

Application for a Certificate of Environmental Compatibility

Pinal West to Southeast Valley/Browning 500 kV Transmission Project

Prepared for:

**State of Arizona Power Plant and
Transmission Line Siting Committee**

Prepared by:

Salt River Project Agricultural Improvement and Power District

On behalf of:

**Arizona Public Service Company
Santa Cruz Water and Power Districts Association
Southwest Transmission Cooperative, Inc.
Tucson Electric Power Company**

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INTRODUCTION

The Applicant

The Applicant, Salt River Project Agricultural Improvement and Power District (SRP), as the Project manager, submits this application on behalf of itself and Arizona Public Service Company (APS), Tucson Electric Power Company (TEP), Southwest Transmission Cooperative, Inc. (SWTC), and Santa Cruz Water and Power Districts Association (SCWPDA), which is comprised of the Electrical Districts (EDs) ED3, ED4, and ED2 (by agreement), the Maricopa-Stanfield Irrigation and Drainage District (MSIDD), and the Central Arizona Irrigation and Drainage District (CAIDD); collectively referred to as Project Participants.

The Project

The Applicant requests a Certificate of Environmental Compatibility (CEC) to construct a transmission line, beginning at the recently permitted Pinal West Substation and ending at the existing Browning Substation. The Application includes the following transmission line components:

- ◆ From Pinal West, a single circuit 500 kV transmission line would be constructed to the proposed Southeast Valley (SEV) 500/230 kV Substation.
- ◆ From the SEV Substation, a double circuit 500/230 kV transmission line would be constructed to the Central Arizona Project (CAP) canal.
- ◆ From the CAP canal to the existing Browning Substation, SRP proposes to build two sets of double circuit 500/230 kV structures, which would require removing the existing single circuit 500 kV structures.

The Applicant requests the flexibility to design and construct a double circuit (two circuits on a single structure) transmission line consisting of one 500 kV circuit and one 230 kV circuit in place of a single circuit 500 kV line for any portion of the approved alignment from the Santa Rosa Substation to the SEV Substation as may be identified and funded by any of the Project Participants or third party interests who may become Project Participants.

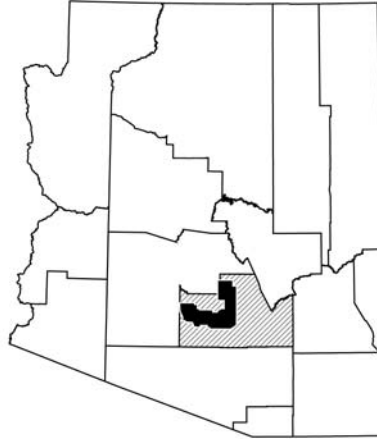
The Application includes other interconnection components:

- ◆ A 500/230 kV substation adjacent to the existing Santa Rosa 230/69 kV Substation, located in western Pinal County,
- ◆ The proposed Pinal South 500/230/115/69 kV Substation, to be located in southeastern Pinal County,
- ◆ The proposed SEV 500/230 kV Substation, to be located in northeastern Pinal County, and
- ◆ The proposed SRP RS-19 230/69 kV Substation, which would be sited along the SEV to Browning segment. The SEV Substation would also include the co-location of the SRP RS-22 230/69 kV Substation.

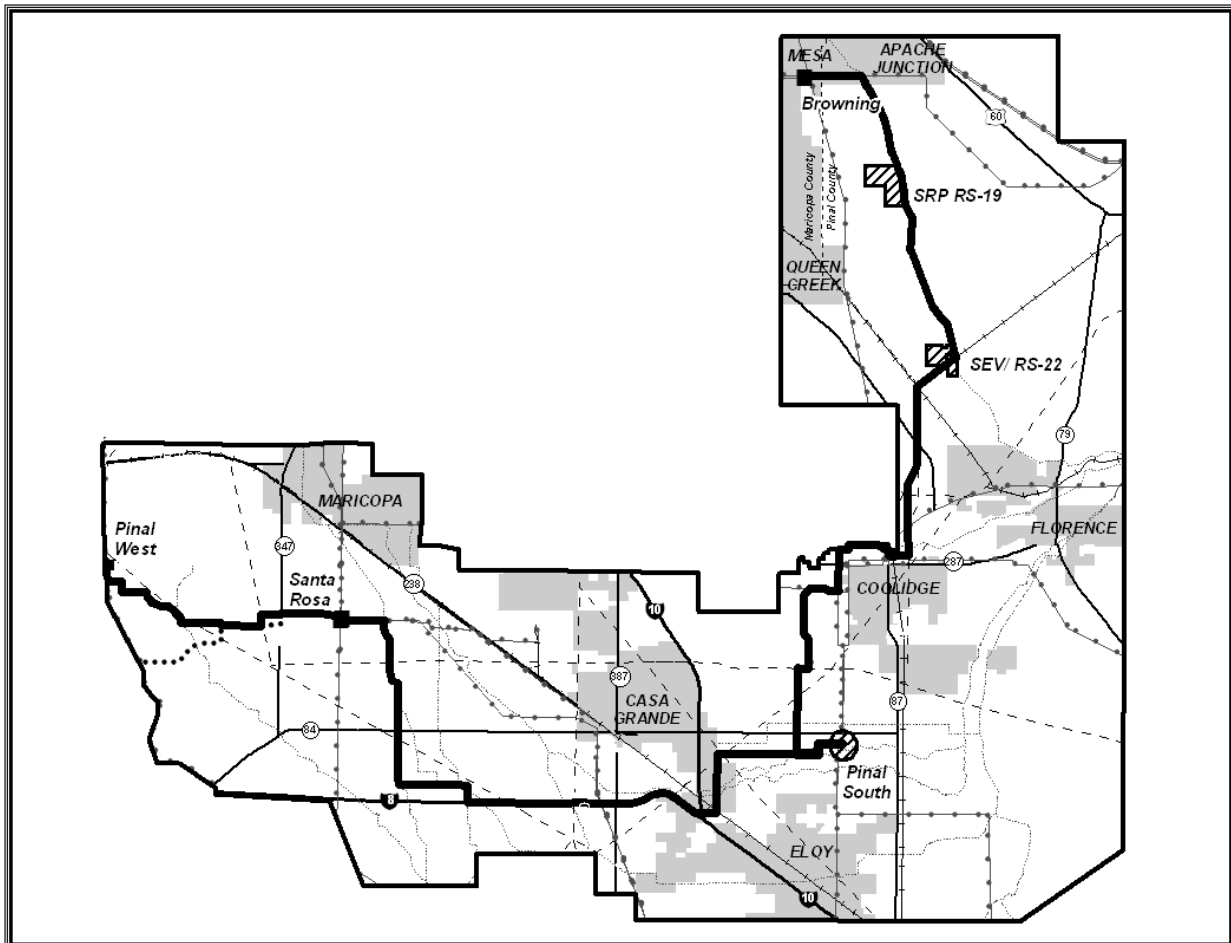
Introduction

Generally, this proposed transmission line from Pinal West to the Browning Substation, and other proposed substations, are identified as the Pinal West to Southeast Valley/Browning Project [(PW – SEV/BRG Project) or (Project)].

A general location map of the Project study area is set forth below:



Exhibits A-1, A-2, and A-3 provide a more detailed view of the proposed alignments and substations. A map of the Preferred Alignment is set forth below:



The Project will be financed and constructed by the Participants. The Project participation agreement allows for the addition of new parties. This joint transmission project allows for the consolidation of the Participants' needs into fewer, common facilities.

The Project is a segment of a larger, regional transmission plan identified through the Central Arizona Transmission System (CATS) study. The study is a collaborative effort by more than twenty public and private utility and energy companies and other interested parties, along with the participation of Arizona Corporation Commission (ACC) staff. The purpose of the study is to examine ways to increase transmission capacity and reliability throughout the state, specifically in central Arizona. The CATS study is an effort to conduct comprehensive system planning by assessing the regional need for electrical transmission infrastructure.

Project Background

In June 2002, the Applicant began a routing study and public process to site what was originally named the Palo Verde to Southeast Valley/Build-Out Browning Project (PV – SEV/BOB). PV – SEV/BOB consisted of two components. The first component, Palo Verde to Pinal West (PV – PW), Case No. 124 (Decision No. 67012), is comprised of two single circuit 500 kV transmission lines from the Palo Verde hub to the Pinal West Substation, and an interconnection with the TEP Westwing – South 345 kV transmission line. The second component is the subject of this Application.

While the two components differ in purpose, need, and benefits, the Project Participants believed a single public process would better inform the public of the development of electrical transmission facilities in the region, would be more time efficient, and would be more cost effective.

One of the Project Participants, TEP, however, requested to advance the in-service date of the PV – PW segment of the PV – SEV/BOB project. To accommodate this request, the Project Participants agreed to separate the projects. On May 18, 2004, the Arizona Corporation Commission approved a CEC for the PV – PW Project, Case No. 124 (Decision No. 67012). Since that approval, SWTC has become a PV – PW Project Participant and will benefit by receiving energy delivered into its service area.

Purpose and Need

There are three reasons for the construction of a transmission line:

- ◆ increasing customer load serving capability;
- ◆ providing access to generation resources; and
- ◆ increasing the reliability/operability of the transmission system while reducing transmission constraints.

This Project supports all three of these reasons for each of the Project Participants.

Load Serving Capability

The current system supplying power to the Pinal County area of Maricopa, Stanfield, Casa Grande, Coolidge, and Florence, has a finite capacity to serve customer load. The area has been operating within that capacity. However, the load growth being experienced and the projected growth will tax the existing system. This project, through its interconnections at the recently permitted Pinal West Substation (ED3), the existing Santa Rosa Substation (ED3, APS), and the proposed Pinal South Substation (ED2, ED4), will provide additional capacity within the area to serve that projected load.

Introduction

As of August 2004, the EDs (ED3 and ED4, combined “Districts”) reached a Summer Peak Load of nearly 120 MW. Historically, the bulk of the load has been irrigation pumping to serve the requirements of the irrigation districts (MSIDD and CAIDD respectively). In the past three years, ED3 alone has added almost 3,000 homes and expects to add another 15,000 homes over the next few years. It is predicted that the City of Maricopa will have about 200,000 residents by 2015 (Arizona Republic 2004). Just east and south of Casa Grande, ED4 will be serving a community that is developing approximately five square miles and will ultimately have 12,000 homes, plus the commercial loads to support this level of development. Managing this growth will be a challenge for the Districts to continue to provide reliable electric service to these growing communities.

ED3 will plan on an interconnection at the Santa Rosa Substation to provide for the additional energy to serve its anticipated load growth. This interconnection will be augmented in the future with the expansion of the Pinal West Substation to provide the reliability requirements to serve the ED3 area loads.

ED4 will continue to plan for delivery of Palo Verde area resources via this Project. Initially, ED4 will require an arrangement with another transmission provider to deliver to ED4 load serving substations. As the system continues to develop and to meet the expected load growth for the region, ED4 will plan on interconnecting to the Project at the proposed Pinal South Substation. This substation would provide substantial transmission expansion opportunities for the region, and interconnect to the existing Western 115 kV (planned to be upgraded to 230 kV in the near future) transmission system.

ED2 is located in south-central Pinal County and serves an area of approximately 200 square miles. Historically, ED2 has primarily served agricultural customers, but in recent years much residential development has been occurring and this trend is expected to continue into the foreseeable future. This equates to approximately 25 – 50 MW of additional load in the next ten years. As a consequence, ED2 is looking at the need for additional power supplies to meet a growing demand for power and the transmission to deliver that power. Currently, all power used by ED2 is delivered to four substations over a 115 kV transmission system owned and operated by Western. While the ultimate development and configuration of ED2’s subtransmission system and future substations will be dictated in large part by the timing and location of new residential developments, the Project will serve as the transmission path for future power supply acquisition and its consequent delivery for the next 15 to 20 years.

APS, through the 500/230 kV interconnection at the Santa Rosa Substation, will have access to additional import capability to serve native load into the Phoenix metropolitan area. APS will have approximately 300 MW of unused scheduling capacity on its 230 kV transmission line from the Santa Rosa Substation to the Kyrene Generating Station, which is a 230 kV substation in the Phoenix metropolitan area. By participating in the Hassayampa – Pinal West 500 kV line (Case No. 124) and the Pinal West – Santa Rosa 500 kV portion of this Project, APS would obtain scheduling rights on these lines. APS could utilize these rights along with the unused capacity on the existing Santa Rosa – Kyrene line to schedule an additional 300 MW of energy from the Palo Verde/Hassayampa market hub into the Phoenix load area. Additionally, the Santa Rosa interconnection provides a much stronger source into Kyrene as well as a parallel path for existing transmission lines from Palo Verde into the valley. It not only provides additional voltage support for the southeast Phoenix area, but also reduces congestion on the 230 kV line flows from west to east.

SRP expects a significant increase in SRP load due to development anticipated in the northern Pinal County area. This Project provides customer load serving capability to SRP through the development of the Browning interconnection, the SEV/SRP RS-22 Substation, and the SRP RS-19 Substation. The interconnection at the Browning Substation and the SEV Substation will also provide the source for additional 230/69 kV substations in the eastern area of SRP’s service territory to accommodate this

growth. It also provides SRP with additional access to the Hassayampa Switchyard and all the generation resources connected there.

TEP's interest in the Project is based on the selection of the Preferred Alignment that provides for the Pinal South Substation. Future interconnection opportunities between a Pinal South Substation and TEP's service area could include the Tortolita, Winchester, or Vail Substations. Any of these interconnections would provide a parallel and redundant path to the presently planned Pinal West to Saguaro/Tortolita line. If an alignment is selected that will result in a lower cost option for TEP's future interest in a connection between Pinal West and substations within TEP's service area, TEP will likely participate in this Project. If an alignment is approved that does not result in a lower cost option to TEP, TEP will not participate in this Project.

SWTC is participating in this Project, as the Project is expected to provide additional transmission capability and reliability for the SWTC loads in southeast Arizona. SWTC is also studying the feasibility of a future transmission line from Pinal South to the Winchester Substation that would provide another path to the SWTC loads. Should this study identify benefits to SWTC, then SWTC may participate in this Project.

Access to Generation Resources

Pinal West, Santa Rosa, and Pinal South Substations also provide for future interconnections into the local APS, ED2, ED3, and ED4 systems to provide access to generation resources, either local or remote, which may be built in the area.

ED2 has opted to participate in the construction of the Project to ensure that it has sufficient transmission capacity to deliver power into its system as it grows. The Project will provide ED2 with a link to one of the major trading hubs in the southwest. Since ED2 does not have any of its own generation, access to the Palo Verde market is important to allow ED2 more options for purchasing power. Currently, the configuration and limitations of the Western transmission system make it difficult to conduct trades with all but a few entities who are connected to Pinnacle Peak and Liberty Substations.

This Project, in conjunction with other CATS identified projects, will not only provide transmission paths for future generation projects to the east of the Phoenix metropolitan area and Tucson, but also provide redundant parallel paths for some existing generation.

Reliability/Operability

The availability of another transmission source to serve ED2 will also enhance reliability and provide voltage support, which studies show is becoming more problematic as load growth occurs in central and southern Pinal County.

This Project, also in conjunction with other CATS identified projects, provides a parallel path to the system serving central Arizona, reducing transmission constraints for energy delivery. For example, the interconnection at the Santa Rosa Substation provides a parallel path for energy delivered to, and received from, the Kyrene Generating Station. This parallel path provides redundant paths for energy to flow, provides flexibility in system switching for operations and maintenance purposes, and adds capacity to the system to move power and energy east and west. The current critical outage for the Phoenix metropolitan area is a 500 kV transmission line (the Hassayampa to Jojoba to Kyrene circuit). This line will provide a parallel path to that line.

Interconnection of existing and future transmission into the proposed Pinal South Substation will not only provide access to the Palo Verde hub, but will improve voltage support for the southeastern Pinal County area.

Project in-service is anticipated to meet the 2007 need for the Pinal West to Santa Rosa portion of the Project. The RS-19 to Browning 230 kV component is needed by 2008. The proposed transmission line from Browning to Santa Rosa will be completed by 2011. The proposed SEV and Pinal South Substations would be constructed at future dates. The Applicant requests a 20 year term for the CEC.

Figure 1 depicts the overall study area and proposed alignments.

Routing Study and Public Process

In order to develop the proposed alignments, the Applicant initiated a routing study and public process in June 2002 for the PV – PW Project and the PW – SEV/BRG Project. The process included an extensive public involvement component intended to distribute information and solicit input and comments from the public and interested stakeholders. The public involvement process was initially conducted in four phases as follows:

- Phase I – Project Need and Benefit
- Phase II – Opportunities, Sensitivities, and Avoidance Areas
- Phase III – Routing and Alternatives
- Phase IV – Preferred Alignment and Alternative Alignments

Phase I

Phase I introduced the Project to the public and interested stakeholders. The Applicant presented information explaining CATS, Project need, anticipated system and regional benefits. During Phase I, the Project study area was identified.

Phase II

Phase II, the most critical phase of the routing study and public process, was conducted to seek public input to identify and qualitatively categorize routing opportunities, sensitivities and avoidance areas, otherwise known as the environmental routing criteria. Routing opportunities are identified as providing advantageous routing corridors and are characterized by the potential for parallel or corridor sharing with existing linear facilities or physical features. Opportunities for the Project were identified and then qualitatively categorized as either primary or secondary. **Figure 2** depicts the primary and secondary opportunities.

Sensitive areas or sensitivities are those environmental routing criteria that require special consideration in order for a transmission line to be sited within, near, or immediately adjacent. In such situations, routing and/or the application of specific construction methods, mitigation, or additional licensing/permitting procedures should be considered. Sensitivities were also identified and then qualitatively categorized as high, medium, or low.

Avoidance areas are those that the Project would avoid including obstruction-free zones associated with airports, wilderness areas, national monuments, and Indian reservations.

Figure 3 depicts opportunities, sensitivities, and avoidance areas within or immediately adjacent to the Project study area.

The Applicant then assessed the viability of all opportunities based on the occurrence of sensitivities. Those opportunities having a lesser occurrence of sensitivities when compared to other opportunities in the same geographic areas were then identified as potential routing alternatives. The categorization of opportunities and sensitivities allowed for an additional means of analysis. GIS database validation was also conducted.

Phase III

In Phase III, the Applicant presented and discussed potential routing alternatives. The Applicant conducted a series of Open Houses in late 2002. **Figure 4** depicts the potential routing alternatives as they were presented during this phase. These alternatives were grouped into ‘families of alternatives’, based on general proximity and geographic location within the Project study area, to seek more route-specific input and comments (See **Figure 5**).

Subsequently, the City of Casa Grande requested that the Applicant evaluate the feasibility of an additional routing alternative that would traverse lands administered by the Gila River Indian Community (GRIC). The Applicant explored the possibility of including this segment as a potential routing alternative with the GRIC. After extensive discussions, this segment was not carried forward because it did not meet the Project’s need to interconnect at the proposed Pinal South Substation.

The Applicant continued conducting supplemental routing analyses, including extensive field reconnaissance and constructability reviews. At the same time, the Project Participants concluded that there was a need for an interconnection at Santa Rosa. They also evaluated the regional benefits of a Pinal South Substation. The Applicant then incorporated these system needs into the routing study.

Based on the additional routing analyses, constructability reviews, and regional transmission system benefits, **Figure 6** depicts the routing alternatives that would be further analyzed and potentially carried forward.

Concurrent with the continued analysis, GIS database validation was continued and segments were modified or removed from consideration as depicted on **Figure 7**.

A significant level of growth was projected in the Pinal County area. This was evidenced by a number of new Planned Area Developments (PADs) and other land development in the Project study area. To ensure that the land development community was familiar with the Project, the Applicant conducted a series of Developers and Builders Workshops, individual meetings with developers, and meetings with municipalities and interested stakeholders. The Applicant has continued to update the PAD database by collaborating with the affected jurisdictions and interested stakeholders. As a result of this ongoing collaboration, alternative segments were refined. **Figure 8** depicts those alternatives that were candidates for removal and those alternatives being carried forward.

Phase IV

In July and September 2004, the Applicant conducted an additional series of Open Houses to solicit input on the proposed alignments, as depicted on **Figure 9**. The proposed alignments were refined as a result of these Open Houses. The final proposed alignments were compiled and are included in this Application, as depicted on **Figure 1**.

Preferred and Alternative Alignments

The Applicant is proposing a Preferred Alignment for the entire length of the Project. The Preferred Alignment and alternatives are comprised of segments that are denoted with Node (N) numbers. Nodes designate a segment origin or terminus. Associated with the Preferred Alignment, segment options are also being proposed to provide routing flexibility. On **Figure 1**, alignments are represented as a dark blue line for the Preferred Alignment and light blue lines for the segment options. Preferred Alignment Segment Options include the Santa Cruz Wash Segment Option, Eleven Mile Corner Road Segment Option, and the Attaway Road Segment Option.

The Applicant is also proposing two Alternative Alignments to the Preferred Alignment. There is a Northern Alignment with associated segment options and an Eastern Alignment with associated segment options. **Figure 1** depicts these as purple lines for the Northern Alignment and segment options, and green lines for the Eastern Alignment and segment options.

Preferred Alignment

The Preferred Alignment extends from the Pinal West Substation generally in an easterly direction through the Hidden Valley area to the Santa Rosa Substation. From the Santa Rosa Substation, the alignment extends south along the Santa Rosa Wash until its intersection with the Interstate 8 (I-8) corridor. The alignment continues to travel east along the north side of the I-8 corridor until extending north along Sunland Gin Road, after crossing Interstate 10 (I-10). The alignment then loops into the proposed Pinal South Substation, which is adjacent to the existing ED2 Substation. After looping into the Pinal South Substation, it would extend north along Curry Road and an existing Western Sundance – Coolidge transmission line corridor to State Highway (HWY) 87. The alignment would then parallel a section line, portions of the GRIC boundary, and an existing Western 115 kV transmission line east to Christensen/Sierra Vista Road. The alignment then extends north along Christensen/Sierra Vista Road until its intersection with the Union Pacific Railroad (UPRR) and its convergence with the Magma Railroad. The alignment then extends northeast, paralleling the Magma Railroad to the SEV Substation. From the SEV substation, the Preferred Alignment extends in a northwestern direction, paralleling the Central Arizona Project (CAP) canal until its intersection with the existing Silver King to Browning 500 kV transmission line (Silver King – Browning 500 kV line). The alignment would then parallel the Silver King – Browning 500 kV line to the Browning Substation.

Preferred Alignment Segment Options

Santa Cruz Wash Segment Option

The Santa Cruz Wash Segment Option, located in the central portion of the Project study area, would diverge east from the Preferred Alignment and follow portions of an existing Western 115 kV transmission line and the Santa Cruz Wash.

Eleven Mile Corner Road Segment Option

The Eleven Mile Corner Road Segment Option, located in the southeastern portion of the Project study area, would diverge from the Preferred Alignment in the vicinity of the existing ED2 Substation/proposed Pinal South Substation site. This alignment would generally follow the western most existing 115 kV line north until converging with the Preferred Alignment prior to crossing HWY 87.

Attaway Road Segment Option

The Attaway Road Segment Option is located in the northeastern portion of the Project study area. This alternative would extend north from the SEV Substation, paralleling the midsection between Attaway Road and Felix to Skyline Drive. It would then extend west for a short segment before extending north to follow the Attaway Road section line until it intersects with the existing Silver King – Browning 500 kV line.

Alternative Alignments (Northern and Eastern)

Two alternative alignments have been identified and include the Northern Alignment and the Eastern Alignment.

Northern Alignment

The Northern Alignment, located in the north-central portion of the Project study area, would diverge from the Preferred Alignment east of the Santa Rosa Substation at the Santa Rosa Wash flood control channel. Where the Preferred Alignment extends south, the Northern Alignment would follow existing transmission lines and the El Paso Natural Gas pipeline corridor (EPNG corridor) east to the vicinity of the existing Sundance Generating Station (Sundance) and then converge with the Preferred Alignment. As shown on **Figure 1**, the Northern Alignment is displayed in dark purple, and the segment options for this alternative alignment are in light purple.

If the Northern Alignment were selected, the proposed Pinal South Substation would not be constructed. The Pinal South Substation is important to minimize future transmission lines and provide a connection point to southern Arizona. Instead, the SEV/RS-22 Substation would be a larger facility to accommodate regional transmission needs (See **Exhibit G-13**).

Eastern Alignment

The Eastern Alignment, located in the southeastern portion of the Project study area, would diverge east from the Preferred Alignment in the vicinity of the existing ED2 Substation/proposed Pinal South Substation site, following the midsection east to the UPRR. It would parallel the UPRR north until its intersection with Bartlett Road. The Eastern Alignment would parallel Bartlett Road east until extending north along Valley Farms Road. It would then parallel Valley Farms Road until its intersection with the CAP canal. It would parallel the CAP canal to the proposed SEV Substation. As illustrated on **Figure 1**, the Eastern Alignment is displayed in dark green and the segment options for this alternative alignment in light green.

Summary of Environmental Compatibility

The following provides a summary of the environmental compatibility of the Project, as all elements discussed below are either not present or they would not be subject to significant or detrimental effects.

- ◆ There would be no significant or detrimental effects to fish, wildlife, and plant life and associated forms of life upon which they are dependent.
- ◆ There would be no significant or detrimental effects associated with noise emission levels and interference with communication signals.

Introduction

- ◆ Neither the Applicant nor jurisdictional agencies within the Project study area have any plans for future development of recreational facilities associated with the Project. Project implementation would be consistent with safety considerations and regulations.
- ◆ The Project would be environmentally compatible with the total environment of the Project study area.
- ◆ There would be no significant or detrimental effects to geology and soils, surface water, or groundwater quality and availability.

Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

Figure 6

Figure 7

Figure 8

Figure 9