NEW APPLICATION

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BEFORE THE ARIZONA POWER PLANT AND TRANSMISSION LINE SITING COMMITTEE

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AZ CORP COMMISSION
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IN THE MATTER OF THE APPLICATION OF UNS ELECTRIC, INC. FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY FOR THE VAIL TO VALENCIA 115 KV TO 138 KV TRANSMISSION LINE UPGRADE PROJECT, ORIGINATING AT THE EXISTING VAIL SUBSTATION IN SEC. 4, T.16S., R.15E., PIMA COUNTY, TO THE EXISTING VALENCIA SUBSTATION IN SEC. 5, T. 24S., R.14E., IN THE CITY OF NOGALES, SANTA CRUZ COUNTY, ARIZONA.	Docket No. L-L-00000F-09-0190-00144 Case No. **NOTICE OF FILING APPLICATION**

UNS Electric, Inc. ("UNS Electric" or "Company"), through undersigned counsel, hereby provides notice of its filing of its Application for a Certificate of Environmental Compatibility ("Application") for a 115 kV to 138 kV Transmission Line Upgrade Project serving Santa Cruz County customers of UNSE. Pursuant to A.R.S. §§ 40-360 through 40-360.13, and A.A.C. R14-3-201 through R14-2-219, enclosed are 25 copies of UNS Electric's Application. Copies of the Application are also being provided by the Company to the Arizona Game & Fish Department, the State Historic Preservation Office, the City of Tucson, the City of Sahuarita, the City of Nogales, Pima County, Santa Cruz County, and the Arizona State Land Department. Pursuant to A.R.S. § 40-360.09.6, UNS Electric is also enclosing the one-thousand-dollar ($1,000) filing fee.

Communications concerning the Application should be addressed to:

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RESPECTFULLY SUBMITTED this 21st day of April 2009.

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Original and 25 copies filed
this 21st day of April 2009, with:

Docket Control
ARIZONA CORPORATION COMMISSION
1200 West Washington Street
Phoenix, Arizona 85007

A copy of the foregoing was hand-delivered
this 21st day of April 2009 to:

Chairman John Foreman
Arizona Power Plant and Transmission Line Siting Committee
Arizona Attorney General Office
1275 West Washington Street
Phoenix, Arizona 85007

By Mary Appoleto

BEFORE THE ARIZONA POWER PLANT

AND TRANSMISSION LINE SITING COMMITTEE

IN THE MATTER OF THE APPLICATION OF UNS ELECTRIC, INC. FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY FOR THE VAIL TO VALENCIA 115 KV TO 138 KV TRANSMISSION LINE UPGRADE PROJECT, ORIGINATING AT THE EXISTING VAIL SUBSTATION IN SEC. 4, T.16S., R.15E., PIMA COUNTY, TO THE EXISTING VALENCIA SUBSTATION IN SEC. 5, T.24S., R.14E., IN THE CITY OF NOGALES, SANTA CRUZ COUNTY, ARIZONA.	)	Docket No. _____ Case No. _____

APPLICATION FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY

Vail to Valencia 115 kV to 138 kV Transmission Line Upgrade Project

Prepared for:

State of Arizona Power Plant and Transmission Line Siting Committee

Prepared by:

UNS Electric, Inc.

Volume 1 of 1

Date: April 21, 2009
Case No.:
Docket No.:

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INTRODUCTION

PREFACE

The Vail to Valencia 115 kV to 138 kV Transmission Line Upgrade Project ("Project") upgrades the existing transmission line that serves Santa Cruz County customers of UNS Electric, Inc. ("UNS Electric"). There are three primary elements to the proposed upgrade:

1. Interconnect the northern end of the line with a major import substation (the Vail 345/138 kV Substation) instead of the Nogales Tap.
2. Upgrade the voltage of the existing 115 kV line to 138 kV.
3. Replace aging wooden H-frame structures with steel monopoles.

The Project will interconnect four existing substations in Santa Cruz County (Kantor, Cañez, Sonoita, and Valencia) with the Vail Substation in Pima County. The interconnection at the Vail Substation will remove capacity limitations currently existing due to the line's interconnection at the Nogales Tap and allow UNS Electric to continue to meet growing load demand for its customers in Santa Cruz County. This upgrade will increase capacity to serve Santa Cruz County from 50.9 MW to 120.0 MW.

For the majority of the Project, from the Kantor Substation to the Valencia Substation, UNS Electric proposes using the existing 115 kV corridor ("existing 115 kV alignment"), while at the same time offering at least one alternative alignment for consideration by the Arizona Power Plant and Transmission Line Siting Committee ("Committee"). Although, UNS Electric prefers the existing 115 kV alignment for the majority of the Project, UNS Electric prefers a different alignment in two areas: 1) just north of the Cañez Substation to Sonoita Substation and 2) the area around Old Tucson Road and Grand Avenue in Nogales. Development and encroachment that occurred after the original line was built are the primary reasons for preferring different alignments in these areas.

For the extension of the line to the Vail Substation at the northern end of the Project, UNS Electric proposes two alternative alignments. Both alignments would parallel existing transmission lines. The preferred alignment parallels an existing Tucson Electric Power Company ("TEP") 138 kV lattice tower line north of the Nogales Tap. The alternative alignment parallels two Arizona Electric Power Cooperative ("AEPCO") lines, as well as the TEP 345 kV Vail to South Transmission Line.

Although one of the primary elements of the Project is to replace existing wood structures with steel monopoles, 28 miles of the existing line were already re-built on steel monopoles between the Nogales Tap and the Kantor Substation. In May 1988, UNS Electric's predecessor, Citizens Utilities Company ("Citizens"), applied to rebuild this section of the line and Decision No. 56097 granted Citizens the authority to replace the then-existing wooden H-frame structures with 90-foot high self-weathering single shaft steel poles. As explained in Citizens' application in Line Siting Case No. 78, the line to Kantor Substation from the Nogales Tap was rebuilt to operate at 138 kV. Therefore, UNS Electric believes that there is no need to replace any structures or equipment along the 28-mile stretch from the Nogales Tap to Kantor Substation. Also, because this portion of the line would not require any changes or upgrades, no alternative alignments are proposed.

For the remainder of the line where wooden H-frame structures still remain, UNS Electric will replace these structures with self-weathering steel monopoles. Replacing the existing wood structures with steel monopoles will significantly improve the reliability of the line and continuity of service.

The Project is a critical element to providing improved reliability to the citizens and customers of Santa Cruz County. Unlike most applications for a Certificate of Environmental Compatibility ("CEC"), this Project is designed to rebuild and upgrade an existing line rather than construct a new transmission line. Because the environmental impacts of the existing line have already occurred, UNS Electric believes that for the vast majority of the Project, the line should be rebuilt where it currently stands. For the limited locations when the preferred alignment is not the existing 115 kV alignment, compelling factors (e.g., encroachments) justify a new preferred alignment. Project completion is planned for the summer of 2012.

PROJECT DESCRIPTION

UNS Electric customers in Santa Cruz County are currently served by an existing 115 kV line from the Nogales Tap, just south of Tucson, to the Valencia Substation, in Nogales, Arizona (approximately 54 miles). The Project upgrades the existing single-circuit 115 kV transmission line with a 138 kV single-circuit transmission line. The upgrade will involve replacing aging wooden H-frame structures with steel monopoles and ancillary equipment on approximately one-half of the existing line and increasing the voltage from 115 kV to 138 kV. The Project also extends the line from the Nogales Tap to the Vail Substation at the northern end of the Project. There will be no new substations constructed as part of this upgrade. UNS Electric, however, will replace existing transformers at the Kantor and Cañez Substations with 115 kV/138 kV transformers relocated from the Valencia Substation. The remaining substations already have dual tap transformers (i.e., transformers capable of operating at 115 kV or 138 kV).

The Project does, however, also establish a new connection at the Vail Substation. The Vail Substation is owned and operated by TEP. UNS Electric and TEP are both owned by UniSource Energy Corporation. The Vail Substation receives high voltage bulk power delivery for the TEP system. The Vail Substation interconnection will involve between 3.8 and 4.2 miles of new transmission that will tie into the new 138 kV line. At the Vail Substation a new 345 kV/ 138 kV transformer and associated equipment will be added and the existing 345 kV bus will be reconfigured in order to connect the new 138 kV line to the Vail Substation.

For the vast majority of the Project, UNS Electric proposes using the existing 115 kV alignment. In only two areas south of the Nogales Tap does UNS Electric propose that the preferred alignment deviate from the location of the existing line. This is because, in those areas, the existing alignment contains features that would substantially complicate the construction, operation, and maintenance of the transmission line. These two areas where the new alignment is preferred are:

1. An approximate five-mile portion, from just north of the Cañez Substation to the Sonoita Substation.
2. An approximate one-mile portion of the line where Old Tucson Road and Grand Avenue intersect in Nogales.

For ease of reference, the Project has been divided into the following four segments:

- Segment 1 – Vail to Kantor Substations
- Segment 2 – Kantor to Cañez Substations
- Segment 3 – Cañez to Sonoita Substations
- Segment 4 – Sonoita to Valencia Substations

The preferred and alternative alignments proposed for each segment are discussed in further detail in the "PREFERRED AND ALTERNATIVE ALIGNMENTS" section.

PURPOSE AND NEED

The primary purpose of the Project is to address the growing electrical demands of communities in Santa Cruz County by increasing the capacity of the existing transmission line. This will be accomplished by connecting the line to the Vail Substation and increasing voltage on the line from 115 kV to 138 kV. Currently, the 115 kV line to Nogales is constrained due to limitations on Western Area Power Administration's ("WAPA") system. The Nogales Tap (essentially a switchyard) is owned and operated by WAPA. The existing line is capable of transporting more power physically, but is operationally

limited to 50.9 MW due to operational constraints on WAPA's system. UNS Electric needs to interconnect the existing line to the Vail Substation in order to reduce its reliance on the turbines located at the Valencia Substation to meet peak load. The Vail Substation, located about four miles away from the Nogales Tap, provides that interconnection and removes the current capacity constraint. Further, connecting to the Vail Substation provides opportunities for coordinated operation between TEP and UNS Electric. In short, interconnection to the Vail Substation will allow a direct interconnection to TEP's EHV system in Southern Arizona, and removes the existing capacity constraint at the WAPA interconnection.

The Project also allows UNS Electric to increase the voltage from 115 kV to 138 kV, which is the standard voltage for TEP's sub-transmission system connected at the Vail Substation. This change will involve upgrading the infrastructure where needed to accommodate 138 kV. Increasing the voltage will increase capacity and allow more load to be served at peak times. Finally, replacing aging wood H-frame structures with steel monopoles is a critical element of the Project. Installing steel structures extends the line's life and improves system reliability.

The current load forecasts already indicate that peak demand exceeds 50.9 MW in Santa Cruz County. This figure is expected to grow from 73.4 MW in 2008 to 91.4 MW in 2012. This is significant due to the capacity constraint at the Nogales Tap (i.e., the transmission wheeling contract with WAPA requires operation of the turbines at Valencia Substation at 50.9 MW). The anticipated future load demand cannot be served by the existing 115 kV line. UNS Electric installed an additional 20 MW generator at the Valencia Substation as a near-term solution pending the upgrade and conversion of the existing 115 kV line to 138 kV. The line upgrade, together with interconnection at the Vail Substation, increases the capacity of the line from 50.9 MW to 120.0 MW and gives UNS Electric access to power from the regional grid as opposed to solely relying on the Valencia turbines to meet peak load.

The Project is planned for completion by the summer of 2012.

PUBLIC PROCESS AND ROUTING STUDY

The activities performed to determine potential routes and identify a preferred alignment involved a combination of technical and professional studies and extensive public and agency outreach activities. Professional and technical studies were performed to evaluate the compatibility of the Project. Studies were prepared by qualified environmental planners, biologists, land use planners, archaeologists, engineers, and other relevant specialists. These specialists examined existing conditions and, to the extent possible, future conditions.

UNS Electric contracted with Transcon Environmental ("Transcon") to assist in the evaluation of relevant environmental issues associated with the proposed project and related actions. All proposed alignments were carefully selected for the proposed facilities following an analysis of relevant environmental and land use factors; engineering, construction, and right-of-way considerations; and extensive input from political leaders, agency staff, and members of the public.

Initial potential alignments were provided by the public, agencies, jurisdictions, developers, and supplemented by UNS Electric and Transcon according to criteria reviewed and refined with the public and participating jurisdictions. The Project, as initially proposed, involved upgrading the existing 115 kV transmission line to 138 kV. Initially, the plan was to retain the entire existing route south of the Nogales Tap and replace the existing H-frame structures in the existing right-of-way, and re-conductor the line to 138 kV to accommodate the increased capacity.

During the initial evaluation of the Project, UNS Electric and Transcon determined there were several short portions of the existing line where construction of the existing line would be very difficult for various reasons. These problems included narrow right-of-way and encroachments that would make construction and operation of the line expensive and difficult, particularly in the area between Old Tucson Road and Grand Avenue. The upgrade of the existing transmission line provided an opportunity to consider if other areas would provide more suitable locations for portions of the Project. UNS Electric and Transcon evaluated additional alignments (besides the existing 115 kV alignment). Their findings were presented to the public and jurisdictions through a variety of public outreach processes described below.

The public outreach process involved circulating three newsletters, holding three series of public open houses (two or three meetings per series), maintaining a Project information telephone line and interactive Project website, responding to all telephone calls and e-mail messages, meeting with individual stakeholders, and providing press releases and meeting announcements in local newspapers. The last round of public meetings, held in December 2008, was preceded by a newsletter to over 30,000 residents, landowners, agencies, and stakeholders. Each meeting and outreach activity encouraged public participants to offer suggestions on alignments and highlight areas they considered sensitive. Public meetings were held in multiple locations in the study area to encourage the public's participation.

The outreach activities also involved a comprehensive and continuous process for engaging the relevant local jurisdictions, developers, and public groups. Individual meetings were held in Green Valley, Tubac, and Rio Rico in addition to the open house meetings to introduce the Project and solicit comments. All meetings were designed to allow individuals to get involved, discuss concerns and sensitivities, and identify alternatives and submit comment. A summary of the meetings, dates, and locations as well as further explanation of the public process is included in Exhibit J of the Application. The following paragraphs describe the public outreach process UNS Electric and Transcon conducted.

Approximately 5,000 Project information newsletters were circulated to residents and landowners in December 2007. At the same time, UNS Electric solicited comments by mailing the first Project newsletter to affected jurisdictions, agencies, organizations, and tribes with potential interest in the Project or the location of the Project. Two public meetings were held, one in Rio Rico (February 26, 2008) and another in Nogales (February 27, 2008). In addition, Project representatives met with members of the Green Valley Community Coordinating Council, interested landowners, relevant jurisdictions and agencies including the International Boundary and Water Commission, Bureau of Land Management, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, Arizona State Land Department, Arizona Game and Fish Department, Arizona Department of Transportation, Pima and Santa Cruz counties, and the communities of Tucson, Sahuarita, and Nogales.

Subsequent to these initial outreach activities, UNS Electric and Transcon conducted a more thorough examination of possible alternative routes for the entire Project except for the portion from the Nogales Tap to the Kantor Substation. That portion of the line has already been rebuilt on steel monopoles and could already accommodate an upgrade to 138 kV without further consideration.

Upon determining that some re-routes of the line might be required, UNS Electric and Transcon developed an expanded study area that centered on the existing 115 kV alignment and extended one mile to either side. UNS Electric and Transcon identified potential additional transmission line corridors, taking into account linear features such as existing utility corridors, roadways, and railroads. The study area and corridors were then presented to the public and affected jurisdictions. UNS Electric and Transcon circulated the second Project newsletter to approximately 20,000 residents, landowners, jurisdictions, and agencies in May 2008 (this was more than the 5,000 sent the first Project newsletter due to the expanded study area). Three public open house meetings were held, one in Tucson (May 27, 2008),

one in Green Valley (May 28, 2008), and one in Nogales (May 29, 2008). Just as with the initial series of public meetings, individual meetings were held during the same period of time with interested landowners and relevant jurisdictions and agencies. Members of the public and jurisdictional representatives provided comments on corridors, suggestions on alternative routes, and information on sensitivities and issues pertaining to the siting of the transmission line. In addition to written and verbal comments, a large format map was available at each meeting and attendees were encouraged to draw alternative alignments and/or depict the geographical location of any issues or concerns on the map.

UNS Electric considered all of the comments submitted and studied numerous corridors. Due to the large number of alternatives identified, it took several months to fully evaluate and analyze those possibilities. By November, UNS Electric and Transcon were able to develop several preliminary alternative alignments. These alignments were then presented to the public and jurisdictions. UNS Electric and Transcon developed and circulated a third newsletter to approximately 30,000 residents, landowners, jurisdictions, and agencies in November 2008. Three public open house meetings were then held, one in Nogales (December 2, 2008), one in Tucson (December 3, 2008), and one in Green Valley (December 4, 2008). UNS Electric and Transcon representatives also held additional meetings during that time period with interested landowners and relevant jurisdictions and agencies.

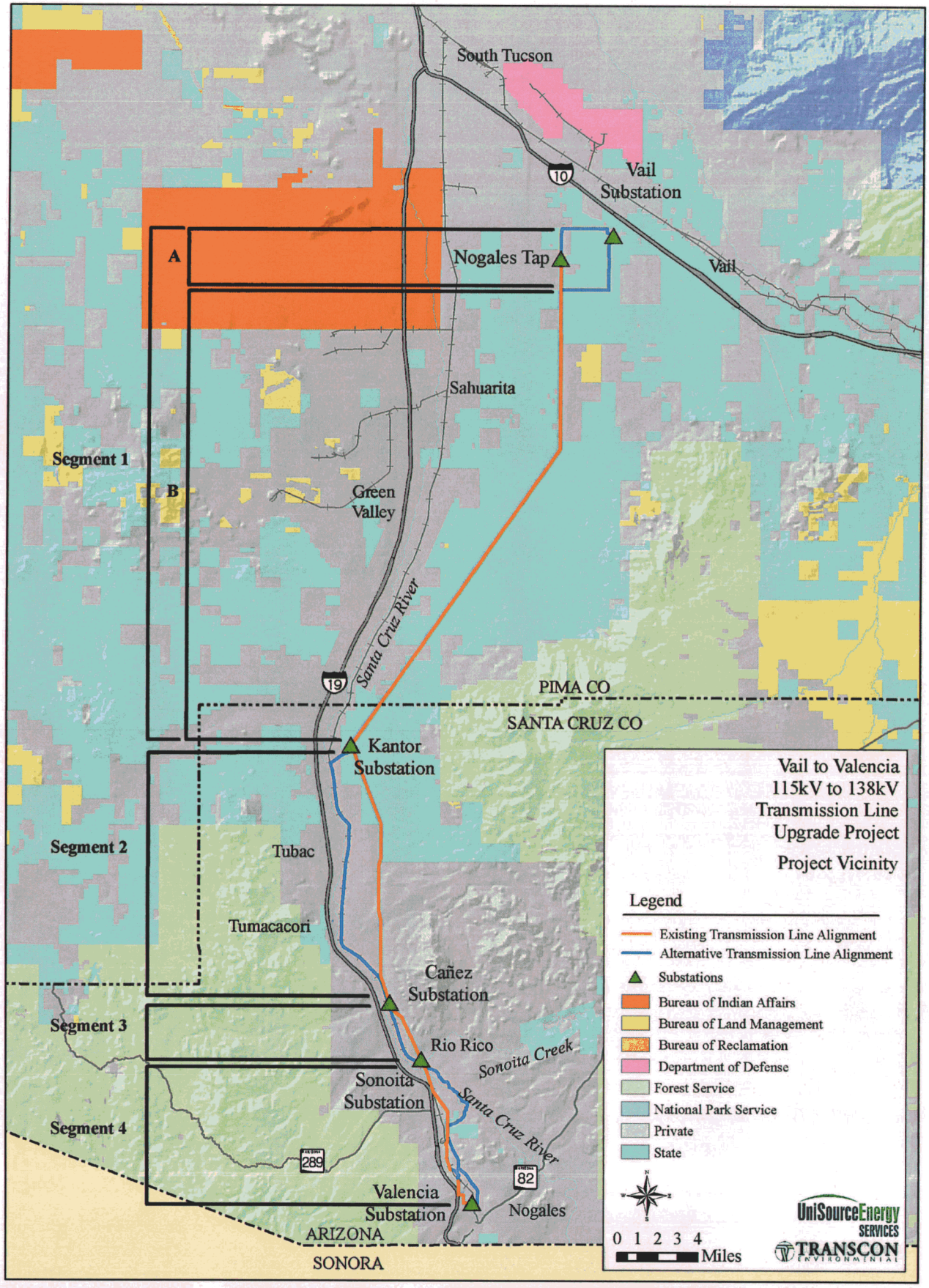
As a result of the cumulative input from public, jurisdiction, and agency outreach activities, UNS Electric selected final routes, including a preferred alignment, to propose in this CEC Application. These routes were presented to the public via newsletter in April 2009. The Application includes almost the entire existing 115 kV alignment south of the Nogales Tap to the Valencia Substation as a route, with the exception of just north of the Cañez Substation to the Sonoita Substation and the area around Old Tucson Road and Grand Avenue in Nogales. Except for the portion of the Project rebuilt in accordance with Case 78 and Decision No. 56097 (between the Nogales Tap and Kantor Substation), the Application largely includes a preferred alignment and at least one alternative alignment. There are very limited sections in the Nogales area (totaling approximately 0.9 miles) where only one proposed alignment (the existing 115 kV alignment) exists in the Application.

PREFERRED AND ALTERNATIVE ALIGNMENTS

For ease of reference, the Project has been divided into the following four segments. Those segments have their respective endpoints at the transmission substations identified in this Project:

- Segment 1 – Vail to Kantor Substations (31.4 to 32.0 miles)
- Segment 2 – Kantor to Cañez Substations (13.4 to 14.9 miles)
- Segment 3 – Cañez to Sonoita Substations (3.3 to 3.6 miles)
- Segment 4 – Sonoita to Valencia Substations (8.3 to 10.1 miles)

The proposed alignments (both preferred and alternative alignments) are described within the four segments with common endpoints at substations (see the Project Vicinity Map on page *vi*).


South Tucson
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Substation
Vail
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Nogales Tap
Sahuarita
Segment 1
B
Green
Valley
Santa Cruz River
19
PIMA CO
SANTA CRUZ CO
Kantor
Substation
Segment 2
Tubac
Tumacacori
Cañez
Substation
Segment 3
Rio Rico
Sonoita Creek
Sonoita
Substation
Santa Cruz River
Segment 4
289
82
Valencia
Substation
Nogales
ARIZONA
SONORA
Vail to Valencia
115kV to 138kV
Transmission Line
Upgrade Project
Project Vicinity
Legend
Existing Transmission Line Alignment
Alternative Transmission Line Alignment
Substations
Bureau of Indian Affairs
Bureau of Land Management
Bureau of Reclamation
Department of Defense
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ENVIRONMENTAL

Segment 1 is divided into two parts, 1A and 1B. Segment 1A is the construction of a new transmission line to establish the connection at the Vail Substation with the existing 115 kV transmission line along Wilmot Road. Segment 1B is the rebuild approved in Decision No. 56097 from Line Siting Case No. 78 between the Nogales Tap and the Kantor Substation. In Decision No. 56097, the Commission approved the rebuild from wooden H-frame structures to steel monopoles. These monopoles can accommodate operation at 138 kV, but the line is currently operating at 115 kV. Because the existing line has structures and equipment designed for operation at 138 kV voltage without modification, Segment 1B will not be modified, reconstructed or re-routed.

For Segments 2, 3, and 4 the preferred alignment is the existing 115 kV alignment with only two exceptions:

1. An approximate five-mile portion just north of the Cañez Substation to the Sonoita Substation. In this area, the existing line bisects private land parcels and contributes to the fragmentation of a mesquite bosque. In addition, near the Sonoita Substation, there are several encroachments on UNS Electric's existing right-of-way making the existing lines location undesirable. Moving the Project from the existing line's location west and adjacent to Union Pacific Railroad's (UPRR) right-of-way would eliminate encroachment issues and locate the transmission line on the western edge of the mesquite bosque and private land parcels just north of the Cañez Substation.
2. An approximate one-mile portion of the line where Old Tucson Road and Grand Avenue intersect in Nogales. It is not feasible for UNS Electric to stage construction of the upgrade because the area is highly developed and the right-of-way is very narrow. Instead, UNS Electric proposes a short bypass of that area through this largely industrial section of Nogales.

The reasons for considering an alternative alignment are explained more fully within the Application. The existing line is an alternative alignment for most segments but is not always identified as the preferred alignment. Of the 57.7 miles of Preferred Alignment, 46.6 miles are on the existing 115 kV alignment, and of which approximately 27.8 miles were rebuilt per Decision No. 56097.

The following segment descriptions summarize the preferred and alternative alignments. Alternatives to the preferred alignment are contained within each segment, although some contain common portions. Maps depicting the preferred and alternative alignments are included in Exhibit A of the Application. Maps depicting each alignment within each segment are included within the following segment descriptions.

Segment 1 – Vail Substation to Kantor Substation ("Vail to Kantor")

The Nogales Tap is the current beginning point of the existing 115 kV line. It is located about one mile south of the Arizona State Prison Complex on Wilmot Road, south of Tucson. The proposed Project interconnects with the Vail Substation, located approximately three miles northeast near Interstate-10 ("I-10") and Rita Road. The Vail Substation is a major import substation for southern Arizona and serves as a major interconnection point for several 345 kV and 138 kV transmission lines. As explained above, the purpose of this new "beginning point" is to remove the capacity constraint at the Nogales Tap and to accommodate the load growth anticipated in UNS Electric's service territory in Santa Cruz County. The existing connection to the Nogales Tap would be severed as part of the Project.

Segment 1A:

UNS Electric proposes the North Route (Preferred Alignment) and the South Route (Alternative Alignment) in Segment 1A to interconnect the Vail Substation to the existing line (designed to operate at 138 kV) at or near the Nogales Tap. The transmission line between the existing line, at or near the Nogales Tap, and Vail Substation would be a new transmission line. Both alignments reach a common point at the north end of Segment 1B where these alignments join the existing line rebuilt pursuant to

Decision No. 56097 which continues south to the Kantor Substation. The Kantor Substation is located along the existing line, about two miles east of the Amado area, almost 30 miles south of Tucson, Arizona. It is also about one mile east of the UPRR near Amado.

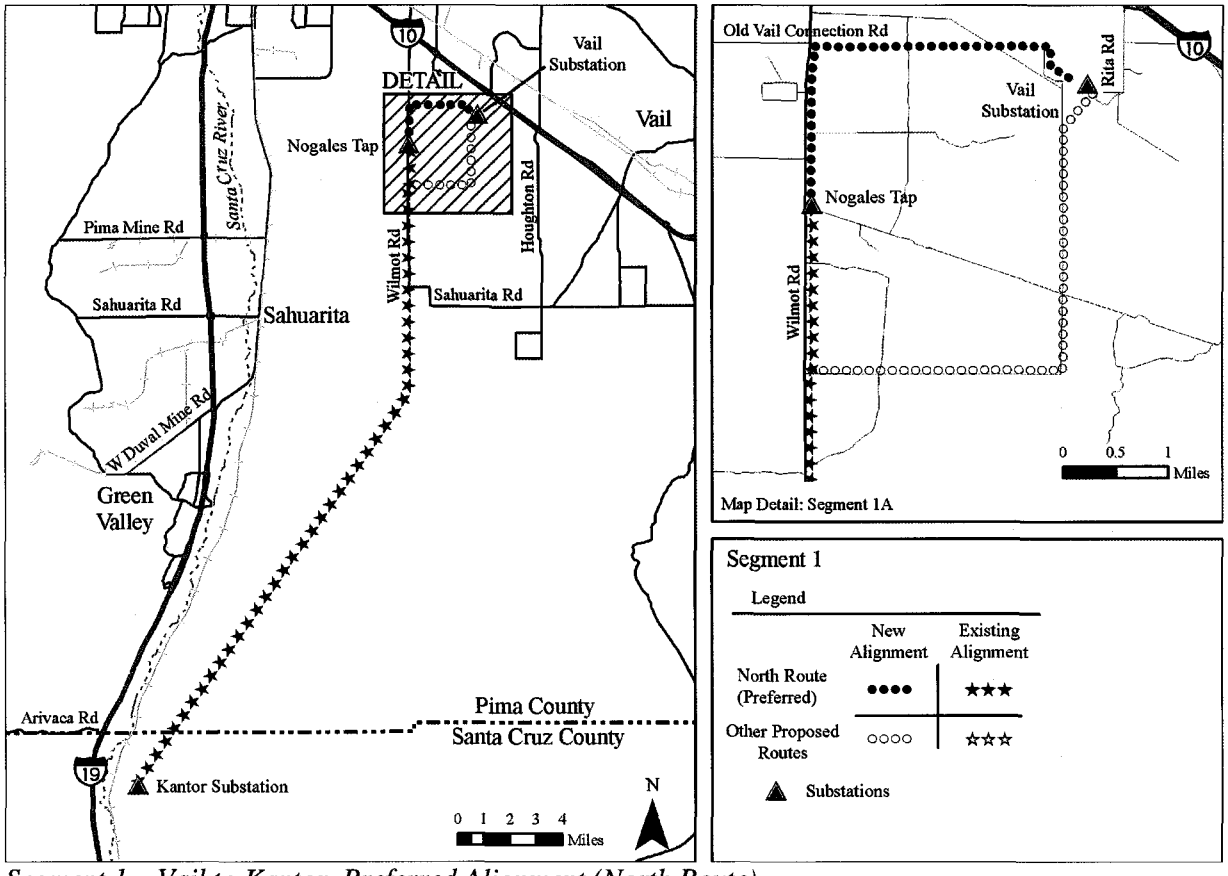
Preferred Alignment (North Route)

This alignment exits the Vail Substation to the north (0.4 miles) and then extends to the west (2.3 miles) parallel to TEP's Vail-Robert Bills (138 kV) and Vail-Irvington (138 kV) lines along an access road which is an east extension of the Old Vail Connection Road. Old Vail Connection Road intersects with Wilmot Road. At this intersection, this alignment extends south to the Nogales Tap and interconnects to the existing line (1.5 miles). It then continues south to the Kantor Substation (27.8) miles utilizing the existing line. The length of the Preferred Alignment for Segment 1 is 32.0 miles, which consists of 4.2 miles of new construction and 27.8 miles of the existing line.

The portion between the Vail Substation and the Nogales Tap is a new transmission line. No improvements or construction are necessary along the existing line, from this point to Kantor Substation.

The North Route is UNS Electric's preferred alignment for the following reasons:

- The Arizona State Land Department ("ASLD") prefers this alignment.
- It is the less-costly alignment because it maximizes the use of the existing and previously upgraded transmission line (4.2 miles of new line as opposed to 5.2 miles for the South Route).



Segment 1 – Vail to Kantor, Preferred Alignment (North Route)

Alternative Alignment (South Route)

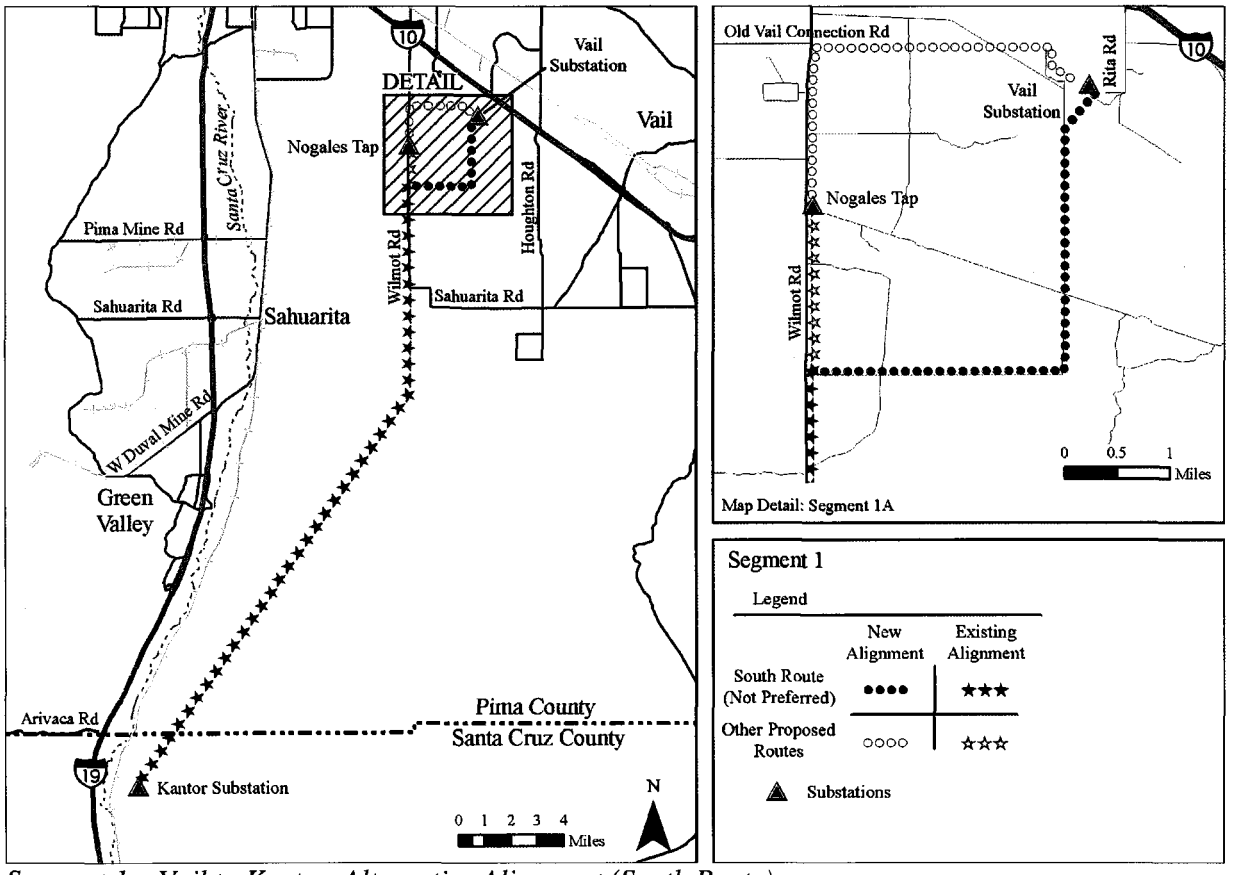
This alignment extends south (2.8 miles) from the Vail Substation parallel to TEP's Vail-South (345 kV) line and AEPCO's Vail-Bicknell (345 kV) line to the intersection of an additional AEPCO 115 kV line

running east-west. The alignment follows the AEPCO 115 kV line west to Wilmot Road (2.4 miles). The two 345 kV lines and the single 115 kV line are contained in this corridor and the new alignment would be located to their north and west. Once the line reaches Wilmot Road, the new line would interconnect to the existing transmission line and turn south to the Kantor Substation (26.2 miles) utilizing the existing line. The alternative alignment's length within this Segment is 31.4 miles which consists of 5.2 miles of new construction and 26.2 miles of existing line.

The portion between the Vail Substation and the interconnection with the existing line at Wilmot Road is a new transmission line. No improvements or construction are necessary along the existing line from this point to the Kantor Substation. The existing 115 kV line, north of the new interconnection, to the Nogales Tap would be dismantled and the poles would be removed.

The alignment, though shorter in overall length, is not selected as the preferred alignment for the following reasons:

- It is the more costly alignment because it utilizes less of the existing and previously upgraded transmission line, resulting in additional new line construction (5.2 miles of new line as opposed to 4.2 miles for the North Route).
- ASLD does not prefer this alignment.
- Most environmental factors are similar to the preferred alignment.



Segment 1 – Vail to Kantor, Alternative Alignment (South Route)

Segment 1B:

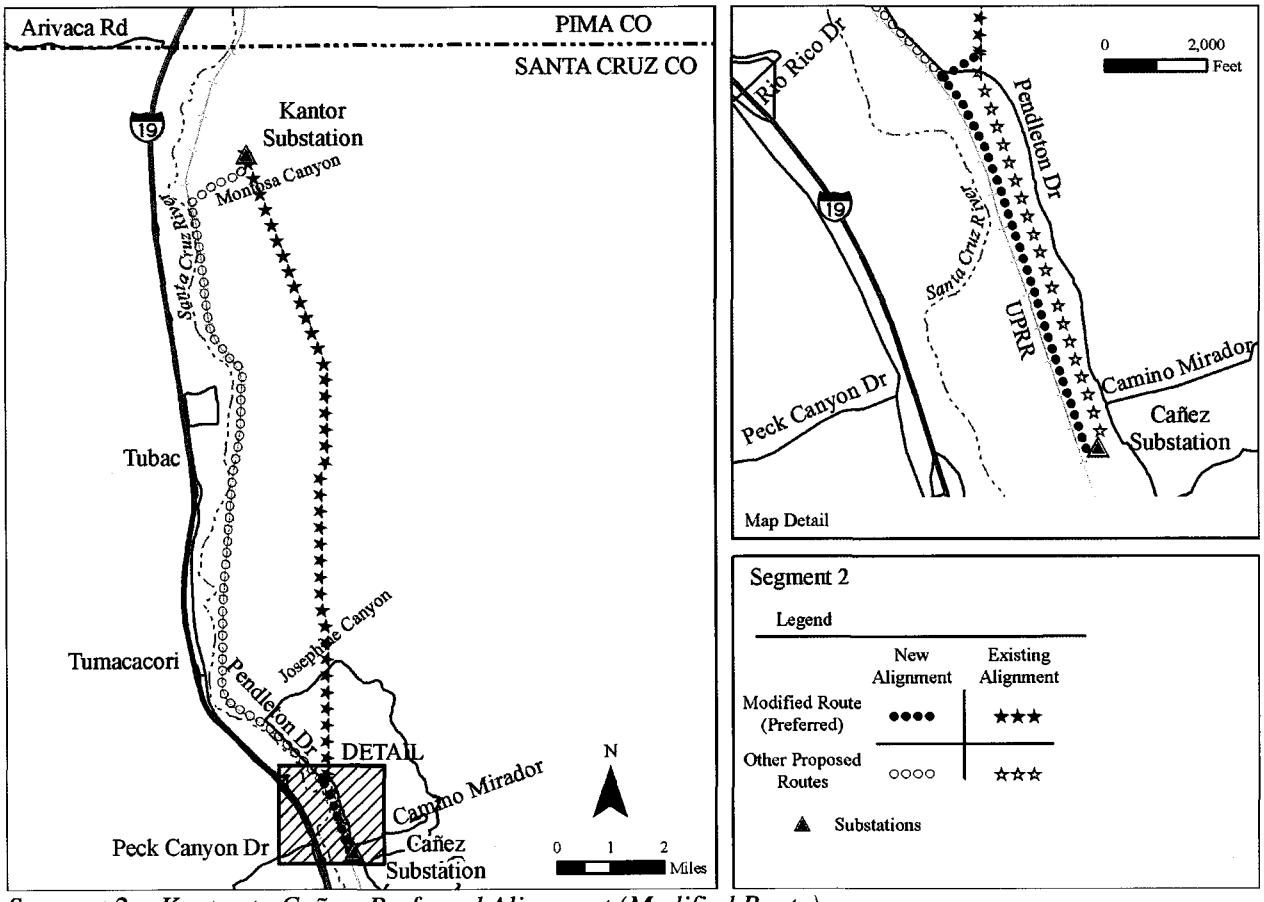
This segment uses the existing alignment and structures approved in Decision No. 56097 and described in the application in Case No. 78. No improvements or construction are necessary and the existing line is designed for operation at 138 kV.

Segment 2 – Kantor Substation to Cañez Substation ("Kantor to Cañez")

This Segment begins at the Kantor Substation, which is north of Tubac and continues south to the Cañez Substation. The Cañez Substation is located between Tubac and Rio Rico near the intersection of Pendleton Drive and Camino Mirador. UNS Electric is proposing three alignments in this Segment:

Preferred Alignment (Modified Route)

This alternative upgrades the existing 115 kV line between the Kantor and Cañez substations, generally within the existing alignment, by removing the existing wood pole H-frame structures and replacing them with steel monopoles. The existing alignment leaves the Kantor Substation to the south along the foothills of the Santa Rita Mountains east of the Santa Cruz River. South of Josephine Canyon, the alignment drops out of the foothills and into the Santa Cruz River Valley (11.8 miles). Along the Santa Cruz River Valley, there are several mesquite bosques (a grove consisting predominantly of mesquite trees). These bosques are separated by farmland and other land features. Near the intersection of the existing alignment and Pendleton Drive, the alignment deviates from the existing 115 kV line alignment and shifts 0.2 miles to the west to parallel the UPRR right-of-way (1.5 miles) for the remainder of this Segment. This modification at the southern end moves the alignment away from cutting through the middle of a particular mesquite bosque (consisting mainly of Velvet Mesquite and Elderberry) to an alignment running along the western edge of the bosque. The area is largely unpopulated in the northern portions with some rural development in proximity to the line as the line progresses south. The Preferred Alignment's length within this Segment is 13.5 miles.



Segment 2 – Kantor to Cañez, Preferred Alignment (Modified Route)

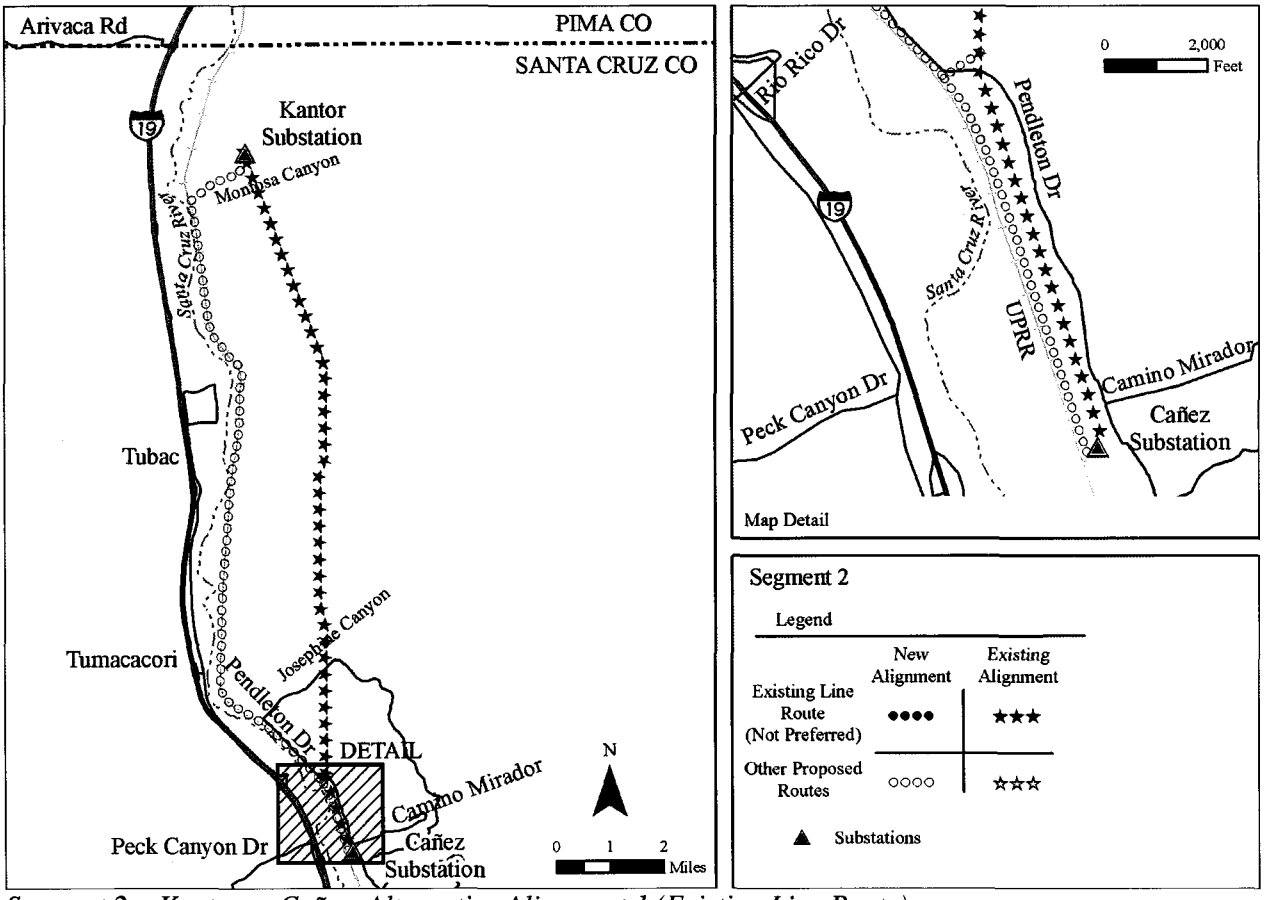
This is the preferred alignment for the following reasons:

- It utilizes the existing 115 kV alignment for 85 to 90 percent of this Segment, except for a short section from where Pendleton Drive and the existing 115 kV alignment intersect south to the Cañez Substation.
- It avoids dividing the landowners' property in that area between Pendleton Drive and the UPRR. Landowners in the immediate area who have commented have expressed their desire to avoid having the Project bifurcate their property.
- Although mesquite bosques are special features of the Project area, vegetation would continue to be cleared within the right-of-way as part of the upgrade in order to comply with National Electrical Safety Code ("NESC") standards. Clearing would occur at the edge of this bosque, thereby limiting impacts.

In this area, vegetation within the existing right-of-way has been recently removed. Although implementation of the preferred alignment would result in continued future vegetation clearing within the mesquite bosque, overall impacts to this bosque would be limited because the vegetation clearing would occur at the edge of the bosque, along an already cleared area associated with the UPRR.

Alternative Alignment 1 (Existing Line Route)

This alignment is identical to the Preferred Route from Kantor Substation to the intersection of the existing alignment and Pendleton Drive (11.8 miles). At this point, the alignment continues to utilize the existing alignment across Pendleton Drive and south to the Cañez Substation (1.6 miles). This alignment within Segment 2 totals 13.4 miles.



Segment 2 – Kantor to Cañez, Alternative Alignment 1 (Existing Line Route)

The entire length of the alignment utilizes an existing right-of-way but is not preferred for the following reasons:

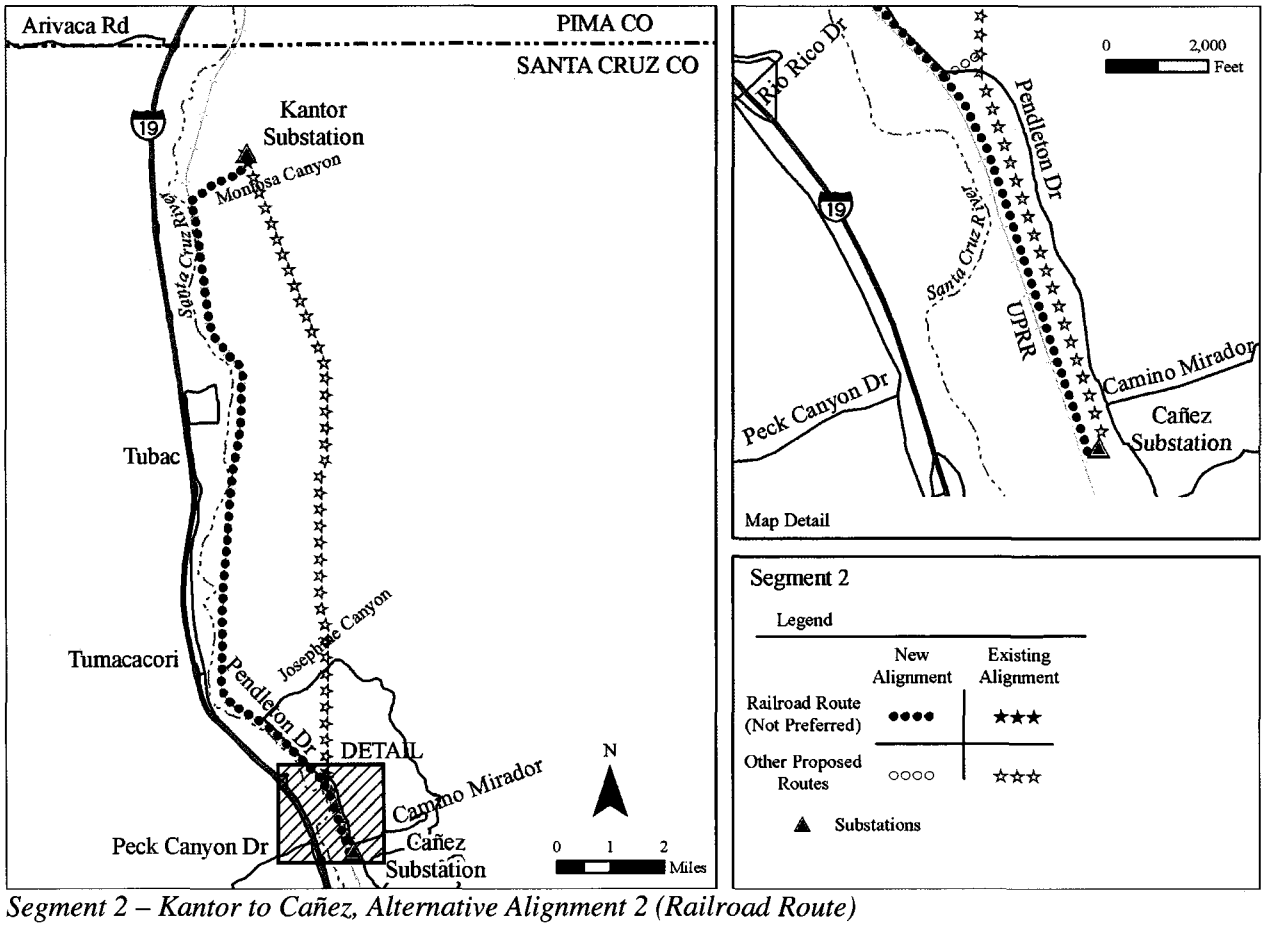
- The alignment (from the intersection of Pendleton Drive and the existing alignment) extends through the center of a mesquite bosque, contributing to the fragmentation of habitat and bifurcating landowners' property.
- Although this alignment is the existing alignment, property owners adjacent to Pendleton Drive who have commented on the Project indicate a preference for moving the line to the western edges of their properties.

Alternative Alignment 2 (Railroad Route)

This alternative primarily parallels the UPRR right-of-way and largely avoids the use of the existing line. The alignment extends southwest out of the Kantor Substation, generally parallel to Montosa Canyon, to the UPRR (1.6 miles). The alignment then parallels the UPRR through the Santa Cruz River Valley south to the Cañez Substation (13.3 miles). The alternative alignment's length within this Segment is 14.9 miles.

This alternative is the least desirable among alternatives for the following reasons:

- It would result in additional vegetation clearing within several mesquite bosques located along the Santa Cruz River Valley in this Segment.
- It is within one-quarter mile of Tumacácori National Historic Park and Tubac Presidio State Historic Park.
- Local residents commenting on the project strongly oppose using the route north of the where Pendleton Drive intersects with the existing 115 kV alignment.



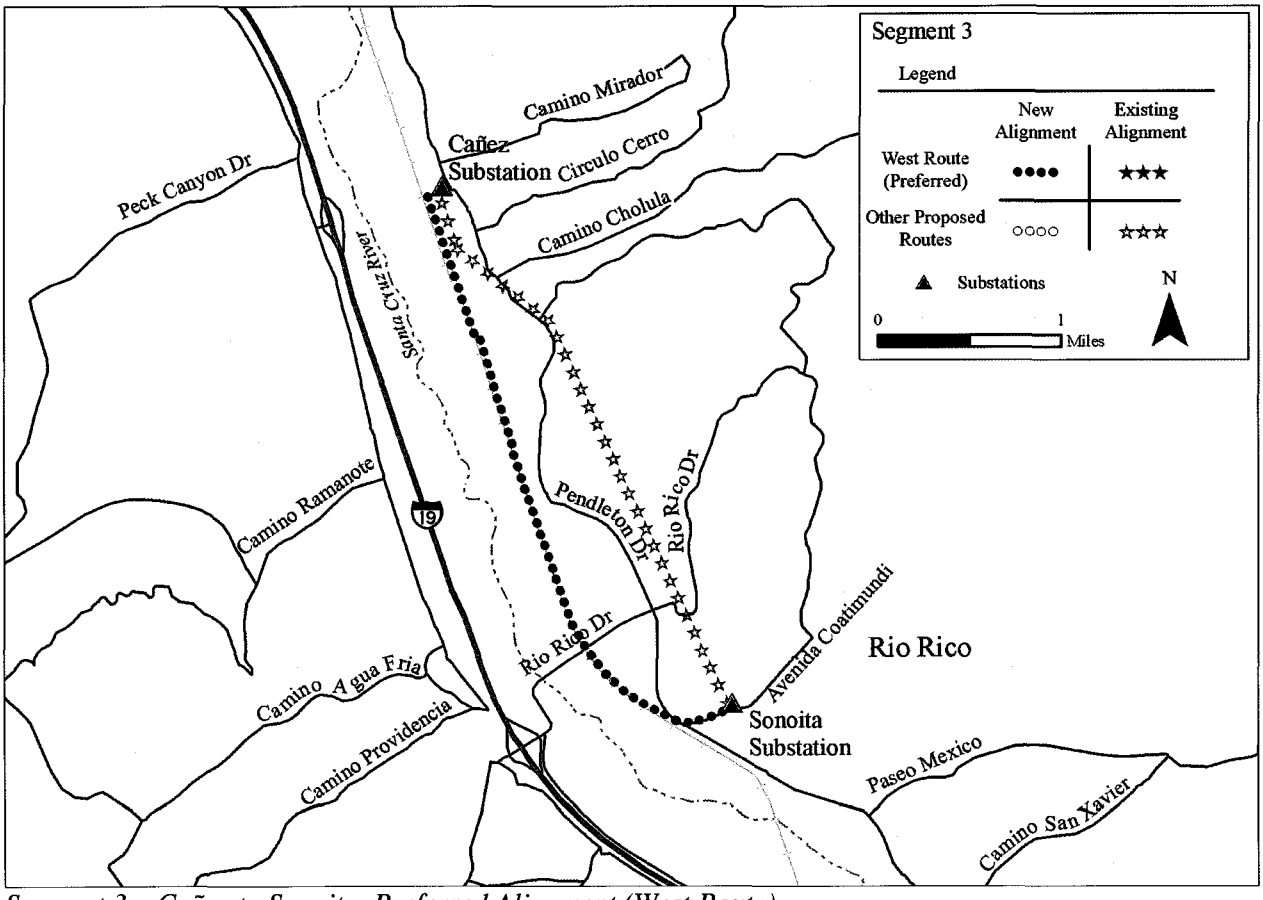
Segment 2 – Kantor to Cañez, Alternative Alignment 2 (Railroad Route)

Segment 3 – Cañez Substation to Sonoita Substation ("Cañez to Sonoita")

The Cañez and Sonoita substations are both in the Rio Rico area of Santa Cruz County. In this Segment the existing line crosses through the most concentrated residential area of the Project. Several encroachments exist along the existing 115 kV line, particularly towards the southern end of the Segment. While that existing alignment is environmentally compatible, it is not preferred largely because of the many encroachments and rugged terrain that create significant difficulties with construction. Sonoita Substation, at the south end of the Segment, is located near the intersection of Avenida Coatimundi and Pendleton Drive. UNS Electric is proposing two alignments within this Segment:

Preferred Alignment (West Route)

This alignment extends west out of the Cañez Substation, then south adjacent to the UPRR. The alignment passes along the edge of several mesquite bosques in the Santa Cruz River Valley (3.3 miles). Near the intersection of Pendleton Drive and Avenida Coatimundi, the alignment departs from the railroad and parallels Avenida Coatimundi east to the Sonoita Substation (0.3 miles). The Preferred Alignment's length within this Segment is 3.6 miles.



Segment 3 – Cañez to Sonoita, Preferred Alignment (West Route)

This alignment is preferred for the following reasons:

- It avoids residential areas and encroachments present on the existing alignment.
- It parallels an existing linear corridor that includes the UPRR and an electrical distribution line.
- It follows flat and even terrain and avoids complicated and expensive construction activities through existing residential areas.
- It is preferred among most Rio Rico residents who have commented on the Project.

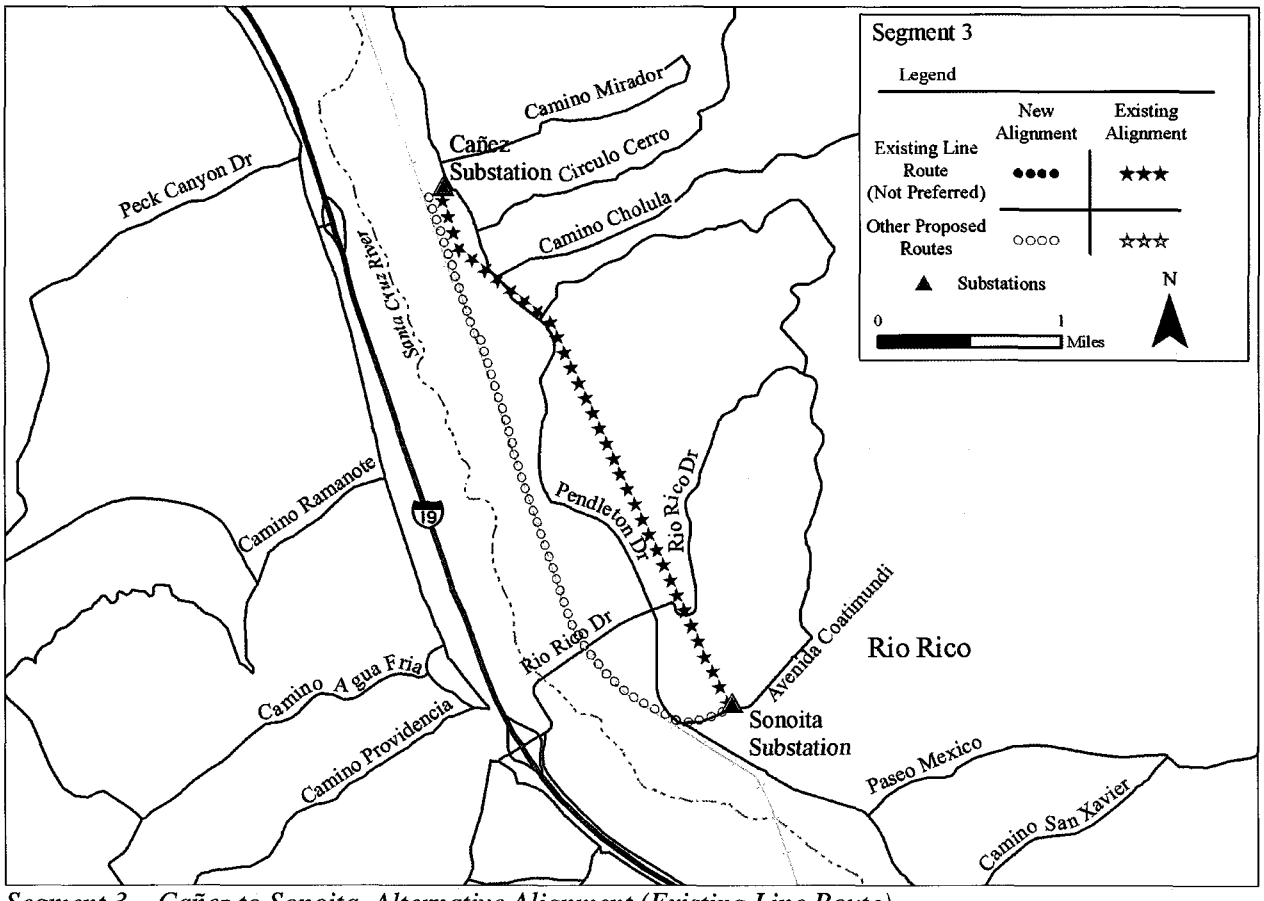
Although implementation of the preferred alignment would result in continued future vegetation clearing from the mesquite bosques, overall impacts would be limited because the vegetation clearing would occur at the edge of the bosque, along an already cleared area associated with the UPRR.

Alternative Alignment (Existing Line Route)

This alternative alignment involves upgrading the existing line in place through Rio Rico by removing the existing wood pole H-frame structures and replacing them with steel monopoles. The alignment extends south out of the Cañez Substation between Pendleton Drive and the UPRR (0.5 miles). Near the intersection of Pendleton Drive and Camino Cholula, the alignment crosses to the east side of Pendleton Drive and extends south into the foothills through the most densely populated area of the Project to the Sonoita Substation (2.8 miles). In this southern portion of the Segment, residents have encroached upon the right-of-way for the existing 115 kV line with sheds, block walls, and other structures. The alternative alignment's length within this Segment is 3.3 miles.

The alignment is not preferred for the following reasons:

- It requires reclamation of the existing right-of-way due to numerous encroachments.
- It requires acquisition of new access roads. Many structures have become isolated and difficult to access, due to physical land alteration or development in and around the line.
- It requires special and costly construction procedures to: 1) avoid damage to existing homes and property; 2) accommodate the rugged terrain; and 3) provide continued electric service during construction activities.



Segment 3 – Cañez to Sonoita, Alternative Alignment (Existing Line Route)

Segment 4 –Sonoita Substation to Valencia Substation ("Sonoita to Valencia")

This Segment interconnects the Sonoita Substation with the Valencia Substation. The Valencia Substation is the termination point of the Project and the primary receiving station for Nogales, Arizona. In general, this Segment is characterized by residential, industrial, and commercial development. As a result of this development, UNS Electric's siting process identified more potential alignments in this Segment than in the first three segments. The Valencia Substation is located near the intersection of Mariposa Road (State Route 189) and Grand Avenue (State Route 19). Throughout Segment 4 (as with the first three segments) the Project would replace any existing wooden H-frame structures with steel monopoles. UNS Electric proposes six alignments in Segment 4:

Preferred Alignment (Existing Line Route)

This alternative is comprised almost entirely of the existing transmission line alignment, except for a 0.9 mile section immediately south of the intersection of Old Tucson Road and Grand Avenue. The alignment extends south out of the Sonoita Substation across Sonoita Creek and the Santa Cruz River and past the International Wastewater Treatment Plant (1.7 miles). The alignment then extends into the foothills through a residential area for approximately 2.9 miles to Old Tucson Road. The alignment parallels Old Tucson Road to a point near the intersection of Grand Avenue (1.3 miles).

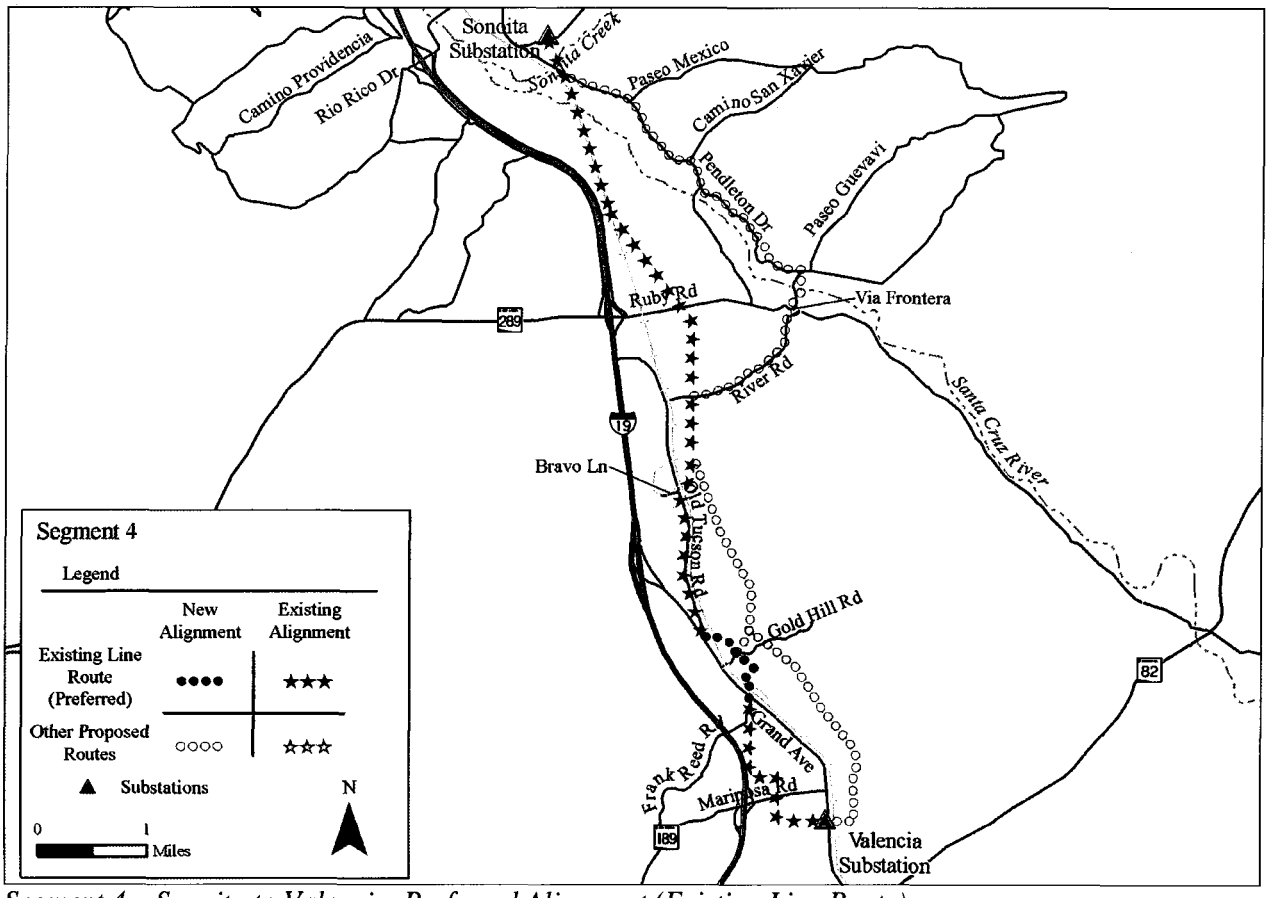
At the intersection of Old Tucson Road and Grand Avenue, the line departs from the existing line to move east and parallel to Grand Avenue on the east side of Nogales Wash through an industrial area (0.9 miles). This bypass around the existing 115 kV alignment allows UNS Electric to avoid rebuilding in an especially narrow and congested area along Grand Avenue. Constructing and staging along Grand Avenue would be very costly and practically infeasible. After bypassing the most congested area along Grand Avenue, the alignment then returns to the existing 115 kV alignment near where Frank Reed Road intersects Grand Avenue.

This alignment continues south, along the west side of the Santa Cruz County Complex (0.7 miles) and passes through the Preston Mobile Home Park (0.3 miles), then turns to the south through the Mariposa Mall, across Mariposa Road, and through the Loma Linda Shopping Center (0.4 miles). The alignment turns to the east and enters the Valencia Substation just north of Wal-Mart and Home Depot (0.4 miles).

One complication of this alignment is that it passes through an area along Old Tucson Road (north of the intersection with Grand Avenue) that would be difficult to construct due to existing land uses and narrow rights-of-way. In this area, it would be necessary to construct a temporary bypass on the east side of Old Tucson Road in order to safely install the new structures on the west side. Even with the additional construction costs associated with the bypass, the cost is less than other proposed alternative alignments because UNS Electric needs to acquire less new right-of-way. The Preferred Alignment's length within this Segment is 8.6 miles.

This alignment is preferred for the following reasons:

- It maximizes use of the existing right-of-way. Only 0.9 miles are located within a new utility corridor to bypass a densely developed area along Grand Avenue located between the intersection of Old Tucson Road and Grand Avenue and the intersection of Frank Reed Road and Grand Avenue.
- It is the most cost-effective alignment because very little right-of-way needs to be acquired. This offsets the costs to stage and construct the line, and the need to run generation during construction. The bypass around the Old Tucson Road/Grand Avenue intersection is in an industrial area.
- It is compatible with existing land uses because it largely uses the existing 115 kV alignment through residential areas, which were developed after the existing 115 kV line was in place.
- It crosses compatible land uses in industrial and light industrial areas.



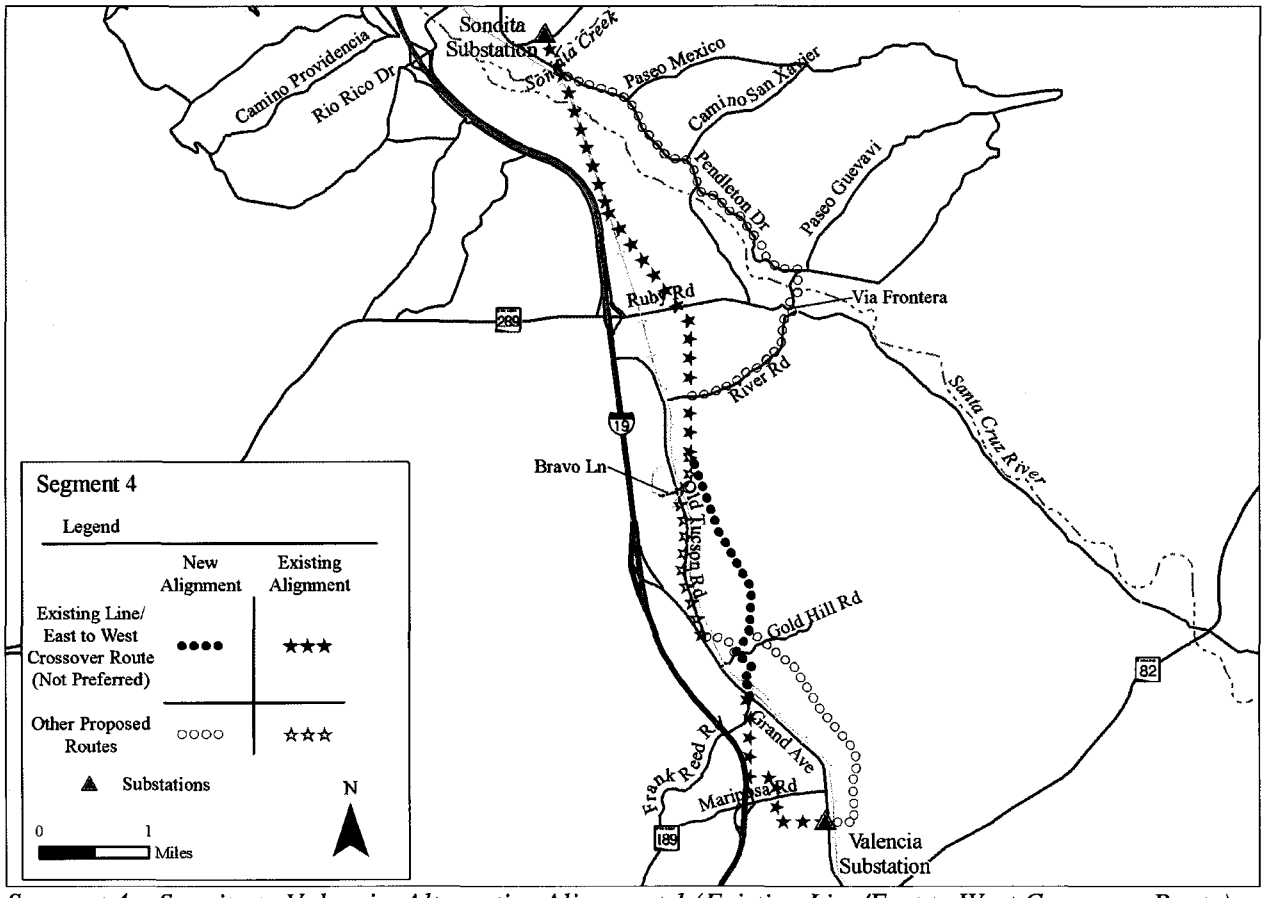
Segment 4 – Sonoita to Valencia, Preferred Alignment (Existing Line Route)

Alternative Alignment 1 (Existing Line/East to West Crossover Route)

This alternative follows the existing alignment out of the Sonoita Substation in the same manner as the Existing Line Alternative (4.2 miles), but at a point east of the intersection of Old Tucson Road and Bravo Lane the alignment departs from the existing right-of-way and continues south through the foothills, passing through an industrial area near Gold Hill Road to the intersection of Grand Avenue and Frank Reed Road (2.5 miles). South of that intersection, the existing line would be upgraded within the existing right-of-way, by removing the existing wood pole H-frame structures and replacing them with steel monopoles, through the City of Nogales to the Valencia Substation in the same manner as the Preferred Alignment (Existing Line Route) (1.8 miles). The alternative alignment's length within this Segment is 8.5 miles.

The alignment avoids a complicated construction and operation area along Old Tucson Road and Grand Avenue, where the right-of-way is narrow and difficult to manage, but is not preferred for the following reasons:

- It would establish 2.3 miles of new utility corridor.
- It is more costly, because it requires the acquisition of 2.3 miles of additional right-of-way.
- It creates new visual impacts, specifically on the hillside to the northeast of Nogales (where the line would crossover from the foothills toward Gold Hill Road).



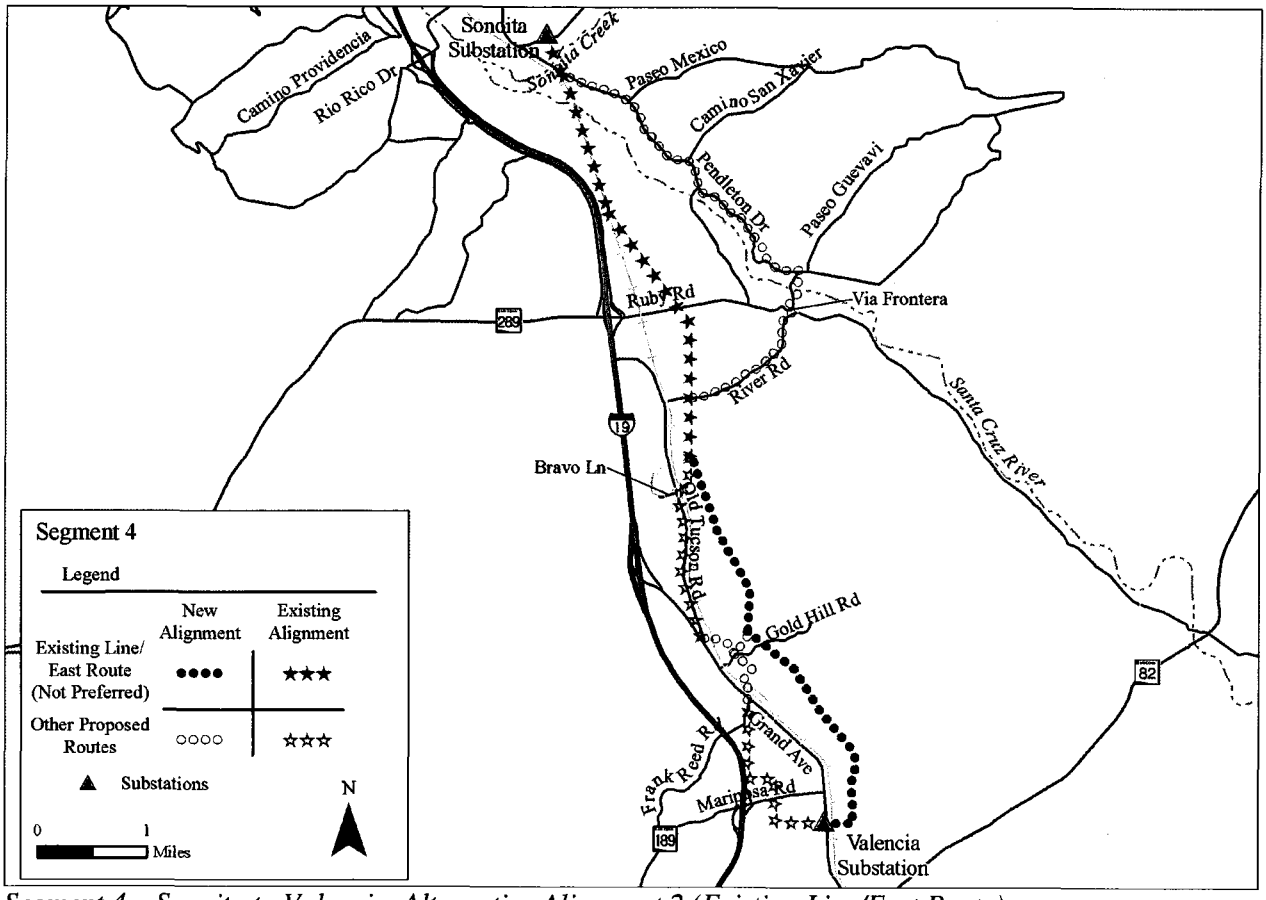
Segment 4 – Sonoita to Valencia, Alternative Alignment 1 (Existing Line/East to West Crossover Route)

Alternative Alignment 2 (Existing Line/East Route)

This alternative follows the same path as the Preferred Alignment (Existing Line Route) out of the Sonoita Substation (4.2 miles), but at a point east of the intersection of Old Tucson Road and Bravo Lane the alignment departs from the existing right-of-way and continues south through the foothills, between an industrial area and a residential area, continuing east of the existing 115 kV alignment and approaching the Valencia Substation from the east (4.1 miles). The alternative alignment's length within this Segment is 8.3 miles.

This is the shortest of the six alignments proposed for Segment 4 and avoids congested areas along Old Tucson Road and Grand Avenue, but is not preferred for the following reasons:

- It establishes 3.8 miles of new utility corridor.
- It is more costly, because UNS Electric must acquire 3.8 miles of additional right-of-way.
- It will result in visual impacts to: 1) existing residential areas on the hillside northeast of Nogales; and 2) the Nogales area by creating a new transmission line corridor in a visible location.



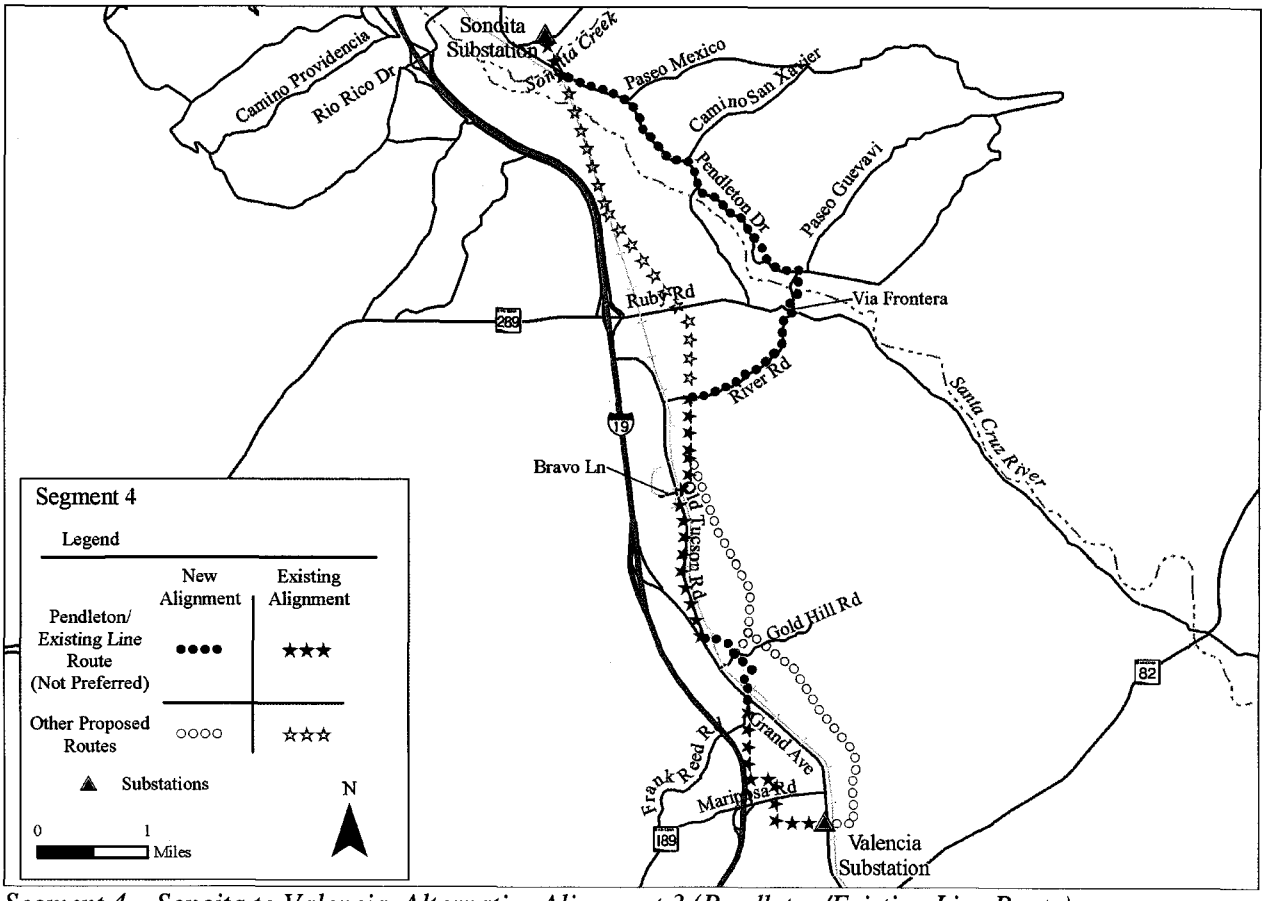
Segment 4 – Sonoita to Valencia, Alternative Alignment 2 (Existing Line/East Route)

Alternative Alignment 3 (Pendleton/Existing Line Route)

The alignment extends south out of the Sonoita Substation, across Sonoita Creek to Pendleton Drive (0.4 miles). It then deviates from the existing line to the east by following Pendleton Drive east to the intersection of Ruby Road (3.0 miles). At Ruby Road the alignment crosses the Santa Cruz River south to the intersection of Via Frontera (0.3 miles). It parallels Via Frontera south (0.1 miles) to River Road where the line extends west parallel to River Road back to the existing 115 kV line (1.3 miles). South of this point, the alternative is comprised almost entirely of the existing 115 kV alignment and follows the same route as the Preferred Alignment (Existing Line Route) to the Valencia Substation (5.0 miles). The alternative alignment's length within this Segment is 10.1 miles.

Although this alignment follows some of the same path as the Preferred Alignment (Existing Line Route), it is not preferred mainly because of the many issues with the Pendleton Drive alignment at the northern portion of Segment 4. In particular:

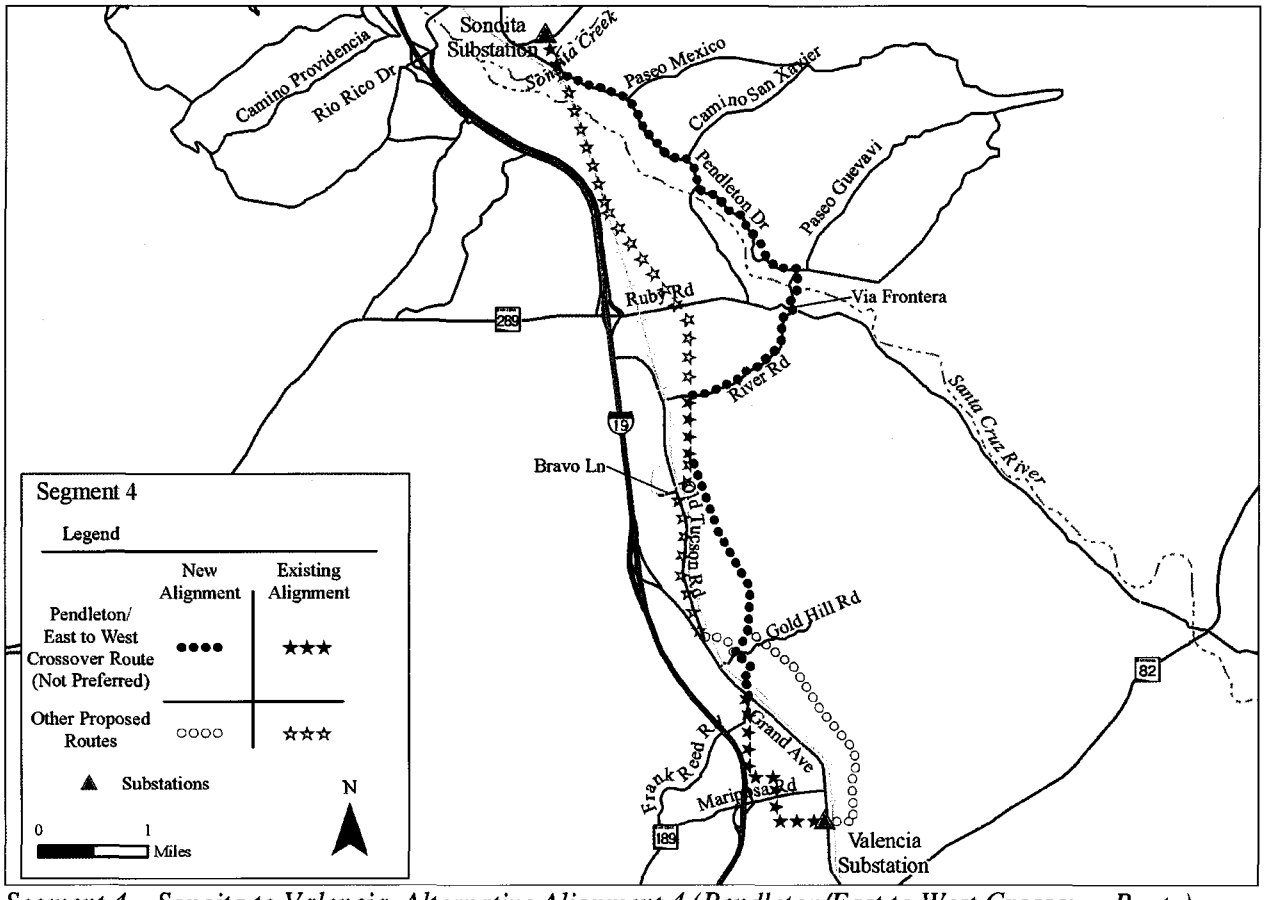
- Engineering and construction adjacent to Pendleton Drive is difficult and costly, primarily due to the proximity of residences, the number of turning structures, and because of the tree clearing that would be required.
- It is within one-quarter mile of historic sites and viewing locations near the Santa Cruz River (e.g., of San Cayetano de Calabazas Mission that is included as part of Tumacácori National Historic Park).
- It establishes 5.6 miles of new utility corridor.
- It is more costly, because UNS Electric must acquire 5.6 miles of additional right-of-way.
- The Pendleton Drive alignment in the northern portion of this Segment provides no advantage in bypassing the Old Tucson Road and Grand Avenue portions of the existing 115 kV line as opposed to any other proposed alignment in this Segment.



Segment 4 – Sonoita to Valencia, Alternative Alignment 3 (Pendleton/Existing Line Route)

Alternative Alignment 4 (Pendleton/East to West Crossover Route)

The alignment extends south out of the Sonoita Substation to Pendleton Drive, and adjacent to Pendleton, Ruby, and River roads and back to the existing alignment in the same manner as Alternative Alignment 3 (Pendleton/Existing Line Route) (5.7 miles), but the alignment departs from the existing right-of-way and continues south through the foothills in the same manner as Alternative Alignment 1 (Existing Line/East to West Crossover Route) to the Valencia Substation (4.3 miles). Specifically, at a point east of the intersection of Old Tucson Road and Bravo Lane, the alignment departs from the existing right-of-way and continues south through the foothills, passing through an industrial area near Gold Hill Road to the intersection of Grand Avenue and Frank Reed Road (2.5 miles). South of that intersection, the existing line would be upgraded within the existing right-of-way by removing the existing wood pole H-frame structures and replacing them with steel monopoles through the City of Nogales to the Valencia Substation in the same manner as the Preferred Alignment (Existing Line Route) (1.8 miles). The alternative alignment's length within this Segment is 10.0 miles.



Segment 4 – Sonoita to Valencia, Alternative Alignment 4 (Pendleton/East to West Crossover Route)

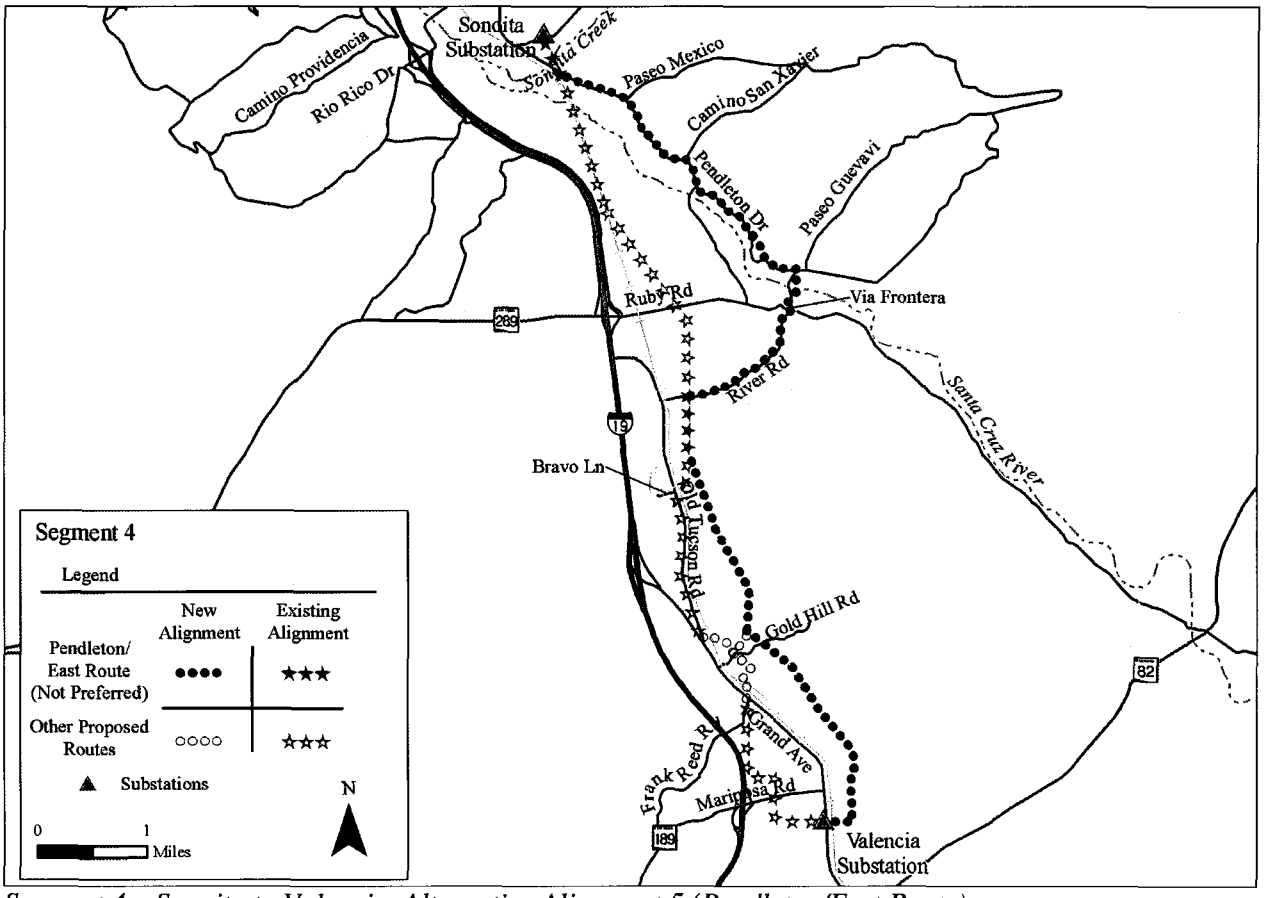
This alignment avoids a complicated construction and operation area along Old Tucson Road and Grand Avenue, where the right-of-way is narrow and difficult to manage but is not preferred for the following reasons:

- Engineering and construction adjacent to Pendleton Drive is difficult and costly, primarily due to the proximity of residences, the number of turning structures, and because of the tree clearing that would be required.
- It is within one-quarter mile of historic sites and viewing locations near the Santa Cruz River (e.g., of San Cayetano de Calabazas Mission that is included as part of Tumacácori National Historic Park).
- It establishes 7.0 miles of new utility corridor.

- It is more costly, because UNS Electric must acquire 7.0 miles of additional right-of-way.
- It creates new visual impacts, specifically on the hillside to the northeast of Nogales (where the line would crossover from the foothills toward Gold Hill Road).

Alternative Alignment 5 (Pendleton/East Route)

This alternative is the easternmost alignment out of the six alignments proposed. For the first 7.4 miles, it follows the same alignment as Alternative Alignment 4 (Pendleton/East to West Crossover Route) (7.4 miles). But instead of joining the existing 115 kV line to work its way through the City of Nogales, it remains in the foothills in the same manner as Alternative Alignment 2 (Existing Line/East Route) to the Valencia Substation (2.4 miles). In other words, at a point east of the intersection of Old Tucson Road and Bravo Lane the alignment departs from the existing right-of-way and continues south through the foothills, between an industrial area and a residential area, continuing east of the existing 115 kV alignment and approaching the Valencia Substation from the east (4.1 miles). The alternative alignment's length within this Segment is 9.8 miles.



Segment 4 – Sonoita to Valencia, Alternative Alignment 5 (Pendleton/East Route)

This alignment avoids both congested areas along Old Tucson Road and Grand Avenue, but is not preferred for the following reasons:

- Engineering and construction adjacent to Pendleton Drive is difficult and costly, primarily due to the proximity of residences, the number of turning structures, and because of the tree clearing that would be required.
- It is within one-quarter mile of historic sites and viewing locations near the Santa Cruz River (e.g., of San Cayetano de Calabazas Mission that is included as part of Tumacácori National Historic Park).
- It establishes 8.5 miles of new utility corridor.

- It is more costly, because UNS Electric must acquire 8.5 miles of additional right-of-way.
- It will result in visual impacts to: 1) existing residential areas on the hillside northeast of Nogales: and 2) the Nogales area by creating a new transmission line corridor in a visible location.

CONCLUSION

The preferred and alternative alignments contained in the Application will meet the purpose and need of this Project, which is to upgrade the existing 115 kV line, remove the capacity constraint by relocating the northern interconnect to Vail Substation from the Nogales Tap, and strengthen the line by installing steel monopoles and replacing wooden H-frame structures. As an upgrade to the existing 115 kV line it will improve the reliability to Santa Cruz County, increase capacity and better ensure continuity of service. Thus, it meets UNS Electric's need to serve the load in its service territory.

UNS Electric selected to include all of the proposed alignments in the CEC Application because all are environmentally compatible. But for all four segments, the preferred alignments are optimal for the Project for the following reasons:

- The preferred alignments best utilize existing assets and infrastructure and deviate from the existing 115 kV alignment only when compelling reasons justify such a deviation.
- They best balance the ability to construct and maintain the new Project facilities with minimizing the need for UNS Electric to acquire new right-of-way.
- They minimize impacts to sensitive environmental resources.
- They best achieve the desired condition for safe and reliable operations and maintenance.
- The preferred alignments have more public support relative to the other alignments put forth.
- They are preferred by the jurisdictions.
- They maximize the use of existing corridors and compatible land uses, such as existing transmission lines, railroads, access roads, and previously disturbed lands.
- They avoid encroachments to the existing 115 kV right-of-way alignment between Cañez and Sonoita substations.
- They allow for cost-effective and safe construction methods.
- They minimize direct and indirect impacts to existing and future land uses and land management areas.
- They minimize impacts to local residents, especially areas where structures and homes are present. This is largely because the Project would replace wooden H-frame structures with steel monopoles in those areas where the existing 115 kV alignment is adjacent to existing homes. But the preferred alignments would also largely avoid placing the line in previously undisturbed areas near other residential areas.

For all of the alignments proposed in the Application:

- There are no significant or detrimental effects to fish, wildlife, plant life, and associated forms of life upon which they are dependent.
- There are no significant or detrimental effects associated with noise emission levels and interference with communication signals.
- The Project could be constructed safely and in accordance with all applicable regulations.
- The Project is environmentally compatible with the total environment of the Project study area.
- There are no significant or detrimental effects to geology and soils, surface water, or groundwater quality and availability.

REQUESTED ACTION

UNS Electric requests that the Arizona Power Plant and Transmission Line Siting Committee issue a CEC authorizing the Vail to Valencia 115 kV to 138 kV Transmission Line Upgrade Project that:

1. Upgrades the existing 115 kV line to 138 kV.
2. Interconnects the 138 kV line with the 345/138 kV Vail Substation in Pima County.
3. Rebuilds the existing 115 kV line by replacing the wooden H-frame structures with steel monopoles where applicable.

Further, UNS Electric requests the Committee to issue a CEC authorizing one alignment per segment for each of the four segments as environmentally compatible. For this project, UNS Electric requests that the Power Plant and Line Siting Committee approve a 1,250 foot-wide corridor for alternative alignments through the Preston Mobile Home Park in Nogales, Arizona and a 500 foot-wide corridor for all other alternative alignments. For the majority of the Project, UNS Electric's preferred alignment is the existing 115 kV alignment. Where it is not, compelling reasons justify the deviation for the existing 115 kV alignment.

UNS Electric further requests that the Arizona Corporation Commission issue its Order affirming the CEC.

APPLICATION FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY

1. Name and address of the applicant

UNS Electric, Inc.
One South Church Street, Suite 1820
P.O. Box 711
Tucson, Arizona 85702

2. Name, address, and telephone number of a representative of the applicant who has access to technical knowledge and background information concerning the application in question and who will be available to answer questions or furnish additional information.

Ed Beck
Director, Line Siting Services
UNS Electric, Inc./Tucson Electric Power Co.
One South Church Street, P.O. Box 711
Mailstop UE-108
Tucson, AZ 85702
Phone: (520) 884-3615
Fax: (520) 545-1481
Ebeck@tep.com

3. State each date on which applicant has filed a ten-year plan in compliance with ARS § 40-360.02 and designate each such filing in which the facilities for which this application is made were described. If they have not been previously described in a ten-year plan, state the reasons therefore.

In compliance with ARS § 40-360.02, UNS Electric has filed a ten-year plan for each year since 2004. UNS Electric had not been incorporated until the acquisition of the electric assets formerly held by Citizens and subsequent Commission approval in Decision No. 66028 (July 3, 2003). The Vail to Valencia 115 kV to 138 kV Transmission Line Upgrade Project upgrading the existing 115 kV line was first identified in UNS Electric's 2006 ten-year plan filing, and has been included in each subsequent filing, through the most recent 2009 filing.

4. Description of the proposed facility.

a. With respect to an electric generating plant:

Not applicable

b. With respect to a proposed transmission line:

i. Nominal voltage for which the line is designed; description of the proposed structures and switchyards or substations associated therewith; and purpose for constructing said transmission line.

Nominal voltage for the Transmission Line Design:

Circuits will be insulated and operated as a single-circuit 138 kV transmission line.

Description of the Proposed Structures:

New steel monopole structures are proposed to replace aging wood H-frame structures. The structures built will be to the standards of a double-circuit line. In this Application, however, UNS Electric is proposing only one 138 kV circuit line. Structures may be direct embedded or mounted on concrete foundations. Most structures are approximately three feet in diameter at the base except for structures placed where the line turns on an angle or terminates. Angle and dead-end structures are approximately five to six and one-half feet in diameter. Monopole structures will typically be placed approximately 750 feet apart. The preferred alignment will utilize an approximate 28 mile length of the existing transmission line that was previously rebuilt using similar structures (as approved through Case No. 78). The remaining 30 miles requiring a new transmission line, re-build of the existing transmission line, or re-route of the existing transmission line is expected to be comprised of between 200 to 240 poles. The structure material will be self-weathering steel. The proposed conductor is 954 KCmil stranded aluminum conductor steel supported high strength (ACSS-HS) 1.165 inches in diameter.

Description of Associated Switchyard or Substation:

There will be no new substations constructed as part of this upgrade. UNS Electric, however, will replace existing transformers with 138 kV capable transformers at two of the four substations in Santa Cruz County. The remaining substations already have dual tap transformers (i.e., transformers capable of operating at 115 kV or 138 kV. At the Vail Substation equipment will be added to connect the new line to the station.

Purpose of Transmission Line:

The Project's purpose is to remove the capacity constraint at the Nogales Tap by relocating the import point to the 345/138 kV Vail Substation in Pima County. Currently, the 115 kV line to Nogales is constrained due to capacity limitations on WAPA's system serving the Nogales Tap. The limit for operation is 50.9 MW of firm capacity due to voltage support issues. The Nogales Tap (essentially a switchyard) is owned and operated by WAPA. The existing line is capable of transmitting more power physically, but is limited to about 50.9 MW due to constraints on WAPA's system. In order to remove this constraint, the line's northern termination point must be re-located to a new interconnection. The Vail 345/138 kV Substation, a major import substation about four miles away, provides that interconnection and removes the current capacity constraint.

The Project would also allow UNS Electric to install equipment and poles that would increase the voltage from 115 kV to 138 kV, which is the voltage for all of the other sub-transmission interconnections at the Vail Substation. This change will involve upgrading the infrastructure where needed to accommodate 138 kV. Increasing the voltage will allow for increased capacity and allow more load to be served at peak times without the need to add additional transmission under normal operating circumstances.

Further, replacing H-frame structures with stronger steel monopoles will improve the reliability of the transmission line to UNS Electric's service territory in Santa Cruz County and better ensure continuity of service. This is because the steel monopoles are less susceptible to damage from storms and other hazards.

ii. Description of geographical points between which the transmission line will run, the straight-line distance between such points and the length of the transmission line for each alternative route for which the application is made.

The straight line distance between the two Project endpoints, the Vail and Valencia Substations, is approximately 49 miles. The mileage for each alternative alignment is summarized below. Each alignment is described in section v.

Segment 1 – Vail Substation to Kantor Substation (Vail to Kantor):
Preferred Alignment (North Route) – 32.0 miles
Alternative Alignment (South Route) – 31.4 miles

Segment 2 – Kantor Substation to Cañez Substation (Kantor to Cañez):
Preferred Alignment (Modified Route) – 13.5 miles
Alternative Alignment 1 (Existing Line Route) – 13.4 miles
Alternative Alignment 2 (Railroad Route) – 14.9 miles

Segment 3 – Cañez Substation to Sonoita Substation (Cañez to Sonoita):
Preferred Alignment (West Route) – 3.6 miles
Alternative Alignment (Existing Line Route) – 3.3 miles

Segment 4 –Sonoita Substation to Valencia Substation (Sonoita to Valencia):
Preferred Alignment (Existing Line Route) – 8.6 miles
Alternative Alignment 1 (Existing Line/East to West Crossover Route) – 8.5 miles
Alternative Alignment 2 (Existing Line/East Route) – 8.3 miles
Alternative Alignment 3 (Pendleton/Existing Line Route) – 10.1 miles
Alternative Alignment 4 (Pendleton/East to West Crossover Route) – 10.0 miles
Alternative Alignment 5 (Pendleton/East Route) – 9.8 miles

iii. Nominal width of the right-of-way required, nominal length of spans, maximum height of supporting structures, and minimum height of conductor above ground.

- Proposed right-of-way width is 100 feet
- For this Project, UNS Electric requests that the Committee approve a 1,250 foot-wide corridor for alternative alignments through the Preston Mobile Home Park in Nogales, Arizona and a 500 foot-wide corridor for all other alternative alignments. Ultimately, UNS Electric will seek to maintain and/or acquire a 100-foot right-of-way for the Project within said corridor. The existing 115 kV alignment is within a 100-foot right-of-way.
- Average span length is approximately 750 feet
- Maximum height of structures is approximately 120 feet above grade, with the average structure height in the range of 75 to 85 feet above grade
- Minimum height of conductor above the ground is 23 feet in general, and 31 feet at railway crossings

iv. To the extent available, the estimated costs of proposed transmission line and route, stated separately. (If application contains alternative routes, furnish an estimate for each route and a brief description of the reasons for any variations in estimates.)

The estimated costs for construction, engineering, and right-of-way acquisition range from approximately $25,000,000 to approximately $47,000,000 depending on alternative alignments. The Preferred Alignment is estimated at approximately $26,000,000.

v. Description of proposed route and switchyard locations. (If application contains alternative routes, list routes in order of applicant's preference with a summary of reasons for such order of preference and any changes such alternative routes would require in the plans reflected in (i) through (iv) hereof.)

For ease of reference, the Project has been divided into the following four segments:

- Segment 1 – Vail to Kantor Substations
- Segment 2 – Kantor to Cañez Substations
- Segment 3 – Cañez to Sonoita Substations
- Segment 4 – Sonoita to Valencia Substations

For each segment, the Application describes proposed transmission line alignments (both the preferred and alternative alignments). The Project segments are defined by the existing substations that lie at each segment endpoint (i.e., Segment 1 is from the Vail Substation to the Kantor Substation). The following descriptions provide a narrative of each alignment and a map depicting the alignment within each segment (Figures 1-13). The segments and alternatives are described beginning on the north at the Vail Substation and ending on the south at the Valencia Substation in Nogales, Arizona.

Segment 1 – Vail to Kantor:

Segment 1 is divided into two parts, 1A and 1B. Segment 1A is the construction of a new transmission line to establish the new connection at the Vail Substation with the existing 115 kV transmission line along Wilmot Road. Segment 1B is essentially the rebuild approved in Decision No. 56097 from Line Siting Case No. 78 between the Nogales Tap and the Kantor Substation. The line in Segment 1B will not be modified, reconstructed or re-routed. This is because the existing line has structures and equipment designed for operation at 138 kV voltage without modification. While the line is designed for operation at 138 kV, it is only operating currently as a 115 kV line. Further, the Commission, in Decision No. 56097, approved the rebuild from wooden H-frame structures to steel monopoles. As a result, the existing line at Segment 1B does not require new equipment or structures to operate at 138 kV.

Segment 1A:

Preferred Alignment (North Route) – The alignment exits the Vail Substation to the north (0.4 miles) and then extends to the west (2.3 miles) parallel to TEP's Vail-Robert Bills (138 kV) and Vail-Irvington (138 kV) lines along an access road which is an east extension of the Old Vail Connection Road. Old Vail Connection Road intersects Wilmot Road. At this intersection, the alignment turns south extending to the Nogales Tap and interconnects to the existing line (1.5 miles). This alignment is preferred because it represents an alignment favored by ASLD. It is not substantially different from the other Segment alternative in regards to environmental factors.

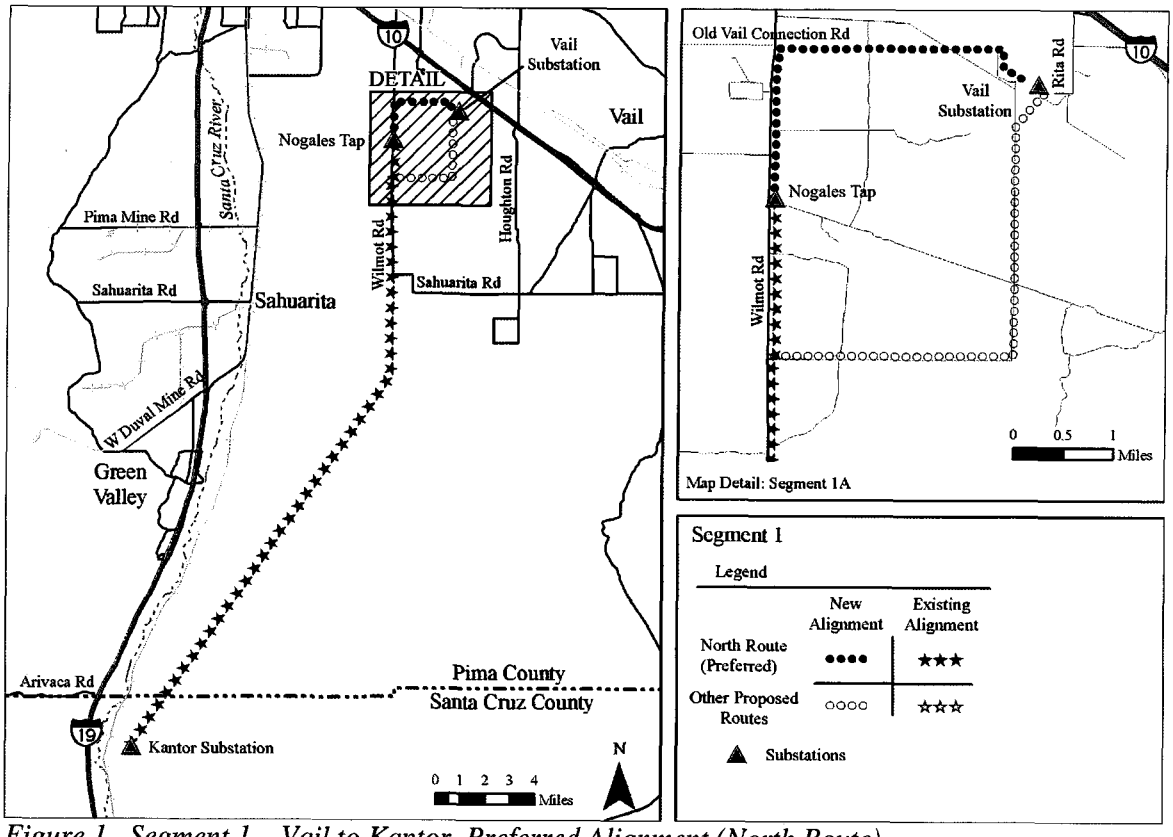


Figure 1. Segment 1 – Vail to Kantor, Preferred Alignment (North Route)

Alternative Alignment (South Route) – The alignment extends south from the Vail Substation parallel to TEP's Vail-South Line (345 kV) and AEPCO's Vail-Bicknell (345 kV) line. Both of these existing lines run to the north and south and then turn to the west to cross over Wilmot Road. The alignment parallels these two transmission lines on the west and north, respectively. The east-west alignment also contains an additional AEPCO wood H-frame line. Once the line reaches Wilmot Road, the new line would interconnect to the existing transmission line, previously reconstructed on steel monopoles in accordance with Decision No. 56097 (south of the Nogales Tap), and turn south to the Kantor Substation. The South Route follows existing transmission line corridors and would result in similar environmental impacts to the preferred alignment. The alignment was not selected as the preferred because the underlying landowner (ASLD) has indicated preference for the North Route.

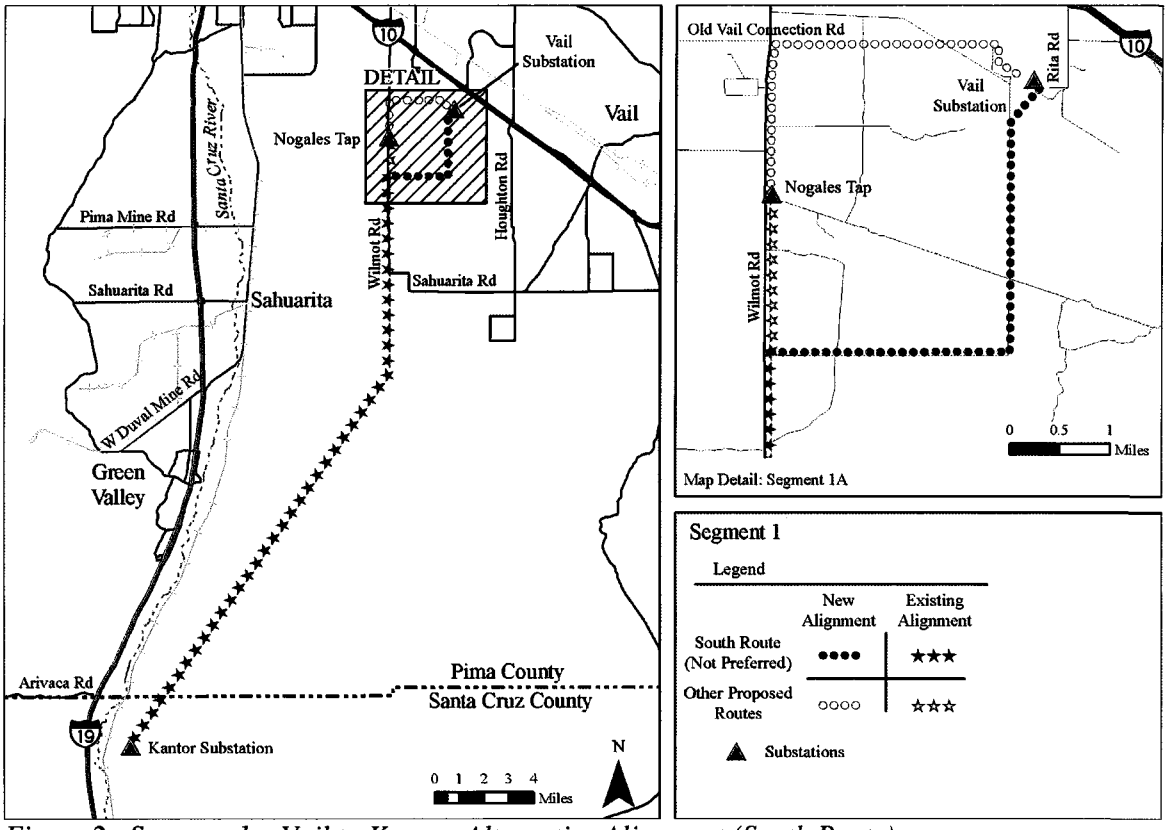


Figure 2. Segment 1 – Vail to Kantor, Alternative Alignment (South Route)

Segment 1B:

This segment uses the existing alignment and structures approved in Decision No. 56097 and described in the application in Case No. 78. No improvements or construction are necessary and the existing line is designed for operation at 138 kV. UNS Electric would not have to add any equipment or replace any of the monopoles between the Nogales Tap and Kantor Substation. As a result, UNS Electric proposes only one alignment (the existing 115 kV alignment) for Segment 1B. This alignment extends from where Segment 1A intersects with the existing line to the Kantor Substation.

Segment 2 – Kantor to Cañez:

Preferred Alignment (Modified Route) – This alignment upgrades the existing line between the Kantor and Cañez Substations, mostly within the existing 115 kV alignment as described below. Kantor Substation is about one mile east of the UPRR near Amado. The alignment leaves the Kantor Substation to the south along the foothills of the Santa Rita Mountains east of the Santa Cruz River. South of Josephine Canyon, the alignment drops out of the foothills and into the Santa Cruz River Valley. Several mesquite bosques are found in this area particularly along the Santa Cruz River Valley. At this point (where the existing 115 kV alignment intersects with Pendleton Drive), the Preferred Alignment shifts west to parallel the UPRR to the Cañez Substation. The alignment extends south on the western edge of a particular mesquite bosque consisting mainly of Velvet Mesquite and Elderberry. The portion of the bosque within the right-of-way would require clearing as part of the upgrade to comply with NESC standards. In this area, vegetation within the existing 115 kV transmission line right-of-way has been recently removed. Although implementation of the preferred alignment would result in additional vegetation clearing within the mesquite bosque, overall impacts to the bosque would be limited because the vegetation clearing would occur at the edge of the bosque, along an already cleared area associated with the UPRR. This is UNS Electric's preferred alignment for this Segment because: 1) it utilizes 85 to 90 percent of the existing alignment; 2) it is preferred by adjacent landowners commenting on the Project; and 3) it would utilize an existing electrical distribution right-of-way adjacent to the UPRR.

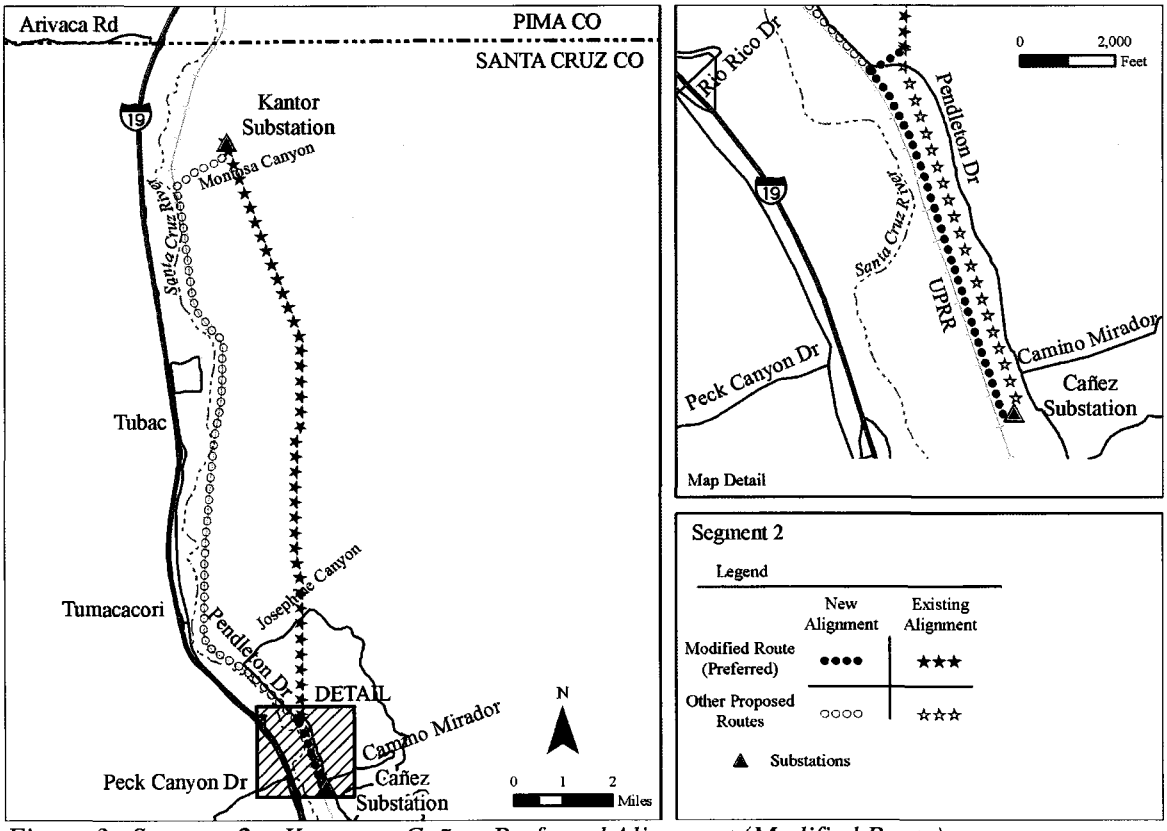


Figure 3. Segment 2 – Kantor to Cañez, Preferred Alignment (Modified Route)

Alternative Alignment 1 (Existing Line Route) – This alignment is identical to the Preferred Alignment (Modified Route) but uses 100 percent of the existing 115 kV alignment instead of shifting over to the railroad right-of-way just north of Cañez Substation. Upon reaching the Santa Cruz River Valley floor, the alignment cuts through a mesquite bosque. The vegetation within this portion of the bosque has been recently removed within the right-of-way. In summary, this alignment uses the existing right-of-way and is a direct route between the Kantor and Cañez Substations. The alignment is not preferred, however because those who have commented on the Project in this area have expressed a preference for moving the line further west to parallel the UPRR. In summary, this alignment uses the existing right-of-way and is a direct route between the Kantor and Cañez Substations.

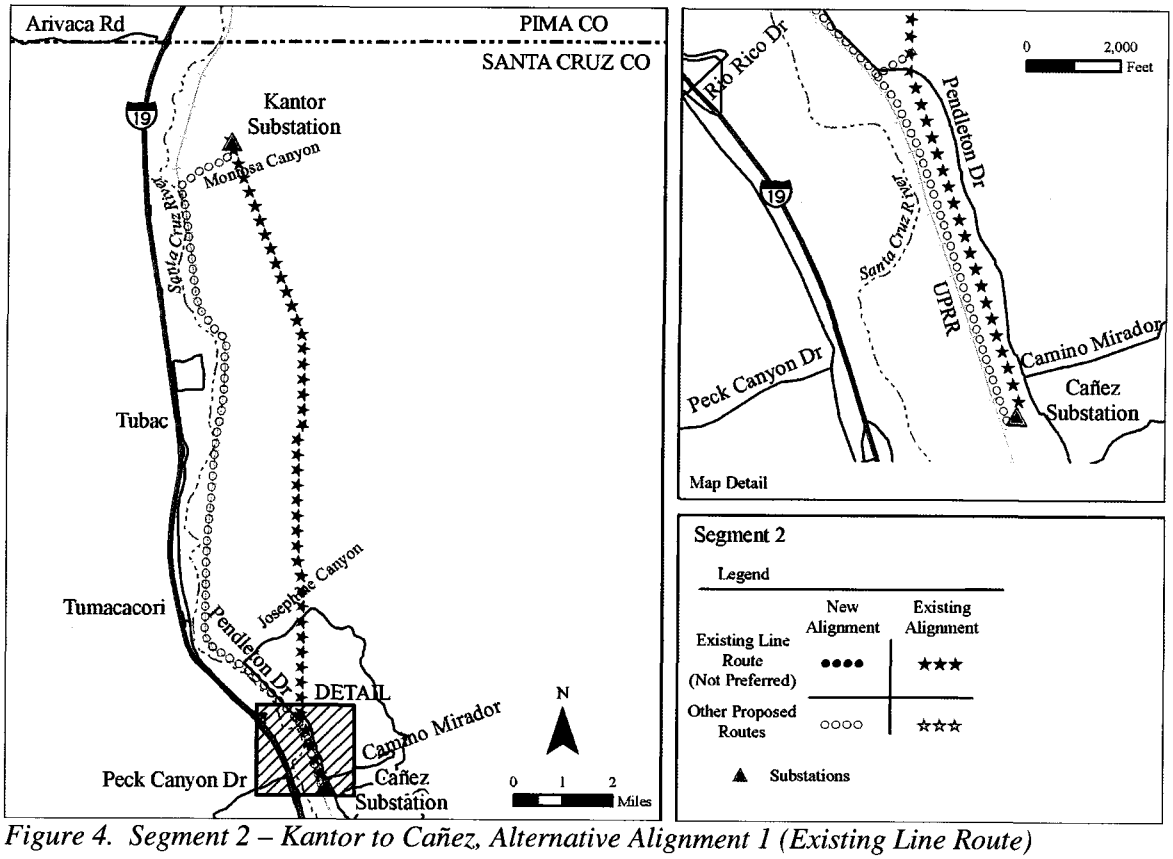


Figure 4. Segment 2 – Kantor to Cañez, Alternative Alignment 1 (Existing Line Route)

Alternative Alignment 2 (Railroad Route) – This alternative primarily parallels the UPRR right-of-way and largely avoids the use of the existing line. The alignment extends southwest out of the Kantor Substation, generally parallel to Montosa Canyon and to the UPRR right-of-way. The alignment then parallels the UPRR through the Santa Cruz River Valley south to the Cañez Substation. This alternative is the least desirable among alternatives in this Segment because: 1) it would result in vegetation clearing within several mesquite bosques located along the Santa Cruz River Valley; 2) it is within one-quarter mile of Tumacácori National Historic Park and Tubac Presidio State Historic Park; 3) local residents commenting on the Project strongly oppose using the route north of the Pendleton Drive intersection.

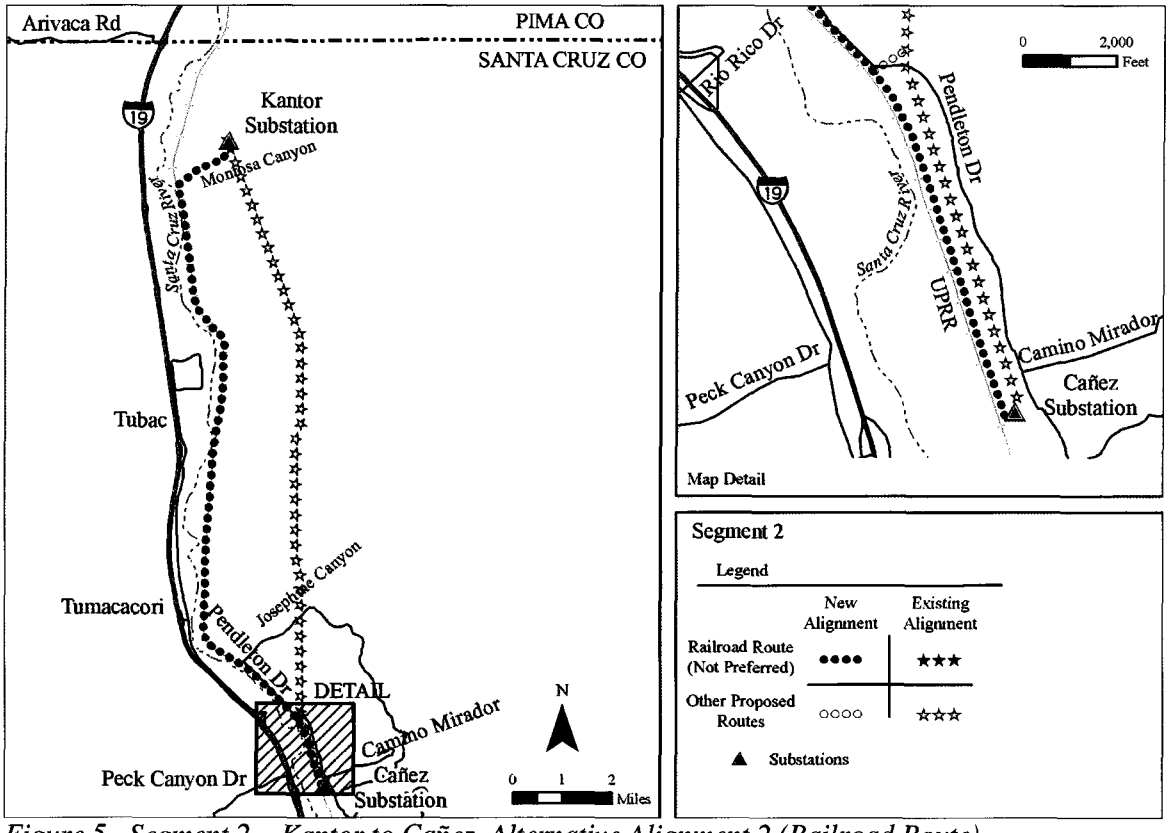


Figure 5. Segment 2 – Kantor to Cañez, Alternative Alignment 2 (Railroad Route)

Segment 3 – Cañez to Sonoita:

Preferred Alignment (West Route) – This alignment extends to the south out of the Cañez Substation adjacent to the UPRR, through the Santa Cruz River Valley. Near the intersection of Pendleton Drive and Avenida Coatimundi, the alignment departs from the railroad and parallels Avenida Coatimundi east to the Sonoita Substation. This alternative passes along the western edge of a mesquite bosque. This alternative is preferred because: 1) it follows flat and level terrain and an existing electrical distribution line right-of-way for most of the alignment; 2) it avoids complicated and expensive construction activities through residential areas; and 3) it does not have serious land use sensitivities. It is also preferred among most Rio Rico residents who commented about the Project.

Although implementation of the preferred alignment would result in additional vegetation clearing from several mesquite bosques, overall impacts would be limited because the vegetation clearing would occur at the edge of these bosques, along an already cleared area associated with the UPRR.

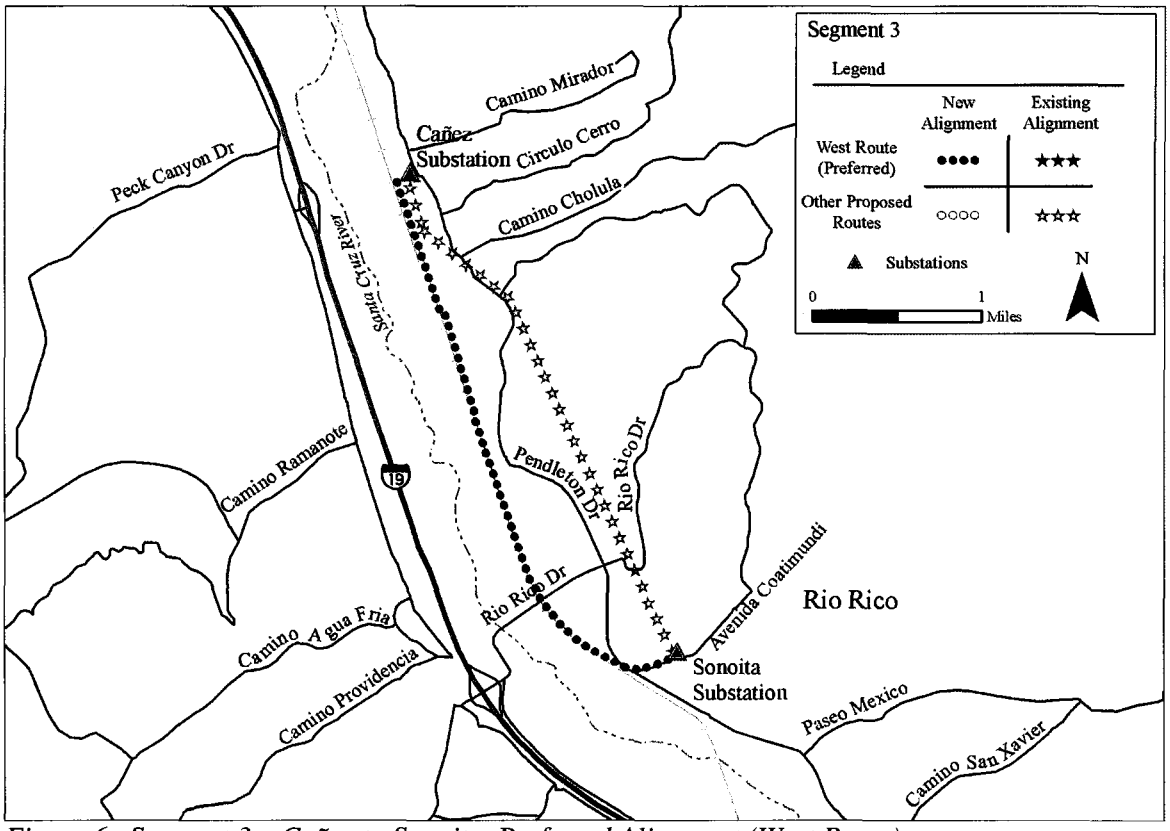


Figure 6. Segment 3 – Cañez to Sonoita, Preferred Alignment (West Route)

Alternative Alignment (Existing Line Route) – This alignment involves upgrading the existing line within the existing alignment through Rio Rico. The alignment extends south out of the Cañez Substation between Pendleton Drive and the UPRR. Near the intersection of Pendleton Drive and Camino Cholula, the alignment crosses to the east side of Pendleton Drive into the foothills through the most densely populated area of the Project, and where residents have built structures close to or within the right-of-way of the existing 115 kV alignment. The alignment extends south through the foothills to the Sonoita Substation. The alignment is not preferred because: 1) the alternative will require reclaiming the existing right-of-way from the encroachments; 2) it will require new access roads and special construction procedures to avoid damage to existing homes and to accommodate the rugged terrain; and 3) the construction, maintenance, and engineering difficulties in this area are substantial.

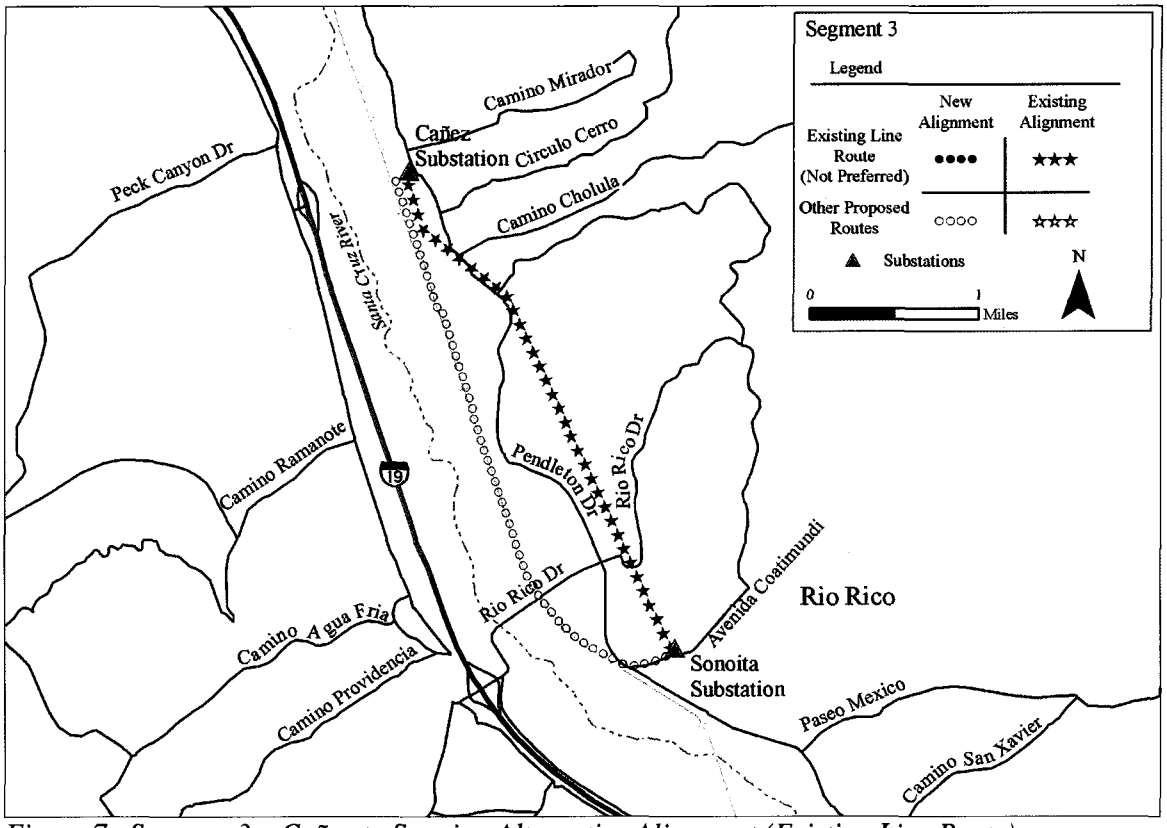


Figure 7. Segment 3 – Cañez to Sonoita, Alternative Alignment (Existing Line Route)

Segment 4 – Sonoita to Valencia:

Preferred Alignment (Existing Line Route) – This alternative is comprised almost entirely of the existing transmission line alignment, except for a 0.9 mile section immediately south of the intersection of Old Tucson Road and Grand Avenue. The alignment extends south out of the Sonoita Substation across Sonoita Creek and the Santa Cruz River and parallels Old Tucson Road. Near the intersection of Old Tucson Road and Grand Avenue the alignment departs from the existing 115 kV alignment to move east through an industrial area and on the east side of Nogales Wash (but still parallel to Grand Avenue). This bypass from the existing 115 kV alignment allows it to avoid a densely developed area with several commercial and industrial establishments along Grand Avenue, making staging and construction extremely difficult, if not impossible. The alignment returns to the existing 115 kV alignment near where Frank Reed Road intersects Grand Avenue. The existing alignment continues south, along the west side of the Santa Cruz County Complex, passes through the Preston Mobile Home Park, then turns to the south through the Mariposa Mall, across Mariposa Road, and through the Loma Linda Shopping Center. The alignment turns to the east and enters the Valencia Substation just north of Wal-Mart and Home Depot. This alternative passes through an area along Old Tucson Road that would make construction difficult due to existing land uses and narrow right-of-way, but is preferred because it utilizes the existing right-of-way to the maximum extent possible and is the most cost effective.

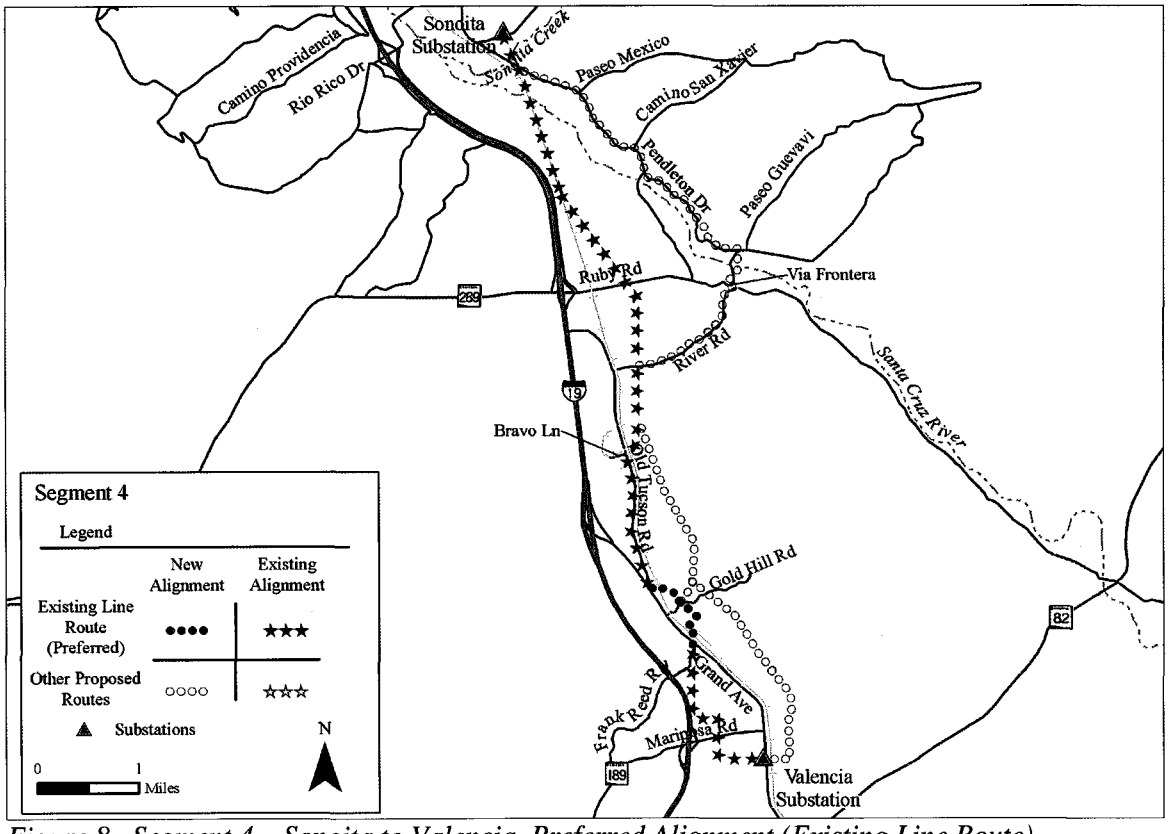


Figure 8. Segment 4 – Sonoita to Valencia, Preferred Alignment (Existing Line Route)

Alternative Alignment 1 (Existing Line/East to West Crossover Route) – This alternative follows the existing alignment out of the Sonoita Substation in the same manner as the Preferred Alignment (Existing Line Route), but at a point east of the intersection of Old Tucson Road and Bravo Lane the alignment departs from the existing right-of-way and continues south through the foothills passing through an industrial area near Gold Hill Road on its way west to the intersection of Grand Avenue and Frank Reed Road. This alternative also avoids a complicated construction and operation area along Old Tucson Road and Grand Avenue, where the right-of-way is narrow and construction would likely be difficult to coordinate. This alignment is not preferred because: 1) it is more costly than the Preferred Alignment, requiring UNS Electric to acquire an additional 2.3 miles of right-of-way; and 2) it creates new visual impacts, specifically on the hillside to the northeast of Nogales (where the line would crossover from the foothills toward Gold Hill Road).

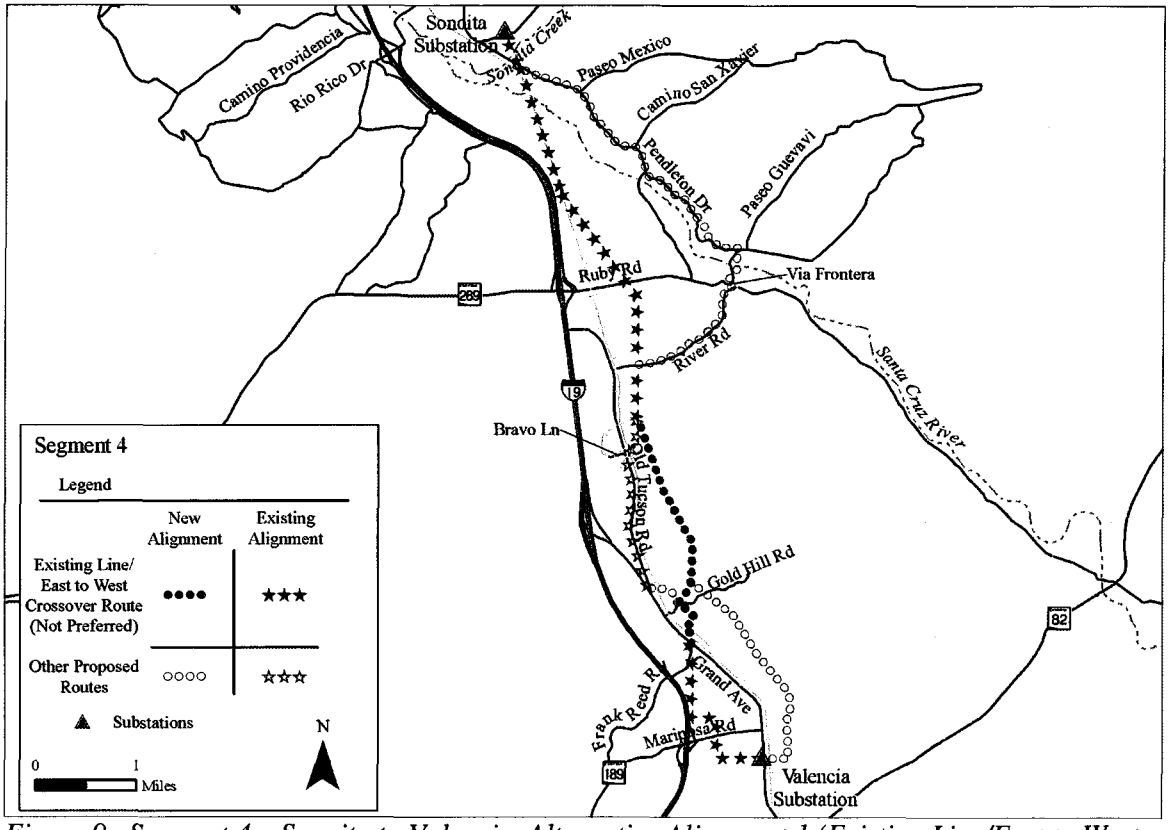


Figure 9. Segment 4 – Sonoita to Valencia, Alternative Alignment 1 (Existing Line/East to West Crossover Route)

Alternative Alignment 2 (Existing Line/East Route) – This alternative follows the same path as the Preferred Alignment (Existing Line Route) out of the Sonoita Substation, but at a point east of the intersection of Old Tucson Road and Bravo Lane the alignment departs from the existing right-of-way and continues south through the foothills, between an industrial area and a residential area, continuing east of the existing 115 kV alignment and approaching the Valencia Substation from the east. This alternative avoids both congested areas along Old Tucson Road and Grand Avenue, and is the shortest of the six routes proposed in this Segment. However, this alignment is not preferred because: 1) it will result in visual impacts to existing residential areas on the hillside northeast of Nogales and create a new transmission line corridor in a visible location; and 2) it is more costly than the Preferred Alignment requiring UNS Electric to acquire an additional 3.8 miles of right-of-way.

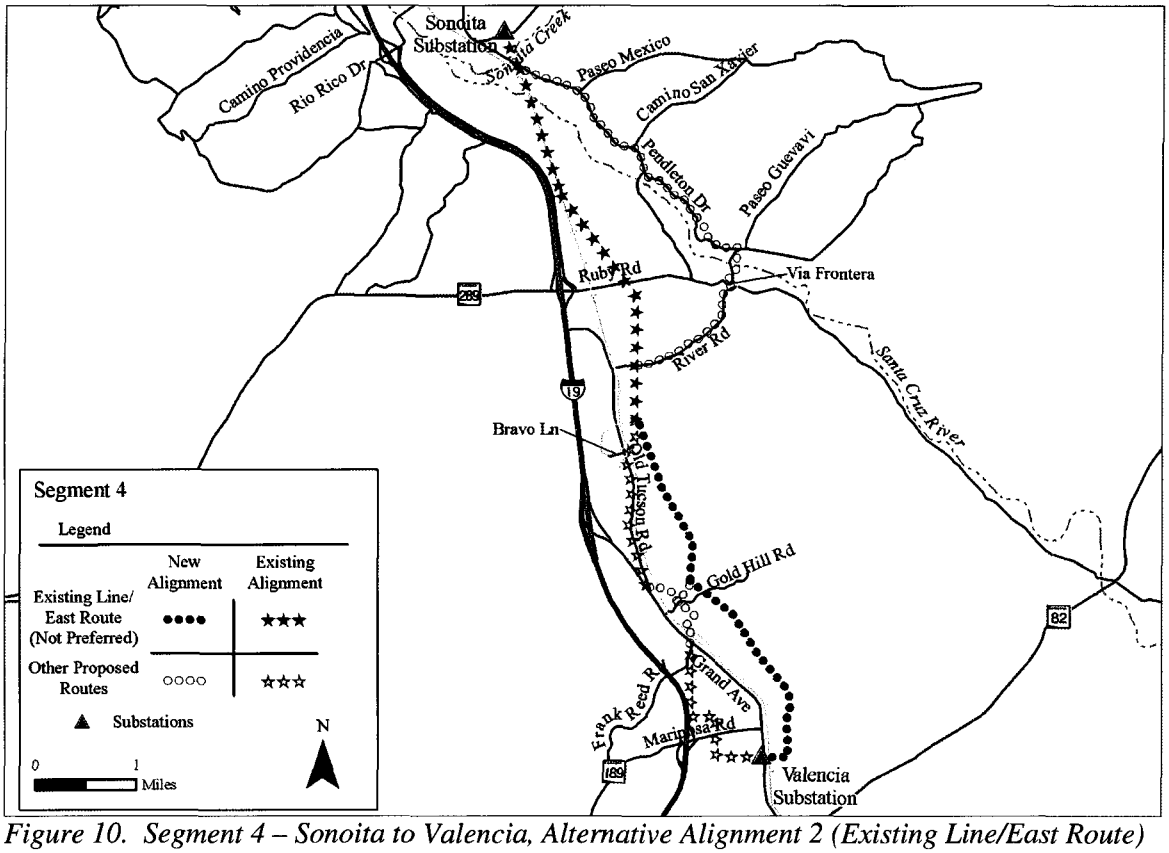


Figure 10. Segment 4 – Sonoita to Valencia, Alternative Alignment 2 (Existing Line/East Route)

Alternative Alignment 3 (Pendleton/Existing Line Route) – The alignment extends south out of the Sonoita Substation, across Sonoita Creek to Pendleton Drive. It then deviates from the existing 115 kV line to the east by following Pendleton Drive east to the intersection of Ruby Road. At Ruby Road the alignment crosses the Santa Cruz River south to the intersection of Via Frontera. It parallels Via Frontera south to River Road where the line extends west parallel to River Road back to the existing line. South of this point, the alternative is comprised almost entirely of the existing alignment and follows the same route as the Preferred Alignment (Existing Line Route) to the Valencia Substation. This alternative passes through an area along Old Tucson Road where the right-of-way is narrow and difficult to manage. It is not preferred, however, because the Pendleton Drive portion of the alignment (at the northern portion of Segment 4):

- Is difficult and costly to engineer and construct due to the proximity of existing homes and residents along Pendleton Drive. Also, UNS Electric would need to install many more turning structures than it would if it used the existing 115 kV alignment (Pendleton Drive winds and curves extensively in this area). Further, significant tree clearing would be required.
- Creates new visual impacts to residents living along Pendleton Drive.
- Is within one-quarter mile of San Cayetano de Calabazas Mission (included as part of Tumacácori National Historic Park).
- Provides no advantage in bypassing the Old Tucson Road and Grand Avenue portions of the existing 115 kV line as opposed to any other route in this Segment.

In addition, UNS Electric must acquire 5.6 miles of additional right-of-way, making it more costly than the Preferred Alignment.

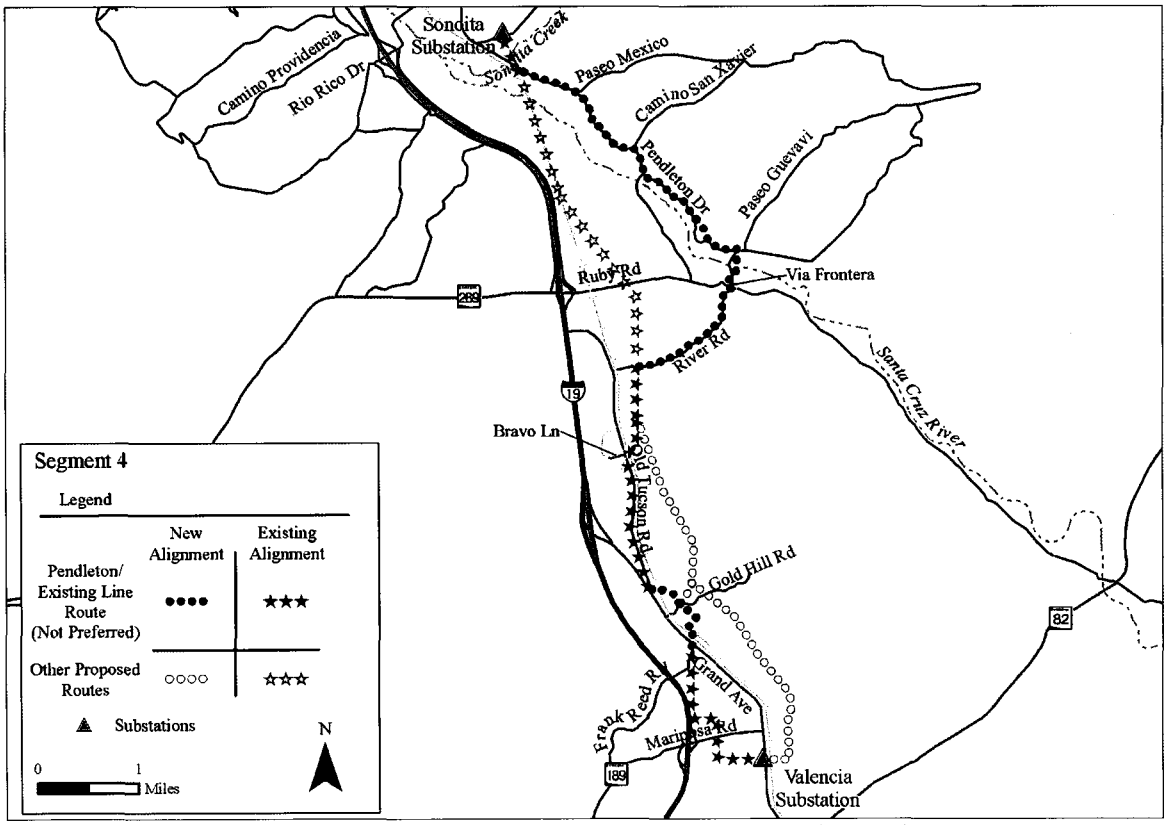


Figure 11. Segment 4 – Sonoita to Valencia, Alternative Alignment 3 (Pendleton/Existing Line Route)

Alternative Alignment 4 (Pendleton/East to West Crossover Route) – The alignment extends south out of the Sonoita Substation, to Pendleton Drive, in the same manner as the Pendleton/Existing Line Alternative, but at a point east of the intersection of Old Tucson Road and Bravo Lane the alignment departs from the existing right-of-way and continues south through the foothills in the same manner as Alternative Alignment 1 (Existing Line/East to West Crossover Route) to the Valencia Substation. This alternative avoids a complicated construction and operation area along Old Tucson Road and Grand Avenue, where the right-of-way is narrow and construction would likely be difficult to coordinate. It is not preferred, however, because the Pendleton Drive portion of the alignment (at the northern portion of Segment 4):

- Is difficult and costly to engineer and construct due to the proximity of existing homes and residents along Pendleton Drive. Also, UNS Electric would need to install many more turning structures than it would if it used the existing 115 kV alignment (Pendleton Drive winds and curves extensively in this area). Further, significant tree clearing would be required.
- Creates new visual impacts to residents living along Pendleton Drive.
- Is within one-quarter mile of San Cayetano de Calabazas Mission (included as part of Tumacácori National Historic Park).
- Provides no advantage in bypassing the Old Tucson Road and Grand Avenue portions of the existing 115 kV line as opposed to any other route in this Segment.

Further, UNS Electric must acquire 7.0 miles of additional right-of-way, making it more costly than the Preferred Alignment. This alignment would also create new visual impacts, specifically on the hillside to the northeast of Nogales (where the line would crossover from the foothills toward Gold Hill Road).

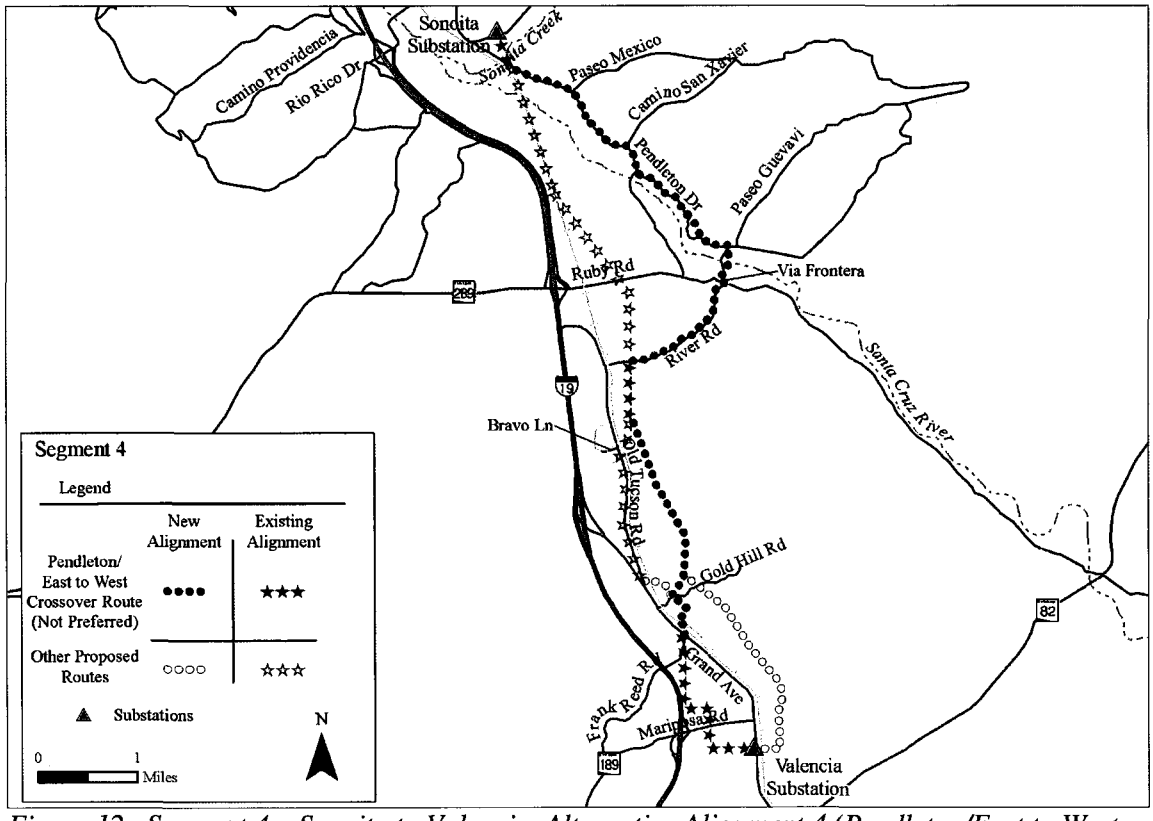


Figure 12. Segment 4 – Sonoita to Valencia, Alternative Alignment 4 (Pendleton/East to West Crossover Route)

Alternative Alignment 5 (Pendleton/East Route) – This alternative is the eastern most alignment out of the six routes proposed in this Segment. It is initially the same as Alternative Alignment 4 (Pendleton/East to West Crossover Route), but instead of joining the existing line to work its way through the City of Nogales, it remains in the foothills in the same manner as Alternative Alignment 2 (Existing Line/East Route) to the Valencia Substation. This alternative avoids both congested areas along Old Tucson Road and Grand Avenue but would extend through or near residential areas that were previously unaffected. It is not preferred, however, because the Pendleton Drive portion of the alignment (at the northern portion of Segment 4):

- Is difficult and costly to engineer and construct due to the proximity of existing homes and residents along Pendleton Drive. Also, UNS Electric would need to install many more turning structures than it would if it used the existing 115 kV alignment (Pendleton Drive winds and curves extensively in this area). Further, significant tree clearing would be required.
- Creates new visual impacts to residents living along Pendleton Drive.
- Is within one-quarter mile of San Cayetano de Calabazas Mission (included as part of Tumacácori National Historic Park).
- Provides no advantage in bypassing the Old Tucson Road and Grand Avenue portions of the existing 115 kV line as opposed to any other route in this Segment.

Further, UNS Electric must acquire 8.5 miles of additional right-of-way, making it more costly than the Preferred Alignment. This alignment would also create new visual impacts, specifically on the hillside to the northeast of Nogales (where the line would crossover from the foothills toward Gold Hill Road).

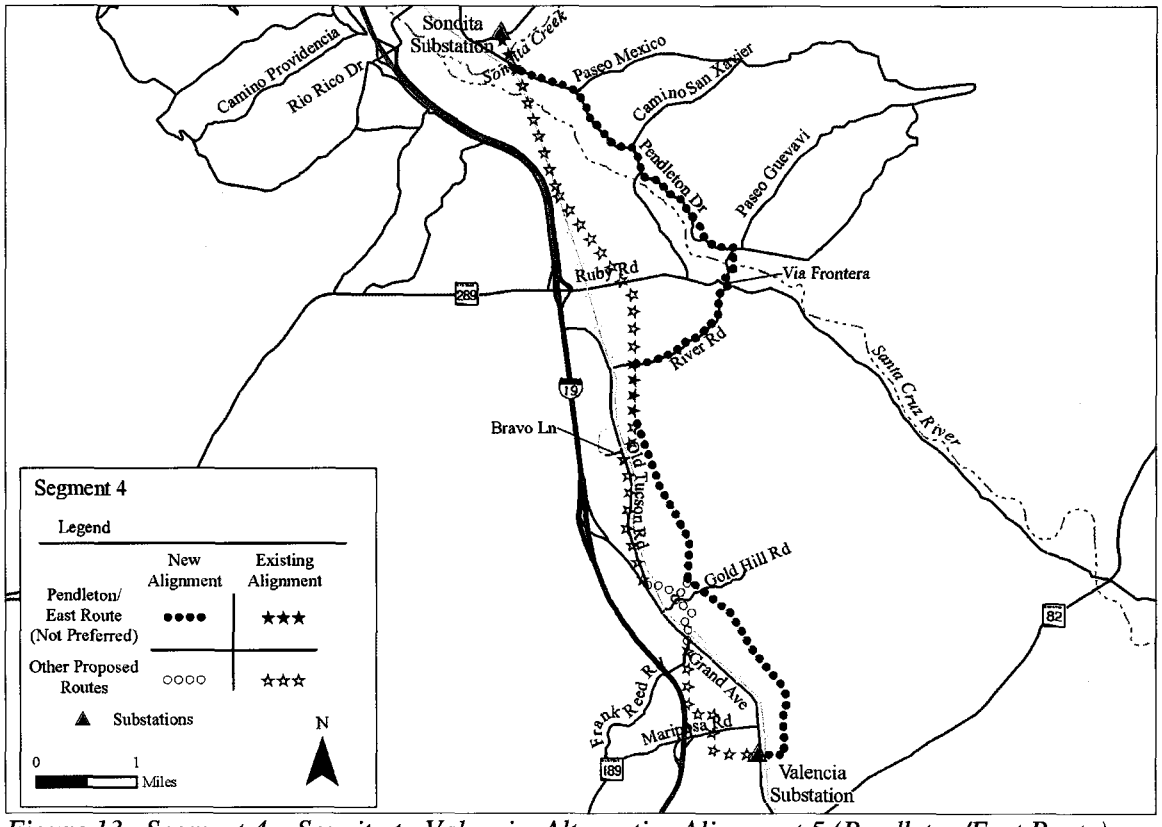


Figure 13. Segment 4 – Sonoita to Valencia, Alternative Alignment 5 (Pendleton/East Route)

vi. For each alternative route for which the application is made, list the ownership percentages of land traversed by the entire route (federal, state, Indian, private, etc.).

Each of the alignments crosses state and/or private land. Land ownership for each alignment is summarized in Table 1.

Table 1
Summary of Land Ownership Mileages for the Preferred and Alternative Alignments

Alignment		State – Miles (% of Total)	Private – Miles (% of Total)	Total
Segment 1 – Vail to Kantor				
Preferred Alignment (North Route)	Segment 1A*	2.77 (48%)	3.01* (52%)	5.78
	Segment 1B	20.02 (76%)	6.15 (24%)	26.17
Alternative Alignment (South Route)	Segment 1A	5.09 (98%)	0.11 (2%)	5.18
	Segment 1B	19.98 (76%)	6.18 (24%)	26.16
Segment 2 – Kantor to Cañez				
Preferred Alignment (Modified Route)		6.09 (45%)	7.44 (55%)	13.53
Alternative Alignment 1 (Existing Line Route)		6.09 (45%)	7.31 (55%)	13.40
Alternative Alignment 2 (Railroad Route)		0.66 (4%)	14.19 (96%)	14.85
Segment 3 – Cañez to Sonoita				
Preferred Alignment (West Route)		—	3.62 (100%)	3.62
Alternative Alignment (Existing Line Route)		—	3.31 (100%)	3.31
Segment 4 – Sonoita to Valencia				
Preferred Alignment (Existing Line Route)		0.76 (9%)	7.87 (91%)	8.63
Alternative Alignment 1 (Existing Line/East to West Crossover Route)		0.76 (9%)	7.74 (91%)	8.50
Alternative Alignment 2 (Existing Line/East Route)		0.76 (9%)	7.57 (91%)	8.33
Alternative Alignment 3 (Pendleton/Existing Line Route)		1.0 (10%)	9.14 (90%)	10.14
Alternative Alignment 4 (Pendleton/East to West Crossover Route)		1.0 (10%)	9.01 (90%)	10.01
Alternative Alignment 5 (Pendleton/East Route)		1.0 (10%)	8.84 (90%)	9.84

* This alignment also crosses approximately 1,300 feet (0.1%) of federal land managed by the U.S. Department of the Interior, Bureau of Land Management.

5. List the areas of jurisdiction [as defined in ARS § 40-360(1)] affected by each alternative site or route and designate those proposed sites or routes, if any, which are contrary to the zoning ordinances or master plans of any such areas of jurisdiction.

The proposed alignments cross state and private lands within portions of Pima and Santa Cruz counties and the incorporated communities of Tucson, and Nogales, Arizona.

Two of the alternative alignments cross federal land managed by the Bureau of Land Management ("BLM"). In Segment 1A, the Preferred Alignment (North Route) passes through a small BLM parcel along Wilmot Road, and in Segment 4, the Preferred Alignment, as well as the Alternative Alignments 1, 3, and 4 pass through a BLM parcel west of Congress Drive and the Santa Cruz County Complex in Nogales, Arizona. The existing 115 kV alignment in Segment 4, however, currently passes through the parcel in Nogales and the BLM would not require UNS Electric to amend or obtain a new authorization in this area. If the Preferred Alignment (North Route) in Segment 1 is approved in a CEC, UNS Electric will pursue an authorization across the BLM parcel along Wilmot Road.

The transmission line alignments are compatible with existing zoning, existing land use plans, or land management plans. Maps depicting Project area zoning and County, Town, and City Plan designations are included in Exhibit A and Exhibit H.

6. Describe any environmental studies applicant has performed or caused to be performed in connection with this application or intends to perform or cause to be performed in such connection, including the contemplated date of completion.

Applicable environmental studies for the Project are summarized in Table 2.

Table 2
Summary of Regulations, Authorizations, and Environmental Studies

Agency	Regulation/Authorization	Applicable Study or Report
Arizona Department of Environmental Quality	Section 402 Clean Water Act; Arizona Pollution Discharge Elimination System Permit; Section 401 State Water Quality Certification	Storm Water Pollution Prevention Plan; Spill Prevention Countermeasure Control Plan; Water Quality Certificate
Arizona State Historic Preservation Office	Consultation and coordination	Class III Cultural Resources Survey Report
Army Corps of Engineers	Section 404 Clean Water Act; Nationwide Permit 12	Section 404/401 Compliance Package
Arizona State Land Department	Grant of Right-of-Way	Class III Cultural Resources Survey Report
Arizona State Land Department	Permit to Remove Natural Products	Inventory of Native Plants; Sensitive Plant Species Report
N/A	N/A	Resource conservation measures will be implemented as provided in this Application.

APPLICANT AUTHORIZATION

Respectfully submitted this 21st day of April, 2009

by: Ed Beck

Ed Beck
Director, Line Siting Services
UNS Electric, Inc./Tucson Electric Power Company

I certify that on this 21st day of April, 2009, I have delivered to the Arizona Corporation Commission 25 copies of this Application for a Certificate of Environmental Compatibility.

By: Mary Appolito

EXHIBIT A: PROJECT LOCATION AND GENERAL LAND USE PLAN

PROJECT LOCATION

The proposed project is linear in nature and stretches from southeastern Tucson to Nogales, Arizona. The northern terminus of the proposed project is located in the City of Tucson and the project extends through unincorporated Pima and Santa Cruz counties in proximity to the communities of Tubac and Rio Rico, and terminates in the City of Nogales.

The proposed transmission line routes are located in the Gila and Salt River Baseline and Meridian in the following townships, ranges, and sections:

- T16S, R15E, Sections 4-9, 16-21, 30, 31
- T17S, R15E, Sections 6, 7, 18, 19, 30, 31
- T17S, R14E, Section 36
- T18S, R14E, Sections 1, 2, 10, 11, 15, 21, 22, 28, 29, 32
- T19S, R14E, Sections 6, 7
- T20S, R13E, Sections 4, 8, 9, 17-21, 28, 30-34
- T21S, R13E, Sections 3, 5, 8-10, 16, 17, 20, 21, 27-29, 32, 34
- T22S, R13E, Sections 3-5, 9, 10, 15, 22, 23, 26, 27, 35, 36
- T23S, R13E, Sections 1, 12
- T23S, R14E, Sections 6-8, 17-19, 29-32
- T24S, R14E, Section 5

USGS 7.5-minute quadrangle maps for the project include: Tucson SE, Corona de Tucson, Sahuarita, Green Valley, Mount Hopkins, Amado, Tubac, San Cayetano Mountains, Rio Rico, and Nogales.

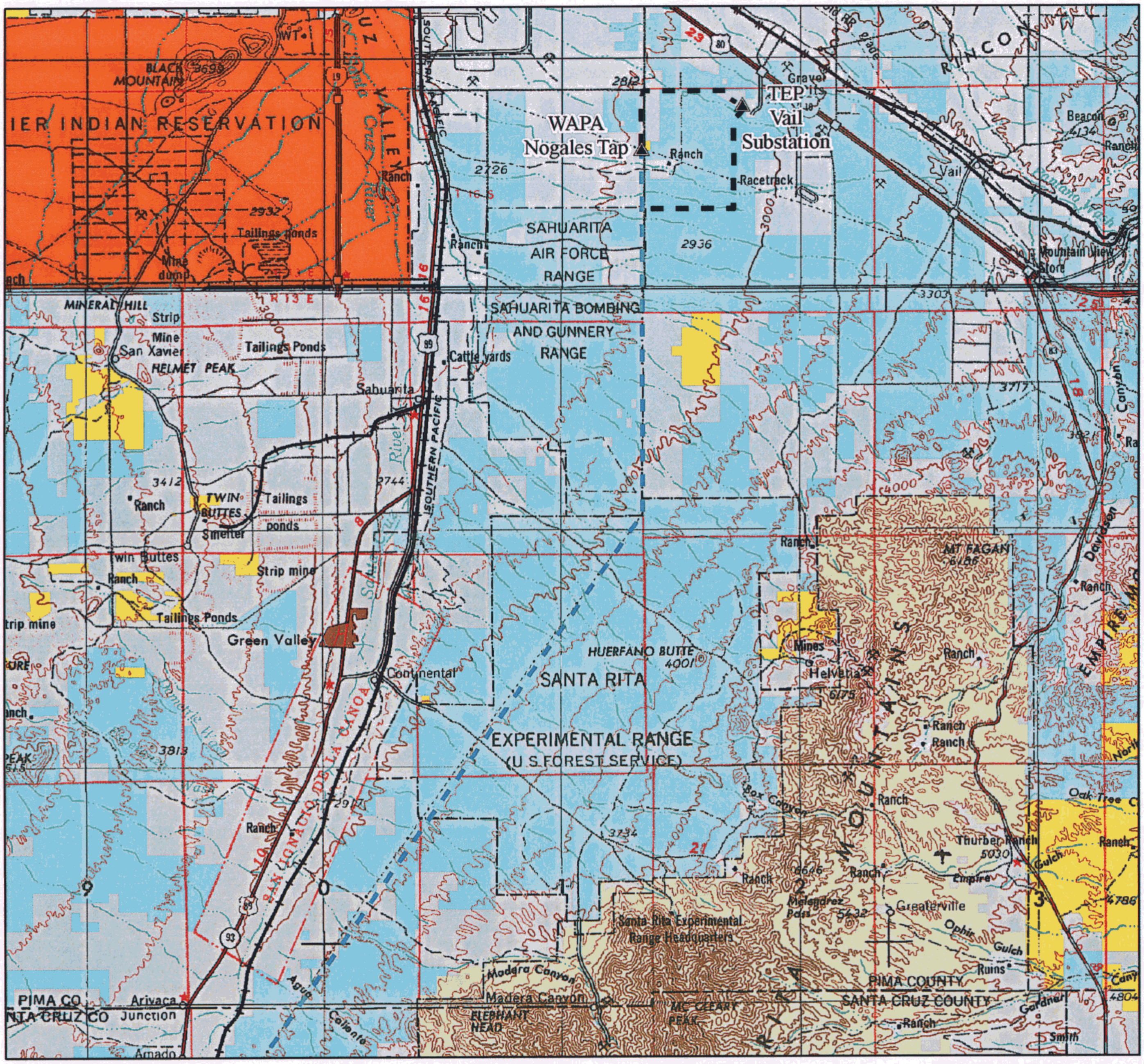
LAND OWNERSHIP AND JURISDICTION

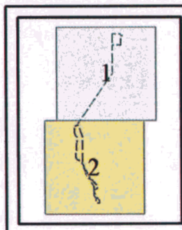
Exhibit A-1 includes maps that depict the proposed project alignments and alternatives, and the land ownership within the project study area. Land ownership and jurisdiction is described in more detail in Exhibit H.

PLANNED LAND USE

Planned land use information was obtained from general or comprehensive plans adopted by local governmental agencies. Planned land uses traversed or adjacent to the project alignments and alternatives for each affected jurisdiction are depicted in Exhibit A-2, and are described in more detail in Exhibit H.

There are no plans available for lands owned or administered by the Arizona State Land Department that are within the project study area.





Legend

- Existing Transmission Line Alignment
- Alternative Transmission Line Alignment
- Substations
- Bureau of Indian Affairs
- Bureau of Land Management
- Forest Service
- Private
- State

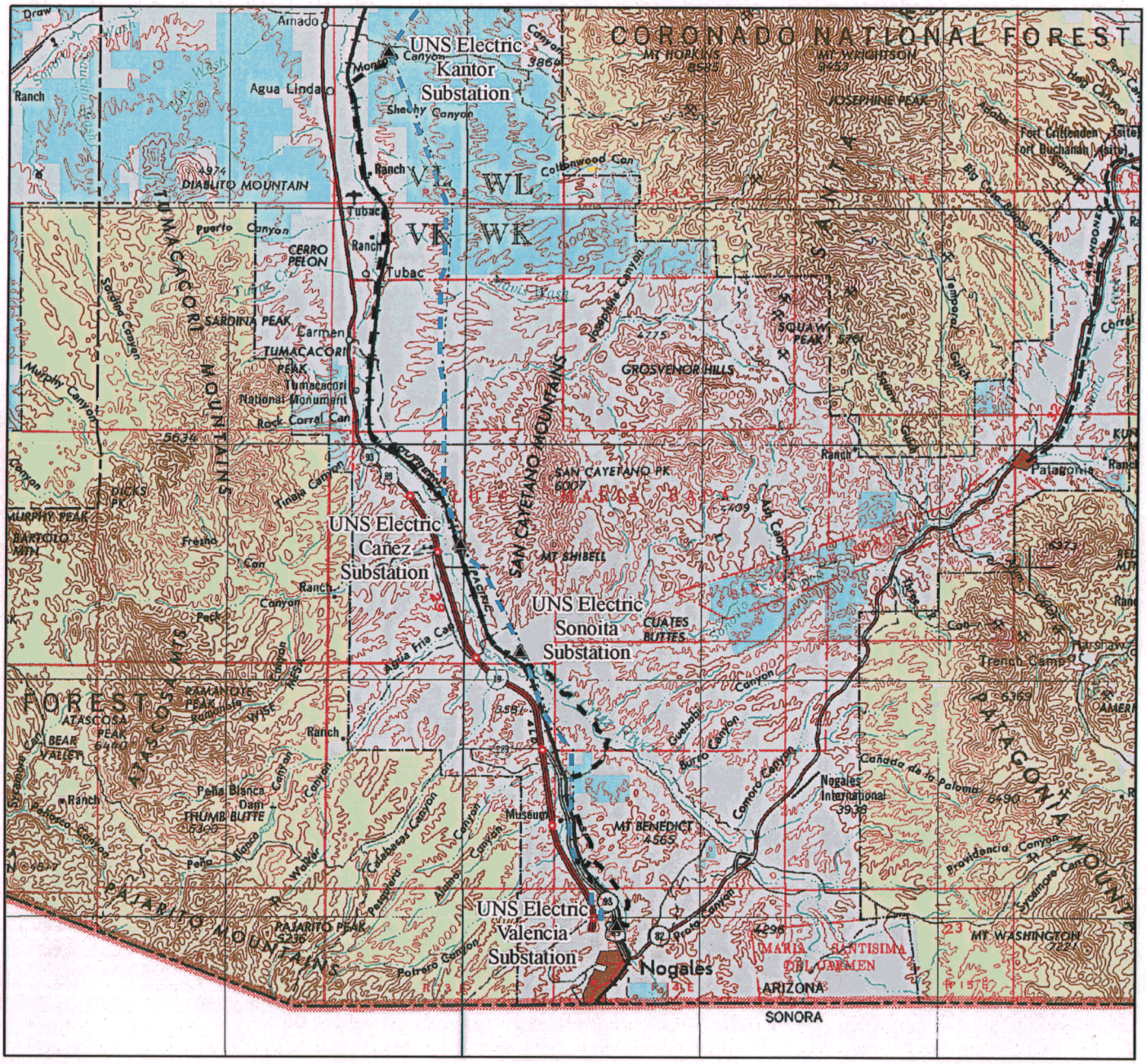
1:250,000

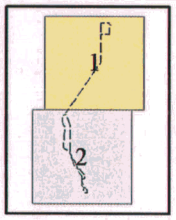
0 1 2 3 4 Miles

Project Vicinity

Vail to Valencia
115kV to 138kV
Transmission Line
Upgrade Project

EXHIBIT A-1
MAP PANEL 1 OF 2





Legend

- Existing Transmission Line Alignment
- Alternative Transmission Line Alignment
- Substations
- Bureau of Indian Affairs
- Bureau of Land Management
- Forest Service
- Private
- State

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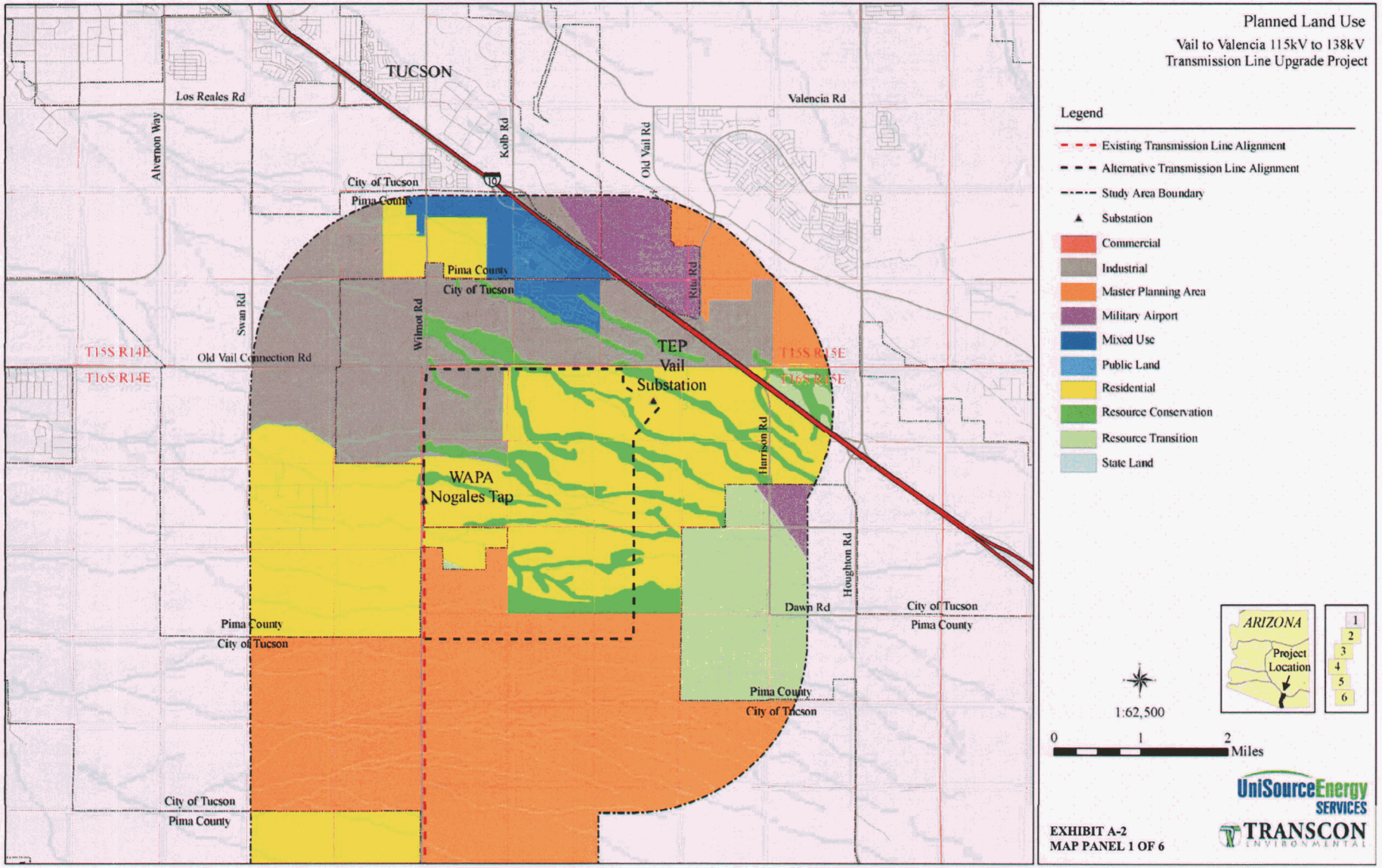
0 1 2 3 4 Miles

Project Vicinity

Vail to Valencia
115kV to 138kV
Transmission Line
Upgrade Project

EXHIBIT A-1
MAP PANEL 2 OF 2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Los Reales Rd
Valencia Rd
Alvernon Way
Kolb Rd
Old Vail Rd
City of Tucson
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Pima County
City of Tucson
Rita Rd
Swan Rd
Wilmot Rd
T15S R14E
T16S R14E
Old Vail Connection Rd
TEP
Vail
Substation
T15S R15E
T16S R15E
Harrison Rd
WAPA
Nogales Tap
Houghton Rd
Dawn Rd
City of Tucson
Pima County
Pima County
City of Tucson
Pima County
City of Tucson
City of Tucson
Pima County
Planned Land Use
Vail to Valencia 115kV to 138kV
Transmission Line Upgrade Project
Legend
Existing Transmission Line Alignment
Alternative Transmission Line Alignment
Study Area Boundary
Substation
Commercial
Industrial
Master Planning Area
Military Airport
Mixed Use
Public Land
Residential
Resource Conservation
Resource Transition
State Land
ARIZONA
Project Location
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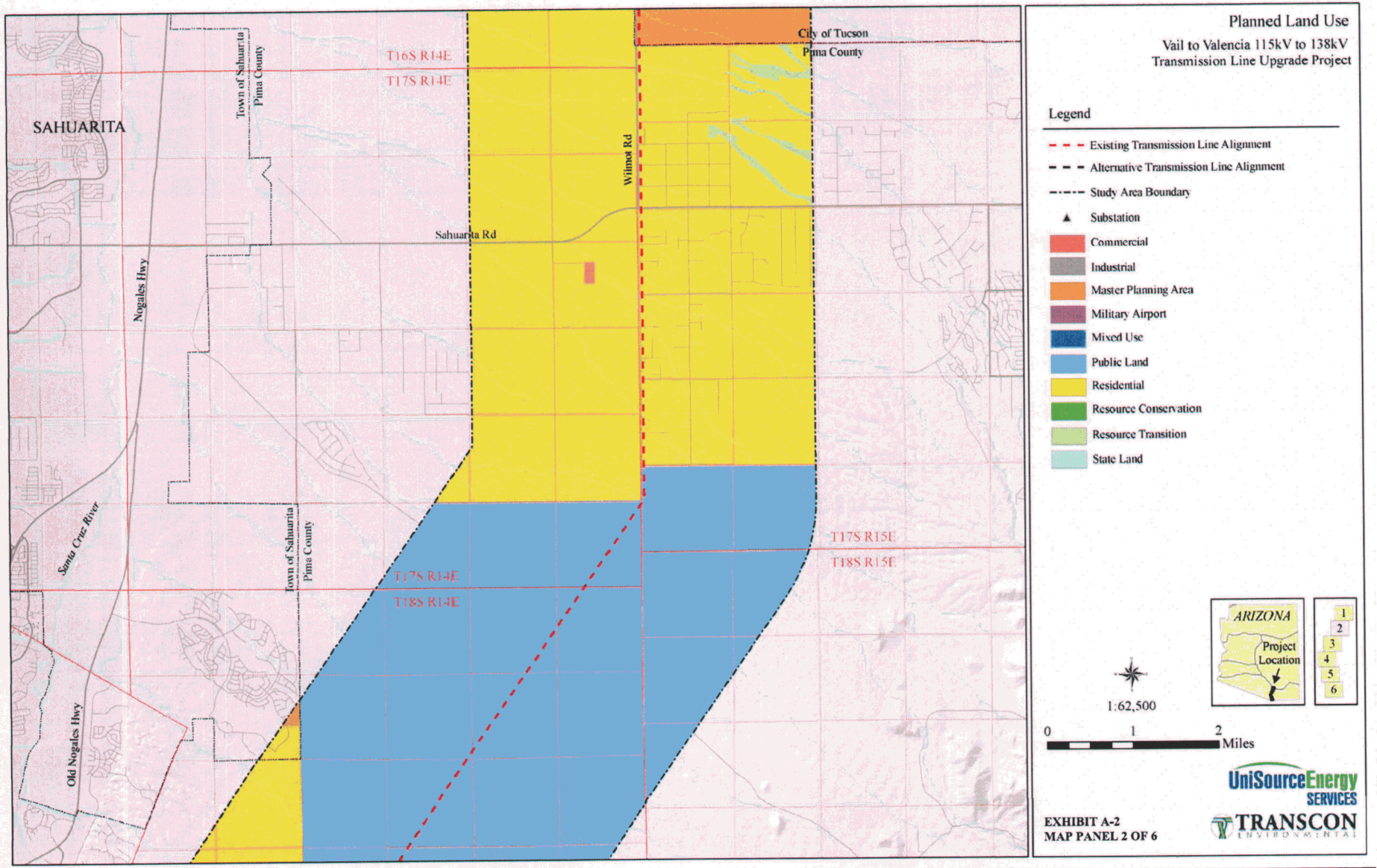
Miles
UniSourceEnergy SERVICES
TRANSCON ENVIRONMENTAL
EXHIBIT A-2
MAP PANEL 1 OF 6


SAHUARITA
Town of Sahuarita
Pima County
T16S R14E
T17S R14E
City of Tucson
Pima County
Wilmot Rd
Sahuarita Rd
Nogales Hwy
Santa Cruz River
Town of Sahuarita
Pima County
T17S R14E
T18S R14E
T17S R15E
T18S R15E
Old Nogales Hwy
Planned Land Use
Vail to Valencia 115kV to 138kV
Transmission Line Upgrade Project
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Public Land
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Resource Conservation
Resource Transition
State Land
ARIZONA
Project Location
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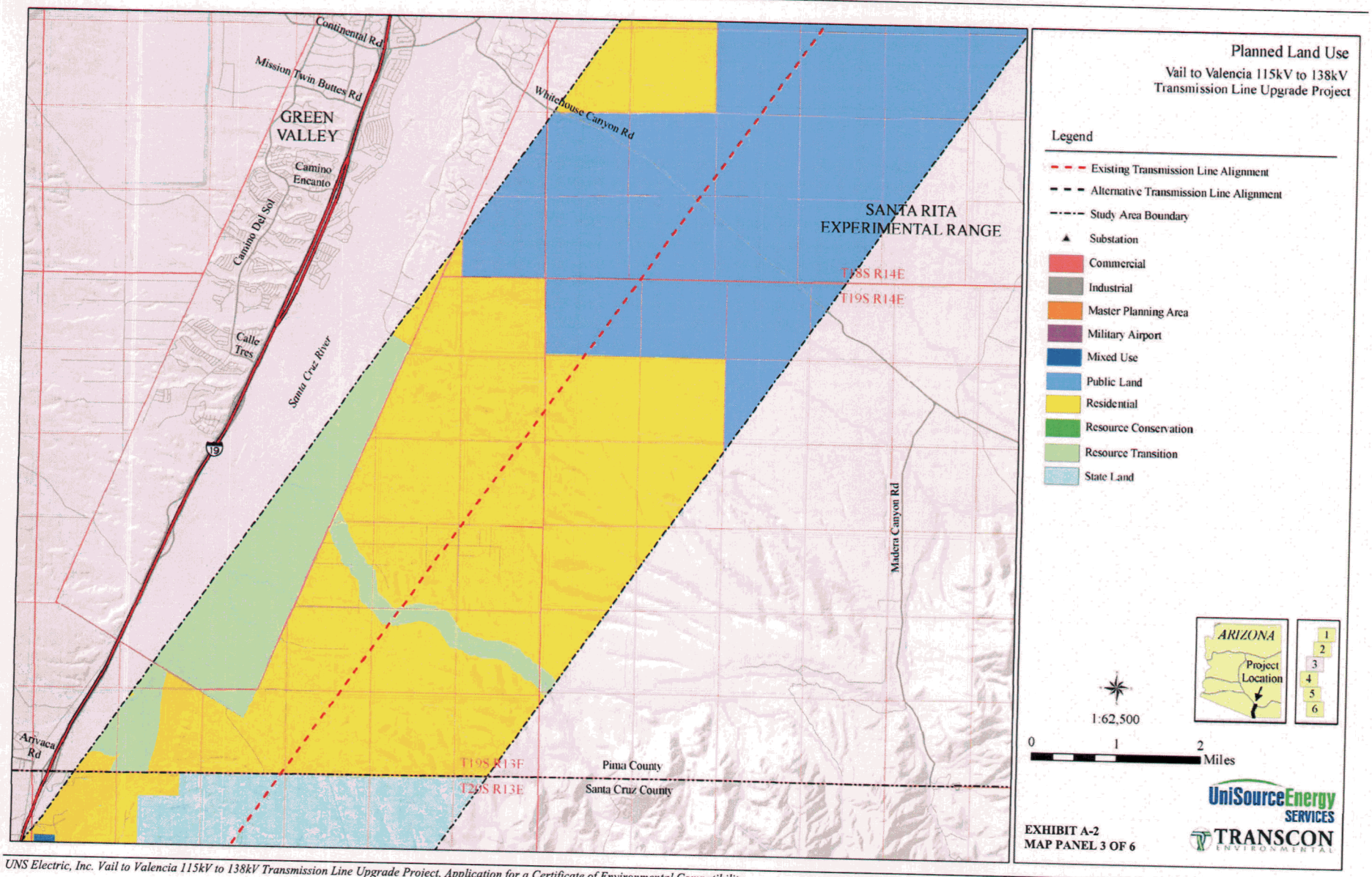
UniSourceEnergy SERVICES
TRANSCON ENVIRONMENTAL
EXHIBIT A-2
MAP PANEL 2 OF 6


Continental Rd
Mission Twin Buttes Rd
GREEN VALLEY
Camino Encanto
Camino Del Sol
Calle Tres
Santa Cruz River
19
Arivaca Rd
Whitehouse Canyon Rd
SANTA RITA EXPERIMENTAL RANGE
T18S R14E
T19S R14E
Madera Canyon Rd
T19S R13E
T20S R13E
Pima County
Santa Cruz County
Planned Land Use
Vail to Valencia 115kV to 138kV Transmission Line Upgrade Project
Legend
Existing Transmission Line Alignment
Alternative Transmission Line Alignment
Study Area Boundary
Substation
Commercial
Industrial
Master Planning Area
Military Airport
Mixed Use
Public Land
Residential
Resource Conservation
Resource Transition
State Land
ARIZONA
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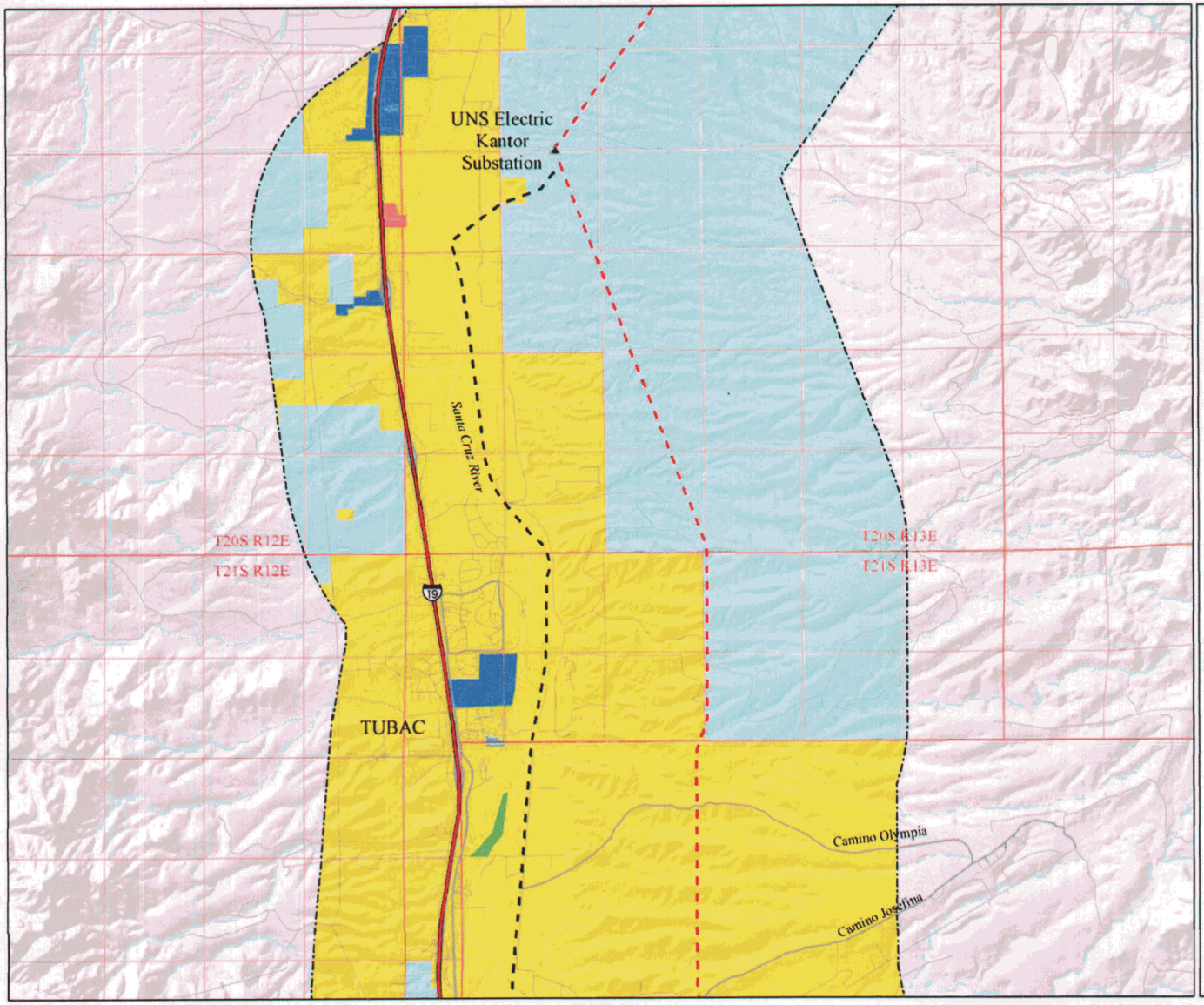
Miles
UniSourceEnergy SERVICES
TRANSCON ENVIRONMENTAL
EXHIBIT A-2
MAP PANEL 3 OF 6

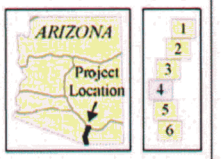


Planned Land Use

Vail to Valencia 115kV to 138kV
Transmission Line Upgrade Project

Legend

- Existing Transmission Line Alignment
- Alternative Transmission Line Alignment
- Study Area Boundary
- Substation
- Commercial
- Industrial
- Master Planning Area
- Military Airport
- Mixed Use
- Public Land
- Residential
- Resource Conservation
- Resource Transition
- State Land



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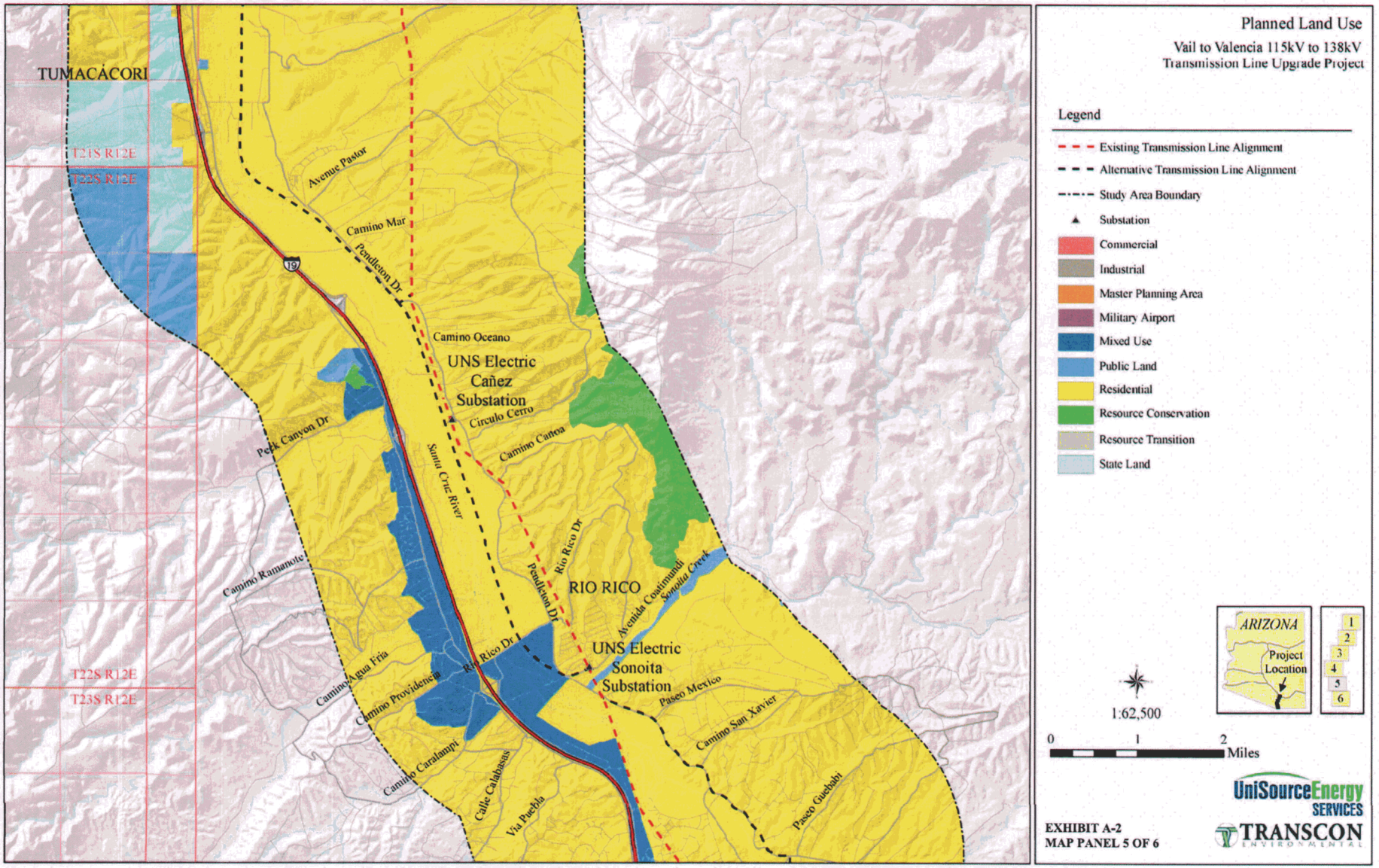
UniSourceEnergy SERVICES

TRANSCON ENVIRONMENTAL

EXHIBIT A-2
MAP PANEL 4 OF 6



Planned Land Use

Vail to Valencia 115kV to 138kV
Transmission Line Upgrade Project

Legend

- Existing Transmission Line Alignment
- Alternative Transmission Line Alignment
- Study Area Boundary
- Substation
- Commercial
- Industrial
- Master Planning Area
- Military Airport
- Mixed Use
- Public Land
- Residential
- Resource Conservation
- Resource Transition
- State Land

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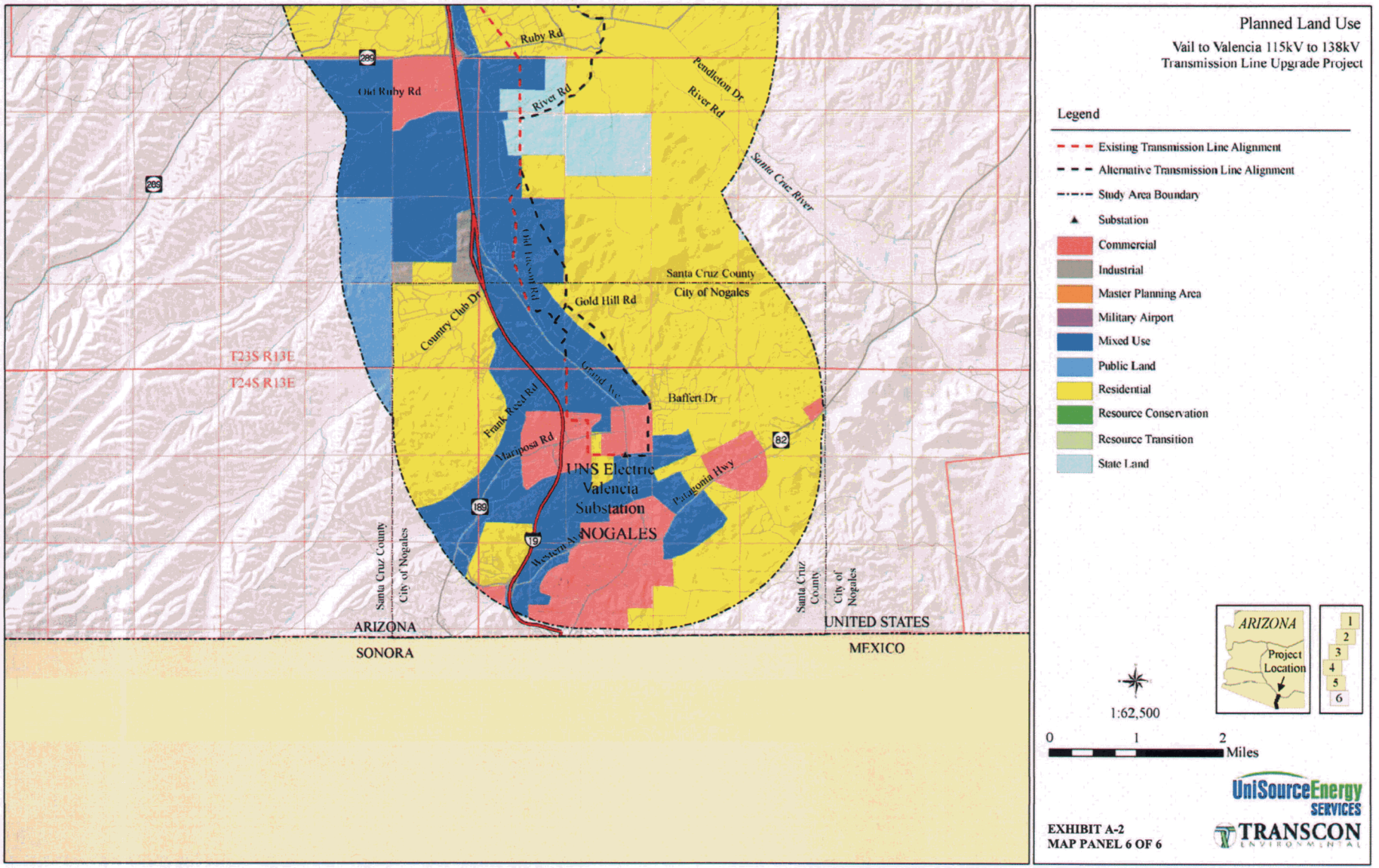
UniSourceEnergy SERVICES

TRANSCON ENVIRONMENTAL

EXHIBIT A-2
MAP PANEL 5 OF 6


Ruby Rd
Old Ruby Rd
River Rd
Pendleton Dr
River Rd
Santa Cruz River
Old Tucson Rd
Gold Hill Rd
Santa Cruz County
City of Nogales
Country Club Dr
Grand Ave
Baffert Dr
Frank Reed Rd
Mariposa Rd
UNS Electric
Valencia
Substation
NOGALES
Patagonia Hwy
Western Ave
T23S R13E
T24S R13E
Santa Cruz County
City of Nogales
Santa Cruz County
City of Nogales
ARIZONA
SONORA
UNITED STATES
MEXICO
Planned Land Use
Vail to Valencia 115kV to 138kV
Transmission Line Upgrade Project
Legend
Existing Transmission Line Alignment
Alternative Transmission Line Alignment
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Substation
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Master Planning Area
Military Airport
Mixed Use
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Resource Conservation
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State Land
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UniSourceEnergy SERVICES
TRANSCON ENVIRONMENTAL
EXHIBIT A-2
MAP PANEL 6 OF 6

EXHIBIT B: ENVIRONMENTAL STUDIES

The proposed project alignments occur primarily on state and private lands. Federal lands administered by the Bureau of Land Management are located along several of the proposed project alternative alignments (Segment 1, Preferred Alignment and Segment 4, Preferred and Alternative Alignments 1, 3, and 4). These lands are located along Wilmot Road near the Nogales Tap and near the Santa Cruz County complex in Nogales.

The proposed project alternatives would not tie into WAPA's Nogales Tap, therefore no approvals by WAPA are required. UNS Electric has committed to conduct appropriate NEPA compliance if it is determined that the corridor approved by the Arizona Power Plant and Transmission Line Siting Committee crosses Federal land.

The Exhibits in this Application include the environmental studies conducted for the Vail to Valencia 115 kV to 138 kV Transmission Line Upgrade Project.

EXHIBIT C: BIOLOGICAL WEALTH

INTRODUCTION

UNS Electric proposes to upgrade an existing 115 kV transmission line to a 138 kV transmission line from Western Area Power Administration's ("WAPA") Nogales Tap to the Valencia Substation in Nogales, Arizona. The proposed upgrade begins at Tucson Electric Power's ("TEP") Vail Substation, located just south of Interstate-10 ("I-10") and Wilmot Road, and extends south approximately 58 miles, generally paralleling Interstate-19 ("I-19"). It ends at the Valencia Substation in Nogales, Arizona. The proposed project crosses lands managed by the Bureau of Land Management ("BLM"), Tucson Field Office and Arizona State Land Department ("ASLD"), and privately owned lands.

UNS Electric retained Transcon Environmental ("Transcon") to determine environmentally compatible routes for the proposed project. Transcon prepared a Biological Evaluation to address potential impacts to biological resources as a result of the proposed project and considers impacts to species protected under the Endangered Species Act ("ESA"), species identified in Pima County's Sonoran Desert Conservation Plan ("SDCP"), Migratory Bird Treaty Act ("MBTA"), Arizona Native Plant Law, as well as sensitive habitats and invasive species. This Exhibit presents the information contained in the Biological Evaluation.

PROPOSED ACTION

The primary purpose of the Project is to upgrade the existing line to carry additional capacity needed for growing electrical demands occurring between Tubac and Nogales, Arizona. This will involve changing the infrastructure to accommodate 138 kV, an increase from the existing 115 kV system. Installing steel structures extends the line's life and improves the system reliability. The interconnection to the Vail Substation will also allow a direct interconnection to UNS Electric's sister company TEP, and removes an existing electric capacity constraint at the WAPA intertie.

Portions of the existing transmission line are proposed for re-routing because the existing alignment contains features which may substantially complicate the construction, operation, and maintenance of the transmission line. Electrical substations divide the project into four distinctive segments: Vail to Kantor (Segment 1), Kantor to Cañez (Segment 2), Cañez to Sonoita (Segment 3), and Sonoita to Valencia (Segment 4). Each segment contains a preferred alignment and at least one alternative alignment. Project alternative alignments are described more fully in the Introduction to this Application. The following project activities are proposed for construction, operation, and maintenance of the Project.

Project Activities

Surveying and Engineering

Survey and preliminary engineering work will locate the transmission line centerline, determine accurate topographical profiles along the centerlines, and determine the exact location of structures. Topographic profile and clearance requirements will determine transmission line structure design and location.

Clearing and Access Road Construction

The proposed transmission line route will follow existing roadways and utility access roads where feasible. Some blading and vegetation clearing will be necessary, particularly where access roads do not exist or are inadequate for construction activities. In general, access roads required for the project are 16 feet wide in level terrain and 20 feet wide in steep terrain to allow for construction equipment to access the structures and conductors.

Material Staging and Lay-down

Material staging will occur off-site in UNS Electric storage yards or other previously disturbed areas. Material lay-down areas along and within the transmission line right-of-way will occur at each structure site. An area as large as 150 feet by 100 feet is typically needed for this activity and will require clearing vegetation and may also require grading. The lay-down materials will include steel poles and arms, insulators, and various other assembly hardware. These construction materials will be transported to the project area by trucks. To the extent possible, construction lay-down areas will be located in previously disturbed areas, although vegetation clearing will be necessary in these areas.

Assembly

Assembly includes mounting the arms on the body of each structure. Hardware and insulators will be attached to the horizontal arms. Structure assembly will take place at each structure location.

Hole Auguring

For each tangent structure, construction will require augering a single five foot (approximate) diameter hole to a depth of approximately 10 to 12 feet (depth can vary depending on below-grade soil conditions at structure sites). Tangent structures will be direct embedded steel structures, backfilled with either soil or concrete, as required. Angle and deadend structures will be set on steel-reinforced concrete drilled pier foundations. A 50 foot wide radius around each structure will be cleared of vegetation and will be temporarily impacted.

Structure Erection

Erecting structures will require a crane to lift the assembled structure from the ground and set it into the augered hole or onto the foundation; augered holes will then be backfilled. In relatively level areas of the project, it is anticipated that earth moving will not be required for this activity. However, in areas where terrain is more severe, level pads for the cranes will need to be constructed. These pads will be approximately 30 feet by 50 feet in size and located adjacent to each structure.

Stringing and Tensioning

An all-wheel drive vehicle will drive down the center of the transmission line right-of-way pulling ropes, which have been threaded through pulleys at the end of each insulator string on each structure. The rope is attached to a cable, the cable is in turn attached to conductors on truck-mounted reels and the cable and conductor are pulled through the pulley system and pulled to the appropriate tension using the conductor puller and truck-mounted tensioning rig. Pulling locations typically require an area about 100 feet by 200 feet and tensioning locations require an area about 100 feet by 300 feet. The majority of this area will not be disturbed and minimal or no brush clearing will be required. When pulling is complete, the conductors are clamped to each suspension or post insulator and at each dead-end structure.

The approximate 28 mile section of the existing 115 kV transmission line previously re-built between the Nogales Tap and Kantor Substation will not require stringing of new conductor.

Transmission Line Maintenance and Operation

Aerial patrols will inspect the line regularly. Routine maintenance includes replacing faulty insulators and tightening nuts and bolts, as needed. Under normal conditions, the nuts and bolts are tightened every three to five years. Transmission lines are sometimes damaged by storms, floods, vandalism, or accidents

and require immediate repair. Emergency repair will involve prompt movement of crews to repair and replace damaged equipment. Tree and shrub trimming and removal will be required at structures and along the permanent right-of-way to control vegetation that may jeopardize the maintenance, safety, or reliability of the line. Access roads will be maintained as necessary.

Right-of-Way Cleanup and Restoration

UNS Electric will ensure construction sites, material storage yards, and access roads are kept in an orderly condition during the construction period. Crews will collect waste construction materials and rubbish from all construction areas regularly, haul them away, and dispose of them at approved sites. All structure assembly and erection pads not needed for normal maintenance will be returned to their original contour and natural drainage patterns will be restored unless needed for line maintenance. The intent will be to restore all construction areas to their original condition, where feasible. Any damaged gates and fences will be repaired.

Safety Program

UNS Electric, or its construction contractor, will prepare and conduct a safety program in compliance with all applicable Federal, State, and local safety standards and requirements, and UNS Electric's general practices and policies. The safety program will include, but not be limited to, procedures for accident prevention, use of protective equipment, medical care of injured employees, safety education, fire protection, and general health and safety of employees and the public. UNS Electric will also establish provisions for taking appropriate actions in the event the contractor fails to comply with the approved safety program.

Abandonment

If the proposed transmission line is no longer needed, the transmission structures may be removed or abandoned in place. If additional areas are needed outside the proposed right-of-way for removal of structures, a temporary use permit will be obtained from relevant landowners. Shield wires, conductors, insulators, and hardware will be dismantled and removed.

In some areas where the existing 115 kV transmission line also has distribution underbuild at lower voltages attached to the same structures, the top portion of the existing structures may be removed, and the lower voltages left in place.

Estimated Ground Disturbance

Ground disturbance will occur in relation to construction and continued operation of the proposed transmission line and access road. Ground disturbance associated with construction activities is not on-going and is temporary in nature. Temporarily disturbed areas are those areas that will be used during construction but will not be permanently used areas. The vegetation in these areas will be temporarily crushed or removed during construction activities but will grow back following the completion of construction. An example of expected temporary ground disturbance could include grading at a structure site to allow equipment access for erection of the structure. Temporary construction also includes wire pulling areas and areas needed for the assembly and installation of the transmission line structures. Permanently disturbed areas are those areas where permanent structures will be placed or vegetation will be continually cleared to maintain the transmission line and its' facilities. Permanent ground disturbance will occur for access and spur road grading and for transmission line structures.

Specifically, temporary ground disturbance, as a result of project implementation will occur for:

- Transmission structure replacement
- New transmission line structures
- Wire pulling sites
- Transmission line lay-down areas

Permanent ground disturbance, as a result of project implementation will occur for:

- Existing or improved spur and access roads
- New spur or access roads
- Structure bases
- Permanent drainage features

Table C-1 depicts both the estimated temporary and permanent ground disturbance associated with the proposed transmission line construction activities for all of the alternative alignments associated with the project.

Table C-1
Summary of Ground Disturbance for Preferred and Alternative Alignments

Alignment		Acres Temporarily Disturbed	Acres Permanently Disturbed	Total Acres Disturbed
Segment 1-Vail to Kantor				
Preferred Alignment (North Route)	Segment 1A	18.48	3.31	21.79
	Segment 1B	0.00	0.00	0.00
Alternative Alignment (South Route)	Segment 1A	19.79	5.65	25.44
	Segment 1B	0.00	0.00	0.00
Segment 2-Kantor to Cañez				
Preferred Alignment (Modified Route)		55.18	41.62	96.80
Alternative Alignment 1 (Existing Line Route)		51.30	22.67	73.97
Alternative Alignment 2 (Railroad Route)		136.32	18.99	155.31
Segment 3-Cañez to Sonoita				
Preferred Alignment (West Route)		33.65	3.11	36.76
Alternative Alignment (Existing Line Route)		19.72	4.49	24.21
Segment 4-Sonoita to Valencia				
Preferred Alignment (Existing Line Route)		63.52	9.54	73.06
Alternative Alignment 1 (Existing Line/East to West Crossover Rte.)		47.96	13.68	61.64
Alternative Alignment 2 (Existing Line/East Route)		39.92	16.97	56.89
Alternative Alignment 3 (Pendleton/Existing Line Route)		80.56	6.38	86.94
Alternative Alignment 4 (Pendleton/East to West Crossover Route)		68.21	11.27	79.48
Alternative Alignment 5 (Pendleton/East Route)		62.22	14.86	77.08

Action Area

The action area considered for the biological evaluation includes the entire 100 foot wide right-of-way, areas outside of that right-of-way to be used as pulling and tensioning sites (an approximate 100 foot by 200 foot area at pulling sites and an approximate 100 foot by 300 foot area at tensioning sites), as well as at each pole site (an approximate 100 foot by 150 foot area used for tower erection). All direct disturbances will be limited to the 100 foot right-of-way.

The action area does not include the section of the Vail to Kantor alternative alignments from the Nogales Tap to the Kantor Substation (Segment 1B). Existing infrastructure to upgrade the transmission line in this area is already in place and no construction activities will be necessary along this section of the project.

ENVIRONMENTAL SETTING

The action area is a mix of undeveloped and developed land, but is predominantly undeveloped. The southern third of the action area encompasses the greater Nogales area, which is a mix of urban, suburban, and scattered rural residences and associated infrastructure. The remainder of the action area passes through more remote, less developed areas. Disturbances among the action area include impacts associated with agriculture, cattle grazing, fences, railroads, access roads, transmission lines, residential houses, commercial and industrial buildings, and roads.

The elevation ranges from approximately 3,000 feet at the northern end of the alignment and gradually increases to approximately 4,000 feet at the southern end. General topography along the alignment consists of rolling hills separated by large desert washes. The northern end of the alignment near Vail is generally flat with small washes, but as the alignment travels south there are large incised drainages running east to west separated by rolling bajadas. The Santa Cruz River, Nogales Wash, and Potrero Creek are the only perennial flowing water sources located along the alignment. Sonoita Creek is also crossed by the project alternative alignments, but is an ephemeral drainage in the action area.

The project is located within the Arizona Upland Subdivision of the Sonoran Desert Scrub Community and the Semidesert Grassland Community (Brown 1992). The Arizona Upland Subdivision occurs in the northern half of the project, and the southern half is considered Semidesert Grassland. Associations vary among dominant plant species. Generally, areas along the alignment are dominated by species most often associated with the Lower Colorado Subdivision such as creosotebush (*Larrea tridentata*), cholla (*Cylindropuntia* ssp.), prickly pear (*Opuntia* spp.), barrel cacti (*Ferocactus wislizenii*), hedgehog cacti (*Echinocereus engelmannii*), white thorn acacia (*Acacia constricta*), catclaw acacia (*Acacia greggii*), ocotillo (*Fouquieria splendens*), sotol (*Dasylirion wheeleri*), burroweed (*Isocoma tenuisecta*), triangle bursage (*Ambrosia deltoidea*) and desert forbs and grasses (Figure C-1).

The Semidesert Grassland Community in the southern half of the action area contains similar dominant plant species. Desert grasses dominate, but many areas have been invaded by shrub, tree, and cacti species. Common desert grass species include grama grasses (*Bouteloua* spp.), three-awn grasses (*Artistida* spp.), tobosa grass (*Hilaria mutica*), fluffgrass (*Tridens pulchellus*), burrograss (*Scleropogon brevifolius*), and invasive grasses such as Lehmann lovegrass (*Eragrostis lehmanniana*) (Figure C-2).

Areas along the alignment where there are swales, washes, or other areas where water collects are similarly comprised of these species. However, higher densities of species such as paloverde (*Parkinsonia florida*), false mesquite (*Calliandra humilis*), velvet mesquite (*Prosopis velutina*), wolfberry (*Lycium pallidum*), and desert senna (*Senna covesii*) are more prevalent along the desert washes (Figure C-3). A complete list of plants observed during field reviews is included in Table C-2.

FIGURE C-1. Typical Sonoran Desert Scrub Community in the action area.

FIGURE C-2. Typical Semidesert Grassland Community in the action area.

FIGURE C-3. Typical habitat along desert washes in the action area.

Table C-2
Plants and Wildlife Observed in the Project Study Area During Habitat Field Surveys in February and March 2008

Plants	Wildlife
Bladderpod mustard (*Lesquerella gordoni*)	American kestrel (*Falco sparverius*)
Blue palo verde (*Parkinsonia florida*)	American crow (*Corvus brachyrhynchos*)
Brickellbush (*Brickellia* spp.)	Black-tailed jackrabbit (*Lepus californicus*)
Brittle bush (*Encelia farinosa*)	Black-throated sparrow (*Amphispiza bilineata*)
Broom weed (*Gutierrezia sarothrae*)	Black vulture (*Coragyps atratus*)
Buckwheat (*Eriogonum fasciculatum*)	Chipping sparrow (*Spizella passerina*)
Burroweed (*Ambrosia dumosa*)	Cactus wren (*Campylorhynchus brunneicapillus*)
Catclaw acacia (*Acacia greggii*)	Common raven (*Corvus corax*)
Cholla (*Cylindropuntia* spp.)	Coyote (*Canis latrans*)
Cocklebur (*Xanthium strumarium*)	Dark-eyed junco (*Junco hyemalis*)
Coldenia (*Coldenia* spp.)	Desert cottontail (*Sylvilagus audoboni*)
Creosote (*Larrea tridentata*)	Gambel quail (*Callipepla gambelii*)
Crucifix thorn (*Castela emoryi*)	Great horned owl (*Bubo virginianus*)

Table C-2
Plants and Wildlife Observed in the Project Study Area During Habitat Field Surveys in February and March 2008

Plants	Wildlife
Desert broom (*Baccharis sarothroides*)	House sparrow (*Passer domesticus*)
Desert Christmas cactus (*Opuntia leptocaulis*)	Javalina (*Peccary angulatus*)
Desert cotton (*Gossypium thurberi*)	Mourning dove (*Zenaida macroura*)
Desert hackberry (*Celtis pallida*)	Mule deer (*Odocoileus hemionus*)
Desert senna (*Senna covesii*)	Northern mockingbird (*Mimus polyglottos*)
Desert zinnia (*Zinnia grandiflora*)	Prairie falcon (*Falco mexicanus*)
Ephedra (*Ephedra trifurca*)	Red-tailed hawk (*Buteo jamaicensis*)
Evening primrose (*Oenothera* spp.)	Juniper titmouse (*Baeolophus ridgwayi*)
Fairy duster (*Calliandra eriophylla*)	Turkey vulture (*Cathartes aura*)
False mesquite (*Calliandra humilis*)	Whitetail deer (*Odocoileus virginianus*)
Filaree (*Erodium cicutarium*)	White-winged dove (*Zenaida asiatica*)
Fishhook barrel cacti (*Ferocactus wislizenii*)	
Fluffgrass (*Erioneuron pulchellus*)	
Greythorn (*Zizyphus obtusifolia*)	
Hairy grama (*Bouteloua hirsuta*)	
Hedgehog (*Echinocereus* spp.)	
Horehound (*Marrubium vulgare*)	
Jimmyweed (*Isocoma wrightii*)	
Limber bush (*Jatropha cuneta*)	
Lupine (*Lupinus* spp.)	
Mexican gold poppy (*Eschscholtzia Mexicana*)	
Ocotillo (*Fouquieria splendens*)	
Palmer's agave (*Agave palmeri*)	
Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*)	
Prickly pear (*Opuntia* spp.)	
Rainbow cactus (*Echinocereus pectinatus* var. *rigidissimus*)	
Rambling milkweed (*Sarcostemma cynanchoides*)	
Rock hibiscus (*Hibiscus denudatus*)	
Saguaro (*Carnegiea gigantea*)	
Salt cedar (*Tamarix pentandra*)	
Shrubby coldenia (*Coldenia canescens*)	
Soaptree yucca (*Yucca elata*)	

Table C-2 **Plants and Wildlife Observed in the Project Study Area During Habitat Field Surveys in February and March 2008**	
Plants	Wildlife
Tomatillo *(Lycium andersonii)*	
Triangle bursage (*Ambrosia deltoidea*)	
Velvet mesquite (*Prosopis velutina*)	
Virgin's bower (*Clematis virginiana)*	
White thorn acacia (*Acacia constricta*)	
Wolfberry (*Lycium pallidum)*	
Wolfberry (*Lycium* spp.)	
Yellow menodora *(Menodora scabra)*	

STUDY METHODS

A coordination meeting between the US Army Corp of Engineers ("Corps"), UNS Electric, and Transcon was held on February 21, 2008 to discuss Section 7 ESA consultation. The Corps determined that they only had jurisdiction over drainages and their supporting floodplain habitat (50 foot buffer).

The US Fish and Wildlife Service ("USFWS") was contacted and requested to provide comments regarding any species that should be considered as part of this study. The species discussed with the USFWS are included and analyzed in this report. In addition to the USFWS list of Pima and Santa Cruz counties ESA species, the Arizona Game and Fish Department ("AGFD") On-line Environmental Review Tool (2007) was queried for protected species in the action area. Based upon the results of these queries a target list of species potentially occurring within the action area was compiled and used to focus surveys on target species.

Transcon biologists performed a pedestrian survey of the existing 115 kV transmission line in February and March 2008. The survey was based on the Roller (1996) Pima pineapple cactus ("PPC") protocol using the single transect method. A southwestern willow flycatcher protocol (Sogge et al. 1997) survey was completed at the crossing of the Santa Cruz River. Additionally, Transcon biologists used GPS units to map and delineate mesquite bosques and riparian habitat along the Santa Cruz River. The USGS 7.5' quadrangle maps, project aerial maps, and handheld GPS units (Garmin E-trex recreation and Trimble sub-meter accuracy units) were used for locating the project boundaries and orientation. All GPS data was recorded in the NAD 27 Zone 12 datum.

STUDY RESULTS

Federally-Listed Species

Federally-protected species potentially occurring in the action area were identified using information from federal and state resource agencies. Federally-protected species, as defined here, are those listed by the USFWS as threatened, endangered, or are proposed as candidates for such listing. Specifically, a total of 31 federally-protected species with the potential to occur within the project study area were identified and are examined in Table C-3. The majority of the federally protected species were evaluated and eliminated from further review based on the following criteria:

- The species known geographic ranges
- Whether the action area contains necessary conditions similar to those known to support the species
- Whether the project would remove or adversely affect any habitat of the species

Table C-3
Habitat Suitability Assessment for Federally-Listed Species within Pima and Santa Cruz Counties

Species	Status	Suitable Habitat	Rationale of Habitat Assessment
Gooddings onion *Allium gooddingii*	CA	No	This species inhabits forested drainage bottoms and moist north facing slopes of mixed conifer and spruce fir forests lower than 7,500 feet in elevation. There are no forested areas located along the project alignment.
Sonoran tiger salamander *Ambystoma tigrinum stebbinsi*	E	No	This species is found under rocks or in gopher holes. In Arizona this species is found only in the San Rafael Valley bordered by the Canelo Hills to the north, the Huachuca Mountains to the east, and the Patagonia Mountains to the west. The project location is not within the species known range.
Kearney's blue star *Amsonia kearneyana*	E	No	This species is found on dry open slopes in Madrean evergreen woodland/interior chaparral transition, and coarse alluvium along dry washes under deciduous riparian trees and shrubs from 3,600 to 6,400 feet in elevation. In Arizona, this species is known only in the Baboquivari Mountains. The Baboquivari Mountians are not located in the action area.
Sonoran pronghorn *Antilocapra Americana sonoriensis*	E	No	This species occurs among Sonoran desert plains with wide alluvial basin valleys and Creosotebush-Bursage and Palo Verde mixed cacti associations. It is found at elevations from 2,000 to 4,000 feet in Pima, Yuma, and Maricopa counties. Populations are found west of SR 85. The species current distribution is limited to the Barry M. Goldwater Range and Cabeza Prieta National Wildlife Refuge located in southwestern Arizona. The project location is distant from known populations.
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	C	Yes	See species analysis section.
Masked bobwhite *Colinus virginianus ridgwayi*	E	No	This species is found in desert grasslands. Currently, it is only known in Arizona from the Buenos Aires National Wildlife Refuge. The project does not occur within the known range of this species.
Pima pineapple cactus *Corphantha scheeri* var. *robustispina*	E	Yes	See species analysis section.

Table C-3
Habitat Suitability Assessment for Federally-Listed Species within Pima and Santa Cruz Counties

Species	Status	Suitable Habitat	Rationale of Habitat Assessment
Desert pupfish *Cyprinodon macularius*	E	No	The species occurs in clear shallow waters of springs, small streams, and marshes at elevations below 5,000 feet. It is often associated with areas of soft substrates and clear water. There are no known natural populations of this species remaining in Arizona. Populations have been introduced in AD Wash (Yavapai County), Cold Springs (Graham County), and Finley Tank (Santa Cruz County). The project location is not within any of the reintroduction sites.
Nichol Turk's head cactus *Echinocactus horizonthalonius* var. *nicholii*	E	No	This species is a succulent perennial found in open vegetation with few trees and scattered low shrubs on gravelly bajadas with limestone clasts. It occurs from 2,050 to 3,600 feet, and is found in the Vekol Mountains in southwestern Pinal County and Waterman Mountains in Pima County. Suitable habitat does not occur within the action area.
Acuna cactus *Echinomastus erectocentrus* var. *acunensis*	C	No	This species is a succulent perennial found on well-drained knolls and gravel ridges between major washes at elevations from 1,300 to 2,000 feet. It occurs on limestone hills and flats and granite or andesite hills. It is restricted to the Palo Verde - Saguaro Association of the Arizona Upland Subdivision. It is found in western Pima County, Maricopa, and Pinal counties. In western Pima County it is found in the Puerto Blanco and Little Ajo mountains. Surveys conducted on the Barry M. Goldwater Range indicate a population on Coffee Pot Mountain. Potential habitat exists for the species in the Sand Tank Mountains. Species range does not overlap with the action area.
Arizona hedgehog cactus *Echinocereus triglochidiatus*	E	No	This species is found in the ecotone between Madrean and Interior Chapparal between boulders and in the understory of shrubs. This species was not identified during field surveys. The action area does not contain large areas of boulders.
Southwestern willow flycatcher *Empidonax traillii extimus*	E	Yes	See species analysis section.
Northern aplomado falcon *Falco femoralis septentrionlis*	E	No	The last reliable sighting of this species in Arizona occurred in 1977. A population has been released in south Texas, and had 30 pairs established in 2001. The species has not been documented in Arizona since 1977. It does not occur in the action area.
Sonora chub *Gila ditaenia*	T	No	This species is found in ponds during drought, and is known to occur in two tributaries of Sycamore Creek in the Atascosa Mountains. The project alignment is not located within the known range of this species.
Gila chub *Gila intermedia*	E	No	This species is found among headwater streams with undercut banks, cienegas, springs and marshes at elevations from 2,700 to 5,400 feet. It is currently found in Cienega Creek, Sabino Canyon, and Sheehy Spring, and drainages of the Santa Cruz River. The project alignment does not occur in the known range of this species.
Stephan's Heterelmis riffle beetle *Heterelmis stephani*	C	No	This species is concentrated to one spring environment within Madera Canyon in the Santa Rita Mountains. The project does not occur within Madera Canyon.

Table C-3
Habitat Suitability Assessment for Federally-Listed Species within Pima and Santa Cruz Counties

Species	Status	Suitable Habitat	Rationale of Habitat Assessment
Sonoyta mud turtle *Kinosternon sonoriense longifemorale*	C	No	This species is found in ponds and streams at an elevation of 1,100 feet. In Arizona, this species is known only from Quitobaquito Springs in the Organ Pipe National Monument. The project is distant from Quitobaquito Springs.
Lesser long-nosed bat *Leptonycteris curasoae yerbabuenae*	E	Yes	See species analysis section.
Ocelot *Leopardus pardalis*	E	No	This species inhabits elevations below 4,000 feet. It prefers tropical humid habitats, but can occur in riparian bottomland among rocky areas. This species is not known to occur within the action area. The habitat known to support this species does not occur along the project alignment.
Huachuca water umbel *Lilaeopsis schaffneriana* var. *recurva*	E	No	This species occurred historically in Pima County. It is found among shallow waters of cienegas, wetlands, springs, streams, and seeps. No suitable aquatic habitat occurs within the action area, and the known range of this species is not within the action area.
Jaguar *Panthera onca*	E	No	This species' habitat is variable, but in Arizona it typically includes mountains with dense vegetation and a high prey base of javalina and deer. The former range in Arizona was southeastern Arizona north to the Grand Canyon. Recent records of individuals wandering from Mexico are from the Peloncillo Mountains (Cochise County) and the Baboquivari Mountains (Pima County). The action area is not found within the known range of this species.
California brown pelican *Pelecanus occidentalis californicus*	E	No	This species is known to inhabit coastal areas and islands. In Arizona, it is found in association with lakes and rivers. This species is rare in Arizona and not likely to occur in the action area. Suitable aquatic habitat does not occur along the project alignment.
Gila topminnow *Poeciliopsis occidentalis occidentalis*	E	Yes	See species analysis.
Huachuca springsnail *Pyrgulopsis thompsoni*	C	No	This species inhabits areas of isolated springs and cienegas at 4,500 to 7,200 feet in elevation in southeastern Arizona and adjacent portions of Sonora, Mexico. There is no suitable aquatic habitat within the action area.
Yuma clapper rail *Rallus longirostris yumanensis*	E	No	This species breeds in freshwater marshes and inhabits brackish water marshes and side waters, preferring tall dense cattail and bulrush marshes. It requires a wet substrate such as a mudflat, sandbar, or slough bottom. It is found along the Colorado River from Lake Mead to Mexico, and is also known from various wetland and rivers in southwestern Arizona. This species is not known to occur in the action area.

Table C-3
Habitat Suitability Assessment for Federally-Listed Species within Pima and Santa Cruz Counties

Species	Status	Suitable Habitat	Rationale of Habitat Assessment
Chiricahua leopard frog *Rana chiricahuensis*	T	No	This species is found in permanent or nearly permanent streams, rivers, backwaters, ponds, and stock tanks. It will use natural as well as man-made water sources. Its' primary habitat is oak, mixed oak and pine woodlands. It may range into chaparral, grassland, and even desert communities. In south-central Arizona this species is found at elevations from 1,200 to 4,000 feet in elevation. The species' range is divided into two areas within Arizona; the montane central highlands following the Mogollon Rim east to New Mexico and the southeastern sky islands. This species is not known to occur in the action area.
San Xavier talussnail *Sonorella eremite*	CA	No	This species inhabits deep limestone rockslides with outcrops of limestone and decomposed granite. There are no suitable deposits in the action area required to support the species.
Madrean Ladies'-tresses *Spiranthes delitescens*	E	No	This species is a perennial that is found concentrated in four cienegas in southern Arizona; one in Cochise county and three in Santa Cruz County. There is no suitable aquatic habitat in the action area to support this species.
Mexican spotted owl *Strix occidentalis lucida*	T	No	This species prefers dense multi-storied closed canopy forests containing numerous snags and downed logs as well as canyons. It is found at elevations from 4,100 to 9,000 feet. The forests are generally composed of mixed conifer, pine-oak, and evergreen oak communities. This owl is distributed in patches within forested subalpine and montane coniferous forests statewide and deep canyons of the Colorado Plateau. Suitable forest and canyon habitat is not found within the action area.
Loach minnow *Tiaroga cobitis*	T	No	In Arizona this species is found only in Aravaipa Creek, the Blue River, and occasionally in the White River. It inhabits swift moving streams with rocky substrates. Historically this species was known to the Agua Fria, Gila, Salt, San Pedro, and Verde River Systems. The species is believed to be extirpated from the Santa Cruz River.
Razorback sucker *Xyrauchen texanus*	E	No	This species inhabits large bodies of water. It was historically known to exist in the Colorado, Gila, Salt, Verde, and San Pedro Rivers. Presently, populations are known to occur in Lake Mohave, Lake Mead, and Lake Havasu. The project does not occur within the known range of this species.

FWS categories: **Endangered (E)**—Taxa in danger of extinction throughout all or a significant portion of its range; **Threatened (T)/Proposed Threatened (PT)**—Taxa likely to become endangered within the foreseeable future throughout all or a significant portion of its range; **Candidate (C)**—Species for which the USFWS has sufficient information on biological vulnerability and threats to support proposals to list as Endangered or Threatened. Candidate species, however, are not protected legally because proposed rules have not been issued. **Experimental (EX)**—Species considered to be experimental and non-essential in its designated use areas. **Conservation Agreement (CA)** – Species protected by a Conservation Agreement between USFWS and other cooperating agency(ies) [Source: USFWS database (http.//ifw2es.fws.gov/EndangeredSpecies/lists/)]

Species Analysis

Based on review of the federally-listed species occurring in Pima and Santa Cruz counties, the western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*), southwestern willow flycatcher (*Empidonax traillii extimus)*, Gila topminnow (*Poeciliopsis occidentalis occidentalis*), and lesser-long nosed bat (*Leptonycteris curasoae yerbabuenae*) have the potential to be impacted by the proposed action. These species and their potential to be effected by the proposed project are discussed in detail below.

Western Yellow-billed Cuckoo

Status
The western yellow-billed cuckoo ("YBCU") was placed on the 1996 watch list for species of concern (Carter et al 1996). The species was placed under status review on February 19, 2000 to evaluate if it warranted listing under the ESA (USFWS 2000b). The western US population is now a candidate for listing under the ESA (66 FR 38611). This species' status is a result of declining populations due to riparian habitat degradation, fragmentation, and loss. Other factors that have contributed to the species decline are pesticides and other environmental contaminants, and collisions with towers and tall buildings during their nocturnal migrations (Hughes 1999).

Natural History, Distribution, Abundance, and Habitat
The YBCU arrive in Arizona and breeding begins in late May (Bent 1940, Hughes 1999). Reproduction coincides with large hatches of insects such as cicadas, caterpillars, or grasshoppers. Juveniles begin to fly at 21 days, and leave the nest soon after (Hilt 2000). YBCUs inhabit woodlands and forests that have dense shrub cover and are near rivers, streams, or lakes. YBCUs typically nest in areas of dense canopy cover of cottonwood/willow, mesquite, and salt cedar vegetation types (Halterman 1991, Rosenberg et al. 1991, Hunter et al. 1998). During the winter the species inhabits similar habitats in tropical areas. They range from southern Canada throughout the United States. The species passes through Central America on its migration and winters in the northern half of South America (Natureserve 2007).

Environmental Baseline
Along the Santa Cruz River, mesquite bosques provide suitable habitat for the YBCU. The presence of the YBCU has been confirmed along the Santa Cruz River in a 2000 survey completed as a collaborative effort between the US Geological Survey ("USGS") and the University of Arizona (Powell 2000).

Two segments of the project, Segments 2 and 3, pass through riparian areas of the Santa Cruz River floodplain on the east side of the Union Pacific Railroad ("UPRR") tracks. The UPRR tracks parallel the Santa Cruz River approximately 0.02 mile to 0.1 mile east of the river depending on the winding of the river's course. The riparian areas that would be transected by the project consist almost exclusively of mesquite bosque habitat, and only contain a few scattered cottonwood trees. Mesquite bosques are a unique vegetation community that grows along waterways in the arid southwest. These habitats are dominated by several mesquite species that are able to grow large and have thick canopies creating cooler, shaded environments, because of their access to water. This dense riparian habitat consists of an upper canopy composed nearly exclusively of mesquite trees and a lower canopy of smaller brush species and grasses (Figure C-4).

FIGURE C-4. Electrical distribution line through the mesquite bosques adjacent to the UPRR near Rio Rico.

Mesquite bosques within the action area vary in quality. From Amado to Tumacácori, which encompasses the Segment 2, Alternative Alignment 2 (Railroad Route), there are some areas where the mesquite bosques have been cleared for agriculture and residences, but the mesquite bosque habitat is generally of good quality and is intact for the majority of this section. Powell (2000) identified approximately nine breeding pairs (a total of 18 adults) in the riparian areas adjacent to Tumacácori National Historic Park. There are a total of approximately 12 known pairs of nesting YBCUs in the riparian areas from Amado to Tumacácori (pers. comm. Scott Wilbur 2008). South of this area, from Santa Gertrudis Lane in Tumacácori to Josephine Canyon, which encompasses the Segment 2, Alternative Alignment 2 (Railroad Route), the mesquite bosque habitat continues to be good YBCU habitat, but current data on nesting pairs in this area is not available. There are areas of agricultural fields and residences but the majority of this section is intact mesquite bosque.

Table C-4 provides the number of miles of riparian habitat that could potentially provide suitable YBCU habitat along alternative alignments. It also includes the number of miles the line would potentially parallel the UPRR or be within the previously disturbed 115 kV transmission line right-of-way. The reason the miles of the line located adjacent to the railroad and within the existing transmission line right-of-way are provided is that these are linear features that have already created a cleared linear corridor through the mesquite bosques. The UPRR is constructed on a raised gravel bed through this area. There is an access road generally paralleling the railroad tracks at the base of the elevated bed, creating a cleared corridor approximately 50 feet in width through the mesquite bosques (Figure C-5). The existing transmission line generally has an access road, and in some instances, a cleared right-of-way associated with it, which creates a cleared corridor between 25 and 100 feet wide through the mesquite bosque (Figure C-6).

Table C-4
Mesquite Bosque Habitat along Alternative Alignments

Alignment	Miles of Potential Habitat	Acres of Potential Habitat Removed	Miles of Parallel Existing Disturbance[1]
Segment 2-Kantor to Cañez			
Preferred Alignment (Modified Route)	1.74	21.1	1.6 (UPRR)
Alternative Alignment 1 (Existing Line Route)	1.59	9.6*	1.59 (T-Line)
Alternative Alignment 2 (Railroad Route)	9.17	111.2	9 (UPRR)
Segment 3-Cañez to Sonoita			
Preferred Alignment (West Route)	2.20	26.7	2.20 (UPRR)
Alternative Alignment (Existing Line Route)	1.77	10.7*	1.77 (T-Line)

[1] UPRR=Union Pacific Railroad; T-Line=Existing 115kV Transmission Line
* An average 50-foot wide corridor has been cleared through mesquite bosque habitat in this segment

FIGURE C-5. Union Pacific Railroad, access road, and distribution line adjacent to mesquite bosque.

FIGURE C-6. Existing 115 kV transmission line and access road through the mesquite bosque in the vicinity of the Cañez Substation.

Direct and Indirect Effects of the Proposed Action on the Western Yellow-billed Cuckoo
The yellow-billed cuckoo is a protected species under the MBTA. It is a candidate for listing under the ESA, but consultation with the USFWS is not necessary for candidate species. All alternative alignments south of the Kantor Substation would pass through YBCU habitat. The clearing of the right-of-way, up to 100 feet wide, within mesquite bosques would result in direct and indirect impacts to the YBCU. Direct impacts could include the loss of habitat, elevated stress and potential nest abandonment due to increased noise and activity, a reduction in foraging habitat, and direct take.

The amount of YBCU habitat removed as a result of project implementation is dependent upon the length of the alternative selected. In both segments, the alternative alignments along the railroad would remove the most potential cuckoo habitat.

Of the three Segment 2 alignments (from Kantor to Cañez Substations):

- Alternative Alignment 2 (Railroad Route) could remove up to 111.2 acres of potential YBCU habitat;
- The Preferred Alignment (Modified Route) could remove up to 21.1 acres;
- Alternative Alignment 1 (Existing Line Route) could remove up to 9.6 acres of potential YBCU habitat.

Of the two Segment 3 alignments (from Cañez to Sonoita Substations):

- The Preferred Alignment (West Route) (along the railroad) could result in the loss of up to 26 acres of potential YBCU mesquite bosque habitat;
- Alternative Alignment (Existing Line Route) could result in the loss of up to 10.7 acres of this habitat.

While the alternative alignments along the railroad would result in the most habitat removal, some of the loss would be offset by the abandoning of the existing right-of-way. The existing right-of-way would no longer be periodically cleared of vegetation and it can be reasonably assumed that mesquite regrowth would occur. Thus, over a period of years, approximately 35 acres of potential YBCU habitat (approximately 19 acres along the Alternative Alignment 1 (Existing Line Route) in Segment 2 and 16 acres along the Alternative Alignment (Existing Line Route) in Segment 3) would regenerate along the abandoned right-of-way, which bisects the existing mesquite bosque.

Direct impacts to breeding cuckoos or direct encounters with cuckoos may be avoided by limiting the timing of construction activities through cuckoo habitat to the period between October 1st and April 30th. This limited operating period is outside of the timeframe when YBCU are present, as they have migrated south for the winter. If construction through YBCU habitat cannot be limited to the period between October 1 and April 30 then YBCU surveys will be required prior to construction. If YBCUs are detected, spatial buffers may be required to ensure construction does not impact nesting cuckoos. If nests are discovered, then they will be monitored and construction may resume once the nest monitoring reveals the yellow-billed cuckoo have fledged.

The preferred alternative alignments would minimize edge effect (the increased number and size of edges where different habitats meet, such as where mesquite bosque meets agricultural fields or open areas resulting in different vegetative or climatic conditions) and patch size fragmentation by using existing linear disturbance corridors. Some new disturbance will occur which will slightly increase fragmentation and edge effect of mesquite bosque habitat but in most circumstances disturbance and habitat removal has previously occurred. New access roads and improved existing access could also result in increased unauthorized access in mesquite bosques, which could increase disturbance to the YBCU. However, increased access is not likely to be a substantial impact because access already exists along the railroad and existing transmission line.

In summary, all alternative alignments in Segment 2 and Segment 3 could result in the removal and modification of potential YBCU habitat. In both Segments, the alternative alignments along the railroad tracks would result in substantially more habitat removal, some of which would be offset by the regeneration of mesquite trees within the abandoned right-of-way which bisects the bosque habitat. While loss of habitat may be unavoidable, impacts to YBCU will be minimized by using a limited operating period or requiring pre-construction YBCU surveys be completed. Lastly, while alternatives would modify YBCU habitat, all of the alternative alignments through mesquite bosque habitat parallel existing infrastructure (Table C-4). This grouping of disturbances and corridors through the mesquite bosque habitat would minimize disturbance to YBCU habitat, fragmentation of habitat, and "edge effect."

Pima Pineapple Cactus

Status
The PPC was listed as endangered under the ESA on October 25, 1993 (58 FR 49875). The species listing was a result of declining population numbers attributed to illegal collection, habitat degradation due to historic and current livestock grazing practices; and habitat loss from mining, agriculture, residential development infrastructure, and invasive grasses (USFWS 2000a).

Natural History, Distribution, Abundance, and Habitat
The PPC is known to occur in Pima and Santa Cruz counties in Arizona and northern Sonora, Mexico. One confirmed identification occurred in Texas. This species grows on alluvial valleys, mesas, and hillsides in deserts, desert grasslands, and southwestern oak woodlands from 700 to 1,500 meters in elevation (Natureserve 2008).

The USFWS issued a Biological Opinion on February 3, 2006 for the Ocotillo Residential Subdivision (02-21-02-F-0210 and 02-21-04-F-0160), which included a detailed description of the natural history,

distribution, abundance and habitat of the species and is herein incorporated by reference (USFWS 2006a).

The PPC grows in Sonoran Desert Scrub and Semidesert Grassland communities. The majority of the habitat through which the project alternative alignments extend is PPC habitat. The areas that are not considered PPC habitat are areas that have been previously disturbed, wash bottoms and riparian areas, or areas with slopes of 10 percent or greater. Based upon the use of aerial maps and data collected during surveys, the acres of PPC habitat along each alternative alignment were estimated and are summarized in Table C-5.

Table C-5
Estimated Acreage of Pima Pineapple Cactus Habitat along Alternative Alignments

Alignment		Acres of Pima Pineapple Cactus Habitat
Segment 1-Vail to Kantor		
Preferred Alignment (North Route)	Segment 1A	70.1
	Segment 1B	317.0
Alternative Alignment (South Route)	Segment 1A	62.8
	Segment 1B	317.0
Segment 2-Kantor to Cañez		
Preferred Alignment (Modified Route)		143.8
Alternative Alignment 1 (Existing Line Route)		143.8
Alternative Alignment 2 (Railroad Route)		26.9
Segment 3-Cañez to Sonoita		
Preferred Alignment (West Route)		0
Alternative Alignment (Existing Line Route)		25.7
Segment 4-Sonoita to Valencia		
Preferred Alignment (Existing Line Route)		31.9
Alternative Alignment 1 (Existing Line/East to West Crossover Route)		48.2
Alternative Alignment 2 (Existing Line/East Route)		70.8
Alternative Alignment 3 (Pendleton/Existing Line Route)		58.1
Alternative Alignment 4 (Pendleton/East to West Crossover Route)		74.4
Alternative Alignment 5 (Pendleton/East Route)		97.0

Not all alternative alignments were surveyed for PPC. Surveys based on the Roller (1996) PPC protocol, were conducted on the existing 115 kV transmission line, including those portions of alternatives sharing this alignment, from January 29 to 31, February 18 to 21, February 25 to 29, and March 3 to 4, 2008. A 150 foot wide area was surveyed as well as larger areas required for the construction of the transmission line structures and mobilization at pulling and tensioning sites. Buffers 25 feet wide were surveyed along each side of access roads for road improvement and expansion. The Nogales Tap to Kantor Substation section of the existing transmission line was not surveyed, because no ground disturbing work is required along this section. A total of 493 acres of PPC habitat was surveyed along the existing transmission line and access roads. Thirty-five PPC were identified along the existing transmission line. This calculates to

a density of 0.07 PPC/acre of suitable habitat for the entire project area. A PPC density of 0.07 PPC/acre is a low density and is not indicative of high quality PPC habitat which generally has a density of 0.1 or greater (USFWS 2004). A similar density of PPC is anticipated in upland Sonoran Desert Scrub habitat along un-surveyed alternative alignments.

Direct and Indirect Effects of the Proposed Action on the Pima Pineapple Cactus
All project alternative alignments extend through PPC habitat; however, the level of impacts to PPC varies along the alternatives as some of the alternative alignments pass through more PPC habitat than others. As is evident in Table C-5, the main difference is among the alternative alignments in the Segment 2 (Kantor to Cañez) and the Segment 4 (Sonoita to Valencia) groups of alternative alignments. There are differences in the amount of PPC habitat encountered along the different alternative alignments in these groups. In Segment 2, Alternative Alignment 1 (Existing Line Route) would pass through a majority of upland habitat where PPC have been detected, in contrast to Alternative Alignment 2 (Railroad Route) which passes through limited PPC habitat because the majority of this alignment is within riparian habitat. Alternative Alignment 1 (Existing Line Route) passes through 143.76 acres of PPC habitat. Approximately 330 acres of PPC habitat was surveyed along this alternative alignment including access roads. Thirty-two PPC where identified during surveys along this alternative alignment. This calculates to a density of 0.10 PPC/acre. An estimated 26.9 acres of PPC habitat occur along Alternative Alignment 2 (Railroad Route); this alignment was not surveyed.

Within Segment 4 (Sonoita to Valencia) Alternative Alignment 5 (Pendleton/East Route) would have the greatest potential to impact PPC habitat. Impacts would be the least among the Preferred Alignment (Existing Line Route). Other alternative alignments would have similar levels of impacts. The density or likelihood of PPC among the Segment 4 alternative alignments is unknown. No PPC were identified along the existing transmission line during surveys in this area, but the existing line does not pass through a large area of PPC habitat. Thus, it must be assumed that PPC are present in this area along un-surveyed alternative alignments.

Where PPC habitat exists, direct removal of PPC resulting from the project is possible, but will be avoided whenever reasonably possible. Access roads, tower structures, and temporary use areas will be sited to the extent possible to avoid PPC. These facilities are linear in nature and utility companies typically have some flexibility in siting their locations, which allows for avoidance of PPC. To maximize PPC avoidance, the location of project facilities and temporary use areas will be flagged prior to construction. All previously identified PPC will be clearly marked for avoidance using lath and flagging. Additional PPC survey(s) will be conducted as needed within the flagged area to identify any previously unidentified PPC. PPC identified during the pre-construction survey will be clearly marked with lath and flagging. Upon completion of PPC survey(s), and in the event that locations of project facilities need to be modified to avoid PPC, Transcon will coordinate with the project proponent to make minor modifications in the location of the facilities to avoid PPC. In the event that PPC cannot be avoided, the guidance of the Arizona Department of Agriculture and ASLD will be sought. All PPC that cannot be avoided will be mitigated as directed by the Arizona Department of Agriculture and ASLD, as appropriate.

Indirect effects could result from the proposed action. Construction of any new access roads in PPC habitat increases accessibility of the surrounding area and may result in illegal PPC collection and disturbance from use of the area by Off Highway Vehicles (OHVs). In addition to increased OHV use, there is potential for ignition of an accidental wildfire during construction. A fire prevention plan will be developed for the project and employed during construction to minimize the potential for a wildfire. Following construction, use of access roads by unauthorized personnel could increase the potential for a wildfire. Succulents such as the PPC are not fire adapted and are generally negatively impacted by fire (Rogers and Steele 1980).

If PPC are identified in un-surveyed areas within a 50 foot buffer of a drainage considered jurisdictional by the Corps and there will be fill placed in the drainage, then the Corps is to be notified and Section 7 consultation under the ESA is likely required.

Southwestern Willow Flycatcher

Status
The southwestern willow flycatcher ("SWWF") was listed as endangered under the ESA on February 27, 1995 (60 FR 10694) with critical habitat (50 CFR 60886, October 19, 2005). The species listing was a result of declining population numbers attributed to riparian habitat reduction, degradation, and elimination as a result of agricultural and urban development. Fragmented distribution, predation, low population numbers, and brood parasitism by cowbirds are other reasons for the species' decline/ vulnerability.

Natural History, Distribution, Abundance, and Habitat
The SWWF inhabits dense riparian habitats along bodies of water. Common plant species associated with flycatcher habitat are willow (*Salix* spp.), box elder (*Acer negundo*), salt cedar (*Tamarix ramosissima*), Russian olive (*Eleagnus angustifolia*), buttonbush (*Cephalanthus occidentalis*), cottonwood (*Populus fremontii*), and alder (*Alnus* spp.) (USFWS 2006d). The characteristics of breeding sites (dominant plant species, size and shape of the habitat patch, canopy structure, vegetation height, etc.) vary among sites; however, some trends are apparent. Breeding habitat is generally composed of dense riparian habitats near surface water or saturated soils along rivers, streams or other wetlands (USFWS 2002a). Nearly all breeding sites have slow moving or standing water or saturated soils present at or near (within 20 meters) the breeding site during non-drought years (USFWS 2002a). Breeding sites also nearly always contain dense interior vegetation. Dense vegetation is often within the first three to four meters from the ground (USFWS 2002a). At some sites, water is only present early in the nesting period and eventually dries up. Flycatchers generally do not nest in confined floodplains, such as canyons, or where only a single narrow strip of riparian vegetation (less than 33 feet) exists (USFWS 2002a).

More detailed information regarding the SWWF can be found in the Biological Opinion issued by the USFWS on July 5, 2007 which includes a detailed description of the natural history, distribution, abundance and habitat of the species and is herein incorporated by reference (USFWS 2007a).

Environmental Baseline
The majority of the existing transmission line alignment passes through upland habitats composed of sparsely vegetated upland desert species (creosote, cacti, palo verde, etc.), which is not suitable flycatcher habitat. Several of the alternative alignments would cross riparian habitat including the Santa Cruz River, Sonoita Creek, Potrero Creek, and Nogales Wash. Of these, only the Santa Cruz River exhibited riparian structure that could potentially support the SWWF (Figure C-7). A review of recent SWWF survey data was completed and is summarized in Table C-6. Protocol SWWF surveys were conducted in the spring of 2008 by Transcon biologists along the Santa Cruz River where the existing 115 kV transmission line crosses the river. No SWWF were detected. Figure C-8 depicts the location of previous and Project related SWWF surveys along the Santa Cruz River.

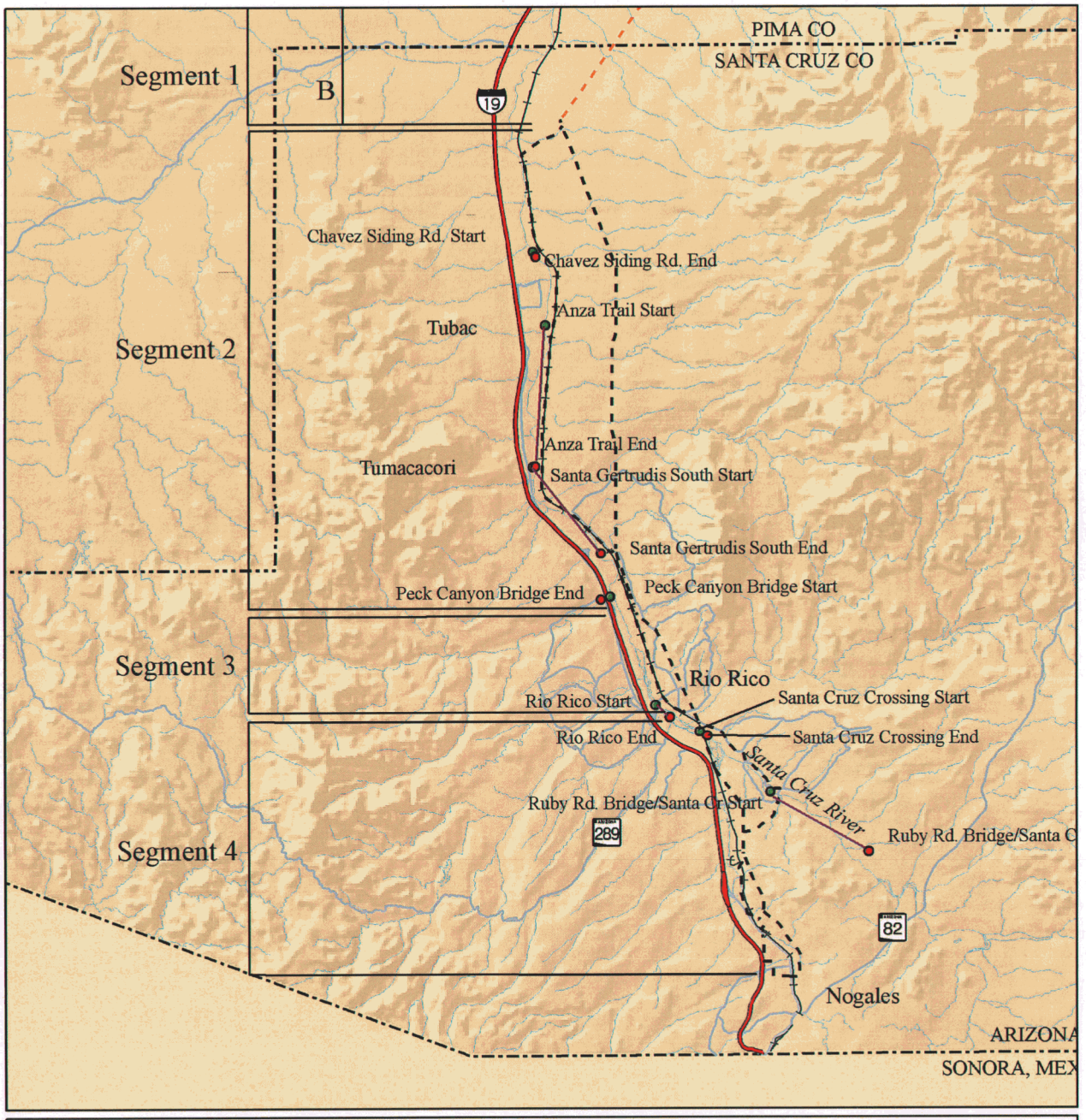
Only migrant SWWF have been detected along the Santa Cruz River. In addition to those summarized in Table C-6, the Biological Opinion issued by the USFWS on January 25, 2001, reports that Thetis Gamberg of the USWFS in Tucson located a calling SWWF from the Peck Canyon frontage road bridge in 1998.

FIGURE C-7. Santa Cruz River crossing. The unvegetated floodplain is visible in the foreground and the river channel surrounded by vegetation is in the background.

Table C-6
Southwestern Willow Flycatcher Survey Results for 1993-2006

Survey Location	Survey Years	Resident Adults	Territories	Pairs	Nests	Unknown Status	Migrants
Chavez Siding Road	1993	0	0	0	0	0	0
Anza Trail	1993	0	0	0	0	0	0
	1995	0	0	0	0	0	0
	1999	0	0	0	0	0	1
	2002	0	0	0	0	0	0
Santa Gertrudis South	1999	0	0	0	0	0	3
Peck Canyon Bridge	1999	0	0	0	0	0	0
Rio Rico	1994	0	0	0	0	0	0
	1999	0	0	0	0	0	1
Ruby Road Bridge	1993	0	0	0	0	0	0
TOTAL		0	0	0	0	0	5

Source: Ellis et al. 2008



Legend

- Existing/Alternative Transmission Line Alignment
- Existing Transmission Line Alignment (no construction or ground disturbance activities required)
- SWWF Survey Start Point
- SWWF Survey End Point

0 1 2 3 4 Miles

SWWF Surveys in Project Area

Vail to Valencia 115kV to 138kV Transmission Line Upgrade Project

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FIGURE C-8

Direct and Indirect Effects
No impacts to SWWF are anticipated. Breeding SWWFs have not been documented in this area. Migrant SWWF were not identified in this area during surveys. Therefore, impacts to migrant SWWF resulting from the project are not anticipated.

The removal of some mesquite and cottonwood trees along the alignment will be necessary to access the alignment and perform construction activities. While SWWF do not appear to utilize this habitat, because none have been detected during surveys in this area, this habitat is unique and could potentially support SWWF populations in the future. Tree removal (especially large cottonwoods) should be avoided to the extent possible and tree trimming should be kept to a minimum.

Gila Topminnow

Status
The Gila topminnow was listed as endangered under the ESA on March 11, 1967 (32 FR 4001) without critical habitat. The species listing was a result of the introduction and spread of nonindigenous species and habitat degradation, due to water pollution, water diversion, and stream channelization.

Natural History, Abundance, and Habitat
The Gila topminnow inhabits perennial springs, streams and vegetated rivers with shallow warm water in a moderate current with dense aquatic vegetation. Common plant species associated with topminow habitat are willow, cottonwood, burrobush, and several species of green algae (*Nasturtium, Chara,* and *Potamogeton* spp.) (AGFD 2001).

Water temperatures in Gila topminnow habitat can range from near freezing up to 100 degrees. The species is also relatively tolerant to a wide range of water chemistries. Gila topminnows can tolerate salinities ranging from tap water to salt water, a pH ranging from 6.6 to 8.9, and dissolved oxygen readings from 2.2 to 11 mg/l (AGFD 2001). More detailed information regarding the Gila topminnow can be found in the Biological Opinion issued by the USFWS on November 1, 2007, which includes a detailed description of the natural history, distribution, abundance and habitat of the species and is herein incorporated by reference (USFWS 2007b).

Environmental Baseline
One area of potential Gila topminnow habitat is present along the existing transmission line alignment as it crosses the Santa Cruz River. The Gila topminnow historically occurred throughout the Santa Cruz drainage; however, there are now only 14 known populations. The Gila topminnow is not known to occur where the proposed alternative alignments would cross the Santa Cruz River. The active river channel is approximately five feet wide and vegetation is limited to scattered mesquite, cottonwoods, and willows. Effluent from the wastewater treatment plant provides perennial flows in this section of the river.

Direct and Indirect Effects of the Proposed Action on the Gila Topminnow
Impacts to the Gila topminnow are not expected because the species is not likely to occur in this area and project activities will have limited impact on the river. The proposed project alignments will span the Santa Cruz River. Where the alternative alignments cross the Santa Cruz River, some trees will be removed. The tree removal is not anticipated to affect the Gila topminnow since no work would occur within the flowing water of the Santa Cruz River.

Lesser Long-nosed Bat

Status
The lesser long-nosed bat ("LLNB"), previously known as Sanborn's long-nosed bat (*Leptoncyteris sanborni*), was listed as endangered on September 30, 1998 (53 FR 38456). No critical habitat has been designated for this species. USFWS completed a recovery plan in 1994. The species listing was a result

of declining species numbers attributed to loss of habitat and roost areas and direct take of bats during animal control programs (USFWS 1995).

Natural History, Distribution, Abundance, and Habitat
The LLNB occurs from central California, Arizona, and New Mexico south through Mexico to Honduras and El Salvador. The bats summer in the United States and winter in Mexico and Central America. In the United States they roost in caves and mines near alluvial fans, mountains, and hills. They typically roost near agave, yucca, saguaro, and organ pipe cactus for foraging purposes (Natureserve 2008).

A Biological Opinion was issued by the USFWS on September 15, 2006 for the Permanent Vehicle Barrier Project on the Barry M. Goldwater Range and Cabeza Prieta National Wildlife Refuge, which included a detailed description of the status of the species and is herein incorporated by reference (USFWS 2006b).

Environmental Baseline
The action area does not contain dense foraging habitat or suitable roosting locations for the LLNB. Limited foraging habitat was identified during field reviews of the existing 115 kV transmission line. Fifty-three agaves and no columnar cacti were observed during the project surveys. This calculates to a density of 0.11 agave/acre of appropriate habitat. This density is assumed to be similar across all alternative alignments. No known roosts are within the action area. The nearest roost sites (Box Canyon Crevice and Cave of the Bells) are over 10 miles from the action area (USFWS 1995). These roosts are within foraging distance for the LLNB. No sites that could potentially be used as temporary roosts (night or migration roosts) were observed adjacent to the alternative alignments.

Direct and Indirect Effects of the Proposed Action on the Lesser Long-nosed Bat
Impacts to the LLNB are not anticipated to result from the proposed action. Roosts are within foraging distance for the LLNB, but the scarcity of foraging plants observed within the action area indicates that foraging use of the area by the LLNB would be minimal. To ensure impacts to the LLNB resulting from the proposed action are minimized, pre-construction surveys for agave and columnar cacti will be completed. To the extent possible, UNS Electric will avoid all agaves and columnar cacti during construction.

Priority Vulnerable Species

The Priority Vulnerable Species ("PVS") as identified in Pima County's SDCP are also considered in this report. PVS are species being considered for coverage under the Pima County Multi-species Habitat Conservation Plan ("MSHCP") and are regulated by the County as delegated under the authority of the Pima County Comprehensive Plan. The County requires that impacts to these species be considered when County jurisdiction is involved. A total of 56 PVS with the potential to occur within the project study area were identified. The majority of the PVS were evaluated and eliminated from further review based on the following criteria:

- The species known geographic range
- Whether the action area contains necessary conditions similar to those known to support the species
- Whether the project would remove or adversely affect any habitat of the species

Species Analysis

A total of nine species have potential to occur among the action area. The species are the LLNB, Mexican garter snake (*Thamnophis eques megalops*), Mexican long-tongued bat (*Choeronycteris mexicana*), needle-spined pineapple cactus (*Echinomastus erectocentrus* var. *erectocentrus*), PPC, rufous-winged sparrow (*Aimophila carpalis*), Sonoran desert tortoise (*Gopherus agassizii*), Swainson's hawk

(*Buteo swainsoni*), and Tumamoc globeberry (*Tumamoca macdougalii*). The PPC and LLNB have been previously discussed in this report and are not discussed here. The remaining seven PVS are analyzed below.

Mexican Garter Snake

Species Information
The Mexican garter snake is a stout-bodied snake with a yellowish back stripe and a brown or greenish-brown background. There are large brown patches on the head with a green crescent by the mouth. It is found in desert-grassland cienegas, along streams, and occasionally in desert and lower oak woodland habitats. This snake primarily feeds upon frogs, tadpoles, and fish (SDCP 2007a). The Mexican garter snake's range in Arizona is from the southeast corner of the San Rafael Valley and Sonoita grasslands north to Arivaca. It can also be found along the Agua Fria, Oak Creek, and Verde, Salt, and Black rivers. It was historically found along the Santa Cruz River, but has not been found along the Santa Cruz in recent years (SDCP 2007a).

Species Assessment
The Mexican garter snake is generally found along waterways. The Santa Cruz River and Potrero Creek are located within the action area. These riparian areas could potentially harbor Mexican garter snakes, but it is unlikely, as this species is believed to be extirpated from this area. Therefore, no direct impacts are anticipated to this species. Indirect impacts could include removal of riparian vegetation and ground disturbance during construction activities.

Mexican Long-tongued Bat

Species Information
The Mexican long-tongued bat is a medium-sized bat with a long tongue for sipping nectar from agave and night-blooming cacti. These bats are typically found in desert scrub habitat and roost in caves, abandoned buildings, and mines. Young are born in June and the first few days of July. Mexican long-tongued bats are found in Arizona from the Chiricahuas to the Santa Catalinas, Peloncillo, Animas, and Baboquivari mountains. This bat is migratory and spends summers in Arizona and winters in Mexico (SDCP 2007b).

Species Assessment
No potential roost sites were observed within the action area; however, the species is known to roost in the Cienega Creek Natural Preserve, which is approximately 15 miles from the action area. The project could be within foraging distance for the bats, but it is unlikely that they would travel this far to forage. Removal of vegetation could impact the species' foraging quantities. In particular, removal of night blooming cactus and agave could negatively impact forage quantities. Fifty-three agaves were observed during field reviews of the existing 115 kV transmission line. The density of agave in the action area is estimated to be 0.11 agave/acre of appropriate habitat. A pre-construction survey will be conducted for agave and UNS Electric will attempt to avoid the agave during construction activities. No night blooming cacti were observed in the action area during field reviews. As a result, impacts to this species as a result of proposed project activities are not anticipated.

Needle-spined Pineapple Cactus

Species Information
The needle-spined pineapple cactus is a single stem cactus that grows from 6 to 12 inches high. This cactus produces pink flowers with bright red stigma lobes and green fruits that dry to tan. Spines are in clusters with one to two central reddish brown spines surrounded by 11 to 15 radial spines. The preferred

habitat consists of hills, alluvial fans, and valleys in rocky limestone soils from 3,000 to 4,300 feet in the Sonoran desert scrub and semi desert grassland. In Arizona, this species is found east of Tucson near Vail and within the Cienega Creek Natural Preserve and Colossal Cave Mountain Park (SDCP 2007c).

Species Assessment
Needle-spined pineapple cacti were observed during field reviews. The species was observed along the entire alignment. There is potential that individual needle-spined pineapple cacti will be removed during construction activities. To maximize needle-spined cacti avoidance, biologists will identify and mark species with lath and flagging during PPC pre-construction surveys. UNS Electric will avoid identified cacti during project construction, where possible.

Rufous-winged Sparrow

Species Information
The rufous-winged sparrow inhabits desert grasslands and washes with sandy bottoms and vegetation of mesquite, thorn bushes, and cholla. It is a slender sparrow with a gray face and a brown streak that extends beyond the eyes. The back is brown with darker streaks and the belly is pale gray. The wings and crown are rust colored. The beak is conical and yellow. The rufous-winged sparrow breeds during July and August when it builds its nests low to the ground in hackberry, paloverde, cholla, or mesquite. It is a year-round resident to south-central Arizona and Mexico (SDCP 2007d).
Species Assessment
The action area contains suitable habitat for this species, and may result in impacts to potential rufous-winged sparrow habitat. Both permanent and temporary loss of foraging and nesting habitat may result from the project. However, it is not anticipated that the project will result in a significant decline in population numbers.

Sonoran Desert Tortoise

Species Information
The Sonoran desert tortoise is generally located east of the Colorado River and is generally found on rocky slopes and bajadas of the Arizona upland and lower Colorado subdivisions of the Sonoran Desert. Shelter sites are important components of tortoise habitat. In the Arizona Upland subdivision, boulders, outcrops, and natural cavities are important substrate components of the habitat shelter sites. Caliche caves in incised, cut banks of washes are also used for shelter sites. Shelter sites are rarely found in shallow soils. During the field review of the existing 115 kV transmission line, biologists surveyed the alignment and identified two desert tortoises in burrows (Figure C-9). Several other burrows were identified that appeared to be desert tortoise burrows, but no desert tortoises were found within the burrows.

Species Assessment
It is possible for the project to negatively impact the Sonoran desert tortoise. Although impacts to the desert tortoise are expected to be low, there is the potential of crushing an unseen tortoise. To limit impacts to the desert tortoise conservation measures will be implemented. Through the employment of a biological monitor as outlined in the conservation measures of this report, impacts to the desert tortoise and their habitat are anticipated to be minimal.

FIGURE C-9. Desert tortoise found during field reviews.

Swainson's Hawk

Species Information
The Swainson's hawk is a medium-sized hawk with dark-brown plumage and a brown breast, pale belly, and a white patch under the bill. It begins nesting in late March and young must be ready to make the migration to South America, which begins in October. The Swainson's hawk nests in riparian areas, roadside trees, and telephone poles. The hawk is a versatile and opportunistic predator, feeding on insects, small mammals, birds, and reptiles. It prefers open habitats, such as grasslands with trees and shrubs for perching (SDCP 2007e).

Species Assessment
Impacts to nesting Swainson's hawks from project construction and operation are not anticipated. A pre-construction survey for active raptor nests will be conducted if construction is to occur during the raptor breeding season (March 1 to September 1). If active raptor nests are observed, construction activities will not occur within a 0.25 mile radius of an active Swainson's hawk nest until the nest occupants have fledged. Additionally, construction of the facilities will be according to standards recommended within the *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* for avian safe electrical facilities.

Tumamoc Globeberry

Species Information
The Tumamoc globeberry is a member of the squash family. It is a vine with lacy leaves that grows under trees or shrubs. The plant arises from tubular roots that sprout in response to summertime rains and continue growing until November. The Tumamoc globeberry produces a round fleshy, bright red fruit that many wildlife species eat. The range of the species extends north to Pinal and Maricopa counties, south into Sonora, Mexico, east to Tucson, and west to the Organ Pipe Cactus National Monument (SDCP 2007f).

Species Assessment
Suitable habitat for the Tumamoc globeberry is present within the action area. The species was not observed during field surveys, but may be present within and adjacent to the alternative alignments. The project could potentially result in removal of individual plants and impacts on habitat. Impacts, however, are anticipated to be minimal because this species was not identified along the project alignment during field reviews.

Other Rules and Regulations

Pima County Land Conservation System

Pima County has developed a Land Conservation System as part of the SDCP and MSHCP. Areas have been studied, identified, and designated according to their natural resource value. Alternative alignments within Segment 1 (Vail to Kantor) would travel through a designated Biological Core Management Area ("BCMA"), Multiple Use Management Area ("MUMA"), and the Santa Rita Experimental Range ("SRER") (Figure C-10). However, only the very northern part (Segment 1A) of the Vail to Kantor alternative alignments would require construction activities in Pima County. The areas around the Vail Substation and Arizona State Prison Complex would require an upgrade to facilities. No new equipment or monopoles are needed to upgrade the existing 115 kV transmission line to 138 kV from the Nogales Tap to the Kantor Substation because that portion of this line was already rebuilt in accordance with the application in Line Siting Case No. 78 and approved in Decision No. 56097. In that case, the application mentioned that the equipment was designed to accommodate 138 kV. Therefore, no field construction activities will be necessary along this section of the project.

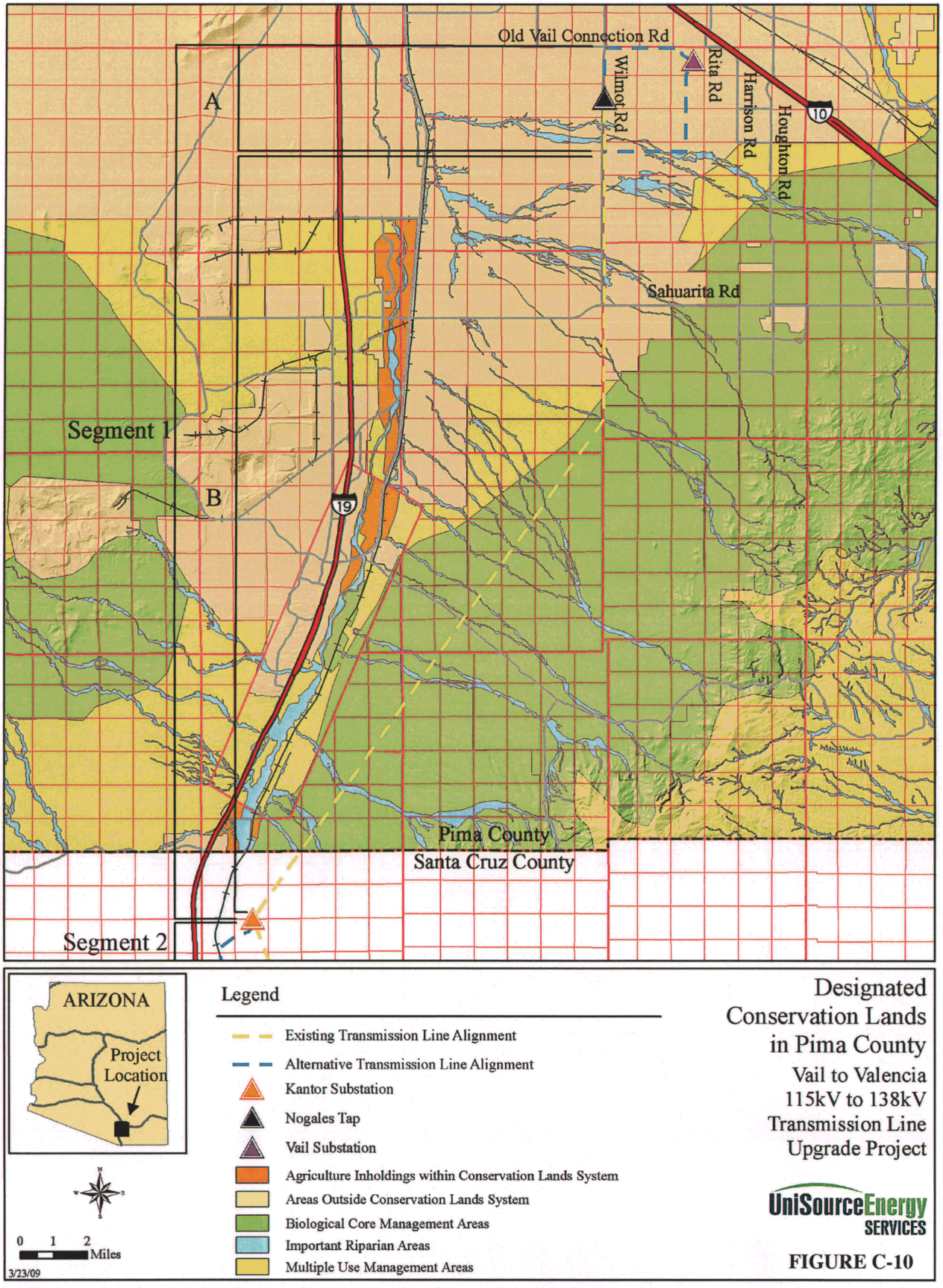
Old Vail Connection Rd
Wilmot Rd
Rita Rd
Harrison Rd
Houghton Rd
10
A
Sahuarita Rd
Segment 1
B
19
Pima County
Santa Cruz County
Segment 2
ARIZONA
Project Location
Legend
Existing Transmission Line Alignment
Alternative Transmission Line Alignment
Kantor Substation
Nogales Tap
Vail Substation
Agriculture Inholdings within Conservation Lands System
Areas Outside Conservation Lands System
Biological Core Management Areas
Important Riparian Areas
Multiple Use Management Areas
0 1 2 Miles
3/23/09
Designated Conservation Lands in Pima County
Vail to Valencia 115kV to 138kV Transmission Line Upgrade Project
UniSourceEnergy SERVICES

FIGURE C-10

Biological Core Management Area

The SDCP identifies these areas as "areas of very high biological importance distinguished by high potential habitat for five or more priority vulnerable species and special elements (e.g., caves, perennial streams, cottonwood-willow forests)". Management of these lands is focused on conservation, restoration, and enhancement. The project passes through 15.6 miles of a BCMA.

Both the Vail to Kantor Preferred and Alternative alignments would travel through a BCMA; however, this would occur in Segment 1B which was previously rebuilt and would not require construction activities in this area. Therefore, no impacts to any biological resources or habitat are anticipated within the BCMA.

Multiple Use Management Area

The SDCP identifies a MUMA as an area "generally defined by the occurrence of high potential habitat for three or more priority vulnerable species and special elements (e.g. caves, perennial streams, cottonwood-willow forests)". Management of these areas is focused on a balance between compatible uses and conservation, restoration, and enhancement. The project passes through 0.5 miles of a MUMA.

Both the Vail to Kantor Preferred and Alternative alignments would occur within the MUMA; however, this would occur in Segment 1B which was previously rebuilt and would not require construction activities in this area. Therefore, no impacts to any biological resources or habitat are anticipated within the MUMA.

Important Riparian Area

Important riparian areas are those areas in Pima County that are classified as hydro-riparian, meso-riparian, or xero-riparian communities. These areas are important and diverse biological communities due to the water that allows a wide diversity of species to survive in them. Many of the Priority Vulnerable Species and other species covered in the Sonoran Desert Conservation Plan reside in these communities and rely on water.

The proposed transmission line would travel across 1.8 miles of Important Riparian Areas in Pima County. Both the Vail to Kantor Preferred and Alternative alignments would travel through Important Riparian Areas; however, the majority of these occur within Segment 1B which was previously rebuilt and no construction activities would be necessary. The Segment 1, Alternative Alignment (South Route) does cross one Important Riparian Area (0.25 miles) where construction activities would be necessary. This area is a large desert wash. The proposed alternative alignment would cross within an already existing utility corridor. Therefore, no significant impacts to any biological resources or habitat are anticipated within Important Riparian Areas.

Santa Rita Experimental Range

The SRER is approximately 80 square miles of Sonoran Desert established in 1902, and now managed by the University of Arizona. The SRER was established to study range recovery from drought and overgrazing, and to study grazing practices. This area has been studied for more than 80 years and many grazing impacts on wildlife and ecology studies have been conducted here. Both the Vail to Kantor Preferred and Alternative alignments would travel through the SRER; however, no construction activities are necessary within this area. Therefore, no impacts to any biological resources or habitat are anticipated within the SRER

City of Tucson's Habitat Conservation Plan

The northern part of Segment 1 (Vail to Kantor) is within the City of Tucson. The Preferred and Alternative alignments are within the City's Habitat Conservation Plan (HCP) Southlands Study Area, an area of environmentally sensitive resources. PPC and needle-spined pineapple cactus were both observed in this area, both of which have been designated as HCP species of concern.

As stated above, both PPC and needle-spined pineapple cacti were observed during field review. Avoidance of these species during project construction (where feasible) and other mitigation described for each species will minimize impacts to the species.

City of Tucson's Environmental Resource Zone Ordinance

The northern part of the Segment 1, Preferred Alignment (North Route) crosses the South Fork Airport Wash and its tributaries which are regulated under the City's Environmental Resource Zone ("ERZ") Ordinance. In addition, both the Vail to Kantor Preferred and Alternative alignments cross a number of watercourses that are regulated under the City's Floodplain and Erosion Hazard Area Regulations. These regulations, which are administered by the City Development Services Department, are intended to prevent unnecessary disturbance of habitat areas within watercourses.

Impacts to the washes and floodplain and erosion hazard areas are expected to be minimal, because the proposed alignments in this portion of the project are within existing utility corridors. Because the project features would span the washes regulated under the ERZ Ordinance and construction equipment would use the existing access road, no ground or vegetation disturbing activities would take place within the washes. As a result, there would be minimal or no impacts to these washes.

Migratory Bird Treaty Act

With the exception of domestic pigeons, house sparrows, and European starlings, all birds in the project vicinity are protected under the MBTA of 1918, as amended (16 USC 703-712). The MBTA states it is unlawful to take, kill, or possess migratory birds that are listed under its protection.

Biological field reviews identified several stick nests located within transmission line towers along the project alignment. It is recommended that construction occur outside of the breeding period for nesting raptors to avoid impacts. If construction is to occur during the breeding season (March 1 to September 30) then a pre-construction survey for nesting raptors will be conducted by a qualified biologist. Construction will be limited within a 0.25 mile radius of any active nesting raptor.

Noxious Weeds

Noxious weeds are non-native or invasive species that grow and spread rapidly and out-compete native species. The Arizona Department of Agriculture has compiled an "Arizona Noxious Weed List". The Arizona Department of Transportation ("ADOT") also maintains a list of noxious weeds. Weeds that occur on these lists were given special attention during the field review. Salt cedar, Lehmann lovegrass, and buffelgrass (*Pennisetum ciliare*) were all observed during the field review of the project alignment. Conservation measures outlined in this report, such as washing construction equipment prior to entering the work site, would reduce the spread of noxious weeds.

Arizona Native Plant Law

The Arizona Department of Agriculture oversees the protection of various native plants as classified under the Arizona Native Plant Law (ARS 3-904). During field reviews of the action area, protected native plants were identified. A list of protected plants identified and the type of protection required is presented in Table C-7. The PPC is a Highly Safeguarded plant (no collection allowed) which is known to exist in the action area. This species was discussed previously in the report. Conservation measures will be applied to minimize impacts to this species.

Table C-7
Arizona Native Protected Plants Observed in the Action Area

Species	Protection
Pima pineapple cactus	Highly Safeguarded
Blue palo verde	Salvage Assessed
Velvet mesquite	Harvest Restricted; Salvage Assessed
Saguaro	Salvage Restricted
Ironwood	Salvage Assessed
Ocotillo	Salvage Restricted
Banana yucca	Salvage Restricted
Sotol	Salvage Restricted
All cacti (cholla, barrel cacti, pincushion, etc.)	Salvage Restricted

Salvage Restricted–Collection by permit only.
Harvest Restricted–Permits required to remove plant by-products (fuelwood).
Salvage Assessed–Plants have a significant value if salvaged; permits required for plant removal and salvage.
Highly Safeguarded–Plants whose prospects for survival in Arizona are in jeopardy or in danger of extinction.

A plant count estimate of woody plant species and cacti, including those protected by the Arizona Native Plant Law, was conducted for the existing 115 kV transmission line as it extends through ASLD lands. For this alignment and other alternative alignments, the ASLD will likely require the payment of a stumpage fee for plants impacted by the project. Potential impacts to the PPC as a result of project implementation have been addressed previously within this report.

CONSERVATION MEASURES

The following conservation measures are to be implemented by the project proponent.

General

- All construction supervisors will be required to attend environmental training prior to project construction. The training will address environmental concerns, applicable environmental laws, and requirements for compliance. The training will highlight the PPC, YBCU, Gila topminnow, and LLNB so that supervisors are aware of the species and measures to be implemented to reduce potential impacts.
- The project biologist shall be consulted regarding any modifications to roads or towers to appraise the potential impacts to biological resources.
- A fire prevention plan will be developed and adhered to by all personnel to prevent an accidental wildfire.

- To avoid the spread of noxious weeds, construction equipment will be washed prior to entering the work site for the first time and prior to each subsequent return if removed from site.
- To avoid the spread of noxious weeds, areas requiring vegetation clearing around pole structures will be cleared to ground level but the root system of existing vegetation will be left intact to resprout.
- Areas where vegetation has been cleared and no future use is anticipated will be reseeded with appropriate seed mixtures to promote the recovery of native plants.
- All lath and flagging used to mark species will be removed following the completion of construction activities.

Western-Yellow Billed Cuckoo

- Existing access roads and right-of-way corridors will be used wherever possible for construction and maintenance activities.
- Construction through YBCU habitat should be limited to the period between September 1 and March 1.
- If construction occurs between March 1 and August 31 (breeding season), a preconstruction survey will be performed by a qualified biologist to determine if YBCUs are present along the proposed alignment. If nesting cuckoos are identified, a buffer of 0.1 mile on either side of the nest will be established to avoid disturbing the nesting birds. Monitoring of the nest will occur to allow construction to proceed once the nest is empty.

Pima Pineapple Cactus

- The limits of construction area, new roads, and location of towers will be marked by UNS Electric prior to construction. In areas of suitable habitat PPC survey(s) will be conducted at locations identified for ground clearing activities (e.g., tower locations) to ensure previously undetected PPC are documented prior to construction.
- All PPC documented during surveys will be clearly marked with lath and flagging prior to and during construction.
- Where feasible, UNS Electric will relocate facilities to avoid the PPC.
- All PPC that cannot be avoided will be mitigated as directed by the Arizona Department of Agriculture and ASLD.

Southwestern Willow Flycatcher

- Existing access roads and right-of-way corridors will be used wherever possible for construction and maintenance activities.
- Removal of cottonwood trees will be limited to the minimum amount necessary to construct and maintain the transmission line.

Lesser Long-nosed Bat and Mexican Long-tongued Bat

- All agave and columnar cacti will be avoided to the extent possible during construction. In the event that an agave or saguaro cannot be avoided, mitigation will occur as directed by the land managing agency.

Gila Topminnow

- No equipment or replacement poles will be allowed within the active flowing channel of the Santa Cruz River.

Needle-spined Pineapple Cactus

- Needle-spined pineapple cactus will be identified during a preconstruction survey and will be avoided to the extent possible during construction activities.

Sonoran Desert Tortoise

- If construction is to occur during the desert tortoise active period (February 15 to November 15), a pre-construction survey will be performed within tortoise habitats no earlier than within 48 hours prior to construction to identify desert tortoises or burrows using the desert tortoise survey guidelines (Attachment A).
- A biological monitor will be present during construction through areas where tortoises or burrows have been observed during surveys. The biological monitor will ensure that no tortoises are present in front of the equipment. If tortoises are identified, they will be moved to an appropriate location outside of harms way. Desert tortoise handling guidelines will be adhered to as outlined in the "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects" compiled by the Arizona Game and Fish Department (Attachment A).
- The biological monitor will provide information to crews on appropriate notification measures in the event a tortoise is encountered when a qualified biologist is not present.
- In the event that a desert tortoise needs to be moved from the project alignment the tortoise should be at least 500 feet from but no more than 0.25 mile from where it was found. The tortoise shall be moved less than 48 hours in advance of disturbance to minimize the potential of the tortoise returning to the area.
- If tortoise burrows are found within the project alignment and they will be disturbed by construction activities, they shall be cleared of tortoises and then collapsed by a qualified biologist. The tortoise from the burrow is to be moved to a safe location and placed in a natural or artificial burrow.
- If tortoise burrows are found adjacent to the project alignment in a location that will not be directly impacted, burrow entrances may be fenced off temporarily so that tortoises present within the burrow do not wander onto the project alignment.
- If construction is to occur during the active period for the desert tortoise (February 15 to November 15), equipment will be inspected each morning when equipment is parked overnight to ensure that no tortoises have moved under the equipment.
- Vehicles are to stay on roads whenever possible.
- Vehicles operating on secondary roads within desert tortoise habitat should limit vehicle speeds to 15 mph or less.

Migratory Bird Treaty Act

- If construction occurs between March 1 and August 31 (breeding season), a preconstruction survey will be performed by a qualified biologist to determine if nesting migratory birds are present. If nesting raptors are identified, the appropriate spatial buffer listed in the USFWS Guidelines for Raptor Protection from Human and Land Use Disturbances (Ramin and Muck 2002) will be established to avoid disturbing the nesting birds. Monitoring of the nest will occur to allow construction to proceed once the nest is empty.

Arizona Native Plants

- Plants protected under the Arizona Native Plant Law will be avoided wherever feasible. If removal of any of the species listed in Table C-7 is necessary across State and private land, it is recommended that the applicant contact the Arizona Department of Agriculture at least 60 days prior to land clearing activities to provide proper notification and verify proper permit acquisition.

CONCLUSIONS

The Vail to Valencia 115 kV to 138 kV Transmission Line Upgrade Project would occur within or in proximity of habitat for five species with various levels of protections under the Endangered Species Act ("ESA").

The western yellow-billed cuckoo ("YBCU") occurs within the riparian habitat along the Santa Cruz River. The proposed project would not jeopardize the continued existence of the YBCU and project conservation measures will minimize impacts to individuals and their supporting habitat.

The project is within Pima pineapple cactus ("PPC") habitat and will permanently impact habitat. Direct removal of PPC is likely but will be minimized. To mitigate impacts of the project on the PPC, UNS Electric will do as directed by the Arizona Department of Agriculture and ASLD. UNS Electric will use PPC location data collected during project surveys to site access roads, tower structures, and other facilities in areas with minimal or no PPC.

No southwestern willow flycatcher ("SWWF") were detected during surveys at the Santa Cruz River crossing. The project will have no effect on the SWWF.

Because the current alignment spans the Santa Cruz River, pole replacement activities will not enter the river. The proposed action will have no effect on the Gila topminnow.

The proposed action is within marginal foraging habitat for the lesser long-nosed bat ("LLNB"). To avoid impacts to LLNB, all agave and columnar cacti will be avoided to the best extent possible. If they can not be avoided they will be transplanted or replaced with an appropriate replanting ratio. Based upon this information the proposed action will have no effect on the LLNB.

Per the Sonoran Desert Conservation Plan ("SDCP"), seven priority vulnerable species have potential to occur among the action area. These species are the Mexican garter snake, Mexican long-tongued bat, needle-spined pineapple cactus, rufous-winged sparrow, Sonoran desert tortoise, Swainson's hawk, and tumamoc globeberry. Needle-spined pineapple cactus and Sonoran desert tortoise were both observed during field reviews. The other five species were not observed during field reviews, but suitable habitat for these species occurs in the action area. The project has the potential to impact all seven of these species. However, by incorporating the conservation measures during project construction activities, the level of impact to the species would be minimized.

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ATTACHMENT A

DESERT TORTOISE SURVEY AND HANDLING GUIDELINES

Desert Tortoise Survey Guidelines for Environmental Consultants
October 2007

The following informal guidelines are intended to aid private consultants surveying for presence of tortoises on development projects in the Sonoran Desert. Following these guidelines will not provide quantified abundance estimates.

1) Surveys will be most productive during tortoise activity periods, primarily during the summer monsoon season (July – September) but also in the spring (April) and fall (October). Tortoises are most active in the morning and evening during summer, late morning to afternoon in spring and fall. Results from summer/fall monitoring plots indicate that tortoises are active at temperatures from 20 to 45°C (1cm above ground).

2) In the Sonoran Desert, tortoises usually occur on rocky slopes in desertscrub to semidesert grassland, as well as along washes, and extending into creosotebush flats. Burrows typically occur below rocks and boulders and may be irregularly shaped. Soil burrows and those in wash banks may have a 1/2-moon appearance.

3) Presence-absence surveys (3 km hectare plots) or Clearance surveys (100% coverage), depending on project type, are recommended to survey a discrete parcel of land. The number of hectare plots per unit area depends on the desired intensity of the survey.

4) Surveyors should record all live tortoises, carcasses, scat, verified burrows (with scat or tortoise inside), and otherwise suitable/potential burrows (empty) and report to the Department.

5) Refer to the Department' s "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects" if handling will be necessary.

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GUIDELINES FOR HANDLING SONORAN DESERT TORTOISES
ENCOUNTERED ON DEVELOPMENT PROJECTS
Arizona Game and Fish Department
Revised January 17, 1997

The Arizona Game and Fish Department (Department) has developed the following guidelines to reduce potential impacts to desert tortoises, and to promote the continued existence of tortoises throughout the state. These guidelines apply to short-term and/or small-scale projects, depending on the number of affected tortoises and specific type of project.

Desert tortoises of the Sonoran population are those occurring south and east of the Colorado River. Tortoises encountered in the open should be moved out of harm's way to adjacent appropriate habitat. If an occupied burrow is determined to be in jeopardy of destruction, the tortoise should be relocated to the nearest appropriate alternate burrow or other appropriate shelter, as determined by a qualified biologist. Tortoises should be moved less than 48 hours in advance of the habitat disturbance so they do not return to the area in the interim. Tortoises should be moved quickly, kept in an upright position at all times and placed in the shade. Separate disposable gloves should be worn for each tortoise handled to avoid potential transfer of disease between tortoises. Tortoises must not be moved if the ambient air temperature exceeds 105 degrees fahrenheit unless an alternate burrow is available or the tortoise is in imminent danger.

A tortoise may be moved up to two miles, but no further than necessary from its original location. If a release site, or alternate burrow, is unavailable within this distance, and ambient air temperature exceeds 105 degrees fahrenheit, the Department should be contacted to place the tortoise into a Department-regulated desert tortoise adoption program. Tortoises salvaged from projects which result in substantial permanent habitat loss (e.g. housing and highway projects), or those requiring removal during long-term (longer than one week) construction projects, will also be placed in desert tortoise adoption programs. *Managers of projects likely to affect desert tortoises should obtain a scientific collecting permit from the Department to facilitate temporary possession of tortoises.* Likewise, if large numbers of tortoises (>5) are expected to be displaced by a project, the project manager should contact the Department for guidance and/or assistance.

Please keep in mind the following points:

- These guidelines do not apply to the Mohave population of desert tortoises (north and west of the Colorado River). Mohave desert tortoises are specifically protected under the Endangered Species Act, as administered by the U.S. Fish and Wildlife Service.

- These guidelines are subject to revision at the discretion of the Department. We recommend that the Department be contacted during the planning stages of any project that may affect desert tortoises.

- Take, possession, or harassment of wild desert tortoises is prohibited by state law. Unless specifically authorized by the Department, or as noted above, project personnel should avoid disturbing any tortoise.

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EXHIBIT D: FISH, WILDLIFE, AND PLANT LIFE

FISH

The Santa Cruz River, Nogales Wash, and Potrero Creek are the only perennial flowing water sources located along the project alternative alignments. Sonoita Creek is also crossed by the project alternative alignments, but is an ephemeral drainage. Sensitive fish species could potentially inhabit these waters including the Gila longfin dace (*Agosia chrysogaster chrysogaster*), desert sucker (*Catostomous clarkia*), Gila topminnow (*Poeciliopsis occidentalis occidentalis*), and speckled dace (*Rhinichthys osculus*). No common or sensitive fish species will be affected by the proposed alignments. Alternative alignments will span the previously mentioned streams and will not require access into or through them. No wetlands were observed within the proposed alignments during the field visit or from topographical maps of the region.

WILDLIFE

Wildlife typical of the Sonoran Desert occurs among the project study area. Common species include large mammals such as bobcats (*Felis rufus*), coyotes (*Canis latrans*), and javelinas (*Tayassu tajacu*), and small mammals such as black-tailed jackrabbits (*Lepus californicus*), antelope ground squirrels (*Ammospermophilus* spp.), and kangaroo rats (*Dipodomys* spp.). Some common types of desert birds occurring among the project area are the Costa's hummingbird (*Calypte costae*), roadrunner (*Geococcyz californicus*), white-winged dove (*Zenaida asiatica*), red-tailed hawk (*Buteo jamaicensis*), and cactus wren (*Campylorhynchus brunneicapillus*). Common riparian bird species in the project area are finches (*Carpodacus* spp.), buntings (*Passerina* spp.), vireos (*Vireo* spp.), flycatchers (*Empidonax* spp.), and blackbirds (*Euphagus* spp.). Common reptiles include the common side-blotched lizard (*Uta stansburiana*), tiger whiptail (*Aspidoscelis tigris*), gophersnake (*Pituophis catenifer*), and western diamond-backed rattlesnake (*Crotalus atrox*).

Construction and operation of the proposed project will impact a small area of habitat of regionally common wildlife species. Common reptiles and small mammals currently occupying the area may be displaced. The proposed project will not impede wildlife movement through existing corridors. Impacts to common wildlife are not significant.

Impacts would be greatest where there is need to remove large quantities of mesquite bosque habitat. The mesquite bosque habitat encountered along project alternative alignments is habitat for unique wildlife, and in particular is supportive of several bird species including species that are rare within the United States. Riparian habitats are important breeding areas for avian species. One study showed that over 50 percent of the breeding avian species in the Southwest nest in riparian habitats (Johnson et al. 1977). The mesquite bosque habitat supports several rare bird species such as the western yellow-billed cuckoo (a candidate species under the Endangered Species Act) and gray hawks (on the USFWS Conservation Concern list). Both of these species prefer large patches of habitat and may be impacted by patch fragmentation and habitat removal. The yellow-billed cuckoo is discussed in detail in the Biological Evaluation (Exhibit C). There is not existing data for the gray hawk for much of the Santa Cruz River, but eight nesting pairs of gray hawks have been identified along the Santa Cruz River between Amado and Tumacácori (personal comm. Scott Wilbur 2008).

Many other avian species exist along the Santa Cruz River as well. Some of these species include: Cassin's kingbird (*Tyrannus vociferans*), vermilion flycatcher (*Pyrocephalus rubinus*), brown-crested flycatcher (*Myiarchus tyrannulus*), summer tanager (*Piranga rubra*), yellow warbler (*Dendroica petechia*), Lucy's warbler (*Vermivora luciae*), and rufous-winged sparrow (*Aimophila carpalis*). Construction activities associated with the alternative alignments in the Santa Cruz River floodplain could impact these species. These impacts could include disturbance due to construction activities, noise, and loss of habitat; and would be dependent upon construction timing and the alternative alignment selected.

VEGETATION

The project is located within the Arizona Upland Subdivision of the Sonoran Desert Scrub Community and the Semidesert Grassland Community (Brown 1992). The Sonoran Desert Scrub Community generally occurs in the northern quarter of the project area in Pima County. In this community, associations vary among dominant plant species. Some areas are dominated by species more often associated with the Lower Colorado Subdivision such as creosotebush (*Larrea tridentate*), cholla (*Opuntia* spp.), prickly pear (*Opuntia* spp.), barrel cacti (*Ferocactus wislizenii*), hedgehog cactus (*Echinocereus engelmannii*), white thorn acacia (*Acacia constricta*), triangle bursage (*Ambrosia deltoidea*), and velvet mesquite (*Prosopis velutina*), which mainly occurs among swales, washes, or other areas where water collects. Along washes, shrubs and cacti, mainly cholla and prickly pear, often form dense stands. Upland areas are similarly comprised of the species named above; however, more upland species such as paloverde (*Cercidium floridum*), false mesquite (*Calliandra humilis*), buckwheat (*Eriogonum fasciculatum*), and ocotillo (*Fouquieria splendens*) are prevalent. In drier areas the vegetation is more openly spaced and generally less shrubby with more dominant ground cover. Common ground cover species include shrubby coldenia (*Coldenia canascens*), wild zinnia (*Zinnia grandiflora*), dingy chamaesaracha (*Chamaesarach sordida*), and snakeweed (*Gutierrezia sarothrae*).

The southern three-quarters of the project area, from southern Pima County to Nogales, is in the Semidesert Grassland Community. The Semidesert Grassland Community contains similar dominant plant species to the Sonoran Desert Scrub Community. Desert grasses once dominated this community, but many areas have been invaded by the shrub, tree, and cacti species common in the Sonoran Desert Scrub Community. Common desert grass species include grama grasses (*Bouteloua* spp.), three-awn grasses (*Artistida* spp.), tobosa grass (*Hilaria mutica*), fluffgrass (*Tridens pulchellus*), burrograss (*Scleropogon brevifolius*), and invasive grasses such as Lehmann lovegrass (*Eragrostis lehmanniana*).

Mesquite bosque and limited cottonwood/willow forest habitat occurs along the Santa Cruz River. Large, old growth mesquite bosques are a unique vegetation community in rapid decline in the arid southwest. These habitats are dominated by several mesquite species, most commonly velvet mesquite trees that are able to grow large because of their access to water and have thick canopies, which create cooler, shaded environments. This dense riparian habitat consists of an upper canopy composed nearly exclusively of mesquite trees and a lower canopy of smaller brush species and grasses. The habitat provided by such areas is important to birds and other wildlife of the southwestern United States.

The amount of vegetation permanently or temporarily impacted by the project would vary greatly by alternative alignment. Temporary impacts from trimming and brush hogging will occur in areas not requiring permanent clearing and would allow plant species to grow back. Areas around pole structures will require permanent clearing of vegetation in a small area for placement of pole structures.

Impacts to vegetation would be greatest for those alternatives that would result in the most mesquite bosque habitat removal. Figure D-1 (three map panels) illustrates existing mesquite bosques in the Santa Cruz River valley and within the vicinity of project alternative alignments.

The Tucson Audubon Society identified major stresses for the Upper Santa Cruz River and the top stress was reported to be mesquite bosque clearing (Tucson Audubon Society 2004, 2005). In their Avian Habitat Conservation Plan for the Upper Santa Cruz River (2005) they recommend that mesquite bosques that are one kilometer and greater in length and 100 meters or greater in width should receive the highest protection. Such areas are found along Pendleton Road north of Rio Rico Drive in Segment 3, south of Gertrudis Lane in Segment 2, north and south of Clark Crossing in Segment 2, and at the Tubac Golf Resort in Segment 2. A detailed description of mesquite bosque habitat impacted by alternatives is presented in the yellow-billed cuckoo analysis in Exhibit C.

The Segment 2, Alternative Alignment 2 (Railroad Route) and Segment 3, Preferred Alignment (West Route) would result in the largest quantities of mesquite bosque habitat removal and would have the greatest impact to vegetation communities as this habitat is rare and declining. In Segment 2, UNS Electric prefers the Modified Route because overall impacts to the bosque would be limited because the vegetation removal would occur at the edge of the bosque, along an already cleared area associated with UPRR. If the Segment 2, Preferred Alignment is selected, UNS Electric would allow vegetation regeneration within the existing 115 kV right-of-way.

If the Segment 3, Preferred Alignment (West Route) is selected, UNS Electric would also allow vegetation regeneration within the existing 115 kV right-of-way. Other factors, however, justify this alignment as the preferred alignment in Segment 3. In addition, the alignment parallels the UPRR and overall impacts to the bosque would be limited because the vegetation removal would occur at the edge of the bosque in the same manner as described for the Segment 2, Preferred Alignment (Modified Route).

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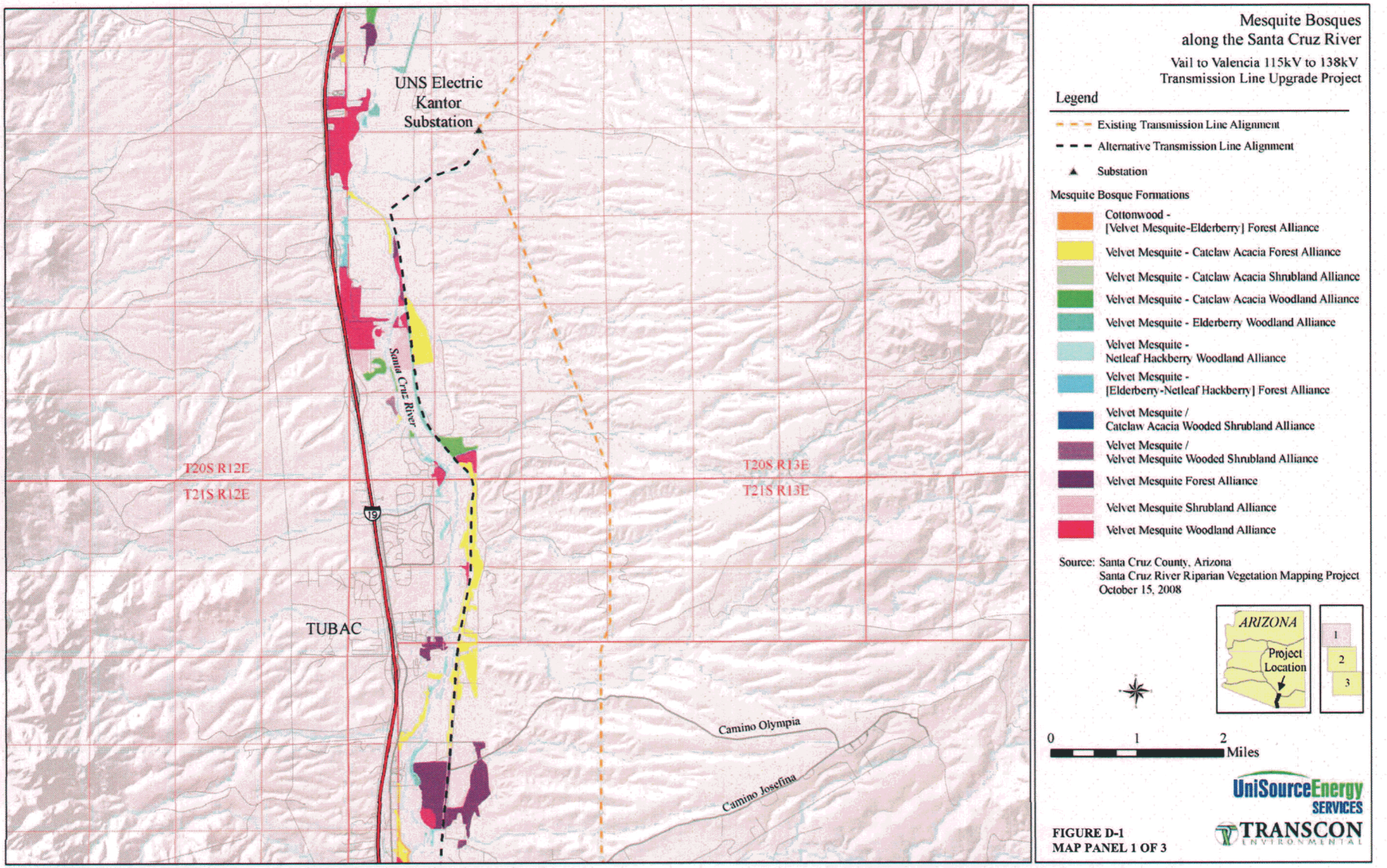

FIGURE D-1
MAP PANEL 1 OF 3

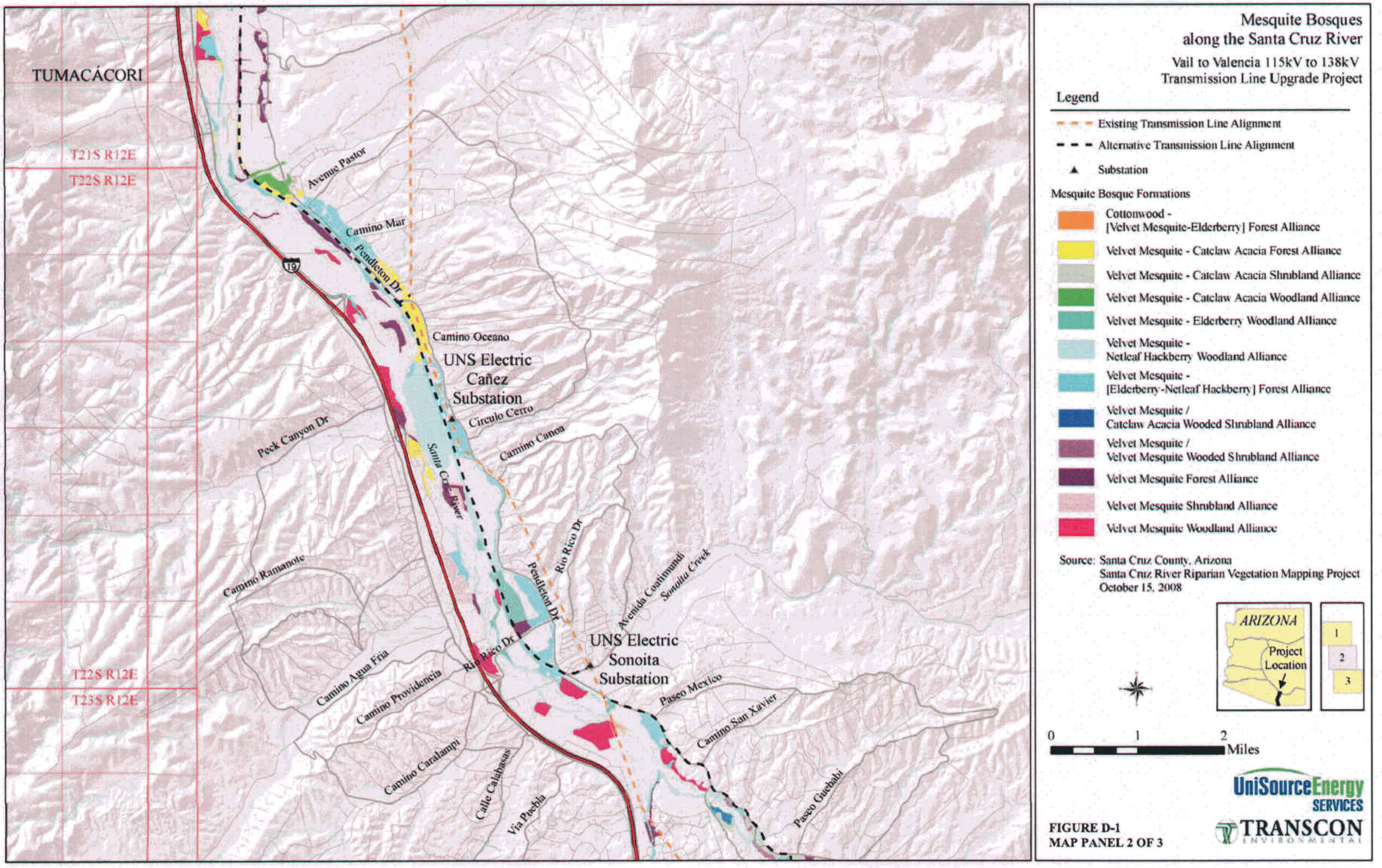

FIGURE D-1
MAP PANEL 2 OF 3

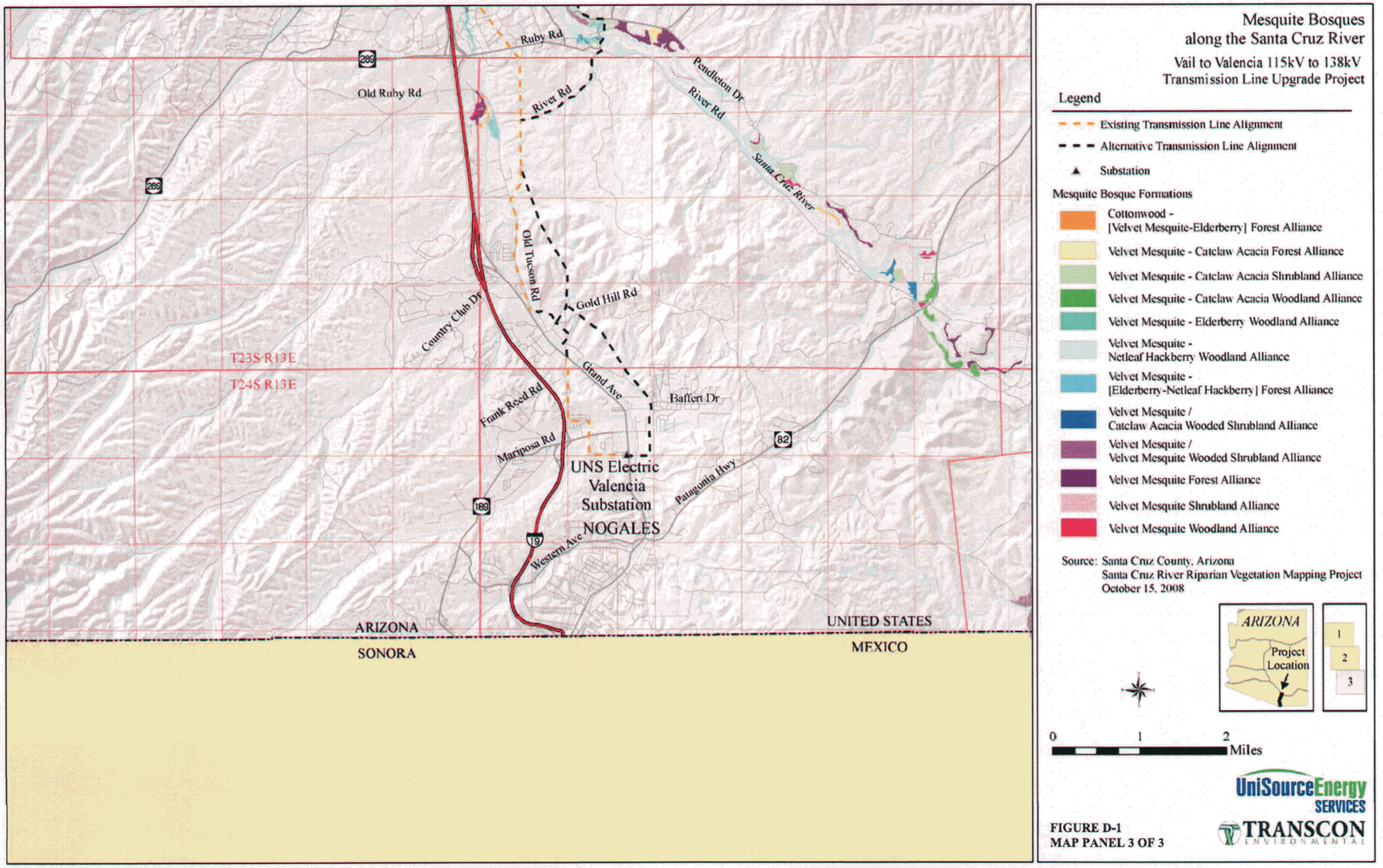

FIGURE D-1
MAP PANEL 3 OF 3

EXHIBIT E: SCENIC AREAS, HISTORIC SITES, AND ARCHAEOLOGICAL SITES

SCENIC AREAS

The proposed Vail to Valencia 115 kV to 138 kV Transmission Line Upgrade Project crosses south from Vail Substation located in Tucson, Arizona to Valencia Substation located in Nogales, Arizona through portions of Pima County and Santa Cruz County. The project area consists of open desert, townscapes and other areas of residential development, scenic landscapes composed of mountain ranges and river valleys, and areas with historical and cultural value. Electrical substations divide the project into four distinctive segments: Segment 1 (Vail to Kantor), Segment 2 (Kantor to Cañez), Segment 3 (Cañez to Sonoita), and Segment 4 (Sonoita to Valencia). Each segment contains a preferred alignment and at least one alternative alignment. Project alternative alignments are described more fully in the Application for the Certificate of Environmental Compatibility. The following includes a description of the alternatives from a visual quality perspective and a summary of potential effects.

Segment 1

Segment 1 is divided into two parts, 1A and 1B. Segment 1A is the construction of a new transmission line to establish the connection at the Vail Substation with the existing 115 kV transmission line along Wilmot Road. Segment 1B is essentially the rebuild approved in Decision No. 56097 from Line Siting Case No. 78 between the Nogales Tap and the Kantor Substation. The line in Segment 1B will not be modified, reconstructed, or re-routed. This is because the existing line has structures and equipment designed for operation at 138 kV voltage without modification. While the line is designed to accommodate operation at 138 kV, it is only operating currently as a 115 kV line. Further, the Commission, in Decision No. 56097, approved the rebuild from wooden H-frame structures to steel monopoles. As a result, Segment 1B does not require upgrade or alternatives.

The Vail to Kantor segment begins at the northernmost end of the project area, near the southern tip of Tucson at the Vail Substation. The two proposed alternatives for this segment differ between Vail Substation and the Nogales Tap (Segment 1A) and then converge to follow a common route heading southwest before ending at Kantor Substation (Segment 1B). From Vail Substation, the Segment 1A, Preferred Alignment (North Route) follows an existing lattice tower transmission line west to Wilmot Road and from there turns south to the Nogales Tap. The Segment 1A, Alternative Alignment (South Route) follows an existing lattice delta tower (banjo-head) transmission line south and west to the existing steel monopole transmission line (Nogales Tap - Nogales (115 kV)), along Wilmot Road, south of the Nogales Tap.

North of Vail Substation, Interstate-10 ("I-10") crosses the landscape in a northwest to southeast direction. Several recent residential developments have spread south from I-10 towards the Vail Substation and proposed Segment 1A, Preferred Alignment (North Route). An Arizona State Prison complex is located on the west side of Wilmot Road. The remaining landscape near the north part of this segment is open desert linked with desert washes.

From Nogales Tap, both proposed routes utilize the existing steel monopole transmission line south to Kantor Substation (Segment 1B). This transmission line continues south crossing through open desert and along the west side of a low-density residential area. South of the residential area, the line extends southwest through primarily undisturbed Sonoran desert. The Santa Rita Mountain Range is south and east of the project area and several desert washes formed by the mountain foothills intersect the landscape. Near the southern end of this section, the proposed alignment passes through a low-density residential area and open desert before terminating at Kantor Substation. West of the proposed alignment, Interstate-19 ("I-19") extends north to south and gradually converges with the transmission line. I-19 passes within two miles of the Kantor Substation.

In Segment 1B, the Santa Rita Mountains are an important scenic area. The primary recreational areas in the mountains are Elephant Head and Madera Canyon. Elephant Head is a unique ridge formation that juts into the desert forming the western tip of the Santa Rita Mountains. A trail leads to the top of the ridge. Madera Canyon is on the northwest face of the Santa Rita Mountains. The canyon has a number of recreational trails and is renowned for bird watching.

Potential viewers along this segment include local residents, travelers along major roadways, travelers on minor local roads leading to recreational areas, and individuals using the recreational areas. Those traveling to these recreational areas expect pristine natural views due to the nature of their visits. The number of local viewers is limited near the proposed alignment because there are few residential settlements nearby. The existing line cuts through one low density residential area.

The only visible change that would result from project implementation would be at the north end of the project area where a new interconnection between the Nogales Tap and Vail Substation would be established (Segment 1A). This will require the addition and construction of between 3.8 and 4.2 miles of new transmission line. The new transmission line would be constructed adjacent to existing infrastructure and other buildings. Any scenic views in the area have already been diminished and no substantial disruption to major views would result from the addition of a new transmission line within either of the proposed alignments. There will be no change to views where the existing line has already been rebuilt on single steel poles and designed for operation at 138 kV, pursuant to the Application in Case No. 78 and related Decision No. 56097 (August 17, 1988) (Segment 1B).

Segment 2

The Kantor to Cañez segment begins at the Kantor Substation and continues southwest to the Cañez Substation. The proposed alternative alignments roughly parallel the Santa Cruz River which runs between the Santa Rita and San Cayetano mountains on the east and the Tumacácori Mountains on the west. The terrain is generally flat along the river but quickly develops into foothills on both sides as it rises towards the surrounding mountain ranges. Patches of biologically rich mesquite bosque and cottonwood stands surround much of the river corridor in this segment. I-19 follows the river on the west side and the existing Union Pacific Railroad ("UPRR") passes through the valley on the east side of the river. An unpaved road runs alongside the railroad. Both the road and railroad cut through portions of the mesquite bosques. Near the river are two historically important parks: Tubac Presidio State Park and Tumacácori National Historic Park. Between Tubac and Tumacácori, the Juan Bautista de Anza National Historic Trail follows the river through the mesquite bosques. Recreational activities permitted along the trail include horseback riding and hiking. Medium density residential areas have been built near the historical areas. The residences near Tubac are located on both the east and west sides of I-19 and the bulk of the residences near Tumacácori are built east of the interstate. Although most residential areas are concentrated around I-19, there is a lower density residential area near the southern end of the segment within the northern portion of the community of Rio Rico. The low-density residential area associated with Rio Rico spreads south and east into the foothills from Calle Josefina. Some low-density residential areas stretch across the path of the existing transmission line.

Those exposed to visual impacts for one or more proposed routes in this Segment include local residents, travelers along I-19, and visitors to the area. Most local residents live near I-19 at Tubac and Tumacácori, but there are also residents in low-density residential areas at the southern end of this Segment within Rio Rico. Travelers along I-19 and local roads will be able to see the Project due to the interstate's proximity to the Segment. Other groups of viewers include individuals who come to visit the historical parks (i.e., Tubac Presidio State Historic Park and Tumacácori National Historic Park) and areas associated with

them (i.e., Juan Bautista de Anza National Historic Trail), and those visiting parks and recreational areas within the project area.

Several important views occur in this segment and consist of views from historical locations and scenic views of the mountain ranges and river areas. Views from Tubac Presidio State Park and Tumacácori National Historic Park are specifically important to this Segment. The viewers from these parks expect an environment in accord with the historical presence of the area. Viewers who come to the region for recreational activities expect a less disturbed, more natural landscape. The views most common to residents near the historical sites include other residences, desert and river vegetation, and distant views of the surrounding mountain ranges. Residents to the south of the Segment have views of the Santa Rita Mountain Range and of the river valley below the foothills.

Mesquite bosques and cottonwood that stand between the historical parks and the Segment 2, Alternative Alignment 2 (Railroad Route) screen the transmission line from being seen in those parks. The residential areas associated with these historical areas also have views screened by vegetation. Views from the Santa Cruz River and the Juan Bautista de Anza National Historical Trail are mostly screened by the riparian woodlands and would be fleeting in nature. Views of the mountains and river from the low-density housing developments near the southern end of this segment would be disturbed due to the proximity of the Segment 2, Preferred and Alternative Alignment 1. However, these views are already disturbed by the existing 115 kV transmission line, and replacing the existing H-frame structures with steel monopole structures would not be expected to substantially increase visual impacts and may reduce impact to views in some areas.

Segment 3

The Cañez to Sonoita segment extends through the community of Rio Rico. The Segment begins at the Cañez Substation and ends south at the Sonoita Substation.

The proposed alternative alignments generally parallel the Santa Cruz River and valley. The Tumacácori Mountains rise up in the western views, and the foothills of the San Cayetano Mountains continue along the east side of the river valley. Mesquite bosques surround much of the river corridor, and farmlands utilize the river valley. I-19 and the UPRR extend south through the project area. The railroad cuts through farmland and areas of mesquite bosque. An overhead electrical distribution line is located adjacent to the railroad. The existing H-frame transmission line traverses the foothill topography. Originating east of Sonoita Substation, Sonoita Creek flows southwest to converge with the Santa Cruz River. A major portion of the creek and surrounding environment is protected as a state conservation area, known as the Sonoita Creek State Natural Area. Trails in the Sonoita Creek State Natural Area are east of the substation and proposed alternative alignments.

Several residential areas along this Segment form the Rio Rico master planned community. Pendleton Drive curves around the base of the San Cayetano mountain foothills in this community. From this main road, several smaller roads run east into the foothills to low-density housing. A medium-density residential subdivision is located to the north of the Sonoita Substation and begins at Pendleton Drive and stretches east towards the San Cayetano foothills. The existing H-frame transmission line passes through these residential areas. West of I-19 a medium-density residential strip stretches north to south through part of the project area. Farther west more low-density housing is positioned across portions of the Tumacácori foothills.

Those likely to incur visual impacts for either alignment include those in the residential areas and travelers along I-19 and on local roads. Most traffic along I-19 experiences fleeting impressions of the

scenery alongside the road due to the speed of their travel. Those traveling at slower speeds on local roads have the ability to be aware of more detail in the landscape around them.

Major viewing areas are those involving the Santa Cruz River valley. Residents from foothill areas have views overlooking the valley. Viewers from the valley have views of the biologically important mesquite bosques and receding views of mountain terrain. Views from trailheads in the state conservation area are nonexistent due to distance and topography.

There will be minimal change to the views associated with the Segment 3, Alternative Alignment (Existing Line Route). The proposed change involves replacing the current H-frame transmission line structures with single monopole structures. The existing structures disturb skyline views along ridges of the San Cayetano foothills and views where the line passes through residential areas. Replacing them with steel monopole structures will have minimal effect on views and may reduce impact to views in some areas.

Implementation of the Segment 3, Preferred Alignment (West Route) would have potential impact to views and viewers. The alignment crosses through the Santa Cruz River valley near the UPRR in the thick mesquite bosques and passes west and south of the residential areas in the San Cayetano foothills. Monopole structures would be erected along this alignment. Views from the foothills to the river valley and views from the river valley near the proposed alignment would be disturbed by the Preferred Alignment. However, the heavy vegetation would screen most views from the foothills and the variety of colors, textures, and forms in the area lend themselves to a high to moderate absorption capability (ability to blend the transmission line into the background). In addition, if the Preferred Alignment is constructed, the existing 115 kV transmission line would be removed which would improve views from the Santa Cruz River to the east.

Segment 4

The Sonoita to Valencia segment begins at the Sonoita Substation, in Rio Rico, and ends in Nogales, at the Valencia Substation. Six alternative alignments have been proposed for this section.

Near the Sonoita Substation, the landscape widens out away from the San Cayetano and Tumacácori mountain ranges and lowers to a series of hills that continue south to the City of Nogales. North and east of Nogales, a group of ridges rises higher than the surrounding landscape creating a small silhouette that mimics the distant mountains. Vegetation and wildlife associated with the Sonoran Desert inhabit the landscape where open desert remains. The Santa Cruz River flows southeast away from the project area along Pendleton Drive. Other waterways in Nogales include Nogales Wash and Potrero Creek. Nogales Wash is used as a drainage system for storm water and wastewater. Potrero Creek is a natural creek south of the Santa Cruz River. A few scattered mesquite bosques remain along the waterways in this segment. Much of the native riparian vegetation has been depleted by existing residential, commercial, and industrial development.

The major roadway through the project area is I-19. It extends south from Tucson to Nogales before reaching Nogales where it curves southeast through the city. The interstate is situated east of the Santa Cruz River and roughly parallels Potrero Creek and Nogales Wash through Nogales. Several industrial developments line the interstate in Rio Rico and continue intermittently to Nogales. In Rio Rico, low-density residential areas are clustered on ridges to either side of the interstate. Patches of medium-to-high density residential areas are scattered around Nogales. The other major roads are located east of the interstate. In Rio Rico, Pendleton Drive curves around the hills west of the Santa Cruz River. From Pendleton Drive, River Road crosses the Santa Cruz River heading southwest to connect to Old Tucson

Road within half a mile of the interstate. Old Tucson Road parallels I-19 south and merges into Grand Avenue near Nogales.

Other infrastructure helps define the area. The UPRR runs south through the project area paralleling the east side of the interstate. On the north end of the Segment the UPRR crosses south over the Santa Cruz River and passes between I-19 and a wastewater facility. It also runs alongside Old Tucson Road and Grand Avenue through the southern half of the segment and closely follows Potrero Creek and Nogales Wash into Nogales. The UPRR crosses over Nogales Wash in several locations. The existing 115 kV H-frame transmission line follows the UPRR past the wastewater facility and then breaks east over desert ridges. South of River Road the transmission line comes to Old Tucson Road and follows the roadway into Nogales. In Nogales, the existing 115 kV H-frame transmission line veers south towards I-19 and crosses some low hills before it turns east to the Valencia Substation. Several of the proposed alternative alignments follow sections of the existing transmission line and UPRR.

A noteworthy historical area in this segment includes the San Cayetano de Calabazas mission. The mission is part of the Tumacácori National Historic Park and is located at the north end of the segment about half a mile southeast of the Sonoita Substation.

Recreational areas also exist in this segment. The Santa Cruz County complex is located in Nogales on a hill between I-19 and Grand Avenue. A few trails around the complex provide recreational opportunities among the native landscape. The City of Nogales Recreation Center is located east of the Valencia Substation alongside Grand Avenue. The park contains several ball fields, a swimming pool, and other facilities.

Viewers along this segment come from local and major roadways, and from residential areas in the project area. Local residents have views of the mountain ranges to the north, east, and west.

The most important river views are found along the north portion of the project area. Most views of the mountains and rivers already are obstructed by the construction of buildings and other infrastructure. Other views are blocked by the prevalent hills. Although waterways exist within the project area most views to the rivers have no particular importance. Relatively few areas along the rivers are scenic because the vegetation has been disrupted by the surrounding development. Residents have views to the Santa Cruz River where it passes southeast through a hilly area. Due to the growing distance from the mountain ranges, views also grow less distinct along the proposed alternative alignments.

Some residential areas on the foothills north of the Segment have important views. They have closer, clearer views of the mountain ranges. An elevated residential area east of Nogales on the south part of the Segment has the most expansive views. Views are of the surrounding foothills, lower city valley, and distant mountains. Another area of concern involves views from the Santa Cruz County Complex trail system.

The proposed alternative alignments following Pendleton Drive (Segment 4, Alternative Alignments 3, 4, and 5) have the largest impact to views on the northern part of Segment 4. The route follows the river closely so it would detract from views from the residential areas northeast of the Santa Cruz River. Views from the west of the river would also change. The construction of a new transmission line along the foothills would affect skyline views for residents. For travelers along I-19, the views increase in value by placing the transmission line farther from the road because views of the structures would diminish with distance.

The other proposed route in the northern part of this Segment replaces the existing transmission line. The existing line runs close to I-19 and passes through a medium density residential area disturbing views of the foothills. The existing H-frame structures would be replaced with monopole structures causing no additional impact to current views and may reduce impact to views in some areas.

For the southern section of this Segment, the three proposed routes impact views differently. Alternative Alignments 2 and 5 (East routes) come closest to the residential area in the hills east of Nogales. In a few places, the alignment passes approximately half a mile from the Vista del Cielo subdivision and would likely detract from the surrounding open views. This alignment increases the quality of views from the Santa Cruz County complex and a major commercial shopping area. The route avoids the shopping area and distances the transmission line from the county complex opening up views from the trail system. The East routes directly affect views from the City of Nogales Recreation Center. The proposed alternative alignment passes over a hill on the east side of the park and passes along the north perimeter of the baseball fields towards Valencia Substation.

The other proposed alternative alignments follow sections of the existing 115 kV transmission line alignment. Alternative Alignments 1 and 4 (East to West Crossover routes) pull away from Old Tucson Road along ridges on the east side improving views along the roadway and detracting from views of the ridgelines. The Preferred and Alternative Alignment 3 (Existing Line routes) follow the existing 115 kV alignment along Old Tucson Road that currently interrupts views along the roadway and adjacent residential developments (but would replace the H-frame structures with steel monopoles). Both alignments improve views along Grand Avenue by foregoing where Old Tucson Road and Grand Avenue intersect and passing behind industrial buildings. Both the Preferred and Alternative Alignments 1, 3, and 4 in this southern section cross to the west side of Grand Avenue and follow the existing 115 kV alignment to the Valencia Substation. The alignment passes through the county complex trails and through a major shopping center. Views from these areas are already disturbed by the existing transmission line. Where the alternative alignments follow the existing transmission line, the H-frame structures will be replaced with monopole structures, and visual impacts would be minimal and may even reduce impact to views in some areas.

Eleven visual simulations were prepared for the analysis and are included in Exhibit G.

CULTURAL RESOURCES OVERVIEW

UNS Electric proposes to upgrade an existing 115 kV transmission line to a 138 kV transmission line from Western Area Power Administration's ("WAPA") Nogales Tap to the Valencia Substation in Nogales, Arizona. The proposed upgrade begins at the Vail Substation, located just south of Interstate-10 ("I-10") and Rita Road, and extends south approximately 58 miles, generally paralleling Interstate-19 ("I-19"). It ends at the Valencia Substation in Nogales, Arizona. The proposed project crosses lands managed by the Bureau of Land Management ("BLM"), Tucson Field Office and Arizona State Land Department ("ASLD"), and privately owned lands.

If approved by the Arizona Corporation Commission (and a Certificate of Environmental Compatibility issued), the project would upgrade and reinforce UNS Electric's current electrical distribution system, increase power reliability to current and future power users, and meet growing electricity demands in the Nogales area. Portions of the existing transmission line are proposed for re-routing because the existing alignment contains features which may substantially complicate the construction, operation, and maintenance of the transmission line. Electrical substations divide the project into four distinctive segments: Segment 1 (Vail to Kantor), Segment 2 (Kantor to Cañez), Segment 3 (Cañez to Sonoita), and Segment 4 (Sonoita to Valencia). Each segment contains a preferred alignment and at least one alternative alignment. Project alternative alignments are described more fully in the Introduction to this Application.

A Class I cultural resources overview was prepared for the Project. The Class I overview was designed to provide a basis for UNS Electric to evaluate the proposed alternative alignments and consult with agencies, as necessary, on the proposed strategies for fulfilling permitting requirements. This Exhibit presents the information contained in the Class I overview.

PROJECT LOCATION

The Project is linear in nature and stretches from southeastern Tucson to Nogales, Arizona. The Project passes in proximity to the communities of Tubac and Rio Rico and continues through the City of Nogales, terminating near the international border. The proposed transmission line routes are located in the Gila and Salt River Baseline and Meridian in the following townships, ranges, and sections:

- T16S, R15E, Sections 4-9, 16-21, 30, 31
- T17S, R15E, Sections 6, 7, 18, 19, 30, 31
- T17S, R14E, Section 36
- T18S, R14E, Sections 1, 2, 10, 11, 15, 21, 22, 28, 29, 32
- T19S, R14E, Sections 6, 7
- T20S, R13E, Sections 4, 8, 9, 17-21, 28, 30-34
- T21S, R13E, Sections 3, 5, 8-10, 16, 17, 20, 21, 27-29, 32, 34
- T22S, R13E, Sections 3-5, 9, 10, 15, 22, 23, 26, 27, 35, 36
- T23S, R13E, Sections 1, 12
- T23S, R14E, Sections 6-8, 17-19, 29-32
- T24S, R14E, Section 5

USGS 7.5-minute quadrangle maps for the project include: Tucson SE, Corona de Tucson, Sahuarita, Green Valley, Mount Hopkins, Amado, Tubac, San Cayetano Mountains, Rio Rico, and Nogales. The project is approximately 58 miles long and includes approximately three acres of land managed by the Bureau of Land Management, 297 acres of state land, and 190 acres of private land. A few parcels within the center of the project area near the Santa Cruz River were not included as part of the standard USGS Public Land Survey System.

ENVIRONMENTAL SETTING

The Project runs from near southeastern Tucson to the Valencia Substation in Nogales, Arizona. Most of the Project is on the eastern slope of the Santa Cruz River valley. At the north end, on the margins of the Tucson Basin, the land is relatively flat. Where the Project moves south and closer to the river, the terrain becomes increasingly rugged (Figure E-1). Near its south end, at the junction of the Santa Cruz River with Sonoita Creek, the alignment crosses to the west side of the river and follows Nogales Wash to near the international border (Figure E-2).

The study area is located within the Arizona Upland Subdivision of the Sonoran Desert Biome (U.S. Department of Agriculture, Forest Service, 1983). Three biotic communities are present within the project area. The southern portion consists mainly of desert scrub grassland while the northern portion is a mosaic of mixed paloverde-cacti on slopes and creosotebush-bursage in the flats. These landscapes consist of arroyo canyons and ridges dominated by mesquite, acacia, paloverde, creosotebush and ocotillo. The third biome is the limited riparian deciduous woodland (mainly cottonwood and willow) found in the floodplains of the Santa Cruz River and, to a lesser extent, in Sonoita Creek and Nogales Wash (U.S. Department of Agriculture, Forest Service, 1983).

The project area varies in elevation from between 2,800 feet at the north terminus of the project to 3,980 feet at the southern terminus in Nogales. Soils are mainly alluvial fans developed from the Santa Rita Mountains to the east. The south end of the project area is located on the east bajada of the much closer San Cayetano Mountains; in this location the fans are deeply incised and the terrain more severe. Materials above the bedrock, especially volcanic detritus form the Nogales Formation, range from 1,000 to 4,500 feet deep (U.S. Department of Agriculture, Forest Service, 1983). Younger soils have been deposited by the river during the last 12,000 years. Soils are mostly deep sandy silts with cobble inclusions. The terrain slopes to the west toward the Santa Cruz River affording open vistas west over the Santa Cruz Valley. Views to the east are dominated by the Santa Rita Mountains, possessing distinctive features such as Elephant Head Butte, Mount Wrightson, and Mount Hopkins.

The project area crosses or is near to several drainages, the most important of these being the Santa Cruz River. This formerly perennial river is now partially maintained by effluent water from the Nogales sewage treatment plant. Other major streams with some surface flow are Cienega, Sonoita, and Potrero creeks, as well as Nogales Wash. Many dry canyons or washes are also crossed, the largest being Airport, Sawmill, Florida, Madera, Mavis, Agua Caliente, Montose, Sheehy, Cottonwood, Josephine, and Mariposa. All but Potrero Creek and Nogales and Mariposa washes flow from the eastern bajadas, west into the Santa Cruz River.

Wildlife in the area is similar to what would have been found prehistorically and historically. Black-tailed jackrabbits, various small rodents, songbirds, raptors, turtles, snakes, and deer are all present in the area. The riparian areas provide habitat for waterfowl and varying fish species (Kwiatkowski 2000).

The project area has two rainy seasons. From December to February gentle rains from the North Pacific enter the region, and from July to mid-September when the summer monsoons produce local, sometimes violent, thunderstorms. Together, these provide the region with an average of 12 inches of rain annually. As with most of southern Arizona, the project area is characterized by warm dry winters and hot dry summers.

FIGURE E-1. Center of project area near Rio Rico. View to the south.

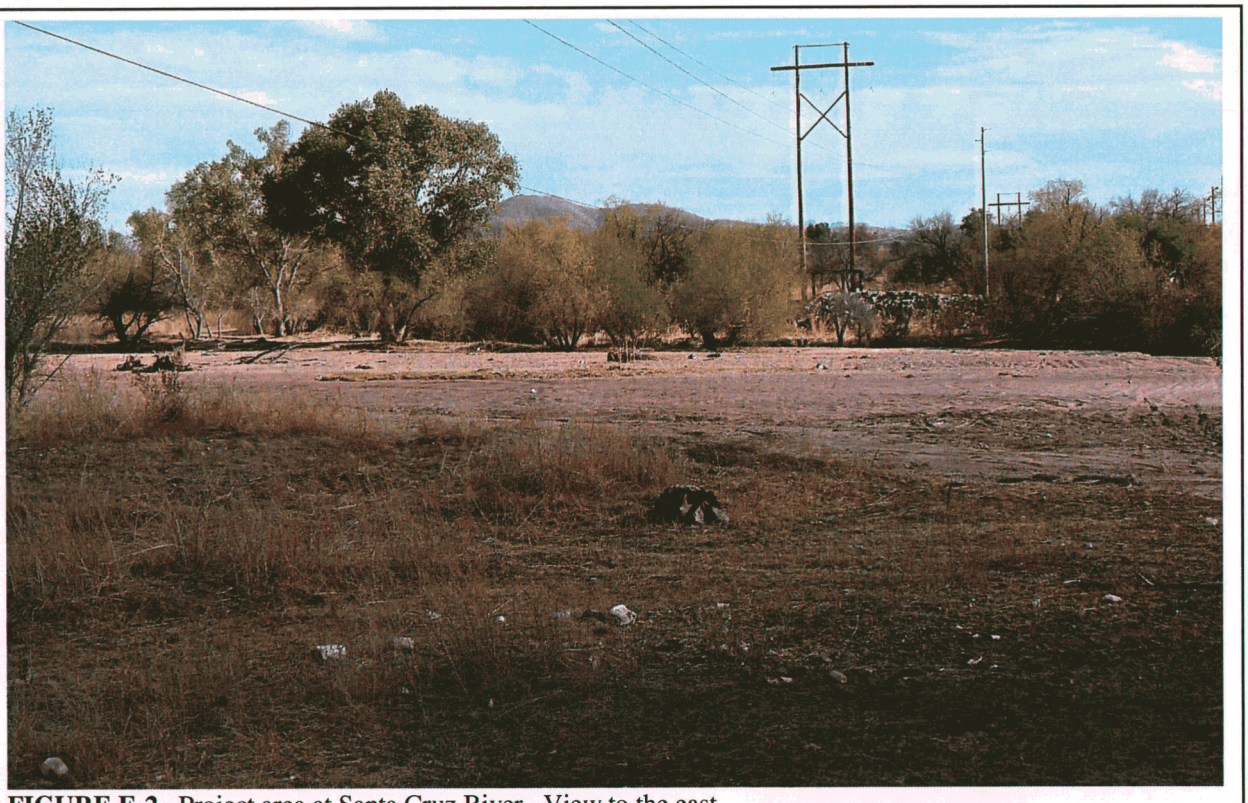

FIGURE E-2. Project area at Santa Cruz River. View to the east.

CULTURAL SETTING

Throughout history the upper Santa Cruz valley has served as a cultural frontier. During earlier prehistory it functioned as the northern frontier of Mesoamerican culture and later as the southern frontier of Hohokam culture and the northern frontier of Trincheras culture. During the historic period, the upper Santa Cruz valley was the northern frontier of Spanish and, later, Mexican influence and the southwestern extent of Anglo-American expansion.

Prehistory

The prehistory of the project area is partially understood through a combination of archaeological survey, excavation, and ethnographic analogy. The adjacent Tucson Basin has one of the most extensively studied prehistoric records in the country. Unfortunately, the surrounding upland areas and the upper Santa Cruz valley to the south are not nearly as well understood. Typically, the cultural sequence of this region is divided into the Paleoindian, Archaic, and Formative periods.The following summary is derived from a number of resources; such as: Sayles and Antevs (1941); Haury (1976); Gregonis and Reinhard (1979); Westfall (1979); Czaplicki, et al. (1983); Sayles (1983); Buttery (1987); Huckell (1988); Doelle (1999); and Mabry (2003, 2005).

Paleoindian Period

The earliest evidence of humans in southeastern Arizona dates to the Paleoindian period (*ca.* 11,000–8500 B.C.). Big game was abundant in the cooler and wetter climate of the time, and people developed a mobile, hunting-based lifestyle to exploit these resources. Significant indications of Paleoindian occupation have been identified in southeastern Arizona, especially along the San Pedro River and the Wilcox Playa to the east. Only isolated evidence of Paleoindian occupation, usually in the form of isolated fluted points, has been found near the project area.

Archaic Period

The Archaic Period is generally defined as the period between the extinction of megafauna and the advent of pottery. The Archaic is generally known as a time when subsistence strategies shifted from large game to smaller game, and wild plant foods were increasingly exploited. The Archaic Period (often referred to as the Cochise Complex in southeastern Arizona) has been divided into a number of separate periods with different localized names. However, the chronology is typically divided into the Early Archaic (8500–4500 B.C.), Middle Archaic (4500 B.C.–1500 B.C.), and Late Archaic (1500 B.C.–A.D. 150) periods.

The Early Archaic (or Sulphur Springs) Period (*ca.* 8500–4500 B.C.) is typified by a hunting and gathering lifestyle, similar to the preceding Paleoindian Period. A major difference, however, was a drying trend. Many water sources dried up, sand dunes developed, the downcutting channel of the Santa Cruz River incised the surrounding plain, and sediments accumulated at the channel margins. As a result, the remaining big game, mainly bison, elk, mountain sheep and pronghorn, disappeared from the region, whether through natural or human agents (or a combination thereof). Hunting focused on modern game animals and gathering focused on seasonally available resources, with Archaic groups maintaining a significant degree of residential mobility. Typical artifacts include thin, flat milling stones, small handstones, and various cutting and scraping tools often found along arroyo banks.

During the Middle Archaic (or Chiricahua) Period (*ca.* 4500–1500 B.C.), some populations began to experiment with "encouraged plants". Various wild plant resources were encouraged through selective planting/reseeding, weeding of competitor species, and, possibly, watering. Bison returned to the Santa

Cruz valley during this period and were extensively hunted. Artifacts are dominated by shallow-basin milling stones and bifacially chipped lithics. Sites have been identified in mountainous areas as well as along the larger drainages where midden deposits and cremation burials have been recovered.

The Late Archaic (or Early Agricultural or San Pedro) Period (*ca.* 1500 B.C.–A.D. 150) was a period of increasing sedentism, although group mobility was still maintained to varying degrees. Maize was cultivated during this period. Late Archaic populations along floodplains and alluvial fans began to assemble into permanent villages characterized by extramural hearths, interment burials, and crude pithouses. Artifacts are characterized by abundant pressure flaked chipped stone and San Pedro type projectile points.

Formative Period

Although crude pottery was first produced during the preceding period, the start of the Early Formative Period (A.D. 150–700) is defined by the widespread production and use of ceramic containers. The widespread use of ceramic technology indicates a growing reliance on sedentism and agriculture. Two contemporaneous formative cultures influenced the upper Santa Cruz valley, the Hohokam from the north and the Trincheras from the south.

Hohokam Culture

Traditionally, a Hohokam chronology has been used to describe occupations in the Tucson Basin region from A.D. 650/700–1450. (A separate and less relevant chronology has been developed for the Hohokam of the Phoenix Basin). This chronology includes the Pioneer, Colonial, Sedentary, and Classic periods.

At the beginning of the Pioneer Period (A.D. 650–750/800), small pithouse hamlets and villages were clustered around the Santa Cruz River north of the project area. The Snaketown phase, at the end of the Pioneer Period, saw several changes that indicated a growing population. These included increased trade contacts, more diverse ceramic vessel forms and designs, expansion of irrigation systems, the presence of ceramic figurines, slate palettes, carved stone bowls, and other ritual/ceremonial items, and the increased presence of regional trade items.

During the Colonial Period (A.D. 750/800–900/950), the number, size, type, and complexity of Hohokam sites in the region increased. Pithouses tended to cluster within villages, and open on to communal plaza areas. Numerous large villages contained ballcourts that were probably related to the Mesoamerican game observed at many earlier Mexican sites.

Throughout the following Sedentary Period, patterns established during the preceding Colonial Period were intensified. Economic complexity increased with certain villages specializing in particular crafts, especially the manufacture of ceramics. Settlements were located in a variety of environmental settings as in previous periods, but the population became even more dispersed, with sites located on the river terraces, bajadas, valley floors, and secondary drainages.

Most familiar Hohokam traits disappeared or underwent radical changes during the Classic Period. Pithouses were supplemented by surface structures of adobe and/or masonry that may have been organized into compounds or roomblocks. By this time, platform mounds had effectively replaced ballcourts as the focus of community activities, and are believed to be symbols of a socially differentiated society.

Most of the project area is outside of the direct area of Hohokam influence, although several large Hohokam sites have been identified along Cienega Creek at the north end. Hohokam ceramics and stylistic elements have been identified at village sites along the upper Santa Cruz valley, possibly as a result of trade (especially for shell) with the Trincheras cultures to the south. The adjacent upland areas were likely used during this period for traveling and the exploitation of wild resources.

Trincheras Culture

The Trincheras Culture was centered in the Altar and Magdalena river valleys of northwestern Sonora. Although they shared many traits with the Hohokam, they have been much less studied and are poorly understood.

Trincheras populations farmed the river bottoms of Sonora and also hunted and gathered wild resources in the surrounding uplands. Some populations lived in shallow Hohokam-like pithouses, while others lived on terraces built into the sides of volcanic hills. These stone-walled terraces also caught rainwater for farming, supported small fields, and served a defensive role. The sites (and culture) received their Spanish name, Cerros de Trincheras (hills of the trenches) from these highly-visible terraces.

Trincheras ceramics are similar to those of the Hohokam, being based on a brown-colored pottery. However, they are decorated with a distinctive sparkling purple pigment made from ground hematite. Shell bracelets and simple beads and pendants have also been recovered from Trincheras sites.

Between A.D. 800 and A.D. 1300 the southern portion of the project area, near the international border, was a transition zone between the Hohokam and Trincheras cultures. Village sites found there are characterized by elements of both traditions. The upper Santa Cruz valley also served as a corridor of trade in locally made seashell jewelry, pottery, cotton textiles, as well as macaws and copper items from Mesoamerica.

Protohistoric/Ethnohistoric Period

Little is known of the Protohistoric Period (A.D. 1450–1697) in southeastern Arizona, a time between the disappearance of the Hohokam as a recognizable cultural entity and Father Kino's first visit to the Tucson Basin. The Ethnohistoric Period generally refers to the later history of surviving Native American groups. The following summary is derived from DiPeso (1956); Dobyns (1963); Kessel (1970); Spicer (1980); Fontana (1981); Sheridan (1988); Sheridan and Parezo (1996); and Mabry (2005).

During the Protohistoric Period, several related Piman (Tohono O'odham, Sobapuri, Kohath, and Hia C'ed, and other Mexican groups) tribes lived in the villages of the Santa Cruz and San Pedro valleys. From ancient times the Tohono O'odham lived in dispersed rancherías along low-elevation drainages during the summer to grow crops of corn, squashes, melons, and beans. They moved to upland villages near permanent springs in the winter where they hunted and collected wild plant resources. Devil's claw was planted to provide a source of fiber for weaving baskets and the fruit of the saguaro was collected and used for wine production. Their material culture resembled those of other Piman peoples of the southwest.

Few Piman villages have been researched from this period. However, gaps in the record suggest that the Santa Cruz Valley was periodically abandoned, and then repopulated. Starting in the 1690s, raids from Apaches to the north and settlement of traditional Piman villages by Spaniards from the south, greatly affected the regional Piman culture. The Spaniards recognized several different Piman groups. These included the Sobaipuri of the Santa Cruz and San Pedro river valleys, the Papago of the desert region between the Santa Cruz and Colorado rivers, and the Gileños (Ahimel O'Oodham) who lived to the north

along the Gila River. The Sobaipuri of the San Pedro Valley relocated to the Santa Cruz River valley as a result of the Spanish policy of reduccion and to avoid Apache aggression. In their new location within the Santa Cruz River valley, the Sobaipuri groups became integrated with the desert-living Papagos, now known as the Tohono O'odham (People of the Desert).

Currently, approximately 18,000 Tohono O'odham live in four discontinuous districts in Arizona. Two of these are the large reservation to the west of the project area and the smaller San Xavier District to the northwest.

Apaches and Yoemem (Yaqui) also used the project area. Apaches from the north and west raided the villages of the upper Santa Cruz valley during the 1690s through the 1870s. No Apache settlements are known in the region except for a small settlement at the presidio at Tucson. The Yoemem (Yaquis) are a Native American group from the Yaqui Valley of southern Sonora. In 1814 Yoemem were brought north to work in the gold mines near the Guevavi Mission. Conflicts with non-native settlers and with the new Mexican government caused many Yoemem to be dispersed across Mexico and the southwestern United States. This dispersal was accelerated, beginning in 1910, when many Yoemem were deported. The Pascua Yaqui people live in several communities in southern Arizona, including a reservation located south of Tucson and near the north end of the project area.

Historic Period

The Historic Period extends from the time of the arrival of the first European explorers to the present. Most development near the project area has occurred in the bottomlands of the Santa Cruz valley. Development has also occurred at the extreme north end of the project area due to its relative proximity to the grazing lands of Cienega Wash and the Tucson Basin. The history of the region is traditionally divided into the Spanish Colonial and Mexican Period (1697-1854) and the American Period (1854-present).

The following summary is derived from a number of sources. These are: Lockwood (1928); Haskett (1935); Wagoner (1952); Wilson, E. (1957); Dobyns (1959); Brandes (1960); Wagoner (1970); Fontana (1971); Bannion (1974); Dobyns (1976); Kessel (1976); Willey (1979); Dobyns (1981); Ayres (1984); Bolton (1984); Meyer (1984); Officer (1987a, 1987b); Officer (1989); Keane and Rogge (1992); Collins et al. (1993); Sheridan (1995); Wilson, J. (1995); Collins (1996); Officer et al. (1996); McCarty (1997); Polzer (1998); Stout (1999); Eppinga (2002); Logan (2002); Martin (2004); Mabry (2005); and Wilson (n.d.).

Spanish Colonial and Mexican Period

The first Spanish expeditions through the region occurred in the 1530s and 1540s. The first permanent presence in the region, however, was a cattle ranch established by Jose Romo de Vivar in 1680 on the upper reaches of the Santa Cruz River. The Spaniards would eventually establish settlements on the Colorado and San Pedro rivers and at the Hopi and Zuni pueblos. However, the largest and longest lasting settlements were in the Santa Cruz valley.

In the early 1690s Father Eusebio Francisco Kino, an Italian Jesuit priest, was dispatched to the Pimería Alta (land of the Upper Pimas) to serve as a missionary to the Native Americans. Kino and his accompanying priests and soldiers were likely the first Europeans to travel north along the Santa Cruz River into what is now Arizona. Jesuit missions were established at Guevavi in 1691 and at San Xavier del Bac in 1700. *Visitas*, or visiting missions were established at Tumacácori in 1691, San Agustín (near Tucson) in 1700, and Calabazas in the 1750s; Guevavi, Tumacácori, and Calabazas are near the project

area. While these missions were periodically visited, it was not until the 1730s that a permanent European presence was established.

Because of introduced European diseases, such as measles and smallpox, large numbers of natives died. The Spaniards also had difficulties with the yearly rounds the Native Americans followed to collect wild resources away from their agriculturally-based villages. These absences disrupted the steady labor force the Spaniards had hoped for and prevented their priests from enforcing their strict moral codes. The introduction of cultivated European foods eventually helped the Spaniards enforce greater sedentism. These included cattle, sheep, horses, wheat, peaches, lentils, figs, and onions. Wheat was especially important because it could be grown during the winter, a season that otherwise provided only sparse resources.

Conflicts between the Spaniards and the Pimas developed and, in 1751, the Pimas revolted, forcing Spanish priests and settlers to flee south into Sonora. The next year they returned and established a presidio fortress garrisoned with 50 soldiers at Tubac, four miles north of Tumacácori and near the project area. This force soon turned its attentions to protecting both Pimas and Spaniards from raids by Apaches. The following year the garrison was moved north to Tucson to more effectively counteract Apache incursions, although an adequate adobe enclosure was not constructed there until 1783. That same year the priests at San Xavier began to direct Pima craftsmen in the construction of the new church that exists to this day. These trained workers later constructed buildings throughout the Pimería Alta, including a new church at Tumacácori. Tubac was also used as a base of operations to embark on journeys further north and west. Probably the best known is the journey of Juan Bautista de Anza. In 1775, Juan Bautista de Anza left from Tubac to establish an overland route to California and a Spanish colony at San Francisco.

Other, secular Spaniards began to enter the region, operating ranches and prospecting for minerals. Eighteen Spanish or Mexican land grants were applied for in southern Arizona, although many were rejected and some that were granted were never settled. Two grants that were recognized by the Mexican government were those at Calabasas and the Luis Maria Baca Float #3, although only after extensive court action. In 1821 Tomas and Ignacio Ortiz also received a large land grant at San Ignacio de la Canoa near the north-central portion of the project area. After the abandonment of the Arizona ranches due to Apache attacks in the 1840s, vast herds of wild cattle flourished. These herds were decimated in the 1850s by Apaches and by American travelers on their way to the California goldfields.

Prospecting and mining were pursued in the uplands surrounding the project area. The Planchas de Plata (Slabs of Silver) mine was established at Arizonac, just south of Nogales. Other mining was conducted in the Santa Rita Mountains, the areas around Tubac, Tumacácori, and especially Guevavi, and along Sonoita Creek. Apache raids after the 1820s impeded development of these attempts.

Political turmoil in greater Mexico and an attempt to gain independence from Spain disrupted Spanish influence in the Santa Cruz valley. In the 1810s, soldiers from Tucson were sent to Mexico to fight the rebels. When Mexico gained independence in 1821, the new government was unable to support its distant frontier. The garrisons at both Tucson and Tubac were reduced, funding was cut, and the expulsion of foreign-born priests reduced the clergy. Apaches, taking advantage of the situation increased their attacks, raiding settlements and capturing livestock. Ranches, mines and missions were abandoned. For a period during the 1840s, Tucson was the only occupied settlement in Arizona during Mexico's rule. It was the Apache hostilities brought on by over one and a half centuries of warfare that brought about the end of the mission system in the Pimería Alta.

Four Spanish settlements, Guevavi, Calabazas, Tumacácori, and Tubac are near the project area and are of special concern. Each was established on the site of an existing Pima ranchería. Trails connected these settlements and nearby ranches. Portions of these trails may be overlapped by the Juan Bautista de Anza National Historical Trail, which follows the western bank of the Santa Cruz River.

Guevavi had been reduced to a visita of Tumacácori in 1771 and abandoned in 1775. Calabazas has a complex history. It originally was a visita of Guevavi, but a church was not completed until 1773 when the Franciscans established a cemetery there. The facilities were twice burned by Apaches, twice rebuilt, became a church-owned cattle ranch operated by Germans, and later, in 1844, a private ranch. Tumacácori also began as a visita of Guevavi and was moved from east of the Santa Cruz River to its present location in 1751. A large number of mission buildings were constructed on the site, although the standing church was not completed until the 1820s. Tumacácori was soon abandoned due to Apache attacks and only periodically reoccupied. The Presidio of Tubac was established in 1752, but lost much of its importance in 1775 with the presidio being moved north to Tucson. Some soldiers continued to be garrisoned at the village which was finally abandoned in the 1840s; the village was reoccupied in the 1850s by Americans.

American Period

The American Period began when the United States acquired lands south of the Gila River through the Gadsden Purchase of 1854. However, American political and cultural influence was slow to be established.

During the 1850s cattle grazing within the project area was increased. Much of this was due to Texas cattle being led across the southwest to be sold in California. Many of these operations took advantage of the lush grasslands in the Santa Cruz valley. Older Spanish ranches, especially those owned by the Otero, Pacheco, Elias, Ruelas, Leon, Ortiz, Ramiriz and Amado families, expanded their operations and newer families arrived from Mexico. Some Americans, including Pete Kitchen who ranched on Potrero Creek, began to settle in the Santa Cruz valley.

In the 1870s, sheep and cattlemen began running livestock along Cienega Creek, at the north end of the project area. Walter Vail developed the enormous Empire and Cienega ranches there, applying innovative methods and large capital infusions. Vail's ranch was connected to the Southern Pacific Railroad mainline in 1880 and served as one of many intermittent stops between the railroading centers of Tucson and Benson. In addition to being a cattle-shipping center, Vail served as the storage and loading facility for ore from the Helvetia Copper Mine. Cattle ranching still contributes to the economies of Pima and Santa Cruz counties.

Irrigation farming allowed for the growing of Mediterranean winter crops of barley, chickpeas, lentils, onions, and garlic which was followed by native summer crops of maize, beans, squash, pumpkins, chili peppers, tobacco and cotton. Ranchers also irrigated cattle pastures. During World War I, a portion of the old Canoa Ranch was renamed Continental Farms, deep irrigation wells were dug, and the land used to grow guayule, a latex source. Later, long-staple cotton was grown and the farm is currently planted in irrigated pecan orchards.

Mining continued during the American period, especially when prospectors from other western mining districts arrived. For the most part, successful mining occurred in the Santa Rita Mountains and other mineral-laden areas outside of the project area. However, mining company offices, stamp mills, and smelters were constructed along the major transportation corridor in the Santa Cruz Valley. Prior to the Civil War, the Sonora Exploration and Mining Company established headquarters in the ruins of the

Tubac Presidio and the Santa Rita Company established headquarters at the Hacienda de Santa Rita near Tumacácori. In addition, placer deposits on tributaries of the Santa Cruz were prospected. Copper deposits were also developed, mostly in the surrounding valleys between 1885 and 1919. Even though extensive mining did not occur within the project area, the development of infrastructure to support mining interests was significant, including the development of roads, railroads, banks, and the community of Nogales.

The military has also played an important role in the region. The Mormon Battalion crossed the region on its way to California during the Mexican War in 1846, although no military actions took place in Arizona. Two years after the Gadsden Purchase, four companies of the First Dragoons arrived in Tucson and set up Camp Moore at Calabazas near the project area. Shortly after, the garrison was moved to the new Fort Buchanan, east of the project area. From here, and from Fort Breckenridge on the San Pedro River, Fort Lowell at Tucson, and Camp Crittenden (replacing Fort Buchanan), campaigns against the Apaches were directed between 1861 and the 1880s. During the Civil War, these forts were temporarily abandoned and Tucson and the rest of the region were occupied by the Confederate Army of New Mexico; in May 1862 the town was re-occupied by the California Volunteers. The Union Army also established temporary posts in the project area at Calabasas and El Reventon, 35 miles south of Tucson.

In 1865 the post at Calabazas was renamed Fort Mason and temporarily enlarged due to concerns that foreign interests might try to reclaim Gadsden Purchase lands. During the Mexican Revolution, between 1910 and 1917, Camp Little, which had been established in Nogales, increased in importance. By 1916 the garrison there swelled to 12,000 troops and several skirmishes were fought along the border of the twin towns of Nogales. During World War I, the 10th Cavalry Buffalo Soldiers were posted at Camp Little to guard the international border. During World War II and the subsequent Cold War, Davis-Monthan Air Force Base, near the north end of the project area, was greatly expanded.

The twin towns of Nogales (known collectively as ambos Nogales) were founded in 1882 when railroads from Guaymas in Mexico and Kansas City met. The Arizona & New Mexico Railway, a subsidiary of the Atchison Topeka & Santa Fe, extended north from Nogales for several miles and then ran east out of the project area along Sonoita Creek toward the main line at Benson. In 1910 the Tucson & Nogales Railroad was extended from Tucson, down the Santa Cruz valley to join the Arizona & New Mexico Railway near Calabasas. Beginning in the 1920s, Nogales became a major commercial port of entry for refrigerated Mexican produce. The city has also become a major cross-border market town, although the older commercial and residential portions of the town are well away from the project area.

Population within the project area is mostly concentrated in the communities of Tubac, Calabasas, and Nogales. The region has developed into a bicultural, bilingual society. Residents are descendents of Tohono O'odham and early Mexican settlers as well as immigrants from Arkansas, Oklahoma, and Texas, and more recent Mexican laborers.

PREVIOUS INVESTIGATIONS AND KNOWN SITES IN THE AREA

Records at the Arizona State Museum ("ASM"), Arizona State Historic Preservation Office ("SHPO"); and the AZSITE online cultural resources database were checked to determine whether previously identified cultural resources were present or if previously reported archaeological investigations had been conducted within one mile (1.6 kilometers) of either side of the Project. Transcon contacted the BLM on December 18, 2008 to schedule an appointment for background research, but the BLM referred Transcon back to the AZSITE online cultural resources database (personal communication, Amy Sobiech, BLM).

Previously Conducted Surveys

Background research identified 112 previously conducted surveys within one mile of the project vicinity. Forty-four of the previous surveys occur within the project alignment. Of the 44 surveys, 29 are either block surveys or perpendicular linear surveys that cover only a small portion of the alignment. Previously conducted surveys are summarized in Table E-1. Maps depicting previously documented cultural resources are not presented in this Exhibit in order to preserve their locations from the general public but are included in the Class I cultural resources overview prepared for the Project.

TABLE E-1
Previously Conducted Surveys within One Mile of the Project Area

Project No.	Citation	Acres	Sites Recorded in the Project Vicinity	Within 100 feet of Project Vicinity
1964-8.ASM	Brown (1967), Grebinger (1971a), Grebinger (1971b)	3,813	AZ EE:9:51(ASM); AZ EE:9:53-54(ASM)	yes
1966-6.ASM	AZSITE 12/18/08	7	none	no
1973-20.ASM	Clonts (1973)	588	none	no
1978-17.ASM	Brew (1978)	100	none	yes
1979-29.ASM	Eppley (1997)	50	none	no
1979-41.ASM	Debowski (1978)	27	none	no
1980-151.ASM	Madsen (1980)	2,132	AZ BB:13:138(ASM); AZ BB:13:139(ASM)	no
1980-164.ASM	Nickerson (1980)	529	none	yes
1981-57.ASM	Madsen (1981)	43	none	no
1982-171.ASM	Madsen (1982)	518	none	yes
1982-207.ASM	Hammack (1983)	1,799	none	yes
1982-211.ASM	Saul (1982)	131	none	yes
1983-73.ASM	Lange (1983)	10	none	no
1983-127.ASM	Lange (1983)	79	none	yes
1984-96.ASM	Sires (1984)	40	none	no
1984-126.ASM	Strand (1984a)	14	none	no
1984-127.ASM/ SHPO-1984-0036	Strand (1984b)	140	none	no
1985-64.ASM	Madsen (1985a)	.3	none	no
1985-172.ASM	Madsen (1985b)	3	none	no
1985-227.ASM	Schilz and Clevenger (1987)	3,834	none	yes

TABLE E-1
Previously Conducted Surveys within One Mile of the Project Area

Project No.	Citation	Acres	Sites Recorded in the Project Vicinity	Within 100 feet of Project Vicinity
1986-2.ASM	Sires (1986)	2	none	no
1986-44.ASM	Madsen (1986)	7	none	no
1986-163.ASM	Shelley (1986)	134	AZ EE:9:104(ASM); AZ EE:9:105(ASM)	yes
1986-181.ASM	Heidke and Mayro (1981)	6	none	yes
1986-187.ASM	Bontrager (1986)	92	none	yes
1987-119.ASM	Bayman (1987)	80	none	yes
1987-136.ASM	Euler (1987)	10	none	no
1987-222.ASM	O'Brien and Bruder (1987)	14,426	none	no
1987-264.ASM	Buttery (1987)	247	AZ:EE:1:248(ASM)	yes
1988-215.ASM	Fenicle et al. (1988)	721	none	yes
1988-240.ASM	Stephen (1989)	2,775	none	yes
1989-19.ASM	Rozen (1989)	8	none	no
1989-28.ASM	Bontrager (1989)	68	none	yes
1989-127.ASM	O'Brien et al. (1989)	126	none	yes
1989-195.ASM	Beckwith (1989)	16	none	no
1990-37.ASM	Adams (1990)	15	none	yes
1990-70.ASM	Slaughter (1990)	440	none	no
1990-122.ASM / 12.52.SHPO	Stephen (1990)	7	none	no
1991-13.ASM	Madsen (1991)	58	none	no
1991-123.ASM	Neily (1991)	87	none	no
1991-254.ASM	Seymour (1991)	7	AZ DD:8:140-144 (ASM)	no
1992-133.ASM	Bruder (1992)	0.87	none	no
1992-165.ASM	Roth (1992)	0.38	none	no
1992-242.ASM	Seymour (1993)	37	none	yes
1992-247.ASM	Slaughter and Roberts (1992)	1,426	none	yes
1993-82.ASM	Phillips (1993)	32	none	no

TABLE E-1
Previously Conducted Surveys within One Mile of the Project Area

Project No.	Citation	Acres	Sites Recorded in the Project Vicinity	Within 100 feet of Project Vicinity
1993-83.ASM	Roberts (1993)	2	AZ DD:8:145(ASM)	no
1994-76.ASM	Eighmey (1994)	19	none	yes
1994-125.ASM	Freeman (1994)	67	AZ EE:5:25(ASM)	no
1994-146.ASM	Jensen (1994)	3	none	no
1994-179.ASM	Stone (1994)	54	AZ EE:9:154(ASM); AZ EE:9:155(ASM)	yes
1995-72.ASM	Adams and Hoffman (1995)	1,038	none	yes
1995-174.ASM	Slawson (1995a)	5	none	no
1995-180.ASM	Doak and Terzis (1995)	13	none	no
1995-210.ASM	Slawson (1995b)	2	none	no
1995-212.ASM	Doak (1995)	7	none	no
1995-218.ASM	Stephen (1995)	76	none	yes
1995-403.ASM	Barz (1995)	21	AZ DD:8:148(ASM)	no
1996-204.ASM	Heuett (1996)	10	AZ EE:9:107(ASM) AZ DD:8:155(ASM)	yes
1996-361.ASM	Lascaux and Antone (1996)	1,502	AZ BB:13:530(ASM)	no
1996-389.ASM	Stone (1997)	137	AZ EE:9:176(ASM)	yes
1996-393.ASM	Lite (1996)	11	AZ EE:9:172(ASM)	yes
1996-408.ASM	Lite et al. (1996)	2,055	AZ EE:9:173-175; AZ DD:12:37; AZ DD:8:164; AZ EE:9:51, 53-54 all ASM numbers	yes
1996-459.ASM	Hathaway (1997)	1,176	none	no
1997-146.ASM	Lite (1997)	13	AZ EE:9:177(ASM)	yes
1997-257.ASM	Tucker (1997)	1,073	AZ BB:13:542-547 (ASM)	yes
1997-303.ASM	Palus (1997)	169	none	no
1997-394.ASM	Stephen (1997a)	0.14	none	no
1997-398.ASM	Stephen (1997b)	188	AZ BB:13:550(ASM)	no
1998-99.ASM	Carpenter (1998)	60	none	no

TABLE E-1
Previously Conducted Surveys within One Mile of the Project Area

Project No.	Citation	Acres	Sites Recorded in the Project Vicinity	Within 100 feet of Project Vicinity
1998-244.ASM	Walsh (2002)	45	none	no
1998-253.ASM	Olson (1998)	12	none	yes
1998-299.ASM	Stephen (1998)	30	none	no
1998-428.ASM	Gregory (1998)	26	AZ EE:9:67(ASM)	yes
1998-481.ASM	Barger (1999)	0.76	none	yes
1999-23.ASM	Ruble (1999)	469	AZ BB:13:616-622 (ASM)	yes
1999-104.ASM	Swartz (1999)	249	none	no
1999-132.ASM	Montero (1999)	2	none	no
1999-284.ASM	Dosh and Stull (1999)	1,335	AZ BB:13:557-574 (ASM)	yes
1999-297.ASM	Stull (1999)	68	none	yes
1999-451.ASM	Stephen (1999)	43	none	no
1999-452.ASM	Stephen (1997c)	22	AZ BB:13:615(ASM)	no
2000-40.ASM	Swartz (2000)	7	none	no
2000-332.ASM	Slawson (2000)	13	none	no
2000-475.ASM	Olsson (2000)	0.66	none	yes
2000-478.ASM	Sigler (2000)	5	none	no
2000-485.ASM	Hesse (2000)	279	AZ EE:1:307(ASM)	yes
2000-822.ASM	Barnes and Wright (2001)	953	none	no
2000-826.ASM	Kearns et al. (2001), Baker and Jones (2004)	3,311	none	no
2001-75.ASM	Jones (2001)	73	none	no
2001-363.ASM	Slawson (2001b)	0.23	unknown	no
2001-432.ASM	Sayre (2001)	22	none	no
2001-559.ASM	Stephen (2001)	222	AZ EE:9:225(ASM)	yes
2002-011.ARS	Mazmaduke (2002)	11	none	no
2002-235.ASM	Curtis (2003)	290	unknown	yes
2002-256.ASM	Swartz (2002a)	13	none	no

TABLE E-1
Previously Conducted Surveys within One Mile of the Project Area

Project No.	Citation	Acres	Sites Recorded in the Project Vicinity	Within 100 feet of Project Vicinity
2003-42.ASM	Swartz (2002b)	68	AZ EE:1:354(ASM)	no
2003-197.ASM	Hesse (2002) and Hesse et al. (2002)	140	AZ EE:1:351-353 (ASM)	yes
2003-413.ASM	Breternitz (2003)	35	updated AZ EE:9:51(ASM)	no
2003-432.ASM	Stephen (2003)	.37	none	no
2003-468.ASM	Swartz (2003)	13	none	yes
2003-497.ASM	Twilling and Fahrni (2003)	28	none	no
2003-917.ASM	Hohmann (2001)	653	AZ BB:13:670-672 (ASM)	no
2003-1111.ASM	Morton and Rogge (2003)	40	none	no
2003-1375.ASM	Hall (2003)	68	none	no
2004-55.ASM	Moses (2003)	6	unknown	no
2004-293.ASM	Jones and Dart (2004)	10	none	no
2004-567.ASM	Doak (2004)	25	unknown	no
2004-659.ASM	Majewski (2001)	2	none	no
2004-1044.ASM	Touchin (2004)	0.75	none	yes
2005-446.ASM	Goldstein (2007)	2,094	AZ CC:13:80(ASM); AZ BB:13:560(ASM); AZ BB:13:562(ASM); AZ BB:13:759(ASM)	yes
SHPO-2001-359	Slawson (2001a)	0.23	unknown	no

Previously Recorded Cultural Resources

Research identified 230 previously recorded cultural resources overlapping or within one mile of the project area. Twenty-seven of the sites potentially occur within the vicinity of project alternative alignments (within 500'on either side of centerline). Previously identified sites consist of both prehistoric and historic manifestations. Previously recorded sites are summarized in Table E-2.

TABLE E-2
Previously Recorded Sites within One Mile of the Project Area

Site No.	Citation	Description	Eligibility[1]	Within 500 feet of an Alternative[2]
AZ BB:13:138(ASM)	Madsen (1980)	prehistoric artifact scatter	E	

TABLE E-2
Previously Recorded Sites within One Mile of the Project Area

Site No.	Citation	Description	Eligibility[1]	Within 500 feet of an Alternative[2]
AZ BB:13:139(ASM)	Madsen (1980)	prehistoric roasting pits and artifact scatter	E	
AZ BB:13:418(ASM)	Roberts (1992)	prehistoric lithic procurement site	E	
AZ BB:13:419(ASM)	Roberts (1992)	prehistoric roasting pits and artifact scatter	E	VKS
AZ BB:13:420(ASM)	Slaughter (1992)	prehistoric roasting pit	E	
AZ BB:13:421(ASM)	Slaughter (1992)	prehistoric rock feature	E	
AZ BB:13:422(ASM)	Slaughter (1992)	prehistoric artifact scatter	E	
AZ BB:13:423(ASM)	Roberts (1992)	prehistoric rock features and artifact scatter	E	
AZ BB:13:530(ASM)	Lascaux and Antone (1996)	prehistoric roasting pits and artifact scatter, and historic artifact scatter	PE	
AZ BB:13:542(ASM)	Tucker (1997)	prehistoric roasting pit	E	
AZ BB:13:543(ASM)	Tucker (1997)	prehistoric roasting pits and artifact scatter	E	
AZ BB:13:544(ASM)	Tucker (1997)	prehistoric artifact scatter	PE	
AZ BB:13:545(ASM)	Tucker (1997)	prehistoric roasting pit and artifact scatter	PE	
AZ BB:13:546(ASM)	Tucker (1997)	prehistoric artifact scatter	PE	
AZ BB:13:547(ASM)	Tucker (1997)	prehistoric roasting pit and artifact scatter	PE	
AZ BB:13:550(ASM)	Stephen (1997b)	prehistoric rock features	NE	
AZ BB:13:557(ASM)	Dosh and Stull (1999)	prehistoric artifact scatter and surface ash stain	E	
AZ BB:13:558(ASM)	Dosh and Stull (1999)	prehistoric roasting pits and artifact scatter	E	
AZ BB:13:559(ASM)	Dosh and Stull (1999)	prehistoric roasting pit and artifact scatter	E	
AZ BB:13:560(ASM)	Dosh and Stull (1999), Goldstein (2007)	prehistoric roasting pit and artifact scatter	E	
AZ BB:13:561(ASM)	Dosh and Stull (1999)	prehistoric roasting pit and artifact scatter	E	
AZ BB:13:562(ASM)	Dosh and Stull (1999), Goldstein (2007)	prehistoric roasting pit and artifact scatter	E	
AZ BB:13:563(ASM)	Dosh and Stull (1999)	prehistoric roasting pit and artifact scatter	E	
AZ BB:13:564(ASM)	Dosh and Stull (1999)	prehistoric roasting pit and artifact scatter	PE	
AZ BB:13:565(ASM)	Dosh and Stull (1999)	prehistoric roasting pit and artifact scatter	E	

TABLE E-2
Previously Recorded Sites within One Mile of the Project Area

Site No.	Citation	Description	Eligibility[1]	Within 500 feet of an Alternative[2]
AZ BB:13:566(ASM)	Dosh and Stull (1999)	prehistoric roasting pit and artifact scatter	E	
AZ BB:13:567(ASM)	Dosh and Stull (1999)	prehistoric lithic artifact scatter	E	
AZ BB:13:568(ASM)	Dosh and Stull (1999)	prehistoric roasting pit and artifact scatter	E	
AZ BB:13:569(ASM)	Dosh and Stull (1999)	prehistoric roasting pit	E	
AZ BB:13:570(ASM)	Dosh and Stull (1999)	prehistoric roasting pit and artifact scatter	E	
AZ BB:13:571(ASM)	Dosh and Stull (1999)	prehistoric roasting pit and artifact scatter	E	
AZ BB:13:572(ASM)	Dosh and Stull (1999)	prehistoric roasting pit and artifact scatter	E	
AZ BB:13:573(ASM)	Dosh and Stull (1999)	prehistoric roasting pit and artifact scatter	E	
AZ BB:13:574(ASM)	Dosh and Stull (1999)	prehistoric roasting pit and artifact scatter	E	
AZ BB:13:615(ASM)	Stephen (1997c)	prehistoric roasting pits and artifact scatter	NE	
AZ BB:13:616(ASM)	Ruble (1999)	prehistoric rock features and artifact scatter	E	
AZ BB:13:617(ASM)	Ruble (1999)	prehistoric roasting pits and artifact scatter	E	
AZ BB:13:618(ASM)	Ruble (1999)	prehistoric roasting pits and artifact scatter	E	
AZ BB:13:619(ASM)	Ruble (1999)	prehistoric rock features and artifact scatter	E	
AZ BB:13:620(ASM)	Ruble (1999)	prehistoric rock features and artifact scatter	E	VKN
AZ BB:13:621(ASM)	Ruble (1999)	prehistoric rock features and artifact scatter	E	
AZ BB:13:622(ASM)	Ruble (1999)	prehistoric rock features and artifact scatter	E	
AZ BB:13:643(ASM)	Jones (2002)	prehistoric rock features and artifact scatter	NE	
AZ BB:13:667(ASM)	Barnes and Wright (2001)	prehistoric and modern rock features and artifact scatter	NE	
AZ BB:13:670(ASM)	Hohmann, (2001)	prehistoric rock features and artifact scatter	PE	
AZ BB:13:671(ASM)	Hohmann, (2001)	prehistoric roasting pit	PE	
AZ BB:13:672(ASM)	Hohmann, (2001)	prehistoric roasting pit	PE	
AZ BB:13:679(ASM)	Myrick (1975), Smith and Wheeler (2001)	historic Tucson to Nogales route of the in-use Southern Pacific/Union Pacific Railroad (Twin Buttes Railroad)	E	KCRR

TABLE E-2
Previously Recorded Sites within One Mile of the Project Area

Site No.	Citation	Description	Eligibility[1]	Within 500 feet of an Alternative[2]
AZ BB:13:750(ASM)	Williams et al. (2005)	prehistoric rock features and artifact scatter	E	VKN
AZ BB:13:759(ASM)	Goldstein (2007)	prehistoric fire cracked rock features	NE	
AZ CC:13:80(ASM)	Schweigert (2004), Goldstein (2007)	historic Tucson- Apache Transmission Line	NE	VKN
AZ DD:8:3(ASM)	AZSITE	Tumacacori Mission, multicomponent habitation site with associated features and artifacts	U	
AZ DD:8:8(ASM)	Connolly and Mitvalsh (1940)	prehistoric hearth	U	
AZ DD:8:12(ASM)	Danson (1941)	prehistoric sherd scatter	E	
AZ DD:8:19(ASM)	Danson (1941)	prehistoric rock feature and artifact scatter	U	
AZ DD:8:22(ASM)	Danson (1941)	prehistoric wall feature and artifact scatter	U	
AZ DD:8:23(ASM)	Danson (1941)	prehistoric artifact scatter	U	
AZ DD:8:24(ASM)	Danson (1941)	historic adobe structure (Mexican Period) and associated historic and prehistoric artifact scatter	U	
AZ DD:8:25(ASM)	Danson (1941)	prehistoric artifact scatter including groundstone and cremations located in ollas	U	
AZ DD:8:26(ASM)	Danson (1941)	historic structure (Mexican Period) and cemetery with associated historic and prehistoric artifact scatter	U	
AZ DD:8:27(ASM)	Danson (1941)	historic structure (Mexican Period) and with associated historic and prehistoric artifact scatter	U	
AZ DD:8:28(ASM)	Danson (1941)	prehistoric artifact scatter	U	
AZ DD:8:29(ASM)	Danson (1941)	prehistoric fire cracked rock feature and artifact scatter	U	
AZ DD:8:30(ASM)	Danson (1941)	prehistoric and historic artifact scatter	U	
AZ DD:8:32(ASM)	Danson (1941)	historic fire cracked rock feature and artifact scatter including groundstone	U	
AZ DD:8:33(ASM)	Danson (1941)	Tubac Presidio, includes Pima Rancheria, Presidio, and numerous other early to late historic features	E	
AZ DD:8:34(ASM)	Danson (1941)	irrigation ditch, prehistoric and historic artifact scatter	U	

TABLE E-2
Previously Recorded Sites within One Mile of the Project Area

Site No.	Citation	Description	Eligibility[1]	Within 500 feet of an Alternative[2]
AZ DD:8:35(ASM)	Danson (1941)	prehistoric sherd scatter and mound	E	
AZ DD:8:36(ASM)	Danson (1941)	prehistoric sherd scatter	E	
AZ DD:8:37(ASM)	Cayward and Dawson (1941)	prehistoric sherd scatter	E	
AZ DD:8:40(ASM)	Danson (1941)	prehistoric artifact scatter and trash mound	U	
AZ DD:8:42(ASM)	Danson (1941)	canal, prehistoric artifact scatter, and trash mound	U	KCRR
AZ DD:8:44(ASM)	Danson (1941)	rock wall structure with associated artifact scatter and groundstone	U	
AZ DD:8:47(ASM)	Danson (1941)	prehistoric artifact scatter	U	KCRR
AZ DD:8:48(ASM)	Danson (1941)	prehistoric artifact scatter	U	
AZ DD:8:49(ASM)	Danson (1941)	prehistoric artifact scatter	U	
AZ DD:8:50(ASM)	Frick (1954)	prehistoric ceramic scatter	U	
AZ DD:8:56(ASM)	Frick (1954)	prehistoric artifact scatter	U	
AZ DD:8:57(ASM)	Frick (1954)	prehistoric artifact scatter, trash mound, and depression	U	
AZ DD:8:58(ASM)	Frick (1954)	prehistoric artifact scatter, including groundstone	U	
AZ DD:8:59(ASM)	Frick (1954)	prehistoric artifact scatter	U	
AZ DD:8:61(ASM)	Frick (1954)	prehistoric artifact scatter, including groundstone	E	
AZ DD:8:62(ASM)	Frick (1954)	prehistoric artifact scatter	U	
AZ DD:8:63(ASM)	Frick (1954)	prehistoric artifact scatter	U	
AZ DD:8:64(ASM)	Frick (1954)	house foundation prehistoric/historic artifact scatter	U	
AZ DD:8:65(ASM)	Frick (1954)	prehistoric artifact scatter	U	
AZ DD:8:66(ASM)	Frick (1954)	prehistoric artifact scatter	U	
AZ DD:8:67(ASM)	Frick (1954)	prehistoric artifact scatter, including groundstone	U	
AZ DD:8:68(ASM)	Frick (1954)	prehistoric artifact scatter	U	
AZ DD:8:69(ASM)	Frick (1954)	prehistoric artifact scatter	U	
AZ DD:8:70(ASM)	Frick (1954)	prehistoric artifact scatter	U	
AZ DD:8:72(ASM)	Frick (1954)	house foundation historic artifact scatter	U	

TABLE E-2
Previously Recorded Sites within One Mile of the Project Area

Site No.	Citation	Description	Eligibility[1]	Within 500 feet of an Alternative[2]
AZ DD:8:74(ASM)	Urban (1992)	Giesy Site, prehistoric artifact scatter	U	
AZ DD:8:75(ASM)	Frick (1954)	compound walls with associated artifact scatter	U	
AZ DD:8:82(ASM)	Frick (1954)	one room structure with artifact scatter	U	
AZ DD:8:84(ASM)	Frick (1954)	Gibson Ranch Site, prehistoric artifact site	U	KCRR
AZ DD:8:85(ASM)	Frick (1954)	prehistoric artifact scatter	U	
AZ DD:8:86(ASM)	Frick (1954)	prehistoric artifact scatter	U	KCRR
AZ DD:8:87(ASM)	Frick (1954)	prehistoric artifact scatter	U	
AZ DD:8:88(ASM)	Frick (1954)	prehistoric artifact scatter and rock pile	U	
AZ DD:8:89(ASM)	Frick (1954)	prehistoric artifact scatter	U	
AZ DD:8:90(ASM)	Frick (1954)	prehistoric artifact scatter, including groundstone	U	
AZ DD:8:91(ASM)	Frick (1954)	prehistoric/historic artifact scatter, presence of "Mexican" house	U	KCRR
AZ DD:8:92(ASM)	Frick (1954)	prehistoric artifact scatter, including groundstone	U	KCRR
AZ DD:8:93(ASM)	Frick (1954)	prehistoric artifact scatter, including groundstone and tools	U	
AZ DD:8:94(ASM)	Frick (1954)	prehistoric/historic artifact scatter	U	KCRR
AZ DD:8:95(ASM)	Frick (1954)	prehistoric artifact scatter	U	
AZ DD:8:96(ASM)	Frick (1954)	prehistoric artifact scatter	U	
AZ DD:8:97(ASM)	Frick (1954)	prehistoric artifact scatter	U	
AZ DD:8:112(ASM)	Frick (1953)	prehistoric sherd scatter	E	
AZ DD:8:120(ASM)	Sayles (1960)	prehistoric artifact scatter	U	
AZ DD:8:122(ASM)	Hammack (1976)	Cemetary Ridge Site, prehistoric pit house and artifact scatter	U	
AZ DD:8:123(ASM)	Johnson 1959	prehistoric rock features, petroglyphs, and artifact scatter	U	
AZ DD:8:125(ASM)	Brown 1967	prehistoric lithic scatter and rock ring	U	
AZ DD:8:126(ASM)	Wasley 1968	prehistoric structure and canal, associated artifact scatter	U	

TABLE E-2
Previously Recorded Sites within One Mile of the Project Area

Site No.	Citation	Description	Eligibility[1]	Within 500 feet of an Alternative[2]
AZ DD:8:127(ASM)	Hammack (1976)	Baca Float Site, pit houses and artifact scatter	U	
AZ DD:8:128(ASM)	Hammack (1976), Lite et al. (1996)	Tinaja Canyon Site, pihouses, associated artifact scatter, and burials	U	
AZ DD:8:129(ASM)	Hammack (1976), Lite et al. (1996)	England Ranch Site, prehistoric and historic habitation site, includes artifact scatter and rock wall features	U	
AZ DD:8:130(ASM)	Hammack (1976), Lite et al. (1996)	prehistoric artifact scatter and associated cleared areas, possible subsurface structures	U	
AZ DD:8:136(ASM)	Urban (1982)	prehistoric lithic scatter and rock features	E	
AZ DD:8:138(ASM)	Bruder (1988)	prehistoric lithic scatter	E	VKNS
AZ DD:8:139(ASM)	O'Brien (1989)	prehistoric lithic scatter	E	
AZ DD:8:140(ASM)	Seymour (1991), Lite et al. (1996)	prehistoric artifact scatter, including a rock alignment	U	
AZ DD:8:141(ASM)	Seymour (1991), Adams and Hoffman (1995)	prehistoric artifact scatter	U	
AZ DD:8:142(ASM)	Seymour (1991), Adams and Hoffman (1995)	prehistoric habitation site with artifact scatter	U	
AZ DD:8:143(ASM)	Seymour (1991), Adams and Hoffman (1995)	prehistoric artifact scatter, including a rock alignment	U	
AZ DD:8:144(ASM)	Seymour (1991), Lite et al. (1996)	prehistoric lithic scatter with possibly modern rock features and graves	U	
AZ DD:8:145(ASM)	Roberts (1993), Dart (1994)	prehistoric habitation site including inhumations	E	
AZ DD:8:146(ASM)	Roth and Shugert (1994)	multi-component site, historic features, prehistoric and historic artifact scatter	E	KCRR
AZ DD:8:147(ASM)	Adams and Hoffman (1995)	prehistoric lithic scatter	E	
AZ DD:8:148(ASM)	Barz (1995)	prehistoric artifact scatter	DE	
AZ DD:8:155(ASM)	Heuett (1996)	archaic artifact scatter	U	
AZ DD:8:157(ASM)	Huber (1996)	prehistoric rock features and artifact scatter	U	
AZ DD:8:158(ASM)	Huber (1996)	prehistoric rock features and artifact scatter	U	
AZ DD:8:161(ASM)	Huber (1996)	prehistoric rock features and artifact scatter	U	

TABLE E-2
Previously Recorded Sites within One Mile of the Project Area

Site No.	Citation	Description	Eligibility[1]	Within 500 feet of an Alternative[2]
AZ DD:8:163(ASM)	Lite et al. (1996)	prehistoric artifact scatter	U	
AZ DD:8:164(ASM)	Lite et al. (1996)	prehistoric artifact scatter	PE	
AZ DD:8:165(ASM)	Lite et al. (1996)	historic cemetery with cobble outlines and headstones	E	
AZ DD:8:166(ASM)	Lite et al. (1996)	prehistoric fire cracked rock feature and artifact scatter, historic grave	PE	
AZ DD:8:167(ASM)	Lite et al. (1996)	prehistoric artifact scatter	E	
AZ DD:8:168(ASM)	Lite et al. (1996)	prehistoric artifact scatter	E	
AZ DD:8:169(ASM)	Lite et al. (1996)	prehistoric artifact scatter	E	
AZ DD:8:170(ASM)	Lite et al. (1996)	prehistoric artifact scatter	E	
AZ DD:8:190(ASM)	Diehl (2005)	prehistoric artifact scatter	U	KCRR
AZ DD:8:191(ASM)	Diehl (2005)	prehistoric and historic artifact scatter	U	KCRR
AZ DD:8:192(ASM)	Diehl (2005)	prehistoric artifact scatter	U	
AZ DD:8:193(ASM)	Williams (2005)	Amado Montosa Road	E	VKNS
AZ DD:8:194(ASM)	AZSITE	unknown	U	
AZ DD:8:208(ASM)	AZSITE	unknown	U	
AZ DD:8:209(ASM)	Plescia (2006)	multi component prehistoric and historic habitation site with associated artifact scatters	E	KCRR
AZ DD:8:211(ASM)	AZSITE	unknown	U	
AZ DD:8:212(ASM)	Plescia (2006)	prehistoric artifact scatter	E	KCRR
AZ DD:8:214(ASM)	Plescia (2006)	historic habitation site; including adobe wall structures and artifact scatter	E	KCRR
AZ DD:12:1(ASM)	Danson (1941)	prehistoric sherd scatter	E	
AZ DD:12:2(ASM)	Danson (1941)	prehistoric sherd scatter	E	
AZ DD:12:3(ASM)	Danson (1941)	prehistoric sherd scatter	E	
AZ DD:12:4(ASM)	Danson (1941)	prehistoric sherd scatter	E	
AZ DD:12:5(ASM)	Danson (1941)	prehistoric sherd scatter	E	
AZ DD:12:36(ASM)	Lite et al. (1996)	prehistoric artifact scatter	PE	
AZ DD:12:37(ASM)	Lite et al. (1996)	prehistoric artifact scatter	PE	

TABLE E-2
Previously Recorded Sites within One Mile of the Project Area

Site No.	Citation	Description	Eligibility[1]	Within 500 feet of an Alternative[2]
AZ EE:1:155(ASM)	Huckell (1985)	prehistoric rock features and artifact scatter	E	
AZ EE:1:156(ASM)	Huckell (1985)	prehistoric rock features and artifact scatter	E	
AZ EE:1:161(ASM)	Saul (1985)	prehistoric rock features and artifact scatter	E	VKNS
AZ EE:1:162(ASM)	Saul (1985)	prehistoric rock features and artifact scatter	E	
AZ EE:1:167(ASM)	Bruder (1988)	prehistoric lithic scatter	E	
AZ EE:1:168(ASM)	Bruder (1988)	prehistoric lithic scatter	E	VKNS
AZ EE:1:248(ASM)	Buttery (1987)	prehistoric sherd scatter	U	
AZ EE:1:307(ASM)	Hesse (2000)	prehistoric rock features and artifact scatter	PE	
AZ EE:1:351(ASM)	Hesse (2002), Hesse et al. (2002)	prehistoric rock feature and lithic	E	
AZ EE:1:352(ASM)	Hesse (2002), Hesse et al. (2002)	prehistoric rock features and lithic scatter	E	
AZ EE:1:353(ASM)	Hesse (2002), Hesse et al. (2002)	prehistoric rock feature and lithic	E	
AZ EE:1:354(ASM)	Swartz (2002b)	prehistoric artifact scatter	E	
AZ EE:4:43(ASM)	Myrick (1975)	historic NM and AZ railroad	E	SVE; SVEW; SVEE; SVPEX; SVPW; SVPE
AZ EE:9:2(ASM)	Fontana et al. (1967)	historic Mission Calabasas	E	
AZ EE:9:3(ASM)	Urban (1982)	prehistoric artifact scatter	E	
AZ EE:9:19(ASM)	Cayward and Dawson (1941)	prehistoric artifact scatter	E	
AZ EE:5:25(ASM)	Freeman (1994)	prehistoric lithic scatter	E	
AZ EE:9:42(ASM)	Cayward and Dawson (1941)	historic house and prehistoric artifact scatter	E	
AZ EE:9:43(ASM)	Cayward and Dawson (1941)	prehistoric artifact scatter	E	
AZ EE:9:44(ASM)	Cayward and Dawson (1941)	historic house and prehistoric artifact scatter	E	
AZ EE:9:45(ASM)	Cayward and Dawson (1941)	historic house and artifact scatter	E	
AZ EE:9:50(ASM)	ASM Site Card (1943)	prehistoric artifact scatter – collected	E	
AZ EE:9:51(ASM)	Vivian and Wrasse (1966), Brown (1967), Grebinger (1971a, b), Lite et al. (1996), Breternitz (2003)	prehistoric artifact scatter	PE	

TABLE E-2
Previously Recorded Sites within One Mile of the Project Area

Site No.	Citation	Description	Eligibility[1]	Within 500 feet of an Alternative[2]
AZ EE:9:52(ASM)	Vivian (1964)	prehistoric ceramic scatter and groundstone	U	
AZ EE:9:53(ASM)	Vivian and Wrasse (1966), Brown (1967), Grebinger (1971a, b), Lite et al. (1996), Breternitz (2003)	prehistoric Hohokam village; Potrero Creek Site	NE	
AZ EE:9:54(ASM)	Vivian and Wrasse (1966), Brown (1967), Grebinger (1971a, b), Lite et al. (1996), Breternitz (2003)	prehistoric artifact scatter	PE	SVPW; SVPEX; SVEW; SVE
AZ EE:9:64(ASM)	Fontana et al. (1967)	historic artifact scatter	E	
AZ EE:9:65(ASM)	Fontana et al. (1967)	historic Fort Mason	U	
AZ EE:9:66(ASM)	Fontana et al. (1967)	historic artifact scatter	E	
AZ EE:9:67(ASM)	Gregory (1998)	prehistoric artifacts and possible inhumation	U	
AZ EE:9:70(ASM)	Cunningham (1972)	prehistoric village	E	
AZ EE:9:72(ASM)	Cunningham (1972)	prehistoric village site with structures	E	
AZ EE:9:73(ASM)	Cunningham (1972)	prehistoric village	E	
AZ EE:9:74(ASM)	Cunningham (1972)	prehistoric village	E	
AZ EE:9:81(ASM)	Cunningham (1972)	prehistoric village	E	
AZ EE:9:82(ASM)	Cunningham (1972)	prehistoric village	E	
AZ EE:9:83(ASM)	Cunningham (1972)	prehistoric village	E	
AZ EE:9:84(ASM)	Cunningham (1972)	prehistoric village	E	
AZ EE:9:85(ASM)	Goree (1972)	prehistoric lithic and human bone	E	
AZ EE:9:86(ASM)	Masse (1975)	prehistoric artifact scatter	E	
AZ EE:9:87(ASM)	Melot (1976)	Historic Calabasas / San Tano de Calabasas	NR	
AZ EE:9:88(ASM)	Melot (1976)	Historic Pete Kitchen Ranch / El Potrero	NR	
AZ EE:9:90(ASM)	Creei (1981)	historic trash dump	E	
AZ EE:9:93(ASM)	Urban (1982)	prehistoric village site including human cremations –partially excavated	E	

TABLE E-2
Previously Recorded Sites within One Mile of the Project Area

Site No.	Citation	Description	Eligibility[1]	Within 500 feet of an Alternative[2]
AZ EE:9:101(ASM)	Urban (1982)	Victoria Site, prehistoric lithic scatter , tinajas, and bedrock mortars	U	
AZ EE:9:103(ASM)	Shelley (1986)	unknown	U	
AZ EE:9:104(ASM)	Shelley (1986)	unknown	U	
AZ EE:9:105(ASM)	AZSITE	unknown	U	
AZ EE:9:107(ASM)	AZSITE	unknown	U	
AZ EE:9:108(ASM)	AZSITE	unknown	U	
AZ EE:9:109(ASM)	AZSITE	unknown	U	
AZ EE:9:110(ASM)	Urban (1990)	Thelma Street Dump, historic open trash dump	U	
AZ EE:9:134(ASM)	Seymour (1991)	historic foundation and artifact scatter	U	
AZ EE:9:135(ASM)	Seymour (1991)	prehistoric artifact scatter	U	
AZ EE:9:136(ASM)	Seymour (1991), Roberts et al. (1993)	historic foundation and artifact scatter	U	
AZ EE:9:137(ASM)	Seymour (1991)	historic/prehistoric features and artifact scatters, associated bedrock mortars	U	
AZ EE:9:138(ASM)	Seymour (1991)	historic/prehistoric features and artifact scatters, associated bedrock mortars	U	
AZ EE:9:139(ASM)	Seymour (1991)	prehistoric artifact scatter and bedrock mortars	U	
AZ EE:9:154(ASM)	Stone (1994)	historic 1877 Old Tucson Road bed and associated features	NE	SVPEX; SVE
AZ EE:9:155(ASM)	Stone (1994)	prehistoric artifact scatter	U	
AZ EE:9:164(ASM)	Thiel (1995)	prehistoric artifact scatter and groundstone	PE	
AZ EE:9:172(ASM)	Lite (1996)	historic New Mexico and Arizona Railroad crossing at SR 189	E	SVPE; SVEE
AZ EE:9:173(ASM)	Lite et al. (1996)	prehistoric artifact scatter	PE	
AZ EE:9:174(ASM)	Lite et al. (1996)	prehistoric artifact scatter	PE	
AZ EE:9:175(ASM)	Lite et al. (1996)	prehistoric artifact scatter	PE	
AZ EE:9:176(ASM)	Stone (1997)	historic SR 89	DE	SVPEX; SVE
AZ EE:9:177(ASM)	Lite (1997)	historic house 1940-1960	NE	

TABLE E-2
Previously Recorded Sites within One Mile of the Project Area

Site No.	Citation	Description	Eligibility[1]	Within 500 feet of an Alternative[2]
AZ EE:9:183(ASM)	Swartz (2000)	historic artifact scatter	NE	
AZ EE:9:225(ASM)	Stephen (2001)	prehistoric rock piles	NE	
AZ FF:9:17(ASM)	AZSITE	historic State Route 80	DE	

[1] Eligibility: (Eligibility evaluated by recorder unless otherwise noted.) E= eligible, NE= not eligible, PE=potentially eligible, U=unevaluated/unknown, NR=listed on NRHP, DE=determined eligible with SHPO concurrence.

[2] VKS-Segment 1, Alternative Alignment (South Route); VKN-Segment 1, Preferred Alignment (North Route); VKNS-Segment 1, Preferred and Alternative Alignments (North and South routes); KCRR-Segment 2, Alternative Alignment 2 (Railroad Route); SVE-Segment 3, Alternative Alignment (Existing Line Route); SVEW-Segment 4, Alternative Alignment 1 (Existing Line/East to West Crossover Route); SVEE-Segment 4, Alternative Alignment 2 (Existing Line/East Route); SVPEX-Segment 4, Alternative Alignment 3 (Pendleton/Existing Line Route); SVPW-Segment 4, Alternative Alignment 4 (Pendleton/East to West Crossover Route); SVPE-Segment 4, Alternative Alignment 5 (Pendleton/East Route)

General Land Office Map Research

General Land Office (GLO) maps of the project area are described in Table E-3. Most mapped improvements were roads (mainly 1870s and 1890s) and telephone lines (1920s and 1940s). Fifteen houses or ranches were recorded in the Santa Cruz Valley. Other improvements noted were a cemetery, "ruin", and railroad.

TABLE E-3
General Land Office Maps Utilized for this Study

Township	Range	Map No.	Year Filed
15S	14E	2118	1873
15S	15E	2119	1897
16S	14E	2169	1873
16S	15E	2170	1897
17S	14E	2231	1947
17S	14E	2232	1873
17S	15E	2235	1933
18S	14E	2280	1947
18S	14E	2282	1873
19S	13E	2324	1885
19S	13E	2323	1903
19S	14E	2325	1926
20S	12E	2375	1902
20S	13E	2376	1886

TABLE E-3
General Land Office Maps Utilized for this Study

Township	Range	Map No.	Year Filed
21S	13E	2431	1877
21S	13E	2430	1915
22S	13E	2479	1877
22S	13E	2478	1915
23S	13E	2522	1884
23S	13E	2521	1915
23S	14E	2525	1877
23S	14E	2524	1915
24S	14E	2583	1901
24S	14E	2582	1903

Important Local Prehistoric and Historic Resources

Previous archaeological investigations and historical records of the Santa Cruz River valley have yielded evidence for substantial Spanish, Mexican, and American settlements along the Santa Cruz River stretching from present-day Nogales north to the City of Tucson. Alternative alignments for the Project parallel the following large historic districts: Calabazas (AZ EE:9:87[ASM]), Tumacácori (AZ DD:8:3[ASM]), and the Presidio at Tubac (AZ DD:8:10 and 33[ASM]). The following descriptions of the National Register listed sites are derived from National Register nomination forms.

Tubac Presidio Historic District

The town of Tubac was originally the site of a Pima rancheria and later a Spanish Mission Ranch and is known as the oldest EuroAmerican town in Arizona. Tubac has historically been home to the Tubac Presidio, a Mexican garrison, and the U.S. Cavalry. Alternate historic names for the town include the Tubac Presidio, and the El Presidio Real de San Ignacio de Tubac and de San Rafael de Tubac. Prehistorically the area was occupied by Pimas and called Tubaca or Tchoowaka, which means "rotten". The original Pima village consisted of irrigated fields fed from the nearby Santa Cruz River. The dependable water sources allowed for the growing of native plants such as maize, beans, and cotton.

Spanish and native habitation of the village was subject to turmoil caused by the introduction of European diseases and revolts carried out by the native population. Due to confrontations between Spain and local native groups, the Spanish established a presidio at Tubac. Captain Juan Tomas Beldarrain oversaw the construction of the original troop quarters, a headquarters building, and the commander's quarters. Upon his death, Beldarrain was replaced by Juan Bautista de Anza. With the region under the firm control of Spanish authority, irrigated Indian lands were resettled by incoming Spanish settlers.

Tubac experienced consecutive years of stability, which allowed for the construction of the church Santa Gertrudis. The adobe structure was controlled by the Franciscan Order, which was eventually expelled in 1821, by the Mexican government. In 1854, Tubac came under American control through the Gadsden Purchase. Tubac's population grew in the years from 1854-1861 as a result of the booming mining industry. This period became known as the Poston Period, in which the Butterfield Stage made regular stops, two hotels and a grist mill were constructed, and Arizona's first newspaper was established.

However, the Civil War brought about the withdrawl of local troops. From the 1860s to the 1890s, the town experienced a depression with the closing of stores and hotels and the exodus of residents. It wasn't until 1884 that the first school was established for the town. Tubac grew very slowly throughout the twentieth century. It wasn't until the 1940's that the town began to be known as an artist's destination with the opening of Dale Nichlos art school. The town currently consists of a series of protected historic structures dating to the early Spanish period, and as late as the American period.

The Tubac Presidio Historic District is located more than 500 feet from the Segment 2, Alternative Alignment 2 (Railroad Route) and is over two miles from other project alternative alignments.

Tumacácori National Historic Park

This site is historically known as Mission San Jose de Tumacácori, and more recently as Tumacácori National Historic Park and Tumacácori Mission. The site was first made a National Monument in 1908, and listed on the National Register of Historic Places in 1966. The structures and sites within the monument are classified into three major cultural categories: Indian (1753-1848); Spanish-Mexican (1753-1854); and Anglo (1854-present). Written records of the area date as early as 1691, when the site was visited by Padre Eusebio Francisco Kino. Similar to the Pima village of Tubaca, the area was utilized as a "Rancheria". Other than earthen mounds, no additional surface evidence of the early village exists. Archaeological testing has demonstrated that the south half of the monument was occupied by the Pima from 1753 to 1848. The early architecture was represented by brush shelters and later adobe structures.

The site is significant because it is one of the last Spanish missions built in the American southwest. It is representational of the history of the Spanish mission frontier of New Spain and the impact of European colonization upon Native American peoples. Furthermore, it was a demonstration of the Spanish triad of institutions. The triad was composed of the religious mission, the military presidio, and the pueblo or town. The mission and town were established at Tumacácori, while the Presidio, or military fort, was located to the north in Tubac.

Architecture associated with the Jesuit component of Mission San Jose De Tumacácori dates to the summer of 1757, when Padre Francisco Xavier Pauer of the Society of Jesus directed construction of a church. The foundations of the mission church are all that remains. Auxiliary structures were constructed as part of the Jesuit complex, which were later used by the Franciscans once the Jesuits had been expelled. Unfortunately, little remains due to the damage done by vandalism and treasure-hunters. The Franciscans are responsible for the construction of the main church building, which was constructed from 1799 to 1822. The structure is in the form of an elongated "C" design, with vaulted barrel chambers at the northeast and southeast ends. Original construction materials consisted of sun-dried adobe walls, a plaster interior finish, a stone foundation, and an interior wooden roof. Remnants of the original painted plaster decorations can still be seen in small fragments throughout the nave.

Additional protected areas within the monument include Campo Santo (cemetery), Mortuary Chapel, Convento (residence for misson personnel), Granary, Rancheria, Orchard and Garden, Lime Kiln, Residence No. 1, Visitor Center, Garden, and Comfort Station. Some of these structures are still intact to some lesser degree, while others consist of melted adobe brought on by natural erosion.

Not only does the site hold significance in our understanding of the development of southern Arizona history, but it is also important as it relates to the exploration of New Spain, and developments occurring within Sonora. The monument also preserves twentieth century National Park Service structures which have architectural significance of their own.

The Tumacácori National Historic Park is located more than 500 feet from the Segment 2, Alternative Alignment 2 (Railroad Route) and is over two miles from other project alternative alignments.

Calabasas

Calabazas functioned as a visita to the larger mission site of Tumacácori. The visita depended on the Tumacácori staff for spiritual needs. However, the visita was abandoned in 1786 due to Apache raids. The community of Calabasas (at the former visita of Calabazas) saw a boom in development between 1882 and 1893. At one point, the community had five stores, two dancehalls, Chinese gambling and opium dens, sixteen saloons, and the elegant Santa Rita Hotel. Calabasas was soon eclipsed by the border town of Nogales and by 1910 the community had been mostly abandoned.

Calabazas is located more than 500 feet from the Segment 4, Alternative Alignments 3, 4, and 5 (Pendleton routes) and is over one-half mile from the Segment 4, Preferred and Alternative Alignments 1 and 2 (Existing Line routes).

CONCLUSION

UNS Electric proposes to upgrade an existing 115 kV transmission line to a 138 kV transmission line from WAPA's Nogales Tap to the Valencia Substation in Nogales, Arizona. The proposed upgrade begins at the Vail Substation, located just south of I-10 and Rita Road, and extends south approximately 58 miles, generally paralleling I-19. Although the preferred alternative alignment would use the existing 115 kV transmission line alignment, there are a few areas where development and subsequent encroachment on that alignment suggests that the line deviate from the existing alignment. It ends at the Valencia Substation in Nogales, Arizona. The proposed project crosses lands managed by the ASLD, BLM, and privately owned lands.

A records review suggests that along most of the project alignment, site densities are low. However, near the historic communities of Tubac, Calabasas, Nogales, and in the floodplain of the Santa Cruz River, site densities are moderate to high.

The Class I survey shows that there are 11 sites located within 500 feet of the alternative alignments that have potential to contain subsurface cultural remains. The 11 sites were previously recommended eligible for listing on the NRHP. These sites are AZ BB:13:419 (ASM), AZ BB:13:620 (ASM), AZ BB:13:750 (ASM), AZ DD:8:138 (ASM), AZ DD:8:146 (ASM), AZ DD:8:209 (ASM), AZ DD:8:212 (ASM), AZ DD:8:214 (ASM), AZ EE:1:161 (ASM), AZ EE:1:168 (ASM), and AZ EE:9:54 (ASM). All 11 of these sites are either prehistoric in nature, or consist of multicomponent sites with both historic and prehistoric cultural resources. Two of the sites were recorded as habitation sites, while the remaining nine sites consist of artifact scatters, some with associated features.

The alternative alignments cross 16 other cultural resource sites with unknown NRHP eligibility or that are recommended as ineligible. These sites are AZ BB:13:679 (ASM), AZ CC:13:80 (ASM), AZ DD:8:42 (ASM), AZ DD:8:47 (ASM), AZ DD:8:84 (ASM), AZ DD:8:86 (ASM), AZ DD:8:91 (ASM), AZ DD:8:92 (ASM), AZ DD:8:94 (ASM), AZ DD:8:190 (ASM), AZ DD:8:191 (ASM), AZ DD:8:193 (ASM), AZ EE:4:43 (ASM), AZ EE:9:154 (ASM), AZ EE:9:172 (ASM), and AZ EE:9:176 (ASM). These sites are generally historic railroads, roads, and prehistoric artifact scatters that lack any signs of surface features. However, Site AZ DD:8:91 (ASM) is a multicomponent site with prehistoric and historic artifacts along with a "Mexican Period house". While many of the other sites are likely to lack subsurface deposits, Site AZ DD:8:91 (ASM) may consist of additional subsurface deposits that need to be avoided.

The Segment 2, Alternative Alignment 2 (Railroad Route) has a greater potential to impact cultural resources because of its close proximity to NRHP eligible prehistoric and historic habitation sites (AZ DD:8:91, 146, 209, 214 [ASM]). In addition, the NRHP listed sites of Tubac Presidio (AZ DD:8:33 [ASM]) and Tumacácori Mission (AZ DD:8:3 [ASM]) are important sites that occur less than one half mile from the Segment 2, Alternative Alignment 2 (Railroad Route). The Segment 4, Alternative Alignments 3, 4, and 5 (Pendleton routes) are considered sensitive due to their close proximity to the NRHP listed sites of Calabasas/ San Tano de Calabasas (AZ EE:9:87 [ASM]) and Mission Calabasas (AZ EE:9:2 [ASM]). The nature of these cultural sites suggests that the adjacent surrounding areas, developed or undeveloped, may contain cultural materials related to these sites. Current site boundaries are derived from previous cultural resource studies and can change as new studies are completed. This is especially true for large habitation sites. Other than the prehistoric and historic habitation sites, the other sites recommended eligible for the NRHP that are in close proximity to the alternatives are historic railroads, roads, or artifact scatters that will probably require minimal mitigation prior to construction and may possibly be avoided by spanning or other methods.

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EXHIBIT F: RECREATIONAL PURPOSES AND ASPECTS

INTRODUCTION

There are several formally designated parks and recreation areas in the vicinity of the proposed project alternative alignments. Recreational opportunities identified within one mile of the alternative alignments include Raúl M. Grijalva–Canoa Ranch Conservation Park, Tubac Presidio State Historic Park, Tumacácori National Historic Park, Sonoita Creek State Natural Area, Parque de Anza, Ron Morris Park, City of Nogales Parks and Recreation Center, Sgt. Manuel H. Tapia Recreational Trail, and Juan Bautista de Anza National Historic Trail. Figure F-1 (two map panels) depicts park and recreation locations in relation to the existing and proposed alternative alignments.

The Juan Bautista de Anza National Historic Trail is managed by the National Park Service. The trail memorializes the 1775 expedition of Juan Bautista de Anza, who established the first overland route between Mexico and San Francisco, California. Today's trail consists of an auto route as well as off-road segments accessible by biking or hiking. Generally, the trail originates at the international border and heads north parallel to Nogales Wash and then follows the Santa Cruz River north through Santa Cruz and Pima counties. All of the project alternative alignments, with the exception of the Segment 1 (Vail to Kantor) alternative alignments, are located within the vicinity of the trail corridor. Two formal sections of the trail have been established and are discussed in more detail under sub-headings Segment 2 and Segment 3.

SEGMENT 1

The Southeast Regional Park, managed by Pima County, is located south of Interstate-10 ("I-10") and Houghton Road. The Park contains the Pima County Fairgrounds and undeveloped lands. At its closest point, an undeveloped portion of the Park is located within 0.5 miles from the Segment 1, Alternative Alignment (South Route).

The Raúl M. Grijalva–Canoa Ranch Conservation Park, managed by Pima County, is located along Interstate-19 ("I-19") near the County border. Canoa Ranch was established in 1820 as a Spanish and Mexican era land grant known as "San Ignacio de la Canoa." The conservation park was established in 2007 to protect, interpret, and enhance the cultural and natural resources of the 4,800 acre historic ranch. The existing 115 kV transmission line (in Segment 1B) and both the Preferred and Alternative Alignments (North and South routes) are located approximately three-quarters of a mile east of this park.

SEGMENT 2

The Tubac Presidio State Historic Park, managed by Arizona State Parks, is located just east of I-19 in the Tubac area of Santa Cruz County. The park was established in 1958 as Arizona's first State Park. The park preserves the ruins of the oldest Spanish Presidio in the state, El Presidio San Ignacio de Tubac, established in 1752. The park contains a museum, a number of historic sites, and a picnic area. Segment 2, Alternative Alignment 2 (Railroad Route) is located approximately one-half mile to the east of the park. Segment 2, Preferred and Alternative Alignment 1 (Modified and Existing Line routes) are located over two miles from the park.

The Tumacácori National Historic Park is managed by the National Park Service. The park was established in 1908 as a national monument to protect the Tumacácori Mission. The Spanish missions of Guevavi and Calabazas were added to the park in 1990. Mission San José de Tumacácori is located just east of I-19 in the Tumacácori area of Santa Cruz County. The mission was originally established in 1691 by Father Eusebio Francisco Kino. The park is located on 310 acres including the original mission site and surrounding area. Segment 2, Alternative Alignment 2 (Railroad Route) is located approximately

one-half mile to the east of the park. Segment 2, Preferred and Alternative Alignment 1 (Modified and Existing Line routes) are located over two miles from the park. Mission San Cayetano de Calabazas is located in Segment 4 and is discussed below. The Guevavi Mission is not located within the vicinity of project alternative alignments.

An approximate 4.5 mile section of the Juan Bautista de Anza National Historic Trail has been established between Tubac Presidio State Historic Park and Tumacácori National Historic Park. Two trailheads are associated with the trail and are located at the two parks serving as the trails endpoints. The trail is open to non-motorized use, including equestrian use and hiking. Generally, the trail parallels the Santa Cruz River and meanders its way between the two parks. Segment 2, Alternative Alignment 2 (Railroad Route) parallels the trail and is located between one-half mile and one-quarter mile to the east of the trail. Segment 2, Preferred and Alternative Alignment 1 (Modified and Existing Line routes) are located over two miles from the trail and associated trailheads.

Parque de Anza and Ron Morris Park are located in the community of Tubac. Parque de Anza is designed as a formal plaza. Ron Morris Park includes a baseball/softball field and picnic facilities. Segment 2, Alternative Alignment 2 (Railroad Route) is located approximately one-half mile and 750 feet to the east of these facilities, respectively. Segment 2, Preferred and Alternative Alignment 1 (Modified and Existing Line routes) are located over two miles from the parks.

SEGMENT 3

A section of the Juan Bautista de Anza National Historic Trail has been established by Rio Rico Properties. A trailhead has been established east of I-19, just off Rio Rico Drive. The non-motorized trail generally parallels the Santa Cruz River for several miles through the Rio Rico area. An expansion to link the trail with the Tumacácori-Tubac section and establish a second trailhead near Peck Canyon Road is in the works. Segment 3, Preferred Alignment (West Route) is located between one-half mile and one-quarter mile to the east of the trail. Segment 3, Alternative Alignment (Existing Line Route) is generally located over a mile from the trail and the trailhead.

SEGMENT 4

The Sonoita Creek State Natural Area, managed by Arizona State Parks, is located along Sonoita Creek east of I-19 in the Rio Rico area, just south of Sonoita Substation. The park was established in 1994 to protect the unique riparian area surrounding the creek and a number of endangered and special status species. The park encompasses almost 5,000 acres and includes a Visitor Center, interpretive exhibits, camping, picnic, hiking, and equestrian facilities. The Segment 4 (Sonoita to Valencia) routes, including the Preferred and Alternative Alignments 1, 2, 3, 4, and 5 cross a narrow arm of the park along Sonoita Creek, near the confluence with the Santa Cruz River.

Mission San Cayetano de Calabazas, included as part of the Tumacácori National Historic Park, is located near the International Sewage Treatment Plant along the Santa Cruz River. The mission was originally established in 1756 by Father Francisco Pauer. The park includes the ruins of the original mission and church. Segment 4 (Sonoita to Valencia), Alternative Alignments 3, 4, and 5 are located approximately 600 feet east of the park boundary.

The City of Nogales Parks and Recreation Center is located on 15 acres along Hohokam Drive in Nogales, Arizona. The park includes two baseball/softball fields, two soccer fields, a swimming pool, and an indoor gymnasium and recreation center. Segment 4 (Sonoita to Valencia), Alternative Alignments 2 and 5 are located on the northern edge of the park.

The Sgt. Manuel H. Tapia Recreational Trail, managed by Santa Cruz County, is located on the campus of the Santa Cruz County administrative building. The facility includes benches, covered picnic sites, and a trail system just over one mile in length. Segment 4 (Sonoita to Valencia), Preferred and Alternative Alignments 1, 3, and 4 cross the trail system.

CONCLUSIONS

Generally, project activities would occur within the proposed alternative alignments and would be outside of park boundaries. The line would be visible to visitors of the Tubac Presidio State Historic Park, Tumacácori National Historic Park, and trail users along the Juan Bautista de Anza National Historic Trail, especially of the Alternative Alignment 2 (Railroad Route) in Segment 2 and of the Preferred Alignment (West Route) in Segment 3. These impacts, however, are mitigated by the heavy vegetation, including cottonwood stands and mesquite bosques, separating the parks and trails from this alignment.

In the instances of the Sonoita Creek State Natural Area and the Sgt. Manuel H. Tapia Recreational Trail, the proposed alternative alignments would replace existing transmission line infrastructure. Additional right-of-way would not be acquired and the function and quality of the parks would be preserved. Impacts to the Juan Bautista de Anza National Historic Trail would vary by alternative alignment. Direct impacts to the trail or the recreational opportunities offered by the trail are not expected as a result of project implementation. Indirect impacts may result because of visual effects to a historic trail and the associated loss of historic character, although these impacts are minimal in comparison to other land development activities in the project area.

In conclusion, any of the routes proposed within the four project segments would have minimal to no impacts on the recreational opportunities offered at the parks within the study area.

REFERENCES

Canoa Ranch Conservation Park. Available at http://www.pima.gov/cultural/. Accessed January 14, 2009.

Juan Bautista de Anza National Historic Trail. Available at http://www.nps.gov/juba/. Accessed January 14, 2009.

Sonoita Creek State Natural Area. Available at http://www.pr.state.az.us/parks/SOCR/index.html. Accessed January 13, 3009.

Tubac Presidio State Historic Park. Available at http://azstateparks.com/Parks/TUPR/index.html. Accessed January 14, 2009.

Tumacácori National Historical Park. Available at http://www.nps.gov/tuma/. Accessed January 13, 2009.

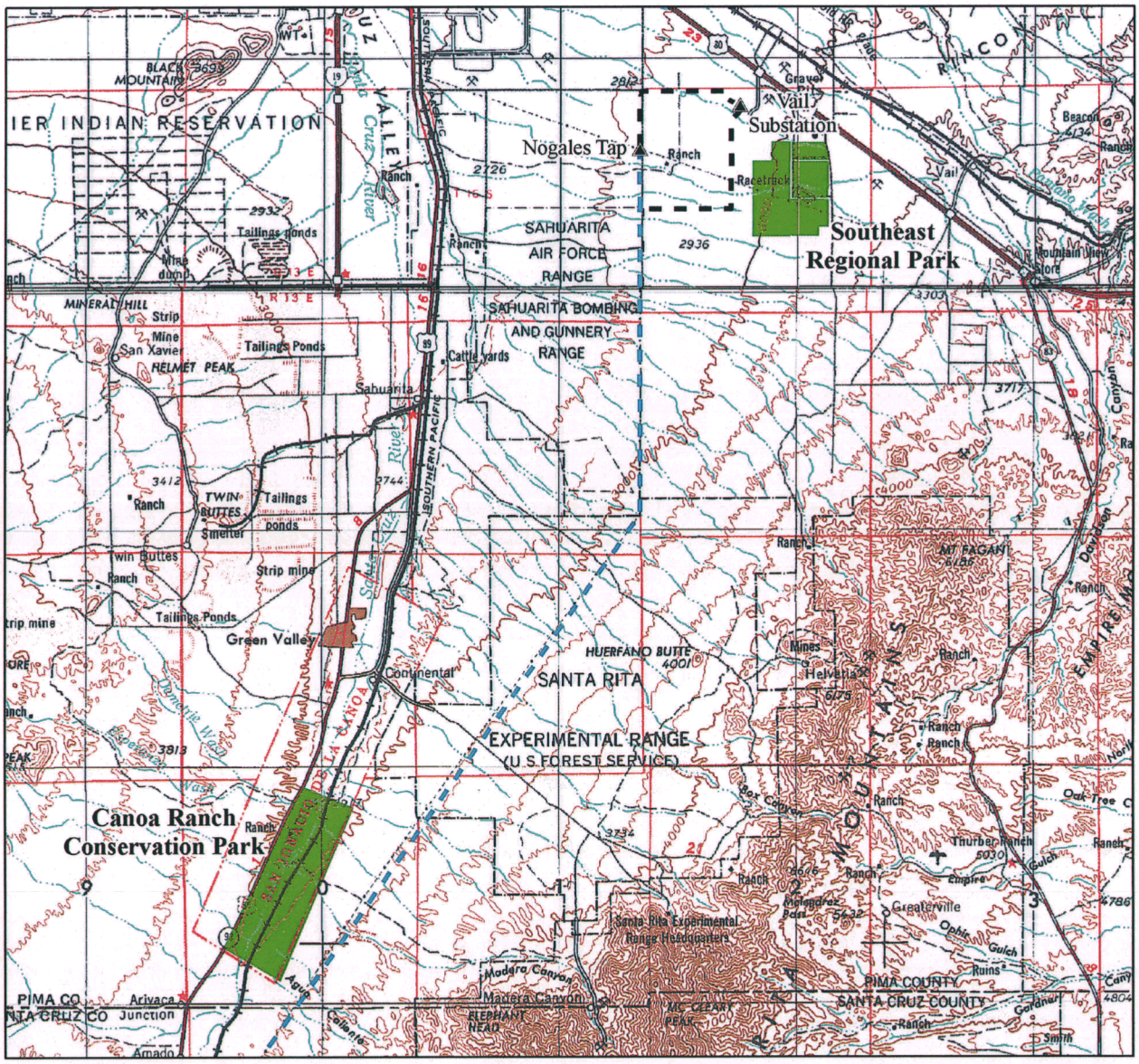
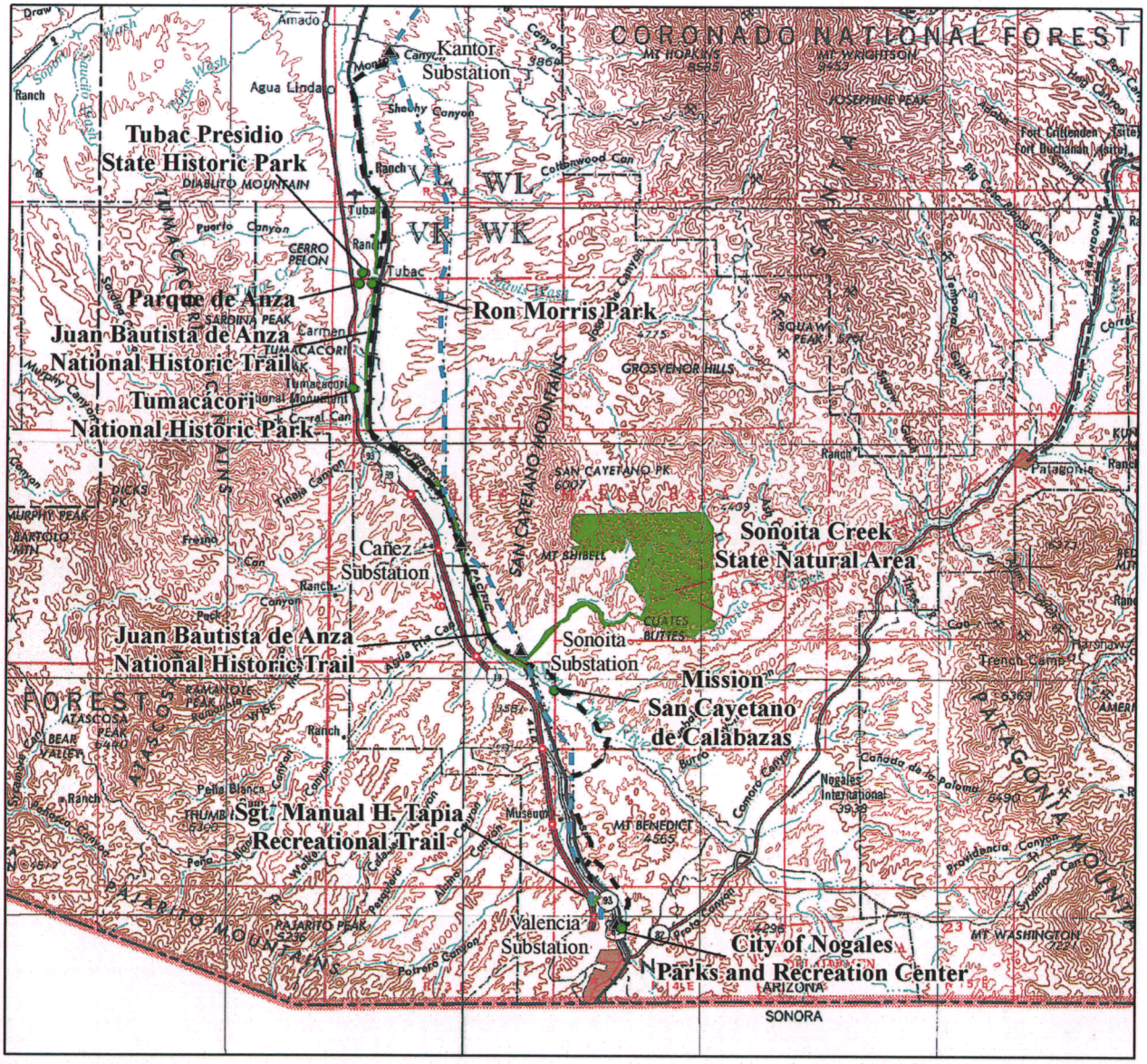
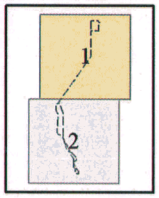


FIGURE F-1
MAP PANEL 1 OF 2





Legend

- Existing Transmission Line Alignment
- Alternative Transmission Line Alignment
- Substations
- Park/Recreation Facility

0 1 2 3 4 Miles

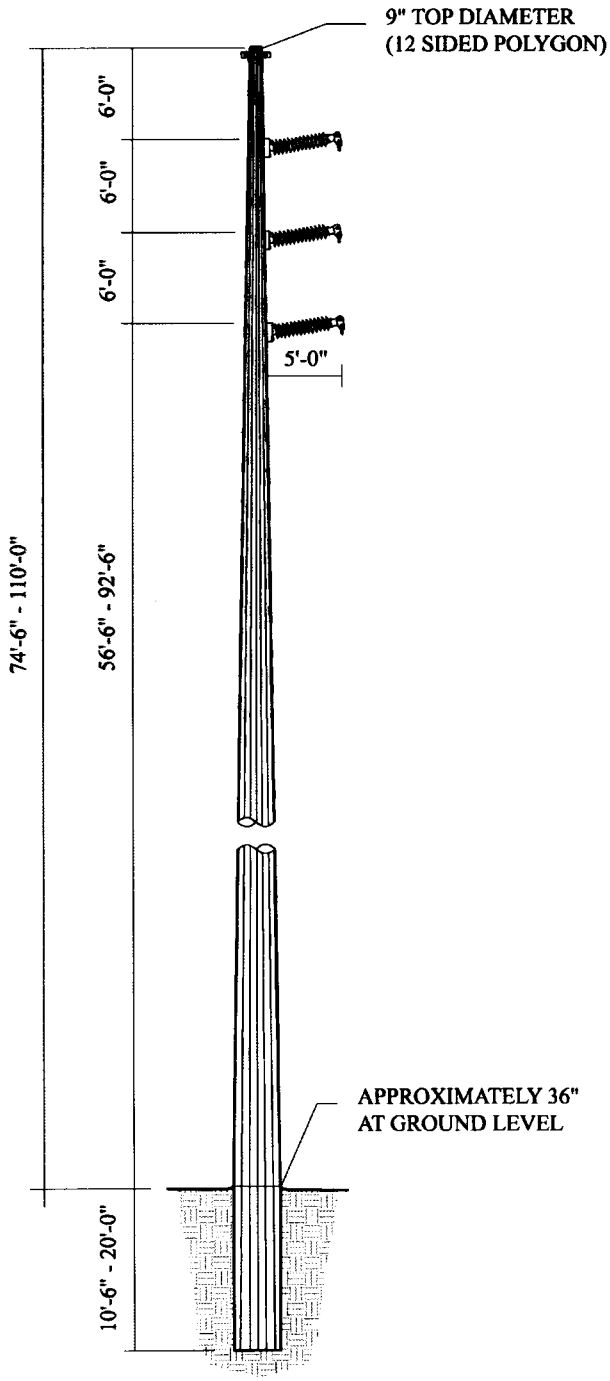
Parks and Recreation

Vail to Valencia
115kV to 138kV
Transmission Line
Upgrade Project

FIGURE F-1
MAP PANEL 2 OF 2

EXHIBIT G: PROJECT FACILITIES AND VISUAL SIMULATIONS

SINGLE CIRCUIT 138kV
TANGENT (TO SMALL ANGLE) STEEL POLE
TYPICAL CONFIGURATION

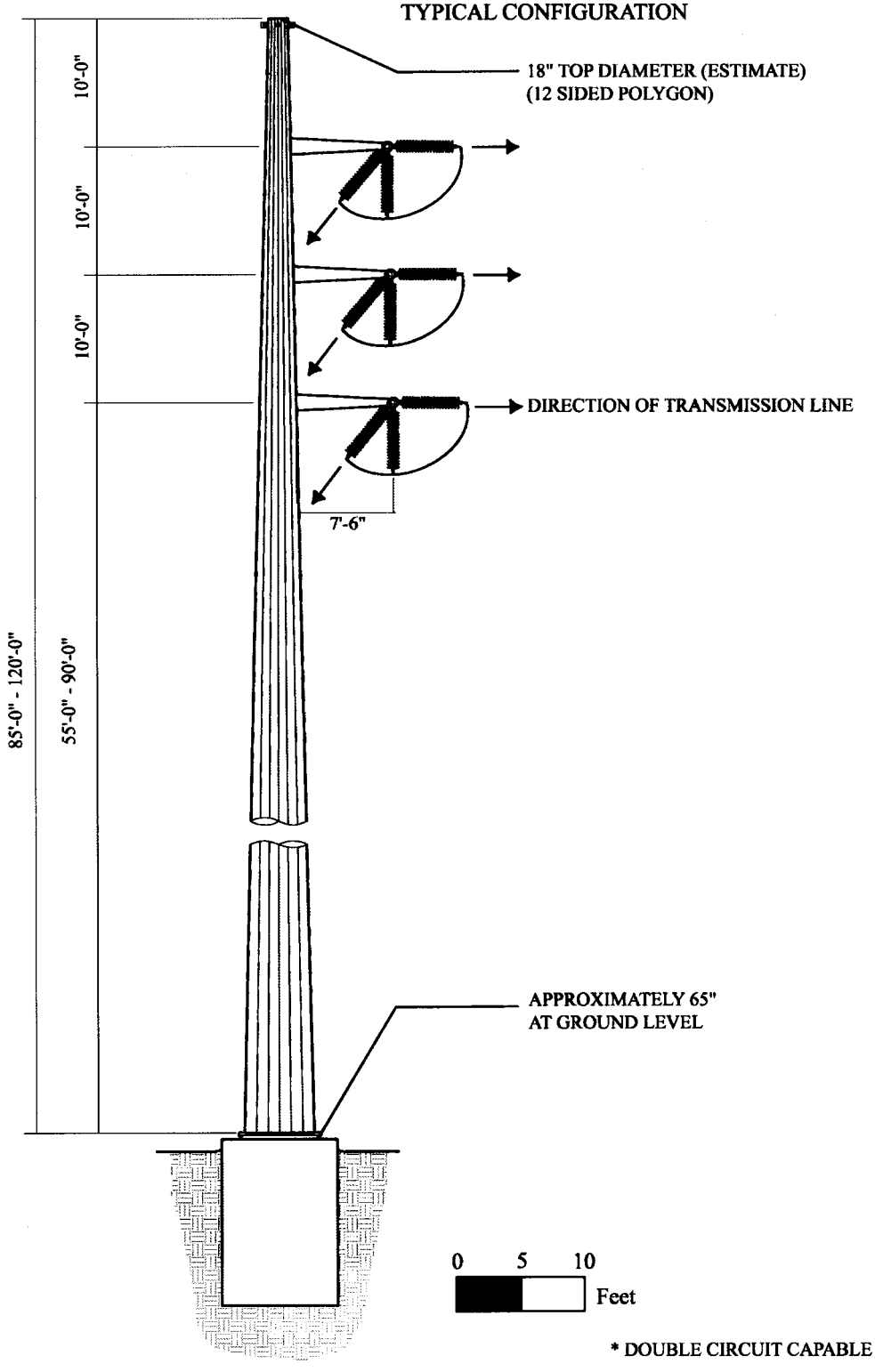


0 5 10
Feet

ALL DIMENSIONS ARE APPROXIMATE

EXHIBIT G-1

SINGLE CIRCUIT* 138kV
LARGE ANGLE / DEADEND STEEL POLE
TYPICAL CONFIGURATION



* DOUBLE CIRCUIT CAPABLE

ALL DIMENSIONS ARE APPROXIMATE

EXHIBIT G-2

Segment 1 - Preferred Alignment

View to southwest from Sycamore Park Village subdivision in Tucson, Arizona, approximately one-half mile north of the proposed Segment 1, Preferred Alignment (North Route).

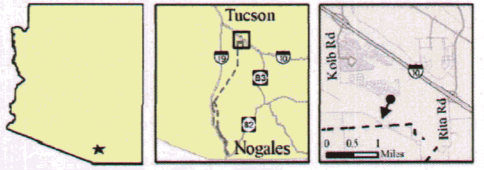
Vail to Valencia 115kV to 138kV Transmission Line Upgrade Project

Proposed Structure Location

UniSourceEnergy SERVICES

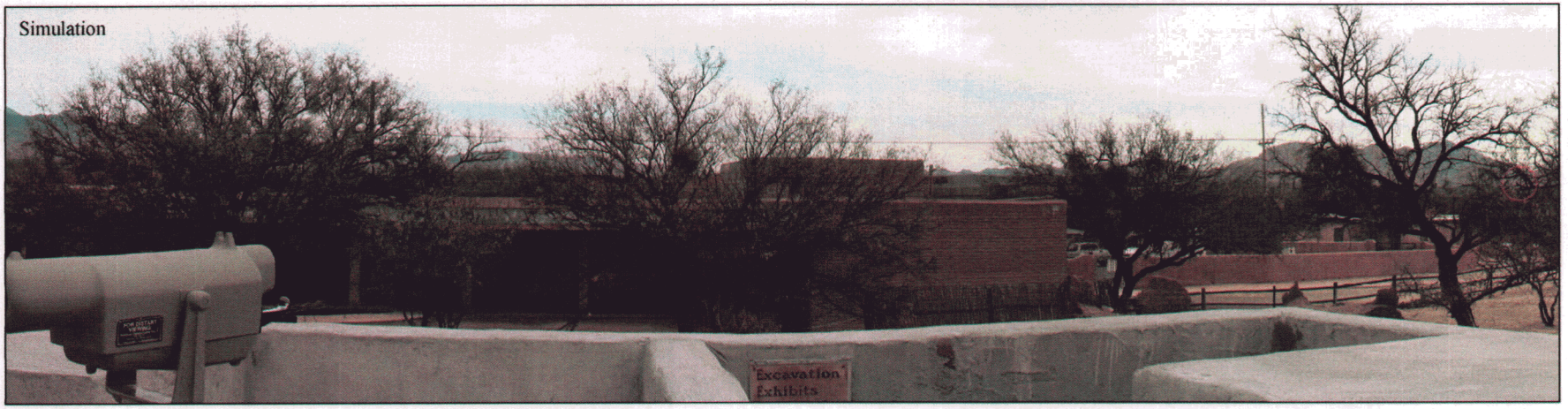
TRANSCON ENVIRONMENTAL

EXHIBIT G-3



Existing Condition

Simulation



Segment 2 - Alternative Alignment 2

View to east from the courtyard of Tubac Presidio State Historic Park approximately one-half mile west of the proposed Segment 2, Alternative Alignment 2 (Railroad Route).

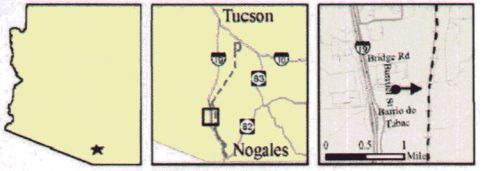
Vail to Valencia 115kV to 138kV Transmission Line Upgrade Project

Proposed Structure Location

UniSourceEnergy SERVICES

TRANSCON ENVIRONMENTAL

EXHIBIT G-4



Segment 2 - Alternative Alignment 2

View to the southeast from the trailhead of the Juan Bautista de Anza National Historic Trail, located at Tubac Presidio State Historic Park approximately one-half mile west of the proposed Segment 2, Alternative Alignment 2 (Railroad Route).

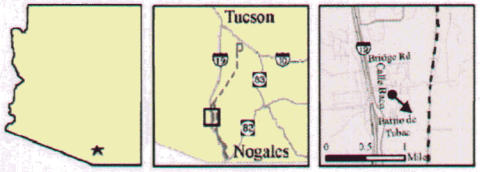
Vail to Valencia 115kV to 138kV Transmission Line Upgrade Project

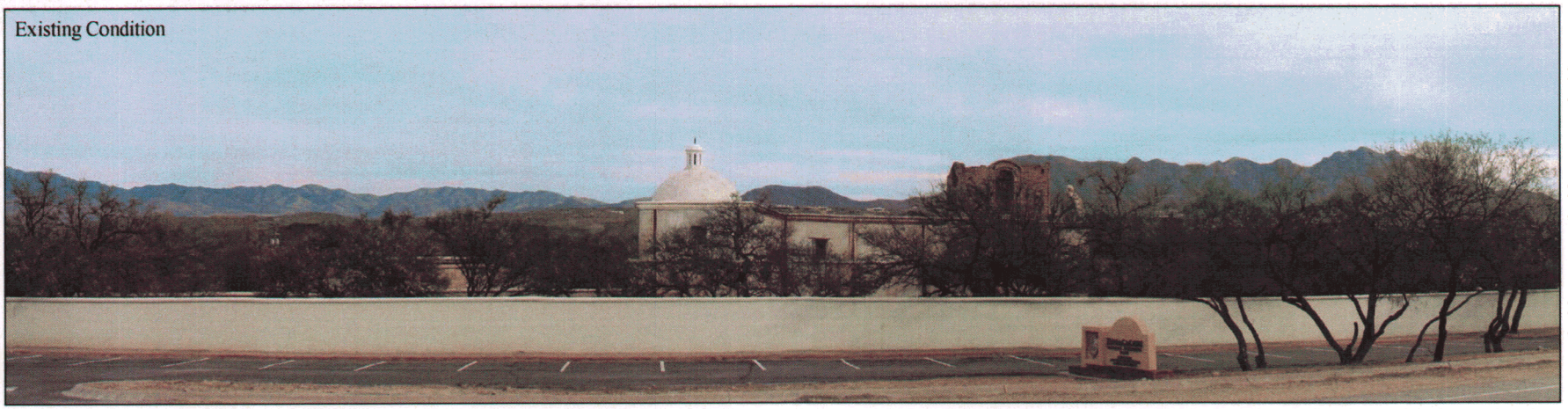
Proposed Structure Location

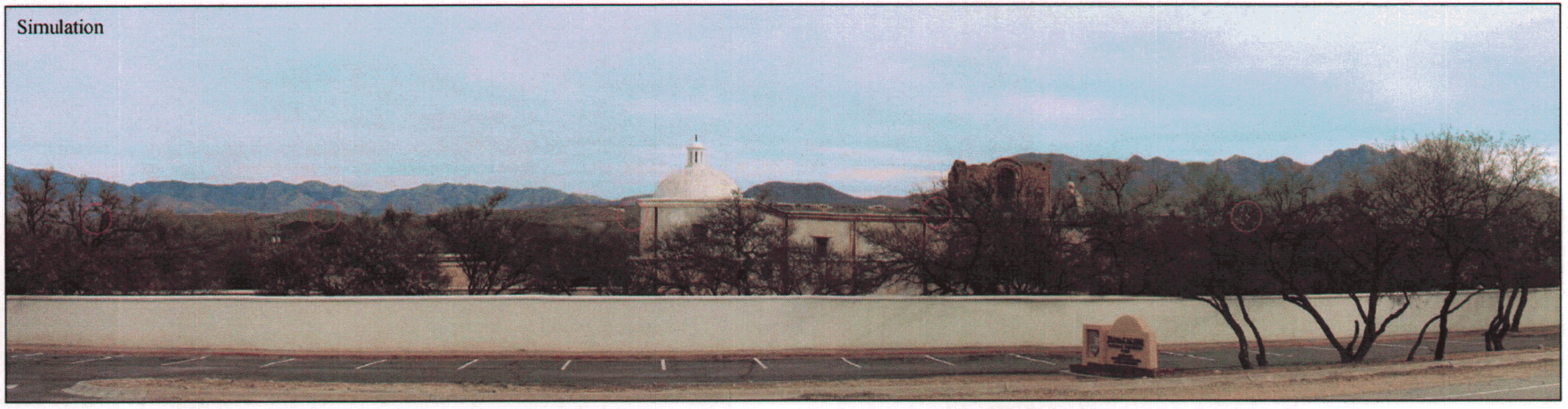
UniSourceEnergy SERVICES

TRANSCON ENVIRONMENTAL

EXHIBIT G-5







Segment 2 - Alternative Alignment 2

View to east from Tumacácori National Historic Park approximately one-half mile to the west of the proposed Segment 2, Alternative Alignment 2 (Railroad Route).

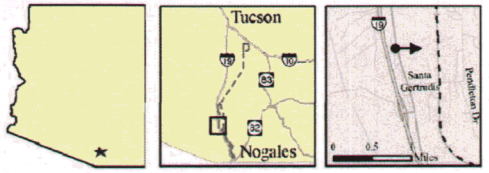
Vail to Valencia 115kV to 138kV Transmission Line Upgrade Project

Proposed Structure Location

UniSourceEnergy SERVICES

TRANSCON

EXHIBIT G-6



Segment 3 - Preferred Alignment

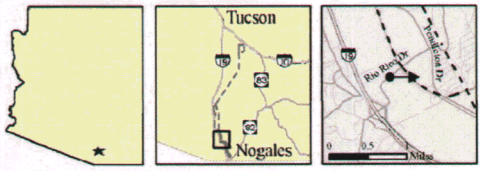
View to east along Rio Rico Drive approximately one-quarter mile west of the proposed Segment 3, Preferred Alignment (West Route).

Vail to Valencia 115kV to 138kV Transmission Line Upgrade Project

UniSourceEnergy SERVICES

TRANSCON ENVIRONMENTAL

EXHIBIT G-7



Segment 3 - Preferred Alignment

View to the southwest from the intersection of Rio Rico Drive and Pendleton Drive approximately one-half mile east of the proposed Segment 3, Preferred Alignment (West Route).

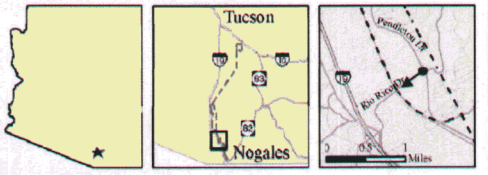
EXHIBIT G-8

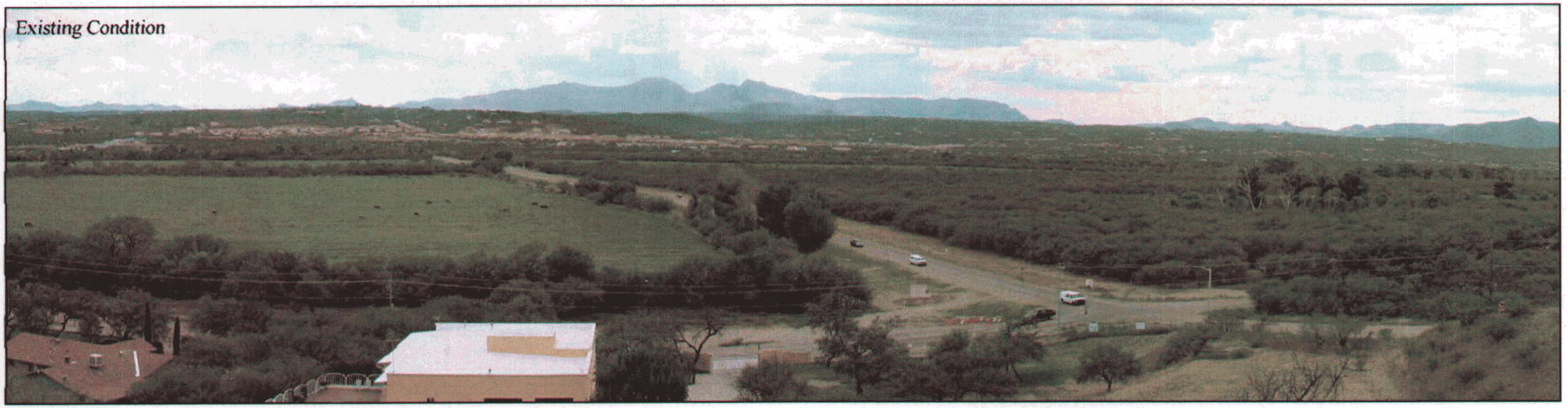
Vail to Valencia 115kV to 138kV Transmission Line Upgrade Project

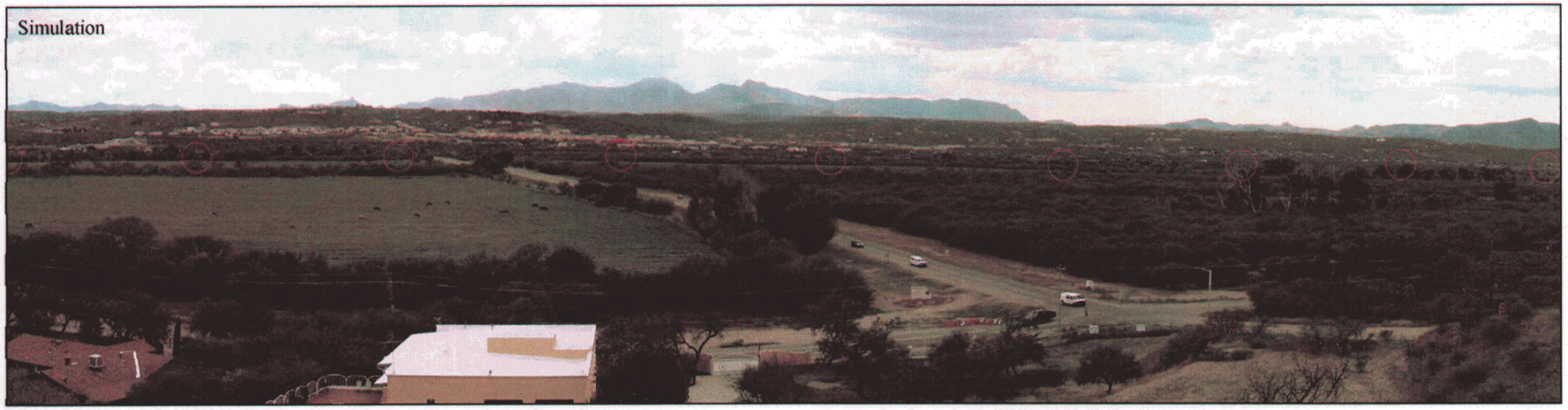
Proposed Structure Location

UniSourceEnergy SERVICES

TRANSCON ENVIRONMENTAL







Segment 3 - Preferred Alignment

View to west along Rio Rico Drive approximately one-half mile east of the proposed Segment 3, Preferred Alignment (West Route).

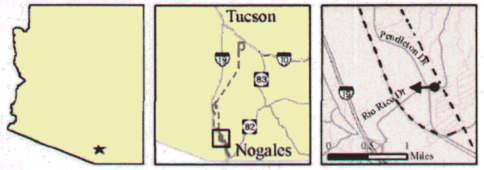
Vail to Valencia 115kV to 138kV Transmission Line Upgrade Project

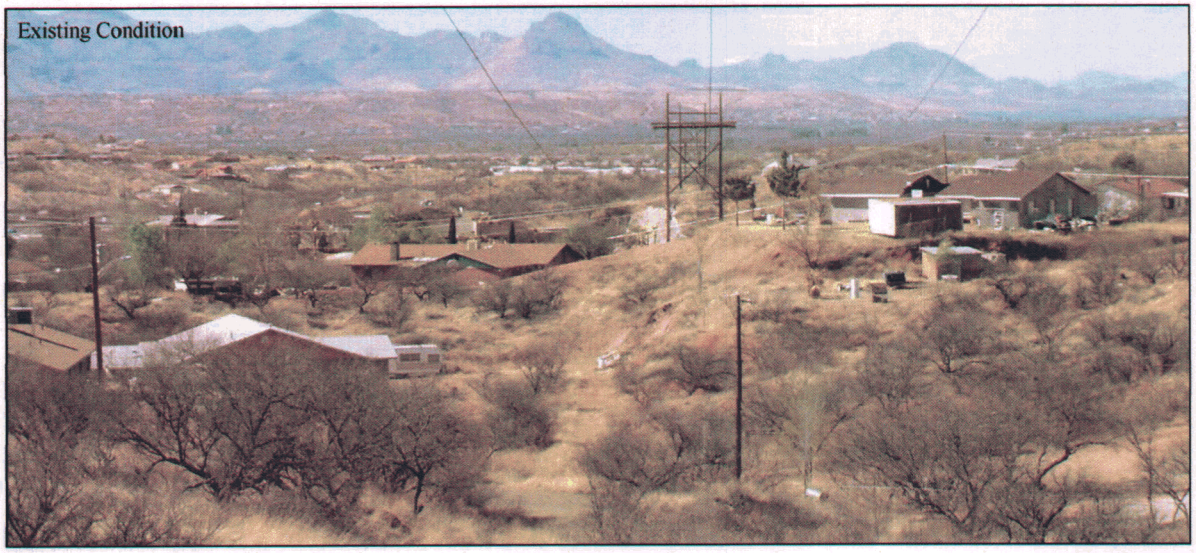
Proposed Structure Location

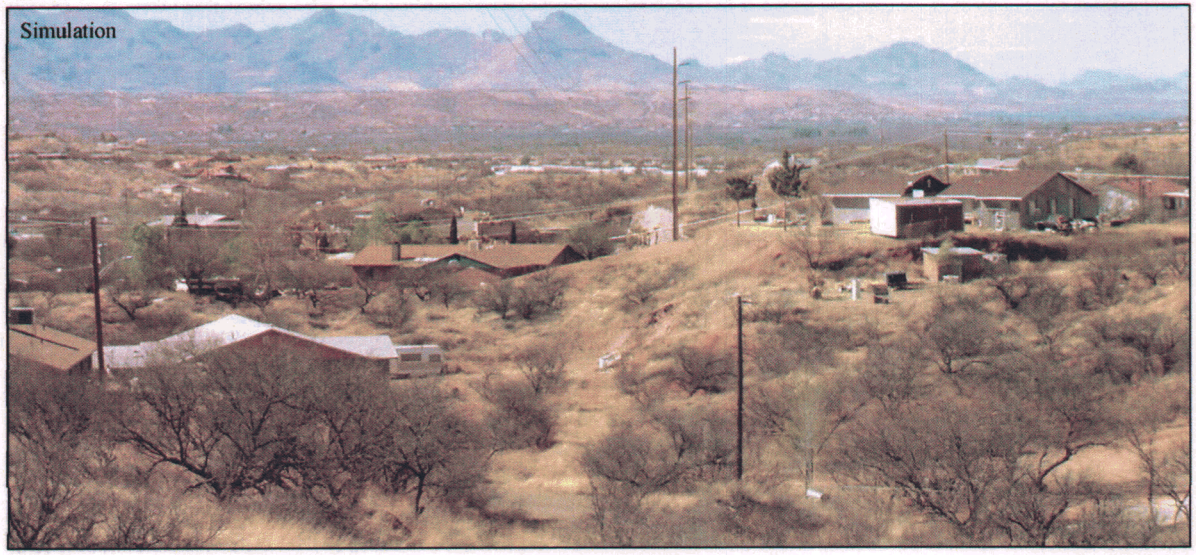
UniSourceEnergy SERVICES

TRANSCON ENVIRONMENTAL

EXHIBIT G-9



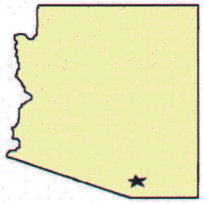




Segment 4 - Preferred Alignment and Alternative Alignments 1 and 2

View to the northwest from a point just south of Ruby Road immediately beneath the existing 115 kV transmission line. The simulation depicts the Segment 4, Preferred Alignment and Alternative Alignments 1 and 2 (Existing Line routes).

Vail to Valencia 115kV to 138kV Transmission Line Upgrade Project



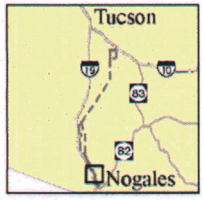


EXHIBIT G-10

UniSourceEnergy SERVICES TRANSCON ENVIRONMENTAL

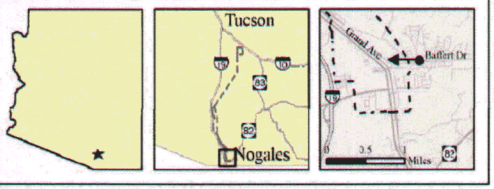
Segment 4 - Alternative Alignments 2 and 5

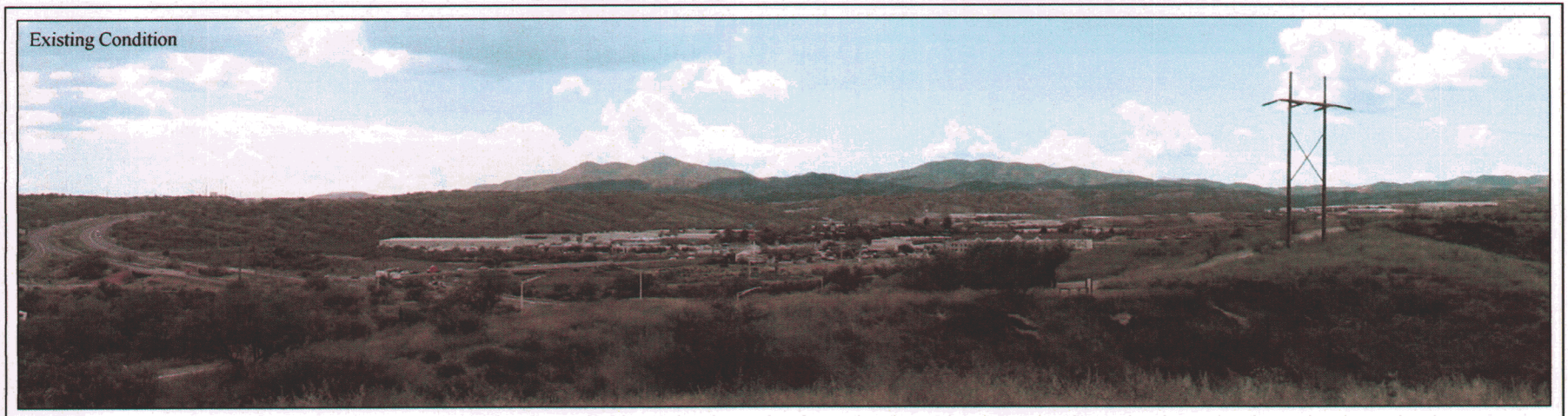
View to west from the intersection of Calle Santa Ana and Baffert Drive in Nogales, Arizona approximately 800 feet east of the proposed Segment 4, Alternative Alignments 2 and 5 (East routes).

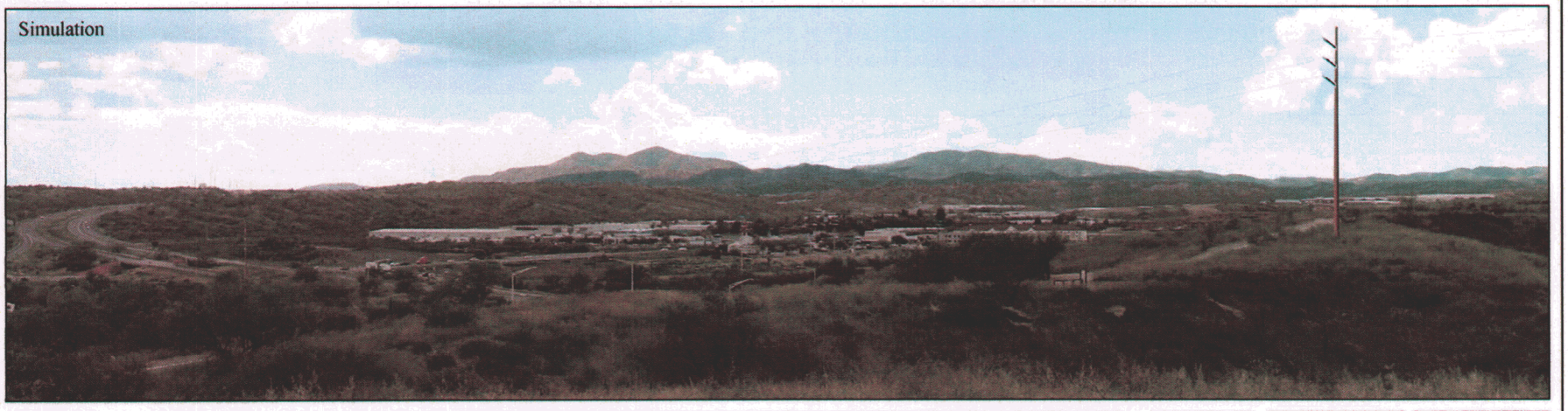
EXHIBIT G-11

Vail to Valencia 115kV to 138kV Transmission Line Upgrade Project

UniSourceEnergy SERVICES TRANSCON ENVIRONMENTAL







Segment 4 - Preferred Alignment and Alternative Alignments 1, 3, and 4

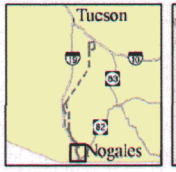
View to southwest from the Sgt. Manuel H. Tapia Recreational Trail, located at the Santa Cruz County Complex in Nogales, Arizona, approximately 400 feet to the east of the proposed Segment 4, Preferred Alignment and Alternative Alignment 3 (Existing Line routes) and Alternative Alignments 1 and 4 (East to West Crossover routes).

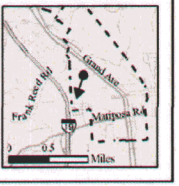
Vail to Valencia 115kV to 138kV Transmission Line Upgrade Project

EXHIBIT G-12

UniSourceEnergy SERVICES

TRANSCON ENVIRONMENTAL





Segment 4 - Preferred Alignment and Alternative Alignments 1, 3, and 4

View to east from the intersection of Mariposa Road and Congress Drive in Nogales, Arizona approximately 700 feet to the west of the proposed Segment 4, Preferred Alignment and Alternative Alignment 3 (Existing Line routes) and Alternative Alignments 1 and 4 (East to West Crossover routes).

Vail to Valencia 115kV to 138kV Transmission Line Upgrade Project

EXHIBIT G-13

UniSourceEnergy SERVICES TRANSCON ENVIRONMENTAL

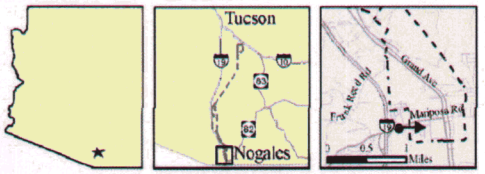


EXHIBIT H: EXISTING PLANS

LAND USE TECHNICAL REPORT

This technical report summarizes the land ownership and jurisdiction, land use, and zoning inventory for the proposed UNS Electric Vail to Valencia 115 kV to 138 kV Upgrade Project. The land use data in this report is organized into five general categories: 1) Land Ownership and Jurisdiction, 2) Existing Land Use, 3) Zoning, 4) Planned Land Use, and 5) Proposed Land Use.

The proposed transmission line routes are located in the Gila and Salt River Baseline and Meridian (Tucson SE, Corona de Tucson, Sahuarita, Green Valley, Mount Hopkins, Amado, Tubac, San Cayetano Mountains, Rio Rico, and Nogales USGS 7.5-minute quadrangle maps) in the following townships, ranges, and sections:

- T16S, R15E, Sections 4-9, 16-21, 30, 31
- T17S, R15E, Sections 6, 7, 18, 19, 30, 31
- T17S, R14E, Section 36
- T18S, R14E, Sections 1, 2, 10, 11, 15, 21, 22, 28, 29, 32
- T19S, R14E, Sections 6, 7
- T20S, R13E, Sections 4, 8, 9, 17-21, 28, 30-34
- T21S, R13E, Sections 3, 5, 8-10, 16, 17, 20, 21, 27-29, 32, 34
- T22S, R13E, Sections 3-5, 9, 10, 15, 22, 23, 26, 27, 35, 36
- T23S, R13E, Sections 1, 12
- T23S, R14E, Sections 6-8, 17-19, 29-32
- T24S, R14E, Section 5

The land use study area includes the aforementioned project location and those areas within one mile of where land use could be directly or indirectly affected by the proposed project. Land ownership and jurisdiction; existing, zoned, and future land use information was collected for this area. Inventoried data were gathered through aerial photograph interpretation, field verification, and the review of various documents including general plans and maps, zoning/land development codes, and master plans. In addition, jurisdictional websites were accessed and direct contact was conducted with agency staff.

This report first describes the existing conditions within the project study area then summarizes potential effects to land use from implementing project alternative alignments.

EXISTING CONDITIONS WITHIN THE PROJECT STUDY AREA

Land Ownership and Jurisdiction

Land ownership and jurisdiction depicts the limits of administrative or jurisdictional control maintained by the major landholders located in the vicinity of the proposed project alternative alignments. Land ownership and jurisdiction is depicted on maps in Exhibit A-1 of this Application. Land status designations are important to the siting of transmission lines because they influence or directly determine such things as expenditure of management funds, land use and zoning regulations, and administrative planning goals for particular parcels or districts.

The majority of lands within the project study area are either held in public trust and administered by the Arizona State Land Department ("ASLD") or are privately held. State lands are primarily located in the northern portion of the project study area between Tubac and the Vail Substation. Private lands are primarily located in the southern portion of the study area between Tubac and Nogales.

ASLD administers lands to generate revenues for state-funded programs and infrastructure such as schools, medical and emergency services, and highways. The majority of the State lands in the vicinity of the proposed project alternative alignments are leased for a variety of purposes, generally for livestock grazing. A large area of State land, known as the Santa Rita Experimental Range, is leased to the University of Arizona. The Santa Rita Experimental Range was established in 1902 on 80 square miles to study sustainable grazing practices.

Within one mile of the proposed project alternative alignments, federally owned or controlled lands are limited to a few scattered parcels under the jurisdiction of the Bureau of Land Management ("BLM"). One of the BLM parcels is located at the site of Western Area Power Administration's ("WAPA") Nogales Tap (Segment 1A), a second is located about one mile east of the existing transmission line near Sahuarita Road (Segment 1B), and a third is located in Nogales near the Santa Cruz County complex (Segment 4).

Private lands within the project study area are located within and administered by City of Tucson, City of Nogales, Town of Sahuarita, and Pima and Santa Cruz counties.

Existing Land Use

Existing land use within the project study area includes residential, public and quasi-public, business and commercial, industrial, agricultural, and undeveloped State Land used primarily for grazing. In addition, some lands within the study area are used for recreation or have been designated for protection or conservation (Exhibit H-2).

Residential

Residential uses are one of the primary land uses within the project study area. This category incorporates all types of residential development including low-density housing (0-1 dwelling unit per acre "du/ac") with ranchettes and rural residential, to medium-density housing (4-6 du/ac) among developed subdivisions, to high-density housing (up to 10 du/ac). Low-density residential areas are found throughout the developed portions of the study area, including the majority of the community of Rio Rico. Medium-density residential areas are mainly concentrated within the limits of the cities of Tucson and Nogales and along the I-19 corridor. High-density residential uses in the study area are uncommon and are limited to smaller condominium and apartment developments in the Nogales area.

Of the total land dedicated to residential uses, approximately two-thirds can be characterized as low-density residential, one-third as medium-density residential, and a very small percentage as high-density residential.

Within the project study area there are several unique residential communities known as colonias. A colonia is defined by the following: "1) is in the state of Arizona, California, New Mexico or Texas; 2) that is within 150 miles of the United States-Mexico border, except for any metropolitan area exceeding one million people; 3) that on the basis of objective criteria, lacks adequate sewage systems and lacks decent, safe, and sanitary housing; and 4) that was in existence as a colonia before November 28, 1990" (National Affordable Housing Act of 1990). Colonias within the project study area include all or parts of the following communities or subdivisions: Town of Sahuarita, Avra Valley Water Cooperative - Elephant Head, Tumacácori, City of Nogales, Carmen, Pete Kitchen Subdivision, Chula Vista Subdivision, and Firestone Gardens Subdivision.

Public and Quasi-Public

Public and quasi-public uses typically include schools, churches, cemeteries, airports, and other land uses generally associated with public use. Within the project study area, public and quasi public uses include the following:

Schools

- A.J. Mitchell Elementary School, on the south side of Western Avenue, approximately one-half mile west of Grand Avenue (State Route 19).
- Calabasas Middle School, on the southwest corner of the intersection of Camino Maricopa and the I-19 Frontage Road.
- Coatimundi Middle School, on Avenue Coatimundi, approximately one mile east of Pendleton Drive.
- Desert Shadows Middle School, located approximately one-half mile west of I-19 on Boulevard del Rey David.
- Dinobones Preschool, located on the west side of I-19, approximately one mile north of Rio Rico Drive.
- Francisco Vasquez De Coronado Elementary School, located on Harrison Road, approximately one-half mile west of I-19.
- Mountain View Elementary School, located on the west side of I-19, near the intersection of I-19 and Rio Rico Drive West.
- Nogales High School, on the northwest corner of the intersection of Mariposa Road (State Route 189) and I-19.
- Nogales Unified School District Support Services, on the north side of Western Avenue, approximately three-quarters mile west of Grand Avenue (State Route 19).
- Our Lady of Lourdes Catholic School, located on the north side of Patagonia Highway (State Route 82).
- Peña Blanca Elementary School, on the southwest corner of the intersection of Camino Maricopa and the I-19 Frontage Road.
- Pinnacle Charter High School, on the northwest corner of the intersection of Grand Avenue (State Route 19) and Mariposa Road (State Route 189).
- Rio Rico High School, located on the west side of I-19, near the intersection of I-19 and Rio Rico Drive West.
- Robert M. Bracker Elementary School, located approximately one-half mile west of I-19 on Boulevard del Rey David, just west of Desert Shadows Middle School.
- San Cayetano Elementary School, located on the west side of I-19, near the intersection of I-19 and Rio Rico Drive West.
- Smart Kids Preschool, on the northeast corner of the intersection of Patagonia Highway (State Route 82) and Morley Avenue.
- Wade Carpenter Middle School, on the south side of Kino Street, approximately three-quarters mile west of Grand Avenue (State Route 19).

City and County Administrative Services

- City of Nogales Maintenance Yard, on the east side of Hohokam Drive, approximately one-quarter mile south of Calle Sonora.
- City of Nogales Public Works Administration Center, on the east side of Hohokam Drive, approximately one-half mile south of Calle Sonora.
- City of Nogales/Santa Cruz County Chamber of Commerce, located within the interchange of Grand Avenue (State Route 19) and Patagonia Highway (State Route 82).

- Santa Cruz County Administration Building, on Congress Drive, approximately one-half mile north of Mariposa Road (State Route 189).

Public Health, Welfare and Safety

- Arizona Department of Public Safety, on the southeast corner of the intersection of Grand Avenue (State Route 19) and Old Tucson Road.
- Arizona Department of Transportation, on the east side of Hohokam Drive, approximately one-half mile south of Calle Sonora.
- Arizona State Prison Complex – Tucson, on the west side of Wilmot Road, approximately three miles south of I-10.
- City of Nogales Parks and Recreation Center, on the east side of Hohokam Drive, approximately one-half mile south of Calle Sonora.
- City of Tucson Public Safety Training Academy, on the east side of Wilmot Road, approximately three miles south of I-10.
- Federal Correctional Institution Tucson, on the east side of Wilmot Road, approximately one and one-half miles south of I-10.
- Mariposa Community Health Center includes three locations: 1) on N. Mastick Way, just south of Mariposa Road (State Route 189); 2) on the east side of Hohokam Drive, approximately one-half mile south of Calle Sonora; and 3) on the west side of I-19, approximately one mile north of Rio Rico Drive.
- Nogales Fire Department – Fire Station #2, on the west side of Grand Avenue, approximately one-half mile north of Apache Boulevard.
- Nogales Suburban Fire District, on the west side of Old Tucson Road, approximately three-quarters mile north of the intersection of Grand Avenue (State Route 19) and Old Tucson Road.
- Pima County Regional Training Center, on the east side of Rita Road, approximately three-quarters mile south of I-10.
- Rio Rico Fire District Station #1, on the northwest corner of Pendleton Drive and Willow Drive.
- Rio Rico Fire District Station #2 and Training Center, on the southwest corner of Calle Calabasas and the I-19 Frontage Road.
- Santa Cruz County Animal Care and Control, on the east side of Hohokam Drive, approximately one-half mile south of Calle Sonora.
- Santa Cruz County Juvenile Detention Center, on the east side of Hohokam Drive, approximately one mile south of Calle Sonora.
- Santa Cruz County Sheriff's Office, on the east side of Hohokam Drive, approximately one mile south of Calle Sonora.
- Southeastern Arizona Behavioral Health Services, located approximately one-quarter mile west of I-19 on Boulevard del Rey David.
- Tubac Fire District – Station #2, located on the west side of I-19, near the intersection of I-19 and Rio Rico Drive West.
- United States Penitentiary – Tucson, on the west side of Wilmot Road, approximately two and one-half miles south of I-10.

Other Community Services

- City of Nogales Cemetery, located just west of the interchange of Grand Avenue (State Route 19) and Patagonia Highway (State Route 82).
- Rio Rico Community Center, on the southeast corner of the intersection of Pendleton Drive and Avenue Coatimundi.
- Rio Rico Public Library, located at the intersection of Yavapai Drive and the I-19 Frontage Road.

- USDA Forest Service – Nogales Ranger Station, on the northeast corner of the intersection of Old Tucson Road and the I-19 Frontage Road.
- US Post Office – Rio Rico, on the northwest corner of the intersection of Camino Ramanote and the I-19 Frontage Road.

In addition, numerous churches are scattered throughout the project study area, mainly within the City of Nogales.

Business and Commercial

Business, office, and commercial/retail land uses within the project study area consist of restaurants, gas stations, service companies, grocery stores, "big box" commercial nodes, and professional plazas. Commercial use is predominant near the intersection of Rio Rico Drive and I-19 as well as the intersection of Mariposa Road and I-19, extending north and south along Grand Avenue. Major commercial centers include Wal-Mart, Home Depot, the Mariposa Mall, and the Loma Linda Shopping Center.

Industrial

Several areas of industrial use are located within the project study area. Most industrial facilities are located in the extreme northern portion of the study area and in the Rio Rico and Nogales areas. The El Paso Natural Gas Company Vail Compressor Station is located east of the Vail Substation, just west of Rita Road. The GRG Construction Company Asphalt Plant and Santa Cruz County Rio Rico Dump site are located along I-19 in the Rio Rico area.

The largest industrial area is found along the east side of I-19, between Rio Rico Drive and Ruby Road. Dozens of agricultural distribution centers are located within this stretch. The Nogales International Wastewater Treatment Plant is also located in this area, just south of the Santa Cruz River and west of Pendleton Drive. This wastewater treatment plant provides regional services to a population that exceeds 350,000 in Nogales, Arizona; Nogales, Sonora; and the surrounding areas of Santa Cruz County. In addition, numerous warehouses, distribution centers, and appliance and automobile salvage and storage yards are also found within the City of Nogales.

Linear Facilities and Utilities

Linear facilities within the project study area consist of utility transmission and distribution lines and ground transportation features. Utilities inventoried include electrical transmission lines, electrical substations, major pipelines, fiber optic lines, communication lines, wells, major canals, and major roads.

<u>Utilities</u>

Transmission lines include lattice tower, steel monopole, and wood-pole electrical transmission lines having a capacity of 69kV or greater. Electrical transmission lines within the study area are operated by UNS Electric, TEP, Arizona Electric Power Cooperative ("AEPCO"), and WAPA. UNS Electric operates one transmission line within the project study area, the Nogales Tap – Nogales 115 kV Transmission Line, proposed to be upgraded to 138kV.

Several 345 kV transmission lines, owned and operated by TEP, are present within the northernmost portion of the study area. Two of these lines parallel I-10 from the east and enter Vail Substation. One 345 kV transmission lines exits the Vail Substation and proceeds south two and one-half miles out of the substation, then heads west to TEP's South Substation. Other TEP transmission lines include a double-

circuit 138 kV line parallel to Old Vail Connection Road and a 138 kV line parallel to Wilmot Road, north of Old Vail Connection Road.

Other high voltage electrical transmission lines include AEPCO's 230 kV line, which parallels TEP's 345 kV line south out of the Vail Substation, then extends to the west. In addition, AEPCO's 138 kV transmission line extends east-west in the same corridor as its 230 kV line and TEP's 345 kV line. WAPA's 115 kV transmission line generally runs east-west just south of the Vail Substation.

In addition to the Vail Substation and the Valencia Substation, four other existing electrical substations are located within the study area, including:

- Nogales Tap, located just west of Wilmot Road, south of the State Prison Complex
- Kantor Substation, located west of Amado
- Cañez Substation, located north of Rio Rico
- Sonoita Substation, located in Rio Rico

Two major pipelines pass through the project study area. Both pipelines are large transmission lines transporting natural gas and are operated and maintained by El Paso Natural Gas Company. One pipeline parallels the south side of I-10 in the northern portion of the project study area. The pipeline passes through the Vail Compressor Station adjacent to the Vail Substation. The second pipeline passes through the City of Nogales and parallels the west side of I-19.

A variety of fiber optic telecommunication lines extend throughout the study area, generally along the primary transportation routes. Several communication towers were identified within the study area, especially in the Nogales area, including the KOFH 99.1 FM radio tower, located northeast of town.

Several public and private wells are also located within the study area, primarily associated with residential and agricultural areas. Water and wastewater pipelines are also found throughout the study area, generally within or adjacent to roads in developed areas.

Transportation

Ground transportation features are considered to be significant roads and highways, such as interstate freeways, federal highways, state highways, county and other major roads, and railroads. Interstate federal or state highways include all dedicated federal or state highway routes maintained by the Arizona Department of Transportation ("ADOT"). County roads include all major roads maintained by the respective counties that represent major interconnections between interstate, federal, or state highways with major access routes in agricultural areas.

Surface transportation features within and adjacent to the study area include I-19 and I-10, as well as city and county jurisdictional roads and one railroad. There are numerous major roadways within the study area which include: Grand Avenue (State Route 19), Mariposa Road (State Route 189), Patagonia Highway (State Route 82), Pendleton Road, Rio Rico Drive, Wilmot Road, Sahuarita Road, and Rita Road.

The Union Pacific Railroad ("UPRR") operates within the study area, generally parallel to the east side of I-19, passing through the City of Nogales.

Range Land, Grazing, and Agriculture

Livestock grazing occurs throughout the project study area, primarily on private land and on open rangelands administered by the ASLD. Grazing leases that have been issued by the ASLD are listed in Table H-1. One grazing allotment (Gunnery #06133) managed by the BLM is present within the study area. Livestock were observed grazing throughout the study area.

Table H-1
Grazing Leases on State Land in Project Study Area

Legal Description	Lease Number	Owner
T23S R14E Sections 18-20	99404	ZZ Cattle Corporation
T21S R13E Sections 2, 3, 10, 11	1495	Geoffrey Wingfield
T20S R13E Sections 10, 15, 21, 22, 26-28, 33-35	1495	Geoffrey Wingfield
T20S R13E Section 8, 9, 16, 17, 20	550	JT Bunn and Company Inc.
T20S R13E Sections 2-5	21	Rancho Sonado LLC
T19S R14E Section 19	21	Rancho Sonado LLC
T19S R13E Sections 32-36	21	Rancho Sonado LLC
T19S R13E Sections 1, 11-15, 23-27	161	Santa Rita Ranch Inc.
T19S R14E Sections 7, 8, 17, 18, 20	161	Santa Rita Ranch Inc.
T18S R14E Section 17-20	99607	Robson Ranch Quail Creek LLC
T16S R15E Sections 16, 21, 26-28, 31-35	91955	Onofre de la Ossa
T16S R15E Sections 4-10, 17-20, 29, 30	2487	Onofre de la Ossa
T15S R15E Section 31	2487	Onofre de la Ossa

Open/Undeveloped

Open/undeveloped areas generally consist of natural desert areas, but may also include areas that have been razed for development and then abandoned, or areas that were formally used for agriculture but are now abandoned. Large areas of undeveloped natural desert land are found within the project study area between Sahuarita Road and the Kantor Substation. Other open/undeveloped areas are scattered throughout the study area.

Zoning

Zoning is the single most commonly used legal device for implementing a land use plan or for controlling the type of development within a given area. Zoning is an exercise of police power. This police power resides with the Arizona State government whose purpose is to promote the health, safety, and general welfare of the community. Most state legislatures delegate the power of zoning to local governments, and this is true of Arizona as well. The source of statutory authority for the Zoning Code is in the form of the state enabling act. Specifically, this authority is from the Arizona Revised Statutes, Titles 9 and 11 for municipalities (cities and towns) and counties, respectively.

For municipalities, Section 9-462.01 allows for the creation of zoning regulations and zoning districts, Section 9-462.03 authorizes rezoning and zoning code amendments, and Section 9-462.05 gives the Zoning Administrator authority for zoning enforcement and interpretation. Section 11-821 allows for the creation of county zoning regulations and county zoning districts, Section 11-829 authorizes rezoning and zoning code amendments for counties, and Section 11-808 gives the Zoning Inspector authority for zoning enforcement and interpretation in counties.

Zoning, including overlay zones, was inventoried and mapped for all municipalities and counties within the study area, which includes all areas where land could be directly or indirectly affected by the proposed project, including Pima and Santa Cruz counties, and the incorporated communities of Tucson, Sahuarita, and Nogales (Exhibit H-3).

Pima County

Within the study area, Pima County is primarily zoned RH (Rural Homestead). Scattered along the east and west sides of Wilmot Rd. and along I-10 are GR-1 (Rural Residential), SH (Suburban Homestead), CR-5 (Multiple Residence), CMH-2 (County Manufactured and Mobile Home), TH (Trailer Home), SP (Specific Plan), CB-1 (Local Business), CB-2 (General Business), CI-1 (Light Industrial/Warehouse), and CI-2 (General Industrial) zones.

Santa Cruz County

The majority of the study area within Santa Cruz County is zoned GR (General Rural) or R (Residential). The remaining portions of the study area are zoned SR (Suburban Ranch), MF (Multi-Family Residential), HR (High Rise), B1 (Neighborhood Business), B2 (General Business), or M1 (Light Industrial). The B1, B2, and M1 zones are generally located adjacent to I-19 or clustered around Rio Rico Drive and Ruby Road.

City of Tucson

Zoning within the study area located within the City of Tucson is almost entirely RH (Rural Homestead). A few small districts of R-1 (Residence), RX-1 (Residence), R-2 (Residence), C-2 (Commercial), I-1 (Light Industrial), and I-2 (Heavy Industrial) zoning are clustered around the I-10 corridor.

City of Nogales

Land within the study area located within the City of Nogales is divided between industrial and commercial districts, zoned LC (Limited Commercial), GC (General Commercial), and LI (Light Industrial) along I-19, Mariposa Rd. (State Route 189), and Grand Ave. (State Route 19), and several residential districts on the outskirts of the City limits and to the west of Grand Ave. (State Route 19), zoned SFR (Single Family Residential), MHR (Mobile Home Residential), and MFR (Multi Family Residence).

Town of Sahuarita

Zoning within the small portion of the Town of Sahuarita within the study area includes RH (Rural Homestead) and SP (Specific Plan).

Airport Overlay Districts

An overlay zone associated with the primary approach/departure corridor for Davis-Monthan Air Force Base extends into the extreme northeast portion of the project study area. Both the City of Tucson and Pima County recognize zoning restrictions related to this overlay zone. This overlay district, ADC-3

(Approach/Departure Corridor Zone), places restrictions on development to mitigate the exposure of crash hazards and serves to protect the public from exposure to high noise levels from airport operations. In general, most non-residential uses are compatible with ADC-3, as are agriculture, cemeteries, rail lines, roadways, manufacturing, (except hazardous materials), communication and utility facilities, restaurants, office buildings, and some governmental services. Establishments not permitted in ADC-3 are schools, day care centers, hospitals, and landfills.

Planned Land Use

Planned land use information was obtained from general or comprehensive plans adopted by federal, state, county, and municipal agencies. The primary purpose of general and comprehensive plans is defined in state law: "The comprehensive plan shall be developed to conserve the natural resources of the county (city), to ensure efficient expenditure of public funds, and to promote the health, safety, convenience, and general welfare of the public." The Comprehensive Plan serves as a guide for decisions by the Planning and Zoning Commission and Board of Supervisors concerning growth and development, while also serving as a guide for the private sector in making informed investment decisions.

The planning efforts and information available for the State of Arizona, Pima County, Santa Cruz County, the City of Tucson, the City of Nogales, and the Town of Sahuarita describe short and long-term goals and expectations but vary substantially in complexity and level of accuracy. Planned land use designations have been generalized to incorporate different jurisdictional categories and are depicted on maps in Exhibit A-2 of this Application.

Comprehensive plans may designate specific corridors for siting major linear utilities, such as electrical transmission lines and natural gas or petroleum pipelines. The most current comprehensive plans of the cities, counties, and town within the study area do not designate such corridors.

Pima County

The Pima County Comprehensive Plan Update was adopted by the Pima County Board of Supervisors in 2001, and included the designation of desired land use intensities to plan for growth in Pima County. The designation of land use intensities on the Land Use Plan and incorporation of the legend into the Zoning Code (Section 18.89.060) provides a mechanism to assure that rezoning approvals are consistent with the long-range land use plan. Rezonings and specific plans (Sections 18.91.040C and 18.90.030H, respectively) must comply with the Land Use Plan. The land use designations for Pima County that are within the project study area include:

Residential

- Low Intensity Rural – less than 1 Du/3 Ac.
- Medium Intensity Rural – less than 4 Du/3 Ac.
- Low Intensity Urban – less than 3 Du/Ac.
- Medium Intensity Urban – less than 10 Du/Ac.
- Medium/High Intensity Urban – less than 24 Du/Ac.

Commercial/Office

- Rural Activity Center – mixed-use area providing convenience goods and personal services to rural residents on a daily or weekly basis.

Industrial

- Urban Industrial – industrial uses compatible with certain commercial activities, but generally not compatible with residential uses.
- Heavy Industrial – industrial uses not compatible with non-industrial uses.

Other

- Multifunctional Corridor – commercial development and high-density residential (up to 44 Du/AC) clusters along major transportation corridors.
- Military Airport
- Resource Transition – environmentally sensitive areas including, wildlife corridors, natural washes, floodplains, peaks and ridges, and buffers to public reserves.
- Public Preserves/Resource Conservation – public land that protects existing public open space for reasons of environmental quality, public safety, open space, recreation, and cultural heritage.

The Sonoran Desert Conservation Plan ("SDCP") was incorporated as part of the Pima County Comprehensive Plan in 1999. The primary purpose of the SDCP is to "ensure the long-term survival of the full spectrum of plants and animals that are indigenous to Pima County through maintaining or improving the habitat conditions and ecosystem functions necessary for their survival" (Pima County 2005). The SDCP addresses natural and cultural resource protection and incorporates a Conservation Lands System ("CLS") that categorizes future land use in all unincorporated lands in the planning area. The primary focus of the CLS is to protect biodiversity and provide use consistent with the conservation goals of the SDCP. The land use categories in the CLS that are found in the project study area are: Biological Core Management Areas ("BCMA"), Multiple Use Management Areas ("MUMA"), Important Riparian Areas ("IRA"), and Critical Landscape Connections. Only Segment 1 is located in Pima County. Only Segment 1A (from the Vail Substation to the existing 115 kV transmission line) involves any new construction. Segment 1B includes the existing transmission line already rebuilt on steel monopoles as applied for in Case No. 78 and approved in Decision No. 56097.

The SDCP identifies BCMAs as "areas of very high biological importance distinguished by high potential habitat for five or more priority vulnerable species and special elements (e.g., caves, perennial streams, cottonwood-willow forests)." Management of these lands is focused on conservation, restoration, and enhancement. The SDCP identifies a MUMA as an area "generally defined by the occurrence of high potential habitat for three or more priority vulnerable species and special elements." Management of these areas is focused on a balance between compatible uses and conservation, restoration, and enhancement. The SDCP identifies an IRA as an area "defined by mesoriparian and xeroriparian vegetation, high (relative to adjacent uplands) water availability, denser vegetation, and high biological productivity." IRAs also provide wildlife movement corridors. Critical Landscape Connections are areas which provide movement for wildlife across potential or existing barriers that tend to isolate major conservation lands. These are regional scale areas.

Santa Cruz County

The Santa Cruz County Comprehensive Plan was adopted in 2004. The purpose of the Plan is to guide future actions of the Planning and Zoning Commission and the Board of Supervisors. As stated in the Plan, "Implementation of specific policies outlined in the Plan is subject to the discretion of the Board of Supervisors on a case-by-case basis, and may be influenced by fiscal realities and other constraints. Therefore, no policy goal specified herein is to be construed as a mandate on the Board of Supervisors, and the use of the term "will" does not imply the County must adopt such policy." The land use designations for Santa Cruz County that are within the project study area are described below.

Residential

- Ranch – very low density residential, less than 1 Dwelling Unit (Du)/40 Acres (Ac) – 1 Du/4 Ac.
- Low Density Residential – less than 1 Dwelling Unit (Du)/Acre (Ac).
- Medium Density Residential – less than 3 Du/Ac.
- High Density Residential – less than 10 Du/Ac.
- Mixed Use – principally high-density residential, integrated with retail, services, and employment.

Commercial/Office

- Local Services – retail, restaurant, tourism and low impact neighborhood services.
- Regional Services – high-intensity commercial, employment, and retail.
- Multiple Use-Business Park – Includes enclosed industrial, office or retail in a planned environment

Industrial

- Enterprise – heavy commercial and industrial uses with significant employment potential.

Other

- Public Lands – uses are established in accordance with applicable law and regulation of the managing agency.
- State Trust – uses are established in accordance with applicable law and regulation of the ASLD.
- Preservation – historic sites, museums, research, permanent open space, and areas to be preserved.

City of Tucson

The City of Tucson adopted its General Plan in December 2001. The General Plan presents a series of policies and recommendations for Tucson and some portions of eastern Pima County, but is in effect only within the corporate limits of the City of Tucson. The policies establish a basic direction and approach to guide the future growth and development of Tucson. The policies also provide guidance for the preparation of more detailed environmental, land use, and transportation proposals; the refinement of community facility and service plans; and the development or amendment of sub regional, area, neighborhood, and other specific plans.

The Esmond Station Area Plan is located on the north side of I-10, but within the project study area. The goal of the plan is to "guide the creation of livable communities... where existing and future land uses can harmonize without conflict" (City of Tucson 1986).

The Rincon/Southeast Subregional Plan is divided into distinct planning areas defined by their area and time of annexation into the City of Tucson. The project study area incorporates one of these areas, known as Harrison/I-10 (Subregional Plan Map Detail #4). The Harrison/I-10 area incorporates the majority of the northern portion of the project study area between Wilmot and Houghton roads. The Harrison/I-10 area was annexed into the City on August 21, 1995. The initial plan for the area was adopted on June 10, 1996 (Resolution No. 17293), and last amended on January 13, 2003 (Resolution 19481).

In addition, several studies have been conducted by the City of Tucson with respect to areas within the project study area including, Growth and Development in Southeast Tucson, Southeast Area Arterial Study, and Lee Moore Wash Basin Management Study.

The land use designations for the City of Tucson that are within the project study area include:

Residential

- Low Intensity Rural – less than 1 Du/3 Ac.
- Medium Intensity Rural – less than 4 Du/3 Ac.
- Medium/High Intensity Urban – less than 24 Du/Ac.

Industrial

- Urban Industrial – industrial uses compatible with certain commercial activities, but generally not compatible with residential uses.
- Heavy Industrial – industrial uses not compatible with non-industrial uses.

Other

- Resource Conservation – public land that protects existing public open space for reasons of environmental quality, public safety, open space, recreation, and cultural heritage.

Town of Sahuarita

The Town of Sahuarita approved its General Plan in 2002. The General Plan is a comprehensive effort designed to guide town policy and decision makers and staff in planning for the future of the Town. As stated in the Plan, "It gives us a vision to achieve and provides the Town with guiding policy to help us shape the form and the internal design and layout of out community over the next 20 years." The land use designations for the Town of Sahuarita that are within the project study area include:

Residential

- Very Low Density Residential – less than 1 Du/4 Ac.
- Medium Density Residential – less than 9 Du/Ac.

Other

- Resource Conservation/Open Space and Golf Course – provides for parks and open space to serve the needs of the Town.

City of Nogales

The City of Nogales' General Plan was updated and adopted in November of 1992. The General Plan of the City of Nogales is a comprehensive document intended to act as a guideline for future development of the community. The land use designations for the City of Nogales that are within the project study area include:

Residential

- Rural Residential – intended to accommodate agriculture and rural lifestyles and uses.
- Low Density Residential – includes passive and active recreation areas, open space corridors, and low density residential uses.
- Medium Density Residential – allows for schools, parks, and medium to low density residential uses.
- Residential Cluster – provides an opportunity for housing to be clustered into higher densities in order to provide consolidated open space areas. Acceptable uses include medium to high density residential, major educational facilities, and commercial opportunities along major roadways.

Commercial/Office

- Urban Core – a high-intensity use designation that includes uses such as office and professional buildings, retail and specialty commercial enterprises, and pedestrian-oriented uses.
- Activity Center – a higher-intensity use designation, typically located at the intersections of major thoroughfares that include support services and businesses for surrounding residential areas.
- Central Business District – includes the City's most concentrated business activity center and includes office and professional buildings, public services, and retail commercial uses.

Other

- Transportation Corridor/Mixed Use – includes high density residential, commercial, hotels, regional shopping centers, industrial parks, business parks, and distribution facilities.
- Open Space Corridor – includes trail systems, passive and active recreational opportunities, and riparian areas.
- Urban Reserve – sets aside adequate lands, earmarked for future development, to ensure that the City will have an adequate amount of land available for urban uses.

Arizona State Land Department

Within Pima County, the majority of the project study area is located within undeveloped tracts of land administered by the ASLD. The existing 115kV transmission line crosses the Santa Rita Experimental Range, as well as other tracts of undeveloped State land within Pima and Santa Cruz counties. The State of Arizona does not have a comprehensive management plan for lands in the vicinity of the proposed project. Excluding the Santa Rita Experimental Range, the majority of State land in the project study area is currently leased for grazing and no change is expected in the near future.

Proposed Land Use

The proposed land use sub-category discusses specific land development proposals that have been identified by the county or city land development agencies. This project covers the jurisdictions of Pima and Santa Cruz counties, the cities of Tucson and Nogales, and the Town of Sahuarita. These jurisdictions were contacted in September and October 2008 in order to obtain information about land use developments proposed in the project study area. Proposed land uses, subdivisions, current development applications, and recent comprehensive plan amendments are depicted in Exhibit H-2.

Pima County

One major development has been proposed within the project study area in Pima County. Verano, a master planned community located west of Wilmot Road, just south of the State Prison, includes 9,900 residential units on 3,200 acres. The specific plan has been approved by the County, originally under the name of Swan Southlands. The developer, Diamond Ventures, is currently conducting preliminary work to submit plat information to the county.

Santa Cruz County

Several developments have been proposed in Santa Cruz County within the project study area, including Sopori Ranch, Las Mesas de Tubac, Tubac Golf Resort, Tubac de la Montaña, Presidio de Tubac, Palo Parado, Country Club Terrace, Country Club Greens, and Country Club North.

Sopori Ranch is a master planned community, located west of I-19 and extending west along Arivaca Road. The proposed development includes 6,840 residential units, an area for business and commercial development, two golf courses, a spa, a resort, and convention facilities on 6,076 acres. The development was recently rejected by County voters.

Las Mesas de Tubac is a proposed residential development, located east of I-19 and north of Chavez Siding Road. This development proposes 2,630 residential units on 1,244 acres of land. The development will include community areas, a school site, equestrian facilities, and resort services. The development was approved by the County in 2007; however, the comprehensive plan amendment for the development was placed on the ballot in November 2008 and was not approved by voters.

The Tubac Golf Resort development is located off of I-19 on Bridge Road in the community of Tubac. The existing Tubac Golf Resort will undergo a residential expansion, adding an additional 232 residential units to the existing golf course community. The development includes equestrian sites and a commercial area. The development has been approved by the County.

Tubac de la Montaña is a proposed development located in the same vicinity as the Tubac Golf Resort, just northeast of Bridge Road. This project proposes 1,400 residential units on 1,027 acres. The development includes an 18-hole golf course, retail including shops and restaurants, and a resort. The development has been approved by the County and is currently in the entitlement stage. The project has not been platted.

The Presidio de Tubac is a proposed development, located east of I-19 near Clark Crossing Road. The development includes 475 residential units on 1,712. The development has been approved by the County and is currently undeveloped. The project is in the entitlement stage, and has not yet been platted. The developer intends to block out 13 areas within the 1,706 acres to sell off to other companies for development.

Palo Parado is a residential development located just south of the Tumacácori area along the west side of I-19. The development includes 79 residential units on 345 acres. The development has been approved by the County and has been platted and recorded.

The Rio Rico area has several proposed smaller developments which have been approved by the County. The Country Club Terrace is a proposed development, located along the northeastern edge of the Rio Rico Country Club. The development includes 65 residential units on approximately 31 acres. In addition, two other developments are proposed in this same area including Country Club Greens (424 residential units) and Country Club North (1,364 residential units). These projects are currently under review with Santa Cruz County.

City of Tucson

Sycamore Park is the only proposed development within the project study area in the City of Tucson. Sycamore Park is a partially built subdivision located north of Old Vail Connection Road and east of Kolb Road. The development will ultimately include 700 residential units on 220 acres. In addition, the State Prison has discussed expanding its facilities.

Town of Sahuarita

The Town of Sahuarita is planning to annex 16 square miles of State land, located just east of the current City boundary. No development plans have been proposed at this time.

City of Nogales

The City of Nogales has approved several developments within the project study area. Meadow Hills Estates #12 is a residential development located just south of North Country Club Drive west of I-19. The project includes 14 residential units. Hidden Hills is a larger residential development proposed on Al Harrison Road near Coronado Elementary School. The project is recorded and approved for approximately 71 units but no development has occurred.

In addition, the City of Nogales has approved two major commercial projects located just south of Mariposa Road and west of Grand Avenue. The Oasis Town Centre, a business park, is partially developed and includes Walmart and Home Depot. The development is currently on hold. La Plazita, located in the same general area, is a smaller commercial development that has been approved by the City, but development has not occurred.

PROJECT EFFECTS

Land Ownership and Jurisdiction

Minimal changes to land jurisdiction would occur as a result of project implementation. Similarly, land ownership along the majority of the proposed alternative alignments would remain the same, except in areas where UNS Electric determines the need to obtain the right-of-way in fee. Most of the proposed project alternative alignments are located on private or State lands. Several of the alternatives are located almost entirely within existing UNS Electric grants of right-of-way, including the Segment 1 (Vail to Kantor), Preferred and Alternative Alignments, the Segment 2 (Kantor to Cañez), Preferred and Alternative Alignment 1, the Segment 3 (Cañez to Sonoita), Alternative Alignment, and portions of the Segment 4 (Sonoita to Valencia), Preferred and Alternative Alignments 1, 2, 3, 4, and 5. UNS Electric would obtain right-of-way easements and/or leases for the selected transmission line alignment, where needed. No changes to land jurisdiction would be expected from project implementation

Existing Land Use

In general, impacts to existing land uses are considered direct and substantial if the construction, operation, maintenance, or abandonment of the proposed project alternatives would displace existing residential, commercial, industrial, agricultural or government facilities or substantially alter current land use practices. Indirect land use impacts resulting from project implementation may result from obstruction of access to a land parcel or use, or otherwise limiting the use or integrity of an existing or planned land use. Exhibit H-2 depicts detailed land use in the vicinity of the proposed project alternative alignments.

The majority of the proposed project alternative alignments are located within existing UNS Electric utility rights-of-way or on undeveloped State and private lands; few direct impacts to existing residential, commercial, or industrial uses would be expected. For the existing transmission line alternative alignments, there are areas near the Sonoita Substation in Rio Rico (Segment 3, Alternative Alignment (Existing Line Route)) and in Nogales (Segment 4, : Preferred and Alternative Alignment 3 (Existing Line routes)) where residential land uses have encroached upon UNS Electric's facilities, or where there is not enough space to safely reconstruct and operate a 138 kV transmission line. In these areas, potential direct impacts may occur to residences or out-structures. No residences or businesses would be displaced, and no established residential or mixed-use subdivision or area would be physically divided as a result of any the construction of any of the proposed project alternative alignments. Minimal, indirect impacts may result to adjacent land uses from noise and visual intrusions during construction and where the proposed alignments are located within a new utility corridor.

Planned Land Use

Impacts to planned land uses are generally considered to be substantial if the construction, operation, maintenance, or abandonment of the proposed facilities would: 1) conflict with applicable land use plans, policies, goals, or regulations of an agency with jurisdiction over lands affected by the proposed project facilities or 2) substantially change the land use patterns or trends within the project vicinity.

Because the vast majority of project alternative alignments are located along transportation routes, existing utility corridors, or on undeveloped private and State lands, minimal impacts to planned residential, commercial, or industrial uses would be expected.

The county and community Comprehensive and General Plans do not designate utility corridors. Even so, the proposed project is generally consistent with the Plans and would not result in a Comprehensive Plan Amendment. As a result, impacts to planned land use are expected to be minimal.

The SDCP only applies to portions of the project that occur in Segment 1 (Vail to Kantor). The Preferred Alignment (North Route) passes through 15.6 miles of BCMA, 0.5 miles of MUMA, 24 IRAs over a distance of 1.7 miles, and one Critical Landscape Connection. The Alternative Alignment (South Route) passes through 15.6 miles of BCMA, 0.5 miles of MUMA, 24 IRAs over a distance of 1.7 miles, and one Critical Landscape Connection. Any impacts to SDCP designated lands would be minimal, however, because new construction would only occur in Segment 1A.

Proposed Land Use

Several proposed developments are located along the proposed project alternative alignments. Exhibit H-2 depicts proposed developments in the vicinity of the proposed alternative alignments. The construction, operation, and maintenance of any of the proposed alternative alignments would not be expected to drastically alter or otherwise affect current, approved land use development proposals. None of the large proposed developments within the study area would be crossed by any of the alternative alignments, although several of the proposed developments would be immediately adjacent to the existing line or other alternative alignments. For the proposed Verano master planned community, which has been approved by Pima County, the proposed alignment (Segment 1, Preferred Alignment (North Route)) is located just to the east of the community's boundary (Wilmot Road), and utilizes the existing transmission line south from the Nogales Tap. The Tubac de la Montaña and Presidio de Tubac developments are located immediately west of the existing line and east of the proposed Segment 2, Alternative Alignment 2 (Railroad Route). The Tubac Golf Resort's eastern border is the UPRR and the Segment 2, Alternative Alignment 2 (Railroad Route). Because these developments would not be directly affected by the proposed alternative alignments and the existing transmission line or railroad infrastructure exists in all locations where the alternative alignments are adjacent to the developments, impacts to these developments are considered to be minimal.

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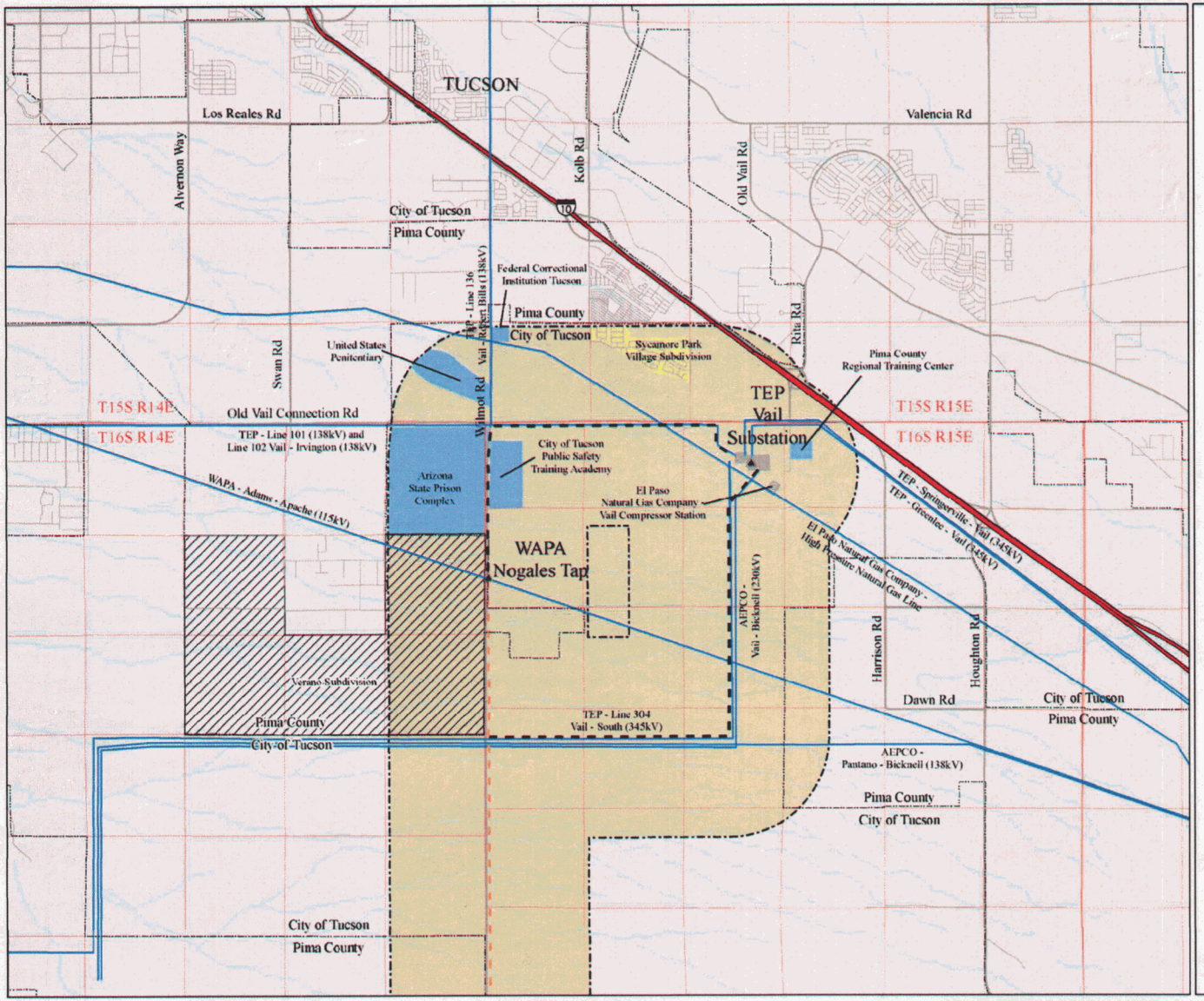


Existing and Proposed Land Use

Vail to Valencia 115kV to 138kV
Transmission Line Upgrade Project

Legend

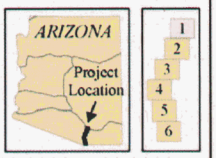
- Existing Transmission Line Alignment
- Alternative Transmission Line Alignment
- Study Area Boundary
- Substation

Existing Land Use

- Agriculture
- Commercial
- Golf Course
- Industrial
- Mixed Use
- Open Space
- Public/Quasi Public
- Residential
- Undeveloped/Unclassified
- Linear Facilities

Proposed Land Use

- Proposed Development Site
- Proposed Development Footprint

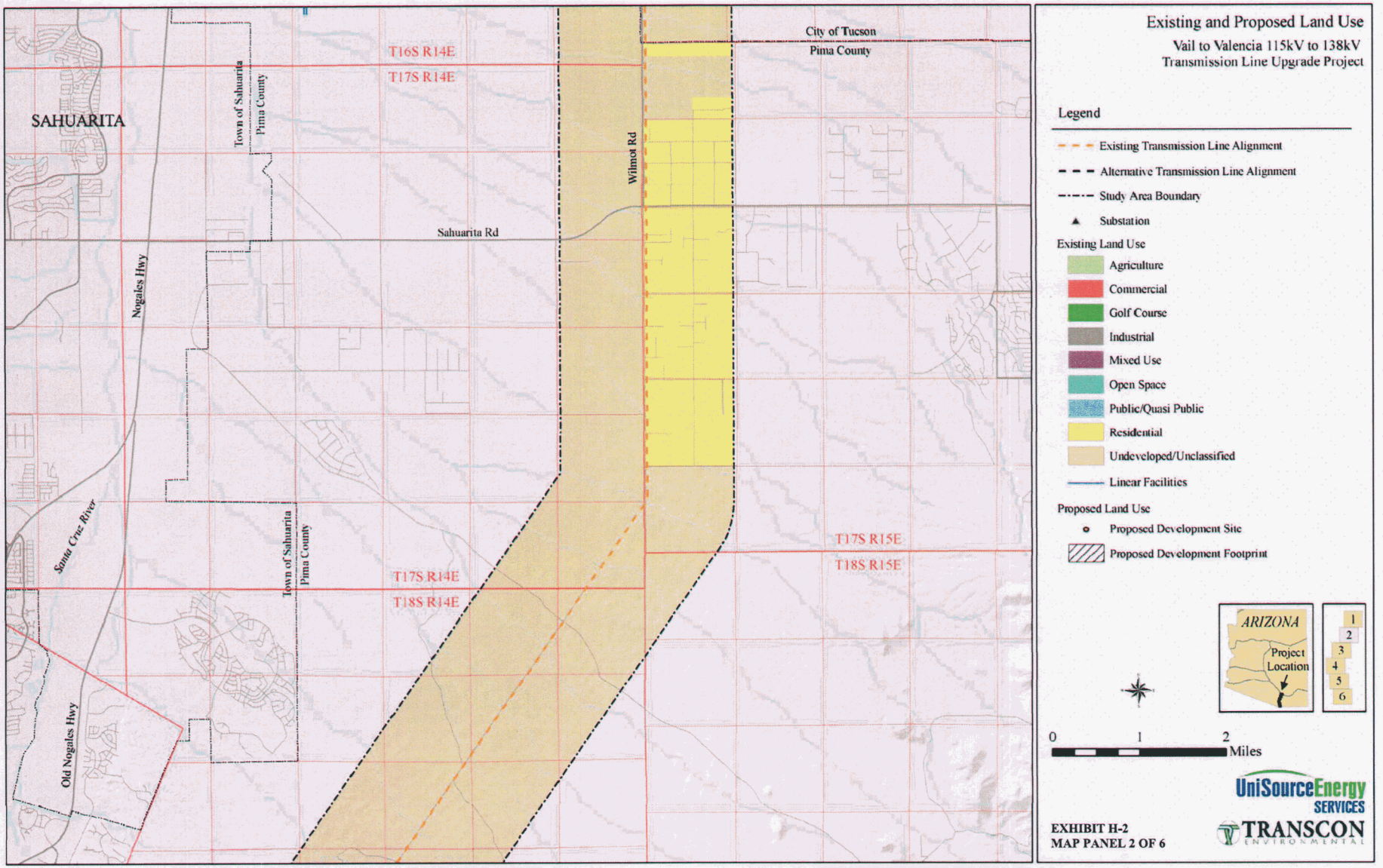


0 1 2 Miles

UniSourceEnergy SERVICES

TRANSCON ENVIRONMENTAL

EXHIBIT H-2
MAP PANEL 1 OF 6


SAHUARITA
Town of Sahuarita
Pima County
T16S R14E
T17S R14E
Wilmot Rd
City of Tucson
Pima County
Sahuarita Rd
Nogales Hwy
Santa Cruz River
Town of Sahuarita
Pima County
T17S R14E
T18S R14E
T17S R15E
T18S R15E
Old Nogales Hwy
Existing and Proposed Land Use
Vail to Valencia 115kV to 138kV
Transmission Line Upgrade Project
Legend
Existing Transmission Line Alignment
Alternative Transmission Line Alignment
Study Area Boundary
Substation
Existing Land Use
Agriculture
Commercial
Golf Course
Industrial
Mixed Use
Open Space
Public/Quasi Public
Residential
Undeveloped/Unclassified
Linear Facilities
Proposed Land Use
Proposed Development Site
Proposed Development Footprint
ARIZONA
Project Location
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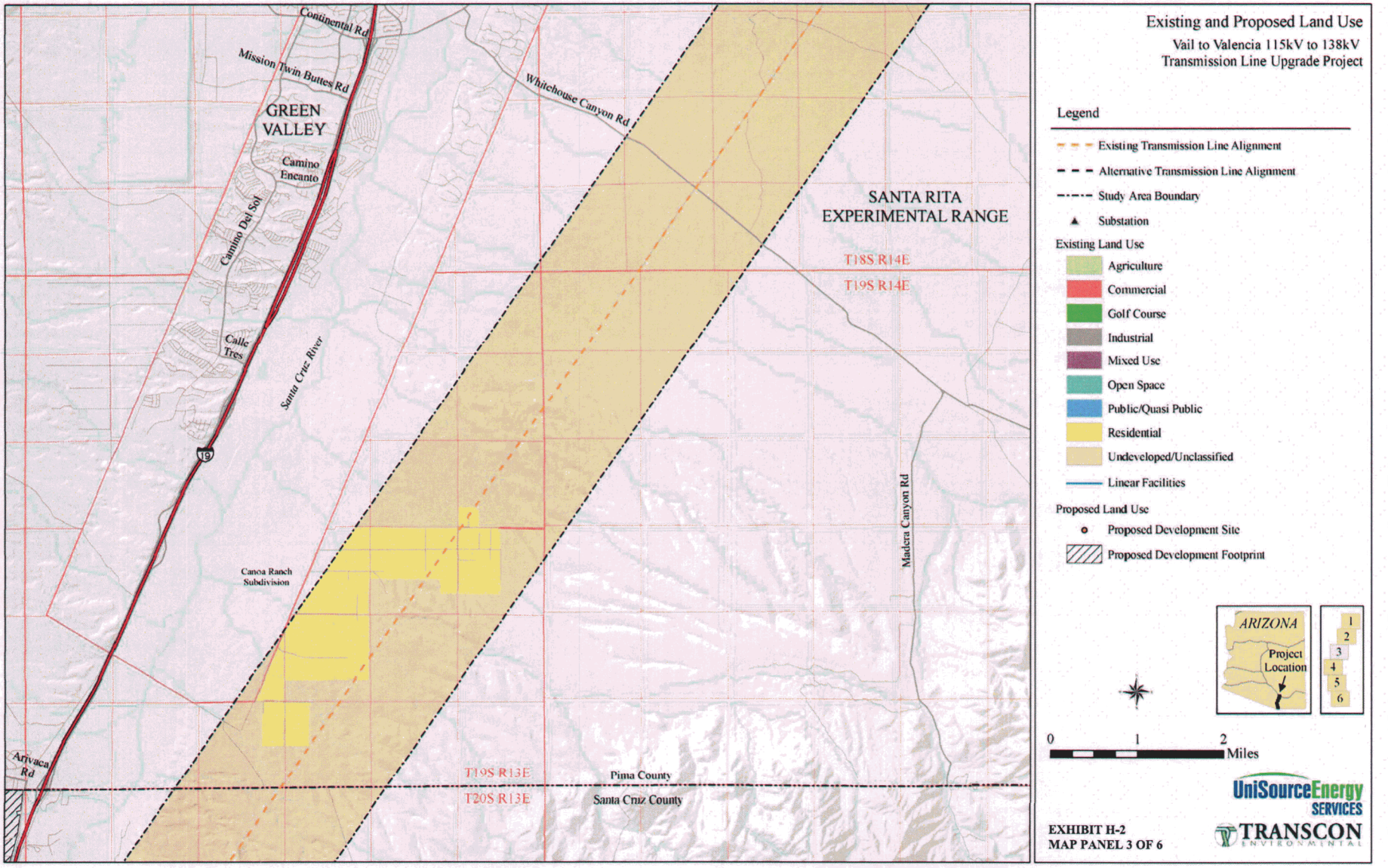
UniSourceEnergy SERVICES
TRANSCON ENVIRONMENTAL
EXHIBIT H-2
MAP PANEL 2 OF 6


Continental Rd
Mission
Twin Buttes Rd
GREEN VALLEY
Camino Encanto
Camino Del Sol
Calle Tres
Santa Cruz River
Whitehouse Canyon Rd
SANTA RITA EXPERIMENTAL RANGE
T18S R14E
T19S R14E
Madera Canyon Rd
Canoa Ranch Subdivision
Arivaca Rd
19
T19S R13E
T20S R13E
Pima County
Santa Cruz County
Existing and Proposed Land Use
Vail to Valencia 115kV to 138kV
Transmission Line Upgrade Project
Legend
Existing Transmission Line Alignment
Alternative Transmission Line Alignment
Study Area Boundary
Substation
Existing Land Use
Agriculture
Commercial
Golf Course
Industrial
Mixed Use
Open Space
Public/Quasi Public
Residential
Undeveloped/Unclassified
Linear Facilities
Proposed Land Use
Proposed Development Site
Proposed Development Footprint
ARIZONA
Project Location
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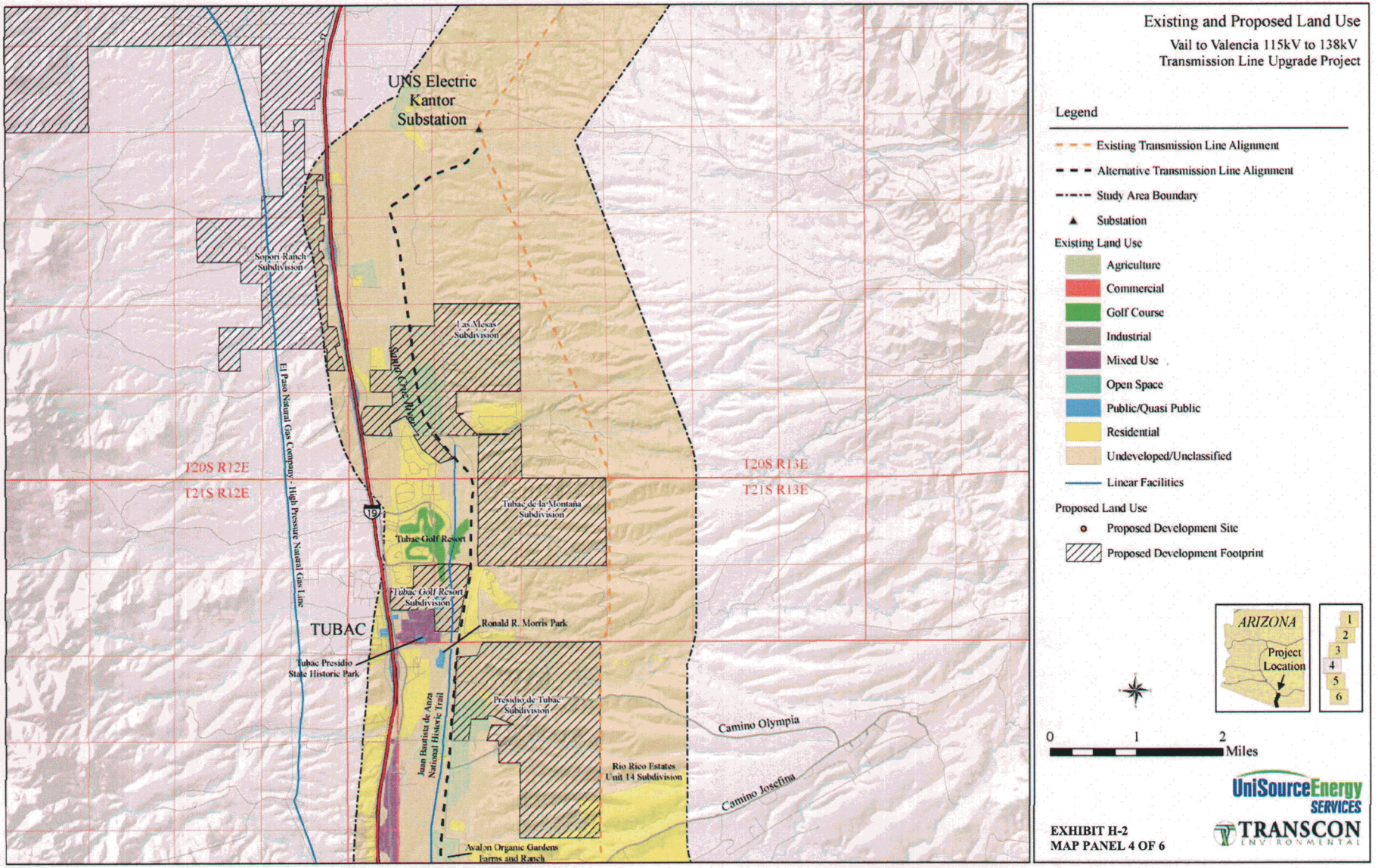
UniSourceEnergy SERVICES
TRANSCON ENVIRONMENTAL
EXHIBIT H-2
MAP PANEL 3 OF 6


UNS Electric
Kantor
Substation
Sopori Ranch
Subdivision
Las Mesas
Subdivision
Santa Cruz Road
El Paso Natural Gas Company - High Pressure Natural Gas Line
T20S R12E
T21S R12E
T20S R13E
T21S R13E
19
Tubac de la Montaña
Subdivision
Tubac Golf Resort
Tubac Golf Resort
Subdivision
TUBAC
Ronald R. Morris Park
Tubac Presidio
State Historic Park
Juan Bautista de Anza
National Historic Trail
Presidio de Tubac
Subdivision
Rio Rico Estates
Unit 14 Subdivision
Camino Olympia
Camino Josefina
Avalon Organic Gardens
Farms and Ranch
Existing and Proposed Land Use
Vail to Valencia 115kV to 138kV
Transmission Line Upgrade Project
Legend
Existing Transmission Line Alignment
Alternative Transmission Line Alignment
Study Area Boundary
Substation
Existing Land Use
Agriculture
Commercial
Golf Course
Industrial
Mixed Use
Open Space
Public/Quasi Public
Residential
Undeveloped/Unclassified
Linear Facilities
Proposed Land Use
Proposed Development Site
Proposed Development Footprint
ARIZONA
Project
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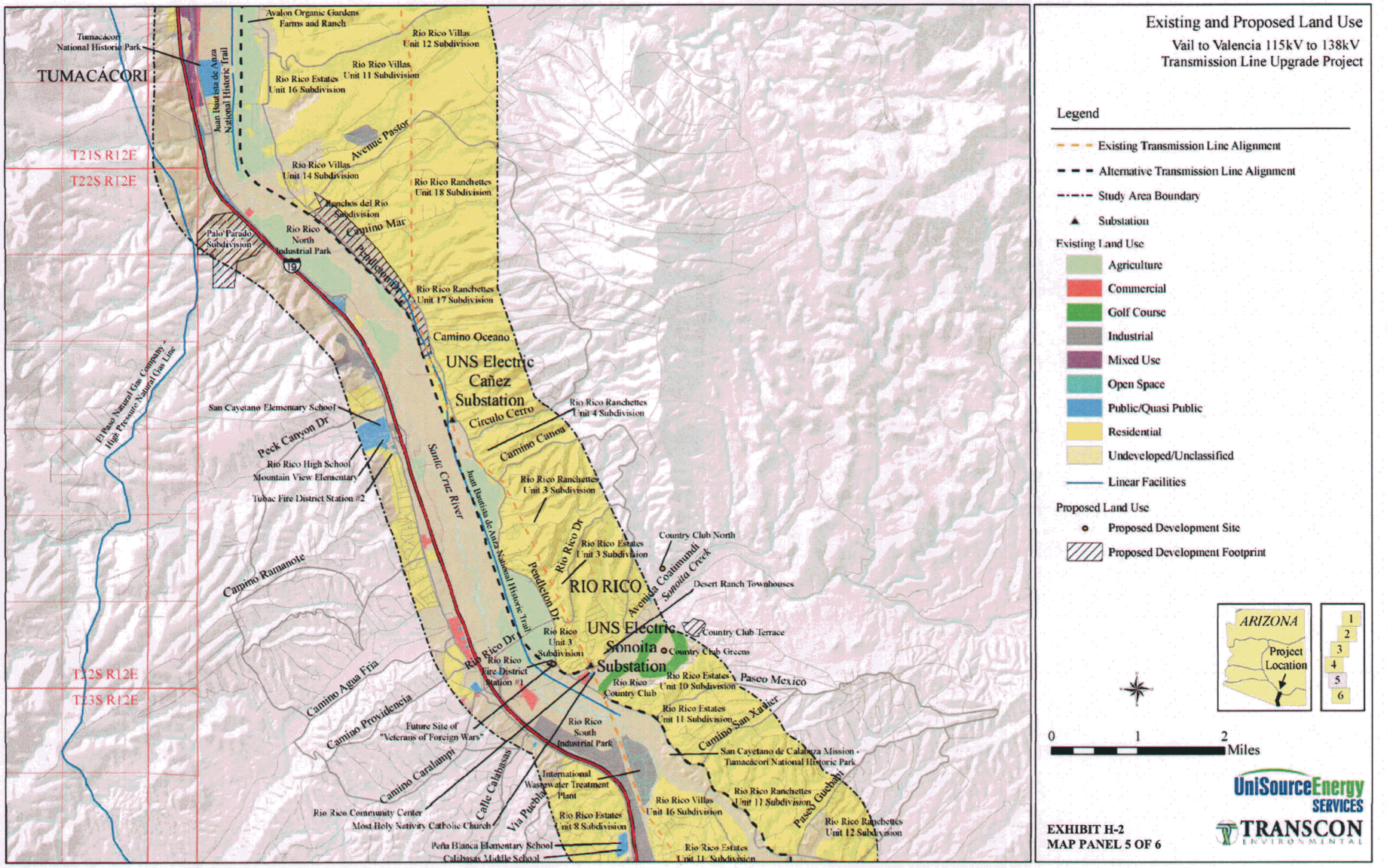
UniSourceEnergy
SERVICES
TRANSCON
ENVIRONMENTAL
EXHIBIT H-2
MAP PANEL 4 OF 6


Existing and Proposed Land Use
Vail to Valencia 115kV to 138kV
Transmission Line Upgrade Project
Legend
Existing Transmission Line Alignment
Alternative Transmission Line Alignment
Study Area Boundary
Substation
Existing Land Use
Agriculture
Commercial
Golf Course
Industrial
Mixed Use
Open Space
Public/Quasi Public
Residential
Undeveloped/Unclassified
Linear Facilities
Proposed Land Use
Proposed Development Site
Proposed Development Footprint
ARIZONA
Project Location
0
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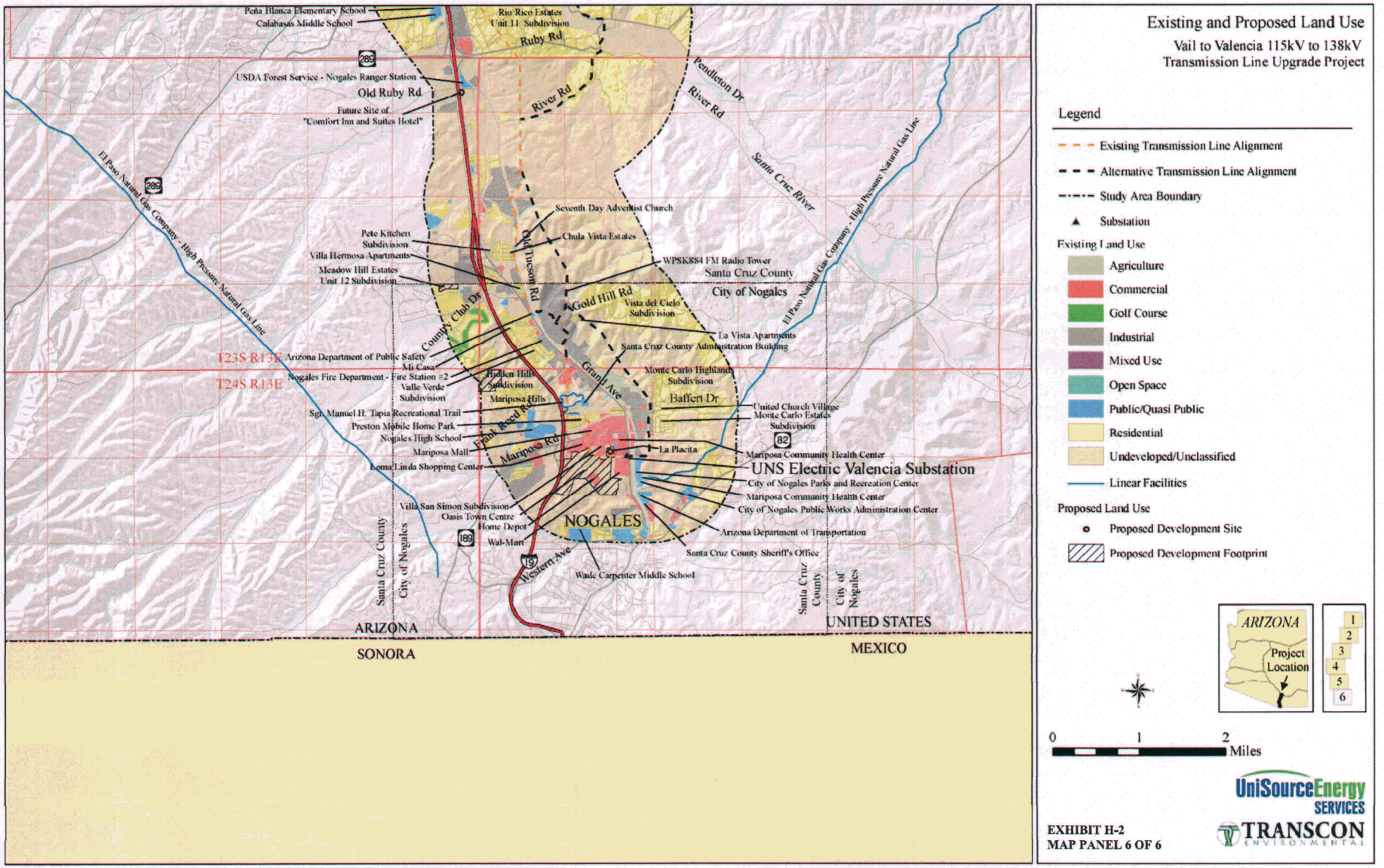
Miles
EXHIBIT H-2
MAP PANEL 5 OF 6
UniSourceEnergy SERVICES
TRANSCON ENVIRONMENTAL
Tumacácori National Historic Park
TUMACÁCORI
Juan Bautista de Anza National Historic Trail
Avalon Organic Gardens Farms and Ranch
Rio Rico Villas Unit 12 Subdivision
Rio Rico Villas Unit 11 Subdivision
Rio Rico Estates Unit 16 Subdivision
Avenue Pastor
Rio Rico Villas Unit 14 Subdivision
Rio Rico Ranchettes Unit 18 Subdivision
Ranchos del Rio Subdivision
Camino Mar
Palo Parado Subdivision
Rio Rico North Industrial Park
19
Rio Rico Ranchettes Unit 17 Subdivision
Camino Oceano
UNS Electric Cañez Substation
Circulo Cerro
Rio Rico Ranchettes Unit 4 Subdivision
Camino Canea
San Cayetano Elementary School
Peck Canyon Dr
Rio Rico High School
Mountain View Elementary
Tubac Fire District Station #2
El Paso Natural Gas Company High Pressure Natural Gas Line
Santa Cruz River
Rio Rico Ranchettes Unit 3 Subdivision
Rio Rico Dr
Rio Rico Estates Unit 3 Subdivision
Country Club North
Avenida Coatimundi
Sonoita Creek
Desert Ranch Townhouses
Camino Ramanote
RIO RICO
Production Dr
UNS Electric Sonoita Substation
Country Club Terrace
Country Club Greens
Rio Rico Unit 3 Subdivision
Rio Rico Fire District Station #1
Rio Rico Country Club
Rio Rico Estates Unit 10 Subdivision
Paseo Mexico
Camino Agua Fria
Camino Providencia
Future Site of "Veterans of Foreign Wars"
Rio Rico Estates Unit 11 Subdivision
Camino San Xavier
Rio Rico South Industrial Park
San Cayetano de Calabaza Mission - Tumacácori National Historic Park
Camino Caralampi
Calle Calabasas
International Wastewater Treatment Plant
Via Puebla
Rio Rico Community Center
Most Holy Nativity Catholic Church
Rio Rico Villas Unit 16 Subdivision
Rio Rico Ranchettes Unit 11 Subdivision
Paseo Guebabi
Rio Rico Estates Unit 8 Subdivision
Rio Rico Ranchettes Unit 12 Subdivision
Peña Blanca Elementary School
Calabasas Middle School
Rio Rico Estates Unit 11 Subdivision
T21S R12E
T22S R12E
T22S R12E
T23S R12E



Existing and Proposed Land Use

Vail to Valencia 115kV to 138kV
Transmission Line Upgrade Project

Legend

- Existing Transmission Line Alignment
- Alternative Transmission Line Alignment
- Study Area Boundary
- Substation

Existing Land Use

- Agriculture
- Commercial
- Golf Course
- Industrial
- Mixed Use
- Open Space
- Public/Quasi Public
- Residential
- Undeveloped/Unclassified
- Linear Facilities

Proposed Land Use

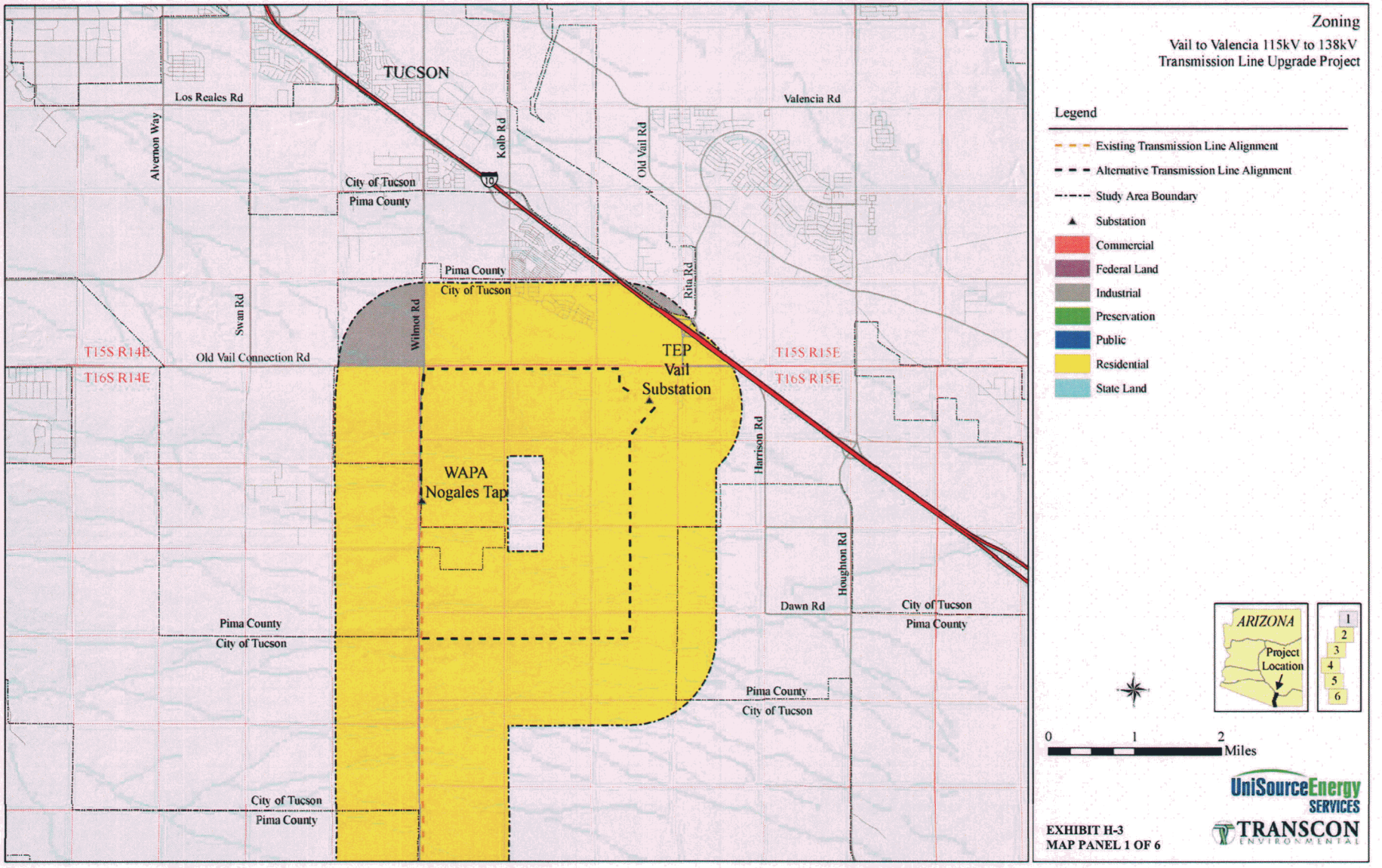
- Proposed Development Site
- Proposed Development Footprint

0 1 2 Miles

UniSourceEnergy SERVICES

TRANSCON ENVIRONMENTAL

EXHIBIT H-2
MAP PANEL 6 OF 6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Los Reales Rd
Alvernon Way
Kolb Rd
Valencia Rd
Old Vail Rd
City of Tucson
Pima County
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Pima County
City of Tucson
Rita Rd
Swan Rd
Wilmot Rd
T15S R14E
T16S R14E
Old Vail Connection Rd
TEP
Vail
Substation
T15S R15E
T16S R15E
Harrison Rd
WAPA
Nogales Tap
Houghton Rd
Dawn Rd
City of Tucson
Pima County
Pima County
City of Tucson
Pima County
City of Tucson
City of Tucson
Pima County
Zoning
Vail to Valencia 115kV to 138kV
Transmission Line Upgrade Project
Legend
Existing Transmission Line Alignment
Alternative Transmission Line Alignment
Study Area Boundary
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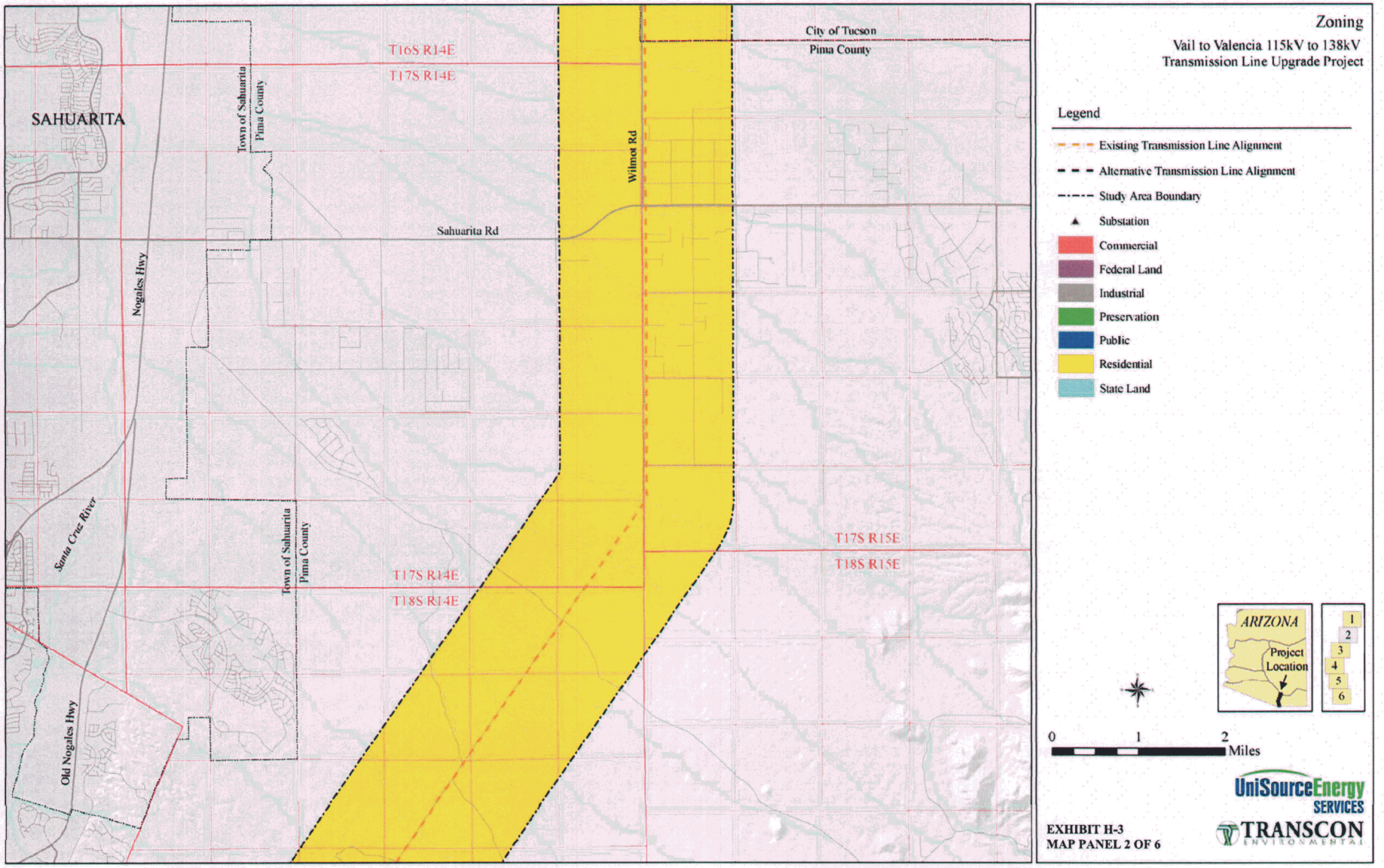
UniSourceEnergy SERVICES
TRANSCON ENVIRONMENTAL
EXHIBIT H-3
MAP PANEL 1 OF 6


SAHUARITA
Town of Sahuarita
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T16S R14E
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Wilmot Rd
City of Tucson
Pima County
Sahuarita Rd
Nogales Hwy
Santa Cruz River
Town of Sahuarita
Pima County
T17S R15E
T18S R15E
T17S R14E
T18S R14E
Old Nogales Hwy
Zoning
Vail to Valencia 115kV to 138kV
Transmission Line Upgrade Project
Legend
Existing Transmission Line Alignment
Alternative Transmission Line Alignment
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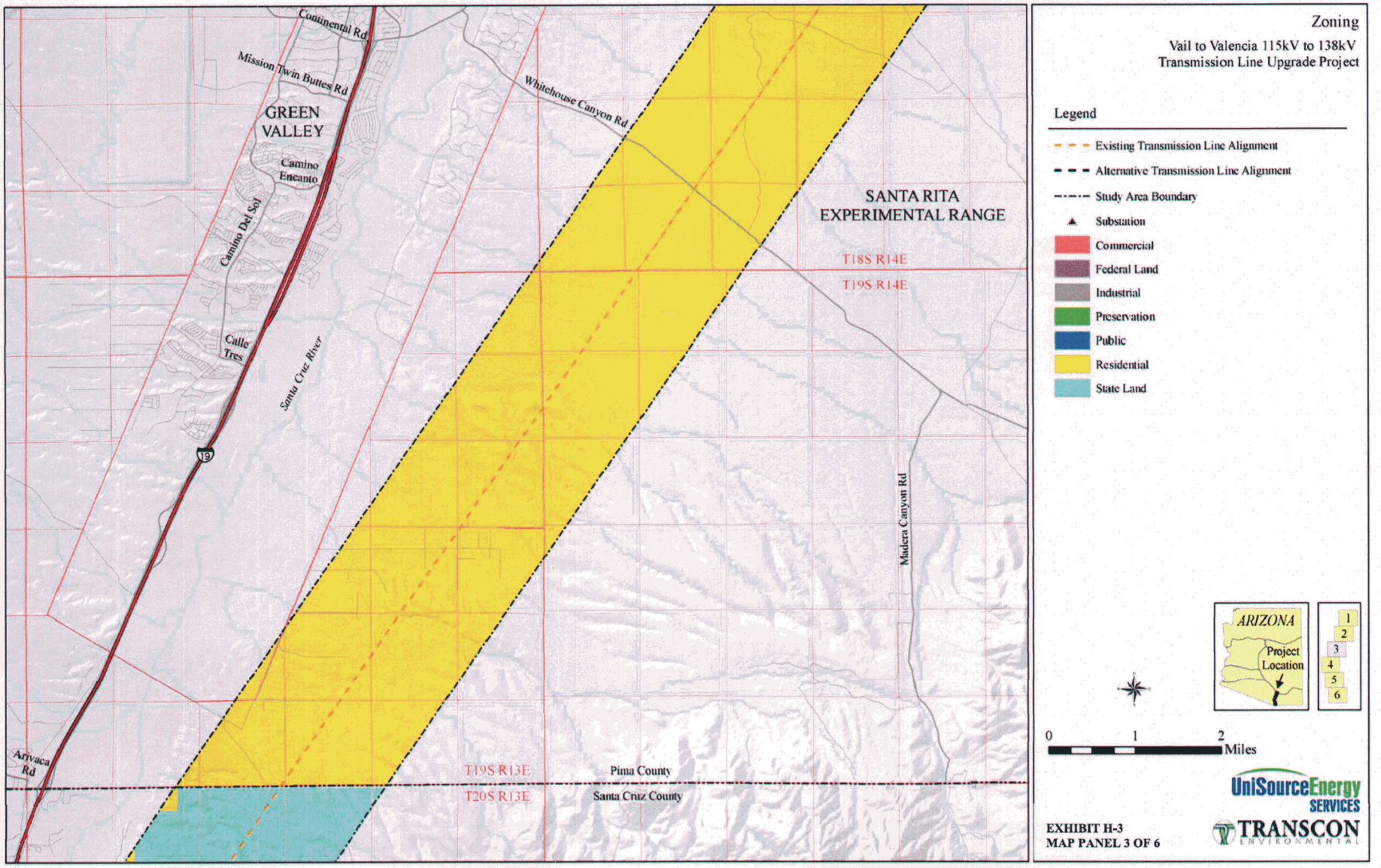
UniSourceEnergy SERVICES
TRANSCON ENVIRONMENTAL
EXHIBIT H-3
MAP PANEL 2 OF 6


Continental Rd
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Camino Encanto
Camino Del Sol
Calle Tres
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Arivaca Rd
Whitehouse Canyon Rd
SANTA RITA EXPERIMENTAL RANGE
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T19S R14E
Madera Canyon Rd
T19S R13E
T20S R13E
Pima County
Santa Cruz County
Zoning
Vail to Valencia 115kV to 138kV Transmission Line Upgrade Project
Legend
Existing Transmission Line Alignment
Alternative Transmission Line Alignment
Study Area Boundary
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Preservation
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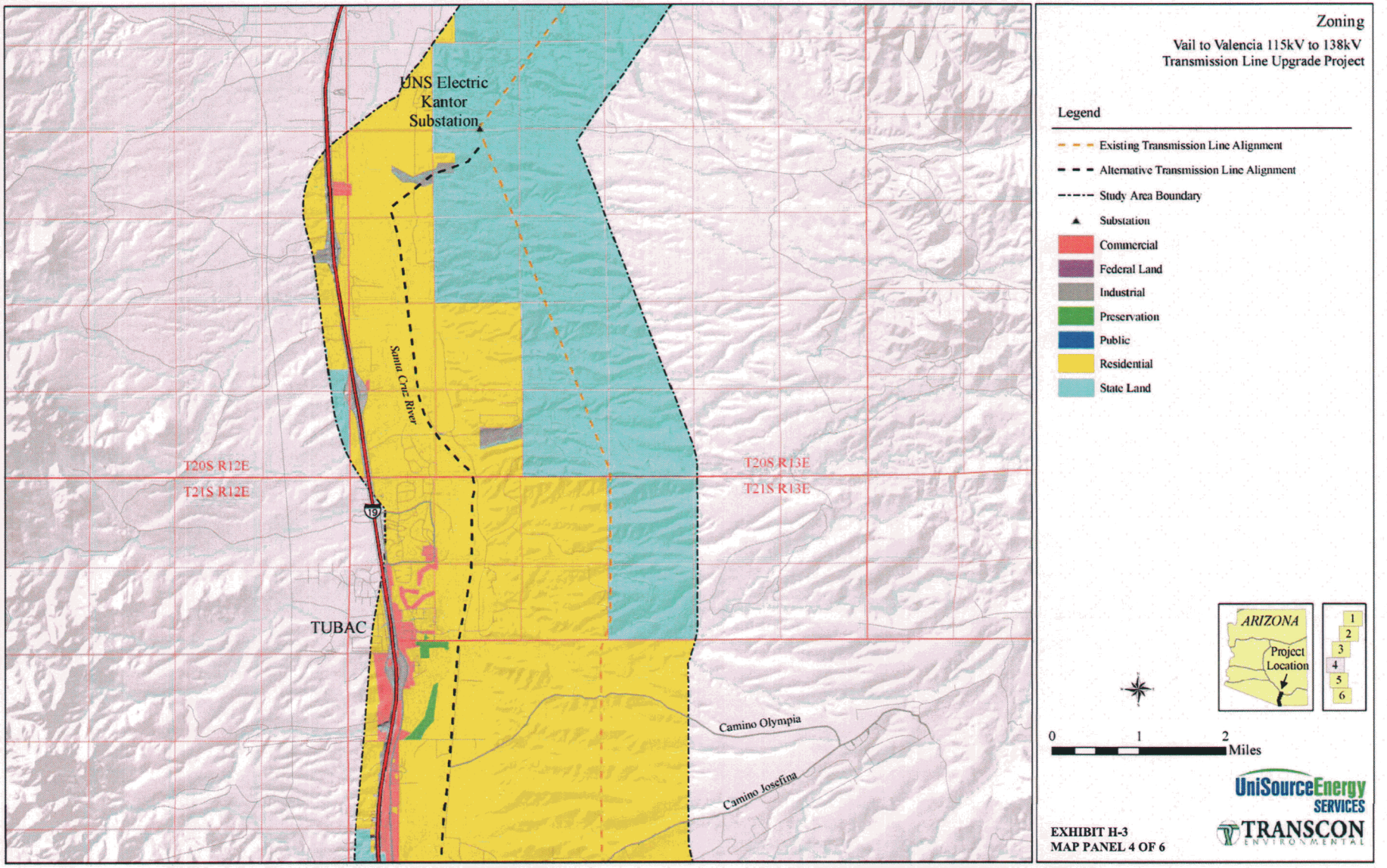
UniSourceEnergy SERVICES
TRANSCON ENVIRONMENTAL
EXHIBIT H-3
MAP PANEL 3 OF 6


UNS Electric
Kantor
Substation
Santa Cruz River
T20S R12E
T21S R12E
T20S R13E
T21S R13E
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TUBAC
Camino Olympia
Camino Josefina
Zoning
Vail to Valencia 115kV to 138kV
Transmission Line Upgrade Project
Legend
Existing Transmission Line Alignment
Alternative Transmission Line Alignment
Study Area Boundary
Substation
Commercial
Federal Land
Industrial
Preservation
Public
Residential
State Land
ARIZONA
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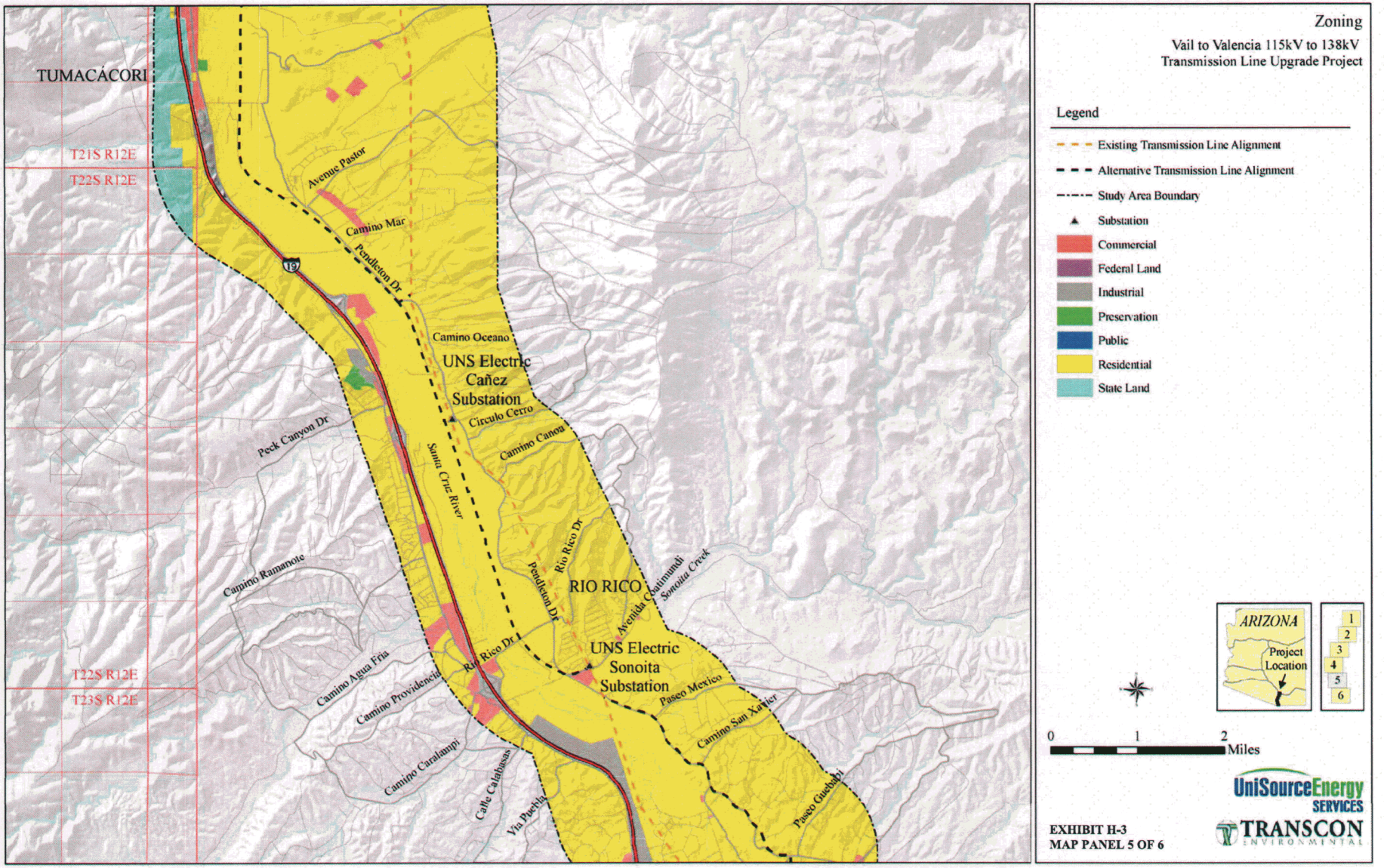
UniSourceEnergy
SERVICES
TRANSCON
ENVIRONMENTAL
EXHIBIT H-3
MAP PANEL 4 OF 6


TUMACACORI
T21S R12E
T22S R12E
T22S R12E
T23S R12E
Avenue Pastor
Camino Mar
Pendleton Dr
19
Camino Oceano
UNS Electric
Cañez
Substation
Circulo Cerro
Camino Canoa
Peck Canyon Dr
Santa Cruz River
Camino Ramanote
Rio Rico Dr
Pendleton Dr
RIO RICO
Avenida Coatimundi
Sonoita Creek
Rio Rico Dr
UNS Electric
Sonoita
Substation
Paseo Mexico
Camino Agua Fria
Camino Providencia
Camino San Xavier
Camino Caralampi
Calle Calabasas
Via Puebla
Paseo Guebabi
Zoning
Vail to Valencia 115kV to 138kV
Transmission Line Upgrade Project
Legend
Existing Transmission Line Alignment
Alternative Transmission Line Alignment
Study Area Boundary
Substation
Commercial
Federal Land
Industrial
Preservation
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Residential
State Land
ARIZONA
Project
Location
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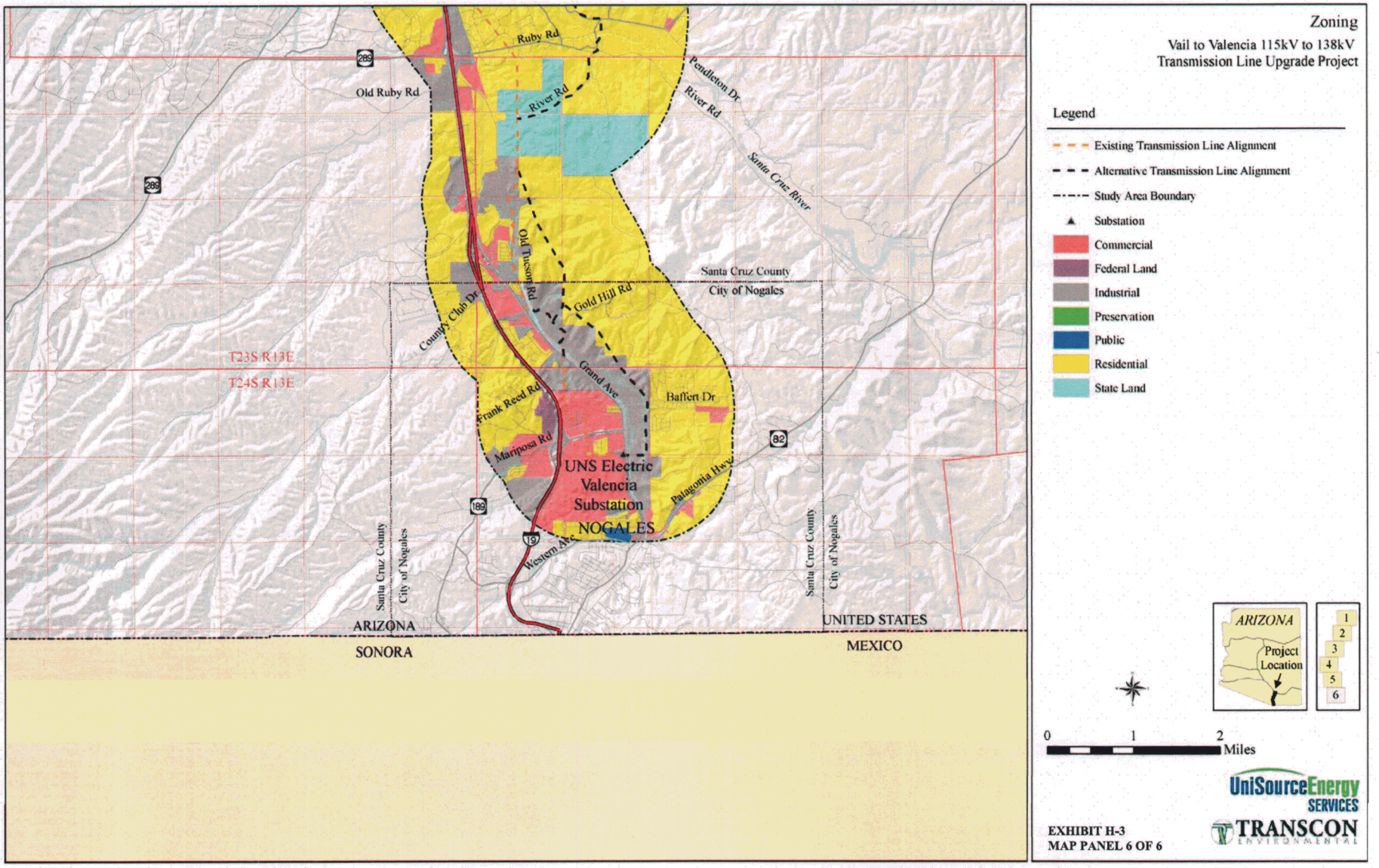
Miles
UniSourceEnergy
SERVICES
TRANSCON
ENVIRONMENTAL
EXHIBIT H-3
MAP PANEL 5 OF 6


Zoning
Vail to Valencia 115kV to 138kV
Transmission Line Upgrade Project
Legend
Existing Transmission Line Alignment
Alternative Transmission Line Alignment
Study Area Boundary
Substation
Commercial
Federal Land
Industrial
Preservation
Public
Residential
State Land
Ruby Rd
Old Ruby Rd
River Rd
Pendleton Dr
Santa Cruz River
Old Tucson Rd
Gold Hill Rd
Santa Cruz County
City of Nogales
Country Club Dr
T23S R13E
T24S R13E
Grand Ave
Baffert Dr
Frank Reed Rd
Mariposa Rd
UNS Electric
Valencia
Substation
NOGALES
Patagonia Hwy
Western Ave
Santa Cruz County
City of Nogales
ARIZONA
SONORA
UNITED STATES
MEXICO
ARIZONA
Project Location
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Miles
UniSourceEnergy SERVICES
TRANSCON ENVIRONMENTAL
EXHIBIT H-3
MAP PANEL 6 OF 6

EXHIBIT I: NOISE EMISSIONS AND COMMUNICATION INTERFERENCE

NOISE

Baseline ambient noise levels were estimated using the relationship between population density and noise levels. Much of the project area is uninhabited; however, transportation and energy infrastructure development is already present. Populations for the majority of the area immediately adjacent to the proposed project facilities would be classified as Rural (undeveloped), with a population density of less than 20 people per square mile and typical ambient noise levels of 35 dBA. However, in Nogales and the communities along the Santa Cruz River, including Tubac, Tumacácori, and Rio Rico, population densities would range from Rural (partially developed) to Normal Suburban, with estimated population densities of between 60 to 600 people per square mile. Typical ambient noise levels for these densities range from 40 to 50 dBA (National Academy of Sciences 1977).

Sources of noise along the proposed project alignments primarily relate to transportation sources and would include nearby I-19, I-10, Grand Avenue (State Route 19), Mariposa Road (State Route 189), Pendleton Road, Rio Rico Drive, and Wilmot Road, local access traffic, and noise from the Union Pacific Railroad. Residential noise would also contribute to noise levels near Tucson and Nogales, as well as the communities of Tubac, Tumacácori, and Rio Rico.

No hospitals are located within the vicinity of project alternatives; however, sensitive noise receptors including churches and schools are scattered throughout the project area. The Most Holy Nativity Catholic Church, Seventh Day Adventist Church, and the Rio Rico Community Center are located immediately adjacent to proposed project alternative alignments. The existing 115 kV transmission line is currently located adjacent to each of these facilities; additional noise as a result of project implementation is not expected.

Some level of noise will result from transmission line construction, operation, and maintenance. During construction, equipment used for clearing and grading (access roads and structure sites), assembly and erection of structures, wire pulling and splicing, and rehabilitation activities will generate noise. Noise from construction activities would be audible, particularly to the closest residents in Tucson and Nogales, as well as the communities of Tubac, Tumacácori, and Rio Rico. This construction noise, however, would not be considered to be a major impact because construction would occur during daytime hours when tolerance to noise is higher and likely to be considered only a nuisance, and would be temporary, lasting only a few days at a time in any one location. Long-term noise impacts from transmission line operation and maintenance activities are expected to be minimal.

RADIO

Several communications facilities are located within the study area. The KOFH (99.1 FM) radio tower is located less than one-quarter mile west of several of the alternative alignments within Segment 4 (Sonoita to Valencia) including Alternatives 1,2, 4, and 5.

Frequency modulation ("FM") radio is rarely affected by transmission lines. FM radio receivers usually do not pick up interference from transmission lines because corona-generated radio frequency noise currents decrease in magnitude with increasing frequency and are quite small in the FM broadcast band (88-108 megahertz). In addition, the excellent interference rejection properties inherent in FM radio systems make them virtually immune to amplitude-type disturbances. There should be little to no FM radio interference from any of the proposed project alternatives.

Radio interference is most likely to affect the amplification modulation ("AM") broadcast band. Only AM receivers located immediately adjacent to the transmission line, however, have the potential to be

affected by radio interference. No AM receivers are located within two miles of project alternative alignments.

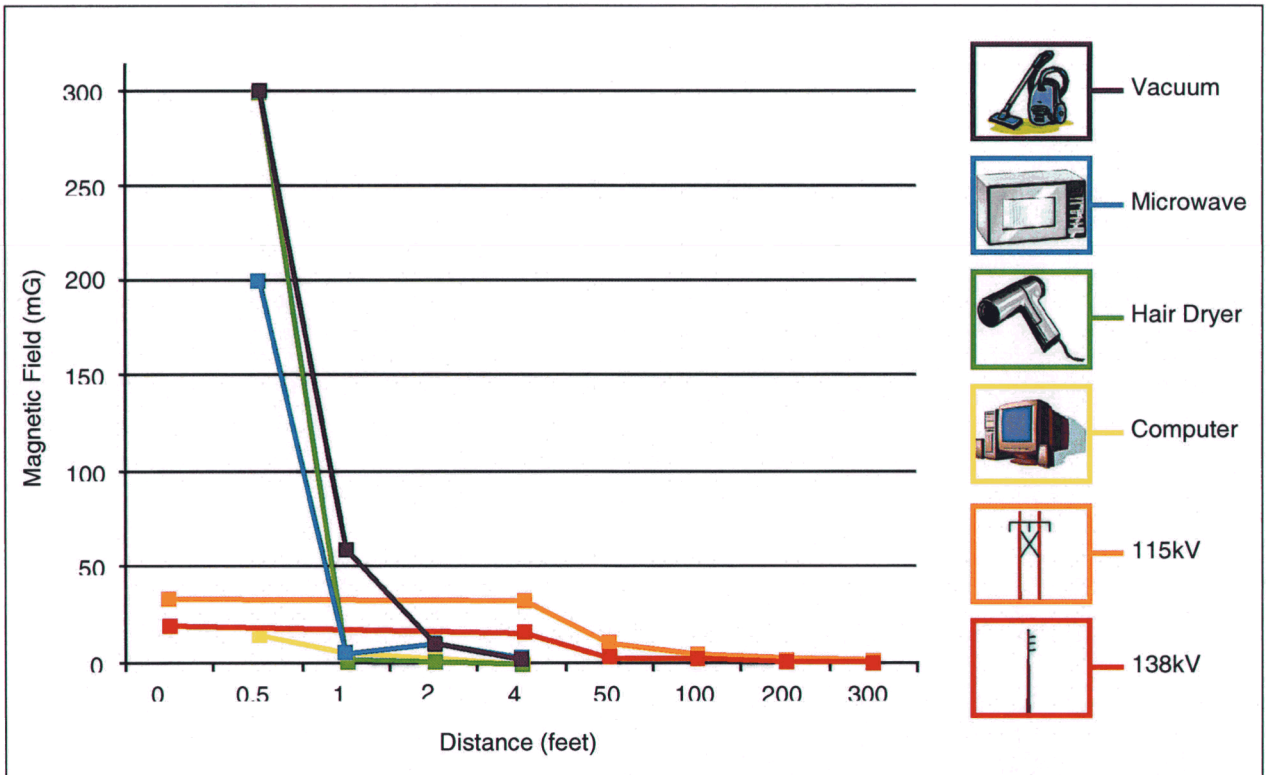
Several residential areas are located in the vicinity of the proposed project alternative alignments. In many of these areas the proposed alternative alignments would replace the existing 115 kV transmission line; therefore, additional radio interference as a result of project implementation is not expected.

TELEVISION

Interference with traditional television reception from the transmission line's corona effects may occur during periods of bad weather, but is usually only a concern for transmission lines of 345 kV or greater and only for receivers within 500 feet of the line. Because many of the proposed alternative alignments would replace the existing 115 kV transmission line and the voltage would not exceed 138 kV, additional television interference is not expected.

ELECTRIC AND MAGNETIC FIELDS

Electric and magnetic fields are produced by power lines, and these fields would induce voltages and currents on nearby conductive objects. These fields exist around overhead and underground power lines, house wiring, computers, power tools, appliances, and anything that carries or uses electricity (Figure I-1).



Sources: National Institute of Environmental Health Sciences, National Institutes of Health. Electric and Magnetic Fields Associated with the Use of Electric Power; Western Area Power Administration. Electric and Magnetic Fields Facts.

FIGURE I-1

Both current and voltage are required to transmit electrical energy over a transmission line. The current, a flow of electrical charge, measured in amperes (A), creates a magnetic field. This can fluctuate with the

amount of line loading at any given time. The voltage, the force or pressure that causes the current to flow, measured in units of volts (V) or thousand volts (kV), creates an electric field. Though an electric field is present anytime a line is energized, even from one end, the magnetic field exists only when electricity flows. It is general practice to consider both fields together as electric and magnetic field ("EMF") values in assessing the amount of effect at the outer edge of a transmission line's right-of-way.

Electric and magnetic fields decrease in strength with increased distance from the source. In addition, electric fields are further weakened by obstacles such as walls, roofs, trees, and vegetation. However, magnetic fields are not easily shielded by most materials and are primarily reduced in strength by distance alone. Based upon computer modeling of this project by UNS Electric for various operational conditions, the EMF values associated with this project are expected to be comparable to other 138 kV transmission lines in the state and are expected to be within generally accepted standards at the edge of the proposed right-of-way.

REFERENCES

IEEE/ANSI Standard C2-2007. National Electrical Safety Code.

National Academy of Sciences 1977. *Guidelines for Preparing Environmental Impact Statements on Noise*. Washington D.C.

National Academy of Sciences 1996. *Possible Health Effects of Exposure to Residential Electric and Magnetic Fields*. National Research Council.

National Institute of Environmental Health Sciences 1999. *Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields.*

EXHIBIT J: SPECIAL FACTORS

Exhibit J-1: Federal, State, and Local Agency Notification Letter and Responses
Exhibit J-2: Tribal Notification Letter and Responses
Exhibit J-3: Newsletters
Exhibit J-4: Open House #1 Materials and Exhibits
Exhibit J-5: Open House #2 Materials and Exhibits
Exhibit J-6: Open House #3 Materials and Exhibits
Exhibit J-7: Agency and Stakeholder Meetings Summary
Exhibit J-8: Public Responses

PUBLIC OUTREACH PROCESS

Federal, State, and Local Agency Notification

A scoping letter was distributed on January 25, 2008 to federal, state, and local agencies with jurisdiction or interest in the study area. The scoping letter, or project notification letter, described the need for the project and the proposed project study area. The letters also requested the agencies document questions or concerns they had regarding the proposed project. A copy of the scoping letter, mailing list, and responses received, if any, are included in Exhibit J-1.

Tribal Notification

An important factor in the siting process is the input provided by Native American groups, particularly since archaeological and historical resources and places with traditional cultural significance may occur near the proposed project vicinity. A tribal coordination letter was distributed on January 25, 2008 to local Native American groups with a request for information regarding any unique, unusual, special, ethnographic, or archaeological resources in the proposed project vicinity. A copy of the letter, mailing list, and responses received are included in Exhibit J-2.

Website and Telephone Information Line

A project website was established that contained project information similar to the information contained in the newsletter. It also contains project information, dates, maps including an interactive Google™ based map, and contact information. The website was updated regularly throughout the project.

The telephone information line contained a recorded message introducing the project in English and Spanish, and encouraged the caller to leave a detailed message. The messages were then instantly e-mailed to project team members and return calls were usually made within one day.

Newsletters

Project newsletters introduced the project and defined the study area, preliminary routes, or alternative alignments as they developed throughout the siting process. Additionally, newsletters encouraged the public to become involved and assist UNS Electric in the transmission line siting process. Each newsletter was printed in both English and Spanish and provided project information including purpose and need, contact information, and a dedicated telephone line information number. Three distributions of a newsletter occurred throughout the project siting process. UNS Electric originally mailed newsletters to property owners and residences within 300 feet of the existing 115 kV transmission line and proposed re-routes. As the project progressed and alternative alignments were evaluated, UNS Electric developed a broader study area and included landowners and residences generally within one mile of the existing 115 kV transmission line on the mailing list. Copies of the newsletters are included in Exhibit J-3.

The first mailing occurred December 28, 2007 and circulated newsletters to approximately 5,000 residents and landowners within the original study area. This newsletter provided information on the project, a project phone number, and a description about the need for the project.

The second mailing occurred May 20, 2008 circulated to approximately 20,000 residents, landowners, jurisdictions, and agencies within the expanded study area. This newsletter provided a project description and update, announced the upcoming public open house meetings, and provided contact information.

The third mailing occurred November 13, 2008 to approximately 30,000 residents, landowners, jurisdictions, and agencies within the expanded study area. UNS Electric continually worked with Santa

Cruz County to expand and improve the database and mailing list. As with the other newsletters, a project description and update were included. It also announced the upcoming public open house meetings and provided contact information.

Open House Meetings

Three series of public Open House meetings (eight meetings total) were held for the project. UNS Electric managers, public involvement staff, and environmental consultants were available at each meeting. In general, Open House meetings were lightly attended. On average each meeting had between 10 and 15 attendees, but up to as many as 37 people attended a single meeting. Project information was provided on large format displays. Project newsletters and comment forms were also available.

Prior to each public Open House, UNS Electric placed announcements in the main section (not the legal section) of local newspapers including the Nogales International (February 19 and 22, 2008; May 20, 2008; November 25, 2008), Green Valley News (May 21, 2008; November 26, 2008), Vail Sun (May 21, 2008; November 26, 2008), Sahuarita Sun (May 21, 2008; November 26, 2008), and Santa Cruz Valley Sun (November 26, 2008). Additionally, radio spots were also run prior to each round of Open House meetings on local radio stations in the Nogales area in both English and Spanish.

The first series of meetings occurred in Nogales and Rio Rico on February 27 and 28, 2008 from 6:00 p.m. to 7:00 p.m. at the Nogales Town Hall and the Rio Rico Community Center respectively. The objective of these meetings was to present project background information including study process, schedule, potential alignments and corridors, and to allow citizens the opportunity to ask questions and offer input into the proposed study area corridor and alignment alternatives. Copies of the newspaper announcements, public sign-in sheets, blank comment form, and reduced scale display graphics are included in Exhibit J-4.

The second series of meetings occurred on May 27 and 29, 2008 from 5:30 p.m. to 7:30 p.m. at the Tucson Airport-Holiday Inn Hotel and Suites and Nogales High School respectively. A third meeting occurred on May 28, 2008 from 5:00 p.m. to 7:00 p.m. at the Joyner-Green Valley Branch Library. The objective of these meetings was to present project background information, provide an update on the study process and schedule, present potential alignments and corridors, and to allow citizens the opportunity to ask questions and offer input with regards to preferred alignments within the proposed study area. Maps depicting alignments under consideration were available for examination at these meetings. Members of the public were encouraged to provide comments regarding sensitivities and draw additional alternatives. Alternative alignments that were presented by members of the public were considered as part of the siting study. Copies of the newspaper announcements, public sign-in sheets, blank comment form, and reduced scale display graphics are included in Exhibit J-5.

The third series of meetings occurred on December 2 and 3, 2008 from 5:30 p.m. to 7:30 p.m. at the Nogales High School and Tucson Airport-Holiday Inn Hotel and Suites respectively. A third meeting occurred on December 4, 2008 from 5:00 p.m. to 7:00 p.m. at the Joyner-Green Valley Branch Library. The objective of these meetings was to present project background information, roll out preliminary alternative alignments to the public, and to allow citizens the opportunity to ask questions, state concerns, and offer input with regards to a preferred alternative alignment. Maps depicting all alignments under consideration were available for examination at these meetings. In addition, a computer with access to the internet was available for the public to view the interactive project map. The interactive project map allowed members of the public the ability to query and identify their exact address and measure the distance to alternative alignments. Copies of the newspaper announcements, public sign-in sheets, blank comment form, and reduced scale display graphics are included in Exhibit J-6.

Agency and Stakeholder Meetings

Throughout the siting process, contact occurred with local political officials and town, city, and county staff leadership or department heads. Contact also occurred with local interest groups not affiliated with a government, but with interest in the project, including the Union Pacific Railroad, Green Valley Community Coordinating Council, and Residents of Rio Rico, amongst others. Town, city, and county Geographic Information System ("GIS") data, reports, plans, and ordinances relevant to the study area were gathered to assist in the project siting analysis. Meetings were held that involved a short presentation regarding the project including timeframes, process, and need. A table summarizing meetings held including dates, attendees, and discussions is included in Exhibit J-7.

Public Responses

A total of 27 comment forms were completed at the Open House meetings. A total of 41 public responses were received from the telephone information line and 13 e-mail responses were received through the link provided on the project website. Additionally, 18 comment forms and/or correspondence were received through the general mail. Copies of public responses are included in Exhibit J-8.

EXHIBIT J-1: FEDERAL AND STATE AGENCY NOTIFICATION LETTER AND RESPONSES

Agency Mailing List
Agency Notification Letter and Map
U.S. Department of Agriculture, Natural Resources Conservation Service Response Letter
U.S. International Boundary and Water Commission Response Letter
Arizona Department of Environmental Quality, Air Quality Division Response Letter
Arizona Department of Environmental Quality, Water Quality Division Response Letter
Arizona Game and Fish Department Response Letter
Arizona State Historic Preservation Office Response Letter
Arizona State Land Department, Natural Resources Conservation District Response Letter
Pima County Administrator's Office, County Administrator Response Letter
Pima County Development Services, Planning Official Response Letter
Pima County Department of Transportation Response Letter
City of Tucson, Office of the City Manager Response Letter

UNISOURCE ENERGY SERVICES VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT AGENCY MAILING LIST 01/16/08	
Steve Spangle Field Supervisor U.S. Fish and Wildlife Service 2321 W. Royal Palm Road, Suite 103 Phoenix, Arizona 85021	Superintendent Tumacacori National Historical Park P. O. Box 8067 Tumacácori, Arizona 85640
Sallie McGuire US Army Corps of Engineers Los Angeles District Phoenix Office 3636 N. Central Avenue Suite 760 Phoenix, AZ 85012-1936	Ron Moulton Project Manager Regulatory and Restructuring Western Area Power Administration P.O. Box 6457 Phoenix, AZ 85005-6457
Marjorie Blaine Senior Project Manager U.S. Army Corps of Engineers Tucson Project Office, Regulatory Branch 5205 E. Comanche St. Tucson, AZ 85707	Manuel Rubio, License & Lease Specialist International Boundary/Water Commission U.S. Section 4171 North Mesa, Suite C-100 El Paso, TX 79902-1441
David McKay, State Conservationist Natural Resource Conservation Service Arizona State Headquarters 230 N. First Avenue, Suite 509 Phoenix, AZ 85003-1733	Stephen A. Owens Arizona Department of Environmental Quality Mail Code: R1000T 400 W Congress Suite 433 Tucson, Arizona 85701
James McGinnis Manager Arizona Native Plant Law Arizona Department of Agriculture Plant Services Division 1688 W. Adams Phoenix, Arizona 85007	Bob Broscheid Arizona Game & Fish Department Habitat Branch - Project Evaluation Program 2221 W. Greenway Rd Phoenix, AZ 85023
Michelle Muench Arizona State Land Department 177 N. Church Ave., Suite 1100 Tucson, AZ 85701	Doug Witte, Manager Natural Resource Conservation Section Arizona State Land Department 1616 West Adams Phoenix, AZ 85007
Ruben Ojeda Right-of-Way Manager Real Estate Division Arizona State Land Department 1616 W. Adams Phoenix, AZ 85007	Gordon Taylor Real Estate Division Planning Section Arizona State Land Department 1616 W. Adams Phoenix, AZ 85007
James Garrison State Historic Preservation Officer Arizona State Parks 1300 W. Washington Phoenix, AZ 85007	Arizona State Parks Tubac Presidio Sate Historic Park PO Box 1296 Tubac, AZ 85646
Donna Jones, Senior Permit Specialist Arizona Department of Transportation Tucson District 1221 S. 2nd Avenue Tucson, Arizona 85713-1602	Mr. Greg Gentsch, District Engineer Arizona Department of Transportation Tucson District 1221 S. 2nd Avenue Tucson, Arizona 85713-1602

Steve Husman Santa Rita Experimental Range Campus Agricultural Center 4101 North Campbell Avenue Tucson, Arizona 85719	C.H. Huckelberry County Administrator Pima County Governmental Center 130 W. Congress St. Tucson, AZ 85701-1317
Ursula Kramer, Director Pima County Department of Environmental Quality 150 W. Congress Street Tucson, AZ 85701-1332	Ray Carroll, District 4 Pima County Board of Supervisors 130 W. Congress St., 11th Floor Tucson, AZ 85701-1317
Ramon Valadez, District 2 Pima County Board of Supervisors 130 W. Congress St., 11th Floor Tucson, AZ 85701-1317	Priscilla S. Cornelio, P.E., Director Pima County Department of Transportation 201 N. Stone Ave., 3rd Floor Tucson, Arizona 85701-1207
Subhash Raval, Technical Support Manager Development Review Development Services Department County Public Works Building 201 North Stone Avenue Tucson, Arizona 85701	Greg Lucero Santa Cruz County Manager 2150 N. Congress Drive Nogales, AZ 85621
Roger Anyon Pima County Cultural Resources and Historic Preservation Office Pima County Public Works Center 201 N. Stone Avenue, 7th Floor Tucson, Arizona 85701-1207	Victor Gabilando, Director Santa Cruz County Public Works Department 2150 N. Congress Drive Nogales, AZ 85621
Mary Dahl, Director Santa Cruz County Community Development 2150 N. Congress Drive Nogales, AZ 85621	Melinda Meek, Clerk of the Board Santa Cruz County Board of Supervisors 2150 N. Congress Drive Nogales, AZ 85621
Mike Hein, City Manager City of Tucson City Hall 255 West Alameda Tucson, Arizona 85701	Mayor Ignacio J. Barraza City of Nogales 777 N. Grand Avenue Nogales AZ 85621
Ernie Duarte, Director City of Tucson Development Services County-City Public Works Building 201 N Stone Ave., First Floor Tucson, Arizona 85701	George X. Liñeiro, Director Planning and Zoning Department City of Nogales Public Works Administration Building 1450 N. Hohokam Drive Nogales, AZ 85621

TRANSCON
ENVIRONMENTAL

January 25, 2008

Name
Agency
Address

Re: UNS Electric, Inc. Vail to Valencia 115kV Upgrade Project

To Whom It May Concern:

UNS Electric, Inc. (UNSE), a subsidiary of UniSource Energy Services is planning to upgrade an existing 115kV (115,000 volt) transmission line to a 138kV (138,000 volt) transmission line between the Vail Substation in Tucson and the Valencia Substation in Nogales, Arizona (see figure 1). The existing line is the primary electrical line serving Nogales, Arizona and other communities along the Santa Cruz River south of Green Valley, Arizona.

Activities required to complete the upgrade would involve only a few changes to the existing transmission line route. On the north end of the project, near the Town of Vail, a 4.5 mile segment of transmission line must be built to interconnect with the existing Vail Substation (see photo A). Additionally, two segments are planned for relocation (see photos B and C). The two relocated segments are south of Tumacacori and north of Nogales. Steel monopole structures would be installed in areas of new transmission line construction, and existing wood poles south of Amado, Arizona would be replaced with steel monopoles. The entire length of the transmission line would then be energized at 138kV.

The proposal to upgrade the 50 mile-long transmission line requires approval from the Arizona Corporation Commission (ACC).

The project is intended to help meet growing electricity demand in the Nogales, Arizona and Santa Cruz Valley areas, upgrade and reinforce UNSE's current electrical distribution system and improve power reliability to current and future power users. This project is planned in accordance with UNSE's commitment to the ACC to upgrade the existing infrastructure.

Township and range information is provided from US Geological Survey (USGS) quadrangle maps of the area. Where township and range information is not provided on the USGS quadrangle maps, the approximate township and range location was estimated. The project is located in the Gila and Salt River Baseline and Meridian and its township and range descriptions are as follows:

- Sections 5, 30, and 31 of Township 24 South, Range 14 East
- Sections 7, 18, 19, 30, 31, and 32 of Township 23 South, Range 14 East
- Sections 1, 2, and 12 of Township 23 South, Range 13 East
- Sections 3, 9, 10, 15, 22, 23, 26, 27, 35, and 36 of Township 22 South, Range 13 East
- Sections 3, 10, 16, 21, 27, 28, and 34 of Township 21 South, Range 13 East

3740 E. Southern Avenue, Suite 218 - Mesa, Arizona 85206 - 480.807.0095 - info@transconusa.com

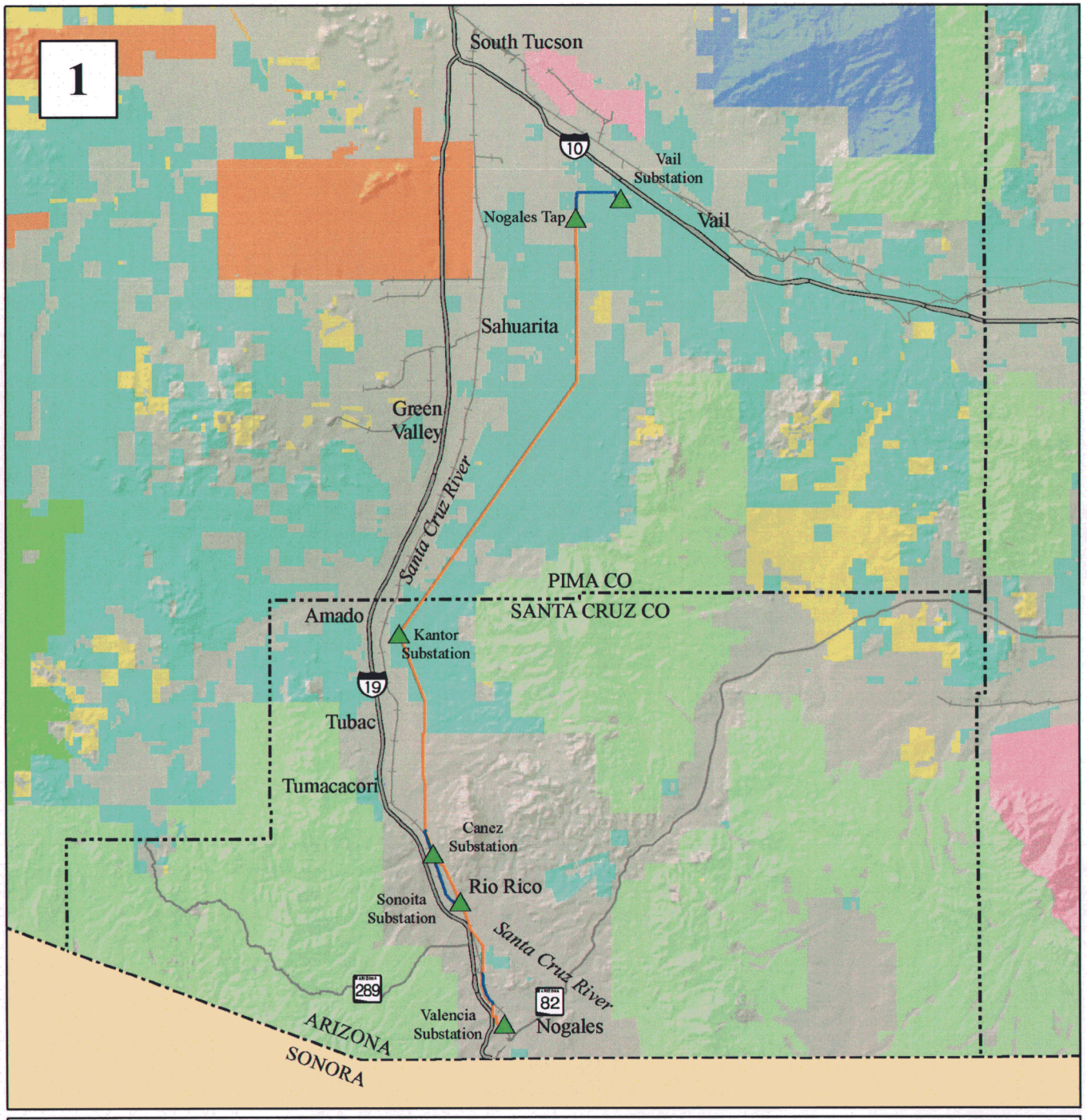
- Sections 4, 8, 9, 17, 20, 21, 28, 33, and 34 of Township 20 South, Range 13 East
- Sections 12, 13, 23, 24, 26, 27, 33, and 34 of Township 19 South, Range 13 East
- Sections 6 and 7 of Township 19 South, Range 14 East
- Sections 1, 2, 10, 11, 15, 21, 22, 28, 29, and 32 of Township 18 South, Range 14 East
- Section 36 of Township 17 South, Range 14 East
- Sections 6, 7, 18, 19, 30, and 31 of Township 17 South, Range 15 East
- Sections 4, 5, 6, 7, 18, 19, 30, and 31 of Township 16 South, Range 15 East

Transcon Environmental has been contracted by UNSE to assist with environmental compliance for the proposed project. Transcon, on behalf of UNSE, is requesting information on issues you feel are important to examine as well as your interest in participating in the compliance process regarding this project.

Please provide your comments to Transcon Environmental at 3740 East Southern Avenue, Suite 218, Mesa, Arizona 85206 or e-mail to info@transconusa.com. If you need any further information or want to discuss this project please contact me at (480) 807-0095.

Sincerely,

George Miller
Environmental Project Manager



Legend

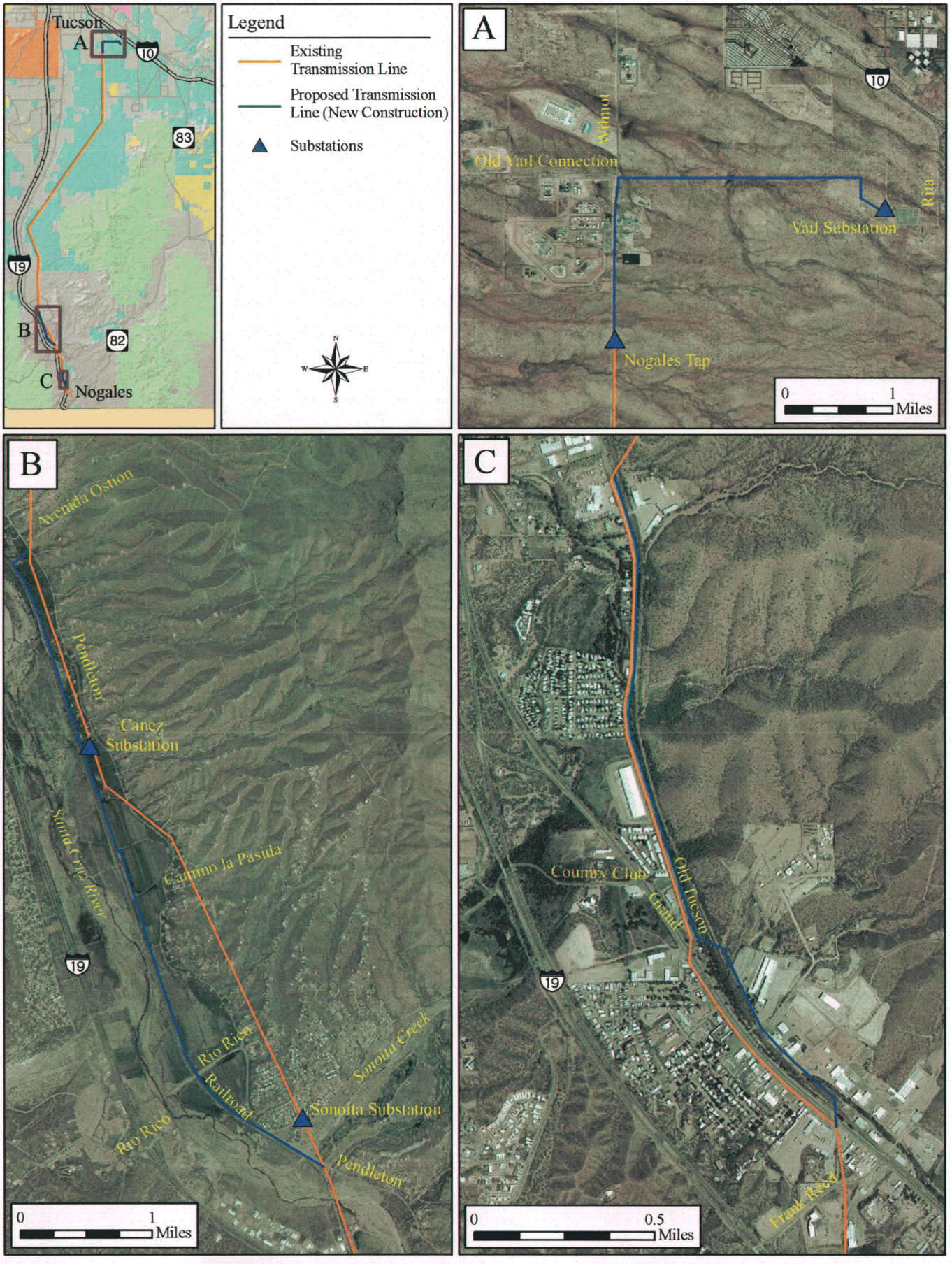
- Existing Transmission Line
- Proposed Transmission Line (New Construction)
- Substations
- Bureau of Indian Affairs
- Bureau of Land Management
- Bureau of Reclamation
- Department of Defense
- Forest Service
- National Park Service
- Private
- State

0 1 2 3 4 Miles

Vail to Valencia 115kV Upgrade Project

UniSourceEnergy SERVICES

TRANSCON ENVIRONMENTAL


Tucson
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Proposed Transmission Line (New Construction)
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Pendleton
Canez Substation
Santa Cruz River
Camino la Pasada
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Rio Rico
Railroad
Sonoita Creek
Sonoita Substation
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Old Tucson
Grande
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Frank Reed
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United States Department of Agriculture

NRCS

Natural Resources Conservation Service
230 N. 1st Avenue, #509
Phoenix, Arizona 85003-2946
(602) 280-8801
FAX (602) 280-8809

RECEIVED
FEB 14 2008

FEB 12 2008

George Miller
Environmental Project Manager
Transcon Environmental
3740 East Southern Avenue, #218
Mesa, Arizona 85206

Dear Mr. Miller:

This is in response to your letter dated January 25, 2008, regarding the upgrade of an existing transmission line between the Vail Substation in Tucson and the Valencia Substation in Nogales, Arizona.

1) Prime farmland does not exist in Alternatives A and C. Although prime farmland does exist in the vicinity of the proposed 138 kV transmission line in Alternative B, there seemingly will be no direct, permanent conversion of prime farmland. Verbal communication with you verified that farming will not be restricted underneath the proposed 69 kV transmission line. The conversion of prime farmland under the footprint of the towers themselves is discountable. Therefore, your project is exempt from complying with the Farmland Protection Policy Act.

2- We do not see any immediate concerns or impacts that would directly affect wetland areas associated with agriculture.

We recommend that any future development projects receive a prime farmland determination prior to any construction activities. Should you have questions, please feel free contact Steve Smarik, Environmental Coordinator, at 602.280.8785 or at the address shown above.

Thank you again for the chance to review the proposed project.

Sincerely,

ERIC BANKS
Assistant State Conservationist (P-FA)

Enclosure

cc:
Kristen Egen, DC, Tucson, AZ
Steve Smarik, Environmental Coordinator, NRCS, Phoenix, AZ

FW UNS Electric Inc. Vail to Valencia 115Kv Upgrade Project

-----Original Message-----
From: Bradley Sargent [mailto:bradleysargent@ibwc.state.gov]
Sent: Wednesday, February 20, 2008 10:51 AM
To: info@transconusa.com
Subject: UNS Electric, Inc. Vail to Valencia 115Kv Upgrade Project

ATTN: George Miller

Dear Mr. Miller

I have reviewed the letter of January 25, 2008 outlining the changes to the above project. This does not appear to cross IBWC managed properties or directly impact the border itself. If you know otherwise, please inform me. If the above information is true, we see no impact as relates to the International Boundary and Water Commission.
Please call me at the below number or email me with any questions.

Thanks

Brad

Brad Sargent, RPLS, RLS
Boundary & Realty Officer
U.S.International Boundary & Water Commission
4171 N. Mesa, Bldg. C Suite 100
El Paso, TX 79902
915-832-4139

Janet Napolitano
Governor

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007
(602) 771-2300 • www.azdeq.gov

Stephen A. Owens
Director

RECEIVED
FEB 22 2008

February 14, 2008

George Miller, Environmental Project Manager
Transcon Environmental
3740 E. Southern Avenue, Suite 218
Mesa, AZ 85206

Re: UNS Electric, Inc. - Vail to Valencia 115kV Upgrade Project

Dear Mr. Miller:

We received your request for comments on the above-mentioned application on February 5, 2008. You requested comments on upgrading an existing transmission line that is the primary electrical line serving Nogales, Arizona and other communities along the Santa Cruz River south of Green Valley, Arizona.

As presented in your letter, the upgrade will require only a few changes to the existing transmission line route. At the north end of the project, near the Town of Vail, a 4.5 mile segment of transmission line must be built to interconnect with the existing Vail Substation. Two segments are planned for relocation; one segment south of Tumacacori and one north of Nogales. Steel monopole structures will be installed in areas of new transmission line construction, and existing wood poles south of Amado, would be alsoreplaced with steel monopoles. The entire line will be energized to 138 kV.

Our comments related to water quality concerns are as follows:

Any point source discharge to surface waters of the U.S. requires AZPDES permit coverage. From the maps it appears that the northern portion of the project will affect ephemeral drainages while the main southerly segment runs parallel to the Santa Cruz River and in fact, crosses both the Santa Cruz and Sonoita Creek.

1. Stormwater discharges associated with construction activities (clearing, grading, or excavating) which disturb one acre or more must obtain coverage under the AZPDES Construction Stormwater General Permit (AZG2003-001). From the length of the project, it is clear that more than one acre will be disturbed. Please refer to the enclosed "Steps to Obtain Coverage" document for directions on how to file for permit coverage. The Construction Stormwater Permit, further information, and associated forms are available on ADEQ's website at: http://www.azdeq.gov/environ/water/permits/stormwater.html#const

For questions on stormwater issues or the Construction General Permit for this project, please contact Shirley Conard at 602-771-4632or by e-mail at sc4@azdeq.gov

2. This project may require an Army Corps of Engineers (ACOE) Section 404 Permit. If an individual 404 Permit is required, ADEQ will be asked to provide a CWA Section 401 water quality certification for the permits. The ACOE will include the conditions of the CWA 401 certification as requirements of the Section 404 permit to ensure that the permitted activities will not result in a violation of the State's surface water quality standards. Such conditions may include: restrictions on vehicular access to stream crossings when flow is present, and/or use of Best Management Practices to ensure water quality standards are being protected. For questions relating to CWA 401/404 please contact Bob Scalamera at 602-771-4502 or by e-mail at RS3@azdeq.gov.

ADEQ appreciates the opportunity to review and comment on this application. Please contact the staff members noted for the specific program, or contact me directly at 602-771-4416 for further assistance.

Sincerely,

Linda Taunt, Deputy Director
Water Quality Division

Enclosure

ER08-0004

STEPS TO OBTAIN COVERAGE UNDER ADEQ'S GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION

ADEQ
Arizona Department of Environmental Quality

1. Print and read the Construction General Permit (CGP). This general permit applies to every regulated construction project in Arizona (except those on Indian lands). Note that the CGP is a "general permit" that was developed to provide permit coverage for the thousands of various construction projects in Arizona. Thus, the permit requirements are the same for everyone subject to this permit. You can download the permit at http://www.azdeq.gov/function/forms/appswater.html#cgp. **Read the permit and keep a copy of the permit and related documents at the construction site.**

2. Develop a Stormwater Pollution Prevention Plan (SWPPP) for your project. Part IV of the CGP describes the requirements for developing and implementing a SWPPP. Although the SWPPP requirements listed in the CGP are the same for everyone, your SWPPP must be specific to your project (i.e. tailored to the specific types of construction activities for the project) and specific to your site (i.e. tailored to the specific conditions of the site). No specific format is required. However, the SWPPP must contain all of the information specified in Part IV of the CGP, including a copy of the CGP, the completed NOI application, and the Certificate authorizing permit coverage. To help ensure that the SWPPP contains all of the required elements, refer to the CGP during development of the SWPPP. The SWPPP requirements are also summarized in a SWPPP Checklist available at http://www.azdeq.gov/function/forms/appswater.html#cgp.

   You are not required to submit your SWPPP to ADEQ in advance of permit authorization, unless your project, or a portion of your project, is within ¼ mile of a water body that has been designated as a "Unique Water" (A.A.C. R18-11-112) or an "Impaired Water" (A.A.C. R18-11-601 – R18-11-606). A map of unique and impaired waters is available at https://az.gov/webapp/noi/map.do.

   Local jurisdictions may require you to submit a copy of the SWPPP to them for review. In any case, the SWPPP must always be kept at the construction site (in construction trailer or supervisor's truck) and be available for review as necessary.

3. Submit a complete Notice of Intent (NOI) application to ADEQ. The NOI application contains general information about your project and certifies that you will comply with the conditions of the CGP. The fastest way to obtain permit coverage is to submit a NOI electronically to ADEQ using the Smart NOI System at http://az.gov/adeq/noi.

   If you use the Smart NOI system, the Certificate authorizing permit coverage is usually provided to you at the time of electronic submittal. The Authorization Certificate provides the project reference number (AZCON-XXXXXX) and a permit authorization (approval) date. You must be able to print the documents you complete during use of the Smart NOI system. By submitting the NOI to ADEQ electronically, you have the option of "e-signing" the NOI application, or mailing or faxing a signed copy to ADEQ within 10 days in order to retain the authorization for permit coverage. (Don't forget to print out a copy of these documents for your SWPPP and for posting requirements.)

   If you prefer, the "paper" NOI application and instructions are available at http://www.azdeq.gov/function/forms/appswater.html#cgp. This document has been designed so that you can type directly into the form. Send the completed NOI application to ADEQ by fax

at (602) 771-4674 or by mail. ADEQ will reply with a Certificate authorizing permit coverage for the construction project.

Generally, ADEQ processes NOI applications on the same day they are received. You can check the status of your NOI application by searching the on-line construction database at http://www.azdeq.gov/databases/azpdessearch.html.

In a few cases, permit authorization may be delayed:

a. If the NOI application is incomplete, ADEQ will send you a deficiency letter requiring revisions to the NOI application. Permit authorization will be delayed until all of the necessary information is received.
b. If the project is located within ¼ mile of an impaired water or unique water, ADEQ will process your NOI application once your SWPPP is received. The NOI application will receive an initial approval date of 32 business days after the date ADEQ receives the SWPPP. ADEQ will review the project SWPPP and will notify you whether the SWPPP needs revisions.
c. If the project is located within an area of concern to the U.S. Fish and Wildlife Service (USFWS), ADEQ will reply with information on contacting the USFWS and will delay permit authorization for approximately 32 business days while the NOI application is reviewed for water quality issues by both agencies.

Submit your NOI as soon as possible in case of unexpected delays in obtaining permit coverage for the project.

In addition to submitting the NOI to ADEQ, local jurisdictions may require you to provide them with a copy of the NOI and Authorization Certificate. Don't forget to keep a copy of the NOI and Certificate for your records and as part of the SWPPP.

4. Implement your SWPPP on your project site. Modify and update the SWPPP as necessary in accordance with the permit. Be prepared to provide a copy of the SWPPP to any inspector visiting your site. Post the required information about your project at the entrance of the site according to Part IV.J.2 of the CGP.

5. Submit a Notice of Termination form (NOT) to terminate permit coverage according to Part II.C of the CGP. A Construction Notice of Termination form may be obtained at http://www.azdeq.gov/function/forms/appswater.html#cgp. Complete the NOT form, and submit it to ADEQ by fax or mail. Upon receipt of the NOT form, ADEQ will provide you with an acknowledgement letter confirming the project termination.

Additional Program Information
Arizona Department of Environmental Quality
Surface Water Section/Stormwater NOI Processing Center
1110 W. Washington Street, Mailcode 5415A-1
Phoenix, AZ 85007
Contact: Shirley Conard
Tel: (602) 771-4632
Fax: (602) 771-4674
e-mail: sc4@azdeq.gov
Web site: www.azdeq.gov

Janet Napolitano
Governor

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007
(602) 771-2300 • www.azdeq.gov

Stephen A. Owens
Director

RECEIVED
FEB 22 2008

February 19, 2008

Mr. George Miller, Environmental Project Manager
Transcon Environmental
3740 East Southern Avenue, Suite 218
Mesa, Arizona 85206

Location: Pima and Santa Cruz Counties, AZ: – UNS Electric, Inc., 115kV Upgrade Project Line Between Vail in Tucson and Valencia in Nogales

Dear Mr. Miller:

The Air Quality Division has reviewed the proposed project, as described in your letter, dated January 25, 2008, that was submitted for a General Conformity Determination with the Arizona State Implementation Plan in accordance with Clean Air Act Section 176(c)(1); 58 Federal Register 63214-63259; Title 40 Code of Federal Regulations Part 51, Subpart W §§ 51.850-51.860; Title 40 Code of Federal Regulations Part 93, Subpart B §§ 93.150-160; and Arizona Administrative Code R18-2-348 (approved into the Arizona State Implementation Plan April 23, 1999; effective June 22, 1999). The Air Quality Division has concluded that a General Conformity Determination is not required for the following reason(s):

■ Project's total emissions of PM10 in a PM10 Maintenance Area would be less than *de minimis* levels in Title 40 CFR § 51.853(b) [and §93.153(b)] as described or calculated

Nevertheless, because part of the area described, Nogales, is in a PM10 nonattainment area (the first 3 ranges of sections described in your letter) and may become the only PM2.5 nonattainment area in Arizona, and considering prevailing winds during the duration of the project, to comply with other applicable air pollution control requirements and minimize adverse impacts on public health and welfare, the following information is provided:

REDUCE DISTURBANCE of PARTICULATE MATTER during CONSTRUCTION

This action, plan or activity may temporarily increase ambient particulate matter (dust) levels. Particulate matter 10 microns in size and smaller can penetrate the lungs of human beings and animals and is subject to a National Ambient Air Quality Standard (NAAQS) to protect public health and welfare. Particulate matter 2.5 microns in size and smaller is difficult for lungs to expel and has been linked to increases in death rates; heart attacks by disturbing heart rhythms and increasing plaque and clotting; respiratory infections; asthma attacks and cardiopulmonary obstructive disease (COPD) aggravation. It is also subject to a NAAQS.

The following measures are recommended to reduce disturbance of particulate matter, including emissions caused by strong winds as well as machinery and trucks tracking soil off the construction site:

I. Site Preparation and Construction
A. Minimize land disturbance;

B. Suppress dust on traveled paths which are not paved through wetting, use of watering trucks, chemical dust suppressants, or other reasonable precautions to prevent dust entering ambient air
C. Cover trucks when hauling soil;
D. Minimize soil track-out by washing or cleaning truck wheels before leaving construction site;
E. Stabilize the surface of soil piles; and
F. Create windbreaks

II. Site Restoration
A. Revegetate any disturbed land not used;
B. Remove unused material; and
C. Remove soil piles via covered trucks.

The following rules applicable to reducing dust during construction, demolition and earth moving activities are enclosed:

- Arizona Administrative Code R18-2-604 through -607
- Arizona Administrative Code R18-2-804
- Pima County Code Chapter 17.16 Article III

Should you have further questions, please do not hesitate to call Dave Biddle, of the Planning Section Staff, at (602) 771-2376.

Very truly yours,

Diane L. Arnst, Manager
Air Quality Planning Section

Enclosures

cc: Henry R. Darwin, EV Administrative Counsel
David A. Biddle, Environmental Program Specialist
File No. 175698

c. If the burning would occur at a solid waste facility in violation of 40 CFR 258.24 and the Director has not issued a variance under A.R.S. § 49-763.01.

E. Open outdoor fires of dangerous material. A fire set for the disposal of a dangerous material is allowed by the provisions of this Section, when the material is too dangerous to store and transport, and the Director has issued a permit for the fire. A permit issued under this subsection shall contain all provisions in subsection (D)(3) except for subsections (D)(3)(e) and (D)(3)(f). The Director shall permit fires for the disposal of dangerous materials only when no safe alternative method of disposal exists, and burning the materials does not result in the emission of hazardous or toxic substances either directly or as a product of combustion in amounts that will endanger health or safety.

F. Open outdoor fires of household waste. An open outdoor fire for the disposal of household waste is allowed by provisions of this Section when permitted in writing by the Director or a delegated authority. A permit issued under this subsection shall contain all provisions in subsection (D)(3) except for subsections (D)(3)(e) and (D)(3)(f). The permittee shall conduct open outdoor fires of household waste in an approved waste burner and shall either:

1. Burn household waste generated on-site on farms or ranches of 40 acres or more where no household waste collection or disposal service is available; or
2. Burn household waste generated on-site where no household waste collection and disposal service is available and where the nearest other dwelling unit is at least 500 feet away.

G. Permits issued by a delegated authority. The Director may delegate authority for the issuance of open burning permits to a county, city, town, air pollution control district, or fire district. A delegated authority may not issue a permit for its own open burning activity. The Director shall not delegate authority to issue permits to burn dangerous material under subsection (E). A county, city, town, air pollution control district, or fire district with delegated authority from the Director may assign that authority to one or more private fire protection service providers that perform fire protection services within the county, city, town, air pollution control district, or fire district. A private fire protection provider shall not directly or indirectly condition the issuance of open burning permits on the applicant being a customer. Permits issued under this subsection shall comply with the requirements in subsection (D)(3) and be in a format prescribed by the Director. Each delegated authority shall:

1. Maintain a copy of each permit issued for the previous five years available for inspection by the Director;
2. For each permit currently issued, have a means of contacting the person authorized by the permit to set an open fire if an order to extinguish open burning is issued; and
3. Annually submit to the Director by May 15 a record of daily burn activity, excluding household waste burn permits, on a form provided by the Director for the previous calendar year containing the information required in subsections (D)(3)(e) and (D)(3)(f).

H. The Director shall hold an annual public meeting for interested parties to review operations of the open outdoor fire program and discuss emission reduction techniques.

I. Nothing in this Section is intended to permit any practice that is a violation of any statute, ordinance, rule, or regulation.

Historical Note

Adopted effective May 14, 1979 (Supp. 79-1). Amended effective October 2, 1979 (Supp. 79-5). Correction, subsection (C) repealed effective October 2, 1979, not shown (Supp. 80-1). Former Section R9-3-602 renumbered without change as Section R18-2-602 (Supp. 87-3). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-602 renumbered to R18-2-802, new Section R18-2-602 renumbered from R18-2-401 effective November 15, 1993 (Supp. 93-4). Amended by final rulemaking at 10 A.A.R. 388, effective March 16, 2004 (Supp. 04-1).

R18-2-603. Repealed

Historical Note

Adopted effective May 14, 1979 (Supp. 79-1). Former Section R9-3-603 renumbered without change as Section R18-2-603 (Supp. 87-3). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-603 renumbered to R18-2-803, new Section R18-2-603 renumbered from R18-2-403 effective November 15, 1993 (Supp. 93-4). Repealed effective October 8, 1996 (Supp. 96-4).

R18-2-604. Open Areas, Dry Washes, or Riverbeds

A. No person shall cause, suffer, allow, or permit a building or its appurtenances, or a building or subdivision site, or a driveway, or a parking area, or a vacant lot or sales lot, or an urban or suburban open area to be constructed, used, altered, repaired, demolished, cleared, or leveled, or the earth to be moved or excavated, without taking reasonable precautions to limit excessive amounts of particulate matter from becoming airborne. Dust and other types of air contaminants shall be kept to a minimum by good modern practices such as using an approved dust suppressant or adhesive soil stabilizer, paving, covering, landscaping, continuous wetting, detouring, barring access, or other acceptable means.

B. No person shall cause, suffer, allow, or permit a vacant lot, or an urban or suburban open area, to be driven over or used by motor vehicles, trucks, cars, cycles, bikes, or buggies, or by animals such as horses, without taking reasonable precautions to limit excessive amounts of particulates from becoming airborne. Dust shall be kept to a minimum by using an approved dust suppressant, or adhesive soil stabilizer, or by paving, or by barring access to the property, or by other acceptable means.

C. No person shall operate a motor vehicle for recreational purposes in a dry wash, riverbed or open area in such a way as to cause or contribute to visible dust emissions which then cross property lines into a residential, recreational, institutional, educational, retail sales, hotel or business premises. For purposes of this subsection "motor vehicles" shall include, but not be limited to trucks, cars, cycles, bikes, buggies and 3-wheelers. Any person who violates the provisions of this subsection shall be subject to prosecution under A.R.S. § 49-463.

Historical Note

Adopted effective May 14, 1979 (Supp. 79-1). Former Section R9-3-604 renumbered without change as Section R18-2-604 (Supp. 87-3). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-604 renumbered to R18-2-804, new Section R18-2-604 renumbered from R18-2-404 and amended effective November 15, 1993 (Supp. 93-4).

R18-2-605. Roadways and Streets

A. No person shall cause, suffer, allow or permit the use, repair, construction or reconstruction of a roadway or alley without taking reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne. Dust and other particulates shall be kept to a minimum by employing temporary paving, dust suppressants, wetting down, detouring or by other reasonable means.

B. No person shall cause, suffer, allow or permit transportation of materials likely to give rise to airborne dust without taking reasonable precautions, such as wetting, applying dust suppressants, or covering the load, to prevent particulate matter from becoming airborne. Earth or other material that is deposited by trucking or earth moving equipment shall be removed from paved streets by the person responsible for such deposits.

Historical Note

Adopted effective May 14, 1979 (Supp. 79-1). Former Section R9-3-605 renumbered without change as Section R18-2-605 (Supp. 87-3). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-605 renumbered to R18-2-805, new Section R18-2-605 renumbered from R18-2-405 effective November 15, 1993 (Supp. 93-4).

R18-2-606. Material Handling

No person shall cause, suffer, allow or permit crushing, screening, handling, transporting or conveying of materials or other operations likely to result in significant amounts of airborne dust without taking reasonable precautions, such as the use of spray bars, wetting agents, dust suppressants, covering the load, and hoods to prevent excessive amounts of particulate matter from becoming airborne.

Historical Note

Section R18-2-606 renumbered from R18-2-406 effective November 15, 1993 (Supp. 93-4).

R18-2-607. Storage Piles

A. No person shall cause, suffer, allow, or permit organic or inorganic dust producing material to be stacked, piled, or otherwise stored without taking reasonable precautions such as chemical stabilization, wetting, or covering to prevent excessive amounts of particulate matter from becoming airborne.

B. Stacking and reclaiming machinery utilized at storage piles shall be operated at all times with a minimum fall of material and in such manner, or with the use of spray bars and wetting agents, as to prevent excessive amounts of particulate matter from becoming airborne.

Historical Note

Section R18-2-607 renumbered from R18-2-407 effective November 15, 1993 (Supp. 93-4).

R18-2-608. Mineral Tailings

No person shall cause, suffer, allow, or permit construction of mineral tailing piles without taking reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne. Reasonable precautions shall mean wetting, chemical stabilization, revegetation or such other measures as are approved by the Director.

Historical Note

Section R18-2-608 renumbered from R18-2-408, new Section R18-2-408 adopted effective November 15, 1993 (Supp. 93-4).

R18-2-609. Agricultural Practices

A person shall not cause, suffer, allow, or permit the performance of agricultural practices outside the Phoenix and Yuma planning areas, as defined in 40 CFR 81.303, which is incorporated by reference in R18-2-210, including tilling of land and application of fertilizers without taking reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne.

Historical Note

Section R18-2-609 renumbered from R18-2-409 effective November 15, 1993 (Supp. 93-4). Amended by final rulemaking at 6 A.A.R. 2009, effective May 12, 2000 (Supp. 00-2). Amended by final rulemaking at 11 A.A.R. 2210, effective July 18, 2005 (Supp. 05-2).

R18-2-610. Definitions for R18-2-611

The definitions in Article 1 of this Chapter and the following definitions apply to R18-2-611:

1. "Access restriction" means restricting or eliminating public access to noncropland with signs or physical obstruction.
2. "Aggregate cover" means gravel, concrete, recycled road base, caliche, or other similar material applied to noncropland.
3. "Artificial wind barrier" means a physical barrier to the wind.
4. "Best management practice" means a technique verified by scientific research, that on a case-by-case basis is practical, economically feasible, and effective in reducing PM_{10} emissions from a regulated agricultural activity.
5. "Chemical irrigation" means applying a fertilizer, pesticide, or other agricultural chemical to cropland through an irrigation system.
6. "Combining tractor operations" means performing two or more tillage, cultivation, planting, or harvesting operations with a single tractor or harvester pass.
7. "Commercial farm" means 10 or more contiguous acres of land used for agricultural purposes within the boundary of the Maricopa PM_{10} nonattainment area.
8. "Commercial farmer" means an individual, entity, or joint operation in general control of a commercial farm.
9. "Committee" means the Governor's Agricultural Best Management Practices Committee.
10. "Cover crop" means plants or a green manure crop grown for seasonal soil protection or soil improvement.
11. "Critical area planting" means using trees, shrubs, vines, grasses, or other vegetative cover on noncropland.
12. "Cropland" means land on a commercial farm that:
    a. Is within the time-frame of final harvest to plant emergence;
    b. Has been tilled in a prior year and is suitable for crop production, but is currently fallow; or
    c. Is a turn-row.

ARTICLE 8. EMISSIONS FROM MOBILE SOURCES (NEW AND EXISTING)

R18-2-801. Classification of Mobile Sources

A. This Article is applicable to mobile sources which either move while emitting air contaminants or are frequently moved during the course of their utilization but are not classified as motor vehicles, agricultural vehicles, or agricultural equipment used in normal farm operations.

B. Unless otherwise specified, no mobile source shall emit smoke or dust the opacity of which exceeds 40%.

Historical Note

Adopted effective February 26, 1988 (Supp. 88-1). Amended effective September 26, 1990 (Supp. 90-3). Amended effective February 3, 1993 (Supp. 93-1). Former Section R18-2-801 renumbered to Section R18-2-901, new Section R18-2-801 renumbered from R18-2-601 effective November 15, 1993 (Supp. 93-4).

R18-2-802. Off-road Machinery

A. No person shall cause, allow or permit to be emitted into the atmosphere from any off-road machinery, smoke for any period greater than 10 consecutive seconds, the opacity of which exceeds 40%. Visible emissions when starting cold equipment shall be exempt from this requirement for the first 10 minutes.

B. Off-road machinery shall include trucks, graders, scrapers, rollers, locomotives and other construction and mining machinery not normally driven on a completed public roadway.

Historical Note

Adopted effective February 26, 1988 (Supp. 88-1). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-802 renumbered to Section R18-2-902, new Section R18-2-802 renumbered from R18-2-602 effective November 15, 1993 (Supp. 93-4).

R18-2-803. Heater-planer Units

No person shall cause, allow or permit to be emitted into the atmosphere from any heater-planer operated for the purpose of reconstructing asphalt pavements smoke the opacity of which exceeds 20%. However three minutes' upset time in any one hour shall not constitute a violation of this Section.

Historical Note

Adopted effective February 26, 1988 (Supp. 88-1). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-803 renumbered to Section R18-2-903, new Section R18-2-803 renumbered from R18-2-603 effective November 15, 1993 (Supp. 93-4).

R18-2-804. Roadway and Site Cleaning Machinery

A. No person shall cause, allow or permit to be emitted into the atmosphere from any roadway and site cleaning machinery smoke or dust for any period greater than 10 consecutive seconds, the opacity of which exceeds 40%. Visible emissions when starting cold equipment shall be exempt from this requirement for the first 10 minutes.

B. In addition to complying with subsection (A), no person shall cause, allow or permit the cleaning of any site, roadway, or alley without taking reasonable precautions to prevent particulate matter from becoming airborne. Reasonable precautions may include applying dust suppressants. Earth or other material shall be removed from paved streets onto which earth or other material has been transported by trucking or earth moving equipment, erosion by water or by other means.

Historical Note

Adopted effective February 26, 1988 (Supp. 88-1). Amended effective September 26, 1990 (Supp. 90-3). Amended effective February 3, 1993 (Supp. 93-1). Former Section R18-2-804 renumbered to Section R18-2-904, new Section R18-2-804 renumbered from R18-2-604 effective November 15, 1993 (Supp. 93-4).

R18-2-805. Asphalt or Tar Kettles

A. No person shall cause, allow or permit to be emitted into the atmosphere from any asphalt or tar kettle smoke for any period greater than 10 consecutive seconds, the opacity of which exceeds 40%.

B. In addition to complying with subsection (A), no person shall cause, allow or permit the operation of an asphalt or tar kettle without minimizing air contaminant emissions by utilizing all of the following control measures:

1. The control of temperature recommended by the asphalt or tar manufacturer;
2. The operation of the kettle with lid closed except when charging;
3. The pumping of asphalt from the kettle or the drawing of asphalt through cocks with no dipping;
4. The dipping of tar in an approved manner;
5. The maintaining of the kettle in clean, properly adjusted, and good operating condition;
6. The firing of the kettle with liquid petroleum gas or other fuels acceptable to the Director.

Historical Note

Adopted effective February 26, 1988 (Supp. 88-1). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-805 renumbered to Section R18-2-905, new Section R18-2-805 renumbered from R18-2-605 effective November 15, 1993 (Supp. 93-4).

THE STATE OF ARIZONA
GAME AND FISH DEPARTMENT
5000 W. CAREFREE HIGHWAY
PHOENIX, AZ 85086-5000
(602) 942-3000 • WWW.AZGFD.GOV

GOVERNOR
JANET NAPOLITANO
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ROBERT R. WOODHOUSE, ROLL
DIRECTOR
DUANE L. SHROUFE
DEPUTY DIRECTOR
STEVE K. FERRELL

RECEIVED
FEB 22 2008
LSD

February 21, 2008

George Miller
Transcon Environmental
3740 E. Southern Avenue, Suite 218
Mesa, Arizona 85206

Re: UNS Electric, Inc. Vail to Valencia 115kV upgrade

Dear Mr. Miller:

The Arizona Game and Fish Department (Department) has reviewed your letter dated January 25, 2008, regarding the above referenced project. A list of special status species within a 3 mile buffer of the project area is provided as an attachment. Note that several threatened, endangered, or candidate species have been identified in the project area. As suggested in the receipt, we highly recommend you contact the Fish and Wildlife service for their input on this project. This information provided is now generated utilizing an interactive Environmental Review on-line tool (Tool). The Tool is an interactive web-based application that provides our customer's the opportunity to submit land and water projects on-line by following a few simple steps (refer to the Tool application homepage for instructions and help pages) http://www.azgfd.gov/hgis/.

The project "receipt" (attached) provides special status species information, along with critical habitat designations, tribal entities on or in proximity to your project boundaries, appropriate state, tribal, and/or federal contacts, special handling guidelines for desert tortoise and/or burrowing owls, and preliminary project type recommendations. Please note this species information can now be provided to almost instantaneously and is designed to replace the need for requests via writing by fax, mail, or email for most projects. However, there are circumstances where it would be necessary to submit the project through the normal mailing process (please refer to the Tool application for further instructions).

The Department appreciates the opportunity to provide comments early in the planning and design stages of the proposed roadway construction project. We would like to continue this coordinated effort and offer additional site-specific guidance that will help conserve wildlife and their habitats, including sensitive, threatened, non-game and game species. If you have any questions regarding this letter, please contact me at 623 236-7513.

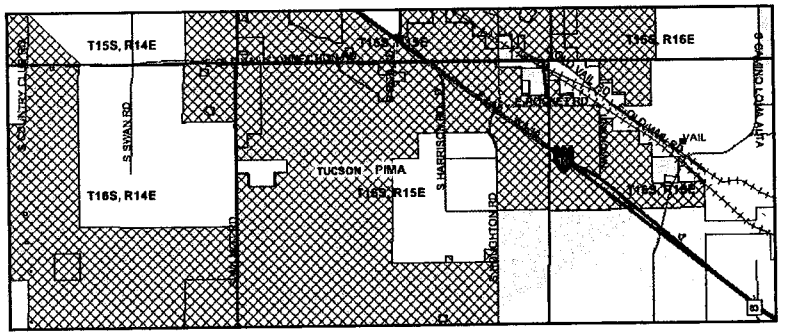
Sincerely,

Daniel E. Nelson
Project Evaluation Specialist

Cc: Joan Scott, Region V Habitat Program Manager
AGFD # M08-01282152

Arizona's On-line Environmental Review Tool
Search ID: 20080221005296
Project Name: Transcon A Vail 115kV upgrade
Date: 2/21/2008 11:03:19 AM

Project Location



Project Name: Transcon A Vail 115kV upgrade
Submitted By: PEP Project Evaluation Program
On behalf of: CONSULTING
Project Search ID: 20080221005296
Date: 2/21/2008 11:03:12 AM
Project Category: Energy Storage/Production/Transfer,Energy Transfer,Power line/electric line (new)
Project Coordinates (UTM Zone 12-NAD 83): 516968.951, 3546548.706 meter
Project Length: 17317.554 meter
County: PIMA
USGS 7.5 Minute Quadrangle ID: 1803
Quadrangle Name: TUCSON SE
Project locality is not anticipated to change

Location Accuracy Disclaimer

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

The Department appreciates the opportunity to provide in-depth comments and project review when additional information or environmental documentation becomes available.

Special Status Species Occurrences/Critical Habitat/Tribal Lands within 3 miles of Project Vicinity:

Name	Common Name	ESA	USFS	BLM	State
Athene cunicularia hypugaea	Western Burrowing Owl	SC		S	
Bat Colony					
Coryphantha scheeri var. robustispina	Pima Pineapple Cactus	LE			HS
Echinocereus fasciculatus	Magenta-flower Hedgehog-cactus				SR
Echinomastus erectocentrus var. erectocentrus	Needle-spined Pineapple Cactus	SC	S		SR
Gastrophryne olivacea	Great Plains Narrow-mouthed Toad				WSC
Myotis velifer	Cave Myotis	SC		S	

 APPLICATION INITIALS: _____

Please review the entire receipt for project type recommendations and/or species or location information and retain a copy for future reference. If any of the information you provided did not accurately reflect this project, or if project plans change, another review should be conducted, as this determination may not be valid.

Arizona's On-line Environmental Review Tool:

1. This On-line Environmental Review Tool inquiry has generated recommendations regarding the potential impacts of your project on Special Status Species (SSS) and other wildlife of Arizona. SSS include all U.S. Fish and Wildlife Service federally listed, U.S. Bureau of Land Management sensitive, U.S. Forest Service sensitive, and Arizona Game and Fish Department (Department) recognized species of concern.
2. These recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation). These recommendations are preliminary in scope, designed to provide early considerations for all species of wildlife, pertinent to the project type you entered.
3. This receipt, generated by the automated On-line Environmental Review Tool does not constitute an official project review by Department biologists and planners. Further coordination may be necessary as appropriate under the National Environmental Policy Act (NEPA) and/or the Endangered Species Act (ESA).

The U.S. Fish and Wildlife Service (USFWS) has regulatory authority over all federally listed species under the ESA. Contact USFWS Ecological Services Offices: http://arizonaes.fws.gov/.

Phoenix Main Office
2321 W. Royal Palm Road, Suite 103
Phoenix, AZ 85021
Phone 602-242-0210
Fax 602-242-2513

Tucson Sub-Office
201 North Bonita, Suite 141
Tucson, AZ 85745
Phone 520-670-6144
Fax 520-670-6154

Flagstaff Sub-Office
323 N. Leroux Street, Suite 101
Flagstaff, AZ 86001
Phone 928-226-0614
Fax 928-226-1099

Disclaimer:

1. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area.
2. The Department's Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there.
3. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. HDMS data contains information about species occurrences that have actually been reported to the Department.

Arizona Game and Fish Department Mission

To conserve, enhance, and restore Arizona's diverse wildlife resources and habitats through aggressive protection and

 APPLICATION INITIALS: _____

management programs, and to provide wildlife resources and safe watercraft and off-highway vehicle recreation for the enjoyment, appreciation, and use by present and future generations.

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

Project Type Recommendations:

Based on the project type entered; coordination with U.S. Fish and Wildlife Service (Migratory Bird Treaty Act) may be required (http://arizonaes.fws.gov/)

During planning and construction, minimize potential introduction or spread of exotic invasive species. Invasive species can be plants, animals (exotic snails), and other organisms (e.g. microbes), which may cause alteration to ecological functions or compete with or prey upon native species and can cause social impacts (e.g. livestock forage reduction, increase wildfire risk). The terms noxious weed or invasive plants are often used interchangeably. Precautions should be taken to wash all equipment utilized in the project activities before leaving the site. Arizona has noxious weed regulations (Arizona Revised Statutes, Rules R3-4-244 and R3-4-245). See Arizona Department of Agriculture website for restricted plants http://www.azda.gov/PSD/quarantine5.htm. Additionally, the U.S. Department of Agriculture has information regarding pest and invasive plant control methods including: pesticide, herbicide, biological control agents, and mechanical control: http://www.usda.gov/wps/portal/usdahome. The Department regulates the importation, purchasing, and transportation of wildlife and fish (Restricted Live Wildlife), please refer to the hunting regulations for further information http://www.azgfd.gov/h_f/hunting_rules.shtml.

Impacts to raptors by above ground power lines and poles have been well documented. A number of structural improvements can minimize potential impacts to raptors and other migratory birds. Arizona Public Service (APS) offers guidelines to reduce mortality to these species http://www.aps.com/my_community/Environmental/Environmental_10.html. In addition, indirect affects to wildlife due to construction (timing of activity, clearing of rights-of-way, associated bridges and culverts, affects to wetlands, fences) should also be considered and mitigated. Please contact the Project Evaluation Program for further recommendations regarding trenching and power line associated activities.

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

Project Location and/or Species recommendations:

HDMS records indicate that one or more listed, proposed, or candidate species or Critical Habitat (Designated or Proposed) have been documented in the vicinity of your project (refer to page 1 of the receipt). Please contact:
Ecological Services Office
US Fish and Wildlife Service

2321 W. Royal Palm Rd.
Phoenix, AZ 85021-4951
Phone: 602-242-0210
Fax: 602-242-2513

 APPLICATION INITIALS: _____

HDMS records indicate that one or more native plants listed on the Arizona Native Plant Law and Antiquities Act have been documented within the vicinity of your project area (refer to page 1 of the receipt). Please contact:

Arizona Department of Agriculture

1688 W Adams
Phoenix, AZ 85007
Phone: 602-542-4373

HDMS records indicate that western burrowing owls have been documented within the vicinity of your project area (refer to the species list on page 1 of the receipt). Please review the relocation procedures recommended for burrowing owls found on the Environmental Review Home Page.

http://mirror-pole.com/burr_owl/bur_owl1.htm

,

Recommendations Disclaimer:

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7. Upon receiving information by AZGFD, please allow 30 days for completion of project reviews. Mail requests to:

Project Evaluation Program, Habitat Branch
Arizona Game and Fish Department
5000 West Carefree Highway
Phoenix, Arizona 85086-5000
Phone Number: (623) 236-7600
Fax Number: (623) 236-7366

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 APPLICATION INITIALS: _____

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Agency/organization:_____

Contact Name: _____

Address: _____

City, State, Zip: _____

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Phone: _____

E-mail: _____

Person Conducting Search (if not applicant)

Agency/organization:_____

Contact Name: _____

Address: _____

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E-mail: _____

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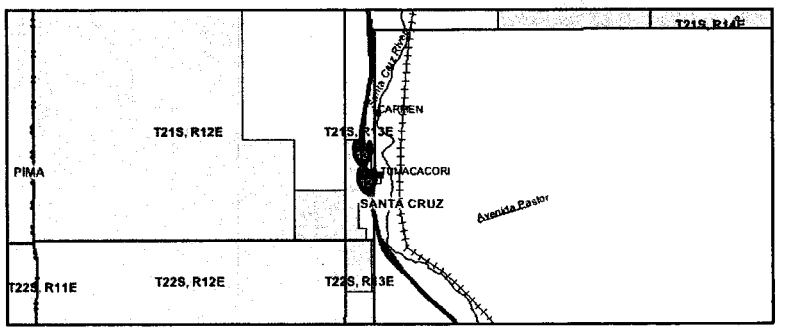
Arizona's On-line Environmental Review Tool
Search ID: 20080221005295
Project Name: Transcon B Rio Rico 115kV upgrade
Date: 2/21/2008 10:57:23 AM

Project Location



Project Name: Transcon B Rio Rico 115kV upgrade
Submitted By: PEP Project Evaluation Program
On behalf of: ASLD
Project Search ID: 20080221005295
Date: 2/21/2008 10:57:15 AM
Project Category: Energy Storage/Production/Transfer,Energy Transfer,Power line/electric line (new)
Project Coordinates (UTM Zone 12-NAD 83): 495265.690, 3493052.186 meter
Project Length: 8383.566 meter
County: SANTA CRUZ
USGS 7.5 Minute Quadrangle ID: 1921
Quadrangle Name: TUBAC
Project locality is not anticipated to change

Location Accuracy Disclaimer

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The Department appreciates the opportunity to provide in-depth comments and project review when additional information or environmental documentation becomes available.

Special Status Species Occurrences/Critical Habitat/Tribal Lands within 3 miles of Project Vicinity:

Name	Common Name	ESA	USFS	BLM	State
Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC		S	
Amazilia violiceps	Violet-crowned Hummingbird				WSC
Buteo nitidus maxima	Northern Gray Hawk	SC	S		WSC
Capsicum annuum var. glabriusculum	Chiltepin		S		
Catostomus clarki	Desert Sucker	SC		S	
Catostomus insignis	Sonora Sucker	SC		S	
Choisya mollis	Santa Cruz Star Leaf	SC	S		
Coccyzus americanus occidentalis	Western Yellow-billed Cuckoo	C	S		WSC
Coryphantha scheeri var. robustispina	Pima Pineapple Cactus	LE			HS
Gastrophryne olivacea	Great Plains Narrow-mouthed Toad				WSC
Muhlenbergia xerophila	Weeping Muhly		S		
Passiflora arizonica	Arizona Passionflower		S		
Penstemon superbus	Superb Beardtongue		S		
Physalis latiphysa	Broad-leaf Ground-cherry		S		
Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE			WSC
Polioptila nigriceps	Black-capped Gnatcatcher				WSC
Rana yavapaiensis	Lowland Leopard Frog	SC	S		WSC
Thamnophis eques megalops	Northern Mexican Gartersnake	SC	S		WSC
Tyrannus crassirostris	Thick-billed Kingbird				WSC
Tyrannus melancholicus	Tropical Kingbird				WSC

 APPLICATION INITIALS: _____

Please review the entire receipt for project type recommendations and/or species or location information and retain a copy for future reference. If any of the information you provided did not accurately reflect this project, or if project plans change, another review should be conducted, as this determination may not be valid.

Arizona's On-line Environmental Review Tool:

1. This On-line Environmental Review Tool inquiry has generated recommendations regarding the potential impacts of your project on Special Status Species (SSS) and other wildlife of Arizona. SSS include all U.S. Fish and Wildlife Service federally listed, U.S. Bureau of Land Management sensitive, U.S. Forest Service sensitive, and Arizona Game and Fish Department (Department) recognized species of concern.
2. These recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation). These recommendations are preliminary in scope, designed to provide early considerations for all species of wildlife, pertinent to the project type you entered.
3. This receipt, generated by the automated On-line Environmental Review Tool does not constitute an official project review by Department biologists and planners. Further coordination may be necessary as appropriate under the National Environmental Policy Act (NEPA) and/or the Endangered Species Act (ESA).

The U.S. Fish and Wildlife Service (USFWS) has regulatory authority over all federally listed species under the ESA. Contact USFWS Ecological Services Offices: http://arizonaes.fws.gov/.

Phoenix Main Office
2321 W. Royal Palm Road, Suite 103
Phoenix, AZ 85021
Phone 602-242-0210
Fax 602-242-2513

Tucson Sub-Office
201 North Bonita, Suite 141
Tucson, AZ 85745
Phone 520-670-6144
Fax 520-670-6154

Flagstaff Sub-Office
323 N. Leroux Street, Suite 101
Flagstaff, AZ 86001
Phone 928-226-0614
Fax 928-226-1099

Disclaimer:

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2. The Department's Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there.
3. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
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Arizona Game and Fish Department Mission

To conserve, enhance, and restore Arizona's diverse wildlife resources and habitats through aggressive protection and

 APPLICATION INITIALS: _____

management programs, and to provide wildlife resources and safe watercraft and off-highway vehicle recreation for the enjoyment, appreciation, and use by present and future generations.

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

Project Type Recommendations:

Based on the project type entered; coordination with U.S. Fish and Wildlife Service (Migratory Bird Treaty Act) may be required (http://arizonaes.fws.gov/)

During planning and construction, minimize potential introduction or spread of exotic invasive species. Invasive species can be plants, animals (exotic snails), and other organisms (e.g. microbes), which may cause alteration to ecological functions or compete with or prey upon native species and can cause social impacts (e.g. livestock forage reduction, increase wildfire risk). The terms noxious weed or invasive plants are often used interchangeably. Precautions should be taken to wash all equipment utilized in the project activities before leaving the site. Arizona has noxious weed regulations (Arizona Revised Statutes, Rules R3-4-244 and R3-4-245). See Arizona Department of Agriculture website for restricted plants http://www.azda.gov/PSD/quarantine5.htm. Additionally, the U.S. Department of Agriculture has information regarding pest and invasive plant control methods including: pesticide, herbicide, biological control agents, and mechanical control: http://www.usda.gov/wps/portal/usdahome. The Department regulates the importation, purchasing, and transportation of wildlife and fish (Restricted Live Wildlife), please refer to the hunting regulations for further information http://www.azgfd.gov/h_f/hunting_rules.shtml.

Impacts to raptors by above ground power lines and poles have been well documented. A number of structural improvements can minimize potential impacts to raptors and other migratory birds. Arizona Public Service (APS) offers guidelines to reduce mortality to these species http://www.aps.com/my_community/Environmental/Environmental_10.html. In addition, indirect affects to wildlife due to construction (timing of activity, clearing of rights-of-way, associated bridges and culverts, affects to wetlands, fences) should also be considered and mitigated. Please contact the Project Evaluation Program for further recommendations regarding trenching and power line associated activities.

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

Project Location and/or Species recommendations:

HDMS records indicate that one or more listed, proposed, or candidate species or Critical Habitat (Designated or Proposed) have been documented in the vicinity of your project (refer to page 1 of the receipt). Please contact:
Ecological Services Office
US Fish and Wildlife Service

2321 W. Royal Palm Rd.
Phoenix, AZ 85021-4951
Phone: 602-242-0210
Fax: 602-242-2513

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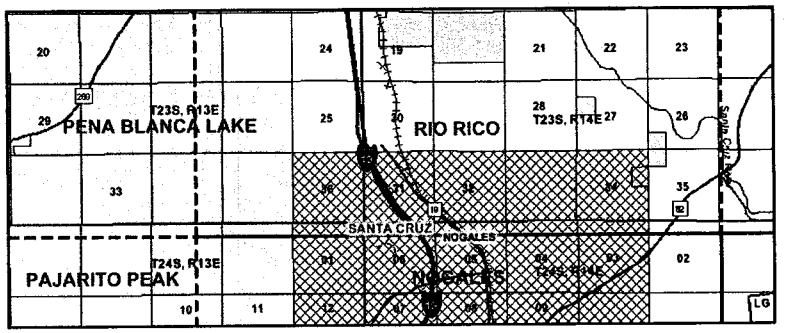
Arizona's On-line Environmental Review Tool
Search ID: 20080221005294
Project Name: Transcon 115kv upgrade C (nogales)
Date: 2/21/2008 10:49:17 AM

Project Location



Project Name: Transcon 115kv upgrade C (nogales)
Submitted By: PEP Project Evaluation Program
On behalf of: CONSULTING
Project Search ID: 20080221005294
Date: 2/21/2008 10:49:07 AM
Project Category: Energy Storage/Production/Transfer,Energy Transfer,Power line/electric line (new)
Project Coordinates (UTM Zone 12-NAD 83): 504504.933, 3472015.720 meter
Project Length: 2358.712 meter
County: SANTA CRUZ
USGS 7.5 Minute Quadrangle ID: 1943
Quadrangle Name: RIO RICO
Project locality is not anticipated to change

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Aspidoscelis burti stictogrammus	Giant Spotted Whiptail	SC	S	S	
Buteo nitidus maxima	Northern Gray Hawk	SC	S		WSC
CH for Strix occidentalis lucida	Designated Critical Habitat for Mexican spotted owl				
Catostomus clarki	Desert Sucker	SC		S	
Coccyzus americanus occidentalis	Western Yellow-billed Cuckoo	C	S		WSC
Coryphantha recurvata	Santa Cruz Beehive Cactus		S		HS
Coryphantha scheeri var. robustispina	Pima Pineapple Cactus	LE			HS
Dendrocygna autumnalis	Black-bellied Whistling-Duck				WSC
Gastrophryne olivacea	Great Plains Narrow-mouthed Toad				WSC
Macroptilium supinum	Supine Bean	SC	S		SR
Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE			WSC
Sigmodon ochrognathus	Yellow-nosed Cotton Rat	SC			

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Tucson, AZ 85745
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Fax 520-670-6154

Flagstaff Sub-Office
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Phoenix, AZ 85021-4951
Phone: 602-242-0210
Fax: 602-242-2513

 APPLICATION INITIALS: _____

HDMS records indicate that one or more native plants listed on the Arizona Native Plant Law and Antiquities Act have been documented within the vicinity of your project area (refer to page 1 of the receipt). Please contact:

Arizona Department of Agriculture

1688 W Adams
Phoenix, AZ 85007
Phone: 602-542-4373

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Date: _____

Proposed Date of Implementation: _____

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Agency/organization:_____

Contact Name: _____

Address: _____

City, State, Zip: _____

Phone: _____

E-mail: _____

Person Conducting Search (if not applicant)

Agency/organization:_____

 APPLICATION INITIALS: _____

Contact Name: _____

Address: _____

City, State, Zip: _____

Phone: _____

E-mail: _____

 APPLICATION INITIALS: _____

In Reply Refer to:
SHPO-2008-0131 (35358)
Survey Required

FEB 29 2008

Arizona State Parks

February 26, 2008

George Miller, Environmental Project Manager
Transcon Environmental
3740 E. Southern Avenue, Suite 218
Mesa, Arizona 85206

RE: Requirement for *Class I and Class III Cultural Resources Inventory/Survey of Lands Associated with the UNS Electric, Inc. (UNSE) Proposed Vail-to-Valencia 115 kV-to-138 kV Upgrade Project, Pima and Santa Cruz Counties, Arizona.*

Dear Mr. Mitchell:

The Arizona State Historic Preservation Office is in receipt of your letter to James Garrison dated January 25, 2008 concerning the UNS Electric, Inc. proposed Vail-to-Valencia 115 kV Upgrade Project mentioned above. As you are aware, our agency reviews federal undertakings for compliance with the National Historic Preservation Act Section 106 as implemented by 36 C.F.R. 800 for purposes of preserving and protecting cultural resources.

We were unable to determine from your letter which federal agency is the lead for this project. Would the Dept. of Agriculture Rural Utilities Service act as the lead agency, and will they be making findings of effect and site eligibility recommendations based upon a Class I (file/map search & literature review) and Class III (intensive) cultural resources survey? **All land surfaces that could be potentially disturbed and have not been surveyed for cultural resources within the past 10 years should be inventoried by professional archaeologists who meet the Secretary of the Interior's Standards for cultural resource management.** The project's Area of Potential Effect (APE) (sq.ft./acreage format) and land ownership/jurisdiction should be clearly stated and delineated on U.S.G.S. 1:24,000 7.5' topo quad maps, and any cultural resources encountered along the route should be recorded, mapped, and evaluated. If this is not a federal undertaking, please inform us accordingly.

The cultural resources survey should be submitted to our office for review and comment before ground-disturbing activity begins, to prevent any adverse effect to archaeological/historical sites that are eligible for nomination to the National or State Register of Historic Places or to tribal Traditional Cultural Properties (TCPs). Please ask cultural resource contractors to use the SHPO report number **SHPO-2008-0131** when submitting the report to our office, as we have several similar projects under review at present, and would like to avoid confusion. We suggest you consult with all tribes with interests in the area.

Janet Napolitano
Governor

State Parks Board Members

Chair
William C. Cordasco
Flagstaff

Arlan Colton
Tucson

William C. Scalzo
Phoenix

Reese Woodling
Tucson

Tracey Westerhausen
Phoenix

William C. Porter
Kingman

Mark Winkleman
State Land Commissioner

Kenneth E. Travous
Executive Director

Arizona State Parks
1300 W. Washington
Phoenix, AZ 85007

Tel & TTY: 602.542.4174
www.azstateparks.com

800.285.3703 from
(520 & 928) area codes

General Fax:
602.542.4180

Director's Office Fax:
602.542.4188

In Reply Refer to:
SHPO-2008-0131 (35358)
Survey Required

Arizona® State Parks

We appreciate communication with our office regarding the proposed UNS, Inc. Vail-to-Valencia Upgrade Project and thank you for considering Arizona's cultural resources in the planning efforts. We look forward to receiving a copy of the Class I and Class III cultural resources survey for this project, and recommendations/finding of effect from the lead agency for the undertaking. If you have any concerns or questions, please contact me at (602) 542-7137 or cgibson@azstateparks.gov.

Sincerely,

Connie Thompson Gibson

Connie Thompson Gibson, RPA
Archaeologist & Compliance Specialist
Arizona State Historic Preservation Office

Janet Napolitano
Governor

State Parks Board Members

Chair
William C. Cordasco
Flagstaff

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General Fax:
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Director's Office Fax:
602.542.4188

Clark Bryner

From: Toni Warner [info@transconusa.com]
Sent: Friday, February 01, 2008 1:57 PM
To: George Miller; Mike Warner; Clark Bryner
Subject: FW: 115kV Upgrade Project

Follow Up Flag: Follow up
Flag Status: Red

-----Original Message-----
From: Douglass Witte [mailto:dwitte@land.az.gov]
Sent: Friday, February 01, 2008 12:43 PM
To: info@transconusa.com
Cc: George Cardieri; Ruben Ojeda
Subject: 115kV Upgrade Project

Attn: George Miller

My name is Doug Witte. I replaced Jody Latimer as the ASLD NRC Section Manager last spring; so will be handleing your future projects as they relate to native plant surveys. I received your letter and overview dated Jan 25th for the Vail to Valencia project.

It appears that the majority of the upgrade involves an existing ROW and power grid. Generally; ground disturbance resulting in removal of native vegetation within an existing ROW can be considered "maintenance" in nature. I assume there is an existing road associated with previous construction and maintenance activities and no new / additional monopoles will be required?

The new construction (mapped blue); outside of the existing ROW will obviously require a new ASLD ROW application for widening / realignment. The usual native plant survey and an estimate of the native plants destroyed on State Lands during construction will be required and compensation to the Trust will be assessed. A 100% survey within the proposed ROW will be required. An estimate of the plant community by cati, trees, shrub, and sub-shrub destroyed (i.e. within the new construction / maintenance road foot print and within a 15 meter area at around the new steel monopole locations) will need to be submitted to my office for review and billing.

If you have any further questions please feel free to contact me by return e-mail or by phone (602) 542-2699

RECEIVED
MAR 10 2008

COUNTY ADMINISTRATOR'S OFFICE

PIMA COUNTY GOVERNMENTAL CENTER
130 W. CONGRESS, TUCSON, AZ 85701-1317
(520) 740-8661 FAX (520) 740-8171

C.H. HUCKELBERRY
County Administrator

March 6, 2008

George Miller
Environmental Project Manager
Transcon Environmental
3740 East Southern Arizona, Suite 218
Mesa, Arizona 85206

Re: **UNS Electric, Inc. Vail to Valencia 115kV Upgrade Project**

Dear Mr. Miller:

Thank you for the opportunity to discuss the upgrade of an existing 115kV transmission line to a 138kV transmission line between the Vail Substation in Tucson and the Valencia Substation in Nogales, Arizona.

Enclosed is a copy of the staff report provided to my office regarding the above-noted project. Of significance are the possible environmental impacts from the 4.5-mile segment of the line in Pima County. I would like to emphasize the information provided in the Environmental Planning section of the County staff report and request that particular attention be given to possible on the ground impacts to areas within Priority Conservation Areas for the endangered Pima Pineapple Cactus and other species habitat, as designated under Pima County's Sonoran Desert Conservation Plan.

Based on the map provided in your packet, the proposed transmission line upgrade will cross the Santa Rita Experimental Ranch (SRER), which was established in 1903 and is the oldest experimental range in the United States. The SRER continues to be an important research facility in the continuance of long-term plants and wildlife studies under the University of Arizona.

I would further request that your staff work with Pima County's Regional Flood Control District staff to discuss the possible impacts and mitigation associated with the proposed new construction crossing floodplains and regulated riparian habitat within Pima County, especially in the riparian areas regulated by the District and located at the foot of alluvial fans associated with the Santa Rita Mountains.

Again, thank you for the opportunity to comment. I look forward to working with you on this project. For further coordination and discussion, please contact Diana Durazo of my office at (520) 740-8800.

Sincerely,

Chuck Huckelberry
County Administrator

CHH/jj

Attachments

c: John Bernal, Deputy County Administrator - Public Works
Nanette Slusser, Assistant County Administrator for Policy - Public Works
Suzanne Shields, Regional Flood Control District Director
Carmine DeBonis, Development Services Director
Arlan Colton, Planning Official, Development Services
Nicole Fyffe, Executive Assistant to the County Administrator
Diana Durazo, Special Staff Assistant to the County Administrator

Pima County
Development Services

Carmine DeBonis Jr.
Director

Office: 520.740.6506
fax: 520.740.8878

February 14, 2008

C. H. Huckelberry
County Administrator
130 W. Congress Street
Tucson, AZ 85701

Subject: **UNS Electric, Inc, Vail to Valencia 115kV Upgrade Project**

Dear Mr. ~~Huckelberry~~ Chuck:

Pima County staff respectfully submits the following aggregated comments to you regarding the above-mentioned proposal.

COMPREHENSIVE PLANNING REPORT

The subject project is described as a proposed 50-mile long upgrade from a 115kV transmission line to a 138kV transmission line to meet service needs of a growing electricity demand in Nogales and the Santa Cruz Valley. Most of the upgrade will utilize the existing 115kV transmission line route. The only deviation from the existing route within Pima County is described as a 4.5-mile segment to interconnect with the existing Vail Substation. That new segment appears to be located entirely within City of Tucson jurisdiction. However, about one-half mile of that new segment is adjacent to Pima County jurisdiction located at T16, R14, S12. The planned land use designation of Section 12 is Medium Intensity Urban (MIU) approved under comprehensive plan amendment case Co7-03-09 with Special Area Policies (RP-59). Section 12 is currently undeveloped, but is subject to development under the Swan Southlands Specific Plan. None of the new segment is located within the Conservation Lands System (CLS). However, the new segment will traverse riparian habitat.

Within Pima County, the existing transmission line that will be upgraded runs through both City of Tucson and Pima County jurisdiction. It also runs through the Santa Rita Experimental Range, a Scientific Research Area within the CLS. Within Pima County jurisdiction, the line runs through low-density rural populated and unpopulated areas and traverses Important Riparian Area and Biological Core Management Area within the CLS.

Comprehensive Plan staff defers to Environmental Planning staff for comments pertaining to the CLS.

ENVIRONMENTAL PLANNING REPORT

As requested by UNSE, Environmental Planning has identified several issues which we believe UNSE should examine further as part of their environmental compliance for the above-referenced project. The geographic limit of our review is limited to that portion of the overall project that lies within Pima County. Therefore, the following issues are specific to the 4.5 mile segment of the transmission line where steel

monopole structures will be installed in order for the transmission line route to interconnect with the existing Vail Substation.

- Impacts to Pima pineapple cactus (PPC). New construction will occur within the known range of the PPC and more specifically within an area that Pima County's Sonoran Desert Conservation Plan identifies as a Priority Conservation Area for this species. We strongly encourage surveys be performed within and around new construction areas in order to facilitate avoidance of the direct loss of PPC. When and where direct loss is unavoidable, mitigation should be provided.

- Impacts to western burrowing owl (WBO). New construction will occur within the known range of the WBO. Those areas to be affected by new construction fall within high and medium value habitat as modeled by Pima County's Sonoran Desert Conservation Plan. We strongly encourage surveys be performed within and around new construction areas in order to facilitate avoidance of the direct loss of WBO and any nest sites in particular. For further guidance on surveys and appropriate actions should WBO be found, please contact the Arizona Game and Fish Department – Tucson Office.

- Raptor electrocution. The potential for power lines as a significant source of raptor mortality is well-documented. We strongly encourage that the new and replacement poles be designed to prevent raptor electrocution. One of the definitive sources for best practices is *Suggested Practices for Avian Protection on Powerlines: The State of the Art in 2006 (CEC-500-2006-022).*

FLOOD CONTROL DEPARTMENT REPORT

Pima County Regional Flood Control has reviewed the materials submitted and has the following comments:

1. The proposed new construction crosses numerous floodplains and regulated riparian habitat within Pima County. This includes areas identified as Important Riparian Areas, Hydromesoriparian or Mesoriparian (Class H), as well as xeroriparian classifications. Chapter 16.30 of the Pima County Floodplain and Erosion Hazard Management Ordinance No. 2005-FC2 requires mitigation for cumulative disturbance exceeding 1/3 acre.

2. Areas where existing poles and lines are to be replaced also cross numerous floodplains and riparian areas regulated by the District and located at the foot of alluvial fans associated with the Santa Rita Mountains. The soils and topography contribute to the dynamic characteristic of drainage, which is distributory in some locations, erosion, and sedimentation.

3. Construction activity including roads and use of heavy equipment has the potential for negative impacts, which take many years to recover on their own. All riparian areas should be reseeded with a mix of native species and significant individual plants replaced. Fencing and access points should be carefully maintained to avoid becoming temporary or permanent access points for off-road vehicle users and others.

4. Use of heavy equipment may also increase erosion potential. Best management practices should be utilized to avoid sediment runoff and creation of gullies.

Please feel free to contact Greg Saxe at 520-243-1833 with any questions or concerns on this project.

SUBDIVISION REVIEW DIVISION REPORT

This a proposal for a new transmission line within the City of Tucson's jurisdiction that will upgrade an existing 115 kV line, to include a new line along the ungraded Old Vail Connection alignment. The proposed new line will cut through several small washes and some areas of Xeroriparian "D" and Hydro-mesoriparian habitat.

If the line is an upgrade to an existing line, why is it proposed to extend to an existing substation? Where is the current alignment? Utilizing the existing 115 kV line alignment and upgrading the transmission lines within that alignment would minimize the amount of grading and clearing of native vegetation and disruption of wildlife habitat.

Our recommendation is that UNS. Electric continue to use the existing utility line location and upgrade the line within that location.

WASTEWATER MANAGEMENT DEPARTMENT REPORT

The Capacity Management Section of the Pima County Regional Wastewater Reclamation Department (RWRD) has reviewed the Applicant's request and offers the following comments:

- It does not appear the proposed upgrade will impact the existing RWRD public sewer system.
- The Pima County Regional Wastewater Reclamation Department has no objections to the requested project.

If you wish to discuss the above comments, please contact me at 740-6779.

CULTURAL RESOURCES DEPARTMENT REPORT

The Cultural Resources Department's staff has reviewed the submitted materials for the UNS Electric, Inc., Vail to Valencia 115kV Upgrade Project. This is an approximately 50-mile overhead electric transmission line improvement project, extending from the Vail electrical substation, in Pima County, to the Valencia Substation, in Nogales, Santa Cruz County. The project is proposed by UNS Electric, Inc., and will upgrade the existing 115kV electric transmission line, which is the main electric transmission line serving the Santa Cruz River valley and Nogales, Arizona. The project will upgrade the existing transmission line to a 138kV transmission line and will follow the existing alignment, with three exceptions: two "relocated segments" are south of Tumacacori and north of Nogales, respectively, and a 4.5 mile segment will be built at the north end of the alignment to interconnect the Vail substation. In the new transmission line construction, steel monopole structures will be installed and existing wood poles south of Amado will be replaced with steel monopoles.

Staff conducted a review of Pima County records within and near the proposed electric power transmission alignment between the Vail substation, southwest of Cienega Creek, and the Valencia substation, in Nogales. From southwest of Cienega Creek, the alignment passes through Pima County, to the southwest through the Santa Rita Experimental Range and then south, paralleling, but well east of the Santa Cruz River. The alignment continues to pass well to the east of the Santa Cruz and Canoa Ranch, and then meets and parallels the Southern Pacific Railroad alignment and I-19 Highway as it continues into and through Santa Cruz County. The alignment terminates at the Valencia substation, in Nogales.

The County records search revealed that, except for the 4.5 mile east-west extension to the Vail substation, the portion of the alignment within Pima County was surveyed in 1988 (ASM 1988-

215.ASM). The alignment is crossed by several corridor surveys and there are several adjacent and nearby block surveys in Pima County, all conducted in the 1980s and 1990s. Aside from surveys associated with the I-19 highway corridor, little previous survey has been done in the vicinity of the alignment in Santa Cruz County.

The records search also revealed that several archaeological sites are recorded within the alignment. In Pima County, sites AZ EE:1:168, and AZ BB:13:545, 546, 547(all ASM), are within, or partially within the power line alignment. One site is recorded within the alignment in Santa Cruz County, AZ DD:8:138(ASM), which is just south of the Pima County line. The portion of the Southern Pacific Railroad extending into Santa Cruz County is also recorded as historic linear site AZ BB:13:679, the Tucson & Nogales Railroad.

The electric transmission line also crosses numerous environmental zones that typically are considered to have a high potential for cultural resources. For example, in Pima County, the alignment crosses many Important Riparian Areas and Core Biological Areas associated with tributaries of the Santa Cruz River. Conservation Land System records do not extend into Santa Cruz County, but the alignment crosses similar environmental zones within the Santa Cruz River watershed, for instance, Sopori Wash, in northern Santa Cruz County. These data combine to indicate that the UNS Electric, Inc., Vail to Valencia 115kV Upgrade Project has an excellent potential to impact known and as yet unknown cultural and historical resources.

Staff has the following recommendations:

- UNS Electric, Inc. and Santa Cruz County should be aware of the cultural resources sensitivity of the project alignment and ensure that appropriate protective measures are taken before any ground-disturbing construction occurs. Cultural resources survey is recommended to identify any significant cultural or historic resources that may be present. If archaeological or historic sites are identified that will be impacted negatively by the electric transmission line upgrade project, a cultural resources mitigation treatment plan should be prepared and submitted for review and approval by Pima and Santa Cruz Counties and, if necessary, the State Historic Preservation Office. All work should be conducted by an archaeologist permitted by the Arizona State Museum, or a registered architect, as appropriate.

- Once the electric line construction commences, Arizona state laws protecting cultural resources and human remains should be enforced. In the event that human remains, including human skeletal remains, cremations, and/or ceremonial objects and funerary objects are found during excavation or construction, ground-disturbing activities must cease in the immediate vicinity of the discovery. State Laws ARS 41-865 and/or ARS 41-844 require that the Arizona State Museum be notified of the discovery at (520) 621-4795 so that appropriate arrangements can be made for the repatriation and reburial of the remains by cultural groups who claim cultural or religious affinity to them. The human remains will be removed from the site by a professional archaeologist pending consultation and review by the Arizona State Museum and the concerned cultural groups.

If you have any questions, please contact Loy Neff at 740-6858.

PIMA COUNTY ASSESSOR'S OFFICE REPORT

Thank you for the notification regarding the proposed changes. The Pima County Assessor's Office has no formal comments on this case.

PARKS AND NATURAL RESOURCES DEPARTMENT REPORT
Natural Resources, Parks and Recreation staff has no comments or objections.

Sincerely,

Arlan M. Colton FAICP
Planning Official, Pima County Development Services

CC: Diana Durazo, Special Staff Assistant to the County Administrator

PIMA COUNTY
DEPARTMENT OF TRANSPORTATION
201 NORTH STONE AVENUE, THIRD FLOOR
TUCSON, ARIZONA 85701-1207

PRISCILLA S. CORNELIO, P. E.
DIRECTOR

(520) 740-6410
FAX (520) 838-7537

RECEIVED
FEB 04 2008

January 31, 2008

Mr. George Miller
Environmental Project Manager
Transcon Environmental
3740 E. Southern Avenue, Suite 218
Mesa, AZ 85206

Subject: UNS Electric, Inc. Vail to Valencia 115KV Upgrade Project

Dear Mr. Miller:

We have reviewed the information contained in your letter dated January 25, 2008. The new construction in Pima County is within the corporate limits of the City of Tucson, except for a small segment in the Wilmot Road right-of-way north of the Nogales Tap, and is therefore not subject to regulation by Pima County. Please note that a right-of-way use permit will be required for any work in the county maintained section of the Wilmot Road right-of-way. Thank you for the opportunity to review this project.

Sincerely,

Robert Young

Robert C. Young, P.E.
Manager, Transportation Systems Division

XC: Priscilla Cornelio, Director

RECEIVED
FEB 13 2008

CITY OF TUCSON
OFFICE OF THE CITY MANAGER

February 14, 2008

Mr. George Miller
Environmental Project Manager
Transcon Environmental
3740 East Southern Avenue, Suite 218
Mesa, AZ 85206

Re: UNS Electric, Inc. Vail to Valencia 115kV Upgrade Project

Dear Mr. Miller:

In response to your January 25, 2008 letter seeking input into UNS Electric's proposed transmission line upgrade project between the Vail substation and the Valencia substation in Nogales, the City of Tucson is pleased to provide information on issues that should be examined regarding environmental compliance and permitting requirements for the proposed project.

After reviewing the map you provided, it appears that only a portion of the proposed work will be performed within the jurisdiction of the City of Tucson. The bulk of the work within the City is comprised of the new 4.5 mile transmission line along Wilmot Road south of Old Vail Connection Road and along Old Vail Connection Road east of Wilmot. This segment is almost entirely on State Trust Land.

We expect that UNS will ensure that the project is compatible with the surrounding existing and planned uses, and will adhere to the specific environmental regulations of each relevant agency and the City of Tucson's permitting process.

Although most of the land within the City's boundaries is owned and administered by the Arizona State Land Department, the City has identified the general area as environmentally sensitive. As a result, we request that all appropriate environmental regulations and permitting processes be followed. Compliance with the permitting processes will allow UNS and the City to cooperatively address important environmental or land use issues associated with the proposed project. Specifically, we encourage UNS to meet with the appropriate City staff to address specific issues related to planning, development, and the environment.

If you need further information or clarification, please contact Chris Kaselemis with the City's Urban Planning and Design Department at 520-791-4505.

Sincerely,

Mike Hein
City Manager

MH:RH:mc

c: Karen Masbruch, Assistant City Manager
Albert Elias, Director, Urban Planning & Design Department
James Glock, Director, Transportation Department
Ernie Duarte, Director, Development Services Department
Leslie Liberti, Director, Office of Conservation and Sustainable Development
Chris Kaselemis, Department of Urban Planning & Design
Roger Howlett, Department of Urban Planning and Design
Dennis Ostmeyer, Transportation Department, Stormwater Management Section
Catesby Willis, Transportation Department, Engineering Division

EXHIBIT J-2: TRIBAL NOTIFICATION LETTER AND RESPONSES

Tribal Mailing List
Tribal Notification Letter and Map
Ak-Chin Indian Community Response Letter
The Hopi Tribe Response Letter
Pascua Yaqui Tribe Response
San Carlos Apache Tribe Response
White Mountain Apache Tribe Response Letter

UNISOURCE ENERGY SERVICES VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT TRIBAL MAILING LIST 01/16/08	
Elaine Peters, Director Ak-Chin Him Dak Eco Museum & Archives 47685 N. Eco Museum Rd. Maricopa, Arizona 85239	Delia M. Carlyle, Chairperson Ak Chin Indian Community Council 42507 W. Peters & Nall Rd. Maricopa, AZ 85239
Leigh Kuwanwisiwma Hopi Cultural Preservation Office PO Box 123 Kykotsmovi, AZ 86039	Benjamin Nuvamsa, Chairman Hopi Cultural Preservation Office PO Box 123 Kykotsmovi, AZ 86039
William Rhodes, Governor Gila River Indian Community PO Box 97 Sacaton, AZ 85247	Barnaby V. Lewis Cultural Resource Specialist Gila River Indian Community Cultural Resources Management Program PO Box 2140 Sacaton, AZ 85247
Herminia Frias, Chairperson Pascua Yaqui Tribal Council 7474 S. Camino de Oeste Tucson, AZ 85746	Amalia A.M. Reyes Language and Culture Preservation Specialist Pascua Yaqui Tribe 7474 S. Camino de Oeste Tucson, AZ 85746
Diane Enos, President Salt River Pima-Maricopa Indian Community 10005 E. Osborn Scottsdale, AZ 85256	Dezbah Hatathli, Natural Resources and Land Compliance Salt River Pima-Maricopa Indian Community 10005 E. Osborn Scottsdale, AZ 85256
Wendsler Nosie, Sr., Chairperson San Carlos Tribal Council PO Box 0 San Carlos, Arizona 85550	Vernelda J. Grant Tribal Historic Preservation Officer San Carlos Apache Tribe PO Box 0 San Carlos, Arizona 85550
Vivian Juan-Saunders, Chairperson Tohono O'odham Tribal Council PO Box 837 Sells, Arizona 85634	Peter Steere, Program Manager Cultural Affairs Program Tohono O'odham Nation PO Box 837 Sells, Arizona 85634
Ronnie Lupe, Chairman White Mountain Apache Tribal Council PO Box 700 Whiteriver, Arizona 85941	Mark Altaha Tribal Historic Preservation Officer White Mountain Apache Tribe Historic Preservation Office PO Box 507 Fort Apache, Arizona 85926
Jamie Fullmer, Chairperson Yavapai-Apache Tribal Council 2400 W. Datsi Street Camp Verde, AZ 86322	Don Decker, Director Yavapai-Apache Nation Apache Cultural Program 2400 W. Datsi Street Camp Verde, AZ 86322
Katherine Marquez, Director Yavapai-Apache Nation Yavapai Cultural Program 2400 W. Datsi Street Camp Verde, AZ 86322	

TRANSCON
ENVIRONMENTAL

January 25, 2008

Name
Tribe/Nation
Address

Re: UNS Electric, Inc. Vail to Valencia 115kV Upgrade Project

To Whom It May Concern:

UNS Electric, Inc. (UNSE), a subsidiary of UniSource Energy Services is planning to upgrade an existing 115kV (115,000 volt) transmission line to a 138kV (138,000 volt) transmission line between the Vail Substation in Tucson and the Valencia Substation in Nogales, Arizona (see figure 1). The existing line is the primary electrical line serving Nogales, Arizona and other communities along the Santa Cruz River south of Green Valley, Arizona.

Activities required to complete the upgrade would involve only a few changes to the existing transmission line route. On the north end of the project, near the Town of Vail, a 4.5 mile segment of transmission line must be built to interconnect with the existing Vail Substation (see photo A). Additionally, two segments are planned for relocation (see photos B and C). The two relocated segments are south of Tumacacori and north of Nogales. Steel monopole structures would be installed in areas of new transmission line construction, and existing wood poles south of Amado, Arizona would be replaced with steel monopoles. The entire length of the transmission line would then be energized at 138kV.

The proposal to upgrade the 50 mile-long transmission line requires approval from the Arizona Corporation Commission (ACC).

The project is intended to help meet growing electricity demand in the Nogales, Arizona and Santa Cruz Valley areas, upgrade and reinforce UNSE's current electrical distribution system and improve power reliability to current and future power users. This project is planned in accordance with UNSE's commitment to the ACC to upgrade the existing infrastructure.

Township and range information is provided from US Geological Survey (USGS) quadrangle maps of the area. Where township and range information is not provided on the USGS quadrangle maps, the approximate township and range location was estimated. The project is located in the Gila and Salt River Baseline and Meridian and its township and range descriptions are as follows:

- Sections 5, 30, and 31 of Township 24 South, Range 14 East
- Sections 7, 18, 19, 30, 31, and 32 of Township 23 South, Range 14 East
- Sections 1, 2, and 12 of Township 23 South, Range 13 East
- Sections 3, 9, 10, 15, 22, 23, 26, 27, 35, and 36 of Township 22 South, Range 13 East
- Sections 3, 10, 16, 21, 27, 28, and 34 of Township 21 South, Range 13 East
- Sections 4, 8, 9, 17, 20, 21, 28, 33, and 34 of Township 20 South, Range 13 East
- Sections 12, 13, 23, 24, 26, 27, 33, and 34 of Township 19 South, Range 13 East

3740 E. Southern Avenue, Suite 218 - Mesa, Arizona 85206 - 480.807.0095 - info@transconusa.com

- Sections 6 and 7 of Township 19 South, Range 14 East
- Sections 1, 2, 10, 11, 15, 21, 22, 28, 29, and 32 of Township 18 South, Range 14 East
- Section 36 of Township 17 South, Range 14 East
- Sections 6, 7, 18, 19, 30, and 31 of Township 17 South, Range 15 East
- Sections 4, 5, 6, 7, 18, 19, 30, and 31 of Township 16 South, Range 15 East

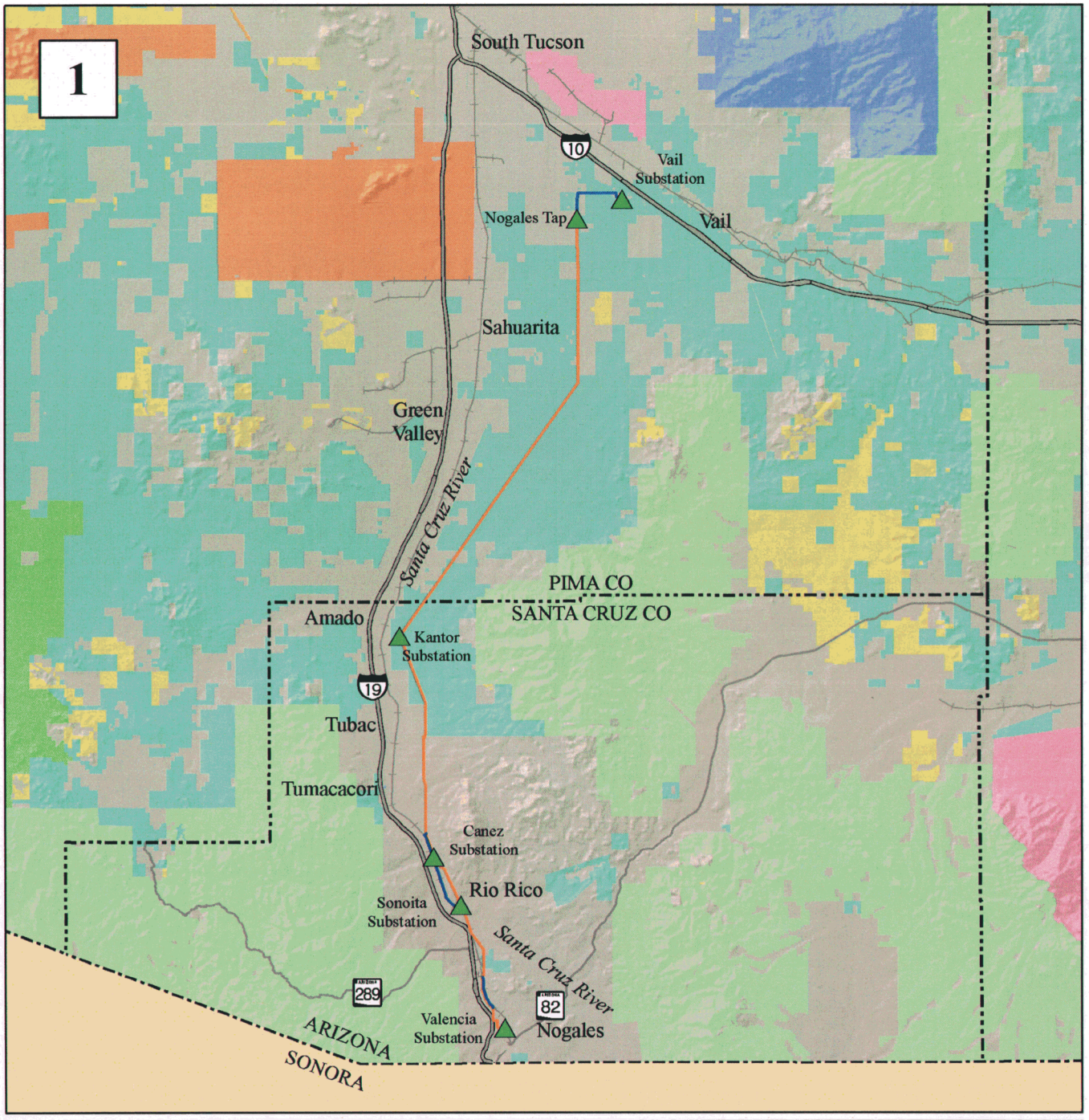
Transcon Environmental has been contracted by UNSE to assist with environmental compliance for the proposed project. Transcon, on behalf of UNSE, is requesting information on issues you feel are important to examine as well as your interest in participating in the compliance process regarding this project.

Cultural resources are among the various environmental resources being considered as part of the environmental compliance activities for the proposed project. It is understood that resources and places with traditional cultural significance for your community, nation, or tribe may be present within the region of the proposed project. Transcon, on behalf of UNSE, would like to know if you are aware of any unique, unusual, special, ethnographic, or archaeological resources or areas in the proposed project vicinity.

We value your perspective and look forward to consulting with you on this project. To expedite this process, please provide your comments within 30 days to Transcon Environmental at 3740 East Southern Avenue, Suite 218, Mesa, Arizona 85206 or e-mail to info@transconusa.com. If you need any further information or want to discuss this project please contact me or Everett Bassett, Transcon Archaeologist, at (480) 807-0095.

Sincerely,

George Miller
Environmental Project Manager



Legend

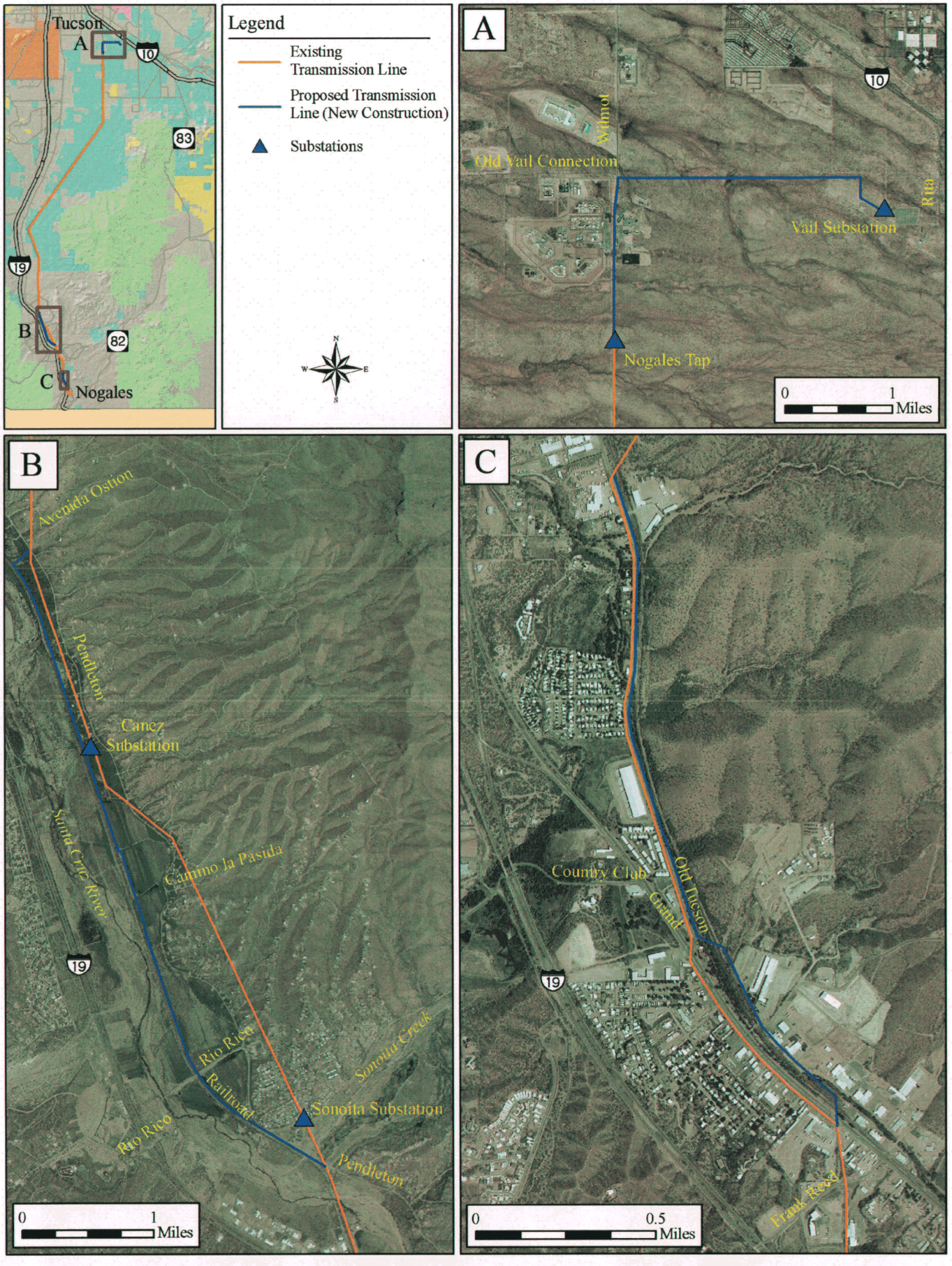
- Existing Transmission Line
- Proposed Transmission Line (New Construction)
- Substations
- Bureau of Indian Affairs
- Bureau of Land Management
- Bureau of Reclamation
- Department of Defense
- Forest Service
- National Park Service
- Private
- State

0 1 2 3 4 Miles

Vail to Valencia 115kV Upgrade Project

UniSource Energy SERVICES

TRANSCON ENVIRONMENTAL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Country Club
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Frank Reed
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Miles

AK-CHIN INDIAN COMMUNITY

Cultural Resources Office

42507 W Peters & Nall Road • Maricopa, Arizona 85239 • Telephone: (520) 568-1369 • Fax: (520) 568-1366

January 30, 2008

RECEIVED
FEB 04 2008

George Miller
Environmental Project Manager
Transcon Environmental
3740 E. Southern Avenue, Suite 218
Mesa, Arizona 85206

Re: UNS Electric, Inc. Vail to Valencia 115kV Upgrade Project

Dear Mr. Miller:

The Ak-Chin Cultural Resources Office did receive a letter dated January 25, 2008 regarding the above-referenced project.

At this time, our office will defer comments to the Tohono O'Odham Nation.

Thank you for informing our office about this project. If you have any questions, please call me at (520) 568-1369.

Sincerely,

Gary Gilbert
Cultural Resources Technician II
Cultural Resources Office
Ak-Chin Indian Community

THE HOPI TRIBE
P.O. Bo 123
Kykotsmovi, AZ 86039
(928) 734-3000

Benjamin H. Nuvamsa
CHAIRMAN

Todd Honyaoma, Sr.
VICE-CHAIRMAN

RECEIVED
FEB 07 2008

February 4, 2008

George Miller, Environmental Project Manager
Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, Arizona 85206

Dear Mr. Miller,

Thank you for your correspondence on behalf of UNS Electric, Inc. dated January 25, 2008, regarding the proposed 50 mile long Vail to Valencia 115kV Upgrade Project in Pima and Santa Cruz Counties. The Hopi Tribe claims cultural affiliation prehistoric cultural groups in Arizona, and the Hopi Cultural Preservation Office supports the identification and avoidance of prehistoric archaeological sites and Traditional Cultural Properties. We therefore appreciate your solicitation of our input and your efforts to address our concerns.

And therefore, if a cultural resources survey of the area of potential effect identifies prehistoric cultural resources that will be adversely affected by project activities, please provide us with copies of the survey report and any proposed treatment plans for review and comment.

We also recommend that if any cultural features or deposits are encountered during project activities, these activities must be discontinued in the immediate area of the remains and the State Historic Preservation Office must be consulted to evaluate their nature and significance. If any Native American human remains or funerary objects are discovered during construction they shall be immediately reported as required by law.

If you have any questions or need additional information, please contact Terry Morgart at the Hopi Cultural Preservation Office. Thank you again for your consideration.

Respectfully,

Leigh J. Kuwanwisiwma, Director
Hopi Cultural Preservation Office

xc: Arizona State Historic Preservation Office

From: Amalia Reyes [mailto:Amalia.Reyes@pascuayaqui-nsn.gov]
Sent: Thursday, February 21, 2008 2:38 PM
To: info@transconusa.com
Cc: Gloria Coronado
Subject: UNS Electric Inc.

The Pascua Yaqui Tribe has received your document dated January 25, 2008 for the following project: **UNS Electric, Inc. Vail to Valencia 115kV Upgrade**

After reviewing the document, there are some concerns that need to be addressed: The letter inquires whether the Pascua Yaqui Tribe has resources or sites with traditional cultural significance in the vicinity of the project.

There are three known sites affiliated with the Pascua Yaqui Tribe; Tumacacori National Park, Calabazas Mission and the Guevavi Mission, located in Santa Cruz County. The Pascua Yaqui Tribe has a strong historical presence in the area from the time of Father Eusebio Kino's arrival in Tumacacori and the two other missions. Burial records housed at Tumacacori National Park verify the presence of our tribal people.

I would like to comment that a concern would lie with any inadvertent discoveries in the region/vicinity of the mission sites. A burial agreement with provisions to address the cultural, historical and ethnographic concerns and treatments of any remains discovered affiliated with the Pascua Yaqui Tribe should be considered for the project.

If you require additional information, please contact me.

Respectfully,

Amalia A. M. Reyes
Community Library and Resource Center Manager
Education Division, Pascua Yaqui Tribe
520-879-5742
amalia.reyes@pascuayaquitribe-nsn.gov

Nadine Benally

From: Vern Grant [apachevern@yahoo.com]
Sent: Monday, April 14, 2008 10:26 AM
To: Nadine Benally
Subject: Re: Vail to Valencia - Tribal Scoping Letter

Hi Nadine,
Thank you for sending me the consultation letter via email. The letter has been reviewed and the Historic Preservation & Archaeology Department has no concerns with historic and cultural resources of interest to the San Carlos Apache Tribe. The Department wishes to deferr consultation to the nearest tribal nation located to the project area. If you have any questions, please call me at (928) 475-5797.

Sincerely,

Vernelda Grant
Tribal Historic Preservation Officer (THPO)
San Carlos Apache Tribe

Nadine Benally <nadine@transconusa.com> wrote:

> Vernelda,
>
> The letter attached as a PDF is the letter we sent on 1/25/2008 regarding Unisource Energy Services Vail to Valencia 115kV Upgrade Project.
>
> Let me know your response.
>
> If you have questions give me a call at the office, 480-807-0095.
>
> Thanks,
> Nadine Benally
> TRANSCON ENVIRONMENTAL
> 3740 E. Southern Avenue, Suite 218
> Mesa, AZ 85206
> Office. 480.807.0095
> Fax. 480.807.0068
> Cell. 480.236.9034
> Email. nadine@transconusa.com

White Mountain Apache Tribe Heritage Program
PO Box 507 Fort Apache,AZ 85926

To: George Miller, Transcon Environmental Project Manager.
Date: January 28, 2008
Proposed Project: UNS Electric, Inc. Vail to Valencia 115kV Upgrade Project.

.....

The White Mountain Apache Historic Preservation Office (THPO) appreciates receiving information on the proposed project, dated January 25, 08 In regards to this, please attend to the checked items below;

► There is no need to send additional information unless project planning or implementation results in the discovery of sites and/or items having known or suspected Apache Cultural affiliation.

☐ The proposed project is located within an area of probable cultural or historical importance to the White Mountain Apache Tribe (WMAT). As part of the effort to identify historical properties that maybe affected by the project we recommend an ethnohistorical study and interviews with Apache Elders. The Cultural Resource Director, ***Mr. Ramon Riley*** would be the contact person at (928) 338-4625 should this become necessary.

☐ The proposed project is located within or adjacent to a known historic property of cultural concern and/or historical importance to the White Mountain Apache Tribe and will most likely result in adverse affect to said property. Considering this, please refrain from further steps in project planning and/or implementation.

► Please refer to the attached additional notes in regards to the proposed project:

We have received and reviewed the information regarding the proposed project to upgrade an existing 115vK transmission line to a 138kV line between the Vail Substation in Tucson and the Valencia Substation in Nogales, Arizona and we have determined the project ***will not have an effect*** on the tribe's Traditional Cultural Heritage Resources and/or historic properties. The project may proceed with the understanding that all ground disturbance be monitored and in the event subsurface materials or human remains are encountered all construction activities are to be stopped and the proper authorities and/or affiliated tribe(s) be notified to evaluate the situation.

We look forward to continued collaborations in the protection and preservation of places of cultural and historical significance.

Sincerely,

Mark T. Altaha
White Mountain Apache Tribe
Historic Preservation Officer
1 (928) 338-3033 Fax: 338-6055

EXHIBIT J-3: NEWSLETTERS

VAIL TO VALENCIA 115kV UPGRADE PROJECT

PROJECT INFORMATION

UniSource Energy Services (UES) is planning to upgrade an existing 115,000 volt (115kV) transmission line to a 138,000 volt (138kV) transmission line between the Vail Substation in Tucson and the Valencia Substation in Nogales, Arizona (see figure 1). The existing line is the primary electrical line serving Nogales, Arizona and other communities along the Santa Cruz River south of Green Valley, Arizona.

Activities required to complete the upgrade would involve only a few changes to the existing transmission line route. On the north end of the project, near the Town of Vail, a 4.5-mile segment of transmission line must be built to interconnect with the existing Vail Substation (see photo A on back). Additionally, two segments are planned for relocation (see photos B and C). The two relocated segments are south of Tumacacori and north of Nogales. Steel monopole structures would be installed in areas of new transmission line construction, and existing wood poles would be replaced with steel monopoles.

The proposal to upgrade the 50-mile-long transmission line requires approval from the Arizona Corporation Commission (ACC).

NEED FOR THE PROJECT

The project is intended to help meet growing electricity demand in the Nogales, Arizona and Santa Cruz Valley areas, upgrade and reinforce UES's current electrical distribution system and improve power reliability to current and future power users. This project is planned in accordance with UES's commitment to the ACC to upgrade the existing infrastructure.

ENVIRONMENTAL ANALYSIS

UES is conducting environmental studies in order to obtain the necessary permits for the proposed project. Since the upgrade consists of transmission lines greater than 115kV, approval by the Arizona Corporation Commission is required. This process includes review by the Arizona Power Plant and Transmission Line Siting Committee, which considers environmental impacts and compatibilities through their Certificate of Environmental Compatibility (CEC) process. Transcon Environmental is assisting UES with environmental analysis and compliance activities.

PROJECT TIMELINES

Public and agency contacts will be initiated in December 2007 and environmental studies will take place through the first half of 2008. UES expects to submit the CEC application in the summer of 2008, and if approved, upgrade activities would begin in 2010.

STAYING INVOLVED AND MAKING COMMENTS

We welcome your questions, comments and concerns regarding this proposed project. Please call the 24-hour toll-free Project Information Telephone Line at (866) 403-6358.

PROYECTO DE MEJORAMIENTO VAIL A VALENCIA 115kV

INFORMACIÓN ACERCA DEL PROYECTO

UniSource Energy Services (UES por sus siglas en inglés) planea renovar las líneas de transmisión de 115,000 voltios (115kV) a 138,000 voltios (138kV). Estas líneas se encuentran actualmente entre la subestación de Vail en Tucson y la subestación de Valencia en Nogales, Arizona (ver figura 1). Las líneas actuales son la principal fuente de corriente eléctrica que da servicio a Nogales, Arizona y otras comunidades que se encuentran a lo largo del Rio Santa Cruz al sur de Green Valley, Arizona.

Algunas de las actividades que se requieren para terminar dicha renovación incluirán ciertos cambios a la ruta de las líneas actuales. En el área norte del proyecto, cerca de Vail, se construirá un segmento de 4.5 millas de líneas de transmisión para interconectarlo con la subestación existente en Vail (ver foto A al reverso). Además, dos segmentos serán relocalizados (ver fotos B y C). Dichos segmentos se encuentran al sur de Tumacácori y al norte de Nogales. Estructuras con postes de acero serán levantadas en las áreas de construcción donde se ubicarán las nuevas líneas de transmisión. Los postes de madera que ya existen serán reemplazados con postes de acero.

La propuesta para renovar las 50 millas de líneas de transmisión necesita la aprobación de la Comisión Corporativa de Arizona (ACC por sus siglas en inglés).

NECESIDAD DE CONTAR CON LÍNEAS RENOVADAS

Con el proyecto se tiene la intención de cubrir la creciente demanda de electricidad en las áreas de Nogales, Arizona y Valle Santa Cruz, renovar y reforzar la distribución del sistema eléctrico actual de UES y mejorar la fiabilidad de la corriente eléctrica para uso de los clientes. Este proyecto se llevará a cabo de acuerdo con el compromiso de UES con la ACC para mejorar la infraestructura actual.

ANÁLISIS DEL MEDIO AMBIENTE

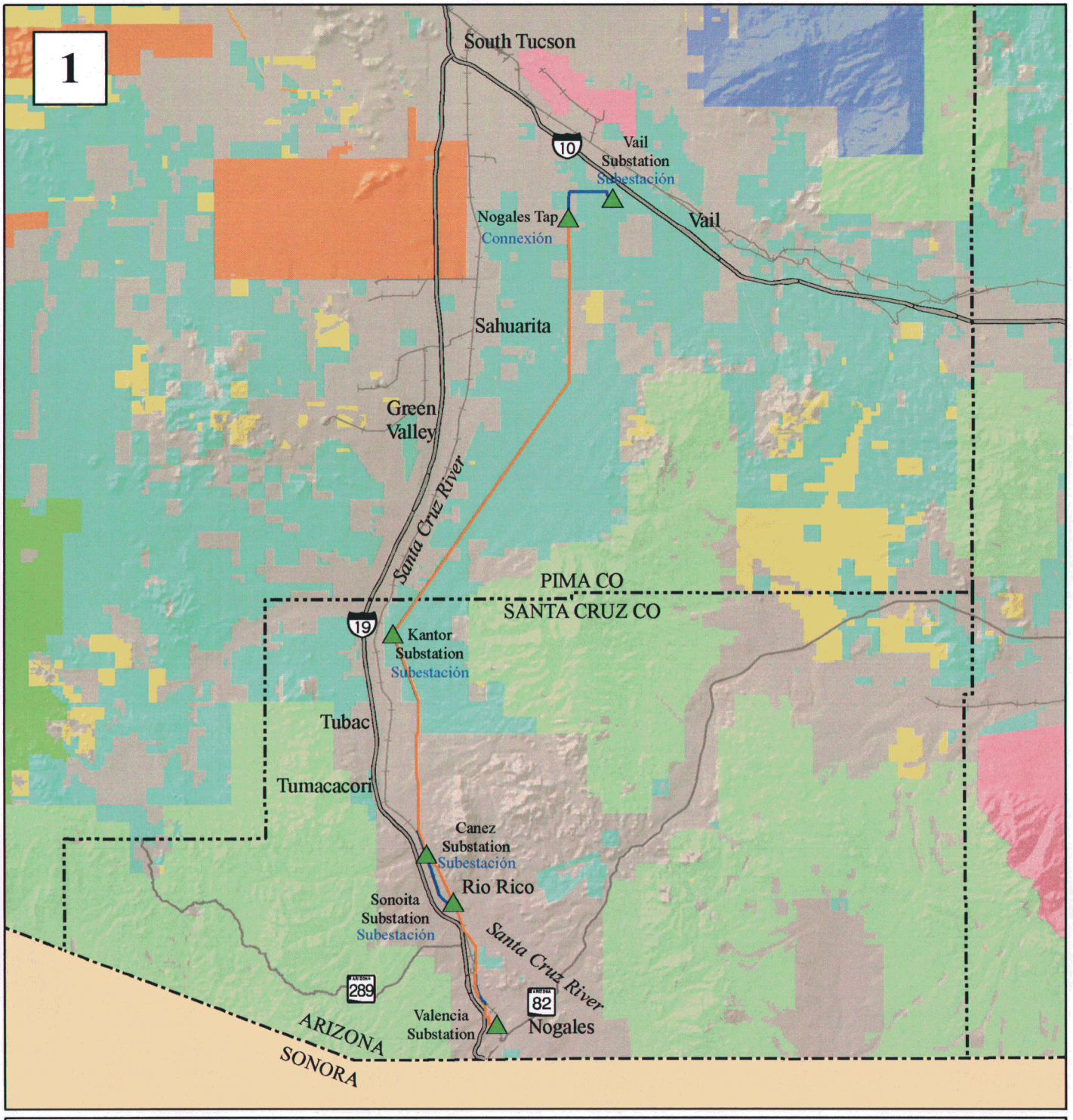
Con el propósito de obtener los permisos necesarios para llevar a cabo este proyecto, UES realiza estudios sobre el medio ambiente. Ya que dicha renovación requiere líneas de transmisión mayores a los 115kV, es necesario contar con la aprobación de la Comisión Corporativa de Arizona. Dicho proceso incluye la revisión por parte del Comité de Líneas de Transmisión y Planta Eléctrica de Arizona el cual evalúa el impacto ambiental y su compatibilidad por medio de su proceso Certificado de Compatibilidad Ambiental (CEC por sus siglas en inglés). La compañía Transcon Environmental colabora con UES para llevar acabo análisis del medio ambiente y actividades de compatibilidad.

CALENDARIO DEL PROYECTO

Los contactos con los residentes y propietarios de terrenos y con las agencias de gobierno iniciarán en diciembre del 2007 y los estudios del medio ambiente empezarán en la primera mitad del 2008. UES espera presentar la solicitud para el CEC en el verano del 2008, y si es aprobada, las actividades de renovación comenzarán en el 2010.

PARTICIPE Y ENVIENOS SUS COMENTARIOS

Su opinión nos interesa. Si tiene preguntas, dudas o comentarios relacionados con este proyecto, llame gratis las 24 horas a la Línea Telefónica para Información del Proyecto al (866) 403-6358.



Legend
Leyenda

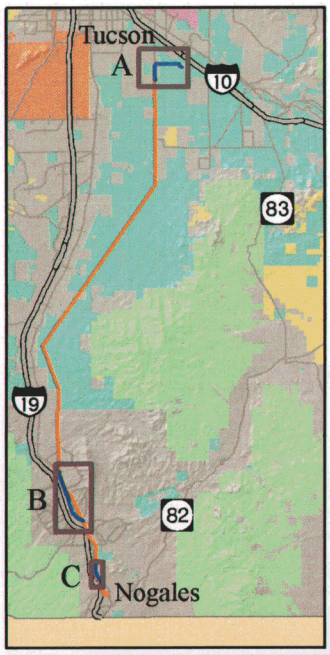
- Existing Transmission Line
  Línea de Transmisión (Existente)
- Proposed Transmission Line (New Construction)
  Línea de Transmisión (Construcción Nueva)
- Substations
  Subestaciónes
- Bureau of Indian Affairs
  Oficína de Asuntos Nativo Americanos
- Bureau of Land Management
  Oficína de Administración de Tierras
- Bureau of Reclamation
  Oficína de Reclamacion
- Department of Defense
  Departmento de Defensa
- Forest Service
  Servicío de Bosques
- National Park Service
  Servicío de Parques Nacionales
- Private
  Tierra Privada
- State
  Tierra del Estado

0 1 2 3 4
Miles
Millas

Vail to Valencia 115kV Upgrade Project
Proyecto de Mejoramiento Vail a Valencia 115kV

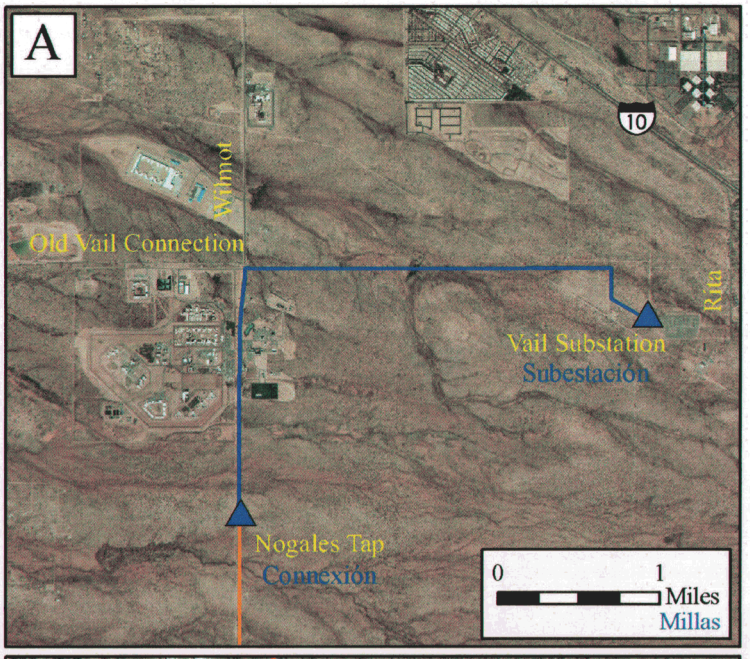
UniSourceEnergy SERVICES
TRANSCON ENVIRONMENTAL

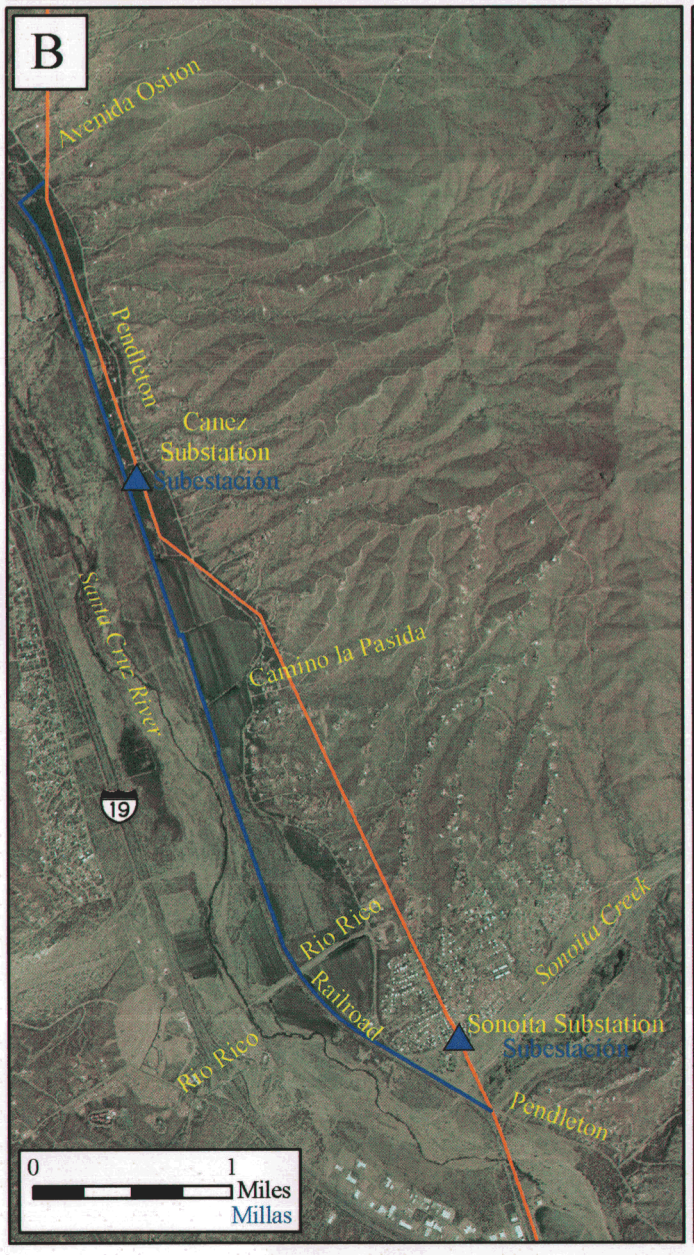
VAIL TO VALENCIA 115kV UPGRADE PROJECT



Legend
Leyenda

- Existing Transmission Line
  Línea de Transmisión (Existente)
- Proposed Transmission Line (New Construction)
  Línea de Transmisión (Construcción Nueva)
- Substations
  Subestaciónes





UniSource Energy Services

Vail to Valencia 115kV to 138kV Upgrade Project Newsletter No. 2

PROJECT SUMMARY

UniSource Energy Services (UES) is planning to upgrade an existing 115,000 volt (115kV) transmission line to a 138,000 volt (138kV) transmission line between the Vail Substation in Tucson and the Valencia Substation in Nogales, Arizona. The existing line is the primary electrical line serving Nogales, Arizona and other communities along the Santa Cruz River south of Green Valley, Arizona. The upgrade is necessary to adequately and reliably serve the area now and in the future. It is also being built in response to an order by the Arizona Corporation Commission. This is the second newsletter distributed to the public regarding this project.

PROJECT UPDATE

UES has continued to conduct activities in evaluating the existing power line route and identified alternatives, with the goal of achieving the best possible solution for improving the infrastructure. Since the last newsletter was circulated, several meetings have been held with interested groups and the public to solicit comments and identify issues for consideration. UES also has designated a study area and examined a number of alternatives based on criteria that efficiently use existing infrastructure and rights-of-way, and avoid incompatible features and land uses. UES seeks additional input from the public in response to the range of alternatives, and to suggest additional options, as appropriate.

The study and alternatives identified by UES are depicted on the enclosed map.

ALTERNATIVE ANALYSIS

The strengths and weaknesses of each alternative will be analyzed. Strengths of a project alternative include the use of an existing right-of-way; adaptive use of existing utility infrastructure; and avoidance of sensitive land uses, and biological or cultural resources. Examples of weaknesses include a high cost of construction, maintenance, or operation of the facility; the potential for impacts to sensitive resources; and incompatible land uses. The evaluation process will lead to the selection of suitable alternative alignments, which will be presented to the Arizona Power Plant and Transmission Line Siting Committee for consideration and then to the Arizona Corporation Commission for approval of a Certificate of Environmental Compatibility.

PUBLIC INVOLVEMENT AND OPEN HOUSES

UES will be hosting another series of public open houses to seek input on the project. The open houses are scheduled at the following locations, dates and times:

TUCSON
HOLIDAY INN HOTEL & SUITES
4550 South Palo Verde Road, Tucson
Tuesday, May 27
5:30 p.m. – 7:30 p.m.

GREEN VALLEY
Joyner-Green Valley Branch Library
601 N. La Cañada Drive, Green Valley
May 28, 2008 5:00 p.m. – 7:00 p.m.

NOGALES
Nogales High School Auditorium
1905 N. Apache Blvd., Nogales
May 29, 2008 5:30 p.m. – 7:30 p.m.

We welcome your questions, comments and concerns regarding this proposed project. Please call the 24-hour toll-free Project Information Telephone Line at (866) 403-6358, or plan to attend one of the open house events.

UniSourceEnergy SERVICES

UniSource Energy Services

Boletín Informativo No 2

Proyecto de Mejoramiento de 115kV a 138kV de Vail a Valencia

SUMARIO DEL PROYECTO

UniSource Energy Services (UES por sus siglas en inglés) planea renovar las líneas de transmisión de 115,000 voltios (115kV) a 138,000 voltios (138kV). Estas líneas se encuentran actualmente entre la subestación de Vail en Tucson y la subestación de Valencia en Nogales, Arizona. Las líneas actuales son la principal fuente de corriente eléctrica que da servicio a Nogales, Arizona y otras comunidades que se encuentran a lo largo del Rio Santa Cruz al sur de Green Valley, Arizona. Estas mejoras son necesarias para servir dicha área de una de una manera adecuada y confiable ahora y en el futuro. De la misma manera está siendo construida en respuesta a una orden de la Comisión Corporativa de Arizona (Arizona Corporation Commission). Este es el segundo boletín que se distribuye al público en relación a dicho proyecto.

INFORMACIÓN RECIENTE ACERCA DEL PROYECTO

Con el fin de obtener la mejor solución para mejorar la infraestructura, UES continúa llevando a cabo actividades para evaluar la ruta de las líneas de electricidad que existe actualmente e identificar alternativas.

Desde que el último boletín fue enviado, se han llevado a cabo varias reuniones con grupos interesados en el proyecto y con el público en general para solicitar comentarios e identificar asuntos pertinentes a ser considerados. UES también ha designado un área de estudio y ha examinado varias alternativas basadas en el criterio que utiliza eficazmente la infraestructura existente y los derechos de paso (rights-of-way), y evitar aparatos y otras características incompatibles así como el uso del terreno. UES busca obtener información adicional del público en respuesta a la gama de alternativas identificadas y también para recibir opiniones y sugerencias adicionales, según sea apropiado.

El área de estudio y las alternativas identificadas por UES aparecen en el mapa adjunto.

ANÁLISIS DE LAS ALTERNATIVAS

Las áreas fuertes y débiles de cada alternativa serán analizadas. Los puntos fuertes de las alternativas del proyecto incluyen el uso de los derechos de paso existentes (rights-of-way), uso adaptativo de la infraestructura del equipo existente (ejem. transformadores, postes, líneas y cables de electricidad). Evitar el uso de terreno o áreas susceptibles así como de los recursos biológicos o culturales. Algunos ejemplos de los puntos débiles incluyen el alto costo de la construcción, mantenimiento u operación de las instalaciones, los posibles impactos a recursos susceptibles y el uso incompatible del terreno. El proceso de evaluación llevará a la selección de una alternativa apropiada de alineación, la cual será presentada para su consideración ante el Comité de Líneas de Transmisión y Planta Eléctrica de Arizona (Arizona Power Plant and Transmission Line Siting Committee) y la Comisión Corporativa de Arizona (Arizona Corporation Commission) para obtener el Certificado de Compatibilidad Ambiental.

PARTICIPACIÓN DEL PÚBLICO Y REUNIONES ABIERTAS (OPEN HOUSES)

UES presentará una vez más una serie de reuniones abiertas al público para obtener sugerencias acerca de este proyecto. El lugar, fechas y horarios de las reuniones abiertas (open houses) son los siguientes:

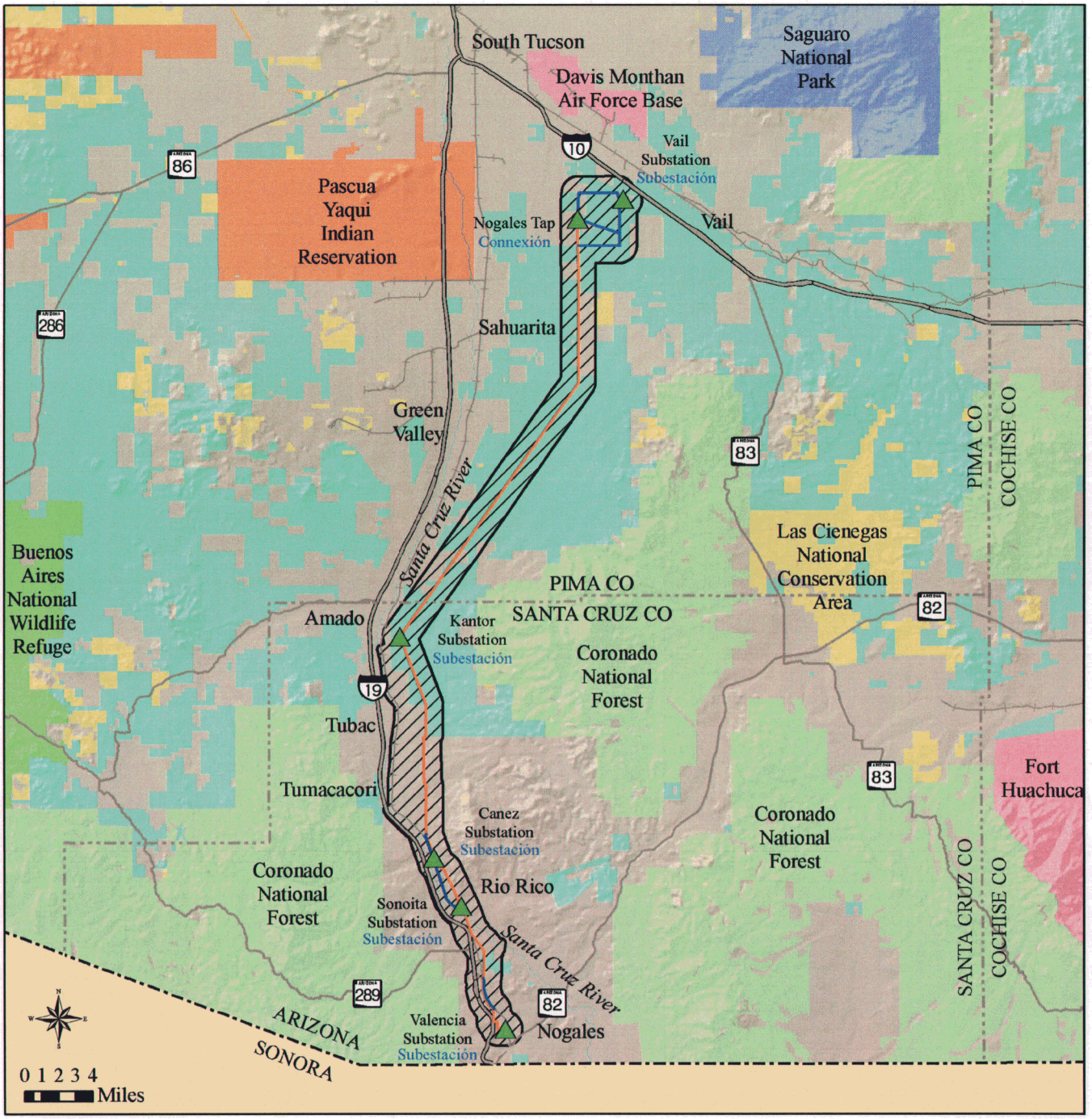
TUCSON
Holiday Inn Hotel & Suites
4550 South Palo Verde Road, Tucson
27 de mayo del 2008 de 5:30 p.m. a 7:30 p.m.

GREEN VALLEY
Joyner-Green Valley Branch Library
601 N. La Cañada Drive, Green Valley
28 de mayo del 2008 de 5:00 p.m. a 7:00 p.m.

NOGALES
Nogales High School Auditorium
1905 N. Apache Blvd., Nogales
29 de mayo del 2008 de 5:30 p.m. a 7:30 p.m.

Nos interesan sus preguntas, comentarios e inquietudes. Llame a la línea de información del proyecto abierta las 24 horas al (866) 403-6358, o asista a cualquiera de las reuniones abiertas (open houses).

UniSourceEnergy SERVICES



Legend
Leyenda

- Study Area / Área de Estudio
- Existing Transmission Line / Línea de Transmisión (Existente)
- Primary Alternatives / Alternativas Principales
- Substations / Subestaciónes
- Bureau of Indian Affairs / Oficína de Asuntos Nativo Americanos
- Bureau of Land Management / Oficína de Administración de Tierras
- Bureau of Reclamation / Oficína de Reclamacion
- Department of Defense / Departmento de Defensa
- Forest Service / Servicio de Bosques
- National Park Service / Servicio de Parques Nacionales
- Private / Tierra Privada
- State / Tierra del Estado

Project Study Area
Área de Estudio del Proyecto

Vail to Valencia
115kV to 138kV
Upgrade Project

Proyecto de Mejoramiento
Vail a Valencia 115kV a 138kV

UniSourceEnergy SERVICES

TRANSCON ENVIRONMENTAL

UniSource Energy Services

Vail to Valencia 115kV to 138kV Upgrade Project Newsletter No. 3

PROJECT SUMMARY

UniSource Energy Services (UES) is planning to upgrade an existing 115,000 volt (115kV) transmission line to a 138,000 volt (138kV) transmission line between the Vail Substation in Tucson and the Valencia Substation in Nogales, Arizona. The existing transmission line is the primary electrical line serving Nogales, Arizona and other communities along the Santa Cruz River south of Green Valley, Arizona. The upgrade is necessary to adequately and reliably serve the area now and in the future. It is also being built in response to a prior commitment to the Arizona Corporation Commission (ACC).

PROJECT UPDATE

In February 2008, UES held two public meetings in Nogales and Rio Rico and met with various local jurisdictions and organizations in order to seek comments and identify potential transmission line alternative alignments. In May 2008, UES met again with local jurisdictions and organizations and held another round of public meetings in Tucson, Green Valley, and Nogales. In those meetings, the company reviewed alternative corridor alignments and solicited comments regarding land use, environmental factors, and other project issues. The map that accompanies this newsletter presents the preliminary alternative corridors being considered. The newsletter also provides details about another round of public meetings, which will be held to provide information about the route analyses and input that contributed to the identification of the transmission line alternatives. Public comment is welcome.

ALTERNATIVE ANALYSIS

The strengths and weaknesses of each alternative will be analyzed. Strengths of a project alternative include the use of an existing right-of-way; adaptive use of existing utility infrastructure; and avoidance of sensitive land uses, and biological or cultural resources. Examples of weaknesses include a high cost of construction, maintenance, or operation of the facility; the potential for impacts to sensitive resources; and incompatible land uses. The evaluation process will lead to the selection of suitable alternative alignments, which will be presented to the Arizona Power Plant and Transmission Line Siting Committee for consideration and then to the Arizona Corporation Commission for approval of a Certificate of Environmental Compatibility.

PROJECT TIMELINE

Once the final alternative routes have been defined, UES will submit to the ACC an application for a Certificate of Environmental Compatibility (CEC) for the proposed project. The anticipated timeframe for submitting the application is January of 2009. Hearings before the Arizona Power Plant and Transmission Line Siting Committee are anticipated to occur in March of 2009. If approved by the committee and the ACC, the project is due to begin construction in the summer of 2011 and scheduled for an in-service date in the summer of 2012.

PUBLIC INVOLVEMENT AND OPEN HOUSES

Another series of public open houses has been scheduled at the following locations, dates and times:

Nogales – Nogales High School Auditorium, 1905 N. Apache Blvd., Nogales – Dec. 2 , 2008, 5:30 - 7:30 p.m.
Tucson – Holiday Inn Hotel & Suites, 4550 S. Palo Verde Rd., Tucson – Dec. 3, 2008, 5:30 - 7:30 p.m.
Green Valley – Joyner-Green Valley Branch Library, 601 N. La Cañada Drive, Green Valley – Dec. 4, 2008, 5 - 7 p.m.

The open houses are designed to provide an informal forum in which the public may ask questions, receive answers, and provide comment regarding the siting process, the preliminary alternatives, or other issues. Comments will assist UES and the involved agencies to make informed decisions for the project. We welcome your questions, comments and concerns regarding this proposed project. Please call the 24-hour toll-free Project Information Telephone Line at (866) 403-6358 or attend one of the open houses. If you would like more information about the project, please visit http://uesaz.com/Company/News/VailValencia.asp.

UniSourceEnergy SERVICES

UniSource Energy Services

Boletín No 3 del Proyecto de Renovación de 115kV a 138kV de Vail a Valencia

SUMARIO DEL PROYECTO

UniSource Energy Services (UES por sus siglas en inglés) planea renovar la línea de transmisión de 115,000 voltios (115kV) a 138,000 voltios (138kV). Esta línea de transmisión se encuentra actualmente entre la subestación de Vail en Tucson y la subestación de Valencia en Nogales, Arizona. La línea actual es la principal fuente de corriente eléctrica que da servicio a Nogales, Arizona y otras comunidades que se encuentran a lo largo del Rio Santa Cruz al sur de Green Valley, Arizona. Estas mejoras son necesarias para servir dicha área de una manera adecuada y confiable ahora y en el futuro. De la misma manera está siendo construida en respuesta a un compromiso previo con la Comisión Corporativa de Arizona (ACC por sus siglas en inglés).

INFORMACIÓN RECIENTE ACERCA DEL PROYECTO

En febrero de 2008, UES llevó a cabo dos reuniones con el público en Nogales y en Rio Rico. A la vez se reunió con varias jurisdicciones y organizaciones del área para obtener sugerencias e identificar posibles alineamientos alternativos para la línea de transmisión. En mayo de 2008, UES se reunió de nuevo con jurisdicciones y organizaciones del área y llevo a cabo otra ronda de reuniones con el público en Tucson, Green Valley y Nogales. En dichas reuniones la compañía revisó los alineamientos del corredor alternativo y solicitó sugerencias relacionadas con el uso del terreno, factores del medio ambiente y otros asuntos del proyecto. El mapa que se adjunta con este boletín informativo muestra los corredores alternativos preliminares que son considerados. Este boletín informativo también proporciona detalles sobre la próxima ronda de reuniones con el público, las cuales se llevarán a cabo para proporcionar información acerca de los análisis de la ruta y sugerencias que contribuyeron a la identificación de las alternativas de la línea de transmisión. Las sugerencias del público siempre nos interesan y son bienvenidas.

ANÁLISIS DE LAS ALTERNATIVAS

El estudio de emplazamiento o localización llevado a cabo para este proyecto indica cuánto de los derechos de paso (right-of-way) de la línea de transmisión existente debe ser utilizado para la renovación o si se debe considerar una ruta diferente debido a los posibles efectos de la ruta en el medio ambiente, uso del terreno actual o anticipado, o de qué manera la línea aparecerá en el paisaje. En estos casos, el estudio de emplazamiento o localización recomienda la ubicación para la línea de transmisión. Las alternativas preliminares de la ruta que se identifican reflejan las sugerencias que se reciben del público, agencias jurisdiccionales y organizaciones interesadas en el proyecto a la fecha. Varias alternativas se han identificado para analizarlas. Estas alternativas incluyen alineamientos de ruta cerca de la Subestación de Vail y al sur de la Subestación Kantor cerca de la comunidad de Amado. Con este boletín informativo se adjunta un mapa mostrando dichas alternativas.

CRONOLOGÍA DEL PROYECTO

Una vez que las rutas alternativas se hayan identificado, UES presentará a la Comisión Corporativa de Arizona (ACC por sus siglas en inglés) la solicitud para el Certificado de Compatibilidad Ambiental (CEC por sus siglas en inglés) para el proyecto propuesto. El margen de tiempo en el que se espera presentar la solicitud es para enero de 2009. Se espera que las audiencias ante La Planta Eléctrica de Arizona y el Comité de Emplazamiento de Líneas de Transmisión (Arizona Power Plant and Transmission Line Siting Committee) se lleven a cabo en marzo de 2009. Si el proyecto es aprobado por el comité y por la ACC, la construcción comenzará en el verano de 2011 y el servicio dará comienzo en el verano de 2012.

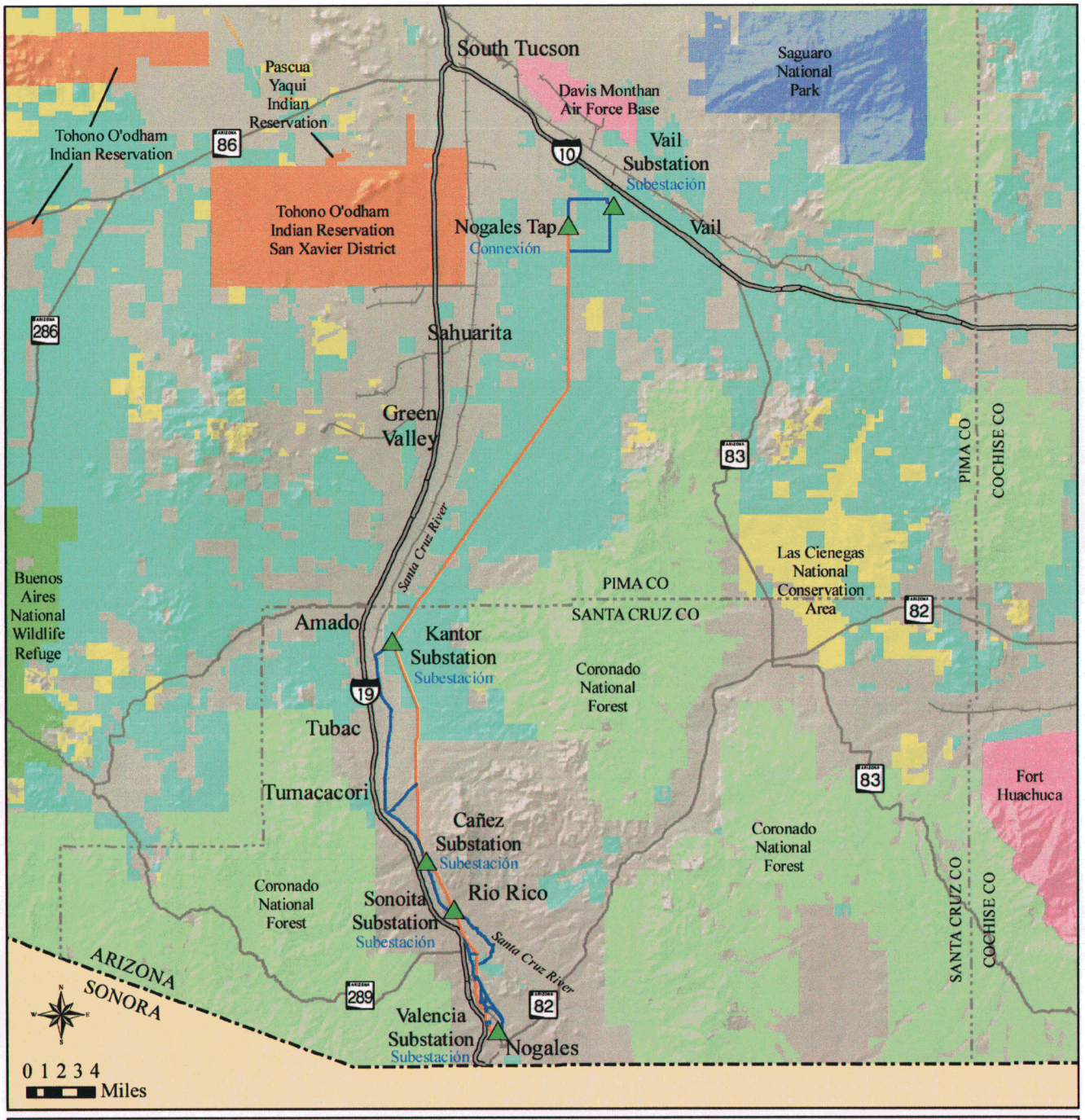
PARTICIPACIÓN DEL PÚBLICO Y REUNIONES ABIERTAS (OPEN HOUSES)

Otra serie de reuniones abiertas al público se ha programado para llevarse a cabo en los siguientes lugares, fechas y horas:

Nogales – Nogales High School Auditorium, 1905 N. Apache Blvd., Nogales – 2 de dic. de 2008, 5:30 - 7:30 p.m.
Tucson – Holiday Inn Hotel & Suites, 4550 S. Palo Verde Rd., Tucson – 3 de dic. de 2008, 5:30 - 7:30 p.m.
Green Valley – Joyner-Green Valley Library, 601 N. La Cañada Drive, Green Valley – 4 de dic. de 2008, 5 - 7 p.m.

Las reuniones abiertas están diseñadas para proporcionar un foro informal en el cual el público puede hacer preguntas, recibir respuestas y proporcionar comentarios relacionados con el proceso de emplazamiento o localización, alternativas preliminares y otros asuntos. Los comentarios o sugerencias le servirán a UES y a las agencias involucradas para tomar mejores decisiones sobre el proyecto. Nos interesan sus preguntas, comentarios o inquietudes relacionadas con el proyecto propuesto. Llame a la línea de información del proyecto abierta las 24 horas al (866) 403-6358 o asista a cualquiera de las reuniones abiertas (open houses). Si desea obtener más información acerca de el proyecto, visite http://uesaz.com/Company/News/VailValencia.asp

UniSourceEnergy SERVICES



Legend
Leyenda

- Existing Transmission Line — Línea de Transmisión Existente
- Alternative — Alternativa
- Substation — Subestación
- Bureau of Indian Affairs — Oficína de Asuntos Nativo Americanos
- Bureau of Land Management — Oficína de Administración de Tierras
- Bureau of Reclamation — Oficína de Reclamacion
- Department of Defense — Departmento de Defensa
- Forest Service — Servicio de Bosques
- National Park Service — Servicío de Parques Nacionales
- Private — Tierra Privada
- State — Tierra del Estado

Project Alternatives
Alternativas del Proyecto

Vail to Valencia
115kV to 138kV
Upgrade Project

Proyecto de Mejoramiento
Vail a Valencia 115kV a 138kV

UniSourceEnergy SERVICES
TRANSCON ENVIRONMENTAL

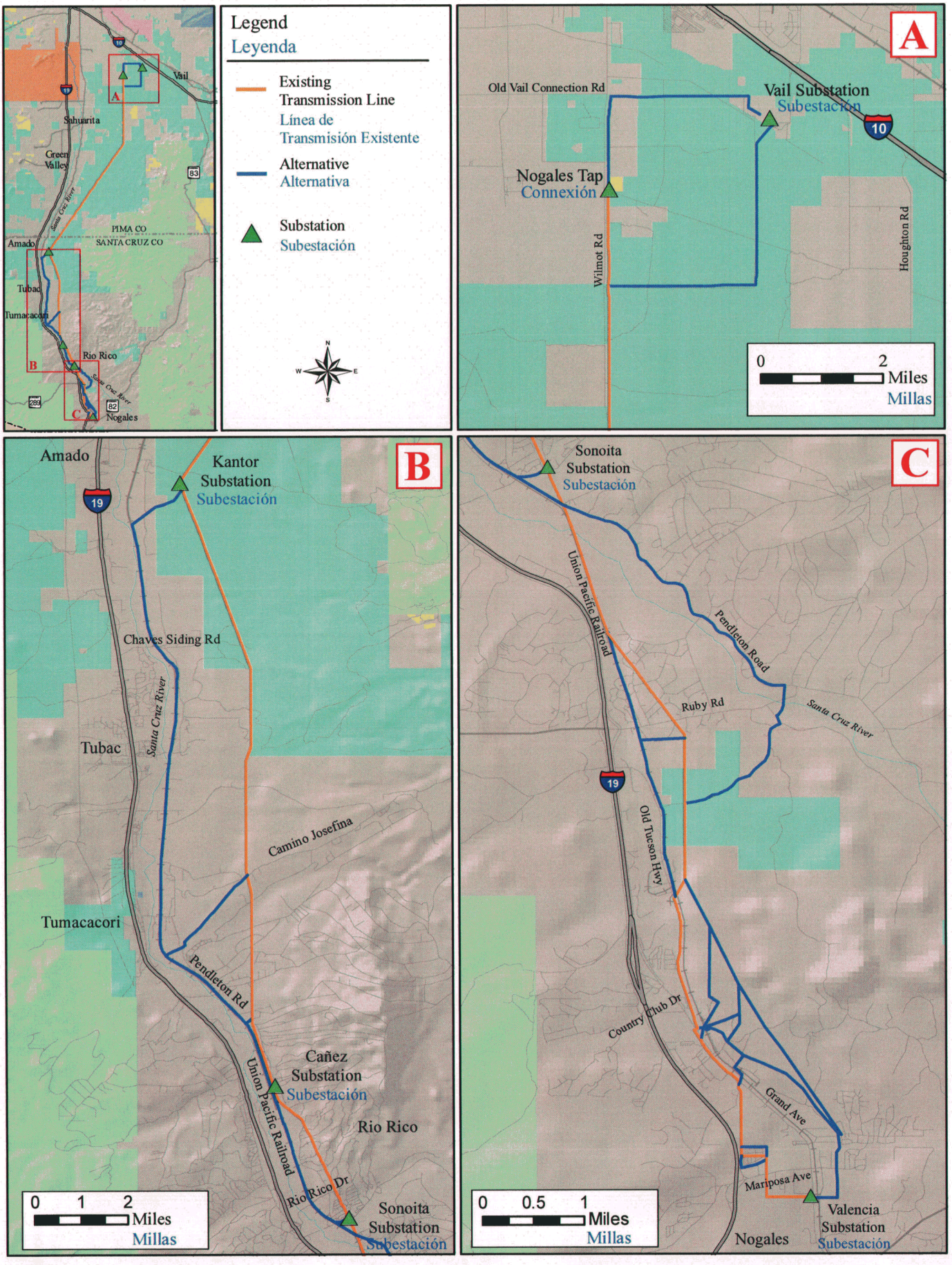

Legend
Leyenda
Existing
Transmission Line
Línea de
Transmisión Existente
Alternative
Alternativa
Substation
Subestación
A
Old Vail Connection Rd
Vail Substation
Subestación
Nogales Tap
Connexión
Wilmot Rd
Houghton Rd
0 2
Miles
Millas
B
Amado
Kantor
Substation
Subestación
Chaves Siding Rd
Santa Cruz River
Tubac
Camino Josefina
Tumacacori
Pendleton Rd
Cañez
Substation
Subestación
Union Pacific Railroad
Rio Rico
Rio Rico Dr
Sonoita
Substation
Subestación
0 1 2
Miles
Millas
C
Sonoita
Substation
Subestación
Union Pacific Railroad
Pendleton Road
Ruby Rd
Santa Cruz River
Old Tucson Hwy
Country Club Dr
Grand Ave
Mariposa Ave
Valencia
Substation
Subestación
Nogales
0 0.5 1
Miles
Millas

EXHIBIT J-4: OPEN HOUSE #1 MATERIALS AND EXHIBITS

February 27 and 28, 2008:
Newspaper announcements
Sign-in sheets
Blank comment form
Graphics displayed on large presentation boards

Transmission Line Upgrade Project
Open House

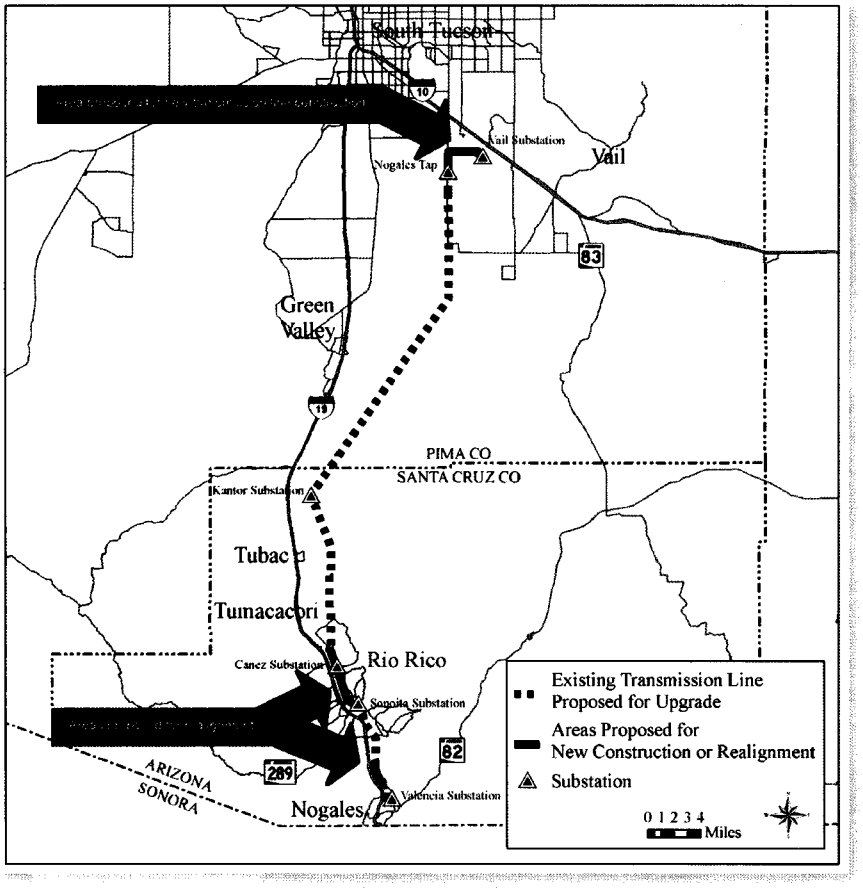
In order to help meet the growing demand for electricity in Santa Cruz County, UniSource Energy Services is planning to upgrade an existing 115 kilovolt (kV) transmission line to 138kV.

Activities required to complete the upgrade would involve only a few changes to the existing transmission line route. **(This project is NOT the 345kV transmission line that Tucson Electric Power has proposed.)**

We will be holding two informational open house sessions in the Nogales, Arizona area during the last week of February, and you are invited to share your questions, comments or concerns:

RIO RICO COMMUNITY CENTER
391 Avenida Coatimundi, Rio Rico
Tuesday, Feb. 26
Beginning at 6 p.m.

CITY OF NOGALES CITY HALL
777 N. Grand Ave., Nogales
Wednesday, Feb. 27
6 - 7 p.m.



To receive more information about the transmission line upgrade project or the open house meetings, please leave a message at our 24-hour toll-free telephone line: (866) 403-6358. Someone will return your call as soon as possible.

UniSourceEnergy
SERVICES

SIGN-IN SHEET SUMMARY

Open House – February 26 and 27, 2008

FEBRUARY 26, 2008 – RIO RICO, ARIZONA (Rio Rico Community Center)		
Name	**Affiliation and/or Interest in the Project**	**Address**
Alice Like	Rio Rico Resident	[redacted]
Allen Wehmors		[redacted]
Anne Walshe	Rio Rico Resident	[redacted]
Audrey Perry	Rio Rico Resident	[redacted]
Barney and Sue Nichols		[redacted]
Betty Jo Barney	Rio Rico Resident	[redacted]
Bill and Ellie Kuriz		[redacted]
Bob Perry	Rio Rico Resident	
Bruce Phenegan	Rio Rico Resident	[redacted]
Carol DeFario	Rio Rico Resident	[redacted]
Corinne Tynes	Rio Rico Resident	[redacted]
Don Hatton	Rio Rico Resident	[redacted]
Emma Grinder	Rio Rico Resident	[redacted]
Gene Earl	Rio Rico Resident	[redacted]
Georgia Conroy		[redacted]
Helen Lantigi	Rio Rico Resident	[redacted]

SIGN-IN SHEET SUMMARY

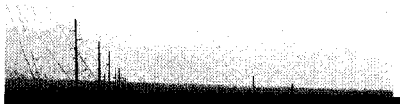
Open House – February 26 and 27, 2008

J Cook		
J Schubkegel	Rio Rico Resident	[redacted]
Jay and Jan Johnson	Rio Rico Resident	[redacted]
Jean Hatton	Rio Rico Resident	[redacted]
John Maynard	Rio Rico Resident	[redacted]
Karen and Larry Martin	Rio Rico Resident	
Kim Etherington	Rio Rico Resident	[redacted]
Linda Wilson	Rio Rico Resident	[redacted]
Marshall McGruder		[redacted]
Nicky Bell	Rio Rico Resident	[redacted]
Pat Anne Laddr	Rio Rico Resident	[redacted]
Richard Conroy		[redacted]
Ron Campana	Rio Rico Resident	[redacted]
Ruth Walsh		[redacted]
Stephen Hoffman	Rio Rico Resident	[redacted]
Val and Denny Scanler	Rio Rico Resident	[redacted]

SIGN-IN SHEET SUMMARY

Open House – February 26 and 27, 2008

FEBRUARY 27, 2008 – NOGALES, ARIZONA (Nogales City Hall)		
Name	**Affiliation and/or Interest in the Project**	**Address**
Armando R. Lopez	City of Nogales	
George X Lineiro	City of Nogales	
Jose S. Padilla	City of Nogales	
Leticia Robinson	City of Nogales	



VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV Upgrade Project. Please print your contact information if you would like to receive information regarding this project throughout the planning phase.

Name: _____

Address: _____

City, State, Zip: _____

Phone (optional): _____

E-mail (optional): _____

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

I want to be included on the mailing list for additional information: ☐Yes ☐No

Signed: _____ Date: _____

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

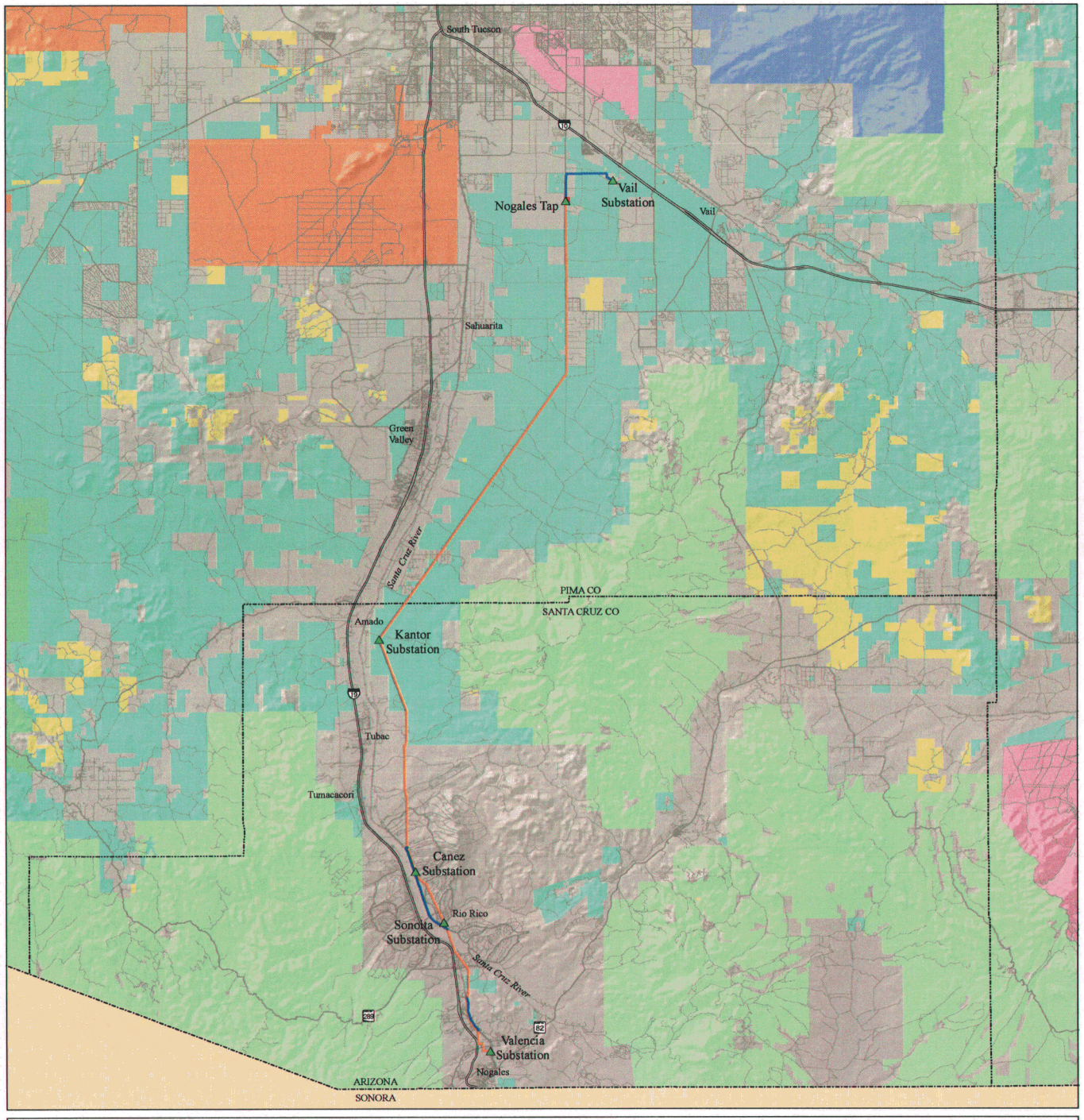
UniSourceEnergy SERVICES

WELCOME

VAIL TO VALENCIA 115kV UPGRADE PROJECT

PUBLIC MEETING

UniSourceEnergy SERVICES



Legend

- Existing Transmission Line
- Proposed Transmission Line (New Construction)
- Substations
- Bureau of Indian Affairs
- Bureau of Land Management
- Bureau of Reclamation
- Department of Defense
- Forest Service
- National Park Service
- Private
- State

0 1 2 3 4 Miles

Vail to Valencia 115kV Upgrade Project

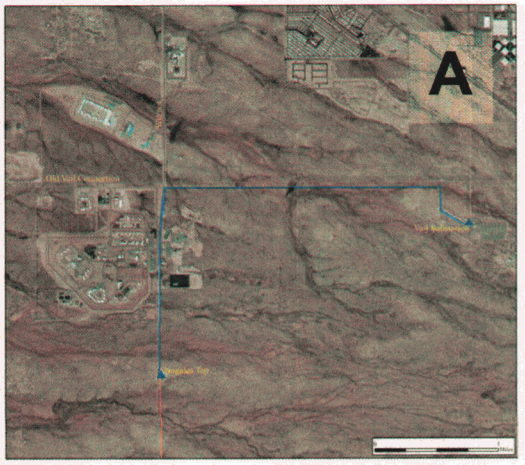
UniSourceEnergy SERVICES

TRANSCON ENVIRONMENTAL

PROPOSED PROJECT REALIGNMENTS AND NEW CONSTRUCTION

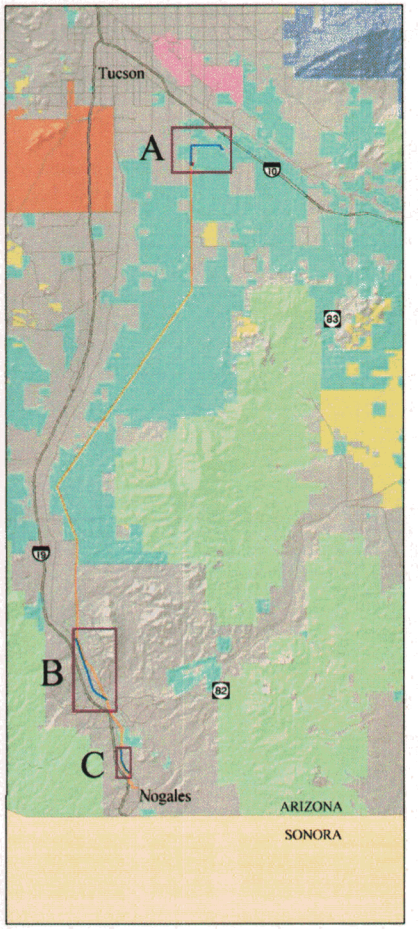
Why is UniSource proposing changes to the existing alignment?

- Safety
- Maintenance
- Encroachments



Legend

- Existing Transmission Line
- Proposed Transmission Line (New Construction)
- Substations

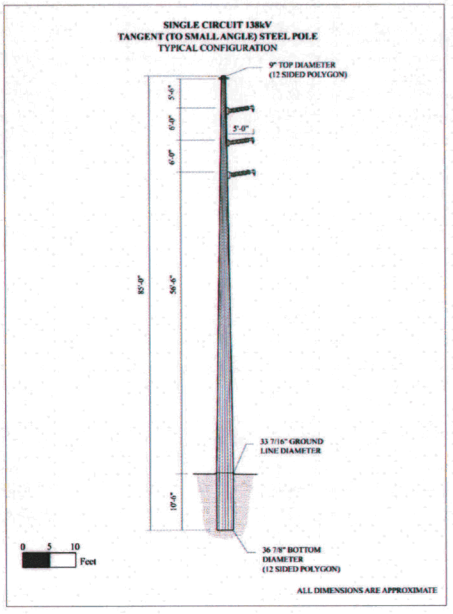


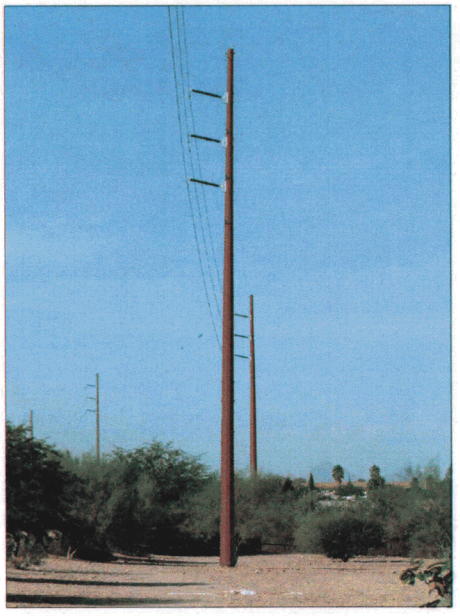
UniSourceEnergy SERVICES

POLE STRUCTURE DIAGRAM

Existing 115kV Structure

Proposed 138kV Structure





UniSourceEnergy SERVICES

ENVIRONMENTAL PROCESS

Spring 2007

- Identify Project Purpose and Need
- Determine Opportunities and Constraints
- Identify Alternatives

Fall 2007 / Winter 2008

We are here →

- Public Input
- Inventory Environmental Resources
- Conduct Impact Assessment and Mitigation Planning
- Select Project Alignment(s)

Spring / Summer 2008

- Obtain Agency Approvals
- Public Input
- Submit to Arizona Power Plant and Transmission Line Siting Committee
- Receive Certificate of Environmental Compatibility

2010

- Project Construction

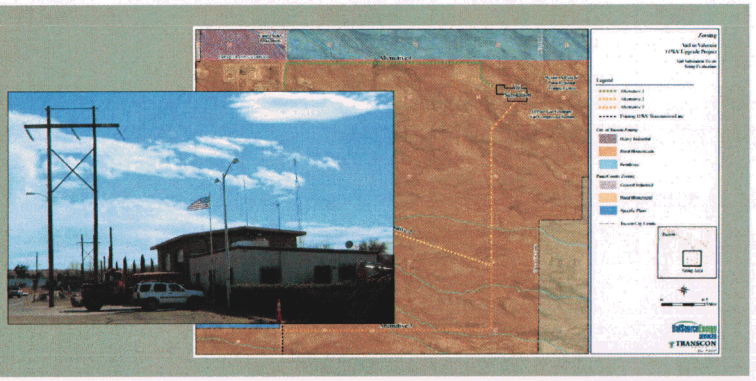
VAIL TO VALENCIA 115kV UPGRADE PROJECT

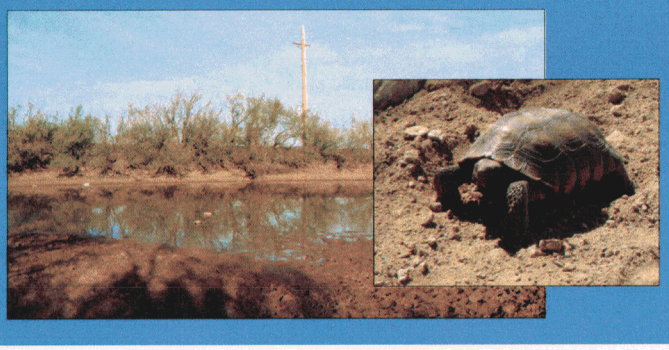
UniSourceEnergy SERVICES

ENVIRONMENTAL ANALYSIS

LAND USE

- Existing Land Use
- Planned Land Use
- Recreation
- Land Status





NATURAL RESOURCES

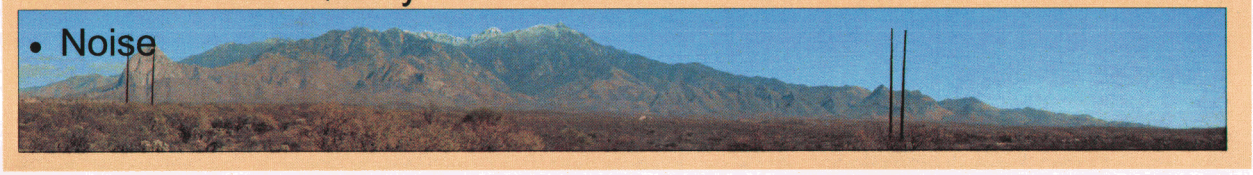
- Vegetation and Habitat
- Special Status Species

CULTURAL RESOURCES

- Archaeological Resources
- Historic Resources
- Traditional Cultural Properties

OTHER ENVIRONMENTAL FACTORS

- Visual Assessment
- Air and Water Quality
- Noise



How to get involved . . .

UniSourceEnergy SERVICES

EXHIBIT J-5: OPEN HOUSE #2 MATERIALS AND EXHIBITS

May 27, 28, and 29, 2008:
Newspaper announcements
Sign-in sheets
Blank comment form
Graphics displayed on large presentation boards

Transmission Line Upgrade Project

Open House

In order to help meet the growing demand for electricity in Santa Cruz County, UniSource Energy Services is planning to upgrade an existing 115 kilovolt (kV) transmission line to 138kV.

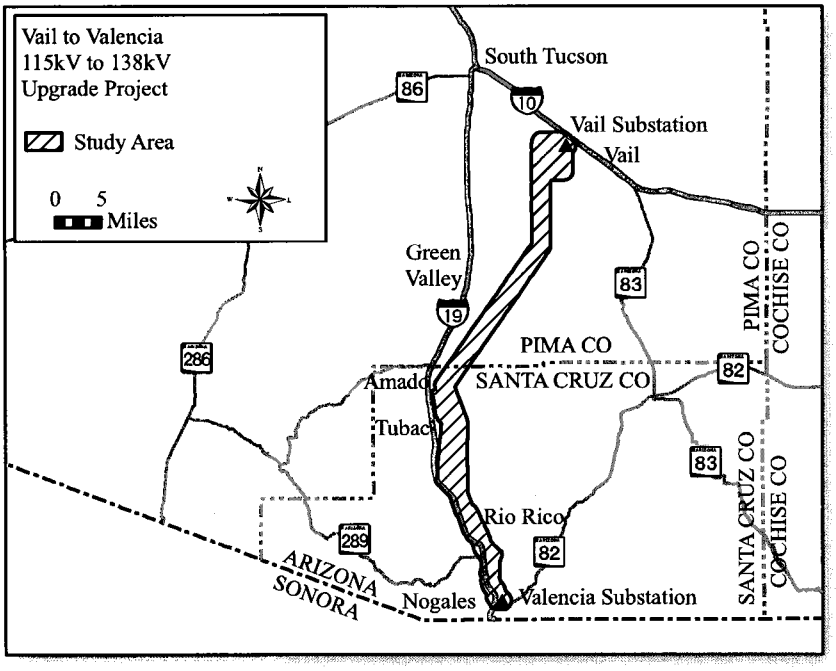
Activities required to complete the upgrade would involve only a few changes to the existing transmission line route. **(This project is NOT the 345kV transmission line that Tucson Electric Power has proposed.)**

We will be holding three informational open house sessions during the last week of May, and you are invited to share your questions, comments or concerns:

UA SCIENCE AND TECHNOLOGY PARK, CAFETERIA
9030 S. Rita Road, Bldg 9052, Tucson
Tuesday, May 27
2:00 p.m. - 4:00 p.m.

JOYNER-GREEN VALLEY BRANCH LIBRARY
601 N. La Cañada Drive, Green Valley
Wednesday, May 28
5:00 p.m. - 7:00 p.m.

NOGALES HIGH SCHOOL AUDITORIUM
1905 N. Apache Blvd., Nogales
Thursday, May 29
5:30 p.m. - 7:30 p.m.



To receive more information about the transmission line upgrade project or the open house meetings, please leave a message at our 24-hour toll-free telephone line: (866) 403-6358. Someone will return your call as soon as possible.

UniSourceEnergy
SERVICES

SIGN-IN SHEET SUMMARY

Open House – May 27-29, 2008

MAY 27, 2008 – TUCSON, ARIZONA (Holiday Inn Tucson Airport)		
Name	**Affiliation and/or Interest in the Project**	**Address**
Elizabeth Webb	Vail/Cienega Corridor volunteer	[redacted] Vail, AZ 85641
Jim Barr		[redacted] Nogales, AZ 85621
John C. Todd	Landowner	[redacted] Tucson, AZ 85705
Lauren Harvey	Pima County Natural Resources, Parks and Recreation	[redacted] Tucson, AZ 85791
Marcelina C. Flores	Pascua Yaqui Tribe – Community Development Director	[redacted] Tucson, AZ 85252
Sharon L. Conine	(Mann Rd x Sahuartia Rd) Landowner, La Entrada Estates	[redacted] Tucson, AZ 85731
Tamarack Little	Congresswoman Gabrielle Giffords' Office	[redacted] Tucson, AZ 85712

SIGN-IN SHEET SUMMARY

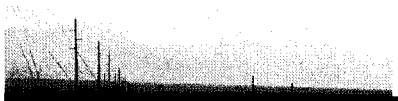
Open House – May 27-29, 2008

MAY 28, 2008 – GREEN VALLEY, ARIZONA (Joyner-Green Valley Library)		
Name	**Affiliation and/or Interest in the Project**	**Address**
Beverly Dishong-Smith	Tierra Antigua	[redacted] Green Valley, AZ 85614
Bruce C. Curtis	Rio Rico Homeowner	[redacted] Rio Rico, CT 85048
Dale and Jane Lang	Homeowner	[redacted] Rio Rico, AZ 85648
Fernando E. Bustamante	U&M Intl. Prop LLC	[redacted] Sahuarita, AZ 85629
Fred Johnson	Rio Rico resident	[redacted] Rio Rico, AZ 85648
Marshall Magruder		[redacted] Tubac, AZ 85646
Mary Biddle	Elephant Head Resident	[redacted] Amado, AZ 85645
Nancy Forkum		[redacted] Sahuarita, AZ 85629
Nancy Raymond		[redacted]
R.L. Boatwright		[redacted] Amado, AZ 85645
Richard Calabro	Environmentalist	[redacted] Green Valley, AZ 85614
Roger Horton	Landowner	[redacted] Tucson, AZ [redacted]
Russ Symes	Green Valley Community Coordinating Council	[redacted] Green Valley, AZ 85614
Steve Rojewar	Local	[redacted] Tucson, AZ 85256
Tom Purdom	Friends of Madera Canyon	[redacted] Green Valley, AZ 85614

SIGN-IN SHEET SUMMARY

Open House – May 27-29, 2008

MAY 29, 2008 – NOGALES, ARIZONA (Nogales High School)		
Name	**Affiliation and/or Interest in the Project**	**Address**
Arlene Benavides	Resident	[redacted] Rio Rico, AZ 85648
Carol Bonchalk	San Rafael Valley Assoc.	[redacted] Patagonia, AZ 85624
F.J. Parra	Landowner	[redacted] Nogales, AZ 85621
Josh Landess	Resident; Sunshare Participant; Alt. Energy Analyst	[redacted] RioRico, AZ 85648
Kathryn Haddock	Height of pole; Where they will be placed	[redacted] Rio Rico, AZ 85648
Lourdes Diaz	Resident	[redacted] Nogales, AZ 85621
Marshall Magruder		[redacted] Tubac, AZ 85646
Nohe Garcia	Landowner	[redacted] Rio Rico, AZ 85648
R Guevara	Resident	[redacted] Rio Rico, AZ 85648
Wendy Ploss	Resident	[redacted] Rio Rico, AZ 85648
William Neubauer	Resident/Landowner	[redacted] Tumacacori, AZ 85640



VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: _____

Address: _____

City, State, Zip: _____

Phone (optional): _____

E-mail (optional): _____

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

I want to be included on the mailing list for additional information: ☐Yes ☐No

Signed: _____ Date: _____

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

WELCOME

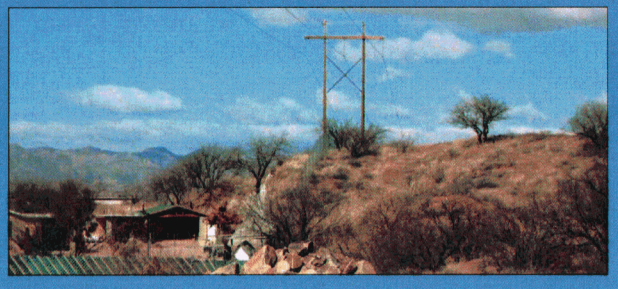
VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

PUBLIC MEETING

UniSourceEnergy SERVICES

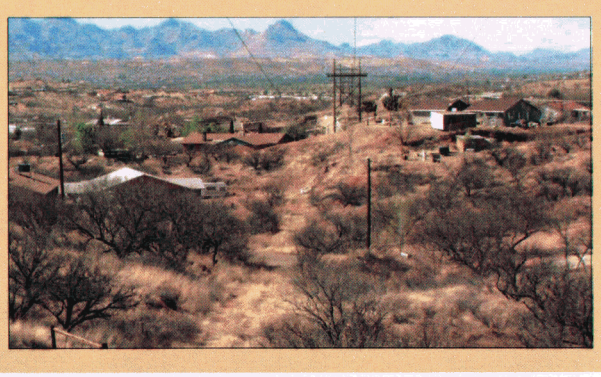
PURPOSE AND NEED

Increasing demand for power in Nogales and the Santa Cruz River Valley



UniSource Energy Services commitment to the Arizona Corporation Commission to improve reliability

Upgrade aging infrastructure



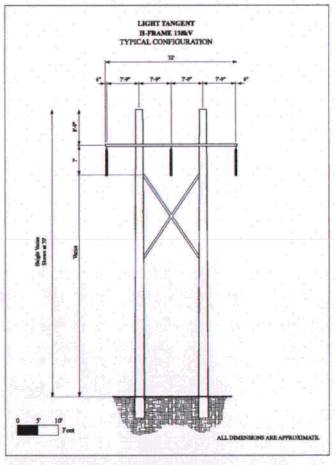
Improve maintenance and operation conditions

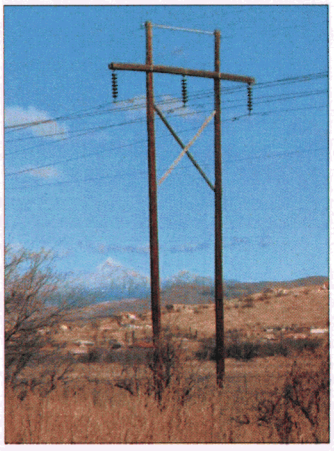
UniSource Energy SERVICES

PROJECT DESCRIPTION

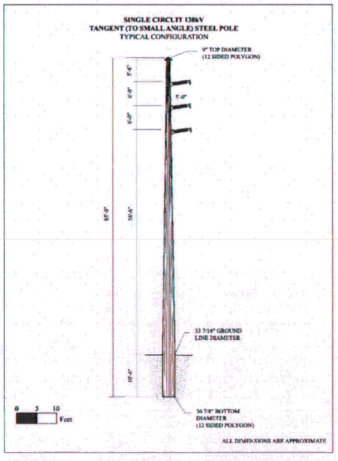
- Upgrade from 115kV to 138kV
- Existing electrical transmission line
- Conversion to steel monopole structures
- Structure are 70 to 85 feet in height
- 55 miles in length, 28 miles previously rebuilt
- Realignments in selected areas to improve maintenance and operations conditions
- Construction in 2011

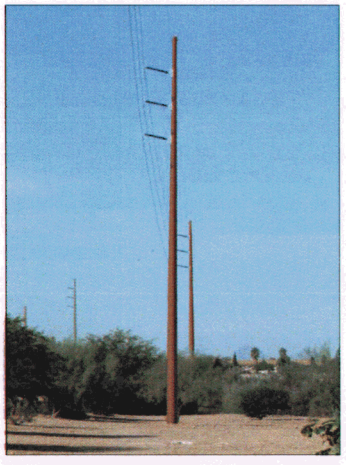
Existing 115kV Structure



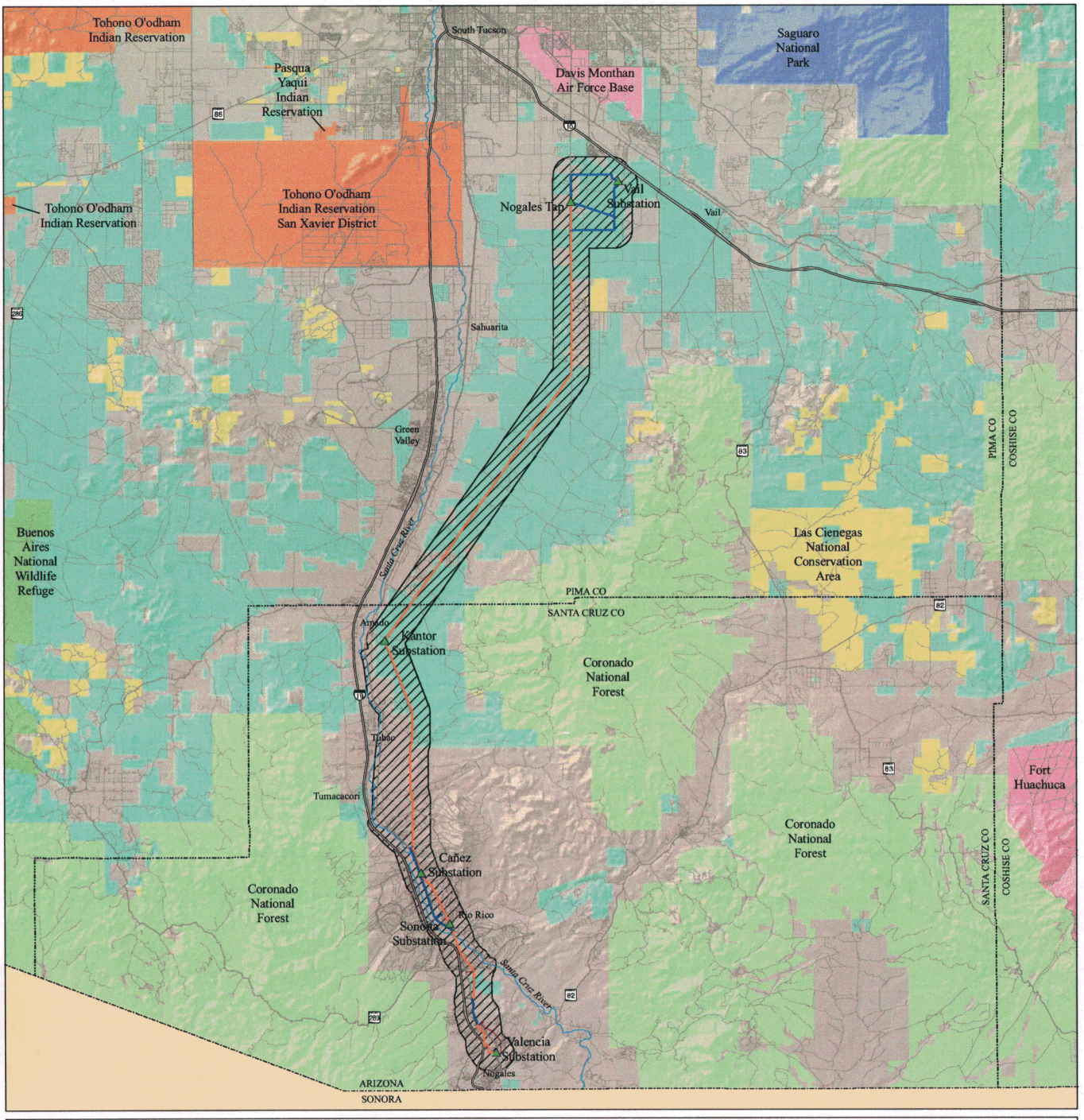


Proposed 138kV Structure





UniSourceEnergy SERVICES



Legend

- Existing 115kV Transmission Line
- Preliminary Alternatives
- Bureau of Indian Affairs
- Bureau of Land Management
- Bureau of Reclamation
- Department of Defense
- Study Area
- Substations
- Forest Service
- National Park Service
- Private
- State

0 1 2 3 4 Miles

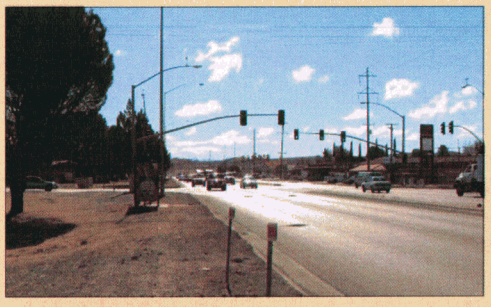
Vail to Valencia 115kV to 138kV Upgrade Project

UniSourceEnergy SERVICES

TRANSCON ENVIRONMENTAL

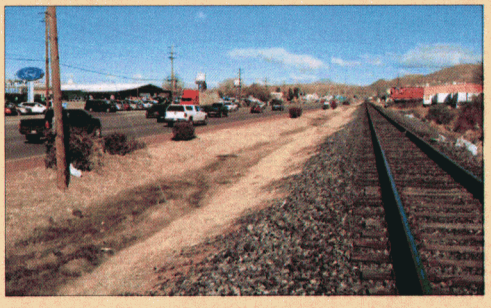
TRANSMISSION LINE SITING CRITERIA

OPPORTUNITIES FOR TRANSMISSION LINE ROUTES



Adaptive use of existing infrastructure

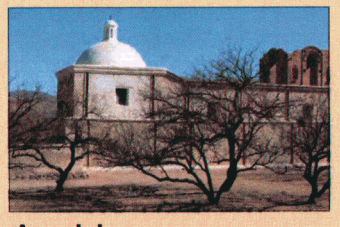
Use of utility corridors, roads, and other rights-of-way



Use of property boundaries

Use of previously disturbed areas

CONSTRAINTS FOR TRANSMISSION LINE ROUTES



Avoidance areas

Rugged topography

UniSourceEnergy SERVICES

RIGHT-OF-WAY ACTIVITIES

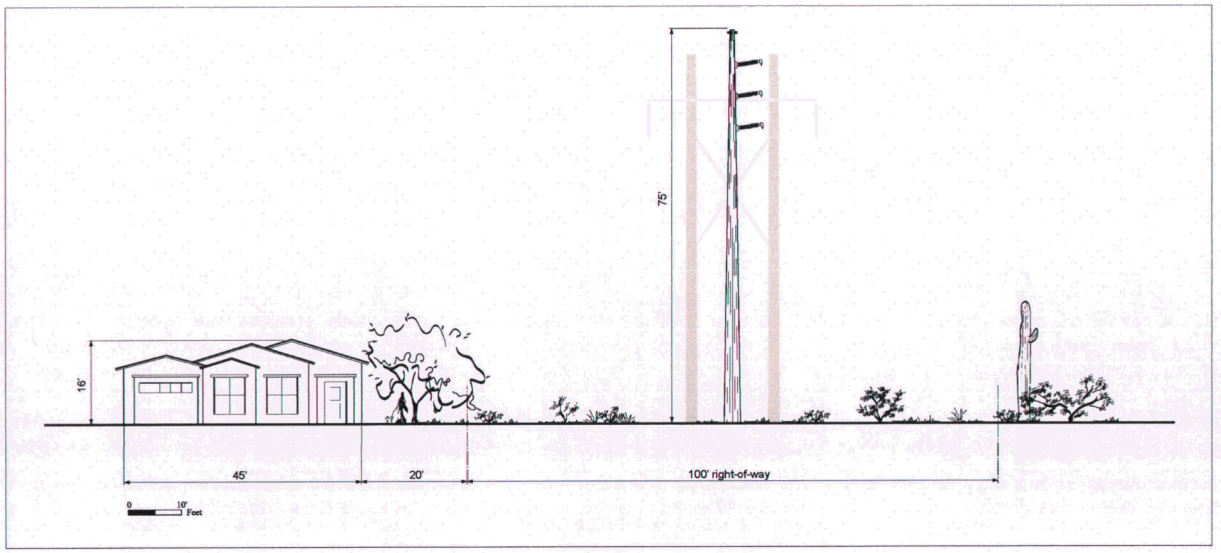


Figure depicts a cross-section of the existing 115kV transmission line right-of-way with the 138kV structure

- Establish a positive long-term relationship between UniSource Energy Services and the landowners
- Determine right-of-way width
- Obtain right-of-entry
- Collaborate on structure locations
- Maintain open and continuous communication
- Conduct land appraisals, as necessary
- Acquire easement and provide compensation
- Perform property restoration
- Perform continued maintenance and operation of the right-of-way and facilities

ENVIRONMENTAL PROCESS

Spring 2007 - Spring 2008

- Identify Project Purpose and Need
- Define Study Area
- Determine Opportunities and Constraints
- We are here → Public Input
- Identify Alternatives

Summer 2008

- Inventory Environmental Resources
- Conduct Impact Assessment and Mitigation Planning
- Public Input
- Select Project Alignment(s)

Fall 2008 - Winter 2009

- Obtain Agency Approvals
- Public Input
- Submit to Arizona Power Plant and Transmission Line Siting Committee
- Receive Certificate of Environmental Compatibility

2011

- Project Construction

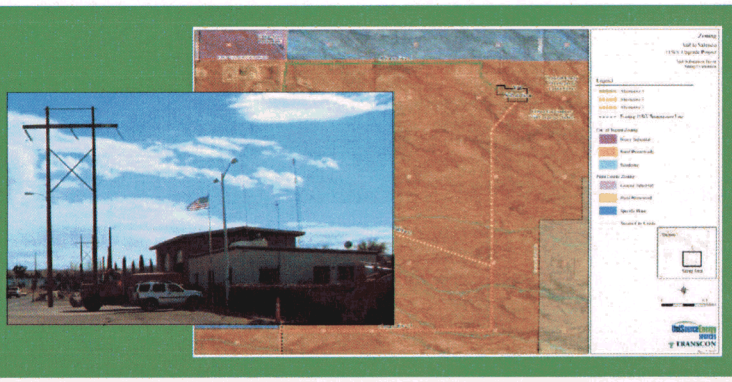
VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

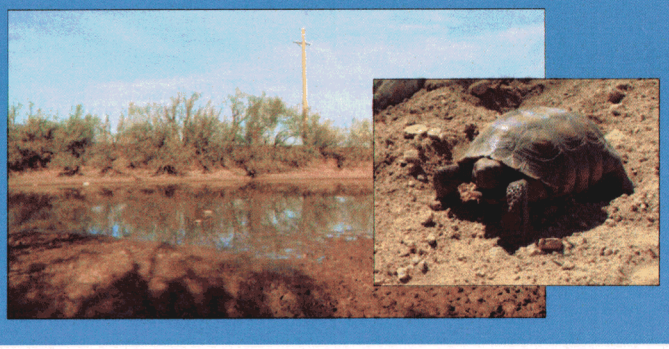
UniSourceEnergy SERVICES

ENVIRONMENTAL ANALYSIS

LAND USE

- Existing Land Use
- Planned Land Use
- Recreation
- Land Status





NATURAL RESOURCES

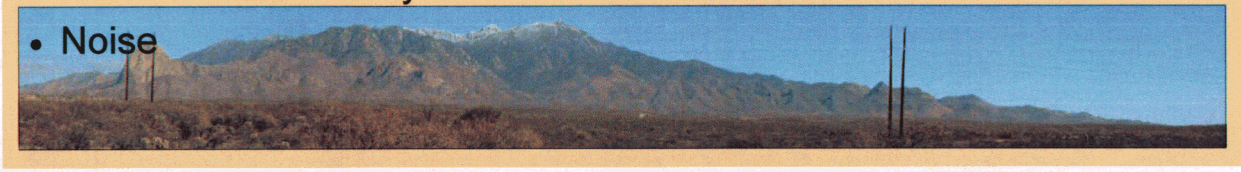
- Vegetation and Habitat
- Special Status Species

CULTURAL RESOURCES

- Archaeological Resources
- Historic Resources
- Traditional Cultural Properties

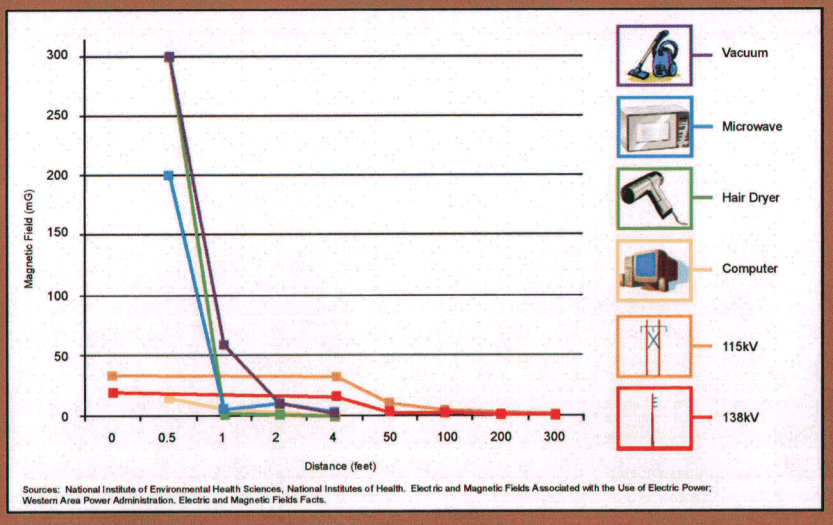
OTHER ENVIRONMENTAL FACTORS

- Visual Assessment
- Air and Water Quality
- Noise



ELECTRIC AND MAGNETIC FIELDS (EMF)

Electromagnetic fields are forces which surround any electrical device such as power lines, electrical wiring, or electrical appliances.



Sources: National Institute of Environmental Health Sciences, National Institutes of Health. Electric and Magnetic Fields Associated with the Use of Electric Power; Western Area Power Administration. Electric and Magnetic Fields Facts.

ELECTRIC FIELDS

- Produced by voltage
- Increases in strength as voltage increases
- Decreases in strength with distance
- Weakened by walls, roofs, and vegetation

MAGNETIC FIELDS

- Produced as current flows through wires or electrical devices
- Increases in strength as current increases
- Decreases in strength with distance
- Obstacles do not weaken magnetic field strength

EMF information resources are available from:

- Environmental Health Information Services: http://ehis.niehs.nih.gov/
- World Health Organization: http://www.who.int/emf
- California Department of Health Services, California EMF Program: http://www.dhs.ca.gov/ps/deodc/ehib/emf/general.html
- Medical College of Wisconsin, Electromagnetic Fields and Human Health: http://www.mcw.edu/gcrc/cop/powerlines-cancer-FAQ/toc.htm

UniSourceEnergy SERVICES

PUBLIC INVOLVEMENT

Project Information Phone Line

1-866-403-6358

Project Website

www.uesaz.com

UniSourceEnergy SERVICES

EXHIBIT J-6: OPEN HOUSE #3 MATERIALS AND EXHIBITS

December 2, 3, and 4, 2008:
Newspaper announcements
Sign-in sheets
Blank comment form
Graphics displayed on large presentation boards

Transmission Line Upgrade Project
Open House

In order to help meet the growing demand for electricity in Santa Cruz County, UniSource Energy Services is planning to upgrade an existing 115 kilovolt (kV) transmission line to 138kV.

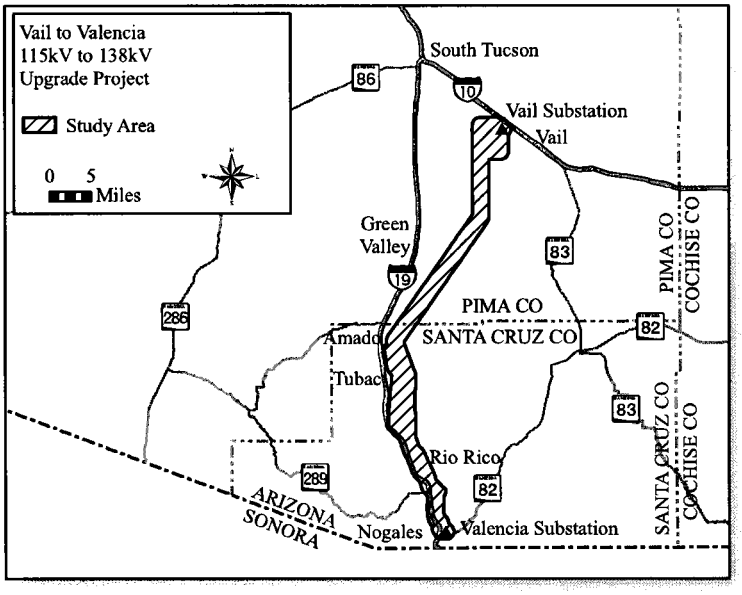
UniSource Energy Services will be conducting another round of public meetings regarding this transmission line upgrade project. At these meetings, UES will provide information about its analyses of the possible routes and the input that contributed to the identification of the transmission line alternatives. **(This project is NOT the 345kV transmission line that Tucson Electric Power has proposed.)**

We will be holding three informational open house sessions during the first week of December, and you are invited to share your questions, comments or concerns:

NOGALES HIGH SCHOOL AUDITORIUM
1905 N. Apache Blvd., Nogales
Tuesday, December 2
5:30 p.m. - 7:30 p.m.

HOLIDAY INN HOTEL & SUITES
4550 South Palo Verde Road, Tucson
Wednesday, December 3
5:30 p.m. - 7:30 p.m.

JOYNER-GREEN VALLEY BRANCH LIBRARY
601 N. La Cañada Drive, Green Valley
Thursday, December 4
5:00 p.m. - 7:00 p.m.



To receive more information about the transmission line upgrade project or the open house meetings, please leave a message at our 24-hour toll-free telephone line: (866) 403-6358. A project representative will return your call as soon as possible.

UniSourceEnergy
SERVICES
uesaz.com

SIGN-IN SHEET SUMMARY

Open House –December 2-4, 2008

DECEMBER 2, 2008 – NOGALES, ARIZONA (Nogales High School Auditorium)		
Name	**Affiliation and/or Interest in the Project**	**Address**
Alfred G. Amado	Resident	[redacted] Tubac, AZ 85646
Alex Megariz	Resident	[redacted] Tubac, AZ 85646
Myron Clark	Resident	[redacted] Tumacacori, AZ 85140
Ron Campana	Resident	[redacted] Rio Rico, AZ 85648
Kathi Campana	Resident	[redacted] Rio Rico, AZ 85648
Oscar Hernandez	Resident	[redacted] Rio Rico, AZ 85648
Marshall Giesy	Landowner	[redacted] Tubac, AZ 85646
John Rogers	Landowner	[redacted] Tubac, AZ 85646
James Clark	Landowner	[redacted] Tubac, AZ 85646
James and Margaret Beaty	Landowner	[redacted] Tubac, AZ 85646
Manuel Flores	Nogales Property	[redacted] Nogales, AZ 85621
William Neubauez	Ranch owner	[redacted] Tumacacori, AZ 85640
Salvador Hernandez	Resident	[redacted] Rio Rico, AZ 85648
Daniel Arizmendi	Resident	[redacted] Rio Rico, AZ 85648
Gary Brasher	Resident	[redacted] Tubac, AZ 85646
Rich Bohman	Resident	[redacted] Tubac, AZ 85646

SIGN-IN SHEET SUMMARY

Open House –December 2-4, 2008

DECEMBER 2, 2008 – NOGALES, ARIZONA (Nogales High School Auditorium)		
Name	**Affiliation and/or Interest in the Project**	**Address**
Marshall Magruder	Resident	[redacted] Tubac, AZ 85646
Marty Jakle	Resident	[redacted] Rio Rico, AZ 85648
Anna Hill Price	Resident	[redacted] Tubac, AZ 85704
Alejandro Barcenas	Resident	[redacted] Nogales, AZ 85621
Nohe Garcia	Resident	[redacted] Rio Rico, AZ 85648
Claudia Welden	Resident	[redacted] Tubac, AZ 85646

SIGN-IN SHEET SUMMARY

Open House –December 2-4, 2008

DECEMBER 3, 2008 – TUCSON, ARIZONA (Holiday Inn Hotel, 4550 S. Palo Verde Rd.)		
Name	**Affiliation and/or Interest in the Project**	**Address**
Tim Knight	Resident	[redacted] Tucson, AZ 85156
Marshall Magruder	Resident	[redacted] Tubac, AZ 85646
Gabe Zimmerman	U.S. Representative Gabrielle Giffords	
Elizabeth Webb	Vail Community Volunteer	[redacted]

SIGN-IN SHEET SUMMARY

Open House –December 2-4, 2008

DECEMBER 4, 2008 – GREEN VALLEY, ARIZONA (Joyner-Green Valley Branch Library)		
Name	**Affiliation and/or Interest in the Project**	**Address**
K. Mir	Resident	[redacted] Sahuarita, AZ 85629
C. Liz	Resident	[redacted] Tumacacori, AZ 86546
Bruce Curtis	Resident	[redacted] Rio Rico, AZ 85648
John and Ginny Shasky	Resident	[redacted] Tubac, AZ 85646
Liz Colón	Resident	[redacted] Sahuarita, AZ 85629
Tamarack Little	Congresswoman Giffords	[redacted] Tucson, AZ 85712
Elizabeth Green	Landowner	[redacted] Tubac, Az 85646
Leo Miller	Landowner	Tumacacori, AZ
Sorenson Athoff	Landowner	Tumacacori, AZ 85640
Lauren Harvey	Pima County Natural Resources, Parks & Recreation	[redacted] Tuscon, Az 85741
Cliff Marsom	Resident	[redacted] Tubac, AZ 85646
Marshall Magruder	Resident	[redacted] Tubac, AZ 85646

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: _____

Address: _____

City, State, Zip: _____

Phone (optional): _____

E-mail (optional): _____

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

I want to be included on the mailing list for additional information: ☐Yes ☐No

Signed: _____ Date: _____

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

WELCOME

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

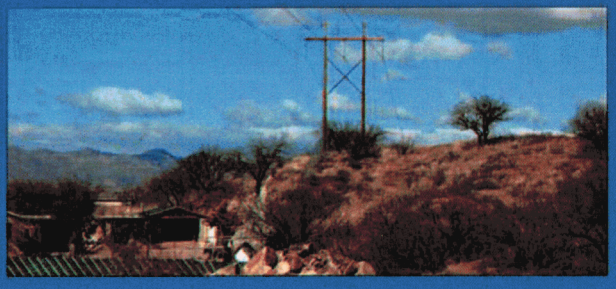
PUBLIC OPEN HOUSE MEETING

DECEMBER 2008

UniSourceEnergy SERVICES

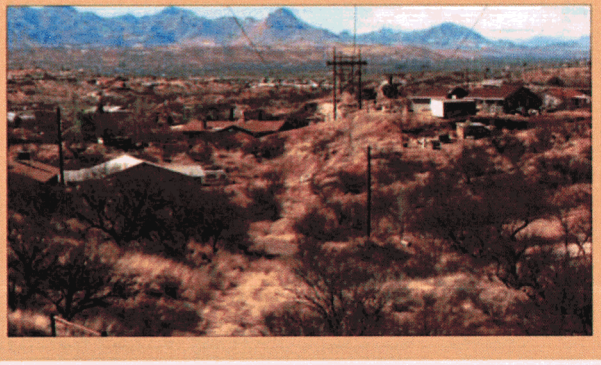
PURPOSE AND NEED

Increasing demand for power in Nogales and the Santa Cruz River Valley



UniSource Energy Services commitment to the Arizona Corporation Commission to improve reliability

Upgrade aging infrastructure

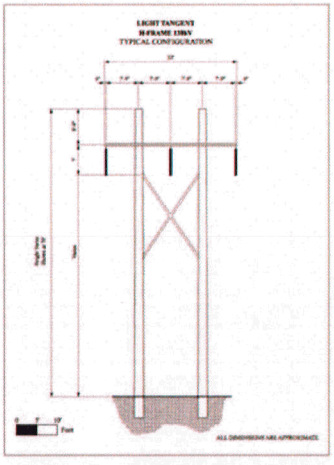


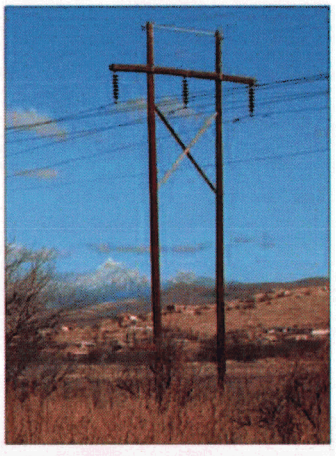
Improve maintenance and operating conditions

PROJECT DESCRIPTION

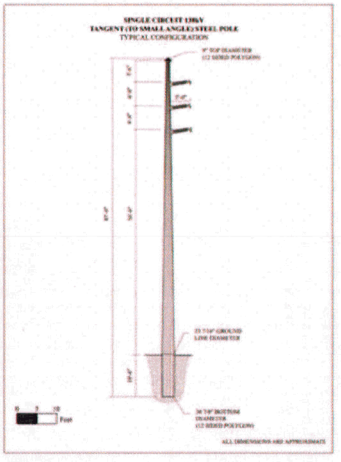
- Upgrade existing transmission line from 115kV to 138kV
- Conversion to steel monopole structures
- Structures are 70 to 85 feet in height
- 55 miles in length, 28 miles previously rebuilt
- Realignments in selected areas to improve maintenance and operation conditions
- Planned in-service summer 2012

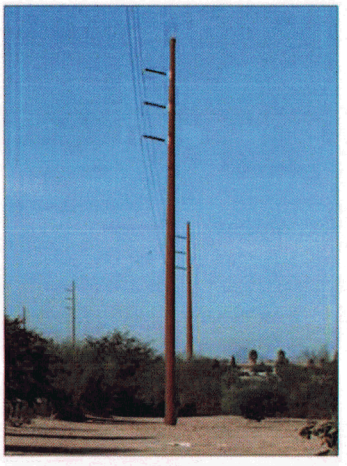
Existing 115kV Structure





Proposed 138kV Structure





UniSourceEnergy SERVICES

SITING PROCESS

OPPORTUNITIES AND CONSTRAINTS CRITERIA

Criteria derived from:

- Industry experience
- Utility Company
- Agencies
- Public

→ **INITIAL ROUTES**

Routes added by:

- Agencies
- Public
- Utility Company
- Siting Consultant

SENSITIVITY CRITERIA

Criteria defined by:

- Planners/Environmental Scientists
- Engineers
- Agencies
- Public
- Utility Company

→ Land Use / Environmental Resources / Engineering/Construction / Right-of-Way → **COMPOSITE SENSITIVITY**

ALTERNATIVE ROUTE REFINEMENT CRITERIA

Criteria defined by:

- Planners/Environmental Scientists
- Engineers
- Utility Company

→ ROUTES CONSIDERED AND ELIMINATED → **ROUTE ALTERNATIVES**

ALTERNATIVE COMPARISON CRITERIA

Criteria defined by:

- Public
- Planners/Environmental Scientists
- Engineers
- Utility Company

→ ROUTES CONSIDERED AND ELIMINATED → **PREFERRED AND ALTERNATIVE ROUTES**

CEC PROCESS

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

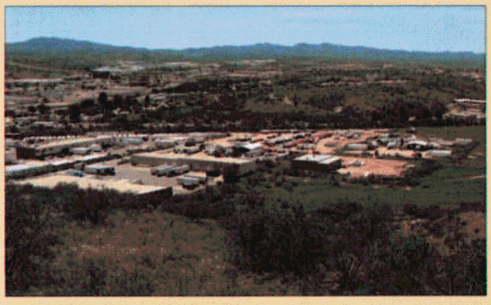
UniSourceEnergy SERVICES

OPPORTUNITIES AND CONSTRAINTS

OPPORTUNITIES FOR TRANSMISSION LINE ROUTES

Adaptive use of existing infrastructure

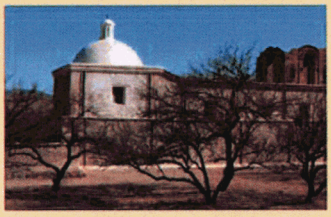
Use of utility corridors, roads, and other rights-of-way



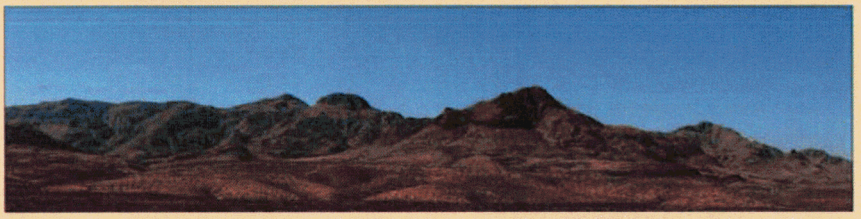
Use of property boundaries

Use of previously disturbed areas

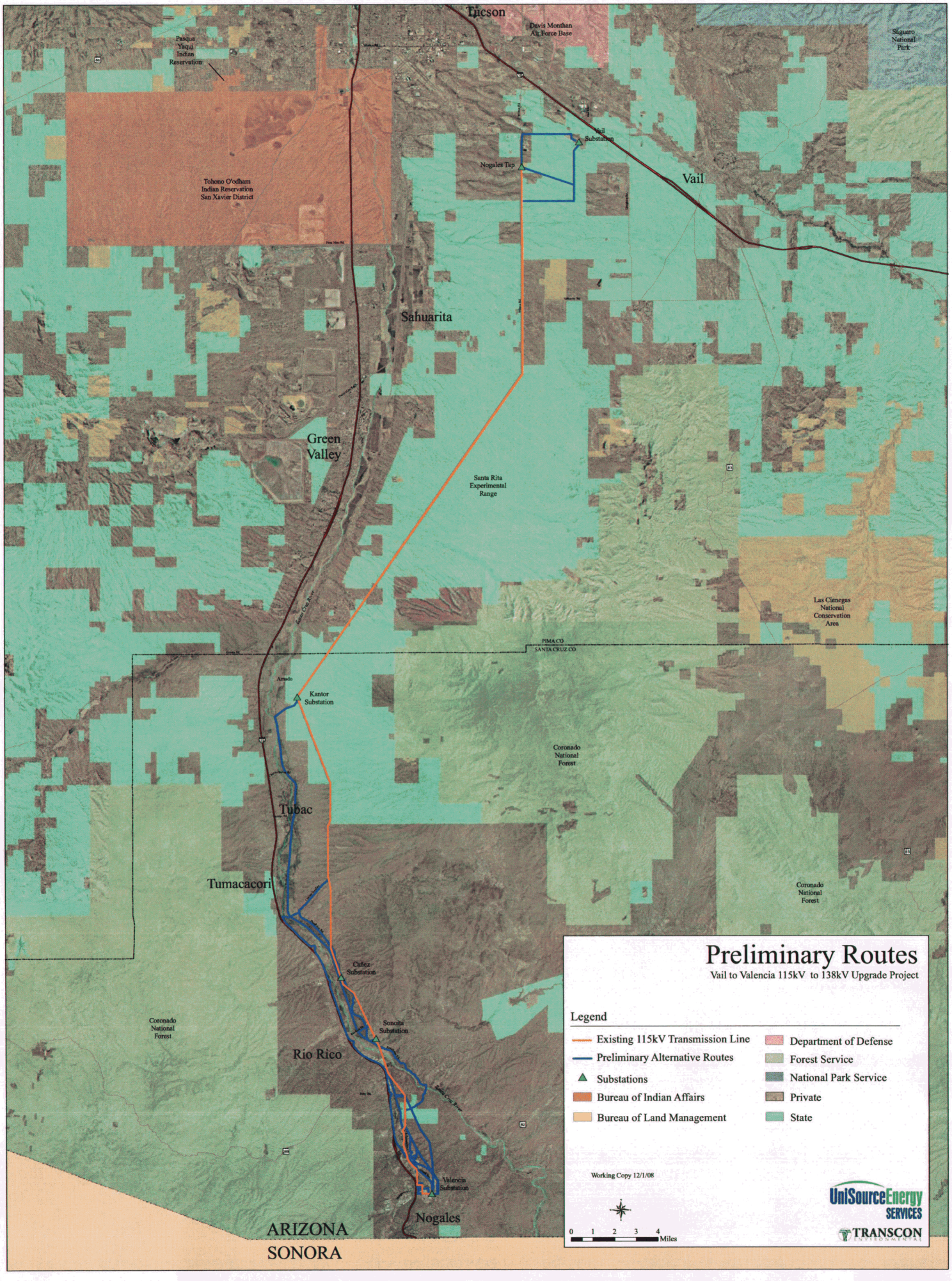
CONSTRAINTS FOR TRANSMISSION LINE ROUTES



Avoidance areas



Rugged topography


Tucson
Davis Monthan Air Force Base
Pasqua Yaqui Indian Reservation
Saguaro National Park
Vail Substation
Nogales Tap
Vail
Tohono O'odham Indian Reservation San Xavier District
Sahuarita
Green Valley
Santa Rita Experimental Range
Las Cienegas National Conservation Area
PIMA CO
SANTA CRUZ CO
Amado
Kantor Substation
Coronado National Forest
Tubac
Tumacacori
Coronado National Forest
Cañez Substation
Sonoita Substation
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Preliminary Alternative Routes
Substations
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Bureau of Land Management
Department of Defense
Forest Service
National Park Service
Private
State
Working Copy 12/1/08
0 1 2 3 4 Miles
UniSourceEnergy SERVICES
TRANSCON ENVIRONMENTAL

SENSITIVITY CRITERIA AND ANALYSIS

FACTORS CONSIDERED:

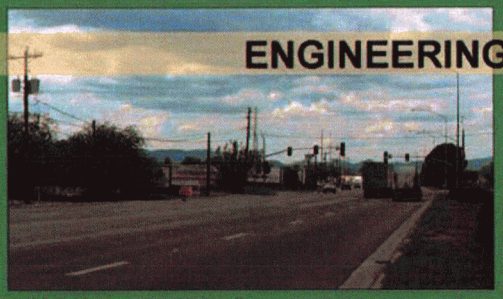
- Land Use
- Engineering/Construction
- Right-of-Way
- Environmental Resources

LAND USE

High Sensitivity

Low Sensitivity

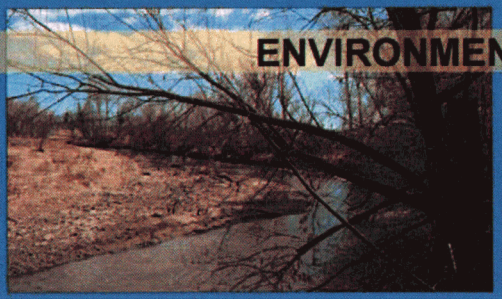
ENGINEERING / CONSTRUCTION

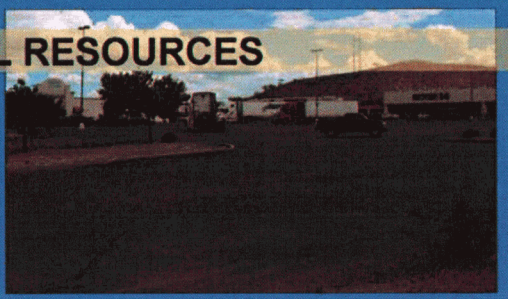


High Sensitivity

Low Sensitivity

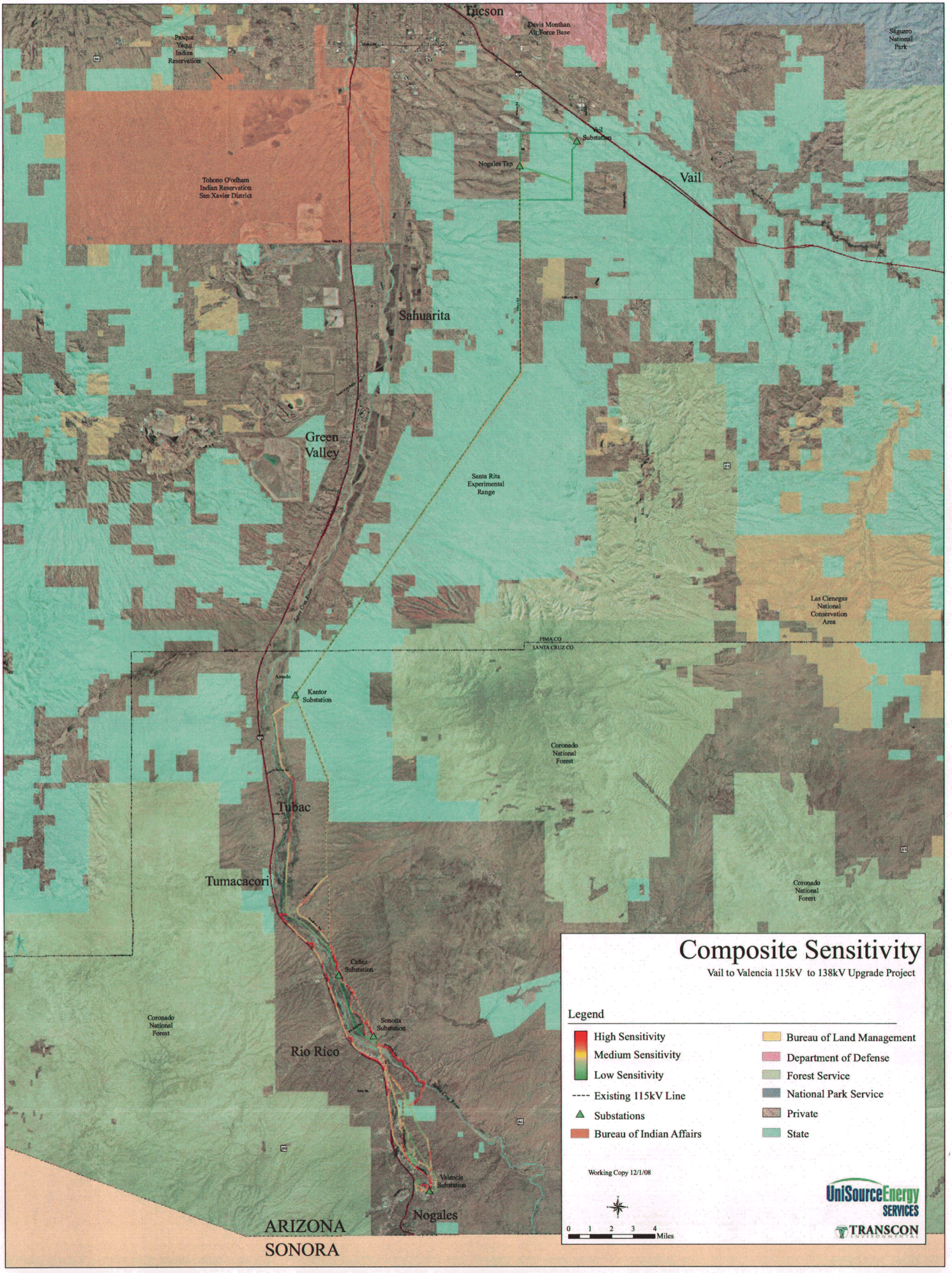
ENVIRONMENTAL RESOURCES





High Sensitivity

Low Sensitivity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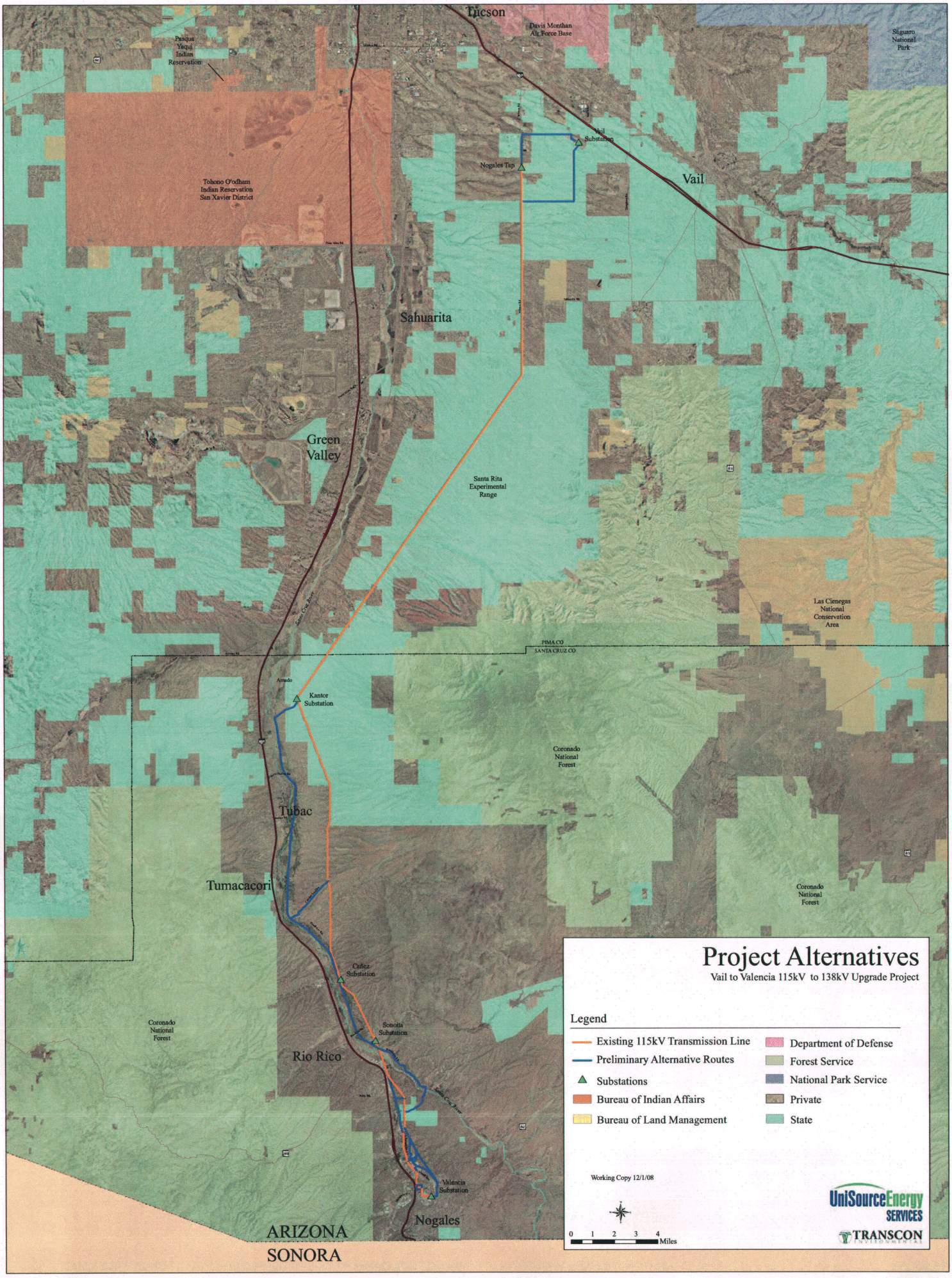
Department of Defense
Forest Service
National Park Service
Private
State
Working Copy 12/1/08
0 1 2 3 4 Miles
UniSourceEnergy SERVICES
TRANSCON ENVIRONMENTAL

ALTERNATIVE ROUTE REFINEMENT

MOVING FROM PRELIMINARY ROUTES TO ALTERNATIVES

- Identify the existing 115kV alignment as an initial preferred route
- Minimize or avoid route segments identified with high sensitivities
- Maximize route segments identified with low sensitivities
- Identify at least one alternative to the existing 115kV alignment for the entire area south of where the existing 115kV alignment has previously been rebuilt (Kantor Substation)
- Among reasonably comparable alternative route segments, choose those that represent lower cost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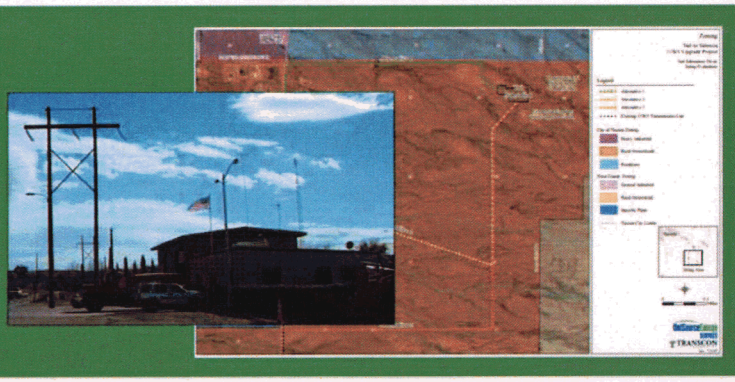
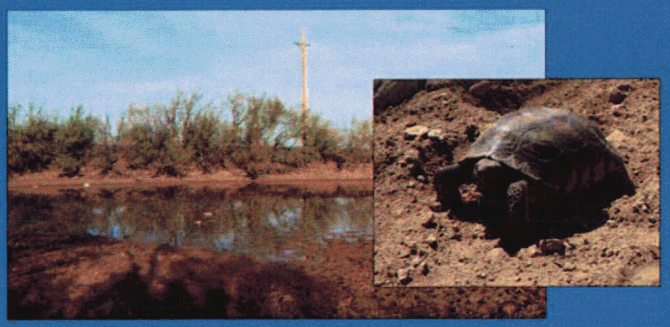
0 1 2 3 4 Miles
UniSourceEnergy SERVICES
TRANSCON

ENVIRONMENTAL RESOURCES

LAND USE

- Existing Land Use
- Planned Land Use
- Recreation
- Land Status





NATURAL RESOURCES

- Vegetation and Habitat
- Special Status Species

CULTURAL RESOURCES

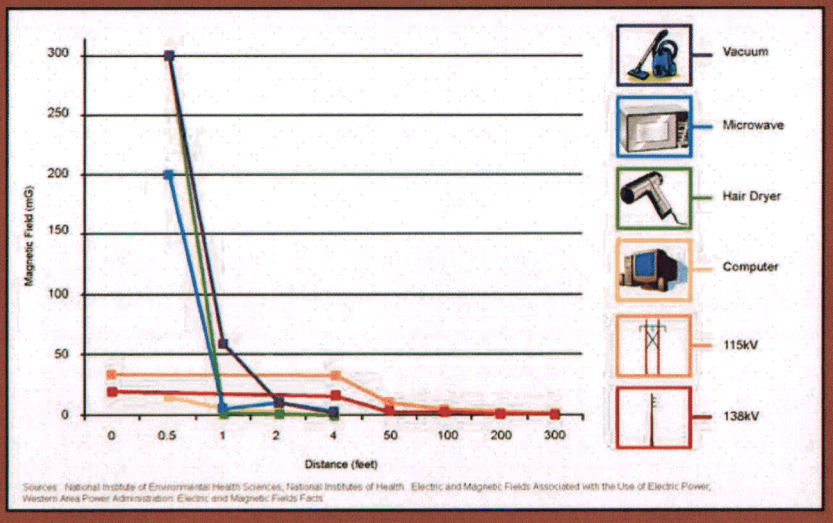
- Archaeological Resources
- Historic Resources
- Traditional Cultural Properties

OTHER ENVIRONMENTAL FACTORS

- Visual Assessment
- Air and Water Quality
- Noise

ELECTRIC AND MAGNETIC FIELDS (EMF)

Electromagnetic fields are forces which surround any electrical device such as power lines, electrical wiring, or electrical appliances.



Sources: National Institute of Environmental Health Sciences, National Institutes of Health. Electric and Magnetic Fields Associated with the Use of Electric Power, Western Area Power Administration: Electric and Magnetic Fields Facts

ELECTRIC FIELDS

- Produced by voltage
- Increases in strength as voltage increases
- Decreases in strength with distance
- Weakened by walls, roofs, and vegetation

MAGNETIC FIELDS

- Produced as current flows through wires or electrical devices
- Increases in strength as current increases
- Decreases in strength with distance
- Obstacles do not weaken magnetic field strength

EMF information resources are available from:

- Environmental Health Information Services: http://ehis.niehs.nih.gov/
- World Health Organization: http://www.who.int/emf
- California Department of Health Services, California EMF Program: http://www.dhs.ca.gov/ps/deodc/ehib/emf/general.html
- Medical College of Wisconsin, Electromagnetic Fields and Human Health: http://www.mcw.edu/gcrc/cop/powerlines-cancer-FAQ/toc.htm

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

UniSourceEnergy SERVICES

RIGHT-OF-WAY ACTIVITIES

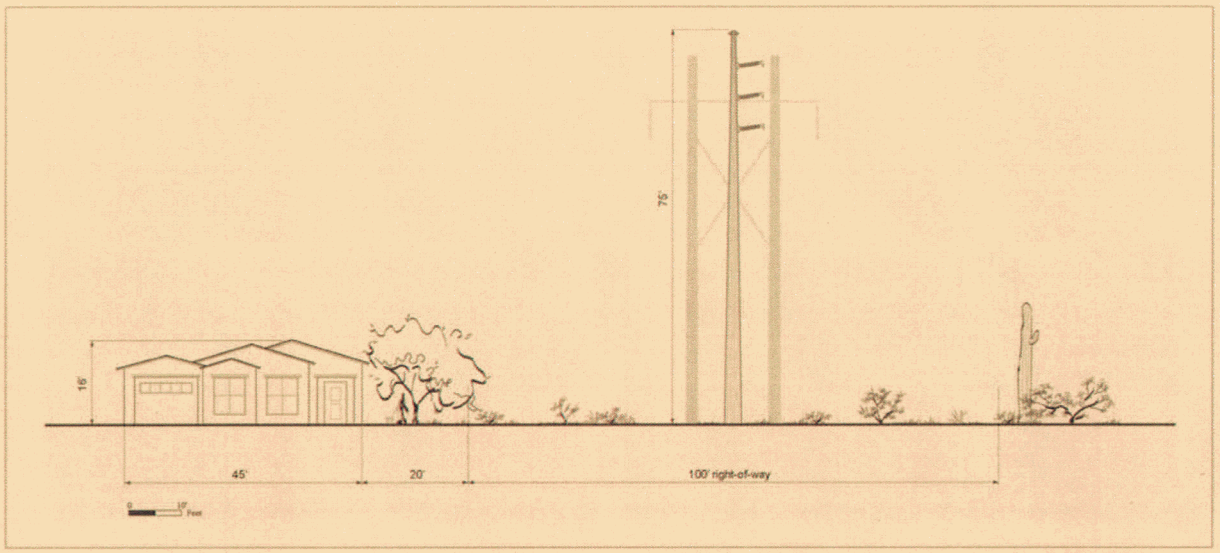


Figure depicts a cross-section of the existing 115kV transmission line right-of-way with the 138kV structure

- Establish a positive long-term relationship between UniSource Energy Services and landowners
- Determine right-of-way width
- Obtain right-of-entry
- Collaborate on structure locations
- Maintain open and continuous communication
- Conduct land appraisals, as necessary
- Acquire easements where necessary
- Perform property restoration
- Perform continued maintenance and operation of the right-of-way and facilities

UniSourceEnergy SERVICES

WHERE DO WE GO FROM HERE . . .

- Submit application to the Arizona Corporation Commission (early 2009)
- Public hearings before the Arizona Power Plant and Transmission Line Siting Committee (opportunity for additional public comments)
- Determination from the Arizona Power Plant and Transmission Line Siting Committee to the Arizona Corporation Commission
- Arizona Corporation Commission open meeting for final decision (opportunity for additional public comments)

Project Information Telephone Line
(866) 403-6358

Project Website
www.uesaz.com

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

UniSourceEnergy SERVICES

EXHIBIT J-7: AGENCY AND STAKEHOLDER MEETINGS

SUMMARY TABLE AGENCY AND STAKEHOLDER MEETINGS		
Agency/Date	**Agency/Stakeholder Representatives**	**Utility Representatives**
Arizona Dept. of Transportation 07/12/2007	Dan Williams (ADOT)	Liza Castillo, Right-of-Way Agent (UNS Electric); Cory Pintor, Right-of-Way Agent (UNS Electric); Erik Bakken, Director, Land Department (UNS Electric); Kevin Heller, Transmission Line Engineer (UNS Electric); Clint Robinson, Construction Consultant (ECLR)
Arizona State Land Department (Periodic discussions during monthly meetings)	Representatives of Real Estate Division	Representatives of Land, Government Relations, and Siting Departments (UNS Electric)
Bureau of Land Management 07/07/2009	Angela Mogel (BLM)	Lee Aitken, Director, Land Management (UNS Electric); Shannon Breslin, Environmental/Land Use Planner (UNS Electric); Mike Warner, Project Manager (Transcon); Myrna Galaz, NEPA Specialist (Transcon)
City of Nogales 11/15/2007	George Liñeiro, Director, Planning and Zoning (City of Nogales)	Larry Lucero, Manager, Government Relations (UNS Electric); Erik Bakken, Director, Land Department (UNS Electric)
City of Nogales 09/19/2008	Antonio Santacruz (City of Nogales); Jaime Fontes, City Manager (City of Nogales); Flavio Gonzalez, Utilities Director (City of Nogales)	Liza Castillo, Right-of-Way Agent (UNS Electric); Shannon Breslin, Environmental/Land Use Planner (UNS Electric); Larry Lucero, Manager, Government Relations (UNS Electric); Tom Hoyt, District Manager (UNS Electric); Clark Bryner, Environmental Planner (Transcon); Alfonso Ruiz, Planner (Transcon)
City of Tucson 05/01/2007	Albert Elias, Department of Urban Planning and Design (City of Tucson); Chris Kaselemis, Planning Administrator (City of Tucson)	Larry Lucero, Manager, Government Relations (UNS Electric); Laura Pinnas, Planner (UNS Electric); Duane Bock, Consultant (UNS Electric); Erik Bakken, Director, Land Department (UNS Electric); George Miller, Project Coordinator (Transcon); Clark Bryner, Environmental Planner (Transcon)
City of Tucson 05/17/2007	Shirley Scott, City Council (City of Tucson); Max Torres, Council Administrative Assistant (City of Tucson)	Larry Lucero, Manager, Government Relations (UNS Electric); Duane Bock, Consultant (UNS Electric); Erik Bakken, Director, Land Department (UNS Electric)

SUMMARY TABLE AGENCY AND STAKEHOLDER MEETINGS		
Agency/Date	**Agency/Stakeholder Representatives**	**Utility Representatives**
City of Tucson 11/08/2007	Roger Howlett, Planner (City of Tucson); Chris Kaselemis, Planner (City of Tucson); Leslie Liberti, Director of the Office of Conservation and Sustainable Development (City of Tucson); Ann Audry, Environmental Projects Coordinator (City of Tucson); Catesby Willis, Environmental Projects Coordinator (City of Tucson)	Duane Bock, Consultant (UNS Electric); Erik Bakken, Director, Land Department (UNS Electric); Larry Lucero, Manager, Government Relations (UNS Electric); George Miller, Project Coordinator (Transcon); Jeff Davis, Biologist (Transcon)
City of Tucson 09/15/2008	Albert Elias, Planning Director (City of Tucson); Michael Wyneken, Principal Planner (City of Tucson); Chris Keselemis, Planning Administrator (City of Tucson)	Shannon Breslin, Environmental/Land Use Planner (UNS Electric); Larry Lucero, Manager, Government Relations (UNS Electric); George Miller, Project Coordinator (Transcon); Alfonso Ruiz, Planner (Transcon)
East Bridge Road Property Owners 11/24/2008	John Rogers (East Bridge Road Property Owners); Cathy Geisy (East Bridge Road Property Owners); James Clark (East Bridge Road Property Owners); Marshall Geisy (East Bridge Road Property Owners)	Liza Castillo, Right-of-Way Agent (UNS Electric); Larry Lucero, Manager, Government Relations (UNS Electric); Lee Aitken, Director, Land Management (UNS Electric)
International Boundary Water Commission 12/17/2007	John Light (International Boundary Water Commission)	Liza Castillo, Right-of-Way Agent (UNS Electric); Erik Bakken, Director, Land Department (UNS Electric); Tom Hoyt, District Manager (UNS Electric); Erik Bakken, Director, Land Department (UNS Electric); Shannon Breslin, Environmental/Land Use Planner (UNS Electric); Art Lorta, Sr. Planner (UNS Electric); Kevin Heller, Transmission Line Engineer (UNS Electric); Clint Robinson, Construction Consultant (ECLR)
Nogales Property Management 10/19/2007	Lou Martinez (Nogales Property Management); Manuel Flores (Nogales Property Management)	Erik Bakken, Director, Land Department (UNS Electric); Majid Farahani, Civil/Structural Engineering Supervisor (UNS Electric); Ken Wright, Transmission Maintenance (UNS Electric); Liza Castillo, Right-of-Way Agent (UNS Electric); Clint Robinson, Construction Consultant (ECLR)
Nogales Property Management 02/28/2008	Lou Martinez (Nogales Property Management); Nico Panousopoulos (Nogales Property Management); Manuel Flores (Nogales Property Management)	Liza Castillo, Right-of-Way Agent (UNS Electric)

SUMMARY TABLE AGENCY AND STAKEHOLDER MEETINGS		
Agency/Date	**Agency/Stakeholder Representatives**	**Utility Representatives**
Nogales Property Management 12/02/2008	Lou Martinez (Nogales Property Management); Nico Panousopoulos (Nogales Property Management); Manuel Flores (Nogales Property Management)	Liza Castillo, Right-of-Way Agent (UNS Electric); Ed Beck, Director Line Siting Services (UNS Electric); Shannon Breslin, Environmental/Land Use Planner (UNS Electric); Kevin Heller, Transmission Line Engineer (UNS Electric); Cory Pintor, Right-of-Way Agent (UNS Electric); Tom Hoyt, District Manager (UNS Electric); Mike Warner, Project Manager (Transcon); Clint Robinson, Consultant (ECLR)
Nogales Property Management 02/05/2009	Lou Martinez (Nogales Property Management); Nico Panousopoulos(Nogales Property Management); Manuel Flores (Nogales Property Management)	Liza Castillo, Right-of-Way Agent (UNS Electric); Kevin Heller, Transmission Line Engineer (UNS Electric); Thom Lane, (UNS Electric); Nohemi Gradillas (UNS Electric); Art Lorta, (UNS Electric)
Pima County 05/01/2007	Arlen Colton, Planning Director (Pima County)	Larry Lucero, Manager, Government Relations (UNS Electric); Laura Pinnas, Planner (UNS Electric); Duane Bock, Consultant (UNS Electric); George Miller, Project Coordinator (Transcon); Clark Bryner, Environmental Planner (Transcon)
Pima County 05/15/2007	Sherri Ruther, Environmental Planner (Pima County); Greg Hitt, Planner (Pima County); Nichole Fyffe, County Administrator's Office (Pima County); Tedra Fox, Environmental Planner (Pima County)	Larry Lucero, Manager, Government Relations (UNS Electric); Laura Pinnas, Planner (UNS Electric); Duane Bock, Consultant (UNS Electric); George Miller, Project Coordinator (Transcon); Clark Bryner, Environmental Planner (Transcon)
Pima County 06/19/2007	Nichole Fyffe, County Administrator's Office (Pima County)	Laura Pinnas, Planner (UNS Electric); Duane Bock, Consultant (UNS Electric); George Miller, Project Coordinator (Transcon)
Pima County 09/15/2008	Arlen Colton, Planning Director (Pima County); Sheri Ruther, Environmental Planning Manager (Pima County)	Shannon Breslin, Environmental/Land Use Planner (UNS Electric); Larry Lucero, Manager, Government Relations (UNS Electric); George Miller, Project Coordinator (Transcon); Alfonso Ruiz, Planner (Transcon)
Rio Rico Properties 04/21/2008	Liz Gutfahr (Rio Rico Properties)	Kevin Heller Transmission Line Engineer (UNS Electric); Clint Robinson, Consultant (ECLR); Liza Castillo, Right-of-Way Agent (UNS Electric)

SUMMARY TABLE AGENCY AND STAKEHOLDER MEETINGS		
Agency/Date	**Agency/Stakeholder Representatives**	**Utility Representatives**
Rio Rico Properties 08/11/2008	Liz Gutfahr (Rio Rico Properties); Gary Grizzle (The WLB Group)	Lee Aitken, Director, Land Management (UNS Electric); Clint Robinson, Consultant (ECLR); Liza Castillo, Right-of-Way Agent (UNS Electric)
Santa Cruz County 11/15/2007	Ken Zehenter, Project Manager (Santa Cruz County)	Liza Castillo, Right-of-Way Agent (UNS Electric); Kevin Heller, Transmission Line Engineer (UNS Electric); Clint Robinson, Construction Consultant (ECLR)
Santa Cruz County 12/17/2007	John Hays, Floodplain Coordinator (Santa Cruz County)	Liza Castillo, Right-of-Way Agent (UNS Electric); Erik Bakken, Director, Land Department (UNS Electric); Laura Pinnas, Planner (UNS Electric); Jason Ramsey (UNS Electric)
Santa Cruz County 09/19/2008	Greg Lucero, County Manager (Santa Cruz County); Mary Dahl, Community Director (Santa Cruz County)	Shannon Breslin, Environmental/Land Use Planner (UNS Electric); Larry Lucero, Manager, Government Relations (UNS Electric); Liza Castillo, Right-of-Way Agent (UNS Electric); Tom Hoyt, District Manager (UNS Electric); Clark Bryner, Environmental Planner (Transcon); Alfonso Ruiz, Planner (Transcon)
Town of Sahuarita 09/29/2008	Jim Stahle, Town Manager (Town of Sahuarita); Larry Dobrosky, Assistant Town Manager (Town of Sahuarita); John Neunuebel, Planning Director(Town of Sahuarita)	Larry Lucero, Manager, Government Relations (UNS Electric); Liza Castillo, Right-of-Way Agent (UNS Electric); Ed Beck, Director Line Siting Services (UNS Electric); George Miller, Project Coordinator (Transcon)
U.S. Army Corps of Engineers 02/21/2008	Robert Dummer (U.S. Army Corps of Engineers)	Shannon Breslin, Environmental/Land Use Planner (UNS Electric); Greg Gryniewicz, Biologist (Transcon)
U.S. Fish and Wildlife Service 03/20/2007	Merit Alanen (U.S. Fish and Wildlife Service)	Laura Pinnas, Planner (UNS Electric); Jeff Davis, Biologist (Transcon); Greg Gryniewicz, Biologist (Transcon)

EXHIBIT J-8: PUBLIC RESPONSES

From: Priscilla Storm [mailto:[redacted]]
Sent: Monday, August 06, 2007 6:42 PM
To: Michele Muench; Mark Weinberg; Robert Tucker
Cc: Aitken, Lee
Subject: TEP Easement

Thank you for encouraging TEP to meet with us and share the proposed alignment for a power line south of our Sycamore Park subdivision. They did meet with us, and review options they had considered. As we understand it, the preferred option is to place the additional line south of two existing power lines which run south of Sycamore Park. In reviewing the information TEP shared, photos, maps, etc. It appears that this area serves as a utility "corridor", and the addition of this third power line will not significantly change the character of the area. Of specific concern is the fact that the proposed preferred alignment also runs south along Wilmot Rd. adjacent to Section 12 of our Verano master planned community. It is imperative that this easement be set back a sufficient distance east of the ultimate Wilmot Road configuration. While it not our preferred option to have this power line run adjacent and in the viewsheds of two of our residential projects, we understand the rationale presented by TEP, and are not opposed, subject to addressing our Wilmot concerns.

We did discuss with TEP the possibility of the proposed TEP power line running south through State land along the Kolb alignment; given the overall benefit of Kolb Rd. to the planning and development of the Southlands. If this option has any interest, merit and support, it may be worth discussing whether this is feasible.

From: Ron Campana [mailto:[redacted]]
Sent: Saturday, January 05, 2008 12:29 PM
To: Lucero, Lawrence
Subject: Vail to Valencia upgrade project

Thanks for returning my call and answering most of my questions regarding the proposed Vail to Valencia upgrade project. I support Unisource Energy Services effort to upgrade customer service in Santa Cruz County as long as it does not have adverse impacts on our community. I look forward to hearing more about the proposed project and will be following the progress through the permitting progress.

However, I did some checking regarding your suggestion that once the proposed 138kv transmission line is built the existing 115kv line currently in use would be dismantled and removed from use. But, Unisource Energy Services would not abandon the existing easement, possibly using it for equestrian or hiking trails at a future date.

That might be a problem due to the fact that the utility easement crosses private property and could not be used for any other purpose. I hope that the current easement in use would be abandoned to allow the property owners full use of their own property.

If Unisource Energy Services is interested in making a public awareness presentation regarding the proposed project in the Rio Rico Community, Kathi Campana is the program director and would be willing to schedule a time at one of the monthly community meeting for a informational presentation. She can be reached at 520 313-4291, if you are interested.

Ronc

From: mjakle@[redacted] [mailto:[redacted]]
Sent: Wednesday, February 27, 2008 10:38 PM
To: Bakken, Erik
Cc: mhmjcm@earthlink.net
Subject: Power line relocation in Rio Rico

Dear Mr. Bakken:

I was not able to attend the Rio Rico Homeowners Assc. meeting in RRico last night, but a neighbor filled me in on what was discussed.

I live at [redacted]. in Rio Rico, appx. .6 mi. N. of Canez substation. I own lots 21, 22, & 23 in Rio Rico Ranchettes 4, Book 50.
There is a power line easement on one of my lots.

I have 2 questions: 1) I understand that you are going to move the lines from their current location, but keep possession of the easement. Why?
If you are not using the easement why keep the easement because no permanent structures can be built within this easement. This restricts owners in the use of their land. 2) The power lines will be moved to the land adjacent to the back side (west side) of my property. What impact will this have on my land? This area is a natural drainage way and I am concerned that the installation of the equipment and the facility itself will change the drainage and affect my property.

Sincerely,

Marty Jakle
[redacted]
Rio Rico, AZ

From: Ron Campana [redacted]
Sent: Saturday, March 08, 2008 10:26 AM
To: Bakken, Erik
Subject: Vail to Valencia 115kV upgrade project

E Bakken,

When the proposed Vail to Valencia 115kV upgrade project is submitted to the ACC and if approved, will the existing transmission line structures along the current 115kV route be removed when the 138kV transmission line is built on the new alignment? I have heard that in some cases existing transmission line structures may not be removed.

Thanks

Ronc
[redacted]

From: Ron Campana [redacted]
Sent: Wednesday, March 12, 2008 5:43 PM
To: Bakken, Erik
Subject: RE: Vail to Valencia 115kV upgrade project

E Bakken,

Thanks for responding to my question. My inquire was not intended to be a trick question. I am aware that removing the existing poles would not constitute abandonment of the utility easement. The easement is a separate issue, I understand that. I hope that UES understands a private property owners concerns and keeps an open mind regarding abandoning the easement, if not used. I support the Vail to Valencia 115kV upgrade project as proposed by UES. Thanks again

Ronc

From: fredjbrtubac@[redacted] [mailto:[redacted]]
Sent: Friday, June 06, 2008 7:55 AM
To: info@transconusa.com
Subject: Vail to Valencia upgrade

I went to the web site and attempted to contact you but the send button wouldn't work. I would like to get a copy of the map shown at tbe open house I attended on this project that showed the existing route of the 115kv line and alternates in a contrasting color. Is it possible to get a copy?

I am a resident of Rio Rico.

Thank you for your cooperation.

Fred Johnson

From: mjakle@[redacted] [mailto:[redacted]]
Sent: Wednesday, August 27, 2008 11:09 AM
To: Bakken, Erik
Subject: RE: Power line relocation in Rio Rico

Mr. Bakken:

I live at [redacted]. in Rio Rico, AZ and the relocated power line will be adjacent to my property. I wrote you earlier concerning my concerns about how this project may adversely impact my property (see previous email).

In your initial letter you state that environmental studies were ongoing and expected them to take place the first half of 2008. I want to know the status of these environmental studies and if a draft NEPA document (an Environmental Assessment or Impact Statement I assume) has been completed and ready for public review. If this document is not yet complete, when will it be?

I would like to be on the mailing list of any and all NEPA documents generated for the implementation of this project,

Sincerely

Marty Jakle
[redacted]
Rio Rico, AZ 85648

From: Ron Campana [mailto:[redacted]]
Sent: Wednesday, November 19, 2008 10:16 AM
To: info@transconusa.com
Subject: Vail to Valencia 115kV to 138 kV Upgrade project

Recently, I received newsletter no. 3 regarding the Vail to Valencia 115kV to 138kV upgrade project with a copy of the proposed project area map. However, the map sent in the mail is different than the map posted on the Unisource Energy Services (UES) website. Which map is the most current? Also, If UES adopts the alternative alignment will the existing 115kV line and infrastructure be removed? It appears that that will not be the case. The project information is not clear regarding this question. I hope that you will clear this up for me.

As a resident of Santa Cruz County living along the proposed project route, I hope that UES will work to minimize impacts to the residents living in the proposed project area. I support UES's effort to improve the delivery of energy services to Santa Cruz County.

Ron Campana
Rio Rico

From: ali mirshafii [mailto:[redacted]]
Sent: Saturday, November 22, 2008 10:56 AM
To: 'Clark Bryner'
Cc: llucero@tep.com; 'George Miller'
Subject: RE: Vail to Valencia 115kV to 138kV Transmission Line Upgrade Project

Clark,
Thanks for the info. It looks like the proposed transmission line is far away from my property. Again thanks for checking on this.

Regards - Ali.M

From: oldjimmylee@[redacted] [mailto:[redacted]]
Sent: Sunday, November 30, 2008 7:38 PM
To: Lucero, Lawrence
Subject: Tucson-Nogales upgraded power line

As members of the East Bridge Road Association and homeowners in Tubac, we express our outrage that one of the proposed alternatives for the upgraded line is that it run adjacent to the railroad right of way and through the heart of this community. Of all the proposed sites for increased and more reliable power that have been presented by various entities over the last few years, there is not a single route that will impact the community more in terms of it's visibility - as an eyesore - and the still debated health impacts. For us personally, if it were to be chosen, this route would intersect our property and place the power line less than one hundred feet from our home and outlook, in a property who's essence is it's rural and serene charm, and to which we've devoted fifteen years of labor. If, in addition, land must be condemned to allow for this siting, I believe our property would no longer comply with county zoning. We will vehemently oppose this route by whatever means we have.

In a changing world where both nationally and internationally there is a greater and greater value placed on diminishing rural landscape treasures, it seems inconceivable that the bottom line - the only possible reason for the selection of the route - should override all other aspects.

James and Margaret Beaty
[redacted]
Tubac, AZ 85646

[redacted]

From: Melissa Hill [mailto:[redacted]]
Sent: Tuesday, December 02, 2008 4:43 PM
To: info@transconusa.com
Subject: Vail to Valencia Upgrade Project

I am trying to find a live individual to discuss this project with. We are property owners on the existing and proposed alternatives for the transmission line upgrade. I would love to discuss this project with someone who has some technical knowledge of the alternative design.

I look forward to hearing from you at your earliest convenience.

W.M. Grace Development, Co.
Melissa K.W. Hill, P.E.
Design Development
☎ **Main:** [redacted]
☎ **Mobile:** [redacted]
☎ **Fax:** [redacted]
email: [redacted]

From: Philip P. Sharples [mailto:[redacted]]
Sent: Tuesday, December 02, 2008 1:42 PM
To: Lucero, Lawrence
Subject: power lines

Mr. Lucero:

As a property owner on Bridge Road, Tubac, AZ where I understand TEP/Unisource has proposed a possible alternative route for the existing line from Tucson to Nogales **I would like to register my very strong disapproval.**

I believe such lines could significantly impact the value of my property in an unfavorable manner, they would limit the quiet enjoyment of my property, they would ruin any views from my property, they would esthetically damage the property and surrounding area and there are potentially significant health issues that cannot be overlooked.

These proposed lines are simply not an acceptable alternative to the population and communities they would directly affect.

Sincerely,
member: East Bridge Road Property Owners Association
Philip P. Sharples
[redacted]
Tubac, AZ 85646

From: Carolyn Cavallero [redacted]
Sent: Wednesday, December 17, 2008 12:39 PM
To: Lucero, Lawrence
Subject: power line

Dear Mr. Lucero,

I am writing concerning the proposed new power line from Nogales to Tucson. I own a large piece of land and home close to this proposed site. My neighborhood along Bridge Road in Tubac is of high end property value. This proposed power line will destroy this value completely. Also it leaves our community with ugly vistas instead of beauty. But most important, it has been shown that living close to these big power lines is health hazardous. Tubac is an upscale community that prides itself on beautiful scenery. These lines will be a disaster for our community in every way. Please consider locating these power lines far away from the community and people who live there.

Respectfully,

Carolyn Cavallero
[redacted]
Tubac

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: Richard A. Calabro

Address: [redacted]

City, State, Zip: Green Valley, AZ 85614

Phone (optional):

E-mail (optional): [redacted]

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

I want to see all sustainable renewable energy alternatives used, even where less cost effective. Coal-powered electric generation is too invasive to the environment to be acceptable on any long-term basis. I want to see local solutions used on site before centralized solutions requiring transmission. Poles are less ugly in the proposed solution, which I appreciate, but no poles are far better for people's quality of life. Two gas-powered generators on site in Nogales, one for backup, even with the cost of upgrading the gas line is a preferred solution for which I am willing to pay to spare the environment. Customers should be given that option

I want to be included on the mailing list for additional information: ☒ Yes ☐ No

Signed: [signature] Date: May 27, 2008

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: Sara Lang

Address: [redacted]

City, State, Zip: Rio Rico AZ 85648

Phone (optional):

E-mail (optional): [redacted]

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

Why not follow I-19 for the new section? Noise around our home should not be allowed ~~noise~~ from power lin

Thanks

I want to be included on the mailing list for additional information: ☑ Yes ☐ No

Signed: Sara Lang Date: 5/28/08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: DALE LANG

Address: [redacted]

City, State, Zip: Rio Rico, AZ 85648

Phone (optional): [redacted]

E-mail (optional): [redacted]

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

PLEASE INVESTIGATE RADIO NOISE IN OUR AREA.

I want to be included on the mailing list for additional information: ☑ Yes ☐ No

Signed: Dale Lang Date: 5/29/08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: Wendy/Gary Ploss

Address: [redacted]

City, State, Zip: Rio Rico, AZ 85648

Phone (optional): [redacted]

E-mail (optional): [redacted]

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

Now that upgrades are required. I'd prefer to see the lines follow the train tracks off of Rio Rico Dr. - The lines will be out of range + the line of sight issues & EMF's will be far thru & from populated areas.
& refer to map - I signed it.

I want to be included on the mailing list for additional information: ☑ Yes ☐ No

Signed: [signature] Date: 5/29/08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: W Neubauer MD

Address: [redacted]

City, State, Zip: Tumacacori AZ 85640

Phone (optional): [redacted]

E-mail (optional): [redacted]

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

I Approve of the project on the east side of the Santa Cruz River.

I want to be included on the mailing list for additional information: ☒ Yes ☐ No

Signed: W Neubauer MD Date: 5-29-08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: Arlene Benavides

Address: [redacted]

City, State, Zip: Rio Rico Az 85648

Phone (optional): _____

E-mail (optional): _____

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

"I have heard of a company that makes the "power poles" look like trees. Is it possible that they could be made to look like Saguaro Cacti? So as to blend in a bit more to the natural surroundings? There is a local company that does this. (Word of mouth)

I want to be included on the ~~mailing~~ list for additional information: ☑ Yes ☐ No

Signed: Arlene Benavides Date: 5/29/08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: RL Boatwright

Address: [redacted]

City, State, Zip: Amado AZ 85645

Phone (optional): [redacted]

E-mail (optional): _____

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

Would like someone to visit to ~~not~~ verify space - make sure he's ~~not~~ doesn't have items in the ROW

* Call ahead to schedule visit *

I want to be included on the mailing list for additional information: ☐Yes ☐No

Signed: _____ Date: _____

[redacted]

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: JOSHUA LANDESS

Address: [redacted]

City, State, Zip: PO Box 310, AZ 85648

Phone (optional): [redacted]

E-mail (optional): [redacted]

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

- I Suggest a stronger push for solar in the county. The upkeep of the transmission line is fine, but if the goal is to provide us with reliable affordable power, then looking down the road a few years to changes in prices, the installation of 100-500 kW solar power locally would be helpful, alongside transmission upkeep. The lack of solar push here has been noticeable and disappointing.

I want to be included on the mailing list for additional information: (Yes) No

Signed: Joshua Landess Date: 29 May, 2008

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: Kathryn Haddock

Address: [redacted]

City, State, Zip: Rio Rico Az 85648

Phone (optional):

E-mail (optional): [redacted]

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

I like the west loop - recommend - down by the river. I do not like the south Pendleton - blue line. The south Pendleton line would block alot of existing views. It is also a load road to have electric lines running alone side.

Having it run along the railroad would be best!!.

I want to be included on the mailing list for additional information: ☒ Yes ☐ No

Signed: Kathryn Haddock Date: 5-29-08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: MARSHALL MAENDER

Address: [redacted]

City, State, Zip: TUBAC AZ 85646

Phone (optional): [redacted]

E-mail (optional): [redacted]

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

Recommend constructing "Gate way" substation as 2nd & reliability measure to off load the "overloaded" Valencia SS. Use existing CEC for Valencia-Gateway. Add "No Loss" loop with new Tenè Sonita – Gateway (single ckt.) This gives 65 mw of local generation to Sonita + Valencia

I want to be included on the mailing list for additional information: ☑ Yes ☐ No

Signed: Marshall Maender Date: 29 May 07

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: Marshall Magruder

Address: [redacted]

City, State, Zip: Tucson AZ 85716

Phone (optional): [redacted]

E-mail (optional): [redacted]

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

① Keep Nogales tap to CUAPA (may need 115/138 X former) bank

2) a) Install 138 kV single ckt - South Substation to ~~Existing~~ New 138KV Line to Sonoita

b) Install 138 kV single ckt - Nogales Tap to Valencia

①+② a+b = 2 cks to Santa Cruz a Nogales

Design limit for upper SCR is 71,000 approx based on Assured Water Supp (p.61 SCC comp Plan)

I want to be included on the mailing list for additional information: ☐Yes ☐No

Signed: Marshall Mag Date: 27 May 08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

Last Name: Conine, First Name: Sharon L.

Mailing Address: [redacted]

City, State, Zip: Tucson, Az. 85731 Phone: [redacted]

Do you have comments or suggestions on a preferred route?

Please share with us other comments you have about this project:

I would like to volunteer to help with citizen information / communication

☒ Yes, add my name to the mailing list to recevie future information. ☐ No, please remove my name from your mailing list.

Last Name: FOOD First Name: JOHN

Mailing Address: [redacted]

City, State, Zip: TUCSON, AZ 85705 Phone: [redacted]

Do you have comments or suggestions on a preferred route?

YES - Keep the line along the existing right-of-way from TUMACACORI to the south - i.e. east of the river.

Please share with us other comments you have about this project:

☑ Yes, add my name to the mailing list to recevie future information. ☐ No, please remove my name from your mailing list.

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: Salvador Hernandez

Address: [redacted]

City, State, Zip: Rio Rico Az 85648

Phone (optional): [redacted]

E-mail (optional):

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

We support you if you guys move the lines next to the rail road tracks, because we are afraid of thunder striking one of our houses or a person, you can feel the danger only if you live close to those power lines on the moonson season is very dangerous, inclusive there is alot of volts in those lines.

I want to be included on the mailing list for additional information: ☑ Yes ☐ No

Signed: [signature] Date: 2 Dec, 2008

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: RICH BOHMAN

Address: [redacted]

City, State, Zip: TUBAC, AZ 85646

Phone (optional): [redacted]

E-mail (optional): _____

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

THE UPGRADE TO 138KV CAPABILITY IS NEEDED. HOWEVER, THE EVENTUAL COSTS SHOULD BE MINIMIZED TO RATE PAYERS BY USING EXISTING LINE ROUTES WHEN MOST FEASIBLE. THE SOURCE AT WAPA WILL SEEM LESS EXPENSIVE THAN TYING INTO THE VAIL SUBSTATION. THE EXISTING LINE FROM "KANTOR" TO "CANEE IS MUCH PREFERABLE TO THE ALTERNATIVE ALONG THE RAILROAD TRACKS. ANY PLAN FOR A FUTURE 345 KV LINE IN SANTA CRUZ VALLEY WILL MEET SUBSTANTIAL RESISTANCE.

I want to be included on the mailing list for additional information: ☒ Yes ☐ No

Signed: Richard V. Bohman Date: 12/02/08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSource Energy SERVICES

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: Oscar Hernandez

Address: [redacted]

City, State, Zip: Rio Rico Az 85648

Phone (optional):

E-mail (optional): [redacted]

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

there is a lot of danger with these lines my daughters play on my back yard and whenever there is a rain season there are a lot of thunders on that area and I'm afraid of that that's why a support if they moved them ~~for~~ ~~for~~ next to the rail road tracks

I want to be included on the mailing list for additional information: ☑ Yes ☐ No

Signed: Oscar Hernandez Date: Dec 2, 2010

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: KATHI CAMPANA

Address: [redacted]

City, State, Zip: RIO RICO, AZ 85648-1011

Phone (optional):

E-mail (optional): [redacted]

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

I SUPPORT RUNNING THE 138kV LINE ALONG THE UNION PACIFIC RAILROAD TRACKS. UP & UNSOURCE COULD COLLABORATE IN MAINTAINING A CLEAR AREA. THE MOVE PLACES TWO INFRASTRUCTURE LINKS IN CLOSE PROXIMITY FOR EASY ACCESS & MAINTENANCE IT ALSO MOVES THE LINE FROM RESIDENTIAL AREAS TO IMPROVE VISUAL & SAFETY OBSTRUCTIONS. THE FEEDER LINE EXISTS ALONG PENDLETON DRIVE & MOVING THE 138 KV LINE WILL NOT IMPACT DELIVERY OF SERVICE.

I want to be included on the mailing list for additional information: ☒ Yes ☐ No

Signed: Kathi Campana Date: 12-2-08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: DANIEL ARIZMENDI

Address: [redacted]

City, State, Zip: Rio Rico Az 85648

Phone (optional): [redacted]

E-mail (optional): [redacted]

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

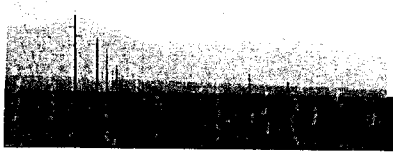
I DO AGREE WITH THIS NEW PROJECT. FOR SAFETY REASONS.
My first safety concern its when monsoon arrives a lot of lightings strike few feet away from my home.

I want to be included on the mailing list for additional information: ☐Yes ☐No

Signed: [signature] Date: 12/02/07

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES



VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: Fernando E. Bustamante

Address: [redacted]

City, State, Zip: Sahuarita, AZ 85629

Phone (optional): [redacted]

E-mail (optional): [redacted]

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

I have no problems with this project. I represent V & M Uptown & International properties LLC. We own commercial prop for rent on Grand AVE & Terrace AVE in Nogales AZ.

I want to be included on the mailing list for additional information: [X] Yes [ ] No

Signed: [signature] Date: _____

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: William Neubauer MD

Address: [redacted]

City, State, Zip: Tumacacori AZ 85640

Phone (optional): [redacted]

E-mail (optional): [redacted]

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

I Approve of placing the 138 kV line on flat ground, east of the Santa Cruz - along the river & railroad track. This is much preferable to following the gas line.

I Approve of this plan
I do NOT Approve of the 345 kV plan. !!!

I want to be included on the mailing list for additional information: ☒ Yes ☐ No

Signed: W Neubauer MD Date: 12-2-05

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSource Energy SERVICES

RECEIVED
DEC 05 2008

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: GARY BRASHER

Address: [redacted]

City, State, Zip: TUBAC, AZ 85646

Phone (optional):

E-mail (optional): [redacted]

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

I Strongly Favor the existing Tubac, Amado, Tumacacori Alignment! The Second Alternative would be much more intrusive to the environment, housing, Flooding from the Santa Cruz River as well as being in too close a proximity to the UPRR tracks.

I want to be included on the mailing list for additional information: ☒ Yes ☐ No

Signed: [signature] Date: 12/2/08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSource Energy SERVICES

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: TIM KNIGHT

Address: [redacted]

City, State, Zip: TUCSON AZ 85756

Phone (optional): [redacted]

E-mail (optional): [redacted]

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

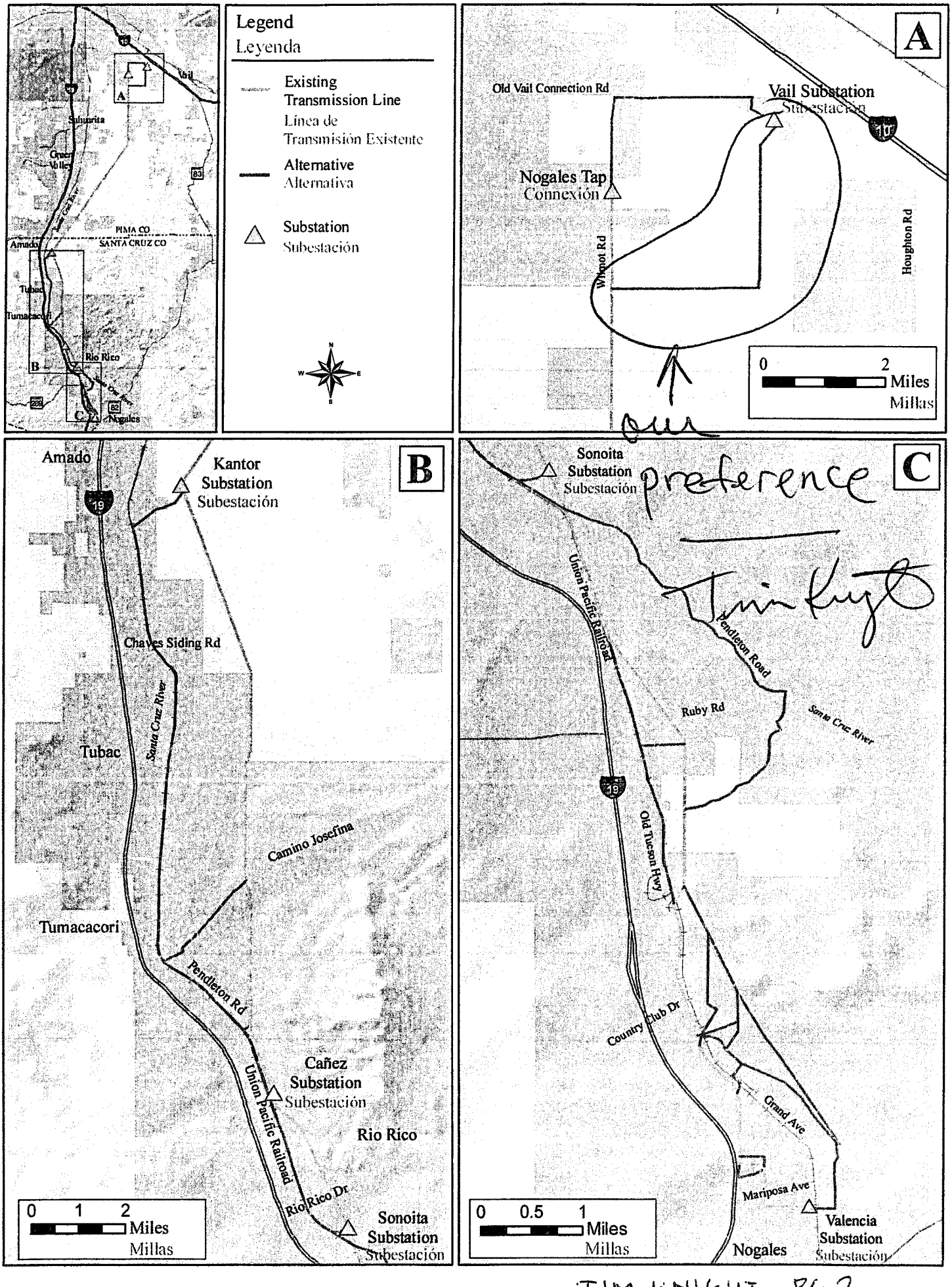
I prefer the Alternate Route which extends South from the Rita Sub station and then West to the Wilmot line. The other Route is too Close to Sycamore park residential area.

I want to be included on the mailing list for additional information: ☑ Yes ☐ No

Signed: Tim J Knight Date: 3 DEC 08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSource Energy SERVICES



TIM KNIGHT PG 2

RECEIVED
DEC 04 2008

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: RON CAMPANA

Address: [redacted]

City, State, Zip: RIO RICO, AZ 85648

Phone (optional): [redacted]

E-mail (optional): [redacted]

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

I SUPPORT THE PROPOSED VAIL TO VALENCIA UPGRADE PROJECT. THIS PROJECT WILL IMPROVE THE REALIBITY & CAPACITY OVER THE CURRENT TRANSMISSION LINE. RE-LOCATION OF THE LINES TO THE PROPOSED NEW ALTERNATIVE WILL ALLOW BETTER ACCESS FOR ENTIRE MAINTENANCE & SERVICE AND MOST IMPORTANT WILL MOVE THE LINE OUT OF RESIDENTIAL AREAS. THIS IS A PROJECT THAT IS LONG OVER DUE -

I want to be included on the mailing list for additional information: ☒ Yes ☐ No

Signed: Ron Campana Date: 12/3/08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSource Energy SERVICES

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: Cliff Marsom

Address: [redacted]

City, State, Zip: Tubac, AZ 85646

Phone (optional): _____

E-mail (optional): [redacted]

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

Please avoid using the alternative route through Tubac. This would destroy views, disrupt the tranquility of the village and infringe on properties.

When all public hearings are scheduled with the Arizona Corporation Commission and transmission line siting committee the dates and times should be published.

I want to be included on the mailing list for additional information: ☑ Yes ☐ No Email

Signed: Cliff Marsom Date: 12/04/08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSource Energy SERVICES

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: SarenSon Althoff

Address: [redacted]

City, State, Zip: Rio Rico, AZ, 84680

Phone (optional):

E-mail (optional):

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

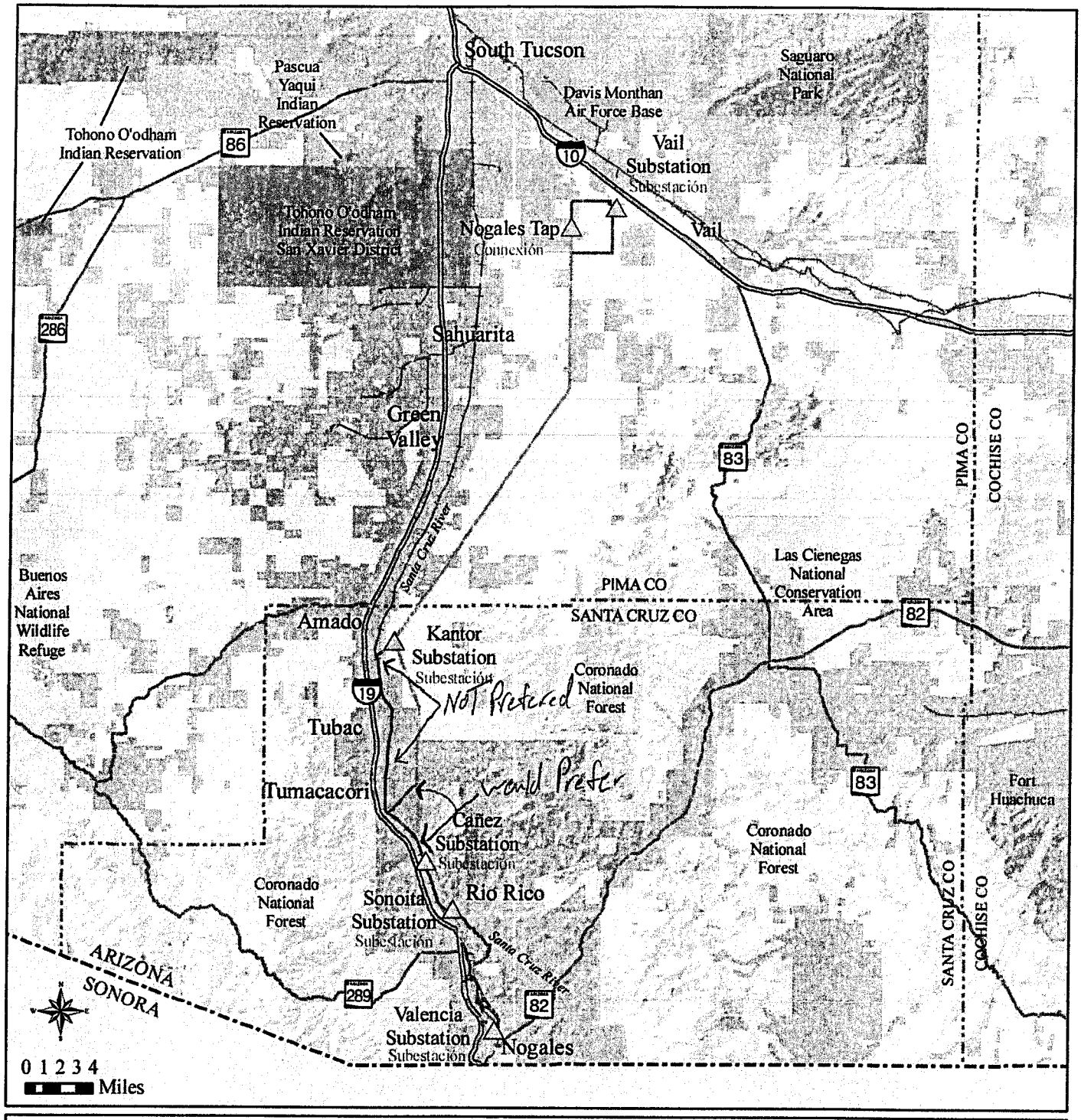
To the alternate
Only Objection would be diverting at the most northern alternative route. Understand the need to divert for Substation location. I have attached a map with drawing to refer to. Thank you.

I want to be included on the mailing list for additional information: ☐ Yes ☒ No

Signed: SarenSon Althoff Date: 12-4-08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES



Legend
Leyenda

- Existing Transmission Line — Línea de Transmisión Existente
- Alternative — Alternativa
- Substation — Subestación
- Bureau of Indian Affairs — Oficina de Asuntos Nativo Americanos
- Bureau of Land Management — Oficina de Administración de Tierras
- Bureau of Reclamation — Oficina de Reclamacion
- Department of Defense — Departmento de Defensa
- Forest Service — Servicio de Bosques
- National Park Service — Servicio de Parques Nacionales
- Private — Tierra Privada
- State — Tierra del Estado

Project Alternatives
Alternativas del Proyecto
Vail to Valencia
115kV to 138kV
Upgrade Project
Proyecto de Mejoramiento
Vail a Valencia 115kV a 138kV

UniSourceEnergy SERVICES
TRANSCON ENVIRONMENTAL

S. ATHOFF PG 2.

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: JOHN SHASKY

Address: [redacted]

City, State, Zip: TUCSON AZ 85646

Phone (optional): [redacted]

E-mail (optional):

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

Would like to see alternative energy sources (solar) used too

Prefer using existing pines site

I want to be included on the mailing list for additional information: ☐Yes ☐No

Signed: [signature] Date: 12/4/08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

DEC 0 9 2008

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: MYRON D. CLARK

Address: [redacted]

City, State, Zip: TUCSON, AZ 85640

Phone (optional): [redacted]

E-mail (optional):

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

SINCE YOU ALREADY HAVE A EASMENT WHERE IT EFFECTS NO ONE. I DON'T THINK YOU WOULD TRY AND GET ANOTHER WHERE IT WOULD BE SUBJECT TO FLOODING AND TAKE PROPERTY FROM LOCAL RESIDENCES AND ENCROACH ON LOCAL WILD LIFE AREAS.

I want to be included on the mailing list for additional information: ☒ Yes ☐ No

Signed: Myron D. Clark Date: 12-6-08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSource Energy SERVICES

RECEIVED
DEC 11 2008

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: Alex Megaris

Address: [redacted]

City, State, Zip: Tubac, AZ 85646

Phone (optional): [redacted]

E-mail (optional): _____

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

the railroad took property from our family without acknowledging that we the property, when they built the railroad. The county took property from us to built the Tubac Bridge, the neighbors ranch to south to sixty feet of our property so they could built 400 homes on that ranch.

Now you want to get your power line through our property, when you have all the hills to the east of us. You can expect a fight. How many times do you want to slice our property.

I want to be included on the mailing list for additional information: ☒ Yes ☐ No

Signed: Alex Megaris Date: 12-7-08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSource Energy SERVICES

Mr. Michael Warner
Transcon
3740 E. Southern Ave. Suite 218
Mesa, AZ 85206

DEC 08 2008

Dear Mike:

Thanks for taking the time to discuss with me the possible environmental impacts of the Vail to Valencia 115kV Upgrade ot 137kV project at last night's (12/2/2008) Open House in Nogales.

At this time, I have no comments on any of the specific alignment alternatives. However, as I discussed with you, I am concerned about the environmental impacts of both removing the lines and installing the new ones.

I am a retired biologist having last worked for the U.S. Fish and Wildlife Service in Tucson; additionally, I am a board member of the local environmental organization, Friends of the Santa Cruz River. I also am a property owner who will be directly affected by the project as the current line runs along the east side of my property and one of the relocation alternatives runs along the west side of it.

As you are aware, along the Santa Cruz River has some of the highest value riparian habitat in the Southwest, a rapidly dwindling ecosystem. This habitat is home to a wide variety of plant and animal species including the yellow-billed cuckoo (Coccyzus americanus) which is Federally listed as a Candidate species as well as many other species listed by various other organizations such as the Audubon Society. I have several pairs of cuckoos which can be found on my property. Besides providing habitat for sensitive species, riparian habitat is valuable for its high biodiversity.

At this time, my main concern is the impact that this project will have on the existing habitat. The removal and construction of the power lines needs to be sensitive to areas that: 1) have high value habitat, 2) provide habitat for sensitive species and ones that have high biodiversity, 3) are of high habitat value because of old, mature species of trees and a good mix of these species, and 4) are large in area, thus providing better habitat of smaller "postage stamp-sized" parcels.

It is mandatory that, once a preferred alternative has been selected, that the habitats and species identified as to their value using the criteria listed in the above paragraph.

The project should identify these areas prior to construction and then mitigate the impacts by either avoiding them (such as placing individual poles to avoid sensitive areas) or by lessening impacts by doing as minimal of habitat clearing as possible.

I want to be provided information in order to provide input to the proper committees charged with oversight of project implementation once an alternative has been selected.

Also, please forward this message to Eric who attended the meeting last night. I will also send a hard copy of this letter to the address listed on the "Comment Form" distributed at last night's meeting.

Sincerely,

Marty Jakle
[redacted]
Rio Rico, AZ 85648

DEC 12 2008

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: James L BEATY

Address: [redacted]

City, State, Zip: Tubac, AZ 85646

Phone (optional): [redacted]

E-mail (optional): _____

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

My wife & I Strongly oppose the proposed new power lines. I have congestive heart failure & have a total of eleven (11) total hip replacements. I seem to be a good example of doctors "practicing" medicine. I have had three (3) to shoulder replacements. On December 16th I will a total right knee replacement. I am not suggesting that that is your fault. It just lets you know medical problems plague me I don't want additional problems

I want to be included on the mailing list for additional information: ☑ Yes ☐ No

Signed: James L. Beaty Date: December 10, 2008

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

RECEIVED
DEC 22 2008

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: BOB OLLENDICK

Address: [redacted]

City, State, Zip: TUBAC AZ 85646

Phone (optional): _____

E-mail (optional): _____

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

I do NOT want the power lines moved.

I want to be included on the mailing list for additional information: ☒ Yes ☐ No

Signed: [signature] Date: 12-12-08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

DEC 22 2008

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: Oscar Vazquez

Address: [redacted]

City, State, Zip: Tucson, AZ, 865698

Phone (optional): [redacted]

E-mail (optional): _____

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

I do not want the power lines moved.

I want to be included on the mailing list for additional information: ☑ Yes ☐ No

Signed: Oscar Vazquez Date: 12-13-08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

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DEC 22 2008

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: Andreina Santana

Address: [redacted]

City, State, Zip: Tubac, AZ, 85646

Phone (optional): [redacted]

E-mail (optional): [redacted]

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

I do not want the power lines moved.

I want to be included on the mailing list for additional information: ☑ Yes ☐ No

Signed: Andreina Santana Date: 12-13-08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

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DEC 22 2008

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: Gabrielle Meads

Address: [redacted]

City, State, Zip: Tubac, AZ 85646

Phone (optional): —

E-mail (optional): —

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

I do NOT want the power lines moved.

I want to be included on the mailing list for additional information: ☐ Yes ☒ No

Signed: [signature] Date: 12-13-08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

DEC 22 2008

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: Andres Santana

Address: [redacted]

City, State, Zip: Rio Rico AZ 85648

Phone (optional): [redacted]

E-mail (optional): _____

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

I do not want the power lines moved.

I want to be included on the mailing list for additional information: ☑ Yes ☐ No

Signed: Andres Santana Date: 12/16/08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

DEC 22 2008

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: Andrew Santana

Address: [redacted]

City, State, Zip: Rio Rico, AZ, 85698

Phone (optional): [redacted]

E-mail (optional): _____

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

I do not want the power lines moved.

I want to be included on the mailing list for additional information: ☐Yes ☐No

Signed: Andrew Santana Date: 12/16/08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

RECEIVED
DEC 22 2008

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: Cecilia de los Santos

Address: [redacted]

City, State, Zip: Rio Rico, 85698 AZ

Phone (optional): [redacted]

E-mail (optional): _____

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

I do not want the power lines moved.

I want to be included on the mailing list for additional information: ☑ Yes ☐ No

Signed: Cecilia de los Santos Date: 12/16/08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: Delta Properties LLC.

Address: [redacted]

City, State, Zip: Nogales, AZ. 85621

Phone (optional): [redacted]

E-mail (optional):

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

Our meeting with Unisource was very helpful and it was nice to see the Unisource team cooperating and working with the public to make the upgrade process more efficient and organized. We look forward to working with you in the future and providing our input & help on anything you may need.
Thank you.

I want to be included on the mailing list for additional information: ☐Yes ☒No

Signed: [signature] Date: 12/16/08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

RECEIVED
DEC 22 2008

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: Mr. Maynard R. Clark

Address: [redacted]

City, State, Zip: Lafayette, CA 94549

Phone (optional): [redacted]

E-mail (optional): _____

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

I do NOT want the Power Line To Run Over The Railroad Tract - But Remain where it Presently is.

I want to be included on the mailing list for additional information: ☒ Yes ☐ No

Signed: _____ Date: 12/17/08

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

JAN 02 2009

VAIL TO VALENCIA 115kV TO 138kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV to 138kV Upgrade Project. Your input is a valuable part of the system improvement process.

Name: ALFRED G. LINARDO

Address: [redacted]

City, State, Zip: TUBAC AZ. 85646

Phone (optional): _____

E-mail (optional): _____

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

I DO NOT WANT LINE DOWN RAILROAD LINE!

I want to be included on the mailing list for additional information: ☒ Yes ☐ No

Signed: [signature] Date: _____

Return Address:
Vail to Valencia 115kV to 138kV Upgrade Project
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSource Energy SERVICES

BACA FLOAT
COALITION, LLC

Post Office Box 4467, Rio Rico, Arizona 85648-4467

January 25, 2009

Unisource Energy Corporation
Mr. Erik Bakken, Manager Corporate
Environmental Services and Land Management
3950 East Irvington Road
Mail Stop DS503
P.O. Box 711
Tucson, Arizona 85702

RE: Vail to Valencia 115kV to 138 kV Upgrade Project

Dear Mr. Bakken

The Baca Float Coalition, LLC, is a community service based organization representing residents north and east of Rio Rico Drive including Rio Rico, Tubac Foothills Ranch, Solaro Ranch, and Morning Star Ranch in Santa Cruz County. We represent the interest of more than 400 residents and property owners and growing. A portion of our mission is to enhance and preserve quality of life and property values in our area. As such, the issue of upgrade and relocation of the transmission lines to the west along the railroad right-of-way was addressed by our Board of Directors.

At the December 10, 2008, meeting of the Board of Directors of the Baca Float Coalition, LLC, it was unanimously approved to send a letter supporting the Vail to Valencia 115kV to 138kV Upgrade Project as proposed. We recognize that the upgrade will increase the reliability and capacity of the transmission line. The upgrade project would relocate the transmission lines to the west adjacent to the railroad right-of-way off of many residential properties and will provide better access to the transmission line for future maintenance and repair by TEP. The project will also offer greater safety for the residents living next to the lines, improve our views, and increase our property values.

Please consider this letter our endorsement of the proposed Vail to Valencia 115kV to 138kV Upgrade Project. If there is anything we can do to promote this in our area, please let us know.

Thank you for your attention and the opportunity to address this issue.

Sincerely,

Kathi Campana, Co-Chair
Baca Float Coalition, LLC

e-mail: bacafloatcoalition@yahoo.com

VAIL TO VALENCIA 115kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV Upgrade Project. Please complete and submit this form if you would like to receive information regarding this project throughout the planning phase.

Name: Anne Walshe

Address: [redacted]

City, State, Zip: Rio Rico Az 85648

Phone (optional):

E-mail (optional): [redacted]

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

upgrading electric lines from 115 kV to 138 kV will support how many additional homes in Santa Cruz County?

By the way, electric service has definitely improved in the 6 years I have lived in Santa Cruz Co

I want to be included on the mailing list for additional information: ☐Yes ☐No

Signed: Anne Walshe Date: 2/26/08

Return Address:
UniSource Energy Services
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

VAIL TO VALENCIA 115kV UPGRADE PROJECT

COMMENT FORM

UniSource Energy Services invites you to participate in the public process for the Vail to Valencia 115kV Upgrade Project. Please complete and submit this form if you would like to receive information regarding this project throughout the planning phase.

Name: Kim Etherington

Address: [redacted]

City, State, Zip: Tumacacori, AZ 85640

Phone (optional):

E-mail (optional): [redacted]

Please write your comment in the area below and return the form to the address provided (you may include extra pages if additional space is needed):

Would you please mail or email an example of the new metal ~~Dem~~ monopoles (schematic drawing and photo.) I would like to present this info at my HOAs annual meeting. The "H-poles" are along the ~~East~~ western border of our neighborhood. (Tubac Foothills Ranch)

I want to be included on the mailing list for additional information: ☒ Yes ☐ No

Signed: Kim Etherington Date: 2-26-08

Return Address:
UniSource Energy Services
c/o Transcon Environmental
3740 E. Southern Ave., Suite 218
Mesa, AZ 85206

UniSourceEnergy SERVICES

February 27, 2008

RECEIVED

FEB 29 2008

E. BAKKEN

UniSource Energy Corporation
Mr. Erik Bakken, Manager
Corporate Environmental Services and Land Management
Mail Stop DS503
PO Box 711
Tucson, Arizona 85702

Dear Mr. Bakken

The presentation at the Rio Rico Association Tuesday night was interesting and informative. I left with a better understanding of the process involved in the Vail to Valencia upgrade project. Thank you for listening to my opinion regarding the line relocation and easement concerns. Your attention is appreciated.

I was, however, disappointed to hear that the removal and relocation of the 115kV transmission line to the proposed west realignment would not result in UniSource abandoning the unused portion of the existing utility easement. I understand utility easements are valuable and UniSource is reluctant to abandon a resource that can potentially be utilized in the future. But, what I brought away from the meeting was that the easement would not be used in the future and would not be suitable for use as transmission line route because of the close proximity to the relocated 138kV transmission line upgrade.

In addition, the upgrade to new steel monopole structures and power line will allow for a second circuit on the poles sometime in the future, which would double the transmission capacity. There is also a 17,000-volt transmission line that runs for several miles along Pendleton Drive providing service to the residents in the area.

It appears to me that a great deal of good will and public positive perception would be created on the part of UniSource, if the company decided to abandoned the unused portion of the easement and return use to the individual property owners who are currently effected. I hope that UniSource will give this idea some thoughtful consideration. The current easement and transmission line has big impacts to the property owners and affects property values. I hope UniSource Energy Corporation will decide to abandon the easement.

Thank you in advance for your attention and consideration to this important issue. If you have any questions regarding my request, do not hesitate to contact me.

Sincerely,

Ron Campana
[redacted]
Rio Rico, Arizona 85648

[redacted]

RECEIVED

MAR 4 2008

E. BAKKEN

March 3, 2008

UniSource Energy Corporation
Mr. Erik Bakken, Manager
Corporate Environmental Services and Land Management
Mail Stop DS503
P.O. Box 711
Tucson, Arizona 85702

Dear Mr. Bakken

On February 27, 2008, I sent a letter to you regarding the proposed Vail to Valencia 115kV upgrade project. In my letter I stated that a 17,000-volt transmission line runs for several miles along Pendleton Drive providing service to the residents in the area. I have since learned that I misstated the size and type of electrical line that runs along Pendleton Drive and want to correct what I stated. I apologize for not being familiar with the electrical industry terminology.

On Monday, March 3, 2008 I talked to Mr. Tom Lane with the Engineering Department with UniSource Electrical Services in Nogales. He told me that the electrical line that runs along Pendleton Drive is a Distribution Line with a line voltage of 7620 volts. In addition the electrical line that runs along the Union Pacific Railroad is also a Distribution Line with a line voltage of 7620 volts. The two Distribution Lines are approximately ¼ mile apart at Pendleton Drive and Angel Corte, where I live. According to Mr. Lane, both lines have adequate capacity to supply the Rio Rico area. There are no plans that he knows of to add capacity to the local distribution system.

I hope that UniSource Energy Corporation will give serious consideration to abandoning the unused portion of the relocated transmission line easement, if the Arizona Power Plant and Transmission Line Siting Committee approve the proposed 115kV upgrade project and a Certificate of Environmental Compatibility is issued.

Once again, thank you in advance for your attention and consideration to this important issue. If you have any question regarding my request, do not hesitate to contact me.

Sincerely,

Ron Campana
[redacted]
Rio Rico, Arizona 85648

[redacted]

APPENDIX A: LIST OF ACRONYMS

ACC	Arizona Corporation Commission
ADOT	Arizona Department of Transportation
AEPCO	Arizona Electric Power Cooperative, Inc
AGFD	Arizona Game and Fish Department
AM	Amplification Modulation
Application	Application for a Certificate of Environmental Compatibility
ARS	Arizona Revised Statute
ASLD	Arizona State Land Department
ASM	Arizona State Museum
BCMA	Biological Core Management Area
BLM	Bureau of Land Management
CEC	Certificate of Environmental Compatibility
Citizens	Citizens Utilities Company
CLS	Conservation Land System
Committee	Arizona Power Plant and Transmission Line Siting Committee
Corps	U.S. Army Corps of Engineers
DU/AC	Dwelling Unit per Acre
EHV	Extra-High Voltage
EMF	Electric and Magnetic Field
EPA	Environmental Protection Agency
ERZ	Environmental Resource Zone
ESA	Endangered Species Act
FM	Frequency Modulation
GIS	Geographic Information System
HCP	Habitat Conservation Plan
I-10	Interstate 10
I-19	Interstate 19
IRA	Important Riparian Area
KCmil	Thousand Circular Mil
kV	Kilovolt
LLNB	Lesser Long-nosed Bat
MBTA	Migratory Bird Treaty Act
MSHP	Multi-species Habitat Conservation Plan
MUMA	Multiple Use Management Area
NESC	National Electrical Safety Code
NEPA	National Environmental Policy Act
NRHP	National Register of Historic Places
PPC	Pima Pineapple Cactus
Project	Vail to Valencia 115 kV to 138 kV Transmission Line Upgrade Project
PVS	Priority Vulnerable Species
SDCP	Sonoran Desert Conservation Plan
SHPO	State Historic Preservation Office
SRER	Santa Rita Experimental Range
SWWF	Southwestern Willow Flycatcher
TEP	Tucson Electric Power Company
Transcon	Transcon Environmental
UNS Electric	UNS Electric, Inc.
UPRR	Union Pacific Railroad
USDA	United States Department of Agriculture
USFWS	United States [Department of the Interior] Fish and Wildlife Service
USGS	United States Geological Survey
YBCU	Yellow-billed Cuckoo
WAPA	Western Area Power Administration