water or soil moisture is high enough to maintain appropriate vegetation characteristics. During migration, the subspecies uses a wider array of forest and shrub habitats, although riparian vegetation may still be a preferred migration habitat type. Known or believed to occur in 15 Arizona counties, including Coconino and Navajo counties.	Unlikely to be present. The project area is outside of the subspecies AGFD (2018d) predicted range and does not contain riparian habitats. It is, however, within the more inclusive general subspecies range (Rodewald 2015). Whether habitat associations are present within Clear Creek or Chevelon Canyons, situated on the project's northern and southeastern boundaries, has not been evaluated due to the presence of steep canyon walls. Individuals, if present, would likely be limited to the riparian habitats and adjacent uplands within these canyons. The subspecies has not been documented within 10 miles of the project area (AGFD 2018a). Nearest subspecies record is approximately 27 miles southwest of the project area. Critical habitat for the subspecies is located approximately 50 miles southeast and 55 miles west of the project area (Tonto Creek and Verde River, Arizona).	Breeding, Migration
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	T w/PCH, BCC (BCR 16, 34)	SGCN (1A)	Nests in low- to moderate-elevation (usually below 6,600 feet) riparian woodlands with native broadleaf trees and shrubs that are 50 acres or more in extent. Most commonly associated with cottonwood/willow-dominated vegetation cover, but composition of dominant riparian vegetation can vary across range. Has not been found nesting in isolated patches (1–2 acres) or narrow, linear riparian habitats less than 10 to 20 meters wide; migrant cuckoos have been detected in these habitats. During migration, uses a wider array of forest and shrub habitats but is rarely observed away from riparian habitats. Known or believed to occur in 15 Arizona counties, including Coconino and Navajo counties.	Unlikely to be present. The project area is outside of the species AGFD (2018d) predicted range, but within the more inclusive (Rodewald 2015, USFWS 2018f) range. The project area does not contain riparian habitats. Whether habitat associations are present within Clear Creek or Chevelon Canyons, situated on the project's northern and southeastern boundaries, has not been evaluated due to the presence of steep canyon walls. Individuals, if present, would likely be limited to the riparian habitats and adjacent uplands within these canyons. The species has not been documented within 10 miles of the project area (AGFD 2018a). Nearest species' occurrences are approximately 40 miles west of the project area. Proposed critical habitat for the species is located approximately 44 miles west of the project area (Beaver Creek, Arizona).	Breeding, Migration
Fishes					
Apache trout* (<i>Oncorhynchus apache</i>)	T	SGCN (1A)	Cool, clear, high-gradient streams and rivers with adequate stream flow and shading generally above 6,000 feet. Habitat associations include mixed conifer forests and mountain high meadows. Restricted to drainages in the White Mountains, Arizona. Known or believed to occur in four Arizona counties, including Coconino County.	Unlikely to be present. The project area is outside (west-northwest) of the species' range and does not contain appropriate habitat associations. The species has not been documented within 10 miles of the project area (AGFD 2018a). AGFD (2018b) indicates range approximately 65 miles east-southeast of the project area.	Year-round

Common Name (Scientific Name)	Status [†]		Range/Habitat Requirements	Potential for Occurrence in Project Area	Season/Life History Information Relevant to Project Area
	Federal	State			
Colorado pikeminnow* (<i>Ptychocheilus lucius</i>)	E w/CH; EXPN	SGCN (1A)	Warm, swift, turbid mainstem rivers below 4,000 feet. Prefers eddies and pools. In Arizona, species restricted to two experimental non-essential populations in the Salt River and Verde River drainages. Experimental non-essential populations have been reintroduced into the Verde and Salt Rivers, Yavapai and Gila counties.	Unlikely to be present. The project area is outside of the species non-essential experimental population area, so would be considered endangered if present. The project area is outside (north) of the species' geographic range, is above the species' elevational range, and does not contain appropriate habitat associations. The species has not been documented within 10 miles of the project area (AGFD 2018a). AGFD (2018b) indicates range approximately 25 miles southwest of the project area.	Year-round
Gila chub* (<i>Gila intermedia</i>)	E w/CH	SGCN (1A)	Deep waters, especially pools, or near cover in headwater streams, cienegas, and artificial impoundments within the Gila River Basin at elevations from 2,000 to 5,500 feet. Associated with broadleaf riparian vegetation. Known or believed to occur in eight Arizona counties; not found in Coconino or Navajo counties.	Unlikely to be present. The project area is outside (northeast) of the species geographic range, is above the species' elevational range, and does not contain appropriate habitat. The species has not been documented within 10 miles of the project area (AGFD 2018a). AGFD (2018d) indicates nearest species' occurrences approximately 40 miles south and 46 miles west of the project area. Critical habitat for the species is located approximately 45 miles west of the project area (Walker Creek and Red Tank Draw near Montezuma Well, Arizona).	Year-round
Gila topminnow* (<i>Poeciliopsis occidentalis</i>)	E	SGCN (1A)	Small streams, springs, and cienegas below 5,000 feet within the Gila River drainage. Use primarily shallow, warm, quiet waters with aquatic vegetation and debris cover. Disjunct populations exist within the Gila and Bill Williams drainages. Known or believed to occur in eight Arizona counties; not found in Coconino or Navajo counties.	Unlikely to be present. The project area is outside (north and east) of the species' geographic range, is above the species elevational range, and does not contain appropriate habitat conditions. The species has not been documented within 10 miles of the project area (AGFD 2018a). AGFD (2018d) indicates nearest species occurrences approximately 46 miles southwest of the project area.	Year-round
Gila trout* (<i>Oncorhynchus gilae</i>)	T	SGCN (1A)	Small mountain headwater streams, which are generally narrow and shallow, at elevations between 5,000 and 10,000 feet. Typically congregate in deeper pools or in shallow water with sufficient protective debris or plant beds. Stocked population in Raspberry Creek, a tributary to the Blue River. Known or believed to occur in one Arizona county: Greenlee County.	Unlikely to be present. The project area is well outside (northwest) of the species' range and does not contain appropriate habitat associations. The species has not been documented within 10 miles of the project area (AGFD 2018a). AGFD (2018d) indicates nearest species record approximately 112 miles southeast of the project area.	Year-round
Humpback chub* (<i>Gila cypha</i>)	E w/CH	SGCN (1A)	Variety of riverine habitats, especially canyon areas with fast current, deep pools, and boulder habitat below 4,000 feet. In Arizona, range includes the Colorado and Little Colorado Rivers in the Grand Canyon. Known or believed to occur in two Arizona counties: Coconino and Mohave counties.	Unlikely to be present. The project area is outside (south) of the species geographic range and above the species' elevational range. The species has not been documented within 10 miles of the project area (AGFD 2018a). AGFD (2018d) indicates nearest species occurrences approximately 105 miles northwest of the project area. Critical habitat for the species is located approximately 105 miles northwest of the project area (Colorado River).	Year-round
Little Colorado spinedace (<i>Lepidomeda vittata</i>)	T w/CH	SGCN (1A)	Pools with water flowing over fine gravel and silt-mud substrates of medium to small streams. Four populations exist in Arizona: mainstem of the Little Colorado River, Nutrioso Creek, Clear Creek, and Chevelon Creek. Known or believed to occur in 3 Arizona counties including Coconino and Navajo counties.	Unlikely to be present. The project area is within the species general geographic and elevational range; however, appropriate habitat conditions are not present. Chevelon Creek located on the southeastern boundary of the project area is considered to be within the species' predicted range (AGFD 2018b, d) and may support the species. The species has not been documented within 10 miles of the project area (AGFD 2018a). AGFD (2018d) indicates nearest species occurrences approximately 12 miles west and southwest of the project area. Critical habitat for the species is located approximately 10 miles west of the project area (East Clear Creek).	Year-round
Loach minnow* (<i>Rhinichthys cobitis</i>)	E w/CH	SGCN (1A)	Perennial creeks and rivers below 8,000 feet. Typically in shallow turbulent riffles with cobble substrate, swift currents, and filamentous algae. In Arizona, species is limited to reaches in the Black River, White River, North and East forks of the White River, Aravaipa Creek, San Francisco and Blue Rivers, and Campbell Blue and Eagle Creeks. Known or believed to occur in 8 Arizona counties, including Navajo County.	Unlikely to be present. The project area is outside (north and west) of the species geographic range and does not contain appropriate habitat conditions. The species has not been documented within 10 miles of the project area (AGFD 2018a). AGFD (2018d) indicates nearest species occurrences approximately 120 miles south of the project area. Critical habitat for the species is located approximately 45 miles west and west-southwest of the project area (Wet Beaver and Fossil Creeks).	Year-round
Razorback sucker* (<i>Xyrauchen texanus</i>)	E w/CH	SGCN (1A)	Backwaters, flooded bottomlands, pools, side channels, and other slow-moving habitats below 6,000 feet. In Arizona, known to occur in Lake Mohave, Lake Mead, and Lake Havasu. Historically inhabited the Colorado, Salt, Verde, and San Pedro Rivers. Known or believed to occur in 10 Arizona counties, including Coconino County.	Unlikely to be present. The project area is outside (north and east) of the species' range and does not contain appropriate habitat associations. The species has not been documented within 10 miles of the project area (AGFD 2018a). AGFD (2018d) indicates nearest species occurrences approximately 43 miles west-southwest of the project area. Critical habitat for the species is located approximately 54 miles west and 58 miles south of the project area (Verde and Salt Rivers).	Year-round
Spikedace* (<i>Meda fulgida</i>)	E w/CH	SGCN (1A)	Moderate to large perennial streams typically under 6,000 feet. Occurs in moderate to fast velocity waters over gravel and rubble substrates. In Arizona, natural populations known in Aravaipa Creek, Graham and Pinal Counties. The species has been stocked in Fossil Creek, Redfield Canyon, Hot Spring Canyon, Bonita Creek, and Blue River; these populations are not established. Known or believed to occur in 6 Arizona counties; not found in Coconino or Navajo counties (USFWS 2016d).	Unlikely to be present. The project area is outside (north and east) of the species' geographic range and does not contain appropriate habitat associations. The species has not been documented within 10 miles of the project area (AGFD 2018a). AGFD (2018d) indicates nearest occurrence approximately 43 miles west-southwest of the project area. Critical habitat for the species is located approximately 45 miles west and west-southwest of the project area (Wet Beaver and Fossil Creeks).	Year-round
Virgin River chub* (<i>Gila seminuda</i>)	E w/CH	SGCN (1A)	Typically found in deeper areas associated with boulders, where waters are swift but not turbulent below 4,500 feet. Very tolerant of high salinity and turbidity. In Arizona, found in the Virgin River, Mohave County.	Unlikely to be present. The project area is well outside (southeast) of the species geographic range and is above the species elevational range. The species has not been documented within 10 miles of the project area (AGFD 2018a). AGFD (2018d) indicates nearest species records approximately 220 miles northwest of the project area. Critical habitat for the species is located approximately 220 miles northwest of the project area (Virgin River).	Year-round

Common Name (Scientific Name)	Status ⁺		Range/Habitat Requirements	Potential for Occurrence in Project Area	Season/Life History Information Relevant to Project Area
	Federal	State			
Woundfin* (<i>Plagopterus argentissimus</i>)	E w/CH; EXPN	SGCN (1A)	Main channels of seasonally swift, highly turbid, and extremely warm streams below 4,500 feet. In Arizona, found sporadically throughout the Virgin River mainstem. Known or believed to occur in two Arizona counties: Maricopa and Mohave counties.	Unlikely to be present. The project area is outside of the non-essential experimental population area located within portions of the Gila River drainage and would be considered endangered if present. The project area is well outside (southeast) of the species' geographic range, above the species' elevational range, and does not contain appropriate habitat conditions. The species has not been documented within 10 miles of the project area (AGFD 2018a). AGFD (2018d) indicates nearest species' occurrences approximately 220 miles northwest of the project area. Critical habitat for the species is located approximately 220 miles northwest of the project area (Virgin River).	Year-round
Flowering Plants					
Brady's pincushion cactus* (<i>Pediocactus bradyi</i>)	E	AZNP	Benches and terraces in the Navajoan Desert near Marble Gorge at elevations between 3,850 and 4,500 feet. Associated with Kaibab limestone chips over Moenkopi shale and sandstone soil. Dominant plant species associations include shadscale saltbush (<i>Atriplex concertifolia</i>), broom snakeweed (<i>Gutierrezia sarothrae</i>), Mormon tea (<i>Ephedra viridis</i>) and desert trumpet (<i>Eriogonum inflatum</i>). Known or believed to occur in one Arizona county: Coconino County.	Unlikely to be present. Marble Gorge is located approximately 140 miles northwest of the project area. The project area is above the species' elevational range. The species has not been documented within 10 miles of the project area (AGFD 2018a).	Flowers in March and April
Fickeisen plains cactus* (<i>Pediocactus peeblesianus fickeiseniae</i>)	E w/CH	AZNP	Mesas, plateaus, terraces, gently sloping hills, and near canyon rims at elevations between 4,200 and 5,950 feet. Associated with well-drained, shallow, gravelly soils derived from exposed layers of Kaibab limestone. Vegetation community associations include desert scrub and desert grasslands. Occurs in widely scattered, small populations on the Colorado Plateau. The species' range includes northwestern and north-central portions of the state. Known or believed to occur in two Arizona counties: Coconino and Mohave counties.	Unlikely to be present. The project area is outside (southeast) of the species' geographic range and is above the species' elevational range. The species has not been documented within 10 miles of the project area (AGFD 2018a). Critical habitat for the species is located approximately 72 miles northwest of the project area (Gray Mountain).	Flowers in mid-April to mid- May
Navajo sedge* (<i>Carex specicola</i>)	T w/CH	AZNP	Seep-springs on vertical cliffs of pink-red Navajo sandstone at elevations between 4,200 and 7,600 feet. Associated with aeolian sandstone cliffs with sandy to silty substrates. The plant community association includes monkeyflower (<i>Mimulus</i> spp.) and orchid (Orchidaceae). In Arizona, occurs almost exclusively on Navajo Nation lands between the area north and west of Inscription House and Canyon de Chelly National Monument. Known or believed to occur in three Arizona counties, including Coconino and Navajo counties.	Unlikely to be present. The project area is outside (southwest) of the species' range and does not contain appropriate habitat associations. The species has not been documented within 10 miles of the project area (AGFD 2018a). Critical habitat for the species is located approximately 130 miles north of the project area (Toenleshushe Canyon).	Flowers in spring
Peebles Navajo cactus* (<i>Pediocactus peeblesianus</i> var. <i>peeblesianus</i>)	E	AZNP	Weakly alkaline, gravelly soils of the Shinarump conglomerate of the Chinle formation at elevations between 5,400 and 5,600 feet. Associated vegetation community includes sparsely scattered low shrubs and grasses. The species is found in central Navajo County near Holbrook, Arizona.	Unlikely to be present. The project area is outside (west) of the species' geographic range and is above the species' elevational range. The species has not been documented within 10 miles of the project area (AGFD 2018a).	Flowers in spring
San Francisco Peaks ragwort* (<i>Packera franciscana</i>)	T w/CH	AZNP	Alpine tundra talus slopes above spruce-fir or bristlecone pine forests (above 10,900 feet). The species is found in the San Francisco Peaks, Coconino County.	Unlikely to be present. The project area is outside (east) of the species' geographic range and is below the species' elevational range. The species has not been documented within 10 miles of the project area (AGFD 2018a). Critical habitat for the species is located approximately 60 miles northwest of the project area (Humphreys and Agassiz Peaks).	Flowers in mid-August to mid-October
Sentry milkvetch* (<i>Astragalus cremnophylax</i> var. <i>cremnophylax</i>)	E	AZNP	Kaibab limestone with little or no soil in an unshaded opening within a pinyon-juniper-cliffrose plant community above 4,000 feet. Associated with rock mat (<i>Petrophytum caespitosum</i>). Populations occur on the south rim of the Grand Canyon, Coconino County.	Unlikely to be present. The project area is well outside (southeast) of the species' geographic range. Known occurrences are located approximately 120 miles northwest of the project area.	Flowers in late April to early May
Siler pincushion cactus* (<i>Pediocactus sileri</i>)	T	AZNP	Desertscrub transitional areas of Navajo and Mohave Deserts at elevations between 2,800 and 5,400 feet. Associated with gypsiferous clay and sandy soils of the Moenkopi formation. In Arizona, occurs in northwestern portion of the state. Known or believed to occur in two Arizona counties: Coconino and Mohave counties.	Unlikely to be present. The project area is well outside (southeast) of the species' geographic range and above the species' elevational range. The species has not been documented within 10 miles of the project area (AGFD 2018a).	Flowers in spring
Welsh's milkweed* (<i>Asclepias welshii</i>)	T w/CH	AZNP	Open, sparsely vegetated semi-stabilized sand dunes and on lee slopes of actively drifting sand dunes at elevations between 4,700 and 6,200 feet. Associated plant species include sand mulesears (<i>Wyethia scabra</i> ssp. <i>attenuata</i>), silvery ophora (<i>Sophora stenophylla</i>), giant sandreed (<i>Calamovifa gigantea</i>) blowout grass (<i>Redfieldia flexuosa</i>), Indian ricegrass (<i>Achnatherum hymenoides</i>) and Gamble oak (<i>Quercus gambelii</i>). Small populations known from extreme north-central portion of the state. Known or believed to occur in three Arizona counties, including Coconino and Navajo counties.	Unlikely to be present. The project area is well outside (south) of the species' geographic range. Known occurrences are located approximately 95 miles north of the project area. Critical habitat for the species is located approximately 190 miles northwest of the project area (Coral Pink Sand Dunes, Utah).	Flowers in June and July
Mammals					
Black-footed ferret* (<i>Mustela nigripes</i>)	E; EXPN	SGCN (1A)	Grassland plains in association with prairie dogs below 10,500 feet. Reintroduced non-essential experimental population exists in Aubrey Valley and on the Espee Ranch, Coconino County. No wild populations known in Arizona; however, may still exist where prairie dogs persist. Known or believed to occur in 4 Arizona counties including Coconino and Navajo counties.	Unlikely to be present. The project area is outside (approximately 110 miles northwest of the project area) of the non-essential experimental population and, therefore would be considered endangered status if present. The project area is in the southern extent of the species' predicted range and contains prairie dog colonies. Given that no wild populations are known, it is unlikely that the species would occur in the project area. Espee Ranch is located approximately 110 miles northwest of the project area.	Year-round, nocturnal

Common Name (Scientific Name)	Status [†]		Range/Habitat Requirements	Potential for Occurrence in Project Area	Season/Life History Information Relevant to Project Area
	Federal	State			
Mexican wolf (<i>Canis lupus baileyi</i>)	EXPN	SGCN (1A)	Areas with sufficient prey populations, such as deer and elk, and where human-induced mortality is controlled. Current populations typically associated with evergreen pine-oak woodlands, pinyon juniper woodlands, and mixed-conifer montane forests above 4,000 feet. The Mexican Wolf Recovery (or Non-Essential Experimental Population) Area (MWEPA) encompasses Arizona and New Mexico from Interstate 40 south to Mexico.	May be present. The project area is within Zone 2 of the MWEPA. It is outside (10 miles east) of the subspecies' occupied range. The project area contains appropriate elk and cattle-occupied juniper habitats. AGFD (2018a) indicates the subspecies has been documented within 10 miles of the project area. USFWS (2015b) indicates a record of an uncollared wolf approximately 10-15 miles southwest of the project area. These records are likely associated with dispersing young, which may disperse over hundreds of miles.	Year-round, den April through May
Jaguar* (<i>Panthera onca</i>)	E w/CH	SGCN (1A)	Affinity for lowland wet habitats, typically swampy savannahs or tropical rainforests. Current range/sightings characterized as Sonoran desertscrub through subalpine conifer forest of extreme south-central portion of the state from 5,200 to 5,700 feet. Known or believed to occur in three Arizona counties; not found in Coconino or Navajo counties (USFWS 2016d).	Unlikely to be present. The project area is well outside of the species' current range. Known occurrences are located approximately 200 miles south of the project area. Critical habitat for the species is located approximately 190 miles south and south-southwest of the project area (Santa Rita and Baboquivari Mountains).	Year-round, breed and den from December through May; migrate/roam regularly
New Mexico jumping mouse (<i>Zapus hudsonius luteus</i>)	E w/CH	SGCN (1A)	Tall, dense riparian herbaceous vegetation, especially sedges and forbs, associated with seasonally available or perennial flowing water from 6,500 to 9,000 feet. Also require adjacent intact upland areas for nesting and hibernation. In Arizona, found in the White Mountains of eastern Arizona in southern Apache and northern Greenlee counties.	Unlikely to be present. The project area is well outside (northwest) of the subspecies geographic range and does not contain appropriate habitat associations. The subspecies has not been documented within 10 miles of the project area (AGFD 2018a). AGFD (2018d) indicates nearest occurrences approximately 90 miles southeast of the project area. Critical habitat for the subspecies is located approximately 85 miles southeast of the project area (West Fork Little Colorado River, Arizona).	Year-round, generally nocturnal and generally active only during grass and forb growing season
Reptiles					
Northern Mexican gartersnake (<i>Thamnophis eques megalops</i>)	T w/PCH	SGCN (1A)	Riparian obligate. Lotic and lentic habitats that include cienegas and stock tanks (earthen impoundments), and rivers containing pools and backwaters. Most frequently found between 3,000 and 5,000 feet, but may occur up to approximately 8,500 feet. Use adjacent terrestrial habitats for foraging, thermoregulation, gestation, shelter, immigration, emigration, and brumation. Found in areas of high native prey (fish and leopard frogs) concentration. Prey include leopard frogs and native fish, and secondarily, nonnative larval and juvenile bullfrogs and soft-rayed fish. Core population areas in Arizona include mid/upper Verde River drainage, mid/lower Tonto Creek, and the San Rafael Valley. Known or believed to occur in 11 Arizona counties, including Coconino and Navajo counties.	Unlikely to be present. The project area is outside of the extant populations. Earthen impoundment stock tanks within the project area contain water seasonally, but are far from riparian habitats; thus, movements associated with foraging, thermoregulation, gestation, shelter, immigration, emigration, and brumation would be unlikely. The subspecies has not been documented within 10 miles of the project area (AGFD 2018a). AGFD (2018d) indicates nearest species' occurrences approximately 15 miles southwest of the project area. Proposed critical habitat for the subspecies is located approximately 24 miles southwest of the project area (Tonto Creek, Arizona).	Year-round, generally surface active between June and September
Snails					
Kanab ambersnail* (<i>Oxyloma haydeni kanabensis</i>)	E w/PCH	SGCN (1A)	Semi-aquatic vegetation watered by springs or seeps at the base of sandstone or limestone cliffs at approximately 2,900 feet. Requires grass or sedge cover and either shallow standing water or a perennially wet soil surface. Associated with watercress, monkeyflower, and other wetland vegetation. In Arizona, found on one population in Vaseys Paradise, Grand Canyon National Park, Coconino County.	Unlikely to be present. The project area is well outside of the subspecies isolated geographic and elevational ranges and does not contain appropriate habitat associations. The subspecies has not been documented within 10 miles of the project area (AGFD 2018a). Known occurrences approximately 140 miles northwest of the project area. The location of proposed critical habitat for the subspecies is not available.	Year-round; winter dormant period

Notes: Species provided in table include those listed in project-specific list of threatened and endangered species that may occur (USFWS 2018b), federally-listed species listed for Coconino and Navajo counties (USFWS 2018a) and federally listed species listed in the project-specific AGFD (2018a) environmental online review tool report. Range or habitat requirement information and potential occurrence justification from AGFD (2018a, b, d), eBird (2018a), Finkelstein et al. (2015), Guitierrez et al. (1995), National Park Service (2017), NatureServe (2018), Packard (2003), Reptiles and Amphibians of Arizona (2008), Rodewald (2015), Rosen et al. (1994), Roth (2004), SEINet (2018), Southwest Condor Working Group (2017), USFWS (2003, 2006, 2007, 2008b, 2011, 2012b, 2013b, 2014, 2015b, 2015c, 2016b, 2016c, 2016d, 2018f, 2019) .

* Species is not included in USFWS (2018b) but is included here because it is listed in USFWS (2018a) and AGFD (2018a).

[†] Federal Status Definitions

BCC = Bird of Conservation Concern.

BCR = Bird Conservation Region.

CH = Designated critical habitat.

E = Endangered. Endangered species are those in danger of extinction throughout all or a significant portion of their range.

PCH = Proposed critical habitat.

T = Threatened. Threatened species are those likely to become endangered within the foreseeable future throughout all or a significant portion of their range.

State Status Definitions

AZNP = Protected by the Arizona Native Plant Law

SGCN = Species of Greatest Conservation Need; species identified by AGFD (2012b) as having conservation priority. Tier 1A species are those categorized by AGFD (2012b) as "highest priority vulnerable" species.

Table D.2. Other Special-Status Species Reviewed for their Potential to Occur in the Project Area

Common Name (Scientific Name)	Status*		Range/Habitat Requirements	Potential for Occurrence in Project Area	Season/Life History Information Relevant to Project Area
	Federal	State			
Amphibians					
Arizona tiger salamander (<i>Ambystoma mavortium nebulosum</i>)	--	SGCN (1B)	Permanent or ephemeral wetlands: ponds, stock tanks, backwaters, and lakes. Limited by non-native fishes. May be found in uplands 2-3 miles from breeding ponds. Associated with coniferous forests, chaparral, and high grasslands. Range includes northern and central portions of the state.	May be present: the project area is within the species' predicted range and contains ephemeral stock tanks. Nearest species records approximately 25 miles south of the project area.	Year-round, Breed mid-winter through late spring
Arizona toad (<i>Anaxyrus microscaphus</i>)	--	SGCN (1B)	Shallow, flowing, permanent water over sandy or rocky substrates, typically in river canyons or foothill streams below 8,000 feet. Range in Arizona extends northwest to southeast through central portions of the state including below the Mogollon Rim in southern Coconino and Navajo counties.	Unlikely to be present: the project area does not contain appropriate habitats. Appropriate river canyon habitats are present along the northern edge of the project area (Clear Creek) as indicated by (AGFD 2018d). AGFD (2018a) indicates the species has been documented within 10 miles of the project area. The nearest species record is approximately 8 miles west of the project area (Clear Creek).	Year-round; Breed February through July
Northern leopard frog (<i>Lithobates pipiens</i>)	--	SGCN (1A)	Variety of habitats usually in permanent waters with rooted aquatic vegetation from sea level to 11,000 feet. In Arizona, range includes northern and central portions of the state.	May be present: the project area is within the species' geographic range, and though the project area does not contain permanent waters, the species may use the project area stock tanks. AGFD (2018a) indicates the species has been documented within 10 miles of the project area. The species has been documented within 10 miles of the project area (AGFD 2018a).	Year-round; Breeds mid-March to early June.
Birds					
American bittern (<i>Botaurus lentiginosus</i>)	BCC (BCR 16)	SGCN (1B)	Freshwater wetlands with emergent vegetation, brackish marshes, dry grasslands. Wintering range includes southern and western Arizona.	Unlikely to be present: project area is situated outside (north and east) of typical wintering range for the species, and project area wetlands do not contain emergent vegetation. It is unclear whether appropriate habitat associations are present within Clear Creek or Chevelon Canyons (northern and southeastern boundaries of the project area, respectively). eBird (2018a) indicates nearest species records approximately 50 miles northwest and west-northwest of the project area.	Wintering
American dipper (<i>Cinclus mexicanus</i>)	--	SGCN (1B)	Fast-moving, clear, unpolluted, ice-free streams with cascades, riffles, and waterfalls; rocky/cliff streambanks. Year-round range includes isolated locations in northern, eastern, and southern portions of Arizona.	Unlikely to be present: project area is outside of the species fragmented year-round range. It is unclear whether appropriate habitat associations are present within Clear Creek or Chevelon Canyons (northern and southeastern boundaries of the project area). eBird (2018a) indicates nearest species records approximately 23 miles south of the project area.	Year-round
Arizona woodpecker (<i>Dryobates arizonae</i>)	BCC (BCR 34)	--	Oak or pine-oak woodland and associated sycamore-walnut riparian woodland. Year-round range includes southeastern corner of Arizona.	Unlikely to be present: project area is well outside (north) of the species' year-round range. eBird (2018a) indicates nearest species records approximately 130 miles south of the project area.	Year-round
Baird's sparrow (<i>Ammodramus bairdii</i>)	BCC (BCR 34)	SGCN (1C)	Dense, expansive grasslands with minor shrub component. Non-breeding range includes southeastern extreme of Arizona.	Unlikely to be present: project area is well outside (north) of the species' non-breeding range. eBird (2018a) indicates nearest species records approximately 180 miles south of the project area.	Non-breeding
Bald eagle (<i>Haliaeetus leucocephalus</i>)	Eagle Act, BCC (BCR 16, 34)	SGCN (1A)	Aquatic habitats with open water or Southwest arid regions with available food and roost sites. Non-breeding eagles range throughout Arizona except for the south-central portion of the state; breeding eagles occur in limited, fragmented locations of central east-central, and west-central portions of the state.	Known to be present: project area is within the species' non-breeding and breeding ranges and may provide foraging resources in the form of waterfowl and carrion. The species has been documented on-site during pre-construction avian use counts. A breeding area is known within 10 miles of the project area (approximately 9.5 miles to the south).	Breeding, Non-breeding
Bell's vireo (<i>Vireo bellii</i>)	BCC (BCR 34)	SGCN (1B)	Low, shrubby vegetation in riparian areas, brushy fields, second-growth forest, scrub oak, and mesquite brushlands. Breeding range includes north-central, western, and southern portions of Arizona.	Unlikely to be present: project area is situated outside of breeding range for the species. eBird (2018a) indicates species records approximately 30 miles south of the project area.	Breeding, Transient
Bendire's thrasher (<i>Toxostoma bendirei</i>)	BCC (BCR 16, 34)	SGCN (1C)	Desert habitats: grassland, shrubland, or woodland from sea level to approximately 6,000 feet. Breeding range includes northern two-thirds of Arizona; year-round range includes southern third of the state.	May be present: project area is within the species breeding range and contains appropriate habitat associations. eBird (2018a) indicates nearest species records approximately 10 miles northwest and northeast of the project area.	Breeding
Black rosy-finch (<i>Leucosticte atrata</i>)	BCC (BCR 16)	--	Mountainous areas (alpine tundra and high open parks and valleys), thinly vegetated lowlands, and high deserts of shadscale, greasewood, sagebrush, rabbitbrush, and open pinyon-juniper. Winter movements dependent on snow depth and weather conditions. May winter in north-central extreme of Arizona (one or twice per decade; including as far south as Flagstaff).	Unlikely to be present: project area is outside (south and east) of species' wintering range. eBird (2018a) indicates nearest species records approximately 130 miles north-northwest of the project area.	Non-breeding, Transient
Black-chinned sparrow (<i>Spizella atrogularis</i>)	BCC (BCR 34)	SGCN (1C)	Arid brushlands on slopes of chaparral, sagebrush, and pinyon-juniper from sea level to 9,000 feet. Breeding range includes northwestern, central, and east-central portions of Arizona. Non-breeding range includes southeastern and southwestern portions of the state.	May be present: project area is situated on the eastern edge of the species breeding range and contains sloped-pinyon-juniper and shrub habitats. eBird (2018a) indicates nearest species records approximately 21 miles northwest and southwest of project area.	Breeding
Black-throated gray warbler (<i>Setophaga nigrescens</i>)	BCC (BCR 34)	SGCN (1C)	Open coniferous or mixed coniferous-deciduous woodland with brushy undergrowth, pinyon-juniper and pine-oak associations, and oak scrub. Breeding range includes northern and eastern Arizona; migration range includes central and southwestern portions of the state.	May be present: project area is within the species breeding range and contains pinyon-juniper woodlands. eBird (2018a) indicates nearest species records approximately 4 miles south and 10 miles northwest of the project area.	Breeding

Common Name (Scientific Name)	Status*		Range/Habitat Requirements	Potential for Occurrence in Project Area	Season/Life History Information Relevant to Project Area
	Federal	State			
Blue-throated hummingbird (<i>Lampornis clemenciae</i>)	BCC (BCR 34)	SGCN (1B)	Moist pine-fir and highland deciduous forests, pine-oak woodland, forest edges, second growth, and shrubby areas. Breeding range includes southeastern Arizona and an isolated segment of north-central portion of the state.	Unlikely to be present: project area is outside (north and east) of species breeding range. eBird (2018a) indicates nearest species record approximately 52 miles west of the project area.	Breeding, Transient
Botteri's sparrow	BCC (BCR 34)	SGCN (1B)	Semi-desert grasslands, particularly sacaton grasslands, and oak woodland at elevations between 3,400 and 4,900 feet. Year-round range includes southeastern extreme of Arizona.	Unlikely to be present: project area is well outside (north) of the species year-round range. eBird (2018a) indicates nearest species records approximately 150 miles south of the project area.	Year-round
Brewer's sparrow (<i>Spizella breweri</i>)	BCC (BCR 16)	SGCN (1C)	Shrublands dominated by big sagebrush. May occur in desert scrub, large openings in pinyon-juniper, or large parklands with coniferous forests. Migration range includes central Arizona. Non-breeding range includes west-central and southern portions of the state. Breeds in northern Arizona.	Known to be present: project area is within the migration range for the species and contains pinyon-juniper woodland and low sagebrush shrublands. The species has been documented on-site during pre-construction avian use counts.	Migration
Brown-capped rosy-finch	BCC (BCR 16)	--	Open areas including alpine tundra, high parks, meadows, and open grasslands/shrublands. Non-breeding range outside of Arizona: includes southern Wyoming through Colorado and north-central New Mexico.	Unlikely to be present: project area is well outside (southwest) of the species' non-breeding range. eBird (2018a) indicates nearest species records approximately 200 miles northeast of the project area.	Non-breeding
Buff-breasted flycatcher	BCC (BCR 34)	SGCN (1B)	Wide mountain canyons with open pine and/or oak woodlands; often near riparian growth. Breeding range includes southeastern extreme of Arizona.	Unlikely to be present: project area is well outside (north) of the species' breeding range. eBird (2018a) indicates nearest species record approximately 70 miles west of the project area.	Breeding
Burrowing owl, Western burrowing owl (<i>Athene cunicularia hypugaea</i>)	BCC (BCR 16)	SGCN (1B)	Open, gently-sloping, treeless areas within sparsely vegetated grassland, steppe, and desert biomes. Often associated with high densities of burrowing mammals such as prairie dogs. Year-round range includes southern half of Arizona; breeding range includes northern half of the state.	May be present: project area is within the species' breeding range and contains appropriate habitat associations. AGFD (2018a) indicates the species has been documented within 10 miles of the project area. eBird (2018a) indicates nearest species record approximately 9 miles northwest of the project area.	Breeding
Canyon towhee (<i>Melospiza fusca</i>)	BCC (BCR 34)	--	Desert grasslands with scattered, dense shrubs; riparian mesquite bosques; pinyon-juniper-oak; and pine-oak. Year-round range includes west-central, central, and eastern portions of Arizona.	Known to be present: project area is within the species year-round range. The species has been documented on-site during pre-construction avian use counts.	Year-round
Cassin's finch (<i>Haemorhous cassini</i>)	BCC (BCR 16)	--	Open coniferous forest over broad elevational range including ponderosa pine and pinyon pine associations. Non-breeding range includes central, east-central, and southeastern portions of Arizona; year-round range includes north-central and northeastern portions of state.	Known to be present: project area is within the species' non-breeding range and contains open pinyon-juniper woodlands. The species has been documented on-site during pre-construction avian use counts.	Non-breeding
Chestnut-collared longspur (<i>Calcarius ornatus</i>)	BCC (BCR 16, 34)	SGCN (1C)	Low-grass desert grasslands and isolated water sources. Associated with prairie dog colonies. Non-breeding range includes eastern half of Arizona.	Known to be present: project area is within the species' non-breeding range and contains desert grassland, stock tanks, and prairie dog colonies. The species has been documented on-site during pre-construction avian use counts.	Non-breeding
Common black hawk (<i>Buteogallus anthracinus</i>)	BCC (BCR 34)	SGCN (1C)	Mature gallery riparian forest. Breeding range includes northwestern, central, and southeastern portions of Arizona.	May be present: project area does not contain appropriate habitat for the species; however, with species records nearby, may use the project area vicinity in flight. eBird (2018a) indicates nearest species records approximately 5 miles south and 12 miles southwest of the project area.	Breeding, Transient
Common nighthawk (<i>Chordeiles minor</i>)	--	SGCN (1B)	Variety of open habitats including sagebrush and desert grassland, prairies and plains, open forests, croplands, rock outcrops, and gravel rooftops. Breeding range includes northeastern and southeastern portions of throughout Arizona.	May be present: project area is within the species' breeding range and contains appropriate habitats. eBird (2018a) indicates nearest species records approximately 13 miles west-northwest and southwest of the project area.	Breeding
Dusky-capped flycatcher (<i>Myiarchus tuberculifer</i>)	--	SGCN (1B)	Riparian areas dominated by sycamore and in oak and pin-oak woodlands. Breeds in southeastern Arizona.	Unlikely to be present: project area is outside (north) of the species' breeding range and does not contain appropriate habitat associations. eBird (2018a) indicates nearest species records approximately 34 miles southwest of the project area.	Breeding
Elegant trogon (<i>Trogon elegans</i>)	BCC (BCR 34)	SGCN (1B)	Sycamore, pinyon pine, pine, oak, and juniper riparian habitats and riparian edge vegetation. Breeding range includes southeastern extreme of Arizona.	Unlikely to be present: project area is well outside (north) of species' breeding range. eBird (2018a) indicates nearest species record approximately 56 miles west of the project area.	Breeding, Transient
Elf owl (<i>Micrathene whitneyi</i>)	BCC (BCR 34)	SGCN (1C)	Desert wash woodland, riparian forest, upland desert, canyon riparian forest, and evergreen woodland. Breeding range includes southern half of Arizona.	Unlikely to be present: project area is outside (north) of the species' breeding range. eBird (2018a) indicates nearest species records approximately 40 miles southwest of the project area.	Breeding
Evening grosbeak (<i>Coccothraustes vespertinus</i>)	--	SGCN (1B)	Mixed-conifer and spruce-fir forests; less common in pine-oak, pinyon-juniper, ponderosa pine, and aspen forests. In winter, flocks typically observed in pinyon-juniper and ponderosa pine ecotone. Year-round (scarce) range includes northeastern Arizona; non-breeding (scarce) range includes central, west-central, northwestern, and southeastern portions of the state.	May be present: project area is within the non-breeding (scarce) range, is on the western edge of the year-round (scarce) range and contains pinyon-juniper woodlands. eBird (2018a) indicates nearest species records approximately 13 miles west-southwest of the project area.	Non-breeding (scarce), Year-round (scarce)
Ferruginous hawk (<i>Buteo regalis</i>)	BCC (BCR 16)	SGCN (1B)	Grasslands, shrub-steppe, pinyon-juniper, sparse riparian forests, and canyon areas with cliffs and rock outcrops. Year-round range includes roughly northern half of Arizona; wintering range includes roughly southern half of the state.	Known to be present: project area is situated on the southern edge of the species' year-round range and the northern edge of its winter range. The species has been documented on-site during pre-construction avian use counts.	Year-round, Winter
Five-striped sparrow (<i>Amphispiza quinquestrata</i>)	BCC (BCR 34)	SGCN (1B)	Steep, densely vegetated hillsides; brushy semi-desert and tropical deciduous woodlands. Year-round range includes south-central extreme of Arizona.	Unlikely to be present: project area is well outside (north) of the species' year-round range. eBird (2018a) indicates nearest species records approximately 200 miles south of the project area.	Year-round

Common Name (Scientific Name)	Status*		Range/Habitat Requirements	Potential for Occurrence in Project Area	Season/Life History Information Relevant to Project Area
	Federal	State			
Flammulated owl (<i>Psiloscops flammeolus</i>)	BCC (BCR 16, 34)	SGCN (1C)	Open, mature ponderosa pine or other forest (e.g., dry montane conifer, aspen) with similar features often with oak, dense saplings, or other brushy understory. Breeding range includes central to east-central Arizona and fragmented locations of southeastern and northwestern portions of the state.	Unlikely to be present: project area is within the species breeding range; however, appropriate habitat associations are not present. eBird (2018a) indicates nearest species records approximately 20 miles south and southwest of the project area.	Breeding
Golden eagle (<i>Aquila chrysaetos</i>)	Eagle Act, BCC (BCR 16)	SGCN (1B)	Mountainous canyon land, rimrock terrain of open desert, grassland, and forested areas. Year-round range includes all of Arizona.	Known to be present: the species has been documented using the site during pre-construction avian use counts; breeding areas are known within 10 miles of the project area.	Year-round
Grace's warbler (<i>Setophaga graciae</i>)	BCC (BCR 16, 34)	SGCN (1C)	Pine, pine-oak, and spruce-fir forest. Breeds throughout Arizona except for southwestern portion of state.	Unlikely to be present: project area is within the species' breeding range; however, habitat associations are not present. eBird (2018a) indicates nearest species records approximately 5 miles south of the project area.	Breeding
Grasshopper sparrow (<i>Ammodramus savannarum</i>)	BCC (BCR 16, 34)	SGCN (1B)	Moderately open grasslands with patchy bare ground; grasslands may contain shrub cover. Non-breeding range includes southern extreme of Arizona; year-round range includes south-central portion of the state.	Unlikely to be present: project area is outside (north) of the species' non-breeding range. eBird (2018a) indicates nearest species record approximately 26 miles northwest of the project area.	Non-breeding, Transient
Gray vireo (<i>Vireo vicinior</i>)	BCC (BCR 16, 34)	SGCN (1C)	Mixed pinyon-juniper and oak scrub associations and/or chaparral. Breeding range includes northern, central, and eastern Arizona; non-breeding range includes south-central portion of the state.	May be present: project area is within the species' breeding range and contains pinyon-juniper woodlands. eBird (2018a) indicates nearest species record approximately 6 miles northwest of the project area.	Breeding
Juniper titmouse (<i>Baeolophus ridgwayi</i>)	BCC (BCR 16)	SGCN (1C)	Pinyon-juniper woodlands; may be mixed with deciduous or evergreen oaks. Year-round range includes northeastern half of Arizona; scarce in west-central portion of the state.	Known to be present: project area is within the species' year-round range and contains pinyon-juniper woodlands. The species has been documented on-site during pre-construction avian use counts.	Year-round
Lark bunting (<i>Calamospiza melanocorys</i>)	BCC (BCR 34)	--	Grasslands and shrub-steppe, including agricultural areas. Migration range includes eastern Arizona; non-breeding range includes central and southern portions of the state.	Unlikely to be present: project area is outside (north and west) of the species' non-breeding and migration ranges. eBird (2018a) indicates nearest species record approximately 24 miles north of the project area.	Migration, Non-breeding
Lewis's woodpecker (<i>Melanerpes lewis</i>)	BCC (BCR 16, 34)	SGCN (1C)	Ponderosa pine and open riparian forests with brushy understory and dead or downed woody material; may also use oak, pinyon-juniper, and pine-fir woodlands, and nut and fruit orchards. Year-round range includes northern portion of Arizona. Non-breeding range includes northwestern, central, and southeastern portions of the state.	May be present: project area is on the boundary of the species' year-round and non-breeding ranges and contains pinyon-juniper habitats. It is unclear whether Clear Creek or Chevelon Canyon (northern and southwestern boundaries of the project area, respectively) contain appropriate riparian habitats. eBird (2018a) indicates nearest species records approximately 12 miles west-southwest of the project area.	Year-round, Non-breeding
Lincoln's sparrow (<i>Melospiza lincolni</i>)	--	SGCN (1B)	Breeds in willow-, sedge-, and moss-dominated habitats, mixed-deciduous wood groves, and black spruce-tamarisk bogs. Uses shrub-dominated habitats, particularly riparian sites, but also brushy forest edges and weedy fields during migration. Uses pine-oak forests, fresh water habitats, coniferous forests, and brushy fields in winter. Non-breeding range includes southwestern half and east-central portion of Arizona. Migration range includes northeastern Arizona. Isolated breeding locations are known in north-central and east-central portions of the state.	May be present: project area is within the species' migration range and contains shrubby/brushy habitats. May be more likely to use Clear Creek or Chevelon Canyon (northern and southwestern boundaries of the project area, respectively) than the project area proper. eBird (2018a) indicates nearest species record approximately 4 miles south of the project area.	Migration
Long-billed curlew (<i>Numenius americanus</i>)	BCC (BCR 16)	--	Short-grass prairie and wetlands associated with alkali lakes, playas, tidal flats, salt marshes, and agricultural fields. Migrates throughout Arizona.	May be present: project area is within the species' migration range and contains stock tanks. eBird (2018a) indicates nearest species records approximately 30 miles west and northwest of the project area.	Migration
Lucy's warbler (<i>Oreothlypis luciae</i>)	BCC (BCR 34)	SGCN (1C)	Riparian mesquite bosques and other riparian associations. Breeding range includes much of Arizona except for central and east-central portions of the state. Migration range includes southwestern portion of the state.	Unlikely to be present: project area is outside (north and south) of the species' breeding range. eBird (2018a) indicates nearest species records approximately 26 miles west and north-northwest of the project area.	Breeding, Transient
MacGillivray's warbler (<i>Geothlypis tolmiei</i>)	--	SGCN (1B)	Breeds in mixed deciduous forests or coniferous-forest clearcuts. Migrates through mountain shrublands, riparian woodlands, mixed pine-deciduous forests, and agricultural margins. Migrates throughout Arizona with isolated breeding locations in north-central, east-central, and northern extreme of the state.	May be present: project area is within the species' migration range and contains appropriate shrubland habitats. eBird (2018a) indicates nearest species records approximately 5 miles south of the project area.	Migration
Mountain plover (<i>Charadrius montanus</i>)	BCC (BCR 16, 34)	SGCN (1B)	Short-grass prairie dominated by blue grama; also, fallow or recently tilled agricultural fields. Often associated with prairie dog colonies. Wintering range includes central and southern portions of Arizona.	Unlikely to be present: project area is outside of the species' wintering and migration ranges. eBird (2018a) indicates nearest species records approximately 40 miles north-northwest of the project area.	Migration
Northern beardless-tyrannulet (<i>Camptostoma imberbe</i>)	BCC (BCR 34)	--	Semi-open brushy woodlands, scrubby thickets, and forest edges typically along streams or dry washes. Breeding and year-round ranges include southeastern Arizona.	Unlikely to be present: project area is well outside (north) of the species' breeding and year-round ranges. eBird (2018a) indicates nearest species record approximately 65 miles west of the project area	Breeding
Northern goshawk (<i>Accipiter gentilis</i>)	--	SGCN (1B)	Ponderosa pine forests; may also use Douglas fir, various pine, and aspen forests. May hunt in habitats ranging from open sage steppes to dense forests. Year-round range includes roughly the eastern half of Arizona; non-breeding range includes roughly the western half of the state.	May be present: project area is within the species' year-round range. Though appropriate breeding habitat conditions are not present, the species may hunt within the project area (steppe-type habitats). AGFD (2018a) indicates the species has been documented within 10 miles of the project area. eBird (2018a) indicates nearest species record approximately 12 miles southwest of the project area.	Year-round

Common Name (Scientific Name)	Status*		Range/Habitat Requirements	Potential for Occurrence in Project Area	Season/Life History Information Relevant to Project Area
	Federal	State			
Olive warbler (<i>Peucedramus taeniatus</i>)	BCC (BCR 34)	SGCN (1C)	Open ponderosa pine, sugar pine, Douglas fir, and pine-oak forests. Transient/migrant birds associated with mountain habitats and riparian forests. Breeding range includes central and southeastern Arizona.	Unlikely to be present: project area is within the northern extreme of the species' breeding range; however, habitat associations are not present. Transient/migrant individuals may use riparian habitats associated with Clear Creek and/or Chevelon Canyon (northern and southwestern project area boundaries, respectively). eBird (2018a) indicates nearest species record approximately 8 miles northwest of project area.	Breeding, Transient
Pacific wren (<i>Troglodytes pacificus</i>)	--	SGCN (1B)	Wide range of habitats including deciduous and coniferous riparian forests, hardwood forests, and mixed-conifer hardwood forests. Breeding range includes the Mogollon Rim of Arizona.	Unlikely to be present: project area is just outside (northeast) of the species' breeding range and does not contain appropriate habitat associations. eBird (2018a) indicates nearest species records approximately 24 miles south-southwest of project area.	Breeding
Peregrine falcon (<i>Falco peregrinus</i>)	BCC (BCR 16, 34)	SGCN (1A)	Variety of biomes; generally associated with cliffs and open landscapes. Year-round range includes most of Arizona except for east-central portion of the state. Migration range includes east-central portion of the state.	May be present: project area is within the species' breeding range and contains appropriate habitat associations. AGFD (2018a) indicates the species has been documented within 10 miles of the project area. eBird (2018a) indicates nearest species record approximately 5 miles south of the project area.	Breeding
Phainopepla (<i>Phainopepla nitens</i>)	BCC (BCR 34)	SGCN (1C)	Desert riparian, desert washes, and adjacent mesquite belts; closely associated with desert mistletoe. Breeding range includes central, western, and southern portions of Arizona.	Unlikely to be present: project area is within the species' breeding range; however, habitat associations are not present. It is unclear whether Clear Creek or Chevelon Canyon (northern and southeastern boundaries of the project area, respectively) contain appropriate habitat associations for the species. eBird (2018a) indicates nearest species record approximately 4 miles south of the project area.	Breeding, Transient
Pinyon jay (<i>Gymnorhinus cyanocephalus</i>)	BCC (BCR 16, 34)	SGCN (1B)	Pinyon-juniper woodland; also found in sagebrush, scrub oak, and chaparral. Year-round range includes northern half of Arizona.	Known to be present: project area is within the species' year-round range and contains appropriate habitat associations. The species has been documented on-site during pre-construction avian use counts.	Year-round
Prairie falcon (<i>Falco mexicanus</i>)	BCC (BCR 16)	SGCN (1C)	Open shrub-steppe desert, grasslands, mixed shrub and grasslands, and alpine tundra containing cliffs or bluffs for nesting. Year-round resident throughout Arizona except for southwestern border of the state.	May be present: project area is within the species' year-round range and contains appropriate shrub-steppe, grassland, and cliff habitat. eBird (2018a) indicates nearest species records approximately 7 miles north and south of the project area.	Year-round, may wander
Red-faced warbler (<i>Cardellina rubrifrons</i>)	BCC (BCR 34)	SGCN (1C)	Montane fir, pine, and open pine-oak forests between 6,500 and 9,100 feet; may contain other deciduous trees (e.g., maple, aspen) in stream and snow-melt drainages. Breeding range includes central and southeastern Arizona.	Unlikely to be present: project area is on the northeastern edge of the species' breeding range; however, habitat associations are not present. eBird (2018a) indicates nearest species record approximately 15 miles southwest of the project area.	Breeding
Rose-throated becard (<i>Pachyramphus aglaiae</i>)	BCC (BCR 34)	SGCN (1B)	Sycamore riparian habitats; may also use open forests, woodlands, and scrubby areas. Breeds in extreme south-central Arizona.	Unlikely to be present: project area is well outside (north) of the species' breeding range. eBird (2018a) indicates nearest species records approximately 130 miles south of the project area.	Breeding
Rufous-winged sparrow (<i>Peucaea carpalis</i>)	BCC (BCR 34)	SGCN (1B)	Desert scrub and thorn scrub characterized by scattered thorny trees and shrubs. Year-round range includes southeastern Arizona.	Unlikely to be present: project area is well outside (north) of the species' year-round range. eBird (2018a) indicates nearest species record approximately 130 miles south of the project area.	Year-round
Snowy plover (<i>Charadrius nivosus</i>)	BCC (BCR 16)	SGCN (1B)	Inland habitats include wastewater and salt-evaporation ponds, alkaline and saline lakes, reservoirs, and riverine sand bars. Migrates throughout Arizona except eastern edge of the state. Isolated breeding locations in southern portion of the state.	Unlikely to be present: project area is within the species' migration range; however, appropriate habitat associations are not present. It is unclear whether Clear Creek or Chevelon Canyons (northern and southeastern boundaries of the project area) contain appropriate habitat associations. eBird (2018a) indicates nearest species records approximately 35 miles northwest of the project area.	Migration
Sprague's pipit (<i>Anthus spargueii</i>)	BCC (BCR 34)	SGCN (1A)	Grasslands with low shrub cover and cultivated lands. Wintering range includes central and southeastern Arizona; may winter in south-central and southwestern portions of the state.	Unlikely to be present: project area is outside (north and east) of the species' wintering range. eBird (2018a) indicates nearest species records approximately 90 miles west of the project area.	Wintering
Sulphur-bellied flycatcher (<i>Myiodynastes luteiventris</i>)	--	SGCN (1B)	In Arizona, found in riparian canyons. Breeding range includes central and southeastern Arizona.	Unlikely to be present: project area is outside (north) of the species' breeding range. eBird (2018a) indicates nearest species records approximately 40 miles southwest of the project area.	Breeding
Varied bunting (<i>Passerina versicolor</i>)	BCC (BCR 34)	SGCN (1C)	Desert thorn brush in canyons, desert washes, and riparian edges. Breeding range includes extreme southeastern Arizona.	Unlikely to be present: project area is well outside (north) of the species' breeding range. eBird (2018a) indicates nearest species record approximately 40 miles east-southeast of the project area.	Breeding
Veery (<i>Catharus fuscescens</i>)	BCC (BCR 16)	--	Damp, deciduous forests, strong association with riparian and disturbed forest with dense understory. Breeding range includes outlier population on east-central border of Arizona.	Unlikely to be present: project area is well outside (approximately 100 miles west) of the known outlier breeding population. eBird (2018a) indicates nearest species record approximately 115 miles south of the project area.	Breeding
Willow flycatcher† (<i>Empidonax traillii</i>)	BCC (BCR 16)	--	Preference for riparian woodlands and adjacent agricultural fields during migration; may use a wider array of forest and shrub habitats.	Unlikely to be present: project area does not contain suitable migration habitat. Clear Creek and Chevelon Canyon (northern and southeastern boundaries of the project area, respectively) may provide appropriate habitat associations.	Migration

Common Name (Scientific Name)	Status*		Range/Habitat Requirements	Potential for Occurrence in Project Area	Season/Life History Information Relevant to Project Area
	Federal	State			
Yellow warbler (Sonoran; <i>sonorana</i> ssp.; <i>Setophaga petechia</i> ssp. <i>sonora</i>)	BCC (BCR 34)	SGCN (1B)	Wet, deciduous thickets, especially those dominated by willows, and in disturbed and early successional habitats. Migration habitat includes scrub/shrub and semi-open, second-growth forest, often associated with wetlands. Migrates through most of Arizona. Breeds in central, east-central, and south-central portions of the state; breeding (scarce) range includes northern portion of the state.	Unlikely to be present: there are no deciduous thickets, scrub-shrub, or disturbed/early-successional habitats associated with wetlands in the project area. Clear Creek and Chevelon Canyon (northern and southeastern boundaries of the project area, respectively) may provide appropriate habitat associations. eBird (2018a) indicates nearest species records 8 miles northwest and 13 miles southwest of the project area.	Migration
Bivalve					
California floater (<i>Anodonta californiensis</i>)	--	SGCN (1A)	Shallow areas of unpolluted lakes, reservoirs, and perennial streams with relatively stable water levels of low velocity flow regime from 4,000 to 8,700 feet. In Arizona, found in east-central portion of the state.	Unlikely to be present: the project area does not contain appropriate habitats. Clear Creek located on the project area boundary may provide appropriate habitat conditions; Clear Creek is characterized as perennial along the northeastern boundary of the project area. AGFD (2018a) indicates the species has been documented within 10 miles of the project area. AGFD (2018d) indicates nearest species records approximately 4 miles south and 8 miles southwest of the project area.	Year-round
Fishes					
Desert sucker (<i>Catostomus clarkii</i>)	--	SGCN (1B)	Rapids and flowing pools of streams and rivers primarily over gravel-rubble with sandy silt below 8,800 feet. In Arizona, range includes the Gila River basin and Bill Williams tributaries.	Unlikely to be present: the project area is outside (north) of the species' range and does not contain appropriate habitats. AGFD (2018d) indicates nearest species occurrence approximately 11 miles southwest of the project area.	Year-round
Little Colorado sucker (<i>Catostomus</i> sp. 3)	--	SGCN (1A)	Pools and riffles of creeks, small rivers, and impoundments from 670 to 7,400 feet. Endemic to the upper portion of the Little Colorado River and its north flowing tributaries in Coconino, Navajo, and Apache Counties.	Unlikely to be present: the project area does not contain appropriate habitats. Chevelon Canyon and Clear Creek, located on the project boundaries, may provide appropriate habitats. AGFD (2018a) indicates the species has been documented within 10 miles of the project area. AGFD (2018d) indicates nearest species' occurrences in Clear Creek and Chevelon Canyon proximal to the project area.	Year-round
Roundtail chub (<i>Gila robusta</i>)	--	SGCN (1A)	Pools adjacent to swifter riffles and runs of cool to warm mid-elevational streams and rivers from 1,200 to 7,200 feet. In Arizona, occurs in two tributaries of the Little Colorado River (Chevelon and East Clear Creeks), several tributaries of the Bill Williams River basin, the Salt River and four of its tributaries, Aravaipa Creek, and Eagle Creek.	Unlikely to be present: the project area does not contain appropriate habitats. Chevelon Canyon and Clear Creek, located on the project boundaries, may provide appropriate habitats. AGFD (2018a) indicates the species has been documented within 10 miles of the project area. AGFD (2018d) indicates nearest species' occurrences in Chevelon Canyon proximal to the project area.	Year-round
Sonora sucker (<i>Catostomus insignis</i>)	--	SGCN (1B)	Gravelly or rocky pools in a variety of habitats from warm water rivers to trout streams between 1,000 and 8,700 feet. In Arizona, range includes Gila and Bill Williams River drainages.	Unlikely to be present: the project area is outside (east and west) of the species' range and does not contain appropriate habitats. AGFD (2018d) indicates nearest species occurrence approximately 24 miles southwest of the project area.	Year-round
Speckled dace (<i>Rhinichthys osculus</i>)	--	SGCN (1B)	Rocky riffles, runs, and pools or headwaters, creeks, and small to medium rivers; rarely in lakes. Typically at elevations between 6,500 and 9,800 feet. In Arizona, range includes Colorado, Bill Williams, and Gila River drainages.	Unlikely to be present: the project area does not contain appropriate habitats. Chevelon Canyon and Clear Creek, located on the project boundaries, may provide appropriate habitats. AGFD (2018a) indicates the species has been documented within 10 miles of the project area. AGFD (2018d) indicates nearest species occurrences approximately 3 miles south and 8 miles southwest of the project area.	Year-round
Flowering Plants					
None [‡]					
Mammals					
American beaver (<i>Castor canadensis</i>)	--	SGCN (1B)	Permanent water sources. Prefer low gradient streams, ponds, and small-bottomed lakes with damnable outlets. Found throughout Arizona except south central portion of the state.	Unlikely to be present: the project area does not contain permanent waters. Clear Creek, located on the project boundary, may contain appropriate habitats where it is characterized as perennial along the northeastern portion of the project area boundary. Species records are not known in the vicinity of the project area (AGFD 2018d).	Year-round
Arizona gray squirrel (<i>Sciurus arizonensis</i>)	--	SGCN (1B)	Dense, mixed broad-leaf forest canyon bottoms and drainage ways within large stature conifer or evergreen forests from 3,500 to 8,500 feet. Favors riparian habitats of alder, ash, cottonwood, sycamore, and walnut. In Arizona, subspecies range includes the Mogollon Rim, Bradshaw Mountains, White Mountains, Mazatzal Mountains, and Sierra Ancha Mountains.	Unlikely to be present: the project area is within the northern extent of the species' range but does not contain appropriate habitat associations. May use Clear Creek and Chevelon Canyons. Species records are not known in the vicinity of the project area (AGFD 2018d).	Year-round
Arizona myotis (<i>Myotis occultus</i>)	--	SGCN (1B)	Day roosts and maternity colonies in tree cavities and crevices; maternity colonies also in buildings and bridges; winter roost records from mines. Riparian areas and in ponderosa pine and oak-pine woodland near water below 8,600 feet. Also found along permanent water. In Arizona range includes central band from east to west and north-central portions of the state.	May be present: the project area is within the species' geographic range. AGFD (2018a) indicates the species has been documented within 10 miles of the project area. AGFD (2018d) indicates nearest species records just south and southeast of the project area.	Year-round, may migrate locally
Brazilian free-tailed bat (<i>Tadarida brasiliensis</i>)	--	SGCN (1B)	Wide variety of habitats from desert communities through pinyon-juniper woodlands and pine-oak forests at elevations up to approximately 9,000 feet. Maternity colonies and roosts found in limestone caves, abandoned mines, bridges, buildings, and hollow trees. Range throughout Arizona.	May be present: the project area is within the species' geographic range. AGFD (2018d) indicates nearest species records approximately 20 miles east and southeast of the project area.	Fall, Spring, Summer

Common Name (Scientific Name)	Status*		Range/Habitat Requirements	Potential for Occurrence in Project Area	Season/Life History Information Relevant to Project Area
	Federal	State			
Gray-collared chipmunk (<i>Neotamias cinereicollis</i>)	--	SGCN (1B)	High mountain clearings and forest edges; pine, spruce, and fir forests. May use oak-juniper habitats in some areas. In Arizona, range includes central and east-central portions of the state.	Unlikely to be present: the project area is outside (north) of the species' geographic range. AGFD (2018d) indicates nearest species occurrences approximately 30 miles southwest and northwest of the project area.	Year-round; active from March to November and during warmer periods in winter
Greater bonneted bat (<i>Eumops perotis</i>)	--	SGCN (1B)	Roosts in vertical cliffs and buildings. Associated with variety of habitats including chaparral, oak woodlands, mixed xeric shrubland and riparian woodlands, ponderosa pine woodlands, floodplains, desert washes, grasslands, agricultural areas, and water bodies below 8,500 feet. Limited by available drinking water; use water features >100 feet long. In Arizona, range includes central, northwestern, western, and southern portions of the state.	May be present: the project area is on the extreme eastern edge of the species' geographic range. Species records are not known in the vicinity of the project area (AGFD 2018d).	Year-round; may vacate high elevation areas in winter
Gunnison's prairie dog (<i>Cynomys gunnisoni</i>)	--	SGCN (1B)	Gently sloping grasslands and semi-desert and montane shrublands between 4,600 and 12,000 feet. In Arizona, range includes central and northeastern portions of the state.	Known to be present: project area is within the species' geographic range. The species' burrows have been documented on-site during pre-construction avian use counts conducted during the species' hibernation period.	Year-round; hibernates from October to mid-February/late-April
Kit fox (<i>Vulpes macrotis</i>)	--	SGCN (1B)	Open desert, shrubby, or shrub-grass habitat. In Arizona occurs in much of state except for a narrow band extending from east-central through central and north-central portions of the state.	May be present: the project area is within the species' geographic range. AGFD (2018d) indicates there are no known records of the species in the project area vicinity.	Year-round; pups den from February to April
Long-tailed vole (<i>Microtus longicaudus</i>)	--	SGCN (1B)	Various habitats ranging from dense coniferous forests to rocky alpine tundra, sagebrush semi-desert, moist meadows, marshes, forest edge, and recently cut or burned forests. In Arizona, fragmented range in east-central, north-central, southeastern, and northeastern portions of the state.	Unlikely to be present: the project area is outside (east and northwest) of the species range. AGFD (2018d) indicates there are no known records of the species in the project area vicinity.	Year-round
Mexican vole (<i>Microtus mexicanus</i>)	--	SGCN (1B)	Meadows of grasses, sedges, and forbs within ponderosa forests on steep mountain slopes from 3,100 to 8,400 feet. May also be associated with drier sites where groundcover is suitable and in pinyon/juniper and pine-oak associations. In Arizona, fragmented range from east-central, central, northwestern, and northeastern portions of the state.	May be present: the project area is within the species' geographic range. Habitat associations may be marginally suitable (dry grassland, shrub-steppe, juniper associations). AGFD (2018d) indicates nearest occurrences approximately 20 miles west-southwest of the project area.	Year-round
Pale lump-nosed bat (Townsend's pale big-eared bat; <i>Corynorhinus townsendii pallescens</i>)	--	SGCN (1B)	Day roosts and maternity and hibernation colonies in caves, mines, or buildings. Night roosts may include caves, buildings, and tree cavities. Associated with mesic forested habitats but occupies a broad range of habitats including arid scrub, pine forest, pinyon-juniper, and wooded canyons between 500 and 8,400 feet. Range throughout Arizona.	May be present: the project area is within the species' geographic range. AGFD (2018d) indicates nearest species records approximately 50 miles south and southwest of the project area.	Year-round, may migrate locally
Pronghorn, American pronghorn (<i>Antilocapra americana americana</i>)	--	SGCN (1B)	Grasslands, sagebrush plains, deserts, and foothills. In Arizona, scattered populations throughout the state. <i>A. americana americana</i> range includes narrow band from east central through north-central, and northwestern portions of the state. Small, fragmented range in southeastern portion of the state.	Known to be present: project area is within the species' geographic range and contains appropriate habitat associations. The species has been documented on-site during pre-construction avian use counts.	Year-round, may move seasonally
Spotted bat (<i>Euderma maculatum</i>)	--	SGCN (1B)	Roosts in crevices and cracks of cliff faces; sometimes roosts in caves or in buildings near cliffs. Variety of habitats including low to high deserts, riparian areas, ponderosa, and spruce-fir forests below 10,600 feet. Range throughout Arizona.	May be present: the project area is within the species' geographic range. AGFD (2018d) indicates there are no known records of the species in the project area vicinity.	Year-round; may migrate locally by elevation
Springerville pocket mouse (<i>Perognathus flavus goodpasteri</i>)		SGCN (1B)	Plains-like short grasslands interspersed with volcanic rock or other sparsely vegetated grasslands at elevations from 5,200 to 7,000 feet. In Arizona, found in grasslands of eastern end of Mogollon Plateau near Springerville, Snowflake, south of Holbrook, and on the south side of plateau along Nash Creek.	Unlikely to be present: the project area is outside (west) of the species geographic range. AGFD (2018d) indicates nearest occurrences approximately 45 miles northeast of the project area.	Year-round; nocturnal
Stephen's woodrat (<i>Neotoma stephensi</i>)		SGCN (1B)	Rocky areas in pinyon-juniper woodlands. In Arizona, found roughly in northern half of state.	May be present: the project area is within the species' geographic range and contains appropriate habitat associations. AGFD (2018d) indicates nearest species occurrences just south of the project area.	Year-round; nocturnal
Western red bat (<i>Lasiurus blossevillii</i>)	--	SGCN (1B)	Roosts in trees, particularly cottonwoods. Associated with broad-leaf deciduous riparian forests and woodlands from 1,900 to 7,200 feet. In Arizona, range includes northwestern through southeastern portions of the state.	May be present: the project area is on the extreme eastern edge of the species' range. AGFD (2018d) indicates nearest species records approximately 45 miles south and southwest of the project area.	Migratory and winter status unknown in Arizona; may migrate by elevation
White-tailed deer (<i>Odocoileus virginianus</i>)	--	SGCN (1B)	Rough, wooded terrain with steep canyons. Typically mixed-oak woodlands; also found from ponderosa pine/mixed-conifer woodlands to semi-desert grasslands from 4,000 to 10,000 feet. In Arizona, range scattered from central to southeastern portions of the state.	May be present: the project area is on the northeastern edge of the species' geographic range. AGFD (2018d) indicates there are no known records of the species in the project area vicinity.	Year-round, may migrate seasonally
Yuma myotis (<i>Myotis yumanensis</i>)	--	SGCN (1B)	Roosts in caves, mines, cliff crevices, buildings, bridges, and similar structures. Nursery colonies in buildings, caves, mines, and bridges. Associated with wide variety of upland and lowland habitats (within wide range of elevations: sea level to 11,000 feet), including riparian, desertscrub, moist woodlands, and forests where they prefer cliffs and rocky walls near water. In Arizona, ranges throughout except south-central portion of the state.	May be present: the project area is within the species' geographic range. AGFD (2018d) indicates nearest species occurrences approximately 20 miles east and west of the project area.	Year-round; may migrate to warmer regions in winter

Reptiles

Common Name (Scientific Name)	Status*		Range/Habitat Requirements	Potential for Occurrence in Project Area	Season/Life History Information Relevant to Project Area
	Federal	State			
Arizona black rattlesnake (<i>Crotalus cerbeus</i>)	--	SGCN (1B)	Variety of biotic communities from approximately 4,000 to 9,000 feet. Often associated with rocky drainages with permanent or semi-permanent water and open, rocky slopes. Range in Arizona extends northwest to southeast through central portions of the state including along and below the Mogollon Rim in southern Coconino and Navajo counties.	Unlikely to be present: the project area is just outside (north) of the species' geographic range. AGFD (2018d) indicates there are no known records of the species in the project area vicinity.	Year-round; den in winter and late fall.
Pai striped whiptail (<i>Aspidoscelis pai</i>)	--	SGCN (1B)	Grasslands, chapparal, conifer woodlands, and ponderosa pine parklands from approximately 4,500 to 7,600 feet. Populations scattered across the Colorado Plateau of northern Arizona and in the Mazatzal Mountains of central Arizona.	Unlikely to be present: the project area is just outside (south) of the species' geographic range. AGFD (2018d) indicates nearest species record approximately 35 mile northwest of the project area.	Year-round; hibernates in winter and late fall.

Notes: Species provided in table include Eagle Act species, Tier 1B species listed in the project-specific AGFD (2018a) environmental online review tool report, and Birds of Conservation Concern for Bird Conservation Regions 16 and 34. Range or habitat requirement information and potential occurrence justification from Ammerman et al. (2012), AGFD (2018d), Bat Conservation International (2018), Brennan (2012), eBird (2018a), Finch et al. 2000, Heffelfinger (2005), NatureServe (2018), Reid (2006), Rodewald (2015), and Sibley (2000).

* Federal Status Definitions

BCC = Bird of Conservation Concern.

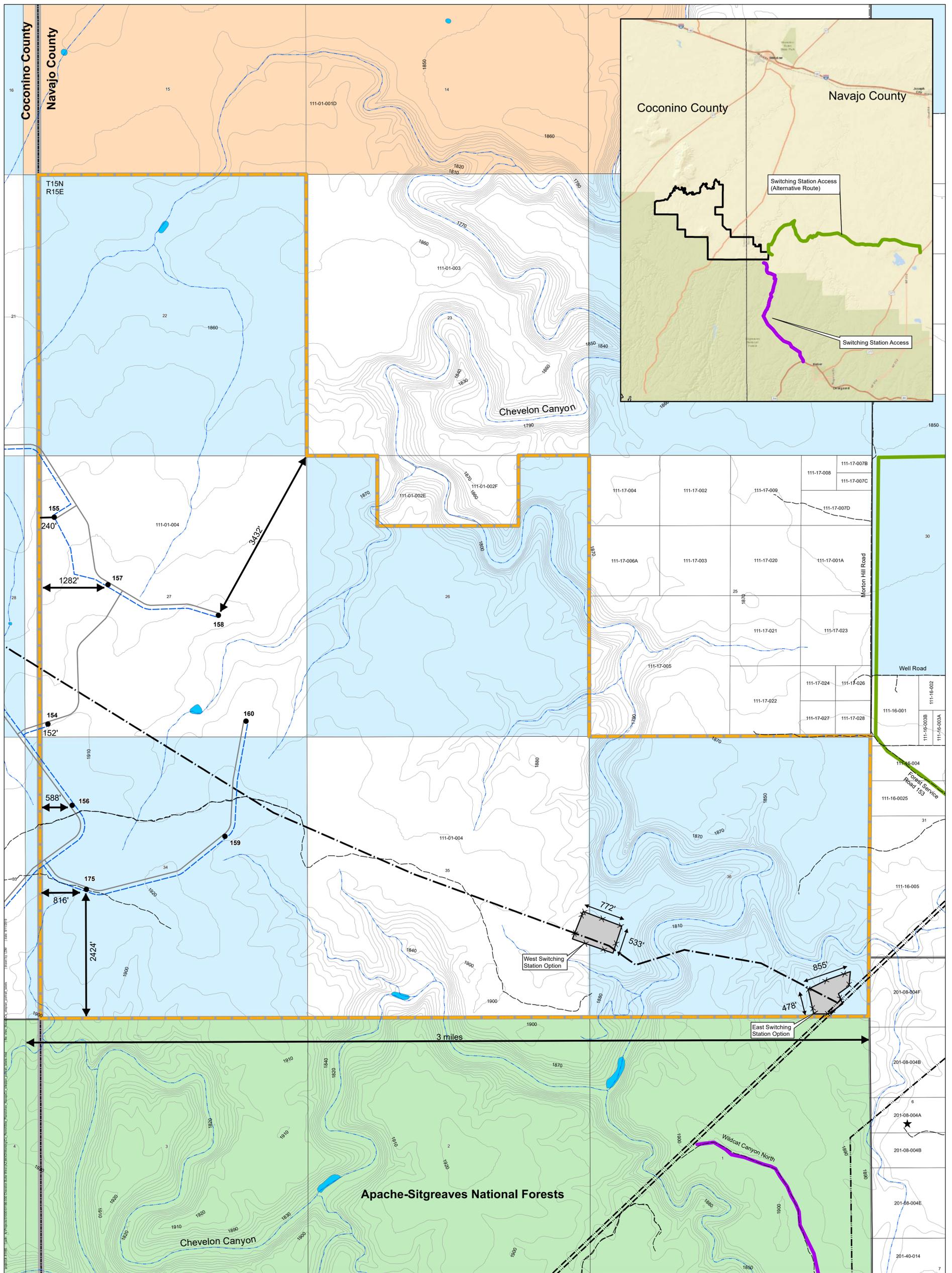
BCR = Bird Conservation Region.

State Status Definitions

SGCN = Species of Greatest Conservation Need; species identified in AGFD as having conservation priority. Tier 1A, 1B, and 1C species are those categorized by AGFD (2012) as "highest priority vulnerable" species, "vulnerable" but not fitting the Tier 1A criteria for highest priority, and species for which existing data were insufficient to score one or more vulnerability criteria, respectively.

† Plant species protected under the Arizona Native Plant Law are present within the project area; such species will be evaluated during site-specific surveys at a later date.

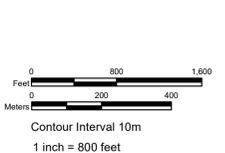
‡ Endangered subspecies evaluated in Table D.1. This entry is for the non-listed subspecies (USFWS 2008).



Chevelon Butte Wind Farm
Navajo County, Arizona

Site Plan

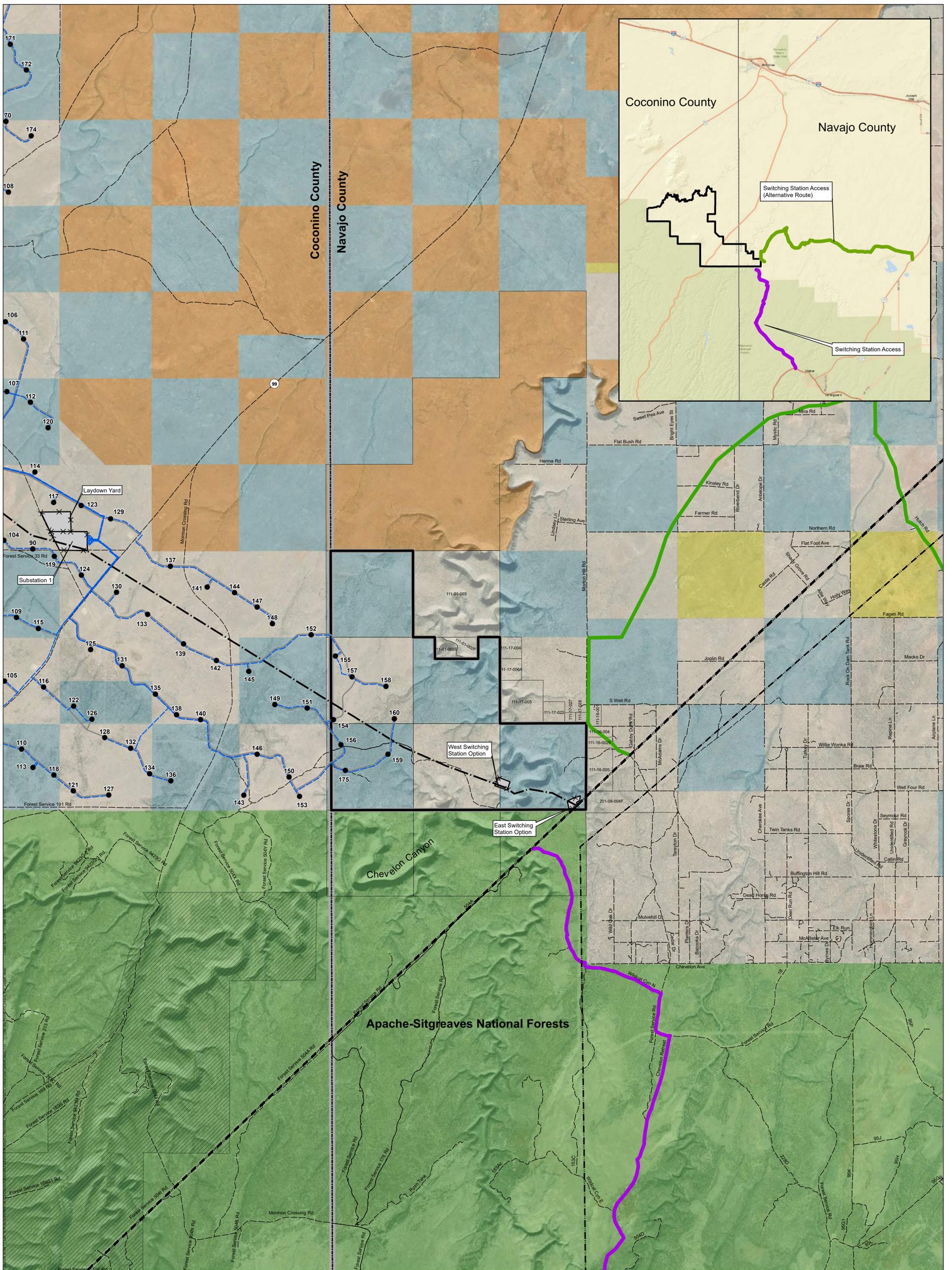
Signatures	



- ★ Nearest Residential Structure
- Turbine Site
- Collector Line
- Access Road (up to 36')
- Gen-Tie Line
- Existing Transmission Line
- Switching Station Access Road (See Inset)
- Switching Station Access Road Alternative Route (See Inset)
- National Hydrology Dataset Drainage
- National Wetlands Inventory
- Security Fence
- Permit Area

- Land Jurisdiction**
- Private
 - State Trust Land
 - Hopi Trust Land
 - U.S. Forest Service

Notes:
 1. Switching Station will have 8-foot security fencing topped with barbed wire.
 2. Typical line span length between poles will be approximately 1,000 feet. Pole structures will be sited to avoid recorded cultural resource sites.
 3. A minimum 500-foot Gen-Tie Line corridor is contemplated in the Chevelon Butte Wind Gen-Tie Project Arizona Corporation Commission proceedings.
 4. Final turbine layout to be submitted with Building Permit application.

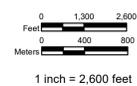


Chevelon Butte Wind Farm

Navajo County, Arizona

Context Plan

Signatures



- Turbine Site
- Collector Line
- Access Road (up to 36')
- Gen-Tie Line
- Existing Transmission Line
- Switching Station Access Road (See Inset)
- Switching Station Access Road Alternative Route (See Inset)
- Security Fence
- Permit Area
- Mexican Spotted Owl Critical Habitat

- Land Jurisdiction**
- Private
 - State Trust Land
 - Hopi Trust Land
 - U.S. Forest Service
 - Bureau of Land Management

Note:
1. Planned Wind Farm facilities in Coconino County are shown on this map for context, but are not the subject of this Special Use Permit application.