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Trico Bicknell to Green Valley 69-kV Line Rebuild

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U.S. Department of the Interior
Bureau of Land Management
Gila District
Tucson Field Office
3201 East Universal Way
Tucson, AZ 85756
Phone: (520) 258-7200
FAX: (520) 258-7238



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LIST OF ACRONYMS AND ABBREVIATIONS

APE	area of potential effects
ARPA	Archaeological Resources Protection Act of 1979
AUM, AUM's	Animal Unit Month
AZGS	Arizona Geological Survey
BLM	Bureau of Land Management
BMP, BMP's	best management practice
CFR	Code of Federal Regulations
CIAA	Cumulative Impact Analysis Area
CWA	Clean Water Act
EA	environmental assessment
EMF	electromagnetic field
FMI	Freeport-McMoRan Inc.
HUC	Hydrologic Unit Code
JBA	Juan Bautista de Anza National Historic Trail
KOP	key observation point
kV	kilovolt
m	meter(s)
NEPA	National Environmental Policy Act of 1969
NRCS	Natural Resources Conservation Service
POD	Plan of Development
PPC	Pima pineapple cactus
project	Bicknell to Green Valley 69-kilovolt (kV) Line Rebuild Project
Proposed Action/area of the Proposed Action	Bicknell to Green Valley 69-kilovolt (kV) Line Rebuild Project
RMP	Resource Management Plan
ROW	right-of-way
SF-299	Standard Form 299
TFO	Tucson Field Office
Trico	Trico Electric Cooperative, Inc.
UPRR	Union Pacific Railroad
USC	United States Code
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USNVC	U.S. National Vegetation Classification
VRM	Visual Resource Management

1 INTRODUCTION

1.1 Background

Trico Electric Cooperative, Inc. (Trico), has submitted an application and a Plan of Development (POD) to the Bureau of Land Management (BLM) Tucson Field Office (TFO) to acquire a right-of-way (ROW) to facilitate the proposed rebuild of the Bicknell to Green Valley 69 kilovolt (kV) power line, which would cross BLM administered land. The ROW would also authorize the existing and proposed road network that would provide access into and along the transmission line ROW and would allow Trico to continue to operate and maintain the power line, and its associated appurtenances. The project is approximately 6.6 miles long and is in unincorporated Pima County, Arizona, and approximately 2.4 miles southwest of the town of Green Valley (Figure 1.1). The project area would not only intersect land administered by the BLM, but also a Union Pacific Railroad (UPRR) ROW and private lands owned by Freeport-McMoRan Inc. (FMI). For the purposes of this Environmental Assessment (EA), the project area activities that do not occur on BLM-administered lands are considered a connected action, as described in 40 Code of Federal Regulations [CFR] 1508.25 (a)(1), and are included in the EA analysis.

The legal land description for the ROW on BLM-administered lands is as follows:

Gila and Salt River Meridian, Pima County, Arizona
T.18 S., R.12 E.,
 sec. 1, N $\frac{1}{2}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$ SW $\frac{1}{4}$;
 sec. 12, N $\frac{1}{2}$ NE $\frac{1}{4}$, SE $\frac{1}{4}$ NE $\frac{1}{4}$.

The legal land description for the ROW on privately owned land is as follows:

Gila and Salt River Meridian, Pima County, Arizona
T. 17 S., R. 12 E.,
 sec. 25, lots 1 through 3, SE $\frac{1}{4}$ NE $\frac{1}{4}$, SE $\frac{1}{4}$ SW $\frac{1}{4}$;
 sec. 35, SE $\frac{1}{4}$ NE $\frac{1}{4}$, E $\frac{1}{2}$ SE $\frac{1}{4}$;
 sec. 36, N $\frac{1}{2}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$ NW $\frac{1}{4}$.
T. 17 S., R. 13 E.,
 sec. 30, lot 2.
T.18 S., R. 12 E.,
 sec. 1, SW $\frac{1}{4}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$ SE $\frac{1}{4}$;
 sec. 2, lot 1, SE $\frac{1}{4}$ NE $\frac{1}{4}$;
 sec. 12, NE $\frac{1}{4}$ NE $\frac{1}{4}$.
T.18 S., R.13 E.,
 sec. 7, lots 2 through 4, SE $\frac{1}{4}$ SW $\frac{1}{4}$, S $\frac{1}{2}$ SE $\frac{1}{4}$;
 sec. 8, S $\frac{1}{2}$ SW $\frac{1}{4}$, S $\frac{1}{2}$ SE $\frac{1}{4}$.

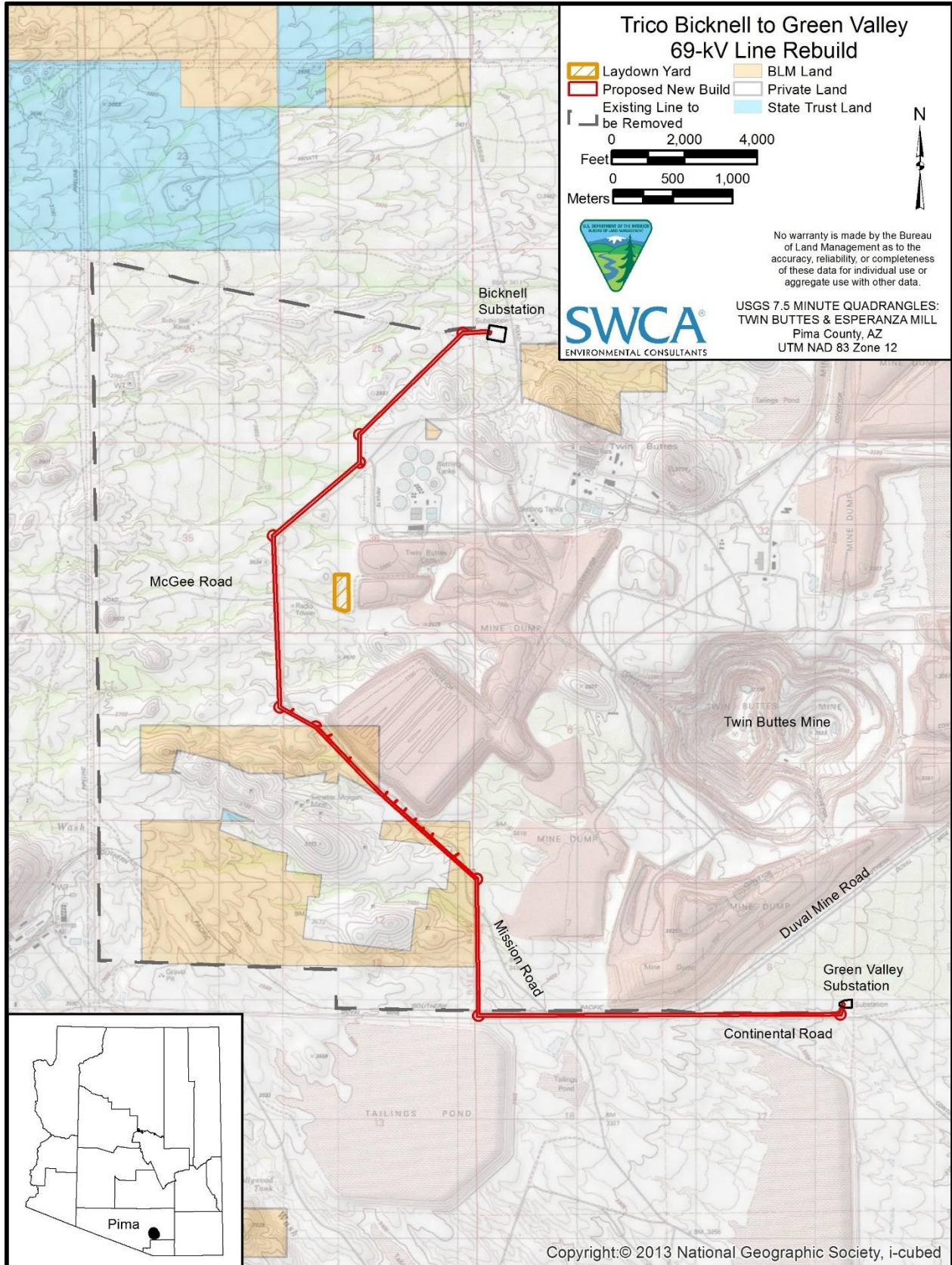


Figure 1.1. Project location.

1.2 Purpose and Need for Action

In September 2018, the BLM received a ROW application (Case file #: AZA-037580) for the Trico power line relocation project. The Federal Land Policy and Management Act of 1976 (43 United States Code [USC] 1761–1771) and the BLM’s ROW regulations (43 CFR 2800) require the BLM to manage public lands for multiple uses in a manner that considers the long-term needs of future generations. The Secretary of the Interior is authorized to grant, issue, or renew ROWs over, upon, under, or through public lands for the distribution of electricity.

The BLM’s purpose is to provide Trico reasonable access to install, operate and maintain a power line and associated appurtenances, and install, use and maintain dirt access routes that cross BLM-managed lands.

The need for the action is established under BLM’s responsibility under the Federal Land Policy and Management Act to respond to a request for a site type ROW on BLM land for a power line facility and use and maintenance of short segments of existing dirt roads that were previously constructed across public land.

1.3 Decision to Be Made

The BLM will decide whether to grant, grant with modifications, or deny the ROW application. In making its decision, the BLM must consider and determine the environmental impacts on all lands affected as a result of granting a ROW on BLM-administered public lands. As part of its decision-making process, and according to 43 CFR 1610.0-5(b), the BLM must consider consistency with its Phoenix Resource Management Plan (RMP), which provides for specific lands and realty management actions for ROW grants (see Section 1.4). Modifications to the project could include granting only a portion of the proposed project, modifying the proposed use, or changing the route or location of the proposed facilities if the BLM determines such terms, conditions, and stipulations are in the public interest (43 CFR 2805.10(a)(1)).

1.4 Conformance with Applicable Land Use Plan(s)

Although not specifically provided for, the project is in conformance with the Phoenix RMP (BLM 1988) because the proposed project is clearly consistent with the following land use plan management decisions:

Chapter 2, page 14: “Land use authorizations (rights-of-way, leases, permits, easements) would continue to be issued on a case-by-case basis and in accordance with recommendations in the Proposed RMP/FEIS. Rights-of-way would be issued to promote the maximum utilization of existing rights-of-way routes, including joint use whenever possible.” (BLM 1988)

Chapter 2, page 20: “[...] However, with the exception of those areas identified in this RMP as closed to right-of-way development, the RMP area is generally open to right-of-way development on a case-by-case basis.” (BLM 1988)

The project area is not within an area closed to ROW development and not within an Area of Critical Environmental Concern.

1.5 Relationship to Statutes, Regulations, or Other Plans

Where the project area would cross federal, state, or private lands, it would be subject to applicable land-use planning regulations, zoning ordinances, or other requirements. The project would comply with the following:

- National Historic Preservation Act of 1966, as amended (16 USC 470f)
- Archaeological Resources Protection Act of 1979, as amended (16 USC 470aa–470mm) (ARPA)

- Consultation and Coordination with Indian Tribal Governments (Executive Order 13175)
- Clean Water Act of 1977, as amended (33 USC 1251 *et seq.*) (CWA)
- Clean Air Act of 1963, as amended (42 USC 7401 *et seq.*)
- Migratory Bird Treaty Act of 1918 (16 USC 703 *et seq.*)
- Endangered Species Act (ESA)
- Arizona Native Plant Law (A.R.S. R3-3-1101 *et seq.*)
- Pima County Native Plant Preservation Ordinance (Ord. 1998-39, Section 1)
- City of Tucson Native Plant Preservation Ordinance (Tucson Code Chapter 23, Article 3, Division 8, Section 3.8.1 *et seq.*)

The project would also be required to comply with other federal, state, and local permit approvals as specified in the BLM ROW grant.

1.6 Scoping and Public Involvement

On February 14, 2019, the BLM interdisciplinary team began its internal scoping process by attending a kickoff meeting, where the key project components and environmental baseline data for the project were introduced and discussed. This process identified a preliminary list of issues that would require detailed analysis in the EA. This internal scoping process included extensive scoping and issues framing at a National Environmental Policy Act (NEPA) training at the BLM Safford Field Office.

Public scoping consisted of BLM identifying eight stakeholders and notifying them via informational postcards. Postcard recipients were directed to BLM's ePlanning website (BLM 2019a), where Chapters 1 and 2 of the EA were made available by the BLM. The postcard notice provided a return address to submit comments and the website provided contact information (including an email address and phone number) to submit comments.

The scoping comment period included a 15-day window from June 21, 2019, until July 6, 2019. During this comment period, no scoping comments were received. Because no comments were received during the 15-day scoping comment period, BLM determined that no additional comment periods were required.

Since the public scoping period ended and no comments were received, the BLM interdisciplinary team concluded its internal scoping process and determined which issues (resources) required detailed analysis as a part of this EA. Issues identified by the BLM are described in detail in Chapter 3.

1.7 Issues

1.7.1 *Issues Considered but Eliminated from Detailed Analysis*

Resources (issues) considered by BLM but eliminated from a detailed analysis in this EA are listed in Table 1.1, along with the rationale for elimination.

Table 1.1. Resource Issues Dismissed from Detailed Analysis

Resource Issue	Rationale
Air Quality	During construction, the project may generate pollutants regulated under the Clean Air Act and has the potential to impact air quality in Pima County. However, a fugitive dust activity permit with required best management practices (BMP's), the use of water-trucks to reduce dust generation, and maintenance of equipment and vehicles for emissions standards will make impacts to air quality negligible.
Cultural Resources	A cultural resources inventory was conducted of the proposed ROW in order to assess the project's potential to affect cultural properties that are listed in or eligible for listing in the National Register of Historic Places (NRHP). The inventory identified three historic-era archaeological mining sites and a historic road segment. Two of the archaeological sites are considered eligible for the NRHP; however, the portion of the sites affected by the granting of the proposed ROW does not contribute to the sites' NRHP eligibility. The third archaeological site and the historic road are considered ineligible for the NRHP. Therefore, the BLM's granting of the proposed ROW, with all standard discovery stipulations applied, will have no effect on cultural properties listed in or eligible for listing in the NRHP.
Environmental Justice	No low-income or minority populations are present near the project area at levels greater than the state or national averages; therefore, no disproportionate impacts are anticipated to occur (U.S. Environmental Protection Agency 2018).
Geology/Mineral Resources	Geologic units present include Jurassic Sedimentary and Volcanic Rocks, which consist of sandstone and conglomerate derived from volcanic rocks; Paleozoic Sedimentary Rocks, which consist of undivided Paleozoic limestone, dolostone, quartzite, shale, and related sedimentary rocks; and Middle Proterozoic Granitic Rocks, which consist of porphyritic biotite granite with microcline phenocrysts (Arizona Geological Survey [AZGS] 2019). Because the depth of excavation will not exceed 20 feet for the pole structures, these geologic units will not be affected. No mines are within the project area, and the two nearby mines will not be impacted by the project (U.S. Geological Survey [USGS] 2019). The proposed route is encumbered by active mining claims both on BLM-administered lands and on split estate lands where the surface is privately held, and the mineral estate is federally owned. Any ROW grant would be subject to valid, existing rights of mining claimants where the ROW crosses active mining claims. Additionally, the project will provide for continued operations after decommissioning of the old line.
Human Health and Safety	During construction, the project may present hazards that have the potential to impact human health and safety for the general public. However, these hazards would be mitigated through Trico standard safety practices (such as the use of guard structures). Those practices, combined with the remoteness of the project area, will make any human health and safety impacts negligible. During operations, the project would generate electromagnetic fields (EMFs), which can be of public concern. EMFs are a combination of electric and magnetic fields that occur both naturally and as a result of human activities. Research has shown that EMFs are not known to or are not likely to cause any adverse health effects during the long-term, low exposure that would be experienced as a result of the Proposed Action (National Institute of Environmental Health Sciences 2002). Therefore, no impacts to human health and safety are anticipated to occur during project operations.
Wildlife and Special Status Species (migratory birds)	The project may produce short-term construction impacts (i.e., noise, dust, and vegetation clearing) that may impact wildlife. BMP's (including restoration activities) would make any long-term impacts negligible. Impacts on active migratory bird nests, eggs, or young with the likelihood to be present in the construction footprint would be minimized because Trico anticipates constructing the proposed project starting at the end of the birds breeding season (mid-September). In addition, there are no breeding habitats, designated or proposed critical habitats within the project area for special status species such as yellow-billed cuckoo or southwestern willow flycatcher. Trico would conduct pre-construction nest surveys using a qualified biologist to identify any migratory birds, active nests, eggs, or young that would be present. Any active nests that are detected within the project area would be flagged, buffered, and avoided until the nest is no longer active. BMP's (including restoration activities) would make any long-term impacts negligible.
Noise	The project may produce standard construction noise; however, surrounding land uses (ongoing mining activities, general mine traffic, and the nearby railroad) produce significant noise within the vicinity. Additionally, the nearest sensitive noise receptor is well over 1 mile away. No impacts are anticipated to occur.

Resource Issue	Rationale
Paleontological Resources	Geologic units include Jurassic sedimentary and volcanic rocks, which consist of sandstone and conglomerate derived from volcanic rocks; Paleozoic Sedimentary Rocks, which consist of undivided Paleozoic limestone, dolostone, quartzite, shale, and related sedimentary rocks; and Middle Proterozoic Granitic Rocks, which consist of porphyritic biotite granite with microcline phenocrysts (AZGS 2019). These geologic units are not known to contain paleontological resources; therefore, no impacts are anticipated.
Recreation (includes dispersed recreation and hunting)	Approximately 6.5 acres of BLM-administered lands would be unavailable for recreational related activities (including hunting) during the construction of the project. The project would not result in changes to the recreational setting due to proximity to the existing, aging line, and Twin Buttes Mine; therefore, no impacts are anticipated to occur.
Socioeconomic Conditions	The small number of jobs created and the temporary status of those jobs do not warrant detailed analysis in this EA.
Transportation	Trico does not anticipate delays, detours, or closures of nearby roadways, or public access to these roadways as a result of the project. Therefore, no impacts to transportation are anticipated to occur.
Tribal	Consultation letters were mailed on August 1, 2019, to the appropriate representatives from the Gila River Indian Community, Ak-Chin Indian Community, Tohono O'odham Nation, and Salt River Pima-Maricopa Indian Community. The letters described the project and the results of the cultural resources survey and invited the tribal communities to comment on the proposed ROW application in accordance with the National Environmental Policy Act (NEPA), Section 106 of the National Historic Preservation Act, American Indian Religious Freedom Act, Executive Order 13175, and other legal authorities. No comments were received from these communities.
Vegetation (invasive plants and noxious weeds)	The project has the potential to introduce invasive, non-native species during construction of the power line and ROW, as well as during the long-term presence of the ROW. However, grant stipulation holds the proponent (Trico) accountable for removal and/or disposal of noxious weeds related to the Proposed Action.
Wastes (hazardous or solid)	There are no hazardous or solid wastes present, and the project is not anticipated to generate these types of wastes; therefore, no impacts are anticipated to occur.
Water Quality and quantity (drinking/ground/surface)	There are no areas of perennial or intermittent surface-water in the project area and few ephemeral washes. Roadways crossing these ephemeral washes would follow standard operating procedures and engineering BMP's for low-standard roads along with the CWA 404 Nationwide Permit required conditions. Additionally, excavation depths for the new power poles are not anticipated to impact groundwater. Mitigation measures and BMP's would be implemented to reduce impacts to surface water resources. The project activities fall under the non-notification conditions for Nationwide Permit 12. Therefore, no future consultation with the U.S. Army Corps of Engineers is required.

1.7.2 Issues Identified

The BLM identified preliminary resources/issues for the project. The BLM interdisciplinary team, in conjunction with public scoping, which concluded on July 6, 2019, determined the final list of issues to be carried forward for detailed analysis (Table 1.2).

Table 1.2. Resource Issues Identified for Detailed Analysis of the Project

Resource Issues	Issue Statement
Grazing	How would construction, maintenance, and operation of the Proposed Action impact the grazing rotation and forage available for grazing on the allotment?
Soils	How would construction, maintenance, and operation of the Proposed Action impact the soil resources at the site directly during construction and indirectly from the long-term use of the ROW?
Wildlife and Special Status Species (Pima pineapple cactus)	How would construction, maintenance, and operation of the Proposed Action affect the Pima pineapple cactus?

Resource Issues	Issue Statement
Vegetation (native)	How would construction, maintenance, and operation of the Proposed Action impact native vegetation found in the area of the Proposed Action?
Visual Resources	How would the presence of the Proposed Action impact the viewshed of Mission Road?
Juan Bautista de Anza National Historic Trail	How would the Proposed Action impact the Juan Bautista de Anza National Historic Trail's Mission Road Motor Route?

2 PROPOSED ACTION AND ALTERNATIVE(S)

2.1 Proposed Action

The BLM Tucson Field Office is proposing to allow Trico to construct, operate, and maintain a 69-kV and 25-kV power line and associated access routes through the issuance of a ROW grant (see Figure 1.1, hereafter referred to as “Proposed Action”).

The long-term facilities of the Proposed Action would consist of a new ROW of approximately 6.6 acres, 0.9 mile long by 60 feet wide (30 feet on each side of the centerline), a long-term access road following the new line within the 60-foot ROW, and five access roads that would be 30 feet wide and disturb a total of 0.4 acre (Figure 2.1). For the purposes of this document, long term is the duration of the ROW grant (30 years). Trico is also requesting approximately 2.2 acres of temporary construction ROW that would be 10 feet on each side of the 60-foot-wide long-term ROW. This temporary ROW is required for Trico to safely construct the project but would minimize long-term impacts on BLM-administered lands. For the purposes of this document, temporary is a temporal span of the duration of anticipated construction (including reclamation) of the Proposed Action (approximately 5 months).

2.1.1 Connected Action

For the connected action, the long-term facilities of the project would consist of an easement on private lands of approximately 51.6 acres, 5.7 miles long by 75 feet wide (37.5 feet on each side of the centerline), an access road following the new line within the 75-foot ROW, and six access roads that would be 30 feet wide and disturb 0.5 acre. Public roads (including McGee Ranch Road, Mission Road, and Duval Mine Road) would be spanned by the project. Temporary facilities on private lands would include a laydown yard and nine tensioning and pulling sites (Figure 2.2).

Details on the long-term and temporary facilities, as well as the construction of facilities, stabilization and rehabilitation, and operation and maintenance activities associated with the Proposed Action and connected action are provided below.

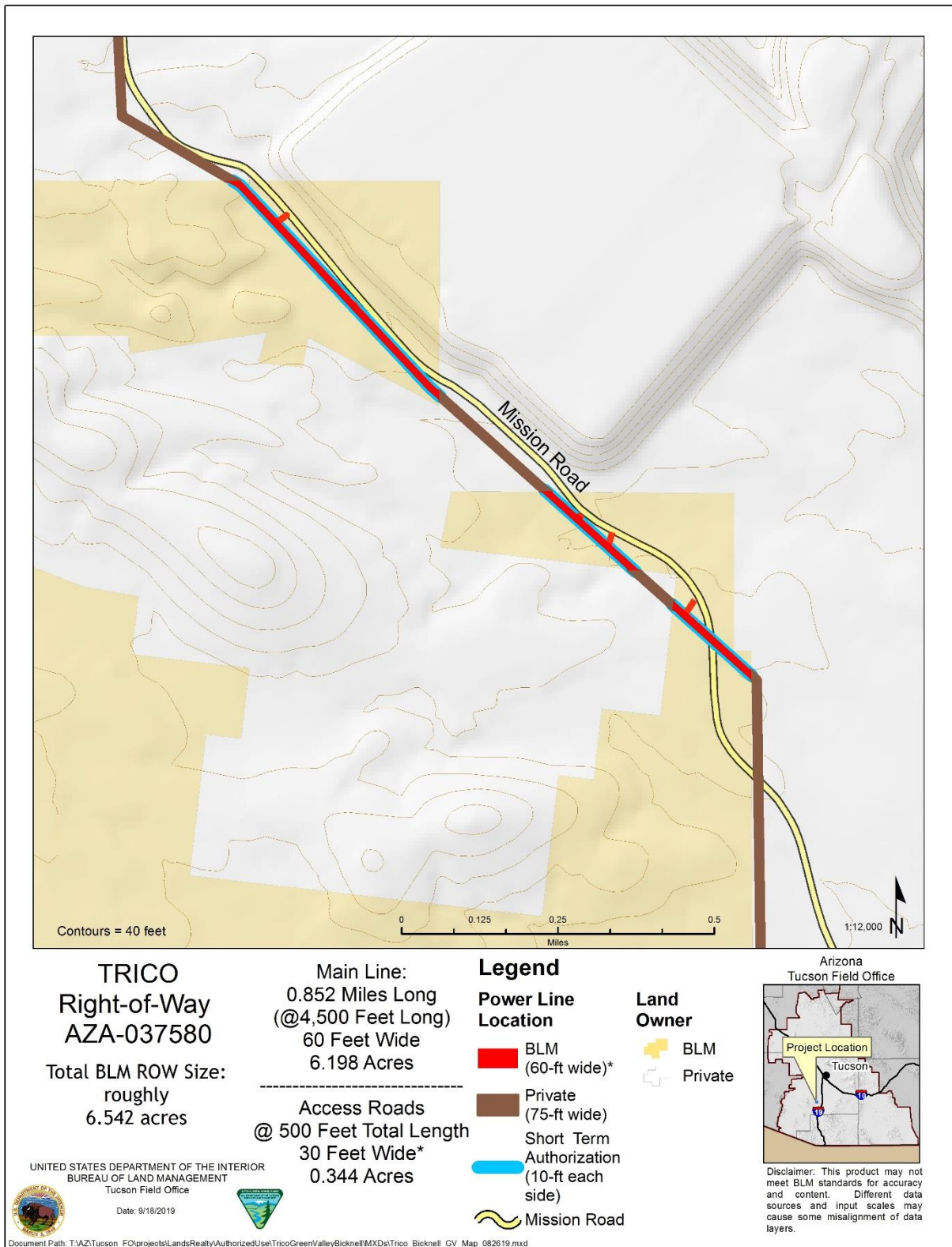


Figure 2.1. Proposed Action facilities on BLM-administered lands.

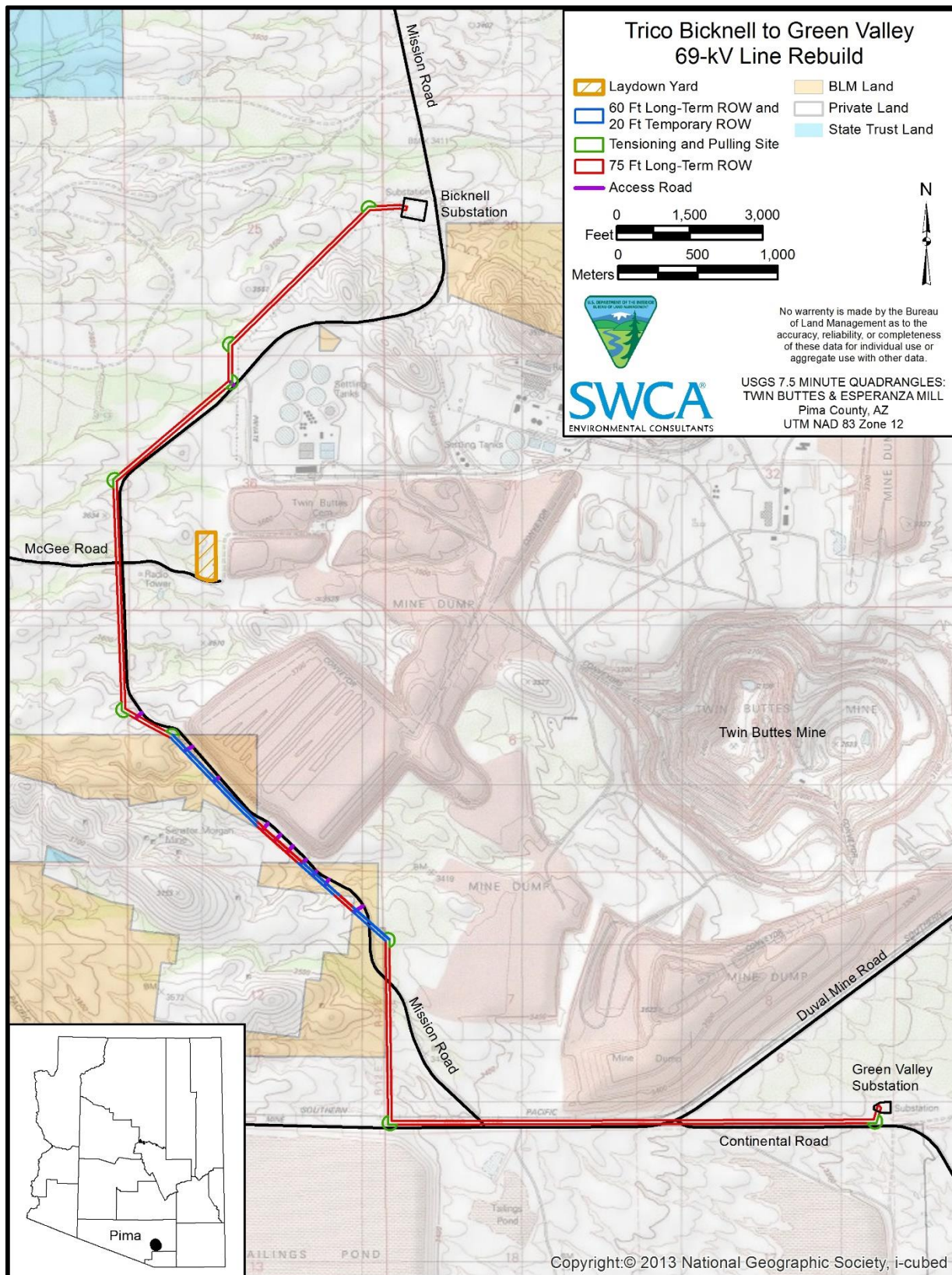


Figure 2.2. Proposed Action and connected action facilities on BLM-administered lands and private lands, respectively.

2.1.2 Temporary and Long-Term Facilities

Temporary facilities include a laydown yard and additional work areas. Once constructed, the project's long-term facilities would include an overhead line, structures, framing poles, and access roads. Details of the temporary and long-term facilities are provided in Table 2.1 and Table 2.2, respectively. For the purposes of this document, temporary facilities are those that would last the duration of the anticipated construction (including reclamation) of the Proposed Action (approximately 5 months). The long-term facilities are those that would last the duration of the anticipated ROW grant for the Proposed Action (30 years).

Table 2.1. Typical Design Characteristics – Temporary Facilities

Facility or Infrastructure Feature	Details
Temporary ROW Width	20 additional feet on BLM lands, with 10 feet on each side of the long-term ROW, (Issued as a Short Term Authorization, which expires in 3 years).
Additional Work Areas	
Tensioning Sites and Pulling Sites	Approximately 150-foot radius at each site (9 sites = approximately 6.8 total acres) on private lands
Access Roads	A new, unpaved access road within the permanent 60-foot ROW would be constructed. Graveling of the unpaved access roads is not anticipated, although locations of drainage crossings would likely use gravel and/or rock material. To minimize impacts to surface water features (including avoiding the use of culverts), 11 long-term access roads (five access roads on BLM-administered lands and six access roads on private lands) would be required (see Figure 2.1). See Section 2.1.2 for more detailed information.
Laydown Yard	Approximately 8.5 acres on private lands

Table 2.2. Typical Design Characteristics – Long-Term Facilities

Facility or Infrastructure Feature	Details
New Line	
Line/ROW length	Approximately 6.6 miles (0.85 miles on BLM lands)
ROW width	60 feet on BLM lands, 75 feet on remaining lands
Voltage	69 kV and 25 kV
Circuit configuration	Two single circuits
Conductor size	Steel-reinforced aluminum conductor cable (0.814 inch)
Ground clearance of conductor	22 feet minimum
Pole Structures	
Type of structure	Single-pole steel
Structure height	60–85 feet above grade
Span length	Approximately 350–400 feet between poles
Pole foundation depth	8.5–20 feet under ground
Number of structures per mile	13–15 using 85-foot poles (72.5 feet above ground)
Land disturbance	Approximately 16 square feet at each tangent pole (approximately 103 sites = approximately 0.04 acre) and 38.5 square feet at angle poles (approximately 7 sites = 0.004 acre)

Facility or Infrastructure Feature	Details
Access Road	<p>A new access road approximately 6.4 miles long would be constructed within the 60-foot ROW that follows the new line.</p> <p>To minimize impacts to surface water features (including avoiding the use of culverts) See Section 2.1.2 for more detailed information:</p> <p>11 long-term access roads total:</p> <p>5 access roads on BLM-administered lands (@ 500 feet total length, 30 foot wide and totaling 0.344 acres).</p> <p>6 access roads on private lands (@1,500 feet total length, 30-foot wide, and totaling 1.03 acres) (see Figure 2.1).</p>

2.1.3 Proposed Action Activities

This section summarizes the construction of facilities, stabilization and rehabilitation, and operation and maintenance activities associated with the Proposed Action. These activities are described in detail in Sections 5.0 – 7.0 of the POD, which can be viewed on the project website at <https://go.usa.gov/xy3z>.

Construction of Facilities

The Proposed Action would require vegetation clearing and grading (disturbance) within all the temporary and long-term facility areas. This clearing and grading would occur using conventional earth-moving equipment (excavators, bulldozers, front-end loaders, haul trucks, etc.) and would total approximately 9.1 acres on BLM-administered lands and 71.3 acres on private lands. The clearing would be conducted in accordance with the Arizona Native Plant Law. Once the clearing and grading have been completed, the construction activities would occur in the following order: laydown yard preparation and material receiving, access road construction, pole site preparation and foundation installation, and assembly and erection. These activities are briefly summarized below.

Laydown Yard Preparation and Material Receiving

Adjacent to Mission Road on private lands, a laydown yard would be needed to store materials and equipment used during construction activities. The temporary construction yard would be fenced with 7-foot chain-link with 1-foot barbed-wire panels, with one access point, which would be gated, and the gate closed and locked when not in use. This temporary laydown yard would not impede existing or future access to adjacent properties. Once the laydown yard area is prepared, all materials needed for construction activities would be received and placed in this area.

Access Road Construction

Existing paved access roads used to access the project ROW include Duval Mine Road and Mission Road, which require no modification or additional construction. New access roads and overland construction would also be used. A new, unpaved access road within the long-term ROW would be constructed. To minimize impacts to surface water features (including avoiding the use of culverts), 11 long-term access roads (5 access roads on BLM-administered lands and 6 on private lands) would be required and would be 30 feet wide. These access roads would be only as wide as necessary to accommodate construction vehicles, equipment, their intended uses, and for future maintenance activities. These access roads would be constructed to minimize disturbance and graveling unpaved access roads is not anticipated.

Overland construction methods would be used when existing access is unavailable and would be limited to the long-term ROW. If required by the underlying landowner, or if Trico finds it to be warranted, the access roads could be gated to prevent unauthorized access.

A standard low-water crossing would be installed at drainages and all wash crossings. The crossings may require grading to decrease the bank angle, but the wash would not be graded, filled, or dredged. Culvert installations would not be used for the project.

Pole Site Preparation and Foundation Installation

The project would use an overhead construction method; therefore, pole structure sites are required within the long-term ROW. The pole structures would be hauled into the site using a pole haul truck and two personnel. Once structures are brought to the site, excavations for the pole foundation are made using power equipment. The area of disturbance associated with each pole varies with each pole type but would not exceed 8.5 feet in diameter. Where the soil permits, a vehicle-mounted power auger or backhoe would be used. In rocky areas, the foundation holes may be excavated by hammering, or special rock anchors may be installed. After the hole is augured, poles would be set and the concrete backfilled. Spoils material from the excavation process would be spread on the ground. For poles requiring concrete foundations, a rebar cage would be constructed and lowered into the augured hole. Once the rebar cage is in the correct position, cement would be poured, surrounding the rebar cage. The concrete backfill would be finished no more than 24 inches above natural ground with a slight slope away from poles; it does not require additional disturbance area.

Assembly and Erection

Structure assembly and mounting of associated line hardware would take place at each site. The assembled structure is then raised and placed in the pre-dug holes, allowing for wire installation to occur. For public protection during wire installation, guard structures are erected over obstacles. Equipment for erecting guard structures includes augers, line trucks, pole trailers, and cranes. Guard structures may not be required on small roads; on such occasions, safety measures such as barriers, flagmen, or other traffic control are used.

A pilot line is then pulled from structure to structure (or strung) by a vehicle and threaded through the stringing sheaves at each tower. A stronger, larger diameter line (the pulling line) is attached to the pilot line and strung. This process is repeated until the ground wire or conductor is pulled through all sheaves.

Ground wire and conductor are strung using power pulling equipment at one end and power braking or tensioning equipment at the other. During this construction activity, tensioning and pulling sites would be required at each corner pole. Tensioning site consists of the tensioner, line truck, and wire trailer needed for stringing and anchoring the ground wire or conductors located at the site. The pulling site consists of a puller and trucks needed for pulling and temporary anchoring of ground wire and conductor. The tensioner and puller maintain tension on the ground wire or conductor. Maintaining tension ensures adequate ground clearance, necessary to avoid damage to the ground wire, conductor, or any objects below during stringing operations.

Stabilization and Rehabilitation

Following construction and cleanup, reclamation of temporary disturbance areas that are not part of the long-term facilities would be completed. This would include the temporary ROW on BLM-administered lands, the tensioning and pulling sites, and the laydown yard. Graded or disturbed surfaces would be restored to the original contour of the land surface, and scarifying would be conducted in compacted areas to promote vegetation regrowth.

Seeding would be used where appropriate to reestablish soil stability. Hard-packed surfaces would be scarified and contoured to promote revegetation, and water bars would be installed as necessary to divert runoff into natural drainages. Appropriate site-specific seed mixes for revegetation would be used where conditions vary. Salvaged native plants would be used for revegetation, if appropriate, along with seeding using BLM approved native seed mixes. The seed mix will be planted using drilling, straw mulching, or hydro-mulching as directed by the BLM.

Contoured and scarified surfaces would be seeded with a BLM-approved native seed mix. These reclamation activities would be in accordance with BLM requirements. When reclamation is complete, Trico would notify the BLM so an inspection of these areas can be made.

Operation and Maintenance

Operation and maintenance activities include line inspections, climbing inspections of support structures, support-structure and wire maintenance, insulator inspections as needed, access road maintenance and repairs, signage, vegetation management, and emergency response and fire protection. Trico would keep necessary work areas around structures clear of vegetation and would limit the height of vegetation along the ROW. All operation and maintenance activities would be conducted in a manner that would minimize disturbance to vegetation and desert washes.

Ground maintenance patrols would review the line periodically in accordance with Trico's established policies and procedures for sub-transmission line inspection and maintenance. All ground maintenance patrols would be conducted by certified Trico staff. The line would be inspected for corrosion, equipment misalignment, loose fittings, vandalism, and other mechanical problems. The need for vegetation management would also be determined during inspection patrols.

Routine maintenance includes replacing damaged insulators, cross-arms, and arresters as needed, tightening nuts and bolts, and vegetation maintenance. Typical maintenance vehicles include standard pickup trucks, medium-sized bucket trucks, and large bucket trucks. Maintenance visits are anticipated to occur twice per year with a standard pickup truck, and twice per year with a medium-sized bucket truck. Trico would maintain drivable conditions for the access roads for vehicle and equipment access. The access roads would be allowed to naturally revegetate (e.g., grasses and forbs) but would be maintained, as needed, by Trico to ensure safe and usable conditions.

For public safety and service reliability, Trico is required to control vegetation growing in proximity to high-voltage sub-transmission lines in conformance with North American Electric Reliability Corporation and National Electrical Safety Code guidelines. Vegetation maintenance would include vehicle access to and within the line corridor and the pruning and removal of vegetation. Vegetation would be pruned and removed by hand tools to cut branches and trunks of vegetation and then lop and scatter the limbs and logs within the corridor, or vegetation would be removed by mechanical methods using a mower to cut and masticate vegetation. During the operation of the line, the ROW would be maintained free of construction-related non-biodegradable debris.

Emergency maintenance involves prompt response by repair crews to repair or replace damaged equipment. When emergency repair work is required, every attempt would be made to contact the landowner and notify them of the work. In the event notification is not successful, repair operations would proceed. Efforts to contact the landowner would continue during and following any emergency repairs until contact has been made. Although restoration of the line would have priority under emergency conditions, all efforts would be made to protect the environment and other resources.

2.1.4 Best Management Practices

The following best management practices (BMP's) will be implemented as part of the Proposed Action to avoid or minimize potential resource impacts. The BMP's have been roughly categorized for ease of reference and may be repeated if they apply to more than one category.

General (Safety, Site Access, Private Property, etc.)

- The design, construction, operation, and maintenance of the project would meet or exceed the requirements of the National Electrical Safety Code and U.S. Department of Labor Occupational Safety and Health Standards, as well as Trico's requirements for the safety and protection of landowners and their property.
- The project site disturbance limits will be staked to avoid unnecessary impacts to resources. No paint or long-term markings would be used on rocks or plants to indicate the ROW.
- If required by the underlying landowner, or if Trico finds it to be warranted, the access road could be gated to prevent unauthorized access. Gates would be installed after Trico obtains appropriate authorizations/permits/ROW's from the BLM, or private landowners, as needed.

- All roads would be constructed in accordance with the Travel Management prescriptions of the Phoenix RMP (BLM 1988), as well as Trico requirements for project access roads based upon a Road Specification Plan developed by Trico specifically for this project and in compliance with local jurisdictional regulations.
- ROW stipulations would include BMP's to limit the introduction and spread of invasive plants.

Vegetation

- Disturbance of protected native plants will be avoided during construction to the extent possible. Prior to construction, native plants requiring consideration by the BLM will be flagged in areas of potential surface disturbance. Plants that must be removed prior to construction would be transplanted to areas of similar microhabitat within the project ROW, maintaining the approximate orientation of the plants.
- Clearing, grading, or trimming of some natural vegetation may be required within the proposed ROW and would be conducted in accordance with the Arizona Native Plant Law.
- In construction areas where recontouring is not required, vegetation would be left in place wherever possible to avoid excessive root damage, allowing for resprouting and soil stability.
- Access road construction and improvement include dust-control measures (e.g., watering roads) as required.
- The vegetation in the temporary ROW areas would be trampled, not cleared.
- The tensioning and pulling sites would be located in previously disturbed areas where feasible.
- Hard-packed surfaces would be scarified and contoured to promote revegetation, and water bars would be installed as necessary to divert runoff into natural drainages.
- Appropriate site-specific seed mixes for revegetation would be used where conditions vary. Salvaged native plants would be used for revegetation, if appropriate, along with seeding using BLM-approved native seed mixes. Preferably, the seed mix would be planted during the months from November to January following construction activities. The seed mix will be planted as directed by the BLM.

Soils

- Access roads would be constructed to minimize disturbance, preventing degradation of soil conditions in areas where such degradation would result in detrimental soil erosion or subsidence.
- A Stormwater Pollution Prevention Plan, including spill prevention, would be prepared for construction of the project in compliance with the Arizona Pollutant Discharge Elimination System requirements. In general, construction erosion control would consist of BMP's, including techniques such as straw bales, silt fences, and revegetation, to prevent soils exposed during construction from being carried off the site in stormwater flow.
- Site and access road disturbance such as ruts created during storm damage operations would be restored to the original condition following rehabilitation procedures.
- Graded or disturbed surfaces would be restored to the original contour of the land surface and scarifying would be conducted in compacted areas to promote vegetation regrowth.
- Seeding would be used where appropriate to reestablish soil stability.
- Areas around sub-transmission line towers and abandoned access roads would be reclaimed in the ROW area in accordance with BLM stipulations. Where facilities or materials are removed, land would be regraded to preconstruction contours or as close as possible. Reclamation practices would incorporate soil stabilization measures to prevent erosion and sedimentation, and encourage revegetation.

- During its inspections, Trico would inspect soil conditions for erosional issues along the long-term ROW and access roads. Any erosional issues would be resolved through normal operations and maintenance activities.

Grazing

- Construction holes left open overnight would be covered to prevent livestock or wildlife from injury or entrapment.
- Land uses that comply with local regulations would be permitted adjacent to and within the project ROW (e.g., livestock grazing, dispersed recreation). Compatible uses of the ROW on public lands (e.g., off-highway vehicle use) would continue once construction is complete, as allowed by the BLM Phoenix RMP.
- The grazing allotment lessees would be notified ahead of time of any operation or maintenance activities to minimize long-term disruptions to grazing movement and rotation.
- Any fence lines impacted under the Proposed Action for the Twin Buttes and Twin Buttes No. 2 grazing allotments would be repaired or replaced through consultation with the grazing allotment lessees.

Visual

- Galvanized steel poles would be used to minimize visual resource impacts.

Threatened and Endangered Species (Pima Pineapple Cactus (PPC))

- Any access roads would be routed so that they avoid the currently known PPC plants.
- A pre-construction PPC survey, as well as flagging and fencing of PPC plants, will ensure that individual PPC plants are not harmed during construction and installation of the overhead facilities.
- Dust abatement measures will be implemented to prevent dust-related impacts to PPC.
- To prevent damage to PPC from construction equipment, PPC plants will be identified to construction workers and will be flagged and fenced during construction activity. In addition, biological monitors will be present during pole clearing and access road building near PPC plants to ensure that the plants are not damaged.
- The BLM would be notified prior to any operations or maintenance activities to avoid direct impacts to PPC. This would include a pre-construction PPC survey and flagging and fencing of PPC plants to ensure that individual PPC plants are not harmed.

2.2 No Action

Under the No Action Alternative, the BLM would not approve the proposed ROW requested on BLM land. Trico would not construct the new line and access road across BLM land. Conditions in the area of the Proposed Action would remain unchanged.

2.3 Alternatives Considered but Eliminated from Detailed Study

Alternatives to the Proposed Action are developed to explore different ways to accomplish the purpose and need while minimizing environmental impacts and resource conflicts and meeting other objectives of the Phoenix RMP. Consistent with BLM NEPA Handbook H-1790-1 (BLM 2008), the agency “need only analyze alternatives that would have a lesser effect than the Proposed Action” (BLM 2008). Those alternatives with greater adverse resource impacts, or those that are not feasible because of existing physical constraints or infrastructure, are not brought forward for detailed analysis in this EA. The Proposed Action would meet the BLM’s purpose and need while minimizing environmental impacts to the greatest extent possible. Major project design alternatives, such as rerouting the new line, would result in greater surface disturbance and environmental impacts.

2.3.1 Weathered Poles

One alternative considered for the Proposed Action but eliminated from detailed analysis was the use of weathered poles. Weathered poles would be considered darker against the natural background and potentially more visible than the proposed galvanized poles when viewed from the nearest publicly accessible areas. Therefore, galvanized poles were selected for the project, and weathered poles were eliminated from consideration.

2.3.2 Upgrading the Existing Line

Another alternative considered but eliminated from detailed analysis was upgrading the existing line. Doing so would result in approximately 3.5 additional miles of ground disturbance and environmental impacts compared to the Proposed Action. Upgrading the existing line would require the decommissioning of old pole structures and conductors and replacing those structures and conductors with new equipment; this would also require more pole structures and therefore more ground disturbance compared to the Proposed Action. Additionally, compared with the Proposed Action, upgrading the existing line would require more routine operation and maintenance and could result in greater disturbance of the existing line area due to more frequency of trips required for routine operation and maintenance.

Additionally, upgrading the existing line would result in greater impacts to the resources brought forth for analysis, such as visual resources, vegetation, and soils, and could potentially affect additional types of resources such as cultural resources. This alternative would also greatly increase the chances of introducing noxious weeds and invasive species into the existing line area of the Proposed Action, as the line is longer and would require more vegetation clearing.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the existing conditions relevant to the issues presented in Table 1.3 and discloses the potential direct, indirect, and cumulative impacts of the No Action Alternative and the Proposed Action Alternative on those issues within their associated analysis areas. The analysis of impacts considers BMP's proposed by Trico in the *Plan of Development for the Trico Bicknell to Green Valley 69-kV Line Rebuild* and the *Biological Evaluation of the Trico Bicknell to Green Valley 69-kV Line Rebuild Project in Pima County, Arizona*. Any additional mitigation measures were identified as necessary following the analysis of each issue.

The impacts addressed in this chapter include direct (caused by the action, same time and place), indirect (caused by the action, but later in time or further in distance), and cumulative (activities that are considered along with the Proposed Action that may cumulatively have significant impacts). Because effects can vary in duration, this chapter describes them as either short-term (during project construction and reclamation) or long-term (the duration of the ROW grant [30 years], which includes project operation and maintenance). The terms "effect" and "impact" are used synonymously.

For all six issues, the short-term impact areas are all facility components associated with the Proposed Action (temporary and long-term ROW [the long-term ROW includes an access road], access roads, tensioning and pulling sites, and laydown yard). The long-term impacts include those facility components that would continue to be disturbed to some extent (long-term ROW and access roads) after construction and reclamation activities are completed.

3.1 Issue 1: How would construction, maintenance, and operation of the project impact the grazing rotation and forage available for grazing allotments within the area of the Proposed Action?

The geographic scope of the analysis (including the Cumulative Impact Analysis Area [CIAA]) associated with this issue includes all grazing allotments that intersect the Proposed Action. This geographic scope captures any impacts to livestock grazing that would result from the Proposed Action.

3.1.1 *Affected Environment*

The Proposed Action intersects portions of two grazing allotments that include both BLM-administered lands and private lands (Figure 3.1). Information about each allotment, including allotment acreages, is presented in Table 3.1.

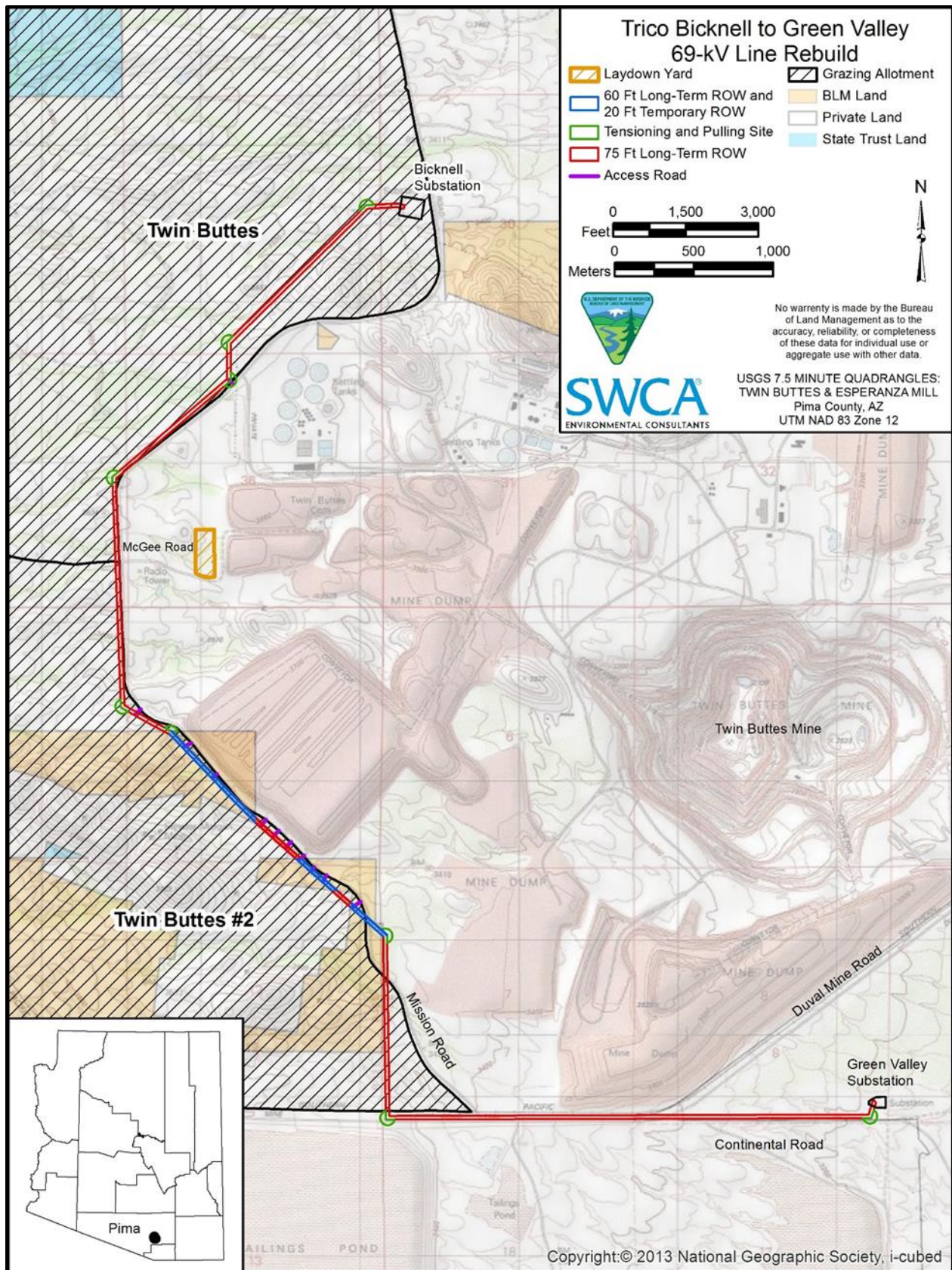


Figure 3.1. Grazing allotments intersected by the project.

Table 3.1. Grazing Allotment Information

Allotment Name / Number	Land Ownership (acres)	AUM's*	Livestock Number and Kind*	Period Begin (Month/Day)*	Period End (Month/Day)*
Twin Buttes / AZ06001	BLM: 2,380 State: 2,476 Private: 5,342 Total: 10,198	264	22 Cattle	03/01	02/28
Twin Buttes No. 2 / AZ06208	BLM: 827 State: 3 Private: 2,577 Total: 3,407	84	BLM: 7 cattle Private: 28–33 cattle Total: 35–40	03/01	02/28

Sources: BLM (2017, 2019b)

Note: An Animal Unit Month (AUM) is defined as a month's use and occupancy of range by one cow, bull, steer, heifer, horse, burro, mule, five sheep, or five goats that are (1) over the age of 6 months at the time of entering the public lands or other lands administered by BLM; (2) weaned regardless of age; or (3) becoming 12 months of age during the authorized period of use (43 CFR 4130.8-1).

* This information is for the BLM-administered land portions of the allotments only.

Currently, no other projects or rangeland improvements are proposed within these grazing allotments (BLM 2019c). The Proposed Action intersects the northeast corner of the Twin Buttes No. 2 grazing allotment and is within the southeastern portion of the Twin Buttes grazing allotment. The Twin Buttes No. 2 grazing allotment contains a total of eight rangeland improvements, including three dirt tanks, four troughs, one cattle guard, and several miles of fence lines (BLM 2017). A 2017 Land Health Evaluation of the Twin Buttes No. 2 grazing allotment found the allotment was meeting applicable land health standards and is in productive and sustainable condition. Additionally, the structure and distribution of vegetation was found to be sufficient to support and sustain native wildlife populations (BLM 2017). The Twin Buttes grazing allotment contains 21 rangeland improvements.

3.1.2 Impacts from the Proposed Action

Direct and Indirect Impacts

Existing livestock grazing activities within the area of the Proposed Action are likely to experience short-term impacts during construction. Impacts to grazing would result from vegetation clearing and maintenance, transporting materials to and from construction sites, and construction of transmission line structures and support facilities (e.g., access roads and tensioning/pulling sites). Impacts to livestock grazing would include temporary loss of grazing access on lands within the ROW (reduction of forage availability) and interference with the movement of livestock for grazing (including grazing rotation). Additionally, livestock grazing would be restricted within the area of the Proposed Action until after construction and reclamation are complete (approximately 5 months).

Long-term impacts would occur at transmission line structure locations (poles) and along new access roads, which would be permanently converted from grazing lands to utility use. Once construction and reclamation are complete, unrestricted grazing would resume within the area of the Proposed Action, including under the power line and across access roads. Impacts to each grazing allotment by facility component are presented below (Table 3.2). The laydown yard is not listed in Table 3.2 because it does not intersect any grazing allotments.

Table 3.2. Grazing Allotment Disturbance under the Proposed Action

Facility Component	Grazing Allotment	Short-Term Impacts (Acres)	Reclamation (Acres)	Long-Term Impacts (Acres)
Temporary ROW	Twin Buttes No. 2	2.6	2.6	–
Tensioning/Pulling Sites	Twin Buttes	2.7	2.7	–
	Twin Buttes No. 2	1.3	1.3	–
Access Roads	Twin Buttes No. 2	0.6	–	0.6
Long-Term ROW	Twin Buttes	17.9	–	17.9
	Twin Buttes No. 2	19.5	–	19.5
Total	Twin Buttes	20.5 (0.2%)	2.7 (13%)	17.9 (0.2%)
	Twin Buttes No. 2	23.9 (0.7%)	3.9 (16%)	20.1 (0.6%)

Source: BLM (2019d)

Trico would coordinate the timing of the construction activities with the grazing allotment lessees to avoid impacts of livestock grazing rotation and movement in the area of the Proposed Action. The AUM's and livestock grazing periods would not be impacted. The BMP's would provide for avoidance of livestock injury and prevent unnecessary amounts of forage from being disturbed. At least two fence lines would be impacted by construction activities in the Twin Buttes No. 2 grazing allotment. Other unreported fence lines may exist in the Twin Buttes No. 2 or Twin Buttes grazing allotments. Any fence lines impacted under the Proposed Action for the Twin Buttes and Twin Buttes No. 2 allotments would be repaired or replaced through consultation with the grazing allotment lessee. No other rangeland improvements within the Twin Buttes No. 2 or the Twin Buttes allotments would be impacted because they do not intersect the Proposed Action.

Once construction is complete, reclamation activities would include restoring the areas to their original contour and reseeding them as directed by the BLM.

The long-term impacts to livestock forage availability would be minimal, compared with the overall forage available in these allotments, as these permanent disturbances represent less than 1% of each allotment. The AUM's and livestock grazing periods would not be impacted. The BMP's would ensure that the grazing allotment lessees are able to use all of the long-term ROW and (except for lost forage at the access roads and structure locations) for grazing purposes after construction and reclamation activities have been completed. Therefore, long-term impacts may be slightly less than described above as suitable livestock grazing forage would be available within the long-term ROW and access roads and long-term use is not expected to require the entire long-term ROW and access road acreages. However, the available amount of forage in the long-term ROW and access roads would vary depending on the location and intensity of use needed for operation and maintenance activities. Any fence lines impacted under the Proposed Action for the Twin Buttes and Twin Buttes No. 2 allotments would be repaired or replaced through consultation with the grazing allotment lessee. No other rangeland improvements within the Twin Buttes No. 2 or Twin Buttes allotments would be impacted because they do not intersect the Proposed Action. The grazing allotment lessees would be notified ahead of time of any operation or maintenance activities to minimize long-term disruptions to grazing movement and rotation.

Cumulative Impacts

The CIAA for this issue consists of the grazing allotments that intersect the Proposed Action (Twin Buttes and Twin Buttes No. 2 allotments), which is the same analysis area for direct and indirect impacts for this issue. Past and present actions in the CIAA include, but are not limited to, mining activities (including the Twin Buttes mine), low-intensity residential and commercial development, road and utility ROW's, and rangeland grazing and improvements. These disturbances will likely be present in the foreseeable future. Based on best available data, it is estimated that 18.2 acres (0.2%) of the Twin Buttes grazing allotment and 10.6 acres (0.3%) of the Twin Buttes No. 2 grazing allotment are currently disturbed (USGS 2014).

There are no known reasonably foreseeable future actions within the CIAA that would impact the grazing rotation and forage availability. BLM considers requests for land use authorizations on a case-by-case basis and typically includes stipulations and best management practices to minimize impacts to resources, including available livestock forage and ranch operations. Authorizations on private land are subject to landowner discretion and state/local policies, which cannot be quantified at this time.

The Proposed Action's long-term impacts would include a 0.2% decrease of forage being removed on the Twin Buttes grazing allotment and a 0.6% decrease of forage being removed on the Twin Buttes No. 2 grazing allotment. When considered with other past and present actions, this represents 36.1 acres (0.4%) of forage availability that would be lost on the Twin Buttes grazing allotment and 31.5 acres (0.9%) of forage availability that would be lost on the Twin Buttes No. 2 grazing allotment.

3.1.3 *Impacts from the No Action Alternative*

Direct and Indirect Impacts

Trico would not construct the 6.6-mile-long electrical line; therefore, there would be no direct or indirect impacts to livestock grazing rotation and forage available to livestock under the no-action alternative.

Cumulative Impacts

As there would be no direct or indirect impacts to livestock grazing and forage availability to livestock, there would be no incremental cumulative impacts from the No Action Alternative. Other past, present, and reasonably foreseeable future action cumulative impacts would still occur as described above (Section 3.1.2).

3.2 Issue 2: How would construction, maintenance, and operation of the Proposed Action impact the soil resources at the site directly during construction and indirectly from long-term use of the ROW?

The geographic scope of the analysis associated with this issue for direct and indirect impacts includes the area of the Proposed Action (60.3 acres). The CIAA geographic scope includes the Hydrologic Unit Code (HUC)-12 watersheds in which the Proposed Action is located (Figure 3.2). These watersheds include the 10,403-acre Tapon Tank watershed (HUC 150503010705), the 32,463-acre Kinney Tank–Santa Cruz River watershed (HUC 150503010704), and the 18,066-acre Town of Continental–Santa Cruz River watershed (HUC 150503010702). The CIAA geographic scope was chosen because watershed boundaries are a network of streams that define all components of a landscape within that boundary, including soils (Edwards et al. 2015; U.S. Forest Service [USFS] 2011).

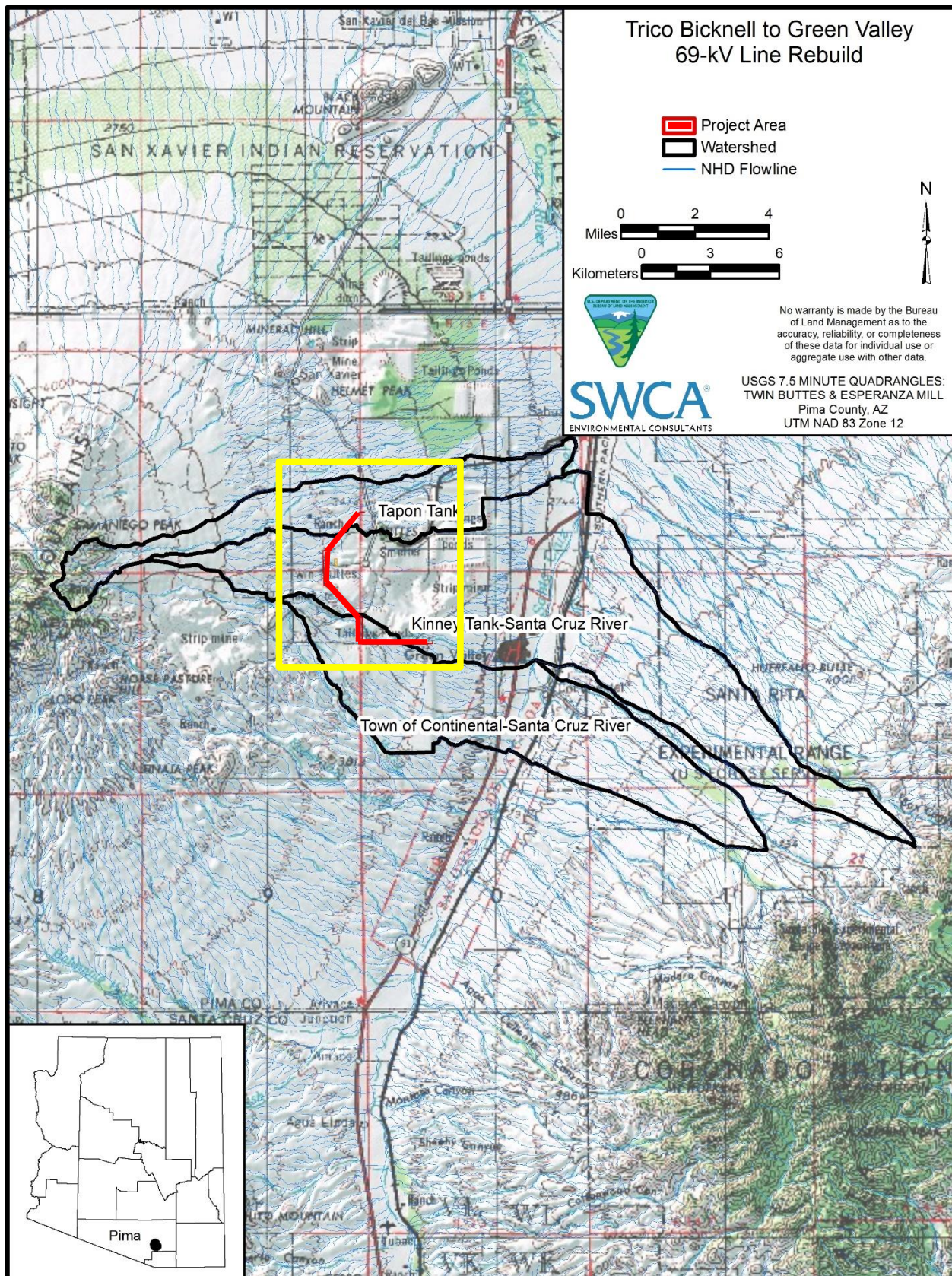


Figure 3.2. Proposed Action HUC-12 watersheds.

3.2.1 Affected Environment

To identify the soil types present within the area of the Proposed Action, the Natural Resources Conservation Service (NRCS) Web Soil Survey was used, which provides soil data and information produced by the National Cooperative Soil Survey.

The area of the Proposed Action contains 10 types of soil. These soils and their erosion hazards are detailed below (Table 3.3).

Table 3.3. Soil and Erosion Hazards

Soil Symbol	Soil Name	Erosion Hazard Rating (road, trail)	Rating Reasons (numeric values)
9	Caralampi very gravelly sandy loam, 5 to 15 percent slopes	Slight	–
18	Combate gravelly loamy coarse sand, 2 to 8 percent slopes	Moderate	Slope/erodibility (0.50)
23	Deloro-Andrada complex, 5 to 35 percent slopes	Severe	Slope/erodibility (0.95)
42	Mabray-Deloro-Rock outcrop complex, 20 to 65 percent slopes	Severe	Slope/erodibility (0.95)
52	Oracle-Romero-Rock outcrop complex, 5 to 35 percent slopes	Moderate	Slope/erodibility (0.50)
55	Palos Verdes-Sahuarita complex, 2 to 8 percent slopes	Moderate	Slope/erodibility (0.50)
61	Pinaleno-Stagecoach-Palos Verdes complex, 10 to 35 percent slopes	Moderate	Slope/erodibility (0.50)
64	Pits, dumps	Not Rated	–
73	Sasabe-Caralampi complex, 1 to 15 percent slopes	Moderate	Slope/erodibility (0.50)
81	Tubac gravelly loam, 1 to 8 percent slopes	Moderate	Slope/erodibility (0.50)

Source: NRCS (2019)

* Indicates that the component is also part of the long-term impacts.

The erosion hazard for roads and trails indicates the potential soil loss from unsurfaced roads and trails. This rating was selected because the main impacts to soil resulting from the Proposed Action, both short term and long term, would result from the construction and maintenance of unpaved access roads (including the access road along the long-term ROW).

The NRCS Web Soil Survey (NRCS 2019) provides the following description for this erosion hazard rating:

The ratings are both verbal and numerical. The hazard is described as “slight,” “moderate,” or “severe.” A rating of “slight” indicates that little or no erosion is likely; “moderate” indicates that some erosion is likely, that the roads or trails may require occasional maintenance, and that simple erosion-control measures are needed; and “severe” indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Numerical ratings indicate the severity of individual soil limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified aspect of forestland management (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in this interpretation indicate the hazard of soil loss from off-road and off-trail areas after disturbance activities that expose the soil surface. The ratings are based on slope and soil erosion factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed.

3.2.2 Impacts from the Proposed Action

Direct and Indirect Impacts

Direct impacts to soil resources resulting from construction activities include the disturbance and compaction of soils during the construction of access roads, laydown yard, and installation of transmission line structures. Clearing of vegetation, as well as grading, would disturb topsoil, which would result in newly exposed, disturbed soils that could be subject to accelerated soil erosion. Access roads and use of heavy equipment in the ROW would cause soil compaction. Soil compaction can lower the surface infiltration rates of the soil causing a shorter time to ponding and increased amounts of run-off and, potentially, soil erosion. It can also limit plant-rooting depth through physical restriction, this, in turn, affects the soil's organic matter content and available nutrients (NRCS 2001). Any soil removal associated with the final footprint of the structure foundations would be long term. The soil types that would be impacted by each facility component are presented below (Table 3.4).

Table 3.4. Soil Disturbance under the Proposed Action

Facility Component	Soil Symbol	Soil Name	Short-Term Impacts (Acres)	Reclamation (Acres)	Long-Term Impacts (Acres)
Temporary ROW	9	Caralampi very gravelly sandy loam, 5 to 15 percent slopes	1.8	1.8	–
	52	Oracle-Romero-Rock outcrop complex, 5 to 35 percent slopes	0.6	0.6	–
	81	Tubac gravelly loam, 1 to 8 percent slopes	0.5	0.5	–
Tensioning/ Pulling Sites	18	Combate gravelly loamy coarse sand, 2 to 8 percent slopes	0.6	0.6	–
	52	Oracle-Romero-Rock outcrop complex, 5 to 35 percent slopes	2.0	2.0	–
	55	Palos Verdes-Sahuarita complex, 2 to 8 percent slopes	0.7	0.7	–
	61	Pinaleno-Stagecoach-Palos Verdes complex, 10 to 35 percent slopes	0.9	0.9	–
	64	Pits, dumps	0.9	0.9	–
	73	Sasabe-Caralampi complex, 1 to 15 percent slopes	1.0	1.0	–
	81	Tubac gravelly loam, 1 to 8 percent slopes	0.7	0.7	–
Laydown Yard	52	Oracle-Romero-Rock outcrop complex, 5 to 35 percent slopes	8.5	8.5	–
Access Roads	9	Caralampi very gravelly sandy loam, 5 to 15 percent slopes	0.5	–	0.5
	52	Oracle-Romero-Rock outcrop complex, 5 to 35 percent slopes	0.2	–	0.2
	81	Tubac gravelly loam, 1 to 8 percent slopes	0.2	–	0.2

Facility Component	Soil Symbol	Soil Name	Short-Term Impacts (Acres)	Reclamation (Acres)	Long-Term Impacts (Acres)
Long-Term ROW	9	Caralampi very gravelly sandy loam, 5 to 15 percent slopes	5.4	–	5.4
	18	Combate gravelly loamy coarse sand, 2 to 8 percent slopes	1.5	–	1.5
	23	Deloro-Andrada complex, 5 to 35 percent slopes	0.5	–	0.5
	42	Mabray-Deloro-Rock outcrop complex, 20 to 65 percent slopes	4.0	–	4.0
	52	Oracle-Romero-Rock outcrop complex, 5 to 35 percent slopes	15.5	–	15.5
	55	Palos Verdes-Sahuarita complex, 2 to 8 percent slopes	2.9	–	2.9
	61	Pinaleno-Stagecoach-Palos Verdes complex, 10 to 35 percent slopes	2.1	–	2.1
	64	Pits, dumps	2.1	–	2.1
	73	Sasabe-Caralampi complex, 1 to 15 percent slopes	3.5	–	3.5
	81	Tubac gravelly loam, 1 to 8 percent slopes	20.2	–	20.2
Total	9	Caralampi very gravelly sandy loam, 5 to 15 percent slopes	7.6	1.8 (24%)	5.8 (76%)
	18	Combate gravelly loamy coarse sand, 2 to 8 percent slopes	2.0	0.5 (28%)	1.5 (72%)
	23	Deloro-Andrada complex, 5 to 35 percent slopes	0.5	0.0 (0%)	0.5 (100%)
	42	Mabray-Deloro-Rock outcrop complex, 20 to 65 percent slopes	4.0	0.0 (0%)	4.0 (100%)
	52	Oracle-Romero-Rock outcrop complex, 5 to 35 percent slopes	26.7	11.1 (41%)	15.6 (59%)
	55	Palos Verdes-Sahuarita complex, 2 to 8 percent slopes	3.6	0.7 (20%)	2.9 (80%)
	61	Pinaleno-Stagecoach-Palos Verdes complex, 10 to 35 percent slopes	3.1	1.0 (30%)	2.1 (70%)
	64	Pits, dumps	3.1	1.0 (30%)	2.1 (70%)
	73	Sasabe-Caralampi complex, 1 to 15 percent slopes	4.4	1.0 (21%)	3.4 (79%)
	81	Tubac gravelly loam, 1 to 8 percent slopes	21.1	0.7 (3%)	20.4 (93%)

Source: NRCS (2019)

The short-term impacts to soils would be minimized through the implementation of BMP's, including a Stormwater Pollution Prevention Plan that would contain erosion control measures that would make short-term direct or indirect impacts negligible to those soils rated as either "slight" (7.6 acres of the Proposed Action) or "moderate" (68.9 acres of the Proposed Action). Some soils in the ROW are rated as "severe" (4.5 acres) for erosion hazard, which has the potential to experience accelerated soil erosion because of surface disturbance activities. However, there are only 4.5 acres of these soils in the area of the Proposed

Action, and BMP’s would minimize impacts to them by avoiding placement of structures and access roads within these soils as much as possible. The acreage of these soil units (4.5 acres) represents only 8% of the Proposed Action long-term ROW and 6% of the entire Proposed Action.

Reclamation activities would include the restoration of 18.1 acres of temporary construction areas no longer needed for operations and maintenance activities. This represents 1.8 acres (24%) of soils that are rated as “slight” and 16.3 acres (24%) of soils that are rated as “moderate” within the area of the Proposed Action. No soils that are rated as “severe” are within the temporary facilities and would therefore not be reclaimed. Assuming reclamation activities are successful in establishing vegetation on all the temporary construction areas, there would be no long-term impacts on reclaimed soils.

The long-term impacts on soils resulting from the Proposed Action include 58.4 acres that would be permanently disturbed. This represents 5.8 acres (76%) of soils rated as “slight” for erosion hazard, 51.8 acres (74%) of soils rated as “moderate” for erosion hazard, and 4.5 acres (100%) of soils rated as “severe” for erosion hazard. The long-term impacts on the soils rated as “moderate” or “severe” (52.6 acres) may include some accelerated erosion. However, impacts on these 52.6 acres would likely be less than described above as soils would be revegetated within the long-term ROW and access roads, and long-term use is not expected to require the entire long-term ROW and access road acreages. However, the amount of exposed soil that would experience erosion in the long-term ROW and access roads would vary depending on the location and intensity of use needed for operation and maintenance activities. During routine inspections, Trico would inspect soil conditions for erosional issues along the long-term ROW and access roads. Erosional issues identified would be resolved through normal operations and maintenance activities. This would minimize the long-term direct or indirect impacts to soil resources.

Cumulative Impacts

The CIAA for this issue consists of the three HUC-12 watersheds in which the Proposed Action is located. Past and present actions in the CIAA include residential and commercial development (including the development associated with Green Valley, Arizona) and associated infrastructure (including road and utility ROW’s), mining activities (including the Twin Buttes Mine), and agricultural development (including livestock grazing). These disturbances will likely be present in the near future. Based on best available data, estimates of soil disturbance by soil type that intersect the area of the Proposed Action are presented below (Table 3.5).

There are no known reasonably foreseeable future actions within the CIAA that would impact soil resources; therefore, none are included within the disturbance estimates (see Table 3.5). Any requests for land use authorizations on federally administered lands are considered on a case-by-case basis and typically include stipulations and best management practices to minimize impacts to resources, including soil and erosion. Authorizations on private land are subject to landowner discretion and state/local policies, which cannot be quantified at this time.

Table 3.5. Cumulative Soil Disturbance within the CIAA

Soil Symbol	Soil Name	CIAA Total Acreage	CIAA Past and Present Total Disturbance Acreage/ Percent*	CIAA Proposed Action Disturbance Acreage/ Percent*	CIAA Cumulative Disturbance Acreage / Percent*
9	Caralampi very gravelly sandy loam, 5 to 15 percent slopes	83.8	18.1 (21.6%)	5.8 (6.9%)	23.9 (28.5%)
18	Combate gravelly loamy coarse sand, 2 to 8 percent slopes	726.8	9.8 (1.3%)	1.5 (0.2%)	11.3 (1.5%)
23	Deloro-Andrada complex, 5 to 35 percent slopes	253.6	4.5 (1.8%)	0.5 (0.2%)	5.0 (2.0%)
42	Mabray-Deloro-Rock outcrop complex, 20 to 65 percent slopes	627.6	99.7 (15.9%)	4.0 (0.6%)	103.7 (16.5%)

Soil Symbol	Soil Name	CIAA Total Acreage	CIAA Past and Present Total Disturbance Acreage/ Percent*	CIAA Proposed Action Disturbance Acreage/ Percent*	CIAA Cumulative Disturbance Acreage / Percent*
52	Oracle-Romero-Rock outcrop complex, 5 to 35 percent slopes	5,605.2	227.7 (4%)	15.6 (0.3%)	243.3 (4.3%)
55	Palos Verdes-Sahuarita complex, 2 to 8 percent slopes	873.2	225.5 (25.8%)	2.9 (0.3%)	228.4 (26.1%)
61	Pinaleno-Stagecoach-Palos Verdes complex, 10 to 35 percent slopes	368.6	105.3 (28.6%)	2.1 (0.6%)	107.4 (29.2%)
64	Pits, dumps†	8,323.3	8,323.3† (100%)	2.1 (0.0%)	7,985.6 (95.9%)
73	Sasabe-Caralampi complex, 1 to 15 percent slopes	1,863.2	151.4 (8.1%)	3.5 (0.2%)	154.9 (8.3%)
81	Tubac gravelly loam, 1 to 8 percent slopes	4,219.9	2,183.7 (51.7%)	20.4 (0.5%)	2,204.1 (52.2%)

Sources: NRCS (2019); USGS (2014)

* Percent represents the disturbance acreage divided by the total soil acreage within the CIAA.

† The soil name “Pits, dumps” is from the NRCS classification and indicates pre-disturbed soil from previous human activities.

Past and present soil disturbances within the CIAA (see Table 3.5) represent 18.1 acres (21.6% [83.8 acres] of the entire CIAA) of soils rated as “slight” for erosion hazard, 2,903.5 acres (21.3% [13,656.8 acres] of the entire CIAA) of soils rated as “moderate” for erosion hazard, and 104.1 acres (11.8% [881.3 acres] of the entire CIAA) of soils rated as “severe” for erosion hazard. The Proposed Action disturbances (see Table 3.5) represents 5.8 acres (a 6.9% decrease) of soils rated as “slight” for erosion hazard, 51.8 acres (a 0.4% decrease) of soils rated as “moderate” for erosion hazard, and 4.5 acres (a 0.5% decrease) of soils rated as “severe” for erosion hazard that would be disturbed. When considered with other past and present actions, this represents 23.9 acres (28.5%) of soils rated as “slight” for erosion hazard, 2,949.4 acres (21.8%) of soils rated as “moderate” for erosion hazard, and 108.7 acres (12.3%) of soils rated as “severe” for erosion hazard.

3.2.3 Impacts from the No Action Alternative

Direct and Indirect Impacts

Trico would not construct the 6.6-mile-long electrical line; therefore, there would be no direct or indirect impacts to soil resources under the no-action alternative.

Cumulative Impacts

As there would be no direct or indirect impacts to soil resources, there would be no incremental cumulative impacts from the No Action Alternative. Other past, present, and reasonably foreseeable future action cumulative impacts would still occur as described above (Section 3.2.2).

3.3 Issue 3: How would construction, maintenance, and operation of the Proposed Action affect the Pima pineapple cactus?

The geographic scope of the analysis associated with this issue for direct and indirect impacts includes the area of the Proposed Action (60.3 acres). The CIAA geographic scope includes the HUC-12 watersheds in which the Proposed Action is located (as described in Section 2.1 and shown in Figure 2.2). This geographic scope was chosen because watershed boundaries are a network of streams that define all components of

a landscape within that boundary, including native vegetation such as the PPC (*Coryphantha scheeri* var. *robustispina*) (Edwards et al. 2015; USFS 2011).

3.3.1 Affected Environment

Based on the location of the Proposed Action, it was determined that there was potential for federally listed endangered, threatened, or experimental, non-essential populations protected under the Endangered Species Act of 1973, as amended (16 USC 1531 *et seq.*) to occur within the area of the Proposed Action, particularly the endangered PPC. To determine the presence of these federally listed species, a field reconnaissance by a qualified biologist was conducted in May 2018. This survey was conducted to evaluate vegetation and landscape features considered important to the potential occurrence of protected species and to conduct a species-specific survey for PPC. Of the 21 species listed as threatened, endangered, or non-essential population for Pima County by the U.S. Fish and Wildlife Service (USFWS), only PPC is known to occur in the area of the Proposed Action. There were 15 PPC individuals (13 alive and two dead) observed within the area of the Proposed Action. The area of the Proposed Action is clearly beyond the known geographic or elevational range of the remaining 20 species, or it does not contain vegetation or landscape features known to support these species or both. Habitat requirements, potential for occurrence, and possible effects of the Proposed Action on the other 20 species are documented in the Biological Evaluation of the Trico Bicknell to Green Valley 69-kV Line Rebuild Project in Pima County, Arizona, which is located in the *Plan of Development for the Trico Bicknell to Green Valley 69-kV Line Rebuild*; which includes species details, habitat requirements, and life history information of the PPC; therefore, this information is not presented in this EA.

Residential and commercial developments are the greatest threats to PPC and its habitat; other threats include habitat loss and fragmentation, competition with non-native species, loss of the existing seed bank, grazing, illegal plant collection, prescribed fire, mining, and inadequate regulatory mechanisms (USFWS 1993, 2007, 2008). Habitat in the southern portion of the Altar Valley is now dominated by Lehmann's lovegrass, and it is hypothesized that fire-induced mortality of PPC increases with Lehmann's lovegrass density (USFWS 2007). Buffelgrass (*Pennisetum ciliare*), a non-native grass, is now common in vacant areas in the city of Tucson and along roadsides, notably in the ROW's along Interstate 10 and State Route 86 and may also pose a threat to PPC.

3.3.2 Impacts from the Proposed Action

Direct and Indirect Impacts

Direct impacts on the PPC that would result from construction activities include the disturbance and compaction of soils during the construction of access roads and the laydown yard, as well as installation of transmission line structures. This could include construction machinery crushing, damaging, and destroying PPC. Areas of long-term disturbance would remove portions of the seed bank, and areas of temporary disturbance could alter the seed bank. Disturbance of soils would change water infiltration, compact soil, and change local site conditions. Recently disturbed areas have an increased potential to be invaded by noxious weeds (e.g., Lehmann lovegrass), which can alter habitat conditions and make it no longer suitable for PPC. Although some areas of temporary disturbance may recover, it may take many years before full recovery is achieved. Any individuals growing outside the area of the Proposed Action may experience indirect effects, such as fugitive dust. Physical effects of windborne fugitive dust on plants may include blockage and damage to stomata and shading and abrasion of the plant surface, which could result in reduced photosynthetic activity (Goodquarry 2011) and possibly reproductive success.

Under the Proposed Action, it is estimated that 15 PPC individuals and 54.9 acres of potentially suitable habitat could be impacted. The amount of suitable habitat was estimated using a PPC habitat model developed for southeastern Pima County (RECON 2002). Only those areas rated as being medium or high potential habitat were considered suitable habitat; low potential habitat (21.6 acres) was considered unsuitable.

Short-term, direct impacts to the 15 PPC individuals located within the area of the Proposed Action would be avoided by implementing BMP's. However, short-term impacts would occur on the 54.9 acres of potentially suitable PPC habitat being disturbed as a result of construction activities. Once construction is complete, approximately 14.6 acres (27% of the area of the Proposed Action) of temporary disturbance would be reclaimed within potential suitable PPC habitat. These reclamation activities would include restoring the areas to their original contour and reseeding them as directed by the BLM. These reclamation activities would restore these 14.6 acres and make them suitable PPC habitat in the long term. Reclamation activities would also minimize the potential of noxious weed invasion in disturbed areas. The indirect effects on PPC would be minimized by the implementation of BMP's that minimize the amount of fugitive dust generated during construction activities and limit the spread of invasive plants.

During construction PPC would be avoided; therefore, there would be no long-term, direct impacts on PPC individuals. The long-term, direct impacts to PPC habitat would include 40.3 acres (73% of the area of the Proposed Action) of potentially suitable habitat that would be removed under the Proposed Action. This long-term disturbance represents 0.002% of the entire known range of PPC. Implementation of the BMP's would ensure that suitable habitat for PPC in almost all of the long-term ROW (except for the access roads and structure locations) would be returned to suitable PPC habitat in the long term. Therefore, long-term impacts may be slightly less than described above, as long-term uses are not expected to require the entire long-term ROW and access road acreages. However, the amount of long-term ROW and access roads that would be disturbed would vary depending on the location and intensity of use needed for operation and maintenance activities. The BLM would be notified prior to any ground-disturbing operations or maintenance activities to avoid direct impacts to PPC. This would include a pre-construction PPC survey and flagging and fencing of PPC plants to avoid impacts to individual PPC plants.

The Proposed Action is consistent with the PPC recovery plan (USFWS 2018). On May 10, 2019, the USFWS concurred with the determination that the Proposed Action may affect but is not likely to adversely affect the endangered PPC as determined in the Biological Evaluation of the Trico Bicknell to Green Valley 69-kV Line Rebuild Project in Pima County, Arizona, which is included in the *Plan of Development for the Trico Bicknell to Green Valley 69-kV Line Rebuild*. This concurrence determination included conservation measures, which were incorporated as BMP's.

Cumulative Impacts

The CIAA for this issue consists of three HUC-12 watersheds in which the Proposed Action is located. Past and present actions in the CIAA include, but are not limited to, residential and commercial development (including the development associated with Green Valley, Arizona) and associated infrastructure (including road and utility ROW's), mining activities (including the Twin Buttes Mine), and agricultural development (including livestock grazing). These disturbances will likely be present in the foreseeable future. Based on best available data, it is estimated that 5,984.3 acres (15% [39,778.5 acres] of the entire CIAA that has suitable PPC habitat) have been previously disturbed within the CIAA of suitable PPC habitat (USGS 2014; RECON 2002).

There are no known reasonably foreseeable future actions within the CIAA that would impact PPC habitat or individuals. Any requests for land use authorizations within PPC habitat on federally administered lands are considered on a case-by-case basis, and typically includes stipulations, USFWS consultation, and best management practices to minimize impacts to resources, including PPC habitat and individuals. Authorizations on private land are subject to landowner discretion and state/local policies. Examples of these policies include the Pima County Multi-species Conservation Plan, which may act to minimize some of these cumulative impacts to potentially suitable PPC habitat by acquiring, protecting, managing, and monitoring lands that are suitable PPC habitat to offset surface-disturbing impacts that would occur under the Covered Activities (primarily maintenance and construction activities carried out by Pima County and the Pima County Regional Flood Control District) (Pima County 2016). Additionally, the Pima County Native Plant Preservation Ordinance and the City of Tucson Native Plant Preservation Ordinance encourage preservation in-place and require mitigation for unavoidable impacts, which directly contributes to the conservation of the PPC. However, the potential impacts and implementation of applicable policies cannot be quantified at this time.

The Proposed Action would disturb 40.3 acres of modeled suitable PPC habitat, which represents a 0.1% decrease of potentially suitable PPC habitat within the CIAA. When considered with other past and present actions, 6,024.6 acres (15.1%) of suitable PPC habitat within the CIAA would be disturbed.

3.3.3 **Impacts from the No Action Alternative**

Direct and Indirect Impacts

Trico would not construct the 6.6-mile-long electrical line; therefore, there would be no direct or indirect impacts on the PPC.

Cumulative Impacts

As there would be no direct or indirect impacts to suitable PPC habitat or individuals, there would be no cumulative impacts from the No Action Alternative. Other past, present, and reasonably foreseeable future action cumulative impacts would still occur as described above (Section 3.3.2).

3.4 **Issue 4: How would construction, maintenance, and operation of the Proposed Action impact native vegetation found in the area of the Proposed Action?**

The geographic scope of the analysis associated with this issue for direct and indirect impacts is the area of the Proposed Action (60.3 acres). The CIAA geographic scope includes the HUC-12 watersheds in which the Proposed Action is located (as described in Section 2.1 and shown in Figure 2.2). This geographic scope was chosen because watershed boundaries are a network of streams that define all components of a landscape within that boundary, including native vegetation (Edwards et al. 2015; USFS 2011).

3.4.1 **Affected Environment**

The U.S. National Vegetation Classification (USNVC) Standard (a nationwide dataset of vegetation communities) was used to determine the types of vegetation communities present within the area of the Proposed Action. The dataset standard was used because it fosters accuracy, consistency, and clarity in the structure, labeling, definition, and application of a systematic vegetation taxonomy. This is critical for making effective and efficient decisions about complex assemblages of biotic organisms. Additionally, this dataset contains the federal minimum metadata requirements to ensure consistent reporting on the status of vegetation resources (Federal Geographic Data Committee 2019).

The area of the Proposed Action contains six ecological systems within four macro-groups. The classification of each of the ecological systems as defined in the USNVC Standard is provided in Table 3.6.

Table 3.6. Vegetation Communities within the Area of the Proposed Action.

Class	Formation	Macro-group	Ecological System
Desert and Semi-Desert	Warm Desert and Semi-Desert Scrub and Grassland	North American Warm Desert Scrub and Grassland	Apacherian-Chihuahuan Mesquite Upland Scrub
		Mojave-Sonoran Semi-Desert Scrub	Sonora-Mojave Creosotebush-White Bursage Desert Scrub
			Sonoran Mid-Elevation Desert Scrub
			Sonoran Paloverde-Mixed Cacti Desert Scrub

Class	Formation	Macrogroup	Ecological System
Forest and Woodland	Warm Temperature Forest and Woodland	Madrean Lowland Evergreen Woodland	Madrean Pinyon-Juniper Woodland
Developed and Other Human Use	Current and Historic Mining Activity	Quarries, Mines, Gravel Pits, and Oil Wells	Recently Mined or Quarried

Source: USGS (2011)

A brief description of each macro-group is provided below (USNVC 2017). A description for Recently Mined or Quarried was not available.

North American Warm Desert Ruderal Scrub and Grassland

This macro-group contains disturbed warm, semi-arid grasslands and desert thornscrub that occur in the southwestern U.S. and northern Mexico. The vegetation of the macro-group can be a monoculture of a single non-native graminoid species or a mix of several non-native forbs and graminoids. Perennial graminoids include *Eragrostis curvula*, *Eragrostis lehmanniana*, *Pennisetum ciliare*, *Pennisetum setaceum*, *Sorghum halepense* (mesic sites), and several other species (which have been purposefully seeded to prevent soil erosion or for livestock forage), and/or invasive non-native annual species such *Brassica tournefortii*, *Bromus rubens*, *Schismus arabicus*, and *Schismus barbatus*. Numerous other non-native herbaceous species may be present to dominant. Dense stands of native ruderal species such as *Amaranthus palmeri* or *Solanum elaeagnifolium* resulting from anthropomorphic disturbance are also included in this macro-group. This macro-group includes upland desert scrub strongly dominated by invasive native species (*Prosopis glandulosa* and *Prosopis velutina*) with >95% relative cover and >10% absolute shrub cover. *Prosopis* spp.-dominated stands that occur naturally (non-ruderal) in desert lowlands, drainages, washes and riparian areas (bosque) are excluded from this ruderal type. It also includes any desert scrub with an exotic species-dominated understory (>90% relative cover) in the herbaceous layer. Invasive non-native shrublands are less common. Stands occur on flat to moderately steep ground and can vary from large areas (100+ hectares) to narrow strips adjacent to roadsides or under powerlines and other disturbed areas. *Eragrostis curvula*- and *Eragrostis lehmanniana*-dominated stands resulting from artificial seeding as part of grassland restoration projects may be exceptionally large (USNVC 2017).

Mojave-Sonoran Semi-Desert Scrub

This broad macro-group encompasses warm temperate to subtropical semi-desert climates of the southwestern U.S. and adjacent Sonora and central to northern Baja California, Mexico. The vegetation is diverse and is characterized by a sparse to moderately dense layer (1%–50% cover) of xeromorphic, evergreen or drought-deciduous, microphyllous or broad-leaved shrubs and/or succulent species, especially cacti, rosette stem succulents such as agaves, and sarcocaulous trees and shrubs. *Larrea tridentata* is often present to dominant with *Ambrosia dumosa* throughout much of the range of this macro-group and occurs in finer-textured landscapes on middle to lower bajadas. On upper bajadas with coarser soils, where more moisture is available, these shrubs are mixed with increasing higher diversity of cacti and other shrubs. In areas of limited moisture, the mixed shrubs can be seen following washes or shallow braided channels across alluvial fans. The Arizona Upland portion of the Sonoran Desert is characterized by *Carnegiea gigantea* with shrub layers dominated by *Parkinsonia microphylla* or *Larrea tridentata*. *Fouquieria splendens*, *Olneya tesota*, and many cacti species are often present. The stands occur on the lower slopes of mountains, foothills, hillsides, mesas, and upper bajadas. Stands form the vegetation matrix in broad valleys, lower bajadas, plains and low hills in the Mojave, Sonoran, and Lower Colorado Deserts (USNVC 2017).

Madrean Lowland Evergreen Woodland

This Madrean mixed pinyon, juniper, and oak (encinal) savanna and woodland macro-group is characterized by a short (3- to 15-meter [m]), open to closed canopy of evergreen, conifer, and broad-leaved trees. Stands are composed of diagnostic Madrean species such as *Juniperus coahuilensis*, *Juniperus deppeana*, *Juniperus flaccida*, *Juniperus pinchotii*, *Pinus cembroides*, *Pinus discolor*, *Pinus remota*, *Quercus albocincta*, *Quercus arizonica*, *Quercus chihuahuensis*, *Quercus emoryi*, *Quercus grisea*,

and *Quercus oblongifolia*. At the northern end of the range, communities may be dominated or co dominated by northern tree species such as *Juniperus monosperma* and/or *Pinus edulis*, but Madrean species will always be present as differential species. The understory may be sparse on some substrates or dominated by shrubs or grasses. If present, the shrub layer varies from open to dense and is composed of chaparral or mountain shrub species (particularly following fire or on rocky substrates). Characteristic species include *Arctostaphylos pungens*, *Ceanothus greggii*, *Cercocarpus montanus*, *Frangula betulifolia*, *Garrya wrightii*, *Nolina microcarpa*, *Purshia mexicana*, *Quercus grisea* (shrub form), *Quercus turbinella*, or *Rhus trilobata*. An herbaceous layer is usually prominent, especially in interspaces between trees in open woodlands. Dominant species are typically warm-season perennial grasses such as *Aristida spp.*, *Bouteloua curtipendula*, *Bouteloua eriopoda*, *Bouteloua gracilis*, *Bouteloua rothrockii*, *Digitaria californica*, *Eragrostis intermedia*, *Hilaria belangeri*, *Leptochloa dubia*, *Muhlenbergia emersleyi*, *Muhlenbergia pauciflora*, *Muhlenbergia setifolia*, *Piptochaetium fimbriatum*, *Piptochaetium pringlei*, and *Schizachyrium cirratum*. Stands occur in foothills and lower mountains in northern Mexico extending into Trans-Pecos Texas, southern New Mexico, and southern Arizona. They are typically found between 1,300 and 2,225 m in elevation in canyons (including alluvial terraces), on gently sloping alluvial fan piedmonts (bajadas), on steeper colluvial foothill slopes and ridges, as well as on mesa-tops. Pinyon- and juniper-dominated stands occur down to 760 m in elevation in Trans-Pecos ranges. Oak-dominated encinalas may also extend down to 900 m in elevation in southern Sonora but generally range from around 1,350 m where it is intermixed with semi-desert grasslands. At upper elevations, the woodlands can be found in a mosaic with Madrean montane forests as small-patch stands (USNVC 2017).

3.4.2 Impacts from the Proposed Action

Direct and Indirect Impacts

Direct impacts on the vegetation communities would result from construction activities including the disturbance and compaction of soils during construction of access roads and the laydown yard, as well as installation of transmission line structures. This would include construction machinery crushing, damaging, and destroying vegetation. Areas of long-term disturbance would remove portions of the seed bank, and areas of temporary disturbance could alter the seed bank. Disturbance of soils would change water infiltration, compact soil, and change local site conditions. Recently disturbed areas have an increased potential to be invaded by noxious weeds, which can alter vegetation communities. Although some areas of temporary disturbance may recover, it may take many years before full recovery is achieved. Any vegetation growing outside the area of the Proposed Action may experience indirect effects, such as fugitive dust. Physical effects of windborne fugitive dust on plants may include blockage and damage to stomata and shading and abrasion of the plant surface, which could result in reduced photosynthetic activity (Goodquarry 2011) and possibly reproductive success. The acreages of ecological systems by facility component for the Proposed Action are displayed in Table 3.7.

Table 3.7. Acreages of Vegetation Communities under the Proposed Action

Facility Component	Ecological System	Short-Term Impacts (Acres)	Reclamation (Acres)	Long-Term Impacts (Acres)
Access roads	Apacherian-Chihuahuan Mesquite Upland Scrub	0.3	–	0.3
	Madrean Pinyon-Juniper Woodland	0.1	–	0.1
	Recently Mined or Quarried	0.1	–	0.1
	Sonora-Mojave Creosotebush-White Bursage Desert Scrub	0.1	–	0.1
	Sonoran Mid-Elevation Desert Scrub	0.1	–	0.1
	Sonoran Paloverde-Mixed Cacti Desert Scrub	0.2	–	0.2

Facility Component	Ecological System	Short-Term Impacts (Acres)	Reclamation (Acres)	Long-Term Impacts (Acres)
Tensioning and Pulling Sites	Apacherian-Chihuahuan Mesquite Upland Scrub	3.4	3.4	–
	Sonora-Mojave Creosotebush-White Bursage Desert Scrub	1.0	1.0	–
	Sonoran Mid-Elevation Desert Scrub	1.5	1.5	–
	Sonoran Paloverde-Mixed Cacti Desert Scrub	0.9	0.9	–
Laydown Yard	Apacherian-Chihuahuan Mesquite Upland Scrub	6.9	6.9	–
	Sonoran Mid-Elevation Desert Scrub	1.0	1.0	–
	Sonoran Paloverde-Mixed Cacti Desert Scrub	0.6	0.6	–
Long-Term ROW	Apacherian-Chihuahuan Mesquite Upland Scrub	24.1	–	24.1
	Madrean Pinyon-Juniper Woodland	3.1	–	3.1
	Sonora-Mojave Creosotebush-White Bursage Desert Scrub	9.4	–	9.4
	Sonoran Mid-Elevation Desert Scrub	7.0	–	7.0
	Sonoran Paloverde-Mixed Cacti Desert Scrub	14.0	–	14.0
Temporary ROW	Apacherian-Chihuahuan Mesquite Upland Scrub	1.6	1.6	–
	Madrean Pinyon-Juniper Woodland	0.1	0.1	–
	Sonora-Mojave Creosotebush-White Bursage Desert Scrub	0.1	0.1	–
	Sonoran Mid-Elevation Desert Scrub	0.9	0.9	–
	Sonoran Paloverde-Mixed Cacti Desert Scrub	0.2	0.2	–
Total	Apacherian-Chihuahuan Mesquite Upland Scrub	36.3	11.9 (33%)	24.4 (77%)
	Madrean Pinyon-Juniper Woodland	3.3	0.1 (2%)	3.2 (98%)
	Recently Mined or Quarried	0.1	0.0 (0%)	0.1 (100%)
	Sonora-Mojave Creosotebush-White Bursage Desert Scrub	10.5	1.0 (10%)	9.5 (90%)
	Sonoran Mid-Elevation Desert Scrub	10.5	3.4 (32%)	7.1 (68%)
	Sonoran Paloverde-Mixed Cacti Desert Scrub	15.9	1.7 (11%)	14.2 (89%)

Source: USGS (2011)

The short-term direct and indirect impacts to native vegetation would be minimized through the implementation of the BMP's would include complying with the Arizona Native Plant Law, salvaging native plants as directed by the BLM, leaving as much native vegetation intact within construction areas as possible to encourage regrowth, minimizing fugitive dust, and stipulations that would minimize the spread of invasive plants.

Reclamation activities would include the restoration of 18.1 acres of areas no longer needed for operations and maintenance activities. Salvaged plants would be replanted, and native seed mixes as approved by the BLM would minimize any long-term impacts to these areas.

The long-term impacts (Table 3.7) would likely be less than described above, as revegetation would occur within the long-term ROW and access roads and long-term uses are not expected to require the entire long-term ROW and access road acreages. However, the amount of vegetation that would be altered/removed in the long-term ROW and access roads would vary, depending on the location and intensity of use needed

for operations and maintenance activities. Trico would minimize impacts on vegetation during operations and maintenance by avoiding total removal of vegetation whenever possible, which would minimize long-term direct or indirect impacts on vegetation resources.

Cumulative Impacts

The CIAA for this issue consists of three HUC-12 watersheds in which the Proposed Action is located. Past and present actions in the CIAA include, but are not limited to, residential and commercial development (including the development associated with Green Valley, Arizona) and associated infrastructure (including road and utility ROWs), mining activities (including the Twin Buttes Mine), and agricultural development (including livestock grazing). Based on the best available data, estimates of vegetation disturbance by vegetation community that intersect the area of the Proposed Action are presented below (Table 3.8).

There are no known reasonably foreseeable future actions within the CIAA that would impact vegetation communities and therefore none are included within the disturbance estimates (see Table 3.8). Any requests for land use authorizations on federally administered lands are considered on a case-by-case basis, and typically include stipulations and best management practices to minimize impacts to resources, including soil and erosion. Authorizations on private land are subject to landowner discretion and state/local policies, which cannot be quantified at this time.

Table 3.8. Cumulative Vegetation Disturbance within the CIAA

Ecological System	CIAA Total Acreage	CIAA Past and Present Total Disturbance Acreage/ Percentage*	CIAA Proposed Action Disturbance Acreage/ Percentage*	CIAA Cumulative Disturbance Acreage/ Percentage*
Apacherian-Chihuahuan Mesquite Upland Scrub	10,197.3	193.0 (1.9%)	24.4 (0.2%)	217.4 (2.1%)
Sonora-Mojave Creosotebush-White Bursage Desert Scrub	2,316.1	442.7 (19.1%)	9.5 (0.4%)	452.2 (19.5%)
Sonoran Mid-Elevation Desert Scrub	2,769.4	172.5 (6.2%)	7.1 (0.3%)	179.6 (6.6%)
Sonoran Paloverde-Mixed Cacti Desert Scrub	21,302.7	1,350.6 (6.3%)	14.2 (0.1%)	1,364.8 (6.4%)
Madrean Pinyon-Juniper Woodland	717.8	38.9 (5.4%)	3.2 (0.4%)	42.1 (5.8%)
Recently Mined or Quarried	11,346.4	10,983.6 (96.8%)	0.1 (0.0%)	10,983.7 (96.8%)

Sources: USGS (2011, 2014)

* Percentage represents the disturbance acreage divided by the total soil acreage within the CIAA.

3.4.3 Impacts from the No Action Alternative

Direct and Indirect Impacts

Trico would not construct the 6.6-mile-long electrical line; therefore, there would be no direct or indirect impacts to vegetation communities under the no-action alternative.

Cumulative Impacts

As there would be no direct or indirect impacts to vegetation communities, there would be no incremental cumulative impacts from the No Action Alternative. Other past, present, and reasonably foreseeable future action cumulative impacts would still occur as described above (Section 3.4.2).

3.5 Issue 5: How would the presence of the Proposed Action impact the viewshed of Mission Road?

The geographic scope of the analysis (including the CIAA) associated with this issue is where Mission Road intersects a 0.25-mile buffer of the Proposed Action project area. This geographic scope was chosen because the most visible areas from which the tallest elements of the project could potentially be seen from existing grades are within 0.25 miles of the Proposed Action project area and the issue statement is specifically focused on Mission Road.

3.5.1 Affected Environment

The area of the Proposed Action intersects two BLM-administered parcels, which have been assigned a Visual Resource Management (VRM) Class III. Areas assigned to this VRM class have a management objective to partially retain the existing character of the landscape. VRM Class III allows a moderate level of change that may attract attention but should not dominate the view of a casual observer.

A 2017 visual resources survey conducted by the BLM determined that almost all of the area of the Proposed Action and the surrounding landscape is VRM Class IV, which has the lowest relative visual values (BLM 2001). The far eastern edge of the area of the Proposed Action is rated as VRM Class III, which has low relative visual values.

To evaluate the potential visibility of the Proposed Action from Mission Road, a viewshed analysis was conducted. Mission Road was identified as a sensitive viewshed based on the BLM internal review of the public lands, primarily due to local residents (who live approximately 1 mile east in Green Valley and drive for pleasure); there are no schools, churches, or adjacent private residences. Topographic viewshed maps were prepared for these areas using USGS digital elevation model data (USGS National Elevation Dataset 1/3 arc-second) superimposed with transmission line structures to illustrate potential visibility of the Proposed Action. The resulting viewshed map defined the most visible areas within 0.25 mile of the Proposed Action from which the tallest elements of the project (i.e., the tops of the transmission line structures) could potentially be seen from the existing grade. The analysis area for visual resources was established through preliminary assessment of scenic quality, visual sensitivity, and the derivation of this viewshed analysis using digital elevation modeling and ESRI ArcGIS viewshed tools. Field reconnaissance was conducted to verify Mission Road's existing conditions, confirm the absence of sensitive viewpoints (scenic vistas, residential areas, protected lands), and determine visual contrast. Preliminary viewshed analysis and field reconnaissance confirmed an analysis area of 0.25 mile on either side of Mission Road's centerline. The topographic viewshed analysis was run using the maximum height of the transmission line structures and distancing provided by Trico (at 85 feet tall and 350–400 feet apart). The analysis was also run using bare earth, which means that it does not take into account the screening effect of vegetation or built structures and that it provides a very conservative (i.e., "worst-case") assessment of potential visibility.

Based on the results of the viewshed analysis and discussions with the BLM, three key observation points (KOP's) were identified to evaluate potential impacts to the visual quality and aesthetics experienced at scenic resources. These three locations represented areas where the proposed transmission line is likely to be the most visible from the users of Mission Road. A map of the Proposed Action viewshed and KOP locations is provided below (Figure 3.3).

The KOP contrast analysis assumed that the individuals impacted would be those traveling along Mission Road. There are no residents within the viewshed analysis area, and minimal, dispersed recreational opportunities exist within the analysis area, which was confirmed during the field reconnaissance. Individuals who would be impacted by the Proposed Action would be in motorized vehicles. It is assumed that all individuals are familiar with the surrounding landscape and may be sensitive to changes in their views.

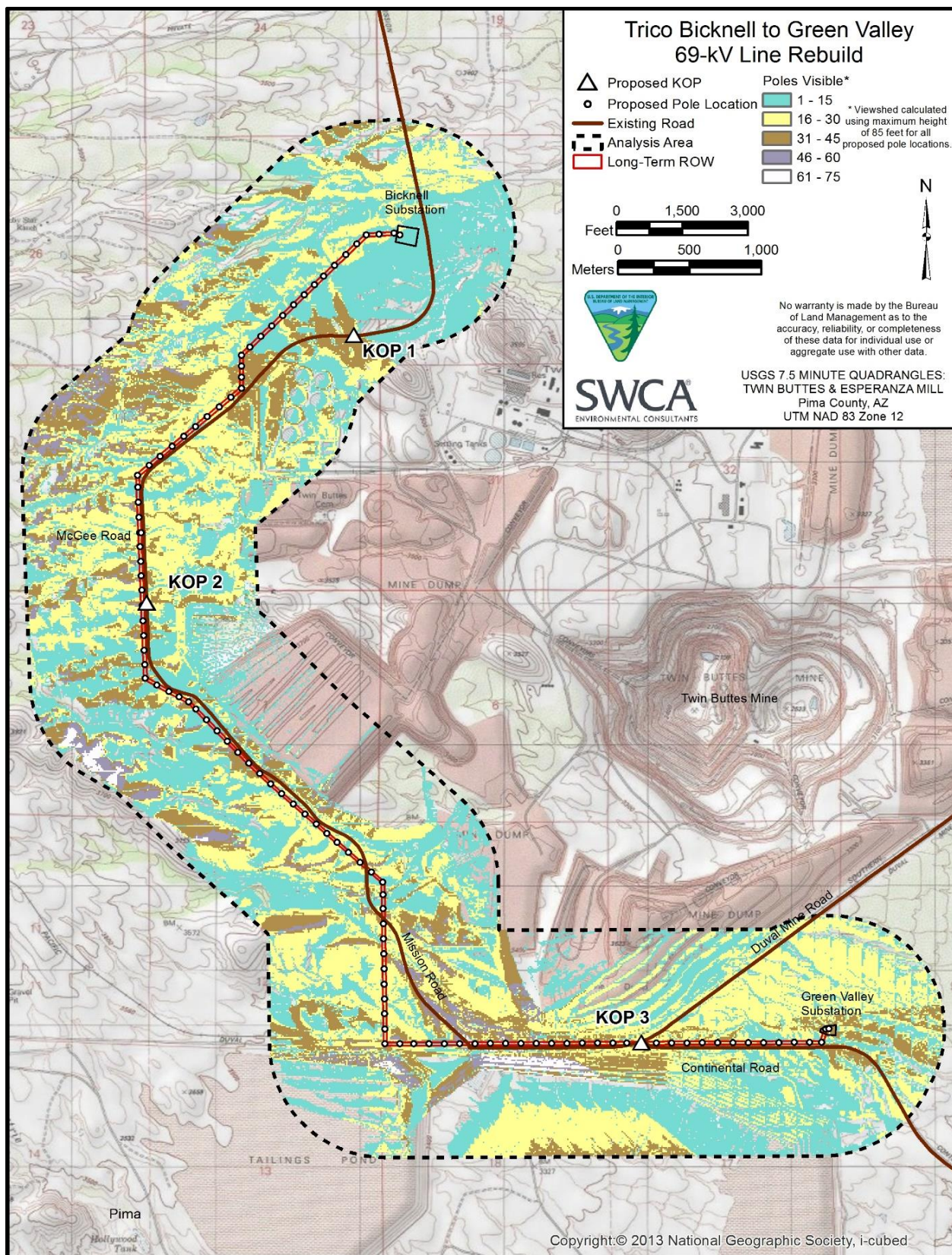


Figure 3.3. Proposed Action viewshed, KOP locations, and Juan Bautista de Anza National Historic Trail location – Mission Road Motor Route (follows Mission Road).

Based on the KOP analysis, the existing characteristics of the Mission Road viewshed consist of a flat foreground with hills/mountains in the background (noting that some of the terrain/topography is composed of man-made mine tailings storage facilities associated with the Twin Buttes Mine) that is medium- and smooth-textured land, dark to light brown/gray in color. The existing vegetation is relatively plentiful and indistinct with a medium to high density that is randomly dispersed and patchy with a green dominant color. The existing structures within the Mission Road viewshed are indistinct (such as roadway signs) to distinct (such as existing transmission lines) and are both vertically and horizontally defined. The structures were either dull brown or yellow and appeared to be directional and continuous. The detailed KOP sheets along with the representative KOP photo are included in Appendix A.

During field reconnaissance, it was noted that the viewshed as seen from Mission Road is of lower scenic quality. There are numerous existing landscape features (such as the Twin Buttes Mine tailings facilities and other associated mining topographic changes) and structures (communication towers, roadway signs, existing transmission lines, fence lines, and pipes) that create a high degree of contrast within the viewshed.

3.5.2 *Impacts from the Proposed Action*

Direct and Indirect Impacts

The potential short-term impacts on visual characteristics along Mission Road would occur from construction equipment, laydown yards, tensioning and pulling sites, and temporary ROW. These impacts would only persist during the construction period (5 months) and reclamation activities and BMP's would make any long-term visual impacts in these areas negligible.

The potential long-term impacts on visual quality along Mission Road would result from construction of new transmission line structures and the establishment of a new ROW and associated access roads. The new structures would create additional lines and forms within the Mission Road viewshed and could result in impacts to scenic quality and aesthetics. The extent to which these additional lines and forms affect visual quality depends upon whether the new transmission line follows an existing linear corridor, such as transmission lines, roadways, and railroads; the degree to which it is shielded from view by terrain and vegetation; and the types of other visual elements (such as communications towers, industrial areas, farmsteads, etc.) that already exist in the landscape.

Based on the KOP analysis, the minor to moderate visual changes would occur within the Mission Road viewshed, primarily due to the addition of the galvanized steel color structures. Mission Road has a posted speed limit of 50 miles per hour and is a narrow roadway with limited shoulder width. It is unlikely that motorists traveling at 50 miles per hour would have their attention drawn to the Proposed Action. Additionally, there are numerous existing landscape features (such as the Twin Buttes Mine tailings facilities and other associated mining topographic changes) and structures (communication towers, roadway signs, existing transmission lines, fence lines, and pipes) that already create a high degree of contrast within the viewshed.

The Proposed Action would meet VRM III objectives and would not create a significant degree of contrast that is not permitted under the VRM III areas.

Cumulative Impacts

The CIAA for this issue is the same as described above. Past and present actions within the Mission Road viewshed have created a high degree of visual contrast as evaluated during field reconnaissance (Appendix A). These types of actions include road ROW development (including signage), mining activities (including the Twin Buttes Mine and associated infrastructure), and other types of infrastructure development (such as communication towers and utility ROW's). It is anticipated that these types of actions would continue to occur within the Mission Road viewshed and would continue to create visual contrast.

There are no known reasonably foreseeable future actions within the CIAA that would impact visual resources. BLM considers requests for land use authorizations on a case-by-case basis, and typically includes stipulations and best management practices to minimize impacts to resources, including visual

resources. Authorizations on private land are subject to landowner discretion and state/local policies. These potential impacts cannot be quantified at this time.

Cumulatively, the Proposed Action would contribute to visual impacts along the Mission Road viewshed. However, these impacts would meet the VRM III management objectives, including the degree of visual contrast.

Because the Proposed Action would be located mostly along existing linear corridors, and because similar facilities exist within the viewshed of Mission Road, visual cumulative impacts are likely to blend in with existing development. When considered with other past and present actions (e.g., road and utility ROW's, low-intensity residential and commercial development, and mining activities at the Twin Buttes Mine), the Proposed Action would not substantially contribute to cumulative effects.

3.5.3 *Impacts from the No Action Alternative*

Direct and Indirect Impacts

Trico would not construct the 6.6-mile-long electrical line; therefore, there would be no direct or indirect impacts to the Mission Road viewshed under the no-action alternative.

Cumulative Impacts

As there would be no direct or indirect impacts to the Mission Road viewshed, there would be no incremental cumulative impacts from the No Action Alternative. Other past, present, and reasonably foreseeable future action cumulative impacts would still occur as described above (Section 3.5.2).

3.6 Issue 6: How would the presence of the Proposed Action impact the Juan Bautista de Anza National Historic Trail?

The geographic scope of the analysis (including the CIAA) associated with this issue is from Continental Road to Twin Buttes Road, which is the area where the power line development would occur.

3.6.1 *Affected Environment*

The Juan Bautista de Anza National Historic Trail (JBA Trail) commemorates, protects, marks, and interprets the route traveled by Anza and the colonists during the years 1775 and 1776 from Sonora, Mexico, to today's San Francisco, California where a mission and presidio were established. The JBA Trail was designated a National Historic Trail by Congress in 1990 through an amendment to the National Trails System Act (16 U.S.C. 1241-51). The JBA Trail is approximately 1,200 miles in length, is administered by the Department of the Interior, and is managed by the National Park Service.

The JBA Trail corridor near the project area follows the Santa Cruz River but also includes a motor route along I-17 and a motor route from the I-17/Continental Road interchange to Tucson along portions Continental Road, Duvall Mine Road, and Mission Road. The Mission Road motor route (See Figure 3.3) provides opportunities for trail users to travel through and view the rural landscape off the Interstate at a lower speed. The landscape along this motor route is highly developed, with mining, transportation, utility, ranching and residential developments with a few remnants of the natural historic landscape. No information is available on the amount of JBA Trail related use the motor route receives.

3.6.2 *Impacts from the Proposed Action*

Direct and Indirect Impacts

The Proposed Action would introduce a new power line development along a 6-mile segment of the Mission Road Motor Route, with direct impacts on views along the route, including segments that retain some of the natural landscape between the existing mining developments. The power line and construction access

roads would be in close proximity to the motor route, and would have noticeable visual impacts from the power poles, conductors, and vegetation clearing. These visual impacts would be long term, and remain for the life of the project. During power line construction (5 months), there would be a temporary disruption of use of the motor route when required for safety reasons, such as during stringing conductors across the road.

Cumulative Impacts

The Proposed Action would add new power line related impacts to past changes from mining, transportation, utilities, ranching and residential development in the character of the landscape along the Mission Road Motor Route, which have caused major alterations in the historic landscape.

3.6.3 *Impacts from the No Action Alternative*

Direct and Indirect Impacts

None. The power line and related access roads and substation would not be constructed.

Cumulative Impacts

None. The portions of the landscape along the Mission Road Motor Route would remain free of power line related impacts.

4 SUPPORTING INFORMATION

4.1 Tribes, Individuals, Organizations, or Agencies Consulted

No tribal concerns were identified, and as such, tribal coordination was not conducted for the Proposed Action. The following organizations and agencies were consulted during the preparation of the draft EA or commented on the draft EA, as shown below:

Organizations	Agencies
Trico Electric Cooperative, Inc.	U.S. Fish and Wildlife Service
Freeport-McMoRan, Inc.	

4.2 List of Preparers

The following BLM staff individuals were involved in the preparation of this EA:

Name	Title	Resource
Maggie Hartney	Project Manager, Realty Specialist	Lands and Realty
Leslie Uhr	Project Manager, Realty Specialist	Lands and Realty
Keith Hughes	Natural Resource Specialist	Biology
Amy Sobiech	Archaeologist	Cultural Resources
Colleen Bergmanis	Assistant Field Manager for Nonrenewable Resources	Nonrenewable Resources
Kristen Duarte	Rangeland Management Specialist	Livestock Grazing
Eric Baker	Rangeland Management Specialist	Livestock Grazing
Robert Walter	Natural Resource Specialist - Recreation	Recreation and Visual Resources
Francisco Mendoza	Outdoor Recreation Planner	Juan Bautista de Anza Trail
David Murray	Hydrologist	Air, Water, and Soils
Daniel Moore	Geologist	Minerals
Jayne Lopez	Field Manager	Authorized Officer
Derek Eysenbach	Planning and Environmental Specialist	NEPA Compliance
Amy McGowan	Planning and Environmental Coordinator	NEPA Compliance

The following SWCA staff individuals were involved in the preparation of this EA:

Name	Title	Resource
Patrick Blair	Project Manager	NEPA Compliance
Ryan Rausch	Senior Project Manager	NEPA Compliance and Visual Resources
Russell Waldron	Senior Project Manager/ Biologist	Biological Resources
Colin Agner	Environmental Planner	NEPA Compliance
Brianna Zurita	Environmental Planner	NEPA Compliance
Kelley Cox	Senior Formatter	508 Compliance

5 LITERATURE CITED

- Arizona Geological Survey (AZGS). 2019. Geologic Map of Arizona. Available at: <http://data.azgs.az.gov/geologic-map-of-arizona/>. Accessed July 2019.
- Bureau of Land Management (BLM). 1988. Phoenix Resource Management Plan and Final Environmental Impact Statement. December 1988.
- . 2001. Integrating GIS Technologies with the Visual Resource Management Inventory Process. Technical Note 407. Available at: <https://ia800609.us.archive.org/31/items/integratinggiste00jack/integratinggiste00jack.pdf>. Accessed July 2019.
- . 2008. *BLM National Environmental Policy Act Handbook H-1790-1*. Office of the Assistant Director. Available at: https://www.ntc.blm.gov/krc/uploads/366/NEPAHandbook_H-1790_508.pdf. Accessed July 2019.
- . 2017. Land Health Evaluation of the Twin Buttes No. 2 Allotment Lease No. 6208. Available at: https://eplanning.blm.gov/epl-front-office/projects/nepa/62056/106443/130112/Twin_Buttes2_5-10-17_esignature.pdf. Accessed July 2019.
- . 2019a. ePlanning, project website: DOI-BLM-AZ-G020-2019-0023-EA. Available at: <https://eplanning.blm.gov/epl-front-office/eplanning/projectSummary.do?methodName=renderDefaultProjectSummary&projectId=123675>. Accessed July 2019.
- . 2019b. Rangeland Administration System Reports. Available at: <https://reports.blm.gov/reports/RAS/>. Accessed July 2019.
- . 2019c. ePlanning website search for grazing leases. Available at: https://eplanning.blm.gov/epl-front-office/eplanning/nepa/nepa_register.do. Accessed July 2019.
- . 2019d. Landscape Approach Data Portal. Available at: <https://landscape.blm.gov/geoportal/rest/find/document?searchText=isPartOf%3ANATL&contentContent=downloadableData&start=1&max=10&orderBy=title&f=searchpage>. Accessed July 2019.
- Edwards, P., K.W.J. Williard, and J.E. Schoonover. 2015. Fundamentals of Watershed Hydrology. *Water Research and Education*. Volume 154, Issue 1, pp. 3–20. Available at: <https://onlinelibrary.wiley.com/doi/full/10.1111/j.1936-704X.2015.03185.x>. Accessed July 2019.
- Federal Geographic Data Committee. 2019. National Vegetation Classification Standard. Available at: <https://www.fgdc.gov/standards/projects/FGDC-standards-projects/vegetation>. Accessed July 2019.
- Goodquarry. 2011. Dust Impacts: Ecology and Agriculture. Available at: <http://www.goodquarry.com/article.aspx?id=56&navid=2>. Accessed July 2019.
- National Institute of Environmental Health Sciences. 2002. Electric and Magnetic Fields Associated with the Use of Electric Power. Available at: https://www.niehs.nih.gov/health/materials/electric_and_magnetic_fields_associated_with_the_use_of_electric_power_questions_and_answers_english_508.pdf. Accessed July 2019.
- Natural Resources Conservation Service (NRCS). 2001. Rangeland Soil Quality- Compaction. Available at: https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051912.pdf. Accessed September 2019

- . 2019. Web Soil Survey. Available at: <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>. Accessed July 2019.
- Pima County. 2016. *Multi-species Conservation Plan for Pima County, Arizona: Final*. Submitted to the Arizona Ecological Services office of the U.S. Fish and Wildlife Service, Tucson, Arizona.
- RECON. 2002. Priority Vulnerable Species: Analysis and Review of Species Proposed for Coverage by the Multiple Species Conservation Plan. January 2002.
- U.S. Environmental Protection Agency (EPA). 2018. EJSCREEN. Available at: <https://ejscreen.epa.gov/mapper/>. Accessed July 2019.
- U.S. Fish and Wildlife Service (USFWS). 1993. Determination of endangered status for the plant PPC (*Coryphantha scheeri* var. *robustispina*). *Federal Register* 58(183):49875–49880.
- . 2007. Five-Year Review for Pima Pineapple Cactus (*Coryphantha scheeri* var. *robustispina*). Available at: https://www.fws.gov/southwest/es/arizona/Documents/SpeciesDocs/PimaPineappleCactus/PPC_5yrReview.pdf. Accessed July 2019.
- . 2008. Biological opinion for the proposed buffelgrass control on the Santa Rita Experimental Range (AESO/SE 22410-2008-F-0130). Available at: <http://www.fws.gov/southwest/es/arizona/Biological.htm>. Accessed July 2019.
- . 2018. Recovery plan for Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*). Available at: https://www.fws.gov/southwest/es/arizona/Documents/SpeciesDocs/PimaPineappleCactus/FINAL%20PPC%20Recovery%20Plan_updated.pdf. Accessed July 2019.
- U.S. Forest Service (USFS). 2011. Watershed Condition Classification Technical Guide. Available at: https://www.fs.fed.us/biology/resources/pubs/watershed/maps/watershed_classification_guide2011FS978.pdf. Accessed July 2019.
- U.S. Geological Survey (USGS). 2011. GAP/LANDFIRE National Terrestrial Ecosystems Data. Available at: <https://www.usgs.gov/core-science-systems/science-analytics-and-synthesis/gap>. Accessed July 2019.
- . 2014. LANDFIRE: LANDFIRE Existing Vegetation Type layer. Available at: <https://www.landfire.gov/evt.php>. Accessed August 2019.
- . 2019. Mineral Resources Online Spatial Data, Interactive maps, and downloadable data for regional and global analysis. Available at: <https://mrdata.usgs.gov/general/map-us.html>. Accessed July 2019.
- U.S. National Vegetation Classification (USNVC). 2017. United States National Vegetation Classification Database. Federal Geographic Data Committee, Vegetation Subcommittee, Washington DC. Available at: <http://usnvc.org/explore-classification/>. Accessed July 2019.

APPENDIX A. VISUAL RESOURCE CONTRAST ANALYSIS WORKSHEETS AND PHOTOS
